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FINAL REPORT

SD 7-1 Aquatics Baseline Synthesis Report, 1994 to 2009 - Meliadine Gold Project, Nunavut

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EXECUTIVE SUMMARY

Comaplex Minerals Corporation (Comaplex) proposes to construct and operate a gold mine, known as the Meliadine Gold Project (Project) 25 kilometres (km) north from Rankin Inlet, and 80 km southwest from Chesterfield Inlet in the Kivalliq Region of Nunavut (Figure 1-1). The proposed Project site is located on a peninsula (the Peninsula) between the east, south, and west basins of Meliadine Lake (63°04'45"N, 92°19'38"W), on Inuit Owned Land.

Watersheds within the study area include Meliadine Lake, several small watersheds on the Peninsula (Basins A through J), and the Meliadine River (including Little Meliadine Lake). Studies were also carried out on Chickenhead Lake in the near-by Atulik drainage as well as in Parallel Lake (north of Meliadine Lake), and in Lake W and Horseshoe Lake, which drain into Little Meliadine Lake.

HYDROLOGY

This section of the baseline report was commissioned to characterize the prevailing hydroclimatic and hydrological parameters at the Meliadine Gold Project (Project) Area. The baseline is based on data collected by Golder in 2008 (Golder 2008a, 2008b) and 2009, and reported by previous studies by AGRA Earth and Environmental Ltd. (AEE 1998a, 1998b, 1999) and AMEC (2000).

This baseline report characterizes hydroclimatic and hydrological parameters relevant to the Project, including the following:

- precipitation based on regional data and compared to site-specific data;
- lake evaporation and evapotranspiration from land surfaces, based on regional and local data;
- hydrological regimes of local waterbodies based on an examination of site-specific and regional data;
- local lake and watercourse ice regimes;
- development of a time series runoff model for the Outlets of Lake A1, Lake B2, Lake B7, and Chickenhead Lake.

AVAILABLE SITE AND REGIONAL DATA

Local data include snow course surveys, which were undertaken from 1997 to 2000 and reinitiated in 2008 and 2009, to estimate spring runoff volumes. Additional local data include streamflows, water levels, and pan evaporation recorded during the same years in 1997, 1998, 1999, 2000, 2008, and 2009, and lake ice thickness at various locations in 1998, 1999, 2000, and 2009. Reliable data for regional Water Survey of Canada (WSC) hydrometric stations located on the Diana River, the Ferguson River, and the Lorrillard River are also available for periods of 7 years, 10 years and 8 years, respectively.

Regional temperature and precipitation data are available from several stations in Nunavut. The closest long term station is Rankin Inlet A, approximately 30 km south of the Project camp site. Climate data collection at Rankin Inlet A was initiated in 1981, and records are complete from 1981 to 2008, with the exception of 1993. The closest regional evaporation station estimates are from a long-term station operated by Environment Canada at Churchill, Manitoba. Marine ice information is available from the Canadian Ice Database.

BASELINE CLIMATE CONDITIONS

Air Temperature

Air temperature at the Project site may fall below 0°C on any day of the year. The monthly mean air temperature is typically above 0°C for the months of June to September, and is below 0°C between October and May. July has been the warmest month and January has been the coldest month. The mean annual temperature for the period of record of 1981 to 2009 was -10.4°C.

Precipitation

Mean annual precipitation at the Project site, based on the hydrological year from October 1 to September 30, was estimated to be 411.7 mm after accounting for rainfall and snowfall undercatch. Approximately 51% of precipitation occurs as rain (207.1 mm) and 49% occurs as snow (199.1 mm). The 24-hour extreme rainfall intensity with a 10-year return period was estimated to be 1.9 mm/h, or 45.6 mm total depth. Corresponding values for the 100-year return period are 2.6 mm/h or 62.4 mm total depth.

Evaporation

Mean annual evaporation for small lakes in the Project area is estimated to be 323 mm between June and September.

Evapotranspiration

Evapotranspiration is estimated to range from 34 mm to 38 mm annually.

Snowpack Sublimation

Based on the terrain in the Project area, the mean annual loss of snowpack to sublimation and snow redistribution is estimated to vary between 46 and 52% of the total precipitation between October and May.

Wind Speed and Direction

The recorded prevailling winds are from north and north-northwest. The wind blows from the north and north-northwest direction more than 30% of the time, and the least frequent wind direction is west-southwest, with a frequency of 2.1%. The calm frequency is 2.8% of the time. The mean values for wind speed show that the north-northwest together with north and northwest winds have the highest speeds and tend to be the strongest.

Relative Humidity and Solar Radiation

The mean annual relative humidity at the Project site was estimated to be 85% and is similar to the mean annual relative humidity at Rankin Inlet A (77%).

The mean monthly global solar radiation recorded at the Project site varied from 3.8 MJ/m^2/d in September 2000 to 14.3 MJ/m^2/d in June.

BASELINE HYDROLOGICAL CONDITIONS

Lake Ice Regime

Late-winter ice thickness on freshwater lakes in the Project area have ranged from 1.00 m to about 2.40 m. Ice covers usually develop by the end of October and are completely formed in early November. The spring ice melt typically begins in mid-June and is complete by early July.

Water Yields

Derived mean annual water yields for Lake A1, Lake B2, Lake B7, and Chickenhead Lake vary from 162 mm (at Lake B7) to 171 mm (at Chickenhead Lake). These are similar to the long-term mean annual value of 194 mm at Diana River near Rankin Inlet.

Extreme Discharges

Flood peaks and low flow discharges of various durations and frequencies were derived for outflows of Lake A1, Lake B2, Lake B7 and Chickenhead Lake, and vary with watershed size, lake ouflow geometry, and upstream flow attenuation.

CONCLUSIONS

This ongoing climate and surface water hydrologic baseline provides a strong basis for environmental impact assessment and water management planning for the Project. The climate and hydrology characteristics described for the Project are based on long-term regional information as well as site-specific data that have been collected since 1997. The available data confirm that the Project fits within the established regional context of precipitation and runoff.

WATER AND SEDIMENT QUALITY

Streams of the study area are generally well-oxygenated freshwater streams characterized by low ionic strength, very soft to soft water hardness, low alkalinity, and neutral to alkaline pH. Major ions in stream waters were bicarbonate, calcium, chloride, and sodium. Measured nutrient concentrations were typical of oligotrophic waterbodies in subarctic regions. Baseline water quality parameters were less than Canadian Water Quality Guidelines (CWQG) for the protection of freshwater aquatic life (Canadian Council of Ministers of the Environment [CCME] 2007a) and Guidelines for Canadian Drinking Water Quality (GCDWQ; Health 2008) with the exception of some parameters (i.e., nitrite, cadmium, chromium, lead, iron, manganese, selenium, silver, and phenol).

Most lakes of the study area are generally well-oxygenated freshwater lakes during open water conditions. Lakes were not thermally stratified during the open-water sampling events. Dissolved oxygen concentrations were low in the Peninsula lakes during under ice conditions, which likely limited their use by overwintering fish. In contrast, dissolved oxygen concentrations were higher during the winter in larger lakes such as Meliadine Lake, Little Meliadine Lake, and Peter Lake.

Lakes were generally characterized by low ionic strength, very soft to soft water hardness, low alkalinity, and neutral pH. Major ions in lakes waters were bicarbonate, calcium, chloride, sodium, and sulphate. Concentrations were higher under ice conditions, likely as a result of ice formation, which concentrated the ions in the remaining water column. The range of total alkalinity values during open water conditions indicated that the lake waters had low to moderate sensitivity to acid. Measured nutrient concentrations were typical of oligotrophic waterbodies in subarctic regions. Baseline water quality parameters were less than CWQG and GCDWQ with the exception of some parameters (i.e., dissolved oxygen, pH, cyanide, arsenic, cadmium, chromium, copper, lead, iron, manganese, zinc, and phenol).

Ponds A9, A13, A15, A38, A54, A56, and A57 in Basin A were markedly different from other lakes in the study area. These ponds were characterized by higher ionic strength, hard to very hard water, low alkalinity, and

alkaline pH. Major ions are the same as in the lakes, but concentrations are higher. Concentrations of phosphorus, total metals, and organic compounds were similar to those in other lakes. However, there were more exceedances of CWQGs and GCDWQs for total dissolved solids, chloride, nitrate, nitrite, and phenol than in other lakes. Dissolved metal concentrations, particularly of iron and manganese, were also higher in these ponds.

Lake sediments in the study area consisted primarily of the sandy or silty fraction with a wide range of moisture contents. Concentrations of total organic carbon (TOC) were also variable across sites. Arsenic, chromium, and copper concentrations frequently exceeded Interim Sediment Quality Guidelines (ISQGs; CCME 2002a). Arsenic concentrations occasionally exceeded the associated Probable Effect Level (PEL; CCME 2002a). Concentrations of individual polycyclic aromatic hydrocarbons (PAHs) were either less than detection limits or less than corresponding ISQGs with the exception of one sediment sample (from Lake A8) that had a naphthalene concentration that was higher than the ISQG. Total volatile and total extractable hydrocarbons were detected in most samples. Chlorinated pesticides were analyzed in stations located in the east, south, and west basins of Meliadine Lake. Detectable concentrations of pp-dichlorodiphenyltrichloroethane (pp-DDT), pp-dichlorodiphenyldichloroethane (pp-DDD), pp-dichlorodiphenyldichloroethylene (pp-DDE), and quintozine were recorded in the east basin, whereas traces of Aroclor 1254 were found in the west basin sediments.

AQUATIC HABITAT

Ground and aerial surveys were conducted at numerous streams within the Peninsula basins to assess habitat suitability for fish use with special reference to fish movements and spawning and/or rearing potential. Habitat for fish was dominated by shallow runs; other habitat types encountered included riffles, pools and riffle/boulder garden combinations. High quality habitats occurred in pools and deeper run habitats that were present mainly in larger streams connecting the primary chains of lakes in each Peninsula basin. Coarse substrates and abundant instream cover in these larger streams provided suitable habitat for Arctic grayling spawning and rearing.

Numerous ponds were also investigated to assess habitat suitability for fish. Ponds were predominantly shallow with substrates dominated by fines, and contained poor to moderate fish habitat. Where fish were present, ninespine stickleback was the dominant species. Some fishless ponds contained moderate to high habitat quality. In contrast, habitat quality was rated low to moderate in many of the ponds where fish presence was confirmed. Regardless of the habitat potential ratings, ponds in close proximity to fish-bearing waterbodies (e.g., Meliadine Lake) had a higher likelihood to support small-bodied fish. This suggested that fish presence was more closely related to connectivity and proximity to fish-bearing waterbodies than to the quality of habitat encountered.

Lake bathymetric surveys were carried out in the east and south basins Meliadine Lake, in 13 Peninsula lakes and ponds and in Chickenhead Lake. The east basin of Meliadine Lake (2212 ha) contributes approximately 21% to the entire area of the lake. It is separated from the rest of the lake by a shallow and narrow constriction that may result in separation of the east basin from the rest of the lake during winter. Owing to the high shoreline development index and the shallow nature of the lake, the littoral zones (i.e., less than 6 m in depth) contribute approximately 66% to the lake's area. The mean depth of the east basin was estimated at 4.5 m. The south basin of Meliadine Lake (1135 ha) contributes 11% to the entire area of the lake and has a maximum depth of 22 m. The littoral zones account for approximately 72% of the lake's area. The mean depth of the south basin was estimated at 4.3 m.

The surveyed Peninsula lakes and ponds ranged from 0.4 ha (Pond B10) to 89.7 ha (Lake A8) in surface area. Only 4 lakes had depths of 4 m or greater; the deepest spot was recorded in Lake B7 (5.1 m). As most of lakes' volume is contributed by the surface 2 m layer of water, which becomes ice in winter, some of the shallower lakes (e.g., B4, J1 and D1) may freeze to the bottom. The deep water zones in lakes B7, B6, A6, A8, B2, and B5 appear to be sufficient to allow fish to overwinter.

LOWER TROPHIC LEVELS

Periphyton

Periphyton communities in streams were dominated by Cyanophyta (cyanobacteria), with both Bacillariophyta (diatoms) and Chlorophyta (green algae) common at most sites. Chlorophyll *a* concentrations in the smaller streams (Basins A, B, D) were higher than Meliadine Lake outflows and the Lower Meliadine River. Higher productivity at these small sites could be due to warmer temperatures and high nutrient inputs coming from the lakes, resulting from larger surface area to volume ratios. Conversely, ash-free dry mass (AFDM) was higher at the larger outflows/rivers than in the smaller streams, indicating that the organic content of the periphyton was higher in the outflows/rivers. This may be reflecting the large, deeper water habitats (i.e., more stable flows throughout the year) that receive less light penetration. Variability among sites and between years was high, with no consistent trend.

Periphyton communities in lakes were also dominated by Cyanophyta, with both Bacillariophyta and Chlorophyta common at most sites. The chlorophyll *a* and AFDM concentrations were low, indicating oligotrophic conditions. The majority of sites had chlorophyll *a* concentrations below 4 µg/cm^2 and AFDM concentrations below 50 µg/cm^2. Both chlorophyll *a* and AFDM concentrations were higher in the Peninsula lakes than in the large lakes. Greater productivity in these small sites could be due to warmer temperatures, high nutrient input and high light penetration. The scouring effects of larger waves that would be expected in Meliadine Lake proper would limit periphyton production.

Phytoplankton

Chlorophyll *a* concentrations in all lakes were below 3.1 mg/m^3, indicative of oligotrophic conditions. In general, the phytoplankton community biomass of each site was dominated by Chrysophyta (golden-brown algae). Chlorophyta (green algae), Pyrrophyta (dinoflagellates) and Bacillariophyta (diatoms) were also abundant at most sites. Cyanophyta (cyanobacteria) did not have a high biomass at any site, but were numerically abundant.

The smaller Peninsula lakes typically had higher phytoplankton biomass, chlorophyll *a* and taxonomic richness compared to the larger lakes (i.e. Meliadine, Peter and Little Meliadine lakes). Smaller lakes may be more productive due warmer temperatures and higher nutrient inputs, which may occur due to their larger surface area to volume ratios.

Additionally, phytoplankton biomass, chlorophyll *a* and taxonomic richness tended to be highest in 1998 suggesting that regional processes such as weather may have been more favourable to phytoplankton growth in 1998. Seasonal and interannual variation tended to be low at some sites, and high at others, with no consistent trends. The phytoplankton communities of the sampled waterbodies in the Study Area were similar in many respects to the communities of many other lakes in the Arctic and sub-Arctic.

Zooplankton

Zooplankton biomass was relatively consistent among the larger lakes (i.e., Meliadine, Peter and Little Meliadine lakes) but was highly variable among the smaller Peninsula lakes. Sites B2 and B7 had particularly high zooplankton biomass during the summer. The factors responsible for the high biomass are not known, but may include an abundance of food (phytoplankton) or reduced grazing pressure from fish. *Holopedium gibberum* (a particularly large cladoceran that possesses a large gelatinous sheath which may limit predation from fish) was the dominant species at most sites (including B2 and B7). Zooplankton community biomass was typically highest in early summer, coinciding with warm temperatures and high phytoplankton biomass. The zooplankton communities included no uncommon or rare species, and were similar in many respects to the communities of many other small lakes in the Arctic and sub-Arctic region.

Benthic Macroinvertebrates

Benthic invertebrate densities at the majority of streams ranged from 10 000 to 30 000 individuals/m^2. Chironomidae (midges), Coelenterata (hydroids) and Oligochaeta (aquatic earthworms) were generally the most dominant taxa. Nematoda (roundworms), Hydracarina (aquatic mites) and Ostracoda (seed shrimp) were also common. Orthocladiinae was the most dominant Chironomid taxon in every stream sampled in the Study Area. Chironomini, Diamesinae, Tanypodinae and Tanytarsini were also present at most sites.

Taxonomic richness values at the Meliadine Lake outflows and the Lower Meliadine River were much lower than at the Peninsula streams (11 to 16 taxa/site, identified at the family level versus 16 to 22 taxa/site, respectively). Given the relatively high SDI values for both groups of streams, this indicates that most streams have moderate to high diversity with few taxa that are overly dominant.

The benthic macroinvertebrate communities in the streams of the Meliadine Study Area were representative of subarctic systems. The species composition and low densities reported by the present study and by other investigations are indicative of oligotrophic systems (i.e., low productivity and short growing seasons). The densities reported in the present study, however, indicate greater productivity than the streams of central mainland sub-Arctic.

Benthic invertebrate densities at the majority of lakes in the Study Area ranged from 10 000 to 90 000 individuals/m^2, with Peninsula lake densities much greater than those in large lakes. Benthic invertebrate communities in lakes varied, and there were no consistently dominant taxa. Chironomidae, Nematoda, Ostracoda, and Copepoda were common at most sites. The most dominant chironomid taxon was Tanytarsini, followed by Chironomini and Diamesine. Other chironomids included Prodiamesinae, Orthocladiinae and Tanypodinae.

Taxonomic richness was similar between the Peninsula and large lakes with 6 to 10 taxa/site (identified at the family level). The benthic macroinvertebrate communities in the lakes of the Meliadine Study Area were representative of sub-Arctic systems; however, the densities reported by the present study indicate greater productivity in the Study Area than in lakes located in central mainland sub-Arctic.

FISH POPULATIONS

Species Composition and Relative Abundance

Substantial fishing effort (over 800 sampling events) was applied between 1997 and 2009 during investigations of fish communities in the Meliadine Study Area. Field biologists used angling, backpack electrofishing, fyke nets, gill nets, minnow traps, and a fish fence to sample fish communities in 155 waterbodies, most of which (*n*=140) comprised small lakes, ponds and interconnecting streams in the Peninsula basins. These sampling efforts resulted in the capture of 19 722 fish. The overall catch was comprised of 9 species, 5 of which are members of the Salmonidae family. Threespine stickleback were most prevalent (33% of total catch) followed by Arctic char (20%), ninespine stickleback (16%), cisco (14%), Arctic grayling (10%) and lake trout (4%). Round whitefish, slimy sculpin, and burbot comprised only a small portion of the catch. The large contribution of Arctic char to the total catch resulted from a fish fence program in the lower Meliadine River during the annual fall migration of this species from Hudson Bay into freshwater systems. Similarly, the predominance of threespine stickleback reflected their abundance in near-shore areas of Meliadine Lake and susceptibility to capture.

The total catch in Meliadine Lake (9984 fish) was dominated by threespine stickleback (62%) and cisco (25%); Arctic char and lake trout were also common (5% each). Lake trout were represented by all size classes, whereas only juvenile Arctic char were captured during summer. Adult Arctic char use the lake mainly in late fall (during spawning) and in winter. Arctic grayling (2%) and round whitefish (1%) were mainly represented by adults. The predominance of threespine stickleback in the catch was due to the high numbers of this species caught by fyke nets set in the near-shore areas. It is noteworthy that ninespine stickleback were absent from the catch, despite the abundance of this species in adjacent streams, lakes and ponds of the Peninsula basins

The total catch in Peninsula Basins (5485 fish) was dominated by ninespine stickleback (56%) and Arctic grayling (25%) but also included all other species present in the study area. Ninespine stickleback appeared to prefer the Peninsula waterbodies (especially shallow ponds and the smaller streams) over the open lake environment of Meliadine Lake. Arctic grayling use the Peninsula streams extensively for spawning and rearing, and appear to overwinter in some of the deeper Peninsula lakes. The size of the Arctic grayling population in Lake B7 was estimated at 1345 fish. Cisco were also common in the larger Peninsula lakes where they are likely year-round residents. Arctic char and lake trout and were also captured; however, they tended to use only the lowermost sections of the basins in close proximity to Meliadine Lake and were not encountered in the upper Peninsula lakes (e.g., B7, A6). Although absent from Meliadine Lake catches in the summer, adult Arctic char were encountered in the lower Peninsula lakes, but only in Lakes D1 and A1.

The total catch in Little Meliadine Lake (208 fish) was dominated by round whitefish (44%), followed by lake trout (25%), Arctic char (13%), cisco (10%), and Arctic grayling (9%). The Meliadine River downstream of Little Meliadine Lake is used as a corridor for Arctic char migrations to and from the sea. The fish fence catch (n=3761) near the estuary during late summer and fall was dominated by Arctic char (86%), with Arctic grayling, round whitefish, lake trout and cisco also recorded.

Life History

Life history data were collected for 11 083 fish, including Arctic char (n=3879), Arctic grayling (n=1938) and lake trout (n=706). Analyses of length-frequency distribution, length-weight relationships, length-at-age, and diet were performed for each basin to facilitate comparisons among watersheds. The results are briefly described, for the main species, in the following sections.

Arctic char ranged from 61 to 777 mm in fork length. Age classes between 1 and 10 years were represented in the aged sample. The fastest rate of growth (approximately 120 mm per year) occurred between ages 5 and 6 and likely corresponds to the time that smolts make their first migration to sea. The size of the Arctic char captured by the fish fence in Meliadine River indicated significant differences between the early, middle, and late stages of the run; large fish returned from the sea earlier than the smaller fish and the final phases of the run were dominated by the first-year sea migrants.

Lake trout ranged from 43 to 965 mm in fork length. Age classes between 1 and 30 years were represented. Approximately half of 143 lake trout stomachs examined contained no food items. Lake trout diet consisted primarily of fish (71% of the total food volume) with invertebrates (primarily amphipods) accounting for the remainder.

Arctic grayling ranged from 20 to 435 mm in fork length. Age classes between 0 and 11 years were represented. Growth increments during the first 5 years of life averaged approximately 50 mm in length per year; the older fish grew considerably slower (about 20 mm per year). In contrast to the other species examined most (84%) of Arctic grayling stomachs contained food. The diet consisted mainly of invertebrates (87% of the total food volume), with ninespine stickleback accounting for the remainder.

Fish Movements

During the 1997 to 2008 studies, 3460 fish in the study area were marked with Floy tags. The majority (76%) were Arctic char, followed by Arctic grayling (11%), lake trout (6%), round whitefish (5%), cisco (29%), and burbot (0.1%). Subsequent fishing effort by the study team and tags returned by local fishermen resulted in 1740 tag recapture events. These recapture events involved 1380 fish (40% of all fish tagged), of which 1081 fish were recaptured once and 299 fish were recaptured multiple times during the course of the study. Most of the recapture events (n=1004) were based on tag returns by local fishermen during subsistence fishing in Little Meliadine Lake and several areas of Hudson Bay.

A total of 2633 Arctic char were marked with Floy tags. Almost half (49.9%) of the marked fish were recaptured at least once. The results indicated that a substantial portion of the population (998 fish or 37.9% of the marked total) had been harvested by the local fishermen. Most of the harvested fish were captured in the immediate vicinity of Rankin Inlet: Prairie Bay (*n*=242), lower Meliadine River (*n*=81), and Little Meliadine Lake (*n*=548). Other freshwater harvest locations included Meliadine Lake (*n*=13), upper Meliadine River (*n*=7), and Diana River system (*n*=11). Marine harvest locations outside of Prairie Bay (*n*=45) were widespread and ranged between Chesterfield Inlet to the north and Corbett Inlet to the south of Rankin Inlet.

The radio telemetry program was implemented in two phases during the study. The first phase was carried out in 1997 to 1999 and involved tracking of 68 fish (Arctic char, lake trout and Arctic grayling) implanted with radio transmitters. The second phase was carried out in 2000 and 2001 and focused on implanting radio transmitters in 12 pre-spawning Arctic char and tracking their movements in an attempt to determine their spawning and overwintering habitats.

Radio tracking of Arctic char demonstrated movements between Hudson Bay and Meliadine Lake, with many fish overwintering in Little Meliadine Lake. Pre-spawning fish implanted with radio transmitters in the west basin of Meliadine Lake in September 2000 demonstrated extensive movements and rapid dispersal of the implanted fish, suggesting that Arctic char spawning may occur in several areas widely distributed throughout Meliadine

Lake, but appeared to be focussed on the north shores of the west and central basins. Subsequent tracking in April 2001 revealed that all fish were within 9 km of their early winter locations, suggesting limited movements during winter. In contrast, at least half of the implanted fish left Meliadine Lake in June 2001 to undergo migrations to Hudson Bay. Some selected the seaward route through the south outlet of Meliadine Lake (Meliadine River), whereas others migrated downstream through the west outlet of Meliadine Lake into Peter Lake and the Diana River system, suggesting that both outlets of Meliadine Lake are equally important as migration corridors for post-spawning fish during their spring return to the sea.

Most (9 of 13) radio tagged lake trout moved less than 15 km during the 1997 to 1999 tracking program and remained within 9 km of their release locations. Nevertheless, they demonstrated movements between Lake D1 and the upper Meliadine River and between east and central basins of Meliadine Lake. The remaining 4 lake trout exhibited more extensive movements, with 2 individuals moving a total distance of 17 and 20 km throughout the east basin of Meliadine Lake and 2 others moving between the east basin and west basins of Meliadine Lake for a total distance of 41 and 45 km.

Most (14 of 19) Arctic grayling radio tagged in 1997 exhibited limited movements and remained within the respective Peninsula lakes where they had been released. One individual tagged in Lake A6 moved to Lake A1 and back in June 1998, likely in relation to spawning activities. The 5 remaining Arctic grayling tagged in 1997 had moved out of their release lakes (D1, D7, and B2) into the south basin of Meliadine Lake by July 1997. Three of these fish stayed in the south basin of Meliadine Lake throughout the 1997 to 1998 tracking program, while two fish exhibited extensive movements of about 40 km each, visiting other Peninsula lakes (B4, B2, K2) and the west basin of Meliadine Lake. Four Arctic grayling radio tagged in August 1998 in Lake B5 remained within the same lake over the winter and throughout the open water period in 1999, suggesting that the upper Peninsula lakes are used by resident populations year-round.

Metal Analysis of Fish Tissues

Analyses of muscle, liver, and kidney tissues collected from Arctic char, lake trout, round whitefish, cisco and Arctic grayling indicated generally low levels of metal accumulation. Concentrations of aluminium, arsenic, lead, mercury, and zinc in lake trout tissues were higher in Meliadine Lake than in Parallel Lake, which was selected as a control basin for long term monitoring. Mercury concentrations in lake trout tissues were strongly correlated with fish size. A small proportion (3 of 30) of lake trout muscle tissue samples from Meliadine Lake exceeded the food consumption guideline of 2.5 µg/g (dry weight). Round whitefish tissues indicated similar concentrations between Meliadine and Parallel lakes. In contrast to lake trout, mercury concentrations in round whitefish were weakly correlated with fish size and none of the muscle tissue samples exceeded the food consumption guidelines. Analytical results for cisco and Arctic grayling also documented low metal concentrations in the tissue samples collected from these species.

STREAM CROSSING ASSESSMENTS

Watercourses investigated along the proposed road corridors were diverse with respect to habitat potential for fish. Aquatic habitat at crossings along both road corridors was highly variable, with some streams supporting spawning and rearing, whereas others were dry or contained poor fish habitat. Habitat quality was poor to moderate at most sites with the Meliadine River crossing having the greatest potential to support multiple life stages of fish. Fish were captured or observed at 10 of 14 sites assessed; Arctic grayling were registered at 4 sites, ninespine stickleback at 10 sites, and slimy sculpin at 1 site.

Within the Meliadine West road corridor, Site M2.1 (Meliadine River) was of particular importance. The presence of deep run and pool areas indicated high quality habitat for various life-stages of fish species known to inhabit the river. Other noteworthy watercourses within the Meliadine West road corridor include Site M23.7, where slimy sculpin were captured, and habitat quality for rearing and migration were rated as moderate to high. Sites M5.0, M11.5, and M22.6 also featured suitable rearing habitat for Arctic grayling. Although not confirmed by egg sampling, Sites M5.0 and M11.5 are likely used by Arctic grayling for spawning based on the availability of suitable habitat and/or the presence of Arctic grayling juveniles in the catch. In contrast, Sites M3.0, M3.9, M6.7, M8.6, and M13.3 had relatively poor fish habitat potential, as evidenced by a lack of fish captures and only 12 observed fish (ninespine stickleback) at Sites M3.0 and M13.3. Shallow depths, dry channels (e.g., Site M6.7), poor spawning substrates (detritus), and a lack of instream cover contributed to poor habitat ratings.

Within the Discovery road corridor, Site D5.8 provided high quality spawning and rearing habitat for Arctic grayling, as evidenced by captures of juvenile fish and collection of Arctic grayling eggs In contrast, Sites D1.2 and D6.7 featured poor quality fish habitat because of shallow depths and an absence of well defined channels.

LIST OF ACRONYMS

AAS	Atomic absorption spectrophotometry
AB	Alberta
ADCP	Acoustic doppler current profiler – Workhorse Rio Grande
AEE	AGRA Earth and Environmental Ltd.
AFDM	Ash-free dry mass
AMEC	AMEC Earth and Environmental Ltd.
APHA	American Public Health Association
ANOVA	Analysis of variance
BC	British Columbia
BHC	Benzene hexachloride
BTEX	Benzene, toluene, ethylbenzene, xylene
CCME	Canadian Council of Ministers of the Environment
CCREM	Canadian Council of Resource and Environment Ministers
CID	Canadian Ice Database
CVAFS	Cold vapour atomic fluorescence spectrophotometry
CWQG	Canadian Water Quality Guidelines
Comaplex	Comaplex Minerals Corporation
CPUE	Catch-per-unit-effort
DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichloroethylene
DDT	Dichlorodiphenyltrichloroethane
df	Degrees of freedom
DOC	Dissolved organic carbon
dw	Dry weight
E	East

EIFAC	European Inland Fisheries Advisory Commission
ET	Evapotranspiration
ISQG	Interim Sediment Quality Guideline
GCWQG	Guidelines for Canadian Drinking Water Quality
GC-FID	Gas chromatography with flame ionization detection
GC-MS	Gas chromatography mass spectrophotometry
GD	Granger and Gray (GD Relationship)
GIS	Geographic Information System
Golder	Golder Associates Ltd.
GPS	Global positioning system
ICP-AES	Inductively coupled argon plasma/atomic emission spectrophotometry
ICP-MS	Inductively coupled plasma mass spectrophotometry
IDF	Intensity-duration-frequency
LSA	Local Study Area
MFL	Minimum Fork Length
MSC	Meteorological Services of Canada
N	North
NT	Northwest Territories
NU	Nunavut
N/A	Not applicable
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
PEL	Probable effect level
Project	Meliadine Gold Project
Q	Discharge
QA	Quality assurance
QC	Quality control
QA/QC	Quality assurance/quality control
R	Rainfall
RL&L	R.L.&L. Environmental Services Ltd.
RSA	Regional Study Area
S	South
SD	Standard deviation
SDI	Simpson diversity index
SWE	Snow water equivalent
SWI	Specific work instructions
TDS	Total dissolved solids
TKN	Total kJeldahl nitrogen
TOC	Total organic carbon
TSS	Total suspended solids

US EPA	United States Environmental Protection Agency
UTM	Universal Transverse Mercator
W	West
WL	Water level
Wr	Relative weight
WSC	Water Survey of Canada

UNITS AND SYMBOLS

°	Degree
°C	Degrees Celsius
°C•d	Degree-day
%	Percent
>	Greater than
≥	Greater than or equal to
<	Less than
≤	Less than or equal to
CFU/100 mL	Colony forming unit per one hundred millilitres
cm	Centimetre
g	Gram
g/cm^3	Grams per cubic centimetre
h	Hour
ha	Hectare
km	Kilometre
km^2	Square kilometre
m	Metre
m^2	Square metre
m^3	Cubic metre
m^3/d	Cubic metres per day
m^3/s	Cubic metres per second
mg	Milligram
mg/kg dw	Milligrams per killigram dry weight
mg/L	Milligrams per litre
mg $CaCO_3$/L	Milligrams per litre as calcium carbonate
mg N/L	Milligrams per litre as nitrogen
min	Minute
µg	Microgram
µg/L	Micrograms per litre
mL	Millilitre
mm	Millimetre

$MJ/m^2/d$	Megajoules per square metre per day
NTU	Nephelometric turbidity unit
pH	Measure of the acidity or basicity of a solution
s	Second
µm	Micrometre
µS/cm	MicroSiemens per centimetre

GLOSSARY

Alkalinity	A measurement (expressed in milligrams per litre of calcium carbonate) of the capacity of water to neutralize acids. The concentration is measured based on the presence of naturally available bicarbonate, carbonate, and hydroxide ions.
Ammonia-nitrogen	The overall concentration of nitrogen in both the ionized (NH_4^+) and molecular (NH_3) forms of dissolved ammonia. The ammonia concentration is reported as nitrogen, where the weight of the nitrogen is ignored in the analysis.
Anoxia	The complete depletion of dissolved oxygen (DO) in the aquatic environment.
Baseline	A surveyed or predicted condition that serves as a reference point on which later surveys are coordinated or correlated.
Bathymetry	The measurement of underwater depth.
Bioaccumulation	The accumulation of a chemical substance in an organism such that the amount in the organism is greater than the amount lost. Bioconcentration refers to uptake from water, whereas bioaccumulation refers to uptake from both water and food.
Bioavailable	Available for uptake by an aquatic organism
Biochemical oxygen demand	A measurement of the relative oxygen requirement of a water sample.
Buffering capacity	The capacity of water to receive inputs of acids or bases without changing pH.
Canadian Water Quality Guidelines (CWQG) for the protection of aquatic life	Guidelines established by the Canadian Council of Ministers of the Environment and used to assess the potential effects of the concentration of different water quality parameters upon aquatic life (e.g., fish, aquatic plants, and benthic invertebrates).
Concentration	Quantifiable amount of a chemical in environmental media, such as water or sediment.
Conductivity	A measure of the ability of water to carry an electrical current. This measurement is directly related to the amount of positively and negatively charged ions in the water and can be correlated with the concentration of total dissolved solids (TDS).
Dissolved oxygen	The amount of free oxygen dissolved in water, usually expressed in milligrams per litre (mg/L), parts per million (ppm), or percent of saturation (%). Adequate concentrations of dissolved oxygen are necessary for fish and other aquatic organisms.

Dissolved organic carbon (DOC)	The dissolved portion of organic carbon in water; it is made up of humic substances and partly degraded plant and animal materials.
Duplicate field sample	A second sample collected at the same time and from the same location, repeating the same collection procedure as the original sample. The sample is used to detect variability at a sampling station and to verify the field sampling method.
Duplicate laboratory sample	A field sample that is split into two samples by the laboratory and tested separately. These samples are used to assess the reproducibility of the laboratory results (i.e., laboratory method and analyses).
Ekman grab sampler	Cube-shaped mechanical device with a spring-loaded opening that is lowered to the bottom of a waterbody and triggered to close thereby collecting a sample of the bottom sediment.
Electrofishing	Use of electricity to immobilize and capture fish.
Eutrophic	Trophic state classification for lakes characterized by high productivity and nutrient inputs.
Fecundity	The number of reproductive products that can be produced by an organism; the number of eggs produced annually by a female fish.
Field blank	A sample that is prepared in the field using ultrapure, distilled, or deionized water provided by the laboratory. These samples are treated in the field in the same way as the field samples. They are used to detect sample contamination during the collection, shipping, and analysis of samples.
Floy Tag	Small, plastic identification tag inserted into the dorsal surface of the fish near the dorsal fin.
Fyke Net	A passive capture device in which a lead net directs fish into a trap through a series of funnels. A fish can readily find its way into the trap through the funnels, but not out of it.
Grab sample	A single sample collected at a particular time and place that represents the composition of the water or sediment only at that time and place.
Groundwater	That part of the subsurface water that occurs beneath the water table, in soils and geologic formations that are fully saturated.
Guidelines for Canadian Drinking Water Quality (GCDWQ)	Guidelines issued by Health Canada that are used to assess the suitability of water for human consumption.
Hardness	A characteristic of water caused by the presence of positively charged ions such as calcium, magnesium, iron, and manganese. This parameter is expressed in milligrams per litre of calcium carbonate.
Hydrocarbons	An organic compound containing only carbon and hydrogen; there are 4 classes of hydrocarbons: alkanes, alkenes, alkynes, and aromatic.
Interim Sediment Quality Guidelines (ISQG)	Recommended maximum concentration of a chemical in sediment, indicated to be protective of aquatic organisms.
Lentic	Relating to still water, such as ponds and lakes.
Life history	The series of changes undergone by an organism between birth and death.

Limnology	The study of open fresh and more rarely saline water bodies, specifically lakes and ponds (both natural and man-made), including their physical, chemical, and biological properties. Limnology traditionally is closely related to hydrobiology, which is concerned with the application of the principles and methods of physics, chemistry, geology, and geography to ecological problems.
Limnology (vertical) profile	An in situ measurement consisting of taking readings of physical parameters or samples at certain depth increments in a water column of a lake.
Lotic	Relating to running water such as streams and rivers
Matrix spike	A laboratory produced sample containing a known concentration of a given parameter to measure the accuracy of laboratory equipment.
Mesotrophic	Trophic state classification for lakes characterized by moderate productivity and nutrient inputs (particularly total phosphorus).
Method blank	A laboratory grade, pure water sample that is subjected to all laboratory procedures. This is used to detect possibility of cross-contamination between samples in the laboratory.
Method detection limit (DL)	The lowest concentration at which individual measurement results for a specific analyte are statistically different from a blank (that may be zero) with a specified confidence level for a given method and representative matrix.
Morphology	A set of linear, area, and volumetric parameters of a waterbody or watershed that describe geometric features and provide a background for a hydrologic description of a waterbody or drainage area.
Nitrate + nitrite	The sum of the concentrations of nitrate and nitrite.
Nutrients	Environmental substances (elements or compounds) such as nitrogen or phosphorus, which are necessary for the growth and development of plants and animals.
Oil and grease	The concentration of all hydrocarbons found in water, whether it is from mineral or petroleum (both artificial and natural) sources.
Oligotrophic	Trophic state classification for lakes characterized by low productivity (i.e., little aquatic plant or animal life) and low nutrient inputs (particularly total phosphorus).
Open water conditions	The period of time when the surface of a waterbody is completely free of ice.
Organic compounds	Substances composed of one or more carbon atoms.
Organochlorines	Any of the various hydrocarbon pesticides that contain chlorine.
pH	The negative log of the concentration of the hydronium ion. The pH is a measure of the acidity or alkalinity of all materials dissolved in water, expressed on a scale from 0 to 14, where 7 is neutral, values below 7 are acidic, and values over 7 are alkaline.

Phenol	A class of toxic compounds derived from benzene that can originate naturally in the aquatic environment through the decomposition of organic matter. These compounds can originate artificially through the contamination of the aquatic environment by plastics, herbicides, and disinfectants. They can also be introduced as a by-product in industrial processes.
Polycyclic aromatic hydrocarbons (PAH)	Organic compounds comprised of two or more aromatic rings. These compounds are by-products of combustion and can be emitted into the environment from both natural and anthropogenic sources.
Probable effects level (PEL)	Concentration of a chemical in sediment above which adverse effects on an aquatic organism are likely.
Quality assurance / quality control procedures	Procedures used by field personnel and laboratories to ensure data quality.
Radio telemetry	The use of radio waves to transmit the readings of a measuring instrument to a device that can record the readings.
Radio transmitter	Transmitter that is the part of a radio system that transmits signals using radio waves.
Secchi depth	A parameter used to determine the clarity of surface waters. The measurement is made with a “Secchi” disk, a black and white disk that is lowered into the water and the depth is recorded at which it is no longer visible. A secchi depth recording of 1 m indicates that the device was last visible at 1 m below the surface. High secchi depth readings indicate clearer water that allows sunlight to penetrate to greater depths. Low readings indicate turbid water which can reduce the passage of sunlight to bottom depths. Limited light penetration can be a factor in diminished aquatic plant growth beneath the surface, thus reducing the biological re-aeration at lower depths.
Sediment	Solid material that is transported by, suspended in, or deposited from water. It originates mostly from disintegrated rocks; it also includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope soil characteristics, land usage and quantity and intensity of precipitation.
Soluble	Referring to a substance that can be easily dissolved in a solvent such as water.
Specific conductivity	(See also Conductivity). A conductivity reading normalized to a temperature of 25ºC. This allows valuable comparisons to be made.
Stratification	The separation of lakes into 3 layers: well mixed top layer, middle layer (see Thermocline), and a bottom layer. In freshwater lakes, stratification usually occurs as a result of temperature effects that cause changes in water density. Stratification may also affect vertical changes in water quality.
Total dissolved solids (TDS)	The dissolved matter found in water comprised of mineral salts and small amounts of other inorganic and organic substances.
Total extractable hydrocarbons	Refers to hydrocarbons within the range of weights observed in diesel and fuel oil (i.e., C11 to C30).

Total kJeldahl nitrogen (TKN)	The sum of organic nitrogen and ammonia.
Total organic carbon	A measure of the concentration of organic carbon in water or sediment, it is determined by the oxidation of the organic matter into carbon dioxide. Organic matter in soils, aquatic vegetation, and aquatic organisms are major sources of organic carbon.
Total petroleum hydrocarbons (TPH)	A measurement of the overall concentration of petroleum hydrocarbons found in the water.
Total suspended solids (TSS)	A measurement of the concentration of particulate matter found in water.
Total volatile hydrocarbons	Refers to hydrocarbons within the range of weights observed in gasoline (i.e., C5 to C10).
Trip blank	A water sample prepared by the laboratory and shipped to the field sampling location and then subsequently returned to the laboratory unaltered. These samples are used to detect sample contamination during preparation, preservation, or transport between field and laboratory.
Trophic state	Eutrophication is the process by which lakes are enriched with nutrients, increasing the production of rooted aquatic plants and algae. The extent to which this process has occurred is reflected in a lake's trophic classification or state: oligotrophic (nutrient poor), mesotrophic (moderately productive) and eutrophic (very productive and fertile).
Turbidity	Refers to the relative clarity of a water body. It is a measure of the extent to which light penetration in water is reduced from suspended materials such as clay, mud, organic matter, colour, or plankton.
Under ice conditions	The period of year when the lakes are partially or completely covered with ice.
Volatile	Referring to a substance that can be easily changed from solid or liquid form to a vapour.

The scientific style and format used in this report follows the recommendations outlined in the "Scientific Style and Format – The CSE Manual for Authors, Editors, and Publishers" 7th Edition prepared by the Council of Scientific Editors. This 2006 publication recommends the preferred format for use of numbers in the text (i.e., use of numerals for numbers with the exception of zero and one, or at the beginning of a sentence), the modern format for citing references, as well as many other style and format conventions.

This report also uses the National Standard of Canada SI Metric Units as identified in the CAN/CSA-Z234.1-00 Metric Practice Guide (Reaffirmed 2006) prepared by the Canadian Standards Association.

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Fish Populations

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1.0 INTRODUCTION

1.1 Background

Comaplex Minerals Corporation (Comaplex) proposes to construct and operate a gold mine, known as the Meliadine Gold Project (Project) 2 kilometres (km) north from Rankin Inlet, and 80 km southwest from Chesterfield Inlet in the Kivalliq Region of Nunavut (Figure 1-1). The proposed Project site is located on a peninsula (the Peninsula) between the east, south, and west basins of Meliadine Lake (63°04'45"N, 92°19'38"W), on Inuit Owned Land.

The study area is within the zone of continuous permafrost approximately 400 km north of the tree line with typical sub-arctic vegetation. The terrain is dominated by glacial landforms that include drumlins of glacial till, eskers consisting of gravels and sands and numerous shallow lakes. The glacial deposits form low relief ridges oriented in a northwest-southeast direction. Regional drainage patterns are controlled by these ridges and the prevailing permafrost.

Watersheds within the study area include Meliadine Lake, several small watersheds on the Peninsula (Basins A through J), and the Meliadine River (including Little Meliadine Lake). Studies were also carried out on Chickenhead Lake in the near-by Atulik drainage as well as in Parallel Lake (north of Meliadine Lake), and in Lake W and Horseshoe Lake which drain into Little Meliadine Lake.

1.2 Objectives

1.2.1 Hydrology Baseline

The hydrology section of the baseline report was commissioned to characterize the prevailing hydroclimatic and hydrological parameters at the Meliadine Gold Project area. The baseline is based on data collected by Golder in 2008 (Golder 2008a) and 2009, and reported by previous studies (AGRA Earth and Environmental (AEE) 1998a, 1998b, 1999; AMEC 2000).

This baseline report characterizes hydroclimatic and hydrological parameters relevant to the Project, including the following:

- precipitation based on regional data and compared to site-specific data;
- lake evaporation and evapotranspiration from land surfaces, based on regional and local data;
- hydrological regimes of local waterbodies based on an examination of site-specific and regional data;
- local lake and watercourse ice regimes; and
- development of a time series runoff model for the outlets of lakes A1, B2, B7 and Chickenhead Lake.

1.2.2 Water Quality Baseline

This section of the baseline report describes the baseline water quality for the study area. These data include water chemistry in lakes during open water and under ice conditions.

The specific objectives of the water quality baseline were as follows:

- to describe the baseline open water conditions in streams, and open water and under ice conditions in lakes of the study area;
- to discuss seasonal and spatial variation of water quality parameters; and
- to compare baseline water quality data with applicable guidelines for the protection of aquatic life and human health.

The description of water quality is based on historical data (1994, 1995, and 1998 to 2000) and data collected from more recent field programs (2007 to 2009) within the study area. All data were compiled into a database that was used to describe the baseline water quality.

1.2.3 Sediment Quality Baseline

This section of the baseline report describes the baseline sediment quality for the study area. These data include sediment chemistry in lakes during open water conditions.

The specific objectives of the sediment quality baseline were as follows:

- to describe and discuss the baseline sediment conditions in lakes of the study area;
- to discuss seasonal and spatial variation of sediment quality parameters; and
- to compare baseline sediment quality data with applicable guidelines for the protection of aquatic life.

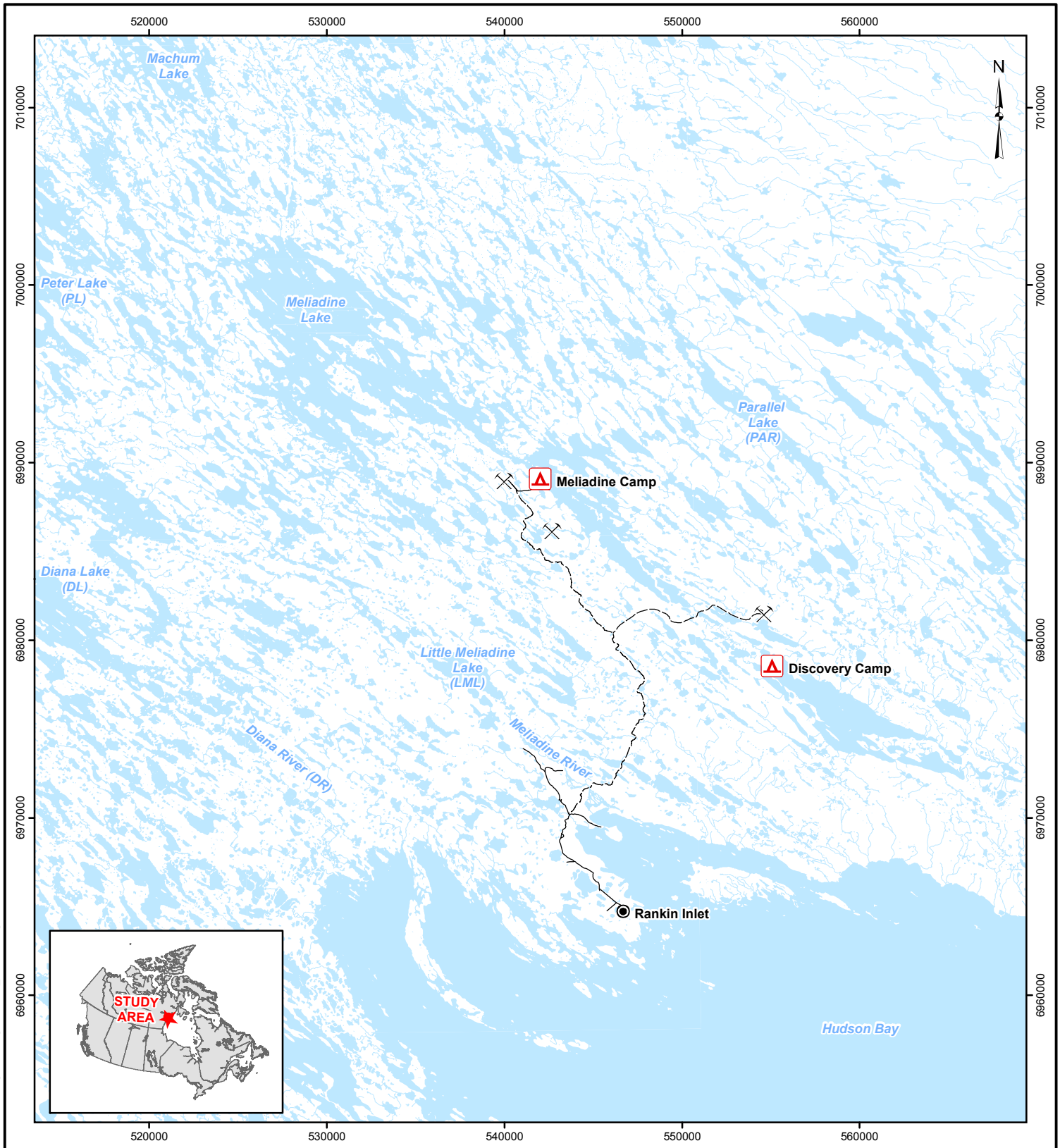
The description of sediment quality is based on historical data (1994, 1995, and 1998) and data collected from more recent field programs (2008 and 2009) within the study area. All data were compiled into a database that was used to describe the baseline sediment quality.

1.2.4 Aquatic Habitat and Biota Baseline

The aquatic biota section of the baseline report summarizes aquatic habitat, lower trophic level communities, fish populations, and stream crossing assessments in the Meliadine Gold Project area. The results are based on data collected from 1997 to 2009, with the objectives focused on the following:

- to describe aquatic habitat in streams, ponds, and lakes, including lake bathymetry,water temperature monitoring, and in-situ water quality measurements;
- to evaluate lower trophic level communities, including periphyton, phytoplankton, zooplankton, and benthic macroinvertebrates;

- to assess fish populations in the study area, including
  - distribution, composition, and abundance of species in streams, ponds, and lakes;
  - life history characteristics of the common fish species;
  - movements of Arctic char and other species through radio telemetry, fish fence operations and fish tagging programs;
  - analysis of metal concentrations in fish tissues; and
  - description of fish habitat and fish use of streams crossed by a proposed road.



LEGEND

- Camp
- Proposed Mine Site
- Road - Existing
- Proposed Road
- Watercourse
- Waterbody

REFERENCE

Base data obtained from Comaplex Minerals Corporation
Projection: UTM Zone 15 Datum: NAD 83

PROJECT

COMAPLEX MINERALS CORP

COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE

LOCATION OF THE MELIADINE GOLD PROJECT

Golder Associates
Edmonton, Alberta

PROJECT NO. 09-1373-0010			PHASE No. 1000	
DESIGN	LV	28 Oct. 2009	SCALE AS SHOWN	REV. 0
GIS	CDB	28 Oct. 2009		
CHECK	LV	22 Nov. 2009		
REVIEW	CO	22 Nov. 2009		

FIGURE 1-1

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2.0 STUDY AREA

The 1994-2009 baseline studies focussed on the Meliadine Lake watershed. A few sites in the neibouring Peter Lake, Diana Lake and Atulik Lake watersheds, as well as in the Hudson Bay, were also studied and are included in this synthesis report.

Meliadine Lake has a surface area of 107 km^2, a maximum length of 31 km, and features a highly convoluted shoreline of 465 km in length and over 200 islands. Unlike most lakes, it has two outflows that drain into Hudson Bay through two separate river systems. Most drainage occurs via the Meliadine River, which originates at the south end of the lake. Meliadine River flows for a total distance of 39 km through a series of waterbodies, including Little Meliadine Lake, and drains into Hudson Bay. A second, smaller outflow from the west basin of Meliadine Lake drains into Peter Lake, which discharges into Hudson Bay through the Diana River system (a distance of 70 km). Due to its large size, Meliadine Lake was divided into 4 primary basins; East Basin, South Basin, Central Basin and the West Basin.

Several small watersheds drain into Meliadine Lake from the Peninsula between the south and east basins of Meliadine Lake. These Peninsula watersheds comprise an extensive network of lakes, ponds, and interconnecting streams. For the purposes of this study, lakes in the study area are differentiated from ponds by their depth; lakes are waterbodies that do not freeze to bottom (i.e., in the study area, maximum depth greater than 2 m), whereas ponds are shallower, normally freeze to bottom during winter and are isolated from other waterbodies during most of the year (Welch 1985). The lakes within the Peninsula are generally small (<90 ha in area) and shallow (<5 m in maximum depth). They are connected to each other (and to Meliadine Lake) through short stream sections; however, they can often be isolated by limited flow during summer/fall and frozen stream conditions during winter.

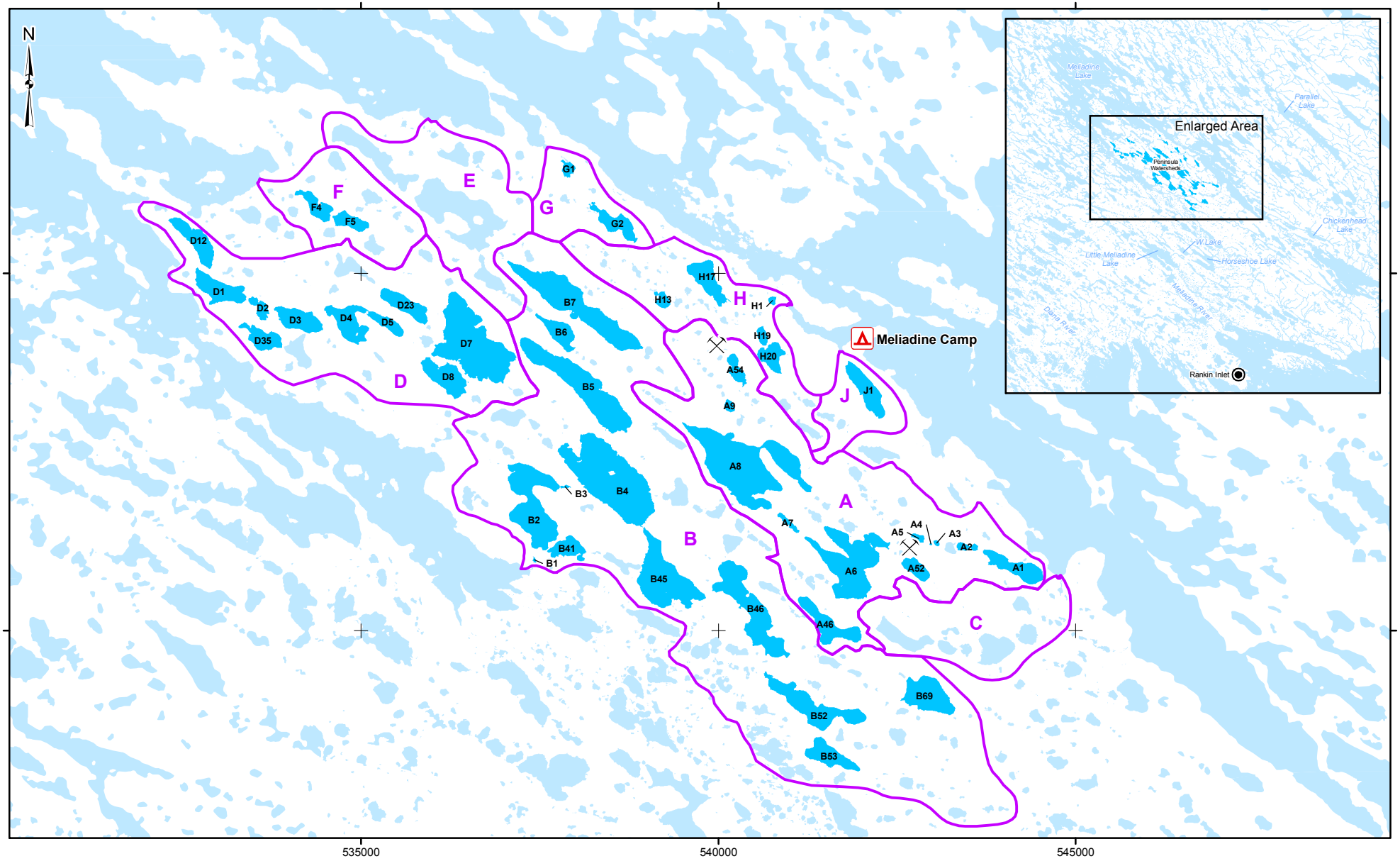
Sampling was also carried out in Control Lake, which drains into the south basin of Meliadine Lake from the south. This lake was selected as a control basin because of the absence of past and likely future drilling activities. Additional sampling was conducted in Chickenhead Lake within the Discovery Area following the extension of the project in this basin. Chickenhead Lake (135.5 ha in area) is located in the headwaters area of the Atulik River watershed, which flows into the Hudson Bay approximately 40 km east of the Meliadine River mouth. Streams located along a proposed road corridor linking Rankin Inlet to the study area were also surveyed. Ten of the watercourse crossings sampled were located along a primary corridor extending from Rankin Inlet to the proposed Project site. Three additional crossings were located along a secondary corridor that extends from the primary road to the Discovery Area, located approximately 16 km southeast from the Meliadine West camp.

To facilitate presentation of the results, sampled waterbodies within the study area were designated by letter codes (Figure 2-1, Table 1-2). Individual lakes and ponds within the Peninsula Basins A through J were assigned identification numbers preceded by the basin letter designation (e.g., Lake A1). In general, lakes and ponds were numbered relative to their position in the drainage with numbers increasing in the upstream direction of the longest chain of waterbodies. Subsequently, all tributary chains within the watershed were numbered starting with the lowermost tributary lake or pond on the north side of a basin's outlet and continuing along the periphery of the main waterbody chain. Similarly, interconnecting streams between lakes and/or ponds were designated using the corresponding lake/pond identification numbers (e.g., Stream B6-7 connects Lake B6 and Lake B7 in Basin B).

Table 1-2: Naming System for Waterbodies in the Meliadine Study Area

Naming Code	Description
A, B, C, D, E, F, G, H, J	Watersheds within Peninsula on Meliadine Lake
CHL	Chickenhead Lake
CON	Control Lake
DR	Diana River
HB	Hudson Bay
HSL	Horseshoe Lake (part of LML drainage)
LML	Little Meliadine Lake
ML	Meliadine Lake
ML-C	Meliadine Lake (Central Basin)
ML-E	Meliadine Lake (East Basin)
ML-MR	Meliadine Lake outlet to Meliadine River
ML-PL	Meliadine Lake outlet to Peter Lake
ML-S	Meliadine Lake (South Basin)
ML-SE	Meliadine Lake (Southeast portion of South Basin)
ML-W	Meliadine Lake (West Basin)
MR	Meliadine River
MR-L	Lower Meliadine River (downstream of LML)
MR-U	Upper Meliadine River (between LML and ML)
PAR	Parallel Lake
PB	Prairie Bay (part of Hudson Bay)
PL	Peter Lake

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LEGEND

- Camp
- Proposed Mine Site
- Sampled Waterbody
- Waterbody
- Watershed Boundary

REFERENCE

Base data obtained from Comaplex Minerals Corporation
Projection: UTM Zone 15 Datum: NAD 83

1.5 0 1.5
SCALE 1:75,000 KILOMETRES

PROJECT
COMAPLEX MINERALS CORP
COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE
MAIN WATERBODIES ON THE PENINSULA FOR MELIADINE GOLD PROJECT

Golder Associates
Edmonton, Alberta

PROJECT No. 09-1373-0010			PHASE No. 1000	
DESIGN	DC	27 Nov. 2009	SCALE AS SHOWN	REV. 0
GIS	CDB	27 Nov. 2009		
CHECK	AM	3 Jul. 2012		
REVIEW	JP	4 Jul. 2012		

FIGURE 2-1

3.0 SUMMARY OF WORK COMPLETED TO 2009

3.1 Hydrology

Hydrometric data were collected at main basins including the Meliadine and Diana basins and at Peninsula stations including outlets of Lakes A1, A6, B2, B4, B5, B7, D5 and G2, and Control Lake, Lake A54 and Lake A8. Additional hydrometric data were also collected for Chickenhead Lake, Peter Lake, and the Char River. Rain gauge data are also available. These data were obtained from field programs in 1997, 1998, 1999, 2000, 2008, and 2009 (AEE 1998a, 1998b, 1999; AMEC 2000; Golder 2008a). Basic information including available parameters, location, period of record, and alternate names of these stations is presented in Table 3-1. The station locations are presented in UTM format in Zone 15V and refer to the most recent locations. Alternate names refer to previous naming conventions used in previous reports (AEE 1998a, 1998b, 1999; AMEC 2000).

Table 3-1: Hydrometric and Rain Gauge Stations, 1997 to 2009

Hydrometric Station	UTM Zone 15 NAD 83		Period of Record	Parameters	Automated (Y/N)	Alternate Names
	Easting (m)	Northing (m)				
Meliadine Lake Main Outlet	530780	6989640	1997 to 2000 2008 to 2009	Q, WL	Y (1997 to 2000)	Meliadine River at Meliadine Lake Outlet
Meliadine Lake West Outlet	523818	7000994	1997 to 2000 2008 to 2009	Q, WL	Y (1997 to 2000)	West Outlet of Meliadine Lake
Meliadine River near the Mouth	544835	6971643	1997 to 2000 2008 to 2009	Q, WL	Y (1997 to 2000)	-
Meliadine Lake	530573	6995555	1997 to 2000 2008 to 2009	WL	Y	-
Diana River near Rankin Inlet	526374	6973649	1997 to 1999	Q, WL	Y	-
Diana Lake	514458	6983733	1997 to 1999	WL	N	-
Peter Lake	511770	6990277	1997 to 1999	WL	N	-
Char River near Rankin Inlet	544000	6970000	2000	Q, WL	N	-
Lake A1	544479	6985918	1997 to 2000 2008 to 2009	Q, WL	Y	Peg Creek
Lake A6	542374	6986171	1997 to 1998	Q, WL	Y	Peg Lake
Lake B2	537375	6986232	1998 to 2000 2008 to 2009	Q, WL	Y	Woodstock Lake
Lake B4	538050	6987087	1997 to1998	Q, WL	Y	Newy Lake
Lake B5	538430	6987824	1998	Q, WL	Y	Bud Lake
Lake B7	537935	6989488	1998 to 2000 2008 to 2009	Q, WL	Y	Woody Lake
Lake D1	532693	6989813	2009	Q, WL	Y	-
Lake D5	535088	6989471	1997 to 1998	Q, WL	Y	-
Lake G1	537797	6991573	2009	Q	N	-
Lake G2	538189	6990970	2009	Q	N	-
Control Lake	533052	6987678	1997	Q, WL	Y	-
Chickenhead Lake	553835	6981017	2009	Q, WL	Y	-
Lake A54	540417	6988473	2008 to 2009	WL	N	-
Lake A8	540728	6986693	2009 to 2009	Q, WL	N	-
Rain Gauge	542310	6989078	1997 to 2000 2008 to 2009	R	Y	-

Note: Q = discharge, WL = water level, R = rainfall; m = metres; - = no alternate names

3.2 Water Quality

Water quality data in streams and lakes were collected during 9 studies performed between 1994 and 2009 (Table 3-2, 3-3). Surface grab water quality samples were collected from 10 lake stations in August 1994 (Dillon 1994). These stations were located in lakes on the Peninsula draining into Meliadine Lake (specifically, from Basins A, B, C, D, and E); in Chickenhead Lake (part of the Atulik Lake drainage basin), and in DI2 Lake, which is part of a watershed that drains into the southeast basin of Meliadine Lake. Surface grab samples were also collected from 7 lake stations and 2 stream stations in the Meliadine Lake and Atulik Lake drainage basins in July 1995 (Dillon 1995).

RL&L performed 4 water quality baseline studies between 1997 and 2000. Most sampling occurred in 1997 and 1998. During these 2 studies, grab samples were collected from streams located on the Peninsula draining into Meliadine Lake (specifically, from Basins A, B, D, and G); from the 2 streams discharging from Meliadine Lake into Peter Lake and Meliadine River; from the stream discharging from Peter Lake to Diana Lake; and in the Meliadine River. Most stream stations were sampled both in the spring and summer/fall. Samples were also collected from stations in lakes on the Peninsula (specifically, from Basins A, B, D, and G); in Meliadine Lake (multiple stations); in Peter Lake; in Little Meliadine Lake; and in Hudson Bay. Lake samples were collected in summer, fall, and winter (under-ice).

Two smaller baseline studies were performed by RL&L in 1999 and 2000. These studies focused on a few streams and lakes near the proposed mine site. Stations included 2 streams in Basins A and B, the outlet of Meliadine Lake to Meliadine River, 4 lakes in Basin A and B, and one station in Meliadine Lake. These stations were sampled during the summer only.

The 2008 and 2009 baseline studies were designed to update the existing water quality database. Most stream stations were sampled in spring and summer. Stations included streams in Basins A and B, streams in the Discovery Area, and the outlet of Meliadine Lake to Meliadine River. Lake stations were sampled in the summer and winter (under ice) and included lakes in Basins A and B, multiple stations in Meliadine Lake, one station in Chickenhead Lake (part of the Atulik Lake drainage basin), and one station in Control Lake.

In addition to the above studies, Comaplex provided water quality data collected in 2007 for sampling locations mandated by the water licence issued by the Nunavut Water Board (S. Barham, Comaplex, 2008a, pers. comm.). Water quality data from stream and lake stations in Basin A and from one station in Control Lake were added to the baseline database.

Table 3-2: Water Quality Sampling Program in Lakes, 1994 to 2009

Sample Name	Basin	1994	1995	1997	1998	1999	2000	2007	2008	2009
Meliadine Lake Drainage										
DI4 (in Meliadine Lake)	Meliadine Lake		Summer						Summer	
ML-E	Meliadine Lake			Summer and Fall	Winter, Summer, and Fall				Summer	Winter
ML-A	Meliadine Lake									Winter and Summer
East basin of ML in the "toe of the boot" (BOOT-1)	Meliadine Lake								Summer	Summer
East basin of ML at the outlet of the "toe of the boot" (BOOT-2)	Meliadine Lake								Summer	Winter and Summer
ML-W	Meliadine Lake			Summer and Fall	Winter and Summer				Summer	
ML-S	Meliadine Lake			Summer and Fall	Winter, Summer, and Fall					
ML-SE	Meliadine Lake				Winter and Summer	Summer	Summer		Summer	Winter
Peninsula Lakes										
A1 (aka PL-06 in Dillon 1994)	Peninsula Basin A	Summer		Fall						
A5 (aka PL-05 in Dillon 1994)	Peninsula Basin A	Summer								
A6 (aka Peg Lake; aka PL-03)	Peninsula Basin A	Summer		Summer and Fall	Winter and Summer	Summer	Summer			Winter and Summer

Table 3-2: Water Quality Sampling Program in Lakes, 1994 to 2009 (continued)

Sample Name	Basin	1994	1995	1997	1998	1999	2000	2007	2008	2009
A8 (aka Lake A8; aka PL-01)	Peninsula Basin A	Summer		Summer and Fall	Summer and Winter			Summer and Fall	Summer	Winter
A9	Peninsula Basin A							Summer and Fall		
Pond A13	Peninsula Basin A							Summer and Fall		
Pond A15	Peninsula Basin A							Summer and Fall		
Pond A38	Peninsula Basin A							Summer and Fall		
Pond A52	Peninsula Basin A									
Pond A54 (aka Lake A54)	Peninsula Basin A							Summer and Fall	Summer	
Pond A56	Peninsula Basin A							Summer and Fall		
Pond A57	Peninsula Basin A							Summer and Fall		
B2	Peninsula Basin B			Summer and Fall	Winter, Summer, and Fall	Summer	Summer			
B5	Peninsula Basin B			Summer and Fall	Winter, Summer, and Fall	Summer	Summer		Summer	Winter
B6	Peninsula Basin B								Summer	Winter and Summer
B7 (aka Woody Lake)	Peninsula Basin B			Summer and Fall	Late Winter, Summer, Fall, and Early Winter				Summer	Winter

Table 3-2: Water Quality Sampling Program in Lakes, 1994 to 2009 (continued)

Sample Name	Basin	1994	1995	1997	1998	1999	2000	2007	2008	2009
Pond B8	Peninsula Basin B				Early Winter					
Pond B9	Peninsula Basin B				Early Winter					
Pond B10	Peninsula Basin B				Early Winter					
B36 (aka PL-2 in Dillon 1994)	Peninsula Basin B	Summer								
C5 (aka PL-04 in Dillon 1994)	Peninsula Basin C	Summer								
D1	Peninsula Basin D			Summer	Winter					
D7 (aka MB-1/MB-3 in Dillon 1994)	Peninsula Basin D	Summer		Summer and Fall	Winter					
E3 (aka MB-2 in Dillon 1994)	Peninsula Basin E	Summer								
G2 (1997 Control Lake)	Peninsula Basin G			Summer						
Little Meliadine Lake (LML)	Little Meliadine Lake				Winter, Summer, and Fall					
DI2 Lake										
DI2	Other	Summer	Summer							
Control Lake										
Control Lake	Control Lake				Summer	Summer	Summer	Summer and Fall	Summer	Winter
Peter Lake Drainage										
Peter Lake (PL)	Peter Lake				Winter and Summer					
Atulik Lake Drainage										

Table 3-2: Water Quality Sampling Program in Lakes, 1994 to 2009 (continued)

Sample Name	Basin	1994	1995	1997	1998	1999	2000	2007	2008	2009
DI1 (aka Chickenhead Lake)	Atulik Lake Basin	Summer	Summer						Summer	Winter
DI3 (aka Atulik Lake)	Atulik Lake Basin		Summer							
DI5	Atulik Lake Basin		Summer							
Hudson Bay										
Ocean	Ocean				Summer					

Table 3-3: Water Quality Sampling Program in Streams, 1995 to 2009

Sampling Location	Drainage System	1995	1997	1998	1999	2000	2007	2008
Meliadine Lake Drainage								
Outflow of Watershed B of the Discovery Area into Meliadine Lake (NEW-1)	Meliadine Lake Drainage							Spring and Summer
Outlet of DI4 Lake into Meliadine Lake (DI-4)	Meliadine Lake Drainage							Summer
Peninsula Streams								
A7-8	Peninsula Drainage - Basin A		Spring	Spring and Summer			Summer and Fall	Spring and Summer
A5-6	Peninsula Drainage - Basin A		Spring	Spring and Summer				
A0-1	Peninsula Drainage - Basin A		Spring	Spring and Summer	Spring	Spring		

Table 3-3: Water Quality Sampling Program in Streams, 1995 to 2009 (continued)

Sampling Location	Drainage System	1995	1997	1998	1999	2000	2007	2008
B6-7	Peninsula Drainage - Basin B		Spring	Spring and Summer				Spring and Summer
B5-6	Peninsula Drainage - Basin B			Spring and Summer				
B4-5	Peninsula Drainage - Basin B		Spring and Summer	Spring and Summer				Spring and Summer
B3-4	Peninsula Drainage - Basin B		Spring	Spring and Summer				
B1-2	Peninsula Drainage - Basin B		Spring and Fall	Spring and Summer	Spring	Spring		
D6-7	Peninsula Drainage - Basin D		Spring and Summer					
D0-1	Peninsula Drainage - Basin D		Spring and Summer					
G1-2 (1997 Control Lake outlet to ML)	Peninsula Drainage - Basin G		Spring					
Meliadine River								
ML to Meliadine River (ML-MR)	Meliadine River Drainage		Spring and Fall	Spring and Summer	Spring	Spring		Spring and Summer
Meliadine River to Ocean (MR-L)	Meliadine River Drainage			Spring and Summer				
Peter Lake Drainage								
ML to Peter Lake (ML-PL)	Peter Lake Drainage		Spring and Fall	Spring and Summer				

Table 3-3: Water Quality Sampling Program in Streams, 1995 to 2009 (continued)

Sampling Location	Drainage System	1995	1997	1998	1999	2000	2007	2008
Peter Lake to Diana Lake (PL-DL)	Peter Lake Drainage		Spring and Fall	Spring and Summer				
Atulik Lake Drainage								
Outlet of Atulik Lake (DI-6)	Atulik Lake Drainage	Summer						Spring
Downstream of basins below Atulik Lake on Atulik River (DI-7)	Atulik Lake Drainage	Summer						Spring
Downstream of NEW-3; outlet into DI5 which flows into Meliadine Lake (NEW-2)	Atulik Lake Drainage							Spring
Outlet of Chickenhead Lake (i.e., Lake DI1) (NEW-3)	Atulik Lake Drainage							Spring

3.3 Sediment Quality

Sediment quality data were collected during 5 baseline studies that were performed between 1994 and 2009 (Table 3-4). Sediment samples were collected from 8 stations in August 1994 (Dillon 1994). These stations were located in lakes on the Peninsula draining into Meliadine Lake (specifically, from Basins A, B, C, and D); in Chickenhead Lake (part of the Atulik Lake drainage basin), and in DI2 Lake, which is part of a watershed that drains into the southeast basin of Meliadine Lake. Samples were also collected from two different stations in the Meliadine Lake and Atulik Lake drainage basins by Dillon in July 1995 (Dillon 1995).

Sediment samples from 11 lake stations and one marine station (i.e., Hudson Bay) were collected by RL&L in July 1998. The freshwater stations were located in lakes on the Peninsula (specifically, from Basins A and B) and in Meliadine Lake (multiple locations), Control Lake, Peter Lake, and Little Meliadine Lake.

In June 2008, Golder collected sediment samples in 4 lakes on the Peninsula (specifically, from Basins A and B), in Meliadine Lake (multiple stations), in Chickenhead Lake (part of the Atulik Lake drainage basin), and in Control Lake (a lake draining into the south basin of Meliadine Lake) (Golder 2008b). In July 2009, sediment was collected from one station in Basin A.

Table 3-4: Sediment Quality Sampling Program in Lakes, 1994 to 2009

Sampling Location	Basin	1994	1995	1998	2008	2009
Meliadine Lake						
DI4	Meliadine Lake		√		√	
ML-E	Meliadine Lake			√	√	
ML-A	Meliadine Lake	√		√	√	
East basin of ML in "toe of the boot" (BOOT-1)	Meliadine Lake				√	
East basin of ML at the outlet of the "toe of the boot" (BOOT-2)	Meliadine Lake				√	
ML-W	Meliadine Lake			√	√	
ML-S	Meliadine Lake			√	√	
ML-SE	Meliadine Lake				√	
ML-B	Meliadine Lake			√	√	
Peninsula Lakes						
A1 (aka PL-06 in Dillon 1994)	Peninsula Basin A	√				
A5 (aka PL-5 in Dillon 1994)	Peninsula Basin A	√				
A6 (aka PL-3 in Dillon 1994)	Peninsula Basin A	√		√		√
A8 (aka PL-1 in Dillon 1994)	Peninsula Basin A	√		√	√	
B5	Peninsula Basin B			√	√	
B6	Peninsula Basin B				√	
B7	Peninsula Basin B				√	
B36 (aka PL-2 in Dillon 1994)	Peninsula Basin B	√				
C5 (aka PL-4 in Dillon 1994)	Peninsula Basin C	√				
D7 (aka MB-1 in Dillon 1994)	Peninsula Basin D	√				

Table 3-4: Sediment Quality Sampling Program in Lakes, 1994 to 2009 (continued)

Sampling Location	Basin	1994	1995	1998	2008	2009
Little Meliadine Lake						
LML	Little Meliadine Lake			√		
DI2 Lake						
DI2	Other	√				
Control Lake						
Control Lake	Control Lake			√	√	
Peter Lake						
PL	Peter Lake			√		
Atulik Lake Drainage						
DI1 (Chickenhead Lake)	Atulik Lake Basin	√			√	
DI5	Atulik Lake Basin		√			
Hudson Bay						
Ocean	Ocean			√		

3.4 Aquatic Habitat and Biota

Between 1997 and 2009, substantial sampling effort was put forth to survey fish, lower trophic levels, and fish habitat in the Meliadine Study Area (Table 3-5). Field biologists used a number of sampling techniques to evaluate lower trophic level communities and to survey fish communities and fish habitat in Meliadine Lake, the Meliadine River, and numerous lakes, ponds, and interconnecting streams on the Peninsula basins. Investigations were focused on determining the distribution of species throughout the watersheds, Arctic char movements using radio telemetry, the timing and size of the Arctic char run in the Meliadine River. Surveys also were conducted to identify habitat features with regard to their suitability for fish movement, spawning, rearing, and overwintering.

Table 3-5: Aquatic Biota Sampling Activities, 1997 to 2009

Study Component / Activity	1997	1998	1999	2000	2001	2004	2008	2009
Physical Environment								
Habitat assessments	✓	✓				✓	✓	✓
Bathymetry	✓	✓					✓	✓
In-situ water quality	✓	✓	✓				✓	✓
Water temperature monitoring	✓	✓	✓	✓				
Lower Trophic Levels								
Periphyton	✓	✓						
Phytoplankton	✓	✓						
Zooplankton	✓	✓						
Benthic macroinvertebrates	✓	✓	✓	✓				

Table 3-5: Aquatic Biota Sampling Activities, 1997 to 2009 (continued)

Study Component / Activity	1997	1998	1999	2000	2001	2004	2008	2009
Fish Populations								
Backpack electrofishing	✓	✓					✓	✓
Gill netting	✓	✓	✓	✓			✓	✓
Fyke netting	✓	✓		✓			✓	✓
Fish fence	✓	✓	✓					
Angling	✓	✓		✓				
Egg sampling	✓	✓					✓	
Fish tissue sampling	✓	✓						
Implantation of radio transmitters	✓	✓		✓				
Radio tracking flights	✓	✓	✓	✓	✓			
Crossing assessments							✓	✓

4.0 HYDROLOGY

4.1 Hydroclimate (Long-term Regional Meteorology)

4.1.1 Available Data

The most proximate long-term climate station to the Project site that is operated by Meteorological Services of Canada (MSC) is Rankin Inlet A (Station 2303401) (Environment Canada 2009a). This is located approximately 25 km south of the Project site and provides records from January 1981 to 2009. The station is considered to be close enough to represent the meteorological conditions at the Project site.

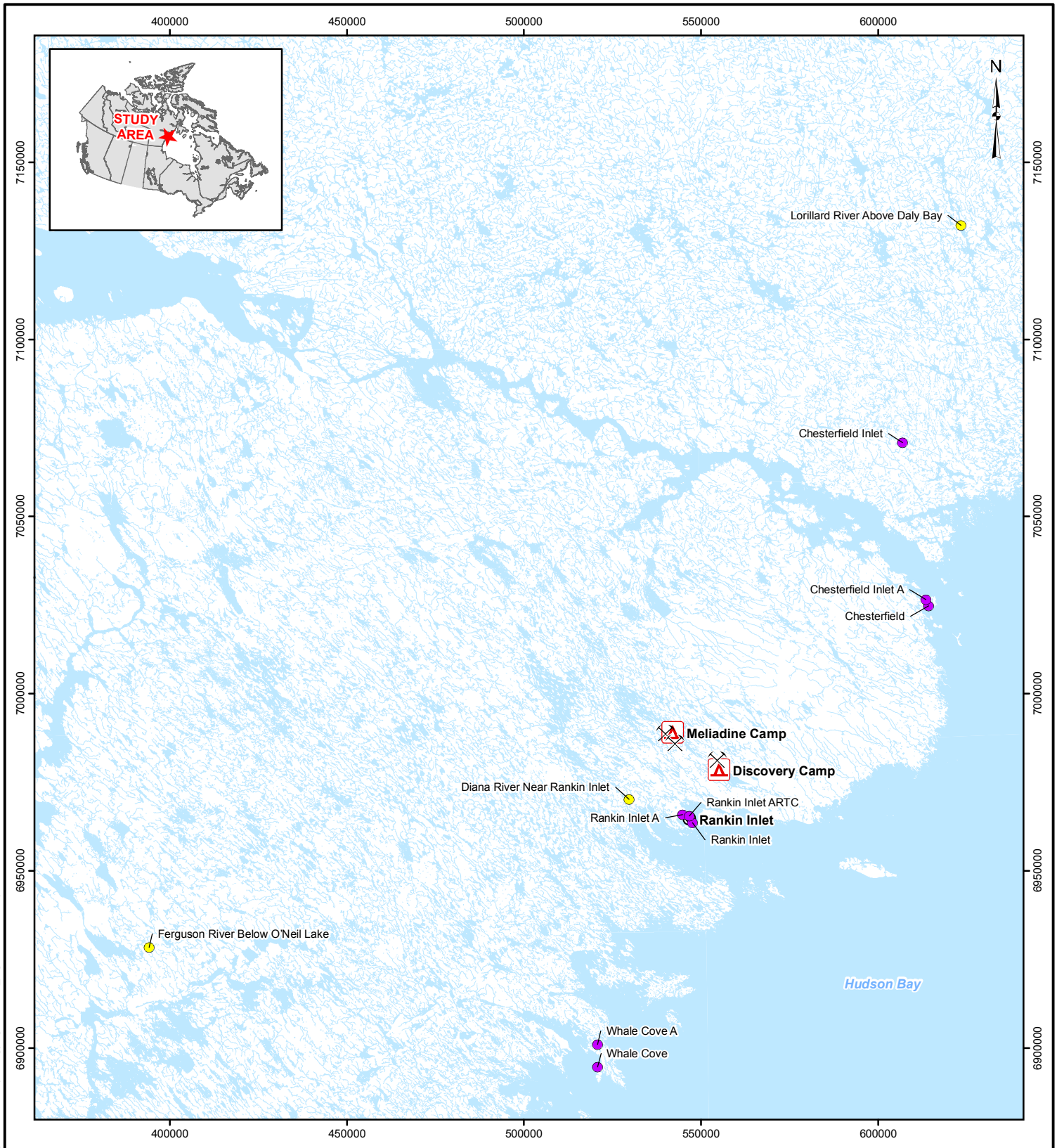
Regional data are available from MSC stations (Environment Canada 2009a) at Chesterfield Inlet, located approximately 80 km north of the Project site, and Whale Cove, approximately 90 km south. Basic information on these MSC stations is summarized in Table 4-1. Station locations are presented in Figure 4-1.

Data records from the Rankin Inlet, Rankin Inlet ARTC, Chesterfield, Chesterfield Inlet, and Whale Cove stations (Stations 2303400, 2303403, 2300700, 2300705, and 2303985) are incomplete and were not used in any analysis.

Table 4-1: Regional MSC Climate Stations within 90 km of the Project

Station Name	MSC Station Number	Period of Record	Longitude	Latitude	Distance from Project
Rankin Inlet[a]	2303400	1954 to 1962	92° 04.0’	62° 48.0’	25 km South
Rankin Inlet A	2303401	1981 to 2009	92° 07.2’	62° 49.2’	25 km South
Rankin Inlet ARTC[a]	2303403	1976	92° 05.0’	62° 49.0’	25 km South
Chesterfield[a]	2300700	1930 to 1981	90° 43.0’	63° 20.0’	80 km North
Chesterfield Inlet[a]	2300705	1921 to 1931	90° 50.0’	63° 45.0’	80 km North
Chesterfield Inlet A[b]	2300707	1985 to 2007	90° 43.8’	63° 21.0’	80 km North
Whale Cove[a]	2303985	1974 to 1984	92° 36.0’	62° 11.0’	90 km South
Whale Cove A[b]	2303986	1985 to 2007	92° 36.0’	62° 14.4’	90 km South

[a] incomplete records; not used in analysis
[b] partial hourly records up to 2009. Daily records up to 2007
Note: km = kilometres



LEGEND

- Camp
- Proposed Mine Site
- Regional Climate Station
- Regional Hydrometric Station
- Watercourse
- Waterbody

30 0 30

SCALE 1:1,500,000 KILOMETRES

REFERENCE

Base data obtained from Comaplex Minerals Corporation. Station locations obtained from Environment Canada.
Projection: UTM Zone 15 Datum: NAD 83

PROJECT

COMAPLEX MINERALS CORP

COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE

REGIONAL CLIMATE AND HYDROMETRIC STATION LOCATIONS

Golder Associates
Edmonton, Alberta

PROJECT NO. 09-1373-0010			PHASE No. 5000	
DESIGN	JL	28 Oct. 2009	SCALE AS SHOWN	REV. 0
GIS	CDB	28 Oct. 2009		
CHECK	NPS	17 Nov. 2009		
REVIEW	GA	25 Nov. 2009		

FIGURE 4-1

N:\Bur-Graphics\Projects\2007\1373\07-1373-0055\Mapping\MXD\2009\Hydrology\figure-04-01_regional-climate-hydrometric-stations.mxd

4.1.2 Air Temperature

Continuous air temperature data are available at the Rankin Inlet A climate station for the period 1981 to 2009, with missing data in 1993. The station is thought to be close enough to describe the long-term temperature conditions of the Project site. Temperatures for this period are presented on a monthly basis in Table 4-2 and Figure 4-2. Monthly and annual temperature data are provided in Appendix A1. Because of missing data in 1993, that year was omitted from the analysis.

Air temperature at the Project site may fall below 0°C on any day of the year. The monthly mean air temperature is typically above 0°C for the months of June to September, and is below 0°C between October and May. July has been the warmest month and January has been the coldest month. The mean annual temperature for the period of record was -10.4°C.

Over the period 1985 to 2007, the mean annual temperature was -10.6°C at Chesterfield Inlet A and -10.0°C at Whale Cove A. Long-term air temperature characteristics for these climate stations are available in Appendix A1.

Table 4-2: Air Temperature Statistics for Rankin Inlet A, 1981 to 2009 (Degrees Celsius)

Month	Warmest and Coldest Day in the Month				Monthly Mean
	Extremes		Means		
	Maximum	Minimum	Maximum	Minimum	
January	0.0	-46.1	-19.8	-37.2	-30.9
February	-4.4	-49.8	-24.0	-35.3	-30.1
March	1.3	-43.4	-18.8	-30.8	-25.1
April	3.4	-35.7	-10.4	-20.2	-15.7
May	14.1	-23.8	-1.2	-10.8	-5.9
June	26.1	-9.4	6.7	0.1	4.1
July	28.9	-1.9	14.9	6.9	10.5
August	30.5	-1.4	11.2	7.7	9.7
September	20.6	-9.0	6.8	1.3	3.8
October[a]	9.3	-27.4	1.7	-9.9	-4.6
November[a]	0.9	-36.5	-10.2	-23.6	-17.2
December[a]	-2.0	-43.6	-19.4	-33.3	-25.9
Annual	**30.5**	**-49.8**	**14.9**	**-37.2**	**-10.4**

[a] incomplete at the time of reporting (2009 data not available)

Observations of the Rankin Inlet A climate station and inspections of historical records (S. Radecki, Environment Canada, 2008, pers. comm.) provide the following information that is not available on the Environment Canada (2008) web site. These changes must be considered when making any judgments on climate change based on temperature data from this station:

- the station was moved approximately 200 m northwest, after 1996. The original station was fenced, and the existing station is not fenced;
- the original station appears to have been sited on a gravel pad on grade, while the existing station is located on a constructed gravel pad up to 2 m thick; and

- snow clearing at the gravel pad may have a microsite effect on surface albedo. The original station was fenced, but the current site is not fenced and can be accessed by powered snow clearing equipment.

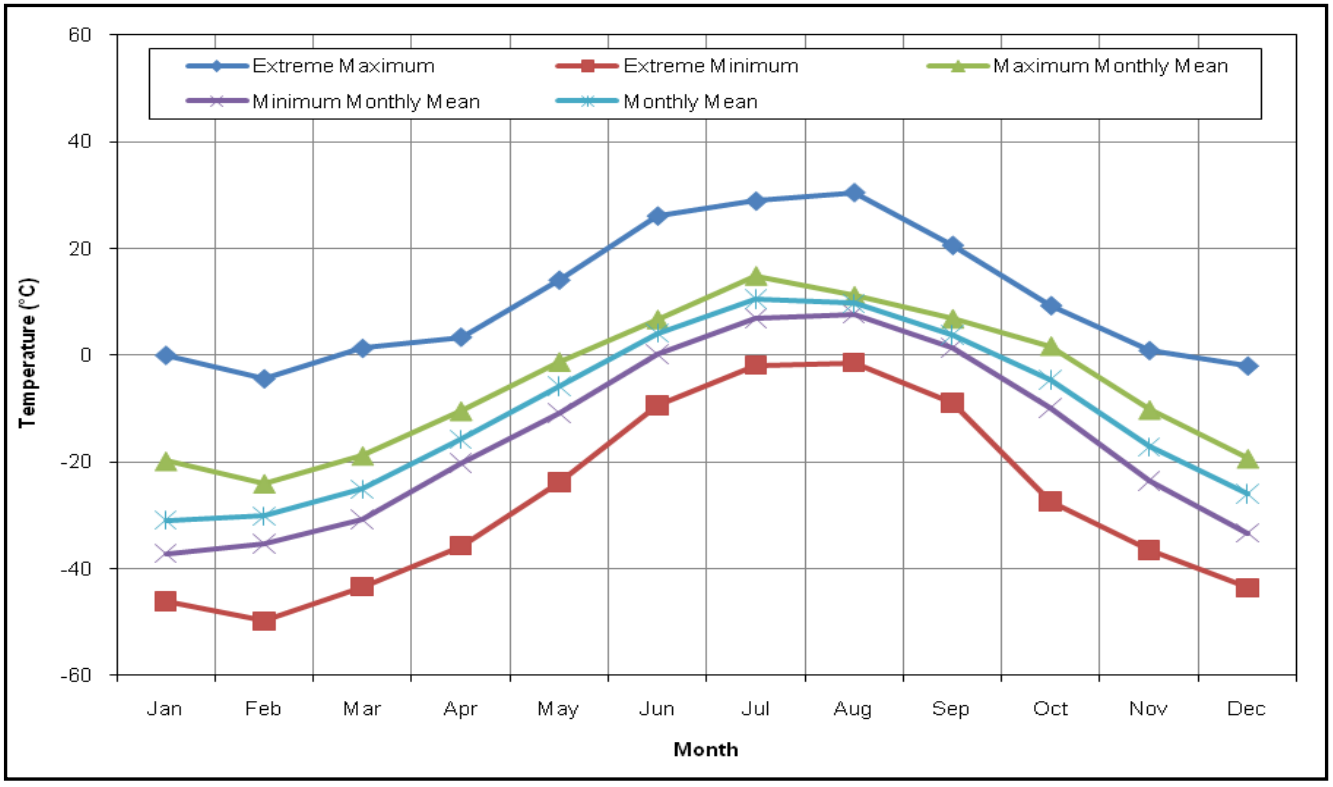


Figure 4-2: Air Temperature Statistics at Rankin Inlet A, 1981 to September 2009

4.1.3 Precipitation

4.1.3.1 Monthly Precipitation

Precipitation data recorded at the Rankin Inlet A climate station from 1981 to 2007 were compared with the concurrent records at the active Chesterfield Inlet A and the Whale Cove A climate stations, as shown on Figure 4-3. It must be noted that data from 1993 was not included in the analysis due to a data gap at the Rankin Inlet A climate station.

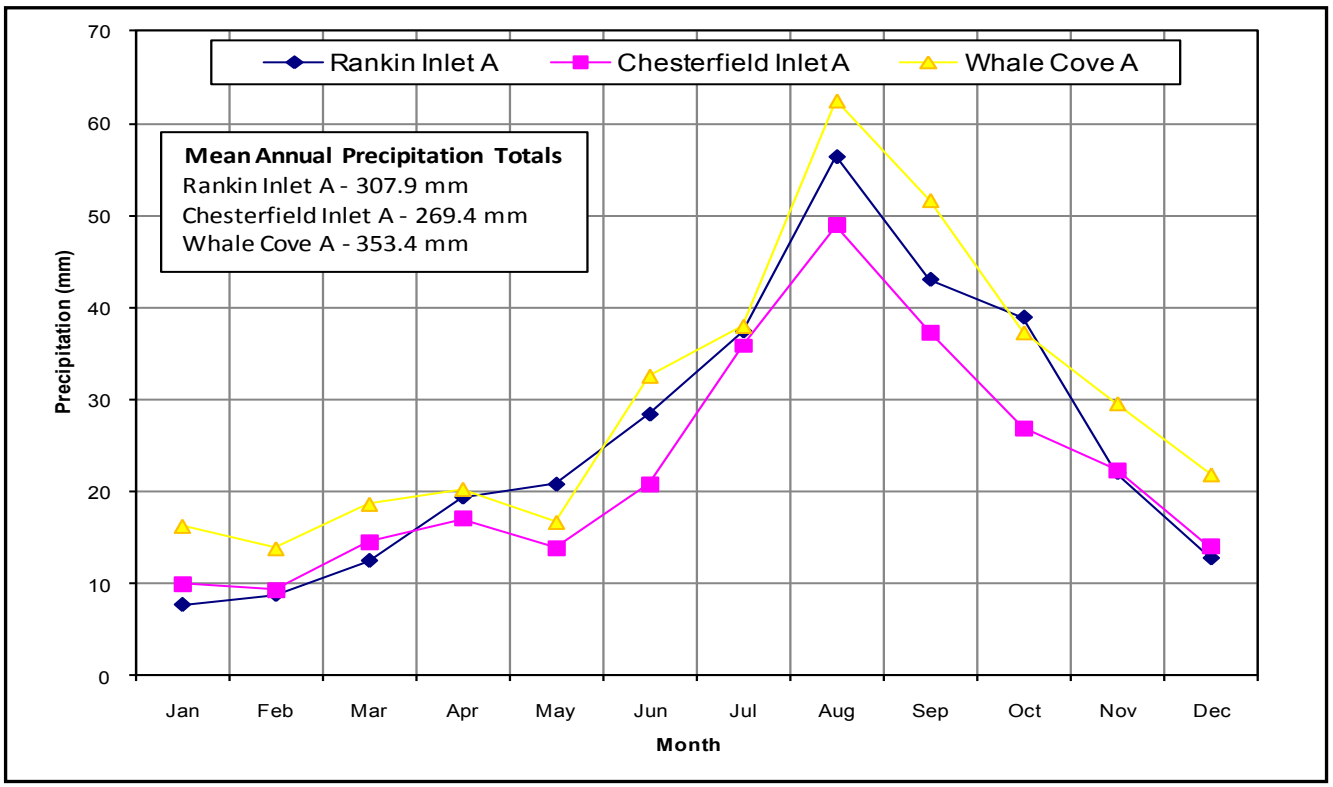


Figure 4-3: Comparison of Regional Precipitation

Figure 4-3 shows that the 3 locations have similar precipitation patterns. The lowest monthly precipitation occurs during the winter months of January and February, and peaks occur in August. While the precipitation amounts are similar, the data show that precipitation is greater in the south and lower in the north. Monthly and annual precipitation data for both regional climate stations are provided in Appendix A1.

The recorded mean monthly rainfall, snowfall, and precipitation at the Rankin Inlet A climate station for the period of record 1981 to September 2009 are presented in Table 4-3. Details of the monthly data series are provided in Appendix A1. Because of missing data in 1993, that year was omitted from the analysis. Based on the precipitation data series, 59% of precipitation in the Project area typically occurs as rain and 41% occurs as snow. Precipitation in the form of rain usually occurs between June and September, and while it can snow in any month, the majority of snow occurs in October and November. Additional precipitation data for the Rankin Inlet A climate station are provided in Appendix A1.

MSC records present rainfall and total precipitation in units of millimetres and snowfall in units of centimetres. At many stations, including Rankin Inlet A, rainfall is measured by a tipping bucket rain gauge and is expressed in millimetres of water depth. Snowfall is measured using two methods, including a snow ruler and a nipher snow gauge. The nipher gauge captures and melts snowfall, which is then measured as a snow water equivalent in units of millimetres depth. The snow ruler is used to measure the depth of snow that accumulates on the ground, and is measured in centimetres. Total precipitation is the sum of the measured rainfall and snowfall as measured by the nipher gauge, expressed as millimetres of water depth. Snow water equivalents can be calculated by subtracting rainfall from the total precipitation for a given period.

Table 4-3: Mean Monthly and Mean Annual Precipitation at Rankin Inlet A, 1981 to September 2009

Month	Rainfall (mm)	Snowfall (cm)	Precipitation (mm)
January	0.0	8.6	8.4
February	0.0	8.7	8.4
March	0.0	12.4	12.2
April	1.2	19.2	20.0
May	6.8	12.8	19.1
June	23.4	4.7	28.0
July	38.7	0.1	38.8
August	56.4	0.2	56.5
September	40.0	3.8	43.8
October[a]	13.7	24.6	37.9
November[a]	0.3	22.2	21.6
December[a]	0.0	12.6	12.0
Annual	**180.6**	**128.8**	**305.5**

[a] incomplete at the time of reporting (2009 data not available)

Note: mm = millimetres; cm = centimetres

4.1.3.2 Annual Precipitation

Annual rainfall, snowfall, and precipitation for Rankin Inlet A are presented for each hydrological year of record in Table 4-4 and Figure 4-4. A hydrological year is defined to include most, if not all, precipitation that contributes to the annual runoff. For the Project site, most precipitation occurring after 1 October will fall as snow and accumulate over the winter to contribute to the next year's runoff. The hydrological year is thus defined to extend from 1 October of the previous year to 30 September of the current year. Because of missing data in 1993, the hydrological years 1993 and 1994 were omitted from the analysis.

The driest hydrological year on record occurred in 1997 with a total recorded precipitation of 167.5 mm, or 54% of the mean, whereas the wettest hydrological year occurred in 2005 with a total recorded precipitation of 461.8 mm, or 148% of the mean.

Hydrology field programs at the Project site took place during dry years in 1997, 2000, and 2009, and wet years in 1998 and 1999. Precipitation in the 2009 hydrological year was slightly under the long-term mean.

4.1.3.3 Undercatch

Precipitation occurs as rainfall or as snowfall. In general, the accuracy of measurements for actual rainfall and snowfall amount is subject to limitations inherent in methods and equipment, most of which result in measured amounts being less than actual amounts. This phenomenon is termed "undercatch." Three main factors influence undercatch:

- wind turbulence at the gauge, which tends to deflect some precipitation (especially snow) away from the gauge opening;
- wetting of gauge surfaces, which later evaporates and is not recorded as precipitation; and
- trace events, which are too small to measure.

Table 4-4: Annual Precipitation at Rankin Inlet A by Hydrological Year

Hydrological Year	Recorded Data		
	Rain (mm)	Snow (cm)	Total Precipitation (mm)
1982	152.5	119.2	270.1
1983	255.6	102.0	351.4
1984	191.5	86.9	266.5
1985	241.3	127.7	359.7
1986	185.8	186.1	356.7
1987	161.4	173.3	334.5
1988	99.2	117.0	215.5
1989	136.3	114.4	243.4
1990	260.2	99.6	354.3
1991	209.4	177.9	371.9
1992	160.6	127.9	286.1
1993[a]	138.0	89.4	227.3
1994[a]	114.6	67.8	182.4
1995	177.8	108.1	286.3
1996	183.6	98.2	281.4
1997	95.8	76.2	167.5
1998	230.5	108.0	340.3
1999	259.6	127.2	385.4
2000	146.3	122.6	267.9
2001	207.6	107.0	316.0
2002	191.2	141.7	326.5
2003	140.8	113.3	252.7
2004	173.0	145.0	317.4
2005	157.4	304.4	461.8
2006	176.2	174.8	346.4
2007	205.3	156.0	353.1
2008	163.8	132.8	295.2
2009	202.4	102.7	302.4
Minimum	**95.8**	**76.2**	**167.5**
Maximum	**260.2**	**304.4**	**461.8**
Mean	**183.3**	**132.7**	**311.9**
Median	**180.7**	**120.9**	**316.7**

[a] incomplete data (not included in the statistics)
Note: mm = millimetres; cm = centimetres

The cumulative effect of these factors is larger in northern climates than southern climates due to the high incidence of wind during snowfall events and more frequent occurrences of trace events in the northern climates.

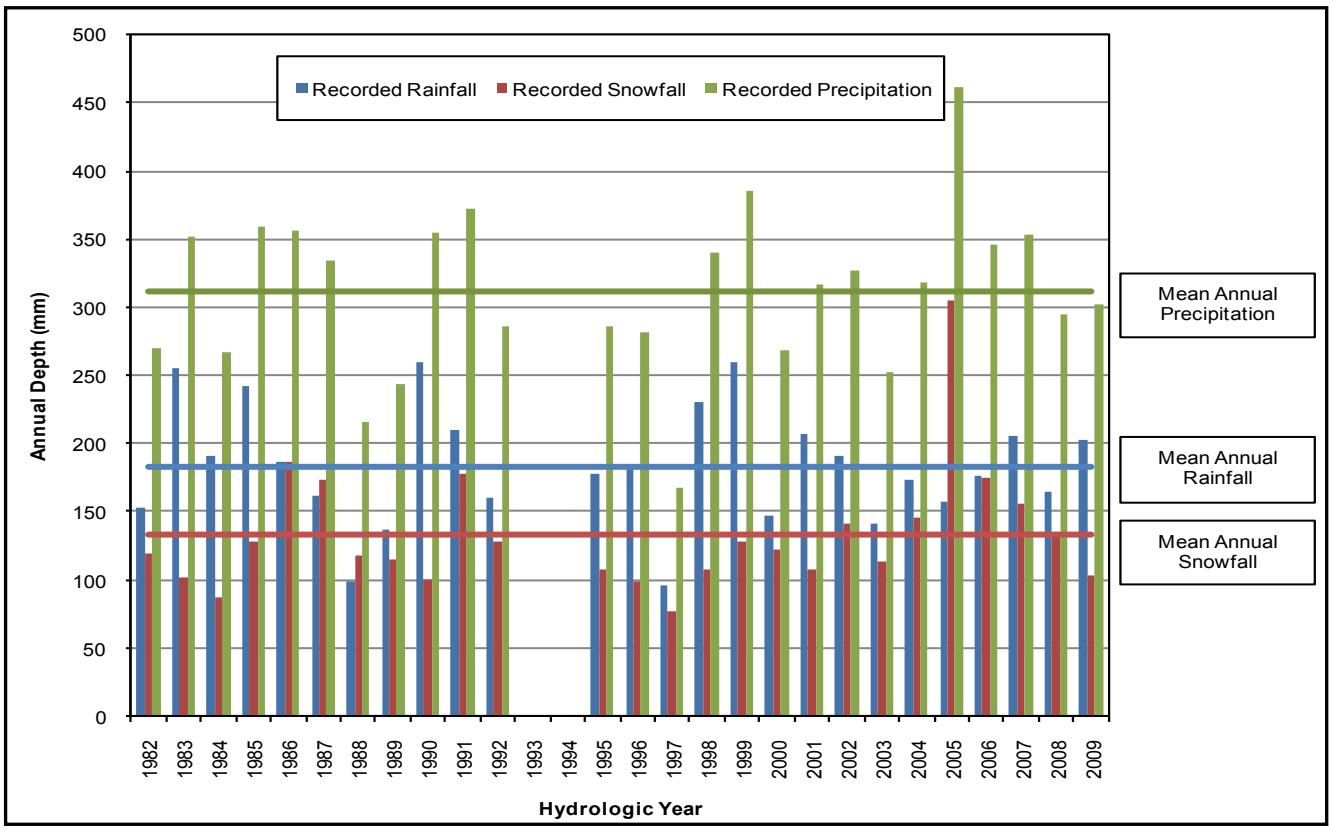


Figure 4-4: Annual Precipitation at Rankin Inlet A by Hydrological Year, 1982 to 2009

A discussion of the issues involved, and the approach taken by Environment Canada in assessing undercatch and developing corrections, is presented by Mekis and Hogg (1999). The corrected datasets for many climate stations throughout Canada, including MSC stations around the Project area, are available to researchers from Environment Canada (Environment Canada 2008). The corrected datasets are currently available to the end of 2007.

The corrected data are conventionally termed “adjusted” data, while the data as recorded and published by Environment Canada are conventionally termed the “archived” data. Archived and adjusted datasets for Chesterfield Inlet A are presented in Appendix A1 and used in this report, as appropriate for the intended purpose.

No adjusted data set for the Rankin Inlet A climate station was available. Corrected precipitation factors developed by Environment Canada (E. Mekis, Environment Canada, 2004, pers. comm.) were used to derive the undercatch factor for Rankin Inlet A and Whale Cove A and are available in Figure A1-1 in Appendix A1. Undercatch factors for the Rankin Inlet A and Chesterfield Inlet A climate stations are shown in Table 4-5.

Table 4-5: Mean Undercatch Factors for Regional Climate Stations

Climate Station	Rain (mm)	Snow (cm)	Total Precipitation (mm)
Rankin Inlet A[a]	1.13	1.50	1.32
Chesterfield Inlet A	1.06	1.58	1.30
Whale Cove A[a]	1.13	1.49	1.31

[a] incomplete data

Adjusting observed average annual rainfall by 13%, snowfall by 50%, and precipitations by 32% at Rankin Inlet to account for undercatch results in a mean of 207.1 mm of rainfall, 199.1 mm of snowfall, and 411.7 mm of total precipitation based on the hydrological year. Based on these values, the proportion of adjusted precipitation that falls during the summer months and the spring snowfall is almost equal (51.0% for summer rainfall; 49.0% for spring snowfall).

4.1.3.4 Extreme Precipitation

Annual Precipitation

A frequency analysis was conducted on the annual precipitation data based on the hydrological year to characterize extreme values for various return periods at the Project site, using the Pearson 3 distribution for rainfall and precipitation and Log Pearson 3 distribution for snowfall, according to the best-of-fit (Environment Canada 1994). Results of these analyses are tabulated in Table 4-6. Annual rainfall, snowfall, and precipitation events were estimated using data from the Rankin Inlet A climate station for the period of hydrological years 1982 to 2009. Because of missing data in 1993, the hydrological years 1993 and 1994 were omitted from the analysis.

Adjustment for undercatch was not considered in the analysis.

Table 4-6: Frequency Analysis of Annual Precipitation at Rankin Inlet A

Return Period (years)		Rainfall (mm)	Snowfall (cm)	Precipitation (mm)
Wet	200	297.8	384.7	464.4
	100	286.5	325.9	449.9
	50	274.2	275.8	434.0
	20	255.9	220.5	410.1
	10	239.7	185.5	388.7
	5	220.1	155.0	362.6
Median	2	183.0	119.2	312.3
Dry	5	146.3	100.6	261.5
	10	127.2	95.0	234.6
	20	111.6	91.9	212.4
	50	94.0	89.6	187.2
	100	82.4	88.5	170.3
	200	71.8	87.9	154.8

Note: mm = millimetres; cm = centimetres

Note that the 1:2 year values for Rankin Inlet A (e.g., 183.0 mm for rainfall) represent statistical median values, and are not the same as the arithmetic means (e.g., 183.3 mm for rainfall) that were reported in Table 4-4.

It is also noted that the sum of rainfall and snowfall depths for a particular return period does not equal the precipitation amount as these values are independent (e.g., the 10 year wet rainfall and the 10 year dry snowfall event could occur in the same year, resulting in something close to the mean annual precipitation).

Because of the short data series, there is a low degree of confidence in derived values with return periods of 100 years and greater. Based on the hydrological year, annual rainfall depths at Rankin Inlet A for the hydrological period of 1982 to 2009 ranged from a low of 95.8 mm in 1997 to a high of 260.2 mm in 1990. Annual snowfall depth ranged from a low of 76.2 cm in 1997 to a high of 304.4 cm in 2005, and annual precipitation depth ranged from a low of 167.5 mm in 1997 to a high of 461.8 mm in 2005.

Short Duration Rainfall Events

Derivation of rainfall intensity-duration-frequency (IDF) curves for short durations ranging from 5 minutes to 24 hours requires a rainfall record in 5-minute intervals. The climate station at Churchill, Manitoba (MSC Station Number 5060600) is the closest long-term station that records this type of data and for which Environment Canada has derived IDF statistics. Churchill is located in northern Manitoba, on Hudson Bay, approximately 480 km south of the Project area. While the climate station is located on Hudson Bay, Environment Canada reports annual precipitation normals of 432 mm for years 1971 to 2000 (Environment Canada 2004). Mean annual precipitation in the Project area was estimated to be 305.5 mm (Section 4.1.3.1), suggesting that the reported short duration rainfall events may overestimate the conditions of the Project area. Thus, these values are likely conservative if used for stormwater management design purposes.

No adjustments were made for undercatch, because undercatch is generally not significant for extreme rainfall events on a daily time scale. IDF statistics are presented in Table 4-7.

Table 4-7: Short Duration Rainfall Intensities in Millimetres per Hour at Churchill, Manitoba

Duration	Return Period (years)					
	2	5	10	25	50	100
5 min	38.4	57.6	70.8	86.4	98.4	110.4
10 min	26.4	39.6	48.6	60.0	68.4	76.8
15 min	21.6	32.4	39.6	49.2	56.0	62.8
30 min	14.4	21.2	25.8	31.6	36.0	40.2
1 h	9.8	14.5	17.6	21.6	24.5	27.4
2 h	6.6	9.0	10.7	12.7	14.3	15.8
6 h	3.4	4.6	5.3	6.3	7.1	7.8
12 h	2.1	2.8	3.2	3.8	4.2	4.7
24 h	1.2	1.6	1.9	2.2	2.4	2.6

Note: h = hours; min = minutes

4.1.4 Evaporation

4.1.4.1 Local Data

Evaporation of water from lakes, ponds, and other open water surfaces is one of the primary mechanisms for moisture loss from a watershed. Evaporation is influenced by air and water temperatures, solar radiation, relative humidity, and wind combined.

Evaporation from waterbodies is difficult to measure directly. It is typically estimated by using local evaporation pan measurements and applying a coefficient (the "pan" coefficient), or by using energy budget relationships and computations based on the net energy input to the evaporation process.

Evaporation pan data were collected at the Project site using a Class A evaporation pan, during the open water season of 1997, 1998, 1999, and 2000 (AEE 1998a, 1998b, 1999; AMEC 2000). The Class A evaporation pan is recommended by the World Meteorological Organization and is used at many Environment Canada climate stations. Monthly gross evaporation values for 1997, 1998, 1999, and 2000 are presented in Table 4-8. Daily measurements are presented in Appendix A1.

Table 4-8: Previously Reported Meliadine West Camp Lake Evaporation Data (mm)

Year	Month[a]					Pan Coefficient
	Jun	Jul	Aug	Sep	Annual	
1997	46.9	142.1	97.3	41.3	328	0.70
1998	76.9	113.3	96.5	34.9	322	0.82
1999	81.3	109.8	89.8	44.6	326	0.82
2000	36.2	132.2	98.8	49.9	317	0.83
Mean	**60.4**	**124.4**	**95.6**	**42.7**	**323**	**0.79**

[a] gross lake evaporation calculated using AES method (Kohler et al. 1955)
Note: mm = millimetres

It was estimated that evaporation only occurs in the months of June through September. The evaporation pan was usually in service from mid-June to the end of September. Typical adjustments were made to account for missing measurements as follows:

- the total for June was increased, at a linear rate from zero at the start of the month to the first recorded measurement;
- the total for September was decreased, declining at a linear rate to zero at the end of the month; and
- missing measurements due to data collection problems were estimated based on values for preceding and following days.

For the period of record 1997 to 2000, the observed mean annual lake evaporation value was 323 mm, with a peak of 124 mm for the month of July.

This lake evaporation value is larger than the regional values presented by Prowse and Ommanney (1990), who suggest a value slightly greater than 200 mm would be appropriate. However, monthly values for the months of July, August, and September are similar to the 1971 to 2000 climate normals published for Churchill A, Manitoba (Environment Canada 2004) with a comparison highlighted in the following section. The Project is situated north

of Churchill and lake evaporation typically decreases as latitude increases. For this reason, it is likely that the long-term mean value of lake evaporation for the Project area is less than the mean of the derived values for the period of 1997 to 2000 at the Project area.

4.1.4.2 Regional Data

Regional pan and lake evaporation data are scarce for northern Canada. Lake evaporation normals were available regionally at the MSC Churchill A climate station and are presented in Table 4-9, with Project values for the period 1997 to 2000 provided for comparison. Normals refer to averages based on observed values for a given location over a specific period of time (Environment Canada 2004). The Churchill A mean annual lake evaporation value is 268 mm, with a peak of 121 mm in July, based on the most recent normal period of 1971 to 2000.

Table 4-9: Regional Lake Evaporation Data at Churchill A

Station	Lake Evaporation (mm/d)			Evaporation: Derived Quantities (mm)			
	July	August	September	July	August	September	Annual
Churchill A (MSC)[a]	3.9	3.0	1.8	121	93	54	268
Meliadine West 1997-2000	4.0	3.1	1.4	124	96	43	263

[a] climate normals for 1971-2000 reported by Environment Canada (2004)
Note: mm/d = millimetres per day; mm = millimetres

Note that no value of daily evaporation is reported for the month of June, and the estimated mean lake evaporation for the period 1997 to 2000 at the Project was 2.0 mm/d. Adopting this value for the Churchill A station would result in a mean annual lake evaporation value of 328 mm, comparable to that measured at the Project area.

4.1.5 Evapotranspiration

Evapotranspiration is defined as the moisture loss from land surfaces. It is the combination of evaporation of moisture from the soil surface plus transpiration of moisture from vegetation.

Values of evapotranspiration estimated by previous studies were 33.8 mm (AEE 1998a), 37.8 mm (AEE 1998b), and 38.0 mm (AEE 1999). The 1997 value was calculated by using the GD relationship (Granger and Gray 1989) and applying a coefficient to account for factors limiting available moisture. These factors included land areas with sparse or non-existent vegetation, vegetation that does not transpire or does so at lower rates than the reference vegetation for the GD relationship, and dry soil conditions after snowmelt. Estimates in 2008 and 2009 are not available due to the timing of initiation of the monitoring programs resulting in incomplete hydrographs.

4.1.6 Sublimation and Snow Redistribution

The quantity of spring snow melt water depends on the quantity of snow accumulated, redistributed, and sublimated over the preceding winter. Sublimation is the direct conversion of ice or snow to water vapour. Sublimation can occur directly from static snowpack or during blowing snow events, and rates of sublimation depend on humidity and wind speed (Essery et al. 1999; Déry and Yau 2002). Snow can also be redistributed by wind and gravity.

Snow sublimation and redistribution can have a large effect on the amount of snow available for melt in the spring. In dry areas located above the treeline, wind redistribution and sublimation during blowing snow events can have a large effect on snow depths (Marsh et al. 1994; Pomeroy et al. 1997). The assessment of these 2 processes in the Project area is based on the snowfall amounts discussed in Section 4.1.3.3 and on snow survey observations, discussed below.

Estimating snow sublimation and redistribution losses directly is difficult and requires extensive local data. Spring snow course survey results can be used to estimate sublimation for 2009 by comparing the pre-melt snow water equivalent with the estimated accumulated precipitation corrected for undercatch. It is assumed that all precipitation from October through May is accumulated on or in the snowpack, because snow as well as rain would be captured by the snowpack already on the ground. The calculation by this method is summarized in Table 4-10.

Table 4-10: Sublimation Losses, 2009

Parameters	Gross Value	Undercatch Correction Factor	Corrected Value
Snowfall (1 Oct 2008 – 31 May 2009)	101.9[a] cm	1.50	152.9 cm
Rainfall (1 Oct 2008 – 31 May 2009)	6.0[b] mm	1.13	6.8 mm
Total Precipitation (1 Oct 2008 – 31 May 2009)	107.9 mm	1.48[c]	159.6 mm
Weighted SWE (2009 Snow Survey)			76.6 mm
Sublimation Losses (Total Precipitation – Weighted SWE)			83.0 mm

[a] from Table 4-4
[b] from Table 4-5
[c] weighted value for the winter period of 2008 to 2009
Note: cm = centimetres; mm= millimetres

Sublimation losses in 2009 are estimated to be 83 mm, or 52% of the undercatch-adjusted accumulated precipitation for the period October 2008 to May 2009.

Using a similar approach, the sublimation for the 1998 hydrological year was 113.0 mm, or 46% of the accumulated amount (AEE 1999). This loss was greater in 1999 and 2008 than 1998, possibly due to higher wind peak speeds. Sublimation losses reported by AEE for 1997 were based on a literature review citing that "losses of 20 percent to 30 percent of the total snow water equivalent of the winter snowfall have been estimated for Arctic tundra areas" (Pomeroy et al. 1997) and appear to be lower than losses estimated for other years. Sublimation values estimated for the 2009 field program as well as previous programs are reported in Table 4-11. Excluding 1997, mean annual loss of snowpack to sublimation and snow redistribution is estimated to vary between 46 and 52% of total precipitation for the winter period.

Table 4-11: Estimated Sublimation and Snow Redistribution Losses at the Project Area

Losses	1997[a]	1998[a]	1999[a]	2008[b]	2009
Derived	27 mm	113 mm	>>113 mm	91 mm	83 mm
% of Total Precipitation[c]	20 %	46 %	>>46 %	46 %	52 %

a= AEE (1998a, 1998b, 1999)
b= Golder (2008a)
c= Period of October to May
Note: % = percent; mm = millimetres

The Project site is located in a primarily open area, surrounded by a large waterbody (i.e., Meliadine Lake). According to Essery et al. (1999), losses to sublimation for open tundra can reach up to 47% of the snow pack, and losses to snow redistribution can account for an additional 18 to 22% for lakes and open tundra. The range of average loss to snow redistribution and sublimation estimated at the Project site is within this reported range.

Sublimation losses from the spring snowpack prior to and during the melt process are estimated to be small relative to those occurring over the winter. Arctic water balance studies (Marsh and Woo 1979; Marsh et al. 1994) generally do not correct for this. Losses due to snow redistribution and sublimation depend on local geography and meteorological conditions, and therefore the range of loss estimated for the Project site should apply only to local watersheds within the immediate Project area.

4.1.7 Wind Speed and Direction

At the Rankin Inlet A climate station, MSC provides hourly mean data for wind speed and wind direction (Environment Canada 2009a), and daily maximum wind gust data if the maximum gust speed exceeds 29 km/h. Wind data were analyzed for mean hourly wind speed and direction values, and a brief assessment is presented below for the period of 1981 to 2008. Data from 2009 were not available for the whole year at the time of reporting and were not included in the analysis.

At the Rankin Inlet A climate station, the recorded prevailing winds are from north-northwest and north. The wind frequency rose presented in Figure 4-5 shows that the wind blows from the two prevailing directions more than 30% of the time. The calm frequency, defined as less than 1.0 m/s, is 2.79% of the time. The least frequent wind direction is west-southwest with a frequency of 2.07%. The mean values for wind speed show that the north-northwest together with north and northwest winds have the highest speeds and tend to be the strongest. The values for wind speed frequency are presented in Table 4-12.

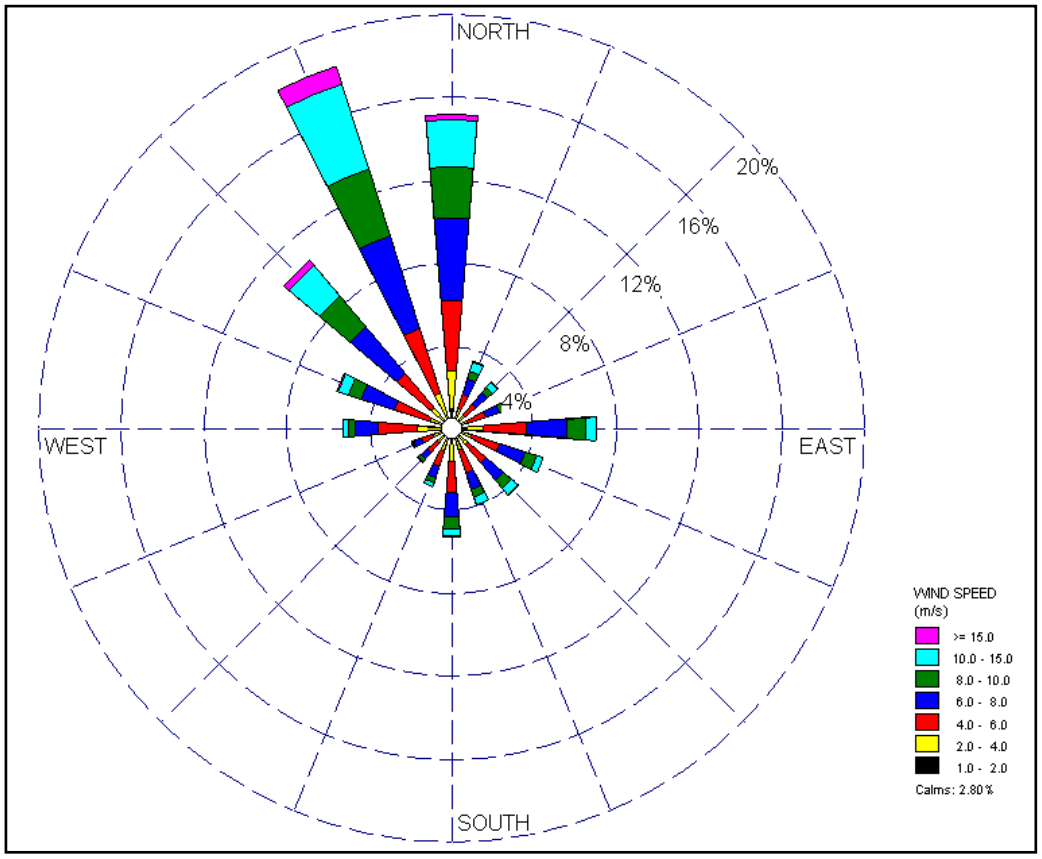


Figure 4-5: Rankin Inlet A Mean Wind Speed and Direction - Frequency Rose

Table 4-12: Rankin Inlet A Wind Rose Speed and Direction Frequencies, 1981 to 2008

Direction		Wind Classes (m/s)							
Cardinal or Intermediate	Sector Midpoint (°)	1.0 to 2.0	2.0 to 4.0	4.0 to 6.0	6.0 to 8.0	8.0 to 10.0	10.0 to 15.0	≥15.0	Total (%)
N	0.0	0.99	1.81	3.40	3.96	2.45	2.25	0.28	15.14
NNE	22.5	0.48	0.56	0.72	0.75	0.43	0.44	0.07	3.45
NE	45.0	0.35	0.49	0.72	0.71	0.34	0.33	0.06	3.00
ENE	67.5	0.33	0.54	0.86	0.75	0.34	0.29	0.06	3.17
E	90.0	0.49	1.05	2.11	1.95	0.85	0.52	0.04	7.01
ESE	112.5	0.29	0.73	1.44	1.31	0.56	0.33	0.02	4.68
SE	135.0	0.32	0.69	1.21	1.12	0.47	0.43	0.02	4.26
SSE	157.5	0.35	0.77	1.17	0.82	0.40	0.35	0.02	3.88
S	180.0	0.58	1.04	1.47	1.18	0.57	0.38	0.02	5.24
SSW	202.5	0.43	0.73	0.78	0.59	0.28	0.18	0.01	3.00
SW	225.0	0.39	0.59	0.59	0.38	0.16	0.09	0.01	2.21

Table 4-12: Rankin Inlet A Wind Rose Speed and Direction Frequencies, 1981 to 2008 (continued)

Direction		Wind Classes (m/s)							
Cardinal or Intermediate	Sector Midpoint (°)	1.0 to 2.0	2.0 to 4.0	4.0 to 6.0	6.0 to 8.0	8.0 to 10.0	10.0 to 15.0	≥15.0	Total (%)
WSW	247.5	0.36	0.61	0.61	0.33	0.10	0.06	0.00	2.07
W	270.0	0.54	1.18	1.87	1.09	0.33	0.24	0.02	5.27
WNW	292.5	0.33	0.78	1.79	1.69	0.67	0.51	0.09	5.86
NW	315.0	0.36	0.94	2.19	2.96	1.92	1.94	0.31	10.62
NNW	337.5	0.53	1.29	3.25	4.68	3.34	4.32	0.89	18.30
Sub-Total		7.12	13.80	24.18	24.27	13.21	12.66	1.92	97.16
Calms									2.79
Missing/Incomplete									0.05
Total									100.00

Note: ° = degrees; m/s = metres per second

The wind class frequency distribution shows that the most frequent winds are the ones with velocities of 4.0 to 8.0 m/s, and they occur almost 50% of the time (Figure 4-6).

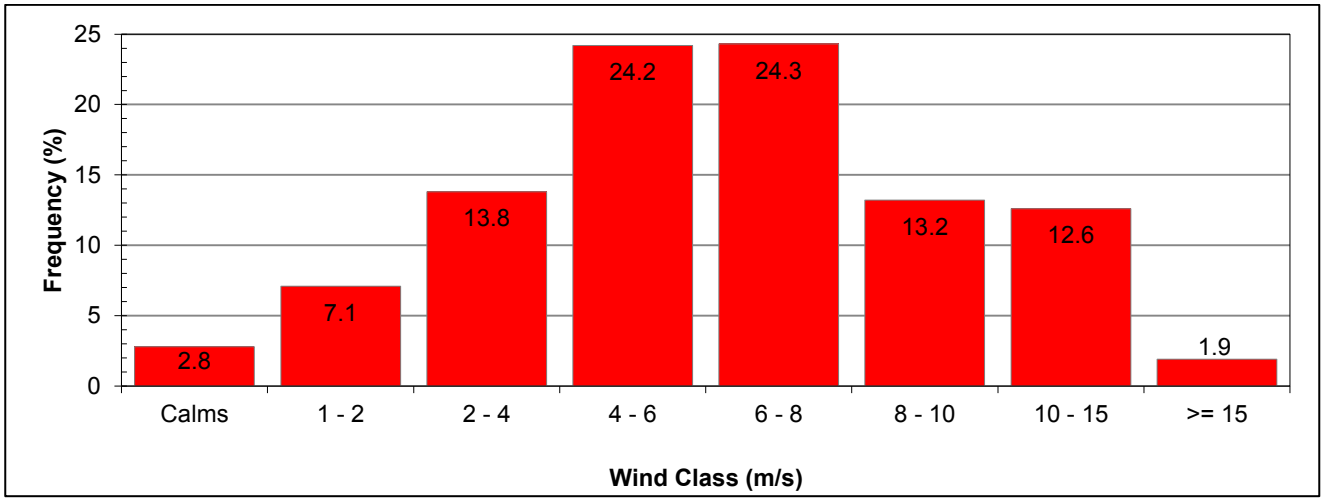


Figure 4-6: Rankin Inlet A Mean Wind Class Frequency Distribution

4.1.8 Relative Humidity and Solar Radiation

Table 4-13 provides a summary of the mean relative humidity values recorded at Rankin Inlet A climate station for the period of 1981 to 2008. Data for 2009 were not available for the whole year at the time of reporting and was not included in the analysis. Details of recorded data, summarized by month and year, are provided in Appendix A1.

Rankin Inlet A climate station is humid all year round, with peaks typically occurring during the months of May and October and lows during the winter in January and February.

Table 4-13: Mean Relative Humidity Recorded at Rankin Inlet A and Meliadine Camp

Month	Mean Monthly Relative Humidity [%]				
	Meliadine Camp				Rankin Inlet A
	1997	1998	1999	2000	1981 to 2008
January	Not recorded	70.8	78.3	Not recorded	66.6
February	Not recorded	78.4	83.9	Not recorded	67.0
March	Not recorded	77.9	84.3	Not recorded	70.2
April	88.5	88.5	91.2	Not recorded	78.9
May	85.7	91.4	93.1	Not recorded	86.1
June	80.1	85.6	84.8	86.8	80.8
July	74.2	81.3	81.2	78.2	77.2
August	81.0	89.5	85.7	85.5	81.2
September	Not recorded	94.2	89.3	89.6	84.0
October	93.5	94.5	Not recorded	Not recorded	86.7
November	89.6	95.4	Not recorded	Not recorded	77.9
December	84.4	83.6	Not recorded	Not recorded	70.2
Annual[a]	**84.6**	**85.9**	**85.8**	**85.0**	**77.3**

[a] based on recorded data
Note: % = percent

The value of solar radiation is very much related with the length of the day in the north. The net solar radiation (the difference between the incoming solar radiation and the reflected radiation) data were collected at the climate station installed at Meliadine Camp and is reported for the years of 1997, 1999 and 2000, in Table 4-14.

Table 4-14: Mean Net Solar Radiation at Meliadine Camp, 1997, 1999, and 2000

Month	Monthly Mean Net Radiation ($MJ/m^2/d$)		
	1997	1999	2000
June	13.5	14.3	10.4
July	12.1	11.0	13.5
August	8.6	7.4	7.2
September	Not recorded	3.9	3.8

Note: $MJ/m^2/d$ = megajoules per square metre per day

4.2 Long-Term Local and Regional Hydrology

4.2.1 Field Monitoring Data

4.2.1.1 Introduction

Hydrometric data are available for main basins including the Meliadine and Diana basins and for Peninsula stations, including outlets of Lakes A1, A6, B2, B4, B5, B7, D5, and G2, and well as for Control Lake, Lake A54 and Lake A8. Additional hydrometric data are also available for Chickenhead Lake, Peter Lake, and the Char River. Rain gauge data are also available. These data were obtained from field programs in 1997, 1998, 1999, 2000, 2008, and 2009 (AEE 1998a, 1998b, 1999; AMEC 2000; Golder 2008a). Data from 2009 are presented in Appendix A4. Basic information including available parameters, location, period of record, and alternate names

of these stations is presented in Table 4-15 and Figure 4-7. The station locations are presented in UTM format in Zone 15V and refer to the most recent locations. Alternate names refer to previous naming conventions used in previous reports (AEE 1998a, 1998b, 1999; AMEC 2000).

Table 4-15: Hydrometric and Rain Gauge Stations, 1997 to 2009

Hydrometric Station	UTM Zone 15 NAD 83		Period of Record	Parameters	Automated (Y/N)	Alternate Names
	Easting (m)	Northing (m)				
Meliadine Lake Main Outlet	530780	6989640	1997 to 2000 2008 to 2009	Q, WL	Y (1997 to 2000)	Meliadine River at Meliadine Lake Outlet
Meliadine Lake West Outlet	523818	7000994	1997 to 2000 2008 to 2009	Q, WL	Y (1997 to 2000)	West Outlet of Meliadine Lake
Meliadine River near the Mouth	544835	6971643	1997 to 2000 2008 to 2009	Q, WL	Y (1997 to 2000)	-
Meliadine Lake	530573	6995555	1997 to 2000 2008 to 2009	WL	Y	-
Diana River near Rankin Inlet	526374	6973649	1997 to 1999	Q, WL	Y	-
Diana Lake	514458	6983733	1997 to 1999	WL	N	-
Peter Lake	511770	6990277	1997 to 1999	WL	N	-
Char River near Rankin Inlet	544000	6970000	2000	Q, WL	N	-
Lake A1	544479	6985918	1997 to 2000 2008 to 2009	Q, WL	Y	Peg Creek
Lake A6	542374	6986171	1997 to 1998	Q, WL	Y	Peg Lake
Lake B2	537375	6986232	1998 to 2000 2008 to 2009	Q, WL	Y	Woodstock Lake
Lake B4	538050	6987087	1997 to1998	Q, WL	Y	Newy Lake
Lake B5	538430	6987824	1998	Q, WL	Y	Bud Lake
Lake B7	537935	6989488	1998 to 2000 2008 to 2009	Q, WL	Y	Woody Lake
Lake D1	532693	6989813	2009	Q, WL	Y	-
Lake D5	535088	6989471	1997 to 1998	Q, WL	Y	-
Lake G1	537797	6991573	2009	Q	N	-
Lake G2	538189	6990970	2009	Q	N	-
Control Lake	533052	6987678	1997	Q, WL	Y	-
Chickenhead Lake	553835	6981017	2009	Q, WL	Y	-
Lake A54	540417	6988473	2008 to 2009	WL	N	-
Lake A8	540728	6986693	2009 to 2009	Q, WL	N	-
Rain Gauge	542310	6989078	1997 to 2000 2008 to 2009	R	Y	-

Note: Q = discharge; WL = water level; R = rainfall; m = metres; - = no alternate names

4.2.1.1 Snow Course Survey

Table 4-16 provides a summary of all snow course surveys performed in the Project area. These data were obtained from field programs in 1997, 1998, 1999, 2000, 2008, and 2009 (AEE 1998a, 1998b, 1999; AMEC 2000; Golder 2008a). Data from 2009 for the Meliadine Project area are presented in Appendix A4.

Table 4-16: Snow Water Equivalent (mm), 1997 to 2000 and 2008 to 2009

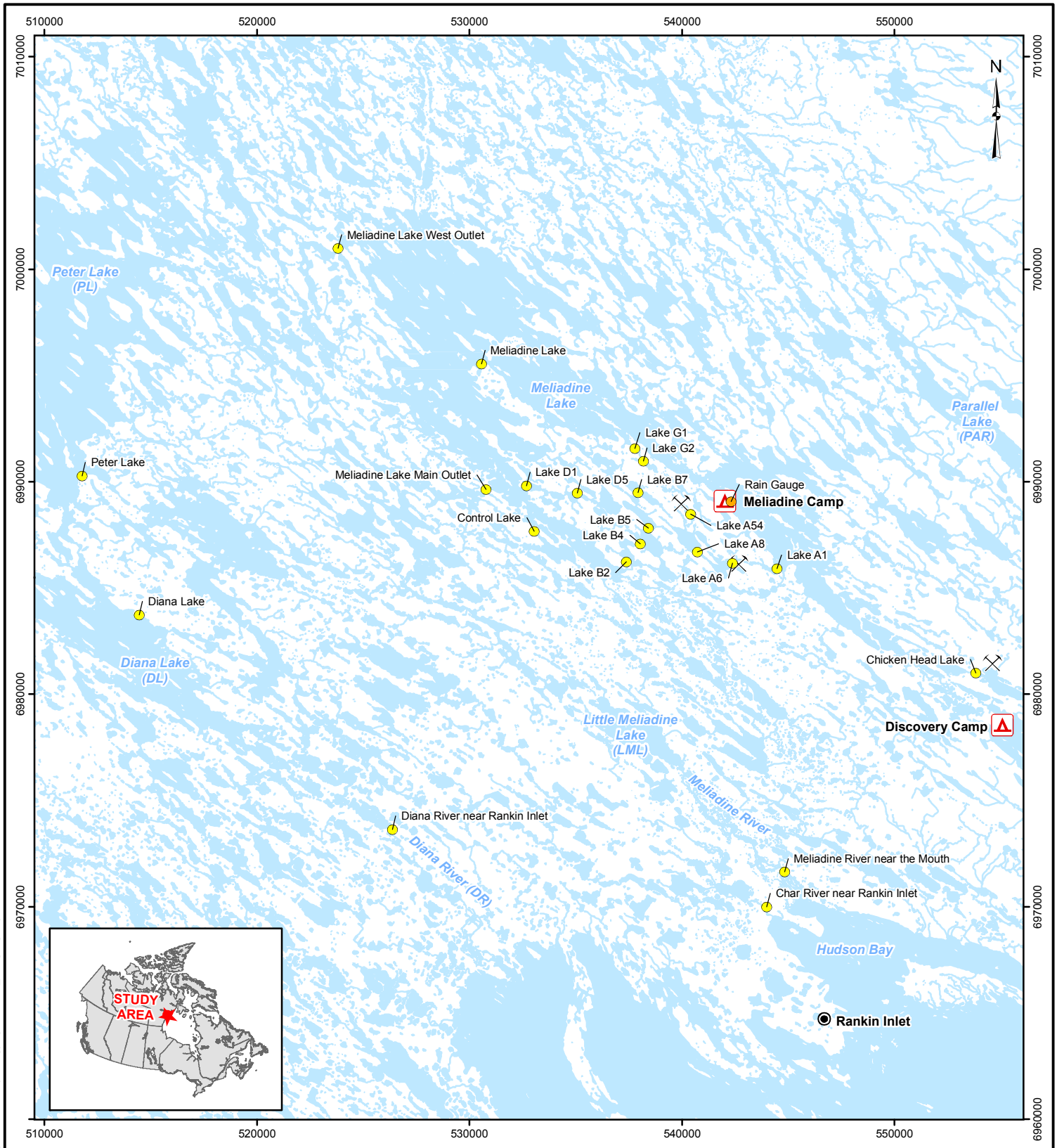
Basin	Year					
	1997	1998	1999[a]	2000	2008	2009
A1 Lake	135.0	109.0	133.5	181.5	108.3	75.8
A6 Lake	98.0	94.2	-	-	-	-
A37 Lake	-	-	-	167.0	-	-
D5 Lake	107.0	98.0	-	-	-	77.4
G2 Lake	121.0	-	-	-	-	-
B2 Lake	-	100.9	132.4	181.8	109.2	77.3
B4 Lake	-	98.4	-	-	-	-
B5 lake	-	94.7	-	-	-	-
B7 Lake	-	93.8	128.6	171.4	105.4	75.9

[a] estimated values

Note: mm = millimetres; - = no available data

4.2.1.2 Flow Regimes

This section provides a summary of all available data for each hydrometric station, including some basic statistics and key hydrological parameters for rivers. It must be noted that water surface elevations are referenced to a different non-geodetic datum from 1997 to 2000 than from 2008 to 2009. Detailed hydrometric data for all stations are available in Appendix A2.



LEGEND

- Camp
- Hydrometric Station
- Rain Gauge
- Proposed Mine Site
- Watercourse
- Waterbody

REFERENCE

Base data obtained from Comaplex Minerals Corporation. Hydrometric data obtained from field survey.
Projection: UTM Zone 15 Datum: NAD 83

PROJECT

COMAPLEX MINERALS CORP

COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE

RAIN GAUGE AND HYDROMETRIC STATION LOCATIONS

Golder Associates
Edmonton, Alberta

PROJECT NO. 09-1373-0010			PHASE No. 5000	
DESIGN	JL	27 Oct. 2009	SCALE AS SHOWN	REV. 0
GIS	CDB	27 Oct. 2009		
CHECK	NPS	17 Nov. 2009		
REVIEW	GA	25 Nov. 2009		

FIGURE 4-7

N:\Bur-Graphics\Projects\2007\1373\07-1373-0055\Mapping\MXD\2009\Hydrology\figure-04-07_rain-gauge-hydrometric-stations.mxd

Meliadine Lake Main Outlet

Based on hydrometric data gathered during the open water seasons of 1997 to 2000 and 2008 to 2009, the mean daily discharge at Meliadine Lake Main Outlet, which drains to the Meliadine River, varied from 0 to 19.1 ^{m3}/s over the period of record, with a long term annual range of water surface elevation of 0.45 m. A summary of measurements for each year of available data is provided in Table 4-17.

Table 4-17: Mean Daily Hydrometric Data at Meliadine Lake Main Outlet, 1997 to 2009

Year	Discharge (m^3/s)		Annual Range of Water Surface Elevation (m)	Notes
	Maximum	Minimum		
1997	7.09	0.415	0.34	19-May to 25-Sept
1998	13.7	1.22	0.29	6-Jun to 22-Sept
1999	19.1	2.70	0.37	31-May to 20-Sept
2000	13.3	1.12	0.37	9-Jun to 18-Sept
2008	3.37	0.662	0.23	14-Jun to 17-Sept; Peak discharge not captured
2009	5.87	0.000	0.06	12-Jun to 11-Sept; Peak discharge not captured
Entire period of record	**19.1**	**0.000**	**0.45**	

Note: ^{m3}/s = cubic metres per second; m = metres

Meliadine Lake West Outlet

Based on hydrometric data gathered during the open water seasons of 1997 to 2000 and 2008 to 2009, the mean daily discharge at Meliadine Lake West Outlet which drains to Peter Lake and the Diana River, varied from 0 to 16.4 ^{m3}/s over the period of record, with a long term annual range of water surface elevation of 0.58 m. A summary of measurements for each year of available data is provided in Table 4-18.

Table 4-18: Mean Daily Hydrometric Data at Meliadine West Main Outlet, 1997 to 2009

Year	Discharge (m^3/s)		Annual Range of Water Surface Elevation (m)	Notes
	Maximum	Minimum		
1997	1.76	0.000	0.34	12-Jun to 10-Sept
1998	5.92	0.118	0.30	6-Jun to 22-Sept
1999	16.4	0.518	0.37	6-Jun to 20-Sept
2000	5.92	0.203	0.37	15-Jun to 23-Sept
2008	1.19	0.461	0.31	16-Jun to 18-Sept; Peak discharge not captured
2009	3.57	0.537	0.17	14-Jun to 11-Sept; Peak discharge not captured
Entire period of record	**16.4**	**0.000**	**0.58**	

Note: ^{m3}/s = cubic metres per second
m = metres

Meliadine River near the Mouth

The Meliadine River is located southwest of the Project area and flows directly from Meliadine Lake into the Hudson Bay. The Meliadine River flows parallel to the Diana River, located approximately 10 km southwest.

The Meliadine River near the Mouth has a gross drainage area of 796 km^2, including approximately 143 km^2 of non-contributing area (AEE 1999). It is fed by Meliadine Lake and other smaller sub-watersheds. The bed material is mainly composed of boulders, cobbles, and gravels, and the bank material of organics. The regime of the Meliadine River is characterized on a monthly basis in Table 4-19 and on a mean daily basis in Table 4-20, based on 6 years of field data (AEE 1998a, 1998b, 1999; AMEC 2000; Golder 2008c). Data from 1997 to 2000 were recorded continuously from June to September, and data from 2008 and 2009 only include a manual discharge measurement once a month from July to September. The mean monthly discharges presented in Table 4-19 are based on available data from years 1997 to 2000. Maximum and minimum daily discharges are based on all the field data. Mean monthly discharges for the Meliadine River varied from 0 ^{m3}/s to 21 ^{m3}/s over the period of record, with the high and low both recorded in June. Because the Meliadine River watershed is smaller than that of the Diana River (presented in Section 4.2.2.1), it is likely that the monthly mean discharges for the period of January to May are zero. The maximum daily discharge occurs during the snowmelt, typically in June, with a maximum recorded value of 39.2 ^{m3}/s in June 1999. A frequency analysis was not performed due to the short period of record. The range between the minimum and maximum recorded mean daily water levels was 1.13 m over the period of record.

Table 4-19: Meliadine River Flow Regime (m^3/s), 1997 to 2009

	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Monthly Mean Discharges	1997[a]	-	-	-	-	-	-	5.49	1.59	0.98	-	-	-
	1998[b]	-	-	-	-	-	17.5	7.05	4.12	5.10	-	-	-
	1999[c]	-	-	-	-	-	24.7	11.28	6.21	7.55	-	-	-
	2000[d]	-	-	-	-	-	20.1	9.49	4.21	3.32	-	-	-
Manual Discharge Measurements	2008[e]	-	-	-	-	-	-	9.00	4.76	2.21	-	-	-
	2009[f]	-	-	-	-	-	-	12.50	5.78	3.80	-	-	-
Mean		-	-	-	-	-	**20.8**	**8.33**	**4.03**	**4.24**	-	-	-
Maximum Daily		-	-	-	-	-	**39.2**	**20.0**	**9.95**	**9.07**	-	-	-
Minimum Daily		-	-	-	-	**0.00**	**0.692**	**3.21**	**1.25**	**0.69**	-	-	-

[a] field data from 20 June to 25 September 1997
[b] field data from 4 June to 23 September 1998
[c] field data from 17 June to 22 September 1999
[d] field data from 20 June to 19 September 2000
[e] manual discharge measurements for 9 July, 2 August, and 17 September 2008
[f] manual discharge measurements for 13 July, 4 August, and 11 September 2009
Note: ^{m3}/s = cubic metres per second; - = no available data

Table 4-20: Mean Daily Hydrometric Data at Meliadine River near the Mouth, 1997 to 2009

Year	Discharge (m^3/s)		Annual Range of Water Surface Elevation (m)	Notes
	Maximum	Minimum		
1997	8.57	0.692	0.46	13-Jun to 25-Sept
1998	30.0	2.74	0.90	4-Jun to 23-Sept
1999	39.2	3.94	0.70	31-May to 22-Sept
2000	28.5	2.91	0.63	14-Jun to 19-Sept
2008	9.00	2.21	-	10-July to 17-Sept; Peak discharge not captured; No reliable water surface elevation measurements
2009	12.5	3.80	0.54	13-June to 11-Sept; Peak discharge not captured
Entire period of record	**39.2**	**0.692**	**1.13**	

Note: ^{m3}/s = cubic metres per second; m = metres; - = not available

Meliadine Lake

Based on hydrometric data gathered during the open water seasons of 1997 to 2000 and 2008 to 2009, the long term annual range of water surface elevation at Meliadine Lake was 0.58 m over the period of record. A summary of measurements for each year of available data is provided in Table 4-21.

Table 4-21: Mean Daily Hydrometric Data at Meliadine Lake, 1997 to 2009

Year	Annual Range of Water Surface Elevation (m)	Notes
1997	0.34	12-Jun to 25-Sept
1998	0.30	6-Jun to 22-Sept
1999	0.37	16-Jun to 20-Sept
2000	0.39	1-Jan to 18-Sept
2008	0.18	14-Jun to 18-Sept
2009	0.19	12-Jun to 11-Sept
Entire period of record	**0.58**	

Note: m = metres

Diana River near Rankin Inlet

Based on hydrometric data gathered during the open water seasons of 1997 to 1999, the mean daily discharge at the Diana River near Rankin Inlet varied from 0.825 to 78.6 ^{m3}/s over the period of record, with a long term annual range of water surface elevation of 1.06 m. Additional details on the flow regime of the Diana River near Rankin Inlet are available in Section 4.2.2.1. A summary of measurements for each year of available data is provided in Table 4-22.

Table 4-22: Mean Daily Hydrometric Data at the Diana River near Rankin Inlet, 1997 to 1999

Year	Discharge (m^3/s)		Annual Range of Water Surface Elevation (m)	Notes
	Maximum	Minimum		
1997	39.9	0.825	0.85	25-May to 24-Sept
1998	52.6	12.5	0.57	6-Jun to 22-Sept
1999	78.6	18.3	0.68	31-May to 16-Sept
Entire period of record	**78.6**	**0.825**	**1.06**	

Note: ^{m3}/s = cubic metres per second; m = metres

Diana Lake

Based on hydrometric data gathered during the open water seasons of 1997 to 1999, the long term annual range of water surface elevation at Diana Lake was 1.10 m over the period of record. A summary of measurements for each year of available data is provided in Table 4-23.

Table 4-23: Instantaneous Hydrometric Data at Diana Lake, 1997 to 1999

Year	Annual Range of Water Surface Elevation (m)	Notes
1997	0.70	23-Jun to 24-Sept
1998	1.09	7-May to 22-Sept
1999	0.47	16-Jun to 22-Sept
Entire period of record	**1.10**	

Note: m = metres

Peter Lake

Based on hydrometric data gathered during the open water seasons of 1997 to 1999, the long term annual range of water surface elevation at Peter Lake was 0.87 m over the period of record. A summary of measurements for each year of available data is provided in Table 4-24.

Table 4-24: Instantaneous Hydrometric Data at Peter Lake, 1997 to 1999

Year	Annual Range of Water Surface Elevation (m)	Notes
1997	0.55	23-Jun to 24-Sept
1998	0.57	7-May to 22-Sept
1999	0.53	14-May to 22-Sept
Entire period of record	**0.87**	

Note: m = metres

Char River near Rankin Inlet

The Char River originates from Char Lake and flows parallel to the Meliadine River at an approximate distance of 1.5 km southwest, into Hudson Bay and has a gross drainage area of 69.0 km^2 (AMEC 2000). Observations

are only available in 2000 (AMEC 2000) and report an estimated peak instantaneous discharge of 12.5 m^3/s on the fourth day of runoff in June. The measured discharge at the Char River near Rankin Inlet varied from 0 to 9.45 m^3/s over the period of record. The reported water surface elevations refer to the levels of Char Lake (as the discharge at the crossing is governed by the Char Lake outlet), with the annual range of water surface elevation of 0.37 m. The channel is moderately meandering, and the bed material consists mainly of gravels and cobbles. It must be noted that the year 2000 can be considered a dry year when compared to the rest of the years with observations from the nearby stations, and that the peak instantaneous discharge may be greater during a normal year. A summary of measurements for the year 2000 is provided in Table 4-25.

Table 4-25: Mean Daily Hydrometric Data at the Char River near Rankin Inlet, 2000

Year	Discharge (m^3/s)		Annual Range of Water Surface Elevation (m)	Note
	Maximum	Minimum		
2000	9.45	0.000	0.37	12-Jun to 19-Sept

Note: m^3/s = cubic metres per second; m = metres

Lake A1

Based on hydrometric data gathered during the open water seasons of 1997 to 2000 and 2008 to 2009, the mean daily discharge at the Lake A1 Outlet varied from 0 to 1.32 m^3/s over the period of record, with a long term annual range of water surface elevation of 0.54 m. A summary of measurements for each year of available data is provided in Table 4-26.

Table 4-26: Mean Daily Hydrometric Data at Lake A1, 1997 to 2009

Year	Discharge (m^3/s)		Annual Range of Water Surface Elevation (m)	Notes
	Maximum	Minimum		
1997	0.55	0.000	0.37	11-Jun to 25-Sept
1998	1.27	0.000	0.42	5-Jun to 12-Sept
1999	0.916	0.020	0.43	13-May to 20-Sept
2000	1.32	0.009	0.43	13-Jun to 19-Sept
2008	0.065	0.002	0.12	15-Jun to 16-Sept; Peak discharge not captured
2009	0.690	0.017	0.34	11-Jun to 10-Sept; Peak discharge not captured
Entire period of record	**1.32**	**0.000**	**0.54**	

Note: m^3/s = cubic metres per second; m = metres

Lake A6

Based on hydrometric data gathered during the open water seasons of 1997 to 1998, the mean daily discharge at the Lake A6 Outlet varied from 0.00 to 1.18 m^3/s over the period of record, with a two-year annual range of water surface elevation of 0.43 m. A summary of measurements for each year of available data is provided in Table 4-27.

Table 4-27: Mean Daily Hydrometric Data at Lake A6, 1997 to 1998

Year	Discharge (m^3/s)		Annual Range of Water Surface Elevation (m)	Notes
	Maximum	Minimum		
1997	0.221	0.000	0.30	11-Jun to 25-Sept
1998	1.18	0.002	0.33	5-Jun to 23-Sept
Entire period of record	**1.18**	**0.000**	**0.43**	

Note: ^{m3}/s = cubic metres per second; m = metres

Lake B2

Based on hydrometric data gathered during the open water seasons of 1997 to 2000 and 2008 to 2009, the mean daily discharge at the Lake B2 Outlet varied from 0.009 to 2.57 ^{m3}/s over the period of record, with a long term annual range of water surface elevation of 0.47 m. A summary of measurements for each year of available data is provided in Table 4-28.

Table 4-28: Mean Daily Hydrometric Data at Lake B2, 1998 to 2009

Year	Discharge (m^3/s)		Annual Range of Water Surface Elevation (m)	Notes
	Maximum	Minimum		
1998	2.29	0.010	0.38	8-Jun to 24-Sept
1999	2.06	0.040	0.43	2-Jun to 20-Sept
2000	2.57	0.023	0.41	13-Jun to 19-Sept
2008	0.210	0.009	0.16	19-Jun to 16-Sept; Peak discharge not captured
2009	2.03	0.051	0.27	11-Jun to 10-Sept; Peak discharge not captured
Entire period of record	**2.57**	**0.009**	**0.47**	

Note: ^{m3}/s = cubic metres per second; m = metres

Lake B4

Based on hydrometric data gathered during the open water seasons of 1997 to 1998, the mean daily discharge at the Lake B4 Outlet varied from 0 to 4.68 ^{m3}/s over the period of record, with a two-year annual range of water surface elevation of 0.59 m. A summary of measurements for each year of available data is provided in Table 4-29.

Table 4-29: Mean Daily Hydrometric Data at Lake B4, 1997 to 1998

Year	Discharge (m^3/s)		Annual Range of Water Surface Elevation (m)	Notes
	Maximum	Minimum		
1997	0.571	0.000	0.43	11-Jun to 25-Sept
1998	4.68	0.008	0.51	5-Jun to 23-Sept
Entire period of record	4.68	0.000	0.59	

Note: ^{m3}/s = cubic metres per second; m = metres

Lake B5

Based on hydrometric data gathered during the open water season of 1998, the mean daily discharge at the Lake B5 Outlet varied from 0.001 to 0.630 ^{m3}/s, with a water surface elevation range of 0.26 m. A summary of measurements for the year of 1998 is provided in Table 4-30.

Table 4-30: Mean Daily Hydrometric Data at Lake B5, 1998

Year	Discharge (m^3/s)		Annual Range of Water Surface Elevation (m)	Note
	Maximum	Minimum		
1998	0.630	0.001	0.26	7-Jun to 24-Sept

Note: ^{m3}/s = cubic metres per second; m = metres

Lake B7

Based on hydrometric data gathered during the open water seasons of 1998 to 2000 and 2008 to 2009, the mean daily discharge at the Lake B7 Outlet varied from 0 to 0.330 ^{m3}/s over the period of record, with a long term annual range of water surface elevation of 0.59 m. A summary of measurements for each year of available data is provided in Table 4-31.

Table 4-31: Mean Daily Hydrometric Data at Lake B7, 1998 to 2009

Year	Discharge (m^3/s)		Annual Range of Water Surface Elevation (m)	Notes
	Maximum	Minimum		
1998	0.282	0.000	0.30	7-Jun to 24-Sept
1999	0.231	0.008	0.36	2-Jun to 20-Sept
2000	0.330	0.000	0.40	14-Jun to 18-Sept
2008	0.033	0.004	0.18	16-Jun to 16-Sept; Peak discharge not captured
2009	0.128	0.011	0.22	11-Jun to 10-Sept; Peak discharge not captured
Entire period of record	**0.330**	**0.000**	**0.40**	

Note: ^{m3}/s = cubic metres per second; m = metres

Lake D1

Based on hydrometric data gathered during the open water season 2009, the mean daily discharge at the Lake D1 Outlet varied from 0.031 to 0.183 ^{m3}/s over the period of record, with a water surface elevation range of 0.33 m. A summary of measurements for the year of 2009 is provided in Table 4-32.

Table 4-32: Mean Daily Hydrometric Data at Lake D1, 2009

Year	Discharge (m^3/s)		Annual Range of Water Surface Elevation (m)	Note
	Maximum	Minimum		
2009	0.183	0.031	0.14	11-July – 10-Sept; Peak discharge not captured

Note: ^{m3}/s = cubic metres per second; m = metres

Lake D5

Based on hydrometric data gathered during the open water seasons of 1997 to 1998, the mean daily discharge at the Lake D5 Outlet varied from 0 to 0.600 ^{m3}/s over the period of record, with a two-year annual range of water surface elevation of 0.36 m. A summary of measurements for each year of available data is provided in Table 4-33.

Table 4-33: Mean Daily Hydrometric Data at Lake D5, 1997 to 1998

Year	Discharge (m^3/s)		Annual Range of Water Surface Elevation (m)	Notes
	Maximum	Minimum		
1997	0.104	0.020	0.24	11-Jun to 25-Sept
1998	0.600	0.000	0.27	6-Jun to 23-Sept
Entire period of record	**0.600**	**0.000**	**0.36**	

Note: ^{m3}/s = cubic metres per second; m = metres

Lake G1

A single manual discharge measurement of 0.002 ^{m3}/s was measured at the Lake G1 Outlet on 6 August 2009. No other data are available to characterize the lake outlet.

Lake G2

A single manual discharge measurement of 0.006 ^{m3}/s was measured at the Lake G2 Outlet on 12 July 2009. No other data are available to characterize the lake outlet.

Control Lake

Based on hydrometric data gathered during the open water season of 1997, the mean daily discharge at Control Lake Outlet varied from 0 to 0.007 ^{m3}/s, with a water surface elevation range of 0.29 m. A summary of measurements for the year of 1997 is provided in Table 4-34.

Table 4-34: Mean Daily Hydrometric Data at Control Lake, 1997

Year	Discharge (m^3/s)		Annual Range of Water Surface Elevation (m)	Note
	Maximum	Minimum		
1997	0.007	0.000	0.29	12-Jun to 24-Sept

Note: ^{m3}/s = cubic metres per second; m = metres

Chickenhead Lake

Based on hydrometric data gathered during the open water season of 2009, the mean daily discharge at the Chickenhead Lake Outlet varied from 0.054 to 0.415 ^{m3}/s, with a water surface elevation range of 0.19 m. A summary of measurements for the year of 2009 is provided in Table 4-35.

Table 4-35: Mean Daily Hydrometric Data at Chickenhead Lake, 2009

Year	Discharge (m^3/s)		Annual Range of Water Surface Elevation (m)	Note
	Maximum	Minimum		
2009	0.415	0.054	0.19	13-Jun to 13-Sept; Peak discharge not captured

Note: ^{m3}/s = cubic metres per second; m = metres

Lake A54

Based on hydrometric data gathered during the open water seasons of 2008 to 2009, the water surface elevation range at Lake A54 was 0.37 m. A summary of measurements for each year of available data is provided in Table 4-36.

Table 4-36: Instantaneous Hydrometric Data at Lake A54, 2008 to 2009

Year	Annual Range of Water Surface Elevation (m)	Notes
2008	0.05	10-Jul to 17-Sept
2009	0.25	11-Jun to 13-Sept
Entire period of record	**0.37**	

Note: m = metres

Lake A8

Based on hydrometric data gathered during the open water seasons of 2008 to 2009, the mean daily discharge at Lake A8 varied from less than 0.001 to 0.171 ^{m3}/s over the period of record, with a water surface elevation range of 0.19 m. A summary of measurements for each year of available data is provided in Table 4-37.

Table 4-37: Instantaneous Hydrometric Data at Lake A8, 2008 to 2009

Year	Discharge (m^3/s)		Annual Range of Water Surface Elevation (m)	Notes
	Maximum	Minimum		
2008	<0.001	<0.001	0.04	10-July to 16-Sept
2009	0.171	0.003	0.15	12-Jun to 13-Sept
Entire period of record	**0.171**	**<0.001**	**0.19**	

Note: ^{m3}/s = cubic metres per second; m = metres; <= less than

4.2.1.3 Water Yields

Water yields obtained from field programs in 1997, 1998, 1999, 2000, 2008 and 2009 are presented in Table 4-38 for local basins around the Project area. Wet years included 1998 and 1999 while dry years included 1997, 2000, 2008 and 2009.

Table 4-38: Water Yield Data (mm), 1997 to 2009

Basin	Basin Area (km^2)	Year of Monitoring Program						Mean Value
		1997	1998	1999	2000	2008	2009	
Meliadine River at Meliadine Lake Outlet	569	69	117	179	108	-	-	118
West Outlet of Meliadine Lake	569	-	30	60	25	-	-	38
Meliadine Lake Both Outlets	569	78	147	239	134	-	-	150
Meliadine River near the Mouth	682	63	149	231	130	-	-	143
Diana River near Rankin Inlet	1480	130	191	284	-	-	-	202
Char River near Rankin Inlet	69.0	-	-	-	125	-	-	125
Lake A1 Outlet	9.39	114	143	204	129	13.7[a]	56.7[a]	148
Lake A6 Outlet	6.49	59	144	-	-	-	-	102
Lake B2 Outlet	20.3	-	150	189	107	16.1[a]	94.4[a]	149
Lake B4 Outlet	20.6	57	149	-	-	-	-	103
Lake B5 Outlet	4.92	-	140	-	-	-	-	140
Lake B7 Outlet	2.39	-	113	159	102	27.3[a]	86.2[a]	125
Lake D1 Outlet		-	-	-	-	-	35.5[a]	
Lake D5 Outlet	3.69	82	136	-	-	-	-	109
Control Lake Outlet		28	-	-	-	-	-	28
Chickenhead Lake Outlet	9.86	-	-	-	-	-	106.7[a]	

[a] continuous monitoring commenced after the peak flow resulting in partial water yield data, and the presented value was calculated using recorded data only.

Note: mm = millimetres; km^2 = square kilometres; = no available data

4.2.2 Regional Hydrometric Stations

Regional data are available from Water Survey of Canada (WSC), (Environment Canada 2009b) stations 06NC001, 06NB002, and 06OA001 located on the Diana River, the Ferguson River, and the Lorillard River. Basic information on these WSC stations, including distance and direction from the Project area, is summarized in Table 4-39 with locations illustrated in Figure 4-1.

Table 4-39: Regional WSC Hydrometric Stations within 150 km of the Project area

Station Name	WSC Station Number	Period of Record	Latitude	Longitude	Distance and Direction from the Project area
Diana River Near Rankin Inlet	06NC001	1989 - 1995	62°51'37" N	92°24'56" W	30 km SW
Ferguson River Below O'Neil Lake	06NB002	1979 - 1995	62°28'18" N	95°03'10" W	150 km SW
Lorillard River Above Daly Bay	06OA001	1978 - 1992	64°17'39" N	90°26'53" W	150 km N

Note: N = north; W = west; km = kilometres

4.2.2.1 Flow Regimes

This section provides a summary of available data for each hydrometric station, including some basic statistics and key hydrological parameters. Detailed hydrometric data for all stations are available in Appendix A2.

Diana River

The Diana River is located southwest of the Project area and flows directly into Hudson Bay from Peter Lake and other nearby minor sub-basins. Meliadine Lake has two outlets, with one of them draining to the Diana River watershed. The Diana River runs parallel to the Meliadine River, which is located approximately 10 km northeast. The Diana River near the mouth has an average top width of approximately 40 m.

The Diana River near Rankin Inlet has a gross drainage area of 1460 km^2. The flow regime for the Diana River is characterized in Table 4-40, based on 7 years of data from 1989 to 1995, recorded at Environment Canada Hydrometric Station 06NC001 (Diana River near Rankin Inlet; Environment Canada 2009b). Additional manual data were also available for the open water seasons of 1997 to 1999 from previous studies (AEE 1998a, 1998b, and 1999), but were not used in the flow regime analysis to keep the datasets separate. Mean monthly discharges varied from 0 ^{m3}/s (due to frozen conditions) during January to May, to 37.9 ^{m3}/s in July. The peak daily discharge typically occurs in June, with a maximum recorded value of 102 ^{m3}/s in June 1991. A frequency analysis was not performed due the short period of record.

Table 4-40: Diana River Monthly Discharges (m^3/s), 1989 to 1995

	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Monthly Mean Discharges	1989	0.0	0.0	0.0	0.0	0.0	18.5	42.1	17.0	7.66	3.35	0.688	0.008	7.51
	1990	0.0	0.0	0.0	0.0	0.0	10.0	39.2	27.0	21.1	9.31	2.18	0.105	9.16
	1991	0.0	0.0	0.0	0.0	0.0	59.5	45.7	18.2	14.8	8.22	1.28	0.045	12.3
	1992	0.0	0.0	0.0	0.0	0.0	13.5	59.3	29.5	32.5	11.7	2.60	0.142	12.5
	1993	0.0	0.0	0.0	0.0	0.0	31.6	29.6	18.4	13.7	7.25	2.21	0.186	8.61
	1994	0.0	0.0	0.0	0.0	0.0	27.3	25.6	9.34	7.39	4.58	1.19	0.076	6.32
	1995	0.0	0.0	0.0	0.0	0.0	18.2	23.5	19.7	14.7	7.36	0.751	0.083	7.06
	1997[a]	-	-	-	-	-	32.2	24.3	9.24	5.16	-	-	-	-
	1998[a]	-	-	-	-	-	43.3	30.4	17.3	14.1	-	-	-	-
	1999[a]	-	-	-	-	-	59.8	47.2	25.6	25.3	-	-	-	-
Mean		**0.000**	**0.000**	**0.000**	**0.000**	**0.001**	**25.5**	**37.9**	**19.9**	**16.0**	**7.39**	**1.56**	**0.092**	**9.08**
Maximum Daily		**0.000**	**0.000**	**0.000**	**0.000**	**0.080**	**102**	**75.8**	**39.8**	**36.4**	**22.2**	**4.80**	**0.860**	**102**
Minimum Daily		**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**15.7**	**6.91**	**5.68**	**1.85**	**0.105**	**0.000**	**0.000**

[a] data from previous open water studies (AEE 1998a, 1998b, 1999), not included in the analysis
Note: ^{m3}/s = cubic metres per second; - = no available data

Ferguson River

The Ferguson River is located approximately 150 km southwest of the Project area and flows directly into Hudson Bay from Ferguson Lake.

The Ferguson River below O'Neil Lake has a gross drainage area of 12 400 km^2, and its watershed includes a large amount of lake area, including large lakes. The flow regime of the Ferguson River is characterized in Table 4-41, based on 9 years of data from 1987 to 1995 recorded at Environment Canada Hydrometric Station

06NB002 (Ferguson River below O'Neill Lake; Environment Canada 2009b). Additional data from 1979 to 1986 are also available, but the data set is incomplete and was not included in the discharge regime analysis. Mean monthly discharges vary from 10 ^{m3}/s in March to 314 ^{m3}/s in July. The peak daily discharge typically occurs in June, with a maximum recorded value of 764 ^{m3}/s in June 1987. A period of zero discharge was recorded from February to May in 1980 and from January to May in 1987 but this was not observed in subsequent years. A frequency analysis was not performed due the short period of record.

Table 4-41: Ferguson River Monthly Discharges (m^3/s), 1980 to 1995

	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Monthly Mean Discharges	1980	0.159	0.000	0.000	0.000	0.000	88.7	177	148	151	98.6	20.6	3.88	57.6
	1987	0.000	0.000	0.000	0.000	0.000	208	563	225	122	63.3	36.0	23.3	104
	1988	15.8	11.4	8.15	6.23	6.02	226	319	152	90.4	49.1	27.1	20.3	77.9
	1989	11.1	7.64	4.61	2.97	2.96	189	327	155	85.0	49.6	29.3	19.8	74.3
	1990	13.4	10.7	9.37	9.30	10.7	142	209	164	129	59.4	29.6	21.9	67.7
	1991	17.2	14.4	13.9	13.5	13.3	491	397	171	103	77.0	31.5	19.2	114
	1992	11.4	8.59	9.40	12.8	17.7	169	349	178	149	108	51.5	27.4	91.5
	1993	17.0	13.3	12.5	15.2	23.2	288	259	159	100	53.8	31.4	18.4	82.9
	1994	12.4	10.3	9.61	9.58	20.9	196	163	90.5	92.7	104	39.4	25.1	64.7
	1995	20.2	18.4	17.6	17.5	18.8	215	235	161	119	77.2	28.3	15.4	78.8
Mean		**11.9**	**9.4**	**8.5**	**8.7**	**11.4**	**221**	**300**	**160**	**114**	**74.0**	**32.5**	**19.5**	**81.3**
Maximum Daily		**21.7**	**19.0**	**17.9**	**17.9**	**80.0**	**764**	**823**	**314**	**165**	**156**	**71.0**	**36.0**	**823**
Minimum Daily		**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**122**	**72.5**	**62.8**	**22.7**	**18.9**	**13.2**	**0.0**

Note: ^{m3}/s = cubic metres per second

Lorillard River

The Lorillard River is located approximately 150 km north of the Project area and flows directly into the Hudson Bay.

The Lorillard River above Daly Bay has a gross drainage area of 11 000 km^2 and includes less lake area than the Ferguson and the Diana basins, with no large lakes (AEE 1998a). The discharge regime of the Ferguson River is characterized in Table 4-42, based on 8 years of data from 1978 to 1992 with gaps from 1979 to 1982, recorded at Environment Canada Hydrometric Station 06OA001 (Lorillard River above Daly Bay; Environment Canada 2009b). Data from 1978 to 1992 are incomplete and were not included in the discharge regime analysis. Mean monthly discharges vary from 0.6 ^{m3}/s in the months of January to May to 383 ^{m3}/s in July. The peak daily flow typically occurs in June, with a maximum recorded value of 3300 ^{m3}/s in June 1983. A period of zero discharge was recorded in April 1978 and from January to May in 1983 and 1984, and from January to April in 1991. A frequency analysis was not performed due the short period of record.

Table 4-42: Lorillard River Monthly Discharges (m^3/s), 1978 to 1992

	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Monthly Mean Discharges	1978	0.310	0.182	0.053	0.000	0.073	18.7	389	86.2	44.6	20.1	6.58	0.703	47.9
	1983	0.000	0.000	0.000	0.000	0.000	665	380	243	189.2	36.9	0.783	0.000	126.3
	1984	0.000	0.000	0.000	0.000	0.000	451	233	102	131.1	32.9	10.0	0.24	79.7
	1988	1.00	1.00	1.00	1.00	1.01	280	157	117	171.6	39.6	5.31	1.77	**64.6**
	1989	1.14	1.00	1.00	1.00	1.00	394	240	53.6	25.3	11.4	2.90	1.65	61.2
	1990	1.15	1.00	1.00	1.00	1.00	271	429	375	136.3	17.7	0.781	0.022	103.8
	1991	0.000	0.000	0.000	0.000	0.071	446	392	50.1	77.0	35.7	6.95	1.99	84.3
	1992	1.50	1.50	1.50	1.50	1.50	2.26	842	123	71.1	17.5	5.58	2.24	90.6
Mean		**0.64**	**0.59**	**0.57**	**0.56**	**0.58**	**316**	**383**	**144**	**105.8**	**26.5**	**4.86**	**1.07**	82.3
Maximum Daily		**1.50**	**1.50**	**1.50**	**1.50**	**1.50**	**3300**	**1980**	**1020**	**407**	**86.6**	**20.6**	**3.6**	3300
Minimum Daily		**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**63.4**	**26.1**	**18.9**	**1.85**	**0.000**	**0.000**	0.000

Note: ^{m3}/s = cubic metres per second

4.2.2.2 Water Yields

Water yields for each basin, derived from mean daily data available from Environment Canada (Environment Canada 2009b), are presented in Table 4-43. Based on 7 years of record, the water yield of the Diana River varied from 135 mm to 267 mm, with a mean of 194 mm. Based on 10 years of record, the water yield of the Ferguson River varied from 147 mm to 289 mm, with a mean of 207 mm. Records are also available for 1979 and from 1981 to 1986, but are incomplete and, therefore were not used in the analysis. Based on 8 years of record, the water yield of the Lorillard River varied from 137 mm to 362 mm, with a mean of 236 mm. Records are also available from 1979 to 1982 and from 1985 to 1987 but are incomplete and, therefore were not used in the analysis.

Table 4-43: Regional Water Yields (mm), 1978 to 1995

Basin	Basin Area (km^2)	Year													Mean Value
		1978	1980	1983	1984	1987	1988	1989	1990	1991	1992	1993	1994	1995	
Diana River	1 460	-	-	-	-	-	-	160	196	263	267	184	135	151	194
Ferguson River	12 400	-	147	-	-	265	199	189	172	289	233	211	165	201	207
Lorillard River	11 000	137	-	362	229	-	186	175	298	242	260	-	-	-	236

Note: mm = millimetres; km^2 = square kilometres; - = incomplete or no available data

4.2.3 Ice Regime

Ice thicknesses in the Project area were measured prior to spring melt during field studies in 1998, 1999, and 2000 (AEE 1998, 1999; AMEC 2000; RL&L 1999). During 2009 field program, direct ice thickness measurements were performed.

Late-winter ice thicknesses on freshwater lakes in the Project area ranged from 1.0 m to 2.4 m over the period of record. Ice covers usually appeared by the end of October and were completely formed in early November. The spring ice melt typically began in mid-June and was complete by early July. Ice was observed along the margins of waterbodies at the hydrology stations in mid-September 2008. Available ice observations are presented in Table 4-44, with locations illustrated in Figure 4-8.

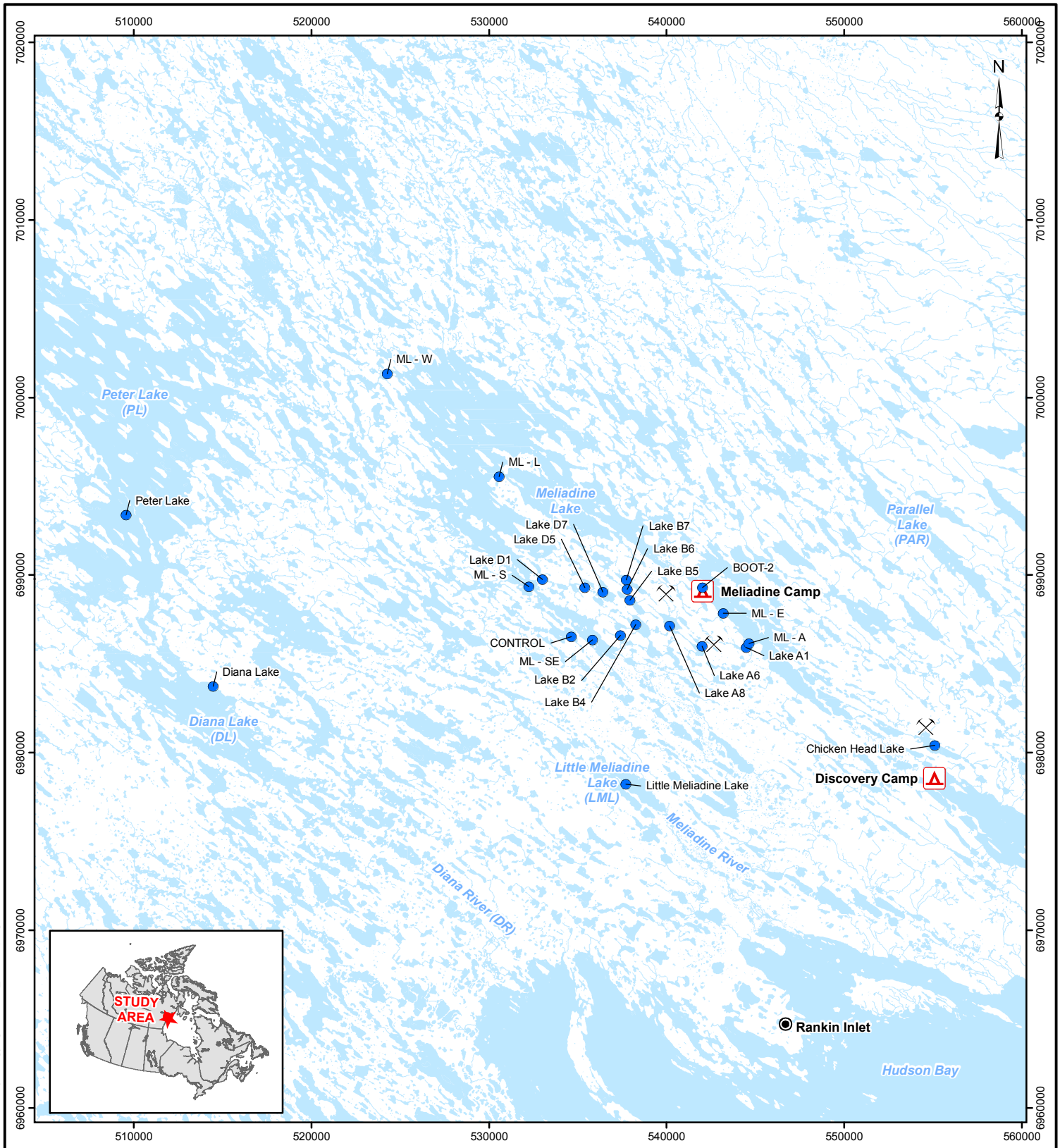
Table 4-44: Ice Thicknesses in the Meliadine River Watershed

Waterbody	Site ID	Date Sampled	UTM Zone 15V NAD83[a]		Source[b]	Ice Thickness (m)	Lake Depth (m)
			Easting	Northing			
Meliadine Lake	ML-E	Apr-98	543253	6988595	RL&L 1999	1.8	11.5
	ML-E	Apr-09	543184	6987869	Golder	1.67	5.36
	ML-A	Apr-09	544654	6986157	Golder	1.78	5.14
	BOOT-2	Apr-09	542070	6989338	Golder	1.93	10.12
	ML-W	Apr-98	524265	7001352	RL&L 1999	2.3	4.2
	ML-S	Apr-98	532241	6989347	RL&L 1999	1.8	5.0
	ML-L	May-98	530573	6995553	AEE 1998b	1.97	-
		May-00	530573	6995553	AMEC 2000	1.98	-
	ML-SE	Apr-98	535954	6986565	RL&L 1999	1.8	3.0
		Apr-09	535824	6986364	Golder	1.72	3.14
Watershed A	Lake A1	May-98	-	-	AEE 1998b	1.82	-
		May-00	-	-	AMEC 2000	1.75	-
	Lake A6	Apr-98	541998	6986004	RL&L 1999	1.7	3.8
		May-98	-	-	AEE 1998b	1.6	-
		Apr-09	541777	6985645	Golder	1.66	4.16
	Lake A8	Apr-98	540084	6987478	RL&L 1999	1.8	3.0
		Apr-09	540181	6987142	Golder	1.63	2.73
Watershed B	Lake B2	Apr-98	537412	6986604	RL&L 1999	1.8	2.5
		May-98	-	-	AEE 1998b	1.9	-
		May-99	-	-	AEE 1999	1.3	-
		May-00	-	-	AMEC 2000	1.42	-
	Lake B4	May-98	-	-	AEE 1998b	1.0	-
		May-99	-	-	AEE 1999	1.3	-
	Lake B5	Apr-98	537989	6988649	RL&L 1999	1.8	2.2
		May-98	-	-	AEE 1998b	2.09	-
		May-99	-	-	AEE 1999	1.3	-
		Apr-09	538281	6988153	Golder	1.63	2.63
	Lake B6	Apr-09	537758	6989218	Golder	1.74	3.48
	Lake B7	Apr-98	537731	6989737	RL&L 1999	1.8	3.2
		May-98	-	-	AEE 1998b	1.99	-
		May-99	-	-	AEE 1999	1.2	-
		Apr-09	537811	6989603	Golder	1.79	3.82
		May-00	-	-	AMEC 2000	2.0	-
Watershed D	Lake D1	Apr-98	533017	6989758	RL&L 1999	1.5	2.2

Table 4-44: Ice Thicknesses in the Meliadine River Watershed (continued)

Waterbody	Site ID	Date Sampled	UTM Zone 15V NAD83[a]		Source[b]	Ice Thickness (m)	Lake Depth (m)
			Easting	Northing			
	Lake D5	May-98	-	-	AEE 1998b	1.3	-
	Lake D5	May-99	-	-	AEE 1999	1.3	-
	Lake D7	Apr-98	536631	6988803	RL&L 1999	1.8	2.3
Little Meliadine Lake	LML	Apr-98	537712	6978225	RL&L 1999	1.5	14.4
Control Lake	Control	Apr-09	534632	6986546	Golder	1.84	3.01
Peter Lake	PL	Apr-98	509566	6993400	RL&L 1999	2.4	17.4
	PL	May-98	-	-	AEE 1998	2.19	-
Diana Lake	DL	May-98	-	-	AEE 1998	2.14	-
Chickenhead Lake	DI-1	Apr-09	555108	6980408	Golder	1.73	8.98

[a]= UTM coordinates from RL&L 1998 were converted from NAD27
[b]= Data were obtained from the following sources: RL&L (1999); AEE (1998b, 1999); AMEC (2000); and Golder (2009)
Note: m = metres; - = no available data



LEGEND

- Camp
- Ice Sampling Location
- Proposed Mine Site
- Watercourse
- Waterbody

6 0 6

SCALE 1:300,000 KILOMETRES

REFERENCE

Base data obtained from Comaplex Minerals Corporation.
Projection: UTM Zone 15 Datum: NAD 83

PROJECT

COMAPLEX MINERALS CORP

COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE

ICE SAMPLING LOCATIONS

Golder Associates
Edmonton, Alberta

PROJECT NO. 09-1373-0010			PHASE No. 5000	
DESIGN	DC	28 Oct. 2009	SCALE AS SHOWN	REV. 0
GIS	CDB	28 Oct. 2009		
CHECK	NPS	17 Nov. 2009		
REVIEW	GA	25 Nov. 2009		

FIGURE 4-8

N:\Bur-Graphics\Projects\2007\1373\07-1373-0055\Mapping\MXD\2009\Hydrology\figure-04-08_ice-sampling-locations.mxd

Long term marine ice observations at Melvin Bay near Rankin Inlet were obtained from the Canadian Ice Database (CID), (Lenormand et al. 2002) and are presented in Table 4-45 for the period of 1975 to 2000. Based on these records for the start of freeze-up and the ending of melting period, the mean duration of the marine ice-covered season at Melvin Bay is estimated to be 225 days, from 7 November to 20 June.

Table 4-45: Long Term Marine Ice Observation in Melvin Bay Area near Rankin Inlet

Season	First Observations	Freeze-up Date	Melting Date	Ice Free Date
1975/76	-	-	27-Jun-76	10-Jul-76
1976/77	-	6-Nov-76	-	-
1977/78	-	-	-	-
1980/81	-	-	10-Jun-81	13-Jul-81
1981/82	-	11-Nov-81	11-Jun-82	12-Jul-82
1982/83	-	9-Nov-82	15-Jun-83	22-Jul-83
1983/84	-	7-Nov-83	15-Jun-84	7-Jul-84
1984/85	-	8-Feb-85[a]	21-Jun-85	7-Jul-85
1985/86	-	5-Nov-85	9-Jul-86	17-Jul-86
1986/87	25-Oct-86	27-Oct-86	13-Jul-87	24-Jul-87
1987/88	21-Oct-87	2-Nov-87	15-Jun-88	20-Jun-88
1988/89	27-Oct-88	13-Nov-88	23-Jun-89	11-Jul-89
1989/90	27-Oct-89	1-Nov-89	26-Jun-90	12-Jul-90
1990/91	15-Oct-90	1-Nov-90	26-Jun-91	5-Jul-91
1991/92	15-Oct-91	4-Nov-91	10-Jul-92	25-Jul-92
1992/93	16-Oct-92	26-Oct-92	24-Jun-93	12-Jul-93
1993/94	18-Nov-93	20-Nov-93	10-Jun-94	8-Jul-94
1994/95	18-Nov-94	20-Nov-94	19-Jun-95	1-Jul-95
1995/96	3-Nov-95	7-Nov-95	13-Jun-96	6-Jul-96
1996/97	-	-	1-Jun-97	30-Jun-97
1997/98	17-Oct-97	3-Nov-97	25-May-98	1-Jul-98
1998/99	15-Nov-98	17-Nov-98	-	-
1999/00	7-Nov-99	20-Nov-99	-	-
Mean	**29-Oct**	**7-Nov**	**20-Jun**	**10-Jul**

[a] This measurement was not included in the average calculation. Temperatures were typical during that year and no evidence can be found to support such a late freezing date.
Note: - = no available data

4.2.4 Water Balance Modeling

4.2.4.1 Water Balance Model Description

A water balance model was developed to assess mean characteristics and natural variability of flows at major waterbodies in the A, B, and Chickenhead watersheds. The model description and calibration are presented in detail in Appendix A3.

The water balance model was set up using GoldSim™ software (GoldSim 2009) on a daily time step for the period of 1982 to 2009. This time period was selected to allow use of the derived climate data discussed in

Section 4.1 of this report. In the model, the basic water balance for each watershed considered rainfall and snowmelt runoff, direct precipitation to the lake surface, inflow from upstream watersheds, changes in lake storage, lake evaporation, and outflow.

The model was calibrated using land surface runoff coefficients, stage-discharge rating curves at lake outlets, and degree-day models for snowmelt, spring ice melt and winter freeze-up in lake outlet channels. These parameters were calibrated using climate and hydrology data collected from 1997 to 2000 and in 2008 and 2009 in the Project area.

The calibrated model was used to generate a daily time step series of outflows for lakes of interest in the Project area. Frequency analyses were performed on these data sets to characterize key discharge parameters. The results of the model are summarized in the following section.

4.2.4.2 Lake Outlets Regimes

Model results for lake outflows of interest in the Project area were used as input to flood and drought frequency analyses for the following parameters:

- monthly discharges for June to September;
- maximum annual peak (mean daily);
- annual maxima of 7-day and 14-day mean discharges; and
- July and August 7-day low flow (mean daily).

Due to the highly attenuated nature of lake outflows in the Project area, derived mean outflows are similar to peak instantaneous outflows.

Lake A1

Model results for the Lake A1 Outlet are presented in Table 4-46 (maximum annual peak outflow volumes) and Table 4-47 (long duration floods and low flow discharges).

Table 4-46: Derived Monthly and Annual Outflow Volumes at the Lake A1 Outlet

Condition	Return Period (years)	Monthly Outflow Volume (m^3)				Maximum Annual Outflow Volume (m^3)	Annual Water Yield (mm)[a]
		Jun	Jul	Aug	Sep		
Wet	100	2 820 000	680 000	314 000	232 000	3 260 000	384
	50	2 510 000	551 000	260 000	206 000	2 970 000	346
	20	2 100 000	411 000	198 000	172 000	2 570 000	296
	10	1 790 000	324 000	156 000	145 000	2 260 000	260
	5	1 490 000	248 000	118 000	118 000	1 930 000	222
Median	2	1 040 000	161 000	71 000	75 600	1 420 000	168
Dry	5	743 000	112 000	43 900	44 800	1 030 000	130
	10	627 000	94 500	34 600	32 000	874 000	115
	20	546 000	83 100	28 600	22 900	757 000	105
	50	470 000	73 000	23 400	14 100	642 000	95.5
	100	427 000	67 600	20 600	8 830	574 000	90.8

[a] based on a drainage area of 9.39 km^2

Note: ^{m3} = cubic metres; mm = millimetres

Table 4-47: Derived Representative Discharges at the Lake A1 Outlet

Condition	Return Period (years)	Maximum Discharge			7-Day Low Flows	
		Daily (m^3/d)	7-Day (m^3/d)	14-Day (m^3/d)	July (m^3/d)	August (m^3/d)
Wet	100	403 000	196 000	140 000	5 240	5 140
	50	338 000	179 000	130 000	4 780	4 320
	20	265 000	156 000	116 000	4 170	3 380
	10	217 000	138 000	104 000	3 690	2 750
	5	174 000	119 000	91 700	3 160	2 170
Median	2	121 000	90 000	70 700	2 330	1 430
Dry	5	90 800	68 900	53 400	1 690	962
	10	80 600	59 100	45 500	1 410	771
	20	74 300	51 900	39 600	1 200	642
	50	69 200	44 600	33 500	997	522
	100	66 700	40 200	29 700	873	455

Note: ^{m3}/d = cubic metres per day

B2 Lake

Model results for the Lake B2 Outlet are presented in Table 4-48 (maximum annual peak outflow volumes) and Table 4-49 (long duration floods and low flow discharges).

Table 4-48: Derived Monthly and Annual Outflow Volumes at the Lake B2 Outlet

Condition	Return Period (years)	Monthly Outflow Volume (m^3)				Maximum Annual Outflow Volume (m^3)	Annual Water Yield (mm)[a]
		Jun	Jul	Aug	Sep		
Wet	100	6 310 000	3 260 000	678 000	493 000	7 070 000	381
	50	5 440 000	2 970 000	563 000	440 000	6 390 000	343
	20	4 400 000	2 570 000	432 000	369 000	5 500 000	294
	10	3 690 000	2 260 000	346 000	314 000	4 820 000	258
	5	3 020 000	1 930 000	269 000	257 000	4 110 000	220
Median	2	2 130 000	1 420 000	173 000	171 000	3 050 000	165
Dry	5	1 570 000	1 030 000	113 000	106 000	2 270 000	127
	10	1 370 000	874 000	91 100	78 500	1 960 000	112
	20	1 230 000	757 000	76 500	58 500	1 730 000	102
	50	1 100 000	642 000	63 400	38 700	1 510 000	92.6
	100	1 030 000	574 000	56 200	26 900	1 390 000	88.0

[a] based on a drainage area of 20.3 km^2

Note: ^{m3} = cubic metres; mm= millimetres

Table 4-49: Derived Representative Discharges at the Lake B2 Outlet

Condition	Return Period (years)	Maximum Discharge			7-Day Low Flows	
		Daily (m^3/d)	7-Day (m^3/d)	14-Day (m^3/d)	July (m^3/d)	August (m^3/d)
Wet	100	1 090 000	412 000	282 000	13 200	12 000
	50	847 000	374 000	265 000	12 100	10 200
	20	602 000	323 000	239 000	10 600	8 170
	10	460 000	284 000	216 000	9 400	6 750
	5	347 000	242 000	190 000	8 120	5 430
Median	2	227 000	180 000	145 000	6 090	3 690
Dry	5	170 000	134 000	107 000	4 490	2 570
	10	153 000	114 000	90 000	3 790	2 090
	20	143 000	99 500	77 000	3 280	1 760
	50	136 000	84 800	63 400	2 770	1 440
	100	133 000	76 100	55 100	2 460	1 260

Note: ^{m3}/d= cubic metres per day

B7 Lake

Model results for the Lake B7 Outlet are presented in Table 4-50 (maximum annual peak outflow volumes) and Table 4-51 (long duration floods and low flow discharges).

Table 4-50: Derived Extreme Annual Outflow Volumes at the Lake B7 Outlet

Condition	Return Period (years)	Monthly Outflow Volume (m^3)				Maximum Annual Outflow Volume (m^3)	Annual Water Yield (mm)[a]
		Jun	Jul	Aug	Sep		
Wet	100	759 000	219 000	81 000	59 000	847 000	396
	50	640 000	178 000	69 100	53 500	761 000	353
	20	504 000	133 000	55 000	45 900	649 000	298
	10	415 000	105 000	45 400	39 800	565 000	258
	5	334 000	81 700	36 400	33 300	480 000	218
Median	2	234 000	54 600	24 600	23 100	357 000	162
Dry	5	174 000	39 900	17 000	15 200	271 000	125
	10	154 000	34 500	14 000	11 700	238 000	111
	20	140 000	31 100	12 000	9 090	214 000	101
	50	129 000	28 100	10 100	6 450	192 000	91.9
	100	123 000	26 500	9 020	4 850	180 000	87.4

[a] based on a drainage area of 2.39 km^2

Note: ^{m3}= cubic metres; mm= millimetres

Table 4-51: Derived Representative Discharges at the Lake B7 Outlet

Condition	Return Period (years)	Maximum Discharge			7-Day Low Flow	
		Daily (m^3/d)	7-Day (m^3/d)	14-Day (m^3/d)	July (m^3/d)	August (m^3/d)
Wet	100	121 000	45 300	33 500	1 710	1 560
	50	90 100	40 800	30 700	1 600	1 360
	20	60 800	34 900	26 900	1 440	1 120
	10	45 200	30 400	23 900	1 310	946
	5	33 500	25 700	20 600	1 160	780
Median	2	22 100	18 900	15 400	895	552
Dry	5	17 400	13 900	11 300	676	400
	10	16 200	12 000	9 620	579	333
	20	15 700	10 600	8 410	507	285
	50	15 300	9 200	7 220	432	238
	100	15 100	8 410	6 510	386	211

Note: ^{m3}/d= cubic metres per day

Chickenhead Lake

Model results for the Chickenhead Lake Outlet are presented in Table 4-52 (maximum annual peak outflow volumes) and Table 4-53 (long duration floods and low flow discharges).

Table 4-52: Derived Extreme Annual Outflow Volumes at the Chickenhead Lake Outlet

Condition	Return Period (years)	Monthly Outflow Volume (m^3)				Maximum Annual Outflow Volume (m^3)	Annual Water Yield (mm)[a]
		Jun	Jul	Aug	Sep		
Wet	100	2 990 000	673 000	566 000	414 000	3 590 000	364
	50	2 730 000	522 000	402 000	328 000	3 300 000	335
	20	2 360 000	358 000	241 000	232 000	2 910 000	295
	10	2 070 000	257 000	153 000	169 000	2 590 000	263
	5	1 750 000	173 000	88 800	115 000	2 240 000	227
Median	2	1 230 000	82 700	32 300	52 900	1 690 000	171
Dry	5	807 000	41 900	12 800	22 000	1 250 000	127
	10	619 000	30 500	8 420	12 700	1 060 000	108
	20	479 000	24 000	6 250	7 160	918 000	93.1
	50	337 000	18 900	4 740	2 640	774 000	78.5
	100	249 000	16 500	4 090	375	687 000	69.7

[a] based on a drainage area of 9.86 km^2

Note: ^{m3} = cubic metres; mm = millimetres

Table 4-53: Derived Representative Discharges at the Chickenhead Lake Outlet

Condition	Return Period (years)	Maximum Discharge			7-Day Low Flow	
		Daily (m^3/d)	7-Day (m^3/d)	14-Day (m^3/d)	July (m^3/d)	August (m^3/d)
Wet	100	391 000	200 000	153 000	1 650	2 600
	50	355 000	188 000	145 000	1 490	2 100
	20	307 000	171 000	132 000	1 290	1 530
	10	269 000	157 000	122 000	1 120	1 150
	5	229 000	141 000	109 000	939	815
Median	2	165 000	112 000	87 000	649	422
Dry	5	117 000	86 700	66 700	420	218
	10	96 300	74 200	56 700	320	154
	20	81 300	64 400	48 900	246	116
	50	66 400	53 900	40 400	172	83.8
	100	57 500	47 100	34 900	127	67.5

Note: ^{m3}/d= cubic metres per day

A comparison of model results to monitoring data where annual data are available is provided in Table 4-54. This shows that the return periods (estimated frequencies) of annual precipitation events are consistent with the return periods of annual water yields from these watersheds in 1999 and 2000. It must be noted that these years were the only ones with a measured peak discharge for the presented basins and that water yields in 1997 and 1998 were based on estimates. Other discrepancies may be due to variations in annual precipitation between sub-watersheds. Water yields presented for the Outflow of Lakes A1, B2, and B7 in 2008 and Outflow of Lakes A1, B7, and Chickenhead Lake in 2009 are based on late measurements that do not include the peak discharge and are not reliable. For this reason, no comparison was presented.

Table 4-54: Comparison of Monitoring Data to Modeling Results

Quantity	Measure	Year					
		1997	1998	1999	2000	2008	2009
Rainfall	Annual Total (mm)	95.8	231	260	146	164	202.4
	Estimated Frequency	50 year Dry	5-10 year Wet	20 year Wet	5 year Dry	2 - 5 year Dry	5 - 10 year Wet
Snowfall	Annual Total (cm)	76.2	108	127	123	133	103
	Estimated Frequency	>>200 year Dry	2 - 5 year Dry	2 - 5 year Wet	2 year Wet	2 - 5 year Wet	5 year Dry
Precipitation to Runoff	Annual Total (mm)	168	340	385	268	295	302
	Estimated Frequency	100 year Dry	2 - 5 year Wet	5 - 10 year Wet	5 year Dry	2 - 5 year Dry	2 - 5 year Dry
Outflow of Lake A1	Annual Total (mm)	114	143	204	129	13.7	56.7
	Estimated Frequency	10 year Dry	2 - 5 year Dry	2 - 5 year Wet	5 year Dry	-	-

Table 4-54: Comparison of Monitoring Data to Modeling Results (continued)

Quantity	Measure	Year					
		1997	1998	1999	2000	2008	2009
Outflow of Lake B2	Annual Total (mm)	-	150	189	107	16.1	94.4
	Estimated Frequency	-	2 - 5 year Dry	2 - 5 year Wet	10 - 20 year Dry	-	20 - 50 year Dry
Outflow of Lake B7	Annual Total (mm)	-	113	159	102	27.3	86.2
	Estimated Frequency	-	10 year Dry	2 - 5 year Dry	20 year Dry	-	-
Outflow of Chickenhead Lake	Annual Total (mm)	-	-	-	-	-	106.7
	Estimated Frequency	-	-	-	-	-	-

Note: mm= millimetres; - = no available data

4.3 Summary and Conclusions

This section of the baseline report was commissioned to characterize the prevailing hydroclimatic and hydrological parameters in the Project area. The baseline is based on data collected by Golder in 2008 (Golder 2008a) and 2009, and data reported by previous studies (AEE 1998a, 1998b, 1999; AMEC 2000).

This baseline report characterizes hydroclimatic and hydrological parameters relevant to the Project, including the following:

- precipitation based on regional data and compared to site-specific data;
- lake evaporation and evapotranspiration from land surfaces, based on regional and local data;
- hydrological regimes of local waterbodies based on an examination of site-specific and regional data;
- local lake and watercourse ice regimes;
- development of a time series runoff model for the Outlets of Lake A1, Lake B2, Lake B7, and Chickenhead Lake.

Baseline Climate Conditions

Air Temperature

Air temperature at the Project site may fall below 0°C on any day of the year. The monthly mean air temperature is typically above 0°C for the months of June to September, and is below 0°C between October and May. July has been the warmest month and January has been the coldest month. The mean annual temperature for the period of record was -10.4°C.

Precipitation

Mean annual precipitation at the Project site, based on the hydrological year from 1 October to 30 September, was estimated to be 411.7 mm after accounting for rainfall and snowfall undercatch. Approximately 51% of precipitation occurs as rain (207.1 mm) and 49% occurs as snow (199.1 mm). The 24-hour extreme rainfall intensity with 10-year return period was estimated to be 1.9 mm/h, or 45.6 mm total depth. Corresponding values for the 100-year return period are 2.6 mm/h or 62.4 mm total depth.

Evaporation

Mean annual evaporation for small lakes in the Project area is estimated to be 323 mm between June and September.

Evapotranspiration

Evapotranspiration is estimated to range from 34 mm to 38 mm annually.

Snowpack Sublimation

Based on the terrain in the Project area, the mean annual loss of snowpack to sublimation and snow redistribution is estimated to vary between 46 and 52% of the total precipitation from October to May.

Wind Speed and Direction

The recorded prevailling winds are from north and north-northwest. The wind blows from the north and north-northwest direction more than 30% of the time, and the least frequent wind direction is west-southwest, with a frequency of 2.1%. The calm frequency is 2.8% of the time. The mean values for wind speed show that the north-northwest, together with north and northwest winds, have the highest speeds and tend to be the strongest.

Relative Humidity and Solar Radiation

The mean annual relative humidity at the Project site was estimated to be 85% and is similar to the mean annual relative humidity at Rankin Inlet A (77%).

The mean monthly global solar radiation recorded at the Project site varied from 3.8 MJ/m^2/d in September 2000 to 14.3 MJ/m^2/d in June.

Baseline Hydrological Conditions

Lake Ice Regime

Late-winter ice thickness on freshwater lakes in the Project area have ranged from 1.00 m to about 2.40 m. Ice covers usually develop by the end of October and are completely formed in early November. The spring ice melt typically begins in mid-June and is complete by early July.

Water Yields

Derived mean annual water yields for Lake A1, Lake B2, Lake B7, and Chickenhead Lake vary from 162 mm (at Lake B7) to 171 mm (at Chickenhead Lake). These are similar to the long-term mean annual value of 194 mm at Diana River near Rankin Inlet.

Extreme Discharges

Flood peaks and low flow discharges of various durations and frequencies were derived for outflows of Lake A1, Lake B2, Lake B7, and Chickenhead Lake, and vary with watershed size, lake ouflow geometry, and upstream flow attenuation.

Conclusions

This ongoing climate and surface water hydrologic baseline provides a strong basis for environmental impact assessment and water management planning for the Project. The climate and hydrology characteristics described for the Project are based on long-term regional information as well as site-specific data that have been collected since 1997. The available data confirm that the Project fits within the established regional context of precipitation and runoff.

5.0 WATER QUALITY

This section of the baseline report describes the baseline water quality for the study area. These data include water chemistry in lakes during open water and under ice conditions.

The specific objectives of the water quality baseline were as follows:

- to describe the baseline open water conditions in streams and open water and under ice conditions in lakes of the study area;
- to discuss seasonal and spatial variation of water quality parameters; and
- to compare baseline water quality data with applicable guidelines for the protection of aquatic life and human health.

The description of water quality is based on historical data (1994, 1995, and 1998 to 2000) and data collected from more recent field programs (2007 to 2009) within the study area. All data were compiled into a database that was used to describe the baseline water quality.

5.1 Methods

5.1.1 Data Sources

Water quality data in streams and lakes were collected during 9 studies performed between 1994 and 2009 (Table 5-1). Surface grab water quality samples were collected from 10 lake stations in August 1994 (Dillon 1994). These stations were located in lakes on the Peninsula draining into Meliadine Lake (specifically, from Basins A, B, C, D, and E); in Chickenhead Lake (part of the Atulik Lake drainage basin), and in DI2 Lake, which is part of a watershed that drains into the southeast basin of Meliadine Lake. Surface grab samples were also collected from 7 lake stations and 2 stream stations in the Meliadine Lake and Atulik Lake drainage basins in July 1995 (Dillon 1995).

RL&L performed 4 water quality baseline studies between 1997 and 2000. Most sampling occurred in 1997 and 1998. During these 2 studies, grab samples were collected from streams located on the Peninsula draining into Meliadine Lake (specifically, from Basins A, B, D, and G); from the 2 streams discharging from Meliadine Lake into Peter Lake and Meliadine River; from the stream discharging from Peter Lake to Diana Lake; and in the Meliadine River. Most stream stations were sampled both in the spring and summer/fall. Samples were also collected from stations in lakes on the Peninsula (specifically, from Basins A, B, D, and G); in Meliadine Lake (multiple stations); in Peter Lake; in Little Meliadine Lake; and in Hudson Bay. Lake samples were collected in summer, fall, and winter (under-ice).

Two smaller baseline studies were performed by RL&L in 1999 and 2000. These studies focused on a few streams and lakes near the proposed mine site. Stations included 2 streams in Basins A and B, the outlet of Meliadine Lake to Meliadine River, 4 lakes in Basin A and B, and one station in Meliadine Lake. These stations were sampled during the summer only.

The 2008 and 2009 baseline studies were designed to update the existing water quality database. Most stream stations were sampled in spring and summer. Stations included streams in Basins A and B, streams in the Discovery Area, and the outlet of Meliadine Lake to Meliadine River. Lake stations were sampled in the summer and winter (under ice) and included lakes in Basins A and B, multiple stations in Meliadine Lake, one station in Chickenhead Lake (part of the Atulik Lake drainage basin), and one station in Control Lake.

Table 5-1: Water Quality Data Baseline Studies, 1994 to 2009

Report Author(s)	Publication Year	Report Title	Drainages Sampled – Streams	Drainages Sampled – Lakes
M.M. Dillon Ltd. (Dillon)	1994	Meliadine Project – Baseline Surface Water and Lake Sediment Sampling	None	Peninsula Basins A, B, C, D, E; Lake DI2; Atulik Lake
Dillon	1995	Discovery Project – Rankin Inlet Area 1995 Environmental Investigations	Atulik Lake	Meliadine Lake; Lake DI1; Atulik Lake
RL&L Environmental Services Ltd. (RL&L)	1998	Meliadine West Baseline Aquatic Studies: 1997 Data Report	Peninsula Basins A, B, D, G; Meliadine River; Peter Lake	Peninsula Basins A, B, D, G; Meliadine Lake; Peter Lake
RL&L	1999	Meliadine West Baseline Aquatic Studies: 1998 Data Report	Peninsula Basins A, B; Meliadine River; Peter Lake	Peninsula Basins A, B, D; Meliadine Lake; Peter Lake; Control Lake; Ocean
RL&L	2000	Meliadine West Baseline Aquatic Studies: 1999 Data Report	Peninsula Basins A, B; Meliadine River	Peninsula Basins A, B; Meliadine Lake; Control Lake
RL&L	2001	Meliadine West Baseline Aquatic Studies: 2000 Data Report	Peninsula Basins A, B; Meliadine River	Peninsula Basins A, B; Meliadine Lake; Control Lake
Comaplex Minerals Corporation (Comaplex)	2007	Not applicable; data collected under water licence	Peninsula Basin A	Peninsula Basin A, Control Lake
Golder Associates Ltd. (Golder)	2008	Meliadine West Gold Project: Water Quality Baseline Studies 2008	Peninsula Basins A, B; Meliadine River; Meliadine Lake; Atulik Lake	Peninsula Basins A, B; Meliadine Lake; Atulik Lake; Control Lake
Golder	2009	Not applicable – data are summarized in this report	None	Peninsula Basins A, B; Meliadine Lake; Atulik Lake; Control Lake

In addition to the above studies, Comaplex Minerals Corporation (Comaplex) provided water quality data collected in 2007 for sampling locations mandated by the water licence issued by the Nunavut Water Board (S. Barham, Comaplex, 2008a, pers. comm.). Water quality data from stream and lake stations in Basin A and from one station in Control Lake were added to the baseline database.

5.1.2 Water Quality Parameters

Physical and chemical parameters are used to describe the water quality of the different waterbodies in the study area. Parameters can be classed into major categories that are used to describe different aspects of the water or sediment. The major categories of parameters used in the discussion are detailed below.

5.1.2.1 Field-Measured Parameters

This category includes parameters, such as pH, specific conductivity, temperature, and dissolved oxygen that are measured in the field using hand-held instruments. These measurements are used to describe the physical limnology of the streams and lakes.

5.1.2.2 Conventional Parameters

These parameters are measured in the laboratory; this category includes pH, specific conductivity, total dissolved solids (TDS), total alkalinity, total hardness, organic carbon, total suspended solids (TSS), and turbidity. Most of these parameters can also be classified as indicator parameters because each indicates the general trend in a larger group of substances. An example of an indicator parameter is TDS, which is a measure of all the dissolved ions in a sample of water. Thus, rising and falling TDS indicates that some individual ions, such as calcium and magnesium, are also rising and falling but provides no information on proportions of individual ions.

Conductivity is an indicator parameter that is strongly correlated with TDS. Conductivity is a measure of water's ability to conduct electricity. The more ions that are dissolved in water, the better it conducts electricity, and therefore conductivity rises proportionally with TDS. Because the exact relationship between conductivity and TDS depends on the specific quantities of ions present, it varies among waterbodies.

The capacity of a water sample to neutralize acids is termed alkalinity. This buffering capacity is based on the presence of bicarbonate, carbonate, and hydroxide. Alkalinity is expressed as the equivalent of calcium carbonate ($CaCO_3$). Alkalinity provides an indication of a waterbody's sensitivity to acidification or its acid neutralizing capacity. Saffran and Trew (1996) presented a scale of lake surface water sensitivity to acidification based on alkalinity (Table 5-2).

Table 5-2: Scale of Acid Sensitivity for Lakes Based on Alkalinity

Acid Sensitivity in Lakes	Alkalinity (mg/L as $CaCO_3$)
High	0 to 10
Moderate	>10 to 20
Low	>>20 to 40
Least	>40

Note: $CaCO_3$ = calcium carbonate; >>= greater than
Source: Saffran and Trew (1996)

Water hardness is primarily determined by the concentration of calcium and magnesium, although other ions can contribute. As with alkalinity, hardness is expressed as the equivalent of calcium carbonate ($CaCO_3$). Both hardness and alkalinity can affect the bioavailability of metals to aquatic life. For example, the toxicity of many metals declines with increasing hardness. Natural waters can range from very soft to very hard (Table 5-3; McNeely et al. 1979).

Table 5-3: Scale of Hardness in Fresh Waters

Degree of Hardness	Hardness (mg/L as $CaCO_3$)
Very soft	0 to 30
Soft	31 to 60
Moderately soft	61 to 120
Hard	121 to 180
Very hard	>180

Note: CaCO3 = calcium carbonate; >>= greater than
Source: Thomas (1953) as cited in McNeely et al. (1979)

Organic carbon is the main chemical form of decaying plants and animals. Total organic carbon (TOC) includes dissolved organic carbon (DOC) and particulate organic carbon (POC). The dissolved organic carbon released from plants is responsible for most of the yellow to brown water colour in natural water systems. This is especially evident in muskeg and bog regions, which are naturally rich in organic matter. Total organic carbon is generally found in higher concentrations in lake sediments because it is partly associated with suspended particles, which settle out on the lake bed. Total organic carbon can vary from 1 to 30 mg/L, with higher levels generally being the result of anthropogenic (man-made) inputs or occurring naturally in brown waterbodies (McNeely et al. 1979).

Total suspended solids include all solid particles suspended in the water column. An increase in suspended solids usually results in a corresponding increase in stress to aquatic animals. Concentrations of TSS below 25 mg/L are usually not considered harmful to aquatic life (CCME 2002b; EIFAC 1965; US EPA 1973). However, the nature and extent of adverse effects attributable to TSS is a function of concentration and exposure. For example, aquatic organisms can withstand high levels of TSS for short periods of time and low levels of TSS for long periods of time (Newcombe and MacDonald 1991). Turbidity is a measure of how much light can transmit through a water sample and thus is a surrogate measure of total suspended solids.

5.1.2.3 Major Ions

Major ions can occur naturally at high concentrations in freshwater systems. These ions, which account for the majority of TDS, include bicarbonate, calcium, carbonate, chloride, fluoride, hydroxide, magnesium, potassium, sodium, and sulphate.

5.1.2.4 Nutrients

Nutrients include phosphorus and nitrogen compounds that are required in small quantities for plant growth. While some plant growth is required to maintain a healthy ecosystem, excess plant growth can lead to the undesirable condition of excess weed and algae growth called eutrophication. Biological productivity of fresh water is usually limited by phosphorus, meaning that phosphorus is the nutrient in the shortest supply. Total phosphorus concentrations can range from about a microgram per litre (1 µg/L) in unproductive waters to more than 100 µg/L in highly productive waters (Vollenweider and Kerekes 1982).

No drinking water guideline exists for phosphorus, although 0.10 mg/L is considered a maximum detectable concentration for streams (McNeely et al. 1979). In the Northwest Territories (NT) and Nunavut (NU), a total phosphorus guideline of 0.03 mg/L is used for both lotic and lentic waters (Statistics Canada 2008).

Nitrogen is another important nutrient that can affect the productivity of a waterbody. Nitrogen can be present in various forms in fresh waters, such as nitrate, nitrite, ammonia, and organic nitrogen. Total kJeldahl nitrogen (TKN) is a common measure of ammonia and organic nitrogen that is used to assess the amount of nitrogen available for biological uptake and approximates the amount of total nitrogen available (total nitrogen includes both organic and inorganic forms). Concentrations of TKN in uncontaminated fresh waters range from 0.1 to 0.5 mg/L (McNeely et al. 1979).

Chlorophyll *a* is an indicator parameter used to classify the nutrient status and productivity of a waterbody. Chlorophyll *a* is pigment used by plants and green algae to convert sunlight to energy. Chlorophyll *a* concentrations range from less than 8 µg/L in unproductive waters to greater than 75 µg/L in highly productive waters (Mitchell and Prepas 1990). Total phosphorus, total nitrogen, and chlorophyll *a* concentrations can be used to classify the trophic level of lakes, which is an indicator of lake productivity based on nutrient and chlorophyll *a* concentrations (Table 5-4; Wetzel 1983).

Table 5-4: General Trophic Classification of Lakes in Relation to Total Phosphorus, Total Nitrogen, and Chlorophyll *a*

Trophic Status	Total Phosphorus (µg/L)		Total Nitrogen (µg/L)		Chlorophyll *a* (µg/L)	
	Mean	Range	Mean	Range	Mean	Range
Oligotrophic	8.0	3.0 to 17.7	661	307 to 1630	1.7	0.3 to 4.5
Mesotrophic	26.7	10.9 to 95.6	753	361 to 1387	4.7	3 to 11
Eutrophic	84.4	16 to 386	1875	393 to 6100	14.3	3 to 78

Source: Wetzel (1983)

5.1.2.5 Metals

Metals[1] are naturally present in surface waters in small quantities (i.e., typically less than 1 mg/L). Higher metal concentrations are usually associated with suspended sediments and tend to settle out. The level at which metals are toxic varies by metal and can be dependent on the hardness of the water. For example, iron and manganese enter waterways as a result of the weathering of naturally occurring minerals and generally cause no harm other than rust stains. Conversely, other metals, such as lead and mercury, can impair the health of

[1] For brevity, metals and metalloids are referred to as metals.

aquatic organisms, wildlife, and humans in very small quantities. Therefore, metals are analyzed individually as part of a water quality program.

5.1.2.6 Organic Compounds

Organic compounds are defined as chemicals made up of mainly carbon and hydrogen; they include a vast number of natural and synthetic compounds. Phenols are one of the most frequently measured organic compounds in surface waters. Phenols are released by plants and decaying vegetation and can occur naturally in trace amounts in surface waters. Even at low concentrations, phenols can impart an undesirable taste and odour to water, and can be transported over long distances.

Total volatile hydrocarbons and total extractable hydrocarbons degrade over time and are usually present at lower levels than total recoverable hydrocarbons, which comprise total volatile hydrocarbons, total extractable hydrocarbons, and heavier carbon compounds. Total recoverable hydrocarbons are usually present at low levels, (i.e., less than the detection limit) in water not affected by natural or anthropogenic hydrocarbon inputs.

5.1.3 Water Quality Trends

In natural surface waters, trends over time or space are observed in most water quality parameters. These trends can be seasonal cycles or spatial differences. Understanding natural trends in baseline water quality is important because resource development might result in further changes that can only be characterized in the context of natural variation.

5.1.3.1 Seasonal

Seasonality is a very important feature in lakes of northern Canada, where long cold winters can cause ice build-up that can isolate lakes within a watershed by freezing channels to the bottom. The ice build-up itself causes pure water to form ice while dissolved substances are concentrated into the unfrozen water.

Oxygen depletion by sediments and organisms is also common in winter months. Because ice forms a barrier between the atmosphere and the water, oxygen is not replenished from the atmosphere until open water conditions return. Additionally, complete depletion of oxygen can lead to chemical reactions such as the conversion of the relatively benign sulphate ion to the potentially toxic sulphide ion. Oxygenation during open water conditions can replenish the decreasing oxygen supply of waterbodies due to turbulence caused by winds, which helps the dissolved oxygen concentration increase.

Winter water quality is also characterized by high TDS. Ice is formed from pure water and leaves the dissolved solids (i.e., salts) in solution. The water remaining under the ice becomes more highly concentrated as the salt freeze-out occurs.

The open water season in the study area lasts usually from the end of May or mid June to early October; thus, during the majority of the year, the waterbodies are frozen and isolated from one another. For this reason, water quality in lakes was compared for open water (i.e., spring, summer, and fall) and under-ice (i.e., winter) conditions.

During open water conditions, runoff from snowmelt and precipitation, which is usually low in dissolved substances, decreases TDS. As the volume of inputs to a lake from surface runoff increases, the TDS tends to decrease. The large flows generated by spring melt can result in scouring of river beds and banks, which in turn leads to high levels of parameters such as TSS and aluminum.

Mid to late summer water quality is usually characterized by low flow in rivers and streams. Depending on nutrient levels, productivity can increase to eutrophic (nutrient rich) levels during the summer. Plants and algae grow faster in warmer water temperatures. Dissolved oxygen can also decline in the summer because its solubility decreases in increasing temperatures.

Fall water quality depends to a large extent on the level of productivity during the summer. If the water body was highly productive during the summer, the plants and algae can contribute substantial amounts of oxygen demand to the waterbody when they die-off in the fall.

5.1.3.2 Spatial

Spatial heterogeneity of typical water quality features originate from differences in lake morphometry, the intensity of surface water and groundwater interactions, the amount of surface inflow and outflow from tributaries, as well as other factors. Seasonal effects also contribute to spatial differences, particularly in vertical distribution of water quality parameters (e.g., stratification effects).

The major feature in spatial trends of water quality within northern regions is its relative homogeneity. Water quality of lakes in the study areas originates from direct precipitation to the surface in winter, which enters lakes during the snowmelt period. Spring runoff occurs mostly as flow on top of the frozen ground, thus limiting the amount of dissolved and particulate substances that can enter a waterbody. Very shallow and seasonal sub-soil flow can occur during the short summer season when some organics and nutrients from the soil can enter surface waterbodies. Thus, opportunities for heterogeneity are limited in the northern region, resulting in similarities in the natural water quality between the different waterbodies.

5.1.4 Sample Collection

Field sampling protocols were similar among the baseline studies. Dillon (1994, 1995) and Comaplex (S. Barham, Comaplex, 2009, pers. comm.) collected grab samples at the water surface in streams and lakes. In all other studies, stream and river samples were collected approximately 0.1 m below the water surface at 50 to 150 m downstream of the corresponding lake outlet. Lake and ocean samples were collected at 1 m below the water surface. Most lake stations were in the deepest area of the lakes, with the exception of Meliadine Lake, which had multiple stations. An ocean station was located in Hudson Bay near the mouth of the Meliadine River.

Water samples for chemical analysis were collected in open-water conditions in streams and in open-water and under-ice conditions in lakes (Table 5-5). Limnology profiles (surface to bottom) of dissolved oxygen and water temperature were collected at select stations and sampling events. Surface limnology measurements were collected with most chemistry samples. Sample locations were accessed by boat or helicopter in the summer. For most sampling events, coordinates for each sampling location were recorded using a global positioning system (GPS) unit. The available coordinates are included in the water quality tables presented in Appendix B, Tables B1-1 to B1-8 and B2-1 to B2-13.

Table 5-5: Timing of Water Quality Sampling, 1994 to 2009

Year	Waterbody Type	Timing of Sampling
1994	Lake	Summer (i.e., base flow conditions)
1995	Lakes and Streams	Summer
1997	Streams and Rivers	Spring (i.e., freshet conditions) and Summer
	Lakes	Summer
1998	Streams and Rivers	Spring and Summer
	Lakes	Late Winter (i.e., most "stressed" period[a]) and Summer
1999	Streams and Rivers	Spring
	Lakes	Summer
2000	Streams and Rivers	Spring
	Lakes	Summer
2007	Streams	Summer and Fall
	Lakes and Ponds	Summer and Fall
2008	Streams and Rivers	Spring and Summer
	Lakes	Summer
2009	Lakes	Late Winter and Summer

[a] Concentrations of major ions are typically highest in late winter because of ice formation, which concentrates the ions in the remaining water column. Oxygen depletion can also result in anoxic conditions and releases of metals from the sediment.

Field measurements included water temperature, dissolved oxygen, pH, and specific conductivity[2]. Table 5-6 provides a list of field equipment and methods used during the various baseline studies.

Table 5-6: Summary of Equipment used for Water Quality Sampling

Year(s)	Grab Sampler	In situ Measurements	Reference
1994, 1995	Not provided	Perstorp Ltd. – Aquacheck portable water analyzer	Dillon 1994, 1995
1997, 1998, 1999	4-L Van Dorn	Oxyguard™ Handy Mark II Dissolved Oxygen and Temperature meter, Fisher Scientific Accumet™ pH meter, Oakton™ WD-35607-10 Conductivity meter	RL&L 1998, 1999, 2000
2000	4-L Van Dorn	Fisher Scientific Accumet™ pH meter or pHTestr™ pH meter, Oakton™ WD-35607-10 Conductivity meter or TDSTestr3™ conductivity meter	RL&L 2001
2007	Not used[a]	Hanna pH-Temperature meter	S. Barham, Comaplex, 2009, pers. comm.
2008	4-L Kemmerer	YSI 556 Multimeter or WTW 3400i meter	Golder 2008
2009	4-L Kemmerer	YSI 556 Multimeter or YSI 650QS Meter	This report

[a] Water samples were collected at the water surface (i.e. within 30 cm of surface) from shore.

[2] Not all results of field measurements were reported. For example, Dillon (1994) stated that dissolved oxygen concentrations were measured in the field, but these values are not included in their water quality table.

5.1.5 Sample Analysis

5.1.5.1 Parameter Groups

Water samples were generally analyzed for conventional parameters, major ions, nutrients and chlorophyll *a*, cyanides, total and dissolved metals, and organic compounds (Table 5-7).

Table 5-7: Water Quality Parameter List

Group Name	Parameters [a]
Field Measurements	Water temperature, dissolved oxygen, pH, specific conductivity, Secchi disk depth
Conventional Parameters	pH, specific conductivity, total dissolved solids, total alkalinity, total hardness, total suspended solids, total volatile solids, turbidity
Major Ions	Bicarbonate, bromide, calcium, carbonate, chloride, fluoride, hydroxide, magnesium, potassium, reactive silica, silicate, sodium, sulphate, ion balance
Organic/Inorganic carbon	Total carbon, total organic carbon, dissolved organic carbon, total inorganic carbon
Nutrients and Chlorophyll *a*	Total ammonia, nitrate, nitrite, total kJeldahl nitrogen, total phosphorus, total dissolved phosphorus, orthophosphate [b], chlorophyll *a*
Cyanides	Total cyanide
Total and Dissolved Metals	Aluminum, antimony, arsenic, barium, beryllium, bismuth, boron, cadmium, cesium, chromium, cobalt, copper, iron, lead, lithium, manganese, mercury, molybdenum, nickel, rubidium, selenium, silicon, silver, strontium, thallium, tin, titanium, tungsten, uranium, vanadium, zinc
Organic Compounds	Oil and grease, phenols, benzene, ethylbenzene, toluene, xylenes, F1 (C6-C10), F1 (BTEX), F2 (>C10-C16), F3 (C16-C34), F4 (C34-C50), total volatiles, total extractables, total extractable hydrocarbons (C9-C40), total extractable hydrocarbons (C10-30)
Other	Biological oxygen demand, fecal coliforms

[a] Not all parameters were analyzed during every sampling program.

[b] Total ammonia, nitrate, and nitrite are presented as mg N/L in this report. Total phosphorus, total dissolved phosphorus, and orthophosphate are presented as mg P/L.

5.1.5.2 Analytical Methods

Samples were shipped to an accredited environmental laboratory for analysis[3]. Table 5-8 lists the analytical laboratory used for each baseline study.

Table 5-8: Analytical Laboratories used in the Baseline Studies

Year	Laboratory	Reference
1994, 1995	Analytical Service Laboratories Ltd., Vancouver, BC[a]	Dillon 1994, 1995
1997	Taiga Environmental Laboratory, Yellowknife, NT	RL&L 1998
1998, 1999, 2000	Enviro-Test Laboratories, Edmonton, AB[b]	R&L 1999, 2000, 2001
2007	ALS Laboratory Group, Edmonton, AB	S. Barham, Comaplex, 2009, pers. comm.
2008, 2009	ALS Laboratory Group, Edmonton, AB and Vancouver, BC	Golder 2008b and this report

[a] Now ALS Laboratory Group, Vancouver, BC.

[b] ALS Laboratory Group, Edmonton, AB.

[3] The Canadian Association of Environmental Analytical Laboratories (CAEAL) laboratory accreditation program began in 1994. It is assumed that the laboratories used in the 1994 to 2000 baseline studies had CAEAL accreditation for most or all of the parameters.

Parameters were analyzed by standard methods published by internationally recognized agencies, such as the American Public Health Association (APHA) and the United States Environmental Protection Agency (US EPA). For example, conventional parameters, major ions, nutrients, and total cyanide were analyzed according to the procedures described in "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association (e.g., APHA 1992 in Dillon 1994, 1995).

In general, improvements in analytical procedures resulted in lower detection limits in more recent studies. Analytical methods for metals in water involved acid digestion and instrumental analysis by either atomic absorption spectrophotometry (AAS), inductively coupled argon plasma/atomic emission spectrophotometry (ICP-AES), inductively coupled plasma mass spectrophotometry (ICP-MS), or cold vapour atomic fluorescence spectrophotometry (CVAFS; mercury only). Detection limits were highest in Dillon (1994, 1995) and lowest in more recent studies (e.g., Golder 2008b).

Phenols were analyzed by a colourimetric method using an ultraviolet-visible spectrophotometer. Other organic compounds, such as benzene, toluene, ethylbenzene, xylene (BTEX) or total extractable hydrocarbons, were analyzed with a liquid-liquid extraction using an organic solvent following by capillary column gas chromatography with flame ionization detection (GC-FID) or gas chromatography mass spectrophotometry (GC-MS).

Detection limits varied among the studies. In general, detection limits were higher in the older datasets (e.g., 1994/1995) than in more recent datasets (e.g., 2008/2009). The detection limits used in each study are provided in Table 5-9.

Table 5-9: Detection Limits Used in the Baseline Studies

Parameter	Units	1994/1995[a]	1997[b]	1998[c]	1999[d]	2000[e]	2007[f]	2008[g]	2009
Conventional Parameters (Laboratory-Measured)									
pH	pH units	0.01	0.05	N/A	N/A	N/A	0.1	0.01 or 0.1	0.1
Conductivity	µS/cm	1.0	0.3	0.2	0.2	0.2	0.2	0.2 or 2	0.2
Total Dissolved Solids	mg/L	N/A	10	1	1	N/A	N/A	5 or 10	5
Total Alkalinity	mg $CaCO_3$/L	N/A	0.3	1	1	5	5	2 or 5	5
Total Hardness	mg $CaCO_3$/L	0.01	0.09	1	1	1	N/A	0.7	N/A
Total Suspended Solids	mg/L	1	3	2	3	3	3	3	3
Turbidity	NTU	0.1	0.1	0.1	0.1	0.1	0.1	N/A	N/A
Major Ions									
Bicarbonate	mg/L	N/A	0.3	1	1	5	5	5	5
Calcium	mg/L	0.05	0.03	0.05	0.05	0.004	0.5	0.1 or 0.5	0.05 or 0.1
Carbonate	mg/L	N/A	0.3	1	1	5	5	5	5
Chloride	mg/L	0.5	0.08	0.05	0.05	1	1	0.5 or 1	0.5
Fluoride	mg/L	0.02	N/A	N/A	N/A	N/A	N/A	0.02 or 0.05	N/A
Hydroxide	mg/L	N/A	N/A	1	1	5	5	5	5
Magnesium	mg/L	0.01	0.005	0.01	0.01	0.004	0.1	0.1	0.05 or 0.1
Potassium	mg/L	0.010 or 2	0.002	0.01	0.01	0.005	0.5	0.5 or 2	0.05 or 2
Reactive Silica	mg/L	N/A	0.005	0.1	0.1	0.1	0.1	N/A	N/A
Silicate	mg/L	1.0	N/A	N/A	0.05	N/A	0.5	N/A	N/A

Parameter	Units	1994/1995[a]	1997[b]	1998[c]	1999[d]	2000[e]	2007[f]	2008[g]	2009
Sodium	mg/L	0.010	0.02	0.1	0.1	0.005	1	1 or 2	0.05 or 2
Sulphate	mg/L	1.0	3	0.05	0.05	0.05 or 0.5	N/A	0.5	0.5
Organic/Inorganic Carbon									
Total Carbon	mg/L	N/A	0.2	0.5	0.5	N/A	1	0.5 or 1	1
Total Organic Carbon	mg/L	N/A	0.2	0.2	0.5	0.5	1	0.5 or 1	1
Dissolved Organic Carbon	mg/L	N/A	N/A	N/A	N/A	N/A	N/A	0.5	1
Total Inorganic Carbon	mg/L	N/A	0.2	0.2	0.5	0.5	N/A	0.5 or 1	1
Nutrients and Chlorophyll *a*									
Total Ammonia	mg N/L	N/A	0.002	0.005	0.005	0.005	0.05	0.02 or 0.05	0.05
Nitrate	mg N/L	0.005	0.008	0.006	0.006	0.006	0.1	0.005 to 0.1	0.05
Nitrite	mg N/L	0.001	N/A	N/A	N/A	N/A	0.05	0.001 to 0.05	0.05
Nitrate-Nitrite	mg N/L	0.005	0.008	0.006	0.006	0.006	0.1	0.1	0.071
Total kJeldahl Nitrogen	mg/L	N/A	0.01	0.05	0.05	0.05	0.2	0.05 to 0.2	0.2
Total Phosphorus	mg P/L	0.3	0.002	0.001	0.001	0.001	0.02	0.001 or 0.002	0.001
Dissolved Phosphorus	mg P/L	N/A	0.002	0.001	0.001	0.001	0.02	0.001 or 0.002	0.001
Orthophosphate	mg P/L	N/A	0.002	0.001	0.001	0.001	0.01	0.001	0.001
Chlorophyll *a*	µg/L	N/A	0.01	0.01	0.01	0.01	N/A	1	N/A
Cyanides									
Total Cyanide	µg/L	N/A	N/A	1	2	2	N/A	2 or 5	2
Total Metals									
Aluminum	µg/L	200	0.5 or 5	0.3	0.3	0.3	10	0.3 or 5	5 or 8
Antimony	µg/L	200	0.1	0.03	0.03	0.03	0.4	0.03 to 0.5	0.2 to 0.5
Arsenic	µg/L	0.1	0.2	0.03	0.03	0.03	0.4	0.03 to 0.5	0.02 to 3
Barium	µg/L	10	0.1	0.05	0.05	0.05	3	0.05 to 20	1 or 20
Beryllium	µg/L	5	0.1	0.2	0.2	0.2	1	0.2 or 1	1
Bismuth	µg/L	100	0.1	0.05	0.03	N/A	N/A	N/A	1
Boron	µg/L	100	N/A	N/A	N/A	1	50	1 to 100	50 to 100
Cadmium	µg/L	0.2	0.1	0.1	0.02	0.05	0.1	0.017 or 0.05	0.01
Cesium	µg/L	N/A	0.1	0.1	0.1	N/A	N/A	N/A	N/A
Chromium	µg/L	15	0.2	0.06	0.06	0.06	5	0.06 or 1	1 or 4
Cobalt	µg/L	15	0.1	0.1	0.1	0.1	2	0.1 to 2	0.3
Copper	µg/L	10	0.1	0.6	0.6	0.6	1	0.6 or 1	1
Iron	µg/L	30	12	10	5	5	5	5 or 30	30
Lead	µg/L	1	0.2	0.05	0.05	0.05	0.1	0.05 to 0.5	0.5
Lithium	µg/L	15	0.1	0.1	0.1	N/A	3	5 or 10	5 or 10
Manganese	µg/L	5	0.1	0.1	0.1	0.1	1	0.1 to 1	0.3 or 1

Parameter	Units	1994/1995[a]	1997[b]	1998[c]	1999[d]	2000[e]	2007[f]	2008[g]	2009
Mercury	µg/L	0.05	0.01	0.01	0.02	0.02	0.1	0.02 or 0.002	0.02
Molybdenum	µg/L	30	0.1	0.06	0.06	0.06	5	0.06 to 5	1
Nickel	µg/L	20	0.1	0.1	0.06	0.06	2	0.06 to 2	1
Selenium	µg/L	0.5	1 to 10	0.1	0.1	0.1	0.4	0.1 to 1	0.5 or 1
Silicon	µg/L	50	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	µg/L	0.1	0.1	0.1	0.1	0.1	0.1	0.02 to 0.4	0.02
Strontium	µg/L	1	0.1	0.1	0.1	0.1	N/A	0.1	1
Thallium	µg/L	100	0.1	0.05	0.03	N/A	0.1	0.03 to 0.2	0.2
Tin	µg/L	300	N/A	N/A	N/A	N/A	50	0.5 or 50	0.5
Titanium	µg/L	10	0.1	0.1	0.1	N/A	1	1 or 10	10
Tungsten	µg/L	100	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Uranium	µg/L	N/A	0.1	0.05	0.05	0.05	0.1	0.05 to 0.2	0.01 or 0.2
Vanadium	µg/L	30	0.1	0.1	0.05	0.05	1	0.05 to 1	1
Zinc	µg/L	5	0.5 or 5	0.8	0.8	0.8	2	0.8 to 5	5
Organic Compounds									
Oil and Grease	µg/L	N/A	N/A	N/A	N/A	N/A	1	500	N/A
Phenols	µg/L	N/A	2	1	1	1	N/A	1.0	N/A
Benzene	µg/L	N/A	0.5	0.5	N/A	N/A	N/A	0.5	N/A
Toluene	µg/L	N/A	0.5	0.5	N/A	N/A	N/A	0.5	N/A
Ethylbenzene	µg/L	N/A	0.5	0.5	N/A	N/A	N/A	0.5	N/A
Xylenes	µg/L	N/A	0.5	0.5	N/A	N/A	N/A	0.5	N/A
F1 (C6-C10)	µg/L	N/A	N/A	N/A	N/A	N/A	N/A	100	N/A
F1 -BTEX	µg/L	N/A	N/A	N/A	N/A	N/A	N/A	100	N/A
F2 (>C10-C16)	µg/L	N/A	N/A	N/A	N/A	N/A	N/A	50	N/A
F3 (C16-C34)	µg/L	N/A	N/A	N/A	N/A	N/A	N/A	50	N/A
F4 (C34-C50)	µg/L	N/A	N/A	N/A	N/A	N/A	N/A	50	N/A
Total Volatile Hydrocarbons	µg/L	N/A	100	100	N/A	N/A	N/A	N/A	N/A
Total Extractable Hydrocarbons	µg/L	N/A	50	50	N/A	N/A	N/A	N/A	N/A
Other									
Biological Oxygen Demand	mg/L	N/A	N/A	N/A	N/A	N/A	2	N/A	N/A
Fecal Coliforms	CFU/100 mL	N/A	N/A	N/A	N/A	N/A	1	N/A	N/A

[a] Source: Dillon 1994/1995. Not all parameters were analyzed in the 1995 samples.
[b] Source: Table 2.2 in RL&L 1998.
[c] Source: Table 2.2 in RL&L 1999.
[d] Source: Table 2.2 in RL&L 2000.
[e] Source: Table 2.2 in RL&L 2001.
[f] Source: S. Barham, Comaplex, 2008b, pers. comm.
[g] Source: Golder 2008b. Detection limits varied among sample batches (samples were submitted in multiple batches during the spring and summer sampling events).
N/A = parameter not measured or detection limit not provided.
Notes: µS/cm = microSiemens per centimetre; mg/L= milligrams per litre; mg $CaCO_3$/L = milligrams per litre as calcium carbonate; NTU= nephelometric turbidity unit; mg N/L= milligrams per litre as nitrogen; mg P/L = milligrams per litre as phosphorus; µg/L = micrograms per litre; CFU/100 mL = colony forming unit per 100 millilitres

5.1.5.3 Quality Assurance/Quality Control

Quality assurance/quality control (QA/QC) programs in water quality studies are sampling and analytical procedures that are followed to limit the introduction of error into analytical data. Quality assurance (QA) procedures include appropriate training of sampling personnel, use of standard operating procedures when collecting the samples, appropriate sample handling and storage, use of accredited analytical laboratories, and data management systems. Quality control (QC) procedures are designed to assess data quality including potential laboratory and field contamination through use of blanks, replicates, and spiked or reference materials.

Most reports discussed appropriate QA procedures that were followed during the baseline studies such as:

- rinsing the grab sampler between stations;
- wearing polyethylene or nitrile gloves during sampling to prevent cross-contamination;
- using certified sample containers provided by the analytical laboratory;
- preserving the samples according to standard methods; and
- maintaining sample integrity by storing the samples cold and shipping them to the analytical laboratory as soon as possible after sampling.

Water chemistry samples in 2008 and 2009 were collected in accordance with Golder Technical Procedure 8.3-1 Surface Water Sampling Methods (unpublished file information), which is consistent with standard methods (e.g., American Public Health Association [APHA] 1992; Environment Canada 1993) and include standard collection, preservation, storage, and shipping protocols. Field personnel also used Specific Work Instructions (SWI), which detailed project-specific sampling instructions. Samples were submitted to an accredited analytical laboratory (i.e., ALS Laboratory Group, Edmonton, Alberta or Vancouver, British Columbia) for analysis. Data screening checks were performed to screen for potential data quality issues. The following data checks were performed:

- verification that all required parameters and samples were analyzed;
- verification that data were reported using the appropriate units;
- verification that analyses were done with the appropriate detection limit;
- field versus laboratory data comparisons for parameters with parallel field and laboratory data (pH, conductivity);
- logic checks: presence of zero values, comparisons of total dissolved solids (TDS) and conductivity, hardness and alkalinity, total and dissolved phosphorus, total and dissolved organic carbon, total and dissolved metals, measured and calculated TDS;
- checking for outliers using graphical methods, and based on expected concentration ranges in the sampled waters;
- checking field and trip blanks for evidence of contamination;
- checking field duplicate samples for evidence of unacceptable variation;
- checking laboratory QC data (sample temperature and integrity of containers upon receipt, review laboratory qualifiers, holding times, internal duplicates, ion balance, % recovery of spiked analytes); and
- checking field-collected data for completeness, and unexpected values and trends.

Unexpected or odd results were verified by the analytical laboratory by re-analysis.

Appropriate QC samples were included in most studies[4], including the following:

- Duplicate field samples were used to detect variability at a site and verify field-sampling methods (Table 5-10).
- Field blanks were used to detect sample contamination during the collection, shipping, and analysis of samples. Field blanks are samples prepared in the field using ultra-pure water.
- Trip blanks were used to detect sample contamination during transport and pre-sampling bottle contamination[5].

Table 5-10: Frequency of Field Duplicate Collection in Baseline Studies

Sampling Year	1994/1995 [a]	1997 [b]	1998 [c]	1999 [d]	2000 [e]	2007 [f]	2008 [g]	2009
# of Field Duplicates	1	3	3	2	1	0	3	1
Total # Samples [h]	17	42	59	8	8	20	27	15

[a] Source: Dillon 1994/1995.
[b] Source: RL&L 1998.
[c] Source: RL&L 1999.
[d] Source: RL&L 2000.
[e] Source: RL&L 2001.
[f] Source: S. Barham, Comaplex, 2008b, pers. comm.
[g] Source: Golder 2008b.
[h] total sample number does not include QC samples such as field duplicates, field blanks, or trip blanks.
Notes: # = number

Data quality was assessed using the results of the field QC samples (i.e., trip blank, field blanks, and field duplicates). Concentrations in trip and field blanks were considered notable if they were greater than or equal to five times the corresponding Method Detection Limit (MDL), (i.e., the Practical Quantitation Limit [PQL]) (US EPA 2000; AENV 2006). This threshold takes into account the potential for reduced accuracy when concentrations approach or are below MDLs. This criterion was not applied to pH, which was expected to be above the laboratory-reported MDL in the deionized water used to prepare blanks.

Differences between concentrations measured in duplicate water samples were calculated as the relative percent difference (RPD) for each parameter. Before calculating the RPD, concentrations below the MDL were replaced with the MDL value in cases when only one of the concentrations for a given parameter was detectable. The RPD was calculated using the following formula:

$$RPD = \frac{\textit{Absolute Difference between Duplicate Samples}}{\textit{Mean Concentration}} \times 100\%$$

[4] Field QC samples were not analyzed as part of the 2007 sampling events.

[5] Trip blanks were only used in the Golder baseline studies.

The RPD value for a given parameter was considered notable if:

- it was greater than 20%; and
- concentrations in one or both samples were greater than or equal to five times the MDL.

Field duplicate values were within acceptable ranges in most analytical determinations (Appendix B1-1). There were some detectable concentrations in the field and trip blanks but most concentrations were at or near the detection limit (Appendix B1-2). Of the QC sample results, only results for field duplicates were included in the database.

The results of laboratory quality control samples were not reported for most studies. Laboratory QC protocols in the 2008 and 2009 water quality studies included the analysis of one or more method blanks, laboratory duplicates, internal or certified reference materials, matrix spikes, with the following results:

- Method blanks did not have detectable concentrations of any parameter.
- Laboratory duplicates were within acceptable limits (i.e., ≤20%) for all parameters analyzed.
- Recoveries of internal reference materials, certified reference materials, and matrix spikes were within laboratory data quality objectives.

Some issues were identified in the database that resulted in the removal of particular data:

Cation/anion balances in the 1997 data were reported in units of mg/L and the reported values were very low (i.e., less than 20 mg/L). This parameter (also referred to as ion balance) is typically reported as a percentage. In natural waters, ion balance is near 100%. The calculation of this parameter in 1997 could not be verified; therefore, these data were removed from the database.

Dissolved organic carbon concentrations in the winter 2009 samples were higher than concentrations of total organic carbon and total carbon. The source of the discrepancy could not be verified; therefore, these data were removed from the database.

Values of pH measured in the laboratory were generally higher than values measured in the field. The differences between field and laboratory pH measurements are most likely due to changes in the sample during storage or handling (e.g., loss of carbon dioxide). In addition, changes in sample temperature affect the activity of hydrogen ions, thereby affecting pH. Field pH measurements were also performed at lower temperatures than those typically found in the laboratory (i.e., room temperature is approximately 20 to 25°C). Field pH values were discussed in the results summaries and used to assess exceedances for pH-dependent parameters (i.e., total ammonia and aluminum). Laboratory-measured pH values were used when field pH values were not available.

For a few samples, the dissolved metal concentration for a given metal was greater than the corresponding total concentration. This discrepancy may be due to one or more of the following factors: laboratory method variability; field sampling method variability; bias introduced during handling, storage, transportation and/or analysis of the sample; field sample filtration; or field sample heterogeneity. Results obtained from screening the chemistry data against guidelines are not affected by this discrepancy because guidelines are based on total metal concentrations.

5.1.6 Data Analysis

All historical and recent water quality data were compiled into a database organized by waterbody type (streams or lakes), drainage basin, location, and sampling date (Appendices B2-1 to B2-8 [streams] and Appendices B3-1 to B3-13 [lakes]). Spatial and temporal trends in streams (Section 5.2) and lakes (Section 5.3) were described by drainage basin. For the purposes of this report, sampling events were divided into the following seasons:

- Spring = May to June
- Summer = July and early August
- Fall = late August to early October
- Winter = late October to April

Water chemistry were compared to both the most recent Canadian Council of Ministers of the Environment's (CCME) Canadian Water Quality Guidelines (CWQG) for the protection of aquatic life and Health Canada's Guidelines for Canadian Drinking Water Quality (GCDWQ) (CCME 2007a; Health Canada 2008) (Table 5-11).

Water quality guidelines are nationally endorsed indicators of environmental quality for the protection of aquatic ecosystems and designated water uses (CCME 2007a; Health Canada 2008). The aquatic life guidelines are based on the most current, scientifically defensible toxicological data and are intended to be protective of all forms and life stages of aquatic life (CCME 2007a). Exceedance of a guideline does not, therefore, automatically imply unacceptable or harmful conditions. Guideline exceedances observed during baseline investigations are a result of naturally occurring conditions and thus are not of concern as local flora and fauna will be adapted to these natural conditions in the environment.

Table 5-11: Water Quality Guidelines for the Protection of Aquatic Life and Human Health

Parameter	Units	Freshwater CWQG[a]	Marine CWQG	GCDWQ[b]
Conventional Parameters (Field-Measured)				
Dissolved Oxygen	mg/L	6.5-9.5[c]	>8.0[d]	-
pH	pH	6.5-9	7.0-8.7	6.5-8.5[e]
Conventional Parameters (Laboratory-Measured)				
pH	pH	6.5-9	7.0-8.7	6.5-8.5[e]
Total Dissolved Solids	mg/L	-	-	500[e]
Turbidity	NTU	-	-	-[f]
Major Ions				
Chloride	mg/L	-	-	250[e]
Fluoride	mg/L	-	-	1.5
Sodium	mg/L	-	-	200[e]
Sulphate	mg/L	-	-	500[eg]
Nutrients				
Total Ammonia as Nitrogen	mg/L	-[h]	-	-

Table 5-11: Water Quality Guidelines for the Protection of Aquatic Life and Human Health (continued)

Parameter	Units	Freshwater CWQG[a]	Marine CWQG	GCDWQ[b]
Nitrate as Nitrogen	mg/L	2.9[i]	3.6[i]	10
Nitrite as Nitrogen	mg/L	0.060	-	0.97[j]
Phosphorus, Total	mg/L	-[k]	-[l]	-
Cyanides				
Cyanide, Total	µg/L	5[m]	-	200
Total Metals				
Aluminum (Al)	µg/L	5 - 100[n]	-	[o]
Antimony (Sb)	µg/L	-	-	6
Arsenic (As)	µg/L	5.0	12.5	10
Barium (Ba)	µg/L	-	-	1000
Boron (B)	µg/L	-	-	5000
Cadmium (Cd)	µg/L	0.017[p]	0.12	5
Chromium (Cr)	µg/L	8.9 / 1.0[q]	56 / 1.5[r]	50
Copper (Cu)	µg/L	2 - 4[s]	-	1000[e]
Iron (Fe)	µg/L	300	-	300[e]
Lead (Pb)	µg/L	1 - 7[t]	-	10
Manganese (Mn)	µg/L	-	-	50[e]
Mercury (Hg)	µg/L	0.026[u]	0.016[v]	1
Molybdenum (Mo)	µg/L	73	-	-
Nickel (Ni)	µg/L	25 - 150[w]	-	-
Selenium (Se)	µg/L	1.0[x]	-	10
Silver (Ag)	µg/L	0.1	-	-
Thallium (Tl)	µg/L	0.8	-	-
Uranium (U)	µg/L	-	-	20
Zinc (Zn)	µg/L	30	-	5000[e]
Organic Compounds				
Phenols	µg/L	4.0	-	-
Benzene	µg/L	370	110	5
Ethylbenzene	µg/L	90	25	2.4[e]
Toluene	µg/L	2.0	215	24[e]
Xylenes	µg/L	-	-	300[e]
Other				
Fecal Coliforms	CFU/100 mL	-	-	ND[y]

[a] Canadian water quality guidelines for the protection of aquatic life - freshwater (CWQG; Canadian Council of Ministers for the Environment [CCME] 2007a).
[b] Guidelines for Canadian Drinking Water Quality (GCDWQ; Health Canada 2008).
[c] Dissolved oxygen guideline for cold water freshwater biota is 9.5 mg/L for early life stages and 6.5 mg/L for other life stages.
[d] Dissolved oxygen for marine species; see CCME 1999 for narrative.

Table 5-11: Water Quality Guidelines for the Protection of Aquatic Life and Human Health (continued)

[e] Aesthetic objective.
[f] Available GCDWQs are for filtration systems not untreated water and thus are not applicable to this study.
[g] There may be a laxative effect in some individuals when sulphate concentrations exceed 500 mg/L.
[h] Toxicity of ammonia relates primarily to concentration of the unionized form, which increases with increasing temperature and pH. Sample-specific total ammonia guidelines were calculated as per CCME 2009.
[i] Guideline is for protection from direct toxic effects and does not consider effects due to eutrophication.
[j] Where nitrate and nitrite are determined separately, levels of nitrite should not exceed 3.2 mg nitrite/L.
[k] The Canadian Guidance Framework for Phosphorus is for developing phosphorus guidelines (CCME 2004). The following trigger values can be applied to interpret the data but not for screening: ultra-oligotrophic <4 µg/L; oligotrophic 4-10 µg/L; mesotrophic 10-20 µg/L; meso-eutrophic 20-35 µg/L; eutrophic 35-100 µg/L; hyper-eutrophic >100 µg/L.
[l] The Canadian Guidance Framework for the Management of Nearshore Marine Systems is for developing nutrient (phosphorus and nitrogen) guidelines for nearshore marine systems. Refer to the factsheet for details (CCME 2007b).
[m] Guideline is for free cyanide.
[n] Aluminum guideline/objective is pH dependent. At pH <6.5, guideline is 5 µg/L. At pH ≥6.5, guideline is 100 µg/L.
[o] The GCDWQ for aluminum is an operational guidance value designed to apply only to drinking water treatments using aluminum-based coagulants and thus is not applicable to this study.
[p] Cadmium guideline is hardness dependent and is calculated for each sample according to the following equation: CWQG(cadmium) = 10e{0.86[log(hardness)]-3.2}. The reported guideline value is for a hardness of 48.5 mg/L and was applied to samples with hardnesses of 48.5 mg/L or lower.
[q] Chromium freshwater guideline is speciation dependent and is 8.9 µg/L for trivalent chromium and 1.0 µg/L for hexavalent chromium.
[r] Chromium marine guideline is speciation dependent and is 56 µg/L for trivalent chromium and 1.5 µg/L for hexavalent chromium.
[s] Copper guideline is hardness dependent. At a hardness of 0-120 mg/L, the guideline is 2 µg/L; at a hardness of 120-180 mg/L, the guideline is 3 µg/L; at a hardness greater than 180 mg/L, the guideline is 4 µg/L.
[t] Lead guideline is hardness dependent. At a hardness of 0-60 mg/L, the guideline is 1 µg/L; at a hardness of 60-120 mg/L, the guideline is 2 µg/L; at a hardness of 120-180 mg/L, the guideline is 4 µg/L; at a hardness greater than 180 mg/L, the guideline is 7 µg/L.
[u] Mercury freshwater guideline is for inorganic mercury; this guideline may not prevent accumulation of methylmercury in aquatic life and therefore may not protect wildlife that consume aquatic life.
[v] Mercury marine guideline may not fully protect higher trophic level fish; see factsheet for details (CCME 2003).
[w] Nickel guideline is hardness dependent. At a hardness of 0-60 mg/L, the guideline is 25 µg/L; at a hardness of 60-120 mg/L, the guideline is 65 µg/L; at a hardness of 120-180 mg/L , the guideline is 110 µg/L; at a hardness of greater than 180 mg/L, the guideline is 150 µg/L.
[x] Selenium guideline is based on waterborne exposure. However, selenium has a bioaccumulation pathway similar to mercury; therefore, the guideline may not be protective of effects through reproductive impairment due to material transfer, resulting in embryotoxicity and teratogenicity (Chapman et al. 2009).
[y] The maximum acceptable concentration of *Escherichia coli* in public, semi-public, and private drinking water systems is none detectable per 100 mL.
Notes: - = no guideline available; mg/L = milligrams per litre; µg/L = micrograms per litre; CFU/100 mL = colony forming units per 100 millimetres

5.2 Streams

5.2.1 Meliadine Lake Drainage

Water quality samples were collected from 2 streams that flow into the southeast basin of Meliadine Lake (Figure 5-1; Appendix B2-1):

- NEW-1 (spring and summer 2008; outflow of watershed B of the Discovery Area into Meliadine Lake); and
- DI-4 (summer 2008; outlet of Lake DI4 into Meliadine Lake).

The 2 streams were well oxygenated during the open-water seasons, with dissolved oxygen concentrations ranging from 11.4 to 12.3 mg/L and water temperatures from 11.5 to 12.8°C. All values were above the 9.5 mg/L CWQG for protection of early life stages of cold water fish.

Water quality was similar between the 2 streams, although there were seasonal differences in the concentrations of some parameters. Field pH values were 7.9 to 8.1 in the spring samples compared to pH 7.0 in the summer sample. All pH values were within the range of applicable guidelines. Field-measured conductivity was higher in summer (137 µS/cm) than in spring (72 and 80 µS/cm). A similar pattern was observed in the TDS

concentrations. Major ions were dominated by bicarbonate (28 to 47 mg/L), calcium (8.5 to 13.7 mg/L), chloride (9 to 18 mg/L), and sodium (7 to 11 mg/L).

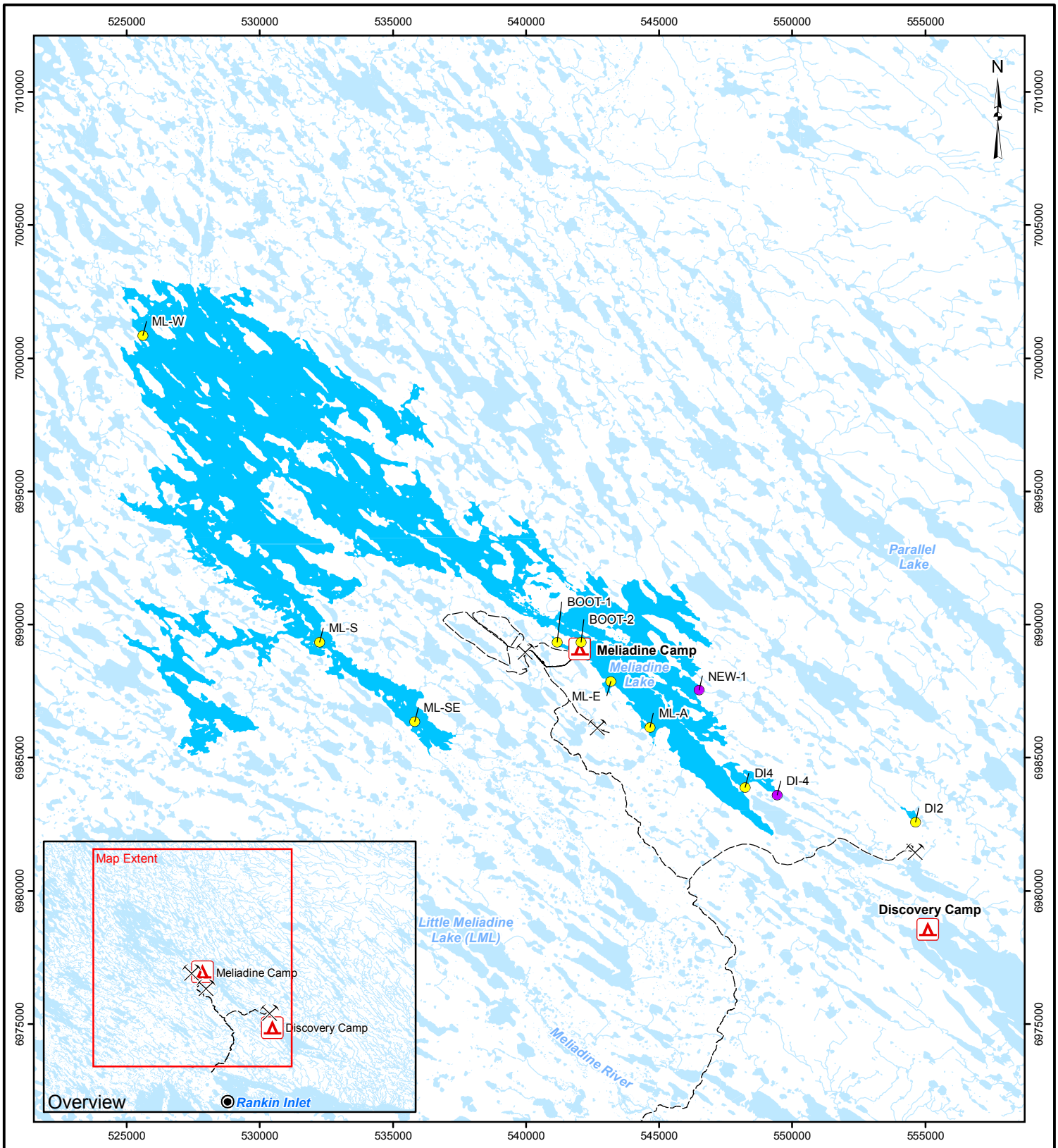
Total alkalinity values were 23 and 26 mg/L in the spring compared to 39 mg/L in the summer. Total hardness concentrations ranged from 29 to 47 mg/L, which indicated the stream waters were very soft to soft (Table 5-3; McNeely et al. 1979). Total suspended solids concentrations were below the detection limit of 3 mg/L in every sample. Total cyanide was not detected in any stream sample.

Nutrient concentrations were similar between streams and sampling events. Total phosphorus concentrations ranged from 0.009 to 0.012 mg/L, which were lower than the guideline of 0.03 mg/L in NT and Nunavut. Total dissolved phosphorus (the phosphorus form available for primary production) was less than half the total phosphorus concentrations. Total kJeldahl nitrogen was 0.4 mg/L in all samples whereas nitrate and total ammonia concentrations were below the detection limits. Nitrite was detected above the CWQG of 0.06 mg N/L in stream DI-4 (0.09 mg/L). It was not detected in the other samples (detection limit was 0.05 mg N/L). Chlorophyll *a* concentrations were less than 1 µg/L in the summer and 3 µg/L in the spring. Total organic carbon ranged from 5 to 9 mg/L.

For all total metals except cadmium and silver, detection limits were at or below the most conservative guideline:

- Cadmium was not detected in any sample (detection limits ranged from 0.017 to 0.05 µg/L while the CWQC is 0.017 µg/L).
- Silver was not detected in any sample (detection limits ranged from 0.1 to 0.4 µg/L while the CWQC is 0.1 µg/L).

With the exception of iron, total metal concentrations were either below detection limits or below applicable guidelines. Total iron concentration in stream NEW-1 (summer) was 587 µg/L, which was above the CWQG and CDWQG of 300 µg/L. Iron concentrations in the spring samples were 95 and 207 µg/L.



LEGEND

Water Sampling Location
- Lake
- Stream

Camp

Proposed Mine Site

Proposed Road

Watercourse

Sampled Waterbody

Waterbody

REFERENCE

Base data obtained from Comaplex Minerals Corporation. Water quality data obtained from the field.
Projection: UTM Zone 15 Datum: NAD 83

PROJECT

COMAPLEX MINERALS CORP

COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE

WATER QUALITY SAMPLING LOCATIONS IN MELIADINE LAKE

Golder Associates
Edmonton, Alberta

PROJECT NO. 09-1373-0010			PHASE No. 1000	
DESIGN	KS	06 Oct. 2009	SCALE AS SHOWN	REV. 0
GIS	CDB	06 Oct. 2009		
CHECK	KS	27 Oct. 2009		
REVIEW	PMC	27 Oct. 2009		

FIGURE 5-1

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5.2.1.1 Peninsula Streams

Peninsula Basin A

Water quality samples were collected from 3 streams in Basin A of the Peninsula (Figure 5-2; Appendix B2-2):

- A0-1 (spring 1997, spring and summer 1998, spring 1999, and spring 2000);
- A5-6 (spring 1997, spring and summer 1998); and
- A7-8 (spring 1997, spring and summer 1998, summer and fall 2007, spring and summer 2008).

The 3 streams were well-oxygenated during the open water seasons with dissolved oxygen concentrations ranging from 11.0 to 13.3 mg/L and associated water temperatures from 4.0 to 16.7°C. All dissolved oxygen values were above the 9.5 mg/L CWQG for protection of early life stages of cold water fish.

Field pH values were generally similar among streams and sampling events. Values ranged from 7.0 to 8.1, except in stream A7-8 during the summer of 2008, which had a field pH of 6.5. All pH values were within the range of applicable guidelines.

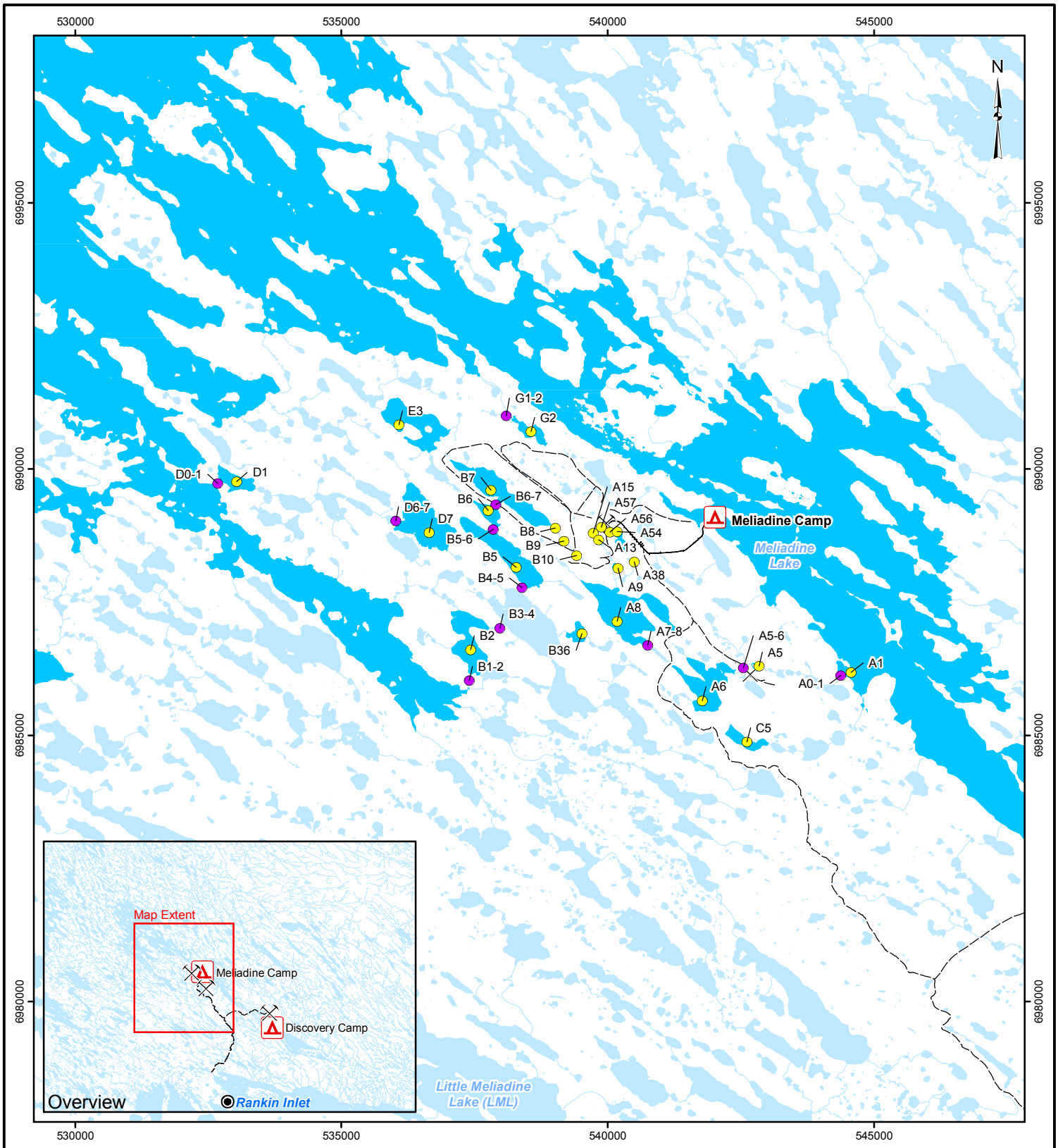
Water quality was similar among the 3 streams with slightly higher concentrations of some parameters in the summer and fall samples. Lab-measured conductivity ranged from 68 to 138 µS/cm and TDS concentrations ranged from 32 to 82 mg/L. Major ions were dominated by bicarbonate (25 to 50 mg/L), calcium (8.0 to 17.1 mg/L), and chloride (3.2 to 17 mg/L). Total suspended solids concentrations ranged from 2 to 4 mg/L. Total cyanide was not detected in any stream sample (detection limits ranged from 1 to 5 mg/L).

Total alkalinity values ranged from 24 to 41 mg/L. Total hardness concentrations ranged from 26 to 52 mg/L, indicating that the stream waters were very soft to soft (Table 5-3; McNeely et al. 1979).

Nutrient concentrations were similar among streams and sampling events. Total phosphorus concentrations ranged from 0.004 to 0.009 mg/L, lower than the guideline of 0.03 mg/L in NT and Nunavut. Total kJeldahl nitrogen concentrations ranged from 0.12 to 0.77 mg N/L. Total ammonia was detected in most samples at concentrations ranging from 0.004 to 0.028 mg N/L. Nitrate and nitrite were occasionally detected at concentrations ranging from 0.001 to 0.0168 mg N/L. Chlorophyll *a* concentrations were measured in only 2 samples from stream A7-8. Concentrations were higher in the summer (17 µg/L) than in the spring (0.012 µg/L). Total organic carbon ranged from 2.7 to 5.9 mg/L.

Detection limits for total metal concentrations were at or below the CWQG except for cadmium and chromium. Total metal concentrations were either below detection limits or below applicable guidelines with 3 exceptions:

- Cadmium concentration in the 1997 sample from stream A7-8 was 0.1 µg/L, which was higher than the CWQG of 0.017 µg/L. Cadmium was not detected in any other sample (detection limits ranged from 0.017 to 0.1 µg/L).



LEGEND

Water Sampling Location
- Lake
- Stream

Camp

Proposed Mine Site

Proposed Road

Watercourse

Sampled Waterbody

Waterbody

REFERENCE

Base data obtained from Comaplex Minerals Corporation. Water quality data obtained from the field.
Projection: UTM Zone 15 Datum: NAD 83

PROJECT

COMAPLEX MINERALS CORP

COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE

WATER QUALITY SAMPLING LOCATIONS IN PENINSULA BASINS

Golder Associates
Edmonton, Alberta

PROJECT NO. 09-1373-0010			PHASE No. 1000	
DESIGN	KS	06 Oct. 2009	SCALE AS SHOWN	REV. 0
GIS	CDB	06 Oct. 2009		
CHECK	KS	27 Oct. 2009		
REVIEW	PMC	27 Oct. 2009		

FIGURE 5-2

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- Chromium concentrations in one sample from stream A0-1 (1.4 µg/L) and in one sample from stream A7-8 (3.3 µg/L) were higher than the CWQG for hexavalent chromium (1.0 µg/L) but lower than the CWQG for trivalent chromium (8.9 µg/L). Chromium was detected in other samples at concentrations that ranged from 0.3 to 0.7 µg/L. Detection limits were generally at or below the most conservative CWQG except for 2 samples collected in 2007, which had detection limits of 5 µg/L.
- Silver was detected in one sample from stream A0-1 at 0.1 µg/L. Silver was not detected in any other sample and detection limits were at or below the CWQG of 0.1 µg/L.

Organic compounds were measured in 11 stream samples. Phenol concentrations ranged from 1 to 3 µg/L, below the CWQG of 4.0 µg/L. There were no detected concentrations of volatile organic compounds such as benzene, toluene, ethylbenzene, xylene (BTEX), total volatiles, or total extractables.

Peninsula Basin B

Water quality samples were collected from 5 streams in Basin B of the Peninsula (Figure 5-2; Appendix B2-3):

- B1-2 (summer and fall 1997, spring and summer 1998, spring 1999, and spring 2000);
- B3-4 (spring 1997, spring and summer 1998);
- B4-5 (spring and summer 1997, spring and summer 1998, spring and summer 2008);
- B5-6 (spring and summer 1998); and
- B6-7 (spring 1997, spring and summer 1998, spring and summer 2008).

The 5 streams were well oxygenated during the open-water seasons with dissolved oxygen concentrations ranging from 10.0 to 13.5 mg/L and associated water temperatures from 2.5 to 16.7°C. All dissolved oxygen values were above the 9.5 mg/L CWQG for protection of early life stages of cold water fish.

Field pH values were generally similar among streams and sampling events. Values ranged from 6.6 to 7.6 except in stream B6-7 during the spring of 2008, which had a field pH of 8.3. All pH values were within the range of applicable guidelines.

Water quality was similar among the 5 streams. Field-measured conductivity ranged from 48 to 116 µS/cm and TDS concentrations ranged from 18 to 79 mg/L. Major ions were dominated by bicarbonate (17 to 35 mg/L), calcium (4.8 to 15.2 mg/L), and chloride (1.9 to 14.5 mg/L). Total suspended solids concentrations ranged from 2 to 8 mg/L. Total cyanide was not detected in any stream sample (detection limits ranged from 1 to 5 mg/L).

Total alkalinity values ranged from 14 to 35 mg/L. Total hardness concentrations ranged from 15 to 45 mg/L, suggesting that the stream waters were very soft to soft (Table 5-3; McNeely et al. 1979).

Nutrient concentrations were similar among streams and sampling events. Total phosphorus concentrations ranged from 0.004 to 0.020 mg/L, which were lower than the guideline of 0.03 mg/L in NT and Nunavut. Total kJeldahl nitrogen ranged from 0.13 to 0.50 mg N/L. Total ammonia was detected in approximately half of the samples, at concentrations ranging from 0.008 to 0.027 mg N/L. Nitrate was occasionally detected at concentrations ranging from 0.007 to 0.027 mg N/L. Chlorophyll *a* concentrations were measured in only

4 samples from streams B4-5 and B6-7. Concentrations were higher in the summer (9 and 17 µg/L) than in the spring (0.0616 and 0.595 µg/L). Total organic carbon ranged from 2.5 to 5.6 mg/L.

Detection limits were at or below the CWQG except for cadmium, chromium, and selenium. Total metal concentrations were either below detection limits or below applicable guidelines with 3 exceptions:

- Cadmium concentration in one sample from stream B1-2 was 0.18 µg/L, which was higher than the CWQG of 0.017 µg/L. Cadmium was not detected in any other sample, although detection limits (0.017 to 0.1 µg/L) were at or higher than the CWQG.
- Chromium concentration in one sample from stream B1-2 (1.18 µg/L) was higher than the CWQG for hexavalent chromium (1.0 µg/L) but lower than the CWQG for trivalent chromium (8.9 µg/L). Chromium was detected in other samples at concentrations that ranged from 0.2 to 0.8 µg/L. Detection limits were generally at or below the most conservative CWQG except for 4 samples, which had detection limits ranging from 1 to 2 µg/L.
- Detected concentrations of selenium ranged from 0.1 to 0.2 µg/L, which are below the CWQG of 1.0 µg/L. Selenium was not detected in any other sample, although detection limits in 5 of these samples (10 µg/L) were higher than the CWQG.

Organic compounds were measured in most stream samples. Phenol concentrations were equal to or higher than the CWQG of 4.0 µg/L in 5 samples from streams B1-2, B4-5, and B6-7. Concentrations in these samples ranged from 4 to 5 µg/L. Concentrations of BTEX, total volatiles, or total extractables were below detection limits in most samples. In one sample from stream B5-6, ethylbenzene, toluene, and xylene concentrations were 1.0 µg/L, 1.1 µg/L, and 5.4 µg/L, respectively. These concentrations were less than the applicable guidelines.

Peninsula Basin D

Water quality samples were collected from 2 streams in Basin D of the Peninsula (Figure 5-2; Appendix B2-4):

- D0-1 (spring and summer 1997); and
- D6-7 (spring and summer 1997).

The 2 streams were well-oxygenated during the open water seasons with dissolved oxygen concentrations ranging from 10.8 to 12.7 mg/L and water temperatures from 7.0 to 12.7°C. All dissolved oxygen values were above the 9.5 mg/L CWQG for protection of early life stages of cold water fish. Field pH values ranged from 7.1 to 7.6, which were within the range of applicable guidelines.

Water quality was similar between the 2 streams, although there were seasonal differences in the concentrations of some parameters. Field-measured conductivity was higher in fall (138 and 157 µS/cm) than in spring (79 and 95 µS/cm). Major ions were dominated by bicarbonate (26 to 50 mg/L), calcium (10 to 16 mg/L), and chloride (3.3 to 8.1 mg/L).

Total alkalinity and total hardness were also higher in the fall. Total alkalinity values were 45 and 50 mg/L in the fall compared to 26 and 34 mg/L in the spring. Total hardness concentrations were 48 and 51 mg/L in the fall and 30 and 37 mg/L in the spring. Based on these data, the stream waters were considered to be very soft to

soft (Table 5-3; McNeely et al. 1979). Total suspended solids concentrations were 3 mg/L or less. Total cyanide was not measured in any sample.

Nutrient concentrations were higher in the fall than in the spring. Total phosphorus concentrations were approximately 3 times higher in the fall (0.019 to 0.020 mg/L) than in the spring samples (0.006 to 0.007 mg/L), but all concentrations were lower than the guideline of 0.03 mg/L in NT and Nunavut. Total kJeldahl nitrogen concentrations were 0.26 and 0.30 mg N/L in the spring samples compared to 0.38 and 0.55 mg/L in the fall samples. Total ammonia concentrations were also approximately 2 to 5 times higher in the fall than in the spring samples. Nitrate was not detected in the spring samples (detection limit was 0.008 mg N/L) and concentrations were 0.025 and 0.080 mg N/L in the fall samples. Chlorophyll *a* concentrations were not measured in any sample. Total organic carbon concentrations were 2.3 mg/L in the spring samples compared to 4.5 and 7.2 mg/L in the fall samples.

Detection limits for total metals were at or below the CWQG except for cadmium, chromium, and selenium. Silver was not detected in any sample, but the detection limit was equal to the CWQG of 0.1 µg/L. Total metal concentrations were either below detection limits or below applicable guidelines with 5 exceptions:

- Cadmium concentration in one sample from stream D6-7 was 0.1 µg/L, which was higher than the CWQG of 0.017 µg/L. Cadmium was not detected in any other sample (detection limit was 0.1 µg/L).
- Chromium concentration in the fall sample from stream D6-7 (2.0 µg/L) was higher than the CWQG for hexavalent chromium (1.0 µg/L) but lower than the CWQG for trivalent chromium (8.9 µg/L). Chromium was detected in the spring sample from stream D6-7 (0.9 µg/L), but was not detected in either of the samples from stream D0-1 (detection limits were 0.2 to 2 µg/L).
- Iron concentration in the fall sample from stream D1 was 305 µg/L, which was higher than both the CWQG and GCDWQ. Iron concentrations in the other samples ranged from 84 to 133 µg/L.
- Manganese concentration in the fall sample from stream D1 was 61.5 µg/L, which was higher than the GCDWQ of 50 µg/L (aesthetic objective). Manganese concentrations in the other samples ranged from 6.8 to 16.7 µg/L.
- Selenium concentration in the fall sample from stream D6-7 was 1.0 µg/L, which was the same as the CWQG. Selenium was not detected in the other samples; however, the detection limit in these samples was 10 µg/L, which was higher than the CWQG of 1.0 µg/L.

Organic compounds were measured in all stream samples. Concentrations of phenols, BTEX, total volatiles, or total extractables were below detection limits in all samples.

Peninsula Basin G

A water quality sample was collected in spring 1997 from stream G1-2 (Figure 5-2;;Appendix B2-5). This stream was well-oxygenated at the time of sampling, with a dissolved oxygen concentration of 10.4 mg/L and a water temperature of 18.5°C. Field-measured pH was 8.1 and field-measured conductivity was 72 µS/cm. Major ions were dominated by bicarbonate (25 mg/L), calcium (9.6 mg/L), and chloride (2.7 mg/L).

Total alkalinity and total hardness were 25 mg/L and 28 mg/L, respectively. These values indicate that the stream water was very soft (Table 5-3; McNeely et al. 1979). Total suspended solids concentration was less than the detection limit of 3 mg/L. Total cyanide was not measured.

Nutrient concentrations were similar to other Peninsula streams. Total phosphorus concentration was 0.006 mg/L, which was lower than the guideline of 0.03 mg/L in NT and Nunavut. Total kJeldahl nitrogen concentration was 0.41 mg N/L whereas total ammonia and nitrate concentrations were 0.006 mg/L and 0.012 mg/L, respectively. Chlorophyll *a* concentrations were not measured.

Detection limits for total metals were at or below the CWQG except for cadmium (0.1 µg/L) and selenium (10 µg/L). Total metal concentrations were either below detection limits or below applicable guidelines.

Concentrations of phenols, BTEX, total volatiles, or total extractables were below detection limits in the sample.

5.2.1.2 Meliadine River

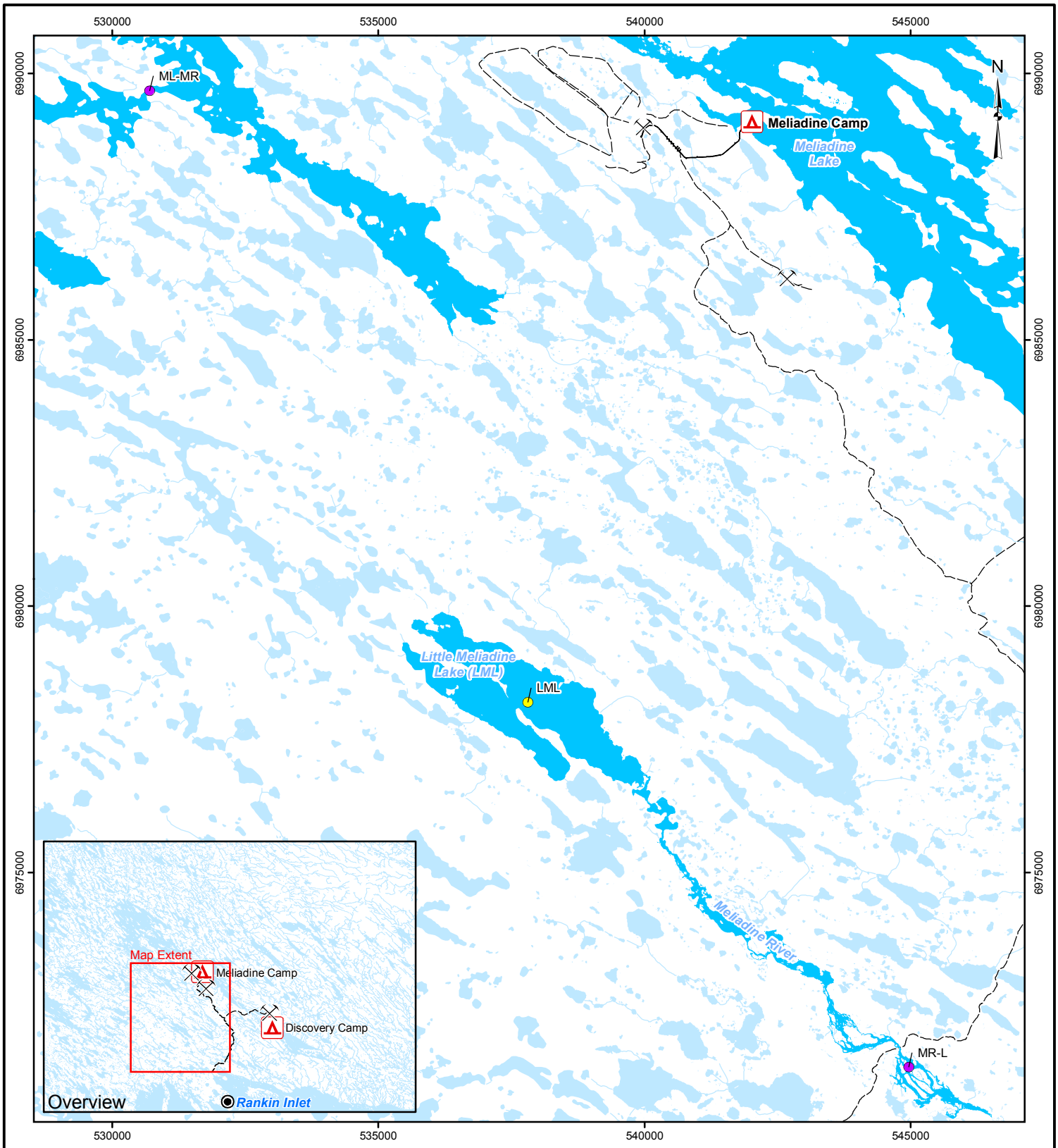
Water quality samples were collected from 2 stations in the Meliadine River (Figure 5-3; Appendix B2-6):

- ML-MR (spring and fall 1997, spring and summer 1998, spring 1999, spring 2000, spring and summer 2008; the outlet of Meliadine Lake to Meliadine River); and
- MR-L (spring and summer 1998; the Meliadine River upstream of Little Meliadine Lake).

Dissolved oxygen concentrations were not measured at the ML-R station. The ML-MR station was well-oxygenated during the open water seasons with dissolved oxygen concentrations ranging from 11.1 to 16.5 mg/L and associated water temperatures from 5.6 to 12.7°C. All dissolved oxygen values were above the 9.5 mg/L CWQG for protection of early life stages of cold water fish. Field pH values ranged from 6.8 to 7.7, which were within the range of applicable guidelines.

Water quality was similar between the 2 stations and among sampling events. Field-measured conductivity ranged from 42 to 86 µS/cm. Major ions were dominated by bicarbonate (15 to 25 mg/L), calcium (5.2 to 7.6 mg/L), chloride (4.2 to 9.6 mg/L), and sodium (2.5 to 5.6 mg/L). Total alkalinity values ranged from 15 to 20 mg/L. Total hardness concentrations ranged from 16 to 24 mg/L, which indicated the waters were very soft (Table 5-3; McNeely et al. 1979). Total suspended solids concentrations were generally below detection limits (i.e., less than 3 mg/L). Total cyanide was not detected in any sample (detection limits ranged from 1 to 5 mg/L).

Nutrient concentrations were similar at the 2 stations and among sampling events. Total phosphorus concentrations ranged from 0.002 to 0.009 mg/L, lower than the guideline of 0.03 mg/L in NT and Nunavut. Total kJeldahl nitrogen concentrations ranged from 0.11 to 0.43 mg N/L. Total ammonia was detected in less than half of the samples at concentrations ranging from 0.005 to 0.023 mg N/L. Nitrate concentrations were variable among sampling events and ranged from less than 0.005 to 0.032 mg N/L. Chlorophyll *a* concentrations were measured in 2 samples from ML-MR; concentrations were 0.355 µg/L in spring and less than 1 µg/L in summer. Total organic carbon concentrations were variable among sampling events and ranged from 1.6 to 5.1 mg/L.



LEGEND

Water Sampling Location
- Lake
- Stream
- Camp
- Proposed Mine Site
- Proposed Road
- Watercourse
- Sampled Waterbody
- Waterbody

REFERENCE

Base data obtained from Comaplex Minerals Corporation. Water quality data obtained from the field.
Projection: UTM Zone 15 Datum: NAD 83

2,500 0 2,500

SCALE 1:100,000 METRES

PROJECT

COMAPLEX MINERALS CORP

COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE

WATER QUALITY SAMPLING LOCATIONS IN MELIADINE RIVER AND LITTLE MELIADINE LAKE

Golder Associates
Edmonton, Alberta

PROJECT NO. 09-1373-0010			PHASE No. 1000	
DESIGN	KS	06 Oct. 2009	SCALE AS SHOWN	REV. 0
GIS	CDB	06 Oct. 2009		
CHECK	KS	27 Oct. 2009		
REVIEW	PMC	27 Oct. 2009		

FIGURE 5-3

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Detection limits for total metals were at or below the CWQG except for cadmium, chromium, and selenium:

- Cadmium was not detected in most samples, although detection limits ranged from 0.017 to 0.1 µg/L, which were at or higher than the CWQG of 0.017 µg/L.
- Chromium was not detected in 6 samples (detection limits ranged from 0.06 to 2 µg/L). One sample from station ML-MR had a detection limit of 2.0 µg/L, which was higher than the CWQG of 1.0 µg/L for hexavalent chromium.
- Selenium was not detected in 8 samples (detection limits ranged from 0.1 to 10 µg/L). Three samples from station ML-MR had a detection limit of 10 µg/L, which was higher than the CWQG of 1.0 µg/L.

Total metal concentrations were either below detection limits or below applicable guidelines with 2 exceptions:

- Cadmium concentration in one sample from ML-MR was 0.1 µg/L, which was higher than the CWQG of 0.017 µg/L. Cadmium was not detected in any other sample.
- Chromium concentrations were higher than the CWQG for hexavalent chromium (1.0 µg/L) in 3 samples (concentrations ranged from 1.1 to 2.0 µg/L) but lower than the CWQG for trivalent chromium (8.9 µg/L). Chromium was detected in 2 other samples at 0.18 and 0.9 µg/L, but was not detected in any other sample.

Organic compounds were measured in 9 samples. Phenol concentration in one sample from the ML-MR station was 10 µg/L, which exceeded the CWQG of 4.0 µg/L. In a different sample from ML-MR, total extractables concentration was 75 µg/L. Phenol concentrations in all other samples ranged from less than 1 to 2 µg/L. Concentrations of BTEX and total volatiles were below detection limits in all samples.

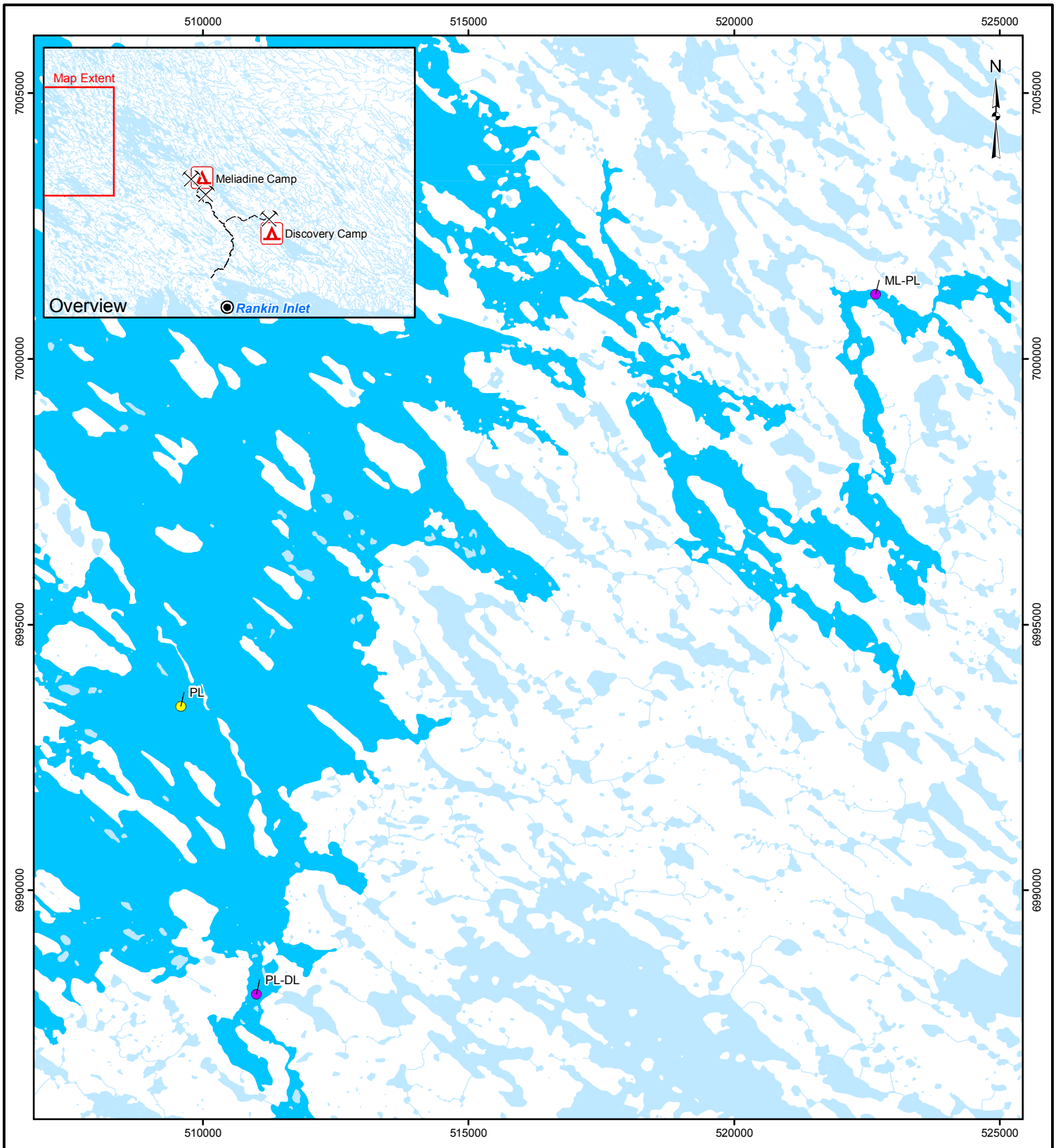
5.2.2 Peter Lake Drainage

Water quality samples were collected from 2 streams in the Peter Lake drainage (Figure 5-4; Appendix B2-7):

- ML-PL (spring and fall 1997, spring and summer 1998; a small outflow drains the west basin of Meliadine Lake into Peter Lake); and
- PL-DL (spring and fall 1997, spring and summer 1998; a short river section that connects Peter Lake to Diana Lake).

The 2 streams were well-oxygenated during the open water seasons with dissolved oxygen concentrations ranging from 11 to 14 mg/L and associated water temperatures from 5 to 13°C. All dissolved oxygen values were above the 9.5 mg/L CWQG for protection of early life stages of cold water fish.

Field measurements of pH and conductivity were generally similar between the 2 streams and sampling events. Field pH values ranged from 6.5 to 7.5. All pH values were within the range of applicable guidelines. Field-measured conductivity ranged from 35 to 69 µS/cm.



LEGEND

Water Sampling Location
- Lake
- Stream
- Camp
- Proposed Mine Site
- Proposed Road
- Watercourse
- Sampled Waterbody
- Waterbody

REFERENCE

Base data obtained from Comaplex Minerals Corporation. Water quality data obtained from the field.
Projection: UTM Zone 15 Datum: NAD 83

2,500 0 2,500

SCALE 1:100,000 METRES

PROJECT

COMAPLEX MINERALS CORP

COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE

WATER QUALITY SAMPLING LOCATIONS IN PETER LAKE BASIN

Golder Associates
Edmonton, Alberta

PROJECT NO. 09-1373-0010			PHASE No. 1000	
DESIGN	KS	06 Oct. 2009	SCALE AS SHOWN	REV. 0
GIS	CDB	06 Oct. 2009		
CHECK	KS	27 Oct. 2009		
REVIEW	PMC	27 Oct. 2009		

FIGURE 5-4

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Concentrations of TDS did not differ among seasons, but were higher in stream ML-PL (25 to 34 µS/cm) than in stream PL-DL (15 to 19 µS/cm). This trend was reflected in the concentrations of the dominant ions (bicarbonate, calcium, chloride, and sodium):

- Bicarbonate concentrations ranged from 12 to 18 mg/L in ML-PL and 7.1 to 11 mg/L in PL-DL.
- Calcium concentrations ranged from 4.1 to 5.5 mg/L in ML-PL and 2.4 to 3.3 mg/L in PL-DL.
- Chloride concentrations ranged from 3.7 to 5.5 mg/L in ML-PL and 2.6 to 3.4 mg/L in PL-DL.
- Sodium concentrations ranged from 2.2 to 3.2 mg/L in ML-PL and 1.8 to 2.1 mg/L in PL-DL.

Total alkalinity and total hardness concentrations were also higher in stream ML-PL than stream PL-DL. Total alkalinity values ranged from 12 to 15 mg/L in stream ML-PL compared to 7 to 9 mg/L in stream PL-DL. Total hardness concentrations ranged from 13 to 17 mg/L in stream ML-PL compared to 8 to 11 mg/L in stream PL-DL. Based on these data, the stream waters were very soft (Table 5-3; McNeely et al. 1979).

Total suspended solids concentrations were only detected in one sample from PL-DL at 4 mg/L. Total suspended solids were not detected in the other samples (detection limits ranged from 2 to 3 mg/L). Total cyanide concentrations were less than or equal to 1 mg/L.

Nutrient concentrations were similar between the 2 streams and sampling events. Total phosphorus concentrations ranged from 0.002 to 0.008 mg/L, lower than the guideline of 0.03 mg/L in NT and Nunavut. Total kJeldahl nitrogen concentrations ranged from 0.14 to 0.31 mg/L. Total ammonia and nitrate concentrations were highest in the fall samples. Chlorophyll *a* was not measured in any sample. Total organic carbon ranged from 1.2 to 4.0 mg/L.

Detection limits for total metals were at or below the CWQG except for cadmium and selenium:

- Cadmium was not detected in 5 samples, although the detection limits (0.05 to 0.1 µg/L) were higher than the CWQG of 0.017 µg/L.
- Selenium was not detected in 7 samples (detection limits ranged from 0.1 to 10 µg/L). The 4 samples from the 1997 sampling event had detection limits of 10 µg/L, which were higher than the CWQG of 1.0 µg/L.

Total metal concentrations were either below detection limits or below applicable guidelines with the following exception:

- Cadmium concentrations in 3 samples ranged from 0.05 to 0.1 µg/L, higher than the CWQG of 0.017 µg/L. Cadmium was not detected in the other samples (detection limits ranged from 0.05 to 0.1 µg/L).

Organic compounds were measured in all samples (n = 8). Phenol concentration in one sample from stream PL-DL was 5 µg/L, higher than the CWQG of 4.0 µg/L. Concentrations in the other samples ranged from less than 1 to 3 µg/L. There were no detected concentrations of volatile organic compounds such as BTEX, total volatiles, or total extractables.

5.2.3 Atulik Lake Drainage

Water quality samples were collected from 4 streams in the Atulik Lake drainage system (Figure 5-5; Appendix B2-8):

- DI-6 (summer 1995 and spring 2008; outlet of Atulik Lake);
- DI-7 (summer 1995 and spring 2008; downstream of basins below Atulik Lake on Atulik River);
- NEW-2 (spring 2008; outlet into Lake DI5 that flows into Meliadine Lake); and
- NEW-3 (spring 2008; outlet of Lake DI1 [i.e., Chickenhead Lake]).

The 4 streams were well-oxygenated during the open water seasons with dissolved oxygen concentrations ranging from 9.6 to 14.6 mg/L and water temperatures from 5.5 to 18°C. One exception occurred during the 1995 summer sampling event at stream DI-6 when dissolved oxygen concentration was 7.3 mg/L at a water temperature of 13.6°C (approximate dissolved oxygen saturation was ~70%). This value is below the 9.5 mg/L CWQG for protection of early life stages of cold water fish but above the 6.5 mg/L CWQG for protection of other life stages of cold water fish.

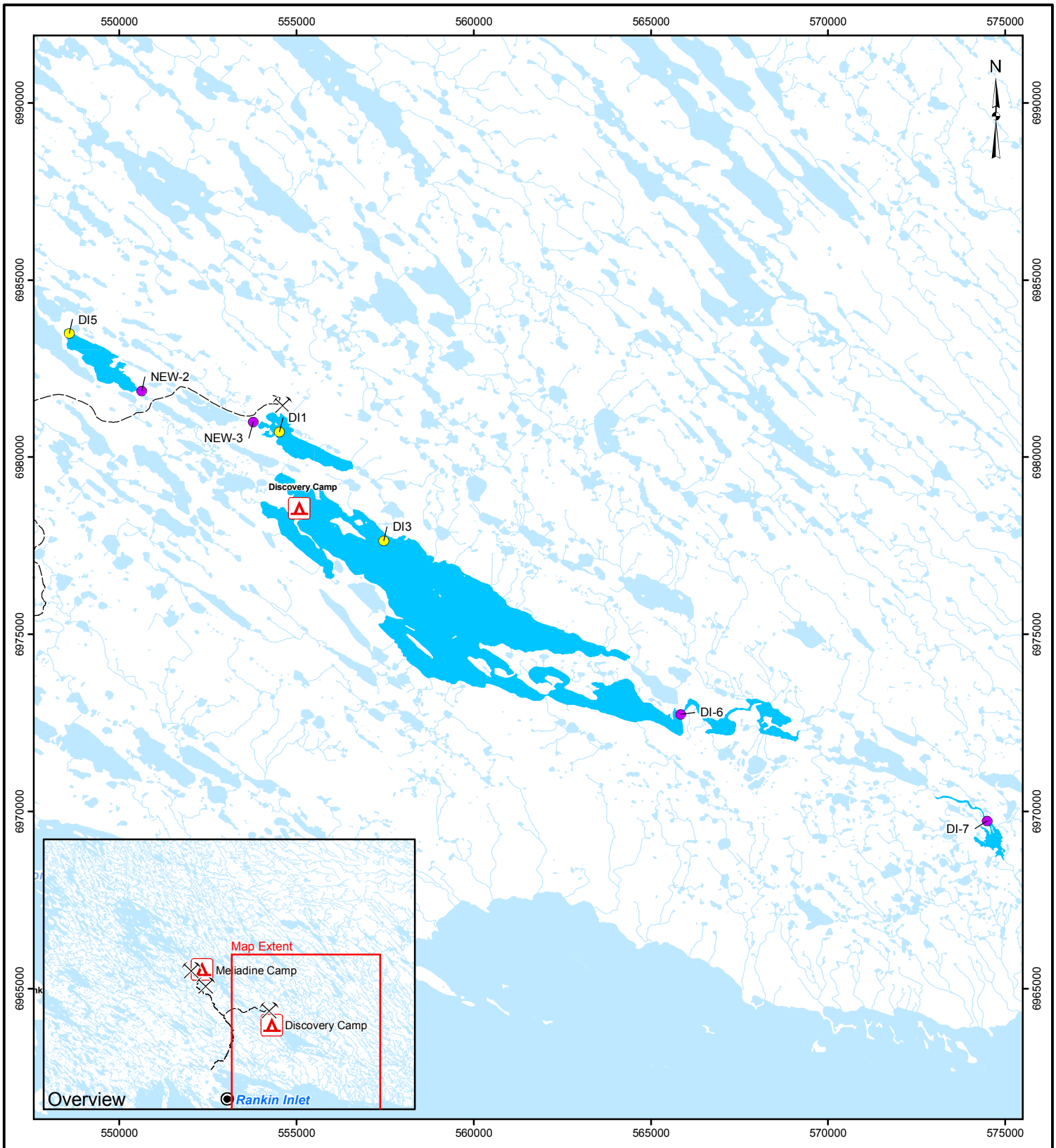
Field measurements of pH were similar among streams and sampling events. Field pH values ranged from 7.5 to 8.4. All pH values were within the range of applicable guidelines.

Stream NEW-2 was higher in conductivity, alkalinity, and hardness than the other streams. Field-measured conductivity was 82 µS/cm in stream NEW-2 compared to 30 to 41 µS/cm in the other streams. Total alkalinity values ranged from 11 to 16 mg/L except in stream NEW-2, which had a total alkalinity value of 33 mg/L. Total hardness concentrations ranged from 14 to 18 mg/L, except in stream NEW-2, which had a total hardness concentration of 37 mg/L. Based on these data, stream NEW-2 had soft water whereas all other streams in this drainage had very soft water (Table 5-3; McNeely et al. 1979).

Major ions in these streams were bicarbonate, calcium, chloride, and sodium. Concentrations of bicarbonate and calcium were higher in stream NEW-1 than in the other streams. Bicarbonate concentration was 41 mg/L in stream NEW-2 and ranged from 14 to 17 mg/L in the other streams. Calcium concentration was 12 mg/L in stream NEW-2 and ranged from 4.3 to 5.7 mg/L in the other streams. Chloride concentrations were similar among the streams and ranged from 4 to 7 mg/L. Sodium concentrations were higher in streams NEW-2 and NEW-3 (10 and 11 mg/L) compared to streams DI-6 and DI-7 (4 to 5 mg/L).

Total suspended solids concentrations were less than the detection limit of 3 mg/L. Total cyanide was also not detected in any sample (detection limit was 0.2 µg/L).

Nutrient concentrations were similar between streams and sampling events. Total phosphorus concentrations ranged from 0.007 to 0.01 mg/L, lower than the guideline of 0.03 mg/L in NT and Nunavut. Total kJeldahl nitrogen concentrations ranged from less than 0.2 to 0.3 mg/L. Total ammonia and nitrate were not detected in any sample. Nitrite concentrations exceeded the CWQG of 0.06 mg/L in 3 samples, with values ranging from 0.06 to 0.08 mg/L. Chlorophyll *a* concentrations were only measured in the spring samples. The concentrations were highest in streams NEW-2 and NEW-3 at 10 µg/L and 31 µg/L, respectively and were 3 µg/L and 5 µg/L in streams DI-6 and DI-7, respectively. Total organic carbon ranged from 2 to 5 mg/L.



LEGEND

Water Sampling Location
- Lake
- Stream

Camp

Proposed Mine Site

Proposed Road

Watercourse

Sampled Waterbody

Waterbody

REFERENCE

Base data obtained from Comaplex Minerals Corporation. Water quality data obtained from the field.
Projection: UTM Zone 15 Datum: NAD 83

PROJECT

COMAPLEX MINERALS CORP

COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE

WATER QUALITY SAMPLING LOCATIONS IN ATULIK LAKE BASIN

Golder Associates
Edmonton, Alberta

PROJECT NO. 09-1373-0010			PHASE No. 1000	
DESIGN	KS	06 Oct. 2009	SCALE AS SHOWN	REV. 0
GIS	CDB	06 Oct. 2009		
CHECK	KS	27 Oct. 2009		
REVIEW	PMC	27 Oct. 2009		

FIGURE 5-5

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Detection limits for total metals were at or below the CWQGs except for aluminum, cadmium, chromium, copper, mercury, and silver. The highest detection limits were reported for the 1995 samples:

- The detection limit for aluminum in the 1995 samples was 200 µg/L, which was higher than the pH-dependent CWQG of 100 µg/L. Aluminum was not detected in these samples. Aluminum concentrations in the other samples ranged from 2.1 to 7.5 µg/L.
- The detection limit for cadmium was 0.2 µg/L in the 1995 samples and 0.017 µg/L in the other samples. The CWQG for cadmium is 0.017 µg/L. Cadmium was not detected in any stream sample.
- The detection limit for chromium was 15 µg/L in the 1995 samples and 0.06 µg/L in the other samples. The CWQG is 1.0 µg/L for hexavalent chromium and 8.9 µg/L for trivalent chromium. Chromium was not detected in any stream sample.
- The detection limit for copper was 10 µg/L in the 1995 samples and 1 µg/L in the other samples. The CWQG for copper is 2 µg/L. Copper was detected in 2 samples at a concentration of 1 µg/L.
- The detection limit for mercury was 0.05 µg/L in the 1995 samples and 0.02 µg/L in the other samples. The CWQG for mercury is 0.026 µg/L.
- The detection limit for silver was 15 µg/L in the 1995 samples and 0.4 µg/L in the other samples. These detection limits are higher than the CWQG of 0.1 µg/L. Silver was not detected in any sample.

All other total metal concentrations were either below detection limits or below applicable guidelines. Organic compounds were not measured in these stream samples.

5.3 Lakes

5.3.1 Meliadine Lake Drainage

5.3.1.1 Meliadine Lake

Water quality samples were collected from 8 stations within Meliadine Lake (Figure 5-1; Appendix B3-1):

- DI4 (summer 1995 and 2008);
- ML-E (summer and fall 1997; winter, summer and fall 1998; summer 2008; winter 2009);
- ML-A (winter and summer 2009);
- BOOT-1 (summer 2008 and 2009);
- BOOT-2 (summer 2008, winter and summer 2009);
- ML-W (summer and fall 1997; winter and summer 1998; summer 2008);
- ML-S (summer and fall 1997; winter, summer and fall 1998); and
- ML-SE (winter and summer 1998; summer 1999; summer 2000; summer 2008; winter 2009).

Under Ice Conditions

There were 6 stations assessed during under ice conditions: ML-E, ML-A, BOOT-2, ML-W, ML-S, and ML-SE.

Limnology profiles (surface to near-bottom) of dissolved oxygen concentration and water temperatures were measured in all 6 stations. Most stations had maximum depths of approximately 5 m and dissolved oxygen concentrations were greater than the CWQG of 9.5 mg/L at all depths. Deeper stations such as ML-E in 1998 (depth was 11.5 m) and BOOT-2 in 2009 (depth was 10 m) had dissolved oxygen concentrations in the near-bottom strata that ranged from 2.3 to 7.4 mg/L at water temperatures of 2.6 to 3.4°C. Dissolved oxygen concentrations were higher in the upper 6 m strata (i.e., greater than 9.5 mg/L).

Field measurements of conventional parameters and water chemistry samples were collected at all stations and during all sampling events. Field-measured pH values ranged from 6.7 to 6.9 at most stations and sampling events with the exception of ML-E in 1998 (pH 6.2) and ML-SE in 2009 (pH 5.5). These pH values were lower than the minimum CWQG and GCDWQ of pH 6.5. Field-measured conductivity values were 68 to 105 µS/cm for all stations except station ML-SE, which had values of 138 and 170 µS/cm.

Water quality under ice conditions was similar among the stations with the exception of ML-SE, which generally had parameter concentrations that were 2 times higher than other stations. Concentrations of these parameters were also higher than those observed during open water conditions. Major ions were dominated by bicarbonate (25 to 57 mg/L), calcium (6.6 to 17 mg/L), chloride (6.4 to 25 mg/L), sodium (4.1 to 7.5 mg/L), and sulphate (2.9 to 8.9 mg/L). Total alkalinity values were 20 to 50 mg/L and total hardness concentrations ranged from 22 to 54 mg/L. Total cyanide was not detected in any sample (detection limits ranged from 1 to 2 µg/L).

Nutrient concentrations were similar among stations and sampling events. Total phosphorus concentrations ranged from 0.003 to 0.0106 mg/L, lower than the guideline of 0.03 mg/L in NT and Nunavut. Total kJeldahl nitrogen concentrations ranged from 0.168 and 0.94 mg/L. Total ammonia was detected in approximately half the samples at or below 0.05 mg/L. Nitrate and nitrite concentrations were usually below detection limits (0.006 to 0.050 mg N/L) except in one sample collected at station ML-E in 1998; in this sample, nitrate concentration was 0.011 mg N/L. Total organic carbon ranged from 3.9 to 5.2 mg/L.

Detection limits for total metals were at or below the CWQGs except for cadmium. Total metal concentrations were either below detection limits or below applicable guidelines with the following two exceptions:

- Cadmium concentration in one sample from station ML-E was 0.2 µg/L, which was higher than the CWQG of 0.017 µg/L. Cadmium was not detected in any other sample (detection limits ranged from 0.01 to 0.1 µg/L).
- Copper concentrations were equal to or higher than the CWQG of 2 µg/L in 3 samples from stations ML-E, ML-W, and ML-SE. The copper concentrations in these samples ranged from 2 to 3.1 µg/L. Copper concentrations in the other samples ranged from 1.4 to 1.7 µg/L.

Phenol was not detected in any sample. Other organic compounds were not analyzed in these samples.

Open Water Conditions

Limnology profiles were collected at 7 stations in Meliadine Lake during open water conditions. Stations had maximum depths that ranged from 2.0 m (BOOT-1) to 14.7 m (ML-E). Dissolved oxygen concentrations were higher than the CWQG of 9.5 mg/L at all depths during all sampling events except one. All 3 stations measured in summer 2009 had dissolved oxygen concentrations that were below 9.5 mg/L. Concentrations were similar throughout the water column and ranged from 8.8 mg/L at surface to 7.8 mg/L at bottom with water temperatures ranging from 12.6 to 15.5°C. Water temperatures during the other sampling events ranged from 9.7 to 14.3°C.

Field measurements of conventional parameters were collected at all stations and sampling events and water chemistry samples were collected during most sampling events. Most field pH values ranged from 6.8 to 7.8, with one exception. In summer 2009, the field pH at station ML-A was 6.49, which was below the minimum CWQG and GCDWQ of pH 6.5. All other pH values were within the range of applicable guidelines. Field-measured conductivity was similar among stations with a few exceptions. Most values ranged from 49 to 85 µS/cm, with the higher values occurring at station ML-SE. Most values were also similar among sampling events at the same station. An exception was station DI4, which had lower field-measured conductivity in summer 1995 (21 µS/cm) compared to summer 2008 (71 µS/cm). Total dissolved solids and concentrations of major ions were also 2 times higher in the 2008 sample than in the 1995 sample for this station.

In general, parameters were similar among sampling events and stations, although the highest concentrations were observed in station ML-SE. Total dissolved solids concentrations ranged from 21 to 51 mg/L. The major ions were bicarbonate (13 to 30 mg/L), calcium (4.3 to 9.0 mg/L), chloride (2.7 to 8.3 mg/L), sodium (1.7 to 4.2 mg/L), and sulphate (1.6 to 3.5 mg/L). Total alkalinity values ranged from 12 to 24 mg/L, indicating that these waters had a moderate to low sensitivity to acid (Table 5-2; Saffran and Trew 1996). Total hardness concentrations ranged from 13 to 27 mg/L, indicating that these waters were very soft to soft (Table 5-3; McNeely et al. 1979).

Nutrient concentrations were similar among stations and sampling events. Total phosphorus concentrations ranged from 0.003 to 0.033 mg/L, generally lower than the guideline of 0.03 mg/L in NT and Nunavut. Total kJeldahl nitrogen varied from 0.14 to 0.36 mg/L. Total ammonia was detected in approximately half of the samples, ranging from 0.002 and 0.024 mg/L. Nitrate and nitrite concentrations were below detection limits in all samples (detection limits were 0.1 mg/L or lower). Chlorophyll *a* concentrations ranged from less than 0.01 to 2.4 µg/L with the exception of one sample from station BOOT-1 during summer 2008 sampling, which had a concentration of 15 µg/L. Total organic carbon ranged from 2 to 4 mg/L. Based on the total kJeldahl nitrogen, total phosphorus, and chlorophyll *a* concentrations in different stations across the lake, Meliadine Lake was classified as oligotrophic (Table 5-4; Wetzel 1983).

Detection limits for total metals were higher than the CWQG for cadmium in most samples and higher than the CWQGs for aluminum, chromium, selenium, and silver in one or more samples:

- Aluminum was not detected in 4 samples (detection limits ranged from 0.3 to 200 µg/L). The detection limit in one of these samples was 200 µg/L, which was higher than the CWQG of 100 µg/L.
- Cadmium was not detected in 22 samples (detection limits ranged from 0.01 to 0.2 µg/L). In 13 of these samples, detection limits ranged from 0.02 to 0.2 µg/L, which were higher than the CWQG of 0.017 µg/L.

- Chromium was not detected in 15 samples (detection limits ranged from 0.06 to 15 µg/L). In 4 of these samples, the detection limit was 2 µg/L, which was higher than the CWQG of 1.0 µg/L for hexavalent chromium but lower than the CWQG of 8.9 µg/L for trivalent chromium. In one sample from 1995, the detection limit was 15 µg/L, which was higher than both CWQGs.
- Selenium was not detected in 17 samples (detection limits ranged from 0.1 to 10 µg/L). In 4 samples, the detection limit was 10 µg/L, which was higher than the CWQG of 1.0 µg/L.
- Silver was not detected in any of the 20 samples (detection limits ranged from 0.020 to 15 µg/L). In one sample from 1995, the detection limit was 15 µg/L, which was higher than the CWQG of 0.1 µg/L.

Total metal concentrations were either below detection limits or below applicable guidelines with the following 3 exceptions:

- Cadmium concentrations in 4 samples ranged from 0.05 to 4.75 µg/L, higher than the CWQG of 0.017 µg/L. Cadmium concentration was 0.011 µg/L or below detection limits in the other samples.
- Chromium concentrations in 3 samples varied between 1.41 and 2.15 µg/L, higher than the CWQG of 1 µg/L for hexavalent chromium but lower than the CWQG of 8.9 µg/L for trivalent chromium. Other detected concentrations ranged from 0.18 to 0.53 µg/L.
- Zinc concentration in one sample was 37.2 µg/L, higher than the CWQG of 30 µg/L. Other concentrations ranged from less than 0.8 to 14.7 µg/L.

Oil and grease was measured in 2 samples from BOOT-1 and BOOT-2 and concentrations were reported as less than the detection limit of 500 µg/L. Phenol concentrations ranged from less than 1 to 2 µg/L. There were no detected concentrations of BTEX, total volatiles, or total extractables.

5.3.1.2 Peninsula Lakes

Peninsula Basin A

Water quality samples were collected from 4 lakes and 7 ponds in Basin A of the Peninsula; of these, 2 lakes were assessed during under-ice conditions (Figure 5-2; Appendix B3-2):

- Lake A1 (summer 1994 and fall 1997);
- Lake A5 (summer 1994);
- Lake A6 (summer 1994; summer and fall 1997; winter and summer 1998; summer 1999; summer 2000; winter and summer 2009);
- Lake A8 (summer 1994; summer and fall 1997; winter and summer 1998; summer and fall 2007; summer 2008; and winter 2009);
- Pond A9 (summer and fall 2007);
- Pond A13 (summer and fall 2007);
- Pond A15 (summer and fall 2007);
- Pond A38 (summer and fall 2007);

- Pond A54 (summer and fall 2007; summer 2008);
- Pond A56 (summer and fall 2007); and
- Pond A57 (summer and fall 2007).

Under Ice Conditions

Limnology profiles were collected from 2 lakes under ice conditions: Lakes A6 (1998 and 2009) and A8 (1998 and 2009). Stations in both lakes had maximum depths of 2.5 to 4 m. During both sampling events, dissolved oxygen concentrations were lower than the CWQG of 9.5 mg/L at all depths. Dissolved oxygen concentrations ranged from 0.7 to 4.5 mg/L with water temperatures of less than 3°C.

Field measurements of conventional parameters and water chemistry samples were collected at both stations and both sampling events. Field-measured values of pH and conductivity were similar between sampling events and lakes. Field-measured pH ranged from 6.8 to 7.7 with the exception of the 1998 sample in Lake A6, which had a pH value of 6.4. This value was lower than the minimum CWQG or GCDWQ of pH 6.5. Field-measured conductivity ranged from 300 to 489 µS/cm.

Concentrations of total dissolved solids, major ions, total alkalinity, and total hardness were similar between sampling events and lakes. All values were higher than those observed during open water conditions. Total dissolved solids ranged from 165 to 261 mg/L. Major ions included bicarbonate (153 to 176 mg/L), calcium (45 to 66 mg/L), chloride (15 to 78 mg/L), sodium (7.5 to 12 mg/L), and sulphate (5.7 to 12.7 mg/L). Total alkalinity ranged from 125 to 145 mg/L and total hardness ranged from 137 to 216 mg/L. Total suspended solids concentrations ranged from less than 2 to 5 mg/L. Total cyanide was not detected in any sample (detection limits ranged from 1 to 2 µg/L).

Nutrient concentrations were generally similar between sampling events and lakes. Total phosphorus concentrations ranged from 0.007 to 0.0081 mg/L. Total kJeldahl nitrogen concentrations were similar among samples, ranging from 0.88 to 1.28 mg/L. Total ammonia concentrations ranged from 0.212 to 0.448 mg N/L. Nitrate concentration was highest in the 1998 sample from lake A6 at 0.305 mg N/L and ranged from 0.03 to 0.062 mg N/L in the other samples. Total organic carbon was measured in the 1998 samples: concentrations were 9 and 10 mg/L.

Detection limits were above the CWQG for cadmium in the 1998 samples (detection limit was 0.1 µg/L), but below the CWQG in the 2008 samples (detection limit was 0.010 µg/L). Total metal concentrations were either below detection limits or below applicable guidelines with the following two exceptions:

- Lead concentration in the 2008 sample from Lake A6 was 63 µg/L, which was higher than the CWQG of 1 µg/L. Lead was not detected in any other sample (detection limits ranged from 0.05 to 5 µg/L).
- Manganese concentrations in all 4 samples ranged from 85.5 to 416 µg/L, which exceeded the GCDWQ of 50 µg/L.

Phenols were only measured in the 1998 samples; both values were below detection limits (i.e., <1 µg/L). Other organic compounds were not measured in any sample.

Open Water Conditions

Limnology profiles were collected from 3 lakes (i.e., Lakes A1, A6, and A8) in open water conditions. Stations had maximum depths that ranged from 1.8 m (Lake A1) to 4 m (Lake A6). Dissolved oxygen concentrations were higher than the CWQG of 9.5 mg/L at all depths during all sampling events except one. In summer 2009, Lake A6 had dissolved oxygen concentrations that ranged from 8.2 mg/L at surface to 5.4 mg/L at bottom with water temperatures ranging from 14.8 to 14.8°C. Water temperatures during the other sampling events ranged from 9.8 to 19.0°C.

Field pH measurements were collected at all stations, but other field measurements (e.g., conductivity) were not reported in the 1994 or 2007 sampling events. Water chemistry samples were collected during most sampling events. Field-measured pH values ranged from 6.6 to 8.6, within the range of CWQGs. However, one 2007 sample from Lake A9 had a pH of 8.6, which was higher than the maximum GCDWQ. Field-measured conductivity in the lakes ranged from 85 to 150 µS/cm. Only laboratory-measured conductivity values were available for most ponds and the values ranged from 294 to 2 370 µS/cm.

As with conductivity, concentrations of most parameters were lower in the lakes than in the ponds. Total dissolved solids concentrations also followed this trend, with concentrations in the lakes ranging from 26 to 83 mg/L and those in the ponds ranging from 191 to 1440 mg/L. The GCDWQ of 500 mg/L was exceeded in 4 ponds (i.e., Ponds A9, A13, A54, and A56). The major ions were the same, but the concentrations were different:

- Bicarbonate concentrations ranged from 32 to 42 mg/L in the lakes and 37 to 204 mg/L in the ponds.
- Calcium concentrations ranged from 6.3 to 16.9 mg/L in the lakes and 48 to 346 mg/L in the ponds.
- Chloride concentrations ranged from 2 to 17 mg/L in the lakes and 12 to 716 mg/L in the ponds. Chloride concentration exceeded the GCDWQ of 250 mg/L in 6 samples from 4 ponds (i.e., Ponds A9, A13, A15, and A56).
- Sodium concentrations ranged from 1.1 to 3.1 mg/L in the lakes and 6 to 87 mg/L in the ponds.
- Sulphate concentrations ranged from 1.5 to 4.1 mg/L in the lakes and 4.5 to 141 mg/L in the ponds.

Total alkalinity values ranged from 16 to 35 mg/L in the lakes and 30 to 167 mg/L in the ponds. These values indicate that the lake waters had a low to moderate sensitivity to acid and the pond waters had a low to least sensitivity to acid (Table 5-2; Saffran and Trew 1996). Total hardness concentrations ranged from 19 to 51 mg/L in the lakes and 142 to 1 020 mg/L in the ponds. These values indicate that the lake waters were very soft to soft and the pond waters were hard to very hard (Table 5-3; McNeely et al. 1979).

Concentrations of carbon or phosphorus were similar among sampling events but varied among lakes and ponds. Total organic carbon concentrations ranged from 3.8 to 9 mg/L in the lakes and 3.6 to 25 mg/L in the ponds. Phosphorus concentrations in the lakes and ponds were similar. Detected total phosphorus concentrations ranged from 0.004 to 0.026 mg/L, lower than the guideline of 0.03 mg/L in NT and Nunavut.

Nitrogen concentrations were generally higher in the ponds than in the lakes. Total kJeldahl nitrogen concentrations ranged from 0.2 to 0.49 mg/L in the lakes and 0.3 to 2.2 mg/L in the ponds. Total ammonia concentrations were less than 0.05 mg N/L in the lakes, but ranged from less than the detection limit of

0.05 mg/L to 1.32 mg N/L in the ponds. Nitrate and nitrite were generally not detected in the lakes. There were exceedances of the CWQGs for nitrate and nitrite in the ponds:

- Nitrate concentrations exceeded the CWQG of 2.9 mg N/L in 2 samples from Ponds A54 and A56. Nitrate concentrations in these samples were 4.9 mg N/L (Pond A54) and 2.9 mg N/L (Pond A56). All other pond samples had nitrate concentrations equal to or less than 0.5 mg N/L.
- Nitrite concentrations exceeded the CWQG of 0.060 mg N/L in 3 samples from Ponds A13, A54, and A56. Concentrations in these samples ranged from 0.08 mg N/L (Pond A13) to 0.31 mg N/L (Pond A56). Nitrite concentrations were less than the detection limit of 0.05 mg N/L in the other samples.

Chlorophyll *a* concentrations in the lakes ranged from less than the detection limit of 0.01 to 1.50 µg/L, with the exception of 13 µg/L in the summer 2008 sample from Lake A8. Chlorophyll *a* was measured in only one pond sample at a concentration of 17 µg/L in the summer 2008 sample from Pond A54.

Total cyanide concentrations were similar among the lakes and ponds and ranged from less than 1 to 2 µg/L.

Detection limits for total metals were higher than CWQGs for cadmium and chromium in most samples and for copper, mercury, selenium, silver, and thallium in some samples:

- Cadmium was not detected in 13 samples (detection limits ranged from 0.010 to 0.2 µg/L). The detection limits in 12 of these samples were higher than the sample-specific CWQG (based on sample hardness).
- Chromium was not detected in 13 samples (detection limits ranged from 0.06 to 15 µg/L). The detection limits in 6 of these samples ranged from 2 to 5 µg/L, which were higher than the CWQG of 1.0 µg/L for hexavalent chromium. The detection limit in 4 samples was 15 µg/L, which also exceeded the CWQG of 8.9 µg/L for trivalent chromium.
- Copper was not detected in 5 samples (detection limits ranged from 1 to 10 µg/L). Four of these samples had a detection limit of 10 µg/L, which was higher than the sample-specific CWQG (based on sample hardness).
- Mercury was not detected in 16 samples (detection limits ranged from 0.01 to 0.2 µg/L). The detection limits in 6 of these samples ranged from 0.05 to 0.2 µg/L, which were higher than the CWQG of 0.026 µg/L.
- Selenium was not detected in 12 samples (detection limits ranged from 0.1 to 10 µg/L). The detection limit in 2 samples was 10 µg/L, which was higher than the CWQG of 1 µg/L.
- Silver was not detected in 18 samples, but the detection limits in 8 samples were higher than the CWQG of 0.1 µg/L (detection limits in these samples ranged from 0.4 to 15 µg/L).
- Thallium was not detected in 16 samples (detection limits ranged from 0.03 to 100 µg/L). In 4 samples, detection limit was 100 µg/L, which was higher than the CWQG of 0.8 µg/L.

Total metal concentrations were either below detection limits or below applicable guidelines with the following 9 exceptions:

- Cadmium concentrations exceeded the CWQG of 0.017 µg/L in 4 samples from lakes A6 and A8. Concentrations in these samples ranged from 0.1 to 1.05 µg/L. Cadmium was detected in one other sample from Lake A6 at a concentration of 0.017 µg/L. Cadmium was not detected in the other samples.

- Chromium concentrations exceeded the CWQG of 1.0 µg/L for hexavalent chromium in 3 samples from Lakes A6 and A8. The concentrations in these samples ranged from 1.9 to 3.48 µg/L. All concentrations were less than the CWQG of 8.9 µg/L for trivalent chromium.
- Copper concentrations in 2 samples from Lake A6 exceeded the CWQG of 2 µg/L (based on total hardness of less than 120 mg/L in these samples). The concentrations in these samples were 6.5 and 27.1 µg/L.
- Iron concentrations exceeded the CWQG and GCDWQ of 300 µg/L in one sample from Pond A15. The total iron concentration in this pond sample was 695 µg/L.
- Lead concentration exceeded the CWQG of 1 µg/L for one sample from Lake A6, which had a concentration of 2.19 µg/L.
- Mercury concentrations exceeded the CWQG of 0.026 µg/L in 2 sample from Ponds A9 and A13. Concentrations in these samples were 0.5 µg/L and 0.4 µg/L, respectively.
- Selenium concentrations exceeded the CWQG of 1 µg/L in 2 samples from Ponds A9 and A13. Concentrations in these samples were 2.2 µg/L and 1.2 µg/L, respectively.
- Zinc concentrations exceeded the CWQG of 30 µg/L in one sample from Lake A6. The concentrations in this sample was 31.9 µg/L.

Only dissolved metals were analyzed in most 2007 pond samples (i.e., 11 out of 15). Dissolved metal concentrations were similar to the total metals concentrations measured in other pond samples. Total and dissolved metal concentrations in the pond samples were also generally higher than the total metal concentrations reported in the lake samples, for example:

- Total iron concentrations in the lakes ranged from 4.6 to 160 µg/L whereas total and dissolved iron concentrations in the ponds ranged from 22 to 2 360 µg/L.
- Total manganese concentrations in the lakes ranged from 0.4 to 14.1 µg/L whereas dissolved manganese concentrations ranged from 1.7 to 174 µg/L in the ponds.

Dissolved concentrations of some metals were also higher than guidelines used to compare to total metal concentrations[6]. For example:

- The concentration of dissolved arsenic in one sample from Pond A57 was 6.7 µg/L, higher than the CWQG of 5.0 µg/L based on total arsenic.
- Dissolved chromium concentrations in 3 samples from Ponds A13, A56, and A57 were 6 to 7 µg/L, higher than the CWQG of 1.0 µg/L based on total hexavalent chromium.
- Dissolved iron concentrations in 4 samples from Ponds A9, A13, and A15 were 302 to 2 360 µg/L, higher than the CWQG and GCDWQ of 300 µg/L based on total iron.
- Dissolved manganese concentrations in 5 samples from Ponds A9, A13, A15, and A56 were 51 to 174 µg/L, higher than the GCDWQ of 50 µg/L based on total manganese.

[6] CWQGs and GCDWQs are based on total metal concentrations.

- Dissolved mercury concentrations in 3 samples from Ponds A13, A56, and A57 were 0.1 to 0.4 µg/L, higher than the CWQG of 0.026 µg/L based on total mercury.
- Dissolved selenium concentrations in 5 samples from Ponds A9, A13, and A56 were 1 to 1.7 µg/L, equal to or higher than the CWQG of 1.0 µg/L based on total selenium.
- Dissolved zinc concentrations in one sample from Pond A56 was 59 µg/L, higher than CWQG of 30 µg/L based on total zinc.

Phenol concentrations ranged from less than 1 to 2 µg/L in most samples. Phenol concentrations in one sample from lake A8 (6 µg/L) and one sample from Pond A54 (4 µg/L) equalled or exceeded the CWQG of 4.0 µg/L. Concentrations of BTEX, total volatiles, or total extractables were below detection limits in all samples.

Peninsula Basin B

Water quality samples were collected from 5 lakes and 3 ponds in Basin B of the Peninsula; of these, 4 lakes and 3 ponds were assessed during under-ice conditions (Figure 5-2; Appendix B3-3):

- Lake B2 (summer and fall 1997; winter, summer, and fall 1998; summer 1999 and 2000);
- Lake B5 (summer and fall 1997; winter, summer, and fall 1998; summer 1999, 2000, and 2008; winter 2009);
- Lake B6 (summer 2008; winter and summer 2009);
- Lake B7 (summer and fall 1997; late winter, summer, fall, and early winter 1998; summer 2008; winter 2009);
- Pond B8 (early winter 1998);
- Pond B9 (early winter 1998);
- Pond B10 (early winter 1998); and
- Lake B36 (summer 1994).

Under Ice Conditions

Limnology profiles were collected from 4 lakes: Lakes B2 (1998); B5 (1998 and 2009); B6 (2009); and B7 (1998 and 2009). Stations in these lakes had maximum depths ranging from 2.2 to 3.5 m. During both sampling events, dissolved oxygen concentrations were lower than the CWQG of 9.5 mg/L at all depths. Dissolved oxygen concentrations ranged from 1.0 to 4.2 mg/L with water temperatures of less than 3°C.

Field measurements of conventional parameters were collected at most stations except the 3 ponds (i.e., Ponds B8, B9, and B10). Field-measured values of pH and conductivity were similar among sampling events and waterbodies (i.e., lakes and ponds). Field-measured pH ranged from 6.6 to 7.5 with 2 exceptions. The 2009 sample in Lake B7 had a pH value of 5.8 and the 2009 sample in Lake B5 had a pH value of 6.45. Both of these values were lower than the minimum CWQG or GCDWQ of pH 6.5. Field-measured conductivity ranged from 139 to 674 µS/cm in the lakes. Only laboratory-measured conductivity data are available for the 3 ponds; conductivity values ranged from 454 to 1 030 µS/cm.

Water chemistry samples were collected at all stations and sampling events. Concentrations of total dissolved solids and major ions were lower in lakes than in ponds. All values were higher than those observed during open water conditions. Concentrations in the early winter 1998 sample from Lake B7 were lower than other samples from this lake, and the lowest out of all of the other samples collected in this basin.

Total dissolved solids ranged from 145 to 373 mg/L in the lakes (53 mg/L in early winter 1998 from lake B7) and 229 to 602 mg/L in the ponds. Total dissolved solids concentration in Pond B10 was 602 mg/L, higher than the GCDWQ of 500 mg/L. Major ion concentrations were similar among the lakes and ponds, with the exception of pond B10, which had higher concentrations of some ions as well as the early winter 1998 sample from Lake B7, which had the lowest concentrations of all ions. Major ions included bicarbonate (49 to 364 mg/L), calcium (14 to 154 mg/L), chloride (5.4 to 241 mg/L), sodium (2.7 to 30.3 mg/L), and sulphate (3.8 to 44 mg/L).

Total alkalinity was similar among the samples (range from 94 to 298 mg/L), with the exception of the early winter 1998 sample from Lake B7 (40 mg/L). Total hardness ranged from 118 to 303 mg/L in all samples except in pond B10 (518 mg/L) and the early winter 1998 sample from lake B7 (42 mg/L). Total suspended solids concentrations ranged from less than 2 to 11 mg/L. Total cyanide concentrations ranged from less than 1 to 2 µg/L except in pond B10, which had a total cyanide concentration of 43 µg/L. This value exceeds the CWGQ of 5 µg/L by almost 9-fold.

Nutrient concentrations were also variable among waterbodies and sampling events. Total phosphorus concentrations ranged from 0.0084 to 0.0247 mg/L. Total kJeldahl nitrogen concentrations were similar among samples, ranging from 0.82 to 1.77 mg/L. Total ammonia concentrations ranged from 0.025 to 0.459 mg N/L. Nitrate concentrations ranged from less than 0.006 to 0.196 mg N/L. Nitrite was not detected in any sample (detection limit was 0.050 mg N/L). Total organic carbon concentrations ranged from 8.1 to 28 mg/L.

Detection limits were at or below the CWQGs for most metals except cadmium (detection limit was 0.1 µg/L). Total metal concentrations were either below detection limits or below applicable guidelines with the following 5 exceptions:

- Arsenic concentration in one sample from Lake B5 was 11.4 µg/L, higher than the CWQG of 5.0 µg/L and the GCDWQ of 10 µg/L. Arsenic concentration in one sample from Pond B10 was 5.77 µg/L, exceeding the CWQG of 5.0 µg/L. All other concentrations were less than the CWQG of 5.0 µg/L.
- Cadmium concentrations were 0.07 µg/L in the early winter 1998 sample from Lake B7, 0.32 µg/L in one sample from pond B8, and 0.41 µg/L in one sample from pond B10. These concentrations exceeded the hardness-dependent CWQGs (based on the total hardness values in these samples).
- Chromium was detected in 8 samples at concentrations that exceeded the CWQG of 1.0 µg/L for hexavalent chromium. Concentrations in these samples ranged from 1.2 to 3.73 µg/L in lake samples and 4.07 to 9.36 µg/L in pond samples. All but one sample had concentrations that were lower than the CWQG of 8.9 µg/L for trivalent chromium. Chromium was not detected in any other sample (detection limit was 1.0 µg/L).
- Copper concentrations ranged from 1.7 to 8.7 µg/L. Copper concentrations in 3 samples from Lakes B2, B5, and B7 and 2 samples from Ponds B8 and B10 exceeded the hardness-dependent CWQGs (based on the total hardness values in these samples).
- Manganese concentrations ranged from 65.1 to 383 µg/L in 7 samples from Lakes B2, B5, B6, and B7. These concentrations exceeded the GCDWQ of 50 µg/L.

Phenol was analyzed in 5 lake samples and 3 pond samples. Concentrations in the lake samples were less than the detection limit of 1 µg/L with the exception of the early winter 1998 sample from Lake B7, which had a concentration of 4 µg/L. This value was equal to the CWQG of 4.0 µg/L. Concentrations in the pond samples ranged from 9 to 12 µg/L, higher than the CWQG. Other organic compounds were not analyzed.

Open Water Conditions

Limnology profiles were collected from 4 lakes (i.e., Lakes B2, B5, B6, and B7) in open water conditions. Stations had maximum depths that ranged from 2.5 to 3.8 m. Dissolved oxygen concentrations were higher than the CWQG of 9.5 mg/L at all depths during most of the sampling events. In summer 2008, dissolved oxygen concentrations ranged from 12.1 mg/L at surface to 9.2 mg/L at bottom (2.5 m) in Lake B5. In summer 2009, dissolved oxygen concentrations ranged from 8.4 mg/L at surface to 1.7 mg/L at bottom (3.5 m) in Lake B6. Water temperatures during the sampling events ranged from 8.9 to 17.4°C.

Field measurements of conventional parameters were collected at Lakes B2, B5, B6, and B7, but only pH was collected at Lake B36 (i.e., conductivity was not measured). Concentrations were similar among lakes and sampling events. Field-measured pH values ranged from 6.5 to 8.1, within the range of applicable guidelines. Field-measured conductivity ranged from 71.5 to 141 µS/cm. Only laboratory-measured conductivity was available for lake B36, which had a value of 206 µS/cm.

Water chemistry samples were collected at most sampling events. Concentrations were similar among lakes and sampling events. Total dissolved solids concentrations ranged from 20 to 134 mg/L. The major ions concentrations were similar among the lakes. Major ions included bicarbonate (27 to 40 mg/L), calcium (8.1 to 33 mg/L), chloride (2.8 to 21 mg/L), sodium (1.8 to 3.8 mg/L), and sulphate (1.5 to 6.9 mg/L).

Total alkalinity values ranged from 22 to 33 mg/L in all lakes except Lake B36, which had a value of 92 mg/L. These values indicate that most lake waters had a low sensitivity to acid whereas Lake B36 had the least sensitivity to acid (Table 5-2; Saffran and Trew 1996). Total hardness concentrations ranged from 24 to 55 mg/L in all lakes except Lake B36, which had a value of 98 mg/L. These values indicate that most lake waters were very soft to soft whereas Lake B36 was moderately soft (Table 5-3; McNeely et al. 1979).

Nutrient concentrations were similar among the lakes. Total phosphorus concentrations were lower than 0.30 mg/L, which is the guideline in NT and Nunavut. Total kJeldahl nitrogen ranged from 0.14 to 0.55 mg/L. Total ammonia concentrations were lower than 0.05 mg N/L. Chlorophyll *a* concentrations ranged from 0.44 to 6 µg/L. Total organic carbon concentrations ranged from 3.3 to 6 mg/L. Based on the total kJeldahl nitrogen, total phosphorus, and chlorophyll *a* concentrations, the lakes were classified as oligotrophic (Table 5-4; Wetzel 1983).

Total cyanide concentrations were similar among the lakes, and ranged from 1 to 2 µg/L.

Detection limits were generally at or below the CWQGs with the exception of cadmium in most samples and chromium and selenium in some samples:

- Cadmium was not detected in 9 samples (detection limits ranged from 0.01 to 0.2 µg/L). In 7 of these samples, the detection limits (0.02 to 0.2 µg/L) were higher than the CWQG of 0.017 µg/L.

- Chromium was not detected in 9 samples (detection limits ranged from 0.06 to 15 µg/L). The detection limit in 3 of these samples was 2 µg/L, higher than the CWQG of 1.0 µg/L for hexavalent chromium and the detection limit for one sample was 15 µg/L, also higher than the CWQG of 8.9 µg/L for trivalent chromium.
- Selenium was not detected in 9 samples (detection limits ranged from 0.1 to 10 µg/L). In 3 of these samples, the detection limit was 10 µg/L, higher than the CWQG of 1.0 µg/L.

The highest detection limits were observed in the sample from Lake B36, which also had detection limits for aluminum, copper, mercury, and thallium that were higher than the CWQGs. Total metal concentrations were either below detection limits or below applicable guidelines with the following 4 exceptions:

- Cadmium was detected in 8 out of 17 samples. Detected concentrations of cadmium ranged from 0.03 to 21.8 µg/L, which exceeded the CWQG of 0.017 µg/L. Cadmium concentration in one sample from Lake B7 (21.8 µg/L) also exceeded the GCDWQ of 5 µg/L.
- Chromium concentrations exceeded the CWQG of 1.0 µg/L for hexavalent chromium in 6 samples from Lakes B2, B5, and B7. The concentrations in these samples ranged from 1.34 to 2.85 µg/L. All concentrations were less than the CWQG of 8.9 µg/L for trivalent chromium.
- Copper concentrations in 3 samples from Lakes B2, B5, and B7 exceeded the CWQG of 2 µg/L (based on total hardness of less than 120 mg/L as $CaCO_3$ in these samples). The concentrations in these samples were 2.2 to 2.7 µg/L.
- Zinc concentrations exceeded the CWQG of 30 µg/L in 3 samples from lakes B2 and B5. Concentrations in these samples ranged from 41.3 to 49.6 µg/L.

Oil and grease was detected in one sample from Lake B5 at a concentration of 900 µg/L. Phenol concentrations ranged from less than 1 to 3 µg/L in most samples. Phenol concentrations in one sample from lake B5 (9 µg/L) and one sample from Lake B7 (10 µg/L) exceeded the CWQG of 4.0 µg/L. In one other sample from Lake B7, phenol concentration was 4 µg/L. Concentrations of BTEX were less than detection limits or less than the CWQGs in all samples.

Peninsula Basin C

A water quality sample was collected in summer 1994 from lake C5 (Figure 5-2; Appendix B3-4). Dissolved oxygen concentration was not reported. Field-measured pH was 7.2, which was within the range of applicable guidelines. Laboratory-measured conductivity was 63.5 µS/cm and total dissolved solids concentration was 41 mg/L. Major ions included calcium (9.7 mg/L), chloride (2.1 mg/L), sodium (1.4 mg/L), and sulphate (3.6 mg/L). Bicarbonate was not measured, although it is likely a major ion in this lake as it is in other lakes in the vicinity.

Total alkalinity and total hardness were 26 mg/L and 28 mg/L, respectively. These values indicate that the lake had a low sensitivity to acid (Table 5-2; Saffran and Trew 1996) and was very soft (Table 5-3; McNeely et al. 1979). Total suspended solids concentration was less than the detection limit of 1 mg/L and turbidity was 0.37 NTU.

Concentrations of carbon species (e.g., total organic carbon) were not measured. Total phosphorus concentration was less than the detection limit of 0.30 mg/L, which was higher the guideline of 0.03 mg/L in NT

and Nunavut. Only nitrate and nitrite concentrations were measured; concentrations of these parameters were 0.008 mg N/L and 0.001 mg N/L, respectively. Chlorophyll *a* concentrations were not measured. Insufficient data were available to assess trophic status (Table 5-4; Wetzel 1983).

Total metal concentrations were either lower than the detection limits or below applicable guidelines. Detection limits were higher than CWQGs for most parameters:

- The detection limit for aluminum was 200 µg/L, higher than the CWQG of 100 µg/L.
- The detection limit for cadmium was 0.2 µg/L, higher than the CWQG of 0.017 µg/L.
- The detection limit for chromium was 15 µg/L, higher than the CWQGs of 1.0 µg/L for hexavalent chromium and 8.9 µg/L for trivalent chromium.
- The detection limit for copper was 10 µg/L, higher than the CWQG of 2 µg/L.
- The detection limit for mercury was 0.05 µg/L, higher than the CWQG of 0.026 µg/L.
- The detection limit for silver was 15 µg/L, higher than the CWQG of 0.1 µg/L.
- The detection limit for thallium was 100 µg/L, higher than the CWQG of 0.8 µg/L.

The detection limit for antimony (i.e., 200 µg/L) was higher than the GCDWQ of 6 µg/L.

Concentrations of organic compounds such as phenols, BTEX, total volatiles, or total extractables were not measured in this sample.

Peninsula Basin D

Water quality samples were collected from 2 lakes in Basin D of the Peninsula; both were assessed under ice conditions (Figure 5-2; Appendix B3-5):

- D1 (summer 1997, winter 1998); and
- D7 (summer 1994, summer and fall 1997, winter 1998).

Under Ice Conditions

Limnology profiles were collected from both lakes in winter 1998. Stations in these lakes had maximum depths of approximately 2.2 to 2.3 m. During both sampling events, dissolved oxygen concentrations were lower than the CWQG of 9.5 mg/L at all depths. Dissolved oxygen concentrations ranged from 0.2 to 2.3 mg/L with water temperatures of less than 1°C.

Field measurements of conventional parameters and water chemistry samples were collected from both lakes in winter 1998. Concentrations of most parameters were higher in Lake D1 than in Lake D7. For example, field-measured conductivity was higher in Lake D1 (1816 µS/cm) than in Lake D7 (845 µS/cm). These concentrations are also higher than those observed in open water conditions in these lakes. Total dissolved solids concentration was 1100 mg/L in Lake D1, which exceeded the GCDWQ of 500 mg/L. Total suspended solids concentration and turbidity were 139 mg/L and 210 NTU in lake D1 compared to 2 mg/L and 1 NTU in Lake D7. Total hardness and total alkalinity were approximately 2.5 times higher in Lake D1 than in Lake D7.

Detection limits were at or below CWQGs except for 3 parameters:

- The detection limits for cadmium were 0.1 and 0.5 µg/L in these samples, higher than the CWQG of 0.017 µg/L.
- The detection limits for mercury were 0.01 and 0.05 µg/L. The detection limit of 0.05 µg/L was higher than the CWQG of 0.026 µg/L.
- The detection limits for silver were 0.1 and 0.5 µg/L. The detection limit of 0.5 µg/L was higher than the CWQG of 0.1 µg/L.

Total metal concentrations were either below detection limits or below applicable guidelines with the following 4 exceptions:

- Chromium concentrations were 20.2 µg/L in Lake D1 and 12.6 µg/L in Lake D7, higher than the CWQG of 1.0 µg/L for hexavalent chromium and 8.9 µg/L for trivalent chromium.
- Copper concentration in Lake D7 was 17.8 µg/L, higher than the CWQG of 4 µg/L (based on a total hardness of 358 mg/L in this sample). The concentration of copper in Lake D1 was 3 µg/L, lower than the CWQG of 4 µg/L (based on a total hardness of 930 mg/L in this sample).
- Iron concentration in Lake D7 was 660 µg/L, higher than the CWQG and GCDWQ of 300 µg/L. The iron concentration in Lake D1 was less than the detection limit of 50 µg/L.
- Manganese concentrations were 1 520 µg/L in lake D1 and 368 µg/L in lake D7, higher than the GCDWQ of 50 µg/L.

These two lakes had some of the highest concentrations of turbidity, total suspended solids, total dissolved solids, major ions, nutrients, and total metals concentrations compared to other lakes assessed during under ice conditions. The high concentrations of the major ions were likely the result of ice formation, which concentrated the ions in the remaining water column (RL&L 1999). The high levels of phosphorus and metals were probably due to anoxic conditions. Under anoxic conditions, redox potential changes and these constituents desorb from clay and organic sediments and go into solution.

Open Water Conditions

Limnology profiles were collected from both lakes in open water conditions. Stations had maximum depths 2.2 m. Dissolved oxygen concentrations were higher than the CWQG of 9.5 mg/L at all depths during both sampling events. Water temperatures during the sampling events ranged from 13.5 to 17.4°C.

Field measurements of conventional parameters were collected in the 1997 sampling events. Field-measured pH and conductivity were similar between lakes and among sampling events; pH values ranged from 7.1 to 8.1 and conductivity from 135 to 151 µS/cm.

Water chemistry samples were only collected in Lake D7 in the summers of 1994 and 1997. Concentrations of parameters were similar between the two sampling events. Total alkalinity values were 37 mg/L in 1994 and 46 mg/L in 1997; the values indicate that the lake waters had low to least sensitivity to acids (Table 5-2; Saffran and Trew 1996). Total hardness concentrations were 38 mg/L in 1994 and 45 mg/L in 1997, which indicated that

the lake waters were soft (Table 5-3; McNeely et al. 1979). Major ions were dominated by bicarbonate (46 mg/L[7]), calcium (12 and 14 mg/L), chloride (4.7 and 7.4 mg/L), and sodium (3.2 and 4.6 mg/L).

In 1994, only nitrate, nitrite, and total phosphorus were measured; the reported concentrations were less than the detection limits (detection limits ranged from 0.001 to 0.30 mg/L). In the sample collected in 1997, concentrations of total kJeldahl nitrogen (0.31 mg/L), total phosphorus (0.018 mg/L), and chlorophyll *a* (1.68 µg/L) indicated that the lake was oligotrophic (Table 5-4; Wetzel 1983).

Detection limits were higher than CWQGs for most parameters in the 1994 sample:

- The detection limit for aluminum was 200 µg/L, higher than the CWQG of 100 µg/L.
- The detection limit for cadmium was 0.2 µg/L, higher than the CWQG of 0.017 µg/L.
- The detection limit for copper was 10 µg/L, higher than the CWQG of 2 µg/L.
- The detection limit for mercury was 0.05 µg/L, higher than the CWQG of 0.026 µg/L.
- The detection limit for silver was 15 µg/L, higher than the CWQG of 0.1 µg/L.
- The detection limit of thallium was 100 µg/L, higher than the CWQG of 0.8 µg/L.

The detection limit for antimony (200 µg/L) was higher than the GCDWQ of 6 µg/L. Total metal concentrations were either below detection limits or below applicable guidelines in the 1994 sample.

In the 1997 sample, detection limits were higher than CWQGs for 2 parameters:

- The detection limit for chromium was 2 µg/L, higher than the CWQG of 1.0 µg/L for hexavalent chromium and less than the CWQG of 8.9 µg/L for trivalent chromium.
- The detection limit for selenium was 10 µg/L, higher than the CWQG of 1 µg/L.

Total metal concentrations were either below detection limits or below applicable guidelines with the following 3 exceptions:

- Cadmium concentration was 0.2 µg/L, higher than the CWQG of 0.017 µg/L.
- Copper concentration was 2.6 µg/L, higher than the CWQG of 2 µg/L.
- Zinc concentration was 123 µg/L, higher than the CWQG of 30 µg/L.

Organic compounds such as phenol, BTEX, total volatiles, and total extractables were measured in the 1997 sample. Concentrations of all compounds except phenol were less than detection limits. Phenol concentration was 9 µg/L, higher than the CWQG of 4.0 µg/L.

Peninsula Basin E

A water quality sample was collected in summer 1994 from lake E3 (Figure 5-2; Appendix B3-6). Dissolved oxygen concentration was not reported. Field-measured pH was 7.1, which was within the range of applicable

[7] Bicarbonate concentrations were only measured in the 1997 sample.

guidelines. Laboratory-measured conductivity was 47 µS/cm and total dissolved solids concentration was 29 mg/L. Major ions included calcium (6.7 mg/L), chloride (1.8 mg/L), sodium (1.1 mg/L), and sulphate (1.4 mg/L). Bicarbonate was not measured, although it is likely a major ion in this lake as it is in other lakes in the vicinity.

Total alkalinity and total hardness were both 20 mg/L. These values indicate that the lake had a low sensitivity to acid (Table 5-2; Saffran and Trew 1996) and was very soft (Table 5-3; McNeely et al. 1979). Total suspended solids concentration was less than 1 mg/L and turbidity was 0.58 NTU.

Concentrations of carbon species (e.g., total organic carbon) were not measured. Total phosphorus concentration was less than the detection limit of 0.30 mg/L, higher than the guideline of 0.03 mg/L in NT and Nunavut. Only nitrate and nitrite concentrations were measured; concentrations of these parameters were 0.006 mg N/L and 0.001 mg N/L, respectively. Chlorophyll *a* concentrations were not measured. Insufficient data were available to assess trophic status.

Detection limits were higher than CWQGs for most parameters:

- The detection limit for aluminum was 200 µg/L, higher than the CWQG of 100 µg/L.
- The detection limit of cadmium was 0.2 µg/L, higher than the CWQG of 0.017 µ/L.
- The detection limit for chromium was 15 µg/L, higher than the CWQGs of 1.0 µg/L for hexavalent chromium and 8.9 µg/L for trivalent chromium.
- The detection limit for copper was 10 µg/L, higher than the CWQG of 2 µg/L.
- The detection limit for mercury was 0.05 µg/L, higher than the CWQG of 0.026 µg/L.
- The detection limit for selenium was 5 µg/L, higher than the CWQG of 1 µg/L.
- The detection limit of silver was 15 µg/L, higher than the CWQG of 0.1 µg/L,
- The detection limit of thallium was 100 µg/L, higher than the CWQG of 0.8 µg/L.

Total metal concentrations were either lower than the detection limits or below applicable guidelines. The detection limit for antimony (i.e., 200 µg/L) was higher than the GCDWQ of 6 µg/L. Organic compounds were not measured in this sample.

Peninsula Basin G

A water chemistry sample was collected in summer 1997 from lake G2 (Figure 5-2; Appendix B3-7). A sample for chlorophyll *a* was also collected in fall 1997. Field measurements of conventional parameters were collected at both sampling events.

Limnology profiles (surface to bottom) of dissolved oxygen concentrations and water temperature were collected in summer and fall 1998. Dissolved oxygen concentrations were above the CWQG of 9.5 mg/L at all depths. Water temperature ranged from 16.0 to 17.4°C.

Field-measured pH and conductivity were similar between sampling events. Field-measured pH values were 7.8 and 7.9, within the range of applicable guidelines. Field-measured conductivity values were 67 and 75 µS/cm.

Total dissolved solids concentration in the summer 1997 sample was 44 mg/L. Major ions in this sample were bicarbonate (24 mg/L), calcium (7.2 mg/L), chloride (2.3 mg/L), and sodium (1.5 mg/L). Most of the total carbon existed as inorganic carbon (6.0 mg/L) compared to organic carbon (3.8 mg/L).

Total alkalinity and total hardness were 24 mg/L and 22 mg/L, respectively. These values indicate that the lake had a low sensitivity to acid (Table 5-2; Saffran and Trew 1996) and was very soft (Table 5-3; McNeely et al. 1979). Total suspended solids concentration was less than 3 mg/L and turbidity was 0.5 NTU. Total cyanide was not measured in these samples.

Total phosphorus concentration was 0.004 mg/L, less than the guideline of 0.03 mg/L in NT and Nunavut. Total kJeldahl nitrogen concentration was 0.34 mg/L. Total ammonia concentration was 0.012 mg N/L and nitrate and nitrite were not detected (detection limit was 0.008 mg N/L). Chlorophyll *a* concentrations were 1.01 and 1.36 µg/L. Based on the total kJeldahl nitrogen, total phosphorus, and chlorophyll *a* concentrations, the lake was classified as oligotrophic (Table 5-4; Wetzel 1983).

Detection limits were at or below CWQGs except for cadmium (detection limit was 0.1 µg/L; CWQG is 0.017 µg/L) and selenium (detection limit was 10 µg/L, CWQG is 1 µg/L). Total metal concentrations were either below detection limits or below applicable guidelines.

Concentrations of phenols, BTEX, and total volatiles were below detection limits. Total extractables concentration was 79 µg/L.

5.3.1.3 Little Meliadine Lake

Water quality was measured in Little Meliadine Lake (LML) during 3 sampling events: winter, summer and fall of 1998 (Figure 5-3; Appendix B3-8).

Limnology profiles (surface to bottom) of dissolved oxygen concentration and temperature were measured during each sampling event. Maximum depths at the sampling stations ranged from 14.4 to 14.8 m. Dissolved oxygen concentrations were 9.2 mg/L or higher at all depths during each sampling event. The lowest dissolved oxygen concentrations were measured during the summer event, where dissolved oxygen concentrations were below the CWQG of 9.5 mg/L at 3.0 m or deeper. Minimum dissolved oxygen concentration was 9.2 mg/L. Water temperatures ranged from less than 3°C in the winter to less than 15°C in the summer.

Field measurements of pH and conductivity were similar among sampling events. Field-measured pH values ranged from 6.35 to 6.8. The lowest pH was measured in the summer; this pH value (6.35) was lower than the minimum CWQG and GCDWQ of 6.5. Field-measured conductivity values were higher in winter (116 µS/cm) than in summer and fall samples (70 and 76 µS/cm).

Samples for chemical analyses were only collected in the winter and summer. Concentrations of total dissolved solids, major ions, total alkalinity, and total hardness were higher in the winter than in the summer. Total dissolved solids concentrations ranged from 42 mg/L in the winter to 28 mg/L in the summer. Major ions were dominated by bicarbonate (22 to 31 mg/L), calcium (5.4 to 8.2 mg/L), chloride (5.3 to 8.0 mg/L), sodium (3 to 5 mg/L), and sulphate (1.9 to 2.9 mg/L). Total alkalinity values ranged from 18 to 25 mg/L and total hardness concentrations ranged from 17 to 26 mg/L. These values indicated that the lake waters had moderate to low sensitivity to acid (Table 5-2; Saffran and Trew 1996) and were very soft (Table 5-3; McNeely et al. 1979).

Nitrogen concentrations varied among sampling events, but phosphorus concentrations did not. Total ammonia concentrations were higher in the winter (0.02 mg/L) compared to the summer (<0.005 mg/L). However, the opposite trend was observed in total kJeldahl nitrogen concentrations, which were higher in summer (0.36 mg/L) than in the winter (0.17 mg/L). Total phosphorus concentrations were similar between the sampling events and ranged from 0.003 to 0.005 mg/L, lower than the guideline of 0.03 mg/L in NT and Nunavut. Chlorophyll *a* was measured during summer and fall only and ranged from 0.57 to 0.90 µg/L. Based on the total kJeldahl nitrogen, total phosphorus, and chlorophyll *a* concentrations, the lake was classified as oligotrophic (Table 5-4; Wetzel 1983).

Total organic carbon was similar between sampling events (range from 3.2 to 3.8 mg/L), but total inorganic carbon was higher in the winter (10 mg/L) than in the summer (7.1 mg/L). Total cyanide was not detected in either sample (detection limit was 1 µg/L).

Detection limits were at or below the CWQG with the exception of cadmium, which had a detection limit of 0.1 µg/L in the winter sample (CWQG is 0.017 µg/L). Total metal concentrations were either below detection limits or below applicable guidelines with the following 3 exceptions:

- Cadmium concentration in the summer sample was 0.06 µg/L, which exceeded the CWQG of 0.017 µg/L. In the winter sample, cadmium concentration was below the detection limit of 0.1 µg/L.
- Chromium concentration in the summer sample was 1.76 µg/L, higher than the CWQG of 1 µg/L for hexavalent chromium and lower than the CWQG of 8.9 µg/L for trivalent chromium. Concentration of chromium in the winter sample was 0.24 µg/L.
- Copper concentration in the winter sample was 2.2 µg/L, higher than the CWQG of 2 µg/L. The copper concentration in the summer sample was 0.9 µg/L.

Phenol was not detected in either sample (detection limit was 1 µg/L). Concentrations of BTEX, total volatiles, and total extractable were only measured in the summer sample, and were below detection limits.

5.3.1.4 DI2 Lake

Water quality was measured in Lake DI2 during 2 sampling events: summer 1994 and summer 1995 (Figure 5-1; Appendix B3-9).

Surface measurements of dissolved oxygen concentrations were only measured in summer 1995. Limnology profiles were not collected. The dissolved oxygen concentration was 9.7 mg/L at a water temperature of 12.5°C, higher than the CWQG of 9.5 mg/L for the protection of early life stages of cold water fish. Field-measured pH values were taken during both events (pH 7.1 and 7.8) and were within the ranges of applicable guidelines.

Water quality was similar between the 2 sampling events. Laboratory-measured conductivity values were 54 and 68 µS/cm and total dissolved solids concentrations were 38 and 43 mg/L. Bicarbonate was not measured in either sample, but other major ions that were measured included calcium (5.7 and 8.0 mg/L), carbonate (18 mg/L), chloride (3.7 and 4.4 mg/L), sodium (3.0 and 3.2 mg/L), and sulphate (2.9 and 3.4 mg/L).

Total alkalinity was measured only in the summer 1994 sample at a concentration of 24 mg/L. This value indicated that the lake water had low sensitivity to acid (Table 5-2; Saffran and Trew 1996). Total hardness concentrations in the 2 sampling events were 18 and 25 mg/L, which indicated that the waters were very soft (Table 5-3; McNeely et al. 1979). Total suspended solids were measured in one sample at less than 1 mg/L and turbidity values were 0.52 and 0.65 NTU. Total cyanide and organic compounds concentrations were not measured in these samples.

Detection limits were at or above the CWQG for most parameters:

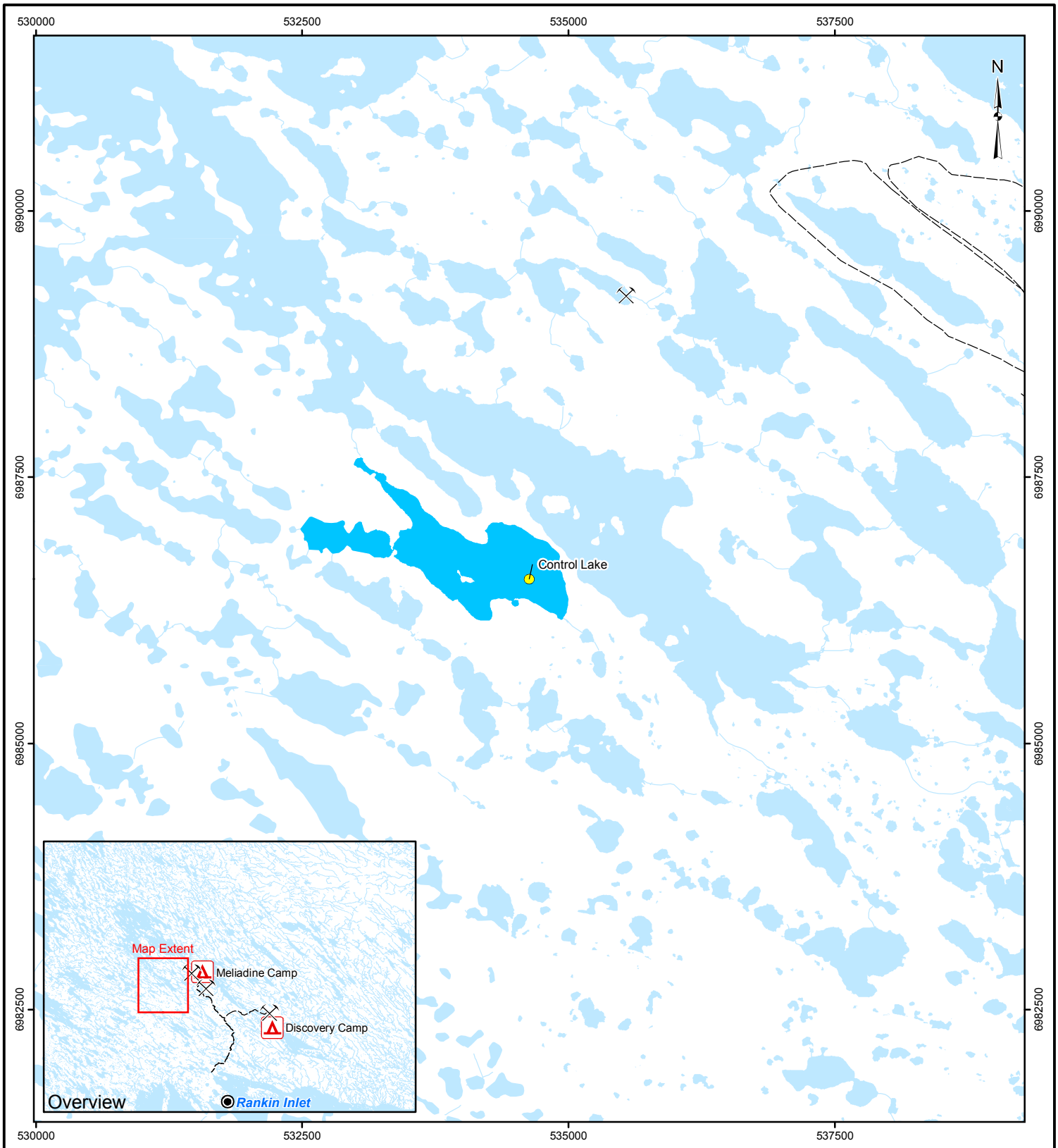
- The detection limit for aluminum was 200 µg/L, higher than the CWQG of 100 µg/L.
- The detection limit for cadmium was 0.2 µg/L, higher than the CWQG of 0.017 µg/L.
- The detection limit for chromium was 15 µg/L, higher than the CWQGs of 1.0 µg/L for hexavalent chromium and 8.9 µg/L for trivalent chromium.
- The detection limit for copper was 10 µg/L, higher than the CWQG of 2 µg/L.
- The detection limit for mercury was 0.05 µg/L, higher than the CWQG of 0.026 µg/L.
- The detection limit for silver was 15 µg/L, higher than the CWQG of 0.1 µg/L.
- The detection limit for thallium was 100 µg/L, higher than the CWQG of 0.8 µg/L.

Total metal concentrations were either below detection limits or below applicable guidelines.

5.3.1.5 Control Lake

Water quality was measured in Control Lake during 7 sampling events (Figure 5-6; Appendix B3-10):

- Summer 1998, 1999, and 2000;
- Summer and fall 2007;
- Summer 2008; and
- Winter 2009.



LEGEND

Water Sampling Location
- Lake
- Stream
- Camp
- Proposed Mine Site
- Proposed Road
- Watercourse
- Sampled Waterbody
- Waterbody

REFERENCE

Base data obtained from Comaplex Minerals Corporation. Water quality data obtained from the field.
Projection: UTM Zone 15 Datum: NAD 83

1,250 0 1,250

SCALE 1:50,000 METRES

PROJECT

COMAPLEX MINERALS CORP

COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE

WATER QUALITY SAMPLING LOCATIONS IN CONTROL LAKE

Golder Associates
Edmonton, Alberta

PROJECT NO. 09-1373-0010			PHASE No. 1000	
DESIGN	KS	06 Oct. 2009	SCALE AS SHOWN	REV. 0
GIS	CDB	06 Oct. 2009		
CHECK	KS	27 Oct. 2009		
REVIEW	PMC	27 Oct. 2009		

FIGURE 5-6

N:\Bur-Graphics\Projects\2007\1373\07-1373-0055\Mapping\MXD\2009\WaterQuality\figure_05-06_water-sampling-control-lake.mxd

Limnology profiles (surface to bottom) of dissolved oxygen concentration and temperature were measured during 3 sampling events: summer 1998; summer 1999; and winter 2009. Maximum depths at the sampling stations were 4.2 and 4.3 m (summer) and 3.0 m (winter). Dissolved oxygen concentrations were above 9.5 mg/L at all depths during the summer sampling event. Lower dissolved oxygen concentrations were measured during the winter event; concentrations ranged from 8.7 to 9.4 mg/L, below the CWQG of 9.5 mg/L. Water temperatures ranged from less than 2°C in the winter to less than 15°C in the summer.

Field measurements of conventional parameters and water chemistry samples were collected during all sampling events. Concentrations of most parameters were higher in the winter than in the summer and fall. Field-measured pH values ranged from 6.9 to 7.9 during all sampling events except the winter event, which had pH 6.3. This pH value is lower than the CWQG and GCDWQ of pH 6.5. Field-measured conductivity was also higher in the winter (175 µS/cm) compared to the summer and fall (64 to 84 µS/cm).

Total dissolved solids concentrations ranged from 21 to 46 µS/cm in the summer and fall. Calculated total dissolved solids concentration in the winter was 99 mg/L. Major ions included bicarbonate (26 to 76 mg/L), calcium (6.7 to 21.6 mg/L), chloride (5.2 to 18.1 mg/L), sodium (2.8 to 9.2 mg/L), and sulphate (1.3 and 4.7 mg/L). All concentrations of major ions were similar in the summer and fall and highest in the winter.

Total alkalinity values were 21 to 24 mg/L in the summer and fall and 63 mg/L in the winter. These values indicate that lake waters had a low sensitivity to acid in open water conditions (Table 5-2; Saffran and Trew 1996). Total hardness concentrations were 17 to 26 mg/L in the summer and fall and 69 mg/L in the winter. Based on these values, the lake waters are very soft in open water conditions (Table 5-3; McNeely et al. 1979).

Phosphorus and nitrogen concentrations varied among sampling events. Total phosphorus concentrations were similar among sampling events and ranged from 0.003 to 0.045 mg/L. Most values were lower than the guideline of 0.03 mg/L in NT and Nunavut. Nitrogen concentrations were higher in the winter. Total kJeldahl nitrogen concentrations were 0.21 to 0.40 mg/L in the summer and fall and 0.73 mg/L in the winter. Total ammonia concentrations were higher in the winter (0.075 mg/L) compared to the summer and fall (<0.05 mg/L). Chlorophyll *a* was measured during summer events only and ranged from 0.44 to 1.52 µg/L. Based on the total kJeldahl nitrogen, total phosphorus, and chlorophyll *a* concentrations, the lake was classified as oligotrophic (Table 5-4; Wetzel 1983).

Total organic carbon was similar between sampling events during open water conditions; concentrations ranged from 3.7 to 4 mg/L. Carbon concentrations were not available for the winter event. Total cyanide concentrations were 1 to 2 mg/L in some summer samples, but were generally below the detection limit of 2 µg/L.

Detection limits of total metals were at or below the CWQG with 4 exceptions:

- Cadmium was not detected in 5 samples. The detection limits in these samples ranged from 0.010 to 0.2 µg/L. Four samples had detection limits of 0.02 to 0.2 µg/L that were higher than the CWQG of 0.017 µg/L.
- Chromium was not detected in 2 samples. The detection limit in these samples ranged from 0.06 to 5 µg/L. One sample had a detected limit of 5 µg/L, higher than the CWQG of 1.0 µg/L for hexavalent chromium and less than the CWQG of 8.9 µg/L for trivalent chromium.

- Mercury was not detected in 6 samples. Detection limits ranged from 0.02 to 0.2 µg/L. In one sample, the detection limit of 0.2 µg/L was higher than the CWQG of 0.026 µg/L.
- Silver was not detected in 6 samples. Detection limits ranged from 0.02 to 0.4 µg/L. In one sample, the detection limit of 0.4 µg/L was higher than the CWQG of 0.1 µg/L.

Total metal concentrations were either below detection limits or below applicable guidelines with the following 3 exceptions:

- Cadmium concentrations in one sample from summer 1998 was 0.2 µg/L, which exceeded the CWQG of 0.017 µg/L. Only dissolved metal concentrations were measured in the fall 2007 sample, which had a dissolved cadmium concentration of 0.2 µg/L.
- Chromium concentrations in 2 samples were 2.28 µg/L (summer 1998) and 2.2 µg/L (winter 2009), higher than the CWQG of 1.0 µg/L for hexavalent chromium, but lower than the CWQG of 8.9 µg/L for trivalent chromium. Chromium was detected in two other summer samples at 0.37 and 0.41 µg/L.
- Copper concentration in the summer 2007 sample was 2 µg/L, which was equal to the CWQG of 2 µg/L. Only dissolved metal concentrations were measured in the fall 2007 sample, which had a dissolved copper concentration of 2 µg/L.

Phenol concentrations ranged from less than the detection limit of 1 µg/L to 2 µg/L. Concentrations of BTEX, total volatiles, and total extractable were only measured in 2 summer samples and were below detection limits.

5.3.2 Peter Lake Drainage

Water quality was measured in Peter Lake (PL) during 2 sampling events: winter and summer of 1998 (Figure 5-4; Appendix B3-11).

Limnology profiles (surface to bottom) of dissolved oxygen concentration and temperature were measured during each sampling event. Maximum depths at the sampling stations were 17.4 m (winter) and 18.8 m (summer). Dissolved oxygen concentrations were 9.5 mg/L or higher at all depths during the summer sampling event. However, lower dissolved oxygen concentrations were measured during the winter event, where dissolved oxygen concentrations dropped below the CWQG of 9.5 mg/L at 12.0 m or deeper. Minimum dissolved oxygen concentration was 7.5 mg/L, lower than the CWQG for protection of early life stages of cold water fish (i.e., 9.5 mg/L) but higher than the CWQG for protection of other life stages (i.e., 6.5 mg/L). Water temperatures ranged from less than 3°C in the winter to less than 15°C in the summer.

Field measurements of pH were only reported for the winter 1998 sample; this value (6.5) was similar to that measured in the laboratory (6.6). Laboratory-measured pH values in the summer samples were higher (~7.0). All pH values were within the range of applicable guidelines. Field-measured conductivity ranged from 52 µS/cm (summer) to 69 µS/cm (winter).

Water chemistry samples were collected during both sampling sampling events. Concentrations of most parameters were higher in the winter than in the summer. Total dissolved solids concentrations ranged from 16 to 20 mg/L. Major ions included bicarbonate (11 to 13 mg/L), calcium (3.1 to 3.5 mg/L), chloride (2.7 to 3.5 mg/L), sodium (2.0 to 2.7 mg/L), and sulphate (1.8 to 2.5 mg/L). Total alkalinity values ranged from 9 to 11 mg/L and total hardness concentrations ranged from 10 to 12 mg/L. These values indicated that lake waters had a moderate to high sensitivity to acid (Table 5-2; Saffran and Trew 1996) and were very soft (Table 5-3; McNeely et al. 1979).

Phosphorus and nitrogen concentrations varied between sampling events. Total phosphorus concentrations were higher in the summer (0.005 and 0.007 mg/L) than in the winter (0.003 mg/L). All values were lower than the guideline of 0.03 mg/L in NT and Nunavut. Total ammonia concentrations were higher in the winter (0.012 mg/L) compared to the summer (<0.005 mg/L). However, the opposite trend was observed in total kJeldahl nitrogen concentrations, which were higher in summer (0.30 and 0.33 mg/L) than in the winter (0.17 mg/L). Chlorophyll *a* was measured during summer only and was 0.30 µg/L. Based on the total kJeldahl nitrogen, total phosphorus, and chlorophyll *a* concentrations, the lake was classified as oligotrophic (Table 5-4; Wetzel 1983).

Total organic carbon was similar between sampling events (range from 2.3 to 2.8 mg/L), but total inorganic carbon was higher in the winter (3.5 mg/L) than in the summer (1.9 mg/L). Total cyanide was not detected in either sample (detection limit was 1 µg/L).

Detection limits were at or below the CWQG with the exception of cadmium, which had a detection limit of 0.1 µg/L in the winter sample (CWQG of 0.017 µg/L). Total metal concentrations were either below detection limits or below applicable guidelines with the following 2 exceptions:

- Cadmium concentrations in the summer were 0.06 and 0.07 µg/L, which exceeded the CWQG of 0.017 µg/L.
- Copper concentration in the winter was 3.7 µg/L, greater than the CWQG of 2 µg/L. The copper concentrations in the summer were 0.8 µg/L.

Phenol was not detected in either sample (detection limit was 1 µg/L). Concentrations of BTEX, total volatiles, and total extractable were only measured in the summer samples, and were below detection limits.

5.3.3 Atulik Lake Drainage

Water quality was measured in 3 lakes of the Atulik Lake drainage (Figure 5-5; Appendix B3-12):

- DI1 (summer 1994, summer 1995, summer 2008, winter 2009);
- DI3 (summer 1995); and
- DI5 (summer 1995).

Limnology profiles (surface to bottom) of dissolved oxygen concentration and temperature were measured in Lake DI1 in winter 2009. Profiles were not measured in any other lakes in this drainage. The maximum depth at the sampling station in Lake DI1 was 8.98 m. Dissolved oxygen concentrations were above the CWQG of 9.5 mg/L at 1.0 and 2.0 m below water surface, but declined from 7.3 mg/L at 3.0 m to 0.5 mg/L at 8.5 m. Water temperatures were less than 4°C during the profile measurements.

Surface limnology measurements (i.e., dissolved oxygen, water temperature, pH, and conductivity) were collected in all lakes during the summer sampling events. The lakes were generally well-oxygenated during the summer. Surface dissolved oxygen concentrations ranged from 9.4 to 12.1 mg/L. Concentrations were lower than the CWQG of 9.5 mg/L in Lake DI5 (9.4 mg/L).

Field-measured pH values were lower in the winter than in the summer samples. The pH values were 7.1 to 7.7 in the summer and 6.3 in the winter; the winter pH value was below the minimum CWQG and GCDWQ of 6.5. Laboratory-measured pH values were generally lower than the field-measured pH values, with the exception of the winter pH, which was higher (7.5). The laboratory-measured pH for Lake DI1 in summer 1994 was 6.2, below the minimum CWQG and GCDWQ. Field-measured conductivity values were 21 to 59 µS/cm in the summer and 120 µS/cm in the winter.

Most parameters were similar among lakes and sampling events for the same sampling season; however, values were higher in the winter than in the summer samples. Total dissolved solids concentrations were 24 to 36 mg/L in the summer; the calculated value was 69 mg/L in the winter. Major ions included:

- Bicarbonate[8] (16 mg/L in the summer and 49 mg/L in the winter);
- Calcium (3.9 to 5.1 mg/L in the summer and 15 mg/L in the winter);
- Chloride (2.9 to 5.6 mg/L in the summer and 12 mg/L in the winter);
- Sodium (1.7 to 3.8 mg/L in the summer and 5.9 mg/L in the winter); and
- Sulphate (2.2 to 2.8 mg/L in the summer and 7.4 mg/L in the winter).

Total alkalinity values were 11.6 to 13.8 mg/L in the summer and 40 mg/L in the winter. Total hardness concentrations were 12 to 17 mg/L in the summer and 48 mg/L in the winter. These values indicated that lake waters in the summer had a moderate sensitivity to acid (Table 5-2; Saffran and Trew 1996) and were very soft (Table 5-3; McNeely et al. 1979).

Total suspended solids and total cyanide were measured only in samples collected from Lake DI1. Total suspended solids concentrations ranged from 1 to less than 3 mg/L. Total cyanide was not detected (detection limit was 2 µg/L).

Most nutrient data were collected in 2 samples from Lake DI1 (summer 2008 and winter 2009). Nitrogen and phosphorus concentrations were similar between sampling events. Total phosphorus concentrations were twice as high in the winter (0.0085 mg/L) as in the summer (0.004 mg/L). Values were lower than the guideline of 0.03 mg/L in NT and Nunavut. Total kJeldahl nitrogen concentrations were less than 0.2 mg/L in the summer and 0.5 mg/L in the winter. Total ammonia concentrations were less than 0.05 mg/L in the summer and

[8] Bicarbonate concentrations were measured only in samples from lake DI1 collected summer 2008 and winter 2009.

0.054 mg/L in the winter. Nitrate and nitrite were not detected in either sample (detection limits were 0.1 mg/L or lower). Chlorophyll *a* was measured during summer only and was less than 1 µg/L. Carbon concentrations are available only in the summer sample. Total organic carbon was 4 mg/L and total inorganic carbon was 3 mg/L. Based on the total kJeldahl nitrogen, total phosphorus, and chlorophyll *a* concentrations in the summer sample, the lake was classified as oligotrophic (Table 5-4; Wetzel 1983).

Detection limits in most samples (particularly those from 1994 and 1995) were higher than CWQGs for most parameters:

- Aluminum was not detected in any sample at detection limits ranging from 0.2 to 200 µg/L. Three samples had detection limits of 200 µg/L, higher than the CWQG of 100 µg/L (based on pHs of greater than or equal to 6.5 in these samples). One sample had a detection limit of 6.0 µg/L, higher than the CWQG of 5 µg/L based on a pH of 6.3 in this sample.
- Cadmium was not detected in 5 samples at detection limits ranging from 0.05 to 2 µg/L. These detection limits are higher than the CWQG of 0.017 µg/L.
- Chromium was not detected in any sample; detection limits ranged from 0.06 to 15 µg/L. Four samples had detection limits of 15 µg/L, higher than both the CWQG of 1.0 µg/L for hexavalent chromium and 8.9 µg/L for trivalent chromium.
- Copper was not detected in 4 samples at detection limits ranging from 10 to 100 µg/L, higher than the CWQG of 2 µg/L.
- Lead was not detected in any sample; detection limits ranged from 0.05 to 10 µg/L. Two samples had a detection limit of 10 µg/L, higher than the CWQG of 1 µg/L.
- Selenium was not detected in any sample; detection limits ranged from 0.1 to 5 µg/L. Two samples had a detection limit of 5 µg/L, higher than the CWQG of 1.0 µg/L.
- Silver was not detected in any sample; detection limits ranged from 0.02 to 15 µg/L. Four samples had a detection limit of 15 µg/L, higher than the CWQG of 0.1 µg/L.
- Thallium was not detected in any sample; detection limits ranged from 0.03 to 10 µg/L. One sample had a detection limit of 10 µg/L, higher than the CWQG of 0.8 µg/L.
- Antimony was not detected in any samples; one sample had a detection limit of 200 µg/L, which was higher than the GCDWQ of 6 µg/L.

Total metal concentrations were either below detection limits or below applicable guidelines with the following two exceptions:

- Cadmium concentration in the winter sample from Lake DI1 was 0.025 µg/L, which exceeded the CWQG of 0.017 µg/L.
- Copper concentration in the winter sample was 2.3 µg/L, which was greater than the CWQG of 2 µg/L. Copper was detected in one other sample (Lake DI1, summer 2008) at a concentration of 1.8 µg/L.

Total extractable hydrocarbons (fractions C9 to C40 and C10 to C30) were measured in 2 summer samples from Lakes DI1 and DI3. Concentrations were less than the detection limits of 1000 µg/L.

5.4 Hudson Bay

A water quality sample was collected in summer 1998 from an ocean station in Prairie Bay (part of Hudson Bay) north of Rankin Inlet (Appendix B3-13). This station was chosen because it received waters originating from the Meliadine Lake area (RL&L 1999).

A limnology profile (surface to near-bottom at 1 m intervals) of dissolved oxygen concentrations and water temperature was collected at this station. Dissolved oxygen concentrations ranged from 11.8 to 14.3 mg/L along the 8 m vertical profilewith water temperatures ranging from 8.3 to 13.1°C. All dissolved oxygen concentrations were higher than the minimum CWQG of 8.0 mg/L required for marine species. Field-measured pH was 7.7. Based on the laboratory-measured conductivity, salinity was approximately 35 parts per thousand (‰), which is typical for a seawater sample.

The ocean station exhibited low turbidity (0.3 NTU), but total suspended solids concentration was slightly elevated (13 mg/L). Concentrations of the major ions such as bicarbonate, calcium, chloride, magnesium, potassium, sodium, and sulphate were elevated relative to the values recorded in the freshwater streams and lakes, which was expected given that the station was in a marine environment.

The carbon content was dominated by total inorganic carbon (24 mg/L) compared to total organic carbon (1.6 mg/L). Total phosphorus concentration was 0.029 mg/L, all in the dissolved form. Total kJeldahl nitrogen concentration was 0.63 mg N/L whereas total ammonia and nitrate were not detected (detection limits were 0.005 mg/L and 0.05 mg/L, respectively). Chlorophyll *a* concentrations were 0.72 µg/L.

Detection limits were at or below the CWQG (marine) except for cadmium (detection limit was 2 µg/L; CWQG is 0.12 µg/L) and chromium (detection limit was 10 µg/L; CWQG is 1.5g/L for hexavalent chromium and 56 µg/L for trivalent chromium). Total metal concentrations were either below detection limits or below applicable guidelines with the exception of mercury. Total mercury concentration was 0.3 µg/L, which was higher than the CWQG of 0.016 µg/L for the protection of marine aquatic life.

Phenol was detected at a concentration of 2 µg/L. Concentrations of BTEX, total volatiles, or total extractables were below detection limits.

5.5 Summary and Conclusions

Streams of the study area are generally well-oxygenated freshwater streams characterized by low ionic strength, very soft to soft water hardness, low alkalinity, and neutral to alkaline pH. Dissolved oxygen concentrations in most streams were also at or above saturation levels for given ambient water temperatures, further indicating that the streams were well-oxygenated during the sampling events. Major ions in stream waters were bicarbonate, calcium, chloride, and sodium. Measured nutrient concentrations were typical of oligotrophic waterbodies in subarctic regions. Baseline water quality parameters were less than CWQG and GCDWQ with

the exception of some parameters (i.e., nitrite, cadmium, chromium, lead, iron, manganese, selenium, silver, and phenol).

Most lakes in the study area are generally well-oxygenated freshwater lakes during open water conditions. Lakes were not thermally stratified during the open water sampling events. Dissolved oxygen concentrations were low in the Peninsula lakes during under ice conditions, which likely limited their use by overwintering fish. In contrast, dissolved oxygen concentrations were higher during the winter in larger lakes such as Meliadine Lake, Little Meliadine Lake, and Peter Lake.

Lakes were generally characterized by low ionic strength, very soft to soft water hardness, low alkalinity, and neutral pH. Major ions in lakes waters were bicarbonate, calcium, chloride, sodium, and sulphate. Concentrations were higher under ice conditions, likely as a result of ice formation, which concentrated the ions in the remaining water column. The range of total alkalinity values during open water conditions indicated that the lake waters had low to moderate sensitivity to acid. Measured nutrient concentrations were typical of oligotrophic waterbodies in subarctic regions. Baseline water quality parameters were less than CWQG and GCDWQ with the exception of some parameters (i.e., dissolved oxygen, pH, cyanide, arsenic, cadmium, chromium, copper, lead, iron, manganese, zinc, and phenol).

Data from the following ponds in Basin A do not necessarily represent undisturbed baseline conditions: Ponds A9, A13, A15, A38, A54, A56, and A57. The ponds are located near the portal and working of the underground exploration program and have been monitored periodically by Comaplex as part of a routine water quality monitoring program[9]. At least one pond (pond A54) is immediately adjacent to the portal and workings of the underground exploration program and as such receives all of the flow originating from primary containment and runoff from pads and spoil in the underground exploration work area (B. Hubert, 2008, Comaplex, pers.comm.).

These ponds were characterized by higher ionic strength, hard to very hard water, low alkalinity, and alkaline pH. Major ions are the same as in the lakes, but concentrations are higher. Concentrations of phosphorus, total metals, and organic compounds were similar to those in the lakes. However, there were more exceedances of CWQGs and GCDWQs for total dissolved solids, chloride, nitrate, nitrite, and phenol than in the lakes. Dissolved metal concentrations, particularly of iron and manganese, were also higher in these ponds.

Water quality was also assessed at an ocean station in Hudson Bay that received waters originating from the Meliadine Lake area. Water from the station was well-oxygenated and was characterized by alkaline pH, high conductivity, and elevated concentrations of major ions, typical for seawater. Nutrient concentrations were similar to those measured in the study area. Baseline water quality parameters were less than marine CWQG with the exception of mercury.

[9] These 7 ponds as well as other sampling locations were included in Comaplex's monitoring program. Some sampling locations were mandated by the terms of the water license issued by the Nunavut Water Board. Other locations were meant to monitor local development impacts and to provide continuity with historical sampling records (S. Barham, 2008c, Comaplex, pers.comm.).

6.0 SEDIMENT QUALITY

This section of the baseline report describes the baseline sediment quality for the study area. These data include sediment chemistry in lakes during open water conditions.

The specific objectives of the sediment quality baseline were as follows:

- to describe and discuss the baseline sediment conditions in lakes of the study area;
- to discuss seasonal and spatial variation of sediment quality parameters; and
- to compare baseline sediment quality data with applicable guidelines for the protection of aquatic life.

The description of sediment quality is based on historical data (1994, 1995, and 1998) and data collected from more recent field programs (2008 and 2009) within the study area. All data were compiled into a database that was used to describe the baseline sediment quality.

6.1 Methods

6.1.1 Data Sources

Sediment quality data were collected during 5 baseline studies that were performed between 1994 and 2009 (Table 6-1). Sediment samples were collected from 8 stations in August 1994 (Dillon 1994). These stations were located in lakes on the Peninsula draining into Meliadine Lake (specifically, from Basins A, B, C, and D); in Chickenhead Lake (part of the Atulik Lake drainage basin), and in DI2 Lake, which is part of a watershed that drains into the southeast basin of Meliadine Lake. Samples were also collected from two different stations in the Meliadine Lake and Atulik Lake drainage basins by Dillon in July 1995 (Dillon 1995).

Table 6-1: Sediment Quality Baseline Studies, 1994 to 2009

Report Author(s)	Publication Year	Report Title	Drainages Sampled
M.M. Dillon Ltd. (Dillon)	1994	Meliadine Project – Baseline Surface Water and Lake Sediment Sampling	Peninsula Basins A, B, C, D; Atulik Lake; DI2
Dillon	1995	Discovery Project – Rankin Inlet Area 1995 Environmental Investigations	Meliadine Lake; Atulik Lake
RL&L Environmental Services Ltd. (RL&L)	1999	Meliadine West Baseline Aquatic Studies: 1998 Data Report	Peninsula Basins A, B; Meliadine Lake; Control Lake; Peter Lake; Little Meliadine Lake; Hudson Bay
Golder Associates Ltd. (Golder)	2008	Meliadine West Gold Project: Water Quality Baseline Studies 2008	Peninsula Basins A, B; Meliadine Lake; Control Lake; Atulik Lake
Golder	2009	Not applicable – data are summarized in this report	Peninsula Basin A

Sediment samples from 11 lake stations and 1 marine station (i.e., Hudson Bay) were collected by RL&L in July 1998. The freshwater stations were located in lakes on the Peninsula (specifically, from Basins A and B) and in Meliadine Lake (multiple locations), Control Lake, Peter Lake, and Little Meliadine Lake.

In June 2008, Golder (2008b) collected sediment samples in 4 lakes on the Peninsula (specifically, from Basins A and B), in Meliadine Lake (multiple stations), in Chickenhead Lake (part of the Atulik Lake drainage basin), and in Control Lake (a lake draining into the south basin of Meliadine Lake). In July 2009, sediment was collected from one station in Basin A.

6.1.2 Sediment Quality Parameters

Physical and chemical parameters were used to describe the sediment quality of the different lakes in the study area. Parameters can be classed into major categories that are used to describe different aspects of the sediment. The major categories of parameters used in this baseline report are detailed below.

6.1.2.1 Physical Parameters and Nutrients

This group of parameters is measured in the laboratory and indicates the major constituents of the sediment. The following parameters were analyzed during most sampling events:

- Particle size distribution and texture describes the relative proportion of sand, silt, and clay in the sediment.
- Total organic carbon (TOC) and total inorganic carbon measure the amount of organic matter and inorganic material, respectively, found within the sediment.
- Total nitrogen and total phosphorus are measured to determine the potential productivity of the sediment.

6.1.2.2 Cyanide

Cyanide is a process chemical used in gold mining. Total cyanide concentrations are typically present at low levels in water and sediment not affected by anthropogenic inputs.

6.1.2.3 Total Metals

Sediments are sinks for metals[10] present in surface waters. Higher metal concentrations in surface water are usually associated with suspended sediments, which tend to settle out and accumulate on the lake bottom over time. Metals in sediment, if bioavailable, can cause toxicity to aquatic organisms.

[10] For brevity, metals and metalloids are referred to as metals.

6.1.2.4 Organic Compounds

Organic compounds are defined as chemicals made up of mainly carbon and hydrogen; they include a vast number of natural and synthetic compounds. The following parameters were analyzed at some sampling locations, particularly in lakes close to the proposed mine site:

- Polycyclic aromatic hydrocarbons (PAHs) are generated by incomplete combustion of organic material. Concentrations of PAHs in aquatic ecosystems are generally highest in sediments, intermediate in aquatic biota, and lowest in the water column (Canadian Council of Resource and Environment Ministers [CCREM] 1987).
- Pesticides are chemicals that are used to kill pests. Most pesticides are applied to farmer's fields or used to control biting insects (e.g., mosquitoes) in southern latitudes. Some pesticides, particularly chlorinated pesticides, are volatile and relatively persistent and can be transported to the Arctic in air, where rain deposits the pesticides into surface waters and ultimately into sediments.
- Hydrocarbons can be present in sediment as a result of petroleum contamination (e.g., gasoline, diesel, oil) or as naturally occurring organic compounds. Inferences can be made on the source of the hydrocarbon (anthropogenic or natural) based on the carbon range observed during chromatographic analysis.
- Volatile organic compounds include benzene, toluene, ethylbenzene, and xylene. These compounds are used as solvents (e.g., in paints) and are found in petroleum derivatives such as gasoline and kerosene.

6.1.3 Sediment Quality Trends

6.1.3.1 Seasonal

Sediment deposition rates are known to be low in Arctic regions (e.g., Peramaki and Stone 2007). In the absence of anthropogenic inputs, sediment concentrations are likely to be relatively similar over time.

Future uses of the baseline sediment data will be two-fold: 1) to assess exposure of benthic organisms; and 2) to detect changes in concentrations due to mine activities. Older sampling programs (i.e., 1998) analyzed sediment from the top 5 to 10 cm profile, which is appropriate to assess ecological effects. However, sampling of a shallow profile provides enhanced sensitivity for monitoring potential temporal trends in sediment chemistry. Therefore, both shallow (0 to 2 cm) and deeper (0 to 10 cm) profiles were analyzed in 2008. Concentrations of metals that were detected in all sediment samples (i.e., arsenic, chromium, copper, and zinc) were compared graphically to determine if the shallow profile differed in metal concentrations from the deeper profile. Metal concentrations were generally similar between two profiles, suggesting that there were no differences in contaminant chemistry between the profiles. Therefore, more current (2008 and 2009) and future data from the shallow (0 to 2 cm) profile are comparable to the historical dataset, which was based on the deeper (0 to 10 cm) profile.

6.1.3.2 Spatial

Sediment quality may vary among lakes as a result in differences in overlying water quality (see Section 5.1.3.2).

6.1.4 Sample Collection

Surface grab sediment samples were collected in all studies; however, the profile depth and the number of field replicates varied among studies. For example, Dillon (1994, 1995) did not specify profile depth or the type of sampler used. It is assumed that grab samples were collected with a dredge. RL&L (1999) collected sediment from the top 5 to 10 cm using an Ekman grab sampler. In 2008, the same type of sampler was used and each sediment sample was split in half so that shallow (0 to 2 cm) and deep (0 to 10 cm) profiles could be analyzed from the same grab sample. As noted in Section 6.1.3.1, this procedure was performed to verify that parameter concentrations in the shallow and deep profiles were similar. The 2009 sediment sample was collected from the 0 to 2 cm profile using an Ekman sampler.

The number of replicates collected varied among baseline studies. Dillon (1994, 1995) collected one replicate per station, RL&L (1999) collected 5 replicates per station, and Golder (2008b) collected 4 replicates per station (two replicates of each profile). One replicate per station was collected in 2009.

Sediment samples were collected from several lake stations. Most stations were in the deepest area of the lakes, with the exception of Meliadine Lake, which had multiple stations. Most stations were sampled once or twice between 1994 and 2009.

Sample locations were accessed by boat or helicopter in the summer. Sediment sampling occurred concurrently with water sampling during the summer programs. For most sampling events, coordinates for each sampling location were recorded using a global positioning system (GPS) unit. The available coordinates are included in the sediment quality tables presented in Appendices C1-1 to C1-11.

6.1.5 Sample Analysis

6.1.5.1 Parameter Groups

All sediment samples were analyzed for moisture content and total metals. Texture, carbon content, and total nitrogen[11] were analyzed in sediment samples collected during the 1998 study (RL&L 1999) and during recent studies (i.e., 2008 and 2009). A subset of sediment samples collected in 1998 and 2008 was analyzed for PAHs, pesticides, and other organic compounds.

6.1.5.2 Analytical Methods

Samples were shipped to an accredited environmental laboratory for analysis (Table 5-9). Analytical methods were described in Dillon (1994, 1995) and Golder (2008b)[12] but not in RL&L (1999). Thus a full discussion of the methods used by the different studies is limited to comparing the 1994/1995 studies with the 2008/2009 studies.

Moisture content was measured in all sediment samples; however, moisture contents in the 1994/1995 samples were appreciably lower than in the other studies. This result suggests that the moisture content data reported by Dillon (1994, 1995) were calculated differently and are not comparable to the other studies.

[11] Total phosphorus was measured in one sample in 2009 (Lake A6).

[12] Sediments were analyzed by the same analytical methods in 2008 and 2009.

Particle size was only assessed in the 1998 and 2008/2009 samples (i.e., not in 1994/1995). RL&L (1999) reported the relative weight fractions retained on 20 sizes of sieves ranging from 0.691 to 500 µm. There were no sieve sizes between 44.194 and 62.5 µm. The fractions were summed to calculate relative percentage of sand, silt, and clay, assuming the following:

- sand was retained on 62.5 µm or larger sieves;
- silt was retained on sieves ranging from 2.762 to 44.194 µm; and
- clay was retained on sieves smaller than 2.762 µm (i.e., 0691 to 1.953 µm).

This size classification is different than what was reported for the 2008 samples. For the 2008 samples, sand size ranged from 50 to 2 000 µm, silt from 2 to 50 µm, and clay was less than 2 µm. Therefore, some observed differences between years may be due to how the sand fraction was calculated in 1998 (particles greater than 62.5 µm) compared to 2008 (particles greater than 50 µm).

Total nitrogen was analyzed in 2008/2009 samples using LECO combustion method and reported as a percentage (Golder 2008b). Although total nitrogen concentrations were reported in units of mg/kg dw in 1998, it is likely that total nitrogen was analyzed by the LECO method or by the older kJeldahl nitrogen method. Both methods would produce similar results and should be reported as percentages (J. Ashworth, ALS Laboratory Group, 2009, pers. comm.). Therefore, it is assumed that incorrect units were reported in RL&L (1999) and that the total nitrogen results are comparable between the two years.

For analysis of metals in sediments, samples were digested in nitric and hydrochloric acids and the extracts analyzed by either inductively coupled argon plasma/atomic emission spectrophotometry (Dillon 1994, 1995) or inductively coupled plasma mass spectrophotometry (Golder 2008b). Analytical methods used in the 1998 sampling program were not described by RL&L (1999), but were assumed to be similar to those used in the 2008 and 2009 sampling programs because detection limits were similar. Detection limits in the Dillon studies were higher.

6.1.5.3 Quality Assurance/Quality Control

Limited information on QA/QC programs was presented in the older baseline reports (Dillon 1994, 1995; RL&L 1999). No field replicates were collected in 1994 or 1995. Five field replicates were collected in 1998. The results of laboratory quality control samples, such as method blanks, duplicates, matrix spikes, or certified reference materials, were not reported.

Sediment samples in 2008 and 2009 were collected in accordance with Golder Technical Procedure 8.2-3 Sediment Sampling (unpublished file information), which are consistent with standard methods (e.g., APHA 1992, Environment Canada 1993) and include standard collection, preservation, storage, and shipping protocols. Field personnel also used Specific Work Instructions (SWI), which detailed project-specific sampling instructions. Quality assurance procedures included the use of nitrile gloves during sample collection to prevent cross-contamination of the samples. Sampling equipment (e.g., Ekman dredge, stainless steel mixing bowl and spoons) were cleaned with detergent and rinsed thoroughly with ultra pure water and site water between

replicates. Samples were submitted to an accredited analytical laboratory (i.e., ALS Laboratory Group, Edmonton, Alberta) for analysis.

Field QC procedures in the 2008 sediment sampling included the collection of field duplicates (two replicates for each profile). Field duplicates were not collected for the 2009 sample. Laboratory QC protocols included the analysis of one or more method blanks, internal or certified reference materials, matrix spikes, and laboratory replicates.

6.1.6 Data Analysis

All historical and recent sediment data were compiled into a database organized by drainage basin, location, and sampling date (Appendices C1-1 to C1-11).

Sediment chemistry was compared to the Interim Sediment Quality Guidelines (ISQG) and Probable Effect Level (PEL) guidelines for the protection of aquatic life (CCME 2002a; Table 6-2). The ISQG were derived solely from the threshold effects level (CCME 2001). The threshold effects level represents the concentration below which adverse biological effects are expected to occur rarely.

Table 6-2: Sediment Quality Guidelines for the Protection of Aquatic Life

Parameter	Units	Freshwater		Marine	
		ISQG [a]	PEL [b]	ISQG	PEL
Total Metals					
Arsenic	mg/kg dw	5.9	17.0	7.24	41.6
Cadmium	mg/kg dw	0.6	3.5	0.7	4.2
Chromium	mg/kg dw	37.3	90.0	52.3	160
Copper	mg/kg dw	35.7	197	18.7	108
Lead	mg/kg dw	35.0	91.3	30.2	112
Mercury	mg/kg dw	0.17	0.486	0.13	0.70
Zinc	mg/kg dw	123	315	124	271
PAHs					
Acenaphthene	mg/kg dw	0.00671 [c]	0.0889 [d]	0.00671	0.0889
Acenaphthylene	mg/kg dw	0.00587 [c]	0.128 [d]	0.00587	0.128
Anthracene	mg/kg dw	0.0469 [c]	0.245 [d]	0.0469	0.245
Benz(a)anthracene	mg/kg dw	0.0317	0.385	0.0748	0.693
Benzo(a)pyrene	mg/kg dw	0.0319	0.782	0.0888	0.763
Chrysene	mg/kg dw	0.0571	0.862	0.108	0.846
Dibenzo(a,h)anthracene	mg/kg dw	0.00622 [c]	0.135 [d]	0.00622	0.135
Fluoranthene	mg/kg dw	0.111	2.355	0.113	1.494
Fluorene	mg/kg dw	0.0212 [c]	0.144 [d]	0.0212	0.144
2-Methylnaphthalene	mg/kg dw	0.0202 [c]	0.201 [d]	0.0202	0.201
Naphthalene	mg/kg dw	0.0346 [c]	0.391 [d]	0.0346	0.391
Phenanthrene	mg/kg dw	0.0419	0.515	0.0867	0.544
Pyrene	mg/kg dw	0.0530	0.875	0.153	1.398
Organochlorines					
Arochlor 1254	mg/kg dw	0.060	0.340	0.0633	0.709
Gamma-BHC [e]	mg/kg dw	0.00094	0.00138	0.00032	0.00099

Table 6-2: Sediment Quality Guidelines for the Protection of Aquatic Life (continued)

Parameter	Units	Freshwater		Marine	
		ISQG [a]	PEL [b]	ISQG	PEL
Chlordane (alpha)	mg/kg dw	0.0045 [f]	0.00887 [f]	0.00226 [f]	0.00479 [f]
Chlordane (gamma)	mg/kg dw	0.0045 [f]	0.00887 [f]	0.00226 [f]	0.00479 [f]
Dieldrin	mg/kg dw	0.00285	0.00667	0.00071	0.0043
Endrin	mg/kg dw	0.00267	0.0624	0.00267 [g]	0.0624 [h]
Heptachlor	mg/kg dw	0.00060 [i]	0.00274 [i]	0.00060 [gi]	0.00274 [hi]
Oxychlordane	mg/kg dw	0.0045 [f]	0.00887 [f]	0.00226 [f]	0.00479 [f]
pp-DDD	mg/kg dw	0.00354 [j]	0.00851 [j]	0.00122 [j]	0.00781 [j]
pp-DDE	mg/kg dw	0.00142 [j]	0.00675 [j]	0.00207 [j]	0.374 [j]
pp-DDT	mg/kg dw	0.00119 [j]	0.00477 [j]	0.00119 [j]	0.00477 [j]

[a] ISQG = Interim sediment quality guideline (CCME 2002a).
[b] PEL = Probable effect level (CCME 2002a).
[c] Provisional guideline; adoption of marine ISQG.
[d] Provisional guideline; adoption of marine PEL.
[e] Also known as lindane.
[f] Guideline for chlordane.
[g] Provisional guideline; adoption of freshwater ISQG.
[h] Provisional guideline; adoption of freshwater PEL.
[i] Guideline for heptachlor epoxide.
[j] Guideline is for sum of p,p' and o,p' isomers.
Notes: mg/g dw = milligrams per gram dry weight; CCME = Canadian Council of Ministers of the Environment; PAH = polycyclic aromatic hydrocarbons; gamma-BHC = benzene hexachloride; DDD = dichlorodiphenyldichloroethane; DDE = dichlorodiphenyldichloroethylene; DDT = dichlorodiphenyltrichloroethane.

6.2 Lakes

6.2.1 Meliadine Lake Drainage

6.2.1.1 Meliadine Lake

Sediment samples were collected from 9 stations in Meliadine Lake between 1994 and 2008 (Figure 6-1; Appendix C1):

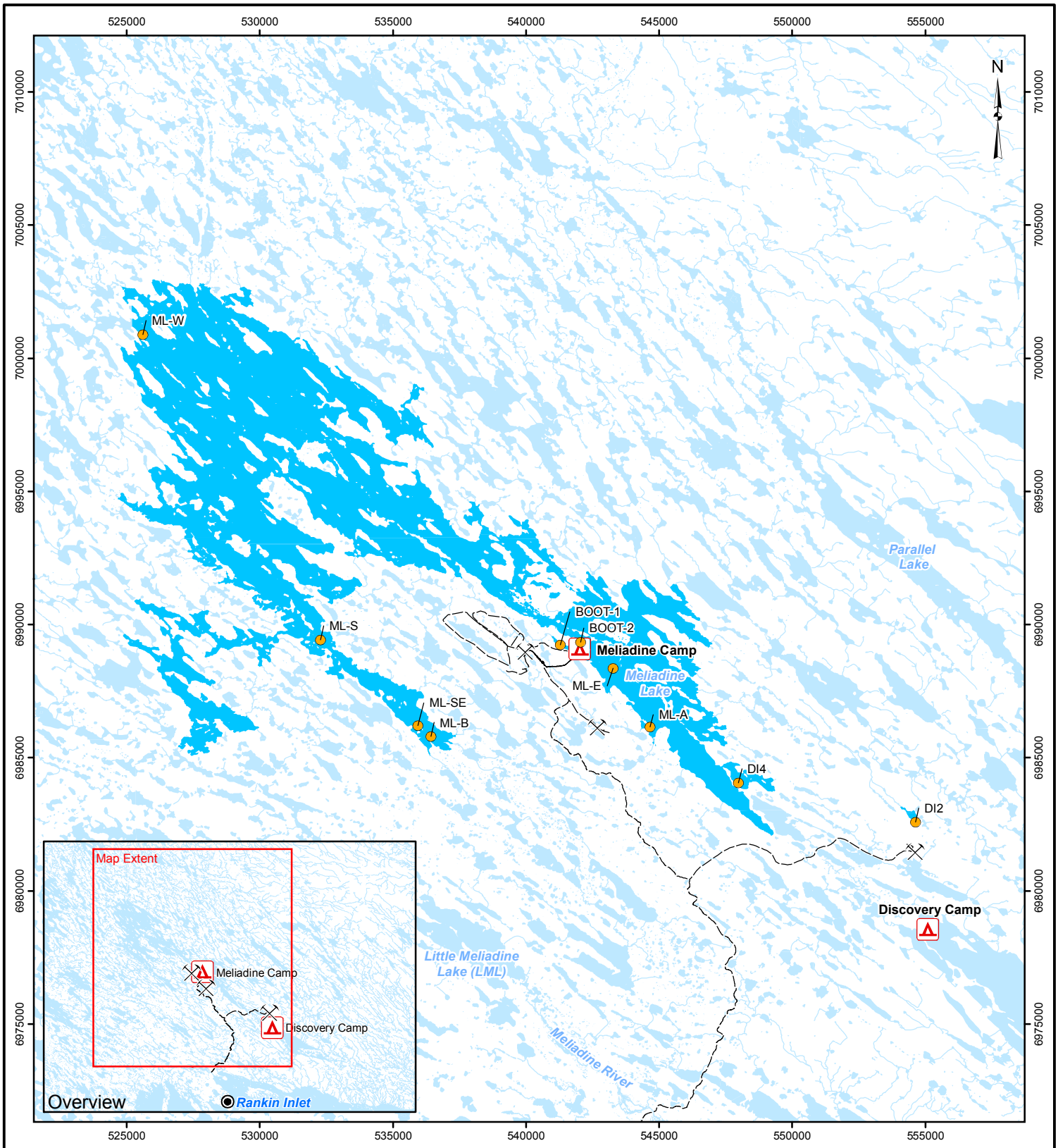
- DI4 (1995, 2008; small bay that empties into east basin of Meliadine Lake);
- ML-E (1998, 2008; east basin of Meliadine Lake);
- ML-A (1994, 1998, 2008; near outlet of Basin A in Meliadine Lake);
- BOOT-1 (2008; east basin of Meliadine Lake in the "toe of the boot");
- BOOT-2 (2008; east basin of Meliadine Lake at the outlet of the "toe of the boot");
- ML-W (1998, 2008; west basin of Meliadine Lake);
- ML-S (1998, 2008; south basin of Meliadine Lake);
- ML-SE (2008; southeast basin of Meliadine Lake); and
- ML-B (1998, 2008; near outlet of Basin B in Meliadine Lake).

Sediments were dominated by sand (22 to 83%) and silt (14 to 75%) with very little clay (0 to 9%). Stations ML-E, ML-A, ML-W, and ML-S had a higher proportion of silt in 1998 than in 2008. This difference is likely due to how the sand fraction was calculated in 1998 (particles greater than 62.5 µm) than in 2008 (particles greater than 50 µm).

Moisture contents were generally similar among years with a few exceptions. Moisture contents measured in 1994 and 1995 were lower than those measured in 1998 and 2008. For example, Lake DI4 had a moisture content of 23% in 1995 but 66 to 79% in 2008. Station ML-A had a moisture content of 52% in 1994 compared to 64 to 75% in 1998 and 2008. Only station ML-E had different moisture contents between 1998 (75 to 79%) and 2008 (50 to 63%). Most sediments had moisture contents of 64% or higher with the exception of stations ML-E (50 to 63% in 2008), BOOT-1 (37 to 55%), and ML-B (40 to 55%).

Total organic carbon was generally similar between years and followed a similar pattern as moisture content. Total organic carbon ranged from 0.7 to 8.1% and was lowest in samples with lower moisture content. The lowest total organic carbon was measured at stations ML-E (1.1 to 1.9% in 2008), BOOT-1 (0.8 to 1.6%), and ML-B (0.7 to 1.2%). Total nitrogen concentrations were between 0.07 and 0.78%.

Total cyanide concentrations were also similar among stations. Total cyanide concentrations in sediment ranged from less than the detection limit of 0.5 mg/kg dw to 7 mg/kg dw. Higher concentrations were measured in 1998 compared to 2008, particularly at stations ML-E, ML-W, and ML-S. At these stations, total cyanide concentrations ranged from 3.1 to 7 mg/kg dw in 1998 compared to 0.9 to 2.4 mg/kg dw in 2008.



LEGEND

- Sediment Sampling Location
- Camp
- Proposed Mine Site
- Proposed Road
- Watercourse
- Sampled Waterbody
- Waterbody

REFERENCE

Base data obtained from Comaplex Minerals Corporation. Water quality data obtained from the field.
Projection: UTM Zone 15 Datum: NAD 83

PROJECT

COMAPLEX MINERALS CORP

COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE

SEDIMENT QUALITY SAMPLING LOCATIONS IN MELIADINE LAKE

Golder Associates
Edmonton, Alberta

PROJECT NO. 09-1373-0010			PHASE No. 1000	
DESIGN	KS	06 Oct. 2009	SCALE AS SHOWN	REV. 0
GIS	CDB	06 Oct. 2009		
CHECK	KS	27 Oct. 2009		
REVIEW	PMC	27 Oct. 2009		

FIGURE 6-1

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Total metals concentrations were generally below the applicable aquatic life guidelines with the exception of arsenic (38 out of 63 samples), cadmium (3 out of 63 samples), chromium (20 out of 63 samples), and copper (31 out of 63 samples):

- Arsenic concentrations ranged from 1.6 to 67.8 mg/kg dw; 38 samples were above ISQG of 5.9 mg/kg dw and 19 of these samples were also above PEL of 17 mg/kg dw.
- Cadmium concentrations were generally at or less than the detection limit of 0.5 mg/kg dw except 3 samples from station ML-S, which had cadmium concentrations equal to the ISQG of 0.6 mg/kg dw.
- Chromium concentrations ranged from 13.2 to 53.4 mg/kg dw. Twenty samples had chromium concentrations that exceeded the chromium ISQG of 37.3 mg/kg dw.
- Copper concentrations ranged from 6 to 92 mg/kg dw; 31 samples were above the ISQG of 35.7 mg/kg dw.

Concentrations of PAHs were measured in some 1998 samples from stations ML-A and ML-B and in the 2008 samples from stations BOOT-1 and BOOT-2. Concentrations of PAHs were either below the detection limits and/or below the ISQGs and PELs. Detection limits were higher in 1998 than in 2008, and a few parameters (i.e., acenaphthene, acenaphthylene and dibenzo(a,h)anthracene) had detection limits that were higher than guidelines.

Volatile organic compounds such as BTEX, total volatile hydrocarbons, and total extractable hydrocarbons were measured in six 1998 samples from stations ML-A and ML-B. Concentrations were reported at or below detection limits with the exception of 2 samples from station ML-A and one sample from station ML-B. These samples had total volatile hydrocarbon concentrations of 0.6 to 2.1 mg/kg dw.

Organochlorines were measured in 1998 in one sample from each of stations ML-E, ML-W, and ML-S. All concentrations were either below detection limits or below applicable aquatic life guidelines with the exception of DDTs in station ML-E. Concentrations of pp-DDD (0.008 mg/kg dw) and pp-DDE (0.002 mg/kg dw) were above their associated ISQGs of 0.00354 mg/kg and 0.00142 mg/kg dw, respectively. Concentration of pp-DDT (0.070 mg/kg dw) was higher than both its ISQG of 0.00119 mg/kg dw and PEL of 0.00477 ^{mg}/kg dw. This substance may enter the aquatic environment via atmospheric deposition or soil erosion (CCREM 1987). Because pp-DDT has a low solubility to water, the dominant transport mechanisms in the aquatic environments are volatilization, sorption to biota and sediments, and bioaccumulation.

Concentrations of gamma-BHC and heptachlor were less than the detection limits; however, the detection limits were higher than the respective guidelines.

Aroclor 1254 was present at station ML-W at a concentration of 0.16 mg/kg dw. This substance is a polychlorinated biphenyl (PCB) formerly used in hydraulic fluids, transformers, and electrical capacitors. The major source of its release to the environment is a cycling process that involves volatilization from ground surfaces (water, soil) into the atmosphere, with subsequent removal via wet or dry deposition (CCREM 1987).

6.2.1.2 Peninsula Lakes

Peninsula Basin A

Sediment samples were collected from 4 lakes in Basin A between 1994 and 2009 (Figure 6-2; Appendix C2):

- A1 (1994, near the outlet into Meliadine Lake);
- A5 (1994);
- A6 (1994, 1998, 2009); and
- A8 (1994, 1998, 2008).

Sediments in these lakes were dominated by sand (33 to 82%) and silt (15 to 63%) with low clay content (0.4 to 11%). Particle size distribution differed between years. For example, sediments from lake A6 had 36 to 47% sand in 1998, but had 82% sand in 2009. Lake A8 sediments were more variable in 2008 with the shallow profile (0 to 2 cm) having higher sand content (61 to 70%) than the deeper profile (0 to 10 cm; 33 to 42% sand). In 1998, lake A8 sediments had approximately equal proportions of sand and silt.

Sediment moisture ranged from 77 to 97%, except for the 3 samples collected in 1994 in which moisture was below 20%. Total organic carbon was similar among sediment samples and ranged from 5.5 to 13.3%. Total nitrogen concentrations ranged from 0.41 to 1.23%. Total phosphorus was analyzed in one sample (i.e., lake A6 in 2009); the concentration was 407 mg/kg dw.

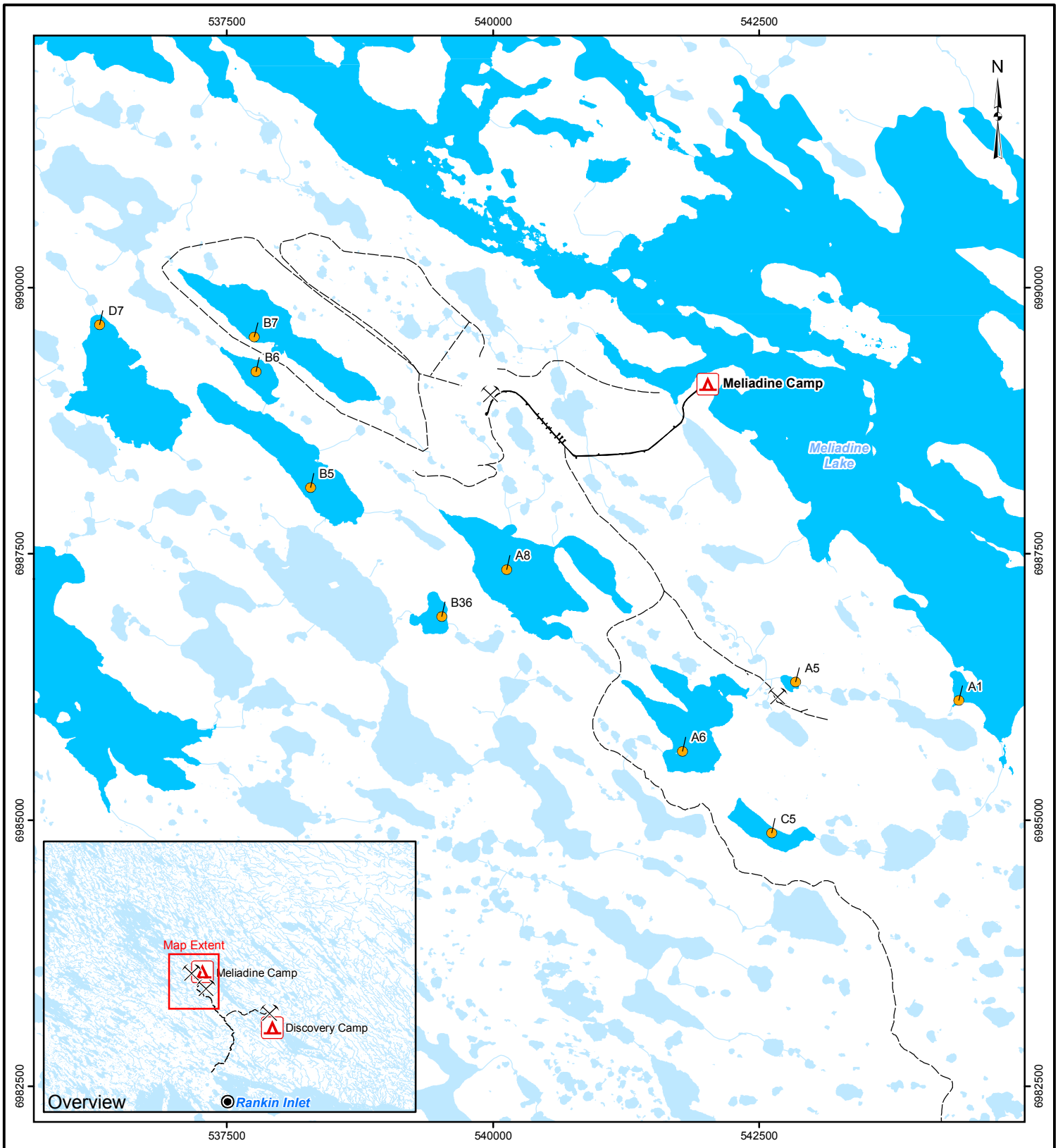
Total cyanide concentrations were slightly lower in 2008 and 2009 than in 1998. Total cyanide concentrations in sediment ranged from 1.5 to 4 mg/kg dw in 2008/2009 and from 4 to 5 mg/kg dw in 1998.

Total metals concentrations were generally below the applicable aquatic life guidelines with the exception of arsenic (18 out of 19 samples), chromium (10 out of 19 samples) and copper (14 out of 19 samples):

- Arsenic concentrations ranged from 3.4 to 173 mg/kg dw. All but one sample was above the ISQG of 5.9 mg/kg dw; 17 of 19 samples were below the PEL of 17.0 mg/kg dw.
- Chromium concentrations ranged from 14.4 to 61.5 mg/kg dw. Ten samples had concentrations that were above the ISQG of 37.3 mg/kg dw but lower than the PEL of 90.0 mg/kg dw.
- Copper concentrations ranged from 12.1 to 123 mg/kg dw, 14 samples were higher than the ISQG of 35.7 mg/kg dw but lower than the PEL of 197 mg/kg dw.

Concentrations of PAHs were measured in the 2008 samples from lake A8. Concentrations were either below the detection limits and/or below the ISQGs and PELs with the exception of naphthalene, which was detected in all samples and ranged from 0.03 to 0.06 mg/kg dw. In one sample, the naphthalene concentration (0.06 mg/kg dw) exceeded the ISQG of 0.0346 mg/kg dw[13]. Three PAHs (i.e., acenaphthene, acenaphthylene and chrysene) had detection limits that were higher than guidelines.

[13]The laboratory QA/QC results indicated the presence of blank contamination (Golder 2008). The blank-corrected naphthalene concentration for this sediment sample would be 0.051 mg/kg dw, which is also higher than the ISQG.



LEGEND

- Sediment Sampling Location
- Camp
- Proposed Mine Site
- Proposed Road
- Watercourse
- Sampled Waterbody
- Waterbody

1,250 0 1,250

SCALE 1:50,000 METRES

REFERENCE

Base data obtained from Comaplex Minerals Corporation. Water quality data obtained from the field.
Projection: UTM Zone 15 Datum: NAD 83

PROJECT

COMAPLEX MINERALS CORP

COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE

SEDIMENT QUALITY SAMPLING LOCATIONS IN PENINSULA BASINS

Golder Associates
Edmonton, Alberta

PROJECT NO. 09-1373-0010			PHASE No. 1000	
DESIGN	KS	06 Oct. 2009	SCALE AS SHOWN	REV. 0
GIS	CDB	06 Oct. 2009		
CHECK	KS	27 Oct. 2009		
REVIEW	PMC	27 Oct. 2009		

FIGURE 6-2

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Total extractable hydrocarbons were measured in 3 samples in 1994 from lakes A1, A5, and A8. Concentrations were below detection limits of 40 mg/kg dw in lakes A1 and A8 and 124 mg/kg dw (C9 to C40 fraction) and 121 mg/kg dw (C10 to C30 fraction) in lake A5. Pesticides were not analyzed in any samples from this area.

Peninsula Basin B

Sediment samples were collected from 4 lakes from Basin B between 1994 and 2008 (Figure 6-2; Appendix C3):

- B5 (1998, 2008);
- B6 (2008);
- B7 (2008); and
- B36 (1994).

Particle size distribution varied among lakes. For example, Lake B5 sediments had about equal proportions of sand and silt in 1998, but were more variable in 2008. Sediment moisture was similar among lakes and years, ranging from 65 to 94% in all samples except one from Lake B36, which was collected in 1994. This sample had a low moisture content of 21%. The highest total organic carbon concentrations were measured in lake B6 (15 to 17%) whereas other lakes had concentrations ranging from 4.3 to 9%. Total nitrogen concentrations ranged from 0.38 to 1.44%.

Total cyanide concentrations were highest in lake B6 at 3.6 to 7.7 mg/kg dw. In comparison, the concentrations in the other lakes ranged from less than the detection limit of 0.5 mg/kg dw to 3.3 mg/kg dw.

Total metals concentrations were generally below the applicable aquatic life guidelines with the exception of arsenic (15 out of 16 samples), chromium (2 out of 16 samples) and copper (11 out of 16 samples):

- Arsenic concentrations measured in lakes B5, B6, and B7 (n=15) ranged from 22 to 111 mg/kg dw. These concentrations exceeded both the ISQG of 5.9 mg/kg dw and the PEL of 17 mg/kg dw. The arsenic concentration in Lake B36 was 3.58 mg/kg dw.
- Chromium concentrations in 2 samples from lake B5 had concentrations (39.2 and 39.4 mg/kg dw) that were above the ISQG of 37.3 mg/kg dw.
- Copper concentrations ranged from 38 and 155 mg/kg dw in 11 samples, which exceeded the ISQG of 35.7 mg/kg dw. The other 5 samples had copper concentrations that ranged from 15.4 to 34 mg/kg dw.

Concentrations of PAHs were measured in the 1998 samples from lake B5 and in the 2008 samples from lakes B5 and B7. Concentrations were either below the detection limits and/or below the ISQGs and PELs. Detection limits were higher in 1998 than in 2008, and several parameters (i.e., acenaphthene, acenaphthylene, benz(a)anthracene/chrysene, benzo(a)pyrene, dibenzo(a,h)anthracene, fluorene, methylnaphthalene, naphthalene, and phenanthrene/anthracene) had detection limits that were higher than guidelines.

Volatile organic compounds such as BTEX, total volatile hydrocarbons, and total extractable hydrocarbons were measured in three 1998 samples from lake B5. Ethylbenzene and xylenes were detected in one sample at 0.15 mg/kg dw and 3.2 mg/kg dw, respectively. Total volatile hydrocarbons were detected in 2 samples at 0.8 and 15 mg/kg dw. Total extractable hydrocarbons concentrations were detected in all 3 samples and ranged from 13 to 17 mg/kg dw.

Peninsula Basin C

One sediment sample was collected in Lake C5 in 1994 (Figure 6-2; Appendix C4). The sample was analyzed for metals and moisture content, but not for texture, total organic carbon, nutrients, or organic compounds such as PAHs or pesticides. Sediment moisture was 19%. Total metals concentrations were generally below the applicable aquatic life guidelines with the exception of arsenic and chromium. The arsenic concentration of 11.1 mg/kg dw was higher than the ISQG of 5.9 mg/kg dw but lower than the PEL of 17.0 mg/kg dw. The chromium concentration of 42.4 mg/kg dw was higher than the ISQG of 37.3 mg/kg dw but lower than the PEL of 90.0 mg/kg dw.

Peninsula Basin D

One sediment sample was collected in Lake D7 in 1994 (Figure 6-2; Appendix C5). The sample was analyzed for metals and moisture content, but not for texture, total organic carbon, nutrients, or organic compounds such as PAHs or pesticides. Sediment moisture was 20%. Total metals concentrations were below the applicable aquatic life guidelines.

6.2.1.3 Little Meliadine Lake

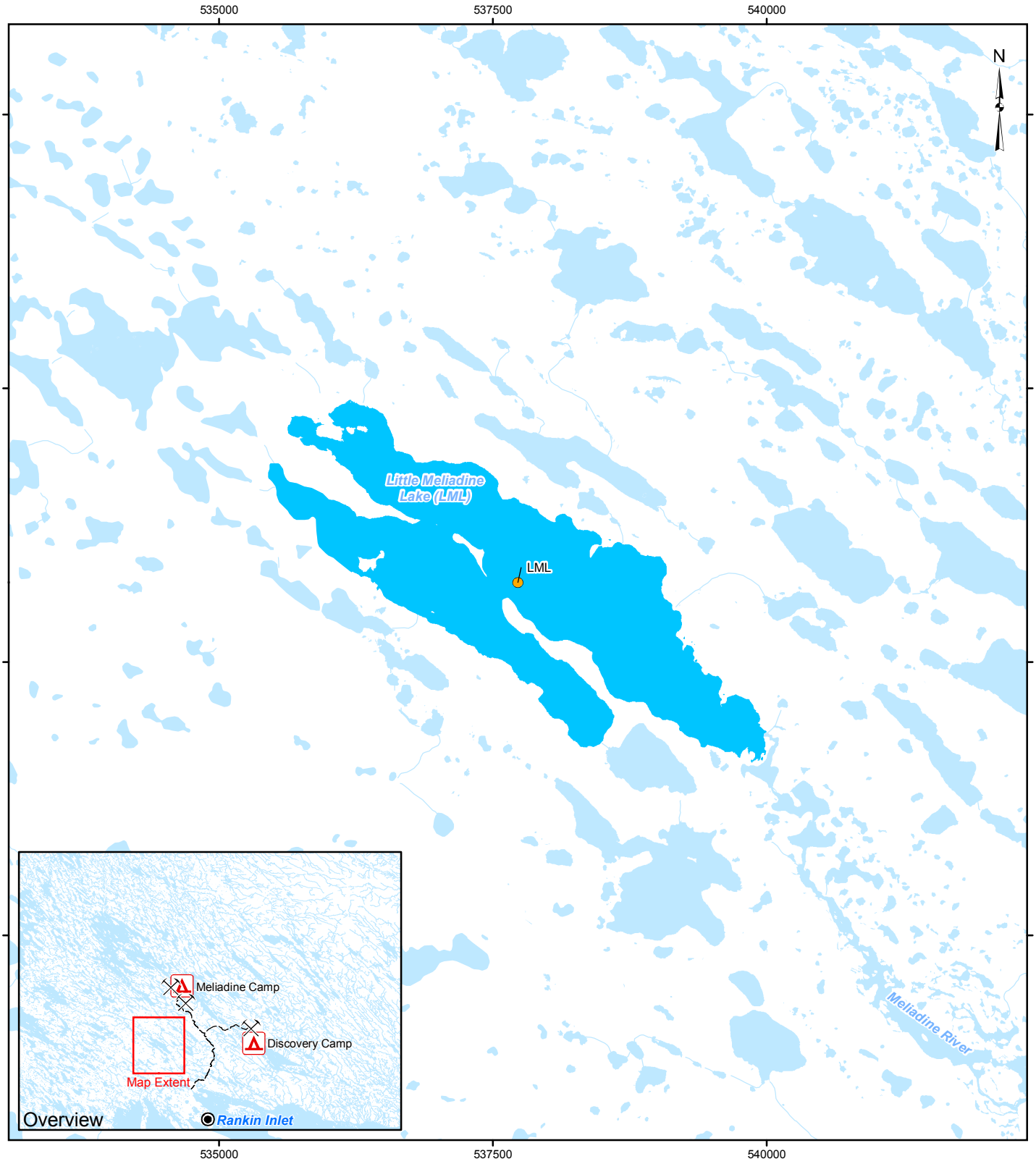
Five replicate samples were collected from a single station in Little Meliadine Lake (LML) in 1998 (Figure 6-3; Appendix C6). The samples were analyzed for moisture content, particle size, total organic carbon, total nitrogen, total cyanide, and total metals. In general, all parameters were similar among the samples. Particle size was dominated by silt (81 to 85%) and sand (12 to 16%). Sediment moisture ranged from 72 to 78%. Total organic carbon ranged from 3.4 to 6.0%. Total nitrogen concentrations ranged from 0.37 to 0.55%. Total cyanide was not detected in any sample (detection limit was 0.5 mg/kg dw).

Total metals concentrations were generally below the applicable aquatic life guidelines with the exception of arsenic (1 sample), chromium (all 5 samples), and copper (all 5 samples):

- One sample had an arsenic concentration of 21.6 mg/kg dw, which was above both the ISQG of 5.9 mg/kg dw and the PEL of 17.0 mg/kg dw. The other 4 samples had arsenic concentrations ranging from 4.7 to 5.6 mg/kg dw.
- Chromium concentrations were similar among the samples at 41.5 to 51.7 mg/kg dw; these concentrations were above the ISQG of 37.3 mg/kg dw.
- Copper concentrations were also similar among samples and ranged from 44 to 58 mg/kg dw, which were higher than ISQG of 35.7 mg/kg dw.

6.2.1.4 DI2 Lake

One sediment sample was collected in Lake DI2 in 1994 (Figure 6-1; Appendix C7). This lake is located in a watershed that drains into the southeast basin of Meliadine Lake. The sample was analyzed for metals and moisture content, but not for texture, total organic carbon, nutrients, or organic compounds such as PAHs or pesticides. Sediment moisture was 28%. Total metals concentrations were below the applicable aquatic life guidelines.



LEGEND

- Sediment Sampling Location
- Camp
- Proposed Mine Site
- Proposed Road
- Watercourse
- Sampled Waterbody
- Waterbody

1,250 0 1,250

SCALE 1:50,000 METRES

REFERENCE

Base data obtained from Comaplex Minerals Corporation. Water quality data obtained from the field.
Projection: UTM Zone 15 Datum: NAD 83

PROJECT

COMAPLEX MINERALS CORP

COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE

SEDIMENT QUALITY SAMPLING LOCATIONS IN MELIADINE RIVER AND LITTLE MELIADINE LAKE

Golder Associates
Edmonton, Alberta

PROJECT NO. 09-1373-0010			PHASE No. 1000	
DESIGN	KS	06 Oct. 2009	SCALE AS SHOWN	REV. 0
GIS	CDB	06 Oct. 2009		
CHECK	KS	27 Oct. 2009		
REVIEW	PMC	27 Oct. 2009		

FIGURE 6-3

N:\Bur-Graphics\Projects\2007\1373\07-1373-0055\Mapping\MXD\2009\WaterQuality\figure_06-03_sediment-sampling-meliadine-river-lml.mxd

6.2.1.5 Control Lake

Control Lake drains into the southwest basin of Meliadine Lake and was selected as a control basin due to the absence of past and likely future drilling activities (RL&L 1998, 1999, 2000, and 2001). Control Lake was sampled in 1998 and 2008 (Figure 6-4; Appendix C8).

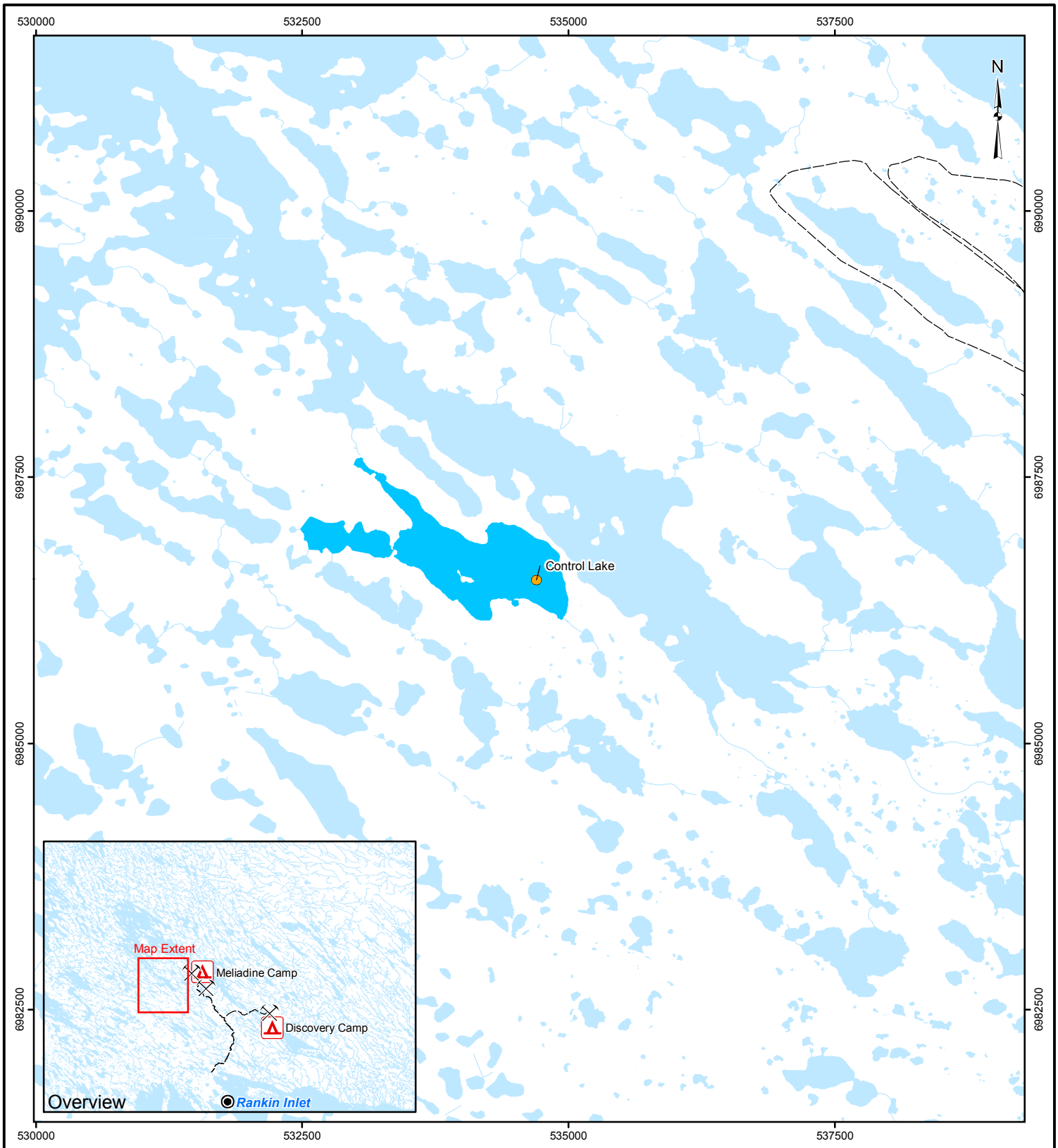
Sediment moisture was similar between years and ranged from 76 to 90%. Particle size differed between years. In 1998, the sediments had similar proportions of sand and silt. In 2008, the sediments were dominated by sand (70 to 79%). Total organic carbon was also slightly lower in 2008 (3.6 to 5.4%) than 1998 (7.3 to 8.4%). Total nitrogen concentrations ranged from 0.29 to 0.64%. Total cyanide concentrations were higher in 2008 (1.6 to 3.6 mg/kg dw) than in 1998 (1.1 to 1.3 mg/kg dw).

Total metals concentrations were generally below the applicable aquatic life guidelines with the exception of arsenic (all 9 samples) and copper (5 samples). Arsenic concentrations were lower in 2008 (6.3 to 7.3 mg/kg dw) than in 1998 (12 to 16 mg/kg dw), but all were above the ISQG of 5.9 mg/kg dw. The 5 samples collected in 1998 had copper concentrations above the ISQG of 35.7 mg/kg dw with values ranging from 58 to 65 mg/kg dw. Copper concentrations in samples collected in 2008 were lower and ranged from 26 to 35 mg/kg dw.

6.2.1.6 Peter Lake Drainage

Five replicate samples were collected from a single station in Peter Lake in 1998 (Figure 6-5; Appendix C9). The samples were analyzed for moisture content, particle size, total organic carbon, total nitrogen, total cyanide, and total metals. In general, all parameters were similar among the samples. Sediment moisture ranged from 31 to 41%. The sediments had similar proportions of sand and silt with clay ranging from 7.5 to 10.3%. Total organic carbon concentrations varied between 0.36 and 0.51%. Total nitrogen ranged between 0.03 and 0.05%. Total cyanide concentrations ranged from 2.1 to 2.9 mg/kg dw, with one sample at less than the detection limit of 0.5 mg/kg dw.

Total metals concentrations were generally below the applicable aquatic life guidelines with the exception of arsenic (all 5 samples). Arsenic concentrations ranged from 6.2 to 8 mg/kg dw, higher than the ISQG of 5.9 mg/kg dw.



LEGEND

- Sediment Sampling Location
- Camp
- Proposed Mine Site
- Proposed Road
- Watercourse
- Sampled Waterbody
- Waterbody

1,250 0 1,250

SCALE 1:50,000 METRES

REFERENCE

Base data obtained from Comaplex Minerals Corporation. Water quality data obtained from the field.
Projection: UTM Zone 15 Datum: NAD 83

PROJECT

COMAPLEX MINERALS CORP

COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE

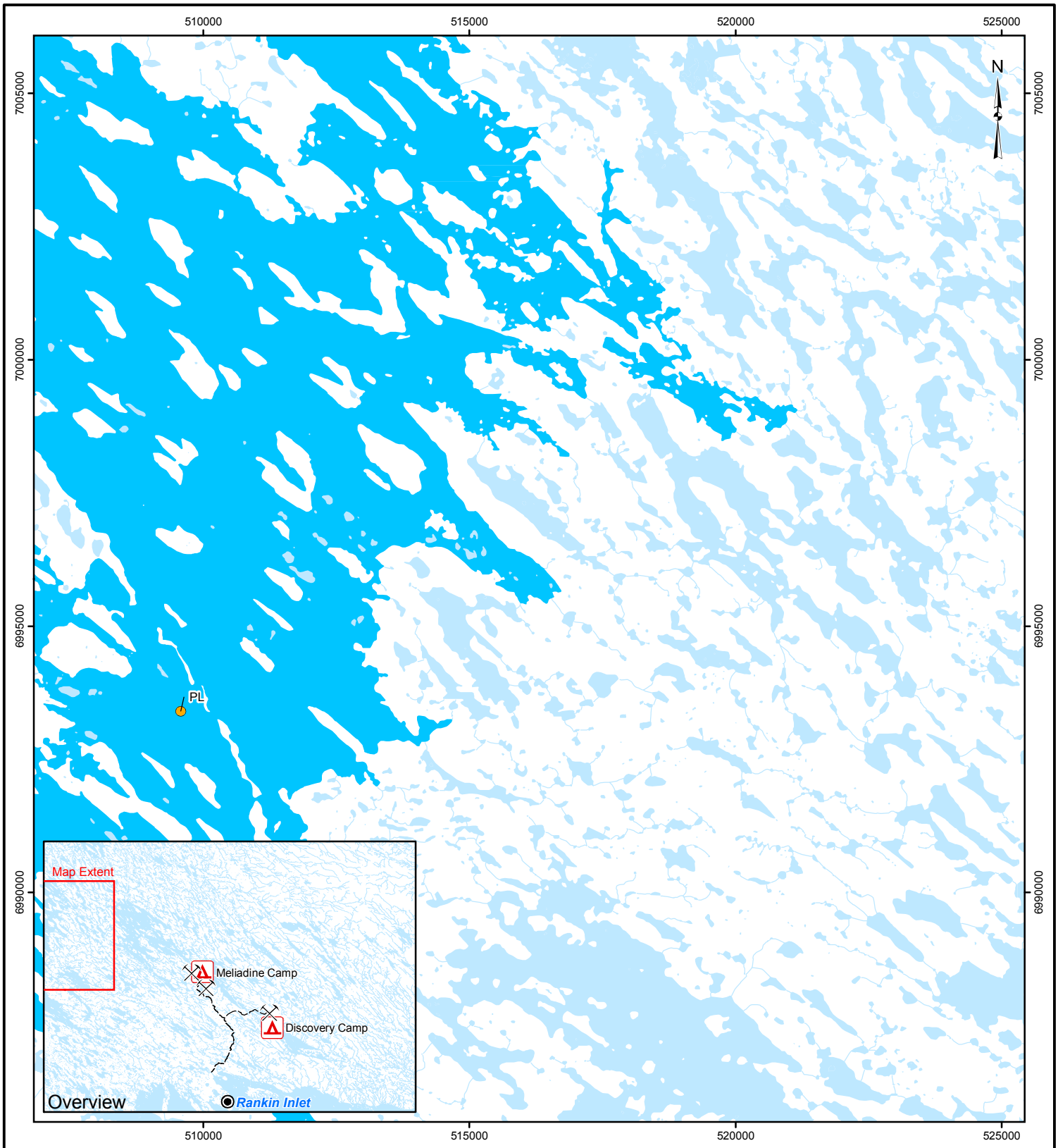
SEDIMENT QUALITY SAMPLING LOCATIONS IN CONTROL LAKE

Golder Associates
Edmonton, Alberta

PROJECT NO. 09-1373-0010			PHASE No. 1000	
DESIGN	KS	06 Oct. 2009	SCALE AS SHOWN	REV. 0
GIS	CDB	06 Oct. 2009		
CHECK	KS	27 Oct. 2009		
REVIEW	PMC	27 Oct. 2009		

FIGURE 6-4

N:\Bur-Graphics\Projects\2007\1373\07-1373-0055\Mapping\MXD\2009\WaterQuality\figure_06-04_sediment-sampling-control-lake.mxd



LEGEND

- Sediment Sampling Location
- Camp
- Proposed Mine Site
- Proposed Road
- Watercourse
- Sampled Waterbody
- Waterbody

2,500 0 2,500

SCALE 1:100,000 METRES

REFERENCE

Base data obtained from Comaplex Minerals Corporation. Water quality data obtained from the field.
Projection: UTM Zone 15 Datum: NAD 83

PROJECT

COMAPLEX MINERALS CORP

COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE

SEDIMENT QUALITY SAMPLING LOCATIONS IN PETER LAKE BASIN

Golder Associates
Edmonton, Alberta

PROJECT NO. 09-1373-0010			PHASE No. 1000	
DESIGN	KS	06 Oct. 2009	SCALE AS SHOWN	REV. 0
GIS	CDB	06 Oct. 2009		
CHECK	KS	27 Oct. 2009		
REVIEW	PMC	27 Oct. 2009		

FIGURE 6-5

N:\Bur-Graphics\Projects\2007\1373\07-1373-0055\Mapping\MXD\2009\WaterQuality\figure_06-05_sediment-sampling-peter-lake-basin.mxd

6.2.2 Atulik Lake Drainage

Sediment samples were collected from 2 lakes in the Atulik Lake drainage basin between 1994 and 2009 (Figure 6-6; Appendix C10):

- DI1 (1994, 2008; also known as Chickenhead Lake); and
- DI5 (1995; located in the north of the basin).

Particle size distribution, total organic carbon, and cyanide were only analyzed in the sediment samples from Lake DI1 collected in 2008. These sediments were dominated by sand (76 to 78%) with low clay content (2 to 4%). Total organic carbon was similar among these samples at 1.2 to 1.6%. Total cyanide concentrations ranged from 1.0 to 1.8 mg/kg dw.

Moisture content was noticeably lower in the 1994 and 1995 samples at 14 and 20%, respectively, compared to 56 to 59% in the 2008 samples. This trend was observed in other areas, suggesting that the moisture content data reported by Dillon (1994, 1995) were calculated differently than in more recent studies.

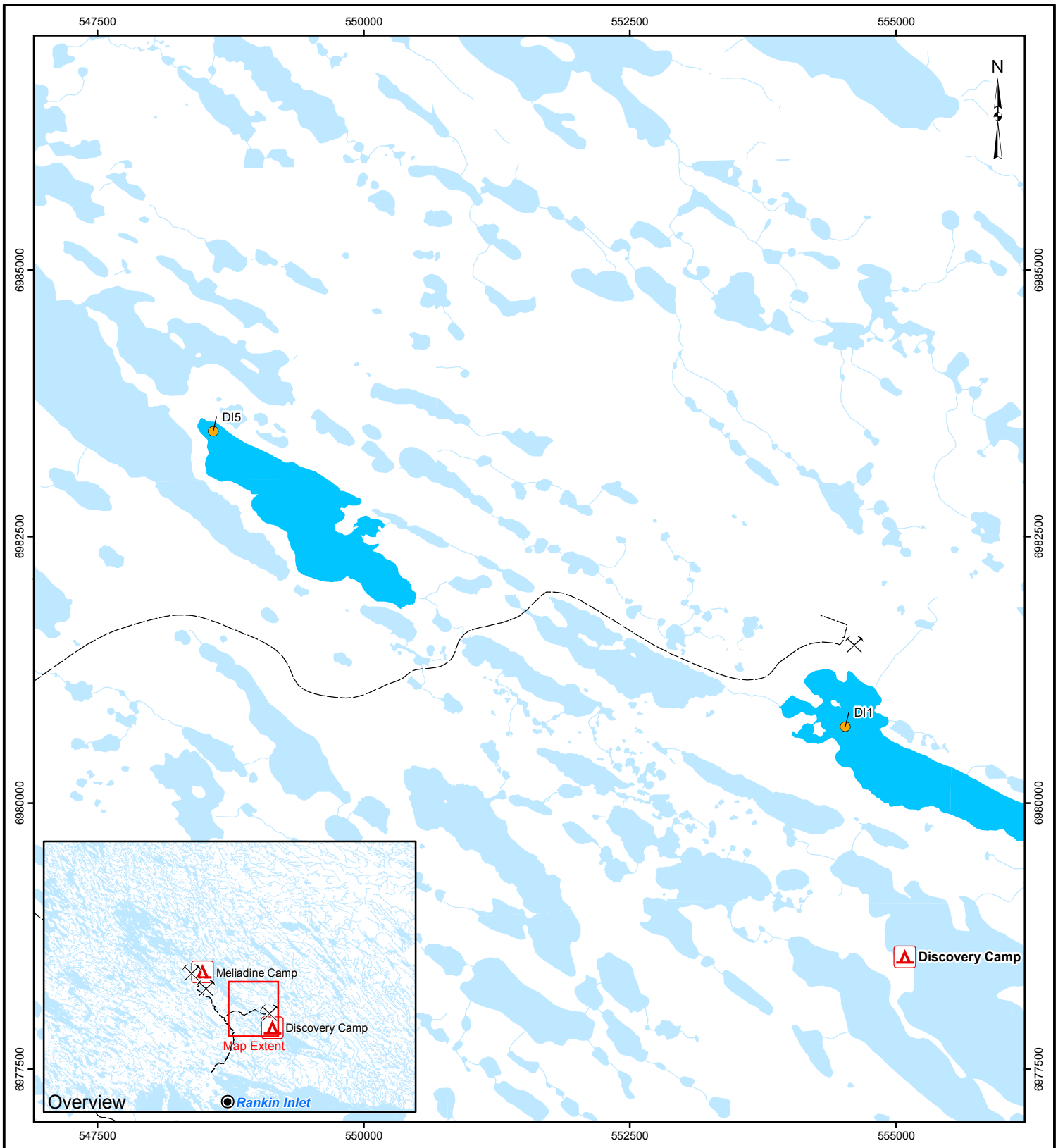
Total metals concentrations were generally below the applicable aquatic life guidelines with the exception of arsenic (5 out of 6 samples) and chromium (1 out of 6 samples). Arsenic concentrations ranged from 5.22 to 10.4 mg/kg dw, and 5 samples had concentrations that were higher than the ISQG of 5.9 mg/kg dw. The ISQG for chromium (37.3 mg/kg dw) was exceeded in one sample from lake DI5 (40.4 mg/kg dw). In addition, the detection limit for cadmium in the 1995 sample (2.0 mg/kg dw) from lake DI5 was higher than the ISQG of 0.6 mg/kg dw.

6.1 Hudson Bay

Five replicate samples were collected in 1998 from a single station in Hudson Bay to assess sediment chemistry in the marine ecosystem (Appendix C11). The sediments were dominated by silt (67 to 70%) with low clay content (4.2 to 4.8%). Sediment moisture ranged between 12 and 34%. Total organic carbon concentrations ranged from 0.4 to 0.5%. Total nitrogen ranged from 0.03 to 0.04%. Total cyanide concentrations ranged from less than detection limit (0.5 mg/kg dw) to 1 mg/kg dw. Total metals concentrations were below the applicable guidelines for the protection of marine aquatic life. Concentrations of PAHs were below detection limits; however, the detection limits for acenaphthene, acenaphthylene and dibenzo(a,h)anthracene were above the marine ISQG. Total extractable hydrocarbons ranged from 8 to 22 mg/kg dw.

6.2 Summary and Conclusions

Lake sediments in the study area consisted primarily of the sandy or silty fraction with a wide range of moisture contents. Concentrations of TOC were also variable across sites. Arsenic, chromium, and copper concentrations frequently exceeded ISQGs. Arsenic concentrations occasionally exceeded the associated PEL. Concentrations of individual PAHs were either less than detection limits or less than corresponding ISQGs with the exception of one sediment sample (from lake A8) that had a naphthalene concentration of 0.06 mg/kg dw, which was higher than the ISQG of 0.0346 mg/kg dw. Total volatile and total extractable hydrocarbons were detected in most samples. Chlorinated pesticides were analyzed in stations located in the east, south, and west basins of Meliadine Lake. Detectable concentrations of pp-DDT, pp-DDD, pp-DDE, and quintozine were recorded in the east basin, whereas traces of Aroclor 1254 were found in the west basin sediments.



LEGEND

- Sediment Sampling Location
- Camp
- Proposed Mine Site
- Proposed Road
- Watercourse
- Sampled Waterbody
- Waterbody

1,250 0 1,250

SCALE 1:50,000 METRES

REFERENCE

Base data obtained from Comaplex Minerals Corporation. Water quality data obtained from the field.
Projection: UTM Zone 15 Datum: NAD 83

PROJECT

COMAPLEX MINERALS CORP

COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE

SEDIMENT QUALITY SAMPLING LOCATIONS IN ATULIK LAKE BASIN

Golder Associates
Edmonton, Alberta

PROJECT NO. 09-1373-0010			PHASE No. 1000	
DESIGN	KS	06 Oct. 2009	SCALE AS SHOWN	REV. 0
GIS	CDB	06 Oct. 2009		
CHECK	KS	27 Oct. 2009		
REVIEW	PMC	27 Oct. 2009		

FIGURE 6-6

N:\Bur-Graphics\Projects\2007\1373\07-1373-0055\Mapping\MXD\2009\WaterQuality\figure_06-06_sediment-sampling-atulik-lake-basin.mxd

7.0 AQUATIC HABITAT

Aquatic habitat was surveyed at numerous streams, lakes and ponds in the Meliadine Study Area from 1997 to 2009. Investigations included ground and aerial surveys to assess habitat quality of streams, bathymetric surveys of selected lakes, continuous recordings of water temperature in streams and lakes, collection of in-situ water quality data and measurements of vertical distribution of temperature and dissolved oxygen in lakes. Most of the aquatic habitat assessments were carried out during 1997 and 1998. The sampling effort in the recent years varied with the specific objectives of the investigations and focused on site locations in close proximity to the proposed mine development.

7.1 Methods

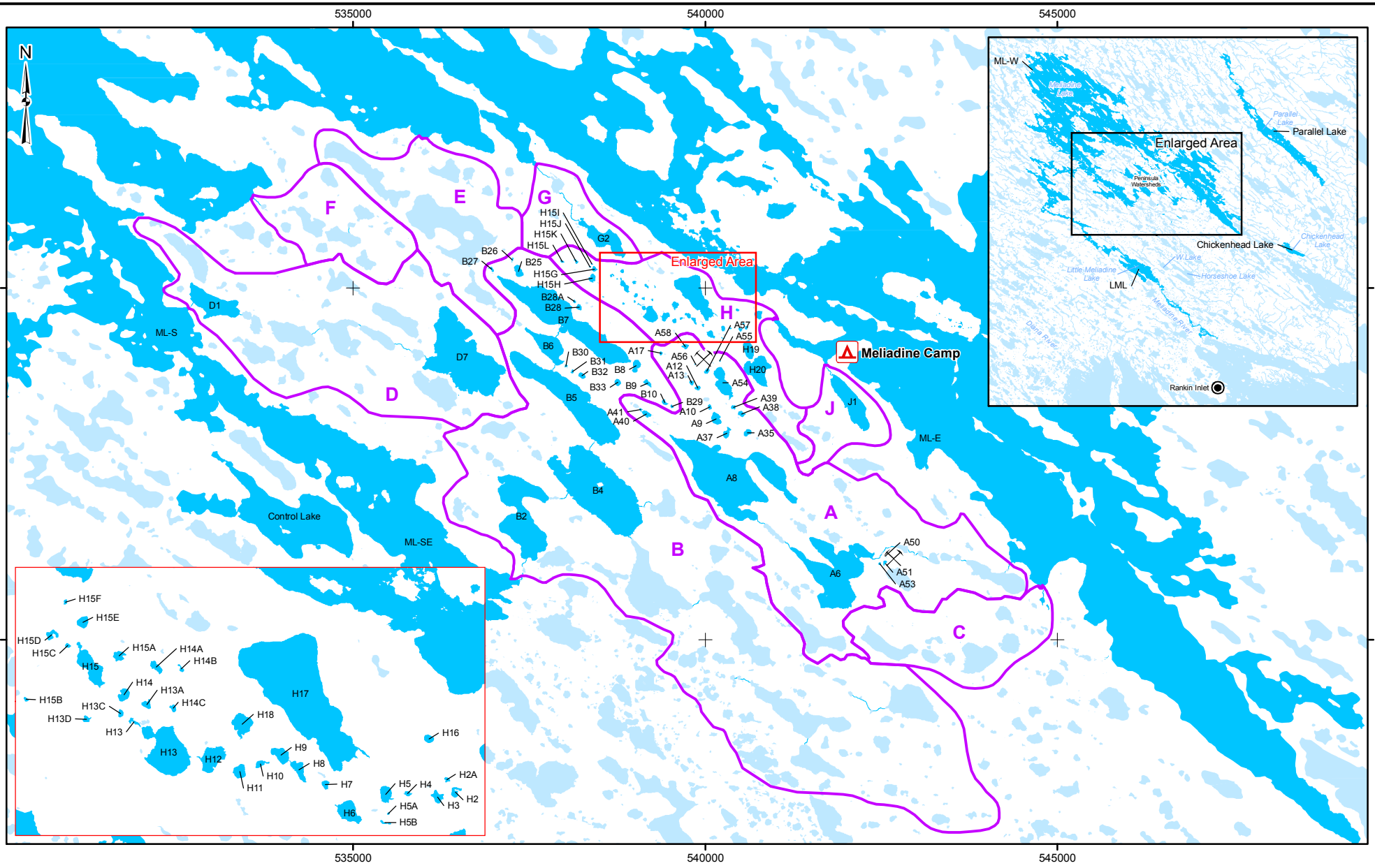
7.1.1 Stream Habitat

7.1.1.1 Ground Surveys

In total, 68 ground surveys were conducted at 31 streams within the Peninsula basins (Figure 7-1). Aquatic habitat was surveyed mainly during 1997 (*n*=51) and 1998 (*n*=15) in several small streams within Basins A, B, D, F, and G. Additional surveys were conducted in 2004 (Stream J0-1) and in 2009 (Stream A5-6). The purpose of the surveys was to assess habitat suitability for fish use with special reference to fish movements and spawning and/or rearing potential. Surveys were conducted mainly during spring field sessions; however, representative stream sections also were evaluated during the summer and fall seasons.

The RL&L Environmental Services Ltd. habitat classification and coding system (Appendix D1) was used to identify and map individual habitat types. Parameters surveyed included substrate, habitat type (e.g., riffles, pools, runs), instream cover, channel width and depth, and presence of barriers to fish movement. In 1997, all stream sections were assessed separately at each segment of distinct habitat type, and subsequently weighted means (based on the contribution of individual habitat type to the overall stream area) were calculated for each habitat parameter to describe average conditions for the stream as a whole. In 1998 and later, it was deemed impractical to identify and map individual habitat types in small streams as they were often less than 1 m in length. Instead, surveyed streams were subdivided into homogeneous reaches (i.e., stream sections that featured similar gradient, channel type, substrate, and habitat type distribution) with habitat parameters reflecting average conditions within each reach. Subsequently, weighted means (based on the contribution of individual reaches to the overall stream length) were calculated for each habitat parameter to describe average habitat conditions for each stream as a whole. Habitat conditions within lake inlets and outlets were also recorded; however, they were not included as part of the stream in the calculation of weighted means.

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LEGEND

- Camp
- Proposed Mine Site
- Sampled Watercourse
- Sampled Waterbody
- Waterbody
- Watershed Boundary

REFERENCE

Base data obtained from Comaplex Minerals Corporation
Projection: UTM Zone 15 Datum: NAD 83

1.5 0 1.5
SCALE 1:75,000 KILOMETRES

PROJECT
COMAPLEX MINERALS CORP
COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE
AQUATIC HABITAT SAMPLING LOCATIONS, 1997-2009

Golder Associates
Edmonton, Alberta

PROJECT No. 09-1373-0010			PHASE No. 1000	
DESIGN	RP	26 Nov. 2009	SCALE AS SHOWN	REV. 0
GIS	CDB	26 Nov. 2009		
CHECK	AM	3 Jul. 2012		
REVIEW	JP	4 Jul. 2012		

FIGURE 7-1

7.1.1.1 Aerial Survey

In addition to detailed habitat assessments performed at selected sites on the ground, a helicopter survey of 169 streams within the main Peninsula watersheds (A, B and D) was conducted on 21 June 1997. This was done to assess the potential suitability of the stream for Arctic grayling spawning and/or rearing. Streams were assessed visually from the air and classified into one of the following 7 categories:

- Class 0 dry or discontinuous watercourse; no defined stream channel
- Class 1 dispersed flow through grass; no defined stream channel
- Class 2 stream channel barely discernible; most flow dispersed over grass; substrate entirely organic
- Class 3 well-defined stream channel; substrate mostly organic; gravel and cobble areas present but infrequent
- Class 4 most of stream channel composed of coarse (gravel/cobble/boulder) substrate
- Class 5 stream channel entirely composed of coarse substrate; limited holding areas (deeper pools)
- Class 6 stream channel entirely composed of coarse substrate; holding areas present.

Streams designated as Classes 4 to 6 were considered to provide potential spawning and rearing habitat for Arctic grayling, because of a combination of suitable substrate and adequate depth. Conversely, streams in Classes 0 to 2 were rated as low quality fish habitat. Class 3 streams were considered as marginal; however, small portions of these streams may provide potential spawning habitat.

7.1.2 Lake and Pond Habitat

The waterbodies in the study area were divided into lakes and ponds, depending on water depth. In late winter, ice thickness commonly reaches 2 m in the region, and waterbodies that are less than 2 m deep likely freeze to the bottom and do not provide overwintering habitat for fish. Waterbodies greater than 2 m deep generally do not freeze completely, but dissolved oxygen levels in the under-ice layer can become low in late winter thus providing low quality overwintering habitat for fish. Based on this, waterbodies in the study area less than 2 m deep were classified as ponds and waterbodies greater than 2 m deep were classified as lakes.

7.1.2.1 Morphometry

Morphometric characteristics of the study area lakes and ponds (surface area, shoreline length, island area, and perimeter) were calculated from digitized maps using the MapInfo™ software package. Total areas of islands were presented separately (i.e., not included in the surface areas of lakes). Shoreline development indices were calculated using the following formula (from Wetzel 1983):

$$shoreline\ development = \text{shoreline length}/2 \quad \overline{(\pi * \text{surface area})}$$

For Peninsula ponds, area and shoreline perimeter (Appendix D8) length were calculated using ArcGIS 9.2 software based on data (1:50 000) available from the National Topographic Database.

7.1.2.2 Bathymetry

Bathymetric surveys of the east and south basins of Meliadine Lake and several Peninsula lakes (A6, A8, B2, B4, B5, B6, B7, D1 and D7) and ponds (A54, B9 and B10), were conducted in 1997 and 1998, to quantify lake volumes and the areas of littoral habitat. Additional surveys were carried out in 2008 and 2009 to estimate depth and volume characteristics of Chickenhead Lake and Lake J1.

In 1997, the bathymetric survey of the east basin of Meliadine Lake was performed using a Raytheon (Model DE719D MK2) echo sounder that provided a graphical (paper chart) and digital (ASCII format) output of depth measurements along cross sectional transects (*n*=182) within the surveyed basin. All transects were conducted at constant speeds and in straight lines between lakeshores; distances to shore and UTM coordinates (using a Garmin 45 GPS receiver) at the start and end of each transect were recorded. These data were subsequently used to assign geographic coordinates to all digital depth measurements. The resulting depth and location database was merged with the digital shoreline data and analyzed using Vertical Mapper™ software, which created isobaths at 2 m contour intervals. Lake area and volume calculations, as well as the bathymetric map of the basin, were obtained using MapInfo™ software.

In 1998, bathymetric surveys of the south basin of Meliadine Lake and Peninsula lakes were carried out using a Global Positioning System (GPS) to acquire accurate positional data. A Meridata™ (Model MD 100) echo sounder, which provided a digital (ASCII format) output of depth measurements, was connected as an external sensor to a Trimble™ Pro XL field receiver (rover) to simultaneously record depth and position data. A Trimble™ Pro XRB field receiver was used as the base station located at the exploration camp on Meliadine Lake. The base station collected continuous position data to be used later in correcting positional errors in the data set collected by the rover unit. This correcting of errors, or post processing, was accomplished using the Pathfinder Office™ software. The resulting depth and location database was merged with the digital shoreline data and analysed using Vertical Mapper™ software which generated isobaths at 0.5 m contour intervals (2 m intervals for Meliadine Lake). The computer-generated isobaths were then visually compared with the colour air photos (1:10 000 scale) and corrected in cases where the shallow water contours did not parallel the aerial image of the lake bottom. Lake area calculations were obtained by using MapInfo™ software. Lake volumes were calculated using the following formula (Wetzel 1983):

$$volume = h\frac{a1 + a2 + \sqrt{a1a2}}{3}$$

where h is the vertical depth of each stratum, a1 is the area of the upper surface, and a2 is the area of the lower surface of the stratum whose volume is to be determined. The procedure consisted of determining the volumes of each successive stratum and then summing these volumes to obtain the total volume of the lake.

Bathymetric surveys were also performed for Chickenhead Lake in 2008 and for Lake J1 in 2009. In 2008, the survey was performed using a Garmin GPSMap 298 model coupled to a depth sounder that collected depth measurements and location data simultaneously. In 2009, the bathymetric survey was performed using a Teledyne RDI Workhorse Rio Grande 1200 kHz Acoustic Doppler Current Profiler (ADCP) instrument with GPS integration capability. The ADCP instrument is an accurate, rapid-sampling current profiling system designed to operate from a moving platform (e.g., manned boat, tethered boat) that allows collection of real-time depth data. A Garmin Map 60 GPS unit was used in the same time to collect coordinates and store them in a track file. Raw

data were filtered for missing parameters and other inconsistencies and further analyzed with ArcGIS software. Bathymetric maps and lake areas and volumes for different isobaths were produced for each lake.

7.1.2.3 Substrate

Lake substrates were evaluated at Lakes A6 and B7 in 2009 using a combination of visual observations, underwater surveys using an Aqua-Vu® underwater camera, and an Ekman dredge. In areas where water depth was <1 m, visual surveys were used to assess habitat types. In deeper water (>1 m), an Aqua-Vu® was trolled behind a boat and the lake bottom was assessed by a biologist via the video monitor. The Ekman dredge was used to sample lake substrates at randomly chosen intervals to verify substrate composition. Pond substrates were assessed visually using a modified Wentworth scale as follows:

- Detritus decomposed organic matter;
- Fines <2 millimetres (mm) diameter;
- Gravel 2 to 64 mm;
- Cobble 65 to 256 mm; and
- Boulder >256 mm.

7.1.3 Water Temperature

During 1997, 1998, 1999, and 2000, temperature data loggers (Vemco™) were deployed in selected lakes and streams to record water temperatures and provide a comparative database of seasonal changes and daily temperature fluctuations within a wide range of waterbodies (Figure 7-2). In lakes, the temperature loggers were placed near shore at a depth of approximately 1.2 m. In streams, the temperature loggers were placed in the deepest part of the stream (between 0.4 and 1.2 m). Loggers were set to record water temperatures at 30 min intervals; the deployment history is described below for each study year.

1997

Eight temperature loggers were deployed on 14 to 15 June 1997 and 5 additional loggers were deployed on 12 July 1997 to increase the number of monitoring stations. All temperature loggers were retrieved on 1 September 1997. Upon inspection of the downloaded data, it was discovered that only one (Stream B1-2) of 13 loggers functioned properly.

1998

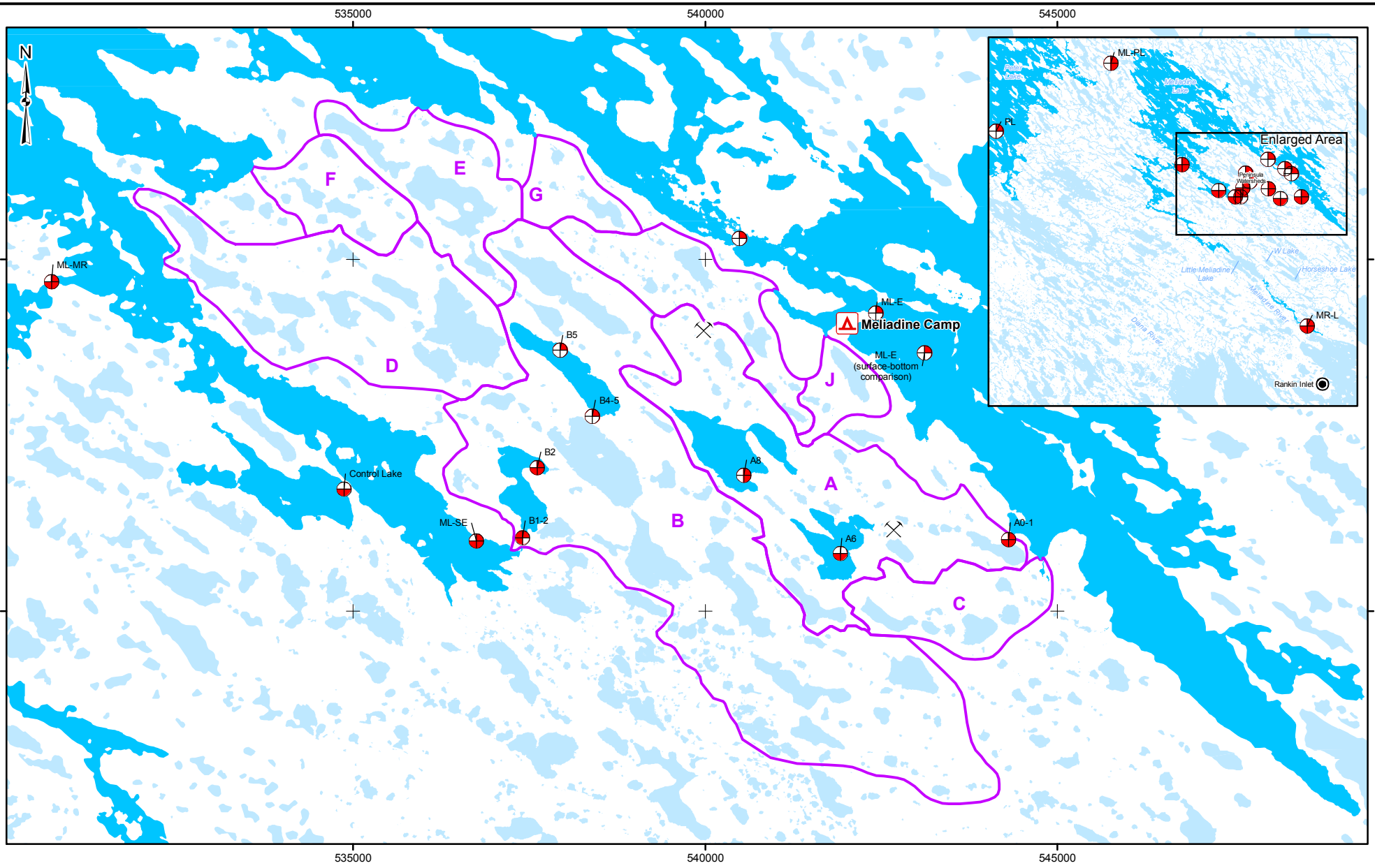
Four temperature loggers were deployed overwinter (13 September 1997 until 17 June 1998) in the shallow narrows between the east and central basins of Meliadine Lake (Figure 7-2). This was done to determine if the ice reached the lake bottom thereby separating the water in the east basin from the rest of the lake. One pair of loggers (2 units taped together) was deployed on the lake bottom at 0.8 m depth to provide control data (i.e., it was assumed that this pair would become frozen in the ice). The second pair of temperature loggers was placed on the lake bottom in the deepest area in the narrows (at 1.5 m depth). Both pairs of temperature loggers recorded water (or ice) temperatures simultaneously at 1 h intervals; these data were then used to calculate mean, minimum, and maximum daily temperatures.

During the open water period of 1998 (12 to 21 June until 30 September), 12 temperature loggers were deployed in 6 lakes (A8, B2, B5, ML-SE, ML-E, and PL) and 6 streams (A0-1, B1-2, B4-5, ML-PL, ML-MR, and MR-L) in the Meliadine Study Area. Two additional loggers were deployed in the middle of the east basin of Meliadine Lake to compare temperatures at the surface and near the lake bottom. One temperature logger was suspended 1 m beneath the surface and the other was suspended directly below it a depth of 14 m (approximately 1 m above the lake bottom). Both loggers were set to record water temperatures simultaneously at 30 min intervals from 28 July to 4 September 1998.

1999

A seasonal water temperature monitoring program was conducted in 4 streams (A0-1, B1-2, ML-MR, and MR-L) and 4 lakes (A6, B2, ML-SE, and Control Lake) in the Meliadine Study Area (Figure 7-2). The loggers were deployed on 19 or 20 June 1999. Most were retrieved on 2 September 1999; however, one logger (ML-R) was operational until 12 September 1999.at 8 sites in the Meliadine Study Area

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LEGEND

- Camp
- Proposed Mine Site
- Thermograph Location
- Sampled Watercourse
- Sampled Waterbody
- Waterbody
- Watershed Boundary
- 1997 / 1998 / 1999 / 2000 — Thermograph Location (Year Sampled)

1.5 0 1.5
SCALE 1:75,000 KILOMETRES

REFERENCE

Base data obtained from Comaplex Minerals Corporation
Projection: UTM Zone 15 Datum: NAD 83

PROJECT
COMAPLEX MINERALS CORP
COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE
WATER TEMPERATURE MONITORING LOCATIONS, 1997-2000

Golder Associates
Edmonton, Alberta

PROJECT No. 09-1373-0010			PHASE No. 1000	
DESIGN	RP	26 Nov. 2009	SCALE AS SHOWN	REV. 0
GIS	CDB	26 Nov. 2009		
CHECK	AM	3 Jul. 2012		
REVIEW	JP	4 Jul. 2012		

FIGURE 7-2

2000

A seasonal water temperature monitoring program was also conducted at 9 sites in the Meliadine Study Area in 2000. The main objective of the water temperature program was to expand the baseline data collected in 1997, 1998, and 1999 to provide a longer-term assessment of variability between waterbodies and years. The temperature loggers were deployed in 5 streams (A0-1, B1-2, ML-MR, ML-PL, and MR-L) and 4 lakes (A6, B2, ML-SE, and Control Lake) in the Meliadine Study Area (Figure 7-2). The monitoring period extended from mid-June until late September.

7.1.4 In-Situ Water Quality

In addition to the water samples collected for lab analyses, water temperature, conductivity and pH were measured in the field during investigations of fish and fish habitat. The water quality meters used in these studies included an Oakton™ WD-35607-10 conductivity meter (±0.1 µS/cm) and a Fisher Scientific Accumet™ 1001 pH meter (±0.01 pH unit). Water temperature was measured using a mercury thermometer (±0.5°C) or a water quality meter.

Vertical profiles (surface to near-bottom) of water temperature (±0.1°C) and dissolved oxygen concentrations (±0.1 mg/L) were measured in selected study area lakes during 6 periods:

- 17 to 24 July 1997;
- 16 to 23 August 1997;
- 24 to 27 April 1998;
- 17 to 29 July 1998;
- 22 August to 4 September 1998; and

18 to 19 July 1999.The profiles were measured at 0.5 or 1 m depth intervals using an Oxyguard™ Handy Mark II dissolved oxygen and temperature meter. Water transparency (±0.1 m) was measured with a standard Secchi disk at each vertical profile location.

7.2 Stream Habitat

Detailed habitat measurements of the study area streams are provided in Appendices D2 to D4. Reach breaks at selected streams surveyed in 1998 are illustrated in Appendices D5a to D5j. The following sections briefly describe the habitat survey results for the Meliadine River and the Peninsula basin streams.

7.2.1 Meliadine River

River morphology, and hence habitat of the Meliadine River, varies greatly from its origin at the south basin of Meliadine Lake to the estuary at Hudson Bay. The outlet at Meliadine Lake (Site ML-MR) is characterized by a short channel (about 150 m in length) and high gradient (approximately 20 m/km), resulting in the predominance of riffle/rapid habitat (Appendix D4). Mean wetted channel width was 72 m, with the entire flow confined to a single channel. In spite of the large channel width, the outlet was shallow (mean depth of 0.5 m). A variety of

habitat types including riffle-run-pool complexes were observed with habitat consisting primarily of riffles (57%) and shallow runs (32%). Pool habitat accounted for between 11% of habitat type by length. Although habitats in excess of 0.8 m deep were not common, the maximum depth of approximately 4.0 m was recorded in a deep pool near the lake outlet. The substrate consisted predominantly of coarse materials; boulders and cobbles accounted for 81% of substrate and gravel material was also common (19%). Because of high current velocities, fine particles were absent from the bed composition. Instream cover was limited to boulder gardens.

Downstream from ML-MR, the Meliadine River widens and slows, flowing through a series of lakes connected by short sections of riffle and rapid habitat. In the middle reaches, mid-way between Meliadine Lake and Hudson Bay, the river flows through Little Meliadine Lake, which features a deep (>14.8 m), long (about 5 km) and wide (about 1 km) basin with habitat comparable to that of Meliadine Lake.

Between Little Meliadine Lake and Hudson Bay, the river narrows and velocities increase to form more typical river habitats. At a site approximately 2 km upstream from the estuary, the river was confined to a single channel with a small rock-piles scattered throughout the reach. At the time of survey (June 2008), wetted widths ranged from 34 to 134 m and the flooded width of the river ranged from 58 to over 200 m. High flows precluded safe measurement of depth; however, depths were greater than 1.5 m along the periphery. Instream habitat consisted of run (72%), riffle (20%), and pool (8%) habitats. Substrate and instream habitat were difficult to gauge because the river was turbid; however, bank-side estimates suggested that substrates were dominated by boulder and cobble with gravel and fines present to lesser degrees. Aquatic plants were observed but uncommon.

7.2.2 Peninsula Basin Streams

7.2.2.1 Aerial Survey

An aerial survey of 169 streams within the Peninsula Basins A, B and D was conducted on 21 June 1997 to assess the distribution and relative frequency of streams with potential suitability for Arctic grayling spawning and/or rearing. In total, only 24 streams (15%) were rated as Classes 4 to 6, indicating the presence of potential spawning habitat. Of the remaining 145 streams that were classified, 73% were designated as Classes 0 to 2 (low quality fish habitat). Class 3 streams, some of which may provide marginal spawning habitat, accounted for 12% (n = 21) of the total. Interbasin differences between the total percent of each class were observed; however, they were generally minor and confined to the first 3 categories (i.e., Classes 0 to 2) of streams. Individual stream classifications are presented in Appendix D6a and the locations of the streams are provided in Appendices D6b to D6e. The data are summarized for each basin in Table 7-1.

Table 7-1: Aerial Classification of Small Streams within the Peninsula Basins, 21 June 1997

Habitat Quality	Class[a]	Number of Streams			Total	
		Basin A	Basin B	Basin D	Number	(%)
Low	0	14	13	1	28	17
	1	20	27	12	59	35
	2	6	20	11	37	22
Marginal	3	2	17	2	21	12
High	4	6	9	2	17	10
	5	2	3	1	6	4
	6	0	1	0	1	1
Total		**50**	**90**	**29**	**169**	**100**

[a] see Section 7.1.1.2 for class descriptions

7.2.2.2 Ground Surveys

In total, 68 habitat assessments were carried out at 31 streams in 1997, 1998, 2004, and 2009. Data for the streams in Basins A, B, D, F, G, H and J have been grouped and are summarized below by basin. Detailed transect data and summary information are provided in Appendices D2, D3 and D4. Breaks in habitat reaches for streams surveyed in 1998 (Appendix D4) are shown on aerial photographs in Appendices D5a to D5j.

Most (77%) streams featured 2 or more channel types. Confined channels were most common, however many streams had sections of flow separated into 2 or more channels. A small portion of the streams surveyed (7%) consisted almost entirely of dispersed flow over grass-covered terrain. In general, channel width was not an appropriate measure of the stream's size or discharge, especially for smaller streams, because of the highly braided character of many of the surveyed streams. Large channel widths were not directly correlated with high discharge as flow was often diverted through multiple channels or was dispersed over terrestrial vegetation with no defined channel observed.

Stream habitat was dominated by shallow runs in terms of both frequency of occurrence and abundance. Other habitat types encountered frequently included riffles and riffle/boulder garden combinations. High quality habitats (i.e., based on water depth and availability of cover for fish) were rare and occurred only in the form of pools and deeper run habitats, indicating that the majority of the habitat was shallow (i.e., <0.5 m in depth). Substantial portions of stream habitat (especially in the smallest streams) consisted of dispersed flow over grass suggesting limited potential to support fish through the year.

Substrate in most of the surveyed streams was dominated by organic materials, primarily grass. Coarse materials including cobble, boulder and gravel were also common and fine materials (e.g., silt and sand) were present in small amounts.

Peninsula Basin streams featured adequate cover for fish in approximately half of the channel area. Several types of cover were available, with boulder gardens, aquatic vegetation, and submerged terrestrial vegetation being the most abundant. Limited amounts of undercut or overhanging bank were also available.

Basin A Streams

Eight streams were surveyed within Basin A during 21 investigations. Streams A0-1, A1-2, A2-3, A3-4, A4-5, A6-7, and A7-8 were surveyed in June 1997 and June 1998. Streams A0-1, A6-7 and A7-8 were also surveyed in July 1997, whereas Stream A5-6 was surveyed 3 times (in June 1997, June 1998 and July 2009). Streams ranged in length from 37 m (A3-4) to 336 m (A5-6) with a mean length of 150 m. Mean widths varied from 2.7 m (A1-2) to 27.2 m (A7-8) with an average width of 8.5 m. Stream habitat was comparable among streams with the predominance of run habitat and occasional presence of riffles, flats and pools. Boulder gardens were recorded in 5 streams. Substrate composition was consistent among streams; on average cobble was dominant (57% by area), followed by boulder (18%), gravel (14%), organics (8%), and fines (4%).

Of note is Stream A5-6 because it is located in an area proposed to be altered during mine development. The stream is 336 m in length and is dominated by riffles, shallow runs, and boulder gardens with occasional flats. It has a maximum depth of 0.7 m. Cobble (43%) and organics (23%) dominated the substrates demonstrating the diverse habitats present in the stream. Gravel (13%) and cobble provided suitable spawning habitat for Arctic grayling residing in nearby Lake A6. Instream cover was provided primarily by boulders (27%) with aquatic and

overhanging vegetation and undercut banks present to a lesser degree. These features offer high quality habitat for Arctic grayling rearing, as well as for forage fish such as ninespine stickleback and slimy sculpin.

Basin B Streams

In total, 28 habitat assessments were performed at 12 streams in Basin B (Appendices D3 and D4). Twelve streams were surveyed in June 1997, with repeat surveys conducted at 6 of the streams in July 1997 and 4 of the streams in August 1997. Additional surveys were conducted at Streams B0-1, B1-2, B3-4, B4-5, B5-6, and B6-7 in June 1998. The streams ranged in length from 58 m (D4-45) to 247 m (B4-5), with a mean length of 141 m. Mean widths varied from 0.8 m (B5-6) to 32.9 m (B4-36) with an average width of 5.9 m. Stream habitat was similar among the streams, with the predominance of run habitats interspersed with occasional riffles and pools. Boulder gardens were present in 7 streams and a small cascade was present in Stream B5-6. Substrate composition ranged somewhat among streams, more so than was observed in Basin A. For example, substrates in Stream B4-36 were composed almost entirely of organics (93%) whereas 78% of the stream bed at Stream B6-7 was cobble. On average, cobble was dominant (36.2% of total surveyed area), followed by boulder (22%), organics (22%), gravel (15%), and fines (5%).

Stream B6-7, the outlet from Lake B7, is notable because it is located in an area proposed to store mine tailings. The stream, 131 m in length, is dominated by shallow run habitat with occasional riffles and has a maximum depth of 0.5 m. Cobble (78%) and gravel (10%) dominate the substrates, providing spawning habitat for Arctic grayling residing in nearby Lakes B6 and B7. Instream cover is provided primarily by boulders (65%) with aquatic and overhanging vegetation and undercut banks present to a lesser degree.

Basin D Streams

Streams surveyed in Basin D (*n*=14) included Streams D0-1, D1-2, D3-4, D4-5, D5-6, and D6-7. All surveys were conducted in 1997 (6 in June, with repeated surveys at 4 streams in July and 3 in August), except for Stream D0-1 which was also resurveyed in June 1998. The streams ranged in length from 29 m (D4-5) to 268 m (D5-6), with a mean length of 111 m. Mean channel widths varied from 0.6 m (D1-2) to 32.0 m (D3-4). Streams were dominated by run habitat, with occasional riffles and pools. Similar to Basin B streams, cobble was the dominant substrate type (35% by area on average), followed by organics (28%), gravels (23%), boulder (12%), and fines (3%). Stream D3-4 is of note as substrates were composed entirely of organics.

Basin F Streams

Streams F0-1 and F5-6 were sampled in June 1997. The streams were approximately 168 and 78 m in length, respectively, with mean channel widths of 0.6 and 0.3 m. Stream habitat was dominated by run habitat with occasional riffles, pools, and a cascade in Stream F5-6. Substrates were dominated by organics (53% by area on average), followed by cobble (19%), gravel (15%), fines (8%), and boulder (6%).

Basin G Streams

Streams G0-1 and G1-2 were surveyed in June 1997. Each stream was approximately 240 m in length, with mean channel widths of 0.4 and 1.3 m, respectively. Stream habitat was dominated by runs with occasional riffles, pools, flats, and a cascade in Stream G0-1. Similar to Basin F streams, substrates were dominated by organics (66% by area on average), followed by gravel (16%), cobble (9%), fines (8%), and boulder (1%).

Basin H Streams

Streams in Basin H were unique in that they were primarily seasonal with flows relying heavily on snowmelt or large precipitation events. The length of time that streams flow decreased with distance upstream in the watershed. Typically, ponds at higher elevations in the basin (central and west portions of the basin) were small (e.g., H15a to H15l) as were the connections between them. These narrow (<1.0 m width), shallow (<0.5 m) streams flow for short periods of time and were the first to dry among basin streams. Channels were poorly defined with no bed or bank with water flowed over terrestrial vegetation. Streams lower in the watershed (e.g., H05-17) were somewhat more defined with some sections of substrate and defined channel banks owing to longer periods of flow during snowmelt and after precipitation events.

These streams provide seasonal access for fish (e.g., ninespine stickleback) to Basin H ponds from Meliadine Lake. The extent to which fish move throughout the basin likely varies annually and is a direct result of the timing and extent of flows in the small streams connecting Basin H ponds. If streams flow for longer periods of time, fish will have more opportunities to move into more areas of the watershed. However, small ponds in upper area of the watershed may dry and all ponds freeze to bottom in winter. Therefore, these seasonal movements of fish into the watershed do not result in the establishment of permanent populations.

Basin J Streams

The only stream investigated in Basin J was Stream J0-1, which connects Lake J1 to Meliadine Lake; it was surveyed in July 2004. The stream was approximately 200 m in length with and average channel width of 3.1 m and a maximum depth of 0.8 m. Stream habitat was dominated by run habitat with occasional riffles, pools and flats. Substrates were dominated by organics (81% by area), followed by fines (16%) and gravel, cobble, and boulder at <2%.

7.3 Lake Habitat

Lake habitat in the study area included large lakes such as Meliadine and Peter lakes as well several much smaller lakes on a Peninsula of Meliadine Lake and one in the Atulik River drainage. Investigations focused on characterizing morphometry, bathymetry, and substrate. The purpose of the investigations was to collect baseline information in areas potentially affected by mine development and/or activity and to provide a regional context. The following sections present the results separately for the large lakes, Peninsula lakes and Chickenhead Lake. Bathymetric data and maps are provided in Appendices D7a-o.

7.3.1 Large Lakes

7.3.1.1 Morphometry

The morphometric characteristics of Meliadine, Little Meliadine and Peter lakes (based on 1:50 000 NTS maps and air photo interpretations) are summarized in Table 7-2.

Table 7-2: Morphometric Characteristics of Large Lakes in the Meliadine Study Area

Water-body	Surface Area (ha)	Volume ($m^3 \times 10^3$)	Depth (m)		Shoreline Length (km)			Shoreline Development Index	Islands	
			Mean	Max.	Mainland	Islands	Total		n	Area (ha)
ML	10 689	-	-	-	269.8	195.3	465.1	12.7	243	1 288.8
ML-E	2 212	98 851	4.5	21.3	73.2	30.3	103.5	6.4	29	206.3
ML-S	1 135	48 429	4.3	22.2	50.8	17.9	68.7	5.8	37	53.8
PL	15 025	-	-	23.5 [a]	289.4	278.7	568.1	13.1	299	2 216.0
LML	496	-	-	>14.8	19.6	2.7	22.3	2.8	7	8.0

[a] Maximum encountered depth in Peter Lake (Kidd et al. 1998)

Note: ha = hectares; m = metres,;- = not determined; Max. = maximum; n = number

Of the large lakes in the Meliadine Study Area, Peter Lake was the largest (15 025 ha) and the deepest (23.5 m). Little Meliadine Lake was the smallest with a surface area of 496 ha and a maximum depth exceeding 14.8 m. The large number of islands within Meliadine and Peter lakes (243 and 299, respectively) resulted in high shoreline development indices for these lakes (12.7 and 13.1, respectively). In contrast, the shoreline development index of Little Meliadine Lake was considerably lower (2.8), due to more regular shoreline and fewer islands.

7.3.1.2 Bathymetry

East Basin of Meliadine Lake

The bathymetric survey of the east basin of Meliadine Lake was carried out during 25 to 29 July 1997. Based on 182 cross-sectional transects, a bathymetric map of the basin was produced (Appendix D7b). The east basin of Meliadine Lake (2212 ha) contributes approximately 21% to the entire area of the lake. It is separated from the rest of the lake by a shallow and narrow area (up to 2.3 m deep, 100 to 300 m wide, and 800 m long) that features numerous rocky islands and reefs. This constriction may result in separation of the east basin from the rest of the lake if sufficient ice cover (up to 2.5 m in depth) were to impede or restrict flow between the basins during winter.

A large esker bisects the east basin along its northwest to southeast orientation. The lowest areas along the esker's ridge are submerged to form a chain of 12 elongated islands. The lake basin southwest of the esker is approximately 11 km long, 1 km wide, and almost devoid of islands. A "trench" of at least 8 m in depth follows most of the esker's length; it contains 2 isolated "holes" that exceed 18 m in depth. The area northeast of the esker is generally shallower and features numerous bays, extensive peninsulas, and large islands; however, it also contains the deepest point (21.3 m) within the surveyed area.

The total volume of the east basin of Meliadine Lake was estimated at 98 851 x $10^{3\ m3}$. About one third of this volume is contributed by lake areas that are less than 2 m in depth (Table 7-3). This indicates a considerable reduction in lake volume during the winter months, when these areas may freeze to the bottom. Owing to the high shoreline development index (6.4) and the shallow nature of the lake, the littoral zones (i.e., less than 6 m in depth) contribute approximately 66% to the lake's area (Figure 7-3). Although "deep-water" regions (10 m or more in depth) were frequently encountered throughout the surveyed basin, their contribution to the total area was small (5.5%). The mean depth of the east basin was estimated at 4.5 m (Table 7-2).

Table 7-3: Vertical Distribution of Lake Area and Volume in the East and South Basins of Meliadine Lake

Depth (m)	Meliadine Lake - East Basin				Meliadine Lake - South Basin			
	Area		Volume		Area		Volume	
	(ha)	*(%)*	(m^3 x 10^3)	*(%)*	(ha)	*(%)*	(m^3 x 10^3)	*(%)*
>0	2 211.6	*100.0*	98 851.1	*100.0*	1135.1	*100.0*	48 428.9	*100.0*
>2	1 561.3	*70.6*	63 931.8	*64.7*	777.4	*68.5*	29 416.9	*60.7*
>4	1 138.9	*51.5*	37 119.6	*37.6*	497.5	*43.8*	16 772.2	*34.6*
>6	749.1	*33.9*	18 320.4	*18.5*	322.2	*28.4*	8 639.5	*17.8*
>8	372.2	*16.8*	7 382.6	*7.5*	175.6	*15.5*	3 735.6	*7.7*
>10	120.7	*5.5*	2 908.6	*2.9*	79.1	*7.0*	1 251.7	*2.6*
>12	57.1	*2.6*	1 331.8	*1.4*	15.6	*1.4*	386.5	*0.8*
>14	30.3	*1.4*	474.3	*0.48*	8.0	*0.7*	155.5	*0.3*
>16	10.8	*0.49*	93.4	*0.09*	2.8	*0.2*	52.4	*0.1*
>18	1.4	*0.06*	12.3	*0.01*	1.2	*0.1*	14.2	*0.03*
>20	0.2	*0.01*	0.3	*<0.01*	0.19	*0.02*	2.0	*0.004*
>22	-	-	-	-	0.02	*<0.01*	0.14	*<0.001*

Note: % = percentage; ha= hectare; m = metres

South Basin of Meliadine Lake

The bathymetric survey of the south basin of Meliadine Lake was carried out in July 1998, resulting in a bathymetric map presented in Appendix D7c. The south basin of Meliadine Lake (1135 ha) contributes approximately 11% to the entire area of the lake. The basin is approximately 12 km long, up to 1.5 km wide, and exhibits a northwest to southeast orientation. Whereas the southeast end of the basin is generally shallow (less than 4 m deep), the northwest sections feature more extensive areas of water deeper than 8 m. Isolated "holes" that exceed 14 m in depth were encountered; however, they contributed only 0.7% to the total basin area. The deepest "hole" within the surveyed area was 22.2 m deep; it was located approximately 3 km southeast of the outflow into the Meliadine River.

The total volume of the south basin of Meliadine Lake was estimated at 48 429 x $10^{3\ m3}$. Similar to the east basin of the lake, more than one third of this volume is contributed by areas that are less than 2 m in depth (Table 7-3). Owing to the shallow nature of the south basin, the littoral zones (i.e., less than 6 m in depth) contribute approximately 72% to the lake's area. Although "deep-water" regions (10 m or more in depth) were frequently encountered throughout the surveyed basin, their contribution to the total area was small (7.0%). The mean depth of the south basin was estimated at 4.3 m. The hypsographic (i.e., depth-area) curve of the south basin of Meliadine Lake is compared to the east basin in Figure 7-3.

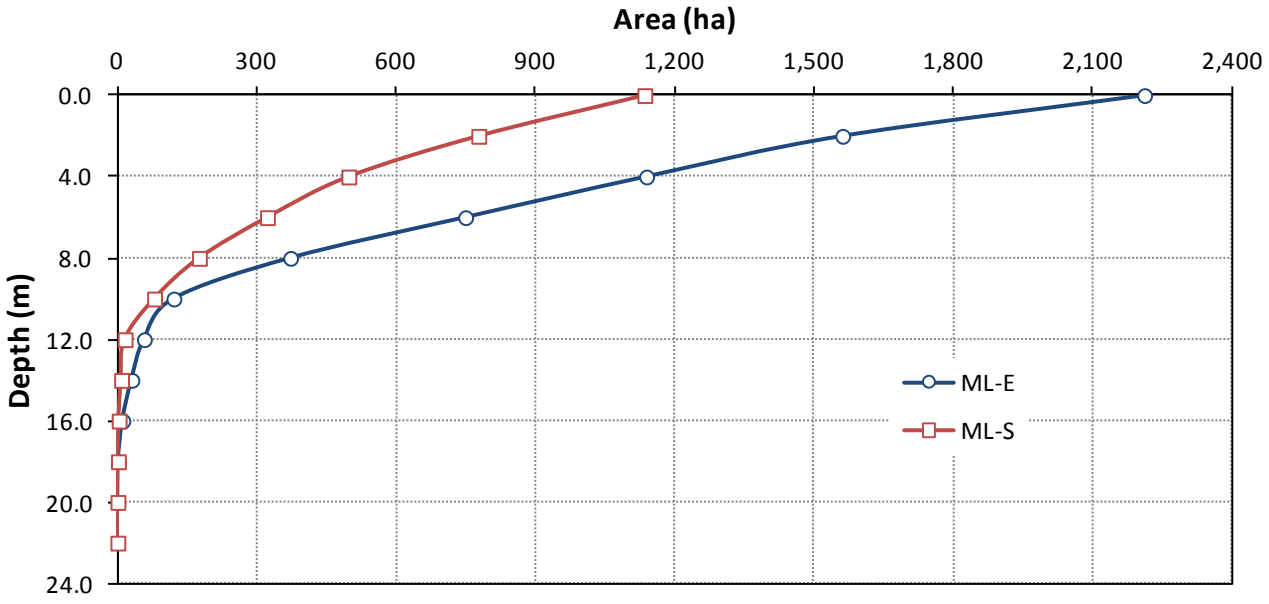


Figure 7-3: Depth-Area Curves for the East (ML-E) and South (ML-S) Basins of Meliadine Lake

7.3.1.3 Substrate

Substrate in Meliadine Lake was characterized by coarse materials consisting of a boulder/cobble mix along the shallow areas close to shore. Transition areas, consisting of fine organic materials interspersed among cobble were common throughout most of the lake. Substrates within the deep sections of the lake were composed entirely of fine organic substrates and silt.

7.3.2 Peninsula Lakes

7.3.2.1 Morphometry

The morphometric characteristics of the Peninsula basin lakes (based on bathymetric surveys and 1:50 000 NTS maps and air photo interpretations) are summarized in Table 7-4.

With a surface area of 89.7 ha, Lake A8 is the largest waterbody among the Peninsula lakes; it is also one of only 6 lakes that have a maximum depth exceeding 3.0 m. The shoreline development indices were low, ranging from 1.3 to 2.5, reflecting the relatively straight shores (without pronounced bays or peninsulas) and few islands.

Table 7-4: Morphometric Characteristics of Surveyed Lakes and Ponds in the Peninsula Basins of the Meliadine Study Area

Water-body	Surface Area (ha)	Volume ($m^3 \times 10^3$)	Depth (m)		Shoreline Length (km)			Shoreline Development Index	Islands	
			Mean	Max.	Mainland	Islands	Total		n	Area (ha)
A1	14.8	-	n.d.	2.0	2.2	0.0	2.2	1.6	0	0.0
A6	54.6	839.3	1.5	4.3	5.6	0.2	5.8	2.2	2	0.1
A8	89.7	1419.3	1.6	4.2	7.5	0.0	7.5	2.3	0	0.0
A54	6.2	35.5	0.6	1.3	1.4	0.0	1.4	1.5	0	0.0
B2	48.9	777.1	1.6	3.4	4.6	0.0	4.6	1.9	0	0.0
B4	86.2	753.5	0.9	2.4	5	0.5	5.5	1.7	4	0.5
B5	55.9	872.8	1.6	3.4	4.9	0.0	4.9	1.9	0	0.0
B6	11.9	165.4	1.4	4.0	1.8	0.0	1.8	1.5	0	0.0
B7	58.1	852.5	1.5	5.1	5.3	0.1	5.5	2.0	2	0.0
B9	0.6	5.0	0.8	1.3	0.4	0.0	0.4	1.4	0	0.0
B10	0.4	1.3	0.3	0.8	0.3	0.0	0.3	1.3	0	0.0
D1	17.8	217.6	1.2	2.5	2.3	0.0	2.3	1.5	0	0.0
D3	14.7	-	-	2.3	1.7	0.0	1.7	1.3	0	0.0
D4	17.1	-	-	2.5[a]	2.2	0.1	2.3	1.6	1	0.1
D5	6.2	-	-	2.0	1.3	0.0	1.3	1.5	0	0.0
D7	72.5	1183.4	1.6	2.8	5.2	0.0	5.2	1.7	0	0.0
G2	11.9	-	-	2.5	2.1	0.0	2.1	1.7	0	0.0
Control	123.2	-	-	>4.3	9.3	0.5	9.8	2.5	1	0.7

[a] from Hubert and Associates Ltd. (1996)

Note: - = not determined, m = metres, km = kilometres, ha= hectare

7.3.2.2 Bathymetry

The bathymetric maps of selected Peninsula lakes and ponds (A6, A8, A54, B2, B4, B5, B6, B7, B9, B10, D1, D7 and J1) are presented in Appendices D7d to D7p. The surveyed Peninsula lakes ranged from 11.9 ha (Lake B6) to 89.7 ha (Lake A8) in surface area and were relatively shallow (mean depths ranged from 0.9 m in Lake B4 to 1.6 m in akes B5 and D7. Only 4 lakes had depths of 4.0 m or greater; the deepest spot within the Peninsula lakes was recorded in Lake B7 (5.1 m). Most of lake volume is contributed by the surface 2 m layer of water. When the ice cover exceeds 2 m in depth, as is often the case during late winter (Hubert and Associates Ltd. 1996), the under-ice water volume is greatly reduced and the lake may freeze to the bottom. This is likely a frequent occurrence in lakes B4, J1 and D1, where only 0.6, 0.9 and 2.9% of total volume is contributed by zones deeper than 2 m (Appendix D7a). The proportions of deep water zones are higher in Lakes B7, B6, A6, A8, B2, and B5 (from 9.0 to 17.8% of total lake volume) and appear to be sufficient to allow fish to overwinter. Vertical distributions of lake area and volume within the Peninsula waterbodies are presented in Appendix D7a, the corresponding hypsographic (i.e., depth-area) curves are plotted in Figure 7-4.

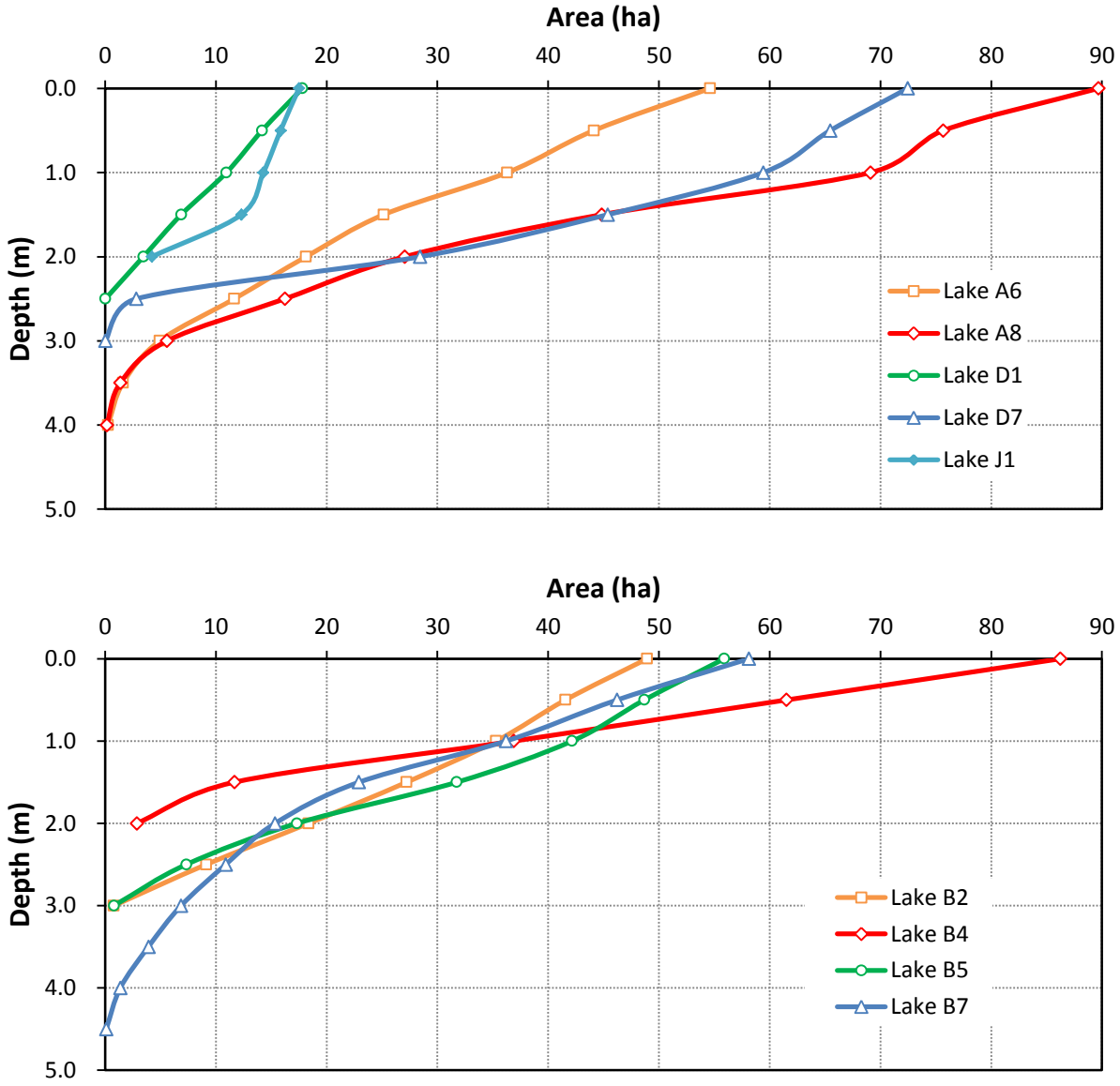


Figure 7-4: Depth-Area Curves for Peninsula Lakes

7.3.3 Chickenhead Lake

Chickenhead Lake in the Atulik River drainage is 135.5 ha in area, has a maximum surveyed depth of 8.9 m, a mean depth of 1.7 m, and contains approximately 2 324 x $10^{3\ m3}$ of water. The bathymetric map of Chickenhead Lake (Appendix D7q) shows a wide variety of potential habitats for fish. Shallow areas (<1 m) are prevalent along the lake's periphery, especially in the western portion, and areas of moderate depth (1 to 4 m) are scattered throughout the lake. There is one area of substantial depth (>8 m) located in the north-central area of the lake. Hypsographic data for Chickenhead Lake is presented in Figure 7-5.

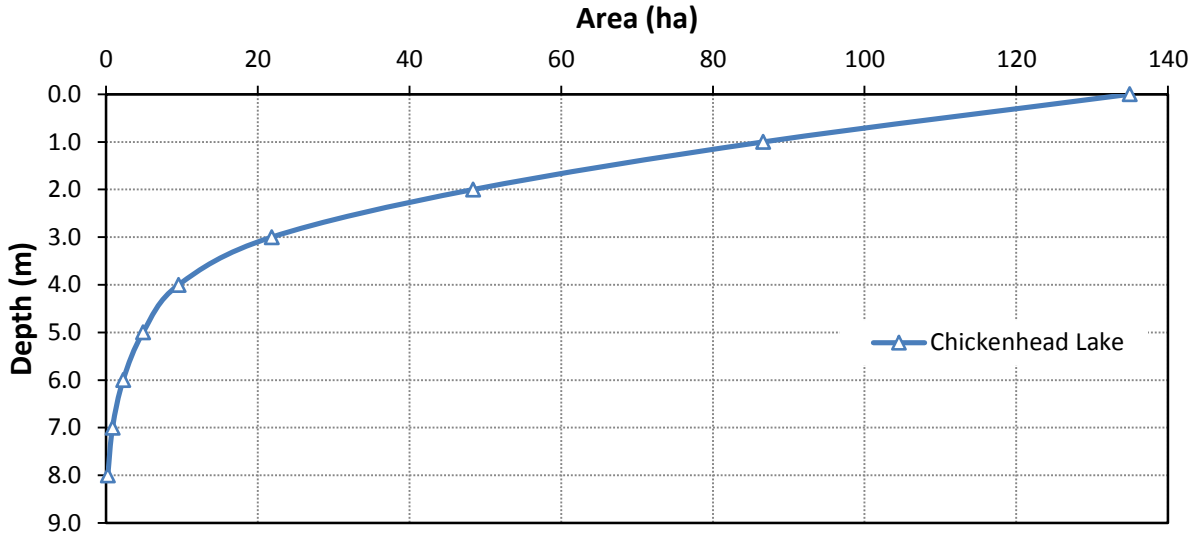


Figure 7-5: Depth-Area Curve for Chickenhead Lake

7.3.4 Substrates

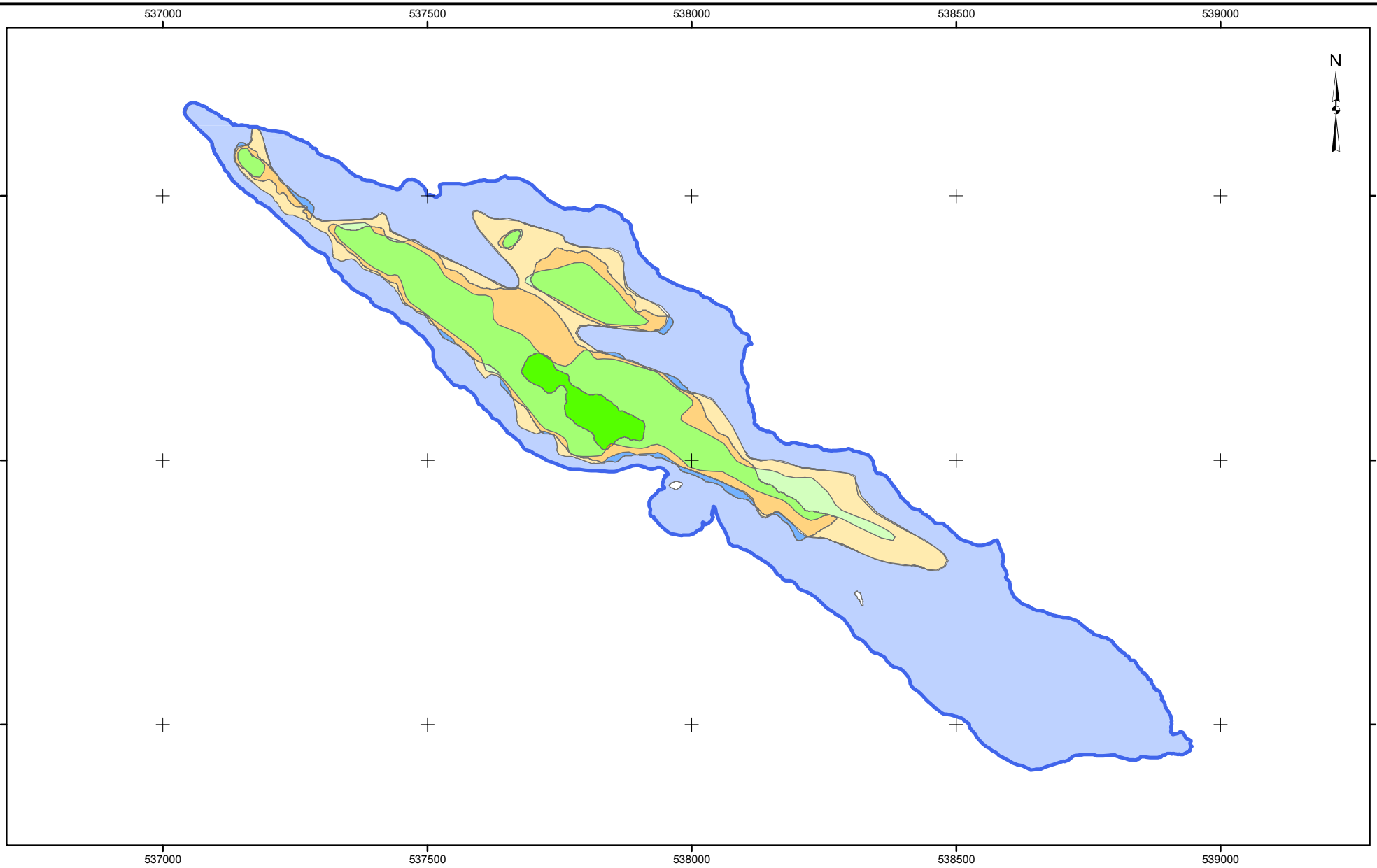
Detailed substrate surveys were conducted in Lake B7 and the east bay of Lake A6 in July 2009 to support quantification of habitat units for the no-net-loss plan. Both of these waterbodies are proposed to be directly affected by the mine development.

Lake B7

Substrate in Lake B7 consisted mostly (63% of total area) of coarse materials such as exposed bedrock, boulder, and cobble (Figure 7-6). Fine materials comprised 20% of the total area, while the fine/coarse mix substrate accounted for the remaining 17% of the total area. The fine/coarse substrate mix was often a transition zone between the coarse and fine sediment types. On a finer scale, coarse substrates at <2 m accounted for 62% of the total lake area. Organic material was predominant at the 2 to 4 m depth zones and comprised 16% of the total area. The fine/coarse substrate mix was present at depths of less than 2 m (10% of total area) and 2 to 4 m (8% of total area). Fine materials were the only substrate type detected at depths greater than 4 m and comprised 2% of the total lake area.

Substrates in B7 provide habitat for spawning and rearing for multiple fish species. Coarse substrates around the perimeter of the lake and across the majority of the east end of the lake provide interstitial spaces for rearing of young Arctic grayling, burbot, cisco and ninespine stickleback. Patches of sand which lie among the coarse substrate may provide suitable spawning habitat for burbot and cisco. Arctic grayling do not spawn within the lake but have been documented spawning in the outlet from B7 to B6 (B6-7). Depth of over 4 m in the centre of the lake provide adequate areas for overwintering.

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LEGEND

- Fine Substrate (0 - 2 m)
- Fine Substrate (2 - 4 m)
- Fine Substrate (> 4 m)
- Coarse Substrate (0 - 2 m)
- Coarse Substrate (2 - 4 m)
- Fine/Coarse Mix Substrate (0 - 2 m)
- Fine/Coarse Mix Substrate (2 - 4 m)
- Fine/Coarse Mix Substrate (> 4 m)

200 0 200

SCALE 1:10,000 METRES

REFERENCE

Base data obtained from Comaplex Minerals Corporation
Projection: UTM Zone 15 Datum: NAD 83

PROJECT

COMAPLEX MINERALS CORP

COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE

SUBSTRATE MAP OF LAKE B7

Golder Associates
Edmonton, Alberta

PROJECT No. 09-1373-0010			PHASE No. 1000	
DESIGN	CC	12 Nov. 2009	SCALE AS SHOWN	REV. 0
GIS	CDB	12 Nov. 2009		
CHECK	AM	3 Jul. 2012		
REVIEW	JP	4 Jul. 2012		

FIGURE 7-6

East Bay of Lake A6

The east bay in Lake A6 consisted predominately of coarse substrates consisting of boulder and cobble, interspersed with finer organic materials (Figure 7-7). Average depths range from 0 2 m, however a deep hole (i.e. 3.1 m) exists near the north side of the bay. The coarse substrates may provide rearing habitat for species such as Arctic grayling, cisco, and threespine and ninespine stickleback.

7.4 Pond Habitat

In total, 71 assessments were conducted at 49 ponds located within or near proposed mine developments in Peninsula basins. Investigations occurred during summer in 1998 (*n*=2), 2008 (*n*=36), and 2009 (*n*=33) in Basins A, B, and H. Data on area, perimeter, maximum depth, substrate, cover and basic water quality in these ponds are presented in Appendix D8.

Basin H ponds were studied disproportionately more than other Peninsula basin ponds (24 out of 49 ponds studied) because they lie within an area proposed to be used by one of the alternative options to store mine tailings. In 2008, 20 ponds (H1 to H20) were sampled to assess fish presence and describe aquatic habitat in general terms. In 2009, a more thorough survey was conducted and more detailed habitat data were collected. In addition to collecting similar data as in 2008, visual surveys were conducted to categorize and quantify pond substrate and make observations regarding habitat quality and available cover for fish. These observations were then used to assess habitat potential for overwintering, movement, spawning, and rearing by fish. Cover types were described as a proportion of available cover rather than proportions of pond area. Digital photos were taken to supplement site descriptions.

The majority of the ponds investigated were small and shallow with little potential to support fish for an extended period of time. Pond areas ranged from 0.06 ha (H4) to 15.8 ha (H17); however, most (94%) ponds were smaller than 0.4 ha. The maximum depths encountered ranged from 0.1 m (H10) to 1.7 m (H17); almost half (45%) of the ponds did not exceed 0.5 m in maximum depth. Based on these shallow depths, all of the studied ponds ponds most likely freeze to bottom during winter. The ponds were warm (up to 27.6 °C) and well-oxygenated owing to shallow depth and wind-induced mixing (Table 7-5). Conductivity and pH values were highly variable.

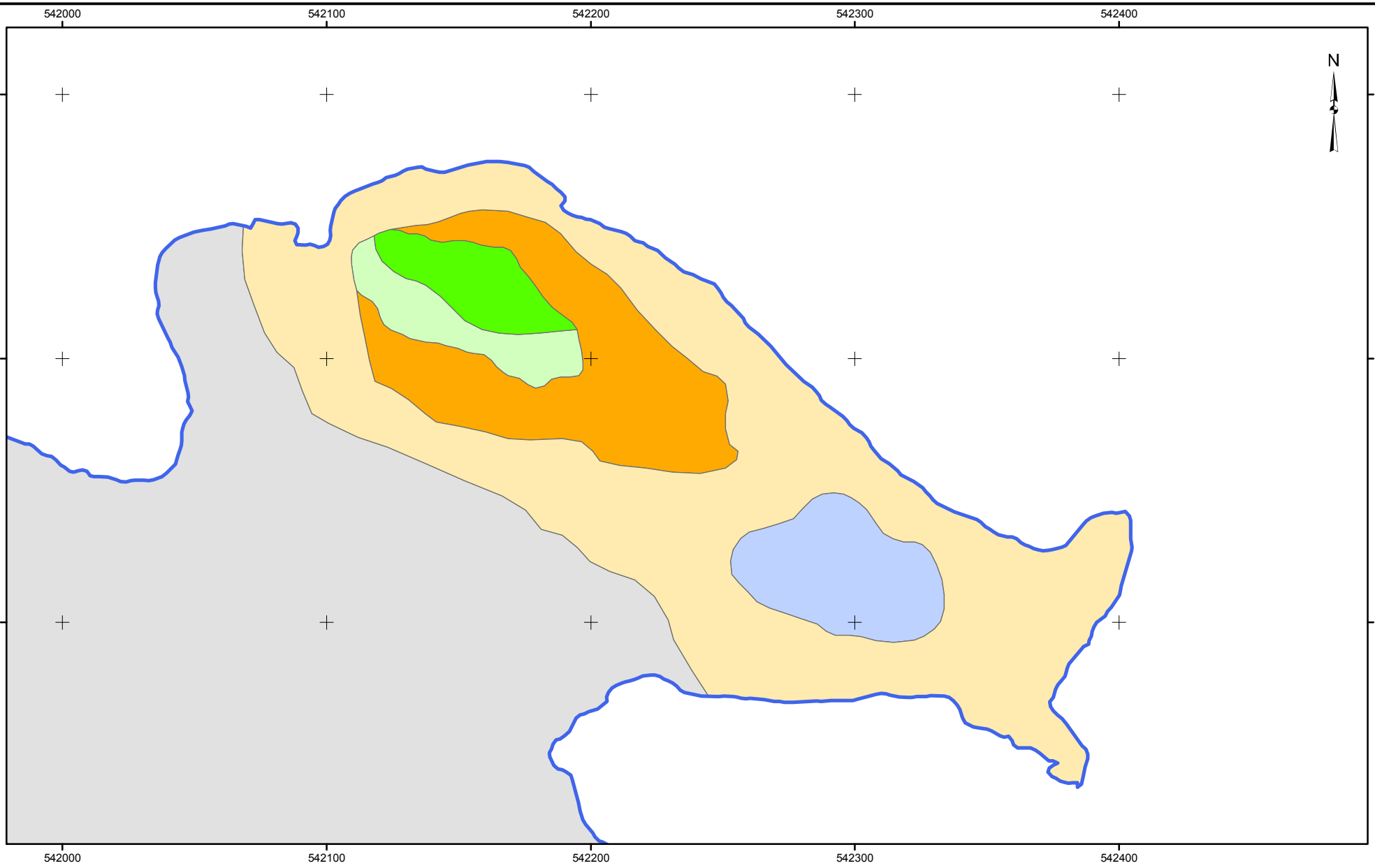
Table 7-5: Summary of Water Quality Data Collected from Peninsula Ponds, 1998, 2008, and 2009

Parameter	Sample Size	Mean	SD	Range
Temperature (°C)	70	17.9	2.4	13.6 – 23.1
Conductivity (µS/cm)	55	177	194	31 - 1358
pH	52	7.8	0.9	5.0 – 9.0
Dissolved Oxygen (% saturation)	18	103	8	89 - 125

Note:°C = degrees Celsius; µS/cm = microSiemens per centimetre; % = percent.

Pond substrates consisted predominately (64.8%) of fine-scale substrates including organics, fines, and to a lesser extent, sand (Figure 7-8). Coarse substrates were less common and were dominated by boulders (16.8%); gravel (5.3%) and cobble (13.1%) comprised only a small portion of the pond substrate. Typically, small ponds (e.g., H7) were dominated by fine substrates with occasional boulders or cobble shoals scattered throughout. Gravel and/or cobble were often observed along pond margins. In contrast, larger ponds (e.g., B25) were dominated by coarse substrates, more typically observed in Peninsula lakes.

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LEGEND

- Fine Substrate (0 - 2 m)
- Fine Substrate (2 - 4 m)
- Coarse Substrate (1 - 3 m)
- Fine/Coarse Mix Substrate (0 - 2 m)
- Fine/Coarse Mix Substrate (2 - 4 m)
- Not Sampled

40 0 40
SCALE 1:2,000 METRES

REFERENCE

Base data obtained from Comaplex Minerals Corporation
Projection: UTM Zone 15 Datum: NAD 83

PROJECT
COMAPLEX MINERALS CORP
COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE

SUBSTRATE MAP OF EAST BAY OF LAKE B7

Golder Associates
Edmonton, Alberta

PROJECT No. 09-1373-0010			PHASE No. 1000	
DESIGN	CC	16 Nov. 2009	SCALE AS SHOWN	REV. 0
GIS	CDB	16 Nov. 2009		
CHECK	AM	3 Jul. 2012		
REVIEW	JP	4 Jul. 2012		

FIGURE 7-7

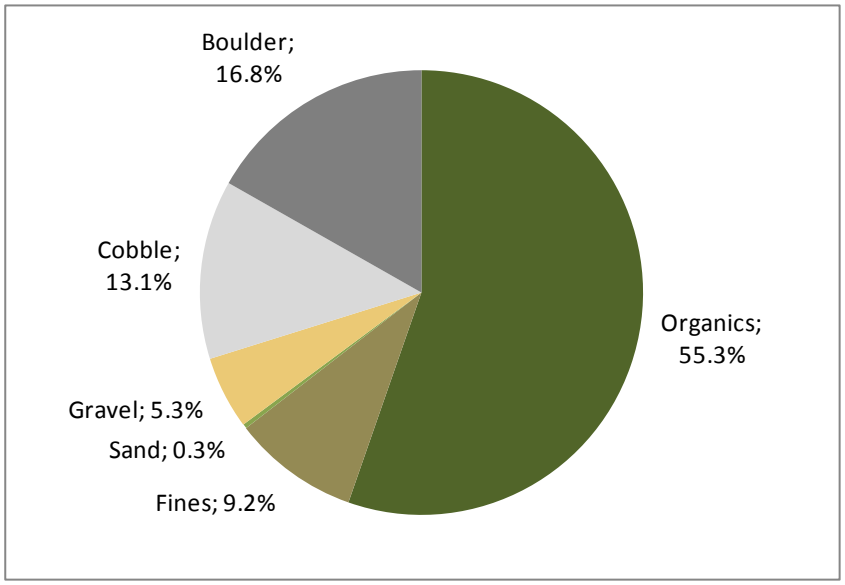


Figure 7-8: Composition of Substrates in Peninsula Ponds

With regard to fish habitat, aquatic vegetation was the most common (38.2%) cover type available in ponds followed by overhanging edge (26.2%) and boulders (17.6%) (Figure 7-9). Aquatic vegetation was common along pond margins and was more prevalent during early summer when water levels were higher because of recent snow and ice melt. Overhanging edge material resulted from eroding tundra vegetation along pond margins. Both aquatic vegetation and overhanging edge served as excellent cover for small forage species such and ninespine stickleback. Boulders, while present, did not contribute substantially to available fish habitat. Depth and turbidity (7.9%) and over-hanging vegetation (6.1%) provided only small amounts of cover. These small contributions resulted directly from the shallow nature of the ponds and the lack of vegetation in the area. Where over-hanging vegetation was encountered, it was typically along flooded pond margins in early summer.

Despite being located in the same area, habitat quality for fish varied between ponds; for example, Pond H20 is a large (9.6 ha), relatively deep (maximum depth of 1.6 m) pond with high quality habitat for both forage and seasonal sport fish use. Pond H2, however, is substantially smaller (0.16 ha), shallower (maximum depth of 0.25 m) and contains poor fish habitat.

Good quality habitat was limited and suitable mainly for rearing and spawning by forage species, particularly ninespine stickleback. Spawning potential for Arctic grayling was limited by the lack of suitable coarse substrates. Overwintering by fish in the basin is not possible because the ponds freeze to bottom during winter. Pond H17 is suspected to be the deepest; although a bathymetric survey has not been performed, the maximum depth likely does not exceed 2.0 m. Movement within ponds was unimpeded; however, movement between ponds appeared possible only during periods of increased flow (e.g., spring freshet and/or precipitation events). Given the propensity of the ponds to winterkill, they offer only seasonal habitat (when accessible) and there is no potential to support fish on an annual basis.

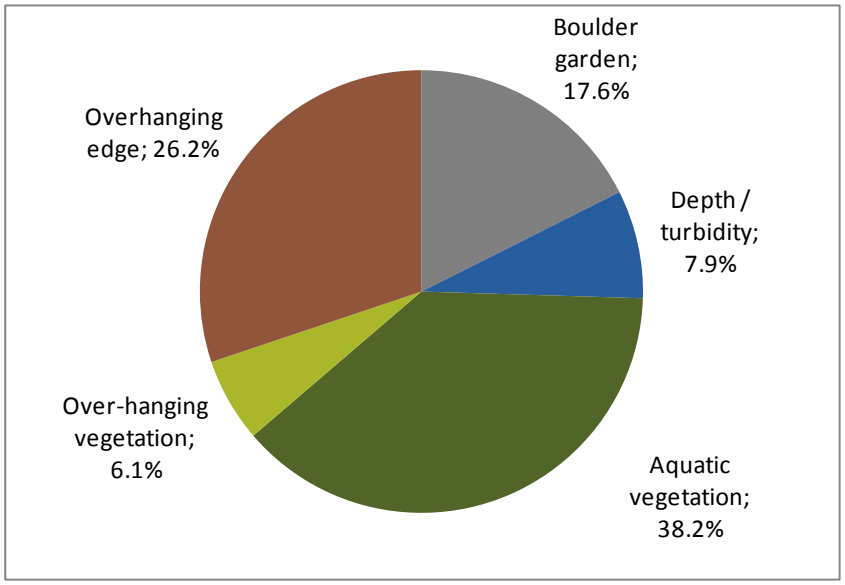


Figure 7-9: Composition of Cover Available for Fish in Peninsula Basin Ponds

7.5 Water Temperature Monitoring

Water temperature was monitored at several streams and lakes during 1997 to 2000 to provide a comparative database of seasonal changes and daily temperature fluctuations within a wide range of waterbodies. Data were collected continuously during the open-water seasons allowing for comparison between waterbodies and description of seasonal trends. Temperature monitoring was also used to assess ice thickness in the narrows between east and central basins of Meliadine Lake, and hence evaluate the connectivity of the 2 basins during winter. Daily mean water temperature data are provided in Appendices D9 to D12. The results are discussed separately for each monitoring year, with a multi-year comparison provided in the concluding section.

1997

Upon inspection of the downloaded data, it was discovered that only one (Stream B1-2) of 13 tempertaure loggers deployed in 1997 functioned properly. The temperature logger in Stream B1-2 provided a continuous water temperature record between 12 July and 1 September 1997. Water flows during this period were low (0.018 ^{m3}/s on 19 July), but the temperature logger remained submerged during the entire period. A summary of mean daily water temperatures is provided in Appendix D9. Water temperatures ranged between 3.5°C (1 September) and 21.4°C (27 July); average water temperature over the monitored period was 12.8°C. The diurnal fluctuations in temperature ranged from 1.8 to 11.8°C, with an average difference of 5.6°C between daily minimum and maximum temperatures. The period of greatest daily fluctuations in temperature occurred between 13 and 16 August, when the magnitude of changes ranged from 10.0 to 11.8°C. This period also corresponded to dramatic changes in air temperature, with values as low as 1.6°C and as high as 22.2°C over the four-day duration.

In terms of weekly or monthly trends, average daily water temperatures in excess of 15°C were recorded during the second half of July. By early to mid-August, the average daily water temperature had decreased by approximately 7°C and the highest daily mean was only 13.6°C. From mid-August until the end of the study

period, average daily temperatures exhibited less variation and were largely stabilized between 10 and 14°C. This slight increase in average temperature also corresponded to a period of increased air temperature during the third week of August.

The results suggested that the large daily fluctuations in water temperature that occurred in Stream B1-2 were likely typical of other small streams in the study area. They also indicated that the water temperature was closely related to the air temperature and sudden changes in air temperature resulted in almost immediate corresponding changes in water temperature. This close relationship between air and water temperature was largely due to the shallow nature of the stream which permitted rapid warming or cooling over a short period of time.

1998

Temperature data recorded by the paired loggers deployed in the narrows between east and central basins of Meliadine Lake (Figure 7-10; Appendix D12) were nearly identical during the early part of winter (until mid-January) and early spring (after mid May). The sudden decrease in temperature recorded on 18 January by the logger pair deployed at the shallower depth indicated that the ice thickness had reached 0.8 m. From that date until 15 May (approximately 4 months) these temperature loggers were frozen in ice. The ice temperature was less than -4.9°C (the lower limit of the temperature loggers' temperature range) between 1 February and 28 April 1998. The temperatures recorded by the pair of temperature loggers set in the deepest area within the narrows (1.5 m deep) remained above 0°C until early April, but then dropped below freezing (minimum of 1.0°C) until mid May. These results suggested that the narrows area was frozen to the bottom for at least one month during late winter and thus created a temporary barrier to water movement between the east basin and the remainder of Meliadine Lake.

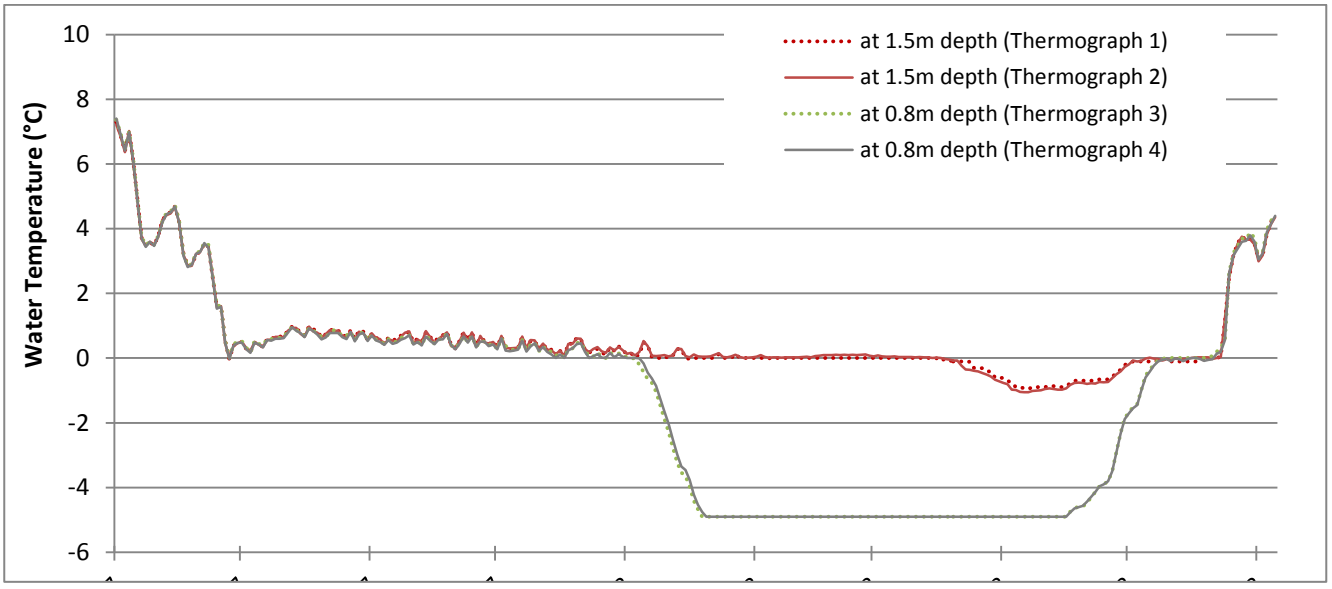


Figure 7-10: Mean Daily Water Temperatures at 1.5 and 0.8 m depth in the Narrows between the East and Central Basins of Meliadine Lake, September 1997 to June 1998

The second objective of the water temperature program in 1998 was to continuously monitor surface water temperatures in selected streams and lakes in the study area (Table 7-6, Appendices D9 and D10). Water temperatures in sampled streams ranged from 0.2 to 21.4°C during the open water period. In general, the smaller systems exhibited higher mean monthly temperatures during the warming period (June and July) and lower mean monthly temperatures during the cooling period (August and September). The difference between the small and large systems usually exceeded 3 Celsius degrees. Smaller streams also experienced a greater range in water temperature during the open water period, which was reflected by higher mean daily fluctuations for each month. This was most apparent in June and July when mean daily fluctuations were as high as 6.4 Celsius degrees in the small streams compared to 5.5 Celsius degrees in the Meliadine River.

Mean daily water temperatures at individual sites in the 3 smaller streams (A0-1, B1-2, and B4-5) exhibited similar seasonal patterns. Each stream warmed rapidly in spring (late June), peaked in late July, and then gradually cooled to the end of September. Distinct fluctuations in temperature were also apparent. Warmest mean daily temperatures (17.7 to 18.3°C) were recorded on 31 July, whereas dramatic decreases in temperature occurred on 15 July and 20 August. Differences were also noted between the small streams. Stream A0-1 warmed much more rapidly in spring than Streams B1-2 and B4-5. A comparison of the mean monthly temperatures for these streams also reflected this pattern. Stream A0-1 achieved a higher mean temperature in June, was slightly warmer in July, and exhibited slightly lower mean monthly temperatures during August and September (Table 7-6).

Stream A0-1 also experienced more extreme daily fluctuations in temperature than did the 2 other watercourses. These results likely reflected the smaller size of Stream A0-1 relative to Streams B1-2 and B4-5, which could make the system more sensitive to shifts in air temperature.

Table 7-6: Mean Monthly Temperatures (°C) and Mean Diurnal Fluctuations in Sampled Streams of the Meliadine Lake Study Area, June to September 1998

Streams		June 1998 [a]			July 1998			August 1998			September 1998		
		Mean	Range	Fluct.[b]	Mean	Range	Fluct.	Mean	Range	Fluct.	Mean	Range	Fluct.
Small	A0-1	11.5	2.2-17.7	6.4	13.7	6.7-21.4	5.1	12.3	5.2-21.0	4.5	6.7	1.6-12.7	1.9
	B1-2	6.7	3.7-13.0	2.5	13.5	8.3-19.7	3.2	12.5	7.3-20.2	3.5	6.9	2.3-12.1	1.6
	B4-5	7.3	3.2-13.8	6.4	13.4	8.3-20.0	4.1	12.4	7.3-20.3	3.7	6.8	2.2-12.4	1.9
Large	ML-PL	4.7	3.5-6.2	1.1	10.5	5.0-14.9	1.2	12.7	9.9-14.9	0.9	8.2	4.4-11.1	0.5
	ML-MR	5.6	4.3-8.1	2.7	10.7	4.9-16.6	2.3	12.6	8.6-17.8	2.1	7.4	3.7-10.6	1.3
	MR-L	9.1	5.0-13.3	5.5	12.7	6.2-19.9	4.8	12.3	5.8-20.0	4.2	7.1	2.0-13.0	2.6

[a] Represents data recorded between 22 and 30 June
[b] Mean daily temperature fluctuation (maximum - minimum)
Note: °C = degrees Celsius

Mean daily water temperatures at sites on the 3 larger streams (ML-PL, ML-MR, and MR-L) also exhibited similar seasonal patterns, but changes in temperature were more gradual than those documented for the small streams. There was a slow warming period that peaked in late July or early August and then a gradual cooling to the end of September; however, fluctuations in temperature did occur and a dramatic decrease in temperature was recorded between 10 and 15 July. Differences among the large streams also were recorded. The site on the Meliadine River near its mouth (MR-L) warmed more rapidly in spring than the 2 other sites, and temperatures tended to exhibit a higher degree of daily fluctuation (Table 7-6). The west outflow from Meliadine Lake to Peter

Lake (ML-PL) was the most stable of the 3 sites in terms of daily fluctuations and it exhibited a lower rate of change between seasons. It warmed more slowly in spring, remained cooler during summer, and cooled more slowly than the other sites in fall. These results reflected the position of the temperature loggers within the study area. The site on the Meliadine River near its mouth (MR-L) received flowing water that had been subjected to influences of air temperature for approximately 40 km (distance between Meliadine Lake and the mouth). In contrast, both ML-PL and ML-MR received outflow from large bodies of water (west and south basins of Meliadine Lake), which exhibited slower warming and cooling rates.

Surface water temperatures were also monitored in study area lakes (Table 7-7). Monitoring locations included sites on 3 small waterbodies (A8, B2, and B5), as well as sites on 3 larger lake basins: the south basin of Meliadine Lake (ML SE), the east basin of Meliadine Lake (ML-E), and Peter Lake (PL). Water temperatures in sampled lakes ranged from 1.7 to 19.7°C during the open water period. In general, the smaller lakes exhibited higher mean monthly temperatures during the warming period (June and July) and lower mean monthly temperatures during the cooling period (August and September). The smaller lakes also tended to exhibit a greater range in water temperature during the warming period, which was reflected by higher mean daily fluctuations.

Table 7-7: Mean Monthly Surface Water Temperatures (°C) and Mean Diurnal Fluctuations in Sampled Lakes of the Meliadine Study Area, June to September 1998

Lakes		June 1998 [a]			July 1998			August 1998			September 1998		
		Mean	Range	Fluct.[b]	Mean	Range	Fluct.	Mean	Range	Fluct.	Mean	Range	Fluct.
Small	A8	7.9	4.0-13.0	3.5	13.3	8.6-18.1	2.4	12.6	7.8-18.3	1.9	6.9	2.5-10.8	1.1
	B2	7.4	3.7-13.3	2.8	13.6	8.6-19.7	2.7	12.9	8.6-19.1	2.1	7.1	2.6-11.2	1.3
	B5	6.3	2.2-12.3	3.5	13.4	8.9-18.9	2.3	12.8	8.4-18.8	1.9	7.1	2.8-10.9	1.1
Large	ML-SE	9.1	5.3-12.9	3.6	13.4	8.0-18.8	2.8	12.6	6.8-18.8	2.3	6.8	2.2-11.1	1.3
	ML-E	4.7	4.0-6.1	1.2	10.6	3.5-15.2	1.4	13.1	9.6-16.2	1.0	8.0	4.1-10.9	1.2
	PL	4.5	2.2-6.1	1.8	9.0	1.7-14.2	2.0	13.1	9.8-16.3	1.0	8.8	4.7-11.7	0.9

[a] Represents data recorded between 22 and 30 June
[b] Mean daily temperature fluctuation (maximum - minimum)
Note: °C = degrees Celsius

Mean daily water temperatures at individual sites in the 3 smaller lakes (A8, B2, and B5) exhibited similar seasonal patterns. The lakes warmed rapidly in spring (late June), peaked in late July or early August, and then gradually cooled to the end of September. Fluctuations in temperature did occur, but were not dramatic. Warmest mean daily temperatures (17.4 to 17.7°C) were recorded between 31 July and 5 August, whereas a dramatic decrease in temperature was noted in all 3 lakes between 8 and 16 July.

Mean daily water temperatures at the 3 larger lake sites (ML-SE, ML-E, and PL) exhibited similar seasonal patterns, but seasonal changes in temperature were more gradual than those documented for the small lakes. Differences among the large lakes also were recorded; the site at the east end of the south basin of Meliadine Lake (ML-SE) warmed more rapidly in spring than the 2 other sites and temperatures exhibited a higher degree of daily fluctuation (Table 7-7); this was likely due to the shallow nature of this area. The east basin of Meliadine Lake (ML-E) was the most stable of the 3 sites in terms of daily fluctuations, but the Peter Lake site (PL) exhibited a lower rate of change between seasons. Being the largest waterbody in the study area, Peter Lake warmed more slowly in spring, remained cooler during summer, and cooled more slowly than the other sites in fall.

A third objective of the water temperature monitoring program was to determine if there were temperature differences between the surface and near-bottom waters of Meliadine Lake. To accomplish this, 2 temperature loggers were deployed in the middle of the east basin of Meliadine Lake. One temperature logger was suspended 1 m beneath the surface and the other was suspended directly below at a depth of 14 m (approximately 1 m above the lake bottom). The results of these deployments showed very little difference between the surface and near-bottom water temperatures during the 28 July to 4 September period (i.e., the mean surface temperatures were only 0.1 Celsius degree higher than the mean near-bottom temperatures), indicating that the lake was well mixed during this period (Appendix D11).

1999

The temperature regime during the open water period in 1999 exhibited several distinct cycles of rapid warming following by fast cooling. Although extended periods of cold weather were recorded during the previous 2 summers (1997 and 1998), the frequency, duration, and magnitude of these "cold spells" were considerably greater during summer 1999. This resulted in cooler water temperatures in 1999 relative to 1997 and 1998. For example, mean daily water temperatures at Site B1-2 exceeded 15°C during only 5 days in 1999 compared to 15 days in 1998 and 12 days in 1997. Similarly, maximum water temperature recorded at this site in 1999 (17.8°C) was much lower than in 1998 (20.2°C) and 1997 (21.4°C). Site-specific daily water temperature data are presented in Appendices D9 and D10; the monthly means, ranges, and mean diurnal fluctuations are summarized in Table 7-8.

Table 7-8: Mean Monthly Temperatures (°C) and Mean Diurnal Fluctuations in Sampled Streams of the Meliadine Study Area, June to September 1999

Waterbody		June 1999 [a]			July 1999			August 1999			September 1999 [b]		
		Mean	Range	Fluct.[c]	Mean	Range	Fluct.	Mean	Range	Fluct.	Mean	Range	Fluct.
Streams	A0-1	7.5	2.8-15.7	3.4	13.0	7.1-19.7	4.3	11.4	5.8-18.1	3.9	5.4	4.9-6.1	0.8
	B1-2	4.9	0.7-11.1	2.3	12.8	8.6-17.8	2.8	11.5	5.9-16.8	2.7	5.4	4.7-6.1	1.0
	ML-MR	3.9	2.3-5.5	1.1	10.6	4.3-15.1	1.6	11.8	7.4-15.9	1.7	7.1	6.8-7.8	0.8
	MR-L	5.7	2.0-10.3	4.5	11.5	4.6-17.5	4.4	11.5	5.3-19.1	3.8	7.7	4.9-11.8	3.5
Lakes	A6	5.4	0.8-12.1	2.6	12.8	8.9-17.8	2.1	11.4	6.1-15.9	1.8	5.4	4.7-6.5	1.0
	B2	4.8	0.4-11.2	2.4	12.9	9.0-17.8	2.2	11.6	5.9-16.2	1.8	5.5	4.9-6.1	1.1
	ML-SE	6.4	1.4-12.1	3.6	12.5	8.6-17.2	2.6	11.5	5.9-16.6	1.9	5.3	4.9-5.9	0.8
	Control	4.4	1.0-9.8	2.1	12.7	7.7-16.8	1.6	11.9	7.1-15.7	1.4	6.6	6.1-7.3	0.9

[a] Represents data recorded between 19 and 30 June (20-30 June for sites ML-MR, MR-L, and Control)
[b] Represents data recorded between 1 and 2 September (1 to12 Sep for site MR-L)
[c] Mean daily temperature fluctuation (maximum - minimum)
Note: °C = degrees Celsius

Maximum water temperatures in lakes monitored in 1999 ranged from 16.8 to 17.8°C. On monthly bases, mean lake temperatures in July and August (12.5 to 12.9°C and 11.4 to 11.9°C, respectively) did not vary more than 0.5 Celsius degrees between the 4 monitored lake sites (Table 7.8).

2000

The temperature regime during the open water period in 2000 exhibited a delayed warming period during spring. Mean daily water temperatures in small streams (e.g., A0-1 and B1-2) did not surpass 6°C until 4 and 8 July, respectively; the corresponding temperatures in 1998 and 1999 were recorded considerably earlier

(16 to 28 June). Following a rapid warming period during the second week of July, water temperatures remained relatively warm (above 13°C) from mid-July until mid-August. This resulted in warmer mid-summer water temperatures in 2000 relative to 1997, 1998, and 1999. For example, mean daily water temperatures at Site B1-2 (the only site monitored over the 4 year period) exceeded 15°C during 21 days in 2000, compared to only 5 days in 1999, 15 days in 1998, and 12 days in 1997. Maximum water temperature recorded in the monitored waterbodies during 2000 ranged between 15.9°C (Site ML-PL) and 23.7°C (Stream A0-1).

Site-specific daily water temperature data are presented in Appendix D9; the monthly means, ranges, and mean diurnal fluctuations are summarized in Table 7-9.

Table 7-9: Mean Monthly Temperatures (°C) and Mean Diurnal Fluctuations in Sampled Streams of the Meliadine Study Area, June to September 2000

Waterbody		June 2000 [a]			July 2000			August 2000			September 2000 [b]		
		Mean	Range	Fluct.[c]	Mean	Range	Fluct.	Mean	Range	Fluct.	Mean	Range	Fluct.
Streams	A0-1	3.7	1.6-7.3	2.2	14.0	4.0-23.7	5.9	11.5	2.7-21.5	4.1	5.2	-0.1-11.7	2.8
	B1-2	2.1	1.0-4.5	1.6	12.4	2.4-21.2	3.1	12.5	3.9-21.0	3.2	5.1	-0.1-10.1	2.4
	ML-MR	4.0	3.1-4.9	1.2	9.3	3.9-16.3	2.5	12.9	5.7-18.8	2.1	5.8	-0.1-9.6	1.9
	ML-PL	3.6	2.2-4.1	1.2	8.5	3.5-14.7	1.4	12.4	6.5-15.9	1.0	6.0	-0.2-8.8	1.0
	MR-L	3.8	1.8-6.6	2.6	10.9	3.1-20.9	5.5	12.3	3.7-21.0	3.8	5.4	-0.3-12.2	3.0
Lakes	A6	2.4	0.7-4.9	1.9	12.1	2.9-21.3	2.6	13.0	4.4-21.4	1.9	4.8	-0.1-9.2	1.4
	B2	1.8	0.6-4.6	1.5	12.4	2.4-20.8	2.9	13.1	4.6-21.1	1.8	5.4	0.0-8.7	1.4
	ML-SE	3.0	1.3-7.1	2.6	12.4	3.4-21.1	3.8	13.1	5.2-20.5	2.2	5.6	-0.1-9.7	1.6
	Control	4.8	3.8-5.9	1.1	11.8	3.7-21.1	2.1	13.5	5.1-20.3	1.3	5.6	-0.1-8.7	1.0

[a] Represents data recorded between 21 and 30 June (22-30 Jun for sites B1-2, ML-MR, B2, and ML-SE; 23-30 Jun for ML-PL; 25-30 Jun for MR-L and Control)
[b] Represents data recorded between 1 and 25 September (1-26 Sep for site ML-PL)
[c] Mean daily temperature fluctuation (daily maximum - daily minimum)
Note: °C = degrees Celsius

Cold weather during the second half of September resulted in very rapid cooling of all waterbodies. When the temperature loggers were retrieved on 25 September 2000, mean daily water temperatures ranged from 0.0 to 1.0°C and surface ice conditions were recorded at all sites except the large basins of Meliadine Lake. In contrast, when the temperature loggers were retrieved on 30 September 1998, water temperatures ranged between 2.5 and 4.9°C.

In general, the smaller streams (A0-1 and B1-2) exhibited higher water temperatures during the warming period (early July) and lower temperatures during the cooling period (late August) than the outflows from Meliadine Lake (ML-MR and ML-PL) and the lower Meliadine River (MR-L). The small streams and the lower Meliadine River experienced a greater range of diurnal water temperature fluctuations (related to changes in air temperature) than the south and west outflows from Meliadine Lake (i.e., large waterbody less responsive to diurnal temperature changes).

Maximum water temperature in lakes was 21.1°C; this temperature was recorded as a maximum in all 3 lakes monitored in 2000. On monthly bases, mean lake temperatures in July and August (11.8 to 12.4°C and 13.1 to 13.5°C, respectively) did not vary more than 0.6 Celsius degree between the monitored lake sites.

Comparison between Years

Mean July and August monthly water temperatures during the 1998 to 2000 period were compared at selected stream and lake monitoring sites that provided multi-year records. These 2 months were chosen because they had a continous daily record of temperature during the entire months. As illustrated in Figure 7-11, mean July temperatures at most sites in 1998 were considerably warmer than in 1999 and 2000, Except for one site (Stream A0-1), the mean July water temperatures in 2000 were lower than during the preceding years. In contrast, mean August temperatures were approximately the same in 1998 and 2000, with considerably colder temperatures recorded during August 1999.

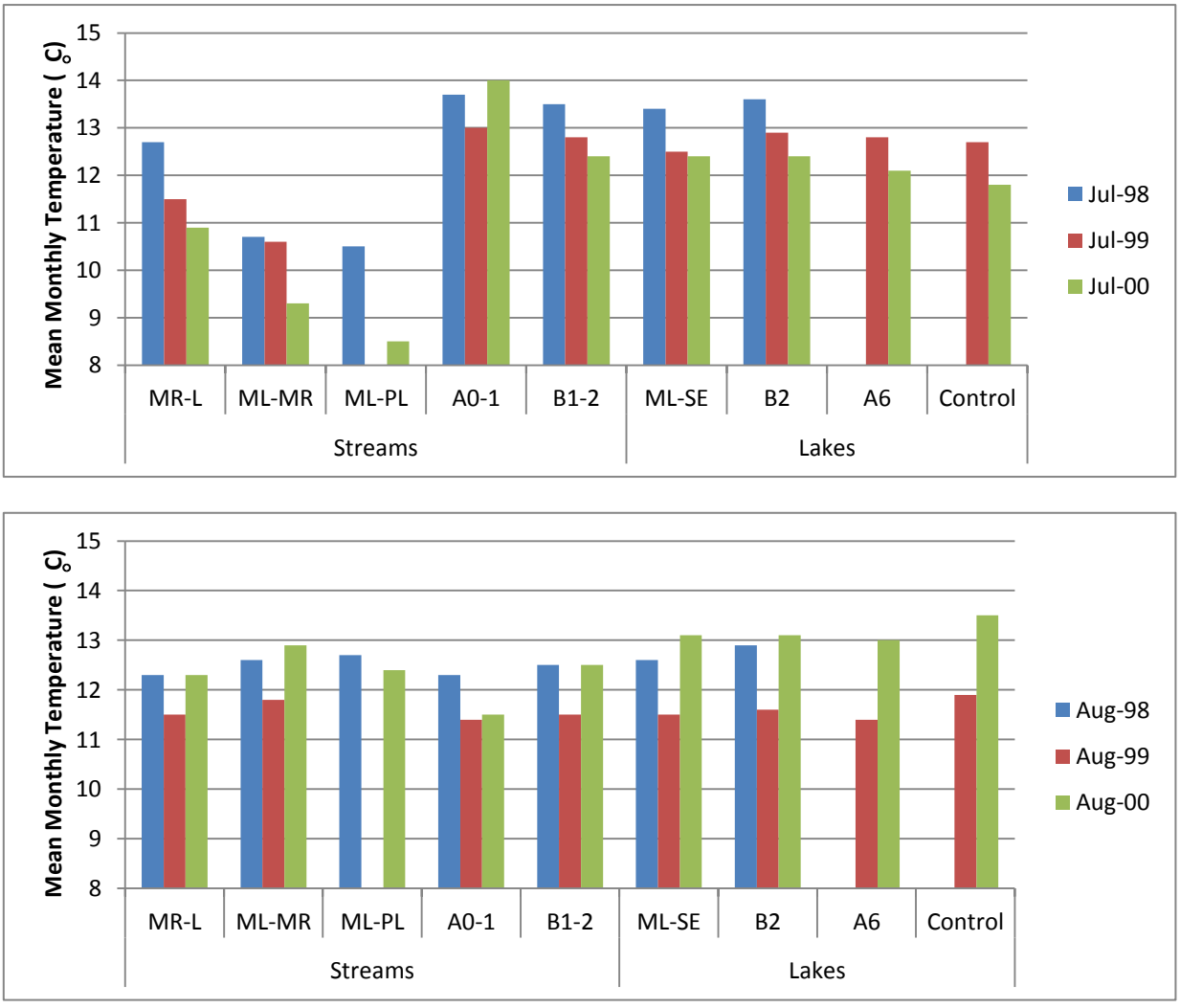


Figure 7-11: Yearly Variation in Mean Monthly Water Temperature in July and August at Selected Streams and Lakes in the Meliadine Study Area, 1998 to 2000

Mean daily water temperatures are presented for Stream B0-1 (the only waterbody with a 4-year record) in Figure 7-12. The results indicate large temperature differences between the same periods in different years. This was particularly evident in mid-summer (20 July to 10 August), when mean daily temperatures ranged between 8.2 and 19.1°C.

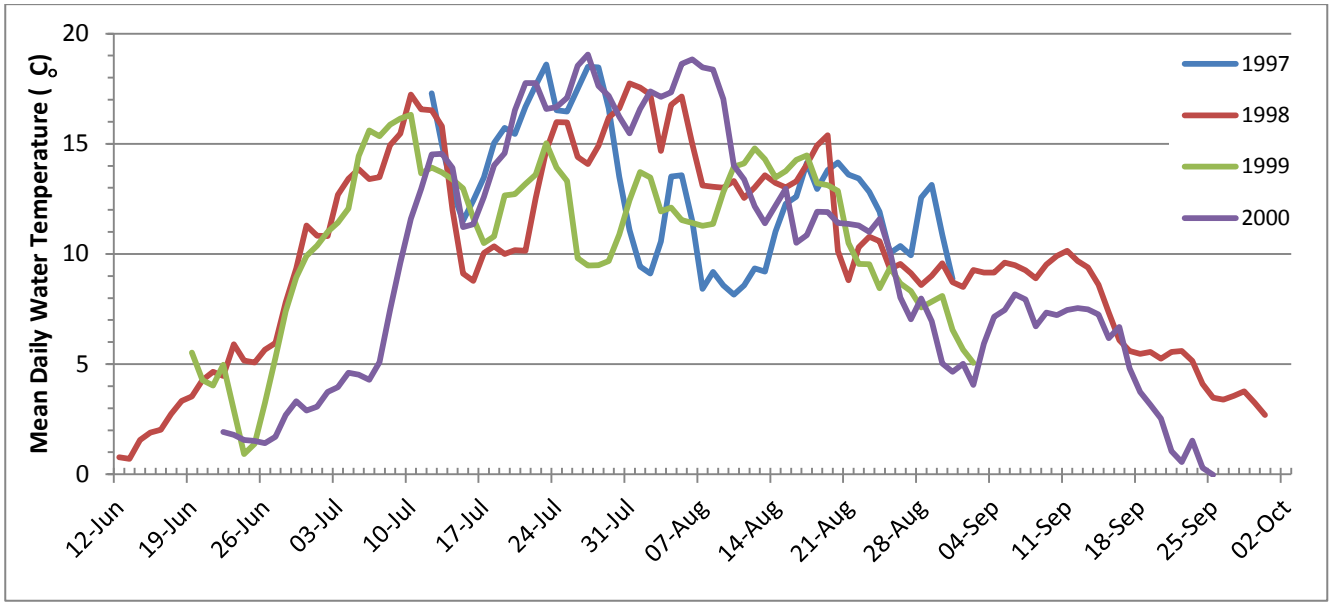


Figure 7-12: Yearly Variation in Mean Daily Water Temperature in Stream B0-1, 1997 to 2000

7.6 In-Situ Water Quality Measurements

Temperature, conductivity, and pH measurements were collected in conjunction with most fisheries investigations in the Meliadine Study Area during 1997 to 2009 period. These data are presented for each fish sampling event in Appendices F1, F2, F4 F6, and F7 to supplement the more detailed water quality data discussed in Section 5 and to provide a better understanding of the aquatic habitat conditions in the studied watercourses.

7.6.1 Streams

7.6.1.1 Meliadine River

Temperature, conductivity, and pH values were measured during investigations on the Meliadine River at ML-MR (*n*=5), LML-MR (*n*=1) and at the fish fence site located in the lower section of the river, approximately 2 km upstream from the mouth. At the outlet from Meliadine Lake (ML-MR), temperature ranged from 5.4°C in July 1998 to 15°C in July 1997 illustrating how variable water temperatures can be even during the same month. The mean temperature for the site was 10.8°C (SD ± 4.0, *n* = 5). On average, conductivity at the site was relatively low (mean = 50 µS/cm, SD ±17.3, *n* = 4) ranging from a low of 30 µS/cm in June 1997 to a high of 66 µS/cm in June 1998 and pH values were neutral (range 7.3 to 8.0, mean=7.6, SD ± 0.4, *n* = 3).

Further downstream at the fish fence site, temperature data were collected between 16 August to 3 September in 1997, 16 August to 2 September in 1998, and 10 August to 12 September in 1999. Temperatures were taken in the morning and evening on several occasions (*n* = 60) during the common time period (16 August to 2 September). On average, daily temperatures varied by 2.5 Celsius degrees (SD ± 1.5).

7.6.1.2 Peninsula Basin Streams

Temperature, conductivity, and pH values were collected during 135 investigations at 44 streams. In general, in-situ water quality values were highly variable owing to the wide range of streams and habitats sampled within the watershed. Temperatures ranged from 1.3°C at Stream B1-2 in June 1998 to 25.1°C at Stream A44-45 in July 2000. The mean temperature for all visits to Peninsula basin streams was 11.6°C (SD ± 5.2). Conductivity values also varied substantially from 10 µS/cm at Stream B4-5 in June 1998 to 480 µS/cm at Stream A39-45 in September 2000; mean conductivity was 86.8 µS/cm (SD ± 55.8). Similarly, pH values varied but were generally neutral (mean = 7.5, SD ± 0.5); the lowest pH value (6.1) was recorded at Stream B6-7 in June 1998 and the highest (8.6) at Stream A7-8 in July 1997. Data from specific sampling sites are located in Appendices F1 to F3.

7.6.2 Lakes and Ponds

7.6.2.1 Meliadine Lake

Temperature data were collected during gill and fyke net operations on Meliadine Lake. Gill nets were set with different amounts of effort at varying times in the basins and hence, temperature data are not directly comparable. When combined, however, it is possible to describe lake temperatures on a seasonal basis. Data were collected in ML-E in July 1997, ML-S in August 1997, August 1998 and July 1998, and in ML-W in September-October 1999 and September 2000. As expected, average temperatures cooled substantially from July (mean = 14.1°C, SD ± 1.9, *n* = 31) through October (mean = 3.0°C, SD ± 0.0, *n* = 3), decreasing most rapidly (change of 8.4 Celsius degrees on average) from August (mean = 12.7°C, SD ± 2.3, *n* = 3) to September (mean = 4.3°C, SD ± 1.1, *n* =25). Temperature data collected at fyke net sites (mean = 14.1°C, SD ± 1.8, *n* = 33) from July 1997, July 1998 and August 1998 (9.1°C, SD ± 0.6, *n* = 5) were consistent with those collected during gill net operations. Data from specific sampling sites are located in Appendices F4 and F6.

7.6.2.2 Peninsula Lakes and Ponds

Temperatures in Peninsula lakes were measured in-situ during gill and fyke net sampling from 1997 to 2000 and in 2008 and 2009. Temperature data are available from July (*n* = 52), August (*n* = 47), and September (*n* = 6). As was observed in Meliadine Lake, average temperatures cooled substantially from July (mean=14.9°C, SD ± 2.7) to September (mean = 7.3°C, SD ± 0.88) with a notable drop of 5.4 Celsius degrees from August (mean = 12.8°C, SD ± 2.9) to September. Data from specific sampling sites are located in Appendices F4 and F6.

The in-situ water quality data collected at Peninsula ponds are summarized in Section 7.4 (Pond Habitat). Data from specific sampling sites are located in Appendix D8.

7.7 Vertical Profiles in Lakes

Vertical profiles of water temperature and dissolved oxygen concentrations were measured on 57 occasions in 16 lakes. Detailed data for each depth interval are presented in Appendix D13. The results are summarized in the following sections.

Temperature Profiles

Temperature profiles measured during the open water period indicated a lack of thermal stratification in all of the surveyed lakes (Table 7-10). Among the 44 temperature profiles measured, 36 profiles registered less than one Celsius degree temperature difference between surface and bottom layers. The largest difference between surface and bottom temperatures (4.1 Celsius degree) was recorded in ML-E in August 1997, when the surface layer (up to 2 m in depth) was considerably warmer than the underlaying waters, likely due to unusually warm and calm conditions on that day. More commonly, wind induced mixing resulted in uniform water temperatures throughout the water column, even in the deepest lake (Peter Lake in July 1998) when the surface layer was 2.4 Celsius degree warmer than the waters at 18 m depth (Appendix D13).

Table 7-10: Temperature (ºC) Range in the Water Column of Lakes in the Meliadine Study Area, 1997 to 1999

Lake	Maximum Depth (m)	Jul-97		Aug-97		Apr-98		Jul-98		Aug/Sep-98		Jul-99	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
ML-E	14.7	13.2	13.9	11.2	15.3	-0.2	2.8	9.9	9.9	9.7	9.7		
ML-S	6.3	14.3	14.6	11.4	13.2	-0.2	1.6	12.6	13.1				
ML-SE	3.1					-0.2	1.2	11.0	11.4			11.2	11.7
ML-W	8.5	13.9	14.3	11.4	13.6	0.1	1.2	12.4	12.9				
LML	14.8					0.0	2.0	12.2	14.0	10.2	10.5		
PL	18.8					0.4	2.7	9.5	11.9				
A1	1.8			14.7	14.9								
A6	4.0	18.2	19.0	15.1	15.7	0.0	2.1	14.3	15.1			9.8	9.9
A8	3.6	16.4	17.7	14.2	14.3	-0.2	1.8	12.3	12.7				
B2	3.0	16.0	17.4	14.8	15.3	-0.2	0.8	9.7	9.8	8.9	8.9	10.9	11.1
B5	2.7	15.1	15.1	15.1	15.1	-0.2	0.0	9.9	10.0	8.9	8.9	10.2	10.5
B7	3.8	14.3	14.3	14.3	15.1	-0.1	1.7	9.7	9.7	9.6	10.3		
D1	2.2			15.7	16.7	-0.2	-0.2						
D7	2.3	13.5	14.0	15.2	15.8	-0.2	0.3						
G2	2.3	17.3	17.4	16.0	16.0								
Control	4.3							14.5	14.7			11.9	12.6

Note: m = metres; Min = minimum; Max = maximum

Under-ice temperature profiles measured in late April 1998 registered generally higher temperatures near bottom than at ice-water interface. The differences of 2 or more Celsius degrees were recorded in 5 of 13 lakes surveyed, reflecting the absence of wind-induced mixing and the intrinsic property of water, which is most dense

at 4ºC. The late winter surveys also demonstrated that the average ice thickness was 1.8 m, ranging from 1.5 m in Little Meliadine Lake and Lake D1 to 2.4 m in Peter Lake (Appendix D13).

Dissolved Oxygen Profiles

The dissolved oxygen profiles measured during the open water period indicated well-oxygenated conditions throughout the water column in all of the surveyed lakes (Table 7-11). The minimum concentration of dissolved oxygen (9.2 mg/L) was recorded in July 1998 in Little Meliadine Lake at depths between 6 and 14 m. Among the 44 profiles measured during the open water period, 40 registered less than 1 mg/L difference in dissolved oxygen concentrations between surface and bottom water layers. The largest difference between surface and bottom concentrations (4.3 mg/L) was recorded in ML-E in July 1998, when the surface layer registered a super-saturated oxygen level of 16.0 mg/L while the near-bottom layer contained 11.7 mg/L of dissolved oxygen (Appendix D13). The general similarity of dissolved oxygen concentrations throughout the water column was likely due to a high degree of mixing induced by wind.

Table 7-11: Range of Dissolved Oxygen Concentrations (mg/L) in the Water Column of Lakes in the Meliadine Study Area, 1997 to 1999

Lake	Depth (m)	Jul-97		Aug-97		Apr-98		Jul-98		Aug-98		Jul-99	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
ML-E	14.7	10.1	10.3	11.3	11.8	7.4	18.0	11.7	16.0	11.1	11.2		
ML-S	6.3	10.2	10.3	11.5	11.9	17.6	19.6	11.6	13.5				
ML-SE	3.1					14.6	16.2	13.4	14.2			11.2	11.3
ML-W	8.5	9.9	10.1	11.2	11.9	16.4	19.6	11.0	11.8				
LML	14.8					9.7	15.3	9.2	9.7	10.6	10.8		
PL	18.8					7.5	18.4	9.5	12.3				
A1	1.8			9.8	10.0								
A6	4.0	10.0	10.6	11.4	11.6	0.7	3.4	12.6	13.1			10.9	11.3
A8	3.6	9.9	10.0	10.8	11.0	2.0	4.5	13.3	13.7				
B2	3.0	9.7	10.2	11.0	11.4	3.5	4.2	13.3	13.8	11.0	11.3	11.7	11.9
B5	2.7	10.4	10.6	10.8	10.9	2.6	3.2	13.8	14.0	10.8	10.8	11.5	11.7
B7	3.8	10.8	11.2	10.6	10.8	2.5	4.1	12.7	13.2	10.3	11.2		
D1	2.2			10.3	10.8	0.2	0.4						
D7	2.3	10.8	11.1	10.7	10.9	1.5	2.3						
G2	2.3	9.9	9.9	10.2	10.4								
Control	4.3							10.1	12.4			11.3	11.4

Note: m = metres; Min = minimum; Max = maximum

During the ice-covered period in April 1998, dissolved oxygen concentrations were low in the Peninsula lakes (A6, A8, B2, B5, B7, D1 and D7). Near-surface values ranged from 0.4 mg/L in Lake D1 to 4.5 mg/L in Lake A8. These concentrations represented very low oxygen saturation levels and were below the minimum level required for the protection of salmonid fish species (CWQG of 6.5 mg/L). Dissolved oxygen concentrations were much higher (generally greater than 13 mg/L) in the upper strata (0 to 5 m depth) of the larger waterbodies (Meliadine, Little Meliadine, and Peter lakes); however, recorded values were below 8 mg/L in the near-bottom strata of the east basin of Meliadine Lake and Peter Lake.

7.8 Aquatic Habitat Summary and Conclusions

Ground and aerial surveys were conducted at numerous streams within the Peninsula basins to assess habitat suitability for fish use with special reference to fish movements and spawning and/or rearing potential. Habitat for fish was dominated by shallow runs; other habitat types encountered included riffles, pools and riffle/boulder garden combinations. High quality habitats occurred in pools and deeper run habitats that were present mainly in larger streams connecting the primary chains of lakes in each Peninsula basin. Coarse substrates and abundant instream cover in these larger streams provided suitable habitat for Arctic grayling spawning and rearing.

Numerous ponds were also investigated to assess habitat suitability for fish. Ponds were predominantly shallow with substrates dominated by fines, and contained poor to moderate fish habitat. Where fish were present, ninespine stickleback was the dominant species. Some fishless ponds contained moderate to high habitat quality. In contrast, habitat quality was rated low to moderate in many of the ponds where fish presence was confirmed. Regardless of the habitat potential ratings, ponds in close proximity to fish-bearing waterbodies (e.g., Meliadine Lake) had a higher likelihood to support small-bodied fish. This suggested that fish presence was more closely related to connectivity and proximity to fish-bearing waterbodies than to the quality of habitat encountered.

Lake bathymetric surveys were carried out in the east and south basins Meliadine Lake, in 13 Peninsula lakes and ponds and in Chickenhead Lake. The east basin of Meliadine Lake (2212 ha) contributes approximately 21% to the entire area of the lake. It is separated from the rest of the lake by a shallow and narrow constriction that may result in separation of the east basin from the rest of the lake during winter. Owing to the high shoreline development index and the shallow nature of the lake, the littoral zones (i.e., less than 6 m in depth) contribute approximately 66% to the lake's area. The mean depth of the east basin was estimated at 4.5 m. The south basin of Meliadine Lake (1135 ha) contributes 11% to the entire area of the lake and has a maximum depth of 22 m. The littoral zones account for approximately 72% to the lake's area. The mean depth of the south basin was estimated at 4.3 m.

The surveyed Peninsula lakes and ponds ranged from 0.4 ha (Pond B10) to 89.7 ha (Lake A8) in surface area. Only 4 lakes had depths of 4 m or greater; the deepest spot was recorded in Lake B7 (5.1 m). As most of lakes' volume is contributed by the surface 2 m layer of water, which becomes ice in winter, some of the shallower lakes (e.g., B4, J1 and D1) may freeze to the bottom. The deep water zones in lakes B7, B6, A6, A8, B2, and B5 appear to be sufficient to allow fish to overwinter.

8.0 LOWER TROPHIC LEVELS

8.1 Periphyton

Periphyton refers to the community of algae, bacteria, fungi, and their secretions that grow on substrates in freshwater systems (Lock et al. 1984). Periphyton provides food and habitat resources for benthic macroinvertebrates and herbivorous fish, especially in flowing waters (Warren et al. 1964; Hynes 1970; Horner and Welch 1981; Lock et al. 1984; Merritt et al. 1984). Although periphyton within temperate zone lake systems generally account for a small amount of a lake's overall primary productivity (i.e., phytoplankton accounts for the vast majority of primary productivity), it has been documented that Arctic lakes can derive a large proportion (15 to 80%) of their energy inputs from benthic sources (Welch and Kalff 1974; Kalff and Welch 1974; Welch et al. 1988; Welch et al.1989). For these reasons, periphyton communities were sampled in both streams and lakes of the Meliadine Study Area.

Periphyton play an important role in aquatic trophic relationships (i.e., invertebrates and fish use periphyton as a source of food and shelter). Summary results of chlorophyll *a* concentration (a biomass estimate of the amount of live algae), ash-free-dry-mass (AFDM) concentration (a biomass estimate of the total organic content of periphyton), and the periphyton algal community are presented in this report.

8.2 Phytoplankton

Phytoplankton are microscopic free-floating algae (Smith 1950). Summary results of phytoplankton biomass (µg/L) and density (number of cells/mL) are both presented in this report; however, biomass is examined in greater detail. Both biomass and density are presented because density alone does not provide an accurate assessment of a taxon's importance. For example, taxa that are extremely numerous may have a low biomass due to the small size of individual organisms. Conversely, taxa that have large biomasses (due to large size of individual organisms) may not be numerically abundant. These large bodied groups can contribute significantly to lake productivity. As such, they can influence the abundance of herbivores that feed on them (generally zooplankton) and can modify nutrient availability for competing plants or algae.

8.3 Zooplankton

Zooplankton communities are composed of microscopic animals that live in the water column (Pennak 1989; Wetzel 1983). Summary results of zooplankton biomass (mg/m^3; dry weight) and density (Number of individuals/m^3) are both presented in this report because, as described previously, density alone does not provide an accurate assessment of a taxon's importance. Zooplankton groups can contribute to lake productivity by influencing the abundance of predators that feed on them (generally other zooplankton and fish) and modifying phytoplankton communities through grazing.

8.4 Benthic Macroinvertebrates

Benthic macroinvertebrates are animals (e.g., insects, crustaceans, molluscs, worms) that exist among bottom substrata of aquatic systems. The benthic macroinvertebrate community has proven to be useful in environmental surveys because invertebrates are typically numerous (i.e., hundreds to thousands per square metre), sedentary (i.e., generally have small home ranges), have long life cycles (a few weeks to a few years,

depending on species) and respond to environmental disturbances in a predictable manner. These attributes make them useful as indicators of pollution effects (Alberta Environment 1990; Environment Canada 1993). In addition, their ecological relationships are generally well understood (e.g., Hynes 1970; Resh and Rosenberg 1984; Rosenberg and Resh 1993) and they are the major food source for many fish species. For these reasons, evaluating benthic communities is regarded as a cost-effective means of assessing the aquatic environment.

8.5 Methods

Periphyton and benthic macroinvertebrates were sampled in lakes and streams of the Meliadine Study Area during the summer (i.e., the most biologically productive season) of 1997 and 1998 (Figure 8-1; Table 8-1). Phytoplankton and zooplankton samples were collected in lakes only; they were sampled during both summer and fall to account for seasonal differences in community composition. Detailed descriptions of field sampling methods and laboratory procedures are provided in the following subsections.

8.5.1 Periphyton

8.5.1.1 Field

Five replicate periphyton samples were collected at each site. Each replicate consisted of scrapings from the surface (4 cm^2) of 3 stones that were randomly selected from the stream or lake bottom (near-shore areas accessed by wading). Samples used for algal identification and enumeration were placed in individually labelled 50-mL opaque containers and preserved with Lugol's solution. Shortly after collection, 2 drops of 100% formalin were added to each of these samples to prevent growth of bacteria and fungi. Samples destined for chlorophyll *a* analysis were filtered onto Whatman™ GF/C filter paper, covered with anhydrous $mgCO_3$, and were frozen. Samples for ash-free dry mass (AFDM) determinations were subsampled (in the laboratory) from the Lugol's preserved samples.

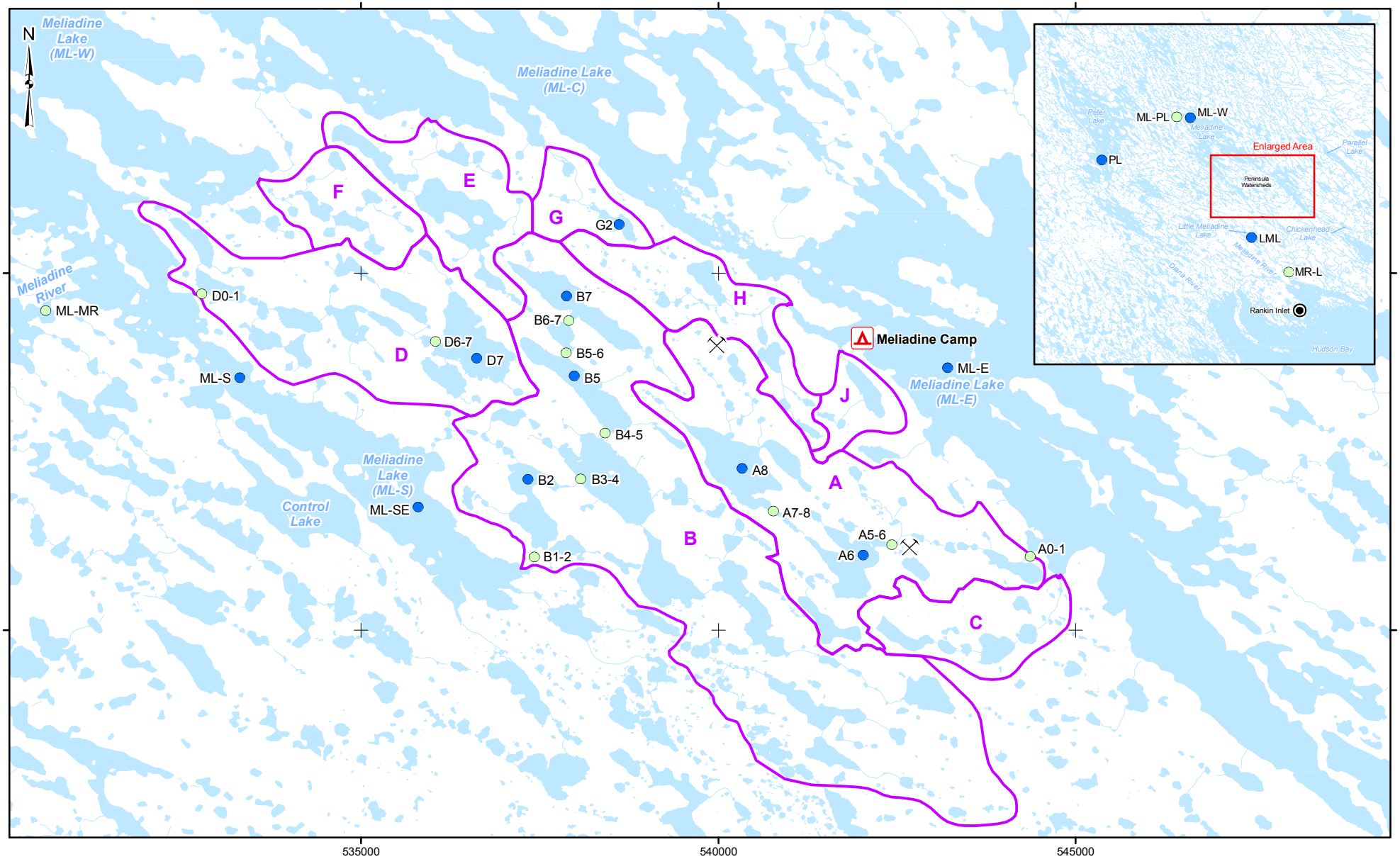
8.5.1.2 Laboratory

Three of 5 replicate periphyton samples collected from each location were initially processed as outlined by Lund et al. (1958). If variability among the 3 replicates from a site was high (i.e., standard error greater than 20% of the mean; Elliott 1977), additional samples were processed, up to the maximum of 5. Samples were first mixed and then subjected to serial dilutions (generally 0 to 1000 fold dilutions depending on the amount of algal and organic debris in the sample). Subsequently, 1 to 10 mL subsamples were dispensed into sedimentation chambers. After a 12-h settling period, the basal area of each chamber was scanned qualitatively with an inverted Leitz™ microscope to identify the best dilution factor for subsequent quantitative analysis and to obtain a comprehensive species list. Taxa within the sample were then identified and enumerated.

Taxonomic keys of Smith (1950), Prescott (1970), and Webber (1971) were used for species identification. Counts were made at a magnification of approximately 450x along horizontal transects across the diameter of the chamber; a minimum of 200 algal units were examined. Species that were encountered, but not enumerated during transect counts, were recorded as "present".

To identify and enumerate diatoms, subsamples were treated with a mixture of concentrated sulphuric acid, potassium dichromate, and hydrogen peroxide, followed by repeated washes in distilled water. The cleaned frustules were then dried on cover glasses and mounted in Storax™.

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LEGEND

Lower Trophic Level Sampling Location
- Lake Sampling Site
- Stream or River Sampling Site
- Camp
- Proposed Mine Site
- Watercourse
- Waterbody
- Watershed Boundary

REFERENCE

Base data obtained from Comaplex Minerals Corporation
Projection: UTM Zone 15 Datum: NAD 83

1.5 0 1.5
SCALE 1:75,000 KILOMETRES

PROJECT
COMAPLEX MINERALS CORP
COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE
LOWER TROPHIC LEVEL SAMPLING LOCATIONS IN THE MELIADINE STUDY AREA

Golder Associates
Edmonton, Alberta

PROJECT No. 09-1373-0010			PHASE No. 1000	
DESIGN	CC	12 Nov. 2009	SCALE AS SHOWN	REV. 0
GIS	CDB	12 Nov. 2009		
CHECK	AM	3 Jul. 2012		
REVIEW	JP	4 Jul. 2012		

FIGURE 8-1

Table 8-1: Lower Trophic Sampling Sites in the Meliadine Study Area, 1997 to 1998

Station	Periphyton[a]		Phytoplankton and Zooplankton[b]				Benthic Macroinvertebrates[a]	
	17 to 24 Jul 1997	17 to 29 Jul 1998	17 to 24 Jul 1997	16 to 22 Aug 1997	17 to 29 Jul 1998	22 Aug to 4 Sep 1998	17 to 24 Jul 1997	17 to 29 Jul 1998
Streams								
ML-MR	x	x	-	-	-	-	x	x
ML-PL	x	x	-	-	-	-	x	x
MR-L	-	x	-	-	-	-	-	x
A0-1	x	x	-	-	-	-	x	x
A5-6	x	x	-	-	-	-	x	x
A7-8	x	x	-	-	-	-	x	x
B1-2	x	x	-	-	-	-	x	x
B3-4	-	x	-	-	-	-	-	x
B4-5	x	x	-	-	-	-	x	x
B5-6	-	x	-	-	-	-	-	x
B6-7	x	x	-	-	-	-	x	x
D0-1	x	-	-	-	-	-	x	-
D6-7	x	-	-	-	-	-	x	-
Total	10	11	-	-	-	-	10	11
Lakes								
ML-E	x	x	x	x	x	x	x	x
ML-S	x	x	x	x	x	x	x	x
ML-SE	-	x	-	-	x	-	-	x
ML-W	x	x	x	x	x	-	x	x
PL	-	x	-	-	x	-	-	x
LML	-	x	-	-	x	x	-	x
A6	x	x	x	x	x	-	x	x
A8	x	x	x	x	x	-	x	x
B2	x	x	x	x	x	x	x	x
B5-6	x	x	x	x	x	x	x	x
B7	x	x	x	x	x	x	x	x
D7	x	-	x	x	-	-	x	-
G2	x	-	x	x	-	-	x	-
Total	10	11	10	10	11	6	10	11

[a] = number of replicates per station is 5 (n=5).
[b] = number of replicates per station is 1 (n=1).

Note: x = sample collected; - = no sample collected

Chlorophyll *a* analysis was conducted on all 5 replicates using the spectrophotometric-acetone extraction method described by Moss (1967a, 1967b). The AFDM subsamples were filtered onto pre-washed and pre-weighed WhatmanTM GF/C filters, subsequently dried (at 105°C for 24 h) and weighed. The dried samples were then ashed in a muffle furnace (at 550°C for 1 h), cooled in a desiccator, and weighed. The difference between dry mass and ash mass is the AFDM (APHA 1992).

8.5.2 Phytoplankton

8.5.2.1 Field

Phytoplankton samples were collected during the summer (July) and fall (August and early September). One sample consisting of a composite from the euphotic zone was collected at each lake site. The euphotic zone is equal to the depth of 1% light penetration (approximately 2 times the Secchi depth). Vertical collections were made using a weighted plastic tube. A sample consisted of a composite of 3 discrete vertical collections within this zone. In lakes that were shallower than 2 times the Secchi depth, phytoplankton hauls encompassed the entire water column to 1 m above the lake bottom (to avoid contamination of the sample with sediment). Samples were placed in labelled 1-L polyethylene containers, preserved with 5% Lugol's solution, and stored in the dark. Three drops of 100% formalin were added to each sample to prevent growth of bacteria and fungi during storage. Samples destined for chlorophyll *a* analysis were filtered onto Whatman™ GF/C filter paper, covered with anhydrous $mgCO_3$, and frozen.

8.5.2.2 Laboratory

Prior to taxonomic analysis, the phytoplankton samples were gently inverted, and 10 to 100 mL subsamples were dispensed into sedimentation chambers (Lund et al. 1958). After a 24-h sedimentation period, samples were processed. To obtain a comprehensive species list, the entire basal area of the chamber was scanned qualitatively with an inverted microscope (Wild™ M-40). Taxonomic keys by Prescott (1970), Taft and Taft (1971), and Webber (1971) were used for identification.

Once a comprehensive species list was established, cell density (cells/mL) was assessed by enumerating individual cells within a specified area of the sedimentation chamber. This was accomplished by counting cells along horizontal transects placed across the specified area. The cell density of each species in the entire sample was calculated by extrapolating the number of cells within the specified area to the subsample, and then to the entire sample.

Cell biomass (µg/L) was calculated by first measuring the physical dimensions (length, width, and depth) of 10 to 30 cells of each species present in the sample. Estimates of cell biovolume were then generated by multiplying the mean dimension of cells of a particular species by the number of cells enumerated for that species. Cell biovolume was converted to biomass by assuming a specific gravity of 1. The mean cell biomass estimate for the subsample was then extrapolated to the entire sample. Species that were encountered during the qualitative assessment, but not enumerated (i.e., very low numbers or located outside the enumeration transects) were recorded as present.

For diatom identification and enumeration, a separate subsample was concentrated, dried onto a coverslip, ashed in a muffle furnace to remove organic matter, and mounted in Storax™.

Chlorophyll *a* analysis was conducted using the spectrophotometric-acetone extraction method described by Moss (1967a, 1967b). The AFDM subsamples were filtered onto pre-washed and pre-weighed Whatman™ GF/C filters and subsequently dried (at 105°C for 24 h) and weighed. The dried samples were then ashed in a muffle furnace (at 550°C for 1 h), cooled in a desiccator and weighed. The difference between dry mass and ash mass is the AFDM (APHA 1992).

8.5.3 Zooplankton

8.5.3.1 Field

Zooplankton samples were collected during summer (July) and fall (August and early September). One sample consisting of a composite of 2 or 3 vertical hauls was collected at each station. The depth of each haul encompassed the entire water column between the surface and 1 m above the lake bottom (to avoid contamination of the sample with sediment). Zooplankton collections were made with a Wisconsin™ plankton net (net mouth diameter of 13.34 cm) constructed with 0.064 x 0.064 mm Nitex™ mesh, as recommended by Green (1977) to ensure adequate sampling of rotifers. To prevent predation by cyclopoid copepods, each sample was immediately preserved in 5% formalin and stored in labelled 500-mL polyethylene bottles. Equipment was thoroughly rinsed after sampling at each site to prevent cross-contamination.

8.5.3.2 Laboratory

Zooplankton counts were conducted using a dissecting stereo-microscope (Wild™ M-5); identifications were made using a compound microscope equipped with a phase-contrast condenser (Wild™ M-20). Taxonomic keys used for crustacean plankton included those by Brooks, Wilson, and Yeatman (in Edmondson 1959), supplemented by the keys of Brooks (1957), Smirnov (1971), Brandlova et al. (1972), Flössner (1972), and Kiefer (1978). The taxonomic key used for identification of rotifers was the Voigt revision by Koste (1978), supplemented by keys of Ahlstrom (1943) and Ruttner-Kolisko (1974). Chaoboridae were identified using the keys of Cook (1956) and Saether (1970). Specimens were identified to the lowest taxonomic level possible, typically species.

Enumeration of zooplankton involved different techniques, depending on taxonomic group. Cladocerans and copepods (all stages) were enumerated either from three 15-mL subsamples or from the entire sample using a dissecting microscope at 12x to 50x magnification. For cladocerans and copepods, subsampling was performed (using an automatic pipette) on samples that contained large numbers of specimens. All samples were subsampled (using an automatic pipette) for rotifer enumeration; however, each subsample was allowed to settle for 24 h before processing. An inverted microscope (100x or 200x magnification) was used to enumerate rotifers in subsamples by counting either 6 fields if density was extremely high (one field = 0.02625 cm^2) or the entire counting chamber (4.907 cm^2). Additional subsamples were continually removed from the original sample until approximately 200 mature or identifiable rotifer organisms were processed. Once numbers of organisms within each sample were established, these values were converted to densities per cubic metre by dividing the number of organisms in a sample by the total volume filtered (i.e., net mouth area × depth of haul × number of hauls).

The biomass of major taxonomic groups within each sample was also determined. Lengths were recorded for the first 30 individuals observed in a sample. Lengths of larger zooplankton were measured directly with a microscope connected to a calibrated Sigma Scan™ digitizing tablet. Smaller zooplankton, such as rotifers, were measured using an eyepiece graticule and corrected for magnification. These length measurements were used to calculate weights from published length-weight regression equations (Table 8-2). For each sample, a mean individual weight was calculated by averaging the estimated weights generated from the length-weight regression equation. As discussed in Bird and Prairie (1985), it is important to average weights rather than the lengths. Biomass for each taxonomic group was calculated by multiplying the number enumerated for that sample by the mean individual weight.

Table 8-2: Length-Weight Regression Equations used to Calculate Zooplankton Weights

Organism	Equation[a]	Reference
Copepods (N1-Adult)	lnW(µg) = 1.9526 + 2.399·lnL(mm)	Bottrell et al. (1976)
Daphnia spp.	lnW(µg) = 1.6 + 2.84·lnL(mm)	Bottrell et al. (1976)
Bosmina and *Eubosmina* spp.	lnW(µg) = 3.0896 + 3.0395·lnL(mm)	Bottrell et al. (1976)
Chydorus sphaericus	lnW(µg) = 4.543 + 3.636·lnL(mm)	Downing and Rigler (1984)
Holopedium spp.	lnW(µg) = 6.4957 + 3.190·lnL(mm)	Downing and Rigler (1984)
Rotifers	lnW(µg) = -10.3815 + 1.574·lnL(µm)	Stemberger and Gilbert (1987)

[a] W = weight of individual organism

Note: µg = microgram; ln = natural logarithm; L = length; mm = millimetre

8.5.4 Benthic Macroinvertebrates

8.5.4.1 Field Methods in Streams

Benthic macroinvertebrates were collected from stream sites during summer. Five replicate samples were collected at each site using a modified (243 µm mesh) Surber™ sampler (0.093 ^{m2} bottom area). The substrate within the area enclosed by the sampler was thoroughly stirred with a wooden dowel to a 5 cm depth to dislodge the invertebrates (larger stones were individually cleaned and rinsed by hand). The sample was preserved with 10% buffered formalin and stored in a labelled, polyethylene sample bag. Water velocity, water depth, and substrate type were recorded at each site.

8.5.4.2 Field Methods in Lakes

Benthic macroinvertebrates were sampled from mid-basin locations that corresponded to the deeper parts of the lakes (2.2 to 19 m depth). Five replicate samples were collected at each site using an Ekman grab (0.023 ^{m2} bottom area). Individual samples were then sieved through a 0.243 mm mesh to remove excess sediment, placed in labelled polyethylene sample bags, and preserved in 10% buffered formalin. Water depth and substrate type were recorded at each sample location.

8.5.4.3 Laboratory

Laboratory analysis of benthic macroinvertebrates was conducted in the same manner for both stream and lake samples. Three of the 5 replicate samples collected at each location were initially processed. If variability among the 3 replicates from a site was high (i.e., standard error greater than 20% of the mean; Elliott 1977), additional samples were processed, up to the maximum of 5. Samples were first processed to remove all extraneous substrate and inorganic matter. Individual samples were washed to remove the preservative and repeatedly elutriated (i.e., rinsed and decanted repeatedly) to separate silt, sand and gravel from organic material. This procedure was continued until organic material was no longer observed in the elutriated water. The remaining inorganic material was scanned (by eye) in an enamelled tray, and large shelled or cased animals (greater than 0.5 cm) were removed. Inorganic material was subsequently discarded. The organic sample material was then fractionated (using a series of nested sieves) into the following components:

- a large fraction containing filamentous algae and plant material (greater than 4 mm);
- a coarse fraction (1 to 4 mm);
- a medium fraction (0.5 to 1 mm); and
- a fine fraction (0.25 to 0.5 mm).

Invertebrates were removed from the organic material, sorted to major taxonomic groups and identified to the lowest practical taxonomic level (genus or species where possible) under a dissecting microscope (6x to 42x magnification). Keys used for identification included Baumann et al. (1977), Wiederholm (1983), Brinkhurst (1986), Pennak (1989), Clifford (1991), Merritt and Cummins (1996), and Wiggins (1998).

8.6 Results

8.6.1 Periphyton

A total of 10 lakes and 10 streams/rivers were sampled in the Study Area in 1997, and 11 lakes and 11 streams/rivers were sampled in 1998 (Figure 8-1; Table 8-1). Data are presented in Appendices E1 to E3. Periphyton biomass was not determined for these data as periphyton cell size was unavailable.

8.6.1.1 Streams

Meliadine Lake Outflows and Lower Meliadine River

Mean chlorophyll *a* ranged from 0.10 ± 0.02 µg/cm^2 in MR-L to 6.03 ± 1.44 µg/cm^2 (± 1 standard error) in ML-MR (1997 sampling event; Figure 8-2, Appendix E1). AFDM estimates were more variable; means ranged from 2.21 ± 0.26 mg/cm^2 in MR-L to 172.32 ± 34.42 mg/cm^2 in ML-PL (1997 sampling event). Both chlorophyll *a* and AFDM concentrations were lower in 1998.

Periphyton density in these watercourses ranged from 505 835 ± 11 905 cells/cm^2 in ML-PL (1997 sampling event) to 4 451 939 ± 1 469 589 cells/cm^2 in ML-MR (1998 sampling event; Figure 8.2, Table 8.3, Appendix E2). Densities collected during the 1998 sampling events for ML-MR and ML-PL were approximately 6 times greater than densities collected at those sites in 1997.

Cyanophyta (cyanobacteria) had the highest density in both years, comprising over 75% of the total density at each site (Figure 8.2, Appendix E2). Bacillariophyta (diatoms) and Chlorophyta (green algae) were also common at each site, comprising between 3 and 19% of total density. These taxa decreased in density in 1998, while Cyanophyta density increased. Cryptophyta (cryptophytes), Chrysophyta (golden brown algae), Pyrrophyta (dinoflagellates) and Euglenophyta (euglenoids) were present in low density at most sites in both years. Variation in taxonomic composition was low between years.

A total of 337 species of algae were identified in the periphyton samples collected in streams within the Meliadine Study Area. The average number of species collected at each watercourse site ranged from 74 ± 3 in ML-MR (1997 sampling event) to 94 ± 5 in ML-PL (1998 sampling event; Table 8-3).

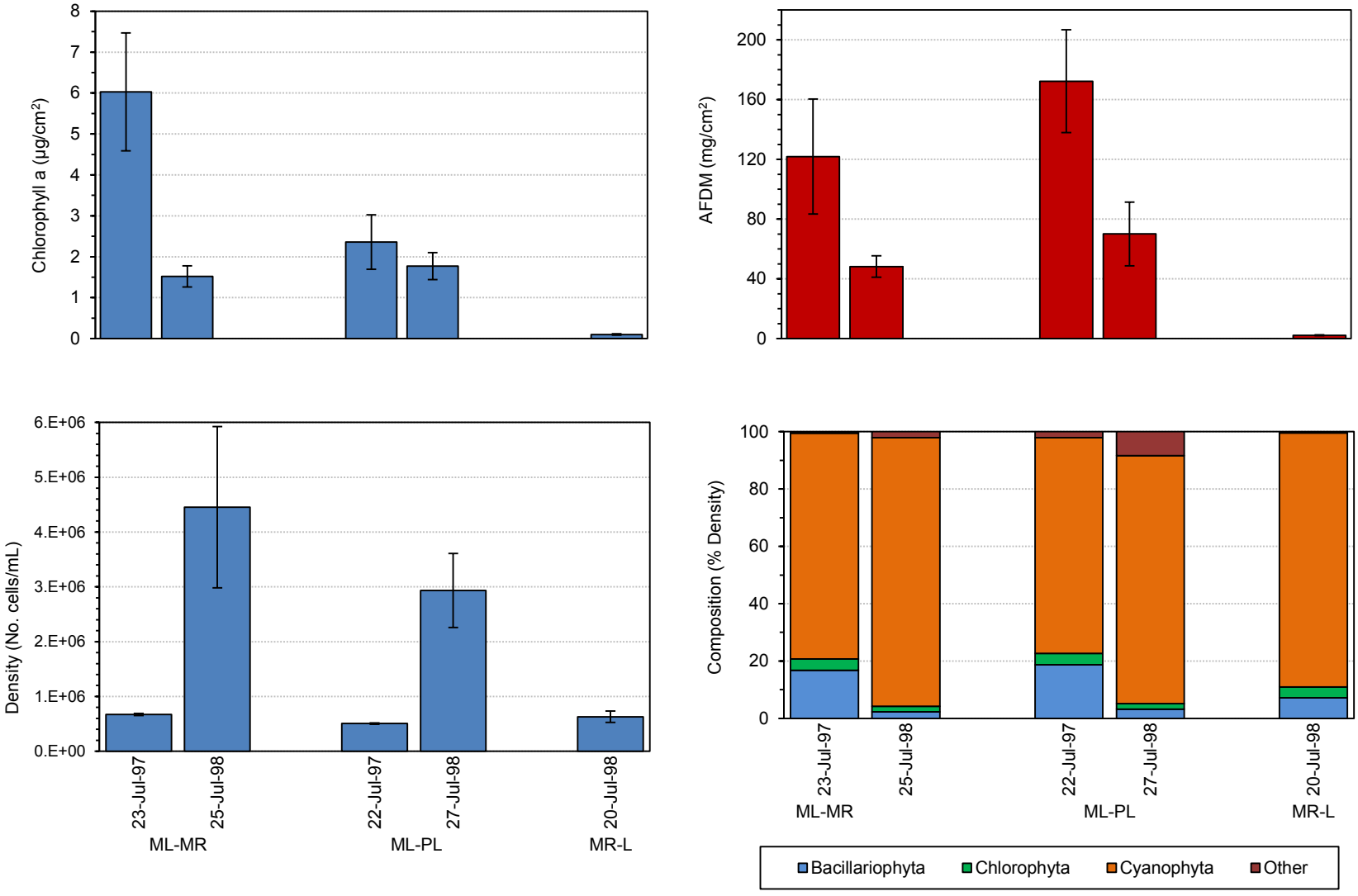


Figure 8-2: Chlorophyll a Concentrations, AFDM Concentrations, Density and Community Composition in the Meliadine Lake Outflows and Lower Meliadine River of the Meliadine Study Area, 1997 to 1998 (error bars represent ±1 standard error)

Table 8-3: Periphyton Density and Taxonomic Richness in the Meliadine Lake Outflows and Lower Meliadine River of the Meliadine Study Area, 1997 to 1998

Site	Date	Density (No. cells/mL ± 1 SE)	Taxonomic Richness (No. taxa/site ± 1 SE)
ML-MR	23 Jul 97	669 842 ± 19 278	74 ± 3
	25 Jul 98	4 451 939 ± 1 469 589	91 ± 6
ML-PL	22 Jul 97	505 835 ± 11 905	81 ± 5
	27 Jul 98	2 934 000 ± 676 449	94 ± 5
MR-L	20 Jul 98	628 843 ± 103 800	83 ± 3

Note: No.= number; mL = millilitre; SE = standard error

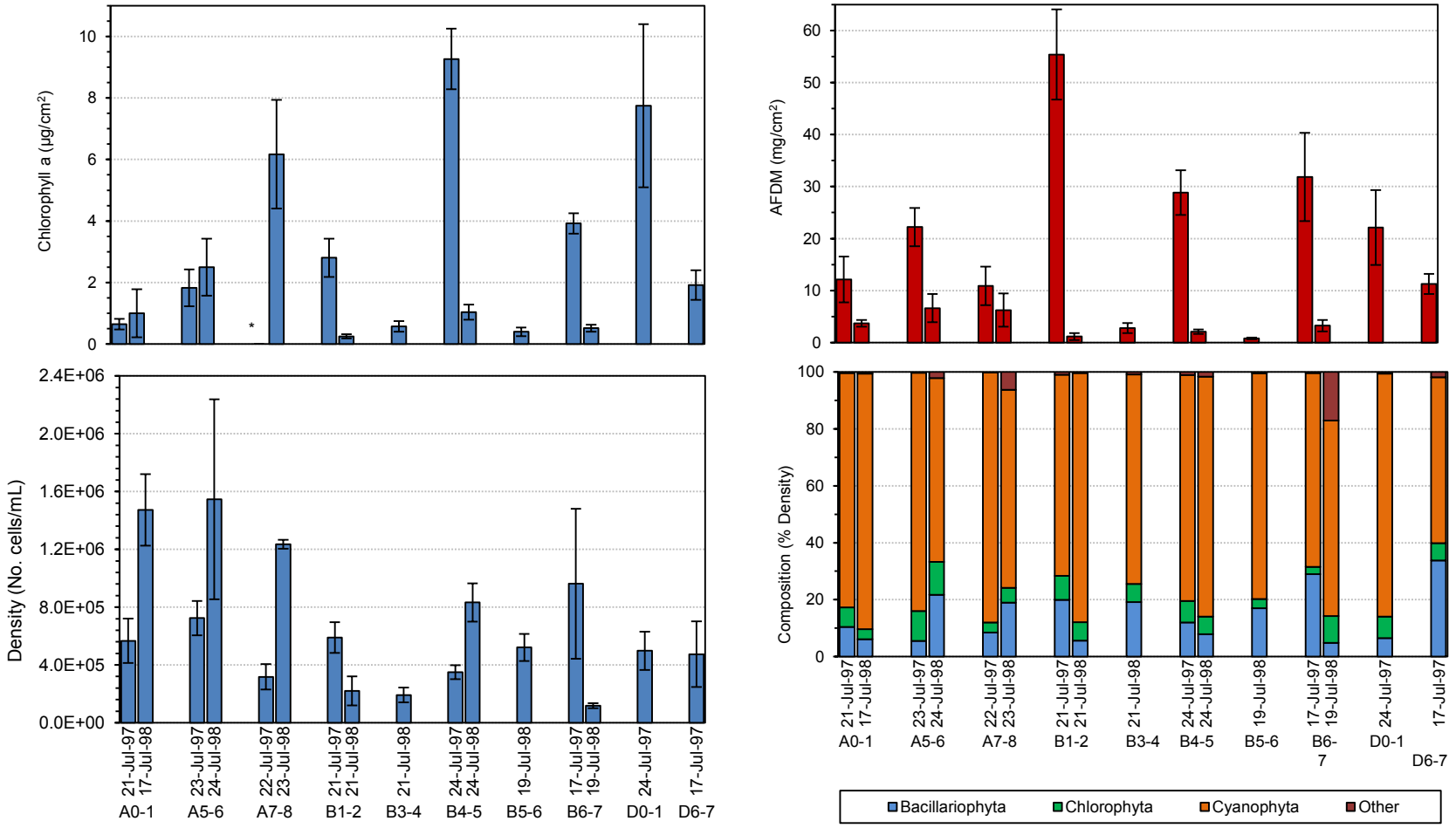
Basins A, B and D Outflows

Mean chlorophyll *a* concentrations ranged from below the detection limit (0.01 µg/cm^2) in A7-8 (1997 sampling event) to 9.27 ± 0.99 µg/cm^2 in B4-5 (1997 sampling event; Figure 8-3, Appendix E1). AFDM estimates were more variable; means ranged from 0.78 ± 0.17 mg/cm^2 in B1-2 (1998 sampling event) to 55.39 ± 8.68 mg/cm^2 in B1-2 (1997 sampling event). In general, both chlorophyll *a* and AFDM concentrations were lower in 1998, and lowest in the Basin A streams.

Periphyton density in the outflows of Basins A, B, D and G ranged from 117 885 ± 17 037 cells/cm^2 in B6-7 (1998 samping event) to 1 546 229 ± 692 480 cells/cm^2 in A5-6 (1998 sampling event; Figure 8-3, Table 8-4, Appendix E2). Most sites had densities between 200 000 and 900 000 cells/cm^2, however, densities at sites sampled in both 1997 and 1998 varied between years. Periphyton densities were generally higher in 1998 than 1997.

Cyanophyta had the highest density at each site in both years, comprising over 50% of the total density (Figure 8-3, Appendix E2). Bacillariophyta and Chlorophyta were also common at each site, comprising between 3 and 34% of total density. Cryptophyta, Chrysophyta, Pyrrophyta and Euglenophyta were present at most sites in both years, but densities were low. Variability in taxonomic composition was low between years.

A total of 337 species of algae were identified in the periphyton samples collected in streams within the Meliadine Study Area. The average number of species collected at each site in Basins A, B, D and G ranged from 70 ± 2 in B5-6 (1998 sampling event) to 110 ± 7 in B4-5 (1998 sampling event; Table 8-4).



Note: * = value below detection limit (0.01 µg/cm^2).

Figure 8-3: Chlorophyll a Concentrations, AFDM Concentrations, Density and Community Composition in the Basins A, B, D and G Streams of the Meliadine Study Area, 1997 to 1998 (error bars represent ±1 standard error)

Table 8-4: Periphyton Density and Taxonomic Richness in Basin A, B and D Streams of the Meliadine Study Area, 1997 to 1998

Site	Date	Density (No. cells/mL ± 1 SE)	Taxonomic Richness (No. taxa/site ± 1 SE)
A0-1	21 Jul 97	567 216 ± 154 528	89 ± 3
	17 Jul 98	1 472 705 ± 247 527	93 ± 6
A5-6	23 Jul 97	724 427 ± 118 806	92 ± 2
	24 Jul 98	1 546 229 ± 692 480	85 ± 7
A7-8	22 Jul 97	317 377 ± 87 637	78 ± 8
	23 Jul 98	1 235 735 ± 31 228	80 ± 10
B1-2	21 Jul 97	588 717 ± 106 290	82 ± 1
	21 Jul 98	220 098 ± 101 011	82 ± 11
B3-4	21 Jul 98	192 008 ± 50 527	78 ± 7
B4-5	24 Jul 97	349 794 ± 47 627	88 ± 5
	20 Jul 98	833 008 ± 132 499	110 ± 7
B5-6	19 Jul 98	520 979 ± 93 799	70 ± 2
B6-7	17 Jul 97	961 869 ± 518 590	89 ± 4
	19 Jul 98	117 885 ± 17 037	76 ± 5
D0-1	24 Jul 97	497 724 ± 131 910	83 ± 4
D6-7	17 Jul 97	474 200 ± 227 599	91 ± 3

Note: No.= number; mL = millilitre; SE = standard error

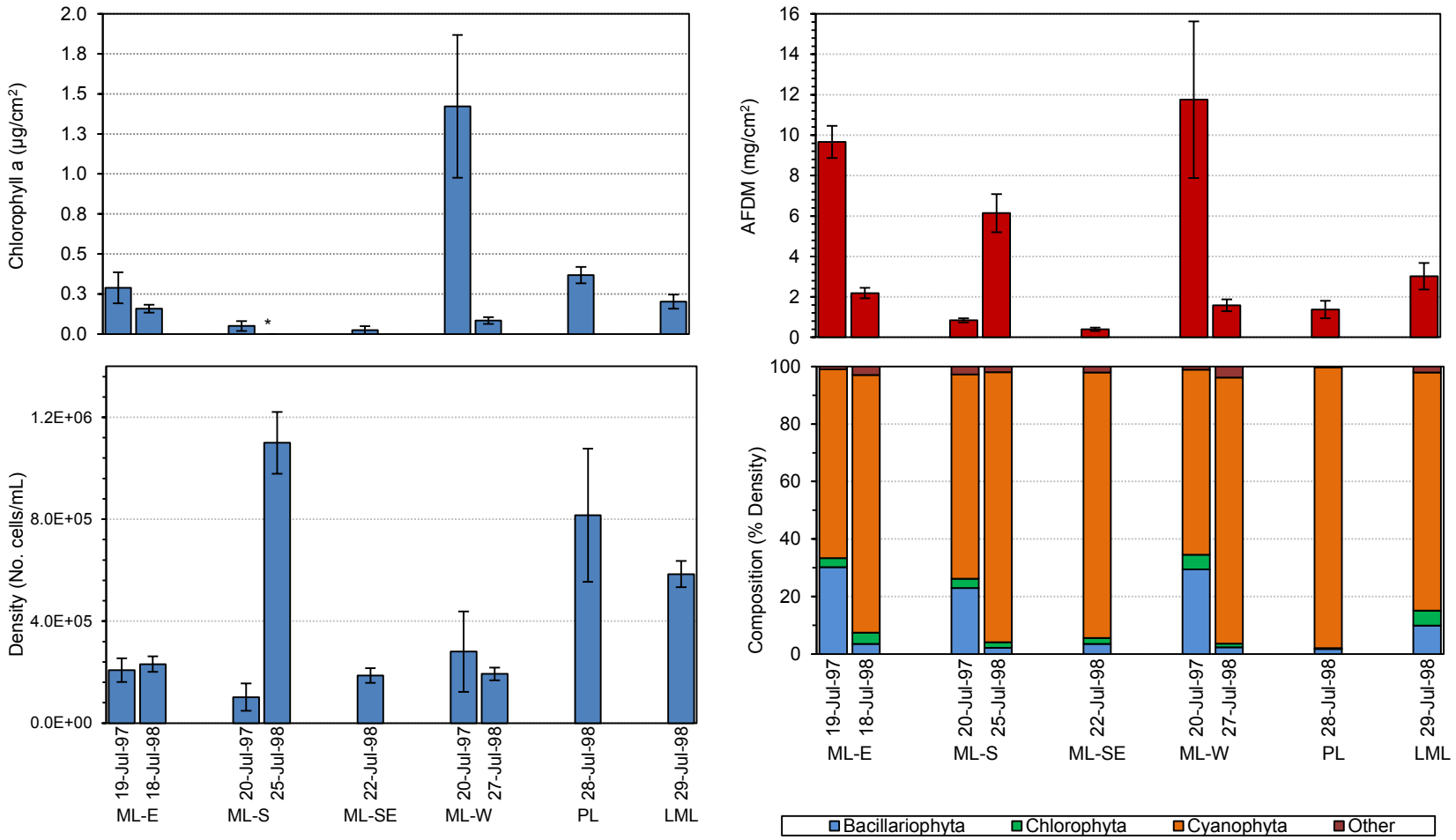
8.6.1.2 Lakes

8.6.1.2.1 Large Lakes

Mean chlorophyll *a* in the large lakes (Meliadine, Peter and Little Meliadine) ranged from below the detection limit (0.01 µg/cm²) at ML-S (1998 sampling event) to 1.42 ± 0.45 µg/cm² at ML-W (1997 sampling event; Figure 8.4, Appendix E1). AFDM estimates were also variable, ranging from 0.39 ± 0.08 mg/cm^2 at ML-SE (1998 sampling event) to 11.76 ± 3.87 mg/cm^2 at ML-W (1997 sampling event). The majority of concentrations, however, were below 3 mg/cm^2. Variability between years for both chlorophyll *a* and AFDM was high; overall, 1997 concentrations were higher than 1998.

Periphyton density in the large lakes ranged from 101 950 ± 53 272 cells/cm^2 in ML-S (1997 sampling event) to 1 100 115 ± 121 473 cells/cm^2, also in ML-S (1998 sampling event; Figure 8-4, Table 8-5, Appendix E3). The majority of sites had densities between 100 000 and 800 000 cells/cm^2. Overall, density in 1998 was higher than 1997.

Cyanophyta had the highest density in both years, comprising over 66% of the total density at each site (Figure 8-4, Appendix E3). Bacillariophyta and Chlorophyta were also common at each site, comprising between 2 and 30% of total density. As with the corresponding streams, both taxa were less common in 1998. Cryptophyta, Chrysophyta and Pyrrophyta were present in low density at most sites in both years.



Note: * = value below detection limit (0.01 µg/cm^2).

Figure 8-4: Chlorophyll a Concentrations, AFDM Concentrations, and Community Composition in the Meliadine, Peter and Little Meliadine lakes of the Meliadine Study Area, 1997 to 1998 (error bars represent ± 1 standard error)

A total of 322 species of algae were identified in the periphyton samples collected in lakes within the Meliadine Study Area. The average number of species collected at each large lake ranged from 47 ± 2 in PL (1998 sampling event) to 107 ± 8 in LML (1998 sampling event; Table 8-5).

Table 8-5: Periphyton Density and Taxonomic Richness in the Meliadine, Peter, and Little Meliadine Lakes of the Meliadine Study Area, 1997 to 1998

Site	Date	Density (No. cells/mL ± 1 SE)	Taxonomic Richness (No. taxa/site ± 1 SE)
ML-E	19 Jul 97	208 187 ± 46 458	68 ± 4
	18 Jul 98	231 319 ± 30 579	66 ± 5
ML-S	20 Jul 97	101 950 ± 53 272	64 ± 10
	25 Jul 98	1 100 115 ± 121 473	98 ± 4
ML-SE	22 Jul 98	186 604 ± 28 432	60 ± 5
ML-W	20 Jul 97	280 374 ± 158 122	71 ± 7
	27 Jul 98	192 809 ± 24 505	64 ± 3
PL	28 Jul 98	815 931 ± 261 271	47 ± 2
LML	29 Jul 98	584 729 ± 51 119	107 ± 8

Note: No.= number; mL = millilitre; SE = standard error

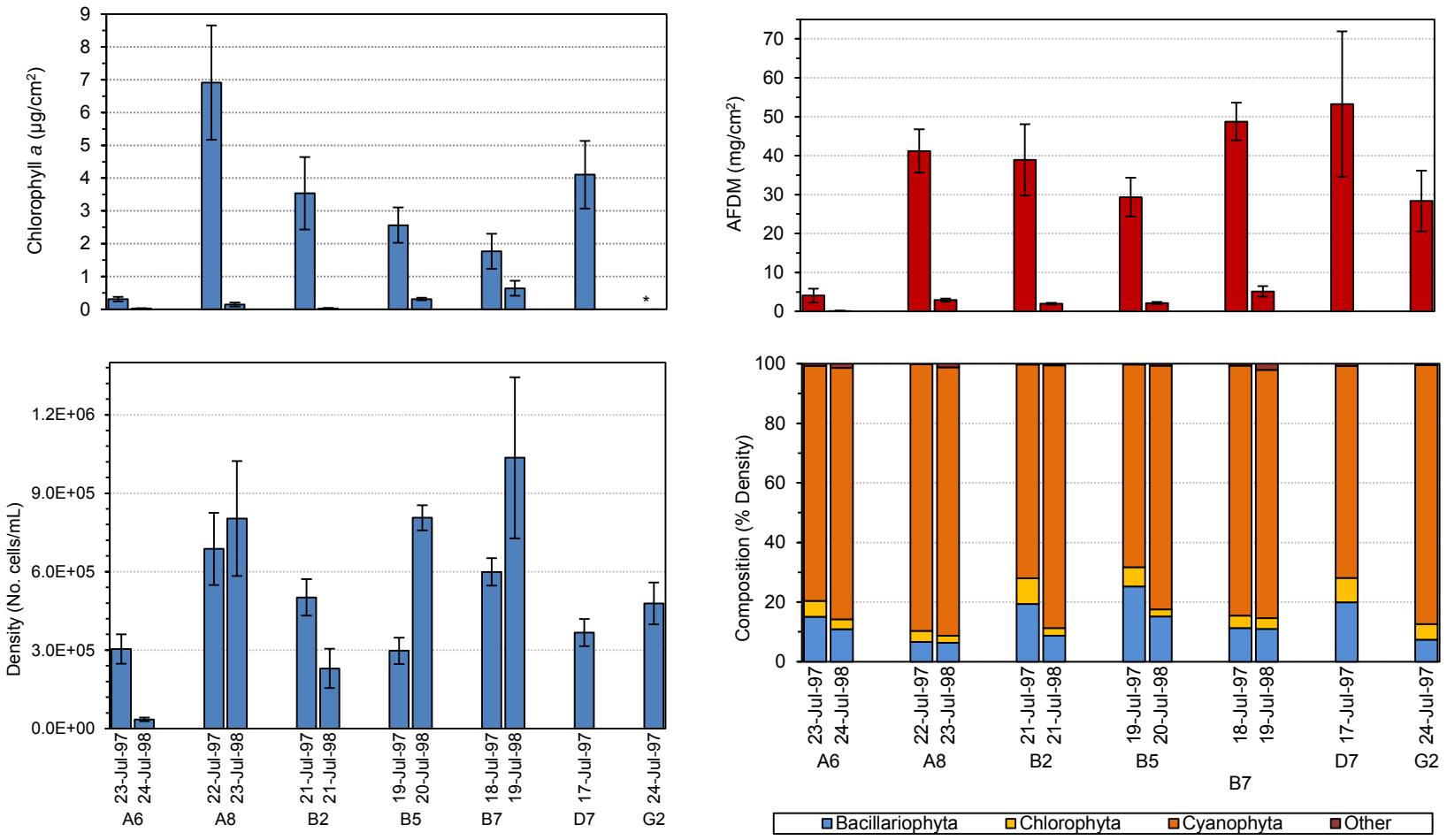
8.6.1.2.2 Peninsula Lakes

Mean chlorophyll *a* in the Peninsula lakes ranged from below the detection limit (0.01 µg/cm²) at G2 (1997 sampling event) to 6.91 ± 1.74 µg/cm² at A8 (1997 sampling event; Figure 8.5, Appendix E1). AFDM estimates were also variable, ranging from 0.11 ± 0.03 mg/cm^2 at A6 (1998 sampling event) to 53.25 ± 18.70 mg/cm^2 at D7 (1997 sampling event). The majority of concentrations were below 6 mg/cm^2. Variability between years for both chlorophyll *a* and AFDM was high, with higher concentrations present in 1997.

Periphyton density in the Peninsula lakes ranged from 35 013 ± 6996 cells/cm^2 in A-6 (1998 sampling event) to 1 035 561 ± 307 895 cells/cm^2 in B7 (1998 sampling event; Figure 8-5, Table 8-6, Appendix E3). Density at most sites varied between 300 000 and 800 000 cells/cm^2, and varied between years. Density was generally highest in 1998.

Cyanophyta had the highest density, comprising over 65% of the total density at each site in both years (Figure 8-5, Appendix E3). Bacillariophyta was also common at each site, comprising between 2 and 25% of total density. Chlorophyta was the next most dominant taxa, comprising between 1 and 5% of total density at most sites. Both taxonomic groups decreased in density in 1998, while Cyanophyta increased. Cryptophyta, Chrysophyta and Pyrrophyta were present at most sites in both years at low densities.

In total, 322 species of algae were identified in the periphyton samples collected in lakes within the Meliadine Study Area. The average number of species collected at each Peninsula Lake ranged from 52 ± 2 in A6 (1998 sampling event) to 106 ± 7 in B7 (1998 sampling event; Table 8-6).



Note: * = value below detection limit (0.01 µg/cm^2).

Figure 8-5: Chlorophyll a Concentrations, AFDM Concentrations, Density and Community Composition in the Peninsula Lakes of the Meliadine Study Area, 1997 to 1998 (error bars represent ±1 standard error)

Table 8-6: Periphyton Density and Taxonomic Richness in the Peninsula Lakes of the Meliadine Study Area, 1997 to 1998

Site	Date	Density (No. cells/mL ± 1 SE)	Taxonomic Richness (No. taxa/site ± 1 SE)
A6	23 Jul 97	304 335 ± 56 245	80 ± 5
	24 Jul 98	35 013 ± 6996	52 ± 2
A8	22 Jul 97	687 043 ± 138 053	92 ± 2
	23 Jul 98	803 448 ± 219 587	87 ± 1
B2	21 Jul 97	501 709 ± 69 601	92 ± 4
	21 Jul 98	230 043 ± 75 610	81 ± 7
B5	19 Jul 97	297 235 ± 50 336	81 ± 4
	20 Jul 98	806 144 ± 47 940	104 ± 3
B7	18 Jul 97	599 161 ± 52 933	87 ± 4
	19 Jul 98	1 035 561 ± 307 895	106 ± 7
D7	17 Jul 97	366 972 ± 51 719	90 ± 3
G2	24 Jul 97	478 546 ± 80 151	88 ± 2

Note: No.= number; mL = millilitre; SE = standard error

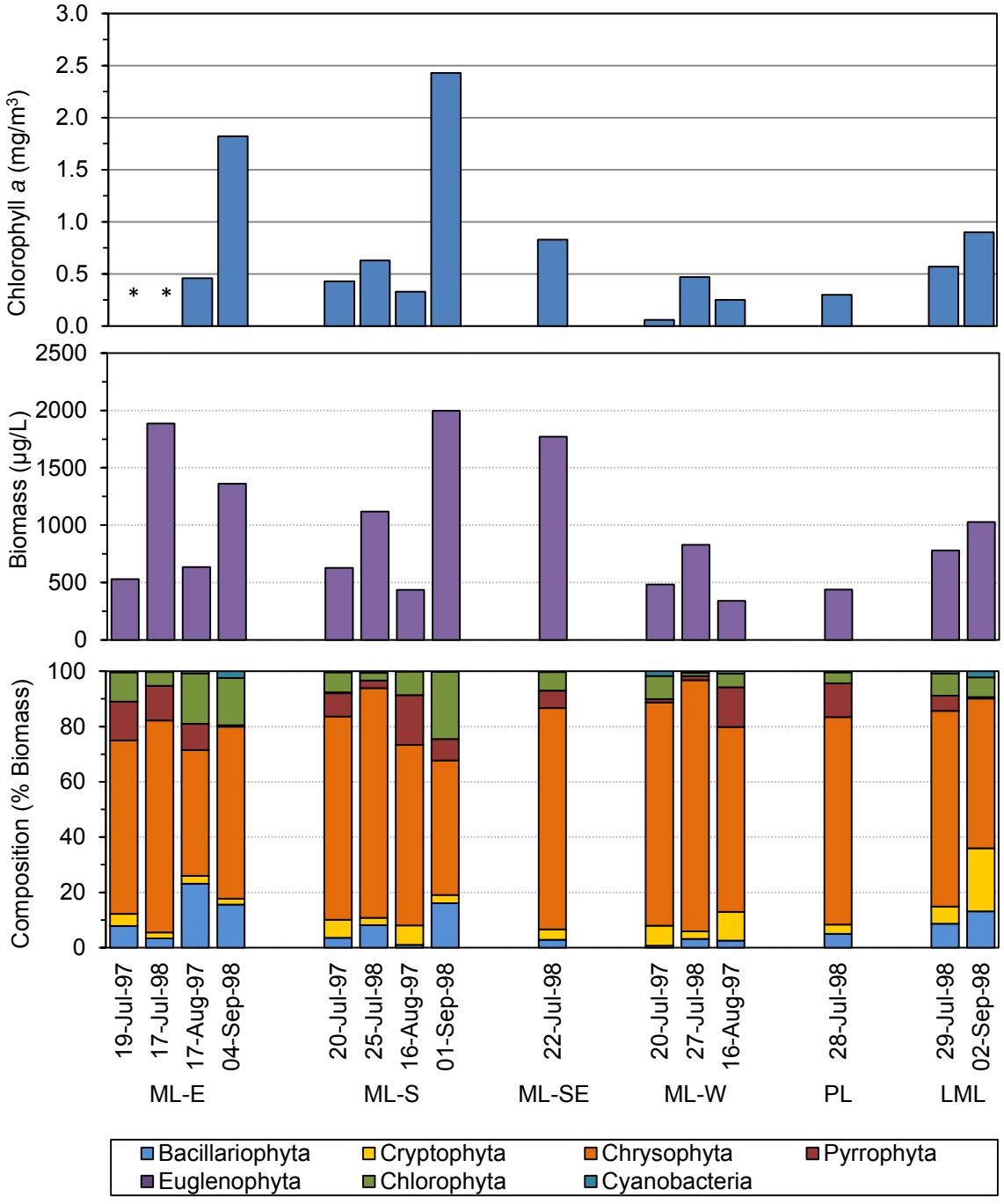
8.6.2 Phytoplankton

To provide baseline information on the phytoplankton community composition, abundance and taxonomic richness, samples were collected from the Meliadine Study Area in summer and fall between 1997 and 1998. A total of 13 sampling sites was established in 10 lakes, including 4 sites in Meliadine Lake (Figure 8-1; Table 8-1). Detailed phytoplankton data are presented in Appendices E4 to E6.

8.6.2.1 Large Lakes

Chlorophyll *a* in the large lakes (Meliadine, Peter and Little Meliadine) ranged from below the detection limit (0.01 mg/m^3) to 2.4 mg/m^3 (Figure 8-6). The majority of the chlorophyll *a* concentrations were between 0.4 and 0.9 mg/m^3. Chlorophyll *a* concentrations were generally similar between summer and fall, with among-year variability low at some locations (i.e., ML-W) and high at others (i.e., ML-S). Chlorophyll *a* concentrations were typically higher in 1998. There was considerable variation of chlorophyll *a* concentrations among the 4 basins of Meliadine Lake.

Phytoplankton biomass in the large lakes ranged from 342 to 1 996 µg/L (Figure 8-6). The majority of sites had phytoplankton biomass between 500 and 1 000 µg/L. Phytoplankton biomass displayed similar trends as chlorophyll *a* concentrations: biomass was similar between summer and fall periods with interannual variability low at some locations (i.e. ML-W) and high at others (i.e. ML-E). There was also considerable variation of phytoplankton biomass among the 4 basins of Meliadine Lake. Phytoplankton biomass was consistently higher in 1998.



Note: * = value below detection limit (0.01 mg/m^3), na = not sampled

Figure 8-6: Chlorophyll a Concentrations, Phytoplankton Biomass and Community Composition in the Large Lakes of the Meliadine Study Area, 1997 to 1998

Chrysophyta (golden brown algae) had the highest biomass at each sampling site and date and often comprised over half of the community biomass (Figure 8-6). Chlorophyta (green algae), Pyrrophyta (dinoflagellates), and Bacillariophyta (diatoms) were also abundant at most sampling sites and dates. Cryptophyta (cryptophytes), Euglenophyta (euglenoids) and Cyanophyta (cyanobacteria) typically had low abundances at all sites. The phytoplankton community composition showed only small variations among seasons and years. The phytoplankton community was generally similar among each of the 4 basins of Meliadine Lake.

Phytoplankton density was notably different than biomass, and the relationship between the 2 variables was weak (Table 8-7). When considering phytoplankton density, the golden-brown algae and cyanophyta were the most abundant taxonomic groups (Appendix E6). The small size of most cyanophyta results in small contributions to overall biomass, despite being present in high densities.

Table 8-7: Phytoplankton Density, Biomass and Taxonomic Richness in the Peninsula Lakes of the Meliadine Study Area, 1997 to 1998

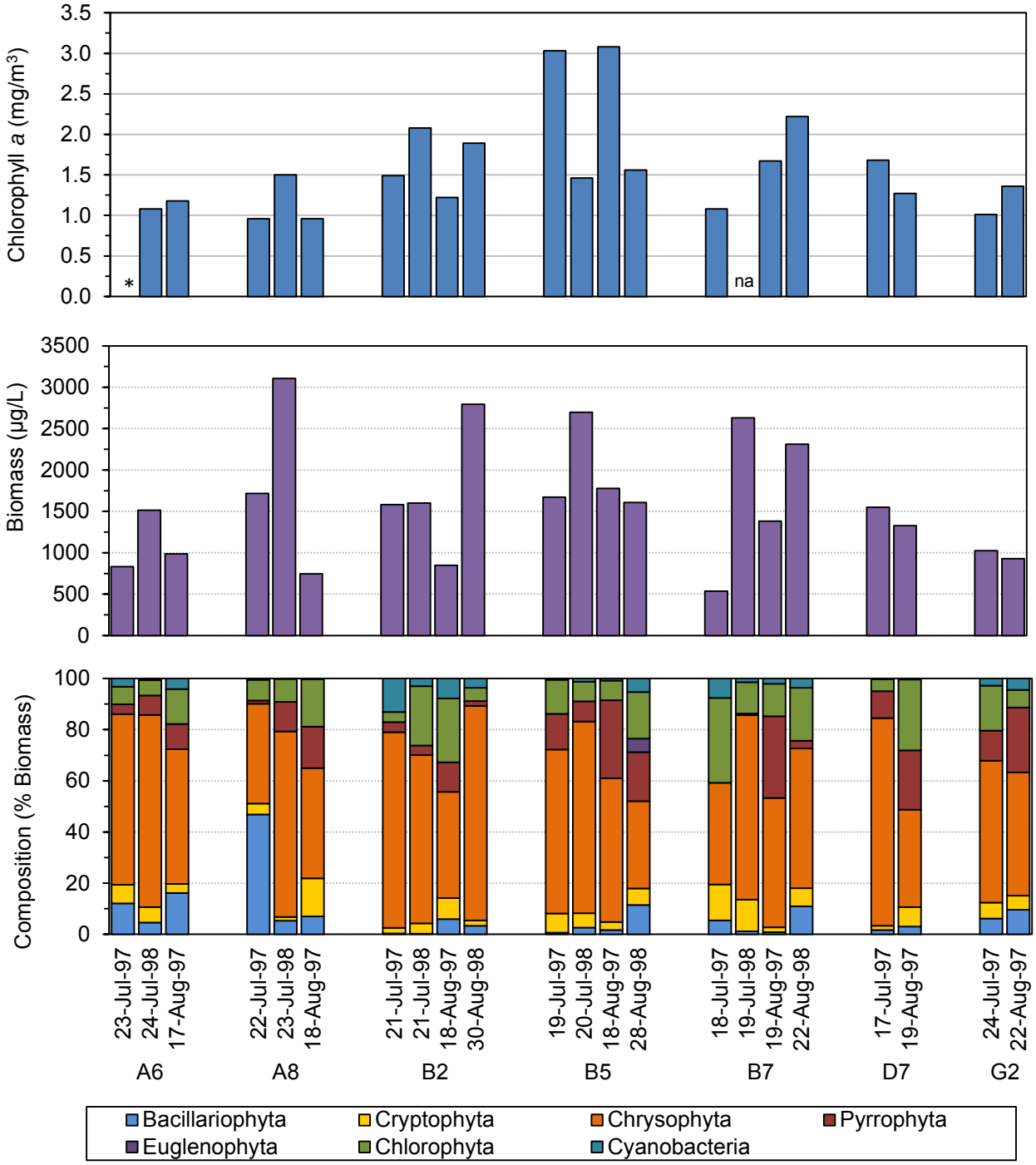
Site	Date	Density (No. cells/mL)	Biomass (µg/L)	Taxonomic Richness (No. taxa/site)
ML-E	19 Jul 97	2008	529	56
	17 Aug 97	3844	636	65
	17 Jul 98	2593	1887	75
	4 Sep 98	4933	1362	78
ML-S	20 Jul 97	1863	627	73
	16 Aug 97	1871	437	63
	25 Jul 98	3736	1119	67
	1 Sep 98	5713	1996	80
ML-SE	22 Jul 98	2991	1772	83
ML-W	20 Jul 97	2175	483	46
	16 Aug 97	1135	342	52
	27 Jul 98	3026	828	68
PL	28 Jul 98	1985	438	59
LML	29 Jul 98	3406	780	66
	2 Sep 98	10748	1027	70

Note: No.= number; mL = millilitre; µg/L = microgram per litre

A total of 242 species of algae were identified in the samples collected in the Meliadine study area, but the number of taxa observed at one site on a single date ranged from 46 to 83 taxa (Table 8-7). Taxonomic richness tended to be higher in the fall and higher in 1998 compared to 1997.

8.6.2.2 Peninsula Lakes

Chlorophyll *a* concentrations in the Peninsula lakes ranged from below detection (0.01 mg/m^3) to 3.1 mg/m^3 (Figure 8-7). The majority of the chlorophyll *a* concentrations were between 1.0 and 1.6 mg/m^3. Similar to the



Note: * = value below detection limit (0.01 mg/m^3), na = not sampled.

Figure 8- 7: Chlorophyll a Concentrations, Phytoplankton Biomass and Community Composition in the Peninsula Lakes of the Meliadine Study Area, 1997 to 1998

large lakes, chlorophyll *a* concentrations in the Peninsula lakes were generally similar between summer and fall conditions, and were highest in 1998. The Peninsula lakes typically had higher chlorophyll *a* concentrations, and greater interannual variability than the larger lakes.

Phytoplankton biomass ranged from 536 to 3107 µg/L (Figure 8-7). The majority of sites had phytoplankton biomass between 800 and 2000 µg/L. Phytoplankton biomasses displayed similar trends as chlorophyll *a* concentrations. Phytoplankton biomass was typically greater in the Peninsula lakes than the large lakes. Phytoplankton biomass was consistently higher in 1998, and similar between summer and fall.

Chrysophyta had the highest biomass at each sampling site and date (with the exception of site A8, 22-July-97), and often comprised over half of the community biomass (Figure 8-7). Chlorophyta, Pyrrophyta, and Bacillariophyta were also abundant at most sampling sites and dates. Cryptophyta, Euglenophyta and Cyanophyta typically had low abundances at all sites. The phytoplankton community composition showed only small variations between seasons and years and was similar in the Peninsula and large lakes.

Phytoplankton density was notably different than phytoplankton biomass, and the relationship between the two variables was weak (Table 8-8). As in the large lakes, the golden-brown algae and cyanophyta were the most abundant taxonomic groups (Appendix E6). The small size of most cyanophyta, however, results in small contributions to overall biomass despite being present in high densities.

A total of 242 species of algae were identified in the samples collected in the Meliadine study area, but the number of taxa observed at one site on a single date ranged from 46 to 83 taxa (Table 8-8). Taxonomic richness tended to be higher in the fall and higher in 1998 compared to 1997.

Table 8-8: Phytoplankton Density, Biomass and Taxonomic Richness in the Peninsula Lakes of the Meliadine Study Area, 1997 to 1998

Site	Date	Density (No. cells/mL)	Biomass (µg/L)	Taxonomic Richness (No. taxa/site)
A6	23 Jul 97	4689	831	64
	17 Aug 97	8120	986	72
	24 Jul 98	3039	1514	77
A8	22 Jul 97	6099	1716	59
	18 Aug 97	6526	744	79
	23 Jul 98	5225	3107	78
B2	21 Jul 97	15 426	1583	54
	18 Aug 97	12 210	848	56
	21 Jul 98	8501	1600	83
	30 Aug 98	29 192	2795	84
B5	19 Jul 97	10 348	1670	65
	18 Aug 97	6101	1777	71
	20 Jul 98	6221	2699	84
	28 Aug 98	22 518	1607	91

Table 8-8: Phytoplankton Density, Biomass and Taxonomic Richness in the Peninsula Lakes of the Meliadine Study Area, 1997 to 1998 (continued)

B7	18 Jul 97	7070	536	53
	19 Aug 97	12 551	1382	66
	19 Jul 98	9472	2629	81
	22 Aug 98	18 373	2311	96
D7	17 Jul 97	6627	1549	81
	19 Aug 97	2770	1329	84
G2	24 Jul 97	7126	1026	74
	22 Aug 97	5841	929	66

Note: No. = number: mL = millilitre; µg = microgram

8.7 Zooplankton

8.7.1 Large Lakes

Zooplankton biomass in the large lakes (Meliadine, Peter and Little Meliadine) ranged from 25 to 503 mg/m^3; with most sites falling within the range of 75 to 300 mg/m^3 (Figure 8-8). Zooplankton biomass was typically higher in 1997, and lower during the fall. Among-year variability of zooplankton biomass was high. Zooplankton biomass also differed dramatically among the 4 basins of Meliadine Lake.

In each of the large lakes, the zooplankton community was variable, but was generally dominated by Cladocera (cladocerans; Figure 8-8). *Holopedium gibberum* was the dominant cladoceran in terms of biomass. Rotifera (rotifers) dominated the zooplankton community at site ML-S in the fall of 1998, which was not observed at other sites or other years. The most abundant rotifers in the large lakes were *Conochilus unicornis* and *Keratella cochlearis*. Calanoida (calanoid copepods) and Cyclopoida (cyclopoid copepods) were abundant in the single sample collected from Peter Lake, but had low biomass at other sites.

Trends of zooplankton density were notably different from zooplankton biomass, and the relationship between the two variables was weak (Table 8-9). When considering zooplankton density, Rotifera dominated the zooplankton community at each site; however, due to their small size, they did not make large contributions to the community biomass (Appendices E7 and E8).

A total of 42 zooplankton taxa were observed in the study area, but the number of taxa observed at one sampling location on a single date ranged from 13 to 22 (Table 8-9).

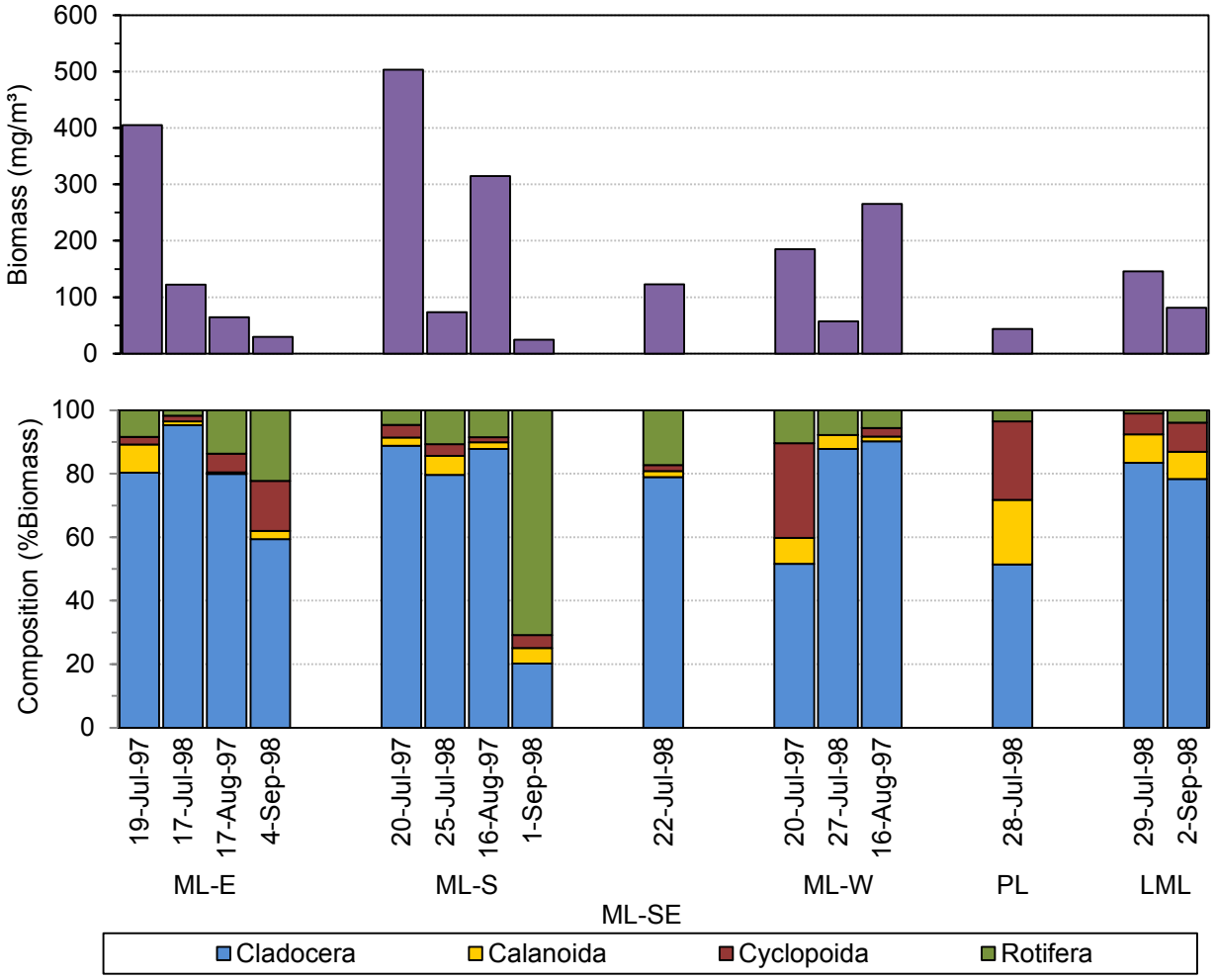


Figure 8-8: Zooplankton Biomass and Community Composition in the Large Lakes of the Meliadine Study Area, 1997 to 1998

Table 8-9: Zooplankton Density, Biomass and Taxonomic Richness in the Large Lakes of the Meliadine Study Area, 1997 to 1998

Site	Date	Density (No. indiv./m^3)	Biomass (mg/m^3)	Taxonomic Richness (No. taxa/site)
ML-E	19 Jul 97	460 071	405	18
	17 Aug 97	123 990	64	13
	17 Jul 98	32 204	122	22
	4 Sep 98	65 989	30	19
ML-S	20 Jul 97	288 137	503	19
	16 Aug 97	355 791	315	18
	25 Jul 98	83 843	73	22
	1 Sep 98	162 868	25	16
ML-W	20 Jul 97	319 785	185	19
	16 Aug 97	241 577	265	18
	27 Jul 98	52 002	57	16
ML-SE	22 Jul 98	244 711	123	20
PL	28 Jul 98	24 640	44	17
LML	29-Jul-98	27 111	146	22
	2 Sep 98	44 229	81	19

Note: No. = number; indiv. = individuals; ^{m3} = cubed metre; mg = milligram

8.7.2 Peninsula Lakes

Zooplankton biomass in the Peninsula lakes ranged from 18 to 7287 mg/m^3. The biomass at most sites, however, ranged between 50 and 400 mg/m^3 (Figure 8-9). With the exception of sites B2 and B7, where biomass was exceptionally high during the summer, zooplankton biomass was similar between the Peninsula lakes and large lakes (i.e., Meliadine, Peter and Little Meliadine). Zooplankton biomass was consistently higher in the summer and in 1998.

Unlike the phytoplankton community which was fairly uniform among all sites, seasons and years, the zooplankton community was more variable, and patterns were difficult to detect (Figure 8-9). Sites A6 and A8 had high biomass of Calanoida in the summer, which were replaced by Rotifera and Cladocera, respectively, in the fall. Sites B2 and B7 were both dominated by Cladocera in the summer; however, Cladocera was still abundant in B7 in the fall, but Cyclopoida began to dominate in B2. Site B5 was represented by a diverse assemblage of taxa in the summer, but was dominated by Rotifera in the fall. Sites D7 and G2 were both dominated by Rotifera in both summer and fall. Similar to the large lakes, *Holopedium gibberum* was the most abundant cladoceran. *Asplanchna* spp. and *Keratella cochlearis* were the most abundant rotifers. *Leptodiaptomus minutus* and *Cyclops scutifer* were the largest contributors to Calanoida and Cyclopoida copepod biomass, respectively.

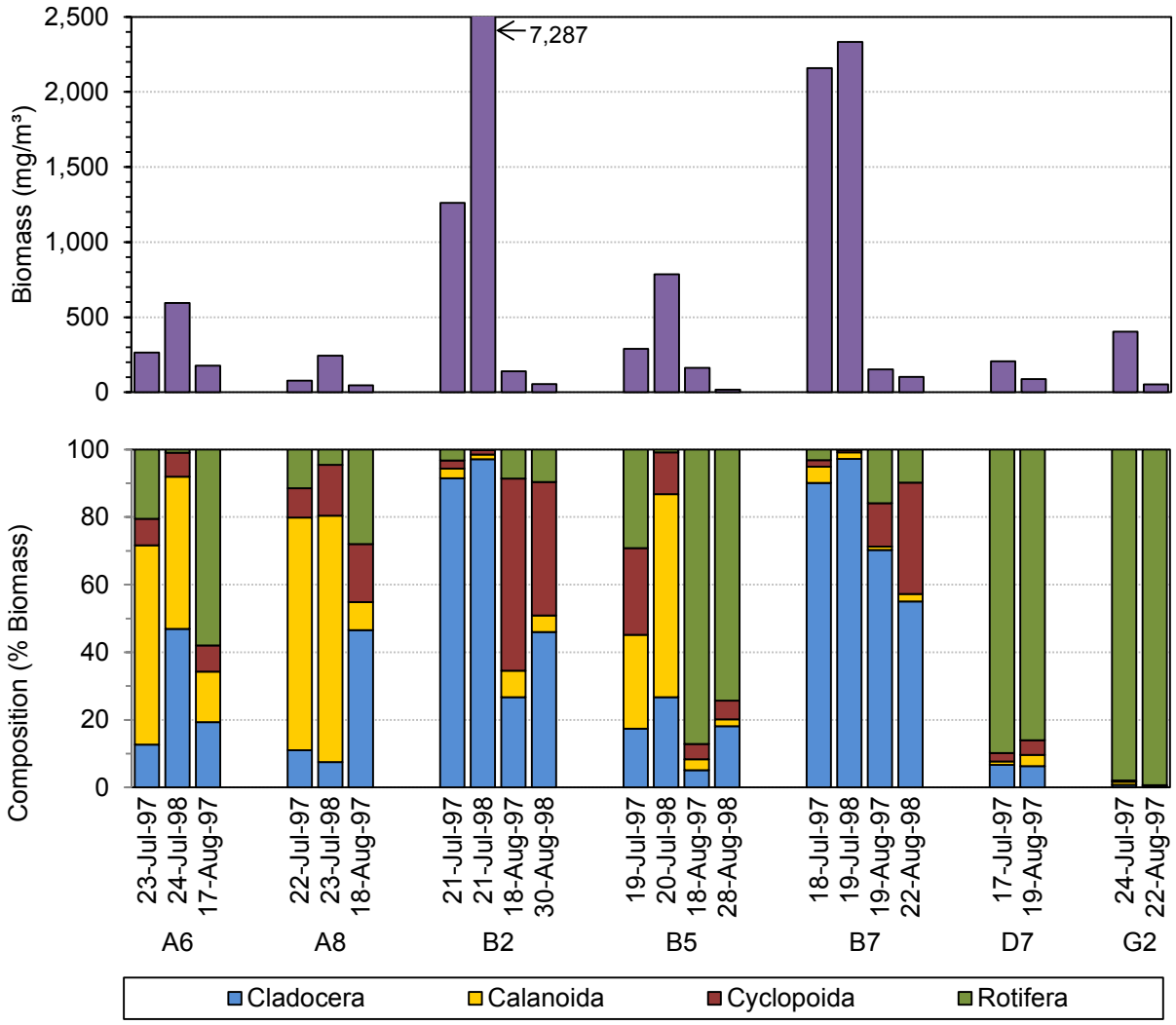


Figure 8-9: Zooplankton Biomass and Community Composition in the Peninsula Lakes of the Meliadine Study Area, 1997 to 1998

Trends of zooplankton density were notably different from zooplankton biomass, and the relationship between the two variables was weak (Table 8-10). When considering zooplankton density, Rotifera dominated the zooplankton community at each site; however, due to their small size, they did not make large contributions to the community biomass (Appendices E7 and E8).

A total of 42 zooplankton taxa were observed in the study area, but the number of taxa observed at one sampling location on a single date ranged from 7 to 22 (Table 8-10).

Table 8-10: Zooplankton Density, Biomass and Taxonomic Richness in the Peninsula Lakes of the Meliadine Study Area, 1997 to 1998

Site	Date	Density (No. indiv./m^3)	Biomass (mg/m^3)	Taxonomic Richness (No. taxa/site)
A6	23 Jul 97	763 545	265	16
	17 Aug 97	1 139 104	178	18
	24 Jul 98	127 278	594	21
A8	22 Jul 97	153 737	77	17
	18 Aug 97	26 047	47	15
	23 Jul 98	156 284	243	18
B2	21 Jul 97	594 544	1261	21
	18 Aug 97	264 494	140	15
	21 Jul 98	119 581	7287	22
	30 Aug 98	78 889	54	19
B5	19 Jul 97	840 204	289	16
	18 Aug 97	760 282	162	16
	20 Jul 98	210 653	786	19
	28 Aug 98	135 633	17	18
B7	18 Jul 97	637 546	2159	17
	19 Aug 97	353 755	153	14
	19 Jul 98	72 429	2333	19
	22 Aug 98	159 397	103	23
D7	17 Jul 97	1 614 279	207	13
	19 Aug 97	744 163	88	15
G2	24 Jul 97	2 598 011	404	12
	22 Aug 97	737 978	53	7

Note: No. = number; indiv. = individuals; ^{m3} = cubed metre; mg = milligram

8.8 Benthic Macroinvertebrates

A total of 10 lakes and 10 streams/rivers were sampled in 1997 in the study area, and 11 lakes and 11 streams/rivers were sampled in 1998 (Figure 8-1; Table 8-1). Benthic invertebrate data are presented in Appendices E9 to E14.

8.8.1 Streams

8.8.1.1 Meliadine Lake Outflows and Lower Meliadine River

Benthic invertebrate density in Meliadine Lake outflows and Lower Meliadine River ranged from 4731 ± 962 individuals/m^2 at MR-L to 39 331 ± 7471 individuals/m^2 at ML-MR (1998 data; Figure 8-10; Table 8-11; Appendix E10). Streams ML-PL and MR-L had densities below 13 000 individuals/m^2 whereas

ML-MR had densities greater than 29 000 individuals/m^2. There were too few sampling events to evaluate an annual trend in density.

Chironomidae was a very common taxonomic group in the Meliadine Lake Outflows and the Lower Meliadine River, comprising between 24% and 53% of total density (Figure 8-10). Oligochaeta was the second most common group in ML-MR, comprising 33% in 1997 and 23% in 1998. Coelenterata was common at ML-PL in 1997 (27%), but absent in 1998 when both Nematoda and Ostracoda comprised approximately 10% of invertebrate density. Nematoda was common at MR-L comprising 31% of total density. Differences in community structure among the streams of the Meliadine Study Area may be attributed, in part, to natural variation and differences in the physical habitat that was sampled (i.e., water depth, flow velocity, substrate composition).

Chironomidae communities were dominated by Orthocladiinae at each site, comprising over 90% of total density at ML-MR and between 62% and 79% at the remaining 2 sites (Figure 8-10; Appendix E11). The remaining Chironomidae taxa included Chironomini, Diamesinae, Tanypodinae or Tanytarsini.

Overall richness (no. taxa present at a site) for streams/rivers in the Meliadine Study Area included 47 taxonomic groups at the lowest level of identification (Table 8-11). Most taxa were identified to the family level, as a large number of individuals were not identified to genus. Richness at these sites (range: 11 ± 0 to 16 ± 1) was slightly lower than that of streams in Basins A, B and D (range: 14 ± 0 to 22 ± 1).

Simpson's Diversity Index (SDI) was also calculated for each site. SDI is based on the proportional distribution of organisms in a community, taking into account the number of taxonomic groups at a site as well as the abundance of each group. Values ranged from 0 to 1; values close to zero indicate low diversity and a small number of taxa can be very dominant. Values close to one indicate high diversity, where there are no strongly dominant taxa. SDI values ranged from 0.4 to 0.75 (Table 8-11). SDI at ML-PL was 0.4, while at the remaining sites SDI values were equal to or greater than 0.6, indicating moderate diversity with very few strongly dominant taxa.

Table 8-11: Benthic Invertebrate Density, Taxonomic Richness and Simpson's Diversity Index in the Meliadine Lake Outflows and Lower Meliadine River of the Meliadine Study Area, 1997 to1998

Site	Date	Density (No. indiv./m^2 ± 1 SE)	Taxonomic Richness (No. taxa/site ± 1 SE)	Simpson's Diversity Index
ML-MR	23 Jul 97	29 412 ± 5161	11 ± 0	0.60
ML-MR	25 Jul 98	39 331 ± 7471	16 ± 1	0.62
ML-PL	22 Jul 97	12 137 ± 2635	15 ± 1	0.75
ML-PL	27 Jul 98	6 960 ± 1554	12 ± 1	0.40
MR-L	20 Jul 98	4 731 ± 962	16 ± 1	0.75

Note: No. = number; indiv. = individuals; ^{m2} = square metre; SE = standard error

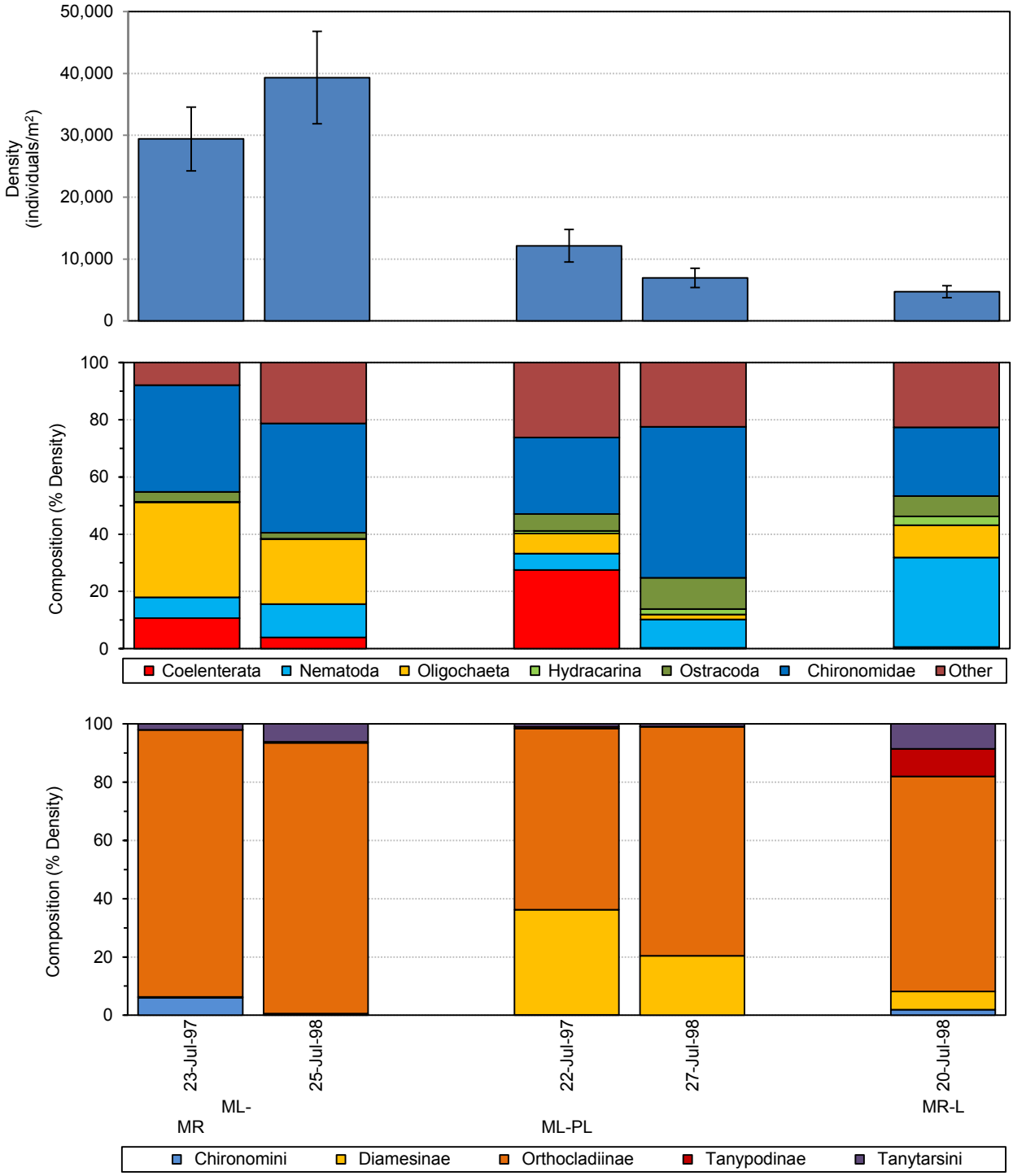


Figure 8-10: Benthic Macroinvertebrate Density, Community Composition, and Chironomidae Composition in the Meliadine Lake Outflows and Lower Meliadine River of the Meliadine Study Area, 1997 to 1998 (error bars represent ±1 standard error)

8.8.1.2 Basin A, B and D Streams

Benthic invertebrate density in streams located in Basins A, B and D ranged from 8853 ± 1255 individuals/m^2 in D6-7 (1997 sampling event) to 45 043 ± 2119 individuals/m^2 (± 1 standard error) in A5-6 (1998 sampling event) (Figure 8-11; Table 8-12; Appendix B10). For the majority of sites, density was between 15 000 and 30 000 individuals/m^2. These densities are generally considered low in comparison to some lake environments with densities greater than 10^6 individuals/m^2 (Hynes 1970; Resh and Rosenberg 1984; Rosenberg and Resh 1993). In general, density was similar between years.

The benthic invertebrate community varied among sites with no consistently dominant taxon (Figure 8-11). For example, Chironomidae comprised the majority of invertebrate density in Streams A5-6, A7-8 and D6-7, while Streams B5-6 and B6-7 had low Chironomidae densities in 1998. Streams A5-6 and A7-8 were almost completely devoid of Coelenterata (hydroids), yet Streams B1-2 and B6-7 had large numbers of this taxon. Oligochaeta (aquatic earthworms) was very common in Streams B3-4, B4-5 (1998) and B5-6, but contributed far less to overall density in remaining sites. Other common taxa included Nematoda (roundworms), Hydracarina (water mites), and Ostracoda (seed shrimp). The community was generally similar for sites sampled in both years. Differences in the community structure among the streams of the Meliadine Study Area may be attributed, in part, to natural variation and differences in the physical habitat that was sampled (i.e., water depth, flow velocity, substrate composition).

The Chironomidae was dominated by Orthocladiinae at all but one site, B4-5 (1998), where Tanytarsini comprised over 50% of total chironomid density (Figure 8-11; Appendix B11). Tanytarsini was the second most common chironomid taxon at most sites. The remaining Chironomidae taxa included Chironomini, Diamesinae and Tanytarsini.

Overall richness for streams in the Meliadine Study Area is 47 taxa (Table 8-12). The number of taxa present at each site ranged from 16 ± 0 to 22 ± 1.

SDI values ranged from 0.26 to 0.79, with the majority of values equal to or greater than 0.65 (Table 8-12). This indicates that most streams have a moderate level of diversity with very few strongly dominant taxa.

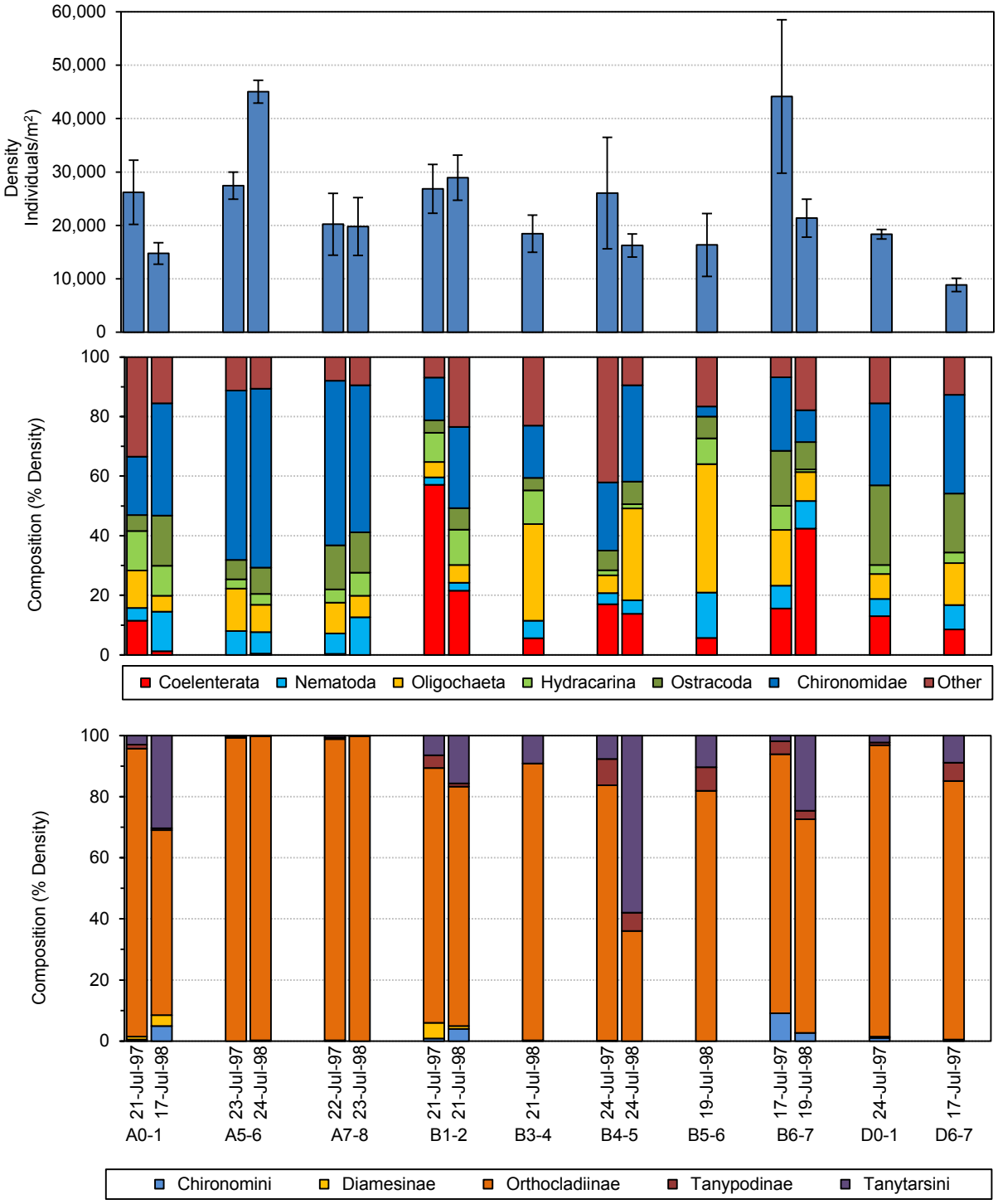


Figure 8-11: Benthic Macroinvertebrate Density, Community Composition, and Chironomidae Composition in the Basin A, B and D Streams of the Meliadine Study Area, 1997 to 1998 (error bars represent ±1 standard error)

Table 8-12: Benthic Invertebrate Density, Taxonomic Richness and Simpson's Diversity Index in the Basin A, B and D Streams of the Meliadine Study Area, 1997 to 1998

Site	Date	Density (No. indiv./m2 ± 1 SE)	Taxonomic Richness (No. taxa/site ± 1 SE)	Simpson's Diversity Index
A0-1	21 Jul 97	26 202 ± 5992	17 ± 1	0.7
A0-1	17 Jul 98	14 759 ± 2015	19 ± 0	0.65
A5-6	23 Jul 97	27 462 ± 2529	14 ± 0	0.33
A5-6	24 Jul 98	45 043 ± 2119	19 ± 1	0.26
A7-8	22 Jul 97	20 215 ± 5812	16 ± 1	0.36
A7-8	23 Jul 98	19 779 ± 5423	16 ± 0	0.47
B1-2	21 Jul 97	26 871 ± 4576	17 ± 1	0.62
B1-2	21 Jul 98	28 935 ± 4222	16 ± 1	0.75
B3-4	21 Jul 98	18 457 ± 3479	18 ± 1	0.81
B4-5	24 Jul 97	26 071 ± 10 434	18 ± 1	0.71
B4-5	20 Jul 98	16 258 ± 2164	17 ± 1	0.68
B5-6	19 Jul 98	16 355 ± 5890	18 ± 0	0.75
B6-7	17 Jul 97	44 148 ± 14 355	18 ± 1	0.79
B6-7	19 Jul 98	21 371 ± 3560	17 ± 0	0.74
D0-1	24 Jul 97	18 337 ± 902	18 ± 2	0.78
D6-7	17 Jul 97	8 853 ± 1255	22 ± 1	0.72

Note: No. = number; indiv.= individuals; ^{m2} = metre; SE = standard error

8.8.2 Lakes

8.8.1.1 Large Lakes

Benthic invertebrate density in the large lakes (Meliadine, Peter and Little Meliadine) ranged from 3171 ± 689 individuals/m^2 at ML-E in July 1997 to 52 400 ± 22 865 individuals/m^2 at ML-SE in July 1998 (Table 8-13; Figure 8-12; Appendix B13). The majority of sites had densities between 4000 and 20 000 individuals/m^2. These densities were low considering some lake environments have densities greater than 10^6 individuals/m^2 (Hynes 1970; Resh and Rosenberg 1984; Rosenberg and Resh 1993).

The benthic invertebrate community varied among sites with no consistently dominant taxon (Figure 8-12). For example, Chironomidae was the dominant taxon at ML-E (1998 sampling event) comprising over 70% of total density. Conversely, Chironomidae was far less dominant at LML (1998 sampling event), comprising 18% of total density. Nematoda comprised over 37% of total density at ML-W (1997 sampling event) but was completely absent from ML-E (1998 sampling event). Other common taxa included Ostracoda and Copepoda (Harpacticoida). The differences in the community structure among the streams of the Meliadine Study Area may be attributed, in part, to natural variation and differences in the physical habitat that was sampled (i.e., water depth, flow velocity, substrate composition).

Table 8-13: Benthic Invertebrate Density, Taxonomic Richness and Simson's Diversity Index in the Large Lakes of the Meliadine Study Area, 1997 to 1998

Site	Date	Density (No. indiv./m2 ± 1 SE)	Taxonomic Richness (No. taxa/site ± 1SE)	Simpson's Diversity Index
ML-E	19 Jul 97	3 174 ± 689	9 ± 1	0.73
	18 Jul 98	3 942 ± 827	6 ± 1	0.46
ML-S	20 Jul 97a	26 435	15	0.59
	25 Jul 98	9 870 ± 4371	7 ± 1	0.71
ML-SE	22 Jul 98	52 400 ± 22 865	9 ± 1	0.52
ML-W	20 Jul 97	1 815 ± 315	7 ± 1	0.77
	27 Jul 98	11 551 ± 2293	10 ± 1	0.60
PL	28 Jul 98	4 797 ± 1039	10 ± 0	0.78
LML	29 Jul 98	20 017 ± 4985	8 ± 1	0.69

[a] Only one sample was collected from ML-S in July 1997; therefore standard error was not calculated
Note: No.= number; indiv.= individuals; ^{m2} = square metre; SE = standard error

The composition of the Chironomidae showed a consistent pattern in terms of dominant taxa. Tanytarsini comprised over 95% of total density at ML-SE (1998 sampling event), but less than 13% at ML-E (both sampling events; Figure 8-12; Appendix B14). Chironomini comprised close to 50% of total density at ML-S (1998 sampling event) and less 5% at ML-SE (1998 sampling event). Other chironomid taxa included Diamesinae, Prodiamesinae, Orthocladiinae and Tanypodinae.

Overall richness for lakes in the Meliadine Study Area was 28 taxa (Table 8-13). Richness at these sites (range: 6 ± 1 to 10 ± 1) was lower than those in the corresponding streams (range: 11 ± 0 to 16 ± 1).

SDI values ranged from 0.46 to 0.78, indicating a moderate level of diversity (Table 8-13) with few strongly dominant taxa. Three sites, ML-E (1998 sampling event), ML-S (1997 sampling event), and ML-SE (1998 sampling event), had values below 0.60. The remaining sites had values of 0.60 or greater.

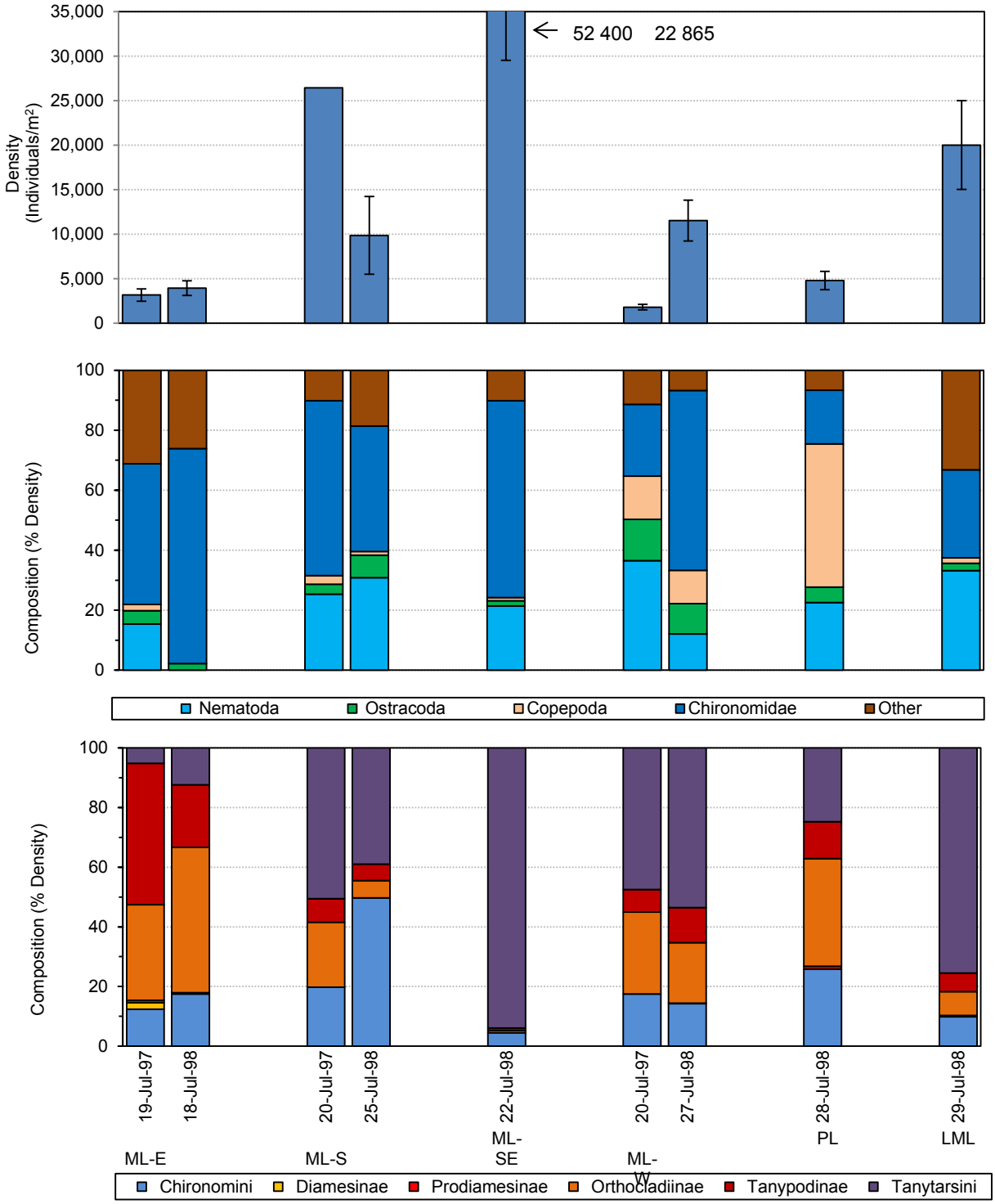


Figure 8-12: Benthic Macroinvertebrate Density, Community Composition, and Chironomidae Composition in the Large Lakes of the Meliadine Study Area, 1997 to 1998 (error bars represent ±1 standard error)

8.8.1.2 Peninsula Lakes

Benthic invertebrate density in the Peninsula lakes was higher than in the large lakes, ranging from 10 193 ± 1494 individuals/m^2 at A8 (1997 sampling event) to 248 812 ± 47 006 individuals/m^2 at A8 (1998 sampling event; Table 8-14; Figure 8-13; Appendix B13). The majority of sites had densities between 15 000 and 57 000 individuals/m^2, which are low considering some lake environments have densities greater than 10^6 individuals/m^2 (Hynes 1970; Resh and Rosenberg 1984; Rosenberg and Resh 1993).

Table 8-14: Benthic Invertebrate Density, Taxonomic Richness and Simson's Diversity Index in the Peninsula Lakes of the Meliadine Study Area, 1997 to 1998

Site	Date	Density (No. indiv./m^2 ± 1 SE)	Taxonomic Richness (No. taxa/site ± 1 SE)	Simpson's Diversity Index
A6	23 Jul 97	11 141 ± 2319	10 ± 2	0.81
	24 Jul 98	18 058 ± 1494	10 ± 1	0.80
A8	22 Jul 97	10 493 ± 1494	7 ± 1	0.61
	22 Jul 98	248 812 ± 47 006	9 ± 0	0.46
B2	21 Jul 97	17 565 ± 5951	8 ± 1	0.68
	21 Jul 98	50 227 ± 12 876	8 ± 1	0.53
B5	19 Jul 97	56 978 ± 20 734	10 ± 1	0.68
	20 Jul 98	38 000 ± 6003	8 ± 1	0.78
B7	18 Jul 97	31 391 ± 5457	9 ± 0	0.72
	19 Jul 98	83 232 ± 16 081	10 ± 0	0.55
D7	17 Jul 97	94 185 ± 20 390	10 ± 2	0.66
G2	24 Jul 97	25 928 ± 12 837	7 ± 0	0.63

Note: No.= number; indiv.= individuals; ^{m2} = square metre; SE = standard error

The benthic invertebrate community varied among sites and there was no consistently dominant taxon (Figure 8-13). For example, Chironomidae comprised over 64% of total density at sites A8 and B7 (1998 sampling events), and less than 5% of total density at sites B7 and D7 (1997 sampling events). Similarly, Ostracoda comprised over 50% of total density at B2 (1998 sampling event) and D7 (1997 sampling event), and less than 3% at A6 (1997 sampling event) and A8 (both sampling events). Other common taxa included Nematoda and Copepoda (Harpacticoida). Differences in the community structure among the streams of the Meliadine Study Area may be attributed, in part, to natural variation and differences in the physical habitat that was sampled (i.e., water depth, flow velocity, substrate composition).

The Chironomidae was dominated by Tanytarsini at all but 2 sites, comprising over 45% of total density (Figure 8-13; Appendix B14). At A6 (1998 sampling event) and D7 (1997 sampling event), Chironomini was the dominant taxon, comprising over 60% of total density. Other chironomid taxa included Diamesinae, Orthocladiinae and Tanypodinae.

Overall richness for the Peninsula lakes in the Meliadine Study Area was 28 taxa (Table 8-14). As expected, richness at these sites (range: 7 ± 0 to 10 ± 2) was lower than in the corresponding streams (range: 14 ± 0 to 22 ± 1). SDI values ranged from 0.46 to 0.81, indicating a moderate level of diversity (Table 8-14) with few strongly dominant taxa. All but 2 sampling events, A8 (1998) and B7 (1998), yielded values higher than 0.60.

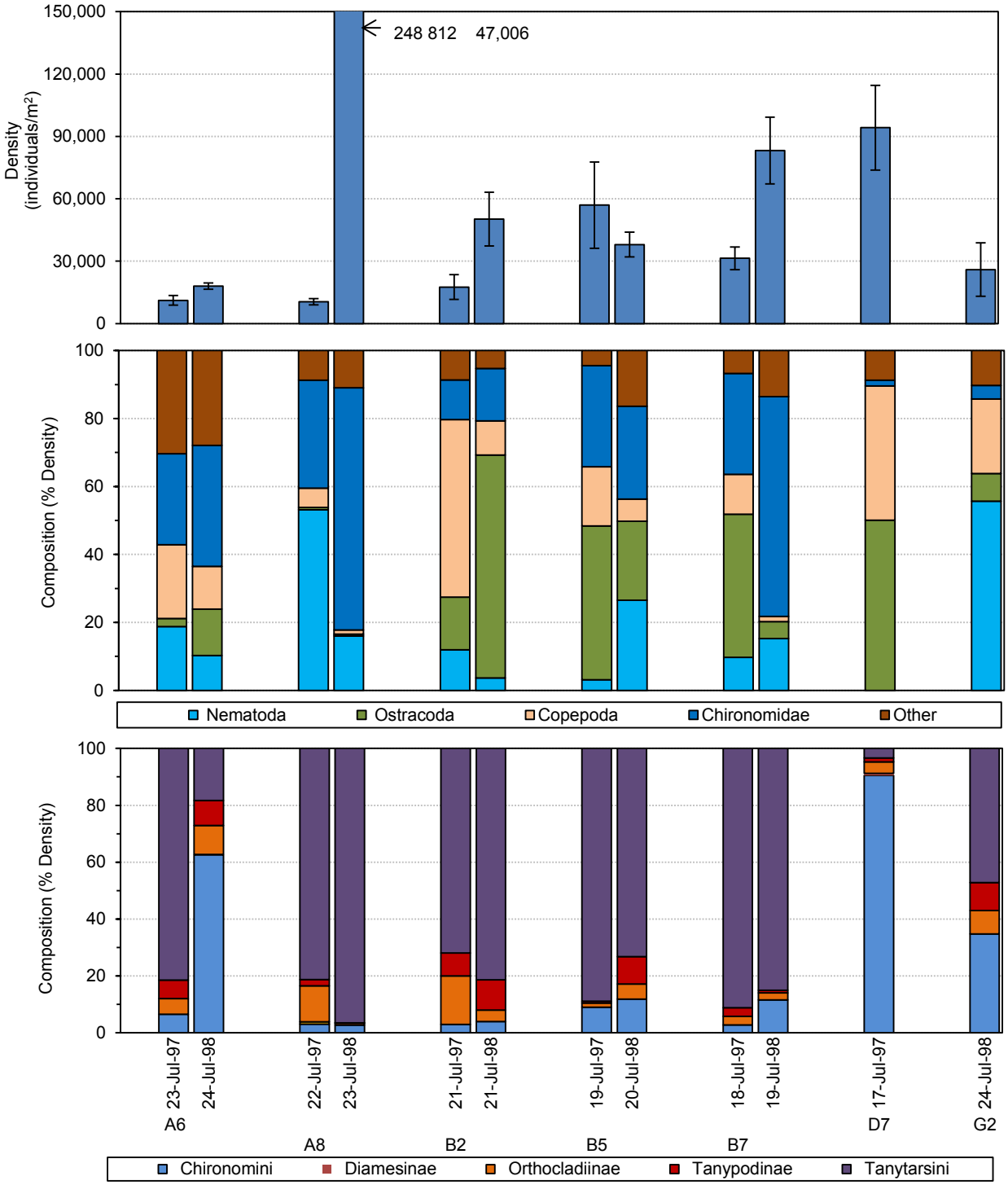


Figure 8-13: Benthic Macroinvertebrate Density, Community Composition, and Chironomidae Composition in the Peninsula Lakes of the Meliadine Study Area, 1997 to 1998 (error bars represent ± 1 standard error)

8.9 Summary and Conclusions

8.9.1 Periphyton

8.9.1.1 Streams

The majority of chlorophyll *a* concentrations were below 8 µg/cm^2 and most AFDM concentrations were below 35 µg/cm^2, indicating that these systems are oligotrophic (i.e., have low nutrient concentrations and low biological productivity). Periphyton communities were dominated by Cyanophyta (cyanobacteria), with both Bacillariophyta (diatoms) and Chlorophyta (green algae) common at most sites.

Chlorophyll *a* concentrations in the smaller streams (Basins A, B, D) were higher than Meliadine Lake outflows and the Lower Meliadine River. Higher productivity at these small sites could be due to warmer temperatures and high nutrient inputs coming from the lakes, resulting from larger surface area to volume ratios. Conversely, AFDM was higher at the larger outflows/rivers than in the smaller streams, indicating that the organic content of the periphyton is higher in the outflows/rivers. This may be reflecting the large, deeper water habitats (i.e., more stable flows and reduced stream bed scour throughout the year) that receive less light penetration. Variability among sites and between years was high, with no consistent trend.

The periphyton communities and densities in the sampled waterbodies differed slightly from previous studies of lakes in nearby systems (e.g., different dominant species, lower periphyton cell abundances in the Study Area) (RL&L 1995, 1997a, 1997b; Moore 1978a). This could be a result of geographical, physical and environmental variations as well as the timing of sample collections, selection of different stream habitats, the amount of nutrient availability and differences in laboratory processing methods (e.g., Moore 1978a identified and counted colonies of cyanophyta and not individual cells; RL&L 1998).

8.9.1.2 Lakes

As in the streams in the Study Area, the chlorophyll *a* and AFDM concentrations were low, indicating oligotrophic conditions. The majority of sites had chlorophyll *a* concentrations below 4 µg/cm^2 and AFDM concentrations below 50 µg/cm^2. Lakes were also dominated by Cyanophyta, with both Bacillariophyta and Chlorophyta common at most sites.

Both chlorophyll *a* and AFDM concentrations were higher in the Peninsula lakes than in the large lakes. Greater productivity in these small sites could be due to warmer temperatures, high nutrient input and high light penetration (Kalff and Welch 1974; Welch and Kalff 1974; Bergmann and Welch 1990). The scouring effects of larger waves that would be expected in Meliadine Lake proper would limit periphyton production. Variability among sites and between years was high, with no consistent trends.

Periphyton divisions and/or phyla present in the Study Area were similar to those in previously studied lakes in nearby systems (Roeder et al. 1975; Moore 1978a; RL&L 1995, 1997a, 1997b), but due to the lack of further identification of some taxonomic divisions in the earlier studies, more detailed community comparisons cannot be made. Periphyton densities in the Study Area were lower than other reported densities in nearby systems (Moore 1978a and 1978b), possibly due to the timing of sample collections, selection of different lake habitats, the lower nutrient availability and differences in laboratory processing as discussed above.

8.9.2 Phytoplankton

Chlorophyll *a* concentrations in all lakes were below 3.1 mg/m^3, indicative of oligotrophic conditions (Wetzel 1983). In general, the phytoplankton community biomass of each site was dominated by Chrysophyta (golden-brown algae). Chlorophyta, Pyrrophyta (dinoflagellates) and Bacillariophyta were also abundant at most sites. Cyanophyta did not have a high biomass at any site, but were numerically abundant.

The smaller Peninsula lakes typically had higher phytoplankton biomass, chlorophyll *a* and taxonomic richness compared to the larger lakes (i.e. Meliadine, Peter and Little Melaidine lakes). Smaller lakes may be more productive due warmer temperatures and higher nutrient inputs, which may occur due to their larger surface area to volume ratios.

Additionally, phytoplankton biomass, chlorophyll *a* and taxonomic richness tended to be highest in 1998 suggesting that regional processes such as weather may have been more favourable to phytoplankton growth in 1998. Seasonal and interannual variation tended to be low at some sites, and high at others, with no consistent trends.

The phytoplankton communities of the sampled waterbodies in the Study Area were similar in many respects to the communities of many other lakes in the Arctic and sub-Arctic region (as described by Moore 1978a, 1978b; RL&L 1997a, RL&L/Golder 2002; Golder 2008a).

8.9.3 Zooplankton

Zooplankton biomass was relatively consistent among the larger lakes (i.e., Meliadine, Peter and Little Meliadine lakes) but was highly variable among the smaller Peninsula lakes. In particular, sites B2 and B7 had particularly high zooplankton biomass during the summer. The factors responsible for the high biomass are not known, but may include an abundance of food (phytoplankton) or reduced grazing pressure from fish. *Holopedium gibberum* (a particularly large cladoceran that possesses a large gelatinous sheath that covers most of its body which may limit predation from fish) was the dominant species at most sites (including B2 and B7). Zooplankton community biomass is typically highest in early summer, coinciding with warm temperatures and high phytoplankton biomass (Sommer et al. 1986). This trend was also observed in the Study Area.

The zooplankton communities included no uncommon or rare species, and were similar in many respects to the communities of many other small lakes in the Arctic and sub-Arctic region (as reported by Moore 1978a, 1978b; RL&L 1997a; RL&L/Golder 2002; Golder 2008c).

8.9.4 Benthic Macroinvertebrates

8.9.4.1 Streams

Benthic invertebrate densities at the majority of streams in the Study Area ranged from 10 000 to 30 000 individuals/m^2. The community composition in streams varied. Chironomidae (midges), Coelenterata (hydroids) and Oligochaeta (aquatic earthworms) were generally the most dominant taxa. Nematoda (roundworms), Hydracarina (aquatic mites) and Ostracoda (seed shrimp) were also common. Orthocladiinae was the most dominant Chironomid taxon in every stream sampled in the Study Area. Chironomini, Diamesinae, Tanypodinae and Tanytarsini were also present at most sites.

Taxonomic richness values at the Meladine Lake outflows and the Lower Meladine River were much lower than the Peninsula streams (11 to 16 taxa/site, identified at the family level versus 16 to 22 taxa/site, respectively). Given the relatively high SDI values for both groups of streams, this indicates that most streams have moderate to high diversity with few taxa that are overly dominant.

The benthic macroinvertebrate communities in the streams of the Meliadine Study Area were representative of subarctic systems. The species composition and low densities reported by the present study and by other investigations are indicative of oligotrophic systems (i.e., low productivity and short growing seasons; Hynes 1970; Resh and Rosenberg 1984; Rosenberg and Resh 1993). The densities reported in the present study, however, indicate greater productivity than the streams of central mainland NWT.

8.9.4.2 Lakes

Benthic invertebrate densities in the majority of lakes in the Study Area ranged from 10 000 to 90 000 individuals/m^2, with Peninsula lake densities much greater than those in large lakes. Benthic invertebrate communities in lakes varied, and there were no consistently dominant taxa. Chironomidae, Nematoda, Ostracoda, and Copepoda were common at most sites. The most dominant chironomid taxon was Tanytarsini, followed by Chironomini and Diamesine. Other chironomids included Prodiamesinae, Orthocladiinae and Tanypodinae.

Taxonomic richness was similar between the Peninsula and large lakes with 6 to 10 taxa/site (identified at the family level). Most SDI values were greater than 0.60, indicating that most lakes have moderate to high diversity with few taxa that are overly dominant.

The benthic macroinvertebrate communities in the lakes of the Meliadine Study Area were representative of sub-Arctic systems. The species composition and low densities reported by the present study and previous studies are indicative of oligotrophic systems (i.e., low productivity and short growing seasons: Hynes 1970; Resh and Rosenberg 1984; Hershey 1985; Welch et al. 1988; Jorgenson et al. 1992); however, the densities reported by the present study indicate greater productivity in the Study Area than in lakes located in central mainland NWT.

9.0 FISH POPULATIONS

Fish populations were studied from 1997 to 2009 during numerous investigations at streams, ponds, and lakes within the Meliadine Study Area. Foci of the investigations varied; it was first important to determine the abundance and distribution of different species throughout the landscape. To do so, biologists used a wide variety of techniques to sample fish communities and collect basic biological information. During the sampling events, life history data were compiled and used to calculate length, weight and age statistics for fish. More complex studies were also carried out to describe movements of Arctic char and to collect tissue samples for metal analysis. Arctic char migrations in the Meliadine River were studied and a radio telemetry and tagging program was employed to describe seasonal movements by use of different areas of the Study Area. To provide baseline information on the concentrations of metals in fish, tissue samples were collected from several species representing different trophic levels in the Arctic freshwater food web. Together, these studies provided a comprehensive description of fish populations in the Study Area.

9.1 Methods

As discussed in Section 7.1.2, waterbodies in the study area that were greater than 2 m deep were classified as lakes and waterbodies less than 2 m deep were classified as ponds.

9.1.1 Capture Methods

Assessments of fish populations in study area lakes and watercourses were conducted using a variety of sampling methods during 29 field sessions in the 1997 to 2009 period (Table 9-1). Being cognisant of the value of the Meliadine Lake fishery to the domestic harvest of Rankin Inlet, every effort was made to minimize fish mortalities. The primary methods used to capture fish in lakes were fyke nets, gill nets (short duration sets), and angling. Backpack electrofishers were used to collect fish from streams, rivers, and small ponds. A fish fence was installed in the lower reaches of the Meliadine River to capture fish migrating from Hudson Bay during late summer/early fall. Other methods used to sample fish communities included minnow trapping in lakes and small ponds, sampling of local fishers' catch on an opportunistic basis, and a fish tag return program implemented among the fishers in Rankin Inlet. In addition, egg sampling with fine mesh D-ring kick nets was used during spring to identify Arctic grayling spawning habitat in streams through collection of deposited eggs. Radiotelemetry flights were used to determine movements of fish implanted with radio transmitters. Detailed descriptions of the primary methods of fish capture are provided below.

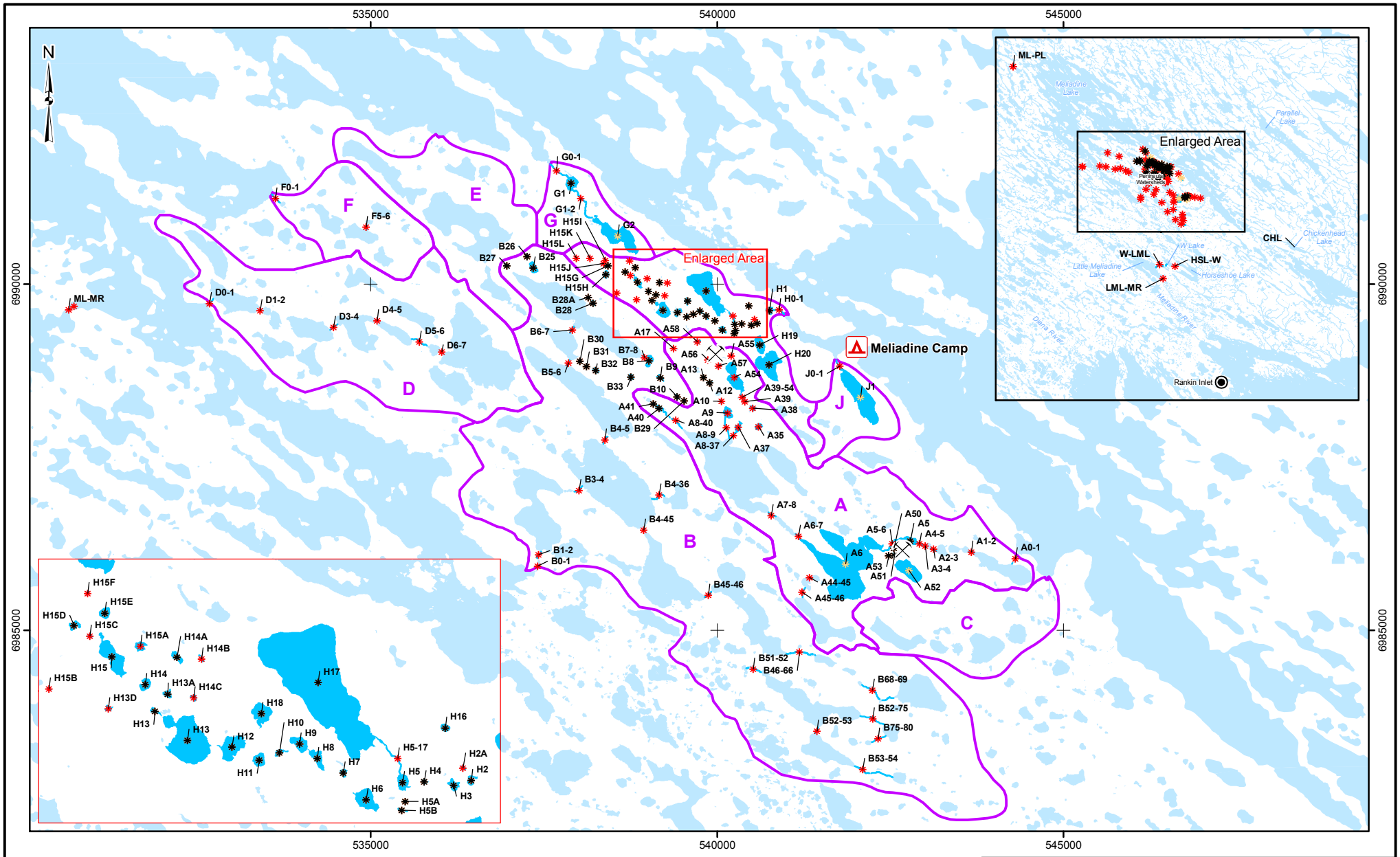
Table 9-1: Primary Fish Capture Methods Used in the Meliadine Study Area, 1997 to 2009

Field Session	Gill Net	Fyke Net	Backpack Electrofisher	Angling	Fish Fence	Minnow Traps	Egg Sampling	Radio-telemetry
1 to 23 Jun 1997			√	√			√	
11 to 30 Jul 1997	√	√	√	√				√
12 Aug to 5 Sep 1997	√		√	√	√			√
12 to 15 Sep 1997								√
26 to 29 Sep 1997	√							√
24 to 31 Oct 1997								√
22 to 27 Apr 1998								√
10 to 22 Jun 1998			√	√			√	√
8 to 31 Jul 1998	√	√	√	√				√
12 Aug to 4 Sep 1998	√	√	√		√			√
2 to 5 Oct 1998	√							√
6 to 9 Nov 1998								√
18 to 21 Jun 1999								√
16 to 26 Jul 1999	√							√
4 Aug to 15 Sep 1999					√			√
29 Sep to 4 Oct 1999	√							
19 to 26 Jun 2000			√					√
17 Jul to 2 Aug 2000	√		√	√				
13 to 27 Sep 2000	√	√	√	√				√
12 to16 Oct 2000								√
3 to 6 Nov 2000								√
10 to 12 Apr 2001								√
8 to 10 Jun 2001								√
22 to 24 Jun 2001								√
6 to 7 Jul 2004			√				√	
17 to 24 Jun 2008			√				√	
10 to 14 Jul 2008	√	√	√			√		
31 Jul to 5 Aug 2008	√	√	√			√		
1 to 15 Jul 2009	√	√	√			√		

Backpack Electrofisher

Fish populations in Meliadine Lake outlets and shallow streams and ponds in Peninsula basins were sampled using a backpack electrofisher (Smith-Root Type XII high output) (Figure 9-1). In watercourses, the electrofisher operator waded upstream along the banks and sampled habitat suspected of holding fish (undercut banks, boulder cover, etc.). The netter, who was positioned immediately downstream, collected stunned fish and placed them in a holding container filled with water. In ponds, electrofishing crews sampled habitats along the shoreline. Recorded information at each sampled site included UTM coordinates, date, time of day, water temperature, pH, conductivity, distance sampled (m), sampling effort (s), electrofisher settings, and the number and species of fish captured or observed.

N:\Bur-Graphics\Projects\2007\1373\07-1373-0055\Mapping\MXD\2009\Fisheries\figure-09-01_backpack-electrofishing-minnow-traps.mxd



LEGEND

- Backpack Electrofishing Location
- Minnow Trap Location
- Backpack Electrofishing and Minnow Trap Location
- Camp
- Proposed Mine Site
- Sampled Watercourse
- Sampled Waterbody
- Waterbody
- Watershed Boundary

REFERENCE

Base data obtained from Comaplex Minerals Corporation
Projection: UTM Zone 15 Datum: NAD 83

1.5 0 1.5
SCALE 1:75,000 KILOMETRES

PROJECT
COMAPLEX MINERALS CORP

COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE

BACKPACK ELECTROFISHING AND MINNOW TRAP SAMPLING LOCATIONS, 1997-2009

Golder Associates
Edmonton, Alberta

PROJECT No. 09-1373-0010			PHASE No. 1000	
DESIGN	RP	18 Nov. 2009	SCALE AS SHOWN	REV. 0
GIS	CDB	18 Nov. 2009		
CHECK	AM	3 Jul. 2012		
REVIEW	JP	4 Jul. 2012		

FIGURE 9-1

Gill Nets

Variable-mesh "standard" gill net sets were employed during the summer and fall field sessions from 1997 to 1999 to sample fish communities in Meliadine Lake, Little Meliadine Lake and selected lakes within Peninsula basins A, B, and D (Figure 9-2). Each "standard" gill net set was comprised of six 15.2 × 1.8 m panels of 19, 38, 64, 89, 102, 114, and 140 mm mesh sizes (the 19 mm mesh was substituted with 25 mm mesh in 1998 and 1999). These "standard" gill net sets were used to sample a wide range of fish size-classes and to allow comparison of catch rates. Set times were kept short (generally less than 2 h) to minimize capture related mortalities; however, overnight sets were employed occasionally to collect fish for tissue samples or to confirm absence of fish in a waterbody.

In subsequent years, different combinations of mesh sizes were used depending on the objectives of specific investigations (e.g., collection of fish for radio transmitter implants, population estimates, presence/absense of forage fish) and size of the targeted fish. Net locations and depths were adjusted between sets to optimize capture success.

Information recorded at the gill net sites included UTM coordinates, date and time of set and lift, water temperature, weather conditions, water depth, substrate, mesh sizes used, and the number and species of fish captured.

Fyke Nets

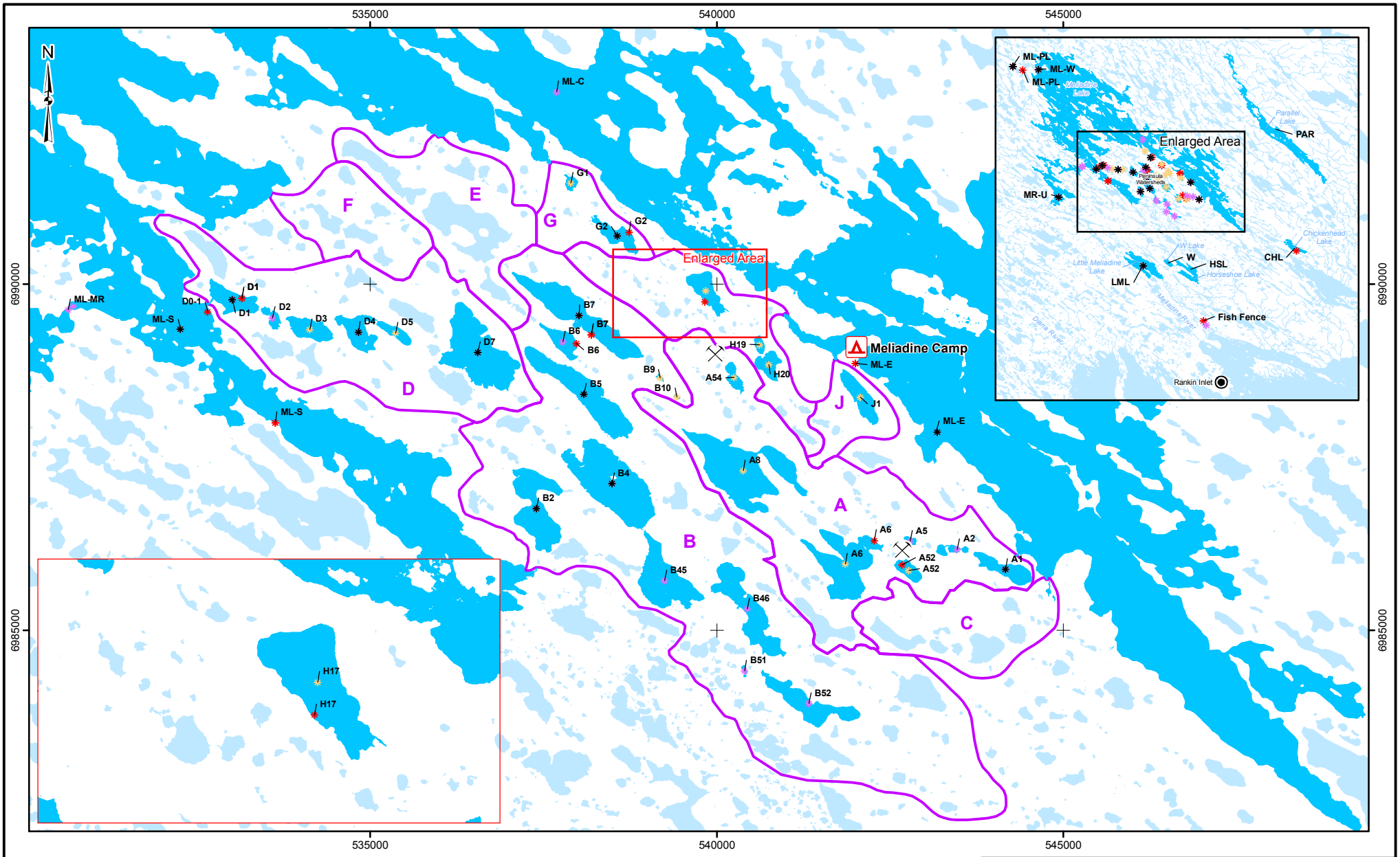
A double (directional) Arctic fyke net was used to assess near-shore fish movements in the east and south basins of Meliadine Lake in 1997 and 1998 (Figure 9-2). The double fyke net was installed in sandy beach areas with uniform and moderate slopes of about 5%. The fyke net consisted of 2 trap nets (to determine direction of movements), two 15 m wings, and a 30 m lead to shore. The traps were 3.7 m long and 0.9 m wide, contained 2 throats (0.15 × 0.25 m each), and were constructed of 13 mm dark grey knotless nylon mesh. Wings and lead were constructed of 25 mm dark grey knotless nylon and were 1.7 m deep. The fyke net was held in place by metal stakes driven into the lake bottom.

The double fyke net was installed 4 times at 2 locations: in a small bay near the Comaplex camp in the east basin of Meliadine Lake (in July 1997 and July 1998) and beside a sandy point in the south basin (in July 1998 and August 1998) to provide a continuous record of fish captures throughout a period of several days.

Single Arctic fyke nets were used in 2000, 2008 and 2009 at the west outlet of Meliadine Lake and in selected Peninsula lakes and streams. The size and material of the single fyke nets were the same as described above; the only difference was that the lead panel funnelled fish into a single central trap, instead of 2 separate traps. In lakes, the single fyke nets were set with a lead perpendicular to shore (wings parallel to shore) to trap all fish moving along shore. In contrast, the single fyke nets set in streams (D0-1 and ML-PL) did not employ a lead; instead, the wings extended from bank to bank to funnel all downstream (D0-1) and upstream (ML-PL) migrants into the trap (similar to a fish fence configuration).

Recorded information at each fyke net check included water temperature, set duration, and the number and species of fish captured. The number and species of fish captured in the double fyke nets were recorded separately for each directional compartment.

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LEGEND

- Angling Location
- Fyke Net Location
- Gill Net Location
- Gill Net and Angling Location
- Camp
- Proposed Mine Site
- Sampled Watercourse
- Sampled Waterbody
- Waterbody
- Watershed Boundary

1.5 0 1.5
SCALE 1:75,000 KILOMETRES

REFERENCE

Base data obtained from Comaplex Minerals Corporation
Projection: UTM Zone 15 Datum: NAD 83

PROJECT
COMAPLEX MINERALS CORP
COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE
GILL NET, FYKE NET, ANGLING AND FISH FENCE LOCATIONS, 1997-2009

Golder Associates
Edmonton, Alberta

PROJECT No. 09-1373-0010			PHASE No. 1000	
DESIGN	RP	18 Nov. 2009	SCALE AS SHOWN	REV. 0
GIS	CDB	18 Nov. 2009		
CHECK	AM	3 Jul. 2012		
REVIEW	JP	4 Jul. 2012		

FIGURE 9-2

Minnow Traps

Gee-type minnow traps, baited with cheese or cat food, were used in 2008 and 2009 to sample small-bodied fish inhabiting littoral areas of small ponds and lakes (Figure 9-1). The traps were distributed to sample areas not assessed effectively by electrofishing. Set durations ranged from 16 to 48 h. Data collected included UTM coordinates, set and lift times, and the species and number of fish captured.

Angling

A limited angling program was carried out from 1997 to 2000 to supplement fish distribution and life history information (Figure 9-2). Angling was conducted using barbless lures by casting from shore or boat or by trolling behind a boat. Recorded data included date, number of hours fished, method (trolling or casting), UTM location, and number of fish captured and/or observed.

Fish Fence

During the fall sessions of 1997, 1998 and 1999, a fish fence (provided by DFO in Rankin Inlet) was installed in the lower section of the Meliadine River (approximately 2 km from the mouth) to assess upstream fall migrations of Arctic char and other species from Hudson Bay (Figure 9-2). This location was previously used for fish fence installation by DFO in 1991 (McGowan 1992); it provided a narrow and uniform channel with large substrate that limited the chance of scouring to undermine and breach the fence.

The fish fence consisted of 10 panels (3.1 $\times$ 1.5 m each) constructed of a metal frame with removable conduit rods (18 mm in diameter). The spacing between the rods was 15 mm. The panels were supported by wooden “A” frames and sand-bagged into position. Upstream migrant fish were funnelled into a trap box located in mid-stream. The trap consisted of a wooden frame (2.3 m long, 1.8 m wide, and 1.6 m high) perforated with holes for holding vertical conduit sections that formed the trap walls. The entrance to the trap consisted of a wooden funnel that reduced the opening to 0.18 m in width. The trap was covered with plywood to provide shade for fish.

The fish fence was operational between 15 August and 3 September in 1997, 16 August and 2 September in 1998, and 10 August and 12 September in 1999. Generally, it was checked twice daily to monitor diurnal movement patterns; however, inclement weather contributed to a few irregular trap check intervals of up to 56 h. Information recorded during each trap check included water temperature, set duration, and life history data on captured upstream migrants.

Egg Sampling

Egg sampling was conducted at suspected Arctic grayling spawning sites in Peninsula streams and Meliadine Lake outlets in conjunction with backpack electrofishing during spring field sessions. The procedure involved positioning a fine mesh D-ring kick net on the stream bottom immediately downstream from a potential spawning site and disturbing the substrate (approximate area of 0.1 ^{m2}) with a foot for approximately 10 to 30 seconds. The contents of each sampled area were examined in the field and a subsample of collected eggs was preserved for positive identification in the laboratory. Recorded data included the total number of sampled areas, total number of Arctic grayling eggs encountered, maximum number of eggs per sampled area, and the total number of sampled areas that did not yield eggs.

Tag Returns

Residents of Rankin Inlet were invited to participate in the present study by providing information on their catches of fish that have been marked with Floy tags (particularly Arctic char tagged during the 1997 to 1999 fish fence operations in the lower Meliadine River). The tag return program was advertised in the community through a poster campaign and radio announcements. The fish tags, along with information that included the participant's name, date and location of capture, and the fishing method, were handed over to the Renewable Resources office in Rankin Inlet. A small reward ($5) was offered for each completed tag return.

9.1.2 Fish Data Collection and Analyses

Life history information was collected from all captured fish or from a subsample if large numbers were encountered. These data included fork length, weight, and sexual maturity (if discernible through external examination). Appropriate non-lethal ageing structures (e.g., scales, fin rays) were also collected. Floy tags were applied to sportfish larger than 250 mm in fork length to assess their movements (through subsequent recaptures); sportfish smaller than 250 mm in fork length were fin clipped (first 2 or 3 rays of pelvic fin were removed) to determine the frequency of recaptured fish during a particular sampling session. Accidental mortalities (as well as fish sacrificed for tissue samples) were examined for stomach contents and stage of sexual maturity; they were also dissected to collect otoliths (for age determinations).

Fish ageing was conducted in accordance with the methods outlined in Mackay et al. (1990). A random sample of ageing structures was read by 2 independent readers and verified for accuracy by a third reader. In cases where differences in ages were noted, the samples were re-aged until a consensus was reached.

Relative abundance of fish was calculated in terms of catch-per-unit-effort (CPUE) based on the number of captured (and observed) fish per unit of effort that was dependent on the sampling method. The units of effort included:

- minutes of sampling time (for backpack electrofishing);
- hours of trap deployment between checks (fyke nets and fish fence);
- net-units, equivalent to one net panel (27.4 ^{m2} in area) set for 24 h duration (gill nets);
- 24 h deployment of one trap (minnow traps); and
- rod-hours (angling).

To facilitate comparisons of life history data between groups of waterbodies within the study area, length-weight regressions were calculated for each species as follows:

$$\log \text{Weight (g)} = \log a + b \cdot \log \text{Fork Length (mm)}$$

Relative weight (Wr), defined as the ratio of an individual fish's weight (W) to that of a length-specific standard for the species (W_s) or $W_r = W/W_s \cdot 100$, was determined using the length-weight regression equation developed for the species. A minimum fork length (MFL) was used in the calculation of relative weight to account for the variation in weight data collected for small fish. For length-at-age analyses, all captured methods were combined. Analysis of variance (ANOVA) was used to make comparisons among basins and among years.

An estimate of the size of Arctic grayling population in Lake B7 was obtained using the mark-recapture method and applying the following equation (Bailey 1952):

$$N = M(C+1)/(R+1),$$

Where:

M = number of individuals marked in the first sample;

C = total number of individuals captured in the second sample; and

R = number of individuals in second sample that are marked.

This equation is based on the Peterson method, generally considered the simplest method of estimating population size. Binomial confidence intervals (95%) were calculated graphically (Krebs 1999).

To facilitate data recording and presentation of the results, all captured fish species were assigned a four-letter code in accordance with Mackay et al. (1990). The common and scientific names of all fish species mentioned in this report, as well as their corresponding coded abbreviations, are presented in Table 9-2.

Table 9-2: Common and Scientific Names of Fish Species Captured in the Meliadine Study Area, and their Coded Abbreviations

Family	Common Name	Scientific Name	Code[a]
Salmonidae	Arctic char	*Salvelinus alpinus* (Linnaeus)	ARCH
	Lake trout	*Salvelinus namaycush* (Walbaum)	LKTR
	Arctic grayling	*Thymallus arcticus* (Pallas)	ARGR
	Round whitefish	*Prosopium cylindraceum* (Pallas)	RNWH
	Cisco	*Coregonus artedi* Lesueur	CISC
Gadidae	Burbot	*Lota lota* (Linnaeus)	BURB
Cottidae	Slimy sculpin	*Cottus cognatus* Richardson	SLSC
Gasterosteidae	Ninespine stickleback	*Pungitius pungitius* (Linnaeus)	NNST
	Threespine stickleback	*Gasterosteus aculeatus* Linnaeus	THST

[a] According to Mackay et al. (1990)

9.1.3 Radio Telemetry

The radio telemetry program was initiated in June 1997 was continued until 2001. The program involved surgical implantation of radio transmitters in fish and subsequent tracking to determine seasonal movements and identify critical spawning, summer feeding, and overwintering habitats. In 1997, Arctic char (*n*=27), Arctic grayling (*n*=19), and lake trout (*n*=13) were implanted with radio transmitters. Movements of these fish were tracked until November 1998, when transmitters' batteries exceeded their 18-month life span. Additional radio tags were implanted in Arctic char (*n*=5) and Arctic grayling (*n*=4) during fall 1998 and were tracked until September 1999. The radio telemetry program was continued in 2000 by implanting 12 radio tags in Arctic char spawners captured near the west end of Meliadine Lake in September 2000 and tracking them until June 2001. The following description summarizes the radio telemetry procedures.

Surgical Implantation

The radio transmitters used in the study were manufactured by Lotek Engineering Inc. of Aurora, Ontario. Two models of transmitters were used for implantation. The larger model (MCFT-7A), used in Arctic char and lake trout, was 83 mm in length, 16 mm in diameter, and weighed 29 g. The smaller model (MCFT-3BM), which was used in Arctic grayling, was 43 mm in length, 11 mm in diameter, and weighed 8 g. Both models were equipped with a 435 mm trailing whip antenna. Each transmitter was equipped with a microprocessor to control its activation time (time on and off). The smaller transmitter (8 g) operated 12 h on and 12 h off with a minimum life span of 358 days, whereas the larger transmitter (29 g) operated 18 h on and 6 h off for a minimum life span of 415 days. Both models operated on high frequencies in the 149.70 to 149.76 MHz range. The external capsule material of the transmitters was nalgene; it was designed not to bond to protein and thus reduce the potential for rejection or expulsion from the body of the fish.

Surgical implantation procedures used during this study were based on techniques described by Bidgood (1980) and Knecht et al. (1981). A 60 L anaesthetic tank was positioned close to the river or lake. Fish selected for transmitter implantation were placed individually in the anaesthetic tank. Clove oil at a concentration of 40 ppm was used to induce rapid anaesthesia. Inducement time was normally from 2.5 to 5 min. Fish were then removed from the anaesthetic tank and placed on the operating table in a wetted, sponge-lined trough.

A short, longitudinal incision (approximately 3 cm in length) was made in the body wall. A sterilized No. 16 hypodermic needle was then inserted through a point in the body wall to the side and posterior to the incision. The transmitter antenna wire was inserted into the hollow needle and the needle removed, leaving the antenna wire exiting the body wall of the fish. The radio tag (sterilized in zephiran chloride and rinsed in distilled water) was placed in the body cavity of the fish, and the incision closed. A simple interrupted suture pattern was used to rejoin the incision using a monofilament absorbable suture. VetBond™ (n-butyl cyanocrylate tissue adhesive) was applied to the outside of the incision and the antenna wound. Oxygenated water was directed over the gills during the surgical procedure, and continued until the fish exhibited voluntary respiration and caudal movements. The fish was then placed in the lake and supported by hand until equilibrium could be independently maintained.

Tracking

Tracking was accomplished primarily from helicopter (Bell 206 Jet Ranger). A single 4-element Yagi antenna was mounted on the landing strut (using a specially designed mounting bracket) of the passenger's side of the aircraft in an approximately 45° forward position. Flight altitude varied from 80 to 150 m depending on the area searched, weather conditions, and signal reception. Flights at higher altitudes increased the range at which audio signals could be detected, but in most instances low level passes were needed to acquire the transmitter code. A scanning receiver model SRX-400 (manufactured by Lotek Wireless Inc.) was utilized during surveys.

The location of each radio tagged fish encountered during tracking surveys was recorded on 1:50 000 scale maps and tabulated for reference purposes. To simplify calculations of fish movements in lakes, distances travelled were estimated by calculating straight line distances between the start and end positions (using UTM coordinates). Fish movements in the Meliadine River were estimated by comparing their locations along the 39 km length of the river channel.

9.1.4 Fish Tissue Sampling

To provide baseline information on the concentrations of metals in fish, samples of muscle, liver, and kidney tissues were collected from Arctic char, lake trout, round whitefish, cisco and Arctic grayling in the Meliadine Study Area. Sampling effort concentrated on these species because they represent different trophic levels in the food web of Arctic freshwater systems; Arctic char and lake trout are piscivores, round whitefish are bottom feeders, cisco are pelagic feeders, and Arctic grayling are generalists. All fish tissue samples were collected in 1998, except for the Arctic char tissues that were collected in 1997.

Dorsal musculature (approximately 50 to 100 g) was dissected from each sampled fish and sealed in sterile specimen containers. Livers and kidneys also were dissected and stored individually. All tissue samples were kept frozen at -20°C until the time of analysis.

Analyses of fish tissue samples were conducted at Elemental Research Inc. in Vancouver, B.C. Samples were prepared for analyses by first homogenizing the tissue in plastic cups using a “Vitris” shearer equipped with stainless steel blades. Approximately 1 g of homogenized tissue was then weighed into a pre-cleaned teflon digestion vessel. After adding 4 mL of high purity “Seastar” nitric acid, the vessel was capped and heated to 150°C. The resulting solution was made up to a volume of 25 mL with de-ionized water for subsequent analyses by Inductively Coupled Argon Plasma / Mass Spectrometry (ICPMS) at a dilution factor of 5.

For each sample, a 27 element trace metal scan was performed using ICPMS. The instrumentation used to perform the analyses was a Finnegan MAT SOLA ICPMS, a PE Sciex Elan 6000, or a VG Plasma Quad III operated at 1000 to 1500 W RF power, less than 5 W reflected RF power, 13 to 15 L/min coolant, 0.90 to 1.75 L/min auxiliary, and 0.96 L/min nebuliser flow. Setting optimizations were carried out daily by maximizing the signal obtained from a 100 ppb Y solution (SOLA) or a 10 ppb Rh solution (Elan 6000 and VG Quad III). QA/QC procedures included running certified reference materials (NBS 1566a oyster tissue, DORM-2 dogfish muscle tissue, and DOLT-2 dogfish liver tissue), preparation blanks, and several sample duplicates.

Moisture content was measured using 1 g of homogenized tissue. The sample was weighed in a pre-weighed and tared 10 mL glass beaker. The beaker and sample were then dried overnight at 105°C. After cooling to room temperature, the beaker and sample were transferred to a desiccator for 2 h, after which the beaker with the sample was re-weighed to obtain the loss in moisture.

Where relevant, comparisons of the present data are made throughout this report to a previous study at a similar location in the arctic, Coronation Gulf. These comparisons are made to provide a context for interpretation of the present results.

9.2 Species Composition and Relative Abundance

Between 1997 and 2009, substantial effort (802 sampling events) was put forth during investigations of fish communities in the Meliadine Study Area (Table 9-3). During this period, field biologists used angling, backpack electrofishing, fyke nets, gill nets, minnow traps, and a fish fence to sample fish communities in 155 waterbodies, most of which (n=140) comprised small lakes, ponds and interconnecting streams on the Peninsula basins. Details of sampling effort and catch are presented separately for each sampling method and event in Appendices F1 to F11. Depending on the foci of the investigations, which varied among basins and ranged from estimating population size to capturing fish for radio telemetry, techniques were often used in combination.

Table 9-3: Fish Sampling Methods used in the Meliadine Study Area, 1997 to 2009

Area	Basin / Waterbody Code	Methods[a]	Waterbodies Sampled	Number of Sampling Events[b]
Meliadine Lake	ML-E	AL,FN,GN	1	45
	ML-S	AL,FN,GN	1	23
	ML-W	AL,GN	1	32
	ML-PL	AL,FN,GN,EF	1	12
	Subtotal		**4**	**112**
Peninsula Basins	A	AL, EF, FN, GN, Mt	39	109
	B	AL, EF, FN, GN, Mt	39	158
	D	AL, EF, FN, GN	12	77
	F	EF	2	2
	G	AL, EF, FN, GN, Mt	4	16
	H	EF, FN, GN, Mt	42	114
	J	EF, GN, Mt	2	3
	Subtotal		**140**	**479**
Little Meliadine Lake	LML	AL,GN	1	36
	HSL	AL,GN	1	4
	HSL-W	EF	1	5
	W	AL,GN	1	7
	W-LML	EF	1	1
	Subtotal		**5**	**53**
Meliadine River	MR	AL, EF, GN, TU	4	145
Parallel Lake	PAR	AL, GN	1	7
Atulik Lake	CHL	FN, GN, Mt	1	6
TOTAL			**155**	**802**

[a] AL = angling; EF = backpack electrofishing; GN = gill nets; FN = fyke nets; Mt = minnow traps; TU = upstream trap of fish fence

[b] Includes all trap checks, gill net lifts, etc.

Backpack electrofishing was the most commonly used technique (used 244 times in 123 waterbodies for a total effort of 86 320 s or 24.0 h), followed by minnow trapping, gill netting and angling (Table 9-4). Although employed in a limited number of locations, fyke net and fish fence efforts (over 2 months each) were an important part of the fish studies.

Table 9-4: Summary of Fish Sampling Effort in the Meliadine Study Area, 1997 to 2009

Method	Waterbodies Sampled	Number of Sampling Events	Total Effort	
Angling	29	57	101	rod-hours
Backpack electrofishing	123	244	86 320	seconds
Fyke Nets	12	73	1 602	hours
Gill Nets	32	216	290	net-units
Minnow Traps	55	81	4 975	trap-hours
Fish Fence	1	131	1 651	hours

The total fish catch from the Meliadine Study Area from 1997 to 2009 (all sampling methods and locations combined) was 19 722 fish (Appendix F11). The catch (Figure 9-3) was comprised of 9 species, 5 of which are members of the Salmonidae family (Arctic char, Arctic grayling, cisco, lake trout, and round whitefish). Threespine stickleback were most prevalent (33.4%) followed by Arctic char (19.7%), ninespine stickleback (15.6%), cisco (14.2%), Arctic grayling (9.8%) and lake trout (3.6%). Round whitefish, slimy sculpin, and burbot comprised only a small portion of the catch (2.3, 1.1%, and 0.4%, respectively).

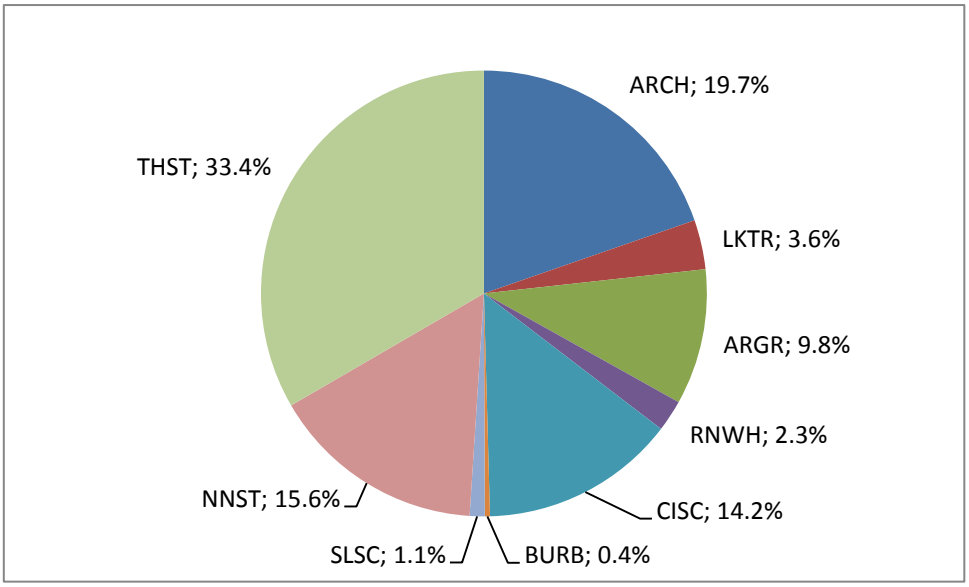


Figure 9-3: Relative Proportion of Species Captured in the Meliadine Study Area, 1997 to 2009 (all sampling methods and locations combined)

The majority (50.6%) of fish were captured from Meliadine Lake, followed by Peninsula Basins (27.8%), the Meliadine River (19.4%), and to a much lesser extent, Little Meliadine Lake (1.7%), Parallel Lake (0.2%), and Chickenhead Lake (0.2%) (Table 9-5). The number and species of fish captured reflected the amount and type of sampling effort used in each area. For example, the large contribution of Arctic char (85%) to the total catch in the Meliadine River resulted from use of a fish fence during the annual fall migration of this species from Hudson Bay into freshwater systems. Similarly, the predominance of threespine stickleback in Meliadine Lake (62% of total catch) reflected this species' abundance in near-shore areas that were effectively sampled by fyke net; however, they were absent from catches by other methods. As expected, catch size did correspond roughly with the number of capture events (Table 9.4). Peninsula basins were sampled most (479 sampling events) followed by the Meliadine River, Meliadine Lake, Little Meliadine Lake, Parallel Lake drainage, and Chickenhead Lake (145, 112, 53, 7, and 6 sampling events respectively).

Table 9-5: Number and Frequency of Occurrence of Fish Species Captured in the Meliadine Study Area, 1997 to 2009 (all sampling methods combined)

Species	Meliadine Lake		Peninsula Basins		Little Meliadine Lake[b]		Meliadine River		Parallel Lake		Chicken-head Lake		All Areas Combined	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Arctic char	473	4.74	133	2.42	30	8.82	3245	84.64					3881	19.68
Lake trout	460	4.61	76	1.39	83	24.41	39	1.02	31	63.27	17	56.67	706	3.58
Arctic grayling	199	1.99	1370	24.98	83	24.41	278	7.25			12	40.00	1942	9.85
Round whitefish	114	1.14	7	0.13	91	26.76	227	5.92	12	24.49	0	0	451	2.29
Cisco	2503	25.07	246	4.48	27	7.94	13	0.34	6	12.24	0	0	2795	14.17
Burbot	18	0.18	52	0.95	1	0.29	1	0.03			1	3.33	73	0.37
Slimy sculpin	4	0.04	194	3.54	7	2.06	10	0.26					215	1.09
Ninespine stickleback			3052	55.64	18	5.29	7	0.18					3077	15.60
Threespine stickleback	6213	62.23	355	6.47			14	0.37					6582	33.37
Total	**9984**	**50.6**	**5485**	**27.8**	**340**	**1.7**	**3834**	**19.4**	**49**	**0.2**	**30**	**0.2**	**19722**	**100**

Note: *n* = number; % = percent

9.2.1 Meliadine Lake

Because of its large size (107 km^2), Meliadine Lake was subdivided into sub-basins; Meliadine Lake East (ML-E), Meliadine Lake South (ML-S), Meliadine Lake West (ML-W), and the west outflow of Meliadine Lake into Peter Lake (ML-PL). Meliadine Lake was sampled extensively (112 sampling events), using primarily fyke nets (929 h) and gill nets (86.9 net-units), with some angling (31.3 rod-h) and backpack electrofishing (912 s). The overall catch-per-unit-effort values for the entire lake were 10.4 fish/h for fyke nets, 3.8 fish/net-unit for gill nets, 0.9 fish/rod-h for angling, and 0.07 fish/min for electrofishing (Appendix F11). Among the 4 areas of the lake, sampling effort was focused on ML-E (45 events) with ML-W, ML-S, and ML-PL sampled less intensively (32, 23, and 12 events respectively). Angling and gill netting were used in all 4 areas; fyke nets were used in all areas except ML-W, and electrofishing was used only in ML-PL.

Sampling efforts resulted in a total catch of 9 984 fish, 50.6% of the total catch in the Meliadine Study Area. The catch was comprised of 8 of 9 species present in the Meliadine Study Area. As was observed in the overall catch, threespine stickleback were most common (62.2%) followed by cisco (25.1%), Arctic char (4.7%), lake trout (4.6%), Arctic grayling (2.0%), round whitefish (1.1%), burbot (0.2%), and slimy sculpin (0.04%) (Figure 9-4). The predominance of threespine stickleback in the catch was mainly because of the high numbers of this species caught by fyke nets set in the near-shore areas of ML-E and ML-S. It is noteworthy that ninespine stickleback were absent from the catch, despite the abundance of this species in adjacent streams, lakes and ponds of the Peninsula basins (see Section 9.2.2).

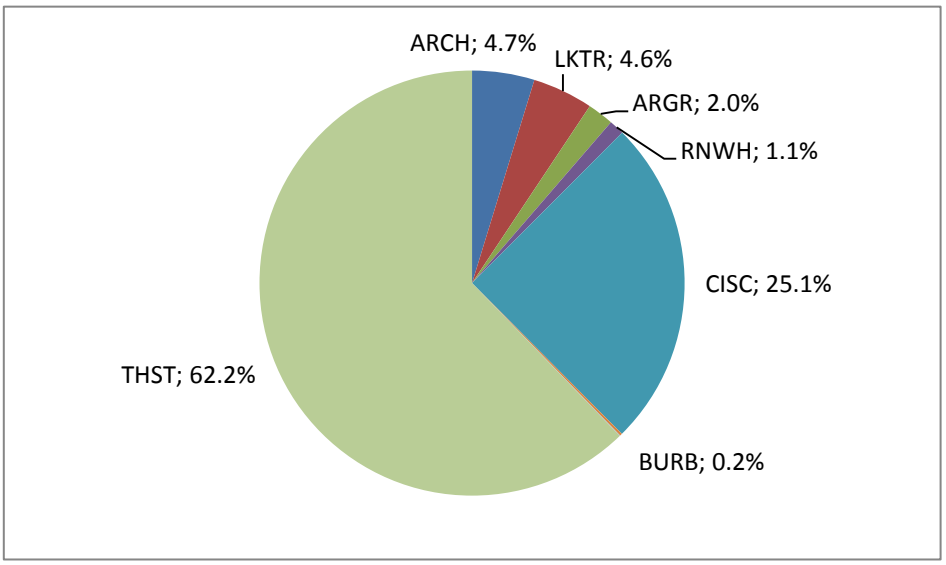


Figure 9-4: Relative Proportion of Species Captured in Meliadine Lake, 1997 to 2000 (all sampling methods and locations combined)[b.]

Fish catches differed among Meliadine Lake basins (Figure 9-5) reflecting the different foci of the investigations carried out in the lake. Threespine stickleback was the most common species captured in ML-E (64.2%), ML-S (52.1%), and ML-PL (72.7%). This is a result of the prevalence of threespine stickleback in shallow littoral areas making them susceptible to capture by fyke nets which captured all but one of the individuals. Fyke nets were not used in ML-W because efforts and techniques (angling and gill netting) were focused on sampling deep-water habitats to capture Arctic char for implantation of radio transmitters. Therefore, the catch in ML-W was dominated by pelagic species such as lake trout (67.5%), Arctic char (12.9%), and round whitefish (12.3%).

Comparison of overall (all species combined) gill net CPUE values between individual areas of Meliadine Lake (Table 9-6) suggests considerably higher fish abundance in ML-E (16.6 fish/net-unit) relative to other areas (between 2.6 and 3.8 fish/net-unit). Being size selective, gill nets did not capture forage species, including threespine stickleback, and therefore CPUE values were not affected by large catches of small fish. Similar to gill nets, fyke net CPUE was higher in ML-E (15.6 fish/h) compared with ML-S (3.2 fish/h) and ML-PL (1.1 fish/h). As was observed with the fyke net, the gill net CPUE value in ML-E was highest at 17.4 fish/net-unit. However, unlike fyke nets, gill nets were used less often compared to ML-S, ML-W, or ML-PL. The fyke net CPUE for ML-E is therefore artificially inflated by large numbers of threespine stickleback and cisco caught in a relatively short time. Catch-per-unit-effort was more consistent among the other sub-basins where relatively more effort was expended. Angling CPUE was higher in ML-W (6.0 fish/rod-h), and at least 4 times lower in the other areas. Electrofishing was used only once (in ML-PL), capturing only one fish (threespine stickleback); therefore this method was omitted from CPUE comparisons.

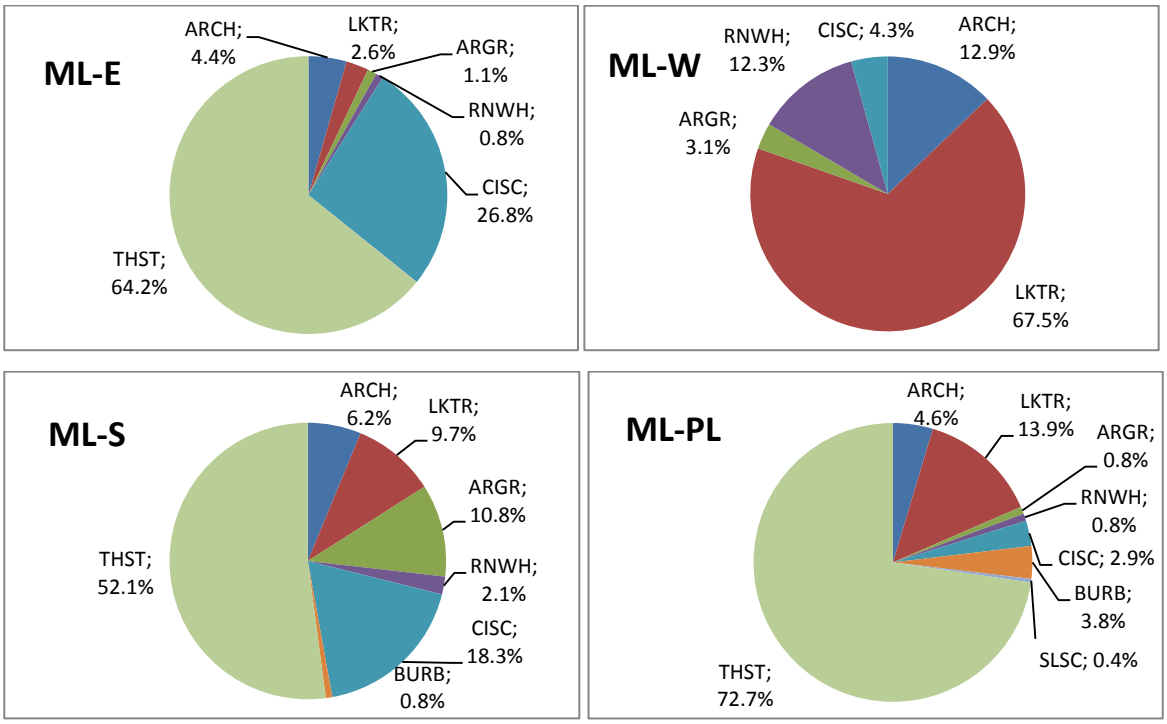


Figure 9-5: Relative Proportion of Species Captured in Meliadine Lake Sub-basins, 2000 to 2009 (all sampling methods combined)

Table 9-6: Comparison of Catch per Unit Effort in the Meliadine Lake Sub-basins, 1997 to 2000 (all species combined)

Sampling Method (CPUE unit)	Mean CPUE			
	ML-E	ML-S	ML-W	ML-PL
Angling (rod-h)	0.9		6.0	1.4
Fyke nets (fish/h)	6.3	1.3		0.2
Gill nets (fish/net-unit)	17.4	4.5	3.0	3.8

Note: CPUE = Catch-per-unit-effort; ML-E = East basin of Meliadine Lake; ML-S = South basin of Meliadine Lake; ML-W = West basin of Meliadine Lake; ML-PL = Outlet to Peter Lake

9.2.1.1 Meliadine Lake - East Basin (ML-E)

Investigations in ML-E incorporated angling, and fyke and gill netting to capture fish as part of the community assessment of Meliadine Lake. The catch from ML-E (*n*=8669) was dominated by threespine stickleback (64.2%) followed by cisco (26.8%), and to a lesser extent, Arctic char (4.4%), lake trout (2.6%), Arctic grayling (1.1%), and round whitefish (0.8%). Only a few individual burbot and slimy sculpin were captured; ninespine stickleback was not captured.

Nearly all fish (99.2%) captured in the basin were collected using a fyke net (Table 9-7). A fyke net was set at the same location (near the Meliadine West camp) and during the same time period (12 to 27 July 1997 and 8 to13 July 1998) in successive years. Although the sampling effort was greater in 1997 (358.5 h) than in 1998 (120.8 h), more fish were captured in 1998 (*n*=4711) than in 1997 (*n*=3894) and the overall CPUE was nearly 4 times higher (39.0 fish/trap-h in 1998 versus 10.9 fish/trap-h in 1997). It should be noted, however, that the total catch and CPUE values were biased by larger numbers of threespine stickleback captured in 1998 (*n*=4065) compared with 1997 (*n*=1499). Comparing the catch of cisco (the second most abundant species), the catch rates were higher in 1997 (*n*=1811) than in 1998 (*n*=490) in 1998. This does not imply that populations of threespine stickleback increased and cisco decreased between the 2 years, but rather demonstrates how large schools of threespine stickleback and cisco can skew catch results. When threespine stickleback are removed from the calculations, the CPUE values for the remaining species are similar (6.7 fish/trap-h in 1997 versus 5.3 fish/trap-h in 1998).

Consisting of 2 separate traps, the fyke net was used to determine the direction of fish movement along the shore. In general, numbers of recaptured fish were low indicating that most of the fish caught in the fyke net were moving to other areas (i.e., they did not remain in the bay where the fyke net was set). In both years, movements by Arctic char indicated that most fish were travelling west (towards the central basin of Meliadine Lake). In 1997, these westbound movements were more prominent and occurred mainly during 12 to14 and 17 to 21 July; strong east winds during 15 to16 July may have contributed to low number of migrants captured during this intervening period. Lake trout were captured approximately half as frequently as Arctic char; they did not exhibit a directional trend in 1997 or 1998. Arctic grayling and round whitefish were also frequently captured and similar to lake trout, did not appear to display trends in movement. Cisco were abundant overall however, this was because of occasional catches of large schools of juvenile fish. In both years, most cisco were moving towards the east end of Meliadine Lake more so in 1997 compared to 1998. Burbot and slimy sculpin were also captured in the fyke net, but in very low numbers (2 and 3 fish, respectively). Threespine stickleback were equally represented in both fyke net components, suggesting that their movements were random and likely local.

Table 9-7: Number of Fish Captured by Fyke Net in the East Basin (ML-E) of Meliadine Lake, 1997 and 1998

Species	Number Captured		1997 Directional Split (%)		1998 Directional Split (%)	
	1997	1998	East	West	East	West
Arctic char	297	143	17.8	82.2	41.3	58.7
Lake trout	154	74	46.1	53.9	44.6	55.4
Arctic grayling	67	125	59.7	40.3	52.8	47.2
Round whitefish	61	23	49.2	50.8	52.2	47.8
Cisco	1811	611	71.9	28.1	52.5	47.5
Burbot	2	0	100.0	0.0	71.4	28.6
Slimy sculpin	3	0	66.7	33.3	-	-
Threespine stickleback	1499	4541	56.0	44.0	65.2	34.8
Total	**2390**	**976**	**62.6**	**37.4**	**50.3**	**49.7**

9.2.1.2 Meliadine Lake - South Basin (ML-S)

Investigations in ML-S occurred using angling (3.1 rod-h) and gill netting (1.35 net-units) in 1997; however, in 1998, angling was replaced by fyke netting (258.3 h) in addition to sampling using gill nets (21.2 net-units). Although the catch (*n*=914) was much smaller than that of ML-E, relative abundance of species between the two basins was comparable. The catch was dominated by threespine stickleback (52.1%) followed by cisco (18.3%), and to a lesser extent, Arctic grayling (10.8%), lake trout (9.7%), Arctic char (6.2%), round whitefish (2.1%), and burbot (0.8%). No slimy sculpin or ninespine stickleback were captured. Compared with ML-E, gill netting (22.5 net-units) in ML-S captured more fish (*n*=101 versus 41), however CPUE was substantially lower (4.5 fish/net-unit versus 17.4 fish/net-unit).

9.2.1.3 Meliadine Lake - West Basin (ML-W)

Sampling in ML-W was minimal occurring in 1999 and 2000. Techniques were limited to gill netting (53.7 net-units) and to a lesser extent, angling (0.5 rod-h). During the late fall field session in 1999, gill net sets of were used to assess Arctic char spawning in Meliadine Lake and the areas immediately downstream from the west (to Peter Lake) and south (Meliadine River) outflows. Compared to other basins, ML-W differed in that the catch was dominated by lake trout. In 1999, the gill net catch was comprised primarily of lake trout (67.4%) and Arctic grayling (23.3%) and to a lesser extent, round whitefish (11.6%), Arctic char (9.3%), and cisco (9.3%).

In 2000, gill nets (36.9 net-units) and angling (0.5 rod-h) were set to capture pre-spawning Arctic char for radio transmitter implantation. More gill netting effort in 2000 (36.9 versus 16.8 net-units in 1999) resulted in more fish (117 versus 43 in 1999) captured. Species composition of the catch was similar to that of 1999; again, lake trout (67.4%) dominated the catch followed by Arctic char (14.2%) and round whitefish (12.5%). Arctic grayling were less prevalent (3.3%) as were cisco (2.5%).

9.2.1.4 Meliadine Lake to Peter Lake Outflow (ML-PL)

The Meliadine Lake-Peter Lake connection was sampled from 1998 to 2000 using angling, electrofishing, and fyke and gill nets. In 1998, assessments consisted of a preliminary survey of the fish community in the basin. Sampling was brief including angling (1.4 rod-h) and electrofishing (912 s) resulting in a combined catch of 2 lake trout and 1 threespine stickleback. In 1999, a gill netting program was carried out in an attempt to capture mature Arctic char (current year spawners) for implantation of radio transmitters. Because the summer gill netting program failed to capture Arctic char that were suitable for transmitter implantations, a second gill netting program was conducted in late September and early October to sample in the vicinity of suspected spawning areas (ML-PL) and movement corridors. These efforts resulted in a catch consisting of 8 Arctic char, 23 lake trout, and 1 cisco after 8.3 net-units of effort. Fyke nets were used in 2000 in to capture Arctic char. Increased sampling effort (191.8 h) and a different sampling techniques resulted in a larger (*n*=203) and more diverse catch (8 species). Threespine stickleback dominated the catch (84.7%) followed by small numbers (<10) of burbot (4.4%), lake trout (3.9%), cisco (3.0%), Arctic char (1.5%), Arctic grayling (1.0%), and round whitefish (1.0%).

9.2.2 Peninsula Basins

Peninsula basins were assessed from 1997 to 2000 and in 2004, 2008, and 2009. The purpose of these investigations varied through time with the majority of sites surveyed to collect baseline information on fish communities and fish habitat. However, recent surveys (2008, 2009) focused on assessing specific areas proposed to be affected by mine development (e.g., locations of tailings ponds, mine pits, dams. In these areas (e.g., Lake B7), investigations were more intensive with regard to effort and sampling techniques used. Data from these sites are discussed in greater detail.

In total, 44 streams, 20 lakes, and 76 ponds were visited, of which, 43 streams, 15 lakes, and 33 ponds were found be inhabited by fish for at least a portion of the year. Investigations incorporated angling, backpack electrofishing, fyke and gill netting, and baited minnow traps, often in combination (Table 9-8). Electrofishing (118 sites) and minnow traps (54 sites) were used most commonly as these techniques were most effective in the shallow streams and ponds on the peninsula. Gill nets (22 sites), angling (17 sites), and fyke nets (8 sites) were used less often.

Table 9-8: Summary of Methods, Effort, and Total Fish Catch from Peninsula Basins, 1997 to 2009

Method	Sites	Effort	Fish Captured	CPUE
Angling	17	29.3 rod-h	16	0.55 fish/rod-h
Backpack electrofishing	118	79 161 s	3082	2.34 fish/min
Fyke net	8	630.2 h	1945	3.09 fish/h
Gill net	22	144.7 net-units	376	2.6 fish/net-unit
Minnow trap	54	4 882 trap-h	66	0.01 fish/trap-h
TOTAL	**219**	**-**	**5485**	**-**

Note: CPUE = Catch-per-unit-effort; h = hour; s = second; min = minute

In total, 5485 fish were captured from waters in Peninsula Basins accounting for 27.8% of the total catch from the Meliadine Study Area. Of these, ninespine stickleback were captured most frequently (55.6% of total catch) owing to the prevalence of suitable habitat for this forage species. Arctic grayling were second in abundance (25.0%) followed by threespine stickleback (6.5%), cisco (4.5%), slimy sculpin (3.5%), Arctic char (2.4%), lake trout (1.4%), burbot (0.9%), and round whitefish (0.1%) (Figure 9-6).

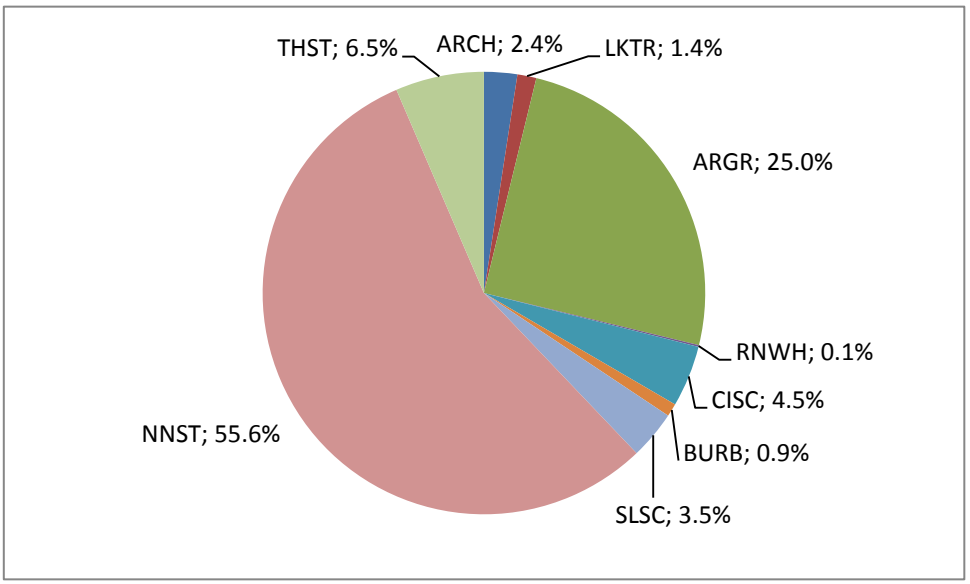


Figure 9-6: Relative Proportion of Species Captured from Peninsula Basins (all sampling methods and seasons combined)

9.2.2.1 Peninsula Streams

In total, 44 streams were sampled on the Peninsula Basin in 1997, 1998, 2000, 2004, 2008, 2009. Electrofishing was used almost exclusively with the exception of a fyke net used in Stream D0-1. Fish were captured on at least one visit in each of the streams sampled, with the exception of Stream H5-17 where no fish were captured.

The catch (*n*=2987) was dominated by ninespine stickleback (65.7%) (Figure 9-7), an expected finding given that streams were often small (<3 m in width) and offered good habitat for small-bodied fish. Further, streams connecting small ponds (e.g., H Basin) often flowed seasonally precluding other species from occupying them given the distance from large ponds/lakes and that they only flow seasonally. Arctic grayling were next in abundance (16.1%), followed by threespine stickleback (6.6%), slimy sculpin (6.5%), lake trout (2.1%), Arctic char (1.7%), burbot (1.0%), and cisco and round whitefish at <1%. CPUE values for Peninsula Basin streams were 3.1 fish/min for electrofishing and 1.1 fish/h for the fyke net.

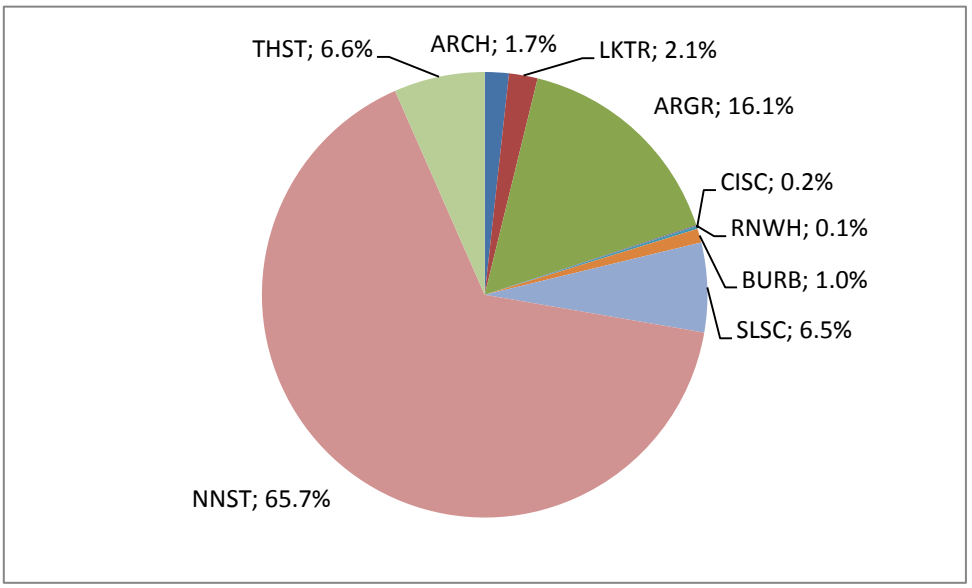


Figure 9-7: Relative Proportion of Species Captured from Peninsula Streams (all sampling methods and seasons combined)

Electrofishing was the main method used to sample Peninsula Basin streams. Combined CPUE values are compared among the most frequently sampled streams (i.e., sampled between 4 and 8 times each) in Figure 9-8. Overall CPUE values ranged from 1.2 fish/min in B3-4 to 4.3 fish/min in A2-3. Generally, values were higher in streams located in the lower reaches of the watershed (e.g., A0-1, B0-1). This is a result of larger numbers of fish, representing a variety of species, having access to streams closer to Meliadine Lake. In contrast, streams located further upstream in the watershed (e.g., A7-8, B3-4) were inhabited only by small numbers of ninespine stickleback. Large-bodied species such as Arctic char and lake trout were not collected or observed in streams located in upstream regions of the watersheds suggesting limited access to these areas. Of note, however, was the presence of relatively large numbers of Arctic grayling in upstream areas of the B Basin. The reason for this is the presence of large waterbodies (Lakes B5, B6, and B7) in upper areas of the watershed, each of which supports permanent populations of Arctic grayling. These waterbodies are connected by streams capable of providing habitat for spawning and rearing Arctic grayling.

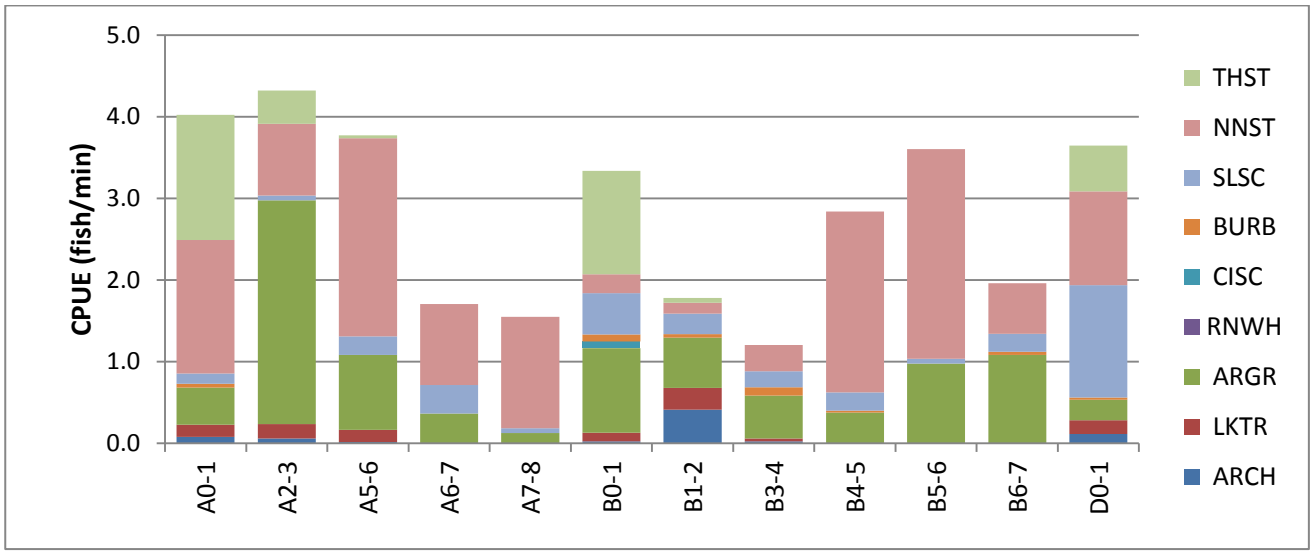


Figure 9-8: Comparison of Backpack Electrofishing CPUE Values for Species Captured from Peninsula Basin Streams

Stream A5-6

Stream A5-6 is noteworthy in that it is located in an area proposed for mine development and it provides good habitat for rearing Arctic grayling and small-bodied fish. As such, the stream has been sampled on 6 occasions from 1997 to 2009. In total, 300 fish were captured (10% of the catch from Peninsula Basin streams) during 4772 s of electrofishing (3.8 fish/min). The catch included ninespine stickleback (64.3%), Arctic grayling (24.3%), slimy sculpin (6.0%), lake trout (4.0%), threespine stickleback (1.0%), and Arctic char (0.3%) (Figure 9-9). The relative proportion of species captured from A5-6 is similar to the basin average as is CPUE (3.8 fish/min). Of note is the presence of lake trout and Arctic char, 2 species not known to occur in either Lake A5 or Lake A6. However, Arctic char and lake trout have been captured from A0-1, A1, A1-2, and A2-3 indicating that fish move upstream through Peninsula Basin streams and ponds from Meliadine Lake, likely to take advantage of habitat with abundant food, cover, and a lack of large predators.

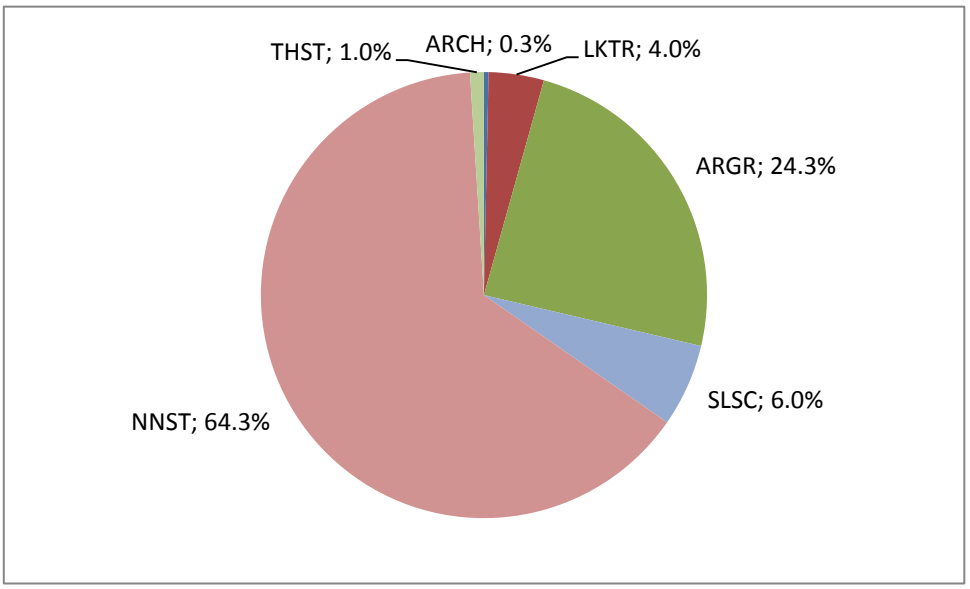


Figure 9-9: Relative Proportion of Species Captured from Stream A5-6 (all sampling methods and seasons combined)

Stream B6-7

Stream B6-7 is also noteworthy in that it is located in an area proposed to for mine development. It was sampled using electrofishing (2999 s) during 7 visits in 1997 and 1998. In total, 98 fish were captured (3% of the catch from Peninsula Basin streams) with a CPUE of 1.9 fish/min. Interestingly, the majority (55.1%) of fish captured were Arctic grayling rather than ninespine stickleback, which typically dominated catches in streams and small ponds. The catch was also comprised of ninespine stickleback (31.6%), slimy sculpin (11.2%), and burbot (2.0%) (Figure 9-10).

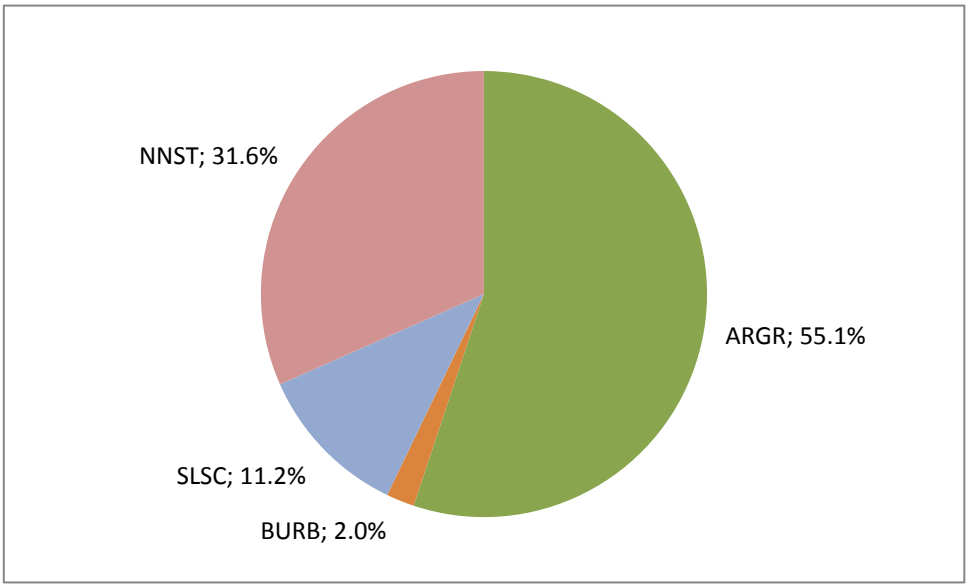


Figure 9-10: Relative Proportion of Species Captured from Stream B6-7 (all sampling methods and seasons combined)

9.2.2.2 Peninsula Lakes

In total, 20 Peninsula lakes were sampled from 1997 to 2000 and in 2008 and 2009. In total, 2 329 fish were collected from Peninsula Basin lakes comprising 42.5% of fish captured in Peninsula Basins and 11.8% of all fish caught in the Meliadine Study Area. Fish were captured from all Lakes except A2, B4, D2, D4, and D5. The catch was dominated by ninespine stickleback (39.6%) followed closely by Arctic grayling (38%). Proportionally, cisco (10.3%) were next in abundance followed by threespine stickleback (6.8%), Arctic char (3.5%), and burbot, lake trout, and round whitefish at less than 1%. No slimy sculpin were captured (Figure 9-11).

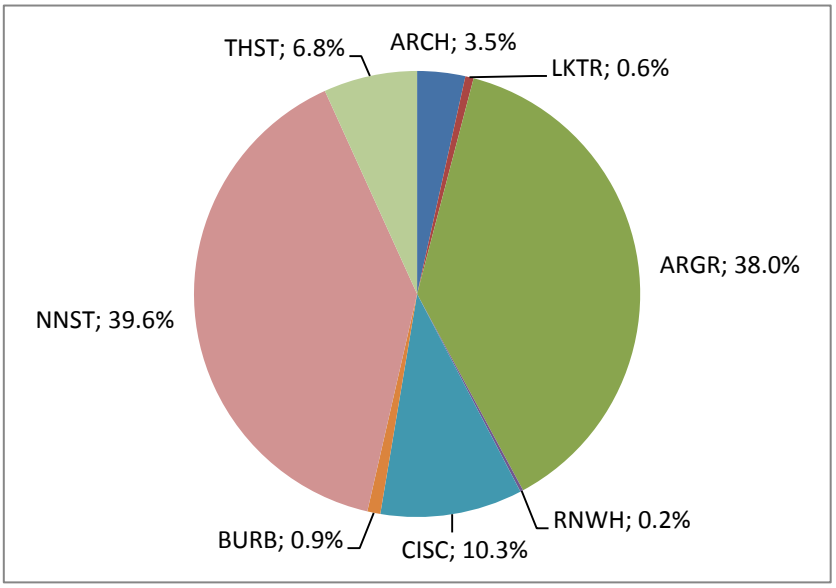


Figure 9-11: Relative Proportion of Species Captured in Peninsula Basin Lakes (all sampling methods and seasons combined)

Sampling techniques included angling (27.3 rod-h), electrofishing (1081 s), fyke (486 h) and gill netting (103.8 net-units), and minnow trapping (1431 h). Techniques were often used in combination (e.g., electrofishing and minnow trapping) depending on the purpose of the investigation. Proportionally, the majority (78.8%) of fish were captured in fyke nets. Gill nets, electrofishing, minnow traps angling, capturing proportionally less fish at 16.1%, 3.4%, 0.9%, and 0.7% respectively.

Gill nets were relied upon most heavily to sample Peninsula Basin lakes. CPUE values varied among species with Arctic grayling captured most effectively by gill nets, followed by cisco and Arctic char. Similar to the electrofishing results from the Peninsula streams, lake trout and Arctic char were captured mainly in the lower parts of each basin and were absent from lakes near the headwaters (Figure 9-12). CPUE values ranged among lakes as well with ranging from 3.1 (D7) to 9.7 fish/net-unit (A6). Of the 3 basins, gill netting was most productive in the A Basin (7.0 fish/net-unit) compared with the B and D Basins that had very similar CPUE values (5.1 and 5.0 fish/net-unit). Reasons for slightly higher CPUE values from the A Basin may include the location of the basin relative to Meliadine Lake, greater habitat potential for fish, or differences in the abundance of fish.

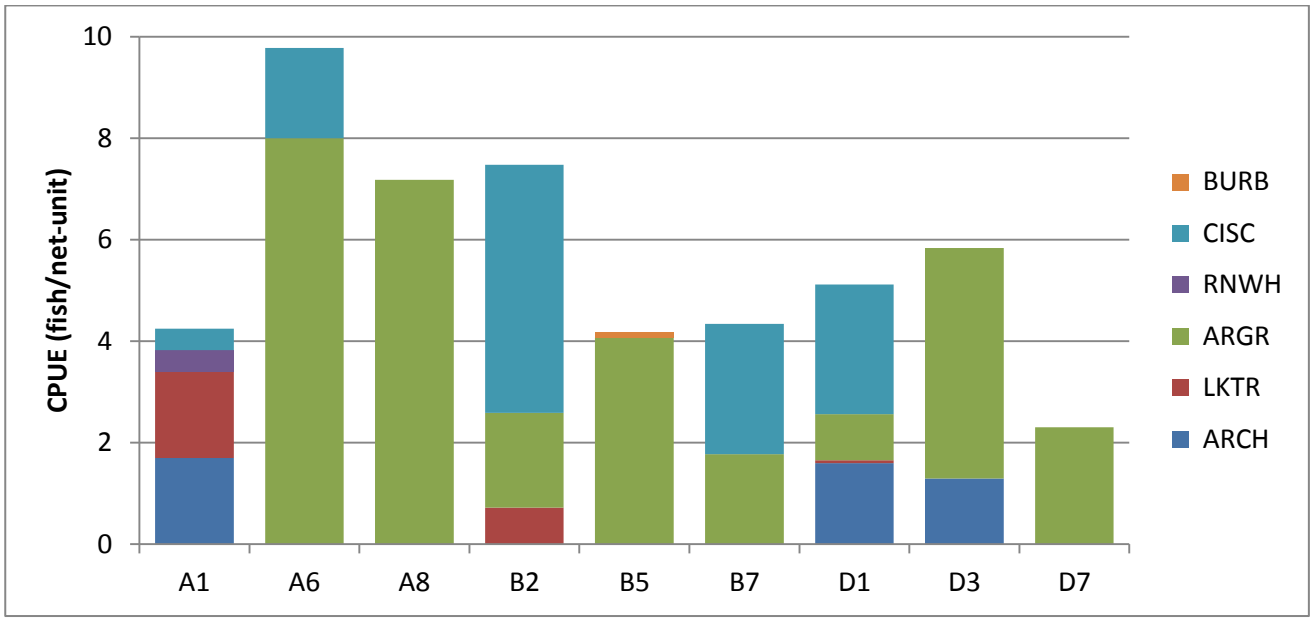


Figure 9-12: Comparison of Gill Net CPUE Values for Peninsula Lakes

Lake A6

Lake A6 was investigated in 1997, 1998, and 2009. In total, 221 fish were captured using minnow traps and fyke and gill nets. Arctic grayling comprised the majority of the catch (95%) followed to a lesser extent by ninespine stickleback (2.3%), cisco (1.8%), and threespine stickleback (0.5%). In 2009, a fyke net, the most productive (89.6% of fish captured) sampling tool used at the lake, was using in combination with gill nets to sample fish from the northeast bay, an area slated to be dammed and drained in preparation for mining operations. Gill nets were also used in 1997 and 1998 to sample fish from deeper areas (>1.5 m) of the lake; gill nets accounted for 9.9% of the catch. Catch-per-unit-effort for gill nets ranged widely from 6.0 to 21.6 fish/net unit, however catches were relatively small overall (Table 9-9). Minnow traps were only used in 2009 capturing only one ninespine stickleback.

Table 9-9: Fish Capture Methods, Effort, and Catch for Lake A6

Method	Effort	Species				Total	CPUE
		ARGR	CISC	NNST	THST		
Fyke net	41.3 trap-h	193	0	4	1	198	4.8 fish/trap-h
Gill net	2.25 net-units	18	4	0	0	22	9.8 fish/net-unit
Minnow traps	236 trap-h	0	0	1	0	1	0.004 fish/trap-h
TOTAL		**211**	**4**	**5**	**1**	**221**	

Note: ARGR = Arctic grayling; CISC = cisco; NNST = ninespine stickleback; THST = threespine stickleback; h = hour

Lake A52

The fish community in Lake A52 was sampled in 2008 using backpack electrofishing, gill and fyke nets, and minnow traps (Table 9-10). Ninespine stickleback was the only species captured or observed. The fyke net captured over 500 fish of which 20 were randomly selected and measured (Appendix F11). In addition, more than 100 individuals were captured or observed during backpack electrofishing. In contrast, fish were not captured in the minnow traps, despite considerable effort exerted (144 trap-h). Similarly, fish were not captured in the gill net because the mesh size (25 mm) was too large to capture small-bodied fish such as ninespine stickleback. The absence of fish in the gill net catch suggested that Lake A52 did not provide suitable habitat for large-bodied fish such as Arctic grayling or cisco, even though these species have been previously documented in nearby Lake A6 and Arctic grayling in connecting watercourses in the area.

Table 9-10: Fish Capture Methods, Effort, and Catch for Lake A52

Method	Effort	Species	Number Captured	Size Range (mm)	CPUE
Gill net	48.5 net-h	-	-	-	0 fish/net-h
Backpack electrofishing	381 s	Ninespine stickleback	>100	-	>16 fish/min
Minnow traps	144 trap-h	-	-	-	0 fish/trap-h
TOTAL			**>100**		

Note: CPUE = Catch-per-unit-effort; h = hour; min = minute; s = second; mm = millimetre.

Lake B6

Lake B6 was sampled in both 1997 and 2008. The lake was sampled by angling in July 1997 when 2 Arctic grayling adults were captured (RL&L 1998). In 2008, fish were sampled using a small fyke net set on the northeast shore of the lake for 43.5 h (Table 9-11). The total catch of 10 fish included one Arctic grayling, 3 cisco, and 6 ninespine stickleback.

Table 9-11: Fish Capture Methods, Effort, and Catch for Lake B6

Method	Effort	Species	Number Captured	Size Range (mm)	CPUE (fish/trap-h)
Small fyke net	43.5 trap-h	Arctic grayling	1	134	0.02
		Cisco	3	172 to 178	0.07
		Ninespine stickleback	6	43 to 61	0.14
TOTAL			**10**		**0.23**

Note: CPUE = Catch-per-unit-effort; h = hour; s = second; mm = millimetre.

Lake B7

Lake B7, along with several small peripheral ponds, is being considered as a potential location to store tailings. As such the lake was studied extensively with investigations aimed at describing the fish community as well as estimating the size of the Arctic grayling population. The lake was sampled in 1997, 1998, and in 2008 using angling, and fyke and gill netting. Efforts resulted in a total catch of 358 fish, accounting for 16% of the total catch in Peninsula Basin lakes.

In 1997 and 1998, the lake was sampled by angling (6.8 rod-h) and gill netting (9.8 net-units). The catch included 14 Arctic grayling and 15 cisco. In addition one burbot was found dead near the outlet. Gill netting was more effective in capturing fish in 2008 (15.6 fish/net-unit) as compared to CPUE values ranging from 1.6 to 7.4 fish/net-unit in 1997 and 1998. Sampling periods were comparable among years (July-August) so differences in catch may be a result of net location. In 2008, gill netting (1.5 net-units) was used to catch fish as part of a population estimate for Arctic grayling. As such, nets were set for short periods of time (e.g., 0.5 h) and were moved frequently throughout the lake as opposed to longer sets and fewer locations in 1997 and 1998.

In 2008, efforts were focused on estimating the size of the Arctic grayling population. Fish were collected during both a mark and a recapture phase using an Arctic fyke net (138.5 h) set on the southeast shore and numerous short-duration gill nets sets. The total catch of 318 fish included 293 Arctic grayling, 19 cisco, 4 ninespine stickleback, and 2 burbot (Figure 9-13).

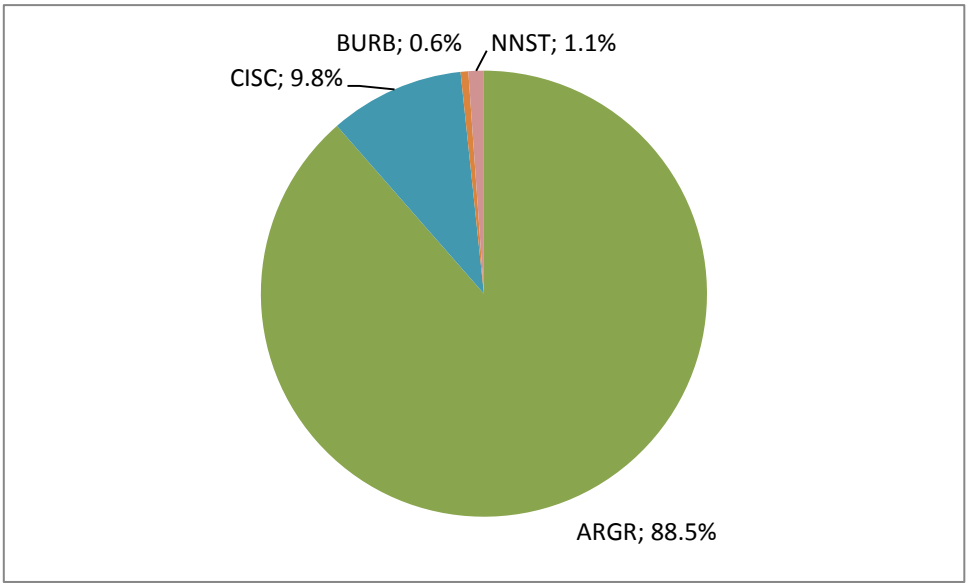


Figure 9-13: Relative Proportion of Species Captured from Lake B7 (all sampling methods and seasons combined)

Although CPUE was relatively low (2.2 fish/h), the fyke net was effective in capturing a wide-range of life-stages representing 4 species during both the mark and recapture phases of the assessment. Arctic grayling (*n*=283) was the most prominent species captured, comprising 96% of the catch from the fyke net. Burbot, cisco, and ninespine stickleback comprised the remainder of the catch. Gill nets were used to sample a large proportion of deep-water habitat at Lake B7 however fewer fish were captured compared with the fyke net.

Based on the modified Peterson method, the size of the Arctic grayling population in Lake B7 was estimated at 1345 fish, with 95% confidence intervals ranging from 836 to 2507. The estimate was based on 188 fish marked in the first samples, 92 fish captured in the second sample; and 12 individuals in second sample that were marked. This estimate included both juvenile and adult fish. The variability of the estimate can be attributed to the fact that only 12 marked individuals were recaptured. The small number of recaptures may be a result of Arctic grayling using the entire lake as a home range thereby reducing the probability of recapture at the same location as the original capture. It is also possible that marked fish became trap-averse resulting from the

capture and mark procedures. The most probable explanation is that Arctic grayling distributed themselves throughout the entire lake. Habitat quality in the lake was relatively homogenous; therefore, Arctic grayling were no more likely to frequent the areas near the fyke net than the other areas of the lake. Further support for this idea is that only small fish (<220 mm), which typically move less than large fish, were recaptured.

Lake D1

Lake D1 was sampled from 1997 to 2000, and in 2009 using angling (10.3 rod-h), and fyke (127.5h) and gill nets (33.2 net-units). The goal of the investigations was to assess community composition, survey spawning Arctic char, and to capture mature Arctic char (current year spawners) for implantation of radio transmitters. Angling was used in 1997 and 2000 but yielded only one lake trout (0.1 fish/rod-h).

A fyke net was installed at the same location in 2000 and 2009. While effort was similar (58.5 h in 2000 versus 69 h in 2009), resulting catches differed substantially. In 2000, 611 fish were captured including 21 Arctic char, 101 Arctic grayling, 4 round whitefish, 78 cisco, 19 burbot, 233 ninespine stickleback, and 155 threespine stickleback (CPUE=10.4 fish/h). In contrast, only 150 fish were captured in 2009 with a CPUE almost 5 times lower than in 2000. The catch was comprised of one Arctic char, 2 lake trout, 133 Arctic grayling, 12 ninespine stickleback, and 2 threespine stickleback. The difference in catches is skewed by large numbers of ninespine stickleback. If these individuals are removed, CPUE values are more comparable (3.81 fish/h in 2000 versus 1.97 fish/h in 2009). Cisco and burbot were not captured in 2009, whereas 78 and 19, respectively, were collected in 2000. These differences are likely a result of the timing of the investigations. In 2000, the lake was sampled during September as opposed to a July visit in 2009.

Other Lakes

- Lake A1 was investigated in 1997 using using angling (0.5 rod-h) and gill nets (2.4 net-units) resulting in the capture of 4 Arctic char, 4 lake trout, 1 round whitefish and 1 cisco.
- Lake A2 was investigated in 1997 using only angling (0.5 rod-h); no fish were captured.
- Lake A5 was investigated in 1997 using angling (0.5 rod-h), and in 2009 using electrofishing (596 s) and minnow traps (120 h) resulting in the capture of 7 ninespine stickleback.
- Lake A8 was investigated in 1997 and 1998 using only gill nets. Arctic grayling (n=19) was the only species captured during 2.7 net-units of effort.
- Lake B2 was sampled in 1997 and 1998 using angling (1.5 rod-h) and gill nets (7.0 net-units) resulting in the capture of 5 lake trout, 17 Arctic grayling, and 34 cisco.
- Lake B4 was investigated in 1997 and 1998 using angling (0.5 rod-h) and gill nets (2.8 net-units). No fish were captured.
- Lake B5 was sampled in 1997 and 1998 using angling (1.5 rod-h) and gill nets (9.3 net-units) resulting in the capture of 39 Arctic grayling, and 1 burbot.
- Lake D2 was investigated in 1997 using only angling (0.4 rod-h); no fish were captured.
- Lake D3 was investigated in 1997 using only gill nets (1.5 net-units) resulting in the capture of 2 Arctic char and 7 Arctic grayling.
- Lake D4 was investigated in 1997 using angling (0.4 rod-h) and gill netting (5.7 net-units); no fish were captured.

- Lake D5 was investigated in 1997 using gill nets (4.5 net-units); no fish were captured.
- Lake D7 was sampled in 1997 angling (2.6 rod-h) and gill nets (2.6 net-units) resulting in the capture of 9 Arctic grayling.
- Lake G1 was sampled only in 2009 using electrofishing (485 s), gill netting (3.92 net-units), and minnow trapping (190 trap-h) resulting in the capture of 88 ninespine stickleback. All but one of the fish (minnow trap) were collected by electrofishing (9.5 fish/min). No fish were collected using the gill net suggesting that the lake in inhabited only by small-bodied forage species.
- Lake G2 was sampled in 1997 using angling (0.8 rod-h) and gill nets (4.9 net-units); no fish were captured. In 2009, it was discovered that the lake is inhabited by fish when 7 ninespine stickleback were captured in a fyke net (89 h, CPUE=0.08 fish/h) and one in a minnow trap (0.04 fish/24h).
- Lake J1 was sampled in 2009 using gill nets (6.5 net-units) and minnow traps (195.3 trap-h) resulting in the capture of 14 ninespine stickleback.

9.2.2.3 Peninsula Ponds

In total, 76 ponds were sampled in 1997, 1998, 2008, and 2009. Fish were captured or observed in 33 of the ponds; fish presence, although possible in some ponds was not confirmed in the remaining 43 ponds (Appendix F11). In total, 169 fish were captured, comprising only 3.1% of fish captured in Peninsula Basins and 0.9% of all fish caught in the Meliadine Study Area.

The catch was dominated by ninespine stickleback (98.8% of total). Arctic grayling (1.2%) were also captured; they were represented by 2 young-of-the-year fish from Pond H2, one captured by backpack electrofishing and one in a minnow trap in August 2008. Threespine stickleback were not captured in any of the ponds. The absence of threespine stickleback is consistent with data collected from all waterbodies on the Peninsula Basin with 55.6% of the catch being comprised of ninespine stickleback with only 6.5% threespine stickleback, mainly in lowermost parts of the basins. In contrast, the catch in Meliadine Lake was dominated by threespine stickleback (62.2%) with no ninespine stickleback being captured

Sampling techniques included angling, electrofishing, fyke and gill netting, and minnow trapping (Table 9-12). Techniques were often used in combination (e.g., electrofishing and minnow trapping) depending on the morphometry of the pond (i.e., sufficient depth to set minnow traps). Proportionally, most fish (71%) were captured by electrofishing, followed by minnow traps (26.6%) and fyke nets (2.4%); no fish were captured by angling or gill nets.

Table 9-12: Sampling Effort and Fish Catch in Peninsula Ponds, 1998 to 2009

Method	Effort	Number of Fish Captured	Proportion of Catch (%)	CPUE
Angling	2 rod-h	0	0.0	0 fish/rod-h
Backpack electrofishing	22 736 s	120	71.0	0.32 fish/min
Fyke nets	50 h	4	2.4	0.08 fish/h
Gill nets	40.9 net-units	0	0.0	0 fish/net-unit
Minnow traps	3451 trap-h	45	26.6	0.01 fish/h
TOTAL	**-**	**169**	**100**	**-**

Note: % = percent; CPUE = Catch-per-unit-effort; h = hour; s = second; min = minute.

9.2.3 Little Meliadine Lake

Little Meliadine Lake was sampled on 6 occasions from 1997 to 2000. The purpose of the investigations were to describe the fish community and investigate seasonal use of the area by Arctic char. Other waters sampled in the basin, sampled in 1998 and 2000, included Horseshoe Lake, HSL-W, the watercourse connecting Horseshoe Lake and Lake W, Lake W, and W-LML, the watercourse connecting Lake W and Little Meliadine Lake. Similar to Lake D1, these waterbodies were explored to assess spawning potential for Arctic char.

Little Meliadine Lake basin was sampled using angling (15 rod-h), electrofishing (2825 s), and gill netting (42.2 net-units) resulting in the capture of 340 fish, 1.7% of the total catch in the Meliadine Study Area. Round whitefish comprised the largest portion (26.8%), followed closely by lake trout and Arctic grayling, both at 24.4%. Arctic char (8.8%), cisco (7.9%), ninespine stickleback (5.3%), slimy sculpin (2.1%), and a single burbot (0.3%) (Figure 9-14).

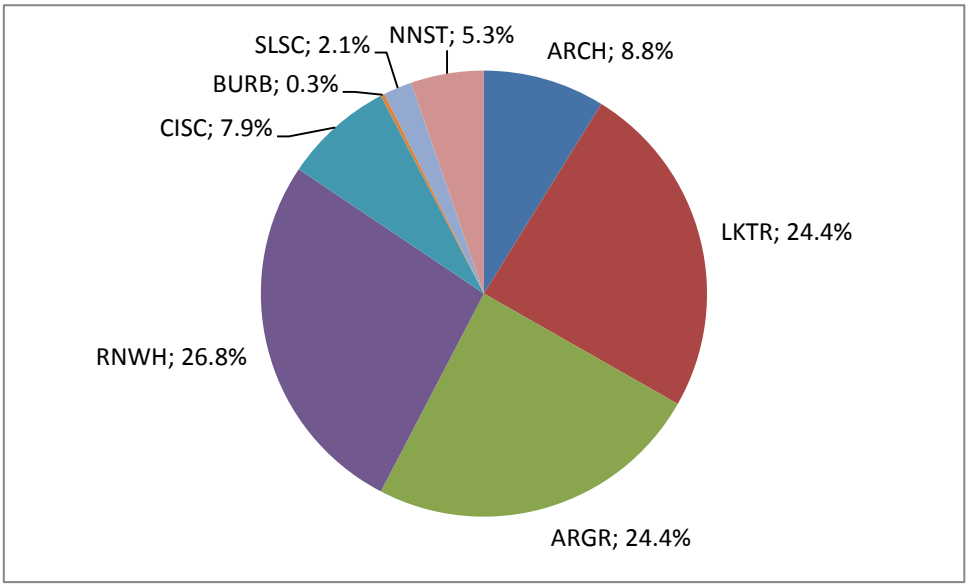


Figure 9-14: Relative Proportion of Species Captured from the Little Meliadine Lake Basin (all sampling methods and seasons combined), 1997 to 2000

Of the waters sampled in the basin, Little Meliadine Lake received the most focus (36 of 53 sampling events) and as a result, produced the majority of fish (n=208 or 61.2% of total basin catch), resulting from gill netting (34.7 net-units) from 1997 to 2000 and angling (11.0 rod-h) in 2000. Round whitefish dominated the catch (43.8%), followed by lake trout (25.0%). Arctic char (12.9%), with cisco (9.6%), and Arctic grayling (8.7%) were also common. The catch reflected the focus of the investigation in and the techniques used to sample Little Meliadine Lake. CPUE values for angling (1.0 fish/rod-h), and gill netting (5.7 fish/net-unit) were comparable to average values for the basin.

9.2.4 Meliadine River

The Meliadine River was sampled from 1997 to 1999 using angling (18.8 rod-h), electrofishing (3422 s), gill netting (2.5 net-units), and a fish fence (1650.7 h). Sampling efforts captured a total of 3834 fish, 19.4% of the total catch from the Meliadine Study Area. Anglers captured 15 fish (0.79 fish/rod-h), backpack electrofishing captured 55 fish (0.96 fish/min), and gill netting captured 3 fish (1.2 fish/net-unit). However the fish fence was the most productive sampling method producing 98.1% (*n*=3761) of the catch.

The fish fence was operated from 1997 to 1999 in the lower reaches of the Meliadine River (ML-L) to sample fish migrating into the river from Hudson Bay during late summer and early fall. The fish fence was operated during similar periods in 1997 (15 August to 3 September), 1998 (16 August to 2 September), and 1999 (10 August and 12 September 1999). The monitoring period in 1999 (34 d) was considerably longer than in 1997 (18 d) and 1998 (17 d), and was intended to assess early and late migrants that may not have been enumerated in the previous years.

Overall, the fish fence catch (n=3761) was dominated by Arctic char (86.1%) followed by Arctic grayling (7.0%), round whitefish (6.0%), and lake trout and cisco at <1% (Figure 9-15; Appendix F8). The composition of catches at the fish fence changed through time with the relative proportions of Arctic char decreasing from 1997 to 1999 in favor of Arctic grayling and round whitefish.

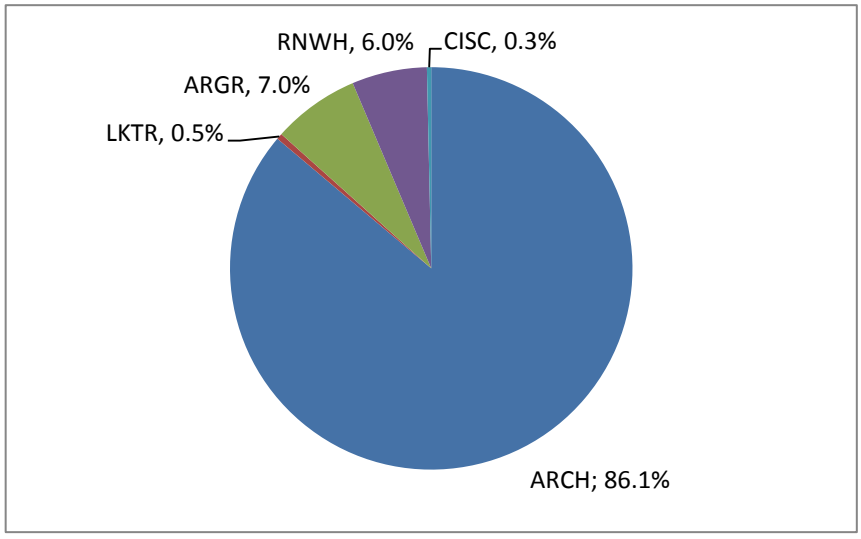


Figure 9-15: Relative Proportion of Species Captured from Meliadine River (all sampling methods combined), 1997 to 1999

In 1997, 1066 fish were captured; the catch consisted entirely of salmonid species, of which Arctic char (*n*=1022) was predominant (95.9% of the catch). Other captured species included round whitefish (*n*=29), Arctic grayling (*n*=13), and lake Trout (*n*=2). Although the total number of Arctic char enumerated through the fish fence in 1998 (*n*=926) was slightly lower than in 1997, the numbers of other captured species (round whitefish, Arctic grayling, lake trout, and cisco) nearly doubled relative to the previous year catches (from 44 fish in 1997 to 80 fish in 1998). In 1999, 1689 fish were captured in the fish fence. The catch consisted entirely of salmonid species, of which Arctic char (*n*=1292) was predominant (76.5% of the catch) (Appendix F8).

The total number of Arctic char enumerated at the fish fence in 1999 (*n*=1292) was higher than in 1997 (*n*=1022) and 1998 (*n*=926). This increase in catch was mainly because of the longer period of operation; when compared over the period common to the 3 years of fish fence operations (16 August to 3 September). In contrast, the numbers of other captured species (round whitefish, Arctic grayling, lake trout, and cisco) increased considerably relative to the previous years' catches (from 44 fish in 1997 and 80 fish in 1998 to 397 fish in 1999). Most of this increase in 1999 was because of higher catches of Arctic grayling (*n*=230) and round whitefish (*n*=146) relative to previous years (only 13 and 29 fish, respectively, were caught during 1997 fish fence operations).

Of note is the small increase in the numbers of cisco captured by the fish fence in 1999 (*n*=11) relative to 1997 (*n*=0) and 1998 (*n*=2). The low numbers of cisco captured during the 1997 to 1999 fish fence operations were in sharp contrast to the much higher catches of cisco reported at the same location and season in 1990 (*n*=121 during 22 August to 10 September; McGowan 1992). This suggested that cisco fall migrations into the Meliadine River may have decreased over the decade or may vary greatly from year to year.

The mean CPUE values for all fish combined were consistent between 1997, 1998, and 1999 (2.41, 2.50, and 2.09 fish/h, respectively). Arctic char dominated the catch in all 3 years. Arctic char CPUE values were similar in 1997 and 1998 (2.3 fish/h) but declined to 1.6 fish/h in 1999 (Figure 9-16). The lower values in 1999 were likely due to a more extended trap period which monitored movements during the less productive shoulder periods of the run. In contrast, CPUE values for Arctic grayling increased from 0.03 fish/h in 1997 to 0.29 fish/h in 1999. Round whitefish CPUE values also increased consistently during this period (from 0.07 fish/h in 1997 to 0.18 fish/h in 1999). CPUE values for lake trout and cisco were low (less than 0.02 fish/h) throughout the fish fence monitoring period.

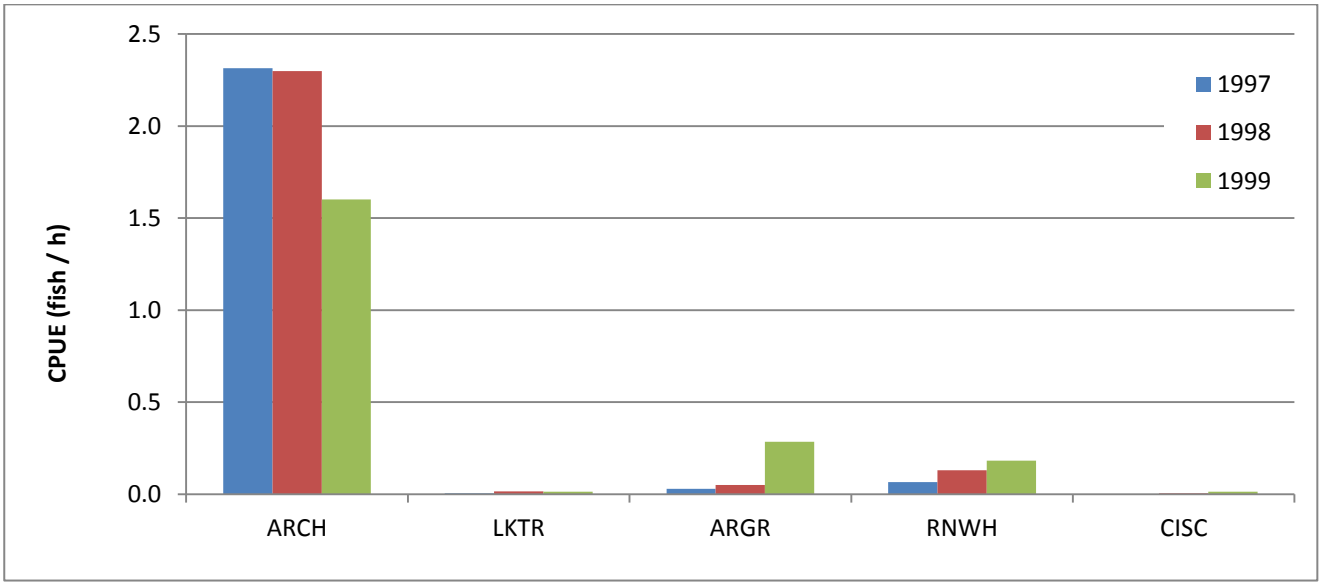


Figure 9-16: CPUE Values for Species Captured in the Meliadine River Fish Fence, 1997 to 1999

Arctic char CPUE values varied with the sampling period in each of the sampling years (Figure 9-17). In 1997, Arctic char CPUE values increased gradually during the first 10 days of fish fence operation (from 0.26 fish/h on 16 August to 4.67 fish/h on 25 August); subsequently they declined to 0.77 fish/h on 2 September. The peak of

upstream movements by Arctic char occurred between 18 and 28 August, when 829 fish were enumerated (mean CPUE value of 3.14 fish/h).

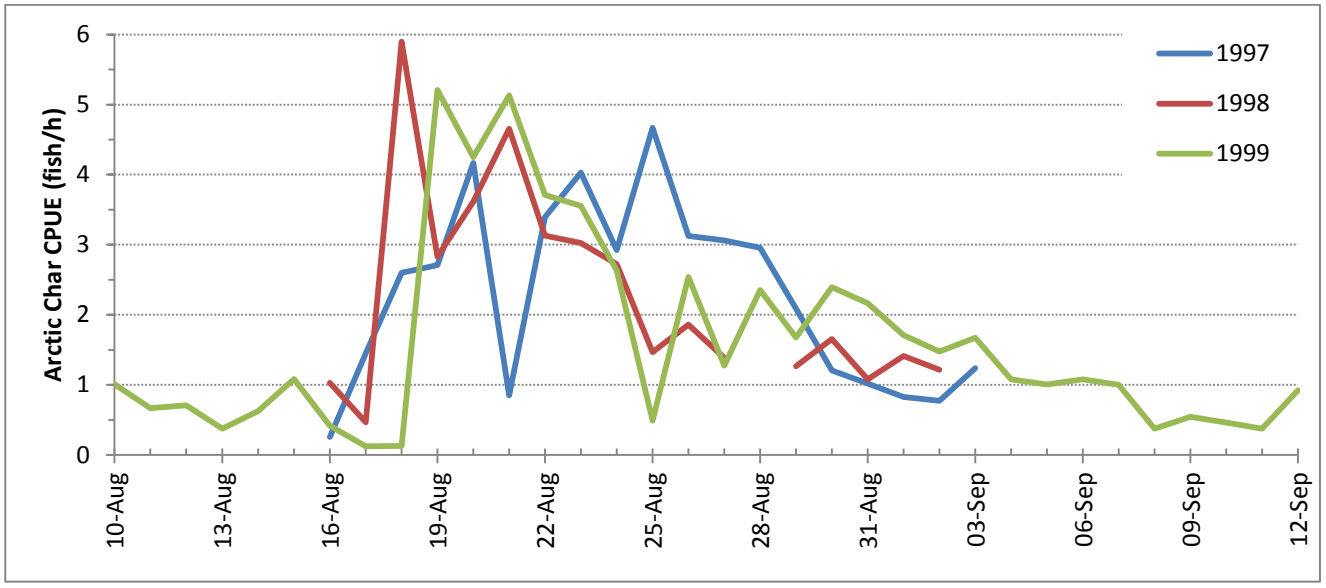


Figure 9-17: Daily Catch Rates for Arctic Char in the Meliadine River Fish Fence, 1997 to 1999

In 1998, Arctic char CPUE values increased sharply during the third day of fish fence operation (from 0.5 fish/h on 17 August to 5.9 fish/h on 18 August); subsequently they declined to 1.2 fish/h on 2 September, when the fish fence was dismantled. The peak of Arctic char upstream movements occurred between 18 and 24 August, when 617 fish were enumerated (mean CPUE value of 3.7 fish/h); this period coincided with a sharp drop in the water temperature.

In 1999, CPUE values of Arctic char varied between 0.12 and 1.08 fish/h during the first 9 days of fish fence operation; CPUE values increased considerably (3.55 to 5.21 fish/h) during the following 5 days (19 to 23 August). Subsequently, CPUE values generally declined to less than 1.1 fish/h after 4 September. Most of the Arctic char upstream movements in 1999 occurred between 19 and 31 August, when 898 fish were enumerated (mean CPUE value of 2.87 fish/h); the onset of this period coincided with a decrease in water temperature.

None of the Arctic char captured at the fish fence in 1997 to 1999 were in pre-spawning condition. This suggested that the current year spawners did not migrate to the sea in the spring and spent the entire year in freshwater.

9.2.5 Parallel Lake

Parallel Lake (located approximately 12 km north of Meliadine Lake) was sampled in 1998 to collect fish for monitoring metal concentrations in fish tissues. Variable-mesh experimental gill nets (11.9 net-units) and angling (7 rod-h) were employed to sample deep water habitats. These efforts resulted in a total catch of 49 fish, accounting for 0.2% of the total catch in the Meliadine Study Area. Lake trout (*n*=31) dominated the catch (63.2%), followed by round whitefish (*n* = 12, 24.5%) and cisco (*n* = 6, 12.2%).

9.2.6 Chickenhead Lake

The fish community in Chickenhead Lake was sampled in August 2008 using a fyke net (42.8 h), gill nets (1.9 net-units), and minnow traps (94 trap-h). These efforts resulted in a total catch of 30 fish, accounting for 0.2% of fish captured from the Meliadine Study Area. Lake trout were most prevalent (*n* = 17) accounting for 57% of the catch followed closely by Arctic grayling (*n*=12, 40%). One burbot was also captured.

9.3 Life History

Length, weight, age and diet statistics for fish captured during 1997 to 2009 are presented in Appendices F12 through F20. Length-frequency summaries, length-weight regressions, relative weight calculations and length-at-age analyses were performed for each basin to facilitate comparisons among watersheds. The results are briefly described, by species, in the following sections.

9.3.1 Arctic Char

9.3.1.1 Size Distribution

The length frequency distribution of the overall Arctic char catch (*n*=3879) was widespread with fork lengths ranging from 61 to 777 mm. Three distinct modes were noted (Figure 9-18, A; Appendix 12a). The smallest mode was centred on 80 to 100 mm and consisted primarily of fish captured by fyke nets in the east basin of Meliadine Lake and backpack electrofishing in Peninsula streams (Figure 9-18, B and C). The second mode (160 to 240 mm in fork length) was comprised mostly of fish captured by fyke net in the east basin of Meliadine Lake (Figure 9-18, B). The third and largest mode (300 to 670 mm in fork length) consisted of large adults caught in the fish fence at Meliadine River when returning from the sea (Figure 9-18, A).

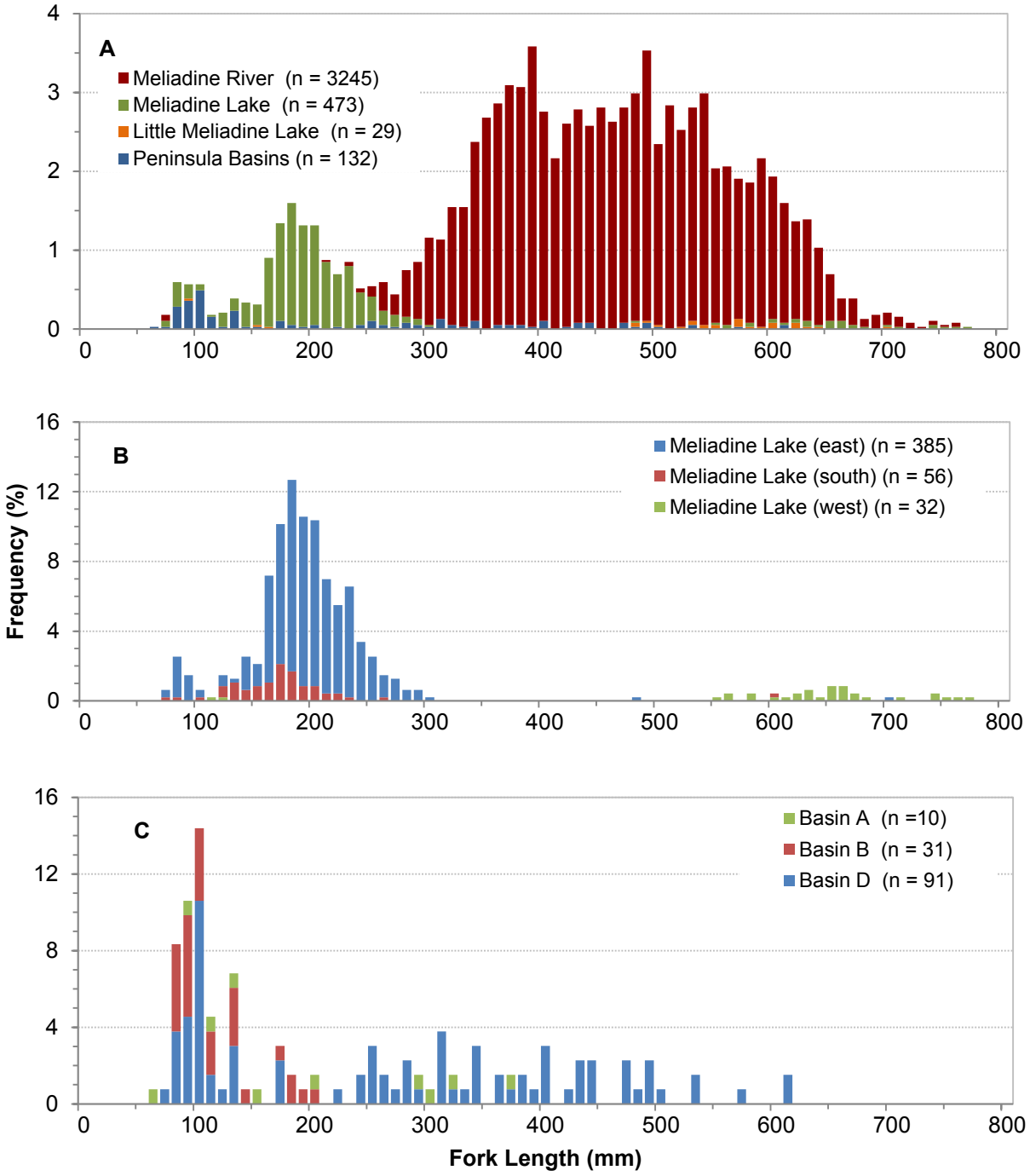


Figure 9-18: Length-frequency Distribution of Arctic Char in the Meliadine Study Area (A), Meliadine Lake (B) and Peninsula Basins (C), 1997 to 2009

Several adult Arctic char (*n*=26) were captured in Little Meliadine Lake (Figure 9-18, A). Both Meliadine Lake (*n*=473; 70 to 780 mm in fork length) and Basin D (*n*=91; 70 to 620 mm in fork length) had the most diverse representation of all size classes in the Meliadine Study Area (Figure 9-18, B and C). The largest Arctic char in the sample (777 mm in fork length) was captured by a gill net near the west outflow from Meliadine Lake.

The size distribution of Arctic char in Meliadine Lake is noteworthy (Figure 9-18, B). The majority of Arctic char captured (*n*=438) in the east and south basins of Meliadine Lake were less than 300 mm. The smaller size class is in contrast to the predominately large fish (mean of 622 mm; SD ± 143; *n*=30) caught by gill net in the west basin of Meliadine Lake. Sampling efforts in 1997 and 1998 consisted primarily of fyke nets in the east and south basins of Meliadine Lake. Targeted sampling to obtain fish for radio transmitter implantation close to the west outflow of Meliadine Lake in 1999 and 2000 resulted in the capture of the large adults in pre-spawning condition.

9.3.1.1 Size Distribution of Returning Adults

The size distribution of the Arctic char run captured by the fish fence in 1997, 1998 and 1999 (*n*=3240) indicated significant differences between the early, middle, and late stages of the run ($F = 523.31$, $df = 4, 3235$, $p < 0.001$) (Figure 9-19). Grouping the catch data from all 3 years, the mean fork length of Arctic char captured during the first stage of the fish fence (i.e., 10 to 15 August) was 594 mm (SD ± 612 mm; *n*=109), and gradually decreased to 456 mm (SD ± 812 mm; *n*=1166) during the week 22 to 27 August, and to 351 mm (SD ± 79 mm; *n*=153) by 3 to 12 September. These results indicated that the larger size-classes return from the sea earlier than the smaller size-classes and the final phases of the run are dominated by the first-year sea migrants. Similar data were reported for Arctic char upstream migrations into Nauyuk Lake on the Kent Peninsula by Johnson (1980) and Gyselman (1994).

9.3.1.2 Length-Weight Relationships

The length-weight regression equations for individual study basins are presented in Appendix F13; these relationships are also plotted for individual fish in Appendix F14. The length-weight regression equation for Arctic char using all samples combined was:

Log Weight (g) = -5.6505 + 3.2638 log Fork Length (mm) where $n = 1092$ and $r^2 = 0.9952$.

The slope of the regression line (3.2638) indicated positive allometric growth (i.e., slope greater than 3).

Relative weight was calculated for Arctic char by basin using a MFL of 120 mm. Relative weights for individual fish within the study area varied from 58 to 157. Arctic char captured by gill nets in Basin D (mean = 102.0; SD ± 11.0; *n* = 51) and by the fish fence in Meliadine River (mean = 101.3; SD ± 8; *n*=513) had the highest relative weight among all basins. Both samples consisted primarily of adult fish (i.e., average age 5 and 6, respectively). Within Meliadine Lake the overall relative weight was low (mean = 81.7; SD ± 8.9; *n*=436); however, condition differed greatly among sites. The primarily adult fish in the west basin of the lake exhibited a higher relative weight (mean = 93.0; SD ± 6.9; *n* = 15) than their counterparts in the East and South Basins (mean = 81.1; SD ± 8.1; *n*=359 and mean = 81.2; SD ± 11.8; *n*=51, respectively). This is a typical trend as the amount of body fat will increase as fish reach sexual maturity. The mean relative weight for all Arctic char captured within the Meliadine Study Area was 92.8 (SD ± 13.2; *n*=1040).

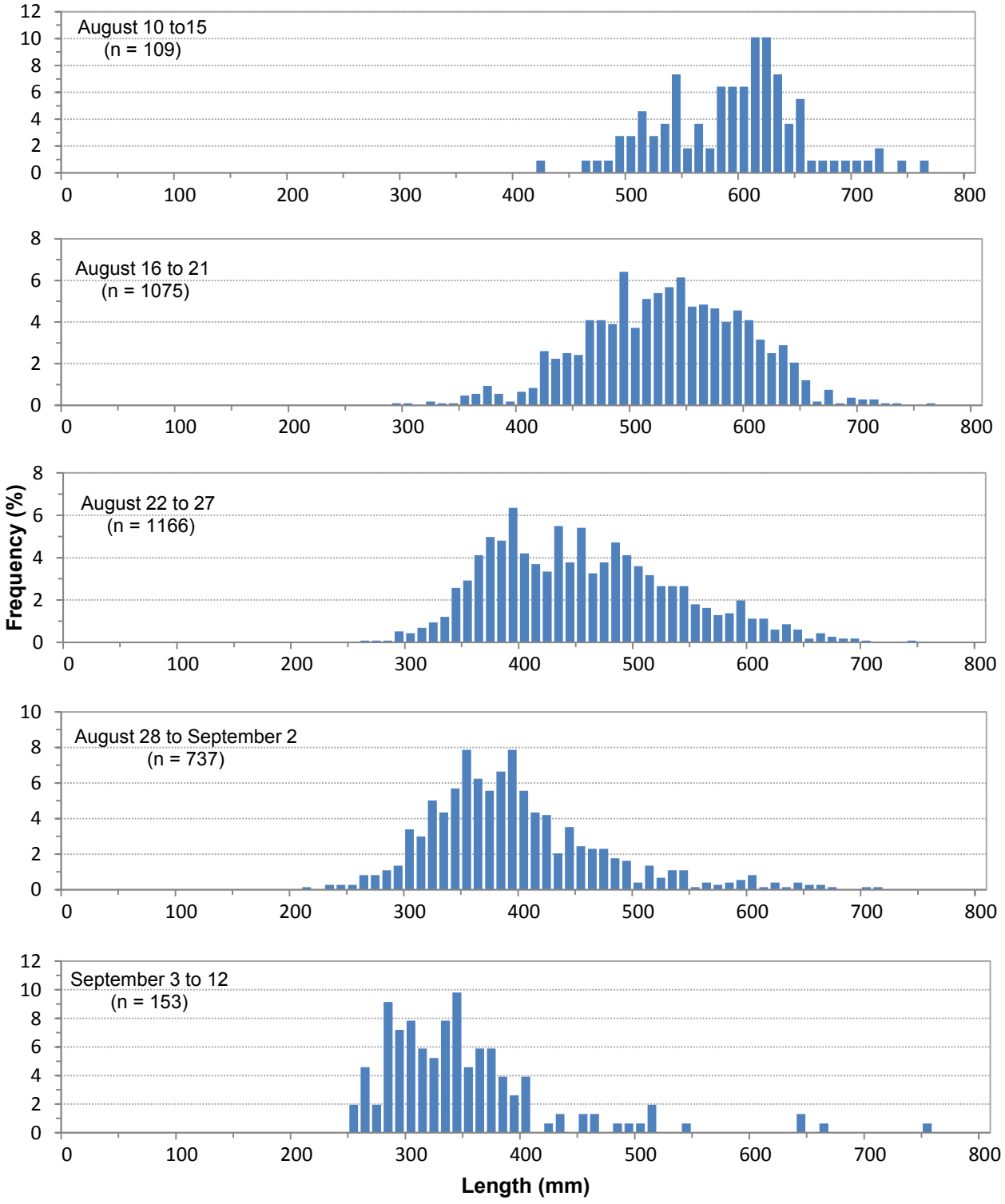


Figure 9- 19: Length-frequency Distribution of Arctic Char Captured at Different Periods of Fish Fence Operations in the Meliadine River, 1997 to 1999

9.3.1.3 Age and Length

The age-length relationship for individual Arctic char are presented in Figure 9-20 and Appendix F15. Age classes between 1 and 10 were represented in the sample (mean age = 4.4 years; SD ± 2.3; *n*=213). The fastest rate of growth (approximately 117 mm per year) occurred between the sixth and seventh (age 5 and 6) year of life and likely corresponds to the time that smolts make their first migration to sea. This can be directly attributed to better feeding conditions at sea (Johnson 1980; Moshenko et al 1984; Moore and Moore 2006). Growth begins to slow again in year 7 (age 6), dropping below 60 mm per year.

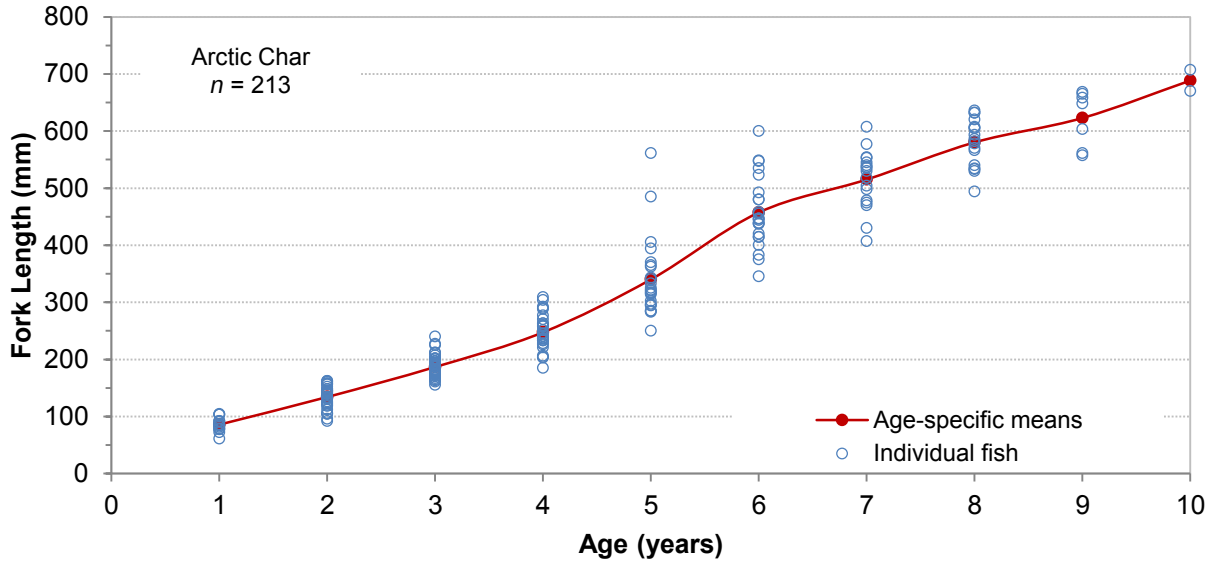


Figure 9-20: Age-length Relationship for Arctic Char in the Meliadine Study Area, 1997 to 2000

9.3.1.4 Feeding Habits

The majority (86%) of Arctic char stomachs examined from 1997 to 2000 (*n* = 62) contained no food items; the mean fullness index was only 5.8% (Appendix F20). Invertebrates, consisting primarily of amphipods (49%), gastropods (4%) and unidentified taxa (29%), collectively accounted for 80% (by volume) of the Arctic char diet. Fish species, of which only ninespine stickleback (10%) could be identified to species, accounted for the remaining 20% of the diet.

The majority (64%) of 32 stomachs examined from Arctic char in the Meliadine River were empty. Unidentified fish remains were observed in the stomachs of 2 fish captured in the fish fence during that period. Diet data were also collected for 13 Arctic char from Meliadine Lake (Appendix F20). The Meliadine Lake stomach data accounted for 21% of all of the stomach data collected for the study area. Diet composition for Meliadine Lake did not differ from the composition of all the basins combined.

9.3.2 Lake Trout

9.3.2.1 Size Distribution

The lake trout captured in the Meliadine Study Area from 1997 through 2009 (*n*=706) ranged from 43 to 965 mm in fork length (mean=365 mm, SD ± 209). Two modes were observed (Figure 9-19, A; Appendix F12b). The smaller mode was centred on 80 to 100 mm and consisted primarily of fish captured by fyke net in Meliadine Lake East (Figure 9-21, A and B). The larger mode was centred on 300 to 450 mm and consisted of fish captured primarily in Meliadine Lake and Meliadine River (Figure 9-19, A and B). Approximately, 63% (*n* = 444) of the total catch measured over 300 mm in fork length. The majority of lake trout were captured in Meliadine Lake (*n*=438) and had the most diverse representation of size classes (73 to 965 mm). All life stages were represented throughout the study area. Seventeen lake trout were captured in Chickenhead Lake and ranged from 172 to 942 mm in fork length though most measured less than 300 mm.

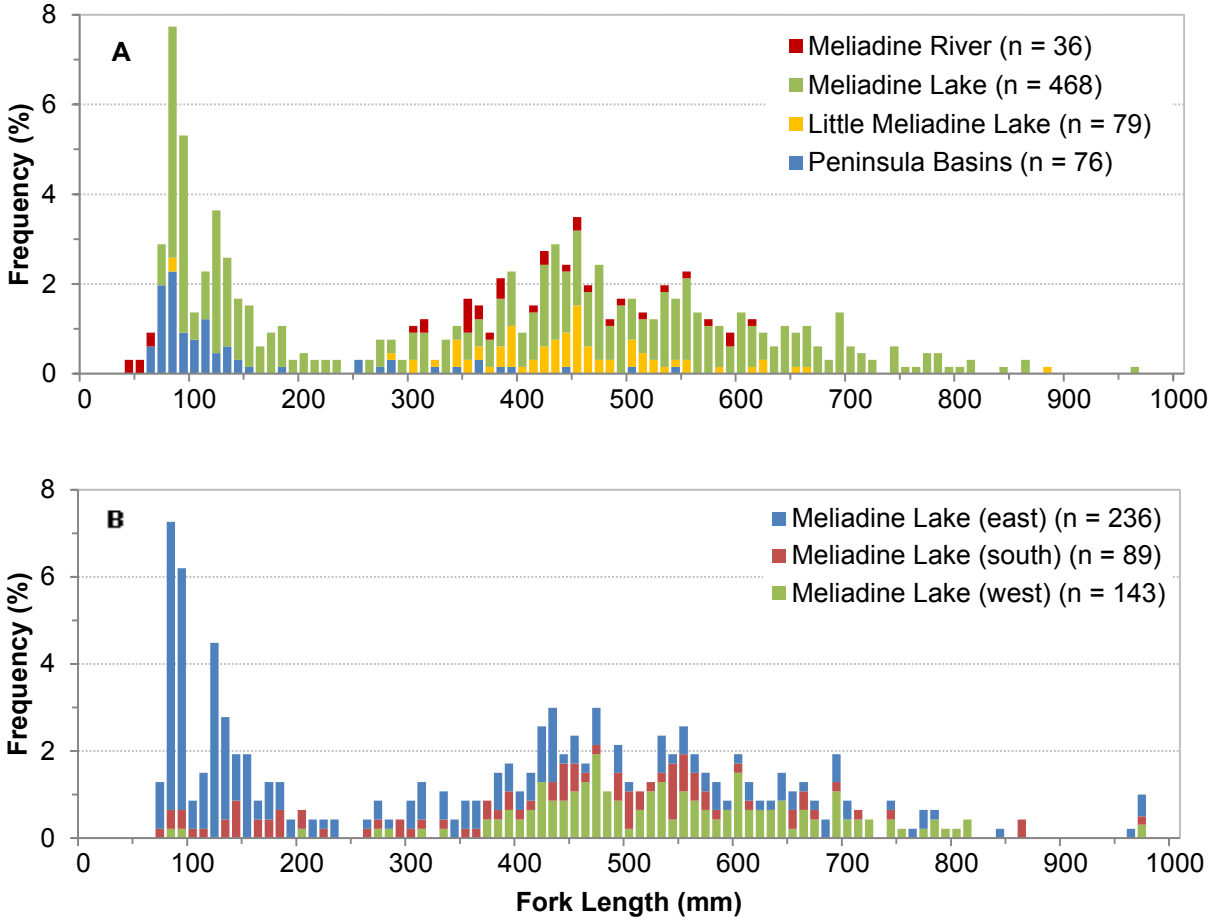


Figure 9-21: Length-frequency Distribution of Lake Trout in the Meliadine Study Area (A) and Meliadine Lake (B), 1997 to 2009

9.3.2.2 Length-Weight Relationships

The length-weight relationship for lake trout sampled in each basin are provided in Appendix F13 and plotted for individual fish in Appendix F14. The combined length-weight regression equation for lake trout in the entire study area was:

Log Weight (g) = -5.2483 + 3.1063 log Fork Length (mm) where n = 592 and r^2 = 0.9964.

Relative weight was calculated for lake trout by basin using a MFL of 120 mm. Relative weights for individual fish within the study area ranged from 62 to 163 (mean = 100.4; SD ± 12.2; n = 488). Lake trout captured by electrofishing and gill netting in the Peninsula Lakes (122 to 540 mm; n = 23) had the highest mean relative weight (mean = 110.6; SD ± 22.9) of all of the basins. The primarily larger lake trout (356 to 611 mm; n = 16) captured in Meliadine River also had a high mean relative weight (103.8; SD ± 9.9). Lake trout captured in Meliadine Lake had the lowest mean relative weight (99.1; SD ± 11.2), which was still well within the range of a healthy population.

9.3.2.3 Age and Length

The age-length data for individual lake trout are presented in Figure 9-22 and Appendix F16. Age classes between 1 and 30 were represented (mean age = 9.1 years; SD ± 7.5; n = 184). The oldest fish captured in the Meliadine Study Area was captured in east basin of Meliadine Lake; it was 30 years old and measured 780 mm. Growth increases consistently across year classes; however, specific patterns are difficult to predict due to low sample sizes in each size class. An ANOVA indicated no significant differences in length-at-age among basins for age 1 fish (F = 0.828; df = 4, 48; p = 0.513). Differences among length-at-age for other age classes could not be determined due to small sample sizes.

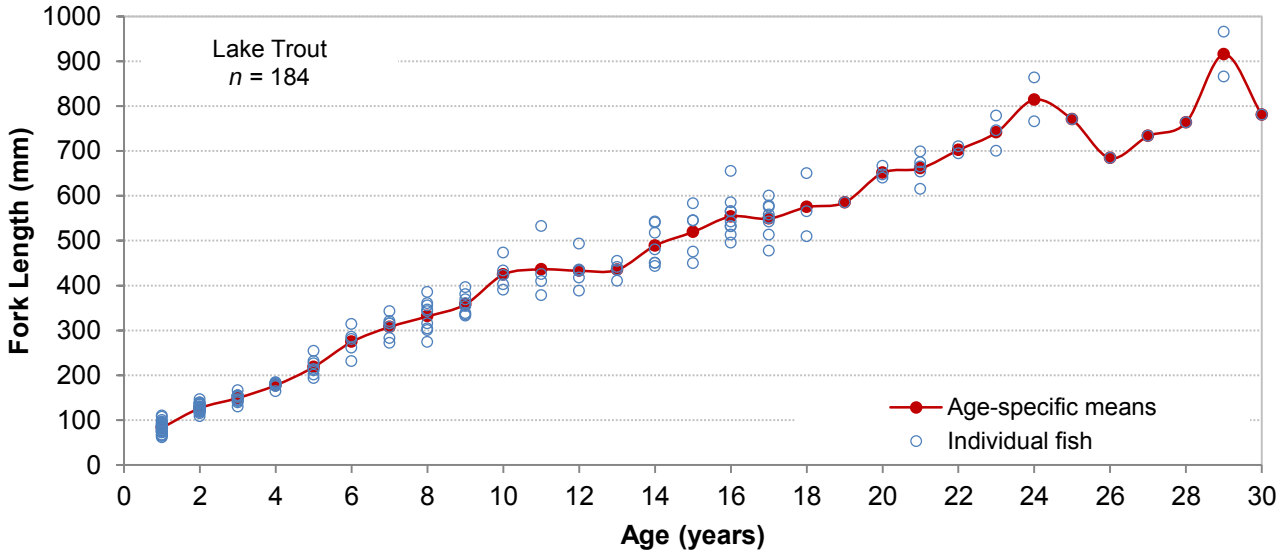


Figure 9-22: Age-length Relationship for Lake Trout in the Meliadine Study Area, 1997 to 2009

9.3.2.4 Feeding Habits

Close to 50% of the 143 lake trout stomachs examined during 1997 to 2000 contained no food items; the mean fullness index was 22% (Appendix F20). Lake trout diet consisted primarily of fish (71% of the total food volume). Identifiable species detected in the diet included (in order of abundance): cisco (15%), threespine stickleback (13%), burbot (6%), ninespine stickleback (6%), lake trout (4%), and slimy sculpin (3%). Unidentified fish remains accounted for 23% of the total diet composition. Invertebrates collectively accounted for the remaining 29% of the lake trout diet with identifiable taxa including amphipods, clams, midges, caddis flies, snails, beetles, bees, and moths.

Diet was assessed for lake trout (*n* = 93) collected from Meliadine Lake (Appendix F20). Lake trout captured in Meliadine Lake accounted for 66% of all lake trout captured in the Meliadine Study Area. Diet of lake trout captured in Meliadine Lake did not differ from the diet of lake trout from all the basins combined.

9.3.3 Arctic Grayling

9.3.3.1 Size Distribution

The overall length range of Arctic grayling captured in the study area (*n*=1938) was 20 to 435 mm. The length frequency histogram exhibited numerous modes; patterns emerged for small (i.e., less than 100 mm in fork length), medium (i.e., 100 to 200 mm in fork length) and large size (i.e., 300 to 400 mm in fork length) classes indicating that all age-classes of Arctic grayling were well represented in the Meliadine Study Area (Figure 9-23, C). The largest Arctic grayling (435 mm in fork length).was captured in Basin B.

The majority (70%; *n* = 1362) of Arctic grayling in the sample were captured in Peninsula Streams primarily through the use of electrofishing. Within the Peninsula Basins the majority of Arctic grayling were captured in Basin A (31%; *n* = 421), Basin B (47%; *n* = 638) and Basin D (22%; *n* = 295); all age classes were represented in each of the mentioned basins (Figure 9-23, A). Of the lakes sampled in Basin A, Lake A6 had the highest Arctic grayling catch (50%; *n* = 211, mean fork length = 196 mm; SD $\pm$ 76); many fish were also captured in the outflow Stream A5-6 (16%; *n* = 69, mean fork length = 151 mm; SD $\pm$ 119).

Of the lakes sampled in Basin B, Lake B7 had the highest Grayling catch (50%; *n*=316, mean fork length = 189.7; SD $\pm$ 65.7 mm). Fish captured in the Peninsula Basins accounted for the majority of the juvenile catch, whereas the majority of the adult fish were captured in the other basins (i.e., primarily Meliadine River and Meliadine Lake) (Figure 9-23, B).

Twelve Arctic grayling were captured in Chickenhead Lake; Arctic grayling from Chickenhead Lake were represented by larger size classes ranging from 168 to 402 mm in fork length (mean = 315 mm; SD $\pm$ 20).

9.3.3.1 Length-Weight Relationships

The length-weight relationships for Arctic grayling in each sampled basin are provided in Appendix F13 and plotted for individual fish in Appendix F14. The combined length-weight regression equation for all basins was:

Log Weight (g) = -5.3175 + 3.1456 log Fork Length (mm) where n = 1116 and r^2 = 0.9927.

Relative weight calculated for Arctic grayling by basin using a MFL of 120 mm. Relative weights for individual fish within the study area ranged from 57 to 141. Average relative weights calculated for basins within the

Meliadine Study Area ranged from 96 (SD ± 11.9; *n* = 23) in Little Meliadine Lake to 110 (SD ± 9.3; *n* = 97) in Basin D, all of which are well within the range of a healthy population.

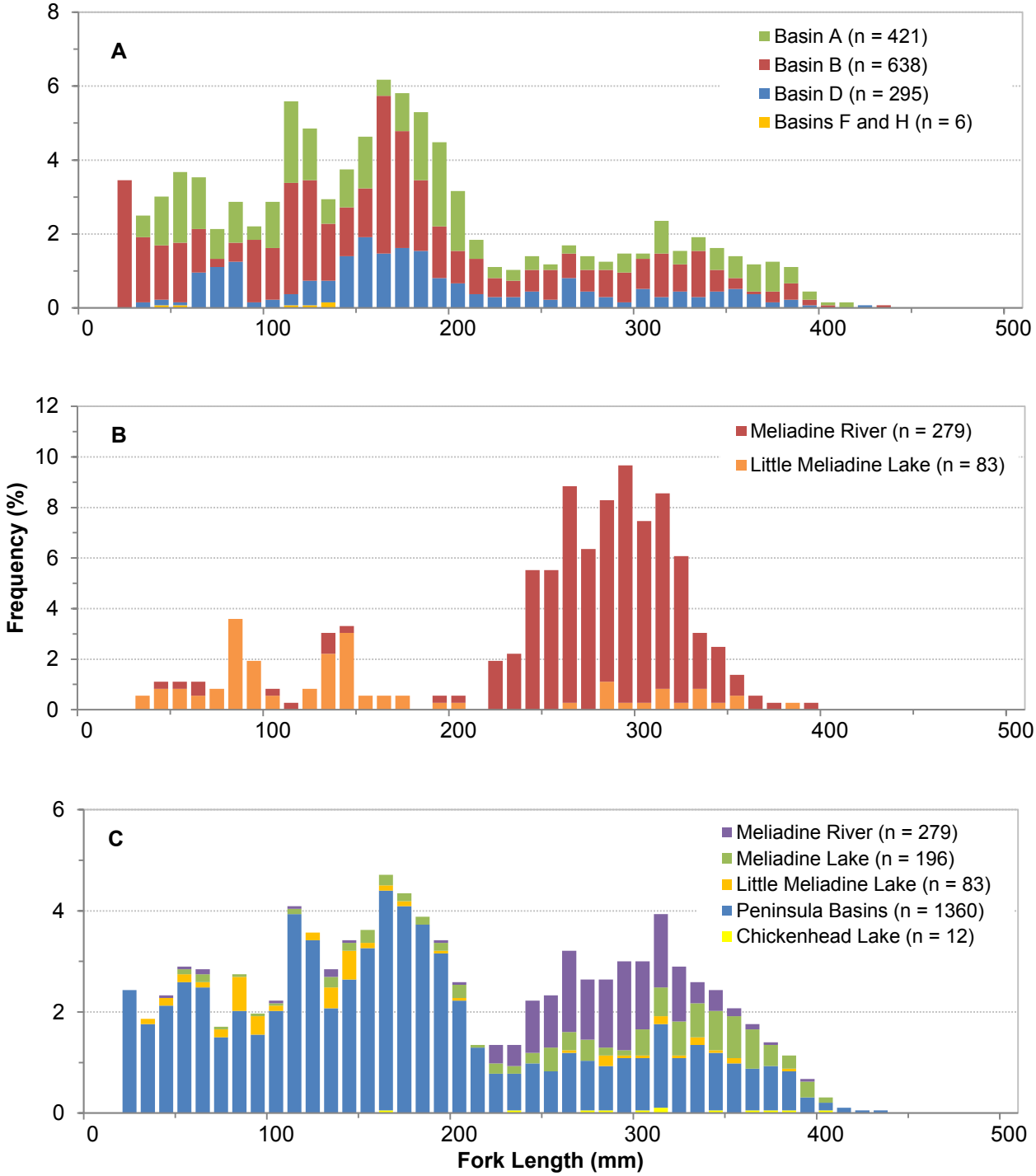


Figure 9-23: Length-frequency Distribution of Arctic Grayling in the Peninsula Basins (A), Meliadine Lake and Meliadine River (B), and the Meliadine Study Area (C), 1997 to 2009

9.3.3.2 Age and Length

Age-length data for Arctic grayling is provided in Appendix F17 and Figure 9-24. Fish in the aged sample (*n* = 669) ranged between the ages 0 and 11. Growth increments during the first 5 years averaged approximately 50 mm in length per year; the older fish grew considerably slower averaging approximately 20 mm in length per year. Almost no growth was recorded during the last growth period (i.e., between ages 9 and 11).

An ANOVA revealed significant differences in mean fork length-at-age among basins for fish in age classes 0 through 4 (age 0, F = 15.6, df = 4, 199, *p* <0.001; age 1, F = 4.10, df = 4, 63, *p* <0.001; age 2, F = 3.69, df = 4, 69, p <0.001; age 3, F = 4.06, df = 3, 39, p = 0.013, age 4; F = 25.53, df = 5, 65, *p* <0.001). For example, age 4 fish in Basin D (*n*=10; mean length = 296 mm; SD ± 26) were much larger then fish of the same age in Basin A (*n* = 19, mean length = 200 mm; SD ± 15) and Basin B (*n* = 29, mean length = 212 mm; SD ± 28).

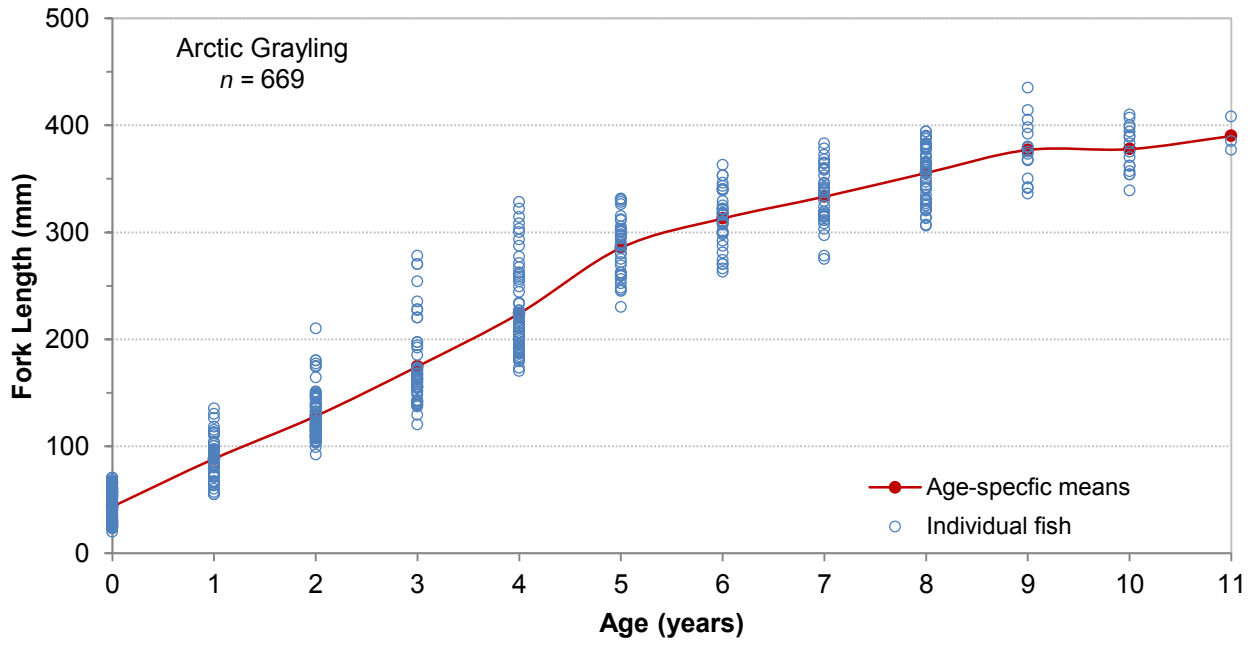


Figure 9-24: Age-length Relationship for Arctic Grayling in the Meliadine Study Are, 1997 to 2009

9.3.3.3 Feeding Habits

Arctic grayling diet was assessed based on data collected from 31 stomachs from 1997 to 2000. In contrast to the other species examined, most (84%) Arctic grayling had at least one food item in their stomachs; the mean fullness index was 45% (Appendix F20). This is likely because they are opportunistic in their feeding habits and their diet is extremely variable compared to other species (Bishop 1967; de Bruyn and McCart 1974). The diet consisted primarily of invertebrates (87% of the total food volume) with identifiable taxa including (in order of abundance): amphipods, caddis flies, crane flies, beetles, midges, mosquitoes, and stoneflies. In addition, ninespine stickleback accounted for 13% of the total food volume.

9.3.4 Round Whitefish

9.3.4.1 Size Distribution

The fork length of round whitefish captured in the Study Area (*n*=442) from 1997 through 2000 ranged from 81 to 510 mm (Figure 9-23). Approximately 51% (*n*=227) of all round whitefish captured in the study area were collected in the Meliadine River. The majority of the fish captured in Meliadine River were adults ranging from 253 to 464 mm in fork length (mean = 376 mm, SD ± 56). Smaller fish (i.e., less than 250 mm) were captured primarily in Meliadine Lake (*n*=64) and the Peninsula Basins (*n*=7). The largest round whitefish (531 mm in fork length) was captured in Little Meliadine Lake.

9.3.4.1 Length-Weight Relationships

The length weight relationships for individual round whitefish captured from 1997 to 2000 are provided in Appendix F13 and plotted for individual fish in Appendix F14. The regression equation for all samples combined was:

log Weight (g) = -5.4918 + 3.1934 log Fork Length (mm) where n = 282 and r^2 = 0.9953.

The slope of the regression line (3.1934) indicated positive allometric growth. Relative weight of individual fish was calculated using a MFL of 100 mm for round whitefish. Relative weights for individual fish ranged from 61 (Meliadine Lake) to 136 (Meliadine Lake). Average relative weights calculated for basins within the Meliadine Study Area ranged from 98 (SD ± 11.4; *n* = 79) in Meliadine Lake to 106 (SD ± 9.0; *n* = 11) in Parallel Lake, all of which are well within the range of a healthy population.

An ANOVA indicated that relative weights differed significantly among years (F = 6.15, df = 3, 252, p <0.001), which may be related to a variable food source within the study area. The year with the highest mean relative weight was 1999 (103; SD ± 9.8; *n* = 117), when round whitefish were only captured in Meliadine River and Little Meliadine Lake. This is in contrast with 1997 (mean = 96; SD ± 9.5, *n* = 55), when the majority (*n* = 36) were captured in Meliadine Lake. The differences in relative weights noted among years may be more of a reflection of the differences in relative weights among locations within the study area rather than food availability year to year.

9.3.4.1 Age and Length

Age-length data for round whitefish are provided in Appendix F18 and Figure 9-26. Fish in the aged sample (*n*= 134) ranged from age 1 through 18. Growth increments in the first 5 years of life averaged approximately 57 mm in length per year. Average growth in later years dropped significantly and averaged approximately 13 mm in length per year from age 5 through 14. Growth increments could not be assessed for ages 15 through 18 due to small sample sizes. The major changes in growth can be attributed to the transition from juvenile to adult life stages or the onset of sexual maturity. Relative weights differed significantly (one tailed t(77) = -1.78, p = 0.039) between the younger (age 1 - 4), fast growing fish (mean relative weight = 94.8, SD ± 11.2; *n* = 37) and the older, slower growing fish (mean relative weight = 99.1, SD ± 11.2, *n* = 56). Differences in condition may be a direct result of growth rates as younger, faster growing fish would be expected to have a lower body condition.

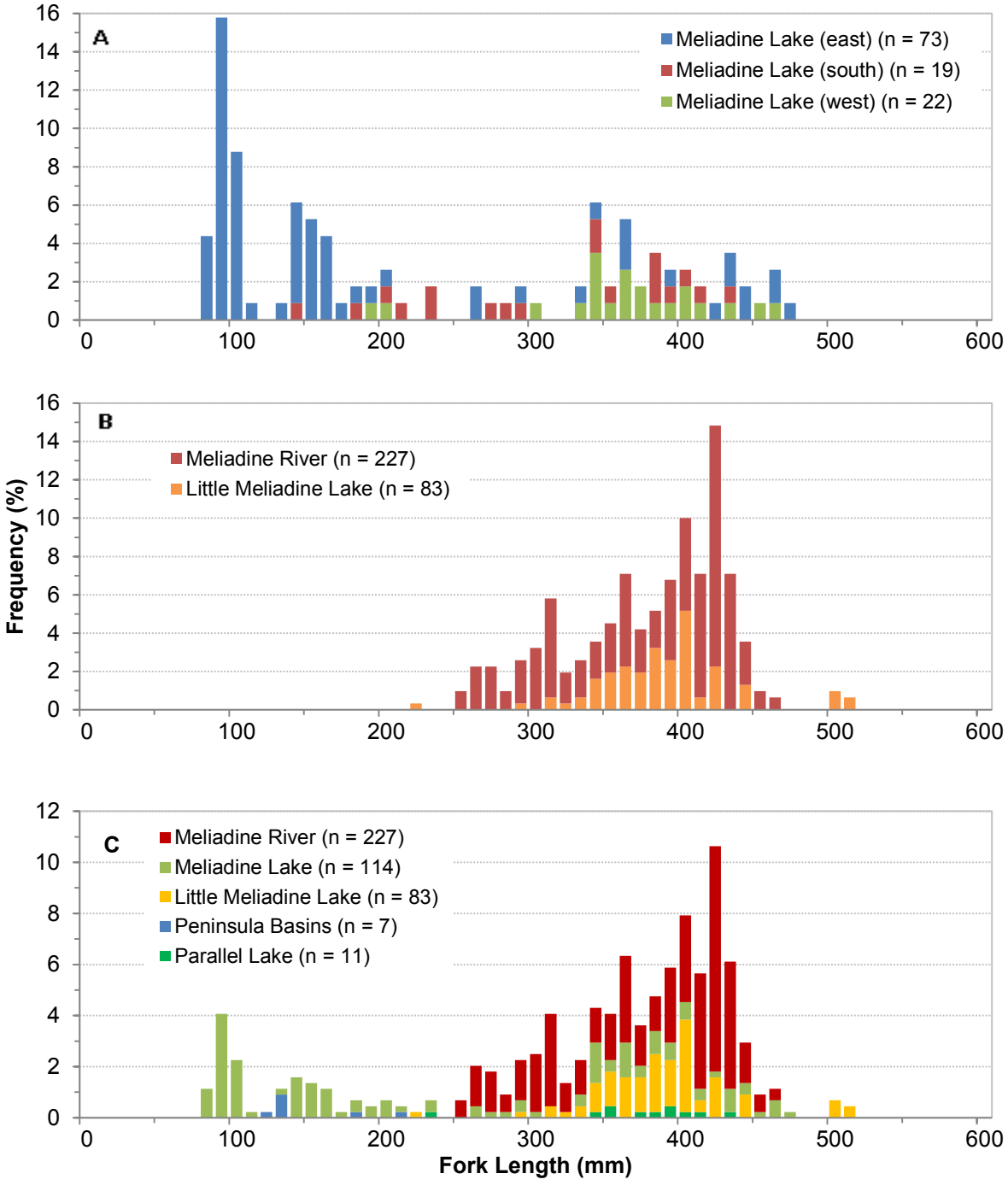


Figure 9-25: Length-frequency Distribution of Round Whitefish in Meliadine Lake (A), Meliadine River (B), and the Meliadine Study Area (C), 1997 to 2000

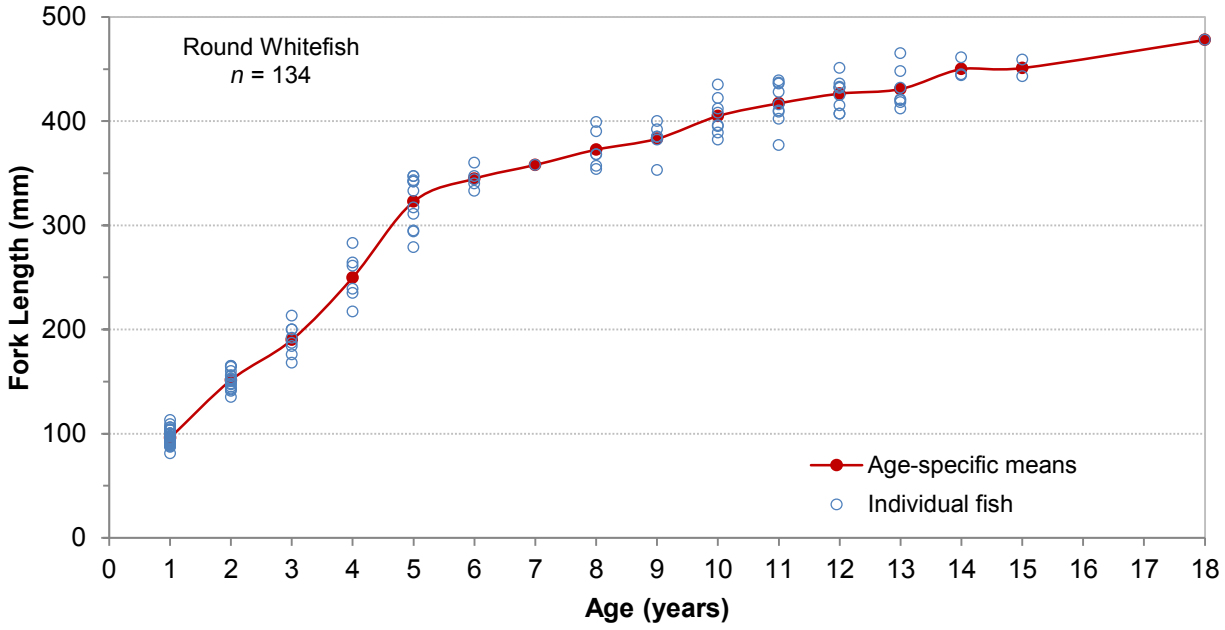


Figure 9-26: Age-length Relationship for Round Whitefish in the Meliadine Study Area, 1997 to 2000

9.3.4.2 Feeding Habits

Almost 50% of the 65 round whitefish stomachs examined contained no food items; the mean fullness index was 18% (Appendix F20). The diet consisted entirely of aquatic invertebrates including (in order of abundance): snails, caddis flies, midges, clams, and hydroids. Due to their habits of feeding on the bottom, inorganic material consisting primarily of sand contributed to 6% of the total volume in the examined round whitefish stomachs.

9.3.5 Cisco

9.3.5.1 Size Distribution

The fork length range of cisco captured in the Meliadine Study Area (*n*=1833) was 72 to 456 mm (Figure 9-27). The largest cisco (456 mm in fork length) was captured in Little Meliadine Lake. The length-frequency histogram shows a prominence of fish in the 70 to 130 mm size class; the majority (67%) of cisco captured in the study area were less than 200 mm in fork length. Approximately 93% of the fish that were less than 200 mm in fork length were captured in Meliadine Lake. Basin D (108 to 404 mm; *n*=161) and Meliadine Lake (72 to 437 mm; *n*=547) both had a diverse representation of all size classes.

9.3.5.1 Length-Weight Relationships

The length-weight relationships for cisco captured in the Meliadine Study Area are presented in Appendix F13, and plotted for individual fish in Appendix F14. The combined length-weight regression equation for all basins was:

log Weight (g) = -5.4918 + 3.1934 log Fork Length (mm) where n = 282 and r^2 = 0.9953.

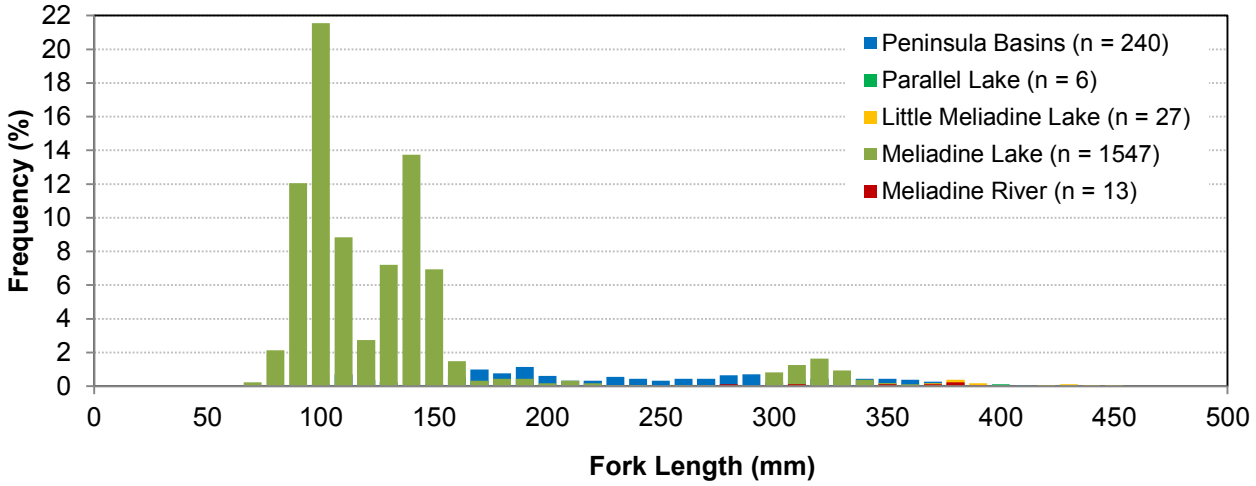


Figure 9-27: Length-frequency Distribution of Cisco in the Meliadine Study Area, 1997 to 2009

A MFL of 100 mm was used to calculate relative weight for cisco. An ANOVA on relative weight data by basin revealed that relative weight differed significantly among basins (F = 16.77, df = 6, 533, p <0.001). Mean relative weights calculated for each basin ranged from 97 (SD ± 10.5; *n*=324) in Meliadine Lake to 109 (SD ± 16.7; *n* = 117) in Basin D; the mean value for the entire study area was 101 (SD ± 14.4; *n* = 540).

9.3.5.2 Age and Length

Age-length data for cisco are provided in Appendix F19 and Figure 9-28. Fish in the aged sample (*n* = 265) ranged from age 1 through 10. Growth increments in the first 6 years averaged approximately 45 mm in length per year. Growth slowed considerably after age 6. Age 10 fish (*n*=6) ranged from 305 to 381 mm in fork length. The largest aged cisco captured in the Meliadine Study Area measured 417 mm and was 7 years old.

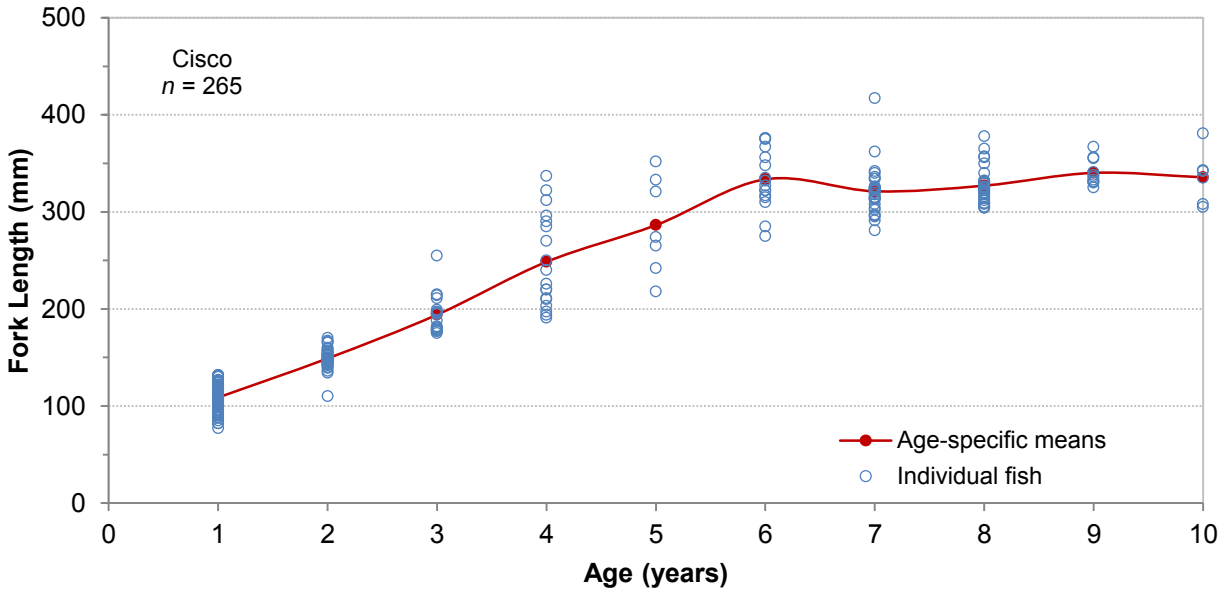


Figure 9-28: Age-length Relationship for Cisco in the Meliadine Study Area, 1997 to 2009

9.3.5.3 Feeding Habits

Cisco feeding habits were assessed based on 108 stomachs examined during 1997 to 2000. Approximately half (51%) of the stomachs examined contained no food items; the mean fullness index was 21% (Appendix F20). The diet of cisco consisted entirely of aquatic invertebrates including (in order of abundance): amphipods, midges, clams, snails, zooplankton and caddis flies. Diet composition of cisco from Meliadine Lake (*n* = 51) did not differ from the diet composition of fish from all basins combined (Appendix F20).

9.3.6 Burbot

The total length of burbot captured in the Meliadine Study Area (*n* = 75) from 1997 through 2008 ranged from 72 to 600 mm. burbot were primarily encountered in the Peninsula Basins.

The length-weight relationship for burbot captured in the Meliadine Study Area was:

log Weight (g) = -4.8462 + 2.8502 log Fork Length (mm) where *n* = 46 and r^2 = 0.9765.

The slope of the regression line (2.8502) indicated negative allometric growth (i.e., slope less than 3). Relative weight was calculated for burbot by basin using a MFL of 120 mm. The average relative weight for all burbot in the study area was 102 (SD $\pm$ 20.0; *n* = 39).

9.3.7 Slimy Sculpin

The length of slimy sculpin captured in the Meliadine Study Area (n = 200) from 1997 through 2009 ranged from 32 to 124 mm (Figure 9-29). Slimy sculpin were encountered in all basins but were captured primarily by backpack electrofishing in the Peninsula streams.

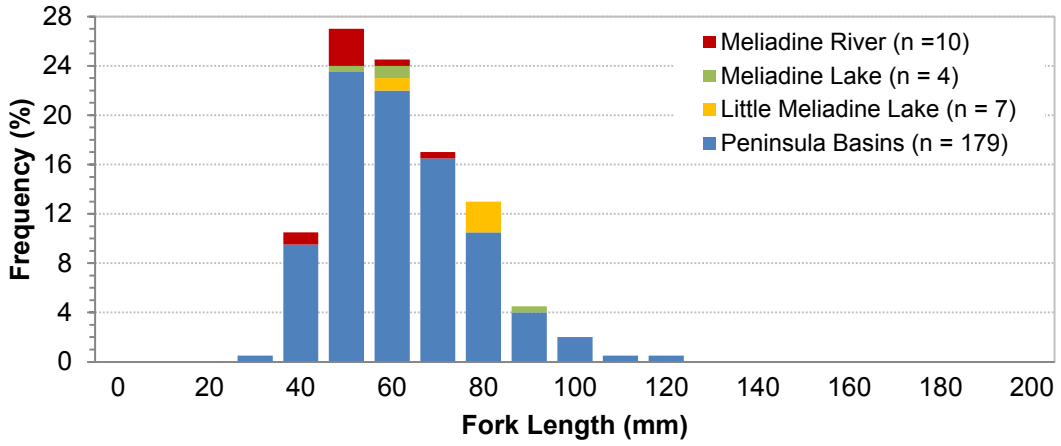


Figure 9-29: Length-frequency Distribution of Slimy Sculpin Captured in the Meliadine Study Area, 1997 to 2009

9.4 Fish Movements

Fish movements (i.e., migrations) were investigated primarily during 1997 to 2001. The methods used in these studies included:

- marking of small-bodied fish by fin clipping to determine the frequency of recaptured individuals during subsequent sampling events (used only during 1997 and 1998);
- marking of large-bodied fish with uniquely numbered Floy^{TM} tags to determine movements between release and recapture locations; and
- surgical implantation of radio transmitters in Arctic char, Arctic grayling, and lake trout to determine their seasonal movements and identify spawning, feeding, and overwintering habitats through radio telemetry flights.

The results of these movement studies are organized by study method and discussed in the following subsections.

9.4.1 Fin Clipping

Individual sportfish that were too small to receive Floy^{TM} tags (less than 250 mm in fork length) were marked by fin clipping (i.e., removal of a small section of their pelvic or pectoral fins). During 1997 to 1998, a total of 817 fish were marked by fin clipping (Table 9-13). Most of these individuals (71%) were caught and marked at the fyke net sites (east and south basins of Meliadine Lake) during the summer and fall sampling sessions. The remaining fish were marked during electrofishing surveys in spring (13%), summer (12%), and fall (4%) in the Peninsula streams, lakes, and the Meliadine River.

Table 9-13: Number of Fish Fin Clipped and Recaptured in the Meliadine Study Area, 1997 to 1998

Species	Number of Fin Clipped Fish per Basin[a]							Number of Recaptures			
	ML	A	B	D	LML	Other	Total	ML	A	B	Total
Arctic char	355	3	17	8			**383**	23			**23**
Lake trout	102	15	19	4	1	3	**144**		2	1	**3**
Arctic grayling	38	53	85	5	2	7	**190**	1	2	1	**4**
Round whitefish	31						**31**	1			**1**
Cisco	56		12				**68**				**0**
Burbot	1						**1**				**0**
All Species	**583**	**71**	**133**	**17**	**3**	**10**	**817**	**25**	**4**	**2**	**31**

[a] ML = Meliadine Lake; A, B, D = Peninsula Basins; LML = Little Meliadine Lake; Other = Basins F, G and the Meliadine River.

Of the 817 fish marked, only 31 individuals were recaptured (overall recapture rate of 3.8%). Most (*n*=25) were recaptured at the fyke net sites in Meliadine Lake. The low recapture rate indicated that most fish did not remain in the vicinity of the fyke net after capture but moved to other parts of the lake. The remaining fin clipped individuals (*n*=6) were recaptured in the Peninsula streams during the spring (*n*=2), summer (*n*=3), and fall (*n*=1) sampling sessions in 1997 and 1998. The low number of recaptures in the Peninsula streams was likely due to differences in seasonal sampling effort or out-migration of the marked fish.

One juvenile Arctic char (204 mm in fork length) marked with a fin clip on 19 June 1997 in Stream A1-2 was recaptured in the fyke net in Meliadine Lake on 13 July 1997 (it was the only fin-clipped Arctic char at large during this time). This fish had moved a minimum distance of 4 km, suggesting that it may have used the stream for feeding purposes during the spring before returning to the lake.

9.4.2 Floy Tags

During the 1997 to 2008 studies, 3460 fish were marked with Floy tags in the Meliadine Study Area (Table 9-14). The majority (76.1%) were Arctic char, followed by Arctic grayling (11.0%), lake trout (6.2%), round whitefish (4.6%), cisco (1.9%), and burbot (0.1%). Approximately 80% of the fish were marked during the fish fence operations in the lower Meliadine River. Other tagging locations included Meliadine Lake (12%), the Peninsula basins (7%) and Little Meliadine Lake (1%).

Table 9-14: Number of Fish Marked with Floy Tags in the Meliadine Study Area, 1997 to 2008

Species	Year Tagged	Number of Tagged Fish per Basin[a]						
		ML	A	B	D	LML	MR	Total
Arctic char	1997	27	4		30	1	977	1039
	1998	5			2	6	630	643
	1999	7			1		925	933
	2000	13			5			18
	1997 to 2000	**52**	**4**		**38**	**7**	**2532**	**2633**
Lake trout	1997	70	2	2	2	4	9	89
	1998	34		1		2	7	44
	1999	8			1	11	10	30
	2000	52				1		53
	1997 to 2000	**164**	**2**	**3**	**3**	**18**	**26**	**216**
Arctic grayling	1997	47	17	32	14		8	118
	1998	90	35	40	2	1	20	188
	1999				10	3	42	55
	2000	1						1
	2008			19				19
	1997 to 2008	**138**	**52**	**91**	**26**	**4**	**70**	**381**
Round whitefish	1997	7					25	32
	1998	5					44	49
	1999					8	70	78
	1997 to1999	**12**				**8**	**139**	**159**
Cisco	1997	11		14				25
	1998	22	1	8			2	33
	1999				6		3	9
	1997 to 1999	**33**	**1**	**22**	**6**		**5**	**67**
Burbot	1998	4						4
All Species	**1997 to 2008**	**403**	**59**	**116**	**73**	**37**	**2772**	**3460**

[a] ML = Meliadine Lake; A, B, D = Peninsula Basins; LML = Little Meliadine Lake; MR = Meliadine River

Following the marking program, subsequent fishing effort by the study team and tags returned by local fishermen resulted in 1740 tag recapture events (Table 9-15, Appendix F21). These recapture events involved 1380 fish (40% of all fish tagged), of which 1 081 fish were recaptured once, 240 fish were recaptured twice, 57 fish were recaptured 3 times, and 2 fish were recaptured 4 times during the course of the study. Most of the recapture events (n=1004) were reported by local fishermen who returned tags captured during subsistence fishing in Little Meliadine Lake and several areas of Hudson Bay.

Table 9-15: Number of Recapture Events for Floy Tagged Fish in the Meliadine Study Area, 1997 to 1999

Species	Year Tagged	Number of Recapture Events per Basin[a]										
		ML	A	B	D	LML	MR	PB	DR	HB	?	Total
Arctic char	1997	10			6	193	477	134	3	27	14	864
	1998	2				192	222	43	2	10	6	477
	1999	4				177	33	65	6	8	22	315
	2000				1	1		2	1			5
	1997 to 2000	16			7	563	732	244	12	45	42	1661
Lake trout	1997	4				3		1				8
	1998	1										1
	1999					1	1					2
	2000	3										3
	1997 to 2000	8				4	1	1				14
Arctic grayling	1997	4	1	1			3					9
	1998	3	1			1	10					15
	1997 to1998	7	2	1		1	13					24
Round whitefish	1997						13					13
	1998						27					27
	1997 to1998						40					40
Burbot	1998	1										1
All Species	**1997 to 2000**	**32**	**2**	**1**	**7**	**568**	**786**	**245**	**12**	**45**	**42**	**1740**

[a] ML = Meliadine Lake; A, B, D = Peninsula Basins; LML = Little Meliadine Lake; MR = Meliadine River ; PB = Prairie Bay; DR= Diana River; HB = Hudson Bay; ? = unknown recapture location

Arctic Char Tagged in 1998

During 1998, 643 Arctic char were tagged (Table 9-14). Similar to the 1997 tagging program, most fish tagged in 1998 were released in the lower Meliadine River and Little Meliadine Lake (*n*=636) and resulted in a total of 477 recaptures (including 74 fish recaptured twice). Approximately 41% of these recaptures were recorded and released during the fall 1999 fish fence operations. The remaining recaptures (*n*=274) were reported by local fishermen who harvested the fish in Little Meliadine Lake (*n*=187), lower and upper Meliadine River (*n*=25), Meliadine Lake (*n*=1), Prairie Bay (*n*=43), Hudson Bay (*n*=10), the Diana River system (*n*=2), and 6 unknown locations (Table 9-3). The farthest recapture location was Fish Bay near Chesterfield Inlet, approximately 130 km northeast of Rankin Inlet.

In addition to the fish tagged at the fish fence and in Little Meliadine Lake in 1998, 5 Arctic char were tagged in Meliadine Lake and 2 in Lake D1. Of these 7 fish, 2 have been recaptured to date. One (originally tagged in Lake D1) was recaptured by a local fisherman in the south basin of Meliadine Lake; the other was a juvenile fish that was recaptured by the study team in the south basin of Meliadine Lake one day after its original capture.

Arctic Char Tagged in 1999

During 1999, 933 Arctic char were tagged; most (*n*=925) were released at the fish fence site on the lower Meliadine River (Table 9-14). Of these fish, 313 recaptures were reported by local fishermen. The recapture locations included Little Meliadine Lake (*n*=177), Prairie Bay (*n*=65), Meliadine River (*n*=33), Hudson Bay (*n*=8),

the east basin of Meliadine Lake (*n*=2), and the Diana River system (*n*=6). In addition to the tag returns by the local fishermen, 2 fish (pre-spawning male and female) were recaptured by the study team in September 2000 near the west outlet of Meliadine Lake (Appendix F21).

Arctic Char – 1997 to 1999 Fish Fence

During the entire 1997 to 1999 fish fence program in the lower Meliadine River, 2532 Arctic char were marked with Floy tags. Flow diagrams of recapture events and harvest locations are presented separately for each year of the fish fence program in Appendices F22a to F22c. Tag return data from the domestic fishery indicates that 989 fish (39% of the marked total) were harvested to date (Table 9-16). The most recent tag return was reported in June 2008 for an Arctic char originally tagged at the fish fence in August 1999 and recaptured in the Diana River. Most (88%) of the harvested fish were captured in the immediate vicinity of Rankin Inlet: Prairie Bay (*n*=242), lower Meliadine River (*n*=81), and Little Meliadine Lake (*n*=548). Other freshwater harvest locations included Meliadine Lake (*n*=13), upper Meliadine River (*n*=7), and Diana River system (*n*=11). Marine harvest locations outside of Prairie Bay (*n*=45) were widespread and ranged between Chesterfield Inlet to the north and Corbett Inlet to the south of Rankin Inlet.

Table 9-16: Recapture Locations of Arctic Char Marked with Floy Tags during 1997 to 1999 Fish Fence Operations in the Lower Meliadine River

Area	Location	Number of Recaptures		
		Harvesteda	Released Live	Total
Meliadine River	Lower Meliadine River	81	644	725
	Little Meliadine Lake	548	11	559
	Upper Meliadine River	7		7
Meliadine Lake	Meliadine Lake (south basin)	9		9
	Meliadine Lake (east basin)	2		2
	Meliadine Lake (west basin)	2	1	3
Diana River	Lower Diana River	11		11
Hudson Bay	Prairie Bay	242		242
	Thomson Passage	10		10
	Falstaff Island	2		2
	Scarab Point	4		4
	Baker Foreland	14		14
	Chesterfield Inlet	4		4
	Melville Bay and vicinity	9		9
	Pistol Bay	1		1
	Corbett Inlet	1		1
Unknown (harvest location not reported)		42		
Total		**989**	**656**	**1645**

[a] Many (n=241) of the harvested fish were also previously recaptured and released alive by the study team.

In addition to the harvested fish, 656 recapture events involved fish that were recaptured by the study team and released alive at least once (*n*=552), twice (*n*=101), or even 3 times (*n*=3). Most (98%) of these recaptures were recorded during fish fence operations in the lower Meliadine River in 1998 and 1999. The remaining recaptures

occurred during gill netting surveys in Little Meliadine Lake in September 1998 (*n*=11) and in the west basin of Meliadine Lake in September 2000 (*n*=1).

Arctic Char Tagged in 2000

During September 2000, 13 Arctic char were tagged and released near the west outlet of Meliadine Lake (Table 9-14). Of these fish, 4 recaptures were reported by the local fishermen. The recapture locations included Little Meliadine Lake (*n*=1), Prairie Bay (*n*=2), and the Diana River system (*n*=1); all recaptures occurred in June 2001. In addition, 5 Arctic char were tagged and released in Lake D1 in September 2000; one of these fish was recaptured by the study team one day later at the same location.

Arctic Char - Summary

In summary, 2633 Arctic char were marked with Floy tags during the 1997 to 2000 study period. Recapture rates for these fish are presented separately for each year of tagging in Table 9-17. Overall, half (49.9%) of the marked fish were recaptured at least once. The results also indicate that a substantial portion of the population (998 fish or 37.9% of the marked total) had been harvested by the local fishermen. The highest harvest rate (274 fish or 42.6% of the marked total) was recorded for fish tagged in 1998.

Table 9-17: Recapture and Harvest Frequency of Arctic Char Marked with Floy Tags during 1997 to 2000 in the Meliadine Study Area

Year Tagged	Number of Fish		Frequency (%)			
	Tagged	Recaptured	Recaptured and Released	Recaptured, Released and Harvested	Harvested	Not Recaptured
1997	1039	592	17.9	16.2	22.9	43.0
1998	643	403	20.1	11.5	31.1	37.3
1999	933	314		0.1	33.5	66.3
2000	18	5	5.6		22.2	72.2
1999 to 2000	**2633**	**1314**	**12.0**	**9.2**	**28.7**	**50.1**

9.4.2.1 Lake Trout

Lake Trout Tagged in 1997

In the 1997 field effort, 89 lake trout were marked with Floy tags in the Meliadine Study Area (Table 9-2). The majority (78.7%) of fish were tagged in Meliadine Lake, with the remainder tagged in the Meliadine River (10.1%), Peninsula Lakes (6.7%), and Little Meliadine Lake (4.5%). Of the fish tagged in 1997, eight (9.0% recapture rate) were recaptured (Table 9-3). One lake trout released in the east basin of Meliadine Lake in July 1997 was recaptured by a local fisherman in Little Meliadine Lake in September 2000 (Appendix F21). The remaining 7 recaptures occurred within 2.4 km of the original release locations: 4 fish were recaptured in Meliadine Lake (including one fish tagged in Lake D1 and recaptured in the south basin of Meliadine Lake), 2 in Little Meliadine Lake, and one in Prairie Bay.

Lake Trout Tagged in 1998

In 1998, a total of 44 lake trout were tagged (Table 9-2). Most (79.5%) were tagged in Meliadine Lake, with the remainder tagged in the Meliadine River, Little Meliadine Lake, and Lake B2. Only one of these fish was recaptured (2.3% recapture rate); it was harvested in August 1999 by a local fisherman in the south basin of Meliadine Lake close to its original release location.

Lake Trout Tagged in 1999

In 1999, 30 lake trout were tagged (Table 9-2). The majority (66.7%) were tagged in Little Meliadine Lake and in the lower Meliadine River, with the remainder tagged in the west basin of Meliadine Lake and in Lake D1. Two individuals have been recaptured (6.6% recapture rate). Both were harvested by local fishermen near their original release locations in Little Meliadine Lake and the lower Meliadine River.

Lake Trout Tagged in 2000

In 2000, 53 lake trout were tagged (Table 9-2). Most (98.1%) were tagged in the west basin of Meliadine Lake in September; one fish was tagged in Little Meliadine Lake in July. Three fish have been recaptured to date (5.7% recapture rate). Two fish were recaptured by the study team in close proximity and within 2 days of their release in the west basin of Meliadine Lake; the third was harvested by a local fisherman in the west basin of Meliadine Lake close to its original release location.

Lake Trout - Summary

In summary, 216 lake trout were marked with Floy tags during the 1997-2000 study period. The overall recapture rate was low (6.5%). Among the 14 recaptured fish, only one moved more than 3 km from its release location; this fish moved from the east basin of Meliadine Lake to Little Meliadine Lake (a straight line distance of approximately 12 km).

9.4.2.2 Arctic Grayling

Arctic Grayling Tagged in 1997

In 1997, 118 Arctic grayling were marked with Floy tags in the Meliadine Study Area (Table 9-2). The majority (53.4%) were tagged in the Peninsula streams and lakes. The remaining fish were tagged in the east basin of Meliadine Lake (39.8%) and in the Meliadine River (6.8%). Eight of the fish tagged in 1997 (6.8% recapture rate) were recaptured near their original release locations in Meliadine Lake (*n*=4), Lake B2 (*n*=1), Stream A2-3 (*n*=1), and in the lower Meliadine River fish fence site (*n*=2). One of the fish recaptured at the fish fence in 1998 was recorded again during the 1999 fish fence operations, indicating similar upstream movement pattern in the lower Meliadine River for 3 consecutive years (Appendix F21).

Arctic Grayling Tagged in 1998

An additional 188 Arctic grayling were tagged in 1998 (Table 9-2). Approximately half (47.9%) were tagged in Meliadine Lake, 41.0% were tagged in the Peninsula streams and lakes, and the remaining 11.2% were tagged in the Meliadine River and Little Meliadine Lake. Of the fish tagged in 1998, 14 fish were recaptured (7.4% recapture rate). Ten fish were recaptured during the 1999 fish fence operations; one of these fish was subsequently harvested from Little Meliadine Lake in August 2000. The remaining 4 fish were recaptured in the

south basin of Meliadine Lake (*n*=3) and in Stream A5-6 (*n*=1); all recaptures occurred near and within a few days of the original release locations.

Arctic Grayling Tagged in 1999

In 1999, 55 Arctic grayling were marked with Floy tags (Table 9-2). Most (74.5%) were tagged in the lower Meliadine River at the fish fence site, with the remainder tagged in Lake D1, Little Meliadine Lake, and the upper Meliadine River. None of the Arctic grayling tagged in 1999 have been recaptured.

Arctic Grayling Tagged in 2000

In 2000, only one Arctic grayling was marked with a Floy tag (Table 9-2). It was tagged in the west basin of Meliadine Lake and has not been recaptured.

Arctic Grayling Tagged in 2008

In 2008, 19 Arctic grayling were marked with Floy tags in Lake B7 as part of the mark-recapture program to estimate the population size in this lake (Table 9-2). None of these fish have been recaptured.

Arctic Grayling - Summary

In summary, 381 Arctic grayling were marked with Floy tags during the 1997 to 2008 study period, resulting in 24 recapture events involving 22 fish (2 fish were recaptured twice). The overall recapture rate (5.8%) was similar to that recorded for lake trout. The largest distance between the release and recapture locations (approximately 8 km in a straight line) was recorded for a fish tagged in the lower Meliadine River in August 1997 and recaptured 2 years later in Little Meliadine Lake.

9.4.2.3 Round Whitefish

During the 1997 to 1999 studies, 159 round whitefish were tagged within the study area (Table 9-2). The majority (87.4%) were tagged in the lower Meliadine River at the fish fence site, with the remainder tagged in Meliadine Lake and Little Meliadine Lake. In total, 39 individuals (24.5% of the marked total) have been recaptured. All of the recaptured fish had been released at the fish fence site in 1997 or 1998 and were recaptured at the same location one or 2 years later. One of the fish recaptured at the fish fence in 1998 was recaptured again during the 1999 fish fence operations (Appendix F21).

9.4.2.4 Cisco

In total, 67 cisco were tagged in the Meliadine Study Area during the 1997 to 1999 period. Approximately half (49.2%) were tagged and released in Meliadine Lake, with the remainder released in the Peninsula lakes A6, B2, B7 and D1 (43.3%) and at the Meliadine River fish fence site (7.5%). None of the marked fish have been recaptured.

9.4.2.5 Burbot

Only 4 burbot were tagged during the study; all were captured by fyke net in the south basin of Meliadine Lake in late summer 1998. One of these fish was recaptured at the same location 2 days after its release (Appendix F21).

9.4.3 Radio Telemetry

The radio telemetry program was implemented in 2 phases during the study. The first phase was carried out in 1997 to 1999 and involved tracking of 68 fish (Arctic char, lake trout and Arctic grayling) implanted with radio transmitters. The second phase was carried out in 2000 and 2001 and focused on implanting radio transmitters in 12 pre-spawning Arctic char and tracking their movements in an attempt to determine their spawning and overwintering habitats. The results of each phase are discussed separately because the tracking flights were targeting 2 separate groups of fish (i.e., the radio transmitters in the first set of fish were no longer operational during the second phase).

9.4.3.1 Radio Telemetry 1997 to 1999

During 1997 and 1998, radio transmitters were surgically implanted into 68 fish that included 32 Arctic char, 23 Arctic grayling, and 13 lake trout (Appendix F23). The majority of the radio transmitters (*n*=57) were implanted in 1997, with an additional 9 radio transmitters (5 in Arctic char and 4 in Arctic grayling) implanted in 1998.

Tracking flights were initiated in summer 1997. Arctic grayling (*n*=19) and lake trout (*n*=13) were the only radio tagged species at this time, and the locations of 31 fish were determined during the first 3 flights (Appendix F23). Following the implantation of radio transmitters in 27 Arctic char in August and September 1997, the tracking flights (*n*=4) were continued during fall and early winter of 1997, resulting in the location of 57 individuals on at least one occasion. Tracking flights resumed in April 1998, when the locations of 51 of 57 fish were once again determined (Table 9-6). Tracking flights during June and July 1998 (*n*=4) located an average of 38 individuals per flight. Tracking flights during the fall and early winter of 1998 (*n*=3) located an average of only 25 fish. The lower tracking success of the later flights was likely due to limited emission times of the radio transmitters (i.e., transmitter batteries lost their charge). During the tracking flights carried out in 1999 (*n*=4), there were only 7 fish (implanted with radio transmitters in fall 1998) with functioning batteries; all these fish were located at least once in 1999.

In total, 19 tracking flights were completed between July 1997 and September 1999, resulting in the determination of 573 fish locations (Table 9-6). The movements of these fish are discussed separately for each species in the following sections. Movement maps for selected individual fish that exhibited pronounced patterns are presented in Appendix F24.

Table 9-18: Radio Tagged Fish Located during Tracking Flights in the Meliadine Study Area, July 1997 to November 1998

Tracking Flight	Number of Fish at Large[a]	Number of Fish Located			
		Arctic Char	Arctic Grayling	Lake Trout	Total
21-23 Jul-97	32		18	7	**25**
29-Jul-97	32		19	6	**25**
17-Aug-97	32		19	10	**29**
01-Sep-97	57	19	15	12	**46**
14-Sep-97	58	20	18	8	**46**
26-27 Sep-97	57	19	17	9	**45**
24-25 Oct-97	57	23	18	11	**52**
23-Apr-98	57	23	16	12	**51**
11-Jun-98	56	21	15	9	**45**
21-Jun-98	56	19	16	8	**43**
11-Jul-98	52	11	16	6	**33**
30-Jul-98	51	11	16	6	**33**
17-Aug-98	51	10	16	2	**28**
02-Oct-98	58	7	19	1	**27**
07-Nov-98	58	4	17		**21**
20-Jun-99	7	3	4		**7**
24-Jul-99	7	1	4		**5**
03-Sep-99	7	2	4		**6**
13-Sep-99	7	2	4		**6**
Jul-97 to Sep-99	**7 to 58**	**195**	**271**	**107**	**573**

[a] The number of fish at large changed due to additional implantations of radio transmitters and removal of radio tagged fish by the domestic fishery

Arctic Char

Eight pre-spawning Arctic char that were implanted with radio transmitters in Lake D1 during 20-27 August 1997 remained in the lake until the last 1997 flight on 25 October. During tracking flights in 1998 (April to November), the radio signals were still being transmitted from Lake D1; however, individual movements were not detected. The unusually dry weather conditions during summer and fall 1997 and the very low oxygen concentrations documented in Lake D1 during water quality sampling in April 1998 (see Section 7.6) suggested that the radio tagged fish could not leave the lake in 1997 due to lack of flow in the connecting stream and, subsequently, perished there during the winter. Several large carcasses observed on the lake bottom during a helicopter overflight in June 1998 provided further evidence of winterkill.

In total, 18 Arctic char were implanted with radio transmitters at the lower Meliadine River fish fence between 17 August and 2 September 1997 (Appendix F23). These fish moved an average of 16 km (range of 12 to 25 km) within the area between Little Meliadine Lake and Hudson Bay (Table 9-7; Appendix F24a) during surveillance. During the April 1998 tracking flight, 15 of these fish were still located in Little Meliadine Lake, indicating that the lake provided suitable habitat for overwintering. One gravid female Arctic char implanted with a radio transmitter in Little Meliadine Lake on 28 September 1997 was not relocated until 11 June 1998

(in Little Meliadine Lake), and may have moved outside of the surveillance zone to spawn. During tracking flights from July to November 1998, this individual remained in Little Meliadine Lake. In spring 1998, 8 Arctic char moved downstream into Hudson Bay, likely for summer feeding purposes. Two of these 8 individuals moved back upstream in August and were recaptured at the fish fence. Eight Arctic char radio tagged in 1997 were harvested by the domestic fishery.

Table 9-19: Summary of Arctic Char Movements in the Meliadine Study Area, 1997 to 1998

Floy Tag Number	Release Location[a]	Release Date	Distance[b] Moved (km)	Basins Visited[a]					Number of Times Tracked
				HB	MR-L	LML	ML-S	ML-W	
6310	MR-L	17-Aug-97	13.5		√	√			8
6308	MR-L	17-Aug-97	15.4		√	√			10
6307	MR-L	18-Aug-97	22.5	√	√	√			6
7491	MR-L	29-Aug-97	12.0		√	√			3
7492	MR-L	29-Aug-97	13.1		√	√			4
7016	MR-L	30-Aug-97	12.0		√	√			1
7015	MR-L	30-Aug-97	16.7		√	√			6
6863	MR-L	30-Aug-97	18.7		√	√			5
7017	MR-L	30-Aug-97	20.8	√	√	√			4
6864	MR-L	30-Aug-97	24.8	√	√	√			8
6875	MR-L	31-Aug-97	13.6		√	√			6
7115	MR-L	31-Aug-97	17.4	√	√	√			8
7103	MR-L	31-Aug-97	17.4		√	√			7
7004	MR-L	31-Aug-97	22.0	√	√	√			4
7633	MR-L	01-Sep-97	12.7	√	√	√			6
7634	MR-L	01-Sep-97	17.5	√	√	√			6
7120	MR-L	01-Sep-97	20.6		√	√			5
7601	MR-L	02-Sep-97	12.0		√	√			3
7625	LML	28-Sep-97	4.3			√			6
3126	ML-S	31-Aug-98	9.0				√	√	2
3127	LML	01-Sep-98	1.3			√			2
3130	LML	02-Sep-98	0.0			√			1
3131	LML	02-Sep-98	0.0			√			1
3128	LML	02-Sep-98	0.5			√			1

[a] HB = Hudson Bay; MR-L = lower Meliadine River; LML = Little Meliadine Lake; ML-S = South basin of Meliadine Lake ; ML-W = West basin of Meliadine Lake

[b] Total of straight line distances between individual tracking locations

In the fall of 1998, 5 additional Arctic char were implanted with radio transmitters: 4 were released in Little Meliadine Lake and one in the south basin of Meliadine Lake (Table 9-7). Of the 4 fish released in Little Meliadine Lake, 2 were harvested by the local fishermen at the same location within one month of their release (prior to the tracking flight on 2 October 1998). Of the remaining 2 Arctic char (mature males) released in Little Meliadine Lake, one individual remained in Little Meliadine Lake throughout the entire tracking period (October 1998 to September 1999). The second fish was located in Little Meliadine Lake during October 1998 but was not encountered during the November 1998 tracking flight, suggesting that it may have overwintered outside of the monitored area. During 1999, this fish moved into Hudson Bay and was located near the mouth of the Meliadine River on 20 June, but was outside of the tracking area during the flight on 24 July. It returned from

the sea and was captured and released at the fish fence on 10 August 1999; subsequently, it was tracked in Little Meliadine Lake on 3 and 13 September 1999.

One gravid female implanted with a radio transmitter in the south basin of Meliadine Lake on 31 August 1998 was located within the west basin of Meliadine Lake on both the October and November 1998 tracking flights, suggesting it may have spawned near this area. It was also located in the west basin of Meliadine Lake during spring 1999, but was not encountered again during subsequent tracking flights.

Lake Trout 1998

Most (9 of 13) radio tagged lake trout moved less than 15 km during the 1997 to 1999 tracking program and remained within 9 km of their release locations (Table 9-8). One of these fish (#6346 tagged in Lake D1 in June 1997) moved 3 km into the upper Meliadine River in August 1997 and then another 3 km into the south basin of Meliadine Lake in September 1997, where it remained until captured by a local fishermen in May 1998 (Appendix F23). Another lake trout (#6835) released in the east basin of Meliadine Lake in July 1997 moved 5 km to the central basin of Meliadine Lake in August 1997 and returned to the east basin in July 1998.

The remaining 4 lake trout exhibited more extensive movements. Two individuals (#6812 and #6888) travelled throughout the east basin of Meliadine Lake during the 1997 and 1998 surveys, moving a total distance of 17 and 20 km, respectively (Appendix F24b). The remaining 2 lake trout (#6423 and #6886 radio tagged in July in the east basin of Meliadine Lake) were tracked 18 km away in the west basin of Meliadine Lake on 17 August 1997 and 1 September 1997, respectively (Appendices F24c and F24d). One of these fish (#6423) remained within the west basin throughout the 1998 tracking surveys and was last located on 30 July 1998 near the west outlet of Meliadine Lake. The other lake trout (#6886) returned to the east basin of Meliadine Lake by April 1998 and was last located near the outflow from Stream A0-1 on 30 July 1998.

Table 9-20: Summary of Lake Trout Movements in the Meliadine Study Area, 1997 to 1998

Floy Tag Number	Release Location[a]	Release Date	Distance[b] Moved (km)	Basins Visited[a]					Number of Times Tracked
				ML-E	ML-C	ML-W	ML-S	MR-U	
6346	Lake D1	18-Jun-97	6.7				√	√	5
6417	ML-E	21-Jul-97	4.8	√					13
6886	ML-E	20-Jul-97	41.9	√	√	√			7
6888	ML-E	20-Jul-97	20.4	√					12
6812	ML-E	14-Jul-97	16.5	√					8
6835	ML-E	16-Jul-97	13.2	√	√				7
6887	ML-E	20-Jul-97	12.5	√					13
6878	ML-E	19-Jul-97	12.5	√					8
6420	ML-E	21-Jul-97	8.9	√					6
6822	ML-E	15-Jul-97	8.7	√					6
6423	ML-E	21-Jul-97	44.8	√	√	√	√		9
6349	MR-U	21-Jun-97	14.3					√	9
6414	MR-U	20-Jul-97	8.4					√	5

[a] MR-U = upper Meliadine River; ML-E = East basin of Meliadine Lake; ML-S = South basin of Meliadine Lake; ML-C = Central basin of Meliadine Lake ; ML-W = West basin of Meliadine Lake

[b] Total of straight line distances between individual tracking locations

Arctic Grayling

Most (14 of 19) Arctic grayling that were radio tagged in 1997 exhibited limited movements; by October 1997 they were still located within the respective Peninsula lakes where they had been released (Table 9-21). This suggested that either these lakes were used for overwintering or that the fish were unable to leave in the fall due to low flows in the outlet streams. Most of these fish (13 of 14) remained within their respective lakes during the 1998 tracking program. One individual (#6359) tagged in Lake A6 in July 1997 was located in Lake A1 on 11 June 1998 and returned to Lake A6 by 21 June 1998. This movement was likely related to spawning activities.

Table 9-21: Summary of Arctic Grayling Movements in the Meliadine Study Area, 1997 to 1998

Floy Tag Number	Release Location	Release Date	Distance[a] Moved (km)	Basins Visited[b]	Number of Times Tracked
6334	Lake B2	16-Jun-97	41.2	Lakes B2, B4, K2, ML-S	13
6335	Lake B2	16-Jun-97	39.9	Lake B2, ML-S, ML-W	14
6338	Lake B7	17-Jun-97	3.7	Lake B7	15
6340	Lake B7	17-Jun-97	2.1	Lake B7	15
6339	Lake B7	17-Jun-97	3.0	Lake B7	13
6342	Lake D1	18-Jun-97	15.8	Lakes D1, D2, ML-S,	14
6341	Lake D1	18-Jun-97	4.9	Lake D1, ML-S	14
6352	Lake A8	13-Jul-97	2.1	Lake A8	15
6356	Lake A8	13-Jul-97	2.7	Lake A8	15
6354	Lake A8	13-Jul-97	1.5	Lake A8	14
6355	Lake A8	13-Jul-97	1.5	Lake A8	15
6359	Lake A6	14-Jul-97	8.6	Lakes A6, A1	15
6360	Lake A6	14-Jul-97	2.6	Lake A6	14
6376	Lake B5	15-Jul-97	1.1	Lake B5	7
6366	Lake B5	15-Jul-97	1.1	Lake B5	6
6373	Lake B5	17-Jul-97	5.0	Lake B5	15
6374	Lake D7	17 Jul 97	1.6	Lake D7	15
6407	Lake D7	19-Jul-97	2.6	Lake D7	15
6408	Lake D7	19-Jul-97	4.7	Lake D7, ML-S	4
3178	Lake B5	29-Aug-98	0.5	Lake B5	2
3181	Lake B5	29-Aug-98	0.8	Lake B5	1
3180	Lake B5	29-Aug-98	0.6	Lake B5	2
3177	Lake B5	29-Aug-98	0.3	Lake B5	2

[a] Total of straight line distances between individual tracking locations.

[b] ML-S = South basin of Meliadine Lake; ML-W = West basin of Meliadine Lake; K2 = Peninsula lake immediately southeast of Basin B

The 5 remaining Arctic grayling tagged in 1997 had moved out of their release lakes (D1, D7, and B2) into the south basin of Meliadine Lake by July 1997. One of these fish (#6341 released in Lake D1 in June 1997) remained in the south basin of Meliadine Lake throughout the 1997 to 1998 tracking program. Another fish (#6408 released in Lake D7 in June 1997) was last located in the south basin of Meliadine Lake in October 1997. Two other individuals (#6342 and #6334 released in Lakes D1 and B2 in June 1997) moved into the south

basin of Meliadine Lake by July 1997 (Appendix F24e). In June 1998, Arctic grayling #6342 travelled into Lake D2 (likely related to spawning activities) and subsequently returned to the south basin of Meliadine Lake by July 1998, where it remained until November 1998. By June 1998, Arctic grayling #6334 had moved into Lake K2 (in the basin adjoining and immediately southeast of Basin B), then travelled to Lake B2 by July 1998, and back into the south basin of Meliadine Lake, where it remained. The fifth Arctic grayling (#6335 released in June 1997 in Lake B2) travelled 16 km to the west basin of Meliadine Lake by October 1997 (Appendix F24f). This individual remained within the west basin of Meliadine Lake throughout the 1998 tracking surveys, and was located in a small stream on the north side of the west basin of Meliadine Lake on 21 June 1998, where it likely spawned.

An additional 4 Arctic grayling from Lake B5 were implanted with radio transmitters in August 1998. These 4 individuals were located within Lake B5 throughout the entire tracking period (until November 1999). In contrast to the fish that were radio tagged in the Peninsula lakes in summer 1997 and may have been unable to leave in the fall due to low flows in the outlet streams, these 4 Arctic grayling had sufficient stream flows to leave Lake B5 in the fall of 1998. The fact that they stayed in the same lake over the winter and throughout the open water period in 1999 suggested that some Arctic grayling may be using the Peninsula lakes on a year-round basis (i.e., resident populations).

9.4.3.2 Radio Telemetry 2000 to 2001

Radio transmitters were surgically implanted in 12 Arctic char during 19 to 24 September 2000 to obtain information on spawning and overwintering movements. Eleven of the implanted fish were captured and released upstream of the west outflow from Meliadine Lake into Peter Lake; the remaining fish (a gravid male) was captured and released immediately below the outflow rapids. Water discharge through this outflow was considerably lower in September 2000 than in September 1999, when it was suspected that this area may serve as a corridor for Arctic char movements between Peter Lake and Meliadine Lake. Although the rapids area immediately below the Meliadine Lake west outflow appeared navigable to upstream fish migrants, another area of de-watered riffles farther downstream (15V 518400 6999200) formed a complete barrier to fish passage when inspected on 21 September 2000. As such, the area downstream of the west outflow appeared to be isolated from Peter Lake in late fall 2000.

Eleven of the implanted fish were in pre-spawning condition and exhibited orange colouration; the remaining fish was silver in colour and appeared typical of recently returned sea-migrants (as observed during the 1997 to 1999 fish fence operations in the lower Meliadine River). Based on the presence of kype (elongated lower jaw in males), the implanted pre-spawners included 4 males and 7 females; the sex of the silver non-spawner could not be determined. The implanted fish ranged from 587 to 777 mm in fork length (mean of 673 mm) and weighed between 2350 and 4620 g (mean of 3318 g; Appendix F25). Although milt was extruded from one of the males, the remaining fish did not expel milt or roe under pressure, indicating that the spawning period had not yet begun.

The movements were monitored through 6 radio tracking flights that were carried out on 27 September 2000, 14 October 2000, 5 November 2000, 11 April 2001, 9 June 2001, and 23 June 2001 (Appendices F25 and F26). The extensive movements and rapid dispersal of the implanted fish during late fall 2000 suggested that Arctic char spawning may occur in several areas widely distributed throughout Meliadine Lake. Suitable spawning substrates and depth characteristics are ubiquitous along the lake shores; therefore, it is likely that large

concentrations of spawning fish may not occur in any particular location. Nevertheless, movements of at least 6 fish appeared to be focussed on the north shores of the west and central basins, suggesting that spawning may have occurred there.

Subsequent tracking in April 2001 revealed that all fish were within 9 km of their early winter locations, suggesting limited movements during winter. In contrast, the 2 tracking flights carried out in June 2001, as well as tag return information supplied by local fishermen (i.e., 4 radio-tagged fish were harvested in June: 2 in Little Meliadine Lake, 1 in Prairie Bay, and 1 at the mouth of the Diana River), indicated that at least 6 fish left Meliadine Lake to undergo their spring migrations to Hudson Bay. Three of these migrants (all males) selected the seaward route through the south outlet of Meliadine Lake (Meliadine River), whereas the other 3 fish (2 females and 1 male) migrated downstream through the west outlet of Meliadine Lake into Peter Lake and the Diana River system. These results suggest that the west and south outlets of Meliadine Lake are equally important as migration corridors for the post-spawning fish during their spring return to the sea.

9.5 Metal Analysis of Fish Tissues

The monitoring program to assess metal concentrations in fish tissues was initiated in fall 1997 by collecting samples of muscle, liver, and kidney tissues from 18 Arctic char captured in lower Meliadine River. Most (14) were captured as they were entering the Meliadine River from the sea between 21 August and 3 September 1997; the remaining samples were collected from 4 gravid females captured in Little Meliadine Lake on 28 September 1997.

During 1998, the tissue sampling program was expanded to include lake trout, round whitefish, cisco, and Arctic grayling. Muscle, liver, and kidney tissue samples were collected from 51 lake trout and 17 round whitefish captured in the south basin of Meliadine Lake (potential impact zone) and Parallel Lake, located approximately 12 km north of Meliadine Lake and selected as a control basin for long-term fish tissue monitoring. Tissue samples were also collected from 16 cisco in the south basin of Meliadine Lake and 3 Arctic grayling in Lake B5.

In total, 350 tissue samples (including 36 duplicate samples for QA/QC purposes) were collected from 105 fish. The sampled fish represented adult size-classes that ranged from 301 to 865 mm in fork length and represented ages 5 to 29 years. Length and age statistics for each species and sampled area are presented in Table 9-22.

Table 9-22: Sample Size, Length and Age of Fish Collected for Tissue Analyses in the Meliadine Study Area, 1997 and 1998

Species	Area	Sample Size	Fork Length (mm)				Age (years)			
			Mean	SD	Min	Max	Mean	SD	Min	Max
Arctic char	MR	18	561	40	485	648	7.3	1.1	5	9
Lake trout	ML-S	30	606	98	450	865	18.2	3.5	14	29
Lake trout	PAR	21	494	124	380	770	14.9	5.1	9	27
Round whitefish	ML-S	7	387	21	347	415	8.9	2.0	5	12
Round whitefish	PAR	10	385	28	344	432	9.3	2.1	6	13
Cisco	ML-S	16	321	30	302	381	8.1	1.2	6	11
Arctic grayling	B5	3	310	14	301	326	5.0	0.0	5	5

Note: MR = Meliadine River; ML-S = South basin of Meliadine Lake; PAR = Parallel Lake; B5 = Lake B5; SD = standard deviation; Min = minimum; Max = maximum.

The concentrations of 27 metals in muscle, liver, and kidney tissues of each tested fish, as well as the results of QA/QC tests for preparation blanks, duplicate samples, and reference materials are presented in Appendices F27 and F28. The QA/QC results indicated that preparation blanks were generally below analytical detection limits. There was a close agreement between concentrations for duplicate samples and the majority of laboratory values for reference materials were within a 95% confidence interval of the certified values.

Mean metal concentrations (including standard deviation, range, and number of samples below analytical detection limits) are provided for each species, sampled area and tissue type in Appendices F29 to F35. Values below detection limit were coded as one-half of detection limit to allow statistical calculations.

Selected trace metals that are potentially toxic to fish (aluminum, arsenic, cadmium, mercury, lead, nickel, copper, and zinc) are discussed separately for each species in sections 9.5.1 to 9.5.5. Where applicable, the results are compared to the existing guidelines for human consumption and to other studies of metal concentrations in Arctic fish (e.g., RL&L 1993).

9.5.1 Arctic Char

Aluminum

The availability of aluminum to aquatic organisms has been correlated with the pH of the aquatic environment (Holtze and Hutchinson 1989); however, it is unclear at what pH threshold or concentration aluminum becomes toxic to fish. Aluminum can be acutely toxic at high exposure levels, but it does not bioaccumulate in aquatic organisms (Neville 1985).

Detectable concentrations of aluminum (1 µg/g or higher) were recorded in 39% of kidney samples and 6% of muscle and liver samples (Table 9-23). Two samples had relatively high concentrations (185 and 31 µg/g in liver and kidney tissues, respectively) compared to the remaining 52 samples, which tested at 3 µg/g or less. The cause of such high concentrations in these fish is unknown. Mean aluminum concentrations in muscle and liver tissues of Arctic char from Coronation Gulf were similar to those from the present study (2.8 and 10.2 µg/g, respectively; RL&L 1993).

Arsenic

Arsenic is more common in the earth's crust than mercury or cadmium, and is more toxic to plants than to animals (Demayo et al. 1979). It does not appear to biomagnify through trophic levels, and demersal fish species are more likely to accumulate arsenic than pelagic fish (Demayo et al. 1979). Arsenic does, however, bioaccumulate [is present at higher concentrations in animal tissue(s) than the surrounding water] and concentrates mainly in the liver and is a cumulative toxin (Falk et al. 1973).

Arsenic levels in Arctic char tissues ranged from 0.98 to 11.6 µg/g. Mean concentrations were similar in all 3 tissue types (3.83, 3.73, and 3.58 µg/g in muscle, liver, and kidney tissues, respectively; Table 9-23). Mean arsenic concentrations in muscle tissues of Arctic char from Coronation Gulf (18.3 µg/g; RL&L 1993) were approximately 5 times higher than those from the Meliadine River.

Cadmium

Cadmium bioaccumulates; the highest concentrations are reported in the intestine, kidney and liver of fish (Ruangsomboon and Wongrat, 2006). The rate of cadmium uptake is generally faster in hard waters, although cadmium toxicity decreases in hard water (Reeder et al. 1979a).

Table 9-23: Mean Concentrations of Metals in Arctic Char Tissue Samples from the Meliadine River, 1997

Tissue	Parameter	Metal Concentrations (µg/g of dry weight)							
		Al	As	Cd	Cu	Pb	Hg	Ni	Zn
Muscle n=18	n <D.L.[a]	17	0	12	0	8	8	4	0
	Mean (µg/g)	0.53	3.83	0.04	2.11	0.43	0.121	0.51	12.9
	SD[b] (µg/g)	0.12	1.47	0.03	0.52	0.89	0.164	0.71	4.0
	Min. (µg/g)	0.5	2.24	0.03	1.09	0.03	0.003	0.05	6.1
	Max. (µg/g)	1.0	7.32	0.13	2.86	2.94	0.495	2.40	19.7
Liver n=18	n <D.L.[a]	17	0	0	0	10	1`	13	0
	Mean (µg/g)	10.75	3.73	0.26	19.31	0.17	0.26	0.09	72.3
	SD[b] (µg/g)	43.49	1.64	0.18	16.53	0.17	0.177	0.06	18.6
	Min. (µg/g)	0.5	1.84	0.11	3.04	0.03	0.003	0.05	42.4
	Max. (µg/g)	185	8.28	0.75	62.7	0.60	0.616	0.20	107
Kidney n=18	n <D.L.[a]	11	0	0	0	7	1	4	0
	Mean (µg/g)	2.69	3.58	1.07	6.96	0.23	0.363	0.42	124.5
	SD[b] (µg/g)	7.11	2.33	0.76	2.46	0.33	0.248	0.39	30.4
	Min. (µg/g)	0.5	0.98	0.40	3.25	0.03	0.003	0.05	86.7
	Max. (µg/g)	31	11.6	3.18	11.4	1.41	0.836	1.50	176

[a] Number of samples below detection limit (D.L.); values below D.L. were coded as one-half of D.L. to allow statistical calculations

[b] Standard deviation

Note: µg/g: microgram per gram; <= less than; n = sample size; Min. = minimum; Max. = maximum

Cadmium levels in Arctic char collected from the Meliadine River were considerably higher in the kidney (mean concentration 1.07 µg/g) than in the liver and muscle tissues (0.26 and 0.04 µg/g, respectively). The liver concentrations of cadmium were much lower than those recorded in Coronation Gulf (mean of 2.3 µg/g; RL&L 1993); the maximum values recorded in muscle tissues were similarly low in both studies (0.13 and 0.08 µg/g in Meliadine River and Coronation Gulf, respectively). Maximum cadmium concentration recorded in Meliadine River Arctic char was 3.18 µg/g in kidney tissue.

Copper

In contrast to the non-essential trace metals (e.g., arsenic, cadmium, mercury, lead), copper is an essential element with important biochemical functions at physiological concentrations. Excessive amounts of copper are toxic to freshwater fish (Forstner and Wittman 1979); toxicity varies not only with fish species, but also with ambient water characteristics such as pH and alkalinity. Copper tends not to bioconcentrate, as excretion rates generally exceed uptake from the surrounding water (Falk et al. 1973). The main areas of the body where copper accumulates are liver, muscle, and brain tissues (Demayo and Taylor 1981).

Copper levels in the liver tissue samples from the Meliadine River Arctic char ranged from 3.04 to 62.7 µg/g; the mean value was 19.31 µg/g. Mean concentrations in the kidney and muscle tissues were substantially lower (6.96 and 2.11 µg/g, respectively). Copper levels recorded in Arctic char in the study area were lower than those reported for the Coronation Gulf populations (e.g., mean of 46.6 µg/g in liver tissues; RL&L 1993).

Lead

Lead tends to deposit in bone as a cumulative toxin (Falk et al. 1973). It is more toxic in soft water than in hard water (Demayo et al. 1980).

Lead concentrations in the Meliadine River Arctic char were generally low, with 44% of muscle, 56% of liver, and 39% of kidney tissue samples showing values below the 0.05 µg/g detection limit. The mean concentrations of lead in the muscle samples (0.43 µg/g) were approximately 2 times higher than those in the liver and kidney samples (0.17 and 0.23 µg/g, respectively). The maximum lead concentration recorded in Meliadine River Arctic char was 2.94 µg/g in a muscle sample, which was higher than maximum concentrations in muscle tissue from Coronation Gulf (0.42 µg/g; RL&L 1993).

Mercury

Mercury is known to bioaccumulate in fish tissue and is most commonly present in the form of methyl mercury (Reeder et al. 1979b; Lockhart et al. 1992). Mercury also tends to biomagnify and thus higher mercury concentrations are present in predatory fish and also generally increase with the age of a fish. The maximum allowable level of mercury in muscle tissue of fish sold in Canada for human consumption is 0.5 µg/g (wet weight), which is comparable to approximately 2.5 µg/g when expressed on a "dry weight" basis (assuming 80% moisture content).

Mean mercury level in Arctic char muscle tissue was 0.121 µg/g. Almost half (44%) of the muscle samples tested below the detection limit of 0.005 µg/g. The maximum recorded concentration in muscle (0.495 µg/g) was approximately 5 times lower than the maximum levels allowed for human consumption (>2.5 µg/g). The mean concentrations of mercury in liver and kidney tissues (0.26 and 0.363 µg/g, respectively) were higher than in the muscle tissues; however, even the maximum recorded mercury level (0.836 µg/g in kidney tissue) was well below the established consumption limit.

Nickel

The toxicity of nickel increases with decreasing water hardness and increasing acidity (CCME 1996); it also increases when nickel is present with copper, likely as a result of synergism (Taylor et al. 1979). Nickel has the greatest effect on the early life stages of fish, including fertilized eggs. Nickel does not biomagnify in the food chain (Taylor et al. 1979). Hutchinson et al. (1975) reported that nickel concentrations were highest in plants and lowest in top predators. Bowen (1966) considered 1 µg/g (dry weight) of nickel in fish tissue to be in the range of natural background levels.

Mean nickel concentrations in Arctic char tissues ranged from 0.09 µg/g (liver) to 0.51 µg/g (muscle). Levels above 1 µg/g were recorded in only 2 muscle samples (2.3 and 2.4 µg/g) and 1 kidney sample (1.5 µg/g). Most (72%) of the liver samples had nickel concentrations that were below the detection limit of 0.1 µg/g.

Zinc

Zinc primarily affects gill epithelial tissues. In excessive amounts, it can cause outright mortality or induce stress that leads to death (Falk et al. 1973). Zinc, however, is essential for plant and animal health. Zinc toxicity increases with increasing pH and decreasing water hardness. Zinc concentrations are usually greater in omnivorous than in piscivorous species, and greater in benthic invertebrates than in fish (CCME 1996).

Mean concentrations of zinc in Arctic char were higher in the kidney and liver tissues (124.5 and 72.3 µg/g, respectively) than in the muscle tissues (12.9 µg/g). The highest recorded value was 176 µg/g in a kidney sample. Mean zinc concentrations in muscle and liver tissues of Arctic char from Coronation Gulf (15.8 and 96.7 µg/g, respectively; RL&L 1993) were similar to those from the present study.

9.5.2 Lake Trout

Aluminum

Detectable concentrations of aluminum were recorded in all tissue samples collected from lake trout in Meliadine Lake (Table 9-24). Mean concentrations were highest in the liver samples (47.4 µg/g), intermediate in the kidney samples (17.1 µg/g), and lowest in the muscle samples (2.74 µg/g). A small number of tissue samples contained notably higher concentrations. These included 3 liver samples (160, 210, and 288 µg/g) and 1 kidney sample (125 µg/g).

Table 9-24: Mean Concentrations of Metals in Lake Trout Tissue Samples from Meliadine Lake, 1998

Tissue	Parameter	Metal Concentrations (µg/g of dry weight)							
		Al	As	Cd	Cu	Pb	Hg	Ni	Zn
Muscle n=30	n <D.L.[a]	0	0	28	0	19	0	3	0
	Mean (µg/g)	2.74	1.23	0.01	1.21	0.05	1.42	0.39	13.1
	SD[b] (µg/g)	1.41	0.67	0.01	0.22	0.06	0.97	0.26	1.73
	Min. (µg/g)	1.1	0.20	<D.L.	0.79	<D.L.	0.22	<D.L.	9.70
	Max. (µg/g)	7.0	2.60	0.05	1.62	0.30	4.64	1.20	16.7
Liver n=30	n <D.L.[a]	0	0	0	0	16	0	4	0
	Mean (µg/g)	47.4	0.92	2.93	94.0	0.16	1.77	0.29	126
	SD[b] (µg/g)	67.0	0.37	8.97	86.9	0.27	1.72	0.21	36.1
	Min. (µg/g)	4.0	0.30	0.11	5.72	<D.L.	0.20	<D.L.	69.6
	Max. (µg/g)	288	1.79	49.7	346	1.16	8.13	0.80	204
Kidney n=30	n <D.L.[a]	0	0	0	0	14	0	0	0
	Mean (µg/g)	17.1	2.29	6.18	12.9	4.01	3.04	1.64	113
	SD[b] (µg/g)	24.5	1.28	9.75	15.8	7.15	1.93	1.56	31.7
	Min. (µg/g)	3.0	0.62	0.20	2.25	<D.L.	0.82	0.10	31.6
	Max. (µg/g)	125	5.11	50.5	68.9	26.1	9.30	6.70	187

[a] Number of samples below detection limit (D.L.); values below D.L. were coded as one-half of D.L. to allow statistical calculations

[b] Standard deviation

Note: µg/g: microgram per gram; <= less than; n = sample size; Min. = minimum; Max. = maximum

The results for lake trout tissues collected from the control site, Parallel Lake, were generally similar (Table 9-25). All liver and kidney samples were above detectable limits; however, only 10% of the muscle samples contained detectable concentrations. Mean concentrations were highest in the liver samples (31.6 µg/g), intermediate in the kidney samples (16.9 µg/g), and lowest in the muscle samples (0.70 µg/g). Elevated aluminum concentrations were recorded in one liver sample (207 µg/g).

A comparison of mean aluminum concentrations in lake trout tissues collected from the 2 study areas indicated that background levels in all 3 tissue types were higher in Meliadine Lake; however, a statistical analyses of the liver and kidney data revealed no significant differences between these 2 waterbodies (P>0.30 for both comparisons). In contrast, a statistically significant difference was detected for the lake trout muscle tissues (P<0.001).

Table 9-25: Mean Concentrations of Metals in Lake Trout Tissue Samples from Parallel Lake, 1998

Tissue	Parameter	Metal Concentrations (µg/g of dry weight)							
		Al	As	Cd	Cu	Pb	Hg	Ni	Zn
Muscle n=20	n <D.L.[a]	18	0	20	0	18	0	4	0
	Mean (µg/g)	0.70	0.45	<D.L.	2.13	0.03	0.65	0.19	10.9
	SD[b] (µg/g)	0.64	0.33	-	0.89	0.01	0.61	0.10	1.76
	Min. (µg/g)	<D.L.	0.07	-	0.86	<D.L.	0.13	<D.L.	8.42
	Max. (µg/g)	3.0	1.02	-	4.19	0.05	2.44	0.30	14.2
Liver n=21	n <D.L.[a]	0	0	0	0	6	0	3	0
	Mean (µg/g)	31.6	0.33	1.97	90.5	0.07	1.21	0.25	115
	SD[b] (µg/g)	43.8	0.20	1.11	43.7	0.04	1.34	0.19	21.8
	Min. (µg/g)	2.0	0.16	0.82	36.8	<D.L.	0.24	<D.L.	65
	Max. (µg/g)	207	1.04	6.01	193	0.18	4.84	0.70	159
Kidney n=21	n <D.L.[a]	0	0	0	0	11	0	0	0
	Mean (µg/g)	16.9	0.64	9.32	6.25	0.06	1.91	3.72	107
	SD[b] (µg/g)	12.1	0.27	4.58	1.72	0.04	1.91	1.33	20.2
	Min. (µg/g)	6.0	0.29	4.24	4.33	<D.L.	0.41	1.90	77.0
	Max. (µg/g)	65	1.21	21.0	12.2	0.12	6.63	7.0	150

[a] Number of samples below detection limit (D.L.); values below D.L. were coded as one-half of D.L. to allow statistical calculations

[b] Standard deviation

Note: µg/g: microgram per gram; <= less than; n = sample size; Min. = minimum; Max. = maximum

Arsenic

Detectable concentrations of arsenic were recorded in all muscle, liver, and kidney tissues sampled from lake trout collected in Meliadine Lake. Mean concentrations were highest in the kidney samples (2.29 µg/g), intermediate in the muscle samples (1.23 µg/g), and lowest in the liver samples (0.92 µg/g). Elevated arsenic concentrations were not recorded in any lake trout tissue samples; the highest recorded value was 5.11 µg/g in a kidney sample.

The results for lake trout tissues collected from Parallel Lake were similar; all samples were above detectable limits. Mean concentrations were highest in the kidney samples (0.64 μg/g), intermediate in the muscle samples (0.45 μg/g), and lowest in the liver samples (0.33 μg/g). Elevated arsenic concentrations were not recorded in any lake trout tissue samples collected from Parallel Lake (maximum value was 1.21 μg/g in a kidney sample).

A comparison of mean arsenic concentrations in lake trout tissues collected from the 2 study areas indicated that background levels in all 3 tissue types were higher in Meliadine Lake. A statistical comparison of these data indicated that these differences were significant for each of the 3 tissue types analysed (P<0.001 for all comparisons).

Cadmium

Detectable concentrations of cadmium were measured in all liver and kidney tissues sampled from lake trout collected from Meliadine Lake; however, only 2 muscle samples had detectable concentrations (Table 9-24). Mean concentrations were highest in the kidney samples (6.18 μg/g) and intermediate in the liver samples (2.93 μg/g). The maximum concentration recorded in muscle tissues was 0.05 μg/g. The highest recorded values were 50.5 μg/g (kidney) and 49.7 μg/g (liver); both of these samples were collected from the same fish.

The results for lake trout tissues collected from Parallel Lake were similar; all liver and kidney samples were above the detection limit, but muscle tissue samples did not contain cadmium concentrations above the detectable level (Table 9-6). Mean concentrations were 9.32 μg/g in the kidney samples and 1.97 μg/g in the liver samples. Elevated levels of cadmium were present in some lake trout tissue samples collected from Parallel Lake. The maximum concentration (21.0 μg/g) was recorded from a kidney sample.

A comparison of mean cadmium concentrations in lake trout tissues collected in Meliadine Lake and Parallel Lake indicated that background levels in all 3 tissue types were generally similar. A statistical comparison of these data indicated that there were no significant differences for each of the 3 tissue types sampled (P>0.1 for all comparisons).

Copper

Detectable concentrations of copper were recorded in all muscle, liver, and kidney tissues sampled from lake trout collected in Meliadine Lake (Table 9-24). Mean concentrations were highest in the liver samples (94.0 μg/g), intermediate in the kidney samples (12.9 μg/g), and lowest in the muscle samples (1.21 μg/g). Four liver samples exceeded 200 μg/g.

The results for lake trout tissues collected from Parallel Lake were generally similar to those from Meliadine Lake. All the tissue samples were above detectable limits (Table 9-25). Mean concentrations were highest in the liver samples (90.5 μg/g), intermediate in the kidney samples (6.25 μg/g), and lowest in the muscle samples (2.13 μg/g). Elevated copper concentrations were recorded in 3 liver samples (166, 171, and 193 μg/g).

A comparison of the mean copper concentrations in lake trout tissues collected in the 2 study areas indicated that background levels recorded for all 3 tissue types were similar; however, a statistical analyses of the data indicated that the copper concentrations in the kidney samples were significantly higher in Meliadine Lake (P<0.05). A statistically significant difference was also detected for the lake trout muscle tissues (P<0.001), although in this case the mean copper concentration was higher in the Parallel Lake sample. No statistical difference was detected for the liver tissues (P>0.5).

Lead

Lead concentrations in lake trout collected from Meliadine Lake were generally low, with only 37% of muscle, 47% of liver, and 54% of kidney tissue samples having concentrations above the detection limit (Table 9-24). The mean concentration of lead was lower in the muscle samples (0.05 μg/g) than in the liver and kidney samples (0.16 and 4.01 μg/g, respectively). The maximum lead concentration was recorded in a kidney sample (26.1 μg/g).

Lead concentrations in lake trout collected from Parallel Lake were also low. Overall, 10% of muscle, 71% of liver, and 48% of kidney tissue samples contained concentrations above the detection limit (Table 9-6). Mean concentrations were very low in all 3 tissue types (0.03 μg/g in muscle, 0.07 μg/g in liver, and 0.06 μg/g in kidney samples). Elevated levels of lead were not recorded in any lake trout tissue samples collected from Parallel Lake, with a maximum concentration of 0.18 μg/g measured in a liver sample.

A comparison of the mean lead concentrations in lake trout tissues collected in the 2 study area lakes indicated that the levels recorded for all 3 tissue types were higher in fish from Meliadine Lake than in fish from Parallel Lake. In fact, statistical analyses indicated that the mean lead concentration in each of the 3 tissue types was significantly higher in samples collected from Meliadine Lake (P<0.05 for all comparisons).

Mercury

Detectable concentrations of mercury were recorded in all tissue samples collected from lake trout in Meliadine Lake (Table 9-24). Mean concentrations were highest in the kidney samples (3.04 μg/g), intermediate in the liver samples (1.77 μg/g), and lowest in the muscle samples (1.42 μg/g). A number of tissue samples had elevated mercury concentrations, with 17 of 30 kidney samples exceeding the human consumption guideline equivalent of 2.5 μg/g (the maximum value was 9.30 μg/g). The highest concentration recorded in the liver tissue was 8.13 μg/g, and 3 of 30 samples exceeded 2.5 μg/g. The highest recorded value in muscle tissue was 4.64 μg/g (3 of 30 samples exceeded 2.5 μg/g).

The results for lake trout tissues collected from Parallel Lake were similar; all tissue samples were above detectable concentrations (Table 9-25). Mean mercury concentrations were highest in the kidney samples (1.91 μg/g), intermediate in the liver samples (1.21 μg/g), and lowest in the muscle samples (0.65 μg/g). A number of tissue samples had elevated mercury concentrations. Five kidney samples exceeded the human consumption guideline equivalent of 2.5 μg/g (the maximum value was 6.63 μg/g). The highest concentration recorded in the liver tissue was 4.84 μg/g, and 3 samples exceeded 2.5 μg/g. The highest recorded value in lake trout muscle tissue was 2.44 μg/g.

To assess whether the mercury concentrations measured in lake trout tissues collected from the 2 study areas were related to fish age, a correlation analyses was undertaken using fork length as an indicator of fish age. Fork length was used under the assumption that length increased with age. This comparison indicated that mercury concentrations in lake trout tissues were highly correlated with fish length; Pearson correlation coefficients were greater than 0.82 and statistical significance exceeded P<0.01 for all comparisons (Table 9-26). These results indicated that differences in fish length, as an indicator of age, could influence the analyses. A comparison of mean lengths of lake trout sampled from the 2 study area lakes indicated that fish from Meliadine Lake tended to be larger than fish collected from Parallel Lake (Table 9-23), and this difference was statistically significant (Independent Samples t-test; P<0.01).

Given the correlation between mercury concentration in fish tissue and differences in fish size between waterbodies, the data were adjusted using Analyses of Covariance (fish length was used as the covariate) before comparisons between Meliadine Lake and Parallel Lake were performed. After differences in fish length were accounted for, the analyses showed that mean mercury concentrations in each of kidney, liver, and muscle tissues were higher in Meliadine Lake than in Parallel Lake (P<0.001 for all comparisons).

Table 9-26: Correlation between Fish Length and Mercury Concentration (µg/g of dry weight) in Muscle, Liver and Kidney Tissues Collected from Fish in the Meliadine Study Area, 1998

Basin	Species	Sample Size	Pearson Correlation Coefficient by Tissue Type[a]		
			Muscle	Liver	Kidney
Meliadine Lake (South Basin)	Lake trout	30	0.850**	0.883**	0.837**
	Round whitefish	7	0.189	0.454	0.549
	Cisco	16	0.383	0.348	0.257
Parallel Lake	Lake trout	21	0.821***	0.891***	0.927***
	Round whitefish	10	0.486	0.691*	0.822**

[a] Assessed using Pearson correlation coefficient with statistical significance based on two-tailed test. Correlation is significant at 0.05 level (*), 0.01 level (**), or 0.001 level (***).

Note: µg/g: microgram per gram; <= less than

Nickel

Detectable concentrations of nickel were recorded in most tissues sampled from lake trout collected in Meliadine Lake (Table 9-24). Detectable levels were recorded in 90% of the muscle, 87% of the liver, and 100% of the kidney samples. Mean concentrations were highest in the kidney samples (1.64 µg/g), intermediate in the muscle samples (0.39 µg/g), and lowest in the liver samples (0.29 µg/g). The highest concentration (6.70 µg/g) was recorded in kidney tissue.

The nickel concentrations in lake trout tissues collected from Parallel Lake were similar. Most of the tissue samples were above detectable limits (Table 9-25). Mean concentrations were highest in the kidney samples (3.72 µg/g), intermediate in the liver samples (0.25 µg/g), and lowest in the muscle samples (0.19 µg/g). The highest copper concentration was recorded in a kidney sample (7.0 µg/g).

A comparison of the mean nickel concentrations in lake trout tissues collected in Meliadine Lake and Parallel Lake indicated that the levels recorded for all 3 tissue types were generally similar; however, nickel concentrations in kidney tissues was significantly higher in fish from Parallel Lake (P<0.01). A statistically significant difference was also detected for the lake trout muscle tissues (P<0.01), but in this case, the mean copper concentration was higher in Meliadine Lake. No statistical difference was detected for liver tissue (P>0.5).

Zinc

Zinc concentrations were detectable in all tissue samples collected from lake trout in Meliadine Lake (Table 9-24). The mean concentration of zinc in the muscle samples (13.1 µg/g) was much lower than concentrations detected in the liver and kidney samples (126 and 113 µg/g, respectively). The maximum zinc concentration in Meliadine Lake lake trout was 204 µg/g in a liver sample.

Zinc concentrations in lake trout tissues collected from Parallel Lake were generally similar. All tissue samples showed values above the detection limit and the mean concentration in muscle samples (10.9 µg/g) was much lower than mean values recorded in liver (115 µg/g) and kidney (107 µg/g) samples (Table 9-6). The maximum zinc concentration recorded in lake trout in Parallel Lake was 159 µg/g in a liver sample.

A comparison of the mean zinc concentrations in lake trout tissues collected from fish in the 2 study area lakes indicated that levels tended to be higher in fish from Meliadine Lake; however, statistical analyses indicated that this difference was significant only for the muscle tissues (P<0.01).

9.5.3 Round Whitefish

Aluminum

Detectable concentrations of aluminum were recorded in all liver and kidney samples, but in none of the muscle samples collected from round whitefish in Meliadine Lake (Table 9-27). Mean concentrations were 31.6 µg/g in the kidney samples and 14.3 µg/g in the liver samples. The maximum concentration of aluminum (81 µg/g) was recorded in a kidney sample.

Table 9-27: Mean Concentrations of Metals in Round Whitefish Tissue Samples from Meliadine Lake, 1998

Tissue	Parameter	Metal Concentrations (µg/g of dry weight)							
		Al	As	Cd	Cu	Pb	Hg	Ni	Zn
Muscle n=7	n <D.L.[a]	7	0	7	0	7	0	7	0
	Mean (µg/g)	<D.L.	0.23	<D.L.	1.83	<D.L.	0.14	<D.L.	16.7
	SD[b] (µg/g)	-	0.10	-	0.11	-	0.02	-	1.55
	Min. (µg/g)	-	0.15	-	1.64	-	0.12	-	14.8
	Max. (µg/g)	-	0.45	-	1.95	-	0.17	-	18.9
Liver n=7	n <D.L.[a]	0	0	0	0	3	0	3	0
	Mean (µg/g)	14.3	0.46	0.40	10.9	0.06	0.20	0.18	72.7
	SD[b] (µg/g)	3.4	0.17	0.15	1.55	0.03	0.03	0.20	13.9
	Min. (µg/g)	10	0.19	0.14	8.70	<D.L.	0.15	<D.L.	48.2
	Max. (µg/g)	20	0.66	0.6	13.5	0.1	0.25	0.6	87.5
Kidney n=7	n <D.L.[a]	0	0	0	0	0	0	0	0
	Mean (µg/g)	31.6	2.33	2.56	6.06	0.15	0.69	4.14	87.5
	SD[b] (µg/g)	22.5	0.97	1.10	1.39	0.05	0.35	1.23	18.1
	Min. (µg/g)	15	1.22	1.04	3.75	0.09	0.37	2.5	62.7
	Max. (µg/g)	81	3.67	4.32	7.68	0.22	1.41	6.5	117

[a] Number of samples below detection limit (D.L.); values below D.L. were coded as one-half of D.L. to allow statistical calculation

[b] Standard deviation

Note: µg/g: microgram per gram; <= less than; n = sample size; Min. = minimum; Max. = maximum

The results for aluminum concentrations in round whitefish tissues collected from Parallel Lake were generally similar (Table 9-28). All liver and kidney samples were above detectable limits; however, detectable concentrations were recorded in only 40% of the muscle samples. Mean concentrations were highest in the kidney samples (35.0 µg/g), intermediate in the liver samples (12.6 µg/g), and lowest in the muscle samples (0.8 µg/g). Elevated aluminum concentrations were recorded in one kidney sample (59 µg/g).

A comparison of mean aluminum concentrations in round whitefish tissues collected from the 2 study area waterbodies indicated that background levels in all 3 tissue types were similar. Statistical analyses of the data confirmed these findings; there were no significant differences between the 2 waterbodies (*P*>0.3 for all comparisons).

Arsenic

Detectable concentrations of arsenic were recorded in all muscle, liver, and kidney tissues sampled from round whitefish in Meliadine Lake. Mean concentrations were highest in the kidney samples (2.33 µg/g), intermediate in the liver samples (0.46 µg/g), and lowest in the muscle samples (0.23 µg/g). No round whitefish tissue samples contained elevated arsenic concentrations. The highest recorded value was 3.67 µg/g in a kidney sample.

Table 9-28: Mean Concentrations of Metals in Round Whitefish Tissue Samples from Parallel Lake, 1998

Tissue	Parameter	Metal Concentrations (µg/g of dry weight)							
		Al	As	Cd	Cu	Pb	Hg	Ni	Zn
Muscle n=10	n <D.L.[a]	6	0	10	0	10	0	10	0
	Mean (µg/g)	0.8	0.27	<D.L.	1.60	<D.L.	0.21	<D.L.	15.5
	SD[b] (µg/g)	0.5	0.19	-	0.28	-	0.11	-	1.32
	Min. (µg/g)	<D.L.	0.10	-	1.27	-	0.08	-	13.2
	Max. (µg/g)	2	0.80	-	2.13	-	0.43	-	17.8
Liver n=10	n <D.L.[a]	0	0	0	0	6	0	2	0
	Mean (µg/g)	12.6	0.22	0.85	10.5	0.06	0.27	0.21	63.7
	SD[b] (µg/g)	5.2	0.14	0.68	2.33	0.05	0.13	0.14	6.65
	Min. (µg/g)	4	0.13	0.24	6.66	<D.L.	0.11	<D.L.	55.4
	Max. (µg/g)	19	0.59	2.50	13.1	0.18	0.48	0.40	73.8
Kidney n=10	n <D.L.[a]	0	0	0	0	1	0	0	0
	Mean (µg/g)	35.0	1.23	7.40	6.64	0.16	1.14	5.22	96.0
	SD[b] (µg/g)	16.0	0.70	5.44	1.91	0.18	0.66	2.11	17.5
	Min. (µg/g)	15	0.62	2.07	3.87	<D.L.	0.46	2.80	68.7
	Max. (µg/g)	59	2.74	18.3	10.7	0.66	2.63	8.80	127

[a] Number of samples below detection limit (D.L.); values below D.L. were coded as one-half of D.L. to allow statistical calculations

[b] Standard deviation

Note: µg/g: microgram per gram; <= less than; n = sample size; Min. = minimum; Max. = maximum

The results for round whitefish tissues collected from Parallel Lake were similar; all samples were above detectable limits. Mean arsenic concentrations were highest in the kidney samples (1.23 µg/g), intermediate in the muscle samples (0.27 µg/g), and lowest in the liver samples (0.22 µg/g). Elevated arsenic concentrations were not recorded in any round whitefish tissue sample collected from Parallel Lake (the maximum value was 2.74 µg/g).

A comparison of mean arsenic concentrations in round whitefish tissues collected from the 2 study areas indicated that concentrations in liver and kidney tissues tended to be higher in Meliadine Lake. A statistical comparison of these data indicated that these differences were significant for each tissue type (*P*<0.05 for both comparisons). No statistical difference between lakes (*P*>0.50) existed for arsenic in muscle tissues.

Cadmium

Detectable concentrations of cadmium were recorded in all liver and kidney tissues sampled from round whitefish collected from Meliadine Lake; however, no muscle samples contained concentrations above the detectable level. Mean concentrations were 2.56 μg/g in the kidney samples and 0.40 μg/g in the liver samples. Few round whitefish tissue samples exhibited elevated cadmium concentrations. The highest recorded value was 4.32 μg/g in kidney tissue.

The results for round whitefish tissues collected from Parallel Lake were similar; all liver and kidney samples were above the detection limit, but no muscle tissue samples contained cadmium concentrations above the detectable level. Mean cadmium concentrations were 7.40 μg/g in the kidney samples and 0.85 μg/g in the liver samples. The maximum value (18.3 μg/g) was recorded in a kidney sample.

A comparison of mean cadmium concentrations in round whitefish tissues collected in the study area lakes indicated that the levels in liver and kidney tissues tended to be higher in the samples from Parallel Lake. Statistical comparisons of these data indicated that there was a significant difference for kidney tissues and a nearly significant difference for the liver tissues ($P<0.05$ and $P<0.1$, respectively).

Copper

Detectable concentrations of copper were recorded in all muscle, liver and kidney tissues sampled from round whitefish collected in Meliadine Lake. Mean copper concentrations were highest in the liver samples (10.9 μg/g), intermediate in the kidney samples (6.06 μg/g), and lowest in the muscle samples (1.83 μg/g). No tissue samples had elevated concentrations; the maximum concentration was recorded in a liver sample (13.5 μg/g).

The results for round whitefish tissues collected from Parallel Lake were generally similar. All tissue samples were above detectable limits. Mean concentrations were highest in the liver samples (10.5 μg/g), intermediate in the kidney samples (6.64 μg/g), and lowest in the muscle samples (1.60 μg/g). The maximum concentration was recorded in a liver sample (13.1 μg/g)

A comparison of round whitefish tissues collected in the 2 study area lakes indicated that mean copper concentrations in all 3 tissue types were very similar. Statistical analyses indicated that liver and kidney tissue copper concentrations were not significantly different ($P>0.50$ for both comparisons). The difference in means between muscle samples (1.83 μg/g for Meliadine Lake and 1.60 μg/g for Parallel Lake) was nearly significant ($P<0.1$).

Lead

Lead concentrations in round whitefish collected from Meliadine Lake were low. None of the muscle contained concentrations above the detectable level, whereas 58% of liver and 100% of kidney tissue samples had lead concentrations above the detection limit. The mean concentrations of lead in the liver and kidney samples were 0.06 and 0.15 μg/g, respectively. Elevated lead concentrations were not recorded in any of the tissues sampled.

Lead concentrations in round whitefish collected from Parallel Lake were also low. Overall, none of the muscle, 40% of liver, and 90% of kidney samples contained concentrations above the detection limit. Mean concentrations recorded in the liver and kidney samples were very low (0.06 and 0.16 μg/g, respectively). High concentrations of lead were not detected in any round whitefish tissue samples collected from Parallel Lake (the maximum value was 0.66 μg/g).

A comparison of the mean lead concentrations in round whitefish tissues collected in the 2 study area lakes indicated that the levels recorded for all 3 tissue types were very similar. Statistical analyses confirmed no difference in mean lead concentrations (P>0.8 for all comparisons).

Mercury

Detectable concentrations of mercury were recorded in all tissue samples collected from round whitefish in Meliadine Lake; however, values were low. Mean concentrations were highest in the kidney samples (0.69 µg/g), intermediate in the liver samples (0.20 µg/g), and lowest in the muscle samples (0.14 µg/g). None of the round whitefish tissue samples from this waterbody had elevated mercury concentrations. The highest concentration recorded (1.41 µg/g in a kidney tissue sample) was below the food consumption guideline of 2.5 µg/g.

The results for round whitefish tissues collected from Parallel Lake were similar; all tissue samples were above detectable concentrations. Mean mercury concentrations were highest in the kidney samples (1.14 µg/g), intermediate in the liver samples (0.27 µg/g), and lowest in the muscle samples (0.21 µg/g). Only one tissue sample had an elevated mercury concentration (>2.5 µg/g); it was a kidney sample with a concentration of 2.63 µg/g.

To assess whether the mercury concentrations recorded in round whitefish tissues collected from the 2 study area lakes were related to fish age, a correlation analyses was undertaken using fork length as an indicator of fish age. Fork length was used under the assumption that length increased with age. This comparison revealed mixed results. Mercury concentrations in round whitefish tissues were weakly correlated with fish length (Table 9-26). Also, statistically significant correlations existed only for liver and kidney tissues collected from fish that originated from Parallel Lake (P<0.05 for both comparisons). These results suggest that differences in round whitefish length may have influenced the results, but this influence was not as strong as in lake trout. A comparison of mean lengths of round whitefish sampled from the 2 lakes indicated that fish collected from Meliadine Lake were similar in size to fish from Parallel Lake (Table 9-23). There was no statistical difference between the mean fork lengths of the 2 samples (P>0.9).

Given the weak correlation between mercury concentration and round whitefish size, and the lack of significant difference in fish lengths between the 2 samples, parametric statistical analyses were used to compare the samples taken from the 2 lakes. These analyses indicated that there were nearly significant differences for kidney and muscle tissues (P<0.1 for both comparisons), but no difference was noted for muscle tissues (P>0.1). Mean mercury concentrations in the kidney and muscle tissues were higher in the Parallel Lake samples compared to fish collected from Meliadine Lake.

Nickel

Detectable concentrations of nickel were recorded in none of the muscle tissue samples, 58% of liver, and 100% of kidney samples collected from Meliadine Lake. Mean concentrations were 4.14 µg/g in the kidney samples and 0.18 µg/g in the liver samples. The highest concentration of 6.50 µg/g was recorded in a kidney sample.

The results for nickel concentrations in round whitefish tissues collected from Parallel Lake were very similar. Most of the liver and kidney tissue samples were above detection limits, but none of the muscle samples contained detectable levels of nickel. Mean concentrations were 5.22 µg/g in the kidney samples and 0.21 µg/g in the liver samples. The highest concentration was recorded in a kidney sample 8.80 µg/g.

A comparison of the mean nickel concentrations in round whitefish tissues collected in the 2 study area lakes indicated that the levels recorded for liver and kidney tissue types were similar. Although mean nickel

concentrations tended to be higher in fish from Parallel Lake than in fish from Meliadine Lake, these differences were not statistically significant (*P*>0.2 for both comparisons).

Zinc

Zinc concentrations were detectable in all tissue samples collected from round whitefish in Meliadine Lake. The mean concentration of zinc in the muscle samples (16.4 µg/g) was much lower than concentrations recorded in the liver and kidney samples (72.7 and 87.5 µg/g, respectively). The maximum zinc concentration recorded in round whitefish in Meliadine Lake was 117 µg/g in a kidney sample.

Zinc concentrations in round whitefish tissues collected from Parallel Lake were very similar. All tissue samples showed values above the detection limit and the mean concentration in muscle tissues (15.5 µg/g) was much lower than the mean values recorded in liver (63.7 µg/g) and kidney (96.0 µg/g) samples. The maximum zinc concentration recorded in round whitefish in Parallel Lake was 127 µg/g in a kidney sample.

A comparison of the mean zinc concentrations in round whitefish tissues collected from fish in the 2 study areas indicated that concentrations were similar, and no statistical differences between lakes were identified for any of the 3 tissue types (*P*>0.1).

9.5.4 Cisco

Aluminum

Detectable concentrations of aluminum were recorded in all liver and kidney samples and 19% of muscle samples collected from cisco in Meliadine Lake (Table 9-29). Mean aluminum concentrations were highest in the kidney samples (18.8 µg/g), intermediate in the liver samples (8.5 µg/g), and lowest in the muscle samples (0.6 µg/g). Four kidney tissue samples contained relatively high levels of aluminum (33, 40, 43, and 69 µg/g).

Table 9-29: Mean Concentrations of Metals in Cisco Tissue Samples from Meliadine Lake, 1998

Tissue	Parameter	Metal Concentrations (µg/g of dry weight)							
		Al	As	Cd	Cu	Pb	Hg	Ni	Zn
Muscle n=16	n <D.L.[a]	13	0	16	1	8	0	15	0
	Mean (µg/g)	0.6	0.28	<D.L.	1.71	0.06	0.58	0.05	17.4
	SD[b] (µg/g)	0.2	0.13	-	1.05	0.04	0.46	0.01	4.54
	Min. (µg/g)	<D.L.	0.13	-	<D.L.	<D.L.	0.25	<D.L.	13.3
	Max. (µg/g)	1	0.56	-	3.71	0.14	2.21	0.10	32.2
Liver n=16	n <D.L.[a]	0	0	0	0	5	0	9	0
	Mean (µg/g)	8.5	1.05	0.88	20.3	0.08	1.37	0.19	299
	SD[b] (µg/g)	5.9	0.85	1.02	19.6	0.09	1.74	0.20	246
	Min. (µg/g)	1	0.47	0.16	3.16	<D.L.	0.20	<D.L.	57
	Max. (µg/g)	20	3.73	3.55	81.2	0.37	6.65	0.70	1030
Kidney n=16	n <D.L.[a]	0	0	0	0	0	0	0	0
	Mean (µg/g)	18.8	1.35	4.33	19.1	0.43	1.28	1.84	235
	SD[b] (µg/g)	18.6	0.98	6.21	21.1	0.48	1.14	1.22	101
	Min. (µg/g)	3	0.50	0.22	4.76	0.07	0.44	0.60	125
	Max. (µg/g)	69	4.58	26.4	86.0	1.83	4.93	5.10	453

[a] Number of samples below detection limit (D.L.); values below D.L. were coded as one-half of D.L. to allow statistical calculations

[b] Standard deviation

Note: µg/g: microgram per gram; <= less than; n = sample size; Min. = minimum; Max. = maximum

Arsenic

Detectable concentrations of arsenic were recorded in all muscle, liver, and kidney tissues sampled from cisco collected in Meliadine Lake. Mean concentrations were highest in the kidney samples (1.35 µg/g), intermediate in the liver samples (1.05 µg/g), and lowest in the muscle samples (0.28 µg/g). The highest recorded value was 4.58 µg/g in a kidney sample.

Cadmium

Detectable concentrations of cadmium were recorded in all liver and kidney tissues sampled from cisco collected from Meliadine Lake; however, no muscle samples contained concentrations above the detection limit. Mean concentrations were 4.33 µg/g in the kidney samples and 0.88 µg/g in the liver samples. Only one kidney sample had an elevated cadmium concentration (26.4 µg/g).

Copper

Detectable concentrations of copper were recorded in all muscle, liver, and kidney tissues sampled from cisco in Meliadine Lake. Mean concentrations were highest in the liver and kidney samples (20.3 and 19.1 µg/g, respectively) and lowest in the muscle samples (1.71 µg/g). Only one liver (81.2 µg/g) and one kidney (86.0 µg/g) tissue sample exhibited elevated concentrations; these samples were collected from 2 different fish.

Lead

Lead concentrations in cisco tissues collected from Meliadine Lake were low. In all, 50% of the muscle samples had concentrations above the detection limit, whereas 69% of liver and 100% of kidney tissue samples had detectable concentrations. The mean concentrations of lead in the muscle, liver, and kidney samples were 0.06, 0.08, and 0.43 µg/g, respectively. Elevated lead concentrations were not recorded in any of the sampled tissues.

Mercury

Detectable concentrations of mercury were present in all tissue samples collected from cisco in Meliadine Lake; however, values were generally low. Mean concentrations were highest in the liver samples (1.37 µg/g), intermediate in the kidney samples (1.28 µg/g), and lowest in the muscle samples (0.58 µg/g). Some of the cisco tissue samples had elevated mercury concentrations; one kidney sample and 2 liver samples had mercury concentrations in the range of 4.47 µg/g and 6.65 µg/g. None of the 16 muscle tissue samples exceeded the food consumption guideline equivalent of 2.5 µg/g.

Nickel

Detectable concentrations of nickel were recorded in 6% of the muscle, 44% of liver, and 100% of kidney samples. Mean concentrations were 1.84 µg/g in the kidney samples and 0.19 µg/g in the liver samples. The highest concentration (5.10 µg/g) was recorded in a kidney sample.

Zinc

Zinc concentrations were detectable in all tissue samples collected from cisco in Meliadine Lake. The mean concentration of zinc in the muscle sample (17.4 µg/g) was much lower than the mean concentrations recorded in the liver and kidney samples (299 and 235 µg/g, respectively). Zinc concentrations tended to be high in the liver and kidney samples collected from cisco. Concentrations regularly exceeded 200 µg/g in kidney tissues (maximum value of 453 µg/g) and 300 µg/g in liver tissues (maximum value of 1030 µg/g).

9.5.5 Arctic Grayling

Aluminum

Detectable concentrations of aluminum were recorded in all liver and kidney samples, but in only one of 3 muscle samples collected from Arctic grayling in Lake B5 (Table 9-30). Mean concentrations were highest in the kidney samples (13.0 µg/g), intermediate in the liver samples (7.7 µg/g), and lowest in the muscle samples (0.7 µg/g). The maximum concentrations recorded were 17 µg/g in a kidney sample and 13 µg/g in a liver sample.

Table 9-30: Mean Concentrations of Metals in Arctic Grayling Tissue Sample from Lake B5, 1998

Tissue	Parameter	Metal Concentrations (µg/g of dry weight)							
		Al	As	Cd	Cu	Pb	Hg	Ni	Zn
Muscle n=3	n <D.L.[a]	2	0	3	0	3	0	3	0
	Mean (µg/g)	0.7	0.37	<D.L.	1.85	<D.L.	0.20	<D.L.	17.7
	SD[b] (µg/g)	0.3	0.03	-	0.12	-	0.01	-	0.67
	Min. (µg/g)	<D.L.	0.34	-	1.72	-	0.19	-	16.9
	Max. (µg/g)	1	0.40	-	1.95	-	0.22	-	18.1
Liver n=3	n <D.L.[a]	0	0	0	0	3	0	3	0
	Mean (µg/g)	7.7	0.22	0.15	6.28	<D.L.	0.17	<D.L.	52.0
	SD[b] (µg/g)	5.0	0.08	0.04	1.66	-	0.03	-	12.0
	Min. (µg/g)	3	0.14	0.11	5.03	-	0.14	-	38.0
	Max. (µg/g)	13	0.29	0.19	8.17	-	0.21	-	66.0
Kidney n=3	n <D.L.[a]	0	0	0	0	1	0	0	0
	Mean (µg/g)	13.0	0.81	0.53	10.6	0.32	0.38	1.33	94.2
	SD[b] (µg/g)	3.6	0.13	0.11	3.13	0.26	0.09	0.15	10.4
	Min. (µg/g)	10	0.66	0.40	7.82	<D.L.	0.30	1.2	86
	Max. (µg/g)	17	0.92	0.60	14.0	0.52	0.48	1.50	106

[a] Number of samples below detection limit (D.L.); values below D.L. were coded as one-half of D.L. to allow statistical calculations
[b] Standard deviation
Note: µg/g = microgram per gram; <= less than; n = sample size; Min. = minimum; Max. = maximum

Arsenic

Detectable concentrations of arsenic were recorded in all muscle, liver, and kidney tissues sampled from Arctic grayling collected in Lake B5. Mean concentrations were highest in the kidney samples (0.81 µg/g), intermediate in the muscle samples (0.37 µg/g), and lowest in the liver samples (0.22 µg/g). No Arctic grayling tissue samples had elevated arsenic concentrations; the maximum recorded value was 0.92 µg/g in a kidney sample.

Cadmium

Detectable concentrations of cadmium were recorded only in the liver and kidney tissues sampled from Arctic grayling collected from Lake B5. Mean concentrations were 0.53 µg/g in the kidney samples and 0.15 µg/g in the liver samples. No tissue samples exhibited elevated cadmium concentrations.

Copper

Detectable concentrations of copper were present in all tissues sampled from Arctic grayling collected from Lake B5. Mean concentrations were highest in the kidney samples (10.6 μg/g), intermediate in the liver samples (6.28 μg/g), and lowest in the muscle samples (1.85 μg/g). Maximum concentrations were 14.0 μg/g in a kidney sample and 8.17 μg/g in a liver sample.

Lead

Lead concentrations in Arctic grayling collected from Lake B5 were low. Only 2 kidney samples contained concentrations above the detectable limit of 0.05 μg/g. The mean concentration of lead in the kidney samples was 0.32 μg/g.

Mercury

Detectable concentrations of mercury were recorded in all tissue samples collected from Arctic grayling in Lake B5; however, values were low. Mean concentrations were highest in the kidney samples (0.38 μg/g), intermediate in the muscle samples (0.17 μg/g), and lowest in the liver samples (0.20 μg/g). None of the Arctic grayling tissue samples exhibited elevated mercury concentrations.

Nickel

Detectable concentrations of nickel were recorded only in the kidney samples collected from Arctic grayling in Lake B5. The mean concentration was 1.33 μg/g and the highest concentration was 1.50 μg/g.

Zinc

Zinc concentrations were detectable in all tissue samples collected from Arctic grayling in Lake B5. The mean concentration of zinc in the muscle samples (17.7 μg/g) was lower than concentrations recorded in the liver and kidney samples (52.0 and 94.2 μg/g, respectively). The maximum zinc concentration in each tissue type was 18.1 μg/g (muscle), 60.0 μg/g (liver), and 106 μg/g (kidney).

9.6 Fish Populations Summary and Conclusions

Species Composition and Relative Abundance

Substantial fishing effort (over 800 sampling events) was applied between 1997 and 2009 during investigations of fish communities in the Meliadine Study Area. Field biologists used angling, backpack electrofishing, fyke nets, gill nets, minnow traps, and a fish fence to sample fish communities in 155 waterbodies, most of which (*n*=140) comprised small lakes, ponds and interconnecting streams in the Peninsula basins These sampling efforts resulted in the capture of 19 722 fish. The overall catch was comprised of 9 species, 5 of which are members of the Salmonidae family. Threespine stickleback were most prevalent (33% of total catch) followed by Arctic char (20%), ninespine stickleback (16%), cisco (14%), Arctic grayling (10%) and lake trout (4%). Round whitefish, slimy sculpin, and burbot comprised only a small portion of the catch. The large contribution of Arctic char to the total catch resulted from a fish fence program in the lower Meliadine River during the annual fall migration of this species from Hudson Bay into freshwater systems. Similarly, the predominance of threespine stickleback reflected their abundance in near-shore areas of Meliadine Lake and susceptibility to capture.

The total catch in Meliadine Lake (9984 fish) was dominated by threespine stickleback (62%) and cisco (25%). Arctic char and lake trout were also common (5% each). Lake trout were represented by all size classes, whereas only juvenile Arctic char were captured during summer. Adult Arctic char use the lake mainly in late fall (during spawning) and in winter. Arctic grayling (2%) and round whitefish (1%) were mainly represented by adults. The predominance of threespine stickleback in the catch was due to the high numbers of this species caught by fyke nets set in the near-shore areas. It is noteworthy that ninespine stickleback were absent from the catch, despite the abundance of this species in adjacent streams, lakes and ponds of the Peninsula basins

The total catch in Peninsula Basins (5485 fish) was dominated by ninespine stickleback (56%) and Arctic grayling (25%) and included all other species present in the study area. Ninespine stickleback appeared to prefer the Peninsula waterbodies (especially shallow ponds and the smaller streams) over the open lake environment of Meliadine Lake. Arctic grayling use the Peninsula streams extensively for spawning and rearing, and appear to overwinter in some of the deeper Peninsula lakes. The size of the Arctic grayling population in Lake B7 was estimated at 1345 fish. Cisco were also common in the larger Peninsula lakes where they are likely year-round residents. Arctic char and lake trout and were also captured; however, they tended to use only the lowermost sections of the basins in close proximity to Meliadine Lake and were not encountered in the upper Peninsula lakes (e.g., B7, A6). Although absent from Meliadine Lake catches in the summer, adult Arctic char were encountered in the lower Peninsula lakes, but only in Lakes D1 and A1.

The total catch in Little Meliadine Lake (208 fish) was dominated by round whitefish (44%), followed by lake trout (25%), Arctic char (13%), cisco (10%), and Arctic grayling (9%). The Meliadine River downstream of Little Meliadine Lake is used as a corridor for Arctic char migrations to and from the sea. The fish fence catch (n=3761) near the estuary during late summer and fall was dominated by Arctic char (86%), with Arctic grayling, round whitefish, lake trout and cisco also recorded.

Life History

Life history data were collected for 11 083 fish, including Arctic char (n=3879), Arctic grayling (n=1938) and lake trout (n=706). Analyses of length-frequency distribution, length-weight relationships, length-at-age, and diet were performed for each basin to facilitate comparisons among watersheds. The results are briefly described, for the main species, in the following sections.

Arctic char ranged from 61 to 777 mm in fork length. Age classes between 1 and 10 years were represented in the aged sample. The fastest rate of growth (approximately 120 mm per year) occurred between ages 5 and 6, and likely corresponds to the time that smolts make their first migration to sea. The size of the Arctic char captured by the fish fence in Meliadine River indicated significant differences between the early, middle, and late stages of the run; large fish returned from the sea earlier than the smaller fish and the final phases of the run were dominated by the first-year sea migrants.

Lake trout ranged from 43 to 965 mm in fork length. Age classes between 1 and 30 years were represented. Approximately half of 143 lake trout stomachs examined contained no food items. Lake trout diet consisted primarily of fish (71% of the total food volume) with invertebrates (primarily amphipods) accounting for the remainder.

Arctic grayling ranged from 20 to 435 mm in fork length. Age classes between 0 and 11 years were represented. Growth increments during the first 5 years of life averaged approximately 50 mm in length per year; the older fish grew considerably slower (about 20 mm per year). In contrast to the other species examined most (84%) of

Arctic grayling stomachs contained food. The diet consisted mainly of invertebrates (87% of the total food volume), with ninespine stickleback accounting for the remainder.

Fish Movements

During the 1997 to 2008 studies, 3460 fish in the study area were marked with Floy tags. The majority (76%) were Arctic char, followed by Arctic grayling (11%), lake trout (6%), round whitefish (5%), cisco (29%), and burbot (0.1%). Subsequent fishing effort by the study team and tags returned by local fishermen resulted in 1740 tag recapture events. These recapture events involved 1380 fish (40% of all fish tagged), of which 1081 fish were recaptured once and 299 fish were recaptured multiple times during the course of the study. Most of the recapture events (n=1004) were based on tag returns by local fishermen during subsistence fishing in Little Meliadine Lake and several areas of Hudson Bay.

A total of 2633 Arctic char were marked with Floy tags. Almost half (49.9%) of the marked fish were recaptured at least once. The results indicated that a substantial portion of the population (998 fish or 37.9% of the marked total) had been harvested by the local fishermen. Most of the harvested fish were captured in the immediate vicinity of Rankin Inlet: Prairie Bay (*n*=242), lower Meliadine River (*n*=81), and Little Meliadine Lake (*n*=548). Other freshwater harvest locations included Meliadine Lake (*n*=13), upper Meliadine River (*n*=7), and Diana River system (*n*=11). Marine harvest locations outside of Prairie Bay (*n*=45) were widespread and ranged between Chesterfield Inlet to the north and Corbett Inlet to the south of Rankin Inlet.

The radio telemetry program was implemented in 2 phases during the study. The first phase was carried out in 1997 to 1999 and involved tracking of 68 fish (Arctic char, lake trout and Arctic grayling) implanted with radio transmitters. The second phase was carried out in 2000 and 2001 and focused on implanting radio transmitters in 12 pre-spawning Arctic char and tracking their movements in an attempt to determine their spawning and overwintering habitats.

Radio tracking of Arctic char demonstrated movements between Hudson Bay and Meliadine Lake, with many fish overwintering in Little Meliadine Lake. Pre-spawning fish implanted with radio transmitters in the west basin of Meliadine Lake in September 2000 demonstrated extensive movements and rapid dispersal of the implanted fish, suggesting that Arctic char spawning may occur in several areas widely distributed throughout Meliadine Lake, but appeared to be focussed on the north shores of the west and central basins. Subsequent tracking in April 2001 revealed that all fish were within 9 km of their early winter locations, suggesting limited movements during winter. In contrast, at least half of the implanted fish left Meliadine Lake in June 2001 to undergo migrations to Hudson Bay. Some selected the seaward route through the south outlet of Meliadine Lake (Meliadine River), whereas others migrated downstream through the west outlet of Meliadine Lake into Peter Lake and the Diana River system, suggesting that both outlets of Meliadine Lake are equally important as migration corridors for post-spawning fish during their spring return to the sea.

Most (9 of 13) radio tagged lake trout moved less than 15 km during the 1997 to 1999 tracking program and remained within 9 km of their release locations. Nevertheless, they demonstrated movements between Lake D1 and the upper Meliadine River and between east and central basins of Meliadine Lake. The remaining 4 lake trout exhibited more extensive movements, with 2 individuals moving a total distance of 17 and 20 km throughout the east basin of Meliadine Lake and 2 others moving between the east basin and west basins of Meliadine Lake for a total distance of 41 and 45 km.

Most (14 of 19) Arctic grayling radio tagged in 1997 exhibited limited movements and remained within the respective Peninsula lakes where they had been released. One individual tagged in Lake A6 moved to Lake A1 and back in June 1998, likely in relation to spawning activities. The 5 remaining Arctic grayling tagged in 1997 had moved out of their release lakes (D1, D7, and B2) into the south basin of Meliadine Lake by July 1997. Three of these fish stayed in the south basin of Meliadine Lake throughout the 1997 to 1998 tracking program, while 2 fish exhibited extensive movements of about 40 km each, visiting other Peninsula lakes (B4, B2, K2) and the west basin of Meliadine Lake. Four Arctic grayling radio tagged in August 1998 in Lake B5 remained within the same lake over the winter and throughout the open water period in 1999, suggesting that the upper Peninsula lakes are used by resident populations year-round.

Metal Analysis of Fish Tissues

Analyses of muscle, liver, and kidney tissues collected from Arctic char, lake trout, round whitefish, cisco and Arctic grayling indicated generally low levels of metal accumulation. Concentrations of aluminium, arsenic, lead, mercury, and zinc in lake trout tissues were higher in Meliadine Lake than in Parallel Lake, which was selected as a control basin for long term monitoring. Mercury concentrations in lake trout tissues were strongly correlated with fish size. A small proportion (3 of 30) of lake trout muscle tissue samples from Meliadine Lake exceeded the food consumption guideline of 2.5 µg/g (dry weight). Round whitefish tissues indicated similar concentrations between Meliadine and Parallel lakes. In contrast to lake trout, mercury concentrations in round whitefish were weakly correlated with fish size and none of the muscle tissue samples exceeded the food consumption guidelines. Analytical results for cisco and Arctic grayling also documented low metal concentrations in the tissue samples collected from these species.

10.0 STREAM CROSSING ASSESSMENTS

Assessments of fish and fish habitat were conducted at 14 watercourse crossings along 2 proposed road corridors: Meliadine and Discovery. Ten watercourse crossings were located along the primary corridor (Meliadine) extending from Rankin Inlet to the proposed Project site (Figure 10-1). Four crossings were located along the secondary corridor that extends from the primary road to the Discovery Area, located approximately 16 km southeast from the Meliadine camp. Stream crossings surveyed were assigned a unique designation that included a corridor prefix (M for Meliadine West area, D for Discovery area) followed by the distance (in kilometres) along the road alignment from south to north.

Crossing assessments were performed from 16 to 25 June 2008. During the 2008 visit, the area was free of snow but ice was present along the margins of some of the watercourses investigated, especially the Meliadine River. Most meltwater had drained from the study area; however, standing water was observed along stream margins. One of the crossing sites (D5.8b) was resurveyed on 15 July 2009. It was assigned a 'b' designation as it was located at a crossing near Site D5.8 along a section with a revised alignment.

10.1 Methods

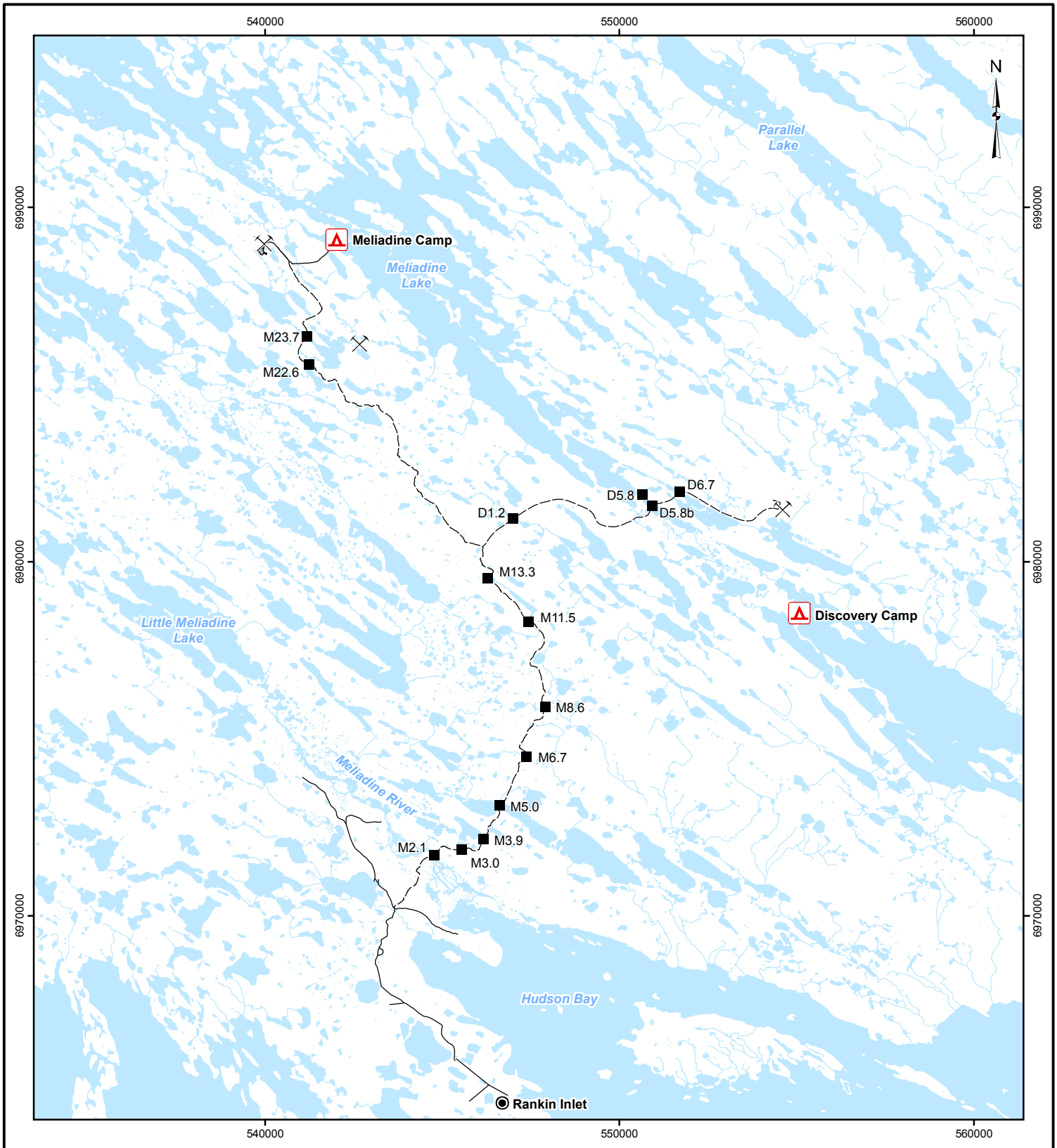
10.1.1 Habitat Assessments

Habitat was surveyed at each of the proposed crossings to assess spawning, rearing, overwintering, and movement potential for fish. Parameters surveyed included channel and flooded width (metres [m]), depth (m), habitat type (e.g., riffles, pools), substrate, as well as general observations such as channel type (e.g., single, double, braided, and dispersed) and the presence of movement barriers. Channel width was defined as the edge of the watercourse with a defined bank. On occasion, flooded sections of watercourses were observed at widths greater than that of the defined channel; therefore, some study reaches had a wetted width greater than that of the channel width. Flooded width was a measurement of wetted width beyond, and including, that of the defined channel. Substrates were assessed using a modified Wentworth scale as follows:

- Detritus (decomposed organic matter);
- Fines (<2 millimetres [mm] diameter);
- Gravel (2 to 64 mm);
- Cobble (65 to 256 mm); and
- Boulder (>256 mm).

Water quality measurements, including temperature, pH, and conductivity were taken in situ using calibrated hand-held water quality meters. Dissolved oxygen was measured using a colorimetric kit.

Because the watercourses investigated were often small and poorly defined, it was not practical to map individual habitat types as they were often less than 1 m in length. Instead, watercourses were divided into reaches of equal length (typically 50 m) with assessments of habitat parameters reflecting average conditions within each respective reach. Subsequently, mean values were calculated for each habitat parameter to describe average conditions for the stream as a whole.



LEGEND

- Watercourse Crossing
- Camp
- Proposed Mine Site
- Proposed Road
- Road - Existing
- Watercourse
- Portal Work Area
- Waterbody

NOTE

Water crossing sites investigated in June 2008.
Proposed road alignment as of September 2008.

REFERENCE

Project Infrastructure provided by Comaplex Minerals Inc. Base data obtained from the Government of Canada, Natural Resources Canada, Centre for Topographic Information (1:50,000).
Projection: UTM Zone 15 Datum: NAD 83

SCALE 1:150,000 3 0 3 KILOMETRES

PROJECT
COMAPLEX MINERALS CORP
COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE
STREAM CROSSING SITES ALONG PROPOSED MELIADINE AND DISCOVERY ROADS

Golder Associates
Edmonton, Alberta

PROJECT NO. 09-1373-0010			PHASE No. 1000	
DESIGN	RP	25 Nov. 2009	SCALE AS SHOWN	REV. 0
GIS	CDB	25 Nov. 2009		
CHECK	AM	3 Jul. 2012		
REVIEW	JP	4 Jul. 2012		

FIGURE 10-1

N:\Bur-Graphics\Projects\2007\1373\07-1373-0055\Mapping\MXD\2009\Fisheries\figure-10-01_stream-crossing-sites.mxd

Cover types were described as proportions of available cover rather than proportions of stream area surveyed. Habitat conditions within inlets and outlets were also recorded; however, they were not included in habitat calculations. Digital photos were taken to supplement site descriptions (Appendix G1).

Velocity was recorded with a direct-readout meter (Swoffer Model 2100). Readings were taken while wading along a tag line positioned perpendicular to flow. Water depth and mean column velocities (at 60% depth) were measured at a representative number of vertical stations along the cross-section. Discharge was calculated according to methods outlined by Bovee and Cochnauer (1977). Most of the sites did not have sufficient flow and/or depth to measure discharge while the Meliadine River was flowing at a rate that precluded discharge from being measured safely.

10.1.2 Fish Capture

Assessments of fish populations were conducted using a backpack electrofisher (Smith Root, POW Type 12B, settings: 100-300 V, 30-60 Hz, 4-6 ms). Field biologists waded upstream and sampled available habitats in equal proportions. A netter collected stunned fish and placed them in a holding container filled with water. Field biologists recorded sampling effort, electrofisher settings, and the number of fish captured and observed. Time constraints limited fish capture methods to backpack electrofishing; no other sampling methods were used.

Life history information collected included fork length (FL, mm) weight in grams (g), and sexual maturity (if discernible through external examination). Relative abundance of fish was calculated in terms of catch-per-unit-effort (CPUE). CPUE was based on the number of fish captured per unit of sampling effort (1 min). Efforts were made to minimize mortalities and unnecessary harm to fish.

10.1.3 Spawning Assessments

Egg sampling was conducted to assess habitat potentially used by Arctic grayling for spawning. All suitable spawning substrates observed by field biologists were sampled. The procedure involved positioning a fine-mesh D-ring kick net on the stream bottom immediately downstream from a potential egg deposition site (e.g., section of unembedded gravel) and disturbing the substrate with a foot for approximately 30 seconds (approximate area 0.4 square metres [m^2]). The contents of each kick net were examined in the field. Recorded data included the number of areas sampled, number of areas with eggs, total number of eggs encountered, and the maximum number of eggs per sampled area. Eggs were returned to the watercourse immediately.

10.2 Habitat Assessments

With the exception of the Meliadine River, the majority of the watercourses to be crossed by the proposed roads were small, ephemeral streams, often flowing through poorly defined channels. The watercourses were comprised primarily of shallow-water habitats with occasional riffles and pools with moderate depth. Habitat potential for fish in the areas investigated was typically poor to moderate and use by fish is seasonal. However, habitat at some of the larger watercourses with perennial flow, such as the Meliadine River, had higher potential to support fish populations for longer periods of time.

The majority of stream crossings were assessed for habitat and channel characteristics along their entire length (i.e., entire channel between 2 lakes or ponds). Data summaries and photographs of each crossing are presented as a crossing atlas in Appendix G1 and detailed habitat data for individual sites are provided in Appendix G2. The majority of watercourses had similar characteristics so data were grouped and discussed together for each road corridor in the following sections.

10.2.1 Meliadine Road

Except for the Meliadine River crossing (discussed separately at the end of this section), surveyed stream sections ranged from 29 to 140 m in length. A variety of channel types were encountered including single, double, multiple, and braided, as well as areas of dispersed flow (i.e., without a well-defined stream channel). Generally, individual reaches consisted of more than one channel type with braided and dispersed channels as the most common types observed (Appendices G1 and G2).

Channel morphology was variable as was fish habitat observed at watercourses, even within single study reaches. Mean channel widths ranged from 3.7 to 8.9 m and mean depths were shallow ranging from 0.04 to 0.25 m; maximum depths did not exceed 0.6 m. Given the shallow conditions encountered, discharge could only be calculated for Sites M5.0 and M11.5 (0.03 and 2.60 ^{m3}/s, respectively).

Instream cover for fish was available in a variety of forms and was abundant in each of the streams surveyed. Given the semi-flooded conditions, aquatic and terrestrial plants provided the majority of cover ranging in proportion from 5 to 100% within individual reaches. Undercut banks were observed in small portions representing 2 to 30% of cover available for fish in 4 of the streams, but were absent from the remaining 6 sites. Undercut banks were less common as relief and low water velocities in the area are not conducive to their formation. Cover provided by depth and/or turbulence was rarely observed, again, owing to shallow, low-gradient channels. Boulder gardens provided additional cover for fish, but considerably less than vegetation. Given the small size of the watercourses, instream cover mainly provided habitat for small-bodied fish, such as ninespine stickleback and juvenile Arctic grayling.

It is noteworthy that Site M6.7 was dry at the time of visit. The watercourse had sections of moderately defined bed and bank and showed evidence of recent flow. Therefore, this seasonal watercourse may only provide fish habitat for short periods in the spring, and perhaps during precipitation events in summer. The channel showed damage resulting from all-terrain vehicle (ATV) activity. Damage to tundra has accelerated erosion and subsequent deposition of sediment downstream of ATV crossings.

Another crossing of special note was Site M5.0 situated at a short watercourse connecting 2 large ponds. Although this watercourse was short (29 m distance between ponds), it contained high quality fish habitat, especially for small-bodied forage fish. Although no sportfish species were captured or observed, habitat potential for Arctic grayling rearing and spawning was good. Substrates were dominated by gravel, cobble, and boulders, and aquatic plants offered excellent cover for small fish. Hence, migration, rearing, and spawning potential were rated high; however, there was no overwintering potential because the watercourse likely freezes to bottom during winter. Similar to what was observed at Site M6.7, ATV activity at Site M5.0 has caused damage to portions of the streambed and bank.

Habitat and channel characteristics at the Meliadine River crossing (Site M2.1) were investigated over a length of 690 m. Within this section, the river was confined to a single channel with a few small rock piles scattered throughout. Wetted widths ranged from 34 to 134 m (based on 4 cross-sectional measurements) and the flooded width of the river ranged from 58 to over 200 m. At the time of visit, flows at the proposed crossing location precluded safe measurement of depth; however, depths were greater than 1.5 m along the periphery. Instream habitat consisted of run (72%), riffle (20%), and pool (8%) habitats. Substrate and instream habitat were difficult to gauge because the river was turbid; however, bank-side estimates suggested that substrates were dominated by boulder and cobble with gravel and fines present to lesser degrees. Aquatic plants were observed but uncommon.

10.2.2 Discovery Road

Within the Discovery road corridor, surveyed stream sections ranged in length from 140 to 530 m (Appendix G1). Mean channel widths (2.2 to 4.9 m) were less variable than those along the Meliadine road corridor. Mean flooded widths; however, ranged widely from 21.5 to 63 m. Mean depths were relatively shallow ranging from 0.03 to 0.18 m; maximum depths did not exceed 0.45 m. Multiple braids and dispersed channels were the main channel types observed along the Discovery road corridor. Given the shallow conditions encountered, discharge could only be calculated for Site D5.8b (0.032 m/s).

Instream habitats consisted primarily of shallow runs and pools. Water velocities were low as the majority of the watercourses were situated along shallow gradients. Hence, riffles were only observed occasionally and their overall contribution to the total habitat area was low. In contrast, shallow pools contributed substantially (>50%) to the total surveyed area of the streams. These pools existed in areas with terrestrial vegetation and poorly defined bed and bank, indicative of ephemeral flows.

In 2 of the streams surveyed (Sites D1.2 and D6.7), substrates consisted primarily of detritus, mainly because of partial flooding along stream peripheries which inflated the relative contribution of detritus to the total substrate. In sections of the watercourses bounded by defined bed and banks, cobble, boulders, and fines were more common and were present in relatively equal proportions. Small patches of gravel were observed, but were less common and their contribution to total substrate area did not exceed 5 to 10% of the total area in a given stream. Site D5.8 was dominated by coarse substrates, especially cobble as was nearby D5.8b which was dominated by gravel, cobble, and boulders.

Instream cover was available in a variety of forms. Aquatic and terrestrial plants provided the majority of cover, with boulders and undercut banks contributing to a lesser extent. Depth and/or turbulence provided little cover for fish owing to shallow, low-gradient channels. Given the small size of the watercourses, instream cover served mainly to provide habitat for small-bodied fish. Of the 3 sites evaluated, Site D5.8 was rated the highest with respect to habitat quality for fish. Habitat features including coarse substrates, undercut banks, small pools, and aquatic plants contributed to this stream's high potential to support spawning and rearing fish. Overwintering was not deemed possible, given the shallow depths of the stream. Similar ratings are applicable to nearby Site D5.8b.

10.3 Fish Populations

10.3.1 Meliadine Road

In total, 368 fish representing 3 species were captured or observed from 7 of the 10 sites surveyed (Table 10-1). Ninespine stickleback (*n*=357) was the most abundant species captured or observed, accounting for 97% of the catch. Slimy sculpin (*n*=3) and Arctic grayling (*n*=8) were also captured/observed. Site M5.0 was the most productive; 60 ninespine stickleback were captured and over 200 were observed. CPUE values ranged considerably from 0.3 to 53.2 fish/min demonstrating the variability in the abundance of fish in small streams in the study area. With regard to Arctic grayling, juveniles were captured at Sites M2.1 (Meliadine River) and M11.5, respectively. In addition, one Arctic grayling was observed at Site M23.7 (inflow to Lake A6 from Lake A8).

Table 10-1: Fish Captured or Observed in Watercourses along the Proposed Meliadine Road Corridor

Site	Effort (s)	Fish Captured (Observed)			Total	CPUE (fish/min)
		Arctic grayling	Ninespine stickleback	Slimy sculpin		
M2.1	557	1	0 (2)		3	0.3
M3.0	211		0 (2)		2	0.6
M3.9	185				0	
M5.0	293		60 (200)		260	53.2
M6.7	-				-	
M8.6	262				0	
M11.5	520	1 (5)	18 (20)		44	5.1
M13.3	222		0 (10)		10	2.7
M22.6	398		2 (25)		27	4.1
M23.7	409	0 (1)	18	3	22	3.2
Total	**3057**	**2 (6)**	**98 (259)**	**3**	**368**	**7.2**

Note: CPUE = catch-per-unit-effort; min = minute; s = seconds

Sampling for Arctic grayling eggs was conducted at 4 streams (Sites M2.1, M8.6, M11.5, and M5.0); the remaining sites did not contain suitable spawning substrate (Appendix G3). In total, 21 individual areas were sampled; however, eggs were not found.

10.3.2 Discovery Road

Within the Discovery road corridor, fish (*n*=55) were captured or observed at Sites D1.2, D5.8, and D5.8b (Table 10-2). Site D5.8, was most productive as 7 Arctic grayling and 12 ninespine stickleback were captured and another 4 Arctic grayling and 20 ninespine stickleback were observed. This site was the most productive with respect to Arctic grayling in either of the 2 road corridors. At Site D5.8b, electrofishing was not conducted however; 10 ninespine stickleback were observed during the survey. Though only 4 streams were sampled,

CPUE ranged from 0.6 to 8.0 fish/min, demonstrating the variability in the abundance of fish in small streams along the Meliadine corridor.

Table 10-2: Fish Captured or Observed in Watercourses along the Proposed Discovery Road Corridor

Site	Effort (s)	Fish Captured (Observed)		Total	CPUE (fish/min)
		Arctic grayling	Ninespine stickleback		
D1.2	211		0 (2)	2	0.6
D5.8	322	7 (4)	12 (20)	43	8.0
D5.8b	138		10	10	4.3
D6.7	138			0	
Total	**809**	**7 (4)**	**22 (32)**	**55**	**4.1**

Note: CPUE = catch-per-unit-effort; min = minute; s= seconds

Egg sampling was also conducted at Site D5.8; the remaining sites did not contain suitable spawning substrate. In total, 9 Arctic grayling eggs were encountered in 2 of 10 areas sampled, indicating that the watercourse at Site D5.8 provides habitat for spawning and rearing Arctic grayling.

10.4 Summary and Conclusions

Watercourses investigated along the proposed road corridors were diverse with respect to habitat potential for fish. Aquatic habitat at crossings along both road corridors was highly variable, with some streams supporting spawning and rearing, whereas others were dry or contained poor fish habitat. Habitat quality was poor to moderate at most sites with the Meliadine River crossing having the greatest potential to support multiple life stages of fish. Fish were captured or observed at 10 of 14 sites assessed; Arctic grayling were registered at 4 sites, ninespine stickleback at 10 sites, and slimy sculpin at 1 site.

Within the Meliadine West road corridor, Site M2.1 (Meliadine River) was of particular importance. The presence of deep run and pool areas indicated high quality habitat for various life-stages of fish species known to inhabit the river. Other noteworthy watercourses within the Meliadine West road corridor include Site M23.7, where slimy sculpin were captured, and habitat quality for rearing and migration were rated as moderate to high. Sites M5.0, M11.5, and M22.6 also featured suitable rearing habitat for Arctic grayling. Although not confirmed by egg sampling, Sites M5.0 and M11.5 are likely used by Arctic grayling for spawning based on the availability of suitable habitat and/or the presence of Arctic grayling juveniles in the catch. In contrast, Sites M3.0, M3.9, M6.7, M8.6, and M13.3 had relatively poor fish habitat potential, as evidenced by a lack of fish captures and only 12 observed fish (ninespine stickleback) at Sites M3.0 and M13.3. Shallow depths, dry channels (e.g., Site M6.7), poor spawning substrates (detritus), and a lack of instream cover contributed to poor habitat ratings.

Within the Discovery road corridor, Site D5.8 provided high quality spawning and rearing habitat for Arctic grayling, as evidenced by captures of juvenile fish and collection of Arctic grayling eggs In contrast, Sites D1.2 and D6.7 featured poor quality fish habitat because of shallow depths and an absence of well defined channels.

11.0 CLOSURE

We trust the information contained in this report is sufficient for your present needs. Should you have any questions regarding the project, please do not hesitate to contact the undersigned at (780) 483-3499.

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APPENDIX A

Hydrology

A1-1 MONTHLY TEMPERATURE DATA

Table A1-1: Rankin Inlet A: Monthly & Annual Mean Temperature Data (°C), 1981 to 2009

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1981	-19.8	-24.8	-20.1	-20.2	-5.9	3.6	9.9	10.1	3.7	-3.0	-13.4	-26.0	-8.8
1982	-36.2	-32.4	-28.3	-19.2	-6.1	2.1	9.7	8.7	1.9	-3.8	-22.1	-30.7	-13.0
1983	-30.2	-32.8	-26.8	-17.1	-10.8	4.5	8.9	8.8	4.3	-4.2	-15.3	-29.5	-11.7
1984	-33.8	-26.9	-25.5	-12.7	-4.0	4.7	10.2	9.6	1.3	-4.8	-18.0	-31.5	-11.0
1985	-29.3	-30.6	-28.8	-18.6	-4.8	5.5	10.1	8.3	3.9	-4.3	-18.4	-25.3	-11.0
1986	-31.7	-31.0	-27.7	-16.5	-4.6	1.8	8.2	7.9	2.2	-9.9	-23.6	-26.6	-12.6
1987	-30.2	-27.4	-24.3	-16.3	-9.7	0.8	9.7	7.7	4.6	-7.6	-17.6	-19.7	-10.8
1988	-34.8	-33.2	-25.2	-13.9	-7.7	3.7	10.5	10.4	4.6	-4.7	-17.7	-29.0	-11.4
1989	-32.9	-30.0	-30.8	-14.8	-7.0	4.5	12.1	10.5	3.0	-7.4	-21.4	-29.0	-11.9
1990	-31.7	-35.0	-21.1	-18.0	-6.3	3.4	9.6	7.7	3.0	-5.8	-17.6	-33.3	-12.1
1991	-34.8	-29.7	-26.4	-15.1	-6.5	5.5	10.6	10.3	1.7	-6.5	-19.9	-29.7	-11.7
1992	-29.8	-31.4	-23.9	-18.2	-7.5	0.1	6.9	8.2	1.7	-5.7	-18.4	-21.2	-11.6
1993*	-28.0	-32.2	-21.5	-18.5	-2.4	5.8	11.7	9.3	1.4	-7.1	-21.0	-19.4	-10.2
1994	-35.7	-35.3	-23.9	-18.3	-4.7	6.7	11.9	8.8	4.6	-3.1	-13.9	-20.8	-10.3
1995	-27.2	-30.9	-23.7	-12.8	-6.5	6.1	9.5	10.4	2.1	-3.8	-20.9	-25.0	-10.2
1996	-33.8	-26.8	-26.1	-16.6	-6.3	5.0	14.9	9.9	6.8	-5.7	-16.8	-24.9	-10.0
1997	-31.6	-31.1	-26.2	-14.2	-4.6	6.4	12.2	10.6	4.0	-6.3	-16.8	-23.4	-10.1
1998	-36.2	-28.0	-26.9	-14.6	-3.5	6.3	11.6	11.0	5.7	-1.9	-10.2	-25.3	-9.3
1999	-29.6	-24.0	-20.7	-10.4	-3.8	4.7	10.3	10.0	4.3	-4.8	-13.8	-23.0	-8.4
2000	-29.2	-27.3	-22.0	-18.3	-4.8	2.1	10.7	11.1	3.1	-5.7	-18.2	-26.6	-10.4
2001	-29.6	-30.5	-19.5	-15.0	-2.4	5.3	10.8	10.1	6.4	-3.2	-16.8	-20.6	-8.8
2002	-30.4	-32.6	-28.5	-16.8	-7.5	2.9	9.6	9.2	4.4	-4.8	-17.9	-22.8	-11.3
2003	-25.9	-35.2	-26.0	-17.1	-2.0	4.2	11.0	10.6	5.2	-3.4	-13.4	-23.7	-9.6
2004	-37.2	-30.4	-28.3	-19.9	-8.8	2.7	10.1	8.9	4.1	-7.4	-18.3	-31.0	-13.0
2005	-32.5	-31.1	-22.9	-11.5	-6.8	4.5	10.1	10.8	3.5	-1.9	-13.4	-24.8	-9.7
2006	-24.6	-27.6	-18.8	-11.5	-3.2	6.4	10.7	11.2	4.9	-0.5	-16.0	-19.8	-7.4
2007	-27.8	-26.7	-26.3	-13.9	-7.3	3.1	12.7	10.1	2.6	-2.3	-19.0	-25.4	-10.0
2008	-27.3	-32.8	-28.4	-15.2	-1.2	4.3	11.2	10.4	3.3	-2.8	-15.7	-27.9	-10.2
2009	-26.6	-29.4	-26.4	-13.6	-9.7	4.6	9.9	10.2	5.5				
Mean	**-30.7**	**-30.2**	**-25.1**	**-15.7**	**-5.9**	**4.1**	**10.5**	**9.7**	**3.8**	**-4.6**	**-17.2**	**-25.8**	**-10.5**
Minimum	**-37.2**	**-35.3**	**-30.8**	**-20.2**	**-10.8**	**0.1**	**6.9**	**7.7**	**1.3**	**-9.9**	**-23.6**	**-33.3**	**-13.0**
Maximum	**-19.8**	**-24.0**	**-18.8**	**-10.4**	**-1.2**	**6.7**	**14.9**	**11.2**	**6.8**	**-0.5**	**-10.2**	**-19.7**	**-7.4**
Std Dev	**4.0**	**3.0**	**3.1**	**2.6**	**2.4**	**1.7**	**1.5**	**1.1**	**1.4**	**2.1**	**3.0**	**3.8**	**1.4**

Note: blank= not available at the time of reporting.
* = the year of 1993 was not used in statistics. Monthly and annual data are based on incomplete daily data.

Table A1-2: Rankin Inlet A: Monthly & Annual Maximum Temperature Data (°C), 1981 to 2009

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1981	-2.6	-11.2	-3.5	-1.0	2.8	16.7	24.9	19.9	10.8	5.4	-0.8	-8.5	24.9
1982	-25.9	-8.1	-12.1	-1.4	2.8	22.7	24.5	23.8	11.5	4.0	-1.0	-7.3	24.5
1983	-15.6	-8.3	-5.2	-2.0	5.3	25.4	26.3	21.6	11.7	3.9	0.9	-6.3	26.3
1984	-13.4	-12.1	-4.5	3.4	14.1	23.4	23.8	23.2	12.5	4.3	-2.6	-8.0	23.8
1985	-6.5	-13.0	-9.1	0.2	3.6	22.8	26.1	20.6	17.3	5.3	-1.2	-10.0	26.1
1986	-13.2	-17.0	-12.4	-2.9	8.5	18.6	23.1	21.4	11.5	1.9	-6.7	-6.5	23.1
1987	-9.7	-12.9	-1.6	0.1	2.9	15.4	25.4	16.6	14.5	3.5	-1.0	-4.4	25.4
1988	-21.0	-16.7	-11.6	0.0	3.0	19.6	22.5	24.4	13.2	9.3	0.9	-12.2	24.4
1989	-16.9	-12.6	-13.7	1.5	3.8	20.6	28.5	24.4	13.1	3.2	-2.9	-15.2	28.5
1990	-14.3	-16.6	-3.4	-4.1	5.2	16.6	26.6	15.5	13.2	4.8	-1.9	-9.2	26.6
1991	-18.3	-7.6	-7.7	0.0	3.0	22.8	28.4	30.5	10.5	2.6	-3.5	-5.0	30.5
1992	-5.8	-17.2	-9.9	-2.3	3.8	8.6	18.2	23.5	11.7	3.4	-2.0	-9.9	23.5
1993*	-13.8	-19.6	-1.2	-7.1	6.8	26.1	24.6	22.2	7.1	0.0	-6.6	-8.0	26.1
1994	-21.8	-19.8	-11.2	-2.5	4.8	24.4	24.8	18.7	20.2	5.3	0.6	-7.2	24.8
1995	-15.6	-17.3	-3.9	3.2	3.3	18.8	16.6	19.1	10.2	5.3	-3.0	-9.0	19.1
1996	-15.2	-8.0	-13.8	-2.1	13.5	17.1	28.9	19.4	20.6	1.6	-1.6	-3.9	28.9
1997	-14.5	-13.6	-11.2	1.9	9.1	18.7	26.2	24.4	18.6	7.7	-0.9	-6.2	26.2
1998	-20.5	-4.4	-11.7	1.4	3.7	19.5	23.1	22.9	12.7	6.3	-1.0	-7.2	23.1
1999	-12.7	-10.8	1.3	1.9	4.5	21.2	23.2	20.0	12.0	3.0	-1.5	-2.4	23.2
2000	0.0	-9.1	-2.7	1.1	2.2	13.8	26.7	24.3	17.1	1.8	-3.9	-9.7	26.7
2001	-10.1	-13.7	-6.5	1.7	10.6	17.5	26.8	20.1	16.2	5.8	0.4	-4.9	26.8
2002	-12.6	-14.1	-5.4	0.0	3.0	15.0	24.4	21.1	15.6	3.8	-2.6	-2.0	24.4
2003	-12.0	-17.1	-8.0	-3.9	10.6	15.3	26.8	24.7	20.5	6.5	-1.2	-5.1	26.8
2004	-21.8	-13.9	0.6	-5.5	0.1	15.4	25.5	23.4	13.2	3.1	-1.9	-12.2	25.5
2005	-17.1	-15.1	-3.2	-1.0	6.6	16.6	24.7	21.7	11.4	6.0	0.2	-10.4	24.7
2006	-13.0	-9.4	-7.0	2.4	2.6	21.0	25.5	21.5	15.3	5.1	-1.4	-6.5	25.5
2007	-12.8	-11.9	1.0	-1.5	3.7	24.2	25.1	18.3	14.0	5.0	-3.4	-13.0	25.1
2008	-12.6	-22.9	-10.2	1.0	9.2	15.3	23.5	19.3	12.4	8.8	-2.7	-7.9	23.5
2009	-8.7	-15.6	-7.9	-0.8	1.5	19.8	22.7	19.0	16.3				22.7
Mean	**-13.7**	**-13.2**	**-6.9**	**-0.4**	**5.3**	**18.8**	**24.7**	**21.5**	**14.2**	**4.7**	**-1.7**	**-7.8**	**25.2**
Minimum	**-25.9**	**-22.9**	**-13.8**	**-5.5**	**0.1**	**8.6**	**16.6**	**15.5**	**10.2**	**1.6**	**-6.7**	**-15.2**	**19.1**
Maximum	**0.0**	**-4.4**	**1.3**	**3.4**	**14.1**	**25.4**	**28.9**	**30.5**	**20.6**	**9.3**	**0.9**	**-2.0**	**30.5**
Std Dev	**5.8**	**4.2**	**4.5**	**2.3**	**3.6**	**3.8**	**2.7**	**3.0**	**3.1**	**2.0**	**1.7**	**3.2**	**2.2**

Note: blank= not available at the time of reporting.
* = the year of 1993 was not used in statistics. Monthly and annual data are based on incomplete daily data.

Table A1-3: Rankin Inlet A: Monthly & Annual Minimum Temperature Data (°C), 1981 to 2009

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1981	-34.1	-42.1	-34.3	-35.2	-18.0	-3.5	1.5	0.1	-6.1	-15.1	-27.3	-42.8	-42.8
1982	-46.1	-43.2	-39.8	-33.3	-21.6	-8.1	0.4	1.3	-7.0	-20.0	-36.5	-42.3	-46.1
1983	-41.8	-41.7	-39.0	-30.4	-23.4	-4.1	1.1	2.6	-3.3	-17.1	-30.9	-39.7	-41.8
1984	-42.3	-42.5	-43.4	-35.7	-16.4	-2.9	0.1	1.9	-8.0	-16.8	-28.5	-40.9	-43.4
1985	-42.2	-43.4	-42.2	-35.1	-18.8	-2.7	2.6	-1.0	-3.4	-18.0	-36.1	-37.0	-43.4
1986	-40.4	-44.6	-39.8	-32.6	-22.1	-6.4	1.3	-1.4	-3.7	-27.4	-32.6	-37.0	-44.6
1987	-43.0	-40.8	-37.0	-31.1	-23.7	-5.9	-0.1	0.2	-5.8	-21.4	-32.1	-34.0	-43.0
1988	-43.6	-45.1	-36.5	-27.6	-21.4	-1.8	2.4	3.5	-0.6	-21.6	-34.8	-40.5	-45.1
1989	-42.9	-40.9	-41.5	-32.7	-22.8	-5.8	0.6	2.5	-9.0	-26.8	-35.0	-36.4	-42.9
1990	-41.6	-49.8	-37.2	-31.0	-18.9	-4.5	1.3	2.4	-3.6	-23.4	-33.3	-40.5	-49.8
1991	-41.7	-39.6	-42.4	-29.6	-23.8	-7.2	2.2	1.1	-4.4	-22.5	-31.9	-40.6	-42.4
1992	-40.9	-41.8	-37.5	-31.2	-19.1	-9.4	-1.9	1.4	-6.9	-23.0	-31.2	-37.0	-41.8
1993*	-41.7	-42.8	-37.0	-30.4	-21.9	-3.2	4.0	0.6	-6.6	-20.6	-32.6	-29.2	-42.8
1994	-41.8	-42.4	-37.5	-32.0	-15.4	-1.4	3.1	2.1	-3.2	-17.0	-31.8	-34.2	-42.4
1995	-39.7	-39.6	-43.0	-25.9	-21.4	-4.7	2.8	3.6	-4.7	-20.4	-30.2	-38.2	-43.0
1996	-44.8	-38.4	-38.3	-29.1	-20.7	-3.0	4.3	3.2	-5.5	-19.0	-30.0	-43.6	-44.8
1997	-42.7	-43.0	-41.7	-32.3	-19.9	-1.4	5.3	2.4	-5.8	-18.9	-29.0	-40.0	-43.0
1998	-42.4	-40.2	-39.5	-28.5	-15.6	-1.7	5.0	3.7	-0.9	-13.4	-26.6	-39.5	-42.4
1999	-40.0	-34.7	-41.0	-31.2	-16.7	-2.4	0.9	1.9	-3.2	-16.7	-29.2	-37.1	-41.0
2000	-40.3	-38.0	-39.7	-33.3	-14.6	-7.6	-0.3	1.2	-7.0	-21.4	-30.9	-39.1	-40.3
2001	-40.1	-40.9	-35.8	-26.4	-18.8	-2.2	0.3	0.8	-2.8	-20.6	-29.9	-35.8	-40.9
2002	-42.2	-42.0	-42.9	-31.9	-21.4	-9.3	2.3	2.6	-2.5	-19.1	-32.1	-36.4	-42.9
2003	-36.4	-47.2	-41.4	-35.0	-15.8	-3.9	0.7	3.1	-5.2	-15.0	-29.1	-38.8	-47.2
2004	-43.3	-41.4	-40.2	-31.2	-22.2	-3.5	2.6	0.1	-2.5	-20.4	-32.3	-41.1	-43.3
2005	-42.7	-41.2	-37.4	-25.2	-20.5	-2.6	1.1	3.3	-2.5	-12.0	-30.8	-33.2	-42.7
2006	-37.3	-36.4	-29.5	-27.2	-17.7	-2.6	3.7	4.7	-2.2	-8.9	-32.1	-31.5	-37.3
2007	-40.0	-37.8	-39.0	-31.2	-22.6	-6.9	1.5	4.7	-4.1	-16.0	-29.5	-36.1	-40.0
2008	-37.0	-41.4	-38.7	-33.9	-20.4	-2.8	1.7	2.5	-2.9	-20.5	-29.6	-38.7	-41.4
2009	-39.5	-41.2	-42.3	-26.1	-21.4	-2.3	2.6	2.8	-2.4				-42.3
Mean	**-41.1**	**-41.5**	**-39.2**	**-30.9**	**-19.8**	**-4.3**	**1.8**	**2.0**	**-4.3**	**-19.0**	**-31.2**	**-38.2**	**-42.9**
Minimum	**-46.1**	**-49.8**	**-43.4**	**-35.7**	**-23.8**	**-9.4**	**-1.9**	**-1.4**	**-9.0**	**-27.4**	**-36.5**	**-43.6**	**-49.8**
Maximum	**-34.1**	**-34.7**	**-29.5**	**-25.2**	**-14.6**	**-1.4**	**5.3**	**4.7**	**-0.6**	**-8.9**	**-26.6**	**-31.5**	**-37.3**
Std Dev	**2.6**	**3.1**	**3.1**	**3.0**	**2.7**	**2.4**	**1.6**	**1.5**	**2.1**	**4.2**	**2.5**	**3.0**	**2.3**

Note: blank= not available at the time of reporting.
* = the year of 1993 was not used in statistics. Monthly and annual data are based on incomplete daily data.

A1-2 2009 DAILY TEMPERATURES

Table A1-4: Rankin Inlet A: Mean Daily Temperature Data (°C), 2009

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-38.2	-33.9	-29.1	-11.4	-14.1	0.7	12.1	9.7	9.4			
2	-29.9	-35.6	-28.6	-11.5	-15.8	0.2	16.0	10.4	8.3			
3	-24.6	-34.7	-22.6	-13.3	-13.9	-0.1	13.3	14.1	8.7			
4	-23.7	-25.1	-17.9	-16.8	-13.4	2.0	11.1	14.0	9.4			
5	-17.1	-22.0	-16.4	-19.6	-16.8	1.0	8.9	13.9	6.6			
6	-16.5	-28.0	-28.9	-12.1	-16.7	1.1	9.1	13.3	5.2			
7	-14.2	-27.2	-31.5	-9.4	-13.7	3.4	8.7	11.2	10.5			
8	-20.5	-31.0	-22.9	-14.4	-12.3	3.6	6.8	12.1	7.2			
9	-21.5	-27.5	-30.2	-20.3	-11.0	4.9	9.2	10.1	9.2			
10	-27.9	-21.6	-36.5	-19.7	-10.9	7.1	7.4	10.1	6.2			
11	-30.5	-22.1	-38.8	-12.7	-12.7	2.5	8.2	9.4	3.3			
12	-31.8	-24.0	-39.0	-13.4	-14.7	3.5	11.1	9.1	6.1			
13	-33.6	-26.7	-37.1	-15.7	-12.4	2.6	9.4	9.8	6.9			
14	-32.4	-31.0	-33.3	-14.0	-12.1	4.3	7.6	8.3	5.2			
15	-32.8	-30.0	-32.6	-12.9	-9.8	6.1	8.7	10.6	6.1			
16	-25.1	-25.2	-27.5	-7.5	-8.8	4.7	8.6	11.7	7.0			
17	-21.5	-28.7	-24.4	-7.9	-11.8	5.3	7.5	9.4	5.4			
18	-22.9	-27.0	-28.4	-6.2	-12.9	7.3	7.3	8.5	6.4			
19	-13.1	-22.4	-26.9	-3.9	-11.2	3.9	6.3	9.5	11.4			
20	-17.9	-23.8	-26.9	-6.0	-6.8	0.4	9.0	8.9	7.4			
21	-27.5	-25.5	-26.3	-13.8	-6.6	6.0	9.3	10.7	2.3			
22	-30.4	-31.6	-20.5	-18.2	-3.7	8.9	8.1	6.9	2.1			
23	-32.3	-37.1	-21.3	-20.6	-3.7	6.8	8.3	6.1	1.3			
24	-34.8	-39.6	-25.3	-18.5	-4.8	5.5	9.4	8.1	3.0			
25	-30.1	-39.5	-25.2	-17.2	-5.9	5.8	9.7	7.4	5.5			
26	-28.6	-36.7	-28.0	-20.6	-4.5	3.5	11.2	8.3	3.7			
27	-26.0	-35.2	-19.6	-18.0	-6.9	6.3	12.7	10.5	1.1			
28	-29.7	-30.9	-15.9	-16.4	-5.3	9.1	15.6	12.0	-1.2			
29	-30.5		-16.5	-6.2	-3.9	12.1	14.8	12.6	0.1			
30	-28.7		-20.1	-11.1	-1.0	9.2	11.1	9.7	2.5			
31	-29.3		-20.2		-1.3		10.5	10.7				
Mean	**-26.6**	**-29.4**	**-26.4**	**-13.6**	**-9.7**	**4.6**	**9.9**	**10.2**	**5.5**			
Maximum	**-13.1**	**-21.6**	**-15.9**	**-3.9**	**-1.0**	**12.1**	**16.0**	**14.1**	**11.4**			
Minimum	**-38.2**	**-39.6**	**-39.0**	**-20.6**	**-16.8**	**-0.1**	**6.3**	**6.1**	**-1.2**			
Std. Dev	**6.3**	**5.5**	**6.5**	**4.9**	**4.6**	**3.0**	**2.5**	**2.0**	**3.2**			

Note: blank= not recorded or not available at the time of reporting.

Table A1-5: Rankin Inlet A: Maximum Daily Temperature Data (°C), 2009

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-36.8	-31.9	-25.6	-5.4	-11.8	2.7	20.4	11.7	12.6			
2	-20.6	-34.2	-22.4	-7.6	-12.0	1.6	22.7	12.7	10.3			
3	-21.9	-31.7	-19.9	-9.3	-8.2	1.5	19.2	19.0	10.5			
4	-20.1	-17.0	-13.9	-10.8	-9.4	3.7	18.5	18.6	11.4			
5	-13.9	-15.6	-7.9	-13.4	-13.1	3.7	14.9	17.5	9.7			
6	-11.3	-22.2	-24.9	-8.4	-11.9	4.4	14.8	17.3	8.1			
7	-10.6	-23.1	-26.9	-7.9	-8.2	8.6	13.8	13.9	16.2			
8	-17.4	-29.5	-16.6	-9.3	-6.9	9.3	10.9	15.4	8.1			
9	-18.2	-21.1	-23.9	-16.2	-7.8	9.1	14.9	13.1	11.8			
10	-24.5	-18.6	-33.4	-13.6	-5.0	13.3	8.6	13.5	10.0			
11	-28.2	-18.1	-35.2	-7.1	-9.0	5.1	9.4	11.3	6.2			
12	-30.7	-22.0	-36.4	-9.5	-11.7	6.9	15.2	11.3	8.4			
13	-32.5	-21.6	-33.4	-12.8	-10.8	4.1	12.7	12.8	9.3			
14	-30.6	-28.5	-30.4	-11.5	-9.7	8.7	10.4	11.6	5.9			
15	-30.7	-25.9	-28.5	-8.6	-6.9	11.3	12.9	16.1	7.6			
16	-16.2	-22.3	-20.1	-6.3	-4.2	9.5	12.4	14.2	10.0			
17	-15.7	-25.5	-20.5	-7.4	-7.9	10.3	10.6	13.0	8.5			
18	-17.4	-23.0	-25.5	-4.1	-10.0	13.1	9.8	11.3	9.0			
19	-8.7	-20.1	-24.0	-2.4	-6.3	8.7	8.9	12.0	16.3			
20	-10.1	-22.1	-22.8	-3.4	-2.4	1.5	12.0	10.2	11.3			
21	-25.5	-22.8	-23.2	-8.6	-3.5	10.8	12.6	13.6	3.6			
22	-29.4	-28.0	-12.4	-13.8	-0.9	15.9	10.2	9.2	3.3			
23	-28.0	-34.8	-16.8	-15.9	-2.1	10.4	10.6	8.8	3.7			
24	-32.4	-37.9	-22.3	-14.2	-1.0	8.4	11.9	13.3	6.3			
25	-26.7	-37.7	-19.6	-12.7	-2.6	10.9	12.4	11.5	8.8			
26	-25.5	-33.2	-23.7	-15.0	-2.5	6.3	15.7	12.8	6.0			
27	-23.1	-33.0	-12.0	-13.3	-4.8	12.1	16.8	16.2	3.1			
28	-27.1	-27.8	-12.7	-9.5	-2.6	14.4	20.6	18.1	0.1			
29	-28.2		-12.9	-0.8	-2.4	19.8	17.8	18.1	2.1			
30	-25.5		-15.0	-8.8	1.5	14.7	12.5	11.3	3.9			
31	-24.9		-12.7		-0.1		13.0	13.4				
Mean	**-23.0**	**-26.0**	**-21.8**	**-9.6**	**-6.3**	**8.7**	**13.8**	**13.6**	**8.1**			
Maximum	**-8.7**	**-15.6**	**-7.9**	**-0.8**	**1.5**	**19.8**	**22.7**	**19.0**	**16.3**			
Minimum	**-36.8**	**-37.9**	**-36.4**	**-16.2**	**-13.1**	**1.5**	**8.6**	**8.8**	**0.1**			
Std. Dev	**7.5**	**6.4**	**7.4**	**4.0**	**4.1**	**4.6**	**3.7**	**2.8**	**3.9**			

Note: blank= not recorded or not available at the time of reporting.

Table A1-6: Rankin Inlet A: Minimum Daily Temperature Data (°C), 2009

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-39.5	-35.9	-32.5	-17.4	-16.4	-1.4	3.7	7.7	6.1			
2	-39.1	-37.0	-34.7	-15.3	-19.6	-1.2	9.2	8.0	6.2			
3	-27.2	-37.6	-25.2	-17.3	-19.6	-1.6	7.3	9.1	6.8			
4	-27.2	-33.1	-21.9	-22.8	-17.3	0.2	3.7	9.3	7.3			
5	-20.2	-28.4	-24.9	-25.7	-20.4	-1.8	2.8	10.3	3.5			
6	-21.7	-33.8	-32.9	-15.8	-21.4	-2.3	3.4	9.3	2.2			
7	-17.7	-31.3	-36.0	-10.8	-19.2	-1.8	3.5	8.4	4.7			
8	-23.5	-32.4	-29.2	-19.5	-17.7	-2.1	2.6	8.8	6.2			
9	-24.7	-33.9	-36.4	-24.3	-14.1	0.7	3.4	7.0	6.6			
10	-31.2	-24.5	-39.5	-25.8	-16.7	0.8	6.2	6.6	2.4			
11	-32.7	-26.0	-42.3	-18.3	-16.4	-0.2	7.0	7.4	0.3			
12	-32.9	-25.9	-41.5	-17.2	-17.7	0.1	7.0	6.9	3.8			
13	-34.6	-31.8	-40.7	-18.5	-13.9	1.1	6.0	6.8	4.5			
14	-34.2	-33.5	-36.1	-16.4	-14.4	-0.2	4.8	5.0	4.4			
15	-34.9	-34.1	-36.6	-17.1	-12.6	0.8	4.5	5.0	4.5			
16	-33.9	-28.1	-34.8	-8.7	-13.4	-0.2	4.7	9.2	3.9			
17	-27.2	-31.9	-28.3	-8.3	-15.6	0.3	4.3	5.7	2.2			
18	-28.4	-30.9	-31.2	-8.3	-15.8	1.5	4.7	5.6	3.7			
19	-17.5	-24.6	-29.8	-5.4	-16.1	-0.9	3.7	6.9	6.5			
20	-25.6	-25.5	-30.9	-8.6	-11.1	-0.7	6.0	7.6	3.5			
21	-29.4	-28.1	-29.4	-19.0	-9.6	1.1	5.9	7.8	0.9			
22	-31.4	-35.1	-28.5	-22.5	-6.4	1.8	5.9	4.6	0.8			
23	-36.6	-39.3	-25.7	-25.3	-5.2	3.1	5.9	3.4	-1.2			
24	-37.2	-41.2	-28.2	-22.8	-8.5	2.5	6.9	2.8	-0.4			
25	-33.4	-41.2	-30.7	-21.7	-9.2	0.7	7.0	3.2	2.2			
26	-31.6	-40.1	-32.2	-26.1	-6.4	0.7	6.6	3.7	1.4			
27	-28.9	-37.3	-27.2	-22.7	-9.0	0.5	8.6	4.8	-0.9			
28	-32.2	-34.0	-19.1	-23.3	-7.9	3.8	10.5	5.9	-2.4			
29	-32.7		-20.0	-11.6	-5.4	4.3	11.8	7.0	-2.0			
30	-31.8		-25.1	-13.4	-3.4	3.7	9.6	8.1	1.1			
31	-33.7		-27.7		-2.5		8.0	7.9				
Mean	**-30.1**	**-32.7**	**-30.9**	**-17.7**	**-13.0**	**0.4**	**6.0**	**6.8**	**3.0**			
Maximum	**-17.5**	**-24.5**	**-19.1**	**-5.4**	**-2.5**	**4.3**	**11.8**	**10.3**	**7.3**			
Minimum	**-39.5**	**-41.2**	**-42.3**	**-26.1**	**-21.4**	**-2.3**	**2.6**	**2.8**	**-2.4**			
Std. Dev	**5.8**	**5.0**	**6.0**	**6.1**	**5.4**	**1.8**	**2.3**	**2.0**	**2.8**			

Note: blank= not recorded or not available at the time of reporting.

A1-3 MONTHLY PRECIPITATION

A1-3.1 Calendar Year

Table A1-7: Rankin Inlet A: Monthly & Annual Rainfall Data (mm), 1981 to 2009

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1981	0.0	0.0	0.0	0.0	16.2	31.0	57.8	31.0	40.4	22.6	0.0	0.0	199.0
1982	0.0	0.0	0.0	0.0	4.9	10.7	65.7	30.7	17.9	41.1	0.0	0.0	171.0
1983	0.0	0.0	0.0	0.0	0.0	100.9	33.1	39.0	41.5	19.2	0.2	0.0	233.9
1984	0.0	0.0	0.0	3.6	0.2	35.7	12.0	95.9	24.7	2.8	0.0	0.0	174.9
1985	0.0	0.0	0.0	0.0	0.0	13.1	30.8	123.3	71.3	17.2	0.0	0.0	255.7
1986	0.0	0.0	0.0	0.2	19.3	23.6	10.4	85.1	30.0	0.2	0.0	0.0	168.8
1987	0.0	0.0	0.0	3.9	1.2	30.1	27.8	74.2	24.0	0.2	0.0	0.0	161.4
1988	0.0	0.0	0.0	0.0	0.0	14.6	22.6	32.2	29.6	10.7	0.6	0.0	110.3
1989	0.0	0.0	0.0	0.0	0.0	14.0	48.6	23.1	39.3	8.4	0.0	0.0	133.4
1990	0.0	0.0	0.0	0.0	7.9	29.7	118.6	62.9	32.7	1.6	0.0	0.0	253.4
1991	0.0	0.0	0.0	0.0	13.0	8.5	47.9	36.4	102.0	20.6	0.0	0.2	228.6
1992	0.0	0.0	0.0	0.0	4.0	11.4	3.6	75.8	45.0	0.0	0.0	0.0	139.8
1993*	0.0	0.0	0.0	0.0	11.8	1.4	48.8	56.6	19.4	0.0	0.0	0.0	138.0
1994	0.0	0.0	0.0	0.0	0.0	20.8	4.0	39.0	50.8	5.4	0.0	0.0	120.0
1995	0.0	0.0	0.0	0.2	0.0	10.2	69.8	75.2	17.0	25.4	0.0	0.0	197.8
1996	0.0	0.0	0.0	0.0	0.0	37.6	10.4	50.2	60.0	1.0	0.0	0.0	159.2
1997	0.0	0.0	0.0	0.6	4.0	47.6	17.8	11.8	13.0	45.1	0.0	0.0	139.9
1998	0.0	1.0	0.0	0.2	32.4	9.2	49.8	49.4	43.4	3.2	1.2	0.0	189.8
1999	0.0	0.0	0.0	3.4	29.2	50.4	41.6	69.8	60.8	13.2	0.0	0.0	268.4
2000	0.0	0.0	0.0	7.2	2.7	0.2	29.4	73.2	20.4	0.2	0.0	0.0	133.3
2001	0.0	0.0	0.0	0.2	5.6	26.4	58.2	82.8	34.2	22.6	0.4	0.0	230.4
2002	0.0	0.0	0.0	0.0	0.0	14.6	44.4	63.6	45.6	5.8	0.0	0.2	174.2
2003	0.0	0.0	0.0	0.0	22.4	25.8	40.8	37.0	8.8	21.8	1.8	0.0	158.4
2004	0.0	0.0	0.0	0.0	0.0	5.0	12.8	45.6	86.0	7.4	0.0	0.0	156.8
2005	0.0	0.0	0.0	7.0	19.6	28.2	32.0	22.4	40.8	13.0	0.0	0.0	163.0
2006	0.0	0.0	0.8	6.2	4.4	26.4	44.2	50.4	30.8	54.6	4.8	0.0	222.6
2007	0.0	0.0	0.0	1.0	0.8	16.0	25.3	80.5	22.3	16.0	0.0	0.0	161.9
2008	0.0	0.0	0.0	0.2	2.0	3.7	26.8	74.0	41.1	5.6	0.4	0.0	153.8
2009	0.0	0.0	0.0	0.0	0.0	8.6	97.0	43.4	47.4				196.4
Mean	**0.0**	**0.0**	**0.0**	**1.2**	**6.8**	**23.4**	**38.7**	**56.4**	**40.0**	**14.3**	**0.3**	**0.0**	**180.6**
Minimum	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.2**	**3.6**	**11.8**	**8.8**	**0.0**	**0.0**	**0.0**	**110.3**
Maximum	**0.0**	**1.0**	**0.8**	**7.2**	**32.4**	**100.9**	**118.6**	**123.3**	**102.0**	**54.6**	**4.8**	**0.2**	**268.4**
Std Dev	**0.0**	**0.2**	**0.2**	**2.3**	**9.6**	**19.9**	**26.8**	**25.8**	**21.3**	**14.4**	**1.0**	**0.1**	**42.6**

Note: blank= not available at the time of reporting.
* = the year of 1993 was not used in statistics. Monthly and annual data are based on incomplete daily data.

Table A1-8: Rankin Inlet A: Monthly & Annual Snowfall Data (cm), 1981 to 2009

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1981	9.1	21.1	10.5	12.1	8.7	1.6	0.0	0.0	0.0	18.4	26.1	2.6	110.2
1982	0.7	3.2	12.2	17.5	17.6	5.0	0.2	0.2	15.5	22.4	7.6	6.6	108.7
1983	9.8	3.1	18.9	3.1	28.5	0.4	0.0	0.0	1.6	20.4	5.2	6.2	97.2
1984	7.5	19.6	7.1	17.2	0.6	1.6	0.0	0.0	1.5	22.0	19.8	5.6	102.5
1985	4.2	10.4	17.7	24.8	6.8	1.4	0.0	4.8	10.2	52.0	71.2	6.0	209.5
1986	12.0	0.2	11.6	3.3	5.8	15.2	0.0	0.0	8.8	28.6	7.6	10.4	103.5
1987	9.8	5.4	30.2	38.1	5.2	34.4	0.0	0.0	3.6	13.1	31.6	18.0	189.4
1988	1.2	1.0	11.0	9.2	27.7	4.0	0.0	0.0	0.2	22.2	23.0	17.9	117.4
1989	6.5	1.6	4.6	3.4	24.0	0.0	0.0	0.0	11.2	10.4	4.8	2.0	68.5
1990	6.8	15.1	21.7	10.3	1.8	23.5	0.0	0.0	3.2	22.7	47.5	10.0	162.6
1991	4.5	2.8	25.0	34.6	18.8	0.0	0.0	0.0	12.0	37.7	16.2	14.2	165.8
1992	14.8	7.0	2.6	9.8	13.0	2.8	0.0	0.0	9.8	16.6	26.2	2.0	104.6
1993*	0.4	5.6	2.0	8.2	19.2	5.4	0.0	0.0	3.8	11.4	6.2	8.6	70.8
1994	1.6	0.4	6.8	26.0	6.0	0.8	0.0	0.0	0.0	18.6	30.4	20.5	111.1
1995	6.2	1.8	2.8	15.0	10.4	0.0	0.0	0.0	2.4	12.4	13.6	9.0	73.6
1996	6.2	42.4	10.0	1.8	0.8	1.0	0.0	0.0	1.0	22.2	10.8	12.6	108.8
1997	3.4	8.0	4.6	10.6	4.0	0.0	0.0	0.0	0.0	41.0	7.6	20.4	99.6
1998	4.6	12.8	5.8	9.4	5.2	0.0	0.0	0.0	1.2	25.0	24.8	13.8	102.6
1999	10.2	10.6	15.6	7.2	18.8	0.4	0.0	0.0	0.8	14.0	23.2	19.8	120.6
2000	2.8	12.6	34.8	7.2	5.2	1.2	0.0	0.0	1.8	22.4	8.2	11.8	108.0
2001	10.0	8.8	8.6	4.8	29.6	0.4	2.4	0.0	0.0	39.4	23.0	18.8	145.8
2002	7.6	7.4	2.4	26.7	11.6	2.4	0.0	0.0	2.4	31.7	11.0	11.8	115.0
2003	13.8	0.6	14.8	5.4	4.4	13.4	0.0	0.0	6.4	31.8	31.0	25.2	146.8
2004	4.2	7.2	18.0	5.8	12.0	5.6	0.0	0.0	4.2	73.4	39.0	11.0	180.4
2005	15.6	10.4	20.6	94.8	35.4	0.0	0.0	0.0	4.2	10.8	41.4	25.0	258.2
2006	33.4	5.0	9.2	27.8	22.2	0.0	0.0	0.0	0.0	15.6	16.6	22.8	152.6
2007	1.0	12.2	7.2	55.2	18.0	2.8	0.0	0.0	4.6	15.7	12.6	11.7	141.0
2008	21.2	2.6	8.3	38.7	7.6	14.4	0.0	0.0	0.0	22.8	20.6	4.2	140.4
2009	10.8	10.0	5.6	19.0	8.9	0.6	0.0	0.0	0.2				61.1
Mean	**8.6**	**8.7**	**12.4**	**19.2**	**12.8**	**4.7**	**0.1**	**0.2**	**3.8**	**25.3**	**22.2**	**12.6**	**128.8**
Minimum	**0.7**	**0.2**	**2.4**	**1.8**	**0.6**	**0.0**	**0.0**	**0.0**	**0.0**	**10.4**	**4.8**	**2.0**	**61.1**
Maximum	**33.4**	**42.4**	**34.8**	**94.8**	**35.4**	**34.4**	**2.4**	**4.8**	**15.5**	**73.4**	**71.2**	**25.2**	**258.2**
Std Dev	**6.9**	**8.7**	**8.4**	**19.8**	**9.7**	**8.2**	**0.5**	**0.9**	**4.4**	**13.9**	**15.1**	**7.0**	**43.7**

Note: blank= not available at the time of reporting.
* = the year of 1993 was not used in statistics. Monthly data are based on incomplete daily data.

Table A1-9: Rankin Inlet A: Monthly & Annual Precipitation Data (mm), 1981 to 2009

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1981	9.1	20.3	10.5	11.5	24.9	32.6	57.8	31.0	40.4	41.0	25.2	2.6	306.9
1982	0.7	3.2	11.7	17.5	22.3	15.7	65.9	30.9	33.4	63.5	7.6	4.9	277.3
1983	8.9	2.5	18.9	2.5	26.1	101.3	33.1	39.0	43.1	38.6	4.9	4.5	323.4
1984	6.9	13.3	6.5	20.2	0.8	36.9	12.0	95.9	26.0	22.5	15.8	5.4	262.2
1985	4.0	9.6	17.5	23.6	6.4	14.5	30.8	128.1	81.5	61.4	66.2	5.6	449.2
1986	11.8	0.2	11.4	3.3	24.9	37.8	10.4	85.1	38.6	28.6	7.6	10.4	270.1
1987	9.8	5.4	30.2	42.0	6.4	64.5	27.8	74.2	27.6	15.9	31.6	17.1	352.5
1988	1.2	1.0	10.6	9.0	25.9	18.6	22.6	32.2	29.8	31.5	22.1	16.9	221.4
1989	6.7	1.6	4.4	3.2	20.8	14.0	48.6	23.1	50.5	18.4	4.8	2.0	198.1
1990	6.8	14.1	20.7	9.6	9.7	50.8	118.6	62.9	35.9	23.6	37.4	9.8	399.9
1991	3.9	2.8	24.1	33.4	30.1	8.5	47.9	36.4	114.0	57.3	16.2	13.2	387.8
1992	14.8	6.8	2.6	9.8	17.0	14.2	3.6	75.8	54.8	16.6	26.1	2.0	244.1
1993*	0.4	5.6	2.0	8.2	31.0	6.8	48.8	56.6	23.2	11.4	6.2	8.6	208.8
1994	1.6	0.4	6.8	26.0	6.0	21.6	4.0	39.0	50.8	24.0	30.8	20.5	231.5
1995	6.2	1.8	2.8	15.2	10.4	10.2	69.8	75.2	19.4	37.8	13.4	9.0	271.2
1996	6.2	42.4	10.0	1.8	0.6	38.6	10.4	50.2	61.0	23.0	10.4	10.6	265.2
1997	3.2	7.6	3.6	11.1	7.8	47.6	17.8	11.8	13.0	92.7	5.8	18.6	240.6
1998	4.6	13.8	4.6	9.6	37.6	9.2	49.8	49.4	44.6	28.2	25.6	12.8	289.8
1999	10.2	10.6	15.6	10.6	48.0	50.8	41.6	69.8	61.6	26.2	23.2	19.8	388.0
2000	2.8	12.6	34.8	14.4	7.9	1.4	29.4	73.2	22.2	22.6	7.8	12.6	241.7
2001	10.0	8.8	8.6	5.0	35.6	26.8	61.2	82.8	34.2	58.0	23.4	17.4	371.8
2002	7.0	7.4	2.0	26.7	11.6	17.0	44.4	63.6	48.0	37.1	11.0	12.0	287.8
2003	13.8	0.6	14.8	4.4	26.8	39.2	40.8	37.0	15.2	53.6	32.2	25.2	303.6
2004	4.2	7.2	18.0	5.8	12.0	10.6	12.8	45.6	90.2	80.8	39.0	11.0	337.2
2005	15.6	10.4	20.6	101.8	55.0	28.2	32.0	22.4	45.0	23.8	40.2	22.4	417.4
2006	32.6	5.0	10.0	34.0	26.6	26.4	44.2	50.4	30.8	70.2	20.6	22.8	373.6
2007	1.0	12.2	7.2	50.0	17.6	18.8	25.3	80.5	26.9	30.7	12.2	11.7	294.1
2008	21.2	2.6	8.3	38.9	9.6	18.1	26.8	74.0	41.1	28.4	21.0	4.2	294.2
2009	10.8	10.0	5.6	19.0	6.2	9.2	97.0	43.4	47.6	5.6			254.4
Mean	**8.4**	**8.4**	**12.2**	**20.0**	**19.1**	**28.0**	**38.8**	**56.5**	**43.8**	**37.9**	**21.6**	**12.0**	**305.5**
Minimum	**0.7**	**0.2**	**2.0**	**1.8**	**0.6**	**1.4**	**3.6**	**11.8**	**13.0**	**5.6**	**4.8**	**2.0**	**198.1**
Maximum	**32.6**	**42.4**	**34.8**	**101.8**	**55.0**	**101.3**	**118.6**	**128.1**	**114.0**	**92.7**	**66.2**	**25.2**	**449.2**
Std Dev	**6.8**	**8.4**	**8.4**	**20.6**	**13.8**	**21.2**	**26.9**	**26.3**	**22.6**	**21.3**	**14.0**	**6.8**	**65.1**

Note: blank= not available at the time of reporting.
* = the year of 1993 was not used in statistics. Monthly and annual data are based on incomplete daily data.

A1-3.2 Hydrological Year

Table A1-10: Rankin Inlet A: Monthly & Annual Rainfall Data (mm), 1981 to 2009

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual
1982	22.6	0.0	0.0	0.0	0.0	0.0	0.0	4.9	10.7	65.7	30.7	17.9	152.5
1983	41.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.9	33.1	39.0	41.5	255.6
1984	19.2	0.2	0.0	0.0	0.0	0.0	3.6	0.2	35.7	12.0	95.9	24.7	191.5
1985	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.1	30.8	123.3	71.3	241.3
1986	17.2	0.0	0.0	0.0	0.0	0.0	0.2	19.3	23.6	10.4	85.1	30.0	185.8
1987	0.2	0.0	0.0	0.0	0.0	0.0	3.9	1.2	30.1	27.8	74.2	24.0	161.4
1988	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.6	22.6	32.2	29.6	99.2
1989	10.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	14.0	48.6	23.1	39.3	136.3
1990	8.4	0.0	0.0	0.0	0.0	0.0	0.0	7.9	29.7	118.6	62.9	32.7	260.2
1991	1.6	0.0	0.0	0.0	0.0	0.0	0.0	13.0	8.5	47.9	36.4	102.0	209.4
1992	20.6	0.0	0.2	0.0	0.0	0.0	0.0	4.0	11.4	3.6	75.8	45.0	160.6
1993*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.8	1.4	48.8	56.6	19.4	138.0
1994*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.8	4.0	39.0	50.8	114.6
1995	5.4	0.0	0.0	0.0	0.0	0.0	0.2	0.0	10.2	69.8	75.2	17.0	177.8
1996	25.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37.6	10.4	50.2	60.0	183.6
1997	1.0	0.0	0.0	0.0	0.0	0.0	0.6	4.0	47.6	17.8	11.8	13.0	95.8
1998	45.1	0.0	0.0	0.0	1.0	0.0	0.2	32.4	9.2	49.8	49.4	43.4	230.5
1999	3.2	1.2	0.0	0.0	0.0	0.0	3.4	29.2	50.4	41.6	69.8	60.8	259.6
2000	13.2	0.0	0.0	0.0	0.0	0.0	7.2	2.7	0.2	29.4	73.2	20.4	146.3
2001	0.2	0.0	0.0	0.0	0.0	0.0	0.2	5.6	26.4	58.2	82.8	34.2	207.6
2002	22.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	14.6	44.4	63.6	45.6	191.2
2003	5.8	0.0	0.2	0.0	0.0	0.0	0.0	22.4	25.8	40.8	37.0	8.8	140.8
2004	21.8	1.8	0.0	0.0	0.0	0.0	0.0	0.0	5.0	12.8	45.6	86.0	173.0
2005	7.4	0.0	0.0	0.0	0.0	0.0	7.0	19.6	28.2	32.0	22.4	40.8	157.4
2006	13.0	0.0	0.0	0.0	0.0	0.8	6.2	4.4	26.4	44.2	50.4	30.8	176.2
2007	54.6	4.8	0.0	0.0	0.0	0.0	1.0	0.8	16.0	25.3	80.5	22.3	205.3
2008	16.0	0.0	0.0	0.0	0.0	0.0	0.2	2.0	3.7	26.8	74.0	41.1	163.8
2009	5.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	8.6	97.0	43.4	47.4	202.4
Mean	**14.8**	**0.4**	**0.0**	**0.0**	**0.0**	**0.0**	**1.3**	**6.7**	**23.2**	**39.3**	**58.0**	**39.6**	**183.3**
Min	**0.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.2**	**3.6**	**11.8**	**8.8**	**95.8**
Max	**54.6**	**4.8**	**0.2**	**0.0**	**1.0**	**0.8**	**7.2**	**32.4**	**100.9**	**118.6**	**123.3**	**102.0**	**260.2**
Std Dev	**14.4**	**1.0**	**0.1**	**0.0**	**0.2**	**0.2**	**2.3**	**9.7**	**20.6**	**26.7**	**26.1**	**22.1**	**43.9**

Note: * = the year of 1993 and 1994 were not used in statistics. Monthly and annual data are based on incomplete daily data.

Table A1-11: Rankin Inlet A: Monthly & Annual Snowfall Data (cm), 1981 to 2009

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual
1982	18.4	26.1	2.6	0.7	3.2	12.2	17.5	17.6	5.0	0.2	0.2	15.5	119.2
1983	22.4	7.6	6.6	9.8	3.1	18.9	3.1	28.5	0.4	0.0	0.0	1.6	102.0
1984	20.4	5.2	6.2	7.5	19.6	7.1	17.2	0.6	1.6	0.0	0.0	1.5	86.9
1985	22.0	19.8	5.6	4.2	10.4	17.7	24.8	6.8	1.4	0.0	4.8	10.2	127.7
1986	52.0	71.2	6.0	12.0	0.2	11.6	3.3	5.8	15.2	0.0	0.0	8.8	186.1
1987	28.6	7.6	10.4	9.8	5.4	30.2	38.1	5.2	34.4	0.0	0.0	3.6	173.3
1988	13.1	31.6	18.0	1.2	1.0	11.0	9.2	27.7	4.0	0.0	0.0	0.2	117.0
1989	22.2	23.0	17.9	6.5	1.6	4.6	3.4	24.0	0.0	0.0	0.0	11.2	114.4
1990	10.4	4.8	2.0	6.8	15.1	21.7	10.3	1.8	23.5	0.0	0.0	3.2	99.6
1991	22.7	47.5	10.0	4.5	2.8	25.0	34.6	18.8	0.0	0.0	0.0	12.0	177.9
1992	37.7	16.2	14.2	14.8	7.0	2.6	9.8	13.0	2.8	0.0	0.0	9.8	127.9
1993*	16.6	26.2	2.0	0.4	5.6	2.0	8.2	19.2	5.4	0.0	0.0	3.8	89.4
1994*	11.4	6.2	8.6	1.6	0.4	6.8	26.0	6.0	0.8	0.0	0.0	0.0	67.8
1995	18.6	30.4	20.5	6.2	1.8	2.8	15.0	10.4	0.0	0.0	0.0	2.4	108.1
1996	12.4	13.6	9.0	6.2	42.4	10.0	1.8	0.8	1.0	0.0	0.0	1.0	98.2
1997	22.2	10.8	12.6	3.4	8.0	4.6	10.6	4.0	0.0	0.0	0.0	0.0	76.2
1998	41.0	7.6	20.4	4.6	12.8	5.8	9.4	5.2	0.0	0.0	0.0	1.2	108.0
1999	25.0	24.8	13.8	10.2	10.6	15.6	7.2	18.8	0.4	0.0	0.0	0.8	127.2
2000	14.0	23.2	19.8	2.8	12.6	34.8	7.2	5.2	1.2	0.0	0.0	1.8	122.6
2001	22.4	8.2	11.8	10.0	8.8	8.6	4.8	29.6	0.4	2.4	0.0	0.0	107.0
2002	39.4	23.0	18.8	7.6	7.4	2.4	26.7	11.6	2.4	0.0	0.0	2.4	141.7
2003	31.7	11.0	11.8	13.8	0.6	14.8	5.4	4.4	13.4	0.0	0.0	6.4	113.3
2004	31.8	31.0	25.2	4.2	7.2	18.0	5.8	12.0	5.6	0.0	0.0	4.2	145.0
2005	73.4	39.0	11.0	15.6	10.4	20.6	94.8	35.4	0.0	0.0	0.0	4.2	304.4
2006	10.8	41.4	25.0	33.4	5.0	9.2	27.8	22.2	0.0	0.0	0.0	0.0	174.8
2007	15.6	16.6	22.8	1.0	12.2	7.2	55.2	18.0	2.8	0.0	0.0	4.6	156.0
2008	15.7	12.6	11.7	21.2	2.6	8.3	38.7	7.6	14.4	0.0	0.0	0.0	132.8
2009	22.8	20.6	4.2	10.8	10.0	5.6	19.0	8.9	0.6	0.0	0.0	0.2	102.7
Mean	**25.6**	**22.1**	**13.0**	**8.8**	**8.5**	**12.7**	**19.3**	**13.2**	**5.0**	**0.1**	**0.2**	**4.1**	**132.7**
Min	**10.4**	**4.8**	**2.0**	**0.7**	**0.2**	**2.4**	**1.8**	**0.6**	**0.0**	**0.0**	**0.0**	**0.0**	**76.2**
Max	**73.4**	**71.2**	**25.2**	**33.4**	**42.4**	**34.8**	**94.8**	**35.4**	**34.4**	**2.4**	**4.8**	**15.5**	**304.4**
Std Dev	**14.1**	**15.3**	**6.8**	**7.0**	**8.5**	**8.6**	**20.5**	**9.9**	**8.5**	**0.5**	**0.9**	**4.4**	**45.2**

Note: * = the year of 1993 and 1994 were not used in statistics. Monthly and annual data are based on incomplete daily data.

Table A1-12: Rankin Inlet A: Monthly & Annual Precipitation Data (mm), 1981 to 2009

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual
1982	41.0	25.2	2.6	0.7	3.2	11.7	17.5	22.3	15.7	65.9	30.9	33.4	22.5
1983	63.5	7.6	4.9	8.9	2.5	18.9	2.5	26.1	101.3	33.1	39.0	43.1	29.3
1984	38.6	4.9	4.5	6.9	13.3	6.5	20.2	0.8	36.9	12.0	95.9	26.0	22.2
1985	22.5	15.8	5.4	4.0	9.6	17.5	23.6	6.4	14.5	30.8	128.1	81.5	30.0
1986	61.4	66.2	5.6	11.8	0.2	11.4	3.3	24.9	37.8	10.4	85.1	38.6	29.7
1987	28.6	7.6	10.4	9.8	5.4	30.2	42.0	6.4	64.5	27.8	74.2	27.6	27.9
1988	15.9	31.6	17.1	1.2	1.0	10.6	9.0	25.9	18.6	22.6	32.2	29.8	18.0
1989	31.5	22.1	16.9	6.7	1.6	4.4	3.2	20.8	14.0	48.6	23.1	50.5	20.3
1990	18.4	4.8	2.0	6.8	14.1	20.7	9.6	9.7	50.8	118.6	62.9	35.9	29.5
1991	23.6	37.4	9.8	3.9	2.8	24.1	33.4	30.1	8.5	47.9	36.4	114.0	31.0
1992	57.3	16.2	13.2	14.8	6.8	2.6	9.8	17.0	14.2	3.6	75.8	54.8	23.8
1993*	16.6	26.1	2.0	0.4	5.6	2.0	8.2	31.0	6.8	48.8	56.6	23.2	18.9
1994*	11.4	6.2	8.6	1.6	0.4	6.8	26.0	6.0	21.6	4.0	39.0	50.8	15.2
1995	24.0	30.8	20.5	6.2	1.8	2.8	15.2	10.4	10.2	69.8	75.2	19.4	23.9
1996	37.8	13.4	9.0	6.2	42.4	10.0	1.8	0.6	38.6	10.4	50.2	61.0	23.5
1997	23.0	10.4	10.6	3.2	7.6	3.6	11.1	7.8	47.6	17.8	11.8	13.0	14.0
1998	92.7	5.8	18.6	4.6	13.8	4.6	9.6	37.6	9.2	49.8	49.4	44.6	28.4
1999	28.2	25.6	12.8	10.2	10.6	15.6	10.6	48.0	50.8	41.6	69.8	61.6	32.1
2000	26.2	23.2	19.8	2.8	12.6	34.8	14.4	7.9	1.4	29.4	73.2	22.2	22.3
2001	22.6	7.8	12.6	10.0	8.8	8.6	5.0	35.6	26.8	61.2	82.8	34.2	26.3
2002	58.0	23.4	17.4	7.0	7.4	2.0	26.7	11.6	17.0	44.4	63.6	48.0	27.2
2003	37.1	11.0	12.0	13.8	0.6	14.8	4.4	26.8	39.2	40.8	37.0	15.2	21.1
2004	53.6	32.2	25.2	4.2	7.2	18.0	5.8	12.0	10.6	12.8	45.6	90.2	26.5
2005	80.8	39.0	11.0	15.6	10.4	20.6	101.8	55.0	28.2	32.0	22.4	45.0	38.5
2006	23.8	40.2	22.4	32.6	5.0	10.0	34.0	26.6	26.4	44.2	50.4	30.8	28.9
2007	70.2	20.6	22.8	1.0	12.2	7.2	50.0	17.6	18.8	25.3	80.5	26.9	29.4
2008	30.7	12.2	11.7	21.2	2.6	8.3	38.9	9.6	18.1	26.8	74.0	41.1	24.6
2009	28.4	21.0	4.2	10.8	10.0	5.6	19.0	6.2	9.2	97.0	43.4	47.6	302.4
Mean	**40.0**	**21.4**	**12.4**	**8.7**	**8.2**	**12.5**	**20.1**	**19.4**	**28.0**	**39.4**	**58.2**	**43.7**	**36.7**
Min	**15.9**	**4.8**	**2.0**	**0.7**	**0.2**	**2.0**	**1.8**	**0.6**	**1.4**	**3.6**	**11.8**	**13.0**	**14.0**
Max	**92.7**	**66.2**	**25.2**	**32.6**	**42.4**	**34.8**	**101.8**	**55.0**	**101.3**	**118.6**	**128.1**	**114.0**	**302.4**
Std Dev	**20.7**	**14.2**	**6.7**	**7.0**	**8.3**	**8.6**	**21.4**	**14.0**	**22.0**	**26.8**	**26.5**	**23.4**	**54.4**

Note: * = the year of 1993 and 1994 were not used in statistics. Monthly and annual data are based on incomplete daily data.

A1-4 2009 DAILY PRECIPITATION DATA

Table A1-13: Rankin Inlet A: Daily Rainfall Data (mm), 2009

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	2.4			
2	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.8			
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2			
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2			
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.4	0.0			
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	5.8			
9	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	7.4			
10	0.0	0.0	0.0	0.0	0.0	0.0	25.8	0.0	0.0			
11	0.0	0.0	0.0	0.0	0.0	0.0	38.4	12.0	0.0			
12	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	8.4			
13	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0			
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2			
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0			
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
18	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	8.0			
19	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0			
20	0.0	0.0	0.0	0.0	0.0	7.8	0.0	7.6	0.6			
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
22	0.0	0.0	0.0	0.0	0.0	0.0	2.8	2.2	0.2			
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0			
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4			
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8			
27	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0			
28	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0			
29	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0			
30	0.0		0.0	0.0	0.0	0.0	12.0	0.0	0.0			
31	0.0		0.0		0.0		8.6	7.8				
Mean	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**3.1**	**1.4**	**1.6**			
Maximum	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**7.8**	**38.4**	**12.0**	**8.4**			
Total	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**8.6**	**97.0**	**43.4**	**47.4**			

Note: blank= not recorded or not available.

Table A1-14: Rankin Inlet A: Daily Snowfall Data (cm), 2009

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
2	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0			
3	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0			
4	0.2	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0			
5	2.0	6.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0			
6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
7	0.2	0.0	0.0	8.6	0.0	0.0	0.0	0.0	0.0			
8	0.0	0.0	1.2	1.4	4.8	0.0	0.0	0.0	0.0			
9	1.2	0.0	0.2	0.0	2.1	0.0	0.0	0.0	0.0			
10	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0			
11	0.0	0.0	0.0	2.2	0.4	0.0	0.0	0.0	0.0			
12	0.2	0.0	0.0	0.2	0.0	0.6	0.0	0.0	0.0			
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
14	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0			
15	0.0	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0			
16	0.8	0.0	0.0	1.0	0.2	0.0	0.0	0.0	0.0			
17	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
19	1.8	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
20	1.6	0.6	0.0	1.4	0.0	0.0	0.0	0.0	0.0			
21	0.0	0.4	0.0	0.4	0.0	0.0	0.0	0.0	0.0			
22	0.0	0.0	0.2	0.4	0.0	0.0	0.0	0.0	0.0			
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
25	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0			
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2			
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
29	0.0		0.4	0.0	0.0	0.0	0.0	0.0	0.0			
30	0.4		0.4	0.4	0.0	0.0	0.0	0.0	0.0			
31	0.0		0.0		0.0		0.0	0.0				
Mean	**0.3**	**0.4**	**0.2**	**0.6**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**			
Maximum	**2.0**	**6.0**	**3.0**	**8.6**	**4.8**	**0.6**	**0.0**	**0.0**	**0.2**			
Total	**10.8**	**10.0**	**5.6**	**19.0**	**8.9**	**0.6**	**0.0**	**0.0**	**0.2**			

Note: blank= not recorded or not available.

Table A1-15: Rankin Inlet A: Daily Precipitation Data (mm), 2009

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	2.4			
2	0.0	0.0	0.0	0.0	0.8	0.6	0.0	0.0	0.8			
3	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.2			
4	0.2	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0			
5	2.0	6.0	3.0	0.0	0.0	0.0	0.0	0.0	3.2			
6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
7	0.2	0.0	0.0	8.6	0.0	0.0	0.0	10.4	0.0			
8	0.0	0.0	1.2	1.4	3.4	0.0	0.0	1.8	5.8			
9	1.2	0.0	0.2	0.0	0.8	0.0	0.4	0.0	7.4			
10	0.0	0.0	0.0	0.0	0.4	0.0	25.8	0.0	0.0			
11	0.0	0.0	0.0	2.2	0.4	0.0	38.4	12.0	0.0			
12	0.2	0.0	0.0	0.2	0.0	0.6	1.4	0.0	8.4			
13	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0			
14	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0			
15	0.0	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.2			
16	0.8	0.0	0.0	1.0	0.2	0.0	0.0	0.6	0.0			
17	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
18	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	8.0			
19	1.8	3.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0			
20	1.6	0.6	0.0	1.4	0.0	7.8	0.0	7.6	0.6			
21	0.0	0.4	0.0	0.4	0.0	0.0	0.0	0.0	0.0			
22	0.0	0.0	0.2	0.4	0.0	0.0	2.8	2.2	0.2			
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0			
25	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	2.4			
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0			
27	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0			
28	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0			
29	0.0		0.4	0.0	0.0	0.0	0.0	0.0	0.0			
30	0.4		0.4	0.4	0.0	0.0	12.0	0.0	0.0			
31	0.0		0.0		0.0		8.6	7.8				
Mean	**0.3**	**0.4**	**0.2**	**0.6**	**0.2**	**0.3**	**3.1**	**1.4**	**1.6**			
Maximum	**2.0**	**6.0**	**3.0**	**8.6**	**3.4**	**7.8**	**38.4**	**12.0**	**8.4**			
Total	**10.8**	**10.0**	**5.6**	**19.0**	**6.2**	**9.2**	**97.0**	**43.4**	**47.6**			

Note: blank= not recorded or not available.

A1-5 REGIONAL PRECIPITATION DATA

A1-5.1 Whale Cove A

Table A1-16: Whale Cove A: Monthly & Annual Rainfall Data (mm), 1985 to 2007

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1985			0.0	0.0	0.0	33.5	62.5	125.5	132.4	0.0	0.0	0.0	
1986	0.0	0.0	0.0	0.0	43.0	25.0	13.9	73.3	24.0	0.8	0.0	0.0	180.0
1987	0.0	0.0	0.0	0.2	0.0	62.3	25.0	66.6	11.6	0.0	0.0	0.0	165.7
1988	0.0	0.0	0.0	0.0	4.0	23.3	16.4	28.2	32.2	8.6	0.0	0.0	112.7
1989	0.0	0.0	0.0	0.0	0.0	9.2	61.0	38.2	41.6	5.8	0.0	0.0	155.8
1990	0.0	0.0	0.0	0.0	4.4	34.2	65.6	53.2	22.8	6.6		0.0	
1991	0.0	0.0	0.0	0.0	2.4	4.8	4.0	50.5	240.2	16.0	0.0	0.0	317.9
1992	0.0	0.0	0.0	0.0	0.0	31.0	7.4	38.8	45.2	0.0	0.0	0.0	122.4
1993	0.0	0.0	0.0	0.0	8.4	13.3	24.2	61.5	37.2	0.0	0.0	0.0	144.6
1994	0.0	0.0	0.0	0.0	0.0	33.3	10.2	70.8	78.2	18.8	0.2	0.0	211.5
1995	0.0	0.0	0.0	0.2	0.0	12.2	89.7	111.8	23.4	21.0	0.0	0.0	258.3
1996	0.0	0.0	0.0	0.0	0.4	31.6	17.8	85.6	40.4	0.0	0.0	0.0	175.8
1997	0.0	0.0	0.0	0.2	0.0	24.7	17.0	26.6	13.2	14.6	0.0	0.0	96.3
1998	0.0	0.0	0.0	1.0	2.0	11.2	60.8	43.0	51.8	2.8	0.0	0.0	172.6
1999	0.0	0.0	0.0	0.0	7.0	22.0	59.2	59.8	34.0	3.0	0.0	0.0	185.0
2000	0.0	0.0	0.0	0.0	2.0	3.4		92.5	38.8	0.0	0.0	0.0	
2001	0.0	0.0	0.0	0.4	7.8	22.2	60.6	86.4	9.6	17.2	0.0	0.0	204.2
2002	0.0	0.0	0.0	0.0	0.0	20.6	47.6	98.8	22.2	3.0	0.0	0.0	192.2
2003	0.0	0.0	0.0	0.0	30.6	48.6	33.8	65.0	7.2	16.4	1.0	0.0	202.6
2004	0.0	0.0	0.0	0.0	0.0	22.0	33.6	42.4	63.8	0.8	0.0	0.0	162.6
2005	0.0	0.0	0.0	6.2	14.3	22.6	43.6	8.8	17.3	11.2	0.0	0.0	124.0
2006	0.0	0.0	0.0	0.0	4.8	47.0	51.0	40.2	19.4	44.8	0.0	0.0	207.2
2007	0.0	0.0	0.0	0.0	3.0	21.8	30.4	66.6	43.4		0.0		165.2
Mean	**0.0**	**0.0**	**0.0**	**0.4**	**5.8**	**25.2**	**38.0**	**62.4**	**45.6**	**8.7**	**0.1**	**0.0**	**177.8**
Minimum	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**3.4**	**4.0**	**8.8**	**7.2**	**0.0**	**0.0**	**0.0**	**96.3**
Maximum	**0.0**	**0.0**	**0.0**	**6.2**	**43.0**	**62.3**	**89.7**	**125.5**	**240.2**	**44.8**	**1.0**	**0.0**	**317.9**
Std Dev	**0.0**	**0.0**	**0.0**	**1.3**	**10.6**	**14.2**	**23.5**	**28.6**	**50.4**	**10.9**	**0.2**	**0.0**	**50.6**

Note: blank= not recorded.

Table A1-17: Whale Cove A: Monthly & Annual Snowfall Data (cm), 1985 to 2007

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1985			60.0	23.8	2.1	6.8	0.0	2.0	14.2	113.8	201.6	111.0	
1986	14.8	1.0	10.6	2.2	5.8	1.8	0.0	0.0	16.8	100.6	16.2	35.4	205.2
1987	29.8	26.8	46.8	83.6	1.4	77.1	0.0	0.0	1.6	25.2	25.8	19.4	337.5
1988	2.6	49.0	6.0	17.6	7.4	12.8	0.0	0.0	0.0	48.5	62.5	29.8	236.2
1989	7.2	20.8	50.6	45.0	42.6	0.0	0.0	0.0	4.4	3.8	3.0	0.6	178.0
1990	26.6	22.2	61.0	21.2	28.4	26.8	0.0	0.0	1.8	27.8		16.8	
1991	41.2	44.4	33.0	46.6	18.8	0.0	0.0	0.0	19.0	62.4	15.4	33.8	314.6
1992	23.0	4.4	16.6	8.8	11.8	19.9	0.0	0.0	8.8	16.6	22.0	23.8	155.7
1993	47.8	12.2	2.8	16.6	10.8	4.6	0.0	0.0	17.0	12.6	32.8	23.2	180.4
1994	6.2	3.0	20.0	41.8	26.0	0.4	0.0	0.0	0.4	17.6	43.8	33.8	193.0
1995	25.8	10.4	9.2	31.9	16.0	0.0	0.0	0.0	30.2	19.6	21.2	22.6	186.9
1996	13.8	9.1	13.8	2.4	2.2	0.0	0.0	0.0	0.4	15.6	10.0	7.6	74.9
1997	0.4	3.2	6.0	6.0	2.8	0.0	0.0	0.0	0.0	3.0	4.2	11.4	37.0
1998	6.0	3.4	4.2	16.6	4.2	0.0	0.0	0.0	0.0	19.8	18.0	4.4	76.6
1999	10.4	9.0	14.2	7.4	0.6	0.2	0.0	0.0	0.4	15.4	33.2	19.8	110.6
2000	11.0	20.0	20.9	5.8	0.2	1.4	0.0	0.0	1.2	20.0	2.2	11.6	94.3
2001	17.4	11.4	17.3	6.4	6.8	0.0	0.0	0.0	0.0	18.4	14.4	21.6	113.7
2002	22.6	5.2	1.8	16.8	15.6	0.0	0.0	0.0	0.6	24.0	7.2	2.2	96.0
2003	17.2	3.6	13.2	2.6	3.2	2.0	0.0	0.0	13.8	27.0	42.6	26.0	151.2
2004	4.0	11.8	9.2	20.2	3.4	0.6	0.0	0.0	0.0	18.6	28.4	4.4	100.6
2005	2.4	9.8	15.0	9.8	15.0	0.0	0.0	0.0	6.6	5.4	25.4	8.8	98.2
2006	16.2	3.6	3.4	9.4	9.0	0.0	0.0	0.0	0.0	13.6	24.6	41.0	120.8
2007	31.6	21.8	10.0	19.9	15.2	15.2	0.0	0.0	0.4		18.0		132.1
Mean	**17.2**	**13.9**	**19.4**	**20.1**	**10.8**	**7.4**	**0.0**	**0.1**	**6.0**	**28.6**	**30.6**	**23.1**	**152.1**
Minimum	**0.4**	**1.0**	**1.8**	**2.2**	**0.2**	**0.0**	**0.0**	**0.0**	**0.0**	**3.0**	**2.2**	**0.6**	**37.0**
Maximum	**47.8**	**49.0**	**61.0**	**83.6**	**42.6**	**77.1**	**0.0**	**2.0**	**30.2**	**113.8**	**201.6**	**111.0**	**337.5**
Std Dev	**12.8**	**13.0**	**18.1**	**19.1**	**10.5**	**16.9**	**0.0**	**0.4**	**8.4**	**28.7**	**40.9**	**22.8**	**76.3**

Note: blank= not recorded.

Table A1-18: Whale Cove A: Monthly & Annual Precipitation Data (mm), 1985 to 2007

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1985			60.0	23.8	2.1	40.3	62.5	127.5	146.6	113.8	201.6	111.0	
1986	14.8	1.0	10.6	2.2	48.8	26.8	13.9	73.3	40.8	101.4	16.2	35.4	385.2
1987	29.8	26.8	46.8	83.8	1.4	139.4	25.0	66.6	13.2	25.2	25.8	19.4	503.2
1988	2.6	49.0	6.0	17.6	11.4	36.1	16.4	28.2	32.2	57.1	62.5	29.8	348.9
1989	7.2	20.8	50.6	45.0	42.6	9.2	61.0	38.2	46.0	9.6	3.0	0.6	333.8
1990	26.6	22.2	61.0	21.2	32.8	61.0	65.6	53.2	24.6	34.4		16.8	
1991	41.2	44.4	33.0	46.6	21.2	4.8	4.0	50.5	259.2	78.4	15.4	33.8	632.5
1992	24.0	4.4	16.6	8.8	11.8	50.9	7.4	38.8	54.0	16.6	22.0	23.8	279.1
1993	47.8	12.2	2.8	16.6	19.2	17.9	24.2	61.5	54.2	12.6	32.8	23.2	325.0
1994	6.2	3.0	20.0	41.8	26.0	33.7	10.2	70.8	78.6	36.4	44.2	33.8	404.7
1995	25.8	10.4	9.2	32.1	16.0	12.2	89.7	111.8	53.6	40.6	21.2	22.6	445.2
1996	13.8	9.1	13.8	2.4	2.6	31.6	17.8	85.6	40.8	15.6	10.0	7.6	250.7
1997	0.4	3.2	6.0	6.2	2.8	24.7	17.0	26.6	13.2	17.6	3.6	7.2	128.5
1998	5.8	4.0	4.8	13.2	6.4	11.2	60.8	43.0	51.8	22.6	18.0	3.2	244.8
1999	8.4	9.0	3.2	9.0	7.6	22.2	59.2	59.8	34.4	16.2	32.2	18.2	279.4
2000	10.6	16.8	17.3	5.8	2.2	4.0		92.5	40.0	20.0	2.2	11.6	
2001	17.4	12.0	17.5	7.4	14.6	22.2	60.6	86.4	9.6	38.6	14.4	23.6	324.3
2002	22.6	5.2	1.8	16.8	15.6	20.6	47.6	98.8	22.8	28.0	7.2	2.2	289.2
2003	17.2	3.6	13.2	2.6	33.8	50.6	33.8	65.0	21.0	38.2	30.8	24.2	334.0
2004	2.4	11.8	6.2	18.8	3.4	22.6	33.6	42.4	63.8	22.0	25.4	4.4	256.8
2005	2.4	9.8	15.0	16.8	29.3	22.6	43.6	8.8	23.9	16.6	25.4	8.8	223.0
2006	16.2	3.6	3.4	9.4	13.8	47.0	51.0	40.2	19.4	58.4	18.6	19.4	300.4
2007	14.4	21.8	10.0	18.3	18.2	37.0	30.4	66.6	43.8		18.0		278.5
Mean	**16.3**	**13.8**	**18.6**	**20.3**	**16.7**	**32.5**	**38.0**	**62.4**	**51.6**	**37.3**	**29.6**	**21.8**	**328.4**
Minimum	**0.4**	**1.0**	**1.8**	**2.2**	**1.4**	**4.0**	**4.0**	**8.8**	**9.6**	**9.6**	**2.2**	**0.6**	**128.5**
Maximum	**47.8**	**49.0**	**61.0**	**83.8**	**48.8**	**139.4**	**89.7**	**127.5**	**259.2**	**113.8**	**201.6**	**111.0**	**632.5**
Std Dev	**12.6**	**12.9**	**18.5**	**19.0**	**13.5**	**27.8**	**23.5**	**28.8**	**53.6**	**28.5**	**40.9**	**22.6**	**108.8**

Note: blank= not recorded.

A1-5.2 Chesterfield Inlet A

Table A1-19: Chesterfield Inlet A: Monthly & Annual Rainfall Data (mm), 1985 to 2007

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1985	0.0	0.0	0.0	0.0	0.0		41.0	72.0	26.0	0.0	0.0	0.0	
1986	0.0	0.0	0.0	0.0	21.0		0.0	32.0	47.6	0.0	0.0	0.0	
1987	0.0	0.0	0.0	0.0	0.0	0.0	0.0	97.5	16.0	0.0	0.0	0.0	113.5
1988	0.0	0.0	0.0	0.0	0.0	5.0	23.0	0.0	30.0	15.0	0.0	0.0	73.0
1989	0.0	0.0	0.0	0.0	0.0	7.0	20.0	26.0	48.8	0.0	0.0	0.0	101.8
1990	0.0	0.0	0.0	0.0	1.0	0.0	68.1	91.6	21.0	0.0	0.0	0.0	181.7
1991	0.0	0.0	0.0	0.0	4.0	1.8	97.0	35.1	0.0	0.0	0.0	0.0	137.9
1992	0.0	0.0	0.0	0.0	0.0	10.5	10.5	25.3	31.0	0.0	0.0	0.0	77.3
1993	0.0	0.0	0.0	0.0	1.0	8.6	26.2	91.0	21.6	6.0	0.0	0.0	154.4
1994	0.0	0.0	0.0	0.0	0.0	24.5	1.0	44.0	69.0	7.0	0.0	0.0	145.5
1995	0.0	0.0	0.0	0.0	0.0	14.0	35.5	35.0	23.0	25.0	0.0	0.0	132.5
1996	0.0	0.0	0.0	0.0	0.0	33.8	37.5	53.8	46.8	0.6	0.0	0.0	172.5
1997	0.0	0.0	0.0	0.0	0.0	0.0	15.8	36.9	20.0	58.3	0.0	0.0	131.0
1998	0.0	0.0	0.0	0.0	14.4	24.4	112.5	65.2	59.2	5.2	0.0	0.0	280.9
1999	0.0	0.0	0.0	1.2	14.2	68.8	25.4	75.6	42.9	9.0	0.0	0.0	237.1
2000	0.0	0.0	0.0	0.0	0.6	2.8	13.6	53.6	27.8	3.0	0.0	0.0	101.4
2001	0.0	0.0	0.0	0.0	13.4	27.2	53.0	30.6	25.6	14.4	0.0	0.0	164.2
2002	0.0	0.0	0.0	0.0	2.4	14.2	61.6	44.2	45.4	14.3	0.0	0.0	182.1
2003	0.0	0.0	0.0	0.0	12.6	27.4	26.6	49.8	31.0	22.0	0.0	0.0	169.4
2004	0.0	0.0	0.0	0.0	0.0	13.4	14.2	33.3	70.4	1.2	0.0	0.0	132.5
2005	0.0	0.0	0.0	1.6	34.6	13.2	60.4	20.4	41.4	22.4	0.0	0.0	194.0
2006	0.0	0.0	0.0	0.0		43.4	50.6	34.0	9.6	43.2	0.0	0.0	
2007	0.0	0.0	0.0	0.0	2.2	29.2	31.2	78.6	22.6		0.0		163.8
Mean	**0.0**	**0.0**	**0.0**	**0.1**	**5.5**	**17.6**	**35.9**	**48.9**	**33.8**	**11.2**	**0.0**	**0.0**	**152.3**
Minimum	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**73.0**
Maximum	**0.0**	**0.0**	**0.0**	**1.6**	**34.6**	**68.8**	**112.5**	**97.5**	**70.4**	**58.3**	**0.0**	**0.0**	**280.9**
Std Dev	**0.0**	**0.0**	**0.0**	**0.4**	**9.1**	**17.1**	**29.4**	**25.5**	**17.9**	**15.4**	**0.0**	**0.0**	**50.4**

Note: blank= not recorded.

Table A1-20: Chesterfield Inlet A: Monthly & Annual Snowfall Data (cm), 1985 to 2009

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1985	6.7	22.0	17.0	30.0	8.8		0.0	0.0	0.0	10.0	33.0	22.1	
1986	8.0	4.0	4.0	23.0	2.0		0.0	0.0	10.4	27.0	53.0	29.0	
1987	11.0	64.0	32.0	63.0	0.0	32.0	0.0	0.0	0.0	31.0	43.0	37.0	313.0
1988	12.0	15.0	8.0	10.0	2.0	0.0	0.0	0.0	4.0	16.0	28.0	11.0	106.0
1989	10.0	3.0	6.2	0.0	7.2	0.0	0.0	0.0	14.0	7.4	20.4	12.0	80.2
1990	11.0	9.0	30.0	18.0	15.6	18.8	0.0	0.0	6.0	32.4	30.0	6.6	177.4
1991	61.0	16.0	39.0	66.0	12.0	0.0	0.0	0.0	26.0	34.2	28.6	12.7	295.5
1992	34.0	3.3	12.2	18.0	5.0	3.0	0.0	0.0	4.5	19.3	15.0	14.5	128.8
1993	2.0	2.5	0.0	1.5	3.5	0.0	0.0	0.0	2.0	14.0	21.2	26.0	72.7
1994	2.0	1.0	8.0	14.0	1.0	0.0	0.0	0.0	0.0	2.5	25.0	12.0	65.5
1995	1.0	0.0	4.0	28.0	3.0	0.0	0.0	0.0	0.0	9.5	8.0	3.0	56.5
1996	1.0	1.0	5.5	0.0	0.5	0.0	0.0	0.0	0.0	9.0	6.0	11.0	34.0
1997	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	11.5	19.2	35.7
1998	3.0	9.0	6.0	4.0	2.0	0.0	0.0	0.0	0.0	15.0	13.2	5.8	58.0
1999	6.3	15.4	15.9	10.2	8.0	0.0	0.0	0.0	0.0	12.6	13.6	30.8	112.8
2000	4.6	16.6	9.0	15.0	4.0	0.0	0.0	0.0	2.6	10.0	17.6	5.0	84.4
2001	8.0	6.0	9.4	11.0	33.0	0.0	0.0	0.0	0.0	15.4	18.0	18.2	119.0
2002	6.0	0.0	3.0	12.0	11.0	0.0	0.0	0.0	0.0	11.0	18.0	6.2	67.2
2003	5.0	2.2	12.3	6.4	19.0	7.0	0.0	0.0	6.8	20.8	19.2	9.6	108.3
2004	22.0	2.8	45.2	20.0	24.2	1.4	0.0	0.0	1.8	31.2	50.6	6.8	206.0
2005	16.4	7.0	63.2	20.2	18.8	0.0	0.0	0.0	1.4	5.0	29.2	19.1	180.3
2006	16.4	16.4	3.0	29.2		3.0	0.0	0.0	0.0	9.2	12.6	21.8	
2007	0.0	10.8	3.8	22.9	9.2	5.0	0.0	0.0	1.8		21.2		74.7
Mean	**10.8**	**9.9**	**14.6**	**18.4**	**8.6**	**3.3**	**0.0**	**0.0**	**3.5**	**15.8**	**23.3**	**15.4**	**118.8**
Minimum	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**2.5**	**6.0**	**3.0**	**34.0**
Maximum	**61.0**	**64.0**	**63.2**	**66.0**	**33.0**	**32.0**	**0.0**	**0.0**	**26.0**	**34.2**	**53.0**	**37.0**	**313.0**
Std Dev	**13.5**	**13.5**	**16.3**	**17.3**	**8.8**	**7.9**	**0.0**	**0.0**	**6.1**	**9.7**	**12.5**	**9.3**	**78.8**

Note: blank= not recorded.

Table A1-21: Chesterfield Inlet A: Monthly & Annual Precipitation Data (mm), 1985 to 2007

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1985	6.7	22.0	17.0	30.0	8.8		41.0	72.0	26.0	10.0	33.0	22.1	
1986	8.0	4.0	4.0	23.0	23.0		0.0	32.0	58.0	27.0	53.0	29.0	
1987	11.0	64.0	32.0	63.0	0.0	32.0	0.0	97.5	16.0	31.0	43.0	37.0	426.5
1988	12.0	15.0	8.0	10.0	2.0	5.0	23.0	0.0	34.0	31.0	28.0	11.0	179.0
1989	10.0	3.0	6.2	0.0	7.2	7.0	20.0	26.0	62.8	7.4	20.4	12.0	182.0
1990	11.0	9.0	30.0	18.0	16.6	18.8	68.1	91.6	27.0	32.4	30.0	6.6	359.1
1991	61.0	16.0	39.0	66.0	16.0	1.8	97.0	35.1	26.0	34.2	28.6	12.7	433.4
1992	34.0	3.3	12.2	14.0	5.0	12.7	10.5	25.3	35.5	15.3	12.0	14.7	194.5
1993	1.8	2.8	0.0	1.5	3.9	8.6	26.2	91.0	23.6	19.4	8.2	15.4	202.4
1994	2.0	0.8	4.6	8.5	0.5	24.5	1.0	44.0	69.0	8.5	34.0	13.3	210.7
1995	1.0	0.0	2.0	14.7	3.0	14.0	35.5	35.0	23.0	37.0	6.5	3.0	174.7
1996	2.0	1.0	4.4	0.0	0.5	33.8	37.5	53.8	46.8	9.6	6.0	11.0	206.4
1997	0.0	0.0	0.0	0.0	0.0	0.0	15.8	36.9	20.0	63.3	11.5	19.2	166.7
1998	3.0	9.0	6.0	4.0	16.4	24.4	112.5	65.2	59.2	19.8	8.2	6.4	334.1
1999	6.2	8.0	10.4	9.8	22.0	68.8	25.4	75.6	42.9	21.2	10.8	29.6	330.7
2000	4.4	15.2	5.4	13.2	5.2	2.8	13.6	53.6	30.6	12.0	16.4	4.8	177.2
2001	4.0	4.2	6.8	10.4	61.8	27.2	53.0	30.6	25.6	32.4	14.8	13.6	284.4
2002	3.2	0.0	1.6	8.2	14.6	14.2	61.6	44.2	45.4	26.5	20.4	5.0	244.9
2003	2.6	1.4	7.2	4.6	30.6	37.4	26.6	49.8	37.2	43.7	21.4	9.8	272.3
2004	22.2	2.2	45.4	20.6	10.0	14.8	14.2	33.3	72.0	31.4	60.6	7.4	334.1
2005	10.6	7.8	86.6	23.6	47.2	13.2	60.4	20.4	42.8	26.6	23.4	11.7	374.3
2006	12.6	13.4	1.4	26.0		44.4	50.6	34.0	9.6	50.8	8.4	13.2	
2007	0.0	11.2	3.0	22.9	10.4	31.8	31.2	78.6	24.4		13.6		227.1
Mean	**10.0**	**9.3**	**14.5**	**17.0**	**13.9**	**20.8**	**35.9**	**48.9**	**37.3**	**26.8**	**22.3**	**14.0**	**265.7**
Minimum	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**9.6**	**7.4**	**6.0**	**3.0**	**166.7**
Maximum	**61.0**	**64.0**	**86.6**	**66.0**	**61.8**	**68.8**	**112.5**	**97.5**	**72.0**	**63.3**	**60.6**	**37.0**	**433.4**
Std Dev	**13.6**	**13.4**	**20.3**	**17.4**	**15.7**	**16.7**	**29.4**	**25.5**	**17.3**	**14.2**	**14.9**	**8.7**	**87.8**

Note: blank= not recorded.

A1-5.3 Adjusted Rainfall Datasets

Table A1-22: Chesterfield Inlet: Adjusted Rainfall Data (mm), 1931 to 2007

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Winter	Spring	Summer	Autumn
1931	-	0.0	0.0	0.6	0.0	67.3	26.9	12.4	54.8	5.3	2.8	0.0	-	-10.0	0.6	106.7	63.0
1932	0.0	0.0	0.0	0.0	0.0	18.7	62.4	96.9	77.9	18.0	0.0	0.0	274.0	0.0	0.0	178.0	96.0
1933	0.0	0.0	0.0	0.0	0.0	17.7	63.6	59.0	43.8	1.9	0.0	0.0	186.0	0.0	0.0	140.4	45.6
1934	0.0	0.0	0.0	0.0	0.3	20.0	85.2	61.8	27.1	5.8	0.0	0.0	200.3	0.0	0.3	167.1	33.0
1935	-	0.0	-	0.0	0.0	18.4	33.3	56.6	54.9	0.0	-	0.0	-	-	-	108.3	-
1936	0.0	0.0	0.0	0.0	0.0	21.6	18.5	26.1	73.6	0.0	0.0	0.0	139.8	0.0	0.0	66.2	73.6
1937	0.0	0.0	0.0	0.0	14.2	20.4	160.7	52.8	23.7	4.2	0.0	0.0	276.1	0.0	14.2	234.0	27.9
1938	0.0	0.0	0.0	0.0	2.4	12.0	41.1	37.2	32.3	39.3	0.3	0.0	164.6	0.0	2.4	90.3	71.8
1939	0.0	0.0	0.0	0.7	2.1	18.4	43.8	79.9	31.7	10.1	0.0	0.0	186.8	0.0	2.8	142.1	41.8
1940	0.0	0.0	0.3	0.3	4.3	41.1	43.3	26.3	32.6	41.1	0.0	0.0	189.4	0.0	4.9	110.7	73.7
1941	0.0	0.0	0.0	0.0	20.4	16.2	41.8	54.1	17.0	-	0.0	0.0	-	0.0	20.4	112.1	-
1942	0.0	0.0	0.0	3.1	0.0	42.4	21.3	39.9	11.6	5.4	0.0	0.0	123.7	0.0	3.1	103.6	17.0
1943	0.0	0.0	0.0	0.0	0.0	1.8	52.5	-	34.3	15.6	0.3	0.0	-	0.0	0.0	-	50.2
1944	0.0	0.0	0.0	0.0	7.1	16.9	65.2	50.5	33.9	6.5	0.0	0.0	180.1	0.0	7.1	132.6	40.4
1945	0.0	0.0	0.0	0.0	-	26.6	29.8	14.1	10.2	4.7	0.0	0.0	-	0.0	-	70.5	14.9
1946	0.0	0.0	0.0	0.6	0.3	31.9	72.8	49.1	53.0	3.0	0.3	0.0	211.0	0.0	0.9	153.8	56.3
1947	0.0	0.0	0.0	0.0	0.0	24.9	58.7	60.8	61.5	48.8	5.6	0.0	260.3	0.0	0.0	144.4	115.9
1948	0.0	0.0	0.0	4.0	3.4	14.5	28.2	78.9	31.6	10.9	-	0.0	-	0.0	7.4	121.5	-
1949	0.0	0.0	0.0	0.0	0.0	77.8	-	4.2	5.5	-	0.0	0.0	-	0.0	0.0	-	-
1950	0.0	0.0	0.0	0.0	8.3	30.1	18.5	22.3	35.6	4.2	0.0	0.0	119.0	0.0	8.3	70.9	39.8
1951	0.0	0.0	0.0	0.0	0.8	24.5	40.6	22.1	20.6	16.0	0.0	0.0	124.8	0.0	0.8	87.3	36.7
1952	0.0	0.0	0.0	0.3	5.0	24.8	63.4	76.7	56.3	16.6	0.0	0.0	243.2	0.0	5.3	164.9	73.0
1953	0.0	0.0	0.0	0.3	0.0	11.9	51.8	41.3	36.2	23.4	1.8	0.0	166.7	0.0	0.3	105.0	61.4
1954	0.0	0.0	0.0	0.0	6.3	39.9	30.5	9.1	46.8	12.8	0.0	0.0	145.5	0.0	6.3	79.5	59.6
1955	0.0	0.0	0.0	0.9	7.3	49.1	59.8	79.4	51.6	25.1	0.6	0.0	274.0	0.0	8.2	188.4	77.4
1956	0.0	0.0	0.0	0.0	0.0	2.2	30.8	69.5	12.5	10.0	0.0	0.0	124.9	0.0	0.0	102.5	22.5
1957	0.0	0.0	0.0	0.0	0.6	4.2	31.7	28.0	39.3	2.8	0.0	0.0	106.6	0.0	0.6	63.9	42.1
1958	0.0	0.0	0.0	0.0	19.7	27.3	60.0	25.9	58.8	7.0	0.3	0.0	199.0	0.0	19.7	113.3	66.0
1959	0.0	0.0	0.0	0.0	0.3	61.5	31.8	83.1	68.5	1.1	0.3	0.0	246.6	0.0	0.3	176.3	70.0
1960	0.6	0.0	0.0	0.0	4.8	12.4	65.7	46.9	43.6	13.4	0.6	0.0	188.1	0.6	4.8	125.1	57.7
1961	0.0	0.0	0.0	0.3	1.4	21.3	27.7	28.1	84.3	0.3	1.0	0.0	164.4	0.0	1.7	77.1	85.7
1962	0.0	0.0	0.0	0.0	0.0	12.7	19.7	38.6	25.6	13.6	0.0	0.0	110.1	0.0	0.0	70.9	39.2
1963	0.0	0.0	0.0	2.7	0.3	7.7	59.8	42.2	11.7	20.4	0.6	0.0	145.3	0.0	3.0	109.7	32.7
1964	0.0	0.0	0.0	0.3	0.3	10.8	24.8	30.7	29.4	2.4	1.6	0.9	101.2	0.0	0.6	66.3	33.4
1965	0.0	0.0	0.0	0.3	1.2	55.9	51.9	13.9	17.5	1.2	0.6	0.0	142.5	0.9	1.5	121.7	19.3
1966	0.0	0.0	0.3	0.6	45.9	24.0	20.8	46.4	31.8	3.2	0.0	0.0	173.0	0.0	46.8	91.2	35.0
1967	0.0	0.0	0.3	0.0	3.1	26.6	59.2	34.9	35.7	3.7	0.3	0.5	164.4	0.0	3.4	120.8	39.6
1968	0.0	0.0	0.3	0.0	2.4	11.1	46.3	38.2	77.0	34.7	0.9	0.0	211.0	0.5	2.7	95.7	112.6

Table A1-22: Chesterfield Inlet: Adjusted Rainfall Data (mm), 1931 to 2007 (continued)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Winter	Spring	Summer	Autumn
1969	0.0	0.0	0.0	0.0	0.9	21.0	49.4	39.6	12.8	2.4	8.0	0.0	134.1	0.0	0.9	110.0	23.2
1970	0.0	0.0	0.0	0.0	0.3	34.3	122.7	46.8	66.9	29.1	0.0	0.0	300.1	0.0	0.3	203.8	96.0
1971	0.0	0.0	0.0	0.6	15.5	13.9	4.7	39.3	31.0	46.4	0.0	0.0	151.5	0.0	16.1	57.9	77.5
1972	0.0	0.0	0.0	0.0	1.0	2.5	77.7	31.0	18.9	1.3	0.0	0.0	132.4	0.0	1.0	111.1	20.2
1973	0.0	0.0	0.0	0.0	1.2	24.3	8.9	106.8	38.9	19.4	0.0	0.0	199.5	0.0	1.2	140.0	58.2
1974	0.0	0.0	0.0	0.3	0.0	23.4	29.1	42.4	22.5	1.0	0.3	0.0	119.0	0.0	0.3	94.9	23.8
1975	0.0	0.3	0.0	0.3	19.6	8.3	50.9	48.6	30.5	7.7	0.0	0.0	166.1	0.3	19.9	107.7	38.2
1976	0.0	0.0	0.0	0.0	12.7	19.0	41.5	26.7	36.0	3.0	0.0	0.6	139.4	0.0	12.7	87.1	39.0
1977	0.0	0.0	0.0	13.0	7.3	24.7	28.6	22.1	15.0	18.9	5.1	0.0	134.8	0.6	20.3	75.4	39.1
1978	0.0	0.3	0.0	0.0	18.2	11.1	60.3	31.4	8.6	3.4	0.3	0.0	133.5	0.3	18.2	102.8	12.3
1979	0.0	0.0	0.0	0.9	12.1	14.6	19.6	47.9	25.5	-	-	0.3	-	0.0	13.0	82.2	-
1980	0.0	0.0	0.0	2.4	5.3	7.8	92.6	78.4	55.8	0.6	0.0	0.0	243.0	0.3	7.7	178.9	56.4
1981	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1982	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1983	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1984	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1985	0.0	0.0	0.0	0.0	0.0	-	42.5	74.2	26.8	0.0	0.0	0.0	-	-	0.0	-	26.8
1986	0.0	0.0	0.0	0.0	22.0	-	0.0	33.2	49.8	0.0	0.0	0.0	-	0.0	22.0	-	49.8
1987	0.0	0.0	0.0	0.0	0.2	0.2	0.3	100.9	16.7	0.0	0.0	0.2	118.4	0.0	0.2	101.4	16.7
1988	0.0	0.0	0.0	0.0	0.0	5.3	24.0	-	32.0	15.6	0.0	0.0	-	0.2	0.0	-	47.6
1989	0.0	0.0	0.0	0.0	0.0	7.7	21.1	26.9	51.0	0.0	0.0	0.0	106.6	0.0	0.0	55.6	51.0
1990	0.0	0.0	0.0	0.0	1.1	0.3	70.7	94.8	22.3	0.2	0.0	0.0	189.4	0.0	1.1	165.8	22.5
1991	0.0	0.0	0.0	0.0	4.3	2.3	99.7	36.5	0.2	0.0	0.0	0.0	142.9	0.0	4.3	138.4	0.2
1992	0.0	0.0	0.0	0.0	0.0	11.4	11.6	27.1	32.3	0.2	0.0	0.0	82.5	0.0	0.0	50.1	32.4
1993	0.0	0.0	0.0	0.0	1.9	9.7	28.3	94.1	23.9	6.2	0.2	0.0	164.2	0.0	1.9	132.1	30.3
1994	0.0	0.0	0.0	0.0	0.0	26.1	1.4	46.9	72.5	8.0	0.0	0.0	155.0	0.0	0.0	74.5	80.5
1995	0.0	0.0	0.0	0.0	0.0	14.9	37.3	36.4	24.8	26.1	0.0	0.0	139.4	0.0	0.0	88.6	50.8
1996	0.0	0.0	0.0	0.0	0.6	35.5	39.6	56.7	49.1	0.7	0.0	0.0	182.2	0.0	0.6	131.8	49.8
1997	0.0	0.0	0.0	0.0	0.0	0.0	17.3	39.7	22.4	60.2	0.2	0.0	139.8	0.0	0.0	57.0	82.7
1998	0.0	0.0	0.0	0.0	15.7	25.8	116.4	68.5	63.0	6.1	0.2	0.0	295.5	0.0	15.7	210.6	69.2
1999	0.0	0.0	0.0	1.4	15.3	71.5	27.5	79.2	45.7	9.7	0.0	0.0	250.3	0.0	16.7	178.2	55.3
2000	0.0	0.0	0.0	0.0	0.9	3.6	14.8	56.3	29.2	3.6	0.2	0.0	108.5	0.0	0.9	74.7	33.0
2001	0.0	0.0	0.0	0.0	14.2	28.9	55.9	32.5	27.7	15.4	0.2	0.0	174.7	0.0	14.2	117.4	43.2
2002	0.0	0.0	0.0	0.0	2.7	16.2	64.6	46.9	48.1	15.5	0.0	0.3	194.3	0.0	2.7	127.7	63.6
2003	0.0	0.0	0.0	0.0	13.7	29.1	28.9	52.7	33.6	23.6	0.3	0.0	181.8	0.3	13.7	110.7	57.4
2004	0.0	0.0	0.0	0.0	0.0	15.0	15.8	35.8	74.2	2.0	0.0	0.0	142.8	0.0	0.0	66.6	76.3
2005	0.0	0.0	0.0	1.9	36.0	14.7	63.2	21.8	44.2	25.0	0.0	0.0	206.8	0.0	37.9	99.7	69.2
2006	0.0	0.0	0.0	0.2	-	45.3	54.0	36.9	12.1	46.1	0.5	0.0	-	0.0	-	136.1	58.7
2007	0.0	0.0	0.0	0.0	2.6	30.8	33.0	83.3	24.7	-	-	-	-	0.0	2.6	147.1	-

Note: " -" = missing data.

Table A1-23: Chesterfield Inlet: Adjusted Snowfall Data (cm), 1931 to 2007

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Winter	Spring	Summer	Autumn
1931	-	23.5	5.9	16.4	8.5	17	0	0	0.3	38.5	42.7	69.6	-	-10	30.9	17	81.5
1932	11.7	34.8	6.4	79	8.5	0	0	0	0	80.4	74.3	50	345.2	116.1	93.9	0	154.7
1933	5.5	12.8	17.5	29.6	28.9	0	0	0	0.9	9.4	2.9	11.7	119.2	68.3	76	0	13.2
1934	4.7	2	5.9	5.9	10.6	0	0	0	10.3	59.3	26.6	30.7	156.1	18.4	22.5	0	96.2
1935	-	20.8	-	17.6	2.9	0	0	0	2.4	36.5	-	24.6	-	-	-	0	-
1936	2.7	30.5	63.4	49.5	30.4	0.3	0	0	16.1	56.4	26	20.8	296.2	57.9	143.3	0.3	98.5
1937	36.6	59.6	28.6	41.5	22.3	0.5	0	0	8.1	41.6	16.6	56.1	311.4	117	92.4	0.5	66.3
1938	37.2	17	23.7	29.5	29.3	0	0	0.2	0	4.4	50	54.3	245.6	110.3	82.5	0.2	54.4
1939	16.7	14.3	20.8	45.7	12.6	17.8	0	0	12.4	48.5	24.6	22.6	236.2	85.3	79.2	17.8	85.5
1940	16.6	10.1	22	38.1	17.6	0.8	0	0	0.8	30	48.2	23.7	207.8	49.3	77.8	0.8	78.9
1941	28.4	9.9	18.6	15.1	24.3	0.8	0	0	17.2	-	43.8	30.6	-	62	57.9	0.8	-
1942	23.6	25.8	63.4	97.6	65.5	0.2	0	0	0.5	54.4	54.4	29.3	414.7	80	226.5	0.2	109.3
1943	9.3	1.1	12.5	15	20.5	1.1	0	-	3.7	9.1	22.7	15.7	-	39.7	48	-	35.4
1944	6.4	4.6	7	12.8	7.2	0	0	0	16	65.7	84.5	4.4	208.5	26.6	27	0	166.1
1945	31.2	14.9	50.3	29.6	-	11.8	0	0	12.3	12.5	39.4	1.7	-	50.5	-	11.8	64.1
1946	7.6	6.7	11.3	6.2	12	4.9	0	0	10	40	18.9	16.1	133.7	16	29.5	4.9	68.9
1947	2.7	21.2	9.3	13.1	37.7	1.8	0	0	13.7	21.9	38	17.9	177.3	40	60	1.8	73.6
1948	12.5	8.1	16	10.2	16.6	2.9	0.2	0	0	7.6	-	13.1	-	38.5	42.7	3	-
1949	12.6	1.8	14.3	42.7	10.2	1.7	-	0.2	0.3	-	5.3	13.4	-	27.5	67.2	-	-
1950	0.2	4	5.8	6.1	1.5	8.2	0	0	0.5	48.5	36.7	50.2	161.5	17.5	13.4	8.2	85.6
1951	14.6	12.6	16.3	27.4	24.3	0.2	0	0	2.9	25.4	19.6	17.8	161.1	77.4	68	0.2	47.9
1952	7.2	3.5	6.8	23.3	6.1	0.5	0	0	4.7	25.7	9	105.8	192.5	28.5	36.2	0.5	39.4
1953	6.8	14.5	27.2	21.4	10.3	0.6	0	0	0.6	10.9	56.1	13.4	161.9	127.1	59	0.6	67.6
1954	1.5	15.5	12.5	18.9	7.5	0.5	0	0	2.6	5.9	14.1	9.7	88.6	30.4	38.8	0.5	22.6
1955	28.1	2	11.1	19.8	9.6	2	0.2	0	21	10.5	19.6	21.3	145	39.8	40.4	2.1	51.1
1956	21.4	6.1	4.3	31.6	11.1	0.6	0	0	7.6	54.4	13.7	10.5	161.2	48.8	47	0.6	75.6
1957	2.3	8.1	8.7	13.2	15.8	4.4	0	0	1.2	10	20.8	7	91.5	20.8	37.7	4.4	32
1958	16.7	12.2	9.3	6.2	10.8	6.9	0	0	2.7	34.5	29.2	7	135.5	35.9	26.3	6.9	66.5
1959	17.8	3.2	11.6	3	22	21.9	0	0	0.5	22.6	8.8	8.2	119.6	27.9	36.7	21.9	31.9
1960	4.4	7.1	13.5	5.3	2.9	0.2	0	0	12.5	20.7	21.1	5.8	93.5	19.7	21.7	0.2	54.3
1961	5	12.9	6.4	31.6	3.5	9.9	0	7	83.4	69.9	57.9	107.2	394.8	23.7	41.5	16.9	211.3
1962	0.9	0.6	31.5	41	79.5	11.1	0	0	1.5	55.9	18.2	6.2	246.5	108.7	152	11.1	75.7
1963	7.4	3.9	6.2	8.4	24.6	2.1	0	0	18.7	76.9	49.9	12.4	210.6	17.6	39.2	2.1	145.5
1964	26.9	4.6	4.8	24.9	21.1	38.9	0	0	2.3	35.9	25.2	8.8	193.4	43.9	50.8	38.9	63.4
1965	8	3	6.4	11.8	5.2	0.6	0	0	18.1	23.6	23.5	20	120.2	19.8	23.4	0.6	65.2
1966	11.8	18.7	7.4	11.8	3.6	0.2	0	0	5.6	17.6	20.8	14.4	112.1	50.6	22.9	0.2	44
1967	10.3	2	17.6	8.5	30.6	11.1	0	0	70.5	38	29.2	41.8	259.6	26.7	56.7	11.1	137.7
1968	15.5	11.7	49.7	15.2	25.1	25.4	0	0	0.8	27.7	46.8	24.6	242.4	69	90	25.4	75.2
1969	21.6	11.1	14.6	24.3	14.4	3.5	0	0	1	13.1	40	43.8	187.4	57.3	53.3	3.5	54.1

Table A1-23: Chesterfield Inlet: Adjusted Snowfall Data (cm), 1931 to 2007 (continued)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Winter	Spring	Summer	Autumn
1970	28.4	2.4	15.8	1.9	18.1	0.2	0	0	8.2	93.3	35	4.1	207.4	74.6	35.8	0.2	136.5
1971	27.4	9.1	2.9	11	4.4	18.4	0	0.3	1.5	45.9	33.8	3.6	158.2	40.6	18.2	18.7	81.2
1972	2	4.5	14.4	5	35.6	4.6	0	0	9.4	20.4	32.1	5	132.9	10.1	55	4.6	61.9
1973	20.8	10.2	21.4	24.5	3.3	29.3	0	0	0.9	37.1	22.2	11.5	181.3	36	49.2	29.3	60.2
1974	8.8	15.5	12.1	23.7	1.5	0.5	0	0	20.4	78.3	47	43.2	250.9	35.8	37.4	0.5	145.6
1975	17.8	18.4	6.7	9.9	8.1	11.4	0	0	5.8	44.7	29.5	10.3	162.4	79.3	24.6	11.4	80
1976	14.3	6.4	7.4	26.8	14.8	0.8	0	0.5	18.1	54.4	63.1	10.5	216.9	31	49	1.2	135.6
1977	47.5	9.2	23.1	22.8	10.9	13.8	0	0	2	78.6	38.1	30.2	276.3	67.2	56.8	13.8	118.7
1978	3.3	10	12	41.9	22.5	6.2	31.3	0.3	2.7	49.8	28.5	10.4	219	43.5	76.4	37.8	81.1
1979	8.2	2.7	16.1	35.9	1.4	22.6	0	9.7	41.2	-	-	21.9	-	21.3	53.3	32.4	-
1980	5.6	7.3	21.4	11.2	24.6	3.5	0	0	37.5	29.8	31.9	43.5	216.2	34.7	57.2	3.5	99.2
1981	31.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1982	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1983	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1984	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1985	10.4	33.4	25.8	45.6	13.4	-	0	0	0	15.2	50.2	34.2	-	-	84.8	-	65.4
1986	12.6	6.2	6.3	35.5	3.1	-	0	0	16	41.8	80.6	44.2	-	52.9	45	-	138.4
1987	16.8	97.4	48.6	95.8	0.2	48.6	0	0	0.1	47.3	65.4	56.6	476.9	158.4	144.6	48.6	112.8
1988	18.4	23	12.5	15.3	3.1	0.1	0	0	6.2	24.3	43	16.8	162.8	98.1	30.9	0.1	73.6
1989	15.4	4.6	9.6	0	11.1	0.2	0	0	21.3	11.3	31.3	18.4	123.2	36.9	20.7	0.2	63.8
1990	17	13.9	45.6	27.4	23.9	28.8	0	0	9.4	49.3	45.8	10.7	271.6	49.4	96.8	28.8	104.4
1991	92.9	24.4	60	100.6	18.2	0	0	0	39.6	52.5	44	19.9	452.2	128	178.9	0	136.2
1992	52.2	5.3	18.9	27.5	7.7	4.7	0	0	7.2	30	23.8	23.2	200.5	77.4	54.1	4.7	61.1
1993	3.4	5	1.1	2.8	5.7	0.2	0	0	3.5	22.8	32.7	40.2	117.5	31.6	9.6	0.2	59
1994	4.6	3.2	13.3	22.2	1.5	0	0	0	0	4.4	38.8	19.4	107.3	48	37	0	43.2
1995	3.7	1.7	7.7	43	5.1	0	0	0	0.5	15.5	13.8	6.1	96.9	24.8	55.8	0	29.7
1996	3.4	2.7	9.6	1.3	1.3	0	0	0	0	13.7	9.1	16.7	57.8	12.2	12.2	0	22.8
1997	0	0	0	0	0	0	0	0	0.2	8.6	18.3	29.8	56.9	16.7	0	0	27.1
1998	5	13.8	9.4	6.8	3.7	0	0	0	0	23.4	20.9	9.3	92.4	48.7	19.8	0	44.4
1999	10.2	23.5	24.7	16.1	12.4	0.2	0	0	0.2	20.1	21.1	47.1	175.5	43	53.3	0.2	41.3
2000	7.4	25.9	14.2	23.3	6.6	0.2	0	0	4.1	15.8	27.1	8.1	132.6	80.3	44	0.2	47
2001	12.6	9.4	14.7	17	50.2	0	0	0	0	23.8	27.6	27.9	183.3	30.1	82	0	51.4
2002	9.5	0.1	4.8	18.6	17.4	0.2	0	0	0.6	17.8	27.8	10.2	107	37.5	40.8	0.2	46.2
2003	7.9	3.5	19	10	29	10.6	0	0	10.9	32.1	29.8	15.1	168.1	21.6	58.1	10.6	72.8
2004	33.6	4.5	69	30.5	37	2.3	0	0	3	48.3	77.3	10.6	316.2	53.2	136.6	2.3	128.7
2005	25.4	10.9	96.5	31	29	0	0	0	2.6	7.8	44.6	29	276.8	46.9	156.5	0	55
2006	25.3	25.1	5.1	44.6	-	4.6	0	0	0	15	19.4	33.4	-	79.4	-	4.6	34.4
2007	0.1	16.5	5.9	34.8	14.4	7.8	0	0	3.1	-	-	-	-	50	55	7.8	-

Note: "-" = missing data.

Table A1-24: Chesterfield Inlet: Adjusted Precipitation Data (mm), 1931 to 2007

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Winter	Spring	Summer	Autumn
1931	-	23.5	5.9	17	8.5	84.3	26.9	12.4	55.1	43.8	45.5	69.6	-	-	31.5	123.7	144.4
1932	11.7	34.8	6.4	79	8.5	18.7	62.4	96.9	77.9	98.5	74.3	50	619.2	116.1	93.9	178	250.7
1933	5.5	12.8	17.5	29.6	28.9	17.7	63.6	59	44.7	11.3	2.9	11.7	305.1	68.3	76	140.4	58.9
1934	4.7	2	5.9	5.9	10.9	20	85.2	61.8	37.5	65.1	26.6	30.7	356.4	18.4	22.8	167.1	129.1
1935	-	20.8	-	17.6	2.9	18.4	33.3	56.6	57.4	36.5	-	24.6	-	-	-	108.3	-
1936	2.7	30.5	63.4	49.5	30.4	21.9	18.5	26.1	89.7	56.4	26	20.8	436	57.9	143.3	66.5	172.1
1937	36.6	59.6	28.6	41.5	36.6	20.9	160.7	52.8	31.8	45.8	16.6	56.1	587.5	117	106.6	234.4	94.2
1938	37.2	17	23.7	29.5	31.7	12	41.1	37.4	32.3	43.7	50.3	54.3	410.2	110.3	84.9	90.5	126.3
1939	16.7	14.3	20.8	46.5	14.7	36.2	43.8	79.9	44.1	58.6	24.6	22.6	423	85.3	82	159.9	127.4
1940	16.6	10.1	22.3	38.4	22	41.8	43.3	26.3	33.4	71.1	48.2	23.7	397.1	49.3	82.7	111.5	152.6
1941	28.4	9.9	18.6	15.1	44.8	16.9	41.8	54.1	34.2	-	43.8	30.6	-	62	78.4	112.8	-
1942	23.6	25.8	63.4	100.7	65.5	42.6	21.3	39.9	12	59.9	54.4	29.3	538.4	80	229.6	103.8	126.3
1943	9.3	1.1	12.5	15	20.5	2.8	52.5	-	38	24.7	23	15.7	-	39.7	48	-	85.6
1944	6.4	4.6	7	12.8	14.2	16.9	65.2	50.5	49.9	72.2	84.5	4.4	388.5	26.6	34	132.6	206.5
1945	31.2	14.9	50.3	29.6	-	38.5	29.8	14.1	22.5	17.1	39.4	1.7	-	50.5	-	82.4	79
1946	7.6	6.7	11.3	6.8	12.3	36.8	72.8	49.1	63	43	19.2	16.1	344.7	16	30.4	158.7	125.2
1947	2.7	21.2	9.3	13.1	37.7	26.7	58.7	60.8	75.2	70.6	43.6	17.9	437.6	40	60	146.3	189.5
1948	12.5	8.1	16	14.2	20	17.4	28.3	78.9	31.6	18.5	-	13.1	-	38.5	50.1	124.6	-
1949	12.6	1.8	14.3	42.7	10.2	79.4	-	4.3	5.8	-	5.3	13.4	-	27.5	67.2	-	-
1950	0.2	4	5.8	6.1	9.8	38.3	18.5	22.3	36	52.7	36.7	50.2	280.5	17.5	21.7	79.1	125.4
1951	14.6	12.6	16.3	27.4	25.1	24.7	40.6	22.1	23.5	41.4	19.6	17.8	285.9	77.4	68.8	87.5	84.6
1952	7.2	3.5	6.8	23.6	11.1	25.2	63.4	76.7	61.1	42.3	9	105.8	435.6	28.5	41.5	165.3	112.4
1953	6.8	14.5	27.2	21.7	10.3	12.5	51.8	41.3	36.8	34.4	57.9	13.4	328.6	127.1	59.3	105.6	129
1954	1.5	15.5	12.5	18.9	13.8	40.4	30.5	9.1	49.4	18.8	14.1	9.7	234.1	30.4	45.1	80	82.3
1955	28.1	2	11.1	20.7	16.9	51.1	60	79.4	72.6	35.6	20.2	21.3	419	39.8	48.6	190.5	128.4
1956	21.4	6.1	4.3	31.6	11.1	2.8	30.8	69.5	20	64.4	13.7	10.5	286.2	48.8	47	103.1	98.1
1957	2.3	8.1	8.7	13.2	16.4	8.6	31.7	28	40.5	12.9	20.8	7	198.2	20.8	38.3	68.3	74.2
1958	16.7	12.2	9.3	6.2	30.5	34.2	60	25.9	61.5	41.5	29.5	7	334.5	35.9	46	120.2	132.5
1959	17.8	3.2	11.6	3	22.3	83.4	31.8	83.1	69	23.8	9.1	8.2	366.2	27.9	37	198.2	101.9
1960	5	7.1	13.5	5.3	7.7	12.6	65.7	46.9	56.1	34.1	21.7	5.8	281.6	20.3	26.5	125.2	112
1961	5	12.9	6.4	31.9	4.9	31.2	27.7	35	167.8	70.2	59	107.2	559.2	23.7	43.2	93.9	296.9
1962	0.9	0.6	31.5	41	79.5	23.8	19.7	38.6	27.1	69.5	18.2	6.2	356.7	108.7	152	82	114.9
1963	7.4	3.9	6.2	11.1	24.9	9.8	59.8	42.2	30.4	97.3	50.5	12.4	356	17.6	42.2	111.8	178.2
1964	26.9	4.6	4.8	25.2	21.4	49.7	24.8	30.7	31.7	38.3	26.9	9.7	294.5	43.9	51.4	105.2	96.8
1965	8	3	6.4	12.1	6.4	56.5	51.9	13.9	35.6	24.8	24.1	20	262.7	20.7	24.9	122.3	84.5
1966	11.8	18.7	7.7	12.4	49.5	24.2	20.8	46.4	37.4	20.9	20.8	14.4	285.1	50.6	69.7	91.4	79.1
1967	10.3	2	17.9	8.5	33.7	37.7	59.2	34.9	106.2	41.7	29.5	42.3	424	26.7	60.1	131.9	177.3
1968	15.5	11.7	50	15.2	27.4	36.5	46.3	38.2	77.8	62.4	47.7	24.6	453.4	69.5	92.7	121.1	187.8
1969	21.6	11.1	14.6	24.3	15.3	24.4	49.4	39.6	13.8	15.5	48	43.8	321.5	57.3	54.2	113.5	77.3

Table A1-24: Chesterfield Inlet: Adjusted Precipitation Data (mm), 1931 to 2007 (continued)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Winter	Spring	Summer	Autumn
1970	28.4	2.4	15.8	1.9	18.4	34.5	122.7	46.8	75.1	122.4	35	4.1	507.6	74.6	36.1	204	232.5
1971	27.4	9.1	2.9	11.6	19.9	32.3	4.7	39.6	32.5	92.3	33.8	3.6	309.7	40.6	34.3	76.6	158.6
1972	2	4.5	14.4	5	36.6	7.1	77.7	31	28.3	21.7	32.1	5	265.3	10.1	56	115.7	82.1
1973	20.8	10.2	21.4	24.5	4.5	53.7	8.9	106.8	39.8	56.5	22.2	11.5	380.8	36	50.4	169.4	118.4
1974	8.8	15.5	12.1	24	1.5	23.9	29.1	42.4	42.9	79.3	47.3	43.2	370	35.8	37.7	95.4	169.5
1975	17.8	18.7	6.7	10.2	27.7	19.7	50.9	48.6	36.3	52.4	29.5	10.3	328.6	79.6	44.5	119.1	118.2
1976	14.3	6.4	7.4	26.8	27.4	19.7	41.5	27.1	54.1	57.4	63.1	11.1	356.2	31	61.6	88.3	174.6
1977	47.5	9.2	23.1	35.8	18.2	38.5	28.6	22.1	17	97.5	43.2	30.2	411.1	67.8	77.1	89.3	157.8
1978	3.3	10.3	12	41.9	40.7	17.3	91.6	31.7	11.3	53.2	28.8	10.4	352.6	43.8	94.6	140.6	93.4
1979	8.2	2.7	16.1	36.8	13.5	37.3	19.6	57.7	66.7	-	-	22.1	-	21.3	66.3	114.6	-
1980	5.6	7.3	21.4	13.6	29.9	11.3	92.6	78.4	93.3	30.4	31.9	43.5	459.2	35	64.9	182.4	155.6
1981	31.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1982	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1983	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1984	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1985	10.4	33.4	25.8	45.6	13.4	-	42.5	74.2	26.8	15.2	50.2	34.2	-	-	84.8	-	92.1
1986	12.6	6.2	6.3	35.5	25.2	-	0	33.2	65.9	41.8	80.6	44.2	-	52.9	67	-	188.2
1987	16.8	97.4	48.6	95.8	0.3	48.8	0.3	100.9	16.8	47.3	65.4	56.8	595.3	158.4	144.7	150	129.5
1988	18.4	23	12.5	15.3	3.1	5.4	24	-	38.3	39.9	43	16.8	-	98.2	30.9	-	121.2
1989	15.4	4.6	9.6	0	11.1	7.9	21.1	26.9	72.3	11.3	31.3	18.4	229.8	36.9	20.7	55.9	114.8
1990	17	13.9	45.6	27.4	25	29.1	70.7	94.8	31.7	49.4	45.8	10.7	461	49.4	98	194.6	126.8
1991	92.9	24.4	60	100.6	22.6	2.3	99.7	36.5	39.8	52.5	44	19.9	595	128	183.2	138.4	136.3
1992	52.2	5.3	18.9	27.5	7.7	16.1	11.6	27.1	39.5	30.1	23.8	23.2	283	77.4	54.1	54.8	93.5
1993	3.4	5	1.1	2.8	7.6	9.9	28.3	94.1	27.4	29	32.9	40.2	281.7	31.6	11.5	132.2	89.3
1994	4.6	3.2	13.3	22.2	1.5	26.1	1.4	46.9	72.5	12.3	38.8	19.4	262.3	48	37	74.5	123.6
1995	3.7	1.7	7.7	43	5.1	14.9	37.3	36.4	25.2	41.6	13.8	6.1	236.3	24.8	55.8	88.6	80.6
1996	3.4	2.7	9.6	1.3	1.9	35.5	39.6	56.7	49.1	14.4	9.1	16.7	240.1	12.2	12.8	131.8	72.6
1997	0	0	0	0	0	0	17.3	39.7	22.6	68.8	18.4	29.8	196.7	16.7	0	57	109.8
1998	5	13.8	9.4	6.8	19.4	25.8	116.4	68.5	63	29.5	21.1	9.3	387.9	48.7	35.5	210.6	113.6
1999	10.2	23.5	24.7	17.5	27.7	71.7	27.5	79.2	45.8	29.8	21.1	47.1	425.8	43	69.9	178.4	96.7
2000	7.4	25.9	14.2	23.3	7.4	3.9	14.8	56.3	33.3	19.4	27.2	8.1	241.1	80.3	44.9	75	80
2001	12.6	9.4	14.7	17	64.4	28.9	55.9	32.5	27.7	39.2	27.7	27.9	358	30.1	96.2	117.4	94.6
2002	9.5	0.1	4.8	18.6	20.1	16.4	64.6	46.9	48.7	33.3	27.8	10.5	301.4	37.5	43.5	127.8	109.9
2003	7.9	3.5	19	10	42.7	39.7	28.9	52.7	44.5	55.7	30.1	15.1	349.9	21.9	71.8	121.3	130.2
2004	33.6	4.5	69	30.5	37	17.2	15.8	35.8	77.3	50.3	77.3	10.6	459	53.2	136.6	68.9	204.9
2005	25.4	10.9	96.5	32.9	65	14.7	63.2	21.8	46.8	32.9	44.6	29	483.6	46.9	194.4	99.7	124.2
2006	25.3	25.1	5.1	44.8	-	49.9	54	36.9	12.1	61.1	19.8	33.4	-	79.4	-	140.7	93.1
2007	0.1	16.5	5.9	34.8	17	38.6	33	83.3	27.7	-	-	-	-	50	57.7	154.9	-

Note: "-" = missing data

A1-6 RAIN GAUGE DATA

Table A1-25: Meliadine Camp: Rain Gauge Data (mm), 1997 to 1999

Day	1997				1998				1999				
	Jun	Jul	Aug	Sep	Jun	Jul	Aug	Sep	Jun	Jul	Aug	Sep	Oct
1		0.0		0.0	0.0	1.7		1.3		0.0	0.0	0.1	0.0
2		0.0		0.0	0.0	0.0		0.0		0.0	0.6	0.0	0.0
3		0.0		0.0	0.0	0.0		0.0		0.0	0.0	11.3	0.0
4		0.0		7.4	0.0	0.0		3.7		0.0	0.0	0.0	0.0
5		4.4		0.0	0.0	0.0		0.2	0.0	0.0	0.1	0.1	0.0
6		0.0		0.2	0.0	4.5		2.4	0.0	0.0	0.2	0.0	0.0
7		4.0		0.0	0.0			0.0	0.0	0.0	7.8	0.0	
8		1.1		0.0	0.0		0.0	1.5	0.0	0.8	0.0	0.0	
9		3.4		0.0	0.7		0.0	3.6	0.0	0.0	0.0	0.0	
10		0.0		0.0	2.2		0.0	0.0	0.8	2.1	1.0	0.0	
11		0.0		0.0	0.0		0.1	0.0	0.0	5.1	8.8	0.0	
12		0.0			3.2		0.9	0.8	0.1	0.0	0.0	0.0	
13		0.0	0.0	0.2	2.5		0.0	0.1	0.0	7.3	0.0	2.0	
14		0.0		0.1	0.0		0.0	16.3	0.0	4.9	0.1	0.2	
15		0.6	0.0	0.0	0.0		0.0	0.7	0.0	0.0	0.0	10.2	
16		0.0	0.0		0.0		0.0	0.0	0.0	0.2	2.5	0.0	
17		0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0	
18		0.0			0.0		0.0	0.0	0.0	0.0	4.6	0.0	
19		0.0	1.4		0.4		1.8	0.0	0.0	0.3	4.3	0.0	
20		0.0	0.0	0.3	0.0		6.3	0.3	0.1	0.1	1.2	6.1	
21		0.0	0.0	0.0	0.0		0.0	0.1	0.0	0.0	0.0	10.4	
22		2.5			2.2		0.0	0.1	0.8	0.0	0.0	0.0	
23	0.0	0.0	5.0		0.0		0.0	0.2	56.1	0.0	1.1	0.0	
24	0.3	0.0			0.0		0.0	0.0	1.3	0.0	5.7	2.8	
25	1.4	0.0			0.0		0.0	0.0	0.0	3.3	0.0	5.0	
26	6.2	0.0			0.0		0.0	0.0	0.0	23.8	31.4	0.0	
27	2.8	0.0			0.0		0.9	0.2	0.7	1.6	1.3	0.0	
28	17.4	0.0	0.0		0.0		3.8	0.5	0.0	0.6	0.0	0.3	
29	0.6	0.0	0.0		0.0		0.3	1.4	0.0	0.1	1.3	0.7	
30			4.0	8.5	0.3		0.2	2.8	0.0	0.0	0.0	0.0	
31			0.0				7.2			0.0	6.1		

Note: blank= not recorded or not available.

Table A1-26: Meliadine Camp: Rain Gauge Data (mm), 2000, 2008 & 2009

Day	2000				2008				2009			
	Jun	Jul	Aug	Sep	Jun	Jul	Aug	Sep	Jun	Jul	Aug	Sep
1	0.0	0.0	0.0	0.1		0.0	0.0	0.0		0.0	0.1	6.5
2	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.4
3	0.0	0.0	0.0	0.0		0.1	2.9	0.0		0.0	0.0	0.0
4	0.3	0.0	0.0	0.0		0.0	1.3	0.1		0.0	0.0	0.1
5	0.0	0.0	0.0	1.7		0.2	0.0	0.5		0.0	0.0	7.9
6	0.0	0.0	0.0	0.0		0.6	0.1	0.5		0.0	0.0	0.0
7	0.0	0.0	1.3	2.8		0.0	0.0	0.0		0.0	13.8	0.0
8	0.0	0.0	0.0	0.0		0.2	0.0	0.2		0.0	3.4	2.8
9	0.0	0.0	0.0	0.0		0.1	0.3	2.4		0.6	0.0	6.4
10	0.0	0.0	0.3	0.5		0.0	0.0	0.7	0.0	19.2	0.0	0.0
11	0.0	0.0	6.2	0.0		0.0	0.0	1.6	0.0	17.7	6.6	0.0
12	0.0	0.0	0.0	0.0		0.0	0.7	0.0	6.2	0.0	0.7	7.3
13	0.0	0.0	0.0	3.4		0.0	1.7	0.0	0.3	0.0	0.0	0.0
14	0.0	0.5	0.0	0.5		6.4	16.5	2.2	0.0	0.0	0.0	0.0
15	0.0	2.7	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	
17	0.0	0.0	7.0	0.0	0.0	3.1	0.0		0.0	0.0	0.0	
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
19	0.0	0.0	0.2	0.0	0.0	0.0	0.4		0.0	0.1	0.0	
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0		5.9	0.0	6.1	
21	0.0	0.0	2.7	0.0	0.0	0.0	0.0		0.0	0.0	0.4	
22	0.0	0.0	0.4	0.0	0.0	2.4	0.0		0.0	2.8	3.4	
23	0.0	0.0	0.0	1.7	0.0	0.0	0.0		0.0	0.2	0.0	
24	0.1	0.0	9.0	0.4	1.6	3.0	0.2		0.0	0.0	0.0	
25	0.1	0.0	6.5	0.0	0.0	7.2	0.9		0.0	0.0	0.0	
26	0.0	0.0	0.0	0.0	4.5	2.2	1.9		0.0	0.0	0.0	
27	0.0	0.0	3.7	0.0	0.0	0.0	3.4		0.0	3.6	0.0	
28	0.0	0.0	4.1	0.0	0.0	0.0	0.9		0.0	0.0	0.0	
29	0.0	0.2	6.0	0.0	3.1	16.1	0.2		0.0	0.0	0.0	
30	0.1	8.4	0.0	0.0	0.0	0.0	0.1		0.0	12.9	0.0	
31	0.0	0.0	0.0			0.0	11.0			5.4	7.2	

Note: blank= not recorded or not available.

A1-7 EVAPORATION DATA

A1-7.1 Meliadine Camp: Evaporation Data, 1997

Table A1-27: Pan Evaporation Data, 1997

DATE (1997)	Water (mm)				Water Temperature (°C)		Time Of Observation
	Added	Removed	Rain	Net Loss	Max.	Min.	
01-Jun							
02-Jun							
03-Jun							
04-Jun							
05-Jun							
06-Jun							
07-Jun							
08-Jun							
09-Jun							
10-Jun							
11-Jun							
12-Jun							
13-Jun							
14-Jun							
15-Jun							
16-Jun							
17-Jun							
18-Jun							
19-Jun							
20-Jun							
21-Jun							
22-Jun							
23-Jun	2.55		0.00	2.55	29	15	7:00 PM
24-Jun	6.60		0.30	6.90	21	11	9:00 PM
25-Jun	1.57		1.40	2.97			
26-Jun		3.40	6.20	2.80	25	10	11:00 PM
27-Jun		2.00	2.80	0.80	21	12	11:00 AM
28-Jun		9.90	17.40	7.50	24	12	2:30 PM
29-Jun	1.80		0.60	2.40	23	14	7:00 PM
30-Jun							
01-Jul	4.75		0.00	4.75	19	5	1:30 PM
02-Jul	10.80		0.00	10.80	22	9	11:00 AM
03-Jul	8.80		0.00	8.80	22	8	7:00 PM
04-Jul	6.50		0.00	6.50	15	5	7:00 PM
05-Jul	2.40		4.40	6.80	20	5	7:00 PM
06-Jul	3.50		0.00	3.50	26	6	7:00 PM
07-Jul	4.70		4.00	8.70	23	10	7:00 PM
08-Jul	5.00		1.10	6.10	23	12	7:00 PM
09-Jul	0.00		3.40	3.40	20	9	7:00 PM
10-Jul	5.00		0.00	5.00	25	9	7:00 PM

Table A1-27: Pan Evaporation Data, 1997 (continued)

DATE (1997)	Water (mm)				Water Temperature (°C)		Time Of Observation
	Added	Removed	Rain	Net Loss	Max.	Min.	
11-Jul	7.20		0.00	7.20	24	7	7:00 PM
12-Jul	5.40		0.00	5.40	22	9	7:00 PM
13-Jul	7.20		0.00	7.20	22	7	7:00 PM
14-Jul	6.70		0.00	6.70	12	7	7:00 PM
15-Jul	4.80		0.60	5.40	12	7	7:00 PM
16-Jul	7.70		0.00	7.70	19	7	7:00 PM
17-Jul	7.20		0.00	7.20	22	11	7:00 PM
18-Jul	7.00		0.00	7.00	24	10	11:00 AM
19-Jul	13.60		0.00	13.60	24	10	11:00 AM
20-Jul			0.00				
21-Jul			0.00				
22-Jul	9.40		2.50	11.90	26	7	7:00 PM
23-Jul	3.60		0.00	3.60	29	15	7:00 PM
24-Jul	10.40		0.00	10.40	21	11	9:00 PM
25-Jul			0.00				
26-Jul	14.60		0.00	14.60	25	10	11:00 PM
27-Jul	1.90		0.00	1.90	21	12	11:00 AM
28-Jul	11.40		0.00	11.40	24	12	2:30 PM
29-Jul	7.20		0.00	7.20	23	14	7:00 PM
30-Jul							
31-Jul							
01-Aug							
02-Aug							
03-Aug							
04-Aug							
05-Aug							
06-Aug							
07-Aug							
08-Aug							
09-Aug							
10-Aug							
11-Aug							
12-Aug							
13-Aug	8.50		0.00	8.50	15	5	6:30 PM
14-Aug							
15-Aug	5.50		0.00	5.50	20	5	11:30 AM
16-Aug	6.20		0.00	6.20	22	9	6:30 PM
17-Aug							
18-Aug							
19-Aug	11.20		1.40	12.60	22	10	8:00 PM
20-Aug	4.80		0.00	4.80	22	12	6:30 PM
21-Aug	3.60		0.00	3.60	11	12	9:00 PM
22-Aug							
23-Aug	3.60		5.00	8.60	19	8	9:00 PM
24-Aug							
25-Aug	4.70			4.70	14	8	9:00 PM
26-Aug							

Table A1-27: Pan Evaporation Data, 1997 (continued)

DATE (1997)	Water (mm)				Water Temperature (°C)		Time Of Observation
	Added	Removed	Rain	Net Loss	Max.	Min.	
27-Aug							
28-Aug	10.10		0.00	10.10	26	8	9:00 PM
29-Aug	1.70		0.00	1.70	17	8	8:30 PM
30-Aug	1.50		4.00	5.50	20	10	8:30 PM
31-Aug	3.20		0.00	3.20	10	8	7:15 PM
01-Sep	6.20		0.00	6.20	10	0	8:30 PM
02-Sep	3.80		0.00	3.80	15	5	9:00 PM
03-Sep	3.80		0.00	3.80	20	8	5:00 PM
04-Sep		6.00	7.40	1.40	10	5	6:50 PM
05-Sep	4.80		0.00	4.80	10	5	9:00 PM
06-Sep	1.40		0.20	1.60	12	2	8:10 PM
07-Sep	3.60		0.00	3.60	10	4	8:20 PM
08-Sep			0.00	0.00	8	3	8:35 PM
09-Sep	3.80		0.00	3.80	6	3	8:30 PM
10-Sep	1.00		0.00	1.00	10	3	8:30 PM
11-Sep	4.00		0.00	4.00	9	4	6:45 PM
12-Sep							
13-Sep	3.80		0.20	4.00	9	1	8:00 PM
14-Sep	0.00		0.10	0.10	6	0	6:45 PM
15-Sep	4.20		0.00	4.20	7	0	7:45 PM
16-Sep							
17-Sep							
18-Sep							
19-Sep							
20-Sep	11.20		0.25	11.45	5	0	6:25 PM
21-Sep		3.00	0.00	-3.00	5	0	8:00 PM
22-Sep							
23-Sep							
24-Sep							
25-Sep							
26-Sep							
27-Sep							
28-Sep							
29-Sep							
30-Sep	iced	iced	8.50				7:30 PM
Totals	**305.47**	**24.30**	**71.75**	**352.92**			

A1-7.2 Meliadine Camp: Evaporation Data, 1998

Table A1-28: Meliadine Camp: Evaporation Data, 1998

Date (1998)	Pan Evap. (mm)	Water Temperature *Tw* (°C)			Mean Air Temp *Ta* (°C)	Wind Speed (km/h)	*Up* (km)	*Alpha*	*T*	Lake Evap. (mm)	Pan Coefficient
		Max.	Min.	Average							
16-Jun	3.6	11.0	1.0	6.0	5.3	9.5	226.8	0.51	0.69	2.7	0.74
17-Jun	5.2	18.0	11.0	14.5	5.8	9.1	217.6	0.60	6.69	5.3	1.02
18-Jun	3.3	18.0	5.0	11.5	5.5	9.5	229.1	0.57	4.81	3.5	1.06
19-Jun	2.2	11.0	6.0	8.5	5.9	6.5	155.9	0.53	2.29	2.0	0.89
20-Jun	3.6	19.0	2.0	10.5	8.0	7.4	177.8	0.54	2.22	3.0	0.82
21-Jun	4.2	18.0	3.0	10.5	7.0	7.4	178.3	0.54	3.03	3.6	0.85
22-Jun	2.6	15.0	8.0	11.5	6.6	13.8	330.4	0.59	4.05	3.1	1.20
23-Jun	4.9	16.0	5.0	10.5	7.2	15.7	377.2	0.59	2.85	4.4	0.91
24-Jun	2.9	15.0	8.0	11.5	8.6	13.0	312.6	0.59	2.53	2.8	0.97
26-Jun	4.2	17.0	7.0	12.0	10.9	16.5	395.6	0.60	1.06	3.3	0.80
27-Jun	8.4	17.0	6.0	11.5	9.9	18.3	438.1	0.60	1.50	6.5	0.77
29-Jun	5.7	21.0	3.0	12.0	12.2	11.5	276.3	0.58	-0.26	3.9	0.69
30-Jun	7.0	16.0	8.0	12.0	10.6	25.1	602.9	0.62	1.31	5.6	0.80
1-Jul	3.6	13.0	3.0	8.0	10.5	41.1	985.6	0.60	-2.23	0.8	0.21
2-Jul	3.6	13.0	3.0	8.0	12.0	27.3	655.5	0.58	-3.36	0.7	0.20
9-Aug	2.4	17.0	7.0	12.0	12.2	12.8	306.0	0.59	-0.28	1.6	0.66
10-Aug	5.1	18.0	12.0	15.0	12.3	17.8	427.8	0.64	2.40	4.6	0.90
11-Aug	2.4	14.0	7.0	10.5	13.5	19.7	473.6	0.60	-2.60	0.6	0.24
12-Aug	4.5	16.0	11.0	13.5	12.8	28.9	694.3	0.64	0.74	3.6	0.80
15-Aug	9.7	18.0	11.0	14.5	10.9	15.6	375.5	0.63	3.07	7.9	0.82
16-Aug	3.6	17.0	12.0	14.5	12.7	9.6	231.5	0.60	1.68	3.0	0.82
17-Aug	3.6	22.0	9.0	15.5	14.7	13.4	321.4	0.63	0.82	2.8	0.78
18-Aug	3.6	22.0	9.0	15.5	17.8	19.6	469.4	0.65	-2.11	1.5	0.43
19-Aug	5.6	22.0	9.0	15.5	14.3	27.0	649.0	0.66	1.22	4.7	0.83
20-Aug	5.3	17.0	5.0	11.0	7.5	55.6	1334.1	0.66	3.04	7.1	1.34
21-Aug	5.3	17.0	5.0	11.0	9.3	39.6	951.4	0.63	1.57	5.0	0.94
22-Aug	3.0	15.0	7.0	11.0	11.1	5.6	135.1	0.54	-0.14	2.1	0.69
23-Aug	1.1	10.0	10.0	10.0	7.9	13.3	320.0	0.57	1.92	1.4	1.24
24-Aug	2.1	11.0	11.0	11.0	6.9	10.9	261.3	0.57	3.45	2.4	1.14
25-Aug	1.8	9.0	7.5	8.25	4.9	12.1	290.3	0.55	2.93	2.1	1.15
26-Aug	0.9	16.0	5.0	10.5	6.3	10.3	248.0	0.56	3.55	1.5	1.70
27-Aug	2.0	11.0	11.0	11.0	7.9	22.3	535.7	0.61	2.72	2.7	1.35
28-Aug	-2.0	8.0	8.0	8.0	7.6	25.6	614.5	0.58	0.49	-1.2	0.58
29-Aug	0.0	9.0	9.0	9.0	7.9	15.1	363.1	0.57	1.05	0.3	
30-Aug	4.2	13.0	7.0	10.0	8.4	10.0	240.2	0.55	1.47	3.3	0.79
31-Aug	0.5	12.0	8.0	10.0	8.0	27.5	658.9	0.61	1.83	1.4	2.75
1-Sep	0.4	12.0	6.0	9.0	7.9	13.4	322.4	0.56	1.12	0.6	1.55
2-Sep	3.9	14.0	5.0	9.5	8.9	7.2	172.0	0.53	0.60	2.8	0.73
3-Sep	-0.9	14.0	5.0	9.5	7.1	16.1	387.0	0.58	2.12	0.1	-0.14
4-Sep	3.0	14.0	5.0	9.5	7.7	16.4	392.5	0.58	1.69	2.7	0.90
5-Sep	-0.2	14.0	5.0	9.5	9.4	11.9	286.3	0.56	0.14	-0.1	0.51
6-Sep	0.4	14.0	5.0	9.5	9.4	15.4	369.7	0.58	0.14	0.3	0.82
7-Sep	0.9	14.0	5.0	9.5	6.5	10.8	258.6	0.55	2.60	1.3	1.44
8-Sep	1.6	5.6	5.2	5.4	6.8	22.5	540.3	0.55	-1.34	0.5	0.34

Table A1-28: Meliadine Camp: Evaporation Data, 1998 (continued)

Date (1998)	Pan Evap. (mm)	Water Temperature *Tw* (°C)			Mean Air Temp *Ta* (°C)	Wind Speed (km/h)	*Up* (km)	*Alpha*	*T*	Lake Evap. (mm)	Pan Coefficient
		Max.	Min.	Average							
9-Sep	2.1	10.8	5.6	8.2	10.8	19.5	467.8	0.57	-2.34	0.5	0.25
11-Sep	5.0	10.6	9.8	10.2	10.0	19.8	474.5	0.60	0.25	3.6	0.72
12-Sep	1.0	10.2	0.8	5.5	8.7	14.3	342.1	0.53	-2.76	-0.1	-0.12
13-Sep	5.4	10.4	5.2	7.8	8.6	15.3	367.3	0.56	-0.78	3.5	0.65
Sum	**152.3**									**125.4**	**0.82**

Notes:
Elake=0.7*(Epan+0.00642*P*Alpha*(0.37+0.00255*Up)*T)
P=station pressure (kilopascal), P=101.325*(1-0.00002257*Z)^5.25, Z=station elevation, Z=58 m here, P=100.6306 kpa
Alpha=fraction of advected energy (Class A Pan) used for evaporation.
Alpha=0.35+0.01044*Tw+0.000559*Up; when 0<=Up<161
Alpha=0.35+0.01044*Tw+0.08+0.000249*(Up-161); when 161<=Up<322.
Alpha=0.35+0.01044*Tw+0.12+0.000124*(Up-322); when 322<=Up<483
Alpha=0.35+0.01044*Tw+0.14+0.000062*(Up-483); when Up>=483
Up=daily wind run across pan (km). Up=average wind speed*24
T=mean water and air temperature difference function.
T=(Tw-Ta)^0.88, when Tw>Ta; T=-[(Ta-Tw)^0.88], when Tw<Ta; T=0, when Tw=Ta
Tw=mean water temperature; Ta=mean air temperature.

A1-7.3 Meliadine Camp: Evaporation Data, 1999

Table A1-29: Meliadine Camp: Evaporation Data, 1999

Date (1999)	Pan Evap. (mm)	Water Temperature *Tw* (°C)			Mean Air Temp *Ta* (°C)	Wind Speed (km/h)	*Up* (km)	*Alpha*	*T*	Lake Evap. (mm)	Pan Coefficient
		Max.	Min.	Average							
13-Jul	1.6	16.0	9.0	12.5	11.7	9.8	234.0	0.58	0.84	1.3	0.83
14-Jul	11.2	10.0	13.0	11.5	10.7	9.3	223.7	0.57	0.79	8.0	0.72
17-Jul	1.2	15.0	5.0	10.0	8.1	28.6	687.1	0.61	1.72	1.8	1.53
18-Jul	5.6	15.0	5.0	10.0	8.9	27.2	653.0	0.60	1.12	4.5	0.81
10-Aug	3.9	20.0	11.0	15.5	13.3	5.8	138.7	0.59	1.99	3.1	0.80
11-Aug	3.7	19.0	7.0	13.0	13.0	10.1	242.2	0.59	0.00	2.6	0.70
12-Aug	3.8	17.0	10.0	13.5	12.3	13.4	322.6	0.61	1.20	3.1	0.80
13-Aug	3.1	15.0	9.0	12.0	11.1	20.8	499.6	0.62	0.89	2.6	0.83
14-Aug	3.6	16.0	8.0	12.0	11.2	16.0	383.6	0.60	0.85	2.8	0.79
15-Aug	3.4	17.0	8.0	12.5	11.8	16.9	405.9	0.61	0.78	2.7	0.79
16-Aug	3.6	19.0	9.0	14.0	12.8	14.0	337.1	0.62	1.19	2.9	0.81
17-Aug	4.4	19.0	11.0	15.0	11.0	18.2	436.2	0.64	3.35	4.5	1.03
18-Aug	1.9	18.0	7.0	12.5	9.1	16.1	386.0	0.61	2.92	2.4	1.27
19-Aug	4.9	17.0	9.0	13.0	13.1	22.1	530.2	0.63	-0.10	3.4	0.69
20-Aug	2.8	17.0	11.0	14.0	11.1	34.1	819.0	0.66	2.54	3.8	1.36
21-Aug	4.7	13.0	7.0	10.0	8.9	33.7	808.2	0.61	1.05	4.0	0.85
22-Aug	3.2	12.0	5.0	8.5	7.1	21.5	516.6	0.58	1.33	2.8	0.88
23-Aug	1.8	10.0	6.0	8.0	7.3	13.5	323.0	0.55	0.74	1.5	0.82
24-Aug	1.7	9.0	5.0	7.0	6.9	22.4	537.0	0.57	0.18	1.3	0.75
25-Aug	2.0	14.0	4.0	9.0	8.4	11.2	269.9	0.55	0.66	1.6	0.79
26-Aug	9.2	14.0	7.0	10.5	7.5	36.3	871.0	0.62	2.60	8.3	0.91
27-Aug	3.2	8.0	7.0	7.5	7.4	27.9	669.1	0.58	0.16	2.3	0.73
28-Aug	3.5	10.0	3.0	6.5	7.5	30.3	728.2	0.57	-1.03	1.9	0.53
29-Aug	-1.0	11.0	5.5	8.25	9.1	16.7	401.8	0.57	-0.89	-1.0	1.02
30-Aug	-1.0	10.0	7.0	8.5	7.9	15.1	363.5	0.56	0.60	-0.5	0.50
2-Sep	7.8	20.0	11.0	15.5	5.1	15.8	378.1	0.64	7.87	8.5	1.09
3-Sep	2.9	6.0	0.0	3.0	6.3	27.5	661.0	0.53	-2.86	0.6	0.21
5-Sep	3.7	15.0	5.0	10.0	9.3	21.2	509.2	0.60	0.77	2.9	0.79
7-Sep	6.4	13.0	5.0	9.0	8.4	6.9	166.5	0.53	0.61	4.6	0.72
8-Sep	6.4	13.0	5.0	9.0	9.4	10.5	250.9	0.55	-0.48	4.4	0.68
Sum	**113.2**									**92.8**	**0.82**

Notes:
Elake=0.7*(Epan+0.00642*P*Alpha*(0.37+0.00255*Up)*T)
P=station pressure (kilopascal), P=101.325*(1-0.00002257*Z)^5.25, Z=station elevation, Z=58 m here, P=100.6306 kpa
Alpha=fraction of advected energy (Class A Pan) used for evaporation.
Alpha=0.35+0.01044*Tw+0.000559*Up; when 0<=Up<161
Alpha=0.35+0.01044*Tw+0.08+0.000249*(Up-161); when 161<=Up<322.
Alpha=0.35+0.01044*Tw+0.12+0.000124*(Up-322); when 322<=Up<483
Alpha=0.35+0.01044*Tw+0.14+0.000062*(Up-483); when Up>=483
Up=daily wind run across pan (km). Up=average wind speed*24
T=mean water and air temperature difference function.
T=(Tw-Ta)^0.88, when Tw>Ta; T=-[(Ta-Tw)^0.88], when Tw<Ta; T=0, when Tw=Ta
Tw=mean water temperature; Ta=mean air temperature.

A1-7.4 Meliadine Camp: Evaporation Data, 2000

Table A1-30: Meliadine Camp: Evaporation Data, 2000

Date (2000)	Pan Evap. (mm)	Water Temperature *Tw* (°C)			Mean Air Temp *Ta* (°C)	Wind Speed (km/h)	*Up* (km)	*Alpha*	*T*	Lake Evap. (mm)	Pan Coefficient
		Max.	Min.	Average							
23-Jul	5.8	25.0	11.0	18.0	14.2	15.9	381.6	0.67	3.24	5.40	0.93
25-Jul	4.4	25.0	11.0	18.0	14.5	8.9	213.6	0.63	3.01	3.9	0.88
28-Jul	5.5	28.0	11.0	19.5	12.5	15.9	381.6	0.68	5.54	6.1	1.12
29-Jul	2.8	24.0	11.0	17.5	15.5	12.6	302.4	0.65	1.84	2.6	0.92
7-Aug	4.8	25.0	13.0	19.0	17.7	14.7	352.8	0.67	1.26	3.8	0.80
9-Aug	5.4	24.0	8.0	16.0	14.9	15.5	372.0	0.64	1.09	4.2	0.78
21-Aug	1.8	14.0	8.0	11.0	11.3	10.5	252.0	0.57	-0.35	1.2	0.65
22-Aug	2.5	13.0	10.0	11.5	11.0	18.9	453.6	0.61	0.54	2.0	0.79
23-Aug	0.0	13.0	8.0	10.5	10.3	9.6	230.4	0.56	0.24	0.1	
24-Aug	3.0	14.0	10.0	12.0	10.7	8.3	199.2	0.56	1.26	2.4	0.79
30-Aug	4.2	13.0	3.0	8.0	2.9	34.6	830.4	0.60	4.19	5.7	1.37
31-Aug	4.2	6.0	1.0	3.5	3.8	33.4	801.6	0.55	-0.35	2.7	0.65
2-Sep	2.3	9.0	0.0	4.5	3.7	31.8	762.5	0.55	0.78	2.1	0.90
3-Sep	5.6	18.0	4.0	11.0	8.3	20.9	501.4	0.61	2.43	5.0	0.90
4-Sep	2.0	17.0	2.0	9.5	9.4	15.5	372.0	0.58	0.19	1.5	0.73
5-Sep	2.6	12.0	5.0	8.5	8.6	15.0	359.4	0.56	-0.16	1.8	0.68
6-Sep	2.5	13.0	2.0	7.5	9.3	13.4	321.6	0.55	-1.71	1.2	0.50
7-Sep	0.0	12.0	2.0	7.0	6.1	23.5	563.4	0.57	0.91	0.4	
8-Sep	0.1	13.0	1.0	7.0	4.9	13.8	330.9	0.54	1.93	0.6	6.47
9-Sep	-0.9	10.0	2.0	6.0	6.8	26.9	646.0	0.56	-0.86	-1.1	1.19
10-Sep	0.2	10.0	2.0	6.0	6.9	19.0	455.8	0.55	-0.91	-0.2	-1.03
11-Sep	3.4	11.0	1.0	6.0	8.3	26.3	632.2	0.56	-2.06	1.3	0.39
12-Sep	0.2	11.0	1.0	6.0	8.0	26.8	644.1	0.56	-1.81	-0.8	-3.94
13-Sep	4.0	11.0	1.0	6.0	6.9	18.9	454.8	0.55	-0.93	2.4	0.61
14-Sep	3.8	12.0	3.0	7.5	4.9	21.8	523.6	0.57	2.33	3.7	0.97
15-Sep	0.2	11.0	5.0	8.0	3.4	21.9	525.2	0.58	3.82	1.8	9.21
16-Sep	3.6	10.0	1.0	5.5	6.3	22.9	548.7	0.55	-0.82	2.2	0.60
17-Sep	2.1	11.0	1.0	6.0	3.7	43.3	1040.3	0.59	2.12	3.2	1.51
18-Sep	2.8	2.0	0.0	1.0	2.7	29.1	699.5	0.51	-1.61	1.2	0.41
19-Sep	7.0	2.0	0.0	1.0	1.8	11.0	263.0	0.47	-0.80	4.7	0.67
Sum	85.9									71.1	0.83

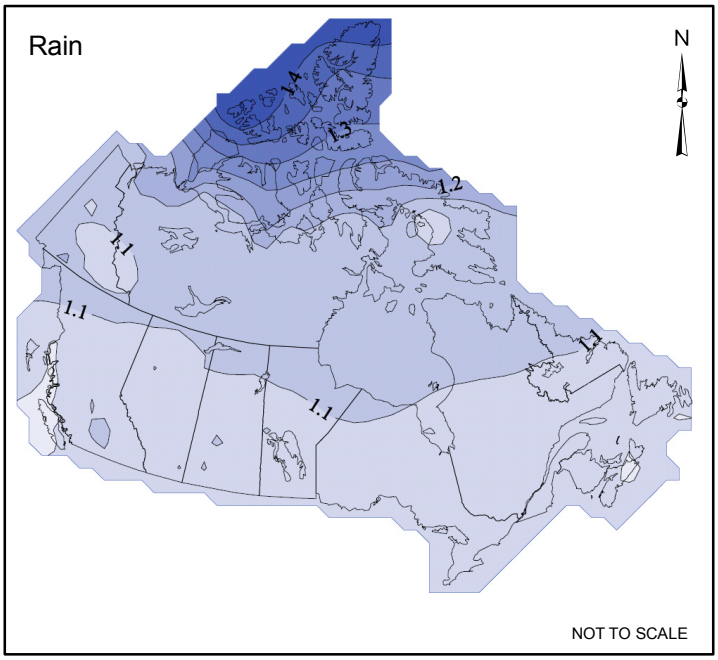
Notes:
Elake=0.7*(Epan+0.00642*P*Alpha*(0.37+0.00255*Up)*T)
P=station pressure (kilopascal), P=101.325*(1-0.00002257*Z)^5.25, Z=station elevation, Z=58 m here, P=100.6306 kpa
Alpha=fraction of advected energy (Class A Pan) used for evaporation.
Alpha=0.35+0.01044*Tw+0.000559*Up; when 0<=Up<161
Alpha=0.35+0.01044*Tw+0.08+0.000249*(Up-161); when 161<=Up<322.
Alpha=0.35+0.01044*Tw+0.12+0.000124*(Up-322); when 322<=Up<483
Alpha=0.35+0.01044*Tw+0.14+0.000062*(Up-483); when Up>=483
Up=daily wind run across pan (km). Up=average wind speed*24
T=mean water and air temperature difference function.
T=(Tw-Ta)^0.88, when Tw>Ta; T=-[(Ta-Tw)^0.88], when Tw<Ta; T=0, when Tw=Ta
Tw=mean water temperature; Ta=mean air temperature.

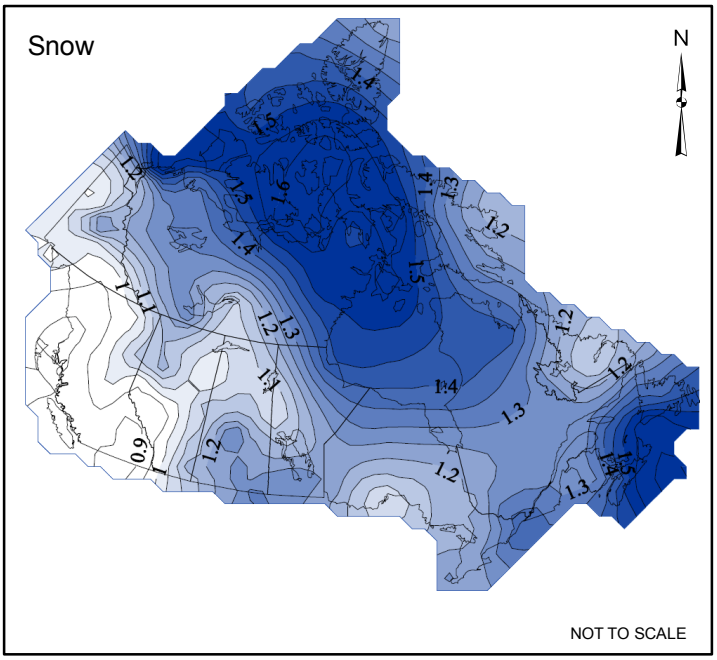
A1-8 RELATIVE HUMIDITY DATA

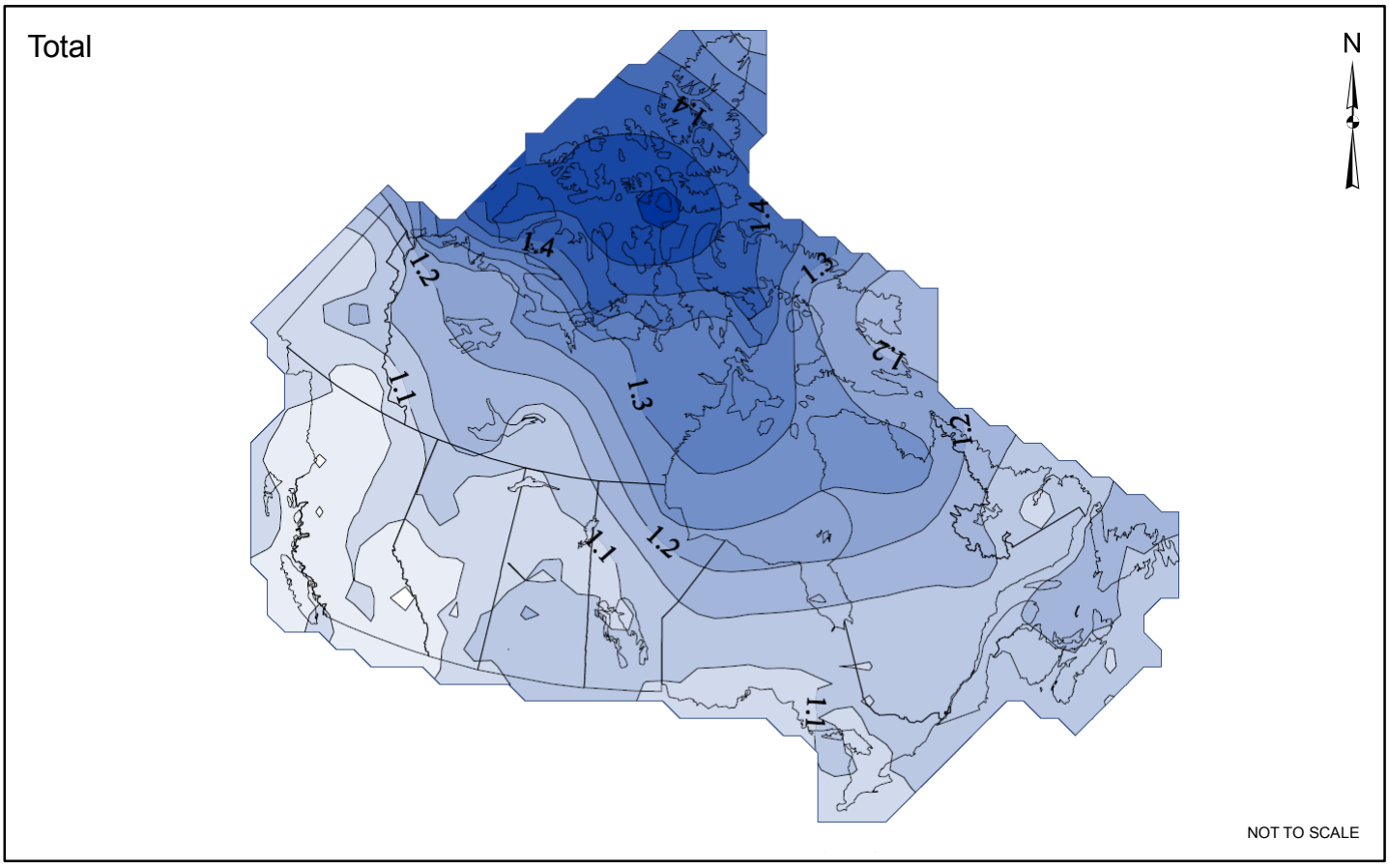
Table A1-31: Rankin Inlet A: Relative Humidity Data (%), 1981 to 2008

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1981	73.7	69.2	74.1	74.0	86.1	84.7	79.6	80.2	86.1	87.6	82.1	68.7	79.3
1982	62.2	63.9	64.3	74.6	88.8	86.1	78.4	78.6	87.0	90.2	72.6	67.5	76.5
1983	66.6	65.5	66.9	77.0	83.0	81.2	76.1	83.6	85.4	85.5	81.6	65.9	76.6
1984	64.1	68.3	69.4	79.4	85.0	78.6	80.1	83.9	81.0	85.1	76.5	64.2	76.3
1985	66.1	66.2	68.7	74.9	88.7	76.5	81.4	85.0	89.8	90.0	82.2	75.2	78.8
1986	69.8	68.5	71.6	79.0	84.9	80.6	78.9	78.7	86.2	82.7	71.3	69.0	76.8
1987	67.6	68.7	69.8	79.3	82.6	88.6	78.6	83.7	90.0	86.0	81.1	77.4	79.5
1988	63.8	65.3	67.8	81.4	85.3	78.9	72.5	76.2	79.2	74.4	71.1	61.6	73.2
1989	59.1	59.5	63.6	77.6	83.5	77.9	72.9	73.2	81.9	86.7	72.2	64.4	72.8
1990	64.8	64.3	75.5	76.8	87.1	81.2	81.6	83.7	83.4	83.7	80.4	67.1	77.6
1991	66.1	67.7	70.0	85.3	86.5	77.3	79.1	75.8	87.6	86.0	74.7	67.1	77.0
1992	68.3	65.5	70.3	76.6	89.5	88.1	80.9	85.9	85.7	87.9	76.9	69.9	78.8
1993	69.1	64.9	68.3	74.7	92.2	75.2	78.4	83.6	85.6	91.2	74.0	72.6	77.6
1994	66.4	65.9	70.5	79.7	89.2	75.0	67.7	82.3	83.9	88.3	82.5	75.2	77.3
1995	67.9	64.4	73.6	81.8	82.9	76.9	76.7	79.3	80.1	87.5	70.8	69.2	76.0
1996	67.6	68.1	67.3	77.8	83.0	79.0	67.5	83.9	87.4	87.3	79.8	75.0	77.0
1997	66.3	66.5	69.5	79.1	83.9	78.0	73.1	79.4	81.0	84.9	77.6	73.3	76.1
1998	65.6	68.6	67.2	82.0	87.6	83.8	81.5	86.9	90.8	89.4	91.9	75.4	80.9
1999	70.9	77.0	82.2	89.9	92.1	83.7	80.4	81.4	83.0	85.0	80.5	72.3	81.5
2000	65.5	67.5	72.8	75.1	84.4	77.4	73.6	81.0	81.7	89.7	76.7	70.2	76.4
2001	67.8	65.5	76.2	80.8	86.9	76.9	79.1	79.2	81.7	87.7	78.8	76.7	78.2
2002	68.1	66.5	68.0	76.0	84.6	85.1	79.9	85.7	80.4	76.8	68.3	63.2	75.3
2003	59.3	68.9	60.1	63.2	68.8	80.0	79.7	80.8	85.1	90.5	84.8	75.2	74.8
2004	69.3	67.3	69.0	73.5	89.2	83.7	74.3	80.0	90.1	89.0	76.1	67.8	77.5
2005	65.3	66.1	72.6	85.8	87.1	79.6	77.7	79.7	82.1	91.1	83.6	69.8	78.4
2006	70.6	68.4	77.5	86.6	91.1	80.9	74.3	73.9	73.0	89.3	79.5	76.3	78.5
2007	69.6	71.0	71.5	85.2	91.5	87.8	77.5	84.8	81.5	88.0	75.7	69.2	79.5
2008	67.2	66.2	66.9	81.7	85.8	80.6	80.1	84.0	80.8	85.9	78.6	65.9	77.0
Mean	**66.6**	**67.0**	**70.2**	**78.9**	**86.1**	**80.8**	**77.2**	**81.2**	**84.0**	**86.7**	**77.9**	**70.2**	**77.3**

Note: % = percentage







LEGEND

Magnitude of Correction for Precipitation

0.80 - 085	1.20 - 1.25
0.85 - 0.90	1.25 - 1.30
0.90 - 0.95	1.30 - 1.35
0.95 - 1.00	1.35 - 1.40
1.00 - 1.05	1.40 - 1.45
1.05 - 1.10	1.45 - 1.50
1.10 - 1.15	1.50 - 1.55
1.15 - 1.20	1.55 - 1.60
	1.60 - 1.65

REFERENCE

Magnitude of correction data obtained from Environment Canada (Mekis, 2004).

PROJECT

COMAPLEX MINERALS CORP

COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE

VARIATION OF UNDERCATCH FACTORS ACROSS CANADA

Golder Associates
Edmonton, Alberta

PROJECT NO. 09-1373-0010			PHASE No. 5000	
DESIGN	DC	27 Oct. 2009	SCALE AS SHOWN	REV. 0
GIS	CDB	27 Oct. 2009		
CHECK	NPS	17 Nov. 2009		
REVIEW	GA	25 Nov. 2009		

FIGURE A1-1

N:\Bur-Graphics\Projects\2007\1373\07-1373-0055\Mapping\MXD\2009\Hydrology\figure-a01-01_variation-undercatch-factors.mxd

FIELD DATA FROM PREVIOUS STUDIES

Introduction

This appendix presents all the previous hydrological data collected during the 1997 (AEE 1998a), 1998 (AEE 1998b), 1999 (AEE 1999), 2000 (AMEC 2000), and 2008 (Golder 2008) field seasons. The following symbols and units must be noted:

- m^3/s = cubic metres per second
- m = metres
- - = no available data
- B = ice conditions
- E = estimated
- P = partial

A2-1 MELIADINE LAKE MAIN OUTLET

Hydrometric data were measured during the open water seasons of 1997 to 2000 and 2008. Mean daily water levels and mean daily discharges at Meliadine Lake Main Outlet are presented in Tables A2-1 to A2-6.

Table A2-1: 1997 Meliadine Lake Main Outlet Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	6.82	1.92	0.831	-	-	-
2	-	-	-	-	-	-	6.67	2.05	0.805	-	-	-
3	-	-	-	-	-	-	6.55	2.09	0.798	-	-	-
4	-	-	-	-	-	-	6.14	2.07	0.876	-	-	-
5	-	-	-	-	-	-	6.13	2.07	0.856	-	-	-
6	-	-	-	-	-	-	6.04	1.76	0.810	-	-	-
7	-	-	-	-	-	-	5.99	1.93	0.808	-	-	-
8	-	-	-	-	-	-	5.95	1.71	0.791	-	-	-
9	-	-	-	-	-	-	6.03	1.63	0.757	-	-	-
10	-	-	-	-	-	-	5.77	1.51	0.710	-	-	-
11	-	-	-	-	-	-	5.59	1.53	0.691	-	-	-
12	-	-	-	-	-	6.39	5.48	1.56	0.652	-	-	-
13	-	-	-	-	-	-	5.55	1.55	0.649	-	-	-
14	-	-	-	-	-	-	5.26	1.51	0.596	-	-	-
15	-	-	-	-	-	-	4.98	1.47	0.531	-	-	-
16	-	-	-	-	-	-	4.73	1.43	0.558	-	-	-
17	-	-	-	-	-	-	4.22	1.41	0.597	-	-	-
18	-	-	-	-	-	-	4.03	1.21	0.527	-	-	-
19	-	-	-	-	0.600	-	4.01	1.19	0.465	-	-	-
20	-	-	-	-	-	-	3.91	1.22	0.445	-	-	-
21	-	-	-	-	-	-	3.72	1.24	0.445	-	-	-
22	-	-	-	-	-	-	3.67	1.23	0.415	-	-	-
23	-	-	-	-	-	6.71	3.64	1.25	0.421	-	-	-
24	-	-	-	-	-	6.63	3.96	1.25	0.446	-	-	-
25	-	-	-	-	-	6.53	3.73	1.18	0.477	-	-	-
26	-	-	-	-	-	6.52	3.54	1.08	-	-	-	-
27	-	-	-	-	-	6.58	3.38	1.06	-	-	-	-
28	-	-	-	-	-	6.59	3.25	0.992	-	-	-	-
29	-	-	-	-	-	7.09	3.00	1.00	-	-	-	-
30	-	-	-	-	-	6.87	2.58	1.02	-	-	-	-
31	-	-	-	-	-	-	2.10	0.899	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**6.39**	**2.10**	**0.899**	**0.415**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**0.600**	**6.66**	**4.72**	**1.45**	**0.638**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**7.09**	**6.82**	**2.09**	**0.876**	**-**	**-**	**-**

Table A2-2: 1997 Meliadine Lake Main Outlet Mean Daily Water Levels (m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	3.482	3.295	3.204	-	-	-
2	-	-	-	-	-	-	3.478	3.303	3.201	-	-	-
3	-	-	-	-	-	-	3.475	3.305	3.200	-	-	-
4	-	-	-	-	-	-	3.463	3.305	3.209	-	-	-
5	-	-	-	-	-	-	3.463	3.304	3.207	-	-	-
6	-	-	-	-	-	-	3.461	3.284	3.201	-	-	-
7	-	-	-	-	-	-	3.459	3.296	3.201	-	-	-
8	-	-	-	-	-	-	3.458	3.281	3.199	-	-	-
9	-	-	-	-	-	-	3.461	3.275	3.195	-	-	-
10	-	-	-	-	-	-	3.453	3.267	3.189	-	-	-
11	-	-	-	-	-	-	3.448	3.268	3.186	-	-	-
12	-	-	-	-	-	3.483	3.445	3.271	3.181	-	-	-
13	-	-	-	-	-	-	3.447	3.270	3.181	-	-	-
14	-	-	-	-	-	-	3.438	3.267	3.173	-	-	-
15	-	-	-	-	-	-	3.429	3.264	3.163	-	-	-
16	-	-	-	-	-	-	3.421	3.261	3.167	-	-	-
17	-	-	-	-	-	-	3.403	3.259	3.173	-	-	-
18	-	-	-	-	-	-	3.396	3.243	3.162	-	-	-
19	-	-	-	-	-	-	3.395	3.240	3.152	-	-	-
20	-	-	-	-	-	-	3.392	3.243	3.148	-	-	-
21	-	-	-	-	-	-	3.384	3.245	3.148	-	-	-
22	-	-	-	-	-	-	3.382	3.244	3.143	-	-	-
23	-	-	-	-	-	3.479	3.381	3.245	3.144	-	-	-
24	-	-	-	-	-	3.477	3.393	3.246	3.148	-	-	-
25	-	-	-	-	-	3.474	3.385	3.240	3.154	-	-	-
26	-	-	-	-	-	3.474	3.377	3.231	-	-	-	-
27	-	-	-	-	-	3.476	3.370	3.228	-	-	-	-
28	-	-	-	-	-	3.476	3.365	3.221	-	-	-	-
29	-	-	-	-	-	3.488	3.353	3.222	-	-	-	-
30	-	-	-	-	-	3.483	3.333	3.224	-	-	-	-
31	-	-	-	-	-	-	3.306	3.211	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**3.474**	**3.306**	**3.211**	**3.143**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**3.479**	**3.416**	**3.260**	**3.177**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**3.488**	**3.482**	**3.305**	**3.209**	**-**	**-**	**-**

Table A2-3: 1998 Meliadine Lake Main Outlet Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	7.67	4.09	2.09	-	-	-
2	-	-	-	-	-	-	7.84	3.95	2.04	-	-	-
3	-	-	-	-	-	-	7.81	3.84	2.04	-	-	-
4	-	-	-	-	-	-	7.51	3.80	2.03	-	-	-
5	-	-	-	-	-	-	7.35	3.62	2.05	-	-	-
6	-	-	-	-	-	2.67	7.59	3.61	2.03	-	-	-
7	-	-	-	-	-	3.68	7.04	4.40	2.05	-	-	-
8	-	-	-	-	-	4.96	6.73	4.24	2.15	-	-	-
9	-	-	-	-	-	6.35	6.59	3.97	2.20	-	-	-
10	-	-	-	-	-	6.06	6.29	3.85	2.14	-	-	-
11	-	-	-	-	-	8.44	6.06	3.73	2.04	-	-	-
12	-	-	-	-	-	11.6	5.76	3.09	2.13	-	-	-
13	-	-	-	-	-	11.0	5.53	3.15	2.17	-	-	-
14	-	-	-	-	-	10.8	5.15	3.05	2.67	-	-	-
15	-	-	-	-	-	13.0	4.14	2.97	1.98	-	-	-
16	-	-	-	-	-	13.7	4.94	2.89	1.93	-	-	-
17	-	-	-	-	-	10.6	5.92	2.79	2.69	-	-	-
18	-	-	-	-	-	11.3	6.03	2.70	2.71	-	-	-
19	-	-	-	-	-	11.2	6.10	2.47	2.86	-	-	-
20	-	-	-	-	-	11.0	5.79	1.22	2.80	-	-	-
21	-	-	-	-	-	10.7	5.69	1.46	2.91	-	-	-
22	-	-	-	-	-	10.7	5.32	2.21	2.97	-	-	-
23	-	-	-	-	-	10.5	5.01	2.29	-	-	-	-
24	-	-	-	-	-	10.5	4.81	2.21	-	-	-	-
25	-	-	-	-	-	10.3	4.91	2.11	-	-	-	-
26	-	-	-	-	-	9.97	4.96	2.04	-	-	-	-
27	-	-	-	-	-	9.63	5.44	2.04	-	-	-	-
28	-	-	-	-	-	9.26	5.06	2.12	-	-	-	-
29	-	-	-	-	-	8.89	4.79	2.01	-	-	-	-
30	-	-	-	-	-	8.55	4.52	1.95	-	-	-	-
31	-	-	-	-	-	-	4.43	2.11	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**2.67**	**4.14**	**1.22**	**1.93**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**9.41**	**5.90**	**2.90**	**2.30**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**13.7**	**7.84**	**4.40**	**2.97**	**-**	**-**	**-**

Table A2-4: 1999 Meliadine Lake Main Outlet Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	16.6	6.20	3.12	-	-	-
2	-	-	-	-	-	-	15.9	5.78	2.91	-	-	-
3	-	-	-	-	-	-	15.5	4.70	3.48	-	-	-
4	-	-	-	-	-	-	14.9	4.55	3.31	-	-	-
5	-	-	-	-	-	-	14.4	4.96	3.63	-	-	-
6	-	-	-	-	-	6.61	14.0	4.90	3.68	-	-	-
7	-	-	-	-	-	-	13.8	4.83	3.58	-	-	-
8	-	-	-	-	-	-	13.4	4.91	3.71	-	-	-
9	-	-	-	-	-	-	13.3	4.66	4.02	-	-	-
10	-	-	-	-	-	-	12.7	4.55	3.82	-	-	-
11	-	-	-	-	-	-	12.3	4.58	3.68	-	-	-
12	-	-	-	-	-	-	12.2	4.42	3.78	-	-	-
13	-	-	-	-	-	-	11.6	4.06	3.75	-	-	-
14	-	-	-	-	-	-	11.4	4.03	3.64	-	-	-
15	-	-	-	-	-	12.8	10.2	3.89	4.07	-	-	-
16	-	-	-	-	-	14.9	9.61	3.93	4.24	-	-	-
17	-	-	-	-	-	14.4	8.98	3.73	3.95	-	-	-
18	-	-	-	-	-	13.8	8.57	3.81	3.99	-	-	-
19	-	-	-	-	-	13.5	8.97	3.52	3.88	-	-	-
20	-	-	-	-	-	13.5	8.05	3.50	3.79	-	-	-
21	-	-	-	-	-	13.3	8.00	3.47	-	-	-	-
22	-	-	-	-	-	12.8	8.03	3.99	-	-	-	-
23	-	-	-	-	-	14.3	7.70	4.27	-	-	-	-
24	-	-	-	-	-	18.3	6.15	4.15	-	-	-	-
25	-	-	-	-	-	19.1	6.89	4.41	-	-	-	-
26	-	-	-	-	-	19.1	7.03	3.47	-	-	-	-
27	-	-	-	-	-	19.0	8.18	3.20	-	-	-	-
28	-	-	-	-	-	18.5	7.80	2.74	-	-	-	-
29	-	-	-	-	-	17.9	7.45	2.70	-	-	-	-
30	-	-	-	-	-	17.2	7.21	2.90	-	-	-	-
31	-	-	-	-	0.000	-	6.70	3.39	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**12.8**	**6.15**	**2.70**	**2.91**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**16.0**	**10.6**	**4.14**	**3.70**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**19.1**	**16.6**	**6.20**	**4.24**	**-**	**-**	**-**

Table A2-5: 2000 Meliadine Lake Main Outlet Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	13.0	4.64	1.55	-	-	-
2	-	-	-	-	-	-	12.2	4.47	1.53	-	-	-
3	-	-	-	-	-	-	10.7	4.21	1.70	-	-	-
4	-	-	-	-	-	-	9.94	4.09	1.75	-	-	-
5	-	-	-	-	-	-	11.1	3.94	1.80	-	-	-
6	-	-	-	-	-	-	10.9	3.83	1.78	-	-	-
7	-	-	-	-	-	-	10.6	3.81	1.67	-	-	-
8	-	-	-	-	-	-	10.3	3.56	1.72	-	-	-
9	-	-	-	-	-	0.00	10.0	3.39	1.81	-	-	-
10	-	-	-	-	-	0.33	9.81	3.29	1.73	-	-	-
11	-	-	-	-	-	0.65	9.62	3.21	1.66	-	-	-
12	-	-	-	-	-	0.98	9.40	2.81	1.49	-	-	-
13	-	-	-	-	-	1.30	9.16	2.69	1.54	-	-	-
14	-	-	-	-	-	1.85	8.98	2.55	1.49	-	-	-
15	-	-	-	-	-	2.40	8.84	2.47	1.65	-	-	-
16	-	-	-	-	-	2.94	8.37	2.55	1.59	-	-	-
17	-	-	-	-	-	3.49	8.05	2.58	1.12	-	-	-
18	-	-	-	-	-	5.29	7.69	2.49	1.23	-	-	-
19	-	-	-	-	-	7.42	7.42	2.49	-	-	-	-
20	-	-	-	-	-	9.06	7.05	2.43	-	-	-	-
21	-	-	-	-	-	10.4	6.71	2.25	-	-	-	-
22	-	-	-	-	-	11.4	6.69	2.21	-	-	-	-
23	-	-	-	-	-	12.1	6.40	2.15	-	-	-	-
24	-	-	-	-	-	12.6	6.01	2.15	-	-	-	-
25	-	-	-	-	-	13.0	5.67	1.86	-	-	-	-
26	-	-	-	-	-	13.2	5.33	1.64	-	-	-	-
27	-	-	-	-	-	13.3	5.11	2.17	-	-	-	-
28	-	-	-	-	-	13.2	5.19	2.36	-	-	-	-
29	-	-	-	-	-	13.2	4.93	2.10	-	-	-	-
30	-	-	-	-	-	13.1	5.10	1.74	-	-	-	-
31	-	-	-	-	-	-	5.01	1.75	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**3.49**	**4.93**	**1.64**	**1.12**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**10.9**	**8.24**	**2.83**	**1.60**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**13.3**	**13.0**	**4.64**	**1.81**	**-**	**-**	**-**

Table A2-6: 2008 Meliadine Lake Main Outlet Instantaneous Measurements

Date and Time	Water Surface Elevation (m, non-geodetic)	Measured Discharge (m^3/s)
10-Jul-08	98.945	3.37
02-Aug-08	98.879	3.27
17-Sep-08	98.720	0.662

A2-2 MELIADINE LAKE WEST OUTLET

Hydrometric data were measured during the open water seasons of 1997 to 2000 and 2008. Mean daily water levels and mean daily discharges at Meliadine Lake West Outlet are presented in Tables A2-7 to A2-12.

Table A2-7: 1997 Meliadine Lake West Outlet Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	1.76	0.064	0.002	-	-	-
2	-	-	-	-	-	-	1.68	0.079	0.001	-	-	-
3	-	-	-	-	-	-	1.62	0.084	0.001	-	-	-
4	-	-	-	-	-	-	1.40	0.082	0.002	-	-	-
5	-	-	-	-	-	-	1.40	0.081	0.002	-	-	-
6	-	-	-	-	-	-	1.35	0.047	0.001	-	-	-
7	-	-	-	-	-	-	1.33	0.064	0.001	-	-	-
8	-	-	-	-	-	-	1.31	0.043	0.001	-	-	-
9	-	-	-	-	-	-	1.35	0.036	0.001	-	-	-
10	-	-	-	-	-	-	1.22	0.028	0.001	-	-	-
11	-	-	-	-	-	-	1.14	0.028	0.000	-	-	-
12	-	-	-	-	-	1.54	1.09	0.031	0.000	-	-	-
13	-	-	-	-	-	-	1.12	0.030	0.000	-	-	-
14	-	-	-	-	-	-	0.989	0.027	0.000	-	-	-
15	-	-	-	-	-	-	0.869	0.025	0.000	-	-	-
16	-	-	-	-	-	-	0.772	0.022	0.000	-	-	-
17	-	-	-	-	-	-	0.588	0.021	0.000	-	-	-
18	-	-	-	-	-	-	0.525	0.011	0.000	-	-	-
19	-	-	-	-	-	-	0.517	0.010	0.000	-	-	-
20	-	-	-	-	-	-	0.486	0.012	0.000	-	-	-
21	-	-	-	-	-	-	0.428	0.012	0.000	-	-	-
22	-	-	-	-	-	-	0.414	0.012	0.000	-	-	-
23	-	-	-	-	-	1.70	0.406	0.013	0.000	-	-	-
24	-	-	-	-	-	1.66	0.500	0.013	0.000	-	-	-
25	-	-	-	-	-	1.60	0.431	0.010	0.000	-	-	-
26	-	-	-	-	-	1.60	0.378	0.007	-	-	-	-
27	-	-	-	-	-	1.63	0.335	0.006	-	-	-	-
28	-	-	-	-	-	1.63	0.302	0.004	-	-	-	-
29	-	-	-	-	-	1.92	0.243	0.005	-	-	-	-
30	-	-	-	-	-	1.79	0.159	0.005	-	-	-	-
31	-	-	-	-	-	-	0.087	0.003	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**1.54**	**0.087**	**0.003**	**0.000**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**1.67**	**0.845**	**0.030**	**0.001**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**1.92**	**1.76**	**0.084**	**0.002**	**-**	**-**	**-**

Table A2-8: 1997 Meliadine Lake West Outlet Mean Daily Water Level (m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	3.482	3.295	3.204	-	-	-
2	-	-	-	-	-	-	3.478	3.303	3.201	-	-	-
3	-	-	-	-	-	-	3.475	3.305	3.200	-	-	-
4	-	-	-	-	-	-	3.463	3.305	3.209	-	-	-
5	-	-	-	-	-	-	3.463	3.304	3.207	-	-	-
6	-	-	-	-	-	-	3.461	3.284	3.201	-	-	-
7	-	-	-	-	-	-	3.459	3.296	3.201	-	-	-
8	-	-	-	-	-	-	3.458	3.281	3.199	-	-	-
9	-	-	-	-	-	-	3.461	3.275	3.195	-	-	-
10	-	-	-	-	-	-	3.453	3.267	3.189	-	-	-
11	-	-	-	-	-	-	3.448	3.268	3.186	-	-	-
12	-	-	-	-	-	3.483	3.445	3.271	3.181	-	-	-
13	-	-	-	-	-	-	3.447	3.270	3.181	-	-	-
14	-	-	-	-	-	-	3.438	3.267	3.173	-	-	-
15	-	-	-	-	-	-	3.429	3.264	3.163	-	-	-
16	-	-	-	-	-	-	3.421	3.261	3.167	-	-	-
17	-	-	-	-	-	-	3.403	3.259	3.173	-	-	-
18	-	-	-	-	-	-	3.396	3.243	3.162	-	-	-
19	-	-	-	-	-	-	3.395	3.240	3.152	-	-	-
20	-	-	-	-	-	-	3.392	3.243	3.148	-	-	-
21	-	-	-	-	-	-	3.384	3.245	3.148	-	-	-
22	-	-	-	-	-	3.482	3.382	3.244	3.143	-	-	-
23	-	-	-	-	-	3.479	3.381	3.245	3.144	-	-	-
24	-	-	-	-	-	3.477	3.393	3.246	3.148	-	-	-
25	-	-	-	-	-	3.474	3.385	3.240	3.154	-	-	-
26	-	-	-	-	-	3.474	3.377	3.231	-	-	-	-
27	-	-	-	-	-	3.476	3.370	3.228	-	-	-	-
28	-	-	-	-	-	3.476	3.365	3.221	-	-	-	-
29	-	-	-	-	-	3.488	3.353	3.222	-	-	-	-
30	-	-	-	-	-	3.483	3.333	3.224	-	-	-	-
31	-	-	-	-	-	-	3.306	3.211	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**3.474**	**3.306**	**3.211**	**3.143**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**3.479**	**3.416**	**3.260**	**3.177**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**3.488**	**3.482**	**3.305**	**3.209**	**-**	**-**	**-**

Table A2-9: 1998 Meliadine Lake West Outlet Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	2.80	1.13	0.356	-	-	-
2	-	-	-	-	-	-	2.89	1.07	0.341	-	-	-
3	-	-	-	-	-	-	2.87	1.02	0.341	-	-	-
4	-	-	-	-	-	-	2.72	1.00	0.339	-	-	-
5	-	-	-	-	-	-	2.64	0.927	0.343	-	-	-
6	-	-	-	-	-	0.559	2.76	0.924	0.336	-	-	-
7	-	-	-	-	-	0.959	2.49	1.26	0.344	-	-	-
8	-	-	-	-	-	1.51	2.34	1.19	0.376	-	-	-
9	-	-	-	-	-	2.16	2.27	1.07	0.393	-	-	-
10	-	-	-	-	-	2.02	2.13	1.02	0.373	-	-	-
11	-	-	-	-	-	3.20	2.02	0.974	0.340	-	-	-
12	-	-	-	-	-	4.82	1.88	0.720	0.370	-	-	-
13	-	-	-	-	-	4.51	1.77	0.739	0.384	-	-	-
14	-	-	-	-	-	4.41	1.59	0.702	0.559	-	-	-
15	-	-	-	-	-	5.56	1.15	0.671	0.326	-	-	-
16	-	-	-	-	-	5.92	1.50	0.638	0.312	-	-	-
17	-	-	-	-	-	4.28	1.95	0.603	0.566	-	-	-
18	-	-	-	-	-	4.68	2.00	0.570	0.570	-	-	-
19	-	-	-	-	-	4.61	2.04	0.490	0.629	-	-	-
20	-	-	-	-	-	4.52	1.89	0.118	0.607	-	-	-
21	-	-	-	-	-	4.36	1.85	0.178	0.645	-	-	-
22	-	-	-	-	-	4.34	1.67	0.395	0.668	-	-	-
23	-	-	-	-	-	4.25	1.53	0.424	-	-	-	-
24	-	-	-	-	-	4.22	1.44	0.398	-	-	-	-
25	-	-	-	-	-	4.13	1.49	0.362	-	-	-	-
26	-	-	-	-	-	3.97	1.51	0.340	-	-	-	-
27	-	-	-	-	-	3.79	1.73	0.341	-	-	-	-
28	-	-	-	-	-	3.60	1.55	0.366	-	-	-	-
29	-	-	-	-	-	3.42	1.43	0.331	-	-	-	-
30	-	-	-	-	-	3.24	1.31	0.314	-	-	-	-
31	-	-	-	-	-	-	1.27	0.363	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**0.559**	**1.15**	**0.118**	**0.312**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**3.72**	**1.95**	**0.666**	**0.433**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**5.92**	**2.89**	**1.26**	**0.668**	**-**	**-**	**-**

Table A2-10: 1999 Meliadine Lake West Outlet Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	10.9	1.46	0.615	-	-	-
2	-	-	-	-	-	-	9.52	1.33	0.565	-	-	-
3	-	-	-	-	-	-	8.93	1.01	0.701	-	-	-
4	-	-	-	-	-	-	8.00	0.974	0.658	-	-	-
5	-	-	-	-	-	-	7.28	1.09	0.735	-	-	-
6	-	-	-	-	-	2.72	6.79	1.07	0.749	-	-	-
7	-	-	-	-	-	-	6.48	1.05	0.724	-	-	-
8	-	-	-	-	-	-	6.02	1.07	0.756	-	-	-
9	-	-	-	-	-	-	5.93	1.00	0.833	-	-	-
10	-	-	-	-	-	-	5.36	0.974	0.782	-	-	-
11	-	-	-	-	-	-	5.08	0.982	0.749	-	-	-
12	-	-	-	-	-	-	4.92	0.937	0.772	-	-	-
13	-	-	-	-	-	-	4.43	0.845	0.765	-	-	-
14	-	-	-	-	-	-	4.24	0.835	0.739	-	-	-
15	-	-	-	-	-	-	3.29	0.802	0.849	-	-	-
16	-	-	-	-	-	7.96	2.93	0.810	0.891	-	-	-
17	-	-	-	-	-	7.32	2.55	0.761	0.816	-	-	-
18	-	-	-	-	-	6.55	2.34	0.782	0.826	-	-	-
19	-	-	-	-	-	6.18	2.55	0.709	0.798	-	-	-
20	-	-	-	-	-	6.20	2.12	0.706	0.774	-	-	-
21	-	-	-	-	-	5.91	2.07	0.701	-	-	-	-
22	-	-	-	-	-	5.50	2.08	0.826	-	-	-	-
23	-	-	-	-	-	7.55	1.94	0.899	-	-	-	-
24	-	-	-	-	-	14.54	1.44	0.871	-	-	-	-
25	-	-	-	-	-	16.4	1.66	0.937	-	-	-	-
26	-	-	-	-	-	16.37	1.74	0.698	-	-	-	-
27	-	-	-	-	-	15.9	2.15	0.633	-	-	-	-
28	-	-	-	-	-	14.92	1.98	0.528	-	-	-	-
29	-	-	-	-	-	13.56	1.85	0.518	-	-	-	-
30	-	-	-	-	-	12.10	1.76	0.563	-	-	-	-
31	-	-	-	-	-	-	1.61	0.679	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**5.50**	**1.44**	**0.518**	**0.565**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**10.47**	**4.19**	**0.873**	**0.755**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**16.4**	**10.9**	**1.46**	**0.891**	**-**	**-**	**-**

Table A2-11: 2000 Meliadine Lake West Outlet Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	5.70	0.992	0.282	-	-	-
2	-	-	-	-	-	-	5.01	0.95	0.278	-	-	-
3	-	-	-	-	-	-	3.66	0.881	0.312	-	-	-
4	-	-	-	-	-	-	3.15	0.848	0.321	-	-	-
5	-	-	-	-	-	-	4.02	0.808	0.331	-	-	-
6	-	-	-	-	-	-	3.88	0.781	0.326	-	-	-
7	-	-	-	-	-	-	3.65	0.777	0.304	-	-	-
8	-	-	-	-	-	-	3.40	0.716	0.315	-	-	-
9	-	-	-	-	-	-	3.21	0.677	0.331	-	-	-
10	-	-	-	-	-	-	3.07	0.649	0.317	-	-	-
11	-	-	-	-	-	-	2.95	0.631	0.303	-	-	-
12	-	-	-	-	-	-	2.82	0.542	0.270	-	-	-
13	-	-	-	-	-	-	2.68	0.515	0.280	-	-	-
14	-	-	-	-	-	-	2.58	0.483	0.270	-	-	-
15	-	-	-	-	-	0.000	2.51	0.467	0.302	-	-	-
16	-	-	-	-	-	-	2.27	0.482	0.288	-	-	-
17	-	-	-	-	-	-	2.12	0.489	0.203	-	-	-
18	-	-	-	-	-	-	1.96	0.470	0.223	-	-	-
19	-	-	-	-	-	1.57	1.84	0.471	-	-	-	-
20	-	-	-	-	-	2.62	1.72	0.457	-	-	-	-
21	-	-	-	-	-	3.46	1.61	0.422	-	-	-	-
22	-	-	-	-	-	4.28	1.61	0.414	-	-	-	-
23	-	-	-	-	-	4.89	1.52	0.401	-	-	-	-
24	-	-	-	-	-	5.32	1.40	0.401	-	-	-	-
25	-	-	-	-	-	5.67	1.29	0.341	-	-	-	-
26	-	-	-	-	-	5.88	1.19	0.299	-	-	-	-
27	-	-	-	-	-	5.92	1.13	0.404	-	-	-	-
28	-	-	-	-	-	5.82	1.15	0.442	-	-	-	-
29	-	-	-	-	-	5.83	1.06	0.390	-	-	-	-
30	-	-	-	-	-	5.81	1.13	0.320	-	-	-	-
31	-	-	-	-	-	-	1.10	0.320	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**2.62**	**1.08**	**0.300**	**0.203**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**5.05**	**2.46**	**0.557**	**0.292**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**5.92**	**5.70**	**0.992**	**0.332**	**-**	**-**	**-**

Table A2-12: 2008 Meliadine Lake West Outlet Instantaneous Measurements

Date and Time	Water Surface Elevation (m, non-geodetic)	Measured Discharge (m^3/s)
10-Jul-08	98.883	1.19
03-Aug-08	98.795	0.981
18-Sep-08	98.569	0.461

A2-3 MELIADINE RIVER NEAR RANKIN INLET

Hydrometric data were measured during the open water seasons of 1997 to 2000 and 2008. Mean daily water levels and mean daily discharges at Meliadine River near Rankin Inlet are presented in Tables A2-13 to A2-21.

Table A2-13: 1997 Meliadine River near Rankin Inlet Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	8.57	2.88	1.17	-	-	-
2	-	-	-	-	-	-	8.17	2.33	1.09	-	-	-
3	-	-	-	-	-	-	7.72	2.10	1.11	-	-	-
4	-	-	-	-	-	-	7.94	1.97	1.13	-	-	-
5	-	-	-	-	-	-	7.28	1.95	1.13	-	-	-
6	-	-	-	-	-	-	6.96	2.01	1.08	-	-	-
7	-	-	-	-	-	-	6.68	1.80	1.04	-	-	-
8	-	-	-	-	-	-	6.54	1.84	0.999	-	-	-
9	-	-	-	-	-	-	6.55	1.79	0.982	-	-	-
10	-	-	-	-	-	-	6.51	1.74	0.967	-	-	-
11	-	-	-	-	-	-	6.39	1.64	0.939	-	-	-
12	-	-	-	-	-	-	6.26	1.54	0.957	-	-	-
13	-	-	-	-	-	12.9	5.70	1.47	0.927	-	-	-
14	-	-	-	-	-	-	5.43	1.42	0.912	-	-	-
15	-	-	-	-	-	-	5.24	1.42	0.900	-	-	-
16	-	-	-	-	-	-	5.35	1.43	0.851	-	-	-
17	-	-	-	-	-	-	5.49	1.41	0.835	-	-	-
18	-	-	-	-	-	-	5.46	1.39	0.833	-	-	-
19	-	-	-	-	-	-	5.05	1.41	0.921	-	-	-
20	-	-	-	-	-	9.13	4.62	1.42	1.25	-	-	-
21	-	-	-	-	-	8.63	4.45	1.38	1.11	-	-	-
22	-	-	-	-	-	8.53	4.38	1.32	0.891	-	-	-
23	-	-	-	-	-	8.33	4.22	1.33	0.824	-	-	-
24	-	-	-	-	-	8.36	3.97	1.36	0.692	-	-	-
25	-	-	-	-	-	8.07	3.90	1.31	0.868	-	-	-
26	-	-	-	-	-	8.27	3.85	1.29	-	-	-	-
27	-	-	-	-	-	8.10	3.77	1.25	-	-	-	-
28	-	-	-	-	-	8.06	3.67	1.27	-	-	-	-
29	-	-	-	-	-	8.12	3.48	1.26	-	-	-	-
30	-	-	-	-	-	8.71	3.42	1.27	-	-	-	-
31	-	-	-	-	-	-	3.21	1.30	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**8.06**	**3.21**	**1.25**	**0.692**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**8.77**	**5.49**	**1.59**	**0.976**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**12.9**	**8.57**	**2.88**	**1.25**	**-**	**-**	**-**

Table A2-14: 1997 Meliadine River near Rankin Inlet Mean Daily Water Levels (m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	7.304	7.057	6.913	-	-	-
2	-	-	-	-	-	-	7.292	7.019	6.902	-	-	-
3	-	-	-	-	-	-	7.277	7.002	6.904	-	-	-
4	-	-	-	-	-	-	7.284	6.991	6.907	-	-	-
5	-	-	-	-	-	-	7.262	6.989	6.908	-	-	-
6	-	-	-	-	-	-	7.250	6.994	6.902	-	-	-
7	-	-	-	-	-	-	7.240	6.976	6.896	-	-	-
8	-	-	-	-	-	-	7.235	6.980	6.891	-	-	-
9	-	-	-	-	-	-	7.235	6.975	6.889	-	-	-
10	-	-	-	-	-	-	7.233	6.971	6.887	-	-	-
11	-	-	-	-	-	-	7.229	6.962	6.883	-	-	-
12	-	-	-	-	-	-	7.224	6.952	6.885	-	-	-
13	-	-	-	-	-	7.437	7.201	6.945	6.881	-	-	-
14	-	-	-	-	-	-	7.190	6.939	6.879	-	-	-
15	-	-	-	-	-	-	7.182	6.940	6.878	-	-	-
16	-	-	-	-	-	-	7.187	6.941	6.871	-	-	-
17	-	-	-	-	-	-	7.192	6.939	6.868	-	-	-
18	-	-	-	-	-	-	7.191	6.936	6.868	-	-	-
19	-	-	-	-	-	-	7.173	6.938	6.877	-	-	-
20	-	-	-	-	-	7.322	7.153	6.940	6.916	-	-	-
21	-	-	-	-	-	7.306	7.145	6.936	6.901	-	-	-
22	-	-	-	-	-	7.303	7.142	6.929	6.876	-	-	-
23	-	-	-	-	-	7.297	7.134	6.931	6.866	-	-	-
24	-	-	-	-	-	7.298	7.121	6.934	6.846	-	-	-
25	-	-	-	-	-	7.288	7.117	6.928	6.873	-	-	-
26	-	-	-	-	-	7.295	7.114	6.926	-	-	-	-
27	-	-	-	-	-	7.289	7.110	6.922	-	-	-	-
28	-	-	-	-	-	7.288	7.104	6.923	-	-	-	-
29	-	-	-	-	-	7.290	7.094	6.922	-	-	-	-
30	-	-	-	-	-	7.309	7.09	6.924	-	-	-	-
31	-	-	-	-	-	-	7.078	6.927	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**7.288**	**7.078**	**6.922**	**6.846**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**7.310**	**7.186**	**6.954**	**6.887**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**7.437**	**7.304**	**7.057**	**6.916**	**-**	**-**	**-**

Table A2-15: 1998 Meliadine River near Rankin Inlet Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	11.6	5.54	3.71	-	-	-
2	-	-	-	-	-	-	11.6	5.19	3.63	-	-	-
3	-	-	-	-	-	-	10.1	4.87	3.59	-	-	-
4	-	-	-	-	-	23.1	9.39	4.59	3.61	-	-	-
5	-	-	-	-	-	30.0	8.70	4.57	3.91	-	-	-
6	-	-	-	-	-	25.5	8.32	4.31	4.00	-	-	-
7	-	-	-	-	-	21.8	8.19	4.65	4.00	-	-	-
8	-	-	-	-	-	20.9	7.94	5.06	3.92	-	-	-
9	-	-	-	-	-	20.1	7.37	5.30	4.16	-	-	-
10	-	-	-	-	-	20.6	6.98	5.16	4.24	-	-	-
11	-	-	-	-	-	19.9	6.51	4.92	4.36	-	-	-
12	-	-	-	-	-	17.4	6.08	5.10	4.40	-	-	-
13	-	-	-	-	-	17.1	5.55	4.71	4.37	-	-	-
14	-	-	-	-	-	17.1	6.10	4.41	5.22	-	-	-
15	-	-	-	-	-	17.3	7.46	4.22	7.09	-	-	-
16	-	-	-	-	-	17.4	6.83	4.17	7.68	-	-	-
17	-	-	-	-	-	17.1	6.14	4.12	6.85	-	-	-
18	-	-	-	-	-	16.3	6.22	3.95	6.84	-	-	-
19	-	-	-	-	-	15.6	6.24	3.96	6.55	-	-	-
20	-	-	-	-	-	15.1	6.40	5.41	6.53	-	-	-
21	-	-	-	-	-	14.9	6.34	4.06	6.32	-	-	-
22	-	-	-	-	-	14.6	6.29	3.10	6.17	-	-	-
23	-	-	-	-	-	14.8	6.20	2.94	6.13	-	-	-
24	-	-	-	-	-	14.6	6.00	2.84	-	-	-	-
25	-	-	-	-	-	14.6	5.53	2.79	-	-	-	-
26	-	-	-	-	-	14.5	5.31	2.82	-	-	-	-
27	-	-	-	-	-	14.1	5.62	2.74	-	-	-	-
28	-	-	-	-	-	13.6	5.89	2.86	-	-	-	-
29	-	-	-	-	-	12.9	6.05	3.10	-	-	-	-
30	-	-	-	-	-	12.3	5.87	3.09	-	-	-	-
31	-	-	-	-	-	-	5.57	3.31	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**12.3**	**5.31**	**2.74**	**3.59**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**17.5**	**7.05**	**4.12**	**5.10**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**30.0**	**11.6**	**5.54**	**7.68**	**-**	**-**	**-**

Table A2-16: 1998 Meliadine River near Rankin Inlet Mean Daily Water Levels (m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	7.383	7.215	7.128	-	-	-
2	-	-	-	-	-	-	7.384	7.200	7.125	-	-	-
3	-	-	-	-	-	-	7.345	7.185	7.123	-	-	-
4	-	-	-	-	-	7.896	7.325	7.172	7.124	-	-	-
5	-	-	-	-	-	7.972	7.306	7.170	7.140	-	-	-
6	-	-	-	-	-	7.880	7.295	7.157	7.143	-	-	-
7	-	-	-	-	-	7.791	7.292	7.172	7.140	-	-	-
8	-	-	-	-	-	7.745	7.285	7.190	7.133	-	-	-
9	-	-	-	-	-	7.700	7.272	7.200	7.143	-	-	-
10	-	-	-	-	-	7.676	7.266	7.194	7.145	-	-	-
11	-	-	-	-	-	7.634	7.256	7.183	7.148	-	-	-
12	-	-	-	-	-	7.569	7.247	7.191	7.148	-	-	-
13	-	-	-	-	-	7.549	7.226	7.174	7.143	-	-	-
14	-	-	-	-	-	7.536	7.247	7.160	7.179	-	-	-
15	-	-	-	-	-	7.525	7.296	7.151	7.249	-	-	-
16	-	-	-	-	-	7.513	7.273	7.149	7.267	-	-	-
17	-	-	-	-	-	7.492	7.248	7.146	7.236	-	-	-
18	-	-	-	-	-	7.475	7.250	7.138	7.233	-	-	-
19	-	-	-	-	-	7.462	7.250	7.139	7.220	-	-	-
20	-	-	-	-	-	7.452	7.256	7.206	7.216	-	-	-
21	-	-	-	-	-	7.447	7.253	7.143	7.206	-	-	-
22	-	-	-	-	-	7.443	7.250	7.091	7.198	-	-	-
23	-	-	-	-	-	7.448	7.246	7.081	7.194	-	-	-
24	-	-	-	-	-	7.445	7.238	7.075	-	-	-	-
25	-	-	-	-	-	7.446	7.219	7.073	-	-	-	-
26	-	-	-	-	-	7.445	7.209	7.074	-	-	-	-
27	-	-	-	-	-	7.437	7.221	7.069	-	-	-	-
28	-	-	-	-	-	7.426	7.231	7.078	-	-	-	-
29	-	-	-	-	-	7.411	7.237	7.093	-	-	-	-
30	-	-	-	-	-	7.398	7.229	7.093	-	-	-	-
31	-	-	-	-	-	-	7.217	7.106	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**7.398**	**7.209**	**7.069**	**7.123**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**7.563**	**7.266**	**7.144**	**7.173**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**7.972**	**7.384**	**7.215**	**7.267**	**-**	**-**	**-**

Table A2-17: 1999 Meliadine River near Rankin Inlet Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	20.0	8.74	8.62	-	-	-
2	-	-	-	-	-	-	18.7	8.12	8.49	-	-	-
3	-	-	-	-	-	-	17.6	7.70	9.07	-	-	-
4	-	-	-	-	-	-	16.6	6.99	9.01	-	-	-
5	-	-	-	-	-	36.7	15.9	6.20	8.70	-	-	-
6	-	-	-	-	-	-	14.8	5.91	8.68	-	-	-
7	-	-	-	-	-	33.6	14.0	5.95	8.53	-	-	-
8	-	-	-	-	-	-	13.3	6.06	8.38	-	-	-
9	-	-	-	-	-	-	12.4	6.14	8.08	-	-	-
10	-	-	-	-	-	-	12.4	6.12	7.90	-	-	-
11	-	-	-	-	-	-	12.6	6.02	7.65	-	-	-
12	-	-	-	-	-	-	11.3	6.06	6.85	-	-	-
13	-	-	-	-	-	-	10.5	5.92	6.36	-	-	-
14	-	-	-	-	-	-	10.8	5.57	6.30	-	-	-
15	-	-	-	-	-	21.3	11.3	5.26	6.53	-	-	-
16	-	-	-	-	-	-	10.5	5.04	6.95	-	-	-
17	-	-	-	-	-	21.9	9.71	5.03	6.72	-	-	-
18	-	-	-	-	-	22.0	8.99	4.78	6.58	-	-	-
19	-	-	-	-	-	21.0	8.33	5.04	6.41	-	-	-
20	-	-	-	-	-	19.5	8.61	5.03	5.89	-	-	-
21	-	-	-	-	-	18.2	7.60	5.03	6.73	-	-	-
22	-	-	-	-	-	18.0	7.02	4.22	7.70	-	-	-
23	-	-	-	-	-	20.9	6.95	3.94	-	-	-	-
24	-	-	-	-	-	35.3	7.43	4.04	-	-	-	-
25	-	-	-	-	-	39.2	6.65	4.17	-	-	-	-
26	-	-	-	-	-	32.2	6.78	4.96	-	-	-	-
27	-	-	-	-	-	27.5	9.24	7.75	-	-	-	-
28	-	-	-	-	-	25.1	10.5	9.95	-	-	-	-
29	-	-	-	-	-	23.6	10.2	9.27	-	-	-	-
30	-	-	-	-	-	21.7	9.77	8.86	-	-	-	-
31	-	-	-	-	-	-	9.32	8.52	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**18.0**	**6.65**	**3.94**	**5.89**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**24.7**	**11.3**	**6.21**	**7.55**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**39.2**	**20.0**	**9.95**	**9.07**	**-**	**-**	**-**

Table A2-18: 1999 Meliadine River near Rankin Inlet Mean Daily Water Levels (m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	7.568	7.316	7.312	-	-	-
2	-	-	-	-	-	-	7.546	7.297	7.308	-	-	-
3	-	-	-	-	-	-	7.525	7.283	7.325	-	-	-
4	-	-	-	-	-	-	7.506	7.259	7.324	-	-	-
5	-	-	-	-	-	-	7.492	7.230	7.315	-	-	-
6	-	-	-	-	-	-	7.468	7.218	7.314	-	-	-
7	-	-	-	-	-	-	7.450	7.220	7.309	-	-	-
8	-	-	-	-	-	-	7.436	7.224	7.305	-	-	-
9	-	-	-	-	-	-	7.416	7.228	7.295	-	-	-
10	-	-	-	-	-	-	7.413	7.227	7.290	-	-	-
11	-	-	-	-	-	-	7.419	7.223	7.281	-	-	-
12	-	-	-	-	-	-	7.388	7.224	7.254	-	-	-
13	-	-	-	-	-	-	7.365	7.219	7.236	-	-	-
14	-	-	-	-	-	-	7.374	7.205	7.234	-	-	-
15	-	-	-	-	-	7.604	7.386	7.192	7.242	-	-	-
16	-	-	-	-	-	-	7.367	7.182	7.257	-	-	-
17	-	-	-	-	-	7.601	7.344	7.182	7.249	-	-	-
18	-	-	-	-	-	7.603	7.324	7.171	7.244	-	-	-
19	-	-	-	-	-	7.585	7.303	7.182	7.238	-	-	-
20	-	-	-	-	-	7.560	7.312	7.182	7.218	-	-	-
21	-	-	-	-	-	7.537	7.279	7.181	7.249	-	-	-
22	-	-	-	-	-	7.532	7.260	7.144	7.283	-	-	-
23	-	-	-	-	-	7.581	7.257	7.130	-	-	-	-
24	-	-	-	-	-	7.784	7.274	7.135	-	-	-	-
25	-	-	-	-	-	7.831	7.247	7.141	-	-	-	-
26	-	-	-	-	-	7.748	7.251	7.176	-	-	-	-
27	-	-	-	-	-	7.686	7.330	7.283	-	-	-	-
28	-	-	-	-	-	7.650	7.366	7.351	-	-	-	-
29	-	-	-	-	-	7.627	7.357	7.332	-	-	-	-
30	-	-	-	-	-	7.598	7.346	7.319	-	-	-	-
31	-	-	-	-	-	-	7.333	7.309	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**7.532**	**7.247**	**7.130**	**7.218**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**7.637**	**7.378**	**7.225**	**7.276**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**7.831**	**7.568**	**7.351**	**7.325**	**-**	**-**	**-**

Table A2-19: 2000 Meliadine River near Rankin Inlet Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	14.5	6.37	4.16	-	-	-
2	-	-	-	-	-	-	14.1	6.03	3.71	-	-	-
3	-	-	-	-	-	-	13.9	5.84	3.33	-	-	-
4	-	-	-	-	-	-	13.6	5.16	3.14	-	-	-
5	-	-	-	-	-	-	12.8	5.14	3.00	-	-	-
6	-	-	-	-	-	-	12.2	4.90	2.96	-	-	-
7	-	-	-	-	-	-	11.8	4.50	3.24	-	-	-
8	-	-	-	-	-	-	11.6	4.42	3.07	-	-	-
9	-	-	-	-	-	-	11.4	4.20	2.91	-	-	-
10	-	-	-	-	-	0.00 B	10.8	4.02	3.11	-	-	-
11	-	-	-	-	-	-	10.3	4.13	3.23	-	-	-
12	-	-	-	-	-	5.27 B	9.95	4.16	3.35	-	-	-
13	-	-	-	-	-	-	9.84	3.93	3.34	-	-	-
14	-	-	-	-	-	18.1 B	9.66	3.76	3.53	-	-	-
15	-	-	-	-	-	-	9.78	3.61	3.13	-	-	-
16	-	-	-	-	-	35.0 B	9.52	3.41	3.57	-	-	-
17	-	-	-	-	-	40.0 B	9.02	3.73	3.83	-	-	-
18	-	-	-	-	-	-	8.55	3.69	3.37	-	-	-
19	-	-	-	-	-	-	8.27	3.66	3.14	-	-	-
20	-	-	-	-	-	28.5	8.12	3.47	-	-	-	-
21	-	-	-	-	-	27.2	7.89	3.40	-	-	-	-
22	-	-	-	-	-	22.4	7.52	3.46	-	-	-	-
23	-	-	-	-	-	21.0	7.24	3.29	-	-	-	-
24	-	-	-	-	-	20.2	7.01	3.28	-	-	-	-
25	-	-	-	-	-	19.1	6.83	4.58	-	-	-	-
26	-	-	-	-	-	18.3	6.68	4.40	-	-	-	-
27	-	-	-	-	-	17.2	6.41	3.52	-	-	-	-
28	-	-	-	-	-	16.2	5.99	3.83	-	-	-	-
29	-	-	-	-	-	15.7	6.16	4.06	-	-	-	-
30	-	-	-	-	-	15.1	6.30	4.40	-	-	-	-
31	-	-	-	-	-	-	6.50	4.20	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**15.1**	**5.99**	**3.28**	**2.91**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**20.1**	**9.49**	**4.21**	**3.32**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**28.5**	**14.5**	**6.37**	**4.16**	**-**	**-**	**-**

Table A2-20: 2000 Meliadine River near Rankin Inlet Mean Daily Water Levels (m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	7.463	7.236	7.141	-	-	-
2	-	-	-	-	-	-	7.454	7.223	7.117	-	-	-
3	-	-	-	-	-	-	7.450	7.215	7.096	-	-	-
4	-	-	-	-	-	-	7.442	7.188	7.085	-	-	-
5	-	-	-	-	-	-	7.425	7.187	7.077	-	-	-
6	-	-	-	-	-	-	7.410	7.176	7.074	-	-	-
7	-	-	-	-	-	-	7.400	7.157	7.091	-	-	-
8	-	-	-	-	-	-	7.394	7.154	7.081	-	-	-
9	-	-	-	-	-	-	7.389	7.143	7.071	-	-	-
10	-	-	-	-	-	-	7.374	7.134	7.083	-	-	-
11	-	-	-	-	-	-	7.361	7.140	7.091	-	-	-
12	-	-	-	-	-	-	7.351	7.141	7.097	-	-	-
13	-	-	-	-	-	-	7.348	7.129	7.097	-	-	-
14	-	-	-	-	-	8.038 B	7.343	7.120	7.107	-	-	-
15	-	-	-	-	-	8.187 B	7.346	7.112	7.084	-	-	-
16	-	-	-	-	-	8.326 B	7.339	7.101	7.110	-	-	-
17	-	-	-	-	-	8.119 B	7.324	7.119	7.124	-	-	-
18	-	-	-	-	-	7.889 B	7.31	7.117	7.098	-	-	-
19	-	-	-	-	-	7.760 B	7.302	7.115	7.085	-	-	-
20	-	-	-	-	-	7.699	7.297	7.105	-	-	-	-
21	-	-	-	-	-	7.679	7.289	7.100	-	-	-	-
22	-	-	-	-	-	7.609	7.277	7.104	-	-	-	-
23	-	-	-	-	-	7.585	7.268	7.094	-	-	-	-
24	-	-	-	-	-	7.572	7.259	7.093	-	-	-	-
25	-	-	-	-	-	7.553	7.253	7.161	-	-	-	-
26	-	-	-	-	-	7.539	7.248	7.152	-	-	-	-
27	-	-	-	-	-	7.517	7.238	7.107	-	-	-	-
28	-	-	-	-	-	7.497	7.221	7.124	-	-	-	-
29	-	-	-	-	-	7.487	7.228	7.136	-	-	-	-
30	-	-	-	-	-	7.476	7.234	7.153	-	-	-	-
31	-	-	-	-	-	-	7.241	7.143	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**7.476**	**7.221**	**7.093**	**7.071**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**7.565**	**7.331**	**7.141**	**7.095**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**7.699**	**7.463**	**7.236**	**7.141**	**-**	**-**	**-**

Note: B indicates water level affected by ice conditions
All Minimum, Mean, And Maximum values are computed for data from June 20 to September 19 only

Table A2-21: 2008 Meliadine River near Rankin Inlet Instantaneous Measurements

Date and Time	Water Surface Elevation (m, non-geodetic)	Measured Discharge (m^3/s)
10-Jul-08	98.883	9.00
02-Aug-08	98.795	4.76
17-Sep-08	98.569	2.21

A2-4 MELIADINE LAKE

Hydrometric data were measured during the open water seasons of 1997 to 2000 and 2008. Mean daily water levels at Meliadine Lake are presented in Tables A2-22 to A2-26.

Table A2-22: 1997 Meliadine Lake Mean Daily Water Levels (m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	3.482	3.295	3.204	-	-	-
2	-	-	-	-	-	-	3.478	3.303	3.201	-	-	-
3	-	-	-	-	-	-	3.475	3.305	3.200	-	-	-
4	-	-	-	-	-	-	3.463	3.305	3.209	-	-	-
5	-	-	-	-	-	-	3.463	3.304	3.207	-	-	-
6	-	-	-	-	-	-	3.461	3.284	3.201	-	-	-
7	-	-	-	-	-	-	3.459	3.296	3.201	-	-	-
8	-	-	-	-	-	-	3.458	3.281	3.199	-	-	-
9	-	-	-	-	-	-	3.461	3.275	3.195	-	-	-
10	-	-	-	-	-	-	3.453	3.267	3.189	-	-	-
11	-	-	-	-	-	-	3.448	3.268	3.186	-	-	-
12	-	-	-	-	-	3.483	3.445	3.271	3.181	-	-	-
13	-	-	-	-	-	3.482	3.447	3.270	3.181	-	-	-
14	-	-	-	-	-	-	3.438	3.267	3.173	-	-	-
15	-	-	-	-	-	-	3.429	3.264	3.163	-	-	-
16	-	-	-	-	-	-	3.421	3.261	3.167	-	-	-
17	-	-	-	-	-	-	3.403	3.259	3.173	-	-	-
18	-	-	-	-	-	-	3.396	3.243	3.162	-	-	-
19	-	-	-	-	-	-	3.395	3.240	3.152	-	-	-
20	-	-	-	-	-	-	3.392	3.243	3.148	-	-	-
21	-	-	-	-	-	-	3.384	3.245	3.148	-	-	-
22	-	-	-	-	-	-	3.382	3.244	3.143	-	-	-
23	-	-	-	-	-	3.479	3.381	3.245	3.144	-	-	-
24	-	-	-	-	-	3.477	3.393	3.246	3.148	-	-	-
25	-	-	-	-	-	3.474	3.385	3.240	3.154	-	-	-
26	-	-	-	-	-	3.474	3.377	3.231	-	-	-	-
27	-	-	-	-	-	3.476	3.370	3.228	-	-	-	-
28	-	-	-	-	-	3.476	3.365	3.221	-	-	-	-
29	-	-	-	-	-	3.488	3.353	3.222	-	-	-	-
30	-	-	-	-	-	3.483	3.333	3.224	-	-	-	-
31	-	-	-	-	-	-	3.306	3.211	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**3.474**	**3.306**	**3.211**	**3.143**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**3.479**	**3.416**	**3.260**	**3.177**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**3.488**	**3.482**	**3.305**	**3.209**	**-**	**-**	**-**

Table A2-23: 1998 Meliadine Lake Mean Daily Water Levels (m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	3.476	3.395	3.319	-	-	-
2	-	-	-	-	-	-	3.480	3.39	3.317	-	-	-
3	-	-	-	-	-	-	3.479	3.387	3.317	-	-	-
4	-	-	-	-	-	-	3.473	3.386	3.316			-
5	-	-	-	-	-	-	3.470	3.380	3.317			-
6	-	-	-	-	-	3.345	3.475	3.380	3.316			-
7	-	-	-	-	-	3.381	3.465	3.403	3.317			-
8	-	-	-	-	-	3.418	3.458	3.399	3.322			-
9	-	-	-	-	-	3.450	3.456	3.391	3.325			-
10	-	-	-	-	-	3.444	3.449	3.387	3.322			-
11	-	-	-	-	-	3.487	3.445	3.384	3.317	-	-	-
12	-	-	-	-	-	3.537	3.438	3.361	3.321	-	-	-
13	-	-	-	-	-	3.529	3.433	3.364	3.323	-	-	-
14	-	-	-	-	-	3.526	3.423	3.360	3.345	-	-	-
15	-	-	-	-	-	3.554	3.396	3.357	3.313	-	-	-
16	-	-	-	-	-	3.562	3.418	3.354	3.310	-	-	-
17	-	-	-	-	-	3.522	3.441	3.350	3.346	-	-	-
18	-	-	-	-	-	3.533	3.444	3.347	3.347	-	-	-
19	-	-	-	-	-	3.532	3.445	3.336	3.353	-	-	-
20	-	-	-	-	-	3.529	3.439	3.266	3.351	-	-	-
21	-	-	-	-	-	3.525	3.436	3.282	3.355	-	-	-
22	-	-	-	-	-	3.524	3.427	3.325	3.357	-	-	-
23	-	-	-	-	-	3.522	3.420	3.329	-	-	-	-
24	-	-	-	-	-	3.521	3.415	3.325	-	-	-	-
25	-	-	-	-	-	3.519	3.417	3.32	-	-	-	-
26	-	-	-	-	-	3.514	3.418	3.317	-	-	-	-
27	-	-	-	-	-	3.509	3.430	3.317	-	-	-	-
28	-	-	-	-	-	3.503	3.421	3.321	-	-	-	-
29	-	-	-	-	-	3.497	3.414	3.315	-	-	-	-
30	-	-	-	-	-	3.492	3.407	3.312	-	-	-	-
31	-	-	-	-	-	-	3.404	3.32	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**3.345**	**3.396**	**3.266**	**3.310**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**3.499**	**3.439**	**3.350**	**3.328**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**3.562**	**3.480**	**3.403**	**3.357**	**-**	**-**	**-**

Table A2-24: 1999 Meliadine Lake Mean Daily Water Levels (m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	3.665	3.447	3.363	3.392	3.342	3.308
2	-	-	-	-	-	-	3.649	3.438	3.355	3.392	3.341	3.304
3	-	-	-	-	-	-	3.641	3.412	3.375	3.39	3.340	3.304
4	-	-	-	-	-	-	3.629	3.408	3.370	3.385	3.337	3.307
5	-	-	-	-	-	-	3.618	3.419	3.380	3.373	3.336	3.304
6	-	-	-	-	-	-	3.610	3.417	3.382	3.371	3.335	3.306
7	-	-	-	-	-	-	3.605	3.415	3.379	3.379	3.331	3.308
8	-	-	-	-	-	-	3.596	3.417	3.383	3.377	3.333	3.309
9	-	-	-	-	-	-	3.595	3.411	3.392	3.379	3.332	3.308
10	-	-	-	-	-	-	3.581	3.408	3.386	3.387	3.329	3.305
11	-	-	-	-	-	-	3.575	3.409	3.382	3.384	3.331	3.303
12	-	-	-	-	-	-	3.571	3.404	3.385	3.378	3.332	3.302
13	-	-	-	-	-	-	3.559	3.394	3.384	3.383	3.332	3.301
14	-	-	-	-	-	-	3.555	3.393	3.381	3.384	3.328	3.300
15	-	-	-	-	-	-	3.529	3.389	3.394	3.382	3.325	3.295
16	-	-	-	-	-	3.628	3.517	3.390	3.399	3.380	3.323	3.293
17	-	-	-	-	-	3.618	3.503	3.384	3.391	3.381	3.318	3.295
18	-	-	-	-	-	3.606	3.495	3.386	3.392	3.378	3.319	3.295
19	-	-	-	-	-	3.600	3.503	3.376	3.388	3.371	3.316	3.292
20	-	-	-	-	-	3.600	3.484	3.375	3.385	3.369	3.314	3.289
21	-	-	-	-	-	3.594	3.482	3.374	3.385	3.367	3.313	3.282
22	-	-	-	-	-	3.584	3.483	3.392	3.382	3.364	3.312	3.282
23	-	-	-	-	-	3.616	3.476	3.400	3.381	3.361	3.308	3.284
24	-	-	-	-	-	3.702	3.446	3.396	3.38	3.359	3.306	3.284
25	-	-	-	-	-	3.719	3.460	3.404	3.389	3.358	3.302	3.284
26	-	-	-	-	-	3.719	3.463	3.374	3.394	3.355	3.301	3.281
27	-	-	-	-	-	3.715	3.486	3.365	3.398	3.352	3.298	3.282
28	-	-	-	-	-	3.706	3.478	3.348	3.39	3.351	3.297	3.278
29	-	-	-	-	-	3.693	3.471	3.347	3.399	3.348	3.299	3.275
30	-	-	-	-	-	3.679	3.466	3.355	3.401	3.346	3.301	3.275
31	-	-	-	-	-	-	3.457	3.372	3.401	3.343	-	3.276
Minimum	**-**	**-**	**-**	**-**	**-**	**3.584**	**3.446**	**3.347**	**3.355**	**3.343**	**3.297**	**3.275**
Mean	**-**	**-**	**-**	**-**	**-**	**3.652**	**3.537**	**3.394**	**3.382**	**3.372**	**3.321**	**3.294**
Maximum	**-**	**-**	**-**	**-**	**-**	**3.719**	**3.665**	**3.447**	**3.401**	**3.392**	**3.342**	**3.309**

Table A2-25: 2000 Meliadine Lake Mean Daily Water Levels (m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	3.279	3.259	3.254	3.261	3.240	3.222	3.589	3.410	3.289		-	-
2	3.278	3.258	3.256	3.258	3.239	3.220	3.573	3.405	3.288		-	-
3	3.280	3.259	3.255	3.261	3.244	3.218	3.540	3.398	3.298		-	-
4	3.280	3.260	3.260	3.260	3.244	3.220	3.525	3.394	3.301		-	-
5	3.280	3.261	3.260	3.260	3.243	3.218	3.549	3.390	3.304		-	-
6	3.278	3.261	3.259	3.264	3.243	3.215	3.546	3.386	3.302		-	-
7	3.277	3.257	3.260	3.261	3.242	3.214	3.539	3.386	3.296		-	-
8	3.277	3.261	3.259	3.259	3.240	3.212	3.532	3.378	3.299	-	-	-
9	3.276	3.258	3.257	3.258	3.239	3.210	3.526	3.372	3.304	-	-	-
10	3.275	3.256	3.257	3.256	3.238	3.212	3.522	3.368	3.300	-	-	-
11	3.273	3.255	3.257	3.256	3.237	3.217	3.518	3.366	3.295	-	-	-
12	3.272	3.256	3.255	3.255	3.235	3.225	3.513	3.351	3.285	-	-	-
13	3.271	3.255	3.254	3.253	3.235	3.238	3.508	3.346	3.288	-	-	-
14	3.271	3.260	3.252	3.252	3.232	3.257	3.504	3.340	3.285	-	-	-
15	3.270	3.257	3.251	3.252	3.231	3.286	3.501	3.337	3.295	-	-	-
16	3.269	3.255	3.252	3.249	3.229	3.328	3.491	3.340	3.291	-	-	-
17	3.268	3.254	3.251	3.249	3.225	3.376	3.485	3.341	3.258	-	-	-
18	3.270	3.254	3.250	3.249	3.226	3.427	3.477	3.337	3.267	-	-	-
19	3.269	3.255	3.249	3.247	3.224	3.471	3.471	3.337	-	-	-	-
20	3.269	3.255	3.251	3.245	3.222	3.506	3.464	3.335	-	-	-	-
21	3.267	3.253	3.261	3.244	3.222	3.534	3.457	3.327	-	-	-	-
22	3.266	3.252	3.264	3.245	3.221	3.555	3.457	3.325	-	-	-	-
23	3.266	3.254	3.265	3.244	3.221	3.570	3.451	3.322	-	-	-	-
24	3.265	3.253	3.265	3.251	3.219	3.580	3.443	3.322	-	-	-	-
25	3.263	3.253	3.266	3.250	3.215	3.589	3.435	3.307	-	-	-	-
26	3.264	3.254	3.263	3.248	3.213	3.594	3.428	3.294	-	-	-	-
27	3.262	3.255	3.260	3.246	3.211	3.595	3.422	3.323	-	-	-	-
28	3.261	3.256	3.258	3.245	3.212	3.592	3.424	3.331	-	-	-	-
29	3.263	3.254	3.257	3.244	3.212	3.592	3.417	3.320	-	-	-	-
30	3.261	-	3.258	3.243	3.215	3.592	3.422	3.301	-	-	-	-
31	3.262	-	3.260	-	3.224	-	3.419	3.301	-	-	-	-
Minimum	**3.261**	**3.252**	**3.249**	**3.243**	**3.211**	**3.210**	**3.417**	**3.294**	**3.258**	**-**	**-**	**-**
Mean	**3.270**	**3.256**	**3.257**	**3.252**	**3.229**	**3.376**	**3.489**	**3.348**	**3.291**	**-**	**-**	**-**
Maximum	**3.280**	**3.261**	**3.266**	**3.264**	**3.244**	**3.595**	**3.589**	**3.410**	**3.304**	**-**	**-**	**-**

Table A2-26: 2008 Meliadine Lake Mean Daily Water Levels (m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	98.844	-	-	-	-
3	-	-	-	-	-	-	-	98.844	-	-	-	-
4	-	-	-	-	-	-	-	98.844	-	-	-	-
5	-	-	-	-	-	-	-	98.837	-	-	-	-
6	-	-	-	-	-	-	-	98.829	-	-	-	-
7	-	-	-	-	-	-	-	98.821	-	-	-	-
8	-	-	-	-	-	-	-	98.825	-	-	-	-
9	-	-	-	-	-	-	-	98.826	-	-	-	-
10	-	-	-	-	-	-	98.040	98.826	-	-	-	-
11	-	-	-	-	-	-	-	98.821	-	-	-	-
12	-	-	-	-	-	-	-	98.819	-	-	-	-
13	-	-	-	-	-	-	-	98.820	-	-	-	-
14	-	-	-	-	-	-	-	98.822	-	-	-	-
15	-	-	-	-	-	98.120	-	98.824	-	-	-	-
16	-	-	-	-	-	-	-	98.817	97.770	-	-	-
17	-	-	-	-	-	-	-	98.816	-	-	-	-
18	-	-	-	-	-	-	-	98.814	-	-	-	-
19	-	-	-	-	-	-	-	98.814	-	-	-	-
20	-	-	-	-	-	-	-	98.798	-	-	-	-
21	-	-	-	-	-	-	-	98.799	-	-	-	-
22	-	-	-	-	-	-	-	98.794	-	-	-	-
23	-	-	-	-	-	-	-	98.792	-	-	-	-
24	-	-	-	-	-	-	-	98.789	-	-	-	-
25	-	-	-	-	-	-	-	98.785	-	-	-	-
26	-	-	-	-	-	-	-	98.795	-	-	-	-
27	-	-	-	-	-	-	-	98.808	-	-	-	-
28	-	-	-	-	-	-	-	98.798	-	-	-	-
29	-	-	-	-	-	-	-	98.782	-	-	-	-
30	-	-	-	-	-	-	-	98.722	-	-	-	-
31	-	-	-	-	-	-	-	98.650	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**98.650**	**-**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**98.120**	**98.040**	**98.806**	**97.770**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**98.844**	**-**	**-**	**-**	**-**

A2-5 DIANA RIVER NEAR RANKIN INLET

Hydrometric data were measured during the open water seasons of 1997 to 1999. Mean daily water levels and mean daily discharges at Meliadine Lake Main Outlet are presented in Tables A2-27 to A2-32.

Table A2-27: 1997 Diana River near Rankin Inlet Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	7.00E	33.8	16.4	6.36	-	-	-
2	-	-	-	-	-	8.75E	33.0	15.2	6.17	-	-	-
3	-	-	-	-	-	10.8E	32.3	13.7	5.96	-	-	-
4	-	-	-	-	-	14.8E	32.7	12.9	5.81	-	-	-
5	-	-	-	-	-	20.8E	32.0	12.3	5.75	-	-	-
6	-	-	-	-	-	26.0E	31.0	12.3	5.74	-	-	-
7	-	-	-	-	-	30.2	30.1	11.7	5.61	-	-	-
8	-	-	-	-	-	34.4	29.4	11.2	5.39	-	-	-
9	-	-	-	-	-	37.0	28.8E	10.9	5.17	-	-	-
10	-	-	-	-	-	37.2	28.0E	10.5	5.07	-	-	-
11	-	-	-	-	-	36.9	27.4	10.1	5.03	-	-	-
12	-	-	-	-	-	37.9	26.8	9.52	5.02	-	-	-
13	-	-	-	-	-	38.2	25.3	8.98	4.90	-	-	-
14	-	-	-	-	-	38.7	23.7	8.51	4.77	-	-	-
15	-	-	-	-	-	39.1	23.6	8.26	4.67	-	-	-
16	-	-	-	-	-	39.9	23.6	8.16	4.69	-	-	-
17	-	-	-	-	-	39.9	23.4	8.06	4.77E	-	-	-
18	-	-	-	-	-	39.7	23.3	7.87	4.84E	-	-	-
19	-	-	-	-	-	38.0	22.4	7.69	4.92E	-	-	-
20	-	-	-	-	-	37.5	21.4	7.59	4.99E	-	-	-
21	-	-	-	-	-	36.8	20.8	7.47	5.06E	-	-	-
22	-	-	-	-	-	36.3	20.7	7.22	5.14E	-	-	-
23	-	-	-	-	-	35.9	20.0	7.04	5.21E	-	-	-
24	-	-	-	-	-	36.1	18.7	7.01	5.29	-	-	-
25	-	-	-	-	0.500E	35.5	18.2	6.78	-	-	-	-
26	-	-	-	-	1.00E	34.8	18.0	6.72	-	-	-	-
27	-	-	-	-	1.50E	34.6	17.9	6.6	-	-	-	-
28	-	-	-	-	2.25E	34.4	17.6	6.51	-	-	-	-
29	-	-	-	-	3.00E	34.4	17.0	6.45	-	-	-	-
30	-	-	-	-	4.25E	34.9	16.9	6.37	-	-	-	-
31	-	-	-	-	5.50E	-	16.8	6.31	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**0.500E**	**7.00**	**16.8**	**6.31**	**0.825**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**2.57E**	**32.2**	**24.3**	**9.24**	**5.16**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**5.50E**	**39.9**	**33.8**	**16.4**	**6.36**	**-**	**-**	**-**

Table A2-28: 1997 Diana River near Rankin Inlet, Mean Daily Water Levels (m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	7.250	7.110	6.804	6.470	-	-	-
2	-	-	-	-	-	7.320	7.099	6.776	6.460	-	-	-
3	-	-	-	-	-	7.210	7.090	6.736	6.449	-	-	-
4	-	-	-	-	-	7.190	7.095	6.712	6.441	-	-	-
5	-	-	-	-	-	7.160	7.086	6.697	6.438	-	-	-
6	-	-	-	-	-	7.080	7.071	6.695	6.438	-	-	-
7	-	-	-	-	-	7.060	7.058	6.677	6.430	-	-	-
8	-	-	-	-	-	7.120	7.048	6.660	6.418	-	-	-
9	-	-	-	-	-	7.150	-	6.650	6.405	-	-	-
10	-	-	-	-	-	7.150	-	6.640	6.399	-	-	-
11	-	-	-	-	-	7.150	7.016	6.625	6.397	-	-	-
12	-	-	-	-	-	7.160	7.006	6.604	6.397	-	-	-
13	-	-	-	-	-	7.170	6.981	6.584	6.389	-	-	-
14	-	-	-	-	-	7.170	6.953	6.565	6.381	-	-	-
15	-	-	-	-	-	7.180	6.953	6.555	6.375	-	-	-
16	-	-	-	-	-	7.190	6.952	6.551	6.376	-	-	-
17	-	-	-	-	-	7.190	6.949	6.547	-	-	-	-
18	-	-	-	-	7.550	7.190	6.946	6.539	-	-	-	-
19	-	-	-	-	7.490	7.164	6.931	6.532	-	-	-	-
20	-	-	-	-	7.470	7.158	6.910	6.527	-	-	-	-
21	-	-	-	-	7.000	7.150	6.901	6.522	-	-	-	-
22	-	-	-	-	7.100	7.142	6.897	6.511	-	-	-	-
23	-	-	-	-	7.430	7.138	6.884	6.502	-	-	-	-
24	-	-	-	-	7.230	7.141	6.857	6.501	6.412	-	-	-
25	-	-	-	-	7.130	7.133	6.845	6.490	-	-	-	-
26	-	-	-	-	7.000	7.123	6.842	6.487	-	-	-	-
27	-	-	-	-	6.910	7.120	6.838	6.481	-	-	-	-
28	-	-	-	-	6.840	7.119	6.831	6.477	-	-	-	-
29	-	-	-	-	7.120	7.118	6.819	6.474	-	-	-	-
30	-	-	-	-	7.080	7.125	6.816	6.470	-	-	-	-
31	-	-	-	-	6.870	-	6.814	6.467	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**7.060**	**7.060**	**6.814**	**6.467**	**-**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**7.160**	**7.160**	**6.951**	**6.583**	**-**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**7.320**	**7.320**	**7.110**	**6.804**	**-**	**-**	**-**	**-**

Table A2-29: 1998 Diana River near Rankin Inlet, Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	45.2	22.4	12.8	-	-	-
2	-	-	-	-	-	-	43.7	22.0	13.0	-	-	-
3	-	-	-	-	-	-	41.4	21.4	12.7	-	-	-
4	-	-	-	-	-	-	40.2	20.6	12.5	-	-	-
5	-	-	-	-	-	-	38.7	19.9	12.6	-	-	-
6	-	-	-	-	-	19.4	37.3	19.4	13.0	-	-	-
7	-	-	-	-	-	21.4	36.2	18.7	13.0	-	-	-
8	-	-	-	-	-	24.5	35.6	19.0	12.7	-	-	-
9	-	-	-	-	-	28.4	34.5	19.3	12.7	-	-	-
10	-	-	-	-	-	32.8	33.7	18.9	13.0	-	-	-
11	-	-	-	-	-	36.6	32.6	18.0	13.2	-	-	-
12	-	-	-	-	-	37.8	31.2	18.6	13.2	-	-	-
13	-	-	-	-	-	42.9	29.8	19.0	13.1	-	-	-
14	-	-	-	-	-	45.9	30.3	18.3	14.3	-	-	-
15	-	-	-	-	-	48.4	22.7	17.9	18.6	-	-	-
16	-	-	-	-	-	49.9	23.6	17.4	14.2	-	-	-
17	-	-	-	-	-	50.8	30.7	17.1	15.6	-	-	-
18	-	-	-	-	-	50.9	29.6	16.6	17.2	-	-	-
19	-	-	-	-	-	52.1	28.8	16.4	16.4	-	-	-
20	-	-	-	-	-	50.3	27.9	19.1	15.2	-	-	-
21	-	-	-	-	-	52.6	27.1	19.5	15.6	-	-	-
22	-	-	-	-	-	52.1	26.3	16.5	16.0	-	-	-
23	-	-	-	-	-	51.4	25.6	15.0	-	-	-	-
24	-	-	-	-	-	51.0	24.9	14.3	-	-	-	-
25	-	-	-	-	-	49.6	23.8	14.0	-	-	-	-
26	-	-	-	-	-	48.6	23.2	13.6	-	-	-	-
27	-	-	-	-	-	47.7	24.1	13.1	-	-	-	-
28	-	-	-	-	-	46.6	23.6	12.8	-	-	-	-
29	-	-	-	-	-	45.6	23.5	12.8	-	-	-	-
30	-	-	-	-	-	44.8	23.4	12.9	-	-	-	-
31	-	-	-	-	-	-	22.7	12.7	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**19.4**	**22.7**	**12.7**	**12.5**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**43.3**	**30.4**	**17.3**	**14.1**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**52.6**	**45.2**	**22.4**	**18.6**	**-**	**-**	**-**

Table A2-30: 1998 Diana River near Rankin Inlet, Mean Daily Water Levels (m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	7.251	6.987	6.760	-	-	-
2	-	-	-	-	-	-	7.235	6.981	6.766	-	-	-
3	-	-	-	-	-	-	7.209	6.971	6.757	-	-	-
4	-	-	-	-	-	-	7.195	6.956	6.749	-	-	-
5	-	-	-	-	-	-	7.179	6.945	6.753	-	-	-
6	-	-	-	-	-	6.998	7.162	6.935	6.766	-	-	-
7	-	-	-	-	-	7.020	7.149	6.918	6.767	-	-	-
8	-	-	-	-	-	7.050	7.143	6.925	6.757	-	-	-
9	-	-	-	-	-	7.086	7.130	6.931	6.756	-	-	-
10	-	-	-	-	-	7.122	7.121	6.924	6.766	-	-	-
11	-	-	-	-	-	7.158	7.107	6.901	6.771	-	-	-
12	-	-	-	-	-	7.170	7.089	6.915	6.773	-	-	-
13	-	-	-	-	-	7.233	7.069	6.925	6.770	-	-	-
14	-	-	-	-	-	7.266	7.080	6.909	6.805	-	-	-
15	-	-	-	-	-	7.290	6.937	6.899	6.917	-	-	-
16	-	-	-	-	-	7.303	6.954	6.888	6.803	-	-	-
17	-	-	-	-	-	7.308	7.095	6.879	6.838	-	-	-
18	-	-	-	-	-	7.305	7.079	6.866	6.869	-	-	-
19	-	-	-	-	-	7.317	7.068	6.863	6.825	-	-	-
20	-	-	-	-	-	7.298	7.056	6.928	6.771	-	-	-
21	-	-	-	-	-	7.323	7.044	6.936	6.759	-	-	-
22	-	-	-	-	-	7.320	7.033	6.865	6.757	-	-	-
23	-	-	-	-	-	7.313	7.023	6.824	-	-	-	-
24	-	-	-	-	-	7.309	7.013	6.806	-	-	-	-
25	-	-	-	-	-	7.295	6.995	6.795	-	-	-	-
26	-	-	-	-	-	7.285	6.986	6.785	-	-	-	-
27	-	-	-	-	-	7.274	7.006	6.770	-	-	-	-
28	-	-	-	-	-	7.263	7.000	6.759	-	-	-	-
29	-	-	-	-	-	7.252	7.001	6.761	-	-	-	-
30	-	-	-	-	-	7.244	7.001	6.762	-	-	-	-
31	-	-	-	-	-	-	6.991	6.757	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**6.998**	**6.937**	**6.757**	**6.749**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**7.232**	**7.077**	**6.880**	**6.784**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**7.323**	**7.251**	**6.987**	**6.917**	**-**	**-**	**-**

Table A2-31: 1999 Diana River near Rankin Inlet, Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	74.0	35.2	23.4	-	-	-
2	-	-	-	-	-	-	72.0	34.8	23.2	-	-	-
3	-	-	-	-	-	-	69.1	34.7	24.7	-	-	-
4	-	-	-	-	-	-	66.7	34.2	26.3	-	-	-
5	-	-	-	-	-	-	64.6	32.6	25.4	-	-	-
6	-	-	-	-	-	36.3	62.0	31.0	25.1	-	-	-
7	-	-	-	-	-	39.6	59.7	30.3	25.4	-	-	-
8	-	-	-	-	-	45.1	57.5	29.5	25.7	-	-	-
9	-	-	-	-	-	42.1	55.4	28.5	25.6	-	-	-
10	-	-	-	-	-	44.7	53.7	27.8	25.6	-	-	-
11	-	-	-	-	-	48.9	54.4	27.3	25.7	-	-	-
12	-	-	-	-	-	56.3	52.9	26.6	25.5	-	-	-
13	-	-	-	-	-	60.1	50.0	25.8	25.1	-	-	-
14	-	-	-	-	-	57.9	48.7	24.9	25.0	-	-	-
15	-	-	-	-	-	56.3	47.7	24.0	25.7	-	-	-
16	-	-	-	-	-	57.1	46.1	23.4	26.7	-	-	-
17	-	-	-	-	-	56.2	44.2	23.0	-	-	-	-
18	-	-	-	-	-	55.7	41.9	22.2	-	-	-	-
19	-	-	-	-	-	60.3	39.5	22.0	-	-	-	-
20	-	-	-	-	-	60.4	38.5	22.0	-	-	-	-
21	-	-	-	-	-	59.2	36.8	22.4	-	-	-	-
22	-	-	-	-	-	58.2	33.5	20.6	-	-	-	-
23	-	-	-	-	-	61.8	31.7	19.3	-	-	-	-
24	-	-	-	-	-	73.4	31.4	18.3	-	-	-	-
25	-	-	-	-	-	78.1	29.8	18.5	-	-	-	-
26	-	-	-	-	-	78.6	29.6	18.8	-	-	-	-
27	-	-	-	-	-	78.2	32.6	21.3	-	-	-	-
28	-	-	-	-	-	77.9	34.2	23.9	-	-	-	-
29	-	-	-	-	-	77.0	34.5	23.4	-	-	-	-
30	-	-	-	-	-	75.8	34.9	23.4	-	-	-	-
31	-	-	-	-	0.000	-	35.1	23.6	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**36.3**	**29.6**	**18.3**	**23.2**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**0.000**	**59.8**	**47.2**	**25.6**	**25.3**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**78.6**	**74.0**	**35.2**	**26.7**	**-**	**-**	**-**

Table A2-32: 1999 Diana River near Rankin Inlet, Mean Daily Water Levels (m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	7.500	7.128	6.949	-	-	-
2	-	-	-	-	-	-	7.486	7.123	6.945	-	-	-
3	-	-	-	-	-	-	7.464	7.122	6.972	-	-	-
4	-	-	-	-	-	-	7.444	7.115	6.999	-	-	-
5	-	-	-	-	-	-	7.427	7.094	6.983	-	-	-
6	-	-	-	-	-	7.135	7.406	7.071	6.978	-	-	-
7	-	-	-	-	-	7.171	7.386	7.061	6.983	-	-	-
8	-	-	-	-	-	7.243	7.367	7.049	6.989	-	-	-
9	-	-	-	-	-	7.212	7.348	7.034	6.988	-	-	-
10	-	-	-	-	-	7.241	7.332	7.022	6.987	-	-	-
11	-	-	-	-	-	7.285	7.339	7.015	6.989	-	-	-
12	-	-	-	-	-	7.351	7.324	7.003	6.985	-	-	-
13	-	-	-	-	-	7.390	7.296	6.990	6.979	-	-	-
14	-	-	-	-	-	7.370	7.284	6.975	6.977	-	-	-
15	-	-	-	-	-	7.356	7.273	6.960	6.988	-	-	-
16	-	-	-	-	-	7.363	7.257	6.949	7.005	-	-	-
17	-	-	-	-	-	7.354	7.236	6.941	-	-	-	-
18	-	-	-	-	-	7.348	7.211	6.926	-	-	-	-
19	-	-	-	-	-	7.392	7.182	6.923	-	-	-	-
20	-	-	-	-	-	7.393	7.170	6.922	-	-	-	-
21	-	-	-	-	-	7.382	7.148	6.930	-	-	-	-
22	-	-	-	-	-	7.374	7.106	6.896	-	-	-	-
23	-	-	-	-	-	7.404	7.080	6.868	-	-	-	-
24	-	-	-	-	-	7.495	7.077	6.848	-	-	-	-
25	-	-	-	-	-	7.530	7.053	6.851	-	-	-	-
26	-	-	-	-	-	7.533	7.049	6.857	-	-	-	-
27	-	-	-	-	-	7.530	7.093	6.908	-	-	-	-
28	-	-	-	-	-	7.528	7.116	6.957	-	-	-	-
29	-	-	-	-	-	7.522	7.120	6.948	-	-	-	-
30	-	-	-	-	-	7.513	7.125	6.948	-	-	-	-
31	-	-	-	-	-	-	7.128	6.952	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**7.135**	**7.049**	**6.848**	**6.945**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**7.377**	**7.253**	**6.980**	**6.981**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**7.533**	**7.500**	**7.128**	**7.005**	**-**	**-**	**-**

A2-6 DIANA LAKE

Instantaneous water levels were measured during the open water seasons of 1997 to 1999 and are presented in Table A2-33.

Table A2-33: Diana Lake Water Level Observations (m)

Date	Water Level
23-Jun-97	6.540
26-Jun-97	6.519
8-Jul-97	6.462
17-Jul-97	6.402
29-Jul-97	6.252
24-Aug-97	6.005
24-Sep-97	5.840
7-May-98	5.850
8-Jun-98	6.257
16-Jun-98	6.678
19-Jun-98	6.720
1-Jul-98	6.939
8-Jul-98	6.555
23-Aug-98	6.263
22-Sep-98	6.252
16-Jun-99	6.806
6-Jul-99	6.899
13-Jul-99	6.764
22-Sep-99	6.433

A2-7 PETER LAKE

Instantaneous water levels were measured during the open water seasons of 1997 to 1999 and are presented in Table A2-34.

Table A2-34: Peter Lake Water Level Observations (m)

Date	Water Level
23-Jun-97	7.488
26-Jun-97	7.471
8-Jul-97	7.441
17-Jul-97	7.478
29-Jul-97	7.281
24-Aug-97	7.110
24-Sep-97	6.936
7-May-98	7.075
8-Jun-98	7.399
16-Jun-98	7.638
19-Jun-98	7.635
1-Jul-98	7.541
8-Jul-98	7.481
1-Aug-98	7.265
23-Aug-98	7.275
22-Sep-98	7.259
31-May-99	7.275
13-Jun-99	7.699
16-Jun-99	7.713
2-Jul-99	7.810
13-Jul-99	7.627
22-Sep-99	7.399

A2-8 CHAR RIVER NEAR RANKIN INLET

Hydrometric data were measured during the open water season of 2000. Instantaneous water levels and discharge measurements at Char River near Rankin Inlet are presented in Table A2-35.

Table A2-35: Char River near Rankin Inlet

Date	Water Level	Discharge	Comments
12-Jun-2000		0.000	
13-Jun-2000		5 to 6	estimated
14-Jun-2000	7.000	5.04	ice conditions
16-Jun-2000	7.041	9.45	
18-Jun-2000	7.015	9.00	
21-Jun-2000	6.945	4.36	
24-Jul-2000	6.670	0.130	
19-Sep-2000	6.709	0.259	

A2-9 LAKE A1 AND OUTLET

Hydrometric data were measured during the open water season of 1997 to 2000 and 2008. Mean daily water levels and mean daily discharges at Lake A1 are presented in Tables A2-36 to A2-45.

Table A2-36: 1997 Lake A1 Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	0.539	0	0	-	-	-
2	-	-	-	-	-	-	0.456	0.000	0.000	-	-	-
3	-	-	-	-	-	-	0.342	0.000	0.000	-	-	-
4	-	-	-	-	-	-	0.335	0.000	0.000	-	-	-
5	-	-	-	-	-	-	0.258	0.000	0.000	-	-	-
6	-	-	-	-	-	-	0.21	0.000	0.000	-	-	-
7	-	-	-	-	-	-	0.163	0.000	0.000	-	-	-
8	-	-	-	-	-	-	0.136	0.000	0.000	-	-	-
9	-	-	-	-	-	-	0.132	0.000	0.000	-	-	-
10	-	-	-	-	-	-	0.109	0.000	0.000	-	-	-
11	-	-	-	-	-	0.372	0.087	0.000	0.000	-	-	-
12	-	-	-	-	-	-	0.068	0.000	0.000	-	-	-
13	-	-	-	-	-	-	0.032	0.000	0.000	-	-	-
14	-	-	-	-	-	-	0.021	0.000	0.000	-	-	-
15	-	-	-	-	-	-	0.013	0.000	0.000	-	-	-
16	-	-	-	-	-	-	0.013	0.000	0.000	-	-	-
17	-	-	-	-	-	-	0.011	0.000	0.000	-	-	-
18	-	-	-	-	-	-	0.008	0.000	0.000	-	-	-
19	-	-	-	-	-	-	0.005	0.000	0.000	-	-	-
20	-	-	-	-	-	0.281	0.003	0.000	0.000	-	-	-
21	-	-	-	-	-	0.244	0.004	0.000	0.000	-	-	-
22	-	-	-	-	-	0.206	0.005	0.000	0.000	-	-	-
23	-	-	-	-	-	0.166	0.004	0.000	0.000	-	-	-
24	-	-	-	-	-	0.198	0.002	0.000	0.000	-	-	-
25	-	-	-	-	-	0.173	0.001	0.000	0.000	-	-	-
26	-	-	-	-	-	0.163	0.001	0.000	-	-	-	-
27	-	-	-	-	-	0.221	0.000	0.000	-	-	-	-
28	-	-	-	-	-	0.269	0.000	0.000	-	-	-	-
29	-	-	-	-	-	0.374	0.000	0.000	-	-	-	-
30	-	-	-	-	-	0.552	0.000	0.000	-	-	-	-
31	-	-	-	-	-	-	0.000	0.000	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**0.163**	**0.000**	**0.000**	**-**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**0.268**	**0.095**	**0.000**	**0.000**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**0.552**	**0.539**	**0.000**	**0.000**	**-**	**-**	**-**

Table A2-37: 1997 Lake A1 Mean Daily Water Levels (m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	9.420	9.280	9.215	-	-	-
2	-	-	-	-	-	-	9.415	9.272	9.211	-	-	-
3	-	-	-	-	-	-	9.405	9.267	9.211	-	-	-
4	-	-	-	-	-	-	9.405	9.265	9.218	-	-	-
5	-	-	-	-	-	-	9.397	9.264	9.222	-	-	-
6	-	-	-	-	-	-	9.392	9.264	9.219	-	-	-
7	-	-	-	-	-	-	9.385	9.257	9.217	-	-	-
8	-	-	-	-	-	-	9.381	9.256	9.215	-	-	-
9	-	-	-	-	-	-	9.380	9.252	9.215	-	-	-
10	-	-	-	-	-	-	9.375	9.248	9.214	-	-	-
11	-	-	-	-	-	9.560	9.370	9.245	9.214	-	-	-
12	-	-	-	-	-	-	9.365	9.242	9.214	-	-	-
13	-	-	-	-	-	-	9.350	9.239	9.209	-	-	-
14	-	-	-	-	-	-	9.344	9.237	9.209	-	-	-
15	-	-	-	-	-	-	9.337	9.237	9.207	-	-	-
16	-	-	-	-	-	-	9.337	9.236	9.205	-	-	-
17	-	-	-	-	-	-	9.335	9.234	9.203	-	-	-
18	-	-	-	-	-	-	9.331	9.233	9.204	-	-	-
19	-	-	-	-	-	-	9.326	9.232	9.201	-	-	-
20	-	-	-	-	-	9.400	9.320	9.231	9.198	-	-	-
21	-	-	-	-	-	9.396	9.323	9.228	9.197	-	-	-
22	-	-	-	-	-	9.391	9.325	9.224	9.197	-	-	-
23	-	-	-	-	-	9.385	9.323	9.227	9.198	-	-	-
24	-	-	-	-	-	9.390	9.314	9.227	9.194	-	-	-
25	-	-	-	-	-	9.387	9.311	9.225	9.206	-	-	-
26	-	-	-	-	-	9.385	9.310	9.222	-	-	-	-
27	-	-	-	-	-	9.393	9.307	9.220	-	-	-	-
28	-	-	-	-	-	9.399	9.303	9.220	-	-	-	-
29	-	-	-	-	-	9.408	9.299	9.219	-	-	-	-
30	-	-	-	-	-	9.421	9.293	9.220	-	-	-	-
31	-	-	-	-	-	-	9.287	9.221	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**9.385**	**9.287**	**9.219**	**9.194**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**9.410**	**9.347**	**9.240**	**9.209**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**9.560**	**9.420**	**9.280**	**9.222**	**-**	**-**	**-**

Table A2-38: 1998 Lake A1 Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	0.062	0.005	-	-	-	-
2	-	-	-	-	-	-	0.055	0.003	-	-	-	-
3	-	-	-	-	-	-	0.047	0.001	-	-	-	-
4	-	-	-	-	-	-	0.043	0.001	-	-	-	-
5	-	-	-	-	-	1.27	0.037	0.001	-	-	-	-
6	-	-	-	-	-	1.03	0.038	0.000	-	-	-	-
7	-	-	-	-	-	0.878	0.033	0.004	-	-	-	-
8	-	-	-	-	-	0.783	0.029	0.006	-	-	-	-
9	-	-	-	-	-	0.691	0.025	0.007	-	-	-	-
10	-	-	-	-	-	0.644	0.022	0.006	-	-	-	-
11	-	-	-	-	-	0.523	0.019	0.005	-	-	-	-
12	-	-	-	-	-	0.440	0.014	0.006	-	-	-	-
13	-	-	-	-	-	0.408	0.010	-	-	-	-	-
14	-	-	-	-	-	0.362	0.015	-	-	-	-	-
15	-	-	-	-	-	0.313	0.024	-	-	-	-	-
16	-	-	-	-	-	0.265	0.028	-	-	-	-	-
17	-	-	-	-	-	0.217	0.031	-	-	-	-	-
18	-	-	-	-	-	0.183	0.034	-	-	-	-	-
19	-	-	-	-	-	0.165	0.032	-	-	-	-	-
20	-	-	-	-	-	0.148	0.031	-	-	-	-	-
21	-	-	-	-	-	0.138	0.028	-	-	-	-	-
22	-	-	-	-	-	0.136	0.023	-	-	-	-	-
23	-	-	-	-	-	0.122	0.021	-	-	-	-	-
24	-	-	-	-	-	0.112	0.018	-	-	-	-	-
25	-	-	-	-	-	0.101	0.015	-	-	-	-	-
26	-	-	-	-	-	0.093	0.012	-	-	-	-	-
27	-	-	-	-	-	0.083	0.013	-	-	-	-	-
28	-	-	-	-	-	0.075	0.012	-	-	-	-	-
29	-	-	-	-	-	0.069	0.010	-	-	-	-	-
30	-	-	-	-	-	0.062	0.008	-	-	-	-	-
31	-	-	-	-	-	-	0.006	-	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**0.062**	**0.006**	**0.000**	**-**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**0.358**	**0.026**	**0.004**	**-**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**1.27**	**0.062**	**0.007**	**-**	**-**	**-**	**-**

Table A2-39: 1998 Lake A1 Mean Daily Water Levels (m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	9.396	9.312	-	-	-	-
2	-	-	-	-	-	-	9.390	9.307	-	-	-	-
3	-	-	-	-	-	-	9.382	9.299	-	-	-	-
4	-	-	-	-	-	-	9.378	9.294	-	-	-	-
5	-	-	-	-	-	9.709	9.372	9.293	-	-	-	-
6	-	-	-	-	-	9.668	9.373	9.288	-	-	-	-
7	-	-	-	-	-	9.639	9.366	9.306	-	-	-	-
8	-	-	-	-	-	9.621	9.362	9.312	-	-	-	-
9	-	-	-	-	-	9.602	9.356	9.313	-	-	-	-
10	-	-	-	-	-	9.593	9.353	9.311	-	-	-	-
11	-	-	-	-	-	9.565	9.348	9.309	-	-	-	-
12	-	-	-	-	-	9.544	9.340	9.310	-	-	-	-
13	-	-	-	-	-	9.537	9.333	-	-	-	-	-
14	-	-	-	-	-	9.526	9.340	-	-	-	-	-
15	-	-	-	-	-	9.512	9.353	-	-	-	-	-
16	-	-	-	-	-	9.498	9.357	-	-	-	-	-
17	-	-	-	-	-	9.482	9.360	-	-	-	-	-
18	-	-	-	-	-	9.469	9.363	-	-	-	-	-
19	-	-	-	-	-	9.462	9.361	-	-	-	-	-
20	-	-	-	-	-	9.453	9.359	-	-	-	-	-
21	-	-	-	-	-	9.447	9.355	-	-	-	-	-
22	-	-	-	-	-	9.446	9.349	-	-	-	-	-
23	-	-	-	-	-	9.438	9.345	-	-	-	-	-
24	-	-	-	-	-	9.433	9.340	-	-	-	-	-
25	-	-	-	-	-	9.425	9.335	-	-	-	-	-
26	-	-	-	-	-	9.420	9.330	-	-	-	-	-
27	-	-	-	-	-	9.413	9.331	-	-	-	-	-
28	-	-	-	-	-	9.407	9.329	-	-	-	-	-
29	-	-	-	-	-	9.402	9.325	-	-	-	-	-
30	-	-	-	-	-	9.396	9.320	-	-	-	-	-
31	-	-	-	-	-	-	9.316	-	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**9.396**	**9.316**	**9.288**	**-**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**9.504**	**9.352**	**9.305**	**-**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**9.709**	**9.396**	**9.313**	**-**	**-**	**-**	**-**

Table A2-40: 1999 Lake A1 Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	0.151	0.028	0.123	-	-	-
2	-	-	-	-	-	0.000	0.119	0.028	0.119	-	-	-
3	-	-	-	-	-	-	0.099	0.026	0.137	-	-	-
4	-	-	-	-	-	1.480	0.080	0.024	0.161	-	-	-
5	-	-	-	-	-	-	0.071	0.023	0.150	-	-	-
6	-	-	-	-	-	1.470	0.062	0.022	0.133	-	-	-
7	-	-	-	-	-	-	0.055	0.022	0.119	-	-	-
8	-	-	-	-	-	-	0.049	0.023	0.110	-	-	-
9	-	-	-	-	-	0.645	0.046	0.022	0.098	-	-	-
10	-	-	-	-	-	-	0.042	0.022	0.090	-	-	-
11	-	-	-	-	-	-	0.044	0.022	0.082	-	-	-
12	-	-	-	-	-	-	0.046	0.022	0.076	-	-	-
13	-	-	-	-	-	-	0.045	0.022	0.073	-	-	-
14	-	-	-	-	-	0.312	0.048	0.021	0.073	-	-	-
15	-	-	-	-	-	0.311	0.048	0.021	0.076	-	-	-
16	-	-	-	-	-	0.331	0.045	0.020	0.093	-	-	-
17	-	-	-	-	-	0.312	0.041	0.021	0.092	-	-	-
18	-	-	-	-	-	0.283	0.037	0.020	0.086	-	-	-
19	-	-	-	-	-	0.236	0.034	0.021	0.078	-	-	-
20	-	-	-	-	-	0.189	0.034	0.022	0.076	-	-	-
21	-	-	-	-	-	0.151	0.030	0.021	-	-	-	-
22	-	-	-	-	-	0.130	0.028	0.022	-	-	-	-
23	-	-	-	-	-	0.211	0.026	0.022	-	-	-	-
24	-	-	-	-	-	0.916	0.025	0.023	-	-	-	-
25	-	-	-	-	-	0.756	0.022	0.024	-	-	-	-
26	-	-	-	-	-	0.568	0.024	0.031	-	-	-	-
27	-	-	-	-	-	0.427	0.031	0.119	-	-	-	-
28	-	-	-	-	-	0.325	0.032	0.160	-	-	-	-
29	-	-	-	-	-	0.245	0.032	0.143	-	-	-	-
30	-	-	-	-	-	0.191	0.031	0.130	-	-	-	-
31	-	-	-	-	-	-	0.029	0.120	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**0.130**	**0.022**	**0.020**	**0.073**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**0.347**	**0.049**	**0.041**	**0.102**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**0.916**	**0.151**	**0.160**	**0.161**	**-**	**-**	**-**

Table A2-41: 1999 Lake A1 Mean Daily Water Levels (m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	9.463	9.330	9.447	-	-	-
2	-	-	-	-	-	-	9.444	9.327	9.444	-	-	-
3	-	-	-	-	-	-	9.429	9.322	9.455	-	-	-
4	-	-	-	-	-	9.730	9.412	9.316	9.468	-	-	-
5	-	-	-	-	-	-	9.403	9.312	9.463	-	-	-
6	-	-	-	-	-	9.683	9.392	9.310	9.453	-	-	-
7	-	-	-	-	-	-	9.383	9.311	9.444	-	-	-
8	-	-	-	-	-	-	9.374	9.313	9.438	-	-	-
9	-	-	-	-	-	9.590	9.368	9.310	9.429	-	-	-
10	-	-	-	-	-	-	9.361	9.310	9.422	-	-	-
11	-	-	-	-	-	-	9.365	9.311	9.415	-	-	-
12	-	-	-	-	-	-	9.368	9.311	9.408	-	-	-
13	-	-	-	-	9.248	-	9.366	9.309	9.405	-	-	-
14	-	-	-	-	-	9.522	9.372	9.307	9.405	-	-	-
15	-	-	-	-	-	9.522	9.372	9.305	9.408	-	-	-
16	-	-	-	-	-	9.527	9.366	9.303	9.425	-	-	-
17	-	-	-	-	-	9.522	9.359	9.304	9.423	-	-	-
18	-	-	-	-	-	9.514	9.351	9.304	9.418	-	-	-
19	-	-	-	-	-	9.499	9.343	9.305	9.411	-	-	-
20	-	-	-	-	-	9.481	9.343	9.309	9.408	-	-	-
21	-	-	-	-	-	9.463	9.333	9.305	-	-	-	-
22	-	-	-	-	-	9.451	9.330	9.311	-	-	-	-
23	-	-	-	-	-	9.477	9.324	9.308	-	-	-	-
24	-	-	-	-	-	9.634	9.321	9.312	-	-	-	-
25	-	-	-	-	-	9.606	9.311	9.317	-	-	-	-
26	-	-	-	-	-	9.573	9.316	9.337	-	-	-	-
27	-	-	-	-	-	9.547	9.336	9.444	-	-	-	-
28	-	-	-	-	-	9.525	9.339	9.468	-	-	-	-
29	-	-	-	-	-	9.502	9.339	9.459	-	-	-	-
30	-	-	-	-	-	9.482	9.338	9.451	-	-	-	-
31	-	-	-	-	-	-	9.332	9.445	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**9.451**	**9.311**	**9.303**	**9.405**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**9.248**	**9.542**	**9.363**	**9.335**	**9.429**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**9.730**	**9.463**	**9.468**	**9.468**	**-**	**-**	**-**

Table A2-42: 2000 Lake A1 Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	0.110	0.017	0.018	-	-	-
2	-	-	-	-	-	-	0.100	0.016	0.018	-	-	-
3	-	-	-	-	-	-	0.088	0.016	0.018	-	-	-
4	-	-	-	-	-	-	0.080	0.015	0.018	-	-	-
5	-	-	-	-	-	-	0.075	0.014	0.017	-	-	-
6	-	-	-	-	-	-	0.068	0.013	0.017	-	-	-
7	-	-	-	-	-	-	0.064	0.013	0.018	-	-	-
8	-	-	-	-	-	-	0.060	0.012	0.018	-	-	-
9	-	-	-	-	-	-	0.056	0.011	0.016	-	-	-
10	-	-	-	-	-	-	0.053	0.010	0.017	-	-	-
11	-	-	-	-	-	-	0.048	0.011	0.018	-	-	-
12	-	-	-	-	-	0.000 B	0.044	0.011	0.018	-	-	-
13	-	-	-	-	-	0.869 B	0.039	0.011	0.018	-	-	-
14	-	-	-	-	-	-	0.036	0.010	0.018	-	-	-
15	-	-	-	-	-	1.010 B	0.035	0.010	0.017	-	-	-
16	-	-	-	-	-	-	0.033	0.009	0.021	-	-	-
17	-	-	-	-	-	1.316	0.030	0.011	0.022	-	-	-
18	-	-	-	-	-	1.226	0.028	0.010	0.021	-	-	-
19	-	-	-	-	-	0.959	0.026	0.010	0.021	-	-	-
20	-	-	-	-	-	0.853	0.025	0.009	-	-	-	-
21	-	-	-	-	-	0.763	0.023	0.010	-	-	-	-
22	-	-	-	-	-	0.602	0.022	0.010	-	-	-	-
23	-	-	-	-	-	0.443	0.020	0.010	-	-	-	-
24	-	-	-	-	-	0.378	0.019	0.010	-	-	-	-
25	-	-	-	-	-	0.316	0.018	0.013	-	-	-	-
26	-	-	-	-	-	0.257	0.018	0.013	-	-	-	-
27	-	-	-	-	-	0.219	0.017	0.012	-	-	-	-
28	-	-	-	-	-	0.185	0.016	0.014	-	-	-	-
29	-	-	-	-	-	0.152	0.015	0.016	-	-	-	-
30	-	-	-	-	-	0.124	0.017	0.017	-	-	-	-
31	-	-	-	-	-	-	0.020	0.020	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**0.124**	**0.015**	**0.009**	**0.016**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**0.557**	**0.040**	**0.012**	**0.018**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**1.316**	**0.088**	**0.017**	**0.022**	**-**	**-**	**-**

Table A2-43: 2000 Lake A1 Mean Daily Water Levels (m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	9.435	9.288	9.293	-	-	-
2	-	-	-	-	-	-	9.426	9.283	9.295	-	-	-
3	-	-	-	-	-	-	9.417	9.283	9.295	-	-	-
4	-	-	-	-	-	-	9.410	9.277	9.293	-	-	-
5	-	-	-	-	-	-	9.406	9.275	9.291	-	-	-
6	-	-	-	-	-	-	9.400	9.270	9.290	-	-	-
7	-	-	-	-	-	-	9.394	9.267	9.295	-	-	-
8	-	-	-	-	-	-	9.389	9.263	9.293	-	-	-
9	-	-	-	-	-	-	9.383	9.257	9.285	-	-	-
10	-	-	-	-	-	-	9.380	9.250	9.290	-	-	-
11	-	-	-	-	-	-	9.372	9.256	9.293	-	-	-
12	-	-	-	-	-	-	9.364	9.255	9.293	-	-	-
13	-	-	-	-	-	9.899 B	9.355	9.251	9.292	-	-	-
14	-	-	-	-	-	9.842 B	9.349	9.248	9.295	-	-	-
15	-	-	-	-	-	9.763 B	9.347	9.244	9.291	-	-	-
16	-	-	-	-	-	9.706 B	9.342	9.239	9.305	-	-	-
17	-	-	-	-	-	9.673	9.334	9.252	9.309	-	-	-
18	-	-	-	-	-	9.655	9.329	9.250	9.307	-	-	-
19	-	-	-	-	-	9.618	9.324	9.246	9.305	-	-	-
20	-	-	-	-	-	9.603	9.318	9.243	-	-	-	-
21	-	-	-	-	-	9.591	9.314	9.247	-	-	-	-
22	-	-	-	-	-	9.571	9.309	9.249	-	-	-	-
23	-	-	-	-	-	9.550	9.302	9.248	-	-	-	-
24	-	-	-	-	-	9.534	9.300	9.250	-	-	-	-
25	-	-	-	-	-	9.519	9.296	9.266	-	-	-	-
26	-	-	-	-	-	9.505	9.293	9.266	-	-	-	-
27	-	-	-	-	-	9.491	9.289	9.260	-	-	-	-
28	-	-	-	-	-	9.476	9.284	9.273	-	-	-	-
29	-	-	-	-	-	9.461	9.280	9.284	-	-	-	-
30	-	-	-	-	-	9.446	9.288	9.291	-	-	-	-
31	-	-	-	-	-	-	9.291	9.291	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**9.446**	**9.280**	**9.239**	**9.285**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**9.550**	**9.346**	**9.262**	**9.295**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**9.673**	**9.435**	**9.291**	**9.309**	**-**	**-**	**-**

Table A2-44: 2008 Lake A1 Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	0.010	0.004	0.046	-	-	-
2	-	-	-	-	-	-	0.010	0.003	0.059	-	-	-
3	-	-	-	-	-	-	0.010	0.003	0.062	-	-	-
4	-	-	-	-	-	-	0.010	0.004	0.057	-	-	-
5	-	-	-	-	-	-	0.009	0.004	0.051	-	-	-
6	-	-	-	-	-	-	0.008	0.004	0.051	-	-	-
7	-	-	-	-	-	-	0.008	0.004	0.042	-	-	-
8	-	-	-	-	-	-	0.007	0.004	0.041	-	-	-
9	-	-	-	-	-	-	0.007	0.003	0.040	-	-	-
10	-	-	-	-	-	-	0.006	0.003	0.039	-	-	-
11	-	-	-	-	-	-	0.005	0.003	0.039	-	-	-
12	-	-	-	-	-	-	0.004	0.003	0.037	-	-	-
13	-	-	-	-	-	-	0.004	0.003	0.037	-	-	-
14	-	-	-	-	-	-	0.004	0.003	0.038	-	-	-
15	-	-	-	-	-	0.065	0.004	0.006	0.040	-	-	-
16	-	-	-	-	-	0.053	0.003	0.006	0.036	-	-	-
17	-	-	-	-	-	0.044	0.004	0.008	-	-	-	-
18	-	-	-	-	-	0.036	0.004	0.009	-	-	-	-
19	-	-	-	-	-	0.029	0.003	0.010	-	-	-	-
20	-	-	-	-	-	0.026	0.003	0.009	-	-	-	-
21	-	-	-	-	-	0.022	0.002	0.008	-	-	-	-
22	-	-	-	-	-	0.020	0.002	0.008	-	-	-	-
23	-	-	-	-	-	0.018	0.002	0.007	-	-	-	-
24	-	-	-	-	-	0.016	0.002	0.007	-	-	-	-
25	-	-	-	-	-	0.014	0.002	0.007	-	-	-	-
26	-	-	-	-	-	0.013	0.003	0.006	-	-	-	-
27	-	-	-	-	-	0.013	0.003	0.006	-	-	-	-
28	-	-	-	-	-	0.013	0.002	0.011	-	-	-	-
29	-	-	-	-	-	0.012	0.003	0.014	-	-	-	-
30	-	-	-	-	-	0.011	0.004	0.015	-	-	-	-
31	-	-	-	-	-	-	0.004	0.030	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**0.011**	**0.002**	**0.003**	**0.036**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**0.025**	**0.005**	**0.007**	**0.045**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**0.065**	**0.010**	**0.030**	**0.062**	**-**	**-**	**-**

Table A2-45: 2008 Lake A1 Mean Daily Water Levels (m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	98.069	98.034	98.119	-	-	-
2	-	-	-	-	-	-	98.067	98.034	98.128	-	-	-
3	-	-	-	-	-	-	98.067	98.033	98.130	-	-	-
4	-	-	-	-	-	-	98.066	98.036	98.126	-	-	-
5	-	-	-	-	-	-	98.064	98.039	98.123	-	-	-
6	-	-	-	-	-	-	98.060	98.041	98.122	-	-	-
7	-	-	-	-	-	-	98.058	98.039	98.116	-	-	-
8	-	-	-	-	-	-	98.057	98.034	98.114	-	-	-
9	-	-	-	-	-	-	98.055	98.033	98.113	-	-	-
10	-	-	-	-	-	-	98.051	98.032	98.113	-	-	-
11	-	-	-	-	-	-	98.045	98.031	98.113	-	-	-
12	-	-	-	-	-	-	98.041	98.031	98.111	-	-	-
13	-	-	-	-	-	-	98.037	98.032	98.111	-	-	-
14	-	-	-	-	-	-	98.035	98.032	98.112	-	-	-
15	-	-	-	-	-	98.131	98.037	98.049	98.114	-	-	-
16	-	-	-	-	-	98.123	98.033	98.053	98.110	-	-	-
17	-	-	-	-	-	98.117	98.034	98.059	-	-	-	-
18	-	-	-	-	-	98.110	98.036	98.062	-	-	-	-
19	-	-	-	-	-	98.103	98.032	98.064	-	-	-	-
20	-	-	-	-	-	98.099	98.025	98.063	-	-	-	-
21	-	-	-	-	-	98.094	98.018	98.060	-	-	-	-
22	-	-	-	-	-	98.089	98.015	98.059	-	-	-	-
23	-	-	-	-	-	98.086	98.017	98.058	-	-	-	-
24	-	-	-	-	-	98.083	98.014	98.057	-	-	-	-
25	-	-	-	-	-	98.078	98.019	98.055	-	-	-	-
26	-	-	-	-	-	98.076	98.026	98.053	-	-	-	-
27	-	-	-	-	-	98.076	98.028	98.051	-	-	-	-
28	-	-	-	-	-	98.075	98.023	98.068	-	-	-	-
29	-	-	-	-	-	98.073	98.030	98.077	-	-	-	-
30	-	-	-	-	-	98.069	98.037	98.081	-	-	-	-
31	-	-	-	-	-	-	98.036	98.102	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**98.069**	**98.014**	**98.031**	**98.110**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**98.093**	**98.040**	**98.050**	**98.117**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**98.131**	**98.069**	**98.102**	**98.130**	**-**	**-**	**-**

A2-10 LAKE A6 AND OUTLET

Hydrometric data were measured during the open water season of 1997 and 1998. Mean daily water levels and mean daily discharges at Lake A6 are presented in Tables A2-46 to A2-49.

Table A2-46: 1997 Lake A6 Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	0.061	0.000	0.000	-	-	-
2	-	-	-	-	-	-	0.056	0.000	0.000	-	-	-
3	-	-	-	-	-	-	0.051	0.000	0.000	-	-	-
4	-	-	-	-	-	-	0.045	0.000	0.000	-	-	-
5	-	-	-	-	-	-	0.038	0.000	0.000	-	-	-
6	-	-	-	-	-	-	0.034	0.000	0.000	-	-	-
7	-	-	-	-	-	-	0.031	0.000	0.000	-	-	-
8	-	-	-	-	-	-	0.026	0.000	0.000	-	-	-
9	-	-	-	-	-	-	0.027	0.000	0.000	-	-	-
10	-	-	-	-	-	-	0.023	0.000	0.000	-	-	-
11	-	-	-	-	-	0.221	0.021	0.000	0.000	-	-	-
12	-	-	-	-	-	0.188	0.018	0.000	0.000	-	-	-
13	-	-	-	-	-	-	0.010	0.000	0.000	-	-	-
14	-	-	-	-	-	-	0.006	0.000	0.000	-	-	-
15	-	-	-	-	-	-	0.003	0.000	0.000	-	-	-
16	-	-	-	-	-	-	0.002	0.000	0.000	-	-	-
17	-	-	-	-	-	-	0.003	0.000	0.000	-	-	-
18	-	-	-	-	-	-	0.003	0.000	0.000	-	-	-
19	-	-	-	-	-	-	0.002	0.000	0.000	-	-	-
20	-	-	-	-	-	0.080	0.001	0.000	0.000	-	-	-
21	-	-	-	-	-	0.062	0.001	0.000	0.000	-	-	-
22	-	-	-	-	-	0.057	0.002	0.000	0.000	-	-	-
23	-	-	-	-	-	0.052	0.001	0.000	0.000	-	-	-
24	-	-	-	-	-	0.050	0.000	0.000	0.000	-	-	-
25	-	-	-	-	-	0.045	0.000	0.000	0.000	-	-	-
26	-	-	-	-	-	0.043	0.000	0.000	-	-	-	-
27	-	-	-	-	-	0.048	0.000	0.000	-	-	-	-
28	-	-	-	-	-	0.050	0.000	0.000	-	-	-	-
29	-	-	-	-	-	0.059	0.000	0.000	-	-	-	-
30	-	-	-	-	-	0.068	0.000	0.000	-	-	-	-
31	-	-	-	-	-	-	0.000	0.000	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**0.043**	**0.000**	**0.000**	**-**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**0.079**	**0.015**	**0.000**	**0.000**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**0.221**	**0.061**	**0.000**	**0.000**	**-**	**-**	**-**

Table A2-47: 1997 Lake A6 Mean Daily Water Levels (m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	9.309	9.188	9.116	-	-	-
2	-	-	-	-	-	-	9.305	9.178	9.120	-	-	-
3	-	-	-	-	-	-	9.302	9.174	9.117	-	-	-
4	-	-	-	-	-	-	9.297	9.173	9.116	-	-	-
5	-	-	-	-	-	-	9.292	9.175	9.118	-	-	-
6	-	-	-	-	-	-	9.288	9.170	9.121	-	-	-
7	-	-	-	-	-	-	9.285	9.163	9.114	-	-	-
8	-	-	-	-	-	-	9.280	9.162	9.110	-	-	-
9	-	-	-	-	-	-	9.281	9.159	9.108	-	-	-
10	-	-	-	-	-	-	9.278	9.154	9.110	-	-	-
11	-	-	-	-	-	9.380	9.275	9.151	9.109	-	-	-
12	-	-	-	-	-	9.370	9.271	9.146	9.110	-	-	-
13	-	-	-	-	-	-	9.259	9.145	9.100	-	-	-
14	-	-	-	-	-	-	9.252	9.142	9.100	-	-	-
15	-	-	-	-	-	-	9.243	9.143	9.104	-	-	-
16	-	-	-	-	-	-	9.241	9.142	9.099	-	-	-
17	-	-	-	-	-	-	9.245	9.141	9.083	-	-	-
18	-	-	-	-	-	-	9.245	9.141	9.080	-	-	-
19	-	-	-	-	-	-	9.242	9.141	9.092	-	-	-
20	-	-	-	-	-	-	9.235	9.142	9.095	-	-	-
21	-	-	-	-	-	9.310	9.236	9.139	9.095	-	-	-
22	-	-	-	-	-	9.306	9.239	9.133	9.093	-	-	-
23	-	-	-	-	-	9.302	9.236	9.139	9.092	-	-	-
24	-	-	-	-	-	9.301	9.227	9.129	9.087	-	-	-
25	-	-	-	-	-	9.297	9.222	9.128	9.096	-	-	-
26	-	-	-	-	-	9.295	9.222	9.127	-	-	-	-
27	-	-	-	-	-	9.299	9.219	9.130	-	-	-	-
28	-	-	-	-	-	9.301	9.216	9.131	-	-	-	-
29	-	-	-	-	-	9.307	9.210	9.127	-	-	-	-
30	-	-	-	-	-	9.313	9.209	9.125	-	-	-	-
31	-	-	-	-	-	-	9.198	9.117	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**9.295**	**9.198**	**9.117**	**9.080**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**9.315**	**9.253**	**9.147**	**9.103**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**9.380**	**9.309**	**9.188**	**9.121**	**-**	**-**	**-**

Table A2-48: 1998 Lake A6 Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	0.024	0.004	0.008	-	-	-
2	-	-	-	-	-	-	0.020	0.004	0.010	-	-	-
3	-	-	-	-	-	-	0.019	0.003	0.010	-	-	-
4	-	-	-	-	-	-	0.017	0.003	0.011	-	-	-
5	-	-	-	-	-	1.18	0.014	0.003	0.013	-	-	-
6	-	-	-	-	-	0.935	0.013	0.002	0.014	-	-	-
7	-	-	-	-	-	0.704	0.011	0.003	0.016	-	-	-
8	-	-	-	-	-	0.542	0.011	0.003	0.018	-	-	-
9	-	-	-	-	-	0.420	0.008	0.003	0.024	-	-	-
10	-	-	-	-	-	0.340	0.007	0.003	0.026	-	-	-
11	-	-	-	-	-	0.285	0.006	0.003	0.028	-	-	-
12	-	-	-	-	-	0.241	0.005	0.005	0.030	-	-	-
13	-	-	-	-	-	0.222	0.003	0.003	0.031	-	-	-
14	-	-	-	-	-	0.203	0.003	0.003	0.048	-	-	-
15	-	-	-	-	-	0.179	0.006	0.002	0.090	-	-	-
16	-	-	-	-	-	0.154	0.007	0.002	0.101	-	-	-
17	-	-	-	-	-	0.132	0.008	0.002	0.091	-	-	-
18	-	-	-	-	-	0.115	0.009	0.003	0.087	-	-	-
19	-	-	-	-	-	0.101	0.009	0.003	0.082	-	-	-
20	-	-	-	-	-	0.091	0.009	0.004	0.077	-	-	-
21	-	-	-	-	-	0.083	0.007	0.003	0.074	-	-	-
22	-	-	-	-	-	0.075	0.008	0.004	0.069	-	-	-
23	-	-	-	-	-	0.075	0.008	0.005	0.065	-	-	-
24	-	-	-	-	-	0.067	0.008	0.005	-	-	-	-
25	-	-	-	-	-	0.059	0.007	0.004	-	-	-	-
26	-	-	-	-	-	0.055	0.006	0.004	-	-	-	-
27	-	-	-	-	-	0.048	0.007	0.004	-	-	-	-
28	-	-	-	-	-	0.041	0.006	0.004	-	-	-	-
29	-	-	-	-	-	0.036	0.005	0.005	-	-	-	-
30	-	-	-	-	-	0.031	0.005	0.006	-	-	-	-
31	-	-	-	-	-	-	0.005	0.005	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**0.031**	**0.003**	**0.002**	**0.008**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**0.247**	**0.009**	**0.004**	**0.045**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**1.18**	**0.024**	**0.006**	**0.101**	**-**	**-**	**-**

Table A2-49: 1998 Lake A6 Mean Daily Water Levels (m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	9.270	9.206	9.200	-	-	-
2	-	-	-	-	-	-	9.264	9.205	9.206	-	-	-
3	-	-	-	-	-	-	9.262	9.200	9.206	-	-	-
4	-	-	-	-	-	-	9.257	9.196	9.208	-	-	-
5	-	-	-	-	-	9.511	9.253	9.196	9.213	-	-	-
6	-	-	-	-	-	9.488	9.250	9.193	9.216	-	-	-
7	-	-	-	-	-	9.465	9.246	9.197	9.219	-	-	-
8	-	-	-	-	-	9.447	9.245	9.197	9.224	-	-	-
9	-	-	-	-	-	9.432	9.237	9.193	9.232	-	-	-
10	-	-	-	-	-	9.421	9.233	9.192	9.236	-	-	-
11	-	-	-	-	-	9.407	9.229	9.190	9.239	-	-	-
12	-	-	-	-	-	9.394	9.225	9.198	9.241	-	-	-
13	-	-	-	-	-	9.387	9.215	9.192	9.244	-	-	-
14	-	-	-	-	-	9.380	9.217	9.189	9.260	-	-	-
15	-	-	-	-	-	9.370	9.227	9.183	9.289	-	-	-
16	-	-	-	-	-	9.360	9.230	9.183	9.296	-	-	-
17	-	-	-	-	-	9.349	9.232	9.184	9.291	-	-	-
18	-	-	-	-	-	9.341	9.232	9.184	9.290	-	-	-
19	-	-	-	-	-	9.333	9.231	9.185	9.287	-	-	-
20	-	-	-	-	-	9.327	9.231	9.189	9.285	-	-	-
21	-	-	-	-	-	9.322	9.225	9.183	9.284	-	-	-
22	-	-	-	-	-	9.317	9.226	9.187	9.281	-	-	-
23	-	-	-	-	-	9.317	9.227	9.193	9.279	-	-	-
24	-	-	-	-	-	9.311	9.225	9.191	-	-	-	-
25	-	-	-	-	-	9.306	9.221	9.187	-	-	-	-
26	-	-	-	-	-	9.302	9.216	9.188	-	-	-	-
27	-	-	-	-	-	9.296	9.218	9.188	-	-	-	-
28	-	-	-	-	-	9.289	9.216	9.186	-	-	-	-
29	-	-	-	-	-	9.284	9.213	9.189	-	-	-	-
30	-	-	-	-	-	9.279	9.210	9.193	-	-	-	-
31	-	-	-	-	-	-	9.208	9.192	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**9.279**	**9.208**	**9.183**	**9.200**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**9.363**	**9.232**	**9.191**	**9.249**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**9.511**	**9.270**	**9.206**	**9.296**	**-**	**-**	**-**

A2-11 LAKE B2 AND OUTLET

Hydrometric data were measured during the open water seasons of 1998 to 2000 and 2008. Mean daily water levels and mean daily discharges at Lake B2 are presented in Tables A2-50 to A2-57.

Table A2-50: 1998 Lake B2 Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	0.174	0.029	0.024	-	-	-
2	-	-	-	-	-	-	0.145	0.026	0.026	-	-	-
3	-	-	-	-	-	-	0.129	0.022	0.027	-	-	-
4	-	-	-	-	-	-	0.119	0.020	0.029	-	-	-
5	-	-	-	-	-	-	0.108	0.019	0.032	-	-	-
6	-	-	-	-	-	-	0.107	0.017	0.034	-	-	-
7	-	-	-	-	-	-	0.102	0.028	0.036	-	-	-
8	-	-	-	-	-	2.29	0.091	0.029	0.035	-	-	-
9	-	-	-	-	-	1.77	0.083	0.028	0.042	-	-	-
10	-	-	-	-	-	1.30	0.077	0.023	0.049	-	-	-
11	-	-	-	-	-	1.05	0.070	0.021	0.049	-	-	-
12	-	-	-	-	-	0.932	0.059	0.022	0.052	-	-	-
13	-	-	-	-	-	0.894	0.050	0.020	0.053	-	-	-
14	-	-	-	-	-	0.794	0.057	0.019	0.078	-	-	-
15	-	-	-	-	-	0.701	0.061	0.018	0.099	-	-	-
16	-	-	-	-	-	0.623	0.053	0.018	0.095	-	-	-
17	-	-	-	-	-	0.557	0.049	0.017	0.095	-	-	-
18	-	-	-	-	-	0.507	0.054	0.016	0.097	-	-	-
19	-	-	-	-	-	0.460	0.055	0.016	0.106	-	-	-
20	-	-	-	-	-	0.415	0.053	0.019	0.112	-	-	-
21	-	-	-	-	-	0.376	0.053	0.011	0.127	-	-	-
22	-	-	-	-	-	0.346	0.049	0.011	0.134	-	-	-
23	-	-	-	-	-	0.339	0.046	0.010	0.140	-	-	-
24	-	-	-	-	-	0.314	0.044	0.010	0.139	-	-	-
25	-	-	-	-	-	0.295	0.040	0.010	-	-	-	-
26	-	-	-	-	-	0.273	0.040	0.011	-	-	-	-
27	-	-	-	-	-	0.252	0.046	0.010	-	-	-	-
28	-	-	-	-	-	0.238	0.044	0.011	-	-	-	-
29	-	-	-	-	-	0.223	0.041	0.014	-	-	-	-
30	-	-	-	-	-	0.200	0.036	0.016	-	-	-	-
31	-	-	-	-	-	-	0.033	0.018	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**0.200**	**0.033**	**0.010**	**0.024**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**0.659**	**0.070**	**0.018**	**0.071**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**2.29**	**0.174**	**0.029**	**0.140**	**-**	**-**	**-**

Table A2-51: 1998 Lake B2 Mean Daily Water Levels (m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	7.589	7.479	7.461	-	-	-
2	-	-	-	-	-	-	7.576	7.475	7.463	-	-	-
3	-	-	-	-	-	-	7.568	7.469	7.463	-	-	-
4	-	-	-	-	-	-	7.562	7.466	7.465	-	-	-
5	-	-	-	-	-	-	7.555	7.464	7.469	-	-	-
6	-	-	-	-	-	-	7.554	7.460	7.471	-	-	-
7	-	-	-	-	-	-	7.550	7.480	7.473	-	-	-
8	-	-	-	-	-	7.813	7.542	7.481	7.470	-	-	-
9	-	-	-	-	-	7.799	7.533	7.480	7.478	-	-	-
10	-	-	-	-	-	7.787	7.525	7.474	7.484	-	-	-
11	-	-	-	-	-	7.769	7.516	7.470	7.484	-	-	-
12	-	-	-	-	-	7.758	7.504	7.472	7.485	-	-	-
13	-	-	-	-	-	7.753	7.496	7.468	7.486	-	-	-
14	-	-	-	-	-	7.739	7.502	7.465	7.504	-	-	-
15	-	-	-	-	-	7.724	7.506	7.463	7.518	-	-	-
16	-	-	-	-	-	7.711	7.499	7.462	7.515	-	-	-
17	-	-	-	-	-	7.699	7.496	7.460	7.514	-	-	-
18	-	-	-	-	-	7.689	7.501	7.457	7.515	-	-	-
19	-	-	-	-	-	7.679	7.502	7.456	7.519	-	-	-
20	-	-	-	-	-	7.668	7.501	7.461	7.522	-	-	-
21	-	-	-	-	-	7.658	7.501	7.443	7.529	-	-	-
22	-	-	-	-	-	7.650	7.498	7.442	7.532	-	-	-
23	-	-	-	-	-	7.648	7.496	7.439	7.534	-	-	-
24	-	-	-	-	-	7.640	7.493	7.439	7.533	-	-	-
25	-	-	-	-	-	7.635	7.490	7.438	-	-	-	-
26	-	-	-	-	-	7.627	7.490	7.439	-	-	-	-
27	-	-	-	-	-	7.620	7.497	7.434	-	-	-	-
28	-	-	-	-	-	7.615	7.496	7.436	-	-	-	-
29	-	-	-	-	-	7.609	7.493	7.445	-	-	-	-
30	-	-	-	-	-	7.600	7.487	7.447	-	-	-	-
31	-	-	-	-	-	-	7.484	7.450	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**7.600**	**7.484**	**7.434**	**7.461**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**7.691**	**7.516**	**7.459**	**7.495**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**7.813**	**7.589**	**7.481**	**7.534**	**-**	**-**	**-**

Table A2-52: 1999 Lake B2 Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	0.479	0.067	0.117	-	-	-
2	-	-	-	-	-	0.000	0.403	0.063	0.120	-	-	-
3	-	-	-	-	-	-	0.337	0.056	0.135	-	-	-
4	-	-	-	-	-	-	0.288	0.050	0.150	-	-	-
5	-	-	-	-	-	4.66	0.241	0.048	0.153	-	-	-
6	-	-	-	-	-	3.80	0.208	0.047	0.159	-	-	-
7	-	-	-	-	-	-	0.191	0.048	0.162	-	-	-
8	-	-	-	-	-	1.68	0.171	0.050	0.159	-	-	-
9	-	-	-	-	-	-	0.159	0.050	0.151	-	-	-
10	-	-	-	-	-	-	0.149	0.051	0.148	-	-	-
11	-	-	-	-	-	-	0.131	0.056	0.140	-	-	-
12	-	-	-	-	-	-	0.124	0.060	0.134	-	-	-
13	-	-	-	-	-	-	0.120	0.057	0.129	-	-	-
14	-	-	-	-	-	0.786	0.132	0.053	0.127	-	-	-
15	-	-	-	-	-	0.772	0.126	0.050	0.126	-	-	-
16	-	-	-	-	-	0.738	0.109	0.049	0.124	-	-	-
17	-	-	-	-	-	0.715	0.098	0.048	0.123	-	-	-
18	-	-	-	-	-	0.689	0.087	0.047	0.114	-	-	-
19	-	-	-	-	-	0.640	0.084	0.047	0.109	-	-	-
20	-	-	-	-	-	0.579	0.081	0.049	0.106	-	-	-
21	-	-	-	-	-	0.522	0.074	0.042	-	-	-	-
22	-	-	-	-	-	0.480	0.069	0.040	-	-	-	-
23	-	-	-	-	-	0.748	0.067	0.040	-	-	-	-
24	-	-	-	-	-	2.056	0.061	0.042	-	-	-	-
25	-	-	-	-	-	1.699	0.057	0.045	-	-	-	-
26	-	-	-	-	-	1.281	0.062	0.055	-	-	-	-
27	-	-	-	-	-	1.004	0.085	0.094	-	-	-	-
28	-	-	-	-	-	0.823	0.082	0.093	-	-	-	-
29	-	-	-	-	-	0.698	0.079	0.098	-	-	-	-
30	-	-	-	-	-	0.574	0.076	0.099	-	-	-	-
31	-	-	-	-	-	-	0.071	0.106	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**0.480**	**0.057**	**0.040**	**0.106**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**0.871**	**0.145**	**0.058**	**0.134**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**2.06**	**0.479**	**0.106**	**0.162**	**-**	**-**	**-**

Table A2-53: 1999 Lake B2 Mean Daily Water Levels (m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	7.691	7.517	7.566	-	-	-
2	-	-	-	-	-	-	7.676	7.512	7.569	-	-	-
3	-	-	-	-	-	-	7.660	7.502	7.578	-	-	-
4	-	-	-	-	-	-	7.646	7.492	7.588	-	-	-
5	-	-	-	-	-	7.899	7.630	7.488	7.590	-	-	-
6	-	-	-	-	-	7.866	7.617	7.487	7.593	-	-	-
7	-	-	-	-	-	-	7.609	7.488	7.595	-	-	-
8	-	-	-	-	-	7.807	7.600	7.493	7.593	-	-	-
9	-	-	-	-	-	-	7.593	7.491	7.589	-	-	-
10	-	-	-	-	-	-	7.587	7.494	7.587	-	-	-
11	-	-	-	-	-	-	7.576	7.502	7.582	-	-	-
12	-	-	-	-	-	-	7.571	7.508	7.578	-	-	-
13	-	-	-	-	-	-	7.568	7.504	7.575	-	-	-
14	-	-	-	-	-	7.735	7.577	7.497	7.574	-	-	-
15	-	-	-	-	-	7.734	7.572	7.492	7.573	-	-	-
16	-	-	-	-	-	7.730	7.560	7.491	7.571	-	-	-
17	-	-	-	-	-	7.727	7.551	7.488	7.571	-	-	-
18	-	-	-	-	-	7.723	7.540	7.487	7.564	-	-	-
19	-	-	-	-	-	7.717	7.537	7.487	7.560	-	-	-
20	-	-	-	-	-	7.708	7.534	7.489	7.558	-	-	-
21	-	-	-	-	-	7.699	7.526	7.477	-	-	-	-
22	-	-	-	-	-	7.691	7.520	7.472	-	-	-	-
23	-	-	-	-	-	7.723	7.518	7.472	-	-	-	-
24	-	-	-	-	-	7.817	7.509	7.476	-	-	-	-
25	-	-	-	-	-	7.803	7.504	7.483	-	-	-	-
26	-	-	-	-	-	7.779	7.509	7.496	-	-	-	-
27	-	-	-	-	-	7.757	7.538	7.547	-	-	-	-
28	-	-	-	-	-	7.739	7.535	7.546	-	-	-	-
29	-	-	-	-	-	7.724	7.532	7.551	-	-	-	-
30	-	-	-	-	-	7.707	7.528	7.552	-	-	-	-
31	-	-	-	-	-	-	7.522	7.557	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**7.691**	**7.504**	**7.472**	**7.558**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**7.754**	**7.569**	**7.501**	**7.578**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**7.899**	**7.691**	**7.557**	**7.595**	**-**	**-**	**-**

Table A2-54: 2000 Lake B2 Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	0.368	0.039	0.029	-	-	-
2	-	-	-	-	-	-	0.319	0.038	0.027	-	-	-
3	-	-	-	-	-	-	0.288	0.035	0.028	-	-	-
4	-	-	-	-	-	-	0.263	0.035	0.028	-	-	-
5	-	-	-	-	-	-	0.237	0.035	0.028	-	-	-
6	-	-	-	-	-	-	0.215	0.033	0.028	-	-	-
7	-	-	-	-	-	-	0.197	0.032	0.027	-	-	-
8	-	-	-	-	-	-	0.178	0.031	0.028	-	-	-
9	-	-	-	-	-	-	0.167	0.029	0.026	-	-	-
10	-	-	-	-	-	-	0.149	0.028	0.027	-	-	-
11	-	-	-	-	-	-	0.136	0.028	0.027	-	-	-
12	-	-	-	-	-	-	0.129	0.027	0.026	-	-	-
13	-	-	-	-	-	0.000 B	0.117	0.025	0.027	-	-	-
14	-	-	-	-	-	-	0.104	0.025	0.027	-	-	-
15	-	-	-	-	-	0.243 B	0.098	0.025	0.027	-	-	-
16	-	-	-	-	-	-	0.087	0.023	0.030	-	-	-
17	-	-	-	-	-	3.33	0.077	0.027	0.026	-	-	-
18	-	-	-	-	-	2.57	0.073	0.027	0.026	-	-	-
19	-	-	-	-	-	2.13	0.069	0.026	0.027	-	-	-
20	-	-	-	-	-	2.15	0.065	0.026	-	-	-	-
21	-	-	-	-	-	2.15	0.062	0.027	-	-	-	-
22	-	-	-	-	-	1.61	0.055	0.027	-	-	-	-
23	-	-	-	-	-	1.30	0.050	0.027	-	-	-	-
24	-	-	-	-	-	1.04	0.047	0.028	-	-	-	-
25	-	-	-	-	-	0.868	0.045	0.031	-	-	-	-
26	-	-	-	-	-	0.748	0.046	0.028	-	-	-	-
27	-	-	-	-	-	0.650	0.043	0.027	-	-	-	-
28	-	-	-	-	-	0.569	0.039	0.031	-	-	-	-
29	-	-	-	-	-	0.489	0.039	0.030	-	-	-	-
30	-	-	-	-	-	0.419	0.041	0.031	-	-	-	-
31	-	-	-	-	-	-	0.041	0.031	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**0.419**	**0.039**	**0.023**	**0.026**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**1.28**	**0.124**	**0.029**	**0.027**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**2.57**	**0.369**	**0.039**	**0.030**	**-**	**-**	**-**

Table A2-55: 2000 Lake B2 Mean Daily Water Levels (m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	7.667	7.470	7.446	-	-	-
2	-	-	-	-	-	-	7.655	7.469	7.440	-	-	-
3	-	-	-	-	-	-	7.646	7.461	7.441	-	-	-
4	-	-	-	-	-	-	7.637	7.462	7.442	-	-	-
5	-	-	-	-	-	-	7.629	7.461	7.441	-	-	-
6	-	-	-	-	-	-	7.620	7.457	7.441	-	-	-
7	-	-	-	-	-	-	7.612	7.453	7.440	-	-	-
8	-	-	-	-	-	-	7.603	7.450	7.441	-	-	-
9	-	-	-	-	-	-	7.597	7.444	7.435	-	-	-
10	-	-	-	-	-	-	7.588	7.440	7.438	-	-	-
11	-	-	-	-	-	-	7.579	7.443	7.439	-	-	-
12	-	-	-	-	-	-	7.575	7.437	7.437	-	-	-
13	-	-	-	-	-	-	7.566	7.433	7.437	-	-	-
14	-	-	-	-	-	-	7.556	7.430	7.439	-	-	-
15	-	-	-	-	-	-	7.551	7.430	7.438	-	-	-
16	-	-	-	-	-	7.684 B	7.540	7.426	7.447	-	-	-
17	-	-	-	-	-	7.838	7.530	7.439	7.437	-	-	-
18	-	-	-	-	-	7.834	7.525	7.438	7.434	-	-	-
19	-	-	-	-	-	7.819	7.519	7.437	7.437	-	-	-
20	-	-	-	-	-	7.820	7.515	7.434	-	-	-	-
21	-	-	-	-	-	7.820	7.510	7.438	-	-	-	-
22	-	-	-	-	-	7.800	7.500	7.437	-	-	-	-
23	-	-	-	-	-	7.780	7.491	7.438	-	-	-	-
24	-	-	-	-	-	7.760	7.487	7.441	-	-	-	-
25	-	-	-	-	-	7.744	7.483	7.452	-	-	-	-
26	-	-	-	-	-	7.731	7.484	7.443	-	-	-	-
27	-	-	-	-	-	7.718	7.480	7.439	-	-	-	-
28	-	-	-	-	-	7.706	7.471	7.449	-	-	-	-
29	-	-	-	-	-	7.693	7.470	7.448	-	-	-	-
30	-	-	-	-	-	7.679	7.474	7.451	-	-	-	-
31	-	-	-	-	-	-	7.474	7.450	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**7.679**	**7.470**	**7.426**	**7.434**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**7.767**	**7.550**	**7.445**	**7.439**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**7.838**	**7.667**	**7.470**	**7.447**	**-**	**-**	**-**

Table A2-56: 2008 Lake B2 Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	0.089	0.023	0.021	-	-	-
2	-	-	-	-	-	-	0.084	0.022	0.022	-	-	-
3	-	-	-	-	-	-	0.080	0.021	0.023	-	-	-
4	-	-	-	-	-	-	0.075	0.023	0.022	-	-	-
5	-	-	-	-	-	-	0.071	0.023	0.020	-	-	-
6	-	-	-	-	-	-	0.065	0.024	0.020	-	-	-
7	-	-	-	-	-	-	0.060	0.022	0.019	-	-	-
8	-	-	-	-	-	-	0.057	0.019	0.018	-	-	-
9	-	-	-	-	-	-	0.052	0.018	0.019	-	-	-
10	-	-	-	-	-	-	0.050	0.018	0.019	-	-	-
11	-	-	-	-	-	-	0.047	0.017	0.020	-	-	-
12	-	-	-	-	-	-	0.042	0.017	0.021	-	-	-
13	-	-	-	-	-	-	0.037	0.017	0.019	-	-	-
14	-	-	-	-	-	-	0.036	0.015	0.020	-	-	-
15	-	-	-	-	-	0.210 P	0.036	0.020	0.021	-	-	-
16	-	-	-	-	-	0.202	0.033	0.016	0.020	-	-	-
17	-	-	-	-	-	0.184	0.029	0.015	-	-	-	-
18	-	-	-	-	-	0.166	0.026	0.014	-	-	-	-
19	-	-	-	-	-	0.150	0.024	0.014	-	-	-	-
20	-	-	-	-	-	0.138	0.021	0.014	-	-	-	-
21	-	-	-	-	-	0.132	0.018	0.011	-	-	-	-
22	-	-	-	-	-	0.124	0.018	0.010	-	-	-	-
23	-	-	-	-	-	0.119	0.019	0.010	-	-	-	-
24	-	-	-	-	-	0.113	0.018	0.009	-	-	-	-
25	-	-	-	-	-	0.106	0.022	0.009	-	-	-	-
26	-	-	-	-	-	0.109	0.023	0.009	-	-	-	-
27	-	-	-	-	-	0.107	0.022	0.011	-	-	-	-
28	-	-	-	-	-	0.097	0.018	0.012	-	-	-	-
29	-	-	-	-	-	0.094	0.022	0.014	-	-	-	-
30	-	-	-	-	-	0.091	0.025	0.014	-	-	-	-
31	-	-	-	-	-	-	0.023	0.020	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**0.091**	**0.018**	**0.009**	**0.018**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**0.134**	**0.040**	**0.016**	**0.020**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**0.210**	**0.089**	**0.024**	**0.023**	**-**	**-**	**-**

Table A2-57: 2008 Lake B2 Mean Daily Water Levels, Based on Benchmark Elevation (100.08 m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	97.822	97.752	97.749	-	-	-
2	-	-	-	-	-	-	97.818	97.750	97.751	-	-	-
3	-	-	-	-	-	-	97.815	97.749	97.753	-	-	-
4	-	-	-	-	-	-	97.812	97.753	97.750	-	-	-
5	-	-	-	-	-	-	97.809	97.754	97.747	-	-	-
6	-	-	-	-	-	-	97.804	97.754	97.746	-	-	-
7	-	-	-	-	-	-	97.800	97.750	97.744	-	-	-
8	-	-	-	-	-	-	97.797	97.745	97.743	-	-	-
9	-	-	-	-	-	-	97.793	97.742	97.745	-	-	-
10	-	-	-	-	-	-	97.790	97.741	97.745	-	-	-
11	-	-	-	-	-	-	97.786	97.741	97.748	-	-	-
12	-	-	-	-	-	-	97.782	97.741	97.749	-	-	-
13	-	-	-	-	-	-	97.775	97.740	97.744	-	-	-
14	-	-	-	-	-	-	97.774	97.735	97.746	-	-	-
15	-	-	-	-	-	97.875	97.773	97.745	97.747	-	-	-
16	-	-	-	-	-	97.872	97.769	97.736	97.748	-	-	-
17	-	-	-	-	-	97.866	97.763	97.734	-	-	-	-
18	-	-	-	-	-	97.860	97.758	97.731	-	-	-	-
19	-	-	-	-	-	97.853	97.755	97.731	-	-	-	-
20	-	-	-	-	-	97.848	97.749	97.727	-	-	-	-
21	-	-	-	-	-	97.845	97.742	97.721	-	-	-	-
22	-	-	-	-	-	97.841	97.742	97.719	-	-	-	-
23	-	-	-	-	-	97.839	97.746	97.716	-	-	-	-
24	-	-	-	-	-	97.836	97.743	97.715	-	-	-	-
25	-	-	-	-	-	97.832	97.751	97.714	-	-	-	-
26	-	-	-	-	-	97.833	97.753	97.715	-	-	-	-
27	-	-	-	-	-	97.832	97.749	97.719	-	-	-	-
28	-	-	-	-	-	97.827	97.742	97.725	-	-	-	-
29	-	-	-	-	-	97.825	97.751	97.731	-	-	-	-
30	-	-	-	-	-	97.823	97.756	97.731	-	-	-	-
31	-	-	-	-	-	-	97.753	97.746	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**97.823**	**97.742**	**97.714**	**97.743**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**97.844**	**97.773**	**97.736**	**97.747**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**97.875**	**97.822**	**97.754**	**97.753**	**-**	**-**	**-**

A2-12 LAKE B4 AND OUTLET

Hydrometric data were measured during the open water seasons of 1997 and 1998. Mean daily water levels and mean daily discharges at Lake B4 are presented in Tables A2-58 to A2-61.

Table A2-58: 1997 Lake B4 Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	0.136	0.002	0.000	-	-	-
2	-	-	-	-	-	-	0.130	0.002	0.000	-	-	-
3	-	-	-	-	-	-	0.122	0.002	0.000	-	-	-
4	-	-	-	-	-	-	0.107	0.002	0.000	-	-	-
5	-	-	-	-	-	-	0.098	0.002	0.000	-	-	-
6	-	-	-	-	-	-	0.094	0.001	0.000	-	-	-
7	-	-	-	-	-	-	0.092	0.002	0.000	-	-	-
8	-	-	-	-	-	-	0.091	0.001	0.000	-	-	-
9	-	-	-	-	-	-	0.091	0.001	0.000	-	-	-
10	-	-	-	-	-	-	0.080	0.001	0.000	-	-	-
11	-	-	-	-	-	0.571	0.074	0.001	0.000	-	-	-
12	-	-	-	-	-	-	0.068	0.001	0.000	-	-	-
13	-	-	-	-	-	-	0.064	0.000	0.000	-	-	-
14	-	-	-	-	-	-	0.056	0.000	0.000	-	-	-
15	-	-	-	-	-	-	0.050	0.000	0.000	-	-	-
16	-	-	-	-	-	-	0.043	0.000	0.000	-	-	-
17	-	-	-	-	-	-	0.034	0.000	0.000	-	-	-
18	-	-	-	-	-	-	0.029	0.000	0.000	-	-	-
19	-	-	-	-	-	-	0.028	0.000	0.000	-	-	-
20	-	-	-	-	-	-	0.025	0.000	0.000	-	-	-
21	-	-	-	-	-	0.244	0.022	0.000	0.000	-	-	-
22	-	-	-	-	-	0.227	0.021	0.000	0.000	-	-	-
23	-	-	-	-	-	0.204	0.020	0.000	0.000	-	-	-
24	-	-	-	-	-	0.192	0.019	0.000	0.000	-	-	-
25	-	-	-	-	-	0.169	0.015	0.000	0.000	-	-	-
26	-	-	-	-	-	0.159	0.012	0.000	-	-	-	-
27	-	-	-	-	-	0.157	0.011	0.000	-	-	-	-
28	-	-	-	-	-	0.152	0.009	0.000	-	-	-	-
29	-	-	-	-	-	0.165	0.007	0.000	-	-	-	-
30	-	-	-	-	-	0.146	0.005	0.000	-	-	-	-
31	-	-	-	-	-	-	0.003	0.000	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**-**	**0.003**	**0.000**	**0.000**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**-**	**0.053**	**0.001**	**0.000**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**-**	**0.136**	**0.002**	**0.000**	**-**	**-**	**-**

Table A2-59: 1997 Lake B4 Mean Daily Water Levels (m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	8.007	7.833	7.783	-	-	-
2	-	-	-	-	-	-	8.004	7.839	7.780	-	-	-
3	-	-	-	-	-	-	7.999	7.836	7.780	-	-	-
4	-	-	-	-	-	-	7.990	7.833	7.792	-	-	-
5	-	-	-	-	-	-	7.984	7.834	7.789	-	-	-
6	-	-	-	-	-	-	7.980	7.829	7.784	-	-	-
7	-	-	-	-	-	-	7.979	7.831	7.786	-	-	-
8	-	-	-	-	-	-	7.979	7.826	7.785	-	-	-
9	-	-	-	-	-	-	7.978	7.823	7.782	-	-	-
10	-	-	-	-	-	-	7.970	7.818	7.777	-	-	-
11	-	-	-	-	-	8.182	7.965	7.817	7.776	-	-	-
12	-	-	-	-	-	-	7.960	7.817	7.773	-	-	-
13	-	-	-	-	-	-	7.956	7.815	7.775	-	-	-
14	-	-	-	-	-	-	7.948	7.812	7.768	-	-	-
15	-	-	-	-	-	-	7.942	7.810	7.763	-	-	-
16	-	-	-	-	-	-	7.934	7.807	7.766	-	-	-
17	-	-	-	-	-	-	7.922	7.805	7.769	-	-	-
18	-	-	-	-	-	-	7.915	7.807	7.763	-	-	-
19	-	-	-	-	-	-	7.913	7.805	7.756	-	-	-
20	-	-	-	-	-	-	7.909	7.804	7.752	-	-	-
21	-	-	-	-	-	8.058	7.903	7.803	7.751	-	-	-
22	-	-	-	-	-	8.051	7.902	7.802	7.748	-	-	-
23	-	-	-	-	-	8.041	7.900	7.801	7.748	-	-	-
24	-	-	-	-	-	8.036	7.897	7.807	7.755	-	-	-
25	-	-	-	-	-	8.025	7.887	7.803	7.755	-	-	-
26	-	-	-	-	-	8.020	7.881	7.797	-	-	-	-
27	-	-	-	-	-	8.019	7.876	7.797	-	-	-	-
28	-	-	-	-	-	8.016	7.870	7.792	-	-	-	-
29	-	-	-	-	-	8.023	7.865	7.794	-	-	-	-
30	-	-	-	-	-	8.013	7.854	7.797	-	-	-	-
31	-	-	-	-	-	-	7.844	7.791	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**-**	**7.844**	**7.791**	**7.748**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**-**	**7.933**	**7.813**	**7.770**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**-**	**8.007**	**7.839**	**7.792**	**-**	**-**	**-**

Table A2-60: 1998 Lake B4 Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	0.108	0.026	0.019	-	-	-
2	-	-	-	-	-	-	0.098	0.025	0.017	-	-	-
3	-	-	-	-	-	-	0.090	0.020	0.021	-	-	-
4	-	-	-	-	-	-	0.090	0.020	0.066	-	-	-
5	-	-	-	-	-	4.68	0.087	0.019	0.047	-	-	-
6	-	-	-	-	-	2.80	0.113	0.024	0.025	-	-	-
7	-	-	-	-	-	2.05	0.085	0.048	0.025	-	-	-
8	-	-	-	-	-	1.77	0.075	0.036	0.028	-	-	-
9	-	-	-	-	-	1.53	0.072	0.031	0.028	-	-	-
10	-	-	-	-	-	1.28	0.066	0.029	0.027	-	-	-
11	-	-	-	-	-	0.939	0.062	0.030	0.025	-	-	-
12	-	-	-	-	-	0.851	0.055	0.021	0.027	-	-	-
13	-	-	-	-	-	0.791	0.053	0.019	0.028	-	-	-
14	-	-	-	-	-	0.620	0.062	0.019	0.056	-	-	-
15	-	-	-	-	-	0.550	0.053	0.017	0.044	-	-	-
16	-	-	-	-	-	0.493	0.054	0.015	0.050	-	-	-
17	-	-	-	-	-	0.419	0.058	0.014	0.082	-	-	-
18	-	-	-	-	-	0.372	0.069	0.013	0.094	-	-	-
19	-	-	-	-	-	0.348	0.075	0.015	0.110	-	-	-
20	-	-	-	-	-	0.301	0.069	0.019	0.111	-	-	-
21	-	-	-	-	-	0.268	0.073	0.014	0.117	-	-	-
22	-	-	-	-	-	0.261	0.059	0.008	0.122	-	-	-
23	-	-	-	-	-	0.240	0.051	0.011	0.123	-	-	-
24	-	-	-	-	-	0.232	0.047	0.011	-	-	-	-
25	-	-	-	-	-	0.228	0.053	0.012	-	-	-	-
26	-	-	-	-	-	0.214	0.054	0.011	-	-	-	-
27	-	-	-	-	-	0.207	0.060	0.013	-	-	-	-
28	-	-	-	-	-	0.183	0.046	0.018	-	-	-	-
29	-	-	-	-	-	0.160	0.041	0.014	-	-	-	-
30	-	-	-	-	-	0.126	0.035	0.013	-	-	-	-
31	-	-	-	-	-	-	0.030	0.020	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**0.126**	**0.030**	**0.008**	**0.017**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**0.843**	**0.066**	**0.020**	**0.056**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**4.68**	**0.113**	**0.048**	**0.123**	**-**	**-**	**-**

Table A2-61: 1998 Lake B4 Mean Daily Water Levels (m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	7.978	7.877	7.852	-	-	-
2	-	-	-	-	-	-	7.969	7.874	7.849	-	-	-
3	-	-	-	-	-	-	7.962	7.865	7.855	-	-	-
4	-	-	-	-	-	-	7.958	7.864	7.889	-	-	-
5	-	-	-	-	-	8.336	7.953	7.862	7.884	-	-	-
6	-	-	-	-	-	8.278	7.962	7.869	7.864	-	-	-
7	-	-	-	-	-	8.247	7.944	7.893	7.866	-	-	-
8	-	-	-	-	-	8.233	7.935	7.884	7.872	-	-	-
9	-	-	-	-	-	8.220	7.932	7.877	7.875	-	-	-
10	-	-	-	-	-	8.204	7.928	7.875	7.876	-	-	-
11	-	-	-	-	-	8.180	7.925	7.874	7.876	-	-	-
12	-	-	-	-	-	8.176	7.919	7.860	7.881	-	-	-
13	-	-	-	-	-	8.173	7.918	7.857	7.884	-	-	-
14	-	-	-	-	-	8.151	7.924	7.857	7.916	-	-	-
15	-	-	-	-	-	8.138	7.916	7.853	7.907	-	-	-
16	-	-	-	-	-	8.125	7.917	7.849	7.914	-	-	-
17	-	-	-	-	-	8.110	7.919	7.846	7.941	-	-	-
18	-	-	-	-	-	8.098	7.926	7.844	7.950	-	-	-
19	-	-	-	-	-	8.090	7.930	7.847	7.960	-	-	-
20	-	-	-	-	-	8.077	7.926	7.856	7.963	-	-	-
21	-	-	-	-	-	8.066	7.927	7.844	7.968	-	-	-
22	-	-	-	-	-	8.060	7.916	7.829	7.973	-	-	-
23	-	-	-	-	-	8.051	7.909	7.836	7.975	-	-	-
24	-	-	-	-	-	8.046	7.905	7.836	-	-	-	-
25	-	-	-	-	-	8.041	7.910	7.838	-	-	-	-
26	-	-	-	-	-	8.034	7.910	7.834	-	-	-	-
27	-	-	-	-	-	8.028	7.914	7.841	-	-	-	-
28	-	-	-	-	-	8.018	7.902	7.851	-	-	-	-
29	-	-	-	-	-	8.006	7.897	7.843	-	-	-	-
30	-	-	-	-	-	7.989	7.889	7.840	-	-	-	-
31	-	-	-	-	-	-	7.883	7.855	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**7.989**	**7.883**	**7.829**	**7.849**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**8.122**	**7.926**	**7.856**	**7.904**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**8.336**	**7.978**	**7.893**	**7.975**	**-**	**-**	**-**

A2-13 LAKE B5 AND OUTLET

Hydrometric data were measured during the open water season of 1998. Mean daily water levels and mean daily discharges at Lake B5 for this season are presented in Tables A2-62 and A2-63.

Table A2-62: 1998 Lake B5 Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	0.039	0.013	0.004	-	-	-
2	-	-	-	-	-	-	0.029	0.011	0.004	-	-	-
3	-	-	-	-	-	-	0.022	0.008	0.004	-	-	-
4	-	-	-	-	-	-	0.021	0.007	0.005	-	-	-
5	-	-	-	-	-	-	0.018	0.006	0.006	-	-	-
6	-	-	-	-	-	-	0.017	0.005	0.008	-	-	-
7	-	-	-	-	-	0.630	0.019	0.008	0.009	-	-	-
8	-	-	-	-	-	0.512	0.020	0.009	0.009	-	-	-
9	-	-	-	-	-	0.379	0.020	0.009	0.011	-	-	-
10	-	-	-	-	-	0.351	0.022	0.006	0.015	-	-	-
11	-	-	-	-	-	0.300	0.020	0.005	0.018	-	-	-
12	-	-	-	-	-	0.241	0.017	0.006	0.018	-	-	-
13	-	-	-	-	-	0.200	0.014	0.005	0.019	-	-	-
14	-	-	-	-	-	0.167	0.027	0.004	0.036	-	-	-
15	-	-	-	-	-	0.138	0.046	0.004	0.069	-	-	-
16	-	-	-	-	-	0.110	0.038	0.003	0.067	-	-	-
17	-	-	-	-	-	0.088	0.032	0.003	0.057	-	-	-
18	-	-	-	-	-	0.075	0.034	0.003	0.059	-	-	-
19	-	-	-	-	-	0.067	0.034	0.003	0.057	-	-	-
20	-	-	-	-	-	0.059	0.032	0.011	0.060	-	-	-
21	-	-	-	-	-	0.053	0.031	0.004	0.058	-	-	-
22	-	-	-	-	-	0.049	0.028	0.002	0.057	-	-	-
23	-	-	-	-	-	0.047	0.027	0.001	0.057	-	-	-
24	-	-	-	-	-	0.044	0.025	0.001	0.054	-	-	-
25	-	-	-	-	-	0.043	0.021	0.001	-	-	-	-
26	-	-	-	-	-	0.042	0.019	0.001	-	-	-	-
27	-	-	-	-	-	0.040	0.022	0.001	-	-	-	-
28	-	-	-	-	-	0.038	0.020	0.001	-	-	-	-
29	-	-	-	-	-	0.036	0.019	0.002	-	-	-	-
30	-	-	-	-	-	0.034	0.017	0.002	-	-	-	-
31	-	-	-	-	-	-	0.015	0.002	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**0.034**	**0.014**	**0.001**	**0.004**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**0.156**	**0.025**	**0.005**	**0.032**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**0.630**	**0.046**	**0.013**	**0.069**	**-**	**-**	**-**

Table A2-63: 1998 Lake B5 Mean Daily Water Levels (m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	8.588	8.536	8.485	-	-	-
2	-	-	-	-	-	-	8.575	8.532	8.484	-	-	-
3	-	-	-	-	-	-	8.565	8.522	8.485	-	-	-
4	-	-	-	-	-	-	8.563	8.520	8.488	-	-	-
5	-	-	-	-	-	-	8.557	8.518	8.493	-	-	-
6	-	-	-	-	-	-	8.554	8.512	8.501	-	-	-
7	-	-	-	-	-	8.723	8.559	8.527	8.502	-	-	-
8	-	-	-	-	-	8.711	8.560	8.530	8.500	-	-	-
9	-	-	-	-	-	8.692	8.555	8.530	8.507	-	-	-
10	-	-	-	-	-	8.687	8.552	8.521	8.515	-	-	-
11	-	-	-	-	-	8.675	8.543	8.516	8.519	-	-	-
12	-	-	-	-	-	8.659	8.533	8.523	8.519	-	-	-
13	-	-	-	-	-	8.653	8.521	8.516	8.520	-	-	-
14	-	-	-	-	-	8.648	8.543	8.513	8.543	-	-	-
15	-	-	-	-	-	8.643	8.567	8.508	8.572	-	-	-
16	-	-	-	-	-	8.636	8.560	8.504	8.570	-	-	-
17	-	-	-	-	-	8.630	8.554	8.500	8.561	-	-	-
18	-	-	-	-	-	8.622	8.558	8.497	8.562	-	-	-
19	-	-	-	-	-	8.617	8.559	8.498	8.560	-	-	-
20	-	-	-	-	-	8.611	8.556	8.528	8.561	-	-	-
21	-	-	-	-	-	8.605	8.556	8.500	8.559	-	-	-
22	-	-	-	-	-	8.601	8.554	8.481	8.557	-	-	-
23	-	-	-	-	-	8.599	8.553	8.477	8.556	-	-	-
24	-	-	-	-	-	8.595	8.551	8.474	8.553	-	-	-
25	-	-	-	-	-	8.595	8.544	8.472	-	-	-	-
26	-	-	-	-	-	8.593	8.542	8.471	-	-	-	-
27	-	-	-	-	-	8.591	8.549	8.466	-	-	-	-
28	-	-	-	-	-	8.587	8.546	8.466	-	-	-	-
29	-	-	-	-	-	8.585	8.546	8.472	-	-	-	-
30	-	-	-	-	-	8.583	8.542	8.471	-	-	-	-
31	-	-	-	-	-	-	8.538	8.476	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**8.583**	**8.521**	**8.466**	**8.484**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**8.631**	**8.553**	**8.502**	**8.528**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**8.723**	**8.588**	**8.536**	**8.572**	**-**	**-**	**-**

A2-14 LAKE B7 AND OUTLET

Hydrometric data were measured during the open water seasons of 1998 to 2000 and 2008. Mean daily water levels and mean daily discharges at Lake B7 are presented in Tables A2-64 to A2-71.

Table A2-64: 1998 Lake B7 Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	0.027	0.005	0.000	-	-	-
2	-	-	-	-	-	-	0.026	0.004	0.001	-	-	-
3	-	-	-	-	-	-	0.024	0.002	0.002	-	-	-
4	-	-	-	-	-	-	0.022	0.001	0.003	-	-	-
5	-	-	-	-	-	-	0.021	0.001	0.005	-	-	-
6	-	-	-	-	-	-	0.020	0.001	0.007	-	-	-
7	-	-	-	-	-	0.282	0.018	0.008	0.007	-	-	-
8	-	-	-	-	-	0.150	0.016	0.008	0.009	-	-	-
9	-	-	-	-	-	0.084	0.014	0.007	0.010	-	-	-
10	-	-	-	-	-	0.082	0.013	0.007	0.011	-	-	-
11	-	-	-	-	-	0.077	0.011	0.006	0.012	-	-	-
12	-	-	-	-	-	0.074	0.008	0.004	0.013	-	-	-
13	-	-	-	-	-	0.074	0.005	0.004	0.013	-	-	-
14	-	-	-	-	-	0.072	0.008	0.003	0.021	-	-	-
15	-	-	-	-	-	0.070	0.010	0.002	0.025	-	-	-
16	-	-	-	-	-	0.068	0.012	0.001	0.026	-	-	-
17	-	-	-	-	-	0.065	0.014	0.000	0.028	-	-	-
18	-	-	-	-	-	0.063	0.015	0.000	0.027	-	-	-
19	-	-	-	-	-	0.061	0.015	0.000	0.026	-	-	-
20	-	-	-	-	-	0.059	0.015	0.000	0.025	-	-	-
21	-	-	-	-	-	0.056	0.014	0.000	0.024	-	-	-
22	-	-	-	-	-	0.054	0.013	0.000	0.024	-	-	-
23	-	-	-	-	-	0.052	0.012	0.000	0.023	-	-	-
24	-	-	-	-	-	0.050	0.011	0.000	0.022	-	-	-
25	-	-	-	-	-	0.047	0.011	0.000	-	-	-	-
26	-	-	-	-	-	0.045	0.010	0.000	-	-	-	-
27	-	-	-	-	-	0.042	0.012	0.000	-	-	-	-
28	-	-	-	-	-	0.040	0.010	0.000	-	-	-	-
29	-	-	-	-	-	0.037	0.009	0.000	-	-	-	-
30	-	-	-	-	-	0.033	0.007	0.000	-	-	-	-
31	-	-	-	-	-	-	0.006	0.000	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**0.033**	**0.005**	**0.000**	**0.000**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**0.073**	**0.014**	**0.002**	**0.015**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**0.282**	**0.027**	**0.008**	**0.028**	**-**	**-**	**-**

Table A2-65: 1998 Lake B7 Mean Daily Water Levels (m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	8.014	7.941	7.920	-	-	-
2	-	-	-	-	-	-	8.012	7.938	7.923	-	-	-
3	-	-	-	-	-	-	8.006	7.932	7.926	-	-	-
4	-	-	-	-	-	-	8.000	7.929	7.929	-	-	-
5	-	-	-	-	-	-	7.997	7.927	7.934	-	-	-
6	-	-	-	-	-	-	7.997	7.926	7.940	-	-	-
7	-	-	-	-	-	8.196	7.990	7.947	7.942	-	-	-
8	-	-	-	-	-	8.184	7.985	7.946	7.946	-	-	-
9	-	-	-	-	-	8.174	7.980	7.944	7.951	-	-	-
10	-	-	-	-	-	8.171	7.976	7.941	7.955	-	-	-
11	-	-	-	-	-	8.163	7.971	7.937	7.957	-	-	-
12	-	-	-	-	-	8.162	7.964	7.932	7.958	-	-	-
13	-	-	-	-	-	8.162	7.957	7.932	7.959	-	-	-
14	-	-	-	-	-	8.153	7.963	7.930	7.984	-	-	-
15	-	-	-	-	-	8.143	7.971	7.927	7.996	-	-	-
16	-	-	-	-	-	8.133	7.974	7.923	7.999	-	-	-
17	-	-	-	-	-	8.121	7.979	7.921	8.004	-	-	-
18	-	-	-	-	-	8.113	7.982	7.919	8.002	-	-	-
19	-	-	-	-	-	8.106	7.982	7.915	7.999	-	-	-
20	-	-	-	-	-	8.100	7.980	7.898	7.996	-	-	-
21	-	-	-	-	-	8.092	7.978	7.897	7.993	-	-	-
22	-	-	-	-	-	8.087	7.974	7.905	7.992	-	-	-
23	-	-	-	-	-	8.081	7.971	7.905	7.989	-	-	-
24	-	-	-	-	-	8.076	7.967	7.903	7.988	-	-	-
25	-	-	-	-	-	8.070	7.965	7.902	-	-	-	-
26	-	-	-	-	-	8.063	7.962	7.900	-	-	-	-
27	-	-	-	-	-	8.056	7.966	7.901	-	-	-	-
28	-	-	-	-	-	8.048	7.961	7.902	-	-	-	-
29	-	-	-	-	-	8.041	7.956	7.903	-	-	-	-
30	-	-	-	-	-	8.031	7.950	7.903	-	-	-	-
31	-	-	-	-	-	-	7.947	7.911	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**8.031**	**7.947**	**7.897**	**7.920**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**8.114**	**7.977**	**7.921**	**7.966**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**8.196**	**8.014**	**7.947**	**8.004**	**-**	**-**	**-**

Table A2-66: 1999 Lake B7 Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	0.052	0.013	0.026	-	-	-
2	-	-	-	-	-	0.000	0.046	0.012	0.026	-	-	-
3	-	-	-	-	-	-	0.041	0.011	0.025	-	-	-
4	-	-	-	-	-	-	0.036	0.010	0.027	-	-	-
5	-	-	-	-	-	0.138	0.033	0.010	0.028	-	-	-
6	-	-	-	-	-	0.190	0.030	0.010	0.026	-	-	-
7	-	-	-	-	-	-	0.029	0.010	0.025	-	-	-
8	-	-	-	-	-	0.133	0.027	0.011	0.024	-	-	-
9	-	-	-	-	-	-	0.025	0.010	0.022	-	-	-
10	-	-	-	-	-	-	0.023	0.010	0.020	-	-	-
11	-	-	-	-	-	-	0.022	0.010	0.020	-	-	-
12	-	-	-	-	-	-	0.022	0.010	0.019	-	-	-
13	-	-	-	-	-	-	0.023	0.009	0.018	-	-	-
14	-	-	-	-	-	0.108	0.025	0.009	0.017	-	-	-
15	-	-	-	-	-	0.101	0.022	0.008	0.017	-	-	-
16	-	-	-	-	-	0.103	0.020	0.008	0.017	-	-	-
17	-	-	-	-	-	0.103	0.018	0.008	0.017	-	-	-
18	-	-	-	-	-	0.100	0.017	0.008	0.016	-	-	-
19	-	-	-	-	-	0.092	0.017	0.008	0.015	-	-	-
20	-	-	-	-	-	0.083	0.015	0.008	0.015	-	-	-
21	-	-	-	-	-	0.075	0.015	0.011	-	-	-	-
22	-	-	-	-	-	0.069	0.015	0.011	-	-	-	-
23	-	-	-	-	-	0.101	0.014	0.011	-	-	-	-
24	-	-	-	-	-	0.231	0.012	0.012	-	-	-	-
25	-	-	-	-	-	0.170	0.013	0.012	-	-	-	-
26	-	-	-	-	-	0.125	0.014	0.015	-	-	-	-
27	-	-	-	-	-	0.100	0.016	0.022	-	-	-	-
28	-	-	-	-	-	0.085	0.016	0.023	-	-	-	-
29	-	-	-	-	-	0.071	0.016	0.026	-	-	-	-
30	-	-	-	-	-	0.061	0.015	0.027	-	-	-	-
31	-	-	-	-	-	-	0.014	0.027	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**0.061**	**0.012**	**0.008**	**0.015**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**0.105**	**0.023**	**0.013**	**0.021**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**0.231**	**0.052**	**0.027**	**0.028**	**-**	**-**	**-**

Table A2-67: 1999 Lake B7 Mean Daily Water Levels (m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	8.111	7.967	8.039	-	-	-
2	-	-	-	-	-	-	8.097	7.962	8.036	-	-	-
3	-	-	-	-	-	-	8.085	7.947	8.035	-	-	-
4	-	-	-	-	-	-	8.073	7.940	8.042	-	-	-
5	-	-	-	-	-	8.226	8.063	7.945	8.045	-	-	-
6	-	-	-	-	-	8.236	8.054	7.943	8.040	-	-	-
7	-	-	-	-	-	-	8.047	7.944	8.032	-	-	-
8	-	-	-	-	-	8.211	8.040	7.946	8.029	-	-	-
9	-	-	-	-	-	-	8.035	7.942	8.022	-	-	-
10	-	-	-	-	-	-	8.025	7.941	8.013	-	-	-
11	-	-	-	-	-	-	8.024	7.941	8.008	-	-	-
12	-	-	-	-	-	-	8.023	7.939	8.004	-	-	-
13	-	-	-	-	-	-	8.026	7.931	8.000	-	-	-
14	-	-	-	-	-	8.186	8.032	7.928	7.996	-	-	-
15	-	-	-	-	-	8.179	8.019	7.924	7.993	-	-	-
16	-	-	-	-	-	8.181	8.010	7.922	7.993	-	-	-
17	-	-	-	-	-	8.181	8.000	7.919	7.997	-	-	-
18	-	-	-	-	-	8.178	7.993	7.918	7.989	-	-	-
19	-	-	-	-	-	8.170	7.995	7.911	7.984	-	-	-
20	-	-	-	-	-	8.158	7.984	7.912	7.982	-	-	-
21	-	-	-	-	-	8.148	7.984	7.947	-	-	-	-
22	-	-	-	-	-	8.140	7.983	7.949	-	-	-	-
23	-	-	-	-	-	8.173	7.978	7.953	-	-	-	-
24	-	-	-	-	-	8.266	7.958	7.955	-	-	-	-
25	-	-	-	-	-	8.233	7.965	7.955	-	-	-	-
26	-	-	-	-	-	8.201	7.974	7.979	-	-	-	-
27	-	-	-	-	-	8.177	7.988	8.020	-	-	-	-
28	-	-	-	-	-	8.160	7.986	8.027	-	-	-	-
29	-	-	-	-	-	8.142	7.985	8.038	-	-	-	-
30	-	-	-	-	-	8.126	7.980	8.040	-	-	-	-
31	-	-	-	-	-	-	7.974	8.041	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**8.126**	**7.958**	**7.911**	**7.982**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**8.176**	**8.016**	**7.956**	**8.014**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**8.266**	**8.111**	**8.041**	**8.045**	**-**	**-**	**-**

Table A2-68: 2000 Lake B7 Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	0.037	0.002	0.000	-	-	-
2	-	-	-	-	-	-	0.033	0.002	0.000	-	-	-
3	-	-	-	-	-	-	0.031	0.000	0.000	-	-	-
4	-	-	-	-	-	-	0.029	0.001	0.000	-	-	-
5	-	-	-	-	-	-	0.028	0.000	0.001	-	-	-
6	-	-	-	-	-	-	0.026	0.000	0.001	-	-	-
7	-	-	-	-	-	-	0.024	0.000	0.000	-	-	-
8	-	-	-	-	-	-	0.023	0.000	0.001	-	-	-
9	-	-	-	-	-	-	0.021	0.000	0.002	-	-	-
10	-	-	-	-	-	-	0.020	0.000	0.001	-	-	-
11	-	-	-	-	-	-	0.019	0.000	0.000	-	-	-
12	-	-	-	-	-	-	0.019	0.000	0.000	-	-	-
13	-	-	-	-	-	-	0.018	0.000	0.000	-	-	-
14	-	-	-	-	-	0.000	0.017	0.000	0.000	-	-	-
15	-	-	-	-	-	-	0.015	0.000	0.003	-	-	-
16	-	-	-	-	-	0.338	0.013	0.000	0.001	-	-	-
17	-	-	-	-	-	0.404	0.013	0.000	0.000	-	-	-
18	-	-	-	-	-	0.330	0.012	0.000	0.000	-	-	-
19	-	-	-	-	-	0.221	0.011	0.000	-	-	-	-
20	-	-	-	-	-	0.181	0.010	0.000	-	-	-	-
21	-	-	-	-	-	0.165	0.010	0.000	-	-	-	-
22	-	-	-	-	-	0.139	0.009	0.000	-	-	-	-
23	-	-	-	-	-	0.125	0.007	0.000	-	-	-	-
24	-	-	-	-	-	0.087	0.006	0.000	-	-	-	-
25	-	-	-	-	-	0.059	0.005	0.000	-	-	-	-
26	-	-	-	-	-	0.051	0.005	0.000	-	-	-	-
27	-	-	-	-	-	0.048	0.004	0.000	-	-	-	-
28	-	-	-	-	-	0.045	0.004	0.000	-	-	-	-
29	-	-	-	-	-	0.042	0.003	0.000	-	-	-	-
30	-	-	-	-	-	0.039	0.003	0.000	-	-	-	-
31	-	-	-	-	-	-	0.003	0.000	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**0.039**	**0.003**	**0.000**	**0.000**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**0.118**	**0.016**	**0.000**	**0.001**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**0.330**	**0.037**	**0.002**	**0.003**	**-**	**-**	**-**

Table A2-69: 2000 Lake B7 Mean Daily Water Levels (m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	8.064	7.908	7.879	-	-	-
2	-	-	-	-	-	-	8.053	7.909	7.882	-	-	-
3	-	-	-	-	-	-	8.045	7.900	7.894	-	-	-
4	-	-	-	-	-	-	8.038	7.902	7.899	-	-	-
5	-	-	-	-	-	-	8.033	7.899	7.902	-	-	-
6	-	-	-	-	-	-	8.027	7.897	7.902	-	-	-
7	-	-	-	-	-	-	8.019	7.895	7.895	-	-	-
8	-	-	-	-	-	-	8.013	7.888	7.903	-	-	-
9	-	-	-	-	-	-	8.005	7.885	7.905	-	-	-
10	-	-	-	-	-	-	8.001	7.881	7.901	-	-	-
11	-	-	-	-	-	-	7.997	7.879	7.895	-	-	-
12	-	-	-	-	-	-	7.999	7.872	7.891	-	-	-
13	-	-	-	-	-	-	7.992	7.870	7.899	-	-	-
14	-	-	-	-	-	-	7.988	7.870	7.898	-	-	-
15	-	-	-	-	-	-	7.979	7.869	7.911	-	-	-
16	-	-	-	-	-	-	7.971	7.873	7.904	-	-	-
17	-	-	-	-	-	-	7.967	7.881	7.872	-	-	-
18	-	-	-	-	-	8.191	7.963	7.882	7.887	-	-	-
19	-	-	-	-	-	8.158	7.959	7.882	-	-	-	-
20	-	-	-	-	-	8.146	7.954	7.881	-	-	-	-
21	-	-	-	-	-	8.142	7.951	7.878	-	-	-	-
22	-	-	-	-	-	8.134	7.946	7.878	-	-	-	-
23	-	-	-	-	-	8.130	7.937	7.879	-	-	-	-
24	-	-	-	-	-	8.119	7.932	7.880	-	-	-	-
25	-	-	-	-	-	8.109	7.928	7.867	-	-	-	-
26	-	-	-	-	-	8.099	7.924	7.869	-	-	-	-
27	-	-	-	-	-	8.093	7.921	7.893	-	-	-	-
28	-	-	-	-	-	8.085	7.917	7.900	-	-	-	-
29	-	-	-	-	-	8.079	7.912	7.887	-	-	-	-
30	-	-	-	-	-	8.071	7.915	7.882	-	-	-	-
31	-	-	-	-	-	-	7.915	7.887	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**8.071**	**7.912**	**7.867**	**7.872**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**8.120**	**7.976**	**7.885**	**7.896**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**8.266**	**8.064**	**7.909**	**7.911**	**-**	**-**	**-**

Table A2-70: 2008 Lake B7 Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	0.016	0.005	0.006	-	-	-
2	-	-	-	-	-	-	0.015	0.005	0.007	-	-	-
3	-	-	-	-	-	-	0.014	0.005	0.007	-	-	-
4	-	-	-	-	-	-	0.013	0.005	0.007	-	-	-
5	-	-	-	-	-	-	0.012	0.005	0.007	-	-	-
6	-	-	-	-	-	-	0.011	0.005	0.006	-	-	-
7	-	-	-	-	-	-	0.011	0.004	0.006	-	-	-
8	-	-	-	-	-	-	0.010	0.004	0.006	-	-	-
9	-	-	-	-	-	-	0.010	0.004	0.006	-	-	-
10	-	-	-	-	-	-	0.009	0.004	0.006	-	-	-
11	-	-	-	-	-	-	0.008	0.004	0.006	-	-	-
12	-	-	-	-	-	-	0.008	0.004	0.006	-	-	-
13	-	-	-	-	-	-	0.007	0.004	0.006	-	-	-
14	-	-	-	-	-	-	0.007	0.004	0.006	-	-	-
15	-	-	-	-	-	-	0.006	0.005	0.006	-	-	-
16	-	-	-	-	-	0.033	0.006	0.005	0.005	-	-	-
17	-	-	-	-	-	0.032	0.006	0.005	-	-	-	-
18	-	-	-	-	-	0.030	0.006	0.005	-	-	-	-
19	-	-	-	-	-	0.029	0.006	0.005	-	-	-	-
20	-	-	-	-	-	0.027	0.005	0.004	-	-	-	-
21	-	-	-	-	-	0.026	0.005	0.004	-	-	-	-
22	-	-	-	-	-	0.024	0.004	0.004	-	-	-	-
23	-	-	-	-	-	0.023	0.004	0.004	-	-	-	-
24	-	-	-	-	-	0.022	0.004	0.004	-	-	-	-
25	-	-	-	-	-	0.021	0.005	0.004	-	-	-	-
26	-	-	-	-	-	0.020	0.005	0.004	-	-	-	-
27	-	-	-	-	-	0.019	0.005	0.004	-	-	-	-
28	-	-	-	-	-	0.019	0.004	0.004	-	-	-	-
29	-	-	-	-	-	0.018	0.005	0.005	-	-	-	-
30	-	-	-	-	-	0.017	0.005	0.005	-	-	-	-
31	-	-	-	-	-	-	0.005	0.006	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**0.017**	**0.004**	**0.004**	**0.005**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**0.024**	**0.008**	**0.004**	**0.006**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**0.033**	**0.016**	**0.006**	**0.007**	**-**	**-**	**-**

Table A2-71: 2008 Lake B7 Mean Daily Water Levels (m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	98.069	98.034	98.119	-	-	-
2	-	-	-	-	-	-	98.067	98.034	98.128	-	-	-
3	-	-	-	-	-	-	98.067	98.033	98.130	-	-	-
4	-	-	-	-	-	-	98.066	98.036	98.126	-	-	-
5	-	-	-	-	-	-	98.064	98.039	98.123	-	-	-
6	-	-	-	-	-	-	98.060	98.041	98.122	-	-	-
7	-	-	-	-	-	-	98.058	98.039	98.116	-	-	-
8	-	-	-	-	-	-	98.057	98.034	98.114	-	-	-
9	-	-	-	-	-	-	98.055	98.033	98.113	-	-	-
10	-	-	-	-	-	-	98.051	98.032	98.113	-	-	-
11	-	-	-	-	-	-	98.045	98.031	98.113	-	-	-
12	-	-	-	-	-	-	98.041	98.031	98.111	-	-	-
13	-	-	-	-	-	-	98.037	98.032	98.111	-	-	-
14	-	-	-	-	-	-	98.035	98.032	98.112	-	-	-
15	-	-	-	-	-	98.131	98.037	98.049	98.114	-	-	-
16	-	-	-	-	-	98.123	98.033	98.053	98.110	-	-	-
17	-	-	-	-	-	98.117	98.034	98.059	-	-	-	-
18	-	-	-	-	-	98.110	98.036	98.062	-	-	-	-
19	-	-	-	-	-	98.103	98.032	98.064	-	-	-	-
20	-	-	-	-	-	98.099	98.025	98.063	-	-	-	-
21	-	-	-	-	-	98.094	98.018	98.060	-	-	-	-
22	-	-	-	-	-	98.089	98.015	98.059	-	-	-	-
23	-	-	-	-	-	98.086	98.017	98.058	-	-	-	-
24	-	-	-	-	-	98.083	98.014	98.057	-	-	-	-
25	-	-	-	-	-	98.078	98.019	98.055	-	-	-	-
26	-	-	-	-	-	98.076	98.026	98.053	-	-	-	-
27	-	-	-	-	-	98.076	98.028	98.051	-	-	-	-
28	-	-	-	-	-	98.075	98.023	98.068	-	-	-	-
29	-	-	-	-	-	98.073	98.030	98.077	-	-	-	-
30	-	-	-	-	-	98.069	98.037	98.081	-	-	-	-
31	-	-	-	-	-	-	98.036	98.102	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**98.069**	**98.014**	**98.031**	**98.110**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**98.093**	**98.040**	**98.050**	**98.117**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**98.131**	**98.069**	**98.102**	**98.130**	**-**	**-**	**-**

A2-15 LAKE D5 AND OUTFLOW

Hydrometric data were measured during the open water seasons of 1997 and 1998. Mean daily water levels and mean daily discharges at Lake D5 are presented in Tables A2-72 to A2-75.

Table A2-72: 1997 Lake D5 Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	0.099	0.002	0.000	-	-	-
2	-	-	-	-	-	-	0.092	0.002	0.000	-	-	-
3	-	-	-	-	-	-	0.084	0.002	0.000	-	-	-
4	-	-	-	-	-	-	0.081	0.002	0.000	-	-	-
5	-	-	-	-	-	-	0.076	0.002	0.000	-	-	-
6	-	-	-	-	-	-	0.071	0.001	0.000	-	-	-
7	-	-	-	-	-	-	0.068	0.001	0.000	-	-	-
8	-	-	-	-	-	-	0.064	0.001	0.000	-	-	-
9	-	-	-	-	-	-	0.065	0.001	0.000	-	-	-
10	-	-	-	-	-	-	0.061	0.001	0.000	-	-	-
11	-	-	-	-	-	0.100	0.057	0.001	0.000	-	-	-
12	-	-	-	-	-	-	0.052	0.000	0.000	-	-	-
13	-	-	-	-	-	-	0.033	0.000	0.000	-	-	-
14	-	-	-	-	-	-	0.028	0.000	0.000	-	-	-
15	-	-	-	-	-	-	0.026	0.000	0.000	-	-	-
16	-	-	-	-	-	-	0.027	0.000	0.000	-	-	-
17	-	-	-	-	-	-	0.027	0.000	0.000	-	-	-
18	-	-	-	-	-	-	0.024	0.000	0.000	-	-	-
19	-	-	-	-	-	-	0.022	0.000	0.000	-	-	-
20	-	-	-	-	-	-	0.018	0.000	0.000	-	-	-
21	-	-	-	-	-	0.058	0.017	0.000	0.000	-	-	-
22	-	-	-	-	-	0.055	0.017	0.000	0.000	-	-	-
23	-	-	-	-	-	0.057	0.015	0.000	0.000	-	-	-
24	-	-	-	-	-	0.063	0.011	0.000	0.000	-	-	-
25	-	-	-	-	-	0.063	0.010	0.000	0.000	-	-	-
26	-	-	-	-	-	0.064	0.009	0.000	-	-	-	-
27	-	-	-	-	-	0.070	0.008	0.000	-	-	-	-
28	-	-	-	-	-	0.076	0.007	0.000	-	-	-	-
29	-	-	-	-	-	0.093	0.006	0.000	-	-	-	-
30	-	-	-	-	-	0.104	0.005	0.000	-	-	-	-
31	-	-	-	-	-	-	0.003	0.000	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**-**	**0.003**	**0.000**	**0.000**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**-**	**0.038**	**0.001**	**0.000**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**-**	**0.099**	**0.002**	**0.000**	**-**	**-**	**-**

Table A2-73: 1997 Lake D5 Mean Daily Water Levels (m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	8.198	8.060	7.982	-	-	-
2	-	-	-	-	-	-	8.195	8.055	7.982	-	-	-
3	-	-	-	-	-	-	8.190	8.051	7.980	-	-	-
4	-	-	-	-	-	-	8.188	8.049	7.989	-	-	-
5	-	-	-	-	-	-	8.185	8.049	7.996	-	-	-
6	-	-	-	-	-	-	8.182	8.041	7.996	-	-	-
7	-	-	-	-	-	-	8.181	8.038	7.994	-	-	-
8	-	-	-	-	-	-	8.177	8.035	7.991	-	-	-
9	-	-	-	-	-	-	8.178	8.032	7.991	-	-	-
10	-	-	-	-	-	-	8.175	8.027	7.991	-	-	-
11	-	-	-	-	-	8.212	8.172	8.024	7.990	-	-	-
12	-	-	-	-	-	-	8.168	8.020	7.989	-	-	-
13	-	-	-	-	-	-	8.148	8.017	7.983	-	-	-
14	-	-	-	-	-	-	8.142	8.014	7.983	-	-	-
15	-	-	-	-	-	-	8.139	8.012	7.983	-	-	-
16	-	-	-	-	-	-	8.140	8.010	7.979	-	-	-
17	-	-	-	-	-	-	8.140	8.008	7.968	-	-	-
18	-	-	-	-	-	-	8.136	8.006	7.974	-	-	-
19	-	-	-	-	-	-	8.132	8.004	7.974	-	-	-
20	-	-	-	-	-	-	8.124	8.003	7.972	-	-	-
21	-	-	-	-	-	8.173	8.122	8.000	7.972	-	-	-
22	-	-	-	-	-	8.171	8.122	7.992	7.970	-	-	-
23	-	-	-	-	-	8.172	8.117	7.998	7.968	-	-	-
24	-	-	-	-	-	8.177	8.106	7.995	7.957	-	-	-
25	-	-	-	-	-	8.177	8.103	7.995	7.975	-	-	-
26	-	-	-	-	-	8.177	8.101	7.993	-	-	-	-
27	-	-	-	-	-	8.182	8.098	7.992	-	-	-	-
28	-	-	-	-	-	8.185	8.092	7.993	-	-	-	-
29	-	-	-	-	-	8.195	8.087	7.989	-	-	-	-
30	-	-	-	-	-	8.201	8.083	7.988	-	-	-	-
31	-	-	-	-	-	-	8.069	7.987	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**8.171**	**8.069**	**7.987**	**7.957**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**8.181**	**8.142**	**8.015**	**7.981**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**8.201**	**8.198**	**8.060**	**7.996**	**-**	**-**	**-**

Table A2-74: 1998 Lake D5 Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	0.018	0.000	0.000	-	-	-
2	-	-	-	-	-	-	0.016	0.000	0.000	-	-	-
3	-	-	-	-	-	-	0.016	0.000	0.000	-	-	-
4	-	-	-	-	-	-	0.014	0.000	0.001	-	-	-
5	-	-	-	-	-	-	0.013	0.000	0.001	-	-	-
6	-	-	-	-	-	0.408	0.011	0.000	0.001	-	-	-
7	-	-	-	-	-	0.590	0.011	0.000	0.002	-	-	-
8	-	-	-	-	-	0.600	0.010	0.000	0.002	-	-	-
9	-	-	-	-	-	0.416	0.008	0.000	0.004	-	-	-
10	-	-	-	-	-	0.363	0.007	0.000	0.005	-	-	-
11	-	-	-	-	-	0.165	0.006	0.000	0.006	-	-	-
12	-	-	-	-	-	0.044	0.004	0.000	0.008	-	-	-
13	-	-	-	-	-	0.049	0.003	0.000	0.009	-	-	-
14	-	-	-	-	-	0.050	0.003	0.000	0.017	-	-	-
15	-	-	-	-	-	0.050	0.004	0.000	0.031	-	-	-
16	-	-	-	-	-	0.052	0.005	0.000	0.042	-	-	-
17	-	-	-	-	-	0.055	0.005	0.000	0.044	-	-	-
18	-	-	-	-	-	0.057	0.005	0.000	0.044	-	-	-
19	-	-	-	-	-	0.050	0.005	0.000	0.044	-	-	-
20	-	-	-	-	-	0.045	0.004	0.000	0.046	-	-	-
21	-	-	-	-	-	0.041	0.003	0.000	0.050	-	-	-
22	-	-	-	-	-	0.038	0.003	0.000	0.053	-	-	-
23	-	-	-	-	-	0.037	0.002	0.000	0.056	-	-	-
24	-	-	-	-	-	0.034	0.001	0.000	-	-	-	-
25	-	-	-	-	-	0.030	0.001	0.000	-	-	-	-
26	-	-	-	-	-	0.027	0.001	0.000	-	-	-	-
27	-	-	-	-	-	0.025	0.001	0.000	-	-	-	-
28	-	-	-	-	-	0.023	0.001	0.000	-	-	-	-
29	-	-	-	-	-	0.021	0.001	0.000	-	-	-	-
30	-	-	-	-	-	0.020	0.000	0.000	-	-	-	-
31	-	-	-	-	-	-	0.000	0.000	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**0.020**	**0.000**	**0.000**	**0.000**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**0.132**	**0.006**	**0.000**	**0.020**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**0.600**	**0.018**	**0.000**	**0.056**	**-**	**-**	**-**

Table A2-75: 1998 Lake D5 Mean Daily Water Levels (m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	8.131	8.089	8.074	-	-	-
2	-	-	-	-	-	-	8.129	8.083	8.078	-	-	-
3	-	-	-	-	-	-	8.129	8.077	8.078	-	-	-
4	-	-	-	-	-	-	8.127	8.073	8.078	-	-	-
5	-	-	-	-	-	-	8.124	8.071	8.081	-	-	-
6	-	-	-	-	-	8.298	8.123	8.065	8.083	-	-	-
7	-	-	-	-	-	8.319	8.122	8.083	8.083	-	-	-
8	-	-	-	-	-	8.316	8.120	8.091	8.083	-	-	-
9	-	-	-	-	-	8.286	8.116	8.092	8.087	-	-	-
10	-	-	-	-	-	8.272	8.113	8.089	8.090	-	-	-
11	-	-	-	-	-	8.203	8.109	8.084	8.090	-	-	-
12	-	-	-	-	-	8.151	8.104	8.087	8.089	-	-	-
13	-	-	-	-	-	8.156	8.097	8.083	8.088	-	-	-
14	-	-	-	-	-	8.157	8.100	8.079	8.101	-	-	-
15	-	-	-	-	-	8.157	8.112	8.075	8.120	-	-	-
16	-	-	-	-	-	8.159	8.119	8.072	8.125	-	-	-
17	-	-	-	-	-	8.161	8.125	8.070	8.120	-	-	-
18	-	-	-	-	-	8.163	8.129	8.068	8.113	-	-	-
19	-	-	-	-	-	8.158	8.128	8.066	8.105	-	-	-
20	-	-	-	-	-	8.155	8.126	8.066	8.100	-	-	-
21	-	-	-	-	-	8.152	8.121	8.061	8.096	-	-	-
22	-	-	-	-	-	8.150	8.120	8.059	8.092	-	-	-
23	-	-	-	-	-	8.150	8.116	8.058	8.089	-	-	-
24	-	-	-	-	-	8.148	8.111	8.056	-	-	-	-
25	-	-	-	-	-	8.144	8.105	8.052	-	-	-	-
26	-	-	-	-	-	8.142	8.101	8.053	-	-	-	-
27	-	-	-	-	-	8.139	8.109	8.052	-	-	-	-
28	-	-	-	-	-	8.138	8.106	8.050	-	-	-	-
29	-	-	-	-	-	8.136	8.102	8.056	-	-	-	-
30	-	-	-	-	-	8.135	8.097	8.058	-	-	-	-
31	-	-	-	-	-	-	8.093	8.060	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**8.135**	**8.093**	**8.050**	**8.074**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**8.182**	**8.115**	**8.070**	**8.093**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**8.319**	**8.131**	**8.092**	**8.125**	**-**	**-**	**-**

A2-16 CONTROL LAKE AND OUTFLOW

Hydrometric data were measured during the open water season of 1997. Mean daily water levels and mean daily discharges at Control Lake for 1997 season are presented in Tables A2-76 and A2-77.

Table A2-76: 1997 Control Lake Mean Daily Discharge (m^3/s)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	0.006	0.000	0.000	-	-	-
2	-	-	-	-	-	-	0.005	0.000	0.000	-	-	-
3	-	-	-	-	-	-	0.002	0.000	0.000	-	-	-
4	-	-	-	-	-	-	0.003	0.000	0.000	-	-	-
5	-	-	-	-	-	-	0.001	0.000	0.000	-	-	-
6	-	-	-	-	-	-	0.001	0.000	0.000	-	-	-
7	-	-	-	-	-	-	0.001	0.000	0.000	-	-	-
8	-	-	-	-	-	-	0.001	0.000	0.000	-	-	-
9	-	-	-	-	-	-	0.001	0.000	0.000	-	-	-
10	-	-	-	-	-	-	0.001	0.000	0.000	-	-	-
11	-	-	-	-	-	-	0.000	0.000	0.000	-	-	-
12	-	-	-	-	-	0.007	0.000	0.000	0.000	-	-	-
13	-	-	-	-	-	-	0.000	0.000	0.000	-	-	-
14	-	-	-	-	-	-	0.000	0.000	0.000	-	-	-
15	-	-	-	-	-	-	0.000	0.000	0.000	-	-	-
16	-	-	-	-	-	-	0.000	0.000	0.000	-	-	-
17	-	-	-	-	-	-	0.000	0.000	0.000	-	-	-
18	-	-	-	-	-	-	0.000	0.000	0.000	-	-	-
19	-	-	-	-	-	-	0.000	0.000	0.000	-	-	-
20	-	-	-	-	-	-	0.000	0.000	0.000	-	-	-
21	-	-	-	-	-	0.003	0.000	0.000	0.000	-	-	-
22	-	-	-	-	-	0.003	0.000	0.000	0.000	-	-	-
23	-	-	-	-	-	0.002	0.000	0.000	0.000	-	-	-
24	-	-	-	-	-	0.003	0.000	0.000	0.000	-	-	-
25	-	-	-	-	-	0.002	0.000	0.000	-	-	-	-
26	-	-	-	-	-	0.002	0.000	0.000	-	-	-	-
27	-	-	-	-	-	0.003	0.000	0.000	-	-	-	-
28	-	-	-	-	-	0.004	0.000	0.000	-	-	-	-
29	-	-	-	-	-	0.007	0.000	0.000	-	-	-	-
30	-	-	-	-	-	0.007	0.000	0.000	-	-	-	-
31	-	-	-	-	-	-	0.000	0.000	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**-**	**0.000**	**0.000**	**0.000**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**-**	**0.001**	**0.000**	**0.000**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**-**	**0.006**	**0.000**	**0.000**	**-**	**-**	**-**

Table A2-77: 1997 Control Lake Mean Daily Water Levels (m)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	7.330	7.216	7.149	-	-	-
2	-	-	-	-	-	-	7.327	7.212	7.146	-	-	-
3	-	-	-	-	-	-	7.319	7.208	7.146	-	-	-
4	-	-	-	-	-	-	7.321	7.205	7.153	-	-	-
5	-	-	-	-	-	-	7.317	7.205	7.156	-	-	-
6	-	-	-	-	-	-	7.315	7.202	7.156	-	-	-
7	-	-	-	-	-	-	7.315	7.200	7.156	-	-	-
8	-	-	-	-	-	-	7.316	7.196	7.156	-	-	-
9	-	-	-	-	-	-	7.317	7.191	7.155	-	-	-
10	-	-	-	-	-	-	7.314	7.188	7.153	-	-	-
11	-	-	-	-	-	-	7.312	7.184	7.153	-	-	-
12	-	-	-	-	-	7.347	7.308	7.182	7.153	-	-	-
13	-	-	-	-	-	-	7.303	7.180	7.152	-	-	-
14	-	-	-	-	-	-	7.295	7.178	7.150	-	-	-
15	-	-	-	-	-	-	7.292	7.176	7.149	-	-	-
16	-	-	-	-	-	-	7.288	7.175	7.149	-	-	-
17	-	-	-	-	-	-	7.284	7.173	7.150	-	-	-
18	-	-	-	-	-	-	7.280	7.171	7.147	-	-	-
19	-	-	-	-	-	-	7.276	7.171	7.143	-	-	-
20	-	-	-	-	-	-	7.270	7.169	7.142	-	-	-
21	-	-	-	-	-	7.323	7.269	7.166	7.143	-	-	-
22	-	-	-	-	-	7.321	7.271	7.163	7.142	-	-	-
23	-	-	-	-	-	7.317	7.269	7.163	7.142	-	-	-
24	-	-	-	-	-	7.322	7.266	7.165	7.039	-	-	-
25	-	-	-	-	-	7.319	7.261	7.162	-	-	-	-
26	-	-	-	-	-	7.318	7.257	7.158	-	-	-	-
27	-	-	-	-	-	7.322	7.253	7.156	-	-	-	-
28	-	-	-	-	-	7.325	7.248	7.156	-	-	-	-
29	-	-	-	-	-	7.334	7.242	7.155	-	-	-	-
30	-	-	-	-	-	7.333	7.232	7.157	-	-	-	-
31	-	-	-	-	-	-	7.223	7.154	-	-	-	-
Minimum	**-**	**-**	**-**	**-**	**-**	**7.317**	**7.223**	**7.154**	**7.039**	**-**	**-**	**-**
Mean	**-**	**-**	**-**	**-**	**-**	**7.324**	**7.287**	**7.179**	**7.145**	**-**	**-**	**-**
Maximum	**-**	**-**	**-**	**-**	**-**	**7.334**	**7.330**	**7.216**	**7.156**	**-**	**-**	**-**

A2-17 LAKE A54 AND OUTFLOW

Hydrometric data were measured during the open water season of 2008. Instantaneous water levels were measured during each visit at Peanut Lake and are presented in Table A2-78. No discharges were observed at the lake outlet during site visits.

Table A2-78: Peanut Lake Water Level Observations based on Benchmark Elevation 100.000 m

Date	Water Level (m)	Discharge
11-Jul-2008	99.354	No discharge
1-Aug-2008	99.309	No discharge
16-Sep-2008	99.310	No discharge

A2-18 LAKE A8 AND OUTFLOW

Hydrometric data were measured during the open water season of 2008. Instantaneous water levels and discharges were measured during each visit at Pump Lake and are presented in Table A2-79.

Table A2-79: Pump Lake Water Level Observations based on Benchmark Elevation 100.000 m

Date	Water Level (m)	Discharge (m^3/s)
11-Jul-2008	99.354	0.001
1-Aug-2008	99.309	<0.001
16-Sep-2008	99.310	<0.001

A3-1 INTRODUCTION

To assess mean characteristics and natural variability of discharges and water levels at lake outlets at the Comaplex Project area, a water balance model was developed. The model setup and calibration are described in this appendix.

The water balance model was set up using GoldSim™ software (GoldSim 2009) on a daily time step for the period of 1982 to 2009. This time period was selected to allow use of the climate data derived for the site based on long-term data from the Environment Canada Rankin Inlet A climate station. While data are available starting in 1981 at the climate station, the model is comprised of a snowmelt sub-model that runs on a hydrological year basis, which would require that the data set start in October 1980 to run the model starting from 1981. The basic water balance for each sub-watershed considered rainfall and snowmelt runoff, changes in lake storage, lake evaporation and outlet to downstream watersheds.

The model was calibrated using runoff coefficients for land surfaces, lake outlet stage-discharge rating curves, and degree-day models for snowmelt and spring ice melt in outlet channels. These parameters were selected to calibrate the model using site-specific climate and hydrology data collected in 1999. Site specific data from 2000 and 2009 were used to validate the results.

The calibrated model was used to generate a daily time series of flows for Lake A1 in the A watershed, Lake B2, and Lake B7 in the B watershed, and Chicken Head Lake in the Chicken Head watershed. Frequency analyses were performed on these data sets to define key discharge parameters.

A3-2 MODEL STRUCTURE

Each lake was modeled as a reservoir as described in the schematic diagram shown on Figure A3-1. Inflows in the reservoir consisted of rainfall and snowfall, separated into land and lake components to account for runoff losses, and outflows consisted of evaporation and lake outlet. Lake storage is also considered in the model. A key assumption of the model is that losses to deep percolation and changes to groundwater storage are not significant. This is based on the northern location and permafrost conditions at the Project.

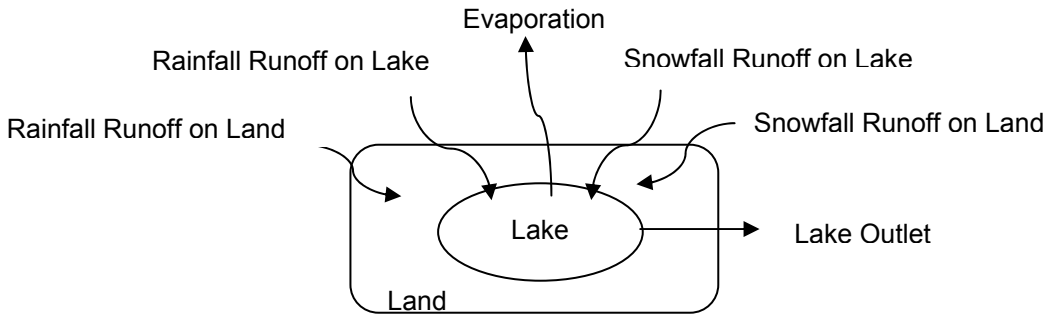


Figure A3-1: Schematic Diagram for Typical Watersheds in the Model

Inflows and outlets were calculated according to the input data and methods described on Figure A3-2.

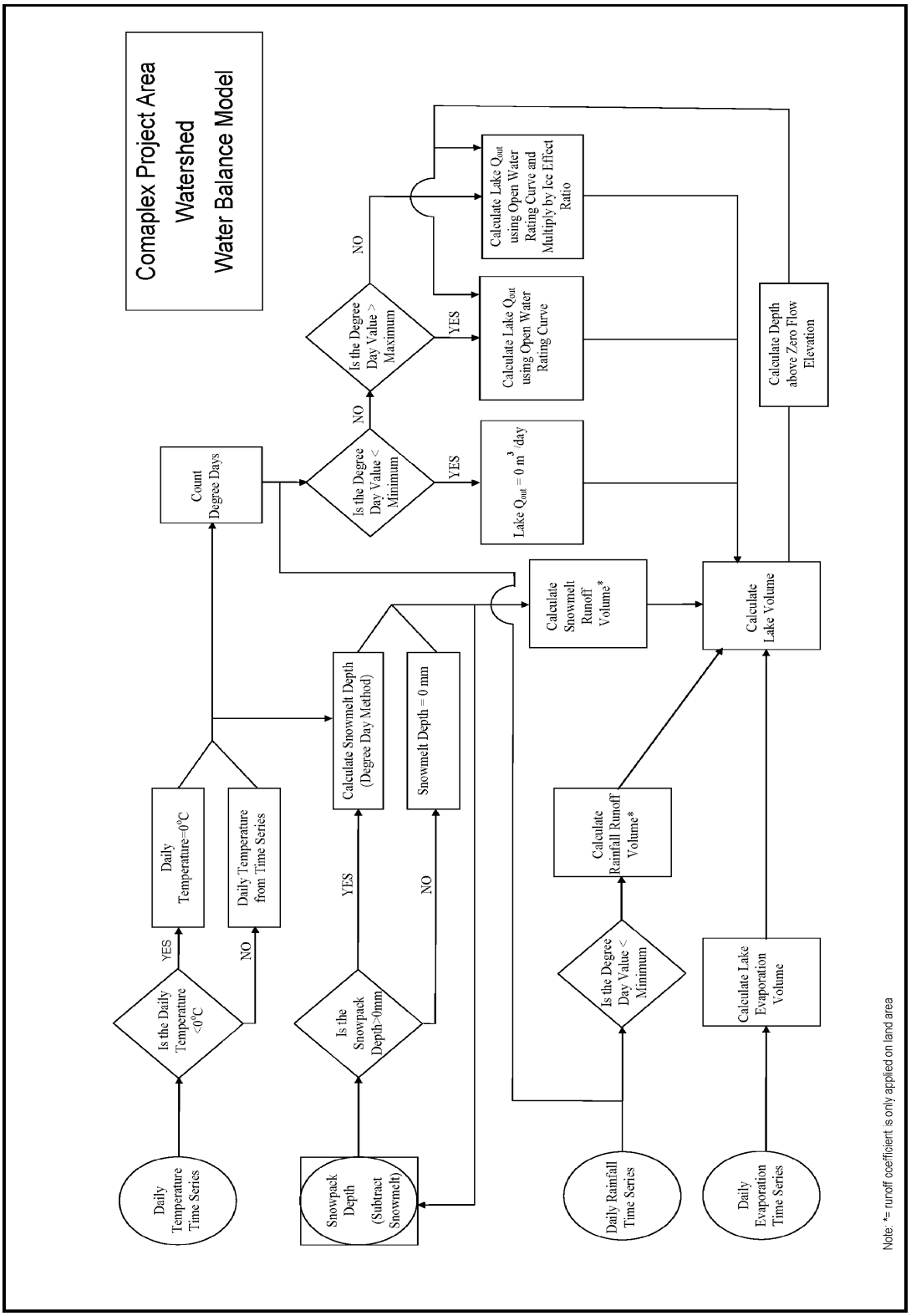


Figure A3-2: Watershed Water Balance Model Structure

A3-2.1 Model Components

A3-2.1.1 Lake Evaporation

Evaporation of water from lakes, ponds, and other open water surfaces is one of the primary mechanisms for moisture loss from a watershed. Evaporation is influenced by air and water temperatures, solar radiation, relative humidity, and wind. Evaporation from waterbodies is difficult to measure directly. It is typically estimated by using a local evaporation pan measurement and applying a coefficient (the "pan" coefficient), or by using energy budget relationships and computations based on the net energy input to the evaporation process. The modeling approach used was to derive a net lake evaporation time series based on locally collected data.

A3-2.1.1.2 Meteorological Data

Local gross lake evaporation data were available from June to September in 1997 to 1999 and from July to September in 2000. During each field program performed in those years, data were collected on a daily basis when possible.

A3-2.1.1.3 Method

Gross lake evaporation data were compiled for all years and averaged on a monthly basis for the summer months of June to September, as shown in Table A3-1. A daily time series was developed by dividing the resulting values by the number of days per month for the months of July and August. It was assumed that the gross lake evaporation was null at the start of June and at the end of September. This was dealt with by linearly increasing the evaporation value from 0 to a value that remained constant from 15 June to 30 June. The same was performed for September with a linear decrease.

Table A3-1: Gross Lake Evaporation (mm), 1997 to 2000

Year	Month				
	June	July	August	September	Annual
1997	46.9	142	97.3	41.3	328
1998	76.9	113	96.5	34.9	322
1999	81.3	110	89.8	44.6	326
2000	36.2	132	98.8	49.9	317
Mean	**60.4**	**124**	**95.6**	**42.7**	**323**

A3-2.1.1.4 Results and Discussion

The derived daily gross lake evaporation is shown in Figure A3-3 below.

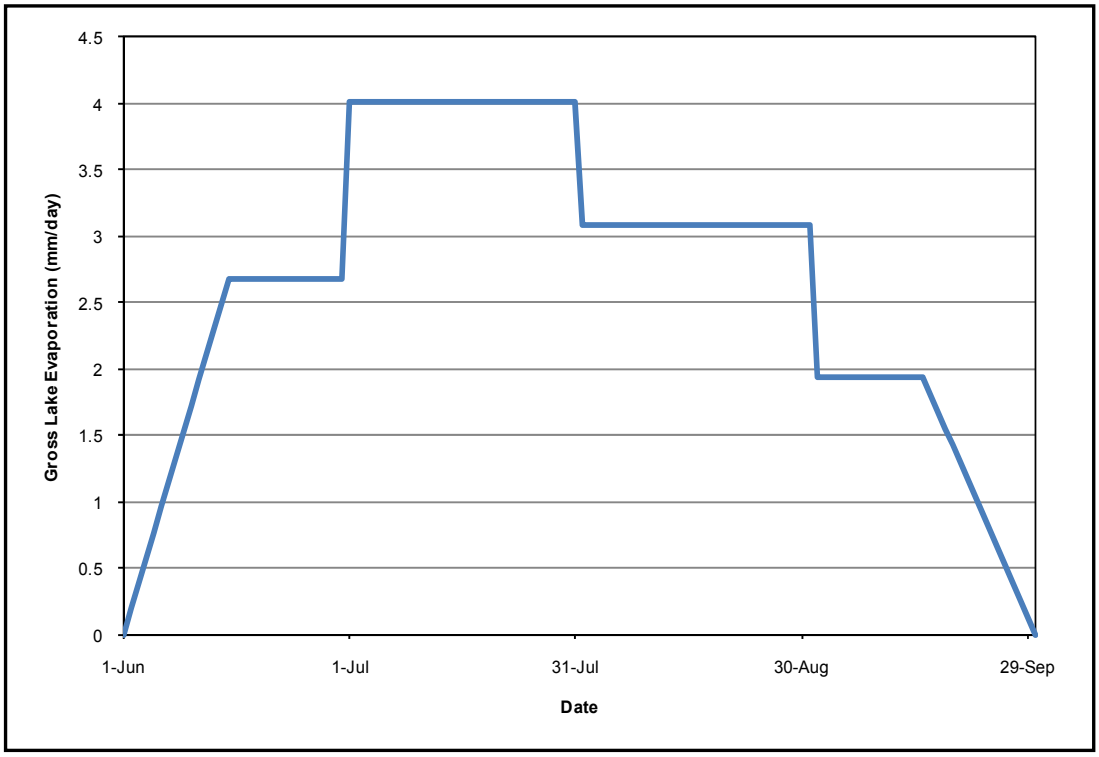


Figure A3-3: Derived Daily Gross Lake Evaporation

As discussed in Section 4.1.4.1 in the main report, it is likely that the mean annual lake evaporation value of 323 mm derived from local data for the period of 1997 to 2000 may be slightly greater than the actual long-term lake evaporation value at the Project area. However, due to the proportion of lake to land area, losses to lake evaporation are significantly low and have little effect on the model sensitivity. It is hence thought that for the purpose of this model, this estimate for lake evaporation, based on all available local data, is applicable.

This time series was applied for all modeled years, from 1982 to 2009.

A3-2.1.2 Lake Outlet Melt Period

During the end of May and the beginning of June, as temperatures rise above freezing and the cumulative degree-days increase, frozen lake outlets thaw and water begins to flow. During the early portion of the snowmelt season, ice effects have been observed to reduce the discharge to some factor (<1) of the discharge that would be observed under ice-free conditions. The modeling approach was to examine the relationship between lake outlet discharge and cumulative degree days, with the objective of defining a relationship to account for ice effects in the melt period in hydrological modeling.

A3-2.1.2.1 Hydrometric and Meteorological Data

Observations in the A and B watersheds were available in the outlet opening periods in 1999, 2000, and 2009 at Lake A1, Lake B2 and Lake B7. At the start of each open water season, lake outlets were visited to install

hydrometric stations during the outlet opening period. Discharges were measured, where present, and ice conditions were recorded. Hydrographs are also available for these years at these stations.

Daily photographs of lake outlets A1, B2, B7, and B4 were available from April to June 2009 to provide additional observations of ice conditions during spring melt.

A meteorology station was operated at the Rankin Inlet airport with available data starting from 1981 to 2009. Reported hourly data allow determination of the daily minimum, maximum, and mean temperatures.

A3-2.1.2.2 Method

A degree-day method was chosen to assess the effect of ice conditions on discharge at each lake outlet. Degree-days were counted above a base temperature of 0°C, based on mean daily temperatures, which typically begin to exceed 0°C in late May.

The effect of the ice on discharge was quantified by the following ratio:

$$\text{Ice Effect Ratio} = Q_{actual} / Q_{predicted}$$

where Q_{actual} = Discharge measured at the outlet under ice conditions; and

$Q_{predicted}$ = Discharge predicted using an open water rating curve for the specific outlet.

Opening of lake outlets is generally a rapid process. This is related to snowmelt runoff into the lake upstream of the outlet, as well as thaw of ice in the lake outlet. Flowing water provides additional thermal input and melted or saturated snow on the outlet channel surface lowers its albedo and increases absorption of solar energy, which further accelerates melt. The change in conditions from frozen solid to fully open was observed to typically occur up to a span of approximately one week. Logistical considerations during the field program meant that hydrographs were not acquired during the melt period, though observations of zero flow and fully open flow were available. Therefore, the analysis focused on identifying dates of zero flow (Ice Effect Ratio = 0) and fully open flow (Ice Effect Ratio = 1).

There is some uncertainty in the cumulative degree-day values corresponding to these assigned values, in the 1999 and 2000 datasets, because of the limited number of visits at lake outlets in the early season. This uncertainty was addressed by assuming that the last day of zero flow at the site (Ice Effect Ratio = 0) was the last day that zero flow was observed (the actual date could have been any day between then and the first day of observed flow), and by assuming that the first day with no ice effects (Ice Effect Ratio = 1) was the day after the last day that any ice effects were observed (the actual date could have been any day between the last day of observed ice effects and the first day of observed ice-free conditions).

Cumulative degree-day and ice effect ratio data were examined. The melting process of each lake outlet was found to behave differently:

- in 1999, the last day of zero flow was common to all outlets;
- in 2000, the last day of zero flow was different at all outlets;
- in 2000, the first day without ice effects was common to all outlets;
- in 2009, the last day of zero flow at Lake A1 was observed later than in 2000 and 1999; and
- in 2009, the first day without ice effects was observed later than in 2000.

Differences are possibly due to late winter ice characteristics, upstream flow conditions, and solar exposure.

A3-2.1.2.3 Results and Discussion

Values of cumulative degree-days and the ice effect ratios were plotted to examine the observed relationships at each lake outlet. These data, featured in Tables A3-2a, A3-2b, and A3-2c along with their source, were plotted together as shown in Figure A3-4.

Lake outlets A1 and B2 were fully opened on the same date in 2000. Lake outlets A1, B2, and B7 also shared a common date for snowmelt peaks in 2000 as shown by their hydrographs (AMEC 2000). Based on these data, it was assumed that Lake Outlet B7 was fully opened on the same day as lake outlets A1 and B2 in 2000.

After an initial examination, it was noticed that outlet openings began to melt later in 2000 and 2009 (dry years) than they did in 1999 (wet year). It was also noticed that outlet opening durations at Lake A1 were similar in 2000 and 2009 with respective durations of 15.1 and 15.6 degree-days. Based on these data, it was assumed that duration remained constant at all outlets for all years. The outlet openings were separated between dry and wet years, with data from 2000 representing the dry years and 1999 representing the wet years, as presented in Figures A3-5 and A3-6.

Data gathered from the daily photographs at outlets B2, B7, and B4 in 2009 were not reliable and were discarded from the analysis. The photographs were not clear enough to estimate outlet opening dates accurately.

Table A3-2a: Lake Outlet Ice Effect Ratios for Melt Period, 1999

Cumulative Degree-Days (^{o}C•d)	Ice Effect Ratio	Source of Data
Lake A1 Outlet		
4.6	0.0	Hydrograph
-	1.0	No observation available
Lake B2 Outlet		
4.6	0.0	Hydrograph
-	1.0	No observation available
Lake B7 Outlet		
4.6	0.0	Hydrograph
-	1.0	No observation available

Table A3-2b: Lake Outlet Ice Effect Ratios for Melt Period, 2000

Cumulative Degree-Days (^{o}C•d)	Ice Effect Ratio	Source of Data
Lake A1 Outlet		
6.6	0.0	Hydrograph + photos
21.7	1.0	Hydrograph + photos
Lake B2 Outlet		
11.9	0.0	Hydrograph
21.7	1.0	Hydrograph
Lake B7 Outlet		
15.2	0.0	Hydrograph + photos
21.7	1.0	Assumed based on other stations

Table A3-2c: Lake Outlet Ice Effect Ratios for Melt Period, 2009

Cumulative Degree-Days (°C•d)	Ice Effect Ratio	Source of Data
Lake A1 Outlet		
8.4	0.0	Daily photos
24	1.0	Daily photos

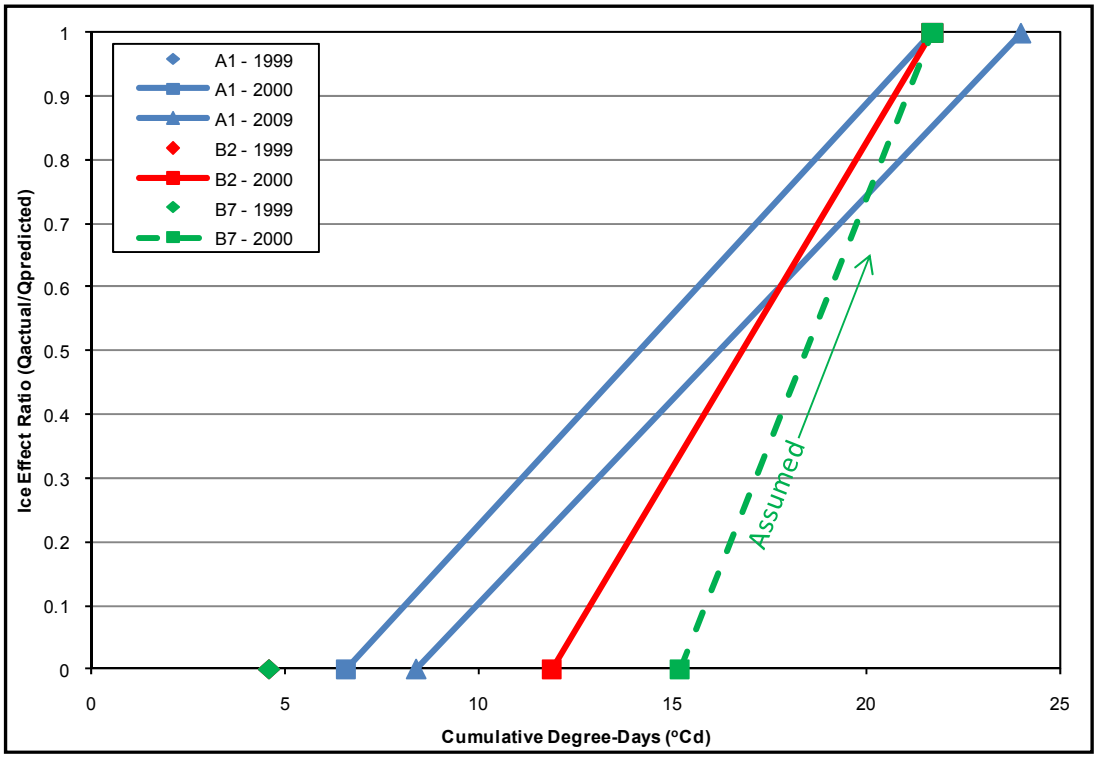


Figure A3-4 – Melt Period Ice Effect Ratios and Cumulative Degree-Days at the Peninsula Lakes Outlets

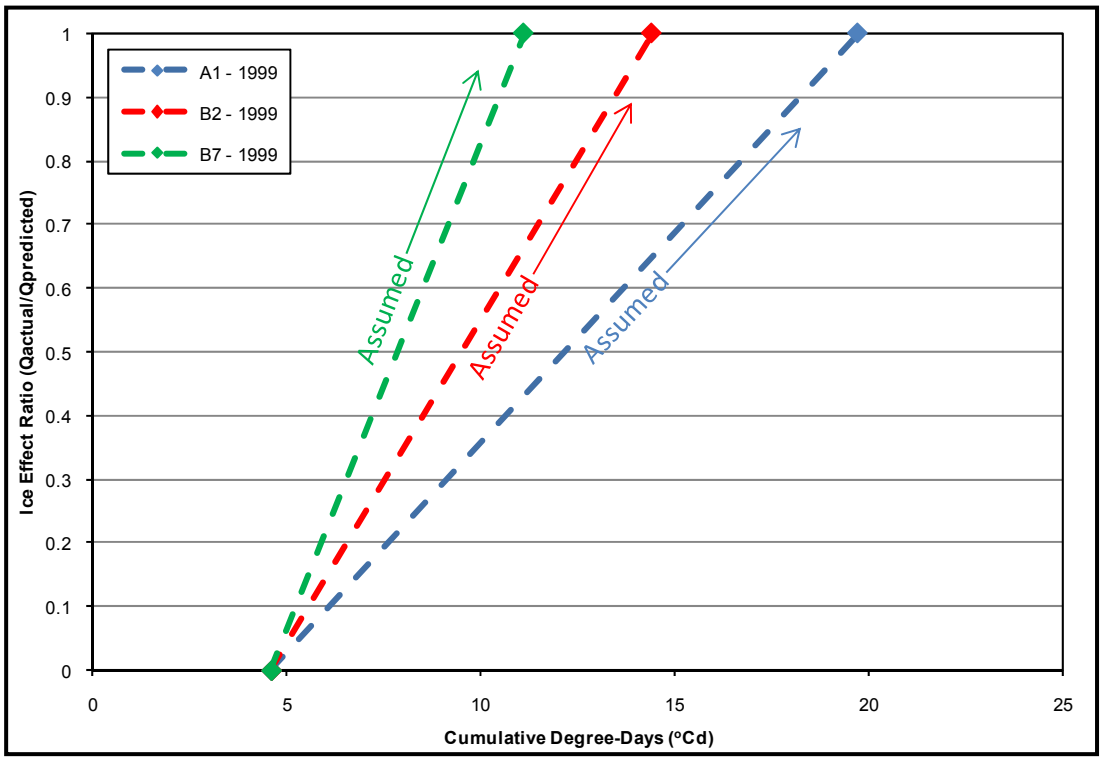


Figure A3-5 – Melt Period Ice Effect Ratios and Cumulative Degree-Days at the Peninsula Lakes Outlets, 1999

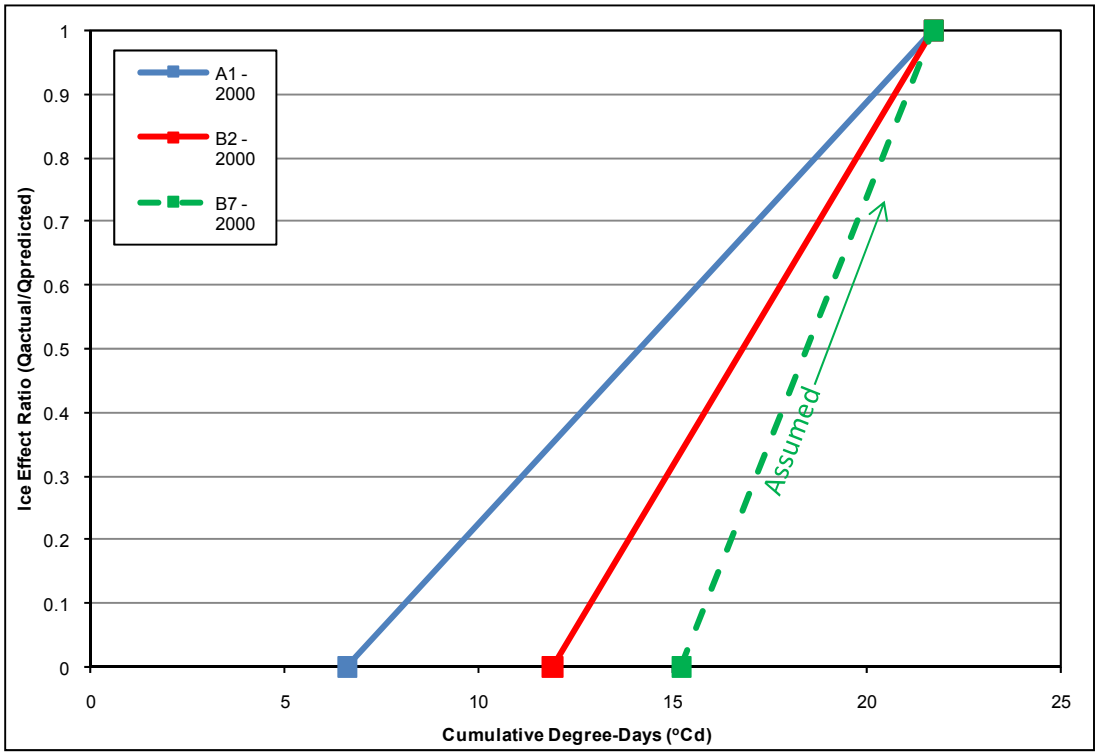


Figure A3-6 – Melt Period Ice Effect Ratios and Cumulative Degree-Days at the Peninsula Lakes Outlets, 2000

Based on the available data, all outlet openings are thought to be independent and were treated separately. Collection of additional data is recommended to improve these estimates.

Tables A3-4a and A3-4b present the results of the analysis. Durations vary from 6.5 °C•d for the outlet of Lake B7 (approximately equivalent to 4 days) to 15.1 °C•d for the outlet of Lake A1 (approximately equivalent to seven days). These relationships were used in the water balance modeling to incorporate ice effects at lake outlets. These relationships control the timing of the snowmelt peak without affecting their magnitudes. Since all the modeled watersheds are treated independently as headwater watersheds, the outlet opening parameters are mainly important for calibration purposes.

Table A3-4a: Derived Lake Outlet Ice Effect Ratios for Melt Period, Wet Years

Cumulative Degree-Days (°C•d)	Ice Effect Ratio
Lake A1 Outlet	
4.6	0.0
19.7	1.0
Lake B2 Outlet	
4.6	0.0
14.4	1.0
Lake B7 Outlet	
4.6	0.0
11.1	1.0

Table A3-4b: Lake Outlet Ice Effect Ratios for Melt Period, Dry Years

Cumulative Degree-Days (°C•d)	Ice Effect Ratio
Lake A1 Outlet	
6.6	0.0
21.7	1.0
Lake B2 Outlet	
11.9	0.0
21.7	1.0
Lake B7 Outlet	
15.2	0.0
21.7	1.0

The estimates of ice effects that were generated are used to estimate discharge from the lakes as outlets open up. Relationships presented in Figure A3-5 were used to estimate the opening of all lake outlets for wet years and relationships presented in Figure A3-6 were used to estimate the opening of all lake outlets for dry years. Based on similar drainage areas, it was assumed that the outlet of Chicken Head Lake behaved like that of Lake A1 and therefore was treated using the same parameters in the model. Collection of additional data from monitoring programs is recommended to improve this estimate.

A3-2.1.3 Lake Outlet Freeze-Up Period

During the beginning of September, as temperatures fall and the cumulative negative degree-days increase, lake outlets freeze and discharge decreases to zero for small lakes. During the late portion of the open water season, ice effects have been observed to reduce the discharge to some factor (<1) of the discharge that would be observed under ice-free conditions. The objective of the analysis is to define a relationship between this factor and meteorological parameters at each lake outlet, to provide a method to account for ice effects in the freezing period in hydrological modeling.

A3-2.1.3.1 Hydrometric and Meteorological Data

Ice observations were available at the Peninsula Lakes in 1997 and at Lake A54 and at Meliadine River in mid-September 2008.

Lake outlet freeze-up date estimates were available for the Peninsula Lakes in 1998, 1999 (AEE 1998, 1999), and in 2000 (AMEC 2000).

A meteorology station was operated at the Rankin Inlet airport from 1981 to 2009. Reported hourly data allow determination of the daily minimum, maximum, and mean temperatures.

A3-2.1.3.2 Method

A degree-day method was chosen to assess the effect of ice conditions on discharge at each lake outlet. Negative degree-days were counted below a base temperature of 0°C, and daily mean temperatures typically begin to fall below 0°C in September.

A graphical approach was selected for the analysis by plotting ice observations vs. degree-days. A corresponding cumulative degree-day value was assigned to the first day of ice observation, indicating the first day of freeze-up (Ice Effect Ratio = 1). A corresponding cumulative degree-day value was assigned to the estimated date of permanent frozen conditions (Ice Effect Ratio = 0), as reported by AEE (1998, 1999) and AMEC (2000).

The effect of the ice on discharge was quantified by the following ratio:

$$\text{Ice Effect Ratio} = Q_{actual} / Q_{predicted}$$

Where Q_{actual} = Discharge measured at the outlet under ice conditions; and

$Q_{predicted}$ = Discharge predicted using an open water rating curve for the specific outlet.

Flows during the freeze-up period are assumed to be smaller than the discharge predicted using an open water rating curve, resulting in ice effect ratios varying between 0 and 1. Values of 0 indicate the first day of complete freeze up of the outlet, and values of 1 indicate the last day of open water conditions.

Curves were fitted to the cumulative degree-day vs. ice effect ratio data to examine the relationships. Lake outlets were separated into groups exhibiting similar characteristics, with differences possibly due to outlet size and upstream storage.

A3-2.1.3.3 Results and Discussion

All observations at the Project area were plotted as a function of degree-days and are presented in Table A3-5 and Figure A3-7.

Table A3-5: Ice Observations at the Project area

Cumulative Degree-Days (°C•d)	Corresponding Ice Effect Ratio	Notes
-0.7	1.0	Thin ice cover on Lake A54.
-1.4	1.0	Ice on banks of the Meliadine R. near Rankin.
-5.6	0.0	1997 report. Frozen outlets observed at the end of September.
-76.5	0.0	1998 report. Estimated at the end of October.
-152.7	0.0	1999 report. Estimated at the end of October.
-202.5	0.0	2000 report. Estimated at the end of October.

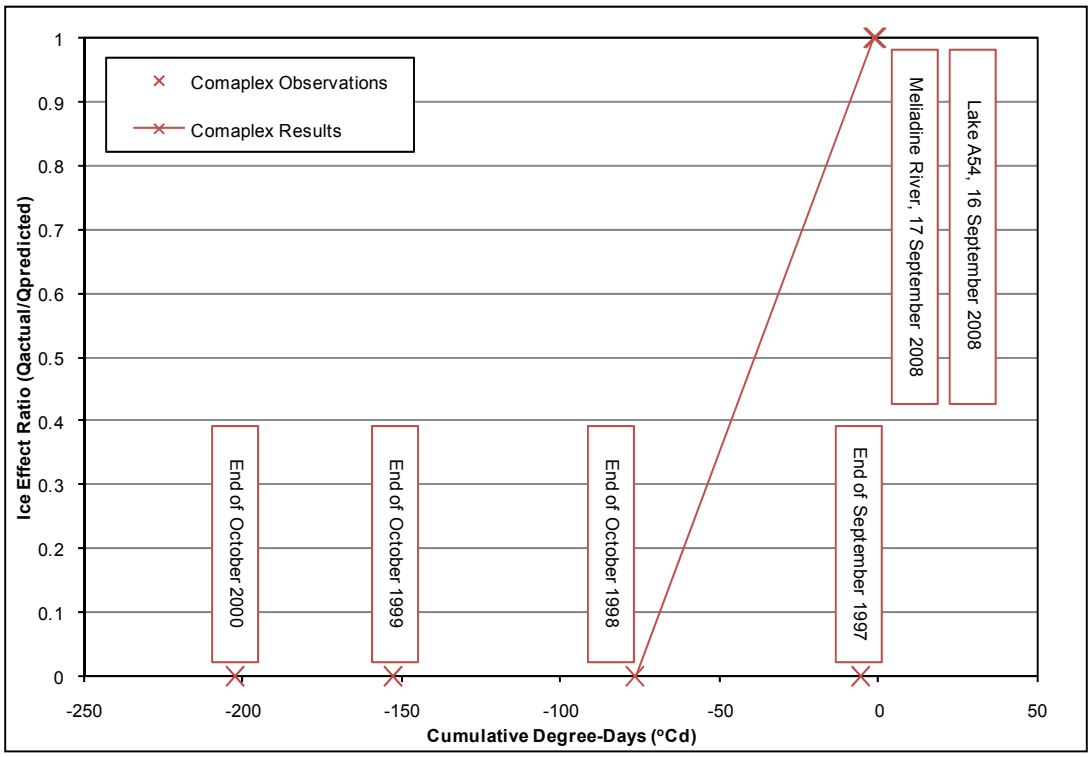


Figure A3-7 – Freeze-up Period Ice Effect Ratios and Cumulative Degree-Days

The first day of freeze up was estimated using ice observations on the banks of the Meliadine River in early September 2008. Based on the available data, the recorded observation on the banks of Meliadine River was used to estimate the first day of freeze-up. It is thought that Lake A54 would start freezing slightly earlier than lake outlets in the Project area.

Earlier studies (AEE 1998, 1999; AMEC 2000) estimated the complete freeze-up date occurring at the end of October. The smallest degree-day value associated with these dates was picked to represent the complete

freeze-up date in the model. Lake outlet freeze-up occurred unexpectedly early in 1997 (AEE 1998a) possibly due to an unusually dry year and therefore was treated as an outlier.

These results are presented in Table A3-6. The relationship presented in Figure A3-7 is used in the water balance modeling to incorporate ice effects at all lake outlets.

Table A3-6: Derived Lake Outlet Ice Effect Ratios for Melt Period

Cumulative Degree-Days (°C•d)	Ice Effect Ratio
-1.4	1.0
-76.5	0.0

A3-2.1.4 Snowmelt

During the snowmelt period, which typically occurs in the month of June, runoff flows to lakes, and water levels and discharges rise to a peak. The objective of the analysis is to provide a method to quantify snowmelt runoff in hydrological modeling.

A3-2.1.4.1 Hydrometric and Meteorological Data

Hydrometric data were available at Lake A1, Lake B2, and Lake B7 from 1997 to 2000 and 2008 to 2009, and at Chicken Head Lake in 2009, including water levels and corresponding discharges for the open water season.

Spring snow water equivalent data were available from 1997 to 2000 and 2008 to 2009 from snow course surveys.

A meteorology station was operated at the Rankin Inlet airport from 1981 to 2009. Available data include daily minimum, maximum, and average temperature, rainfall runoff, and derived lake evaporation.

A3-2.1.4.2 Method

A water balance method was selected to estimate the snowmelt runoff parameters. The snowmelt runoff was quantified using the following equation:

$$\text{Snowmelt Runoff} = R_{cs} \times M_f \times (T - T_b)$$

Where R_{cs}= Snowmelt runoff coefficient;

M_f = Melt factor (mm/°C);

T = Mean daily air temperature (°C); and

T_b = Base temperature (°C).

A water balance model for each watershed was set up as illustrated in Figure A3-8. Lakes A1 and B2 were treated as headwater lakes due to the scarcity of data for upstream watersheds. Their lake and land areas were assumed to be the sum of all upstream lakes and land respectively, from their outlet, while using their derived rating curve for the chosen year of data.

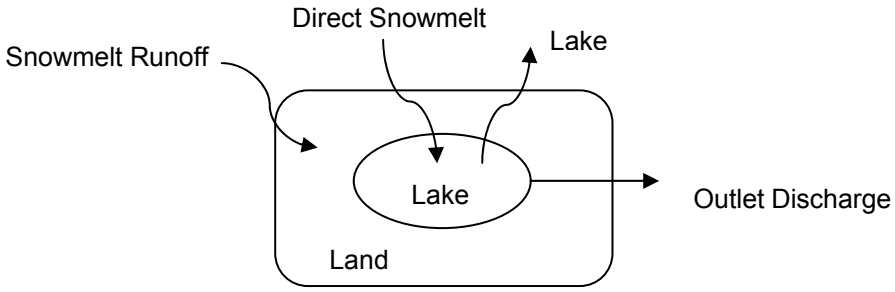


Figure A3-8 – Schematic Diagram for Snowmelt Water Balance Analysis

The water balance for each watershed considered snowmelt runoff (snowfall runoff on land), direct snowmelt (snowfall runoff on lake), lake evaporation, outlet to downstream watersheds using applicable outlet rating curves, and outlet opening in the early open water season.

The model was run on a daily time step using a trial and error method to estimate each parameter contributing to the snowmelt runoff (M_f, T_b and R_{cs}), the resulting hydrographs were plotted together with the measured data for comparison, and parameters were adjusted to achieve a best-fit to the available monitored data.

For accurate results, the model must be calibrated using a year of data with minimal rainfall events prior to the snowmelt runoff and a well defined snow peak. Hydrometric data from years 1997, 1998, 2008 and 2009 were discarded from the analysis due to late measurements, missing the snowmelt peaks (data were available at Lake B2 in 2009 but were insufficient to use the whole year for calibration). Hydrometric data from year 1999 were also discarded due to high rain events prior to the snowmelt. Year 2000 was a dry year with very little rain before the snowmelt, with good quality data, and was chosen for the analysis.

A3-2.1.4.3 Results and Discussion

Hydrographs from 2000 were analyzed using common parameters. Calculated water balance results were plotted against the measured data for comparison, and the following observations were noted:

- the melt factor, M_f, affects the duration of the snowmelt peak;
- the base temperature, T_b, shifts the snowmelt curve laterally and affects the height of the peak; and
- the runoff coefficient, R_{cs}, affects the height of the peak.

Plots of measured hydrographs against modeled hydrographs using the snowmelt parameters that were adopted are presented in Figures A3-9, A3-10, and A3-11.

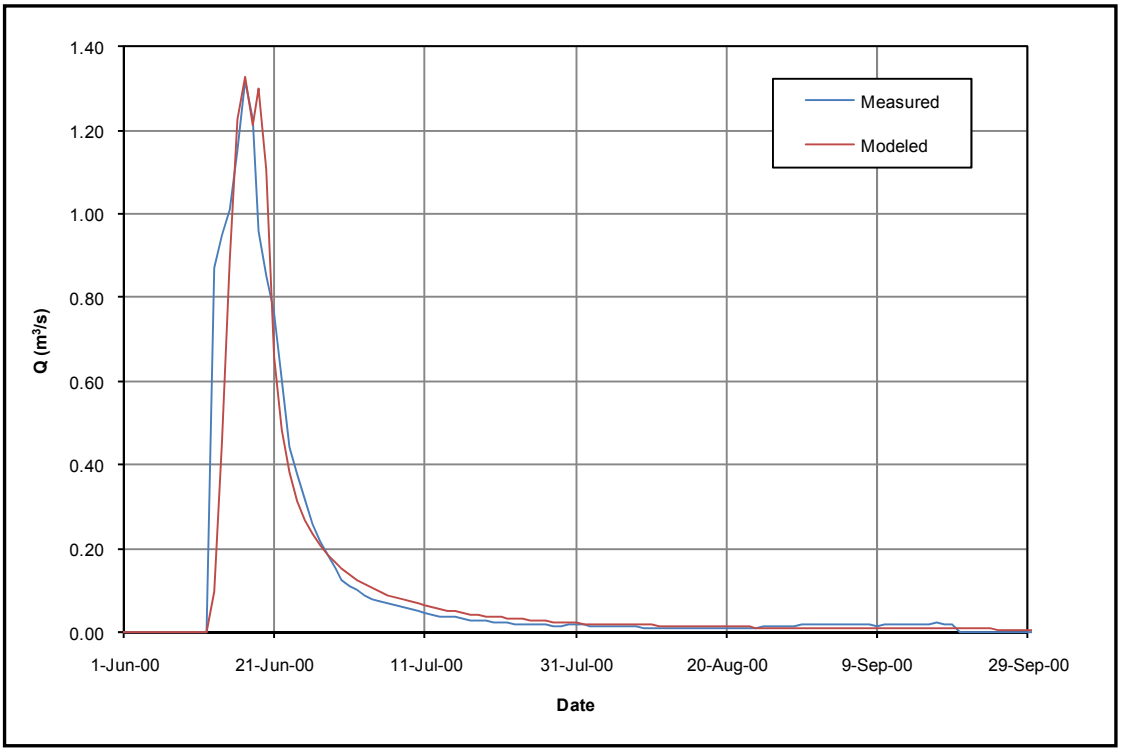


Figure A3-9 – Measured and Modeled Snowmelt Hydrographs at Lake A1, 2000

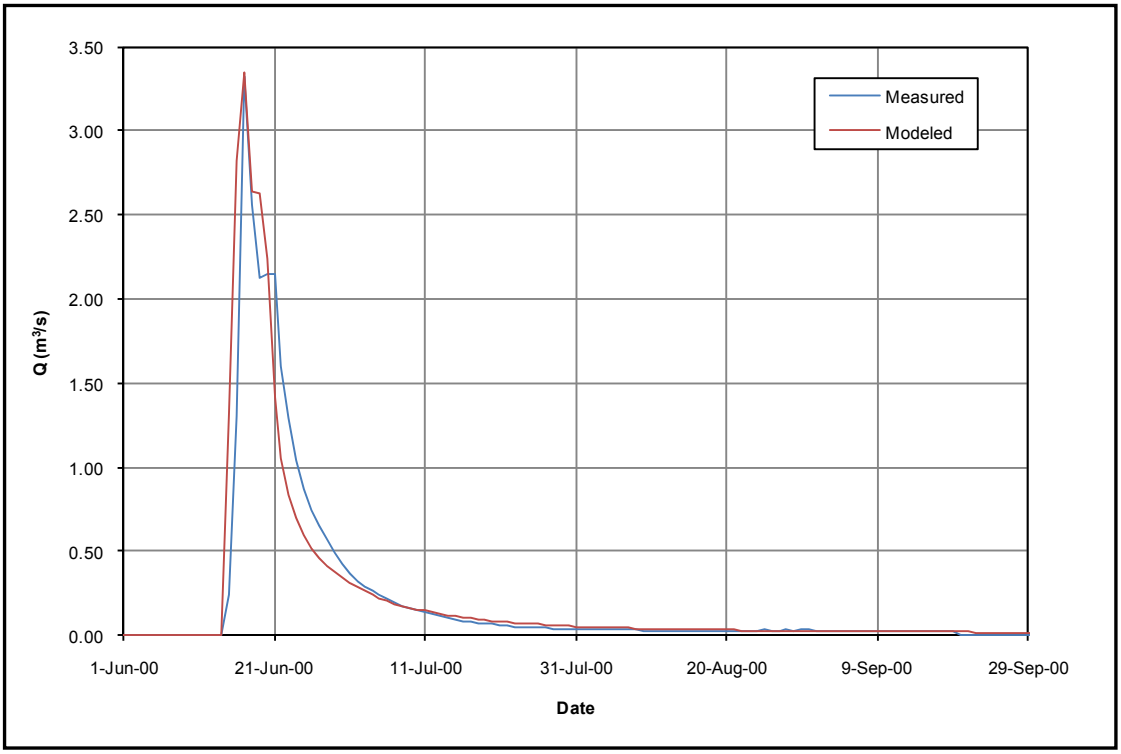


Figure A3-10 – Measured and Modeled Snowmelt Hydrographs at Lake B2, 2000

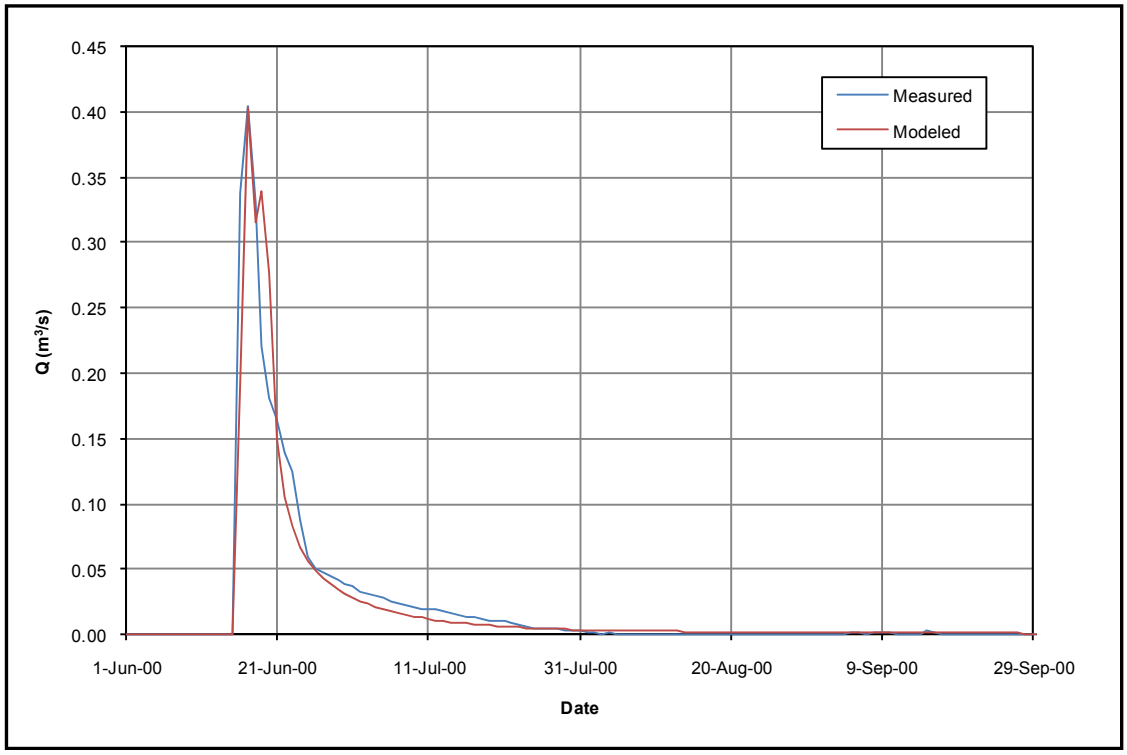


Figure A3-11 – Measured and Modeled Snowmelt Hydrographs at Lake B7, 2000

- The model assumes a uniform snow depth throughout all watersheds. This induces some uncertainty due to snow quantity variations for all watersheds. In actuality, the snowfall value that is measured by the climate station and used in the model may be different than the snow accumulated in individual watersheds, due to areal differences in snow redistribution. This results in an overestimated width of the modeled snow peak when the actual amount of snow in the watershed is smaller than that modeled, and an underestimated width when the actual amount of snow is greater than that modeled.
- Additional uncertainty may result from the lack of available data for upstream watersheds, to model Lakes A1 and B2. Snowmelt peaks of upstream watersheds affect the snowmelt peaks of downstream watersheds. This uncertainty is corrected during the calibration stage of snowmelt parameters that affect the timing and magnitude of snowmelt peaks as discussed above. Should additional data be available for upstream watersheds, these snowmelt parameters may have to be modified accordingly.
- The modeled hydrographs match the maximum measured discharge and reasonably represent the snow peak widths.

The parameters that define the snowmelt runoff are presented in Table A3-7. These parameters are thought to represent the conditions at the Project area and were used in the hydrological modeling to incorporate snowmelt runoff in the water balance for all watersheds.

Table A3-7: Derived Snowmelt Parameters

Parameter	Value
R_{cs}	0.7
M_f	1.5 mm/°C
T_b	-4.0°C

A3-3 MODEL CALIBRATION AND VALIDATION

A3-3.1 Model

The model described in Section 2 of this appendix includes calibrated sub-models for lake outlet melt, lake outlet freeze-up, and snowmelt, with consideration of watershed physical characteristics (land and lake areas; lake outlet stage-discharge rating curves). Additional calibration was required to define the runoff coefficient for rainfall. During a rain event, a portion of rainfall is lost to vegetation interception or soil infiltration, leading to evapotranspiration and evaporation, and does not contribute to the basin's runoff. The objective of the analysis is to provide a method to calibrate the model to account for these processes.

A3-3.2 Hydrometric and Meteorological Data

Hydrometric data were available at Lake A1, Lake B2, and Lake B7 from 1997 to 2000 and 2008 to 2009, and at Chicken Head Lake in 2009, including water levels and corresponding discharges for the open water season.

Spring snow water equivalent data were available from 1997 to 2000 and 2008 to 2009 from snow course surveys.

A meteorology station was operated at the Rankin Inlet airport from 1981 to 2009. Available data include daily minimum, maximum, and mean temperatures, rainfall runoff, and derived lake evaporation.

A3-3.3 Model Calibration and Validation

For best results, the model must be calibrated using a wet year of data with well defined snowmelt peaks. Hydrometric data from years 1997, 1998, 2008, and 2009 were not considered in the calibration due to late measurements, missing the snowmelt peaks (data were available at Lake B2 in 2009 but were insufficient to use the whole year for calibration). Year 2000 was a dry hydrological year and was also not considered in the calibration. Year 1999 was a wet year with good quality data, and was chosen for the calibration.

For best results, the model must also be validated using good quality data. These data must include snowmelt peaks and continuous measurements until the end of the hydrometric program. Hydrometric data from years 1997, 1998, 2008, and 2009 at Lake A1 and Lake B7 were not considered in the validation due to missing snowmelt peak data. Available data from year 2000 were chosen for validating the model. Additional validation was also performed using 2009 data at Lake B2 and incomplete 2009 data at Chicken Head Lake (snowmelt peak missing).

A3-3.3.1 Method

The water balance was set up using the configuration for each watershed as described in Figure A3-12. Due to lack of data, Lakes A1 and B2 were treated as headwater lakes assuming that their lake and land areas to be the sum of all upstream lakes and land respectively, from their outlet, while using their derived rating curves for the chosen year of data. The uncertainty corresponding to this assumption is addressed in the snowmelt section above.

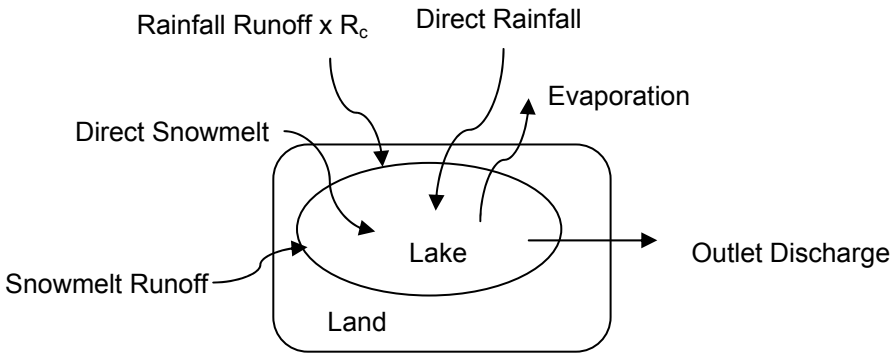


Figure A3-12 – Schematic of Water Balance Component

R_c is a runoff coefficient applied to rainfall runoff to account for evapotranspiration and evaporation that occurs in local storage. The snowmelt runoff and rainfall runoff were also modeled by using the recorded data at the Rankin Inlet climate station. The outlet discharges were modeled using applicable lake outlet rating curves (based on the 1999 monitoring program for Lake A1, Lake B2 and Lake B7, and on the 2009 monitoring program for Chicken Head Lake) and was run in conjunction to the outlet melt, outlet freeze-up and snowmelt runoff sub-models previously described. A detailed diagram of this process is described in Figure A3-2.

The calibration process was performed as follows:

- ***Calibration:*** The model was run, as shown in Figure A3-12 above, on a daily time step for 1999 at Lake A1, Lake B2, and Lake B7. Lake A1 and Lake B2 were modeled as headwater lakes as discussed in preceding sections, similar to Lake B7, and were set up without inflow from upstream lakes. The runoff coefficient was calibrated using a trial and error method with an initial value of 1 and was reduced in increments of 0.05 accordingly. The modeled outlet discharges and water levels were plotted along with the measured data for comparison, and the runoff coefficient was adjusted to best match modeled and measured hydrographs.
- ***Validation:*** The model was tested using input parameters from year 2000 (rainfall and snowfall as reported from the Rankin Inlet airport), the calibrated parameters found during the calibration stage, and 1999 lake outlet stage-discharge rating curves. The resulting hydrographs for Lake A1, Lake B2 and Lake B7 were plotted along with the measured hydrometric data for the same year for comparison.
- ***Additional Validation:*** The model was tested using input parameters from year 2009, calibrated parameters, the 1999 lake outlet stage-discharge rating curves for Lake B2, and the 2009 lake outlet stage-

discharge rating curve for Chicken Head Lake. Resulting hydrographs for Lake B2 and Chicken Head Lake were plotted along with the measured hydrometric data for comparison.

A3-3.4 Results and Discussion

All years were analyzed using common parameters. Model results were plotted against the measured data for comparison. Calibration results are presented in graphical form in Figures A3-13 to A3-15 below. Validation results are presented in Figures A3-16 to A3-18 and additional validation in Figure A3-19 and A3-20.

Calibration:

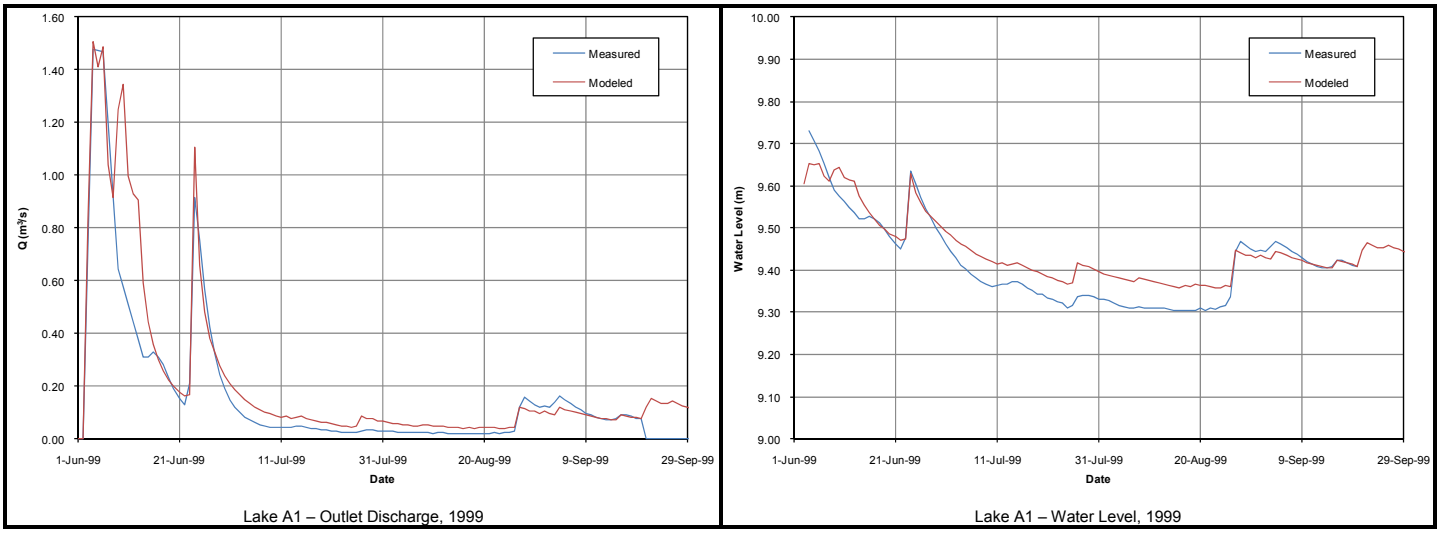


Figure A3-13 – Water Balance Model Calibration Results: Lake A1, 1999

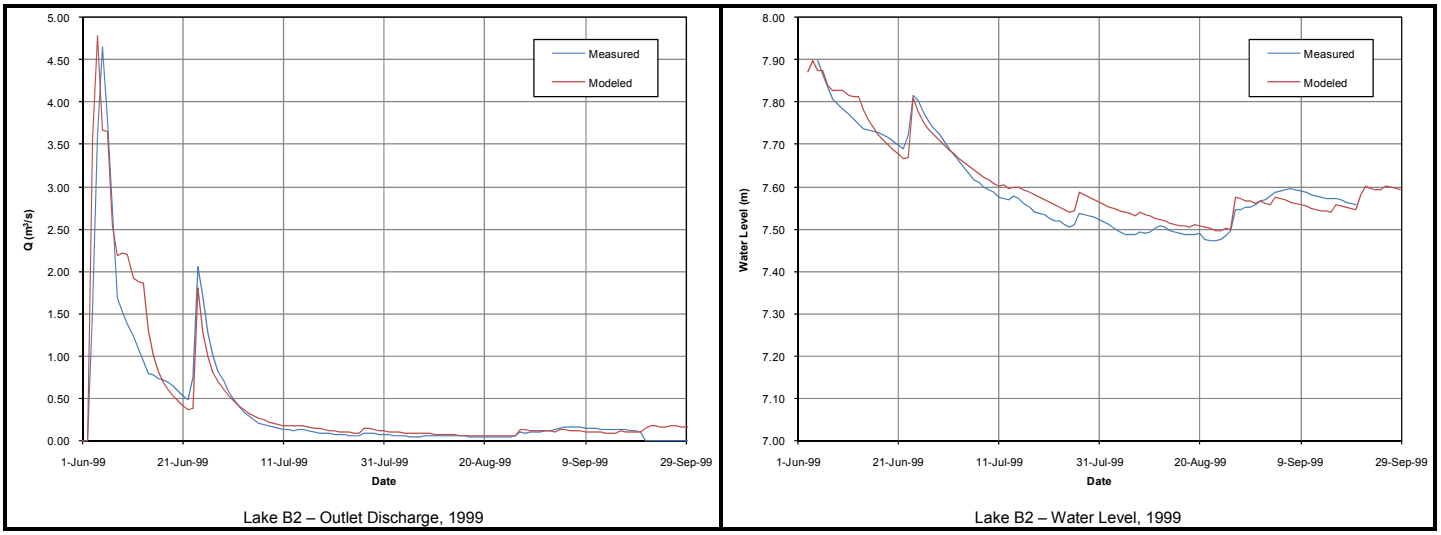


Figure A3-14 – Water Balance Model Calibration Results: Lake B2, 1999

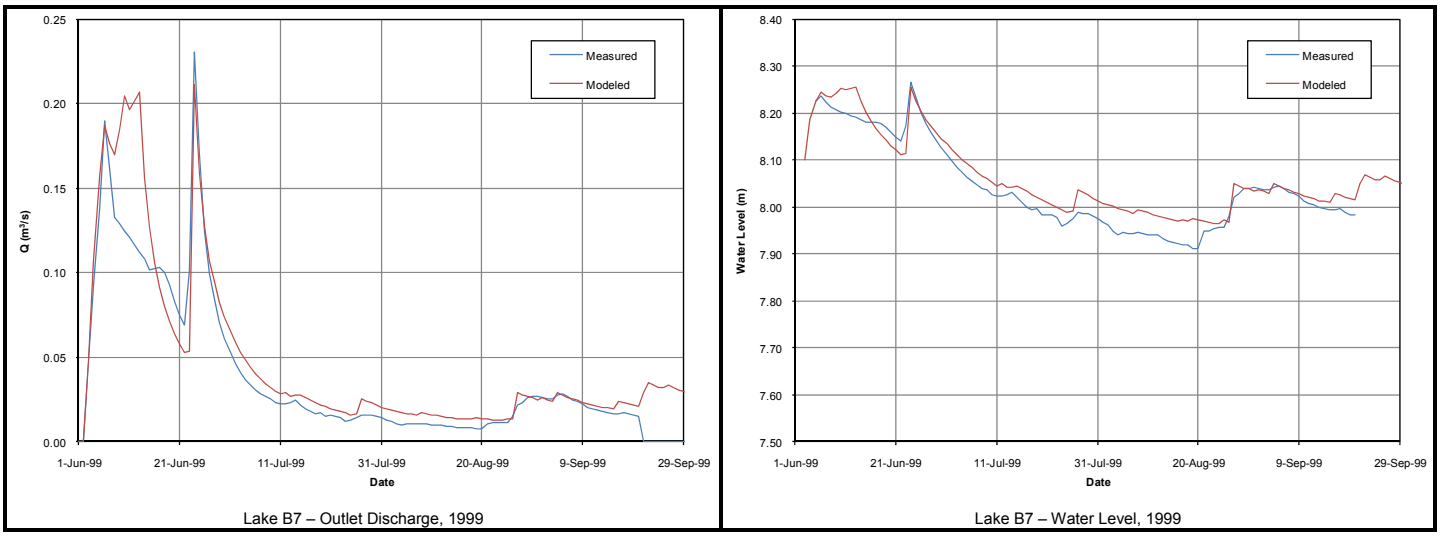


Figure A3-15 – Water Balance Model Calibration Results: Lake B7, 1999

Validation:

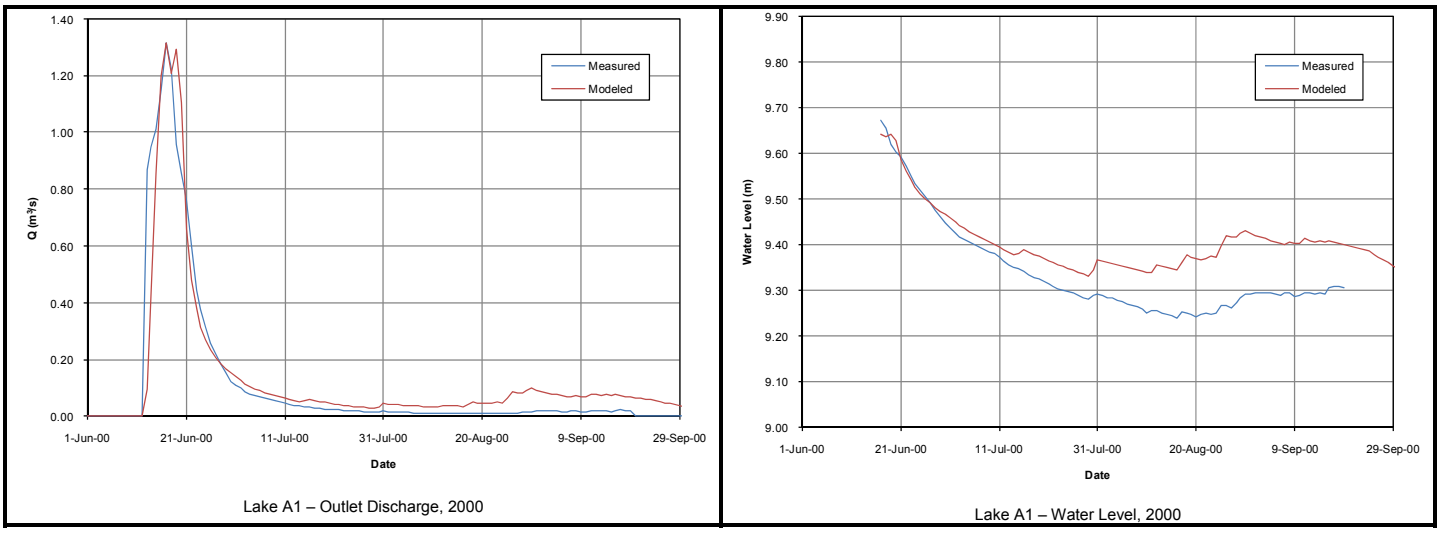


Figure A3-16 – Water Balance Model Validation Results: Lake A1, 2000

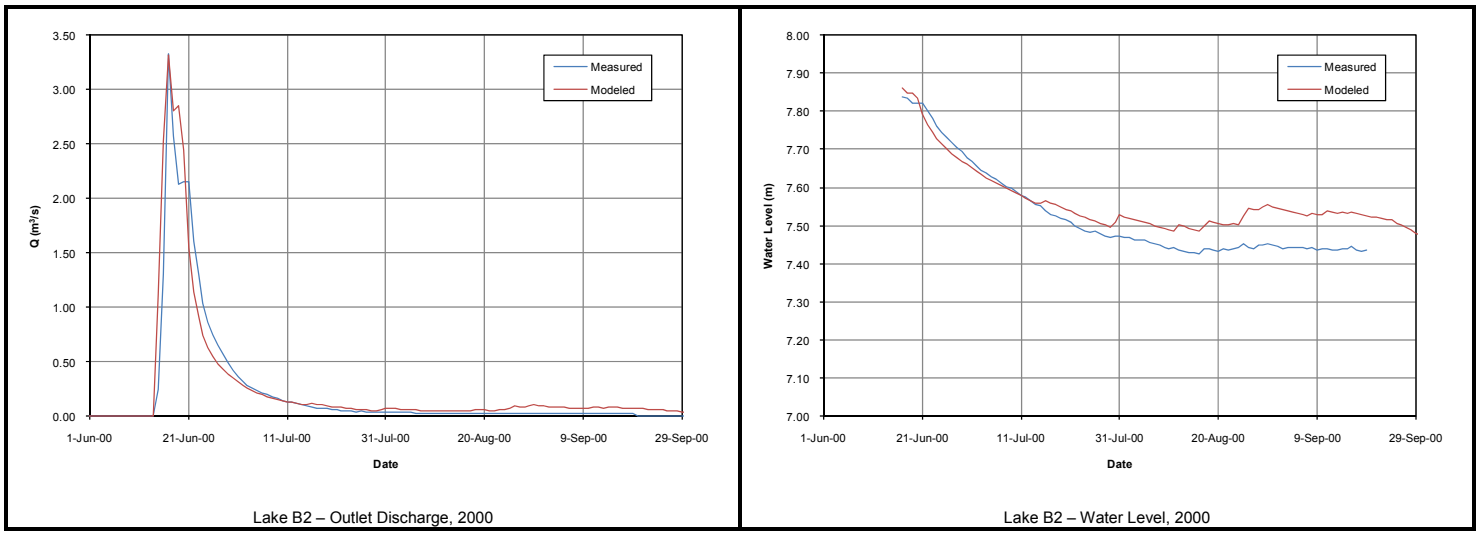


Figure A3-17 – Water Balance Model Validation Results: Lake B2, 2000

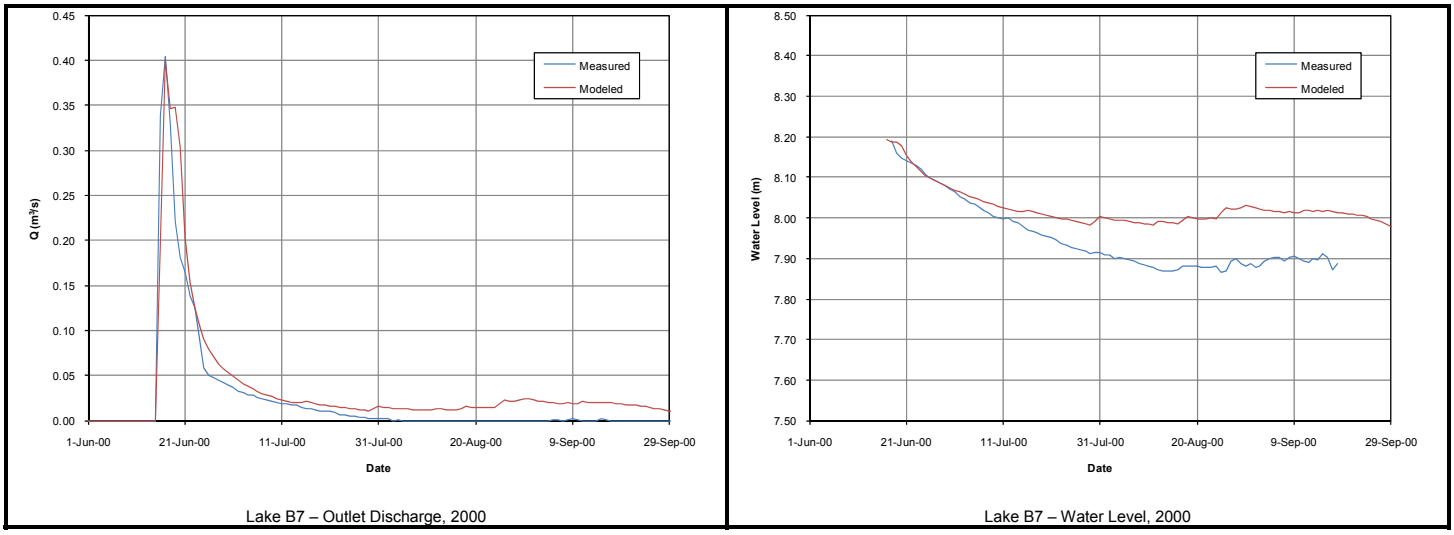
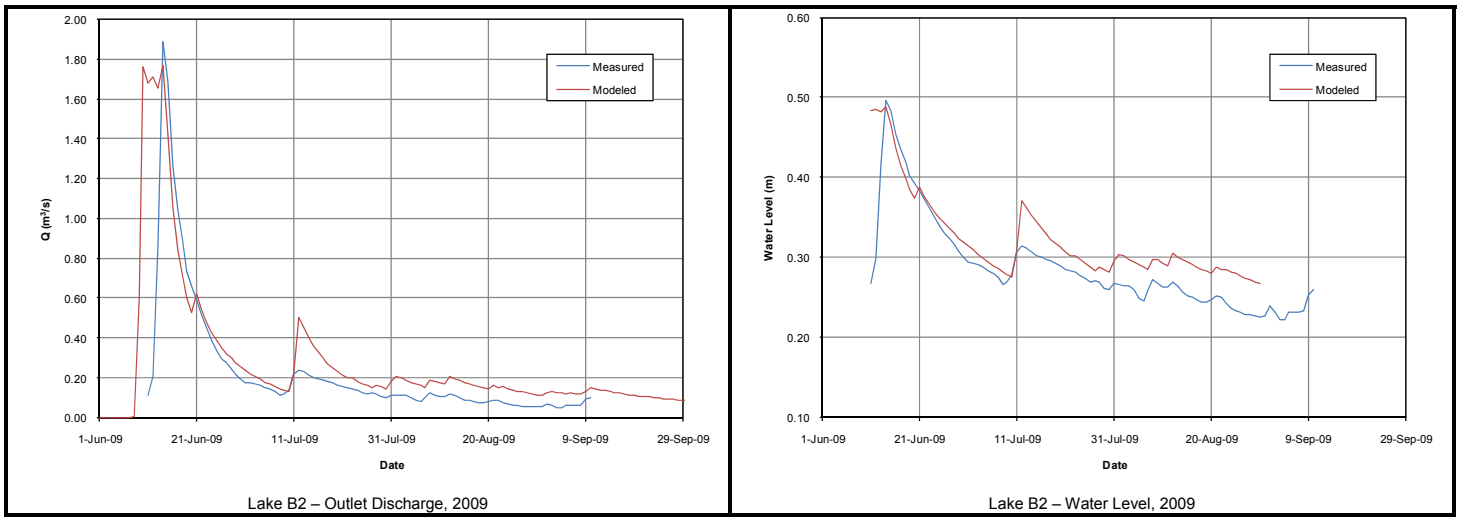


Figure A3-18 – Water Balance Model Validation Results: Lake B7, 2000

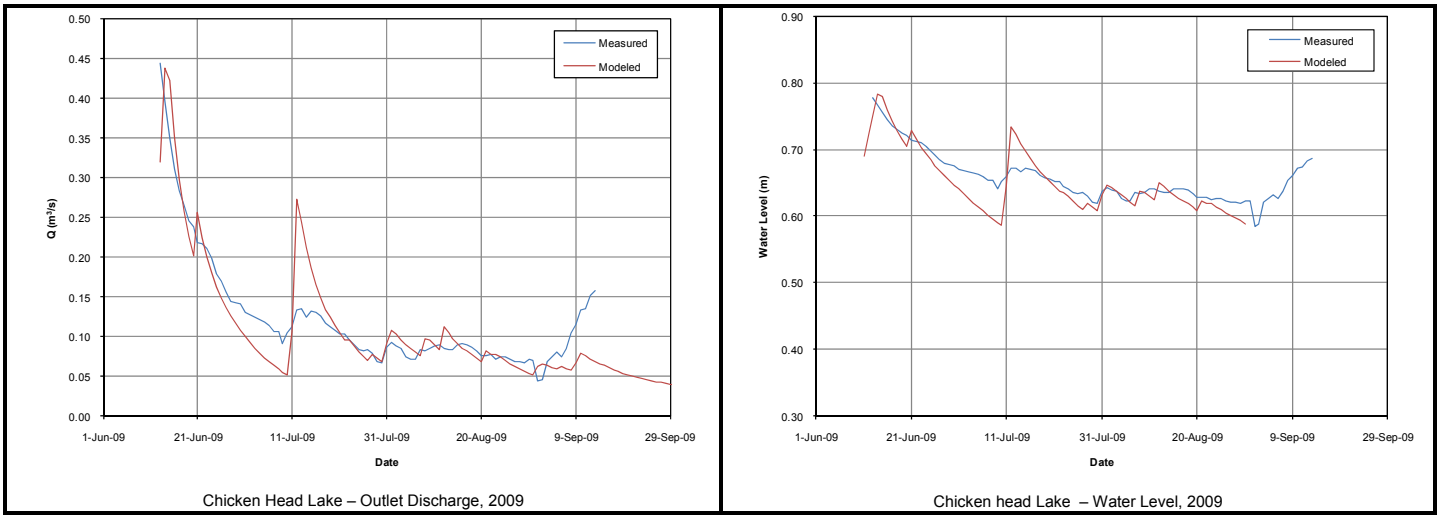
Additional Validation:



Lake B2 – Outlet Discharge, 2009

Lake B2 – Water Level, 2009

Figure A3-19 – Water Balance Model Validation Results: Lake B2, 2009



Chicken Head Lake – Outlet Discharge, 2009

Chicken head Lake – Water Level, 2009

Figure A3-20 – Water Balance Model Validation Results: Chicken Head Lake, 2009

Comments on the calibration include the following:

- During the calibration stage, it was noticed that the chosen runoff coefficient worked well for the substantial rainfall event that happened on 23 June 1999 and overestimated the results after any subsequent event, at all stations. Modeling of years 2000 and 1999 revealed that using the same runoff coefficient would also overestimate the results for any rainfall event occurring later than June. It is thought that ground conditions in June and earlier may differ from later ground conditions, affecting the runoff conveyance. Ground surface could still be partially frozen in June and convey rainfall runoff more efficiently, hence, reducing losses that could occur later in the summer, due to storage and subsequent evapotranspiration. The runoff coefficient, therefore was split on a degree-day basis (based on the first day of discrepancies on the plots in 1999) between the first part of the runoff season, when the ground could potentially be frozen, and the rest of the season, keeping the original coefficient for the first part and a reduced coefficient for the remaining part of the season. The later coefficient was calibrated using a trial-and-error method and modifying it accordingly.
- Hydrographs were well matched in 1999 despite a reoccurring error at all lakes. Disagreement between measured and modeled results occurs slightly after the measured snow peak, accentuated at Lake A1 and Lake B7 in 1999. This error is thought to originate from the modeled snowmelt runoff. The model assumes a uniform snow water equivalent for all watersheds. In actuality, the snowfall value that is measured by the climate station and used in the model may be different than the snow accumulated in individual watersheds, due to areal differences in precipitation distribution. Despite this discrepancy, the peaks were accurately estimated at all lakes.

Comments on the validation include the following:

- Hydrographs were well matched in 2000. A discrepancy can be noticed at all stations towards the end of the runoff season. The model reacts to all rainfall events, while these did not seem to appear in measured data. It is possible that the recorded rainfall at Rankin Inlet was not entirely present at the Project area, due to areal differences as previously explained; therefore, it is thought that the model can accurately represent the conditions at Lake A1, Lake B2, and Lake B7, based on available data.

Comments on the additional validation include the following:

- Lake B2 was the only reliable dataset with snowmelt peak data in 2009 allowing for validation. The measured data appear to be well modeled despite a discrepancy in snowmelt peak width, possibly attributed to differences in actual snow between Rankin Inlet and the watershed as explained previously. The outlet opening date appears to be accurate, by extrapolation of the measured data. This reinforces the confidence in the model, based on available data.
- While the measured data at Chicken Head Lake were incomplete, the model results were compared to the available data for additional validation. Due to lack of data, it is not possible to confirm whether the modeled peak and the outlet opening date parameter are accurate. The model results seem to fit well to the available data. The model seems to overestimate the outlet discharge in July during a recorded rainfall event at Rankin Inlet. Subsequent rainfall events seem to be modeled accurately, and it is thought that only a portion of the recorded event in July occurred around the Project area, as a similar error was modeled at Lake B2 in Table A3-14. Therefore, it is thought that the model can accurately represent the conditions at Chicken Head Lake, based on the available data.

The calibrated parameters used in the final model to generate hydrological statistics based on calibration and validation are presented in Table A3-9 below.

Table A3-9: Calibration Parameters Used in Water Balance Model

Parameter		Station				Units / Notes
		Lake A1	Lake B2	Lake B7	Chicken Head Lake	
Outlet Opening (0)	Dry Year	6.6	11.9	15.2	6.6	°C•d
	Wet Year	4.6	4.6	4.6	4.6	°C•d
Outlet Opening (1)	Dry Year	21.7	21.7	21.7	21.7	°C•d
	Wet Year	19.7	14.4	11.1	19.7	°C•d
Outlet Freeze-Up (1)		-1.4	-1.4	-1.4	-1.4	°C•d
Outlet Freeze-Up (0)		-76.5	-76.5	-76.5	-76.5	°C•d
Rating Curve		1999	1999	1999	2009	Based on field data
Tb		-4.0	-4.0	-4.0	-4.0	°C/d
Mf		1.5	1.5	1.5	1.5	mm/°C
Sc		0.7	0.7	0.7	0.7	-
Rc before 135 °C•d		0.7	0.7	0.7	0.7	-
Rc after 135 °C•d		0.3	0.3	0.3	0.3	-

A4-1 INTRODUCTION

Appendix A4 provides a compilation of all hydrometric field data collected during the 2009 field program along with analysis results.

A4-2 METHODS

A4-2.1 Snow Course Survey

The water equivalent of a snowpack (the equivalent depth of water if the snowpack is melted) is the product of snow depth and snow density. Snow course surveys to determine the late spring snow water equivalent (SWE) in the peninsula basins A1, B2, and B7 were conducted between 23 and 26 April 2009.

Transect and Plot locations

Five transects were located and surveyed for snow depth, as shown on Figure A4-1. Two of these transects followed the same path as the 1997 snow course surveys and were located in the B7 basin (Transect T1) and the upper part of the A1 basin (Transect T2). Transect T3 followed a 2000 snow course survey path. Transect T4 is located in the middle part of the B2 basin, and Transect T5 is located in the middle part of the A1 basin and partially in the J1 basin.

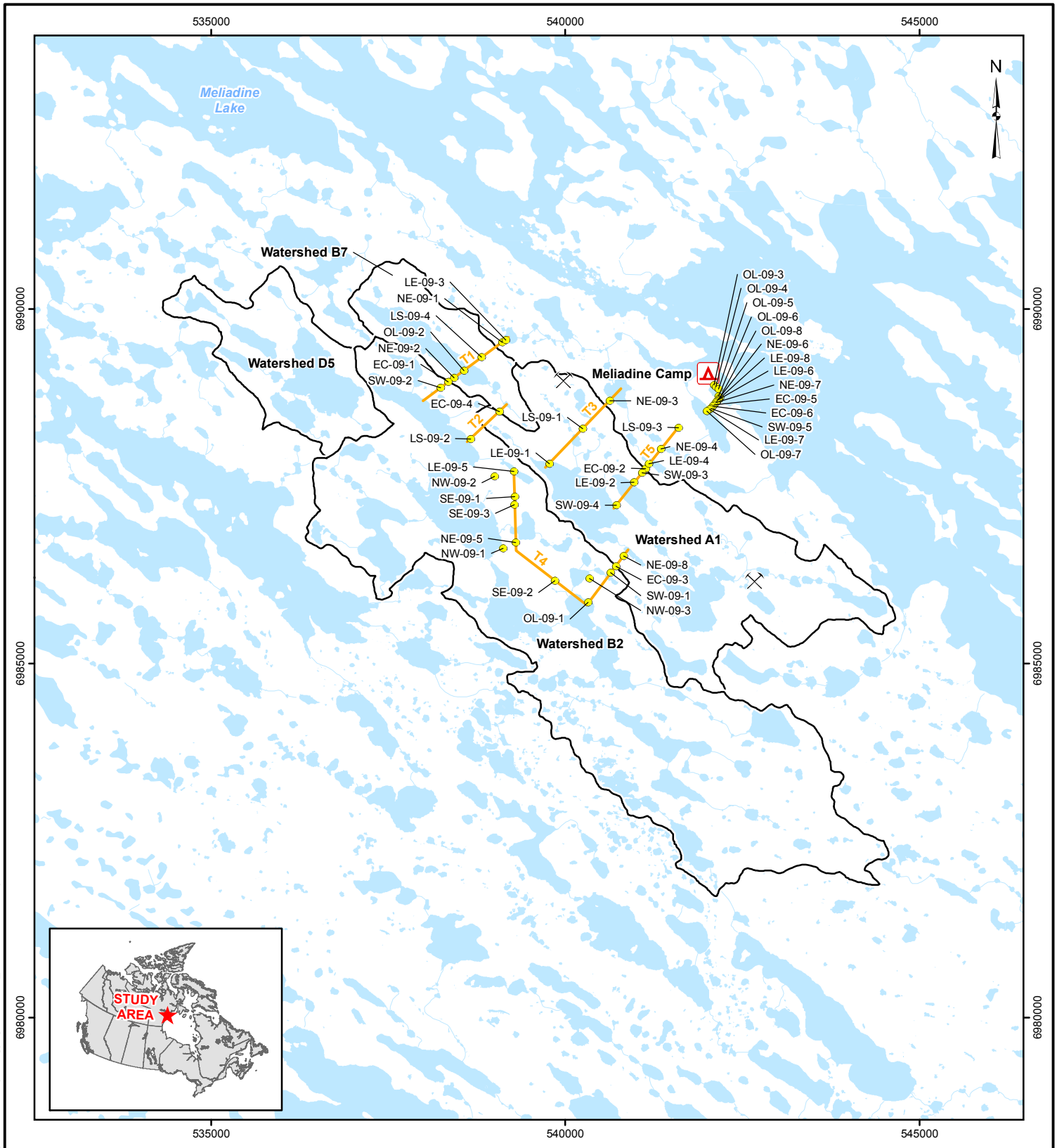
A series of supplemental plots were chosen in the peninsula area to gather more snow depth and density data for all terrain units and to better identify differences in snow accumulation among terrain types. All plots were considered in determining the mean SWE values.

Snow Depth Measurement

Along each transect, snow depth was measured every 10 m. At each plot, 30 depth measurements were taken at randomly selected locations within a large circle, approximately 10 m in radius. These depth measurements were taken by inserting a metal stick into the snowpack and reading the snowline mark.

Snow Density Measurement

Three density measurements were recorded at each plot, using a snow density sampler. The sampler was carefully inserted to avoid compacting the snowpack. The snow depth was read on the tube, when the corer reached the soil surface. The corer was then inserted/twisted deeply into the ground to ensure that a plug of soil was extracted with the sampler to prevent granular snow from falling out. After extracting the sampler and carefully removing the soil plug, the sampler weight was measured, with and without the snow core, to allow the weight of the snow and snow water equivalent to be calculated.



LEGEND

- Camp
- Proposed Mine Site
- Snow Course Survey Plot Location
- Snow Course Survey Transect
- Watercourse
- Waterbody
- Watershed

1.5 0 1.5

SCALE 1:75,000 KILOMETRES

REFERENCE

Base data obtained from Comaplex Minerals Corporation. Snow course survey data obtained from field survey.

Projection: UTM Zone 15 Datum: NAD 83

DRAFT

PROJECT

COMAPLEX MINERALS CORP

COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE

SNOW COURSE SURVEY LOCATIONS 23-26 APRIL 2009

Golder Associates
Edmonton, Alberta

PROJECT NO. 09-1373-0010			PHASE No. 5000	
DESIGN	DC	02 Nov. 2009	SCALE AS SHOWN	REV. 0
GIS	CDB	02 Nov. 2009		
CHECK	NPS	17 Nov. 2009		
REVIEW	GA	25 Nov. 2009		

FIGURE A4-1

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A4-2.2 Rainfall

Rainfall at the Meliadine West Camp station was recorded using a tipping bucket rain gauge, and the rainfall data were used to derive total daily and monthly rainfall at the camp for the period of 10 June to 15 September 2009. The location of the rain gauge is shown on Figure A4-2.

A4-2.3 Hydrometry

Continuous and discrete measurement hydrometric stations were established on 10 June 2009.

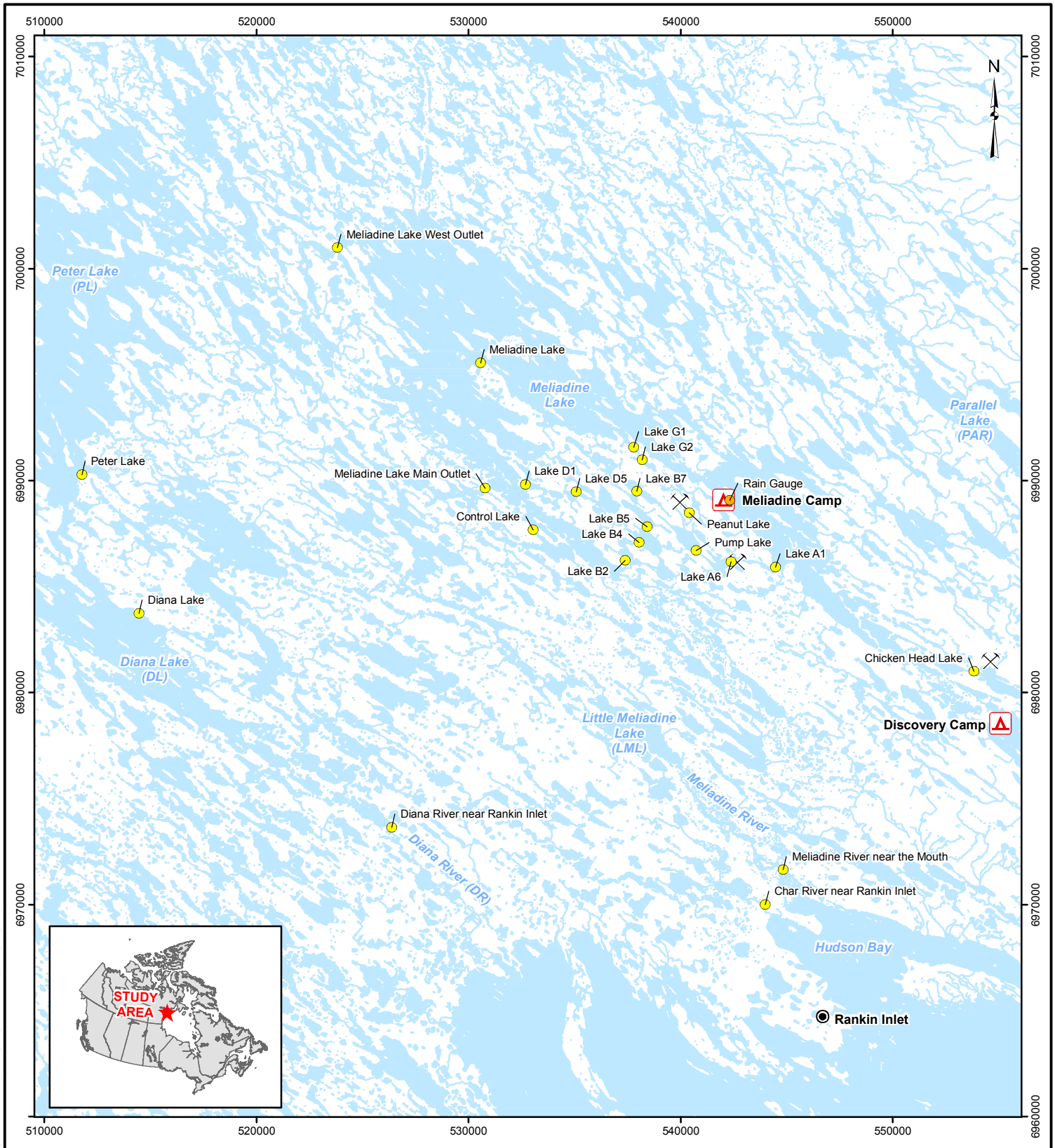
Continuous measurement stations were set up at Lake A1 and Outlet, Lake B2 and Outlet, Lake B7 and Outlet, Lake D1 and Outlet, and Chickenhead Lake and Outlet to develop stage-discharge relationships for the open water season, and Meliadine Lake to monitor lake water level variations. These stations were equipped with pressure transducers connected to data loggers and recorded water depths on a 15-minute interval. Manual discharge and water level measurements were also collected at these stations during each visit.

Opportunistic discharge measurements were also performed at Meliadine Lake West Outlet (Diana River), Meliadine Lake Main Outlet (Meliadine River), Meliadine River near the Mouth, Lake A8, Lake A54, Lake G1 and Lake G2 to provide additional data on discharges and water levels. Discharge and water level measurements were performed at these locations and tied to a local benchmark during each visit.

Hydrographs of Lake A1 and Outlet, Lake B2 and Outlet, Lake B7 and Outlet, Lake D1 and Outlet, Chickenhead Lake and Outlet, and Meliadine Lake were derived using the following methods:

- a Keller Acculevel Submersible Level Transmitter solid-state pressure transducer and Optimum Instruments DD-520 data logger were installed at each hydrometric station. Each data logger was programmed to record water pressure measurements at 15-minute intervals. Each station was referenced to an elevation benchmark;
- the transducers were installed as early as possible in the snowmelt period, as permitted by ice conditions and site access;
- the water surface elevations were surveyed from the permanent benchmark, and the pressure transducer readings were recorded during selected data logger downloads;
- the stream discharge measurements were performed (if applicable) according to the Water Survey of Canada standard described by Terzl et al. (1994) during the first and subsequent visits to stations with flowing water. The data loggers at each station were downloaded at the same time, and pressure transducer readings coincident with each discharge measurement were noted;
- the pressure transducers and data loggers were removed during the last visit; and

  the record of water surface elevations versus discharge was used to establish a stage-discharge rating curve for each station, when all data were available for flowing water stations. This rating curve was then applied to the continuous record of water surface elevations, as measured by the pressure transducer and recorded by the data logger at each station, to derive a continuous record of discharges. For some stations, limited stage-discharge data are available, and continuous discharges could not be derived.



LEGEND

- Camp
- Hydrometric Station
- Rain Gauge
- Proposed Mine Site
- Watercourse
- Waterbody

REFERENCE

Base data obtained from Comaplex Minerals Corporation. Hydrometric data obtained from field survey.
Projection: UTM Zone 15 Datum: NAD 83

DRAFT

PROJECT

COMAPLEX MINERALS CORP

COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE

RAIN GAUGE AND HYDROMETRIC STATION LOCATIONS

Golder Associates
Edmonton, Alberta

PROJECT NO. 09-1373-0010			PHASE No. 5000	
DESIGN	JL	27 Oct. 2009	SCALE AS SHOWN	REV. 0
GIS	CDB	27 Oct. 2009		
CHECK	NPS	17 Nov. 2009		
REVIEW	GA	25 Nov. 2009		

FIGURE A4-2

N:\Bur-Graphics\Projects\2007\1373\07-1373-0055\Mapping\MXD\2009\Hydrology\figure-a04-02_rain-gauge-hydrometric-stations.mxd

Discharge measurements were collected at all stations in a similar manner, except at the Meliadine River near the Mouth on the second visit. Velocity and depth measurements, used to calculate discharge, were collected using a Marsh McBirney Model Flo-Mate 2000 velocity meter and top-setting wading rod. During the second visit, at the Meliadine River near the Mouth, velocity, discharge, and cross-sectional data were collected using an RD Instruments Workhorse Rio Grande Acoustic Doppler Current Profiler (ADCP).

Manual water level measurements were collected using a rod and level, tied to a local benchmark.

A4-3 SNOW COURSE SURVEY RESULTS

Snow surveys to determine the late spring snow water equivalent (SWE) in the peninsula basins A1, B2, and B7 were conducted between 23 and 26 April 2009.

Terrain type classification was defined by AMEC (2000), and the distribution of each terrain type is shown on Figure A4-3. For watersheds A1, B2, B7, and D5, the area for each terrain type was calculated, and these are presented in Table A4-1.

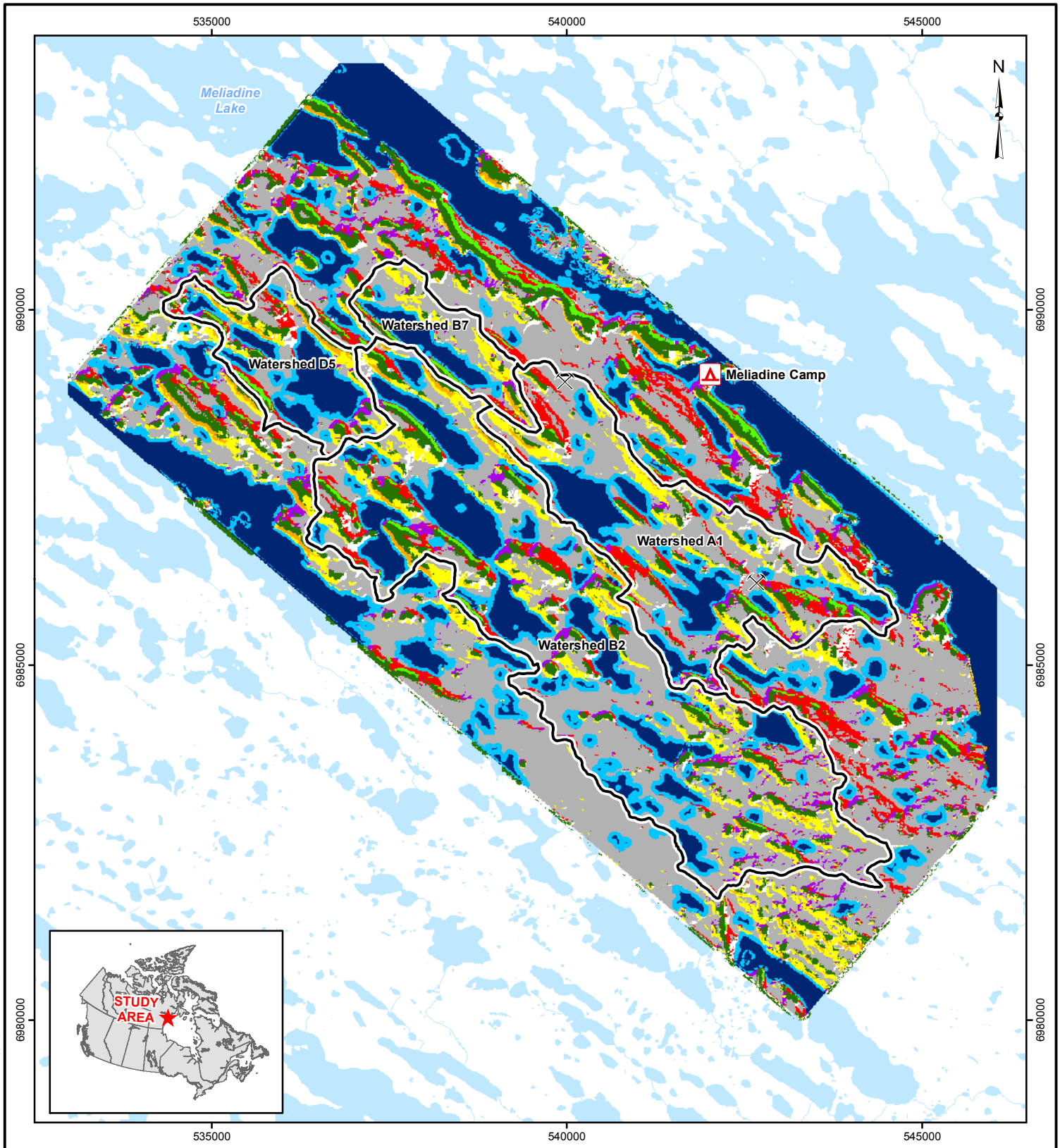
Table A4-1: Terrain Type Distributions for Basins B7, B2, A1 and D5

Terrain Type	BASIN B7		BASIN B2		BASIN A1		BASIN D5	
	Area (km^2)	Percent	Area (km^2)	Percent	Area (km^2)	Percent	Area (km^2)	Percent
Crest	0.44	18.4%	3.74	16.7%	1.40	14.9%	0.90	24.4%
Lake	0.29	12.0%	3.40	15.2%	1.41	15.0%	0.68	18.5%
Lake Edges	0.30	12.6%	2.33	10.5%	0.89	9.5%	0.48	13.0%
Low Slopes	0.76	31.9%	7.81	35.0%	3.31	35.3%	0.69	18.7%
NE Slopes (>8.5%)	0.09	3.8%	0.95	4.2%	0.79	8.4%	0.24	6.5%
NE Slopes (3-8.5%)	0.06	2.5%	0.32	1.4%	0.16	1.7%	0.08	2.1%
NW Slopes (>3%)	0.34	14.3%	2.23	10.0%	0.90	9.5%	0.33	9.0%
SE Slopes (>3%)	0.03	1.4%	0.31	1.4%	0.09	0.9%	0.11	3.0%
SW Slopes (>8.5%)	0.05	2.0%	0.72	3.2%	0.20	2.1%	0.09	2.4%
SW Slopes (3-8.5%)	0.02	1.0%	0.51	2.3%	0.24	2.6%	0.09	2.4%
Total Area	**2.39**	**100%**	**22.32**	**100%**	**9.39**	**100%**	**3.68**	**100%**

Wind redistributes snowfall over the course of a winter, and in general, exposed surfaces, such as open lake areas, collect less snow than sheltered lowland areas. Similarly, prevailing winds redistribute snow unequally across slopes of differing aspect. These effects may result in significant snow accumulation differences between terrain types.

Snow depths and densities were measured at 45 plots over 10 terrain types during the snow course survey. Table A4-2 presents, by terrain type, the snowpack measurement data collected in April 2009.

For each terrain type, a mean SWE value was calculated and used to derive the SWE for each watershed based on the proportion of that terrain type over the entire watershed. The results are presented in the Table A4-3.



LEGEND

- Camp
- Proposed Mine Site
- Watercourse
- Waterbody
- Watershed

Terrain Types

- 1 Lake
- 2 Lake Edges
- 3 Crest
- 4 Low Slopes
- 5 NE Slopes (3 - 8.5%)
- 6 NE Slopes (> 8.5%)
- 7 SW Slopes (3 - 8.5%)
- 8 SW Slopes (> 8.5%)
- 9 NW Slopes (> 3%)
- 10 SE Slopes (> 3%)

DRAFT

SCALE 1:75,000

1.5 0 1.5 KILOMETRES

REFERENCE

Base data obtained from Comaplex Minerals Corporation. Terrain Types and Watershed delineation and definition from AGRA 1998 Data Report (AEE 1998).
Projection: UTM Zone 15 Datum: NAD 83

PROJECT

COMAPLEX MINERALS CORP

COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE

DISTRIBUTION OF TERRAIN TYPES AT THE MELIADINE GOLD PROJECT

Golder Associates
Edmonton, Alberta

PROJECT NO. 09-1373-0010			PHASE No. 5000	
DESIGN	DC	02 Nov. 2009	SCALE AS SHOWN	REV. 0
GIS	CDB	02 Nov. 2009		
CHECK	NPS	17 Nov. 2009		
REVIEW	GA	25 Nov. 2009		

FIGURE A4-3

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Table A4-2: 2009 Snow Course Survey Data for Meliadine Gold Project, 23-26 April 2009

Terrain Type	Survey Plot Number	Snow Density (g/cm^3)	Snow Depth (cm)	Snow Water Equivalent (mm)
Crest	EC-09-1	0.265	19.2	50.8
	EC-09-2	0.248	32.3	80.3
	EC-09-3	0.298	17.9	53.3
	EC-09-4	0.181	17.0	30.7
	EC-09-5	0.280	11.3	31.6
	EC-09-6	0.307	23.0	70.6
	2009 Mean Value	**0.263**	**20.1**	**52.9**
Lake	OL-09-1	0.319	16.7	53.3
	OL-09-2	0.272	17.2	46.8
	OL-09-3	0.311	16.8	52.4
	OL-09-4	0.192	11.7	22.4
	OL-09-5	0.247	12.0	29.6
	OL-09-6	0.252	14.6	36.8
	OL-09-7	0.259	12.2	31.6
	OL-09-8	0.256	23.4	60.0
	2009 Mean Value	**0.263**	**15.6**	**41.6**
Lake Edges	LE-09-1	0.266	26.0	69.3
	LE-09-2	0.238	42.9	102.1
	LE-09-3	0.275	29.2	80.3
	LE-09-4	0.289	67.7	195.7
	LE-09-5	0.322	27.7	89.2
	LE-09-6	0.253	53.9	136.3
	LE-09-7	0.227	54.0	122.4
	LE-09-8	0.286	59.7	170.6
	2009 Mean Value	**0.269**	**45.1**	**120.7**
Low Slopes	LS-09-1	0.192	28.8	55.3
	LS-09-2	0.205	27.9	57.1
	LS-09-3	0.193	26.1	50.5
	LS-09-4	0.226	25.5	57.7
	2009 Mean Value	**0.204**	**27.1**	**55.2**
NE Slopes (>8.5%)	NE-09-2	0.224	18.0	40.2
	NE-09-3	0.166	26.3	43.7
	NE-09-4	0.304	20.7	63.0
	NE-09-5	0.232	17.0	39.3
	NE-09-6	0.223	23.2	51.7
	NE-09-7	0.154	13.1	20.2
	2009 Mean Value	**0.217**	**19.7**	**43.0**
NE Slopes (3-8.5%)	NE-09-1	0.221	18.1	40.0
	NE-09-8	0.274	25.5	70.1

Table A4-2: 2009 Snow Course Survey Data for Meliadine Gold Project, 23-26 April 2009 (continued)

Terrain Type	Survey Plot Number	Snow Density (g/cm^3)	Snow Depth (cm)	Snow Water Equivalent (mm)
	2009 Mean Value	**0.248**	**21.8**	**55.1**
NW Slopes (>3%)	NW-09-1	0.274	49.1	134.3
	NW-09-2	0.246	31.2	76.8
	NW-09-3	0.308	93.2	286.9
	2009 Mean Value	**0.276**	**57.8**	**166.0**
SE Slopes (>3%)	SE-09-1	0.281	64.6	181.9
	SE-09-2	0.276	46.8	129.0
	SE-09-3	0.303	38.9	118.0
	2009 Mean Value	**0.287**	**50.1**	**143.0**
SW Slopes (>8.5%)	SW-09-1	0.251	35.7	89.6
	SW-09-2	0.249	33.9	84.5
	SW-09-3	0.263	39.1	102.9
	SW-09-5	0.273	49.2	134.2
	2009 Mean Value	**0.259**	**39.5**	**102.8**
SW Slopes (3-8.5%)	SW-09-4	0.236	59.8	141.1
	2009 Mean Value	**0.236**	**59.8**	**141.1**

Table A4-3: Mean Snow Water Equivalent (SWE) Values by Terrain Type

Terrain Type	Mean SWE (mm)	SWE (mm) Weighted by Terrain Type Proportion			
		BASIN B7	BASIN B2	BASIN A1	BASIN D5
Crest	52.9	6.7	5.5	5.0	6.9
Lake	41.6	7.7	7.0	6.2	10.1
Lake Edges	120.7	14.5	18.4	18.1	22.3
Low Slopes	55.2	17.6	19.3	19.4	10.3
NE Slopes (>8.5%)	43.0	1.1	0.6	0.8	0.9
NE Slopes (3-8.5%)	55.1	2.1	2.3	4.6	3.6
NW Slopes (>3%)	166.0	3.3	5.3	3.5	4.0
SE Slopes (>3%)	143.0	1.4	3.3	3.7	3.5
SW Slopes (>8.5%)	102.8	1.4	1.4	0.9	3.1
SW Slopes (3-8.5%)	141.1	20.2	14.1	13.5	12.7
	Total	**75.9**	**77.3**	**75.8**	**77.4**

LAKE A1 AND OUTLET HYDROMETRIC STATION

A 1

FACTSHEET

LOCATION AND DETAILS

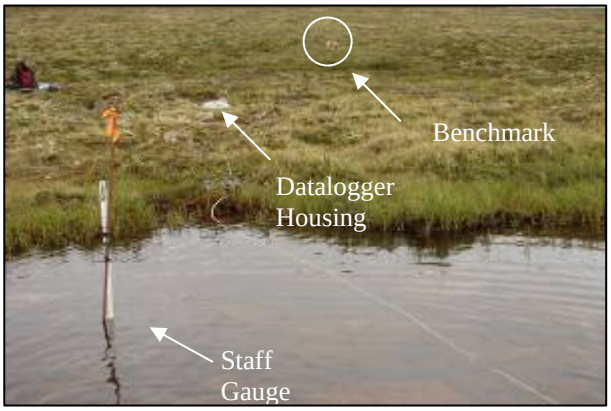
Located approximately 4 kilometres southeast of Meliadine West Camp.

Operational:	1997 11/6-25/9	1998 5/6-23/9	1999 14/6-20/9	2000 13/6-19/9	2008 15/6-16/9	2009 11/6–10/9

Benchmark:	Bolt on boulder; 100.304 m (non-geodetic)	Drainage Area:	9.39 km^2
Coordinates:	UTM: 544479 m E, 6985918 m N (NAD83, Zn15)	Lat/Long:	63°00’00” N, 92°07’18” W
Transducer:	Keller Acculevel Submersible Level Transducer	Datalogger:	Optimum Instruments DD-520



View of Lake A1 from hydrometric station.



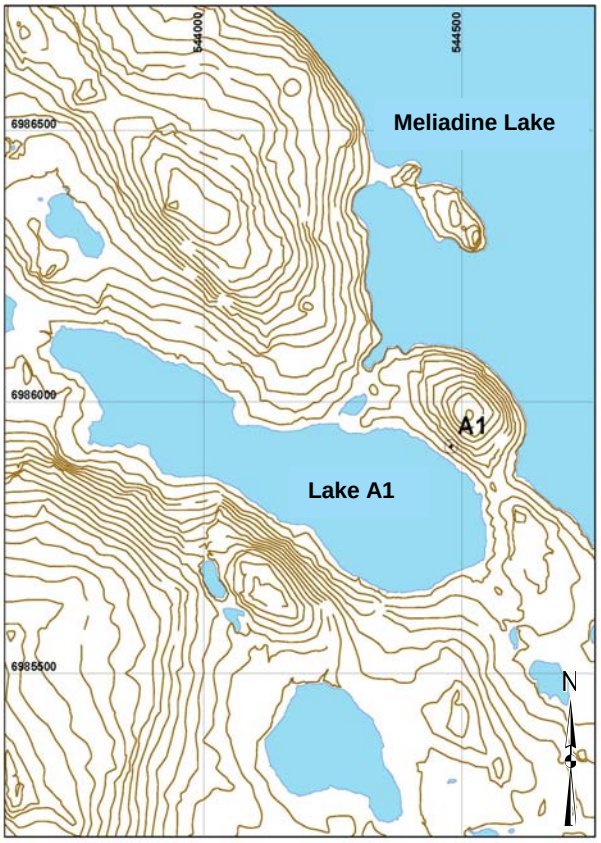
Hydrometric station from Lake A1.



View of Lake A1 from outlet.



Downstream view of Lake A1 Outlet.



NTS Mapping of Area.

FACT-A1-2009.DOC

A4-4 LAKE A1 AND OUTLET

The Lake A1 and Outlet hydrometric station was visited 4 times during the 2009 field program, and a continuous hydrograph was derived for the period of 11 June to 10 September 2009 based on continuous logger data. Details of each site visit are provided in Table A4-4 and water level measurements in Table A4-5. The hydrographs and stage-discharge rating curve for Lake A1 and Outlet in 2009 are presented in Figures A4-4 and A4-5. Mean daily data are presented in Tables A4-6 and A4-7 and raw data in Tables A4-8 to A4-11.

Table A4-4: Site Visits to Lake A1 and Outlet Hydrometric Station, 2009

Date	Activities	Lake	Lake Water Surface Elevation (m; non-geodetic)	Outlet	Discharge (m^3/s)
11 Jun	Installed pressure transducer and data logger. Measured discharge and water surface elevation.	✓	98.384	✓	0.787
9 Jul	Measured discharge and water surface elevation and downloaded data logger.	✓	98.054	✓	0.027
4 Aug	Measured discharge and water surface elevation and downloaded data logger.	✓	98.067	✓	0.024
10 Sep	Measured discharge and water surface elevation and downloaded data logger. Removed pressure transducer and data logger.	✓	98.131	✓	0.069

Water level surveys were performed during each visit, and the measurements are provided in Table A4-5.

Table A4-5: Lake A1 Water Level Survey Measurements (m), 2009

Date and Time	BM Reading	WS Reading	BM Elevation	WS Elevation	Transducer Reading	Transducer Elevation	Average Transducer Elevation	Stage	Staff Gauge Reading
11-Jun 11:20	0.915	2.835	100.304	98.384	0.487	97.897	97.889	0.884	0.304
09-Jul 15:30	0.990	3.240	100.304	98.054	0.173	97.881		0.554	0.034
04-Aug 16:30	0.363	2.600	100.304	98.067	0.230	97.837		0.567	0.050
10-Sep 16:20	0.202	2.375	100.304	98.131	0.237	97.894		0.631	0.110

Note: BM= benchmark; WS= water surface

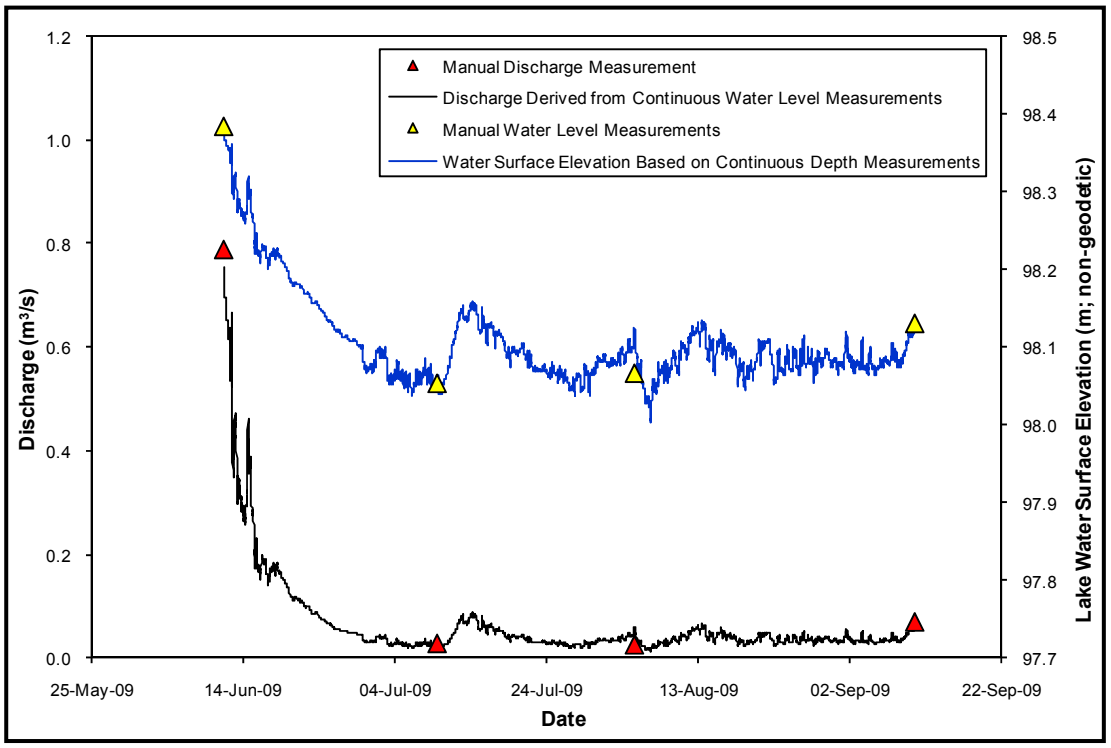


Figure A4-4: Hydrograph for Lake A1 and Outlet, 2009

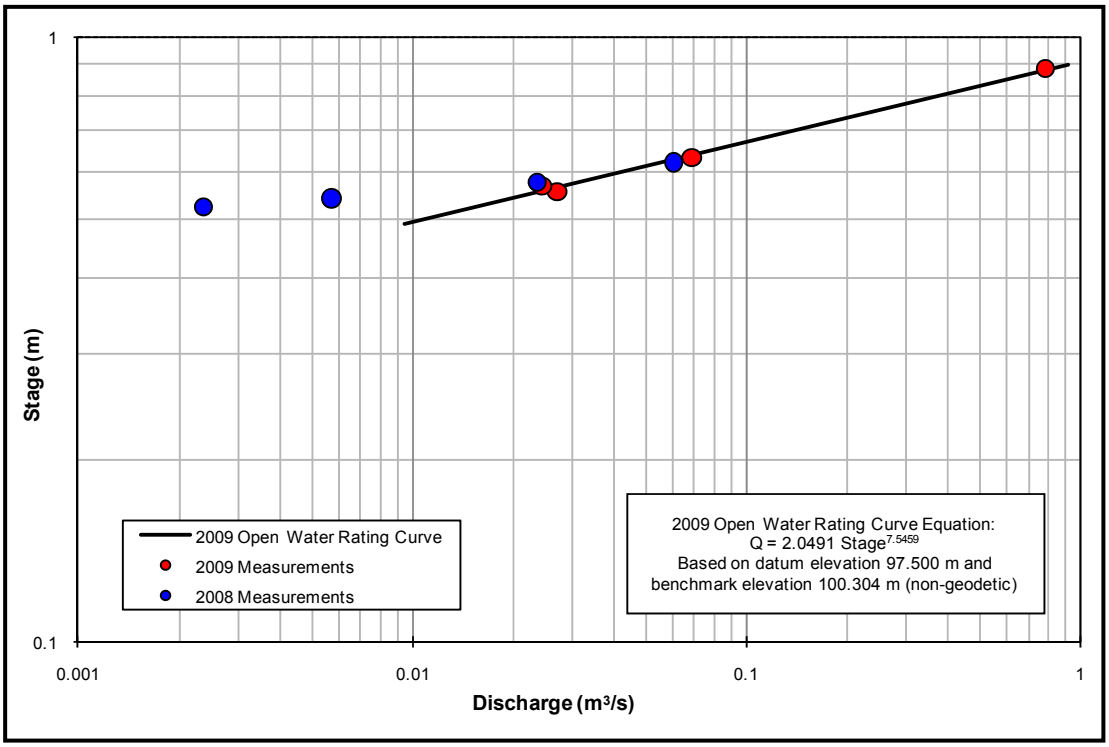


Figure A4-5: Lake A1 Outlet Stage-Discharge Rating Curve, 2009

Table A4-6: Lake A1 Outlet Mean Daily Discharge (m^3/s), 2009

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	0.036	0.033	0.039	-	-	-
2	-	-	-	-	-	-	0.038	0.036	0.033	-	-	-
3	-	-	-	-	-	-	0.026	0.040	0.035	-	-	-
4	-	-	-	-	-	-	0.028	0.045	0.033	-	-	-
5	-	-	-	-	-	-	0.025	0.027	0.030	-	-	-
6	-	-	-	-	-	-	0.023	0.017	0.034	-	-	-
7	-	-	-	-	-	-	0.027	0.024	0.036	-	-	-
8	-	-	-	-	-	-	0.027	0.030	0.035	-	-	-
9	-	-	-	-	-	-	0.023	0.032	0.049 P	-	-	-
10	-	-	-	-	-	-	0.024	0.036	-	-	-	-
11	-	-	-	-	-	0.690 P	0.040	0.043	-	-	-	-
12	-	-	-	-	-	0.530	0.068	0.056	-	-	-	-
13	-	-	-	-	-	0.334	0.071	0.057	-	-	-	-
14	-	-	-	-	-	0.325	0.080	0.044	-	-	-	-
15	-	-	-	-	-	0.239	0.062	0.040	-	-	-	-
16	-	-	-	-	-	0.181	0.057	0.046	-	-	-	-
17	-	-	-	-	-	0.162	0.054	0.041	-	-	-	-
18	-	-	-	-	-	0.171	0.045	0.031	-	-	-	-
19	-	-	-	-	-	0.146	0.040	0.027	-	-	-	-
20	-	-	-	-	-	0.117	0.041	0.033	-	-	-	-
21	-	-	-	-	-	0.110	0.037	0.044	-	-	-	-
22	-	-	-	-	-	0.098	0.031	0.041	-	-	-	-
23	-	-	-	-	-	0.086	0.030	0.031	-	-	-	-
24	-	-	-	-	-	0.074	0.029	0.033	-	-	-	-
25	-	-	-	-	-	0.065	0.028	0.035	-	-	-	-
26	-	-	-	-	-	0.056	0.026	0.036	-	-	-	-
27	-	-	-	-	-	0.051	0.022	0.035	-	-	-	-
28	-	-	-	-	-	0.048	0.024	0.033	-	-	-	-
29	-	-	-	-	-	0.042	0.026	0.037	-	-	-	-
30	-	-	-	-	-	0.031	0.032	0.035	-	-	-	-
31	-	-	-	-	-	-	0.036	0.032	-	-	-	-
MIN	-	-	-	-	-	0.031	0.022	0.017	0.030	-	-	-
MEAN	-	-	-	-	-	0.178	0.037	0.037	0.036	-	-	-
MAX	-	-	-	-	-	0.690	0.080	0.057	0.049	-	-	-

Note: P = partial daily average

Table A4-7: Lake A1 Mean Daily Water Surface Elevation (m), 2009

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	98.084	98.079	98.089	-	-	-
2	-	-	-	-	-	-	98.090	98.085	98.077	-	-	-
3	-	-	-	-	-	-	98.059	98.093	98.081	-	-	-
4	-	-	-	-	-	-	98.066	98.103	98.078	-	-	-
5	-	-	-	-	-	-	98.055	98.061	98.072	-	-	-
6	-	-	-	-	-	-	98.052	98.028	98.081	-	-	-
7	-	-	-	-	-	-	98.062	98.053	98.085	-	-	-
8	-	-	-	-	-	-	98.062	98.070	98.082	-	-	-
9	-	-	-	-	-	-	98.050	98.076	98.108 P	-	-	-
10	-	-	-	-	-	-	98.054	98.084	-	-	-	-
11	-	-	-	-	-	98.366 P	98.092	98.099	-	-	-	-
12	-	-	-	-	-	98.333	98.136	98.120	-	-	-	-
13	-	-	-	-	-	98.285	98.140	98.121	-	-	-	-
14	-	-	-	-	-	98.281	98.151	98.100	-	-	-	-
15	-	-	-	-	-	98.249	98.129	98.091	-	-	-	-
16	-	-	-	-	-	98.224	98.121	98.104	-	-	-	-
17	-	-	-	-	-	98.214	98.117	98.095	-	-	-	-
18	-	-	-	-	-	98.219	98.102	98.072	-	-	-	-
19	-	-	-	-	-	98.205	98.092	98.064	-	-	-	-
20	-	-	-	-	-	98.184	98.096	98.076	-	-	-	-
21	-	-	-	-	-	98.179	98.088	98.100	-	-	-	-
22	-	-	-	-	-	98.168	98.073	98.095	-	-	-	-
23	-	-	-	-	-	98.156	98.071	98.072	-	-	-	-
24	-	-	-	-	-	98.144	98.068	98.077	-	-	-	-
25	-	-	-	-	-	98.132	98.067	98.082	-	-	-	-
26	-	-	-	-	-	98.120	98.059	98.084	-	-	-	-
27	-	-	-	-	-	98.113	98.049	98.083	-	-	-	-
28	-	-	-	-	-	98.109	98.054	98.078	-	-	-	-
29	-	-	-	-	-	98.098	98.060	98.087	-	-	-	-
30	-	-	-	-	-	98.073	98.076	98.084	-	-	-	-
31	-	-	-	-	-	-	98.084	98.077	-	-	-	-
MIN	-	-	-	-	-	98.073	98.049	98.028	98.072	-	-	-
MEAN	-	-	-	-	-	98.193	98.083	98.084	98.084	-	-	-
MAX	-	-	-	-	-	98.366	98.151	98.121	98.108	-	-	-

Note: Elevation based on local benchmark elevation of 100.304 m (non-geodetic); P = partial daily average.

Table A4-8: Lake A1 Outlet Discharge Measurement Field Form for 11 June 2009

Project Name:		**Comaplex (09-1373-0010)**			**Date**		**11-Jun-2009**	
Waterbody:		Lake A1			**Start Time**		11:10	
Crossing ID:		Lake A1 Outlet			**End Time**		11:23	
BM GPS Location		**Survey**		Staff	**Datalogger SN: 1353**			
East	544479	**BM_read**	0.915	Gauge	**Transducer SN: 21912**			
North	6985918	**WL_read**	2.835	0.304	**Meter Type/SN: Marsh McBirney-2005856**			
Elevation	100.304	**WL_Elev**	98.384		**Crew:**	JL/MI		

STATION Start LDB	**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**		**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**	
			0.2 Depth (m/s)	**0.6/0.8 Depth (m/s)**			**0.2 Depth (m/s)**	**0.6/0.8 Depth (m/s)**
1	0.0	0.00						
2	0.0	0.16		0.06				
3	0.2	0.14		0.18				
4	0.7	0.16		0.25				
5	1.2	0.18		0.06				
6	1.7	0.11		0.03				
7	2.2	0.13		0.01				
8	2.7	0.10		0.05				
9	3.2	0.16		0.33				
10	3.7	0.28		0.15				
11	4.2	0.14		0.31				
12	4.7	0.10		0.50				
13	5.2	0.45		0.90				
14	5.7	0.50		0.99				
15	6.2	0.43		0.57				
16	6.7	0.36		0.29				
17	7.2	0.12		0.23				
18	7.7	0.10		0.13				
19	8.2	0.28		0.05				
20	8.7	0.18		0.01				
21	9.2	0.06						
22	9.4	0.00						
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33					RESULTS:	Q	0.787	
34						A(m^2)	1.97	
35						B(m)	9.4	

Table A4-9: Lake A1 Outlet Discharge Measurement Field Form for 9 July 2009

Project Name:		**Comaplex (09-1373-0010)**			**Date**		**09-Jul-2009**	
Waterbody:		Lake A1			**Start Time**		13:33	
Crossing ID:		Lake A1 Outlet			**End Time**		13:53	
BM GPS Location		**Survey**		Staff	**Datalogger SN: 1353**			
East	544479	**BM_read**	0.99	Gauge	**Transducer SN: 21912**			
North	6985918	**WL_read**	3.24	0.034	**Meter Type/SN: Marsh McBirney-2005856**			
Elevation	100.304	**WL_Elev**	98.054		**Crew:**	DC/IL		

STATION Start LDB	**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**		**DISTANCE FROM LDB (m)**		**VELOCITY**	
			0.2 Depth (m/s)	**0.6/0.8 Depth (m/s)**		**DEPTH (m)**	**0.2 Depth (m/s)**	**0.6/0.8 Depth (m/s)**
1	0.1	0.00						
2	0.2	0.08		0.10				
3	0.3	0.12		0.11				
4	0.4	0.12		0.17				
5	0.5	0.12		0.57				
6	0.6	0.12		0.43				
7	0.7	0.13		0.32				
8	0.8	0.10		0.25				
9	0.9	0.08		0.21				
10	1.0	0.10		0.20				
11	1.1	0.06		0.12				
12	1.2	0.00						
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33					RESULTS:	Q (m^3/s)	0.027	
34						A(m^2)	0.10	
35						B(m)	1.1	

Table A4-10: Lake A1 Outlet Discharge Measurement Field Form for 4 August 2009

Project Name:		**Comaplex (09-1373-0010)**			**Date**		**04-Aug-2009**	
Waterbody:		Lake A1			**Start Time**		16:10	
Crossing ID:		Lake A1 Outlet			**End Time**		16:50	
BM GPS Location		**Survey**		Staff	**Datalogger SN: 1353**			
East	544479	**BM_read**	0.363	Gauge	**Transducer SN: 21912**			
North	6985918	**WL_read**	2.590	0.050	**Meter Type/SN: Marsh McBirney-2005856**			
Elevation	100.304	**WL_Elev**	98.077		**Crew:**	DC/MI		

STATION Start LDB	**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**		**DISTANCE FROM LDB (m)**		**VELOCITY**	
			0.2 Depth (m/s)	**0.6/0.8 Depth (m/s)**		**DEPTH (m)**	**0.2 Depth (m/s)**	**0.6/0.8 Depth (m/s)**
1	0.1	0.00						
2	0.1	0.03		0.00				
3	0.2	0.08		0.05				
4	0.3	0.10		0.11				
5	0.4	0.12		0.30				
6	0.5	0.12		0.54				
7	0.6	0.12		0.43				
8	0.7	0.12		0.33				
9	0.8	0.08		0.21				
10	0.9	0.08		0.18				
11	1.0	0.06		0.11				
12	1.1	0.00						
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33					RESULTS:	Q	0.024	
34						A(m^2)	0.090	
35						B(m)	1.1	

Table A4-11: Lake A1 Outlet Discharge Measurement Field Form for 10 September 2009

Project Name:		**Comaplex (09-1373-0010)**			**Date**		**10-Sep-2009**	
Waterbody:		Lake A1			**Start Time**		16:20	
Crossing ID:		Lake A1 Outlet			**End Time**		17:05	
BM GPS Location		**Survey**		Staff	**Datalogger SN: 1353**			
East	544479	**BM_read**	0.202	Gauge	**Transducer SN: 21912**			
North	6985918	**WL_read**	2.375	0.110	**Meter Type/SN: Marsh McBirney-2005856**			
Elevation	100.304	**WL_Elev**	98.131		**Crew:**	DC/OK		

STATION Start LDB	**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**		**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**	
			0.2 Depth (m/s)	**0.6/0.8 Depth (m/s)**			**0.2 Depth (m/s)**	**0.6/0.8 Depth (m/s)**
1	0.3	0.00						
2	0.4	0.00						
3	0.5	0.09		0.174				
4	0.6	0.00						
5	0.7	0.13		0.158				
6	0.8	0.11		0.256				
7	0.9	0.14		0.262				
8	1.0	0.14		0.405				
9	1.1	0.16		0.408				
10	1.2	0.16		0.369				
11	1.3	0.20		0.323				
12	1.4	0.18		0.290				
13	1.5	0.16		0.378				
14	1.6	0.16		0.335				
15	1.7	0.16		0.411				
16	1.8	0.14		0.357				
17	1.9	0.10		0.259				
18	2.0	0.09		0.232				
19	2.2	0.00						
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33					RESULTS:	Q	0.069	
34						A(m^2)	0.217	
35						B(m)	1.9	

LAKE B2 AND OUTLET HYDROMETRIC STATION

B 2

FACTSHEET

LOCATION AND DETAILS

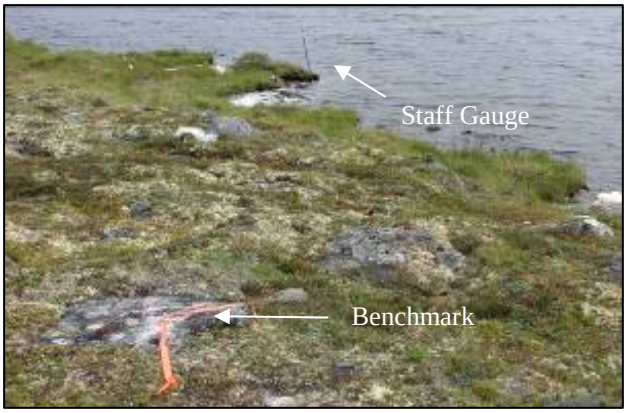
Located approximately 5.4 kilometres southwest of Meliadine West Camp.

Operational:	1997	1998 8/6-24/9	1999 14/6-20/9	2000 16/6-18/9	2008 15/6-16/9	2009 11/6-10/9

Benchmark: Bolt on boulder; 100.080 m (non-geodetic)
Coordinates: UTM: 537375 m E, 6986232 m N (NAD83, Zn15)
Transducer: Keller Acculevel Submersible Level Transducer
Drainage Area: 20.3 km^2
Lat/Long: 63°00'13" N, 92°15'43" W
Datalogger: Optimum Instrument DD-520



View of Lake B2 from hydrometric station.



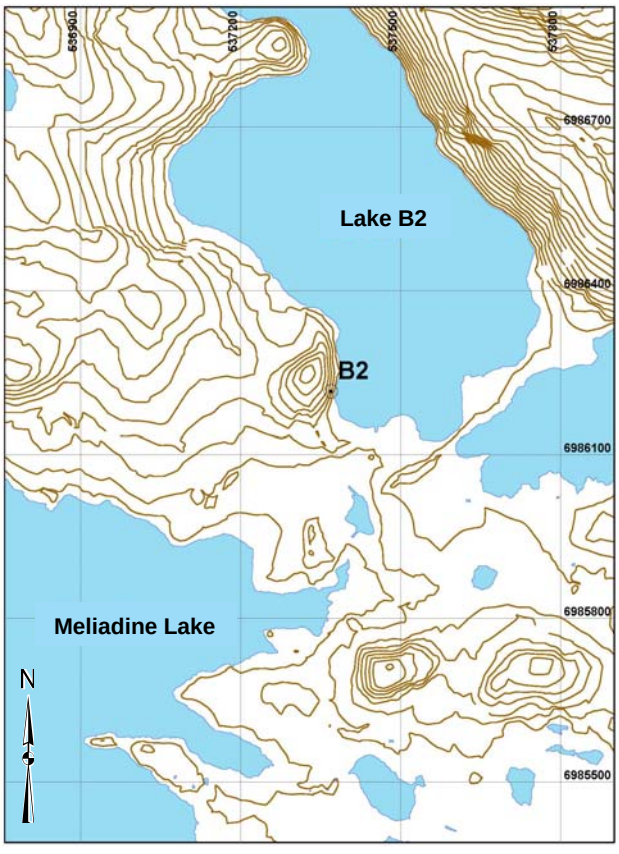
Lake B2 from benchmark.



Upstream view of Lake B2 outlet.



Lake B2 from outlet.



NTS Mapping of Area.

FACT-B2-2009.DOC

A4-5 LAKE B2 AND OUTLET

The Lake B2 and Outlet hydrometric station was visited 4 times during the 2009 field program, and a continuous hydrograph was derived for the period of 11 June to 10 September 2009 based on continuous logger data. Details of each site visit are provided in Table A4-12 and water level measurements in Table A4-13. The hydrographs and stage-discharge rating curve for Lake B2 and Outlet in 2009 are presented in Figures A4-6 and A4-7. Mean daily data are presented in Tables A4-14 and A4-15 and raw data in Tables A4-16 to A4-19.

Table A4-12: Site Visits to Lake B2 and Outlet Hydrometric Station, 2009

Date	Activities	Lake	Lake Water Surface Elevation (m; non-geodetic)	Outlet	Discharge (m^3/s)
11 Jun	Installed pressure transducer and data logger. Measured discharge and water surface elevation.	✓	97.780	✓	0.105
9 Jul	Measured discharge and water surface elevation and downloaded data logger.	✓	97.780	✓	0.153
4 Aug	Measured discharge and water surface elevation and downloaded data logger.	✓	97.740	✓	0.075
10 Sep	Measured discharge and water surface elevation and downloaded data logger. Removed pressure transducer and data logger.	✓	97.762	✓	0.093

Water level surveys were performed during each visit, and the measurements are provided in Table A4-10.

Table A4-13: Lake B2 Water Level Survey Measurements (m), 2009

Date and Time	BM Reading	WS Reading	BM Elevation	WS Elevation	Transducer Reading	Transducer Elevation	Average Transducer Elevation	Stage	Staff Gauge Reading
11-Jun 13:50	0.675	1.545	98.650	97.780	0.579	97.201	97.191	0.350	0.599
09-Jul 10:30	0.585	2.885	100.080	97.780	0.576	97.204		0.350	0.545
04-Aug 17:30	0.227	2.567	100.080	97.740	0.575	97.165		0.310	0.490
10-Sep-13:45	0.464	2.782	100.080	97.762	0.566	97.196		0.332	0.510

Note: Due to ice and snow cover a temporary benchmark was used during the June survey
BM= benchmark; WS= water surface

Following the analysis of the Lake B2 water level surveys measured during the 2009 field season it was found that during the winter 2008 – 2009 a shift of 7 cm in the stage datum took place. A possible cause for this shift can be the ice effect over the boulder that was used as a benchmark. In future years, field measurements should compare the benchmark elevation to other features of the landscape, including the lake outlet cross-section.

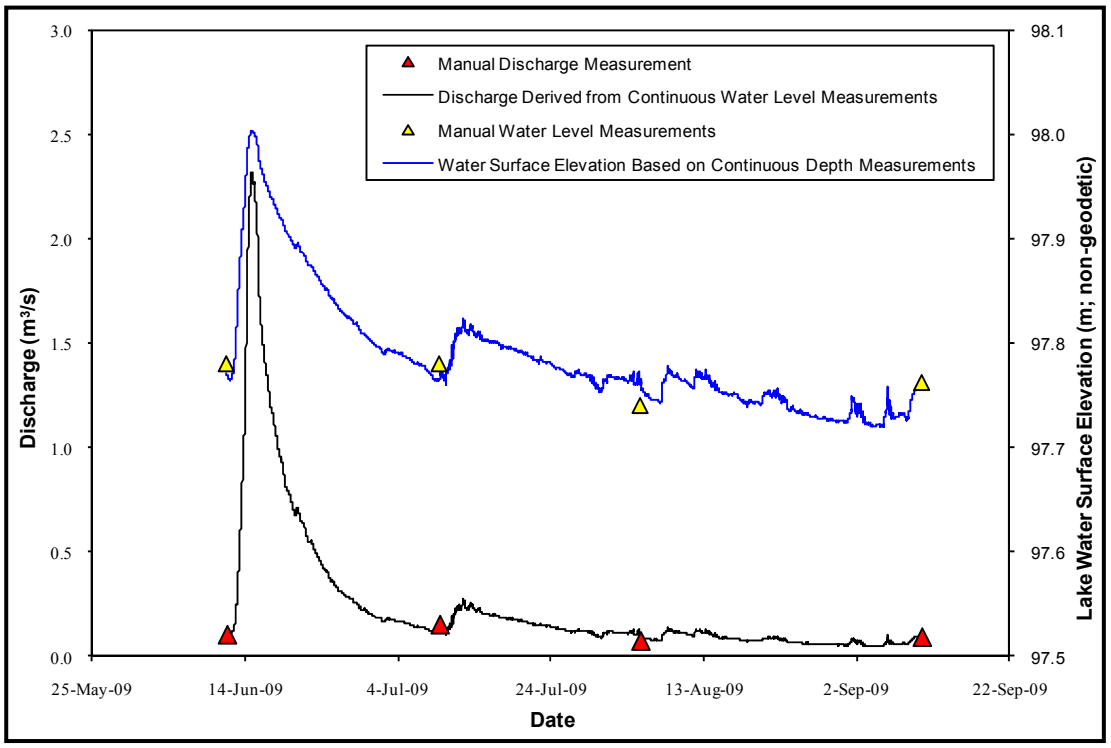


Figure A4-5: Hydrograph for Lake B2 and Outlet, 2009

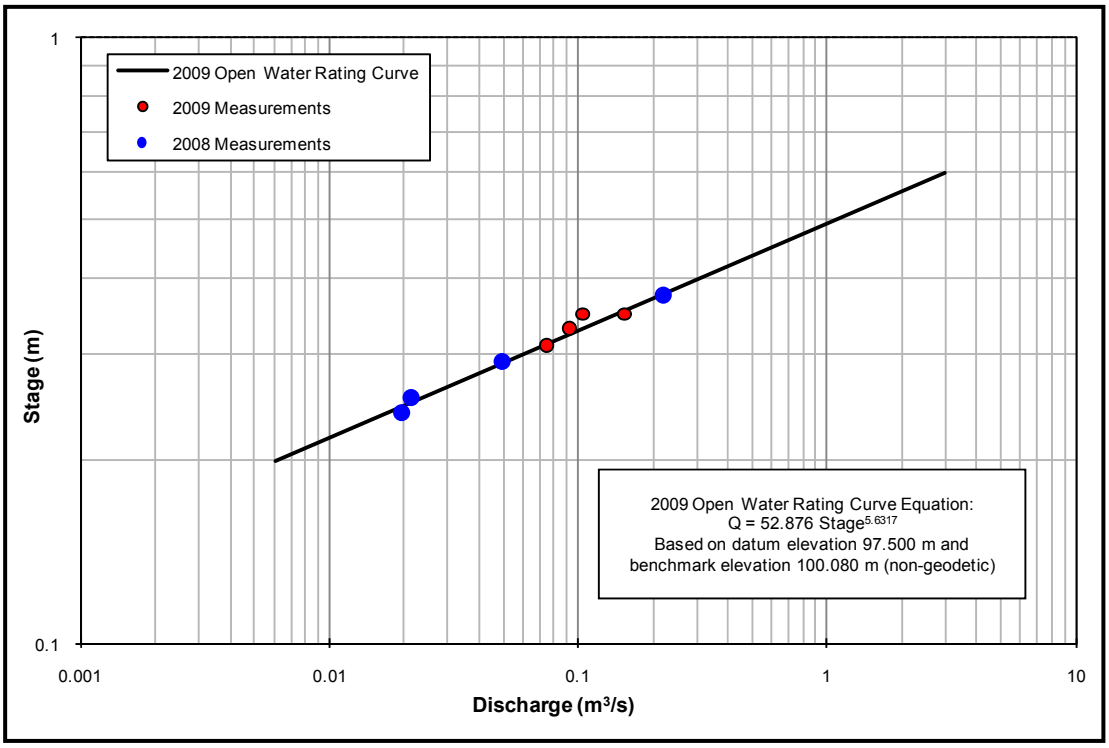


Figure A4-6: Lake B2 Outlet Stage-Discharge Rating Curve, 2009

Table A4-14: Lake B2 Outlet Mean Daily Discharge (m^3/s), 2009

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	0.182	0.115	0.071	-	-	-
2	-	-	-	-	-	-	0.175	0.112	0.066	-	-	-
3	-	-	-	-	-	-	0.173	0.113	0.052	-	-	-
4	-	-	-	-	-	-	0.165	0.106	0.051	-	-	-
5	-	-	-	-	-	-	0.154	0.087	0.059	-	-	-
6	-	-	-	-	-	-	0.144	0.080	0.066	-	-	-
7	-	-	-	-	-	-	0.135	0.092	0.060	-	-	-
8	-	-	-	-	-	-	0.117	0.125	0.061	-	-	-
9	-	-	-	-	-	-	0.118	0.117	0.089	-	-	-
10	-	-	-	-	-	-	0.131	0.108	0.101 P	-	-	-
11	-	-	-	-	-	0.117 P	0.208	0.103	-	-	-	-
12	-	-	-	-	-	0.160	0.242	0.121	-	-	-	-
13	-	-	-	-	-	0.736	0.235	0.114	-	-	-	-
14	-	-	-	-	-	1.997	0.219	0.100	-	-	-	-
15	-	-	-	-	-	2.027	0.203	0.090	-	-	-	-
16	-	-	-	-	-	1.450	0.198	0.088	-	-	-	-
17	-	-	-	-	-	1.173	0.188	0.084	-	-	-	-
18	-	-	-	-	-	0.975	0.183	0.077	-	-	-	-
19	-	-	-	-	-	0.804	0.176	0.077	-	-	-	-
20	-	-	-	-	-	0.702	0.168	0.079	-	-	-	-
21	-	-	-	-	-	0.638	0.158	0.089	-	-	-	-
22	-	-	-	-	-	0.549	0.151	0.089	-	-	-	-
23	-	-	-	-	-	0.478	0.146	0.078	-	-	-	-
24	-	-	-	-	-	0.412	0.138	0.068	-	-	-	-
25	-	-	-	-	-	0.355	0.130	0.065	-	-	-	-
26	-	-	-	-	-	0.309	0.121	0.062	-	-	-	-
27	-	-	-	-	-	0.282	0.124	0.059	-	-	-	-
28	-	-	-	-	-	0.255	0.120	0.058	-	-	-	-
29	-	-	-	-	-	0.223	0.109	0.057	-	-	-	-
30	-	-	-	-	-	0.201	0.099	0.055	-	-	-	-
31	-	-	-	-	-	-	0.115	0.054	-	-	-	-
MIN	-	-	-	-	-	0.117	0.099	0.054	0.051	-	-	-
MEAN	-	-	-	-	-	0.692	0.159	0.088	0.068	-	-	-
MAX	-	-	-	-	-	2.027	0.242	0.125	0.101	-	-	-

Note: P = partial daily average

Table A4-15: Lake B2 Mean Daily Water Surface Elevation (m), 2009

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	97.795	97.767	97.739	-	-	-
2	-	-	-	-	-	-	97.793	97.765	97.735	-	-	-
3	-	-	-	-	-	-	97.792	97.765	97.723	-	-	-
4	-	-	-	-	-	-	97.789	97.761	97.721	-	-	-
5	-	-	-	-	-	-	97.784	97.751	97.727	-	-	-
6	-	-	-	-	-	-	97.780	97.746	97.734	-	-	-
7	-	-	-	-	-	-	97.776	97.753	97.730	-	-	-
8	-	-	-	-	-	-	97.768	97.772	97.731	-	-	-
9	-	-	-	-	-	-	97.768	97.768	97.751	-	-	-
10	-	-	-	-	-	-	97.774	97.763	97.759 P	-	-	-
11	-	-	-	-	-	97.768 P	97.803	97.760	-	-	-	-
12	-	-	-	-	-	97.784	97.814	97.769	-	-	-	-
13	-	-	-	-	-	97.893	97.812	97.766	-	-	-	-
14	-	-	-	-	-	97.988	97.807	97.758	-	-	-	-
15	-	-	-	-	-	97.990	97.802	97.752	-	-	-	-
16	-	-	-	-	-	97.958	97.801	97.751	-	-	-	-
17	-	-	-	-	-	97.938	97.797	97.748	-	-	-	-
18	-	-	-	-	-	97.922	97.795	97.743	-	-	-	-
19	-	-	-	-	-	97.905	97.793	97.744	-	-	-	-
20	-	-	-	-	-	97.894	97.790	97.745	-	-	-	-
21	-	-	-	-	-	97.886	97.786	97.751	-	-	-	-
22	-	-	-	-	-	97.874	97.783	97.751	-	-	-	-
23	-	-	-	-	-	97.864	97.781	97.744	-	-	-	-
24	-	-	-	-	-	97.852	97.778	97.736	-	-	-	-
25	-	-	-	-	-	97.841	97.774	97.734	-	-	-	-
26	-	-	-	-	-	97.831	97.770	97.732	-	-	-	-
27	-	-	-	-	-	97.825	97.771	97.729	-	-	-	-
28	-	-	-	-	-	97.818	97.769	97.728	-	-	-	-
29	-	-	-	-	-	97.809	97.763	97.727	-	-	-	-
30	-	-	-	-	-	97.802	97.758	97.725	-	-	-	-
31	-	-	-	-	-	-	97.767	97.725	-	-	-	-
MIN	-	-	-	-	-	97.768	97.758	97.725	97.721	-	-	-
MEAN	-	-	-	-	-	97.872	97.785	97.749	97.735	-	-	-
MAX	-	-	-	-	-	97.990	97.814	97.772	97.759	-	-	-

Note: Elevation based on local benchmark elevation of 100.080 m (non-geodetic); P = partial daily average

Table A4-16: Lake B2 Outlet Discharge Measurement Field Form for 11 June 2009

Project Name:		**Comaplex (09-1373-0010)**			**Date**		**11-Jun-2009**	
Waterbody:		Lake B2			**Start Time**		13:42	
Crossing ID:		Lake B2 Outlet			**End Time**		13:52	
BM GPS Location		**Survey**		Staff	**Datalogger SN: 1383**			
East	537375	**BM_read**	0.675	Gauge	**Transducer SN: 25889**			
North	6986232	**WL_read**	1.545	0.599	**Meter Type/SN: Marsh McBirney-2005856**			
Elevation	100.08	**WL_Elev**	99.210		**Crew:**	JL/MI		
STATION Start LDB	**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**		**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**	
			0.2 Depth (m/s)	**0.6/0.8 Depth (m/s)**			**0.2 Depth (m/s)**	**0.6/0.8 Depth (m/s)**
1	0.0	0.00						
2	0.0	0.17		0.27				
3	0.2	0.16		0.55				
4	0.4	0.16		0.44				
5	0.6	0.22		0.35				
6	0.8	0.23		0.01				
7	1.0	0.18		0.04				
8	1.2	0.08		0.40				
9	1.4	0.20		0.27				
10	1.6	0.18		0.15				
11	1.8	0.20		0.27				
12	2.0	0.15		0.17				
13	2.2	0.11		0.26				
14	2.4	0.1		0.17				
15	2.6	0.12		0.13				
16	2.8	0.00						
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33					RESULTS:	Q (m^3/s)	0.105	
34						A(m^2)	0.44	
35						B(m)	2.8	

Table A4-17: Lake B2 Outlet Discharge Measurement Field Form for 9 July 2009

Project Name:		**Comaplex (09-1373-0010)**			**Date**		**09-Jul-2009**	
Waterbody:		Lake B2			**Start Time**		10:26	
Crossing ID:		Lake B2 Outlet			**End Time**		10:41	
BM GPS Location		**Survey**		Staff	**Datalogger SN: 1383**			
East	537375	**BM_read**	1.578	Gauge	**Transducer SN: 25889**			
North	6986232	**WL_read**	2.142	0.540	**Meter Type/SN: Marsh McBirney-2005856**			
Elevation	100.08	**WL_Elev**	99.516		**Crew:**	DC/LI		
STATION Start LDB	**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**		**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**	
			0.2 Depth (m/s)	**0.6/0.8 Depth (m/s)**			**0.2 Depth (m/s)**	**0.6/0.8 Depth (m/s)**
1	0.4	0.00						
2	0.6	0.15		0.11				
3	0.8	0.16		0.24				
4	1.0	0.24		0.44				
5	1.2	0.26		0.53				
6	1.4	0.28		0.46				
7	1.6	0.25		0.42				
8	1.8	0.23		0.44				
9	1.9	0.21		0.46				
10	2.0	0.20		0.42				
11	2.1	0.18		0.60				
12	2.2	0.14		0.14				
13	2.3	0.10		0.01				
14	2.5	0.00						
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33					RESULTS:	Q (m^3/s)	0.153	
34						A(m^2)	0.391	
35						B(m)	2.1	

Table A4-18: Lake B2 Outlet Discharge Measurement Field Form for 4 August 2009

Project Name:		**Comaplex (09-1373-0010)**			**Date**		**04-Aug-2009**	
Waterbody:		Lake B2			**Start Time**		17:05	
Crossing ID:		Lake B2 Outlet			**End Time**		17:50	
BM GPS Location		**Survey**		Staff	**Datalogger SN: 1383**			
East	537375	**BM_read**	0.227	Gauge	**Transducer SN: 25889**			
North	6986232	**WL_read**	2.567	49 cm	**Meter Type/SN: Marsh McBirney-2005856**			
Elevation	100.08	**WL_Elev**	97.74		**Crew:**	DC/MI		

STATION Start LDB	**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**		**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**	
			0.2 Depth (m/s)	**0.6/0.8 Depth (m/s)**			**0.2 Depth (m/s)**	**0.6/0.8 Depth (m/s)**
1	0.1	0.00						
2	0.3	0.11		0.101				
3	0.5	0.11		0.186				
4	0.6	0.18		0.223				
5	0.7	0.20		0.265				
6	0.8	0.20		0.293				
7	0.9	0.21		0.384				
8	1.0	0.22		0.341				
9	1.1	0.20		0.369				
10	1.2	0.20		0.363				
11	1.3	0.18		0.341				
12	1.4	0.17		0.399				
13	1.5	0.14		0.415				
14	1.6	0.14		0.247				
15	1.7	0.12		0.104				
16	1.9	0.00						
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33					RESULTS:	Q (m^3/s)	0.075	
34						A(m^2)	0.26	
35						B(m)	1.8	

Table A4-19: Lake B2 Outlet Discharge Measurement Field Form for 10 September 2009

Project Name:		**Comaplex (09-1373-0010)**			**Date**		**10-Sep-2009**	
Waterbody:		Lake B2			**Start Time**		13:30	
Crossing ID:		Lake B2 Outlet			**End Time**		14:20	
BM GPS Location		**Survey**		Staff	**Datalogger SN: 1383**			
East	537375	**BM_read**	0.464	Gauge	**Transducer SN: 25889**			
North	6986232	**WL_read**		54 cm	**Meter Type/SN: Marsh McBirney-2005856**			
Elevation	100.08	**WL_Elev**	100.544		**Crew:**	DC/MI		
STATION Start LDB	**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**		**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**	
			0.2 Depth (m/s)	**0.6/0.8 Depth (m/s)**			**0.2 Depth (m/s)**	**0.6/0.8 Depth (m/s)**
1	0.3	0.00						
2	0.5	0.12		0.143				
3	0.7	0.12		0.238				
4	0.8	0.18		0.308				
5	0.9	0.22		0.396				
6	1.0	0.22		0.399				
7	1.1	0.26		0.341				
8	1.2	0.24		0.320				
9	1.3	0.20		0.317				
10	1.4	0.22		0.335				
11	1.5	0.22		0.329				
12	1.6	0.2		0.372				
13	1.7	0.18		0.338				
14	1.8	0.18		0.287				
15	1.9	0.16		0.235				
16	2.0	0.15		0.091				
17	2.2	0.00						
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33					RESULTS:	Q (m^3/s)	0.093	
34						A(m^2)	0.31	
35						B(m)	1.9	

LAKE B7 AND OUTLET HYDROMETRIC STATION

B 7

FACTSHEET

LOCATION AND DETAILS

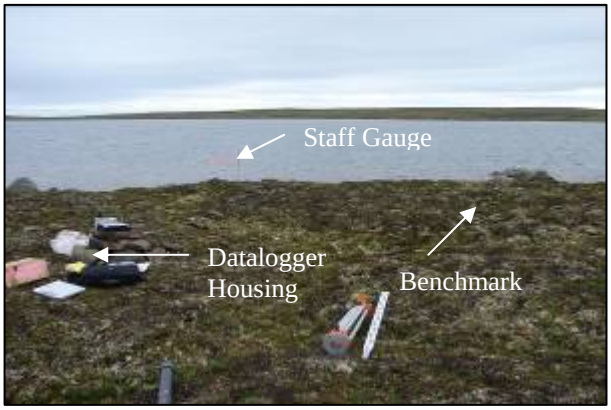
Located approximately 4 kilometres west of Meliadine West Camp.

Operational:	1997	1998 7/6-24/9	1999 14/6-20/9	2000 15/6-19/9	2008 16/6-16/9	2009 11/6-10/9

Benchmark: Bolt on boulder; 100.131 m (non-geodetic)
Drainage Area: 2.39 km^2
Coordinates: UTM: 537935 m E, 6989488 m N (NAD83, Zn15)
Lat/Long: 63°01'58" N, 92°15'00" W
Transducer: Keller Acculevel Submersible Level Transducer
Datalogger: Optimum Instruments DD-520



View of Lake B7 from hydrometric station.



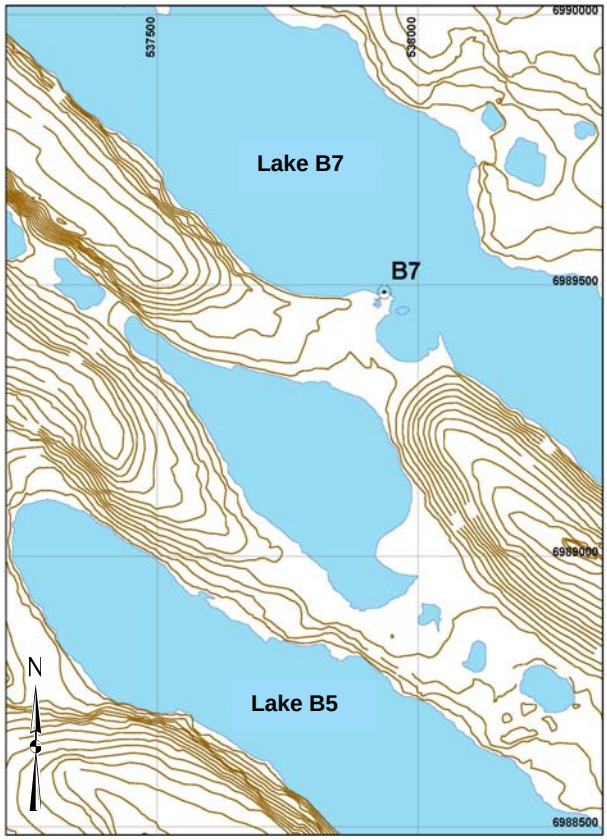
Lake B7 hydrometric station.



Lake B7 outlet.



Lake B7 from outlet.



NTS Mapping of Area.

FACT-B7-2009.DOC

A4-6 LAKE B7 AND OUTLET

The Lake B7 and Outlet hydrometric station was visited 4 times during the 2009 field program, and a continuous hydrograph was derived for the period of 11 June to 10 September 2009 based on continuous logger data. Details of each site visit are provided in Table A4-20 and water level measurements in Table A4-21. The hydrographs and stage-discharge rating curve for Lake B7 and Outlet in 2009 are presented in Figures A4-8 and A4-9. Mean daily data are presented in Tables A4-22 and A4-23 and raw data in Tables A4-24 to A4-27.

Table A4-20: Site Visits to Lake B7 and Outlet Hydrometric Station, 2009

Date	Activities	Lake	Lake Water Surface Elevation (m; non-geodetic)	Outlet	Discharge (m^3/s)
11 Jun	Installed pressure transducer and data logger. Measured discharge and water surface elevation.	✓	99.681	✓	0.128
9 Jul	Measured discharge and water surface elevation and downloaded data logger.	✓	99.567	✓	0.041
4 Aug	Measured discharge and water surface elevation and downloaded data logger.	✓	99.465	✓	0.011
10 Sep	Measured discharge and water surface elevation and downloaded data logger. Removed pressure transducer and data logger.	✓	99.489	✓	0.030

Water level surveys were performed during each visit and the measurements are provided in Table A4-21.

Table A4-21: Lake B7 Water Level Survey Measurements (m), 2009

Date and Time	BM Reading	WS Reading	BM Elevation	WS Elevation	Transducer Reading	Transducer Elevation	Average Transducer Elevation	Stage	Staff Gauge Reading
11-Jun 17:40	1.475	1.925	100.131	99.681	0.395	99.286	99.272	0.681	0.480
09-Jul 12:10	1.578	2.142	100.131	99.567	0.297	99.270		0.567	
05-Aug 15:30	1.372	2.038	100.131	99.465	0.199	99.266		0.465	
10-Sep-12:45	1.563	2.205	100.131	99.489	0.222	99.267		0.489	

Note: BM= benchmark; WS= water surface

Because of the local conditions of the lake bed, a staff gauge could not be installed and operated properly during the 2009 field season. Also, the transducer's location was changed during the second site visit from the main lake to a small bay at the outlet to reduce the wave action effect on the recordings.

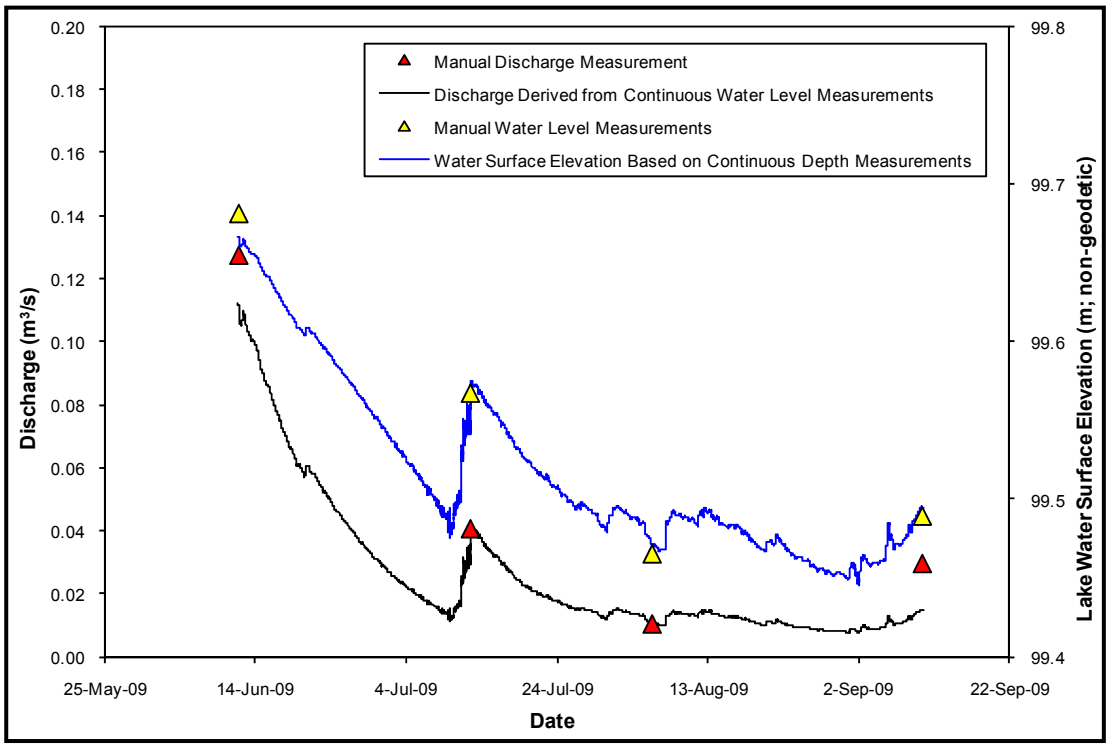


Figure A4-7: Hydrograph for Lake B7 and Outlet, 2009

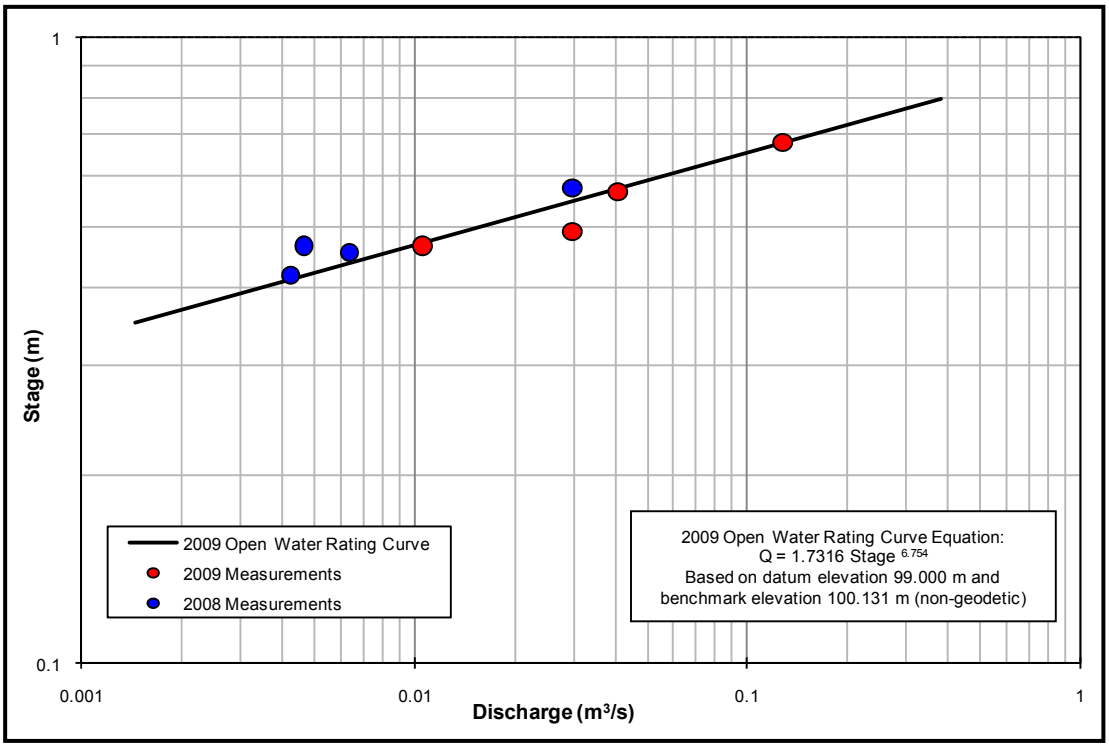


Figure A4-8: Lake B7 Outlet Stage-Discharge Rating Curve, 2009

Table A4-22: Lake B7 Outlet Mean Daily Discharge (m^3/s), 2009

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	0.028	0.015	0.008	-	-	-
2	-	-	-	-	-	-	0.025	0.014	0.009	-	-	-
3	-	-	-	-	-	-	0.023	0.014	0.009	-	-	-
4	-	-	-	-	-	-	0.021	0.013	0.009	-	-	-
5	-	-	-	-	-	-	0.020	0.011	0.010	-	-	-
6	-	-	-	-	-	-	0.018	0.010	0.011	-	-	-
7	-	-	-	-	-	-	0.017	0.012	0.011	-	-	-
8	-	-	-	-	-	-	0.015	0.014	0.012	-	-	-
9	-	-	-	-	-	-	0.014	0.014	0.014 P	-	-	-
10	-	-	-	-	-	-	0.015	0.014	-	-	-	-
11	-	-	-	-	-	0.109 P	0.024	0.013	-	-	-	-
12	-	-	-	-	-	0.106	0.036	0.014	-	-	-	-
13	-	-	-	-	-	0.101	0.039	0.014	-	-	-	-
14	-	-	-	-	-	0.094	0.035	0.013	-	-	-	-
15	-	-	-	-	-	0.087	0.033	0.013	-	-	-	-
16	-	-	-	-	-	0.080	0.030	0.013	-	-	-	-
17	-	-	-	-	-	0.073	0.028	0.012	-	-	-	-
18	-	-	-	-	-	0.067	0.025	0.011	-	-	-	-
19	-	-	-	-	-	0.062	0.023	0.011	-	-	-	-
20	-	-	-	-	-	0.059	0.022	0.010	-	-	-	-
21	-	-	-	-	-	0.059	0.020	0.011	-	-	-	-
22	-	-	-	-	-	0.055	0.019	0.011	-	-	-	-
23	-	-	-	-	-	0.051	0.018	0.010	-	-	-	-
24	-	-	-	-	-	0.047	0.017	0.010	-	-	-	-
25	-	-	-	-	-	0.044	0.016	0.009	-	-	-	-
26	-	-	-	-	-	0.041	0.015	0.009	-	-	-	-
27	-	-	-	-	-	0.038	0.015	0.009	-	-	-	-
28	-	-	-	-	-	0.035	0.015	0.008	-	-	-	-
29	-	-	-	-	-	0.032	0.013	0.008	-	-	-	-
30	-	-	-	-	-	0.030	0.013	0.008	-	-	-	-
31	-	-	-	-	-	-	0.015	0.008	-	-	-	-
MIN	-	-	-	-	-	0.030	0.013	0.008	0.008	-	-	-
MEAN	-	-	-	-	-	0.064	0.021	0.012	0.010	-	-	-
MAX	-	-	-	-	-	0.109	0.039	0.015	0.014	-	-	-

Note: P = partial daily average

Table A4-23: Lake B7 Mean Daily Water Surface Elevation (m), 2009

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	99.542	99.494	99.454	-	-	-
2	-	-	-	-	-	-	99.535	99.490	99.459	-	-	-
3	-	-	-	-	-	-	99.529	99.487	99.459	-	-	-
4	-	-	-	-	-	-	99.522	99.482	99.460	-	-	-
5	-	-	-	-	-	-	99.516	99.473	99.466	-	-	-
6	-	-	-	-	-	-	99.508	99.469	99.473	-	-	-
7	-	-	-	-	-	-	99.502	99.478	99.472	-	-	-
8	-	-	-	-	-	-	99.494	99.490	99.478	-	-	-
9	-	-	-	-	-	-	99.487	99.489	99.490 P	-	-	-
10	-	-	-	-	-	-	99.492	99.488	-	-	-	-
11	-	-	-	-	-	99.664 P	99.529	99.487	-	-	-	-
12	-	-	-	-	-	99.662	99.561	99.492	-	-	-	-
13	-	-	-	-	-	99.657	99.570	99.490	-	-	-	-
14	-	-	-	-	-	99.650	99.562	99.486	-	-	-	-
15	-	-	-	-	-	99.642	99.556	99.483	-	-	-	-
16	-	-	-	-	-	99.634	99.550	99.483	-	-	-	-
17	-	-	-	-	-	99.626	99.542	99.480	-	-	-	-
18	-	-	-	-	-	99.618	99.534	99.476	-	-	-	-
19	-	-	-	-	-	99.611	99.527	99.471	-	-	-	-
20	-	-	-	-	-	99.606	99.522	99.469	-	-	-	-
21	-	-	-	-	-	99.606	99.517	99.472	-	-	-	-
22	-	-	-	-	-	99.600	99.514	99.474	-	-	-	-
23	-	-	-	-	-	99.594	99.509	99.469	-	-	-	-
24	-	-	-	-	-	99.587	99.505	99.464	-	-	-	-
25	-	-	-	-	-	99.581	99.500	99.462	-	-	-	-
26	-	-	-	-	-	99.575	99.495	99.459	-	-	-	-
27	-	-	-	-	-	99.568	99.496	99.456	-	-	-	-
28	-	-	-	-	-	99.561	99.493	99.454	-	-	-	-
29	-	-	-	-	-	99.554	99.487	99.453	-	-	-	-
30	-	-	-	-	-	99.549	99.483	99.453	-	-	-	-
31	-	-	-	-	-	-	99.493	99.451	-	-	-	-
MIN	-	-	-	-	-	99.549	99.483	99.451	99.454	-	-	-
MEAN	-	-	-	-	-	99.607	99.518	99.475	99.468	-	-	-
MAX	-	-	-	-	-	99.664	99.570	99.494	99.490	-	-	-

Note: Elevation based on local benchmark elevation of 100.131 m (non-geodetic); P = partial daily average

Table A4-24: Lake B7 Outlet Discharge Measurement Field Form for 11 June 2009

Project Name:		**Comaplex (09-1373-0010)**			**Date**		**11-Jun-2009**	
Waterbody:		Lake B7			**Start Time**		17:35	
Crossing ID:		Lake B7 Outlet			**End Time**		17:45	
BM GPS Location		**Survey**		Staff	**Datalogger SN: 1361**			
East	537952	**BM_read**	1.475	Gauge	**Transducer SN: 21573**			
North	6989254	**WL_read**	1.925	0.48m	**Meter Type/SN: Marsh McBirney-2005856**			
Elevation	100.131	**WL_Elev**	99.681		**Crew:**	JL/MI		
STATION Start LDB	**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**		**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**	
			0.2 Depth (m/s)	**0.6/0.8 Depth (m/s)**			**0.2 Depth (m/s)**	**0.6/0.8 Depth (m/s)**
1	0.0	0.00		0.00				
2	0.5	0.10		0.01				
3	1.0	0.10		0.01				
4	1.5	0.00		0.00				
5	2.0	0.08		0.03				
6	2.5	0.20		0.21				
7	3.0	0.41		0.28				
8	3.5	0.41		0.19				
9	4.0	0.20		0.00				
10	4.5	0.00		0.00				
11	5.0	0.08		0.20				
12	5.5	0.00		0.00				
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33					RESULTS:	Q (m^3/s)	0.128	
34						A(m^2)	0.79	
35						B(m)	5.5	

Table A4-25: Lake B7 Outlet Discharge Measurement Field Form for 12 July 2009

Project Name:		**Comaplex (09-1373-0010)**			**Date**		**12-Jul-2009**	
Waterbody:		Lake B7			**Start Time**		12:24	
Crossing ID:		Lake B7 Outlet			**End Time**		12:30	
BM GPS Location		**Survey**		Staff	**Datalogger SN: 1361**			
East	537952	**BM_read**	1.578	Gauge	**Transducer SN: 21573**			
North	6989254	**WL_read**	2.142	down	**Meter Type/SN: Marsh McBirney-2005856**			
Elevation	100.131	**WL_Elev**	99.567	not reliable	**Crew:**	DC/JP		
STATION Start LDB	**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**		**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**	
			0.2 Depth (m/s)	**0.6/0.8 Depth (m/s)**			**0.2 Depth (m/s)**	**0.6/0.8 Depth (m/s)**
1	0.4	0.00		0.000				
2	0.5	0.16		0.155				
3	0.5	0.22		0.192				
4	0.6	0.22		0.274				
5	0.7	0.22		0.250				
6	0.8	0.23		0.162				
7	0.9	0.22		0.149				
8	1.0	0.26		0.149				
9	1.1	0.26		0.235				
10	1.2	0.16		0.375				
11	1.3	0.10		0.146				
12	1.5	0.00		0.000				
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33					RESULTS:	Q (m^3/s)	0.041	
34						A(m^2)	0.19	
35						B(m)	1.1	

Table A4-26: Lake B7 Outlet Discharge Measurement Field Form for 5 August 2009

Project Name:		**Comaplex (09-1373-0010)**			**Date**		**05-Aug-2009**	
Waterbody:		Lake B7			**Start Time**		15:10	
Crossing ID:		Lake B7 Outlet			**End Time**		16:00	
BM GPS Location		**Survey**		Staff	**Datalogger SN: 1361**			
East	537952	**BM_read**	1.372	Gauge	**Transducer SN: 21573**			
North	6989254	**WL_read**	2.038	down	**Meter Type/SN: Marsh McBirney-2005856**			
Elevation	100.131	**WL_Elev**	99.465	not reliable	**Crew:**	DC / MI		
STATION Start LDB	**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**		**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**	
			0.2 Depth (m/s)	**0.6/0.8 Depth (m/s)**			**0.2 Depth (m/s)**	**0.6/0.8 Depth (m/s)**
1	0.1	0.00						
2	0.2	0.09		0.018				
3	0.3	0.14		0.061				
4	0.4	0.12		0.149				
5	0.5	0.13		0.162				
6	0.6	0.18		0.149				
7	0.7	0.17		0.104				
8	0.8	0.13		0.055				
9	0.9	0.13		0.024				
10	1.1	0.00		0.000				
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33					RESULTS:	Q (m^3/s)	0.011	
34						A(m^2)	0.12	
35						B(m)	1.0	

Table A4-27: Lake B7 Outlet Discharge Measurement Field Form for 10 September 2009

Project Name:		**Comaplex (09-1373-0010)**			**Date**		**10-Sep-2009**	
Waterbody:		Lake B7			**Start Time**		12:30	
Crossing ID:		Lake B7 Outlet			**End Time**		12:55	
BM GPS Location		**Survey**		Staff	**Datalogger SN: 1361**			
East	537952	**BM_read**	1.563	Gauge:	**Transducer SN: 21573**			
North	6989254	**WL_read**	2.205	Out of the	**Meter Type/SN: Marsh McBirney-2005856**			
Elevation	100.131	**WL_Elev**	99.489	water	**Crew:**	DC / KO		
STATION Start LDB	**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**		**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**	
			0.2 Depth (m/s)	**0.6/0.8 Depth (m/s)**			**0.2 Depth (m/s)**	**0.6/0.8 Depth (m/s)**
1	0.3	0.00						
2	0.4	0.13		0.043				
3	0.5	0.20		0.155				
4	0.6	0.20		0.229				
5	0.7	0.18		0.268				
6	0.8	0.20		0.259				
7	0.9	0.23		0.226				
8	1.0	0.22		0.177				
9	1.1	0.18		0.104				
10	1.2	0.13		0.030				
11	1.3	0.09		0.012				
12	1.5	0.00						
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33					RESULTS:	Q (m^3/s)	0.030	
34						A(m^2)	0.18	
35						B(m)	1.2	

CHICKEN HEAD LAKE AND OUTLET HYDROMETRIC STATION

CH

FACTSHEET

LOCATION AND DETAILS

Located approximately 14.5 kilometres southeast of Meliadine West Camp.

Operational:	2009 13/6-13/9
Benchmark:	Top of boulder; 100.000 m (non-geodetic)
Coordinates:	UTM: 553835 m E, 6981017 m N (NAD83, Zn15)
Transducer:	Keller Acculevel Submersible Level Transducer
Drainage Area:	9.86 km^2
Lat/Long:	62°57'18" N, 92°56'20" W
Datalogger:	Optimum Instruments DD-520



Chicken Head Lake, looking southeast.



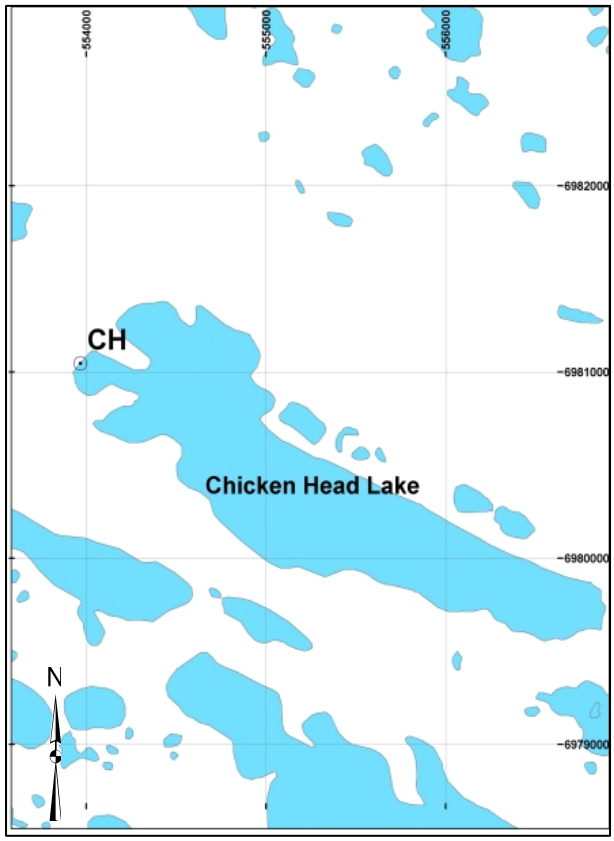
Chicken Head looking north.



Chicken Head Lake Outlet, looking north.



Chicken Head Lake Outlet, looking southeast.



NTS Mapping of Area.

A4-7 CHICKENHEAD LAKE AND OUTLET

The Chickenhead Lake and Outlet hydrometric station was visited 4 times during the 2009 field program, and a continuous hydrograph was derived for the period of 11 June to 10 September 2009 based on continuous logger data. Details of each site visit are provided in Table A4-28 and water level measurements in Table A4-29. The hydrographs and stage-discharge rating curve for Chickenhead Lake and Outlet in 2009 are presented in Figure A4-10 and A4-11. Mean daily data are presented in Tables A4-30 and A4-31 and raw data in Tables A4-32 to A4-35.

Table A4-28: Site Visits to Chickenhead Lake and Outlet Hydrometric Station, 2009

Date	Activities	Lake	Lake Water Surface Elevation (m; non-geodetic)	Outlet	Discharge (m^3/s)
13 Jun	Installed pressure transducer and data logger. Measured discharge and water surface elevation.	✓	99.770	✓	0.399
9 Jul	Measured discharge and water surface elevation and downloaded data logger.	✓	99.645	✓	0.034
4 Aug	Measured discharge and downloaded data logger.			✓	0.015
13 Sep	Measured discharge and water surface elevation and downloaded data logger. Removed pressure transducer and data logger.	✓	99.691	✓	0.162

Water level surveys were performed during site visits, and the measurements are provided in Table A4-26.

Table A4-29: Chickenhead Lake Water Level Survey Measurements (m), 2009

Date and Time	BM Reading	WS Reading	BM Elevation	WS Elevation	Transducer Reading	Transducer Elevation	Average Transducer Elevation	Stage	Staff Gauge Reading
13-Jun 13:20	1.665	1.895	100.000	99.770	0.446	99.324	99.335	0.770	0.481
09-Jul 14:15	1.352	1.707	100.000	99.645	0.303	99.342		0.645	0.310
04-Aug 9:25			100.000		0.290			0.628	0.295
13-Sep-8:25	1.405	1.715	100.000	99.691	0.352	99.339		0.691	0.370

Note: BM = benchmark WS= water surface

On 1 and 2 September 2009, the Rankin Inlet A climate station reported strong winds from NW, with gusts up to 93 km/h. Because of the shape and orientation of the Chickenhead Lake and the location of the hydrometric station on the north shore, it is thought that the wind setup may be the cause for an average 6 cm drop in the water levels at the monitoring station (upwind end of the lake) during the two day period.

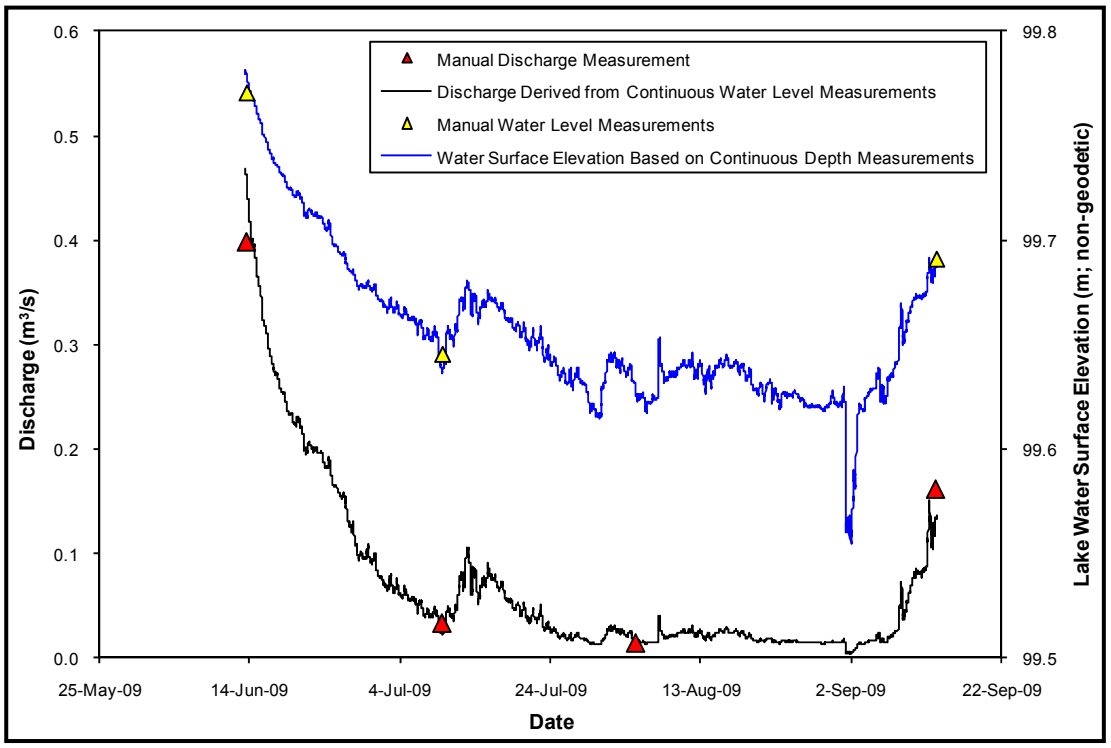


Figure A4-9: Hydrograph for Chickenhead Lake and Outlet, 2009

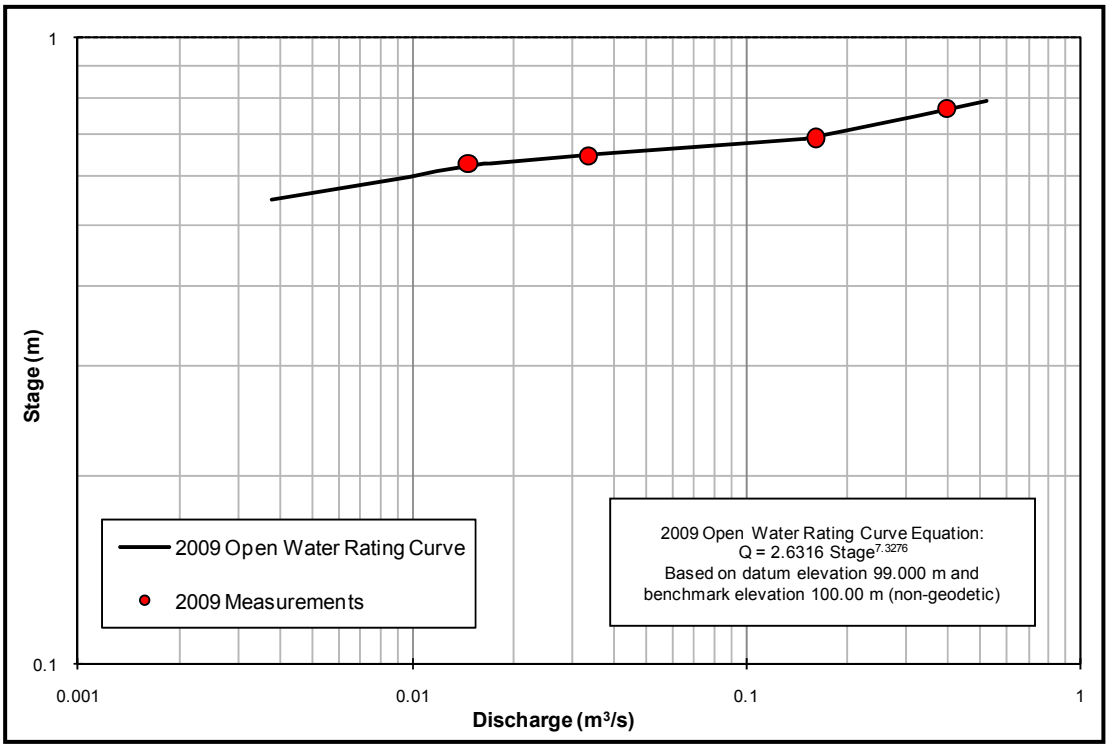


Figure A4-10: Chickenhead Lake Outlet Stage-Discharge Rating Curve, 2009

Table A4-30: Chickenhead Lake Outlet Mean Daily Discharge (m^3/s), 2009

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	0.076	0.028	0.008	-	-	-
2	-	-	-	-	-	-	0.070	0.025	0.008	-	-	-
3	-	-	-	-	-	-	0.066	0.022	0.014	-	-	-
4	-	-	-	-	-	-	0.061	0.016	0.016	-	-	-
5	-	-	-	-	-	-	0.057	0.015	0.019	-	-	-
6	-	-	-	-	-	-	0.051	0.015	0.016	-	-	-
7	-	-	-	-	-	-	0.042	0.023	0.022	-	-	-
8	-	-	-	-	-	-	0.042	0.020	0.042	-	-	-
9	-	-	-	-	-	-	0.026	0.022	0.053	-	-	-
10	-	-	-	-	-	-	0.040	0.025	0.079	-	-	-
11	-	-	-	-	-	-	0.050	0.026	0.083	-	-	-
12	-	-	-	-	-	-	0.081	0.022	0.116	-	-	-
13	-	-	-	-	-	0.449 P	0.083	0.021	0.129 P	-	-	-
14	-	-	-	-	-	0.395	0.066	0.021	-	-	-	-
15	-	-	-	-	-	0.344	0.078	0.025	-	-	-	-
16	-	-	-	-	-	0.301	0.075	0.026	-	-	-	-
17	-	-	-	-	-	0.272	0.068	0.025	-	-	-	-
18	-	-	-	-	-	0.252	0.055	0.024	-	-	-	-
19	-	-	-	-	-	0.232	0.048	0.020	-	-	-	-
20	-	-	-	-	-	0.224	0.043	0.016	-	-	-	-
21	-	-	-	-	-	0.204	0.038	0.017	-	-	-	-
22	-	-	-	-	-	0.201	0.039	0.017	-	-	-	-
23	-	-	-	-	-	0.194	0.030	0.015	-	-	-	-
24	-	-	-	-	-	0.183	0.026	0.016	-	-	-	-
25	-	-	-	-	-	0.163	0.021	0.016	-	-	-	-
26	-	-	-	-	-	0.152	0.019	0.015	-	-	-	-
27	-	-	-	-	-	0.125	0.021	0.014	-	-	-	-
28	-	-	-	-	-	0.101	0.018	0.014	-	-	-	-
29	-	-	-	-	-	0.098	0.014	0.014	-	-	-	-
30	-	-	-	-	-	0.093	0.014	0.015	-	-	-	-
31	-	-	-	-	-	-	0.023	0.015	-	-	-	-
MIN	-	-	-	-	-	0.093	0.014	0.014	0.008	-	-	-
MEAN	-	-	-	-	-	0.221	0.047	0.019	0.047	-	-	-
MAX	-	-	-	-	-	0.449	0.083	0.028	0.129	-	-	-

Note: P = partial daily average

Table A4-31: Chickenhead Lake Mean Daily Water Surface Elevation (m), 2009

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	99.671	99.643	99.584	-	-	-
2	-	-	-	-	-	-	99.668	99.640	99.588	-	-	-
3	-	-	-	-	-	-	99.667	99.637	99.621	-	-	-
4	-	-	-	-	-	-	99.665	99.627	99.627	-	-	-
5	-	-	-	-	-	-	99.663	99.623	99.632	-	-	-
6	-	-	-	-	-	-	99.660	99.623	99.627	-	-	-
7	-	-	-	-	-	-	99.654	99.635	99.636	-	-	-
8	-	-	-	-	-	-	99.654	99.634	99.653	-	-	-
9	-	-	-	-	-	-	99.641	99.636	99.660	-	-	-
10	-	-	-	-	-	-	99.652	99.640	99.672	-	-	-
11	-	-	-	-	-	-	99.659	99.641	99.673	-	-	-
12	-	-	-	-	-	-	99.672	99.637	99.683	-	-	-
13	-	-	-	-	-	99.777 P	99.673	99.635	99.686 P	-	-	-
14	-	-	-	-	-	99.767	99.667	99.636	-	-	-	-
15	-	-	-	-	-	99.755	99.671	99.641	-	-	-	-
16	-	-	-	-	-	99.745	99.671	99.642	-	-	-	-
17	-	-	-	-	-	99.736	99.668	99.640	-	-	-	-
18	-	-	-	-	-	99.730	99.662	99.639	-	-	-	-
19	-	-	-	-	-	99.724	99.658	99.634	-	-	-	-
20	-	-	-	-	-	99.721	99.655	99.628	-	-	-	-
21	-	-	-	-	-	99.714	99.652	99.629	-	-	-	-
22	-	-	-	-	-	99.713	99.652	99.629	-	-	-	-
23	-	-	-	-	-	99.710	99.645	99.624	-	-	-	-
24	-	-	-	-	-	99.705	99.641	99.626	-	-	-	-
25	-	-	-	-	-	99.697	99.636	99.626	-	-	-	-
26	-	-	-	-	-	99.692	99.633	99.623	-	-	-	-
27	-	-	-	-	-	99.685	99.635	99.620	-	-	-	-
28	-	-	-	-	-	99.679	99.631	99.620	-	-	-	-
29	-	-	-	-	-	99.678	99.620	99.619	-	-	-	-
30	-	-	-	-	-	99.676	99.619	99.623	-	-	-	-
31	-	-	-	-	-	-	99.638	99.622	-	-	-	-
MIN	-	-	-	-	-	99.676	99.619	99.619	99.584	-	-	-
MEAN	-	-	-	-	-	99.717	99.653	99.631	99.642	-	-	-
MAX	-	-	-	-	-	99.777	99.673	99.643	99.686	-	-	-

Note: Elevation based on local benchmark elevation of 100.000 m (non-geodetic); P = partial daily average

Table A4-32: Chickenhead Lake Outlet Discharge Measurement Field Form for 13 June 2009

Project Name:		**Comaplex (09-1373-0010)**			**Date**		**13-Jun-2009**	
Waterbody:		Chickenhead Lake			**Start Time**		10:10	
Crossing ID:		Chickenhead Lake Outlet			**End Time**		13:35	
BM GPS Location		**Survey**		Staff	**Datalogger SN: 639**			
East	553948	**BM_read**	1.665	Gauge	**Transducer SN: 14570**			
North	6980697	**WL_read**	1.895	0.481	**Meter Type/SN: Marsh McBirney-2005856**			
Elevation	100.000	**WL_Elev**	99.770		**Crew:**	DC/WN		

STATION Start LDB	**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**		**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**	
			0.2 Depth (m/s)	**0.6/0.8 Depth (m/s)**			**0.2 Depth (m/s)**	**0.6/0.8 Depth (m/s)**
1	1.4	0.00			0.00	0		
2	2.0	0.22		0.00	0.30	0.08		0.080
3	2.5	0.20		0.00	0.60	0.12		0.110
4	3.0	0.18		0.02	0.90	0.1		0.080
5	3.5	0.00		0.00	1.20	0.08		0.250
6	4.0	0.10		0.38	1.50	0.13		0.010
7	4.5	0.04		0.25	1.80	0.11		0.140
8	5.0	0.14		0.35	2.10	0.14		0.030
9	5.5	0.18		0.59	2.40	0.07		0.280
10	6.0	0.12		0.35	2.70	0.09		0.000
11	6.5	0.22		0.19	3.00	0		
12	7.0	0.16		0.12				
13	7.5	0.18		0.20				
14	8.0	0.15		0.07				
15	8.5	0.15		0.05				
16	9.0	0.08		0.01				
17	9.5	0.14		0.09				
18	10.0	0.18		0.42				
19	10.5	0.00		0.00				
20	11.0	0.00		0.00				
21	11.5	0.14		0.68				
22	12.0	0.00		0.00				
23	12.5	0.11		0.55				
24	13.0	0.07		0.33				
25	13.5	0.07		0.33				
26	14.0	0.06		0.28	Observation: At the time of discharge measurement, the lake outlet was divided in 2 channels and both of them were measured.			
27	14.5	0.06		0.03				
28	15.0	0.06		0.33				
29	15.5	0.10		0.35				
30	16.0	0.06		0.18				
31	16.5	0.06		0.05				
32	17.0	0.06		0.05				
33	17.5	0.00		0.00	RESULTS:	Q (m^3/s)	0.399	
34						A(m^2)	1.93	
35						B(m)	17.5	

Table A4-33: Chickenhead Lake Outlet Discharge Measurement Field Form for 9 July 2009

Project Name:		**Comaplex (09-1373-0010)**			**Date**		**09-Jul-2009**	
Waterbody:		Chickenhead Lake			**Start Time**		14:03	
Crossing ID:		Chickenhead Lake Outlet			**End Time**		15:00	
BM GPS Location		**Survey**		Staff	**Datalogger SN: 639**			
East	553948	**BM_read**	1.352	Gauge	**Transducer SN: 14570**			
North	6980697	**WL_read**	1.707	0.31	**Meter Type/SN: Marsh McBirney-2005856**			
Elevation	100.000	**WL_Elev**	99.645		**Crew:**	DC/IL		
STATION Start LDB	**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**		**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**	
			0.2 Depth (m/s)	**0.6/0.8 Depth (m/s)**			**0.2 Depth (m/s)**	**0.6/0.8 Depth (m/s)**
1	0.1	0.00						
2	0.1	0.14		0.131				
3	0.2	0.14		0.174				
4	0.3	0.12		0.165				
5	0.4	0.12		0.229				
6	0.5	0.14		0.326				
7	0.6	0.14		0.439				
8	0.7	0.16		0.396				
9	0.8	0.13		0.347				
10	0.9	0.14		0.192				
11	0.9	0.00						
12								
13	0.1	0.00						
14	0.3	0.01		0.122				
15	0.5	0.03		0.122				
16	0.7	0.02		0.122				
17	0.9	0.01		0.152				
18	1.0	0.04		0.152				
19	1.1	0.05		0.122				
20	1.1	0.00						
21								
22								
23								
24								
25								
26					Observation: At the time of discharge measurement, the lake outlet was divided in 2 channels and both of them were measured.			
27								
28								
29								
30								
31								
32								
33					RESULTS:	Q	0.034	
34						A(m^2)	0.13	
35						B(m)	1.0	

Table A4-34: Chickenhead Lake Outlet Discharge Measurement Field Form for 4 August 2009

Project Name:		**Comaplex (09-1373-0010)**			**Date**		**04-Aug-2009**	
Waterbody:		Chickenhead Lake			**Start Time**		14:03	
Crossing ID:		Chickenhead Lake Outlet			**End Time**		15:00	
BM GPS Location		**Survey**		Staff	**Datalogger SN: 639**			
East	553948	BM_read		Gauge	**Transducer SN: 14570**			
North	6980697	WL_read		0.295	**Meter Type/SN: Marsh McBirney-2005856**			
Elevation	100.000	WL_Elev			**Crew:**	DC/MI		

STATION Start LDB	**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**		**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**	
			0.2 Depth (m/s)	**0.6/0.8 Depth (m/s)**			**0.2 Depth (m/s)**	**0.6/0.8 Depth (m/s)**
1	0.1	0.00						
2	0.2	0.11		0.003				
3	0.3	0.11		0.043				
4	0.4	0.12		0.064				
5	0.5	0.12		0.082				
6	0.6	0.11		0.119				
7	0.7	0.11		0.110				
8	0.8	0.10		0.104				
9	0.9	0.09		0.091				
10	1.0	0.06		0.073				
11	1.1	0.00						
12								
13	0.1	0.00						
14	0.1	0.08		0.009				
15	0.2	0.09		0.098				
16	0.3	0.09		0.110				
17	0.4	0.08		0.177				
18	0.5	0.06		0.210				
19	0.6	0.04		0.177				
20	0.8	0.05		0.131				
21	1.0	0.03		0.082				
22	1.3	0.00						
23								
24								
25								
26					Observation: At the time of discharge measurement, the lake outlet was divided in 2 channels and both of them were measured.			
27								
28								
29								
30								
31								
32								
33					RESULTS:	Q	0.015	
34						A(m^2)	0.15	
35						B(m)	1.3	

Table A4-35: Chickenhead Lake Outlet Discharge Measurement Field Form for 13 September 2009

Project Name:		**Comaplex (09-1373-0010)**			**Date**		**13-Sep-2009**	
Waterbody:		Chickenhead Lake			**Start Time**		08:20	
Crossing ID:		Chickenhead Lake Outlet			**End Time**		08:40	
BM GPS Location		**Survey**		Staff	**Datalogger SN: 639**			
East	553948	**BM_read**	1.405	Gauge	**Transducer SN: 14570**			
North	6980697	**WL_read**	1.715	0.37	**Meter Type/SN: Marsh McBirney-2005856**			
Elevation	100.000	**WL_Elev**	99.691		**Crew:**	DC/KO		

STATION Start LDB	**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**		**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**	
			0.2 Depth (m/s)	**0.6/0.8 Depth (m/s)**			**0.2 Depth (m/s)**	**0.6/0.8 Depth (m/s)**
1	0.3	0.00			0.2	0.00		
2	0.6	0.07		0.158	0.3	0.17		0.079
3	0.7	0.06		0.168	0.4	0.19		0.317
4	0.8	0.06		0.165	0.5	0.20		0.320
5	0.9	0.06		0.119	0.6	0.22		0.357
6	1.0	0.07		0.232	0.7	0.21		0.497
7	1.1	0.06		0.177	0.8	0.23		0.543
8	1.2	0.00			0.9	0.23		0.387
9					1.0	0.22		0.308
10					1.1	0.20		0.332
11	0.1	0.00			1.2	0.22		0.280
12	0.2	0.10		0.091	1.3	0.20		0.396
13	0.3	0.09		0.235	1.4	0.19		0.433
14	0.4	0.10		0.201	1.5	0.20		0.302
15	0.5	0.10		0.247	1.6	0.16		0.247
16	0.6	0.10		0.311	1.8	0.00		
17	0.7	0.10		0.152				
18	0.8	0.08		0.119	0.5	0.00		
19	0.9	0.07		0.037	0.6	0.06		0.091
20	1.0	0.00			0.7	0.05		0.094
21					0.8	0.06		0.085
22					0.9	0.08		0.098
23	0.4	0.00			1.0	0.06		0.119
24	0.5	0.16		0.101	1.1	0.06		0.064
25	0.6	0.16		0.107	1.2	0.08		0.101
26	0.7	0.16		0.326	1.3	0.07		0.101
27	0.8	0.18		0.405	1.4	0.00		
28	0.9	0.20		0.384	Observation: At the time of discharge measurement, the lake outlet was divided in 5 channels and all of them were measured.			
29	1.0	0.20		0.378				
30	1.1	0.15		0.210				
31	1.3	0.00						
32								
33					RESULTS:	$Q_{\hat{}}$	0.162	
34						$A(m^2)$	0.59	
35						B(m)	1.7	

MELIADINE LAKE HYDROMETRIC STATION

ML

FACTSHEET

LOCATION AND DETAILS

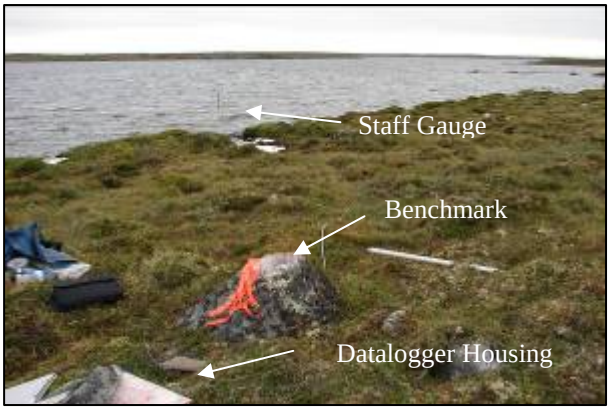
Located approximately 13 kilometres northwest of Meliadine West Camp.

Operational:	1997	1998	1999	2000	2008	2009
	12/6-25/9	6/6-22/9	6/6-22/9	13/6-18/9	2/8-31/8	15/6-11/9

Benchmark: Bolt on boulder; 100.000 m (non-geodetic)
Coordinates: UTM: 530573 m E, 6995555 m N (NAD83, Zn15)
Transducer: Keller Acculevel Submersible Level Transducer
Lat/Long: 63°05'17" N, 92°23'40" W
Datalogger: Optimum Instruments DD-520



Meliadine Lake from hydrometric station.



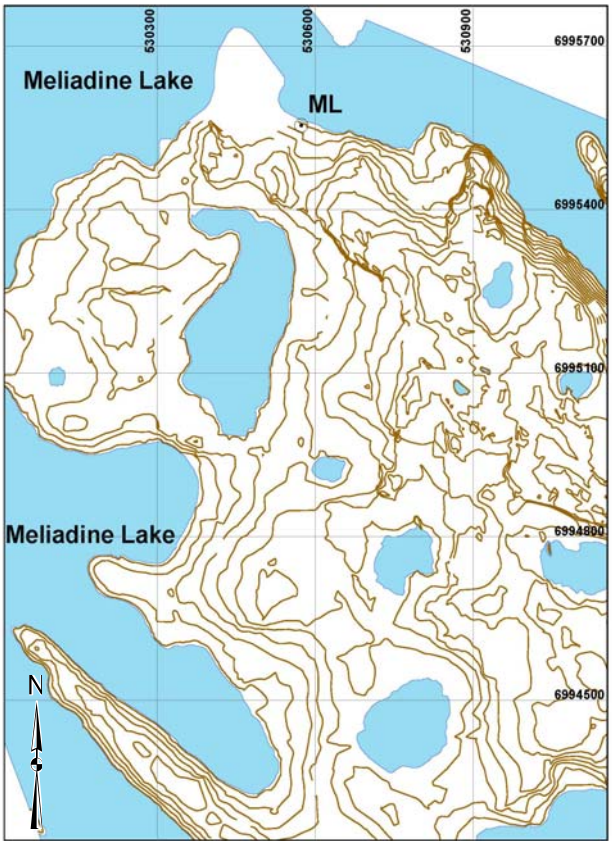
Meliadine Lake hydrometric station.



Meliadine Lake, looking west.



Meliadine Lake, looking east.



NTS Mapping of Area.

FACT-ML-2009.DOC

A4-8 MELIADINE LAKE

The Meliadine Lake hydrometric station was visited 4 times during the 2009 field program, and a continuous hydrograph was derived for the period of 11 June to 10 September 2009 based on continuous logger data. Details of each site visit are provided in Table A4-36. The hydrograph for Meliadine Lake in 2009 is presented in Figure A4-12. Mean daily data are presented in Table A4-37. It can be noted that the strong winds from NW from 1 and 2 September 2009 reported by Rankin Inlet A climate station had the same effect on the water level hydrograph as with the Chickenhead hydrometric station (presented above in Section 7.0).

Table A4-36: Site Visits to Meliadine Lake and Outlet Hydrometric Station, 2009

Date	Activities	Lake	Lake Water Surface Elevation (m; non-geodetic)
11 Jun	Installed pressure transducer and data logger. Measured water surface elevation.	✓	98.895
9 Jul	Measured water surface elevation and downloaded data logger.	✓	98.972
4 Aug	Measured water surface elevation and downloaded data logger.	✓	98.916
10 Sep	Measured water surface elevation and downloaded data logger. Removed pressure transducer and data logger.	✓	98.825

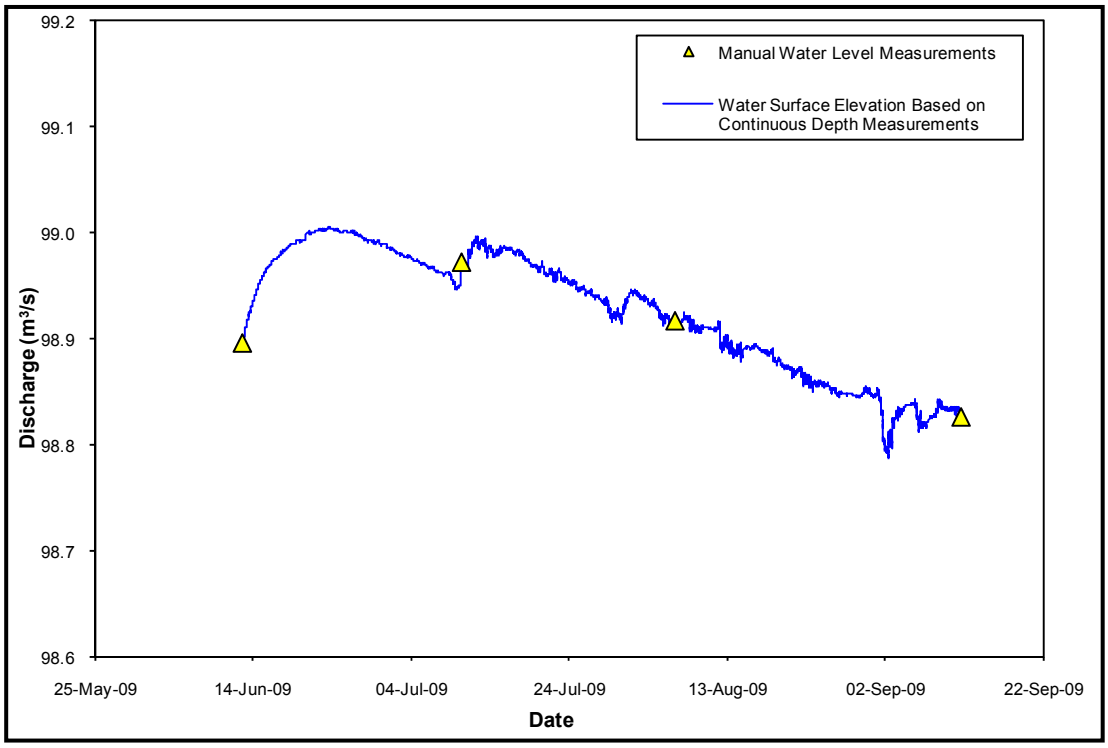


Figure A4-11: Hydrograph for Meliadine Lake, 2009

Table A4-37: Meliadine Lake Mean Daily Water Surface Elevation (m), 2009

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	98.983	98.941	98.813	-	-	-
2	-	-	-	-	-	-	98.979	98.936	98.811	-	-	-
3	-	-	-	-	-	-	98.976	98.932	98.830	-	-	-
4	-	-	-	-	-	-	98.972	98.920	98.837	-	-	-
5	-	-	-	-	-	-	98.970	98.918	98.833	-	-	-
6	-	-	-	-	-	-	98.965	98.916	98.820	-	-	-
7	-	-	-	-	-	-	98.962	98.918	98.825	-	-	-
8	-	-	-	-	-	-	98.960	98.912	98.835	-	-	-
9	-	-	-	-	-	-	98.951	98.909	98.834	-	-	-
10	-	-	-	-	-	-	98.970	98.910	98.833	-	-	-
11	-	-	-	-	-	-	98.986	98.907	98.832 P	-	-	-
12	-	-	-	-	-	98.907 P	98.990	98.895	-	-	-	-
13	-	-	-	-	-	98.931	98.985	98.889	-	-	-	-
14	-	-	-	-	-	98.952	98.981	98.889	-	-	-	-
15	-	-	-	-	-	98.966	98.985	98.891	-	-	-	-
16	-	-	-	-	-	98.975	98.983	98.891	-	-	-	-
17	-	-	-	-	-	98.982	98.981	98.887	-	-	-	-
18	-	-	-	-	-	98.988	98.972	98.883	-	-	-	-
19	-	-	-	-	-	98.992	98.968	98.876	-	-	-	-
20	-	-	-	-	-	98.997	98.964	98.871	-	-	-	-
21	-	-	-	-	-	99.001	98.961	98.869	-	-	-	-
22	-	-	-	-	-	99.003	98.959	98.862	-	-	-	-
23	-	-	-	-	-	99.004	98.954	98.857	-	-	-	-
24	-	-	-	-	-	99.002	98.950	98.857	-	-	-	-
25	-	-	-	-	-	99.001	98.946	98.854	-	-	-	-
26	-	-	-	-	-	99.000	98.942	98.850	-	-	-	-
27	-	-	-	-	-	98.995	98.938	98.848	-	-	-	-
28	-	-	-	-	-	98.992	98.931	98.847	-	-	-	-
29	-	-	-	-	-	98.990	98.921	98.846	-	-	-	-
30	-	-	-	-	-	98.988	98.926	98.850	-	-	-	-
31	-	-	-	-	-	-	98.942	98.848	-	-	-	-
MIN	-	-	-	-	-	98.907	98.921	98.846	98.811	-	-	-
MEAN	-	-	-	-	-	98.982	98.963	98.886	98.827	-	-	-
MAX	-	-	-	-	-	99.004	98.990	98.941	98.837	-	-	-

Note: Elevation based on local benchmark elevation of 100.000 m (non-geodetic; P = partial daily average

MELIADINE LAKE MAIN OUTLET HYDROMETRIC STATION

ML-M

FACTSHEET

LOCATION AND DETAILS

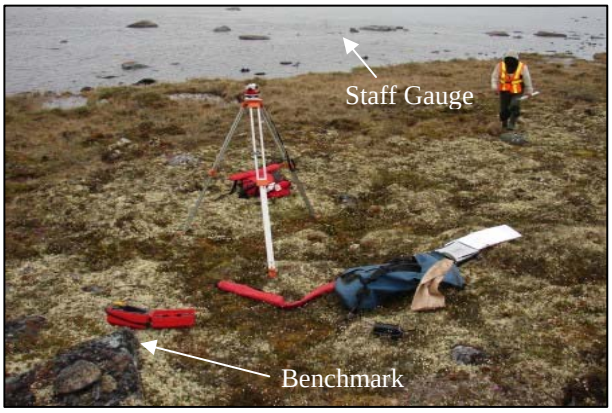
Located approximately 11 kilometres west of Meliadine West Camp.

Operational:	1997	1998	1999	2000	2008	2009
	12/6-25/9	6/6-22/9	16/6-20/9	13/6-18/9	14/6-17/9	12/6-11/9

Benchmark: Bolt on boulder; 100.000 m (non-geodetic)
Coordinates: UTM: 530780 m E, 6989640 m N (NAD83, Zn15)
Transducer: none
Drainage Area: 569 km^2
Lat/Long: 63°02'06" N, 92°23'29" W
Datalogger: none



Staff gauge.



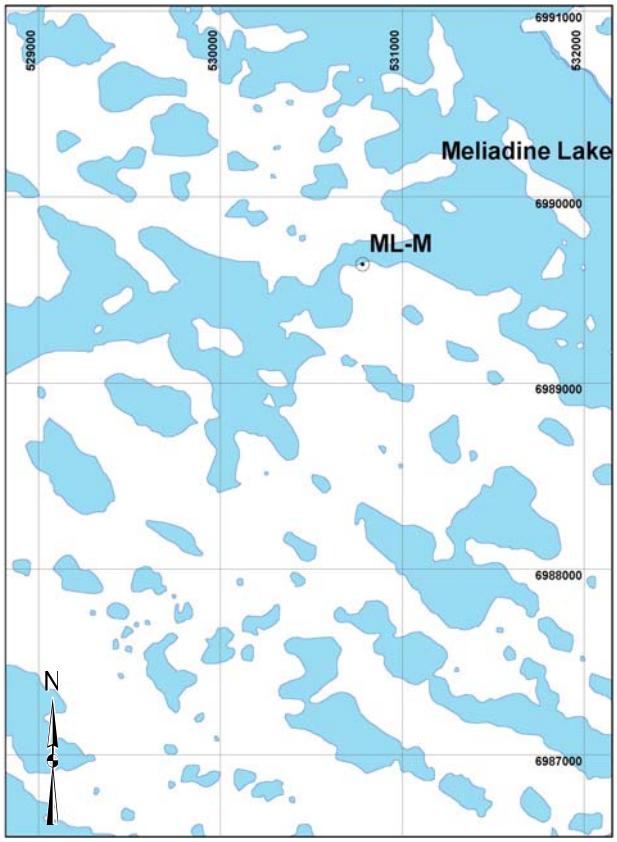
Meliadine Lake main outlet hydrometric station.



Downstream view of outlet from staff gauge.



Downstream view of outlet



NTS Mapping of Area.

FACT-ML-M-2009.DOC

Golder Associates

A4-9 MELIADINE LAKE MAIN OUTLET

The Meliadine Lake Main Outlet hydrometric station was visited 4 times during the 2009 field program, and details of each site visit are provided in Table A4-38. No continuous monitoring was planned for this site. The existing stage-discharge rating curve for the outlet channel was updated and is provided in Figure A4-13. During the first site visit, the lake outlet was dry, with no discharge. Raw data are presented in Tables A4-39 to A4-41.

Table A4-38: Site Visits to Meliadine Lake Main Outlet Hydrometric Station, 2009

Date	Activities	Lake Water Surface Elevation (m, non-geodetic)	Outlet	Discharge (m^3/s)
12 Jun	Measured water surface elevation.	98.919	✓	–
9 Jul	Measured discharge and water surface elevation.	98.975	✓	5.87
5 Aug	Measured discharge and water surface elevation.	98.924	✓	3.85
11 Sep	Measured discharge and water surface elevation.	98.844	✓	2.20

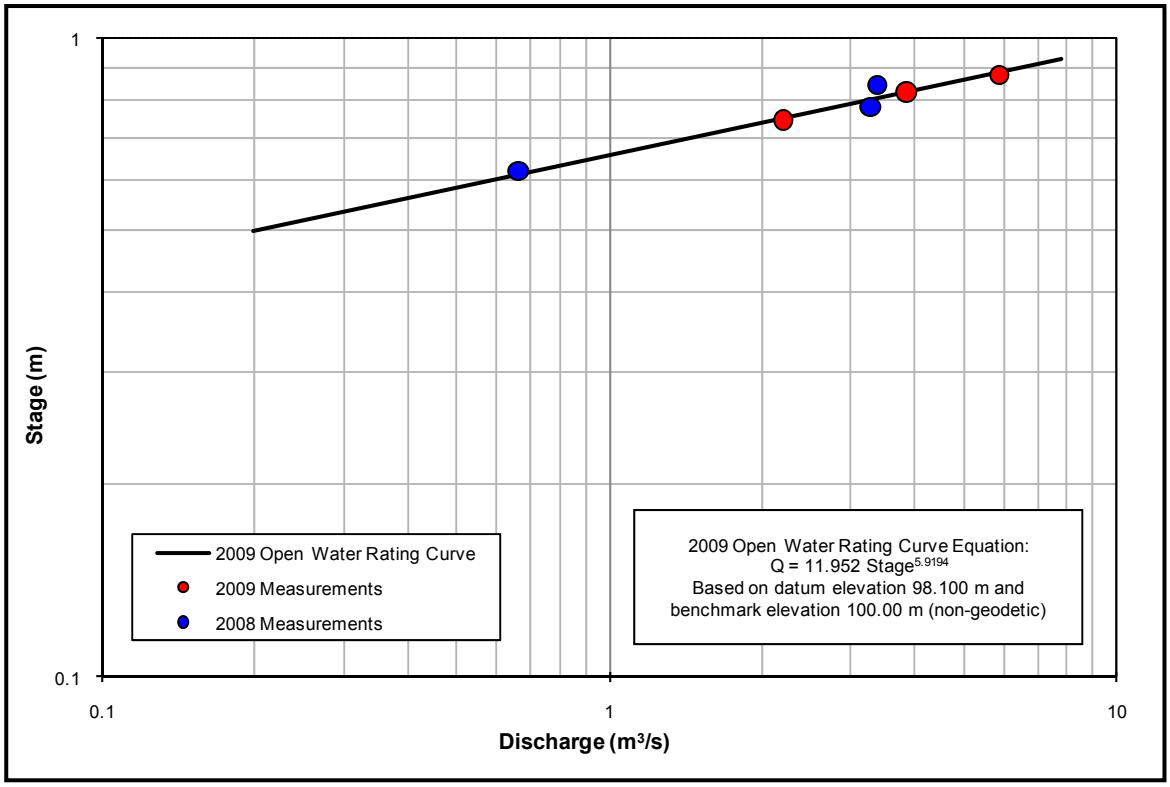


Figure A4-12: Meliadine Lake Main Outlet Stage-Discharge Rating Curve, 2009

Table A4-39: Meliadine Lake Main Outlet Discharge Measurement Field Form for 9 July 2009

Project Name:		**Comaplex (09-1373-0010)**			**Date**		**09-Jul-2009**	
Waterbody:		Meliadine Lake			**Start Time**		08:30	
Crossing ID:		Meliadine Lake Main Outlet			**End Time**		09:25	
BM GPS Location		**Survey**		Staff	**Datalogger SN: -**			
East	530780	**BM_read**	0.359	Gauge	**Transducer SN: -**			
North	6989640	**WL_read**	1.992	0.380	**Meter Type/SN: Marsh McBirney-2005856**			
Elevation	100.000	**WL_Elev**	98.367		**Crew:**	DC/LI		
STATION Start LDB	**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**		**DISTANCE FROM LDB (m)**		**VELOCITY**	
			0.2 Depth (m/s)	**0.6/0.8 Depth (m/s)**		**DEPTH (m)**	**0.2 Depth (m/s)**	**0.6/0.8 Depth (m/s)**
1	0.0	0.00			58.2	0.26		0.05
2	1.0	0.18		0.00	60.2	0.44		0.18
3	3.0	0.30		0.04	62.2	0.38		0.28
4	5.0	0.28		0.01	64.2	0.26		0.28
5	7.0	0.24		0.02	66.2	0.18		0.27
6	8.0	0.25		0.02	68.2	0.18		0.23
7	9.0	0.22		0.01	70.2	0.10		0.09
8	10.0	0.00		0.00	72.2	0.08		0.08
9	11.0	0.00		0.00	73.7	0.10		0.05
10	12.0	0.10		0.02	74.2	0.00		
11	13.0	0.00		0.00				
12	13.8	0.14		0.01				
13	15.2	0.26		0.09				
14	15.7	0.00						
15	17.7	0.00						
16	18.2	0.22		0.21				
17	20.2	0.28		0.22				
18	22.2	0.24		0.14				
19	24.2	0.18		0.55				
20	26.2	0.18		0.39				
21	28.2	0.32		0.66				
22	30.2	0.28		0.32				
23	32.2	0.32		0.51				
24	34.2	0.38		0.53				
25	36.2	0.31		0.56				
26	38.2	0.34		0.62				
27	40.2	0.24		0.52				
28	42.2	0.36		0.42				
29	44.2	0.42		0.39				
30	46.2	0.34		0.34				
31	48.2	0.34		0.37				
32	50.2	0.38		0.33				
33	52.2	0.37		0.36	RESULTS:	Q (m^3/s)	5.871	
34	54.2	0.42		0.32		A(m^2)	18.88	
35	56.2	0.3		0.35		B(m)	74.2	

Table A4-40: Meliadine Lake Main Outlet Discharge Measurement Field Form for 5 August 2009

Project Name:		**Comaplex (09-1373-0010)**			**Date**		**05-Aug-2009**	
Waterbody:		Meliadine Lake			**Start Time**		08:30	
Crossing ID:		Meliadine Lake Main Outlet			**End Time**		09:25	
BM GPS Location		**Survey**		Staff	**Datalogger SN: -**			
East	530780	**BM_read**	0.359	Gauge	**Transducer SN: -**			
North	6989640	**WL_read**	1.992	0.330	**Meter Type/SN: Marsh McBirney-2005856**			
Elevation	100.000	**WL_Elev**	98.367		**Crew:**	DC/MI		
STATION Start LDB	**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**		**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**	
			0.2 Depth (m/s)	**0.6/0.8 Depth (m/s)**			**0.2 Depth (m/s)**	**0.6/0.8 Depth (m/s)**
1	0.0	0.00			69.0	0.20		0.00
2	1.0	0.12		0.079	70.0	0.20		0.00
3	3.0	0.12		0.070	74.0	0.00		
4	6.0	0.12		0.107				
5	8.0	0.20		0.137				
6	9.0	0.22		0.015				
7	11.0	0.20		0.314				
8	13.0	0.32		0.137				
9	15.0	0.38		0.125				
10	17.0	0.36		0.229				
11	18.0	0.34		0.253				
12	20.0	0.48		0.283				
13	22.0	0.29		0.360				
14	24.0	0.46		0.226				
15	26.0	0.38		0.235				
16	28.0	0.38		0.253				
17	30.0	0.46		0.229				
18	32.0	0.34		0.390				
19	34.0	0.32		0.357				
20	36.0	0.43		0.265				
21	38.0	0.42		0.232				
22	40.0	0.58		0.219				
23	42.0	0.49		0.232				
24	44.0	0.48		0.247				
25	46.0	0.36		0.262				
26	48.0	0.36		0.223				
27	50.0	0.4		0.226				
28	52.0	0.42		0.107				
29	53.0	0.12		0.143				
30	55.0	0.12		0.064				
31	57.0	0.08		0.055				
32	59.0	0.1		0.030				
33	61.0	0.15		0.027	RESULTS:	Q_o	3.853	
34	63.0	0.2		0		$A(m^2)$	20.48	
35	65.0	0.23		0		B(m)	74.0	

Table A4-41: Meliadine Lake Main Outlet Discharge Measurement Field Form for 11 September 2009

Project Name:		**Comaplex (09-1373-0010)**			**Date**		**11-Sep-2009**	
Waterbody:		Meliadine Lake			**Start Time**		10:40	
Crossing ID:		Meliadine Lake Main Outlet			**End Time**		12:00	
BM GPS Location		**Survey**		Staff	**Datalogger SN: -**			
East	530780	**BM_read**	0.712	Gauge	**Transducer SN: -**			
North	6989640	**WL_read**	1.868	0.246	**Meter Type/SN: Marsh McBirney-2005856**			
Elevation	100.000	**WL_Elev**	98.844		**Crew:**	DC/KO		
STATION Start LDB	**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**		**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**	
			0.2 Depth (m/s)	**0.6/0.8 Depth (m/s)**			**0.2 Depth (m/s)**	**0.6/0.8 Depth (m/s)**
1	0.0	0.00						
2	2.0	0.06		0.006				
3	4.0	0.10		0.027				
4	6.0	0.10		0.018				
5	8.0	0.16		0.012				
6	10.0	0.20		0.006				
7	12.0	0.24		0.110				
8	14.0	0.32		0.110				
9	16.0	0.33		0.040				
10	18.0	0.31		0.125				
11	20.0	0.44		0.143				
12	22.0	0.22		0.152				
13	24.0	0.32		0.155				
14	26.0	0.30		0.177				
15	28.0	0.30		0.180				
16	30.0	0.32		0.204				
17	32.0	0.29		0.207				
18	34.0	0.32		0.216				
19	36.0	0.36		0.152				
20	38.0	0.42		0.219				
21	40.0	0.52		0.119				
22	42.0	0.41		0.146				
23	44.0	0.40		0.183				
24	46.0	0.31		0.186				
25	48.0	0.32		0.152				
26	50.0	0.30		0.140				
27	52.0	0.36		0.091				
28	54.0	0.10		0.061				
29	56.0	0.12		0.009				
30	58.0	0.10		0.000				
31	59.0	0.10		0.003				
32	61.0	0.10		0.000				
33	74.0	0.00			RESULTS:	Q_o	2.200	
34						$A(m^2)$	16.35	
35						B(m)	74.0	

MELIADINE LAKE WEST OUTLET HYDROMETRIC STATION

ML-W

FACTSHEET

LOCATION AND DETAILS

Located approximately 22 kilometres northwest of Meliadine West Camp.

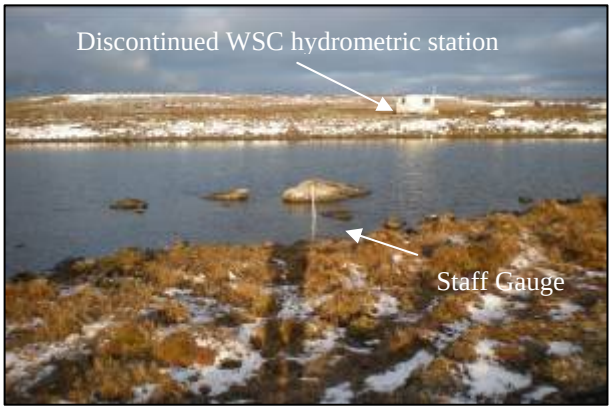
Operational:	1997	1998	1999	2000	2008	2009
	12/6-25/9	6/6-22/9	16/6-20/9	19/6-18/9	16/6-18/9	14/6-11/9

Benchmark: Bolt on boulder; 100.000 m (non-geodetic)
Coordinates: UTM: 523818 m E, 7000994 m N (NAD83, Zn15)
Transducer: none

Drainage Area: 569 km^2
Lat/Long: 63°08'14" N, 92°31'39" W
Datalogger: none



Meliadine Lake west outlet from staff gauge.



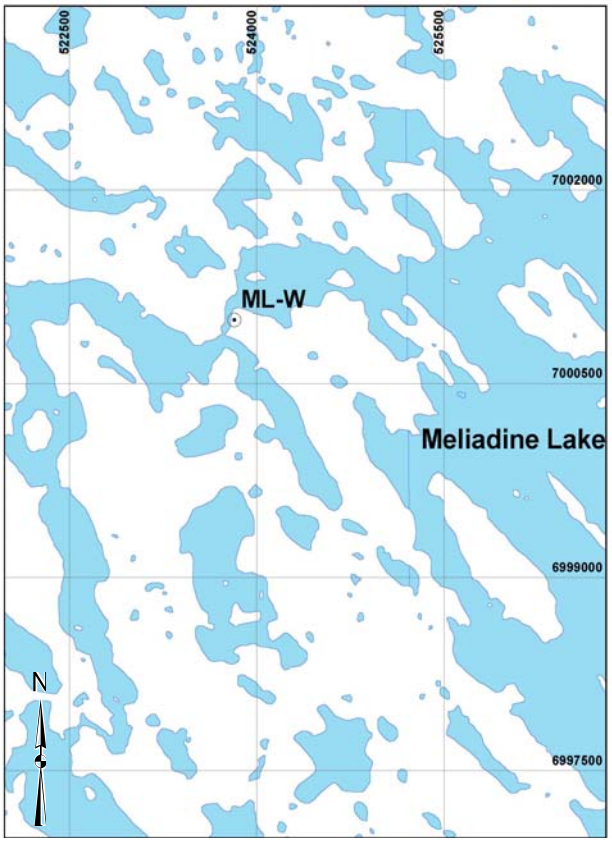
Meliadine Lake west outlet hydrometric station.



Downstream view of outlet.



Benchmark.



NTS Mapping of Area.

FACT-ML-W-2009.DOC

A4-10 MELIADINE LAKE WEST OUTLET (DIANA RIVER)

The Meliadine Lake West Outlet hydrometric station was visited 4 times during the 2009 field program and details of each site visit are provided in Table A4-42. No continuous monitoring was planned for this site. The existing rating curve for the outlet channel was updated and is provided in Figure A4-14. Raw data are presented in Tables A4-43 to A4-46.

Table A4-42: Site Visits to Meliadine Lake West Outlet Hydrometric Station, 2009

Date	Activities	Lake Water Surface Elevation (m, non-geodetic)	Outlet	Discharge (m^3/s)
14 Jun	Measured water surface elevation.	97.443	✓	2.88
10 Jul	Measured discharge and water surface elevation.	97.475	✓	3.57
5 Aug	Measured discharge and water surface elevation.	97.406	✓	1.71
11 Sep	Measured discharge and water surface elevation.	97.312	✓	0.537

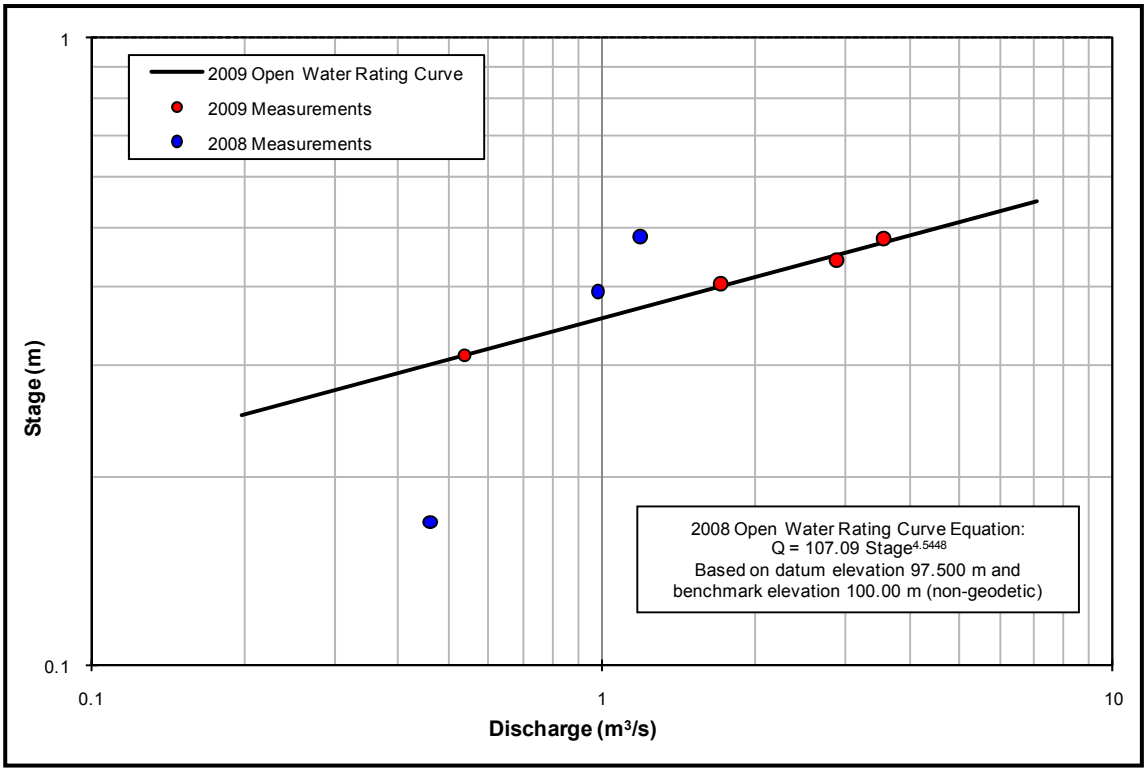


Figure A4-13: Meliadine Lake West Outlet Stage-Discharge Rating Curve, 2009

Table A4-43: Meliadine Lake West Outlet Discharge Measurement Field Form for 14 June 2009

Project Name:		**Comaplex (09-1373-0010)**			**Date**		**14-Jun-2009**	
Waterbody:		Meliadine Lake			**Start Time**		12:15	
Crossing ID:		Meliadine Lake West Outlet			**End Time**		12:40	
BM GPS Location		**Survey**		Staff	**Datalogger SN: -**			
East	523818	**BM_read**	0.910	Gauge	**Transducer SN: -**			
North	7000994	**WL_read**	3.467	0.604	**Meter Type/SN: Marsh McBirney-2005856**			
Elevation	100.000	**WL_Elev**	97.443		**Crew:**	DC/WN		

STATION Start LDB	**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**		**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**	
			0.2 Depth (m/s)	**0.6/0.8 Depth (m/s)**			**0.2 Depth (m/s)**	**0.6/0.8 Depth (m/s)**
1	0.0	0.00			35.0	0.18		0.19
2	1.0	0.14		0.01	36.0	0.00		
3	2.0	0.18		0.02	37.0	0.00		
4	3.0	0.00			38.0	0.00		
5	4.0	0.09		0.15	39.0	0.00		
6	5.0	0.60		0.25	40.0	0.40		0.54
7	6.0	0.00			41.0	0.32		0.11
8	7.0	0.00			42.0	0.32		0.55
9	8.0	0.14		0.09	43.0	0.22		0.590
10	9.0	0.12		0.15	44.0	0.00		
11	10.0	0.20		0.15	45.0	0.00		
12	11.0	0.15		0.13	57.0	0.00		
13	12.0	0.23		0.26	58.0	0.13		0.110
14	13.0	0.25		0.01	59.0	0.16		0.170
15	14.0	0.16		0.35	60.0	0.18		0.100
16	15.0	0.23		0.08	61.0	0.10		0.180
17	16.0	0.24		0.25	62.0	0.10		0.340
18	17.0	0.00			63.0	0.00		
19	18.0	0.45		0.52				
20	19.0	0.32		0.04				
21	20.0	0.24		0.83				
22	21.0	0.32		0.23				
23	22.0	0.40		0.16				
24	23.0	0.20		0.49				
25	24.0	0.14		0.39				
26	25.0	0.30		0.18				
27	26.0	0.28		0.54				
28	27.0	0.16		0.65				
29	28.0	0.22		0.77				
30	29.0	0.12		0.63				
31	30.0	0.22		0.16				
32	31.0	0.14		0.35				
33	32.0	0.12		0.85	RESULTS:	Q (m^3/s)	2.877	
34	33.0	0.32		0.79		A(m^2)	8.70	
35	34.0	0.00				B(m)	63.0	

Table A4-44: Meliadine Lake West Outlet Discharge Measurement Field Form for 10 July 2009

Project Name:		**Comaplex (09-1373-0010)**			**Date**		**10-Jul-2009**	
Waterbody:		Meliadine Lake			**Start Time**		11:30	
Crossing ID:		Meliadine Lake West Outlet			**End Time**		12:40	
BM GPS Location		**Survey**		Staff	**Datalogger SN: -**			
East	523818	**BM_read**	0.273	Gauge	**Transducer SN: -**			
North	7000994	**WL_read**	2.795	0.635	**Meter Type/SN: Marsh McBirney-2005856**			
Elevation	100.000	**WL_Elev**	97.478		**Crew:**	DC/IL		

STATION Start LDB	**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**		**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**	
			0.2 Depth (m/s)	**0.6/0.8 Depth (m/s)**			**0.2 Depth (m/s)**	**0.6/0.8 Depth (m/s)**
1	0.8	0.00			0.0	0.00		
2	1.0	0.08		0.06	0.5	0.14		0.09
3	3.0	0.18		0.06	1.5	0.12		0.30
4	5.0	0.12		0.09	1.8	0.10		0.94
5	7.0	0.10		0.06	2.1	0.21		0.24
6	9.0	0.14		0.08	2.5	0.31		0.01
7	10.0	0.22		0.15	3.5	0.15		0.14
8	12.0	0.20		0.41	4.5	0.00		
9	14.0	0.25		0.10				
10	16.0	0.22		0.61				
11	18.0	0.20		0.69				
12	20.0	0.38		0.77				
13	21.0	0.32		0.41				
14	22.0	0.20		0.45				
15	23.0	0.50		0.33				
16	24.0	0.40		0.14				
17	26.0	0.26		0.98				
18	27.0	0.19		0.81				
19	28.0	0.18		0.25				
20	29.0	0.20		0.96				
21	30.0	0.20		0.38				
22	31.0	0.25		0.65				
23	32.0	0.23		0.50				
24	33.0	0.21		0.84				
25	34.0	0.16		0.29				
26	35.0	0.00		0.00				
27	35.0	0.00		0.00				
28				0.00				
29	0.0	0.00		0.00				
30	0.5	0.21		0.52				
31	1.0	0.38		0.33				
32	2.0	0.29		0.16				
33	2.5	0.37		0.37	RESULTS:	Q_o	3.568	
34	4.0	0.00				$A(m^2)$	9.00	
35						B(m)	35.0	

Table A4-45: Meliadine Lake West Outlet Discharge Measurement Field Form for 5 August 2009

Project Name:		Comaplex (09-1373-0010)			Date		05-Aug-2009	
Waterbody:		Meliadine Lake			Start Time		08:40	
Crossing ID:		Meliadine Lake West Outlet			End Time		10:15	
BM GPS Location		Survey		Staff	Datalogger SN: -			
East	523818	BM_read	0.008	Gauge	Transducer SN: -			
North	7000994	WL_read	2.603	0.56	Meter Type/SN: Marsh McBirney-2005856			
Elevation	100.000	WL_Elev	97.4055		Crew:	DC/MI		

STATION Start LDB	DISTANCE FROM LDB (m)	DEPTH (m)	VELOCITY		DISTANCE FROM LDB (m)	DEPTH (m)	VELOCITY	
			0.2 Depth (m/s)	0.6/0.8 Depth (m/s)			0.2 Depth (m/s)	0.6/0.8 Depth (m/s)
1	0.0	0.00			54.0	0.21		0.02
2	2.0	0.08		0.01	56.0	0.30		0.04
3	4.0	0.10		0.00	58.0	0.10		0.03
4	6.0	0.12		0.05	60.0	0.14		0.02
5	8.0	0.12		0.06	63.0	0.15		0.06
6	10.0	0.11		0.05	66.0	0.12		0.00
7	12.0	0.14		0.12	67.0	0.06		0.02
8	14.0	0.20		0.11	68.0	0.00		
9	16.0	0.18		0.05				
10	18.0	0.16		0.07				
11	20.0	0.20		0.13				
12	22.0	0.36		0.21				
13	24.0	0.40		0.15				
14	26.0	0.34		0.14				
15	27.0	0.24		0.21				
16	28.0	0.22		0.08				
17	30.0	0.34		0.18				
18	31.0	0.30		0.18				
19	32.0	0.26		0.13				
20	33.0	0.38		0.09				
21	34.0	0.30		0.11				
22	35.0	0.30		0.15				
23	36.0	0.32		0.22				
24	37.0	0.36		0.18				
25	38.0	0.39		0.12				
26	39.0	0.36		0.15				
27	41.0	0.30		0.11				
28	43.0	0.56		0.15				
29	44.0	0.45		0.16				
30	45.0	0.31		0.14				
31	46.0	0.28		0.12				
32	47.0	0.27		0.15				
33	48.0	0.20		0.12	RESULTS:	Q_o	1.709	
34	50.0	0.12		0.09		$A(m^2)$	15.05	
35	52.0	0.2		0.1		B(m)	68.0	

Table A4-46: Meliadine Lake West Outlet Discharge Measurement Field Form for 11 September 2009

Project Name:		**Comaplex (09-1373-0010)**			**Date**		**11-Sep-2009**	
Waterbody:		Meliadine Lake			**Start Time**		14:00	
Crossing ID:		Meliadine Lake West Outlet			**End Time**		16:00	
BM GPS Location		**Survey**		Staff	**Datalogger SN: -**			
East	523818	**BM_read**	0.295	Gauge	**Transducer SN: -**			
North	7000994	**WL_read**	2.983	0.476	**Meter Type/SN: Marsh McBirney-2005856**			
Elevation	100.000	**WL_Elev**	97.312		**Crew:**	DC/KO		
STATION Start LDB	**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**		**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**	
			0.2 Depth (m/s)	**0.6/0.8 Depth (m/s)**			**0.2 Depth (m/s)**	**0.6/0.8 Depth (m/s)**
1	0.0	0.00						
2	2.0	0.16						
3	4.0	0.10						
4	8.0	0.16						
5	9.0	0.22		0.018				
6	11.0	0.40		0.021				
7	13.0	0.41		0.018				
8	14.0	0.42		0.018				
9	16.0	0.52		0.015				
10	18.0	0.56		0.012				
11	20.0	0.58		0.027				
12	22.0	0.60		0.015				
13	24.0	0.38		0.034				
14	26.0	0.36		0.064				
15	28.0	0.32		0.046				
16	30.0	0.28		0.110				
17	32.0	0.34		0.110				
18	34.0	0.30		0.125				
19	36.0	0.26		0.088				
20	38.0	0.32		0.049				
21	40.0	0.22		0.027				
22	42.0	0.13		0.006				
23	43.5	0.08		0.018				
24	45.0	0.00						
25	46.0	0.00						
26	46.5	0.25		0.015				
27	48.5	0.13		0.012				
28	49.5	0.00						
29								
30								
31								
32								
33					RESULTS:	Q_o	0.537	
34						$A(m^2)$	14.33	
35						B(m)	49.5	

MELIADINE RIVER NEAR THE MOUTH HYDROMETRIC STATION

ML-R

FACTSHEET

LOCATION AND DETAILS

Located approximately 18 kilometres south of Meliadine West Camp.

Operational:	1997	1998	1999	2000	2008	2009
	13/6-25/9	4/6-22/9	17/6-22/9	12/6-19/9	10/7-17/9	11/6-11/9

Benchmark: Bolt on boulder; 100.000 m (non-geodetic)
Coordinates: UTM: 544835 m E, 6971643 m N (NAD83, Zn15)
Transducer: none

Drainage Area: 689 km^2
Lat/Long: 62°52'19" N, 92°07'07" W
Datalogger: none



Upstream view of the Meliadine River near the mouth.



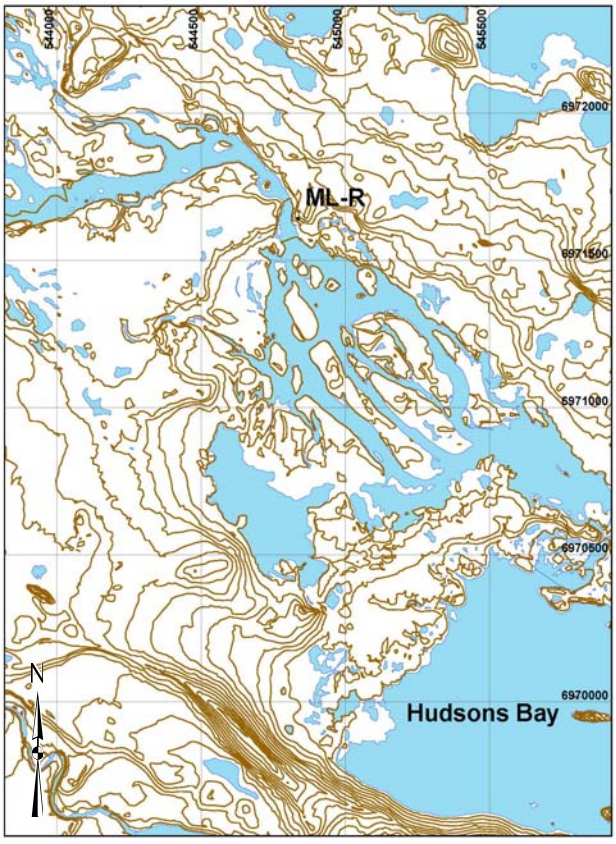
Upstream view of the Meliadine River near the mouth.



Meliadine River near the mouth, July 2009.



Benchmark.



NTS Mapping of Area.

A4-11 MELIADINE RIVER NEAR THE MOUTH

The Meliadine River near the Mouth hydrometric station was visited 4 times during the 2009 field program. Details of each site visit are provided in Table A4-47. No continuous monitoring was planned for this site. The stage-discharge rating curve for the outlet channel is provided in Figure A4-15. During the first site visit, the river conditions did not allow for a safe discharge measurement. On 13 July, the discharge measurement was performed using the ADCP, and the measurement summary is presented in Table A4-48. Raw data are presented in Tables A4-49 and A4-50.

Table A4-47: Site Visits to Meliadine River near the Mouth Hydrometric Station, 2009

Date	Activities	Lake Water Surface Elevation (m, non-geodetic)	Outlet	Discharge (m^3/s)
11 Jun	Measured water surface elevation.	98.118		
13 Jul	Measured discharge and water surface elevation.	97.764	✓	12.5
4 Aug	Measured discharge and water surface elevation.	97.647	✓	5.78
11 Sep	Measured discharge and water surface elevation.	97.575	✓	3.80

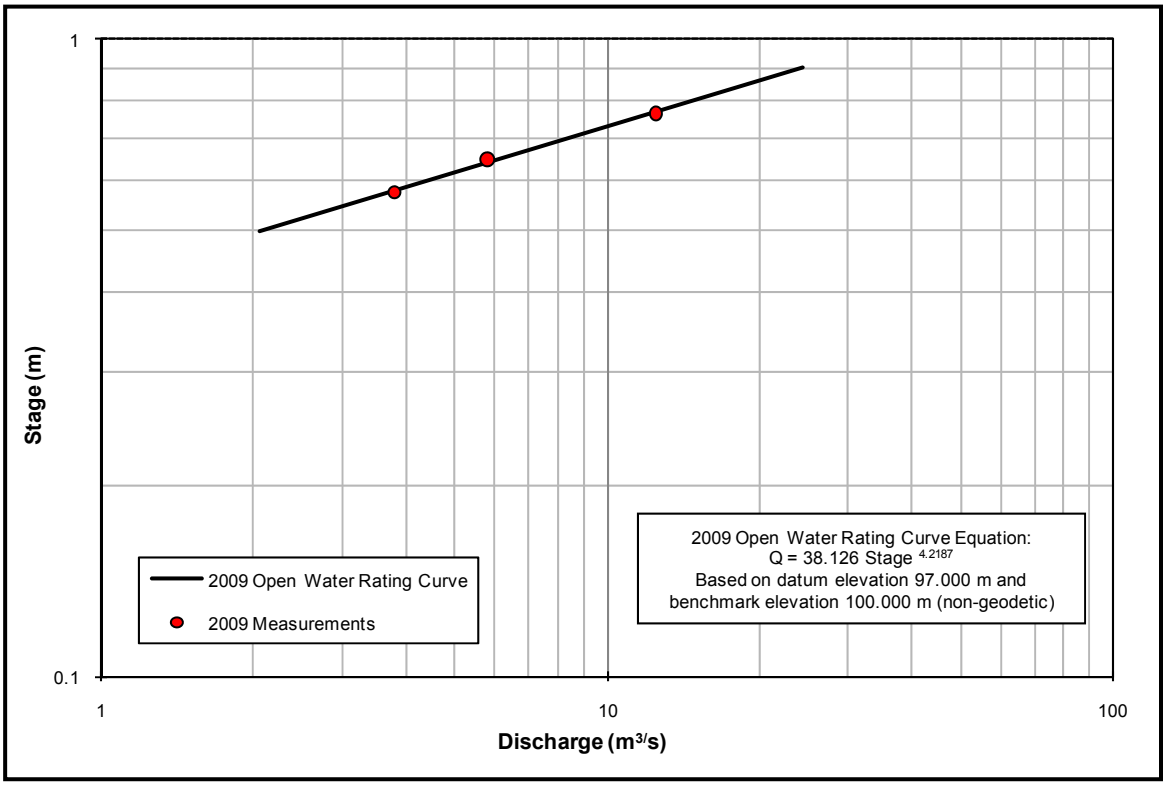


Figure A4-14: Meliadine River near the Mouth Stage-Discharge Rating Curve, 2009

Table A4-48: Meliadine River near the Mouth ADCP Summary Discharge Measurement for 13 July 2009

Station Number: ML-R
Station Name: Meliadine River near Rankin Inlet
Meas. No: 1
Date: 07/13/2009

Party:
Boat/Motor:
Gage Height: 0.000 m
Width: 34.4 m
Area: 25.8 m²
G.H.Change: 0.000 m
Processed by: Dan Ciobotaru
Mean Velocity: 0.488 m/s
Discharge: 12.5 m³/s

Area Method: Avg. Course
Nav. Method: Bottom Track
MagVar Method: Model (-7.5°)
Depth Sounder: Not Used
ADCP Depth: 0.100 m
Shore Ens.:10
Bottom Est: Power (0.1667)
Top Est: Power (0.1667)
Index Vel.: 0.00 m/s
Adj.Mean Vel: 0.00 m/s
Rated Area: 0.000 m²
Control1: Unspecified
Control2: Unspecified
Control3: Unspecified
Rating No.: 1
Qm Rating: U
Diff.: 0.000%

Screening Thresholds:
BT 3-Beam Solution: YES
WT 3-Beam Solution: NO
BT Error Vel.: 0.10 m/s
WT Error Vel.: 1.07 m/s
BT Up Vel.: 0.30 m/s
WT Up Vel.: 2.50 m/s
Use Weighted Mean Depth: YES
Max. Vel.: 3.45 m/s
Max. Depth: 1.18 m
Mean Depth: 0.750 m
% Meas.: 14.14
Water Temp.: None
ADCP Temp.: 9.9 °C
ADCP:
Type/Freq.: Rio Grande/1200 kHz
Serial #: 7286
Firmware: 10.16
Bin Size: 5 cm
Blank: 25 cm
BT Mode: 5
BT Pings: 1
WT Mode: 12
WT Pings: 1
WV : 175
WO : 1, 4

Performed Diag. Test: NO
Performed Moving Bed Test: NO
Performed Compass Test: NO
Meas. Location:
Project Name: MLDriverRankin.mmt
Software: 2.05

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
004	L	5.00	5.00	254	6.62	1.81	2.61	0.567	0.669	12.3	33.0	25.3	09:51	09:53	0.20	0.48	25	43
009	R	6.00	6.00	284	6.62	1.85	2.72	0.626	0.740	12.6	37.8	28.5	10:00	10:03	0.20	0.44	30	42
012	L	6.00	6.00	210	6.49	1.68	2.54	1.02	0.690	12.4	34.0	25.2	10:10	10:12	0.20	0.49	33	41
014	L	6.00	6.00	238	7.05	1.75	2.84	0.562	0.656	12.8	32.7	24.0	10:16	10:18	0.20	0.53	35	41
Mean		5.75	5.75	246	6.69	1.77	2.68	0.693	0.689	12.5	34.4	25.8	**Total**	00:27	0.20	0.49	31	42
SDev		0.50	0.50	31	0.245	0.076	0.129	0.217	0.037	0.245	2.4	1.9			0.00	0.04		
SD/M		0.09	0.09	0.13	0.04	0.04	0.05	0.31	0.05	0.02	0.07	0.07			0.02	0.08		

Remarks:

Table A4-49: Meliadine River near the Mouth Discharge Measurement Field Form for 4 August 2009

Project Name:		Comaplex (09-1373-0010)			Date		04-Aug-2009	
Waterbody:		Meliadine River			Start Time		11:40	
Crossing ID:		Meliadine River near the Mouth			End Time		13:50	
BM GPS Location		Survey		Staff	Datalogger SN: -			
East	523818	BM_read	0.297	Gauge	Transducer SN: -			
North	7000994	WL_read	2.650		Meter Type/SN: Marsh McBirney-2005856			
Elevation	100.000	WL_Elev	97.647		Crew:	DC/MI		

STATION Start LDB	DISTANCE FROM LDB (m)	DEPTH (m)	VELOCITY		DISTANCE FROM LDB (m)	DEPTH (m)	VELOCITY	
			0.2 Depth (m/s)	0.6/0.8 Depth (m/s)			0.2 Depth (m/s)	0.6/0.8 Depth (m/s)
1	0.5	0.00						
2	1.0	0.40	0.06					
3	2.0	0.35	0.06					
4	4.0	0.46	0.08					
5	6.0	0.54	0.17					
6	8.0	0.59	0.28					
7	10.0	0.68	0.30	0.229				
8	12.0	0.87	0.26	0.177				
9	14.0	0.92	0.34	0.244				
10	16.0	0.97	0.41	0.241				
11	18.0	0.90	0.40	0.238				
12	20.0	0.94	0.44	0.241				
13	21.0	0.87	0.41	0.332				
14	22.0	0.80	0.38	0.259				
15	24.0	0.79	0.37	0.259				
16	26.0	0.62	0.32	0.244				
17	27.0	0.65	0.31	0.229				
18	28.0	0.60	0.16	0.110				
19	29.0	0.56	0.16					
20	30.0	0.46	0.14					
21	31.0	0.40	0.21					
22	32.0	0.48	0.25					
23	33.0	0.34	0.18					
24	34.0	0.20	0.09					
25	36.0	0.10	0.07					
26	38.0	0.00						
27								
28								
29								
30								
31								
32								
33					RESULTS:	Q_o	5.78	
34						$A(m^2)$	22.7	
35						B(m)	37.5	

Table A4-50: Meliadine River near the Mouth Discharge Measurement Field Form for 11 September 2009

Project Name:		Comaplex (09-1373-0010)			Date		11-Sep-2009	
Waterbody:		Meliadine River			Start Time		07:55	
Crossing ID:		Meliadine River near the Mouth			End Time		09:15	
BM GPS Location		Survey		Staff	Datalogger SN: -			
East	523818	BM_read	0.428	Gauge	Transducer SN: -			
North	7000994	WL_read	2.853	n/a	Meter Type/SN: Marsh McBirney-2005856			
Elevation	100.000	WL_Elev	97.575		Crew:	DC/KO		

STATION Start LDB	DISTANCE FROM LDB (m)	DEPTH (m)	VELOCITY		DISTANCE FROM LDB (m)	DEPTH (m)	VELOCITY	
			0.2 Depth (m/s)	0.6/0.8 Depth (m/s)			0.2 Depth (m/s)	0.6/0.8 Depth (m/s)
1	0.0	0.00						
2	1.0	0.31	0.040					
3	2.0	0.33	0.049					
4	3.0	0.39	0.067					
5	4.0	0.41	0.064					
6	5.0	0.49	0.110					
7	6.0	0.50	0.140					
8	8.0	0.60	0.168					
9	9.0	0.60	0.165					
10	10.0	0.63	0.198					
11	11.0	0.66	0.180					
12	12.0	0.74	0.168					
13	14.0	0.85	0.332	0.210				
14	16.0	0.83	0.335	0.250				
15	17.0	0.87	0.314	0.235				
16	18.0	0.86	0.320	0.171				
17	19.0	0.89	0.341	0.128				
18	20.0	0.77	0.329	0.198				
19	21.0	0.64	0.262	0.201				
20	22.0	0.82	0.293	0.207				
21	23.0	0.72	0.259	0.165				
22	24.0	0.58	0.219					
23	25.0	0.56	0.241					
24	26.0	0.54	0.238					
25	27.0	0.54	0.101					
26	28.0	0.50	0.101					
27	29.0	0.40	0.110					
28	31.0	0.39	0.113					
29	33.0	0.25	0.076					
30	35.2	0.00						
31								
32								
33					RESULTS:	Q_o	3.80	
34						$A(m^2)$	19.7	
35						B(m)	35.2	

LAKE A54
HYDROMETRIC STATION

A54

FACTSHEET

LOCATION AND DETAILS

Located approximately 1.7 kilometres west of Meliadine West Camp.

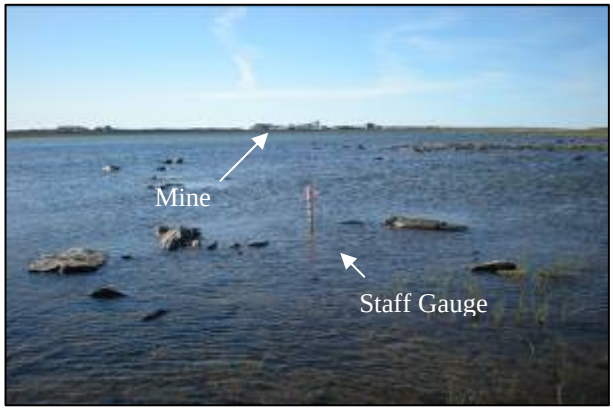
Operational:	1997	1998	1999	2000	2008 11/7-16/9	2009 11/6-13/9

Benchmark: Bolt on boulder; 100.000 m (non-geodetic)
Coordinates: UTM: 540417 m E, 6988473 m N (NAD83, Zn15)
Transducer: none

Drainage Area: n/a km^2
Lat/Long: 63°01'25" N, 92°12'05" W
Datalogger: none



Benchmark.



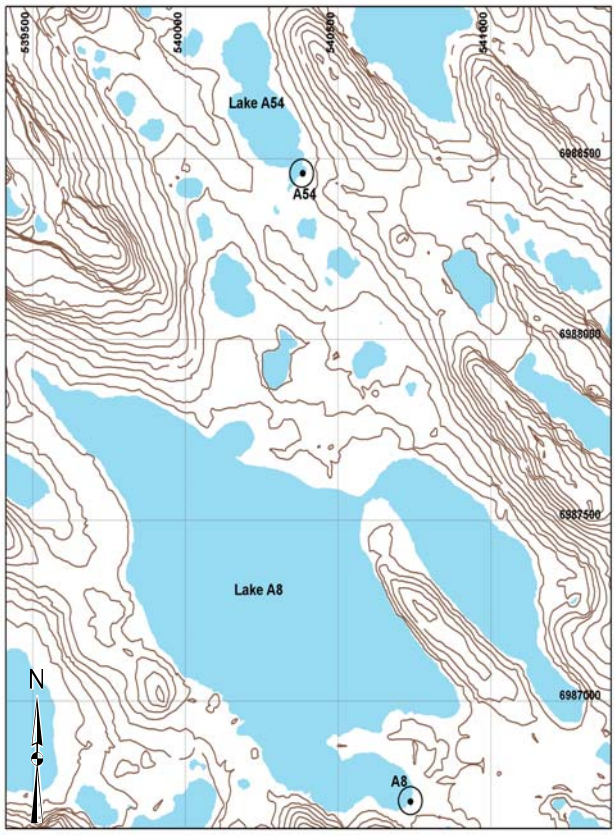
Staff gauge with proposed mine location in background.



Lake A54, looking north.



Lake A54, looking northwest.



NTS Mapping of Area.

A4-12 LAKE A54 AND OUTLET

Lake A54 and Outlet hydrometric station was visited 4 times during the 2009 field program. Details of each site visit are provided in Table A4-51. No continuous monitoring was planned for this site. No flow was observed during site visits.

Table A4-51: Site Visits to Lake A54 and Outlet Hydrometric Station, 2009

Date	Activities	Lake	Lake Water Surface Elevation (m, non-geodetic)
11 Jun	Measured water surface elevation.	✓	99.681
8 Jul	Measured water surface elevation.	✓	99.432
3 Aug	Measured water surface elevation.	✓	99.434
13 Sep	Measured water surface elevation.	✓	99.469

LAKE A8
HYDROMETRIC STATION

A 8

FACTSHEET

LOCATION AND DETAILS

Located approximately 2.6 kilometres southwest of Meliadine West Camp.

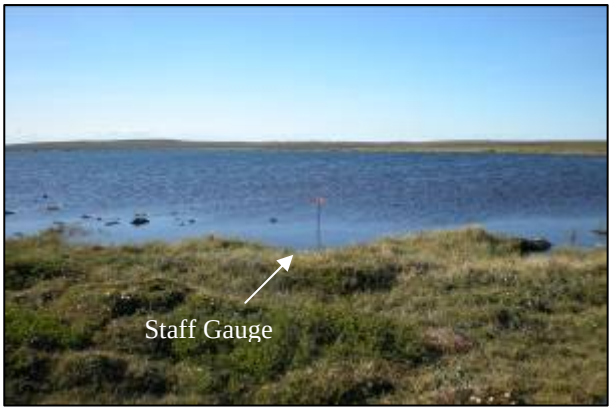
Operational:	1997	1998	1999	2000	2008 10/7-16/9	2009 12/6-13/9

Benchmark: Bolt on boulder; 100.000 m (non-geodetic)
Coordinates: UTM: 540728 m E, 6986693 m N (NAD83, Zn15)
Transducer: none

Drainage Area: n/a km^2
Lat/Long: 63°00'27" N, 92°11'44" W
Datalogger: none



Benchmark location (before installation of bolt).



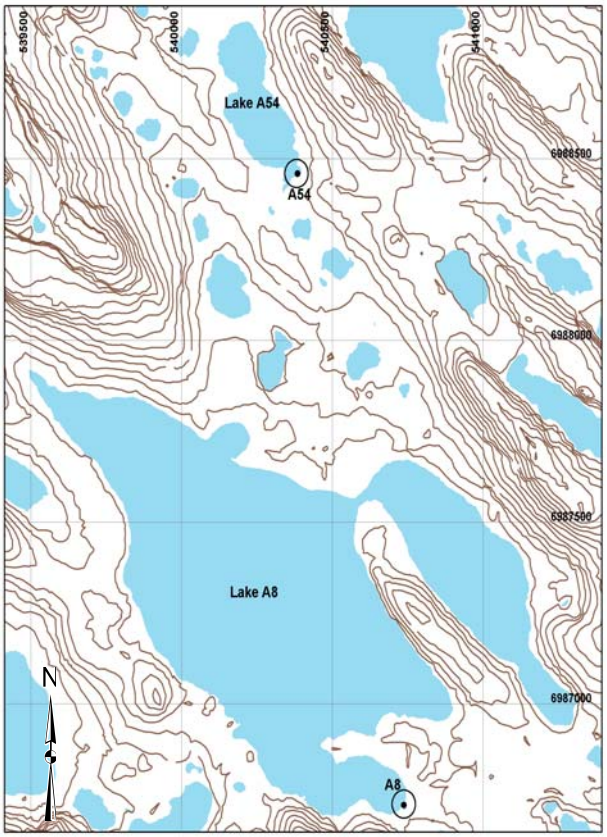
Staff gauge location, view north.



Lake A8, view north from outlet.



Downstream view of outlet.



NTS Mapping of Area.

A4-13 LAKE A8 AND OUTLET

Lake A8 and Outlet hydrometric station was visited 4 times during the 2009 field program. Details of each site visit are provided in Table A4-52. No continuous monitoring was planned for this site. Flow was observed during each visit at Lake A8 outlet and a stage-discharge rating curve was developed and is provided in Figure A4-16. Raw data are presented in Tables A4-53 to A4-56.

Table A4-52: Site Visits to Lake A8 and Outlet Hydrometric Station, 2009

Date	Activities	Lake	Lake Water Surface Elevation (m; non-geodetic)	Outlet	Discharge (m^3/s)	Staff Gauge
12 Jun	Measured discharge and water surface elevation.	✓	100.045	✓	0.171	0.291
9 Jul	Measured discharge and water surface elevation.	✓	99.943	✓	0.019	0.200
6 Aug	Measured discharge and water surface elevation.	✓	99.892	✓	0.003	0.190
13 Sep	Measured discharge and water surface elevation.	✓	99.951	✓	0.032	0.240

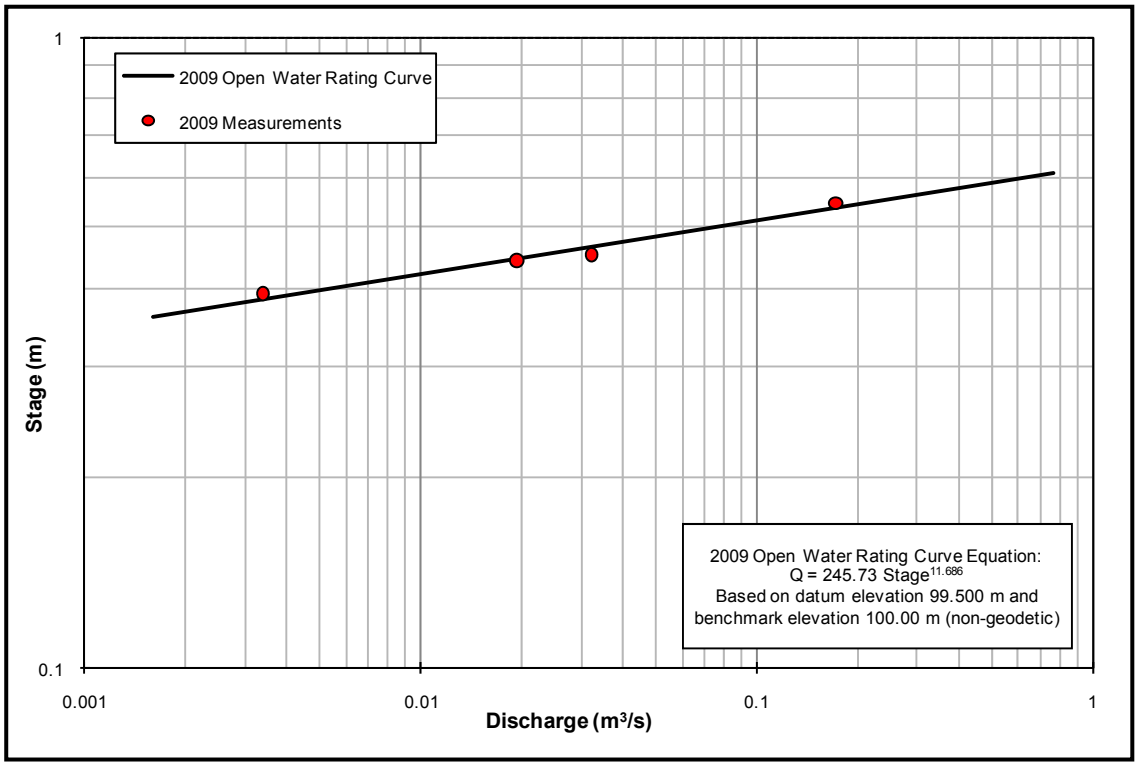


Figure A4-15: Lake A8 Stage-Discharge Rating Curve, 2009

Table A4-53: Lake A8 Main Outlet Discharge Measurement Field Form for 12 June 2009

Project Name:		**Comaplex (09-1373-0010)**			**Date**		**12-Jun-2009**	
Waterbody:		Lake A8			**Start Time**		11:24	
Crossing ID:		Lake A8 Outlet			**End Time**		11:52	
BM GPS Location		**Survey**		Staff	**Datalogger SN: -**			
East	540728	**BM_read**	1.350	Gauge	**Transducer SN: -**			
North	6986693	**WL_read**	1.305	0.291	**Meter Type/SN: Marsh McBirney-2005856**			
Elevation	100.000	**WL_Elev**	100.045		**Crew:**	JL /		

STATION Start LDB	**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**		**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**	
			0.2 Depth (m/s)	**0.6/0.8 Depth (m/s)**			**0.2 Depth (m/s)**	**0.6/0.8 Depth (m/s)**
1	0.00	0.00			0.00	0.00		
2	0.20	0.10		0.07	0.10	0.10		0.14
3	0.40	0.14		0.07	0.20	0.14		0.13
4	0.60	0.14		0.26	0.30	0.11		0.16
5	0.80	0.19		0.27	0.40	0.00		
6	1.00	0.19		0.15				
7	1.20	0.20		0.30				
8	1.40	0.12		0.42				
9	1.60	0.14		0.60				
10	1.80	0.18		0.40				
11	2.00	0.06		0.25				
12	2.20	0.22		0.20				
13	2.40	0.18		0.24				
14	2.60	0.17		0.39				
15	2.80	0.12		0.01				
16	3.00	0.11		0.02				
17	3.20	0.08		0.00				
18	3.40	0.00		0.00				
19	3.60	0.00		0.00				
20	3.75	0.08		0.03				
21	3.90	0.12		0.05				
22	4.05	0.16		0.39				
23	4.20	0.14		0.50				
24	4.35	0.17		0.18				
25	4.50	0.16		0.24				
26	4.65	0.16		0.38	Observation: At the time of discharge measurement, the lake outlet was divided in 2 channels and both of them were measured.			
27	4.80	0.16		0.43				
28	4.95	0.12		0.04				
29	5.10	0.00						
30								
31								
32								
33					RESULTS:	Q_o	0.171	
34						$A(m^2)$	0.694	
35						B(m)	5.1	

Table A4-54: Lake A8 Main Outlet Discharge Measurement Field Form for 9 July 2009

Project Name:		**Comaplex (09-1373-0010)**			**Date**		**9-July-2009**	
Waterbody:		Lake A8			**Start Time**		11:50	
Crossing ID:		Lake A8 Outlet			**End Time**		12:32	
BM GPS Location		**Survey**		Staff	**Datalogger SN: -**			
East	540728	BM_read	1.574	Gauge	**Transducer SN: -**			
North	6986693	WL_read	1.631	0.291	**Meter Type/SN: Marsh McBirney-2005856**			
Elevation	100.000	WL_Elev	99.943		**Crew:**	DC / LI		
STATION Start LDB	DISTANCE FROM LDB (m)	DEPTH (m)	VELOCITY		DISTANCE FROM LDB (m)	DEPTH (m)	VELOCITY	
			0.2 Depth (m/s)	0.6/0.8 Depth (m/s)			0.2 Depth (m/s)	0.6/0.8 Depth (m/s)
1	0.10	0.00						
2	0.10	0.25		0.00				
3	0.20	0.32		0.07				
4	0.30	0.18		0.26				
5	0.40	0.14		0.23				
6	0.50	0.14		0.06				
7	0.60	0.12		0.10				
8	0.70	0.12		0.14				
9	0.80	0.10		0.25				
10	0.90	0.12		0.24				
11	1.00	0.08		0.00				
12	1.10	0.00						
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33					RESULTS:	Q	0.019	
34						A(m^2)	0.14	
35						B(m)	1.0	

Table A4-55: Lake A8 Main Outlet Discharge Measurement Field Form for 6 August 2009

Project Name:		Comaplex (09-1373-0010)			Date		06-Aug-2009	
Waterbody:		Lake A8			Start Time		16:00	
Crossing ID:		Lake A8 Outlet			End Time		16:35	
BM GPS Location		Survey		Staff	Datalogger SN: -			
East	540728	BM_read	1.430	Gauge	Transducer SN: -			
North	6986693	WL_read	1.538	0.19	Meter Type/SN: Marsh McBirney-2005856			
Elevation	100.000	WL_Elev	99.892		Crew:	DC /		
STATION Start LDB	DISTANCE FROM LDB (m)	DEPTH (m)	VELOCITY		DISTANCE FROM LDB (m)	DEPTH (m)	VELOCITY	
			0.2 Depth (m/s)	0.6/0.8 Depth (m/s)			0.2 Depth (m/s)	0.6/0.8 Depth (m/s)
1	0.10	0.00						
2	0.15	0.21		0.02				
3	0.30	0.13		0.07				
4	0.40	0.10		0.07				
5	0.50	0.10		0.00				
6	0.60	0.09		0.06				
7	0.70	0.09		0.07				
8	0.80	0.08		0.00				
9	0.90	0.08		0.00				
10	1.00	0.00						
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33					RESULTS:	Q	0.003	
34						A(m^2)	0.09	
35						B(m)	0.9	

Table A4-56: Lake A8 Main Outlet Discharge Measurement Field Form for 13 September 2009

Project Name:		**Comaplex (09-1373-0010)**			**Date**		**13-Sep-2009**	
Waterbody:		Lake A8			**Start Time**		10:30	
Crossing ID:		Lake A8 Outlet			**End Time**		11:35	
BM GPS Location		**Survey**		Staff	**Datalogger SN: -**			
East	540728	**BM_read**	1.557	Gauge	**Transducer SN: -**			
North	6986693	**WL_read**	1.616	24	**Meter Type/SN: Marsh McBirney-2005856**			
Elevation	100.000	**WL_Elev**	99.941		**Crew:**	DC /		
STATION Start LDB	**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**		**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**	
			0.2 Depth (m/s)	**0.6/0.8 Depth (m/s)**			**0.2 Depth (m/s)**	**0.6/0.8 Depth (m/s)**
1	0.20	0.00						
2	0.30	0.10		0.204				
3	0.40	0.27		0.177				
4	0.50	0.27		0.152				
5	0.60	0.19		0.094				
6	0.70	0.16		0.076				
7	0.80	0.00						
8								
9								
10								
11	0.30	0.00						
12	0.40	0.10		0.137				
13	0.50	0.12		0.216				
14	0.60	0.13		0.195				
15	0.70	0.15		0.149				
16	0.80	0.15		0.183				
17	0.90	0.16		0.149				
18	1.00	0.14		0.140				
19	1.10	0.10		0.131				
20	1.20	0.12		0.094				
21	1.30	0.00						
22								
23								
24								
25								
26					Observation: At the time of discharge measurement, the lake outlet was divided in 2 channels and both of them were measured.			
27								
28								
29								
30								
31								
32								
33					RESULTS:	Q_o	0.032	
34						$A(m^2)$	0.21	
35						B(m)	1.1	

A4-14 MISCELLANEOUS MEASUREMENTS

A4-14.1 Lake D1 and Outlet

The Lake D1 and Outlet hydrometric station was monitored as a supplemental station, starting on 11 July 2009 and ending on 10 September 2009. Details of each site visit are provided in Table A4-57. The hydrographs and rating curve for Lake D1 and Outlet for the period of 11 July to 10 September 2009 were derived using continuous logger data and are presented in Figure A4-17. Based on the continuous logger data and the discharge measurements, a stage-discharge rating curve was developed for the outlet channel and is provided in Figure A4-18. Mean daily data are available in Tables A4-58 and A4-59 and raw data in Tables A4-60 to A4-63.The stream bed of the Lake D1 outlet was surveyed on 10 July 2009 to provide information for the fisheries component of the program.

Table A4-57: Site Visits to Lake D1 and Outlet Hydrometric Station, 2009

Date	Activities	Outlet	Discharge (m^3/s)
10 Jul	Measured discharge and surveyed the outlet channel to Meliadine Lake.	✓	0.038
11 Jul	Installed pressure transducer and data logger and measured discharge.	✓	0.055
6 Aug	Measured discharge and downloaded data logger.	✓	0.029
10 Sep	Measured discharge and downloaded data logger. Removed pressure transducer and data logger.	✓	0.099

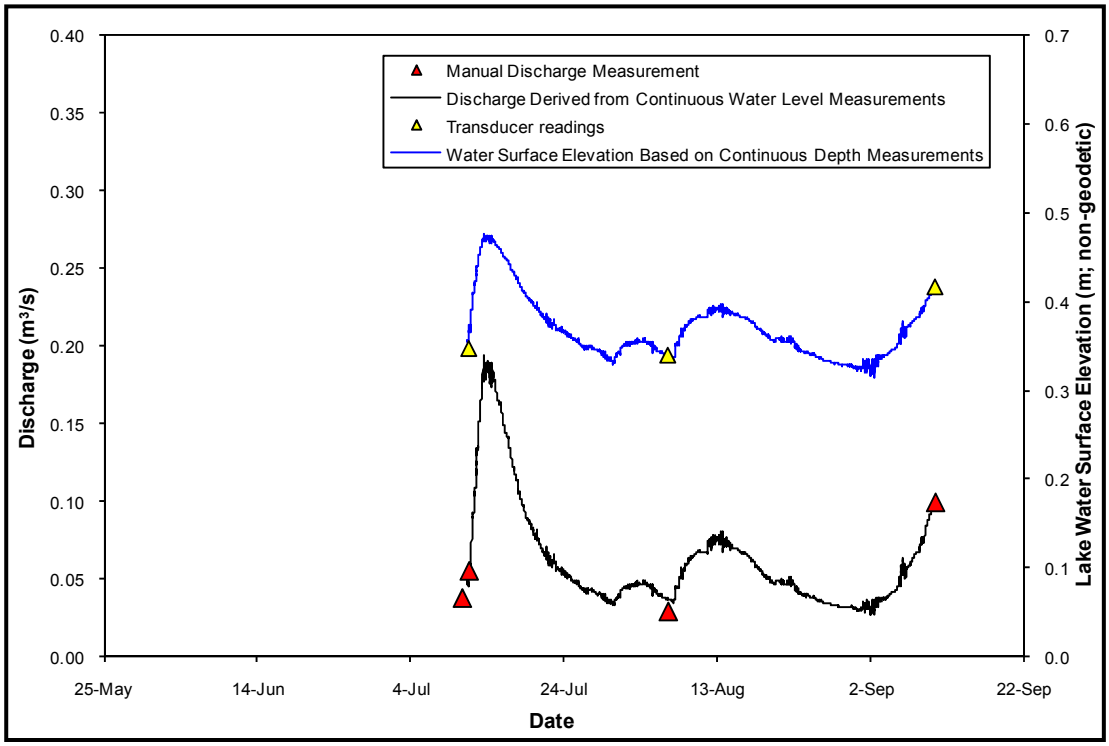


Figure A4-16: Hydrograph for Lake D1 and Outlet, 2009

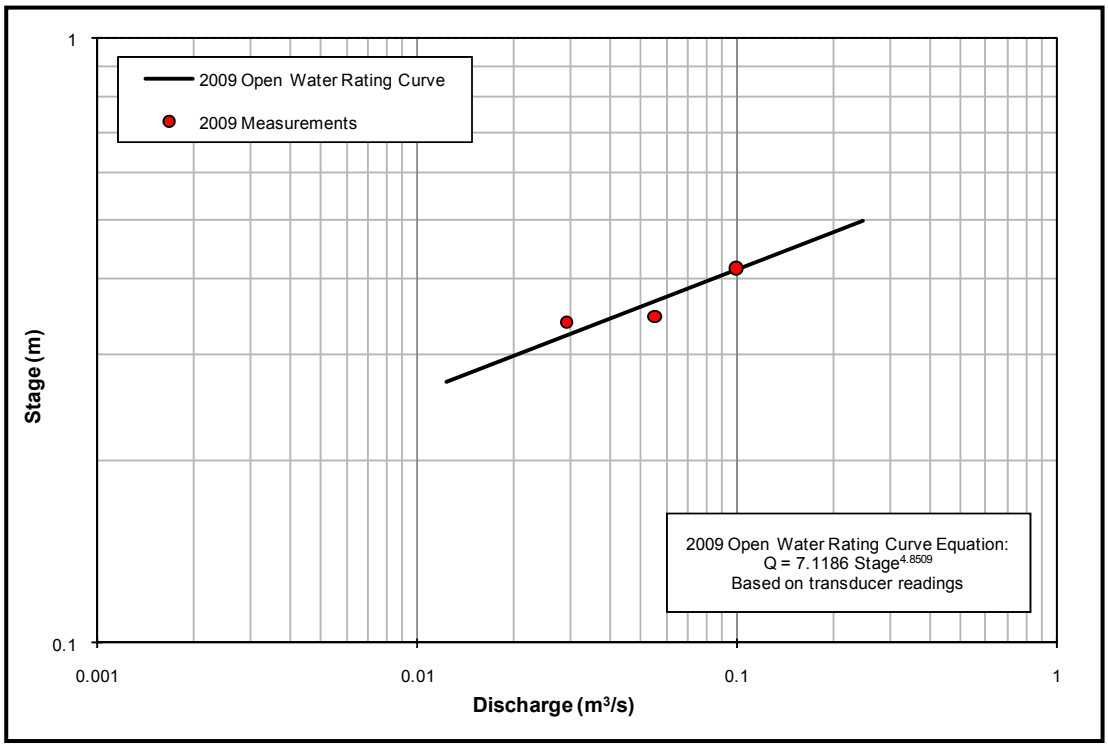


Figure A4-17: Lake D1 Outlet Stage-Discharge Rating Curve, 2009

Table A4-58: Lake D1 Outlet Mean Daily Discharge(m^3/s), 2009

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	-	0.045	0.032	-	-	-
2	-	-	-	-	-	-	-	0.047	0.034	-	-	-
3	-	-	-	-	-	-	-	0.047	0.037	-	-	-
4	-	-	-	-	-	-	-	0.044	0.040	-	-	-
5	-	-	-	-	-	-	-	0.040	0.047	-	-	-
6	-	-	-	-	-	-	-	0.037	0.057	-	-	-
7	-	-	-	-	-	-	-	0.041	0.064	-	-	-
8	-	-	-	-	-	-	-	0.055	0.072	-	-	-
9	-	-	-	-	-	-	-	0.063	0.088	-	-	-
10	-	-	-	-	-	-	-	0.067	0.098 P	-	-	-
11	-	-	-	-	-	-	0.058 P	0.069	-	-	-	-
12	-	-	-	-	-	-	0.120	0.075	-	-	-	-
13	-	-	-	-	-	-	0.178	0.076	-	-	-	-
14	-	-	-	-	-	-	0.183	0.072	-	-	-	-
15	-	-	-	-	-	-	0.164	0.069	-	-	-	-
16	-	-	-	-	-	-	0.142	0.067	-	-	-	-
17	-	-	-	-	-	-	0.120	0.062	-	-	-	-
18	-	-	-	-	-	-	0.099	0.056	-	-	-	-
19	-	-	-	-	-	-	0.086	0.051	-	-	-	-
20	-	-	-	-	-	-	0.076	0.048	-	-	-	-
21	-	-	-	-	-	-	0.067	0.048	-	-	-	-
22	-	-	-	-	-	-	0.061	0.048	-	-	-	-
23	-	-	-	-	-	-	0.056	0.042	-	-	-	-
24	-	-	-	-	-	-	0.052	0.040	-	-	-	-
25	-	-	-	-	-	-	0.048	0.038	-	-	-	-
26	-	-	-	-	-	-	0.043	0.036	-	-	-	-
27	-	-	-	-	-	-	0.043	0.034	-	-	-	-
28	-	-	-	-	-	-	0.040	0.033	-	-	-	-
29	-	-	-	-	-	-	0.037	0.032	-	-	-	-
30	-	-	-	-	-	-	0.035	0.032	-	-	-	-
31	-	-	-	-	-	-	0.042	0.031	-	-	-	-
MIN	-	-	-	-	-	-	0.035	0.031	0.032	-	-	-
MEAN	-	-	-	-	-	-	0.083	0.050	0.057	-	-	-
MAX	-	-	-	-	-	-	0.183	0.076	0.098	-	-	-

Note: P = partial daily average

Table A4-59: Lake D1 Outlet Mean Daily Water Surface Elevation (m) based on Transducer's Readings, 2009

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-	-	-	-	-	-	-	0.352	0.328	-	-	-
2	-	-	-	-	-	-	-	0.355	0.330	-	-	-
3	-	-	-	-	-	-	-	0.355	0.338	-	-	-
4	-	-	-	-	-	-	-	0.350	0.344	-	-	-
5	-	-	-	-	-	-	-	0.343	0.354	-	-	-
6	-	-	-	-	-	-	-	0.339	0.369	-	-	-
7	-	-	-	-	-	-	-	0.345	0.378	-	-	-
8	-	-	-	-	-	-	-	0.367	0.388	-	-	-
9	-	-	-	-	-	-	-	0.378	0.404	-	-	-
10	-	-	-	-	-	-	-	0.382	0.414 P	-	-	-
11	-	-	-	-	-	-	0.370 P	0.384	-	-	-	-
12	-	-	-	-	-	-	0.429	0.391	-	-	-	-
13	-	-	-	-	-	-	0.467	0.391	-	-	-	-
14	-	-	-	-	-	-	0.470	0.388	-	-	-	-
15	-	-	-	-	-	-	0.460	0.385	-	-	-	-
16	-	-	-	-	-	-	0.446	0.382	-	-	-	-
17	-	-	-	-	-	-	0.431	0.376	-	-	-	-
18	-	-	-	-	-	-	0.414	0.368	-	-	-	-
19	-	-	-	-	-	-	0.402	0.361	-	-	-	-
20	-	-	-	-	-	-	0.392	0.357	-	-	-	-
21	-	-	-	-	-	-	0.382	0.356	-	-	-	-
22	-	-	-	-	-	-	0.375	0.356	-	-	-	-
23	-	-	-	-	-	-	0.368	0.348	-	-	-	-
24	-	-	-	-	-	-	0.362	0.343	-	-	-	-
25	-	-	-	-	-	-	0.357	0.340	-	-	-	-
26	-	-	-	-	-	-	0.349	0.336	-	-	-	-
27	-	-	-	-	-	-	0.348	0.332	-	-	-	-
28	-	-	-	-	-	-	0.344	0.330	-	-	-	-
29	-	-	-	-	-	-	0.338	0.328	-	-	-	-
30	-	-	-	-	-	-	0.335	0.327	-	-	-	-
31	-	-	-	-	-	-	0.347	0.326	-	-	-	-
MIN	-	-	-	-	-	-	0.335	0.326	0.328	-	-	-
MEAN	-	-	-	-	-	-	0.390	0.357	0.365	-	-	-
MAX	-	-	-	-	-	-	0.470	0.391	0.414	-	-	-

Note: P = partial daily average

Table A4-60: Lake D1 Outlet Discharge Measurement Field Form for 10 July 2009

Project Name:		Comaplex (09-1373-0010)			Date		10-Jul-2009	
Waterbody:		Lake D1			Start Time		13:50	
Crossing ID:		Lake D1 Outlet			End Time		14:32	
BM GPS Location		Survey		Staff	Datalogger SN: 1397			
East	532693	BM_read		Gauge	Transducer SN: 14595			
North	6989813	WL_read			Meter Type/SN: Marsh McBirney-2005856			
Elevation	100.000	WL_Elev			Crew:	DC / LI		

STATION Start LDB	DISTANCE FROM LDB (m)		VELOCITY		DISTANCE FROM LDB (m)	DEPTH (m)	VELOCITY	
		DEPTH (m)	0.2 Depth (m/s)	0.6/0.8 Depth (m/s)			0.2 Depth (m/s)	0.6/0.8 Depth (m/s)
1	0.10	0.00						
2	0.10	0.11						
3	0.20	0.12		0.28				
4	0.30	0.10		0.42				
5	0.40	0.10		0.48				
6	0.50	0.12		0.39				
7	0.60	0.12		0.40				
8	0.70	0.13		0.36				
9	0.80	0.13		0.31				
10	0.90	0.12		0.31				
11	1.00	0.14		0.27				
12	1.10	0.12		0.23				
13	1.20	0.00						
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33					RESULTS:	Q	0.038	
34						A(m^2)	0.12	
35						B(m)	1.1	

Table A4-61: Lake D1 Outlet Discharge Measurement Field Form for 11 July 2009

Project Name:		Comaplex (09-1373-0010)			Date		11-Jul-2009	
Waterbody:		Lake D1			Start Time		11:00	
Crossing ID:		Lake D1 Outlet			End Time		11:32	
BM GPS Location		Survey		Staff	Datalogger SN: 1397			
East	532693	BM_read		Gauge	Transducer SN: 14595			
North	6989813	WL_read			Meter Type/SN: Marsh McBirney-2005856			
Elevation	100.000	WL_Elev			Crew:	DC / JP		

STATION Start LDB	DISTANCE FROM LDB (m)	DEPTH (m)	VELOCITY		DISTANCE FROM LDB (m)	DEPTH (m)	VELOCITY	
			0.2 Depth (m/s)	0.6/0.8 Depth (m/s)			0.2 Depth (m/s)	0.6/0.8 Depth (m/s)
1	0.20	0.00						
2	0.20	0.14		0.25				
3	0.25	0.15		0.25				
4	0.35	0.14		0.37				
5	0.45	0.14		0.49				
6	0.55	0.15		0.43				
7	0.65	0.16		0.42				
8	0.75	0.16		0.43				
9	0.85	0.16		0.41				
10	0.95	0.16		0.29				
11	1.05	0.16		0.22				
12	1.15	0.18		0.18				
13	1.25	0.16		0.11				
14	1.30	0.00						
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33					RESULTS:	Q_o	0.055	
34						$A(m^2)$	0.17	
35						B(m)	1.1	

Table A4-62: Lake D1 Outlet Discharge Measurement Field Form for 6 August 2009

Project Name:		Comaplex (09-1373-0010)			Date		06-Aug-2009	
Waterbody:		Lake D1			Start Time		12:20	
Crossing ID:		Lake D1 Outlet			End Time		12:45	
BM GPS Location		Survey		Staff	Datalogger SN: 1397			
East	532693	BM_read		Gauge	Transducer SN: 14595			
North	6989813	WL_read			Meter Type/SN: Marsh McBirney-2005856			
Elevation	100.000	WL_Elev			Crew:	DC / MI		

STATION Start LDB	DISTANCE FROM LDB (m)	DEPTH (m)	VELOCITY		DISTANCE FROM LDB (m)	DEPTH (m)	VELOCITY	
			0.2 Depth (m/s)	0.6/0.8 Depth (m/s)			0.2 Depth (m/s)	0.6/0.8 Depth (m/s)
1	0.05	0.00						
2	0.10	0.10		0.235				
3	0.20	0.08		0.314				
4	0.30	0.08		0.360				
5	0.40	0.08		0.332				
6	0.50	0.10		0.302				
7	0.60	0.10		0.271				
8	0.70	0.10		0.241				
9	0.80	0.10		0.238				
10	0.90	0.12		0.256				
11	1.00	0.12		0.219				
12	1.10	0.10		0.442				
13	1.15	0.00						
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33					RESULTS:	Q_o	0.029	
34						$A(m^2)$	0.10	
35						B(m)	1.1	

Table A4-63: Lake D1 Outlet Discharge Measurement Field Form for 10 September 2009

Project Name:		Comaplex (09-1373-0010)			Date		10-Sep-2009	
Waterbody:		Lake D1			Start Time		10:40	
Crossing ID:		Lake D1 Outlet			End Time		11:45	
BM GPS Location		Survey		Staff	Datalogger SN: 1397			
East	532693	BM_read		Gauge	Transducer SN: 14595			
North	6989813	WL_read		n/a	Meter Type/SN: Marsh McBirney-2005856			
Elevation	100.000	WL_Elev			Crew:	DC / KO		

STATION Start LDB	DISTANCE FROM LDB (m)	DEPTH (m)	VELOCITY		DISTANCE FROM LDB (m)	DEPTH (m)	VELOCITY	
			0.2 Depth (m/s)	0.6/0.8 Depth (m/s)			0.2 Depth (m/s)	0.6/0.8 Depth (m/s)
1	0.60	0.00						
2	0.70	0.08		0.171				
3	0.80	0.24		0.372				
4	0.90	0.22		0.567				
5	1.00	0.20		0.549				
6	1.10	0.21		0.613				
7	1.20	0.22		0.546				
8	1.30	0.21		0.466				
9	1.40	0.22		0.378				
10	1.50	0.22		0.387				
11	1.60	0.22		0.323				
12	1.70	0.20		0.283				
13	1.80	0.12		0.107				
14	1.85	0.00						
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33					RESULTS:	Q (m^3/s)	0.099	
34						A(m^2)	0.23	
35						B(m)	1.3	

A4-14.2 Lake G1 Outlet

The discharge was measured at the Lake G1 Outlet on 6 August 2009, and the field form is presented in Table A4-64.

Table A4-64: Lake G1 Outlet Discharge Measurement Field Form for 6 August 2009

Project Name:		**Comaplex (09-1373-0010)**			**Date**		**06-Aug-2009**	
Waterbody:		Lake G1			**Start Time**		15:35	
Crossing ID:		Lake G1 Outlet			**End Time**		15:45	
BM GPS Location		**Survey**		Staff	**Datalogger SN:**			
East	537797	**BM_read**		Gauge	**Transducer SN:**			
North	6991573	**WL_read**			**Meter Type/SN:**	**Marsh McBirney-2005856**		
Elevation		**WL_Elev**			**Crew:**	DC / MI		
STATION Start LDB	**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**		**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**	
			0.2 Depth (m/s)	**0.6/0.8 Depth (m/s)**			**0.2 Depth (m/s)**	**0.6/0.8 Depth (m/s)**
1	0.25	0.00						
2	0.30	0.05		0.22				
3	0.35	0.06		0.24				
4	0.40	0.04		0.21				
5	0.50	0.00						
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21					RESULTS:	Q (m^3/s)	0.002	
22						A(m^2)	0.01	
23						B(m)	0.3	

A4-14.3 Lake G2 Outlet

The discharge was measured at the Lake G1 Outlet on 12 July 2009, and the field form is presented in Table A4-65.

Table A4-65: Lake G2 Outlet Discharge Measurement Field Form for 12 July 2009

Project Name:		**Comaplex (09-1373-0010)**			**Date**		**12-Jul-2009**	
Waterbody:		Lake G2			**Start Time**		09:00	
Crossing ID:		Lake G2 Outlet			**End Time**		09:20	
BM GPS Location		**Survey**		Staff	**Datalogger SN:**			
East	538189	**BM_read**		Gauge	**Transducer SN:**			
North	6990970	**WL_read**			**Meter Type/SN: Marsh McBirney-2005856**			
Elevation		**WL_Elev**			**Crew:**	DC / JP		
STATION Start LDB	**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**		**DISTANCE FROM LDB (m)**	**DEPTH (m)**	**VELOCITY**	
			0.2 Depth (m/s)	**0.6/0.8 Depth (m/s)**			**0.2 Depth (m/s)**	**0.6/0.8 Depth (m/s)**
1	0.30	0.00						
2	0.40	0.05		0.18				
3	0.50	0.09		0.11				
4	0.60	0.09		0.16				
5	0.70	0.10		0.13				
6	0.80	0.10		0.09				
7	0.90	0.07		0.04				
8	1.00	0.05		0.02				
9	1.25	0.00						
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20					RESULTS:	Q	0.006	
21						A(m^2)	0.06	
22						B(m)	1.0	

A4-15 SNOW COURSE SURVEY RAW DATA

A4-15.1 Crest Terrain Type Plots

Plot EC-09-1 Date: 24-Apr-09				Plot EC-09-2 Date: 23-Apr-09				Plot EC-09-3 Date: 25-Apr-09			
Depth	**Wgt**	**Tare**	**Density**	**Depth**	**Wgt**	**Tare**	**Density**	**Depth**	**Wgt**	**Tare**	**Density**
(cm)	**(kg)**	**(kg)**	**(g/cm^3)**	**(cm)**	**(kg)**	**(kg)**	**(g/cm^3)**	**(cm)**	**(kg)**	**(kg)**	**(g/cm^3)**
58	2.61	1.86	0.233	24	2.28	1.92	0.271	17	2.11	1.86	0.265
11	2.01	1.86	0.246	47	2.58	1.92	0.253	11	2.06	1.86	0.328
8	2.00	1.86	0.316	36	2.36	1.92	0.221	54	2.76	1.86	0.301
Average:			**0.265**	**Average:**			**0.248**	**Average:**			**0.298**
Depth	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**
(cm)	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**
14	37.1	13	34.5	30	74.5	36	89.4	4	11.9	25	74.5
44	116.6	12	31.8	44	109.2	39	96.8	2	6.0	56	166.9
12	31.8	24	63.6	22	54.6	31	76.9	1	3.0	59	175.9
22	58.3	11	29.2	53	131.5	46	114.2	6	17.9	25	74.5
9	23.9	10	26.5	38	94.3	2	5.0	8	23.8	17	50.7
12	31.8	9	23.9	54	134.0	8	19.9	6	17.9	17	50.7
15	39.8	15	39.8	8	19.9	5	12.4	17	50.7	47	140.1
15	39.8	14	37.1	9	22.3	45	111.7	6	17.9	21	62.6
8	21.2	16	42.4	12	29.8	40	99.3	30	89.4	11	32.8
6	15.9	24	63.6	7	17.4	44	109.2	10	29.8	3	8.9
5	13.3	31	82.2	55	136.5	51	126.6	21	62.6	2	6.0
26	68.9	29	76.9	28	69.5	57	141.5	30	89.4	2	6.0
14	37.1	59	156.4	46	114.2	29	72.0	9	26.8	6	17.9
24	63.6	18	47.7	21	52.1	65	161.3	25	74.5	9	26.8
7	18.6	57	151.1	6	14.9	39	96.8	56	166.9	5	14.9
Average		**19.2**	**50.8**	**Average**		**32.3**	**80.3**	**Average**		**17.9**	**53.3**
				Observation: Low compaction on exposed ridge.				Observation: On exposed ridge, with 80% exposed. Density collected only from areas with snow. Very loose snow.			

Plot EC-09-4 Date: 23-Apr-09				Plot EC-09-5 Date: 25-Apr-09				Plot EC-09-6 Date: 25-Apr-09			
Depth	**Wgt**	**Tare**	**Density**	**Depth**	**Wgt**	**Tare**	**Density**	**Depth**	**Wgt**	**Tare**	**Density**
(cm)	**(kg)**	**(kg)**	**(g/cm^3)**	**(cm)**	**(kg)**	**(kg)**	**(g/cm^3)**	**(cm)**	**(kg)**	**(kg)**	**(g/cm^3)**
25	2.09	1.9	0.137	18	2.14	1.86	0.281	20	2.17	1.86	0.280
10	1.98	1.9	0.144	14	2.09	1.86	0.296	34	2.43	1.86	0.303
20	2.19	1.9	0.262	26	2.24	1.86	0.264	42	2.65	1.86	0.339
Average:			**0.181**	**Average:**			**0.280**	**Average:**			**0.307**
Depth	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**
(cm)	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**
22	39.8	26	47.1	6	16.8	6	16.8	36	110.6	17	52.2
23	41.6	28	50.7	11	30.8	14	39.2	27	82.9	20	61.4
17	30.8	34	61.6	8	22.4	11	30.8	46	141.3	19	58.4
11	19.9	17	30.8	11	30.8	11	30.8	24	73.7	18	55.3
5	9.1	29	52.5	7	19.6	6	16.8	50	153.6	12	36.9
15	27.2	8	14.5	4	11.2	14	39.2	32	98.3	11	33.8
12	21.7	15	27.2	12	33.6	20	56.1	20	61.4	10	30.7
8	14.5	12	21.7	16	44.8	11	30.8	6	18.4	15	46.1
13	23.5	14	25.3	10	28.0	9	25.2	28	86.0	14	43.0
18	32.6	7	12.7	8	22.4	15	42.0	16	49.2	22	67.6
7	12.7	27	48.9	10	28.0	14	39.2	15	46.1	15	46.1
13	23.5	11	19.9	11	30.8	21	58.9	31	95.2	24	73.7
11	19.9	26	47.1	13	36.4	11	30.8	15	46.1	26	79.9
13	23.5	32	57.9	16	44.8	10	28.0	31	95.2	38	116.7
14	25.3	21	38.0	10	28.0	12	33.6	22	67.6	29	89.1
Average		**17.0**	**30.7**	**Average**		**11.3**	**31.6**	**Average**		**23.0**	**70.6**
Observation: Soft snow layer on top, 2 to 4 cm				Observation: Lose snow on flat expose ridge							

A4-15.2 Open Lake Terrain Type Plots

Plot OL-09-1 Date: 25-Apr-09				Plot OL-09-2 Date: 24-Apr-09				Plot OL-09-3 Date: 26-Apr-09			
Depth	**Wgt**	**Tare**	**Density**	**Depth**	**Wgt**	**Tare**	**Density**	**Depth**	**Wgt**	**Tare**	**Density**
(cm)	**(kg)**	**(kg)**	**(g/cm^3)**	**(cm)**	**(kg)**	**(kg)**	**(g/cm^3)**	**(cm)**	**(kg)**	**(kg)**	**(g/cm^3)**
32	2.36	1.86	0.282	30	2.44	1.92	0.313	26	2.29	1.88	0.285
13	2.12	1.86	0.361	16	2.14	1.92	0.248	20	2.2	1.88	0.289
19	2.19	1.86	0.313	19	2.19	1.92	0.256	20	2.28	1.88	0.361
Average:			**0.319**	**Average:**			**0.272**	**Average:**			**0.311**
Depth	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**
(cm)	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**
9	28.7	12	38.3	12	32.7	16	43.6	11	34.3	16	49.8
20	63.8	11	35.1	11	30.0	17	46.3	7	21.8	19	59.2
17	54.2	13	41.4	6	16.3	23	62.7	8	24.9	20	62.3
13	41.4	34	108.4	7	19.1	21	57.2	12	37.4	34	105.9
20	63.8	28	89.3	13	35.4	10	27.2	15	46.7	29	90.3
15	47.8	27	86.1	16	43.6	24	65.4	15	46.7	21	65.4
22	70.1	11	35.1	14	38.1	19	51.8	16	49.8	17	52.9
21	66.9	16	51.0	22	59.9	10	27.2	19	59.2	16	49.8
13	41.4	9	28.7	26	70.8	22	59.9	16	49.8	17	52.9
25	79.7	21	66.9	21	57.2	12	32.7	18	56.0	10	31.1
6	19.1	11	35.1	30	81.7	23	62.7	28	87.2	11	34.3
17	54.2	21	66.9	24	65.4	16	43.6	21	65.4	6	18.7
3	9.6	20	63.8	15	40.9	18	49.0	21	65.4	17	52.9
17	54.2	15	47.8	26	70.8	13	35.4	15	46.7	15	46.7
16	51.0	19	60.6	8	21.8	20	54.5	11	34.3	24	74.7
Average:		**16.7**	**53.3**	**Average:**		**17.2**	**46.8**	**Average:**		**16.8**	**52.4**
				Observation: Snow consistent in the column. Wind drifts on top.							

Plot OL-09-4 Date: 26-Apr-09				Plot OL-09-5 Date: 26-Apr-09				Plot OL-09-6 Date: 26-Apr-09			
Depth	**Wgt**	**Tare**	**Density**	**Depth**	**Wgt**	**Tare**	**Density**	**Depth**	**Wgt**	**Tare**	**Density**
(cm)	**(kg)**	**(kg)**	**(g/cm^3)**	**(cm)**	**(kg)**	**(kg)**	**(g/cm^3)**	**(cm)**	**(kg)**	**(kg)**	**(g/cm^3)**
17	2.1	1.92	0.191	14	2.06	1.92	0.180	28	2.32	1.92	0.258
21	2.06	1.92	0.120	24	2.26	1.92	0.256	19	2.18	1.92	0.247
17	2.17	1.92	0.265	22	2.29	1.92	0.303	26	2.28	1.92	0.250
Average:			**0.192**	**Average:**			**0.247**	**Average:**			**0.252**
Depth	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**
(cm)	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**
8	15.4	18	34.6	14	34.5	20	49.3	10	25.2	17	42.8
16	30.8	1	1.9	10	24.7	21	51.8	9	22.6	16	40.2
6	11.5	10	19.2	15	37.0	24	59.2	8	20.1	25	62.9
5	9.6	6	11.5	8	19.7	18	44.4	11	27.7	8	20.1
6	11.5	14	26.9	8	19.7	5	12.3	28	70.4	21	52.8
8	15.4	21	40.4	16	39.4	5	12.3	16	40.2	14	35.2
7	13.5	20	38.4	15	37.0	6	14.8	13	32.7	14	35.2
7	13.5	22	42.3	11	27.1	14	34.5	17	42.8	11	27.7
13	25.0	16	30.8	5	12.3	20	49.3	8	20.1	7	17.6
8	15.4	11	21.1	6	14.8	12	29.6	11	27.7	17	42.8
13	25.0	7	13.5	14	34.5	11	27.1	10	25.2	9	22.6
11	21.1	6	11.5	11	27.1	4	9.9	4	10.1	16	40.2
16	30.8	11	21.1	11	27.1	11	27.1	20	50.3	17	42.8
19	36.5	14	26.9	16	39.4	12	29.6	16	40.2	26	65.4
14	26.9	16	30.8	6	14.8	11	27.1	20	50.3	20	50.3
Average:		**11.7**	**22.4**	**Average:**		**12.0**	**29.6**	**Average:**		**14.6**	**36.8**

Plot OL-09-7 Date: 25-Apr-09				Plot OL-09-8 Date: 26-Apr-09			
Depth	**Wgt**	**Tare**	**Density**	**Depth**	**Wgt**	**Tare**	**Density**
(cm)	**(kg)**	**(kg)**	**(g/cm^3)**	**(cm)**	**(kg)**	**(kg)**	**(g/cm^3)**
10	2.05	1.92	0.235	17	2.18	1.88	0.318
21	2.24	1.92	0.275	24	2.14	1.88	0.195
21	2.23	1.92	0.266	32	2.33	1.88	0.254
Average:			**0.259**	**Average:**			**0.256**
Depth	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**
(cm)	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**
11	28.5	20	51.7	11	28.1	31	79.3
12	31.0	11	28.5	19	48.6	37	94.7
5	12.9	10	25.9	13	33.3	34	87.0
1	2.6	21	54.3	18	46.1	31	79.3
4	10.3	16	41.4	19	48.6	25	64.0
3	7.8	17	44.0	14	35.8	32	81.9
5	12.9	13	33.6	17	43.5	18	46.1
4	10.3	10	25.9	16	40.9	27	69.1
14	36.2	14	36.2	14	35.8	10	25.6
17	44.0	5	12.9	20	51.2	21	53.7
18	46.6	9	23.3	29	74.2	12	30.7
18	46.6	13	33.6	28	71.6	25	64.0
12	31.0	24	62.1	40	102.4	26	66.5
19	49.1	17	44.0	31	79.3	30	76.8
7	18.1	16	41.4	26	66.5	29	74.2
Average:		**12.2**	**31.6**	**Average:**		**23.4**	**60.0**
				Observation: Low compaction			

A4-15.3 Lake Edges Terrain Type Plots

Plot LE-09-1 Date: 23-Apr-09				Plot LE-09-2 Date: 23-Apr-09				Plot LE-09-3 Date: 24-Apr-09			
Depth	**Wgt**	**Tare**	**Density**	**Depth**	**Wgt**	**Tare**	**Density**	**Depth**	**Wgt**	**Tare**	**Density**
(cm)	**(kg)**	**(kg)**	**(g/cm^3)**	**(cm)**	**(kg)**	**(kg)**	**(g/cm^3)**	**(cm)**	**(kg)**	**(kg)**	**(g/cm^3)**
23	2.23	1.89	0.267	36	2.31	1.92	0.195	31	2.42	1.92	0.291
29	2.33	1.89	0.274	43	2.6	1.92	0.285	22	2.25	1.92	0.271
30	2.32	1.89	0.259	51	2.58	1.92	0.234	39	2.49	1.92	0.264
Average:			**0.266**	**Average:**			**0.238**	**Average:**			**0.275**
Depth	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**
(cm)	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**
36	95.9	24	63.9	52	123.8	28	66.7	33	90.8	26	71.5
31	82.6	26	69.3	33	78.6	25	59.5	38	104.6	31	85.3
28	74.6	25	66.6	54	128.6	28	66.7	16	44.0	36	99.1
29	77.3	23	61.3	43	102.4	33	78.6	25	68.8	29	79.8
35	93.2	30	79.9	54	128.6	41	97.6	24	66.0	37	101.8
23	61.3	25	66.6	52	123.8	25	59.5	28	77.0	41	112.8
17	45.3	15	40.0	45	107.2	52	123.8	25	68.8	45	123.8
29	77.3	29	77.3	37	88.1	53	126.2	28	77.0	36	99.1
20	53.3	28	74.6	26	61.9	54	128.6	16	44.0	24	66.0
18	48.0	27	71.9	25	59.5	44	104.8	30	82.5	30	82.5
30	79.9	16	42.6	52	123.8	52	123.8	20	55.0	25	68.8
20	53.3	24	63.9	42	100.0	57	135.7	22	60.5	27	74.3
25	66.6	35	93.2	44	104.8	68	161.9	31	85.3	30	82.5
23	61.3	34	90.6	38	90.5	44	104.8	24	66.0	37	101.8
26	69.3	29	77.3	35	83.3	50	119.1	23	63.3	39	107.3
Average:		**26.0**	**69.3**	**Average:**		**42.9**	**102.1**	**Average:**		**29.2**	**80.3**

Plot LE-09-4 Date: 23-Apr-09				Plot LE-09-5 Date: 24-Apr-09				Plot LE-09-6 Date: 26-Apr-09			
Depth	**Wgt**	**Tare**	**Density**	**Depth**	**Wgt**	**Tare**	**Density**	**Depth**	**Wgt**	**Tare**	**Density**
(cm)	**(kg)**	**(kg)**	**(g/cm^3)**	**(cm)**	**(kg)**	**(kg)**	**(g/cm^3)**	**(cm)**	**(kg)**	**(kg)**	**(g/cm^3)**
64	2.86	1.92	0.265	24	2.32	1.86	0.346	55	2.71	1.88	0.272
60	2.99	1.92	0.322	24	2.24	1.86	0.286	66	2.86	1.88	0.268
67	2.96	1.92	0.280	34	2.49	1.86	0.334	52	2.51	1.88	0.219
Average:			**0.289**	**Average:**			**0.322**	**Average:**			**0.253**
Depth	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**
(cm)	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**
66	190.7	60	173.4	35	112.7	27	86.9	60	151.8	55	139.1
74	213.8	68	196.5	21	67.6	14	45.1	75	189.7	64	161.9
78	225.4	72	208.1	30	96.6	36	115.9	58	146.7	50	126.5
59	170.5	75	216.7	14	45.1	11	35.4	77	194.8	53	134.1
64	184.9	63	182.1	24	77.3	30	96.6	64	161.9	62	156.8
66	190.7	79	228.3	20	64.4	15	48.3	55	139.1	65	164.4
62	179.2	64	184.9	48	154.5	32	103.0	56	141.7	73	184.7
70	202.3	76	219.6	23	74.1	19	61.2	36	91.1	61	154.3
61	176.3	73	211.0	44	141.7	33	106.3	33	83.5	76	192.2
59	170.5	67	193.6	30	96.6	35	112.7	30	75.9	51	129.0
62	179.2	71	205.2	36	115.9	33	106.3	22	55.7	39	98.7
53	153.2	75	216.7	27	86.9	30	96.6	36	91.1	56	141.7
67	193.6	75	216.7	26	83.7	30	96.6	46	116.4	55	139.1
65	187.8	60	173.4	25	80.5	23	74.1	45	113.8	57	144.2
68	196.5	80	231.2	32	103.0	28	90.2	41	103.7	66	167.0
Average:		**67.7**	**195.7**	**Average:**		**27.7**	**89.2**	**Average:**		**53.9**	**136.3**

Plot LE-09-7 Date: 25-Apr-09				Plot LE-09-8 Date: 26-Apr-09			
Depth	**Wgt**	**Tare**	**Density**	**Depth**	**Wgt**	**Tare**	**Density**
(cm)	**(kg)**	**(kg)**	**(g/cm^3)**	**(cm)**	**(kg)**	**(kg)**	**(g/cm^3)**
21	2.15	1.88	0.232	55	2.83	1.88	0.312
62	2.55	1.88	0.195	61	2.56	1.88	0.201
55	2.65	1.88	0.253	43	2.7	1.88	0.344
Average:			**0.227**	**Average:**			**0.286**
Depth	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**
(cm)	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**
55	124.6	36	81.6	44	125.7	70	200.0
71	160.8	12	27.2	50	142.8	73	208.5
66	149.5	26	58.9	46	131.4	62	177.1
65	147.3	16	36.2	64	182.8	53	151.4
62	140.5	28	63.4	55	157.1	46	131.4
63	142.7	16	36.2	63	180.0	56	160.0
65	147.3	32	72.5	71	202.8	59	168.5
85	192.6	25	56.6	65	185.7	67	191.4
62	140.5	44	99.7	69	197.1	72	205.7
81	183.5	61	138.2	48	137.1	57	162.8
79	179.0	72	163.1	66	188.5	62	177.1
73	165.4	65	147.3	54	154.3	42	120.0
55	124.6	72	163.1	72	205.7	51	145.7
54	122.3	84	190.3	67	191.4	42	120.0
21	47.6	75	169.9	70	200.0	76	217.1
Average:		**54.0**	**122.4**	**Average:**		**59.7**	**170.6**

A4-15.4 Low Slopes Terrain Type Plots

Plot LS-09-1 Date: 23-Apr-09				Plot LS-09-2 Date: 24-Apr-09				Plot LS-09-3 Date: 23-Apr-09			
Depth	**Wgt**	**Tare**	**Density**	**Depth**	**Wgt**	**Tare**	**Density**	**Depth**	**Wgt**	**Tare**	**Density**
(cm)	**(kg)**	**(kg)**	**(g/cm^3)**	**(cm)**	**(kg)**	**(kg)**	**(g/cm^3)**	**(cm)**	**(kg)**	**(kg)**	**(g/cm^3)**
26	2.09	1.92	0.118	29	2.2	1.86	0.212	41	2.47	1.92	0.242
27	2.32	1.92	0.267	33	2.24	1.86	0.208	33	2.3	1.92	0.208
34	2.28	1.92	0.191	26	2.14	1.86	0.194	18	2.05	1.92	0.130
Average:			**0.192**	**Average:**			**0.205**	**Average:**			**0.193**
Depth	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**
(cm)	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**
33	63.4	15	28.8	30	61.4	30	61.4	23	44.5	35	67.7
22	42.3	34	65.3	27	55.2	28	57.3	15	29.0	22	42.5
31	59.6	23	44.2	30	61.4	29	59.3	30	58.0	24	46.4
44	84.5	22	42.3	31	63.4	13	26.6	25	48.3	19	36.7
28	53.8	22	42.3	27	55.2	26	53.2	24	46.4	24	46.4
42	80.7	41	78.8	33	67.5	40	81.8	15	29.0	35	67.7
29	55.7	26	50.0	25	51.1	31	63.4	39	75.4	34	65.8
21	40.3	37	71.1	14	28.6	33	67.5	28	54.1	32	61.9
25	48.0	35	67.2	26	53.2	34	69.5	45	87.0	11	21.3
29	55.7	50	96.1	34	69.5	22	45.0	28	54.1	17	32.9
24	46.1	29	55.7	29	59.3	31	63.4	29	56.1	22	42.5
32	61.5	22	42.3	21	43.0	32	65.5	30	58.0	21	40.6
39	74.9	21	40.3	23	47.0	28	57.3	29	56.1	36	69.6
33	63.4	8	15.4	26	53.2	30	61.4	24	46.4	24	46.4
27	51.9	20	38.4	31	63.4	23	47.0	17	32.9	26	50.3
Average:		**28.8**	**55.3**	**Average:**		**27.9**	**57.1**	**Average:**		**26.1**	**50.5**
Observation: Snow very granular at the bottom. Finer grain on top.				Observation: Very low compaction throughout the column, granular snow.							

Plot LS-09-4 Date: 24-Apr-09			
Depth	**Wgt**	**Tare**	**Density**
(cm)	**(kg)**	**(kg)**	**(g/cm^3)**
20	2.11	1.86	0.226
17	2.08	1.86	0.234
41	2.36	1.86	0.220
Average:			**0.226**
Depth	**SWE**	**Depth**	**SWE**
(cm)	**(mm)**	**(cm)**	**(mm)**
23	52.1	25	56.6
15	34.0	21	47.5
31	70.2	26	58.9
30	67.9	12	27.2
18	40.7	15	34.0
23	52.1	17	38.5
16	36.2	16	36.2
32	72.4	22	49.8
21	47.5	40	90.6
34	77.0	41	92.8
28	63.4	45	101.9
33	74.7	23	52.1
22	49.8	32	72.4
28	63.4	17	38.5
28	63.4	31	70.2
Average:		**25.5**	**57.7**

A4-15.5 Northeast Slopes Terrain Type Plots

Plot NE-09-1 Date: 24-Apr-09				Plot NE-09-2 Date: 24-Apr-09				Plot NE-09-3 Date: 23-Apr-09			
Depth	**Wgt**	**Tare**	**Density**	**Depth**	**Wgt**	**Tare**	**Density**	**Depth**	**Wgt**	**Tare**	**Density**
(cm)	**(kg)**	**(kg)**	**(g/cm^3)**	**(cm)**	**(kg)**	**(kg)**	**(g/cm^3)**	**(cm)**	**(kg)**	**(kg)**	**(g/cm^3)**
14	2.07	1.86	0.271	15	2.09	1.86	0.277	36	2.13	1.92	0.105
17	2.06	1.86	0.212	21	2.06	1.86	0.172	13	2.05	1.92	0.180
18	2.04	1.86	0.180	13	2.02	1.86	0.222	22	2.18	1.92	0.213
Average:			**0.221**	**Average:**			**0.224**	**Average:**			**0.166**
Depth	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**
(cm)	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**
10	22.1	31	68.6	35	78.2	14	31.3	30	49.9	13	21.6
16	35.4	8	17.7	28	62.6	25	55.9	32	53.2	40	66.5
24	53.1	20	44.2	7	15.6	16	35.8	40	66.5	23	38.3
17	37.6	16	35.4	17	38.0	30	67.1	14	23.3	41	68.2
23	50.9	11	24.3	5	11.2	9	20.1	32	53.2	40	66.5
33	73.0	18	39.8	13	29.1	32	71.5	30	49.9	25	41.6
31	68.6	13	28.7	21	46.9	10	22.4	15	24.9	47	78.2
12	26.5	14	31.0	22	49.2	23	51.4	10	16.6	51	84.8
16	35.4	15	33.2	12	26.8	12	26.8	14	23.3	14	23.3
11	24.3	26	57.5	18	40.2	16	35.8	11	18.3	13	21.6
25	55.3	12	26.5	12	26.8	18	40.2	13	21.6	20	33.3
17	37.6	25	55.3	16	35.8	30	67.1	15	24.9	25	41.6
10	22.1	17	37.6	33	73.8	13	29.1	11	18.3	37	61.5
12	26.5	17	37.6	18	40.2	12	26.8	15	24.9	28	46.6
16	35.4	27	59.7	12	26.8	11	24.6	36	59.9	54	89.8
Average:		**18.1**	**40.0**	**Average:**		**18.0**	**40.2**	**Average:**		**26.3**	**43.7**
								Observation: Snow very granular in large ice crystals at bottom. Finer on top.			

Plot NE-09-4 Date: 23-Apr-09				Plot NE-09-5 Date: 24-Apr-09				Plot NE-09-6 Date: 26-Apr-09			
Depth	**Wgt**	**Tare**	**Density**	**Depth**	**Wgt**	**Tare**	**Density**	**Depth**	**Wgt**	**Tare**	**Density**
(cm)	**(kg)**	**(kg)**	**(g/cm^3)**	**(cm)**	**(kg)**	**(kg)**	**(g/cm^3)**	**(cm)**	**(kg)**	**(kg)**	**(g/cm^3)**
15	2.23	1.92	0.373	16	2.07	1.86	0.237	21	2.12	1.88	0.206
16	2.22	1.92	0.338	22	2.13	1.86	0.221	37	2.28	1.88	0.195
9	2.02	1.92	0.200	16	2.07	1.86	0.237	29	2.31	1.88	0.268
Average:			**0.304**	**Average:**			**0.232**	**Average:**			**0.223**
Depth	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**
(cm)	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**
25	76.0	14	42.5	28	64.9	3	7.0	40	89.2	18	40.1
24	72.9	21	63.8	14	32.4	18	41.7	18	40.1	23	51.3
11	33.4	3	9.1	29	67.2	16	37.1	74	165.0	29	64.7
12	36.5	19	57.7	11	25.5	11	25.5	11	24.5	70	156.1
20	60.8	9	27.4	4	9.3	12	27.8	31	69.1	35	78.0
21	63.8	8	24.3	24	55.6	4	9.3	17	37.9	17	37.9
17	51.7	14	42.5	36	83.4	7	16.2	11	24.5	20	44.6
42	127.6	6	18.2	31	71.8	23	53.3	12	26.8	18	40.1
68	206.7	7	21.3	31	71.8	12	27.8	25	55.7	12	26.8
23	69.9	26	79.0	30	69.5	30	69.5	21	46.8	19	42.4
46	139.8	22	66.9	8	18.5	26	60.2	29	64.7	12	26.8
17	51.7	45	136.8	12	27.8	11	25.5	12	26.8	38	84.7
37	112.5	14	42.5	7	16.2	17	39.4	26	58.0	6	13.4
31	94.2	16	48.6	5	11.6	25	57.9	17	37.9	8	17.8
2	6.1	2	6.1	8	18.5	16	37.1	22	49.1	4	8.9
Average:		**20.7**	**63.0**	**Average:**		**17.0**	**39.3**	**Average:**		**23.2**	**51.7**
				Observation: Very low compaction, with relatively shallow depths.							

Plot NE-09-7 Date: 25-Apr-09				Plot NE-09-8 Date: 25-Apr-09			
Depth	**Wgt**	**Tare**	**Density**	**Depth**	**Wgt**	**Tare**	**Density**
(cm)	**(kg)**	**(kg)**	**(g/cm^3)**	**(cm)**	**(kg)**	**(kg)**	**(g/cm^3)**
20	2.05	1.89	0.144	26	2.29	1.88	0.285
21	2.05	1.89	0.137	11	2.06	1.88	0.295
30	2.19	1.89	0.180	40	2.42	1.88	0.244
Average:			**0.154**	**Average:**			**0.274**
Depth	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**
(cm)	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**
14	21.6	17	26.2	16	43.9	44	120.8
5	7.7	11	17.0	12	32.9	26	71.4
14	21.6	5	7.7	14	38.4	47	129.0
9	13.9	11	17.0	20	54.9	40	109.8
21	32.4	5	7.7	25	68.6	39	107.0
10	15.4	11	17.0	13	35.7	32	87.8
8	12.3	10	15.4	8	22.0	31	85.1
19	29.3	25	38.5	14	38.4	27	74.1
35	53.9	27	41.6	15	41.2	29	79.6
16	24.7	3	4.6	31	85.1	30	82.3
11	17.0	13	20.0	7	19.2	34	93.3
10	15.4	32	49.3	30	82.3	16	43.9
2	3.1	14	21.6	20	54.9	20	54.9
12	18.5	8	12.3	30	82.3	27	74.1
9	13.9	6	9.2	31	85.1	38	104.3
Average:		**13.1**	**20.2**	**Average:**		**25.5**	**70.1**
Observation: Lose snow, low compaction							

A4-15.6 Northwest Slopes Terrain Type Plots

Plot NW-09-1 Date: 25-Apr-09				Plot NW-09-2 Date: 23-Apr-09				Plot NW-09-3 Date: 25-Apr-09			
Depth	**Wgt**	**Tare**	**Density**	**Depth**	**Wgt**	**Tare**	**Density**	**Depth**	**Wgt**	**Tare**	**Density**
(cm)	**(kg)**	**(kg)**	**(g/cm^3)**	**(cm)**	**(kg)**	**(kg)**	**(g/cm^3)**	**(cm)**	**(kg)**	**(kg)**	**(g/cm^3)**
53	2.74	1.89	0.289	25	2.27	1.92	0.253	76	3.26	1.92	0.318
63	2.73	1.89	0.241	39	2.44	1.92	0.241	129	4.27	1.92	0.329
44	2.6	1.89	0.291	25	2.26	1.92	0.245	113	3.65	1.92	0.276
Average:			**0.274**	**Average:**			**0.246**	**Average:**			**0.308**
Depth	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**
(cm)	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**
44	120.4	62	169.7	36	88.6	34	83.7	32	98.5	93	286.2
46	125.9	51	139.6	38	93.6	25	61.6	106	326.2	115	353.9
49	134.1	59	161.5	31	76.3	31	76.3	87	267.7	111	341.6
42	115.0	56	153.3	32	78.8	10	24.6	81	249.2	131	403.1
37	101.3	66	180.7	35	86.2	39	96.0	79	243.1	121	372.3
57	156.0	51	139.6	25	61.6	41	100.9	76	233.9	132	406.2
36	98.5	54	147.8	26	64.0	31	76.3	56	172.3	116	356.9
62	169.7	40	109.5	37	91.1	32	78.8	72	221.6	126	387.7
37	101.3	48	131.4	22	54.2	36	88.6	63	193.9	111	341.6
59	161.5	46	125.9	22	54.2	40	98.5	80	246.2	112	344.6
49	134.1	46	125.9	17	41.9	56	137.9	81	249.2	104	320.0
26	71.2	31	84.9	25	61.6	46	113.3	85	261.6	85	261.6
53	145.1	45	123.2	16	39.4	26	64.0	88	270.8	83	255.4
67	183.4	36	98.5	25	61.6	39	96.0	95	292.3	90	276.9
66	180.7	51	139.6	40	98.5	23	56.6	100	307.7	86	264.6
Average:		**49.1**	**134.3**	**Average:**		**31.2**	**76.8**	**Average:**		**93.2**	**286.9**
								Observation: Very deep, dense snow, took a weight to insert to bottom. Fairly consistent snow throughout the column.			

A4-15.7 Southeast Slopes Terrain Type Plots

Plot SE-09-1 Date: 24-Apr-09				Plot SE-09-2 Date: 25-Apr-09				Plot SE-09-3 Date: 24-Apr-09			
Depth	**Wgt**	**Tare**	**Density**	**Depth**	**Wgt**	**Tare**	**Density**	**Depth**	**Wgt**	**Tare**	**Density**
(cm)	**(kg)**	**(kg)**	**(g/cm^3)**	**(cm)**	**(kg)**	**(kg)**	**(g/cm^3)**	**(cm)**	**(kg)**	**(kg)**	**(g/cm^3)**
57	2.86	1.92	0.298	58	2.69	1.89	0.249	27	2.44	1.92	0.348
59	2.78	1.92	0.263	68	2.92	1.89	0.273	49	2.7	1.92	0.287
56	2.8	1.92	0.284	26	2.33	1.89	0.305	40	2.53	1.92	0.275
Average:			**0.281**	**Average:**			**0.276**	**Average:**			**0.303**
Depth	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**
(cm)	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**
46	129.4	92	258.9	49	135.2	49	135.2	36	109.2	40	121.3
61	171.6	46	129.4	55	151.7	52	143.4	38	115.3	46	139.5
46	129.4	57	160.4	52	143.4	53	146.2	37	112.2	44	133.5
65	182.9	71	199.8	63	173.8	50	137.9	41	124.4	40	121.3
68	191.3	76	213.9	43	118.6	48	132.4	45	136.5	47	142.6
55	154.8	56	157.6	45	124.1	62	171.0	41	124.4	41	124.4
63	177.3	72	202.6	22	60.7	66	182.1	46	139.5	45	136.5
66	185.7	73	205.4	34	93.8	37	102.1	37	112.2	48	145.6
62	174.5	74	208.2	35	96.6	65	179.3	34	103.1	44	133.5
54	152.0	67	188.5	56	154.5	51	140.7	33	100.1	40	121.3
86	242.0	63	177.3	38	104.8	48	132.4	40	121.3	25	75.8
74	208.2	57	160.4	35	96.6	40	110.3	34	103.1	15	45.5
77	216.7	74	208.2	35	96.6	35	96.6	54	163.8	28	84.9
64	180.1	65	182.9	47	129.7	35	96.6	45	136.5	31	94.0
44	123.8	65	182.9	52	143.4	51	140.7	33	100.1	39	118.3
Average:		**64.6**	**181.9**	**Average:**		**46.8**	**129.0**	**Average:**		**38.9**	**118.0**
Observation: Snow very dense in high compaction throughout the plot. Fairly uniform snow throughout the column.				Observation: Very dense snow in large granular ice on bottom. Soft wind drifts on top.				Observation: Very dense hard layer present ~ 20 cm down of only 2 cm thick			

A4-15.8 Southwest Slopes Terrain Type Plots

Plot SW-09-1 Date: 25-Apr-09				Plot SW-09-2 Date: 24-Apr-09				Plot SW-09-3 Date: 23-Apr-09			
Depth	**Wgt**	**Tare**	**Density**	**Depth**	**Wgt**	**Tare**	**Density**	**Depth**	**Wgt**	**Tare**	**Density**
(cm)	**(kg)**	**(kg)**	**(g/cm^3)**	**(cm)**	**(kg)**	**(kg)**	**(g/cm^3)**	**(cm)**	**(kg)**	**(kg)**	**(g/cm^3)**
41	2.45	1.89	0.246	32	2.34	1.86	0.271	44	2.47	1.92	0.226
56	2.73	1.89	0.271	28	2.12	1.86	0.168	47	2.71	1.92	0.303
26	2.23	1.89	0.236	32	2.41	1.86	0.310	34	2.41	1.92	0.260
Average:			**0.251**	**Average:**			**0.249**	**Average:**			**0.263**
Depth	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**
(cm)	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**
76	190.8	14	35.1	26	64.9	41	102.3	45	118.3	52	136.7
53	133.0	8	20.1	55	137.2	42	104.8	36	94.7	50	131.5
48	120.5	18	45.2	26	64.9	33	82.3	32	84.2	46	121.0
24	60.2	28	70.3	28	69.8	44	109.8	43	113.1	53	139.4
48	120.5	26	65.3	38	94.8	34	84.8	17	44.7	45	118.3
29	72.8	18	45.2	29	72.3	43	107.3	21	55.2	26	68.4
44	110.5	19	47.7	17	42.4	22	54.9	20	52.6	30	78.9
30	75.3	15	37.7	22	54.9	20	49.9	35	92.0	54	142.0
57	143.1	46	115.5	20	49.9	15	37.4	41	107.8	50	131.5
32	80.3	56	140.6	30	74.8	54	134.7	45	118.3	61	160.4
30	75.3	58	145.6	48	119.7	37	92.3	36	94.7	25	65.7
33	82.8	36	90.4	34	84.8	35	87.3	54	142.0	19	50.0
11	27.6	39	97.9	50	124.7	33	82.3	53	139.4	40	105.2
20	50.2	65	163.2	44	109.8	34	84.8	64	168.3	32	84.2
12	30.1	78	195.8	32	79.8	30	74.8	22	57.9	27	71.0
Average:		**35.7**	**89.6**	**Average:**		**33.9**	**84.5**	**Average:**		**39.1**	**102.9**
Observation: Variable snow depth inside the plot due to wind				Observation: Fresh wind drift snow present in parts of the plot							

Plot SW-09-4 Date: 23-Apr-09				Plot SW-09-5 Date: 25-Apr-09			
Depth	**Wgt**	**Tare**	**Density**	**Depth**	**Wgt**	**Tare**	**Density**
(cm)	**(kg)**	**(kg)**	**(g/cm^3)**	**(cm)**	**(kg)**	**(kg)**	**(g/cm^3)**
43	2.47	1.92	0.231	47	2.51	1.89	0.238
17	2.14	1.92	0.234	43	2.52	1.89	0.264
112	3.43	1.92	0.243	80	3.29	1.89	0.316
Average:			**0.236**	**Average:**			**0.273**
Depth	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**	**Depth**	**SWE**
(cm)	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**	**(cm)**	**(mm)**
43	101.4	71	167.5	66	180.0	36	98.2
36	84.9	100	235.9	55	150.0	38	103.6
37	87.3	81	191.1	56	152.7	60	163.6
44	103.8	76	179.3	57	155.5	57	155.5
36	84.9	72	169.8	47	128.2	46	125.5
57	134.4	26	61.3	36	98.2	66	180.0
56	132.1	46	108.5	6	16.4	80	218.2
60	141.5	49	115.6	26	70.9	40	109.1
54	127.4	22	51.9	18	49.1	94	256.4
31	73.1	19	44.8	33	90.0	45	122.7
115	271.2	20	47.2	17	46.4	80	218.2
76	179.3	31	73.1	46	125.5	70	190.9
139	327.9	51	120.3	27	73.6	82	223.6
115	271.2	44	103.8	35	95.5	64	174.5
134	316.1	54	127.4	50	136.4	43	117.3
Average:		**59.8**	**141.1**	**Average:**		**49.2**	**134.2**

APPENDIX B

Water Quality

Appendix B1-1: Results of Quality Control Samples: Field Duplicates

Parameter	Unit	Summer 1994			16-Jun-97			20-Jul-97			24-Aug-97		
		Original	Duplicate	RPD[a]	Original	Duplicate	RPD[a]	Original	Duplicate	RPD[a]	Original	Duplicate	RPD[a]
Conventional Parameters													
pH	pH units	6.92	7.16	3%	7.73	7.71	0%	7.31	7.3	0%	7.32	7.36	1%
Conductivity	µS/cm	91.8	92.5	1%	85.3	85.9	1%	48.4	47.6	2%	50.4	49.9	1%
Total Dissolved Solids	mg/L	56	56	0%	57	60	5%	26	29	11%	38	39	3%
Total Alkalinity	mg/L	36.5	36.4	0%	34.1	34.2	0%	15.3	15.1	1%	15.2	14.8	3%
Total Hardness	mg/L	38.3	37.6	2%	41.1	38.4	7%	16.1	15.9	1%	16.7	16	4%
Total Suspended Solids	mg/L	<1	1	NA	3	8	**91%**	<3	<3	NA	<3	<3	NA
Turbidity		0.65	0.58	11%	0.7	1.5	**73%**	0.4	0.3	**29%**	0.9	0.3	**100%**
Major Ions													
Bicarbonate	mg/L	-	-	-	34.1	34.2	0%	15.3	15.1	1%	15.2	14.8	3%
Boron	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	mg/L	12.1	11.9	2%	14.3	13.2	8%	5.24	5.15	2%	5.43	5.17	5%
Carbonate	mg/L	-	-	-	<0.3	<0.3	NA	<0.3	<0.3	NA	<0.3	<0.3	NA
Chloride	mg/L	4.7	4.7	0%	5.01	5.04	1%	4.1	4.08	0%	4.25	4.24	0%
Fluoride	mg/L	0.04	0.04	0%	-	-	-	-	-	-	-	-	-
Hydroxide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	mg/L	1.95	1.93	1%	1.31	1.32	1%	0.73	0.73	0%	0.77	0.76	0%
Potassium	mg/L	0.91	0.95	4%	0.844	0.84	0%	0.668	0.668	0%	0.725	0.702	3%
Reactive Silica	mg/L	-	-	-	0.413	0.419	1%	0.305	0.28	9%	0.385	0.388	1%
Silicate	mg/L	<1	<1	NA	-	-	-	-	-	-	-	-	-
Sodium	mg/L	3.15	3.11	1%	3	2.98	1%	2.44	2.4	2%	2.59	2.57	1%
Sulphate	mg/L	2.1	2.2	5%	<3	4	NA	<3	<3	NA	<3	<3	NA
Organic/ Inorganic Carbon													
Total Carbon	mg/L	-	-	-	11	11	0%	6	6	0%	6.1	6	2%
Total Organic Carbon	mg/L	-	-	-	3.2	3	6%	2.1	2.2	5%	2.1	2	5%
Dissolved Organic Carbon	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Total Inorganic Carbon	mg/L	-	-	-	8	8	0%	4	4	0%	4	4	0%
Nutrients & Chlorophyll *a*													
Total Ammonia	mg/L	-	-	-	0.007	0.008	13%	0.003	0.002	**40%**	0.01	0.008	**22%**
Nitrate	mg/L	<0.005	<0.005	NA	<0.008	<0.008	NA	<0.008	<0.008	NA	0.024	0.032	**29%**
Nitrite	mg/L	<0.001	<0.001	NA	-	-	-	-	-	-	-	-	-
Nitrate+Nitrite	mg/L	-	-	-	<0.008	<0.008	NA	<0.008	<0.008	NA	0.024	0.032	**29%**
Total Kjeldahl Nitrogen	mg/L	-	-	-	0.36	0.3	18%	0.17	0.19	11%	0.28	0.2	**33%**
Total Phosphorus	mg/L	<0.3	<0.3	NA	0.02	0.019	5%	0.01	0.01	0%	0.009	0.009	0%
Dissolved Phosphorus	mg/L	-	-	-	0.007	0.011	**44%**	0.008	0.008	0%	0.005	0.002	**86%**
Orthophosphate	mg/L	-	-	-	<0.002	<0.002	NA	0.002	0.003	**40%**	<0.002	<0.002	NA
Chlorophyll *a*	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Cyanides													
Total Cyanide	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals													
Aluminum	µg/L	<200	<200	NA	2.9	2.5	15%	0.6	1.5	**86%**	<0.5	<0.5	NA
Antimony	µg/L	<200	<200	NA	0.2	0.3	**40%**	0.1	0.3	**100%**	0.3	0.2	**40%**
Arsenic	µg/L	0.5	0.5	0%	0.4	0.4	0%	<0.3	<0.3	NA	<0.2	0.3	NA
Barium	µg/L	11	11	0%	11.5	11.7	2%	5.9	5.7	3%	6.3	6.1	3%
Beryllium	µg/L	<5	<5	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	0.2	0.2	0%
Bismuth	µg/L	<100	<100	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA
Boron	µg/L	<100	<100	NA	-	-	-	-	-	-	-	-	-
Cadmium	µg/L	<0.2	<0.2	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	0.1	<0.1	NA
Cesium	µg/L	-	-	-	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA
Chromium	µg/L	<15	<15	NA	<0.2	<0.2	NA	<2	<2	NA	2	<2	NA
Cobalt	µg/L	<15	<15	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	0.2	0.1	**67%**
Copper	µg/L	<10	<10	NA	0.7	1.2	**53%**	1.1	0.9	**20%**	1	1	0%
Iron	µg/L	62	63	2%	0.087	0.113	**26%**	0.026	0.019	**31%**	0.021	0.025	17%
Lead	µg/L	<1	<1	NA	<0.2	<0.2	NA	<0.2	<0.2	NA	<0.2	0.2	NA
Lithium	µg/L	<15	<15	NA	1	1.1	10%	<0.1	0.2	NA	0.5	0.4	**22%**
Manganese	µg/L	7	7	0%	8.9	8.6	3%	2.9	2.8	4%	2.8	2.9	4%
Mercury	µg/L	<0.05	<0.05	NA	<0.01	<0.01	NA	<0.01	<0.01	NA	<0.01	<0.01	NA
Molybdenum	µg/L	<30	<30	NA	0.2	0.2	0%	0.1	0.1	0%	0.1	0.1	0%
Nickel	µg/L	<20	<20	NA	<0.1	<0.1	NA	0.6	0.5	18%	0.6	0.3	**67%**
Selenium	µg/L	<0.5	<0.5	NA	<10	<10	NA	<10	<10	NA	<10	<10	NA
Silicon	µg/L	113	111	2%	-	-	-	-	-	-	-	-	-
Silver	µg/L	<15	<15	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA
Strontium	µg/L	54	54	0%	48.3	50.8	5%	22.5	23	2%	26.2	25.1	4%
Thallium	µg/L	<100	<100	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	0.1	<0.1	NA
Tin	µg/L	<300	<300	NA	-	-	-	-	-	-	-	-	-
Titanium	µg/L	<10	<10	NA	0.1	1.2	**169%**	<0.1	0.3	NA	0.6	<0.1	NA
Tungsten	µg/L	<100	<100	NA	-	-	-	-	-	-	-	-	-
Uranium	µg/L	-	-	-	0.1	0.1	0%	<0.1	<0.1	NA	<0.1	<0.1	NA
Vanadium	µg/L	<30	<30	NA	0.1	0.1	0%	<0.1	<0.1	NA	0.1	0.1	0%
Zinc	µg/L	<5	<5	NA	0.8	0.7	13%	6.5	14.7	**77%**	1.4	1	**33%**
Organic Compounds													
Oil & Grease	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Phenols	µg/L	-	-	-	<2	<2	NA	<2	<2	NA	<2	<2	NA
Benzene	µg/L	-	-	-	<0.5	<0.5	NA	<0.5	<0.5	NA	<0.5	<0.5	NA
Toluene	µg/L	-	-	-	<0.5	<0.5	NA	<0.5	<0.5	NA	<0.5	<0.5	NA
Ethylbenzene	µg/L	-	-	-	<0.5	<0.5	NA	<0.5	<0.5	NA	<0.5	<0.5	NA
Xylenes	µg/L	-	-	-	<0.5	<0.5	NA	<0.5	<0.5	NA	<0.5	<0.5	NA
F1 (C6-C10)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
F1-BTEX	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
F2 (>C10-C16)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
F3 (C16-C34)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
F4 (C34-C50)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Total Volatile Hydrocarbons	µg/L	-	-	-	<100	<100	NA	<100	<100	NA	<100	<100	NA
Other													
BOD	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Fecal Coliforms	CFU/100 mL	-	-	-	-	-	-	-	-	-	-	-	-

Golder Associates

Appendix B1-1: Results of Quality Control Samples: Field Duplicates

Parameter	Unit	27-Apr-98			13-Jun-98			28-Jul-98			18-Jul-99		
		Original	Duplicate	RPD[a]	Original	Duplicate	RPD[a]	Original	Duplicate	RPD[a]	Original	Duplicate	RPD
Conventional Parameters													
pH	pH units	6.8	6.8	0%	7	7	0%	7.1	7	1%	7.3	7.4	1%
Conductivity	µS/cm	306	302	1%	46.1	46.2	0%	37.3	36.6	2%	96.4	95.5	1%
Total Dissolved Solids	mg/L	145	163	12%	21	21	0%	16	16	0%	26	27	4%
Total Alkalinity	mg/L	119	151	**24%**	16	16	0%	9	9	0%	33	32	3%
Total Hardness	mg/L	119	118	1%	17	17	0%	10	10	0%	38	39	3%
Total Suspended Solids	mg/L	4	2	**67%**	<2	<2	NA	<2	<2	NA	5	<3	NA
Turbidity		0.7	1	**35%**	0.5	0.3	**50%**	**0.1**	**0.1**	0%	0.38	0.36	5%
Major Ions													
Bicarbonate	mg/L	145	144	1%	19	19	0%	11	11	0%	40	40	0%
Boron	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	mg/L	39.6	38.5	3%	5.5	5.7	4%	3.12	3.12	0%	12.7	13	2%
Carbonate	mg/L	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1	NA
Chloride	mg/L	12.6	12.4	2%	2.1	2.1	0%	2.72	2.72	0%	5.67	5.64	1%
Fluoride	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Hydroxide	mg/L	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1	NA
Magnesium	mg/L	5	5.23	4%	0.75	0.75	0%	0.59	0.59	0%	1.55	1.64	6%
Potassium	mg/L	2.81	2.83	1%	0.61	0.62	2%	0.66	0.66	0%	0.78	0.81	4%
Reactive Silica	mg/L	7	6.8	3%	0.6	0.6	0%	0.3	0.3	0%	0.8	0.7	13%
Silicate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	mg/L	7.4	7.5	1%	1.1	1.1	0%	2	2	0%	2.1	2.2	5%
Sulphate	mg/L	5.66	5.44	4%	1.6	1.6	0%	1.84	1.83	1%	3.24	3.21	1%
Organic/ Inorganic Carbon													
Total Carbon	mg/L	46	46	0%	9	9	0%	4.6	4.5	2%	12.2	12.1	1%
Total Organic Carbon	mg/L	12.2	12	2%	5.2	5.3	2%	2.8	2.6	7%	4.7	4.7	0%
Dissolved Organic Carbon	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Total Inorganic Carbon	mg/L	36.2	36	1%	3.9	3.9	0%	1.9	1.9	0%	7.5	7.4	1%
Nutrients & Chlorophyll *a*													
Total Ammonia	mg/L	0.203	0.233	14%	0.01	0.01	0%	<0.005	<0.005	NA	<0.005	<0.005	NA
Nitrate	mg/L	0.041	0.032	**25%**	0.007	0.008	13%	<0.006	<0.006	NA	0.009	<0.006	NA
Nitrite	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate+Nitrite	mg/L	0.044	0.035	**23%**	0.007	0.008	13%	<0.006	<0.006	NA	0.009	<0.006	NA
Total Kjeldahl Nitrogen	mg/L	1.45	1.46	1%	0.39	0.3	**26%**	0.33	0.3	10%	0.49	0.21	**80%**
Total Phosphorus	mg/L	0.011	0.009	**20%**	0.007	0.006	15%	0.005	0.007	**33%**	0.004	0.004	0%
Dissolved Phosphorus	mg/L	0.009	0.008	12%	0.005	0.005	0%	0.003	0.002	**40%**	0.003	0.002	**40%**
Orthophosphate	mg/L	<0.001	<0.001	NA	<0.001	<0.001	NA	<0.001	<0.001	NA	<0.001	<0.001	NA
Chlorophyll *a*	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Cyanides													
Total Cyanide	µg/L	-	-	-	-	-	-	<1	<1	NA	<2	<2	NA
Total Metals													
Aluminum	µg/L	<0.3	<0.3	NA	2	2.1	5%	2.6	1.9	**31%**	3.9	3.6	8%
Antimony	µg/L	<0.03	0.06	NA	0.13	0.18	**32%**	0.2	0.1	**67%**	0.61	0.58	5%
Arsenic	µg/L	1.7	1.77	4%	0.55	0.56	2%	0.08	0.06	**29%**	2.11	2.19	4%
Barium	µg/L	43.5	43.7	0%	7.6	7.8	3%	8.88	8.84	0%	9.77	10	2%
Beryllium	µg/L	<0.2	<0.2	NA	<0.2	<0.2	NA	<0.2	<0.2	NA	<0.2	<0.2	NA
Bismuth	µg/L	<0.05	<0.05	NA	<0.05	<0.05	NA	<0.03	<0.03	NA	<0.03	<0.03	NA
Boron	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	µg/L	<0.1	<0.1	NA	<0.05	<0.05	NA	0.07	0.06	15%	<0.02	<0.02	NA
Cesium	µg/L	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA
Chromium	µg/L	3.93	3.01	**27%**	<0.06	<0.06	NA	0.92	0.98	6%	0.11	0.1	10%
Cobalt	µg/L	0.3	0.3	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA
Copper	µg/L	2.4	1.7	**34%**	<0.6	<0.6	NA	0.8	0.8	0%	1.3	1.2	8%
Iron	µg/L	192	220	14%	20	20	0%	6	7	15%	69	73	6%
Lead	µg/L	<0.05	<0.05	NA	<0.05	<0.05	NA	<0.05	<0.05	NA	0.09	<0.05	NA
Lithium	µg/L	3	2.8	7%	0.4	0.4	0%	<0.1	<0.1	NA	1.2	1.2	0%
Manganese	µg/L	65.1	79	19%	5	5.3	6%	2	1.5	**29%**	10.2	10.6	4%
Mercury	µg/L	<0.01	<0.01	NA	<0.01	<0.01	NA	<0.02	<0.02	NA	<0.02	<0.02	NA
Molybdenum	µg/L	0.23	0.22	4%	0.07	0.08	13%	<0.06	<0.06	NA	0.18	0.17	6%
Nickel	µg/L	3.3	3.5	6%	0.8	0.8	0%	0.59	0.53	11%	0.89	0.87	2%
Selenium	µg/L	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	0.1	<0.1	NA
Silicon	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Silver	µg/L	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA	<0.1	<0.1	NA
Strontium	µg/L	196	211	7%	29.3	29.7	1%	17.4	17.4	0%	49.5	50.3	2%
Thallium	µg/L	<0.05	<0.05	NA	<0.05	<0.05	NA	<0.03	<0.03	NA	<0.03	<0.03	NA
Tin	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	µg/L	<0.1	<0.1	NA	<0.3	<0.3	NA	<0.1	<0.1	NA	0.3	0.2	**40%**
Tungsten	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	µg/L	0.09	0.09	0%	<0.05	<0.05	NA	<0.05	<0.05	NA	<0.05	<0.05	NA
Vanadium	µg/L	1	0.8	**22%**	0.5	0.5	0%	<0.05	<0.05	NA	0.06	0.07	15%
Zinc	µg/L	<0.8	<0.8	NA	4.3	2	**73%**	0.9	<0.8	NA	9.7	6.2	**44%**
Organic Compounds													
Oil & Grease	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Phenols	µg/L	<1	<1	NA	4	5	**22%**	<1	<1	NA	2	1	**67%**
Benzene	µg/L	-	-	-	<0.5	<0.5	NA	<0.5	<0.5	NA	-	-	-
Toluene	µg/L	-	-	-	<0.5	<0.5	NA	<0.5	<0.5	NA	-	-	-
Ethylbenzene	µg/L	-	-	-	<0.5	<0.5	NA	<0.5	<0.5	NA	-	-	-
Xylenes	µg/L	-	-	-	<0.5	<0.5	NA	<0.5	<0.5	NA	-	-	-
F1 (C6-C10)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
F1-BTEX	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
F2 (>C10-C16)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
F3 (C16-C34)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
F4 (C34-C50)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Total Volatile Hydrocarbons	µg/L	-	-	-	-	-	-	<100	<100	NA	-	-	-
Other													
BOD	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Fecal Coliforms	CFU/100 mL	-	-	-	-	-	-	-	-	-	-	-	-

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Appendix B1-1: Results of Quality Control Samples: Field Duplicates

Parameter	Unit	18-Jul-00			21-Jun-08 to 22-Jun-08			12-Jul-08			13-Jul-08		
		Original	Duplicate	RPD[a]	Original	Duplicate	RPD[a]	Original	Duplicate	RPD[a]	Original	Duplicate	RPD[a]
Conventional Parameters													
pH	pH units	7.3	7.4	1%	7.06	6.69	5%	7.6	7.6	0%	7.6	7.6	0%
Conductivity	µS/cm	80.2	79.6	1%	68.8	67.8	1%	103	103	0%	106	106	0%
Total Dissolved Solids	mg/L	37	37	0%	34	38	11%	75	66	13%	78	74	5%
Total Alkalinity	mg/L	27	27	0%	17.8	17.7	1%	26	26	0%	26	26	0%
Total Hardness	mg/L	29	29	0%	24	22.2	8%	43	41	5%	42	43	2%
Total Suspended Solids	mg/L	3	<3	NA	<3	<3	NA	3	<3	NA	<3	<3	NA
Turbidity		0.42	0.33	**24%**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Major Ions													
Bicarbonate	mg/L	33	34	3%	17.8	17.7	1%	32	31	3%	31	31	0%
Boron	mg/L	-	-	-	<0.05	<0.05	NA	-	-	-	-	-	-
Calcium	mg/L	9.54	9.69	2%	7.59	7.08	7%	12.8	13.9	8%	14	14.1	1%
Carbonate	mg/L	<5	<5	NA	<2	<2	NA	<5	<5	NA	<5	<5	NA
Chloride	mg/L	4	4	0%	6.91	6.88	0%	13	13	0%	14	14	0%
Fluoride	mg/L	-	-	-	0.021	0.021	0%	-	-	-	-	-	-
Hydroxide	mg/L	<5	<5	NA	<2	<2	NA	<5	<5	NA	<5	<5	NA
Magnesium	mg/L	1.29	1.32	2%	1.12	1.09	3%	1.29	1.41	9%	1.39	1.41	1%
Potassium	mg/L	0.646	0.648	0%	<2	<2	NA	0.85	0.9	6%	0.89	0.91	2%
Reactive Silica	mg/L	0.2	0.3	**40%**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Silicate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	mg/L	1.93	1.97	2%	4	3.8	5%	1.99	2.15	8%	2.14	2.19	2%
Sulphate	mg/L	3.15	3.22	2%	3.11	3.13	1%	4.1	2.9	**34%**	2.9	3	3%
Organic/ Inorganic Carbon													
Total Carbon	mg/L	10.8	9.9	9%	5.97	6.25	5%	11	10	10%	11	11	0%
Total Organic Carbon	mg/L	5	4	**22%**	2.64	2.49	6%	6	5	18%	5	5	0%
Dissolved Organic Carbon	mg/L	-	-	-	2.5	2.45	2%	4.5	4.5	0%	5	5.1	2%
Total Inorganic Carbon	mg/L	5.8	5.9	2%	3.32	3.76	12%	5	5	0%	6	6	0%
Nutrients & Chlorophyll *a*													
Total Ammonia	mg/L	<0.005	<0.005	NA	<0.02	<0.02	NA	<0.05	<0.05	NA	<0.05	<0.05	NA
Nitrate	mg/L	<0.006	<0.006	NA	<0.005	<0.005	NA	<0.1	<0.1	NA	<0.1	<0.1	NA
Nitrite	mg/L	-	-	-	<0.001	<0.001	NA	<0.05	<0.05	NA	<0.05	<0.05	NA
Nitrate+Nitrite	mg/L	<0.006	<0.006	NA	-	-	-	<0.1	<0.1	NA	<0.1	<0.1	NA
Total Kjeldahl Nitrogen	mg/L	0.2	0.14	35%	0.167	0.184	10%	0.3	0.4	**29%**	0.4	0.4	0%
Total Phosphorus	mg/L	0.016	0.01	**46%**	0.0025	0.003	18%	0.013	0.008	**48%**	0.009	0.009	0%
Dissolved Phosphorus	mg/L	0.003	<0.001	NA	<0.002	<0.002	NA	0.004	0.004	0%	0.004	0.008	**67%**
Orthophosphate	mg/L	<0.001	<0.001	NA	<0.001	<0.001	NA	<0.001	<0.001	NA	<0.001	<0.001	NA
Chlorophyll *a*	µg/L	-	-	-	0.355	0.291	**20%**	5	17	**109%**	9	4	**77%**
Cyanides													
Total Cyanide	µg/L	<2	2	NA	<5	<5	NA	<2	<2	NA	<2	<2	NA
Total Metals													
Aluminum	µg/L	4.3	2.6	**49%**	<5	<5	NA	1.5	1.9	**24%**	3.7	3.8	3%
Antimony	µg/L	0.08	0.09	12%	<0.5	<0.5	NA	<0.03	<0.03	NA	<0.3	<0.3	NA
Arsenic	µg/L	1.22	1.21	1%	<0.5	<0.5	NA	1.2	1.2	0%	1.62	1.66	2%
Barium	µg/L	10.8	11	2%	<20	<20	NA	11.6	12.6	8%	13	12.9	1%
Beryllium	µg/L	<0.2	<0.2	NA	<1	<1	NA	<0.2	<0.2	NA	<0.2	<0.2	NA
Bismuth	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Boron	µg/L	2	2	0%	<100	<100	NA	2	2	0%	2	2	0%
Cadmium	µg/L	0.74	0.47	45%	<0.017	<0.017	NA	<0.05	<0.05	NA	<0.05	<005	NA
Cesium	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	µg/L	1.5	1.56	4%	<1	<1	NA	<0.06	<0.06	NA	<0.06	<0.06	NA
Cobalt	µg/L	<0.1	<0.1	NA	<0.3	<0.3	NA	<0.1	<0.1	NA	<0.1	<0.1	NA
Copper	µg/L	2.2	2	10%	<1	<1	NA	2.7	3.8	**34%**	0.8	0.8	0%
Iron	µg/L	151	152	1%	<30	<30	NA	64	64	0%	122	124	2%
Lead	µg/L	0.94	1.21	**25%**	<0.5	<0.5	NA	<0.05	<0.05	NA	<0.05	<0.05	NA
Lithium	µg/L	-	-	-	<5	<5	NA	-	-	-	-	-	-
Manganese	µg/L	14.8	14.9	1%	2.04	2.4	16%	4	4.5	12%	7.2	7.6	5%
Mercury	µg/L	<0.02	<0.02	NA	<0.02	<0.02	NA	<0.02	<0.02	NA	<0.02	<0.02	NA
Molybdenum	µg/L	0.09	0.1	11%	<1	<1	NA	0.12	0.12	0%	0.13	0.12	8%
Nickel	µg/L	1.37	0.84	**48%**	<1	<1	NA	0.56	0.58	4%	0.66	0.63	5%
Selenium	µg/L	<0.1	0.1	NA	<1	<1	NA	0.2	0.2	0%	0.2	0.2	0%
Silicon	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Silver	µg/L	<0.1	<0.1	NA	<0.02	<0.02	NA	<0.1	<0.1	NA	<0.1	<0.1	NA
Strontium	µg/L	47.7	48.7	2%	-	-	-	75.2	81.6	8%	81.8	82.4	1%
Thallium	µg/L	-	-	-	<0.2	<0.2	NA	-	-	-	-	-	-
Tin	µg/L	-	-	-	<0.5	<0.5	NA	-	-	-	-	-	-
Titanium	µg/L	-	-	-	<10	<10	NA	-	-	-	-	-	-
Tungsten	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	µg/L	<0.05	<0.05	NA	<0.2	<0.2	NA	<0.05	<0.05	NA	<0.05	<0.05	NA
Vanadium	µg/L	0.54	0.49	10%	<1	<1	NA	0.16	0.17	6%	0.17	0.17	0%
Zinc	µg/L	49.6	48.2	3%	<5	<5	NA	<0.8	<0.8	NA	<0.8	<0.8	NA
Organic Compounds													
Oil & Grease	µg/L	-	-	-	-	-	-	<500	<500	NA	-	-	-
Phenols	µg/L	<1	<1	NA	-	-	-	3	2	**40%**	-	-	-
Benzene	µg/L	<0.5	<0.5	NA	-	-	-	<0.5	<0.5	NA	-	-	-
Toluene	µg/L	0.7	<0.5	NA	-	-	-	<0.5	<0.5	NA	-	-	-
Ethylbenzene	µg/L	3.9	<0.5	**155%**	-	-	-	<0.5	<0.5	NA	-	-	-
Xylenes	µg/L	<0.5	<0.5	NA	-	-	-	<0.5	<0.5	NA	-	-	-
F1 (C6-C10)	µg/L	-	-	-	-	-	-	<100	<100	NA	-	-	-
F1-BTEX	µg/L	-	-	-	-	-	-	<100	<100	NA	-	-	-
F2 (>C10-C16)	µg/L	-	-	-	-	-	-	<50	<50	NA	-	-	-
F3 (C16-C34)	µg/L	-	-	-	-	-	-	<50	<50	NA	-	-	-
F4 (C34-C50)	µg/L	-	-	-	-	-	-	<50	<50	NA	-	-	-
Total Volatile Hydrocarbons	µg/L	<100	<100	NA	-	-	-	-	-	-	-	-	-
Other													
BOD	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Fecal Coliforms	CFU/100 mL	-	-	-	-	-	-	-	-	-	-	-	-

Golder Associates

Appendix B1-1: Results of Quality Control Samples: Field Duplicates

Parameter	Unit	28-Jul-09		
		Original	Duplicate	RPD[a]
Conventional Parameters				
pH	pH units	7.71	7.7	0%
Conductivity	µS/cm	140	139	1%
Total Dissolved Solids	mg/L	96	91	5%
Total Alkalinity	mg/L	32.6	31	5%
Total Hardness	mg/L	54.8	50.6	8%
Total Suspended Solids	mg/L	4	<3	NA
Turbidity		**-**	**-**	**-**
Major Ions				
Bicarbonate	mg/L	-	-	-
Boron	mg/L	-	-	-
Calcium	mg/L	19.4	19.2	1%
Carbonate	mg/L	<5	<5	NA
Chloride	mg/L	21.3	20.2	5%
Fluoride	mg/L	-	-	-
Hydroxide	mg/L	<5	<5	NA
Magnesium	mg/L	2.1	2.09	0%
Potassium	mg/L	<2	<2	NA
Reactive Silica	mg/L	**-**	**-**	**-**
Silicate	mg/L	-	-	-
Sodium	mg/L	3.2	3.2	0%
Sulphate	mg/L	2.22	2.09	6%
Organic/ Inorganic Carbon				
Total Carbon	mg/L	11.9	12.3	3%
Total Organic Carbon	mg/L	5.2	5.2	0%
Dissolved Organic Carbon	mg/L	5.1	5	2%
Total Inorganic Carbon	mg/L	7.7	8	4%
Nutrients & Chlorophyll *a*				
Total Ammonia	mg/L	<0.05	<0.05	NA
Nitrate	mg/L	<0.05	<0.05	NA
Nitrite	mg/L	<0.05	<0.05	NA
Nitrate+Nitrite	mg/L	<0.071	<0.071	NA
Total Kjeldahl Nitrogen	mg/L	0.43	0.39	10%
Total Phosphorus	mg/L	0.0065	0.0077	17%
Dissolved Phosphorus	mg/L	0.0025	0.0018	**33%**
Orthophosphate	mg/L	<0.001	<0.001	NA
Chlorophyll *a*	µg/L	-	-	-
Cyanides				
Total Cyanide	µg/L	<2	<2	NA
Total Metals				
Aluminum	µg/L	<5	<5	NA
Antimony	µg/L	<0.2	<0.2	NA
Arsenic	µg/L	1.12	1.2	7%
Barium	µg/L	<20	<20	NA
Beryllium	µg/L	<0.01	<0.01	NA
Bismuth	µg/L	-	-	-
Boron	µg/L	<100	<100	NA
Cadmium	µg/L	<0.01	<0.01	NA
Cesium	µg/L	-	-	-
Chromium	µg/L	<1	<1	NA
Cobalt	µg/L	<0.3	<0.3	NA
Copper	µg/L	1	1.1	10%
Iron	µg/L	117	118	1%
Lead	µg/L	<0.5	<0.5	NA
Lithium	µg/L	5.4	5.2	4%
Manganese	µg/L	11.6	12.8	10%
Mercury	µg/L	<0.02	<0.02	NA
Molybdenum	µg/L	<1	<1	NA
Nickel	µg/L	<1	<1	NA
Selenium	µg/L	<1	<1	NA
Silicon	µg/L	<0.02	<0.02	NA
Silver	µg/L	<0.02	<0.02	NA
Strontium	µg/L	-	-	-
Thallium	µg/L	<0.02	<0.02	NA
Tin	µg/L	-	-	-
Titanium	µg/L	-	-	-
Tungsten	µg/L	-	-	-
Uranium	µg/L	<0.2	<0.2	NA
Vanadium	µg/L	<1	<1	NA
Zinc	µg/L	<5	<5	NA
Organic Compounds				
Oil & Grease	µg/L	-	-	-
Phenols	µg/L	-	-	-
Benzene	µg/L	-	-	-
Toluene	µg/L	-	-	-
Ethylbenzene	µg/L	-	-	-
Xylenes	µg/L	-	-	-
F1 (C6-C10)	µg/L	-	-	-
F1-BTEX	µg/L	-	-	-
F2 (>C10-C16)	µg/L	-	-	-
F3 (C16-C34)	µg/L	-	-	-
F4 (C34-C50)	µg/L	-	-	-
Total Volatile Hydrocarbons	µg/L	-	-	-
Other				
BOD	mg/L	-	-	-
Fecal Coliforms	CFU/100 mL	-	-	-

Notes:
Bolded values indicate RPD values which exceeded acceptability criteria (i.e., RPDs greater than 20%).

(a) RPD = Relative Percent Difference; calculated as the absolute difference between the original and the duplicate results divided by an average of the two results, then multiplied by 100.

- = not available
NA = not applicable
< = less than
µS/cm = microSiemens per centimetre
mg/L = milligrams per litre
NTU = Nephelometric Turbidity Units
µg/L = micrograms per litre

Appendix B1-2: Results of Quality Control Samples: Field and Trip Blanks

Parameters	Units	21-Jun-08				12-Jul-08	12-Jul-08	15-Jul-08	15-Jul-08	17-Jul-08	20-Jul-08
		Field Blank	Field Blank	Trip Blank	Trip Blank	Field Blank	Field Blank	Field Blank	Trip Blank	Trip Blank	Trip Blank
Conventional Parameters											
pH	pH units	5.75	5.69	5.68	5.6	5.6	5.7	5.5	5.5	5.6	5.7
Conductivity	µS/cm	<2.0	<2.0	<2.0	<2.0	2.7	3.1	3.3	2.9	0.2	3.9
Total Dissolved Solids	mg/L	<10	<10	16	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Alkalinity	mg/L	<2.0	<2.0	<2.0	<2.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Hardness	mg/L	<0.70	<0.70	<0.70	<0.70	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Suspended Solids	mg/L	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Major Ions											
Bicarbonate	mg/L	<2.0	<2.0	<2.0	<2.0	<5.0	<5	<5	<5	<5	<5
Bromide	mg/L	<0.050	<0.050	<0.050	<0.050	-	-	-	-	-	-
Calcium	mg/L	<0.10	<0.10	<0.10	<0.10	<0.020	<0.02	<0.02	<0.02	<0.02	<0.02
Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0	<5.0	<5	<5	<5	<5	<5
Chloride	mg/L	<0.50	<0.50	<0.50	<0.50	<1.0	<1	<1	<1	<1	<1
Fluoride	mg/L	0.026	0.026	<0.020	<0.020	-	-	-	-	-	-
Hydroxide	mg/L	<2.0	<2.0	<2.0	<2.0	<5.0	<5	<5	<5	<5	<5
Magnesium	mg/L	<0.10	<0.10	<0.10	<0.10	<0.0040	<0.004	<0.004	<0.004	<0.004	<0.004
Potassium	mg/L	<2.0	<2.0	<2.0	<2.0	<0.020	<0.02	<0.02	<0.02	<0.02	<0.02
Sodium	mg/L	<2.0	<2.0	<2.0	<2.0	<0.0050	<0.005	<0.005	<0.005	<0.005	<0.005
Sulphate	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.5	<0.5	<0.5	<0.5	<0.5
Organic/ Inorganic Carbon											
Total Carbon	mg/L	<0.50	<0.50	<0.50	<0.50	<1	<1	<1	<1	<1	<1
Total Organic Carbon	mg/L	<0.50	<0.50	<0.50	<0.50	<1	<1	<1	<1	<1	<1
Dissolved Organic Carbon	mg/L	-	-	-	-	<0.5	<0.5	0.7	0.9	0.7	0.5
Total Inorganic Carbon	mg/L	<0.50	<0.50	<0.50	<0.50	<1	<1	<1	<1	<1	<1
Nutrients & Chlorophyll *a*											
Total Ammonia	mg/L	<0.020	<0.020	<0.020	<0.020	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nitrate	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nitrite	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nitrate+Nitrite	mg/L	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Kjeldahl Nitrogen	mg/L	<0.050	0.058	<0.050	<0.050	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total Phosphorus	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	<0.001	<0.001	<0.001	<0.001	0.001	<0.001
Dissolved Phosphorus	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	<0.001	<0.027	<0.001	<0.001	0.001	<0.001
Orthophosphate	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chlorophyll *a*	µg/L	-	-	-	-	<1	12	15	1	<1	<1
Cyanides											
Total Cyanide	µg/L	<5.0	<5.0	<5.0	<5.0	<2	<2	<2	<2	<2	<2
Total Metals											
Aluminum	µg/L	<5.0	<5.0	<5.0	<5.0	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Antimony	µg/L	<0.50	<0.50	<0.50	<0.50	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Arsenic	µg/L	<0.50	<0.50	<0.50	<0.50	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Barium	µg/L	<20.0	<20.0	<20.0	<20.0	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Beryllium	µg/L	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Boron	µg/L	<100	<100	<100	<100	<1	<1	<1	<1	<1	<1
Cadmium	µg/L	<0.017	<0.017	<0.017	<0.017	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chromium	µg/L	<1.0	<1.0	<1.0	<1.0	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Cobalt	µg/L	<0.30	<0.30	<0.30	<0.30	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper	µg/L	<1.0	<1.0	<1.0	<1.0	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Iron	µg/L	<30	<30	<30	<30	<5	<5	<5	<5	<5	<5
Lead	µg/L	<0.50	<0.50	<0.50	<0.50	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium	µg/L	<5.0	<5.0	<5.0	<5.0	-	-	-	-	-	-
Manganese	µg/L	<0.30	<0.30	<0.30	<0.30	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mercury	µg/L	<0.020	<0.020	<0.020	<0.020	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Molybdenum	µg/L	<1.0	<1.0	<1.0	<1.0	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Nickel	µg/L	<1.0	<1.0	<1.0	<1.0	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Selenium	µg/L	<1.0	<1.0	<1.0	<1.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Silver	µg/L	<0.020	<0.020	<0.020	<0.020	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Strontium	µg/L	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Thallium	µg/L	<0.20	<0.20	<0.20	<0.20	-	-	-	-	-	-
Tin	µg/L	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	-
Titanium	µg/L	<10.0	<10.0	<10.0	<10.0	-	-	-	-	-	-
Uranium	µg/L	<0.20	<0.20	<0.20	<0.20	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Vanadium	µg/L	<1.0	<1.0	<1.0	<1.0	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	<5.0	<5.0	<5.0	<5.0	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Organic Compounds											
Oil & Grease	µg/L	-	-	-	-	<500	-	<500	<500	<500	-
Phenols	µg/L	-	-	-	-	<1	-	<1	<1	<1	-
Benzene	µg/L	-	-	-	-	<0.5	-	<0.5	<0.5	<0.5	-
Toluene	µg/L	-	-	-	-	<0.5	-	<0.5	<0.5	<0.5	-
Ethylbenzene	µg/L	-	-	-	-	<0.5	-	<0.5	<0.5	<0.5	-
Xylenes	µg/L	-	-	-	-	<0.5	-	<0.5	<0.5	<0.5	-
F1 (C6-C10)	µg/L	-	-	-	-	<100	-	<100	<100	<100	-
F1-BTEX	µg/L	-	-	-	-	<100	-	<100	<100	<100	-
F2 (>C10-C16)	µg/L	-	-	-	-	<50	-	<50	<50	<50	-
F3 (C16-C34)	µg/L	-	-	-	-	<50	-	<50	<50	<50	-
F4 (C34-C50)	µg/L	-	-	-	-	<50	-	<50	<50	<50	-

Notes: - = not available; < = less than; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = Nephelometric Turbidity Units; µg/L = micrograms per litre

Golder Associates

Appendix B2-1: Water Quality in Streams of the Meliadine Lake Drainage, Meliadine Gold Project, 1995 to 2009

Waterbody	Units	NEW-1		DI-4
Date Sampled		23-Jun-08	20-Jul-08	24-Jun-08
GPS Coordinates (NAD83 Zone15)		546982, 6987421	546505, 6987540	549441, 6983602
Source [a]		Golder	Golder	Golder
Field Measurements				
Water Temperature	°C	15.2	12.8	11.45
Dissolved Oxygen	mg/L	11.37	12.34	11.61
pH	pH	7.91	6.95	8.11
Specific Conductivity	µS/cm	80	137	72
Secchi Disk Depth	m	-	-	-
Conventional Parameters (Laboratory-Measured)				
pH	pH	7.6	7.6	7.7
Specific Conductivity	µS/cm	94.3	151	92
Total Dissolved Solids	mg/L	-	99	-
Total Dissolved Solids (Calculated)	mg/L	49	-	50
Total Alkalinity	mg $CaCO_3$/L	23	39	26
Total Hardness	mg $CaCO_3$/L	29	47	37
Total Suspended Solids	mg/L	<3	<3	<3
Turbidity	NTU	-	-	-
Major Ions				
Bicarbonate	mg/L	28	47	32
Bromide	mg/L	0.1	-	0.1
Calcium	mg/L	8.5	13.7	11.3
Carbonate	mg/L	<5	<5	<5
Chloride	mg/L	13	18	9
Fluoride	mg/L	<0.05	-	<0.05
Hydroxide	mg/L	<5	<5	<5
Magnesium	mg/L	1.5	2.27	1.4
Potassium	mg/L	0.9	1.03	3.1
Reactive Silica (as SiO_2)	mg/L	-	-	-
Sodium	mg/L	7	9.69	11
Sulphate	mg/L	3.6	4.4	6.7
Ion Balance	%	Low EC	106	Low EC
Organic/Inorganic Carbon				
Total Carbon	mg/L	11	8	11
Total Organic Carbon	mg/L	5	9	5
Dissolved Organic Carbon	mg/L	5	8.4	5
Total Inorganic Carbon	mg/L	5	17	6
Nutrients and Chlorophyll *a*				
Total Ammonia as Nitrogen	mg/L	<0.05	<0.05	<0.05
Nitrate as Nitrogen	mg/L	<0.1	<0.1	<0.1
Nitrite as Nitrogen	mg/L	<0.05	<0.05	**0.09**
Nitrate+Nitrite as Nitrogen	mg/L	<0.1	<0.1	<0.1
Total Kjeldahl Nitrogen	mg/L	0.4	0.4	0.4
Phosphorus, Total	mg/L	0.012	0.009	0.01
Phosphorus, Total Dissolved	mg/L	0.003	0.004	0.003
Orthophosphate (PO4-P)	mg/L	<0.001	<0.001	<0.001
Chlorophyll *a*	µg/L	3	<1	3
Cyanides				
Cyanide, Total	µg/L	<2	<2	<2
Total Metals				
Aluminum (Al)	µg/L	5.2	7.7	5
Antimony (Sb)	µg/L	<0.4	<0.03	<0.4
Arsenic (As)	µg/L	1.1	1.65	0.9
Barium (Ba)	µg/L	9	11.1	12
Beryllium (Be)	µg/L	<1	<0.2	<1
Bismuth (Bi)	µg/L	-	-	-
Boron (B)	µg/L	<50	8	<50
Cadmium (Cd)	µg/L	*<0.017*	*<0.05*	*<0.017*
Cesium (Cs)	µg/L	-	-	-
Chromium (Cr)	µg/L	<0.06	0.17	<0.06
Cobalt (Co)	µg/L	<2	0.2	<2
Copper (Cu)	µg/L	1	1.4	1
Iron (Fe)	µg/L	207	**587**	95
Lead (Pb)	µg/L	<0.1	<0.05	<0.1
Lithium (Li)	µg/L	<10	-	<10
Magnesium (Mg)	µg/L	1500	2270	1400
Manganese (Mn)	µg/L	3	9.9	5
Mercury (Hg)	µg/L	<0.02	<0.02	<0.02
Molybdenum (Mo)	µg/L	<5	0.25	<5
Nickel (Ni)	µg/L	<2	1.83	2
Potassium (K)	µg/L	900	1030	3100
Rubidium (Rb)	µg/L	-	-	-
Selenium (Se)	µg/L	<0.4	0.2	<0.4
Silver (Ag)	µg/L	*<0.4*	*<0.1*	*<0.4*

Appendix B2-1: Water Quality in Streams of the Meliadine Lake Drainage, Meliadine Gold Project, 1995 to 2009

Waterbody	Units	NEW-1		DI-4
Date Sampled		23-Jun-08	20-Jul-08	24-Jun-08
GPS Coordinates (NAD83 Zone15)		546982, 6987421	546505, 6987540	549441, 6983602
Source [a]		Golder	Golder	Golder
Sodium (Na)	µg/L	7000	9690	11000
Strontium (Sr)	µg/L	-	70.2	-
Thallium (Tl)	µg/L	<0.1	<0.03	<0.1
Tin (Sn)	µg/L	<50	-	<50
Titanium (Ti)	µg/L	<1	-	<1
Uranium (U)	µg/L	<0.1	0.06	<0.1
Vanadium (V)	µg/L	<1	0.4	<1
Zinc (Zn)	µg/L	<4	<0.8	<4
Dissolved Metals				
Aluminum (Al)	µg/L	3.3	3.7	2.6
Antimony (Sb)	µg/L	<0.4	<0.03	<0.4
Arsenic (As)	µg/L	0.9	1.41	0.9
Barium (Ba)	µg/L	9	10.8	13
Beryllium (Be)	µg/L	<1	<0.2	<1
Boron (B)	µg/L	<50	9	<50
Cadmium (Cd)	µg/L	<0.017	<0.05	<0.017
Calcium (Ca)	µg/L	-	13800	-
Chromium (Cr)	µg/L	<0.06	0.15	<0.06
Cobalt (Co)	µg/L	<2	0.2	<2
Copper (Cu)	µg/L	1	1.3	2
Iron (Fe)	µg/L	149	269	61
Lead (Pb)	µg/L	<0.1	<0.05	<0.1
Lithium (Li)	µg/L	<3	-	<3
Magnesium (Mg)	µg/L	-	2230	-
Manganese (Mn)	µg/L	2	8.7	4
Mercury (Hg)-Dissolved	µg/L	<0.02	<0.02	<0.02
Molybdenum (Mo)	µg/L	<5	0.25	<5
Nickel (Ni)	µg/L	<2	1.8	2
Potassium (K)	µg/L	-	1040	-
Selenium (Se)	µg/L	<0.4	0.2	<0.4
Silver (Ag)	µg/L	<0.1	<0.1	<0.1
Sodium (Na)	µg/L	-	9510	-
Strontium (Sr)	µg/L	-	69.9	-
Thallium (Tl)	µg/L	<0.1	<0.03	<0.1
Tin (Sn)	µg/L	<50	-	<50
Titanium (Ti)	µg/L	<1	-	<1
Uranium (U)	µg/L	<0.1	0.06	<0.1
Vanadium (V)	µg/L	<1	0.38	<1
Zinc (Zn)	µg/L	<2	<0.8	<2
Organic Compounds				
Oil and Grease	µg/L	-	-	-
Phenols	µg/L	-	-	-
Benzene	µg/L	-	-	-
Ethylbenzene	µg/L	-	-	-
Toluene	µg/L	-	-	-
Xylenes	µg/L	-	-	-
F1 (C6-C10)	µg/L	-	-	-
F1 -BTEX	µg/L	-	-	-
F2 (>C10-C16)	µg/L	-	-	-
F3 (C16-C34)	µg/L	-	-	-
F4 (C34-C50)	µg/L	-	-	-
Total Volatiles	µg/L	-	-	-
Total Extractables	µg/L	-	-	-
Other				
Biological Oxygen Demand (BOD)	mg/L	-	-	-
Fecal Coliforms	CFU/100 mL	-	-	-

Notes:
Bold values are equal to or greater than the Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2007, CWQG).
Underlined values are equal to or greater than the Guidelines for Canadian Drinking Water Quality (Health Canada 2007, GCDWQ).
Italicized values indicate the detection limit equals or exceeds either guideline.
(-) = No data available
°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; µg/L = micrograms per litre; NTU = nephelometric turbidity units.
a = Data were obtained from the following sources: 1994 to 1995 = Dillon (1994 and 1995); 1997 to 2000 = RL&L (1998, 1999, 2000, 2001); 2007 = Comaplex Minerals Corporation, pers. comm.; 2008 and 2009 = Golder Associates Ltd.

Appendix B2-2: Water Quality in Streams of the Peninsula Basin A, Meliadine Gold Project, 1995 to 2009

Waterbody	Units	A0-1					A5-6		
Date Sampled		15-Jun-97	12-Jun-98	17-Jul-98	19-Jun-99	21-Jun-00	15-Jun-97	12-Jun-98	18-Jul-98
GPS Coordinates (NAD83, Zone 15V)		-	-	544352, 6986081	544366, 6986045	-	-	-	-
Source [a]		RL&L 1998	RL&L 1999	RL&L 1999	RL&L 2000	RL&L 2001	RL&L 1998	RL&L 1999	RL&L 1999
Field Measurements									
Water Temperature	°C	4.0	2.5	11.7	5.0	4.0	6.0	1.9	9.9
Dissolved Oxygen	mg/L	12.5	-	-	-	-	12.8	-	-
pH	pH	7.64	7.1	-	7.79	7.20	7.78	7.0	-
Specific Conductivity	µS/cm	102.0	80.6	-	-	82.3	91.3	77.5	-
Secchi Disk Depth	m	-	-	-	-	-	-	-	-
Conventional Parameters (Laboratory-Measured)									
pH	pH	7.66	7.2	7.7	7.2	7.1	7.65	7.2	7.5
Specific Conductivity	µS/cm	80.4	70.9	121	94.8	74.4	72.4	68.0	80.5
Total Dissolved Solids	mg/L	53	33	57	45	35	48	32	37
Total Dissolved Solids (Calculated)	mg/L	-	-	-	-	-	-	-	-
Total Alkalinity	mg $CaCO_3$/L	33.4	24	41	31	25	30.9	25	29
Total Hardness	mg $CaCO_3$/L	36.7	27	47	36	28	37.7	26	31
Total Suspended Solids	mg/L	4	<2	<2	<3	<3	3	3	<2
Turbidity	NTU	0.6	0.5	0.6	1.5	0.78	0.6	0.3	0.4
Major Ions									
Bicarbonate	mg/L	33.4	30	50	38	31	30.9	31	35
Bromide	mg/L	-	-	-	-	-	-	-	-
Calcium	mg/L	12.6	9.1	16.1	12.2	8.04	13.1	8.7	10.5
Carbonate	mg/L	<0.3	<1	<1	<1	<5	<0.3	<1	<1
Chloride	mg/L	4.38	4.0	7.72	6.30	4	3.24	3.2	3.79
Fluoride	mg/L	-	-	-	-	-	-	-	-
Hydroxide	mg/L	-	<1	<1	<1	<5	-	<1	<1
Magnesium	mg/L	1.27	1.05	1.74	1.40	0.954	1.20	1.07	1.26
Potassium	mg/L	0.676	0.75	0.95	0.72	0.591	0.632	0.73	0.68
Reactive Silica (as SiO_2)	mg/L	0.972	1.0	1.1	0.8	0.7	0.870	1.1	0.9
Sodium	mg/L	2.13	1.6	2.8	2.3	1.36	1.79	1.5	1.9
Sulphate	mg/L	<3	1.8	2.62	3.08	3.2	4	1.5	1.74
Ion Balance	%	-	98	100	98	95.2	-	96	102
Organic/Inorganic Carbon									
Total Carbon	mg/L	11.0	11	15.9	10.7	9.3	10.0	11	11.2
Total Organic Carbon	mg/L	3.4	5.7	5.9	3.8	3.6	2.8	5.0	3.9
Dissolved Organic Carbon	mg/L	-	-	-	-	-	-	-	-
Total Inorganic Carbon	mg/L	8.0	5.7	10.0	6.9	5.7	7.0	6.0	7.3
Nutrients and Chlorophyll *a*									
Total Ammonia as Nitrogen	mg/L	0.004	0.013	0.008	<0.005	0.011	0.004	0.024	<0.005
Nitrate as Nitrogen	mg/L	<0.008	0.007	<0.006	0.009	0.007	<0.008	0.011	<0.006
Nitrite as Nitrogen	mg/L	-	-	-	-	-	-	-	-
Nitrate+Nitrite as Nitrogen	mg/L	<0.008	0.007	<0.006	0.009	0.008	<0.008	0.011	<0.006
Total Kjeldahl Nitrogen	mg/L	0.30	0.21	0.41	0.29	0.12	0.27	0.22	0.77
Phosphorus, Total	mg/L	0.009	0.008	0.007	0.005	0.008	0.009	0.006	0.004
Phosphorus, Total Dissolved	mg/L	0.006	0.007	0.006	0.002	0.004	0.007	0.006	0.004
Orthophosphate (PO4-P)	mg/L	<0.002	<0.001	<0.001	<0.001	0.005	<0.002	<0.001	<0.001
Chlorophyll *a*	µg/L	-	-	-	-	-	-	-	-
Cyanides									
Cyanide, Total	µg/L	-	<1	<1	<2	<2	-	<1	<1
Total Metals									
Aluminum (Al)	µg/L	4.4	1.8	<0.3	2.2	5.6	1.4	1.7	<0.3
Antimony (Sb)	µg/L	0.5	0.14	0.07	0.04	0.07	0.5	0.17	0.08
Arsenic (As)	µg/L	0.4	0.69	<0.03	0.92	0.80	0.7	0.79	0.13
Barium (Ba)	µg/L	10.7	8.7	<0.05	11.1	9.13	9.8	9.1	0.80
Beryllium (Be)	µg/L	<0.1	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2
Bismuth (Bi)	µg/L	<0.1	<0.05	<0.03	<0.03	-	<0.1	<0.05	<0.03
Boron (B)	µg/L	-	-	-	-	<1	-	-	-
Cadmium (Cd)	µg/L	*<0.1*	*<0.05*	*<0.05*	*<0.02*	*<0.05*	*<0.1*	*<0.05*	*<0.05*
Cesium (Cs)	µg/L	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	0.7	<0.06	<0.06	**1.40**	0.50	0.5	<0.06	<0.06
Cobalt (Co)	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	0.8	0.9	0.9	0.6	<0.6	0.7	1.1	0.8
Iron (Fe)	µg/L	136	20	<5	87	106	88	10	8
Lead (Pb)	µg/L	<0.2	<0.05	<0.05	0.06	0.08	<0.2	0.07	<0.05
Lithium (Li)	µg/L	0.9	0.9	<0.1	1.2	-	0.7	0.7	0.7
Magnesium (Mg)	µg/L	-	-	-	-	-	-	-	-
Manganese (Mn)	µg/L	7.6	1.7	0.1	12.5	18.1	12.8	1.4	0.2
Mercury (Hg)	µg/L	<0.01	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02
Molybdenum (Mo)	µg/L	0.2	0.11	0.19	0.12	0.10	0.1	0.14	0.14
Nickel (Ni)	µg/L	0.8	0.5	0.32	0.69	0.53	0.7	0.5	0.27

Appendix B2-2: Water Quality in Streams of the Peninsula Basin A, Meliadine Gold Project, 1995 to 2009

Waterbody	**Units**	**A0-1**					**A5-6**		
Date Sampled		15-Jun-97	12-Jun-98	17-Jul-98	19-Jun-99	21-Jun-00	15-Jun-97	12-Jun-98	18-Jul-98
GPS Coordinates (NAD83, Zone 15V)		-	-	544352, 6986081	544366, 6986045	-	-	-	-
Source [a]		RL&L 1998	RL&L 1999	RL&L 1999	RL&L 2000	RL&L 2001	RL&L 1998	RL&L 1999	RL&L 1999
Potassium (K)	µg/L	-	-	-	-	-	-	-	-
Rubidium (Rb)	µg/L	-	-	-	-	-	-	-	-
Selenium (Se)	µg/L	*<1*	<0.1	<0.1	0.1	<0.1	*<1*	<0.1	<0.1
Silicon (Si)	µg/L	-	-	-	-	-	-	-	-
Silver (Ag)	µg/L	**0.1**	*<0.1*	*<0.1*	*<0.1*	*<0.1*	*<0.1*	*<0.1*	*<0.1*
Sodium (Na)	µg/L	-	-	-	-	-	-	-	-
Strontium (Sr)	µg/L	41.9	35.1	<0.1	48.7	31.0	38.4	33.8	0.4
Thallium (Tl)	µg/L	0.1	<0.05	<0.03	<0.03	-	<0.1	<0.05	<0.03
Tin (Sn)	µg/L	-	-	-	-	-	-	-	-
Titanium (Ti)	µg/L	0.5	<0.3	0.1	<0.1	-	0.1	<0.3	<0.1
Tungsten (W)	µg/L	-	-	-	-	-	-	-	-
Uranium (U)	µg/L	<0.1	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05
Vanadium (V)	µg/L	0.3	0.5	0.66	0.05	<0.05	0.2	0.5	0.46
Zinc (Zn)	µg/L	<0.5	2.9	<0.8	15.1	<0.8	1.0	4.3	<0.8
Dissolved Metals									
Aluminum (Al)	µg/L	-	-	-	-	-	-	-	-
Antimony (Sb)	µg/L	-	-	-	-	-	-	-	-
Arsenic (As)	µg/L	-	-	-	-	-	-	-	-
Barium (Ba)	µg/L	-	-	-	-	-	-	-	-
Beryllium (Be)	µg/L	-	-	-	-	-	-	-	-
Boron (B)	µg/L	-	-	-	-	-	-	-	-
Cadmium (Cd)	µg/L	-	-	-	-	-	-	-	-
Calcium (Ca)	µg/L	-	-	-	-	-	-	-	-
Chromium (Cr)	µg/L	-	-	-	-	-	-	-	-
Cobalt (Co)	µg/L	-	-	-	-	-	-	-	-
Copper (Cu)	µg/L	-	-	-	-	-	-	-	-
Iron (Fe)	µg/L	-	-	-	-	-	-	-	-
Lead (Pb)	µg/L	-	-	-	-	-	-	-	-
Lithium (Li)	µg/L	-	-	-	-	-	-	-	-
Magnesium (Mg)	µg/L	-	-	-	-	-	-	-	-
Manganese (Mn)	µg/L	-	-	-	-	-	-	-	-
Mercury (Hg)	µg/L	-	-	-	-	-	-	-	-
Molybdenum (Mo)	µg/L	-	-	-	-	-	-	-	-
Nickel (Ni)	µg/L	-	-	-	-	-	-	-	-
Potassium (K)	µg/L	-	-	-	-	-	-	-	-
Selenium (Se)	µg/L	-	-	-	-	-	-	-	-
Silver (Ag)	µg/L	-	-	-	-	-	-	-	-
Sodium (Na)	µg/L	-	-	-	-	-	-	-	-
Strontium (Sr)	µg/L	-	-	-	-	-	-	-	-
Thallium (Tl)	µg/L	-	-	-	-	-	-	-	-
Tin (Sn)	µg/L	-	-	-	-	-	-	-	-
Titanium (Ti)	µg/L	-	-	-	-	-	-	-	-
Uranium (U)	µg/L	-	-	-	-	-	-	-	-
Vanadium (V)	µg/L	-	-	-	-	-	-	-	-
Zinc (Zn)	µg/L	-	-	-	-	-	-	-	-
Organic Compounds									
Oil and Grease	µg/L	-	-	-	-	-	-	-	-
Phenols	µg/L	<2	2	3	2	2	*<2*	1	3
Benzene	µg/L	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	µg/L	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
Toluene	µg/L	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
Xylenes	µg/L	<0.5	<0.5	<0.5	-	<0.6	<0.5	<0.5	<0.5
F1 (C6-C10)	µg/L	-	-	-	-		-	-	-
F1 -BTEX	µg/L	-	-	-	-	-	-	-	-
F2 (>C10-C16)	µg/L	-	-	-	-	-	-	-	-
F3 (C16-C34)	µg/L	-	-	-	-	-	-	-	-
F4 (C34-C50)	µg/L	-	-	-	-	-	-	-	-
Total Volatiles	µg/L	<100	<100	<100	-	<100	<100	<100	<100
Total Extractables	µg/L	<50	<50	<50	-	<50	<50	<50	<50
Total Extractable Hydrocarbons (C9-40)	µg/L	-	-	-	-	-	-	-	-
Total Extractable Hydrocarbons (C10-30	µg/L	-	-	-	-	-	-	-	-
Other									
Biological Oxygen Demand (BOD)	mg/L	-	-	-	-	-	-	-	-
Fecal Coliforms	CFU/100 mL	-	-	-	-	-	-	-	-

Appendix B2-2: Water Quality in Streams of the Peninsula Basin A, Meliadine Gold Project, 1995 to 2009

Waterbody	**Units**	**A7-8**						
Date Sampled		15-Jun-97	12-Jun-98	20-Jul-98	18-Jul-07	7-Oct-07	21-Jun-08	14-Jul-08
GPS Coordinates (NAD83, Zone 15V)			-	-	540748, 6986690	540748, 6986690	540750, 6986701	540750, 6986687
Source [a]		RL&L 1998	RL&L 1999	RL&L 1999	Comaplex	Comaplex	Golder	Golder
Field Measurements								
Water Temperature	°C	4.8	1.5	10.2	17.8	1.9	6.85	16.70
Dissolved Oxygen	mg/L	12.9	-	-	-	-	13.3	10.97
pH	pH	7.60	7.1	-	8.12	8.02	-	6.53
Specific Conductivity	µS/cm	93.3	84.7	-	-	-	74	109
Secchi Disk Depth	m	-	-	-	-	-	-	-
Conventional Parameters (Laboratory-Measured)								
pH	pH	7.62	7.3	7.3	7.7	7.7	7.11	7.6
Specific Conductivity	µS/cm	74.3	74.0	86.4	106	135	113	118
Total Dissolved Solids	mg/L	52	34	41	-	-	70	82
Total Dissolved Solids (Calculated)	mg/L	-	-	-	51	64	-	-
Total Alkalinity	mg $CaCO_3$/L	30.4	26	31	30	33	24.8	27
Total Hardness	mg $CaCO_3$/L	35.9	28	37	41	52	46	49
Total Suspended Solids	mg/L	3	2	2	-	<3	<3.0	<3
Turbidity	NTU	2.0	0.4	0.5	-	0.45	-	-
Major Ions								
Bicarbonate	mg/L	30.4	31	38	37	40	24.8	33
Bromide	mg/L	-	-	-	-	-	<0.050	-
Calcium	mg/L	12.0	9.1	11.9	13.6	17.1	15.8	15.3
Carbonate	mg/L	<0.3	<1	<1	<5	<5	<2.0	<5
Chloride	mg/L	4.24	4.2	4.57	12	17	16.9	17
Fluoride	mg/L	-	-	-	-	-	<0.020	-
Hydroxide	mg/L	-	<1	<1	<5	<5	<2.0	<5
Magnesium	mg/L	1.44	1.30	1.70	1.7	2.2	2.03	1.8
Potassium	mg/L	0.643	0.77	0.80	0.8	1	<2.0	0.95
Reactive Silica (as SiO_2)	mg/L	0.977	1.3	1.1	-	1.3	-	-
Sodium	mg/L	1.84	1.6	2.1	2	3	2.5	2.6
Sulphate	mg/L	4	1.6	1.67	3.2	4.1	2.78	2.1
Ion Balance	%	-	98	108	90.5	97.5	-	106
Organic/Inorganic Carbon								
Total Carbon	mg/L	10.0	11	11.5	-	11	8.04	10
Total Organic Carbon	mg/L	2.8	5.3	3.9	-	-	2.67	4
Dissolved Organic Carbon	mg/L	-	-	-	-	-	2.88	4
Total Inorganic Carbon	mg/L	7.0	6.2	7.5	-	8	5.37	6
Nutrients and Chlorophyll *a*								
Total Ammonia as Nitrogen	mg/L	0.005	0.028	0.016	-	<0.05	<0.020	<0.05
Nitrate as Nitrogen	mg/L	<0.008	0.011	<0.006	<0.1	<0.1	0.0168	<0.1
Nitrite as Nitrogen	mg/L	-	-	-	<0.05	<0.05	0.001	<0.05
Nitrate+Nitrite as Nitrogen	mg/L	<0.008	0.011	<0.006	<0.1	<0.1	-	<0.1
Total Kjeldahl Nitrogen	mg/L	0.30	0.25	0.52	-	0.2	0.208	0.4
Phosphorus, Total	mg/L	0.008	0.005	0.006	-	<0.02	0.0042	0.007
Phosphorus, Total Dissolved	mg/L	0.006	0.004	0.005	-	<0.02	<0.0020	0.004
Orthophosphate (PO4-P)	mg/L	<0.002	<0.001	<0.001	-	<0.01	<0.0010	<0.001
Chlorophyll *a*	µg/L	-	-	-	-	-	0.012	17
Cyanides								
Cyanide, Total	µg/L	-	<1	2	-	-	*<5*	<2
Total Metals								
Aluminum (Al)	µg/L	0.9	2.3	0.5	<10	-	<5	2.3
Antimony (Sb)	µg/L	0.2	0.15	0.07	<0.4	-	<0.50	<0.03
Arsenic (As)	µg/L	0.9	1.00	2.45	2.3	-	1.15	3
Barium (Ba)	µg/L	10.7	10.9	9.17	14	-	<20	14.3
Beryllium (Be)	µg/L	<0.1	<0.2	<0.2	<1	-	<1.0	<0.2
Bismuth (Bi)	µg/L	<0.1	<0.05	<0.03	-	-		-
Boron (B)	µg/L	-	-	-	<50	-	<100	2
Cadmium (Cd)	µg/L	**0.1**	*<0.05*	*<0.05*	*<0.2*	-	*<0.017*	*<0.05*
Cesium (Cs)	µg/L	<0.1	<0.1	<0.1	-	-	-	-
Chromium (Cr)	µg/L	0.4	<0.06	**3.29**	*<5*	-	*<1.0*	0.26
Cobalt (Co)	µg/L	0.1	<0.1	<0.1	<2	-	<0.30	<0.1
Copper (Cu)	µg/L	1.0	1.3	0.8	1	-	<1.0	0.9
Iron (Fe)	µg/L	109	20	28	-	-	67	138
Lead (Pb)	µg/L	<0.2	<0.05	<0.05	<0.1	-	<0.50	0.1
Lithium (Li)	µg/L	1.0	1.1	0.2	<10	-	<5.0	-
Magnesium (Mg)	µg/L	-	-	-	-	-	2030	1800
Manganese (Mn)	µg/L	13.5	1.6	1.2	14	-	6.46	24.1
Mercury (Hg)	µg/L	<0.01	<0.02	<0.02	<0.2	-	<0.020	<0.02
Molybdenum (Mo)	µg/L	0.1	0.11	0.21	<5	-	<1.0	0.16
Nickel (Ni)	µg/L	1.6	0.8	1.03	<2	-	<1.0	0.51

Appendix B2-2: Water Quality in Streams of the Peninsula Basin A, Meliadine Gold Project, 1995 to 2009

Waterbody	**Units**	**A7-8**						
Date Sampled		15-Jun-97	12-Jun-98	20-Jul-98	18-Jul-07	7-Oct-07	21-Jun-08	14-Jul-08
GPS Coordinates (NAD83, Zone 15V)			-	-	540748, 6986690	540748, 6986690	540750, 6986701	540750, 6986687
Source [a]		RL&L 1998	RL&L 1999	RL&L 1999	Comaplex	Comaplex	Golder	Golder
Potassium (K)	µg/L	-	-	-	-	-	<2000	950
Rubidium (Rb)	µg/L	-	-	-	-	-	-	-
Selenium (Se)	µg/L	*<1*	<0.1	0.2	0.4	-	*<1.0*	0.2
Silicon (Si)	µg/L	-	-	-	-	-	-	-
Silver (Ag)	µg/L	*<0.1*	*<0.1*	*<0.1*	*<0.4*	-	<0.020	*<0.1*
Sodium (Na)	µg/L	-	-	-	-	-	2500	2600
Strontium (Sr)	µg/L	47.0	42.8	56.2	-	-	-	83.7
Thallium (Tl)	µg/L	<0.1	<0.05	<0.03	<0.1	-	<0.20	<0.03
Tin (Sn)	µg/L	-	-	-	<0.05	-	<0.50	-
Titanium (Ti)	µg/L	<0.1	<0.3	<0.1	<1	-	<10	-
Tungsten (W)	µg/L	-	-	-	-	-	-	-
Uranium (U)	µg/L	<0.1	<0.05	<0.05	<0.1	-	<0.20	<0.05
Vanadium (V)	µg/L	0.2	0.6	0.06	<1	-	<1.0	0.19
Zinc (Zn)	µg/L	0.8	4.2	<0.8	6	-	<5.0	2.8
Dissolved Metals								
Aluminum (Al)	µg/L	-	-	-	-	10	<5.0	1.4
Antimony (Sb)	µg/L	-	-	-	-	1.8	<0.50	<0.03
Arsenic (As)	µg/L	-	-	-	-	1.6	0.98	2.24
Barium (Ba)	µg/L	-	-	-	-	13	<20	13.4
Beryllium (Be)	µg/L	-	-	-	-	<1	<1.0	<0.2
Boron (B)	µg/L	-	-	-	-	<50	<100	2
Cadmium (Cd)	µg/L	-	-	-	-	<0.1	<0.017	<0.05
Calcium (Ca)	µg/L	-	-	-	-	-	15100	15400
Chromium (Cr)	µg/L	-	-	-	-	<5	<1.0	<0.06
Cobalt (Co)	µg/L	-	-	-	-	<2	<0.30	<0.1
Copper (Cu)	µg/L	-	-	-	-	1	<1.0	0.7
Iron (Fe)	µg/L	-	-	-	142	40	43	44
Lead (Pb)	µg/L	-	-	-	-	<0.1	<0.50	0.05
Lithium (Li)	µg/L	-	-	-	-	4	<5.0	-
Magnesium (Mg)	µg/L	-	-	-	-	-	2030	1790
Manganese (Mn)	µg/L	-	-	-	-	5	4.92	7.9
Mercury (Hg)	µg/L	-	-	-	-	<0.1	<0.020	<0.02
Molybdenum (Mo)	µg/L	-	-	-	-	<5	<1.0	0.15
Nickel (Ni)	µg/L	-	-	-	-	<2	<1.0	0.52
Potassium (K)	µg/L	-	-	-	-	-	<2000	930
Selenium (Se)	µg/L	-	-	-	-	<0.4	<1.0	0.1
Silver (Ag)	µg/L	-	-	-	-	<0.1	<0.020	<0.1
Sodium (Na)	µg/L	-	-	-	-	-	2500	2610
Strontium (Sr)	µg/L	-	-	-	-	-	-	82.2
Thallium (Tl)	µg/L	-	-	-	-	<0.1	<0.20	<0.03
Tin (Sn)	µg/L	-	-	-	-	<0.05	<0.50	-
Titanium (Ti)	µg/L	-	-	-	-	<1	<10	-
Uranium (U)	µg/L	-	-	-	-	<0.1	<0.20	<0.05
Vanadium (V)	µg/L	-	-	-	-	<1	<1.0	0.15
Zinc (Zn)	µg/L	-	-	-	-	9	<5.0	1.5
Organic Compounds								
Oil and Grease	µg/L	-	-	-	-	-	-	-
Phenols	µg/L	<2	1	1	-	-	-	-
Benzene	µg/L	<0.5	<0.5	<0.5	-	-	-	-
Ethylbenzene	µg/L	<0.5	<0.5	<0.5	-	-	-	-
Toluene	µg/L	<0.5	<0.5	<0.5	-	-	-	-
Xylenes	µg/L	<0.5	<0.5	<0.5	-	-	-	-
F1 (C6-C10)	µg/L	-	-	-	-	-	-	-
F1 -BTEX	µg/L	-	-	-	-	-	-	-
F2 (>C10-C16)	µg/L	-	-	-	-	-	-	-
F3 (C16-C34)	µg/L	-	-	-	-	-	-	-
F4 (C34-C50)	µg/L	-	-	-	-	-	-	-
Total Volatiles	µg/L	<100	<100	<100	-	-	-	-
Total Extractables	µg/L	<50	<50	<50	-	-	-	-
Total Extractable Hydrocarbons (C9-40)	µg/L	-	-	-	-	-	-	-
Total Extractable Hydrocarbons (C10-30	µg/L	-	-	-	-	-	-	-
Other								
Biological Oxygen Demand (BOD)	mg/L	-	-	-	-	-	-	-
Fecal Coliforms	CFU/100 mL	-	-	-	-	-	-	-

Notes:

Bold values are equal to or greater than the Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2007).

Underlined values are equal to or greater than the Guidelines for Canadian Drinking Water Quality (Health Canada 2007, GCDWQ).

Italicized values indicate the detection limit equals or exceeds either guideline.

(-) = No data available

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; µg/L = micrograms per litre; NTU = nephelometric turbidity units.

a = Data were obtained from the following sources: 1994 to 1995 = Dillon (1994 and 1995); 1997 to 2000 = RL&L (1998, 1999, 2000, 2001); 2007 = Comaplex Minerals Corporation, pers. comm.; 2008 and 2009 = Golder Associates Ltd.

Appendix B2-3: Water Quality in Streams of the Peninsula Basin B, Meliadine Gold Project, 1995 to 2009

Waterbody	Units	B1-2						B3-4			
Date Sampled		16-Jun-97	25-Aug-97	12-Jun-98	18-Jul-98	19-Jun-99	22-Jun-00	16-Jun-97	16-Jun-97 (dup)	13-Jun-98	18-Jul-98
GPS Coordinates (NAD83, Zone 15V)		-	-	-	-	537382, 6986031	537468, 6986108	-	-	-	-
Source [a]		Dillon 1994	RL&L 1998	RL&L 1999	RL&L 1999	RL&L 2000	RL&L 2001	RL&L 2001	RL&L 1998	RL&L 1999	RL&L 1999
Field Measurements											
Water Temperature	°C	2.5	10.2	1.3	10.1	5.6	2.0	5.5	5.5	0.7	10.4
Dissolved Oxygen	mg/L	13.5	10.0	-	-	-	-	12.7	12.7	-	-
pH	pH	6.83	7.05	7.0	-	6.81	7.21	7.20	7.20	7.2	-
Specific Conductivity	µS/cm	100.9	114.7	75.4	-	-	90.1	107.3	107.3	68.3	-
Secchi Disk Depth	m	-	-	-	-	-	-	-	-	-	-
Conventional Parameters (Laboratory-Measured)											
pH	pH	7.65	7.53	7.2	7.3	7.2	7.0	7.73	7.71	7.2	7.2
Specific Conductivity	µS/cm	80.0	94.7	64.6	61.1	78.4	82.1	85.3	85.9	61.1	84.4
Total Dissolved Solids	mg/L	54	66	30	28	37	39	57	60	26	39
Total Dissolved Solids (Calculated)	mg/L	-	-	-	-	-	-	-	-	-	-
Total Alkalinity	mg $CaCO_3$/L	32.1	34.7	22	21	27	28	34.1	34.2	20	26
Total Hardness	mg $CaCO_3$/L	35.9	37.0	23	21	29	31	41.1	38.4	20	28
Total Suspended Solids	mg/L	5	<3	5	5	4	<3	3	8	<2	6
Turbidity	NTU	1.2	0.8	0.4	0.5	1.1	0.48	0.7	1.5	0.4	0.8
Major Ions											
Bicarbonate	mg/L	32.1	34.7	27	25	33	35	34.1	34.2	25	32
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-
Calcium	mg/L	12.4	12.4	7.9	7.19	9.6	8.84	14.3	13.2	6.6	9.20
Carbonate	mg/L	<0.3	<0.3	<1	<1	<1	<5	<0.3	<0.3	<1	<1
Chloride	mg/L	4.69	5.90	3.3	3.48	4.03	4	5.01	5.04	3.0	5.84
Fluoride	mg/L	-	-	-	-	-	-	-	-	-	-
Hydroxide	mg/L	-	-	<1	<1	<1	<5	-	-	<1	<1
Magnesium	mg/L	1.19	1.47	0.92	0.83	1.12	0.989	1.31	1.32	0.87	1.23
Potassium	mg/L	0.790	0.952	0.87	0.66	0.83	0.803	0.844	0.840	0.72	0.84
Reactive Silica (as SiO_2)	mg/L	0.454	0.772	0.6	0.5	0.5	0.5	0.413	0.419	0.6	0.5
Sodium	mg/L	2.76	3.48	1.9	2.1	2.5	1.90	3.00	2.98	1.7	3.6
Sulphate	mg/L	<3	4	1.6	1.50	2.81	4.2	<3	4	1.5	2.45
Ion Balance	%	-	-	101	99	98	93.4	-	-	94	100
Organic/Inorganic Carbon											
Total Carbon	mg/L	11.0	12.9	11	9.0	10.0	10.8	11.0	11.0	10	10.7
Total Organic Carbon	mg/L	2.8	3.9	5.6	4.0	3.7	4.1	3.2	3.0	4.8	4.0
Dissolved Organic Carbon	mg/L	-	-	-	-	-	-	-	-	-	-
Total Inorganic Carbon	mg/L	8.0	9.0	5.5	4.9	6.3	6.7	8.0	8.0	4.8	6.7
Nutrients and Chlorophyll *a*											
Total Ammonia as Nitrogen	mg/L	0.008	0.009	0.014	0.007	<0.005	0.022	0.007	0.008	0.021	0.007
Nitrate as Nitrogen	mg/L	<0.008	0.027	0.010	<0.006	0.024	0.014	<0.008	<0.008	0.008	<0.006
Nitrite as Nitrogen	mg/L	-	-	-	-	-	-	-	-	-	-
Nitrate+Nitrite as Nitrogen	mg/L	<0.008	0.027	0.010	<0.006	0.024	0.015	<0.008	<0.008	0.008	<0.006
Total Kjeldahl Nitrogen	mg/L	0.30	0.27	0.30	0.32	0.24	0.35	0.36	0.30	0.14	0.37
Phosphorus, Total	mg/L	0.014	0.014	0.006	0.006	0.006	0.008	0.020	0.019	0.006	0.007
Phosphorus, Total Dissolved	mg/L	0.008	0.014	0.006	0.005	0.002	0.003	0.007	0.011	0.006	0.006
Orthophosphate (PO4-P)	mg/L	<0.002	<0.002	<0.001	<0.001	0.001	0.005	<0.002	<0.002	<0.001	<0.001
Chlorophyll *a*	µg/L	-	-	-	-	-	-	-	-	-	-
Cyanides											
Cyanide, Total	µg/L	-	-	<1	<1	<2	<2	-	-	<1	<1
Total Metals											
Aluminum (Al)	µg/L	<0.5	<0.5	2.1	<0.3	5.1	7.3	2.9	2.5	1.9	<0.3
Antimony (Sb)	µg/L	0.3	0.3	0.18	0.11	0.03	0.14	0.2	0.3	0.16	0.08
Arsenic (As)	µg/L	0.3	1.2	0.63	0.65	0.73	0.63	0.4	0.4	0.58	0.65
Barium (Ba)	µg/L	10.4	9.9	8.6	0.68	11.0	11.5	11.5	11.7	8.1	<0.05
Beryllium (Be)	µg/L	<0.1	0.3	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.2	<0.2
Bismuth (Bi)	µg/L	<0.1	<0.1	<0.05	<0.03	<0.03	-	<0.1	<0.1	<0.05	<0.03
Boron (B)	µg/L	-	-	-	-	-	2	-	-	-	-
Cadmium (Cd)	µg/L	*<0.1*	*<0.1*	*<0.05*	**0.18**	*<0.02*	*<0.05*	*<0.1*	*<0.1*	*<0.05*	*<0.05*
Cesium (Cs)	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	0.2	*<2*	<0.06	<0.06	**1.18**	0.84	<0.2	<0.2	<0.06	<0.06
Cobalt (Co)	µg/L	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	1.2	1.7	0.6	0.8	0.7	0.7	0.7	1.2	<0.6	0.9
Iron (Fe)	µg/L	66	143	30	7	84	121	87	113	20	7
Lead (Pb)	µg/L	<0.2	**3.1**	<0.05	<0.05	0.05	0.11	<0.2	<0.2	<0.05	0.09
Lithium (Li)	µg/L	0.9	0.8	0.6	0.4	0.6	-	1.0	1.1	0.5	0.9
Magnesium (Mg)	µg/L	-	-	-	-	-	-	-	-	-	-
Manganese (Mn)	µg/L	9.0	26.2	4.5	0.3	20.0	26.9	8.9	8.6	3.3	0.1
Mercury (Hg)	µg/L	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02
Molybdenum (Mo)	µg/L	0.2	0.5	0.13	0.20	0.14	0.10	0.2	0.2	0.11	0.26
Nickel (Ni)	µg/L	<0.1	0.7	0.5	0.46	0.77	0.69	<0.1	<0.1	0.6	0.32

Appendix B2-3: Water Quality in Streams of the Peninsula Basin B, Meliadine Gold Project, 1995 to 2009

Waterbody	Units	B1-2						B3-4			
Date Sampled		16-Jun-97	25-Aug-97	12-Jun-98	18-Jul-98	19-Jun-99	22-Jun-00	16-Jun-97	16-Jun-97 (dup)	13-Jun-98	18-Jul-98
GPS Coordinates (NAD83, Zone 15V)		-	-	-	-	537382, 6986031	537468, 6986108	-	-	-	-
Source [a]		Dillon 1994	RL&L 1998	RL&L 1999	RL&L 1999	RL&L 2000	RL&L 2001	RL&L 2001	RL&L 1998	RL&L 1999	RL&L 1999
Potassium (K)	µg/L	-	-	-	-	-	-	-	-	-	-
Rubidium (Rb)	µg/L	0.9	-	-	-	-	-	1.0	1.1	-	-
Selenium (Se)	µg/L	*<10*	*<10*	<0.1	<0.1	0.1	0.2	*<10*	*<10*	<0.1	<0.1
Silver (Ag)	µg/L	*<0.1*	*<0.1*	*<0.1*	*<0.1*	*<0.1*	*<0.1*	*<0.1*	*<0.1*	*<0.1*	*<0.1*
Sodium (Na)	µg/L	-	-	-	-	-	-		-	-	
Strontium (Sr)	µg/L	41.3	48.0	32.3	<0.1	40.0	36.4	48.3	50.8	30.7	<0.1
Thallium (Tl)	µg/L	<0.1	<0.1	<0.05	<0.03	<0.03	-	<0.1	<0.1	<0.05	<0.03
Tin (Sn)	µg/L	-	-	-	-	-	-		-	-	
Titanium (Ti)	µg/L	<0.1	0.7	<0.3	<0.1	0.2	-	0.1	1.2	<0.3	<0.1
Uranium (U)	µg/L	<0.1	<0.1	<0.05	<0.05	0.07	<0.05	0.1	0.1	<0.05	<0.05
Vanadium (V)	µg/L	<0.1	0.4	0.4	0.38	<0.05	<0.05	0.1	0.1	0.5	0.49
Zinc (Zn)	µg/L	<0.5	1.1	1.8	<0.8	15.8	1.2	0.8	0.7	2.4	<0.8
Dissolved Metals											
Aluminum (Al)	µg/L	-	-	-	-	-	-	-	-	-	-
Antimony (Sb)	µg/L	-	-	-	-	-	-	-	-	-	-
Arsenic (As)	µg/L	-	-	-	-	-	-	-	-	-	-
Barium (Ba)	µg/L	-	-	-	-	-	-	-	-	-	-
Beryllium (Be)	µg/L	-	-	-	-	-	-	-	-	-	-
Boron (B)	µg/L	-	-	-	-	-	-	-	-	-	-
Cadmium (Cd)	µg/L	-	-	-	-	-	-	-	-	-	-
Calcium (Ca)	µg/L	-	-	-	-	-	-	-	-	-	-
Chromium (Cr)	µg/L	-	-	-	-	-	-	-	-	-	-
Cobalt (Co)	µg/L	-	-	-	-	-	-	-	-	-	-
Copper (Cu)	µg/L	-	-	-	-	-	-	-	-	-	-
Iron (Fe)	µg/L	-	-	-	-	-	-	-	-	-	-
Lead (Pb)	µg/L	-	-	-	-	-	-	-	-	-	-
Lithium (Li)	µg/L	-	-	-	-	-	-	-	-	-	-
Magnesium (Mg)	µg/L	-	-	-	-	-	-	-	-	-	-
Manganese (Mn)	µg/L	-	-	-	-	-	-	-	-	-	-
Mercury (Hg)	µg/L	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	µg/L	-	-	-	-	-	-	-	-	-	-
Nickel (Ni)	µg/L	-	-	-	-	-	-	-	-	-	-
Potassium (K)	µg/L	-	-	-	-	-	-	-	-	-	-
Selenium (Se)	µg/L	-	-	-	-	-	-	-	-	-	-
Silver (Ag)	µg/L	-	-	-	-	-	-	-	-	-	-
Sodium (Na)	µg/L	-	-	-	-	-	-	-	-	-	-
Strontium (Sr)	µg/L	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)	µg/L	-	-	-	-	-	-	-	-	-	-
Tin (Sn)	µg/L	-	-	-	-	-	-	-	-	-	-
Titanium (Ti)	µg/L	-	-	-	-	-	-	-	-	-	-
Uranium (U)	µg/L	-	-	-	-	-	-	-	-	-	-
Vanadium (V)	µg/L	-	-	-	-	-	-	-	-	-	-
Zinc (Zn)	µg/L	-	-	-	-	-	-	-	-	-	-
Organic Compounds											
Oil and Grease	µg/L	-	-	-	-	-	-	-	-	-	-
Phenols	µg/L	<2	<2	<1	**4**	3	<1	<2	<2	2	3
Benzene	µg/L	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	µg/L	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	µg/L	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
Xylenes	µg/L	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
F1 (C6-C10)	µg/L	-	-	-	-	-	-	-	-	-	-
F1 -BTEX	µg/L	-	-	-	-	-	-	-	-	-	-
F2 (>C10-C16)	µg/L	-	-	-	-	-	-	-	-	-	-
F3 (C16-C34)	µg/L	-	-	-	-	-	-	-	-	-	-
F4 (C34-C50)	µg/L	-	-	-	-	-	-	-	-	-	-
Total Volatiles	µg/L	<100	<100	<100	<100	-	<100	<100	<100	<100	<100
Total Extractables	µg/L	<50	<50	<50	<50	-	<50	<50	<50	<50	<50
Other											
Biological Oxygen Demand (BOD)	mg/L	-	-					-	-	-	-
Fecal Coliforms	CFU/100 mL	-	-					-	-	-	-

Appendix B2-3: Water Quality in Streams of the Peninsula Basin B, Meliadine Gold Project, 1995 to 2009

Waterbody	Units	B4-5						B5-6	
Date Sampled		16-Jun-97	25-Aug-97	13-Jun-98	18-Jul-98	21-Jun-08	14-Jul-08	13-Jun-98	18-Jul-98
GPS Coordinates (NAD83, Zone 15V)		-	-	-		538395, 6987778	538395, 6987778	-	-
Source [a]		RL&L 1998	RL&L 1999	RL&L 1999	RL&L 1999	Golder	Golder	RL&L 1999	RL&L 1999
Field Measurements									
Water Temperature	°C	7.5	12.8	0.7	10.5	5.78	14.01	1.2	10.2
Dissolved Oxygen	mg/L	12.8	10.4	-	-	13.52	11.63	-	-
pH	pH	7.28	7.14	6.9	-	-	6.86	6.6	-
Specific Conductivity	µS/cm	85.7	96.5	49.5	-	50	89	47.9	-
Secchi Disk Depth	m	-	-	-	-	-	-	-	-
Conventional Parameters (Laboratory-Measured)									
pH	pH	7.62	7.74	7.0	7.3	7.14	7.6	7.0	7.4
Specific Conductivity	µS/cm	70.7	75.7	41.8	71.3	80.1	86.2	40.5	68.4
Total Dissolved Solids	mg/L	49	61	19	32	47	62	18	32
Total Dissolved Solids (Calculated)	mg/L	-	-	-	-	-	43	-	-
Total Alkalinity	mg $CaCO_3$/L	28.8	28.4	14	24	24.7	28	14	25
Total Hardness	mg $CaCO_3$/L	36.1	31.6	15	26	33.2	35	15	26
Total Suspended Solids	mg/L	7	<3	<2	2	<3.0	3	<2	3
Turbidity	NTU	0.7	0.7	0.6	0.6	-	-	0.4	0.5
Major Ions									
Bicarbonate	mg/L	28.8	28.4	17	30	24.7	34	18	30
Bromide	mg/L	-	-	-	-	<0.050	-	-	-
Calcium	mg/L	12.4	10.3	4.8	8.54	10.9	10.9	4.8	8.70
Carbonate	mg/L	<0.3	<0.3	<1	<1	<2.0	<5	<1	<1
Chloride	mg/L	3.66	4.11	2.1	3.62	7.27	7	1.9	3.11
Fluoride	mg/L	-	-	-	-	<0.020	-	-	-
Hydroxide	mg/L	-	-	<1	<1	-	<5	<1	<1
Magnesium	mg/L	1.25	1.43	0.69	1.22	1.48	1.35	0.67	1.13
Potassium	mg/L	0.636	0.734	0.51	0.63	<2.0	0.71	0.54	0.70
Reactive Silica (as SiO_2)	mg/L	0.450	0.609	0.5	0.4	-	-	0.6	0.5
Sodium	mg/L	2.02	2.28	1.1	2.0	2.5	2.59	1.1	1.8
Sulphate	mg/L	4	<3	1.1	2.04	2.81	2.6	1.0	1.44
Ion Balance	%	-	-	99	99	-	Low EC	96	102
Organic/Inorganic Carbon									
Total Carbon	mg/L	10.0	11.7	8	10.1	8.01	10	8	11.0
Total Organic Carbon	mg/L	3.2	4.7	4.2	3.9	2.5	4	4.7	4.8
Dissolved Organic Carbon	mg/L	-	-	-	-	2.85	4.1	-	-
Total Inorganic Carbon	mg/L	7.0	7.0	3.7	6.2	5.51	6	3.6	6.2
Nutrients and Chlorophyll *a*									
Total Ammonia as Nitrogen	mg/L	0.008	0.003	0.046	0.010	<0.020	<0.05	0.078	0.009
Nitrate as Nitrogen	mg/L	<0.008	0.023	0.009	<0.006	<0.0050	<0.1	0.008	<0.006
Nitrite as Nitrogen	mg/L	-	-	-	-	<0.0010	<0.05	-	-
Nitrate+Nitrite as Nitrogen	mg/L	<0.008	0.023	0.009	<0.006	-	<0.1	0.008	<0.006
Total Kjeldahl Nitrogen	mg/L	0.28	0.40	0.13	0.41	0.202	0.3	0.19	0.50
Phosphorus, Total	mg/L	0.008	0.017	0.006	0.006	0.0044	0.008	0.007	0.004
Phosphorus, Total Dissolved	mg/L	0.005	0.004	0.005	0.006	<0.0020	0.003	0.004	0.005
Orthophosphate (PO4-P)	mg/L	<0.002	<0.002	<0.001	<0.001	<0.0010	<0.001	<0.001	<0.001
Chlorophyll *a*	µg/L	-	-	-	-	0.0616	17	-	-
Cyanides									
Cyanide, Total	µg/L	-	-	<1	<1	*<5.0*	<2	<1	<1
Total Metals									
Aluminum (Al)	µg/L	<5	1.1	2.1	<0.3	<5.0	3.9	2.1	<0.3
Antimony (Sb)	µg/L	0.4	0.2	0.16	0.09	<0.50	<0.03	0.21	0.09
Arsenic (As)	µg/L	0.4	1.3	0.57	0.91	<0.83	1.64	0.44	0.82
Barium (Ba)	µg/L	10.4	7.1	6.7	<0.05	<20	10.5	6.8	<0.05
Beryllium (Be)	µg/L	<0.1	0.1	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2
Bismuth (Bi)	µg/L	<0.1	<0.1	<0.05	<0.03	-	-	<0.05	<0.03
Boron (B)	µg/L	-	-	-	-	<100	2	-	-
Cadmium (Cd)	µg/L	*<0.1*	*<0.1*	*<0.05*	*<0.05*	*<0.017*	*<0.05*	*<0.05*	*<0.05*
Cesium (Cs)	µg/L	<0.1	<0.1	<0.1	<0.1	-	-	<0.1	<0.1
Chromium (Cr)	µg/L	0.3	*<2*	<0.06	<0.06	*<1.0*	<0.06	<0.06	<0.06
Cobalt (Co)	µg/L	0.1	0.2	<0.1	<0.1	<0.30	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	0.8	0.9	<0.6	<0.6	<1.0	0.6	<0.6	0.8
Iron (Fe)	µg/L	95	117	20	7	107	143	20	<5
Lead (Pb)	µg/L	<0.2	0.2	<0.05	<0.05	<0.50	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	0.9	0.9	0.4	0.6	<5.0	-	0.4	0.7
Magnesium (Mg)	µg/L	-	-	-	-	1480	1350	-	-
Manganese (Mn)	µg/L	14.3	13.8	8.2	<0.1	12.6	17.7	5.9	<0.1
Mercury (Hg)	µg/L	<0.01	<0.01	<0.02	<0.02	<0.020	<0.02	<0.02	<0.02
Molybdenum (Mo)	µg/L	0.1	0.2	0.07	0.14	<1.0	0.12	<0.06	<0.06
Nickel (Ni)	µg/L	0.8	0.8	0.6	1.35	<1.0	0.45	0.6	0.56

Golder Associates

Appendix B2-3: Water Quality in Streams of the Peninsula Basin B, Meliadine Gold Project, 1995 to 2009

Waterbody	**Units**	**B4-5**						**B5-6**	
Date Sampled		16-Jun-97	25-Aug-97	13-Jun-98	18-Jul-98	21-Jun-08	14-Jul-08	13-Jun-98	18-Jul-98
GPS Coordinates (NAD83, Zone 15V)		-	-	-		538395, 6987778	538395, 6987778	-	-
Source [a]		RL&L 1998	RL&L 1999	RL&L 1999	RL&L 1999	Golder	Golder	RL&L 1999	RL&L 1999
Potassium (K)	µg/L	-	-	-	-	<2000	710	-	-
Rubidium (Rb)	µg/L	-	-	-	-	-	-	-	-
Selenium (Se)	µg/L	*<10*	*<10*	<0.1	<0.1	*<1.0*	<0.1	<0.1	<0.1
Silver (Ag)	µg/L	*<0.1*	*<0.1*	*<0.1*	*<0.1*	<0.020	*<0.1*	*<0.1*	**0.1**
Sodium (Na)	µg/L	-	-			2500	2590	-	-
Strontium (Sr)	µg/L	46.5	50.3	25.8	<0.1	-	51	25.5	<0.1
Thallium (Tl)	µg/L	<0.1	<0.1	<0.05	<0.03	<0.20	<0.03	<0.05	<0.03
Tin (Sn)	µg/L	-	-			<0.50	-		
Titanium (Ti)	µg/L	<0.1	0.6	<0.3	<0.1	<10	-	<0.3	<0.1
Uranium (U)	µg/L	<0.1	<0.1	<0.05	<0.05	<0.20	<0.05	<0.05	<0.05
Vanadium (V)	µg/L	0.3	0.1	0.4	0.51	<1.0	0.11	0.4	0.35
Zinc (Zn)	µg/L	<5	0.8	2.6	<0.8	<5.0	<0.8	4.5	<0.8
Dissolved Metals									
Aluminum (Al)	µg/L	-	-	-	-	<5.0	1.9	-	-
Antimony (Sb)	µg/L	-	-	-	-	<0.50	<0.03	-	-
Arsenic (As)	µg/L	-	-	-	-	0.59	1.21	-	-
Barium (Ba)	µg/L	-	-	-	-	<20	10.1	-	-
Beryllium (Be)	µg/L	-	-	-	-	<1.0	<0.2	-	-
Boron (B)	µg/L	-	-	-	-	<100	2	-	-
Cadmium (Cd)	µg/L	-	-	-	-	<0.017	<0.05	-	-
Calcium (Ca)	µg/L	-	-	-	-	10900	10900	-	-
Chromium (Cr)	µg/L	-	-	-	-	<1.0	<0.06	-	-
Cobalt (Co)	µg/L	-	-	-	-	<0.30	<0.1	-	-
Copper (Cu)	µg/L	-	-	-	-	<1.0	0.7	-	-
Iron (Fe)	µg/L	-	-	-	-	37	50	-	-
Lead (Pb)	µg/L	-	-	-	-	<0.50	0.09	-	-
Lithium (Li)	µg/L	-	-	-	-	<5.0	-	-	-
Magnesium (Mg)	µg/L	-	-	-	-	1470	1360	-	-
Manganese (Mn)	µg/L	-	-	-	-	4.84	7	-	-
Mercury (Hg)	µg/L	-	-	-	-	<0.020	<0.02	-	-
Molybdenum (Mo)	µg/L	-	-	-	-	<1.0	0.11	-	-
Nickel (Ni)	µg/L	-	-	-	-	<1.0	0.48	-	-
Potassium (K)	µg/L	-	-	-	-	<2000	710	-	-
Selenium (Se)	µg/L	-	-	-	-	<1.0	<0.1	-	-
Silver (Ag)	µg/L	-	-	-	-	<0.020	<0.1	-	-
Sodium (Na)	µg/L	-	-	-	-	2500	2610	-	-
Strontium (Sr)	µg/L	-	-	-	-	-	50.9	-	-
Thallium (Tl)	µg/L	-	-	-	-	<0.20	<0.03	-	-
Tin (Sn)	µg/L	-	-	-	-	<0.50	-	-	-
Titanium (Ti)	µg/L	-	-	-	-	<10	-	-	-
Uranium (U)	µg/L	-	-	-	-	<0.20	<0.05	-	-
Vanadium (V)	µg/L	-	-	-	-	<1.0	0.1	-	-
Zinc (Zn)	µg/L	-	-	-	-	<5.0	1.5	-	-
Organic Compounds									
Oil and Grease	µg/L	-	-	-	-	-	-	-	-
Phenols	µg/L	<2	<2	**5**	3	-	-	2	3
Benzene	µg/L	<0.5	<0.5	<0.5	<0.5	-	-	<0.5	<0.5
Ethylbenzene	µg/L	<0.5	<0.5	<0.5	<0.5	-	-	<0.5	1.0
Toluene	µg/L	<0.5	<0.5	<0.5	<0.5	-	-	<0.5	1.1
Xylenes	µg/L	<0.5	<0.5	<0.5	<0.5	-	-	<0.5	5.4
F1 (C6-C10)	µg/L	-	-	-	-	-	-	-	-
F1 -BTEX	µg/L	-	-	-	-	-	-	-	-
F2 (>C10-C16)	µg/L	-	-	-	-	-	-	-	-
F3 (C16-C34)	µg/L	-	-	-	-	-	-	-	-
F4 (C34-C50)	µg/L	-	-	-	-	-	-	-	-
Total Volatiles	µg/L	<100	<100	<100	<100	-	-	<100	<100
Total Extractables	µg/L	<50	<50	<50	<50	-	-	<50	<50
Other									
Biological Oxygen Demand (BOD)	mg/L	-	-	-	-	-	-	-	-
Fecal Coliforms	CFU/100 mL	-	-	-	-	-	-	-	-

Appendix B2-3: Water Quality in Streams of the Peninsula Basin B, Meliadine Gold Project, 1995 to 2009

Waterbody	Units	B6-7					
Date Sampled		17-Jun-97	13-Jun-98	13-Jun-98 (dup)	18-Jul-98	21-Jun-08	13-Jul-08
GPS Coordinates (NAD83, Zone 15V)		-	-	-	-	537876, 6989363	537905, 6989335
Source [a]		R&L 1998	RL&L 1999	RL&L 1999	RL&L 1999	Golder	Golder
Field Measurements							
Water Temperature	°C	10.0	1.9	1.9	10.0	10.90	16.72
Dissolved Oxygen	mg/L	12.7	-	-	-	11.85	11.66
pH	pH	7.55	7.0	7.0	-	8.28	7.02
Specific Conductivity	µS/cm	81.9	53.8	53.8	-	78	116
Secchi Disk Depth	m	-	-	-	-	-	-
Conventional Parameters (Laboratory-Measured)							
pH	pH	7.56	7.0	7.0	7.3	7.08	7.6
Specific Conductivity	µS/cm	66.7	46.1	46.2	66.9	104	106
Total Dissolved Solids	mg/L	42	21	21	31	79	78
Total Dissolved Solids (Calculated)	mg/L	-	-	-	-	-	51
Total Alkalinity	mg $CaCO_3$/L	27.8	16	16	24	22.7	26
Total Hardness	mg $CaCO_3$/L	31.0	17	17	25	44.5	42
Total Suspended Solids	mg/L	<3	<2	<2	6	<3.0	<3
Turbidity	NTU	0.6	0.5	0.3	0.5	-	-
Major Ions							
Bicarbonate	mg/L	27.8	19	19	29	22.7	31
Bromide	mg/L	-	-	-	-	<0.050	-
Calcium	mg/L	10.5	5.5	5.7	8.41	15.2	14.0
Carbonate	mg/L	<0.3	<1	<1	<1	<2.0	<5
Chloride	mg/L	3.01	2.1	2.1	2.83	14.5	14
Fluoride	mg/L	-	-	-	-	0.02	-
Hydroxide	mg/L		<1	<1	<1	<2.0	<5
Magnesium	mg/L	1.15	0.75	0.75	1.09	1.63	1.39
Potassium	mg/L	0.660	0.61	0.62	0.69	<2.0	0.89
Reactive Silica (as SiO_2)	mg/L	0.648	0.6	0.6	0.7	-	-
Sodium	mg/L	1.83	1.1	1.1	1.7	2.2	2.14
Sulphate	mg/L	5	1.6	1.6	1.39	3.02	2.9
Ion Balance	%	-	99	101	103	-	99
Organic/Inorganic Carbon							
Total Carbon	mg/L	10.0	9	9	10.9	8.6	11
Total Organic Carbon	mg/L	3.4	5.2	5.3	4.9	3.55	5
Dissolved Organic Carbon	mg/L	-	-	-	-	3.61	5
Total Inorganic Carbon	mg/L	7.0	3.9	3.9	6.0	5.05	6
Nutrients and Chlorophyll *a*							
Total Ammonia as Nitrogen	mg/L	0.006	0.010	0.010	0.008	<0.020	<0.05
Nitrate as Nitrogen	mg/L	0.011	0.007	0.008	<0.006	<0.0050	<0.1
Nitrite as Nitrogen	mg/L	-	-	-	-	<0.0010	<0.05
Nitrate+Nitrite as Nitrogen	mg/L	0.011	0.007	0.008	<0.006	-	<0.1
Total Kjeldahl Nitrogen	mg/L	0.35	0.39	0.30	0.39	0.252	0.4
Phosphorus, Total	mg/L	0.006	0.007	0.006	0.006	0.0049	0.009
Phosphorus, Total Dissolved	mg/L	0.004	0.005	0.005	0.005	<0.0020	0.004
Orthophosphate (PO4-P)	mg/L	<0.002	<0.001	<0.001	<0.001	<0.0010	<0.001
Chlorophyll *a*	µg/L	-	-	-	-	0.595	9
Cyanides							
Cyanide, Total	µg/L	-	<1	<1	<1	*<5.0*	<2
Total Metals							
Aluminum (Al)	µg/L	<5	2.0	2.1	<0.3	<5.0	3.7
Antimony (Sb)	µg/L	3.2	0.13	0.18	0.07	<0.50	<0.03
Arsenic (As)	µg/L	0.6	0.55	0.56	0.91	0.74	1.62
Barium (Ba)	µg/L	10.1	7.6	7.8	<0.05	<20	13
Beryllium (Be)	µg/L	<0.1	<0.2	<0.2	<0.2	<1.0	<0.2
Bismuth (Bi)	µg/L	<0.1	<0.05	<0.05	<0.03	-	-
Boron (B)	µg/L	-	-	-	-	<100	2
Cadmium (Cd)	µg/L	*<0.1*	*<0.05*	*<0.05*	*<0.05*	*<0.017*	*<0.05*
Cesium (Cs)	µg/L	<0.1	<0.1	<0.1	<0.1	-	-
Chromium (Cr)	µg/L	0.4	<0.06	<0.06	<0.06	*<1.0*	<0.06
Cobalt (Co)	µg/L	<0.1	<0.1	<0.1	<0.1	<0.30	<0.1
Copper (Cu)	µg/L	0.8	<0.6	<0.6	0.6	<1.0	0.8
Iron (Fe)	µg/L	66	20	20	9	65	122
Lead (Pb)	µg/L	<0.2	<0.05	<0.05	<0.05	<0.50	<0.05
Lithium (Li)	µg/L	0.8	0.4	0.4	0.5	<5.0	-
Magnesium (Mg)	µg/L	-	-	-	-	1630	1390
Manganese (Mn)	µg/L	4.6	5.0	5.3	0.1	5.15	7.2
Mercury (Hg)	µg/L	<0.01	<0.02	<0.02	<0.02	<0.020	<0.02
Molybdenum (Mo)	µg/L	0.1	0.07	0.08	<0.06	<1.0	0.13
Nickel (Ni)	µg/L	0.1	0.8	0.8	0.49	<1.0	0.66

Appendix B2-3: Water Quality in Streams of the Peninsula Basin B, Meliadine Gold Project, 1995 to 2009

Waterbody	Units	B6-7					
Date Sampled		17-Jun-97	13-Jun-98	13-Jun-98 (dup)	18-Jul-98	21-Jun-08	13-Jul-08
GPS Coordinates (NAD83, Zone 15V)		-	-	-	-	537876, 6989363	537905, 6989335
Source [a]		R&L 1998	RL&L 1999	RL&L 1999	RL&L 1999	Golder	Golder
Potassium (K)	µg/L	-	-	-	-	<2000	890
Rubidium (Rb)	µg/L	0.9	-	-	-	-	-
Selenium (Se)	µg/L	*<10*	<0.1	<0.1	<0.1	*<1.0*	0.2
Silver (Ag)	µg/L	*<0.1*	*<0.1*	*<0.1*	*<0.1*	<0.020	*<0.1*
Sodium (Na)	µg/L	-	-	-	-	2200	2140
Strontium (Sr)	µg/L	50.1	29.3	29.7	<0.1	-	81.8
Thallium (Tl)	µg/L	<0.1	<0.05	<0.05	<0.03	<0.20	<0.03
Tin (Sn)	µg/L	-	-	-	-	<0.50	-
Titanium (Ti)	µg/L	<0.1	<0.3	<0.3	<0.1	<10	-
Uranium (U)	µg/L	<0.1	<0.05	<0.05	<0.05	<0.20	<0.05
Vanadium (V)	µg/L	<0.1	0.5	0.5	0.41	<1.0	0.17
Zinc (Zn)	µg/L	<0.5	4.3	2.0	<0.8	<5.0	<0.8
Dissolved Metals							
Aluminum (Al)	µg/L	-	-	-	-	<5.0	2.3
Antimony (Sb)	µg/L	-	-	-	-	<0.50	<0.03
Arsenic (As)	µg/L	-	-	-	-	0.69	1.44
Barium (Ba)	µg/L	-	-	-	-	<20	12.6
Beryllium (Be)	µg/L	-	-	-	-	<1.0	<0.2
Boron (B)	µg/L	-	-	-	-	<100	2
Cadmium (Cd)	µg/L	-	-	-	-	<0.017	*<0.05*
Calcium (Ca)	µg/L	-	-	-	-	15100	14100
Chromium (Cr)	µg/L	-	-	-	-	<1.0	<0.06
Cobalt (Co)	µg/L	-	-	-	-	<0.30	<0.1
Copper (Cu)	µg/L	-	-	-	-	<1.0	0.8
Iron (Fe)	µg/L	-	-	-	-	39	59
Lead (Pb)	µg/L	-	-	-	-	<0.50	0.05
Lithium (Li)	µg/L	-	-	-	-	<5.0	-
Magnesium (Mg)	µg/L	-	-	-	-	1640	1420
Manganese (Mn)	µg/L	-	-	-	-	3.95	4.6
Mercury (Hg)	µg/L	-	-	-	-	<0.020	<0.02
Molybdenum (Mo)	µg/L	-	-	-	-	<1.0	0.13
Nickel (Ni)	µg/L	-	-	-	-	<1.0	0.68
Potassium (K)	µg/L	-	-	-	-	<2000	910
Selenium (Se)	µg/L	-	-	-	-	<1.0	0.2
Silver (Ag)	µg/L	-	-	-	-	<0.020	*<0.1*
Sodium (Na)	µg/L	-	-	-	-	2300	2210
Strontium (Sr)	µg/L	-	-	-	-	-	82.9
Thallium (Tl)	µg/L	-	-	-	-	<0.20	<0.03
Tin (Sn)	µg/L	-	-	-	-	<0.50	-
Titanium (Ti)	µg/L	-	-	-	-	<10	-
Uranium (U)	µg/L	-	-	-	-	<0.20	<0.05
Vanadium (V)	µg/L	-	-	-	-	<1.0	0.14
Zinc (Zn)	µg/L	-	-	-	-	<5.0	1.2
Organic Compounds							
Oil and Grease	µg/L	-	-	-	-	-	-
Phenols	µg/L	<2	**4**	**5**	**4**	-	-
Benzene	µg/L	<0.5	<0.5	<0.5	<0.5	-	-
Ethylbenzene	µg/L	<0.5	<0.5	<0.5	<0.5	-	-
Toluene	µg/L	<0.5	<0.5	<0.5	<0.5	-	-
Xylenes	µg/L	<0.5	<0.5	<0.5	<0.5	-	-
F1 (C6-C10)	µg/L	-	-	-	-	-	-
F1 -BTEX	µg/L	-	-	-	-	-	-
F2 (>C10-C16)	µg/L	-	-	-	-	-	-
F3 (C16-C34)	µg/L	-	-	-	-	-	-
F4 (C34-C50)	µg/L	-	-	-	-	-	-
Total Volatiles	µg/L	<100	-	<100	<100	-	-
Total Extractables	µg/L	<50	<50	<50	<50	-	-
Other							
Biological Oxygen Demand (BOD)	mg/L	-	-	-	-	-	-
Fecal Coliforms	CFU/100 mL	-	-	-	-	-	-

Notes:

Bold values are equal to or greater than the Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2007, CWQG).

Underlined values are equal to or greater than the Guidelines for Canadian Drinking Water Quality (Health Canada 2007, GCDWQ).

Italicized values indicate the detection limit equals or exceeds either guideline.

(-) = No data available

Notes: °C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; µg/L = micrograms per litre; NTU = nephelometric turbidity units.

a = Data were obtained from the following sources: 1994 to 1995 = Dillon (1994 and 1995); 1997 to 2000 = RL&L (1998, 1999, 2000, 2001); 2007 = Comaplex Minerals Corporation, pers. comm.; 2008 and 2009 = Golder Associates Ltd.

Appendix B2-4: Water Quality in Streams of the Peninsula Basin D, Meliadine Gold Project, 1995 to 2009

Waterbody	Units	D0-1		D6-7	
Date Sampled		18-Jun-97	25-Aug-97	18-Jun-97	26-Aug-97
GPS Coordinates (NAD83, Zone 15V)		-	-	-	-
Source [a]		RL&L 1998	RL&L 1998	RL&L 1998	RL&L 1998
Field Measurements					
Water Temperature	°C	7.0	12.7	7.2	8.9
Dissolved Oxygen	mg/L	12.7	11.3	12.7	10.8
pH	pH	7.55	7.49	7.31	7.14
Specific Conductivity	µS/cm	79.4	138.0	95.2	157.0
Secchi Disk Depth	m	-	-	-	-
Conventional Parameters (Laboratory-Measured)					
pH	pH	7.57	7.78	7.55	7.89
Specific Conductivity	µS/cm	64.0	113.0	82.8	135.0
Total Dissolved Solids	mg/L	39	72	49	-
Total Dissolved Solids (Calculat	mg/L	-	-	-	-
Total Alkalinity	mg $CaCO_3$/L	26.1	44.6	33.7	49.9
Total Hardness	mg $CaCO_3$/L	30.3	48.1	37.0	51.4
Total Suspended Solids	mg/L	<3	<3	3	<3
Turbidity	NTU	0.8	1.7	0.8	0.5
Major Ions					
Bicarbonate	mg/L	26.1	44.6	33.7	49.9
Bromide	mg/L	-	-	-	-
Calcium	mg/L	10.3	15.8	12.2	16.1
Carbonate	mg/L	<0.3	<0.3	<0.3	<0.3
Chloride	mg/L	3.30	6.21	5.00	8.09
Fluoride	mg/L	-	-	-	-
Hydroxide	mg/L	-	-	-	-
Magnesium	mg/L	1.11	2.1	1.59	2.71
Potassium	mg/L	0.579	0.978	0.764	2.520
Reactive Silica (as SiO_2)	mg/L	0.310	0.875	0.194	0.289
Sodium	mg/L	1.78	3.43	3.24	5.09
Sulphate	mg/L	4	3	<3	<3
Ion Balance	%	-	-	-	-
Organic/Inorganic Carbon					
Total Carbon	mg/L	8.0	18.2	10.0	16.5
Total Organic Carbon	mg/L	2.3	7.2	2.3	4.5
Dissolved Organic Carbon	mg/L	-	-	-	-
Total Inorganic Carbon	mg/L	6.0	11.0	8.0	12.0
Nutrients and Chlorophyll *a*					
Total Ammonia as Nitrogen	mg/L	0.004	0.020	0.003	0.006
Nitrate as Nitrogen	mg/L	<0.008	0.080	<0.008	0.025
Nitrite as Nitrogen	mg/L	-	-	-	-
Nitrate+Nitrite as Nitrogen	mg/L	<0.008	0.080	<0.008	0.025
Total Kjeldahl Nitrogen	mg/L	0.26	0.55	0.30	0.38
Phosphorus, Total	mg/L	0.007	0.019	0.006	0.020
Phosphorus, Total Dissolved	mg/L	0.007	0.011	0.004	0.016
Orthophosphate (PO4-P)	mg/L	<0.002	<0.002	<0.002	<0.002
Chlorophyll *a*	µg/L	-	-	-	-
Cyanides					
Cyanide, Total	µg/L	-	-	-	-
Total Metals					
Aluminum (Al)	µg/L	<5	3.6	5	2.0
Antimony (Sb)	µg/L	0.4	0.3	0.5	0.3
Arsenic (As)	µg/L	0.3	0.6	0.3	0.5
Barium (Ba)	µg/L	8.6	14.4	13.7	16.7
Beryllium (Be)	µg/L	<0.1	0.2	<0.1	0.2
Bismuth (Bi)	µg/L	<0.1	<0.1	<0.1	<0.1
Boron (B)	µg/L	-	-	-	-
Cadmium (Cd)	µg/L	*<0.1*	*<0.1*	*<0.1*	**0.1**
Cesium (Cs)	µg/L	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<0.2	*<2*	0.9	**2.0**
Cobalt (Co)	µg/L	<0.1	0.2	<0.1	0.2
Copper (Cu)	µg/L	1.5	1.6	1.2	1.0
Iron (Fe)	µg/L	133	**305**	86	84
Lead (Pb)	µg/L	<0.2	0.2	<0.2	0.2
Lithium (Li)	µg/L	1.2	1.2	1.4	2.0
Magnesium (Mg)	µg/L	-	-	-	-
Manganese (Mn)	µg/L	6.8	61.5	16.7	16.3
Mercury (Hg)	µg/L	<0.01	<0.01	<0.01	<0.01
Molybdenum (Mo)	µg/L	0.1	0.5	0.2	0.5
Nickel (Ni)	µg/L	<0.1	1.1	<0.1	1.0

Appendix B2-4: Water Quality in Streams of the Peninsula Basin D, Meliadine Gold Project, 1995 to 2009

Waterbody	**Units**	**D0-1**		**D6-7**	
Date Sampled		18-Jun-97	25-Aug-97	18-Jun-97	26-Aug-97
GPS Coordinates (NAD83, Zone 15V)		-	-	-	-
Source [a]		RL&L 1998	RL&L 1998	RL&L 1998	RL&L 1998
Potassium (K)	µg/L	-	-	-	-
Rubidium (Rb)	µg/L	0.7	-	0.9	-
Selenium (Se)	µg/L	*<10*	*<10*	*<10*	**1.0**
Silver (Ag)	µg/L	*<0.1*	*<0.1*	*<0.1*	*<0.1*
Sodium (Na)	µg/L	-	-	-	-
Strontium (Sr)	µg/L	41.5	70.1	51.6	86.2
Thallium (Tl)	µg/L	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	-	-	-	-
Titanium (Ti)	µg/L	0.9	1.3	0.4	1.3
Uranium (U)	µg/L	<0.1	0.1	0.1	0.1
Vanadium (V)	µg/L	0.3	0.4	0.1	0.2
Zinc (Zn)	µg/L	<0.5	1.6	22.7	<5
Dissolved Metals					
Aluminum (Al)	µg/L	-	-	-	-
Antimony (Sb)	µg/L	-	-	-	-
Arsenic (As)	µg/L	-	-	-	-
Barium (Ba)	µg/L	-	-	-	-
Beryllium (Be)	µg/L	-	-	-	-
Boron (B)	µg/L	-	-	-	-
Cadmium (Cd)	µg/L	-	-	-	-
Calcium (Ca)	µg/L	-	-	-	-
Chromium (Cr)	µg/L	-	-	-	-
Cobalt (Co)	µg/L	-	-	-	-
Copper (Cu)	µg/L	-	-	-	-
Iron (Fe)	µg/L	-	-	-	-
Lead (Pb)	µg/L	-	-	-	-
Lithium (Li)	µg/L	-	-	-	-
Magnesium (Mg)	µg/L	-	-	-	-
Manganese (Mn)	µg/L	-	-	-	-
Mercury (Hg)	µg/L	-	-	-	-
Molybdenum (Mo)	µg/L	-	-	-	-
Nickel (Ni)	µg/L	-	-	-	-
Potassium (K)	µg/L	-	-	-	-
Selenium (Se)	µg/L	-	-	-	-
Silver (Ag)	µg/L	-	-	-	-
Sodium (Na)	µg/L	-	-	-	-
Strontium (Sr)	µg/L	-	-	-	-
Thallium (Tl)	µg/L	-	-	-	-
Tin (Sn)	µg/L	-	-	-	-
Titanium (Ti)	µg/L	-	-	-	-
Uranium (U)	µg/L	-	-	-	-
Vanadium (V)	µg/L	-	-	-	-
Zinc (Zn)	µg/L	-	-	-	-
Organic Compounds					
Oil and Grease	mg/L	-	-	-	-
Phenols	µg/L	<2	<2	<2	<2
Benzene	µg/L	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	µg/L	<0.5	<0.5	<0.5	<0.5
Toluene	µg/L	<0.5	<0.5	<0.5	<0.5
Xylenes	µg/L	<0.5	<0.5	<0.5	<0.5
F1 (C6-C10)	µg/L	-	-	-	-
F1 -BTEX	µg/L	-	-	-	-
F2 (>C10-C16)	µg/L	-	-	-	-
F3 (C16-C34)	µg/L	-	-	-	-
F4 (C34-C50)	µg/L	-	-	-	-
Total Volatiles	µg/L	<100	<100	<100	<100
Total Extractables	µg/L	<50	<50	<50	<50
Other					
Biological Oxygen Demand (BO	mg/L	-	-	-	-
Fecal Coliforms	CFU/100 mL	-	-	-	-

Notes:

Bold values are equal to or greater than the Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2007, CWQG).

Underlined values are equal to or greater than the Guidelines for Canadian Drinking Water Quality (Health Canada 2007, GCDWQ).

Italicized values indicate the detection limit equals or exceeds either guideline.

(-) = No data available

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; µg/L = micrograms per litre; NTU = nephelometric turbidity

a = Data were obtained from the following sources: 1994 to 1995 = Dillon (1994 and 1995); 1997 to 2000 = RL&L (1998, 1999, 2000, 2001); 2007 = Comaplex Minerals Corporation, pers. comm.; 2008 and 2009 = Golder Associates Ltd.

Appendix B2-5: Water Quality in Streams of the Peninsula Basin G, Meliadine Gold Project, 1995 to 2009

Waterbody	Units	G1-2
Date Sampled		17-Jun-97
GPS Coordinates		-
Source [a]		RL&L 1998
Field Measurements		
Water Temperature	°C	18.5
Dissolved Oxygen	mg/L	10.4
pH	pH	8.12
Specific Conductivity	µS/cm	72.3
Secchi Disk Depth	m	-
Conventional Parameters (Laboratory-Measured)		
pH	pH	7.67
Specific Conductivity	µS/cm	59.1
Total Dissolved Solids	mg/L	34
Total Dissolved Solids (Calculated	mg/L	-
Total Alkalinity	mg $CaCO_3$/L	24.9
Total Hardness	mg $CaCO_3$/L	27.5
Total Suspended Solids	mg/L	<3
Turbidity	NTU	0.6
Major Ions		
Bicarbonate	mg/L	24.9
Bromide	mg/L	-
Calcium	mg/L	9.57
Carbonate	mg/L	<0.3
Chloride	mg/L	2.74
Fluoride	mg/L	-
Hydroxide	mg/L	-
Magnesium	mg/L	0.879
Potassium	mg/L	0.806
Reactive Silica (as SiO_2)	mg/L	0.330
Sodium	mg/L	1.74
Sulphate	mg/L	<3
Ion Balance	%	-
Organic/Inorganic Carbon		
Total Carbon	mg/L	11.0
Total Organic Carbon	mg/L	4.6
Dissolved Organic Carbon	mg/L	-
Total Inorganic Carbon	mg/L	6.0
Nutrients and Chlorophyll *a*		
Total Ammonia as Nitrogen	mg/L	0.006
Nitrate as Nitrogen	mg/L	0.012
Nitrite as Nitrogen	mg/L	-
Nitrate+Nitrite as Nitrogen	mg/L	0.012
Total Kjeldahl Nitrogen	mg/L	0.41
Phosphorus, Total	mg/L	0.006
Phosphorus, Total Dissolved	mg/L	0.004
Orthophosphate (PO4-P)	mg/L	<0.002
Chlorophyll *a*	µg/L	-
Cyanides		
Cyanide, Total	µg/L	-
Total Metals		
Aluminum (Al)	µg/L	<5
Antimony (Sb)	µg/L	0.8
Arsenic (As)	µg/L	0.3
Barium (Ba)	µg/L	13.5
Beryllium (Be)	µg/L	<0.1
Bismuth (Bi)	µg/L	<0.1
Boron (B)	µg/L	-
Cadmium (Cd)	µg/L	*<0.1*
Cesium (Cs)	µg/L	<0.1
Chromium (Cr)	µg/L	0.7
Cobalt (Co)	µg/L	<0.1
Copper (Cu)	µg/L	1.6
Iron (Fe)	µg/L	74
Lead (Pb)	µg/L	<0.2
Lithium (Li)	µg/L	1.0
Magnesium (Mg)	µg/L	-
Manganese (Mn)	µg/L	1.7
Mercury (Hg)	µg/L	<0.01
Molybdenum (Mo)	µg/L	0.1
Nickel (Ni)	µg/L	<0.1
Potassium (K)	µg/L	-
Rubidium (Rb)	µg/L	1.3
Selenium (Se)	µg/L	*<10*
Silver (Ag)	µg/L	*<0.1*
Sodium (Na)	µg/L	-
Strontium (Sr)	µg/L	46.8
Thallium (Tl)	µg/L	<0.1
Tin (Sn)	µg/L	-
Titanium (Ti)	µg/L	0.4
Uranium (U)	µg/L	<0.1
Vanadium (V)	µg/L	0.2
Zinc (Zn)	µg/L	16.2

Waterbody	Units	G1-2
Date Sampled		17-Jun-97
GPS Coordinates		-
Source [a]		RL&L 1998
Dissolved Metals		
Aluminum (Al)	µg/L	-
Antimony (Sb)	µg/L	-
Arsenic (As)	µg/L	-
Barium (Ba)	µg/L	-
Beryllium (Be)	µg/L	-
Boron (B)	µg/L	-
Cadmium (Cd)	µg/L	-
Calcium (Ca)	µg/L	-
Chromium (Cr)	µg/L	-
Cobalt (Co)	µg/L	-
Copper (Cu)	µg/L	-
Iron (Fe)	µg/L	-
Lead (Pb)	µg/L	-
Lithium (Li)	µg/L	-
Magnesium (Mg)	µg/L	-
Manganese (Mn)	µg/L	-
Mercury (Hg)	µg/L	-
Molybdenum (Mo)	µg/L	-
Nickel (Ni)	µg/L	-
Potassium (K)	µg/L	-
Selenium (Se)	µg/L	-
Silver (Ag)	µg/L	-
Sodium (Na)	µg/L	-
Strontium (Sr)	µg/L	-
Thallium (Tl)	µg/L	-
Tin (Sn)	µg/L	-
Titanium (Ti)	µg/L	-
Uranium (U)	µg/L	-
Vanadium (V)	µg/L	-
Zinc (Zn)	µg/L	-
Organic Compounds		
Oil and Grease		-
Phenols	µg/L	<2
Benzene	µg/L	<0.5
Ethylbenzene	µg/L	<0.5
Toluene	µg/L	<0.5
Xylenes	µg/L	<0.5
F1 (C6-C10)	µg/L	-
F1 -BTEX	µg/L	-
F2 (>C10-C16)	µg/L	-
F3 (C16-C34)	µg/L	-
F4 (C34-C50)	µg/L	-
Total Volatiles	µg/L	<100
Total Extractables	µg/L	<50
Other		
Biological Oxygen Demand (BOD	mg/L	-
Fecal Coliforms	CFU/100 mL	-

Notes:

Bold values are equal to or greater than the Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2007, CWQG).

Underlined values are equal to or greater than the Guidelines for Canadian Drinking Water Quality (Health Canada 2007, GCDWQ).

Italicized values indicate the detection limit equals or exceeds either guideline.

(-) = No data available

Notes: °C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; µg/L = micrograms per litre; NTU = nephelometric turbidity units.

a = Data were obtained from the following sources: 1994 to 1995 = Dillon (1994 and 1995); 1997 to 2000 = RL&L (1998, 1999, 2000, 2001); 2007 = Comaplex Minerals Corporation, pers. comm.; 2008 and 2009 = Golder Associates Ltd.

Appendix B2-6: Water Quality in the Meliadine River, Meliadine Gold Project, 1995 to 2009

Waterbody	Units	ML-MR									MR-L	
Date Sampled		19-Jun-97	24-Aug-97	-Aug-97 (Du	12-Jun-98	18-Jul-98	20-Jun-99	22-Jun-00	21-Jun-08	19-Jul-08	12-Jun-98	20-Jul-98
GPS Coordinates (NAD83, Zone 15V)		-	-	-	-	-	-	-	530714, 6989630	530712, 6989681	-	-
Source [a]		RL&L 1998	RL&L 1998	RL&L 1998	RL&L 1999	RL&L 1999	RL&L 2000	RL&L 2000	Golder	Golder	RL&L 1999	RL&L 1999
Field Measurements												
Water Temperature	°C	6.9	11.6	11.6	1.7	9.8	6.0	3.0	5.63	12.7	3.2	10.8
Dissolved Oxygen	mg/L	14.1	11.1	11.1	-	-	-	-	16.54	16.03	-	-
pH	pH	7.15	7.48	7.48	-	-	6.89	7.11	-	6.78	7.7	-
Specific Conductivity	µS/cm	62.0	61.6	61.6	79.8	-	-	72.9	42	63	85.5	-
Secchi Disk Depth	m	-	-	-	-	-	-	-	-	-	-	-
Conventional Parameters (Laboratory-Measured)												
pH	pH	7.22	7.32	7.36	7.1	7.2	7.0	6.9	7.06	7.5	7.2	7.1
Specific Conductivity	µS/cm	50.3	50.4	49.9	62.4	52.4	62.4	68.0	68.8	64.2	72.4	80.0
Total Dissolved Solids	mg/L	38	38	39	29	24	30	32	34	40	33	38
Total Dissolved Solids (Calculate	mg/L	-	-	-	-	-	-	-	-	30	-	-
Total Alkalinity	mg $CaCO_3$/L	16.2	15.2	14.8	18	15	19	20	17.8	16	19	18
Total Hardness	mg $CaCO_3$/L	20.2	16.7	16.0	20	16	19	20	24	20	21	22
Total Suspended Solids	mg/L	<3	<3	<3	<2	2	<3	<3	<3.0	<3	<2	2
Turbidity	NTU	0.2	0.9	0.3	0.3	0.2	0.1	0.23	-	-	0.5	0.3
Major Ions												
Bicarbonate	mg/L	16.2	15.2	14.8	22	18	23	25	17.8	19	23	22
Bromide	mg/L		-	-	-	-	-	-	<0.050	-	-	-
Calcium	mg/L	6.86	5.43	5.17	6.5	5.23	6.3	5.93	7.59	5.97	6.9	6.94
Carbonate	mg/L	<0.3	<0.3	<0.3	<1	<1	<1	<5	<2.0	<5	<1	<1
Chloride	mg/L	4.24	4.25	4.24	4.7	4.19	4.67	5	6.91	5	6.3	9.60
Fluoride	mg/L	-	-	-	-	-	-	-	0.021	-	-	-
Hydroxide	mg/L	-	-	-	<1	<1	<1	<5	<2.0	<5	<1	<1
Magnesium	mg/L	0.743	0.77	0.76	0.88	0.71	0.90	0.816	1.12	0.865	0.97	1.23
Potassium	mg/L	1.71	0.725	0.702	0.90	0.70	0.81	0.740	<2.0	0.76	1.14	1.04
Reactive Silica (as SiO_2)	mg/L	0.297	0.385	0.388	0.6	0.3	0.2	0.2	-	-	0.5	0.6
Sodium	mg/L	2.53	2.59	2.57	2.9	2.6	3.2	2.61	4	3.22	3.7	5.6
Sulphate	mg/L	5	<3	<3	2.1	1.69	2.37	3.2	3.11	2.8	2.7	2.48
Ion Balance	%	-	-	-	102	101	99	90.6	-	Low EC	101	105
Organic/Inorganic Carbon												
Total Carbon	mg/L	6.0	6.1	6.0	9	6.7	7.1	7.4	5.97	3	10	7.0
Total Organic Carbon	mg/L	1.6	2.1	2.0	4.5	2.9	2.7	2.9	2.64	3	5.1	2.9
Dissolved Organic Carbon	mg/L	-	-	-	-	-	-	-	2.5	2.8	-	-
Total Inorganic Carbon	mg/L	4.0	4.0	4.0	4.6	3.8	4.4	4.5	3.32	6	4.5	4.2
Nutrients and Chlorophyll *a*												
Total Ammonia as Nitrogen	mg/L	0.005	0.010	0.008	<0.005	<0.005	<0.005	<0.005	<0.020	<0.05	0.023	0.015
Nitrate as Nitrogen	mg/L	<0.008	0.024	0.032	<0.006	<0.006	0.012	<0.006	<0.0050	<0.1	0.008	0.008
Nitrite as Nitrogen	mg/L	-	-	-	-	-	-	-	<0.0010	<0.05	-	-
Nitrate+Nitrite as Nitrogen	mg/L	<0.008	0.024	0.032	<0.006	<0.006	0.012	<0.006	-	<0.1	0.008	0.008
Total Kjeldahl Nitrogen	mg/L	0.25	0.28	0.20	0.43	0.28	0.16	0.11	0.167	<0.2	0.30	0.29
Phosphorus, Total	mg/L	0.004	0.009	0.009	0.004	0.005	0.002	0.004	0.0025	0.004	0.005	0.004
Phosphorus, Total Dissolved	mg/L	0.004	0.005	0.002	0.004	0.003	0.001	0.003	<0.0020	0.002	0.004	0.003
Orthophosphate (PO4-P)	mg/L	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	0.002	<0.0010	<0.001	<0.001	<0.001
Chlorophyll *a*	µg/L	-	-	-	-	-	-	-	0.355	<1	-	-
Cyanides												
Cyanide, Total	µg/L	-	-	-	<1	<1	<2	<2	*<5.0*	<2	<1	<1
Total Metals												
Aluminum (Al)	µg/L	<0.5	<0.5	<0.5	1.4	<0.3	2.2	3.0	<5.0	1.9	3.3	3.7
Antimony (Sb)	µg/L	0.3	0.3	0.2	0.31	0.20	<0.03	0.18	<0.50	<0.03	0.20	0.09
Arsenic (As)	µg/L	<0.3	<0.2	0.3	0.29	0.27	0.30	0.25	<0.50	0.22	0.25	0.33
Barium (Ba)	µg/L	6.8	6.3	6.1	8.3	0.66	8.41	8.2	<20	6.89	10.3	8.90
Beryllium (Be)	µg/L	<0.1	0.2	0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2
Bismuth (Bi)	µg/L	<0.1	<0.1	<0.1	<0.05	<0.03	<0.03	-	-	-	<0.05	<0.03
Boron (B)	µg/L	-	-	-	-	-	-	2	<100	3	-	-
Cadmium (Cd)	µg/L	*<0.1*	**0.1**	*<0.1*	*<0.05*	*<0.05*	*<0.02*	*<0.05*	*<0.017*	*<0.05*	*<0.05*	*<0.05*
Cesium (Cs)	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	<0.1	<0.1
Chromium (Cr)	µg/L	0.9	**2.0**	*<2*	<0.06	<0.06	**1.10**	0.18	*<1.0*	<0.06	<0.06	**1.91**
Cobalt (Co)	µg/L	<0.1	0.2	0.1	<0.1	<0.1	<0.1	<0.1	<0.30	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	1.4	1.0	1.0	0.8	<0.6	0.8	0.8	<1.0	0.7	1.0	1.0
Iron (Fe)	µg/L	13	21	25	<10	5	6	39	<30	10	10	12
Lead (Pb)	µg/L	<0.2	<0.2	0.2	<0.05	<0.05	0.05	<0.05	<0.50	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	0.6	0.5	0.4	0.6	0.3	0.5	-	<5.0	-	0.6	<0.1
Magnesium (Mg)	µg/L	-	-	-	-	-	-	-	1120	865	-	-
Manganese (Mn)	µg/L	2.6	2.8	2.9	3.5	0.2	5.1	7.2	2.04	1.8	1.5	0.3
Mercury (Hg)	µg/L	-	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.020	<0.02	<0.02	<0.02
Molybdenum (Mo)	µg/L	0.2	0.1	0.1	0.11	0.07	0.08	0.08	<1.0	<0.06	0.12	0.13
Nickel (Ni)	µg/L	<0.1	0.6	0.3	0.4	0.11	0.52	0.48	<1.0	0.3	0.6	0.66

Golder Associates

Appendix B2-6: Water Quality in the Meliadine River, Meliadine Gold Project, 1995 to 2009

Waterbody	Units	ML-MR									MR-L	
Date Sampled		19-Jun-97	24-Aug-97	-Aug-97 (Du	12-Jun-98	18-Jul-98	20-Jun-99	22-Jun-00	21-Jun-08	19-Jul-08	12-Jun-98	20-Jul-98
GPS Coordinates (NAD83, Zone 15V)		-	-	-	-	-	-	-	530714, 6989630	530712, 6989681	-	-
Source [a]		RL&L 1998	RL&L 1998	RL&L 1998	RL&L 1999	RL&L 1999	RL&L 2000	RL&L 2000	Golder	Golder	RL&L 1999	RL&L 1999
Potassium (K)	µg/L	-	-	-	-	-	-	-	<2000	760	-	-
Rubidium (Rb)	µg/L	1.1	-	-	-		-	-	-	-	-	-
Selenium (Se)	µg/L	*<10*	*<10*	*<10*	<0.1	<0.1	0.1	0.2	*<1.0*	<0.1	<0.1	0.3
Silver (Ag)	µg/L	*<0.1*	*<0.1*	*<0.1*	*<0.1*	*<0.1*	*<0.1*	*<0.1*	<0.020	*<0.1*	*<0.1*	*<0.1*
Sodium (Na)	µg/L	-	-	-	-	-	-	-	3900	3220	-	-
Strontium (Sr)	µg/L	26.7	26.3	25.1	27.4	0.2	27.8	26.9	-	28	32.4	36.4
Thallium (Tl)	µg/L	<0.1	0.1	<0.1	<0.05	<0.03	<0.03	-	<0.20	<0.03	<0.05	0.05
Tin (Sn)	µg/L	-	-	-	-	-	-	-	<0.50	-	-	-
Titanium (Ti)	µg/L	<0.1	0.6	<0.1	<0.3	<0.1	<0.1	-	<10	-	<0.3	<0.1
Uranium (U)	µg/L	<0.1	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.20	<0.05	<0.05	<0.05
Vanadium (V)	µg/L	0.2	0.1	0.1	0.4	0.26	<0.05	<0.05	<1.0	0.11	0.4	0.10
Zinc (Zn)	µg/L	<0.5	1.4	1.0	1.9	<0.8	13.1	<0.8	<5.0	<0.8	3.3	<0.8
Dissolved Metals												
Aluminum (Al)	µg/L	-	-	-	-	-	-	-	<5.0	1.6	-	-
Antimony (Sb)	µg/L	-	-	-	-	-	-	-	<0.50	<0.03	-	-
Arsenic (As)	µg/L	-	-	-	-	-	-	-	<0.50	0.2	-	-
Barium (Ba)	µg/L	-	-	-	-	-	-	-	<20	6.91	-	-
Beryllium (Be)	µg/L	-	-	-	-	-	-	-	<1.0	<0.2	-	-
Boron (B)	µg/L	-	-	-	-	-	-	-	<100	3	-	-
Cadmium (Cd)	µg/L	-	-	-	-	-	-	-	0.065	<0.05	-	-
Calcium (Ca)	µg/L	-	-	-	-	-	-	-	7760	5960	-	-
Chromium (Cr)	µg/L	-	-	-	-	-	-	-	*<1.0*	<0.06	-	-
Cobalt (Co)	µg/L	-	-	-	-	-	-	-	<0.30	<0.1	-	-
Copper (Cu)	µg/L	-	-	-	-	-	-	-	<1.0	<0.6	-	-
Iron (Fe)	µg/L	-	-	-	-	-	-	-	<30	<5	-	-
Lead (Pb)	µg/L	-	-	-	-	-	-	-	<0.50	<0.05	-	-
Lithium (Li)	µg/L	-	-	-	-	-	-	-	<5.0	-	-	-
Magnesium (Mg)	µg/L	-	-	-	-	-	-	-	1130	853	-	-
Manganese (Mn)	µg/L	-	-	-	-	-	-	-	2.83	1.1	-	-
Mercury (Hg)	µg/L	-	-	-	-	-	-	-	<0.020	<0.02	-	-
Molybdenum (Mo)	µg/L	-	-	-	-	-	-	-	<1.0	0.07	-	-
Nickel (Ni)	µg/L	-	-	-	-	-	-	-	<1.0	0.32	-	-
Potassium (K)	µg/L	-	-	-	-	-	-	-	<2000	750	-	-
Selenium (Se)	µg/L	-	-	-	-	-	-	-	<1.0	<0.1	-	-
Silver (Ag)	µg/L	-	-	-	-	-	-	-	<0.020	<0.1	-	-
Sodium (Na)	µg/L	-	-	-	-	-	-	-	3900	3200	-	-
Strontium (Sr)	µg/L	-	-	-	-	-	-	-	-	28	-	-
Thallium (Tl)	µg/L	-	-	-	-	-	-	-	<0.20	<0.03	-	-
Tin (Sn)	µg/L	-	-	-	-	-	-	-	<0.50	-	-	-
Titanium (Ti)	µg/L	-	-	-	-	-	-	-	<10	-	-	-
Uranium (U)	µg/L	-	-	-	-	-	-	-	<0.20	<0.05	-	-
Vanadium (V)	µg/L	-	-	-	-	-	-	-	<1.0	0.1	-	-
Zinc (Zn)	µg/L	-	-	-	-	-	-	-	<5.0	<0.8	-	-
Organic Compounds												
Oil and Grease	µg/L	-	-	-	-	-	-	-	-	-	-	-
Phenols	µg/L	**10**	<2	*<2*	<1	2	2	2	-	-	<1	2
Benzene	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	-	<0.5	<0.5
Ethylbenzene	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	-	<0.5	<0.5
Toluene	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	-	<0.5	<0.5
Xylenes	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	-	<0.5	<0.5
F1 (C6-C10)	µg/L	-	-	-	-	-	-	-	-	-	-	-
F1 -BTEX	µg/L	-	-	-	-	-	-	-	-	-	-	-
F2 (>C10-C16)	µg/L	-	-	-	-	-	-	-	-	-	-	-
F3 (C16-C34)	µg/L	-	-	-	-	-	-	-	-	-	-	-
F4 (C34-C50)	µg/L	-	-	-	-	-	-	-	-	-	-	-
Total Volatiles	µg/L	<100	<100	<100	<100	<100	-	<100	-	-	<100	<100
Total Extractables	µg/L	<50	<50	75	<50	<50	-	<50	-	-	<50	<50
Other												
Biological Oxygen Demand (BOD	mg/L	-	-	-	-	-	-	-	-	-	-	-
Fecal Coliforms	CFU/100 mL	-	-	-	-		-	-	-	-	-	

Notes:

Bold values are equal to or greater than the Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2007, CWQG).

Underlined values are equal to or greater than the Guidelines for Canadian Drinking Water Quality (Health Canada 2007, GCDWQ).

Italicized values indicate the detection limit equals or exceeds either guideline.

(-) = No data available

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; µg/L = micrograms per litre; NTU = nephelometric turbidity units.

a = Data were obtained from the following sources: 1994 to 1995 = Dillon (1994 and 1995); 1997 to 2000 = RL&L (1998, 1999, 2000, 2001); 2007 = Comaplex Minerals Corporation, pers. comm.; 2008 and 2009 = Golder Associates Ltd.

Appendix B2-7: Water Quality in Streams of the Peter Lake Drainage, Meliadine Gold Project, 1995 to 2009

Waterbody	Units	ML-PL				PL-DL			
Date Sampled		19-Jun-97	24-Aug-97	12-Jun-98	18-Jul-98	19-Jun-97	24-Aug-97	12-Jun-98	20-Jul-98
GPS Coordinates		-	-	-	-	-	-	-	-
Source [a]		RL&L 1998	RL&L 1998	RL&L 1999	RL&L 1999	RL&L 1998	RL&L 1998	RL&L 1999	RL&L 1999
Field Measurements									
Water Temperature	°C	4.9	12.5	2.1	9.8	5.1	13.2	2.4	-
Dissolved Oxygen	mg/L	13.9	11.2	-	-	14.3	11.0	-	-
pH	pH	7.02	7.50	6.5	-	6.75	7.35	6.5	-
Specific Conductivity	µS/cm	50.6	52.3	68.8	-	38.5	34.7	52.3	-
Secchi Disk Depth	m	-	-	-	-	-	-	-	-
Conventional Parameters (Laboratory-Measured)									
pH	pH	7.20	7.37	7.0	7.1	6.92	7.19	6.8	6.9
Specific Conductivity	µS/cm	42.1	42.3	57.3	55.0	31.0	28.9	41.1	35.5
Total Dissolved Solids	mg/L	26	34	26	25	15	19	18	16
Total Dissolved Solids (Calculated)	mg/L	-	-	-	-	-	-	-	-
Total Alkalinity	mg $CaCO_3$/L	12.4	11.9	15	13	7.9	7.1	9	9
Total Hardness	mg $CaCO_3$/L	15.9	12.8	17	15	10.1	8.2	11	9
Total Suspended Solids	mg/L	<3	<3	<2	<2	<3	<3	<2	4
Turbidity	NTU	0.3	0.2	0.2	0.4	0.3	0.2	0.2	0.2
Major Ions									
Bicarbonate	mg/L	12.4	11.9	18	16	7.9	7.1	10	11
Bromide	mg/L	-	-	-	-	-	-	-	-
Calcium	mg/L	5.38	4.06	5.5	4.62	3.18	2.44	3.3	2.78
Carbonate	mg/L	<0.3	<0.3	<1	<1	<0.3	<0.3	<1	<1
Chloride	mg/L	3.66	3.93	4.6	5.45	2.74	2.56	3.4	2.78
Fluoride	mg/L	-	-	-	-	-	-	-	-
Hydroxide	mg/L	-	-	<1	<1	-	-	<1	<1
Magnesium	mg/L	0.593	0.64	0.80	0.79	0.52	0.52	0.64	0.55
Potassium	mg/L	0.598	0.651	0.87	0.74	0.562	0.554	0.74	0.61
Reactive Silica (as SiO_2)	mg/L	0.180	0.269	0.3	0.4	0.273	0.218	0.3	0.3
Sodium	mg/L	2.19	2.43	2.9	3.2	1.82	1.75	2.1	1.8
Sulphate	mg/L	<3	3	2.1	1.96	4	<3	2.4	1.86
Ion Balance	%	-	-	104	100	-	-	105	94
Organic/Inorganic Carbon									
Total Carbon	mg/L	4.0	4.8	8	6.3	4.0	3.2	6.0	4.9
Total Organic Carbon	mg/L	1.4	1.8	3.9	3.0	1.6	1.2	4.0	2.8
Dissolved Organic Carbon	mg/L	-	-	-	-	-	-	-	-
Total Inorganic Carbon	mg/L	3.0	3.0	3.9	3.3	2.0	2.0	2.4	2.0
Nutrients and Chlorophyll *a*									
Total Ammonia as Nitrogen	mg/L	0.005	0.011	0.015	<0.005	0.012	0.006	<0.005	0.008
Nitrate as Nitrogen	mg/L	<0.008	0.023	<0.006	<0.006	<0.008	0.015	<0.006	<0.006
Nitrite as Nitrogen	mg/L	-	-	-	-	-	-	-	-
Nitrate+Nitrite as Nitrogen	mg/L	<0.008	0.023	<0.006	<0.006	<0.008	0.015	<0.006	<0.006
Total Kjeldahl Nitrogen	mg/L	0.26	0.22	0.14	0.23	0.25	0.18	0.31	0.25
Phosphorus, Total	mg/L	0.005	0.008	0.002	0.003	0.004	0.007	0.002	0.004
Phosphorus, Total Dissolved	mg/L	0.004	0.005	0.002	0.003	0.004	0.007	0.002	0.002
Orthophosphate (PO4-P)	mg/L	<0.002	<0.002	<0.001	<0.001	<0.002	<0.002	<0.001	<0.001
Chlorophyll *a*	µg/L	-	-	-	-	-	-	-	-
Cyanides									
Cyanide, Total	µg/L	-	-	<1	<1	-	-	<1	1
Total Metals									
Aluminum (Al)	µg/L	<0.5	0.8	1.7	<0.3	<0.5	1.5	3.9	3.0
Antimony (Sb)	µg/L	0.2	0.3	0.19	0.07	0.3	0.3	0.36	0.19
Arsenic (As)	µg/L	<0.3	<0.02	0.16	0.27	<0.3	<0.2	0.09	0.14
Barium (Ba)	µg/L	5.4	4.8	7.9	<0.05	8.3	6.3	11.2	8.07
Beryllium (Be)	µg/L	0.3	0.3	<0.2	<0.2	<0.1	0.5	<0.2	<0.2
Bismuth (Bi)	µg/L	<0.1	<0.1	<0.05	<0.03	<0.1	<0.1	<0.05	<0.03
Boron (B)	µg/L	-	-	-	-	-	-	-	-
Cadmium (Cd)	µg/L	*<0.1*	**0.1**	*<0.05*	*<0.05*	*<0.1*	**0.1**	*<0.05*	***0.05***
Cesium (Cs)	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	<0.2	*<2*	<0.06	<0.06	0.7	*<2*	<0.06	0.91
Cobalt (Co)	µg/L	<0.1	0.3	<0.1	<0.1	<0.1	0.1	<0.1	<0.1
Copper (Cu)	µg/L	1.0	0.9	0.8	<0.6	1.6	1.1	0.8	1.0
Iron (Fe)	µg/L	19	19	<10	5	41	22	<10	<5
Lead (Pb)	µg/L	<0.2	<0.2	<0.05	0.06	0.2	<0.2	<0.05	<0.05
Lithium (Li)	µg/L	0.6	0.5	0.5	0.8	0.7	0.3	0.5	<0.1
Magnesium (Mg)	µg/L	-	-	-	-	-	-	-	-
Manganese (Mn)	µg/L	1.5	1.7	1.6	0.8	1.9	0.9	3.2	1.0
Mercury (Hg)	µg/L	-	<0.01	<0.02	<0.02	-	<0.01	<0.02	<0.02
Molybdenum (Mo)	µg/L	0.1	0.1	0.09	0.09	<0.1	<0.1	0.09	<0.06
Nickel (Ni)	µg/L	<0.1	0.4	0.5	0.47	<0.1	0.4	0.4	0.63

Golder Associates

Appendix B2-7: Water Quality in Streams of the Peter Lake Drainage, Meliadine Gold Project, 1995 to 2009

Waterbody	Units	ML-PL				PL-DL			
Date Sampled		19-Jun-97	24-Aug-97	12-Jun-98	18-Jul-98	19-Jun-97	24-Aug-97	12-Jun-98	20-Jul-98
GPS Coordinates		-	-	-	-	-	-	-	-
Source [a]		RL&L 1998	RL&L 1998	RL&L 1999	RL&L 1999	RL&L 1998	RL&L 1998	RL&L 1999	RL&L 1999
Potassium (K)	µg/L	-	-	-	-	-	-	-	-
Rubidium (Rb)	µg/L	1.0	-	-	-	1.2	-	-	-
Selenium (Se)	µg/L	*<10*	*<10*	<0.1	<0.1	*<10*	*<10*	<0.1	0.2
Silver (Ag)	µg/L	*<0.1*	*<0.1*	*<0.1*	*<0.1*	*<0.1*	*<0.1*	*<0.1*	*<0.1*
Sodium (Na)	µg/L	-	-	-	-	-	-	-	-
Strontium (Sr)	µg/L	21.0	18.9	25.2	<0.1	17.4	13.2	17.7	16.5
Thallium (Tl)	µg/L	<0.1	<0.1	<0.05	<0.03	<0.1	<0.1	<0.05	<0.03
Tin (Sn)	µg/L	-	-	-	-	-	-	-	-
Titanium (Ti)	µg/L	<0.1	<0.1	<0.3	<0.1	0.4	0.5	<0.3	<0.1
Uranium (U)	µg/L	<0.1	<0.1	<0.05	<0.05	<0.1	<0.1	<0.05	<0.05
Vanadium (V)	µg/L	0.1	0.1	0.3	0.20	0.1	0.2	0.2	0.08
Zinc (Zn)	µg/L	<0.5	<0.5	4.8	<0.8	<0.5	0.5	4.5	2.5
Dissolved Metals									
Aluminum (Al)	µg/L	-	-	-	-	-	-	-	-
Antimony (Sb)	µg/L	-	-	-	-	-	-	-	-
Arsenic (As)	µg/L	-	-	-	-	-	-	-	-
Barium (Ba)	µg/L	-	-	-	-	-	-	-	-
Beryllium (Be)	µg/L	-	-	-	-	-	-	-	-
Boron (B)	µg/L	-	-	-	-	-	-	-	-
Cadmium (Cd)	µg/L	-	-	-	-	-	-	-	-
Calcium (Ca)	µg/L	-	-	-	-	-	-	-	-
Chromium (Cr)	µg/L	-	-	-	-	-	-	-	-
Cobalt (Co)	µg/L	-	-	-	-	-	-	-	-
Copper (Cu)	µg/L	-	-	-	-	-	-	-	-
Iron (Fe)	µg/L	-	-	-	-	-	-	-	-
Lead (Pb)	µg/L	-	-	-	-	-	-	-	-
Lithium (Li)	µg/L	-	-	-	-	-	-	-	-
Magnesium (Mg)	µg/L	-	-	-	-	-	-	-	-
Manganese (Mn)	µg/L	-	-	-	-	-	-	-	-
Mercury (Hg)-Dissolved	µg/L	-	-	-	-	-	-	-	-
Molybdenum (Mo)	µg/L	-	-	-	-	-	-	-	-
Nickel (Ni)	µg/L	-	-	-	-	-	-	-	-
Potassium (K)	µg/L	-	-	-	-	-	-	-	-
Selenium (Se)	µg/L	-	-	-	-	-	-	-	-
Silver (Ag)	µg/L	-	-	-	-	-	-	-	-
Sodium (Na)	µg/L	-	-	-	-	-	-	-	-
Strontium (Sr)	µg/L	-	-	-	-	-	-	-	-
Thallium (Tl)	µg/L	-	-	-	-	-	-	-	-
Tin (Sn)	µg/L	-	-	-	-	-	-	-	-
Titanium (Ti)	µg/L	-	-	-	-	-	-	-	-
Uranium (U)	µg/L	-	-	-	-	-	-	-	-
Vanadium (V)	µg/L	-	-	-	-	-	-	-	-
Zinc (Zn)	µg/L	-	-	-	-	-	-	-	-
Organic Compounds									
Oil and Grease	µg/L	-	-	-	-	-	-	-	-
Phenols	µg/L	<2	<2	<1	2	**5**	<2	2	3
Benzene	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylenes	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
F1 (C6-C10)	µg/L	-	-	-	-	-	-	-	-
F1 -BTEX	µg/L	-	-	-	-	-	-	-	-
F2 (>C10-C16)	µg/L	-	-	-	-	-	-	-	-
F3 (C16-C34)	µg/L	-	-	-	-	-	-	-	-
F4 (C34-C50)	µg/L	-	-	-	-	-	-	-	-
Total Volatiles	µg/L	<100	<100	<100	<100	<100	<100	<100	<100
Total Extractables	µg/L	<50	<50	<50	<50	<50	<50	<50	<50
Other									
Biological Oxygen Demand (BOD)	mg/L	-	-	-	-	-	-	-	-
Fecal Coliforms	CFU/100 mL	-	-	-	-	-	-	-	-

Notes:

Bold values are equal to or greater than the Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2007, CWQG).

Underlined values are equal to or greater than the Guidelines for Canadian Drinking Water Quality (Health Canada 2007, GCDWQ).

Italicized values indicate the detection limit equals or exceeds either guideline.

(-) = No data available

Notes: °C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; µg/L = micrograms per litre; NTU = nephelometric turbidity units.

a = Data were obtained from the following sources: 1994 to 1995 = Dillon (1994 and 1995); 1997 to 2000 = RL&L (1998, 1999, 2000, 2001); 2007 = Comaplex Minerals Corporation, pers. comm.; 2008 and 2009 = Golder Associates Ltd.

Appendix B2-8: Water Quality in Streams of the Atulik Lake Drainage, Meliadine Gold Project, 1995 to 2009

Waterbody	Units	DI-6		DI-7		NEW-2	NEW-3
Date Sampled		20-Jul-95	23-Jun-08	20-Jul-95	23-Jun-08	23-Jun-08	24-Jun-08
GPS Coordinates		-	0565841, 6972744	-	0574494, 6969739	0550631, 6981869	0553779, 6980992
Source [a]		Dillon 1995	Golder	Dillon 1995	Golder	Golder	Golder
Field Measurements							
Water Temperature	°C	13.6	5.50	14.1	7.82	18.16	11.03
Dissolved Oxygen	mg/L	**7.30**	14.57	9.70	13.43	9.59	11.83
pH	pH	7.52	-	7.83	7.59	8.35	7.55
Specific Conductivity	µS/cm	29.9	34	40.5	37	82	37
Secchi Disk Depth	m	-	-	-	-	-	-
Conventional Parameters (Laboratory-Measured)							
pH	pH	6.87	7.4	7.03	7.4	7.8	7.4
Specific Conductivity	µS/cm	53.7	51.7	67.6	53.3	91.3	50.1
Total Dissolved Solids	mg/L	26.0	-	34.0	-	-	-
Total Dissolved Solids (Calculated)	mg/L	-	26	-	27	49	27
Total Alkalinity	mg $CaCO_3$/L	13.7	11	15.5	12	33	14
Total Hardness	mg $CaCO_3$/L	14.1	15	17.5	16	37	18
Total Suspended Solids	mg/L	-	<3	-	<3	<3	<3
Turbidity	NTU	0.31	-	0.42	-	-	-
Major Ions							
Bicarbonate	mg/L	-	14	-	15	41	17
Bromide	mg/L	-	<0.1	-	0.1	<0.1	<0.1
Calcium	mg/L	4.32	4.4	5.26	4.5	12.2	5.7
Carbonate	mg/L	13.7	<5	15.5	<5	<5	<5
Chloride	mg/L	5.6	6	7.4	7	6	4
Fluoride	mg/L	0.04	<0.05	0.04	<0.05	<0.05	<0.05
Hydroxide	mg/L	-	<5	-	<5	<5	<5
Magnesium	mg/L	0.805	0.8	1.070	0.8	1.3	0.8
Potassium	mg/L	< 2.0	0.7	< 2.0	0.8	3.4	3.3
Reactive Silica (as SiO_2)	mg/L	-	-	-	-	-	-
Sodium	mg/L	4.0	4	5.4	4	10	11
Sulphate	mg/L	2.7	2.3	3.3	2.4	4.1	3.4
Ion Balance	%	-	Low EC	-	Low EC	Low EC	Low EC
Organic/Inorganic Carbon							
Total Carbon	mg/L	-	5	-	6	12	7
Total Organic Carbon	mg/L	-	2	-	3	5	3
Dissolved Organic Carbon	mg/L	-	2	-	2	4	3
Total Inorganic Carbon	mg/L	-	3	-	3	7	4
Nutrients and Chlorophyll *a*							
Total Ammonia as Nitrogen	mg/L	-	<0.05	-	<0.05	<0.05	<0.05
Nitrate as Nitrogen	mg/L	-	<0.1	-	<0.1	<0.1	<0.1
Nitrite as Nitrogen	mg/L	-	**0.07**	-	**0.06**	<0.05	**0.08**
Nitrate+Nitrite as Nitrogen	mg/L	0.012	<0.1	< 0.005	<0.1	<0.1	<0.1
Total Kjeldahl Nitrogen	mg/L	-	<0.2	-	<0.2	0.3	<0.2
Phosphorus, Total	mg/L	-	0.007	-	0.01	0.01	0.009
Phosphorus, Total Dissolved	mg/L	-	0.002	-	0.002	0.002	0.003
Orthophosphate (PO4-P)	mg/L	-	<0.001	-	<0.001	<0.001	<0.001
Chlorophyll *a*	µg/L	-	3	-	5	10	31
Cyanides							
Cyanide, Total	µg/L	-	<2	-	<2	<2	<2
Total Metals							
Aluminum (Al)	µg/L	*<200*	2.1	*<200*	7.5	5.8	3.8
Antimony (Sb)	µg/L	-	<0.4	-	<0.4	<0.4	<0.4
Arsenic (As)	µg/L	0.1	<0.4	0.1	<0.4	1.2	0.5
Barium (Ba)	µg/L	10	6	<10	6	14	8
Beryllium (Be)	µg/L	-	<1	-	<1	<1	<1
Bismuth (Bi)	µg/L	-	-	-	-	-	-
Boron (B)	µg/L	<100	<50	<100	<50	<50	<50
Cadmium (Cd)	µg/L	*<0.2*	*<0.017*	*<0.2*	*<0.017*	*<0.017*	*<0.017*
Cesium (Cs)	µg/L	-	-	-	-	-	-
Chromium (Cr)	µg/L	*<15*	<0.06	*<15*	<0.06	<0.06	<0.06
Cobalt (Co)	µg/L	<15	<2	<15	<2	<2	<2
Copper (Cu)	µg/L	*<10*	<1	*<10*	<1	1	1
Iron (Fe)	µg/L	<30	13	59	44	94	59
Lead (Pb)	µg/L	*<1*	<0.1	*<1*	<0.1	<0.1	<0.1
Lithium (Li)	µg/L	-	<10	-	<10	<10	<10
Magnesium (Mg)	µg/L	805	800	1070	800	1300	800
Manganese (Mn)	µg/L	<5	2	<5	1	7	2
Mercury (Hg)	µg/L	*<0.05*	<0.02	*<0.05*	<0.02	<0.02	<0.02
Molybdenum (Mo)	µg/L	<30	<5	<30	<5	<5	<5
Nickel (Ni)	µg/L	<20	<2	<20	<2	<2	<2

Appendix B2-8: Water Quality in Streams of the Atulik Lake Drainage, Meliadine Gold Project, 1995 to 2009

Waterbody	Units	DI-6		DI-7		NEW-2	NEW-3
Date Sampled		20-Jul-95	23-Jun-08	20-Jul-95	23-Jun-08	23-Jun-08	24-Jun-08
GPS Coordinates		-	0565841, 6972744	-	0574494, 6969739	0550631, 6981869	0553779, 6980992
Source [a]		Dillon 1995	Golder	Dillon 1995	Golder	Golder	Golder
Potassium (K)	µg/L	<2000	700	<2000	800	3400	3300
Rubidium (Rb)	µg/L	-	-	-	-	-	-
Selenium (Se)	µg/L	<0.5	<0.4	<0.5	<0.4	<0.4	<0.4
Silver (Ag)	µg/L	*<15*	*<0.4*	*<15*	*<0.4*	*<0.4*	*<0.4*
Sodium (Na)	µg/L	4000	4000	5400	4000	10000	11000
Strontium (Sr)	µg/L	-	-	-	-	-	-
Thallium (Tl)	µg/L	-	<0.1	-	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	<300	<50	<300	<50	<50	<50
Titanium (Ti)	µg/L	-	<1	-	<1	<1	<1
Uranium (U)	µg/L	-	<0.1	-	<0.1	<0.1	<0.1
Vanadium (V)	µg/L	-	<1	-	<1	<1	<1
Zinc (Zn)	µg/L	<5	<4	<5	<4	<4	<4
Dissolved Metals							
Aluminum (Al)	µg/L	-	9.4	-	3.6	4.2	2.5
Antimony (Sb)	µg/L	-	<0.4	-	<0.4	<0.4	<0.4
Arsenic (As)	µg/L	-	<0.4	-	<0.4	1	0.5
Barium (Ba)	µg/L	-	7	-	6	14	8
Beryllium (Be)	µg/L	-	<1	-	<1	<1	<1
Boron (B)	µg/L	-	<50	-	<50	<50	<50
Cadmium (Cd)	µg/L	-	0.028	-	<0.017	<0.017	<0.017
Calcium (Ca)	µg/L	-	-	-	-	-	-
Chromium (Cr)	µg/L	-	0.24	-	<0.06	<0.06	<0.06
Cobalt (Co)	µg/L	-	<2	-	<2	<2	<2
Copper (Cu)	µg/L	-	6	-	<1	1	1
Iron (Fe)	µg/L	-	48	-	32	40	23
Lead (Pb)	µg/L	-	106	-	<0.1	<0.1	<0.1
Lithium (Li)	µg/L	-	<3	-	<3	<3	<3
Magnesium (Mg)	µg/L	-	-	-	-	-	-
Manganese (Mn)	µg/L	-	2	-	1	3	1
Mercury (Hg)	µg/L	-	<0.02	-	<0.02	<0.02	<0.02
Molybdenum (Mo)	µg/L	-	<5	-	<5	<5	<5
Nickel (Ni)	µg/L	-	<2	-	<2	<2	<2
Potassium (K)	µg/L	-	-	-	-	-	-
Selenium (Se)	µg/L	-	<0.4	-	<0.4	<0.4	<0.4
Silver (Ag)	µg/L	-	<0.1	-	<0.1	<0.1	<0.1
Sodium (Na)	µg/L	-	-	-	-	-	-
Strontium (Sr)	µg/L	-	-	-	-	-	-
Thallium (Tl)	µg/L	-	<0.1	-	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	-	<50	-	<50	<50	<50
Titanium (Ti)	µg/L	-	<1	-	<1	<1	<1
Uranium (U)	µg/L	-	<0.1	-	<0.1	<0.1	<0.1
Vanadium (V)	µg/L	-	<1	-	<1	<1	<1
Zinc (Zn)	µg/L	-	3.5	-	<2	<2	<2
Organic Compounds							
Oil and Grease	µg/L	-	-	-	-	-	-
Phenols	µg/L	-	-	-	-	-	-
Benzene	µg/L	-	-	-	-	-	-
Ethylbenzene	µg/L	-	-	-	-	-	-
Toluene	µg/L	-	-	-	-	-	-
Xylenes	µg/L	-	-	-	-	-	-
F1 (C6-C10)	µg/L	-	-	-	-	-	-
F1 -BTEX	µg/L	-	-	-	-	-	-
F2 (>C10-C16)	µg/L	-	-	-	-	-	-
F3 (C16-C34)	µg/L	-	-	-	-	-	-
F4 (C34-C50)	µg/L	-	-	-	-	-	-
Total Volatiles	µg/L	-	-	-	-	-	-
Total Extractables	µg/L	-	-	-	-	-	-
Other							
Biological Oxygen Demand (BOD)	mg/L	-	-	-	-	-	-
Fecal Coliforms	CFU/100 mL	-	-	-	-	-	-

Notes:
Bold values are equal to or greater than the Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2007, CWQG).
Underlined values are equal to or greater than the Guidelines for Canadian Drinking Water Quality (Health Canada 2007, GCDWQ).
Italicized values indicate the detection limit equals or exceeds either guideline.
(-) = No data available
°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; µg/L = micrograms per litre; NTU = nephelometric turbidity units.
a = Data were obtained from the following sources: 1994 to 1995 = Dillon (1994 and 1995); 1997 to 2000 = RL&L (1998, 1999, 2000, 2001); 2007 = Comaplex Minerals Corporation, pers. comm.; 2008 and 2009 = Golder Associates Ltd.

Appendix B3-1: Water Quality in Meliadine Lake, Meliadine Gold Project, 1995 to 2009

Waterbody	Units	DI4		ML-E							ML-A		BOOT-1		BOOT-2		
Date Sampled		20-Jul-95	20-Jul-08	19-Jul-97	17-Aug-97	25-Apr-98	17-Jul-98	4-Sep-98	17-Jul-08	28-Apr-09	29-Apr-09	28-Jul-09	15-Jul-08	28-Jul-09	16-Jul-08	28-Apr-09	28-Jul-09
GPS Coordinates (NAD83, Zone 15V) [a]		-	0548241, 6983893	0542923, 6988975	0542985, 6988903	0543253, 6988595	0543253, 6988595	0543356, 6988921	0543184, 6987869	0543184, 6987869	0544654, 6986157	0544655, 6986144	0541166, 6989336	0541160, 6989334	0542070, 6989338	0542070, 6989338	0542025, 6989302
Source [b]		Dillon 1995	Golder	RL&L 1998	RL&L 1998	RL&L 1999	RL&L 1999	RL&L 1999	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder
Field Measurements																	
Water Temperature	°C	12.2	14.9	13.9	13.6	0	9.9	9.7	11.11	0.87	0.51	12.66	13.16	15.44	11.28	0.33	13.92
Dissolved Oxygen	mg/L	**8.5**	12.51	10.2	11.3	17.4	12.9	11.2	13.19	14.15	14.62	**8.8**	13.23	**8.33**	13.32	15.63	**8.81**
pH	pH	7.84	6.77	7.3	7.39	**6.17**	7.30	7.04	6.94	6.66	6.68	**6.49**	6.97	6.91	7.17	6.87	6.97
Specific Conductivity	µS/cm	20.6	71	59.3	59.4	100.5	56.8	62.2	50	87.3	87.5	63	71	69	49	90.6	62
Secchi Disk Depth	m	-	2.3	7.5	6.7	-	5.0	4.5	3	-	-	5.4	1.8	2	6.3	-	5.2
Ice Depth	m	-	-	-	-	1.8	-	-	-	1.67	1.78	-	-	-	-	1.93	-
Total Lake Depth	m	-	2.3	14.7	13.0	11.5	11.2	13.7	6.1	5.36	5.14	5.4	1.8	2	10.1	10.12	8.8
Conventional Parameters (Laboratory-Measured)																	
pH	pH	6.99	7.5	7.31	-	6.9	7.1	-	7.4	7.45	7.45	7.42	7.4	7.46	7.4	7.46	7.41
Specific Conductivity	µS/cm	42.5	71.8	49.1	-	79.7	47.4	-	56.9	97.3	96.4	62	58.6	67.5	56.6	104	60.9
Total Dissolved Solids	mg/L	24	46	25	-	36	21	-	37	-	-	34	29	39	38	-	34
Total Dissolved Solids (Calculated)	mg/L	-	34	-	-	-	-	-	28	50.4	49.1	30.4	29	33.4	27	53.5	28.8
Total Alkalinity	mg $CaCO_3$/L	13	16	13.2	-	20	13	-	13	24.8	23.7	14.3	12	16.1	12	26.2	12.7
Total Hardness	mg $CaCO_3$/L	13.4	21	14.6	-	22	13	-	18	30	29.5	19	19	21	17	31.5	18.3
Total Suspended Solids	mg/L	-	<3	<3	-	<2	<2	-	<3	<3.0	<3.0	<3.0	<3	3	<3	4	<3.0
Total Volatile Solids	mg/L	-	-	-	-	-	-	-	-	16	21	29	-	39	-	19	40
Turbidity	NTU	0.33	-	0.5	-	0.1	0.3	-	-	-	-	-	-	-	-	-	-
Major Ions																	
Bicarbonate	mg/L	-	19	13.2	-	25	15	-	15	30.3	28.9	17.5	15	19.6	14	32	15.5
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	mg/L	4.42	6.38	4.53	-	6.6	4.33	-	4.98	9.05	8.97	6.06	5.18	6.76	4.88	9.32	5.78
Carbonate	mg/L	-	<5	<0.3	-	<1	<1	-	<5	<5.0	<5.0	<5.0	<5	<5.0	<5	<5.0	<5.0
Chloride	mg/L	2.7	7	5.34	-	7.33	3.99	-	6	11.7	11.6	7.64	7	8.29	6	12.6	7.55
Fluoride	mg/L	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydroxide	mg/L	-	<5	-	-	<1	<1	-	<5	<5.0	<5.0	<5.0	<5	<5.0	<5	<5.0	<5.0
Magnesium	mg/L	0.583	0.913	0.79	-	1.24	0.65	-	0.804	1.65	1.64	1.06	0.814	1.16	0.782	1.78	1.01
Potassium	mg/L	<2.0	0.75	0.671	-	1.07	0.67	-	0.66	1.27	1.24	<2.0	0.7	<2.0	0.65	1.35	<2.0
Reactive Silica (as SiO_2)	mg/L	-	-	0.354	-	-	-	-	-	-	-	-	-	-	-	-	-
Silicate (SiO_2)	mg/L	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Sodium	mg/L	2.1	4	2.94	-	4.8	2.4	-	3.14	6.03	6.01	3.9	3.44	4.2	3.07	6.59	3.9
Sulphate	mg/L	2	3.5	<3	-	2.85	1.58	-	2.9	4.79	4.86	2.83	2.9	2.94	2.8	5.17	2.75
Ion Balance	%	-	Low EC	8.9	-	99	100	-	Low EC	Low EC	Low EC	Low EC	Low EC	Low EC	Low EC	98.5	Low EC
Organic/Inorganic Carbon																	
Total Carbon	mg/L	-	7	5	-	9	6	-	5	-	-	6.3	6	7.3	5	-	6.6
Total Organic Carbon	mg/L	-	3	2.4	-	4.1	2.7	-	3	-	-	3	3	3.5	3	-	3
Dissolved Organic Carbon	mg/L	-	3.9	-	-	-	-	-	3.3	-	-	3	3.3	3.3	3.2	-	3.3
Total Inorganic Carbon	mg/L	-	-	3	-	5	3.3	-	3	-	-	3.8	-	4.3	3	-	3.6
Total Inorganic Carbon (Calculated)	mg/L	-	4	-	-	-	-	-	2	-	-	-	-	-	-	-	-
Nutrients and Chlorophyll *a*																	
Total Ammonia as Nitrogen	mg/L	-	<0.05	0.006	-	0.013	0.024	-	<0.05	<0.050	<0.050	<0.050	<0.05	<0.050	<0.05	<0.050	<0.050
Nitrate as Nitrogen	mg/L	-	<0.1	<0.008	-	0.011	<0.006	-	<0.1	<0.050	<0.050	<0.050	<0.1	<0.050	<0.1	<0.050	<0.050
Nitrite as Nitrogen	mg/L	-	<0.05	-	-	-	-	-	<0.05	<0.050	<0.050	<0.050	<0.05	<0.050	<0.05	<0.050	<0.050
Nitrate+Nitrite as Nitrogen	mg/L	<0.005	<0.1	<0.008	-	0.011	<0.006	-	<0.1	<0.071	<0.071	<0.071	<0.1	<0.071	<0.1	<0.071	<0.071
Total Kjeldahl Nitrogen	mg/L	-	<0.2	0.2	-	0.168	0.27	-	<0.2	0.34	0.41	0.28	<0.2	0.3	<0.2	0.36	0.36
Phosphorus, Total	mg/L	-	0.005	0.009	-	0.003	0.004	-	0.004	0.0055	0.0071	0.0045	0.003	0.0042	0.004	0.0106	0.0047
Phosphorus, Total Dissolved	mg/L	-	0.003	0.007	-	0.003	0.003	-	0.002	0.0054	0.0069	0.0024	0.003	0.0029	0.002	0.0082	0.0027
Orthophosphate (PO_4-P)	mg/L	-	<0.001	0.004	-	<0.001	<0.001	-	<0.001	<0.0010	<0.0010	<0.0010	<0.001	<0.0010	<0.001	<0.0010	<0.0010
Chlorophyll *a*	µg/L	-	<1	<0.01 [c]	0.46 [c]	-	<0.01 [c]	1.82 [c]	<1	-	-	-	15	-	<1	-	-

Golder Associates

Appendix B3-1: Water Quality in Meliadine Lake, Meliadine Gold Project, 1995 to 2009

Waterbody	Units	DI4		ML-E							ML-A		BOOT-1		BOOT-2		
Date Sampled		20-Jul-95	20-Jul-08	19-Jul-97	17-Aug-97	25-Apr-98	17-Jul-98	4-Sep-98	17-Jul-08	28-Apr-09	29-Apr-09	28-Jul-09	15-Jul-08	28-Jul-09	16-Jul-08	28-Apr-09	28-Jul-09
GPS Coordinates (NAD83, Zone 15V) [a]		-	0548241, 6983893	0542923, 6988975	0542985, 6988903	0543253, 6988595	0543253, 6988595	0543356, 6988921	0543184, 6987869	0543184, 6987869	0544654, 6986157	0544655, 6986144	0541166, 6989336	0541160, 6989334	0542070, 6989338	0542070, 6989338	0542025, 6989302
Source [b]		Dillon 1995	Golder	RL&L 1998	RL&L 1998	RL&L 1999	RL&L 1999	RL&L 1999	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder
Cyanides																	
Cyanide, Total	µg/L	-	<2	-	-	<1	<1	-	<2	<2	<2	<2	<2	<2	<2	<2	<2
Total Metals																	
Aluminum (Al)	µg/L	*<200*	5.6	1.4	-	<0.3	<0.3	-	2.2	<5.0	11.1	7.1	3	<5.0	2.8	<5.0	<5.0
Antimony (Sb)	µg/L	-	<0.03	0.2	-	<0.03	0.11	-	<0.03	<0.20	<0.20	<0.50	<0.03	<0.50	<0.03	0.26	<0.50
Arsenic (As)	µg/L	0.3	0.88	0.3	-	0.25	0.16	-	0.25	<0.5	<0.5	<0.50	0.26	<0.50	0.26	<0.5	<0.5
Barium (Ba)	µg/L	<10	6.51	5.4	-	7.9	<0.05	-	6.02	9.5	9.6	<20	5.9	<20	5.94	10.3	<20
Beryllium (Be)	µg/L	-	<0.2	<0.1	-	<0.2	<0.2	-	<0.2	<1.0	<1.0	<1.0	<0.2	<1.0	<0.2	<1.0	<1.0
Bismuth (Bi)	µg/L	-	-	<0.1	-	<0.05	<0.03	-	-	<1.0	<1.0	-	-	-	-	<1.0	-
Boron (B)	µg/L	<100	4	-	-	-	-	-	3	<50	<50	<100	3	<100	3	<50	<0.10
Cadmium (Cd)	µg/L	*<0.2*	*<0.05*	*<0.1*	-	**0.2**	*<0.05*	-	*<0.05*	<0.010	<0.010	0.011	*<0.05*	<0.010	*<0.05*	<0.010	<0.010
Calcium (Ca)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium (Cs)	µg/L	-	-	<0.1	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-
Chromium (Cr)	µg/L	*<15*	<0.06	*<2*	-	0.19	<0.06	-	<0.06	*<1.0*	*<1.0*	*<1.0*	<0.06	*<1.0*	<0.06	*<1.0*	*<1.0*
Cobalt (Co)	µg/L	<15	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.30	<0.30	<0.30	<0.1	<0.30	<0.1	<0.30	<0.30
Copper (Cu)	µg/L	*<10*	1.3	0.8	-	**2**	0.8	-	1	1.4	1.7	1.2	1.5	1	0.7	1.7	<1.0
Iron (Fe)	µg/L	<30	61	31	-	20	5	-	14	-	-	31	23	38	17	-	<30
Lead (Pb)	µg/L	*<1*	<0.05	<0.2	-	<0.05	<0.05	-	<0.05	<0.50	<0.50	<0.50	<0.05	<0.50	0.05	<0.50	<0.50
Lithium (Li)	µg/L	-	-	<0.1	-	0.7	0.7	-	-	<5.0	<5.0	<5.0	-	<5.0	-	<5.0	<5.0
Magnesium (Mg)	µg/L	-	-	-	-	-	-	-	-	-	-	1060	-	1160	-	-	1010
Manganese (Mn)	µg/L	<5	3.4	2.5	-	<0.1	0.3	-	2.1	1.1	2.2	3.62	2.9	4.64	2.1	1.6	2.86
Mercury (Hg)	µg/L	*<0.05*	<0.02	<0.01	-	<0.01	<0.02	-	<0.02	<0.020	<0.020	<0.020	<0.02	<0.020	<0.02	<0.020	<0.020
Molybdenum (Mo)	µg/L	<30	0.13	0.1	-	0.12	0.07	-	<0.06	<1.0	<1.0	<1.0	0.07	<1.0	<0.06	<1.0	<1.0
Nickel (Ni)	µg/L	<20	0.73	0.6	-	<0.1	0.27	-	5.4	<1.0	<1.0	<1.0	0.5	<1.0	5.3	<1.0	<1.0
Potassium (K)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium (Rb)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (Se)	µg/L	<0.5	0.1	*<10*	-	<0.1	<0.1	-	<0.1	*<1.0*	*<1.0*	*<1.0*	<0.1	*<1.0*	<0.1	*<1.0*	*<1.0*
Silicon (Si)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (Ag)	µg/L	*<15*	*<0.1*	*<0.1*	-	*<0.1*	*<0.1*	-	*<0.1*	<0.020	<0.020	<0.020	*<0.1*	<0.020	*<0.1*	<0.020	<0.020
Sodium (Na)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (Sr)	µg/L	-	34.1	21.1	-	33.6	<0.1	-	24.6	44.3	44.9	-	25.3	-	24.3	45.8	-
Thallium (Tl)	µg/L	-	<0.03	<0.1	-	<0.05	<0.03	-	<0.03	<0.20	<0.20	<0.20	<0.03	<0.20	<0.03	<0.20	<0.20
Tin (Sn)	µg/L	<300	-	-	-	-	-	-	-	<0.50	<0.50	1.74	-	1.4	-	<0.50	0.75
Titanium (Ti)	µg/L	-	-	<0.1	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-
Uranium (U)	µg/L	-	<0.05	<0.1	-	<0.05	<0.05	-	<0.05	<0.20	<0.20	<0.20	<0.05	<0.20	<0.05	<0.20	<0.20
Vanadium (V)	µg/L	-	0.1	<0.1	-	<0.1	0.21	-	0.1	<1.0	<1.0	<1.0	0.11	<1.0	0.09	<1.0	<1.0
Zinc (Zn)	µg/L	<5	<0.8	<5	-	7	<0.8	-	<0.8	<5.0	11.2	<5.0	<0.8	<5.0	<0.8	5.4	<5.0

Appendix B3-1: Water Quality in Meliadine Lake, Meliadine Gold Project, 1995 to 2009

Waterbody	Units	DI4		ML-E							ML-A		BOOT-1		BOOT-2		
Date Sampled		20-Jul-95	20-Jul-08	19-Jul-97	17-Aug-97	25-Apr-98	17-Jul-98	4-Sep-98	17-Jul-08	28-Apr-09	29-Apr-09	28-Jul-09	15-Jul-08	28-Jul-09	16-Jul-08	28-Apr-09	28-Jul-09
GPS Coordinates (NAD83, Zone 15V) [a]		-	0548241, 6983893	0542923, 6988975	0542985, 6988903	0543253, 6988595	0543253, 6988595	0543356, 6988921	0543184, 6987869	0543184, 6987869	0544654, 6986157	0544655, 6986144	0541166, 6989336	0541160, 6989334	0542070, 6989338	0542070, 6989338	0542025, 6989302
Source [b]		Dillon 1995	Golder	RL&L 1998	RL&L 1998	RL&L 1999	RL&L 1999	RL&L 1999	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder
Dissolved Metals																	
Aluminum (Al)	µg/L	-	2.4	-	-	-	-	-	1.8	<5.0	<5.0	<5.0	1.7	<5.0	2.1	<5.0	<5.0
Antimony (Sb)	µg/L	-	<0.03	-	-	-	-	-	<0.03	<0.50	<0.50	<0.50	<0.03	<0.50	<0.03	<0.50	<0.50
Arsenic (As)	µg/L	-	0.77	-	-	-	-	-	0.25	<0.5	<0.5	<0.50	0.26	0.71	0.26	<0.5	0.67
Barium (Ba)	µg/L	-	6.34	-	-	-	-	-	6.15	-	-	<20	5.81	<20	6.11	-	<20
Beryllium (Be)	µg/L	-	<0.2	-	-	-	-	-	<0.2	<1.0	<1.0	<1.0	<0.2	<1.0	<0.2	<1.0	<1.0
Bismuth (Bi)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (B)	µg/L	-	4	-	-	-	-	-	3	-	-	<100	3	<100	4	-	<100
Cadmium (Cd)	µg/L	-	<0.05	-	-	-	-	-	<0.05	<0.010	<0.010	<0.010	<0.05	<0.010	<0.05	<0.010	<0.010
Calcium (Ca)	µg/L	-	6380	-	-	-	-	-	498	9490	9330	6000	519	7000	501	9930	5760
Chromium (Cr)	µg/L	-	<0.06	-	-	-	-	-	<0.06	1.3	1	<1	<0.06	<1	0.08	1.6	<1
Cobalt (Co)	µg/L	-	<0.1	-	-	-	-	-	<0.1	<0.30	<0.30	<0.30	<0.1	<0.30	<0.1	<0.30	<0.30
Copper (Cu)	µg/L	-	1	-	-	-	-	-	0.9	1.5	1.4	<1	1	1.1	2.3	1.4	1.1
Iron (Fe)	µg/L	-	25	-	-	-	-	-	7	-	-	<30	10	<30	8	-	<30
Lead (Pb)	µg/L	-	<0.05	-	-	-	-	-	0.09	<0.50	<0.50	<0.5	<0.05	<0.5	0.49	<0.50	<0.5
Lithium (Li)	µg/L	-	-	-	-	-	-	-	-	<5.0	<5.0	<5.0	-	<5.0	-	<5.0	<5.0
Magnesium (Mg)	µg/L	-	-	-	-	-	-	-	805	1540	1510	1000	817	1000	817	1640	940
Manganese (Mn)	µg/L	-	3.4	-	-	-	-	-	1.4	1	1.38	0.38	2.2	1.15	1.8	1.67	0.6
Mercury (Hg)	µg/L	-	<0.02	-	-	-	-	-	<0.02	<0.020	<0.020	<0.020	<0.02	<0.020	<0.02	<0.020	<0.020
Molybdenum (Mo)	µg/L	-	0.13	-	-	-	-	-	0.06	<1.0	<1.0	<1.0	<0.06	<1.0	0.07	<1.0	<1.0
Nickel (Ni)	µg/L	-	0.72	-	-	-	-	-	0.54	<1.0	<1.0	<1.0	0.51	<1.0	0.79	<1.0	<1.0
Potassium (K)	µg/L	-	-	-	-	-	-	-	670	1380	1280	1000	690	1000	750	1480	710
Selenium (Se)	µg/L	-	0.1	-	-	-	-	-	<0.1	<1.0	<1.0	<1.0	<0.1	<1.0	<0.1	<1.0	<1.0
Silver (Ag)	µg/L	-	<0.1	-	-	-	-	-	<0.1	<0.020	<0.020	<0.020	<0.1	<0.020	<0.1	<0.020	<0.020
Sodium (Na)	µg/L	-	-	-	-	-	-	-	3190	6600	6300	3700	3390	4000	3340	7000	3500
Strontium (Sr)	µg/L	-	34.1	-	-	-	-	-	24.9	-	-	-	26	-	25.1	-	-
Thallium (Tl)	µg/L	-	<0.03	-	-	-	-	-	<0.03	<0.20	<0.20	<0.20	<0.03	<0.20	<0.03	<0.20	<0.20
Tin (Sn)	µg/L	-	-	-	-	-	-	-	-	<0.50	<0.50	1.11	-	1.3	-	<0.50	0.73
Titanium (Ti)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium (U)	µg/L	-	<0.05	-	-	-	-	-	<0.05	<0.20	<0.20	<0.20	<0.05	<0.20	<0.05	<0.20	<0.20
Vanadium (V)	µg/L	-	0.12	-	-	-	-	-	0.09	<1.0	<1.0	<1.0	0.09	<1.0	<0.05	<1.0	<1.0
Zinc (Zn)	µg/L	-	<0.8	-	-	-	-	-	1.5	-	-	<5	<0.8	<5	11.7	-	<5
Organic Compounds																	
Oil and Grease	µg/L	-	-	-	-	-	-	-	-	-	-	-	<500	-	<500	-	-
Phenols	µg/L	-	-	2	-	<1	2	-	-	-	-	-	1	-	2	-	-
Benzene	µg/L	-	-	<0.5	-	-	<0.5	-	-	-	-	-	<0.50	-	<0.50	-	-
Ethylbenzene	µg/L	-	-	<0.5	-	-	<0.5	-	-	-	-	-	<0.50	-	<0.50	-	-
Toluene	µg/L	-	-	<0.5	-	-	<0.5	-	-	-	-	-	0.59	-	0.59	-	-
Xylenes	µg/L	-	-	<0.5	-	-	<0.5	-	-	-	-	-	<0.50	-	<0.50	-	-
F1 (C6-C10)	µg/L	-	-	-	-	-	-	-	-	-	-	-	<100	-	<100	-	-
F1 -BTEX	µg/L	-	-	-	-	-	-	-	-	-	-	-	<100	-	<100	-	-
F2 (>C10-C16)	µg/L	-	-	-	-	-	-	-	-	-	-	-	<50	-	<50	-	-
F3 (C16-C34)	µg/L	-	-	-	-	-	-	-	-	-	-	-	<50	-	<50	-	-
F4 (C34-C50)	µg/L	-	-	-	-	-	-	-	-	-	-	-	<50	-	<50	-	-
Total Volatiles	µg/L	-	-	<100	-	-	<100	-	-	-	-	-	-	-	-	-	-
Total Extractables	µg/L	-	-	<50	-	-	<50	-	-	-	-	-	-	-	-	-	-
Other																	
Biological Oxygen Demand (BOD)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fecal Coliforms	CFU/100 mL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

a = GPS coordinates from RL&L 1998, 1999, 2000, 2001 were converted from NAD27.
b = Data were obtained from the following sources: 1994 to 1995 = Dillon (1994 and 1995); 1997 to 2000 = RL&L (1998, 1999, 2000, 2001); 2007 = Comaplex Minerals
c = Samples for chlorophyll a were composite samples collected over the euphotic zone, as identified from Secchi depth.
(-) = No data available

Appendix B3-1: Water Quality in Meliadine Lake, Meliadine Gold Project, 1995 to 2009

Waterbody	Units	ML-W					ML-S						ML-SE					
Date Sampled		20-Jul-97	16-Aug-97	24-Apr-98	27-Jul-98	19-Jul-08	20-Jul-97	20-Jul-97	16-Aug-97	27-Apr-98	25-Jul-98	1-Sep-98	26-Apr-98	22-Jul-98	19-Jul-99	19-Jul-00	18-Jul-08	28-Apr-09
GPS Coordinates (NAD83, Zone 15V) [a]		0524236, 7001213	0524276, 7001212	0524265, 7001352	0525702, 7001081	0525618, 7000852	0532262, 6989609	0532262, 6989609	0532265, 6989458	0532241, 6989347	0533454, 6988574	0533982, 6987831	0535954, 6986565	0535788, 6986614	0535782, 6986611	0535918, 6986790	0535824, 6986364	0535824, 6986364
Source [b]		RL&L 1998	RL&L 1998	RL&L 1999	RL&L 1999	Golder	RL&L 1998	RL&L 1998	RL&L 1998	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 2000	RL&L 2001	Golder	Golder
Field Measurements																		
Water Temperature	°C	14.3	13.3	0.3	12.7	11	14.6	14.6	12.8	0	12.9	-	0	11.2	11.4	13.4	14.51	0.28
Dissolved Oxygen	mg/L	9.9	11.2	19.4	11	15.07	10.2	10.2	11.5	19.6	12	-	15.9	13.7	11.3	-	12.3	12.41
pH	pH	7.24	7.10	6.68	-	6.78	7.14	7.14	6.97	6.79	7.05	-	6.75	-	7.25	7.62	-	**5.5**
Specific Conductivity	µS/cm	51.4	52.5	68.3	51.8	58	58.4	58.4	55.5	104.9	57.6	-	170.4	69.4	85.3	76.5	69	138
Secchi Disk Depth	m	7.9	8.5	-	6.5	5.5	6.3	6.3	6.2	-	5.2	4.1	-	3.0	2.6	2.8	1.5	-
Ice Depth	m	-	-	2.3	-	-	-	-	-	1.8	-	-	1.8	-	-	-	-	1.72
Total Lake Depth	m	8.1	8.5	4.2	6.5	5.5	6.3	6.3	6.2	5.0	5.8	-	3.0	3.0	3.1	2.8	3	3.14
Conventional Parameters (Laboratory-Measured)																		
pH	pH	7.26	-	6.9	7.4	7.5	7.31	7.3	-	7.1	7.5	-	6.7	7.4	7.2	7.3	7.6	7.67
Specific Conductivity	µS/cm	42.1	-	82.8	51.9	61.3	48.4	47.6	-	83.4	56.2	-	156	66.4	76	72	75.5	151
Total Dissolved Solids	mg/L	28	-	38	24	40	26	29	-	37	26	-	91	32	22	35	51	-
Total Dissolved Solids (Calculated)	mg/L	-	-	-	-	27	-	-	-	-	-	-	-	-	-	-	37	78.5
Total Alkalinity	mg $CaCO_3$/L	12.6	-	23	14	13	15.3	15.1	-	23	16	-	50	21	24	23	23	46.8
Total Hardness	mg $CaCO_3$/L	13.6	-	24	17	17	16.1	15.9	-	24	19	-	49	24	27	25	25	53.6
Total Suspended Solids	mg/L	<3	-	8	<2	<3	<3	<3	-	<2	2	-	3	7	3	<3	<3	<3.0
Total Volatile Solids	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26
Turbidity	NTU	0.4	-	<0.1	0.2	-	0.4	0.3	-	0.1	0.3	-	0.1	0.3	0.43	0.2	-	-
Major Ions																		
Bicarbonate	mg/L	12.6	-	28	18	16	15.3	15.1	-	27	20	-	31	25	30	28	28	57.1
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	mg/L	4.36	-	7.61	5.42	5.13	5.24	5.15	-	7.65	6.22	-	16.2	8.12	8.96	8.6	7.54	16.8
Carbonate	mg/L	<0.3	-	<1	<1	<5	<0.3	<0.3	-	<1	<1	-	<1	<1	<1	<5	<5	<5.0
Chloride	mg/L	3.8	-	6.6	3.81	5	4.1	4.08	-	6.42	4.2	-	25.2	4.72	4.91	4	6	14.2
Fluoride	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydroxide	mg/L	-	-	<1	<1	<5	-	-	-	<1	<1	-	<1	<1	<1	<5	<5	<5.0
Magnesium	mg/L	0.66	-	1.26	0.74	0.775	0.73	0.73	-	1.12	0.82	-	2.12	0.82	1.12	0.974	0.922	2.36
Potassium	mg/L	0.642	-	1.24	0.77	0.7	0.668	0.668	-	1.08	0.83	-	1.87	0.89	0.92	0.83	0.76	1.8
Reactive Silica (as SiO_2)	mg/L	0.196	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silicate (SiO_2)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	mg/L	2.26	-	4.6	2.7	2.96	2.44	2.4	-	4.1	2.9	-	7.1	1.7	3.3	2.67	3.14	7.51
Sulphate	mg/L	<3	-	2.9	1.66	2.9	<3	<3	-	2.85	1.67	-	8.91	1.67	2.67	2.73	2.8	5.93
Ion Balance	%	20.2	-	102	107	Low EC	16.8	10	-	100	109	-	96	108	103	99.8	Low EC	102
Organic/Inorganic Carbon																		
Total Carbon	mg/L	5	-	10	6.3	5	6	6	-	9	6.4	-	19	8.1	9.7	8.6	8	-
Total Organic Carbon	mg/L	2.1	-	3.9	3.3	3	2.1	2.2	-	4.9	2.7	-	5.2	3.1	3.9	3.6	4	-
Dissolved Organic Carbon	mg/L	-	-	-	-	2.9	-	-	-	-	-	-	-	-	-	-	3.2	-
Total Inorganic Carbon	mg/L	3	-	5.9	3.1	-	4	4	-	5.6	3.8	-	13.8	5	5.8	5	-	-
Total Inorganic Carbon (Calculated)	mg/L	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	4	-
Nutrients and Chlorophyll *a*																		
Total Ammonia as Nitrogen	mg/L	0.004	-	0.04	<0.005	<0.05	0.003	0.002	-	0.008	0.008	-	0.052	0.009	<0.005	<0.005	<0.05	<0.050
Nitrate as Nitrogen	mg/L	<0.008	-	<0.006	<0.006	<0.1	<0.008	<0.008	-	<0.006	<0.006	-	<0.006	<0.006	<0.006	<0.006	<0.1	<0.050
Nitrite as Nitrogen	mg/L	-	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	<0.05	<0.050
Nitrate+Nitrite as Nitrogen	mg/L	<0.008	-	<0.006	<0.006	<0.1	<0.008	<0.008	-	<0.006	<0.006	-	<0.006	<0.006	<0.006	<0.006	<0.1	<0.071
Total Kjeldahl Nitrogen	mg/L	0.15	-	0.23	0.26	<0.2	0.17	0.19	-	0.19	0.28	-	0.34	0.31	0.24	0.14	<0.2	0.94
Phosphorus, Total	mg/L	0.033	-	0.003	0.008	0.004	0.01	0.01	-	0.004	0.004	-	0.004	0.006	0.004	0.012	0.006	0.0053
Phosphorus, Total Dissolved	mg/L	0.008	-	0.003	0.005	0.002	0.008	0.008	-	0.003	0.004	-	0.004	0.006	0.002	0.012	0.003	0.0054
Orthophosphate (PO_4-P)	mg/L	0.002	-	<0.001	<0.001	<0.001	0.002	0.003	-	<0.001	<0.001	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0010
Chlorophyll *a*	µg/L	0.06 [c]	0.25 [c]	-	0.47 [c]	<1	0.43 [c]	-	0.33 [c]	-	0.63 [c]	2.43 [c]	-	0.83 [c]	0.94	0.8	<1	-

Appendix B3-1: Water Quality in Meliadine Lake, Meliadine Gold Project, 1995 to 2009

Waterbody	Units	ML-W					ML-S						ML-SE					
Date Sampled		20-Jul-97	16-Aug-97	24-Apr-98	27-Jul-98	19-Jul-08	20-Jul-97	20-Jul-97	16-Aug-97	27-Apr-98	25-Jul-98	1-Sep-98	26-Apr-98	22-Jul-98	19-Jul-99	19-Jul-00	18-Jul-08	28-Apr-09
GPS Coordinates (NAD83, Zone 15V) [a]		0524236, 7001213	0524276, 7001212	0524265, 7001352	0525702, 7001081	0525618, 7000852	0532262, 6989609	0532262, 6989609	0532265, 6989458	0532241, 6989347	0533454, 6988574	0533982, 6987831	0535954, 6986565	0535788, 6986614	0535782, 6986611	0535918, 6986790	0535824, 6986364	0535824, 6986364
Source [b]		RL&L 1998	RL&L 1998	RL&L 1999	RL&L 1999	Golder	RL&L 1998	RL&L 1998	RL&L 1998	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 2000	RL&L 2001	Golder	Golder
Cyanides																		
Cyanide, Total	µg/L	-	-	<1	<1	<2	-	-	-	<1	<1	-	<1	<1	<2	3	<2	<2.0
Total Metals																		
Aluminum (Al)	µg/L	0.8	-	4.6	1	1.6	0.6	1.5	-	<0.3	1.6	-	2.3	0.7	2.3	2	2.9	*<5.0*
Antimony (Sb)	µg/L	0.3	-	<0.03	0.1	<0.03	0.1	0.3	-	0.04	0.23	-	<0.03	0.11	<0.03	0.06	<0.03	<0.20
Arsenic (As)	µg/L	<0.3	-	0.13	0.16	0.17	<0.3	<0.3	-	0.33	0.27	-	0.43	0.43	0.52	0.22	0.38	0.54
Barium (Ba)	µg/L	5.8	-	10.8	7.05	6.59	5.9	5.7	-	9.8	7.22	-	17.7	7.56	8.49	9.25	7.35	17.1
Beryllium (Be)	µg/L	<0.1	-	<0.2	<0.2	<0.2	<0.1	<0.1	-	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0
Bismuth (Bi)	µg/L	<0.1	-	<0.05	<0.03	-	<0.1	<0.1	-	<0.05	<0.03	-	<0.05	<0.03	<0.03	-	-	<1.0
Boron (B)	µg/L	-	-	-	-	3	-	-	-	-	-	-	-	-	-	3	3	<50
Cadmium (Cd)	µg/L	*<0.1*	-	*<0.1*	**0.05**	*<0.05*	*<0.1*	*<0.1*	-	*<0.1*	**4.75**	-	*<0.1*	**3.55**	*<0.02*	**0.35**	*<0.05*	<0.010
Calcium (Ca)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium (Cs)	µg/L	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	-	-	-
Chromium (Cr)	µg/L	*<2*	-	0.38	0.18	<0.06	*<2*	*<2*	-	<0.06	**1.44**	-	0.31	**2.15**	0.53	**1.41**	<0.06	*<1.0*
Cobalt (Co)	µg/L	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.30
Copper (Cu)	µg/L	1.6	-	**3.1**	0.8	0.7	1.1	0.9	-	1.4	1.1	-	**3.1**	0.8	1	1.7	1.8	1.6
Iron (Fe)	µg/L	<12	-	30	8	6	26	19	-	<10	<5	-	20	*<5*	34	85	33	-
Lead (Pb)	µg/L	0.2	-	<0.05	<0.05	0.16	<0.2	<0.2	-	<0.05	0.09	-	<0.05	<0.05	0.18	0.71	<0.05	<0.50
Lithium (Li)	µg/L	<0.1	-	0.7	<0.1	-	<0.1	0.2	-	1.5	<0.1	-	1.1	<0.1	0.6	-	-	<5.0
Magnesium (Mg)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese (Mn)	µg/L	1.9	-	0.5	1.4	1.3	2.9	2.8	-	1.1	2.8	-	0.8	1	7.1	6.7	3.3	1.78
Mercury (Hg)	µg/L	<0.01	-	<0.01	<0.02	<0.02	<0.01	<0.01	-	<0.01	<0.02	-	<0.01	<0.02	<0.02	<0.02	<0.02	<0.020
Molybdenum (Mo)	µg/L	<0.1	-	0.12	0.07	0.06	0.1	0.1	-	0.14	0.08	-	0.22	0.13	0.15	0.11	0.1	<1.0
Nickel (Ni)	µg/L	0.7	-	0.1	0.59	3.5	0.6	0.5	-	0.2	0.63	-	0.5	0.65	0.71	0.69	2.5	<1.0
Potassium (K)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium (Rb)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (Se)	µg/L	*<10*	-	<0.1	<0.1	<0.1	*<10*	*<10*	-	<0.1	<0.1	-	0.1	<0.1	0.1	0.1	<0.1	*<1.0*
Silicon (Si)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (Ag)	µg/L	*<0.1*	-	*<0.1*	*<0.1*	*<0.1*	*<0.1*	*<0.1*	-	*<0.1*	*<0.1*	-	*<0.1*	*<0.1*	*<0.1*	*<0.1*	*<0.1*	<0.020
Sodium (Na)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (Sr)	µg/L	20.5	-	37.1	25.8	25.6	22.5	23	-	33.7	27.8	-	64.1	32.9	36.1	33.5	31.9	72.9
Thallium (Tl)	µg/L	<0.1	-	<0.05	<0.03	<0.03	<0.1	<0.1	-	<0.05	<0.03	-	<0.05	<0.03	<0.03	-	<0.03	<0.20
Tin (Sn)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.50
Titanium (Ti)	µg/L	0.6	-	<0.1	<0.1	-	<0.1	0.3	-	<0.1	<0.1	-	<0.1	<0.1	0.2	-	-	-
Uranium (U)	µg/L	<0.1	-	<0.05	<0.05	<0.05	<0.1	<0.1	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	0.026
Vanadium (V)	µg/L	<0.1	-	<0.1	<0.05	0.1	<0.1	<0.1	-	<0.1	0.07	-	<0.1	0.08	0.06	0.42	0.12	<1.0
Zinc (Zn)	µg/L	6.4	-	7	0.8	<0.8	6.5	14.7	-	<0.8	3.3	-	5	<0.8	2.5	**37.2**	<0.8	5.7

Appendix B3-1: Water Quality in Meliadine Lake, Meliadine Gold Project, 1995 to 2009

Waterbody	Units	ML-W					ML-S						ML-SE					
Date Sampled		20-Jul-97	16-Aug-97	24-Apr-98	27-Jul-98	19-Jul-08	20-Jul-97	20-Jul-97	16-Aug-97	27-Apr-98	25-Jul-98	1-Sep-98	26-Apr-98	22-Jul-98	19-Jul-99	19-Jul-00	18-Jul-08	28-Apr-09
GPS Coordinates (NAD83, Zone 15V) [a]		0524236, 7001213	0524276, 7001212	0524265, 7001352	0525702, 7001081	0525618, 7000852	0532262, 6989609	0532262, 6989609	0532265, 6989458	0532241, 6989347	0533454, 6988574	0533982, 6987831	0535954, 6986565	0535788, 6986614	0535782, 6986611	0535918, 6986790	0535824, 6986364	0535824, 6986364
Source [b]		RL&L 1998	RL&L 1998	RL&L 1999	RL&L 1999	Golder	RL&L 1998	RL&L 1998	RL&L 1998	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 2000	RL&L 2001	Golder	Golder
Dissolved Metals																		
Aluminum (Al)	µg/L	-	-	-	-	1.7	-	-	-	-	-	-	-	-	-	-	1.5	7.7
Antimony (Sb)	µg/L	-	-	-	-	<0.03	-	-	-	-	-	-	-	-	-	-	<0.03	<0.50
Arsenic (As)	µg/L	-	-	-	-	0.16	-	-	-	-	-	-	-	-	-	-	0.36	0.54
Barium (Ba)	µg/L	-	-	-	-	6.62	-	-	-	-	-	-	-	-	-	-	7.28	-
Beryllium (Be)	µg/L	-	-	-	-	<0.2	-	-	-	-	-	-	-	-	-	-	<0.2	<1.0
Bismuth (Bi)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (B)	µg/L	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	3	-
Cadmium (Cd)	µg/L	-	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	<0.05	0.011
Calcium (Ca)	µg/L	-	-	-	-	524	-	-	-	-	-	-	-	-	-	-	768	17800
Chromium (Cr)	µg/L	-	-	-	-	<0.06	-	-	-	-	-	-	-	-	-	-	<0.06	1.8
Cobalt (Co)	µg/L	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	<0.1	<0.30
Copper (Cu)	µg/L	-	-	-	-	0.8	-	-	-	-	-	-	-	-	-	-	0.7	1.4
Iron (Fe)	µg/L	-	-	-	-	<5	-	-	-	-	-	-	-	-	-	-	12	-
Lead (Pb)	µg/L	-	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	0.07	<0.50
Lithium (Li)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5.0
Magnesium (Mg)	µg/L	-	-	-	-	787	-	-	-	-	-	-	-	-	-	-	936	2230
Manganese (Mn)	µg/L	-	-	-	-	0.8	-	-	-	-	-	-	-	-	-	-	0.9	1.55
Mercury (Hg)	µg/L	-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	<0.02	<0.020
Molybdenum (Mo)	µg/L	-	-	-	-	0.06	-	-	-	-	-	-	-	-	-	-	0.1	<1.0
Nickel (Ni)	µg/L	-	-	-	-	0.36	-	-	-	-	-	-	-	-	-	-	0.3	<1.0
Potassium (K)	µg/L	-	-	-	-	720	-	-	-	-	-	-	-	-	-	-	760	1930
Selenium (Se)	µg/L	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	<0.1	<1.0
Silver (Ag)	µg/L	-	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	<0.1	<0.020
Sodium (Na)	µg/L	-	-	-	-	3070	-	-	-	-	-	-	-	-	-	-	3160	8300
Strontium (Sr)	µg/L	-	-	-	-	25.5	-	-	-	-	-	-	-	-	-	-	32.2	-
Thallium (Tl)	µg/L	-	-	-	-	<0.03	-	-	-	-	-	-	-	-	-	-	<0.03	<0.20
Tin (Sn)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.50
Titanium (Ti)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium (U)	µg/L	-	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	<0.05	<0.20
Vanadium (V)	µg/L	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	0.13	<1.0
Zinc (Zn)	µg/L	-	-	-	-	<0.8	-	-	-	-	-	-	-	-	-	-	0.9	-
Organic Compounds																		
Oil and Grease	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols	µg/L	<2	-	<1	<1	-	<2	<2	-	<1	2	-	<1	1	1	<1	-	-
Benzene	µg/L	<0.5	-	-	<0.5	-	<0.5	<0.5	-	-	<0.5	-	-	<0.5	-	<0.5	-	-
Ethylbenzene	µg/L	<0.5	-	-	<0.5	-	<0.5	<0.5	-	-	<0.5	-	-	<0.5	-	<0.5	-	-
Toluene	µg/L	<0.5	-	-	<0.5	-	<0.5	<0.5	-	-	<0.5	-	-	<0.5	-	<0.5	-	-
Xylenes	µg/L	<0.5	-	-	<0.5	-	<0.5	<0.5	-	-	<0.5	-	-	<0.5	-	<0.5	-	-
F1 (C6-C10)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F1 -BTEX	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F2 (>C10-C16)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F3 (C16-C34)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F4 (C34-C50)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Volatiles	µg/L	<100	-	-	<100	-	<100	<100	-	-	<100	-	-	<100	-	<100	-	-
Total Extractables	µg/L	190	-	-	<50	-	64	83	-	-	<50	-	-	<50	-	<50	-	-
Other																		
Biological Oxygen Demand (BOD)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fecal Coliforms	CFU/100 mL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
Bold values are equal to or greater than the Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2007, CWQG).
Underlined values are equal to or greater than the Guidelines for Canadian Drinking Water Quality (Health Canada 2007, GCDWQ).
Italicized values indicate the detection limit equals or exceeds either guideline.
°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; µg/L = micrograms per litre; NTU = nephelometric turbidity units.

Golder Associates

Appendix B3-2: Water Quality in Lakes and Ponds of the Peninsula Basin A, Meliadine Gold Project, 1994 to 2009

Waterbody	Units	A1		A5	A6									
Date Sampled		11-Aug-94	23-Aug-97	11-Aug-94	11-Aug-94	23-Jul-97	17-Aug-97	25-Apr-98	24-Jul-98	18-Jul-99	18-Jul-99 (dup)	18-Jul-00	29-Apr-09	29-Jul-09
GPS Coordinates (NAD83, Zone 15V) [a]		- [c]	0544358, 6985624	- [d]	- [e]	0541759, 6985876	541798, 6985780	0541998, 6986004	0541759, 6985876	0541762, 6986081	0541762, 6986081	542003, 6985975	0541777, 6985645	0541779, 5985647
Source [b]		Dillon 1994	RL&L 1998	Dillon 1994	Dillon 1994	RL&L 1998	RL&L 1998	RL&L 1999	RL&L 1999	RL&L 2000	RL&L 2000	RL&L 2001	Golder	Golder
Field Measurements														
Water Temperature	°C	9.1	14.8	9.3	9	18.7	15.3	0.9	14.4	9.8	9.8	13.6	0.52	14.78
Dissolved Oxygen	mg/L	-	9.8	-	-	10.3	11.5	**2.9**	12.9	11.2	11.2	-	**2.82**	8.18
pH	pH	7.12	8.09	7.17	7.09	7.85	7.86	6.83	7.37	6.56	6.56	8.01	6.76	7.45
Specific Conductivity	µS/cm	-	150.3	-	-	92.8	101.9	300	84.8	110.7	110.7	98.3	394.4	115
Secchi Disk Depth	m	-	1.8	-	-	2.5	2.5	-	3.8	2.5	2.5	4.0	-	3.1
Ice Depth	m	-	-	-	-	-	-	1.7	-	-	-	-	1.66	-
Total Lake Depth	m	-	1.8	-	-	2.5	2.5	3.8	3.8	4.0	4.0	4.0	4.16	3.1
Conventional Parameters (Laboratory-Measured)														
pH	pH	7.14	-	7.51	7.55	7.64	-	6.9	7.7	7.3	7.4	7.5	7.87	7.82
Specific Conductivity	µS/cm	53.4	-	114	54	79.2	-	328	80.8	96.4	95.5	93.7	412	114
Total Dissolved Solids	mg/L	31	-	67	33	50	-	165	37	26	27	45	-	72
Total Dissolved Solids (Calculated)	mg/L	-	-	-	-	-	-	-	-	-	-	-	223	57
Total Alkalinity	mg $CaCO_3$/L	16.4	-	33.2	21.7	32.9	-	137	30	33	32	32	145	34.7
Total Hardness	mg $CaCO_3$/L	19.2	-	45.9	23.4	32.2	-	137	30	38	39	36	181	49.3
Total Suspended Solids	mg/L	1	-	< 1	4	<3	-	<2	<2	5	<3	<3	<3.0	<3.0
Total Volatile Solids	mg/L	-	-	-	-	-	-	-	-	-	-	-	76	64
Turbidity	NTU	0.63	-	0.69	0.51	0.5	-	0.9	0.4	0.38	0.36	0.31	-	-
Major Ions														
Bicarbonate	mg/L	-	-	-	-	32.9	-	167	37	40	40	38	176	42.4
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	mg/L	6.29	-	15.4	7.83	10.7	-	45.5	10	12.7	13	12.6	55.3	15.5
Carbonate	mg/L		-	-	-	<0.3	-	<1	<1	<1	<1	<5	<5.0	<5.0
Chloride	mg/L	4.4	-	12.1	2	3.47	-	14.6	3.69	5.67	5.64	6	40.3	11.5
Fluoride	mg/L	0.05	-	0.05	0.04	-	-	-	-	-	-	-	-	-
Hydroxide	mg/L	-	-	-	-	-	-	<1	<1	<1	<1	<5	<5.0	<5.0
Magnesium	mg/L	0.842	-	1.77	0.942	1.34	-	5.65	1.15	1.55	1.64	1.49	6.93	1.9
Potassium	mg/L	0.71	-	0.78	0.49	0.679	-	2.73	0.68	0.78	0.81	0.787	2.98	<2.0
Reactive Silica (as SiO_2)	mg/L	-	-	-	-	0.816	-	7.3	0.7	0.8	0.7	0.4	-	-
Silicate (SiO_2)	mg/L	< 1.0	-	1.2	<1.0	-	-	-	-	-	-	-	-	-
Sodium	mg/L	2.39	-	1.99	1.11	1.89	-	8.2	1.7	2.1	2.2	2	10.2	3.1
Sulphate	mg/L	1.5	-	3.7	2.3	<3	-	5.66	1.75	3.24	3.21	3.1	12.7	2.69
Ion Balance	%	-	-	-	-	7.8	-	96	92	99	102	95.6	98.6	104
Organic/Inorganic Carbon														
Total Carbon	mg/L	-	-	-	-	19	-	44	11.3	12.2	12.1	10.8	-	11.1
Total Organic Carbon	mg/L	-	-	-	-	4	-	9	4.1	4.7	4.7	4	-	3.8
Dissolved Organic Carbon	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	4.1
Total Inorganic Carbon	mg/L	-	-	-	-	15	-	33.6	7.1	7.5	7.4	6.8	-	8.5
Total Inorganic Carbon (Calculated)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients and Chlorophyll *a*														
Total Ammonia as Nitrogen	mg/L	-	-	-	-	0.013	-	0.244	0.008	<0.005	<0.005	<0.005	0.404	<0.050
Nitrate as Nitrogen	mg/L	0.005	-	<0.005	<0.005	<0.008	-	0.305	<0.006	0.009	<0.006	<0.006	0.062	<0.050
Nitrite as Nitrogen	mg/L	0.001	-	0.001	0.002	-	-	-	-	-	-	-	<0.050	<0.050
Nitrate+Nitrite as Nitrogen	mg/L	-	-	-	-	<0.008	-	0.31	<0.006	0.009	<0.006	<0.006	<0.071	<0.071
Total Kjeldahl Nitrogen	mg/L	-	-	-	-	0.23	-	0.88	0.47	0.49	0.21	0.25	1.28	0.35
Phosphorus, Total	mg/L	< 0.30	-	<0.30	<0.30	0.009	-	0.007	0.005	0.004	0.004	0.026	0.0081	0.0056
Phosphorus, Total Dissolved	mg/L	-	-	-	-	<0.002	-	0.005	0.005	0.003	0.002	0.011	0.0088	0.0015
Orthophosphate (PO_4-P)	mg/L	-	-	-	-	<0.002	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010
Chlorophyll *a*	µg/L	-	-	-	-	<0.01 [g]	1.18 [g]	-	1.08 [g]	0.51	-	0.4	-	-
Cyanides														
Cyanide, Total	µg/L	-	-	-	-	-	-	2	<1	<2	<2	2	<2	<2

Appendix B3-2: Water Quality in Lakes and Ponds of the Peninsula Basin A, Meliadine Gold Project, 1994 to 2009

Waterbody	Units	A1		A5	A6									
Date Sampled		11-Aug-94	23-Aug-97	11-Aug-94	11-Aug-94	23-Jul-97	17-Aug-97	25-Apr-98	24-Jul-98	18-Jul-99	18-Jul-99 (dup)	18-Jul-00	29-Apr-09	29-Jul-09
GPS Coordinates (NAD83, Zone 15V) [a]		- [c]	0544358, 6985624	- [d]	- [e]	0541759, 6985876	541798, 6985780	0541998, 6986004	0541759, 6985876	0541762, 6986081	0541762, 6986081	542003, 6985975	0541777, 6985645	0541779, 5985647
Source [b]		Dillon 1994	RL&L 1998	Dillon 1994	Dillon 1994	RL&L 1998	RL&L 1998	RL&L 1999	RL&L 1999	RL&L 2000	RL&L 2000	RL&L 2001	Golder	Golder
Total Metals				-	-									
Aluminum (Al)	µg/L	*<200*	-	*<200*	*<200*	<0.5	-	4.9	0.7	3.9	3.6	2.8	5.5	<5
Antimony (Sb)	µg/L	*<200*	-	*<200*	*<200*	0.3	-	<0.03	0.09	0.61	0.58	0.11	0.22	<0.50
Arsenic (As)	µg/L	0.6	-	1	1	2.1	-	1.77	1.75	2.11	2.19	1.64	2.05	1.87
Barium (Ba)	µg/L	<10	-	13	<10	7.6	-	45.1	8.41	9.77	10	11	60.2	<20
Beryllium (Be)	µg/L	<5	-	<5	<5	<0.1	-	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0
Bismuth (Bi)	µg/L	<100	-	<100	<100	<0.1	-	<0.05	<0.03	<0.03	<0.03	-	<1.0	-
Boron (B)	µg/L	<100	-	<100	<100	-	-	-	-	-	-	2	<50	<100
Cadmium (Cd)	µg/L	*<0.2*	-	*<0.2*	*<0.2*	*<0.1*	-	*<0.1*	**1.05**	*<0.02*	*<0.02*	**0.3**	0.031	0.017
Calcium (Ca)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium (Cs)	µg/L	-	-	-	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	-	-	-
Chromium (Cr)	µg/L	*<15*	-	*<15*	*<15*	*<2*	-	0.5	**2.83**	0.11	0.1	**1.9**	*<1.0*	*<1.0*
Cobalt (Co)	µg/L	<15	-	<15	<15	<0.1	-	0.6	0.1	<0.1	<0.1	<0.1	<0.30	<0.30
Copper (Cu)	µg/L	*<10*	-	*<10*	*<10*	**27.1**	-	2.8	0.9	1.3	1.2	**6.5**	3.1	<1.0
Iron (Fe)	µg/L	106	-	106	42	44	-	290	<5	69	73	143	-	70
Lead (Pb)	µg/L	*<1*	-	*<1*	*<1*	<0.2	-	<0.05	<0.05	0.09	<0.05	**2.19**	**63**	<0.50
Lithium (Li)	µg/L	<15	-	<15	<15	1.1	-	3	<0.1	1.2	1.2	-	5.7	<5.0
Magnesium (Mg)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese (Mn)	µg/L	6	-	7	<5	5.8	-	416	0.4	10.2	10.6	12	258	14.1
Mercury (Hg)	µg/L	*<0.05*	-	*<0.05*	*<0.05*	<0.01	-	<0.01	<0.02	<0.02	<0.02	<0.02	<0.020	<0.020
Molybdenum (Mo)	µg/L	<30	-	<30	<30	0.2	-	0.2	0.16	0.18	0.17	0.12	<1.0	<1.0
Nickel (Ni)	µg/L	<20	-	<20	<20	0.8	-	2.8	0.9	0.89	0.87	1.96	2.6	<1.0
Potassium (K)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium (Rb)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (Se)	µg/L	<0.5	-	<0.5	<0.5	*<10*	-	0.2	<0.1	0.1	<0.1	0.2	*<1.0*	*<1.0*
Silicon (Si)	µg/L	130	-	583	183	-	-	-	-	-	-	-	-	-
Silver (Ag)	µg/L	*<15*	-	*<15*	*<15*	*<0.1*	-	*<0.1*	*<0.1*	*<0.1*	*<0.1*	*<0.1*	<0.020	<0.020
Sodium (Na)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (Sr)	µg/L	26	-	63	30	43	-	195	47.7	49.5	50.3	49.5	245	-
Thallium (Tl)	µg/L	*<100*	-	*<100*	*<100*	<0.1	-	<0.05	<0.03	<0.03	<0.03	-	<0.20	<0.20
Tin (Sn)	µg/L	<300	-	<300	<300	-	-	-	-	-	-	-	<0.50	<0.50
Titanium (Ti)	µg/L	<10	-	<10	<10	<0.1	-	0.6	<0.1	0.3	0.2	-	-	<10
Tungsten (W)	µg/L	<100	-	<100	<100	-	-	-	-	-	-	-	-	-
Uranium (U)	µg/L	-	-	-	-	<0.1	-	0.07	<0.05	<0.05	<0.05	<0.05	<0.20	<0.20
Vanadium (V)	µg/L	<30	-	<30	<30	<0.1	-	0.1	0.07	0.06	0.07	0.62	<1.0	<1.0
Zinc (Zn)	µg/L	<5	-	<5	<5	9.7	-	5	<0.8	9.7	6.2	**31.9**	15.2	<5

Appendix B3-2: Water Quality in Lakes and Ponds of the Peninsula Basin A, Meliadine Gold Project, 1994 to 2009

Waterbody	Units	A1		A5	A6									
Date Sampled		11-Aug-94	23-Aug-97	11-Aug-94	11-Aug-94	23-Jul-97	17-Aug-97	25-Apr-98	24-Jul-98	18-Jul-99	18-Jul-99 (dup)	18-Jul-00	29-Apr-09	29-Jul-09
GPS Coordinates (NAD83, Zone 15V) [a]		- [c]	0544358, 6985624	- [d]	- [e]	0541759, 6985876	541798, 6985780	0541998, 6986004	0541759, 6985876	0541762, 6986081	0541762, 6986081	542003, 6985975	0541777, 6985645	0541779, 5985647
Source [b]		Dillon 1994	RL&L 1998	Dillon 1994	Dillon 1994	RL&L 1998	RL&L 1998	RL&L 1999	RL&L 1999	RL&L 2000	RL&L 2000	RL&L 2001	Golder	Golder
Dissolved Metals														
Aluminum (Al)	µg/L	-	-	-	-	-	-	-	-	-	-	-	<5.0	<5.0
Antimony (Sb)	µg/L	-	-	-	-	-	-	-	-	-	-	-	<0.50	<0.50
Arsenic (As)	µg/L	-	-	-	-	-	-	-	-	-	-	-	2.41	1.68
Barium (Ba)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<20.0
Beryllium (Be)	µg/L	-	-	-	-	-	-	-	-	-	-	-	<1.0	<1.0
Boron (B)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<100
Cadmium (Cd)	µg/L	-	-	-	-	-	-	-	-	-	-	-	0.015	<0.010
Calcium (Ca)	µg/L	-	-	-	-	-	-	-	-	-	-	-	61400	17100
Chromium (Cr)	µg/L	-	-	-	-	-	-	-	-	-	-	-	3	<1.0
Cobalt (Co)	µg/L	-	-	-	-	-	-	-	-	-	-	-	<0.30	<0.30
Copper (Cu)	µg/L	-	-	-	-	-	-	-	-	-	-	-	1.6	1
Iron (Fe)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<30
Lead (Pb)	µg/L	-	-	-	-	-	-	-	-	-	-	-	<0.50	<0.50
Lithium (Li)	µg/L	-	-	-	-	-	-	-	-	-	-	-	6	<5.0
Magnesium (Mg)	µg/L	-	-	-	-	-	-	-	-	-	-	-	6760	1950
Manganese (Mn)	µg/L	-	-	-	-	-	-	-	-	-	-	-	252	1.95
Mercury (Hg)	µg/L	-	-	-	-	-	-	-	-	-	-	-	<0.020	<0.020
Molybdenum (Mo)	µg/L	-	-	-	-	-	-	-	-	-	-	-	<1.0	<1.0
Nickel (Ni)	µg/L	-	-	-	-	-	-	-	-	-	-	-	2.1	<1.0
Potassium (K)	µg/L	-	-	-	-	-	-	-	-	-	-	-	3210	<200
Selenium (Se)	µg/L	-	-	-	-	-	-	-	-	-	-	-	<1.0	<1.0
Silver (Ag)	µg/L	-	-	-	-	-	-	-	-	-	-	-	<0.020	<0.020
Sodium (Na)	µg/L	-	-	-	-	-	-	-	-	-	-	-	11500	3100
Strontium (Sr)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)	µg/L	-	-	-	-	-	-	-	-	-	-	-	<0.20	<0.20
Tin (Sn)	µg/L	-	-	-	-	-	-	-	-	-	-	-	<0.50	0.81
Titanium (Ti)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<10
Tungsten (W)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium (U)	µg/L	-	-	-	-	-	-	-	-	-	-	-	<0.20	<0.20
Vanadium (V)	µg/L	-	-	-	-	-	-	-	-	-	-	-	<1.0	<1.0
Zinc (Zn)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<5
Organic Compounds														
Oil and Grease	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols	µg/L	-	-	-	-	<2	-	<1	2	2	1	<1	-	-
Benzene	µg/L	-	-	-	-	<0.5	-	-	<0.5	-	-	<0.5	-	-
Ethylbenzene	µg/L	-	-	-	-	<0.5	-	-	<0.5	-	-	<0.5	-	-
Toluene	µg/L	-	-	-	-	<0.5	-	-	<0.5	-	-	<0.5	-	-
Xylenes	µg/L	-	-	-	-	<0.5	-	-	<0.5	-	-	<0.5	-	-
F1 (C6-C10)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
F1 -BTEX	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
F2 (>C10-C16)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
F3 (C16-C34)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
F4 (C34-C50)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Volatiles	µg/L	< 1000	-	<1000	-	<100	-	-	<100	-	-	<100	-	-
Total Extractables	µg/L	< 1000	-	<1000	-	210	-	-	<50	-	-	<50	-	-
Other														
Biological Oxygen Demand (BOD)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Fecal Coliforms	CFU/100 mL	-	-	-	-	-	-	-	-	-	-	-	-	-

a = GPS coordinates from RL&L 1998, 1999, 2000, 2001 were converted from NAD27.

b = Data sources: 1994 to 1995 = Dillon (1994 and 1995); 1997 to 2000 = RL&L (1998, 1999, 2000, 2001); 2007 = Comaplex , pers. comm.; 2008 and 2009 =

c =Station PL-06 in Dillon 1994.

d = Station PL-05 in Dillon 1994.

e = Station PL-03 in Dillon 1994.

f = Station PL-01 in Dillon 1994.

g = Samples for chlorophyll *a* were composite samples collected over the euphotic zone, as idenified from Secchi depth.

Appendix B3-2: Water Quality in Lakes and Ponds of the Peninsula Basin A, Meliadine Gold Project, 1994 to 2009

Waterbody	Units	A8									Pond A9	
Date Sampled		11-Aug-94	22-Jul-97	18-Aug-97	26-Apr-98	23-Jul-98	18-Jul-07	8-Oct-07	15-Jul-08	27-Apr-09	18-Jul-07	7-Oct-07
GPS Coordinates (NAD83, Zone 15V) [a]		- [f]	0540105, 6987353	0540090, 6987327	0540084, 6987478	0540105, 6987353	0540681, 6986702	0540681, 6986702	0540181, 6987142	0540181, 6987142	0540194, 6988142	0540194, 6988142
Source [b]		Dillon 1994	RL&L 1998	RL&L 1998	RL&L 1999	RL&L 1999	Comaplex	Comaplex	Golder	Golder	Comaplex	Comaplex
Field Measurements												
Water Temperature	°C	-	17.7	14.3	0.5	12.4	17.6	0.5	14.14	0.1	21.7	0.7
Dissolved Oxygen	mg/L	-	9.9	10.9	**3.8**	13.7	-	-	11.87	**4.29**	-	-
pH	pH	7.09	8.38	7.87	7.73	7.73	8.06	7.81	7.8	**6.41**	8.6	7.79
Specific Conductivity	µS/cm	-	95.5	103.7	320	93.3	-	-	101	489	-	-
Secchi Disk Depth	m	-	3.6	3.4	-	2.8	-	-	3	-	-	-
Ice Depth	m	-	-	-	1.8	-	-	-	-	1.63	-	-
Total Lake Depth	m	-	3.6	3.4	3.0	2.8	-	-	3	2.73	-	-
Conventional Parameters (Laboratory-Measured)												
pH	pH	7.64	7.75	-	6.9	7.7	7.8	7.7	7.7	7.76	7.9	7.8
Specific Conductivity	µS/cm	59.3	76.6	-	354	85.1	106	134	117	514	759	1100
Total Dissolved Solids	mg/L	35	49	-	170	39	-	-	83	-	-	-
Total Dissolved Solids (Calculated)	mg/L	-	-	-	-	-	51	64	57	261	353	518
Total Alkalinity	mg $CaCO_3$/L	23.2	32	-	141	31	30	33	28	125	52	60
Total Hardness	mg $CaCO_3$/L	25.9	32.2	-	139	31	41	51	49	216	300	422
Total Suspended Solids	mg/L	<1	<3	-	2	4	-	<3	17	5	-	<3
Total Volatile Solids	mg/L	-	-	-	-	-			-	103	-	-
Turbidity	NTU	0.41	0.5	-	1.3	0.4	-	0.5	-	-	-	0.5
Major Ions												
Bicarbonate	mg/L	-	32	-	172	38	37	40	34	153	64	74
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-
Calcium	mg/L	8.38	10.3	-	45	10.3	13.7	16.9	15.4	66.2	95.1	140
Carbonate	mg/L	-	<0.3	-	<1	<1	<5	<5	<5	<5.0	<5	<5
Chloride	mg/L	2.2	4.26	-	17.7	4.54	12	17	16	78.4	182	282
Fluoride	mg/L	0.04	-	-	-	-	-	-	-	-	-	-
Hydroxide	mg/L	-	-	-	<1	<1	<5	<5	<5	<5.0	<5	<5
Magnesium	mg/L	-	1.58	-	6.39	1.37	1.7	2.2	1.82	9.72	11.6	17.7
Potassium	mg/L	0.53	0.709	-	2.79	0.71	0.8	1	0.92	3.62	4	4
Reactive Silica (as SiO_2)	mg/L	-	1.07	-	8.8	1	-	1.3	-	-	-	5.3
Silicate (SiO_2)	mg/L	<1.0	-	-	-	-			-	-	-	-
Sodium	mg/L	1.21	1.87	-	7.5	1.7	2	3	2.54	11.5	10	17
Sulphate	mg/L	2.0	<3	-	5.84	1.59	3.2	4.1	2.1	9.82	13.3	21.6
Ion Balance	%	-	6.8	-	92	92	91.2	96.7	107	102	101	96.5
Organic/Inorganic Carbon												
Total Carbon	mg/L	-	11	-	48	11.9	-	11	9	-	-	23
Total Organic Carbon	mg/L	-	3.6	-	10	4.6	-	-	4	-	-	-
Dissolved Organic Carbon	mg/L	-	-	-	-	-	-	-	3.6	-	-	-
Total Inorganic Carbon	mg/L	-	7	-	36.7	7.3	-	7	-	-	-	14
Total Inorganic Carbon (Calculated)	mg/L	-	-	-	-	-	-	-	5	-	-	-
Nutrients and Chlorophyll *a*												
Total Ammonia as Nitrogen	mg/L	-	0.004	-	0.448	0.007	-	<0.05	<0.05	0.212	-	<0.05
Nitrate as Nitrogen	mg/L	<0.005	<0.008	-	0.03	<0.006	<0.1	<0.1	<0.1	0.052	<0.1	<0.1
Nitrite as Nitrogen	mg/L	0.001	-	-	-	-	<0.05	<0.05	<0.05	<0.050	<0.05	<0.05
Nitrate+Nitrite as Nitrogen	mg/L	-	<0.008	-	0.03	<0.006	<0.1	<0.1	<0.1	<0.071	<0.1	<0.1
Total Kjeldahl Nitrogen	mg/L	-	0.25	-	1.21	0.4	-	0.2	0.2	1.01	-	0.3
Phosphorus, Total	mg/L	<0.30	0.004	-	0.007	0.007	-	<0.02	0.005	0.0073	-	<0.02
Phosphorus, Total Dissolved	mg/L	-	0.004	-	0.004	0.005	-	<0.02	0.003	0.0065	-	<0.02
Orthophosphate (PO_4-P)	mg/L	-	<0.002	-	0.003	<0.001	-	<0.01	<0.001	<0.0010	-	<0.01
Chlorophyll *a*	µg/L	-	0.96 [g]	0.96 [g]	-	1.50 [g]	-	-	13	-	-	-
Cyanides												
Cyanide, Total	µg/L	-	-	-	<1	<1	-	-	<2	<2	-	-

Appendix B3-2: Water Quality in Lakes and Ponds of the Peninsula Basin A, Meliadine Gold Project, 1994 to 2009

Waterbody	Units	A8									Pond A9	
Date Sampled		11-Aug-94	22-Jul-97	18-Aug-97	26-Apr-98	23-Jul-98	18-Jul-07	8-Oct-07	15-Jul-08	27-Apr-09	18-Jul-07	7-Oct-07
GPS Coordinates (NAD83, Zone 15V) [a]		- [f]	0540105, 6987353	0540090, 6987327	0540084, 6987478	0540105, 6987353	0540681, 6986702	0540681, 6986702	0540181, 6987142	0540181, 6987142	0540194, 6988142	0540194, 6988142
Source [b]		Dillon 1994	RL&L 1998	RL&L 1998	RL&L 1999	RL&L 1999	Comaplex	Comaplex	Golder	Golder	Comaplex	Comaplex
Total Metals												
Aluminum (Al)	µg/L	*<200*	<5	-	1.5	0.3	10	-	1.8	*<5.0*	10	-
Antimony (Sb)	µg/L	*<200*	0.5	-	<0.03	0.12	<0.4	-	<0.03	<0.20	<0.4	-
Arsenic (As)	µg/L	1.2	2.1	-	1.93	2.21	2.4	-	2.07	3.27	4.1	-
Barium (Ba)	µg/L	<10	9.4	-	49.6	9.58	14	-	12.8	77	99	-
Beryllium (Be)	µg/L	<5	<0.1	-	<0.2	<0.2	<1	-	<0.2	<1.0	<1	-
Bismuth (Bi)	µg/L	<100	<0.1	-	<0.05	<0.03	-	-	-	<1.0	-	-
Boron (B)	µg/L	<100	-	-	-	-	<50	-	2	<50	<50	-
Cadmium (Cd)	µg/L	*<0.2*	**0.1**	-	*<0.1*	**0.1**	*<0.2*	-	*<0.05*	<0.010	*<0.2*	-
Calcium (Ca)	µg/L	-	-	-	-	-	-	-	-	-	-	-
Cesium (Cs)	µg/L	-	<0.1	-	<0.1	<0.1	-	-	-	-	-	-
Chromium (Cr)	µg/L	*<15*	*<2*	-	0.97	**3.48**	*<5*	-	<0.06	*<4.0*	*<5*	-
Cobalt (Co)	µg/L	<15	0.1	-	0.3	0.1	<2	-	<0.1	<0.30	<2	-
Copper (Cu)	µg/L	*<10*	1.1	-	2.6	0.8	**2**	-	1.7	1.3	**4**	-
Iron (Fe)	µg/L	4.6	51	-	162	<5	160	-	72	-	179	-
Lead (Pb)	µg/L	*<1*	<0.2	-	<0.05	<0.05	0.7	-	0.06	<5.0	0.4	-
Lithium (Li)	µg/L	<15	1.6	-	3.8	<0.1	<10	-	-	13.6	40	-
Magnesium (Mg)	µg/L	-	-	-	-	-	-	-	-	-	-	-
Manganese (Mn)	µg/L	<5	3	-	189	0.7	12	-	6.9	85.5	13	-
Mercury (Hg)	µg/L	*<0.05*	<0.01	-	<0.01	<0.02	*<0.2*	-	<0.02	<0.020	**0.5**	-
Molybdenum (Mo)	µg/L	<30	0.4	-	0.31	0.22	<5	-	0.15	<1.0	<5	-
Nickel (Ni)	µg/L	<20	1	-	3.5	1.11	<2	-	0.42	2.5	5	-
Potassium (K)	µg/L	-	-	-	-	-	-	-	-	-	-	-
Rubidium (Rb)	µg/L	-	-	-	-	-	-	-	-	-	-	-
Selenium (Se)	µg/L	<0.5	*<10*	-	<0.1	<0.1	0.8	-	0.3	<0.50	**2.2**	-
Silicon (Si)	µg/L	220	-	-	-	-		-	-	-	-	-
Silver (Ag)	µg/L	*<15*	*<0.1*	-	*<0.1*	*<0.1*	*<0.4*	-	*<0.1*	<0.020	*<0.4*	-
Sodium (Na)	µg/L	-	-	-	-	-	-	-	-	-	-	-
Strontium (Sr)	µg/L	3.6	27.1	-	208	58.1	-	-	82	408	-	-
Thallium (Tl)	µg/L	*<100*	<0.1	-	<0.05	<0.03	<0.1	-	<0.03	<0.20	<0.1	-
Tin (Sn)	µg/L	<300	-	-	-	-	<50	-	-	<0.50	<50	-
Titanium (Ti)	µg/L	<10	0.5	-	<0.1	<0.1	<1	-	-	-	<1	-
Tungsten (W)	µg/L	<100	-	-	-	-	-	-	-	-	<1	-
Uranium (U)	µg/L	-	<0.1	-	0.08	<0.05	<0.1	-	<0.05	0.061	<0.1	-
Vanadium (V)	µg/L	<30	<0.1	-	0.2	0.07	<1	-	0.16	<1.0	1	-
Zinc (Zn)	µg/L	<5	<5	-	5	<0.8	9	-	<0.8	10.4	8	-

Appendix B3-2: Water Quality in Lakes and Ponds of the Peninsula Basin A, Meliadine Gold Project, 1994 to 2009

Waterbody	Units	A8									Pond A9	
Date Sampled		11-Aug-94	22-Jul-97	18-Aug-97	26-Apr-98	23-Jul-98	18-Jul-07	8-Oct-07	15-Jul-08	27-Apr-09	18-Jul-07	7-Oct-07
GPS Coordinates (NAD83, Zone 15V) [a]		- [f]	0540105, 6987353	0540090, 6987327	0540084, 6987478	0540105, 6987353	0540681, 6986702	0540681, 6986702	0540181, 6987142	0540181, 6987142	0540194, 6988142	0540194, 6988142
Source [b]		Dillon 1994	RL&L 1998	RL&L 1998	RL&L 1999	RL&L 1999	Comaplex	Comaplex	Golder	Golder	Comaplex	Comaplex
Dissolved Metals												
Aluminum (Al)	µg/L	-	-	-	-	-	-	<10	1.2	8.6	-	20
Antimony (Sb)	µg/L	-	-	-	-	-	-	1.7	<0.03	<0.50	-	1.5
Arsenic (As)	µg/L	-	-	-	-	-	-	1.6	1.62	3.09	-	3.8
Barium (Ba)	µg/L	-	-	-	-	-	-	13	12.4	-	-	133
Beryllium (Be)	µg/L	-	-	-	-	-	-	<1	<0.2	<1.0	-	<1
Boron (B)	µg/L	-	-	-	-	-	-	<50	2	-	-	<50
Cadmium (Cd)	µg/L	-	-	-	-	-	-	<0.1	<0.05	0.018	-	<0.1
Calcium (Ca)	µg/L	-	-	-	-	-	-	-	14800	71800	-	-
Chromium (Cr)	µg/L	-	-	-	-	-	-	<5	<0.06	<7.0	-	<5
Cobalt (Co)	µg/L	-	-	-	-	-	-	<2	<0.1	<0.30	-	<2
Copper (Cu)	µg/L	-	-	-	-	-	-	<1	0.7	1.6	-	2
Iron (Fe)	µg/L	-	-	-	-	-	-	33	25	-	-	302
Lead (Pb)	µg/L	-	-	-	-	-	-	<0.1	0.08	<0.50	-	0.2
Lithium (Li)	µg/L	-	-	-	-	-	-	4	-	14	-	48
Magnesium (Mg)	µg/L	-	-	-	-	-	-	-	1750	8950	-	-
Manganese (Mn)	µg/L	-	-	-	-	-	-	3	1.9	82.9	-	51
Mercury (Hg)	µg/L	-	-	-	-	-	-	<0.1	<0.02	<0.020	-	<0.1
Molybdenum (Mo)	µg/L	-	-	-	-	-	-	<5	0.14	<1.0	-	<5
Nickel (Ni)	µg/L	-	-	-	-	-	-	<2	0.44	2.6	-	7
Potassium (K)	µg/L	-	-	-	-	-	-	-	870	4070	-	-
Selenium (Se)	µg/L	-	-	-	-	-	-	<0.4	0.2	<1.0	-	1
Silver (Ag)	µg/L	-	-	-	-	-	-	<0.1	<0.1	<0.020	-	<0.1
Sodium (Na)	µg/L	-	-	-	-	-	-	-	2420	13000	-	-
Strontium (Sr)	µg/L	-	-	-	-	-	-	-	79.2	-	-	-
Thallium (Tl)	µg/L	-	-	-	-	-	-	<0.1	<0.03	<0.20	-	<0.1
Tin (Sn)	µg/L	-	-	-	-	-	-	<50	-	<0.50	-	<50
Titanium (Ti)	µg/L	-	-	-	-	-	-	<1	-	-	-	<1
Tungsten (W)	µg/L	-	-	-	-	-	-	-	-	-	-	<1
Uranium (U)	µg/L	-	-	-	-	-	-	<0.1	<0.05	<0.20	-	<0.1
Vanadium (V)	µg/L	-	-	-	-	-	-	<1	0.12	<1.0	-	<1
Zinc (Zn)	µg/L	-	-	-	-	-	-	<2	1	-	-	11
Organic Compounds												
Oil and Grease	µg/L	-	-	-	-	-	-	<1,000	500	-	-	<1,000
Phenols	µg/L	-	**6**	-	<1	2	-	-	2	-	-	-
Benzene	µg/L	-	<0.5	-	-	<0.5	-	-	<0.50	-	-	-
Ethylbenzene	µg/L	-	<0.5	-	-	<0.5	-	-	<0.50	-	-	-
Toluene	µg/L	-	<0.5	-	-	<0.5	-	-	<0.50	-	-	-
Xylenes	µg/L	-	<0.5	-	-	<0.5	-	-	<0.50	-	-	-
F1 (C6-C10)	µg/L	-	-	-	-	-	-	-	<100	-	-	-
F1 -BTEX	µg/L	-	-	-	-	-	-	-	<100	-	-	-
F2 (>C10-C16)	µg/L	-	-	-	-	-	-	-	<50	-	-	-
F3 (C16-C34)	µg/L	-	-	-	-	-	-	-	<50	-	-	-
F4 (C34-C50)	µg/L	-	-	-	-	-	-	-	<50	-	-	-
Total Volatiles	µg/L	<1000	<100	-	-	<100	-	-	-	-	-	-
Total Extractables	µg/L	<1000	<50	-	-	<50	-	-	-	-	-	-
Other												
Biological Oxygen Demand (BOD)	mg/L	-	-	-	-	-	-	<2	-	-	-	<2
Fecal Coliforms	CFU/100 mL	-	-	-	-	-	-	<1	-	-	-	-

a = GPS coordinates from RL&L 1998, 1999, 2000, 2001 were converted from NAD27.

b = Data sources: 1994 to 1995 = Dillon (1994 and 1995); 1997 to 2000 = RL&L (1998, 1999, 2000, 2001); 2007 = Comaplex , pers. comm.; 2008 and 2009 = Golder

c =Station PL-06 in Dillon 1994.

d = Station PL-05 in Dillon 1994.

e = Station PL-03 in Dillon 1994.

f = Station PL-01 in Dillon 1994.

g = Samples for chlorophyll *a* were composite samples collected over the photic zone, as idenified from Secchi depth.

Appendix B3-2: Water Quality in Lakes and Ponds of the Peninsula Basin A, Meliadine Gold Project, 1994 to 2009

Waterbody	Units	Pond A13		Pond A15		Pond A38		Pond A54			Pond A56		Pond A57	
Date Sampled		12-Aug-07	7-Oct-07	18-Jul-07	7-Oct-07	18-Jul-07	7-Oct-07	12-Aug-07	7-Oct-07	15-Jul-08	12-Aug-07	7-Oct-07	12-Aug-07	7-Oct-07
GPS Coordinates (NAD83, Zone 15V) [a]		0539828, 6988676	0539828, 6988676	0539732, 6988798	0539732, 6988798	0540500, 6988254	0540500, 6988254	0540135, 6988794	0540135, 6988794	0540180, 6988827	0540041, 6988819	0540041, 6988819	0539879, 6988909	0539879, 6988909
Source [b]		Comaplex	Comaplex	Comaplex	Comaplex	Comaplex	Comaplex	Comaplex	Comaplex	Golder	Comaplex	Comaplex	Comaplex	Comaplex
Field Measurements														
Water Temperature	°C	10.4	0.3	23.8	1.9	20.4	0.9	11.2	0.3	13.8	10.7	1.1	10.4	1.2
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	12.86	-	-	-	-
pH	pH	7.56	7.66	8.29	7.04	8.49	7.68	8.11	8.17	6.94	8.1	8.01	8.29	7.61
Specific Conductivity	µS/cm	-	-	-	-	-	-	-	-	895	-	-	-	-
Secchi Disk Depth	m	-	-	-	-	-	-	-	-	0.8	-	-	-	-
Ice Depth	m	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Lake Depth	m	-	-	-	-	-	-	-	-	0.8	-	-	-	-
Conventional Parameters (Laboratory-Measured)														
pH	pH	7.5	7.7	7.7	7.5	8.2	7.8	7.8	7.9	8	7.9	8	8.1	8
Specific Conductivity	µS/cm	2370	1460	807	1020	456	609	618	720	944	1680	1470	294	386
Total Dissolved Solids	mg/L	1440	-	-	-	-	-	386	-	696	1090	-	191	-
Total Dissolved Solids (Calculated)	mg/L	1170	719	368	471	221	294	291	348	469	859	783	156	204
Total Alkalinity	mg $CaCO_3$/L	30	51	36	51	76	76	49	68	47	78	124	123	167
Total Hardness	mg $CaCO_3$/L	1020	487	317	384	179	224	236	258	337	709	456	142	181
Total Suspended Solids	mg/L	4	3	-	4	-	6	4	3	5	<3	5	3	8
Total Volatile Solids	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity	NTU	1.9	3.6	-	1.6	-	1.9	<0.1	0.65	-	0.3	5.6	1.9	2.9
Major Ions														
Bicarbonate	mg/L	37	62	44	62	93	92	60	83	57	95	151	151	204
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	mg/L	346	142	96.2	122	59.3	70.2	74.5	78.8	90.9	236	127	47.6	61.5
Carbonate	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	716	372	210	267	86	118	134	151	214	444	297	14	12
Fluoride	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydroxide	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	38.1	32.2	14.6	19.2	7.5	11.8	12.2	14.8	13.9	29.1	33.8	5.5	6.6
Potassium	mg/L	8.8	5.5	3	2.9	3.5	3.9	6.1	4.9	7.95	9.6	8.6	3	1.8
Reactive Silica (as SiO_2)	mg/L	-	5.9	-	6.6	-	2.9	-	1.8	-	-	4.6	-	6.6
Silicate (SiO_2)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	mg/L	26	57	9	12	8	16	15	20	34.2	22	87	8	6
Sulphate	mg/L	14.3	77.2	6.8	16.8	11.4	28.2	19.8	37.2	39.9	69.2	141	4.5	15.8
Ion Balance	%	103	94.1	100	92.9	95.7	97.2	107	96.1	103	98.8	94.3	110	97.8
Organic/Inorganic Carbon														
Total Carbon	mg/L	16	20	-	19	-	28	22	26	20	34	41	51	53
Total Organic Carbon	mg/L	10	-	-	-	-	-	12	-	10	17	-	25	-
Dissolved Organic Carbon	mg/L	-	-	-	-	-	-	-	-	9.5	-	-	-	-
Total Inorganic Carbon	mg/L	7	12	-	13	-	18	11	16	-	18	30	30	41
Total Inorganic Carbon (Calculated)	mg/L	-	-	-	-	-	-	-	10	10	-	-	-	-
Nutrients and Chlorophyll *a*														
Total Ammonia as Nitrogen	mg/L	0.06	0.31	-	<0.05	-	<0.05	<0.05	<0.05	1.11	<0.05	1.32	0.08	0.07
Nitrate as Nitrogen	mg/L	<0.1	0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**4.9**	0.5	**2.9**	<0.1	<0.1
Nitrite as Nitrogen	mg/L	<0.05	**0.08**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.14**	<0.05	**0.31**	<0.05	<0.05
Nitrate+Nitrite as Nitrogen	mg/L	<0.1	0.6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	5.1	0.5	3.2	<0.1	<0.1
Total Kjeldahl Nitrogen	mg/L	0.6	0.6	-	0.6	-	0.6	0.7	0.5	2.2	1	1.8	1.5	0.6
Phosphorus, Total	mg/L	<0.02	<0.02	-	<0.02	-	<0.02	<0.02	<0.02	0.009	<0.02	<0.02	<0.02	<0.02
Phosphorus, Total Dissolved	mg/L	-	<0.02	-	<0.02	-	<0.02	-	<0.02	0.004	-	<0.02	-	<0.02
Orthophosphate (PO_4-P)	mg/L	<0.01	<0.01	-	<0.01	-	<0.01	<0.01	<0.01	<0.001	<0.01	<0.01	<0.01	<0.01
Chlorophyll *a*	µg/L	-	-	-	-	-	-	-	-	17	-	-	-	-
Cyanides														
Cyanide, Total	µg/L	-	-	-	-	-	-	-	-	<2	-	-	-	-

Appendix B3-2: Water Quality in Lakes and Ponds of the Peninsula Basin A, Meliadine Gold Project, 1994 to 2009

Waterbody	Units	Pond A13		Pond A15		Pond A38		Pond A54			Pond A56		Pond A57	
Date Sampled		12-Aug-07	7-Oct-07	18-Jul-07	7-Oct-07	18-Jul-07	7-Oct-07	12-Aug-07	7-Oct-07	15-Jul-08	12-Aug-07	7-Oct-07	12-Aug-07	7-Oct-07
GPS Coordinates (NAD83, Zone 15V) [a]		0539828, 6988676	0539828, 6988676	0539732, 6988798	0539732, 6988798	0540500, 6988254	0540500, 6988254	0540135, 6988794	0540135, 6988794	0540180, 6988827	0540041, 6988819	0540041, 6988819	0539879, 6988909	0539879, 6988909
Source [b]		Comaplex	Comaplex	Comaplex	Comaplex	Comaplex	Comaplex	Comaplex	Comaplex	Golder	Comaplex	Comaplex	Comaplex	Comaplex
Total Metals														
Aluminum (Al)	µg/L	-	-	40	-	20	-	-	-	2.4	-	-	-	-
Antimony (Sb)	µg/L	-	-	<0.4	-	<0.4	-	-	-	0.2	-	-	-	-
Arsenic (As)	µg/L	-	-	3.2	-	4.2	-	-	-	0.9	-	-	-	-
Barium (Ba)	µg/L	-	-	123	-	42	-	-	-	61.8	-	-	-	-
Beryllium (Be)	µg/L	-	-	<1	-	<1	-	-	-	<0.2	-	-	-	-
Bismuth (Bi)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (B)	µg/L	-	-	<50	-	<50	-	-	-	0.6	-	-	-	-
Cadmium (Cd)	µg/L	-	-	*<0.2*	-	*<0.2*	-	-	-	<0.05	-	-	-	-
Calcium (Ca)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium (Cs)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (Cr)	µg/L	-	-	*<5*	-	*<5*	-	-	-	<0.06	-	-	-	-
Cobalt (Co)	µg/L	-	-	<2	-	<2	-	-	-	<0.1	-	-	-	-
Copper (Cu)	µg/L	-	-	3	-	**3**	-	-	-	1	-	-	-	-
Iron (Fe)	µg/L	-	-	**695**	-	170	-	-	-	22	-	-	-	-
Lead (Pb)	µg/L	-	-	0.1	-	0.3	-	-	-	0.06	-	-	-	-
Lithium (Li)	µg/L	-	-	30	-	20	-	-	-	-	-	-	-	-
Magnesium (Mg)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese (Mn)	µg/L	-	-	6	-	9	-	-	-	1.7	-	-	-	-
Mercury (Hg)	µg/L	-	-	**0.4**	-	*<0.2*	-	-	-	<0.02	-	-	-	-
Molybdenum (Mo)	µg/L	-	-	<5	-	<5	-	-	-	0.49	-	-	-	-
Nickel (Ni)	µg/L	-	-	6	-	4	-	-	-	1	-	-	-	-
Potassium (K)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium (Rb)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (Se)	µg/L	-	-	**1.2**	-	0.7	-	-	-	<0.1	-	-	-	-
Silicon (Si)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (Ag)	µg/L	-	-	*<0.4*	-	*<0.4*	-	-	-	*<0.1*	-	-	-	-
Sodium (Na)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (Sr)	µg/L	-	-	-	-	-	-	-	-	830	-	-	-	-
Thallium (Tl)	µg/L	-	-	0.2	-	<0.1	-	-	-	<0.03	-	-	-	-
Tin (Sn)	µg/L	-	-	<50	-	<50	-	-	-	-	-	-	-	-
Titanium (Ti)	µg/L	-	-	<1	-	<1	-	-	-	-	-	-	-	-
Tungsten (W)	µg/L	-	-	<1	-	<1	-	-	-	-	-	-	-	-
Uranium (U)	µg/L	-	-	0.2	-	0.2	-	-	-	0.26	-	-	-	-
Vanadium (V)	µg/L	-	-	1	-	1	-	-	-	<0.05	-	-	-	-
Zinc (Zn)	µg/L	-	-	<4	-	12	-	-	-	<0.8	-	-	-	-

Appendix B3-2: Water Quality in Lakes and Ponds of the Peninsula Basin A, Meliadine Gold Project, 1994 to 2009

Waterbody	Units	Pond A13		Pond A15		Pond A38		Pond A54			Pond A56		Pond A57	
Date Sampled		12-Aug-07	7-Oct-07	18-Jul-07	7-Oct-07	18-Jul-07	7-Oct-07	12-Aug-07	7-Oct-07	15-Jul-08	12-Aug-07	7-Oct-07	12-Aug-07	7-Oct-07
GPS Coordinates (NAD83, Zone 15V) [a]		0539828, 6988676	0539828, 6988676	0539732, 6988798	0539732, 6988798	0540500, 6988254	0540500, 6988254	0540135, 6988794	0540135, 6988794	0540180, 6988827	0540041, 6988819	0540041, 6988819	0539879, 6988909	0539879, 6988909
Source [b]		Comaplex	Comaplex	Comaplex	Comaplex	Comaplex	Comaplex	Comaplex	Comaplex	Golder	Comaplex	Comaplex	Comaplex	Comaplex
Dissolved Metals														
Aluminum (Al)	µg/L	20	<10	-	20	-	<10	<10	<10	-	30	30	10	<10
Antimony (Sb)	µg/L	<0.4	1.8	-	1.5	-	1.7	<0.4	1.9	-	<0.4	1.1	<0.4	1.5
Arsenic (As)	µg/L	3.6	2.8	-	1.9	-	2.1	3.7	2.8	-	4.8	3.2	6.7	2
Barium (Ba)	µg/L	345	145	-	103	-	49	50	47	-	154	85	32	38
Beryllium (Be)	µg/L	<1	<1	-	<1	-	<1	<1	<1	-	<1	<1	<1	<1
Boron (B)	µg/L	<50	<50	-	<50	-	<50	<50	<50	-	<50	<50	<0.05	<0.05
Cadmium (Cd)	µg/L	<0.2	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1
Calcium (Ca)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (Cr)	µg/L	<5	7	-	<5	-	<5	<5	<5	-	<5	7	6	<5
Cobalt (Co)	µg/L	<2	<2	-	<2	-	<2	<2	<2	-	<2	<2	<2	<2
Copper (Cu)	µg/L	2	2	-	1	-	2	1	1	-	3	4	4	3
Iron (Fe)	µg/L	1280	724	-	2360	-	54	55	31	-	182	138	286	118
Lead (Pb)	µg/L	<0.1	<0.1	-	0.1	-	<0.1	<0.1	<0.1	-	<0.1	0.3	<0.1	0.4
Lithium (Li)	µg/L	139	40	-	23	-	27	32	33	-	102	25	<3	3
Magnesium (Mg)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese (Mn)	µg/L	120	174	-	66	-	5	3	3	-	22	101	8	7
Mercury (Hg)	µg/L	0.2	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	-	0.1	<0.1	0.1	<0.1
Molybdenum (Mo)	µg/L	<5	<5	-	<5	-	<5	<5	<5	-	<5	<5	<5	<5
Nickel (Ni)	µg/L	15	11	-	6	-	5	4	5	-	11	11	6	6
Potassium (K)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (Se)	µg/L	2.1	1.3	-	0.7	-	0.7	0.7	0.8	-	1.5	1.7	0.5	0.5
Silver (Ag)	µg/L	<0.1	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1
Sodium (Na)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (Sr)	µg/L	2480	-	-	-	-	-	674	-	-	1930	-	291	-
Thallium (Tl)	µg/L	0.2	<0.1	-	<0.1	-	0.2	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	µg/L	<50	<50	-	<50	-	<50	<50	<50	-	<50	<50	<50	<50
Titanium (Ti)	µg/L	<1	<1	-	<1	-	<1	<1	<1	-	<1	<1	<1	<1
Tungsten (W)	µg/L	<1	<1	-	<1	-	<1	<1	<1	-				-
Uranium (U)	µg/L	<0.1	1.3	-	<0.1	-	0.2	<0.1	0.5	-	2.8	3.6	0.4	0.4
Vanadium (V)	µg/L	8	2	-	1	-	<1	4	<1	-	8	2	2	<1
Zinc (Zn)	µg/L	9	3	-	13	-	7	5	5	-	59	6	5	26
Organic Compounds														
Oil and Grease	µg/L	-	<1,000	-	<1,000	<1,000	<1,000	-	<1,000	600	-	<1,000	-	<1,000
Phenols	µg/L	-	-	-	-	-	-	-	-	**4**	-	-	-	-
Benzene	µg/L	-	-	-	-	-	-	-	-	<0.50	-	-	-	-
Ethylbenzene	µg/L	-	-	-	-	-	-	-	-	<0.50	-	-	-	-
Toluene	µg/L	-	-	-	-	-	-	-	-	<0.50	-	-	-	-
Xylenes	µg/L	-	-	-	-	-	-	-	-	<0.50	-	-	-	-
F1 (C6-C10)	µg/L	-	-	-	-	-	-	-	-	<100	-	-	-	-
F1 -BTEX	µg/L	-	-	-	-	-	-	-	-	<100	-	-	-	-
F2 (>C10-C16)	µg/L	-	-	-	-	-	-	-	-	<50	-	-	-	-
F3 (C16-C34)	µg/L	-	-	-	-	-	-	-	-	<50	-	-	-	-
F4 (C34-C50)	µg/L	-	-	-	-	-	-	-	-	<50	-	-	-	-
Total Volatiles	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Extractables	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Other														
Biological Oxygen Demand (BOD)	mg/L	-	<2	-	<2	-	<2	-	<2	-	-	2	-	2
Fecal Coliforms	CFU/100 mL	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

Bold values are equal to or greater than the Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2007, CWQG).

Underlined values are equal to or greater than the Guidelines for Canadian Drinking Water Quality (Health Canada 2007, GCDWQ).

Italicized values indicate the detection limit equals or exceeds either guideline.

(-) = No data available

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; µg/L = micrograms per litre; NTU = nephelometric turbidity units.

Golder Associates

Appendix B3-3: Water Quality in Lakes and Ponds of the Peninsula Basin B, Meliadine Gold Project, 1994 to 2009

Waterbody	Units	B2							B5									
Date Sampled		21-Jul-97	18-Aug-97	26-Apr-98	21-Jul-98	30-Aug-98	18-Jul-99	19-Jul-00	19-Jul-97	18-Aug-97	26-Apr-98	20-Jul-98	28-Aug-98	18-Jul-99	18-Jul-00	18-Jul-00	14-Jul-08	27-Apr-09
GPS Coordinates (NAD83, Zone 15V) [a]		0537522, 6987195	0537423, 6987140	0537412, 6986604	0537522, 6987195	0537423, 6987140	0537522, 6986731	0537384, 6986749	0537776, 6988807	0537781, 6988763	0537989, 6988649	0537776, 6988807	0537781, 6988763	0537832, 6988811	0538055, 6988544	0538055, 6988544	0538288, 6988122	0538281, 6988153
Source [b]		RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	Golder	Golder
Field Measurements																		
Water Temperature	°C	17	14.9	0.1	9.7	8.9	11.0	13.6	15.1	15.1	0	9.9	8.9	10.4	14.6	14.6	13.82	0.29
Dissolved Oxygen	mg/L	9.7	11.2	**3.6**	13.4	11.1	11.9	-	10.5	10.8	**2.6**	13.9	10.8	11.7	-	-	11.53	**2.91**
pH	pH	8.07	7.84	6.92	-	7.13	7.2	7.79	7.54	7.67	6.84	-	7.36	6.51	7.76	7.76	6.94	6.60
Specific Conductivity	µS/cm	101.7	109.9	433	71.5	87.0	97.1	74	81.8	89.5	674	73.8	94.8	87.4	80.3	80.3	86	354
Secchi Disk Depth	m	2.6	2.5	-	3.0	2.8	2.5	3.0	2.7	2.3	-	2.0	3.0	2.0	2.4	2.4	2.7	-
Ice Depth	m	-	-	1.8	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.63
Total Lake Depth	m	2.6	2.5	2.5	3.0	2.8	3.0	3.0	2.7	2.3	2.2	2.0	3.0	2.0	2.4	2.4	3	2.63
Conventional Parameters (Laboratory-Measured)																		
pH	pH	7.7	-	6.8	7.2	-	7.3	7.3	7.63	-	6.8	7.1	-	7.2	7.3	7.4	7.6	7.79
Specific Conductivity	µS/cm	83.7	-	465	64.2	-	84.8	70.7	67.5	-	712	73.2	-	75.7	80.2	79.6	85.3	373
Total Dissolved Solids	mg/L	49	-	230	31	-	24	32	47	-	373	34	-	20	37	37	49	-
Total Dissolved Solids (Calculated)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	43	199
Total Alkalinity	mg $CaCO_3$/L	33.3	-	180	22	-	29	24	27	-	298	25	-	27	27	27	28	131
Total Hardness	mg $CaCO_3$/L	33	-	178	24	-	33	24	26.9	-	303	29	-	30	29	29	36	159
Total Suspended Solids	mg/L	<3	-	3	<2	-	7	<3	<3	-	<2	3	-	<3	3	<3	3	11
Total Volatile Solids	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	73
Turbidity	NTU	0.6	-	1.1	0.4	-	0.31	0.44	1.1	-	1.1	0.5	-	0.22	0.42	0.33	-	-
Major Ions																		
Bicarbonate	mg/L	33.3	-	220	27	-	35	29	27	-	364	31	-	32	33	34	34	160
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	mg/L	11	-	59.9	8.1	-	10.9	8.75	8.65	-	97.7	9.34	-	9.58	9.54	9.69	10.9	49.3
Carbonate	mg/L	<0.3	-	<1	<1	-	<1	<5	<0.3	-	<1	<1	-	<1	<5	<5	<5	<5.0
Chloride	mg/L	5.2	-	25.2	3.68	-	4.41	3	3.6	-	36.6	3.52	-	3.64	4	4	7	31.4
Fluoride	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydroxide	mg/L	-	-	<1	<1	-	<1	<5	-	-	<1	<1	-	<1	<5	<5	<5	<5.0
Magnesium	mg/L	1.35	-	7.01	0.99	-	1.3	0.977	1.29	-	14.4	1.37	-	1.37	1.29	1.32	1.32	7.28
Potassium	mg/L	0.868	-	4.36	0.73	-	0.84	0.695	0.667	-	6.07	0.7	-	0.67	0.646	0.648	0.71	2.99
Reactive Silica (as SiO_2)	mg/L	0.589	-	4.8	0.6	-	0.5	0.3	0.422	-	7.5	0.5	-	0.4	0.2	0.3	-	-
Silicate (SiO_2)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	mg/L	3.05	-	16.7	2.4	-	2.9	2.02	1.94	-	21.5	2.2	-	2.1	1.93	1.97	2.58	11.3
Sulphate	mg/L	<3	-	8.95	1.62	-	3.48	2.82	<3	-	17.7	2.04	-	3.13	3.15	3.22	2.6	12.5
Ion Balance	%	-	-	98	105	-	104	93.3	-	-	97	107	-	101	94.7	91	Low EC	102
Organic/Inorganic Carbon																		
Total Carbon	mg/L	12	-	64	8.7	-	11	9.5	10	-	108	9.9	-	10.7	10.8	9.9	10	-
Total Organic Carbon	mg/L	3.8	-	13.3	3.3	-	4.3	4.3	3.8	-	24.9	3.7	-	4.5	5	4	4	-
Dissolved Organic Carbon	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.3	-
Total Inorganic Carbon	mg/L	8	-	49.9	5.4	-	6.7	5.2	6	-	80.2	6.2	-	6.2	5.8	5.9	-	-
Total Inorganic Carbon (Calculated)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-
Nutrients and Chlorophyll *a*																		
Total Ammonia as Nitrogen	mg/L	0.014	-	0.048	0.017	-	<0.005	<0.005	0.012	-	0.087	0.027	-	0.008	<0.005	<0.005	<0.05	0.204
Nitrate as Nitrogen	mg/L	<0.008	-	<0.006	<0.006	-	<0.006	<0.006	0.011	-	0.033	<0.006	-	<0.006	<0.006	<0.006	<0.1	<0.050
Nitrite as Nitrogen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.050
Nitrate+Nitrite as Nitrogen	mg/L	<0.008	-	<0.006	<0.006	-	<0.006	<0.006	0.011	-	0.033	<0.006	-	<0.006	<0.006	<0.006	<0.1	<0.071
Total Kjeldahl Nitrogen	mg/L	0.34	-	1.03	0.39	-	0.23	0.24	0.3	-	1.77	0.55	-	0.35	0.2	0.14	0.2	1.15
Phosphorus, Total	mg/L	0.01	-	0.01	0.007	-	0.009	0.035	0.015	-	0.014	0.01	-	0.005	0.016	0.01	0.009	0.0247
Phosphorus, Total Dissolved	mg/L	0.004	-	0.008	0.005	-	0.002	0.009	0.01	-	0.008	0.006	-	0.002	0.003	<0.001	0.003	0.0238
Orthophosphate (PO_4-P)	mg/L	<0.002	-	0.001	<0.001	-	<0.001	0.002	0.005	-	<0.001	<0.001	-	<0.001	<0.001	<0.001	<0.001	<0.0010
Chlorophyll *a*	µg/L	1.49 [d]	1.22 [d]	-	2.08 [d]	1.89 [d]	0.73	0.53	3.03 [d]	3.08 [d]	-	1.46 [d]	1.56 [d]	0.94	0.44	-	6	-
Cyanides																		
Cyanide, Total	µg/L	-	-	2	1	-	<2	2	-	-	<1	1	-	<2	<2	2	<2	<2

Appendix B3-3: Water Quality in Lakes and Ponds of the Peninsula Basin B, Meliadine Gold Project, 1994 to 2009

Waterbody	Units	B2							B5									
Date Sampled		21-Jul-97	18-Aug-97	26-Apr-98	21-Jul-98	30-Aug-98	18-Jul-99	19-Jul-00	19-Jul-97	18-Aug-97	26-Apr-98	20-Jul-98	28-Aug-98	18-Jul-99	18-Jul-00	18-Jul-00	14-Jul-08	27-Apr-09
GPS Coordinates (NAD83, Zone 15V) [a]		0537522, 6987195	0537423, 6987140	0537412, 6986604	0537522, 6987195	0537423, 6987140	0537522, 6986731	0537384, 6986749	0537776, 6988807	0537781, 6988763	0537989, 6988649	0537776, 6988807	0537781, 6988763	0537832, 6988811	0538055, 6988544	0538055, 6988544	0538288, 6988122	0538281, 6988153
Source [b]		RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	Golder	Golder
Total Metals																		
Aluminum (Al)	µg/L	<5	-	6.4	1.9	-	3.2	2	4.3	-	5.9	2.6	-	2.3	4.3	2.6	3.7	13.4
Antimony (Sb)	µg/L	0.6	-	<0.03	0.06	-	0.05	0.08	0.5	-	<0.03	0.05	-	0.06	0.08	0.09	<0.03	<0.20
Arsenic (As)	µg/L	1.2	-	1.7	1.03	-	1.21	0.75	1.3	-	3.11	1.3	-	1.59	1.22	1.21	1.53	**11.4**
Barium (Ba)	µg/L	9.4	-	56.1	7.64	-	9.66	9.19	8.3	-	103	9.1	-	9.61	10.8	11	10.4	63.3
Beryllium (Be)	µg/L	<0.1	-	<0.2	<0.2	-	<0.2	<0.2	0.1	-	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<1.0
Bismuth (Bi)	µg/L	<0.1	-	<0.05	<0.03	-	0.06	-	<0.1	-	<0.05	<0.03	-	0.12	-	-	-	<1.0
Boron (B)	µg/L	-	-	-	-	-	-	3	-	-	-	-	-	-	2	2	2	<50
Cadmium (Cd)	µg/L	**0.1**	-	*<0.1*	**4.93**	-	**0.03**	**0.31**	*<0.1*	-	*<0.1*	**0.31**	-	*<0.02*	**0.74**	**0.47**	*<0.05*	0.017
Calcium (Ca)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium (Cs)	µg/L	<0.1	-	<0.1	<0.1	-	<0.1	-	<0.1	-	<0.1	<0.1	-	<0.1	-	-	-	-
Chromium (Cr)	µg/L	*<2*	-	**1.76**	**2.4**	-	0.5	**1.34**	*<2*	-	**3.58**	**2.85**	-	0.48	**1.5**	**1.56**	<0.06	**1.2**
Cobalt (Co)	µg/L	<0.1	-	0.3	<0.1	-	<0.1	<0.1	<0.1	-	0.8	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.30
Copper (Cu)	µg/L	1.6	-	**3.1**	1.1	-	1.2	**2.5**	1.4	-	**5.1**	0.8	-	0.9	**2.2**	**2**	1.2	1.9
Iron (Fe)	µg/L	85	-	250	52	-	90	132	75	-	**380**	26	-	89	151	152	118	-
Lead (Pb)	µg/L	<0.2	-	<0.05	0.05	-	0.09	**1.53**	<0.2	-	<0.05	<0.05	-	<0.05	0.94	**1.21**	<0.05	<0.50
Lithium (Li)	µg/L	1.1	-	4.1	<0.1	-	0.7	-	0.4	-	7.6	<0.1	-	0.7	-	-	-	5.7
Magnesium (Mg)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese (Mn)	µg/L	4.9	-	78.3	1.5	-	7.4	10.5	11.8	-	205	0.5	-	15.6	14.8	14.9	11.2	277
Mercury (Hg)	µg/L	<0.01	-	<0.01	<0.02	-	<0.02	<0.02	<0.01	-	<0.01	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.020
Molybdenum (Mo)	µg/L	0.4	-	0.41	0.22	-	0.25	0.15	0.4	-	0.22	0.15	-	0.16	0.09	0.1	0.1	<1.0
Nickel (Ni)	µg/L	0.7	-	3.9	0.71	-	0.88	0.66	1.1	-	8.9	0.98	-	1.04	1.37	0.84	0.48	3.1
Potassium (K)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium (Rb)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (Se)	µg/L	*<10*	-	0.3	<0.1	-	0.1	<0.1	*<10*	-	0.6	0.1	-	0.1	<0.1	0.1	0.1	*<1.0*
Silicon (Si)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (Ag)	µg/L	*<0.1*	-	*<0.1*	*<0.1*	-	*<0.1*	*<0.1*	*<0.1*	-	*<0.1*	*<0.1*	-	*<0.1*	*<0.1*	*<0.1*	*<0.1*	<0.020
Sodium (Na)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (Sr)	µg/L	47.8	-	249	35.7	-	45	35.4	47.6	-	542	49.6	-	49.8	47.7	48.7	50.6	275
Thallium (Tl)	µg/L	<0.1	-	<0.05	<0.03	-	<0.03	-	<0.1	-	<0.05	<0.03	-	<0.03	-	-	<0.03	<0.20
Tin (Sn)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.50
Titanium (Ti)	µg/L	<0.1	-	1	<0.1	-	0.2	-	0.2	-	-	-	-	-	-	-	-	-
Tungsten (W)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium (U)	µg/L	<0.1	-	0.12	<0.05	-	<0.05	<0.05	<0.1	-	0.24	<0.05	-	<0.05	<0.05	<0.05	<0.05	0.074
Vanadium (V)	µg/L	<0.1	-	0.5	0.08	-	0.08	0.45	<0.1	-	1	0.05	-	<0.05	0.54	0.49	0.11	<1.0
Zinc (Zn)	µg/L	7.6	-	3	0.9	-	4	**41.3**	12.8	-	10	1.1	-	2.7	**49.6**	**48.2**	0.9	9.1
Dissolved Metals																		
Aluminum (Al)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.2	5.7
Antimony (Sb)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.03	<0.50
Arsenic (As)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.15	4.49
Barium (Ba)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.95	-
Beryllium (Be)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2	<1.0
Boron (B)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3	-
Cadmium (Cd)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	0.02
Calcium (Ca)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10800	52000

Appendix B3-3: Water Quality in Lakes and Ponds of the Peninsula Basin B, Meliadine Gold Project, 1994 to 2009

Waterbody	Units	B2							B5									
Date Sampled		21-Jul-97	18-Aug-97	26-Apr-98	21-Jul-98	30-Aug-98	18-Jul-99	19-Jul-00	19-Jul-97	18-Aug-97	26-Apr-98	20-Jul-98	28-Aug-98	18-Jul-99	18-Jul-00	18-Jul-00	14-Jul-08	27-Apr-09
GPS Coordinates (NAD83, Zone 15V) [a]		0537522, 6987195	0537423, 6987140	0537412, 6986604	0537522, 6987195	0537423, 6987140	0537522, 6986731	0537384, 6986749	0537776, 6988807	0537781, 6988763	0537989, 6988649	0537776, 6988807	0537781, 6988763	0537832, 6988811	0538055, 6988544	0538055, 6988544	0538288, 6988122	0538281, 6988153
Source [b]		RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	Golder	Golder
Chromium (Cr)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.06	<4.0
Cobalt (Co)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.30
Copper (Cu)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.5
Iron (Fe)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	38	-
Lead (Pb)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.07	<0.50
Lithium (Li)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.5
Magnesium (Mg)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1320	7000
Manganese (Mn)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	237
Mercury (Hg)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.02	<0.020
Molybdenum (Mo)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.11	<1.0
Nickel (Ni)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.46	2.5
Potassium (K)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	690	3750
Selenium (Se)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<1.0
Silver (Ag)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.020
Sodium (Na)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2560	13000
Strontium (Sr)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50.6	-
Thallium (Tl)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.03	<0.20
Tin (Sn)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.50
Titanium (Ti)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium (U)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.20
Vanadium (V)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<1.0
Zinc (Zn)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.6	-
Organic Compounds																		
Oil and Grease	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	-
Phenols	µg/L	<2	-	<1	<1	-	1	2	**9**	-	<1	<1	-	<1	<1	<1	2	-
Benzene	µg/L	<0.5	-	-	<0.5	-	-	<0.5	<0.5	-	-	<0.5	-	-	<0.5	<0.5	<0.50	-
Ethylbenzene	µg/L	<0.5	-	-	<0.5	-	-	<0.5	<0.5	-	-	<0.5	-	-	<0.5	<0.5	<0.50	-
Toluene	µg/L	<0.5	-	-	<0.5	-	-	<0.5	<0.5	-	-	<0.5	-	-	0.7	<0.5	<0.50	-
Xylenes	µg/L	<0.5	-	-	<0.5	-	-	<0.5	<0.5	-	-	<0.5	-	-	3.9	<0.5	<0.50	-
F1 (C6-C10)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<100	-
F1 -BTEX	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<100	-
F2 (>C10-C16)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<50	-
F3 (C16-C34)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<50	-
F4 (C34-C50)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<50	-
Total Volatiles	µg/L	<100	-	-	<100	-	-	<100	<100	-	-	<100	-	-	<100	<100	-	-
Total Extractables	µg/L	330	-	-	<50	-	-	<50	<50	-	-	<50	-	-	<50	<50	-	-
Other																		
Biological Oxygen Demand (BOD)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fecal Coliforms	CFU/100 mL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

a = GPS coordinates from RL&L 1998, 1999, 2000, 2001 were converted from NAD27.

b = Data sources: 1994 to 1995 = Dillon (1994 and 1995); 1997 to 2000 = RL&L (1998, 1999, 2000, 2001); 2007 = Comaplex, pers. comm.; 2008 and 2009 = Golder Associates Ltd.

c = Station PL-02 in Dillon 1994.

d = Samples for chlorophyll *a* were composite samples collected over the euphotic zone, as idenified from Secchi depth.

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Appendix B3-3: Water Quality in Lakes and Ponds of the Peninsula Basin B, Meliadine Gold Project, 1994 to 2009

Waterbody	Units	B6				B7									B8	B9	B10	B36 [c]
Date Sampled		12-Jul-08	27-Apr-09	28-Jul-09	28-Jul-09	18-Jul-97	19-Aug-97	27-Apr-98	27-Apr-98	19-Jul-98	22-Aug-98	8-Nov-98	12-Jul-08	27-Apr-09	8-Nov-98	8-Nov-98	8-Nov-98	11-Aug-94
GPS Coordinates (NAD83, Zone 15V) [a]		0537775, 6989211	0537758, 6989218	0537755, 6989216	0537755, 6989216	0537667, 6989775	0537683, 6989674	0537731, 6989737	0537731, 6989737	0537683, 6989674	0537683, 6989674	-	0537760, 6989535	0537811, 6989603	-	-	-	-
Source [b]		Golder	Golder	Golder	Golder	RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	Golder	Golder	RL&L	RL&L	RL&L	Dillon
Field Measurements																		
Water Temperature	°C	15.41	0.31	16.19	16.19	14.3	14.7	0.6	0.6	9.7	9.9	-0.5	14.83	0.63	-0.5	-0.5	-0.5	9.4
Dissolved Oxygen	mg/L	12.23	**2.66**	**8.44**	**8.44**	10.8	10.7	**3.5**	**3.5**	12.7	10.4	-	11.52	**4**	-	-	-	-
pH	pH	7.33	**6.45**	6.98	6.98	7.41	7.94	7.00	7.00	-	7.67	7.48	7.28	**5.84**	-	7.06	-	7.16
Specific Conductivity	µS/cm	112	455	141	141	84	92.2	278	278	76	84.7	138.7	108	408	-	314	-	-
Secchi Disk Depth	m	4	-	3.8	3.8	3.2	3.8	-	-	3.5	3.0	-	4.2	-	-	-	-	-
Ice Depth	m	-	1.74	-	-	-	-	1.8	1.8	-	-	-	-	1.79	-	-	-	-
Total Lake Depth	m	4	3.48	3.8	3.8	3.2	3.8	3.2	3.2	3.5	3.8	-	4.6	3.82	-	-	-	-
Conventional Parameters (Laboratory-Measured																		
pH	pH	7.6	7.78	7.71	7.7	7.5	-	6.8	6.8	7.2	-	7.4	7.6	7.77	7.2	7.4	7.5	8.08
Specific Conductivity	µS/cm	105	480	140	139	70.3	-	306	302	68.5	-	108	103	435	454	491	1030	206
Total Dissolved Solids	mg/L	69	-	96	91	38	-	145	163	33	-	53	75	-	-	247	602	134
Total Dissolved Solids (Calculated)	mg/L	51	256	68	63.9	-	-	-	-	-	-	-	53	222	229	-	-	-
Total Alkalinity	mg $CaCO_3$/L	27	140	32.6	31	29	-	119	151	26	-	40	26	108	94	96	157	91.6
Total Hardness	mg $CaCO_3$/L	42	222	54.8	50.6	28.6	-	119	118	28	-	42	43	185	181	194	518	98
Total Suspended Solids	mg/L	<3	3	4	<3.0	<3	-	4	2	<2	-	3	3	4	3	<2	4	1
Total Volatile Solids	mg/L	-	92	65	81	-	-	-	-	-	-	-	-	84	-	-	-	-
Turbidity	NTU	-	-	-	-	0.6	-	0.7	1	0.5	-	0.52	-	-	0.8	1.9	1.27	0.58
Major Ions																		
Bicarbonate	mg/L	33	171	39.8	37.8	29	-	145	144	31	-	49	32	132	115	117	192	-
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	mg/L	13.9	66.2	19.4	19.2	9.31	-	39.6	38.5	9.32	-	14	12.8	57.7	57	61.4	154	32.9
Carbonate	mg/L	<5	<5.0	<5.0	<5.0	<0.3	-	<1	<1	<1	-	<1	<5	<5.0	<1	<1	<1	-
Chloride	mg/L	12	60.2	21.3	20.2	3.22	-	12.6	12.4	2.77	-	5.36	13	63.5	69.7	80	241	7.8
Fluoride	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.07
Hydroxide	mg/L	<5	<5.0	<5.0	<5.0	-	-	<1	<1	<1	-	<1	<5	<5.0	<1	<1	<1	-
Magnesium	mg/L	1.46	8.18	2.1	2.09	1.29	-	5	5.23	1.22	-	1.75	1.29	6.8	9.34	9.98	32.5	3.83
Potassium	mg/L	0.9	3.94	<2.0	<2.0	0.787	-	2.81	2.83	0.79	-	1.13	0.85	3.22	1.98	2.38	6.29	1.72
Reactive Silica (as SiO_2)	mg/L	-	-	-	-	0.702	-	7	6.8	0.9	-	1.1	-	-	9.3	7.3	6.8	-
Silicate (SiO_2)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 1.0
Sodium	mg/L	2.46	11.3	3.2	3.2	1.9	-	7.4	7.5	1.8	-	2.7	1.99	8.24	12.5	12.2	30.3	3.82
Sulphate	mg/L	3	9.53	2.22	2.09	<3	-	5.66	5.44	1.45	-	3.83	4.1	9.08	22.4	23.2	43.9	6.9
Ion Balance	%	106	111	96.9	94.4	-	-	98	98	108	-	96	104	102	98	96	109	-
Organic/Inorganic Carbon																		
Total Carbon	mg/L	11	-	11.9	12.3	12	-	46	46	10.8	-	17	11	-	49	40	62	-
Total Organic Carbon	mg/L	5	-	5.2	5.2	4.5	-	12.2	12	4.5	-	8.1	6	-	28	18.5	27	-
Dissolved Organic Carbon	mg/L	4.9	-	5.1	5	-	-	-	-	-	-	-	4.5	-	-	-	-	-
Total Inorganic Carbon	mg/L	-	-	7.7	8	7	-	36.2	36	6.3	-	9.1	-	-	21.1	21.9	35.6	-
Total Inorganic Carbon (Calculated)	mg/L	6	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-
Nutrients and Chlorophyll *a*																		
Total Ammonia as Nitrogen	mg/L	<0.05	0.459	<0.050	<0.050	0.011	-	0.203	0.233	0.019	-	-	<0.05	0.23	-	0.029	0.025	-
Nitrate as Nitrogen	mg/L	<0.1	<0.050	<0.050	<0.050	<0.008	-	0.041	0.032	<0.006	-	0.011	<0.1	0.196	0.012	0.009	<0.006	< 0.005
Nitrite as Nitrogen	mg/L	<0.05	<0.050	<0.050	<0.050	-	-	-	-	-	-	-	<0.05	<0.050	-	-	-	0.001
Nitrate+Nitrite as Nitrogen	mg/L	<0.1	<0.071	<0.071	<0.071	<0.008	-	0.044	0.035	<0.006	-	0.014	<0.1	0.196	0.019	0.017	0.013	-
Total Kjeldahl Nitrogen	mg/L	0.4	1.46	0.43	0.39	0.29	-	1.45	1.46	0.47	-	-	0.3	1.01	-	0.82	1.3	-
Phosphorus, Total	mg/L	0.008	0.0089	0.0065	0.0077	0.1	-	0.011	0.009	0.012	-	-	0.013	0.0084	-	0.017	0.021	< 0.30
Phosphorus, Total Dissolved	mg/L	0.004	0.0085	0.0025	0.0018	0.009	-	0.009	0.008	0.007	-	0.008	0.004	0.0071	0.007	0.005	0.007	-
Orthophosphate (PO_4-P)	mg/L	<0.001	<0.0010	<0.0010	<0.0010	0.002	-	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.0010	<0.001	0.001	<0.001	-
Chlorophyll *a*	µg/L	5	-	-	-	1.08 [d]	1.67 [d]	-	-	-	2.22 [d]	-	5	-	-	-	-	-
Cyanides																		
Cyanide, Total	µg/L	<2	<2	<2	<2	-	-	<1	<1	2	-	<2	<2	<2	<2	<2	**43**	-

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Appendix B3-3: Water Quality in Lakes and Ponds of the Peninsula Basin B, Meliadine Gold Project, 1994 to 2009

Waterbody	Units	B6				B7									B8	B9	B10	B36 [c]
Date Sampled		12-Jul-08	27-Apr-09	28-Jul-09	28-Jul-09	18-Jul-97	19-Aug-97	27-Apr-98	27-Apr-98	19-Jul-98	22-Aug-98	8-Nov-98	12-Jul-08	27-Apr-09	8-Nov-98	8-Nov-98	8-Nov-98	11-Aug-94
GPS Coordinates (NAD83, Zone 15V) [a]		0537775, 6989211	0537758, 6989218	0537755, 6989216	0537755, 6989216	0537667, 6989775	0537683, 6989674	0537731, 6989737	0537731, 6989737	0537683, 6989674	0537683, 6989674	-	0537760, 6989535	0537811, 6989603	-	-	-	-
Source [b]		Golder	Golder	Golder	Golder	RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	Golder	Golder	RL&L	RL&L	RL&L	Dillon
Total Metals																		
Aluminum (Al)	µg/L	2.9	*<5.0*	<5.0	<5.0	1.7	-	<0.3	<0.3	1	-	0.8	1.5	*<8.0*	8.2	3.1	5	*<200*
Antimony (Sb)	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	-	<0.20	<0.20	<0.20	-	<0.20	<0.20	<0.20	0.1	0.12	0.12	*<200*
Arsenic (As)	µg/L	1.15	<3.0	1.12	1.2	0.9	-	1.7	1.77	1.34	-	1.66	1.2	<3.0	3.75	3.87	**5.77**	1
Barium (Ba)	µg/L	13.2	86.7	<20	<20	8.2	-	43.5	43.7	9.2	-	14.9	11.6	63.8	63.9	67.7	232	1.8
Beryllium (Be)	µg/L	<0.2	<1.0	<1.0	<1.0	<0.1	-	<0.2	<0.2	<0.2	-	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<5
Bismuth (Bi)	µg/L	-	<1.0	-	-	<0.1	-	<0.05	<0.05	<0.03	-	<0.03	-	<1.0	<0.03	<0.03	<0.03	<100
Boron (B)	µg/L	2	<50	<100	<100	-	-	-	-	-	-	-	2	<50	-	-	-	<100
Cadmium (Cd)	µg/L	*<0.05*	0.03	<0.010	<0.010	*<0.1*	-	*<0.1*	*<0.1*	**21.8**	-	**0.07**	*<0.05*	0.019	**0.32**	0.05	**0.41**	*<0.2*
Calcium (Ca)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium (Cs)	µg/L	-	-	-	-	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	-	-	<0.1	<0.1	<0.1	-
Chromium (Cr)	µg/L	<0.06	*<1.0*	*<1.0*	*<1.0*	*<2*	-	**3.73**	**3.01**	**2.78**	-	0.65	<0.06	*<1.0*	**4.07**	**4.34**	**9.36**	*<15*
Cobalt (Co)	µg/L	<0.1	0.53	<0.30	<0.30	<0.1	-	0.3	0.3	<0.1	-	0.2	<0.1	<0.30	0.3	0.3	0.5	<15
Copper (Cu)	µg/L	1.2	3.7	1.0	1.1	0.8	-	**2.4**	1.7	1.3	-	**6.2**	**2.7**	2	**5.2**	3.2	**8.7**	*<10*
Iron (Fe)	µg/L	83	-	117	118	63	-	192	220	56	-	20	64	-	145	260	156	3.9
Lead (Pb)	µg/L	0.1	<0.50	<0.50	<0.50	<0.2	-	<0.05	<0.05	0.11	-	0.26	<0.05	<0.50	0.08	0.21	<0.05	<1
Lithium (Li)	µg/L	-	12.5	5.4	5.2	<0.1	-	3	2.8	<0.1	-	<0.1	-	16.8	6.2	5.1	11.3	<15
Magnesium (Mg)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese (Mn)	µg/L	7.2	383	11.6	12.8	2.4	-	65.1	79	0.7	-	0.3	4	111	5.4	0.9	4	<5
Mercury (Hg)	µg/L	<0.02	<0.020	<0.020	<0.020	<0.01	-	<0.01	<0.01	<0.02	-	<0.02	<0.02	<0.020	<0.02	<0.02	<0.02	*<0.05*
Molybdenum (Mo)	µg/L	0.11	<1.0	<1.0	<1.0	0.1	-	0.23	0.22	0.13	-	0.24	0.12	<1.0	0.3	0.18	0.65	<30
Nickel (Ni)	µg/L	0.61	4.4	<1.0	<1.0	1.1	-	3.3	3.5	1.1	-	1.94	0.56	2.9	8.36	6.66	13.4	<20
Potassium (K)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium (Rb)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (Se)	µg/L	0.2	<0.50	*<1.0*	*<1.0*	*<10*	-	<0.1	<0.1	0.2	-	<0.1	0.2	<0.50	<0.1	<0.1	<0.1	<0.5
Silicon (Si)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	510
Silver (Ag)	µg/L	*<0.1*	<0.020	<0.020	<0.020	*<0.1*	-	*<0.1*	*<0.1*	*<0.1*	-	*<0.1*	*<0.1*	<0.020	*<0.1*	*<0.1*	*<0.1*	*<15*
Sodium (Na)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium (Sr)	µg/L	74.9	408	-	-	47.9	-	196	211	51	-	85.3	75.2	394	327	377	892	121
Thallium (Tl)	µg/L	<0.03	<0.20	<0.20	<0.20	<0.1	-	<0.05	<0.05	<0.03	-	0.05	<0.03	<0.20	0.11	0.1	0.11	*<100*
Tin (Sn)	µg/L	-	<0.50	0.63	1.61	-	-	-	-	-	-	-	-	<0.50	-	-	-	<300
Titanium (Ti)	µg/L	-	-	-	-	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	-	-	0.9	0.6	0.8	<10
Tungsten (W)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<100
Uranium (U)	µg/L	<0.05	0.08	<0.20	<0.20	<0.1	-	0.09	0.09	<0.05	-	<0.05	<0.05	0.07	0.07	<0.05	0.44	-
Vanadium (V)	µg/L	0.13	<1.0	<1.0	<1.0	<0.1	-	1	0.8	0.07	-	0.08	0.16	<1.0	1.06	1.1	2.4	<30
Zinc (Zn)	µg/L	<0.8	14.7	<5.0	<5.0	<5	-	<0.8	<0.8	6.9	-	14.5	<0.8	6.5	8.2	10.5	5.8	<5
Dissolved Metals																		
Aluminum (Al)	µg/L	2	<5.0	<5.0	<5.0	-	-	-	-	-	-	-	1.9	13	-	-	-	-
Antimony (Sb)	µg/L	<0.03	<0.50	<0.50	<0.50	-	-	-	-	-	-	-	<0.03	<0.50	-	-	-	-
Arsenic (As)	µg/L	1.01	<3.0	1.08	1.12	-	-	-	-	-	-	-	1.07	<3.0	-	-	-	-
Barium (Ba)	µg/L	12.7	-	<20	<20	-	-	-	-	-	-	-	12.3	-	-	-	-	-
Beryllium (Be)	µg/L	<0.2	<1.0	<1.0	<1.0	-	-	-	-	-	-	-	<0.2	<1.0	-	-	-	-
Boron (B)	µg/L	0.2	-	<100	<100	-	-	-	-	-	-	-	0.2	-	-	-	-	-
Cadmium (Cd)	µg/L	<0.05	0.023	<0.010	<0.010	-	-	-	-	-	-	-	<0.05	0.014	-	-	-	-
Calcium (Ca)	µg/L	13800	75000	18800	17200	-	-	-	-	-	-	-	13900	63800	-	-	-	-

Appendix B3-3: Water Quality in Lakes and Ponds of the Peninsula Basin B, Meliadine Gold Project, 1994 to 2009

Waterbody	Units	B6				B7									B8	B9	B10	B36 [c]
Date Sampled		12-Jul-08	27-Apr-09	28-Jul-09	28-Jul-09	18-Jul-97	19-Aug-97	27-Apr-98	27-Apr-98	19-Jul-98	22-Aug-98	8-Nov-98	12-Jul-08	27-Apr-09	8-Nov-98	8-Nov-98	8-Nov-98	11-Aug-94
GPS Coordinates (NAD83, Zone 15V) [a]		0537775, 6989211	0537758, 6989218	0537755, 6989216	0537755, 6989216	0537667, 6989775	0537683, 6989674	0537731, 6989737	0537731, 6989737	0537683, 6989674	0537683, 6989674	-	0537760, 6989535	0537811, 6989603	-	-	-	-
Source [b]		Golder	Golder	Golder	Golder	RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	RL&L	Golder	Golder	RL&L	RL&L	RL&L	Dillon
Chromium (Cr)	µg/L	<0.06	4.1	<1.0	<1.0	-	-	-	-	-	-	-	<0.06	5.4	-	-	-	-
Cobalt (Co)	µg/L	<0.1	0.47	<0.30	<0.30	-	-	-	-	-	-	-	<0.1	<0.30	-	-	-	-
Copper (Cu)	µg/L	2.2	1.7	<1.0	<1.0	-	-	-	-	-	-	-	0.8	1.5	-	-	-	-
Iron (Fe)	µg/L	34	-	38	<30	-	-	-	-	-	-	-	25	-	-	-	-	-
Lead (Pb)	µg/L	0.19	<0.50	<0.50	<0.50	-	-	-	-	-	-	-	0.12	<0.50	-	-	-	-
Lithium (Li)	µg/L	-	12.7	5.3	<5.0	-	-	-	-	-	-	-	-	15.8	-	-	-	-
Magnesium (Mg)	µg/L	1430	8000	1910	1860	-	-	-	-	-	-	-	1380	6190	-	-	-	-
Manganese (Mn)	µg/L	2.6	367	2.74	2.91	-	-	-	-	-	-	-	1.9	105	-	-	-	-
Mercury (Hg)	µg/L	<0.02	<0.020	<0.020	<0.020	-	-	-	-	-	-	-	<0.02	<0.020	-	-	-	-
Molybdenum (Mo)	µg/L	0.11	<1.0	<1.0	<1.0	-	-	-	-	-	-	-	0.12	<1.0	-	-	-	-
Nickel (Ni)	µg/L	0.61	3.9	<1.0	<1.0	-	-	-	-	-	-	-	0.52	2.5	-	-	-	-
Potassium (K)	µg/L	900	5180	1110	1030	-	-	-	-	-	-	-	900	4000	-	-	-	-
Selenium (Se)	µg/L	<0.1	<1.0	<1.0	<1.0	-	-	-	-	-	-	-	<0.1	<1.0	-	-	-	-
Silver (Ag)	µg/L	<0.1	<0.020	<0.020	<0.020	-	-	-	-	-	-	-	<0.1	<0.020	-	-	-	-
Sodium (Na)	µg/L	2430	14000	3100	2900	-	-	-	-	-	-	-	2110	9500	-	-	-	-
Strontium (Sr)	µg/L	74.5	-	-	-	-	-	-	-	-	-	-	81.8	-	-	-	-	-
Thallium (Tl)	µg/L	<0.03	<0.20	<0.20	<0.20	-	-	-	-	-	-	-	<0.03	<0.20	-	-	-	-
Tin (Sn)	µg/L	-	<0.50	0.68	1.87	-	-	-	-	-	-	-	-	<0.50	-	-	-	-
Titanium (Ti)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium (U)	µg/L	<0.05	<0.20	<0.20	<0.20	-	-	-	-	-	-	-	<0.05	<0.20	-	-	-	-
Vanadium (V)	µg/L	<0.05	<1.0	<1.0	<1.0	-	-	-	-	-	-	-	<0.05	<1.0	-	-	-	-
Zinc (Zn)	µg/L	1.5	-	<5.0	<5.0	-	-	-	-	-	-	-	1.6	-	-	-	-	-
Organic Compounds																		
Oil and Grease	µg/L	-	-	-	-	-	-	-	-	-	-	-	<500	-	-	-	-	-
Phenols	µg/L	-	-	-	-	**10**	-	<1	<1	<1	-	**4**	3	-	**12**	**9**	**11**	-
Benzene	µg/L	-	-	-	-	<0.5	-	-	-	<0.5	-	-	<0.50	-	-	-	-	-
Ethylbenzene	µg/L	-	-	-	-	<0.5	-	-	-	<0.5	-	-	<0.50	-	-	-	-	-
Toluene	µg/L	-	-	-	-	<0.5	-	-	-	<0.5	-	-	<0.50	-	-	-	-	-
Xylenes	µg/L	-	-	-	-	<0.5	-	-	-	0.6	-	-	<0.50	-	-	-	-	-
F1 (C6-C10)	µg/L	-	-	-	-	-	-	-	-	-	-	-	<100	-	-	-	-	-
F1 -BTEX	µg/L	-	-	-	-	-	-	-	-	-	-	-	<100	-	-	-	-	-
F2 (>C10-C16)	µg/L	-	-	-	-	-	-	-	-	-	-	-	<50	-	-	-	-	-
F3 (C16-C34)	µg/L	-	-	-	-	-	-	-	-	-	-	-	<50	-	-	-	-	-
F4 (C34-C50)	µg/L	-	-	-	-	-	-	-	-	-	-	-	<50	-	-	-	-	-
Total Volatiles	µg/L	-	-	-	-	<100	-	-	-	<100	-	-	-	-	-	-	-	-
Total Extractables	µg/L	-	-	-	-	62	-	-	-	<50	-	-	-	-	-	-	-	-
Other																		
Biological Oxygen Demand (BOD)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fecal Coliforms	CFU/100 mL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
Bold values are equal to or greater than the Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2007, CWQG).
Underlined values are equal to or greater than the Guidelines for Canadian Drinking Water Quality (Health Canada 2007, GCDWQ).
Italicized values indicate the detection limit equals or exceeds either guideline.
(-) = No data available
°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; µg/L = micrograms per litre; NTU = nephelometric turbidity units.

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Appendix B3-4: Water Quality in Lakes of the Peninsula Basin C, Meliadine Gold Project, 1994 to 2009

Waterbody	Units	C5 [b]
Date Sampled		11-Aug-94
GPS Coordinates (NAD83, Zone 15V)		-
Source [a]		Dillon 1994
Field Measurements		
Water Temperature	°C	8.8
Dissolved Oxygen	mg/L	-
pH	pH	7.15
Specific Conductivity	µS/cm	-
Secchi Disk Depth	m	-
Ice Depth	m	-
Total Lake Depth	m	-
Conventional Parameters (Laboratory-Measured)		
pH	pH	7.51
Specific Conductivity	µS/cm	63.5
Total Dissolved Solids	mg/L	41
Total Dissolved Solids (Calculated)	mg/L	-
Total Alkalinity	mg $CaCO_3$/L	26.2
Total Hardness	mg $CaCO_3$/L	28.2
Total Suspended Solids	mg/L	< 1
Turbidity	NTU	0.37
Major Ions		
Bicarbonate	mg/L	-
Bromide	mg/L	-
Calcium	mg/L	9.66
Carbonate	mg/L	-
Chloride	mg/L	2.1
Fluoride	mg/L	0.05
Hydroxide	mg/L	-
Magnesium	mg/L	0.994
Potassium	mg/L	0.84
Silicate (SiO_2)	mg/L	< 1.0
Sodium	mg/L	1.42
Sulphate	mg/L	3.6
Ion Balance	%	-
Organic/Inorganic Carbon		
Total Carbon	mg/L	-
Total Organic Carbon	mg/L	-
Total Dissolved Carbon	mg/L	-
Total Inorganic Carbon	mg/L	-
Nutrients and Chlorophyll *a*		
Total Ammonia as Nitrogen	mg/L	-
Nitrate as Nitrogen	mg/L	0.008
Nitrite as Nitrogen	mg/L	0.001
Nitrate+Nitrite as Nitrogen	mg/L	-
Total Kjeldahl Nitrogen	mg/L	-
Phosphorus, Total	mg/L	< 0.30
Phosphorus, Total Dissolved	mg/L	-
Orthophosphate (PO_4-P)	mg/L	-
Chlorophyll *a*	µg/L	-
Cyanides		
Cyanide, Total	µg/L	-
Total Metals		
Aluminum (Al)	µg/L	*<200*
Antimony (Sb)	µg/L	*<200*
Arsenic (As)	µg/L	0.6
Barium (Ba)	µg/L	<10
Beryllium (Be)	µg/L	<5
Bismuth (Bi)	µg/L	<100
Boron (B)	µg/L	<100
Cadmium (Cd)	µg/L	*<0.2*
Cesium (Cs)	µg/L	-
Chromium (Cr)	µg/L	*<15*
Cobalt (Co)	µg/L	<10
Copper (Cu)	µg/L	*<10*
Iron (Fe)	µg/L	4.4
Lead (Pb)	µg/L	*<1*
Lithium (Li)	µg/L	<15
Magnesium (Mg)	µg/L	-
Manganese (Mn)	µg/L	<5
Mercury (Hg)	µg/L	*<0.05*
Molybdenum (Mo)	µg/L	<30
Nickel (Ni)	µg/L	<20
Potassium (K)	µg/L	-
Rubidium (Rb)	µg/L	-
Selenium (Se)	µg/L	<0.5
Silicon (Si)	µg/L	467
Silver (Ag)	µg/L	*<15*
Sodium (Na)	µg/L	-
Thallium (Tl)	µg/L	*<100*
Tin (Sn)	µg/L	<300
Titanium (Ti)	µg/L	<10
Tungsten (W)	µg/L	<100
Uranium (U)	µg/L	-
Vanadium (V)	µg/L	<30
Zinc (Zn)	µg/L	<5

Waterbody	Units	C5 [b]
Date Sampled		11-Aug-94
GPS Coordinates (NAD83, Zone 15V)		-
Source [a]		Dillon 1994
Dissolved Metals		
Aluminum (Al)	µg/L	-
Antimony (Sb)	µg/L	-
Arsenic (As)	µg/L	-
Barium (Ba)	µg/L	-
Beryllium (Be)	µg/L	-
Boron (B)	µg/L	-
Cadmium (Cd)	µg/L	-
Calcium (Ca)	µg/L	-
Chromium (Cr)	µg/L	-
Cobalt (Co)	µg/L	-
Copper (Cu)	µg/L	-
Iron (Fe)	µg/L	-
Lead (Pb)	µg/L	-
Lithium (Li)	µg/L	-
Magnesium (Mg)	µg/L	-
Manganese (Mn)	µg/L	-
Mercury (Hg)	µg/L	-
Molybdenum (Mo)	µg/L	-
Nickel (Ni)	µg/L	-
Potassium (K)	µg/L	-
Selenium (Se)	µg/L	-
Silver (Ag)	µg/L	-
Sodium (Na)	µg/L	-
Strontium (Sr)	µg/L	-
Thallium (Tl)	µg/L	-
Tin (Sn)	µg/L	-
Titanium (Ti)	µg/L	-
Uranium (U)	µg/L	-
Vanadium (V)	µg/L	-
Zinc (Zn)	µg/L	-
Organic Compounds		
Oil and Grease	µg/L	-
Phenols	µg/L	-
Benzene	µg/L	-
Ethylbenzene	µg/L	-
Toluene	µg/L	-
Xylenes	µg/L	-
F1 (C6-C10)	µg/L	-
F1 -BTEX	µg/L	-
F2 (>C10-C16)	µg/L	-
F3 (C16-C34)	µg/L	-
F4 (C34-C50)	µg/L	-
Other		
Biological Oxygen Demand (BOD)	mg/L	-
Fecal coliforms	CFU/100 mL	-

a = Data sources: 1994 to 1995 = Dillon (1994 and 1995); 1997 to 2000 = RL&L (1998, 1999, 2000, 2001); 2007 = Comaplex Minerals Corporation, pers. comm.; 2008 and 2009 = Golder Associates Ltd.

b = Station PL-04 in Dillion 1994.

Notes:

Bold values are equal to or greater than the Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2007, CWQG).

Underlined values are equal to or greater than the Guidelines for Canadian Drinking Water Quality (Health Canada 2007, GCDWQ).

Italicized values indicate the detection limit equals or exceeds either guideline.

(-) = No data available

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; µg/L = micrograms per litre; NTU = nephelometric turbidity units.

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Table B3-5: Water Quality in Lakes of the Peninsula Basin D, Meliadine Gold Project, 1994 to 2009

Waterbody	Units	D1		D7			
Date Sampled		19-Aug-97	27-Apr-98	11-Aug-94	17-Jul-97	19-Aug-97	27-Apr-98
GPS Coordinates (NAD83, Zone 15V) [a]		0533065, 6989636	0533017, 6989758	- [c]	0536706, 6988918	0536756, 6988921	0536631, 6988803
Source [b]		RL&L 1998	RL&L 1999	Dillon 1994	RL&L 1998	RL&L 1998	RL&L 1999
Field Measurements							
Water Temperature	°C	16.1	-0.2	9.6	14.1	15.4	0.3
Dissolved Oxygen	mg/L	10.6	**0.2**	-	10.8	10.8	**1.5**
pH	pH	8.14	7.05	7.13	7.97	8.10	7.16
Specific Conductivity	µS/cm	134.9	1816	-	136.4	150.6	845
Secchi Disk Depth	m	2.2	2.2	-	2.2	2.2	-
Ice Depth	m	-	1.5	-	-	-	1.8
Total Lake Depth	m	2.2	2.2	-	2.2	2.2	2.3
Conventional Parameters (Laboratory-Measured)							
pH	pH	-	7	6.92	7.83	-	7.1
Specific Conductivity	µS/cm	-	1980	91.8	144	-	902
Total Dissolved Solids	mg/L	-	1100	56	-	-	-
Total Dissolved Solids (Calculated)	mg/L	-	-	-	69	-	462
Total Alkalinity	mg $CaCO_3$/L	-	905	36.5	45.8	-	363
Total Hardness	mg $CaCO_3$/L	-	930	38.3	44.5	-	358
Total Suspended Solids	mg/L	-	139	<1	3	-	2
Turbidity	NTU	-	210	0.65	1.1	-	1
Major Ions							
Bicarbonate	mg/L	-	1100	-	45.8	-	443
Bromide	mg/L	-	-	-	-	-	-
Calcium	mg/L	-	304	12.1	13.9	-	112
Carbonate	mg/L	-	<1	-	<0.3	-	<1
Chloride	mg/L	-	107	4.7	7.43	-	50.8
Fluoride	mg/L	-	-	0.04	-	-	-
Hydroxide	mg/L	-	<1	-	-	-	<1
Magnesium	mg/L	-	41.6	1.95	2.39	-	19
Potassium	mg/L	-	14.2	0.91	1.14	-	8.27
Reactive Silica (as SiO_2)	mg/L	-	2.9	-	0.3	-	6
Silicate (SiO_2)	mg/L	-	-	<1.0	-	-	-
Sodium	mg/L	-	60.7	3.15	4.57	-	36.7
Sulphate	mg/L	-	29.4	2.1	<3	-	17.6
Ion Balance	%	-	100	-	-	-	99
Organic/Inorganic Carbon							
Total Carbon	mg/L	-	324	-	15	-	119
Total Organic Carbon	mg/L	-	64.9	-	4.2	-	23.2
Dissolved Organic Carbon	mg/L	-	-	-	-	-	-
Total Inorganic Carbon	mg/L	-	264	-	11	-	103
Nutrients and Chlorophyll *a*							
Total Ammonia as Nitrogen	mg/L	-	1.35	-	0.028	-	0.305
Nitrate as Nitrogen	mg/L	-	<0.006	<0.005	<0.008	-	0.044
Nitrite as Nitrogen	mg/L	-	-	<0.001	-	-	-
Nitrate+Nitrite as Nitrogen	mg/L	-	<0.006	-	<0.008	-	0.044
Total Kjeldahl Nitrogen	mg/L	-	5.95	-	0.31	-	7.78
Phosphorus, Total	mg/L	-	0.045	<0.30	0.018	-	0.014
Phosphorus, Total Dissolved	mg/L	-	0.018	-	0.008	-	0.011
Orthophosphate (PO_4-P)	mg/L	-	<0.001	-	0.003	-	<0.001
Chlorophyll *a*	µg/L	-	-	-	1.68 [d]	1.27 [d]	-
Cyanides							
Cyanide, Total	µg/L	-	4	-	-	-	1
Total Metals							
Aluminum (Al)	µg/L	-	20.5	*<200*	6.9	-	1.9
Antimony (Sb)	µg/L	-	<0.15	*<200*	0.3	-	<0.03
Arsenic (As)	µg/L	-	3.8	0.5	0.7	-	2.84
Barium (Ba)	µg/L	-	222	1	15.1	-	133
Beryllium (Be)	µg/L	-	2	<5	<0.1	-	<0.2
Bismuth (Bi)	µg/L	-	<0.25	<100	<0.1	-	<0.05
Boron (B)	µg/L	-	-	<100	-	-	-
Cadmium (Cd)	µg/L	-	*<0.5*	*<0.2*	**0.2**	-	*<0.1*
Cesium (Cs)	µg/L	-	<0.5	-	<0.1	-	<0.1
Chromium (Cr)	µg/L	-	**20.2**	*<15*	*<2*	-	**12.6**
Cobalt (Co)	µg/L	-	4.7	<15	<0.1	-	0.8
Copper (Cu)	µg/L	-	3	*<10*	**2.6**	-	**17.8**
Iron (Fe)	µg/L	-	<50	62	113	-	**660**
Lead (Pb)	µg/L	-	<0.25	<1	0.4	-	1.37
Lithium (Li)	µg/L	-	23.8	<15	1	-	10.8
Magnesium (Mg)	µg/L	-	-	-	-	-	-
Manganese (Mn)	µg/L	-	1520	7	10.8	-	368
Mercury (Hg)	µg/L	-	*<0.05*	*<0.05*	0.02	-	<0.01
Molybdenum (Mo)	µg/L	-	1.1	<30	0.4	-	0.78
Nickel (Ni)	µg/L	-	18.1	<20	4.1	-	8.4
Potassium (K)	µg/L	-	-	-	-	-	-
Rubidium (Rb)	µg/L	-	-	-	-	-	-

Table B3-5: Water Quality in Lakes of the Peninsula Basin D, Meliadine Gold Project, 1994 to 2009

Waterbody	Units	D1		D7			
Date Sampled		19-Aug-97	27-Apr-98	11-Aug-94	17-Jul-97	19-Aug-97	27-Apr-98
GPS Coordinates (NAD83, Zone 15V) [a]		0533065, 6989636	0533017, 6989758	- [c]	0536706, 6988918	0536756, 6988921	0536631, 6988803
Source [b]		RL&L 1998	RL&L 1999	Dillon 1994	RL&L 1998	RL&L 1998	RL&L 1999
Selenium (Se)	µg/L	-	0.9	<0.5	*<10*	-	<0.1
Silicon (Si)	µg/L	-	-	113	-	-	-
Silver (Ag)	µg/L	-	*<0.5*	*<15*	*<0.1*	-	*<0.1*
Sodium (Na)	µg/L	-	-	-	-	-	-
Strontium (Sr)	µg/L	-	1260	54	65	-	549
Thallium (Tl)	µg/L	-	<0.25	*<100*	<0.1	-	<0.05
Tin (Sn)	µg/L	-	-	<300	-	-	-
Titanium (Ti)	µg/L	-	2.9	<10	0.7	-	0.9
Tungsten (W)	µg/L	-	-	<100	-	-	-
Uranium (U)	µg/L	-	1.65	-	0.1	-	0.59
Vanadium (V)	µg/L	-	6.1	<30	<0.1	-	3.2
Zinc (Zn)	µg/L	-	<4	<5	**123**	-	<0.8
Dissolved Metals							
Aluminum (Al)	µg/L	-	-	-	-	-	-
Antimony (Sb)	µg/L	-	-	-	-	-	-
Arsenic (As)	µg/L	-	-	-	-	-	-
Barium (Ba)	µg/L	-	-	-	-	-	-
Beryllium (Be)	µg/L	-	-	-	-	-	-
Boron (B)	µg/L	-	-	-	-	-	-
Cadmium (Cd)	µg/L	-	-	-	-	-	-
Calcium (Ca)	µg/L	-	-	-	-	-	-
Chromium (Cr)	µg/L	-	-	-	-	-	-
Cobalt (Co)	µg/L	-	-	-	-	-	-
Copper (Cu)	µg/L	-	-	-	-	-	-
Iron (Fe)	µg/L	-	-	-	-	-	-
Lead (Pb)	µg/L	-	-	-	-	-	-
Lithium (Li)	µg/L	-	-	-	-	-	-
Magnesium (Mg)	µg/L	-	-	-	-	-	-
Manganese (Mn)	µg/L	-	-	-	-	-	-
Mercury (Hg)	µg/L	-	-	-	-	-	-
Molybdenum (Mo)	µg/L	-	-	-	-	-	-
Nickel (Ni)	µg/L	-	-	-	-	-	-
Potassium (K)	µg/L	-	-	-	-	-	-
Selenium (Se)	µg/L	-	-	-	-	-	-
Silver (Ag)	µg/L	-	-	-	-	-	-
Sodium (Na)	µg/L	-	-	-	-	-	-
Strontium (Sr)	µg/L	-	-	-	-	-	-
Thallium (Tl)	µg/L	-	-	-	-	-	-
Tin (Sn)	µg/L	-	-	-	-	-	-
Titanium (Ti)	µg/L	-	-	-	-	-	-
Uranium (U)	µg/L	-	-	-	-	-	-
Vanadium (V)	µg/L	-	-	-	-	-	-
Zinc (Zn)	µg/L	-	-	-	-	-	-
Organic Compounds							
Oil and Grease	µg/L	-	-	-	-	-	-
Phenols	µg/L	-	<1	-	**9**	-	<1
Benzene	µg/L	-	-	-	<0.5	-	-
Ethylbenzene	µg/L	-	-	-	<0.5	-	-
Toluene	µg/L	-	-	-	<0.5	-	-
Xylenes	µg/L	-	-	-	<0.5	-	-
F1 (C6-C10)	µg/L	-	-	-	-	-	-
F1 -BTEX	µg/L	-	-	-	-	-	-
F2 (>C10-C16)	µg/L	-	-	-	-	-	-
F3 (C16-C34)	µg/L	-	-	-	-	-	-
F4 (C34-C50)	µg/L	-	-	-	-	-	-
Total Volatiles	µg/L	-	-	-	<100	-	-
Total Extractables	µg/L	-	-	-	<50	-	-
Other							
Biological Oxygen Demand (BOD)	mg/L	-	-	-	-	-	-
Fecal Coliforms	CFU/100 mL	-	-	-	-	-	-

a = GPS coordinates from RL&L 1998, 1999, 2000, 2001 were converted from NAD27.

b = Data were obtained from the following sources: 1994 to 1995 = Dillon (1994 and 1995); 1997 to 2000 = RL&L (1998, 1999, 2000, 2001); 2007 = Comaplex Minerals Corporation, pers. comm.; 2008 and 2009 = Golder Associates Ltd.

c = Station MB-01 in Dillon 1994.

d = Samples for chlorophyll *a* were composite samples collected over the photic zone, as identified from Secchi depth.

Notes:

Bold values are equal to or greater than the Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2007, CWQG).

Underlined values are equal to or greater than the Guidelines for Canadian Drinking Water Quality (Health Canada 2007, GCDWQ).

Italicized values indicate the detection limit equals or exceeds either guideline.

(-) = No data available

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; µg/L = micrograms per litre; NTU = nephelometric turbidity units.

Appendix B3-6: Water Quality in Lakes of the Peninsula Basin E, Meliadine Gold Project, 1994 to 2009

Waterbody	Units	E3 [b]
Date Sampled		11-Aug-94
GPS Coordinates (NAD83, Zone 15V)		-
Source [a]		Dillon 1994
Field Measurements		
Water Temperature	°C	9.9
Dissolved Oxygen	mg/L	-
pH	pH	7.1
Specific Conductivity	µS/cm	-
Secchi Disk Depth	m	-
Total Lake Depth	m	-
Conventional Parameters (Laboratory-Measured)		
pH	pH	6.84
Specific Conductivity	µS/cm	46.6
Total Dissolved Solids	mg/L	29
Total Dissolved Solids (Calculated)	mg/L	-
Total Alkalinity	mg $CaCO_3$/L	20.1
Total Hardness	mg $CaCO_3$/L	19.8
Total Suspended Solids	mg/L	<1
Turbidity	NTU	0.58
Major Ions		
Bicarbonate	mg/L	-
Bromide	mg/L	-
Calcium	mg/L	6.71
Carbonate	mg/L	-
Chloride	mg/L	1.8
Fluoride	mg/L	0.03
Hydroxide	mg/L	-
Magnesium	mg/L	0.73
Potassium	mg/L	0.5
Reactive Silica (as SiO_2)	mg/L	-
Silicate (SiO_2)	mg/L	<1.0
Sodium	mg/L	1.1
Sulphate	mg/L	1.4
Ion Balance	%	-
Organic/Inorganic Carbon		
Total Carbon	mg/L	-
Total Organic Carbon	mg/L	-
Dissolved Organic Carbon	mg/L	-
Total Inorganic Carbon	mg/L	-
Nutrients and Chlorophyll *a*		
Total Ammonia as Nitrogen	mg/L	-
Nitrate as Nitrogen	mg/L	0.006
Nitrite as Nitrogen	mg/L	0.001
Nitrate+Nitrite as Nitrogen	mg/L	-
Total Kjeldahl Nitrogen	mg/L	-
Phosphorus, Total	mg/L	<0.30
Phosphorus, Total Dissolved	mg/L	-
Orthophosphate (PO_4-P)	mg/L	-
Chlorophyll *a*	µg/L	-
Cyanides		
Cyanide, Total	µg/L	-
Total Metals		
Aluminum (Al)	µg/L	*<200*
Antimony (Sb)	µg/L	*<200*
Arsenic (As)	µg/L	0.4
Barium (Ba)	µg/L	<10
Beryllium (Be)	µg/L	<5
Bismuth (Bi)	µg/L	<100
Boron (B)	µg/L	<100
Cadmium (Cd)	µg/L	*<0.2*
Cesium (Cs)	µg/L	-
Chromium (Cr)	µg/L	*<15*
Cobalt (Co)	µg/L	<15
Copper (Cu)	µg/L	*<10*
Iron (Fe)	µg/L	74
Lead (Pb)	µg/L	*<1*
Lithium (Li)	µg/L	<15
Magnesium (Mg)	µg/L	-
Manganese (Mn)	µg/L	5
Mercury (Hg)	µg/L	*<0.05*
Molybdenum (Mo)	µg/L	<30
Nickel (Ni)	µg/L	<20
Potassium (K)	µg/L	-
Selenium (Se)	µg/L	*<5*
Silicon (Si)	µg/L	178
Silver (Ag)	µg/L	*<15*
Sodium (Na)	µg/L	-
Strontium (Sr)	µg/L	31
Thallium (Tl)	µg/L	*<100*
Tin (Sn)	µg/L	<300
Titanium (Ti)	µg/L	<10
Tungsten (W)	µg/L	<100
Uranium (U)	µg/L	-
Vanadium (V)	µg/L	<30
Zinc (Zn)	µg/L	<5

Waterbody	Units	E3 [b]
Date Sampled		11-Aug-94
GPS Coordinates (NAD83, Zone		-
Source [a]		Dillon 1994
Dissolved Metals		
Aluminum (Al)	µg/L	-
Antimony (Sb)	µg/L	-
Arsenic (As)	µg/L	-
Barium (Ba)	µg/L	-
Beryllium (Be)	µg/L	-
Boron (B)	µg/L	-
Cadmium (Cd)	µg/L	-
Calcium (Ca)	µg/L	-
Chromium (Cr)	µg/L	-
Cobalt (Co)	µg/L	-
Copper (Cu)	µg/L	-
Iron (Fe)	µg/L	-
Lead (Pb)	µg/L	-
Lithium (Li)	µg/L	-
Magnesium (Mg)	µg/L	-
Manganese (Mn)	µg/L	-
Mercury (Hg)	µg/L	-
Molybdenum (Mo)	µg/L	-
Nickel (Ni)	µg/L	-
Potassium (K)	µg/L	-
Selenium (Se)	µg/L	-
Silver (Ag)	µg/L	-
Sodium (Na)	µg/L	-
Strontium (Sr)	µg/L	-
Thallium (Tl)	µg/L	-
Tin (Sn)	µg/L	-
Titanium (Ti)	µg/L	-
Uranium (U)	µg/L	-
Vanadium (V)	µg/L	-
Zinc (Zn)	µg/L	-
Organic Compounds		
Oil and Grease	µg/L	-
Phenols	µg/L	-
Benzene	µg/L	-
Ethylbenzene	µg/L	-
Toluene	µg/L	-
Xylenes	µg/L	-
F1 (C6-C10)	µg/L	-
F1 -BTEX	µg/L	-
F2 (>C10-C16)	µg/L	-
F3 (C16-C34)	µg/L	-
F4 (C34-C50)	µg/L	-
Total Volatiles	µg/L	-
Total Extractables	µg/L	-
Other		
Biological Oxygen Demand (BOD)	mg/L	-
Fecal Coliforms	CFU/100 mL	-

a = Data were obtained from the following sources: 1994 to 1995 = Dillon (1994 and 1995); 1997 to 2000 = RL&L (1998, 1999, 2000, 2001); 2007 = Comaplex Minerals Corporation, pers. comm.; 2008 and 2009 = Golder Associates Ltd.

b = Station MB-02 in Dillon 1994.

Notes:

Bold values are equal to or greater than the Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2007, CWQG).

Underlined values are equal to or greater than the Guidelines for Canadian Drinking Water Quality (Health Canada 2007, GCDWQ).

Italicized values indicate the detection limit equals or exceeds either guidelin

(-) = No data available

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; µg/L = micrograms per litre; NTU = nephelometric turbidity units.

Appendix B3-7: Water Quality in Lakes of the Basin G, Meliadine Gold Project, 1994 to 2009

Waterbody	Units	G2	
Date Sampled		24-Jul-97	22-Aug-97
GPS Coordinates (NAD83, Zone 15V) [a]		0538561, 6990813	0538593, 6990707
Source [b]		RL&L 1998	RL&L 1998
Field Measurements			
Water Temperature	°C	17.4	16.0
Dissolved Oxygen	mg/L	9.9	10.3
pH	pH	7.83	7.91
Specific Conductivity	µS/cm	67.4	74.5
Secchi Disk Depth	m	2.3	2.1
Total Lake Depth	m	2.3	2.1
Conventional Parameters (Laboratory-Measured)			
pH	pH	7.47	-
Specific Conductivity	µS/cm	56.6	-
Total Dissolved Solids	mg/L	44	-
Total Dissolved Solids (Calculated)	mg/L	-	-
Total Alkalinity	mg $CaCO_3$/L	23.7	-
Total Hardness	mg $CaCO_3$/L	21.5	-
Total Suspended Solids	mg/L	<3	-
Turbidity	NTU	0.5	-
Major Ions			
Bicarbonate	mg/L	23.7	-
Bromide	mg/L	-	-
Calcium	mg/L	7.2	-
Carbonate	mg/L	<0.3	-
Chloride	mg/L	2.31	-
Fluoride	mg/L	-	-
Hydroxide	mg/L	-	-
Magnesium	mg/L	0.84	-
Potassium	mg/L	0.755	-
Reactive Silica (as SiO_2)	mg/L	0.501	-
Sodium	mg/L	1.53	-
Sulphate	mg/L	<3	-
Ion Balance	%	-	-
Organic/Inorganic Carbon			
Total Carbon	mg/L	10.0	-
Total Organic Carbon	mg/L	3.8	-
Dissolved Organic Carbon	mg/L	-	-
Total Inorganic Carbon	mg/L	6.0	-
Nutrients and Chlorophyll *a*			
Total Ammonia as Nitrogen	mg/L	0.012	-
Nitrate as Nitrogen	mg/L	<0.008	-
Nitrite as Nitrogen	mg/L	-	-
Nitrate+Nitrite as Nitrogen	mg/L	<0.008	-
Total Kjeldahl Nitrogen	mg/L	0.34	-
Phosphorus, Total	mg/L	0.004	-
Phosphorus, Total Dissolved	mg/L	<0.002	-
Orthophosphate (PO_4-P)	mg/L	<0.002	-
Chlorophyll *a*	µg/L	1.01 [c]	1.36 [c]
Cyanides			
Cyanide, Total	µg/L	-	-
Total Metals			
Aluminum (Al)	µg/L	<0.5	-
Antimony (Sb)	µg/L	0.2	-
Arsenic (As)	µg/L	0.9	-
Barium (Ba)	µg/L	12.3	-
Beryllium (Be)	µg/L	<0.1	-
Bismuth (Bi)	µg/L	<0.1	-
Boron (B)	µg/L	-	-
Cadmium (Cd)	µg/L	*<0.1*	-
Cesium (Cs)	µg/L	<0.1	-
Chromium (Cr)	µg/L	*<2*	-
Cobalt (Co)	µg/L	<0.1	-
Copper (Cu)	µg/L	1.1	-
Iron (Fe)	µg/L	67	-
Lead (Pb)	µg/L	<0.2	-
Lithium (Li)	µg/L	1.0	-
Magnesium (Mg)	µg/L	-	-
Manganese (Mn)	µg/L	1.9	-
Mercury (Hg)	µg/L	<0.01	-
Molybdenum (Mo)	µg/L	0.1	-
Nickel (Ni)	µg/L	0.5	-
Potassium (K)	µg/L	-	-
Rubidium (Rb)	µg/L	-	-
Selenium (Se)	µg/L	*<10*	-
Silver (Ag)	µg/L	*<0.1*	-
Sodium (Na)	µg/L	-	-
Strontium (Sr)	µg/L	42.2	-
Thallium (Tl)	µg/L	<0.1	-
Tin (Sn)	µg/L	-	-
Titanium (Ti)	µg/L	<0.1	-
Uranium (U)	µg/L	<0.1	-
Vanadium (V)	µg/L	<0.1	-
Zinc (Zn)	µg/L	<5	-

Waterbody	Units	G2	
Date Sampled		24-Jul-97	22-Aug-97
GPS Coordinates (NAD83, Zone 15V) [a]		0538561, 6990813	0538593, 6990707
Source [b]		RL&L 1998	RL&L 1998
Dissolved Metals			
Aluminum (Al)	µg/L	-	-
Antimony (Sb)	µg/L	-	-
Arsenic (As)	µg/L	-	-
Barium (Ba)	µg/L	-	-
Beryllium (Be)	µg/L	-	-
Boron (B)	µg/L	-	-
Cadmium (Cd)	µg/L	-	-
Calcium (Ca)	µg/L	-	-
Chromium (Cr)	µg/L	-	-
Cobalt (Co)	µg/L	-	-
Copper (Cu)	µg/L	-	-
Iron (Fe)	µg/L	-	-
Lead (Pb)	µg/L	-	-
Lithium (Li)	µg/L	-	-
Magnesium (Mg)	µg/L	-	-
Manganese (Mn)	µg/L	-	-
Mercury (Hg)-Dissolved	µg/L	-	-
Molybdenum (Mo)	µg/L	-	-
Nickel (Ni)	µg/L	-	-
Potassium (K)	µg/L	-	-
Selenium (Se)	µg/L	-	-
Silver (Ag)	µg/L	-	-
Sodium (Na)	µg/L	-	-
Strontium (Sr)	µg/L	-	-
Thallium (Tl)	µg/L	-	-
Tin (Sn)	µg/L	-	-
Titanium (Ti)	µg/L	-	-
Uranium (U)	µg/L	-	-
Vanadium (V)	µg/L	-	-
Zinc (Zn)	µg/L	-	-
Organic Compounds			
Oil and Grease	µg/L	-	-
Phenols	µg/L	<2	-
Benzene	µg/L	<0.5	-
Ethylbenzene	µg/L	<0.5	-
Toluene	µg/L	<0.5	-
Xylenes	µg/L	<0.5	-
F1 (C6-C10)	µg/L	-	-
F1 -BTEX	µg/L	-	-
F2 (>C10-C16)	µg/L	-	-
F3 (C16-C34)	µg/L	-	-
F4 (C34-C50)	µg/L	-	-
Total Volatiles	µg/L	<100	-
Total Extractables	µg/L	79	-
Other			
Biological Oxygen Demand (BOD	mg/L	-	-
Fecal Coliforms	CFU/100 mL	-	-

a = GPS coordinates from RL&L 1998 were converted from NAD27.
b = Data were obtained from the following sources: 1994 to 1995 = Dillon (1994 and 1995); 1997 to 2000 = RL&L (1998, 1999, 2000, 2001); 2007 = Comaplex Minerals Corporation, pers. comm.; 2008 and 2009 = Golder Associates Ltd.
c = Samples for chlorophyll *a* were composite samples collected over the photic zone, as idenified from Secchi depth.

Notes:
Bold values are equal to or greater than the Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2007, CWQG).
Underlined values are equal to or greater than the Guidelines for Canadian Drinking Water Quality (Health Canada 2007, GCDWQ).
Italicized values indicate the detection limit equals or exceeds either guideline.
(-) = No data available
Notes: °C = degrees Celsius; µS/cm = microSeimens per centimetre; mg/L = milligrams per litre; µg/L = micrograms per litre; NTU = nephelometric turbidity units.

Appendix B3-8: Water Quality in Little Meliadine Lake, Meliadine Gold Project, 1994 to 2009

Waterbody	Units	LML		
Date Sampled		24-Apr-98	29-Jul-98	2-Sep-98
GPS Coordinates (NAD83, Zone 15V) [a]		0537712, 6978225	0537792, 6978201	0537790, 6978194
Source [b]		RL&L 1999	RL&L 1999	RL&L 1999
Field Measurements				
Water Temperature	°C	0.4	13.8	10.4
Dissolved Oxygen[a]	mg/L	14.6	9.6	10.7
pH	pH	6.83	**6.35**	6.71
Specific Conductivity	µS/cm	116.1	76.2	69.8
Secchi Disk Depth	m	-	6.6	7.5
Ice Depth	m	1.5	-	-
Total Lake Depth	m	14.4	14.5	14.8
Conventional Parameters (Laboratory-Measured)				
pH	pH	7	7.3	-
Specific Conductivity	µS/cm	90.9	64.2	-
Total Dissolved Solids	mg/L	42	28	-
Total Dissolved Solids (Calculated)	mg/L	-	-	-
Total Alkalinity	mg $CaCO_3$/L	25	18	-
Total Hardness	mg $CaCO_3$/L	26	17	-
Total Suspended Solids	mg/L	<2	<2	-
Turbidity	NTU	<0.1	0.2	-
Major Ions				
Bicarbonate	mg/L	31	22	-
Bromide	mg/L	-	-	-
Calcium	mg/L	8.16	5.4	-
Carbonate	mg/L	<1	<1	-
Chloride	mg/L	7.98	5.3	-
Fluoride	mg/L	-	-	-
Hydroxide	mg/L	<1	<1	-
Magnesium	mg/L	1.32	0.78	-
Potassium	mg/L	1.24	0.81	-
Reac-Silica (as SiO_2)	mg/L	0.7	0.6	-
Sodium	mg/L	5.1	3	-
Sulphate	mg/L	2.92	1.91	-
Ion Balance	%	97	89	-
Organic/Inorganic Carbon				
Total Carbon	mg/L	10	7.1	-
Total Organic Carbon	mg/L	3.8	3.2	-
Dissolved Organic Carbon	mg/L	-	-	-
Total Inorganic Carbon	mg/L	6.3	3.9	-
Nutrients and Chlorophyll *a*				
Total Ammonia as Nitrogen	mg/L	0.02	<0.005	-
Nitrate as Nitrogen	mg/L	0.014	<0.006	-
Nitrite as Nitrogen	mg/L	-	-	-
Nitrate+Nitrite as Nitrogen	mg/L	0.014	<0.006	-
Total Kjeldahl Nitrogen	mg/L	0.17	0.36	-
Phosphorus, Total	mg/L	0.003	0.005	-
Phosphorus, Total Dissolved	mg/L	0.003	0.004	-
Orthophosphate (PO_4-P)	mg/L	<0.001	<0.001	-
Chlorophyll *a*	µg/L	-	0.57 [c]	0.90 [c]
Cyanides				
Cyanide, Total	µg/L	<1	<1	-
Total Metals				
Aluminum (Al)	µg/L	2.8	2.6	-
Antimony (Sb)	µg/L	<0.03	0.13	-
Arsenic (As)	µg/L	0.15	0.23	-
Barium (Ba)	µg/L	10.3	8.53	-
Beryllium (Be)	µg/L	<0.2	<0.2	-
Bismuth (Bi)	µg/L	<0.05	<0.03	-
Boron (B)	µg/L	-	-	-
Cadmium (Cd)	µg/L	*<0.1*	**0.06**	-
Cesium (Cs)	µg/L	<0.1	<0.1	-
Chromium (Cr)	µg/L	0.24	**1.76**	-
Cobalt (Co)	µg/L	<0.1	<0.1	-
Copper (Cu)	µg/L	**2.2**	0.9	-
Iron (Fe)	µg/L	20	17	-
Lead (Pb)	µg/L	<0.05	<0.05	-
Lithium (Li)	µg/L	0.8	<0.1	-
Magnesium (Mg)	µg/L	-	-	-
Manganese (Mn)	µg/L	<0.1	5.4	-
Mercury (Hg)	µg/L	<0.01	<0.02	-
Molybdenum (Mo)	µg/L	0.16	0.11	-
Nickel (Ni)	µg/L	<0.1	0.71	-
Potassium (K)	µg/L	-	-	-

Appendix B3-8: Water Quality in Little Meliadine Lake, Meliadine Gold Project, 1994 to 2009

Waterbody	**Units**	**LML**		
Date Sampled		24-Apr-98	29-Jul-98	2-Sep-98
GPS Coordinates (NAD83, Zone 15V) [a]		0537712, 6978225	0537792, 6978201	0537790, 6978194
Source [b]		RL&L 1999	RL&L 1999	RL&L 1999
Rubidium (Rb)	µg/L	-	-	-
Selenium (Se)	µg/L	<0.1	<0.1	-
Silver (Ag)	µg/L	*<0.1*	*<0.1*	-
Sodium (Na)	µg/L	-	-	-
Strontium (Sr)	µg/L	40.6	33.2	-
Thallium (Tl)	µg/L	<0.05	<0.03	-
Tin (Sn)	µg/L	-	-	-
Titanium (Ti)	µg/L	<0.1	<0.1	-
Uranium (U)	µg/L	<0.05	<0.05	-
Vanadium (V)	µg/L	<0.1	0.07	-
Zinc (Zn)	µg/L	10	<0.8	-
Dissolved Metals				
Aluminum (Al)	µg/L	-	-	-
Antimony (Sb)	µg/L	-	-	-
Arsenic (As)	µg/L	-	-	-
Barium (Ba)	µg/L	-	-	-
Beryllium (Be)	µg/L	-	-	-
Boron (B)	µg/L	-	-	-
Cadmium (Cd)	µg/L	-	-	-
Calcium (Ca)	µg/L	-	-	-
Chromium (Cr)	µg/L	-	-	-
Cobalt (Co)	µg/L	-	-	-
Copper (Cu)	µg/L	-	-	-
Iron (Fe)	µg/L	-	-	-
Lead (Pb)	µg/L	-	-	-
Lithium (Li)	µg/L	-	-	-
Magnesium (Mg)	µg/L	-	-	-
Manganese (Mn)	µg/L	-	-	-
Mercury (Hg)	µg/L	-	-	-
Molybdenum (Mo)	µg/L	-	-	-
Nickel (Ni)	µg/L	-	-	-
Potassium (K)	µg/L	-	-	-
Selenium (Se)	µg/L	-	-	-
Silver (Ag)	µg/L	-	-	-
Sodium (Na)	µg/L	-	-	-
Strontium (Sr)	µg/L	-	-	-
Thallium (Tl)	µg/L	-	-	-
Tin (Sn)	µg/L	-	-	-
Titanium (Ti)	µg/L	-	-	-
Uranium (U)	µg/L	-	-	-
Vanadium (V)	µg/L	-	-	-
Zinc (Zn)	µg/L	-	-	-
Organic Compounds				
Oil and Grease	µg/L	-	-	-
Phenols	µg/L	<1	<1	-
Benzene	µg/L	-	<0.5	-
Ethylbenzene	µg/L	-	<0.5	-
Toluene	µg/L	-	<0.5	-
Xylenes	µg/L	-	<0.5	-
F1 (C6-C10)	µg/L	-	-	-
F1 -BTEX	µg/L	-	-	-
F2 (>C10-C16)	µg/L	-	-	-
F3 (C16-C34)	µg/L	-	-	-
F4 (C34-C50)	µg/L	-	-	-
Total Volatiles	µg/L	-	<100	-
Total Extractables	µg/L	-	<50	-
Other				
Biological Oxygen Demand (BOD)	mg/L	-	-	-
Fecal Coliforms	CFU/100 mL	-	-	-

a = GPS coordinates from RL&L 1998, 1999, 2000, 2001 were converted from NAD27.

b = Data were obtained from the following sources: 1994 to 1995 = Dillon (1994 and 1995); 1997 to 2000 = RL&L (1998, 1999, 2000, 2001); 2007 = Comaplex Minerals Corporation, pers. comm.; 2008 and 2009 = Golder Associates Ltd.

c = Samples for chlorophyll *a* were composite samples collected over the photic zone, as idenified from Secchi depth.

Notes:

Bold values are equal to or greater than the Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2007, CWQG).

Underlined values are equal to or greater than the Guidelines for Canadian Drinking Water Quality (Health Canada 2007, GCDWQ).

Italicized values indicate the detection limit equals or exceeds either guideline.

(-) = No data available

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; µg/L = micrograms per litre; NTU = nephelometric turbidity units.

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Appendix B3-9: Water Quality in DI2 Lake, Meliadine Gold Project, 1995 to 2009

Waterbody	Units	DI2	
Date Sampled		11-Aug-94	10-Jul-95
GPS Coordinates (NAD83, Zone 15V)		-	-
Source [a]		Dillon 1994	Dillon 1995
Field Measurements			
Water Temperature	°C	9.4	12.5
Dissolved Oxygen	mg/L	-	9.7
pH	pH	7.1	7.76
Specific Conductivity	µS/cm	-	30.2
Total Lake Depth	m	-	-
Conventional Parameters (Laboratory-Measured)			
pH	pH	6.54	6.91
Specific Conductivity	µS/cm	68	53.6
Total Dissolved Solids	mg/L	43	38
Total Alkalinity	mg $CaCO_3$/L	23.9	-
Total Hardness	mg $CaCO_3$/L	25.2	17.7
Total Suspended Solids	mg/L	<1	-
Turbidity	NTU	0.52	0.65
Major Ions			
Bicarbonate	mg/L	-	-
Bromide	mg/L	-	-
Calcium	mg/L	8.02	5.65
Carbonate	mg/L	-	18.2
Chloride	mg/L	4.4	3.7
Fluoride	mg/L	0.05	0.06
Hydroxide	mg/L	-	-
Magnesium	mg/L	1.25	0.884
Potassium	mg/L	0.92	<2
Reactive Silica (as SiO_2)	mg/L	-	-
Silicate (SiO_2)	mg/L	<1.0	-
Sodium	mg/L	3.16	3.00
Sulphate	mg/L	3.4	2.9
Ion Balance	%	-	-
Organic/Inorganic Carbon			
Total Carbon	mg/L	-	-
Total Organic Carbon	mg/L	-	-
Dissolved Organic Carbon	mg/L	-	-
Total Inorganic Carbon	mg/L	-	-
Nutrients and Chlorophyll *a*			
Total Ammonia as Nitrogen	mg/L	-	-
Nitrate as Nitrogen	mg/L	<0.005	-
Nitrite as Nitrogen	mg/L	0.003	-
Nitrate+Nitrite as Nitrogen	mg/L	-	<0.005
Total Kjeldahl Nitrogen	mg/L	-	-
Phosphorus, Total	mg/L	< 0.30	-
Phosphorus, Total Dissolved	mg/L	-	-
Orthophosphate (PO_4-P)	mg/L	-	-
Chlorophyll *a*	µg/L	-	-
Cyanides			
Cyanide, Total	µg/L	-	-
Total Metals			
Aluminum (Al)	µg/L	*<200*	*<200*
Antimony (Sb)	µg/L	*<200*	-
Arsenic (As)	µg/L	0.4	0.2
Barium (Ba)	µg/L	<10	<10
Beryllium (Be)	µg/L	<5	-
Bismuth (Bi)	µg/L	<10	-
Boron (B)	µg/L	<100	<100
Cadmium (Cd)	µg/L	*<0.2*	*< 0.2*
Cesium (Cs)	µg/L	-	-
Chromium (Cr)	µg/L	*<15*	*<15*
Cobalt (Co)	µg/L	<15	<15
Copper (Cu)	µg/L	*<10*	*<10*
Iron (Fe)	µg/L	112	96
Lead (Pb)	µg/L	*<1*	*<1*
Lithium (Li)	µg/L	<15	-
Magnesium (Mg)	µg/L	-	-
Manganese (Mn)	µg/L	<5	<5
Mercury (Hg)	µg/L	*<0.05*	*<0.05*
Molybdenum (Mo)	µg/L	<30	<30
Nickel (Ni)	µg/L	<20	<20
Potassium (K)	µg/L	-	-
Rubidium (Rb)	µg/L	-	-
Selenium (Se)	µg/L	<0.5	<0.5
Silicon (Si)	µg/L	62	-
Silver (Ag)	µg/L	*<15*	*<15*
Sodium (Na)	µg/L	3,160	3,000
Strontium (Sr)	µg/L	42	-
Thallium (Tl)	µg/L	*<100*	-
Tin (Sn)	µg/L	<300	<300
Titanium (Ti)	µg/L	<10	-
Uranium (U)	µg/L	-	-
Vanadium (V)	µg/L	<30	-
Zinc (Zn)	µg/L	<5	<5

Waterbody	Units	DI2	
Date Sampled		11-Aug-94	10-Jul-95
GPS Coordinates (NAD83, Zone 15V)		-	-
Source [a]		Dillon 1994	Dillon 1995
Dissolved Metals			
Aluminum (Al)	µg/L	-	-
Antimony (Sb)	µg/L	-	-
Arsenic (As)	µg/L	-	-
Barium (Ba)	µg/L	-	-
Beryllium (Be)	µg/L	-	-
Boron (B)	µg/L	-	-
Cadmium (Cd)	µg/L	-	-
Calcium (Ca)	µg/L	-	-
Chromium (Cr)	µg/L	-	-
Cobalt (Co)	µg/L	-	-
Copper (Cu)	µg/L	-	-
Iron (Fe)	µg/L	-	-
Lead (Pb)	µg/L	-	-
Lithium (Li)	µg/L	-	-
Magnesium (Mg)	µg/L	-	-
Manganese (Mn)	µg/L	-	-
Mercury (Hg)	µg/L	-	-
Molybdenum (Mo)	µg/L	-	-
Nickel (Ni)	µg/L	-	-
Potassium (K)	µg/L	-	-
Selenium (Se)	µg/L	-	-
Silver (Ag)	µg/L	-	-
Sodium (Na)	µg/L	-	-
Strontium (Sr)	µg/L	-	-
Thallium (Tl)	µg/L	-	-
Tin (Sn)	µg/L	-	-
Titanium (Ti)	µg/L	-	-
Uranium (U)	µg/L	-	-
Vanadium (V)	µg/L	-	-
Zinc (Zn)	µg/L	-	-
Organic Compounds			
Oil and Grease	µg/L	-	-
Phenols	µg/L	-	-
Benzene	µg/L	-	-
Ethylbenzene	µg/L	-	-
Toluene	µg/L	-	-
Xylenes	µg/L	-	-
F1 (C6-C10)	µg/L	-	-
F1 -BTEX	µg/L	-	-
F2 (>C10-C16)	µg/L	-	-
F3 (C16-C34)	µg/L	-	-
F4 (C34-C50)	µg/L	-	-
Total Volatiles	µg/L	-	-
Total Extractables	µg/L	-	-
Other			
Biological Oxygen Demand (BOD)	mg/L	-	-
Fecal Coliforms	CFU/100 mL	-	-

a = Data sources: 1994 to 1995 = Dillon (1994 and 1995)

Notes:
Bold values are equal to or greater than the Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2007,
Underlined values are equal to or greater than the Guidelines for Canadian Drinking Water Quality (Health Canada 2007, GCDWQ).
Italicized values indicate the detection limit equals or exceeds either guideline.
(-) = No data available
°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; µg/L = micrograms per litre; NTU = nephelometric turbidity

Appendix B3-10: Water Quality in Control Lake, Meliadine Gold Project, 1994 to 2009

Waterbody	Units	Control						
Date Sampled		26-Jul-98	19-Jul-99	19-Jul-00	18-Jul-07	7-Oct-07	18-Jul-08	28-Apr-09
GPS Coordinates (NAD83, Zone 15V) [a]		0534652, 6986742	0534652, 6986741	0534819, 6986453	0535001, 6986333	0535001, 6986333	0534632, 6986546	0534632, 6986546
Source [b]		RL&L 1999	RL&L 2000	R&L 2001	Comaplex	Comaplex	Golder	Golder
Field Measurements								
Water Temperature	°C	14.7	12.4	14.6	16.4	0.2	14.12	1.05
Dissolved Oxygen	mg/L	10.5	11.4	-	-	-	12.47	**8.76**
pH	pH	6.9	7.24	7.70	7.83	7.92	-	**6.26**
Specific Conductivity	µS/cm	79.7	73.1	83.5	-	-	64	175
Secchi Disk Depth	m	4.3	3.0	3.5	-	-	1.2	-
Ice Depth	m	-	-	-	-	-	-	1.84
Total Lake Depth	m	4.3	4.2	3.5	-	-	2.9	3.01
Conventional Parameters (Laboratory-Measured)								
pH	pH	7.6	7.2	7.4	7.6	7.5	7.5	7.65
Specific Conductivity	µS/cm	67.5	71.6	79.6	60.3	76.5	68.2	193
Total Dissolved Solids	mg/L	31	21	37	-	-	46	-
Total Dissolved Solids (Calculated)	mg/L	-	-	-	35	38	35	99.3
Total Alkalinity	mg $CaCO_3$/L	21	22	24	21	22	22	62.4
Total Hardness	mg $CaCO_3$/L	21	24	26	17	24	22	69.1
Total Suspended Solids	mg/L	<2	<3	<3	-	5	<3	<3.0
Total Volatile Solids	mg/L	-	-	-	-	-	-	21
Turbidity	NTU	0.2	0.39	0.2	-	1.6	-	-
Major Ions								
Bicarbonate	mg/L	26	27	30	26	27	26	76.2
Bromide	mg/L	-	-	-	-	-	-	-
Calcium	mg/L	7.0	8.09	9.27	6.70	8.20	7.19	21.6
Carbonate	mg/L	<1	<1	<5	<5	<5	<5	<5.0
Chloride	mg/L	5.2	5.17	6	6	7	6	18.1
Fluoride	mg/L	-	-	-	-	-	-	-
Hydroxide	mg/L	<1	<1	<5	<5	<5	<5	<5.0
Magnesium	mg/L	0.75	0.94	1.01	0.80	0.80	0.778	2.59
Potassium	mg/L	0.89	0.97	1.030	1.000	1.200	0.81	2.36
Reactive Silica (as SiO_2)	mg/L	0.2	0.4	<0.1	-	0.3	-	-
Silicate (SiO_2)	mg/L	-	-	-	-	-	-	-
Sodium	mg/L	2.8	3.5	3.69	5	4	3.3	9.17
Sulphate	mg/L	1.3	2.08	2.58	3.90	3.60	2.2	4.71
Ion Balance	%	93	104	92.5	Low EC	Low EC	Low EC	103
Organic/Inorganic Carbon								
Total Carbon	mg/L	9	9.2	9.0	-	9.0	8	-
Total Organic Carbon	mg/L	3.7	4.0	3.8	-	-	4	-
Dissolved Organic Carbon	mg/L	-	-	-	-	-	3.7	-
Total Inorganic Carbon	mg/L	5.0	5.2	5.2	-	5	-	-
Total Inorganic Carbon (Calculated)	mg/L	-	-	-	-	-	4	-
Nutrients and Chlorophyll *a*								
Total Ammonia as Nitrogen	mg/L	0.011	<0.005	<0.005	-	<0.05	<0.05	0.075
Nitrate as Nitrogen	mg/L	<0.006	<0.006	<0.006	<0.1	<0.1	<0.1	<0.050
Nitrite as Nitrogen	mg/L	-	-	-	<0.05	<0.05	<0.05	<0.050
Nitrate+Nitrite as Nitrogen	mg/L	<0.006	<0.006	<0.006	<0.1	<0.1	<0.1	<0.071
Total Kjeldahl Nitrogen	mg/L	0.40	0.31	0.21	-	0.30	0.3	0.73
Phosphorus, Total	mg/L	0.006	0.003	0.045	-	<0.02	0.009	0.0057
Phosphorus, Total Dissolved	mg/L	0.006	0.002	0.012	-	<0.02	0.003	0.0056
Orthophosphate (PO_4-P)	mg/L	<0.001	<0.001	<0.001	-	<0.01	<0.001	<0.0010
Chlorophyll *a*	µg/L	1.52 [c]	0.44	0.75	-	-	<1	-
Cyanides								
Cyanide, Total	µg/L	1	<2	2	-	-	<2	<2
Total Metals								
Aluminum (Al)	µg/L	1.6	4.6	5.1	20	-	3.6	*<5.0*
Antimony (Sb)	µg/L	0.14	<0.03	0.21	<0.4	-	<0.03	<0.20
Arsenic (As)	µg/L	0.46	0.50	0.23	<0.4	-	0.39	1.16
Barium (Ba)	µg/L	7.32	7.45	9.57	8	-	6.91	24.1
Beryllium (Be)	µg/L	<0.2	<0.2	<0.2	<1	-	<0.2	<1.0
Bismuth (Bi)	µg/L	<0.03	<0.03	-	-	-	-	<1.0
Boron (B)	µg/L	-	-	4	<50	-	4	<50
Cadmium (Cd)	µg/L	**0.2**	*<0.02*	*<0.05*	*<0.2*	-	*<0.05*	<0.010
Cesium (Cs)	µg/L	<0.1	<0.1	-	-	-	-	21.6
Chromium (Cr)	µg/L	**2.28**	0.41	0.37	*<5*	-	<0.06	**2.2**
Cobalt (Co)	µg/L	<0.1	<0.1	<0.1	<2	-	<0.1	<0.3
Copper (Cu)	µg/L	0.9	1.3	1.9	**2**	-	0.8	1.7

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Appendix B3-10: Water Quality in Control Lake, Meliadine Gold Project, 1994 to 2009

Waterbody	**Units**	**Control**						
Date Sampled		26-Jul-98	19-Jul-99	19-Jul-00	18-Jul-07	7-Oct-07	18-Jul-08	28-Apr-09
GPS Coordinates (NAD83, Zone 15V) [a]		0534652, 6986742	0534652, 6986741	0534819, 6986453	0535001, 6986333	0535001, 6986333	0534632, 6986546	0534632, 6986546
Source [b]		RL&L 1999	RL&L 2000	R&L 2001	Comaplex	Comaplex	Golder	Golder
Iron (Fe)	µg/L	<5	28	84	49	-	24	-
Lead (Pb)	µg/L	<0.05	0.12	0.50	0.40	-	<0.05	<0.50
Lithium (Li)	µg/L	<0.1	0.6	-	<10	-	-	<5.0
Magnesium (Mg)	µg/L	-	-	-	-	-	-	-
Manganese (Mn)	µg/L	0.8	3.3	5.4	7	-	3	4.2
Mercury (Hg)	µg/L	<0.02	<0.02	<0.02	*<0.2*	-	<0.02	<0.020
Molybdenum (Mo)	µg/L	0.15	0.16	0.13	<5	-	0.12	<1.0
Nickel (Ni)	µg/L	0.76	0.76	1.00	<2	-	0.4	1.3
Potassium (K)	µg/L	-	-	-	-	-	-	-
Rubidium (Rb)	µg/L	-	-	-	-	-	-	-
Selenium (Se)	µg/L	<0.1	0.1	<0.1	0.9	-	<0.1	*<1.0*
Silver (Ag)	µg/L	*<0.1*	*<0.1*	*<0.1*	*<0.4*	-	*<0.1*	<0.020
Sodium (Na)	µg/L	-	-	-	-	-	-	-
Strontium (Sr)	µg/L	27.9	26.7	29.4	-	-	24.5	75.9
Thallium (Tl)	µg/L	<0.03	<0.03	-	<0.1	-	<0.03	<0.20
Tin (Sn)	µg/L	-	-	-	<50	-	-	<0.50
Titanium (Ti)	µg/L	<0.1	0.2	-	<1	-	-	-
Uranium (U)	µg/L	<0.05	<0.05	<0.05	<0.1	-	<0.05	0.021
Vanadium (V)	µg/L	0.1	0.07	0.10	<1	-	0.14	<1.0
Zinc (Zn)	µg/L	<0.8	4.2	5.7	10	-	<0.8	<5.0
Dissolved Metals								
Aluminum (Al)	µg/L	-	-	-	-	20	2.1	<5.0
Antimony (Sb)	µg/L	-	-	-	-	1.5	<0.03	<0.5
Arsenic (As)	µg/L	-	-	-	-	0.5	0.37	1.12
Barium (Ba)	µg/L	-	-	-	-	8	6.68	-
Beryllium (Be)	µg/L	-	-	-	-	<1	<0.2	<1.0
Boron (B)	µg/L	-	-	-	-	<50	3	-
Cadmium (Cd)	µg/L	-	-	-	-	0.2	<0.05	<0.010
Calcium (Ca)	µg/L	-	-	-	-	-	7,020	23,600
Chromium (Cr)	µg/L	-	-	-	-	<5	<0.06	3.1
Cobalt (Co)	µg/L	-	-	-	-	<2	<0.1	<0.30
Copper (Cu)	µg/L	-	-	-	-	2	0.8	1.6
Iron (Fe)	µg/L	-	-	-	-	44	9	-
Lead (Pb)	µg/L	-	-	-	-	0.80	0.1	<0.50
Lithium (Li)	µg/L	-	-	-	-	<3	-	<5.0
Magnesium (Mg)	µg/L	-	-	-	-	-	765	2,460
Manganese (Mn)	µg/L	-	-	-	-	8	0.6	4.24
Mercury (Hg)	µg/L	-	-	-	-	<0.1	<0.02	<0.020
Molybdenum (Mo)	µg/L	-	-	-	-	<5	0.12	<1.0
Nickel (Ni)	µg/L	-	-	-	-	<2	0.4	1.3
Potassium (K)	µg/L	-	-	-	-	-	790	2,470
Selenium (Se)	µg/L	-	-	-	-	<0.4	<0.1	<1.0
Silver (Ag)	µg/L	-	-	-	-	<0.1	<0.1	<0.020
Sodium (Na)	µg/L	-	-	-	-	-	3,250	10,500
Strontium (Sr)	µg/L	-	-	-	-	-	24	-
Thallium (Tl)	µg/L	-	-	-	-	<0.1	<0.03	<0.20
Tin (Sn)	µg/L	-	-	-	-	<50	-	<0.50
Titanium (Ti)	µg/L	-	-	-	-	<1	-	-
Uranium (U)	µg/L	-	-	-	-	<0.1	<0.05	<0.20
Vanadium (V)	µg/L	-	-	-	-	<1	0.12	<1.0
Zinc (Zn)	µg/L	-	-	-	-	13	1.1	-
Organic Compounds								
Oil and Grease	µg/L	-	-	-	-	-	-	-
Phenols	µg/L	2	2	<1	-	-	-	-
Benzene	µg/L	<0.5	-	<0.5	-	-	-	-
Ethylbenzene	µg/L	<0.5	-	<0.5	-	-	-	-
Toluene	µg/L	<0.5	-	<0.5	-	-	-	-
Xylenes	µg/L	<0.5	-	<0.5	-	-	-	-
F1 (C6-C10)	µg/L	-	-	-	-	-	-	-
F1 -BTEX	µg/L	-	-	-	-	-	-	-
F2 (>C10-C16)	µg/L	-	-	-	-	-	-	-
F3 (C16-C34)	µg/L	-	-	-	-	-	-	-
F4 (C34-C50)	µg/L	-	-	-	-	-	-	-
Total Volatiles	µg/L	<100	-	<100	-	-	-	-
Total Extractables	µg/L	<50	-	<50	-	-	-	-
Other								
Biological Oxygen Demand (BOD)	mg/L	-	-	-	-	-	-	-
Fecal Coliforms	CFU/100 mL	-	-	-	-	-	-	-

a = GPS coordinates from RL&L 1998, 1999, 2000, 2001 were converted from NAD27.
b = Data sources: 1997 to 2000 = RL&L (1998, 1999, 2000, 2001); 2007 = Comaplex Minerals Corporation, pers. comm.; 2008 and 2009 = Golder Associates Ltd.
c = Samples for chlorophyll *a* were composite samples collected over the euphotic zone, as idenified from Secchi depth.
Notes:
Bold values are equal to or greater than the Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2007, CWQG).
Underlined values are equal to or greater than the Guidelines for Canadian Drinking Water Quality (Health Canada 2007, GCDWQ).
Italicized values indicate the detection limit equals or exceeds either guideline.
(-) = No data available; °C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; µg/L = micrograms per litre; NTU = nephelometric turbidity units.

Appendix B3-11: Water Quality in Peter Lake, Meliadine Gold Project, 1994 to 2009

Waterbody	Units	PL		
Date Sampled		24-Apr-98	28-Jul-98	28-Jul-98 (dup)
GPS Coordinates (NAD83, Zone 15V) [a]		0509566, 6993400	0509567, 6993458	0509567, 6993458
Source [b]		RL&L 1999	RL&L 1999	RL&L 1999
Field Measurements				
Water Temperature	°C	0.8	11.7	11.7
Dissolved Oxygen	mg/L	17.3	12.0	12.0
pH	pH	6.50	-	-
Specific Conductivity	µS/cm	69	52	52
Secchi Disk Depth	m	6.5	7.5	7.5
Ice Depth	m	2.4	-	-
Total Lake Depth	m	17.4	18.8	18.8
Conventional Parameters (Laboratory-Measured)				
pH	pH	6.6	7.1	7.0
Specific Conductivity	µS/cm	44.5	37.3	36.6
Total Dissolved Solids	mg/L	20	16	16
Total Dissolved Solids (Calculated)	mg/L	-	-	-
Total Alkalinity	mg $CaCO_3$/L	11	9	9
Total Hardness	mg $CaCO_3$/L	12	10	10
Total Suspended Solids	mg/L	<2	<2	<2
Turbidity	NTU	<0.1	0.1	0.1
Major Ions				
Bicarbonate	mg/L	13	11	11
Bromide	mg/L	-	-	-
Calcium	mg/L	3.5	3.12	3.12
Carbonate	mg/L	<1	<1	<1
Chloride	mg/L	3.5	2.72	2.72
Fluoride	mg/L	-	-	-
Hydroxide	mg/L	<1	<1	<1
Magnesium	mg/L	0.79	0.59	0.59
Potassium	mg/L	0.84	0.66	0.66
Reactive Silica (as SiO_2)	mg/L	0.4	0.3	0.3
Sodium	mg/L	2.7	2.0	2.0
Sulphate	mg/L	2.47	1.84	1.83
Ion Balance	%	105	105	105
Organic/Inorganic Carbon				
Total Carbon	mg/L	7	4.6	4.5
Total Organic Carbon	mg/L	2.3	2.8	2.6
Dissolved Organic Carbon	mg/L	-	-	-
Total Inorganic Carbon	mg/L	3.5	1.9	1.9
Nutrients and Chlorophyll *a*				
Total Ammonia as Nitrogen	mg/L	0.012	<0.005	<0.005
Nitrate as Nitrogen	mg/L	<0.006	<0.006	<0.006
Nitrite as Nitrogen	mg/L	-	-	-
Nitrate+Nitrite as Nitrogen	mg/L	<0.006	<0.006	<0.006
Total Kjeldahl Nitrogen	mg/L	0.17	0.33	0.30
Phosphorus, Total	mg/L	0.003	0.005	0.007
Phosphorus, Total Dissolved	mg/L	0.002	0.003	0.002
Orthophosphate (PO_4-P)	mg/L	<0.001	<0.001	<0.001
Chlorophyll *a*	µg/L	-	0.30 [c]	-
Cyanides				
Cyanide, Total	µg/L	<1	<1	<1
Total Metals				
Aluminum (Al)	µg/L	4.7	2.6	1.9
Antimony (Sb)	µg/L	<0.03	0.20	0.10
Arsenic (As)	µg/L	<0.03	0.08	0.06
Barium (Ba)	µg/L	9.6	8.88	8.84
Beryllium (Be)	µg/L	<0.2	<0.2	<0.2
Bismuth (Bi)	µg/L	<0.05	<0.03	<0.03
Boron (B)	µg/L	-	-	-
Cadmium (Cd)	µg/L	*<0.1*	**0.07**	**0.06**
Cesium (Cs)	µg/L	<0.1	<0.1	<0.1
Chromium (Cr)	µg/L	0.28	0.92	0.98
Cobalt (Co)	µg/L	<0.1	<0.1	<0.1
Copper (Cu)	µg/L	**3.7**	0.8	0.8
Iron (Fe)	µg/L	20	6	7
Lead (Pb)	µg/L	<0.05	<0.05	<0.05
Lithium (Li)	µg/L	0.6	<0.1	<0.1
Magnesium (Mg)	µg/L	-	-	-
Manganese (Mn)	µg/L	<0.1	2.0	1.5
Mercury (Hg)	µg/L	<0.02	<0.02	<0.02
Molybdenum (Mo)	µg/L	0.07	<0.06	<0.06
Nickel (Ni)	µg/L	<0.1	0.59	0.53
Potassium (K)	µg/L	-	-	-
Rubidium (Rb)	µg/L	-	-	-

Appendix B3-11: Water Quality in Peter Lake, Meliadine Gold Project, 1994 to 2009

Waterbody	**Units**	**PL**		
Date Sampled		24-Apr-98	28-Jul-98	28-Jul-98 (dup)
GPS Coordinates (NAD83, Zone 15V) [a]		0509566, 6993400	0509567, 6993458	0509567, 6993458
Source [b]		RL&L 1999	RL&L 1999	RL&L 1999
Selenium (Se)	µg/L	<0.1	<0.1	<0.1
Silver (Ag)	µg/L	*<0.1*	*<0.1*	*<0.1*
Sodium (Na)	µg/L	-	-	-
Strontium (Sr)	µg/L	20.1	17.4	17.4
Thallium (Tl)	µg/L	<0.05	<0.03	<0.03
Tin (Sn)	µg/L	-	-	-
Titanium (Ti)	µg/L	<0.1	<0.1	<0.1
Uranium (U)	µg/L	<0.05	<0.05	<0.05
Vanadium (V)	µg/L	<0.1	<0.05	<0.05
Zinc (Zn)	µg/L	20	0.9	<0.8
Dissolved Metals				
Aluminum (Al)	µg/L	-	-	-
Antimony (Sb)	µg/L	-	-	-
Arsenic (As)	µg/L	-	-	-
Barium (Ba)	µg/L	-	-	-
Beryllium (Be)	µg/L	-	-	-
Boron (B)	µg/L	-	-	-
Cadmium (Cd)	µg/L	-	-	-
Calcium (Ca)	µg/L	-	-	-
Chromium (Cr)	µg/L	-	-	-
Cobalt (Co)	µg/L	-	-	-
Copper (Cu)	µg/L	-	-	-
Iron (Fe)	µg/L	-	-	-
Lead (Pb)	µg/L	-	-	-
Lithium (Li)	µg/L	-	-	-
Magnesium (Mg)	µg/L	-	-	-
Manganese (Mn)	µg/L	-	-	-
Mercury (Hg)	µg/L	-	-	-
Molybdenum (Mo)	µg/L	-	-	-
Nickel (Ni)	µg/L	-	-	-
Potassium (K)	µg/L	-	-	-
Selenium (Se)	µg/L	-	-	-
Silver (Ag)	µg/L	-	-	-
Sodium (Na)	µg/L	-	-	-
Strontium (Sr)	µg/L	-	-	-
Thallium (Tl)	µg/L	-	-	-
Tin (Sn)	µg/L	-	-	-
Titanium (Ti)	µg/L	-	-	-
Uranium (U)	µg/L	-	-	-
Vanadium (V)	µg/L	-	-	-
Zinc (Zn)	µg/L	-	-	-
Organic Compounds				
Oil and Grease	µg/L	-	-	-
Phenols	µg/L	<1	<1	<1
Benzene	µg/L	-	<0.5	<0.5
Ethylbenzene	µg/L	-	<0.5	<0.5
Toluene	µg/L	-	<0.5	<0.5
Xylenes	µg/L	-	<0.5	<0.5
F1 (C6-C10)	µg/L	-	-	-
F1 -BTEX	µg/L	-	-	-
F2 (>C10-C16)	µg/L	-	-	-
F3 (C16-C34)	µg/L	-	-	-
F4 (C34-C50)	µg/L	-	-	-
Total Volatiles	µg/L	-	<100	<100
Total Extractables	µg/L	-	<50	<50
Other				
Biological Oxygen Demand (BOD)	mg/L	-	-	-
Fecal Coliforms	CFU/100 mL	-	-	-

a = GPS coordinates from RL&L 1998, 1999, 2000, 2001 were converted from NAD27.

b = Data sources: 1997 to 2000 = RL&L (1998, 1999, 2000, 2001)

c = Samples for chlorophyll *a* were composite samples collected over the euphotic zone, as identified from Secchi depth.

Notes:

Bold values are equal to or greater than the Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2007, CWQG).

Underlined values are equal to or greater than the Guidelines for Canadian Drinking Water Quality (Health Canada 2007, GCDWQ).

Italicized values indicate the detection limit equals or exceeds either guideline.

(-) = No data available

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; µg/L = micrograms per litre; NTU = nephelometric turbidity units.

Appendix B3-12: Water Quality in Lakes of the Atulik Lake Drainage, Meliadine Gold Project, 1995 to 2009

Waterbody	Units	DI1				DI3	DI5
Date Sampled		11-Aug-94	16-Jul-95	20-Jul-08	29-Apr-09	20-Jul-95	20-Jul-95
GPS Coordinates (NAD83, Zone 15V)		-	-	0554523, 6980718	0555108, 6980408	-	-
Source [a]		Dillon 1994	Dillon 1995	Golder	Golder	Dillon 1995	Dillon 1995
Field Measurements							
Water Temperature	°C	8.7	12.3	14.88	0.88	9.7	14.2
Dissolved Oxygen	mg/L	-	10.50	12.13	**9.07**	10.30	**9.40**
pH	pH	7.10	7.55	-	**6.30**	7.68	7.64
Specific Conductivity	µS/cm	-	21.4	59	120	30.6	28.2
Secchi Disk Depth	m	-	<5.0	1.9	-	-	-
Ice Depth	m	-	-	-	1.73	-	-
Total Lake Depth	m	-	-	1.9	8.98	-	-
Conventional Parameters (Laboratory-Measured)							
pH	pH	**6.17**	6.68	7.40	7.49	6.92	6.90
Specific Conductivity	µS/cm	38.6	39.4	51.1	135	53.0	49.9
Total Dissolved Solids	mg/L	24	25.0	36	-	24.0	31.0
Total Dissolved Solids (Calculated)	mg/L	-	-	24	69.1	-	-
Total Alkalinity	mg $CaCO_3$/L	11.6	-	13	39.7	13.8	13.2
Total Hardness	mg $CaCO_3$/L	12.9	12.4	17	47.7	14.3	14.2
Total Suspended Solids	mg/L	1	-	<3	<3.0	-	-
Total Volatile Solids	mg/L	-	-	-	29	-	-
Turbidity	NTU	0.36	0.40	-	-	0.27	0.51
Major Ions							
Bicarbonate	mg/L	-	-	16	48.5	-	-
Bromide	mg/L	-	-	-	-	-	-
Calcium	mg/L	4.13	3.94	5.07	14.5	4.37	4.54
Carbonate	mg/L	-	11.2	<5	<5.0	-	-
Chloride	mg/L	2.9	2.9	3	11.7	5.6	4.9
Fluoride	mg/L	0.04	0.05	-	-	0.04	0.04
Hydroxide	mg/L	-	-	<5	<5.0	-	-
Magnesium	mg/L	0.640	0.618	0.728	2.3	0.813	0.695
Potassium	mg/L	0.63	<2.0	0.71	1.85	<2.0	<2.0
Reactive Silica (as SiO_2)	mg/L	-	-	-	-	-	-
Silicate (SiO_2)	mg/L	<1.0	-	-	-	-	-
Sodium	mg/L	1.71	2.2	2.14	5.87	3.8	3.2
Sulphate	mg/L	2.8	2.3	2.8	7.38	2.2	2.7
Ion Balance	%	-	-	Low EC	101	-	-
Organic/Inorganic Carbon							
Total Carbon	mg/L	-	-	7	-	-	-
Total Organic Carbon	mg/L	-	-	4	-	-	-
Dissolved Organic Carbon	mg/L	-	-	3.8	-	-	-
Total Inorganic Carbon	mg/L	-	-	-	-	-	-
Total Inorganic Carbon (Calculated)	mg/L	-	-	3	-	-	-
Nutrients and Chlorophyll *a*							
Total Ammonia as Nitrogen	mg/L	-	-	<0.05	0.054	-	-
Nitrate as Nitrogen	mg/L	<0.005	-	<0.1	<0.050	-	-
Nitrite as Nitrogen	mg/L	0.001	-	<0.05	<0.050	-	-
Nitrate+Nitrite as Nitrogen	mg/L	-	<0.005	<0.1	<0.071	<0.005	<0.005
Total Kjeldahl Nitrogen	mg/L	-	-	<0.2	0.51	-	-
Phosphorus, Total	mg/L	<0.30	-	0.004	0.0085	-	-
Phosphorus, Total Dissolved	mg/L	-	-	0.002	0.0078	-	-
Orthophosphate (PO_4-P)	mg/L	-	-	<0.001	<0.0010	-	-
Chlorophyll *a*	µg/L	-	-	<1	-	-	-
Cyanides							
Cyanide, Total	µg/L	-	-	<2	<2	-	-
Total Metals							
Aluminum (Al)	µg/L	*<200*	<0.20	3.8	*<6.0*	*<200*	*<200*
Antimony (Sb)	µg/L	*<200*	-	<0.03	<0.20	-	-
Arsenic (As)	µg/L	0.3	0.0003	0.52	0.66	0.1	0.5
Barium (Ba)	µg/L	<10	<0.010	6.13	18.6	<10	<10
Beryllium (Be)	µg/L	<5	-	<0.2	<1.0	-	-
Bismuth (Bi)	µg/L	<100	-	-	<1.0	-	-
Boron (B)	µg/L	<100	<100	2	<50	<100	<100
Cadmium (Cd)	µg/L	*<0.2*	*<0.2*	*<0.05*	**0.025**	*<2*	*<2*
Calcium (Ca)	µg/L	-	-	-	-	-	-
Cesium (Cs)	µg/L	-	-	-	-	-	-
Chromium (Cr)	µg/L	*<15*	*<15*	<0.06	*<1*	*<15*	*<15*
Cobalt (Co)	µg/L	<15	<15	<0.1	<0.30	<15	<15
Copper (Cu)	µg/L	*<100*	*<100*	1.8	**2.3**	*<10*	*<10*
Iron (Fe)	µg/L	46	55	46	-	<30	<30
Lead (Pb)	µg/L	*<1*	*<1*	<0.05	<0.05	*<10*	*<10*
Lithium (Li)	µg/L	<15	-	-	<5.0	-	-
Magnesium (Mg)	µg/L	-	-	-	-	-	-
Manganese (Mn)	µg/L	<5	<5	1.5	18.0	<5	<5
Mercury (Hg)	µg/L	*<0.05*	*<0.05*	<0.02	*<1.0*	*<0.05*	*<0.05*
Molybdenum (Mo)	µg/L	<30	<30	<0.06	<1.0	<30	<30

Appendix B3-12: Water Quality in Lakes of the Atulik Lake Drainage, Meliadine Gold Project, 1995 to 2009

Waterbody	Units	DI1				DI3	DI5
Date Sampled		11-Aug-94	16-Jul-95	20-Jul-08	29-Apr-09	20-Jul-95	20-Jul-95
GPS Coordinates (NAD83, Zone 15V)		-	-	0554523, 6980718	0555108, 6980408	-	-
Source [a]		Dillon 1994	Dillon 1995	Golder	Golder	Dillon 1995	Dillon 1995
Nickel (Ni)	µg/L	<20	<20	1.03	3.1	<20	<20
Selenium (Se)	µg/L	*<5*	*<5*	<0.1	<0.1	<0.5	<0.5
Silicon (Si)	µg/L	116	-	-	-	-	-
Silver (Ag)	µg/L	*<15*	*<15*	*<0.1*	<0.020	*<15*	*<15*
Sodium (Na)	µg/L	-	-	-	-	-	-
Strontium (Sr)	µg/L	22	-	29.1	81.1	-	-
Thallium (Tl)	µg/L	*<10*	-	<0.03	<0.20	-	-
Tin (Sn)	µg/L	<300	<300	-	<0.50	<300	<300
Titanium (Ti)	µg/L	<10	-	-	-	-	-
Tungsten (W)	µg/L	<100	-	-	-	-	-
Uranium (U)	µg/L	-	-	<0.05	<0.20	-	-
Vanadium (V)	µg/L	<30	-	0.08	<1.0	-	-
Zinc (Zn)	µg/L	<5	<5	1.1	7.9	<5	<5
Dissolved Metals							
Aluminum (Al)	µg/L	-	-	2.4	6.1	-	-
Antimony (Sb)	µg/L	-	-	<0.03	<0.50	-	-
Arsenic (As)	µg/L	-	-	0.45	0.69	-	-
Barium (Ba)	µg/L	-	-	6.15	-	-	-
Beryllium (Be)	µg/L	-	-	<0.2	<1.0	-	-
Boron (B)	µg/L	-	-	2	-	-	-
Cadmium (Cd)	µg/L	-	-	<0.05	0.029	-	-
Calcium (Ca)	µg/L	-	-	5,100	15,500	-	-
Chromium (Cr)	µg/L	-	-	<0.06	1.9	-	-
Cobalt (Co)	µg/L	-	-	<0.1	<0.30	-	-
Copper (Cu)	µg/L	-	-	1.2	2.4	-	-
Iron (Fe)	µg/L	-	-	21	-	-	-
Lead (Pb)	µg/L	-	-	<0.05	<0.50	-	-
Lithium (Li)	µg/L	-	-	-	<5.0	-	-
Magnesium (Mg)	µg/L	-	-	720	2,190	-	-
Manganese (Mn)	µg/L	-	-	1.1	17.3	-	-
Mercury (Hg)	µg/L	-	-	<0.02	<0.020	-	-
Molybdenum (Mo)	µg/L	-	-	<0.06	<1.0	-	-
Nickel (Ni)	µg/L	-	-	1.02	3.0	-	-
Potassium (K)	µg/L	-	-	720	2,030	-	-
Selenium (Se)	µg/L	-	-	<0.1	<1.0	-	-
Silver (Ag)	µg/L	-	-	<0.1	<0.020	-	-
Sodium (Na)	µg/L	-	-	2,100	6,500	-	-
Strontium (Sr)	µg/L	-	-	28.9	-	-	-
Thallium (Tl)	µg/L	-	-	<0.03	<0.20	-	-
Tin (Sn)	µg/L	-	-	-	<0.50	-	-
Titanium (Ti)	µg/L	-	-	-	-	-	-
Uranium (U)	µg/L	-	-	<0.05	<0.20	-	-
Vanadium (V)	µg/L	-	-	0.07	<1.0	-	-
Zinc (Zn)	µg/L	-	-	<0.8	-	-	-
Organic Compounds							
Oil and Grease	µg/L	-	-	-	-	-	-
Phenols	µg/L	-	-	-	-	-	-
Benzene	µg/L	-	-	-	-	-	-
Ethylbenzene	µg/L	-	-	-	-	-	-
Toluene	µg/L	-	-	-	-	-	-
Xylenes	µg/L	-	-	-	-	-	-
F1 (C6-C10)	µg/L	-	-	-	-	-	-
F1 -BTEX	µg/L	-	-	-	-	-	-
F2 (>C10-C16)	µg/L	-	-	-	-	-	-
F3 (C16-C34)	µg/L	-	-	-	-	-	-
F4 (C34-C50)	µg/L	-	-	-	-	-	-
Total Volatiles	µg/L	-	-	-	-	-	-
Total Extractables	µg/L	-	-	-	-	-	-
Total Extr. Hydrocarbons (C9-40)	µg/L	-	<1000	-	-	<1000	-
Total Extr. Hydrocarbons (C10-30)	µg/L	-	<1000	-	-	<1000	-
Other							
Biological Oxygen Demand (BOD)	mg/L	-	-	-	-	-	-
Fecal Coliforms	CFU/100 mL	-	-	-	-	-	-

a = Data sources: 1994 to 1995 = Dillon (1994

Notes:

Bold values are equal to or greater than the Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2007, CWQG).

Underlined values are equal to or greater than the Guidelines for Canadian Drinking Water Quality (Health Canada 2007, GCDWQ).

Italicized values indicate the detection limit equals or exceeds either guideline.

(-) = No data available

°C = degrees Celsius; µS/cm = microSeimens per centimetre; mg/L = milligrams per litre; µg/L = micrograms per litre; NTU = nephelometric turbidity units.

Golder Associates

Appendix B3-13: Water Quality in Hudson Bay, Meliadine Gold Project, 1994 to 2009

Waterbody	Units	Ocean
Date Sampled		29-Jul-98
GPS Coordinates (NAD83, Zone 15V) [a]		0546540, 6969597
Source [b]		RL&L 1999
Field Measurements		
Water Temperature	°C	10.2
Dissolved Oxygen	mg/L	12.7
pH	pH	7.7
Specific Conductivity	µS/cm	-
Secchi Disk Depth	m	7.0
Total Depth	m	8.0
Conventional Parameters (Laboratory-Measured)		
pH	pH	8.1
Specific Conductivity	µS/cm	38,300
Total Dissolved Solids	mg/L	30,500
Total Alkalinity	mg $CaCO_3$/L	108
Total Hardness	mg $CaCO_3$/L	5,260
Total Suspended Solids	mg/L	13
Turbidity	NTU	0.2
Major Ions		
Bicarbonate	mg/L	132
Bromide	mg/L	-
Calcium	mg/L	327
Carbonate	mg/L	<1
Chloride	mg/L	17,000
Hydroxide	mg/L	<1
Magnesium	mg/L	1,080
Potassium	mg/L	329
Reactive Silica (as SiO_2)	mg/L	0.3
Sodium	mg/L	9,500
Sulphate	mg/L	2,170
Ion Balance	%	100
Organic/Inorganic Carbon		
Total Carbon	mg/L	25.7
Total Organic Carbon	mg/L	1.6
Total Inorganic Carbon	mg/L	24.1
Nutrients and Chlorophyll *a*		
Total Ammonia as Nitrogen	mg/L	<0.005
Nitrate as Nitrogen	mg/L	<0.05
Nitrate+Nitrite as Nitrogen	mg/L	<0.05
Total Kjeldahl Nitrogen	mg/L	0.63
Phosphorus, Total	mg/L	0.029
Phosphorus, Total Dissolved	mg/L	0.029
Orthophosphate (PO_4-P)	mg/L	0.013
Chlorophyll *a*	µg/L	0.72 [c]
Cyanides		
Cyanide, Total	µg/L	<1
Total Metals		
Aluminum (Al)	µg/L	<2
Antimony (Sb)	µg/L	0.50
Arsenic (As)	µg/L	0.90
Barium (Ba)	µg/L	6,120
Beryllium (Be)	µg/L	<4
Bismuth (Bi)	µg/L	<2,000
Boron (B)	µg/L	-
Cadmium (Cd)	µg/L	*<2*
Cesium (Cs)	µg/L	<50
Chromium (Cr)	µg/L	*<10*
Cobalt (Co)	µg/L	<4
Copper (Cu)	µg/L	<2
Iron (Fe)	µg/L	<10
Lead (Pb)	µg/L	<10
Lithium (Li)	µg/L	270
Magnesium (Mg)	µg/L	-
Manganese (Mn)	µg/L	3.0
Mercury (Hg)	µg/L	**0.3**
Molybdenum (Mo)	µg/L	<10
Nickel (Ni)	µg/L	43
Potassium (K)	µg/L	-
Rubidium (Rb)	µg/L	-
Selenium (Se)	µg/L	<0.4
Silver (Ag)	µg/L	30
Sodium (Na)	µg/L	-
Strontium (Sr)	µg/L	8,160
Thallium (Tl)	µg/L	<100
Tin (Sn)	µg/L	-
Titanium (Ti)	µg/L	<2
Uranium (U)	µg/L	<100
Vanadium (V)	µg/L	<2
Zinc (Zn)	µg/L	128

Waterbody	Units	Ocean
Date Sampled		29-Jul-98
GPS Coordinates (NAD83, Zone 15V) [a]		0546540, 6969597
Source [b]		RL&L 1999
Dissolved Metals		
Aluminum (Al)	µg/L	-
Antimony (Sb)	µg/L	-
Arsenic (As)	µg/L	-
Barium (Ba)	µg/L	-
Beryllium (Be)	µg/L	-
Boron (B)	µg/L	-
Cadmium (Cd)	µg/L	-
Calcium (Ca)	µg/L	-
Chromium (Cr)	µg/L	-
Cobalt (Co)	µg/L	-
Copper (Cu)	µg/L	-
Iron (Fe)	µg/L	-
Lead (Pb)	µg/L	-
Lithium (Li)	µg/L	-
Magnesium (Mg)	µg/L	-
Manganese (Mn)	µg/L	-
Mercury (Hg)	µg/L	-
Molybdenum (Mo)	µg/L	-
Nickel (Ni)	µg/L	-
Potassium (K)	µg/L	-
Selenium (Se)	µg/L	-
Silver (Ag)	µg/L	-
Sodium (Na)	µg/L	-
Strontium (Sr)	µg/L	-
Thallium (Tl)	µg/L	-
Tin (Sn)	µg/L	-
Titanium (Ti)	µg/L	-
Uranium (U)	µg/L	-
Vanadium (V)	µg/L	-
Zinc (Zn)	µg/L	-
Organic Compounds		
Oil and Grease	µg/L	-
Phenols	µg/L	2
Benzene	µg/L	<0.5
Ethylbenzene	µg/L	<0.5
Toluene	µg/L	<0.5
Xylenes	µg/L	<0.5
F1 (C6-C10)	µg/L	-
F1 -BTEX	µg/L	-
F2 (>C10-C16)	µg/L	-
F3 (C16-C34)	µg/L	-
F4 (C34-C50)	µg/L	-
Total Volatiles	µg/L	<100
Total Extractables	µg/L	<50
Other		
Biological Oxygen Demand (BOD)	mg/L	-
Fecal Coliforms	CFU/100 mL	-

a = GPS coordinates from RL&L 1999 were converted from NAD27.

b = Data were obtained from the following sources: 1994 to 1995 = Dillon (1994 and 1995); 1997 to 2000 = RL&L (1998, 1999, 2000, 2001); 2007 = Comaplex Minerals Corporation, pers. comm.; 2008 and 2009 = Golder Associates Ltd.

c = Samples for chlorophyll *a* were composite samples collected over the photic zone, as idenified from Secchi depth.

Notes:

Bold values are equal to or greater than the Canadian Water Quality Guidelines for the Protection of Aquatic Life - Marine (CCME 2007, CWQG Marine).

Italicized values indicate the detection limit equals or exceeds either guideline.

(-) = No data available

°C = degrees Celsius; µS/cm = microSeimens per centimetre; mg/L = milligrams per litre; µg/L = micrograms per litre; NTU = nephelometric turbidity units.

Golder Associates

APPENDIX C

Sediment Quality

Appendix C1: Sediment Quality in Meliadine Lake, Meliadine Gold Project, 1995 to 2008

Waterbody/Sample ID	Units	DI4	DI4				ML-E					ML-E			
Profile Depth		-	0-2 cm		0-10 cm		top 5-10 cm					0-2 cm		0-10 cm	
Replicate		-	1	2	1	2	1	2	3	4	5	1	2	1	2
Date Sampled		20-Jul-95	20-Jul-08	20-Jul-08	20-Jul-08	20-Jul-08	Jul-98	Jul-98	Jul-98	Jul-98	Jul-98	17-Jul-08	17-Jul-08	17-Jul-08	17-Jul-08
GPS Coordinates (NAD83, Zone 15V)		-	0554523, 6980718				-					0543271, 6988364			
Source [a]		Dillon 1995	Golder	Golder	Golder	Golder	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	Golder	Golder	Golder	Golder
Conventional Parameters															
Moisture	%	22.9	76	79	66	74	79	75	77	78	75	50	54	54	63
Particle Size [c]															
Sand (2.0 mm - 0.05 mm)	%	-	40	49	38	48	31.9	29.3	35.1	22.1	22.9	70	74	67	74
Silt (0.05 mm - 2 µm)	%	-	54	46	55	47	66.4	68.9	62.8	74.8	73.6	27	23	30	17
Clay (<2 µm)	%	-	6	5	8	6	1.8	2.1	2.1	3.0	3.3	3	4	3	9
Texture	-	-	Silt loam	Sandy loam	Silt loam	Sandy loam	-	-	-	-	-	Sandy loam	Sandy loam / Loamy sand	Sandy loam	Sandy loam
Nutrients															
Total Carbon	%	-	4.1	4.8	2.9	3.9	4.02	3.95	3.83	4.01	4.12	1.1	1.5	1.1	1.9
Total Organic Carbon	%	-	4.1	4.8	2.9	3.9	3.96	3.88	3.76	3.94	4.03	1.1	1.5	1.1	1.9
Total Inorganic Carbon	%	-	<0.1	<0.1	<0.1	<0.1	0.06	0.07	0.07	0.07	0.09	<0.09	0.1	<0.09	<0.09
Total Nitrogen	%	-	-	-	-	-	0.35	0.36	0.35	0.37	0.38	-	-	-	-
Total Nitrogen by LECO	%	-	0.4	0.49	0.28	0.37	-	-	-	-	-	0.1	0.16	0.1	0.21
Total Phosphorus	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanides															
Cyanide, Total	mg/kg		3	4.2	2.3	3.3	1.3	1.3	1.3	1.5	1.7	0.9	<0.5	<0.5	<0.5
Total Metals															
Aluminum (Al)	mg/kg	-	-	-	-	-	9460	11000	9290	9280	10600	-	-	-	-
Antimony (Sb)	mg/kg	-	<0.2	<0.2	<0.2	<0.2	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2
Arsenic (As)	mg/kg	**22.8**	**33**	**43.5**	**42.5**	**67.8**	**12.6**	**13**	**16.9**	**18.2**	**14.1**	5.2	**7.8**	4.5	**6.5**
Barium (Ba)	mg/kg	30	78	88	70	85	94.9	108	101	96.8	108	27	49	35	52
Beryllium (Be)	mg/kg	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bismuth (Bi)	mg/kg	-	-	-	-	-	<1	<1	<1	<1	<1	-	-	-	-
Boron (B)	mg/kg	-	-	-	-	-	<5	<5	<5	<5	8	-	-	-	-
Cadmium (Cd)	mg/kg	***< 2.0***	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Calcium (Ca)	mg/kg	-	-	-	-	-	4720	6120	4740	5070	5380	-	-	-	-
Chromium (Cr)	mg/kg	**46.3**	**42.9**	**46.4**	**40.9**	**48.5**	**44.7**	**49.4**	**43.1**	**43.4**	**47.3**	13.8	18.5	18	21.6
Cobalt (Co)	mg/kg	8.90	13.00	16.00	14.00	21.00	9	10	9	9	9	3	4	3	4
Copper (Cu)	mg/kg	11.8	**44**	**51**	**42**	**59**	**63**	**68**	**62**	**62**	**67**	11	18	16	23
Iron (Fe)	mg/kg	-	-	-	-	-	16800	18100	17500	18200	17500	-	-	-	-
Lead (Pb)	mg/kg	< 10.0	7	8	6	8	10.0	12.0	10.0	10.0	10.0	<5	<5	<5	<5
Lithium (Li)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium (Mg)	mg/kg	-	-	-	-	-	5620	6530	5960	5910	6060	-	-	-	-
Manganese (Mn)	mg/kg	-	-	-	-	-	277.0	308.0	326.0	363.0	312.0	-	-	-	-
Mercury (Hg)	mg/kg	< 0.005	<0.05	<0.05	<0.05	0.06	0.05	0.03	0.04	0.07	0.05	<0.05	<0.05	<0.05	<0.05
Molybdenum (Mo)	mg/kg	< 4.0	2	2	2	3	3	3	3	3	3	<1	1	<1	1
Nickel (Ni)	mg/kg	26.5	42	52	47	66	48	51	47	46	48	10	16	14	18
Phosphorus (P)	mg/kg	-	-	-	-	-	945	1020	951	957	994	-	-	-	-
Potassium (K)	mg/kg	-	-	-	-	-	2270	2680	2150	2180	2500	-	-	-	-
Selenium (Se)	mg/kg	< 0.10	0.6	0.7	0.6	0.7	1	1	1	0.9	0.9	0.3	0.3	0.2	0.4
Silver (Ag)	mg/kg	< 2.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sodium (Na)	mg/kg	-	-	-	-	-	355	419	318	339	407	-	-	-	-
Strontium (Sr)	mg/kg	-	-	-	-	-	30	36	26	28	35	-	-	-	-
Thallium (Tl)	mg/kg	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tin (Sn)	mg/kg	< 30	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5

Appendix C1: Sediment Quality in Meliadine Lake, Meliadine Gold Project, 1995 to 2008

Waterbody/Sample ID	Units	DI4	DI4				ML-E					ML-E			
Profile Depth		-	0-2 cm		0-10 cm		top 5-10 cm					0-2 cm		0-10 cm	
Replicate		-	1	2	1	2	1	2	3	4	5	1	2	1	2
Date Sampled		20-Jul-95	20-Jul-08	20-Jul-08	20-Jul-08	20-Jul-08	Jul-98	Jul-98	Jul-98	Jul-98	Jul-98	17-Jul-08	17-Jul-08	17-Jul-08	17-Jul-08
GPS Coordinates (NAD83, Zone 15V)		-	0554523, 6980718				-					0543271, 6988364			
Source [a]		Dillon 1995	Golder	Golder	Golder	Golder	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	Golder	Golder	Golder	Golder
Titanium (Ti)	mg/kg	-	-	-	-	-	1100	1230	1020	1040	1160	-	-	-	-
Uranium (U)	mg/kg	-	<2	<2	<2	<2	<40	<40	<40	<40	<40	<2	<2	<2	<2
Vanadium (V)	mg/kg	-	39	42	38	43	48	55	47	48	52	14	19	19	22
Zinc (Zn)	mg/kg	46.2	60	60	50	70	76.3	88.6	81.3	80.8	88	20	30	30	30
Polycyclic Aromatic Hydrocarbons															
Acenaphthene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acridine	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benz(a)anthracene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benz(a)anthracene/Chrysene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b&j)fluoranthene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b or k)fluoranthene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(ghi)perylene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Biphenyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2 sub'd B(a)A/chrysene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2 sub'd B(b&k)F/B(a)P	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2 sub'd biphenyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2 sub'd dibenzothiophene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2 sub'd fluoranthene/pyrene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2 sub'd fluorene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2 sub'd naphthalene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2 sub'd phenanthrene/anth.	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3 sub'd dibenzothiophene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3 sub'd fluoranthene/pyrene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3 sub'd fluorene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3 sub'd naphthalene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C3 sub'd phenanthrene/anth.	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C4 sub'd dibenzothiophene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C4 sub'd naphthalene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C4 sub'd phenanthrene/anth.	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenzo(a,h)anthracene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenzothiophene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(c,d-123)pyrene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl acenaphthene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl B(a)A/chrysene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl B(b&k)F/B(a)P	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl biphenyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl dibenzothiophene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl fluoranthene/pyrene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix C1: Sediment Quality in Meliadine Lake, Meliadine Gold Project, 1995 to 2008

Waterbody/Sample ID	Units	DI4	DI4				ML-E					ML-E			
Profile Depth		-	0-2 cm		0-10 cm		top 5-10 cm					0-2 cm		0-10 cm	
Replicate		-	1	2	1	2	1	2	3	4	5	1	2	1	2
Date Sampled		20-Jul-95	20-Jul-08	20-Jul-08	20-Jul-08	20-Jul-08	Jul-98	Jul-98	Jul-98	Jul-98	Jul-98	17-Jul-08	17-Jul-08	17-Jul-08	17-Jul-08
GPS Coordinates (NAD83, Zone 15V)		-	0554523, 6980718				-					0543271, 6988364			
Source [a]		Dillon 1995	Golder	Golder	Golder	Golder	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	Golder	Golder	Golder	Golder
Methyl fluorene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl phenanthrene/anthracene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl naphthalenes	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1-Methylnaphthalene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene/Anthracene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quinoline	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Retene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Organic Compounds															
Benzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xylenes	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Extr. Hydrocarbons (C9-40)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Extr. Hydrocarbons (C10-30)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Extractables	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Volatiles	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Organochlorines															
Aldrin	mg/kg	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	-
Alpha-BHC	mg/kg	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	-
Beta-BHC	mg/kg	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	-
Gamma-BHC	mg/kg	-	-	-	-	-	***<0.001***	-	-	-	-	-	-	-	-
Chlordane (alpha)	mg/kg	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	-
Chlordane (gamma)	mg/kg	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	-
Dieldrin	mg/kg	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	-
Endosulfan I	mg/kg	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	-
Endosulfan II	mg/kg	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	-
Endrin	mg/kg	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	-
Heptachlor	mg/kg	-	-	-	-	-	***<0.001***	-	-	-	-	-	-	-	-
Methoxychlor	mg/kg	-	-	-	-	-	<0.002	-	-	-	-	-	-	-	-
Mirex	mg/kg	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	-
Nonachlor	mg/kg	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	-
Oxychlordane	mg/kg	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	-
pp-DDD	mg/kg	-	-	-	-	-	**0.008**	-	-	-	-	-	-	-	-
pp-DDE	mg/kg	-	-	-	-	-	**0.002**	-	-	-	-	-	-	-	-
pp-DDT	mg/kg	-	-	-	-	-	**0.070**	-	-	-	-	-	-	-	-
Quintozine	mg/kg	-	-	-	-	-	0.005	-	-	-	-	-	-	-	-
All Aroclors	mg/kg	-	-	-	-	-	<0.03	-	-	-	-	-	-	-	-

a = Data sources: 1994 to 1995 = Dillon (1994 and 1995); 1998 = RL&L (1999); 2008 and 2009 = Golder Associates Ltd.
b = Station named PL-06 in Dillon 1994
c = Particle sizes in 1998 samples were estimated from the following weight fractions: sand = 62.5 to 500 µm; silt = 2.762 to 62.5 µm; clay = 0.691 to 2.762 µm.
d = Aroclor 1254.

Appendix C1: Sediment Quality in Meliadine Lake, Meliadine Gold Project, 1995 to 2008

Waterbody/Sample ID	Units	ML-A [b]	ML-A					ML-A				BOOT-1			
Profile Depth		-	top 5-10 cm					0-2 cm		0-10 cm		0-2 cm		0-10 cm	
Replicate		1	1	2	3	4	5	1	2	1	2	1	2	1	2
Date Sampled		11-Aug-94	Jul-98	Jul-98	Jul-98	Jul-98	Jul-98	17-Jul-08	17-Jul-08	17-Jul-08	17-Jul-08	16-Jul-08	16-Jul-08	16-Jul-08	16-Jul-08
GPS Coordinates (NAD83, Zone 15V)		-	-					0544654, 6986157				0541286, 6989232			
Source [a]		Dillon 1994	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder
Conventional Parameters															
Moisture	%	51.9	75	69.3	66	73	64	75	73	75	75	55	41	48	37
Particle Size [c]															
Sand (2.0 mm - 0.05 mm)	%	-	29.5	27.0	31.4	34.2	27.0	54	53	47	45	79	80	78	82
Silt (0.05 mm - 2 µm)	%	-	68.6	71.7	67.1	64.9	71.1	43	44	50	50	19	18	20	17
Clay (<2 µm)	%	-	2.1	1.3	1.5	1.1	1.7	3	3	3	6	2	2	2	2
Texture	-	-	-	-	-	-	-	Sandy loam	Sandy loam	Silt loam / Sandy loam	Silt loam	Loamy sand	Loamy sand	Loamy sand	Loamy sand
Nutrients															
Total Carbon	%	-	2.54	2.62	3.21	3.15	2.56	3.8	3.7	3.7	3.7	1.6	0.8	1.6	0.8
Total Organic Carbon	%	-	2.47	2.56	3.15	3.08	2.48	3.8	3.5	3.7	3.7	1.6	0.8	1.6	0.8
Total Inorganic Carbon	%	-	0.07	0.06	0.06	0.07	0.08	0.09	0.1	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
Total Nitrogen	%	-	0.23	0.25	0.3	0.3	0.24	-	-	-	-	-	-	-	-
Total Nitrogen by LECO	%	-	-	-	-	-	-	0.4	0.4	0.38	0.36	0.15	0.08	0.13	0.07
Total Phosphorus	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanides															
Cyanide, Total	mg/kg	-	0.8	0.7	0.9	1.2	0.7	1.7	1.5	2.3	2	0.6	<0.5	0.8	<0.5
Total Metals															
Aluminum (Al)	mg/kg	5450	7040	6280	8410	7840	6540	-	-	-	-	-	-	-	-
Antimony (Sb)	mg/kg	< 25	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arsenic (As)	mg/kg	3.4	**6.1**	**8.4**	**9.2**	**11.6**	**6.7**	**38**	**55.1**	**21.4**	**26.8**	5.3	2.6	4.6	2.8
Barium (Ba)	mg/kg	29.1	68.4	60.3	81.1	77.6	63.8	87	81	87	81	34	24	32	28
Beryllium (Be)	mg/kg	< 0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bismuth (Bi)	mg/kg	< 10	<1	<1	<1	<1	<1	-	-	-	-	-	-	-	-
Boron (B)	mg/kg	-	<5	<5	6.0	<5	<5	-	-	-	-	-	-	-	-
Cadmium (Cd)	mg/kg	0.34	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Calcium (Ca)	mg/kg	4440	4400	3700	5030	4900	3790	-	-	-	-	-	-	-	-
Chromium (Cr)	mg/kg	14.4	31.9	29.6	**38.4**	35.6	31.5	34.1	31.6	36	34.2	20.3	15.4	19.3	17.2
Cobalt (Co)	mg/kg	4	5.00	5.00	6.00	6.00	5.00	8.00	8.00	8.00	8.00	4	3	4	3
Copper (Cu)	mg/kg	10.4	34	31	**42**	**37**	34	**39**	**36**	**44**	**42**	9	6	9	7
Iron (Fe)	mg/kg	8100	11300	11200	13900	13900	11300	-	-	-	-	-	-	-	-
Lead (Pb)	mg/kg	2.0	6	6	8	8	7	9	9	8	7	<5	<5	<5	<5
Lithium (Li)	mg/kg	6.3	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium (Mg)	mg/kg	3490	4400	4160	4890	4750	4350	-	-	-	-	-	-	-	-
Manganese (Mn)	mg/kg	166.0	170	162	201	207	169	-	-	-	-	-	-	-	-
Mercury (Hg)	mg/kg	0.006	0.06	0.04	0.06	0.03	0.02	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Molybdenum (Mo)	mg/kg	< 4.0	2	1	2	2	1	3	3	3	3	2	<1	2	<1
Nickel (Ni)	mg/kg	12.3	25	24	31	28	26	35	33	36	33	13	9	13	10
Phosphorus (P)	mg/kg	437	702	678	804	774	705	-	-	-	-	-	-	-	-
Potassium (K)	mg/kg	718	1570	1340	1920	1760	1410	-	-	-	-	-	-	-	-
Selenium (Se)	mg/kg	< 0.10	0.4	0.5	0.6	0.7	0.4	0.7	0.6	0.7	0.7	0.2	<0.2	0.2	<0.2
Silver (Ag)	mg/kg	< 2.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sodium (Na)	mg/kg	< 250	281	237	332	324	241	-	-	-	-	-	-	-	-
Strontium (Sr)	mg/kg	-	27	21	34	31	22	-	-	-	-	-	-	-	-
Thallium (Tl)	mg/kg	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tin (Sn)	mg/kg	< 30	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5

Appendix C1: Sediment Quality in Meliadine Lake, Meliadine Gold Project, 1995 to 2008

Waterbody/Sample ID	Units	ML-A [b]	ML-A					ML-A				BOOT-1			
Profile Depth		-	top 5-10 cm					0-2 cm		0-10 cm		0-2 cm		0-10 cm	
Replicate		1	1	2	3	4	5	1	2	1	2	1	2	1	2
Date Sampled		11-Aug-94	Jul-98	Jul-98	Jul-98	Jul-98	Jul-98	17-Jul-08	17-Jul-08	17-Jul-08	17-Jul-08	16-Jul-08	16-Jul-08	16-Jul-08	16-Jul-08
GPS Coordinates (NAD83, Zone 15V)		-	-					0544654, 6986157				0541286, 6989232			
Source [a]		Dillon 1994	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder
Titanium (Ti)	mg/kg	-	970	878	1060	1040	887	-	-	-	-	-	-	-	-
Uranium (U)	mg/kg	-	<40	<40	<40	<40	<40	<2	<2	2	2	<2	<2	<2	<2
Vanadium (V)	mg/kg	14.5	34	31	40	37	32	36	34	39	37	19	14	17	16
Zinc (Zn)	mg/kg	23.1	50.4	44.4	56.6	53.3	48.8	50	50	60	50	30	20	30	20
Polycyclic Aromatic Hydrocarbons															
Acenaphthene	mg/kg	-	***<0.02***	***<0.02***	***<0.02***	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
Acenaphthylene	mg/kg	-	***<0.02***	***<0.02***	***<0.02***	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
Acridine	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
Anthracene	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
Benz(a)anthracene	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
Benz(a)anthracene/Chrysene	mg/kg	-	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	mg/kg	-	<0.02	<0.02	<0.02	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
Benzo(b&j)fluoranthene	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
Benzo(b or k)fluoranthene	mg/kg	-	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	-	-	-
Benzo(ghi)perylene	mg/kg	-	<0.02	<0.02	<0.02	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
Benzo(k)fluoranthene	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
Biphenyl	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
C2 sub'd B(a)A/chrysene	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02
C2 sub'd B(b&k)F/B(a)P	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02
C2 sub'd biphenyl	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02
C2 sub'd dibenzothiophene	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02
C2 sub'd fluoranthene/pyrene	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02
C2 sub'd fluorene	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02
C2 sub'd naphthalene	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02
C2 sub'd phenanthrene/anth.	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02
C3 sub'd dibenzothiophene	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02
C3 sub'd fluoranthene/pyrene	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02
C3 sub'd fluorene	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02
C3 sub'd naphthalene	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02
C3 sub'd phenanthrene/anth.	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02
C4 sub'd dibenzothiophene	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02
C4 sub'd naphthalene	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02
C4 sub'd phenanthrene/anth.	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02
Chrysene	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
Dibenzo(a,h)anthracene	mg/kg	-	***<0.02***	***<0.02***	***<0.02***	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
Dibenzothiophene	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
Fluoranthene	mg/kg	-	<0.02	<0.02	<0.02	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
Fluorene	mg/kg	-	<0.02	<0.02	<0.02	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
Indeno(c,d-123)pyrene	mg/kg	-	<0.02	<0.02	<0.02	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
Methyl acenaphthene	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02
Methyl B(a)A/chrysene	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02
Methyl B(b&k)F/B(a)P	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02
Methyl biphenyl	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02
Methyl dibenzothiophene	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02
Methyl fluoranthene/pyrene	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02

Appendix C1: Sediment Quality in Meliadine Lake, Meliadine Gold Project, 1995 to 2008

Waterbody/Sample ID	Units	ML-A [b]	ML-A					ML-A				BOOT-1			
Profile Depth		-	top 5-10 cm					0-2 cm		0-10 cm		0-2 cm		0-10 cm	
Replicate		1	1	2	3	4	5	1	2	1	2	1	2	1	2
Date Sampled		11-Aug-94	Jul-98	Jul-98	Jul-98	Jul-98	Jul-98	17-Jul-08	17-Jul-08	17-Jul-08	17-Jul-08	16-Jul-08	16-Jul-08	16-Jul-08	16-Jul-08
GPS Coordinates (NAD83, Zone 15V)		-	-					0544654, 6986157				0541286, 6989232			
Source [a]		Dillon 1994	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder
Methyl fluorene	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02
Methyl phenanthrene/anthracene	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02
Methyl naphthalenes	mg/kg	-	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	-	-	-
1-Methylnaphthalene	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
Naphthalene	mg/kg	-	<0.02	<0.02	<0.02	-	-	-	-	-	-	0.005	0.005	0.005	<0.005
Phenanthrene	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
Phenanthrene/Anthracene	mg/kg	-	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	-	-	-
Pyrene	mg/kg	-	<0.02	<0.02	<0.02	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
Quinoline	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
Retene	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005
Other Organic Compounds															
Benzene	mg/kg	-	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	mg/kg	-	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-
Xylenes	mg/kg	-	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-
Toluene	mg/kg	-	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-
Total Extr. Hydrocarbons (C9-40)	mg/kg	< 40	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Extr. Hydrocarbons (C10-30)	mg/kg	< 40	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Extractables	mg/kg	-	<5	<5	<5	-	-	-	-	-	-	-	-	-	-
Total Volatiles	mg/kg	-	<0.5	0.6	0.7	-	-	-	-	-	-	-	-	-	-
Organochlorines															
Aldrin	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alpha-BHC	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beta-BHC	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gamma-BHC	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlordane (alpha)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlordane (gamma)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dieldrin	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan I	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan II	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Endrin	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Heptachlor	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methoxychlor	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mirex	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nonachlor	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxychlordane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pp-DDD	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pp-DDE	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pp-DDT	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quintozine	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All Aroclors	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-

a = Data were obtained from the following sources: 1994 to 1995 = Dillon (1994 and 1995); 1998 = RL&L (1999); 2008 and 2009 = Golder Associates Ltd.
b = Station named PL-06 in Dillon 1994
c = Particle sizes in 1998 samples were estimated from the following weight fractions: sand = 62.5 to 500 µm; silt = 2.762 to 62.5 µm; clay = 0.691 to 2.762 µm.
d = Aroclor 1254.

Appendix C1: Sediment Quality in Meliadine Lake, Meliadine Gold Project, 1995 to 2008

Waterbody/Sample ID	Units	BOOT-2				ML-W					ML-W			
Profile Depth		0-2 cm		0-10 cm		top 5-10 cm					0-2 cm		0-10 cm	
Replicate		1	2	1	2	1	2	3	4	5	1	2	1	2
Date Sampled		16-Jul-08	16-Jul-08	16-Jul-08	16-Jul-08	Jul-98	Jul-98	Jul-98	Jul-98	Jul-98	19-Jul-08	19-Jul-08	19-Jul-08	19-Jul-08
GPS Coordinates (NAD83, Zone 15V)		0542047, 6989350				0509572, 6993461					0525608, 7000884			
Source [a]		Golder	Golder	Golder	Golder	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	Golder	Golder	Golder	Golder
Conventional Parameters														
Moisture	%	84	85	83	83	88	71	82	88	74	70	69	75	72
Particle Size [c]														
Sand (2.0 mm - 0.05 mm)	%	56	56	52	58	32.7	33.6	31.8	23.3	55.5	83	81	79	82
Silt (0.05 mm - 2 µm)	%	39	37	42	37	64.7	64.7	66.1	73.7	42.7	14	15	16	14
Clay (<2 µm)	%	5	7	6	5	2.4	1.6	1.9	2.8	1.7	2	4	5	3
Texture	-	Sandy loam	Sandy loam	Sandy loam	Sandy loam	-	-	-	-	-	Loamy sand	Loamy sand	Loamy sand	Loamy sand
Nutrients														
Total Carbon	%	6.4	6.2	5.8	5.4	7.94	7.44	3.28	8.19	4.04	2.6	2.4	2.9	2.4
Total Organic Carbon	%	6.4	6.1	5.8	5.4	7.88	7.33	3.25	8.14	4.01	2.6	2.4	2.9	2.4
Total Inorganic Carbon	%	<0.09	0.1	<0.09	<0.09	0.06	0.11	0.03	0.05	0.03	<0.1	<0.1	<0.1	<0.1
Total Nitrogen	%	-	-	-	-	0.76	0.67	0.33	0.78	0.4	-	-	-	-
Total Nitrogen by LECO	%	0.64	0.61	0.53	0.55	-	-	-	-	-	0.23	0.2	0.24	0.22
Total Phosphorus	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanides														
Cyanide, Total	mg/kg	3.3	3.3	2.5	1.3	4.3	2.7	2.7	4.5	3.1	1.9	1.8	1.6	1.7
Total Metals														
Aluminum (Al)	mg/kg	-	-	-	-	9320	9060	8750	9580	6840	-	-	-	-
Antimony (Sb)	mg/kg	<0.2	<0.2	<0.2	<0.2	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2
Arsenic (As)	mg/kg	**65.1**	**52.6**	**40.5**	**28.7**	**13.4**	**7.6**	5.3	**8.4**	**7.5**	4.5	3.6	4.3	3.2
Barium (Ba)	mg/kg	124	112	118	111	74.4	90.7	85.3	99.2	65.5	62	57	67	53
Beryllium (Be)	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bismuth (Bi)	mg/kg	-	-	-	-	<1	<1	<1	<1	<1	-	-	-	-
Boron (B)	mg/kg	-	-	-	-	8.0	9.0	<5	7.0	<5	-	-	-	-
Cadmium (Cd)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Calcium (Ca)	mg/kg	-	-	-	-	5170	6170	6100	6460	4380	-	-	-	-
Chromium (Cr)	mg/kg	**51.1**	**46**	**53.4**	**48.9**	33.6	35.1	32.1	35.3	25.6	19.9	18.9	22.2	18.3
Cobalt (Co)	mg/kg	18	14	19	17	13.00	6.00	6.00	7.00	7	5	4	5	4
Copper (Cu)	mg/kg	**72**	**63**	**76**	**67**	**81**	**71**	**67**	**83**	**39**	30	27	**38**	30
Iron (Fe)	mg/kg	-	-	-	-	18500	16400	15000	17600	11300	-	-	-	-
Lead (Pb)	mg/kg	14	14	13	12	7	8	7	8	6.0	<5	<5	<5	<5
Lithium (Li)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium (Mg)	mg/kg	-	-	-	-	3890	3840	4060	4510	3050	-	-	-	-
Manganese (Mn)	mg/kg	-	-	-	-	241	217	214	206	162.0	-	-	-	-
Mercury (Hg)	mg/kg	<0.05	<0.05	<0.05	<0.05	0.09	0.05	0.06	0.07	0.05	<0.05	<0.05	<0.05	<0.05
Molybdenum (Mo)	mg/kg	5	4	5	4	6	4	3	4	4	1	1	2	1
Nickel (Ni)	mg/kg	66	57	70	63	44	34	33	38	33	19	18	22	17
Phosphorus (P)	mg/kg	-	-	-	-	840	899	788	936	626	-	-	-	-
Potassium (K)	mg/kg	-	-	-	-	1720	1700	1600	1720	1460	-	-	-	-
Selenium (Se)	mg/kg	1.3	1.1	1.2	1.1	1.3	1.2	1	1.2	0.8	0.4	0.4	0.5	0.4
Silver (Ag)	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sodium (Na)	mg/kg	-	-	-	-	482	<100	270	306	212	-	-	-	-
Strontium (Sr)	mg/kg	-	-	-	-	38	42	36	36	30	-	-	-	-
Thallium (Tl)	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tin (Sn)	mg/kg	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5

Appendix C1: Sediment Quality in Meliadine Lake, Meliadine Gold Project, 1995 to 2008

Waterbody/Sample ID	Units	BOOT-2				ML-W					ML-W			
Profile Depth		0-2 cm		0-10 cm		top 5-10 cm					0-2 cm		0-10 cm	
Replicate		1	2	1	2	1	2	3	4	5	1	2	1	2
Date Sampled		16-Jul-08	16-Jul-08	16-Jul-08	16-Jul-08	Jul-98	Jul-98	Jul-98	Jul-98	Jul-98	19-Jul-08	19-Jul-08	19-Jul-08	19-Jul-08
GPS Coordinates (NAD83, Zone 15V)		0542047, 6989350				0509572, 6993461					0525608, 7000884			
Source [a]		Golder	Golder	Golder	Golder	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	Golder	Golder	Golder	Golder
Titanium (Ti)	mg/kg	-	-	-	-	963	958	861	911	836	-	-	-	-
Uranium (U)	mg/kg	4	3	4	3	<40	<40	<40	<40	<40	<2	<2	<2	<2
Vanadium (V)	mg/kg	56	50	58	53	39	38	38	41	36	21	21	25	21
Zinc (Zn)	mg/kg	100	90	100	90	69	61.2	63.9	65.8	46.7	30	30	40	30
Polycyclic Aromatic Hydrocarbons														
Acenaphthene	mg/kg	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-
Acenaphthylene	mg/kg	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-
Acridine	mg/kg	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-
Anthracene	mg/kg	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-
Benz(a)anthracene	mg/kg	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-
Benz(a)anthracene/Chrysene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	mg/kg	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-
Benzo(b&j)fluoranthene	mg/kg	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-
Benzo(b or k)fluoranthene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(ghi)perylene	mg/kg	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-
Biphenyl	mg/kg	0.005	<0.005	0.005	<0.005	-	-	-	-	-	-	-	-	-
C2 sub'd B(a)A/chrysene	mg/kg	<0.02	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	-	-
C2 sub'd B(b&k)F/B(a)P	mg/kg	<0.02	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	-	-
C2 sub'd biphenyl	mg/kg	<0.02	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	-	-
C2 sub'd dibenzothiophene	mg/kg	<0.02	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	-	-
C2 sub'd fluoranthene/pyrene	mg/kg	<0.02	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	-	-
C2 sub'd fluorene	mg/kg	<0.02	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	-	-
C2 sub'd naphthalene	mg/kg	<0.02	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	-	-
C2 sub'd phenanthrene/anth.	mg/kg	<0.02	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	-	-
C3 sub'd dibenzothiophene	mg/kg	<0.02	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	-	-
C3 sub'd fluoranthene/pyrene	mg/kg	<0.02	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	-	-
C3 sub'd fluorene	mg/kg	<0.02	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	-	-
C3 sub'd naphthalene	mg/kg	<0.02	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	-	-
C3 sub'd phenanthrene/anth.	mg/kg	<0.02	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	-	-
C4 sub'd dibenzothiophene	mg/kg	<0.02	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	-	-
C4 sub'd naphthalene	mg/kg	<0.02	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	-	-
C4 sub'd phenanthrene/anth.	mg/kg	<0.02	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	-	-
Chrysene	mg/kg	0.008	0.01	<0.005	0.007	-	-	-	-	-	-	-	-	-
Dibenzo(a,h)anthracene	mg/kg	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-
Dibenzothiophene	mg/kg	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-
Fluoranthene	mg/kg	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-
Fluorene	mg/kg	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-
Indeno(c,d-123)pyrene	mg/kg	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-
Methyl acenaphthene	mg/kg	<0.02	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	-	-
Methyl B(a)A/chrysene	mg/kg	<0.02	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	-	-
Methyl B(b&k)F/B(a)P	mg/kg	<0.02	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	-	-
Methyl biphenyl	mg/kg	<0.02	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	-	-
Methyl dibenzothiophene	mg/kg	<0.02	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	-	-
Methyl fluoranthene/pyrene	mg/kg	<0.02	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	-	-

Appendix C1: Sediment Quality in Meliadine Lake, Meliadine Gold Project, 1995 to 2008

Waterbody/Sample ID	Units	BOOT-2				ML-W					ML-W			
Profile Depth		0-2 cm		0-10 cm		top 5-10 cm					0-2 cm		0-10 cm	
Replicate		1	2	1	2	1	2	3	4	5	1	2	1	2
Date Sampled		16-Jul-08	16-Jul-08	16-Jul-08	16-Jul-08	Jul-98	Jul-98	Jul-98	Jul-98	Jul-98	19-Jul-08	19-Jul-08	19-Jul-08	19-Jul-08
GPS Coordinates (NAD83, Zone 15V)		0542047, 6989350				0509572, 6993461					0525608, 7000884			
Source [a]		Golder	Golder	Golder	Golder	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	Golder	Golder	Golder	Golder
Methyl fluorene	mg/kg	<0.02	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	-	-
Methyl phenanthrene/anthracene	mg/kg	<0.02	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	-	-
Methyl naphthalenes	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
1-Methylnaphthalene	mg/kg	0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-
Naphthalene	mg/kg	0.01	0.02	0.01	0.02	-	-	-	-	-	-	-	-	-
Phenanthrene	mg/kg	<0.005	0.006	0.005	0.006	-	-	-	-	-	-	-	-	-
Phenanthrene/Anthracene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	mg/kg	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-
Quinoline	mg/kg	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-
Retene	mg/kg	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-
Other Organic Compounds														
Benzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Xylenes	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Extr. Hydrocarbons (C9-40)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Extr. Hydrocarbons (C10-30)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Extractables	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Volatiles	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Organochlorines											-	-	-	-
Aldrin	mg/kg	-	-	-	-	<0.001	-	-	-	-	-	-	-	-
Alpha-BHC	mg/kg	-	-	-	-	<0.001	-	-	-	-	-	-	-	-
Beta-BHC	mg/kg	-	-	-	-	<0.001	-	-	-	-	-	-	-	-
Gamma-BHC	mg/kg	-	-	-	-	***<0.001***	-	-	-	-	-	-	-	-
Chlordane (alpha)	mg/kg	-	-	-	-	<0.001	-	-	-	-	-	-	-	-
Chlordane (gamma)	mg/kg	-	-	-	-	<0.001	-	-	-	-	-	-	-	-
Dieldrin	mg/kg	-	-	-	-	<0.001	-	-	-	-	-	-	-	-
Endosulfan I	mg/kg	-	-	-	-	<0.001	-	-	-	-	-	-	-	-
Endosulfan II	mg/kg	-	-	-	-	<0.001	-	-	-	-	-	-	-	-
Endrin	mg/kg	-	-	-	-	<0.001	-	-	-	-	-	-	-	-
Heptachlor	mg/kg	-	-	-	-	***<0.001***	-	-	-	-	-	-	-	-
Methoxychlor	mg/kg	-	-	-	-	<0.002	-	-	-	-	-	-	-	-
Mirex	mg/kg	-	-	-	-	<0.001	-	-	-	-	-	-	-	-
Nonachlor	mg/kg	-	-	-	-	<0.001	-	-	-	-	-	-	-	-
Oxychlordane	mg/kg	-	-	-	-	<0.001	-	-	-	-	-	-	-	-
pp-DDD	mg/kg	-	-	-	-	<0.001	-	-	-	-	-	-	-	-
pp-DDE	mg/kg	-	-	-	-	<0.001	-	-	-	-	-	-	-	-
pp-DDT	mg/kg	-	-	-	-	<0.001	-	-	-	-	-	-	-	-
Quintozine	mg/kg	-	-	-	-	<0.001	-	-	-	-	-	-	-	-
All Aroclors	mg/kg	-	-	-	-	**0.16** [d]	-	-	-	-	-	-	-	-

a = Data were obtained from the following sources: 1994 to 1995 = Dillon (1994 and 1995); 1998 = RL&L (1999); 2008 and 2009 = Golder Associates Ltd.

b = Station named PL-06 in Dillon 1994

c = Particle sizes in 1998 samples were estimated from the following weight fractions: sand = 62.5 to 500 µm; silt = 2.762 to 62.5 µm; clay = 0.691 to 2.762 µm.

d = Aroclor 1254.

Appendix C1: Sediment Quality in Meliadine Lake, Meliadine Gold Project, 1995 to 2008

Waterbody/Sample ID	Units	ML-S					ML-S				ML-SE			
Profile Depth		top 5-10 cm					0-2 cm		0-10 cm		0-2 cm		0-10 cm	
Replicate		1	2	3	4	5	1	2	1	2	1	2	1	2
Date Sampled		Jul-98	Jul-98	Jul-98	Jul-98	Jul-98	19-Jul-08	19-Jul-08	19-Jul-08	19-Jul-08	18-Jul-08	18-Jul-08	18-Jul-08	18-Jul-08
GPS Coordinates (NAD83, Zone 15V)		0525702, 7001082					0532278, 6989421				0535942, 6986209			
Source [a]		RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder
Conventional Parameters														
Moisture	%	85	86	86	88	81	77	83	75	80	75	78	72	75
Particle Size [c]														
Sand (2.0 mm - 0.05 mm)	%	30.7	30.7	32.3	31.4	34.6	79	80	76	76	56	56	58	66
Silt (0.05 mm - 2 µm)	%	66.1	66.2	64.5	64.9	62.9	16	14	18	17	36	39	37	31
Clay (<2 µm)	%	3.3	3.1	3.1	3.5	2.6	5	6	6	7	9	6	5	4
Texture	-	-	-	-	-	-	Loamy sand	Loamy sand	Loamy sand	Sandy loam	Sandy loam	Sandy loam	Sandy loam	Sandy loam
Nutrients														
Total Carbon	%	7.51	6.41	7.19	7.53	7.73	4	5	3.3	4	3.8	4.9	2.9	3.1
Total Organic Carbon	%	7.4	6.26	7.1	7.45	7.65	4	5	3.3	4	3.8	4.9	2.9	3.1
Total Inorganic Carbon	%	0.11	0.15	0.09	0.08	0.08	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Nitrogen	%	0.61	0.52	0.6	0.64	0.67	-	-	-	-	-	-	-	-
Total Nitrogen by LECO	%	-	-	-	-	-	0.31	0.41	0.29	0.29	0.39	0.51	0.29	0.3
Total Phosphorus	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanides														
Cyanide, Total	mg/kg	6.2	6.1	6.8	7	2.5	2.4	2.1	2.3	1.8	1.7	2.9	1.7	2.1
Total Metals														
Aluminum (Al)	mg/kg	10200	10300	10000	10500	11900	-	-	-	-	-	-	-	-
Antimony (Sb)	mg/kg	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arsenic (As)	mg/kg	**38.5**	**47.1**	**39.4**	**49.7**	**36.4**	5.8	4.9	4.8	4.9	**7.5**	**8.2**	**7.6**	**7.6**
Barium (Ba)	mg/kg	122	125	141	138	131	59	50	52	50	45	51	50	49
Beryllium (Be)	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bismuth (Bi)	mg/kg	<1	<1	<1	<1	<1	-	-	-	-	-	-	-	-
Boron (B)	mg/kg	<5	<5	<5	<5	11.0	-	-	-	-	-	-	-	-
Cadmium (Cd)	mg/kg	0.5	**0.6**	0.5	**0.6**	**0.6**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Calcium (Ca)	mg/kg	4390	4710	4580	4970	5320	-	-	-	-	-	-	-	-
Chromium (Cr)	mg/kg	**51.2**	**50.9**	**49.8**	**51.1**	**53.1**	28.6	24.4	26	25.6	26.6	29.2	28.1	29.4
Cobalt (Co)	mg/kg	21	17	19	21	19.00	6	5	6	6	5	5	6	6
Copper (Cu)	mg/kg	**91**	**87**	**92**	**91**	**90**	34	29	32	34	20	24	23	25
Iron (Fe)	mg/kg	33800	33600	33700	40800	36700	-	-	-	-	-	-	-	-
Lead (Pb)	mg/kg	11.0	11.0	12.0	13.0	12	<5	5	<5	<5	<5	5	<5	5
Lithium (Li)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium (Mg)	mg/kg	6040	6000	5940	6010	7930	-	-	-	-	-	-	-	-
Manganese (Mn)	mg/kg	560.0	615.0	583.0	615.0	571	-	-	-	-	-	-	-	-
Mercury (Hg)	mg/kg	0.06	0.09	0.09	0.09	0.14	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Molybdenum (Mo)	mg/kg	7	6	6	7	6	4	1	1	1	1	1	2	2
Nickel (Ni)	mg/kg	67	62	64	73	64	23	20	20	21	17	19	18	20
Phosphorus (P)	mg/kg	1020	1020	1030	1190	1120	-	-	-	-	-	-	-	-
Potassium (K)	mg/kg	1940	2020	1930	2070	2260	-	-	-	-	-	-	-	-
Selenium (Se)	mg/kg	1	1.1	1.1	1.2	1.1	0.4	0.3	0.4	0.4	0.3	0.4	0.4	0.4
Silver (Ag)	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sodium (Na)	mg/kg	251	262	269	283	259	-	-	-	-	-	-	-	-
Strontium (Sr)	mg/kg	24	26	25	27	24	-	-	-	-	-	-	-	-
Thallium (Tl)	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tin (Sn)	mg/kg	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5

Appendix C1: Sediment Quality in Meliadine Lake, Meliadine Gold Project, 1995 to 2008

Waterbody/Sample ID	Units	ML-S					ML-S				ML-SE			
Profile Depth		top 5-10 cm					0-2 cm		0-10 cm		0-2 cm		0-10 cm	
Replicate		1	2	3	4	5	1	2	1	2	1	2	1	2
Date Sampled		Jul-98	Jul-98	Jul-98	Jul-98	Jul-98	19-Jul-08	19-Jul-08	19-Jul-08	19-Jul-08	18-Jul-08	18-Jul-08	18-Jul-08	18-Jul-08
GPS Coordinates (NAD83, Zone 15V)		0525702, 7001082					0532278, 6989421				0535942, 6986209			
Source [a]		RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder
Titanium (Ti)	mg/kg	1030	1070	971	1060	1000	-	-	-	-	-	-	-	-
Uranium (U)	mg/kg	<40	<40	<40	<40	<40	<2	<2	<2	<2	<2	<2	<2	<2
Vanadium (V)	mg/kg	60	60	59	60	61	28	24	27	26	26	27	29	29
Zinc (Zn)	mg/kg	83.3	82.4	84	84.1	87.6	40	30	40	40	30	40	40	40
Polycyclic Aromatic Hydrocarbons														
Acenaphthene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Acridine	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Benz(a)anthracene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Benz(a)anthracene/Chrysene	mg/kg	-	-	-	-	-					-	-	-	-
Benzo(a)pyrene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b&j)fluoranthene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b or k)fluoranthene	mg/kg	-	-	-	-	-								
Benzo(ghi)perylene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Biphenyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
C2 sub'd B(a)A/chrysene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
C2 sub'd B(b&k)F/B(a)P	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
C2 sub'd biphenyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
C2 sub'd dibenzothiophene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
C2 sub'd fluoranthene/pyrene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
C2 sub'd fluorene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
C2 sub'd naphthalene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
C2 sub'd phenanthrene/anth.	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
C3 sub'd dibenzothiophene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
C3 sub'd fluoranthene/pyrene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
C3 sub'd fluorene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
C3 sub'd naphthalene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
C3 sub'd phenanthrene/anth.	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
C4 sub'd dibenzothiophene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
C4 sub'd naphthalene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
C4 sub'd phenanthrene/anth.	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenzo(a,h)anthracene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenzothiophene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(c,d-123)pyrene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl acenaphthene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl B(a)A/chrysene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl B(b&k)F/B(a)P	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl biphenyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl dibenzothiophene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl fluoranthene/pyrene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix C1: Sediment Quality in Meliadine Lake, Meliadine Gold Project, 1995 to 2008

Waterbody/Sample ID	Units	ML-S					ML-S				ML-SE			
Profile Depth		top 5-10 cm					0-2 cm		0-10 cm		0-2 cm		0-10 cm	
Replicate		1	2	3	4	5	1	2	1	2	1	2	1	2
Date Sampled		Jul-98	Jul-98	Jul-98	Jul-98	Jul-98	19-Jul-08	19-Jul-08	19-Jul-08	19-Jul-08	18-Jul-08	18-Jul-08	18-Jul-08	18-Jul-08
GPS Coordinates (NAD83, Zone 15V)		0525702, 7001082					0532278, 6989421				0535942, 6986209			
Source [a]		RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder
Methyl fluorene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl phenanthrene/anthracene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl naphthalenes	mg/kg	-	-	-	-	-								
1-Methylnaphthalene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene/Anthracene	mg/kg	-	-	-	-	-								
Pyrene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Quinoline	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Retene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Organic Compounds														
Benzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Xylenes	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Extr. Hydrocarbons (C9-40)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Extr. Hydrocarbons (C10-30)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Extractables	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Volatiles	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Organochlorines														
Aldrin	mg/kg	<0.001	-	-	-	-	-	-	-	-	-	-	-	-
Alpha-BHC	mg/kg	<0.001	-	-	-	-	-	-	-	-	-	-	-	-
Beta-BHC	mg/kg	<0.001	-	-	-	-	-	-	-	-	-	-	-	-
Gamma-BHC	mg/kg	***<0.001***	-	-	-	-	-	-	-	-	-	-	-	-
Chlordane (alpha)	mg/kg	<0.001	-	-	-	-	-	-	-	-	-	-	-	-
Chlordane (gamma)	mg/kg	<0.001	-	-	-	-	-	-	-	-	-	-	-	-
Dieldrin	mg/kg	<0.001	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan I	mg/kg	<0.001	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan II	mg/kg	<0.001	-	-	-	-	-	-	-	-	-	-	-	-
Endrin	mg/kg	<0.001	-	-	-	-	-	-	-	-	-	-	-	-
Heptachlor	mg/kg	***<0.001***	-	-	-	-	-	-	-	-	-	-	-	-
Methoxychlor	mg/kg	<0.002	-	-	-	-	-	-	-	-	-	-	-	-
Mirex	mg/kg	<0.001	-	-	-	-	-	-	-	-	-	-	-	-
Nonachlor	mg/kg	<0.001	-	-	-	-	-	-	-	-	-	-	-	-
Oxychlordane	mg/kg	<0.001	-	-	-	-	-	-	-	-	-	-	-	-
pp-DDD	mg/kg	<0.001	-	-	-	-	-	-	-	-	-	-	-	-
pp-DDE	mg/kg	<0.001	-	-	-	-	-	-	-	-	-	-	-	-
pp-DDT	mg/kg	<0.001	-	-	-	-	-	-	-	-	-	-	-	-
Quintozine	mg/kg	<0.001	-	-	-	-	-	-	-	-	-	-	-	-
All Aroclors	mg/kg	<0.03	-	-	-	-	-	-	-	-	-	-	-	-

a = Data were obtained from the following sources: 1994 to 1995 = Dillon (1994 and 1995); 1998 = RL&L (1999); 2008 and 2009 = Golder Associates Ltd.
b = Station named PL-06 in Dillon 1994
c = Particle sizes in 1998 samples were estimated from the following weight fractions: sand = 62.5 to 500 µm; silt = 2.762 to 62.5 µm; clay = 0.691 to 2.762 µm.
d = Aroclor 1254.

Appendix C1: Sediment Quality in Meliadine Lake, Meliadine Gold Project, 1995 to 2008

Waterbody/Sample ID	Units	ML-B					ML-B			
Profile Depth		top 5-10 cm					0-2 cm		0-10 cm	
Replicate		1	2	3	4	5	1	2	1	2
Date Sampled		Jul-98	Jul-98	Jul-98	Jul-98	Jul-98	19-Jul-08	19-Jul-08	19-Jul-08	19-Jul-08
GPS Coordinates (NAD83, Zone 15V)		-					0536432, 6985797			
Source [a]		RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	Golder	Golder	Golder	Golder
Conventional Parameters										
Moisture	%	43.7	50.1	55.3	51	45	42	40	43	43
Particle Size [c]										
Sand (2.0 mm - 0.05 mm)	%	67.8	70.4	69.3	68.5	64.2	82	80	76	75
Silt (0.05 mm - 2 µm)	%	32.2	29.6	30.7	31.5	35.8	16	17	22	21
Clay (<2 µm)	%	0	0	0	0	0	2	3	2	4
Texture	-	-	-	-	-	-	Loamy sand	Loamy sand	Loamy sand	Loamy sand
Nutrients										
Total Carbon	%	1.24	1.08	1.11	1.13	0.99	0.8	0.7	0.9	0.8
Total Organic Carbon	%	1.17	1.03	1.04	1.06	0.94	0.8	0.7	0.9	0.8
Total Inorganic Carbon	%	0.07	0.05	0.07	0.07	0.05	<0.1	<0.1	<0.1	<0.1
Total Nitrogen	%	0.15	0.14	0.13	0.14	0.13	-	-	-	-
Total Nitrogen by LECO	%	-	-	-	-	-	0.08	0.08	0.19	0.08
Total Phosphorus	mg/kg	-	-	-	-	-	-	-	-	-
Cyanides										
Cyanide, Total	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	0.6	0.6
Total Metals										
Aluminum (Al)	mg/kg	4090	3360	3300	4120	3370	-	-	-	-
Antimony (Sb)	mg/kg	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2
Arsenic (As)	mg/kg	2.1	1.7	1.8	2.5	1.6	2	1.8	2.2	2
Barium (Ba)	mg/kg	81.9	25.4	24.2	29.6	24	21	19	27	26
Beryllium (Be)	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bismuth (Bi)	mg/kg	<1	<1	<1	<1	<1	-	-	-	-
Boron (B)	mg/kg	<5	<5	<5	<5	<5	-	-	-	-
Cadmium (Cd)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Calcium (Ca)	mg/kg	3120	2450	2300	3220	2520	-	-	-	-
Chromium (Cr)	mg/kg	17.3	15.2	15.2	17.5	14.4	14.6	13.2	16	16.3
Cobalt (Co)	mg/kg	3.00	3.00	3	3	3	3	2	3	3
Copper (Cu)	mg/kg	**36**	12	23	11	12	10	7	12	12
Iron (Fe)	mg/kg	6800	5890	5860	6830	5790	-	-	-	-
Lead (Pb)	mg/kg	<5	<5	<5	<5	<5	<5	<5	<5	<5
Lithium (Li)	mg/kg	-	-	-	-	-	-	-	-	-
Magnesium (Mg)	mg/kg	2530	2300	2230	2490	2150	-	-	-	-
Manganese (Mn)	mg/kg	94.5	78.9	81.5	95.4	78.7	-	-	-	-
Mercury (Hg)	mg/kg	0.02	0.02	0.01	0.02	0.02	<0.05	<0.05	<0.05	<0.05
Molybdenum (Mo)	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1
Nickel (Ni)	mg/kg	10	8	9	10	8	8	7	9	10
Phosphorus (P)	mg/kg	393	414	402	400	439	-	-	-	-
Potassium (K)	mg/kg	680	526	509	662	532	-	-	-	-
Selenium (Se)	mg/kg	0.2	0.2	0.2	0.2	0.2	<0.2	<0.2	0.2	<0.2
Silver (Ag)	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sodium (Na)	mg/kg	142	116	110	150	118	-	-	-	-
Strontium (Sr)	mg/kg	20	14	13	20	15	-	-	-	-
Thallium (Tl)	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tin (Sn)	mg/kg	<5	<5	<5	<5	<5	<5	<5	<5	<5

Appendix C1: Sediment Quality in Meliadine Lake, Meliadine Gold Project, 1995 to 2008

Waterbody/Sample ID	Units	ML-B					ML-B			
Profile Depth		top 5-10 cm					0-2 cm		0-10 cm	
Replicate		1	2	3	4	5	1	2	1	2
Date Sampled		Jul-98	Jul-98	Jul-98	Jul-98	Jul-98	19-Jul-08	19-Jul-08	19-Jul-08	19-Jul-08
GPS Coordinates (NAD83, Zone 15V)		-					0536432, 6985797			
Source [a]		RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	Golder	Golder	Golder	Golder
Titanium (Ti)	mg/kg	574	491	480	555	508	-	-	-	-
Uranium (U)	mg/kg	<40	<40	<40	<40	<40	<2	<2	<2	<2
Vanadium (V)	mg/kg	18	14	14	17	14	13	12	15	15
Zinc (Zn)	mg/kg	26.3	25.3	24.1	27.2	22.9	20	20	20	20
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	mg/kg	***<0.01***	***<0.01***	***<0.01***	-	-	-	-	-	-
Acenaphthylene	mg/kg	***<0.01***	***<0.01***	***<0.01***	-	-	-	-	-	-
Acridine	mg/kg	-	-	-	-	-	-	-	-	-
Anthracene	mg/kg	-	-	-	-	-	-	-	-	-
Benz(a)anthracene	mg/kg	-	-	-	-	-	-	-	-	-
Benz(a)anthracene/Chrysene	mg/kg	<0.01	<0.01	<0.01	-	-	-	-	-	-
Benzo(a)pyrene	mg/kg	<0.01	<0.01	<0.01	-	-	-	-	-	-
Benzo(b&j)fluoranthene	mg/kg	-	-	-	-	-	-	-	-	-
Benzo(b or k)fluoranthene	mg/kg	<0.01	<0.01	<0.01	-	-	-	-	-	-
Benzo(ghi)perylene	mg/kg	<0.01	<0.01	<0.01	-	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	-	-	-	-	-	-	-	-	-
Biphenyl	mg/kg	-	-	-	-	-	-	-	-	-
C2 sub'd B(a)A/chrysene	mg/kg	-	-	-	-	-	-	-	-	-
C2 sub'd B(b&k)F/B(a)P	mg/kg	-	-	-	-	-	-	-	-	-
C2 sub'd biphenyl	mg/kg	-	-	-	-	-	-	-	-	-
C2 sub'd dibenzothiophene	mg/kg	-	-	-	-	-	-	-	-	-
C2 sub'd dibenzothiophene	mg/kg	-	-	-	-	-	-	-	-	-
C2 sub'd fluoranthene/pyrene	mg/kg	-	-	-	-	-	-	-	-	-
C2 sub'd fluorene	mg/kg	-	-	-	-	-	-	-	-	-
C2 sub'd naphthalene	mg/kg	-	-	-	-	-	-	-	-	-
C2 sub'd phenanthrene/anth.	mg/kg	-	-	-	-	-	-	-	-	-
C3 sub'd dibenzothiophene	mg/kg	-	-	-	-	-	-	-	-	-
C3 sub'd fluoranthene/pyrene	mg/kg	-	-	-	-	-	-	-	-	-
C3 sub'd fluorene	mg/kg	-	-	-	-	-	-	-	-	-
C3 sub'd naphthalene	mg/kg	-	-	-	-	-	-	-	-	-
C3 sub'd phenanthrene/anth.	mg/kg	-	-	-	-	-	-	-	-	-
C4 sub'd dibenzothiophene	mg/kg	-	-	-	-	-	-	-	-	-
C4 sub'd naphthalene	mg/kg	-	-	-	-	-	-	-	-	-
C4 sub'd phenanthrene/anth.	mg/kg	-	-	-	-	-	-	-	-	-
Chrysene	mg/kg	-	-	-	-	-	-	-	-	-
Dibenzo(a,h)anthracene	mg/kg	***<0.01***	***<0.01***	***<0.01***	-	-	-	-	-	-
Dibenzothiophene	mg/kg	-	-	-	-	-	-	-	-	-
Fluoranthene	mg/kg	<0.01	<0.01	<0.01	-	-	-	-	-	-
Fluorene	mg/kg	<0.01	<0.01	<0.01	-	-	-	-	-	-
Indeno(c,d-123)pyrene	mg/kg	<0.01	<0.01	<0.01	-	-	-	-	-	-
Methyl acenaphthene	mg/kg	-	-	-	-	-	-	-	-	-
Methyl B(a)A/chrysene	mg/kg	-	-	-	-	-	-	-	-	-
Methyl B(b&k)F/B(a)P	mg/kg	-	-	-	-	-	-	-	-	-
Methyl biphenyl	mg/kg	-	-	-	-	-	-	-	-	-
Methyl dibenzothiophene	mg/kg	-	-	-	-	-	-	-	-	-
Methyl fluoranthene/pyrene	mg/kg	-	-	-	-	-	-	-	-	-

Appendix C1: Sediment Quality in Meliadine Lake, Meliadine Gold Project, 1995 to 2008

Waterbody/Sample ID	Units	ML-B					ML-B			
Profile Depth		top 5-10 cm					0-2 cm		0-10 cm	
Replicate		1	2	3	4	5	1	2	1	2
Date Sampled		Jul-98	Jul-98	Jul-98	Jul-98	Jul-98	19-Jul-08	19-Jul-08	19-Jul-08	19-Jul-08
GPS Coordinates (NAD83, Zone 15V)		-					0536432, 6985797			
Source [a]		RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	Golder	Golder	Golder	Golder
Methyl fluorene	mg/kg	-	-	-	-	-	-	-	-	-
Methyl phenanthrene/anthracene	mg/kg	-	-	-	-	-	-	-	-	-
Methyl naphthalenes	mg/kg	<0.01	<0.01	<0.01	-	-	-	-	-	-
1-Methylnaphthalene	mg/kg	-	-	-	-	-	-	-	-	-
Naphthalene	mg/kg	<0.01	<0.01	<0.01	-	-	-	-	-	-
Phenanthrene	mg/kg	-	-	-	-	-	-	-	-	-
Phenanthrene/Anthracene	mg/kg	<0.01	<0.01	<0.01	-	-	-	-	-	-
Pyrene	mg/kg	<0.01	<0.01	<0.01	-	-	-	-	-	-
Quinoline	mg/kg	-	-	-	-	-	-	-	-	-
Retene	mg/kg	-	-	-	-	-	-	-	-	-
Other Organic Compounds										
Benzene	mg/kg	<0.01	<0.01	<0.01	-	-	-	-	-	-
Ethylbenzene	mg/kg	<0.01	<0.01	<0.01	-	-	-	-	-	-
Xylenes	mg/kg	<0.01	<0.01	<0.01	-	-	-	-	-	-
Toluene	mg/kg	<0.01	<0.01	<0.01	-	-	-	-	-	-
Total Extr. Hydrocarbons (C9-40)	mg/kg	-	-	-	-	-	-	-	-	-
Total Extr. Hydrocarbons (C10-30)	mg/kg	-	-	-	-	-	-	-	-	-
Total Extractables	mg/kg	<5	<5	<5	-	-	-	-	-	-
Total Volatiles	mg/kg	<0.5	<0.5	2.1	-	-	-	-	-	-
Organochlorines										
Aldrin	mg/kg	-	-	-	-	-	-	-	-	-
Alpha-BHC	mg/kg	-	-	-	-	-	-	-	-	-
Beta-BHC	mg/kg	-	-	-	-	-	-	-	-	-
Gamma-BHC	mg/kg	-	-	-	-	-	-	-	-	-
Chlordane (alpha)	mg/kg	-	-	-	-	-	-	-	-	-
Chlordane (gamma)	mg/kg	-	-	-	-	-	-	-	-	-
Dieldrin	mg/kg	-	-	-	-	-	-	-	-	-
Endosulfan I	mg/kg	-	-	-	-	-	-	-	-	-
Endosulfan II	mg/kg	-	-	-	-	-	-	-	-	-
Endrin	mg/kg	-	-	-	-	-	-	-	-	-
Heptachlor	mg/kg	-	-	-	-	-	-	-	-	-
Methoxychlor	mg/kg	-	-	-	-	-	-	-	-	-
Mirex	mg/kg	-	-	-	-	-	-	-	-	-
Nonachlor	mg/kg	-	-	-	-	-	-	-	-	-
Oxychlordane	mg/kg	-	-	-	-	-	-	-	-	-
pp-DDD	mg/kg	-	-	-	-	-	-	-	-	-
pp-DDE	mg/kg	-	-	-	-	-	-	-	-	-
pp-DDT	mg/kg	-	-	-	-	-	-	-	-	-
Quintozine	mg/kg	-	-	-	-	-	-	-	-	-
All Aroclors	mg/kg	-	-	-	-	-	-	-	-	-

Notes:
Results are reported on a dry weight basis except if otherwise specified.
Values greater than or equal to ISQGs are bolded.
Values greater than or equal to PELs are bolded and underlined.
Non-detect values that have detection limits that are greater than or equal to guidelines are bolded and italized and shaded.
% = percent; mg/kg = milligrams per kilogram; < = less than; - = not available.

Appendix C2: Sediment Quality in Lakes of Peninsula Basin A, Meliadine Gold Project, 1994 to 2009

Waterbody/Sample ID	Units	A1 [b]	A5 [c]	A6 [d]	A6						A8 [e]	A8					A8			
Profile Depth		-	-	-	top 5-10 cm					0-2 cm	-	top 5-10 cm					0-2 cm		0-10 cm	
Replicate		-	-	1	1	2	3	4	5	1	1	1	2	3	4	5	1	2	1	2
Date Sampled		11-Aug-94	11-Aug-94	11-Aug-94	Jul-98	Jul-98	Jul-98	Jul-98	Jul-98	29-Jul-09	11-Aug-94	Jul-98	Jul-98	Jul-98	Jul-98	Jul-98	15-Jul-08	15-Jul-08	15-Jul-08	15-Jul-08
GPS Coordinates (NAD83, Zone 15V)		-	-	-	-					0541779, 5985647	-	-					0540127, 6987353			
Source [a]		Dillon 1994	Dillon 1994	Dillon 1994	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	Golder	Dillon 1994	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	Golder	Golder	Golder	Golder
Conventional Parameters																				
Moisture	%	51.9	53.4	16.5	91	97	82	87	88	91.9	19.6	83	86	77	84	81	89	95	86	88
Particle Size [f]																				
Sand (2.0 mm - 0.05 mm)	%	-	-	-	36.7	40.1	35.8	41.3	46.6	81.6	-	54.0	57.3	56.3	59.2	54.1	70	33	61	42
Silt (0.05 mm - 2 µm)	%	-	-	-	62.5	59.3	63.3	57.9	52.7	14.6	-	45.4	42.3	43.1	40.2	45.2	22	56	34	52
Clay (<2 µm)	%	-	-	-	0.7	0.8	1	0.8	0.8	3.8	-	0.5	0.4	0.4	0.4	0.5	7	11	5	6
Texture	-	-	-	-	-	-	-	-	-	Loamy sand	-	-	-	-	-	-	Sandy loam	Silt loam	Sandy loam	Silt loam
Nutrients																				
Total Carbon	%	-	-	-	13.3	12.8	5.64	12.5	10.1	-	-	5.58	6.83	6.04	5.77	6.13	7.7	12.5	8	7.9
Total Organic Carbon	%	-	-	-	13.3	12.7	5.57	12.5	10.9	8.27	-	5.52	6.74	5.97	5.72	6.07	7.7	12.5	8	7.9
Total Inorganic Carbon	%	-	-	-	0.06	0.07	0.07	0.06	0.1	-	-	0.06	0.09	0.07	0.05	0.06	<0.1	<0.1	<0.1	<0.1
Total Nitrogen	%	-	-	-	0.92	0.9	0.41	0.9	0.78	-	-	0.45	0.55	0.49	0.47	0.49	-	-	-	-
Total Nitrogen by LECO	%	-	-	-	-	-	-	-	-	0.789	-	-	-	-	-	-	0.82	1.23	0.72	0.78
Total Phosphorus	mg/k	-	-	-	-	-	-	-	-	407	-	-	-	-	-	-	-	-	-	-
Cyanides																				
Cyanide, Total	mg/k	-	-	-	4.3	4.6	4.1	4.7	5	2.75	-	4.4	4.5	4.7	4	4.1	4	3.4	1.5	2.3
Total Metals																				
Aluminum (Al)	mg/k	5450	18200	13200	9160	8570	5890	8840	8620	-	6470	6140	5630	5460	4800	5590	-	-	-	-
Antimony (Sb)	mg/k	<25	< 25	< 25	-	-	-	-	-	0.2	< 25	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2
Arsenic (As)	mg/k	3.4	**25**	**51.8**	**121**	**105**	**75.1**	**105**	**111**	**31.4**	**11.1**	**50.9**	**48.9**	**42.8**	**33.3**	**47.1**	**151**	**117**	**173**	**149**
Barium (Ba)	mg/k	29.1	58.2	30	76.3	67.8	37.8	78.3	68.5	53	21.6	40.5	35.5	34.8	32.1	36.7	60	70	55	52
Beryllium (Be)	mg/k	<0.5	< 0.5	< 0.5	<1	<1	<1	<1	<1	<1.0	< 0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bismuth (Bi)	mg/k	<10	20	11	<1	<1	<1	<1	<1	-	< 10	<1	<1	<1	<1	<1	-	-	-	-
Boron (B)	mg/k	-	-	-	<5	<5	<5	<5	<5	-	-	<5	<5	<5	<5	<5	-	-	-	-
Cadmium (Cd)	mg/k	0.34	0.21	0.1	0.5	<0.5	<0.5	<0.5	<0.5	<0.50	0.11	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Calcium (Ca)	mg/k	4440	6020	9680	6320	5520	3510	5410	5360	-	3490	4330	4090	3960	3730	4070	-	-	-	-
Chromium (Cr)	mg/k	14.4	**61.5**	**58.7**	**47**	**42**	28.8	**41.4**	**46.4**	**46.7**	23.3	30.5	27.9	26.5	23.7	27.5	**39.9**	**40.2**	**41.1**	37
Cobalt (Co)	mg/k	4.0	19.6	11.6	29.00	28.00	17.00	27.00	29.00	9	4.60	9.00	9.00	8.00	7.00	8.00	20.00	18.00	19.00	18.00
Copper (Cu)	mg/k	25.3	25.3	24.2	**123**	**103**	**67**	**106**	**105**	**52.9**	12.1	**47**	**61**	**37**	**38**	**41**	**77**	**75**	**78**	**68**
Iron (Fe)	mg/k	29500	29500	24800	25600	22200	18700	22600	23100	-	11700	11300	10800	9900	9140	10600	-	-	-	-
Lead (Pb)	mg/k	2.4	2.4	2.1	9	9	5	9	9	6.8	2.1	8	8	7	7	7	11	13	10	10
Lithium (Li)	mg/k	19.9	19.9	15.3	-	-	-	-	-	-	7.1	-	-	-	-	-	-	-	-	-
Magnesium (Mg)	mg/k	12000	12000	9710	5990	5500	3960	5210	5780	-	4010	3890	3630	3450	3100	3540	-	-	-	-
Manganese (Mn)	mg/k	423	423	405	276	223	154	221	235	-	136	144	133	130	121	142	-	-	-	-
Mercury (Hg)	mg/k	0.007	0.007	< 0.005	0.06	0.05	0.02	0.06	0.05	<0.050	< 0.005	0.03	0.03	0.03	0.02	0.03	0.09	0.08	0.08	0.06
Molybdenum (Mo)	mg/k	<4.0	< 4.0	< 4.0	5	4	4	4	4	3.2	< 4.0	2	2	2	2	2	5	5	5	5
Nickel (Ni)	mg/k	41.3	41.3	29.8	60	57	38	55	60	38.8	12.2	30	29	27	23	28	49	51	46	44
Phosphorus (P)	mg/k	609	609	451	528	484	421	447	441	-	462	495	515	488	479	494	-	-	-	-
Potassium (K)	mg/k	735	735	1040	1420	1260	833	1350	1230	1800	729	783	738	666	610	692	-	-	-	-
Selenium (Se)	mg/k	0.15	0.15	< 0.10	0.9	0.9	0.5	0.7	1	0.51	< 0.10	0.4	0.3	0.5	0.2	0.3	1	0.9	0.9	0.9
Silver (Ag)	mg/k	<2.0	< 2.0	< 2.0	<1	<1	<1	<1	<1	<1.0	< 2.0	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sodium (Na)	mg/k	<250	< 250	< 250	214	181	121	424	195	-	< 250	162	168	142	119	145	-	-	-	-
Strontium (Sr)	mg/k	-	-	-	33	28	19	35	28	-	-	27	24	24	21	24	-	-	-	-
Thallium (Tl)	mg/k	-	-	-	<1	<1	<1	<1	<1	<1.0	-	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tin (Sn)	mg/k	<30	< 30	< 30	<5	<5	<5	<5	<5	<5.0	< 30	<5	<5	<5	<5	<5	<5	<5	<5	<5

Golder Associates

Appendix C2: Sediment Quality in Lakes of Peninsula Basin A, Meliadine Gold Project, 1994 to 2009

Waterbody/Sample ID	Units	A1 [b]	A5 [c]	A6 [d]	A6						A8 [e]	A8					A8			
Profile Depth		-	-	-	top 5-10 cm					0-2 cm	-	top 5-10 cm					0-2 cm		0-10 cm	
Replicate		-	-	1	1	2	3	4	5	1	1	1	2	3	4	5	1	2	1	2
Date Sampled		11-Aug-94	11-Aug-94	11-Aug-94	Jul-98	Jul-98	Jul-98	Jul-98	Jul-98	29-Jul-09	11-Aug-94	Jul-98	Jul-98	Jul-98	Jul-98	Jul-98	15-Jul-08	15-Jul-08	15-Jul-08	15-Jul-08
GPS Coordinates (NAD83, Zone 15V)		-	-	-	-					0541779, 5985647	-	-					0540127, 6987353			
Source [a]		Dillon 1994	Dillon 1994	Dillon 1994	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	Golder	Dillon 1994	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	Golder	Golder	Golder	Golder
Titanium (Ti)	mg/k	-	-	-	924	773	596	781	842	-	-	746	692	687	594	681	-	-	-	-
Uranium (U)	mg/k	-	-	-	<40	<40	<40	<40	<40	<2.0	-	<40	<40	<40	<40	<40	<2	<2	<2	<2
Vanadium (V)	mg/k	14.5	60.8	44.6	47	41	28	43	45	25.8	23.3	27	25	23	21	24	34	34	35	32
Zinc (Zn)	mg/k	23.1	71	46.3	79.5	72.7	45.8	74.7	84.5	40	22.2	52	51.3	44.7	57.5	43.6	70	70	70	60
Polycyclic Aromatic Hydrocarbons																				
Acenaphthene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	***<0.01***	***<0.01***	<0.005	***<0.01***
Acenaphthylene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	***<0.01***	***<0.01***	<0.005	***<0.01***
Acridine	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	<0.005	<0.01
Anthracene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	<0.005	<0.01
Benz(a)anthracene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	0.01	0.005	<0.01
Benz(a)anthracene/Chrysene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	<0.005	<0.01
Benzo(b&j)fluoranthene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	<0.005	<0.01
Benzo(b or k)fluoranthene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(ghi)perylene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	<0.005	<0.01
Benzo(k)fluoranthene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	<0.005	<0.01
Biphenyl	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	0.03	0.006	0.01
C2 sub'd B(a)A/chrysene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.04	<0.04	<0.02	<0.04
C2 sub'd B(b&k)F/B(a)P	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.04	<0.04	<0.02	<0.04
C2 sub'd biphenyl	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.04	<0.04	<0.02	<0.04
C2 sub'd dibenzothiophene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.04	<0.04	<0.02	<0.04
C2 sub'd fluoranthene/pyrene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.04	<0.04	<0.02	<0.04
C2 sub'd fluorene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.04	<0.04	<0.02	<0.04
C2 sub'd naphthalene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.04	<0.04	<0.02	<0.04
C2 sub'd phenanthrene/anth.	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.04	<0.04	<0.02	<0.04
C3 sub'd dibenzothiophene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.04	<0.04	<0.02	<0.04
C3 sub'd fluoranthene/pyrene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.04	<0.04	<0.02	<0.04
C3 sub'd fluorene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.04	<0.04	<0.02	<0.04
C3 sub'd naphthalene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.04	<0.04	<0.02	<0.04
C3 sub'd phenanthrene/anth.	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.04	<0.04	<0.02	<0.04
C4 sub'd dibenzothiophene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.04	<0.04	<0.02	<0.04
C4 sub'd naphthalene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.04	<0.04	<0.02	<0.04
C4 sub'd phenanthrene/anth.	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.04	<0.04	<0.02	<0.04
Chrysene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	<0.005	<0.01
Dibenzo(a,h)anthracene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	***<0.01***	***<0.01***	<0.005	***<0.01***
Dibenzothiophene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	<0.005	<0.01
Fluoranthene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	<0.005	<0.01
Fluorene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	0.005	<0.01
Indeno(c,d-123)pyrene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	<0.005	<0.01
Methyl acenaphthene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.04	<0.04	<0.02	<0.04
Methyl B(a)A/chrysene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.04	<0.04	<0.02	<0.04
Methyl B(b&k)F/B(a)P	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.04	<0.04	<0.02	<0.04
Methyl biphenyl	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.04	<0.04	<0.02	<0.04
Methyl dibenzothiophene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.04	<0.04	<0.02	<0.04
Methyl fluoranthene/pyrene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.04	<0.04	<0.02	<0.04
Methyl fluorene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.04	<0.04	<0.02	<0.04

Appendix C2: Sediment Quality in Lakes of Peninsula Basin A, Meliadine Gold Project, 1994 to 2009

Waterbody/Sample ID	Units	A1 [b]	A5 [c]	A6 [d]	A6						A8 [e]	A8					A8			
Profile Depth		-	-	-	top 5-10 cm					0-2 cm	-	top 5-10 cm					0-2 cm		0-10 cm	
Replicate		-	-	1	1	2	3	4	5	1	1	1	2	3	4	5	1	2	1	2
Date Sampled		11-Aug-94	11-Aug-94	11-Aug-94	Jul-98	Jul-98	Jul-98	Jul-98	Jul-98	29-Jul-09	11-Aug-94	Jul-98	Jul-98	Jul-98	Jul-98	Jul-98	15-Jul-08	15-Jul-08	15-Jul-08	15-Jul-08
GPS Coordinates (NAD83, Zone 15V)		-	-	-	-					0541779, 5985647	-	-					0540127, 6987353			
Source [a]		Dillon 1994	Dillon 1994	Dillon 1994	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	Golder	Dillon 1994	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	Golder	Golder	Golder	Golder
Methyl phenanthrene/anthracene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.04	<0.04	<0.02	<0.04
Methyl naphthalenes	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	0.02	0.007	<0.01
Naphthalene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.03	**0.06**	0.03	0.03
Phenanthrene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	0.01	0.005	<0.01
Phenanthrene/Anthracene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	<0.005	<0.01
Quinoline	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	<0.005	<0.01
Retene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	<0.005	<0.01
Other Organic Compounds																				
Benzene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xylenes	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Extr. Hydrocarbons (C9-40)	mg/k	<40	124	-	-	-	-	-	-	-	< 40	-	-	-	-	-	-	-	-	-
Total Extr. Hydrocarbons (C10-30)	mg/k	<40	121	-	-	-	-	-	-	-	< 40	-	-	-	-	-	-	-	-	-
Total Extractables	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Volatiles	mg/k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Organochlorines																				
Aldrin	mg/k		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alpha-BHC	mg/k		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beta-BHC	mg/k		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gamma-BHC	mg/k		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlordane (alpha)	mg/k		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlordane (gamma)	mg/k		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dieldrin	mg/k		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan I	mg/k		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan II	mg/k		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Endrin	mg/k		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Heptachlor	mg/k		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methoxychlor	mg/k		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mirex	mg/k		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nonachlor	mg/k		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxychlordane	mg/k		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pp-DDD	mg/k		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pp-DDE	mg/k		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pp-DDT	mg/k		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quintozine	mg/k		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

a = Data sources: 1994 to 1995 = Dillon (1994 and 1995); 1998 = RL&L (1999); 2008 and 2009 = Golder

b = Station named PL-06 in Dillon 1994

c = Station named PL-05 in Dillon 1994

d = Station named PL-03 in Dillon 1994

e = Station named PL-01 in Dillon 1994

f = Particle sizes in 1998: sand = 62.5 to 500 µm; silt = 2.762 to 62.5 µm; clay = 0.691 to 2.762 µm.

Notes: Results are reported on a dry weight basis except if otherwise specified.

Values greater than or equal to ISQGs are bolded.

Values greater than or equal to PELs are bolded and underlined.

Non-detect values that have detection limits that are greater than or equal to guidelines are bolded and italized and shaded.

% = percent; mg/kg = milligrams per kilogram; < = less than; - = not available.

Golder Associates

Appendix C3: Sediment Quality in Lakes of Peninsula Basin B, Meliadine Gold Project, 1994 to 2008

Waterbody/Sample ID	Units	B5					B5				B6				B7		B36[b]
Profile Depth		top 5-10 cm					0-2 cm		0-10 cm		0-2 cm		0-10 cm		0-2 cm	0-10 cm	-
Replicate		1	2	3	4	5	1	2	1	2	1	2	1	2	1	1	1
Date Sampled		Jul-98	Jul-98	Jul-98	Jul-98	Jul-98	14-Jul-08	14-Jul-08	14-Jul-08	14-Jul-08	13-Jul-08	13-Jul-08	13-Jul-08	13-Jul-08	13-Jul-08	13-Jul-08	11-Aug-94
GPS Coordinates (NAD83, Zone 15V)		-					0538288, 6988122				0537775, 6989211				0537760, 6989535		-
Source[a]		RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Dillon 1994
Conventional Parameters																	
Moisture	%	78.9	83.9	72.7	65	70	85	83	82	78	89	94	90	90	77	79	21.2
Particle Size [c]																	
Sand (2.0 mm - 0.05 mm)	%	49.0	52.8	56.6	47.3	42.7	27	49	24	69	46	35	33	74	37	60	-
Silt (0.05 mm - 2 µm)	%	50.3	46.8	42.8	51.5	56.1	62	44	67	28	42	51	56	22	56	33	-
Clay (<2 µm)	%	0.7	0.5	0.5	1.0	1.1	11	7	8	3	12	14	11	4	7	7	-
Texture	-	-	-	-	-	-	Silt loam	Loam / Sandy	Silt loam	Sandy loam	Loam	Silt loam	Silt loam	Sandy loam	Silt loam	Sandy loam	-
Nutrients																	
Total Carbon	%	5.75	5.95	4.98	4.92	4.81	9	6.9	6.5	4.9	15.2	16.9	16.1	16.3	6	4.3	-
Total Organic Carbon	%	5.65	5.89	4.91	4.85	4.73	9	6.9	6.5	4.9	15.2	16.9	16.1	16.3	6	4.3	-
Total Inorganic Carbon	%	0.1	0.06	0.07	0.07	0.08	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-
Total Nitrogen	%	0.45	0.46	0.4	0.39	0.38	-	-	-	-	-	-	-	-	-	-	-
Total Nitrogen by LECO	%	-	-	-	-	-	0.9	0.65	0.58	0.43	1.31	1.44	1.37	1.37	0.58	0.4	-
Total Phosphorus	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanides																	
Cyanide, Total	mg/kg	1.4	1.3	1.3	1	1.4	3.3	2.1	2.4	2.2	4	7.7	3.6	3.7	<0.5	1.2	-
Total Metals																	
Aluminum (Al)	mg/kg	5590	5340	5140	5040	5000	-	-	-	-	-	-	-	-	-	-	6440
Antimony (Sb)	mg/kg	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	< 25
Arsenic (As)	mg/kg	**54**	**54.8**	**45.7**	**44.9**	**46.1**	**66.5**	**23.8**	**92.2**	**22**	**51.4**	**76.8**	**50.4**	**111**	**35.6**	**55.4**	3.58
Barium (Ba)	mg/kg	42.2	41	38.5	36.1	39.8	62	37	58	36	76	105	72	93	52	57	29.4
Beryllium (Be)	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	< 0.5
Bismuth (Bi)	mg/kg	<1	<1	<1	<1	<1	-	-	-	-	-	-	-	-	-	-	< 10
Boron (B)	mg/kg	<5	<5	<5	<5	5.0	-	-	-	-	-	-	-	-	-	-	-
Cadmium (Cd)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	0.5	<0.5	<0.5	< 0.10
Calcium (Ca)	mg/kg	4130	4040	3810	3720	3940	-	-	-	-	-	-	-	-	-	-	13700
Chromium (Cr)	mg/kg	27.2	25.8	24.5	24.8	24.8	**39.2**	18.9	**39.4**	21.6	28.1	33.6	28.3	36.2	28.7	31.6	24
Cobalt (Co)	mg/kg	11.00	10.00	9.00	8.00	9.00	14.00	5.00	18.00	6.00	14.00	27.00	12.00	32.00	11.00	14.00	4.50
Copper (Cu)	mg/kg	**41**	**41**	**38**	34	**41**	**56**	28	**58**	32	**103**	**154**	**104**	**155**	**43**	**48**	15.4
Iron (Fe)	mg/kg	14500	13800	12900	12500	12600	-	-	-	-	-	-	-	-	-	-	10400
Lead (Pb)	mg/kg	6	6	6	5	6	10	6	9	5	10	14	10	14	6	7	2.1
Lithium (Li)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.6
Magnesium (Mg)	mg/kg	3920	3760	3550	3360	3370	-	-	-	-	-	-	-	-	-	-	4700
Manganese (Mn)	mg/kg	126	120	117	115	122	-	-	-	-	-	-	-	-	-	-	149
Mercury (Hg)	mg/kg	0.04	0.05	0.03	0.05	0.04	<0.05	<0.05	<0.05	<0.05	0.07	0.08	0.06	0.07	<0.05	<0.05	< 0.005
Molybdenum (Mo)	mg/kg	2	2	2	2	2	4	2	5	2	4	6	5	7	5	6	< 4.0
Nickel (Ni)	mg/kg	34	34	30	27	30	44	19	48	20	53	74	50	81	37	46	14.6
Phosphorus (P)	mg/kg	549	525	499	511	540	-	-	-	-	-	-	-	-	-	-	403
Potassium (K)	mg/kg	1150	1090	1040	1040	1030	-	-	-	-	-	-	-	-	-	-	621
Selenium (Se)	mg/kg	0.6	0.5	0.4	0.4	0.5	0.9	0.4	0.9	0.5	1.3	1.8	1.4	1.9	0.8	0.9	< 0.10
Silver (Ag)	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	< 2.0
Sodium (Na)	mg/kg	205	196	188	183	195	-	-	-	-	-	-	-	-	-	-	< 250
Strontium (Sr)	mg/kg	24	24	23	23	24	-	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-
Tin (Sn)	mg/kg	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	< 30

Appendix C3: Sediment Quality in Lakes of Peninsula Basin B, Meliadine Gold Project, 1994 to 2008

Waterbody/Sample ID	Units	B5					B5				B6				B7		B36[b]
Profile Depth		top 5-10 cm					0-2 cm		0-10 cm		0-2 cm		0-10 cm		0-2 cm	0-10 cm	-
Replicate		1	2	3	4	5	1	2	1	2	1	2	1	2	1	1	1
Date Sampled		Jul-98	Jul-98	Jul-98	Jul-98	Jul-98	14-Jul-08	14-Jul-08	14-Jul-08	14-Jul-08	13-Jul-08	13-Jul-08	13-Jul-08	13-Jul-08	13-Jul-08	13-Jul-08	11-Aug-94
GPS Coordinates (NAD83, Zone 15V)		-					0538288, 6988122				0537775, 6989211				0537760, 6989535		-
Source[a]		RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Dillon 1994
Titanium (Ti)	mg/kg	709	684	657	667	676	-	-	-	-	-	-	-	-	-	-	-
Uranium (U)	mg/kg	<40	<40	<40	<40	<40	<2	<2	<2	<2	<2	3	2	3	<2	2	-
Vanadium (V)	mg/kg	25	24	23	23	23	35	18	38	21	29	34	29	37	28	31	19.2
Zinc (Zn)	mg/kg	48.9	47.2	44.6	40.9	42.1	60	30	60	30	70	100	70	100	40	50	21.6
Polycyclic Aromatic Hydrocarbons																	
Acenaphthene	mg/kg	***<0.04***	***<0.05***	***<0.03***	-	-	<0.005	<0.005	<0.005	<0.005	-	-	-	-	<0.005	<0.005	-
Acenaphthylene	mg/kg	***<0.04***	***<0.05***	***<0.03***	-	-	<0.005	<0.005	<0.005	<0.005	-	-	-	-	<0.005	<0.005	-
Acridine	mg/kg	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	-	-	-	<0.005	<0.005	-
Anthracene	mg/kg	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	-	-	-	<0.005	<0.005	-
Benz(a)anthracene	mg/kg	-	-	-	-	-	0.005	<0.005	<0.005	<0.005	-	-	-	-	<0.005	<0.005	-
Benz(a)anthracene/Chrysene	mg/kg	***<0.04***	***<0.05***	<0.03	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	mg/kg	***<0.04***	***<0.05***	<0.03	-	-	<0.005	<0.005	<0.005	<0.005	-	-	-	-	<0.005	<0.005	-
Benzo(b&j)fluoranthene	mg/kg	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	-	-	-	<0.005	<0.005	-
Benzo(b or k)fluoranthene	mg/kg	<0.04	<0.05	<0.03	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(ghi)perylene	mg/kg	<0.04	<0.05	<0.03	-	-	<0.005	<0.005	<0.005	<0.005	-	-	-	-	<0.005	<0.005	-
Benzo(k)fluoranthene	mg/kg	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	-	-	-	<0.005	<0.005	-
Biphenyl	mg/kg	-	-	-	-	-	0.005	0.005	<0.005	<0.005	-	-	-	-	<0.005	<0.005	-
C2 sub'd B(a)A/chrysene	mg/kg	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02	-	-	-	-	<0.02	<0.02	-
C2 sub'd B(b&k)F/B(a)P	mg/kg	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02	-	-	-	-	<0.02	<0.02	-
C2 sub'd biphenyl	mg/kg	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02	-	-	-	-	<0.02	<0.02	-
C2 sub'd dibenzothiophene	mg/kg	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02	-	-	-	-	<0.02	<0.02	-
C2 sub'd dibenzothiophene	mg/kg	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02	-	-	-	-	<0.02	<0.02	-
C2 sub'd fluoranthene/pyrene	mg/kg	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02	-	-	-	-	<0.02	<0.02	-
C2 sub'd fluorene	mg/kg	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02	-	-	-	-	<0.02	<0.02	-
C2 sub'd naphthalene	mg/kg	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02	-	-	-	-	<0.02	<0.02	-
C2 sub'd phenanthrene/anth.	mg/kg	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02	-	-	-	-	<0.02	<0.02	-
C3 sub'd dibenzothiophene	mg/kg	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02	-	-	-	-	<0.02	<0.02	-
C3 sub'd fluoranthene/pyrene	mg/kg	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02	-	-	-	-	<0.02	<0.02	-
C3 sub'd fluorene	mg/kg	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02	-	-	-	-	<0.02	<0.02	-
C3 sub'd naphthalene	mg/kg	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02	-	-	-	-	<0.02	<0.02	-
C3 sub'd phenanthrene/anth.	mg/kg	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02	-	-	-	-	<0.02	<0.02	-
C4 sub'd dibenzothiophene	mg/kg	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02	-	-	-	-	<0.02	<0.02	-
C4 sub'd naphthalene	mg/kg	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02	-	-	-	-	<0.02	<0.02	-
C4 sub'd phenanthrene/anth.	mg/kg	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02	-	-	-	-	<0.02	<0.02	-
Chrysene	mg/kg	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	-	-	-	<0.005	<0.005	-
Dibenzo(a,h)anthracene	mg/kg	***<0.04***	***<0.05***	***<0.03***	-	-	<0.005	<0.005	<0.005	<0.005	-	-	-	-	<0.005	<0.005	-
Dibenzothiophene	mg/kg	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	-	-	-	<0.005	<0.005	-
Fluoranthene	mg/kg	<0.04	<0.05	<0.03	-	-	<0.005	<0.005	<0.005	<0.005	-	-	-	-	<0.005	<0.005	-
Fluorene	mg/kg	***<0.04***	***<0.05***	***<0.03***	-	-	<0.005	<0.005	<0.005	<0.005	-	-	-	-	<0.005	<0.005	-
Indeno(c,d-123)pyrene	mg/kg	<0.04	<0.05	<0.03	-	-	<0.005	<0.005	<0.005	<0.005	-	-	-	-	<0.005	<0.005	-
Methyl acenaphthene	mg/kg	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02	-	-	-	-	<0.02	<0.02	-
Methyl B(a)A/chrysene	mg/kg	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02	-	-	-	-	<0.02	<0.02	-
Methyl B(b&k)F/B(a)P	mg/kg	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02	-	-	-	-	<0.02	<0.02	-
Methyl biphenyl	mg/kg	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02	-	-	-	-	<0.02	<0.02	-
Methyl dibenzothiophene	mg/kg	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02	-	-	-	-	<0.02	<0.02	-
Methyl fluoranthene/pyrene	mg/kg	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02	-	-	-	-	<0.02	<0.02	-
Methyl fluorene	mg/kg	-	-	-	-	-	<0.02	<0.02	<0.02	<0.02	-	-	-	-	<0.02	<0.02	-

Appendix C3: Sediment Quality in Lakes of Peninsula Basin B, Meliadine Gold Project, 1994 to 2008

Waterbody/Sample ID	Units	B5					B5				B6				B7		B36[b]
Profile Depth		top 5-10 cm					0-2 cm		0-10 cm		0-2 cm		0-10 cm		0-2 cm	0-10 cm	-
Replicate		1	2	3	4	5	1	2	1	2	1	2	1	2	1	1	1
Date Sampled		Jul-98	Jul-98	Jul-98	Jul-98	Jul-98	14-Jul-08	14-Jul-08	14-Jul-08	14-Jul-08	13-Jul-08	13-Jul-08	13-Jul-08	13-Jul-08	13-Jul-08	13-Jul-08	11-Aug-94
GPS Coordinates (NAD83, Zone 15V)		-					0538288, 6988122				0537775, 6989211				0537760, 6989535		-
Source[a]		RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Dillon 1994
Methyl phenanthrene/anthracene	mg/kg	-	-	-	-	-	<0.04	<0.02	<0.02	<0.02	-	-	-	-	<0.02	<0.02	-
Methyl naphthalenes	mg/kg	***<0.04***	***<0.05***	***<0.03***	-	-	-	-	-	-	-	-	-	-	-	-	-
1-Methylnaphthalene	mg/kg	-	-	-	-	-	0.009	0.009	0.005	0.007	-	-	-	-	0.007	<0.005	-
Naphthalene	mg/kg	***<0.04***	***<0.05***	<0.03	-	-	0.021	0.02	0.005	0.01	-	-	-	-	0.01	0.008	-
Phenanthrene	mg/kg	-	-	-	-	-	0.005	<0.005	<0.005	<0.005	-	-	-	-	<0.005	<0.005	-
Phenanthrene/Anthracene	mg/kg	<0.04	***<0.05***	<0.03	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	mg/kg	<0.04	<0.05	<0.03	-	-	<0.005	<0.005	<0.005	<0.005	-	-	-	-	<0.005	<0.005	-
Quinoline	mg/kg	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	-	-	-	<0.005	<0.005	-
Retene	mg/kg	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	-	-	-	<0.005	<0.005	-
Other Organic Compounds																	
Benzene	mg/kg	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	mg/kg	<0.01	0.15	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-
Xylenes	mg/kg	<0.01	3.2	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	mg/kg	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Extr. Hydrocarbons (C9-40)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Extr. Hydrocarbons (C10-30)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Extractables	mg/kg	13	16	17	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Volatiles	mg/kg	0.8	15	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
Organochlorines																	
Aldrin	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alpha-BHC	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beta-BHC	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gamma-BHC	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlordane (alpha)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlordane (gamma)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dieldrin	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan I	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan II	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Endrin	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Heptachlor	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methoxychlor	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mirex	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nonachlor	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxychlordane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pp-DDD	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pp-DDE	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pp-DDT	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quintozine	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

a = Data sources: 1994 to 1995 = Dillon (1994 and 1995); 1998 = RL&L (1999); 2008 and 2009 = Golder

b = Station named PL-02 in Dillon (1994)

c = Particle sizes in 1998: sand = 62.5 to 500 µm; silt = 2.762 to 62.5 µm; clay = 0.691 to 2.762 µm.

% = percent; mg/kg = milligrams per kilogram; < = less than; - = not available.

Notes:

Results are reported on a dry weight basis except if otherwise specified.

Values greater than or equal to ISQGs are bolded.

Values greater than or equal to PELs are bolded and underlined.

Non-detect values that have detection limits that are greater than or equal to guidelines are bolded and italized and shaded.

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Appendix C4: Sediment Quality in Lakes of Peninsula Basin C, Meliadine Gold Project, 1994

Waterbody/Sample ID	Units	C5[b]
Profile Depth		-
Replicate		1
Date Sampled		11-Aug-94
GPS Coordinates		-
Source[a]		Dillon 1994
Conventional Parameters		
Moisture	%	18.9
Particle Size		-
Sand (2.0 mm - 0.05 mm)	%	-
Silt (0.05 mm - 2 µm)	%	-
Clay (<2 µm)	%	-
Texture	-	-
Nutrients		
Total Carbon	%	-
Total Organic Carbon	%	-
Total Inorganic Carbon	%	-
Total Nitrogen	%	-
Total Nitrogen by LECO	%	-
Total Phosphorus	mg/kg	-
Cyanides		
Cyanide, Total	mg/kg	-
Total Metals		
Aluminum (Al)	mg/kg	10200
Antimony (Sb)	mg/kg	< 25
Arsenic (As)	mg/kg	**11.1**
Barium (Ba)	mg/kg	34
Beryllium (Be)	mg/kg	< 0.5
Bismuth (Bi)	mg/kg	10
Boron (B)	mg/kg	-
Cadmium (Cd)	mg/kg	< 0.10
Calcium (Ca)	mg/kg	3810
Chromium (Cr)	mg/kg	**42.4**
Cobalt (Co)	mg/kg	7.40
Copper (Cu)	mg/kg	17.4
Iron (Fe)	mg/kg	18500
Lead (Pb)	mg/kg	2.1
Lithium (Li)	mg/kg	13.3
Magnesium (Mg)	mg/kg	7150
Manganese (Mn)	mg/kg	179
Mercury (Hg)	mg/kg	< 0.005
Molybdenum (Mo)	mg/kg	< 4.0
Nickel (Ni)	mg/kg	22.4
Phosphorus (P)	mg/kg	456
Potassium (K)	mg/kg	1430
Selenium (Se)	mg/kg	< 0.10
Silver (Ag)	mg/kg	< 2.0
Sodium (Na)	mg/kg	< 250
Strontium (Sr)	mg/kg	-
Thallium (Tl)	mg/kg	-
Tin (Sn)	mg/kg	< 30
Titanium (Ti)	mg/kg	-
Uranium (U)	mg/kg	-
Vanadium (V)	mg/kg	34.4
Zinc (Zn)	mg/kg	37.8

Waterbody/Sample ID	Units	C5[b]
Profile Depth		-
Replicate		1
Date Sampled		11-Aug-94
GPS Coordinates		-
Source[a]		Dillon 1994
Polycyclic Aromatic Hydrocarbons		
Acenaphthene	mg/kg	-
Acenaphthylene	mg/kg	-
Acridine	mg/kg	-
Anthracene	mg/kg	-
Benz(a)anthracene	mg/kg	-
Benz(a)anthracene/Chrysene	mg/kg	-
Benzo(a)pyrene	mg/kg	-
Benzo(b&j)fluoranthene	mg/kg	-
Benzo(b or k)fluoranthene	mg/kg	-
Benzo(ghi)perylene	mg/kg	-
Benzo(k)fluoranthene	mg/kg	-
Biphenyl	mg/kg	-
C2 sub'd B(a)A/chrysene	mg/kg	-
C2 sub'd B(b&k)F/B(a)P	mg/kg	-
C2 sub'd biphenyl	mg/kg	-
C2 sub'd dibenzothiophene	mg/kg	-
C2 sub'd fluoranthene/pyrene	mg/kg	-
C2 sub'd fluorene	mg/kg	-
C2 sub'd naphthalene	mg/kg	-
C2 sub'd phenanthrene/anth.	mg/kg	-
C3 sub'd dibenzothiophene	mg/kg	-
C3 sub'd fluoranthene/pyrene	mg/kg	-
C3 sub'd fluorene	mg/kg	-
C3 sub'd naphthalene	mg/kg	-
C3 sub'd phenanthrene/anth.	mg/kg	-
C4 sub'd dibenzothiophene	mg/kg	-
C4 sub'd naphthalene	mg/kg	-
C4 sub'd phenanthrene/anth.	mg/kg	-
Chrysene	mg/kg	-
Dibenzo(a,h)anthracene	mg/kg	-
Dibenzothiophene	mg/kg	-
Fluoranthene	mg/kg	-
Fluorene	mg/kg	-
Indeno(c,d-123)pyrene	mg/kg	-
Methyl acenaphthene	mg/kg	-
Methyl B(a)A/chrysene	mg/kg	-
Methyl B(b&k)F/B(a)P	mg/kg	-
Methyl biphenyl	mg/kg	-
Methyl dibenzothiophene	mg/kg	-
Methyl fluoranthene/pyrene	mg/kg	-
Methyl fluorene	mg/kg	-
Methyl	mg/kg	-
Methyl naphthalenes	mg/kg	-
1-Methylnaphthalene	mg/kg	-
Naphthalene	mg/kg	-
Phenanthrene	mg/kg	-
Phenanthrene/Anthracene	mg/kg	-
Pyrene	mg/kg	-
Quinoline	mg/kg	-
Retene	mg/kg	-

Waterbody/Sample ID	Units	C5[b]
Profile Depth		-
Replicate		1
Date Sampled		11-Aug-94
GPS Coordinates		-
Source[a]		Dillon 1994
Other Organic Compounds		
Benzene	mg/kg	-
Ethylbenzene	mg/kg	-
Xylenes	mg/kg	-
Toluene	mg/kg	-
Total Extr. Hydrocarbons (C9-40)	mg/kg	-
Total Extr. Hydrocarbons (C10-	mg/kg	-
Total Extractables	mg/kg	-
Total Volatiles	mg/kg	-
Organochlorines		
Aldrin	mg/kg	-
Alpha-BHC	mg/kg	-
Beta-BHC	mg/kg	-
Gamma-BHC	mg/kg	-
Chlordane (alpha)	mg/kg	-
Chlordane (gamma)	mg/kg	-
Dieldrin	mg/kg	-
Endosulfan I	mg/kg	-
Endosulfan II	mg/kg	-
Endrin	mg/kg	-
Heptachlor	mg/kg	-
Methoxychlor	mg/kg	-
Mirex	mg/kg	-
Nonachlor	mg/kg	-
Oxychlordane	mg/kg	-
pp-DDD	mg/kg	-
pp-DDE	mg/kg	-
pp-DDT	mg/kg	-
Quintozine	mg/kg	-

a = Data were obtained from

b = Station named PL-04 in Dillon

Notes:

Results are reported on a dry weight basis except if otherwise specified.

Values greater than or equal to ISQGs are bolded.

Values greater than or equal to PELs are bolded and underlined.

% = percent; mg/kg = milligrams per kilogram; < = less than; - = not available.

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Table C5: Sediment Quality in Lakes of Peninsula Basin D, Meliadine Gold Project, 1994

Waterbody/Sample ID	Units	D7[b]
Profile Depth		-
Replicate		1
Date Sampled		11-Aug-94
GPS Coordinates		-
Source[a]		Dillon 1994
Conventional Parameters		
Moisture	%	20.0
Particle Size		
Sand (2.0 mm - 0.05 mm)	%	-
Silt (0.05 mm - 2 µm)	%	-
Clay (<2 µm)	%	-
Texture	-	-
Nutrients		
Total Carbon	%	-
Total Organic Carbon	%	-
Total Inorganic Carbon	%	-
Total Nitrogen	%	-
Total Nitrogen by LECO	%	-
Total Phosphorus	mg/kg	-
Cyanides		
Cyanide, Total	mg/kg	-
Total Metals		
Aluminum (Al)	mg/kg	8800
Antimony (Sb)	mg/kg	< 25
Arsenic (As)	mg/kg	4.02
Barium (Ba)	mg/kg	25.4
Beryllium (Be)	mg/kg	< 0.5
Bismuth (Bi)	mg/kg	11
Boron (B)	mg/kg	-
Cadmium (Cd)	mg/kg	< 0.10
Calcium (Ca)	mg/kg	4190
Chromium (Cr)	mg/kg	26.7
Cobalt (Co)	mg/kg	5.70
Copper (Cu)	mg/kg	13.3
Iron (Fe)	mg/kg	14800
Lead (Pb)	mg/kg	3.2
Lithium (Li)	mg/kg	9.9
Magnesium (Mg)	mg/kg	6780
Manganese (Mn)	mg/kg	167
Mercury (Hg)	mg/kg	< 0.005
Molybdenum (Mo)	mg/kg	< 4.0
Nickel (Ni)	mg/kg	22.6
Phosphorus (P)	mg/kg	552
Potassium (K)	mg/kg	752
Selenium (Se)	mg/kg	< 0.10
Silver (Ag)	mg/kg	< 2.0
Sodium (Na)	mg/kg	< 250
Strontium (Sr)	mg/kg	-
Thallium (Tl)	mg/kg	-
Tin (Sn)	mg/kg	< 30
Titanium (Ti)	mg/kg	-
Uranium (U)	mg/kg	-
Vanadium (V)	mg/kg	25
Zinc (Zn)	mg/kg	29.5

Waterbody/Sample ID	Units	D7[b]
Profile Depth		-
Replicate		1
Date Sampled		11-Aug-94
GPS Coordinates		-
Source[a]		Dillon 1994
Polycyclic Aromatic Hydrocarbons		
Acenaphthene	mg/kg	-
Acenaphthylene	mg/kg	-
Acridine	mg/kg	-
Anthracene	mg/kg	-
Benz(a)anthracene	mg/kg	-
Benz(a)anthracene/Chrysene	mg/kg	-
Benzo(a)pyrene	mg/kg	-
Benzo(b&j)fluoranthene	mg/kg	-
Benzo(b or k)fluoranthene	mg/kg	-
Benzo(ghi)perylene	mg/kg	-
Benzo(k)fluoranthene	mg/kg	-
Biphenyl	mg/kg	-
C2 sub'd B(a)A/chrysene	mg/kg	-
C2 sub'd B(b&k)F/B(a)P	mg/kg	-
C2 sub'd biphenyl	mg/kg	-
C2 sub'd dibenzothiophene	mg/kg	-
C2 sub'd fluoranthene/pyrene	mg/kg	-
C2 sub'd fluorene	mg/kg	-
C2 sub'd naphthalene	mg/kg	-
C2 sub'd phenanthrene/anth.	mg/kg	-
C3 sub'd dibenzothiophene	mg/kg	-
C3 sub'd fluoranthene/pyrene	mg/kg	-
C3 sub'd fluorene	mg/kg	-
C3 sub'd naphthalene	mg/kg	-
C3 sub'd phenanthrene/anth.	mg/kg	-
C4 sub'd dibenzothiophene	mg/kg	-
C4 sub'd naphthalene	mg/kg	-
C4 sub'd phenanthrene/anth.	mg/kg	-
Chrysene	mg/kg	-
Dibenzo(a,h)anthracene	mg/kg	-
Dibenzothiophene	mg/kg	-
Fluoranthene	mg/kg	-
Fluorene	mg/kg	-
Indeno(c,d-123)pyrene	mg/kg	-
Methyl acenaphthene	mg/kg	-
Methyl B(a)A/chrysene	mg/kg	-
Methyl B(b&k)F/B(a)P	mg/kg	-
Methyl biphenyl	mg/kg	-
Methyl dibenzothiophene	mg/kg	-
Methyl fluoranthene/pyrene	mg/kg	-
Methyl fluorene	mg/kg	-
Methyl	mg/kg	-
Methyl naphthalenes	mg/kg	-
1-Methylnaphthalene	mg/kg	-
Naphthalene	mg/kg	-
Phenanthrene	mg/kg	-
Phenanthrene/Anthracene	mg/kg	-
Pyrene	mg/kg	-
Quinoline	mg/kg	-
Retene	mg/kg	-

Waterbody/Sample ID	Units	D7[b]
Profile Depth		-
Replicate		1
Date Sampled		11-Aug-94
GPS Coordinates		-
Source[a]		Dillon 1994
Other Organic Compounds		
Benzene	mg/kg	-
Ethylbenzene	mg/kg	-
Xylenes	mg/kg	-
Toluene	mg/kg	-
Total Extr. Hydrocarbons (C9-40)	mg/kg	-
Total Extr. Hydrocarbons (C10-30)	mg/kg	-
Total Extractables	mg/kg	-
Total Volatiles	mg/kg	-
Organochlorines		
Aldrin	mg/kg	-
Alpha-BHC	mg/kg	-
Beta-BHC	mg/kg	-
Gamma-BHC	mg/kg	-
Chlordane (alpha)	mg/kg	-
Chlordane (gamma)	mg/kg	-
Dieldrin	mg/kg	-
Endosulfan I	mg/kg	-
Endosulfan II	mg/kg	-
Endrin	mg/kg	-
Heptachlor	mg/kg	-
Methoxychlor	mg/kg	-
Mirex	mg/kg	-
Nonachlor	mg/kg	-
Oxychlordane	mg/kg	-
pp-DDD	mg/kg	-
pp-DDE	mg/kg	-
pp-DDT	mg/kg	-
Quintozine	mg/kg	-

a = Data were obtained from Dillon (1994)
b = Station named MB-01 in Dillon 1994

Notes:
Results are reported on a dry weight basis except if otherwise specified.
Values greater than or equal to ISQGs are bolded.
Values greater than or equal to PELs are bolded and underlined.
% = percent; mg/kg = milligrams per kilogram; < = less than; - = not available.

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Appendix C6: Sediment Quality in Little Meliadine Lake, Meliadine Gold Project, 1998

Waterbody/Sample ID	Units	LML				
Profile Depth		top 5-10 cm				
Replicate		1	2	3	4	5
Date Sampled		Jul-98				
GPS Coordinates		-				
Source[a]		RL&L 1999				
Conventional						
Moisture	%	78	73	78	72	76
Particle Size[b]						
Sand (2.0 mm - 0.05 mm)	%	12.5	14.2	15.5	13.1	11.5
Silt (0.05 mm - 2 µm)	%	83.7	81.9	81.2	83.2	84.5
Clay (<2 µm)	%	3.6	4.0	3.4	3.5	3.9
Texture	-	-	-	-	-	-
Nutrients						
Total Carbon	%	3.47	6.02	3.58	3.61	3.69
Total Organic Carbon	%	3.43	5.99	3.53	3.57	3.62
Total Inorganic Carbon	%	0.04	0.03	0.05	0.04	0.07
Total Nitrogen	%	0.37	0.55	0.39	0.39	0.41
Total Nitrogen by LECO	%	-	-	-	-	-
Total Phosphorus	mg/kg	-	-	-	-	-
Cyanides						
Cyanide, Total	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Metals						
Aluminum (Al)	mg/kg	12400	11000	11000	12600	12100
Antimony (Sb)	mg/kg	-	-	-	-	-
Arsenic (As)	mg/kg	5.3	**21.6**	4.7	5.6	5.5
Barium (Ba)	mg/kg	106	122	102	110	109
Beryllium (Be)	mg/kg	<1	<1	<1	<1	<1
Bismuth (Bi)	mg/kg	<1	<1	<1	<1	<1
Boron (B)	mg/kg	9.0	11.0	<5	6.0	7.0
Cadmium (Cd)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Calcium (Ca)	mg/kg	5600	3910	4110	4690	4690
Chromium (Cr)	mg/kg	**51.7**	**42.4**	**41.5**	**47.2**	**46.1**
Cobalt (Co)	mg/kg	9.00	10.00	8.00	9.00	9.00
Copper (Cu)	mg/kg	**46**	**58**	**44**	**48**	**48**
Iron (Fe)	mg/kg	18000	29600	17000	18700	18600
Lead (Pb)	mg/kg	10	10	9	9	10
Lithium (Li)	mg/kg	-	-	-	-	-
Magnesium (Mg)	mg/kg	9240	6050	6300	7120	7050
Manganese (Mn)	mg/kg	262	468	211	226	224
Mercury (Hg)	mg/kg	0.01	0.06	0.05	0.06	0.06
Molybdenum (Mo)	mg/kg	2	4	2	2	2
Nickel (Ni)	mg/kg	27	34	26	28	28
Phosphorus (P)	mg/kg	1300	1360	656	708	708
Potassium (K)	mg/kg	4000	2820	2950	3350	3240
Selenium (Se)	mg/kg	0.8	1.2	0.6	0.9	0.9
Silver (Ag)	mg/kg	<1	<1	<1	<1	<1
Sodium (Na)	mg/kg	932	419	536	654	673
Strontium (Sr)	mg/kg	36	31	29	37	34
Thallium (Tl)	mg/kg	<1	<1	<1	<1	<1
Tin (Sn)	mg/kg	<5	<5	<5	<5	<5
Titanium (Ti)	mg/kg	1290	934	962	1100	1080
Uranium (U)	mg/kg	<40	<40	<40	<40	<40
Vanadium (V)	mg/kg	52	46	41	47	46
Zinc (Zn)	mg/kg	71	63.8	61.2	64	66.4

Waterbody/Sample ID	Units	LML				
Profile Depth		top 5-10 cm				
Replicate		1	2	3	4	5
Date Sampled		Jul-98				
GPS Coordinates		-				
Source[a]		RL&L 1999				
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	mg/kg	-	-	-	-	-
Acenaphthylene	mg/kg	-	-	-	-	-
Acridine	mg/kg	-	-	-	-	-
Anthracene	mg/kg	-	-	-	-	-
Benz(a)anthracene	mg/kg	-	-	-	-	-
Benz(a)anthracene/Chrysene	mg/kg	-	-	-	-	-
Benzo(a)pyrene	mg/kg	-	-	-	-	-
Benzo(b&j)fluoranthene	mg/kg	-	-	-	-	-
Benzo(b or k)fluoranthene	mg/kg	-	-	-	-	-
Benzo(ghi)perylene	mg/kg	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	-	-	-	-	-
Biphenyl	mg/kg	-	-	-	-	-
C2 sub'd B(a)A/chrysene	mg/kg	-	-	-	-	-
C2 sub'd B(b&k)F/B(a)P	mg/kg	-	-	-	-	-
C2 sub'd biphenyl	mg/kg	-	-	-	-	-
C2 sub'd dibenzothiophene	mg/kg	-	-	-	-	-
C2 sub'd fluoranthene/pyrene	mg/kg	-	-	-	-	-
C2 sub'd fluorene	mg/kg	-	-	-	-	-
C2 sub'd naphthalene	mg/kg	-	-	-	-	-
C2 sub'd phenanthrene/anth.	mg/kg	-	-	-	-	-
C3 sub'd dibenzothiophene	mg/kg	-	-	-	-	-
C3 sub'd fluoranthene/pyrene	mg/kg	-	-	-	-	-
C3 sub'd fluorene	mg/kg	-	-	-	-	-
C3 sub'd naphthalene	mg/kg	-	-	-	-	-
C3 sub'd phenanthrene/anth.	mg/kg	-	-	-	-	-
C4 sub'd dibenzothiophene	mg/kg	-	-	-	-	-
C4 sub'd naphthalene	mg/kg	-	-	-	-	-
C4 sub'd phenanthrene/anth.	mg/kg	-	-	-	-	-
Chrysene	mg/kg	-	-	-	-	-
Dibenzo(a,h)anthracene	mg/kg	-	-	-	-	-
Dibenzothiophene	mg/kg	-	-	-	-	-
Fluoranthene	mg/kg	-	-	-	-	-
Fluorene	mg/kg	-	-	-	-	-
Indeno(c,d-123)pyrene	mg/kg	-	-	-	-	-
Methyl acenaphthene	mg/kg	-	-	-	-	-
Methyl B(a)A/chrysene	mg/kg	-	-	-	-	-
Methyl B(b&k)F/B(a)P	mg/kg	-	-	-	-	-
Methyl biphenyl	mg/kg	-	-	-	-	-
Methyl dibenzothiophene	mg/kg	-	-	-	-	-
Methyl fluoranthene/pyrene	mg/kg	-	-	-	-	-
Methyl fluorene	mg/kg	-	-	-	-	-
Methyl	mg/kg	-	-	-	-	-
Methyl naphthalenes	mg/kg	-	-	-	-	-
1-Methylnaphthalene	mg/kg	-	-	-	-	-
Naphthalene	mg/kg	-	-	-	-	-
Phenanthrene	mg/kg	-	-	-	-	-
Phenanthrene/Anthracene	mg/kg	-	-	-	-	-
Pyrene	mg/kg	-	-	-	-	-
Quinoline	mg/kg	-	-	-	-	-
Retene	mg/kg	-	-	-	-	-

Waterbody/Sample ID	Units	LML				
Profile Depth		top 5-10 cm				
Replicate		1	2	3	4	5
Date Sampled		Jul-98				
GPS Coordinates		-				
Source[a]		RL&L 1999				
Other Organic Compounds						
Benzene	mg/kg	-	-	-	-	-
Ethylbenzene	mg/kg	-	-	-	-	-
Xylenes	mg/kg	-	-	-	-	-
Toluene	mg/kg	-	-	-	-	-
Total Extr. Hydrocarbons (C9-40)	mg/kg	-	-	-	-	-
Total Extr. Hydrocarbons (C10-	mg/kg	-	-	-	-	-
Total Extractables	mg/kg	-	-	-	-	-
Total Volatiles	mg/kg	-	-	-	-	-
Organochlorines						
Aldrin	mg/kg	-	-	-	-	-
Alpha-BHC	mg/kg	-	-	-	-	-
Beta-BHC	mg/kg	-	-	-	-	-
Gamma-BHC	mg/kg	-	-	-	-	-
Chlordane (alpha)	mg/kg	-	-	-	-	-
Chlordane (gamma)	mg/kg	-	-	-	-	-
Dieldrin	mg/kg	-	-	-	-	-
Endosulfan I	mg/kg	-	-	-	-	-
Endosulfan II	mg/kg	-	-	-	-	-
Endrin	mg/kg	-	-	-	-	-
Heptachlor	mg/kg	-	-	-	-	-
Methoxychlor	mg/kg	-	-	-	-	-
Mirex	mg/kg	-	-	-	-	-
Nonachlor	mg/kg	-	-	-	-	-
Oxychlordane	mg/kg	-	-	-	-	-
pp-DDD	mg/kg	-	-	-	-	-
pp-DDE	mg/kg	-	-	-	-	-
pp-DDT	mg/kg	-	-	-	-	-
Quintozine	mg/kg	-	-	-	-	-

a = Data were obtained from RL&L (1999)
b = Particle sizes were estimated from the following weight fractions: sand = 62.5 to 500 µm; silt = 2.762 to 62.5 µm; clay = 0.691 to 2.762

Notes:
Results are reported on a dry weight basis except if otherwise specified.
Values greater than or equal to ISQGs are bolded.
Values greater than or equal to PELs are bolded and underlined.
% = percent; mg/kg = milligrams per kilogram; < = less than; - = not available.

Appendix C7: Sediment Quality in DI2 Lake, Meliadine Gold Project, 1994

Waterbody/Sample ID	Units	DI2
Profile Depth		-
Replicate		1
Date Sampled		11-Aug-94
GPS Coordinates		-
Source [a]		Dillon 1994
Conventional Parameters		
Moisture	%	27.9
Particle Size		
Sand (2.0 mm - 0.05 mm)	%	-
Silt (0.05 mm - 2 µm)	%	-
Clay (<2 µm)	%	-
Texture	-	-
Nutrients		
Total Carbon	%	-
Total Organic Carbon	%	-
Total Inorganic Carbon	%	-
Total Nitrogen	%	-
Total Nitrogen by LECO	%	-
Total Phosphorus	mg/kg	-
Cyanides		
Cyanide, Total	mg/kg	-
Total Metals		
Aluminum (Al)	mg/kg	3390
Antimony (Sb)	mg/kg	< 25
Arsenic (As)	mg/kg	4.03
Barium (Ba)	mg/kg	13.3
Beryllium (Be)	mg/kg	< 0.5
Bismuth (Bi)	mg/kg	< 10
Boron (B)	mg/kg	-
Cadmium (Cd)	mg/kg	< 0.10
Calcium (Ca)	mg/kg	1320
Chromium (Cr)	mg/kg	9.5
Cobalt (Co)	mg/kg	2.20
Copper (Cu)	mg/kg	2.5
Iron (Fe)	mg/kg	5770
Lead (Pb)	mg/kg	< 2.0
Lithium (Li)	mg/kg	4.7
Magnesium (Mg)	mg/kg	1940
Manganese (Mn)	mg/kg	68.9
Mercury (Hg)	mg/kg	< 0.005
Molybdenum (Mo)	mg/kg	< 4.0
Nickel (Ni)	mg/kg	6.5
Phosphorus (P)	mg/kg	170
Potassium (K)	mg/kg	332
Selenium (Se)	mg/kg	< 0.10
Silver (Ag)	mg/kg	< 2.0
Sodium (Na)	mg/kg	< 250
Strontium (Sr)	mg/kg	-
Thallium (Tl)	mg/kg	-
Tin (Sn)	mg/kg	< 30
Titanium (Ti)	mg/kg	-
Uranium (U)	mg/kg	-
Vanadium (V)	mg/kg	6.5
Zinc (Zn)	mg/kg	14.3

Waterbody/Sample ID	Units	DI2
Profile Depth		-
Replicate		1
Date Sampled		11-Aug-94
GPS Coordinates		-
Source [a]		Dillon 1994
Polycyclic Aromatic Hydrocarbons		
Acenaphthene	mg/kg	-
Acenaphthylene	mg/kg	-
Acridine	mg/kg	-
Anthracene	mg/kg	-
Benz(a)anthracene	mg/kg	-
Benz(a)anthracene/Chrysene	mg/kg	-
Benzo(a)pyrene	mg/kg	-
Benzo(b&j)fluoranthene	mg/kg	-
Benzo(b or k)fluoranthene	mg/kg	-
Benzo(ghi)perylene	mg/kg	-
Benzo(k)fluoranthene	mg/kg	-
Biphenyl	mg/kg	-
C2 sub'd B(a)A/chrysene	mg/kg	-
C2 sub'd B(b&k)F/B(a)P	mg/kg	-
C2 sub'd biphenyl	mg/kg	-
C2 sub'd dibenzothiophene	mg/kg	-
C2 sub'd fluoranthene/pyrene	mg/kg	-
C2 sub'd fluorene	mg/kg	-
C2 sub'd naphthalene	mg/kg	-
C2 sub'd phenanthrene/anth.	mg/kg	-
C3 sub'd dibenzothiophene	mg/kg	-
C3 sub'd fluoranthene/pyrene	mg/kg	-
C3 sub'd fluorene	mg/kg	-
C3 sub'd naphthalene	mg/kg	-
C3 sub'd phenanthrene/anth.	mg/kg	-
C4 sub'd dibenzothiophene	mg/kg	-
C4 sub'd naphthalene	mg/kg	-
C4 sub'd phenanthrene/anth.	mg/kg	-
Chrysene	mg/kg	-
Dibenzo(a,h)anthracene	mg/kg	-
Dibenzothiophene	mg/kg	-
Fluoranthene	mg/kg	-
Fluorene	mg/kg	-
Indeno(c,d-123)pyrene	mg/kg	-
Methyl acenaphthene	mg/kg	-
Methyl B(a)A/chrysene	mg/kg	-
Methyl B(b&k)F/B(a)P	mg/kg	-
Methyl biphenyl	mg/kg	-
Methyl dibenzothiophene	mg/kg	-
Methyl fluoranthene/pyrene	mg/kg	-
Methyl fluorene	mg/kg	-
Methyl phenanthrene/anthracene	mg/kg	-
Methyl naphthalenes	mg/kg	-
1-Methylnaphthalene	mg/kg	-
Naphthalene	mg/kg	-
Phenanthrene	mg/kg	-
Phenanthrene/Anthracene	mg/kg	-
Pyrene	mg/kg	-
Quinoline	mg/kg	-
Retene	mg/kg	-

Waterbody/Sample ID	Units	DI2
Profile Depth		-
Replicate		1
Date Sampled		11-Aug-94
GPS Coordinates		-
Source [a]		Dillon 1994
Other Organic Compounds		
Benzene	mg/kg	-
Ethylbenzene	mg/kg	-
Xylenes	mg/kg	-
Toluene	mg/kg	-
Total Extr. Hydrocarbons (C9-40)	mg/kg	-
Total Extr. Hydrocarbons (C10-30)	mg/kg	-
Total Extractables	mg/kg	-
Total Volatiles	mg/kg	-
Organochlorines		
Aldrin	mg/kg	-
Alpha-BHC	mg/kg	-
Beta-BHC	mg/kg	-
Gamma-BHC	mg/kg	-
Chlordane (alpha)	mg/kg	-
Chlordane (gamma)	mg/kg	-
Dieldrin	mg/kg	-
Endosulfan I	mg/kg	-
Endosulfan II	mg/kg	-
Endrin	mg/kg	-
Heptachlor	mg/kg	-
Methoxychlor	mg/kg	-
Mirex	mg/kg	-
Nonachlor	mg/kg	-
Oxychlordane	mg/kg	-
pp-DDD	mg/kg	-
pp-DDE	mg/kg	-
pp-DDT	mg/kg	-
Quintozine	mg/kg	-

a = Data were obtained from Dillon (1994)

Notes:

Results are reported on a dry weight basis except if otherwise specified.

Values greater than or equal to ISQGs are bolded.

Values greater than or equal to PELs are bolded and underlined.

% = percent; mg/kg = milligrams per kilogram; < = less than; - = not available.

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Appendix C8: Sediment Quality in Control Lake, Meliadine Gold Project, 1998 to 2008

Waterbody/Sample ID	Units	Control					Control			
Profile Depth		top 5-10 cm					0-2 cm		0-10 cm	
Replicate		1	2	3	4	5	1	2	1	2
Date Sampled		Jul-98	Jul-98	Jul-98	Jul-98	Jul-98	18-Jul-08	18-Jul-08	18-Jul-08	18-Jul-08
GPS Coordinates (NAD83)		-					0534701, 6986534			
Source [a]		RL&L 1999					Golder			
Conventional Parameters										
Moisture	%	88	89.6	86.4	88	85	80	82	76	77
Particle Size [b]										
Sand (2.0 mm - 0.05 mm)	%	45.4	43.4	46.1	43.3	48.9	79	74	76	70
Silt (0.05 mm - 2 µm)	%	53.9	55.8	53.1	56.0	50.1	17	19	19	24
Clay (<2 µm)	%	0.8	0.8	0.7	0.7	0.7	4	7	5	6
Texture	-	-	-	-	-	-	Loamy sand	Sandy loam	Sandy loam	Sandy loam
Nutrients										
Total Carbon	%	8.24	8.48	8.16	7.79	7.33	4.5	5.4	3.6	3.8
Total Organic Carbon	%	8.11	8.39	8.06	7.68	7.26	4.5	5.4	3.6	3.8
Total Inorganic Carbon	%	0.13	0.09	0.1	0.11	0.07	<0.1	<0.1	<0.1	<0.1
Total Nitrogen	%	0.61	0.64	0.62	0.61	0.56	-	-	-	-
Total Nitrogen by LECO	%	-	-	-	-	-	0.34	0.39	0.29	0.3
Total Phosphorus	mg/kg	-	-	-	-	-	-	-	-	-
Cyanides										
Cyanide, Total	mg/kg	1.2	1.3	1.2	1.2	1.1	1.6	3.6	2.2	2.6
Total Metals										
Aluminum (Al)	mg/kg	8060	8730	7810	7850	8360	-	-	-	-
Antimony (Sb)	mg/kg	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2
Arsenic (As)	mg/kg	**12.1**	**15.5**	**16.0**	**15.7**	**12.0**	**6.3**	**7.2**	**7.3**	**6.8**
Barium (Ba)	mg/kg	51.2	96.2	54.9	50.1	51.8	37	41	39	38
Beryllium (Be)	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bismuth (Bi)	mg/kg	<1	<1	<1	<1	<1	-	-	-	-
Boron (B)	mg/kg	8.0	7.0	7.0	6.0	6.0	-	-	-	-
Cadmium (Cd)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Calcium (Ca)	mg/kg	4550	4890	4480	4400	4570	-	-	-	-
Chromium (Cr)	mg/kg	34.6	36.8	32.8	33.6	34.5	23.6	25.4	26.6	25.6
Cobalt (Co)	mg/kg	9.00	10.00	10.00	10.00	9.00	6.00	6.00	7.00	6.00
Copper (Cu)	mg/kg	**60**	**61**	**60**	**65**	**58**	26	30	35	35
Iron (Fe)	mg/kg	12700	13900	12500	13000	12600	-	-	-	-
Lead (Pb)	mg/kg	7	7	7	6	6	<5	<5	<5	<5
Lithium (Li)	mg/kg	-	-	-	-	-	-	-	-	-
Magnesium (Mg)	mg/kg	5450	5710	5220	5410	5410	-	-	-	-
Manganese (Mn)	mg/kg	163	175	156	159	161	-	-	-	-
Mercury (Hg)	mg/kg	0.12	0.12	0.11	0.11	0.09	<0.05	<0.05	0.06	<0.05
Molybdenum (Mo)	mg/kg	<1	3	3	3	3	1	1	1	2
Nickel (Ni)	mg/kg	29	31	30	30	28	18	21	21	20
Phosphorus (P)	mg/kg	524	545	526	520	497	-	-	-	-
Potassium (K)	mg/kg	1560	1730	1560	1530	1620	-	-	-	-
Selenium (Se)	mg/kg	0.5	0.6	0.5	0.6	0.5	0.3	0.3	0.4	0.3
Silver (Ag)	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sodium (Na)	mg/kg	205	228	290	211	225	-	-	-	-
Strontium (Sr)	mg/kg	20	23	20	19	22	-	-	-	-
Thallium (Tl)	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tin (Sn)	mg/kg	<5	<5	<5	<5	<5	<5	<5	<5	<5
Titanium (Ti)	mg/kg	818	893	764	768	851	-	-	-	-
Uranium (U)	mg/kg	<40	<40	<40	<40	<40	<2	<2	<2	<2
Vanadium (V)	mg/kg	32	35	31	31	33	21	24	26	24
Zinc (Zn)	mg/kg	51.3	57.9	65	53.4	54.3	30	30	30	30
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	mg/kg	***<0.1***	***<0.1***	***<0.1***	-	-	-	-	-	-
Acenaphthylene	mg/kg	***<0.1***	***<0.1***	***<0.1***	-	-	-	-	-	-
Acridine	mg/kg	-	-	-	-	-	-	-	-	-
Anthracene	mg/kg	-	-	-	-	-	-	-	-	-
Benz(a)anthracene	mg/kg	-	-	-	-	-	-	-	-	-
Benz(a)anthracene/Chrysene	mg/kg	***<0.1***	***<0.1***	***<0.1***	-	-	-	-	-	-
Benzo(a)pyrene	mg/kg	***<0.1***	***<0.1***	***<0.1***	-	-	-	-	-	-
Benzo(b&j)fluoranthene	mg/kg	-	-	-	-	-	-	-	-	-
Benzo(b or k)fluoranthene	mg/kg	<0.1	<0.1	<0.1	-	-	-	-	-	-
Benzo(ghi)perylene	mg/kg	<0.1	<0.1	<0.1	-	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	-	-	-	-	-	-	-	-	-
Biphenyl	mg/kg	-	-	-	-	-	-	-	-	-
C2 sub'd B(a)A/chrysene	mg/kg	-	-	-	-	-	-	-	-	-
C2 sub'd B(b&k)F/B(a)P	mg/kg	-	-	-	-	-	-	-	-	-
C2 sub'd biphenyl	mg/kg	-	-	-	-	-	-	-	-	-
C2 sub'd dibenzothiophene	mg/kg	-	-	-	-	-	-	-	-	-
C2 sub'd fluoranthene/pyrene	mg/kg	-	-	-	-	-	-	-	-	-
C2 sub'd fluorene	mg/kg	-	-	-	-	-	-	-	-	-

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Appendix C8: Sediment Quality in Control Lake, Meliadine Gold Project, 1998 to 2008

Waterbody/Sample ID	Units	Control					Control			
Profile Depth		top 5-10 cm					0-2 cm		0-10 cm	
Replicate		1	2	3	4	5	1	2	1	2
Date Sampled		Jul-98	Jul-98	Jul-98	Jul-98	Jul-98	18-Jul-08	18-Jul-08	18-Jul-08	18-Jul-08
GPS Coordinates (NAD83)		-					0534701, 6986534			
Source [a]		RL&L 1999					Golder			
C2 sub'd naphthalene	mg/kg	-	-	-	-	-	-	-	-	-
C2 sub'd phenanthrene/anth.	mg/kg	-	-	-	-	-	-	-	-	-
C3 sub'd dibenzothiophene	mg/kg	-	-	-	-	-	-	-	-	-
C3 sub'd fluoranthene/pyrene	mg/kg	-	-	-	-	-	-	-	-	-
C3 sub'd fluorene	mg/kg	-	-	-	-	-	-	-	-	-
C3 sub'd naphthalene	mg/kg	-	-	-	-	-	-	-	-	-
C3 sub'd phenanthrene/anth.	mg/kg	-	-	-	-	-	-	-	-	-
C4 sub'd dibenzothiophene	mg/kg	-	-	-	-	-	-	-	-	-
C4 sub'd naphthalene	mg/kg	-	-	-	-	-	-	-	-	-
C4 sub'd phenanthrene/anth.	mg/kg	-	-	-	-	-	-	-	-	-
Chrysene	mg/kg	-	-	-	-	-	-	-	-	-
Dibenzo(a,h)anthracene	mg/kg	***<0.1***	***<0.1***	***<0.1***	-	-	-	-	-	-
Dibenzothiophene	mg/kg	-	-	-	-	-	-	-	-	-
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	-	-	-	-	-	-
Fluorene	mg/kg	***<0.1***	***<0.1***	***<0.1***	-	-	-	-	-	-
Indeno(c,d-123)pyrene	mg/kg	<0.1	<0.1	<0.1	-	-	-	-	-	-
Methyl acenaphthene	mg/kg	-	-	-	-	-	-	-	-	-
Methyl B(a)A/chrysene	mg/kg	-	-	-	-	-	-	-	-	-
Methyl B(b&k)F/B(a)P	mg/kg	-	-	-	-	-	-	-	-	-
Methyl biphenyl	mg/kg	-	-	-	-	-	-	-	-	-
Methyl dibenzothiophene	mg/kg	-	-	-	-	-	-	-	-	-
Methyl fluoranthene/pyrene	mg/kg	-	-	-	-	-	-	-	-	-
Methyl fluorene	mg/kg	-	-	-	-	-	-	-	-	-
Methyl phenanthrene/anthracene	mg/kg	-	-	-	-	-	-	-	-	-
Methyl naphthalenes	mg/kg	***<0.1***	***<0.1***	***<0.1***	-	-	-	-	-	-
1-Methylnaphthalene	mg/kg	-	-	-	-	-	-	-	-	-
Naphthalene	mg/kg	***<0.1***	***<0.1***	***<0.1***	-	-	-	-	-	-
Phenanthrene	mg/kg	-	-	-	-	-	-	-	-	-
Phenanthrene/Anthracene	mg/kg	***<0.1***	***<0.1***	***<0.1***	-	-	-	-	-	-
Pyrene	mg/kg	***<0.1***	***<0.1***	***<0.1***	-	-	-	-	-	-
Quinoline	mg/kg	-	-	-	-	-	-	-	-	-
Retene	mg/kg	-	-	-	-	-	-	-	-	-
Other Organic Compounds										
Benzene	mg/kg	<0.01	<0.01	<0.01	-	-	-	-	-	-
Ethylbenzene	mg/kg	<0.01	<0.01	<0.01	-	-	-	-	-	-
Xylenes	mg/kg	<0.01	<0.01	<0.01	-	-	-	-	-	-
Toluene	mg/kg	<0.01	<0.01	<0.01	-	-	-	-	-	-
Total Extr. Hydrocarbons (C9-40)	mg/kg	-	-	-	-	-	-	-	-	-
Total Extr. Hydrocarbons (C10-30)	mg/kg	-	-	-	-	-	-	-	-	-
Total Extractables	mg/kg	7	9	15	-	-	-	-	-	-
Total Volatiles	mg/kg	<0.5	<0.5	1.4	-	-	-	-	-	-
Organochlorines										
Aldrin	mg/kg	-	-	-	-	-	-	-	-	-
Alpha-BHC	mg/kg	-	-	-	-	-	-	-	-	-
Beta-BHC	mg/kg	-	-	-	-	-	-	-	-	-
Gamma-BHC	mg/kg	-	-	-	-	-	-	-	-	-
Chlordane (alpha)	mg/kg	-	-	-	-	-	-	-	-	-
Chlordane (gamma)	mg/kg	-	-	-	-	-	-	-	-	-
Dieldrin	mg/kg	-	-	-	-	-	-	-	-	-
Endosulfan I	mg/kg	-	-	-	-	-	-	-	-	-
Endosulfan II	mg/kg	-	-	-	-	-	-	-	-	-
Endrin	mg/kg	-	-	-	-	-	-	-	-	-
Heptachlor	mg/kg	-	-	-	-	-	-	-	-	-
Methoxychlor	mg/kg	-	-	-	-	-	-	-	-	-
Mirex	mg/kg	-	-	-	-	-	-	-	-	-
Nonachlor	mg/kg	-	-	-	-	-	-	-	-	-
Oxychlordane	mg/kg	-	-	-	-	-	-	-	-	-
pp-DDD	mg/kg	-	-	-	-	-	-	-	-	-
pp-DDE	mg/kg	-	-	-	-	-	-	-	-	-
pp-DDT	mg/kg	-	-	-	-	-	-	-	-	-
Quintozine	mg/kg	-	-	-	-	-	-	-	-	-

a = Data sources: 1998 = RL&L (1999); 2008 and 2009 = Golder

b = Particle sizes were estimated from the following weight fractions: sand = 62.5 to 500 µm; silt = 2.762 to 62.5 µm; clay = 0.691 to 2.762 µm.

Notes:

Results are reported on a dry weight basis except if otherwise specified.

Values greater than or equal to ISQGs are bolded.

Values greater than or equal to PELs are bolded and underlined.

Non-detect values that have detection limits that are greater than or equal to guidelines are bolded and italized and shaded.

% = percent; mg/kg = milligrams per kilogram; < = less than; - = not available.

Appendix C9: Sediment Quality in Peter Lake, Meliadine Gold Project, 1998

Waterbody/Sample ID	Units	PL				
Profile Depth		top 5-10 cm				
Replicate		1	2	3	4	5
Date Sampled		Jul-98	Jul-98	Jul-98	Jul-98	Jul-98
GPS Coordinates		-				
Source [a]		RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999
Conventional Parameters						
Moisture	%	31	41	32	37	38
Particle Size [b]						
Sand (2.0 mm - 0.05 mm)	%	45.4	35.2	38.3	44.8	46.3
Silt (0.05 mm - 2 µm)	%	45.9	54.6	52.8	46.6	46.1
Clay (<2 µm)	%	8.6	10.3	8.7	8.8	7.5
Texture	-	-	-	-	-	-
Nutrients						
Total Carbon	%	0.52	0.54	0.54	0.42	0.42
Total Organic Carbon	%	0.49	0.51	0.51	0.36	0.38
Total Inorganic Carbon	%	0.03	0.03	0.03	0.06	0.04
Total Nitrogen	%	0.04	0.05	0.03	0.03	0.03
Total Nitrogen by LECO	%	-	-	-	-	-
Total Phosphorus	mg/kg	-	-	-	-	-
Cyanides						
Cyanide, Total	mg/kg	2.1	2.7	2.5	2.9	<0.5
Total Metals						
Aluminum (Al)	mg/kg	6050	7790	7200	5990	7150
Antimony (Sb)	mg/kg	-	-	-	-	-
Arsenic (As)	mg/kg	**6.2**	**8.0**	**6.8**	**6.3**	**7.4**
Barium (Ba)	mg/kg	48.5	62.2	54.9	45.9	51.4
Beryllium (Be)	mg/kg	<1	<1	<1	<1	<1
Bismuth (Bi)	mg/kg	<1	<1	<1	<1	<1
Boron (B)	mg/kg	<5	<5	<5	<5	<5
Cadmium (Cd)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Calcium (Ca)	mg/kg	2530	3040	3170	2670	3640
Chromium (Cr)	mg/kg	18.3	23.1	20.4	17.7	23.8
Cobalt (Co)	mg/kg	4.00	5.00	4.00	4.00	5.00
Copper (Cu)	mg/kg	15	18	15	14	16
Iron (Fe)	mg/kg	12300	16100	13700	12400	15000
Lead (Pb)	mg/kg	7	8	7	7	8
Lithium (Li)	mg/kg	-	-	-	-	-
Magnesium (Mg)	mg/kg	2390	2890	2640	2350	4140
Manganese (Mn)	mg/kg	355	735	336	267	418
Mercury (Hg)	mg/kg	0.03	0.04	0.03	0.03	<0.01
Molybdenum (Mo)	mg/kg	2	3	2	2	4
Nickel (Ni)	mg/kg	12	14	13	12	13
Phosphorus (P)	mg/kg	546	589	560	528	610
Potassium (K)	mg/kg	1640	2090	1970	1570	2580
Selenium (Se)	mg/kg	0.4	0.5	0.3	0.4	0.4
Silver (Ag)	mg/kg	<1	<1	<1	<1	<1
Sodium (Na)	mg/kg	159	210	203	160	336
Strontium (Sr)	mg/kg	27	34	35	28	30
Thallium (Tl)	mg/kg	<1	<1	<1	<1	<1
Tin (Sn)	mg/kg	<5	<5	<5	<5	<5
Titanium (Ti)	mg/kg	619	690	571	596	808
Uranium (U)	mg/kg	<40	<40	<40	<40	<40
Vanadium (V)	mg/kg	35	45	39	34	52
Zinc (Zn)	mg/kg	30.3	41	31.7	30	37
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	mg/kg	-	-	-	-	-
Acenaphthylene	mg/kg	-	-	-	-	-
Acridine	mg/kg	-	-	-	-	-
Anthracene	mg/kg	-	-	-	-	-
Benz(a)anthracene	mg/kg	-	-	-	-	-
Benz(a)anthracene/Chrysene	mg/kg	-	-	-	-	-
Benzo(a)pyrene	mg/kg	-	-	-	-	-
Benzo(b&j)fluoranthene	mg/kg	-	-	-	-	-
Benzo(b or k)fluoranthene	mg/kg	-	-	-	-	-
Benzo(ghi)perylene	mg/kg	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	-	-	-	-	-
Biphenyl	mg/kg	-	-	-	-	-
C2 sub'd B(a)A/chrysene	mg/kg	-	-	-	-	-
C2 sub'd B(b&k)F/B(a)P	mg/kg	-	-	-	-	-
C2 sub'd biphenyl	mg/kg	-	-	-	-	-
C2 sub'd dibenzothiophene	mg/kg	-	-	-	-	-
C2 sub'd fluoranthene/pyrene	mg/kg	-	-	-	-	-
C2 sub'd fluorene	mg/kg	-	-	-	-	-

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Appendix C9: Sediment Quality in Peter Lake, Meliadine Gold Project, 1998

Waterbody/Sample ID	Units	PL				
Profile Depth		top 5-10 cm				
Replicate		1	2	3	4	5
Date Sampled		Jul-98	Jul-98	Jul-98	Jul-98	Jul-98
GPS Coordinates		-				
Source [a]		RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999	RL&L 1999
C2 sub'd naphthalene	mg/kg	-	-	-	-	-
C2 sub'd phenanthrene/anth.	mg/kg	-	-	-	-	-
C3 sub'd dibenzothiophene	mg/kg	-	-	-	-	-
C3 sub'd fluoranthene/pyrene	mg/kg	-	-	-	-	-
C3 sub'd fluorene	mg/kg	-	-	-	-	-
C3 sub'd naphthalene	mg/kg	-	-	-	-	-
C3 sub'd phenanthrene/anth.	mg/kg	-	-	-	-	-
C4 sub'd dibenzothiophene	mg/kg	-	-	-	-	-
C4 sub'd naphthalene	mg/kg	-	-	-	-	-
C4 sub'd phenanthrene/anth.	mg/kg	-	-	-	-	-
Chrysene	mg/kg	-	-	-	-	-
Dibenzo(a,h)anthracene	mg/kg	-	-	-	-	-
Dibenzothiophene	mg/kg	-	-	-	-	-
Fluoranthene	mg/kg	-	-	-	-	-
Fluorene	mg/kg	-	-	-	-	-
Indeno(c,d-123)pyrene	mg/kg	-	-	-	-	-
Methyl acenaphthene	mg/kg	-	-	-	-	-
Methyl B(a)A/chrysene	mg/kg	-	-	-	-	-
Methyl B(b&k)F/B(a)P	mg/kg	-	-	-	-	-
Methyl biphenyl	mg/kg	-	-	-	-	-
Methyl dibenzothiophene	mg/kg	-	-	-	-	-
Methyl fluoranthene/pyrene	mg/kg	-	-	-	-	-
Methyl fluorene	mg/kg	-	-	-	-	-
Methyl phenanthrene/anthracene	mg/kg	-	-	-	-	-
Methyl naphthalenes	mg/kg	-	-	-	-	-
1-Methylnaphthalene	mg/kg	-	-	-	-	-
Naphthalene	mg/kg	-	-	-	-	-
Phenanthrene	mg/kg	-	-	-	-	-
Phenanthrene/Anthracene	mg/kg	-	-	-	-	-
Pyrene	mg/kg	-	-	-	-	-
Quinoline	mg/kg	-	-	-	-	-
Retene	mg/kg	-	-	-	-	-
Other Organic Compounds						
Benzene	mg/kg	-	-	-	-	-
Ethylbenzene	mg/kg	-	-	-	-	-
Xylenes	mg/kg	-	-	-	-	-
Toluene	mg/kg	-	-	-	-	-
Total Extr. Hydrocarbons (C9-40)	mg/kg	-	-	-	-	-
Total Extr. Hydrocarbons (C10-30)	mg/kg	-	-	-	-	-
Total Extractables	mg/kg	-	-	-	-	-
Total Volatiles	mg/kg	-	-	-	-	-
Organochlorines						
Aldrin	mg/kg	-	-	-	-	-
Alpha-BHC	mg/kg	-	-	-	-	-
Beta-BHC	mg/kg	-	-	-	-	-
Gamma-BHC	mg/kg	-	-	-	-	-
Chlordane (alpha)	mg/kg	-	-	-	-	-
Chlordane (gamma)	mg/kg	-	-	-	-	-
Dieldrin	mg/kg	-	-	-	-	-
Endosulfan I	mg/kg	-	-	-	-	-
Endosulfan II	mg/kg	-	-	-	-	-
Endrin	mg/kg	-	-	-	-	-
Heptachlor	mg/kg	-	-	-	-	-
Methoxychlor	mg/kg	-	-	-	-	-
Mirex	mg/kg	-	-	-	-	-
Nonachlor	mg/kg	-	-	-	-	-
Oxychlordane	mg/kg	-	-	-	-	-
pp-DDD	mg/kg	-	-	-	-	-
pp-DDE	mg/kg	-	-	-	-	-
pp-DDT	mg/kg	-	-	-	-	-
Quintozine	mg/kg	-	-	-	-	-

a = Data were obtained from RL&L (1999)

b = Particle sizes were estimated from weight fractions: sand = 62.5 to 500 µm; silt = 2.762 to 62.5 µm; clay = 0.691 to 2.762 µm.

Notes:

Results are reported on a dry weight basis except if otherwise specified.

Values greater than or equal to ISQGs are bolded.

Values greater than or equal to PELs are bolded and underlined.

% = percent; mg/kg = milligrams per kilogram; < = less than; - = not available.

a = Data were obtained from RL&L (1999)

b = Particle sizes in 1998 samples were estimated from the following weight fractions: sand = 62.5 to 500 µm; silt = 2.762 to 62.5 µm; clay = 0.691 to 2.762 µm.

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Appendix C10: Sediment Quality in Lakes of the Atulik Lake Drainage, Meliadine Gold Project, 1994 to 2009

Waterbody/Sample ID	**Units**	**DI1**	**DI1**				**DI5**
Profile Depth		Surface	0-2 cm		0-10 cm		Surface
Replicate		1	1	2	1	2	1
Date Sampled		11-Aug-94	20-Jul-08	20-Jul-08	20-Jul-08	20-Jul-08	20-Jul-95
GPS Coordinates		-	-				-
Source [a]		Dillon 1994	Golder				Dillon 1995
Conventional Parameters							
Moisture	%	13.7	58	59	56	59	19.6
Particle Size [b]							
Sand (2.0 mm - 0.05 mm)	%	-	76	78	77	76	-
Silt (0.05 mm - 2 µm)	%	-	20	21	19	21	-
Clay (<2 µm)	%	-	4	2	3	3	-
Texture	-	-	Loamy sand	Loamy sand	Loamy sand	Loamy sand	-
Nutrients							
Total Carbon	%	-	1.5	1.6	1.2	1.6	-
Total Organic Carbon	%	-	1.5	1.6	1.2	1.6	-
Total Inorganic Carbon	%	-	<0.1	<0.1	<0.1	<0.1	-
Total Nitrogen	%	-	-	-	-	-	-
Total Nitrogen by LECO	%	-	0.14	0.15	0.1	0.14	-
Total Phosphorus	mg/kg	-	-	-	-	-	-
Cyanides							
Cyanide, Total	mg/kg	-	1.0	1.8	1.2	1.5	-
Total Metals							
Aluminum (Al)	mg/kg	7020	-	-	-	-	-
Antimony (Sb)	mg/kg	< 25	<0.2	<0.2	<0.2	<0.2	-
Arsenic (As)	mg/kg	5.22	**6.6**	**7.2**	**6.9**	**7.5**	**10.4**
Barium (Ba)	mg/kg	28.6	45	46	43	49	23.2
Beryllium (Be)	mg/kg	< 0.5	<1	<1	<1	<1	-
Bismuth (Bi)	mg/kg	< 10	-	-	-	-	-
Boron (B)	mg/kg	-	-	-	-	-	-
Cadmium (Cd)	mg/kg	< 0.10	<0.5	<0.5	<0.5	<0.5	***< 2.0***
Calcium (Ca)	mg/kg	1650	-	-	-	-	-
Chromium (Cr)	mg/kg	24	22.6	22.4	21.9	24	**40.4**
Cobalt (Co)	mg/kg	4.70	5.00	5.00	4.00	5.00	5.50
Copper (Cu)	mg/kg	15.8	22	22	20	22	5
Iron (Fe)	mg/kg	13600	-	-	-	-	-
Lead (Pb)	mg/kg	< 2.0	<5	<5	<5	<5	< 10.0
Lithium (Li)	mg/kg	11.1	-	-	-	-	-
Magnesium (Mg)	mg/kg	4800	-	-	-	-	-
Manganese (Mn)	mg/kg	119	-	-	-	-	-
Mercury (Hg)	mg/kg	< 0.005	<0.05	<0.05	<0.05	<0.05	< 0.005
Molybdenum (Mo)	mg/kg	< 4.0	1	<1	<1	<1	< 4.0
Nickel (Ni)	mg/kg	15.5	21	21	19	23	18.2
Phosphorus (P)	mg/kg	381	-	-	-	-	-
Potassium (K)	mg/kg	1200	-	-	-	-	-
Selenium (Se)	mg/kg	< 0.10	0.2	0.3	0.2	0.2	< 0.10
Silver (Ag)	mg/kg	< 2.0	<1	<1	<1	<1	< 2.0
Sodium (Na)	mg/kg	< 250	-	-	-	-	-
Strontium (Sr)	mg/kg	-	-	-	-	-	-
Thallium (Tl)	mg/kg	-	<1	<1	<1	<1	-
Tin (Sn)	mg/kg	< 30	<5	<5	<5	<5	< 30
Titanium (Ti)	mg/kg	-	-	-	-	-	-
Uranium (U)	mg/kg	-	<2	<2	<2	<2	-
Vanadium (V)	mg/kg	17.9	20	20	20	22	-
Zinc (Zn)	mg/kg	28.4	30	30	30	30	39.4
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	-	-	-	-	-	-
Acenaphthylene	mg/kg	-	-	-	-	-	-
Acridine	mg/kg	-	-	-	-	-	-
Anthracene	mg/kg	-	-	-	-	-	-
Benz(a)anthracene	mg/kg	-	-	-	-	-	-
Benz(a)anthracene/Chrysene	mg/kg	-	-	-	-	-	-
Benzo(a)pyrene	mg/kg	-	-	-	-	-	-
Benzo(b&j)fluoranthene	mg/kg	-	-	-	-	-	-
Benzo(b or k)fluoranthene	mg/kg	-	-	-	-	-	-
Benzo(ghi)perylene	mg/kg	-	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	-	-	-	-	-	-
Biphenyl	mg/kg	-	-	-	-	-	-
C2 sub'd B(a)A/chrysene	mg/kg	-	-	-	-	-	-
C2 sub'd B(b&k)F/B(a)P	mg/kg	-	-	-	-	-	-
C2 sub'd biphenyl	mg/kg	-	-	-	-	-	-
C2 sub'd dibenzothiophene	mg/kg	-	-	-	-	-	-
C2 sub'd fluoranthene/pyrene	mg/kg	-	-	-	-	-	-
C2 sub'd fluorene	mg/kg	-	-	-	-	-	-

Appendix C10: Sediment Quality in Lakes of the Atulik Lake Drainage, Meliadine Gold Project, 1994 to 2009

Waterbody/Sample ID	**Units**	**DI1**	**DI1**				**DI5**
Profile Depth		Surface	0-2 cm		0-10 cm		Surface
Replicate		1	1	2	1	2	1
Date Sampled		11-Aug-94	20-Jul-08	20-Jul-08	20-Jul-08	20-Jul-08	20-Jul-95
GPS Coordinates		-	-				-
Source [a]		Dillon 1994	Golder				Dillon 1995
C2 sub'd naphthalene	mg/kg	-	-	-	-	-	-
C2 sub'd phenanthrene/anth.	mg/kg	-	-	-	-	-	-
C3 sub'd dibenzothiophene	mg/kg	-	-	-	-	-	-
C3 sub'd fluoranthene/pyrene	mg/kg	-	-	-	-	-	-
C3 sub'd fluorene	mg/kg	-	-	-	-	-	-
C3 sub'd naphthalene	mg/kg	-	-	-	-	-	-
C3 sub'd phenanthrene/anth.	mg/kg	-	-	-	-	-	-
C4 sub'd dibenzothiophene	mg/kg	-	-	-	-	-	-
C4 sub'd naphthalene	mg/kg	-	-	-	-	-	-
C4 sub'd phenanthrene/anth.	mg/kg	-	-	-	-	-	-
Chrysene	mg/kg	-	-	-	-	-	-
Dibenzo(a,h)anthracene	mg/kg	-	-	-	-	-	-
Dibenzothiophene	mg/kg	-	-	-	-	-	-
Fluoranthene	mg/kg	-	-	-	-	-	-
Fluorene	mg/kg	-	-	-	-	-	-
Indeno(c,d-123)pyrene	mg/kg	-	-	-	-	-	-
Methyl acenaphthene	mg/kg	-	-	-	-	-	-
Methyl B(a)A/chrysene	mg/kg	-	-	-	-	-	-
Methyl B(b&k)F/B(a)P	mg/kg	-	-	-	-	-	-
Methyl biphenyl	mg/kg	-	-	-	-	-	-
Methyl dibenzothiophene	mg/kg	-	-	-	-	-	-
Methyl fluoranthene/pyrene	mg/kg	-	-	-	-	-	-
Methyl fluorene	mg/kg	-	-	-	-	-	-
Methyl	mg/kg	-	-	-	-	-	-
Methyl naphthalenes	mg/kg	-	-	-	-	-	-
1-Methylnaphthalene	mg/kg	-	-	-	-	-	-
Naphthalene	mg/kg	-	-	-	-	-	-
Phenanthrene	mg/kg	-	-	-	-	-	-
Phenanthrene/Anthracene	mg/kg	-	-	-	-	-	-
Pyrene	mg/kg	-	-	-	-	-	-
Quinoline	mg/kg	-	-	-	-	-	-
Retene	mg/kg	-	-	-	-	-	-
Other Organic Compounds							
Benzene	mg/kg	-	-	-	-	-	-
Ethylbenzene	mg/kg	-	-	-	-	-	-
Xylenes	mg/kg	-	-	-	-	-	-
Toluene	mg/kg	-	-	-	-	-	-
Total Extr. Hydrocarbons (C9-	mg/kg	-	-	-	-	-	-
Total Extr. Hydrocarbons (C10-	mg/kg	-	-	-	-	-	-
Total Extractables	mg/kg	-	-	-	-	-	-
Total Volatiles	mg/kg	-	-	-	-	-	-
Organochlorines							
Aldrin	mg/kg	-	-	-	-	-	-
Alpha-BHC	mg/kg	-	-	-	-	-	-
Beta-BHC	mg/kg	-	-	-	-	-	-
Gamma-BHC	mg/kg	-	-	-	-	-	-
Chlordane (alpha)	mg/kg	-	-	-	-	-	-
Chlordane (gamma)	mg/kg	-	-	-	-	-	-
Dieldrin	mg/kg	-	-	-	-	-	-
Endosulfan I	mg/kg	-	-	-	-	-	-
Endosulfan II	mg/kg	-	-	-	-	-	-
Endrin	mg/kg	-	-	-	-	-	-
Heptachlor	mg/kg	-	-	-	-	-	-
Methoxychlor	mg/kg	-	-	-	-	-	-
Mirex	mg/kg	-	-	-	-	-	-
Nonachlor	mg/kg	-	-	-	-	-	-
Oxychlordane	mg/kg	-	-	-	-	-	-
pp-DDD	mg/kg	-	-	-	-	-	-
pp-DDE	mg/kg	-	-	-	-	-	-
pp-DDT	mg/kg	-	-	-	-	-	-
Quintozine	mg/kg	-	-	-	-	-	-

a = Data were obtained from the following sources: 1994 to 1995 = Dillon (1994 and 1995); 2008 and 2009 = Golder Associates Ltd.

Notes:

Results are reported on a dry weight basis except if otherwise specified.

Values greater than or equal to ISQGs are bolded.

Values greater than or equal to PELs are bolded and underlined.

Non-detect values that have detection limits that are greater than or equal to guidelines are bolded and italized and shaded.

% = percent; mg/kg = milligrams per kilogram; < = less than; - = not available.

Appendix C11: Sediment Quality in Hudson Bay, Meliadine Gold Project, 1998

Waterbody/Sample ID	Units	Ocean				
Profile Depth		top 5-10 cm				
Replicate		1	2	3	4	5
Date Sampled		Jul-98	Jul-98	Jul-98	Jul-98	Jul-98
GPS Coordinates		-				
Source [a]		RL&L 1999				
Conventional Parameters						
Moisture	%	33.5	29.1	29.4	32	12
Particle Size [b]						
Sand (2.0 mm - 0.05 mm)	%	28.3	26.0	26.2	28.3	26.8
Silt (0.05 mm - 2 µm)	%	67.6	69.2	69.5	67.4	68.6
Clay (<2 µm)	%	4.2	4.8	4.2	4.4	4.8
Texture	-	-	-	-	-	-
Nutrients						
Total Carbon	%	0.49	0.49	0.50	0.52	0.50
Total Organic Carbon	%	0.41	0.4	0.43	0.45	0.42
Total Inorganic Carbon	%	0.09	0.09	0.07	0.07	0.08
Total Nitrogen	%	0.03	0.03	0.03	0.04	0.03
Total Nitrogen by LECO	%	-	-	-	-	-
Total Phosphorus	mg/kg	-	-	-	-	-
Cyanides						
Cyanide, Total	mg/kg	<0.5	0.7	0.5	0.8	1
Total Metals						
Aluminum (Al)	mg/kg	6850	6790	6500	6480	7450
Antimony (Sb)	mg/kg	-	-	-	-	-
Arsenic (As)	mg/kg	5.3	4.5	4.6	5.2	5
Barium (Ba)	mg/kg	59.2	57.1	56.2	55.1	60.8
Beryllium (Be)	mg/kg	<1	<1	<1	<1	<1
Bismuth (Bi)	mg/kg	<1	<1	<1	<1	<1
Boron (B)	mg/kg	10.0	9.0	8.0	9.0	9.0
Cadmium (Cd)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Calcium (Ca)	mg/kg	4130	4170	3870	3980	4430
Chromium (Cr)	mg/kg	27.9	26.8	26.2	26.2	29.4
Cobalt (Co)	mg/kg	5.00	4.00	4.00	4.00	5.00
Copper (Cu)	mg/kg	15	15	16	16	16
Iron (Fe)	mg/kg	12800	12200	12900	12200	14000
Lead (Pb)	mg/kg	5	<5	6	<5	5
Lithium (Li)	mg/kg	-	-	-	-	-
Magnesium (Mg)	mg/kg	5070	4920	4940	4990	5280
Manganese (Mn)	mg/kg	128	124	119	120	137
Mercury (Hg)	mg/kg	0.05	0.04	0.03	0.04	0.04
Molybdenum (Mo)	mg/kg	<1	<1	<1	<1	<1
Nickel (Ni)	mg/kg	14	13	13	13	15
Phosphorus (P)	mg/kg	723	702	728	705	705
Potassium (K)	mg/kg	2810	2750	2680	2690	2950
Selenium (Se)	mg/kg	0.2	0.3	0.3	0.3	0.3
Silver (Ag)	mg/kg	<1	<1	<1	<1	<1
Sodium (Na)	mg/kg	3230	2940	2890	3820	3520
Strontium (Sr)	mg/kg	25	25	22	24	28
Thallium (Tl)	mg/kg	<1	<1	<1	<1	<1
Tin (Sn)	mg/kg	<5	<5	<5	<5	<5
Titanium (Ti)	mg/kg	807	814	721	744	869
Uranium (U)	mg/kg	<40	<40	<40	<40	<40
Vanadium (V)	mg/kg	28	27	26	26	29
Zinc (Zn)	mg/kg	34.7	30.9	36.4	40.4	37.9
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	mg/kg	***<0.01***	***<0.01***	***<0.01***	-	-
Acenaphthylene	mg/kg	***<0.01***	***<0.01***	***<0.01***	-	-
Acridine	mg/kg	-	-	-	-	-
Anthracene	mg/kg	-	-	-	-	-
Benz(a)anthracene	mg/kg	-	-	-	-	-
Benz(a)anthracene/Chrysene	mg/kg	<0.01	<0.01	<0.01	-	-
Benzo(a)pyrene	mg/kg	<0.01	<0.01	<0.01	-	-
Benzo(b&j)fluoranthene	mg/kg	-	-	-	-	-
Benzo(b or k)fluoranthene	mg/kg	<0.01	<0.01	<0.01	-	-
Benzo(ghi)perylene	mg/kg	<0.01	<0.01	<0.01	-	-
Benzo(k)fluoranthene	mg/kg	-	-	-	-	-
Biphenyl	mg/kg	-	-	-	-	-
C2 sub'd B(a)A/chrysene	mg/kg	-	-	-	-	-
C2 sub'd B(b&k)F/B(a)P	mg/kg	-	-	-	-	-
C2 sub'd biphenyl	mg/kg	-	-	-	-	-
C2 sub'd dibenzothiophene	mg/kg	-	-	-	-	-
C2 sub'd fluoranthene/pyrene	mg/kg	-	-	-	-	-
C2 sub'd fluorene	mg/kg	-	-	-	-	-

Appendix C11: Sediment Quality in Hudson Bay, Meliadine Gold Project, 1998

Waterbody/Sample ID	**Units**	**Ocean**				
Profile Depth		top 5-10 cm				
Replicate		1	2	3	4	5
Date Sampled		Jul-98	Jul-98	Jul-98	Jul-98	Jul-98
GPS Coordinates		-				
Source [a]		RL&L 1999				
C2 sub'd naphthalene	mg/kg	-	-	-	-	-
C2 sub'd phenanthrene/anth.	mg/kg	-	-	-	-	-
C3 sub'd dibenzothiophene	mg/kg	-	-	-	-	-
C3 sub'd fluoranthene/pyrene	mg/kg	-	-	-	-	-
C3 sub'd fluorene	mg/kg	-	-	-	-	-
C3 sub'd naphthalene	mg/kg	-	-	-	-	-
C3 sub'd phenanthrene/anth.	mg/kg	-	-	-	-	-
C4 sub'd dibenzothiophene	mg/kg	-	-	-	-	-
C4 sub'd naphthalene	mg/kg	-	-	-	-	-
C4 sub'd phenanthrene/anth.	mg/kg	-	-	-	-	-
Chrysene	mg/kg	-	-	-	-	-
Dibenzo(a,h)anthracene	mg/kg	***<0.01***	***<0.01***	***<0.01***	-	-
Dibenzothiophene	mg/kg	-	-	-	-	-
Fluoranthene	mg/kg	<0.01	<0.01	<0.01	-	-
Fluorene	mg/kg	<0.01	<0.01	<0.01	-	-
Indeno(c,d-123)pyrene	mg/kg	<0.01	<0.01	<0.01	-	-
Methyl acenaphthene	mg/kg	-	-	-	-	-
Methyl B(a)A/chrysene	mg/kg	-	-	-	-	-
Methyl B(b&k)F/B(a)P	mg/kg	-	-	-	-	-
Methyl biphenyl	mg/kg	-	-	-	-	-
Methyl dibenzothiophene	mg/kg	-	-	-	-	-
Methyl fluoranthene/pyrene	mg/kg	-	-	-	-	-
Methyl fluorene	mg/kg	-	-	-	-	-
Methyl phenanthrene/anthracene	mg/kg	-	-	-	-	-
Methyl naphthalenes	mg/kg	<0.01	<0.01	<0.01	-	-
2-Methylnaphthalene	mg/kg	-	-	-	-	-
Naphthalene	mg/kg	<0.01	<0.01	<0.01	-	-
Phenanthrene	mg/kg	-	-	-	-	-
Phenanthrene/Anthracene	mg/kg	<0.01	<0.01	<0.01	-	-
Pyrene	mg/kg	<0.01	<0.01	<0.01	-	-
Quinoline	mg/kg	-	-	-	-	-
Retene	mg/kg	-	-	-	-	-
Other Organic Compounds						
Benzene	mg/kg	<0.01	<0.01	<0.01	-	-
Ethylbenzene	mg/kg	<0.01	<0.01	<0.01	-	-
Xylenes	mg/kg	<0.01	<0.01	<0.01	-	-
Toluene	mg/kg	<0.01	<0.01	<0.01	-	-
Total Extr. Hydrocarbons (C9-40)	mg/kg	-	-	-	-	-
Total Extr. Hydrocarbons (C10-30)	mg/kg	-	-	-	-	-
Total Extractables	mg/kg	22	10	8	-	-
Total Volatiles	mg/kg	<0.5	<0.5	<0.5	-	-
Organochlorines						
Aldrin	mg/kg	-	-	-	-	-
Alpha-BHC	mg/kg	-	-	-	-	-
Beta-BHC	mg/kg	-	-	-	-	-
Gamma-BHC	mg/kg	-	-	-	-	-
Chlordane (alpha)	mg/kg	-	-	-	-	-
Chlordane (gamma)	mg/kg	-	-	-	-	-
Dieldrin	mg/kg	-	-	-	-	-
Endosulfan I	mg/kg	-	-	-	-	-
Endosulfan II	mg/kg	-	-	-	-	-
Endrin	mg/kg	-	-	-	-	-
Heptachlor	mg/kg	-	-	-	-	-
Methoxychlor	mg/kg	-	-	-	-	-
Mirex	mg/kg	-	-	-	-	-
Nonachlor	mg/kg	-	-	-	-	-
Oxychlordane	mg/kg	-	-	-	-	-
pp-DDD	mg/kg	-	-	-	-	-
pp-DDE	mg/kg	-	-	-	-	-
pp-DDT	mg/kg	-	-	-	-	-
Quintozine	mg/kg	-	-	-	-	-

a = Data were obtained from RL&L (1999)

b = Particle sizes estimated from weight fractions: sand = 62.5 to 500 µm; silt = 2.762 to 62.5 µm; clay = 0.691 to 2.762 µm.

Notes:

Results are reported on a dry weight basis except if otherwise specified.

Values greater than or equal to ISQGs are bolded.

Values greater than or equal to PELs are bolded and underlined.

Non-detect values that have detection limits that are greater than or equal to guidelines are bolded and italized and shaded.

% = percent; mg/kg = milligrams per kilogram; < = less than; - = not available.

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APPENDIX D

Aquatic Habitat

Appendix D1. R.L.& L. system of habitat, cover, and substrate classification and coding for small streams.

Habitat Type	Habitat Code	Mean Depth	Max. Depth	Surface	Turbulence	Substrate	Velocity
Riffles	RF	< 0.3 m	< 0.5 m	broken	high	coarse	high
	RF/BG	< 0.3 m	< 0.5 m	broken	high	coarse/boulders	high
Rapids	RA	> 0.3 m	> 0.5 m	broken	high	very coarse	high
Runs	R1	1.0 m	> 1.5 m	irregular	moderate	coarse	mod. - high
	R2	0.5 - 1.0 m	0.75 - 1.0 m	irregular	moderate	coarse	mod. - high
	R2/BG	0.5 - 1.0 m	0.75 - 1.0 m	irregular	moderate	coarse/boulders	mod. - high
	R3	< 0.5 m	0.75 m	rarely broken	moderate	coarse	moderate
	R3/BG	< 0.5 m	0.75 m	rarely broken	moderate	coarse/boulders	moderate
Pools	P1	1.0 m	> 1.5 m	smooth	low	variable	low
	P2	0.5 - 1.0 m	0.75 - 1.0 m	smooth	low	variable	low
	P3	< 0.5 m	0.75 m	smooth	low	variable	low
Flats	F1	1.0 m	> 1.5 m	smooth	laminar	fines	very low
	F2	0.5 - 1.0 m	0.75 - 1.0 m	smooth	laminar	fines	very low
	F2/BG	0.5 - 1.0 m	0.75 - 1.0 m	smooth	laminar	fines/boulders	very low
	F3	< 0.5 m	0.75 m	smooth	laminar	fines	very low
	F3/BG	< 0.5 m	0.75 m	smooth	laminar	fines/boulders	very low

Other Habitat Features

CH	chutes; areas of channel constriction
CA	cascade: rapid vertical decent over cobble/boulder substrate
IN	inlet; confluence with lake
OU	outlet from a lake
DIS	dispersed flow over grass without a defined channel
DRY	dry channel with no flow

Instream Cover

UC	undercut, overhanging bank
BG	boulder garden
AV	aquatic vegetation / submerged terrestrial veg.
OV	overhanging terrestrial vegetation
D/T	depth; turbulence

Substrate Classification

OM	organic material (detritus)
Fi	fines (silt/sand <2 mm)
Gr	gravel (2 - 64 mm)
Co	cobble (64 - 256 mm)
Bo	boulder (>256 mm)
BR	bedrock

Channel Type

Sin	entire flow through one channel
Dou	entire flow through two channels
Mul	flow through multiple (>2) channels
Dis	no defined channel (dispersed flow)

Bank Cover

Sh	shrubs
Gr	grasses and forbs
Ro	rock (gravel/cobble/boulder)
ES	exposed soil

Bank Type (%) assigned as a percentage of well-defined banks
(e.g., 75% if one bank is well defined but the other is poorly defined for half its length)

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Appendix D2. Instream habitat characteristics of streams in the Meliadine Study Area, 1997.

Stream	Survey Date	Unit #	Habitat Type[a]	Length (m)	Width[b] (m)	Area (m^2)	Channel Type	Bank Type[a] (%)	Transect Width (m)	Water Depth (cm)					Water Velocity (cm/s)					Substrate[a] (%)					Instream Cover[a] (%)					Bank Cover[a] (%)			
										0.25w	0.5w	0.75w	Max	Mean	0.25w	0.5w	0.75w	Max	Mean	OM	Fi	Gr	Co	Bo	UC	BG	AV	OV	D/T	Sh	Gr	Ro	ES
A0-1	15-Jun-97	1	R3	12.0	5.0	60	Sin	0	5.2	20	17	13	32	17	19	20	24	31	21			20	70	10		40	30				100		
A0-1	15-Jun-97	2	R3	6.0	7.0	42	Dou	0																								
A0-1	15-Jun-97	3	R3	7.0	3.0	21	Sin	50																								
A0-1	15-Jun-97	4	F3	48.0	20.0	960	Sin	40	25.0	35	70	40	75	48	2	3	2	4	2	90			5	5			5			100		
A0-1	15-Jun-97	5	R3	13.0	2.0	26	Sin	60																								
A0-1	15-Jun-97	6	RF	5.0	2.0	10	Sin	80	1.8	14	14	13	17	14	35	84	84	87	68			40	25	35		30						
A0-1	15-Jun-97	7	R3	9.0	4.5	41	Dou	60																								
A0-1	15-Jun-97	8	RF/BG	32.0	13.0	416	Mul	80																								
A0-1	15-Jun-97	9	P2	5.0	3.5	18	Sin	100	3.0	32	55	45	65	44	0	1	1	2	1			10	30	60	5	70	5				80	20	
A0-1	15-Jun-97	10	RF	10.0	5.0	50	Sin	50	4.8	13	20	14	22	16	9	25	25	30	20			20	45	35		25	5				80	20	
A0-1	15-Jun-97	11	IN	45.0	25.0	1125	Sin	80																								
A0-1	21-Jul-97	1	OU	30.0	9.5	285	Sin	100																								
A0-1	21-Jul-97	2	RF/BG	20.0	0.6	12	Dou	50	0.6	5	7	6	7	6	4	8	6	8	6											100		
A0-1	21-Jul-97	3	R3	25.0	1.2	30	Sin	100	1.2	12	16	10	18	13	2	5	4	5	4											100		
A1-2	19-Jun-97	1	OU	4.5	6.5	29	Sin	5																								
A1-2	19-Jun-97	2	R3	18.0	5.5	99	Dou	10																								
A1-2	19-Jun-97	3	R3	40.0	1.0	40	Sin	40	1.0	25	35	30	37	30	45	55	58	60	53		5	10	75	10	2	30	30				100		
A1-2	19-Jun-97	4	RF	20.0	2.6	52	Sin	40	2.6	20	15	22	23	19	63	27	32	65	41		5	10	80	5	3	20	30				100		
A2-3	19-Jun-97	1	OU	15.0	6.2	93	Sin	5																								
A2-3	19-Jun-97	2	R3	78.0	3.2	250	Sin	30	3.2	25	35	27	39	29	42	50	31	50	41		5	10	80	5		40	30				100		
A2-3	19-Jun-97	3	P3	4.5	1.5	7	Sin	30	1.5	35	40	42	42	39	2	19	48	48	23			5	75	20		60	10				100		
A2-3	19-Jun-97	4	R3	6.0	4.5	27	Dou	30																								
A3-4	19-Jun-97	1	OU	12.0	6.2	74	Sin	5	6.2	20	27	22	28	23	10	14	9	14	11	40	10	15	30	5		5	80				100		
A3-4	19-Jun-97	2	R3	25.0	1.4	35	Sin	20	1.4	26	30	34	34	30	20	82	49	84	50		5	5	80	10	2	40	5				100		
A4-5	19-Jun-97	1	OU	8.0	3.7	30	Sin	10																								
A4-5	19-Jun-97	2	R3	70.0	3.2	224	Dou	10	3.2	20	27	18	27	22	35	40	27	42	34		5	15	75	5		20	35				100		
A4-5	19-Jun-97	3	RF	10.0	2.3	23	Sin	10	2.2	15	20	13	22	16	64	70	59	72	64		5	20	65	10		30					100		
A4-5	19-Jun-97	4	RF/BG	15.0	2.2	33	Sin	40	2.0	25	30	22	30	26	45	69	71	74	62		5	5	80	10		40	10				100		
A4-5	19-Jun-97	5	R3	20.0	2.0	40	Dou	20																								
A5-6	15-Jun-97	1	OU	27.0	15.0	405	Sin	40																								
A5-6	15-Jun-97	2	R3	28.0	2.4	67	Sin	90	2.3	44	40	40	45	41	26	16	7	30	16			15	75	10	5	50	5				100		
A5-6	15-Jun-97	3	R3/BG	21.0	1.7	36	Sin	90	1.8	15	23	17	25	18	35	50	44	52	43			25	45	30	5	30					100		
A5-6	15-Jun-97	4	RF/BG	28.0	1.5	42	Mul	50																								
A5-6	15-Jun-97	5	R3	45.0	1.2	54	Mul	0																								
A5-6	15-Jun-97	6	F3	42.0	20.0	840	Sin	10	22.0	20	40	30	45	30	3	2	1	4	2	70	10		10	10			50				100		
A5-6	15-Jun-97	7	R3	25.0	3.5	88	Sin	20																								
A5-6	15-Jun-97	8	RF/BG	85.0	0.7	60	Mul	30																								
A5-6	15-Jun-97	9	F3	35.0	18.0	630	Sin	10																								
A5-6	13-Jul-97	1	OU	30.0	18.0	540	Sin	20																								
A5-6	13-Jul-97	2	R3	30.0	2.6	78	Sin	40	2.6	10	15	12	15	12				5			5	10	55	30	2	40	2				100		
A5-6	13-Jul-97	3	RF	13.0	1.6	21	Dou	30	1.6	5	7	5	8	6				5			10	15	70	5		5	15				100		
A5-6	13-Jul-97	4	R3	25.0	1.8	45	Sin	30																								
A5-6	13-Jul-97	5	R3/BG	50.0	1.0	50	Sin	30	1.2	7	12	6	14	8				15			5	10	55	30		40	15			40	60		
A5-6	13-Jul-97	6	R3	20.0	0.6	12	Sin	30																								
A6-7	19-Jun-97	1	OU	89.0	15.0	1335	Dou	5																								
A6-7	19-Jun-97	2	RF/BG	2.0	1.0	2	Mul	30	1.3	10	20	15	21	15	16	20	24	26	20		5	5	70	20	2	40	25				100		
A6-7	19-Jun-97	3	R3	35.0	0.7	25	Mul	20	1.0	15	26	20	25	20	20	15	13	23	16		5	5	75	15	2	45	25				100		
A6-7	19-Jun-97	4	R3/BG	55.0	0.6	33	Dou	30	0.6	18	20	16	22	18	15	20	62	70	32		5	5	40	50	2	85	15				100		
A6-7	14-Jul-97	1	R3	30.0	1.6	48	Sin	30	1.6	10	17	15	17	14					1												100		
A6-7	14-Jul-97	2	R3/BG	30.0	1.2	36	Sin	30	1.2	5	7	5	7	6	7	9	5	9	7												100		

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Appendix D2. Instream habitat characteristics of streams in the Meliadine Study Area, 1997.

Stream	Survey Date	Unit #	Habitat Type[a]	Length (m)	Width[b] (m)	Area (m^2)	Channel Type	Bank Type[a] (%)	Transect Width (m)	Water Depth (cm)					Water Velocity (cm/s)					Substrate[a] (%)					Instream Cover[a] (%)					Bank Cover[a] (%)			
										0.25w	0.5w	0.75w	Max	Mean	0.25w	0.5w	0.75w	Max	Mean	OM	Fi	Gr	Co	Bo	UC	BG	AV	OV	D/T	Sh	Gr	Ro	ES
A7-8	16-Jun-97	1	OU	13.0	10.0	130	Mul	10																								
A7-8	16-Jun-97	2	R3	5.0	1.5	8	Dou	30	2.2	11	13	14	15	13	30	35	25		30			40	45	15			10	20			100		
A7-8	16-Jun-97	3	RF/BG	12.0	1.1	13	Mul	40	1.4	16	13	10		13	20	40	30		30			30	20	50		30						
A7-8	16-Jun-97	4	R3	8.0	1.3	10	Sin	80	2.2	10	14	13		12	31	15	30		25			40	30	30	2	5	10			90	10	
A7-8	16-Jun-97	5	R3	32.0	1.0	32	Mul	60	0.9	15	18	17	20	17	50	45	28		41			30	40	30	5	20	5			100		
A7-8	16-Jun-97	6	DIS	75.0	50.0	3750	Dis	0																								
A7-8	22-Jul-97	1	OU	10.0	15.0	150	Mul	35																								
A7-8	22-Jul-97	2	R3/BG	40.0	1.0	40	Mul	55	1.0	5	7	5	7	6	4	5	4	5	4										10	90		
A7-8	22-Jul-97	3	F3/BG	10.0	2.2	22	Mul	45	2.2	5	2	6	6	4															10	90		
A7-8	22-Jul-97	4	R3/BG	50.0	1.3	65	Mul	60																								
B0-1	22-Jun-97	1	OU	8.0	4.0	32	Dou	60																								
B0-1	22-Jun-97	2	RF/BG	28.0	14.0	392	Mul	30	1.8	15	22	20	25	19	45	35	38	60	39			20	40	40	10	30	10			100		
B0-1	22-Jun-97	3	R3	15.0	12.0	180	Sin	40																								
B0-1	22-Jun-97	4	RF/BG	6.0	4.0	24	Dou	60																								
B0-1	22-Jun-97	5	R3	32.0	18.0	576	Mul	21	2.2	35	28	45	50	36	22	25	18	30	22	10	10	10	30	40	20	15	10					
B0-1	22-Jun-97	6	RF	7.0	6.0	42	Sin	20																								
B0-1	22-Jun-97	7	R3	14.0	8.0	112	Sin	40	6.5	28	35	30	40	31	8	5	7	10	7	5	20	40	20	15	2	10	5			100		
B0-1	22-Jun-97	8	RF/BG	10.0	14.0	140	Sin	30	14.0	15	22	28	35	22	35	30	35	40	33			50	20	30		15				90	10	
B0-1	19-Jul-97	1	R3	15.0	4.2	63	Sin	35																								
B0-1	19-Jul-97	2	R3/BG	45.0	1.0	45	Dou	40	1.0	5	11	8	13	8	7	34	26	34	22											100		
B0-1	19-Jul-97	3	R3	60.0	1.6	96	Mul	40	1.6	7	15	10	15	11	4	28	17	28	16											100		
B1-2	16-Jun-97	1	OU	10.0	4.5	45	Sin	10																								
B1-2	16-Jun-97	2	R3	22.0	3.7	81	Dou	25	3.6	15	25	20	30	20	52	57	44	60	51			35	60	5	5	15	5			100		
B1-2	16-Jun-97	3	RA	18.0	2.6	47	Sin	20	2.6	25	30	35	40	30	52	64	72	74	63			30	55	15	5	20	5			100		
B1-2	16-Jun-97	4	RF/BG	4.5	2.3	10	Sin	10	2.3	10	15	20	25	15	76	86	102	123	88			15	60	25		15				100		
B1-2	16-Jun-97	5	R3	25.0	4.3	108	Sin	5	4.5	10	20	15	25	15	37	40	25	38	34			35	60	5		10	10			100		
B1-2	16-Jun-97	6	R3/BG	8.0	3.7	30	Sin	10	3.7	20	30	18	32	23	44	50	47	54	47			20	70	10		15	5			100		
B1-2	16-Jun-97	7	R3	14.0	2.6	36	Dou	30																								
B1-2	16-Jun-97	8	R3/BG	15.0	2.3	35	Dou	30																								
B1-2	16-Jun-97	9	R3	60.0	2.4	144	Dou	50	2.4	30	35	30	38	32	29	36	42	48	36	10		10	55	25	5	60	5	5		100		
B1-2	19-Jul-97	1	OU	10.0	4.5	45	Dou	35																								
B1-2	19-Jul-97	2	R3/BG	60.0	4.2	252	Sin	30	4.2	10	15	9	15	11	12	36	40	49	29											100		
B1-2	19-Jul-97	3	RF/BG	20.0	3.7	74	Sin	25	3.7	7	5	6	7	6	11	26	32	34	23											100		
B1-2	19-Jul-97	4	R3/BG	80.0	4.3	344	Dou	30																								
B1-2	19-Jul-97	5	R3	20.0	3.6	72	Sin	30	3.6	13	15	14	15	14	7	40	35	42	27											100		
B1-2	24-Aug-97	1	F3	30.0	2.5	75	Sin	40																								
B1-2	24-Aug-97	2	F3/BG	40.0	1.5	60	Sin	50	1.5	3	4	5	5	4																		
B1-2	24-Aug-97	3	F3	10.0	0.6	6	Sin	50	0.6	10	12	11	12	11																		
B1-2	24-Aug-97	4	F3/BG	20.0	1.6	32	Sin	50																								
B1-2	24-Aug-97	5	F3	10.0	1.0	10	Sin	60																								
B1-2	24-Aug-97	6	F3/BG	20.0	3.5	70	Sin	60																								
B3-4	16-Jun-97	1	R3	25.0	3.2	80	Sin	30	3.2	25	35	30	37	30	42	56	47	60	48			5	85	10	3	30	5			5	95		
B3-4	16-Jun-97	2	R3	50.0	1.8	90	Mul	20	1.5	25	30	20	40	25	50	62	66	70	59			5	90	5	3	35	5			100		
B3-4	16-Jun-97	3	R3/BG	27.0	1.5	41	Sin	35	1.3	15	20	23	25	19	57	65	70	82	64			5	80	15	4	40	3			100		
B3-4	16-Jun-97	4	R3	20.0	2.2	44	Sin	30																								
B3-4	16-Jun-97	5	P3	1.2	1.0	1	Sin	100	1.2	40	50	45	53	45	2	3	2	5	2		20		75	5	2	50	5			100		
B3-4	16-Jun-97	6	R2	15.0	1.4	21	Mul	100																								
B3-4	16-Jun-97	7	P3	5.0	1.0	5	Mul	100																								
B3-4	16-Jun-97	8	R2	20.0	1.2	24	Mul	100																								
B3-4	16-Jun-97	9	P3	4.0	1.5	6	Mul	100																								
B3-4	16-Jun-97	10	R2	25.0	1.8	45	Mul	100	1.5	60	80	65	100	68	20	17	22	24	20		15	5	40	40	25	70	20	5		20	80		

Golder Associates

Appendix D2. Instream habitat characteristics of streams in the Meliadine Study Area, 1997.

Stream	Survey Date	Unit #	Habitat Type[a]	Length (m)	Width[b] (m)	Area (m^2)	Channel Type	Bank Type[a] (%)	Transect Width (m)	Water Depth (cm)					Water Velocity (cm/s)					Substrate[a] (%)					Instream Cover[a] (%)					Bank Cover[a] (%)			
										0.25w	0.5w	0.75w	Max	Mean	0.25w	0.5w	0.75w	Max	Mean	OM	Fi	Gr	Co	Bo	UC	BG	AV	OV	D/T	Sh	Gr	Ro	ES
B3-4	20-Jul-97	1	OU	8.0	4.2	34	Sin	35																								
B3-4	20-Jul-97	2	R3/BG	70.0	1.2	84	Mul	40	1.2	6	15	10	15	10	5	19	20	25	15											100		
B3-4	20-Jul-97	3	P3	15.0	0.5	8	Dis	35	0.5	10	25	30	24	22	2	5	7	12	5											100		
B3-4	20-Jul-97	4	R3	8.0	1.2	10	Mul	30	0.6	15	27	16	30	19	2	10	8	12	7											100		
B3-4	20-Jul-97	5	F3/BG	10.0	2.2	22	Sin	30																								
B3-4	24-Aug-97	1	F3/BG	20.0	2.2	44	Sin	70	2.2	3	4	2	4	3																		
B3-4	24-Aug-97	2	DRY	80.0	2.0	160	Mul	60																								
B3-4	24-Aug-97	3	P3	10.0	0.5	5	Mul	60	0.5	5	20	10	20	12																		
B3-4	24-Aug-97	4	F3	15.0	1.5	23	Mul	60	1.5	6	8	5	8	6																		
B4-5	16-Jun-97	1	OU	7.0	6.0	42	Sin	10																								
B4-5	16-Jun-97	2	P3	8.0	1.8	14	Mul	20																								
B4-5	16-Jun-97	3	R3	85.0	2.0	170	Mul	10	1.4	12	20	13	25	15	15	21	18	25	18	45	30	10	10	5		10	60				100		
B4-5	16-Jun-97	4	P3	7.0	1.5	11	Mul	20	1.5	30	45	48	60	41	8	8	6	10	7	80	10	10					40					
B4-5	16-Jun-97	5	R3	140.0	1.8	252	Mul	10	1.7	6	12	10	14	9	35	28	30	40	31	100							100				100		
B4-5	15-Jul-97	1	R3	125.0	0.6	75	Sin	35	0.7	15	13	14	20	14	14	21	17	30	17											100		
B4-5	24-Aug-97	1	F3	120.0	0.6	72	Sin	30	0.6	7	12	5	13	8																		
B5-6	16-Jun-97	1	R3	15.0	1.5	23	Sin	60																								
B5-6	16-Jun-97	2	RF/BG	3.0	1.0	3	Dou	80																								
B5-6	16-Jun-97	3	P3	4.0	1.0	4	Sin	100	1.0	20	21	17	25	19	10	15	8	18	11			40	30	30	5	10	20			100		
B5-6	16-Jun-97	4	R3	12.0	0.7	8	Dou	80	0.8	4	12	8	15	8	15	20	18	20	18	10		20	30	40	10		40			100		
B5-6	16-Jun-97	5	CA	1.5	0.4	1	Mul	100																								
B5-6	16-Jun-97	6	P3	2.5	0.6	2	Mul	100																								
B5-6	16-Jun-97	7	CA	1.0	0.5	1	Mul	100																								
B5-6	16-Jun-97	8	P3	3.0	0.7	2	Mul	100																								
B5-6	16-Jun-97	9	CA	1.0	0.5	1	Mul	100																								
B5-6	16-Jun-97	10	P3	4.0	0.6	2	Mul	100																								
B5-6	16-Jun-97	11	RF/BG	12.0	0.7	8	Mul	100	0.6	5	15	10	18	10	30	40	40	45	37			30	20	50	5	30	10			90	10	
B5-6	16-Jun-97	12	RF	8.0	0.5	4	Mul	80	0.5	8	10	11	13	10	35	40	25	45	33			40	40	20		30	20			100		
B5-6	16-Jun-97	13	R3	4.0	0.6	2	Dou	60																								
B5-6	16-Jun-97	14	CA	0.5	0.5	0	Dou	100																								
B5-6	16-Jun-97	15	R3	5.0	0.6	3	Dou	100																								
B5-6	15-Jul-97	1	OU	6.0	2.5	15	Sin	20	2.5	10	15	20	21	15	2	4	1	4	2											100		
B5-6	15-Jul-97	2	R3	50.0	2.0	100	Dou	35	2.0	6	10	5	10	7	2	1	0	2	1											100		
B5-6	15-Jul-97	3	CA	50.0	0.7	35	Dou	50	0.7	5	10	7	10	7	10	19	12	19	14											100		
B6-7	17-Jun-97	1	R3	6.0	3.6	22	Sin	15																								
B6-7	17-Jun-97	2	R3	95.0	0.6	57	Sin	40	0.6	20	20	15	20	18	26	32	25	32	28		5	10	80	5	2	60	5	2		5	95		
B6-7	17-Jun-97	3	RF	30.0	1.4	42	Sin	15	1.3	15	20	20	20	18	36	32	37	37	35		5	10	75	10	2	70	5	2		5	95		
B6-7	18-Jul-97	1	OU	6.0	2.3	14	Sin	35																								
B6-7	18-Jul-97	2	R3/BG	3.0	1.5	5	Sin	40	1.5	5	8	7	10	7	3	6	2	6	4											100		
B6-7	18-Jul-97	3	R3	110.0	1.0	110	Dou	40	1.0	10	11	12	12	11	2	11	4	11	6											100		
B6-7	24-Aug-97	1	F3/BG	100.0	1.0	100	Sin	60	1.0	4	10	6	10	7																		
B6-7	24-Aug-97	2	DRY	30.0	1.0	30	Sin	70																								
B4-36	20-Jun-97	1	DIS	100.0	40.0	4000	Dis	0																								
B4-36	20-Jun-97	2	F3	40.0	25.0	1000	Mul	5	15.0	10	15	20	25	15	0	0	0	0	0	100							70				100		
B4-36	20-Jun-97	3	R3	8.0	0.8	6	Sin	40	0.8	2	5	3	5	3	5	7	8	10	7	80	10	10					20				90	10	
B4-36	20-Jun-97	4	DIS	45.0	30.0	1350	Dis	0	0.3	8	8	6	10	7	2	3	3	4	3	100							100				100		
B4-45	20-Jun-97	1	IN	18.0	4.0	72	Sin	20	3.5	35	30	40	50	35	1	3	2	5	2	75	5	5	10	5		5	5				100		
B4-45	20-Jun-97	2	R3	15.0	2.6	39	Sin	30	2.6	24	25	28	28	26	6	8	8	10	7	10	10	15	20	45	2	30	5				100		
B4-45	20-Jun-97	3	OU	25.0	10.0	250	Sin	80	10.0	50	55	45	56	50	0	0	0	0	0	30	10	20	20	20		10	10				100		

Appendix D2. Instream habitat characteristics of streams in the Meliadine Study Area, 1997.

Stream	Survey Date	Unit #	Habitat Type[a]	Length (m)	Width[b] (m)	Area (m^2)	Channel Type	Bank Type[a] (%)	Transect Width (m)	Water Depth (cm)					Water Velocity (cm/s)					Substrate[a] (%)					Instream Cover[a] (%)					Bank Cover[a] (%)			
										0.25w	0.5w	0.75w	Max	Mean	0.25w	0.5w	0.75w	Max	Mean	OM	Fi	Gr	Co	Bo	UC	BG	AV	OV	D/T	Sh	Gr	Ro	ES
B45-46	17-Jun-97	1	R3	15.0	2.2	33	Dou	20																								
B45-46	17-Jun-97	2	R3	30.0	2.4	72	Mul	30	2.4	20	25	15	30	20	16	27	24	28	22		5	10	65	20	2	70	5						
B45-46	17-Jun-97	3	RF	3.5	1.6	6	Sin	60	1.6	10	15	17	20	14	30	37	33	38	33			5	55	40	2	80					100		
B45-46	17-Jun-97	4	R3	6.5	1.8	12	Sin	60	1.4	15	25	18	27	19	32	30	28	34	30			10	60	30	5	80					100		
B45-46	17-Jun-97	5	RF/BG	45.0	1.3	59	Sin	60																								
B45-46	17-Jun-97	6	R3	10.0	5.2	52	Sin	40																								
B51-52	17-Jun-97	1	R3	25.0	1.0	25	Mul	20																								
B51-52	17-Jun-97	2	RF/BG	5.0	0.6	3	Sin	30	0.6	15	20	10	20	15	42	36	48	48	42		10		50	40		80	10				100		
B51-52	17-Jun-97	3	P1	65.0	2.1	137	Sin	60	2.1	1	1	1	2	1	9	4	6	9	6		15	50	35		40		10				100		
B52-53	22-Jun-97	1	R3	55.0	1.5	83	Mul	20																								
B52-53	22-Jun-97	2	RF/BG	15.0	1.5	23	Sin	50																								
B52-53	22-Jun-97	3	R3	10.0	1.2	12	Sin	50	1.2	10	10	12	15	11	4	8	7	10	6	10		20	30	40	5	20					90	10	
B52-53	22-Jun-97	4	RF/BG	13.0	3.0	39	Mul	20	2.7	8	8	9	10	8	15	20	18	20	18			20	30	50		30					50	50	
B52-53	22-Jun-97	5	R3/BG	8.0	13.0	104	Sin	0	10.0	3	2	4	5	3	0	1	2	2	1			5	15	80		100					20	80	
B68-69	22-Jun-97	1	OU	40.0	15.0	600	Sin	40	18.0	18	24	22	30	21	0	0	0	0	0	60		5	5	30		10	5				80	20	
B68-69	22-Jun-97	2	R3/BG	32.0	3.0	96	Mul	60	2.8	10	15	15	20	13	5	12	10	15	9	25		15	30	30		30							
B68-69	22-Jun-97	3	R3	100.0	0.6	60	Mul	50																								
B68-69	22-Jun-97	4	RF/BG	20.0	0.8	16	Mul	60																								
D0-1	18-Jun-97	1	R3	12.0	6.5	78	Dou	30																								
D0-1	18-Jun-97	2	R3	30.0	4.5	135	Mul	20	1.6	25	30	20	30	25	34	61	32	65	42		5	15	75	5	2	40	5			5	95		
D0-1	18-Jun-97	3	P3	25.0	26.0	650	Sin	10	26.0	35	38	36	40	36	7	10	5	10	7		10	20	55	15		40	3				100		
D0-1	18-Jun-97	4	R3/BG	12.0	5.0	60	Dou	10	5.2	20	22	27	27	23	24	26	20	28	23		5	20	65	10		50	15				100		
D0-1	18-Jun-97	5	R3/BG	10.0	7.0	70	Sin	10	7.0	15	20	16	20	17	30	28	25	28	28			10	70	20		80	5				100		
D0-1	24-Jul-97	1	OU	10.0	2.4	24	Sin	35																								
D0-1	24-Jul-97	2	R3/BG	30.0	1.2	36	Dou	55	1.2	5	8	6	8	6	15	20	12	20	16											5	95		
D0-1	24-Jul-97	3	R3	25.0	0.5	13	Sin	60	0.5	7	10	9	12	9	11	8	9	12	9											5	95		
D0-1	24-Jul-97	4	F3	30.0	20.0	600	Sin	40																								
D0-1	24-Jul-97	5	R3/BG	20.0	5.2	104	Sin	40																								
D0-1	25-Aug-97	1	F3/BG	44.0	1.2	53	Dou	70	1.0	2	3	5	5	3																		
D0-1	25-Aug-97	2	F3	15.0	0.4	6	Sin	60	0.4	5	8	6	8	6																		
D0-1	25-Aug-97	3	P3	30.0	30.0	900	Sin	25																								
D0-1	25-Aug-97	4	F3/BG	35.0	4.5	158	Sin	25																								
D1-2	18-Jun-97	1	R3	32.0	0.6	19	Sin	20	0.6	22	24	20	24	22	71	52	32	84	52		5	35	50	10	2	30	20			5	95		
D1-2	26-Jul-97	1	R3	30.0	1.0	30	Sin	60	0.7	6	11	9	12	9	11	17	12	17	13												100		
D1-2	25-Aug-97	1	F3/BG	35.0	0.6	21	Sin	40	0.6	3	5	2	5	3																		
D3-4	18-Jun-97	1	DIS	60.0	100.0	6000	Dis	0																								
D3-4	18-Jun-97	2	R3	100.0	2.0	200	Mul	10	1.7	5	12	15	20	11	15	20	20	25	18	100							90				100		
D3-4	18-Jun-97	3	R3	40.0	5.0	200	Mul	20																								
D4-5	22-Jun-97	1	R3	7.0	4.5	32	Sin	50	4.7	30	30	25	30	28	1	2	2	3	2	20	10	30	30	10		5		1		5	95		
D4-5	22-Jun-97	2	IN	22.0	12.0	264	Sin	10	12.0	20	35	25	35	27	0	0	0	1	0	30		20	30	20		5	5				100		
D5-6	18-Jun-97	1	R3	100.0	20.0	2000	Mul	10																								
D5-6	18-Jun-97	2	P2	3.0	1.0	3	Sin	80																								
D5-6	18-Jun-97	3	R3	95.0	7.0	665	Mul	0	1.0	70	80	80	85	77	2	4	5	8	4	20	10	60	10		30		10				100		
D5-6	18-Jun-97	4	RF	3.0	0.8	2	Mul	40	4.0	30	40	40	45	37	2	3	4	10	3	100							50				100		
D5-6	18-Jun-97	5	R3	45.0	25.0	1125	Mul	10	0.6	35	40	40	45	38	20	15	15		17	20		40	30	10	30	30	10				100		
D5-6	18-Jun-97	6	IN	22.0	15.0	330	Mul	20	6.0	15	25	10	30	17	5	6	3	8	5	20	10	5	5	60		80	10				90	10	
D5-6	17-Jul-97	1	OU	15.0	7.0	105	Sin	20																								
D5-6	17-Jul-97	2	R3	90.0	0.7	63	Sin	35	0.7	10	15	12	15	12	4	3	11	11	6											10	90		

Appendix D2. Instream habitat characteristics of streams in the Meliadine Study Area, 1997.

Stream	Survey Date	Unit #	Habitat Type[a]	Length (m)	Width[b] (m)	Area (m^2)	Channel Type	Bank Type[a] (%)	Transect Width (m)	Water Depth (cm)					Water Velocity (cm/s)					Substrate[a] (%)					Instream Cover[a] (%)					Bank Cover[a] (%)			
										0.25w	0.5w	0.75w	Max	Mean	0.25w	0.5w	0.75w	Max	Mean	OM	Fi	Gr	Co	Bo	UC	BG	AV	OV	D/T	Sh	Gr	Ro	ES
D6-7	18-Jun-97	1	OU	17.0	9.0	153	Sin	70																								
D6-7	18-Jun-97	2	R3	8.0	0.7	6	Sin	80																								
D6-7	18-Jun-97	3	R3	12.0	1.2	14	Dou	60																								
D6-7	18-Jun-97	4	RF	4.0	0.6	2	Sin	70	0.6	7	12	10	15	10	25	30	30	40	28			30	50	20		20					100		
D6-7	18-Jun-97	5	R3	5.0	0.7	4	Sin	80	0.8	15	20	20	25	18	18	15	10	25	14			40	50	10	5	20				10	90		
D6-7	17-Jul-97	1	R3	3.0	0.7	2	Sin	100	0.7	10	12	9	14	10	5	10	12	15	9		5	20	70	5	5	5				10	90		
D6-7	17-Jul-97	2	RF	2.0	0.4	1	Sin	100	0.5	7	5	4	10	5	40	50	45	60	45			30	60	10						15	85		
D6-7	17-Jul-97	3	R3/BG	8.0	0.5	4	Sin	100	0.5	10	12	15	18	12	15	25	10	30	17	5	5	20	30	40	10	10	5			15	85		
D6-7	17-Jul-97	4	R3	28.0	0.6	17	Sin	80	0.6	15	15	10	20	13	5	8	8	10	7	80			10	10	10		40			10	90		
D6-7	25-Aug-97	1	F3/BG	12.0	0.7	8	Sin	65	0.7	2	3	2	3	2																		
D6-7	25-Aug-97	2	F3	30.0	0.6	18	Sin	60	0.6	3	7	4	7	5																		
F0-1	21-Jun-97	1	R3	120.0	0.4	48	Mul	10	0.3	10	15	25	35	17	20	25	25	30	23	90		10			30		40				100		
F0-1	21-Jun-97	2	P1	8.0	1.5	12	Sin	80	1.8	30	40	86	140	52	2	3	2	4	2	90			10		10						100		
F0-1	21-Jun-97	3	R3	15.0	1.5	23	Sin	80																								
F0-1	21-Jun-97	4	P3	5.0	1.2	6	Sin	60	0.7	30	35	35	40	33	10	12	10	15	11	30	10	20	30	10	20	5					100		
F0-1	21-Jun-97	5	R3	20.0	0.6	12	Mul	20	0.6	8	10	12	16	10	30	30	25	40	28	10	10	20	40	20	20	10	10				95	5	
F5-6	21-Jun-97	1	R3	22.0	0.5	11	Sin	90	0.6	11	12	10	13	11	10	12	10	15	11	40	10	20	20	10	15	5	5				100		
F5-6	21-Jun-97	2	CA	1.0	0.2	0	Sin	100																								
F5-6	21-Jun-97	3	R3	55.0	0.2	11	Sin	90	0.2	5	7	7	10	6	25	30	30	40	28	60	10	15	15		30	5					100		
G0-1	18-Jun-97	1	RF	10.0	0.5	5	Sin	80																								
G0-1	18-Jun-97	2	R3	18.0	1.2	22	Sin	90																								
G0-1	18-Jun-97	3	R3	90.0	0.2	18	Sin	100																								
G0-1	18-Jun-97	4	CA	1.0	0.4	0	Sin	100																								
G0-1	18-Jun-97	5	P2	2.0	0.8	2	Sin	100																								
G0-1	18-Jun-97	6	R3	16.0	0.5	8	Sin	100																								
G0-1	18-Jun-97	7	RF	8.0	0.5	4	Sin	100	0.5	4	5	5	7	5	20	25	20	30	22	25	10	50	15			5					100		
G0-1	18-Jun-97	8	R3	34.0	0.4	14	Sin	100																								
G0-1	18-Jun-97	9	P2	2.0	0.8	2	Sin	100																								
G0-1	18-Jun-97	10	R3	6.0	0.3	2	Sin	100																								
G0-1	18-Jun-97	11	P3	4.0	0.6	2	Sin	100	0.6	40	45	50	55	45	1	3	2	5	2	70		20	10		30						100		
G0-1	18-Jun-97	12	R3	40.0	0.3	12	Sin	100																								
G0-1	18-Jun-97	13	P3	2.0	0.6	1	Sin	100	0.6	35	45	40	45	40	2	3	5	8	3	80	5	10	5		5						100		
G0-1	18-Jun-97	14	R3	4.0	0.4	2	Sin	100	0.4	3	5	8	10	5	28	30	20	35	26	90		5	5		10		10				60		40
G0-1	18-Jun-97	15	CA	2.0	0.2	0	Sin	100																								
G0-1	18-Jun-97	16	P3	1.0	0.6	1	Sin	80																								
G0-1	18-Jun-97	17	IN	6.0	1.0	6	Sin	80																								
G1-2	17-Jun-97	1	OU	35.0	6.5	228	Sin	50																								
G1-2	17-Jun-97	2	R3	60.0	0.5	30	Sin	50	0.5	5	10	10	12	8	10	12	9	10	10	100					5		25				100		
G1-2	17-Jun-97	3	RF	35.0	0.4	14	Sin	50	0.4	5	6	5	10	5	15	20	25	30	20	30	25	20	20	5		5	15				100		
G1-2	17-Jun-97	4	R3	110.0	0.4	44	Mul	15																								
ML-MR	21-Jun-97	1	RF/BG	35.0	70.0	2450	Sin	100																								
ML-MR	21-Jun-97	2	R3	80.0	60.0	4800	Sin	100	80.0	30	35	40	60	35	20	25	25	30	23			30	30	40		30				5	75	20	
ML-MR	21-Jun-97	3	P1	40.0	10.0	400	Sin	100	40.0	200	250	200	300	217	5	8	7	10	7		10	20	40	30		30			30				
ML-MR	21-Jun-97	4	RA	70.0	55.0	3850	Sin	100	65.0	20	25	30	40	25	80	70	85	120	78			10	30	60		40			10	5	80	15	
ML-MR	24-Aug-97	1	R3	20.0	15.0	300	Sin	40																								
ML-MR	24-Aug-97	2	R3/BG	80.0	80.0	6400	Sin	40	50.0	25	30	18	36	24																		

[a] see Appendix D1 for explanation of codes

[b] wetted channel width includes areas enclosed by braided channels

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Appendix D3. Summary of instream habitat characteristics of streams in the Meliadine Study Area, June 1997.

Stream	Survey Date	Total Length (m)	Total Area (m^2)	Mean Width (m)	Habitat Type (% of total length)													Channel Type (% of total length)				Substrate (% of total area)					Instream Cover (% of total area)					
					RF	RF/ BG	RA	CA	R2	R3	R3/ BG	P1	P2	P3	F3	IN	OU	DIS	Sin	Dou	Mul	Dis	OM	Fi	Gr	Co	Bo	UC	BG	AV	OV	D/T	Total
A0-1	15-Jun-97	192	2768	14.4	8	17				24			3		25	23			76	8	17		18		18	35	29	1	33	9			43
A1-2	19-Jun-97	83	220	2.7	24					70							5		78	22				5	10	78	8	3	25	30			58
A2-3	19-Jun-97	104	376	3.6						81				4			14		94	6				3	8	78	13		50	20			70
A3-4	19-Jun-97	37	109	3.0						68							32		100				20	8	10	55	8	1	23	43			66
A4-5	19-Jun-97	123	350	2.8	8	12				73							7		27	73				5	13	73	8		30	15			45
A5-6	15-Jun-97	336	2221	6.6		34				29	6				23		8		53		47		23	3	13	43	17	3	27	18			48
A6-7	19-Jun-97	181	1395	7.7		1				19	30						49			80	20			5	5	62	28	2	57	22			80
A7-8	16-Jun-97	145	3943	27.2		8				31							9	52	6	3	39	52			35	34	31	2	14	6	5		27
B0-1	22-Jun-97	120	1498	12.5	6	37				51							7		38	12	50		4	8	30	28	31	8	18	6			32
B1-2	16-Jun-97	177	536	3.0		3	10			69	13						6		37	63			2		24	60	14	3	23	5	1		31
B3-4	16-Jun-97	192	357	1.9					31	49	14			5					38		62			7	4	74	15	7	45	8	1		61
B4-5	16-Jun-97	247	489	2.0						91				6			3		3		97		75	13	7	3	2		3	67			70
B5-6	16-Jun-97	77	64	0.8	10	20		5		47				18					25	32	43		3		33	30	35	5	18	23			45
B6-7	17-Jun-97	131	121	0.9	23					77									100					5	10	78	8	2	65	5	2		74
B4-36	20-Jun-97	193	6356	32.9						4					21			75	4		21	75	93	3	3					63			63
B4-45	20-Jun-97	58	361	6.2						26						31	43		100				38	8	13	17	23	1	15	7			22
B45-46	17-Jun-97	110	233	2.1	3	41				56									59	14	27			2	8	60	30	3	77	2			81
B51-52	17-Jun-97	95	165	1.7		5				26		68							74		26			13	25	43	20	20	40	10			70
B52-53	22-Jun-97	101	260	2.6		28				64	8								33		67		3		15	25	57	2	50				52
B68-69	22-Jun-97	192	772	4.0		10				52	17						21		21		79		43		10	18	30		20	3			23
D0-1	18-Jun-97	89	993	11.2						47	25			28					39	27	34			5	16	66	13	1	53	7			60
D1-2	18-Jun-97	32	19	0.6						100									100					5	35	50	10	2	30	20			52
D3-4	18-Jun-97	200	6400	32.0						70								30			70	30	100							90			90
D4-5	22-Jun-97	29	296	10.2						24						76			100				25	5	25	30	15		5	3	1		8
D5-6	18-Jun-97	268	4125	15.4	1					90			1			8			1		99		40	5	26	11	18	15	28	20			63
D6-7	18-Jun-97	46	179	3.9	9					54							37		74	26					35	50	15	3	20				23
F0-1	21-Jun-97	168	101	0.6						92		5		3					17		83		55	5	13	20	8	20	4	13			36
F5-6	21-Jun-97	78	22	0.3				1		99									100				50	10	18	18	5	23	5	3			30
G0-1	18-Jun-97	246	100	0.4	7			1		85			2	3		2			100				66	4	21	9		11	1	3			15
G1-2	17-Jun-97	240	316	1.3	15					71							15		54		46		65	13	10	10	3	3	3	20			25
ML-MR	21-Jun-97	225	11500	51.1		16	31			36		18							100					3	20	33	43		33			13	47

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Appendix D4. Habitat characteristics of streams in the Meliadine Study Area, June 1998 and July 2004.

Stream	Survey Date	Reach No.[a]	Domin. Habitat Type[b]	Stream Size							Flooded Width (m)	Channel Type (% length)				Flooded Banks (%)	Habitat Type (% length)				Depth >0.5 m (% length)	Substrate (% area)					Instream Cover (% area)		
				Length (m)	Area (m²)	Channel Width (m)			Depth (m)			Sin	Dou	Mul	Dis		Riffle	Run	Pool	Flat		OM	Fi	Gr	Co	Bo	UC	BG	AV
						Mean	Min.	Max.	Mean	Max.																			
A0-1	14-Jun-98	#1	Outlet	6	24	4.0	3.5	4.2	0.5	0.6	25	-	-	-	-	-	-	-	-	-	-			10	70	20		5	5
		#2	Run	23	35	1.5	0.8	2.0	0.6	0.7	30	10		90		100		90	10		5		5	5	60	30		25	10
		#3	Pond	54	1350	25.0	12.0	30.0	0.9	1.2	35	100				30				100	75	10	10	10	60	10		5	5
		#4	Run	23	28	1.2	0.8	1.5	0.5	0.6	13	100				50		100			2		10	20	50	20		5	5
		#5	Riffle	32	26	0.8	0.6	1.0	0.4	0.6	15			100		80	80	10	10		2		5	5	30	60		15	10
		#6	Inlet	52	1040	20.0	10.0	25.0	0.9	1.0	20	-	-	-	-	-	-	-	-	-	-		5	10	35	50		10	
		Total		**132**	**1438**	**10.9**	**0.6**	**30.0**	**0.7**	**1.2**	**25**	**60**	**0**	**40**	**0**	**58**	**19**	**36**	**4**	**41**	**32**	**9**	**10**	**10**	**59**	**12**	**0**	**6**	**5**
A1-2	14-Jun-98	#1	Outlet	9	63	7.0	4.0	7.5	0.4	0.5	10	-	-	-	-	-	-	-	-	-	-	5	10	30	45	10		2	10
		#2	Riffle	78	94	1.2	0.8	1.7	0.5	0.6	15	80	20			25	90		10		1		5	35	40	20		15	10
		#3	Inlet	5	7	1.3	1.0	1.5	0.3	0.4	20	-	-	-	-	-	-	-	-	-	-		5	20	65	10		2	5
		Total		**78**	**94**	**1.2**	**0.8**	**1.7**	**0.5**	**0.6**	**15**	**80**	**20**			**25**	**90**		**10**		**1**		**5**	**35**	**40**	**20**		**15**	**10**
A2-3	14-Jun-98	#1	Outlet	7	32	4.5	3.0	6.0	0.4	0.5	8	-	-	-	-	-	-	-	-	-	-	5	10	30	45	10			10
		#2	Run	83	66	0.8	0.5	1.5	0.5	0.6	6	90	10			40		85	15		2	5	10	25	45	15		5	15
		#3	Inlet	3	4	1.3	1.0	1.5	0.5	0.6	10	-	-	-	-	-	-	-	-	-	-	5	5	15	70	5			15
		Total		**83**	**66**	**0.8**	**0.5**	**1.5**	**0.5**	**0.6**	**6**	**90**	**10**			**40**		**85**	**15**		**2**	**5**	**10**	**25**	**45**	**15**		**5**	**15**
A3-4	14-Jun-98	#1	Outlet	4	14	3.5	2.5	4.2	0.5	0.6	15	-	-	-	-	-	-	-	-	-	-	5	10	30	50	5			15
		#2	Run	26	18	0.7	0.5	1.0	0.5	0.6	15	100				50		95	5		1	10	15	20	50	5			15
		#3	Inlet	4	6	1.5	1.0	1.7	0.4	0.6	20	-	-	-	-	-	-	-	-	-	-	5	10	20	60	5			10
		Total		**26**	**18**	**0.7**	**0.5**	**1.0**	**0.5**	**0.6**	**15**	**100**				**50**		**95**	**5**		**1**	**10**	**15**	**20**	**50**	**5**			**15**
A4-5	14-Jun-98	#1	Outlet	5	13	2.5	2.0	3.5	0.4	0.5	10	-	-	-	-	-	-	-	-	-	-	5	5	15	60	15			5
		#2	Run	112	146	1.3	0.8	1.8	0.5	0.6	10	90	10			40	15	80	5		2	5	10	25	35	25		15	10
		#3	Inlet	7	21	3.0	2.5	3.5	0.3	0.4	20	-	-	-	-	-	-	-	-	-	-	5	5	30	40	20		5	5
		Total		**112**	**146**	**1.3**	**0.8**	**1.8**	**0.5**	**0.6**	**10**	**90**	**10**			**40**	**15**	**80**	**5**		**2**	**5**	**10**	**25**	**35**	**25**		**15**	**10**
A5-6	15-Jun-98	#1	Outlet	22	330	15.0	8.0	18.0	0.3	0.5	35	-	-	-	-	-	-	-	-	-	-	10	5	20	45	20		5	15
		#2	Run	48	72	1.5	0.9	2.0	0.5	0.6	12	90	10			70	40	60			1		10	15	30	45		10	5
		#3	Riffle	34	17	0.5	0.3	0.7	0.3	0.5	20			90	10	20	90	10				5	10	15	40	30			5
		#4	Run	64	45	0.7	0.5	1.0	0.5	0.6	40	70			30	100	5	95			1		5	20	55	20		5	10
		#5	Pond	39	390	10.0	6.0	15.0	0.5	0.7	25	100				50				100	5	40	20	10	25	5			25
		#6	Riffle	65	39	0.6	0.4	0.7	0.3	0.5	15			90	10	30	60	35	5			5	5	10	45	35		5	15
		#7	Pool	17	136	8.0	6.0	10.0	0.4	0.5	20	100				95			100		1	50	25	5	15	5			25
		#8	Run	139	139	1.0	0.6	1.5	0.5	0.7	25	40	50		10	80	10	80	10		3	10	20	10	45	15			15
		Total		**406**	**838**	**2.1**	**0.3**	**15.0**	**0.4**	**0.7**	**24**	**49**	**18**	**22**	**11**	**67**	**26**	**56**	**8**	**10**	**2**	**29**	**18**	**10**	**30**	**13**	**0**	**1**	**20**
A6-7	15-Jun-98	#1	Outlet	13	260	20.0	10.0	22.0	0.4	0.5	25	-	-	-	-	-	-	-	-	-	-	10	15	25	35	15			15
		#2	Riffle	95	86	0.9	0.6	1.5	0.4	0.6	35			100		30	55	40	5		1		5	20	30	45		35	5
		#3	Run	18	126	7.0	5.0	8.0	0.3	0.4	7	100				5		100						10	25	65		50	
		#4	Inlet	9	108	12.0	9.0	15.0	0.3	0.4	18	-	-	-	-	-	-	-	-	-	-	5		5	30	60		40	5
		Total		**113**	**212**	**1.9**	**0.6**	**8.0**	**0.4**	**0.6**	**31**	**16**	**0**	**84**	**0**	**26**	**46**	**50**	**4**	**0**	**1**	**0**	**2**	**14**	**27**	**57**	**0**	**44**	**2**
A7-8	15-Jun-98	#1	Outlet	14	168	12.0	6.0	18.0	0.5	0.7	35	-	-	-	-	-	-	-	-	-	-	50		5	15	30		5	25
		#2	Riffle	55	55	1.0	0.4	2.0	0.3	0.5	1			100		5	60	30	10					20	50	30	3	10	10
		#3	Run	82	90	1.1	0.5	1.8	0.4	0.7	50	50	20	30		50		70	30		5	5		5	20	70	5	40	15
		Total		**137**	**145**	**1.1**	**0.4**	**1.8**	**0.3**	**0.7**	**30**	**30**	**12**	**58**	**0**	**32**	**24**	**54**	**22**	**0**	**3**	**3**	**0**	**11**	**31**	**55**	**4**	**29**	**13**
B0-1	17-Jun-98	#1	Outlet	15	53	3.5	3.0	4.0	0.4	0.5	5	-	-	-	-	-	-	-	-	-	-	30	10	30	10	20			
		#2	Riffle	35	42	1.2	0.5	1.7	0.3	0.5	18			100		20	70	25	5					30	30	40	2	10	10
		#3	Run	22	33	1.5	0.8	2.0	0.4	0.6	10	80		20		80	10	70	20		10			30	50	20		5	30
		#4	Run	56	560	10.0	8.0	18.0	0.3	0.4	25	100				70		90	10				5	25	30	40		10	5
		#5	Inlet	23	345	15.0	14.0	18.0	0.4	0.5	20	-	-	-	-	-	-	-	-	-	-	5	10	25	40	20		5	
		Total		**113**	**635**	**5.6**	**0.5**	**18.0**	**0.3**	**0.6**	**20**	**65**	**0**	**35**	**0**	**56**	**24**	**66**	**10**	**0**	**2**	**0**	**4**	**26**	**31**	**39**	**0**	**10**	**7**

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Appendix D4. Habitat characteristics of streams in the Meliadine Study Area, June 1998 and July 2004.

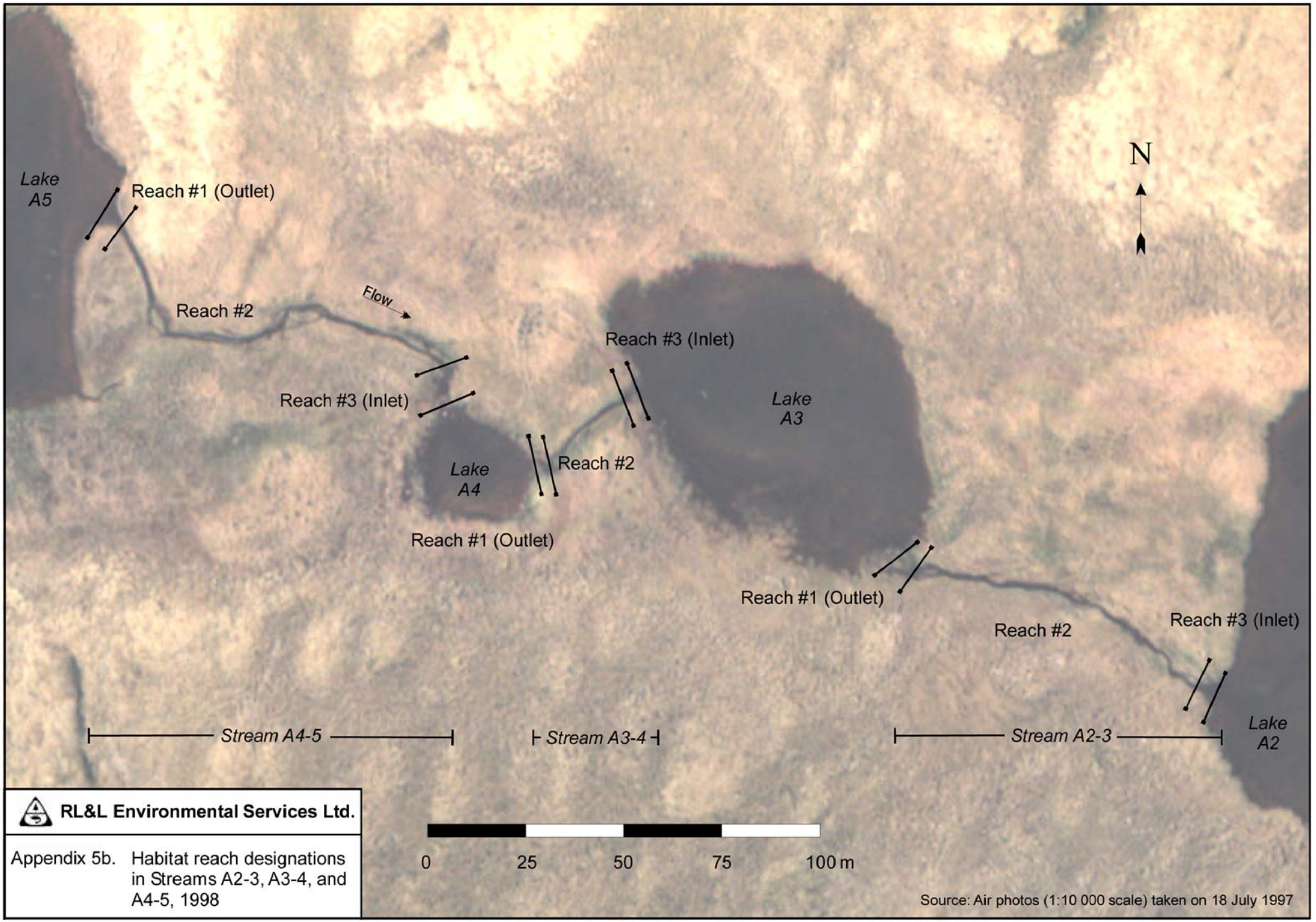
Stream	Survey Date	Reach No.[a]	Domin. Habitat Type[b]	Stream Size							Flooded Width (m)	Channel Type (% length)				Flooded Banks (%)	Habitat Type (% length)				Depth >0.5 m (% length)	Substrate (% area)					Instream Cover (% area)		
				Length (m)	Area (m²)	Channel Width (m)			Depth (m)			Sin	Dou	Mul	Dis		Riffle	Run	Pool	Flat		OM	Fi	Gr	Co	Bo	UC	BG	AV
						Mean	Min.	Max.	Mean	Max.																			
B1-2	13-Jun-98	#1	Outlet	8	48	6.0	3.0	7.0	0.5	0.6	12	-	-	-	-	-	-	-	-	-	-		5	20	45	30		10	5
		#2	Run	55	165	3.0	1.5	4.0	0.5	0.6	12	95	5			50		100					5	5	50	40		15	5
		#3	Run	35	53	1.5	0.7	1.8	0.6	0.7	10			100		50	20	80					5	5	40	50		15	5
		#4	Run	62	124	2.0	1.0	2.3	0.6	0.7	30	80	20			100		95	5				5	5	30	60		25	5
		#5	Inlet	9	14	1.5	1.0	2.5	0.8	0.9	13	-	-	-	-	-	-	-	-	-	-	90	5	5					5
		Total		**152**	**342**	**2.2**	**0.7**	**4.0**	**0.6**	**0.7**	**19**	**67**	**10**	**23**	**0**	**70**	**5**	**93**	**2**	**0**	**0**	**0**	**5**	**5**	**41**	**49**	**0**	**19**	**5**
B3-4	14-Jun-98	#1	Outlet	5	13	2.5	1.8	3.5	0.4	0.6	30	-	-	-	-	-	-	-	-	-	-			20	40	40	1	10	2
		#2	Run	23	44	1.9	1.7	2.5	0.3	0.5	25	100				100	30	65	5					10	30	60		15	1
		#3	Riffle	72	86	1.2	0.8	1.6	0.2	0.5	30		10	90		40	70	15	15					10	40	50	2	20	5
		#4	Run	63	50	0.8	0.2	1.8	0.3	1.0	35			100		100		60	40		30	70		5	5	20	5	5	60
		Total		**158**	**181**	**1.1**	**0.2**	**2.5**	**0.3**	**1.0**	**31**	**15**	**5**	**81**	**0**	**73**	**36**	**40**	**24**	**0**	**12**	**20**	**0**	**9**	**28**	**44**	**2**	**15**	**19**
B4-5	14-Jun-98	#1	Outlet	11	55	5.0	2.5	10.0	0.5	0.7	5	-	-	-	-	-	-	-	-	-	-	10		5	65	20	1	10	
		#2	Run	55	44	0.8	0.5	1.6	0.3	0.4	25	50	10	40		100		100				15	5	20	45	15	2	10	10
		#3	Run	91	91	1.0	0.6	1.5	0.2	0.3	10	70	5	25		100		100				100							20
		Total		**146**	**135**	**0.9**	**0.5**	**1.6**	**0.2**	**0.4**	**16**	**62**	**7**	**31**	**0**	**100**	**0**	**100**	**0**	**0**	**0**	**72**	**2**	**7**	**15**	**5**	**1**	**3**	**17**
B5-6	14-Jun-98	#1	Outlet	6	24	4.0	1.5	8.0	0.4	0.5	4	-	-	-	-	-	-	-	-	-	-	10		10	20	60		15	5
		#2	Run	32	54	1.7	0.5	2.5	0.3	0.5	7	80	20			30	10	85	5			10		10	50	30		10	5
		#3	Riffle	41	21	0.5	0.2	1.2	0.2	0.3	1		20	80		5	70	20	10					5	35	60	2	20	2
		#4	Riffle	25	18	0.7	0.3	1.2	0.2	0.3	1		100			5	55	35	10					10	40	50	3	25	5
		#5	Inlet	3	3	0.9	0.7	1.4	0.3	0.4	1	-	-	-	-	-	-	-	-	-	-	5		10	70	15		5	2
		Total		**98**	**92**	**0.9**	**0.2**	**2.5**	**0.2**	**0.5**	**3**	**26**	**40**	**33**	**0**	**13**	**47**	**45**	**8**	**0**	**0**	**6**	**0**	**9**	**45**	**40**	**1**	**15**	**4**
B6-7	13-Jun-98	#1	Outlet	3	5	1.5	1.3	2.2	0.3	0.4	2	-	-	-	-	-	-	-	-	-	-			20	50	30	1	3	
		#2	Run	85	60	0.7	0.5	1.5	0.3	0.5	25	95	2	3		30		97	3				2	18	60	20		10	5
		#3	Riffle	33	40	1.2	0.6	1.4	0.2	0.4	1	90	10			5	86	10	4					10	30	60		25	2
		Total		**118**	**99**	**0.8**	**0.5**	**1.5**	**0.3**	**0.5**	**18**	**94**	**4**	**2**	**0**	**23**	**24**	**73**	**3**	**0**	**0**	**0**	**1**	**15**	**48**	**36**	**0**	**16**	**4**
D0-1	15-Jun-98	#1	Riffle	50	70	1.4	1.0	2.0	0.3	0.5	25	50	30	20		100	60	30	10					30	30	40		20	
		#2	Pond	30	600	20.0	15.0	30.0	0.6	0.8	40	100				100				100		20	5	30	30	15		10	10
		#3	Riffle	20	120	6.0	5.0	8.0	0.3	0.4	30	100				100	70	10	20					20	30	50		30	
		#4	Inlet	10	200	20.0	15.0	20.0	0.4	0.6	20	-	-	-	-	-	-	-	-	-	-	5	5	20	30	40		20	
		Total		**100**	**790**	**7.9**	**1.0**	**30.0**	**0.4**	**0.8**	**31**	**75**	**15**	**10**	**0**	**100**	**44**	**17**	**9**	**30**	**0**	**15**	**4**	**28**	**30**	**23**	**0**	**14**	**8**
ML-PL	17-Jun-98	#1	Run	50	2500	50.0	45.0	60.0	0.5	0.7	50	100				0		70	30		10			10	20	70		25	
		#2	Riffle	60	1800	30.0	5.0	40.0	0.4	0.5	40			100		0	90		10		2			5	25	70		30	
		Total		**110**	**4300**	**39.1**	**5.0**	**60.0**	**0.4**	**0.7**	**45**	**45**	**0**	**55**	**0**	**0**	**49**	**32**	**19**	**0**	**6**	**0**	**0**	**8**	**22**	**70**	**0**	**27**	**0**
ML-MR	17-Jun-98	#1	Riffle	20	1400	70.0	65.0	75.0	0.3	0.6	70	100				0	80		20		5			10	30	60		30	
		#2	Run	60	4500	75.0	68.0	80.0	0.8	4.0	75	100				0		80	20		50			20	40	40		30	
		#3	Riffle	70	4900	70.0	60.0	75.0	0.3	0.6	70	100				0	100							20	30	50		40	
		Total		**150**	**10800**	**72.0**	**60.0**	**80.0**	**0.5**	**4.0**	**72**	**100**	**0**	**0**	**0**	**0**	**57**	**32**	**11**	**0**	**21**	**0**	**0**	**19**	**34**	**47**	**0**	**35**	**0**
J0-1	07-Jul-04	#1	Run	16	11	0.7	0.4	1.2	0.1	0.2	-	100				-		100			-	25	75						10
		#2	Run	88	176	2.0	1.0	6.0	0.1	0.2	-			40	60	-		60		40	-	98	2						80
		#3	Run	34	85	2.5	0.5	4.0	0.1	0.3	-		50	50		-	9	90	1		-	88	10	1	1				90
		#4	Run	44	18	0.4	0.2	4.0	0.1	0.8	-			100		-	9	90	1		-	75	20	3	2				90
		#5	Run	16	160	10.0	6.0	15.0	0.2	0.3	-			100		-	5	95			-	50	30	5	5	10		2	80
		Total		**198**	**450**	**2.3**	**0.2**	**15.0**	**0.1**	**0.8**	**-**	**8**	**9**	**57**	**27**	**-**	**4**	**78**	**0.4**	**18**	**-**	**81**	**16**	**1**	**1**	**1**	**0**	**0.2**	**78**

[a] see Appendices D5a to D5j for locations of reach breaks

[b] inlets and outlets are not included in the totals nor in the "weighted mean" percentages of channel and habitat types



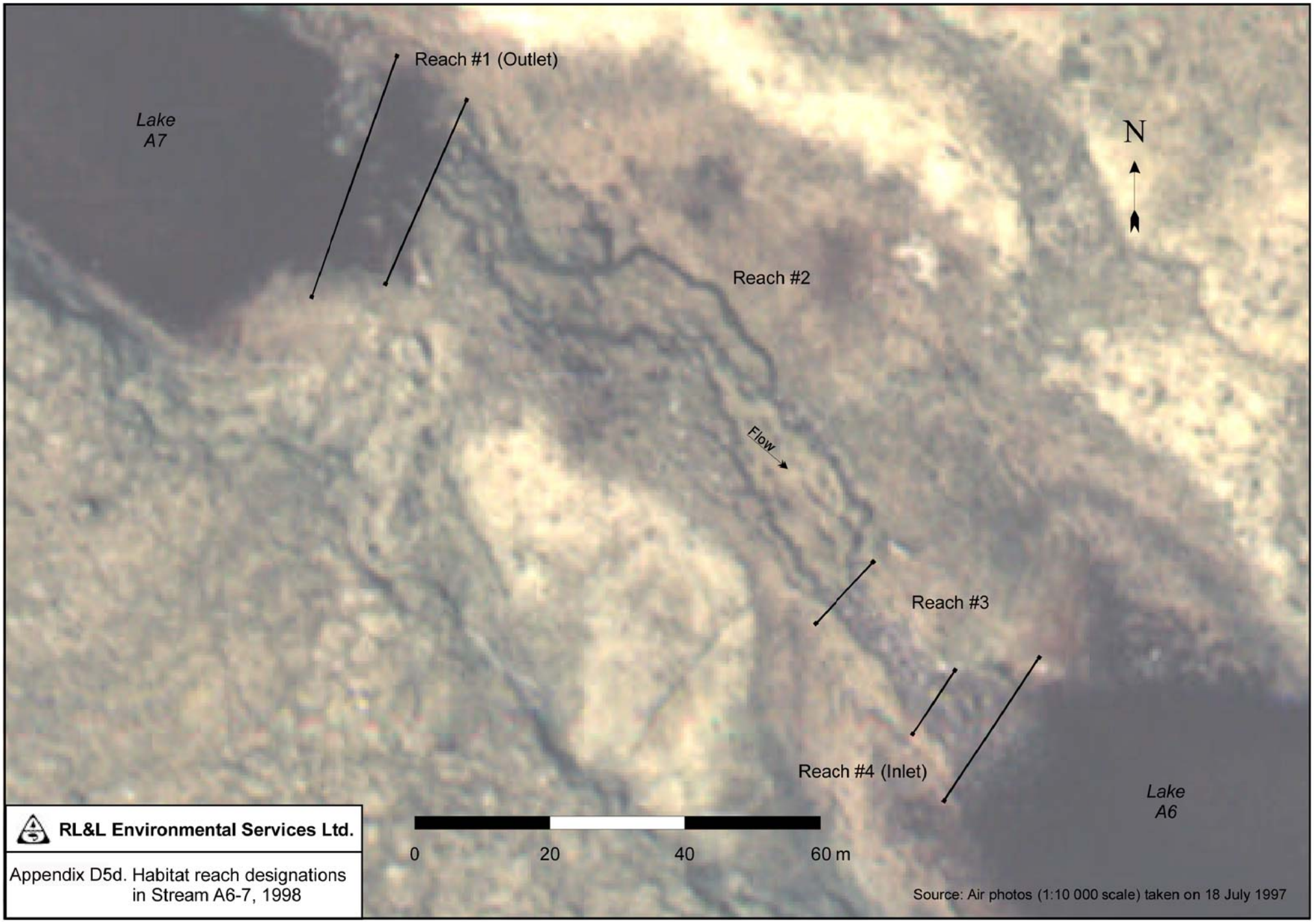
Appendix D5a. Habitat reach designations in Stream A0-1, 1998



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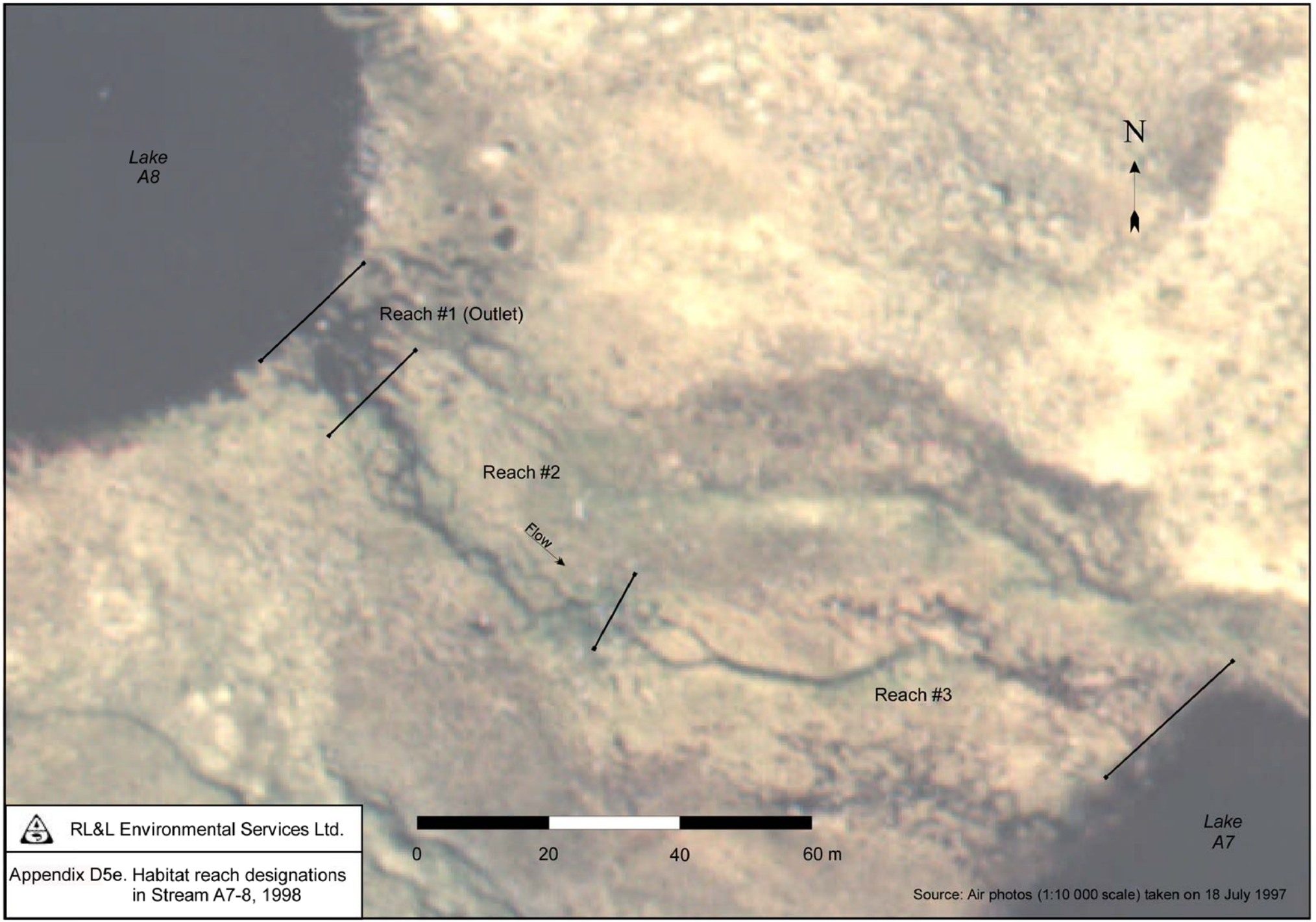
Appendix 5b. Habitat reach designations in Streams A2-3, A3-4, and A4-5, 1998


Source: Air photos (1:10 000 scale) taken on 18 July 1997
0
25
50
75
100 m
Lake A5
Reach #7
Reach #8
Flow
Reach #6
N
Reach #5
Lake A6
Reach #4
Reach #1 (Outlet)
Reach #3
Reach #2
RL&L Environmental Services Ltd.
Appendix D5c. Habitat reach designations in Stream A5-6, 1998



RL&L Environmental Services Ltd.

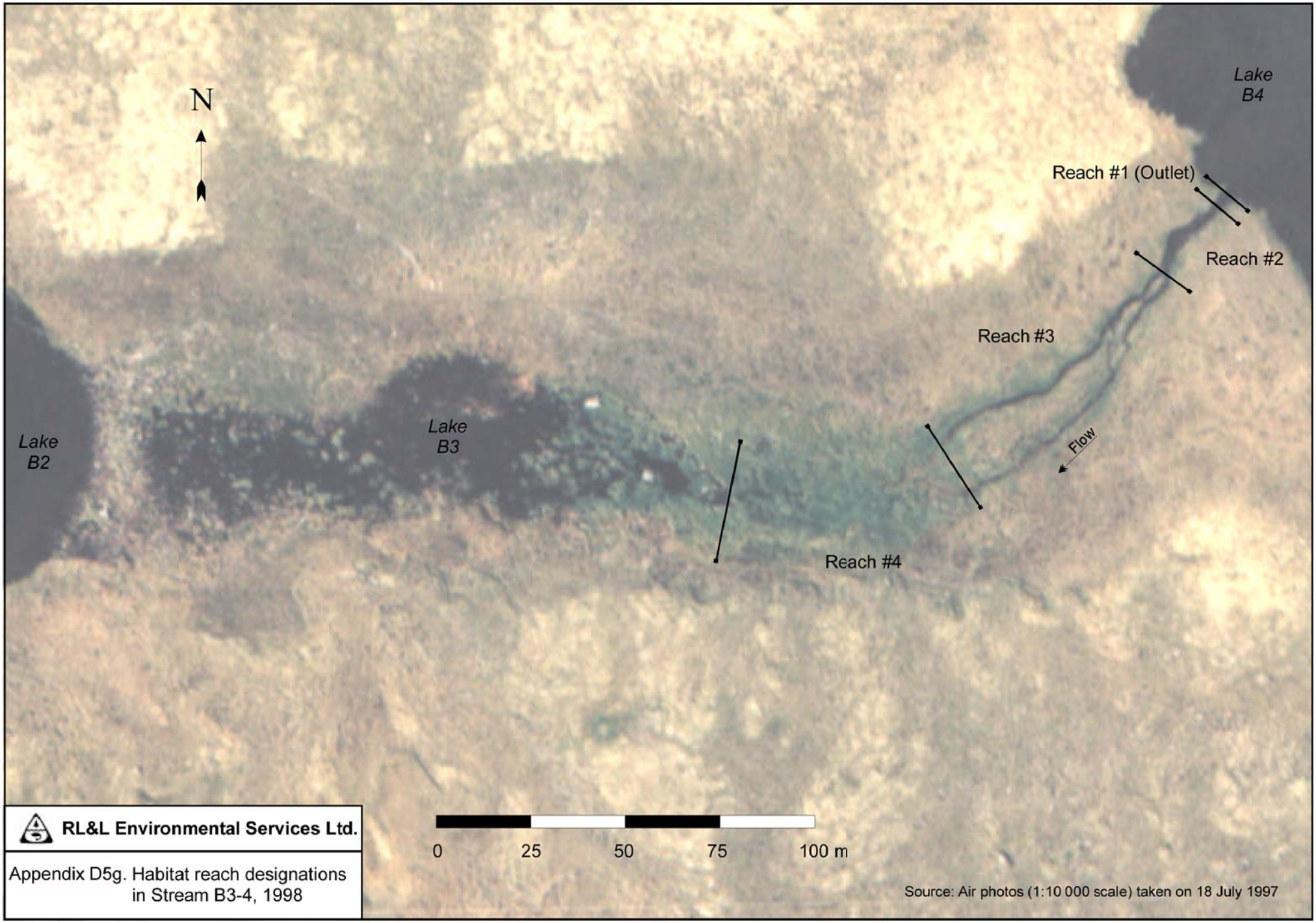
Appendix D5d. Habitat reach designations in Stream A6-7, 1998


Lake
A8
N
Reach #1 (Outlet)
Reach #2
Flow
Reach #3
Lake
A7
0
20
40
60 m
RL&L Environmental Services Ltd.
Appendix D5e. Habitat reach designations in Stream A7-8, 1998
Source: Air photos (1:10 000 scale) taken on 18 July 1997



RL&L Environmental Services Ltd.

Appendix D5f. Habitat reach designations in Streams B0-1 and B1-2, 1998



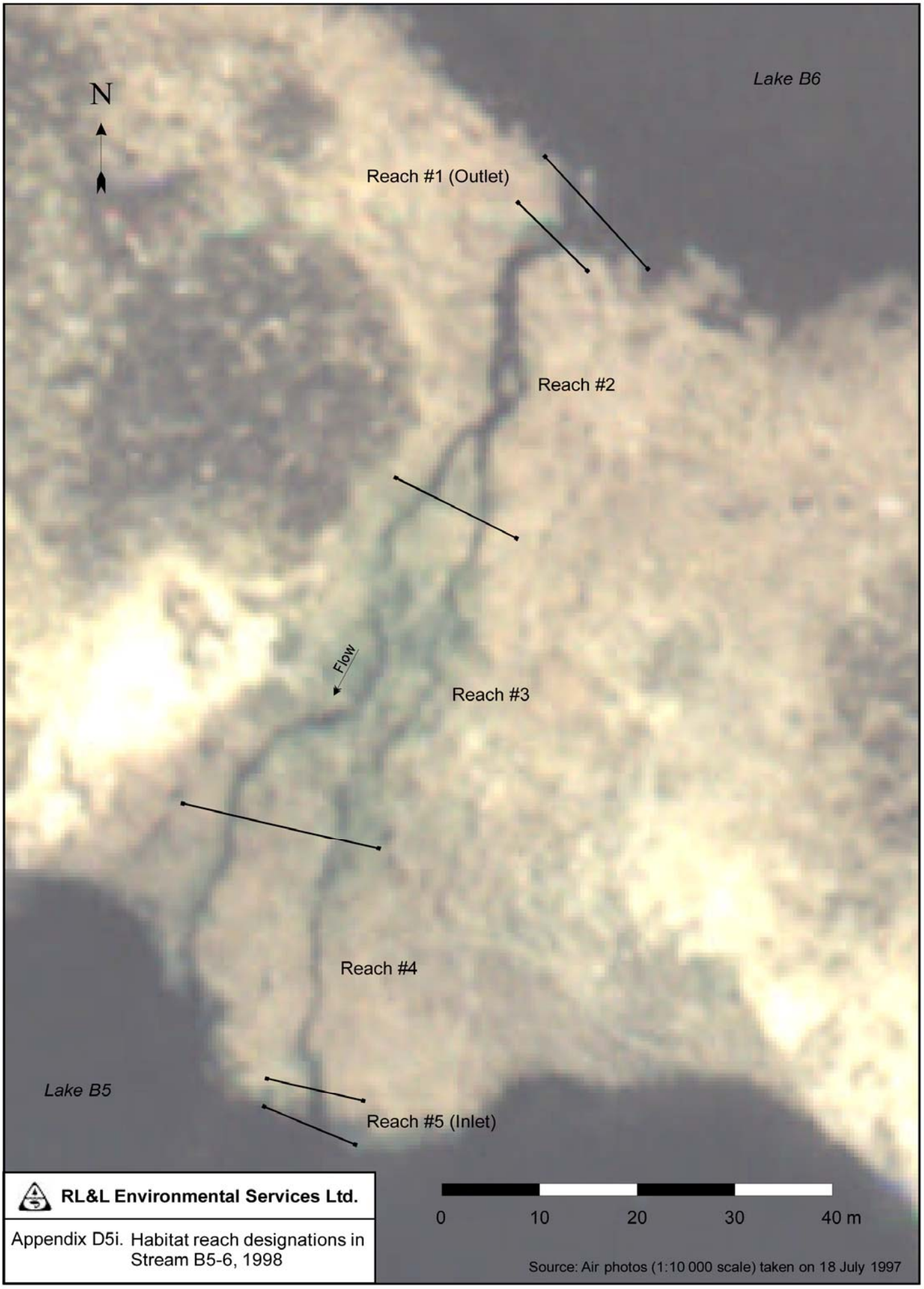
RL&L Environmental Services Ltd.

Appendix D5g. Habitat reach designations in Stream B3-4, 1998



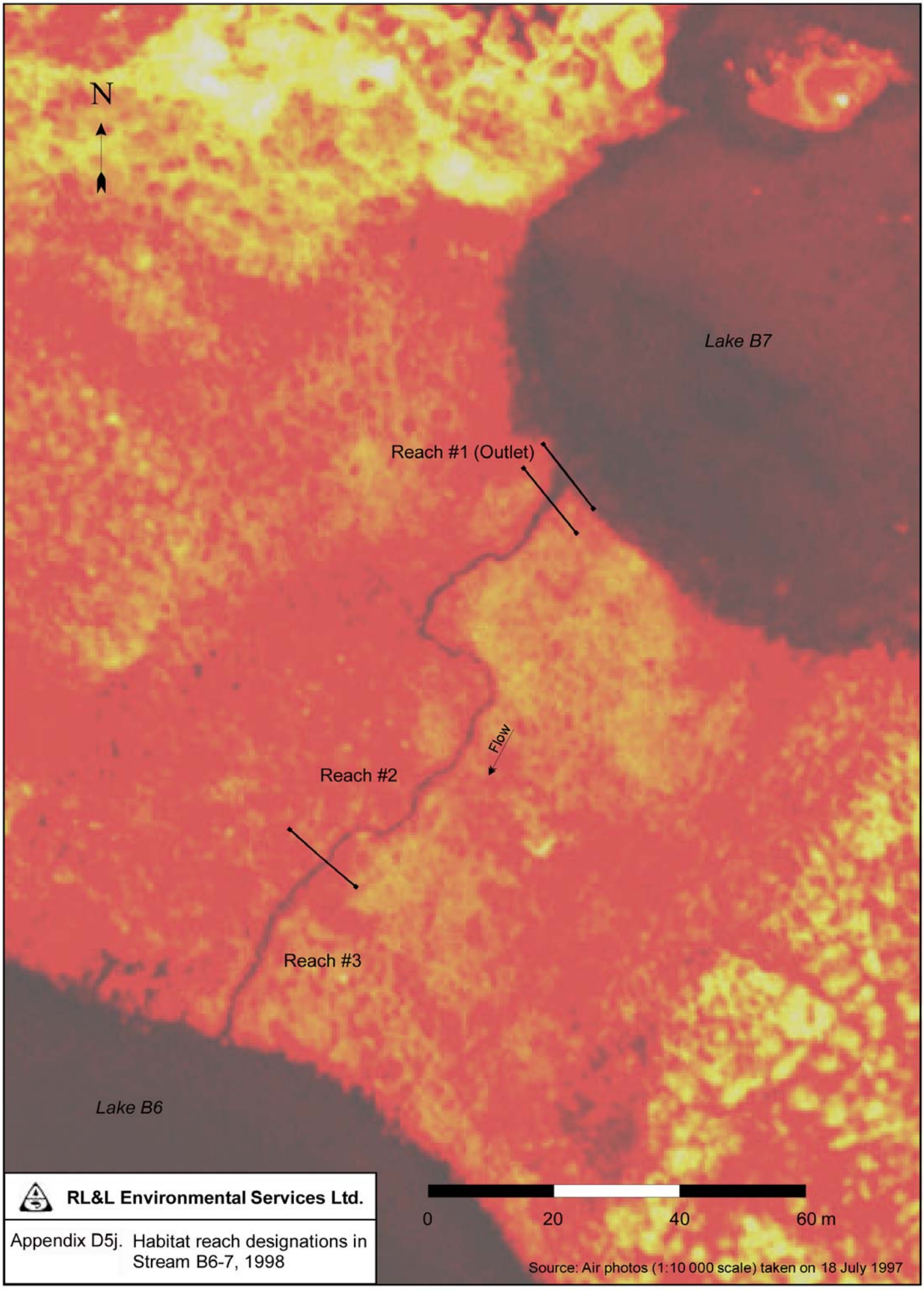
RL&L Environmental Services Ltd.

Appendix D5h. Habitat reach designations in Stream B4-5, 1998



RL&L Environmental Services Ltd.

Appendix D5i. Habitat reach designations in Stream B5-6, 1998



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Appendix D5j. Habitat reach designations in Stream B6-7, 1998

Appendix D6a. Aerial classification of streams in the Meliadine Study Area, 21 June 1997.

Stream ID	Class
A 0 - 1	4
A 2 - 2	5
A 2 - 18	0
A 2 - 3	5
A 3 - 4	4
A 4 - 5	4
A 5 - 6	4
A 5 - 19	1
A 5 - 50	1
A 6 - 7	4
A 6 - 30	1
A 6 - 31	1
A 6 - 44	2
A 7 - 8	4
A 8 - 9	1
A 8 - 35	1
A 8 - 37	1
A 8 - 40	1
A 9 - 10	2
A 10 - 11	1
A 11 - 12	1
A 12 - 13	1
A 13 - 14	0
A 14 - 15	1
A 15 - 16	0
A 16 - 17	0
A 19 - 20	0
A 19 - 22	2
A 22 - 23	0
A 22 - 24	1
A 24 - 25	1
A 25 - 26	1
A 26 - 27	2
A 27 - 28	1
A 28 - 29	0
A 31 - 32	0
A 35 - 36	0
A 37 - 38	1
A 38 - 39	1
A 40 - 41	2
A 41 - 42	2
A 42 - 43	0
A 44 - 45	3
A 45 - 46	3
A 45 - 49	0
A 46 - 47	0
A 47 - 48	0
A 50 - 51	1
A 51 - 52	1
A 51 - 53	0

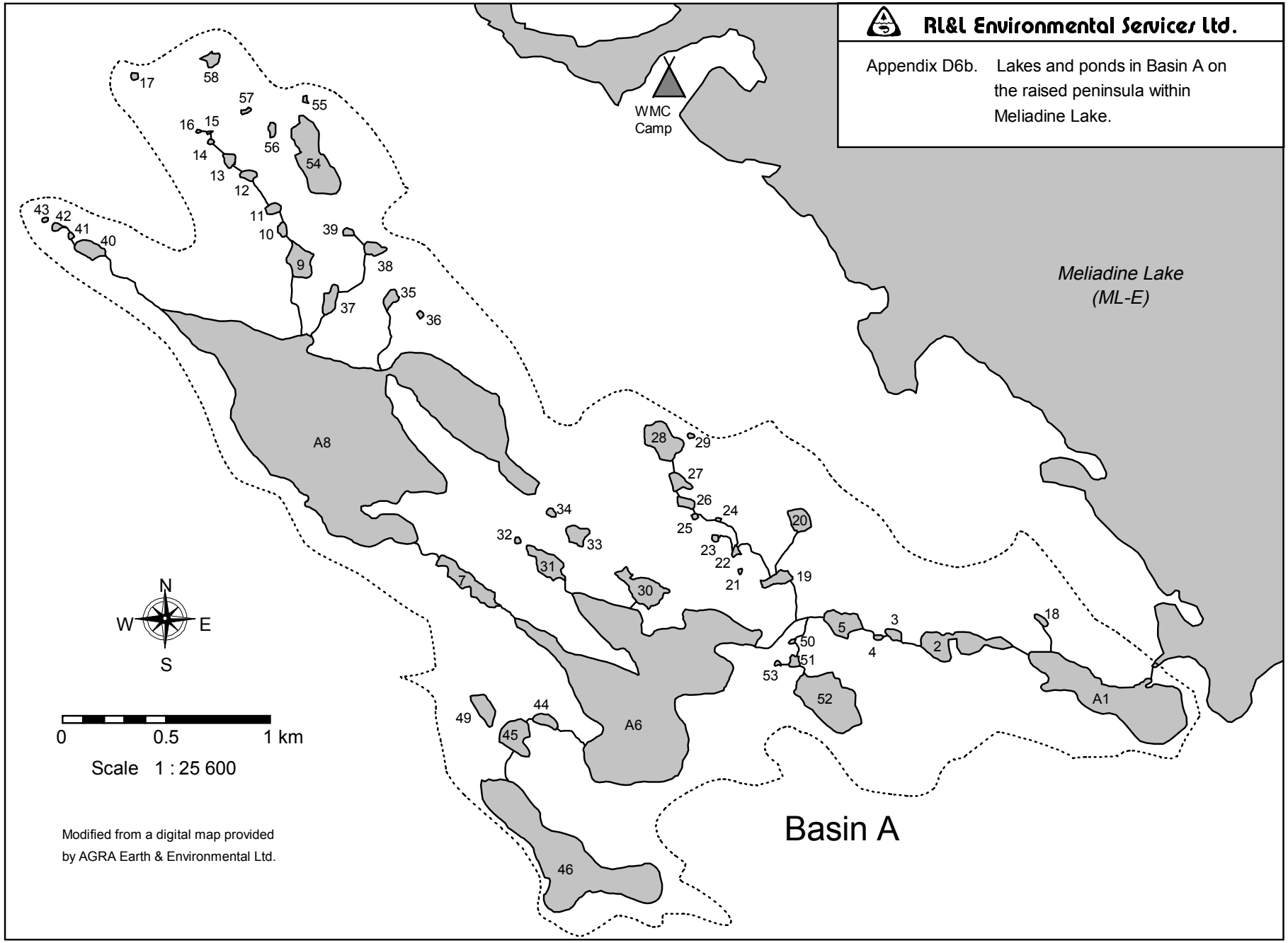
Stream ID	Class
B 0 - 1	5
B 1 - 2	4
B 1 - 40	2
B 2 - 3	4
B 2 - 11	2
B 2 - 14	2
B 3 - 4	4
B 4 - 5	3
B 4 - 19	3
B 4 - 22	2
B 4 - 35	1
B 4 - 36	2
B 4 - 39	2
B 4 - 45	4
B 5 - 6	4
B 5 - 30	2
B 5 - 31	3
B 5 - 32	1
B 5 - 33	1
B 5 - 34	2
B 6 - 7	5
B 6 - 24	1
B 7 - 8	2
B 7 - 25	1
B 7 - 27	1
B 7 - 28	0
B 8 - 9	2
B 9 - 10	0
B 10 - 29	0
B 11 - 12	2
B 12 - 13	3
B 14 - 15	3
B 15 - 16	2
B 16 - 17	2
B 17 - 18	0
B 19 - 20	1
B 19 - 21	2
B 22 - 23	1
B 25 - 26	1
B 30 - 31	3
B 31 - 32	1
B 36 - 37	1
B 37 - 38	1
B 40 - 41	1
B 41 - 42	0

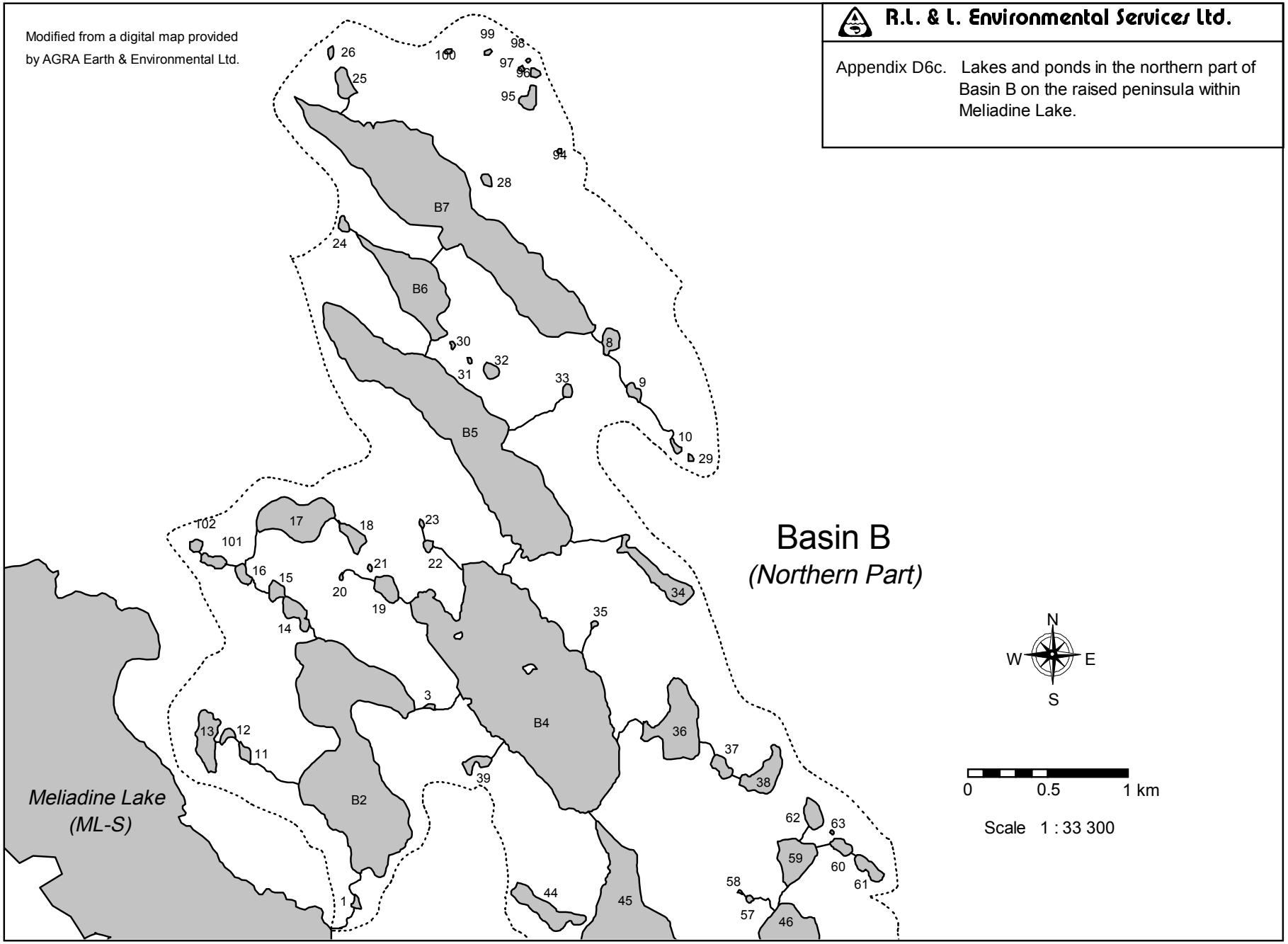
Stream ID	Class
B 44 - 45	3
B 45 - 46	4
B 46 - 47	1
B 46 - 52	3
B 46 - 57	1
B 46 - 59	3
B 46 - 64	1
B 46 - 65	2
B 47 - 48	2
B 48 - 49	5
B 48 - 93	1
B 49 - 50	4
B 49 - 86	3
B 50 - 51	4
B 51 - 52	6
B 52 - 53	4
B 52 - 74	0
B 52 - 75	1
B 52 - 78	2
B 53 - 54	2
B 54 - 55	3
B 55 - 56	1
B 56 - 83	1
B 57 - 58	1
B 59 - 60	1
B 59 - 62	1
B 60 - 61	3
B 60 - 63	0
B 65 - 66	2
B 66 - 67	3
B 67 - 68	3
B 68 - 69	3
B 69 - 70	1
B 69 - 71	0
B 69 - 72	0
B 69 - 73	1
B 69 - 76	1
B 76 - 77	2
B 78 - 79	1
B 79 - 80	0
B 86 - 87	3
B 86 - 92	0
B 87 - 88	3
B 89 - 90	0
B 90 - 91	0

Stream ID	Class
D 0 - 1	4
D 1 - 2	5
D 1 - 12	2
D 2 - 3	2
D 2 - 17	1
D 2 - 35	2
D 3 - 4	2
D 3 - 36	2
D 4 - 5	3
D 4 - 21	2
D 4 - 31	1
D 4 - 33	1
D 5 - 6	3
D 5 - 22	1
D 6 - 7	4
D 7 - 8	2
D 7 - 28	2
D 7 - 30	1
D 8 - 9	1
D 12 - 13	1
D 12 - 14	1
D 14 - 15	1
D 14 - 16	1
D 22 - 23	2
D 23 - 24	2
D 24 - 25	1
D 28 - 29	0
D 35 - 36	2
D 36 - 37	1

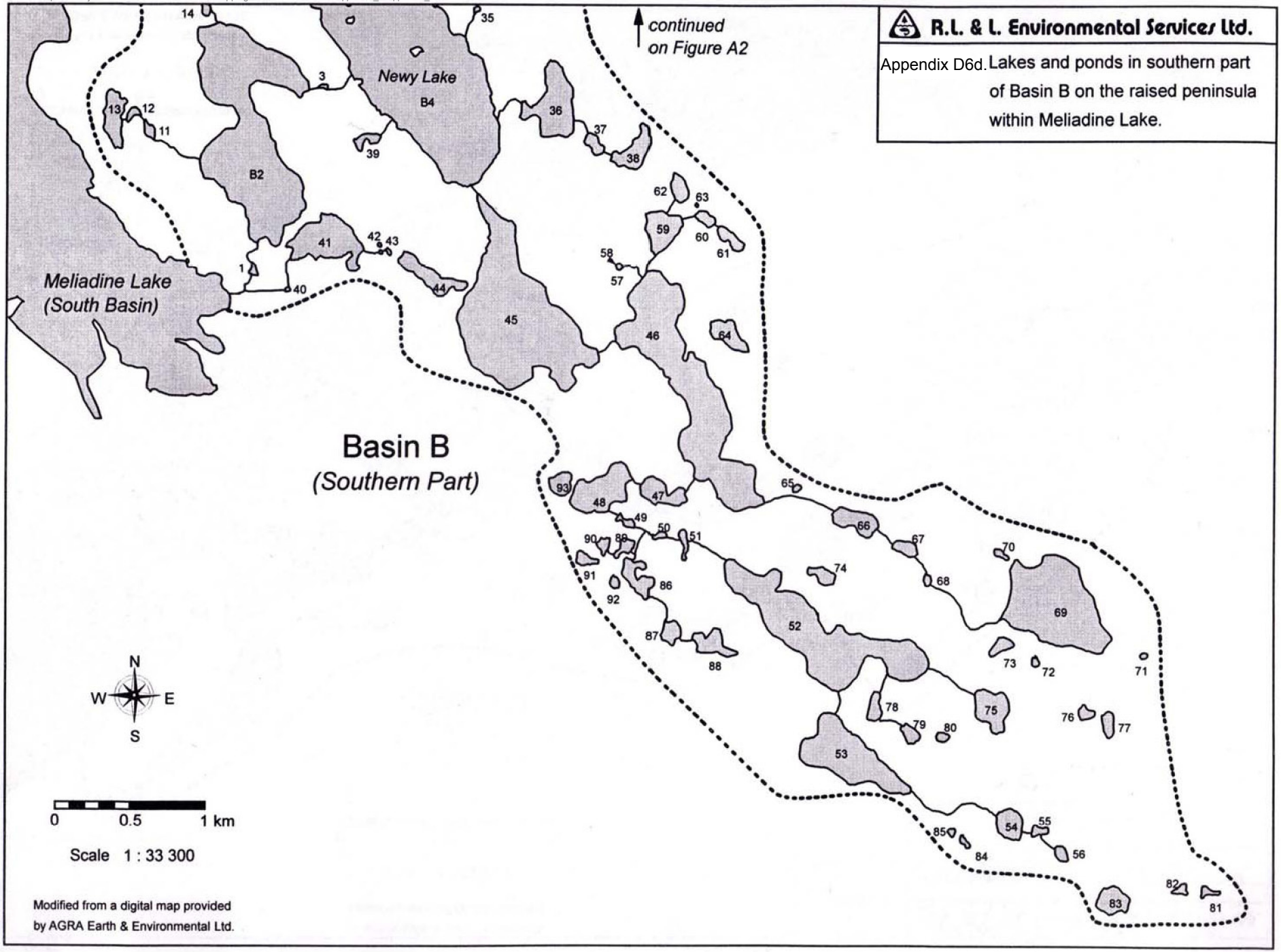
Class 0	dry or discontinuous watercourse
Class 1	dispersed flow through grass; undefined stream channel
Class 2	stream channel barely discernible; most flow dispersed over grass; substrate entirely organic
Class 3	well defined stream channels; substrate mostly organic; gravel and cobble areas present but infrequent
Class 4	most of stream channel composed of coarse (gravel/cobble/boulder) substrate
Class 5	stream channel entirely composed of coarse substrate; limited holding areas (deeper pools)
Class 6	stream channel entirely composed of coarse substrate; holding areas present

See Appendices D6b to D6e for stream locations

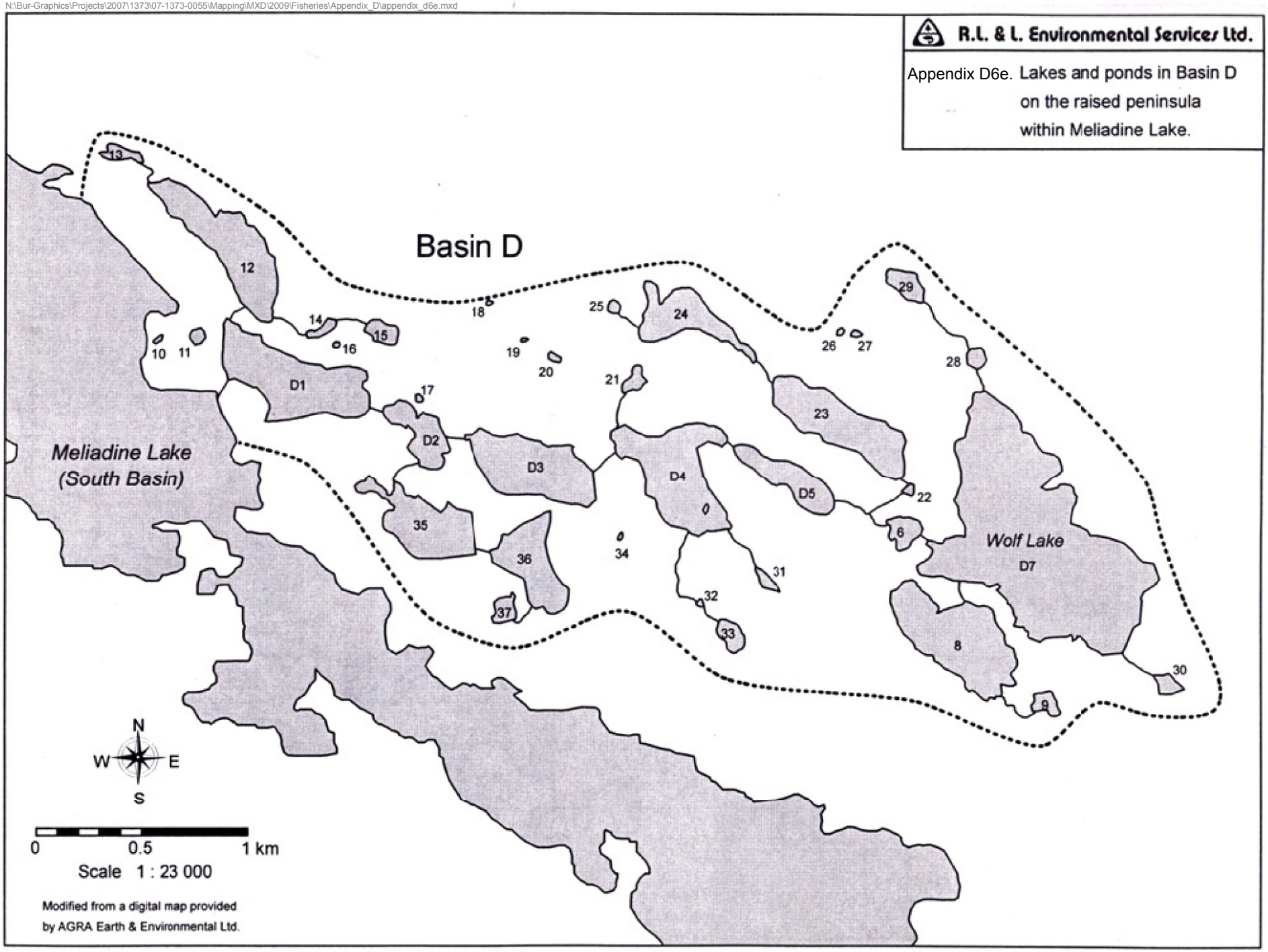

RL&L Environmental Services Ltd.
Appendix D6b. Lakes and ponds in Basin A on the raised peninsula within Meliadine Lake.
WMC Camp
Meliadine Lake (ML-E)
A8
A6
A1
Basin A
N
W
E
S
0
0.5
1 km
Scale 1 : 25 600
Modified from a digital map provided by AGRA Earth & Environmental Ltd.


Modified from a digital map provided by AGRA Earth & Environmental Ltd.
R.L. & L. Environmental Services Ltd.
Appendix D6c. Lakes and ponds in the northern part of Basin B on the raised peninsula within Meliadine Lake.
Basin B
(Northern Part)
Meliadine Lake
(ML-S)
B2
B4
B5
B6
B7
N
W
E
S
0
0.5
1 km
Scale 1 : 33 300

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Appendix D7a. Vertical distribution of lake area and volume in surveyed waterbodies of the Meliadine Study Area, 1998-2009.

Lake/Pond	Area (ha) of Water Deeper than															
	0 m	0.5 m	1 m	1.5 m	2 m	2.5 m	3 m	3.5 m	4 m	4.5 m	5 m	5.5 m	6 m	6.5 m	7 m	7.5 m	8 m
Lake A6	54.61	44.13	36.30	25.15	18.14	11.66	4.92	1.61	0.25								
Lake A8	89.68	75.67	69.10	44.83	27.04	16.24	5.59	1.37	0.15								
Pond A54	6.15	3.24	1.45														
Lake B2	48.93	41.56	35.29	27.22	18.38	9.13	0.79										
Lake B4	86.24	61.52	36.90	11.67	2.85												
Lake B5	55.89	48.68	42.16	31.75	17.32	7.33	0.79										
Lake B6	11.85	9.10	7.31	4.25	3.19	2.31	1.29	0.40									
Lake B7	58.11	46.22	36.19	22.91	15.34	10.89	6.86	3.91	1.37	0.10							
Pond B9	0.63	0.48	0.23														
Pond B10	0.40	0.12															
Lake D1	17.80	14.17	10.95	6.87	3.45	0.03											
Lake D7	72.46	65.47	59.42	45.37	28.43	2.81											
Lake J1	17.50	15.84	14.29	12.29	4.21												
Chickenhead	134.96		86.64		48.38		21.82		9.57		4.87		2.25		0.85		0.23

Lake/Pond	Percentage (%) of Total Lake Area Deeper than															
	0 m	0.5 m	1 m	1.5 m	2 m	2.5 m	3 m	3.5 m	4 m	4.5 m	5 m	5.5 m	6 m	6.5 m	7 m	7.5 m	8 m
Lake A6	100.00	80.81	66.47	46.05	33.22	21.35	9.01	2.95	0.46								
Lake A8	100.00	84.38	77.05	49.98	30.15	18.10	6.23	1.53	0.16								
Pond A54	100.00	52.71	23.48														
Lake B2	100.00	84.94	72.13	55.64	37.56	18.65	1.61										
Lake B4	100.00	71.33	42.78	13.53	3.31												
Lake B5	100.00	87.10	75.43	56.80	30.98	13.11	1.42										
Lake B6	100.00	76.80	61.68	35.84	26.94	19.49	10.88	3.36									
Lake B7	100.00	79.54	62.27	39.42	26.40	18.74	11.81	6.72	2.36	0.17							
Pond B9	100.00	76.91	37.43														
Pond B10	100.00	29.71															
Lake D1	100.00	79.61	61.52	38.60	19.38	0.15											
Lake D7	100.00	90.35	82.00	62.61	39.24	3.88											
Lake J1	100.00	90.51	81.66	70.23	24.06												
Chickenhead	100.00		64.20		35.85		16.17		7.09		3.61		1.67		0.63		0.17

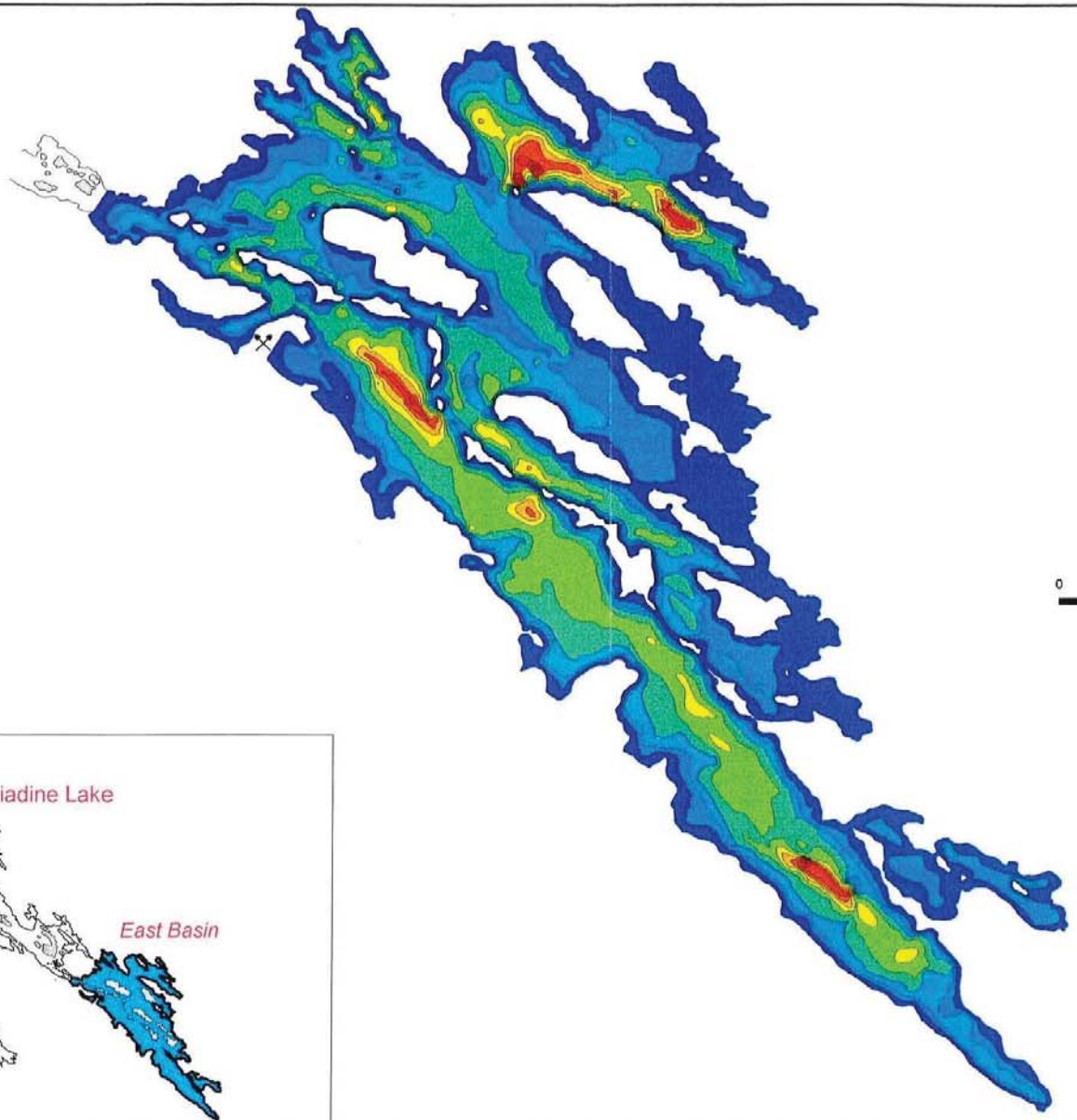
Lake/Pond	Volume ($m^3 \times 10^3$) of Water Deeper than															
	0 m	0.5 m	1 m	1.5 m	2 m	2.5 m	3 m	3.5 m	4 m	4.5 m	5 m	5.5 m	6 m	6.5 m	7 m	7.5 m	8 m
Lake A6	839.26	598.86	396.68	245.27	137.98	62.52	20.39	3.82	0.53								
Lake A8	1419.32	1016.58	654.48	352.79	177.88	71.82	17.08	2.81	0.07								
Pond A54	35.46	13.39	1.68														
Lake B2	777.11	554.51	361.99	204.78	89.60	22.22	0.61										
Lake B4	753.51	388.63	145.14	34.15	2.41												
Lake B5	872.75	614.79	386.95	200.04	73.19	19.50	0.93										
Lake B6	165.40	115.28	74.19	45.75	27.46	13.58	4.57	0.38									
Lake B7	852.51	597.92	390.88	241.86	148.61	85.75	41.59	14.97	2.53	0.03	0.002						
Pond B9	4.95	2.17	0.31														
Pond B10	1.27	0.07															
Lake D1	217.57	139.31	76.10	31.75	6.49	0.002											
Lake D7	1183.39	841.10	528.03	261.02	71.92	2.00											
Lake J1	277.51	193.80	118.50	51.46	2.63												
Chickenhead	2324.04		1269.16		576.46		259.26		122.64		54.58		20.13		5.32		0.43

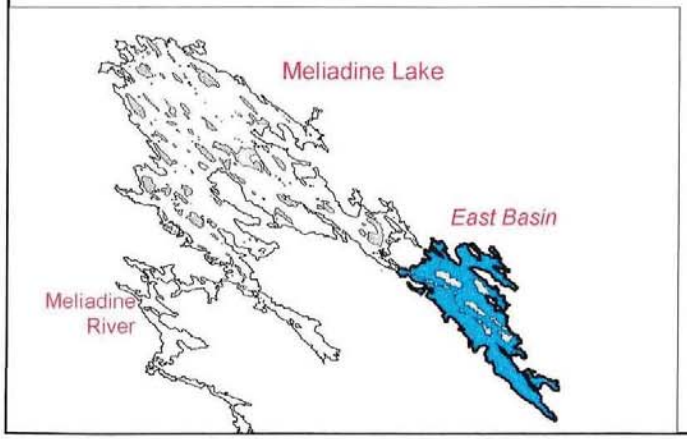
Lake/Pond	Percentage (%) of Total Lake Volume Deeper than															
	0 m	0.5 m	1 m	1.5 m	2 m	2.5 m	3 m	3.5 m	4 m	4.5 m	5 m	5.5 m	6 m	6.5 m	7 m	7.5 m	8 m
Lake A6	100.00	71.36	47.27	29.22	16.44	7.45	2.43	0.46	0.06								
Lake A8	100.00	71.62	46.11	24.86	12.53	5.06	1.20	0.20	0.005								
Pond A54	100.00	37.75	4.73														
Lake B2	100.00	71.36	46.58	26.35	11.53	2.86	0.08										
Lake B4	100.00	51.58	19.26	4.53	0.32												
Lake B5	100.00	70.44	44.34	22.92	8.39	2.23	0.11										
Lake B6	100.00	69.70	44.85	27.66	16.60	8.21	2.76	0.23									
Lake B7	100.00	70.14	45.85	28.37	17.43	10.06	4.88	1.76	0.30	0.004	0.0002						
Pond B9	100.00	43.90	6.18														
Pond B10	100.00	5.44															
Lake D1	100.00	64.03	34.98	14.59	2.98	0.001											
Lake D7	100.00	71.08	44.62	22.06	6.08	0.17											
Lake J1	100.00	69.84	42.70	18.54	0.95												
Chickenhead	100.00		54.61		24.80		11.16		5.28		2.35		0.87		0.23		0.02

Golder Associates

R.I. & L. Environmental Services Ltd.

Appendix D7b. Bathymetric map of the east basin of Meliadine Lake, 1997.





N
W E
S

Scale 1 : 40 000

0 0.5 1.0 1.5 2.0

Kilometres

LEGEND

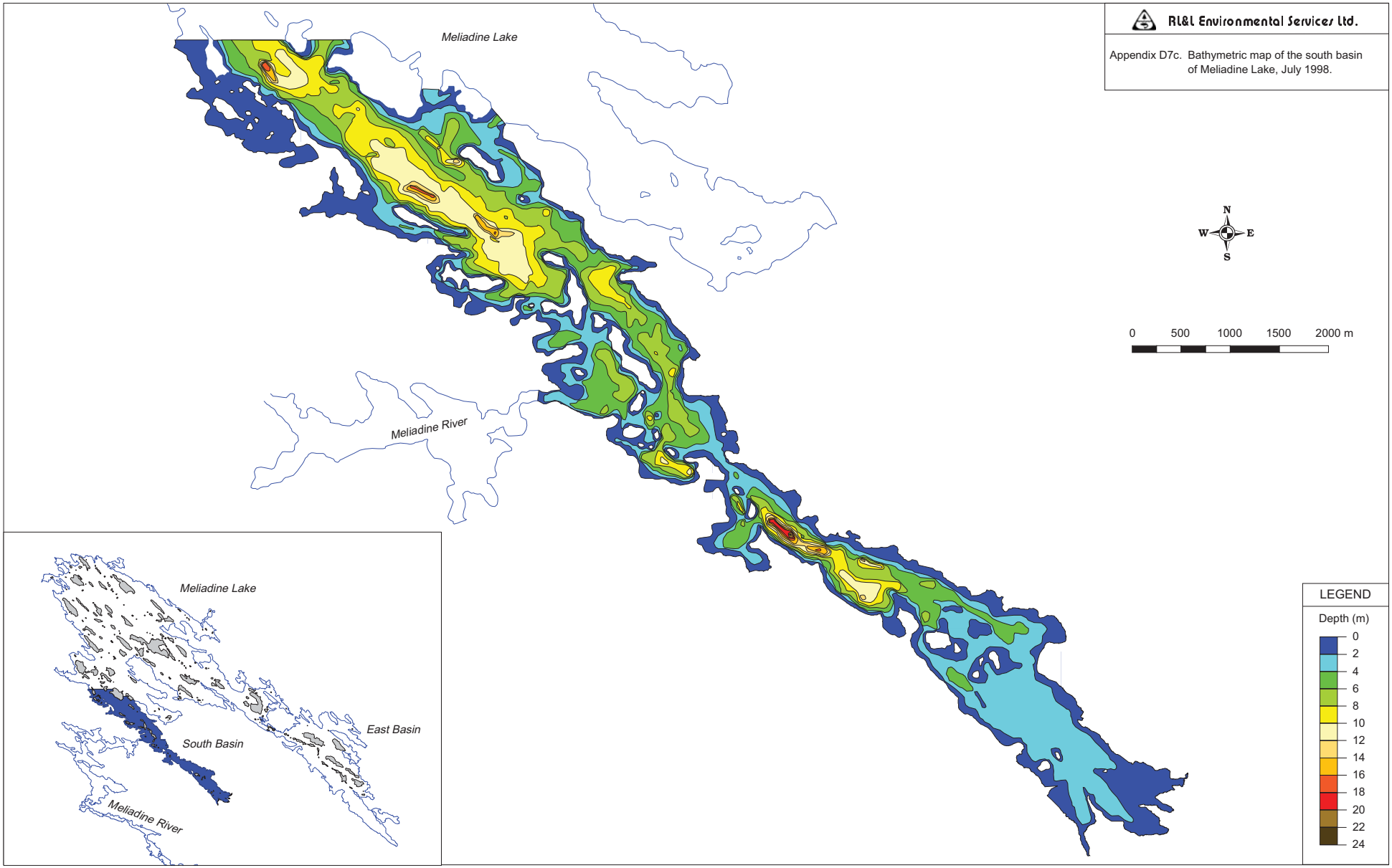
Depth (m)

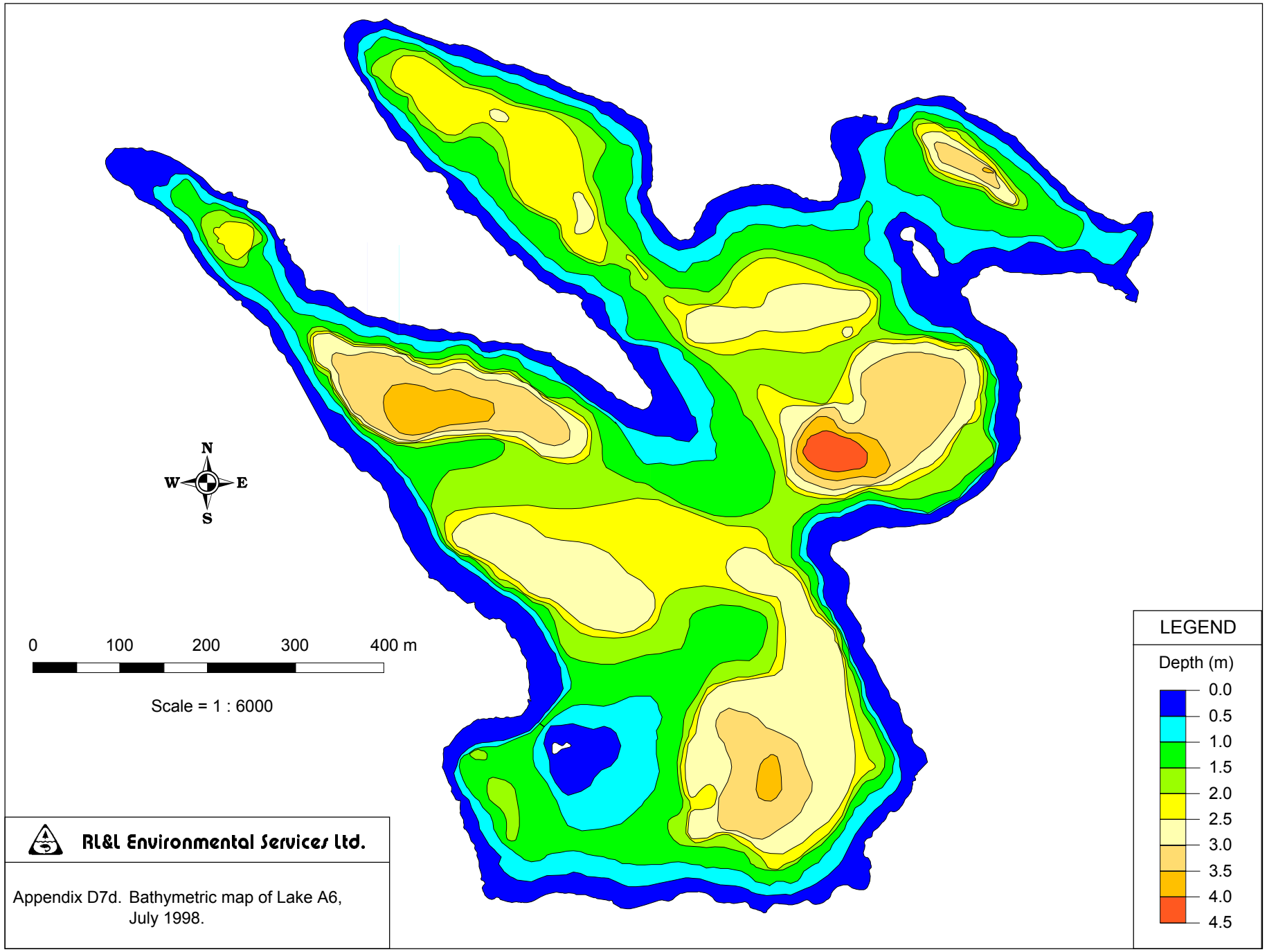
0
2
4
6
8
10
12
14
16
18
20
22

WMC Camp

RL&L Environmental Services Ltd.

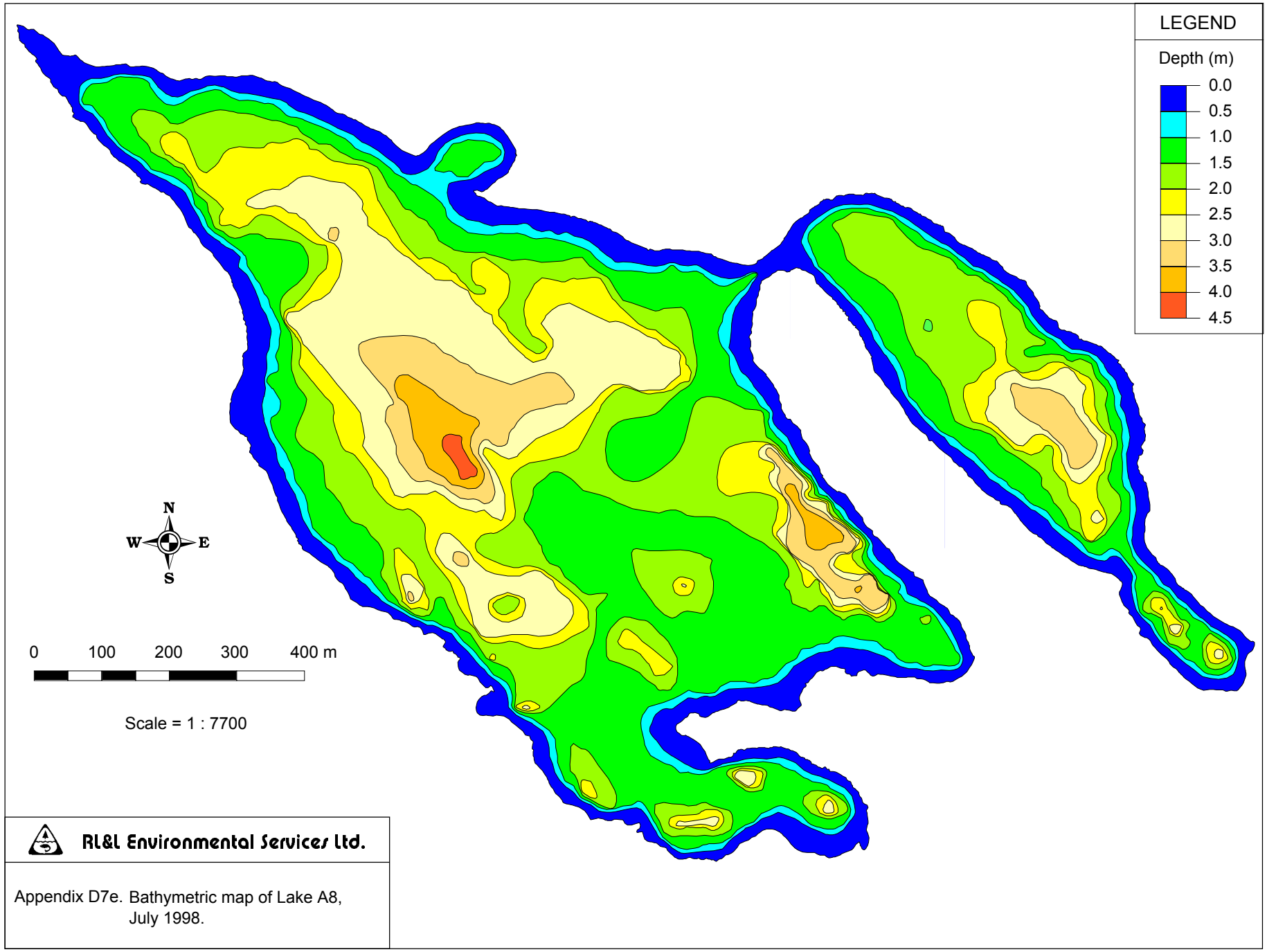
Appendix D7c. Bathymetric map of the south basin of Meliadine Lake, July 1998.





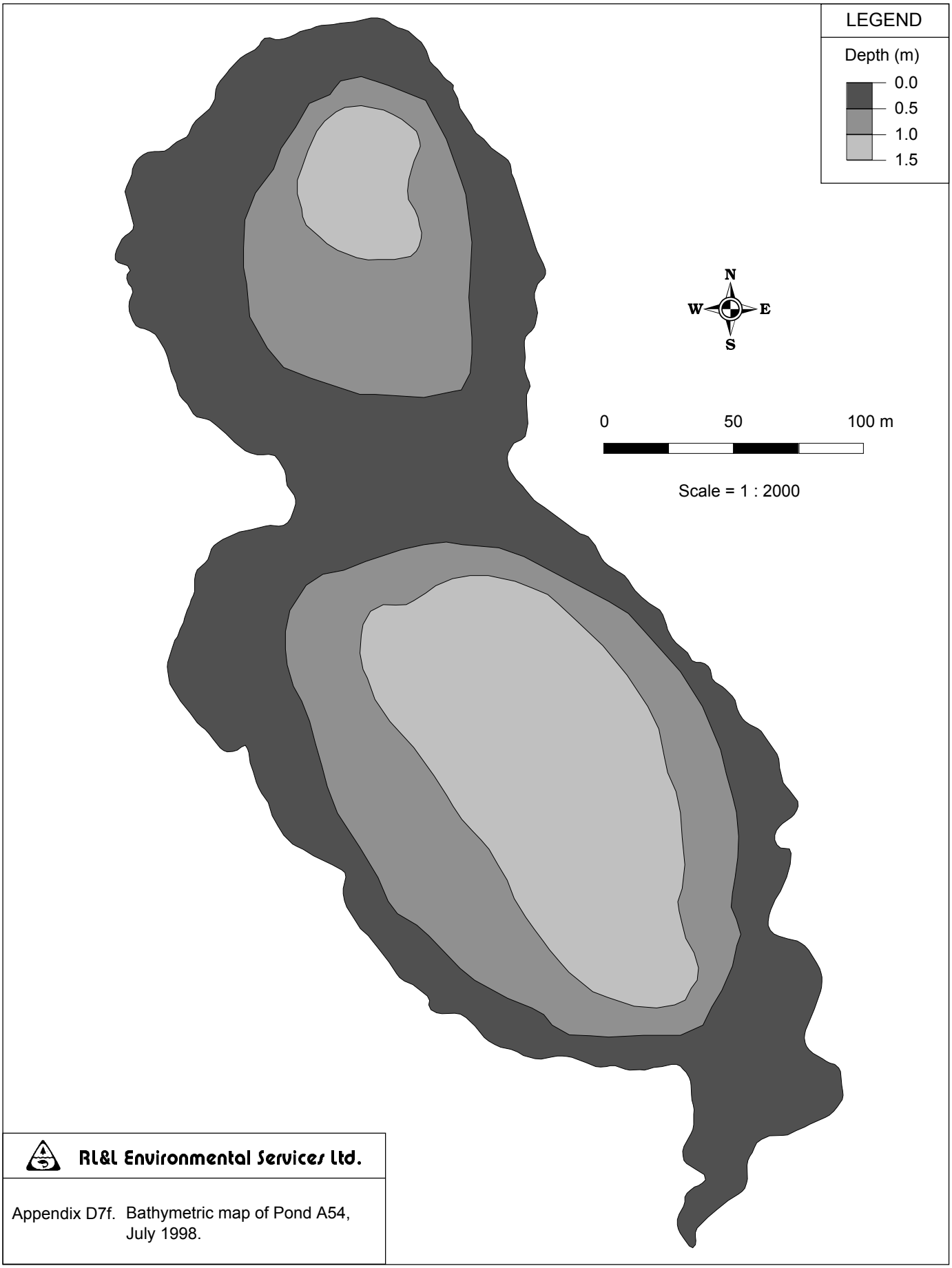
RL&L Environmental Services Ltd.

Appendix D7d. Bathymetric map of Lake A6, July 1998.



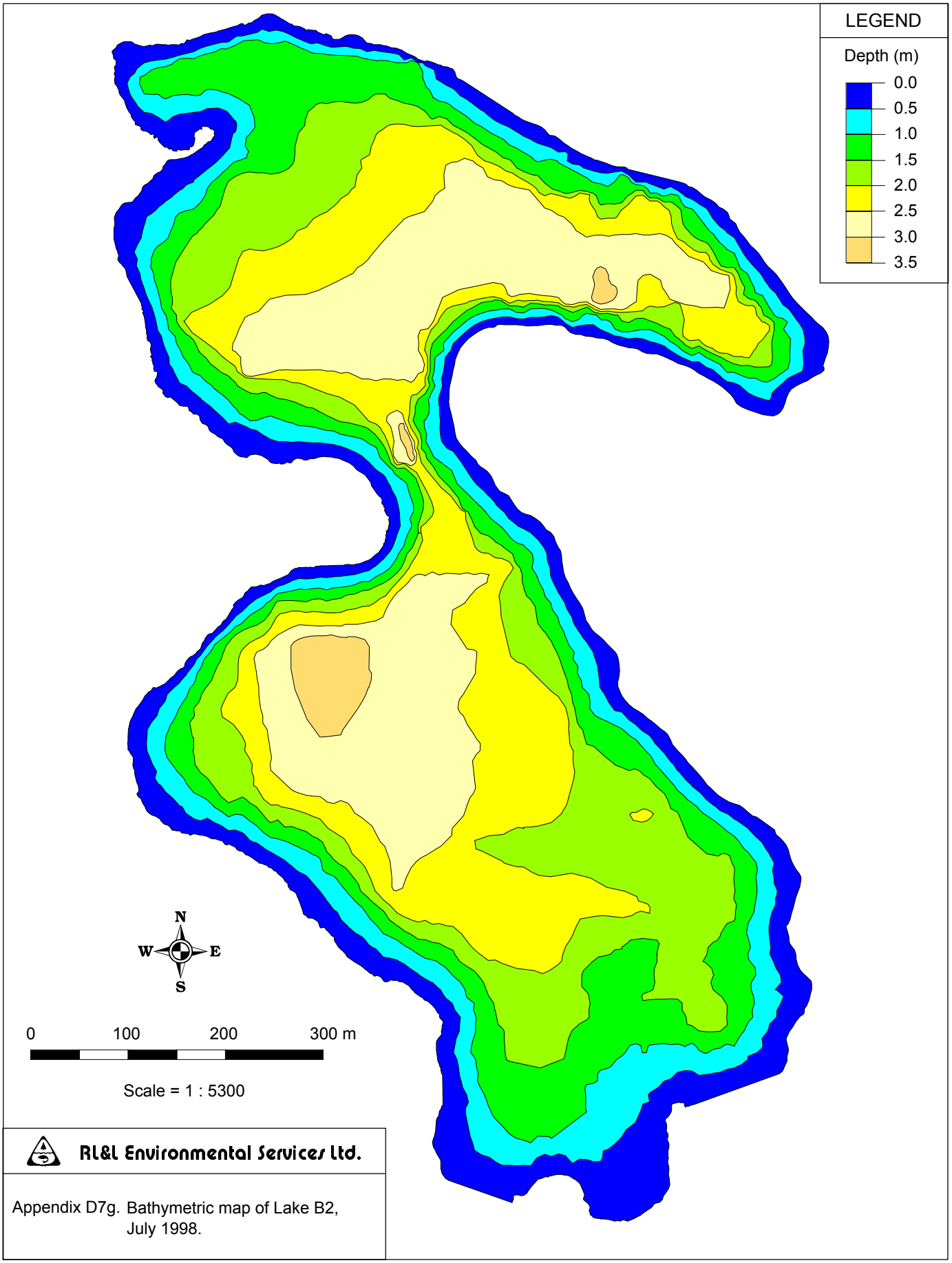
RL&L Environmental Services Ltd.

Appendix D7e. Bathymetric map of Lake A8, July 1998.



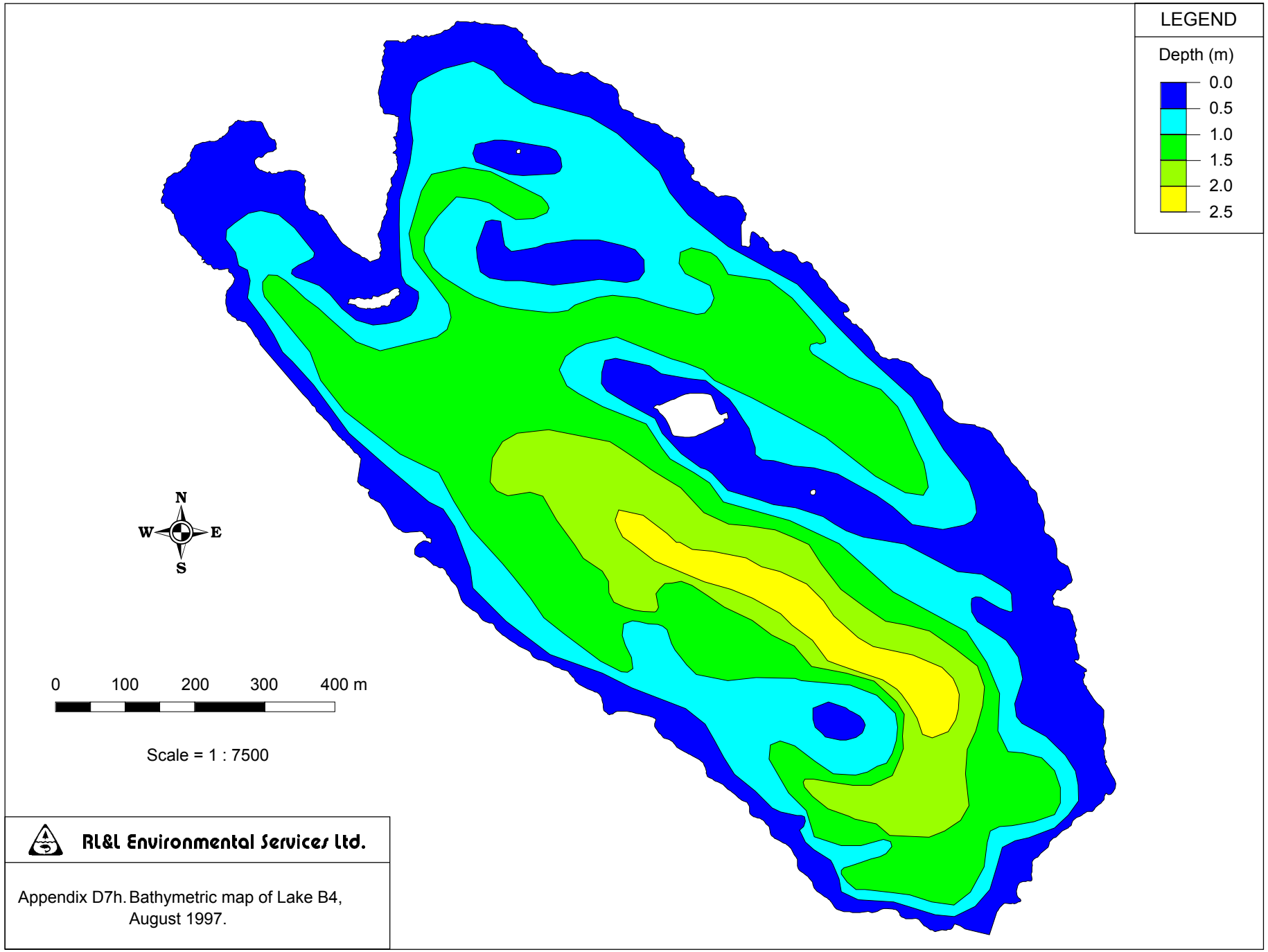
RL&L Environmental Services Ltd.

Appendix D7f. Bathymetric map of Pond A54, July 1998.



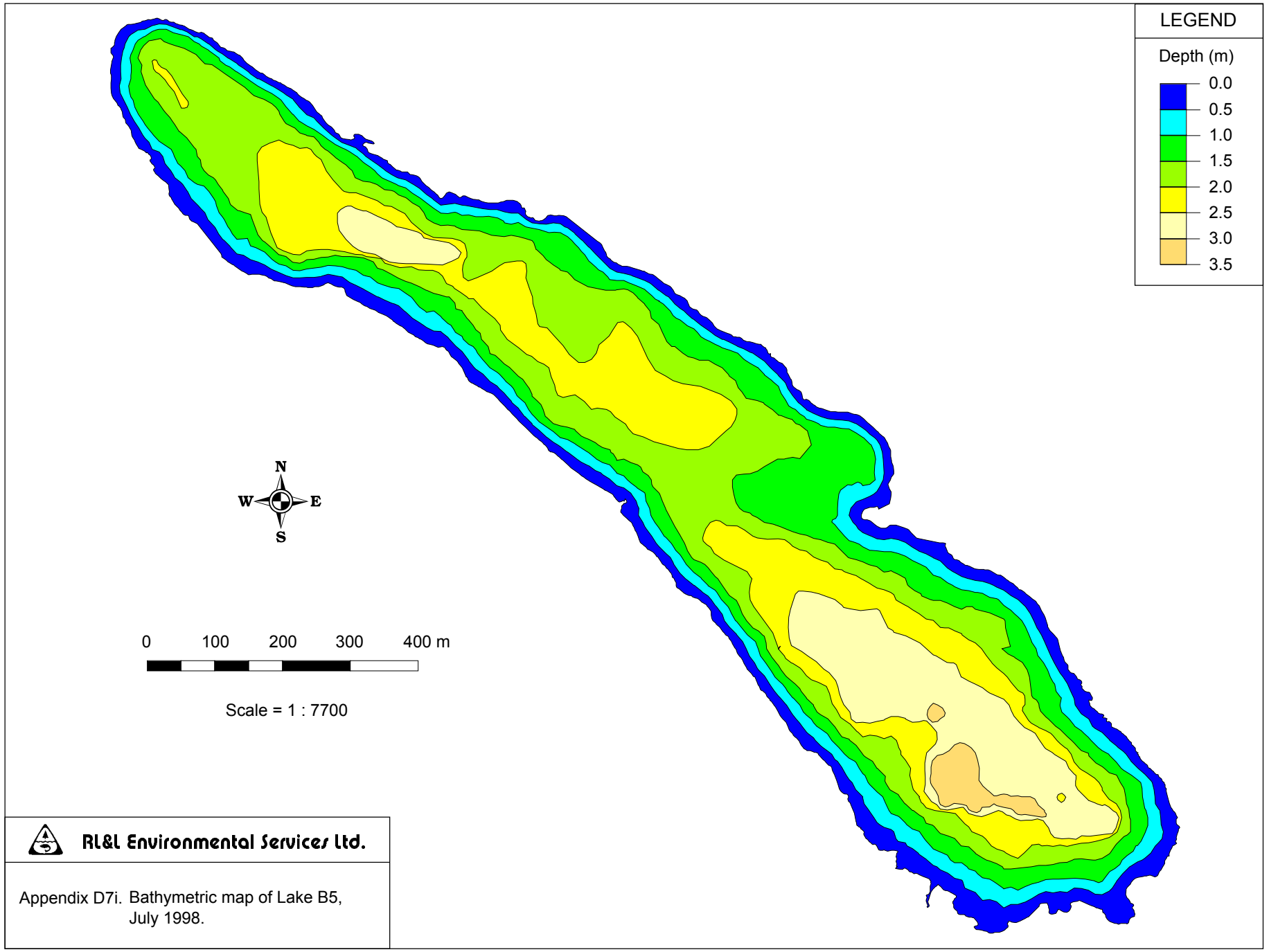
RL&L Environmental Services Ltd.

Appendix D7g. Bathymetric map of Lake B2, July 1998.



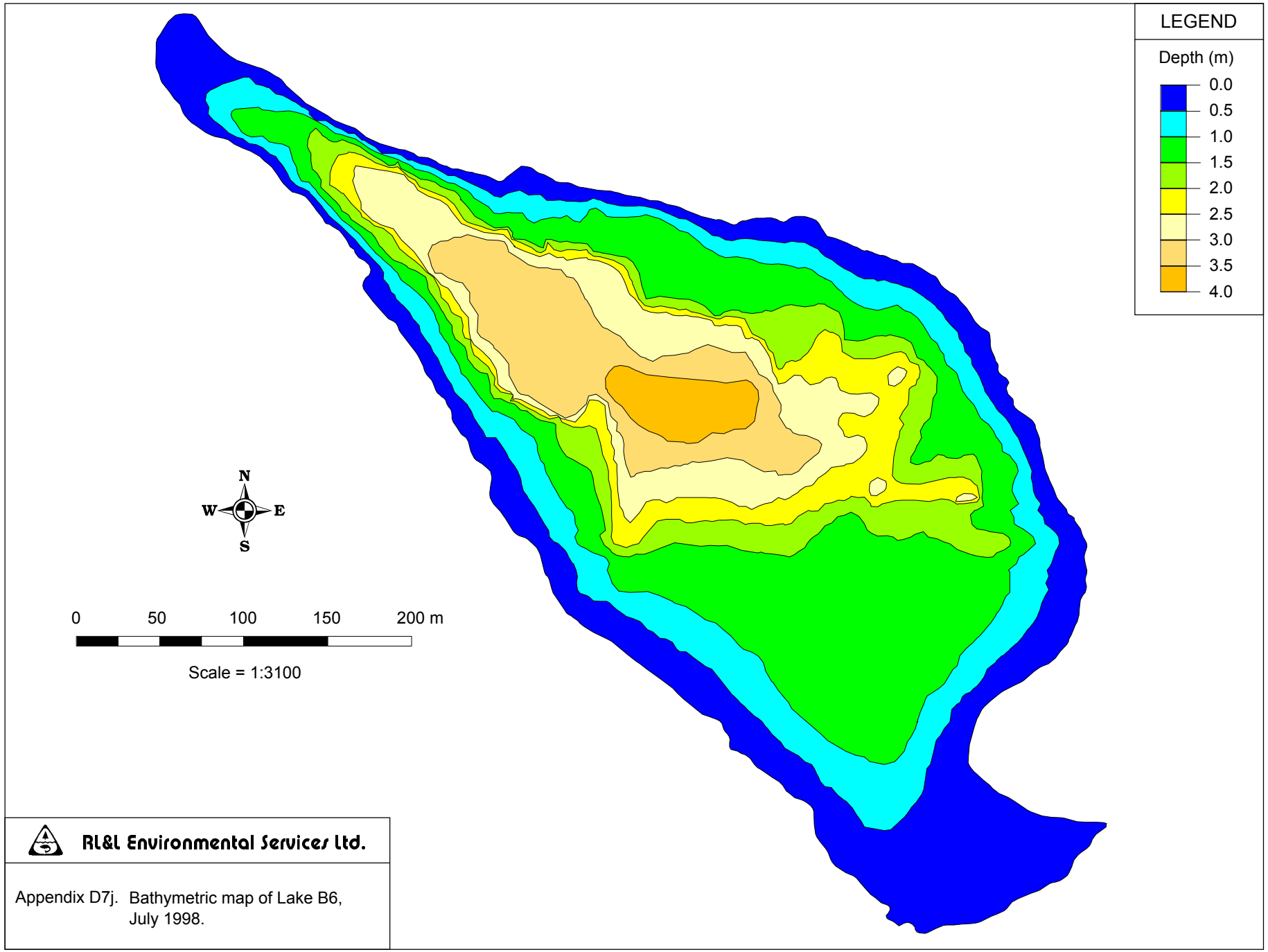
RL&L Environmental Services Ltd.

Appendix D7h. Bathymetric map of Lake B4, August 1997.



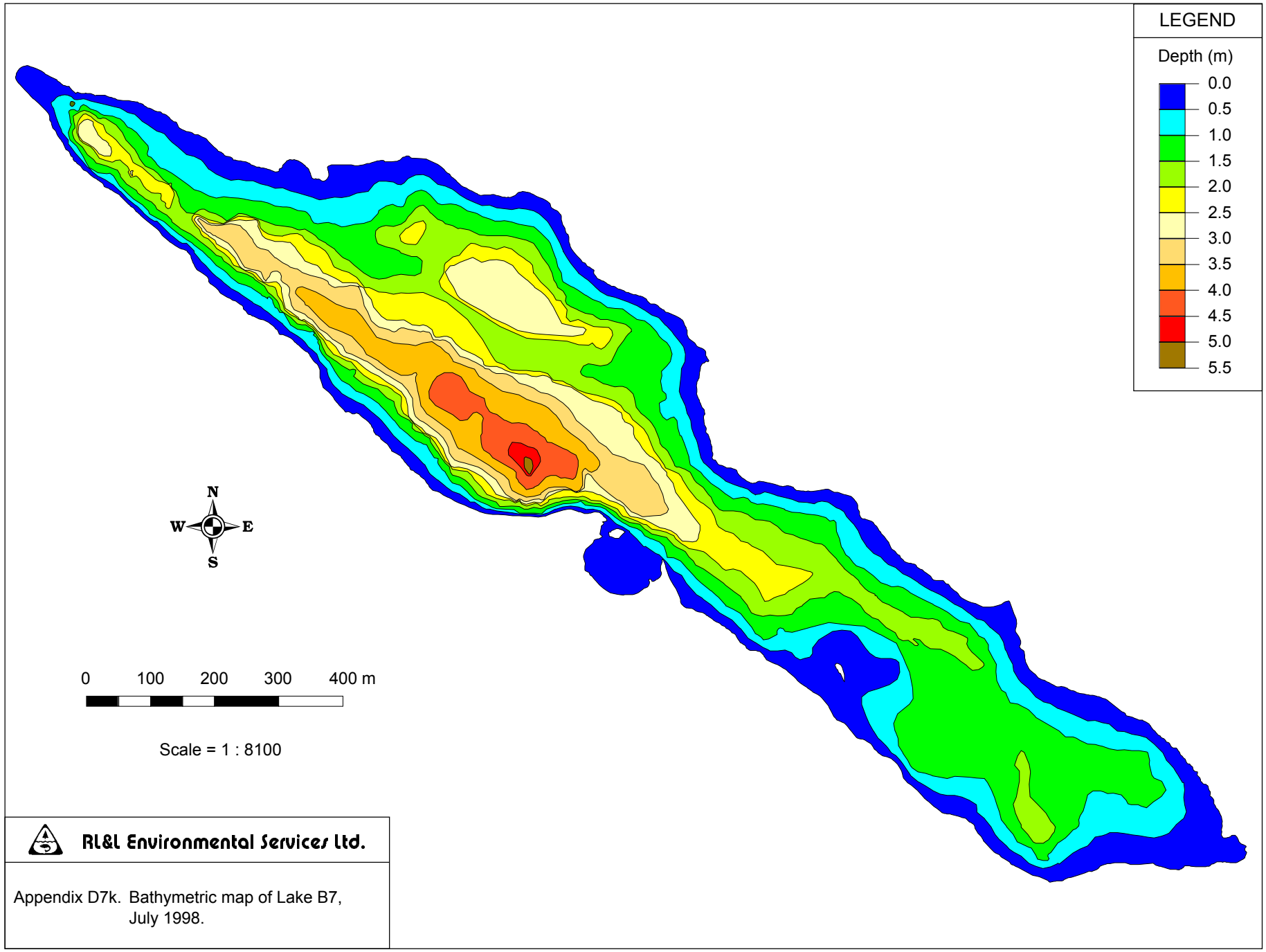
RL&L Environmental Services Ltd.

Appendix D7i. Bathymetric map of Lake B5, July 1998.



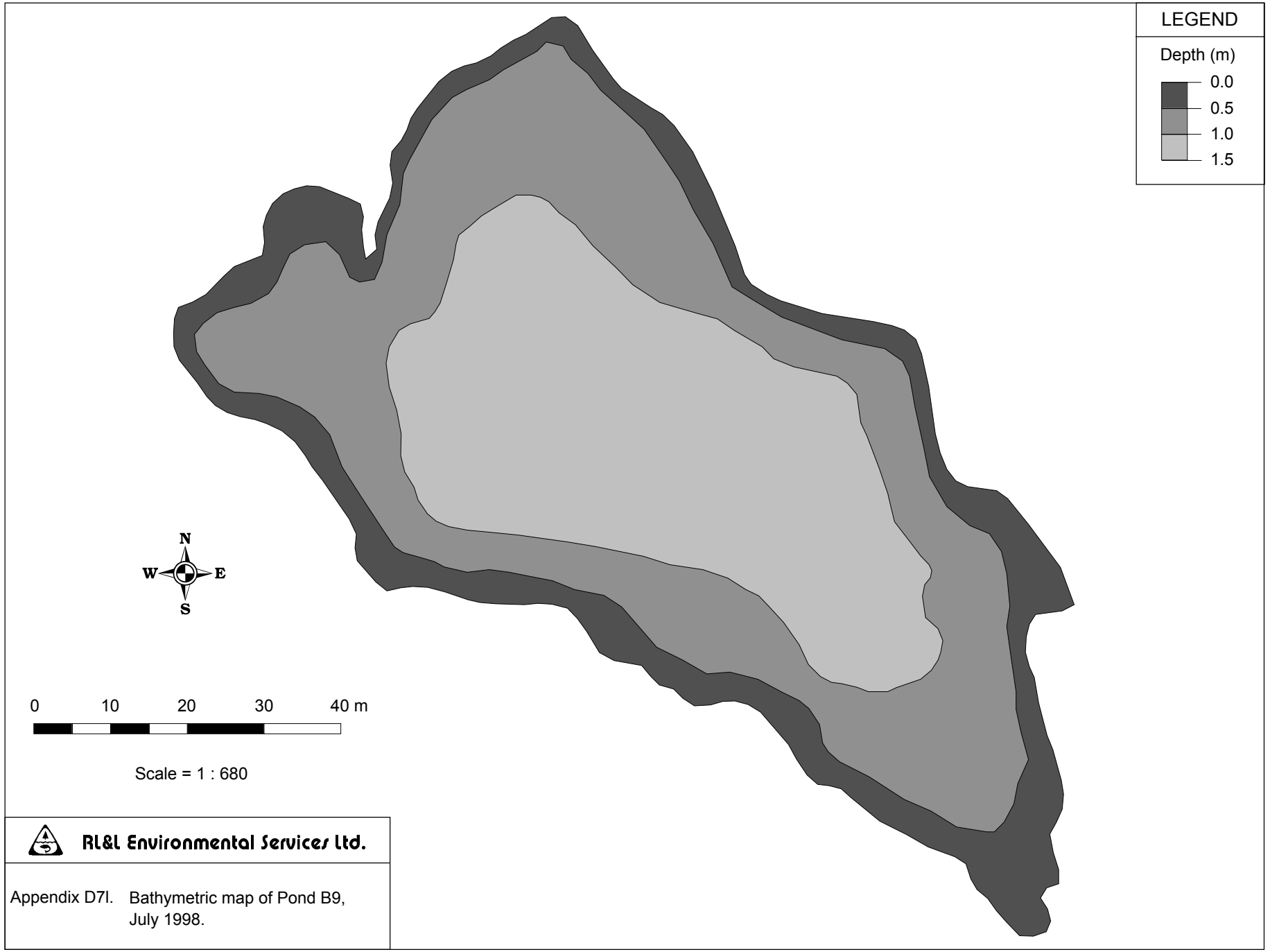
RL&L Environmental Services Ltd.

Appendix D7j. Bathymetric map of Lake B6, July 1998.



RL&L Environmental Services Ltd.

Appendix D7k. Bathymetric map of Lake B7, July 1998.

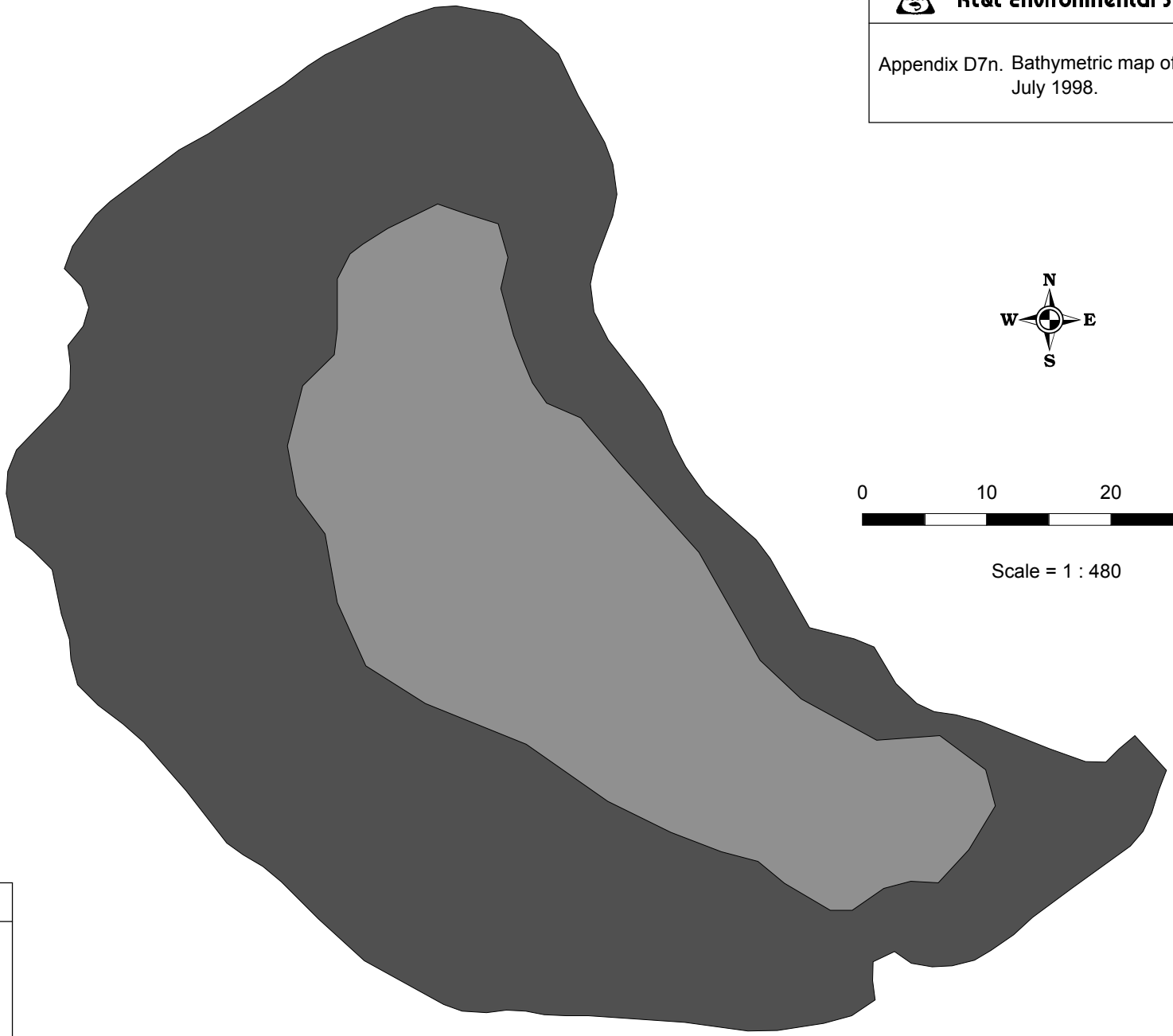


RL&L Environmental Services Ltd.

Appendix D7l. Bathymetric map of Pond B9, July 1998.

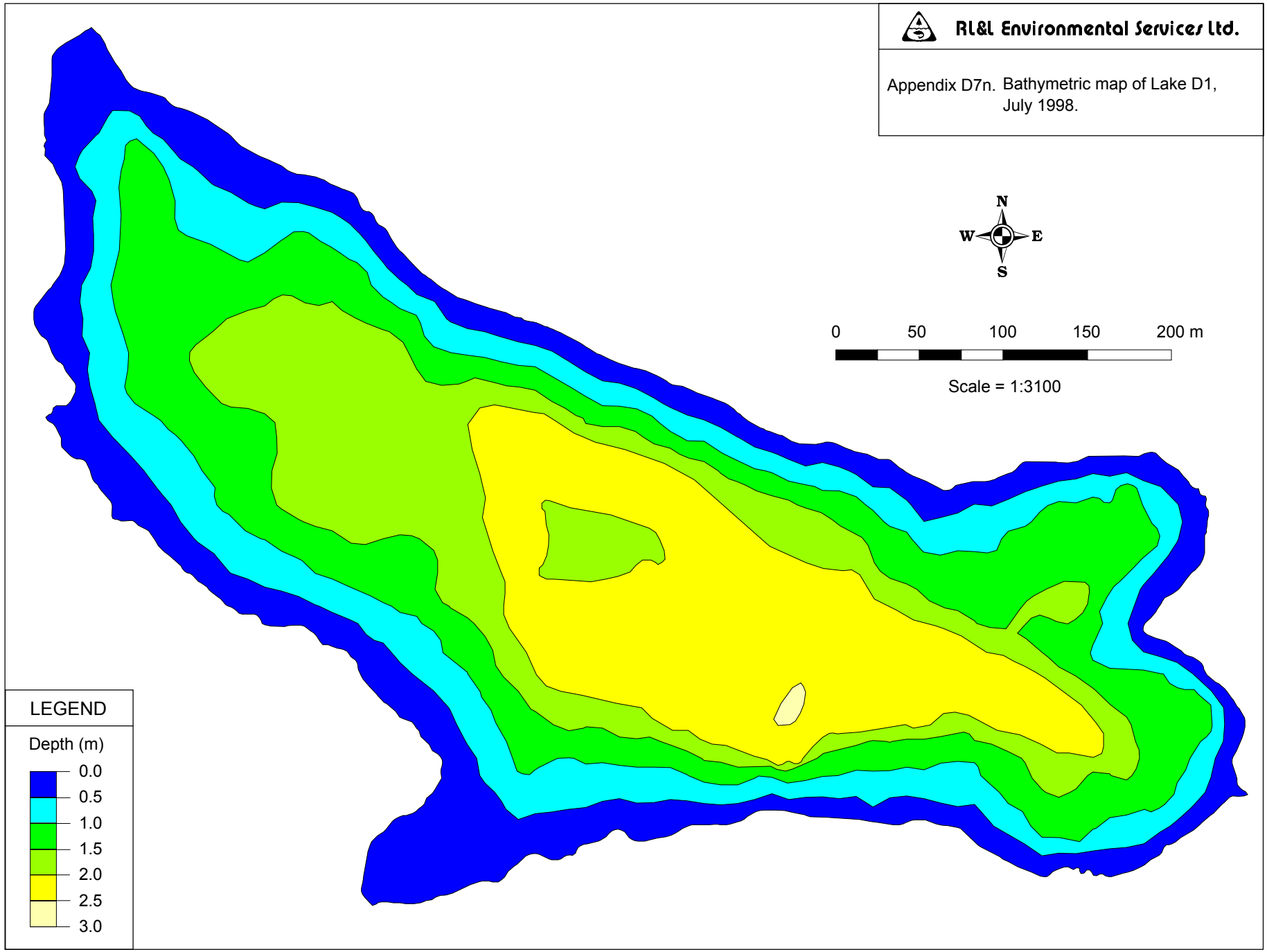
RL&L Environmental Services Ltd.

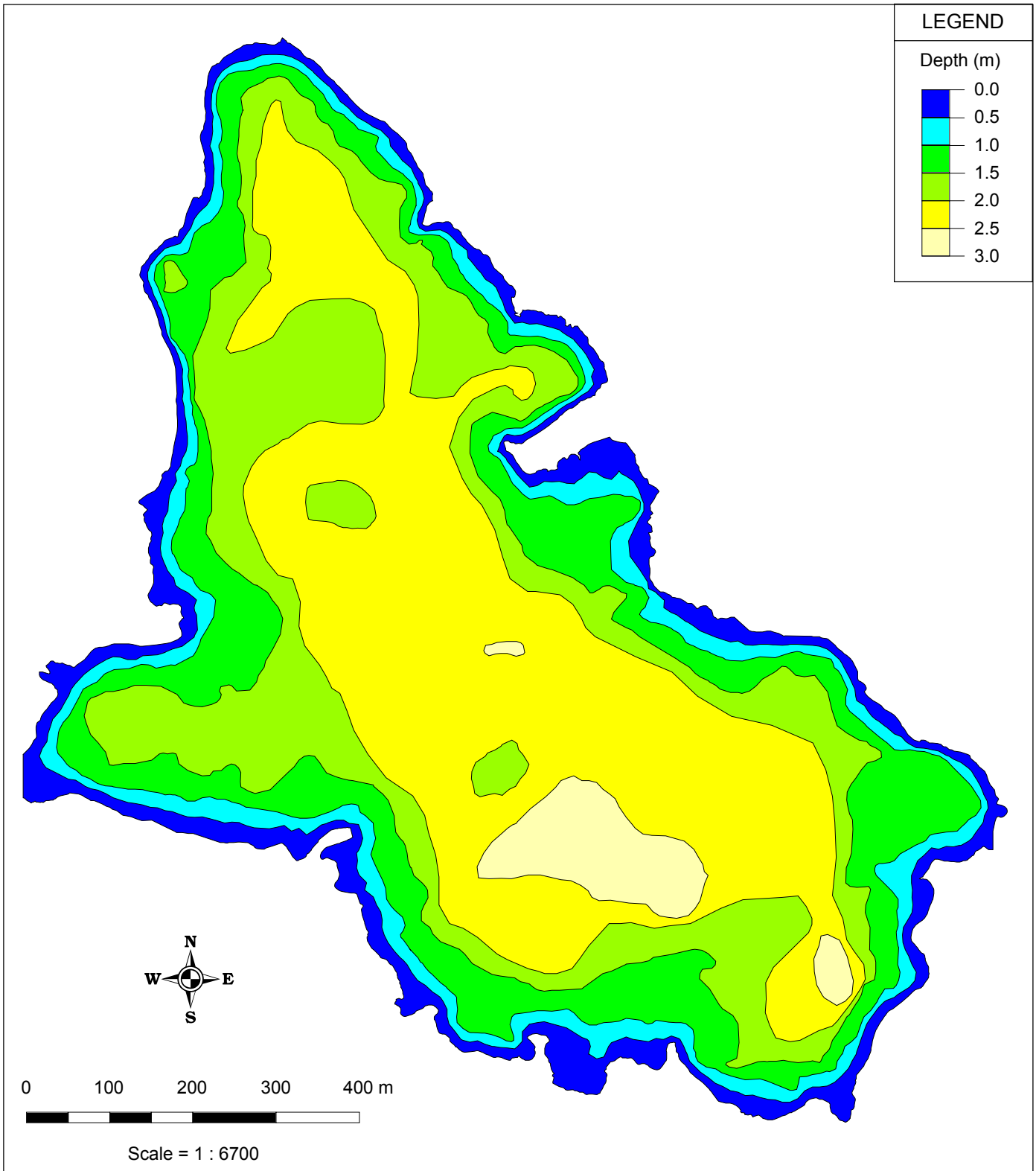
Appendix D7n. Bathymetric map of Pond B10, July 1998.



RL&L Environmental Services Ltd.

Appendix D7n. Bathymetric map of Lake D1, July 1998.

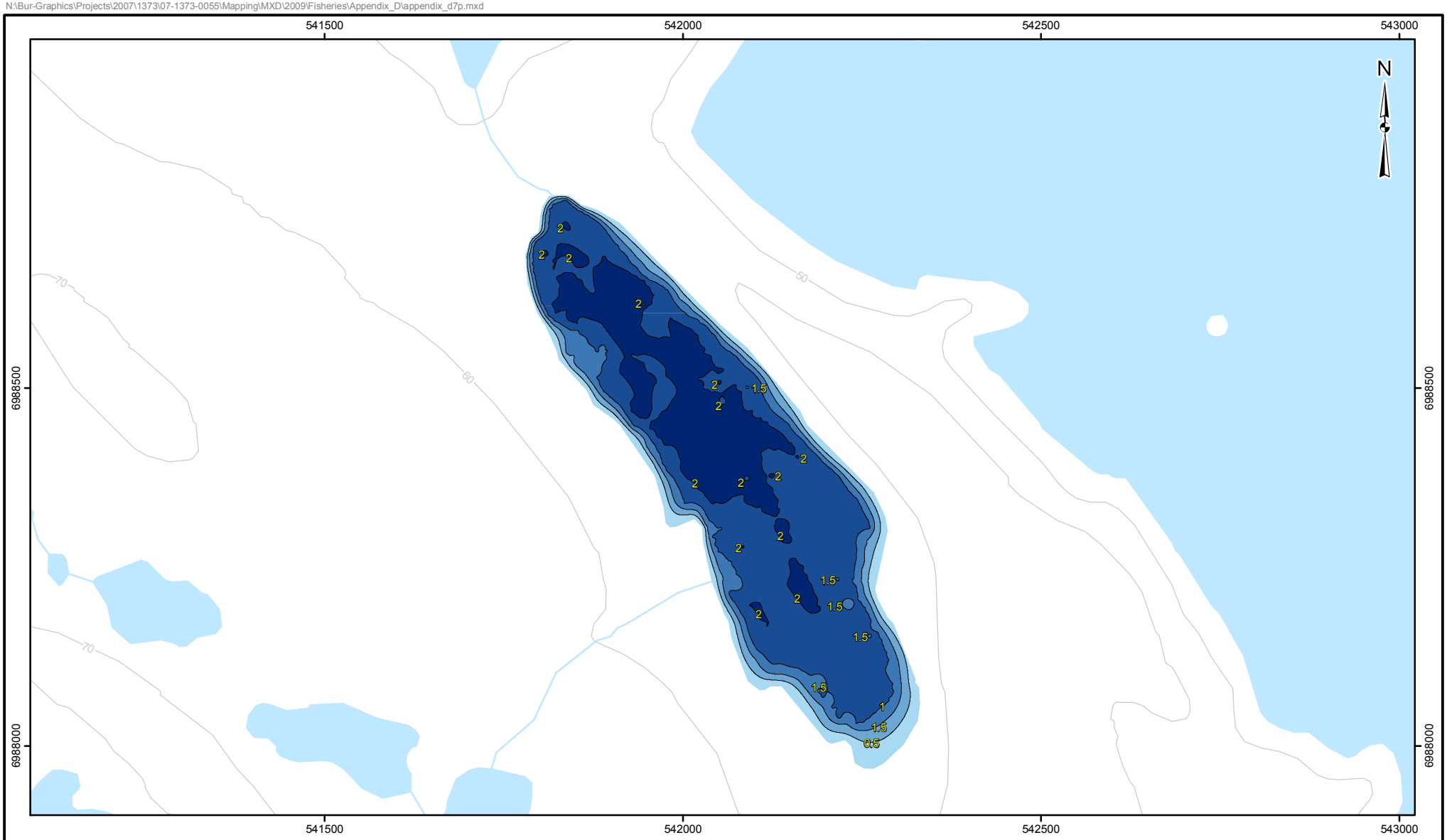




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Appendix D7o. Bathymetric map of Lake D7, July 1998.

N:\Bur-Graphics\Projects\2007\1373\07-1373-0055\Mapping\MXD\2009\Fisheries\Appendix_D\appendix_d7p.mxd



LEGEND

- CONTOUR
- ISOBATH (m)
- WATERCOURSE
- WATERBODY

LAKE DEPTH (m)
0.0 0.5 1.0 1.5 2.0 2.5

150 0 150
SCALE 1:7500 METRES

NOTE

Bathymetric point data collected by Golder Associates Ltd, July, 2009
Maximum Recorded Depth: 2.3 m

REFERENCE

Data obtained from Government of Canada, Natural Resources Canada, Centre for Topographic Information (1:50,000).
Projection: UTM Zone 15 Datum: NAD 83

PROJECT
COMAPLEX MINERALS CORP
COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE

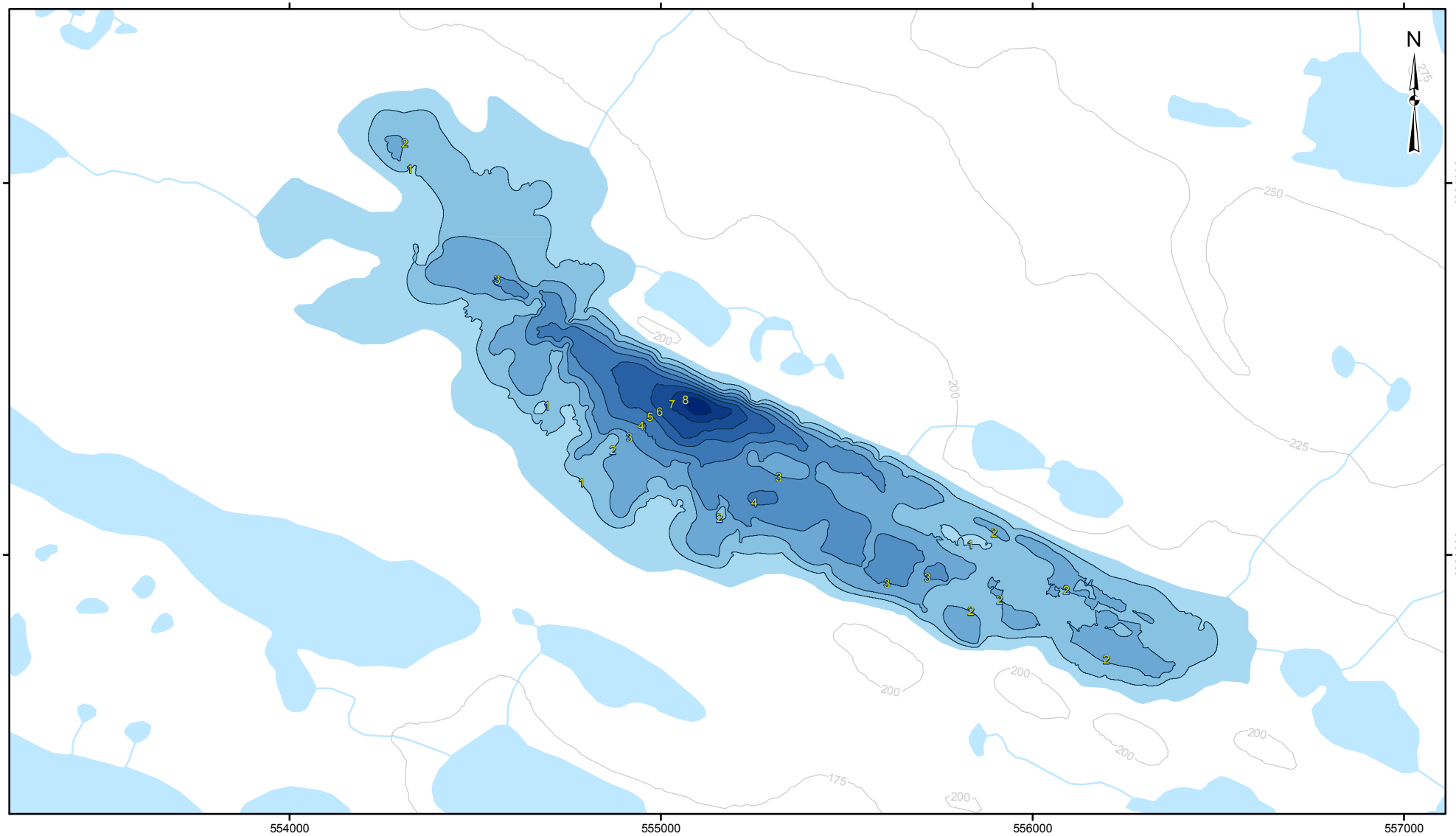
LAKE J1 BATHYMETRY

Golder Associates
Edmonton, Alberta

PROJECT NO. 09-1373-0010			SCALE AS SHOWN	REV. 0
DESIGN	RP	27 Nov. 2009		
GIS	CDB	27 Nov. 2009		
CHECK	RP	27 Nov. 2009		
REVIEW	JP	27 Nov. 2009		

Appendix D7p

N:\Bur-Graphics\Projects\2007\1373\07-1373-0055\Mapping\MXD\2009\Fisheries\Appendix_D\appendix_d7q.mxd



LEGEND

- CONTOUR (m)
- ISOBATH (m)
- WATERCOURSE
- WATERBODY

LAKE DEPTH (m)

0 1 2 3 4 5 6 7 8 9

SCALE 1:15000

400 0 400

METRES

NOTE

Bathymetric point data collected by Golder Associates Ltd, August, 2008.
Maximum Recorded Depth: 8.9 m

REFERENCE

Data obtained from Government of Canada, Natural Resources Canada, Centre for Topographic Information (1:50,000).
Projection: UTM Zone 15 Datum: NAD 83

PROJECT

COMAPLEX MINERALS CORP

COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE

CHICKENHEAD LAKE BATHYMETRY

Golder Associates
Edmonton, Alberta

PROJECT NO. 09-1373-0010			SCALE AS SHOWN	REV. 0
DESIGN	DC	21 Aug. 2008		
GIS	CP	22 Oct. 2008		
CHECK	JP	20 Nov. 2008		
REVIEW	LY	20 Nov. 2008		

Appendix D7q

Appendix D8. Size and habitat characteristics of ponds in the Meliadine Study Area, 1998 - 2009.

Pond	Location (15V)		Area (m^2)	ha	Max. Depth (m)	Substrate (%)						Cover (%)					Water Quality				
	Easting	Northing				Organics	Silt	Sand	Gravel	Cobble	Boulder	Boulder Garden	Depth / Turbidity	Aquatic Vegetation	Terrestrial Vegetation	Undercut Bank	Date	Temp. (°C)	Cond. (µS/cm)	pH (units)	Diss. Oxygen (% sat.)
A9	540149	6988152	17611	1.761	0.47												13-Jul-08	18.0	-	-	-
A10	540058	6988320	2578	0.258	0.67												13-Jul-08	17.0	-	-	-
A12	539893	6988583	4656	0.466	0.87												13-Jul-08	18.0	-	-	-
A13	539800	6988651	2646	0.265	0.31												12-Jul-08	19.0	-	-	-
A17	539368	6989072	1616	0.162	-												19-Aug-98	17.6	257	-	-
A35	540605	6987953	3628	0.363	0.43												13-Jul-08	18.0	-	-	-
A37	540299	6987950	9205	0.921	0.64												13-Jul-08	17.0	-	-	-
A38	540509	6988216	5447	0.545	0.54												13-Jul-08	17.0	-	-	-
A39	540394	6988311	1234	0.123	0.29												13-Jul-08	20.0	-	-	-
A40	539157	6988214	8140	0.814	0.82												13-Jul-08	17.0	-	-	-
A40	539157	6988214	8140	0.814	1.04	65	20	10			5	10	60	20		10	02-Jul-09	17.5	97	6.7	-
A50	542548	6986204	775	0.078	0.60	80	5			5	10	10		80		10	09-Jul-09	13.9	105	7.6	98
A51	542558	6986096	4434	0.443	0.50	85				5	10		10	80		10	09-Jul-09	14.3	301	8.3	110
A53	542477	6986092	627	0.063	0.19	40	20			20	20	20		60		20	09-Jul-09	16.0	181	7.7	125
A54	540246	6988671	59860	5.986	0.92												13-Jul-08	-	-	-	-
A58	539711	6989171	4328	0.433	-												19-Aug-98	16.9	223	-	-
B8	539024	6988906	14303	1.430	0.61												12-Jul-08	17.0	-	-	-
B8	539024	6988906	14303	1.430	0.82	50	10			10	30	30	10	30	10	20	02-Jul-09	18.1	1358	7.2	-
B9	539175	6988651	6392	0.639	0.74												12-Jul-08	17.0	-	-	-
B9	539175	6988651	6392	0.639	>1.4	70	10		5	5	10	10	30	20		40	02-Jul-09	16.9	745	5.0	-
B10	539425	6988384	3342	0.334	0.70												12-Jul-08	16.0	-	-	-
B10	539425	6988384	3342	0.334	0.70	50	10		10	20	10	20	40	10		30	02-Jul-09	15.6	396	7.0	-
B25	537351	6990233	15843	1.584	1.05		20			10	70	80	10	10			02-Jul-09	19.6	173	5.2	-
B26	537273	6990411	700	0.070	0.45	55	10		15		20	20	5	50	15	10	02-Jul-09	23.0	224	6.3	-
B28	538214	6989727	4479	0.448	0.55	70	5			5	20	15	10	25	25	25	02-Jul-09	18.1	116	7.9	-
B30	537999	6988890	888	0.089	-												12-Jul-08	20.0	-	-	-
B31	538103	6988807	1285	0.129	-												12-Jul-08	19.0	-	-	-
B32	538240	6988756	6049	0.605	-												11-Jul-08	18.0	-	-	-
B33	538748	6988659	6671	0.667	0.85												11-Jul-08	19.0	-	-	-
H1	540755	6989620	11350	1.135	1.31												02-Aug-08	15.6	126	8.2	-
H1	540755	6989620	11350	1.135	1.15	10	10		10	60	10	80		10		10	07-Jul-09	13.9	145	7.1	100
H2	540577	6989433	1599	0.160	0.25												02-Aug-08	15.9	169	8.1	-
H2	540577	6989433	1599	0.160	0.26	60	10		10	10	10	20		70		10	08-Jul-09	13.6	107	7.5	105
H3	540498	6989408	2749	0.275	0.36												02-Aug-08	15.2	154	8.3	-
H3	540498	6989408	2749	0.275	0.35	40	5		5	20	30	20		70		10	08-Jul-09	15.3	95	7.7	110
H4	540356	6989429	602	0.060	0.55												02-Aug-08	15.0	115	8.1	-
H4	540356	6989429	602	0.060	0.48	90	10							60	10	30	07-Jul-09	21.1	77	6.3	105
H5	540247	6989437	3742	0.374	0.60												02-Aug-08	15.2	123	8.4	-
H5	540247	6989437	3742	0.374	0.62	30	10		10	40	10	10	40	20		30	07-Jul-09	21.0	91	8.5	111

Appendix D8. Size and habitat characteristics of ponds in the Meliadine Study Area, 1998 - 2009.

Pond	Location (15V)		Area (m^2)		Max. Depth (m)	Substrate (%)						Cover (%)					Water Quality				
	Easting	Northing		ha		Organics	Silt	Sand	Gravel	Cobble	Boulder	Boulder Garden	Depth / Turbidity	Aquatic Vegetation	Terrestrial Vegetation	Undercut Bank	Date	Temp. (°C)	Cond. (µS/cm)	pH (units)	Diss. Oxygen (% sat.)
H6	540075	6989336	7495	0.750	0.46												02-Aug-08	18.9	182	8.6	-
H6	540075	6989336	7495	0.750	0.58	70			10	10	10	10	10	30	20	30	07-Jul-09	20.3	67	8.5	108
H7	539960	6989480	1094	0.109	0.67												01-Aug-08	20.9	97	8.6	-
H7	539960	6989480	1094	0.109	0.28	80				10	10	20		40		40	07-Jul-09	21.9	157	8.0	104
H8	539846	6989533	3809	0.381	0.38												01-Aug-08	18.5	111	8.6	-
H8	539846	6989533	3809	0.381	0.59	90	5				5			40	40	20	06-Jul-09	19.6	187	8.2	89
H9	539755	6989607	4177	0.418	0.42												01-Aug-08	18.7	173	8.3	-
H9	539755	6989607	4177	0.418	0.42	60	10		10	10	10	10		70	10	10	06-Jul-09	18.6	126	8.1	100
H10	539658	6989562	961	0.096	0.11												01-Aug-08	22.1	193	8.5	-
H10	539658	6989562	961	0.096	0.11	60	5		5	10	20	30		60		10	06-Jul-09	23.1	184	7.3	100
H11	539559	6989529	2768	0.277	0.27												01-Aug-08	20.2	140	8.3	-
H11	539559	6989529	2768	0.277	0.25	80	10			5	5			50	20	30	06-Jul-09	19.9	142	5.7	103
H12	539435	6989597	9695	0.970	0.54												01-Aug-08	18.9	120	8.4	-
H12	539435	6989597	9695	0.970	0.81	20	10		20	30	20			70		30	06-Jul-09	15.5	119	7.9	92
H13	539214	6989623	34891	3.489	1.04												01-Aug-08	16.5	191	8.3	-
H13	539214	6989623	34891	3.489	1.23	10	10		10	10	60	60		10		30	04-Jul-09	15.5	135	7.9	-
H14	539018	6989892	2330	0.233	0.61												01-Aug-08	17.1	236	-	-
H14	539018	6989892	2330	0.233	0.46	70	10			10	10	10		20		70	04-Jul-09	21.6	167	8.8	-
H14a	539165	6990024	1528	0.153	0.37	60				10	30		10	40		50	04-Jul-09	21.8	72	8.1	-
H15	538850	6990014	11033	1.103	0.70												01-Aug-08	15.1	159	9.0	-
H15	538850	6990014	11033	1.103	0.83	30	10		10	30	20	30		10	10	50	04-Jul-09	19.6	107	8.2	-
H15d	538663	6990168	1514	0.151	0.34	90	5		5					30		70	04-Jul-09	15.7	119	7.2	-
H15e	538820	6990241	2139	0.214	0.48	80	5				15		10	10	10	70	04-Jul-09	16.7	146	8.5	-
H15g	538416	6990266	3850	0.385	0.44	80	10				10			20		80	03-Jul-09	21.8	66	7.6	-
H16	540455	6989685	1759	0.176	0.36												02-Aug-08	16.1	48	7.9	-
H16	540455	6989685	1759	0.176	0.34		30		20	40	10	10		20	10	60	07-Jul-09	21.9	31	7.0	103
H17	539843	6989901	158008	15.801	1.40												01-Aug-08	18.4	89	8.3	-
H17	539843	6989901	158008	15.801	1.70												05-Jul-09	16.0	55	7.0	104
H18	539571	6989751	7423	0.742	0.60												01-Aug-08	17.9	113	8.6	-
H18	539571	6989751	7423	0.742	0.67	40	10		10	20	20	20		50	10	20	06-Jul-09	18.6	110	7.8	93
H19	540615	6989134	29121	2.912	1.40												02-Aug-08	15.6	177	8.1	-
H20	540749	6988843	95804	9.580	1.60												02-Aug-08	15.1	158	8.1	-

Appendix D9. Mean, minimum, and maximum daily water temperature (°C) in streams of the Meliadine Study Area, 1997 - 2000.

Day	Stream A0-1																																							
	Jul-1997			Aug-1997			Jun-1998			Jul-1998			Aug-1998			Sep-1998			Jun-1999			Jul-1999			Aug-1999			Sep-1999			Jun-2000			Jul-2000			Aug-2000			Sep-2000		
	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.
1										12.2	10.8	14.0	17.8	15.1	21.0	8.5	7.5	9.8				12.2	10.8	13.9	13.9	10.8	17.4	5.6	5.2	6.1				5.1	4.0	6.8	16.5	13.1	20.0	4.6	2.9	6.5
2										11.3	10.1	13.0	17.2	13.5	20.8	9.7	7.3	12.7				12.5	10.2	15.7	13.8	12.1	16.2	5.1	4.9	5.6				5.2	4.1	6.5	17.7	13.9	21.5	3.7	2.0	5.1
3										13.4	10.3	16.3	13.4	11.4	15.5	9.1	7.8	10.2				12.4	10.3	14.9	11.7	10.1	13.8							5.5	4.4	7.6	17.4	15.5	20.0	6.1	2.7	9.7
4										14.0	11.4	17.2	16.9	13.0	20.6	9.1	8.4	9.8				13.2	10.5	16.3	12.0	9.3	15.2							7.5	4.8	12.1	17.2	14.0	21.1	8.2	4.9	11.7
5										15.0	11.5	18.8	17.5	14.9	19.2	9.4	8.3	11.1				15.3	13.3	17.4	11.5	10.1	13.3							9.0	4.7	13.9	17.9	14.8	21.5	9.0	6.6	11.3
6										12.5	11.2	13.9	13.9	11.1	17.1	9.5	9.0	10.2				16.7	14.9	18.6	11.4	10.1	12.6							9.0	5.9	12.5	18.0	15.8	21.0	9.2	7.8	10.8
7										14.8	10.3	19.5	11.3	9.8	12.9	9.2	8.4	9.9				16.8	14.8	19.1	11.1	10.2	12.1							10.7	7.1	14.5	16.3	14.4	19.2	8.6	6.7	9.6
8										15.8	12.6	19.9	12.2	11.1	12.9	8.3	7.7	8.9				16.8	14.5	19.4	11.2	10.1	12.7							12.9	9.4	16.7	15.7	12.9	18.6	6.9	4.2	9.6
9										15.5	12.0	18.1	12.7	10.3	15.5	9.9	8.3	12.0				16.1	14.9	17.5	13.5	9.8	17.7							15.0	12.2	18.2	15.3	12.9	18.6	7.2	6.3	8.4
10										17.9	15.1	21.4	13.5	10.9	16.8	10.4	9.5	11.2				16.6	14.6	18.9	14.7	12.4	17.1							16.1	14.2	18.7	12.0	10.9	13.5	7.3	6.9	7.7
11										16.9	14.6	20.5	11.5	9.9	13.2	10.3	9.6	11.2				13.0	12.1	14.2	15.4	12.9	18.1							15.8	13.1	18.6	11.1	10.0	13.0	7.6	6.8	8.7
12							3.0	2.8	3.5	15.5	13.0	19.1	13.2	11.2	15.9	9.5	8.1	10.9				14.1	11.5	17.1	15.1	13.0	17.7							16.5	13.5	19.3	11.2	9.2	13.2	7.8	6.6	9.3
13							3.0	2.5	3.8	14.8	11.7	18.3	14.0	11.1	16.6	9.2	7.7	10.9				13.9	12.4	15.4	14.2	12.7	16.0							15.7	13.5	18.2	10.7	9.6	12.0	7.5	6.6	8.2
14							4.4	2.0	6.2	10.6	8.0	13.8	13.5	12.1	14.6	8.4	8.0	8.9				13.3	12.6	14.0	13.4	10.9	15.7							13.3	10.9	14.6	11.2	8.5	14.2	7.4	6.3	8.9
15							5.8	4.0	7.8	7.8	6.7	8.6	12.7	10.6	14.9	7.4	6.4	8.1				12.9	11.4	14.9	13.9	10.9	16.6							11.1	9.8	12.8	11.9	9.8	14.4	5.2	4.4	5.7
16							7.7	4.0	10.9	8.5	8.0	8.9	12.7	10.1	15.4	5.9	5.2	7.0				11.7	9.8	14.2	14.4	11.8	17.4							11.8	9.1	14.8	9.2	7.8	10.7	6.4	5.0	8.2
17							9.3	6.7	11.7	10.2	8.0	12.9	14.1	11.8	16.8	5.6	5.0	6.4				10.3	8.3	12.3	14.9	12.6	17.8							12.9	9.7	16.3	9.7	7.5	12.2	4.5	3.1	5.9
18							9.1	5.0	12.3	10.5	9.5	12.1	15.2	11.8	18.8	5.3	4.6	6.4				10.9	8.3	13.9	11.7	10.9	13.0							14.7	11.3	18.5	10.1	6.9	13.5	3.5	2.1	5.4
19							7.1	5.2	9.2	10.0	9.0	10.9	15.8	12.3	19.5	5.2	4.9	5.9	6.5	5.0	7.7	12.9	10.1	16.5	12.9	10.2	15.9							16.1	12.5	19.8	10.9	9.0	13.3	3.1	1.3	5.2
20							7.1	4.7	9.8	10.3	9.0	11.7	8.3	5.8	12.0	5.1	4.4	5.8	5.5	4.0	8.1	12.6	11.1	13.6	12.7	9.9	14.5							17.6	13.9	21.3	10.4	8.8	11.9	2.2	1.3	2.9
21							8.3	5.2	12.6	10.3	9.2	11.8	8.2	5.2	11.5	5.5	4.9	6.5	3.9	2.8	5.8	13.6	9.9	17.1	9.7	8.0	12.1				2.9	2.0	3.4	19.0	15.9	22.1	9.4	7.9	10.5	0.6	-0.1	1.4
22							6.3	2.6	9.2	13.3	9.6	17.2	10.1	8.0	12.6	5.2	4.3	6.4	6.0	3.1	8.6	13.9	11.8	15.7	9.2	7.1	11.7				2.6	1.6	3.8	18.1	15.7	20.9	10.9	9.7	12.5	0.8	-0.1	1.9
23							7.6	2.2	11.8	15.6	11.7	19.2	11.5	8.6	15.1	5.0	4.3	6.1	5.0	4.1	6.1	15.9	12.3	19.7	9.0	8.0	10.1				3.1	1.6	5.0	16.7	13.3	20.5	10.1	9.5	10.5	1.3	0.7	1.9
24							10.0	8.1	12.0	17.1	13.3	20.6	11.2	8.7	14.5	4.2	3.5	4.7	4.0	3.7	4.4	14.2	12.3	16.5	7.8	7.0	9.2				3.4	2.5	4.2	17.4	14.4	21.1	10.3	9.6	11.2	0.3	-0.1	1.3
25							11.1	8.3	14.2	16.9	14.8	19.4	9.4	8.3	10.5	2.9	2.2	3.5	5.1	3.7	7.0	13.1	10.8	16.3	8.8	5.8	12.1				3.7	2.9	4.9	17.9	14.4	21.5	9.4	6.9	10.3	0.0	-0.1	0.1
26							12.9	9.8	16.6	13.7	12.3	14.8	9.2	7.8	10.6	2.5	1.6	3.7	7.3	5.8	9.0	8.5	7.1	12.0	8.3	7.7	9.8				2.9	2.6	3.6	19.1	15.4	23.7	7.1	5.6	9.1			
27							13.2	9.9	16.8	13.8	11.7	17.1	8.8	8.0	9.8	2.9	1.9	4.3	9.7	7.7	12.1	8.7	7.1	10.6	8.2	7.5	8.7				3.2	2.4	4.3	19.6	16.5	23.5	6.5	4.5	8.6			
28							14.0	10.9	17.7	15.5	11.8	19.4	8.0	7.4	8.6	3.4	2.6	4.7	11.9	10.2	14.2	9.1	8.3	10.2	7.5	6.2	8.4				5.4	4.2	7.3	16.1	14.2	17.9	7.8	6.1	9.6			
29							14.2	11.8	17.4	16.7	14.3	19.2	8.6	7.5	9.8	2.9	2.3	4.0	12.8	10.8	15.7	9.6	8.4	10.6	7.7	6.7	8.6				5.3	4.1	6.5	16.5	13.0	21.1	6.9	5.3	8.3			
30							13.9	11.5	16.6	16.8	13.9	19.7	9.7	8.3	11.4	2.5	2.2	2.8	12.9	11.7	14.8	10.9	8.7	13.5	8.2	7.5	8.9				4.8	3.8	6.3	15.6	13.6	17.3	4.2	3.3	5.2			
31										18.3	15.7	21.1	8.6	7.8	9.5							12.7	9.3	16.0	6.8	6.1	7.5							14.8	11.6	18.2	3.8	2.7	5.3			
Total							8.8	2.0	17.7	13.7	6.7	21.4	12.3	5.2	21.0	6.7	1.6	12.7	7.6	2.8	15.7	13.0	7.1	19.7	11.4	5.8	18.1	5.4	4.9	6.1	3.7	1.6	7.3	13.9	4.0	23.7	11.5	2.7	21.5	5.2	-0.1	11.7

Day	Stream B1-2																																							
	Jul-1997			Aug-1997			Jun-1998			Jul-1998			Aug-1998			Sep-1998			Jun-1999			Jul-1999			Aug-1999			Sep-1999			Jun-2000			Jul-2000			Aug-2000			Sep-2000		
	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.
1				9.4	7.5	12.1				10.8	9.6	12.4	17.6	15.9	19.7	8.5	7.8	9.5				10.4	9.6	11.1	13.7	11.8	16.0	5.7	5.3	6.1				3.1	2.4	3.8	16.6	14.4	19.4	5.0	3.8	6.6
2				9.1	6.8	13.0				10.8	9.6	12.1	17.2	13.6	20.2	9.3	7.5	12.1				11.0	9.9	12.1	13.5	12.1	15.2	5.1	4.7	5.8				3.7	2.6	5.2	17.4	15.6	19.3	4.1	2.8	5.3
3				10.6	6.2	15.1				12.7	9.9	15.2	14.7	12.7	16.5	9.2	8.4	10.1				11.4	10.6	12.3	11.9	10.8	13.8							4.0	2.6	6.3	17.1	15.7	18.7	5.9	3.2	9.4
4				13.5	8.6	18.1				13.4	11.1	15.7	16.8	14.8	18.8	9.2	8.7	9.6				12.1	10.8	13.2	12.1	9.9	14.6							4.6	3.1	6.8	17.3	15.5	19.2	7.1	4.6	10.0
5				13.6	10.8	16.0				13.9	12.0	15.4	17.1	14.8	18.4	9.6	8.4	11.2				14.4	12.3	17.2	11.5	10.6	12.6							4.5	3.7	5.6	18.6	16.4	21.0	7.5	5.8	9.8
6				11.5	7.5	13.3				13.4	12.0	14.2	15.0	13.3	17.4	9.5	9.0	10.1				15.6	14.2	16.9	11.4	10.5	12.3							4.3	3.7	5.1	18.8	17.5	20.9	8.2	7.3	10.1
7				8.4	6.1	10.6				13.5	11.1	15.2	13.1	11.8	14.2	9.3	8.6	9.9				15.3	14.0	16.6	11.3	10.6	12.1							5.1	3.7	6.4	18.5	17.3	20.4	7.9	6.1	8.9
8				9.2	6.7	12.4				14.9	13.5	16.3	13.0	12.4	13.6	8.9	8.7	9.3				15.9	14.8	16.8	11.4	10.5	12.6							7.5	5.5	9.0	18.4	16.8	20.8	6.7	4.9	8.6
9				8.6	6.1	11.4				15.5	14.3	16.3	13.0	11.4	14.9	9.5	8.7	10.5				16.1	15.5	16.8	12.8	10.8	15.5							9.6	7.6	11.9	17.0	14.7	20.1	7.3	6.8	8.3
10				8.2	6.1	10.1				17.2	15.4	19.7	13.3	12.0	15.5	9.9	9.2	10.6				16.3	14.5	17.8	14.0	12.1	15.9							11.6	10.5	12.5	14.0	13.0	15.7	7.2	6.8	7.7
11				8.6	6.2	10.8				16.6	15.2	17.8	12.5	11.8	13.5	10.2	9.5	11.1				13.7	12.6	14.6	14.1	12.9	15.5							13.0	11.6	14.2	13.4	12.4	14.9	7.5	6.9	8.3
12	17.3	16.5	18.1	9.3	6.8	12.6	0.8	0.5	1.4	16.5	15.5	17.8	13.0	12.0	14.6	9.7	8.7	10.8				13.9	12.1	16.3	14.8	13.8	16.3							14.5	13.3	15.7	12.2	11.0	13.3	7.5	6.8	8.7
13	15.0	13.5	16.6	9.2	4.6	14.6	0.7	0.4	1.3	15.8	14.8	16.9	13.6	11.5	15.7	9.4	8.1	10.6				13.7	12.4	14.8	14.3	13.2	15.9							14.6	13.1	16.5	11.4	10.8	12.0	7.5	6.8	8.4
14	12.8	11.8	13.9	11.0	5.6	17.4	1.6	0.2	3.1	12.0	9.8	15.2	13.2	12.3	14.5	8.6	8.0	9.3				13.4	12.9	13.8	13.5	12.3	14.6							13.9	12.8	14.8	12.2	9.8	15.5	7.2	6.2	9.0
15	11.5	10.6	12.4	12.3	7.5	18.3	1.9	0.7	3.2	9.1	8.7	9.9	13.0	11.1	15.4	7.3	6.2	8.1				13.0	11.5	14.3	13.8	12.0	15.7							11.2	10.4	12.8	13.0	10.9	15.8	6.2	5.8	6.7
16	12.4	10.2	15.2	12.6	7.5	18.6	2.0	1.3	2.8	8.8	8.4	9.2	13.3	11.8	15.2	6.1	5.2	7.3				11.6	9.9	13.9	14.3	13.0	15.9							11.3	8.9	14.0	10.5	9.0	11.9	6.7	5.9	8.3
17	13.5	10.8	16.0	14.1	10.2	19.1	2.7	1.9	3.5	10.0	8.3	12.0	14.1	12.6	15.9	5.6	4.7	6.4				10.5	9.0	12.1	14.5	12.9	16.8							12.6	10.0	15.3	10.9	8.8	14.2	4.8	3.6	5.8
18	15.0	12.6	17.1	12.9	9.9	16.6	3.3	2.3	4.4	10.4	9.6	11.5	14.9	12.9	17.4	5.5	4.0	6.8				10.8	8.6	13.2	13.2	12.6	13.5							14.0	12.7	15.8	11.9	9.4	15.0	3.7	2.7	5.7
19	15.7	14.2	17.5	13.8	10.1	18.0	3.5	3.1	4.1	10.0	9.2	10.6	15.4	12.4	18.1	5.6	5.0	6.2	5.5	4.3	6.5	12.7	10.6	14.9	13.1	11.2	14.9							14.6	13.0	15.9	11.9	10.4	14.1	3.2	1.4	5.2
20	15.5	14.0	17.1	14.2	11.1	18.1	4.3	2.9	6.2	10.2	9.2	11.2	10.1	8.0	12.3	5.2	4.4	6.1	4.3	3.4	5.0	12.7	11.5	13.2	12.9	10.5	14.2							16.5	14.3	19.3	11.4	10.3	12.8	2.5	1.7	3.4
21	16.7	14.6	19.1	13.6	9.9	17.5	4.7	3.7	5.9	10.1	9.5	11.4	8.8	7.3	11.1	5.6	4.7	6.5	4.0	3.4	4.7	13.2	11.1	15.2	10.5	9.5	12.1							17.8	16.2	19.3	11.4	9.8	12.7	1.0	0.3	1.7
22	17.7	16.5	19.2	13.4	10.3	17.5	4.5	3.8	5.3	12.5	9.8	15.7	10.3	7.8	13.8	5.6	5.0	6.4	5.0	3.8	7.1	13.6	12.6	14.6	9.5	8.1	11.4				1.9	1.4	2.3	17.8	16.9	18.9	11.3	10.6	12.1	0.6	-0.1	1.4
23	18.6	16.5	21.3	12.8	11.2	14.3	5.9	3.7	8.4	14.7	11.8	18.0	10.8	8.7	14.3	5.2	4.6	5.9	2.9	1.1	4.4	15.0	13.2	17.1	9.5	8.7	10.2				1.8	1.2	2.7	16.6	15.2	18.2	11.0	10.2	12.0	1.5	0.8	2.6
24	16.5	14.6	19.2	11.9	9.5	14.8	5.2	4.3	6.2	16.0	13.8	18.1	10.6	8.4	14.0	4.1	3.4	4.6	0.9	0.7	1.3	13.9	12.7	15.4	8.4	7.8	9.5				1.6	1.1	2.1	16.7	15.6	17.9	11.6	10.9	13.1	0.3	-0.1	1.5
25	16.5	13.5	19.9	10.0	8.3	12.1	5.1	4.0	6.2	16.0	14.9	17.4	9.3	8.3	10.8	3.5	3.1	4.0	1.4	0.8	2.3	13.3	11.8	15.2	9.4	7.3	12.0				1.5	1.0	2.4	17.1	15.7	18.6	10.1	8.2	11.0	0.0	0.0	0.0
26	17.5	15.4	19.7	10.4	6.7	14.9	5.7	4.1	6.8	14.4	13.2	15.1	9.6	8.3	11.4	3.4	2.9	3.8	3.2	2.0	4.6	9.8	8.6	11.8	8.7	8.3	9.5				1.4	1.1	2.2	18.5	16.2	21.2	8.0	6.9	9.2			
27	18.5	15.9	21.4	9.9	8.3	12.0	6.0	5.2	6.8	14.1	12.7	16.5	9.1	8.3	10.1	3.6	3.1	4.1	5.3	3.2	7.7	9.5	8.6	10.5	8.3	7.3	8.7				1.7	1.0	2.5	19.1	17.5	20.8	7.0	5.5	8.3			
28	18.5	15.9	21.0	12.6	8.4	17.2	7.8	6.7	8.7	14.9	12.6	17.8	8.6	8.0	9.5	3.8	3.4	4.3	7.4	6.1	8.4	9.5	8.7	10.2	7.6	5.9	9.0				2.7	1.3	4.5	17.6	16.5	18.5	8.0	6.7	9.4			
29	16.6	13.6	19.2	13.1	9.8	17.7	9.4	7.8	10.6	16.2	14.8	17.8	9.0	8.1	10.5	3.2	2.8	4.0	8.9	7.7	10.1	9.7	8.9	10.3	7.8	7.3	8.4				3.3	2.6	4.2	17.2	15.7	19.0	7.0	5.7	7.9			
30	13.5	12.1	15.2	10.9	10.1	12.1	11.3	9.8	13.0	16.6	14.6	18.8	9.6	8.6	11.2	2.7	2.3	3.1	9.9	8.7	11.1	10.9	8.9	12.9	8.1	7.4	8.7				2.9	2.0	4.3	16.2	14.8	17.2	5.0	4.3	6.0			
31	11.1	9.2	12.9	8.9	5.8	10.1				17.7	16.2	19.4	8.7	8.0	9.5							12.4	9.6	14.8	6.6	5.9	7.4							15.5	13.4	18.0	4.7	3.9	5.9			
Total	15.5	9.2	21.4	11.2	4.6	19.1	4.5	0.2	13.0	13.5	8.3	19.7	12.5	7.3	20.2	6.9	2.3	12.1	4.9	0.7	11.1	12.8	8.6	17.8	11.5	5.9	16.8	5.4	4.7	6.1	2.1	1.0	4.5	12.4	2.4	21.2	12.5	3.9	21.0	5.1	-0.1	10.1

Golder Associates

Appendix D9. Mean, minimum, and maximum daily water temperature (°C) in streams of the Meliadine Study Area, 1997 - 2000.

Day	Stream B4-5																																	
	Jul-1997			Aug-1997			Jun-1998			Jul-1998			Aug-1998			Sep-1998			Jun-1999			Jul-1999			Aug-1999			Sep-1999			Jun-2000			Jul-2000			Aug-2000			Sep-2000		
	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.
1										10.6	9.2	12.6	17.4	15.2	19.9	8.5	7.8	9.5																								
2										10.7	9.0	12.6	17.0	13.2	20.3	9.3	7.4	12.4																								
3										12.5	9.8	15.4	14.7	12.6	16.3	8.9	7.7	10.1																								
4										13.3	10.5	16.3	16.7	14.3	19.2	9.1	8.4	9.9																								
5										13.9	11.4	16.8	16.9	14.6	18.4	9.6	8.4	11.1																								
6										12.6	11.2	14.5	14.8	12.1	17.5	9.4	8.9	10.2																								
7										13.9	10.9	16.5	12.9	11.4	14.3	9.1	8.6	9.9																								
8										15.0	12.6	17.4	12.9	12.0	13.5	8.7	8.3	9.3																								
9										15.4	13.2	16.9	13.1	11.2	15.5	9.8	8.6	11.5																								
10										17.1	14.6	20.0	13.5	11.7	16.5	9.9	9.2	10.8																								
11										16.4	14.5	19.1	12.3	11.2	13.5	10.2	9.3	11.4																								
12										16.1	13.9	18.6	13.0	11.5	15.1	9.7	8.4	10.9																								
13							1.0	0.4	1.7	15.4	13.6	17.7	13.6	11.4	15.7	9.2	8.0	10.8																								
14							1.4	0.0	3.1	11.2	9.0	14.2	13.0	12.0	14.5	8.4	7.7	8.9																								
15							2.3	0.4	4.3	8.8	8.4	9.2	13.0	11.1	15.2	7.2	6.1	8.1																								
16							2.7	0.8	4.7	8.7	8.3	9.2	13.2	11.4	15.7	6.0	5.2	7.4																								
17							3.9	1.7	6.7	10.2	8.3	12.3	13.9	12.3	16.2	5.6	4.9	6.4																								
18							4.9	2.8	7.5	10.3	9.3	11.7	14.7	12.6	17.4	5.4	4.3	6.5																								
19							4.4	3.4	5.8	9.8	9.0	10.5	15.1	11.4	18.1	5.6	5.0	6.4																								
20							5.6	2.2	8.7	10.2	9.2	11.4	9.5	7.7	11.1	5.2	4.4	6.1																								
21							5.8	3.5	8.7	10.0	9.2	11.4	9.0	7.3	11.4	5.5	4.9	6.5																								
22							5.5	3.8	7.7	12.5	9.5	15.7	10.2	8.1	12.9	5.5	4.6	6.8																								
23							5.8	3.8	8.1	14.6	11.2	18.1	10.7	9.0	13.9	5.1	4.1	6.2																								
24							5.9	3.2	8.3	15.8	12.6	18.8	10.5	8.4	13.5	3.9	3.1	4.6																								
25							6.3	4.4	8.9	16.0	14.2	18.1	9.3	8.3	10.3	3.2	2.8	3.8																								
26							7.3	4.9	10.2	14.1	13.2	15.2	9.5	8.4	10.9	3.3	2.8	4.1																								
27							7.3	5.0	9.9	14.2	12.9	16.8	9.2	8.4	9.9	3.5	2.6	4.7																								
28							7.7	5.3	10.2	15.3	12.4	18.6	8.5	8.1	9.2	3.7	2.9	4.9																								
29							8.7	6.1	11.7	16.2	14.5	18.1	8.9	7.8	10.2	3.1	2.3	4.1																								
30							11.1	8.3	13.8	16.6	14.0	19.1	9.5	8.4	10.8	2.7	2.2	3.1																								
31										17.8	15.9	20.0	8.5	8.0	9.2																								
Mean							5.4	0.0	13.8	13.4	8.3	20.0	12.4	7.3	20.3	6.8	2.2	12.4																								

Day	Stream ML-PL																																	
	Jul-1997			Aug-1997			Jun-1998			Jul-1998			Aug-1998			Sep-1998			Jun-1999			Jul-1999			Aug-1999			Sep-1999			Jun-2000			Jul-2000			Aug-2000			Sep-2000		
	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.
1										5.5	5.0	6.1	14.0	13.8	14.5	10.0	9.8	10.3																								
2										6.4	5.8	7.0	14.0	13.5	14.3	10.4	10.1	11.1																								
3										7.3	6.7	8.1	13.5	13.0	13.9	10.2	9.9	10.5																								
4										7.6	7.4	8.1	14.0	13.5	14.6	10.2	10.1	10.2																								
5										8.7	7.8	9.9	14.5	14.2	14.9	10.2	9.9	10.5																								
6										9.0	8.6	9.3	14.3	13.9	14.9	10.2	10.1	10.3																								
7										9.6	8.9	10.6	13.6	13.3	14.0	10.1	9.9	10.2																								
8										9.8	9.3	10.3	13.4	13.2	13.5	9.7	9.3	9.9																								
9										9.9	9.3	10.5	13.3	12.7	13.9	9.9	9.5	10.5																								
10										11.2	10.1	12.4	13.5	13.2	14.2	10.1	9.8	10.5																								
11										11.3	10.5	12.9	13.0	12.4	13.5	10.2	10.1	10.3																								
12	15.3	14.5	16.0				2.7	2.5	2.9	11.2	10.5	11.7	13.2	12.7	13.5	10.0	9.8	10.5																								
13	14.2	13.8	14.7				2.7	2.3	3.2	11.5	10.8	12.1	13.3	13.0	13.8	9.9	9.6	10.5																								
14	13.3	13.0	13.9				2.7	1.9	3.2	10.8	10.2	11.5	13.4	13.3	13.6	9.6	9.3	9.8																								
15							2.7	2.2	3.5	9.6	9.5	10.1	13.3	12.9	13.8	8.8	8.4	9.3																								
16							3.2	2.3	3.7	9.3	9.2	9.5	13.3	13.0	13.8	8.0	7.8	8.3																								
17							3.1	2.3	4.1	9.7	9.2	10.3	13.4	13.0	13.9	7.8	7.4	8.1																								
18							3.5	2.8	4.4	10.0	9.8	10.2	13.9	13.2	14.6	7.5	7.3	7.7																								
19							3.5	3.2	4.0	9.8	9.6	9.9	14.3	13.9	14.9	7.4	7.1	7.5																								
20							3.7	3.1	4.6	9.9	9.6	10.2	12.5	11.2	13.9	7.2	7.0	7.3																								
21							4.3	3.4	5.2	9.9	9.8	10.2	11.0	10.6	11.4	7.2	7.0	7.5																								
22							4.5	4.0	5.0	10.6	9.8	11.7	11.7	10.9	12.6	7.2	7.1	7.5																								
23							4.2	3.5	4.9	11.7	10.6	13.0	11.8	11.2	12.4	6.9	6.7	7.1													3.7	3.0	3.9	10.0	9.3	10.8	12.2	12.0	12.4	3.6	3.4	3.8			
24							4.3	3.5	5.0	12.4	11.5	13.2	11.6	11.2	12.1	6.4	6.2	6.7													3.6	2.8	4.1	10.8	10.1	11.9	12.2	11.7	12.6	2.5	1.0	3.6			
25							4.4	4.1	4.9	13.0	12.3	13.8	11.4	11.1	11.5	6.0	5.8	6.2													3.4	2.3	3.9	12.2	11.5	13.0	11.7	10.9	12.3	0.5	-0.2	1.2			
26							4.6	4.3	5.0	13.0	12.7	13.2	11.1	10.8	11.4	5.7	5.3	6.1													3.3	2.2	3.8	13.4	12.6	14.0	10.4	9.9	10.9	1.0	0.8	1.2			
27							4.8	4.4	5.2	12.8	12.4	13.5	10.9	10.5	11.1	5.4	5.2	5.8													3.6	2.9	3.9	12.9	11.7	13.7	9.9	9.3	10.2						
28							5.1	4.6	5.8	13.2	12.4	14.3	10.3	10.1	10.6	5.4	5.0	5.6													3.5	2.5	3.9	13.1	12.0	13.5	9.7	9.4	10.1						
29							5.3	4.7	6.2	13.7	13.2	14.2	10.4	10.1	10.6	5.0	4.9	5.3													3.6	3.3	3.7	13.4	13.0	14.3	9.1	8.5	9.6						
30							5.2	4.9	5.6	13.9	13.6	14.3	10.5	10.3	10.8	4.6	4.4	4.7													3.8	3.0	4.1	14.1	13.8	14.4	7.8	7.4	8.5						
31										14.4	13.9	14.9	10.2	9.9	10.5																			13.9	13.3	14.7	7.1	6.5	7.5						
Total							3.9	1.9	6.2	10.5	5.0	14.9	12.7	9.9	14.9	8.2	4.4	11.1													3.6	2.2	4.1	8.5	3.5	14.7	12.4	6.5	15.9	6.0	-0.2	8.8			

Appendix D9. Mean, minimum, and maximum daily water temperature (°C) in streams of the Meliadine Study Area, 1997 - 2000.

Day	Stream ML-MR																																							
	Jul-1997			Aug-1997			Jun-1998			Jul-1998			Aug-1998			Sep-1998			Jun-1999			Jul-1999			Aug-1999			Sep-1999			Jun-2000			Jul-2000			Aug-2000			Sep-2000		
	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.
1										6.1	5.2	7.3	15.7	14.6	16.9	9.2	8.7	9.5				4.9	4.3	5.5	12.6	11.5	13.8	7.2	7.0	7.5				4.4	3.9	4.9	14.7	13.5	15.9	6.2	5.7	7.2
2										5.5	4.9	6.4	15.7	14.5	16.9	9.5	8.7	10.5				5.4	4.7	6.1	12.7	12.1	13.6	7.0	6.8	7.8				4.6	4.0	5.4	15.1	13.8	16.8	5.5	4.3	6.3
3										6.8	5.2	8.9	14.5	13.6	15.7	9.1	8.4	9.8				6.5	5.6	7.3	12.1	11.5	12.6							4.8	4.2	5.6	15.2	14.5	16.3	6.7	5.0	8.4
4										7.5	6.2	8.9	15.9	14.5	17.8	9.1	8.9	9.5				7.1	6.5	7.8	12.1	11.1	13.0							5.2	4.2	6.5	16.3	14.5	18.4	7.5	5.6	9.6
5										8.2	7.0	9.8	16.0	15.1	16.9	9.2	8.7	9.9				8.8	7.3	10.1	11.9	11.4	12.7							5.1	4.3	6.2	16.6	14.7	18.8	7.7	6.3	9.4
6										8.4	7.7	9.6	15.1	13.5	16.8	9.6	9.2	9.9				9.7	8.7	11.1	12.0	11.5	12.6							5.1	4.2	6.3	16.7	15.3	18.3	8.0	7.1	9.4
7										9.3	8.1	10.6	13.9	13.2	14.6	9.3	9.0	9.5				10.4	9.6	11.7	11.8	11.5	12.3							5.4	4.2	6.8	16.9	15.5	18.6	7.8	6.9	8.3
8										10.0	8.7	11.5	13.8	13.3	14.2	8.7	8.3	9.2				10.4	9.8	11.2	11.8	11.4	12.6							5.6	4.6	6.9	17.2	16.0	18.6	7.4	5.4	8.8
9										10.5	9.5	11.7	13.9	12.9	15.2	9.4	8.6	10.3				11.2	10.5	11.7	12.6	11.4	14.5							5.9	4.7	7.8	16.8	15.5	18.3	7.3	6.7	8.3
10										12.2	10.3	13.6	14.0	12.1	16.2	9.6	8.9	10.1				11.9	11.4	12.6	13.2	11.7	15.1							6.0	5.1	6.8	15.3	14.7	15.8	7.3	6.9	7.6
11										12.3	11.4	13.6	12.7	11.5	13.9	9.9	9.5	10.6				11.2	10.6	11.8	13.4	12.4	14.8							6.4	4.9	8.1	14.6	14.0	15.4	7.6	7.2	8.2
12							3.0	2.6	3.2	12.2	11.2	13.8	13.3	11.8	14.6	9.2	8.4	10.3				11.3	10.5	12.3	13.8	13.0	14.5							7.4	6.2	8.7	13.9	13.1	14.6	7.5	7.1	8.1
13							3.1	2.5	3.8	12.0	10.9	13.5	13.4	12.0	14.8	8.7	7.4	9.8				11.7	11.2	12.3	13.7	13.0	14.6							8.3	7.2	9.9	13.2	12.7	13.5	7.6	7.1	8.1
14							4.0	2.8	5.3	10.7	9.6	12.0	13.3	12.7	13.9	8.9	8.6	9.2				11.8	11.7	12.0	13.5	12.9	14.3							8.0	7.5	8.5	13.4	12.2	14.7	7.3	6.2	8.4
15							4.2	2.9	5.3	9.0	8.7	9.6	13.1	12.3	14.0	8.0	7.0	8.6				11.7	11.2	12.3	13.6	12.6	14.5							7.8	7.4	8.5	13.7	12.8	14.8	6.2	5.8	6.4
16							4.3	3.2	5.6	8.8	8.7	9.0	13.4	12.1	14.8	6.8	5.9	7.8				11.1	10.5	11.8	14.0	12.9	15.9							7.8	6.8	8.8	12.5	11.5	13.4	6.8	5.6	8.2
17							4.7	3.4	6.2	9.7	8.6	10.8	13.7	12.3	15.1	6.9	6.2	7.7				10.5	9.9	11.2	14.1	13.3	15.4							8.7	7.4	10.0	12.3	11.1	13.8	5.9	5.2	6.6
18							4.8	3.7	6.1	9.9	9.5	10.6	14.0	12.4	15.9	6.7	5.8	7.4				10.6	9.8	11.5	13.1	12.9	13.5							10.0	8.4	12.0	12.8	10.8	14.5	5.0	4.3	6.0
19							4.5	4.0	5.3	9.6	9.2	9.9	14.5	13.3	16.3	6.6	6.2	7.1				11.5	10.6	12.7	13.3	12.1	14.6							10.4	8.9	11.8	12.4	11.4	13.8	4.7	3.0	6.4
20							5.2	4.1	7.0	9.8	9.3	10.5	11.0	9.3	13.2	6.4	5.6	7.0	4.3	3.8	5.0	11.7	11.4	12.3	12.9	11.5	13.9							12.5	9.6	14.6	12.1	11.0	13.0	3.9	3.3	4.3
21							5.3	4.0	6.8	9.9	9.5	10.5	10.0	8.6	11.5	6.6	6.1	7.4	4.0	3.4	4.4	12.1	11.1	13.2	11.6	10.8	12.6							13.5	12.3	14.6	12.0	11.1	12.9	2.9	2.1	3.4
22							5.2	4.3	6.5	11.1	9.6	12.9	10.5	9.5	11.8	6.4	5.9	7.1	4.5	4.0	5.3	12.5	11.8	13.6	11.0	10.3	12.0				4.2	3.1	4.9	13.7	11.7	15.8	12.1	11.5	12.8	2.4	0.6	3.4
23							5.1	4.3	6.4	12.4	10.5	14.6	11.1	10.5	12.1	6.0	5.5	6.8	3.7	2.6	4.1	13.5	12.3	15.1	10.7	9.9	11.2				3.7	3.1	4.7	13.2	12.1	14.5	12.0	11.5	12.6	2.8	2.4	3.3
24							5.2	4.3	6.2	13.3	11.8	15.1	10.6	9.8	11.8	5.3	3.8	5.8	2.9	2.5	3.2	13.2	12.6	13.6	9.9	9.8	10.2				3.7	3.3	4.3	12.7	11.6	14.1	12.2	11.7	13.0	1.4	0.4	2.9
25							5.4	4.3	7.0	13.5	12.3	15.4	10.0	9.6	10.3	4.5	3.7	5.0	2.9	2.3	3.7	13.0	12.1	14.3	10.5	9.3	12.0				3.9	3.6	4.5	13.0	11.5	14.7	11.1	9.5	11.7	0.1	-0.1	0.3
26							5.9	4.6	7.7	12.9	12.4	13.5	10.0	9.3	10.6	4.5	4.0	5.5	3.3	2.8	3.8	11.3	10.5	12.3	9.6	9.3	10.2				3.7	3.5	4.2	13.9	12.1	16.3	9.3	8.5	10.2			
27							5.9	4.6	7.4	13.0	12.3	14.3	9.7	9.2	10.1	4.7	3.8	5.6	3.8	3.2	4.4	10.8	10.5	11.4	9.5	9.0	9.6				3.9	3.5	4.5	13.9	12.6	15.4	9.0	7.9	9.9			
28							6.0	4.6	7.8	13.8	12.1	15.9	9.2	8.9	9.8	4.6	4.3	5.2	4.4	3.7	4.9	10.6	10.3	10.9	8.9	8.1	9.8				4.3	3.6	4.9	13.9	12.8	15.1	9.1	8.5	10.0			
29							5.9	4.9	7.5	14.2	13.0	15.7	9.3	8.9	9.8	4.3	3.7	4.6	4.7	4.1	5.2	10.5	10.3	10.8	9.1	8.1	9.9				4.2	3.8	4.7	14.1	12.8	15.9	8.4	7.4	8.9			
30							6.2	4.7	8.1	14.6	13.5	16.2	9.6	9.2	10.2	4.0	3.7	4.3	4.9	4.6	5.5	11.1	10.1	12.3	9.1	8.4	9.6				4.2	3.7	4.8	13.9	13.7	14.4	6.8	5.9	7.7			
31										15.3	14.2	16.6	9.3	9.0	9.8							11.9	10.5	13.2	7.9	7.4	8.4							14.2	13.1	15.3	6.3	5.7	6.9			
Total							4.9	2.5	8.1	10.7	4.9	16.6	12.6	8.6	17.8	7.4	3.7	10.6	3.9	2.3	5.5	10.6	4.3	15.1	11.8	7.4	15.9	7.1	6.8	7.8	4.0	3.1	4.9	9.3	3.9	16.3	12.9	5.7	18.8	5.7	-0.1	9.6

Day	Stream MR-L																																							
	Jul-1997			Aug-1997			Jun-1998			Jul-1998			Aug-1998			Sep-1998			Jun-1999			Jul-1999			Aug-1999			Sep-1999			Jun-2000			Jul-2000			Aug-2000			Sep-2000		
	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.
1										9.0	7.1	10.9	17.0	14.5	19.7	8.7	7.4	10.3				7.0	4.6	9.5	14.1	11.4	16.9	5.6	5.0	6.2				4.7	3.1	6.5	15.9	12.6	19.1	5.3	3.5	7.4
2										9.3	7.4	11.5	16.4	12.4	19.5	10.1	7.4	13.0				7.8	5.2	10.8	13.7	12.1	15.4	6.8	5.3	9.0				5.2	3.6	6.8	17.0	14.0	20.1	4.3	2.9	5.7
3										12.0	8.4	15.2	13.7	11.5	15.4	9.5	8.3	10.6				8.2	5.5	11.1	11.5	10.2	13.0	7.0	5.9	8.7				6.0	4.1	8.6	16.9	15.5	19.0	6.7	3.4	10.4
4										13.0	10.1	16.3	17.1	13.6	20.0	9.4	8.7	9.9				9.0	5.9	12.3	12.1	9.3	15.2	7.6	4.9	10.5				6.9	3.7	10.3	17.3	14.3	20.2	8.8	5.5	12.2
5										13.3	9.9	16.8	17.0	14.0	18.8	9.8	8.4	11.4				11.7	8.3	15.7	11.6	10.3	13.0	9.2	7.1	11.8				7.2	4.5	10.1	18.1	15.2	20.7	9.0	6.9	11.0
6										10.7	9.3	12.4	13.7	10.6	16.2	9.7	8.9	10.5				13.5	10.9	15.7	11.4	9.9	12.4	7.9	6.8	8.9				6.8	4.1	9.6	18.1	15.8	21.0	9.2	8.2	10.7
7										12.3	8.3	16.0	12.0	9.8	13.8	9.1	8.1	10.2				12.2	10.3	13.9	11.2	10.3	12.0	8.7	6.7	11.2				7.4	4.4	10.6	17.6	15.4	20.2	8.7	6.8	9.8
8										13.6	10.5	16.9	12.4	11.7	13.0	8.2	7.8	8.7				12.7	9.8	15.7	11.5	10.2	13.2	8.8	7.7	10.2				8.1	5.0	11.3	17.1	14.5	19.8	7.0	4.7	9.5
9										13.6	10.9	15.7	13.2	10.8	15.7	10.5	8.3	12.3				12.5	10.9	14.2	13.8	10.3	17.4	8.2	7.0	9.8				9.1	5.6	12.6	15.9	13.7	18.8	7.2	6.5	8.2
10										15.4	11.8	18.9	13.7	11.4	16.8	10.6	9.6	11.5				12.4	10.2	15.1	15.7	12.7	19.1	7.8	5.6	10.2				10.3	8.0	12.6	12.5	11.8	14.2	7.3	6.8	7.9
11										14.4	12.4	16.9	11.6	10.3	12.9	10.3	8.4	11.5				11.6	10.8	12.4	15.5	13.2	18.0	8.0	5.8	10.5				10.0	6.7	13.4	12.2	10.9	13.4	7.9	6.9	9.4
12							3.3	2.8	3.5	13.9	11.5	16.6	13.2	11.2	15.4	9.3	7.4	11.2				13.1	10.5	16.2	14.8	13.0	16.9	6.9	6.1	9.2				10.6	7.8	13.6	11.8	10.3	13.0	7.7	6.6	8.9
13							3.1	2.2	4.3	13.2	10.6	15.5	14.0	11.2	16.5	8.9	6.7	10.8				12.9	11.5	14.0	13.4	12.0	15.1							9.8	7.5	12.4	11.3	10.5	12.2	7.7	6.8	8.5
14							5.9	2.3	9.3	9.2	6.8	12.1	13.5	11.8	14.9	7.9	7.0	8.6				12.1	11.5	12.7	12.9	10.6	14.8							7.5	6.4	9.5	12.4	9.9	14.9	7.5	6.3	9.3
15							6.3	3.2	9.3	7.5	6.2	8.4	12.8	10.9	14.8	6.7	5.0	8.0				12.1	10.5	13.9	13.3	10.8	15.5							7.0	5.5	9.3	14.1	11.6	17.0	5.4	4.7	6.1
16							5.9	3.2	8.7	8.7	8.0	9.3	13.0	10.6	15.1	5.6	4.1	7.3				11.1	9.0	13.5	14.2	11.5	16.6							8.5	5.1	12.2	11.0	8.6	13.4	6.5	4.8	8.6
17							6.6	2.9	10.2	10.7	8.3	12.9	14.2	11.8	16.8	6.0	4.3	7.3				9.9	7.8	11.8	14.6	12.9	17.1							10.4	6.8	14.2	10.5	8.1	13.4	4.4	2.8	6.0
18							6.7	3.7	9.3	10.9	9.9	12.3	15.8	12.3	19.1	6.1	4.6	7.7				11.0	8.4	13.9	11.5	11.1	13.0							12.0	8.7	15.4	12.4	9.3	15.7	3.4	1.7	5.6
19							5.4	4.3	6.2	10.0	9.2	10.6	15.0	10.1	18.3	6.2	5.3	7.3				13.3	10.5	16.6	12.7	10.2	15.1							13.2	9.8	16.6	12.3	10.8	14.4	3.4	1.1	5.9
20							7.3	4.0	10.8	10.4	9.2	11.7	7.6	5.9	9.9	6.1	5.0	7.1	6.6	4.9	7.7	12.8	11.2	13.8	12.6	9.6	14.2							14.7	11.1	18.2	11.4	10.4	12.1	2.5	1.4	3.4
21							8.3	4.9	11.7	10.1	9.2	11.4	8.7	5.8	11.2	6.4	5.5	7.5	5.2	3.1	7.5	13.3	10.2	16.9	9.6	8.0	11.8							15.9	12.8	18.9	10.9	9.4	12.1	0.7	0.0	1.7
22							7.7	5.6	9.8	13.5	9.6	16.9	10.6	8.1	12.7	6.0	4.9	7.1	7.0	3.8	10.3	13.7	11.8	15.7	9.3	7.5	11.2							15.7	13.6	18.3	11.3	10.7	11.8	0.8	-0.3	2.0
23							8.6	5.0	12.1	15.5	11.7	19.1	11.3	9.2	14.0	5.4	4.3	7.0	4.2	2.8	7.4	14.9	12.1	17.5	9.1	7.8	10.1							13.2	10.8	15.8	11.2	10.3	12.0	1.9	1.0	2.8
24							8.8	6.8	10.9	16.4	12.9	19.5	11.1	9.3	13.5	4.1	3.1	5.0	3.0	2.0	4.0	13.4	11.8	14.9	8.1	7.0	9.6							12.7	10.5	15.5	11.8	11.0	13.1	0.5	-0.1	2.3
25							8.5	6.2	10.8	15.6	13.0	18.1	9.6	8.6	10.9	3.0	2.5	3.7	4.4	2.5	6.8	12.6	10.2	15.4	9.7	6.2	12.7				3.9	2.9	4.8	14.1	10.8	17.2	9.7	7.3	11.2	0.0	-0.1	0.1
26							9.2	6.7	12.0	12.4	11.1	13.0	9.6	8.3	10.8	3.5	2.0	4.7	5.4	3.2	7.8	8.1	6.8	11.4	8.5	8.0	10.3				2.7	2.0	3.6	15.9	12.4	19.5	7.5	6.2	9.2			
27							9.1	6.1	12.3	13.2	10.8	16.0	8.9	8.0	9.8	4.4	2.6	6.4	6.4	3.8	8.7	8.9	6.8	10.6	8.5	7.1	9.6				3.2	1.8	5.0	17.5	14.3	20.9	6.9	5.5	8.1			
28							9.8	6.4	13.0	15.1	11.5	18.0	8.0	7.7	8.4	4.8	3.8	5.9	6.9	4.6	9.5	9.7	8.9	10.6	7.6	5.3	9.8				4.5	2.4	6.6	15.2	13.5	16.8	8.4	6.6	10.4			
29							10.0	6.8	13.3	15.7	13.6	18.0	8.8	7.7	9.8	3.6	2.3	4.9	6.8	4.3	9.6	10.1	8.9	11.4	8.6	7.1	9.9				4.3	3.0	5.3	14.5	11.9	17.5	7.4	5.7	9.1			
30							10.2	7.5	12.4	16.2	12.9	18.8	10.3	8.6	12.0	2.9	2.2	3.5	7.1	5.0	9.8	11.1	9.3	12.9	9.2	7.8	9.9				4.2	3.0	5.6	13.8	12.9	14.8	4.7	3.8	5.6			
31										17.5	15.1	19.9	8.6	7.7	9.2							13.0	9.6	16.5	6.5	5.8	7.8							14.3	11.5	17.4	4.7	3.7	6.1			
Total							7.4	2.2	13.3	12.7	6.2	19.9	12.3	5.8	20.0	7.1	2.0	13.0	5.7	2.0	10.3	11.5	4.6	17.5	11.5	5.3	19.1	7.7	4.9	11.8	3.8	1.8	6.6	10.9	3.1	20.9	12.3	3.7	21.0	5.4	-0.3	12.2

Golder Associates

Appendix D10. Mean, minimum, and maximum daily water temperature (°C) in lakes of the Meliadine Study Area, 1997 - 2000.

Day	Lake A8						Lake A8												Lake A6												Lake A6											
	Jul-1997			Aug-1997			Jun-1998			Jul-1998			Aug-1998			Sep-1998			Jun-1999			Jul-1999			Aug-1999			Sep-1999			Jun-2000			Jul-2000			Aug-2000			Sep-2000		
	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.
1										11.4	10.9	11.8	17.4	16.6	18.3	8.8	8.4	9.2				11.3	10.6	12.0	13.2	11.5	15.4	5.9	5.5	6.5				4.0	2.9	5.3	16.3	14.2	18.3	4.8	4.1	5.8
2										10.9	10.5	11.5	17.3	16.2	18.3	9.2	8.3	10.5				11.5	10.6	12.6	13.4	12.3	14.5	5.0	4.7	5.6				4.5	3.1	6.7	17.1	16.0	18.3	4.2	3.2	4.9
3										12.2	10.8	13.8	15.4	14.9	16.2	9.0	8.3	9.6				11.8	11.2	12.6	12.2	11.4	13.0							4.8	3.8	6.1	17.4	16.4	18.6	5.5	3.6	8.2
4										13.2	12.0	14.8	16.5	14.9	18.1	9.1	8.6	9.5				12.3	11.2	13.2	12.0	10.6	13.6							4.8	3.6	6.3	17.7	16.5	18.6	6.8	5.1	8.8
5										14.1	12.3	16.3	17.1	16.5	17.7	9.4	8.7	10.2				14.6	12.4	17.8	11.6	10.6	12.4							5.0	3.8	6.2	19.1	17.5	21.4	7.5	6.6	8.4
6										12.9	12.1	13.6	15.9	14.3	17.1	9.4	9.0	9.8				16.0	14.6	17.4	11.4	10.3	11.8							4.9	3.7	6.3	19.1	18.2	20.0	8.0	7.5	9.0
7										13.6	11.5	15.2	13.6	13.2	14.5	9.2	8.7	9.6				16.1	15.2	17.4	11.3	10.6	11.8							5.3	3.7	6.9	18.6	18.0	19.2	8.3	7.3	8.9
8										14.6	12.9	16.6	13.3	12.9	13.5	8.5	8.3	8.9				16.3	15.1	17.1	11.1	10.9	11.4							6.2	4.9	7.3	18.6	17.6	20.6	7.8	6.6	9.2
9										15.0	12.9	16.3	13.1	12.3	14.0	9.3	8.4	10.8				16.2	15.5	16.6	11.5	10.6	12.3							7.3	5.8	9.3	17.7	16.8	19.0	7.7	7.4	8.0
10										16.4	14.5	18.1	13.4	12.3	15.1	9.8	9.3	10.3				16.3	15.2	17.4	12.6	11.8	13.5							9.6	8.9	10.5	16.1	15.0	17.1	7.5	7.4	7.7
11										16.4	15.2	18.1	12.2	11.7	12.7	10.0	9.6	10.3				13.9	13.0	15.4	13.5	12.9	14.9							9.9	8.6	11.0	14.6	13.3	15.1	7.6	7.4	7.9
12										15.9	14.3	17.4	12.7	11.7	13.8	9.8	9.2	10.2				13.8	12.3	15.4	14.4	13.3	15.5							10.6	9.7	11.4	12.9	12.3	13.5	7.7	7.1	8.7
13										15.1	13.5	16.5	13.3	12.6	14.2	9.4	8.9	9.9				13.4	12.7	14.3	14.3	13.3	15.2							12.6	10.8	14.3	12.2	11.6	12.8	7.7	7.3	8.2
14										13.1	10.9	14.6	13.4	13.0	13.9	8.8	8.3	9.2				13.4	13.2	13.9	13.5	12.3	14.3							11.2	10.4	12.4	12.1	10.8	13.8	7.6	7.0	8.6
15										9.5	9.0	10.8	13.2	12.3	14.0	7.7	7.0	8.3				13.1	12.1	14.0	13.6	12.0	15.1							10.8	10.0	11.8	13.2	12.0	14.6	6.8	6.4	7.2
16										8.9	8.7	9.2	13.2	12.4	13.9	6.3	5.9	7.0				11.9	10.5	13.3	14.1	13.0	14.9							10.8	8.5	13.2	12.5	11.4	13.6	6.7	6.3	7.6
17										9.5	8.6	10.6	13.6	12.4	14.6	5.8	5.0	6.2				10.6	9.5	11.5	14.4	13.3	15.9							11.2	9.5	12.5	11.6	10.4	13.1	5.3	4.4	6.1
18										10.2	9.8	10.8	14.4	12.6	15.9	5.7	5.2	6.4				10.6	8.9	12.3	13.4	13.0	13.6							12.6	10.4	15.4	12.1	10.8	13.0	4.2	3.5	5.3
19										10.0	9.6	10.3	15.3	14.2	17.2	5.5	5.0	5.9	5.5	4.6	6.2	12.0	10.8	13.8	12.9	11.7	14.2							14.8	13.1	16.1	12.3	11.9	12.8	4.0	3.1	5.1
20							6.0	5.0	7.5	10.1	9.6	10.6	11.4	9.0	14.2	5.4	5.0	5.8	4.4	3.7	5.2	12.7	12.0	13.0	13.1	11.7	13.8							16.8	14.7	19.5	12.1	11.8	12.4	3.6	2.9	4.1
21							5.8	4.1	7.7	10.0	9.8	10.5	8.8	7.8	9.5	5.6	5.0	6.1	3.6	3.2	4.0	12.7	11.2	14.3	10.7	10.1	11.5				2.1	1.7	2.6	18.2	16.6	19.9	11.9	11.1	12.6	2.1	1.2	2.8
22							5.9	4.4	7.7	11.3	9.8	13.0	9.9	8.9	11.1	5.4	4.9	6.1	4.4	3.4	6.4	13.3	12.6	14.0	9.7	8.6	10.6				2.1	1.2	3.1	18.2	17.2	19.0	11.7	11.3	11.9	1.5	0.9	2.2
23							5.3	4.1	7.0	13.5	11.7	15.1	10.8	9.8	12.4	5.2	4.7	5.8	2.5	1.0	4.0	14.0	13.0	15.2	9.6	9.3	9.9				1.8	1.0	2.6	17.5	16.8	18.1	11.5	11.0	11.8	1.5	1.1	1.8
24							5.8	4.3	8.1	15.4	13.8	16.9	10.9	9.5	12.6	4.6	4.1	4.9	1.1	0.8	1.3	14.2	13.3	14.9	8.9	8.3	9.5				1.7	1.2	2.3	17.4	16.6	18.2	11.6	11.3	12.0	0.4	-0.1	1.6
25							5.5	4.0	7.4	16.2	14.9	17.7	10.1	9.5	10.8	3.7	3.1	4.1	2.1	1.0	3.7	13.2	12.3	13.9	8.6	7.4	9.8				2.1	0.9	3.8	17.6	16.5	18.4	10.6	8.8	11.7	1.0	0.3	1.8
26							7.3	5.0	9.5	14.9	14.2	15.5	9.8	9.3	10.6	3.3	2.8	3.7	4.5	2.8	7.7	11.2	9.5	13.3	8.8	8.6	9.2				1.2	0.7	1.9	19.0	17.1	21.3	8.5	7.7	9.1	1.1	0.9	1.2
27							9.1	7.1	11.1	14.2	13.6	15.1	9.4	8.9	9.8	3.5	2.9	4.3	7.2	5.2	9.8	9.4	9.0	9.9	8.4	7.5	8.7				2.2	0.8	4.0	20.0	18.9	21.0	8.1	7.5	9.1	1.3	1.0	1.5
28							10.1	8.1	12.1	15.0	13.3	16.8	8.7	8.4	9.0	3.8	3.1	4.4	8.9	7.1	10.3	9.4	9.0	9.8	7.4	6.1	8.4				3.6	2.6	4.7	18.5	17.6	19.4	8.0	7.6	8.7	1.5	1.3	1.9
29							10.7	9.2	12.3	15.5	14.2	16.3	8.8	8.3	9.5	3.4	2.9	3.8	10.1	8.3	11.5	9.5	9.2	9.9	7.8	7.4	8.1				3.7	2.8	4.9	17.5	16.9	18.1	7.5	6.5	8.0	1.8	1.5	2.3
30							11.6	10.1	13.0	16.1	14.9	17.1	9.4	8.6	10.3	2.7	2.5	3.1	11.1	9.6	12.1	10.3	9.3	11.2	8.2	7.8	8.6				3.5	2.5	4.4	17.2	16.4	17.6	5.6	4.8	6.5	2.1	1.8	2.6
31										17.2	16.2	18.1	9.0	8.7	9.2							11.7	10.1	13.8	7.2	6.5	8.0							16.2	15.6	17.5	4.9	4.4	5.4			
Total							7.5	4.0	13.0	13.3	8.6	18.1	12.6	7.8	18.3	6.9	2.5	10.8	5.4	0.8	12.1	12.8	8.9	17.8	11.4	6.1	15.9	5.4	4.7	6.5	2.4	0.7	4.9	12.1	2.9	21.3	13.0	4.4	21.4	4.8	-0.1	9.2

Day	Lake B2						Lake B2												Lake B2												Lake B2											
	Jul-1997			Aug-1997			Jun-1998			Jul-1998			Aug-1998			Sep-1998			Jun-1999			Jul-1999			Aug-1999			Sep-1999			Jun-2000			Jul-2000			Aug-2000			Sep-2000		
	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.
1										11.5	10.9	12.1	17.4	16.0	18.6	8.9	8.4	9.5				10.7	9.8	11.4	13.0	11.5	14.2	5.5	4.9	5.9				2.9	2.4	3.7	16.3	14.5	17.9	5.0	4.3	5.7
2										11.2	10.3	12.4	17.4	15.9	19.1	9.3	8.3	10.9				11.1	10.1	12.0	13.4	12.3	14.2	5.5	5.0	6.1				3.1	2.6	3.7	17.2	15.4	18.9	4.6	4.3	5.0
3										12.6	10.5	14.5	15.6	14.6	16.6	9.2	8.4	9.9				11.5	10.6	12.3	12.5	12.0	13.0							3.3	2.7	5.0	17.4	16.8	18.3	5.3	4.2	6.4
4										13.7	11.7	16.2	16.2	15.1	17.5	9.3	8.9	9.8				12.0	10.6	13.0	12.3	11.4	13.2							4.7	3.2	6.7	17.5	16.0	19.0	6.7	4.8	8.5
5										13.8	12.0	14.9	17.3	16.2	18.4	9.6	9.0	10.8				14.6	12.3	17.4	12.1	11.7	12.7							4.7	3.7	6.2	18.8	16.7	21.1	7.4	6.9	7.9
6										13.5	12.7	14.2	16.1	15.1	17.2	9.5	9.2	10.1				15.4	13.8	17.4	11.8	11.4	12.4							4.5	3.7	5.5	19.2	18.1	20.0	8.0	7.5	8.6
7										13.7	12.4	14.8	14.2	13.6	14.9	9.4	9.0	9.9				15.2	14.2	16.0	11.6	11.2	12.1							5.2	3.7	6.6	18.8	18.0	19.4	8.3	7.7	8.7
8										15.0	12.9	16.6	13.5	12.9	13.8	9.1	8.9	9.3				15.6	14.2	16.8	11.5	11.1	12.3							7.5	5.2	9.7	18.6	17.7	20.1	7.5	6.7	8.1
9										15.5	14.2	16.3	13.2	12.1	14.9	9.4	8.7	10.2				16.0	15.2	16.6	12.9	10.8	14.9							9.3	7.2	11.8	17.6	16.6	18.8	7.6	7.4	7.9
10										16.7	14.6	18.8	13.4	12.3	14.5	9.9	9.3	10.3				16.2	14.9	17.8	13.9	12.6	15.7							11.6	9.6	13.0	16.2	15.4	17.1	7.5	7.3	7.7
11										16.5	15.1	17.8	12.8	12.3	13.3	10.2	9.8	11.2				14.3	13.5	15.1	14.4	13.5	15.4							13.0	11.4	14.4	14.8	14.0	15.3	7.6	7.4	8.2
12										16.5	15.4	17.5	13.0	12.1	14.2	9.7	8.9	10.8				13.9	12.9	15.1	14.7	13.5	16.2							14.6	13.3	15.8	13.3	12.6	13.9	7.7	7.1	8.4
13										16.0	15.1	16.9	13.5	12.1	14.9	9.4	8.3	10.8				14.0	13.3	14.9	14.2	13.2	15.4							14.8	13.6	16.5	12.3	12.0	12.6	7.7	7.3	8.3
14										13.0	11.1	15.1	13.6	12.7	14.8	8.9	8.1	9.5				13.5	13.0	13.9	13.9	13.0	14.8							13.9	12.9	14.6	12.5	11.3	14.1	7.6	6.9	8.3
15										9.8	9.2	11.1	13.6	12.3	15.2	7.8	7.1	8.1				13.2	12.6	13.9	13.9	12.9	14.9							11.8	11.0	12.8	13.1	12.1	14.2	6.7	6.2	7.1
16										9.1	8.9	9.2	13.8	12.4	15.5	6.5	5.6	7.1				12.3	11.4	13.0	14.3	13.2	15.9							11.6	10.0	13.3	12.4	11.3	13.3	6.7	6.0	7.8
17										10.0	8.6	11.5	14.5	13.3	16.0	5.9	5.2	6.5				11.0	10.3	11.7	14.5	13.8	15.9							12.6	10.5	15.2	11.5	10.3	13.0	5.5	4.8	6.4
18										10.4	9.6	11.5	15.2	13.9	16.8	5.8	4.9	6.8				10.8	9.9	12.1	13.4	13.0	13.8							13.8	12.6	14.9	11.7	10.4	12.7	4.3	3.8	4.8
19							3.5	3.2	3.8	10.1	9.5	10.5	15.6	14.5	16.8	5.6	5.0	6.4	3.7	3.1	4.0	12.3	10.6	14.6	13.2	12.1	14.5							14.2	11.8	15.6	12.3	12.1	12.7	3.8	2.5	4.8
20							4.3	2.5	6.2	10.2	9.5	11.2	11.7	9.5	14.2	5.6	4.9	6.2	3.6	3.1	4.1	12.6	11.8	13.2	12.8	11.8	13.8							16.3	13.6	18.9	12.2	11.8	12.5	3.4	2.8	3.8
21							4.7	3.4	5.8	10.1	9.5	10.9	9.3	8.6	10.1	5.6	4.9	6.5	3.6	2.9	4.3	13.3	11.1	14.9	11.0	10.2	11.8							17.6	15.5	19.8	11.9	11.1	12.5	2.1	1.3	2.8
22							4.7	3.7	5.5	11.6	9.8	13.8	10.2	8.9	11.8	5.7	5.2	6.4	4.1	2.9	5.9	13.9	13.3	14.5	10.2	9.5	11.2				1.3	0.8	1.6	17.7	16.4	18.7	11.8	11.3	12.1	1.7	0.6	2.4
23							5.5	3.8	7.3	14.0	11.5	16.9	10.7	9.6	11.8	5.4	4.7	6.1	2.1	0.7	4.1	14.6	13.5	15.7	9.7	9.0	10.2				1.4	0.8	1.9	17.2	16.3	18.0	11.5	11.1	11.7	1.7	1.4	2.5
24							5.6	4.6	6.4	15.6	13.2	18.0	10.9	9.9	12.1	4.5	3.8	5.0	0.8	0.4	1.3	14.4	13.5	14.9	8.9	8.0	9.3				1.3	0.6	1.7	16.7	15.3	17.8	11.6	11.2	12.0	0.8	0.0	1.9
25							5.9	4.9	7.1	15.8	14.9	16.8	10.5	10.1	11.1	3.8	3.1	4.3	1.9	0.4	3.5	13.8	12.4	15.4	9.3	7.5	11.2				1.5	0.9	2.2	16.7	15.1	18.1	11.0	9.8	11.5	0.8	0.1	1.9
26							7.1	5.6	9.0	15.0	14.2	15.7	10.3	9.8	11.1	3.8	3.1	4.4	4.2	2.3	5.9	11.2	9.3	13.5	8.8	8.4	9.5				1.2	1.0	1.6	17.9	15.4	20.5	8.9	8.1	9.8			
27							7.4	6.2	8.7	14.4	13.6	15.7	10.0	9.5	10.2	3.9	3.5	4.3	6.5	4.3	8.7	9.6	9.2	10.2	8.3	7.8	8.6				1.7	1.0	2.9	19.3	17.6	20.8	7.9	6.9	8.3			
28							8.9	7.3	10.2	14.7	13.3	16.3	9.2	8.9	9.5	4.0	3.5	4.6	8.0	6.8	8.9	9.5	9.0	9.9	7.6	7.0	8.1				2.7	1.4	4.6	18.0	16.8	18.9	8.0	7.7	8.5			
29							10.2	8.3	11.4	15.9	14.3	17.5	9.1	8.7	9.8	3.6	2.6	4.3	9.3	7.8	10.3	9.6	9.0	10.1	7.6	7.0	8.1				2.7	2.3	3.2	17.1	16.1	18.0	7.5	6.8	8.0			
30							11.5	9.0	13.3	16.4	14.6	17.8	9.5	8.9	10.2	3.0	2.8	3.2	10.1	8.7	11.2	10.4	9.0	12.3	8.2	7.5	8.9				2.7	1.5	4.0	16.6	15.8	17.3	6.0	5.3	6.9			
31										17.5	15.7	19.7	9.2	8.9	9.5							11.8	9.8	13.6	6.7	5.9	7.5							16.0	14.7	17.6	5.1	4.6	5.5			
Total							6.6	2.5	13.3	13.6	8.6	19.7	12.9	8.6	19.1	7.1	2.6	11.2	4.8	0.4	11.2	12.9	9.0	17.8	11.6	5.9	16.2	5.5	4.9	6.1	1.8	0.6	4.6	12.4	2.4	20.8	13.1	4.6	21.1	5.4	0.0	8.7

Golder Associates

Appendix D10. Mean, minimum, and maximum daily water temperature (°C) in lakes of the Meliadine Study Area, 1997 - 2000.

Day	Lake G2						Lake B5												Lake B5												Lake B5											
	Jul-1997			Aug-1997			Jun-1998			Jul-1998			Aug-1998			Sep-1998			Jun-1999			Jul-1999			Aug-1999			Sep-1999			Jun-2000			Jul-2000			Aug-2000			Sep-2000		
	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.
1										10.8	10.1	11.5	17.6	16.3	18.8	8.9	8.6	9.2																									
2										10.8	10.1	11.5	17.5	15.9	18.8	9.3	8.3	10.3																									
3										11.9	10.2	13.3	15.7	14.9	16.3	9.2	8.7	9.6																									
4										12.9	11.5	14.0	16.9	15.1	18.6	9.3	8.9	9.6																									
5										14.1	12.0	16.3	17.7	16.8	18.3	9.5	9.0	10.1																									
6										13.1	12.6	14.2	16.1	14.9	17.4	9.7	9.3	9.9																									
7										13.8	11.5	15.5	13.8	13.3	14.8	9.6	9.2	9.8																									
8										15.5	13.9	17.5	13.3	13.0	13.6	8.8	8.6	9.2																									
9										15.2	14.0	16.3	13.1	12.3	13.8	9.5	8.7	10.5																									
10										16.7	14.9	18.0	13.5	12.4	14.9	10.1	9.8	10.5																									
11										17.0	15.5	18.9	12.4	11.8	13.0	10.4	9.9	10.9																									
12	18.3	17.7	18.8							16.5	15.2	18.3	12.9	12.0	13.8	9.9	9.3	10.6																									
13	16.3	14.9	17.5							15.4	14.0	16.3	13.5	12.3	14.5	9.6	8.4	10.5																									
14	13.7	12.9	14.8							13.3	11.1	14.8	13.6	13.0	14.2	8.9	8.4	9.5																									
15										9.8	9.3	10.9	13.3	12.3	14.2	7.8	7.1	8.6																									
16										9.1	9.0	9.3	13.4	12.4	14.3	6.5	5.8	7.1																									
17										9.7	8.9	10.5	14.1	12.9	15.1	5.9	5.2	6.5																									
18										10.4	9.8	10.9	14.9	13.2	16.3	5.8	5.2	6.4																									
19							3.7	3.4	4.1	10.2	9.9	10.5	15.6	14.3	16.9	5.7	5.3	6.1																									
20							4.0	3.1	5.3	10.3	9.8	10.8	11.6	9.5	14.2	5.5	5.2	5.9																									
21							4.9	4.0	5.9	10.3	10.1	10.8	9.2	8.4	9.9	5.7	5.2	6.1																									
22							4.5	3.7	6.1	11.6	10.1	13.0	9.5	8.6	10.2	5.6	5.0	6.2																									
23							4.3	3.2	5.6	13.3	11.5	14.6	10.5	9.2	12.0	5.5	5.0	5.9																									
24							4.1	2.3	5.9	14.9	13.3	16.2	10.9	10.1	12.0	4.8	4.1	5.2																									
25							5.0	2.2	7.5	16.1	14.8	17.4	10.3	9.8	10.8	3.8	3.4	4.3																									
26							4.8	4.0	6.1	15.2	14.3	15.9	10.1	9.3	10.9	3.5	3.1	4.1																									
27							5.8	4.3	7.8	14.4	13.8	15.4	9.6	9.2	9.9	3.4	2.8	4.0																									
28							7.7	4.9	9.8	14.9	13.3	16.2	9.0	8.7	9.2	3.8	3.2	4.4																									
29							9.6	7.5	12.3	16.0	14.8	16.9	9.0	8.6	9.6	3.6	3.1	4.0																									
30							10.8	9.3	12.1	16.4	15.1	17.5	9.6	8.7	10.2	3.0	2.8	3.1																									
31										17.3	16.2	18.3	9.3	8.9	9.6																									
Total							5.8	2.2	12.3	13.4	8.9	18.9	12.8	8.4	18.8	7.1	2.8	10.9																									

Day	Lake ML-SE						Lake ML-SE												Lake ML-SE												Lake ML-SE											
	Jul-1997			Aug-1997			Jun-1998			Jul-1998			Aug-1998			Sep-1998			Jun-1999			Jul-1999			Aug-1999			Sep-1999			Jun-2000			Jul-2000			Aug-2000			Sep-2000		
	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.
1										10.7	9.9	11.7	17.6	16.5	18.8	8.6	8.3	9.2				10.4	9.3	11.8	13.8	12.4	14.9	5.5	5.2	5.9				4.1	3.5	5.1	16.3	14.8	17.9	5.9	5.3	6.6
2										10.5	9.6	11.5	17.4	16.0	18.8	9.2	7.8	10.5				10.9	8.9	13.2	14.0	13.3	14.9	5.1	4.9	5.8				4.0	3.4	5.0	17.2	15.5	19.1	5.0	4.5	5.5
3										12.2	10.3	14.0	15.0	13.9	16.3	9.2	8.7	9.6				11.1	9.6	13.0	12.2	11.5	13.3							5.1	3.4	8.6	17.4	16.8	18.2	5.9	4.4	7.6
4										13.8	12.7	15.4	16.6	14.6	18.8	9.2	8.7	9.5				11.8	9.9	13.9	12.0	10.8	13.2							7.4	5.2	11.5	17.8	15.6	20.4	7.1	5.6	9.0
5										14.0	12.0	16.0	17.7	16.6	18.1	9.5	8.6	10.3				13.8	12.0	15.5	11.8	11.2	12.3							8.8	6.8	10.7	18.6	16.7	20.3	8.0	6.2	9.6
6										12.9	11.8	14.2	15.7	13.8	16.8	9.6	9.3	9.9				15.0	13.5	16.6	11.4	10.8	11.8							7.3	4.5	9.5	18.8	17.2	20.5	8.8	8.0	9.7
7										13.3	11.2	15.4	12.7	11.8	13.6	9.3	9.0	9.8				15.0	13.6	16.2	11.2	10.9	11.8							7.2	5.4	9.4	18.5	17.2	20.0	8.3	7.4	8.7
8										15.5	13.6	17.8	13.0	12.6	13.2	8.5	8.3	8.9				15.4	13.6	16.9	11.3	10.6	12.1							8.8	7.1	11.3	18.2	16.8	19.6	7.4	6.4	9.3
9										15.4	14.2	16.5	12.9	12.0	14.0	9.4	8.3	10.6				15.6	14.5	16.6	13.0	10.8	14.9							8.4	6.0	11.5	18.0	16.6	20.2	7.3	6.7	8.1
10										16.9	15.1	18.8	13.4	12.1	14.8	10.5	10.1	10.9				15.6	14.2	17.2	14.2	12.7	15.4							10.0	5.9	14.5	15.0	14.2	16.7	7.5	7.3	7.7
11										16.6	15.5	18.1	12.0	11.4	13.0	10.6	10.2	11.1				13.2	12.1	15.2	15.2	13.6	16.6							11.6	8.6	14.8	14.2	13.1	15.3	7.7	7.2	8.1
12										15.9	14.6	17.7	12.9	11.7	14.3	9.5	8.3	10.3				13.0	11.7	14.5	15.0	13.9	16.3							12.8	10.5	16.3	13.8	13.2	14.3	7.7	7.1	8.3
13										15.1	14.2	16.3	13.5	12.3	14.6	9.2	8.0	10.2				13.5	12.9	14.3	14.3	13.6	14.9							12.4	11.2	13.8	12.9	12.4	13.5	7.7	7.2	8.1
14										12.1	9.6	14.6	13.7	13.2	14.3	8.5	8.1	9.2				12.9	12.6	13.3	13.5	12.7	14.0							11.5	10.6	12.4	12.8	11.7	14.3	7.6	7.1	8.3
15										8.3	8.0	9.5	13.2	12.3	14.3	7.2	6.2	8.0				12.5	12.0	13.0	13.6	12.4	14.8							10.4	9.4	11.0	13.3	12.0	14.6	6.2	5.5	7.1
16										8.3	8.0	8.7	13.3	12.0	14.6	5.5	4.9	6.1				11.4	10.8	12.1	14.3	12.9	15.9							10.5	9.0	12.0	12.2	10.3	13.5	6.5	5.4	7.6
17							7.8	6.4	8.7	9.5	8.3	10.8	14.6	12.9	16.5	5.1	4.4	5.6				10.0	9.3	10.8	14.6	13.8	15.7							11.4	9.5	13.0	12.0	11.1	13.4	5.6	4.8	6.5
18							5.9	2.6	8.3	10.6	10.1	11.4	15.5	13.5	17.7	5.1	4.3	5.9				10.3	9.0	12.0	12.8	12.1	13.8							13.1	10.9	16.0	12.5	10.5	14.4	4.5	3.8	5.2
19							4.9	3.7	6.2	10.2	9.6	10.6	16.0	14.5	17.4	5.2	4.6	5.8	7.5	5.6	8.6	12.4	10.5	14.3	12.8	11.5	14.3							15.1	12.6	17.4	12.3	11.4	13.4	4.2	3.2	5.5
20							6.5	3.8	9.3	10.2	9.6	10.9	10.4	7.7	14.2	5.2	4.7	5.6	6.2	4.4	7.7	12.6	11.8	13.2	12.9	11.4	13.9							15.5	14.1	17.0	11.8	11.2	12.4	3.5	2.4	4.0
21							7.6	4.3	10.5	10.2	9.6	10.8	8.0	6.8	9.2	5.5	4.9	6.2	5.6	3.7	7.7	13.0	10.8	15.4	10.1	9.5	11.2							17.3	15.2	19.0	11.6	10.7	12.2	2.5	1.8	3.1
22							7.2	5.6	8.7	12.0	9.9	14.2	9.4	8.1	10.6	5.6	5.0	6.4	7.1	5.3	9.0	14.0	13.0	15.1	9.2	8.6	9.9				3.4	2.1	4.4	18.3	17.1	19.5	11.9	11.5	12.3	2.1	1.3	2.7
23							7.9	5.3	10.1	14.6	12.4	16.8	10.9	9.6	12.6	5.3	4.9	5.9	4.5	2.0	7.5	15.3	13.3	17.1	9.0	8.3	9.8				3.0	1.3	5.3	16.5	15.3	17.8	11.6	11.1	12.3	1.6	1.1	1.9
24							7.9	6.1	9.5	16.3	14.5	17.7	11.2	10.3	12.4	4.2	3.5	4.9	2.4	1.9	2.9	14.4	13.3	15.7	8.4	7.7	9.3				2.7	1.9	3.4	16.7	15.2	18.5	11.7	11.0	12.6	1.0	0.0	1.8
25							8.1	6.5	10.1	16.8	15.7	18.1	10.2	9.6	10.9	3.0	2.6	3.4	3.2	1.4	5.0	13.4	12.6	14.6	9.4	7.7	10.9				2.4	2.0	2.9	17.0	14.9	18.8	10.9	9.7	11.4	0.1	-0.1	0.7
26							9.5	7.3	11.4	14.7	13.0	16.2	9.7	9.2	10.1	3.3	2.3	4.4	5.0	4.1	6.2	10.1	8.7	12.6	8.7	8.3	9.9				1.8	1.5	2.5	17.8	15.6	20.1	9.1	8.5	9.6			
27							9.7	8.1	11.2	13.8	12.3	15.4	9.2	8.7	9.5	3.6	2.8	4.0	6.7	4.9	8.6	9.2	8.6	9.6	8.4	7.5	8.9				2.4	1.4	4.2	19.1	17.3	21.1	7.7	6.9	8.5			
28							10.1	7.5	11.8	14.9	12.9	16.9	8.5	8.1	8.9	3.7	3.1	4.3	8.2	5.0	11.2	9.3	8.9	9.9	7.2	6.1	8.0				3.4	2.0	6.5	17.3	16.2	18.8	8.0	7.0	9.1			
29							10.8	8.7	12.9	16.2	14.9	17.5	8.9	8.3	9.8	3.4	2.9	3.7	10.0	8.3	12.1	9.6	9.0	10.1	8.0	7.3	8.6				3.4	2.9	4.7	16.8	14.9	19.0	7.9	7.1	8.4			
30							11.1	10.2	12.3	16.5	15.2	17.8	9.6	8.9	10.3	2.5	2.2	2.8	10.3	8.3	12.1	10.7	9.2	12.1	8.4	7.7	8.9				4.7	2.9	7.1	16.5	15.5	17.4	6.2	5.7	7.0			
31										17.6	16.2	18.8	9.2	8.6	9.8							12.1	10.5	13.6	6.6	5.9	7.7							16.2	15.1	17.2	5.6	5.2	6.1			
Total							8.2	2.6	12.9	13.4	8.0	18.8	12.6	6.8	18.8	6.8	2.2	11.1	6.4	1.4	12.1	12.5	8.6	17.2	11.5	5.9	16.6	5.3	4.9	5.9	3.0	1.3	7.1	12.4	3.4	21.1	13.1	5.2	20.5	5.6	-0.1	9.7

Appendix D10. Mean, minimum, and maximum daily water temperature (°C) in lakes of the Meliadine Study Area, 1997 - 2000.

Day	Lake ML-E						Lake ML-E												Lake ML-E											
	Jul-1997			Aug-1997			Jun-1998			Jul-1998			Aug-1998			Sep-1998			Jun-1999			Jul-1999			Aug-1999			Sep-1999		
	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.
1										4.3	3.5	6.1	14.9	14.5	15.7	9.8	9.6	10.1												
2										4.2	3.5	6.5	15.1	14.5	16.0	10.0	9.3	10.8												
3										5.6	4.6	6.8	14.7	14.5	14.9	9.8	9.6	10.2												
4										6.5	5.0	7.7	15.2	14.5	16.0	9.8	9.6	10.1												
5										7.3	6.1	8.4	15.8	15.4	16.2	9.8	9.5	10.2												
6										7.7	7.1	8.3	15.2	14.5	15.9	9.9	9.6	10.2												
7										9.0	7.7	9.8	14.1	13.5	14.5	9.8	9.3	10.1												
8										9.8	9.3	10.2	14.0	13.9	14.3	9.2	9.0	9.3												
9										10.0	9.2	10.8	13.9	13.6	14.3	9.8	9.2	10.5												
10										11.5	10.3	12.3	14.2	13.6	14.6	9.9	9.2	10.5												
11										12.4	11.5	13.5	13.4	12.9	13.9	10.0	9.3	10.9												
12	15.3	14.6	15.6							12.5	12.0	13.2	13.5	13.0	13.9	9.8	8.9	10.9												
13	14.4	13.8	15.0							12.4	11.4	13.2	13.9	13.0	14.5	9.4	8.1	10.8												
14	13.5	13.2	13.8							12.2	11.2	12.9	13.8	13.6	14.0	9.1	8.7	9.5												
15										10.8	10.5	11.2	13.8	13.3	14.2	8.8	8.3	9.2												
16										10.3	10.2	10.5	13.7	13.2	14.2	7.9	7.1	8.3												
17										10.3	10.1	10.6	13.8	13.5	14.2	7.8	7.1	8.7												
18										10.4	10.1	10.6	13.9	13.2	14.5	7.6	7.0	8.4												
19							4.1	3.8	4.4	10.3	10.2	10.5	14.5	13.9	15.2	7.3	6.8	7.7												
20							4.5	3.5	5.5	10.4	10.2	10.6	13.4	12.4	14.0	7.2	6.8	7.8												
21							4.6	3.8	5.3	10.3	10.2	10.5	12.0	11.5	12.4	7.3	6.4	8.1												
22							4.5	4.1	4.9	10.9	10.3	11.5	12.0	11.4	12.7	6.7	6.2	7.7												
23							4.7	4.1	5.5	12.0	11.1	12.9	12.0	11.1	13.2	6.6	6.1	7.3												
24							4.5	4.1	5.0	12.3	12.0	13.2	11.8	10.9	12.9	6.3	5.8	6.8												
25							4.4	4.0	5.0	13.1	12.1	14.0	11.1	10.5	11.5	5.2	4.1	5.8												
26							4.6	4.0	5.3	12.8	12.6	13.2	10.7	10.3	11.5	5.8	4.7	6.4												
27							4.5	4.0	5.2	12.9	12.4	13.5	10.4	10.1	10.8	5.2	4.4	6.1												
28							4.6	4.0	5.2	13.5	12.9	14.3	10.1	9.9	10.3	5.3	4.6	6.1												
29							5.2	4.1	6.1	13.9	13.3	14.6	10.1	9.8	10.5	5.0	4.7	5.5												
30							5.2	4.7	5.9	14.2	13.3	14.8	10.3	9.6	10.9	4.9	4.6	5.0												
31										14.5	13.9	15.2	9.9	9.8	10.2															
Total							4.6	3.5	6.1	10.6	3.5	15.2	13.1	9.6	16.2	8.0	4.1	10.9												

Day	Lake PL						Lake PL												Control Lake											
	Jul-1997			Aug-1997			Jun-1998			Jul-1998			Aug-1998			Sep-1998			Jun-1999			Jul-1999			Aug-1999			Sep-1999		
	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.
1										3.8	2.2	5.0	14.3	13.5	15.1	10.3	9.8	10.9				9.0	7.7	10.2	12.7	11.5	13.8	6.9	6.2	7.3
2										3.3	2.3	4.0	14.2	13.5	14.6	11.0	10.3	11.7				10.0	8.7	11.5	13.4	12.6	13.9	6.3	6.1	6.7
3										4.2	2.6	5.6	14.1	13.9	14.5	10.7	10.5	11.1				10.5	9.3	11.8	12.7	12.1	13.2			
4										3.6	1.7	5.0	15.0	14.0	16.3	10.6	10.3	10.8				11.6	10.2	13.0	12.4	11.8	13.0			
5										5.5	3.1	7.5	15.5	15.2	15.9	10.6	10.3	11.2				12.8	12.0	13.8	12.4	12.0	12.9			
6										7.1	6.2	7.5	14.9	14.2	15.9	10.4	10.2	10.8				14.2	13.3	15.7	12.2	11.7	12.6			
7										7.0	5.8	8.3	13.6	13.3	14.0	10.4	10.1	10.8				14.5	14.0	15.1	12.1	11.8	12.4			
8										8.3	6.8	10.5	13.4	13.0	13.6	10.2	10.2	10.3				15.2	14.2	16.5	12.0	11.7	12.3			
9										8.8	8.0	9.8	13.4	13.0	14.0	10.5	10.1	10.9				15.5	14.8	16.2	13.2	11.5	15.2			
10										8.7	7.5	10.2	13.6	12.9	14.3	10.7	10.3	11.2				16.0	15.4	16.8	13.9	13.3	14.5			
11										10.3	8.7	12.1	13.3	13.0	13.8	10.7	10.5	10.9				14.5	13.6	15.4	14.3	13.5	15.4			
12	12.8	12.1	13.3							10.8	9.8	11.8	13.3	13.0	13.5	10.5	10.3	11.1				14.0	13.3	14.6	14.5	13.9	15.5			
13	11.0	10.3	12.1							9.9	9.3	10.5	13.5	13.2	14.0	10.5	10.1	11.1				14.2	13.9	14.6	14.2	13.8	15.1			
14	10.0	9.9	10.2							9.3	8.6	9.8	13.5	13.2	13.9	10.0	9.5	10.2				14.0	13.8	14.2	13.9	13.3	14.5			
15										9.0	8.7	9.6	13.3	12.7	13.9	9.4	9.2	9.8				13.5	13.0	13.9	14.0	13.2	14.9			
16										8.7	8.6	8.9	13.4	13.0	13.9	9.0	8.7	9.5				12.7	12.0	13.2	14.4	13.6	15.7			
17										9.3	8.6	10.1	13.7	13.0	14.3	8.8	7.7	9.5				11.4	10.9	12.0	14.5	13.8	15.4			
18										9.6	8.6	10.3	14.3	13.8	14.9	8.0	7.4	8.4				11.2	10.6	11.7	13.8	13.3	14.2			
19										9.0	8.1	9.8	14.5	13.9	15.2	8.0	7.4	8.3				12.1	11.1	13.0	13.5	12.7	14.5			
20										8.5	7.8	9.6	13.1	12.1	13.9	7.7	7.1	8.1	4.6	4.0	5.0	12.6	12.1	12.9	13.1	12.1	13.9			
21							4.7	2.9	5.5	9.2	8.3	9.6	12.1	11.8	12.3	7.9	7.5	8.7	4.7	4.1	5.5	13.1	11.8	14.5	11.5	10.8	12.1			
22							3.4	2.2	4.6	9.3	8.1	9.9	12.2	11.8	12.9	7.7	7.3	8.4	4.8	4.0	5.8	13.8	13.0	14.6	10.6	10.1	11.4			
23							4.4	3.4	5.8	9.7	8.9	10.3	12.3	11.5	13.2	7.5	6.7	8.1	3.7	1.9	4.6	14.4	13.5	15.5	10.2	9.8	10.8			
24							4.1	3.4	4.9	11.3	9.5	12.6	12.2	11.8	13.0	6.7	6.2	7.1	1.5	1.1	1.9	14.4	13.9	14.9	9.7	9.2	10.1			
25							4.1	3.4	5.2	12.0	11.1	12.9	11.7	11.2	12.1	7.1	6.7	7.3	1.9	1.0	3.1	13.9	13.3	14.5	9.7	8.6	10.6			
26							4.8	3.7	5.8	11.1	10.5	11.8	11.5	11.1	12.1	6.6	5.9	7.0	3.2	2.2	4.4	12.2	10.6	13.5	9.4	9.0	10.1			
27							5.0	4.3	5.9	10.8	10.3	11.4	11.3	11.1	11.5	5.9	5.6	6.4	3.6	2.5	4.7	10.8	10.5	11.2	9.0	8.4	9.3			
28							5.1	4.1	6.1	11.5	10.9	12.7	10.9	10.8	11.1	5.9	5.5	6.2	5.5	3.8	7.1	10.4	10.2	10.5	8.0	7.5	8.4			
29							5.0	4.4	5.9	12.6	11.4	13.9	10.9	10.6	11.4	5.6	5.2	6.1	7.0	5.5	8.4	10.2	10.1	10.5	8.2	7.4	8.7			
30							4.4	3.7	4.9	12.7	11.7	13.8	11.0	10.8	11.5	4.9	4.7	5.2	8.4	7.0	9.8	10.6	9.9	11.2	8.6	8.1	9.2			
31										13.4	12.4	14.2	10.6	9.8	10.8							11.4	10.3	12.3	7.8	7.1	8.1			
Total							4.5	2.2	6.1	9.0	1.7	14.2	13.1	9.8	16.3	8.8	4.7	11.7	4.4	1.0	9.8	12.7	7.7	16.8	11.9	7.1	15.7	6.6	6.1	7.3

Day	Control Lake																													
	Jun-2000			Jul-2000			Aug-2000			Sep-2000																				
	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.																		
1				4.8	4.1	5.4	16.7	15.9	17.4	5.4	4.9	5.9																		
2				4.8	4.4	5.3	17.6	16.5	19.3	5.0	4.8	5.5																		
3				4.7	4.2	5.2	17.4	17.1	17.9	5.4	4.6	6.3																		
4				5.1	3.9	7.4	18.2	17.0	19.5	6.6	5.2	8.5																		
5				5.0	3.7	6.1	18.9	17.8	19.8	7.5	6.7	8.4																		
6				4.7	3.8	5.6	19.3	18.6	20.3	7.7	7.1	8.7																		
7				4.4	3.7	5.4	18.8	18.3	19.7	7.9	7.6	8.2																		
8				4.9	4.0	6.3	18.5	18.0	19.3	7.7	7.2	8.6																		
9				4.9	4.2	6.3	18.1	16.9	18.7	7.5	7.3	7.9																		
10				6.5	4.0	8.4	16.7	15.8	17.1	7.6	7.5	7.6																		
11				8.6	6.8	10.3	15.4	14.9	15.9	7.6	7.4	7.7																		
12				10.9	9.3	12.5	14.1	13.6	14.9	7.6	7.4	7.8																		
13				11.9	10.7	12.8	13.3	12.9	13.6	7.7	7.5	8.0																		
14				11.9	11.3	12.2	12.9	12.4	13.5	7.6	7.2	8.1																		
15				11.3	10.9	11.6	13.3	12.6	14.1	6.9	6.6	7.2																		
16				11.1	10.6	11.6	12.9	12.1	13.5	6.8	6.3	7.5																		
17				11.8	11.0	12.8	12.1	11.6	12.9	5.9	5.2	6.8																		
18				13.3	12.1	15.4	12.5	11.6	13.6	4.7	4.4	5.2																		
19				14.6	13.5	15.8	12.4	11.8	13.2	4.4	4.0	4.7																		
20				15.5	14.3	16.8	12.2	11.8	12.6	4.1	3.7	4.3																		
21				17.4	16.1	18.7	12.0	11.3	12.6	3.2	2.6	3.6																		
22				17.4	16.7	18.2	12.1	12.0	12.2	2.5	1.9	3.0																		
23				16.9	16.3	17.8	11.9	11.7	12.1	2.0	1.5	2.3																		
24				16.9	16.1	18.1	12.0	11.7	12.5	1.2	0.1	2.1																		
25	4.6	4.2	4.9	17.1	16.0	18.2	11.2	10.1	11.7	0.0	-0.1	0.2																		
26	5.0	4.9	5.2	18.5	16.7	20.6	9.2	8.7	10.1																					
27	4.9	4.3	5.8	19.5	18.5	21.1	8.7	8.3	9.2																					
28	4.9	3.8	5.9	18.1	17.2	18.8	8.4	8.1	8.6																					
29	4.6	3.9	4.9	17.6	16.9	18.8	8.1	7.6	8.5																					
30	4.7	4.3	5.4	17.3	16.8	17.6	6.5	5.6	7.6																					
31				16.7	16.2	17.2	5.5	5.1	5.9																					
Total	4.8	3.8	5.9	11.7	3.7	21.1	13.5	5.1	20.3	5.6	-0.1	8.7																		

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Appendix D11. Comparison of near surface and near bottom water temperatures (°C) in the east basin of Meliadine Lake (Site ML-E), Jul-Sep 1998.

Date[a]	Near Surface (1 m depth)			Near Bottom (14 m depth)			Mean Difference (surf - bot)
	Mean	Minimum	Maximum	**Mean**	Minimum	Maximum	
28-Jul-98	**13.7**	13.6	14.0	**12.8**	12.8	12.8	0.9
29-Jul-98	**13.7**	13.5	14.0	**13.1**	12.8	13.5	0.6
30-Jul-98	**13.7**	13.5	14.0	**13.5**	13.1	13.8	0.2
31-Jul-98	**14.2**	13.9	14.5	**13.9**	13.7	14.0	0.3
01-Aug-98	**14.4**	14.2	14.8	**14.3**	13.7	14.7	0.2
02-Aug-98	**14.9**	14.6	15.1	**14.7**	14.5	15.1	0.1
03-Aug-98	**14.8**	14.6	14.9	**14.7**	14.7	14.8	0.1
04-Aug-98	**15.1**	14.8	15.4	**14.8**	14.7	15.1	0.2
05-Aug-98	**15.6**	15.4	15.9	**15.0**	14.7	15.4	0.6
06-Aug-98	**15.3**	15.1	15.6	**15.2**	15.1	15.4	0.1
07-Aug-98	**14.7**	14.5	15.2	**14.7**	14.4	15.1	0.1
08-Aug-98	**14.4**	14.2	14.6	**14.3**	14.2	14.5	0.1
09-Aug-98	**14.2**	14.0	14.3	**14.1**	14.0	14.2	0.1
10-Aug-98	**14.1**	14.0	14.3	**14.1**	14.0	14.2	0.1
11-Aug-98	**13.8**	13.7	14.2	**13.8**	13.5	14.2	0.0
12-Aug-98	**13.7**	13.6	13.9	**13.7**	13.5	13.8	0.0
13-Aug-98	**13.8**	13.6	14.0	**13.8**	13.7	14.0	0.0
14-Aug-98	**13.9**	13.7	13.9	**13.9**	13.8	14.0	0.0
15-Aug-98	**13.7**	13.6	13.9	**13.7**	13.7	13.8	0.0
16-Aug-98	**13.7**	13.6	14.0	**13.6**	13.5	13.7	0.1
17-Aug-98	**13.9**	13.7	14.0	**13.7**	13.5	14.0	0.2
18-Aug-98	**14.0**	13.7	14.3	**13.9**	13.7	14.1	0.1
19-Aug-98	**14.3**	14.2	14.5	**14.2**	14.1	14.5	0.1
20-Aug-98	**13.7**	12.9	14.5	**13.7**	12.9	14.4	0.0
21-Aug-98	**12.3**	12.0	12.9	**12.2**	11.9	12.9	0.1
22-Aug-98	**12.0**	11.8	12.4	**11.7**	11.6	11.9	0.3
23-Aug-98	**11.9**	11.7	12.1	**11.7**	11.6	11.9	0.2
24-Aug-98	**12.0**	11.8	12.3	**11.8**	11.7	12.0	0.2
25-Aug-98	**11.8**	11.7	12.0	**11.7**	11.6	11.9	0.1
26-Aug-98	**11.6**	11.4	11.7	**11.5**	11.3	11.7	0.1
27-Aug-98	**11.3**	11.1	11.5	**11.3**	11.0	11.4	0.0
28-Aug-98	**10.8**	10.5	11.1	**10.8**	10.5	11.1	0.1
29-Aug-98	**10.5**	10.3	10.6	**10.4**	10.4	10.5	0.1
30-Aug-98	**10.5**	10.3	10.6	**10.4**	10.3	10.5	0.1
31-Aug-98	**10.3**	10.2	10.5	**10.4**	10.3	10.5	-0.1
01-Sep-98	**10.1**	9.9	10.2	**10.1**	10.0	10.3	0.0
02-Sep-98	**10.1**	9.9	10.5	**10.0**	10.0	10.1	0.1
03-Sep-98	**10.0**	9.9	10.2	**10.1**	10.0	10.1	0.0
04-Sep-98	**10.0**	9.9	10.0	**10.0**	10.0	10.1	0.0
28 Jul - 4 Sep	**13.0**	**9.9**	**15.9**	**12.9**	**10.0**	**15.4**	**0.1**

[a] thermographs were suspended in the water column from 16:30 h on 28 Jul 1998 until 10:30 h on 4 Sep 1998.

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Appendix D12. Mean, minimum, and maximum daily water temperature (°C) at the narrows between the east and central basins of Meliadine Lake, Sep 1997 to Jun 1998

Date	at 1.5 m depth						at 0.8 m depth					
	Logger #1			Logger #2			Logger #3			Logger #4		
	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.
13-Sep-97	7.3	7.1	7.5	7.2	7.1	7.4	7.4	7.1	7.5	7.4	7.3	7.5
14-Sep-97	6.9	6.4	7.1	6.9	6.6	7.1	7.0	8.1	7.3	6.9	6.5	7.3
15-Sep-97	6.4	6.1	6.8	6.4	6.0	6.7	6.5	6.1	6.8	6.4	5.9	6.8
16-Sep-97	7.0	6.4	7.7	7.0	6.3	7.6	7.0	6.4	7.8	7.0	6.4	7.7
17-Sep-97	6.1	5.5	6.8	6.0	5.4	6.9	6.2	5.5	7.0	6.1	5.5	7.0
18-Sep-97	4.9	4.3	5.5	4.9	3.9	5.7	4.9	4.1	5.5	4.9	4.0	5.5
19-Sep-97	3.7	3.4	4.1	3.7	3.3	4.2	3.7	3.4	4.1	3.7	3.2	4.1
20-Sep-97	3.5	3.1	4.1	3.5	3.0	4.0	3.5	2.9	4.1	3.4	2.9	4.0
21-Sep-97	3.6	3.1	3.8	3.6	3.1	3.9	3.6	3.2	3.8	3.6	3.1	3.8
22-Sep-97	3.5	3.2	3.7	3.5	3.1	3.9	3.5	3.2	3.8	3.5	3.1	3.8
23-Sep-97	3.8	3.4	4.3	3.7	3.3	4.2	3.8	3.2	4.4	3.8	3.2	4.4
24-Sep-97	4.3	3.8	4.6	4.3	3.7	4.5	4.2	3.8	4.6	4.2	3.8	4.6
25-Sep-97	4.4	4.1	4.7	4.4	4.2	4.6	4.5	4.3	4.7	4.5	4.1	4.7
26-Sep-97	4.5	4.4	4.6	4.5	4.3	4.5	4.5	4.3	4.6	4.5	4.3	4.6
27-Sep-97	4.7	4.4	4.9	4.7	4.3	4.8	4.7	4.6	5.0	4.7	4.4	5.0
28-Sep-97	4.2	3.8	4.6	4.2	3.7	4.6	4.3	3.8	4.7	4.2	3.7	4.6
29-Sep-97	3.2	2.8	3.7	3.2	2.7	3.6	3.2	2.8	3.7	3.2	2.8	3.7
30-Sep-97	2.9	2.6	3.2	2.8	2.7	3.1	2.9	2.5	3.2	2.8	2.5	3.2
01-Oct-97	2.9	2.6	3.1	2.9	2.5	3.1	2.9	2.5	3.2	2.9	2.5	3.2
02-Oct-97	3.2	2.9	3.5	3.2	2.8	3.6	3.2	2.9	3.7	3.2	2.9	3.7
03-Oct-97	3.3	3.2	3.4	3.3	3.1	3.4	3.3	3.1	3.4	3.3	3.1	3.4
04-Oct-97	3.6	3.4	3.7	3.5	3.3	3.7	3.6	3.4	3.8	3.6	3.4	3.7
05-Oct-97	3.4	3.1	3.7	3.5	3.1	3.6	3.5	3.2	3.7	3.4	3.1	3.5
06-Oct-97	2.5	1.9	3.2	2.5	2.1	3.1	2.5	2.0	3.2	2.5	1.7	3.1
07-Oct-97	1.6	1.3	1.9	1.6	1.3	1.8	1.6	1.3	2.0	1.5	1.1	1.7
08-Oct-97	1.6	1.4	1.9	1.6	1.3	1.8	1.6	1.3	1.9	1.6	1.3	1.7
09-Oct-97	0.5	-0.1	1.4	0.5	-0.4	1.3	0.5	-0.1	1.4	0.5	-0.1	1.4
10-Oct-97	0.0	-0.3	0.0	0.0	-0.2	0.1	0.0	0.0	0.2	0.0	-0.1	0.0
11-Oct-97	0.4	0.2	0.5	0.4	0.1	0.6	0.4	0.2	0.7	0.4	0.2	0.5
12-Oct-97	0.5	0.4	0.7	0.5	0.3	0.7	0.5	0.4	0.7	0.5	0.4	0.7
13-Oct-97	0.5	0.4	0.7	0.5	0.3	0.6	0.5	0.4	0.7	0.5	0.4	0.5
14-Oct-97	0.3	0.2	0.4	0.3	0.1	0.4	0.3	0.2	0.4	0.3	0.2	0.4
15-Oct-97	0.2	0.0	0.4	0.2	0.0	0.4	0.2	0.0	0.4	0.2	-0.1	0.4
16-Oct-97	0.5	0.4	0.7	0.5	0.3	0.6	0.5	0.4	0.7	0.5	0.4	0.7
17-Oct-97	0.4	0.2	0.5	0.4	0.0	0.6	0.4	0.2	0.7	0.4	0.2	0.5
18-Oct-97	0.4	0.0	0.7	0.3	0.0	0.7	0.4	0.2	0.5	0.3	0.0	0.5
19-Oct-97	0.6	0.4	0.8	0.6	0.3	0.9	0.6	0.4	0.8	0.6	0.4	0.8
20-Oct-97	0.6	0.4	0.8	0.6	0.3	0.7	0.6	0.5	0.8	0.5	0.4	0.8
21-Oct-97	0.7	0.5	0.8	0.7	0.4	0.9	0.6	0.5	0.8	0.6	0.5	0.8
22-Oct-97	0.7	0.5	1.0	0.7	0.4	0.9	0.6	0.5	1.0	0.6	0.5	0.8
23-Oct-97	0.7	0.5	1.0	0.6	0.4	1.0	0.7	0.5	1.0	0.6	0.5	1.0
24-Oct-97	0.9	0.7	1.0	0.8	0.6	1.0	0.8	0.7	1.0	0.8	0.5	1.0
25-Oct-97	1.0	0.7	1.1	0.9	0.7	1.2	1.0	0.7	1.1	1.0	0.7	1.0
26-Oct-97	0.9	0.7	1.1	0.9	0.6	1.0	0.9	0.7	1.1	0.8	0.7	1.0
27-Oct-97	0.8	0.7	1.1	0.8	0.6	1.0	0.8	0.7	1.0	0.8	0.7	1.0
28-Oct-97	0.7	0.7	0.8	0.7	0.6	0.9	0.7	0.7	0.7	0.5	0.7	0.5
29-Oct-97	1.0	0.7	1.1	1.0	0.6	1.2	0.9	0.7	1.1	0.9	0.5	1.1
30-Oct-97	0.9	0.7	1.1	0.8	0.4	1.2	0.9	0.5	1.1	0.8	0.5	1.1
31-Oct-97	0.8	0.7	1.0	0.8	0.6	1.0	0.7	0.5	1.0	0.7	0.5	1.0
01-Nov-97	0.6	0.5	1.0	0.6	0.4	0.9	0.7	0.5	1.0	0.6	0.5	0.8
02-Nov-97	0.7	0.5	1.1	0.7	0.4	1.0	0.6	0.5	1.0	0.6	0.4	1.0
03-Nov-97	0.9	0.5	1.1	0.9	0.6	1.2	0.8	0.5	1.1	0.8	0.5	1.1
04-Nov-97	0.9	0.5	1.1	0.8	0.6	1.0	0.9	0.7	1.1	0.8	0.5	1.1
05-Nov-97	0.9	0.5	1.1	0.8	0.4	1.2	0.8	0.5	1.1	0.8	0.5	1.1
06-Nov-97	0.7	0.5	1.1	0.7	0.4	1.0	0.7	0.5	1.0	0.7	0.5	1.0
07-Nov-97	0.7	0.5	1.0	0.6	0.4	1.0	0.7	0.5	1.0	0.6	0.5	1.0
08-Nov-97	0.9	0.5	1.0	0.8	0.4	1.0	0.8	0.5	1.0	0.8	0.5	1.0
09-Nov-97	0.6	0.4	1.0	0.6	0.3	0.9	0.6	0.5	0.7	0.5	0.4	0.7
10-Nov-97	0.8	0.4	1.1	0.8	0.4	1.2	0.7	0.4	1.0	0.7	0.4	1.0
11-Nov-97	0.8	0.5	1.1	0.8	0.4	1.2	0.8	0.5	1.0	0.8	0.5	1.1
12-Nov-97	0.6	0.5	0.8	0.6	0.4	0.9	0.6	0.5	0.7	0.5	0.5	0.7
13-Nov-97	0.8	0.5	1.1	0.8	0.4	1.2	0.7	0.5	1.0	0.7	0.5	1.0
14-Nov-97	0.6	0.4	1.1	0.6	0.4	1.0	0.6	0.4	1.0	0.6	0.4	1.0
15-Nov-97	0.6	0.4	1.0	0.6	0.4	1.0	0.5	0.4	0.8	0.5	0.4	0.8
16-Nov-97	0.4	0.4	0.8	0.4	0.3	0.7	0.4	0.4	0.5	0.4	0.4	0.5
17-Nov-97	0.6	0.4	1.1	0.6	0.3	1.0	0.6	0.4	1.0	0.6	0.4	1.0
18-Nov-97	0.6	0.4	1.0	0.5	0.3	0.9	0.5	0.4	0.8	0.4	0.2	0.8
19-Nov-97	0.6	0.4	1.0	0.5	0.3	0.9	0.5	0.4	0.8	0.5	0.4	0.7
20-Nov-97	0.7	0.4	1.0	0.7	0.3	1.0	0.6	0.4	1.0	0.6	0.2	0.8
21-Nov-97	0.8	0.5	1.1	0.8	0.4	1.2	0.7	0.4	1.0	0.6	0.4	1.0
22-Nov-97	0.8	0.5	1.1	0.8	0.6	1.0	0.7	0.5	1.0	0.7	0.5	1.0
23-Nov-97	0.5	0.4	0.8	0.4	0.3	0.7	0.4	0.4	0.5	0.4	0.4	0.5
24-Nov-97	0.6	0.4	1.0	0.6	0.3	1.0	0.5	0.4	0.8	0.5	0.4	0.8
25-Nov-97	0.5	0.2	0.8	0.5	0.3	0.9	0.4	0.2	0.7	0.4	0.2	0.7
26-Nov-97	0.8	0.4	1.1	0.8	0.3	1.2	0.7	0.4	1.0	0.7	0.4	0.8
27-Nov-97	0.7	0.4	1.1	0.6	0.3	0.8	0.4	0.3	0.4	0.3	0.2	0.4
28-Nov-97	0.5	0.4	0.8	0.5	0.3	0.9	0.4	0.4	0.7	0.4	0.4	0.5
29-Nov-97	0.6	0.4	1.0	0.6	0.3	1.0	0.6	0.4	0.8	0.6	0.4	0.8
30-Nov-97	0.7	0.4	1.0	0.7	0.4	0.9	0.6	0.4	0.8	0.6	0.2	0.8
01-Dec-97	0.8	0.4	1.1	0.8	0.4	1.2	0.8	0.4	1.0	0.7	0.4	1.0
02-Dec-97	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4
03-Dec-97	0.3	0.2	0.4	0.3	0.3	0.4	0.3	0.2	0.4	0.3	0.2	0.4
04-Dec-97	0.5	0.2	1.0	0.5	0.3	0.9	0.4	0.2	0.7	0.4	0.2	0.7
05-Dec-97	0.8	0.4	1.0	0.8	0.4	1.0	0.7	0.4	1.0	0.7	0.4	1.0
06-Dec-97	0.6	0.4	0.8	0.5	0.3	0.9	0.5	0.4	0.8	0.5	0.4	0.7
07-Dec-97	0.8	0.4	1.0	0.8	0.4	1.0	0.7	0.4	0.8	0.7	0.4	0.8
08-Dec-97	0.4	0.2	0.5	0.4	0.3	0.4	0.4	0.2	0.4	0.3	0.2	0.4
09-Dec-97	0.6	0.2	1.0	0.7	0.3	1.0	0.5	0.2	0.8	0.5	0.2	0.8
10-Dec-97	0.5	0.4	0.8	0.5	0.3	0.9	0.5	0.4	0.7	0.5	0.4	0.7
11-Dec-97	0.4	0.2	0.8	0.4	0.3	0.9	0.4	0.2	0.7	0.4	0.2	0.7
12-Dec-97	0.5	0.2	1.0	0.5	0.1	0.9	0.4	0.2	0.8	0.4	0.2	0.7
13-Dec-97	0.4	0.2	0.8	0.3	0.1	0.7	0.3	0.2	0.5	0.3	0.2	0.5
14-Dec-97	0.7	0.4	1.0	0.7	0.3	1.0	0.6	0.4	0.8	0.6	0.4	0.8
15-Dec-97	0.3	0.2	0.4	0.3	0.1	0.4	0.3	0.2	0.4	0.2	0.2	0.4
16-Dec-97	0.3	0.2	0.4	0.3	0.1	0.4	0.3	0.2	0.4	0.2	0.2	0.4
17-Dec-97	0.3	0.2	0.5	0.3	0.1	0.6	0.2	0.2	0.4	0.2	0.2	0.4
18-Dec-97	0.3	0.2	0.5	0.3	0.1	0.6	0.3	0.2	0.4	0.3	0.2	0.4
19-Dec-97	0.7	0.4	1.0	0.7	0.3	0.9	0.6	0.2	0.8	0.5	0.2	0.8
20-Dec-97	0.3	0.2	0.4	0.3	0.1	0.4	0.3	0.2	0.4	0.2	0.2	0.2
21-Dec-97	0.5	0.2	0.8	0.6	0.1	0.9	0.4	0.2	0.7	0.4	0.0	0.7
22-Dec-97	0.5	0.2	0.8	0.5	0.3	0.9	0.5	0.2	0.7	0.5	0.2	0.7
23-Dec-97	0.3	0.2	0.4	0.3	0.1	0.4	0.2	0.2	0.4	0.2	0.2	0.4
24-Dec-97	0.4	0.2	0.7	0.4	0.3	0.7	0.4	0.2	0.5	0.3	0.2	0.5
25-Dec-97	0.3	0.2	0.5	0.3	0.0	0.6	0.2	0.2	0.2	0.2	0.0	0.2
26-Dec-97	0.3	0.0	0.5	0.2	0.0	0.4	0.2	0.2	0.2	0.1	0.0	0.2
27-Dec-97	0.1	0.0	0.4	0.1	0.0	0.4	0.1	0.0	0.2	0.0	0.0	0.0
28-Dec-97	0.2	0.0	0.5	0.2	0.0	0.6	0.1	0.0	0.4	0.1	0.0	0.4
29-Dec-97	0.0	0.0	0.2	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
30-Dec-97	0.5	0.2	0.7	0.4	0.1	0.7	0.3	0.0	0.5	0.2	0.0	0.5
31-Dec-97	0.4	0.2	0.7	0.4	0.1	0.7	0.3	0.2	0.5	0.3	0.2	0.5
01-Jan-98	0.6	0.4	0.8	0.6	0.4	0.7	0.5	0.2	0.7	0.4	0.2	0.7
02-Jan-98	0.6	0.4	0.8	0.6	0.3	0.9	0.5	0.2	0.7	0.5	0.2	0.7
03-Jan-98	0.3	0.2	0.5	0.3	0.1	0.3	0.2	0.2	0.4	0.2	0.0	0.2
04-Jan-98	0.2	0.0	0.2	0.2	0.1	0.3	0.0	0.0	0.2	0.0	0.0	0.0
05-Jan-98	0.3	0.0	0.5	0.3	0.0	0.4	0.1	0.0	0.2	0.1	0.0	0.2
06-Jan-98	0.3	0.0	0.5	0.3	0.0	0.6	0.2	0.0	0.2	0.1	0.0	0.2
07-Jan-98	0.2	0.0	0.5	0.2	0.0	0.4	0.0	0.0	0.2	0.0	0.0	0.2
08-Jan-98	0.1	0.0	0.2	0.2	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0
09-Jan-98	0.3	0.2	0.5	0.3	0.1	0.6	0.2	0.0	0.2	0.2	0.0	0.2
10-Jan-98	0.2	0.0	0.4	0.2	0.0	0.4	0.1	0.0	0.2	0.0	0.0	0.2
11-Jan-98	0.4	0.2	0.5	0.4	0.1	0.6	0.1	0.0	0.2	0.1	0.0	0.2
12-Jan-98	0.2	0.2	0.4	0.2	0.0	0.3	0.1	0.0	0.2	0.0	0.0	0.2
13-Jan-98	0.1	0.0	0.2	0.1	0.0	0.3	0.0	0.0	0.2	0.0	0.0	0.0
14-Jan-98	0.2	0.0	0.4	0.2	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0
15-Jan-98	0.0	0.0	0.2	0.1	0.0	0.1	0.0	-0.1	0.0	0.0	0.0	0.0
16-Jan-98	0.1	0.0	0.4	0.2	0.0	0.3	-0.2	-0.3	-0.1	0.0	-0.1	0.0
17-Jan-98	0.5	0.4	0.5	0.5	0.3	0.6	-0.4	-0.6	-0.3	-0.2	-0.3	0.0
18-Jan-98	0.4	0.2	0.5	0.4	0.1	0.6	-0.6	-0.7	-0.6	-0.5	-0.6	-0.3
19-Jan-98	0.0	0.0	0.2	0.1	0.0	0.3	-0.8	-0.9	-0.7	-0.6	-0.7	-0.6
20-Jan-98	0.0	0.0	0.0	0.1	0.0	0.1	-1.0	-1.2	-0.9	-0.9	-1.0	-0.7
21-Jan-98	0.0	0.0	0.2	0.1	0.0	0.3	-1.5	-1.7	-1.2	-1.3	-1.4	-1.0
22-Jan-98	0.1	0.0	0.2	0.1	0.0	0.3	-1.9	-2.1	-1.7	-1.6	-1.8	-1.5
23-Jan-98	0.0	0.0	0.0	0.1	0.0	0.1	-2.3	-2.5	-2.1	-2.0	-2.3	-1.8
24-Jan-98	0.1	0.0	0.2	0.1	0.0	0.1	-2.7	-2.9	-2.5	-2.5	-2.8	-2.3
25-Jan-98	0.3	0.0	0.4	0.3	0.0	0.4	-3.2	-3.4	-2.9	-3.0	-3.3	-2.8
26-Jan-98	0.3	0.0	0.4	0.3	0.1	0.4	-3.5	-3.6	-3.4	-3.3	-3.4	-3.3
27-Jan-98	0.0	0.0	0.0	0.1	0.0	0.3	-3.7	-3.7	-3.6	-3.5	-3.6	-3.4
28-Jan-98	0.0	-0.1	0.0	0.0	0.0	0.1	-4.0	-4.2	-3.7	-3.8	-4.1	-3.6
29-Jan-98	0.0	0.0	0.0	0.1	0.0	0.1	-4.4	-4.6	-4.2	-4.2	-4.4	-4.1
30-Jan-98	0.0	0.0	0.0	0.1	0.0	0.1	-4.7	-4.7	-4.6	-4.5	-4.6	-4.4
31-Jan-98	0.0	0.0	0.0	0.0	0.0	0.1	-4.9	-4.9	-4.9	-4.8	-4.9	-4.6
01-Feb-98	0.0	0.0	0.0	0.0	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
02-Feb-98	0.0	0.0	0.0	0.1	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
03-Feb-98	0.0	0.0	0.0	0.1	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
04-Feb-98	0.1	0.0	0.2	0.2	0.0	0.3	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
05-Feb-98	0.0	0.0	0.0	0.0	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
06-Feb-98	0.0	0.0	0.0	0.0	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
07-Feb-98	0.0	0.0	0.2	0.1	0.0	0.3	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
08-Feb-98	0.1	0.0	0.2	0.1	0.0	0.3	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
09-Feb-98	0.0	0.0	0.0	0.0	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
10-Feb-98	0.0	0.0	0.0	0.0	-0.2	0.0	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
11-Feb-98	0.0	0.0	0.0	0.0	-0.2	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
12-Feb-98	0.0	0.0	0.0	0.0	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
13-Feb-98	0.0	0.0	0.0	0.0	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
14-Feb-98	0.0	0.0	0.0	0.1	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
15-Feb-98	0.0	0.0	0.0	0.0	-0.2	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
16-Feb-98	0.0	-0.1	0.0	0.0	-0.2	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
17-Feb-98	0.0	0.0	0.0	0.0	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
18-Feb-98	0.0	0.0	0.0	0.0	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
19-Feb-98	0.0	0.0	0.0	0.0	-0.2	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
20-Feb-98	0.0	0.0	0.0	0.0	0.0	0.0	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
21-Feb-98	0.0	0.0	0.0	0.0	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
22-Feb-98	0.0	0.0	0.0	0.0	0.0	0.0	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
23-Feb-98	0.0	0.0	0.0	0.0	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
24-Feb-98	0.0	0.0	0.0	0.0	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
25-Feb-98	0.0	0.0	0.0	0.0	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
26-Feb-98	0.0	0.0	0.0	0.0	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
27-Feb-98	0.0	0.0	0.0	0.1	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
28-Feb-98	0.0	0.0	0.0	0.1	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
01-Mar-98	0.0	0.0	0.0	0.1	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
02-Mar-98	0.0	0.0	0.0	0.1	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
03-Mar-98	0.0	0.0	0.0	0.1	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
04-Mar-98	0.0	0.0	0.0	0.1	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
05-Mar-98	0.0	0.0	0.0	0.1	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
06-Mar-98	0.0	0.0	0.0	0.1	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
07-Mar-98	0.0	0.0	0.0	0.1	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
08-Mar-98	0.0	0.0	0.0	0.1	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
09-Mar-98	0.0	0.0	0.0	0.1	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
10-Mar-98	0.0	0.0	0.0	0.1	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
11-Mar-98	0.0	0.0	0.0	0.1	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
12-Mar-98	0.0	0.0	0.0	0.1	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
13-Mar-98	0.0	0.0	0.0	0.1	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
14-Mar-98	0.0	0.0	0.0	0.1	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
15-Mar-98	0.0	0.0	0.0	0.1	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
16-Mar-98	0.0	0.0	0.0	0.0	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
17-Mar-98	0.0	0.0	0.0	0.0	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
18-Mar-98	0.0	0.0	0.0	0.1	0.0	0.1	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
19-Mar-98	0.0	0.0	0.0	0.0	0.0	0.1	-4.9	-4.9	-4

Appendix D13. Vertical profiles of water temperature and dissolved oxygen concentrations in lakes within the Meliadine Study Area, 1997 - 1999.

Parameter		A1	A6					A8				B2						B5			
Date		23-Aug-97	23-Jul-97	17-Aug-97	25-Apr-98	24-Jul-98	18-Jul-99	22-Jul-97	18-Aug-97	26-Apr-98	23-Jul-98	21-Jul-97	18-Aug-97	26-Apr-98	21-Jul-98	30-Aug-98	18-Jul-99	19-Jul-97	18-Aug-97	26-Apr-98	20-Jul-98
Time		09:30	13:00	17:00	15:30	12:20	08:30	14:00	10:00	09:30	12:00	14:00	13:30	12:30	12:00	10:30	17:30	10:00	17:00	16:30	10:30
UTM (NAD 27)	Easting	544360	541777	541816	542016	541777	541780	540123	540108	540102	540123	537540	537441	537430	537540	537441	537540	537794	537799	538007	537794
Zone 15V	Northing	6985425	6985645	6985549	6985773	6985645	6985850	6987122	6987096	6987247	6987122	6986964	6986909	6986373	6986964	6986909	6986500	6988576	6988532	6988418	6988576
pH		8.09	7.85	7.86	6.83	7.37	110.70	8.38	7.87	7.73	7.73	8.07	7.84	6.92	n.d.	7.13	97.10	7.54	7.67	6.84	n.d.
Conductivity (µS/cm)		150.3	92.8	101.9	300	84.8	84.8	95.5	103.7	320	93.3	101.7	109.9	433	71.5	87.0	71.5	81.8	89.5	674	73.8
Total Depth (m)		1.8	2.5	2.5	3.8	3.9	4.0	3.6	3.4	3.0	2.8	2.6	2.5	2.5	3.0	3.0	3.0	2.7	2.3	2.2	2.0
Ice Thickness (m)					1.7					1.8				1.8						1.8	
Snow Cover (m)					0.2					0.2				0.2						0.2	
Secchi Transparency (m)		>1.8	>2.5	>2.5	n.d.	>3.9	2.5	>3.6	>3.4	n.d.	>2.8	>2.6	>2.5	n.d.	>3.0	2.8	2.5	>2.7	>2.3	n.d.	>2.0
Water	0.1 m	14.7	19.0	15.7	0.0	15.1	9.8	17.7	14.2	-0.2	12.7	17.4	15.3	-0.2	9.7	8.9	11.1	15.1	15.1	-0.2	10.0
Temperature	0.5 m	14.8	18.9	15.5		14.8	9.8		14.3		12.5	17.1	15.0	-0.2	9.7	8.9	11.0		15.1	-0.2	9.9
(°C)	1.0 m	14.8	18.8	15.3	0.3	14.5	9.8	17.5	14.3	-0.1	12.4	16.6	14.9	-0.2	9.7	8.9	10.9	15.1	15.1	-0.2	9.9
	1.5 m	14.9	18.8	15.2		14.4	9.9		14.3		12.4	16.3	14.9	-0.1	9.7	8.9	10.9	15.1	15.1	-0.2	9.9
	2.0 m		18.4	15.1	0.9	14.4	9.9	17.1	14.3	0.5	12.3	16.1	14.8	0.1	9.7	8.9	10.9	15.1	15.1	0.0	9.9
	2.5 m		18.2			14.3	9.9		14.3	1.8	12.3	16.0		0.8 [a]	9.7	8.9	10.9	15.1			
	3.0 m				1.9	14.3	9.9	16.6	14.2						9.8		10.9				
	3.5 m				2.1	14.3	9.9	16.4													
	4.0 m						9.9														
	5.0 m																				
	6.0 m																				
	7.0 m																				
	8.0 m																				
	9.0 m																				
	10.0 m																				
	11.0 m																				
	12.0 m																				
	13.0 m																				
	14.0 m																				
	15.0 m																				
	16.0 m																				
	17.0 m																				
	18.0 m																				
Dissolved	0.1 m	10.0	10.3	11.4	3.4	12.8	11.3	9.9	11.0	4.5	13.7	9.7	11.0	4.2	13.8	11.0	11.8	10.5	10.9	3.2	13.9
Oxygen	0.5 m	9.9	10.0	11.5		12.7	11.2		11.0		13.6	9.7	11.2	4.1	13.4	11.1	11.9		10.9	3.0	13.9
(mg/L)	1.0 m	9.8	10.1	11.5	3.2	13.1	11.1	9.9	10.9	4.3	13.7	9.7	11.2	3.9	13.4	11.1	11.9	10.4	10.8	2.9	13.9
	1.5 m	9.8	10.2	11.5		12.9	11.1		10.8		13.5	9.9	11.2	3.7	13.3	11.1	11.8	10.6	10.8	2.7	14.0
	2.0 m		10.5	11.6	2.9	12.7	11.1	10.0	10.8	3.8	13.5	10.1	11.4	3.6	13.3	11.1	11.8	10.6	10.8	2.6	13.8
	2.5 m		10.6			12.7	11.1		10.9	2.0	13.3	10.2		3.5 [a]	13.3	11.3	11.9	10.5			13.9
	3.0 m				1.0	12.6	11.1	9.9	10.8						13.3		11.7				
	3.5 m				0.7	12.6	11.1	10.0													
	4.0 m						10.9														
	5.0 m																				
	6.0 m																				
	7.0 m																				
	8.0 m																				
	9.0 m																				
	10.0 m																				
	11.0 m																				
	12.0 m																				
	13.0 m																				
	14.0 m																				
	15.0 m																				
	16.0 m																				
	17.0 m																				
	18.0 m																				

shading = under-ice profiles n.d. = not determined [a] at 2.3 m

Golder Associates

Appendix D13. Vertical profiles of water temperature and dissolved oxygen concentrations in lakes within the Meliadine Study Area, 1997 - 1999.

Parameter		B5		B7					D1		D7			G2		Control		ML-E				
Date		28-Aug-98	18-Jul-99	18-Jul-97	19-Aug-97	27-Apr-98	19-Jul-98	22-Aug-98	19-Aug-97	27-Apr-98	17-Jul-97	19-Aug-97	27-Apr-98	24-Jul-97	22-Aug-97	26-Jul-98	19-Jul-99	19-Jul-97	17-Aug-97	25-Apr-98	17-Jul-98	04-Sep-98
Time		11:00	12:30	13:30	10:00	15:00	12:15	21:00	16:30	13:00	17:00	14:00	17:00	16:30	16:30	11:45	15:30	15:30	10:00	13:30	11:45	11:00
UTM (NAD 27)	Easting	537799	537850	537685	537701	537749	537685	537701	533066	533035	536724	536774	536649	538579	538611	534670	534670	542941	543003	543271	543271	543271
Zone 15V	Northing	6988532	6988580	6989544	6989443	6989506	6989544	6989443	6989437	6989527	6988687	6988690	6988572	6990582	6990476	6986510	6986510	6988744	6988672	6988364	6988364	6988364
pH		7.36	87.40	7.41	7.94	7.00	n.d.	7.67	8.14	7.05	7.97	8.10	7.16	7.83	7.91	6.90	73.10	7.30	7.39	6.17	n.d.	7.04
Conductivity (µS/cm)		94.8	73.8	84.0	92.2	278	76.0	84.7	134.9	1816	136.4	150.6	845	67.4	74.5	79.7	79.7	59.3	59.4	101	56.8	62.2
Total Depth (m)		2.9	2.0	3.2	3.8	3.2	3.5	3.8	2.2	1.7	2.2	2.2	2.3	2.3	2.1	4.3	4.2	14.7	13.0	11.5	11.2	13.7
Ice Thickness (m)						1.8				1.5			1.8							1.8		
Snow Cover (m)						0.2				0.6			1.0							0.3		
Secchi Transparency (m)		>2.9	<2.0	>3.2	>3.8	n.d.	>3.5	3.0	>2.2	n.d.	>2.2	>2.2	n.d.	>2.3	>2.1	>4.3	3.0	7.5	6.7	n.d.	5.0	4.5
Water	0.1 m	8.9	10.5	14.3	15.1	-0.1	9.7	10.3	16.7	-0.2	14.0	15.8	-0.2	17.4	16.0	14.5	12.6	13.9	15.3	-0.2	9.9	9.7
Temperature	0.5 m	8.9	10.4		14.8		9.7	10.2	16.4	-0.2	14.0	15.6		17.3	16.0	14.6	12.4					
(°C)	1.0 m	8.9	10.3	14.3	14.7	0.0	9.7	9.9	16.1	-0.2	14.0	15.4	-0.1	17.3	16.0	14.6	12.1	13.9	13.6	-0.2	9.9	9.7
	1.5 m	8.9	10.2		14.5		9.7	9.9	15.8	-0.2	13.9	15.3		17.3	16.0	14.7	12.0					
	2.0 m	8.9	10.2	14.3	14.5	0.6	9.7	9.8	15.7		13.5	15.2	0.3	17.3	16.0	14.7	12.0	13.8	12.8	0.0	9.9	9.7
	2.5 m	8.9			14.4		9.7	9.8								14.7	11.9					
	3.0 m			14.3	14.4	1.7	9.7	9.7								14.7	11.9	13.8	12.5	1.4	9.9	9.7
	3.5 m				14.3		9.7	9.6								14.7	11.9					
	4.0 m															14.7	11.9	13.8	12.0	2.0	9.9	9.7
	5.0 m																	13.8	11.8	2.2	9.9	9.7
	6.0 m																	13.7	11.6	2.5	9.9	9.7
	7.0 m																	13.7	11.5	2.6	9.9	9.7
	8.0 m																	13.7	11.4	2.7	9.9	9.7
	9.0 m																	13.7	11.4	2.8	9.9	9.7
	10.0 m																	13.6	11.3	2.8	9.9	9.7
	11.0 m																	13.5	11.3	2.8	9.9	9.7
	12.0 m																	13.4	11.2			9.7
	13.0 m																	13.3				9.7
	14.0 m																	13.2				
	15.0 m																	13.2 [b]				
	16.0 m																					
	17.0 m																					
	18.0 m																					
Dissolved	0.1 m	10.8	11.5	10.8	10.6	4.1	13.2	10.3	10.3	0.4	10.8	10.7	2.3	9.9	10.4	12.4	11.3	10.2	11.3	17.9	16.0	11.2
Oxygen	0.5 m	10.8	11.7		10.7		12.9	10.4	10.5	0.3	10.9	10.8		9.9	10.4	11.5	11.4					
(mg/L)	1.0 m	10.8	11.7	10.8	10.7	3.8	12.9	10.4	10.6	0.3	10.9	10.8	1.8	9.9	10.3	11.3	11.4	10.2	11.3	18.0	13.3	11.2
	1.5 m	10.8	11.7		10.8		12.7	10.4	10.8	0.2	10.9	10.9		9.9	10.2	10.7	11.4					
	2.0 m	10.8	11.7	11.2	10.8	3.5	12.8	11.0	10.8		11.1	10.9	1.5	9.9	10.2	10.5	11.4	10.2	11.6	17.4	12.9	11.2
	2.5 m	10.8			10.8		12.7	11.2								10.3	11.4					
	3.0 m			11.2	10.8	2.5	12.7	11.2								10.2	11.4	10.2	11.6	15.1	12.8	11.2
	3.5 m				10.8		12.7	11.2								10.1	11.3					
	4.0 m															10.1	11.3	10.2	11.6	13.8	12.6	11.2
	5.0 m																	10.2	11.7	12.8	12.8	11.1
	6.0 m																	10.3	11.7	12.0	12.6	11.1
	7.0 m																	10.2	11.8	9.2	12.4	11.1
	8.0 m																	10.3	11.6	8.9	12.5	11.1
	9.0 m																	10.3	11.5	7.8	12.3	11.1
	10.0 m																	10.2	11.7	7.7	11.9	11.1
	11.0 m																	10.2	11.5	7.4	11.7	11.1
	12.0 m																	10.2	11.6			11.1
	13.0 m																	10.2				11.1
	14.0 m																	10.2				
	15.0 m																	10.1 [b]				
	16.0 m																					
	17.0 m																					
	18.0 m																					

shading = under-ice profiles n.d. = not determined [b] at 14.5 m

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Appendix D13. Vertical profiles of water temperature and dissolved oxygen concentrations in lakes within the Meliadine Study Area, 1997 - 1999.

Parameter		ML-S				ML-SE			ML-W				LML			PL		HB
Date		20-Jul-97	16-Aug-97	27-Apr-98	25-Jul-98	26-Apr-98	22-Jul-98	19-Jul-99	20-Jul-97	16-Aug-97	24-Apr-98	27-Jul-98	24-Apr-98	29-Jul-98	02-Sep-98	24-Apr-98	28-Jul-98	29-Jul-98
Time		13:30	10:00	10:00	13:45	14:30	15:00	12:30	17:30	14:00	13:30	17:15	16:00	10:00	12:30	11:00	10:30	14:30
UTM (NAD 27)	Easting	532280	532283	532259	532300	535972	535800	535800	524254	524294	524283	525720	537730	537810	537808	509584	509590	546560
Zone 15V	Northing	6989378	6989227	6989116	6989400	6986334	6986380	6986380	7000982	7000981	7001121	7000851	6977994	6977970	6977963	6993169	6993230	6969370
pH		7.14	6.97	6.79	7.05	6.75	n.d.	85.30	7.24	7.10	6.68	n.d.	6.83	6.35	6.71	6.50	n.d.	7.70
Conductivity (µS/cm)		58.4	55.5	105	57.6	170	69.4	69.4	51.4	52.2	68.3	51.8	116	76.2	69.8	68.9	52.2	28.2
Total Depth (m)		6.3	6.2	5.0	5.8	3.0	3.0	3.1	8.1	8.5	4.2	6.5	14.4	14.5	14.8	17.4	18.8	8.0
Ice Thickness (m)				1.8		1.8					2.3		1.5			2.4		
Snow Cover (m)				0.3		0.3					0.3		0.6			0.0		
Secchi Transparency (m)		>6.3	>6.2	n.d.	5.2	n.d.	>3.0	3	7.9	>8.5	n.d.	>6.5	n.d.	6.6	7.5	n.d.	6.9	7.0
Water	0.1 m	14.6	13.2	-0.2	13.1	-0.2	11.4	11.7	14.3	13.6	0.1	12.9	0.0	14.0	10.5	0.4	11.9	13.1
Temperature	0.5 m				13.0		11.2	11.4										
(°C)	1.0 m	14.4	12.8	-0.2	13.0	-0.2	11.2	11.4	14.2	13.3	0.2	12.8	0.0	14.0	10.4	0.6	11.8	11.2
	1.5 m				12.9		11.1	11.3										
	2.0 m	14.3	12.5	0.0	12.9	0.0	11.0	11.2	14.1	13.1	0.3	12.7	0.4	13.8	10.4	0.8	11.7	10.2
	2.5 m				12.9	1.2 [d]	11.0	11.2	14.0									
	3.0 m	14.3	11.9	0.9	12.9		11.0	11.2	14.0	12.9	1.0	12.6	1.0	13.7	10.3	1.0	11.6	9.5
	3.5 m				12.9													
	4.0 m	14.3	11.8	1.4	12.9				14.0	12.3	1.2	12.5	1.1	13.5	10.3	1.1	11.6	9.2
	5.0 m	14.3	11.6	1.6 [c]	12.6				14.0	12.0		12.5	1.2	13.4	10.3	1.4	11.5	8.7
	6.0 m	14.3	11.4						14.0	11.7		12.4	1.2	13.3	10.3	1.5	11.5	8.5
	7.0 m								14.0	11.6			1.3	13.2	10.3	1.7	11.5	8.3
	8.0 m								13.9	11.4			1.3	13.0	10.3	1.9	11.5	8.3
	9.0 m												1.3	12.8	10.2	2.0	11.4	
	10.0 m												1.4	12.7	10.2	2.1	11.4	
	11.0 m												1.5	12.7	10.2	2.2	11.4	
	12.0 m												1.6	12.5	10.2	2.3	11.4	
	13.0 m												1.8	12.4	10.2	2.4	11.2	
	14.0 m												2.0	12.2	10.2	2.5	10.4	
	15.0 m															2.6	10.1	
	16.0 m															2.7	9.9	
	17.0 m															2.7	9.8	
	18.0 m																9.5	
Dissolved	0.1 m	10.2	11.6	19.6	13.5	16.2	13.7	11.2	9.9	11.3	19.2	11.8	15.3	9.7	10.8	18.4	12.2	11.8
Oxygen	0.5 m				12.6		13.7	11.3										
(mg/L)	1.0 m	10.2	11.5	19.5	12.5	16.0	13.7	11.3	9.9	11.2	19.6	11.1	15.2	9.6	10.7	18.3	12.1	11.9
	1.5 m				12.0		13.7	11.2										
	2.0 m	10.2	11.6	19.6	12.0	15.9	13.4	11.2	9.9	11.3	19.4	11.0	14.6	9.6	10.7	17.3	12.0	12.7
	2.5 m				11.8	14.6 [d]	14.2	11.2										
	3.0 m	10.3	11.8	19.1	12.0		14.2	11.2	10.0	11.4	18.4	11.0	13.6	9.4	10.6	16.9	12.2	12.7
	3.5 m				11.8													
	4.0 m	10.3	11.7	18.7	12.0				10.0	11.4	16.4	11.2	13.4	9.3	10.6	16.1	12.3	12.7
	5.0 m	10.3	11.9	17.6 [c]	11.6				10.0	11.6		11.3	13.3	9.3	10.6	15.0	12.2	12.9
	6.0 m		11.8						10.0	11.8		11.3	13.2	9.2	10.7	14.0	12.0	12.9
	7.0 m								10.1	11.8			13.3	9.2	10.6	13.1	12.0	14.3
	8.0 m								10.1	11.9			13.1	9.2	10.6	12.2	11.9	14.3
	9.0 m												12.8	9.2	10.6	11.6	11.8	
	10.0 m												12.5	9.2	10.6	10.9	11.7	
	11.0 m												12.0	9.2	10.6	10.0	11.6	
	12.0 m												11.4	9.2	10.6	9.3	11.5	
	13.0 m												10.8	9.2	10.6	8.8	11.5	
	14.0 m												9.7	9.2	10.6	8.7	11.5	
	15.0 m															7.7	11.6	
	16.0 m															7.5	11.6	
	17.0 m															7.9	11.6	
	18.0 m																9.5	

shading = under-ice profiles n.d. = not determined [c] at 4.8 m [d] at 2.7 m

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APPENDIX E

Lower Trophic Levels

Appendix E1. Periphyton chlorophyll *a* and ash-free-dry-mass (AFDM) concentrations in the Meliadine Study Area, 1997 and 1998.

Site	Date	Chlorophyll *a* (µg/cm²)							AFDM (mg/cm²)						
		Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE[a]	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE
Streams															
A0-1	21-Jul-97	0.87	0.80	0.97	0.00	0.60	0.65	0.17	10.61	29.43	6.73	8.61	5.35	12.15	4.41
A0-1	17-Jul-98	0.28	0.25	0.18	0.18	4.11	1.00	0.78	2.82	4.92	5.61	2.80	2.44	3.72	0.64
A5-6	23-Jul-97	3.85	1.34	1.40	0.26	2.29	1.83	0.60	20.28	24.17	31.75	25.27	9.57	22.21	3.66
A5-6	24-Jul-98	0.50	1.34	5.89	1.96	2.80	2.50	0.93	3.96	0.32	3.10	15.14	10.60	6.62	2.72
A7-8	22-Jul-97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.16	18.44	17.56	4.10	0.10	10.87	3.71
A7-8	23-Jul-98	10.27	4.14	10.55	3.84	2.05	6.17	1.77	2.68	3.64	2.68	3.28	18.97	6.25	3.19
B1-2	21-Jul-97	1.28	2.15	3.76	2.13	4.71	2.81	0.62	45.52	66.78	35.15	83.39	46.13	55.39	8.68
B1-2	21-Jul-98	0.32	0.14	0.24	0.08	0.46	0.25	0.07	3.74	0.17	0.96	0.21	0.69	1.15	0.66
B3-4	21-Jul-98	0.75	0.54	0.32	0.14	1.12	0.57	0.17	0.48	2.74	1.32	3.40	6.09	2.80	0.97
B4-5	24-Jul-97	11.59	10.30	7.09	10.64	6.72	9.27	0.99	36.95	36.26	25.47	31.71	13.79	28.84	4.28
B4-5	24-Jul-98	0.54	0.89	1.77	0.53	1.45	1.04	0.25	2.32	0.70	3.31	1.63	2.45	2.08	0.44
B5-6	19-Jul-98	0.80	0.26	0.67	0.15	0.10	0.40	0.14	0.73	0.88	1.32	0.70	0.27	0.78	0.17
B6-7	17-Jul-97	2.74	4.31	4.09	3.75	4.71	3.92	0.33	30.72	8.85	38.20	21.85	59.61	31.85	8.49
B6-7	19-Jul-98	0.22	0.37	0.90	0.59	0.49	0.51	0.11	1.16	7.22	1.29	3.78	2.77	3.24	1.11
D0-1	24-Jul-97	8.97	17.33	3.63	6.41	2.41	7.75	2.65	13.69	33.81	2.45	17.88	42.77	22.12	7.21
D6-7	17-Jul-97	0.99	1.01	1.41	3.04	3.14	1.92	0.48	10.82	5.86	16.74	8.68	14.19	11.26	1.93
ML-MR	23-Jul-97	9.85	1.38	5.69	8.09	5.13	6.03	1.44	20.65	107.63	236.91	176.52	67.52	121.85	38.49
ML-MR	25-Jul-98	1.09	2.14	1.37	0.90	2.10	1.52	0.26	70.39	50.38	35.65	29.62	55.15	48.24	7.24
ML-PL	22-Jul-97	2.71	0.92	2.00	4.74	1.43	2.36	0.67	282.79	105.91	144.59	108.50	219.81	172.32	34.43
ML-PL	27-Jul-98	1.77	1.88	2.78	0.69	1.74	1.77	0.33	116.74	126.49	41.88	25.94	39.24	70.06	21.28
MR-L	20-Jul-98	0.12	0.05	0.08	0.15	0.10	0.10	0.02	1.99	1.36	2.34	2.49	2.87	2.21	0.26
Lakes															
A6	23-Jul-97	0.48	0.42	0.31	0.08	0.24	0.31	0.07	1.49	1.87	4.35	10.88	1.79	4.08	1.78
A6	24-Jul-98	0.01	0.00	0.01	0.04	0.04	0.02	0.01	0.09	0.00	0.15	0.16	0.16	0.11	0.03
A8	22-Jul-97	8.60	5.24	2.76	12.80	5.16	6.91	1.74	58.89	47.33	30.03	29.27	40.40	41.18	5.56
A8	23-Jul-98	0.17	0.29	0.00	0.00	0.26	0.14	0.06	3.85	3.74	2.05	2.54	2.31	2.90	0.38
B2	21-Jul-97	1.87	2.22	1.91	7.65	4.03	3.54	1.10	33.63	30.70	18.42	72.98	38.95	38.94	9.15
B2	21-Jul-98	0.00	0.07	0.03	0.04	0.00	0.03	0.01	1.51	2.26	2.63	1.62	1.89	1.98	0.21
B5	18-Jul-97	3.03	0.88	2.48	4.19	2.24	2.56	0.54	17.38	19.11	43.00	37.21	30.01	29.34	4.98
B5	20-Jul-98	0.34	0.27	0.37	0.18	0.39	0.31	0.04	3.05	1.41	2.19	1.89	2.14	2.13	0.27
B7	18-Jul-97	2.16	3.65	1.47	0.58	0.98	1.77	0.54	41.82	40.93	65.82	42.02	53.22	48.76	4.83
B7	19-Jul-98	0.18	0.00	0.94	1.06	1.02	0.64	0.23	4.09	3.85	10.43	4.18	3.16	5.14	1.33
D7	17-Jul-97	3.94	1.59	4.27	2.94	7.78	4.10	1.03	27.22	42.84	53.48	18.69	124.03	53.25	18.70
G2	24-Jul-97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.48	59.03	17.18	25.95	21.22	28.37	7.81
ML-E	19-Jul-97	0.00	0.15	0.53	0.31	0.45	0.29	0.10	9.48	7.63	9.55	12.53	9.16	9.67	0.80
ML-E	18-Jul-98	0.21	0.09	0.12	0.21	0.16	0.16	0.02	1.74	1.96	2.35	1.74	3.14	2.19	0.26
ML-S	20-Jul-97	0.13	0.00	0.00	0.12	0.00	0.05	0.03	0.91	0.91	0.42	1.01	0.94	0.84	0.11
ML-S	25-Jul-98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.89	7.88	8.79	5.54	4.61	6.14	0.94
ML-SE	22-Jul-98	0.00	0.00	0.00	0.00	0.12	0.02	0.02	0.33	0.43	0.17	0.38	0.67	0.39	0.08
ML-W	20-Jul-97	1.10	3.15	0.80	0.72	1.34	1.42	0.45	15.94	20.88	2.01	16.98	2.97	11.76	3.87
ML-W	27-Jul-98	0.11	0.09	0.02	0.14	0.06	0.08	0.02	1.08	1.70	0.81	1.87	2.45	1.58	0.29
PL	28-Jul-98	0.31	0.40	0.55	0.25	0.33	0.37	0.05	2.82	1.94	0.59	0.65	0.90	1.38	0.43
LML	29-Jul-98	0.32	0.11	0.13	0.15	0.30	0.20	0.04	5.45	2.04	2.35	1.98	3.29	3.02	0.65

[a] SE = standard error

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Appendix E2. Periphytic algal densities (no. cells/cm^2) in streams of the Meliadine Study Area, 1997 and 1998

Species	A0-1												A5-6				
	July 1997							July 1998					July 1997				
	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 2	Rep 3	Rep 4	Mean	SE
BACILLARIOPHYTA (Diatoms)																	
Achnanthes detha														1116	1046	721	361
Achnanthes flexella	P	P	P	152	136	57	35	P[1]	306	P	102	102	125	P	P	42	42
Achnanthes lanceolata																	
Achnanthes minutissima		19610	37488	34398	40034	26306	7469	31073	42209	25015	32766	5035	8018	9732	11156	9635	907
Achnanthes minutissima v. *cryptocephala*	14625		4608	697	697	4126	2748	P	8925	4385	4437	2577	349	744	4183	1759	1218
Amphipleura sp.																	
Amphora sp.			P														
Amphora ovalis	129		P	P	272	80	54	992	P	P	331	331			P		
Amphora ovalis v. *pediculus*																	
Anomoeoneis sp.																	
Anomoeoneis vitrea																	
Asterionella formosa																	
Caloneis sp.				P	P			P	P	1058	353	353					
Caloneis ventricosa																	
Caloneis ventricosa v. *truncatula*														P			
Cocconeis diminuta																	
Cocconeis pediculus																	
Cocconeis placentula																	
Cocconeis placentula v. *euglypta*																	
Cocconeis sp.								P									
Coscinodiscus denarius																	
Coscinodiscus lacustris																	
Cyclotella sp.	360	P	P			72	72										
Cyclotella antiqua				465	697	232	147	1487	306	1210	1001	357	P	P	P		
Cyclotella comta																	
Cyclotella glomerata																	
Cyclotella kutzingiana																	
Cyclotella meneghiniana																	
Cyclotella ocellata																	
Cyclotella striata					P			P	P	P							
Cymbella affinis								992	306	P	433	293					
Cymbella amphioxys															P		
Cymbella aspera					P												
Cymbella cistula																	
Cymbella cuspidata		P	P							P				P			
Cymbella cymbiformis	P			1376	P	275	275						44			15	15
Cymbella cymbiformis v. *nonpunctata*	120	261	261			128	58						349	155	530	345	108
Cymbella gracilis					232	46	46	P	P	P							
Cymbella lanceolata																	
Cymbella mexicanum v. *janischii*																	
Cymbella minuta	120	915	1276	232	697	648	214	3028	6694	2760	4161	1269	349	310	1743	801	471
Cymbella naviculiformis				P	P												
Cymbella sinuata																	
Cymbella tumida																	
Cymbella turgida	P		P	232	230	93	57		P				349	279	397	342	34
Cymbella turgidula																	
Cymbella sp.	646		P		P	129	129						P	P	P		
Denticula tenuis	P	261	523	1162	232	436	200	P	P	302	101	101	697	744	1394	945	225
Diatoma elongatum	1651	2843	2216	3835	2440	2597	365	2851	3999	1979	2943	585	1743	3376	4647	3255	840
Diatoma vulgare																	
Didymosphenia geminata																	
Diploneis sp.				P	P			P	P								
Diploneis elliptica																	
Diploneir finnica																	
Diploneis interrupta																	
Diploneis ovalis										P							
Epithemia sorex	480	1160	1002	1143	2999	1357	429	P	306	P	102	102	P		P		
Eunotia arcus																	
Eunotia exigua																	
Eunotia flexuosa																	
Eunotia glacialis				P													
Eunotia major																	
Eunotia papilio																	
Eunotia praerupta	P	P	P	P	P			P	P	P			P	P	P		
Eunotia praerupta v. *bidens*				P						P							
Eunotia sudetica																	
Eunotia sp.	P																
Fragilaria brevistriata																	
Fragilaria construens					136	27	27										
Fragilaria crotonensis	P	915	685	1758	1902	1052	352	P	1116	1512	876	453	697	P	1743	813	507
Fragilaria intermedia																	
Fragilaria pinnata	3604	7060	4183	15107		5991	2541	1983	7809	2722	4171	1831	349			116	116
Frustulia vulgaris					P												
Gomphonema sp.																	
Gomphonema acuminatum				P	P												
Gomphonema acuminatum v. *coronata*									P								
Gomphonema angustatum	P	1569	249	930	P	550	306	550	P	302	284	159	P	P			
Gomphonema constrictum	P												P		P		
Gomphonema gracile									P	P							
Gomphonema intricatum v. *vibrio*																	
Gomphonema olivaceum									P	P							
Gomphonema parvulum																	
Gyrosigma sp																	
Hantzschia amphioxys				P													
Melosira sp.									P								
Melosira granulata																	
Meridion circulare																	
Navicula sp.		P	P														
Navicula amphibola																	
Navicula anglica								P	P	P							
Navicula aspera				P													
Navicula bacillum																	
Navicula decussis																	
Navicula dolosa																	
Navicula capitata																	
Navicula cryptocephala	P	523	1307	5534	349	1543	1021	3657	2928	2481	3022	343	349	1673	3023	1682	772
Navicula cryptocephala v. *intermedia*	3964	3203	2614		1627	2282	686						872	744		539	272
Navicula cuspidata									P								

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Appendix E2. Periphytic algal densities (no. cells/cm^2) in streams of the Meliadine Study Area, 1997 and 1998

Species	A0-1												A5-6				
	July 1997							July 1998					July 1997				
	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 2	Rep 3	Rep 4	Mean	SE
Navicula exigua													P	P	P		
Navicula exigua v. *capitata*																	
Navicula lacustris								P		P							
Navicula laevissima																	
Navicula lanceolata								7685		2873	3519	2242					
Navicula mutica																	
Navicula placenta																	
Navicula pseudoscutiformis																	
Navicula pupula				P	P			P	P	P				P	P		
Navicula radiosa	240	P	3461		P	740	682	744	P		248	248	436	1329	614	793	273
Navicula reinhardtii																	
Navicula rhynchocephala																	
Navicula tripunctata																	
Navicula tripunctata v. *schizonemoides*																	
Navicula viridula				174	581	151	113	5516	12097	2117	6577	2929					
Nedium sp.				P	P												
Nedium bisulcatum																	
Nedium dubium									P	P							
Nedium hitchcockii		P	P														
Nedium iridis v. *amphigomphus*			P														
Nitzschia sp.									P								
Nitzschia acicularis														2603		868	868
Nitzschia amphibia										P							
Nitzschia angustata								P									
Nitzschia dissipata										P							
Nitzschia filiformis	129	131	498	P	232	198	84	P	558	2571	1043	781	P		1046	349	349
Nitzschia fonticola	646		1569			443	308	P	P								
Nitzschia palea																	
Nitzschia sigmoidea	129	P	233	P	P	72	47			P							
Pinnularia sp.				P	P									P			
Pinnularia biceps	129	P	P			26	26						P				
Pinnularia borealis																	
Pinnularia maior																	
Pinnularia mesolepta								P	P	P							
Pinnularia nodosa				P	P												
Pinnularia streptoraphe																	
Pinnularia viridis								P		P							
Rhizosolenia longiseta																	
Rhoicosphenia curvata																	
Rhopalodia gibba	P	P	P	232	156	78	49	P	P	P				249		83	83
Rhopa;pdoa gebberula																	
Stauroneis anceps		P		P	P			P	P	P							
Stauroneis phoenicenteron	P		P	P	P												
Stauroneis smithii																	
Stauroneis sp.																	
Stephanodiscus astraea																	
Surirella sp.					P												
Surirella angustata																	
Synedra actinastroides	3749	2091	3370	9278	10313	5760	1678	24813	18317	13307	18812	3331	6422	6321	5637	6127	247
Synedra acus					P			P	139		46	46	697	372	1977	1015	490
Synedra sp.																	
Synedra ulna	742	P	62	523	113	288	146	1487	P	76	521	483	1759	1162	1002	1308	230
Tabellaria fenestrata	420	1297	1899	1627	8716	2792	1502	372	957	P	443	279	2440	558	4996	2665	1286
Tabellaria flocculosa	119	523	2117	697	186	728	363	3471	7194	1210	3958	1745	3661	8274	3950	5295	1492
CRYPTOPHYTA (Cryptomonads)																	
Cryptomonas curvata																	
Cryptomonas erosa																	
Cryptomonas ovata	120		125			49	30			302	101	101					
Cryptomonas reflexa																	
Katablepharis ovalis																	
Rhodomonas minuta																	
CHRYSOPHYTA (Golden-Brown Algae)																	
Chrysidiastrum catenatum																	
Chrysococcus sp.	P																
Chrysoikos sp.																	
Chrysosphaerella rodhei														349		116	116
Dinobryon crenulatum																	
Dinobryon divergens	120		P	P	P	24	24	992	1116	907	1005	61		349		116	116
Dinobryon sertularia	120	P	523	232	465	268	100	1859	P	907	922	537	744	697	349	597	125
Dinobryon sertularia v. *protuberans*	129	P	261	152		108	50	1487	1116	1512	1372	128		P			
Dinobryon sociale									P	1815	605	605					
Dinobryon tabellariae									P	P							
Ishtmochloron trispinatum													P	349		116	116
Kephyrion sp.																	
Kephyrion boreale													P				
Ochromonas spa									1116		372	372	744			248	248
Ochromonas stellaris																	
Ophiocytium sp.																	
Pseudokephyrion sp.																	
Stichogloea doederleinii				1627	2208	767	479		3347		1116	1116					
Synura sp.																	
Unidentified statospore	P	261				52	52	1983	1673	907	1521	320	155		697	284	211
PYRROPHYTA (Dinoflagellates)																	
Glenodinium sp.																	
Gymnodinium sp.																	
Gymnodinium uberrimum	P	P	31		P	6	6	P	P	P			349	155	132	212	69
Peridinium sp.			P										349		P	116	116
Peridinium aciculiferum	258	P	747	465	697	433	139	1983	1116		1033	574	349	372	P	240	120
Peridinium cinctum	120	P		309	P	86	60	P	P	P							
Peridinium palatinum																	
Peridinium palustre																	
Peridinium willei														P			
Unidentified cyst		261	125	1162		310	219		1531	302	611	468					
EUGLENOPHYTA																	
Euglena sp.																	
Phacus sp.																	
Trachelomonas sp.	P	P			272	54	54			P			155	P		52	52

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Appendix E2. Periphytic algal densities (no. cells/cm^2) in streams of the Meliadine Study Area, 1997 and 1998

Species	A0-1												A5-6				
	July 1997							July 1998					July 1997				
	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 2	Rep 3	Rep 4	Mean	SE
CHLOROPHYTA (Green Algae)																	
Actinotaenium sp.																	
Ankistrodesmus convolutus	1081	784	1307			634	272						3094	7158	8367	6206	1595
Ankistrodesmus falcatus	360	P		697	232	258	130	992	2421	1058	1490	466					
Ankistrodesmus falcatus v. *spiralis*	1787	1438	1046	1162	1155	1318	134	1487	2789	1210	1829	487	3138	1859	3138	2712	426
Ankistrodesmus gelifactus																	
Arthrodesmus triangularis									P	302	101	101					
Binuclearia sp.				3951	P	790	790										
Botryococcus sp.				P													
Bulbochaete sp.	3363	523	3050	2789	3667	2678	559	1934	995		976	558	1220	2603	P	1274	752
Chlamydomonas sp. a													349			116	116
Chlamydomonas sp. b																	
Closterium sp.					58	12	12	P	P								
Closterium acerosum		P															
Closterium actum			P														
Closterium dianae																	
Closterium pseudolunula																	
Closterium rostratum					P												
Coeloastrum sp.																	
Coeloastrum cambricum																	
Coelastrum microporum	4805	P	996	P	697	1300	898	1487		1815	1101	558		P	P		
Coeloastrum printzii	P	1177	125	465		353	223	992			331	331	747	372	P	373	216
Coeloastrum sphaericum	P	4183	1494	5810	930	2483	1084	P	P				1992	2169	6487	3549	1470
Cosmarium sp.	P			1162	156	264	227	1487			496	496					
Cosmarium anceps		P						P									
Cosmarium biculatum		523				105	105										
Cosmarium botrytis																	
Cosmarium capitulum v. groenlandicum								P	P								
Cosmarium contracta																	
Cosmarium coronatum																	
Cosmarium depressum	129					26	26						125	155	265	182	43
Cosmarium granulatum	P		93	232	136	92	44	521	P		174	174		P			
Cosmarium holmiense v. *intermedium*								P					P				
Cosmarium humile v. *lacustre*	P		P	232	P	46	46	P	P				349	P	132	160	102
Cosmarium impressulum v. *suborthogonum*		P	P		P				306		102	102	P		349	116	116
Cosmarium laeve				P													
Cosmarium norimbergense	P			697		139	139			302	101	101					
Cosmarium phaseolus v. *phaseolus*									77		26	26					
Cosmarium pokornyanam																	
Cosmarium pseudoprotuberans																	
Cosmarium rectangulare									P								
Cosmarium rectangulum				P				P		P							
Cosmarium reniforme																	
Cosmarium repandum																	
Cosmarium septentrionale				227	232	92	56	297	918	302	506	206					
Cosmarium speciosum			125	P	P	25	25	P					P	P	697	232	232
Cosmarium subgranatum																	
Cosmarium tetraopthalmum								P					498	P		166	166
Cosmarium turpinii	30	88	P	P	P	24	17	P	P					372	P	124	124
Cosmarium turpinii v. *podolicum*																	
Crucigenia apiculata																	
Crucigenia quadrata		1046				209	209		P								
Crucigenia rectangularis	P	P			2789	558	558		P				P				
Cylindrocystis brebissonii	129	P		1162		258	227	297	P		99	99	349	155	2092	865	616
Desmidium swartzii v. *quadrangulatum*																	
Dictyosphaerium pulchellum																	
Elakatothrix sp.			261			52	52	1364	P	307	557	413		P	349	116	116
Euastropsis richteri			P		P												
Euastrum sp.																	
Euastrum bidentatum													125			42	42
Euastrum denticulatum																	
Euastrum dubium v. *maius*	P			P	P			P					125	372	132	210	81
Euastrum elegans	P	P	P	P	136	27	27	P					436	651	265	451	112
Euastrum gemmatum																	
Euastrum insulare v silesiacum																	
Euastrum obesum																	
Euastrum ohioense																	
Euastrum sinosum																	
Euastrum verrucosum															P		
Gemellicystis neglecta		P															
Geminella interrupta													P	P			
Gloeocystis schroeteri	3423	6275	6537		418	3331	1388	P		6200	2067	2067	17780	1305	19523	12869	5804
Gloeotila pelagica					P												
Golenkinia radiata v. *brevispina*	240					48	48							372	349	240	120
Gonatozygon brebissonii									P								
Gonatozygon monotaenium			P	P									349	136	P	162	102
Hyalotheca sp.																	
Kirchneriella sp.		261		232	P	99	61	496	P		165	165	1743		349	697	532
Koliella longiseta																	
Lagerheimia subsalsa																	
Lagerheimia wratislawiensis																	
Micractinium pusillum																	
Monoraphidium sp.																	
Mougeotia sp. a	P	P	778	349	232	272	143	496		302	266	144	8193	12986	7583	9587	1708
Nephrocytium limneticum													P				
Ooedogonium sp.																	
Oocystis elliptica	3357	1307	498			1032	628		1116	11190	4102	3559	1494	P	530	675	437
Oocystis lacustris	2042	11243	12550	9761	12782	9676	1983	15123	12272	2117	9837	3947	6624	11528	17954	12035	3281
Oocystis solitaria								P	P								
Oonephris obesa	P			P	1859	372	372						P	1549	P	516	516
Quadrigula closterioides																	
Phacotus sp.		261	261			104	64								349	116	116
Pandorina morum																	
Pediastrum boryanum	P	P	P	2789	465	651	542						P	P	P		
Pediastrum boryanum v. *ellesmerense*	P	523	249	P		154	104	P							P		
Pediastrum duplex																	
Pediastrum duplex v. *clathratum*		P													P		
Pediastrum integrum v. *scutum*																	
Pediastrum tetras	904	1177	1494	1819	1551	1389	158	3967	P	1210	1726	1174					

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Species	A0-1												A5-6				
	July 1997							July 1998					July 1997				
	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 2	Rep 3	Rep 4	Mean	SE
Penium sp.																	
Penium margaritaecum																	
Pleurotaenium sp.																	
Pleurotaenium trabecula																	
Protoderma sp.																	
Scenedesmus bijuga	1201	2615	P		4184	1600	806		P				1743	1487	3486	2239	628
Scenedesmus acuminatus	P	261		930	P	238	180	P		1210	403	403		620		207	207
Scenedesmus arcuatus								P	P					2603	P	868	868
Scenedesmus denticulatis				P				P	11156		3719	3719	P		P		
Scenedesmus ecornis																	
Scenedesmus incrassatulus	2883	3138	3922	6043	2557	3708	626	1934	12829	6048	6937	3176	6275	2231	15339	7948	3875
Scenedesmus obliquus								P									
Scenedesmus quadricauda	3003	4706	784	930	930	2070	777	10908	5578	907	5798	2889	697	1487	P	728	430
Scenedesmus spinosus									3347		1116	1116					
Scenedesmus wisconsinensis																	
Spirogyra sp.																	
Staurastrum sp. a	P		249	152	P	80	51	P	P				996	465		487	288
Staurastrum sp. b																	
Staurastrum sp. c																	
Staurastrum anatinum v. *biradiatum*																	
Staurastrum antilopaeum														P			
Staurastrum anatinum																	
Staurastrum apiculatum														P	349	116	116
Staurastrum borgeanum				P					306		102	102	125		794	306	246
Staurastrum brebissonii														P	132	44	44
Staurastrum clevei																	
Staurastrum curvatum																	
Staurastrum cuspidatum																	
Staurastrum dejectum	P	P	P	232	P	46	46		306		102	102	249	P		83	83
Staurastrum furcigerum																	
Staurastrum gladiosum																	
Staurastrum hystrix																	
Staurastrum longebranchiatum																	
Staurastrum lunatum																	
Staurastrum manfeldtii																	
Staurastrum pachyrhynchum		P											P		P		
Staurastrum pilosum																	
Staurastrum proboscidium																	
Staurastrum rhabdophorum																	
Staurastrum subcruciatum				P													
Staurastrum tetracerum	129			465	P	119	90	P	P	454	151	151	P	P			
Staurastrum varians	129					26	26						P	P			
Staurodesmus triangularis																	
Stigeoclonium sp.																	
Teilingia granulata		654	249	697	407	402	130	1487	6694	1210	3130	1784	3486	4091	2092	3223	592
Tetraedron tumidulum	P								P								
Tetraedron limneticum		P															
Tetraedron minimum	120	3661	522	234	1395	1186	658	992	2789	907	1563	614	1743	372	1046	1054	396
Tetraedron muticum		523		P	697	244	152	496	3905	907	1769	1074	3495	5206	2789	3830	718
Tetraedron arthrodesmiforme																	
Tetraedron caudatum																	
Tetraedron trigonum				152		30	30										
Trochiscia granulata																	
Xanthidium antilopaeum															P		
Xanthidium subhastiferum v murrayi																	
Zygnema sp.	P		560			112	112	P					1394	3841	261	1832	1056
CYANOPHYTA (Cyanobacteria)																	
Agmenellum quadruplicatum		13596	2988	8367	3719	5734	2379	13387			4462	4462	P	P			
Agmenellum thermale	841	4968	4445	12550		4561	2221		4462	P	1487	1487		P	P		
Anabaena sp.		P		P				9817	P	P	3272	3272	2789	P		930	930
Anabaena lapponica																	
Anabaena planctonica																	
Anacystis dimidiata	P	P	498	P	P	100	100	2975	2449	2722	2715	152		P	1046	349	349
Anacystis marina																	
Anacystis montana	43003		77656	P	6973	25526	15281										
Anacystis thermalis	14535		2091			3325	2832						7147	5578	2789	5171	1274
Aphanocapsa elachista	27868	9674	8628	60893	54153	32243	10925	43632	227582	43246	104820	61381	22312	16734		13015	6704
Aphanocapsa elachista v. *planctonica*	8168					1634	1634	243994		111896	118630	70515	14294	35327	115395	55005	30799
Aphanothece clathrata			P					3347	12272		5206	3663		6694		2231	2231
Chlorogloea microcystoides													69376	44996	17431	43934	15005
Chroococcus turgidus	1291	1569	1569	697		1025	302						5404	7809	8018	7077	839
Coccochloris aeruginosa																	
Coelosphaerium kuetzingianum																	
Dactylococcopsis linearis	480	523				201	123	5454	9483	3478	6138	1767	P	1487	1046	844	441
Desmonema wrangelii			P										111560	24543	11121	49075	31482
Dichothrix gypsophila	26186	4968	90991	85762	59266	53435	16705	175025	42243	94658	103975	38613	14294		P	4765	4765
Gloeothece linearis v. *composite*																	
Gomphosphaeria lacustris		74257		25101	32306	26333	13640	154696	295634	61694	170675	68004	13596	19709	21266	18190	2341
Lyngbya birgei															P		
Lyngbya contorta																	
Microcoleus vaginatus														P	58569	19523	19523
Microcystis flos-aquae	7928	31115	P	36025		15014	7752							P	62055	20685	20685
Nostoc commune	P		P	697	6275	1395	1228	2380	7251	P	3210	2134	2789	P	1394	1394	805
Oncobyrsa cesatii																	
Oscillatoria sp.																	
Oscillatoria limosa													P				
Pseudanabaena sp.								P	P	1210	403	403					
Schizogonium murale																	
Schizothrix calcicola	53694	927469	209175	124808	159903	295010	160129	1140886	594614	412772	716091	218788	557800	240969	292845	363871	98114
Scopulonema minus								67680	116580	61358	81873	17449					
Stigonema mamillosum																	
Unidentified Cyanophyte akinete					7437	1487	1487										
Total Algal Density (No. cells/cm²)	245978	1157390	506624	481773	444318	567217	154528	2009035	1505555	903524	1472705	247527	922844	512003	738435	724427	118806

[a] P = present, but not encountered during routine cell counts; SE = standard error.

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Appendix E2. Periphytic algal densities (no. cells/cm^2) in streams of the Meliadine Study Area, 1997 and 1998

Species	A5-6						A7-8										
	July 1998						July 1997						July 1998				
	Rep 1	Rep 2	Rep 3	Rep 5	Mean	SE	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE
BACILLARIOPHYTA (Diatoms)																	
Achnanthes detha							1322	1992	765		1020	422					
Achnanthes flexella		739	P	P	185	185	P	P	P	P			P	P	P		
Achnanthes lanceolata														1364		455	455
Achnanthes minutissima	6574	21591	93257	45616	41759	18955	12192	26645	6431	5504	12693	4880	23977	19600	9978	17852	4135
Achnanthes minutissima v. *cryptocephala*	1143	6136	6973	4276	4632	1292	2645	5790		P	2109	1376	18291	5284	P	7858	5435
Amphipleura sp.																	
Amphora sp.																	
Amphora ovalis				P				P							P		
Amphora ovalis v. *pediculus*																	
Anomoeoneis sp.										P							
Anomoeoneis vitrea																	
Asterionella formosa			4408		1102	1102											
Caloneis sp.										P					P		
Caloneis ventricosa														P			
Caloneis ventricosa v. *truncatula*																	
Cocconeis diminuta																	
Cocconeis pediculus																	
Cocconeis placentula																	
Cocconeis placentula v. *euglypta*																	
Cocconeis sp.													P				
Coscinodiscus denarius																	
Coscinodiscus lacustris																	
Cyclotella sp.										149	37	37					
Cyclotella antiqua	P	P	1307	P	327	327	120	125	383	149	194	63	P				
Cyclotella comta							P										
Cyclotella glomerata		P	P	P									P	P			
Cyclotella kutzingiana																	
Cyclotella meneghiniana																	
Cyclotella ocellata	P								P								
Cyclotella striata																	
Cymbella affinis		P	P										2045	682	2138	1622	471
Cymbella amphioxys							70	125	P		49	30					
Cymbella aspera																	
Cymbella cistula			P														
Cymbella cuspidata																	
Cymbella cymbiformis	63	370		2138	643	505				448	112	112					
Cymbella cymbiformis v. *nonpunctata*							301	125	64		123	65					
Cymbella gracilis		P	P	P			120	P	P	P	30	30	P	P			
Cymbella lanceolata																	
Cymbella mexicanum v. *janischii*																	
Cymbella minuta	191	3219	13945	P	4339	3286	721	1660	765	523	917	253	2727	4091	713	2510	981
Cymbella naviculiformis																	
Cymbella sinuata																	
Cymbella tumida																	
Cymbella turgida								P	213		53	53					
Cymbella turgidula													P				
Cymbella sp.			P	P			120	P		75	49	30					
Denticula tenuis	P	739	P	1425	541	342	421	623	128	75	312	129	2045	682	1425	1384	394
Diatoma elongatum	24573	161576	187364	128828	125585	35737	1262	3279	1929	523	1748	585	111951	130106	116177	119411	5485
Diatoma vulgare																	
Didymosphenia geminata																	
Diploneis sp.																	
Diploneis elliptica																	
Diploneir finnica																	
Diploneis interrupta																	
Diploneis ovalis																	
Epithemia sorex	P	P		P			240	P	P	P	60	60	P	P			
Eunotia arcus																	
Eunotia exigua																	
Eunotia flexuosa																	
Eunotia glacialis			P	P						P							
Eunotia major																	
Eunotia papilio																	
Eunotia praerupta	P	P	P	1425	356	356	P	P	P	112	28	28	P	P			
Eunotia praerupta v. *bidens*		P					P			P			P		P		
Eunotia sudetica																	
Eunotia sp.																	
Fragilaria brevistriata																	
Fragilaria construens			P	2851	713	713											
Fragilaria crotonensis	381	P	P	4989	1343	1219	P	P	383		96	96	9204	2587	3911	5234	2021
Fragilaria intermedia																	
Fragilaria pinnata		P	P	P			P	P					682	P		227	227
Frustulia vulgaris													P				
Gomphonema sp.																	
Gomphonema acuminatum				417	104	104				P							
Gomphonema acuminatum v. *coronata*								P	P								
Gomphonema angustatum	P		1743	42765	11127	10554	P	125			31	31		11852		3951	3951
Gomphonema constrictum									P								
Gomphonema gracile	191	P	18878	P	4767	4704							P	P	3920	1307	1307
Gomphonema intricatum v. *vibrio*													P				
Gomphonema olivaceum			1743		436	436							P				
Gomphonema parvulum																	
Gyrosigma sp																	
Hantzschia amphioxys																	
Melosira sp.																	
Melosira granulata																	
Meridion circulare																	
Navicula sp.				P										P			
Navicula amphibola																	
Navicula anglica																	
Navicula aspera																	
Navicula bacillum																	
Navicula decussis																	
Navicula dolosa																	
Navicula capitata																	
Navicula cryptocephala	191	1733	3468	6237	2907	1296	361	903	255	523	510	142	2557	1172	4512	2747	969
Navicula cryptocephala v. *intermedia*							2565	125	2296		1247	686					
Navicula cuspidata																	

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Appendix E2. Periphytic algal densities (no. cells/cm^2) in streams of the Meliadine Study Area, 1997 and 1998

Species	A5-6						A7-8										
	July 1998						July 1997						July 1998				
	Rep 1	Rep 2	Rep 3	Rep 5	Mean	SE	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE
Navicula exigua							P	P									
Navicula exigua v. *capitata*																	
Navicula lacustris				P									P				
Navicula laevissima																	
Navicula lanceolata		682	15688		4093	3869				598	149	149	2045	P		682	682
Navicula mutica			P											P			
Navicula placenta																	
Navicula pseudoscutiformis																	
Navicula pupula			P				P	P					P				
Navicula radiosa				15381	3845	3845	160	2407	383	P	738	562					
Navicula reinhardtii																	
Navicula rhynchocephala																	
Navicula tripunctata																	
Navicula tripunctata v. *schizonemoides*																	
Navicula viridula			5229		1307	1307				P			P				
Nedium sp.																	
Nedium bisulcatum																	
Nedium dubium																	
Nedium hitchcockii																	
Nedium iridis v. *amphigomphus*																	
Nitzschia sp.	P	P															
Nitzschia acicularis	P																
Nitzschia amphibia																	
Nitzschia angustata				P													
Nitzschia dissipata																	
Nitzschia filiformis	167	1479	2615	1425	1422	500	60	P			15	15	682	1364	P	682	394
Nitzschia fonticola			P											P			
Nitzschia palea																	
Nitzschia sigmoidea							P		P								
Pinnularia sp.							P										
Pinnularia biceps																	
Pinnularia borealis																	
Pinnularia maior																	
Pinnularia mesolepta			P											P			
Pinnularia nodosa																	
Pinnularia streptoraphe																	
Pinnularia viridis																	
Rhizosolenia longiseta																	
Rhoicosphenia curvata																	
Rhopalodia gibba			P				P	31			8	8	P				
Rhopa;pdoa gebberula		P															
Stauroneis anceps			P										P				
Stauroneis phoenicenteron																	
Stauroneis smithii																	
Stauroneis sp.										P							
Stephanodiscus astraea			P														
Surirella sp.	P																
Surirella angustata																	
Synedra actinastroides	7282	40169	15688	P	15785	8737	4207	2106	1817	1345	2369	633	36508	24148	33976	31544	3770
Synedra acus	128	2045	1613	P	947	518	180	P	478		165	113	12272	18810	10456	13846	2537
Synedra sp.																	
Synedra ulna	P	462	P	4487	1237	1089	150	519	191	P	215	109	12070	9807	14611	12163	1388
Tabellaria fenestrata	4811	24693	30784	111658	42987	23553	481	342	P	112	234	109	3238	1364	2616	2406	551
Tabellaria flocculosa	2390	41561	142797	64211	62740	29583	992	3185	744	492	1353	619	9885	6593	8018	8165	953
CRYPTOPHYTA (Cryptomonads)																	
Cryptomonas curvata																	
Cryptomonas erosa																	
Cryptomonas ovata														682		227	227
Cryptomonas reflexa																	
Katablepharis ovalis																	
Rhodomonas minuta																	
CHRYSOPHYTA (Golden-Brown Algae)																	
Chrysidiastrum catenatum																	
Chrysococcus sp.																	
Chrysoikos sp.																	
Chrysosphaerella rodhei																	
Dinobryon crenulatum																	
Dinobryon divergens	3001	9241	54908	20256	21852	11582	P			P			18067	48521	1782	22790	13697
Dinobryon sertularia	381	3327	P	5702	2352	1341	P	125	638	P	191	152	12272	10281	2851	8468	2867
Dinobryon sertularia v. *protuberans*	381			P	95	95	P	P	P	75	19	19		682	P	227	227
Dinobryon sociale	890	3696	10458	1069	4028	2237		P					53688	65654	7662	42335	17677
Dinobryon tabellariae														P			
Ishtmochloron trispinatum								125			31	31		P			
Kephyrion sp.																	
Kephyrion boreale	P												2045			682	682
Ochromonas spa		682			171	171							682			227	227
Ochromonas stellaris																	
Ophiocytium sp.							15				4	4					
Pseudokephyrion sp.																	
Stichogloea doederleinii		4091		P	1023	1023				75	19	19					
Synura sp.																	
Unidentified statospore	381	P	3486	4989	2214	1210	361	P			90	90	4772	2045	713	2510	1195
PYRROPHYTA (Dinoflagellates)																	
Glenodinium sp.														P			
Gymnodinium sp.																	
Gymnodinium uberrimum							15	P		P	4	4			P		
Peridinium sp.		P	P	P			P	P					P				
Peridinium aciculiferum	P	370	P	1425	449	337	120	P	510	P	158	121	P	P	P		
Peridinium cinctum	P	P	P										P	P	P		
Peridinium palatinum									P								
Peridinium palustre																	
Peridinium willei																	
Unidentified cyst	1334	739			518	323	P			75	19	19			P		
EUGLENOPHYTA																	
Euglena sp.																	
Phacus sp.																	
Trachelomonas sp.	P	P						2			1	1					

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Appendix E2. Periphytic algal densities (no. cells/cm^2) in streams of the Meliadine Study Area, 1997 and 1998

Species	A5-6						A7-8										
	July 1998						July 1997						July 1998				
	Rep 1	Rep 2	Rep 3	Rep 5	Mean	SE	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE
CHLOROPHYTA (Green Algae)																	
Actinotaenium sp.																	
Ankistrodesmus convolutus								P	191		48	48					
Ankistrodesmus falcatus		6136		8553	3672	2177		125	128		63	37	2727	682	713	1374	677
Ankistrodesmus falcatus v. *spiralis*	286	P	P		72	72	P	125	128		63	37	5454	2727	2347	3509	979
Ankistrodesmus gelifactus																	
Arthrodesmus triangularis			P						P				P		P		
Binuclearia sp.													4772	1364		2045	1419
Botryococcus sp.		P	P														
Bulbochaete sp.	P		P	4989	1247	1247	P	P	P	261	65	65	P				
Chlamydomonas sp. a																	
Chlamydomonas sp. b																	
Closterium sp.			P	P									P		P		
Closterium acerosum																	
Closterium actum																	
Closterium dianae																	
Closterium pseudolunula																	
Closterium rostratum																	
Coeloastrum sp.		P															
Coeloastrum cambricum																	
Coelastrum microporum	P		P	P			P						P				
Coeloastrum printzii		P		P											P		
Coeloastrum sphaericum	P	10908	P		2727	2727		872		P	218	218	P				
Cosmarium sp.										112	28	28					
Cosmarium anceps							P	P									
Cosmarium biculatum								93			23	23			P		
Cosmarium botrytis		P		P			120	374	85		145	80					
Cosmarium capitulum v. groenlandicum		370			93	93											
Cosmarium contracta								P									
Cosmarium coronatum																	
Cosmarium depressum							P	P	255		64	64		P			
Cosmarium granulatum		P	922	P	231	231	P		P	P			P	P			
Cosmarium holmiense v. *intermedium*		P											P				
Cosmarium humile v. *lacustre*		P		P				P		P					P		
Cosmarium impressulum v. *suborthogonum*		369	2765	P	784	666	P		P				1364		P	455	455
Cosmarium laeve	P												P				
Cosmarium norimbergense							P						P	P			
Cosmarium phaseolus v. *phaseolus*		739	P		185	185							P	1109		370	370
Cosmarium pokornyanam																	
Cosmarium pseudoprotuberans																	
Cosmarium rectangulare		P	P	P				P									
Cosmarium rectangulum				713	178	178				P			P				
Cosmarium reniforme																	
Cosmarium repandum																	
Cosmarium septentrionale	P	2587	2535	2138	1815	613				149	37	37	682	682	P	455	227
Cosmarium speciosum			765	779	386	223	P	P	P						P		
Cosmarium subgranatum													P		P		
Cosmarium tetraopthalmum		P	922	713	409	240	P	P		P			P				
Cosmarium turpinii			922	P	231	231	P	P					P	P	196	65	65
Cosmarium turpinii v. *podolicum*																	
Crucigenia apiculata																	
Crucigenia quadrata																	
Crucigenia rectangularis							P						P				
Cylindrocystis brebissonii	P	P	P	417	104	104	180	125	P	149	114	40	682	P	713	465	233
Desmidium swartzii v. *quadrangulatum*																	
Dictyosphaerium pulchellum																	
Elakatothrix sp.	572	P	1743	P	579	411		125	765		223	183	2045	682		909	601
Euastropsis richteri	P																
Euastrum sp.																	
Euastrum bidentatum			P	P				P					P				
Euastrum denticulatum																	
Euastrum dubium v. *maius*			691	P	173	173	P	P	P	P			663	370	P	344	192
Euastrum elegans	P	1109	922	P	508	296	120	P	P	P	30	30	P	P	P		
Euastrum gemmatum																	
Euastrum insulare v silesiacum																	
Euastrum obesum																	
Euastrum ohioense																	
Euastrum sinosum																	
Euastrum verrucosum			P														
Gemellicystis neglecta																	
Geminella interrupta								1992			498	498					
Gloeocystis schroeteri	P	1364	P		341	341	4147	5354	3444	P	3236	1149	1364	3696	2851	2637	682
Gloeotila pelagica																	
Golenkinia radiata v. *brevispina*	381	682			266	165											
Gonatozygon brebissonii		P											P	P			
Gonatozygon monotaenium				P			P	P									
Hyalotheca sp.		P															
Kirchneriella sp.		P		713	178	178	361	125			122	85					
Koliella longiseta																	
Lagerheimia subsalsa																	
Lagerheimia wratislawiensis																	
Micractinium pusillum																	
Monoraphidium sp.																	
Mougeotia sp. a	1048	370	7373	6949	3935	1870	120	P	128	224	118	46	2386	P	P	795	795
Nephrocytium limneticum				P			P	P					P		P		
Ooedogonium sp.																	
Oocystis elliptica		739		P	185	185	2044	2739	552	374	1427	576	6818			2273	2273
Oocystis lacustris	1048	2957	1743	445259	112752	110837	120		2934		764	724		2045	3564	1870	1033
Oocystis solitaria																	
Oonephris obesa		P	P	2138	535	535							379	370	P	250	125
Quadrigula closterioides																	
Phacotus sp.																	
Pandorina morum																	
Pediastrum boryanum																	
Pediastrum boryanum v. *ellesmerense*																	
Pediastrum duplex		P															
Pediastrum duplex v. *clathratum*			P	P													
Pediastrum integrum v. *scutum*																	
Pediastrum tetras	P							P									

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Species	A5-6						A7-8										
	July 1998						July 1997						July 1998				
	Rep 1	Rep 2	Rep 3	Rep 5	Mean	SE	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE
Penium sp.																	
Penium margaritaecum																	
Pleurotaenium sp.		P											P				
Pleurotaenium trabecula																	
Protoderma sp.																	
Scenedesmus bijuga		P					240	747	P		247	176					
Scenedesmus acuminatus		P															
Scenedesmus arcuatus																	
Scenedesmus denticulatis		P	P	P													
Scenedesmus ecornis																	
Scenedesmus incrassatulus	762	2727	17431	2851	5943	3859	1082	498	510	P	523	221	8181	5454	5702	6446	871
Scenedesmus obliquus																	
Scenedesmus quadricauda									P								
Scenedesmus spinosus																	
Scenedesmus wisconsinensis																	
Spirogyra sp.				1425	356	356											
Staurastrum sp. a	P	1109	P	P	277	277	240	125	P	747	278	164	1139	P	P	380	380
Staurastrum sp. b		P	P					P						P	P		
Staurastrum sp. c								P									
Staurastrum anatinum v. *biradiatum*																	
Staurastrum antilopaeum																	
Staurastrum anatinum																	
Staurastrum apiculatum				P													
Staurastrum borgeanum	P	P	922	P	231	231				P			682	739	P	474	237
Staurastrum brebissonii			1843		461	461		P					P				
Staurastrum clevei																	
Staurastrum curvatum																	
Staurastrum cuspidatum																	
Staurastrum dejectum	P	P	461	P	115	115		374	P		94	94	P	P			
Staurastrum furcigerum																	
Staurastrum gladiosum																	
Staurastrum hystrix																	
Staurastrum longebranchiatum																	
Staurastrum lunatum																	
Staurastrum manfeldtii																	
Staurastrum pachyrhynchum			P				P	P					379	P		126	126
Staurastrum pilosum								P									
Staurastrum proboscidium																	
Staurastrum rhabdophorum																	
Staurastrum subcruciatum																	
Staurastrum tetracerum				P													
Staurastrum varians				P									P		P		
Staurodesmus triangularis	191				48	48											
Stigeoclonium sp.																	
Teilingia granulata		4091	5229	2138	2865	1148	721	2366	128	P	804	544	8863	11590	3564	8006	2356
Tetraedron tumidulum							P	P	128		32	32	682	P		227	227
Tetraedron limneticum																	
Tetraedron minimum	P	682	36606	7127	11104	8651	240	125	255		155	59	2045	P	P	682	682
Tetraedron muticum	191	P	P	417	152	99							682			227	227
Tetraedron arthrodesmiforme																	
Tetraedron caudatum																	
Tetraedron trigonum																	
Trochiscia granulata																	
Xanthidium antilopaeum			P														
Xanthidium subhastiferum v murrayi																	
Zygnema sp.	15625	32712	33179	21452	25742	4327	3246	1297	2626	P	1792	723	31190	11089	46252	29510	10185
CYANOPHYTA (Cyanobacteria)																	
Agmenellum quadruplicatum	P							P	1020	P	255	255					
Agmenellum thermale		8181	P	P	2045	2045	3967	P	2168		1534	959	10908			3636	3636
Anabaena sp.								4482	P		1121	1121	P				
Anabaena lapponica																	
Anabaena planctonica																	
Anacystis dimidiata	572	2045	P		654	483			383		96	96	4091	2727	P	2273	1203
Anacystis marina		76357			19089	19089			33162		8291	8291					
Anacystis montana		25225	90642	9978	31461	20397		9587			2397	2397					
Anacystis thermalis							P										
Aphanocapsa elachista		13635			3409	3409				7545	1886	1886		6818	9978	5599	2944
Aphanocapsa elachista v. *planctonica*	22706		130734		38360	31253	23562	49928	15050		22135	10467	34770	59994	90518	61761	16117
Aphanothece clathrata	9337		P		2334	2334		3486		1121	1152	822			19957	6652	6652
Chlorogloea microcystoides							1322	3611	91705	35709	33087	21057					
Chroococcus turgidus							240	5976	P		1554	1475					
Coccochloris aeruginosa																	
Coelosphaerium kuetzingianum																	
Dactylococcopsis linearis	P	P		P									7499	P		2500	2500
Desmonema wrangelii							21158	2490	P		5912	5116					
Dichothrix gypsophila	30870	12198	322478	13542	94772	76021	71648	207058	47191	20917	86704	41434	7499	8501	156091	57364	49365
Gloeothece linearis v. *composite*							3246	P	255		875	793			713	238	238
Gomphosphaeria lacustris		25874	515965	72700	153635	121710	P	11455			2864	2864	P				
Lyngbya birgei																	
Lyngbya contorta										P							
Microcoleus vaginatus	191				48	48	2525	P	P		631	631					
Microcystis flos-aquae	27630	P	P		6908	6908	6972			P	1743	1743	P	165962	7127	57696	54172
Nostoc commune	P	P	95872	13542	27354	23061	2765	8840	P	P	2901	2084	57267	16633	P	24633	17009
Oncobyrsa cesatii																	
Oscillatoria sp.																	
Oscillatoria limosa													11590	4436	44903	20310	12469
Pseudanabaena sp.																	
Schizogonium murale																	
Schizothrix calcicola	133196	355876	1563582	265140	579449	331214	93527	186141	41197	85762	101657	30430	587718	381783	617949	529150	74199
Scopulonema minus	13434	79084	67110		39907	19511							117262	116580	31717	88520	28402
Stigonema mamillosum								8716			2179	2179					
Unidentified Cyanophyte akinete																	
Total Algal Density (No. cells/cm²)	312493	997466	3519709	1355247	1546229	692480	273114	569710	262761	163922	317377	87637	1263488	1173404	1270314	1235735	31228

[a] P = present, but not encountered during routine cell counts; SE = standard error.

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Appendix E2. Periphytic algal densities (no. cells/cm^2) in streams of the Meliadine Study Area, 1997 and 1998

Species	B1-2											B3-4				
	July 1997					July 1998						July 1998				
	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE
BACILLARIOPHYTA (Diatoms)																
Achnanthes detha	2092	3399	3661	3051	485											
Achnanthes flexella	697	P	P	232	232	P	P	P	P			P	P			
Achnanthes lanceolata									P			P		P		
Achnanthes minutissima	67808	51902	114262	77991	18708	1219	3637	2162	11200	4554	2270	44159	4093	15601	21284	11910
Achnanthes minutissima v. *cryptocephala*	697	261	5099	2019	1545	99		85	523	177	117	2835			945	945
Amphipleura sp.									P							
Amphora sp.							P									
Amphora ovalis		P	P			66	P	P		17	17	P		349	116	116
Amphora ovalis v. *pediculus*								P						P		
Anomoeoneis sp.																
Anomoeoneis vitrea									349	87	87					
Asterionella formosa																
Caloneis sp.						214			P	54	54	P	P			
Caloneis ventricosa						P		P				P				
Caloneis ventricosa v. *truncatula*	P	P	P													
Cocconeis diminuta							P					P				
Cocconeis pediculus							P		P							
Cocconeis placentula									P							
Cocconeis placentula v. *euglypta*																
Cocconeis sp.								P						P		
Coscinodiscus denarius																
Coscinodiscus lacustris																
Cyclotella sp.																
Cyclotella antiqua		523	523	349	174	33	P	256	P	72	62					
Cyclotella comta	349			116	116				P							
Cyclotella glomerata						33		P		8	8	P		P		
Cyclotella kutzingiana												P				
Cyclotella meneghiniana																
Cyclotella ocellata																
Cyclotella striata						P	P	P	P			P		P		
Cymbella affinis							P	85	125	52	31	P		872	291	291
Cymbella amphioxys																
Cymbella aspera																
Cymbella cistula																
Cymbella cuspidata												P		P		
Cymbella cymbiformis			P													
Cymbella cymbiformis v. *nonpunctata*		P	523	174	174											
Cymbella gracilis								P	349	87	87		61	174	78	51
Cymbella lanceolata																
Cymbella mexicanum v. *janischii*																
Cymbella minuta	1917	784	1046	1249	342	198	189	85	1395	467	310	7997	485	1598	3360	2341
Cymbella naviculiformis							P	P	P				P			
Cymbella sinuata																
Cymbella tumida																
Cymbella turgida	P	P	103	34	34											
Cymbella turgidula																
Cymbella sp.	1046	P		349	349			385	P	96	96	27	61		29	18
Denticula tenuis	349	P	P	116	116	33	P	P	P	8	8	P	61		20	20
Diatoma elongatum	3138	3966	17299	8134	4589	58	P	P	640	174	156	2616	273	2026	1638	704
Diatoma vulgare																
Didymosphenia geminata	P	138	636	258	193	P	P	P								
Diploneis sp.							P	P	P			P				
Diploneis elliptica	P							P								
Diploneir finnica																
Diploneis interrupta																
Diploneis ovalis								P								
Epithemia sorex	136	P	413	183	122	33	94	114	174	104	29	P	P	P		
Eunotia arcus																
Eunotia exigua																
Eunotia flexuosa																
Eunotia glacialis	P	261	P	87	87							218	P	349	189	102
Eunotia major																
Eunotia papilio																
Eunotia praerupta	1494	P	1307	934	470	33	P	P	P	8	8	1090	141	444	558	280
Eunotia praerupta v. *bidens*												P				
Eunotia sudetica																
Eunotia sp.																
Fragilaria brevistriata													P			
Fragilaria construens						P			P			872			291	291
Fragilaria crotonensis	697	1046	1569	1104	253			P	P			P		P		
Fragilaria intermedia																
Fragilaria pinnata	349	1927	2477	1584	638	P	850	598	P	362	215	P	P	872	291	291
Frustulia vulgaris						P		P								
Gomphonema sp.																
Gomphonema acuminatum																
Gomphonema acuminatum v. *coronata*		P							P							
Gomphonema angustatum		523		174	174		P	P	58	14	14	P	P	P		
Gomphonema constrictum	P		523	174	174											
Gomphonema gracile									1975	494	494					
Gomphonema intricatum v. *vibrio*																
Gomphonema olivaceum						P		85		21	21					
Gomphonema parvulum																
Gyrosigma sp																
Hantzschia amphioxys																
Melosira sp.																
Melosira granulata																
Meridion circulare																
Navicula sp.									P			P		P		
Navicula amphibola																
Navicula anglica							P	P				P	121		40	40
Navicula aspera																
Navicula bacillum																
Navicula decussis																
Navicula dolosa																
Navicula capitata												P				
Navicula cryptocephala	349	523	P	291	154	231	779	1367	915	823	234		184	P	61	61
Navicula cryptocephala v. *intermedia*	1743	5229		2324	1537											
Navicula cuspidata												P				

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Appendix E2. Periphytic algal densities (no. cells/cm^2) in streams of the Meliadine Study Area, 1997 and 1998

Species	B1-2											B3-4				
	July 1997					July 1998						July 1998				
	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE
Navicula exigua	P		P													
Navicula exigua v. *capitata*																
Navicula lacustris																
Navicula laevissima																
Navicula lanceolata							1228	683	P	478	297	872	545	850	756	106
Navicula mutica																
Navicula placenta																
Navicula pseudoscutiformis																
Navicula pupula								P				P				
Navicula radiosa	1046	413	981	813	201	33	283	P	263	145	74		35	P	12	12
Navicula reinhardtii																
Navicula rhynchocephala																
Navicula tripunctata																
Navicula tripunctata v. *schizonemoides*																
Navicula viridula							95	57	P	38	23	P		639	213	213
Nedium sp.																
Nedium bisulcatum																
Nedium dubium																
Nedium hitchcockii												P				
Nedium iridis v. *amphigomphus*																
Nitzschia sp.									P					P		
Nitzschia acicularis																
Nitzschia amphibia												P				
Nitzschia angustata																
Nitzschia dissipata												P				
Nitzschia filiformis	349			116	116	33	P	85	523	160	122		P	349	116	116
Nitzschia fonticola						P	P	P								
Nitzschia palea													P			
Nitzschia sigmoidea												P		P		
Pinnularia sp.												P	P			
Pinnularia biceps																
Pinnularia borealis								P								
Pinnularia maior																
Pinnularia mesolepta							P	P				P				
Pinnularia nodosa																
Pinnularia streptoraphe																
Pinnularia viridis																
Rhizosolenia longiseta																
Rhoicosphenia curvata									P							
Rhopalodia gibba	P	P				P	101	P	P	25	25	P		P		
Rhopa;pdoa gebberula																
Stauroneis anceps	P	P					P	P				P	P	P		
Stauroneis phoenicenteron																
Stauroneis smithii			P									P		P		
Stauroneis sp.																
Stephanodiscus astraea																
Surirella sp.																
Surirella angustata																
Synedra actinastroides	2848	7072	11767	7229	2576	611	3511	3548	4924	3149	908	13594	1622	3767	6328	3686
Synedra acus						P							P			
Synedra sp.																
Synedra ulna	136	261	2050	816	618		P	64	P	16	16	P		P		
Tabellaria fenestrata	P	1307	3661	1656	1071	66	P	P	P	17	17	P	P	P		
Tabellaria flocculosa	611	1307	16080	5999	5044	132	189	940	855	529	214	218	333	P	184	98
CRYPTOPHYTA (Cryptomonads)																
Cryptomonas curvata																
Cryptomonas erosa																
Cryptomonas ovata																
Cryptomonas reflexa																
Katablepharis ovalis																
Rhodomonas minuta		261		87	87											
CHRYSOPHYTA (Golden-Brown Algae)																
Chrysidiastrum catenatum	349	1046		465	307								61	1569	543	513
Chrysococcus sp.																
Chrysoikos sp.																
Chrysosphaerella rodhei																
Dinobryon crenulatum												218			73	73
Dinobryon divergens	679	261	4968	1969	1504	33	P	427	349	202	109	P	P			
Dinobryon sertularia	P					P	94		174	67	42	927	303	349	526	201
Dinobryon sertularia v. *protuberans*	272	P		91	91	66			174	60	41	P				
Dinobryon sociale			523	174	174		P	85	263	87	62	218	61	174	151	47
Dinobryon tabellariae									174	44	44		P			
Ishtmochloron trispinatum									88	22	22					
Kephyrion sp.						P										
Kephyrion boreale									P							
Ochromonas spa									523	131	131					
Ochromonas stellaris																
Ophiocytium sp.																
Pseudokephyrion sp.																
Stichogloea doederleinii									P				182		61	61
Synura sp.																
Unidentified statospore	2440	2876	P	1772	895				523	131	131	436	61		166	136
PYRROPHYTA (Dinoflagellates)																
Glenodinium sp.																
Gymnodinium sp.																
Gymnodinium uberrimum		P										P				
Peridinium sp.	136		P	45	45			P	87	22	22					
Peridinium aciculiferum	697	P	1569	755	454	P		P	P			P	P	174	58	58
Peridinium cinctum								P								
Peridinium palatinum																
Peridinium palustre																
Peridinium willei																
Unidentified cyst																
EUGLENOPHYTA																
Euglena sp.			P													
Phacus sp.													P			
Trachelomonas sp.								P				P				

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Species	B1-2											B3-4				
	July 1997					July 1998						July 1998				
	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE
CHLOROPHYTA (Green Algae)																
Actinotaenium sp.																
Ankistrodesmus convolutus																
Ankistrodesmus falcatus		P														
Ankistrodesmus falcatus v. *spiralis*	P	P	2615	872	872	P		P	697	174	174	436	243	1743	807	471
Ankistrodesmus gelifactus																
Arthrodesmus triangularis																
Binuclearia sp.							P	P								
Botryococcus sp.								P				P				
Bulbochaete sp.		550	P	183	183	33	P	3077	174	821	753	P	121	283	135	82
Chlamydomonas sp. a																
Chlamydomonas sp. b																
Closterium sp.								P						P		
Closterium acerosum																
Closterium actum																
Closterium dianae																
Closterium pseudolunula																
Closterium rostratum																
Coeloastrum sp.								P	175	44	44					
Coeloastrum cambricum							945			236	236					
Coelastrum microporum			P			P	283			71	71					
Coeloastrum printzii							P	P	174	44	44	654			218	218
Coeloastrum sphaericum	1394	550	826	923	248							1526	P		509	509
Cosmarium sp.								85		21	21					
Cosmarium anceps						P										
Cosmarium biculatum																
Cosmarium botrytis	136		310	149	90											
Cosmarium capitulum v. groenlandicum																
Cosmarium contracta																
Cosmarium coronatum																
Cosmarium depressum		275	740	338	216											
Cosmarium granulatum	272	P	746	339	218	69	94	P	P	41	24			P		
Cosmarium holmiense v. *intermedium*	P					33				8	8					
Cosmarium humile v. *lacustre*	136	2092	550	926	595		94		175	67	42	218	P		73	73
Cosmarium impressulum v. *suborthogonum*		P					P	P	P			P				
Cosmarium laeve																
Cosmarium norimbergense	407		138	182	120		P	P				P				
Cosmarium phaseolus v. *phaseolus*							12	P	29	10	7	218	243	348	270	40
Cosmarium pokornyanam																
Cosmarium pseudoprotuberans	P		P													
Cosmarium rectangulare		P						P	174	44	44	P	P			
Cosmarium rectangulum									P				P			
Cosmarium reniforme								P								
Cosmarium repandum																
Cosmarium septentrionale						33	189	P	196	105	51	218	61	174	151	47
Cosmarium speciosum	3835	516	1800	2050	966		P	P					P	P		
Cosmarium subgranatum																
Cosmarium tetraopthalmum							P		P			P				
Cosmarium turpinii	181	P	230	137	70			P	131	33	33	218	P	P	73	73
Cosmarium turpinii v. *podolicum*																
Crucigenia apiculata																
Crucigenia quadrata	P	P														
Crucigenia rectangularis		P	P									P				
Cylindrocystis brebissonii		P					94	P	P	24	24					
Desmidium swartzii v. *quadrangulatum*	P		P													
Dictyosphaerium pulchellum																
Elakatothrix sp.						P	P	114	174	72	43	654	P	P	218	218
Euastropsis richteri																
Euastrum sp.																
Euastrum bidentatum						33			P	8	8					
Euastrum denticulatum																
Euastrum dubium v. *maius*	P	138	P	46	46	P		P	P			P	P	P		
Euastrum elegans	P		826	275	275		95	P	88	46	26	218	P	P	73	73
Euastrum gemmatum																
Euastrum insulare v silesiacum																
Euastrum obesum																
Euastrum ohioense																
Euastrum sinosum																
Euastrum verrucosum												P		P		
Gemellicystis neglecta																
Geminella interrupta																
Gloeocystis schroeteri	32422	15688	25451	24520	4853		P		3152	788	788	P		P		
Gloeotila pelagica																
Golenkinia radiata v. *brevispina*		P														
Gonatozygon brebissonii																
Gonatozygon monotaenium																
Hyalotheca sp.																
Kirchneriella sp.			523	174	174		94	85		45	26	218	P	349	189	102
Koliella longiseta																
Lagerheimia subsalsa																
Lagerheimia wratislawiensis																
Micractinium pusillum																
Monoraphidium sp.																
Mougeotia sp. a		P					P	P	177	44	44			121	40	40
Nephrocytium limneticum	P		P													
Ooedogonium sp.								P								
Oocystis elliptica	1630	1046	1101	1259	186	552	1039	4701		1573	1064	4797	P	2876	2558	1394
Oocystis lacustris	5927	5752	12550	8076	2237	2505	10944	4787	12550	7697	2407		2850		950	950
Oocystis solitaria														P		
Oonephris obesa							P	256	174	108	64					
Quadrigula closterioides																
Phacotus sp.	349	261		203	105		P									
Pandorina morum																
Pediastrum boryanum	P	P	P						P							
Pediastrum boryanum v. *ellesmerense*	P	P										P	P	2666	889	889
Pediastrum duplex		P	P													
Pediastrum duplex v. *clathratum*	P								P							
Pediastrum integrum v. *scutum*																
Pediastrum tetras	P	3138	2092	1743	922		P	513	P	128	128	P	273		91	91

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Species	B1-2											B3-4				
	July 1997					July 1998						July 1998				
	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE
Penium sp.			P									P				
Penium margaritaecum																
Pleurotaenium sp.																
Pleurotaenium trabecula																
Protoderma sp.																
Scenedesmus bijuga	1222	523	2092	1279	454	P		171		43	43					
Scenedesmus acuminatus		P	P					342		86	86		P	P		
Scenedesmus arcuatus																
Scenedesmus denticulatis																
Scenedesmus ecornis																
Scenedesmus incrassatulus	3835	3399	1569	2934	694	198	P	P	P	50	50	5451	667	2266	2795	1406
Scenedesmus obliquus																
Scenedesmus quadricauda	2766	1830	P	1532	812	P	4345	P	697	1261	1041	1745	P	P	582	582
Scenedesmus spinosus													P	P		
Scenedesmus wisconsinensis																
Spirogyra sp.																
Staurastrum sp. a							94	P	P	24	24	P	P	P		
Staurastrum sp. b			P													
Staurastrum sp. c																
Staurastrum anatinum v. *biradiatum*																
Staurastrum antilopaeum																
Staurastrum anatinum																
Staurastrum apiculatum		P							174	44	44					
Staurastrum borgeanum	91	P	688	260	216			P	P							
Staurastrum brebissonii								P								
Staurastrum clevei																
Staurastrum curvatum																
Staurastrum cuspidatum																
Staurastrum dejectum	136	P	69	68	39		P		218	54	54			P		
Staurastrum furcigerum																
Staurastrum gladiosum																
Staurastrum hystrix																
Staurastrum longebranchiatum																
Staurastrum lunatum																
Staurastrum manfeldtii																
Staurastrum pachyrhynchum			P													
Staurastrum pilosum	P	138	183	107	55											
Staurastrum proboscidium																
Staurastrum rhabdophorum																
Staurastrum subcruciatum			P													
Staurastrum tetracerum									88	22	22					
Staurastrum varians																
Staurodesmus triangularis																
Stigeoclonium sp.																
Teilingia granulata	349	523	1046	639	209	165	94	171	1220	413	270	2399	243	1046	1229	629
Tetraedron tumidulum																
Tetraedron limneticum																
Tetraedron minimum	349		523	291	154			171	P	43	43	872	P		291	291
Tetraedron muticum									174	44	44	P				
Tetraedron arthrodesmiforme																
Tetraedron caudatum								P	174	44	44					
Tetraedron trigonum																
Trochiscia granulata									P							
Xanthidium antilopaeum		P	P													
Xanthidium subhastiferum v murrayi																
Zygnema sp.			413	138	138									P		
CYANOPHYTA (Cyanobacteria)																
Agmenellum quadruplicatum	P	P	P													
Agmenellum thermale	4681			1560	1560		4723	13162	P	4471	3103	3489	P		1163	1163
Anabaena sp.	P		18826	6275	6275							1526		444	657	453
Anabaena lapponica	P	P	P													
Anabaena planctonica																
Anacystis dimidiata								171		43	43		182	697	293	209
Anacystis marina													6973		2324	2324
Anacystis montana						P			13073	3268	3268					
Anacystis thermalis		5229		1743	1743	7250				1813	1813			P		
Aphanocapsa elachista									45670	11417	11417			7147	2382	2382
Aphanocapsa elachista v. *planctonica*	83670	67459	73734	74954	4719	1648	1889	23077		6654	5491	13956	3820	5229	7668	3170
Aphanothece clathrata																
Chlorogloea microcystoides																
Chroococcus turgidus	2789	P	2092	1627	838											
Coccochloris aeruginosa												872			291	291
Coelosphaerium kuetzingianum																
Dactylococcopsis linearis							661	684	523	467	160					
Desmonema wrangelii	9915	20917	33991	21608	6959				P							
Dichothrix gypsophila	19523	321083	140670	160425	87611	7217	5574	6496	32771	13014	6594	64985	74848	38872	59568	10733
Gloeothece linearis v. *composite*	P	P	P													
Gomphosphaeria lacustris	72514	4183	30330	35676	19906	P	15492	36752	57000	27311	12437	32054	P	P	10685	10685
Lyngbya birgei																
Lyngbya contorta																
Microcoleus vaginatus	P	P	P													
Microcystis flos-aquae									P							
Nostoc commune		P				6393	1606	92649	35959	34152	20926	2617	1031		1216	761
Oncobyrsa cesatii																
Oscillatoria sp.																
Oscillatoria limosa							P	P								
Pseudanabaena sp.	2092			697	697								1152		384	384
Schizogonium murale																
Schizothrix calcicola	68330	35298	231138	111589	60530	16444	18232	75982	249615	90068	54950	73053	23767	58220	51680	14599
Scopulonema minus									174	44	44	3271	4002	2266	3180	503
Stigonema mamillosum																
Unidentified Cyanophyte akinete																
Total Algal Density (No. cells/cm²)	411375	575874	778902	588717	106290	45797	77643	274557	482395	220098	101011	291962	129159	154903	192008	50527

[a] P = present, but not encountered during routine cell counts; SE = standard error.

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Appendix E2. Periphytic algal densities (no. cells/cm^2) in streams of the Meliadine Study Area, 1997 and 1998

Species	B4-5											B5-6					
	July 1997					July 1998						July 1998					
	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Mean	SE
BACILLARIOPHYTA (Diatoms)																	
Achnanthes detha																	
Achnanthes flexella	P	P	261	87	87		P	335	P	84	84	P	P	P	P		
Achnanthes lanceolata							P		414	103	103						
Achnanthes minutissima	21877	11029	14773	15893	3181	16462	13740	11068	29671	17735	4128	3401	2503	2030	3293	2807	327
Achnanthes minutissima v. *cryptocephala*	261	134		132	75		P	335		84	84	680	179	706	775	585	137
Amphipleura sp.									P								
Amphora sp.						P							P	P			
Amphora ovalis			P				P	P	P			340		P		85	85
Amphora ovalis v. *pediculus*																	
Anomoeoneis sp.																	
Anomoeoneis vitrea									P								
Asterionella formosa																	
Caloneis sp.								P	P						P		
Caloneis ventricosa							P					P					
Caloneis ventricosa v. *truncatula*			P					P									
Cocconeis diminuta							P										
Cocconeis pediculus																	
Cocconeis placentula																	
Cocconeis placentula v. *euglypta*																	
Cocconeis sp.		268		89	89				P								
Coscinodiscus denarius															P		
Coscinodiscus lacustris																	
Cyclotella sp.																	
Cyclotella antiqua	261		P	87	87		P	P	414	103	103	P	P	P	P		
Cyclotella comta																	
Cyclotella glomerata							P	335	P	84	84	P	P	177	P	44	44
Cyclotella kutzingiana							P					P					
Cyclotella meneghiniana																	
Cyclotella ocellata																	
Cyclotella striata							P	P									
Cymbella affinis						P	P						P	P			
Cymbella amphioxys																	
Cymbella aspera																	
Cymbella cistula							620		P	155	155						
Cymbella cuspidata																	
Cymbella cymbiformis																	
Cymbella cymbiformis v. *nonpunctata*	175		P	58	58												
Cymbella gracilis							P	P	P			P	P	P	P		
Cymbella lanceolata																	
Cymbella mexicanum v. *janischii*																	
Cymbella minuta	P	939	523	487	272	1318	P	335	414	517	282	340	358	177	194	267	48
Cymbella naviculiformis							P					P			P		
Cymbella sinuata																	
Cymbella tumida																	
Cymbella turgida	261	P	P	87	87	282	P			71	71						
Cymbella turgidula																	
Cymbella sp.								671	414	271	165				P		
Denticula tenuis		P				P	P	335	212	137	83	P	179	P	194	93	54
Diatoma elongatum	13596	10029	11222	11616	1048	13640	15445	11739	9870	12673	1202	49656	50461	139155	43125	70599	22911
Diatoma vulgare																	
Didymosphenia geminata																	
Diploneis sp.							P						P				
Diploneis elliptica								P									
Diploneir finnica																	
Diploneis interrupta																	
Diploneis ovalis								P									
Epithemia sorex	P	P				P	P	P	212	53	53		P		P		
Eunotia arcus							P										
Eunotia exigua																	
Eunotia flexuosa																	
Eunotia glacialis							P	335	P	84	84						
Eunotia major																	
Eunotia papilio																	
Eunotia praerupta	P	312	P	104	104	P	3099	P	P	775	775	651	715	1059	P	606	221
Eunotia praerupta v. *bidens*																	
Eunotia sudetica																	
Eunotia sp.		939	523	487	272												
Fragilaria brevistriata							P					P					
Fragilaria construens							2064	335	P	600	494		P				
Fragilaria crotonensis	P	939	1171	703	358	P	P	P	414	103	103				P		
Fragilaria intermedia																	
Fragilaria pinnata		1207	P	402	402	P	9277	3689	P	3242	2192	P	P		387	97	97
Frustulia vulgaris							P	P					P				
Gomphonema sp.						P											
Gomphonema acuminatum																	
Gomphonema acuminatum v. *coronata*																	
Gomphonema angustatum							P	671	2794	866	662	340	P		581	230	142
Gomphonema constrictum	784	134	P	306	242												
Gomphonema gracile							P	P	P			1148	1386	323	P	714	329
Gomphonema intricatum v. *vibrio*						P	P	P									
Gomphonema olivaceum							P										
Gomphonema parvulum																	
Gyrosigma sp																	
Hantzschia amphioxys																	
Melosira sp.																	
Melosira granulata																	
Meridion circulare																	
Navicula sp.															69	17	17
Navicula amphibola	P	P	P														
Navicula anglica							P										
Navicula aspera																	
Navicula bacillum																	
Navicula decussis																	
Navicula dolosa																	
Navicula capitata																	
Navicula cryptocephala		134	784	306	242	2694	3719	P	1060	1868	829	396	179	766	209	388	135
Navicula cryptocephala v. *intermedia*																	
Navicula cuspidata																	

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Appendix E2. Periphytic algal densities (no. cells/cm^2) in streams of the Meliadine Study Area, 1997 and 1998

Species	B4-5											B5-6					
	July 1997					July 1998						July 1998					
	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Mean	SE
Navicula exigua																	
Navicula exigua v. *capitata*																	
Navicula lacustris							P	P									
Navicula laevissima																	
Navicula lanceolata							3720	P	828	1137	883						
Navicula mutica							P										
Navicula placenta																	
Navicula pseudoscutiformis							P		P								
Navicula pupula						P	P	335	828	291	196						
Navicula radiosa	1830	805	261	965	460		P	P	P								
Navicula reinhardtii																	
Navicula rhynchocephala																	
Navicula tripunctata						3881	P	P		970	970						
Navicula tripunctata v. *schizonemoides*																	
Navicula viridula						141	620	2740	778	1070	573						
Nedium sp.									P								
Nedium bisulcatum																	
Nedium dubium																	
Nedium hitchcockii																	
Nedium iridis v. *amphigomphus*	P	P															
Nitzschia sp.						P			P			P					
Nitzschia acicularis									P								
Nitzschia amphibia																	
Nitzschia angustata									P						P		
Nitzschia dissipata																	
Nitzschia filiformis	P	P	1700	567	567	564	3719	8720	P	3251	1998	P	P		146	37	37
Nitzschia fonticola								P				P	P	P			
Nitzschia palea																	
Nitzschia sigmoidea		P					P										
Pinnularia sp.	P						P	P	P				P				
Pinnularia biceps																	
Pinnularia borealis							P										
Pinnularia maior																	
Pinnularia mesolepta							P										
Pinnularia nodosa																	
Pinnularia streptoraphe																	
Pinnularia viridis																	
Rhizosolenia longiseta																	
Rhoicosphenia curvata									P								
Rhopalodia gibba	P	P	P			P	P	P	P								
Rhopa;pdoa gebberula																	
Stauroneis anceps		P				P	P	P	P			P					
Stauroneis phoenicenteron																	
Stauroneis smithii																	
Stauroneis sp.																	
Stephanodiscus astraea																	
Surirella sp.																	
Surirella angustata																	
Synedra actinastroides	4837	4404	4052	4431	227	7597	14875	10843	13802	11779	1634	34848	1997	3575	1888	10577	8099
Synedra acus						401	620	P	414	359	130	85	656	58	275	269	138
Synedra sp.							1509	293		451	360						
Synedra ulna	692	631	546	623	42	1331	P	P	P	333	333	255	P	P	80	84	60
Tabellaria fenestrata	1307	402	1177	962	283	1504	1411	671	1105	1173	188	P	120	177	339	159	70
Tabellaria flocculosa	1046	4157	5503	3569	1320	4891	3777	9559	3415	5411	1418	1020	179	353	968	630	213
CRYPTOPHYTA (Cryptomonads)																	
Cryptomonas curvata													P				
Cryptomonas erosa		P						503		126	126						
Cryptomonas ovata	588	134	312	345	132		664			166	166	170				43	43
Cryptomonas reflexa			P														
Katablepharis ovalis																	
Rhodomonas minuta																	
CHRYSOPHYTA (Golden-Brown Algae)																	
Chrysidiastrum catenatum			261	87	87			671		168	168						
Chrysococcus sp.	261		P	87	87												
Chrysoikos sp.									P								
Chrysosphaerella rodhei		1341		447	447												
Dinobryon crenulatum																	
Dinobryon divergens	523	134	156	271	126	P		671	P	168	168	170	179	P	92	110	42
Dinobryon sertularia	523	134		219	157	847	1859	335	414	864	350	794	1251	1589	2130	1441	282
Dinobryon sertularia v. *protuberans*	P	268	P	89	89	847	5423	671	1863	2201	1106	170	P	P	P	43	43
Dinobryon sociale						P	1859	335		549	444				P		
Dinobryon tabellariae								P	P								
Ishtmochloron trispinatum	P	134	P	45	45	P											
Kephyrion sp.						P	P	P	1242	310	310	P					
Kephyrion boreale	784	1475	1307	1189	208		1240	335		394	293		P	P			
Ochromonas spa							1240	3354		1149	791						
Ochromonas stellaris																	
Ophiocytium sp.						847		P	P	212	212						
Pseudokephyrion sp.		P															
Stichogloea doederleinii						1976	9297	6037		4328	2079	850	1788	353		748	388
Synura sp.							P	335		84	84			P			
Unidentified statospore	784	268	P	351	230	1411	2479	2012	1242	1786	284				P		
PYRROPHYTA (Dinoflagellates)																	
Glenodinium sp.																	
Gymnodinium sp.		402	261	221	118												
Gymnodinium uberrimum		268	P	89	89		581	P	P	145	145						
Peridinium sp.	P					P						P	P	P			
Peridinium aciculiferum	261	P	P	87	87	P	P	P	P				P		P		
Peridinium cinctum		P	P			P	P		P								
Peridinium palatinum																	
Peridinium palustre																	
Peridinium willei																	
Unidentified cyst	261	402		221	118	1177	2479	1342		1250	507						
EUGLENOPHYTA																	
Euglena sp.		P															
Phacus sp.			P														
Trachelomonas sp.													P	P			

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Appendix E2. Periphytic algal densities (no. cells/cm^2) in streams of the Meliadine Study Area, 1997 and 1998

Species	B4-5											B5-6					
	July 1997					July 1998						July 1998					
	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Mean	SE
CHLOROPHYTA (Green Algae)																	
Actinotaenium sp.																	
Ankistrodesmus convolutus																	
Ankistrodesmus falcatus	261	P		87	87	1129		P	828	489	289	P	P	3530		883	883
Ankistrodesmus falcatus v. *spiralis*	784	134	523	480	189	P	996	1677	414	772	364	170	894	883	194	535	204
Ankistrodesmus gelifactus																	
Arthrodesmus triangularis	P					P	P	P	P					P			
Binuclearia sp.						282	664		1656	650	362						
Botryococcus sp.														P			
Bulbochaete sp.	1765	1073	1327	1388	202	2258	26031	P	2898	7797	6110		P		387	97	97
Chlamydomonas sp. a																	
Chlamydomonas sp. b																	
Closterium sp.	16	P		5	5	P	222	P	P	56	56						
Closterium acerosum																	
Closterium actum																	
Closterium dianae			156	52	52												
Closterium pseudolunula																	
Closterium rostratum																	
Coeloastrum sp.																	
Coeloastrum cambricum														P			
Coelastrum microporum							P						P	5649	1549	1800	1334
Coeloastrum printzii						P	6640	P	2898	2384	1574		P				
Coeloastrum sphaericum	P		P					P	3312	828	828		P				
Cosmarium sp.																	
Cosmarium anceps						P											
Cosmarium biculatum			468	156	156				P								
Cosmarium botrytis		P													P		
Cosmarium capitulum v. groenlandicum																	
Cosmarium contracta																	
Cosmarium coronatum																	
Cosmarium depressum		P															
Cosmarium granulatum		670	P	223	223	P	110	P	P	28	28			P			
Cosmarium holmiense v. *intermedium*						P	P	671		168	168	P		177	P	44	44
Cosmarium humile v. *lacustre*		939	523	487	272	282	322	P	P	151	88			P	P		
Cosmarium impressulum v. *suborthogonum*	P						P		371	93	93		P	P	P		
Cosmarium laeve								P									
Cosmarium norimbergense							P								P		
Cosmarium phaseolus v. *phaseolus*	360			120	120	1693	322	2683		1175	623	P			194	48	48
Cosmarium pokornyanam																	
Cosmarium pseudoprotuberans																	
Cosmarium rectangulare	654			218	218		P	335		84	84		179			45	45
Cosmarium rectangulum									P								
Cosmarium reniforme	1068			356	356												
Cosmarium repandum		P	P														
Cosmarium septentrionale	588			196	196	847	2849	671	1414	1445	494	P	P	P	92	23	23
Cosmarium speciosum			1717	572	572			P									
Cosmarium subgranatum												P	P	P			
Cosmarium tetraopthalmum		P	P			P	249		424	168	103		P		P		
Cosmarium turpinii	P	P	P			P	P	P	P								
Cosmarium turpinii v. *podolicum*																	
Crucigenia apiculata																	
Crucigenia quadrata						P											
Crucigenia rectangularis							P					P	P	706		177	177
Cylindrocystis brebissonii	261	134	156	184	39	P	P	335	414	187	109						
Desmidium swartzii v. *quadrangulatum*																	
Dictyosphaerium pulchellum																	
Elakatothrix sp.		134	P	45	45	847		671	P	380	222						
Euastropsis richteri																	
Euastrum sp.																	
Euastrum bidentatum		268		89	89		P	P									
Euastrum denticulatum																	
Euastrum dubium v. *maius*		P				282	P	335	828	361	172		P	P	P		
Euastrum elegans	392	P	781	391	225	1129	3403	P	600	1283	743	P	P	P			
Euastrum gemmatum																	
Euastrum insulare v silesiacum																	
Euastrum obesum																	
Euastrum ohioense																	
Euastrum sinosum		P															
Euastrum verrucosum							P										
Gemellicystis neglecta																	
Geminella interrupta													P				
Gloeocystis schroeteri	9151	2548	1569	4423	2381	P	2479	P	414	723	593						
Gloeotila pelagica		805		268	268												
Golenkinia radiata v. *brevispina*		134		45	45												
Gonatozygon brebissonii			P			P		P									
Gonatozygon monotaenium	P	312		104	104												
Hyalotheca sp.																	
Kirchneriella sp.							620			155	155	170	P	P	P	43	43
Koliella longiseta			P														
Lagerheimia subsalsa																	
Lagerheimia wratislawiensis	261			87	87												
Micractinium pusillum																	
Monoraphidium sp.												170				43	43
Mougeotia sp. a	4717	3710	6439	4955	797	3457	830	838	3285	2103	733	340	P	485	P	206	123
Nephrocytium limneticum	1046		P	349	349												
Ooedogonium sp.																	
Oocystis elliptica						5927	16734	8720	27737	14780	4889	340		530	3341	1053	771
Oocystis lacustris	2549	P	3399	1983	1021												
Oocystis solitaria												P					
Oonephris obesa													1073	P	P	268	268
Quadrigula closterioides																	
Phacotus sp.		3084		1028	1028	P											
Pandorina morum																	
Pediastrum boryanum	P	P	P						P								
Pediastrum boryanum v. *ellesmerense*	P	P	P						P				P				
Pediastrum duplex		P	P				P										
Pediastrum duplex v. *clathratum*									P								
Pediastrum integrum v. *scutum*																	
Pediastrum tetras	P	P	P			P	1859			465	465			P	P		

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Species	B4-5											B5-6					
	July 1997					July 1998						July 1998					
	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Mean	SE
Penium sp.		P										P					
Penium margaritaecum																	
Pleurotaenium sp.																	
Pleurotaenium trabecula																	
Protoderma sp.												20067	8939	10768		9944	4113
Scenedesmus bijuga	523			174	174				828	207	207						
Scenedesmus acuminatus																	
Scenedesmus arcuatus																	
Scenedesmus denticulatis						P	664		P	166	166						
Scenedesmus ecornis																	
Scenedesmus incrassatulus	2092	2145	2092	2110	18	P	P	7043		1761	1761	P	P	P	1162	291	291
Scenedesmus obliquus																	
Scenedesmus quadricauda	P	P	P			1834	21914	P	848	6149	5268		P		P		
Scenedesmus spinosus						P		2348		587	587	680		1236		479	299
Scenedesmus wisconsinensis																	
Spirogyra sp.																	
Staurastrum sp. a	88	P	261	116	77	P	P		212	53	53		P				
Staurastrum sp. b						P											
Staurastrum sp. c		P															
Staurastrum anatinum v. *biradiatum*																	
Staurastrum antilopaeum																	
Staurastrum anatinum	P																
Staurastrum apiculatum									P								
Staurastrum borgeanum	1307			436	436	P	P	P				P		P	P		
Staurastrum brebissonii	P	737		246	246		166		P	42	42		P	P			
Staurastrum clevei																	
Staurastrum curvatum							P	P									
Staurastrum cuspidatum		P	262	87	87												
Staurastrum dejectum		224	392	205	114	P	P	P	414	103	103	170	P	P	P	43	43
Staurastrum furcigerum								P									
Staurastrum gladiosum	P		P														
Staurastrum hystrix																	
Staurastrum longebranchiatum		P															
Staurastrum lunatum	261			87	87												
Staurastrum manfeldtii																	
Staurastrum pachyrhynchum	P	67	P	22	22	P	322		P	81	81		P				
Staurastrum pilosum		134	523	219	157							P					
Staurastrum proboscidium																	
Staurastrum rhabdophorum																	
Staurastrum subcruciatum	P																
Staurastrum tetracerum	P	P				P	620	P	22	160	153		P				
Staurastrum varians						P	322			81	81				P		
Staurodesmus triangularis																	
Stigeoclonium sp.																	
Teilingia granulata	2353	5162	2498	3338	913	7386	5578	1677	2898	4385	1290	340	536	530	P	352	126
Tetraedron tumidulum		2816		939	939	282		P		71	71						
Tetraedron limneticum																	
Tetraedron minimum	P	P	P			P	P	670	414	271	165	P	P	P	1549	387	387
Tetraedron muticum													P	177	642	205	152
Tetraedron arthrodesmiforme	261			87	87									P			
Tetraedron caudatum						P		335	P	84	84						
Tetraedron trigonum								P									
Trochiscia granulata	131			44	44				P								
Xanthidium antilopaeum							P										
Xanthidium subhastiferum v murrayi																	
Zygnema sp.		P	P			P		P				P	P	529	P	132	132
CYANOPHYTA (Cyanobacteria)																	
Agmenellum quadruplicatum	P	P					P	8049		2012	2012						
Agmenellum thermale			P			18909	195850	P	P	53690	47596						
Anabaena sp.	P					P		3689	P	922	922						
Anabaena lapponica		P															
Anabaena planctonica																	
Anacystis dimidiata			P			9313	1826		1060	3050	2121	5612	5900	1059	P	3143	1525
Anacystis marina														P			
Anacystis montana			82101	27367	27367	33866	P	129124	5299	42072	29955	2551			6585	2284	1555
Anacystis thermalis		1877		626	626								29141			7285	7285
Aphanocapsa elachista		55914		18638	18638		8677	18111		6697	4320						
Aphanocapsa elachista v. *planctonica*	10720		12550	7757	3914	6209	132632	37228	95632	67925	28440	10374	10012	40246	29439	22518	7450
Aphanothece clathrata						P	17354		47607	16240	11227		79558			19890	19890
Chlorogloea microcystoides	P																
Chroococcus turgidus	4445	2816	1307	2856	906												
Coccochloris aeruginosa							1859	1006		716	449						
Coelosphaerium kuetzingianum																	
Dactylococcopsis linearis						1129	2479		P	902	589	P		65842	P	16461	16461
Desmonema wrangelii	10720	25477	24352	20183	4743				11592	2898	2898						
Dichothrix gypsophila	9936	150043	14049	58009	46032	30198	3984	18446	93976	36651	19846	81969	71513	319852	186708	165010	57796
Gloeothece linearis v. *composite*		1743	2092	1278	647												
Gomphosphaeria lacustris	75041	9118	P	28053	23641	P	62752	P	P	15688	15688		8939	19770	14679	10847	4239
Lyngbya birgei																	
Lyngbya contorta																	
Microcoleus vaginatus	P	P	P														
Microcystis flos-aquae	P														P		
Nostoc commune		P	P			P	P	P	14881	3720	3720				1549	387	387
Oncobyrsa cesatii														3883		971	971
Oscillatoria sp.																	
Oscillatoria limosa																	
Pseudanabaena sp.																	
Schizogonium murale						29884	4958	P		8711	7154						
Schizothrix calcicola	106156	130734	97266	111385	10009	507996	459875	182115	582073	433015	87327	157136	192727	169458	138288	164402	11411
Scopulonema minus			P				19833	8720	1242	7449	4555						
Stigonema mamillosum	3922	670	P	1531	1211	P									P		
Unidentified Cyanophyte akinete														58		15	15
Total Algal Density (No. cells/cm²)	302741	445045	301596	349794	47627	726950	1111331	515442	978311	833008	132499	375403	471541	795866	441105	520979	93799

[a] P = present, but not encountered during routine cell counts; SE = standard error.

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Appendix E2. Periphytic algal densities (no. cells/cm^2) in streams of the Meliadine Study Area, 1997 and 1998

Species	B6-7											D0-1						
	July 1997						July 1998					July 1997						
	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE
BACILLARIOPHYTA (Diatoms)																		
Achnanthes detha	679	1700	261		660	374						784	523	904			442	191
Achnanthes flexella	P	132	P	646	194	154	P	P	P			P			P	132	26	26
Achnanthes lanceolata																		
Achnanthes minutissima	14126	84454	64321	657448	205087	151510	2150	2295	498	1648	576	16669	8694		9478	17371	10442	3161
Achnanthes minutissima v. *cryptocephala*							P		P						P			
Amphipleura sp.																		
Amphora sp.								P										
Amphora ovalis			P				P						P	P	P	P		
Amphora ovalis v. *pediculus*																		
Anomoeoneis sp.				P														
Anomoeoneis vitrea																		
Asterionella formosa																		
Caloneis sp.				P					P							P		
Caloneis ventricosa																		
Caloneis ventricosa v. *truncatula*																		
Cocconeis diminuta																		
Cocconeis pediculus																		
Cocconeis placentula																		
Cocconeis placentula v. *euglypta*																		
Cocconeis sp.																		
Coscinodiscus denarius																		
Coscinodiscus lacustris																		
Cyclotella sp.															144		29	29
Cyclotella antiqua	407	P	P	1162	392	274	526	P	498	341	171	143	P	P			29	29
Cyclotella comta	136		261		99	63												
Cyclotella glomerata				P			860	417	P	426	248							
Cyclotella kutzingiana				P			P											
Cyclotella meneghiniana																		
Cyclotella ocellata									145	48	48				P	132	26	26
Cyclotella striata															P			
Cymbella affinis							P	P	P									
Cymbella amphioxys	P		P									261					52	52
Cymbella aspera																		
Cymbella cistula																		
Cymbella cuspidata		P																
Cymbella cymbiformis		P		2324	581	581			P						P	P		
Cymbella cymbiformis v. *nonpunctata*			P									P		P				
Cymbella gracilis		P		1162	291	291		P	P									
Cymbella lanceolata																		
Cymbella mexicanum v. *janischii*																		
Cymbella minuta	1358	1046	523	11818	3686	2716	430	P	P	143	143	3268	784	1023	442	1192	1342	498
Cymbella naviculiformis									P									
Cymbella sinuata																		
Cymbella tumida																		
Cymbella turgida	P		243	646	222	152						915	P	P	144		212	178
Cymbella turgidula	P		P															
Cymbella sp.	P	P	P	P								P	P	732		993	345	215
Denticula tenuis	P	1046	523	2324	973	498	143	P	166	103	52	P		P	295		59	59
Diatoma elongatum	7481	11157	26677	77424	30685	16125	573	522	789	628	82	2353	1307	1291	1326	3916	2039	511
Diatoma vulgare																		
Didymosphenia geminata		66		P	17	17						424	196	P	361	520	300	92
Diploneis sp.							P											
Diploneis elliptica																		
Diploneir finnica																		
Diploneis interrupta																		
Diploneis ovalis																		
Epithemia sorex	P	P	P	P			P	P	P			P	P	387	147	132	133	71
Eunotia arcus																		
Eunotia exigua																		
Eunotia flexuosa																		
Eunotia glacialis				P											P	265	53	53
Eunotia major														P				
Eunotia papilio																		
Eunotia praerupta	P		196	4846	1260	1196	P	P	166	55	55	P	P	678	289	353	264	126
Eunotia praerupta v. *bidens*								P	P									
Eunotia sudetica																		
Eunotia sp.	P						P							P				
Fragilaria brevistriata																		
Fragilaria construens																		
Fragilaria crotonensis	P	P	P	4648	1162	1162	72	365	P	146	112	1046		646	P	629	464	204
Fragilaria intermedia																		
Fragilaria pinnata	P	523	P	2324	712	551	P		P			1046	1961	387	1326	132	970	328
Frustulia vulgaris																		
Gomphonema sp.								104		35	35					132	26	26
Gomphonema acuminatum				P											P	P		
Gomphonema acuminatum v. *coronata*													131				26	26
Gomphonema angustatum	P		P	5810	1453	1453	P	313	166	160	90	261	P	258	147	132	160	48
Gomphonema constrictum	P	P	P									P	P	P				
Gomphonema gracile							P		P									
Gomphonema intricatum v. *vibrio*																		
Gomphonema olivaceum																		
Gomphonema parvulum																		
Gyrosigma sp																		
Hantzschia amphioxys																		
Melosira sp.							P											
Melosira granulata																		
Meridion circulare																		
Navicula sp.				1162	291	291	P											
Navicula amphibola				P								141	P	P	36	P	35	27
Navicula anglica																		
Navicula aspera																		
Navicula bacillum																		
Navicula decussis																		
Navicula dolosa																		
Navicula capitata																		
Navicula cryptocephala	P	784	261	2324	842	520	1003	452	168	541	245	915	131	129	3667	530	1074	664
Navicula cryptocephala v. *intermedia*	974	5186	7758		3480	1817						4489	1765	1711	221		1637	801
Navicula cuspidata																		

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Appendix E2. Periphytic algal densities (no. cells/cm^2) in streams of the Meliadine Study Area, 1997 and 1998

Species	B6-7											D0-1						
	July 1997						July 1998					July 1997						
	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE
Navicula exigua		P																
Navicula exigua v. *capitata*																		
Navicula lacustris							P											
Navicula laevissima																		
Navicula lanceolata				23242	5810	5810	286	P		95	95				147	2034	436	400
Navicula mutica				1162	291	291												
Navicula placenta																		
Navicula pseudoscutiformis																		
Navicula pupula				P			P	P	P					P	P			
Navicula radiosa	407	1311	605	4067	1598	846		104		35	35	1046	131	365	442		397	181
Navicula reinhardtii																		
Navicula rhynchocephala																		
Navicula tripunctata									332	111	111							
Navicula tripunctata v. *schizonemoides*																		
Navicula viridula				1078	270	270	P	139		46	46					115	23	23
Nedium sp.				P														
Nedium bisulcatum																		
Nedium dubium																		
Nedium hitchcockii																		
Nedium iridis v. *amphigomphus*									P									
Nitzschia sp.								P										
Nitzschia acicularis							P											
Nitzschia amphibia																		
Nitzschia angustata							P		P									
Nitzschia dissipata																		
Nitzschia filiformis	P	P	344	1162	377	274	143	P		48	48	261	507	P	P	232	200	95
Nitzschia fonticola							P	P	P						P			
Nitzschia palea		P	P															
Nitzschia sigmoidea	P		P									784	P		63		169	154
Pinnularia sp.				P								P	P			P		
Pinnularia biceps																		
Pinnularia borealis																		
Pinnularia maior																		
Pinnularia mesolepta									P									
Pinnularia nodosa																		
Pinnularia streptoraphe																		
Pinnularia viridis																		
Rhizosolenia longiseta																		
Rhoicosphenia curvata																		
Rhopalodia gibba												P			P	P		
Rhopa;pdoa gebberula																		
Stauroneis anceps				P			P		P			P			P			
Stauroneis phoenicenteron																		
Stauroneis smithii																		
Stauroneis sp.			P					P										
Stephanodiscus astraea	P		P	P														
Surirella sp.													P			P		
Surirella angustata																		
Synedra actinastroides	7188	12485	20766	9825	12566	2939	573	209	498	427	111	8235	3497	5930	6911	11100	7135	1258
Synedra acus	826	513	994	3103	1359	590			P									
Synedra sp.																		
Synedra ulna	119	P	252	P	93	60	72	P	145	72	42	P	114	420	180	285	200	72
Tabellaria fenestrata	68	229	P	4687	1246	1148	143	P	P	48	48	1569	P	2496	596	530	1038	444
Tabellaria flocculosa	136	761	1569	8393	2715	1915	430	P	996	475	288	4882	458	2421	1857	3608	2645	754
CRYPTOPHYTA (Cryptomonads)																		
Cryptomonas curvata																		
Cryptomonas erosa																		
Cryptomonas ovata									166	55	55							
Cryptomonas reflexa																		
Katablepharis ovalis																		
Rhodomonas minuta	136				34	34												
CHRYSOPHYTA (Golden-Brown Algae)																		
Chrysidiastrum catenatum									3237	1079	1079							
Chrysococcus sp.																		
Chrysoikos sp.																		
Chrysosphaerella rodhei																		
Dinobryon crenulatum							143			48	48							
Dinobryon divergens	P	132	523		164	124	5107	4995	5190	5097	56		P	P				
Dinobryon sertularia	407	262	P		167	101	9582	8841	8135	8853	418		P	P		132	26	26
Dinobryon sertularia v. *protuberans*			P	P			430	P	166	199	125			P				
Dinobryon sociale	P		P				3118	3416	1079	2538	734							
Dinobryon tabellariae		P	P															
Ishtmochloron trispinatum												P	131		72	P	41	27
Kephyrion sp.																		
Kephyrion boreale		P	P				860	209		356	259							
Ochromonas spa				5810	1453	1453			332	111	111				295		59	59
Ochromonas stellaris															147		29	29
Ophiocytium sp.																		
Pseudokephyrion sp.																		
Stichogloea doederleinii				6973	1743	1743		1617		539	539					6156	1231	1231
Synura sp.																		
Unidentified statospore	P	P	261	P	65	65	P	104	166	90	48	1569	654	646	589	1125	917	190
PYRROPHYTA (Dinoflagellates)																		
Glenodinium sp.																		
Gymnodinium sp.							1147			382	382							
Gymnodinium uberrimum							P											
Peridinium sp.		P	P				P											
Peridinium aciculiferum	P	P	109	P	27	27	P	1147	664	604	332	261	654	P	589	P	301	140
Peridinium cinctum									P									
Peridinium palatinum																		
Peridinium palustre																		
Peridinium willei																		
Unidentified cyst							430			143	143	P	P	258	295	265	163	67
EUGLENOPHYTA																		
Euglena sp.																		
Phacus sp.																		
Trachelomonas sp.												P						

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Appendix E2. Periphytic algal densities (no. cells/cm^2) in streams of the Meliadine Study Area, 1997 and 1998

Species	B6-7											D0-1						
	July 1997						July 1998					July 1997						
	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE
CHLOROPHYTA (Green Algae)																		
Actinotaenium sp.																		
Ankistrodesmus convolutus	136	523			165	124						784	131	387		861	433	171
Ankistrodesmus falcatus	136	523		1162	455	260	143		166	103	52		P		147	P	29	29
Ankistrodesmus falcatus v. *spiralis*	407	P	P	6973	1845	1712	P		166	55	55	2876	392	1098	1768	P	1227	511
Ankistrodesmus gelifactus	P		P															
Arthrodesmus triangularis							72			24	24	P						
Binuclearia sp.				P														
Botryococcus sp.							P											
Bulbochaete sp.	747	P	1598	5810	2039	1299	573	730	P	434	222	1767	784	690	737	16407	4077	3089
Chlamydomonas sp. a																		
Chlamydomonas sp. b																		
Closterium sp.			P												72		14	14
Closterium acerosum																		
Closterium actum																		
Closterium dianae																		
Closterium pseudolunula																		
Closterium rostratum																		
Coeloastrum sp.													P					
Coeloastrum cambricum																		
Coelastrum microporum	1630	2383		P	1003	599			1494	498	498				P	3177	635	635
Coeloastrum printzii							430			143	143				P			
Coeloastrum sphaericum				P				P				3922	P	P	4039	P	1592	975
Cosmarium sp.															147	132	56	34
Cosmarium anceps			P									P						
Cosmarium biculatum														129			26	26
Cosmarium botrytis	P	P		P									131	646			155	125
Cosmarium capitulum v. groenlandicum																		
Cosmarium contracta		P																
Cosmarium coronatum																		
Cosmarium depressum			36		9	9							P					
Cosmarium granulatum	P	P	P	P			P		166	55	55	141		P	P	P	28	28
Cosmarium holmiense v. *intermedium*		P										196		P	P		39	39
Cosmarium humile v. *lacustre*	272	397	145	P	204	85	P		332	111	111	565	P	P	216	132	183	104
Cosmarium impressulum v. *suborthogonum*		P	97	P	24	24	P		P				P	P	147	P	29	29
Cosmarium laeve														P				
Cosmarium norimbergense	P		P	2324	581	581			P			P	P	P		530	106	106
Cosmarium phaseolus v. *phaseolus*							P	P	P									
Cosmarium pokornyanam																		
Cosmarium pseudoprotuberans																		
Cosmarium rectangulare		P	P	P			P									P		
Cosmarium rectangulum				P											P			
Cosmarium reniforme																		
Cosmarium repandum																		
Cosmarium septentrionale				P			P	209	166	125	64				103	P	21	21
Cosmarium speciosum	136	132	316		146	65		P				1272	P	P	54		265	252
Cosmarium subgranatum																		
Cosmarium tetraopthalmum		P	P	P								P			P	P		
Cosmarium turpinii			P	P			P					406		P	144	P	110	79
Cosmarium turpinii v. *podolicum*																		
Crucigenia apiculata													P					
Crucigenia quadrata	543				136	136												
Crucigenia rectangularis	P	P										P			P			
Cylindrocystis brebissonii		P	145	P	36	36									P	P		
Desmidium swartzii v. *quadrangulatum*																		
Dictyosphaerium pulchellum																		
Elakatothrix sp.	407	1569	291	P	567	345	430	1043	166	546	260				147		29	29
Euastropsis richteri																		
Euastrum sp.																		
Euastrum bidentatum		P		P														
Euastrum denticulatum																		
Euastrum dubium v. *maius*	P	132	145	P	69	40	P	104	P	35	35	P		P	147	116	53	33
Euastrum elegans	543	P	145	P	172	128	P	P	P			141		P	P	P	28	28
Euastrum gemmatum																		
Euastrum insulare v silesiacum																		
Euastrum obesum																		
Euastrum ohioense	P																	
Euastrum sinosum																		
Euastrum verrucosum								P										
Gemellicystis neglecta																		
Geminella interrupta																		
Gloeocystis schroeteri	5569	3922	4183	2324	4000	665	717	626	330	558	117	15849	15557	8845	2431	5825	9701	2652
Gloeotila pelagica																		
Golenkinia radiata v. *brevispina*		P													147		29	29
Gonatozygon brebissonii				P			P											
Gonatozygon monotaenium															P			
Hyalotheca sp.																		
Kirchneriella sp.												784	523	1162	884	1059	882	111
Koliella longiseta																		
Lagerheimia subsalsa																		
Lagerheimia wratislawiensis																		
Micractinium pusillum																		
Monoraphidium sp.									P									
Mougeotia sp. a	543	P	363		227	136	P	287		96	96		65	P	P		13	13
Nephrocytium limneticum				P									131	P	P	P	26	26
Ooedogonium sp.																		
Oocystis elliptica	P	437		P	109	109	287	5815		2034	1892	P	392		374	P	153	94
Oocystis lacustris	1494	8759	5491	12783	7132	2399	6164		664	2276	1953	8106	3922		5745	10062	5567	1737
Oocystis solitaria																		
Oonephris obesa				P				104	166	90	48							
Quadrigula closterioides																		
Phacotus sp.																		
Pandorina morum																		
Pediastrum boryanum	P			P								P		P	866	P	173	173
Pediastrum boryanum v. *ellesmerense*			P						1328	443	443	1046			P		209	209
Pediastrum duplex																		
Pediastrum duplex v. *clathratum*								P							P	954	191	191
Pediastrum integrum v. *scutum*																		
Pediastrum tetras	1902		P		476	476	P	P	P				1569	P	1620	P	638	391

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	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE
Penium sp.																		
Penium margaritaecum																		
Pleurotaenium sp.																		
Pleurotaenium trabecula													P					
Protoderma sp.							1004			335	335							
Scenedesmus bijuga	1222	P		P	306	306							1700	516	P		443	330
Scenedesmus acuminatus				1162	291	291						1131		P	144	P	255	221
Scenedesmus arcuatus												P						
Scenedesmus denticulatis							P											
Scenedesmus ecornis	P																	
Scenedesmus incrassatulus	407	P	1569	4648	1656	1051	1864	1669	1328	1620	157	8628	3661	3615	7660	P	4713	1558
Scenedesmus obliquus																		
Scenedesmus quadricauda				P					P			2615	2876	1033	1178	530	1646	463
Scenedesmus spinosus																		
Scenedesmus wisconsinensis																		
Spirogyra sp.																		
Staurastrum sp. a		P	P	194	49	49	143	104	P	82	43	P	98	129	144	265	127	43
Staurastrum sp. b	P														P			
Staurastrum sp. c																		
Staurastrum anatinum v. *biradiatum*																		
Staurastrum antilopaeum																		
Staurastrum anatinum																		
Staurastrum apiculatum																		
Staurastrum borgeanum	P	p	P	P			P	P							P	P		
Staurastrum brebissonii	P	P																
Staurastrum clevei			P	P														
Staurastrum curvatum															144	P	29	29
Staurastrum cuspidatum																		
Staurastrum dejectum	P	P	P	P				P					88	P	P	P	18	18
Staurastrum furcigerum												P						
Staurastrum gladiosum																		
Staurastrum hystrix																		
Staurastrum longebranchiatum																		
Staurastrum lunatum																		
Staurastrum manfeldtii																		
Staurastrum pachyrhynchum		P	P	P			108	P		36	36	P		P	P			
Staurastrum pilosum				P										65			13	13
Staurastrum proboscidium													P					
Staurastrum rhabdophorum																		
Staurastrum subcruciatum																P		
Staurastrum tetracerum	P	66	P	P	17	17		P				261		129	147	P	107	49
Staurastrum varians				P				P	P									
Staurodesmus triangularis																		
Stigeoclonium sp.							P											
Teilingia granulata	679	1307	3138	3228	2088	645	1004	313	332	550	227	5229	1046	3099	1046	2913	2666	777
Tetraedron tumidulum		P						104		35	35	495		129			125	96
Tetraedron limneticum														P				
Tetraedron minimum	136	P	P	P	34	34	P	313	330	214	107		131			132	53	32
Tetraedron muticum	272	1830	1046	P	787	412	1290		664	651	372							
Tetraedron arthrodesmiforme			261		65	65								P				
Tetraedron caudatum			P									784		P	147	66	199	149
Tetraedron trigonum															P			
Trochiscia granulata				P														
Xanthidium antilopaeum	P																	
Xanthidium subhastiferum v murrayi				P														
Zygnema sp.	P	838			210	210						212	P	1130		P	268	219
CYANOPHYTA (Cyanobacteria)																		
Agmenellum quadruplicatum				13945	3486	3486						P	2092	P	589	P	536	405
Agmenellum thermale	1902	2092	3050		1761	638	P	417	P	139	139					11253	2251	2251
Anabaena sp.													1961			P	392	392
Anabaena lapponica		P	2034	P	509	509							261	387	1082		346	199
Anabaena planctonica																		
Anacystis dimidiata	1358	1046	261		666	320	1147		P	382	382		5360				1072	1072
Anacystis marina																		
Anacystis montana												208390	12550	3486			44885	40941
Anacystis thermalis		2092		2324	1104	639			P			2615	2092		884	397	1198	499
Aphanocapsa elachista															P			
Aphanocapsa elachista v. *planctonica*	P		17518		4380	4380	32399	15751		16050	9354		P					
Aphanothece clathrata															117845	21315	27832	22879
Chlorogloea microcystoides	5569	3138	3661		3092	1155												
Chroococcus turgidus		1569	2876	P	1111	695						1046	2484		5819	2913	2452	988
Coccochloris aeruginosa																		
Coelosphaerium kuetzingianum													P	17689	62103	P	15958	12034
Dactylococcopsis linearis																		
Desmonema wrangelii	34364	86808	22879		36013	18376						29546	25362	25099		37407	23483	6278
Dichothrix gypsophila	15620	47587	32422	19368	28749	7238	22938	15490	8301	15576	4226	308272	243819	27244	34764	26478	128115	61263
Gloeothece linearis v. *composite*	136		261		99	63												
Gomphosphaeria lacustris	17250	31115	39743	68563	39168	10838	14049	7301		7117	4057	14642		9297	P	93467	23481	17720
Lyngbya birgei																		
Lyngbya contorta																		
Microcoleus vaginatus	10595	36344	69289	125892	60530	24879						7321	523	2195			2008	1388
Microcystis flos-aquae	P	P	28239	P	7060	7060	8888			2963	2963					P		
Nostoc commune	543	4706	19610	16269	10282	4553	1720	P		573	573	236629	2484		197505	794	87482	53265
Oncobyrsa cesatii																		
Oscillatoria sp.																		
Oscillatoria limosa																		
Pseudanabaena sp.																		
Schizogonium murale																		
Schizothrix calcicola	20510	201854	252579	1352664	456902	302713	5878	9284	10459	8540	1374	64321	43665	59266	32113	118885	63650	14941
Scopulonema minus							12902	41249	34862	29671	8585							
Stigonema mamillosum														P				
Unidentified Cyanophyte akinete																		
Total Algal Density (No. cells/cm²)	159476	562956	639838	2485206	961869	518590	142371	126162	85122	117885	17037	981314	397488	188147	513457	408213	497724	131910

[a] P = present, but not encountered during routine cell counts; SE = standard error.

Appendix E2. Periphytic algal densities (no. cells/cm^2) in streams of the Meliadine Study Area, 1997 and 1998

Species	D6-7						ML-MR											
	July 1997						July 1997					July 1998						
	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE
BACILLARIOPHYTA (Diatoms)																		
Achnanthes detha	522	697	4183	3972	2343	1003	2876	4183	1046	2702	910							
Achnanthes flexella	P	P	P	P			131	P	P	44	44	P	P	P	P	P		
Achnanthes lanceolata		P		P									P					
Achnanthes minutissima	15949	6484	53576	167585	60898	36988	51292	143546	61417	85418	29210	15817	26587	32724	147680	49867	54535	23931
Achnanthes minutissima v. *cryptocephala*			697	P	174	174	523	523		349	174		P	1395	P	P	279	279
Amphipleura sp.													P					
Amphora sp.												P						
Amphora ovalis	P	P	349	662	253	159			P			P	P	P		P		
Amphora ovalis v. *pediculus*														P				
Anomoeoneis sp.													P					
Anomoeoneis vitrea			P	P								P		P	P			
Asterionella formosa								P				P			P			
Caloneis sp.				P								P		P	P	P		
Caloneis ventricosa																		
Caloneis ventricosa v. *truncatula*							261	P	697	319	203							
Cocconeis diminuta																		
Cocconeis pediculus												P						
Cocconeis placentula																		
Cocconeis placentula v. *euglypta*												P						
Cocconeis sp.		P																
Coscinodiscus denarius																		
Coscinodiscus lacustris																		
Cyclotella sp.	P	P														P		
Cyclotella antiqua		104	P	P	26	26						P	P	P	P			
Cyclotella comta				P			261	P	536	266	155	P	P	P		P		
Cyclotella glomerata													P	P				
Cyclotella kutzingiana												P						
Cyclotella meneghiniana																		
Cyclotella ocellata				662	165	165						P	P	P	P	P		
Cyclotella striata	P	P		P				P				P		P				
Cymbella affinis												P	P		P			
Cymbella amphioxys		P							P									
Cymbella aspera																		
Cymbella cistula							P									P		
Cymbella cuspidata			P									P	P		P	P		
Cymbella cymbiformis				P												P		
Cymbella cymbiformis v. *nonpunctata*	P	93	P		23	23	348	458	P	269	138							
Cymbella gracilis				P								P	P	P	P	P		
Cymbella lanceolata																		
Cymbella mexicanum v. *janischii*																		
Cymbella minuta	1046	P	1743	3641	1607	767	1307	698	697	901	203	P	9711	2789	7308	P	3962	1962
Cymbella naviculiformis												P	P		P	P		
Cymbella sinuata																		
Cymbella tumida																		
Cymbella turgida		P	126	331	114	78	131	1046	3835	1671	1114		P	P				
Cymbella turgidula	P	P	P									P						
Cymbella sp.	523	P	378	P	225	133		P								P		
Denticula tenuis	P	P	1046	658	426	258		261	P	87	87	P	1266	P		1339	521	319
Diatoma elongatum	96744	10215	48023	88072	60763	19912	6712	11635	9500	9282	1425	P	1266	P	19031	5020	5063	3611
Diatoma vulgare														13294		P	2659	2659
Didymosphenia geminata	134				34	34	P	P	P			P	P	P	P	P		
Diploneis sp.				P												P		
Diploneis elliptica		139	P		35	35						P						
Diploneir finnica																		
Diploneis interrupta																		
Diploneis ovalis			P											P				
Epithemia sorex	P	41	63	662	191	157		P	349	116	116	P	P	P	P			
Eunotia arcus																		
Eunotia exigua																		
Eunotia flexuosa		P	P															
Eunotia glacialis				P			P	1961	1394	1118	583	P	P		P	669	134	134
Eunotia major							P					P		P				
Eunotia papilio																		
Eunotia praerupta	P	P	P	P			523	775	2883	1394	748	P	2532	1395	3654	1339	1784	616
Eunotia praerupta v. *bidens*													P			1339	268	268
Eunotia sudetica																		
Eunotia sp.														511			102	102
Fragilaria brevistriata																		
Fragilaria construens												P		P	P			
Fragilaria crotonensis	P	418	6275	2979	2418	1444	P	P				P		P	P	P		
Fragilaria intermedia																		
Fragilaria pinnata	P	837	697	3972	1376	884		P				2636	2532	4091	4872	P	2826	834
Frustulia vulgaris												P		P				
Gomphonema sp.																		
Gomphonema acuminatum				P														
Gomphonema acuminatum v. *coronata*																P		
Gomphonema angustatum	P	139	P	4415	1139	1093			697	232	232	2636	8862	P	P		2300	1718
Gomphonema constrictum	P	P	P					P										
Gomphonema gracile				662	165	165						P	P	P		P		
Gomphonema intricatum v. *vibrio*																		
Gomphonema olivaceum												2636	P				527	527
Gomphonema parvulum																		
Gyrosigma sp																		
Hantzschia amphioxys												P						
Melosira sp.													P	P		P		
Melosira granulata																		
Meridion circulare																		
Navicula sp.																		
Navicula amphibola	P	P																
Navicula anglica				P														
Navicula aspera																		
Navicula bacillum		P	P															
Navicula decussis																		
Navicula dolosa																		
Navicula capitata																		
Navicula cryptocephala	P	82	1743	P	456	429		P	P			1318	P	P	1830	5346	1699	981
Navicula cryptocephala v. *intermedia*	P	697	697		349	201	1700	4881	8541	5041	1976							
Navicula cuspidata				P														

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Appendix E2. Periphytic algal densities (no. cells/cm^2) in streams of the Meliadine Study Area, 1997 and 1998

Species	D6-7						ML-MR										
	July 1997						July 1997					July 1998					
	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE
Navicula exigua	P	616	P		154	154												
Navicula exigua v. *capitata*																		
Navicula lacustris												P	P			P		
Navicula laevissima																		
Navicula lanceolata				3310	827	827						3954	2532		P	2343	1766	773
Navicula mutica				P								P		P				
Navicula placenta																		
Navicula pseudoscutiformis																		
Navicula pupula	P	P	P	P								1318		P			264	264
Navicula radiosa	44	124	158	579	226	120		P	1046	349	349	1318	3798	P		1339	1291	694
Navicula reinhardtii														P				
Navicula rhynchocephala																		
Navicula tripunctata																		
Navicula tripunctata v. *schizonemoides*																		
Navicula viridula				740	185	185						1862	2532	1395	4872	P	2132	801
Nedium sp.															P	P		
Nedium bisulcatum																		
Nedium dubium																		
Nedium hitchcockii		P		P								P	P					
Nedium iridis v. *amphigomphus*			P															
Nitzschia sp.			126		32	32									P	2677	535	535
Nitzschia acicularis	4249				1062	1062												
Nitzschia amphibia	P											2636	2532				1034	633
Nitzschia angustata	P											P	P	P		P		
Nitzschia dissipata				P														
Nitzschia filiformis	261	P			65	65	523	654	349	509	88		10128	P	1218	1339	2537	1919
Nitzschia fonticola	261	P	P		65	65						P	P	P				
Nitzschia palea							P							P				
Nitzschia sigmoidea		P		P								P						
Pinnularia sp.	P	P	P	P				P				P		P	P			
Pinnularia biceps																		
Pinnularia borealis								P										
Pinnularia maior																		
Pinnularia mesolepta												P	P	P				
Pinnularia nodosa		P	P	P														
Pinnularia streptoraphe												P						
Pinnularia viridis																		
Rhizosolenia longiseta																		
Rhoicosphenia curvata																		
Rhopalodia gibba	P	P	P	P								P	P	P	P			
Rhopa;pdoa gebberula																P		
Stauroneis anceps	P	P	P	P								P	P	P	P	P		
Stauroneis phoenicenteron		P		P				P				P						
Stauroneis smithii				P								P						
Stauroneis sp.																		
Stephanodiscus astraea			126	P	32	32			P			P	P	P		P		
Surirella sp.				P								P						
Surirella angustata																		
Synedra actinastroides	5240	2617	10197	44034	15522	9633	1045	3596	697	1779	914	1318	16673	20034	25328	14057	15482	4011
Synedra acus												P			P			
Synedra sp.																		
Synedra ulna		P						P						P	P			
Tabellaria fenestrata	670	789	2101	3641	1800	694	P	P	P			P	P	P	1195	P	239	239
Tabellaria flocculosa	5883	2650	6160	13320	7003	2251	P	1830	P	610	610	P	P	P	896	P	179	179
CRYPTOPHYTA (Cryptomonads)																		
Cryptomonas curvata																		
Cryptomonas erosa																		
Cryptomonas ovata	261				65	65						P		P				
Cryptomonas reflexa																		
Katablepharis ovalis																		
Rhodomonas minuta																		
CHRYSOPHYTA (Golden-Brown Algae)																		
Chrysidiastrum catenatum							784			261	261							
Chrysococcus sp.																		
Chrysoikos sp.																		
Chrysosphaerella rodhei																		
Dinobryon crenulatum																		
Dinobryon divergens				987	247	247	P	1307	697	668	378	6227	1266	2045	13398		4587	2438
Dinobryon sertularia	1307	558	697	4634	1799	959		523	349	291	154	3954		P	5481	5355	2958	1237
Dinobryon sertularia v. *protuberans*	1569	2231	2092	5958	2962	1008	784	516	P	433	230	5272	P	8181	2436	6024	4383	1430
Dinobryon sociale	523		349	3972	1211	927		P				5272		2045	17052	2677	5409	3030
Dinobryon tabellariae	P											P	P		2436	2677	1023	627
Ishtmochloron trispinatum							P	P				621	P	1394	2436		890	464
Kephyrion sp.																		
Kephyrion boreale	523	139			166	124												
Ochromonas spa				2648	662	662										1339	268	268
Ochromonas stellaris																		
Ophiocytium sp.																		
Pseudokephyrion sp.																		
Stichogloea doederleinii												P						
Synura sp.	P																	
Unidentified statospore	P	802	349	3972	1281	912	261	1830	1046	1046	453	244623	1056	42951	32484	22089	68640	44538
PYRROPHYTA (Dinoflagellates)																		
Glenodinium sp.																		
Gymnodinium sp.																		
Gymnodinium uberrimum	P		P				P					P						
Peridinium sp.		82	P		21	21	261	719	P	327	210	931		P	P		186	186
Peridinium aciculiferum	P	418	126	P	136	99	P	P	349	116	116	1242	1266	5578	1218	1339	2129	863
Peridinium cinctum							P	P				1242		P			248	248
Peridinium palatinum												P	P					
Peridinium palustre																		
Peridinium willei																		
Unidentified cyst	490	237			182	117	458	261	697	472	126	2483	2849	P	2436		1554	638
EUGLENOPHYTA																		
Euglena sp.																		
Phacus sp.																		
Trachelomonas sp.	P														1827		365	365

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Species	D6-7						ML-MR										
	July 1997						July 1997					July 1998					
	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE
CHLOROPHYTA (Green Algae)																	
Actinotaenium sp.																	
Ankistrodesmus convolutus																	
Ankistrodesmus falcatus			P	1986	496	496											
Ankistrodesmus falcatus v. *spiralis*	523	558	126	496	426	101										P	
Ankistrodesmus gelifactus																	
Arthrodesmus triangularis							P		P			P	P		P	P	
Binuclearia sp.													P	P			
Botryococcus sp.													P				
Bulbochaete sp.	8628	3730	5028	6578	5991	1054	490		P	163	163	3954	71317	15688	7022	36145	26825	12461
Chlamydomonas sp. a																	
Chlamydomonas sp. b																	
Closterium sp.			P	P			114	P	P	38	38		633	P			127	127
Closterium acerosum																	
Closterium actum																	
Closterium dianae																	
Closterium pseudolunula																	
Closterium rostratum																	
Coeloastrum sp.		P	P														
Coeloastrum cambricum																	
Coelastrum microporum												3954		19523			4695	3785
Coeloastrum printzii								P				1862	1266		1218	P	869	373
Coeloastrum sphaericum	P	1116		P	279	279												
Cosmarium sp.													P	P				
Cosmarium anceps							P	P	P			P	1266	P			253	253
Cosmarium biculatum																		
Cosmarium botrytis	134				34	34		258	1475	578	455					6024	1205	1205
Cosmarium capitulum v. groenlandicum																		
Cosmarium contracta	134		P		34	34		P	P									
Cosmarium coronatum																		
Cosmarium depressum	67		252		80	60			697	232	232							
Cosmarium granulatum		P	126	P	32	32	P	387	134	174	113	P	P	P				
Cosmarium holmiense v. *intermedium*							131	129	P	87	43		P	P		4518	904	904
Cosmarium humile v. *lacustre*							P	258		86	86	P			1218		244	244
Cosmarium impressulum v. *suborthogonum*	P	P	P				P											
Cosmarium laeve			126	P	32	32												
Cosmarium norimbergense	P	P	P	P			P	261	402	221	118			P				
Cosmarium phaseolus v. *phaseolus*																		
Cosmarium pokornyanam																		
Cosmarium pseudoprotuberans																		
Cosmarium rectangulare	134				34	34	131	P	670	267	205	P	P	P		1339	268	268
Cosmarium rectangulum				P								P	P	P				
Cosmarium reniforme																		
Cosmarium repandum																		
Cosmarium septentrionale				P								621	2532	1344	P	1004	1100	422
Cosmarium speciosum		P	169	P	42	42	360	948	349	552	198	P	P	P		978	196	196
Cosmarium subgranatum																		
Cosmarium tetraopthalmum		82			21	21	114	516	P	210	156		P					
Cosmarium turpinii	17	82	P	P	25	19	P	P	44	15	15	P		P		1339	268	268
Cosmarium turpinii v. *podolicum*																		
Crucigenia apiculata																		
Crucigenia quadrata																		
Crucigenia rectangularis																		
Cylindrocystis brebissonii	P							P	134	45	45		P	P	P	3681	736	736
Desmidium swartzii v. *quadrangulatum*																		
Dictyosphaerium pulchellum																		
Elakatothrix sp.	784		P	P	196	196										P		
Euastropsis richteri																		
Euastrum sp.																		
Euastrum bidentatum	P			P									P		P			
Euastrum denticulatum																		
Euastrum dubium v. *maius*	261	P	315	P	144	84		P	P						P	1004	201	201
Euastrum elegans			P	P				129		43	43	P	P	P		P		
Euastrum gemmatum		P		P					P									
Euastrum insulare v silesiacum																		
Euastrum obesum																		
Euastrum ohioense									P									
Euastrum sinosum																		
Euastrum verrucosum																		
Gemellicystis neglecta																		
Geminella interrupta																		
Gloeocystis schroeteri	3399	3417	10807	7281	6226	1779	2092	4706	5926	4241	1131			8181		P	1636	1636
Gloeotila pelagica																		
Golenkinia radiata v. *brevispina*								261		87	87							
Gonatozygon brebissonii																		
Gonatozygon monotaenium	P		126		32	32												
Hyalotheca sp.												P						
Kirchneriella sp.			697	662	340	196												
Koliella longiseta																		
Lagerheimia subsalsa																		
Lagerheimia wratislawiensis																		
Micractinium pusillum																		
Monoraphidium sp.																		
Mougeotia sp. a	1177	488	1229	2332	1306	381	1569	3099	27193	10620	8298		P	P				
Nephrocytium limneticum								P					P					
Ooedogonium sp.												5587	10445				3206	2108
Oocystis elliptica	P	P					P	784	1743	842	504							
Oocystis lacustris	1307	3207	3835	19196	6886	4138	2222	6275	7700	5399	1641	8568	2532	73211	53591	46855	36951	13565
Oocystis solitaria																		
Oonephris obesa				P					P				P	4184		1339	1105	812
Quadrigula closterioides																		
Phacotus sp.							523	915	2092	1177	471							
Pandorina morum																		
Pediastrum boryanum	P	P	349	P	87	87	P											
Pediastrum boryanum v. *ellesmerense*	P	P	P	P									P	P				
Pediastrum duplex																		
Pediastrum duplex v. *clathratum*																		
Pediastrum integrum v. *scutum*																		
Pediastrum tetras	P	1673			418	418												

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Appendix E2. Periphytic algal densities (no. cells/cm^2) in streams of the Meliadine Study Area, 1997 and 1998

Species	D6-7						ML-MR										
	July 1997						July 1997					July 1998					
	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE
Penium sp.							P											
Penium margaritaecum																		
Pleurotaenium sp.															P			
Pleurotaenium trabecula							P	131	P	44	44							
Protoderma sp.												P						
Scenedesmus bijuga	1046	558	697	P	575	217	523			174	174							
Scenedesmus acuminatus	261	418		5262	1485	1262												
Scenedesmus arcuatus																		
Scenedesmus denticulatis			P															
Scenedesmus ecornis																		
Scenedesmus incrassatulus	P	558			140	140		P				5272	P			5355	2125	1302
Scenedesmus obliquus																		
Scenedesmus quadricauda	1046	1116	697	5296	2039	1090									P			
Scenedesmus spinosus																		
Scenedesmus wisconsinensis																		
Spirogyra sp.														P				
Staurastrum sp. a			252	P	63	63	P		P			P	P			P		
Staurastrum sp. b																		
Staurastrum sp. c															P			
Staurastrum anatinum v. *biradiatum*																		
Staurastrum antilopaeum																		
Staurastrum anatinum																		
Staurastrum apiculatum																		
Staurastrum borgeanum	134			329	116	78		129		43	43		P	P	P	P		
Staurastrum brebissonii												P						
Staurastrum clevei																		
Staurastrum curvatum																		
Staurastrum cuspidatum																		
Staurastrum dejectum	P	P	P	329	82	82		P	P									
Staurastrum furcigerum																		
Staurastrum gladiosum												P						
Staurastrum hystrix									P									
Staurastrum longebranchiatum																		
Staurastrum lunatum																		
Staurastrum manfeldtii	P																	
Staurastrum pachyrhynchum	P						131	P	134	88	44							
Staurastrum pilosum	P		P				P											
Staurastrum proboscidium																		
Staurastrum rhabdophorum																		
Staurastrum subcruciatum		P																
Staurastrum tetracerum	134	P	P		34	34			P									
Staurastrum varians				P												1116	223	223
Staurodesmus triangularis																		
Stigeoclonium sp.																		
Teilingia granulata	261		697	2302	815	516	261	522		261	151		P		P	P		
Tetraedron tumidulum																		
Tetraedron limneticum																		
Tetraedron minimum	261	139	349	P	187	76		261		87	87				6090	P	1218	1218
Tetraedron muticum												P						
Tetraedron arthrodesmiforme																		
Tetraedron caudatum				662	165	165												
Tetraedron trigonum												P		P				
Trochiscia granulata													1266	1395			532	327
Xanthidium antilopaeum																		
Xanthidium subhastiferum v murrayi																		
Zygnema sp.								775	536	437	229	P						
CYANOPHYTA (Cyanobacteria)																		
Agmenellum quadruplicatum				10525	2631	2631	4183			1394	1394				P			
Agmenellum thermale							1569	1046	35560	12725	11418	86288	866617	103286		P	211238	165232
Anabaena sp.							261			87	87	7449	P				1490	1490
Anabaena lapponica																		
Anabaena planctonica																		
Anacystis dimidiata	P	82			21	21	P					19771	8862	20917	4872	652	11015	4028
Anacystis marina																		
Anacystis montana															103528	607109	142127	117962
Anacystis thermalis	523	558	P	3289	1092	743							331707	691300			204601	137589
Aphanocapsa elachista												104129				40162	28858	20362
Aphanocapsa elachista v. *planctonica*			P	16549	4137	4137	P	54908	92037	48982	26734	137081	450717	2018677	56027	586359	649772	355874
Aphanothece clathrata														53177			10635	10635
Chlorogloea microcystoides																		
Chroococcus turgidus	P	P	3138	662	950	746	1961	7060	2440	3820	1626							
Coccochloris aeruginosa													6330				1266	1266
Coelosphaerium kuetzingianum	P						14119			4706	4706							
Dactylococcopsis linearis				662	165	165								P		P		
Desmonema wrangelii	3889	418	8065		3093	1873	12289	79748	5229	32422	23751					1065620	213124	213124
Dichothrix gypsophila	2092	7670	8065	4276	5526	1426	37913	56739	87505	60719	14454	P	164588	306790	24360	223566	143861	58440
Gloeothece linearis v. *composite*			3138		785	785	P		1046	349	349							
Gomphosphaeria lacustris				P					92037	30679	30679	P						
Lyngbya birgei																		
Lyngbya contorta																		
Microcoleus vaginatus							5622	P	19872	8498	5914			599263	310585	124501	206870	113381
Microcystis flos-aquae	13140	46018	47064	P	26556	11848	54908	P		18303	18303							
Nostoc commune	6537	1647	2789	5296	4067	1122	30592	76887	P	35826	22349	2483	48110	926550	464050	38823	296003	178826
Oncobyrsa cesatii									P									
Oscillatoria sp.																		
Oscillatoria limosa		P											990058				198012	198012
Pseudanabaena sp.													P					
Schizogonium murale																		
Schizothrix calcicola	65106	16455	151652	676509	227430	152281	412075	229831	165248	269051	73902	474512	1521802	4722518	1010924	1452510	1836453	745392
Scopulonema minus												10545	25321	36815			14536	7250
Stigonema mamillosum																9371	1874	1874
Unidentified Cyanophyte akinete														2789			558	558
Total Algal Density (No. cells/cm²)	247194	121199	391865	1136541	474200	227599	654334	708166	647025	669842	19278	1181392	4602757	9745430	2342572	4387544	4451939	1469589

[a] P = present, but not encountered during routine cell counts; SE = standard error.

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Appendix E2. Periphytic algal densities (no. cells/cm^2) in streams of the Meliadine Study Area, 1997 and 1998

Species	ML-PL											MR-L					
	July 1997					July 1998						July 1998					
	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Mean	SE
BACILLARIOPHYTA (Diatoms)																	
Achnanthes detha	523	2353		959	713												
Achnanthes flexella	P[a]		P						P						P		
Achnanthes lanceolata									P						P		
Achnanthes minutissima	13923	16626	36279	22276	7045	19121	16090	42559	25440	25803	5915	31446	44249	34514	19854	32516	5026
Achnanthes minutissima v. *cryptocephala*	P	261		87	87	2467	2682	16037	P	5297	3631	P	P	383	496	220	129
Amphipleura sp.																	
Amphora sp.														383	P	96	96
Amphora ovalis	P					P	P		P			P	P	P	P		
Amphora ovalis v. *pediculus*							P					P	P				
Anomoeoneis sp.																	
Anomoeoneis vitrea						P						P		P	P		
Asterionella formosa		P					1341			335	335						
Caloneis sp.							P		P			P	P	P			
Caloneis ventricosa						P		P									
Caloneis ventricosa v. *truncatula*			P					P									
Cocconeis diminuta							P					1155	P	P		289	289
Cocconeis pediculus																	
Cocconeis placentula	P																
Cocconeis placentula v. *euglypta*								P									
Cocconeis sp.							P		1413	353	353						
Coscinodiscus denarius															P		
Coscinodiscus lacustris															P		
Cyclotella sp.																	
Cyclotella antiqua						2467	8045	1234	P	2937	1776	P	P	P	P		
Cyclotella comta	P	261	P	87	87	P	P		P			P	P	P	P		
Cyclotella glomerata						P											
Cyclotella kutzingiana												P	P	P	P		
Cyclotella meneghiniana																	
Cyclotella ocellata	P	P	P			P	P		P			P	P	383	496	220	129
Cyclotella striata						P						P	P	P	P		
Cymbella affinis									P			383	657	383		356	135
Cymbella amphioxys																	
Cymbella aspera																	
Cymbella cistula									P						469	117	117
Cymbella cuspidata	P					P								P	469	117	117
Cymbella cymbiformis																	
Cymbella cymbiformis v. *nonpunctata*	523	P	P	174	174												
Cymbella gracilis						P	P	P	P					P			
Cymbella lanceolata																	
Cymbella mexicanum v. *janischii*																	
Cymbella minuta	261	523	P	261	151	4934	1341	2467	2827	2892	751	6903	3147	2301	993	3336	1269
Cymbella naviculiformis						P			2827	707	707	P	P	P	P		
Cymbella sinuata																	
Cymbella tumida																	
Cymbella turgida	550		P	183	183								P				
Cymbella turgidula																	
Cymbella sp.			P						P			383				96	96
Denticula tenuis			P			P	P		2120	530	530	P	P	P			
Diatoma elongatum	43145	120210	24186	62514	29363	2468	8152	4318	3463	4600	1243	3451	1573	383	1241	1662	647
Diatoma vulgare	P																
Didymosphenia geminata	P	P	P						P				P		P		
Diploneis sp.								P						P	P		
Diploneis elliptica	P		P										P	P			
Diploneir finnica																	
Diploneis interrupta												P					
Diploneis ovalis			P				P						P	P			
Epithemia sorex	261		P	87	87	P	P	P	1413	353	353		P	P			
Eunotia arcus																	
Eunotia exigua																	
Eunotia flexuosa																	
Eunotia glacialis	P		P			P	1341	1234		644	372						
Eunotia major																	
Eunotia papilio																	
Eunotia praerupta	P	P	P			P	P	P	P			1155	P	P	P	289	289
Eunotia praerupta v. *bidens*																	
Eunotia sudetica																	
Eunotia sp.	P																
Fragilaria brevistriata																	
Fragilaria construens						P	P	P	2827	707	707		P	P	P		
Fragilaria crotonensis		784	P	261	261		P					P		P	P		
Fragilaria intermedia						P											
Fragilaria pinnata	523	1040	261	608	229	1234	6704	9869	11082	7222	2199	P	P	P	P		
Frustulia vulgaris		P	P									P					
Gomphonema sp.																	
Gomphonema acuminatum													P				
Gomphonema acuminatum v. *coronata*																	
Gomphonema angustatum	P		131	44	44	P	P	1234	P	309	309	1155	P		P	289	289
Gomphonema constrictum	P	P	P														
Gomphonema gracile						P	P						4327	P	496	1206	1047
Gomphonema intricatum v. *vibrio*																	
Gomphonema olivaceum																	
Gomphonema parvulum								1234		309	309						
Gyrosigma sp																	
Hantzschia amphioxys						P	P							P			
Melosira sp.						P								P			
Melosira granulata																	
Meridion circulare																	
Navicula sp.															P		
Navicula amphibola																	
Navicula anglica						P			P				P	P	P		
Navicula aspera													P		P		
Navicula bacillum						P						P	P				
Navicula decussis																	
Navicula dolosa																	
Navicula capitata													P				
Navicula cryptocephala	261	784	261	435	174	1234	P	P	4240	1369	1000	P	393	P	P	98	98
Navicula cryptocephala v. *intermedia*																	
Navicula cuspidata																	

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Appendix E2. Periphytic algal densities (no. cells/cm^2) in streams of the Meliadine Study Area, 1997 and 1998

Species	ML-PL											MR-L					
	July 1997					July 1998						July 1998					
	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Mean	SE
Navicula exigua		P															
Navicula exigua v. *capitata*																	
Navicula lacustris						P						P	P		P		
Navicula laevissima																	
Navicula lanceolata								P	P					P	P		
Navicula mutica														P			
Navicula placenta																	
Navicula pseudoscutiformis									P			P		P			
Navicula pupula			P			P	P	P	P					P	P		
Navicula radiosa	261	574	131	322	131	3700	1341			1260	873		P		P		
Navicula reinhardtii	P											P					
Navicula rhynchocephala																	
Navicula tripunctata																	
Navicula tripunctata v. *schizonemoides*																	
Navicula viridula						1234	1341	P	1060	909	308	1151		P	P	288	288
Nedium sp.									P								
Nedium bisulcatum														P			
Nedium dubium																	
Nedium hitchcockii													P				
Nedium iridis v. *amphigomphus*	P																
Nitzschia sp.							P		P						P		
Nitzschia acicularis																	
Nitzschia amphibia							P						P	P			
Nitzschia angustata							P		P			P	P	P	P		
Nitzschia dissipata																	
Nitzschia filiformis		261	261	174	87	3392	4023	3701	6360	4369	676	P	P	383	P	96	96
Nitzschia fonticola			P			P	P	P									
Nitzschia palea	P																
Nitzschia sigmoidea						P	427	P		107	107	P					
Pinnularia sp.								P	P				P		P		
Pinnularia biceps																	
Pinnularia borealis																	
Pinnularia maior																	
Pinnularia mesolepta						P	P	P				P	P	P			
Pinnularia nodosa	P																
Pinnularia streptoraphe						P								P			
Pinnularia viridis																	
Rhizosolenia longiseta																	
Rhoicosphenia curvata																	
Rhopalodia gibba	P		P			P	P	P	P			P	P	P	P		
Rhopa;pdoa gebberula																	
Stauroneis anceps	P	P	P			P		P	P			P	P	P			
Stauroneis phoenicenteron									P								
Stauroneis smithii																	
Stauroneis sp.																	
Stephanodiscus astraea			P			P	P	P	P			P	P	P	P		
Surirella sp.						P	P						P		P		
Surirella angustata												P		P			
Synedra actinastroides	1809	7059	3987	4285	1523	35059	18102	51206	11498	28966	8921	5656	2222	1917	P	2449	1177
Synedra acus							P					P	P	P			
Synedra sp.																	
Synedra ulna			P			P	P		P			288	P		P	72	72
Tabellaria fenestrata	392	185	261	279	60	5551	P	1234	1385	2043	1210	P	P	P	P		
Tabellaria flocculosa	2064	2307	981	1784	408	P	2682	3294	1413	1847	730	1155	1180	1965	P	1075	405
CRYPTOPHYTA (Cryptomonads)																	
Cryptomonas curvata																	
Cryptomonas erosa																	
Cryptomonas ovata							1341			335	335						
Cryptomonas reflexa																	
Katablepharis ovalis																	
Rhodomonas minuta												P					
CHRYSOPHYTA (Golden-Brown Algae)																	
Chrysidiastrum catenatum																	
Chrysococcus sp.																	
Chrysoikos sp.																	
Chrysosphaerella rodhei																	
Dinobryon crenulatum			131	44	44												
Dinobryon divergens	261	861	654	592	176	12336	2682	14396	9893	9827	2553				P		
Dinobryon sertularia	2092	784	523	1133	485		P		11306	2827	2827			P	P		
Dinobryon sertularia v. *protuberans*	5131	1307	523	2320	1423	17270	6034	16654	16494	14113	2698	P	P		234	59	59
Dinobryon sociale	4882	2615	1307	2935	1044	7402	15648	45643	4240	18233	9448		590			148	148
Dinobryon tabellariae		P				4934	9386	3392	2827	5135	1485				P		
Ishtmochloron trispinatum	523	784	327	545	132	P	2682	P	2827	1377	796						
Kephyrion sp.																	
Kephyrion boreale		261		87	87		1341			335	335	P	393	383	P	194	112
Ochromonas spa								28373		7093	7093						
Ochromonas stellaris																	
Ophiocytium sp.	P		P			P	638			160	160						
Pseudokephyrion sp.									P								
Stichogloea doederleinii	P	523	P	174	174							2301	6293	383		2244	1440
Synura sp.																	
Unidentified statospore	1569	3399	1569	2179	610	275400	206721	110407	124374	179226	38460				446	112	112
PYRROPHYTA (Dinoflagellates)																	
Glenodinium sp.																	
Gymnodinium sp.																	
Gymnodinium uberrimum		P	P			P	637	P		159	159						
Peridinium sp.	261	261	131	218	43	P		P				96	P		P	24	24
Peridinium aciculiferum		261	P	87	87	8691	1341	1234	3533	3700	1746		P	P	P		
Peridinium cinctum			P			P	P		5653	1413	1413						
Peridinium palatinum																	
Peridinium palustre																	
Peridinium willei																	
Unidentified cyst	523	P	P	174	174	925	P			231	231			383	234	154	94
EUGLENOPHYTA																	
Euglena sp.																	
Phacus sp.																	
Trachelomonas sp.	P	P	P			407			P	102	102	383	P			96	96

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Appendix E2. Periphytic algal densities (no. cells/cm^2) in streams of the Meliadine Study Area, 1997 and 1998

Species	ML-PL											MR-L					
	July 1997					July 1998						July 1998					
	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Mean	SE
CHLOROPHYTA (Green Algae)																	
Actinotaenium sp.																	
Ankistrodesmus convolutus																	
Ankistrodesmus falcatus									1413	353	353	P	P	P			
Ankistrodesmus falcatus v. *spiralis*								P					393	P	1489	471	352
Ankistrodesmus gelifactus																	
Arthrodesmus triangularis		P	P			P	P	P							P		
Binuclearia sp.									P				P		3046	761	761
Botryococcus sp.													P				
Bulbochaete sp.	P	523	P	174	174	P	2551	P	5653	2051	1343	P	P		P		
Chlamydomonas sp. a							P										
Chlamydomonas sp. b																	
Closterium sp.		123	P	41	41			P									
Closterium acerosum																	
Closterium actum																	
Closterium dianae																	
Closterium pseudolunula																	
Closterium rostratum																	
Coeloastrum sp.						P											
Coeloastrum cambricum																	
Coelastrum microporum						P											
Coeloastrum printzii	P		P			6168	1341	1234	6926	3917	1526			P			
Coeloastrum sphaericum																	
Cosmarium sp.						1234		1234		617	356						
Cosmarium anceps	P																
Cosmarium biculatum													P				
Cosmarium botrytis																	
Cosmarium capitulum v. groenlandicum								1234		309	309						
Cosmarium contracta																	
Cosmarium coronatum		P															
Cosmarium depressum	261		131	131	75												
Cosmarium granulatum	P	P	P			P		P	P			P	P		P		
Cosmarium holmiense v. *intermedium*	P						P						P	P			
Cosmarium humile v. *lacustre*			P			P		P	P			P	P	P			
Cosmarium impressulum v. *suborthogonum*	P	P				P		P	519	130	130			P	234	59	59
Cosmarium laeve									P				P				
Cosmarium norimbergense						P	1341	P	P	335	335	P		P			
Cosmarium phaseolus v. *phaseolus*								P	P			P	P				
Cosmarium pokornyanam																	
Cosmarium pseudoprotuberans																	
Cosmarium rectangulare	P	P	P			P	529	P		132	132				P		
Cosmarium rectangulum						P	P	P									
Cosmarium reniforme																	
Cosmarium repandum																	
Cosmarium septentrionale						1234	638	952	693	879	137	767	P	P	P	192	192
Cosmarium speciosum	261	261	392	305	44	P	P		693	173	173	P			372	93	93
Cosmarium subgranatum																	
Cosmarium tetraopthalmum	P	P						P									
Cosmarium turpinii	103	P	98	67	34	2467		P	1413	970	600			P			
Cosmarium turpinii v. *podolicum*			P														
Crucigenia apiculata																	
Crucigenia quadrata																	
Crucigenia rectangularis																	
Cylindrocystis brebissonii	261		P	87	87	P	P		1905	476	476	3835	590	1150	469	1511	789
Desmidium swartzii v. *quadrangulatum*																	
Dictyosphaerium pulchellum																	
Elakatothrix sp.		261		87	87	P									P		
Euastropsis richteri																	
Euastrum sp.			P														
Euastrum bidentatum						P	P	1234		309	309			P			
Euastrum denticulatum																	
Euastrum dubium v. *maius*	P	P				P		P	1413	353	353		P	P	P		
Euastrum elegans	P	P	P			P	P	1234	P	309	309		P	288		72	72
Euastrum gemmatum	P																
Euastrum insulare v silesiacum																	
Euastrum obesum																	
Euastrum ohioense																	
Euastrum sinosum																	
Euastrum verrucosum																	
Gemellicystis neglecta																	
Geminella interrupta																	
Gloeocystis schroeteri	17780	10459	5577	11272	3546	19738	5363	24672		12443	5829						
Gloeotila pelagica																	
Golenkinia radiata v. *brevispina*																	
Gonatozygon brebissonii																	
Gonatozygon monotaenium							P	P									
Hyalotheca sp.							P										
Kirchneriella sp.																	
Koliella longiseta																	
Lagerheimia subsalsa																	
Lagerheimia wratislawiensis																	
Micractinium pusillum																	
Monoraphidium sp.																	
Mougeotia sp. a			131	44	44		P	P	P								
Nephrocytium limneticum						P											
Ooedogonium sp.																	
Oocystis elliptica	261		437	233	127				1413	353	353						
Oocystis lacustris	3399	5491	1046	3312	1284	53661	2682	1234	46881	26114	14018	1917	6883	1150	9727	4919	2045
Oocystis solitaria							P										
Oonephris obesa									2827	707	707		3147			787	787
Quadrigula closterioides																	
Phacotus sp.		261	523	261	151												
Pandorina morum			2353	784	784												
Pediastrum boryanum		P	P														
Pediastrum boryanum v. *ellesmerense*																	
Pediastrum duplex																	
Pediastrum duplex v. *clathratum*																	
Pediastrum integrum v. *scutum*																	
Pediastrum tetras												P		P			

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Appendix E2. Periphytic algal densities (no. cells/cm^2) in streams of the Meliadine Study Area, 1997 and 1998

Species	ML-PL											MR-L					
	July 1997					July 1998						July 1998					
	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Mean	SE
Penium sp.						2467	1913			1095	642						
Penium margaritaecum																	
Pleurotaenium sp.																	
Pleurotaenium trabecula	P	P	P														
Protoderma sp.												2684	46805	4602		13523	11134
Scenedesmus bijuga								2467		617	617	P		767		192	192
Scenedesmus acuminatus						P							P	P			
Scenedesmus arcuatus																	
Scenedesmus denticulatis																	
Scenedesmus ecornis																	
Scenedesmus incrassatulus						2467			P	617	617	1534	P	P	P	384	384
Scenedesmus obliquus																	
Scenedesmus quadricauda	P					2467	5363	1234	P	2266	1149			P	P		
Scenedesmus spinosus																	
Scenedesmus wisconsinensis									P								
Spirogyra sp.																	
Staurastrum sp. a		P	P			P		2467	P	617	617	307	P	P	P	77	77
Staurastrum sp. b																	
Staurastrum sp. c						P											
Staurastrum anatinum v. *biradiatum*																	
Staurastrum antilopaeum																	
Staurastrum anatinum																	
Staurastrum apiculatum																	
Staurastrum borgeanum	P	P	P			P			P				P				
Staurastrum brebissonii																	
Staurastrum clevei																	
Staurastrum curvatum																	
Staurastrum cuspidatum																	
Staurastrum dejectum			P			P		P	P								
Staurastrum furcigerum		P															
Staurastrum gladiosum																	
Staurastrum hystrix																	
Staurastrum longebranchiatum																	
Staurastrum lunatum																	
Staurastrum manfeldtii																	
Staurastrum pachyrhynchum	P	P	P														
Staurastrum pilosum	P	P	P														
Staurastrum proboscidium																	
Staurastrum rhabdophorum																	
Staurastrum subcruciatum	P		P														
Staurastrum tetracerum						P											
Staurastrum varians						P	P										
Staurodesmus triangularis																	
Stigeoclonium sp.																	
Teilingia granulata	523	1046	523	697	174	2467	1341	1234		1261	504	383	1180	1917	703	1046	333
Tetraedron tumidulum	P																
Tetraedron limneticum																	
Tetraedron minimum						P						P	P				
Tetraedron muticum													P	P			
Tetraedron arthrodesmiforme																	
Tetraedron caudatum												P					
Tetraedron trigonum						P	P	P									
Trochiscia granulata						P	P										
Xanthidium antilopaeum																	
Xanthidium subhastiferum v murrayi																	
Zygnema sp.	4197	3035		2411	1251	P	P	P									
CYANOPHYTA (Cyanobacteria)																	
Agmenellum quadruplicatum														35281		8820	8820
Agmenellum thermale	P						P	P				23393		6903	28788	14771	6776
Anabaena sp.							112633		453683	141579	107369						
Anabaena lapponica	17780	2615		6798	5542												
Anabaena planctonica																	
Anacystis dimidiata	P		P			32690	12068	4934	P	12423	7195	P	P				
Anacystis marina						193674				48419	48419						
Anacystis montana									P						993	248	248
Anacystis thermalis	3303		1046	1450	975	45643	17856	P		15875	10778		P				
Aphanocapsa elachista							117996			29499	29499		7866			1967	1967
Aphanocapsa elachista v. *planctonica*	P							62913	149814	53182	35460	1534	47985	2684	33752	21489	11562
Aphanothece clathrata								335538		83885	83885						
Chlorogloea microcystoides		P															
Chroococcus turgidus	1046	10307	3007	4787	2818												
Coccochloris aeruginosa																	
Coelosphaerium kuetzingianum																	
Dactylococcopsis linearis						4934				1234	1234						
Desmonema wrangelii	24055	44973	76480	48503	15236												
Dichothrix gypsophila	16734		10197	8977	4869	18504	175653	14803	237442	111600	56255	22242	71978	P	20616	28709	15285
Gloeothece linearis v. *composite*	1307		P	436	436												
Gomphosphaeria lacustris		20656	11505	10720	5976							P	40905	9204	P	12527	9705
Lyngbya birgei																	
Lyngbya contorta																	
Microcoleus vaginatus	26408	44188	22617	31071	6649	24672				6168	6168						
Microcystis flos-aquae	P	784	4183	1656	1284	P	P										
Nostoc commune	P	6275	29938	12071	9115	307165	238674	64147	P	152497	72117	7670	22419	P	18861	12238	5149
Oncobyrsa cesatii																	
Oscillatoria sp.																	
Oscillatoria limosa																	
Pseudanabaena sp.																	
Schizogonium murale						P	P	P									
Schizothrix calcicola	318469	200023	236629	251707	35014	774698	299013	864750	1171662	777531	180724	461335	584081	287999	490887	456076	61829
Scopulonema minus		3937		1312	1312	86352	50953	11102		37102	19727						
Stigonema mamillosum	P	P	3399	1133	1133	1160813	163258	2945826		1067474	676635						
Unidentified Cyanophyte akinete																	
Total Algal Density (No. cells/cm²)	515886	519502	482116	505835	11905	3153741	1533229	4704163	2344867	2934000	676449	584662	899256	396089	635365	628843	103800

[a] P = present, but not encountered during routine cell counts; SE = standard error.

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Appendix E3. Periphytic algal densities (no. cells/cm^2) in lakes of the Meliadine Study Area, 1997 and 1998

Species	Meliadine Lake East Basin (ML-E)											Meliadine Lake South Basin (ML-S)						
	July 1997						July 1998					July 1997						
	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE
BACILLARIOPHYTA (Diatoms)																		
Achnanthes detha	139	275	2092		627	492						32					6	6
Achnanthes flexella	P[a]	P		P			P	P	P			P	P	P	P	P		
Achnanthes lanceolata	P	P	P					P				P			P			
Achnanthes minutissima	15897	15322	29808	4467	16373	5193	959	1497	1203	1220	156	953	240	119	34022	51945	17456	10801
Achnanthes minutissima v.*cryptocephala*			698		175	175												
Amphipleura sp.																		
Amphora sp.																		
Amphora ovalis	P	P	P	145	36	36	P	P	201	67	67	P			P	P		
Amphora ovalis v. *pediculus*								P										
Anomoeoneis sp.																		
Anomoeoneis vitrea															P	P		
Asterionella formosa																		
Caloneis sp.				P			P	P										
Caloneis ventricosa	P														P			
Caloneis ventricosa v. *truncatula*			P												P			
Cocconeis diminuta							P											
Cocconeis pediculus																		
Cocconeis placentula															P			
Cocconeis placentula v. *euglypta*																		
Cocconeis sp.																		
Coscinodiscus denarius																		
Coscinodiscus lacustris																P		
Cyclotella sp.												P		P				
Cyclotella antiqua			P									P	P	P				
Cyclotella comta	139	241	P		95	59			P						P	P		
Cyclotella glomerata															P	P		
Cyclotella kutzingiana															P			
Cyclotella meneghiniana		P					P											
Cyclotella ocellata							P	P	P							P		
Cyclotella striata		P		P			575	P	P	192	192				63	P	13	13
Cymbella affinis								155	P	52	52							
Cymbella amphioxys			P															
Cymbella aspera															P			
Cymbella cistula																P		
Cymbella cuspidata	P	P					P		P									
Cymbella cymbiformis	P	P	P	145	36	36		P								P		
Cymbella cymbiformis v. *nonpunctata*	139	69	437		161	96						P	P					
Cymbella gracilis															83	P	17	17
Cymbella lanceolata																		
Cymbella mexicanum v. *janischii*																		
Cymbella minuta	P	1170	1046	109	581	306	192	260	P	151	78	P	P	11	567	1162	348	231
Cymbella naviculiformis				P			P	P								P		
Cymbella sinuata			P															
Cymbella tumida																		
Cymbella turgida	139	P	P		35	35									P	465	93	93
Cymbella turgidula							P											
Cymbella sp.	P	413	P	P	103	103									P	P		
Denticula tenuis		P	P						P			16	P	P	126	P	28	25
Diatoma elongatum	9966	15602	13249	11476	12573	1212	4044	1757	3134	2978	665	544	227	257	378	697	421	89
Diatoma vulgare																		
Didymosphenia geminata																		
Diploneis sp.				P			P	195	150	115	59				P	P		
Diploneis elliptica			P					P										
Diploneir finnica																P		
Diploneis interrupta																		
Diploneis ovalis								P							P			
Epithemia sorex	1238	619	558	P	604	253	P	P	P			64	53	P	1929	2816	972	589
Eunotia arcus																		
Eunotia exigua																		
Eunotia flexuosa																		
Eunotia glacialis															P	P		
Eunotia maior																		
Eunotia papilio																		
Eunotia praerupta	P	P	P	46	12	12	P	P	P			P		P	504	465	194	119
Eunotia praerupta v. *bidens*																		
Eunotia sudetica																		
Eunotia sp.	P		523		131	131												
Fragilaria brevistriata								P										
Fragilaria construens				P				P							P			
Fragilaria crotonensis		P	P	P								64					13	13
Fragilaria intermedia																		
Fragilaria pinnata	1116	688	P	184	497	252	P	P	P					23	P	P	5	5
Frustulia vulgaris		P	P	P														
Gomphonema sp.																		
Gomphonema acuminatum				35	9	9										P		
Gomphonema acuminatum v. *coronata*			P															
Gomphonema angustatum		550	P	436	246	144		P	P				P		42	116	32	23
Gomphonema constrictum	P		P									P		P				
Gomphonema gracile															P	P		
Gomphonema intricatum v. *vibrio*																		
Gomphonema olivaceum							P		P									
Gomphonema parvulum	P		P				384	P		128	128				P			
Gyrosigma sp																		
Hantzschia amphioxys							P	P	P						P			
Melosira sp.								P							P			
Melosira granulata																		
Meridion circulare															P			
Navicula sp.	P		P												P	P		
Navicula amphibola																P		
Navicula anglica							P	P	P									
Navicula aspera																		
Navicula bacillum																		
Navicula decussis																		
Navicula dolosa																		
Navicula capitata																		
Navicula cryptocephala	35	P		P	9	9	P	P							2252	619	574	436
Navicula cryptocephala v. *intermedia*	1174	1056	523	436	797	186						32	P	54		4475	912	891
Navicula cuspidata																		

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Appendix E3. Periphytic algal densities (no. cells/cm^2) in lakes of the Meliadine Study Area, 1997 and 1998

Species	Meliadine Lake East Basin (ML-E)											Meliadine Lake South Basin (ML-S)						
	July 1997						July 1998					July 1997						
	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE
Navicula exigua	P	P	P									P	P	P				
Navicula exigua v. *capitata*								P										
Navicula lacustris																		
Navicula laevissima																		
Navicula lanceolata							192	390		194	113					232	46	46
Navicula mutica							P								P			
Navicula placenta																		
Navicula pseudoscutiformis								P							P	P		
Navicula pupula	P						P	P				P			P	P		
Navicula radiosa	139	413	494		262	116	P	394		131	131	P	27	6	630		133	124
Navicula reinhardtii																		
Navicula rhynchocephala								P										
Navicula tripunctata								P										
Navicula tripunctata v. *schizonemoides*																		
Navicula viridula				P			192	195	97	161	32				111	P	22	22
Nedium sp.	P															P		
Nedium bisulcatum																		
Nedium dubium																		
Nedium hitchcockii				P											P	P		
Nedium iridis v. *amphigomphus*															P			
Nitzschia sp.														P				
Nitzschia acicularis																		
Nitzschia amphibia	P		P												P	465	93	93
Nitzschia angustata			P					P							P			
Nitzschia dissipata																		
Nitzschia filiformis	105		P	P	26	26	P	P	P			P		11	473	232	143	94
Nitzschia fonticola			1700		425	425									P	P		
Nitzschia palea															P			
Nitzschia sigmoidea	139	P			35	35		P	P						42	P	8	8
Pinnularia sp.	P	P		P									P	P	P	P		
Pinnularia biceps			P															
Pinnularia borealis	P																	
Pinnularia maior																		
Pinnularia mesolepta							P		P									
Pinnularia nodosa	P	P																
Pinnularia streptoraphe																		
Pinnularia viridis																		
Rhizosolenia longiseta																		
Rhoicosphenia curvata																		
Rhopalodia gibba	P	P	P	P			P	P	P				P		63	P	13	13
Rhopa;pdoa gebberula																		
Stauroneis anceps							P								P			
Stauroneis phoenicenteron								P					P					
Stauroneis smithii																		
Stauroneis sp.							P											
Stephanodiscus astraea			P	P				195		65	65				252	P	50	50
Surirella sp.			P					P	P			P						
Surirella angustata																		
Synedra actinastroides	6891	3877	3007	6812	5147	1000	4458	366	1337	2054	1234	444	160	108	1008	3951	1134	722
Synedra acus																		
Synedra sp.																		
Synedra ulna	P			P			P									P		
Tabellaria fenestrata	418	1766	P	184	592	401	P	P	401	134	134	P	P	P		138	28	28
Tabellaria flocculosa	2626	88402	558	1878	23366	21683	383	1074	P	486	314	572	93	57	1166	1153	608	243
CRYPTOPHYTA (Cryptomonads)																		
Cryptomonas curvata																		
Cryptomonas erosa																		
Cryptomonas ovata		P	P										P					
Cryptomonas reflexa																		
Katablepharis ovalis																		
Rhodomonas minuta																		
CHRYSOPHYTA (Golden-Brown Algae)																		
Chrysidiastrum catenatum							192		201	131	66							
Chrysococcus sp.			261		65	65						32					6	6
Chrysoikos sp.																		
Chrysosphaerella rodhei																		
Dinobryon crenulatum	P																	
Dinobryon divergens	139	P		418	139	98						32	P	23		P	11	7
Dinobryon sertularia	139	275		P	104	66			201	67	67	596	654	190			288	142
Dinobryon sertularia v. *protuberans*	279	413	261	291	311	35	719	390	401	503	108	2244	1318	528		930	1004	379
Dinobryon sociale	279	550	261	145	309	86	192	195		129	65	1578	578	394		P	510	290
Dinobryon tabellariae		138	P		35	35	P	P	201	67	67	64	27	23		P	23	12
Ishtmochloron trispinatum							383	P	P	128	128	P	80	11	P	232	65	45
Kephyrion sp.																		
Kephyrion boreale	139	138			69	40			602	201	201	95					19	19
Ochromonas spa							192			64	64	P						
Ochromonas stellaris																		
Ophiocytium sp.	139			P	35	35												
Pseudokephyrion sp.																		
Stichogloea doederleinii				P			4410	5271	3610	4430	480							
Synura sp.																		
Unidentified statospore	976	275	1307	726	821	217	192	390	401	328	68	381	53	11	1260	930	527	246
PYRROPHYTA (Dinoflagellates)																		
Glenodinium sp.																		
Gymnodinium sp.																		
Gymnodinium uberrimum	P		P	46	12	12	191	63	97	117	38	87	53	34	P	232	81	40
Peridinium sp.	P	P						P				P	P	P				
Peridinium aciculiferum	P		261	P	65	65	192	P	201	131	66	32	35	34	25	23	30	2
Peridinium cinctum	139	P		P	35	35			P				P	P	P			
Peridinium palatinum																P		
Peridinium palustre																		
Peridinium willei																		
Unidentified cyst		P		86	22	22	P	185	1203	463	374	381	133	23	P	930	293	173
EUGLENOPHYTA (Euglenoids)																		
Euglena sp.																		
Phacus sp.																		
Trachelomonas sp.															P	P		

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Appendix E3. Periphytic algal densities (no. cells/cm^2) in lakes of the Meliadine Study Area, 1997 and 1998

Species	Meliadine Lake East Basin (ML-E)											Meliadine Lake South Basin (ML-S)						
	July 1997						July 1998					July 1997						
	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE
CHLOROPHYTA (Green Algae)																		
Actinotaenium sp.																		
Ankistrodesmus convolutus																		
Ankistrodesmus falcatus													P					
Ankistrodesmus falcatus v. *spiralis*		P						P										
Ankistrodesmus gelifactus																		
Arthrodesmus triangularis							P	P				P	P	P				
Binuclearia sp.							959	P		320	320							
Botryococcus sp.																		
Bulbochaete sp.	1255	3165	P	369	1197	707	P	P	2006	669	669	381	160		42	465	210	92
Chlamydomonas sp. a																		
Chlamydomonas sp. b																		
Closterium sp.								P										
Closterium acerosum																		
Closterium actum																		
Closterium dianae																		
Closterium pseudolunula																		
Closterium rostratum																		
Coeloastrum sp.												P						
Coeloastrum cambricum																		
Coelastrum microporum																		
Coeloastrum printzii									P									
Coeloastrum sphaericum																		
Cosmarium sp.		P						195		65	65							
Cosmarium anceps		P													42	P	8	8
Cosmarium biculatum			P															
Cosmarium botrytis																		
Cosmarium capitulum v. *groenlandicum*																		
Cosmarium contracta																		
Cosmarium coronatum																		
Cosmarium depressum																		
Cosmarium granulatum		P	139		35	35									P	P		
Cosmarium holmiense v. *intermedium*							P	P	P									
Cosmarium humile v. *lacustre*	P	P										P				232	46	46
Cosmarium impressulum v. *suborthogonun*							92			31	31					209	42	42
Cosmarium laeve													27	P			5	5
Cosmarium norimbergense		P	P											11	P	138	30	27
Cosmarium phaseolus v. *phaseolus*																P		
Cosmarium pokornyanam																		
Cosmarium pseudoprotuberans																		
Cosmarium rectangulare	P		P												125	69	39	25
Cosmarium rectangulum															135	P	27	27
Cosmarium reniforme																		
Cosmarium repandum																		
Cosmarium septentrionale				P			92		P	31	31				288	69	71	56
Cosmarium speciosum	139	413	139		173	87						P	P					
Cosmarium subgranatum																		
Cosmarium tetraopthalmum															P	P		
Cosmarium turpinii	P																	
Cosmarium turpinii v. *podolicum*																		
Crucigenia apiculata																		
Crucigenia quadrata																		
Crucigenia rectangularis																		
Cylindrocystis brebissonii	558	619	558	69	451	128	767	1171	97	678	313	P			42	4765	961	951
Desmidium swartzii v. *quadrangulatum*																		
Dictyosphaerium pulchellum																		
Elakatothrix sp.		P																
Euastropsis richteri																		
Euastrum sp.																		
Euastrum bidentatum															83	P	17	17
Euastrum denticulatum																P		
Euastrum dubium v. *maius*		P	P												P			
Euastrum elegans		138			35	35			73	24	24							
Euastrum gemmatum																		
Euastrum insulare v silesiacum																		
Euastrum obesum																		
Euastrum ohioense																		
Euastrum sinosum																		
Euastrum verrucosum																		
Gemellicystis neglecta																		
Geminella interrupta																		
Gloeocystis schroeteri	1673	2752	2353	145	1731	574	P		P			381	80	23		3254	748	630
Gloeotila pelagica																		
Golenkinia radiata v. *brevispina*																		
Gonatozygon brebissonii																		
Gonatozygon monotaenium	P	138	P		35	35						P						
Hyalotheca sp.																		
Kirchneriella sp.																		
Koliella longiseta																		
Lagerheimia subsalsa																		
Lagerheimia wratislawiensis																		
Micractinium pusillum																		
Monoraphidium sp.														8			2	2
Mougeotia sp. a	1953	P	791	518	816	413	128	185	P	104	55	143				697	168	135
Nephrocytium limneticum															P			
Ooedogonium sp.																		
Oocystis elliptica	837	550	523	P	478	174						509			252		152	102
Oocystis lacustris	873	1239	2092	1307	1378	256	4218	390	2407	2338	1106		107	68	756	1627	512	310
Oocystis solitaria																		
Oonephris obesa																		
Quadrigula closterioides																		
Phacotus sp.		P	523		131	131												
Pandorina morum		P	P															
Pediastrum boryanum			P															
Pediastrum boryanum v. *ellesmerense*																		
Pediastrum duplex																		
Pediastrum duplex v. *clathratum*																		
Pediastrum integrum v. *scutum*																		
Pediastrum tetras																		

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Appendix E3. Periphytic algal densities (no. cells/cm^2) in lakes of the Meliadine Study Area, 1997 and 1998

Species	Meliadine Lake East Basin (ML-E)											Meliadine Lake South Basin (ML-S)						
	July 1997						July 1998					July 1997						
	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE
Penium sp.								P										
Penium margaritaecum																		
Pleurotaenium sp.																		
Pleurotaenium trabecula																		
Protoderma sp.							3068	2733	7622	4474	1577							
Scenedesmus bijuga																P		
Scenedesmus acuminatus																		
Scenedesmus arcuatus																		
Scenedesmus denticulatis															167		33	33
Scenedesmus ecornis																		
Scenedesmus incrassatulus				P			P											
Scenedesmus obliquus																		
Scenedesmus quadricauda			P													813	163	163
Scenedesmus spinosus																		
Scenedesmus wisconsinensis																		
Spirogyra sp.																P		
Staurastrum sp. a	P		P									P	27		P		5	5
Staurastrum sp. b																		
Staurastrum sp. c																		
Staurastrum anatinum v. *biradiatum*																		
Staurastrum antilopaeum																		
Staurastrum anatinum																		
Staurastrum apiculatum																		
Staurastrum borgeanum															P	203	41	41
Staurastrum brebissonii																		
Staurastrum clevei																		
Staurastrum curvatum																		
Staurastrum cuspidatum																		
Staurastrum dejectum																		
Staurastrum furcigerum																		
Staurastrum gladiosum																		
Staurastrum hystrix																		
Staurastrum longebranchiatum																		
Staurastrum lunatum																		
Staurastrum manfeldtii																		
Staurastrum pachyrhynchum		P											P		P	P		
Staurastrum pilosum																		
Staurastrum proboscidium																		
Staurastrum rhabdophorum																		
Staurastrum subcruciatum																		
Staurastrum tetracerum																		
Staurastrum varians								P										
Staurodesmus triangularis																		
Stigeoclonium sp.																		
Teilingia granulata	P		261	92	88	62	P	P	P			32					6	6
Tetraedron tumidulum														P		P		
Tetraedron limneticum																		
Tetraedron lobulatum																		
Tetraedron minimum		138			35	35							P					
Tetraedron muticum																		
Tetraedron arthrodesmiforme																		
Tetraedron caudatum													P					
Tetraedron trigonum																		
Trochiscia granulata															P	232	46	46
Xanthidium antilopaeum																		
Xanthidium subhastiferum v murrayi																		
Zygnema sp.				P			1087	P		362	362	127	87	62			55	25
CYANOPHYTA (Cyanobacteria)																		
Agmenellum quadruplicatum												127					25	25
Agmenellum thermale																3719	744	744
Anabaena sp.		18853			4713	4713	P								208	1395	321	271
Anabaena lapponica																		
Anabaena planctonica																		
Anacystis dimidiata								P				P						
Anacystis marina																		
Anacystis montana												2639	P	806			689	512
Anacystis thermalis	6972	1101		145	2055	1657	767	P		256	256				882	12783	2733	2518
Aphanocapsa elachista																		
Aphanocapsa elachista v. *planctonica*							P	P	P			318				3719	807	730
Aphanothece clathrata																P		
Chlorogloea microcystoides																		
Chroococcus turgidus	P																	
Coccochloris aeruginosa																930	186	186
Coelosphaerium kuetzingianum												381					76	76
Dactylococcopsis linearis																		
Desmonema wrangelii	5578	24358	59353		22322	13398						P	P					
Dichothrix gypsophila	1952	10046	44711	67982	31173	15380	27036	37679	45886	36867	5457	15323	18249	1613	13105	13945	12447	2846
Gloeothece linearis v. *composite*		413	P		103	103												
Gomphosphaeria lacustris		2477	1307	4939	2181	1049		P	5430	1810	1810					3853	771	771
Lyngbya birgei																		
Lyngbya contorta																		
Microcoleus vaginatus		1239			310	310												
Microcystis flos-aquae		1101		2442	886	580			P									
Nostoc commune	8228	P	17013	507	6437	3996	7300		P	2433	2433	254		P	53605	95023	29776	19326
Oncobyrsa cesatii																		
Oscillatoria sp.			P															
Oscillatoria limosa																		
Pseudanabaena sp.							P	2733	5527	2753	1596							
Schizogonium murale																		
Schizothrix calcicola	43927	103074	83670	35153	66456	16136	149645	131390	205593	162209	22323	11508	8031	3180	19405	76233	23671	13404
Scopulonema minus								195	2639	945	849							
Stigonema mamillosum												254	P				51	51
Unidentified Cyanophyte akinete							192			64	64					232	46	46
Total Algal Density (No. cells/cm²)	116474	304066	270477	141732	208187	46458	213393	189643	290921	231319	30579	40620	30499	7688	134133	296811	101950	53272

[a] P = present, but not encountered during routine cell counts; SE = standard error.

Appendix E3. Periphytic algal densities (no. cells/cm^2) in lakes of the Meliadine Study Area, 1997 and 1998

Species	Meliadine Lake South Basin (ML-S)					Meliadine Lake Southeast Basin (ML-SE)					Meliadine Lake West Basin (ML-W)						
	July 1998					July 1998					July 1997						
	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE
BACILLARIOPHYTA (Diatoms)																	
Achnanthes detha											2092		1335			685	436
Achnanthes flexella	P		P				P	P				P	P	P	P		
Achnanthes lanceolata	P		P								P				15	3	3
Achnanthes minutissima	2887	4066	6136	4363	950	185	1058	743	662	255	29808	210482	45507	858	725	57476	39208
Achnanthes minutissima v.*cryptocephala*	P	P	P			P	59	60	40	20	698	6275	890	43		1581	1187
Amphipleura sp.																	
Amphora sp.																	
Amphora ovalis	P		P					P			P	P	P		P		
Amphora ovalis v. *pediculus*																	
Anomoeoneis sp.																	
Anomoeoneis vitrea	P	P	P										P				
Asterionella formosa	P	P	P					P					P				
Caloneis sp.	P	P	P					P									
Caloneis ventricosa																	
Caloneis ventricosa v. *truncatula*											P	P	223			45	45
Cocconeis diminuta																	
Cocconeis pediculus																	
Cocconeis placentula	P		P														
Cocconeis placentula v. *euglypta*												P					
Cocconeis sp.							P	P									
Coscinodiscus denarius																	
Coscinodiscus lacustris																	
Cyclotella sp.														43		9	9
Cyclotella antiqua	P										P						
Cyclotella comta	P	P	P								P	P	P				
Cyclotella glomerata	P	P					P										
Cyclotella kutzingiana	P											P	P				
Cyclotella meneghiniana												P					
Cyclotella ocellata	P					P						P	P		P		
Cyclotella striata		P	P									P	P		P		
Cymbella affinis	603	P	P	201	201	P											
Cymbella amphioxys											P	P	P				
Cymbella aspera																	
Cymbella cistula																	
Cymbella cuspidata												P	P				
Cymbella cymbiformis	P		P								P	P					
Cymbella cymbiformis v. *nonpunctata*											437	523	P			192	118
Cymbella gracilis	P	P	P											P			
Cymbella lanceolata		739		246	246												
Cymbella mexicanum v. *janischii*		P															
Cymbella minuta	P	370	P	123	123	92	59	211	121	46	1046	1747	445	72		662	329
Cymbella naviculiformis	P		P			P		P									
Cymbella sinuata											P						
Cymbella tumida																	
Cymbella turgida											P		88			18	18
Cymbella turgidula																	
Cymbella sp.											P	P	P		P		
Denticula tenuis	P	P	P			P	51	181	77	54	P	P	P				
Diatoma elongatum	3429	739	4448	2872	1106	624	216	61	300	168	13249	P	223	76	433	2796	2614
Diatoma vulgare														156		31	31
Didymosphenia geminata																	
Diploneis sp.	P					P		P						P	P		
Diploneis elliptica											P	P	P				
Diploneir finnica																	
Diploneis interrupta																	
Diploneis ovalis													P				
Epithemia sorex	P	P	P					P			558	18041	2096	39	15	4150	3493
Eunotia arcus																	
Eunotia exigua												P	P				
Eunotia flexuosa																	
Eunotia glacialis	P	1109		370	370									P			
Eunotia maior																	
Eunotia papilio												P					
Eunotia praerupta	P	P	P								P	P	P	P			
Eunotia praerupta v. *bidens*																	
Eunotia sudetica																	
Eunotia sp.											523	P				105	105
Fragilaria brevistriata																	
Fragilaria construens	P		P				P	P									
Fragilaria crotonensis		1109	P	370	370						P						
Fragilaria intermedia																	
Fragilaria pinnata	P		P				P	P			P	P			29	6	6
Frustulia vulgaris											P						
Gomphonema sp.																	
Gomphonema acuminatum	P																
Gomphonema acuminatum v. *coronata*											P						
Gomphonema angustatum	722	P	P	241	241			P			P		P		15	3	3
Gomphonema constrictum											P						
Gomphonema gracile	P	370	409	260	130												
Gomphonema intricatum v. *vibrio*																	
Gomphonema olivaceum			P														
Gomphonema parvulum											P						
Gyrosigma sp																	
Hantzschia amphioxys		P															
Melosira sp.														57		11	11
Melosira granulata																	
Meridion circulare																	
Navicula sp.							P				P		P		P		
Navicula amphibola												P	P				
Navicula anglica							P	P									
Navicula aspera																	
Navicula bacillum																	
Navicula decussis																	
Navicula dolosa												P					
Navicula capitata							P	P									
Navicula cryptocephala	P	P	P				235	61	99	70		2092		29	33	431	415
Navicula cryptocephala v. *intermedia*											523	9758	1780	P		2412	1865
Navicula cuspidata																	

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Appendix E3. Periphytic algal densities (no. cells/cm^2) in lakes of the Meliadine Study Area, 1997 and 1998

Species	Meliadine Lake South Basin (ML-S)					Meliadine Lake Southeast Basin (ML-SE)					Meliadine Lake West Basin (ML-W)						
	July 1998					July 1998					July 1997						
	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE
Navicula exigua											P	523	P	P	P	105	105
Navicula exigua v. *capitata*																	
Navicula lacustris																	
Navicula laevissima																	
Navicula lanceolata						92			31	31							
Navicula mutica																	
Navicula placenta																	
Navicula pseudoscutiformis																	
Navicula pupula		P					P	P					P		P		
Navicula radiosa		P									494	523	P	P	P	203	125
Navicula reinhardtii																	
Navicula rhynchocephala																	
Navicula tripunctata		P															
Navicula tripunctata v. *schizonemoides*																	
Navicula viridula	242	739	807	596	178									P	10	2	2
Nedium sp.																	
Nedium bisulcatum																	
Nedium dubium																	
Nedium hitchcockii														P			
Nedium iridis v. *amphigomphus*												P	P				
Nitzschia sp.						P	P	P							P		
Nitzschia acicularis																	
Nitzschia amphibia											P	1046	P			209	209
Nitzschia angustata	P	P									P	1046	P		P	209	209
Nitzschia dissipata																	
Nitzschia filiformis	361	185	P	182	104	81	176	121	126	28	P	P	P		29	6	6
Nitzschia fonticola		P	P				P				1700	P	P			340	340
Nitzschia palea	P	P															
Nitzschia sigmoidea		P	P				178		59	59		P	P		P		
Pinnularia sp.												P	P	P	P		
Pinnularia biceps											P		P				
Pinnularia borealis																	
Pinnularia maior																	
Pinnularia mesolepta	P						P	P									
Pinnularia nodosa												P	P				
Pinnularia streptoraphe																	
Pinnularia viridis																	
Rhizosolenia longiseta																	
Rhoicosphenia curvata																	
Rhopalodia gibba	P	P	P				7	P	2	2	P	P	P	P			
Rhopa;pdoa gebberula																	
Stauroneis anceps	P	P	P			P							P	P			
Stauroneis phoenicenteron													P				
Stauroneis smithii																	
Stauroneis sp.								P									
Stephanodiscus astraea	P		P								P		P	P	15	3	3
Surirella sp.	P						P				P	P					
Surirella angustata																	
Synedra actinastroides	6271	12492	6290	8351	2071	5987	4104	4057	4716	636	3007	30592	2449		345	7279	5857
Synedra acus			P														
Synedra sp.																	
Synedra ulna	271	P	P	90	90	277	29		102	88		345	P			69	69
Tabellaria fenestrata	722	1663	3375	1920	777	P	P	346	115	115	P	1046		P	P	209	209
Tabellaria flocculosa	4281	1109	4642	3344	1122	P	103	226	110	65	558	13596	1335	57	59	3121	2629
CRYPTOPHYTA (Cryptomonads)																	
Cryptomonas curvata																	
Cryptomonas erosa																	
Cryptomonas ovata								60	20	20	P		P				
Cryptomonas reflexa																	
Katablepharis ovalis																	
Rhodomonas minuta																	
CHRYSOPHYTA (Golden-Brown Algae)																	
Chrysidiastrum catenatum	361			120	120	92		60	51	27							
Chrysococcus sp.											261		223			97	60
Chrysoikos sp.																	
Chrysosphaerella rodhei																	
Dinobryon crenulatum							59		20	20							
Dinobryon divergens	361	1756		706	535	P		121	40	40					29	6	6
Dinobryon sertularia	1434	2218	818	1490	405	P	235	181	139	71		P	P	P	323	65	65
Dinobryon sertularia v. *protuberans*	7128	6099	9408	7545	978	516	397	402	438	39	261	1046		43	1471	564	295
Dinobryon sociale	1083	924	2045	1351	350	1063	323	482	623	225	261	1046	P	14	1025	469	236
Dinobryon tabellariae	P	P	818	273	273	92	265		119	78	P				29	6	6
Ishtmochloron trispinatum	178	P	P	59	59	P	118	60	59	34		1046	P	P	59	221	207
Kephyrion sp.																	
Kephyrion boreale	P	P	818	273	273	92	118	P	70	36		P					
Ochromonas spa	1083	3696	818	1866	918		235	4350	1528	1412					44	9	9
Ochromonas stellaris							P										
Ophiocytium sp.													P				
Pseudokephyrion sp.																	
Stichogloea doederleinii	263	14415	3272	5983	4304	92			31	31							
Synura sp.																	
Unidentified statospore	361	739	614	571	111	554	59	663	425	186	1307	2092	668	186	902	1031	321
PYRROPHYTA (Dinoflagellates)																	
Glenodinium sp.																	
Gymnodinium sp.																	
Gymnodinium uberrimum	156	863	202	407	228	92	P		31	31	P	1046	P		44	218	207
Peridinium sp.	P	P	404	135	135		P	P				P	88			18	18
Peridinium aciculiferum		185	P	62	62	185	74	241	167	49	261			107	15	77	50
Peridinium cinctum		P	P			P		P						11	5	3	2
Peridinium palatinum		P															
Peridinium palustre																	
Peridinium willei																	
Unidentified cyst	1083	277	202	521	282	P	103	151	85	45		1046	223	14	70	271	198
EUGLENOPHYTA (Euglenoids)																	
Euglena sp.																	
Phacus sp.																	
Trachelomonas sp.																	

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Appendix E3. Periphytic algal densities (no. cells/cm^2) in lakes of the Meliadine Study Area, 1997 and 1998

Species	Meliadine Lake South Basin (ML-S)					Meliadine Lake Southeast Basin (ML-SE)					Meliadine Lake West Basin (ML-W)						
	July 1998					July 1998					July 1997						
	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE
CHLOROPHYTA (Green Algae)																	
Actinotaenium sp.	156			52	52												
Ankistrodesmus convolutus																	
Ankistrodesmus falcatus	178	P		59	59	92		60	51	27							
Ankistrodesmus falcatus v. *spiralis*		P				P		P				1046	P			209	209
Ankistrodesmus gelifactus																	
Arthrodesmus triangularis	P	P										P	P		15	3	3
Binuclearia sp.		1109		370	370			P									
Botryococcus sp.								P									
Bulbochaete sp.	1427	P	8181	3203	2523	P	P	121	40	40	P	4183	P	P		837	837
Chlamydomonas sp. a																	
Chlamydomonas sp. b																	
Closterium sp.																	
Closterium acerosum																	
Closterium actum																	
Closterium dianae																	
Closterium pseudolunula																	
Closterium rostratum																	
Coeloastrum sp.																	
Coeloastrum cambricum																	
Coelastrum microporum													P				
Coeloastrum printzii	P	739	P	246	246	P		P									
Coeloastrum sphaericum	P		P					P									
Cosmarium sp.		185	202	129	65												
Cosmarium anceps												261			P	52	52
Cosmarium biculatum							P				P						
Cosmarium botrytis																	
Cosmarium capitulum v. *groenlandicum*																	
Cosmarium contracta													P				
Cosmarium coronatum																	
Cosmarium depressum													P				
Cosmarium granulatum	178	P	P	59	59						139		445			117	86
Cosmarium holmiense v. *intermedium*	178	P	P	59	59			P				P					
Cosmarium humile v. *lacustre*	P	185	409	198	118	P	P					P	88			18	18
Cosmarium impressulum v. *suborthogonun*		P	P				P	P									
Cosmarium laeve																	
Cosmarium norimbergense		P	P								P		264	P		53	53
Cosmarium phaseolus v. *phaseolus*	P	P	404	135	135												
Cosmarium pokornyanam	P																
Cosmarium pseudoprotuberans																	
Cosmarium rectangulare			P								P		P				
Cosmarium rectangulum		P															
Cosmarium reniforme																	
Cosmarium repandum																	
Cosmarium septentrionale	1070	370	409	616	227	P	P	P						P	P		
Cosmarium speciosum	P	P	P								139	P	308			89	61
Cosmarium subgranatum		P															
Cosmarium tetraopthalmum		P										P	88			18	18
Cosmarium turpinii												P					
Cosmarium turpinii v. *podolicum*																	
Crucigenia apiculata																	
Crucigenia quadrata													P				
Crucigenia rectangularis																	
Cylindrocystis brebissonii	981	3696	P	1559	1105	P	59	60	40	20	558	4183	4562	43	44	1878	1024
Desmidium swartzii v. *quadrangulatum*																	
Dictyosphaerium pulchellum																	
Elakatothrix sp.	357	P	818	392	237	P	P	241	80	80							
Euastropsis richteri																	
Euastrum sp.		P															
Euastrum bidentatum																	
Euastrum denticulatum																	
Euastrum dubium v. *maius*	89	P	P	30	30			P			P						
Euastrum elegans	P	185		62	62										P		
Euastrum gemmatum													P				
Euastrum insulare v silesiacum																	
Euastrum obesum																	
Euastrum ohioense																	
Euastrum sinosum																	
Euastrum verrucosum																	
Gemellicystis neglecta																	
Geminella interrupta																	
Gloeocystis schroeteri	P	1109		370	370			60	20	20	2353	13596	2225	14	293	3696	2521
Gloeotila pelagica																	
Golenkinia radiata v. *brevispina*	178			59	59		59		20	20		P					
Gonatozygon brebissonii			P														
Gonatozygon monotaenium											P		88		15	21	17
Hyalotheca sp.		P															
Kirchneriella sp.															15	3	3
Koliella longiseta																	
Lagerheimia subsalsa																	
Lagerheimia wratislawiensis																	
Micractinium pusillum																	
Monoraphidium sp.																	
Mougeotia sp. a	847	1051		633	322	P		P			791	1830	1446	36	P	821	367
Nephrocytium limneticum																	
Ooedogonium sp.								P									
Oocystis elliptica	713	P	P	238	238	185		105	97	54	523		P	86	205	163	98
Oocystis lacustris	12452	7393	9306	9717	1475	5452	2705	1205	3121	1243	2092	20917	3060		44	5223	3968
Oocystis solitaria																	
Oonephris obesa																	
Quadrigula closterioides																	
Phacotus sp.											523	2092				523	405
Pandorina morum											P		P				
Pediastrum boryanum											P						
Pediastrum boryanum v. *ellesmerense*			P														
Pediastrum duplex																	
Pediastrum duplex v. *clathratum*																	
Pediastrum integrum v. *scutum*																	
Pediastrum tetras							470		157	157							

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Appendix E3. Periphytic algal densities (no. cells/cm^2) in lakes of the Meliadine Study Area, 1997 and 1998

Species	Meliadine Lake South Basin (ML-S)					Meliadine Lake Southeast Basin (ML-SE)					Meliadine Lake West Basin (ML-W)						
	July 1998					July 1998					July 1997						
	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE
Penium sp.	P																
Penium margaritaecum																	
Pleurotaenium sp.																	
Pleurotaenium trabecula																	
Protoderma sp.																	
Scenedesmus bijuga															29	6	6
Scenedesmus acuminatus																	
Scenedesmus arcuatus																	
Scenedesmus denticulatis																	
Scenedesmus ecornis																	
Scenedesmus incrassatulus		1479		493	493			P									
Scenedesmus obliquus																	
Scenedesmus quadricauda			P								P	P			44	9	9
Scenedesmus spinosus		P															
Scenedesmus wisconsinensis																	
Spirogyra sp.								P									
Staurastrum sp. a	P	P	P								P			P			
Staurastrum sp. b																	
Staurastrum sp. c																	
Staurastrum anatinum v. *biradiatum*																	
Staurastrum antilopaeum																	
Staurastrum anatinum																	
Staurastrum apiculatum																	
Staurastrum borgeanum	P	P	P									P					
Staurastrum brebissonii																	
Staurastrum clevei																	
Staurastrum curvatum																	
Staurastrum cuspidatum																	
Staurastrum dejectum		P				P		40	13	13							
Staurastrum furcigerum																	
Staurastrum gladiosum																	
Staurastrum hystrix																	
Staurastrum longebranchiatum																	
Staurastrum lunatum																	
Staurastrum manfeldtii																	
Staurastrum pachyrhynchum	P	185	P	62	62							P	P		P		
Staurastrum pilosum																	
Staurastrum proboscidium																	
Staurastrum rhabdophorum																	
Staurastrum subcruciatum																	
Staurastrum tetracerum	P	P															
Staurastrum varians		P															
Staurodesmus triangularis																	
Stigeoclonium sp.		2957		986	986												
Teilingia granulata	1083		1015	699	350	370	176	60	202	90	261	2092	264	14	29	532	394
Tetraedron tumidulum															P		
Tetraedron limneticum																	
Tetraedron lobulatum																	
Tetraedron minimum	P														P		
Tetraedron muticum																	
Tetraedron arthrodesmiforme																	
Tetraedron caudatum						P											
Tetraedron trigonum																	
Trochiscia granulata														14		3	3
Xanthidium antilopaeum																	
Xanthidium subhastiferum v murrayi						P											
Zygnema sp.	P	1756	1009	922	509										298	60	60
CYANOPHYTA (Cyanobacteria)																	
Agmenellum quadruplicatum															293	59	59
Agmenellum thermale	1444			481	481	185	P	1506	564	474							
Anabaena sp.	3970	739	P	1570	1219							12550				2510	2510
Anabaena lapponica																	
Anabaena planctonica	P																
Anacystis dimidiata	361	731	P	364	211							P					
Anacystis marina																	
Anacystis montana														100		20	20
Anacystis thermalis		23656	21596	15084	7565							27193	445			5528	5417
Aphanocapsa elachista			118216	39405	39405	5360	6174	8074	6536	804							
Aphanocapsa elachista v. *planctonica*	281886	90928	8181	126998	81044								4005			801	801
Aphanothece clathrata		11089	7363	6151	3258							8367	1780		1804	2390	1547
Chlorogloea microcystoides																	
Chroococcus turgidus												P	890		15	181	177
Coccochloris aeruginosa	891			297	297	92		1687	593	548							
Coelosphaerium kuetzingianum														57	748	161	147
Dactylococcopsis linearis	P	P	5727	1909	1909		P										
Desmonema wrangelii											59353		2003			12271	11777
Dichothrix gypsophila	33566	29200	417234	160000	128623	54797	42192	39709	45566	4671	44711	P	30041	5079	1995	16365	8922
Gloeothece linearis v. *composite*											P						
Gomphosphaeria lacustris		P	P				2352	P	784	784	1307	228006	24478			50758	44557
Lyngbya birgei																	
Lyngbya contorta		P															
Microcoleus vaginatus	P					P						P					
Microcystis flos-aquae	39341	P	P	13114	13114										P		
Nostoc commune	P	P	P			24211	17288	15185	18895	2727	17013	135964	60193	2332	220	43144	25590
Oncobyrsa cesatii																	
Oscillatoria sp.											P						
Oscillatoria limosa																	
Pseudanabaena sp.		5175	19982	8386	5988	P	P										
Schizogonium murale																	
Schizothrix calcicola	695871	623929	618897	646232	24862	140088	65567	91710	99122	21829	83670	109817	29928	3605	5134	46431	21467
Scopulonema minus	21656	11828	8181	13888	4024	370	529		300	157							
Stigonema mamillosum	P																
Unidentified Cyanophyte akinete																	
Total Algal Density (No. cells/cm²)	1132153	875536	1292656	1100115	121473	241318	145832	172661	186604	28432	270477	877054	224174	13187	16978	280374	158122

[a] P = present, but not encountered during routine cell counts; SE = standard error.

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Appendix E3. Periphytic algal densities (no. cells/cm^2) in lakes of the Meliadine Study Area, 1997 and 1998

Species	Meliadine Lake West Basin (ML-W)					Little Meliadine Lake (LML)					Peter Lake (PL)						
	July 1998					July 1998					July 1998						
	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE
BACILLARIOPHYTA (Diatoms)																	
Achnanthes detha																	
Achnanthes flexella	P	P	P			P	P				P				P		
Achnanthes lanceolata						P	P	P						P	P		
Achnanthes minutissima	745	170	199	371	187	27099	29099	32961	29720	1720	1937	P	258	P	P	439	378
Achnanthes minutissima v.*cryptocephala*	88	85	100	91	5	P	371		124	124	P	P	177	P	736	183	143
Amphipleura sp.		P						P			P						
Amphora sp.		P															
Amphora ovalis	P					P	P	P									
Amphora ovalis v. *pediculus*	P						P	P									
Anomoeoneis sp.																	
Anomoeoneis vitrea			P					P				P					
Asterionella formosa			P				P					P					
Caloneis sp.	P													P			
Caloneis ventricosa						P	P	P									
Caloneis ventricosa v. *truncatula*																	
Cocconeis diminuta						P											
Cocconeis pediculus											P						
Cocconeis placentula																	
Cocconeis placentula v. *euglypta*						P					P		P		P		
Cocconeis sp.								P									
Coscinodiscus denarius																	
Coscinodiscus lacustris																	
Cyclotella sp.																	
Cyclotella antiqua						P											
Cyclotella comta			P			P	P	P			P	P	258	682	P	188	133
Cyclotella glomerata	P										P				P		
Cyclotella kutzingiana	P					P	P				P						
Cyclotella meneghiniana																	
Cyclotella ocellata			P			P	P	P							P		
Cyclotella striata						P	P	706	235	235							
Cymbella affinis						1122	1605	P	909	475							
Cymbella amphioxys																	
Cymbella aspera																	
Cymbella cistula																	
Cymbella cuspidata			P			P		P									
Cymbella cymbiformis								P									
Cymbella cymbiformis v. *nonpunctata*																	
Cymbella gracilis							P	P									
Cymbella lanceolata							P										
Cymbella mexicanum v. *janischii*																	
Cymbella minuta	77	P	P	26	26	2746	371	2999	2039	837	P	P	P	341	245	117	73
Cymbella naviculiformis		P				P	P	P									
Cymbella sinuata																	
Cymbella tumida																	
Cymbella turgida							P	P						P			
Cymbella turgidula																	
Cymbella sp.								351	117	117							
Denticula tenuis							P								P		
Diatoma elongatum	833	341	398	524	155	6704	3429	3264	4466	1120	645	256	2324	657	1717	1120	387
Diatoma vulgare																	
Didymosphenia geminata																	
Diploneis sp.																	
Diploneis elliptica						P	P	P									
Diploneir finnica																	
Diploneis interrupta																	
Diploneis ovalis							P	P									
Epithemia sorex	P	P				655	362	353	457	99							
Eunotia arcus																	
Eunotia exigua																	
Eunotia flexuosa																	
Eunotia glacialis		P					P	353	118	118		P					
Eunotia maior								P									
Eunotia papilio		P															
Eunotia praerupta			P			1497	362	175	678	413	P		P	P	P		
Eunotia praerupta v. *bidens*							P										
Eunotia sudetica																	
Eunotia sp.		P															
Fragilaria brevistriata																	
Fragilaria construens	P					P	P	P						P	P		
Fragilaria crotonensis	P					P	P	P			P		P	P			
Fragilaria intermedia																	
Fragilaria pinnata	P	85	P	28	28	P	P	P			P				1472	294	294
Frustulia vulgaris			P				P										
Gomphonema sp.															P		
Gomphonema acuminatum						374	P	P	125	125							
Gomphonema acuminatum v. *coronata*																	
Gomphonema angustatum								P				P	86			17	17
Gomphonema constrictum																	
Gomphonema gracile						374	P	P	125	125				438		88	88
Gomphonema intricatum v. *vibrio*																	
Gomphonema olivaceum							P	P									
Gomphonema parvulum													P				
Gyrosigma sp								P									
Hantzschia amphioxys		P					P	P									
Melosira sp.		P					P	P						P	P		
Melosira granulata								P									
Meridion circulare																	
Navicula sp.													P		P		
Navicula amphibola																	
Navicula anglica							556		185	185							
Navicula aspera																	
Navicula bacillum						P		P									
Navicula decussis																	
Navicula dolosa																	
Navicula capitata																	
Navicula cryptocephala	P	P	P			374	633	1295	767	274			P	P			
Navicula cryptocephala v. *intermedia*								P									
Navicula cuspidata																	

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Appendix E3. Periphytic algal densities (no. cells/cm^2) in lakes of the Meliadine Study Area, 1997 and 1998

Species	Meliadine Lake West Basin (ML-W)					Little Meliadine Lake (LML)					Peter Lake (PL)						
	July 1998					July 1998					July 1998						
	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE
Navicula exigua																	
Navicula exigua v. *capitata*																	
Navicula lacustris							P	P									
Navicula laevissima																	
Navicula lanceolata						2245		2410	1552	777	P						
Navicula mutica						P		P									
Navicula placenta								P									
Navicula pseudoscutiformis																	
Navicula pupula	P	P	P				P	P					P	P			
Navicula radiosa						3367	528	353	1416	977				P	P		
Navicula reinhardtii			P					P									
Navicula rhynchocephala																	
Navicula tripunctata							P										
Navicula tripunctata v. *schizonemoides*																	
Navicula viridula		85	100	62	31	P	452	1814	755	545							
Nedium sp.														P			
Nedium bisulcatum																	
Nedium dubium																	
Nedium hitchcockii	P						P										
Nedium iridis v. *amphigomphus*																	
Nitzschia sp.		P					P							P	P		
Nitzschia acicularis																	
Nitzschia amphibia							P						353			71	71
Nitzschia angustata							P	P									
Nitzschia dissipata											P						
Nitzschia filiformis	88	57	P	48	26	374	723	352	483	120				341		68	68
Nitzschia fonticola			P			P	P	P									
Nitzschia palea			P														
Nitzschia sigmoidea	P					748	P	P	249	249			P	P			
Pinnularia sp.	P		P			P	P	P				P		P			
Pinnularia biceps																	
Pinnularia borealis																	
Pinnularia maior								P									
Pinnularia mesolepta			P			P	P										
Pinnularia nodosa																	
Pinnularia streptoraphe																	
Pinnularia viridis																	
Rhizosolenia longiseta																	
Rhoicosphenia curvata																	
Rhopalodia gibba	P		P			P	302	153	152	87							
Rhopa;pdoa gebberula																	
Stauroneis anceps	P	P	P			P	P	P						P	P		
Stauroneis phoenicenteron																	
Stauroneis smithii																	
Stauroneis sp.																	
Stephanodiscus astraea			P			374	P	P	125	125							
Surirella sp.						P	P										
Surirella angustata																	
Synedra actinastroides	658	2888	2785	2110	727	12784	9574	9844	10734	1028	7666	2585	6435	8921	6644	6450	1062
Synedra acus						251			84	84			P	1364		273	273
Synedra sp.																	
Synedra ulna		P	P			P	P	P									
Tabellaria fenestrata	164	P	697	287	210	748	P	1052	600	313		P	P	682	239	184	133
Tabellaria flocculosa	351	2001	623	992	511	561	4881	202	1881	1503	6107	1304	2697	5406	9378	4979	1406
CRYPTOPHYTA (Cryptomonads)																	
Cryptomonas curvata																	
Cryptomonas erosa																	
Cryptomonas ovata																	
Cryptomonas reflexa																	
Katablepharis ovalis																	
Rhodomonas minuta																	
CHRYSOPHYTA (Golden-Brown Algae)																	
Chrysidiastrum catenatum													P				
Chrysococcus sp.																	
Chrysoikos sp.																	
Chrysosphaerella rodhei																	
Dinobryon crenulatum																	
Dinobryon divergens	88		P	29	29	1747	619	353	906	427	387	67	P	P	P	91	75
Dinobryon sertularia	P	85	100	62	31		371		124	124		67	P	P		13	13
Dinobryon sertularia v. *protuberans*	1545	2150	971	1555	340	P	371	3175	1182	1002	145	735	530	569	491	494	97
Dinobryon sociale	986	312	1096	798	245	655	649	353	552	100	194	936	660	1704	245	748	275
Dinobryon tabellariae	175	85	199	153	35	374			125	125			P				
Ishtmochloron trispinatum	P	85	100	62	31		371	353	241	121	194	100	P	438	358	218	81
Kephyrion sp.	88			29	29												
Kephyrion boreale	438	255	199	297	72		741	353	365	214			530			106	106
Ochromonas spa	789	1192	1594	1192	232	748			249	249	1	402				81	80
Ochromonas stellaris								706	235	235							
Ophiocytium sp.			P								P						
Pseudokephyrion sp.																	
Stichogloea doederleinii	2280	3788	2565	2878	463	748	741	353	614	131	1259	267	259			357	233
Synura sp.		85		28	28												
Unidentified statospore	263	85	100	149	57		1112	14406	5173	4628		267	530	P	P	159	106
PYRROPHYTA (Dinoflagellates)																	
Glenodinium sp.																	
Gymnodinium sp.																	
Gymnodinium uberrimum	P		P			P	181	351	177	101			P				
Peridinium sp.	P		P			P		P			P						
Peridinium aciculiferum	175	P	P	58	58	P	181	877	353	267		P	P	P	245	49	49
Peridinium cinctum			P				P	P					P				
Peridinium palatinum																	
Peridinium palustre																	
Peridinium willei																	
Unidentified cyst	175	255	P	143	75	1947	1175	2530	1884	392	96	67				33	20
EUGLENOPHYTA (Euglenoids)																	
Euglena sp.																	
Phacus sp.							P										
Trachelomonas sp.															P		

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Appendix E3. Periphytic algal densities (no. cells/cm^2) in lakes of the Meliadine Study Area, 1997 and 1998

Species	Meliadine Lake West Basin (ML-W)					Little Meliadine Lake (LML)					Peter Lake (PL)						
	July 1998					July 1998					July 1998						
	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE
CHLOROPHYTA (Green Algae)																	
Actinotaenium sp.																	
Ankistrodesmus convolutus																	
Ankistrodesmus falcatus							741	P	247	247				P			
Ankistrodesmus falcatus v. *spiralis*								P						P			
Ankistrodesmus gelifactus																	
Arthrodesmus triangularis	P					P					P	P		P	P		
Binuclearia sp.	P		P					701	234	234			P				
Botryococcus sp.																	
Bulbochaete sp.	351		P	117	117	P	181	P	60	60	P	67	787	3835	P	938	739
Chlamydomonas sp. a							649		216	216							
Chlamydomonas sp. b						374			125	125							
Closterium sp.																	
Closterium acerosum																	
Closterium actum																	
Closterium dianae																	
Closterium pseudolunula																	
Closterium rostratum																	
Coeloastrum sp.																	
Coeloastrum cambricum																	
Coelastrum microporum																	
Coeloastrum printzii	P	213	100	104	62		371		124	124	P	P			P		
Coeloastrum sphaericum							P										
Cosmarium sp.						P		307	102	102							
Cosmarium anceps																	
Cosmarium biculatum								P									
Cosmarium botrytis																	
Cosmarium capitulum v. *groenlandicum*																	
Cosmarium contracta																	
Cosmarium coronatum																	
Cosmarium depressum																	
Cosmarium granulatum						P		P									
Cosmarium holmiense v. *intermedium*		P	P			P							P	P			
Cosmarium humile v. *lacustre*	P					P	P	P									
Cosmarium impressulum v. *suborthogonum*						374	P	353	242	121							
Cosmarium laeve																	
Cosmarium norimbergense	88			29	29	P											
Cosmarium phaseolus v. *phaseolus*	P					P	P	P					P				
Cosmarium pokornyanam																	
Cosmarium pseudoprotuberans																	
Cosmarium rectangulare						P	P	P									
Cosmarium rectangulum		P															
Cosmarium reniforme																	
Cosmarium repandum																	
Cosmarium septentrionale	P	P				P	P	570	190	190	P	67	58	P		25	15
Cosmarium speciosum												P					
Cosmarium subgranatum																	
Cosmarium tetraopthalmum								P									
Cosmarium turpinii							P										
Cosmarium turpinii v. *podolicum*																	
Crucigenia apiculata																	
Crucigenia quadrata						1497			499	499							
Crucigenia rectangularis																	
Cylindrocystis brebissonii	351	85	P	145	106	9821	11491	P	7104	3585	P	P	P				
Desmidium swartzii v. *quadrangulatum*																	
Dictyosphaerium pulchellum																	
Elakatothrix sp.	P		P				741	351	364	214	P		P	219		44	44
Euastropsis richteri																	
Euastrum sp.																	
Euastrum bidentatum							P										
Euastrum denticulatum																	
Euastrum dubium v. *maius*			100	33	33	P	181	P	60	60							
Euastrum elegans			P				P	P				P	P				
Euastrum gemmatum																	
Euastrum insulare v silesiacum																	
Euastrum obesum							P										
Euastrum ohioense																	
Euastrum sinosum																	
Euastrum verrucosum								175	58	58							
Gemellicystis neglecta																	
Geminella interrupta																	
Gloeocystis schroeteri	438	P	398	279	140		P	1058	353	353	387	P	177		P	113	77
Gloeotila pelagica						374			125	125							
Golenkinia radiata v. *brevispina*																	
Gonatozygon brebissonii							P										
Gonatozygon monotaenium																	
Hyalotheca sp.																	
Kirchneriella sp.																	
Koliella longiseta																	
Lagerheimia subsalsa																	
Lagerheimia wratislawiensis																	
Micractinium pusillum																	
Monoraphidium sp.																	
Mougeotia sp. a	P	P	P			P	542		181	181	P	P	P	438	P	88	88
Nephrocytium limneticum																	
Ooedogonium sp.																	
Oocystis elliptica	438	85		174	134		3435	3528	2321	1161		P	P				
Oocystis lacustris	438	1277	1494	1070	322	2619	5190	4940	4250	819	387	134	177		736	287	128
Oocystis solitaria																	
Oonephris obesa															597	119	119
Quadrigula closterioides																	
Phacotus sp.																	
Pandorina morum																	
Pediastrum boryanum																	
Pediastrum boryanum v. *ellesmerense*						P											
Pediastrum duplex																	
Pediastrum duplex v. *clathratum*																	
Pediastrum integrum v. *scutum*																	
Pediastrum tetras																	

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Appendix E3. Periphytic algal densities (no. cells/cm^2) in lakes of the Meliadine Study Area, 1997 and 1998

Species	Meliadine Lake West Basin (ML-W)					Little Meliadine Lake (LML)					Peter Lake (PL)						
	July 1998					July 1998					July 1998						
	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE
Penium sp.																	
Penium margaritaecum																	
Pleurotaenium sp.																	
Pleurotaenium trabecula																	
Protoderma sp.						9727	16559		8762	4804							
Scenedesmus bijuga							1483	1411	965	483							
Scenedesmus acuminatus																	
Scenedesmus arcuatus																	
Scenedesmus denticulatis																	
Scenedesmus ecornis																	
Scenedesmus incrassatulus			P			1497	1483	P	993	497		P					
Scenedesmus obliquus																	
Scenedesmus quadricauda							P	1411	470	470							
Scenedesmus spinosus																	
Scenedesmus wisconsinensis																	
Spirogyra sp.	P											P					
Staurastrum sp. a			100	33	33	P	P	P					P				
Staurastrum sp. b																	
Staurastrum sp. c																	
Staurastrum anatinum v. *biradiatum*																	
Staurastrum antilopaeum																	
Staurastrum anatinum																	
Staurastrum apiculatum																	
Staurastrum borgeanum		P	P			374	P	P	125	125		P					
Staurastrum brebissonii																	
Staurastrum clevei																	
Staurastrum curvatum																	
Staurastrum cuspidatum																	
Staurastrum dejectum							P	P									
Staurastrum furcigerum						P											
Staurastrum gladiosum																	
Staurastrum hystrix																	
Staurastrum longebranchiatum																	
Staurastrum lunatum																	
Staurastrum manfeldtii																	
Staurastrum pachyrhynchum								P									
Staurastrum pilosum																	
Staurastrum proboscidium																	
Staurastrum rhabdophorum																	
Staurastrum subcruciatum																	
Staurastrum tetracerum							P										
Staurastrum varians		85		28	28		P	P									
Staurodesmus triangularis																	
Stigeoclonium sp.																	
Teilingia granulata	438	255	398	364	56	748	3336	706	1597	870	387	67				91	75
Tetraedron tumidulum			50	17	17	374			125	125							
Tetraedron limneticum																	
Tetraedron lobulatum																	
Tetraedron minimum						374		253	209	110							
Tetraedron muticum							371	353	241	121							
Tetraedron arthrodesmiforme								P									
Tetraedron caudatum											P	P					
Tetraedron trigonum																	
Trochiscia granulata																	
Xanthidium antilopaeum																	
Xanthidium subhastiferum v murrayi																	
Zygnema sp.	P	P					P	P			1098	P	P		2004	620	406
CYANOPHYTA (Cyanobacteria)																	
Agmenellum quadruplicatum																	
Agmenellum thermale		P				P		23286	7762	7762	775					155	155
Anabaena sp.							15198	P	5066	5066							
Anabaena lapponica																	
Anabaena planctonica																	
Anacystis dimidiata	438		P	146	146							P	177	341	491	202	96
Anacystis marina																	
Anacystis montana														8522	7115	3127	1928
Anacystis thermalis			149	50	50		28914		9638	9638	13170	P				2634	2634
Aphanocapsa elachista	23673	10556	15638	16622	3818			50101	16700	16700				6477	189148	39125	37527
Aphanocapsa elachista v. *planctonica*	701	6470	3387	3519	1667	99518	63017	9173	57236	26240	33507	9895	64959			21672	12434
Aphanothece clathrata		9704	13646	7783	4055	5238			1746	1746	1937	2808	9356			2820	1723
Chlorogloea microcystoides																	
Chroococcus turgidus																	
Coccochloris aeruginosa																	
Coelosphaerium kuetzingianum																	
Dactylococcopsis linearis						P		P									
Desmonema wrangelii																	
Dichothrix gypsophila	29723	20431	41138	30431	5988	86425	92672	45514	74870	14789	81855	29552	54833	520179	120702	161424	90952
Gloeothece linearis v. *composite*																	
Gomphosphaeria lacustris								P					P				
Lyngbya birgei																	
Lyngbya contorta																	
Microcoleus vaginatus																	
Microcystis flos-aquae						P	P	P					P				
Nostoc commune	2893	P	11156	4683	3343	37788	60793	60510	53030	7622	1146	P	2841	P	1472	1092	529
Oncobyrsa cesatii																	
Oscillatoria sp.																	
Oscillatoria limosa																	
Pseudanabaena sp.	1227	P	P	409	409												
Schizogonium murale																	
Schizothrix calcicola	110474	54483	128690	97882	22328	356550	173483	231100	253711	54043	691827	104969	309614	859693	465389	486298	133928
Scopulonema minus	10346	25283	7371	14333	5542	4115	2595	6351	4354	1091	6779	2340	23124	297245	61700	78238	55741
Stigonema mamillosum	P	7747	P	2582	2582												
Unidentified Cyanophyte akinete																	
Total Algal Density (No. cells/cm²)	192023	150763	235641	192809	24505	686403	543186	524599	584729	51119	851886	156952	481200	1718493	871124	815931	261271

[a] P = present, but not encountered during routine cell counts; SE = standard error.

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Appendix E3. Periphytic algal densities (no. cells/cm^2) in lakes of the Meliadine Study Area, 1997 and 1998

Species	A6											A8				
	July 1997					July 1998						July 1997				
	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 2	Rep 3	Rep 4	Mean	SE
BACILLARIOPHYTA (Diatoms)																
Achnanthes detha																
Achnanthes flexella	P	P	132	44	44			P[1]				3138	530	P	1223	970
Achnanthes lanceolata						P			44	11	11					
Achnanthes minutissima	22479	23978	29523	25327	2142	234	695	1531	1020	870	273	9646	5326	8716	7896	1313
Achnanthes minutissima v.*cryptocephala*	1583	2988	2813	2461	442	20	43	105	77	61	19					
Amphipleura sp.																
Amphora sp.								42		11	11					
Amphora ovalis	P	P	132	44	44							P		P		
Amphora ovalis v. *pediculus*																
Anomoeoneis sp.																
Anomoeoneis vitrea									P							
Asterionella formosa																
Caloneis sp.								P	P							
Caloneis ventricosa							P									
Caloneis ventricosa v. *truncatula*		P										P		P		
Cocconeis diminuta																
Cocconeis pediculus																
Cocconeis placentula																
Cocconeis placentula v. *euglypta*																
Cocconeis sp.																
Coscinodiscus denarius																
Coscinodiscus lacustris																
Cyclotella sp.																
Cyclotella antiqua	137	213	132	161	26	34	118	42		49	25	P	132	1394	509	444
Cyclotella comta																
Cyclotella glomerata						P	P									
Cyclotella kutzingiana																
Cyclotella meneghiniana																
Cyclotella ocellata	550	213	265	343	105				P							
Cyclotella striata								P								
Cymbella affinis						P										
Cymbella amphioxys	P											P	662	4532	1731	1413
Cymbella aspera																
Cymbella cistula																
Cymbella cuspidata																
Cymbella cymbiformis												P		3486	1162	1162
Cymbella cymbiformis v. *nonpunctata*	757	1547	927	1077	240							697	397	P	365	202
Cymbella gracilis		P				P		P	P			349		P	116	116
Cymbella lanceolata																
Cymbella mexicanum v. *janischii*																
Cymbella minuta	791	1921	1324	1345	326	20	43	42	88	48	14	1737	1588	5927	3084	1422
Cymbella naviculiformis																
Cymbella sinuata		P														
Cymbella tumida																
Cymbella turgida													3432	1394	1609	997
Cymbella turgidula								P				312	458	134	301	94
Cymbella sp.						P			P			P	P	P		
Denticula tenuis	P	1868	132	667	602	41	22		P	16	10	697	1506	3486	1896	828
Diatoma elongatum	1514	960	2118	1531	334	396	570	547	628	535	49	349	132	697	393	165
Diatoma vulgare																
Didymosphenia geminata																
Diploneis sp.																
Diploneis elliptica														P		
Diploneir finnica																
Diploneis interrupta																
Diploneis ovalis																
Epithemia sorex	963	661	P	541	284	P	P	P	22	6	6	6641	5458	6000	6033	342
Eunotia arcus																
Eunotia exigua																
Eunotia flexuosa																
Eunotia glacialis												P	P			
Eunotia maior																
Eunotia papilio																
Eunotia praerupta	413			138	138		P					349	P	1743	697	532
Eunotia praerupta v. *bidens*														P		
Eunotia sudetica																
Eunotia sp.																
Fragilaria brevistriata																
Fragilaria construens																
Fragilaria crotonensis	963	P	P	321	321	P			154	39	39	P	P	2092	697	697
Fragilaria intermedia																
Fragilaria pinnata	1652	4433	264	2116	1226	P	P					2966	530	2789	2095	784
Frustulia vulgaris																
Gomphonema sp.																
Gomphonema acuminatum																
Gomphonema acuminatum v. *coronata*												P	P	P		
Gomphonema angustatum	P	213	P	71	71	P	607	558	325	372	139	P	1046	349	465	307
Gomphonema constrictum		P														
Gomphonema gracile																
Gomphonema intricatum v. *vibrio*																
Gomphonema olivaceum																
Gomphonema parvulum																
Gyrosigma sp																
Hantzschia amphioxys																
Melosira sp.																
Melosira granulata																
Meridion circulare																
Navicula sp.																
Navicula amphibola													P	P		
Navicula anglica							P									
Navicula aspera																
Navicula bacillum																
Navicula decussis																
Navicula dolosa																
Navicula capitata																
Navicula cryptocephala	P	427	976	468	282	20	129	186	66	100	36	1569	1291	1046	1302	151
Navicula cryptocephala v. *intermedia*	2232	2491		1574	791									1743	581	581
Navicula cuspidata																

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Appendix E3. Periphytic algal densities (no. cells/cm^2) in lakes of the Meliadine Study Area, 1997 and 1998

Species	A6											A8				
	July 1997					July 1998						July 1997				
	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 2	Rep 3	Rep 4	Mean	SE
Navicula exigua	P	P	P									P	P	P		
Navicula exigua v. *capitata*																
Navicula lacustris																
Navicula laevissima																
Navicula lanceolata						20				5	5					
Navicula mutica																
Navicula placenta																
Navicula pseudoscutiformis																
Navicula pupula	P						22	P	22	11	6		P	P		
Navicula radiosa	P	303	116	140	88							2614	4247	3379	3413	472
Navicula reinhardtii																
Navicula rhynchocephala																
Navicula tripunctata																
Navicula tripunctata v. *schizonemoides*																
Navicula viridula																
Nedium sp.																
Nedium bisulcatum																
Nedium dubium																
Nedium hitchcockii																
Nedium iridis v. *amphigomphus*	P											P		P		
Nitzschia sp.								P								
Nitzschia acicularis																
Nitzschia amphibia																
Nitzschia angustata																
Nitzschia dissipata	3165			1055	1055											
Nitzschia filiformis	137	640	530	436	153	41	P	40	22	26	10	P	P			
Nitzschia fonticola			P			P						1046	1740	1046	1277	231
Nitzschia palea																
Nitzschia sigmoidea	P												P			
Pinnularia sp.	P								P			P	784	P	261	261
Pinnularia biceps																
Pinnularia borealis																
Pinnularia maior																
Pinnularia mesolepta						P	P									
Pinnularia nodosa												P	P			
Pinnularia streptoraphe																
Pinnularia viridis																
Rhizosolenia longiseta																
Rhoicosphenia curvata																
Rhopalodia gibba	P	P	P			P						P	P	P		
Rhopa;pdoa gebberula																
Stauroneis anceps	P												P			
Stauroneis phoenicenteron			P													
Stauroneis smithii																
Stauroneis sp.																
Stephanodiscus astraea																
Surirella sp.																
Surirella angustata																
Synedra actinastroides	4038	4980	4971	4663	313	593	2089	1273	1974	1482	347	5229	2449	6972	4883	1317
Synedra acus						P	65	63	18	37	16	P	111	P	37	37
Synedra sp.									P				265		88	88
Synedra ulna	92	179	P	90	52	33	38	12	11	24	7	273		364	212	109
Tabellaria fenestrata	378	P	265	214	112	P	43	79	22	36	17	312	596	697	535	115
Tabellaria flocculosa	1789	652	474	972	412	P	P	116	231	87	55	1743	1158	5578	2826	1386
CRYPTOPHYTA (Cryptomonads)																
Cryptomonas curvata																
Cryptomonas erosa			P													
Cryptomonas ovata			132	44	44											
Cryptomonas reflexa																
Katablepharis ovalis			264	88	88											
Rhodomonas minuta																
CHRYSOPHYTA (Golden-Brown Algae)																
Chrysidiastrum catenatum		P	132	44	44		P									
Chrysococcus sp.			397	132	132											
Chrysoikos sp.																
Chrysosphaerella rodhei	138			46	46											
Dinobryon crenulatum																
Dinobryon divergens	138		P	46	46	207	306	21	242	194	61					
Dinobryon sertularia	688		264	317	200	102	86	105	154	112	15	P	P			
Dinobryon sertularia v. *protuberans*	P	213		71	71		29	P		7	7	349	523	349	407	58
Dinobryon sociale						102	43	84		57	23					
Dinobryon tabellariae																
Ishtmochloron trispinatum	P															
Kephyrion sp.																
Kephyrion boreale		213		71	71	P			22	6	6					
Ochromonas spa	138			46	46			84		21	21					
Ochromonas stellaris																
Ophiocytium sp.																
Pseudokephyrion sp.	138			46	46											
Stichogloea doederleinii						81	22			26	19					
Synura sp.							P									
Unidentified statospore	688	213	530	477	140	P						349	132	P	160	102
PYRROPHYTA (Dinoflagellates)																
Glenodinium sp.																
Gymnodinium sp.																
Gymnodinium uberrimum	138	P	P	46	46		22	42		16	10	312	332	P	215	107
Peridinium sp.	P	P	P									P	P	P		
Peridinium aciculiferum	275	427	132	278	85	P	43	32	22	24	9	156	P	P	52	52
Peridinium cinctum	P	P	P				P									
Peridinium palatinum																
Peridinium palustre																
Peridinium willei																
Unidentified cyst		854	265	373	252	20	43			16	10					
EUGLENOPHYTA (Euglenoids)																
Euglena sp.			P													
Phacus sp.		P														
Trachelomonas sp.												P				

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Appendix E3. Periphytic algal densities (no. cells/cm^2) in lakes of the Meliadine Study Area, 1997 and 1998

Species	A6											A8				
	July 1997					July 1998						July 1997				
	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 2	Rep 3	Rep 4	Mean	SE
CHLOROPHYTA (Green Algae)																
Actinotaenium sp.																
Ankistrodesmus convolutus	P													P		
Ankistrodesmus falcatus	P	213	265	159	81											
Ankistrodesmus falcatus v. *spiralis*	826	640	264	577	165	102	43	127		68	29	349		P	116	116
Ankistrodesmus gelifactus																
Arthrodesmus triangularis																
Binuclearia sp.																
Botryococcus sp.																
Bulbochaete sp.	3303	1761	794	1953	731	95	P	538	804	359	189	6322	8890	1902	5705	2041
Chlamydomonas sp. a		213		71	71											
Chlamydomonas sp. b			P													
Closterium sp.												P		P		
Closterium acerosum																
Closterium actum																
Closterium dianae																
Closterium pseudolunula												P				
Closterium rostratum																
Coeloastrum sp.																
Coeloastrum cambricum																
Coelastrum microporum			P													
Coeloastrum printzii	P												4183		1394	1394
Coeloastrum sphaericum	2202			734	734							2498	P	2789	1762	885
Cosmarium sp.	P															
Cosmarium anceps								P				P		P		
Cosmarium biculatum													249		83	83
Cosmarium botrytis												156		151	102	51
Cosmarium capitulum v. *groenlandicum*																
Cosmarium contracta												P	P	P		
Cosmarium coronatum																
Cosmarium depressum	138		P	46	46							P	P			
Cosmarium granulatum	P	110		37	37	15				4	4	349	415		255	129
Cosmarium holmiense v. *intermedium*	P											P	P	536	179	179
Cosmarium humile v. *lacustre*	P											P		349	116	116
Cosmarium impressulum v. *suborthogonum*		P										P		P		
Cosmarium laeve	P							P	P					P		
Cosmarium norimbergense	P	P	P									P		P		
Cosmarium phaseolus v. *phaseolus*						P	43			11	11					
Cosmarium pokornyanam																
Cosmarium pseudoprotuberans																
Cosmarium rectangulare		110		37	37							156	P	157	104	52
Cosmarium rectangulum																
Cosmarium reniforme																
Cosmarium repandum																
Cosmarium septentrionale						P	P	P	P							
Cosmarium speciosum		110	132	81	41							156	332	760	416	179
Cosmarium subgranatum																
Cosmarium tetraopthalmum												P	P			
Cosmarium turpinii		P						P					P			
Cosmarium turpinii v. *podolicum*																
Crucigenia apiculata																
Crucigenia quadrata																
Crucigenia rectangularis												P				
Cylindrocystis brebissonii	138	110	99	116	12	P			22	6	6	156	265	1291	571	362
Desmidium swartzii v. *quadrangulatum*																
Dictyosphaerium pulchellum																
Elakatothrix sp.	643	213	P	285	189	20		21		10	6	349	261		203	105
Euastropsis richteri													P			
Euastrum sp.																
Euastrum bidentatum	P											P	P	P		
Euastrum denticulatum																
Euastrum dubium v. *maius*			P					21		5	5	312	784	610	569	138
Euastrum elegans	138	138	132	136	2	20	P	21		10	6	P	P			
Euastrum gemmatum												P	83	P	28	28
Euastrum insulare v silesiacum																
Euastrum obesum														P		
Euastrum ohioense																
Euastrum sinosum																
Euastrum verrucosum														P		
Gemellicystis neglecta																
Geminella interrupta												P		P		
Gloeocystis schroeteri	826	3522	2118	2155	778	41	22	21	88	43	16	349	5428	3312	3030	1473
Gloeotila pelagica		P														
Golenkinia radiata v. *brevispina*		427	P	142	142											
Gonatozygon brebissonii																
Gonatozygon monotaenium												P	P	P		
Hyalotheca sp.																
Kirchneriella sp.																
Koliella longiseta																
Lagerheimia subsalsa																
Lagerheimia wratislawiensis																
Micractinium pusillum																
Monoraphidium sp.																
Mougeotia sp. a	103	523	486	371	134			42	22	16	10	P	2092		697	697
Nephrocytium limneticum		P										P				
Ooedogonium sp.																
Oocystis elliptica	P		4104	1368	1368				22	6	6	5578	1046	5578	4067	1511
Oocystis lacustris	7018	3842	P	3620	2029	447	151	438	264	325	72	3434	662	7321	3806	1931
Oocystis solitaria						P	43			11	11					
Oonephris obesa													P	P		
Quadrigula closterioides																
Phacotus sp.	1376	427	397	733	321								132	P	44	44
Pandorina morum	P		1589	530	530											
Pediastrum boryanum	P	P												P		
Pediastrum boryanum v. *ellesmerense*														P		
Pediastrum duplex																
Pediastrum duplex v. *clathratum*																
Pediastrum integrum v. *scutum*		P														
Pediastrum tetras																

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Appendix E3. Periphytic algal densities (no. cells/cm^2) in lakes of the Meliadine Study Area, 1997 and 1998

Species	A6											A8				
	July 1997					July 1998						July 1997				
	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 2	Rep 3	Rep 4	Mean	SE
Penium sp.	P															
Penium margaritaecum																
Pleurotaenium sp.																
Pleurotaenium trabecula																
Protoderma sp.																
Scenedesmus bijuga	275			92	92	P										
Scenedesmus acuminatus														P		
Scenedesmus arcuatus	P												332		111	111
Scenedesmus denticulatis												P		516	172	172
Scenedesmus ecornis																
Scenedesmus incrassatulus	1101	2348	3045	2165	569	163	86	169	P	105	40	P	P	P		
Scenedesmus obliquus																
Scenedesmus quadricauda			P													
Scenedesmus spinosus																
Scenedesmus wisconsinensis																
Spirogyra sp.																
Staurastrum sp. a	P	110	132	81	41							312	166	583	354	122
Staurastrum sp. b																
Staurastrum sp. c																
Staurastrum anatinum v. *biradiatum*																
Staurastrum antilopaeum																
Staurastrum anatinum																
Staurastrum apiculatum																
Staurastrum borgeanum								P								
Staurastrum brebissonii												P	P	P		
Staurastrum clevei																
Staurastrum curvatum																
Staurastrum cuspidatum																
Staurastrum dejectum			132	44	44							P	P			
Staurastrum furcigerum																
Staurastrum gladiosum																
Staurastrum hystrix																
Staurastrum longebranchiatum																
Staurastrum lunatum																
Staurastrum manfeldtii																
Staurastrum pachyrhynchum														P		
Staurastrum pilosum																
Staurastrum proboscidium																
Staurastrum rhabdophorum																
Staurastrum subcruciatum																
Staurastrum tetracerum	P												P	P		
Staurastrum varians																
Staurodesmus triangularis																
Stigeoclonium sp.																
Teilingia granulata	275	P	530	268	153	81	22	21	44	42	14		332		111	111
Tetraedron tumidulum	138		P	46	46			21		5	5					
Tetraedron limneticum																
Tetraedron lobulatum																
Tetraedron minimum	P	213	132	115	62		P		P					697	232	232
Tetraedron muticum	138			46	46				P							
Tetraedron arthrodesmiforme								21		5	5					
Tetraedron caudatum														P		
Tetraedron trigonum																
Trochiscia granulata												273	784	268	442	171
Xanthidium antilopaeum																
Xanthidium subhastiferum v murrayi																
Zygnema sp.	P		397	132	132		33	295	149	119	67	1743	P	P	581	581
CYANOPHYTA (Cyanobacteria)																
Agmenellum quadruplicatum																
Agmenellum thermale	1101	P	3177	1426	931							9064	3972	20659	11232	4938
Anabaena sp.	4679	1281	94	2018	1374	P						2654	5491		2715	1585
Anabaena lapponica												13596	19726	8984	14102	3111
Anabaena planctonica																
Anacystis dimidiata			P			41				10	10	5229	P	P	1743	1743
Anacystis marina																
Anacystis montana	19404	50586	4766	24919	13511							17222			5741	5741
Anacystis thermalis							22	612		159	151		14166	60312	24826	18208
Aphanocapsa elachista	3028	11526		4851	3450	630	667	P	1167	616	239					
Aphanocapsa elachista v. *planctonica*			3707	1236	1236			2637	572	802	626	46716	51096	72165	56659	7855
Aphanothece clathrata		2988		996	996	793				198	198					
Chlorogloea microcystoides												3486	794	349	1543	980
Chroococcus turgidus	1376	2134	1854	1788	221								2615	6624	3080	1926
Coccochloris aeruginosa																
Coelosphaerium kuetzingianum																
Dactylococcopsis linearis						81				20	20					
Desmonema wrangelii	2064	110350	P	37471	36444							43229	19064	16734	26342	8470
Dichothrix gypsophila	1101	6830	13901	7277	3702	1057	6278	11213	7795	6586	2112		1589		530	530
Gloeothece linearis v. *composite*	1651	2347	265	1421	612							P		2789	930	930
Gomphosphaeria lacustris		P	17475	5825	5825							192441		27541	73327	60085
Lyngbya birgei																
Lyngbya contorta																
Microcoleus vaginatus			P									P	P			
Microcystis flos-aquae	10459	P		3486	3486	1342	P			336	336	117487	94791	89597	100625	8563
Nostoc commune	P	P				P	108	6565	484	1789	1595			57048	19016	19016
Oncobyrsa cesatii																
Oscillatoria sp.																
Oscillatoria limosa	P															
Pseudanabaena sp.						P	323	P		81	81					
Schizogonium murale																
Schizothrix calcicola	172569	157308	112796	147558	17930	8233	22060	16160	29262	18929	4460	361524	143642	313414	272860	66085
Scopulonema minus						142		P		36	36					
Stigonema mamillosum																
Unidentified Cyanophyte akinete																
Total Algal Density (No. cells/cm²)	282044	410967	219993	304335	56245	15267	34979	43947	45861	35013	6996	875973	418207	766949	687043	138053

[a] P = present, but not encountered during routine cell counts; SE = standard error.

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Appendix E3. Periphytic algal densities (no. cells/cm^2) in lakes of the Meliadine Study Area, 1997 and 1998

Species	A8						B2									
	July 1998						July 1997					July 1998				
	Rep 1	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Mean	SE
BACILLARIOPHYTA (Diatoms)																	
Achnanthes detha																	
Achnanthes flexella	P	310	P	P	78	78	P	261	P	87	87	P		P	P		
Achnanthes lanceolata												P			P		
Achnanthes minutissima		10279	7313	11008	7150	2514	21309	47195	55376	41293	10267	5908	2546	4761	4539	4439	699
Achnanthes minutissima v.*cryptocephala*	7395	3719	4896	3091	4775	950	1307		P	436	436	422	61	336	190	252	80
Amphipleura sp.																	
Amphora sp.	P	P	P												P		
Amphora ovalis												P		P	P		
Amphora ovalis v. *pediculus*																	
Anomoeoneis sp.																	
Anomoeoneis vitrea				P													
Asterionella formosa																	
Caloneis sp.	1381	849	147	1546	981	315								334	P	84	84
Caloneis ventricosa			P									P					
Caloneis ventricosa v. *truncatula*																	
Cocconeis diminuta																	
Cocconeis pediculus				P													
Cocconeis placentula															P		
Cocconeis placentula v. *euglypta*															P		
Cocconeis sp.				P			P										
Coscinodiscus denarius				P													
Coscinodiscus lacustris																	
Cyclotella sp.				P					P								
Cyclotella antiqua	356	P	709	798	466	182						P	P		98	24	24
Cyclotella comta																	
Cyclotella glomerata	P	P	P									P					
Cyclotella kutzingiana																	
Cyclotella meneghiniana																	
Cyclotella ocellata														P			
Cyclotella striata				P			P	P							P		
Cymbella affinis	3532	775	248	976	1383	733											
Cymbella amphioxys							261	P	P	87	87						
Cymbella aspera																	
Cymbella cistula				P													
Cymbella cuspidata																	
Cymbella cymbiformis	P	P										P					
Cymbella cymbiformis v. *nonpunctata*							523	2353	726	1201	579						
Cymbella gracilis	P	1085	930	P	504	293						P	P	P	P		
Cymbella lanceolata																	
Cymbella mexicanum v. *janischii*																	
Cymbella minuta	1069	P	P	236	326	254	3660	3269	2440	3123	360	422	561	269	488	435	62
Cymbella naviculiformis															P		
Cymbella sinuata																	
Cymbella tumida																	
Cymbella turgida							1307	407	349	688	310						
Cymbella turgidula							P	P	P								
Cymbella sp.							261	P	349	203	105		470	368	698	384	145
Denticula tenuis	1425	930	744	3213	1578	564	P	654	1046	567	305	153	P	P	163	79	46
Diatoma elongatum		310	1735	1302	837	408	5164	17549	9472	10728	3630	633	667	756	334	597	92
Diatoma vulgare				P													
Didymosphenia geminata																	
Diploneis sp.												P	61			15	15
Diploneis elliptica																	
Diploneir finnica																	
Diploneis interrupta																	
Diploneis ovalis														P			
Epithemia sorex	P	620	496	P	279	163	1925	1046	1888	1620	287	102	P	261	488	213	106
Eunotia arcus								P									
Eunotia exigua																	
Eunotia flexuosa							392	P	P	131	131						
Eunotia glacialis				P									P	P			
Eunotia maior																	
Eunotia papilio																	
Eunotia praerupta	P	P	P	P			P	P	194	65	65		P	130	P	33	33
Eunotia praerupta v. *bidens*							P	P									
Eunotia sudetica																	
Eunotia sp.												P					
Fragilaria brevistriata														P			
Fragilaria construens		P		3905	976	976						P			P		
Fragilaria crotonensis	2872	P	3817		1672	985	523	784	P	436	230	211	P	269	P	120	70
Fragilaria intermedia																	
Fragilaria pinnata	P	P		P			P	1307	4532	1946	1347	P	1205	P	1141	586	339
Frustulia vulgaris												P					
Gomphonema sp.												P					
Gomphonema acuminatum															P		
Gomphonema acuminatum v. *coronata*				3582	896	896			P								
Gomphonema angustatum	P	P	P					261	P	87	87	P		269	98	92	63
Gomphonema constrictum							P	P	P								
Gomphonema gracile	4455	P	P	236	1173	1095						262		P	P	66	66
Gomphonema intricatum v. *vibrio*														P			
Gomphonema olivaceum			P									P	106			27	27
Gomphonema parvulum																	
Gyrosigma sp																	
Hantzschia amphioxys																	
Melosira sp.																	
Melosira granulata																	
Meridion circulare																	
Navicula sp.		P												P			
Navicula amphibola																	
Navicula anglica												P		P	P		
Navicula aspera																	
Navicula bacillum																	
Navicula decussis																	
Navicula dolosa																	
Navicula capitata																	
Navicula cryptocephala	6176	14540	9049	14128	10973	2029	1896	1961	1046	1634	295	587	76	196	553	353	128
Navicula cryptocephala v. *intermedia*							784	3530	2789	2368	820						
Navicula cuspidata																	

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Appendix E3. Periphytic algal densities (no. cells/cm^2) in lakes of the Meliadine Study Area, 1997 and 1998

Species	A8						B2									
	July 1998						July 1997					July 1998				
	Rep 1	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Mean	SE
Navicula exigua								P	P								
Navicula exigua v. *capitata*																	
Navicula lacustris															P		
Navicula laevissima																	
Navicula lanceolata			620	1302	480	310						633	288	538	342	450	81
Navicula mutica																	
Navicula placenta																	
Navicula pseudoscutiformis																	
Navicula pupula		P	P	P			P	P				P		P	P		
Navicula radiosa							2223	784	1394	1467	417	396	121	57		144	88
Navicula reinhardtii																	
Navicula rhynchocephala																	
Navicula tripunctata																	
Navicula tripunctata v. *schizonemoides*																	
Navicula viridula	4211	201	P	1409	1455	970						P		P	490	123	123
Nedium sp.															P		
Nedium bisulcatum																	
Nedium dubium																	
Nedium hitchcockii																	
Nedium iridis v. *amphigomphus*							P										
Nitzschia sp.																	
Nitzschia acicularis																	
Nitzschia amphibia								P									
Nitzschia angustata	P	P						P				P					
Nitzschia dissipata																	
Nitzschia filiformis	802		248	325	344	168	915	523	697	712	113	P	243	302	P	136	80
Nitzschia fonticola		P	P				1307	3661	2440	2469	680	P		P			
Nitzschia palea												P					
Nitzschia sigmoidea		P		P										P	P		
Pinnularia sp.							P							P			
Pinnularia biceps								P									
Pinnularia borealis																	
Pinnularia maior																	
Pinnularia mesolepta		P	P											P	P		
Pinnularia nodosa																	
Pinnularia streptoraphe																	
Pinnularia viridis																	
Rhizosolenia longiseta																	
Rhoicosphenia curvata																	
Rhopalodia gibba	P	P	P	P								P		65	P	16	16
Rhopa;pdoa gebberula																	
Stauroneis anceps	P			P				P				P		P			
Stauroneis phoenicenteron																	
Stauroneis smithii																	
Stauroneis sp.																	
Stephanodiscus astraea																	
Surirella sp.												284	P		P	71	71
Surirella angustata																	
Synedra actinastroides	15603	10589	3637	13207	10759	2585	14163	18131	8311	13535	2852	6457	2334	18468	6505	8441	3482
Synedra acus	668	P	3471	976	1279	759		P					121	202		81	49
Synedra sp.																	
Synedra ulna	312	P	124	P	109	74	P	P				85	30	403	P	130	93
Tabellaria fenestrata	2394	179	372	325	818	527	P	119	349	156	102	817	227	130	98	318	169
Tabellaria flocculosa	1425	805	2479	2007	1679	362	7800	20525	7670	11998	4263	5695	917	1337	911	2215	1164
CRYPTOPHYTA (Cryptomonads)																	
Cryptomonas curvata																	
Cryptomonas erosa																	
Cryptomonas ovata							145	P	P	48	48						
Cryptomonas reflexa	P																
Katablepharis ovalis																	
Rhodomonas minuta																	
CHRYSOPHYTA (Golden-Brown Algae)																	
Chrysidiastrum catenatum																	
Chrysococcus sp.																	
Chrysoikos sp.																	
Chrysosphaerella rodhei																	
Dinobryon crenulatum																	
Dinobryon divergens	1069	P	P		267	267						511		130	293	233	110
Dinobryon sertularia	1425	1240	248	325	810	305	P					211		P	98	77	50
Dinobryon sertularia v. *protuberans*	3742	2169	3967	3254	3283	400		136	P	45	45	306		261	392	240	84
Dinobryon sociale	4900	2479	3595	1302	3069	769	P							134		34	34
Dinobryon tabellariae		P	P														
Ishtmochloron trispinatum							P					306	P	134	P	110	73
Kephyrion sp.				328	82	82						P					
Kephyrion boreale	356		248		151	90						211			380	148	92
Ochromonas spa															P		
Ochromonas stellaris																	
Ophiocytium sp.				P			P	P	388	129	129						
Pseudokephyrion sp.																	
Stichogloea doederleinii												P	60	P		15	15
Synura sp.																	
Unidentified statospore	3564	310	744	3254	1968	839	784	523	P	436	230	211		130	683	256	149
PYRROPHYTA (Dinoflagellates)																	
Glenodinium sp.																	
Gymnodinium sp.																	
Gymnodinium uberrimum	P	358	P	325	171	99	86	261	349	232	77						
Peridinium sp.		P					P	P	P						P		
Peridinium aciculiferum	P	P	147		37	37	261	261	194	239	22	P	P	P	190	48	48
Peridinium cinctum	P	P	P	P										P	P		
Peridinium palatinum		P	P														
Peridinium palustre									P								
Peridinium willei																	
Unidentified cyst							261	136	P	132	75	664		P		166	166
EUGLENOPHYTA (Euglenoids)																	
Euglena sp.																	
Phacus sp.	P																
Trachelomonas sp.		P	P														

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Appendix E3. Periphytic algal densities (no. cells/cm^2) in lakes of the Meliadine Study Area, 1997 and 1998

Species	A8						B2									
	July 1998						July 1997					July 1998				
	Rep 1	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Mean	SE
CHLOROPHYTA (Green Algae)																	
Actinotaenium sp.																	
Ankistrodesmus convolutus							P										
Ankistrodesmus falcatus	P	P					P		349	116	116			P			
Ankistrodesmus falcatus v. *spiralis*	1067	930	600	1952	1137	289	1046	1046	697	930	116	844	P	403	P	312	201
Ankistrodesmus gelifactus																	
Arthrodesmus triangularis		P	P														
Binuclearia sp.	P																
Botryococcus sp.		P															
Bulbochaete sp.	P	89	P	1417	376	347	2542	272	3486	2100	954	422	P	134	P	139	99
Chlamydomonas sp. a																	
Chlamydomonas sp. b																	
Closterium sp.	P	P	P	237	59	59	P	P	349	116	116						
Closterium acerosum																	
Closterium actum																	
Closterium dianae																	
Closterium pseudolunula																	
Closterium rostratum																	
Coeloastrum sp.			P														
Coeloastrum cambricum																	
Coelastrum microporum			P										P	457		114	114
Coeloastrum printzii								261		87	87				P		
Coeloastrum sphaericum	P	P		P											P		
Cosmarium sp.	356				89	89											
Cosmarium anceps																	
Cosmarium biculatum									P								
Cosmarium botrytis																	
Cosmarium capitulum v. *groenlandicum*																	
Cosmarium contracta																	
Cosmarium coronatum																	
Cosmarium depressum							P	522	194	239	152						
Cosmarium granulatum	445		P	651	274	164	P		349	116	116	P	P	130	P	33	33
Cosmarium holmiense v. *intermedium*							131			44	44	204		P		51	51
Cosmarium humile v. *lacustre*			P	472	118	118	P	261	P	87	87		P	65	73	35	20
Cosmarium impressulum v. *suborthogonum*	928		P	P	232	232		P	P								
Cosmarium laeve							P	P					P		P		
Cosmarium norimbergense	P	P		P			P	P	P			422				106	106
Cosmarium phaseolus v. *phaseolus*		P	147	976	281	234						P		403	488	223	130
Cosmarium pokornyanam																	
Cosmarium pseudoprotuberans																	
Cosmarium rectangulare	P	P	P					437	P	146	146	P	P	P	98	24	24
Cosmarium rectangulum	713	P		P	178	178						P	P	P			
Cosmarium reniforme				P													
Cosmarium repandum																	
Cosmarium septentrionale	P	P	P	P								153	121	P	293	142	60
Cosmarium speciosum		P					P	340	711	350	205	P	P	P			
Cosmarium subgranatum		310			78	78											
Cosmarium tetraopthalmum		P					P	136	324	153	94						
Cosmarium turpinii	P		P	P								P			98	24	24
Cosmarium turpinii v. *podolicum*																	
Crucigenia apiculata																	
Crucigenia quadrata																	
Crucigenia rectangularis			P														
Cylindrocystis brebissonii	1069	P	P	1181	562	326	1394	523	1046	988	253	204	61	326	191	195	54
Desmidium swartzii v. *quadrangulatum*																	
Dictyosphaerium pulchellum							P										
Elakatothrix sp.	356	310	248		229	79		P	P			P		P	P		
Euastropsis richteri																	
Euastrum sp.																	
Euastrum bidentatum	P	P	P	P											P		
Euastrum denticulatum																	
Euastrum dubium v. *maius*	356	P	248	413	254	91	P	P	P			P	P	P	P		
Euastrum elegans		P	P	443	111	111	261	P		87	87	P	P	P	P		
Euastrum gemmatum	P																
Euastrum insulare v silesiacum	P																
Euastrum obesum																	
Euastrum ohioense																	
Euastrum sinosum																	
Euastrum verrucosum														65		16	16
Gemellicystis neglecta																	
Geminella interrupta							P		P								
Gloeocystis schroeteri	11404				2851	2851	3922	7060	23009	11330	5909	P		672	P	168	168
Gloeotila pelagica																	
Golenkinia radiata v. *brevispina*																	
Gonatozygon brebissonii	P		P									P		P			
Gonatozygon monotaenium				P													
Hyalotheca sp.																	
Kirchneriella sp.	356				89	89	523	523	1046	697	174	P			570	143	143
Koliella longiseta																	
Lagerheimia subsalsa																	
Lagerheimia wratislawiensis																	
Micractinium pusillum																	
Monoraphidium sp.			248		62	62											
Mougeotia sp. a	538	P	P	325	216	132	131	P	P	44	44	580	P	P	537	279	161
Nephrocytium limneticum			P	1302	325	325		P	P								
Ooedogonium sp.																	
Oocystis elliptica							2092	850	697	1213	442	211		134		86	52
Oocystis lacustris		8057	8057	9761	6469	2193	10721	11243	10110	10691	327	3587	424	403	2440	1714	786
Oocystis solitaria	P	1132			283	283											
Oonephris obesa	6787		496	236	1880	1639		P				P	61			15	15
Quadrigula closterioides																	
Phacotus sp.	713				178	178							61			15	15
Pandorina morum																	
Pediastrum boryanum							P	P	P								
Pediastrum boryanum v. *ellesmerense*								P						P			
Pediastrum duplex														P			
Pediastrum duplex v. *clathratum*															2855	714	714
Pediastrum integrum v. *scutum*																	
Pediastrum tetras							P	P	P			1688	485	1277	P	863	381

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Appendix E3. Periphytic algal densities (no. cells/cm^2) in lakes of the Meliadine Study Area, 1997 and 1998

Species	A8						B2									
	July 1998						July 1997					July 1998				
	Rep 1	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Mean	SE
Penium sp.							P										
Penium margaritaecum																	
Pleurotaenium sp.																	
Pleurotaenium trabecula																	
Protoderma sp.																	
Scenedesmus bijuga							1307	2092	697	1365	404						
Scenedesmus acuminatus							P	P						P	P		
Scenedesmus arcuatus																	
Scenedesmus denticulatis							8891	P	8522	5804	2904						
Scenedesmus ecornis																	
Scenedesmus incrassatulus	713	1240	1240	P	798	294	1830			610	610	664	P	P		166	166
Scenedesmus obliquus																	
Scenedesmus quadricauda							6537	1046	4261	3948	1593	211			P	53	53
Scenedesmus spinosus																	
Scenedesmus wisconsinensis																	
Spirogyra sp.																	
Staurastrum sp. a	P	P		P			P	136	P	45	45	P		65	P	16	16
Staurastrum sp. b																	
Staurastrum sp. c																	
Staurastrum anatinum v. *biradiatum*																	
Staurastrum antilopaeum																	
Staurastrum anatinum																	
Staurastrum apiculatum				325	81	81		P									
Staurastrum borgeanum	P	89	P	P	22	22	145		349	165	101	102	61	P		41	25
Staurastrum brebissonii				P													
Staurastrum clevei									P								
Staurastrum curvatum																	
Staurastrum cuspidatum																	
Staurastrum dejectum	P	P						261	P	87	87	P	P	P			
Staurastrum furcigerum																	
Staurastrum gladiosum																	
Staurastrum hystrix							P										
Staurastrum longebranchiatum																	
Staurastrum lunatum																	
Staurastrum manfeldtii																	
Staurastrum pachyrhynchum	P	P	P					P									
Staurastrum pilosum							196			65	65						
Staurastrum proboscidium																	
Staurastrum rhabdophorum							P		697	232	232						
Staurastrum subcruciatum																	
Staurastrum tetracerum							261	523		261	151				P		
Staurastrum varians			P	P			P										
Staurodesmus triangularis								P									
Stigeoclonium sp.																	
Teilingia granulata	356	930	1487		693	327	784	261	697	581	162	409	61	326		199	100
Tetraedron tumidulum	P		P														
Tetraedron limneticum																	
Tetraedron lobulatum																	
Tetraedron minimum	356	310	248	325	310	23	1046	261		436	314	211	P	134	190	134	47
Tetraedron muticum	239	310		P	137	81									190	48	48
Tetraedron arthrodesmiforme			248		62	62											
Tetraedron caudatum							261		P	87	87	P					
Tetraedron trigonum																	
Trochiscia granulata							P										
Xanthidium antilopaeum																	
Xanthidium subhastiferum v murrayi																	
Zygnema sp.	957			P	239	239	690	P	P	230	230						
CYANOPHYTA (Cyanobacteria)																	
Agmenellum quadruplicatum		P					P	P	P				849			212	212
Agmenellum thermale		40285	3471	106400	37539	24697	8368	P		2789	2789	P	212		P	53	53
Anabaena sp.	P	P	P	5206	1302	1302			6972	2324	2324			P			
Anabaena lapponica									P								
Anabaena planctonica																	
Anacystis dimidiata	P		P	P				P	968	323	323		121			30	30
Anacystis marina																	
Anacystis montana								10720		3573	3573				4295	1074	1074
Anacystis thermalis	60583				15146	15146		1046	12008	4351	3840			3898		975	975
Aphanocapsa elachista															26622	6656	6656
Aphanocapsa elachista v. *planctonica*	38488	68176	58755	141211	76658	22391		P	20569	6856	6856	56762	1213	22984		20240	13270
Aphanothece clathrata																	
Chlorogloea microcystoides								P									
Chroococcus turgidus								1046	697	581	307						
Coccochloris aeruginosa		1240	1487		682	397											
Coelosphaerium kuetzingianum									P								
Dactylococcopsis linearis	1425	715	1240	3254	1658	553						1430		134		391	348
Desmonema wrangelii							2092	3138	11853	5694	3094						
Dichothrix gypsophila	35994	109701	50822	142192	84677	24917	17258	15427		10895	5473	22472	10004	15755	62327	27640	11840
Gloeothece linearis v. *composite*								P									
Gomphosphaeria lacustris	32073	7151	4958	62474	26664	13427	3138	35560	10846	16515	9779	26376		1747	P	7031	6462
Lyngbya birgei																	
Lyngbya contorta																	
Microcoleus vaginatus				2928	732	732	P	P						718	P	180	180
Microcystis flos-aquae				P			P	14642	85413	33352	26372			18920		4730	4730
Nostoc commune	P	6198	P	137920	36030	33995	P	1902	14642	5515	4597	6330	364	739	1171	2151	1403
Oncobyrsa cesatii																	
Oscillatoria sp.																	
Oscillatoria limosa																	
Pseudanabaena sp.		P															
Schizogonium murale																	
Schizothrix calcicola	338553	171988	240909	721374	368206	122581	270620	215450	315505	267192	28934	154670	15036	84006	266223	129984	53617
Scopulonema minus	49179	107221	100156	42137	74673	16875						1899	546	3091		1384	695
Stigonema mamillosum			P					P									
Unidentified Cyanophyte akinete																	
Total Algal Density (No. cells/cm²)	653136	578129	525049	1457477	803448	219587	413444	452622	639062	501709	69601	305338	39774	187226	387833	230043	75610

[a] P = present, but not encountered during routine cell counts; SE = standard error.

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Appendix E3. Periphytic algal densities (no. cells/cm^2) in lakes of the Meliadine Study Area, 1997 and 1998

Species	B5										B7				
	July 1997					July 1998					July 1997				
	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 2	Rep 3	Rep 4	Mean	SE
BACILLARIOPHYTA (Diatoms)															
Achnanthes detha	3905	1376	2582	2621	730										
Achnanthes flexella	P	P	P			P	P	P			118	349	P	156	102
Achnanthes lanceolata						P	P								
Achnanthes minutissima	68052	30550	47129	48577	10850	35577	67494	41161	48077	9841	27368	20917	27935	25407	2251
Achnanthes minutissima v.*cryptocephala*	1116		516	544	322	325	1023	P	449	302	1830	1046	784	1220	314
Amphipleura sp.															
Amphora sp.						325			108	108					
Amphora ovalis	P	P	P			P	P	P				P			
Amphora ovalis v. *pediculus*							P								
Anomoeoneis sp.															
Anomoeoneis vitrea	P	P									P	1164		388	388
Asterionella formosa															
Caloneis sp.															
Caloneis ventricosa						P	P	P							
Caloneis ventricosa v. *truncatula*											P		P		
Cocconeis diminuta								P							
Cocconeis pediculus							P								
Cocconeis placentula															
Cocconeis placentula v. *euglypta*															
Cocconeis sp.	P	P	P												
Coscinodiscus denarius															
Coscinodiscus lacustris							P								
Cyclotella sp.	P											P			
Cyclotella antiqua	558	275	P	278	161	651	P	732	461	232	915	1394	523	944	252
Cyclotella comta								P			P				
Cyclotella glomerata						P	3409	P	1136	1136					
Cyclotella kutzingiana			P										P		
Cyclotella meneghiniana															
Cyclotella ocellata															
Cyclotella striata	P		P			P	192	P	64	64					
Cymbella affinis						651	P	P	217	217					
Cymbella amphioxys			P									349	P	116	116
Cymbella aspera															
Cymbella cistula															
Cymbella cuspidata								P							
Cymbella cymbiformis		550		183	183						P	P			
Cymbella cymbiformis v. *nonpunctata*	P		317	106	106						1700	697	1307	1235	292
Cymbella gracilis								P				P	P		
Cymbella lanceolata															
Cymbella mexicanum v. *janischii*															
Cymbella minuta	558	275	2324	1052	641	2603	1023	976	1534	535	2092	349	784	1075	524
Cymbella naviculiformis							P	P							
Cymbella sinuata															
Cymbella tumida								488	163	163					
Cymbella turgida	558	P	P	186	186							P			
Cymbella turgidula			P								P	P			
Cymbella sp.	P	275	P	92	92	325	1023	407	585	220	P	349	P	116	116
Denticula tenuis	P	P	P			P	341	P	114	114	3334	1046	2484	2288	668
Diatoma elongatum	6975	5139	774	4296	1839	10198	12272	8242	10237	1164	523	523	654	567	44
Diatoma vulgare															
Didymosphenia geminata															
Diploneis sp.						P		P							
Diploneis elliptica	P					P					P	P			
Diploneir finnica															
Diploneis interrupta															
Diploneis ovalis								651	217	217					
Epithemia sorex	290	P	258	183	92	1126	1854	2414	1798	373	2301	4881	3138	3440	760
Eunotia arcus															
Eunotia exigua							P								
Eunotia flexuosa															
Eunotia glacialis															
Eunotia maior															
Eunotia papilio															
Eunotia praerupta	P	P	516	172	172	P	P	218	73	73	P	P	P		
Eunotia praerupta v. *bidens*						P	P								
Eunotia sudetica															
Eunotia sp.	P					1627			542	542					
Fragilaria brevistriata															
Fragilaria construens						P	P	1302	434	434					
Fragilaria crotonensis	3347	P	P	1116	1116	2065	P	2887	1651	859	705	697	654	685	16
Fragilaria intermedia															
Fragilaria pinnata	1739	2202	1808	1916	144	P	2727	3905	2211	1156	P	P	3399	1133	1133
Frustulia vulgaris						P		P							
Gomphonema sp.								325	108	108					
Gomphonema acuminatum															
Gomphonema acuminatum v. *coronata*		P									1569			523	523
Gomphonema angustatum	P	P	P			651	341	P	331	188	P	P	1046	349	349
Gomphonema constrictum	P	P	P									1220		407	407
Gomphonema gracile						2222	P	P	741	741					
Gomphonema intricatum v. *vibrio*															
Gomphonema olivaceum						P		1237	412	412					
Gomphonema parvulum													P		
Gyrosigma sp															
Hantzschia amphioxys															
Melosira sp.						P									
Melosira granulata															
Meridion circulare															
Navicula sp.															
Navicula amphibola											P		P		
Navicula anglica						P	P	P							
Navicula aspera															
Navicula bacillum															
Navicula decussis															
Navicula dolosa															
Navicula capitata															
Navicula cryptocephala	558	P	516	358	179	1302	341	3708	1784	1001	1307	2207	4882	2799	1074
Navicula cryptocephala v. *intermedia*		4335	1291	1875	1285						7202	12856	6691	8916	1975
Navicula cuspidata															

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Appendix E3. Periphytic algal densities (no. cells/cm^2) in lakes of the Meliadine Study Area, 1997 and 1998

Species	B5										B7				
	July 1997					July 1998					July 1997				
	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 2	Rep 3	Rep 4	Mean	SE
Navicula exigua	P	P											P		
Navicula exigua v. *capitata*															
Navicula lacustris															
Navicula laevissima		P	P												
Navicula lanceolata						P	2003	P	668	668					
Navicula mutica						P	P	P							
Navicula placenta															
Navicula pseudoscutiformis		P				P									
Navicula pupula	P		P			P	P	P				P			
Navicula radiosa	9203	716	634	3518	2843	313	P	P	104	104	2353	2776	261	1797	777
Navicula reinhardtii															
Navicula rhynchocephala															
Navicula tripunctata								4067	1356	1356					
Navicula tripunctata v. *schizonemoides*								P							
Navicula viridula						P	682	1627	770	472					
Nedium sp.													P		
Nedium bisulcatum															
Nedium dubium															
Nedium hitchcockii															
Nedium iridis v. *amphigomphus*											P				
Nitzschia sp.															
Nitzschia acicularis								P							
Nitzschia amphibia							P					P	P		
Nitzschia angustata	P		P								P		P		
Nitzschia dissipata															
Nitzschia filiformis	P	P				325	341	325	330	5		2005	1046	1017	579
Nitzschia fonticola						P	P				P	3486	1046	1511	1033
Nitzschia palea							P	P			P				
Nitzschia sigmoidea			P								P	1394	P	465	465
Pinnularia sp.	P		P			P	P				P				
Pinnularia biceps	P		P												
Pinnularia borealis			P												
Pinnularia maior															
Pinnularia mesolepta						P	P	P							
Pinnularia nodosa		P													
Pinnularia streptoraphe															
Pinnularia viridis															
Rhizosolenia longiseta															
Rhoicosphenia curvata															
Rhopalodia gibba	P					P	P	P			103	P	P	34	34
Rhopa;pdoa gebberula															
Stauroneis anceps		P	P			P	P	P				P			
Stauroneis phoenicenteron	P		P												
Stauroneis smithii	P					P									
Stauroneis sp.															
Stephanodiscus astraea						P	P				P				
Surirella sp.							P	P							
Surirella angustata															
Synedra actinastroides	8646	5689	5229	6521	1071	21612	40596	22465	28224	6191	10641	9069	6058	8589	1345
Synedra acus			P												
Synedra sp.															
Synedra ulna	P		P			P	P	163	54	54	P	234	P	78	78
Tabellaria fenestrata	580	P	P	193	193	2675	4176	5532	4128	825	118	P	850	323	266
Tabellaria flocculosa	2007	P	1291	1099	587	13938	9922	15212	13024	1594	646	2963	1830	1813	669
CRYPTOPHYTA (Cryptomonads)															
Cryptomonas curvata															
Cryptomonas erosa															
Cryptomonas ovata						P	P	825	275	275	118			39	39
Cryptomonas reflexa															
Katablepharis ovalis															
Rhodomonas minuta															
CHRYSOPHYTA (Golden-Brown Algae)															
Chrysidiastrum catenatum											784	349	523	552	126
Chrysococcus sp.											P				
Chrysoikos sp.															
Chrysosphaerella rodhei															
Dinobryon crenulatum															
Dinobryon divergens							P	1340	447	447		349	261	203	105
Dinobryon sertularia								P				P	261	87	87
Dinobryon sertularia v. *protuberans*			P			651		651	434	217	235	1594	1830	1220	497
Dinobryon sociale						P	341	P	114	114			261	87	87
Dinobryon tabellariae								P							
Ishtmochloron trispinatum											P				
Kephyrion sp.															
Kephyrion boreale						P		325	108	108					
Ochromonas spa															
Ochromonas stellaris															
Ophiocytium sp.															
Pseudokephyrion sp.															
Stichogloea doederleinii						2603	341	4448	2464	1188					
Synura sp.															
Unidentified statospore	P		P			P	682	895	526	270	1096	931	1569	1199	191
PYRROPHYTA (Dinoflagellates)															
Glenodinium sp.															
Gymnodinium sp.															
Gymnodinium uberrimum		P				P		206	69	69	118	P	138	85	43
Peridinium sp.		P						P			P	322	P	107	107
Peridinium aciculiferum	290	550	P	280	159	375	682	206	421	139	P		138	46	46
Peridinium cinctum	P						P	P							
Peridinium palatinum															
Peridinium palustre															
Peridinium willei															
Unidentified cyst	1116	P	127	414	353	651	682	412	582	85					
EUGLENOPHYTA (Euglenoids)															
Euglena sp.											P				
Phacus sp.											P	P	P		
Trachelomonas sp.	P		516	172	172							P			

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Appendix E3. Periphytic algal densities (no. cells/cm^2) in lakes of the Meliadine Study Area, 1997 and 1998

Species	B5										B7				
	July 1997					July 1998					July 1997				
	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 2	Rep 3	Rep 4	Mean	SE
CHLOROPHYTA (Green Algae)															
Actinotaenium sp.															
Ankistrodesmus convolutus											P				
Ankistrodesmus falcatus						P					P		P		
Ankistrodesmus falcatus v. *spiralis*		275	1033	436	309	2278	682	P	987	675	2353	2092	1307	1917	314
Ankistrodesmus gelifactus															
Arthrodesmus triangularis		P				P	P	P							
Binuclearia sp.						651		825	492	251					
Botryococcus sp.								P							
Bulbochaete sp.	P	1332		444	444	2253	1342	P	1198	654	823	P	P	274	274
Chlamydomonas sp. a															
Chlamydomonas sp. b															
Closterium sp.	P	P				P	P				P				
Closterium acerosum															
Closterium actum															
Closterium dianae															
Closterium pseudolunula															
Closterium rostratum															
Coeloastrum sp.												P			
Coeloastrum cambricum															
Coelastrum microporum								P							
Coeloastrum printzii						325	341	1302	656	323	P	349		116	116
Coeloastrum sphaericum	P	P				P	P	P					P		
Cosmarium sp.							192	P	64	64					
Cosmarium anceps															
Cosmarium biculatum													P		
Cosmarium botrytis		P													
Cosmarium capitulum v. *groenlandicum*															
Cosmarium contracta	P	P													
Cosmarium coronatum															
Cosmarium depressum	290	275		188	94						235			78	78
Cosmarium granulatum	P		P			P	P				P	P	103	34	34
Cosmarium holmiense v. *intermedium*	P					P	383	P	128	128					
Cosmarium humile v. *lacustre*	290			97	97						353	P		118	118
Cosmarium impressulum v. *suborthogonun*	P	P				325		P	108	108		P	103	34	34
Cosmarium laeve						P					P				
Cosmarium norimbergense	1159			386	386	P	P	P							
Cosmarium phaseolus v. *phaseolus*							192		64	64					
Cosmarium pokornyanam															
Cosmarium pseudoprotuberans															
Cosmarium rectangulare	362		P	121	121	563	P	P	188	188	358			119	119
Cosmarium rectangulum						P	P								
Cosmarium reniforme															
Cosmarium repandum															
Cosmarium septentrionale						188	383	155	242	71					
Cosmarium speciosum	1159		258	472	351			P			P	P	P		
Cosmarium subgranatum															
Cosmarium tetraopthalmum	P		258	86	86	P						P			
Cosmarium turpinii						P					118	P	P	39	39
Cosmarium turpinii v. *podolicum*															
Crucigenia apiculata															
Crucigenia quadrata												P			
Crucigenia rectangularis															
Cylindrocystis brebissonii	1116	200	710	675	265	1627	3068	2196	2297	419	235	697		311	205
Desmidium swartzii v. *quadrangulatum*															
Dictyosphaerium pulchellum															
Elakatothrix sp.						2278	P	325	868	711	1046			349	349
Euastropsis richteri															
Euastrum sp.		P													
Euastrum bidentatum															
Euastrum denticulatum															
Euastrum dubium v. *maius*	P	206		69	69	P	P	P			P	349		116	116
Euastrum elegans	P	P				188	192	P	127	63	118		138	85	43
Euastrum gemmatum		34		11	11										
Euastrum insulare v silesiacum															
Euastrum obesum															
Euastrum ohioense															
Euastrum sinosum						P		P							
Euastrum verrucosum															
Gemellicystis neglecta															
Geminella interrupta															
Gloeocystis schroeteri	9483	7156	4907	7182	1321	976	341	3905	1741	1098	1830	17780	1046	6885	5452
Gloeotila pelagica															
Golenkinia radiata v. *brevispina*															
Gonatozygon brebissonii						P		P							
Gonatozygon monotaenium	P										P	P			
Hyalotheca sp.															
Kirchneriella sp.		P													
Koliella longiseta															
Lagerheimia subsalsa															
Lagerheimia wratislawiensis															
Micractinium pusillum															
Monoraphidium sp.															
Mougeotia sp. a	1116	P	P	372	372	986	P	3197	1394	945	725	P	784	503	252
Nephrocytium limneticum											470	P	523	331	166
Ooedogonium sp.															
Oocystis elliptica	1673	P		558	558	3905	5454	3254	4204	652	118	349	413	293	90
Oocystis lacustris	2789	3587	P	2125	1087						5491	12202	6210	7968	2127
Oocystis solitaria															
Oonephris obesa	P						P	P							
Quadrigula closterioides															
Phacotus sp.	P	P									P	1046	P	349	349
Pandorina morum															
Pediastrum boryanum		P									P	1394	P	465	465
Pediastrum boryanum v. *ellesmerense*			P								P				
Pediastrum duplex															
Pediastrum duplex v. *clathratum*															
Pediastrum integrum v. *scutum*															
Pediastrum tetras						P	1364	825	730	397	118			39	39

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Appendix E3. Periphytic algal densities (no. cells/cm^2) in lakes of the Meliadine Study Area, 1997 and 1998

Species	B5										B7				
	July 1997					July 1998					July 1997				
	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 2	Rep 3	Rep 4	Mean	SE
Penium sp.												161	P	54	54
Penium margaritaecum	P	133		44	44										
Pleurotaenium sp.															
Pleurotaenium trabecula															
Protoderma sp.															
Scenedesmus bijuga	2231	1101	1032	1455	389						523		523	349	174
Scenedesmus acuminatus	P	550		183	183	563			188	188					
Scenedesmus arcuatus															
Scenedesmus denticulatis			1033	344	344										
Scenedesmus ecornis			2582	861	861										
Scenedesmus incrassatulus	2231	2752	516	1833	675	1126	682		603	327	2353	349	3661	2121	963
Scenedesmus obliquus															
Scenedesmus quadricauda	1739	533		757	514	1627	P	P	542	542			P		
Scenedesmus spinosus															
Scenedesmus wisconsinensis															
Spirogyra sp.							P								
Staurastrum sp. a	P	P	P			P	P	P			118	P	P	39	39
Staurastrum sp. b															
Staurastrum sp. c															
Staurastrum anatinum v. *biradiatum*											P				
Staurastrum antilopaeum															
Staurastrum anatinum															
Staurastrum apiculatum															
Staurastrum borgeanum	P		P			P	P	P							
Staurastrum brebissonii							P					349	P	116	116
Staurastrum clevei															
Staurastrum curvatum															
Staurastrum cuspidatum															
Staurastrum dejectum		P				P	32	206	79	64	P	P	P		
Staurastrum furcigerum						94			31	31					
Staurastrum gladiosum															
Staurastrum hystrix															
Staurastrum longebranchiatum															
Staurastrum lunatum															
Staurastrum manfeldtii															
Staurastrum pachyrhynchum		133		44	44	188	P	P	63	63		P			
Staurastrum pilosum											P				
Staurastrum proboscidium															
Staurastrum rhabdophorum															
Staurastrum subcruciatum															
Staurastrum tetracerum			258	86	86							349		116	116
Staurastrum varians						375	P		125	125					
Staurodesmus triangularis															
Stigeoclonium sp.															
Teilingia granulata		P	258	86	86	976	2045	1627	1549	311	1307	3138	523	1656	775
Tetraedron tumidulum												P			
Tetraedron limneticum															
Tetraedron lobulatum															
Tetraedron minimum	558		P	186	186	325	682	651	553	114	P	349		116	116
Tetraedron muticum	P					325			108	108	P				
Tetraedron arthrodesmiforme															
Tetraedron caudatum								325	108	108					
Tetraedron trigonum															
Trochiscia granulata	580	P	P	193	193			68	23	23					
Xanthidium antilopaeum															
Xanthidium subhastiferum v murrayi															
Zygnema sp.												P	P		
CYANOPHYTA (Cyanobacteria)															
Agmenellum quadruplicatum	P		P			P	P								
Agmenellum thermale	4462	P	3099	2520	1320	6833	51345	45879	34686	14015	P	6624	11243	5956	3263
Anabaena sp.	13387	31101	P	14829	9007		3409	14968	6126	4529					
Anabaena lapponica											9812	8018	5229	7686	1333
Anabaena planctonica															
Anacystis dimidiata						5369	P	1139	2169	1633					
Anacystis marina															
Anacystis montana															
Anacystis thermalis	2231	1101	6714	3349	1714						4706			1569	1569
Aphanocapsa elachista							14658		4886	4886					
Aphanocapsa elachista v. *planctonica*	5578	2202	17044	8275	4492	23453	61699	P	28384	17981	49679		60399	36693	18605
Aphanothece clathrata											42358	19174	11505	24346	9274
Chlorogloea microcystoides		10459		3486	3486										
Chroococcus turgidus	6136	550	P	2229	1960						2353	P	523	959	713
Coccochloris aeruginosa															
Coelosphaerium kuetzingianum												160019		53340	53340
Dactylococcopsis linearis								P							
Desmonema wrangelii	18965	19266	10330	16187	2930						P		P		
Dichothrix gypsophila	6694		1808	2834	1999	199134	82833	75489	119152	40047	2876	P	49679	17518	16102
Gloeothece linearis v. *composite*	P	P	516	172	172						P	4532	1961	2164	1312
Gomphosphaeria lacustris	P		10330	3443	3443	10738		P	3579	3579		27541	83670	37070	24619
Lyngbya birgei															
Lyngbya contorta															
Microcoleus vaginatus													P		
Microcystis flos-aquae	P	52018	76957	42992	22669			222887	74296	74296	59345		83670	47672	24849
Nostoc commune	47413	15963	9038	24138	11808	24729	18407	60847	34661	13220	1880	16573	17780	12078	5111
Oncobyrsa cesatii															
Oscillatoria sp.															
Oscillatoria limosa															
Pseudanabaena sp.															
Schizogonium murale															
Schizothrix calcicola	156742	42110	34346	77733	39568	348160	346672	326034	340289	7140	274803	344992	148514	256103	57484
Scopulonema minus							25907	6833	10913	7752					
Stigonema mamillosum	P														
Unidentified Cyanophyte akinete															
Total Algal Density (No. cells/cm²)	397882	244969	248855	297235	50336	743349	774793	900289	806144	47940	533680	703942	559860	599161	52933

[a] P = present, but not encountered during routine cell counts; SE = standard error.

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Appendix E3. Periphytic algal densities (no. cells/cm^2) in lakes of the Meliadine Study Area, 1997 and 1998

Species	B7					D7					G2				
	July 1998					July 1997					July 1997				
	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 2	Rep 3	Rep 4	Mean	SE
BACILLARIOPHYTA (Diatoms)															
Achnanthes detha						3138	2440	9517	5032	2252					
Achnanthes flexella	P	P	P			P	P	P			P	P	P		
Achnanthes lanceolata								P							
Achnanthes minutissima	50057	87381	36316	57918	15256	36083	15979	25197	25753	5810	12992	21223	18347	17521	2412
Achnanthes minutissima v.*cryptocephala*	4718	6136	2957	4604	919		348	P	116	116	163	1307	P	490	411
Amphipleura sp.			P												
Amphora sp.	1302	682		661	376										
Amphora ovalis	P	P				P	P	P			P	P	P		
Amphora ovalis v. *pediculus*															
Anomoeoneis sp.															
Anomoeoneis vitrea															
Asterionella formosa															
Caloneis sp.	P	1364	P	455	455										
Caloneis ventricosa	P							P							
Caloneis ventricosa v. *truncatula*							P	P			163			54	54
Cocconeis diminuta															
Cocconeis pediculus															
Cocconeis placentula															
Cocconeis placentula v. *euglypta*															
Cocconeis sp.															
Coscinodiscus denarius															
Coscinodiscus lacustris															
Cyclotella sp.															
Cyclotella antiqua	571	1136	1109	939	184	P	P	244	81	81	327	261	261	283	22
Cyclotella comta	P					P									
Cyclotella glomerata		P	P												
Cyclotella kutzingiana	P	P	P												
Cyclotella meneghiniana															
Cyclotella ocellata															
Cyclotella striata						P	P	P							
Cymbella affinis	1464	P	P	488	488										
Cymbella amphioxys								P					P		
Cymbella aspera															
Cymbella cistula		511		170	170	P		P							
Cymbella cuspidata															
Cymbella cymbiformis	P		323	108	108										
Cymbella cymbiformis v. *nonpunctata*						550	1293	488	777	259	105	P	131	79	40
Cymbella gracilis	1302	P		434	434										
Cymbella lanceolata															
Cymbella mexicanum v. *janischii*															
Cymbella minuta	1952	7840	2587	4126	1866	5666	523	2684	2958	1491	327	261	392	327	38
Cymbella naviculiformis		P	P												
Cymbella sinuata															
Cymbella tumida															
Cymbella turgida						P	174	P	58	58			P		
Cymbella turgidula							P	P							
Cymbella sp.						P	P	488	163	163			P		
Denticula tenuis	651	P	739	463	233	275	174	P	150	80	327	523	P	283	153
Diatoma elongatum	2603	758	2125	1829	553	4183	1991	4759	3644	843	1552	1700	261	1171	457
Diatoma vulgare															
Didymosphenia geminata											P				
Diploneis sp.	P		P												
Diploneis elliptica							P	P				P	P		
Diploneir finnica															
Diploneis interrupta															
Diploneis ovalis	P					P		P							
Epithemia sorex	380	3013	832	1408	813	3326	1468	2806	2533	553	490	154	175	273	109
Eunotia arcus															
Eunotia exigua															
Eunotia flexuosa															
Eunotia glacialis															
Eunotia maior															
Eunotia papilio															
Eunotia praerupta	1302	P	P	434	434	P	P	P			P	P	P		
Eunotia praerupta v. *bidens*															
Eunotia sudetica															
Eunotia sp.						P	P				163			54	54
Fragilaria brevistriata															
Fragilaria construens		P													
Fragilaria crotonensis	1952	P	P	651	651	4314	1438	1708	2487	917	490	981	P	490	283
Fragilaria intermedia															
Fragilaria pinnata	P	P	P			7060	3050	4271	4794	1187		1569	2092	1220	629
Frustulia vulgaris															
Gomphonema sp.	P														
Gomphonema acuminatum															
Gomphonema acuminatum v. *coronata*															
Gomphonema angustatum	651	2045	2217	1638	496	261	349	164	258	53	P	261	P	87	87
Gomphonema constrictum							P				163		P	54	54
Gomphonema gracile	P		861	287	287										
Gomphonema intricatum v. *vibrio*															
Gomphonema olivaceum		P	P												
Gomphonema parvulum															
Gyrosigma sp															
Hantzschia amphioxys															
Melosira sp.															
Melosira granulata															
Meridion circulare															
Navicula sp.															
Navicula amphibola						P	P	P				P			
Navicula anglica		P													
Navicula aspera															
Navicula bacillum															
Navicula decussis							P								
Navicula dolosa															
Navicula capitata															
Navicula cryptocephala	2493	1704	5498	3232	1156	2745	2034	488	1756	666	600	2092	332	1008	547
Navicula cryptocephala v. *intermedia*						2092	698	2806	1865	619	3705	4183	4052	3980	143
Navicula cuspidata															

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Appendix E3. Periphytic algal densities (no. cells/cm^2) in lakes of the Meliadine Study Area, 1997 and 1998

Species	B7					D7					G2				
	July 1998					July 1997					July 1997				
	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 2	Rep 3	Rep 4	Mean	SE
Navicula exigua							P				P	P	P		
Navicula exigua v. *capitata*															
Navicula lacustris		P													
Navicula laevissima															
Navicula lanceolata		11846	P	3949	3949										
Navicula mutica		P													
Navicula placenta															
Navicula pseudoscutiformis															
Navicula pupula		P	P			P	P	P			P	P			
Navicula radiosa		4692	1479	2057	1385	784	436	2360	1193	592	653	261	175	363	147
Navicula reinhardtii						P	P								
Navicula rhynchocephala															
Navicula tripunctata	2603	254		952	829										
Navicula tripunctata v. *schizonemoides*															
Navicula viridula	380	3091	3142	2204	912										
Nedium sp.											P				
Nedium bisulcatum															
Nedium dubium															
Nedium hitchcockii															
Nedium iridis v. *amphigomphus*						P						154		51	51
Nitzschia sp.		P													
Nitzschia acicularis															
Nitzschia amphibia			P				P								
Nitzschia angustata		P					P	P							
Nitzschia dissipata													P		
Nitzschia filiformis	380	1364	1109	951	295	523	P		174	174	327	719	458	501	115
Nitzschia fonticola	P	P	P			P	P				654	P	P	218	218
Nitzschia palea	P														
Nitzschia sigmoidea		P	P			P	174	P	58	58					
Pinnularia sp.						P						P	P		
Pinnularia biceps															
Pinnularia borealis															
Pinnularia maior															
Pinnularia mesolepta			P												
Pinnularia nodosa								P							
Pinnularia streptoraphe								P							
Pinnularia viridis															
Rhizosolenia longiseta															
Rhoicosphenia curvata															
Rhopalodia gibba	P	P	P			P	174	P	58	58					
Rhopa;pdoa gebberula															
Stauroneis anceps		P				P	P	P			P	P	P		
Stauroneis phoenicenteron						P	P								
Stauroneis smithii															
Stauroneis sp.			P												
Stephanodiscus astraea	P	P	P												
Surirella sp.		P					P								
Surirella angustata															
Synedra actinastroides	18059	19819	12541	16806	2192	19419	7585	14733	13912	3441	2533	4707	4053	3764	644
Synedra acus	P	P	647	216	216										
Synedra sp.															
Synedra ulna	P	758	P	253	253	P					P	P	P		
Tabellaria fenestrata	903	4072	370	1782	1155	783	1569		784	453	396	2222	498	1039	592
Tabellaria flocculosa	1302	13124	122	4849	4151	6406	610	6772	4596	1996	2723	784	2117	1875	573
CRYPTOPHYTA (Cryptomonads)															
Cryptomonas curvata															
Cryptomonas erosa															
Cryptomonas ovata	P						P								
Cryptomonas reflexa															
Katablepharis ovalis											163			54	54
Rhodomonas minuta						261			87	87					
CHRYSOPHYTA (Golden-Brown Algae)															
Chrysidiastrum catenatum															
Chrysococcus sp.												261		87	87
Chrysoikos sp.															
Chrysosphaerella rodhei															
Dinobryon crenulatum															
Dinobryon divergens	1302	3238	310	1617	860	P									
Dinobryon sertularia	7484	8352	5082	6973	978	523			174	174	163		P	54	54
Dinobryon sertularia v. *protuberans*	1302	1364	P	889	445	1046	872	732	883	91	327	P	P	109	109
Dinobryon sociale	2278	3409	1479	2389	560			P							
Dinobryon tabellariae	P					261		244	168	84	P	P			
Ishtmochloron trispinatum	P	P	740	247	247						P		P		
Kephyrion sp.															
Kephyrion boreale	651	1364		672	394	784	349	244	459	165	163	523		229	155
Ochromonas spa		2045	370	805	629								P		
Ochromonas stellaris			P												
Ophiocytium sp.															
Pseudokephyrion sp.															
Stichogloea doederleinii	5206	5454	4805	5155	189										
Synura sp.															
Unidentified statospore	1952	1364	1479	1598	180	523	872	976	790	137	327	2615	1569	1504	661
PYRROPHYTA (Dinoflagellates)															
Glenodinium sp.															
Gymnodinium sp.															
Gymnodinium uberrimum	761	P	P	254	254	P					P		P		
Peridinium sp.	P	P	P			131	P	P	44	44	P	P			
Peridinium aciculiferum	P		P			P		P			79	P	P	26	26
Peridinium cinctum		P	P												
Peridinium palatinum															
Peridinium palustre															
Peridinium willei															
Unidentified cyst	380	1136	277	598	271		P	244	81	81	708	154	P	287	215
EUGLENOPHYTA (Euglenoids)															
Euglena sp.															
Phacus sp.			P												
Trachelomonas sp.			P			P					P				

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Appendix E3. Periphytic algal densities (no. cells/cm^2) in lakes of the Meliadine Study Area, 1997 and 1998

Species	B7					D7					G2				
	July 1998					July 1997					July 1997				
	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 2	Rep 3	Rep 4	Mean	SE
CHLOROPHYTA (Green Algae)															
Actinotaenium sp.															
Ankistrodesmus convolutus															
Ankistrodesmus falcatus	P	P	122	41	41	523	291	244	353	86	P	P			
Ankistrodesmus falcatus v. *spiralis*	1302	P	739	680	377	1569	697	1464	1243	275	238	523	523	428	95
Ankistrodesmus gelifactus															
Arthrodesmus triangularis		P	P												
Binuclearia sp.		P													
Botryococcus sp.		P													
Bulbochaete sp.	8135	379	1479	3331	2423	1569	1264	1220	1351	110	1188	P		396	396
Chlamydomonas sp. a															
Chlamydomonas sp. b	651			217	217										
Closterium sp.		P	P			P		P							
Closterium acerosum															
Closterium actum													261	87	87
Closterium dianae															
Closterium pseudolunula															
Closterium rostratum															
Coeloastrum sp.															
Coeloastrum cambricum															
Coelastrum microporum		P	20699	6900	6900										
Coeloastrum printzii		P	P								163			54	54
Coeloastrum sphaericum	P					3922	P	P	1307	1307			P		
Cosmarium sp.	P	P					174		58	58					
Cosmarium anceps															
Cosmarium biculatum															
Cosmarium botrytis						P	P	131	44	44			166	55	55
Cosmarium capitulum v. *groenlandicum*															
Cosmarium contracta							P								
Cosmarium coronatum															
Cosmarium depressum											P	P			
Cosmarium granulatum		P	739	246	246	P		P			P	154		51	51
Cosmarium holmiense v. *intermedium*		P				P					P	P			
Cosmarium humile v. *lacustre*	P	P	P					P					P		
Cosmarium impressulum v. *suborthogonum*		P					P						P		
Cosmarium laeve													P		
Cosmarium norimbergense	380	P	P	127	127	138	P	P	46	46	P	P	P		
Cosmarium phaseolus v. *phaseolus*	P	1364		455	455										
Cosmarium pokornyanam															
Cosmarium pseudoprotuberans															
Cosmarium rectangulare	P	P	P			P		P			82	154	P	79	44
Cosmarium rectangulum		331	P	110	110										
Cosmarium reniforme															
Cosmarium repandum															
Cosmarium septentrionale	P	1515	370	628	456										
Cosmarium speciosum						550	P	367	306	162	286	523	498	436	75
Cosmarium subgranatum															
Cosmarium tetraopthalmum	P		P			P						P			
Cosmarium turpinii		P	P				P				P	P			
Cosmarium turpinii v. *podolicum*															
Crucigenia apiculata															
Crucigenia quadrata		P													
Crucigenia rectangularis											P		P		
Cylindrocystis brebissonii	651	907	739	766	75	523	174	P	232	154	P	784	P	261	261
Desmidium swartzii v. *quadrangulatum*															
Dictyosphaerium pulchellum															
Elakatothrix sp.	1302	P	370	557	387	261	P	58	106	79	163	P	523	229	155
Euastropsis richteri															
Euastrum sp.															
Euastrum bidentatum		P					P	P					P		
Euastrum denticulatum															
Euastrum dubium v. *maius*		758	P	253	253	P	523	P	174	174	P	P	P		
Euastrum elegans	380	P	370	250	125	619	P		206	206	79		P	26	26
Euastrum gemmatum							174	261	145	77	P		P		
Euastrum insulare v silesiacum															
Euastrum obesum															
Euastrum ohioense															
Euastrum sinosum						P		P							
Euastrum verrucosum	P		P												
Gemellicystis neglecta															
Geminella interrupta													P		
Gloeocystis schroeteri	5857	6136	739	4244	1754	5752	2615	6589	4985	1210	4739	12726	4706	7390	2668
Gloeotila pelagica												P			
Golenkinia radiata v. *brevispina*												261		87	87
Gonatozygon brebissonii	P	P													
Gonatozygon monotaenium											P	P			
Hyalotheca sp.															
Kirchneriella sp.						261	174		145	77					
Koliella longiseta															
Lagerheimia subsalsa												P			
Lagerheimia wratislawiensis															
Micractinium pusillum		P													
Monoraphidium sp.															
Mougeotia sp. a	P	P	P			981	479	610	690	150	1783	2092	981	1619	331
Nephrocytium limneticum		P									327		P	109	109
Ooedogonium sp.															
Oocystis elliptica	5206			1735	1735	P		P			P	P	P		
Oocystis lacustris		16362	2218	6193	5124	7844	1917	3172	4311	1803	9478	6798	9151	8476	844
Oocystis solitaria															
Oonephris obesa	2063	2045	P	1369	685			1708	569	569					
Quadrigula closterioides						P									
Phacotus sp.						261	174		145	77		523	523	349	174
Pandorina morum						P						P	P		
Pediastrum boryanum							7495	10982	6159	3240		P			
Pediastrum boryanum v. *ellesmerense*						2702	174	P	959	873					
Pediastrum duplex	P		P												
Pediastrum duplex v. *clathratum*															
Pediastrum integrum v. *scutum*															
Pediastrum tetras	P	3409		1136	1136	1583	1394	P	992	499	P	P			

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Appendix E3. Periphytic algal densities (no. cells/cm^2) in lakes of the Meliadine Study Area, 1997 and 1998

Species	B7					D7					G2				
	July 1998					July 1997					July 1997				
	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 2	Rep 3	Rep 4	Mean	SE
Penium sp.															
Penium margaritaecum															
Pleurotaenium sp.															
Pleurotaenium trabecula															
Protoderma sp.															
Scenedesmus bijuga			P					976	325	325	P				
Scenedesmus acuminatus						1569	P	244	604	487					
Scenedesmus arcuatus															
Scenedesmus denticulatis			P												
Scenedesmus ecornis															
Scenedesmus incrassatulus	P	4091	P	1364	1364	P		P			1307	4445	1328	2360	1043
Scenedesmus obliquus															
Scenedesmus quadricauda		P				3922		2928	2283	1177		P	P		
Scenedesmus spinosus															
Scenedesmus wisconsinensis															
Spirogyra sp.		P													
Staurastrum sp. a	380	P	P	127	127	P	P	174	58	58	327			109	109
Staurastrum sp. b															
Staurastrum sp. c															
Staurastrum anatinum v. *biradiatum*															
Staurastrum antilopaeum															
Staurastrum anatinum															
Staurastrum apiculatum											P				
Staurastrum borgeanum	P	379	370	250	125			P				392	P	131	131
Staurastrum brebissonii											P	P			
Staurastrum clevei															
Staurastrum curvatum		P													
Staurastrum cuspidatum															
Staurastrum dejectum		P	P			P	P	P			P		P		
Staurastrum furcigerum			P												
Staurastrum gladiosum															
Staurastrum hystrix															
Staurastrum longebranchiatum															
Staurastrum lunatum															
Staurastrum manfeldtii															
Staurastrum pachyrhynchum	P	P	370	123	123	138		P	46	46		P	P		
Staurastrum pilosum													P		
Staurastrum proboscidium															
Staurastrum rhabdophorum															
Staurastrum subcruciatum											P		P		
Staurastrum tetracerum	P	P				P									
Staurastrum varians		P													
Staurodesmus triangularis															
Stigeoclonium sp.															
Teilingia granulata	1302	5757	3696	3585	1287	2092	P	732	941	613	1634	523	261	806	421
Tetraedron tumidulum												P			
Tetraedron limneticum															
Tetraedron lobulatum															
Tetraedron minimum		1364	739	701	394	1046	1743	732	1174	299	1307	784		697	380
Tetraedron muticum	5857		P	1952	1952							P			
Tetraedron arthrodesmiforme		682	370	351	197										
Tetraedron caudatum											490	784	498	591	97
Tetraedron trigonum															
Trochiscia granulata		P													
Xanthidium antilopaeum															
Xanthidium subhastiferum v murrayi															
Zygnema sp.		P	P								P	261	P	87	87
CYANOPHYTA (Cyanobacteria)															
Agmenellum quadruplicatum											P	P	P		
Agmenellum thermale	P	36815	19959	18925	10640						P		10459	3486	3486
Anabaena sp.	P	P													
Anabaena lapponica						36736	35211	29284	33744	2273	2942	P	1046	1329	861
Anabaena planctonica															
Anacystis dimidiata	651	1364	1848	1288	348	P	P								
Anacystis marina															
Anacystis montana											52294			17431	17431
Anacystis thermalis		48480	4436	17639	15474	4445	1743	2928	3039	782	327			109	109
Aphanocapsa elachista	24729	18067	34006	25601	4622	1569			523	523					
Aphanocapsa elachista v. *planctonica*	40457	306790	124564	157270	78604		17082	10982	9355	4998		173877	23794	65890	54428
Aphanothece clathrata	121603			40534	40534						16669	4183	6537	9130	3830
Chlorogloea microcystoides															
Chroococcus turgidus						P	174	P	58	58	P	P	784	261	261
Coccochloris aeruginosa															
Coelosphaerium kuetzingianum						P					P				
Dactylococcopsis linearis	12365	8863	P	7076	3680										
Desmonema wrangelii						31899	37651	6101	25217	9701	31703	10197	55431	32444	13063
Dichothrix gypsophila	73824	279520	4805	119383	82510	3138			1046	1046	P	15534	66413	27316	20056
Gloeothece linearis v. *composite*											376	P	2092	823	644
Gomphosphaeria lacustris	P	17424	17742	11722	5862	34775	204513	P	79763	63178	23859	104587	49970	59472	23784
Lyngbya birgei															
Lyngbya contorta															
Microcoleus vaginatus	P	P						P					P		
Microcystis flos-aquae	P		33266	11089	11089						P				
Nostoc commune	8785	57267	40289	35447	14203	P	P	P			P	44445	78441	40962	22711
Oncobyrsa cesatii															
Oscillatoria sp.															
Oscillatoria limosa															
Pseudanabaena sp.															
Schizogonium murale															
Schizothrix calcicola	383952	587673	206251	392625	110192	138840	81926	104204	108323	16558	181394	202377	83931	155901	36491
Scopulonema minus	26681	31361	14600	24214	4993										
Stigonema mamillosum	P	P									2535	P	2092	1542	782
Unidentified Cyanophyte akinete							174		58	58					
Total Algal Density (No. cells/cm²)	842854	1638419	625411	1035561	307895	390364	442536	268016	366972	51719	366473	633842	435322	478546	80151

[a] P = present, but not encountered during routine cell counts; SE = standard error.

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Appendix E4. Phytoplankton and zooplankton collection data from the Meliadine Study Area, 1997 and 1998.

Basin (Site)	Date	UTM Coordinates (Zone 15V)		Secchi Disk Depth (m)	Phytoplankton		Zooplankton		
		Easting	Northing		Haul Depth (m)	Chlorophyll *a* (mg/m^3)	Haul Depth (m)	No. of Hauls[b]	Volume Filtered (m^3)
Meliadine Lake (ML-E)	19-Jul-97	542941	6988744	7.5	13.0	0.00	13.0	2	0.338
	17-Aug-97	543003	6988672	6.7	12.5	0.46	12.5	2	0.325
	17-Jul-98	543271	6988687	5.0	10.0	0.00	10.0	2	0.260
	04-Sep-98	543374	6988690	4.5	12.5	1.82	12.0	1	0.156
Meliadine Lake (ML-S)	20-Jul-97	532380	6989160	6.3[a]	5.0	0.43	5.0	2	0.130
	16-Aug-97	532283	6989160	6.2[a]	5.0	0.33	5.0	3	0.195
	25-Jul-98	533472	6988343	5.2	5.0	0.63	5.0	2	0.130
	01-Sep-98	534000	6987600	4.1	8.5	2.43	8.0	1	0.104
Meliadine Lake (ML-SE)	22-Jul-98	535806	6986383	3.0[a]	2.0	0.83	2.0	2	0.052
Meliadine Lake (ML-W)	20-Jul-97	524254	7000982	8.0	7.0	0.06	7.0	2	0.182
	16-Aug-97	524294	7000981	8.5[a]	7.0	0.25	7.0	2	0.182
	27-Jul-98	525720	7000850	6.5[a]	5.0	0.47	5.0	2	0.130
Peter Lake (PL)	28-Jul-98	509585	6993227	7.5	12.0	0.30	12.0	2	0.312
Little Meliadine Lake (LML)	29-Jul-98	537808	6977963	6.6	12.0	0.57	12.0	2	0.312
	02-Sep-98	537808	6977963	7.5	12.0	0.90	12.0	1	0.156
Basin A (A6)	23-Jul-97	541777	6985645	2.5[a]	1.5	0.00	1.5	2	0.039
	17-Aug-97	541816	6985549	2.5[a]	2.0	1.18	2.0	2	0.052
	24-Jul-98	541777	6985645	3.8[a]	3.0	1.08	3.0	2	0.078
Basin A (A8)	22-Jul-97	540123	6987122	3.6[a]	2.5	0.96	2.5	2	0.065
	18-Aug-97	540108	6987096	3.4[a]	2.5	0.96	2.5	2	0.065
	23-Jul-98	540123	6987122	2.8[a]	2.0	1.50	2.0	2	0.052
Basin B (B2)	21-Jul-97	537540	6986964	2.6[a]	2.0	1.49	2.0	3	0.078
	18-Aug-97	537441	6986909	2.5[a]	2.0	1.22	2.0	2	0.052
	21-Jul-98	537540	6986964	3.0[a]	2.5	2.08	2.5	2	0.065
	30-Aug-98	537441	6986909	2.8[a]	2.5	1.89	2.5	2	0.065
Basin B (B5)	19-Jul-97	537794	6988576	2.8[a]	2.0	3.03	2.0	2	0.052
	18-Aug-97	537799	6988532	2.3[a]	2.0	3.08	2.0	2	0.052
	20-Jul-98	537794	6988576	2.0[a]	1.0	1.46	1.3	2	0.034
	28-Aug-98	537799	6988532	3.0[a]	2.5	1.56	2.5	2	0.065
Basin B (B7)	18-Jul-97	537685	6989544	3.2[a]	2.5	1.08	2.5	2	0.065
	19-Aug-97	537701	6989443	3.8[a]	2.5	1.67	2.5	2	0.065
	19-Jul-98	537685	6989544	3.5[a]	3.0	n.d.[3]	3.0	2	0.078
	22-Aug-98	537701	6989443	3.0	3.5	2.22	2.5	2	0.065
Basin D (D7)	17-Jul-97	536724	6988687	2.2[a]	2.0	1.68	2.0	3	0.078
	19-Aug-97	536774	6988690	2.2[a]	2.0	1.27	2.0	2	0.052
Basin G (G2)	24-Jul-97	538579	6990582	2.25[a]	1.5	1.01	1.5	3	0.059
	22-Aug-97	538579	6990582	2.1[a]	1.5	1.36	1.5	2	0.039

[a] Secchi depth = bottom depth

[b] Zooplankton net aperature size = 0.013 m^2

[c] n.d. = not determined

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Appendix E5. Phytoplankton biomass (µg/L) in lakes of the Meliadine Study Area, 1997 and 1998.

Taxa	ML-E				ML-S				ML-W			ML-SE	PL	LML		A6		
	19-Jul-97	17-Aug-97	17-Jul-98	04-Sep-98	20-Jul-97	16-Aug-97	25-Jul-98	01-Sep-98	20-Jul-97	16-Aug-97	27-Jul-98	22-Jul-98	28-Jul-98	29-Jul-98	02-Sep-98	23-Jul-97	17-Aug-97	24-Jul-98
Bacillariophyta (Diatoms)																		
Achnanthes detha																		
Achnanthes exigua																		
Achnanthes flexella											P	P	P	P			P	P
Achnanthes lanceolata	P							P										
Achnanthes minutissima	0.7	P	0.7	P	0.6	P	1.2			1.0	P	P		P	P	P	5.8	1.3
Achnanthes minutissima v. *cryptocepala*		P		P						P		P		P		P	P	P
Amphipleura pellucida							P											
Amphora ovalis			P			P		P									P	
Amphora ovalis v. *pediculus*																		
Anomoeoneir vitrea			P				P											
Asterionella formosa		89.1	4.0	145.3	P	P	P	30.8	P	P	P	P	P	8.4	2.1		P	
Cocconeis placentula																P		
Cocconeis diminuta																		
Cocconeis sp.								P				P						
Cyclotella antiqua																		
Cyclotella bodanica	12.9	P			20.2	3.1			P	2.9						P	15.0	
Cyclotella comta				18.1							P		14.3		4.5			
Cyclotella glomerata	0.5	56.6			0.9		0.5	5.1								87.5	117.6	
Cyclotella kutzingiana													4.9					42.5
Cyclotella meneghiniana										P				8.5				
Cyclotella ocellata		P	P	28.8	P		P		2.1	2.5	0.9	P		1.8	23.3			
Cymbella affinis													P					
Cymbella cistula											P							
Cymbella cuspidata										P								
Cymbella gracilis																		
Cymbella minuta	P	P	P	P	P			P			P	P	P	P		P		P
Cymbella sp.					P		P					P			P			
Denticulatis tenuis							P					P				P	3.0	
Diatoma elongatum	P		P	P	P	P	P	P			P	P		P	7.5	P		P
Diploneis puella			P	P			P	P										
Diploneis sp.						P											P	
Epithemia sorex			P					P					P		P	P	P	
Eunotia exigua																		
Eunotia glacialis													P					
Eunotia praerupta				P								P					13.4	P
Eunotia praerupta v. *inflata*			P															
Eunotia sp.						P		P			P							
Fragilaria construens			P	5.4			P	P			P	P						
Fragilaria crotonensis				P				P			P	P						
Fragilaria intermedia																		
Fragilaria pinnata		P	P				P	24.8			P	P						
Fragilaria sp.																		
Gomphonema angustatum					P		P				P			P		P	P	
Gomphonema constrictum																		
Gomphonema gracile			P								P							
Gomphonema intricutum v. *vibrio*								P										
Gomphonema olivaceum																		
Gomphonema parvulum			P															
Gomphonema sp.				P							P	P						
Hantzschia amphioxys			P											P				
Melosira sp.													P	P				
Meridion circulare																		
Naviculum bacillum			P															
Navicula cryptocephala	P	P	P					P				P		P				3.9
Navicula decussis																		
Navicula exigua																		
Navicula lanceolata								P						P				
Navicula mutica			3.3								P							
Navicula pupula								P			P	P		P				P
Navicula radiosa	P	P	P	P			P						P			P		P
Navicula reinhardtii																		
Navicula scandinavica																		
Navicula tripunctata																		
Navicula viridula				P				P				10.7	P					
Navicula sp.			P													P	4.3	
Nitzschia acicularis					P							P				3.9		
Nitzschia amphibia			P					P			P		P					P
Nitzschia angustata											P					P		
Nitzschia dissipata															P			
Nitzschia filiformis	P		P	P				11.2	P		P	P	P	P	P		P	P
Nitzschia fonticola			P				P	P			P	P						
Nitzschia palea							P											
Nitzschia sigmoidea			P	P								P						
Nitzschia sp.								P								P		P
Pinnularia stomatophora													P					
Pinnularia sp.																	P	
Rhizosolenia longiseta	4.4			11.6	P		6.0	17.7				3.6						3.5
Rhopalodia gibba							P	P							89.1			
Stauroneis anceps			P				P	P									P	P
Stauroneis sp.																		
Stephanodiscus astraea			22.8	P	P	P	P	14.8		P	P	P		33.4	P			15.6
Stephanodiscus niagarae																		
Surirella angustata			P															
Surirella ovalis						P												
Surirella sp.																P	P	
Synedra acus					P													
Synedra ulna										P								P
Synedra sp.	2.3	1.1	33.4	3.7	0.5	1.4	20.6	38.0	1.5	2.5	17.6	35.4	2.6	3.0	2.7	9.2	0.4	2.7
Tabellaria fenestrata	20.9		P	P		P	63.4			P	P	P	P	P	P	P	P	
Tabellaria flocculosa			P	P	P		P	179.3	P	P	7.6	P	P	12.5	6.2	P	P	P
Total Bacillariophyta	**41.7**	**146.8**	**64.2**	**212.8**	**22.2**	**4.5**	**91.6**	**321.6**	**3.5**	**8.8**	**26.1**	**49.7**	**21.8**	**67.6**	**135.3**	**100.7**	**159.6**	**69.4**

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Appendix E5. Phytoplankton biomass (µg/L) in lakes of the Meliadine Study Area, 1997 and 1998.

Taxa	ML-E				ML-S				ML-W			ML-SE	PL	LML		A6		
	19-Jul-97	17-Aug-97	17-Jul-98	04-Sep-98	20-Jul-97	16-Aug-97	25-Jul-98	01-Sep-98	20-Jul-97	16-Aug-97	27-Jul-98	22-Jul-98	28-Jul-98	29-Jul-98	02-Sep-98	23-Jul-97	17-Aug-97	24-Jul-98
Cryptophyta (Cryptomonads)																		
Cryptomonas curvata			P	P	5.1	P		P			P	P			22.4		P	P
Cryptomonas erosa				5.2				P										
Cryptomonas ovata		11.8	19.4	P	5.0	P	P	19.0	P		7.8	27.6	12.9	P	7.7		P	P
Cryptomonas reflexa	7.5	6.4	11.5	11.1	6.3	5.5	19.1	19.4	7.4	1.4	10.1	26.3		38.3	33.6	32.7	8.2	50.7
Cyanomonas sp.																		
Katablepharis ovalis	5.9	P	0.8	0.9	5.4	6.7	2.8	7.7	6.3	10.7	0.4	2.4			P	6.0	14.3	5.0
Rhodomonas minuta	9.7	P	8.6	12.0	19.4	18.6	7.3	12.9	21.0	23.2	4.7	11.7	2.0	10.2	170.5	22.3	11.8	36.5
Total Cryptophyta	**23.1**	**18.2**	**40.3**	**29.2**	**41.3**	**30.8**	**29.3**	**59.0**	**34.7**	**35.3**	**23.0**	**68.0**	**15.0**	**48.4**	**234.3**	**61.0**	**34.3**	**92.1**
Chrysophyta (Chrysophytes)																		
Bitrichia longispina	0.4	P		1.1	1.5	0.8		2.5	P	0.7	0.7	5.8	1.5	P	P			
Botrycoccus protuberans																		
Chromulina sp.	1.7	P	P	3.3	2.3	P	P	P		2.4				2.6	3.6	P	P	2.0
Chrysidastrum catenatum		P	62.4	140.8		48.6	P	P		10.1								
Chrysochromulina parva	4.2	25.1	7.2	56.6	7.5	8.8	33.8	51.4	10.7	4.9	1.2	2.2	1.2	3.6	15.5	4.9	1.9	0.9
Chrysococcus sp.	7.8	4.2			1.8				1.9								P	
Chrysoikos skujai	1.5	2.1	1.8	2.3	2.8	6.0	3.5	4.3	0.3	0.3	4.7	10.8	0.9	1.8			1.2	P
Chrysosphaerella rodhei	32.5	73.6	229.4	82.0	83.6	170.5	286.0	324.7	60.2	163.4	84.1	316.3	27.2	299.0	74.2	396.1	258.2	141.8
Chrysostephanosphaera globulifera	P	P				P		3.6	1.0	P	P							
Dinobryon crenulatum		7.4		84.7		14.5		38.1	P	6.5		7.4	P	14.5			6.3	13.3
Dinobryon divergens	42.5	17.1	12.7	262.3	19.5	5.3	50.9	152.0	13.8	4.9	32.6	122.7	77.7	56.9	128.0	18.5	95.2	851.4
Dinobryon sertularia		16.2	6.3	14.5	80.5	13.5	139.4	28.0	83.3	6.9	108.1	49.6	23.3	31.0	10.1	P	20.7	4.5
Dinobryon sertularia v. *protuberans*	107.0		127.5		56.6		88.8		53.8		29.0	36.9	21.8	4.8				P
Dinobryon sociale	84.5	98.6	799.4	13.2	131.3	P	200.5	162.0	103.2		222.6	154.4	114.7	38.5	37.3	25.1	29.8	33.9
Dinobryon tabellariae	14.4		10.6		7.4	P	58.9	P	27.7	3.1	50.4	20.9	21.4	17.0		59.4		P
Ishtmochloron trispinatum	P		P	P														
Kephyrion boreale	13.1	19.2	164.0	174.9	26.5	5.3	48.9	117.6	15.2	22.0	196.3	636.9	27.3	71.5	237.9	13.1	9.2	48.8
Kephyrion sp.			P				3.9				P	P	3.1	P				P
Mallomonas sp.	0.4	P		7.1	3.5	P		9.6	10.1					2.8	5.9	2.4	P	11.2
Ochromonas sp. a	18.5	23.7		4.2	31.7	9.2		23.9	1.4	1.5		16.7		2.5	12.7	21.8	89.1	P
Ochromonas sp. b		P		P				P	P	P					P	1.4	P	2.1
Ochromonas stellaris			P					P						P	16.3			
Ophiocytium sp.			P								P							
Pseudokephyrion sp.	3.4		4.1		1.6		7.8	1.6			2.5	8.1	0.5		P			1.6
Stelexmonas sp.												0.7						
Stichogloea doederleinii		2.1		P	2.8	2.5	P	51.7	7.7	2.1	3.4	3.4	2.6	5.9	9.9	11.5	7.8	10.7
Synura sp.	P	P	2.8	P	P	P	P	P				19.8	P		P			
Unidentified Chrysophyta colony		P																
Unidentified statospore		P	19.1	P		P	7.4				16.6	5.2	5.6	P	5.2	P	P	14.7
Total Chrysophyta	**331.8**	**289.2**	**1447.1**	**846.9**	**461.0**	**285.0**	**929.8**	**970.9**	**390.3**	**228.8**	**752.4**	**1417.8**	**328.9**	**552.4**	**556.5**	**554.1**	**519.5**	**1136.8**
Pyrrophyta (Dinoflagellates)																		
Glenodinium sp.	9.7	9.4	2.3	7.3	1.9	7.1	3.5	48.2	6.0	7.8	6.7	5.7	P	P	5.2	17.9	6.0	3.0
Gymnodinium sp.			16.1	P			P	42.5		P	4.2		11.0		P	P		P
Gymnodinium helveticum	29.5	P	P	P	P	P	3.7		P	P	P	71.9	P		P			P
Gymnodinium uberrimum	27.9	44.7	P	P	P	P	P	P		24.2	P	P	42.5	P		P	44.8	94.6
Peridinium sp.	P		53.1				P		P			P	P					
Peridinium aciculiferum	7.1	6.4	23.4	P	25.6	46.3	22.9	64.8		17.2	1.7	35.0	P	42.8	P		46.7	17.6
Peridinium cinctum											P	P					P	
Unidentified cyst	P		140.9		25.1	25.2			P	P						13.5	P	
Total Pyrrophyta	**74.2**	**60.6**	**235.8**	**7.3**	**52.6**	**78.5**	**30.2**	**155.5**	**6.0**	**49.2**	**12.6**	**112.6**	**53.5**	**42.8**	**5.2**	**31.4**	**97.5**	**115.1**
Euglenophyta (Euglenoids)																		
Leppocinslis sp.					2.1													
Trachelomonas sp.				P											P			
Total Euglenophyta					**2.1**													
Chlorophyta (Green Algae)																		
Ankistrodesmus convolutus			P		0.0			282.3				P		0.2	6.0	0.4	2.5	
Ankistrodesmus falcatus						0.0				P					P	0.1	0.1	
Ankistrodesmus falcatus v. *spiralis*					P													0.9
Ankistrodesmus gelifactus	0.4	0.2			0.3	0.3			0.7	0.2						2.3	0.7	
Arthrodesmus triangularis	6.6	2.8		4.1	3.9	P	P		11.5	P		P	P		3.9			
Binuclearia sp.																		
Botryococcus sp.				P									P	P				
Chlamydomonas sp. a				41.9				10.3					3.4			P	2.4	
Chlamydomonas sp. b		P	P	0.9	1.2	P		3.4	12.6						1.1		5.1	P
Chlamydomonas sagittula					3.6													
Coelastrum microporum																		
Coeloastrum sphaericum																		
Closterium sp.																		
Cosmarium biculatum				P									P					
Cosmarium botrytis												P		11.0				
Cosmarium capitulum v. *groenlandicum*							2.2	P				P	P					P
Cosmarium depressum												P						
Cosmarium granulatum							P											P
Cosmarium humile v. *lacustre*																		
Cosmarium impressulum v. *suborthogonum*															P			
Cosmarium laeve						P												
Cosmarium norinbergense																		
Cosmarium phaseolus v. *phaseolus*															2.2			
Cosmarium reniforme								P				P			P			
Cosmarium septentrionale																		
Cosmarium speciosum	P	P			P	P										P		
Cosmarium subgranulata																P		
Cosmarium turpinii																		
Crucigenia quadrata	P	P		P	2.2	P			P	0.6		P	P	P	P	0.2		P
Crucigenia rectangularis	P	P		P	3.7	0.9		P									P	
Cylindrocystis sp.																	21.2	P
Elakatothrix gelatinosa			P	5.2		0.1	0.9	1.8			0.3	P	0.4	2.0	0.3			5.6
Euastrum dubium v. *maius*																	P	
Euastrum elegans	P			P														P
Gemellicystis neglecta																		
Gloeocystis schroeteri	8.4	70.0		19.2	15.5	19.4	4.5		10.3	7.4		67.2	P	P		22.3	10.8	15.5
Golenkinia radiata v. *brevispina*								1.5						5.6		P	5.7	3.2

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Appendix E5. Phytoplankton biomass (µg/L) in lakes of the Meliadine Study Area, 1997 and 1998.

Taxa	ML-E				ML-S				ML-W			ML-SE	PL	LML		A6		
	19-Jul-97	17-Aug-97	17-Jul-98	04-Sep-98	20-Jul-97	16-Aug-97	25-Jul-98	01-Sep-98	20-Jul-97	16-Aug-97	27-Jul-98	22-Jul-98	28-Jul-98	29-Jul-98	02-Sep-98	23-Jul-97	17-Aug-97	24-Jul-98
Gonatozygon montae																		
Kirchneriella lunaris				4.0			P	3.1			1.7			4.7	10.6			5.1
Kirchneriella sp.	0.0													P	0.9	0.0		P
Koliella longisetta																		
Lagerheimia quadrisetta					0.1								P					
Micractinium pusillum												1.4			P			
Monoraphidium sp.							2.5	0.2			0.3	1.3	P	0.2				
Mougeotia sp. a	7.4	7.9			1.2	4.9			1.5	P								
Mougeotia sp. b			3.6	5.3			P	5.2			1.2	10.7		P	3.3			P
Nephrocytium limneticum		0.2			1.6	1.2			0.2	1.1						2.7	3.2	
Oocystis elliptica	31.7	30.6			P					1.1						3.4	20.3	
Oocystis lacustris	0.0	0.0	19.3	91.8	2.3	3.7	10.4	135.4	0.0	0.0	1.5	22.9	2.5	12.9	11.6	0.1	14.5	18.6
Oocystis pusilla									1.7									
Oocystis solitaria													7.1	P	9.8			P
Quadrigula closterioides		4.0		2.3	0.3	1.2			P	0.3						0.5		
Pandorina morum		P																
Pediastrum boryanum			39.6	P								P					16.0	
Pediastrum integrum v. *scutum*																		
Pediastrum tetras					P	P	0.8	3.3				P		P	2.4			
Scenedesmus acuminatus																		
Scenedesmus bijuga						0.3	P										1.0	P
Scenedesmus ecornis																P		
Scenedesmus incrassatulus		P			P			1.9			0.2	P		2.7	P	1.8	P	P
Scenedesmus quadricauda																		
Sphaerocystis schroeteri			13.9	45.7			9.6	35.7			3.0	11.5	3.9	14.0	16.5			20.8
Staurastrum anatinum v. *biradiatum*				P														
Staurastrum apiculatum																		
Staurastrum borgeanum												P						
Staurastrum brebissoni				P														
Staurastrum cyrtocerum																15.2		
Staurstrum dejectum			14.2		P							P		P	P		P	
Staurastrum lunatum															P			
Staurastrum paradoxum											P							
Staurastrum tetracerim																		
Staurastrum sp.		P		P	P													
Teilingia granulata	1.3	P	3.6	4.0	6.0	4.5	P		1.7	6.1	0.7	2.9	P	6.3		1.1	26.8	16.2
Tetraedron arthrodesmiforme			P				P	1.0				0.4	P	0.3	0.2			2.0
Tetraedron minimum		P	P	P	3.5	P					P		P			3.4	2.0	3.0
Tetraedron muticum															0.6			1.0
Tetraedron sp.		P				1.0						P		3.3		2.8	1.1	P
Tetrastrum caudatum																		
Tetrastrum arthrodesmiforme	P	P			0.2	P			0.1							0.9	1.3	
Zygnema sp.															P			
Unidentified flagellate				8.5											4.0			
Xanthidium antilopaeum														P				
Total Chlorophyta	**55.8**	**115.8**	**94.2**	**232.9**	**45.5**	**37.6**	**30.8**	**485.0**	**40.1**	**16.8**	**9.2**	**118.5**	**17.4**	**63.3**	**73.5**	**57.2**	**134.6**	**91.9**
Cyanobacteria																		
Agmenellum quadriplicatum						P									0.5			P
Agmenellum thermale		P																
Anabaena azollae									P									
Anabaena planctonica		P				P					P							
Anabaena sp.	P	3.2		24.9	0.9			P		0.4		P			P		1.7	
Anacystis marina			3.0	0.4			P				2.7	3.5		2.6	20.7			1.0
Anacystis montana															0.4	0.4		
Aphanizomenon flos-aquae																		
Aphanocapsa elachista					P	P											0.2	
Aphanocapsa elachista v. planctonica	0.3		1.1		0.1		5.9	P	7.3	1.1	0.4			3.4			2.9	P
Aphanothece clathrata	1.9	1.1		3.9	0.2	0.2		3.8	0.9	0.2			1.8			0.1	3.2	0.3
Chlorogloea microcystoides																		
Chroococcus turgidus	P	P	P		P					1.1	P	0.9	P	P		2.3	1.3	7.5
Coelosphaerium kuetzingianum		0.6			0.9	P			P	0.3								
Dactylococcopsis linearis			P	0.7			0.8											P
Desmonema wrangelii	P																	
Dichotrix gypsophila		P						P				P	P					
Gomphosphaeria lacustris		P		2.7	P	P		0.2			P	P				20.7	5.5	P
Lyngbya contorta																		
Lyngbya limnetica				P						P		0.8			P	0.8		
Microcoleus vaginatus																	22.2	
Microcystis flos-aquae	P															2.4	3.6	
Nostoc commune																		
Oscillatoria limnetica			0.2		0.2		0.3	P			0.3				0.8			P
Pseudanabaena sp.			1.4				P				1.4							
Schizothrix calcicola																		
Stigonema mamillosum															P			
Total Cyanobacteria	**2.3**	**4.9**	**5.8**	**32.6**	**2.3**	**0.2**	**6.9**	**4.0**	**8.2**	**3.0**	**4.8**	**5.1**	**1.8**	**5.9**	**22.4**	**26.7**	**40.5**	**8.9**
Total Algal Biomass (µg/L)	**528.9**	**635.5**	**1887.4**	**1361.7**	**627.1**	**436.7**	**1118.5**	**1996.0**	**482.9**	**341.9**	**828.0**	**1771.9**	**438.3**	**780.5**	**1027.2**	**831.1**	**985.9**	**1514.3**
Total Number of Taxa Per Sample	***56***	***65***	***75***	***78***	***73***	***63***	***67***	***80***	***46***	***52***	***68***	***83***	***59***	***66***	***70***	***64***	***72***	***77***

Note: P = present but not encountered in routine cell counts.

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Appendix E5. Phytoplankton biomass (μg/L) in lakes of the Meliadine Study Area, 1997 and 1998.

Taxa	A8			B2				B5				B7				D7		G2	
	22-Jul-97	18-Aug-97	23-Jul-98	21-Jul-97	18-Aug-97	21-Jul-98	30-Aug-98	19-Jul-97	18-Aug-97	20-Jul-98	28-Aug-98	18-Jul-97	19-Aug-97	19-Jul-98	22-Aug-98	17-Jul-97	19-Aug-97	24-Jul-97	22-Aug-97
Bacillariophyta (Diatoms)																			
Achnanthes detha											P								
Achnanthes exigua		P																	
Achnanthes flexella	P	P	P			P		P		P		P			P	P			P
Achnanthes lanceolata																P	P		
Achnanthes minutissima	0.5	P	P	P	P	P	0.8		2.0	3.4	P		P		2.4	P	P	P	P
Achnanthes minutissima v. *cryptocepala*	P	P			P	P			P		P				P	P	P	P	
Amphipleura pellucida			P												P				
Amphora ovalis			P				P									P			
Amphora ovalis v. *pediculus*																	P		
Anomoeoneir vitrea										P									
Asterionella formosa		P							P										
Cocconeis placentula		P																	
Cocconeis diminuta															P				
Cocconeis sp.																P			
Cyclotella antiqua						P				P				22.0	54.4				
Cyclotella bodanica	777.2	P		3.5	7.0			2.0	13.9			23.3	3.6				10.0		
Cyclotella comta							37.3							P	150.3				
Cyclotella glomerata	9.1	0.4			39.8					P	9.5	2.3	3.6			2.6	1.3	5.3	5.6
Cyclotella kutzingiana							38.7				20.6				14.3				
Cyclotella meneghiniana		15.3	55.0													P		25.9	5.1
Cyclotella ocellata			41.2			P	1.5				43.5			3.6					
Cymbella affinis		P				P	6.4								P	P	P		
Cymbella cistula			P																
Cymbella cuspidata																	P		
Cymbella gracilis											P								
Cymbella minuta	P	P	P	P		P				P	P			P	P	0.6	P	0.6	P
Cymbella sp.			P				P				P								
Denticulatis tenuis	3.1	3.1	P				8.8						P		P	P			
Diatoma elongatum			P			P	P	P		P	P			P	P	P	P	P	
Diploneis puella						P				P									
Diploneis sp.																			P
Epithemia sorex						P					P				P				P
Eunotia exigua			P																
Eunotia glacialis																			
Eunotia praerupta			P																
Eunotia praerupta v. *inflata*																			
Eunotia sp.	P									P						4.7			
Fragilaria construens						P	P			P				P					
Fragilaria crotonensis	1.5	P				P			P	P	P			P	8.8	P		P	P
Fragilaria intermedia											1.6								
Fragilaria pinnata			P			P	P			P	P			P	P	6.6	4.2	P	
Fragilaria sp.	P									P									
Gomphonema angustatum		P														P			
Gomphonema constrictum					P														
Gomphonema gracile			P				P								P				
Gomphonema intricutum v. *vibrio*																			
Gomphonema olivaceum											P								
Gomphonema parvulum																			
Gomphonema sp.										P									
Hantzschia amphioxys																			
Melosira sp.																		P	
Meridion circulare		P																	
Naviculum bacillum		P															P		
Navicula cryptocephala		P	P			P	P			P	5.6	0.8	P	P	7.3	P	P	P	P
Navicula decussis		P																	
Navicula exigua																	P		
Navicula lanceolata						P	P							P					
Navicula mutica										P				P					
Navicula pupula			P													P	P		
Navicula radiosa		P								P	P		P			P		P	P
Navicula reinhardtii																	P		
Navicula scandinavica																P			
Navicula tripunctata																	P		
Navicula viridula			P			P					P				P	P	P		
Navicula sp.					P									P	P				
Nitzschia acicularis							P												
Nitzschia amphibia		P					P			P					P				
Nitzschia angustata																			
Nitzschia dissipata																P			
Nitzschia filiformis			10.7			P		P		P	P			P	P				
Nitzschia fonticola						P				P	P			P	P				
Nitzschia palea										P								12.1	2.5
Nitzschia sigmoidea		P							P		P	P					P		
Nitzschia sp.		P	P								P		P				P		
Pinnularia stomatophora																			
Pinnularia sp.		P													P				
Rhizosolenia longiseta	11.2		20.1					P	6.2	10.9				1.7			1.8		
Rhopalodia gibba																			
Stauroneis anceps								P							P	P	P	P	P
Stauroneis sp.		P																	
Stephanodiscus astraea		29.2	20.2								44.5					P			
Stephanodiscus niagarae														P					
Surirella angustata																			
Surirella ovalis																P			
Surirella sp.																			
Synedra acus							P							4.4		P			
Synedra ulna			P				P												
Synedra sp.	2.6	4.2	19.8	2.5	3.6	4.5	P	8.9	8.7	57.8	59.8	2.7	5.1		16.0	4.1	10.0	17.7	3.6
Tabellaria fenestrata			P				P			P	P			P	P		13.4	P	
Tabellaria floculosa	P	P		P		P	P	P	P	P	P	P	P	P	P	7.8	P	2.3	72.7
Total Bacillariophyta	**805.2**	**52.2**	**167.0**	**6.0**	**50.4**	**4.5**	**93.5**	**10.8**	**30.8**	**72.1**	**185.1**	**29.1**	**12.3**	**31.6**	**253.4**	**26.5**	**40.7**	**63.8**	**89.5**

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Appendix E5. Phytoplankton biomass (µg/L) in lakes of the Meliadine Study Area, 1997 and 1998.

Taxa	A8			B2				B5				B7				D7		G2	
	22-Jul-97	18-Aug-97	23-Jul-98	21-Jul-97	18-Aug-97	21-Jul-98	30-Aug-98	19-Jul-97	18-Aug-97	20-Jul-98	28-Aug-98	18-Jul-97	19-Aug-97	19-Jul-98	22-Aug-98	17-Jul-97	19-Aug-97	24-Jul-97	22-Aug-97
Cryptophyta (Cryptomonads)																			
Cryptomonas curvata		9.7					P	8.1		P	13.5	P	P	9.7	71.7		6.3	7.5	P
Cryptomonas erosa																P			
Cryptomonas ovata	P	8.6	P		2.2	P	P	P	13.9	25.1	14.8	P		P	14.4	5.6	9.9	P	2.9
Cryptomonas reflexa	43.8	71.6	12.4	4.0	33.0	31.0	30.1	39.4	8.1	59.8	37.0	47.3	12.3	272.4	31.2	5.0	41.0	27.4	25.1
Cyanomonas sp.											P			P					
Katablepharis ovalis	5.3	4.9	12.8	19.1	14.8	0.8	11.4	21.1	21.5	24.4	13.6	2.5	5.9	19.1	25.4	3.8	12.3	7.2	9.0
Rhodomonas minuta	22.9	15.8	18.7	10.9	19.9	32.3	16.4	56.7	10.9	41.2	24.6	25.7	8.1	24.7	19.7	11.9	31.8	22.0	14.2
Total Cryptophyta	**72.0**	**110.7**	**43.9**	**33.9**	**69.9**	**64.1**	**57.9**	**125.3**	**54.4**	**150.5**	**103.5**	**75.5**	**26.3**	**325.8**	**162.4**	**26.3**	**101.3**	**64.2**	**51.2**
Chrysophyta (Chrysophytes)																			
Bitrichia longispina				0.8		P	P	0.4	0.7		P			0.7	6.1				
Botrycoccus protuberans																	10.9		
Chromulina sp.		5.0	1.9	4.4	1.9		P	P	1.4		3.1		P		5.8			4.7	P
Chrysidastrum catenatum					0.7		73.3		49.3		26.7		12.2		25.5		36.5		
Chrysochromulina parva	9.4	9.7	0.5	9.7	30.0	0.7	20.7	49.7	10.6	1.4	44.3	21.8	3.8	2.0	14.3	4.5	4.3	16.3	8.6
Chrysococcus sp.		1.4		82.9				14.3	4.2			22.6				5.8		15.8	1.1
Chrysoikos skujai	P	P	5.5	P	7.5		P		1.8	19.0	1.7			39.5	2.8	P	3.6	0.6	
Chrysosphaerella rodhei	413.5	162.3	315.7	1053.1	153.0	693.8	671.6	84.2	541.5	638.0	23.9	144.4	608.8	42.2	835.0	722.5	162.2	402.7	173.4
Chrysostephanosphaera globulifera									P								1.7	P	6.7
Dinobryon crenulatum		P	22.7		37.7	7.7	61.3		41.3	19.8	68.4		2.4	34.1	55.8	P	4.5		
Dinobryon divergens	P	16.9	245.8	26.5	9.1	162.4	1251.1	72.8	17.9	363.7	P	P	12.5	216.8	32.9	113.0	5.7	P	115.5
Dinobryon sertularia	39.2	69.6	552.3	P	38.0	40.8	12.2	30.9	147.3	401.1	70.7	12.2	3.7	633.7	11.0	132.2	30.5	53.9	23.5
Dinobryon sertularia v. *protuberans*	P		372.1			P			4.0	P		P				23.6			3.7
Dinobryon sociale		3.2	533.7	16.8		12.6	36.8	668.3	9.3	215.8	135.6	2.2	25.8	174.6	13.5	118.7	12.0	9.8	29.4
Dinobryon tabellariae						P		6.4	P	50.9				P		10.9	5.6	4.2	
Ishtmochloron trispinatum								P	P				P	P			3.6	P	
Kephyrion boreale	109.4	41.1	77.4	1.6	57.8	24.2	147.9	19.2	76.3	253.6	103.0	7.8	14.8	582.3	207.3	65.8	155.5	53.8	52.8
Kephyrion sp.			26.2							8.4									
Mallomonas sp.	2.1	P	P	P	6.0		9.3	2.8	P	P		1.9	1.8		P	1.9		P	
Ochromonas sp. a	76.2	11.5			7.4		38.4	118.8	89.8	P	49.5		6.4	P	10.8	28.9	33.0		30.6
Ochromonas sp. b								P				P			4.0				
Ochromonas stellaris							P			P	21.5								
Ophiocytium sp.																			
Pseudokephyrion sp.	P		1.5			1.6	P			10.1	P			2.0	4.0		6.3	2.3	
Stelexmonas sp.																			
Stichogloea doederleinii	19.9	P	6.1	15.6	2.9	108.8	7.1	3.1	3.0	19.0		P	5.4	30.5	33.6		25.0	3.9	1.3
Synura sp.							P	P		10.4				P		28.2	4.4		1.1
Unidentified Chrysophyta colony		P																	
Unidentified statospore	P	P	91.6		P	P	14.8	P	P	12.0				137.7	P	P			
Total Chrysophyta	**669.8**	**320.7**	**2253.1**	**1211.3**	**352.1**	**1052.5**	**2344.4**	**1070.8**	**998.6**	**2023.2**	**548.3**	**212.8**	**697.6**	**1896.0**	**1262.4**	**1256.0**	**505.2**	**567.9**	**447.8**
Pyrrophyta (Dinoflagellates)																			
Glenodinium sp.	15.3	5.7	P	5.0	7.2	4.8	24.8	37.6	3.1	23.3	25.0		4.2	9.4	P	10.8	5.8	2.1	14.2
Gymnodinium sp.			P		P	34.4	P		118.4	190.4	112.1				P		45.4		
Gymnodinium helveticum								P								P	P		
Gymnodinium uberrimum	P	39.6	359.3	P	P		P		44.6	P			376.8	P	P		P	30.1	P
Peridinium sp.				56.7					134.6		P								
Peridinium aciculiferum	6.2	75.4	P		90.3	21.3	28.2	194.4	240.7	P	171.2	P	50.7	5.6	70.5	152.0	257.1	88.7	221.0
Peridinium cinctum		P			P					P					P				
Unidentified cyst			P	P									11.0			P			P
Total Pyrrophyta	**21.5**	**120.7**	**359.3**	**61.7**	**97.5**	**60.6**	**53.0**	**232.0**	**541.4**	**213.7**	**308.3**		**442.8**	**15.1**	**70.5**	**162.9**	**308.4**	**120.8**	**235.2**
Euglenophyta (Euglenoids)																			
Leppocinslis sp.																			
Trachelomonas sp.							P				84.9								
Total Euglenophyta											**84.9**								
Chlorophyta (Green Algae)																			
Ankistrodesmus convolutus	0.7	8.8	2.3		0.1		0.2	0.1	P	P	P		0.1	1.5			P		
Ankistrodesmus falcatus	P	0.0	P	0.2	P	P	P	0.2	P		P	0.4	P		1.2		P	0.3	0.1
Ankistrodesmus falcatus v. *spiralis*	P	0.2				P						1.0	1.0		P	2.0	0.3	0.8	4.1
Ankistrodesmus gelifactus	2.3	1.2		0.8	1.1			1.7	0.7			2.2	0.6			P	1.7		0.0
Arthrodesmus triangularis							P	P			P	P			P				
Binuclearia sp.														P					
Botryococcus sp.						P				P	P				P				
Chlamydomonas sp. a	4.0	2.6	P		0.7	P	26.9		8.1	5.5	59.3	0.3	0.3		30.6	0.3		0.3	0.8
Chlamydomonas sp. b		P				P	1.1	3.9	36.1	2.6	P		14.1	P	2.6	5.1	1.6	3.6	
Chlamydomonas sagittula				0.2													0.3		
Coelastrum microporum			20.7			31.8					P		P		P				
Coeloastrum sphaericum														P					
Closterium sp.											P				P				
Cosmarium biculatum						12.9	P								P				
Cosmarium botrytis																			
Cosmarium capitulum v. *groenlandicum*			P			P				P					P				
Cosmarium depressum			110.3																
Cosmarium granulatum				P										24.4					
Cosmarium humile v. *lacustre*							P				P				9.7				
Cosmarium impressulum v. *suborthogonum*						P				P					P				
Cosmarium laeve											P								
Cosmarium norinbergense						P						P	P					P	
Cosmarium phaseolus v. *phaseolus*										P	P								
Cosmarium reniforme			P												P				
Cosmarium septentrionale						P													
Cosmarium speciosum	P	30.5			P		P	38.0	25.9			P	P						P
Cosmarium subgranulata											P								
Cosmarium turpinii			22.7														166.4		
Crucigenia quadrata			1.0	P		5.9	P	3.0	P	2.8	1.0	4.6	P		P	P	1.2	0.2	1.0
Crucigenia rectangularis			75.2	5.5	P	19.3		3.7	P		P	P		4.0		P	2.2	4.0	
Cylindrocystis sp.																			
Elakatothrix gelatinosa	P		P			4.8	3.3	1.1		1.8	1.0		0.5	4.5	1.0				
Euastrum dubium v. *maius*	P	P										P				P			
Euastrum elegans		16.7		P	P	P	P		P					36.4	P			P	
Gemellicystis neglecta																		P	
Gloeocystis schroeteri	9.6	12.8		6.8	22.4	10.5		60.7	1.5			23.0	6.8	11.8		P		18.4	15.5
Golenkinia radiata v. *brevispina*		P	1.6	P	0.6	P	5.7		P	P			10.6	P	18.1		P	1.0	10.0

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Appendix E5. Phytoplankton biomass (μg/L) in lakes of the Meliadine Study Area, 1997 and 1998.

Taxa	A8			B2				B5				B7				D7		G2	
	22-Jul-97	18-Aug-97	23-Jul-98	21-Jul-97	18-Aug-97	21-Jul-98	30-Aug-98	19-Jul-97	18-Aug-97	20-Jul-98	28-Aug-98	18-Jul-97	19-Aug-97	19-Jul-98	22-Aug-98	17-Jul-97	19-Aug-97	24-Jul-97	22-Aug-97
Gonatozygon montae		P																	
Kirchneriella lunaris						5.0	6.0			5.3	5.1			2.9	22.4				
Kirchneriella sp.	0.2	0.2	0.2	9.7	P	1.4	0.6	0.1	0.0		0.2	0.1			0.7	P	P		P
Koliella longisetta																0.6			
Lagerheimia quadrisetta				P	0.1	0.4	P		P										
Micractinium pusillum																			
Monoraphidium sp.										P				0.4					
Mougeotia sp. a	1.8							P						P		6.5	0.4	10.1	
Mougeotia sp. b		P				P					P								
Nephrocytium limneticum	P	1.3		P	2.8							15.9	8.1			12.0	16.0		1.3
Oocystis elliptica	32.6	53.0		8.6	92.8			58.8				25.9	19.2			P	80.5	25.3	
Oocystis lacustris	83.7	0.1	9.3	19.6	66.7			34.3	34.5	91.5	160.3	92.8	30.7	120.4	258.6	40.5	50.2	88.5	19.2
Oocystis pusilla			0.3			44.8	30.4												
Oocystis solitaria						86.8	P												
Quadrigula closterioides		P				P	P		0.9		P	2.8	2.6		5.7			P	
Pandorina morum	P																		
Pediastrum boryanum							P			P	P				P				
Pediastrum integrum v. *scutum*																	P		
Pediastrum tetras	P			2.8	1.5	11.0	4.4	1.9	2.8	P	1.7	P	2.0	1.4	6.3	1.6	1.3	1.8	2.4
Scenedesmus acuminatus														P					
Scenedesmus bijuga	P		P	1.3	1.1	P		0.3	1.6	1.4			0.6	1.7		1.4	1.4	0.8	4.1
Scenedesmus ecornis																			
Scenedesmus incrassatulus	1.2	1.4	1.9	3.5	0.6	P	1.6	P	P	1.4	1.0	3.4	6.4	1.4	2.5	1.3	2.0	P	P
Scenedesmus quadricauda				P		P	P	1.7	1.0	3.6	P			P	P	2.0		1.4	0.9
Sphaerocystis schroeteri			21.1			53.2	40.7			76.3	29.6			65.2	88.8				
Staurastrum anatinum v. *biradiatum*						P													
Staurastrum apiculatum																		19.0	
Staurastrum borgeanum											P								
Staurastrum brebissoni									P						P				
Staurastrum cyrtocerum																			
Staurstrum dejectum								P		P				11.9			P		
Staurastrum lunatum																			
Staurastrum paradoxum														P					
Staurastrum tetracerim								P		P									P
Staurastrum sp.				2.6		59.9	P	P	18.2				37.5		P		37.9	P	P
Teilingia granulata	0.4	4.3	6.9	P	19.2	12.3	5.0	6.1	5.1	7.3	11.5	2.6	32.5	29.3	13.3	P	3.8	2.4	1.2
Tetraedron arthrodesmiforme			5.0			1.9	0.1			8.6	4.2			4.7	2.7				
Tetraedron minimum	P	P	P	1.5	2.2	P	3.8	P	0.2	P	5.9	P	P	P	5.1	P	P	1.6	0.8
Tetraedron muticum			P				P		P	P	P		1.4	1.3	4.5		0.5	P	2.8
Tetraedron sp.	1.2	2.3	P	P		9.3		2.1	1.2	P	P	P		P	3.5	P			
Tetrastrum caudatum					P									0.4				0.2	0.4
Tetrastrum arthrodesmiforme	2.4	2.2		0.6	0.3			4.6	0.6			2.8	P			0.4	0.2	1.0	
Zygnema sp.											P				P				
Unidentified flagellate							15.1				11.6								
Xanthidium antilopaeum						P													
Total Chlorophyta	**139.9**	**137.6**	**278.4**	**63.7**	**212.1**	**371.0**	**145.0**	**222.2**	**138.5**	**208.1**	**292.3**	**178.0**	**175.0**	**323.9**	**477.2**	**73.6**	**367.9**	**180.7**	**64.5**
Cyanobacteria																			
Agmenellum quadriplicatum				0.6				P	P				P	0.6				P	1.1
Agmenellum thermale																			
Anabaena azollae																			
Anabaena planctonica													P	6.6					1.8
Anabaena sp.				168.0	43.4	P	7.1				P			4.8	P	0.4	0.5		P
Anacystis marina			5.8							0.7				5.4					
Anacystis montana						17.6	2.7							5.8					
Aphanizomenon flos-aquae												P					P		
Aphanocapsa elachista		P											P		P	P	0.1		
Aphanocapsa elachista v. planctonica	0.8			2.4	1.4	3.1	33.7	4.1	0.4	P		3.5	0.3			1.1		10.6	1.3
Aphanothece clathrata	1.0	2.1	P	4.6	13.4			P	0.8		19.2	2.2	3.6		17.1			1.6	0.0
Chlorogloea microcystoides								0.1											
Chroococcus turgidus	1.8	P	P	5.9	P	11.9	18.2	2.1	2.8	30.0	17.5	13.9	13.5	5.1	49.2			6.8	
Coelosphaerium kuetzingianum	4.2	P		0.4				1.4	5.6			P	1.6			2.2	0.1	4.3	P
Dactylococcopsis linearis						P				P				P				P	P
Desmonema wrangelii																			
Dichotrix gypsophila							P				P				P				
Gomphosphaeria lacustris	P	P	P	24.4	7.4	14.7	39.2	P	2.5	P	48.0	20.3	8.6	8.1	15.9	P	0.6	4.2	36.9
Lyngbya contorta													0.6						P
Lyngbya limnetica		P						1.3			P	0.9				P	P		
Microcoleus vaginatus					P				0.7				P			P	4.2		
Microcystis flos-aquae													P						
Nostoc commune															P				
Oscillatoria limnetica			P	P	P	P	P		0.6	0.9	P		P	0.4	2.3	P		0.7	P
Pseudanabaena sp.	0.1	P	P			P								P	P	P		P	
Schizothrix calcicola			P																
Stigonema mamillosum																			
Total Cyanobacteria	**7.9**	**2.1**	**5.8**	**206.4**	**65.6**	**47.3**	**100.9**	**9.0**	**13.5**	**31.6**	**84.8**	**40.8**	**28.1**	**36.9**	**84.5**	**3.8**	**5.4**	**28.2**	**41.1**
Total Algal Biomass (μg/L)	**1716.3**	**744.0**	**3107.4**	**1583.0**	**847.5**	**1600.0**	**2794.8**	**1670.1**	**1777.1**	**2699.2**	**1607.2**	**536.1**	**1382.1**	**2629.2**	**2310.5**	**1549.0**	**1328.9**	**1025.6**	**929.2**
Total Number of Taxa Per Sample	***59***	***79***	***78***	***54***	***56***	***83***	***84***	***65***	***71***	***84***	***91***	***53***	***66***	***81***	***96***	***81***	***84***	***74***	***66***

Note: P = present but not encountered in routine cell counts.

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Appendix E6. Phytoplankton density (No. cells/mL) in lakes of the Meliadine Study Area, 1997 and 1998.

Taxa	ML-E				ML-S				ML-W			ML-SE	PL	LML		A6		
	19-Jul-97	17-Aug-97	17-Jul-98	04-Sep-98	20-Jul-97	16-Aug-97	25-Jul-98	01-Sep-98	20-Jul-97	16-Aug-97	27-Jul-98	22-Jul-98	28-Jul-98	29-Jul-98	02-Sep-98	23-Jul-97	17-Aug-97	24-Jul-98
Bacillariophyta (Diatoms)																		
Achnanthes detha																		
Achnanthes exigua																		
Achnanthes flexella											P	P	P	P			P	P
Achnanthes lanceolata	P							P										
Achnanthes minutissima	2	P	5	P	3	P	4			5	P	P		P	P	P	27	7
Achnanthes minutissima v. *cryptocepala*		P		P						P		P		P		P	P	P
Amphipleura pellucida							P											
Amphora ovalis			P			P		P									P	
Amphora ovalis v. *pediculus*																		
Anomoeoneir vitrea			P				P											
Asterionella formosa		262	11	409	P	P	P	78	P	P	P	P	P	23	5		P	
Cocconeis placentula																P		
Cocconeis diminuta																		
Cocconeis sp.								P				P						
Cyclotella antiqua																		
Cyclotella bodanica	2	P			14	10			P	5						P	7	
Cyclotella comta				2							P		5		2			
Cyclotella glomerata	9	77			17		4	39								113	150	
Cyclotella kutzingiana													32					448
Cyclotella meneghiniana										P				6				
Cyclotella ocellata		P	P	91	P		P		9	12	7	P		6	66			
Cymbella affinis													P					
Cymbella cistula											P							
Cymbella cuspidata										P								
Cymbella gracilis																		
Cymbella minuta	P	P	P	P	P			P			P	P	P	P		P		P
Cymbella sp.					P		P					P			P			
Denticulatis tenuis							P					P				P	2	
Diatoma elongatum	P		P	P	P	P	P	P			P	P		P	5	P		P
Diploneis puella			P	P			P	P										
Diploneis sp.						P											P	
Epithemia sorex			P					P					P		P	P	P	
Eunotia exigua																		
Eunotia glacialis													P					
Eunotia praerupta				P								P					2	P
Eunotia praerupta v. *inflata*			P															
Eunotia sp.						P		P			P							
Fragilaria construens			P	29			P	P			P	P						
Fragilaria crotonensis				P				P			P	P						
Fragilaria intermedia																		
Fragilaria pinnata		P	P				P	72			P	P						
Fragilaria sp.																		
Gomphonema angustatum					P		P				P			P		P	P	
Gomphonema constrictum																		
Gomphonema gracile			P								P							
Gomphonema intricutum v. *vibrio*								P										
Gomphonema olivaceum																		
Gomphonema parvulum			P															
Gomphonema sp.				P							P	P						
Hantzschia amphioxys			P											P				
Melosira sp.													P	P				
Meridion circulare																		
Naviculum bacillum			P															
Navicula cryptocephala	P	P	P					P				P		P				7
Navicula decussis																		
Navicula exigua																		
Navicula lanceolata								P						P				
Navicula mutica			7								P							
Navicula pupula								P			P	P		P				P
Navicula radiosa	P	P	P	P			P						P			P		P
Navicula reinhardtii																		
Navicula scandinavica																		
Navicula tripunctata																		
Navicula viridula				P				P				2	P					
Navicula sp.			P													P	2	
Nitzschia acicularis					P							P				8		
Nitzschia amphibia			P					P			P		P					P
Nitzschia angustata											P					P		
Nitzschia dissipata															P			
Nitzschia filiformis	P		P	P				7	P		P	P	P	P	P		P	P
Nitzschia fonticola			P				P	P			P	P						
Nitzschia palea							P											
Nitzschia sigmoidea			P	P								P						
Nitzschia sp.								P								P		P
Pinnularia stomatophora													P					
Pinnularia sp.																	P	
Rhizosolenia longiseta	2			7	P		4	13				2						2
Rhopalodia gibba							P	P							1			
Stauroneis anceps			P				P	P									P	P
Stauroneis sp.																		
Stephanodiscus astraea			2	P	P	P	P	33		P	P	P		3	P			20
Stephanodiscus niagarae																		
Surirella angustata			P															
Surirella ovalis						P												
Surirella sp.																P	P	
Synedra acus					P													
Synedra ulna										P								P
Synedra sp.	7	4	60	7	2	4	26	67	2	7	41	52	4	7	7	12	2	5
Tabellaria fenestrata	7		P	P		P	22			P	P	P	P	P	P	P	P	
Tabellaria floculosa			P	P	P		P	79	P	P	3	P	P	7	3	P	P	P
Total Bacillariophyta	**29**	**343**	**85**	**544**	**36**	**14**	**60**	**388**	**11**	**29**	**51**	**56**	**41**	**53**	**89**	**133**	**192**	**488**

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Appendix E6. Phytoplankton density (No. cells/mL) in lakes of the Meliadine Study Area, 1997 and 1998.

Taxa	ML-E				ML-S				ML-W			ML-SE	PL	LML		A6		
	19-Jul-97	17-Aug-97	17-Jul-98	04-Sep-98	20-Jul-97	16-Aug-97	25-Jul-98	01-Sep-98	20-Jul-97	16-Aug-97	27-Jul-98	22-Jul-98	28-Jul-98	29-Jul-98	02-Sep-98	23-Jul-97	17-Aug-97	24-Jul-98
Cryptophyta (Cryptomonads)																		
Cryptomonas curvata			P	P	2	P		P			P	P			7		P	P
Cryptomonas erosa				7				P										
Cryptomonas ovata		7	9	P	2	P	P	7	P		2	7	2	P	3		P	P
Cryptomonas reflexa	7	7	9	7	5	9	15	13	7	1	12	18		19	19	38	9	50
Cyanomonas sp.																		
Katablepharis ovalis	67	P	7	7	46	41	19	53	49	82	3	13			P	53	116	33
Rhodomonas minuta	54	P	33	51	114	108	39	53	89	147	25	47	12	56	806	119	48	214
Total Cryptophyta	**128**	**14**	**58**	**72**	**169**	**158**	**73**	**125**	**145**	**230**	**42**	**85**	**15**	**75**	**835**	**210**	**173**	**297**
Chrysophyta (Chrysophytes)																		
Bitrichia longispina	2	P		4	7	3		7	P	2	3	20	5	P	P			
Botrycoccus protuberans																		
Chromulina sp.	5	P	P	7	20	P	P	P		10				6	7	P	P	7
Chrysidastrum catenatum		P	13	93		51	P	P		10								
Chrysochromulina parva	110	1036	133	1050	274	298	469	1194	294	145	27	67	22	69	299	159	476	20
Chrysococcus sp.	37	20			7				14								P	
Chrysoikos skujai	5	7	7	7	10	19	15	13	2	2	20	40	2	6			7	P
Chrysosphaerella rodhei	126	266	621	326	414	884	610	1358	295	311	347	781	114	1045	259	2042	1275	604
Chrysostephanosphaera globulifera	P	P				P		7	2	P	P							
Dinobryon crenulatum		7		63		13		33	P	7		7	P	13			5	13
Dinobryon divergens	48	10	7	140	12	3	29	88	7	2	18	73	37	32	65	11	68	444
Dinobryon sertularia		18	7	15	92	16	141	26	105	9	130	58	21	34	10	P	29	7
Dinobryon sertularia v. *protuberans*	54		61		31		41		24		11	18	10	3				P
Dinobryon sociale	79	97	615	11	126	P	180	148	93		226	107	111	28	3	22	30	32
Dinobryon tabellariae	7		5		3	P	26	P	11	1	21	9	7	7		150		P
Ishtmochloron trispinatum	P		P	P														
Kephyrion boreale	33	42	246	217	76	19	104	174	49	34	745	867	62	110	266	27	41	179
Kephyrion sp.			P				4				P	P	2	P				P
Mallomonas sp.	1	P		7	3	P		13	7					3	6	2	P	10
Ochromonas sp. a	16	60		7	23	10		59	2	2		7		6	13	13	54	P
Ochromonas sp. b		P		P				P	P	P					P	7	P	7
Ochromonas stellaris			P					P						P	7			
Ophiocytium sp.			P								P							
Pseudokephyrion sp.	7		13		3		32	7			10	33	2		P			7
Stelexmonas sp.												13						
Stichogloea doederleinii		7		P	7	6	P	79	23	6	13	13	5	10	24	60	41	40
Synura sp.	P	P	2	P	P	P	P	P				25	P		P			
Unidentified Chrysophyta colony		20																
Unidentified statospore		P	33	P		3	15				20	7	5	P	7	14	2	23
Total Chrysophyta	**530**	**1590**	**1763**	**1947**	**1108**	**1325**	**1666**	**3205**	**928**	**541**	**1591**	**2146**	**405**	**1372**	**965**	**2507**	**2028**	**1391**
Pyrrophyta (Dinoflagellates)																		
Glenodinium sp.	19	11	2	7	3	19	7	39	7	10	7	7	P	P	7	23	14	7
Gymnodinium sp.			3	P			P	7		P	4		2		P	P		P
Gymnodinium helveticum	1	P	P	P	P	P	4		P	P	P	2	P		P			P
Gymnodinium uberrimum	2	2	P	P	P	P	P	P		1	P	P	2	P		P	2	3
Peridinium sp.	P		2				P		P			P	P					
Peridinium aciculiferum	2	2	5	P	8	13	23	13		4	2	5	P	10	P		11	7
Peridinium cinctum											P	P					P	
Unidentified cyst	P		9		3	2			P	P						4	P	
Total Pyrrophyta	**24**	**15**	**21**	**7**	**14**	**34**	**34**	**59**	**7**	**15**	**13**	**14**	**5**	**10**	**7**	**27**	**27**	**17**
Euglenophyta (Euglenoids)																		
Leppocinslis sp.					2													
Trachelomonas sp.				P											P			
Total Euglenophyta					**2**													
Chlorophyta (Green Algae)																		
Ankistrodesmus convolutus			P		2			26				P		15	251	32	143	
Ankistrodesmus falcatus						3				P					P	3	2	
Ankistrodesmus falcatus v. *spiralis*					P													37
Ankistrodesmus gelifactus	17	9			14	18			33	5						249	37	
Arthrodesmus triangularis	5	2		4	3	P	P		8	P		P	P		3			
Binuclearia sp.																		
Botryococcus sp.				P									P	P				
Chlamydomonas sp. a				44				5					2			P	41	
Chlamydomonas sp. b		P	P	15	2	P		20	5						7		2	P
Chlamydomonas sagittula					6													
Coelastrum microporum																		
Coeloastrum sphaericum																		
Closterium sp.																		
Cosmarium biculatum				P									P					
Cosmarium botrytis												P		3				
Cosmarium capitulum v. *groenlandicum*							1	P				P	P					P
Cosmarium depressum												P						
Cosmarium granulatum							P											P
Cosmarium humile v. *lacustre*																		
Cosmarium impressulum v. *suborthogonum*															P			
Cosmarium laeve						P												
Cosmarium norinbergense																		
Cosmarium phaseolus v. *phaseolus*															7			
Cosmarium reniforme								P				P			P			
Cosmarium septentrionale																		
Cosmarium speciosum	P	P			P	P										P		
Cosmarium subgranulata																P		
Cosmarium turpinii																		
Crucigenia quadrata	P	P		P	26	P			P	15		P	P	P	P	9		P
Crucigenia rectangularis	P	P		P	13	3		P									P	
Cylindrocystis sp.																	8	P
Elakatothrix gelatinosa			P	145		3	7	66			7	P	10	31	7			196
Euastrum dubium v. *maius*																	P	
Euastrum elegans	P			P														P
Gemellicystis neglecta																		
Gloeocystis schroeteri	44	339		58	97	60	4		54	39		35	P	P		73	41	20
Golenkinia radiata v. *brevispina*								7						6		P	20	14

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Appendix E6. Phytoplankton density (No. cells/mL) in lakes of the Meliadine Study Area, 1997 and 1998.

Taxa	ML-E				ML-S				ML-W			ML-SE	PL	LML		A6		
	19-Jul-97	17-Aug-97	17-Jul-98	04-Sep-98	20-Jul-97	16-Aug-97	25-Jul-98	01-Sep-98	20-Jul-97	16-Aug-97	27-Jul-98	22-Jul-98	28-Jul-98	29-Jul-98	02-Sep-98	23-Jul-97	17-Aug-97	24-Jul-98
Gonatozygon montae																		
Kirchneriella lunaris				29			P	20			10			30	80			40
Kirchneriella sp.	2													P	7	7		P
Koliella longisetta																		
Lagerheimia quadrisetta					3								P					
Micractinium pusillum												7			P			
Monoraphidium sp.							37	15			8	20	P	8				
Mougeotia sp. a	19	25			4	13			5	P								
Mougeotia sp. b			9	15			P	13			3	30		P	7			P
Nephrocytium limneticum		2			10	13			2	10						7	20	
Oocystis elliptica	23	20			P					1						22	4	
Oocystis lacustris	14	40	20	134	13	6	23	269	9	7	3	27	7	31	27	139	68	40
Oocystis pusilla									9									
Oocystis solitaria													2	P	3			P
Quadrigula closterioides		53		29	5	26			P	5						7		
Pandorina morum		P																
Pediastrum boryanum			68	P								P					55	
Pediastrum integrum v. *scutum*																		
Pediastrum tetras					P	P	15	59				P		P	20			
Scenedesmus acuminatus																		
Scenedesmus bijuga						6	P										14	P
Scenedesmus ecornis																P		
Scenedesmus incrassatulus		P			P			26			3	P		38	P	39	P	P
Scenedesmus quadricauda																		
Sphaerocystis schroeteri			40	225			24	184			10	34	17	56	126			66
Staurastrum anatinum v. *biradiatum*				P														
Staurastrum apiculatum																		
Staurastrum borgeanum												P						
Staurastrum brebissoni				P														
Staurastrum cyrtocerum																2		
Staurstrum dejectum			4		P							P		P	P		P	
Staurastrum lunatum															P			
Staurastrum paradoxum											P							
Staurastrum tetracerim																		
Staurastrum sp.		P		P	P													
Teilingia granulata	2	P	7	7	16	10	P		4	14	2	7	P	25		4	41	47
Tetraedron arthrodesmiforme			P				P	26				13	P	6	7			73
Tetraedron minimum		P	P	P	3	P					P		P			7	5	7
Tetraedron muticum															3			7
Tetraedron sp.		P				2						P		3		4	2	P
Tetrastrum caudatum																		
Tetrastrum arthrodesmiforme	P	P			7	P			2							33	48	
Zygnema sp.															P			
Unidentified flagellate				22											7			
Xanthidium antilopaeum														P				
Total Chlorophyta	**126**	**490**	**148**	**725**	**224**	**163**	**112**	**735**	**131**	**96**	**47**	**173**	**39**	**253**	**560**	**637**	**551**	**545**
Cyanobacteria																		
Agmenellum quadriplicatum						P									159			P
Agmenellum thermale		P																
Anabaena azollae									P									
Anabaena planctonica		P				P					P							
Anabaena sp.	P	14		65	23			P		7		P			P		70	
Anacystis marina			106	203			P				975	437		150	8055			73
Anacystis montana															24	33		
Aphanizomenon flos-aquae																		
Aphanocapsa elachista					P	P											306	
Aphanocapsa elachista v. planctonica	37		349		20		1748	P	236	34	220			1492			414	P
Aphanothece clathrata	1134	1315		1203	195	177		1175	717	159			1481			53	3197	193
Chlorogloea microcystoides																		
Chroococcus turgidus	P	P	P		P					2	P	9	P	P		31	21	36
Coelosphaerium kuetzingianum		63			52	P			P	22								
Dactylococcopsis linearis			P	7			7											P
Desmonema wrangelii	P																	
Dichotrix gypsophila		P						P				P	P					
Gomphosphaeria lacustris		P		159	P	P		26			P	P				962	313	P
Lyngbya contorta																		
Lyngbya limnetica				P						P		71			P	43		
Microcoleus vaginatus																	701	
Microcystis flos-aquae	P															53	127	
Nostoc commune																		
Oscillatoria limnetica			33		20		37	P			53				54			P
Pseudanabaena sp.			30				P				33							
Schizothrix calcicola																		
Stigonema mamillosum															P			
Total Cyanobacteria	**1171**	**1392**	**518**	**1637**	**310**	**177**	**1792**	**1201**	**953**	**224**	**1283**	**517**	**1481**	**1642**	**8292**	**1175**	**5149**	**302**
Total Algal Density (No. cells/mL)	**2008**	**3844**	**2593**	**4933**	**1863**	**1871**	**3736**	**5713**	**2175**	**1135**	**3026**	**2991**	**1985**	**3406**	**10748**	**4689**	**8120**	**3039**
Total Number of Taxa Per Sample	***56***	***65***	***75***	***78***	***73***	***63***	***67***	***80***	***46***	***52***	***68***	***83***	***59***	***66***	***70***	***64***	***72***	***77***

Note: P = present but not encountered in routine cell counts.

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Appendix E6. Phytoplankton density (No. cells/mL) in lakes of the Meliadine Study Area, 1997 and 1998.

Taxa	A8			B2				B5				B7				D7		G2	
	22-Jul-97	18-Aug-97	23-Jul-98	21-Jul-97	18-Aug-97	21-Jul-98	30-Aug-98	19-Jul-97	18-Aug-97	20-Jul-98	28-Aug-98	18-Jul-97	19-Aug-97	19-Jul-98	22-Aug-98	17-Jul-97	19-Aug-97	24-Jul-97	22-Aug-97
Bacillariophyta (Diatoms)																			
Achnanthes detha											P[1]								
Achnanthes exigua		P																	
Achnanthes flexella	P	P	P			P		P		P		P			P	P			P
Achnanthes lanceolata																P	P		
Achnanthes minutissima	2	P	P	P	P	P	6		13	7	P		P		12	P	P	P	P
Achnanthes minutissima v. *cryptocepala*	P	P			P	P			P		P				P	P	P	P	
Amphipleura pellucida			P												P				
Amphora ovalis			P				P									P			
Amphora ovalis v. *pediculus*																	P		
Anomoeoneir vitrea										P									
Asterionella formosa		P							P										
Cocconeis placentula		P																	
Cocconeis diminuta															P				
Cocconeis sp.																P			
Cyclotella antiqua						P				P				10	25				
Cyclotella bodanica	143	P		3	7			7	46			26	64				4		
Cyclotella comta							13							P	17				
Cyclotella glomerata	163	7			32					P	91	40	2			7	7	14	17
Cyclotella kutzingiana							38				26				24				
Cyclotella meneghiniana		60	107													P		27	2
Cyclotella ocellata			169			P	6				162			62					
Cymbella affinis		P				P	6								P	P	P		
Cymbella cistula			P																
Cymbella cuspidata																	P		
Cymbella gracilis											P								
Cymbella minuta	P	P	P	P		P				P	P			P	P	2	P	2	P
Cymbella sp.			P				P				P								
Denticulatis tenuis	2	2	P				6						P		P	P			
Diatoma elongatum			P			P	P	P		P	P			P	P	P	P	P	
Diploneis puella						P				P									
Diploneis sp.																			P
Epithemia sorex						P					P				P				P
Eunotia exigua			P																
Eunotia glacialis																			
Eunotia praerupta			P																
Eunotia praerupta v. *inflata*																			
Eunotia sp.	P									P						2			
Fragilaria construens						P	P			P				P					
Fragilaria crotonensis	4	P				P			P	P	P			P	17	P		P	P
Fragilaria intermedia											6								
Fragilaria pinnata			P			P	P			P	P			P	P	21	18	P	
Fragilaria sp.	P									P									
Gomphonema angustatum		P														P			
Gomphonema constrictum					P														
Gomphonema gracile			P				P								P				
Gomphonema intricutum v. *vibrio*																			
Gomphonema olivaceum											P								
Gomphonema parvulum																			
Gomphonema sp.										P									
Hantzschia amphioxys																			
Melosira sp.																		P	
Meridion circulare		P																	
Naviculum bacillum			P														P		
Navicula cryptocephala		P	P			P	P			P	6	2	P	P	12	P	P	P	P
Navicula decussis		P																	
Navicula exigua																	P		
Navicula lanceolata						P	P							P					
Navicula mutica										P				P					
Navicula pupula			P													P	P		
Navicula radiosa		P								P	P		P			P		P	P
Navicula reinhardtii																	P		
Navicula scandinavica																P			
Navicula tripunctata																	P		
Navicula viridula			P			P					P				P	P	P		
Navicula sp.					P									P	P				
Nitzschia acicularis							P												
Nitzschia amphibia		P					P			P					P				
Nitzschia angustata																			
Nitzschia dissipata																P			
Nitzschia filiformis			6			P		P		P	P			P	P				
Nitzschia fonticola						P				P	P			P	P				
Nitzschia palea										P								21	4
Nitzschia sigmoidea		P							P		P	P					P		
Nitzschia sp.		P	P								P		P				P		
Pinnularia stomatophora																			
Pinnularia sp.		P													P				
Rhizosolenia longiseta	20		3					P	3	7				3			2		
Rhopalodia gibba																			
Stauroneis anceps								P							P	P	P	P	P
Stauroneis sp.		P																	
Stephanodiscus astraea		9	6								6					P			
Stephanodiscus niagarae														P					
Surirella angustata																			
Surirella ovalis																P			
Surirella sp.																			
Synedra acus							P							10		P			
Synedra ulna			P				P												
Synedra sp.	6	11	42	8	12	8	P	12	21	60	86	6	13		19	19	26	67	10
Tabellaria fenestrata			P				P			P	P			P	P		4	P	
Tabellaria floculosa	P	P		P		P	P	P	P	P	P	P	P	P	P	7	P	2	50
Total Bacillariophyta	**340**	**89**	**334**	**11**	**51**	**8**	**76**	**19**	**83**	**74**	**385**	**74**	**79**	**85**	**126**	**58**	**61**	**133**	**83**

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Appendix E6. Phytoplankton density (No. cells/mL) in lakes of the Meliadine Study Area, 1997 and 1998.

Taxa	A8			B2				B5				B7				D7		G2	
	22-Jul-97	18-Aug-97	23-Jul-98	21-Jul-97	18-Aug-97	21-Jul-98	30-Aug-98	19-Jul-97	18-Aug-97	20-Jul-98	28-Aug-98	18-Jul-97	19-Aug-97	19-Jul-98	22-Aug-98	17-Jul-97	19-Aug-97	24-Jul-97	22-Aug-97
Cryptophyta (Cryptomonads)																			
Cryptomonas curvata		5					P	5		P	6	P	P	3	25		2	2	P
Cryptomonas erosa																P			
Cryptomonas ovata	P	7	P		3	P	P	P	5	14	6	P		P	7	2	8	P	2
Cryptomonas reflexa	41	79	13	6	32	14	22	39	10	58	26	43	13	160	20	5	39	22	31
Cyanomonas sp.											P			P					
Katablepharis ovalis	61	46	69	153	109	6	70	163	151	143	88	20	38	149	124	34	118	55	86
Rhodomonas minuta	122	66	88	67	88	171	63	299	66	211	97	167	45	149	62	41	155	96	73
Total Cryptophyta	**224**	**203**	**169**	**226**	**232**	**192**	**155**	**506**	**232**	**425**	**224**	**230**	**96**	**460**	**238**	**82**	**322**	**175**	**192**
Chrysophyta (Chrysophytes)																			
Bitrichia longispina				4		P	P	3	3	P	P			7	13				
Botrycoccus protuberans																	197		
Chromulina sp.		13	6	20	7		P	P	13		6		P		22			21	P
Chrysidastrum catenatum					2		57		33		26		5		25		26		
Chrysochromulina parva	340	325	13	202	789	19	545	1537	262	34	104	612	160	50	360	186	157	613	272
Chrysococcus sp.		6		104				82	13			214				34		93	7
Chrysoikos skujai	P	P	25	P	41		P		7	68	6			161	12	P	13	2	
Chrysosphaerella rodhei	2160	883	1481	5786	875	2729	2516	5104	2586	2241	908	486	3914	1655	3195	4721	436	1739	760
Chrysostephanosphaera globulifera									P								7	P	27
Dinobryon crenulatum		P	19		34	6	51		39	18	58		2	37	47	P	4		
Dinobryon divergens	P	11	137	16	7	84	766	45	13	218	P	P	8	113	20	86	4	P	80
Dinobryon sertularia	54	86	669	P	54	49	13	41	179	425	84	14	4	626	13	199	46	79	27
Dinobryon sertularia v. *protuberans*	P		31			P			2	P		P				14			2
Dinobryon sociale		3	450	17		13	32	757	11	201	126	2	27	168	13	133	11	12	33
Dinobryon tabellariae						P		3	P	22				P		5	2	2	
Ishtmochloron trispinatum								P	P				P	P			2	P	
Kephyrion boreale	388	146	345	7	163	51	254	41	222	585	259	27	50	1571	267	145	243	131	113
Kephyrion sp.			25							7									
Mallomonas sp.	2	P	P	P	9		13	3	P	P		2	2		P	2		P	
Ochromonas sp. a	54	26			14		95	68	92	P	52		19	P	37	12	13		66
Ochromonas sp. b								P				P			13				
Ochromonas stellaris							P			P	6								
Ophiocytium sp.																			
Pseudokephyrion sp.	P		6			6	P			48	P			12	25		13	5	
Stelexmonas sp.																			
Stichogloea doederleinii	88	P	25	81	14	298	32	14	20	15		P	25	87	124		138	21	7
Synura sp.							P	P		7				P		55	9		2
Unidentified Chrysophyta colony		18																	
Unidentified statospore	14	7	105		P	P	19	109	22	27				180	P	28			
Total Chrysophyta	**3100**	**1524**	**3336**	**6237**	**2009**	**3254**	**4392**	**7807**	**3517**	**3916**	**1638**	**1357**	**4216**	**4666**	**4187**	**5620**	**1321**	**2718**	**1396**
Pyrrophyta (Dinoflagellates)																			
Glenodinium sp.	27	9	P	7	14	6	25	54	7	27	31		6	13	P	14	7	5	33
Gymnodinium sp.			P		P	6	P		28	41	19				P		7		
Gymnodinium helveticum								P								P	P		
Gymnodinium uberrimum	P	2	13	P	P		P		2	P			6	P	P		P	2	P
Peridinium sp.				16					4		P								
Peridinium aciculiferum	2	18	P		24	6	6	31	39	P	42	P	8	16	12	30	53	27	28
Peridinium cinctum		P			P					P					P				
Unidentified cyst			P	P									2			P			P
Total Pyrrophyta	**29**	**29**	**13**	**23**	**38**	**19**	**32**	**85**	**80**	**68**	**92**		**22**	**29**	**12**	**44**	**67**	**34**	**61**
Euglenophyta (Euglenoids)																			
Leppocinslis sp.																			
Trachelomonas sp.							P				13								
Total Euglenophyta											**13**								
Chlorophyta (Green Algae)																			
Ankistrodesmus convolutus	92	484	82		7		6	10	P	P	P		6	23			P		
Ankistrodesmus falcatus	P	2	P	4	P	P	P	7	P		P	10	P		13		P	8	2
Ankistrodesmus falcatus v. *spiralis*	P	7				P						27	26		P	34	4	12	49
Ankistrodesmus gelifactus	88	63		56	68			43	46			116	30			P	46		2
Arthrodesmus triangularis							P	P			P	P			P				
Binuclearia sp.														P					
Botryococcus sp.						P				P	P				P				
Chlamydomonas sp. a	41	27	P		27	P	19		52	7	39	14	13		12	14		14	13
Chlamydomonas sp. b		P				P	6	3	13	20	P		19	P	25	7	2	2	
Chlamydomonas sagittula				7													7		
Coelastrum microporum			100			154					P		P		P				
Coeloastrum sphaericum														P					
Closterium sp.											P				P				
Cosmarium biculatum						6	P								P				
Cosmarium botrytis																			
Cosmarium capitulum v. *groenlandicum*			P			P				P					P				
Cosmarium depressum			38																
Cosmarium granulatum				P							P			3					
Cosmarium humile v. *lacustre*							P				P				12				
Cosmarium impressulum v. *suborthogonum*						P				P					P				
Cosmarium laeve											P								
Cosmarium norinbergense						P						P	P					P	
Cosmarium phaseolus v. *phaseolus*										P	P								
Cosmarium reniforme			P												P				
Cosmarium septentrionale						P													
Cosmarium speciosum	P	2			P		P	36	2			P	P						P
Cosmarium subgranulata											P								
Cosmarium turpinii			1														2		
Crucigenia quadrata			25	P		101	P	75	P	54	26	54	P		P	P	26	19	27
Crucigenia rectangularis			75	29	P	64		13	P		P	P		13		P	45	14	
Cylindrocystis sp.																			
Elakatothrix gelatinosa	P		P			122	114	27		18	26		13	87	26				
Euastrum dubium v. *maius*	P	P										P				P			
Euastrum elegans		2		P	P	P	P		P					3	P			P	
Gemellicystis neglecta																		P	
Gloeocystis schroeteri	34	46		413	224	32		286	105			113	77	33		P		80	46
Golenkinia radiata v. *brevispina*		P	6	P	2	P	6		P				25	P	20		P	2	44

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Appendix E6. Phytoplankton density (No. cells/mL) in lakes of the Meliadine Study Area, 1997 and 1998.

Taxa	A8			B2				B5				B7				D7		G2	
	22-Jul-97	18-Aug-97	23-Jul-98	21-Jul-97	18-Aug-97	21-Jul-98	30-Aug-98	19-Jul-97	18-Aug-97	20-Jul-98	28-Aug-98	18-Jul-97	19-Aug-97	19-Jul-98	22-Aug-98	17-Jul-97	19-Aug-97	24-Jul-97	22-Aug-97
Gonatozygon montae		P																	
Kirchneriella lunaris						38	38			27	26			37	161				
Kirchneriella sp.	20	20	25	208	P	38	32	27	7		26	20			37	P	P		P
Koliella longisetta																7			
Lagerheimia quadrisetta				P	7	32	P		P										
Micractinium pusillum																			
Monoraphidium sp.										P				7					
Mougeotia sp. a	4							P						P		18	2	6	
Mougeotia sp. b		P				P					P								
Nephrocytium limneticum	P	13		P	20							238	83			96	176		13
Oocystis elliptica	P	38		57	32			41				18	32			P	33	10	
Oocystis lacustris	20	126	13	632	415			122	190	367	499	314	117	242	855	258	177	537	93
Oocystis pusilla			19			311	228												
Oocystis solitaria						51	P												
Quadrigula closterioides		P				P	P		20		P	31	38		67			P	
Pandorina morum	P																		
Pediastrum boryanum							P			P	P				P				
Pediastrum integrum v. *scutum*																	P		
Pediastrum tetras	P			36	20	87	51	26	54	P	19	P	35	13	87	23	25	28	43
Scenedesmus acuminatus														P					
Scenedesmus bijuga	P		P	27	54	P		7	26	41			25	50		28	26	34	66
Scenedesmus ecornis																			
Scenedesmus incrassatulus	22	13	25	40	8	P	25	P	P	14	19	24	66	13	26	25	44	P	P
Scenedesmus quadricauda				P		P	P	13	20	27	P			P	P	23		14	9
Sphaerocystis schroeteri			75			167	203			241	208			186	521				
Staurastrum anatinum v. *biradiatum*						P													
Staurastrum apiculatum																		2	
Staurastrum borgeanum											P								
Staurastrum brebissoni									P						P				
Staurastrum cyrtocerum																			
Staurstrum dejectum								P		P				3			P		
Staurastrum lunatum																			
Staurastrum paradoxum														P					
Staurastrum tetracerim								P		P									P
Staurastrum sp.				2		5	P	P	2				2		P		2	P	P
Teilingia granulata	16	14	25	P	68	32	13	30	15	20	32	7	115	105	50	P	13	9	3
Tetraedron arthrodesmiforme			207			82	6			242	130			211	62				
Tetraedron minimum	P	P	P	2	5	P	6	P	2	P	13	P	P	P	12	P	P	14	7
Tetraedron muticum			P				P		P	P	P		7	7	27		2	P	13
Tetraedron sp.	2	5	P	P		13		3	2	P	P	P		P	7	P			
Tetrastrum caudatum					P									0				7	7
Tetrastrum arthrodesmiforme	95	80		27	20			299	26			129	P			21	7	41	
Zygnema sp.											P				P				
Unidentified flagellate							25				P								
Xanthidium antilopaeum						P													
Total Chlorophyta	**434**	**942**	**716**	**1540**	**977**	**1333**	**780**	**1068**	**582**	**1079**	**1064**	**1115**	**729**	**1038**	**2021**	**554**	**639**	**853**	**437**
Cyanobacteria																			
Agmenellum quadriplicatum				81				P	P				P	198				P	159
Agmenellum thermale																			
Anabaena azollae																			
Anabaena planctonica													P	40					24
Anabaena sp.				897	184	P	38				P			47	P	25	27		P
Anacystis marina			658							415				1760					
Anacystis montana						1578	152							322					
Aphanizomenon flos-aquae												P					P		
Aphanocapsa elachista		P											P		P	P	144		
Aphanocapsa elachista v. planctonica	117			228	88	919	21881	585	39	P		340	29			106		701	46
Aphanothece clathrata	1660	3739	P	4933	8149			P	827		16846	2313	6508		9966			1556	53
Chlorogloea microcystoides								26											
Chroococcus turgidus	9	P	P	51	P	69	89	16	26	109	71	85	93	30	130			39	
Coelosphaerium kuetzingianum	182	P		431				98	426			P	103			138	7	560	P
Dactylococcopsis linearis						P				P				P				P	P
Desmonema wrangelii																			
Dichotrix gypsophila							P				P				P				
Gomphosphaeria lacustris	P	P	P	768	482	1128	1597	P	188	P	2186	1502	641	769	1364	P	36	315	3390
Lyngbya contorta													35						P
Lyngbya limnetica		P						138			P	54				P	P		
Microcoleus vaginatus					P				22				P			P	146		
Microcystis flos-aquae													P						
Nostoc commune															P				
Oscillatoria limnetica			P	P	P	P	P		79	136	P		P	27	329	P		42	P
Pseudanabaena sp.	4	P	P			P								P	P	P		P	
Schizothrix calcicola			P																
Stigonema mamillosum																			
Total Cyanobacteria	**1972**	**3739**	**658**	**7389**	**8903**	**3695**	**23757**	**863**	**1607**	**660**	**19103**	**4294**	**7409**	**3193**	**11790**	**269**	**360**	**3213**	**3672**
Total Algal Density (No. cells/mL)	**6099**	**6526**	**5225**	**15426**	**12210**	**8501**	**29192**	**10348**	**6101**	**6221**	**22518**	**7070**	**12551**	**9472**	**18373**	**6627**	**2770**	**7126**	**5841**
Total Number of Taxa Per Sample	***59***	***79***	***78***	***54***	***56***	***83***	***84***	***65***	***71***	***84***	***91***	***53***	***66***	***81***	***96***	***81***	***84***	***74***	***66***

Note: P = present but not encountered in routine cell counts.

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Appendix E7. Zooplankton biomass (mg/m³, dry weight) in lakes of the Meliadine Study Area, 1997 and 1998

Taxa	ML-E				ML-S				ML-SE	ML-W			PL	LML		A6		
	19-Jul-97	17-Aug-97	17-Jul-98	04-Sep-98	20-Jul-97	16-Aug-97	25-Jul-98	01-Sep-98	22-Jul-98	20-Jul-97	16-Aug-97	27-Jul-98	28-Jul-98	29-Jul-98	02-Sep-98	23-Jul-97	17-Aug-97	24-Jul-98
Cladocera (Cladocerans)																		
Bosmina longirostris	3.0	3.3	0.6	10.6	2.7	3.7	1.1	4.7	2.4	1.6	3.3	0.1	0.1	1.1	2.8	10.9	10.3	89.3
Chydorus sphaericus			0.02		0.2		0.03											
Daphnia longiremis	6.0	3.4	0.6	1.6	8.5	4.4	1.3	0.3	0.3	4.4	6.2	0.1	10.7	93.4	59.0		0.2	
Eubosmina longispina	5.4	7.6	0.04	0.2	8.5		0.1	0.02	0.8	2.0	6.8	0.1	0.1	0.6	0.9	22.8	23.8	9.0
Holopedium gibberum	311.2	37.0	115.3	5.2	427.1	268.3	56.1		93.4	87.7	223.2	49.8	11.5	26.7	1.1			180.0
Total Cladocera	**325.7**	**51.3**	**116.6**	**17.6**	**447.0**	**276.4**	**58.5**	**5.0**	**97.0**	**95.7**	**239.5**	**50.1**	**22.5**	**121.7**	**63.8**	**33.7**	**34.3**	**278.3**
Calanoida (Calanoid copepods)																		
Diaptomus sicilis										4.4	2.0							
Epischura nevadensis				0.2			0.5		1.3					0.5	2.4			30.2
Epischura spp.	5.6				8.2	2.2				5.9	0.9					4.0		
Heterocope septentrionalis							0.2						0.4	1.4	2.2			5.8
Heterocope spp.	17.9															18.9		
Leptodiaptomus minutus [a]	9.5		0.8	0.2	3.3	3.9	3.4		1.1	4.0	0.8	1.5	4.3	8.2	1.7	128.1	23.3	226.6
Calanoid copepodid	1.7		0.2	0.03	0.5	0.1	0.2			0.8	0.1	1.0	3.3	2.6	0.1	1.4	0.6	4.5
Calanoid nauplii	0.9	0.3	0.5	0.3	0.8	0.6	0.1	1.2	0.1			0.02	0.9	0.3	0.5	3.6	2.6	0.3
Total Calanoida	**35.6**	**0.3**	**1.5**	**0.8**	**12.8**	**6.8**	**4.4**	**1.2**	**2.4**	**15.0**	**3.8**	**2.5**	**8.9**	**13.0**	**7.0**	**156.0**	**26.6**	**267.4**
Cyclopoida (Cyclopoid copepods)																		
Cyclops scutifer	6.6	3.0	1.9	0.8	18.7	3.3	2.6	0.3	2.2	52.2	4.2		10.5	8.9	2.8	17.3	9.0	31.9
Diacyclops bicuspidatus				2.6											3.1			5.1
Cyclopoid copepodid	1.0	0.3	0.1	1.1	0.4	0.2	0.1	0.5	0.1	0.3	0.04		0.3	0.8	1.5	2.8	2.4	5.2
Cyclopoid nauplii	2.2	0.4	0.2	0.1	0.9	1.3	0.04	0.2	0.03	2.7	3.1	0.01	0.02	0.1	0.1	0.8	2.4	0.01
Total Cyclopoida	**9.8**	**3.8**	**2.2**	**4.7**	**20.0**	**4.7**	**2.7**	**1.0**	**2.3**	**55.2**	**7.4**	**0.0**	**10.8**	**9.7**	**7.5**	**20.9**	**13.8**	**42.2**
Rotifera (Rotifers)																		
Asplanchna spp.	1.5		0.4	1.9	5.2	0.2	1.8	4.4	1.9	1.3	0.7	1.2	0.1	0.1		7.6	21.7	0.5
Brachionus spp.																		
Conochilus unicornis	13.9	4.3	0.1	2.1	2.4	11.5	0.8	3.6	4.3	3.1	8.2	0.1	0.8	0.5	1.8	6.8	6.6	2.0
Eosphora spp.																		
Euchlanis diliata																		
Eudactylocota eudactylocota																		
Filinia longiseta																		
Filinia sp.			0.03				0.01		0.04					0.003				
Gastropus spp.					0.2													
Kellicottia longispina	3.8	1.0	0.7	0.03	3.5	2.9	0.7	0.2	1.3	4.9	2.8	0.8	0.2	0.4	0.3	17.3	9.7	1.1
Keratella cochlearis	13.3	1.7	0.5	1.9	11.5	4.8	1.7	5.5	8.2	6.0	2.2	1.2	0.1	0.3	0.7	18.1	39.0	0.9
Keratella hiemalis			0.005															
Keratella quadrata			0.02				0.02	0.01	0.1					0.01	0.01		0.7	0.1
Lecane luna			0.005															
Lepadella patella														0.002				
Monostyla bulla																		0.01
Monostyla lunaris						0.03		0.003										
Notholca aquminata																		0.01
Notholca squamula																		
Polyarthra delichoptera	0.4	0.7	0.2	0.4	0.1	1.6	1.1	1.9	3.4	1.8	0.4	0.5	0.2	0.1	0.3	1.7	5.1	1.0
Pomopholyx sulcata			0.02	0.3	0.2	0.7	0.4	0.1	0.3	1.3	0.3	0.2	0.01	0.03	0.01	2.8	13.2	
Rotaria spp.																	3.5	
Syncheata pectinata	1.1	1.1	0.2	0.05	0.2	5.1	1.3	1.8	1.7	0.9	0.3	0.3		0.01			3.7	
Trichotria tetracis										0.1								
Trichocerca spp.									0.01			0.01						0.01
Total Rotifera	**34.1**	**8.8**	**2.1**	**6.6**	**23.3**	**26.9**	**7.8**	**17.4**	**21.2**	**19.3**	**14.8**	**4.4**	**1.5**	**1.4**	**3.2**	**54.3**	**103.3**	**5.6**
Total Zooplankton Biomass (mg/m³)	**405.2**	**64.2**	**122.4**	**29.6**	**503.1**	**314.9**	**73.5**	**24.6**	**122.9**	**185.3**	**265.5**	**57.0**	**43.8**	**145.9**	**81.5**	**264.9**	**178.0**	**593.5**
Total Number of Taxa Per Sample	*18*	*13*	*22*	*19*	*19*	*18*	*22*	*16*	*20*	*19*	*18*	*16*	*17*	*22*	*19*	*16*	*18*	*21*

[a] Species was identified as *Diaptomus minutus in 1997 and Leptodiaptus minutus* in 1998; however, it is the same species (*Diaptomus minutus* was officially renamed to *Leptodiaptomus minutus*)

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Appendix B7. Zooplankton biomass (mg/m³, dry weight) in lakes of the Meliadine Study Area, 1997 and 1998

Taxa	A8			B2				B5				B7				D7		G2	
	22-Jul-97	18-Aug-97	23-Jul-98	21-Jul-97	18-Aug-97	21-Jul-98	30-Aug-98	19-Jul-97	18-Aug-97	20-Jul-98	28-Aug-98	18-Jul-97	19-Aug-97	19-Jul-98	22-Aug-98	17-Jul-97	19-Aug-97	24-Jul-97	22-Aug-97
Cladocera (Cladocerans)																			
Bosmina longirostris	2.8	6.5	17.4	8.7	13.8	52.4	14.5	17.5	3.7	194.4	2.9	23.1	9.8	10.8	13.2	5.8	2.1	3.0	0.3
Chydorus sphaericus									0.1								0.1		
Daphnia longiremis				2.5	4.6	28.9	10.1	1.9	0.3			13.4	5.8	5.1	9.2	0.1	0.5		
Eubosmina longispina	5.6	15.4	0.9	12.7	19.1	5.8	0.3	30.7	4.2	15.3	0.2	21.1	14.4	1.5	2.2	7.9	2.8		
Holopedium gibberum				1129.3		6990.0						1887.0	77.3	2249.7	31.8				
Total Cladocera	**8.5**	**21.9**	**18.4**	**1153.2**	**37.5**	**7077.0**	**24.9**	**50.1**	**8.3**	**209.7**	**3.2**	**1944.7**	**107.3**	**2267.2**	**56.5**	**13.8**	**5.5**	**3.0**	**0.3**
Calanoida (Calanoid copepods)																			
Diaptomus sicilis				4.3	2.3	8.3													
Epischura nevadensis			12.2			23.7				14.7				1.8	1.3				
Epischura spp.	6.6			15.8				12.6	2.4			7.6							
Heterocope septentrionalis			7.0			20.4				29.3				1.4					
Heterocope spp.	3.1																	2.4	
Leptodiaptomus minutus [a]	42.5	3.8	149.2	8.4	7.6	38.4	1.9	64.3	1.5	425.6		91.0		38.8	0.4				
Calanoid copepodid	0.2		8.7	1.2	0.4	6.2		3.5		2.0		2.8		2.5	0.2			1.5	
Calanoid nauplii	0.4	0.1	0.2	6.4	0.7	2.6	0.8		1.3	0.9	0.4	2.9	1.5	0.9	0.4	2.2	2.9		
Total Calanoida	**52.9**	**3.9**	**177.3**	**36.0**	**11.0**	**99.7**	**2.6**	**80.3**	**5.3**	**472.4**	**0.4**	**104.3**	**1.5**	**45.3**	**2.3**	**2.2**	**2.9**	**3.9**	
Cyclopoida (Cyclopoid copepods)																			
Cyclops scutifer	5.6	5.7	12.9	20.7	74.1	10.7	4.2	63.0	4.2	23.9	0.2	36.1	15.1	9.3	12.9	1.4	1.8	0.9	
Diacyclops bicuspidatus			20.6	2.1		88.0	11.8			49.7	0.4			4.9	16.7				
Cyclopoid copepodid	0.7	2.3	2.9	4.8	3.7	5.7	5.1	11.1	1.4	23.4	0.3	2.6	3.7	1.0	4.1	1.4	0.4	0.1	0.1
Cyclopoid nauplii	0.3	0.02	0.2	2.6	2.0	0.3	0.3	0.3	1.6	0.3	0.2	4.0	0.8	0.1	0.2	2.3	1.7	0.4	
Total Cyclopoida	**6.7**	**8.1**	**36.6**	**30.2**	**79.7**	**104.8**	**21.4**	**74.4**	**7.2**	**97.4**	**1.0**	**42.7**	**19.5**	**15.3**	**33.8**	**5.1**	**3.9**	**1.5**	**0.1**
Rotifera (Rotifers)																			
Asplanchna spp.	0.8	12.1	0.7	0.4		0.6	0.7	22.8	88.7		4.4	24.2		1.1		58.8	25.3	212.8	6.7
Brachionus spp.											0.0								
Conochilus unicornis	1.0	0.2	5.4	22.9	1.8	3.4	0.8	22.4	3.4	1.0	1.1	22.1	5.7	2.1	2.8	30.7	3.1	8.7	
Eosphora spp.				1.1															
Euchlanis diliata																	0.3		
Eudactylocota eudactylocota									0.8										
Filinia longiseta																	0.1		
Filinia sp.																			
Gastropus spp.																			
Kellicottia longispina	5.2	0.1	1.6	4.5	7.6	0.5	0.9	7.2	12.6	0.4	2.7	2.1	1.5	0.8	2.0	6.1	5.0	3.6	1.7
Keratella cochlearis	0.6	0.5	2.1	10.1	1.7	0.8	1.1	29.7	20.6	2.9	1.7	18.1	11.3	0.6	1.3	89.1	30.8	117.9	33.7
Keratella hiemalis																			
Keratella quadrata	0.1			1.0	0.2	0.1	0.01	0.4		0.2	0.01			0.2	0.1				
Lecane luna							0.01			0.01					0.01				
Lepadella patella																			
Monostyla bulla											0.01								
Monostyla lunaris		0.005				0.0	0.01				0.01		0.1		0.02	0.2			
Notholca aquminata			0.1	0.2		0.0									0.02				
Notholca squamula															0.01				
Polyarthra delichoptera	0.4	0.1	1.0	1.0	0.7	0.5		1.6	4.8	2.1	1.8	0.4	1.6	0.6	3.3		9.6	45.8	6.7
Pomopholyx sulcata	0.7	0.1	0.05				1.3			0.01	0.1	0.6	4.2		0.4				
Rotaria spp.																	1.5		
Syncheata pectinata		0.02					0.1	0.3	10.0	0.3	1.2				0.2	1.0		6.8	3.6
Trichotria tetracis																			
Trichocerca spp.							0.3												
Total Rotifera	**8.8**	**13.1**	**11.0**	**41.2**	**12.1**	**5.9**	**5.2**	**84.3**	**140.8**	**6.8**	**13.0**	**67.5**	**24.3**	**5.3**	**10.1**	**185.8**	**75.6**	**395.7**	**52.4**
Total Zooplankton Biomass (mg/m³)	**76.8**	**47.0**	**243.2**	**1260.7**	**140.3**	**7287.4**	**54.2**	**289.1**	**161.5**	**786.3**	**17.5**	**2159.2**	**152.6**	**2333.2**	**102.7**	**206.9**	**87.9**	**404.0**	**52.7**
Total Number of Taxa Per Sample	*17*	*15*	*18*	*21*	*15*	*22*	*19*	*16*	*16*	*19*	*18*	*17*	*14*	*19*	*23*	*13*	*15*	*12*	*7*

[a] Species was identified as *Diaptomus minutus in 1997 and Leptodiaptus minutus* in 1998; however, it is the same species (*Diaptomus minutus* was officially renamed to *Leptodiaptomus minutus*)

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Appendix E8. Zooplankton density (No. organisms/m³) in lakes of the Meliadine Study Area, 1997 and 1998

Taxa	ML-E				ML-S				ML-SE	ML-W			PL	LML		A6		
	19-Jul-97	17-Aug-97	17-Jul-98	04-Sep-98	20-Jul-97	16-Aug-97	25-Jul-98	01-Sep-98	22-Jul-98	20-Jul-97	16-Aug-97	27-Jul-98	28-Jul-98	29-Jul-98	02-Sep-98	23-Jul-97	17-Aug-97	24-Jul-98
Cladocera (Cladocerans)																		
Bosmina longirostris	1479	1612	150	2462	1307	1810	246	1087	558	766	1601	23	32	254	655	5350	5055	20667
Chydorus sphaericus			12		107		15											
Daphnia longiremis	2396	1329	69	186	3387	1749	146	29	38	1738	2464	8	1234	2324	1467		82	
Eubosmina longispina	1430	2037	23	96	2267		62	10	462	538	1811	31	64	334	513	6082	6360	5333
Holopedium gibberum	661	79	142	6	907	570	69		115	186	474	62	433	1002	43			222
Total Cladocera	**5966**	**5056**	**396**	**2750**	**7973**	**4129**	**538**	**1125**	**1173**	**3229**	**6350**	**123**	**1763**	**3913**	**2678**	**11432**	**11497**	**26222**
Calanoida (Calanoid copepods)																		
Diaptomus sicilis										352	158							
Epischura nevadensis				6			15		38					13	71			889
Epischura spp.	256				373	102				269	42					183		
Heterocope septentrionalis							8						16	53	85			222
Heterocope spp.	217															229		
Leptodiaptomus minutus [a]	838		85	19	293	346	369		115	352	74	162	465	895	185	11340	2066	24667
Calanoid copepodid	444		42	6	133	20	31			207	21	192	641	507	28	366	163	889
Calanoid nauplii	2767	1103	1763	1105	2494	1903	348	3849	203			72	2940	1030	1688	11404	8473	982
Total Calanoida	**4522**	**1103**	**1890**	**1137**	**3294**	**2370**	**771**	**3849**	**357**	**1180**	**295**	**426**	**4061**	**2499**	**2058**	**23522**	**10702**	**27649**
Cyclopoida (Cyclopoid copepods)																		
Cyclops scutifer	819	377	181	77	2320	407	254	29	212	6478	527		1026	868	271	2149	1114	3111
Diacyclops bicuspidatus				231											271			444
Cyclopoid copepodid	513	157	15	231	213	102	15	115	19	145	21		64	160	313	1418	1223	1111
Cyclopoid nauplii	31359	5883	3535	2140	12470	17756	608	2380	390	38217	44011	144	302	905	1870	11404	33892	126
Total Cyclopoida	**32690**	**6418**	**3731**	**2679**	**15003**	**18265**	**877**	**2524**	**621**	**44840**	**44559**	**144**	**1392**	**1933**	**2724**	**14971**	**36230**	**4793**
Rotifera (Rotifers)																		
Asplanchna spp.	4612		740	3462	15795	634	3301	7932	3513	4023	2047	2153	235	197		869	2473	881
Brachionus spp.																		
Conochilus unicornis	157718	48904	1110	19388	27434	130635	7297	33929	40589	35200	93140	1148	7655	4603	16895	76977	74140	18885
Eosphora spp.																		
Euchlanis diliata																		
Eudactylocota eudactylocota																		
Filinia longiseta																		
Filinia sp.			463				87		585					39				
Gastropus spp.					2494													
Kellicottia longispina	75631	19488	13094	692	69000	58342	14333	4230	26734	96548	55270	16218	4096	7200	5539	342121	192763	21403
Keratella cochlearis	161407	20591	6061	22662	139662	58342	21109	66713	99327	72411	26611	15070	1410	3462	8794	219528	474493	10701
Keratella hiemalis			93															
Keratella quadrata			185				174	88	781					79	69		8473	881
Lecane luna			93															
Lepadella patella														39				
Monostyla bulla																		126
Monostyla lunaris						634		88										
Notholca aquminata																		126
Notholca squamula																		
Polyarthra delichoptera	8301	13237	2869	6106	2494	31708	17113	29347	52688	36206	7165	8037	3727	2321	5332	34212	101677	15485
Pomopholyx sulcata			416	6798	3325	9512	10077	1851	7415	18103	4094	6602	302	787	138	39914	186408	
Rotaria spp.																	10591	
Syncheata pectinata	9223	9193	1064	315	1663	41220	8166	11192	10733	7040	2047	1866		39			29656	
Trichotria tetracis										1006								
Trichocerca spp.									195			215						126
Total Rotifera	**416891**	**111413**	**26187**	**59424**	**261867**	**331027**	**81657**	**155370**	**242560**	**270537**	**190373**	**51310**	**17424**	**18767**	**36768**	**713622**	**1080675**	**68614**
Total Zooplankton Density (org./m³)	**460071**	**123990**	**32204**	**65989**	**288137**	**355791**	**83843**	**162868**	**244711**	**319785**	**241577**	**52002**	**24640**	**27111**	**44229**	**763545**	**1139104**	**127278**
Total Number of Taxa Per Sample	***18***	***13***	***22***	***19***	***20***	***18***	***22***	***16***	***20***	***19***	***18***	***16***	***17***	***22***	***19***	***16***	***18***	***21***

[a] Species was identified as *Diaptomus minutus in 1997 and Leptodiaptus minutus* in 1998; however, it is the same species (*Diaptomus minutus* was officially renamed to *Leptodiaptomus minutus*)

Appendix E8. Zooplankton density (No. organisms/m³) in lakes of the Meliadine Study Area, 1997 and 1998

Taxa	A8			B2				B5				B7				D7		G2	
	22-Jul-97	18-Aug-97	23-Jul-98	21-Jul-97	18-Aug-97	21-Jul-98	30-Aug-98	19-Jul-97	18-Aug-97	20-Jul-98	28-Aug-98	18-Jul-97	19-Aug-97	19-Jul-98	22-Aug-98	17-Jul-97	19-Aug-97	24-Jul-97	22-Aug-97
Cladocera (Cladocerans)																			
Bosmina longirostris	1393	3198	4038	4250	6767	12118	3350	8582	1821	45000	677	11329	4779	2511	3067	2821	1025	1469	128
Chydorus sphaericus									27								50		
Daphnia longiremis				1003	1822	3313	1162	740	136			5298	2318	588	1062	43	200		
Eubosmina longispina	1506	4108	538	3400	5094	3400	205	8212	1114	9000	138	5643	3836	908	1297	2115	750		
Holopedium gibberum				2397		8631						4006	164	2778	39				
Total Cladocera	**2899**	**7306**	**4577**	**11050**	**13682**	**27462**	**4718**	**17534**	**3098**	**54000**	**815**	**26277**	**11097**	**6784**	**5465**	**4979**	**2025**	**1469**	**128**
Calanoida (Calanoid copepods)																			
Diaptomus sicilis				349	186	436													
Epischura nevadensis			359			697				667				53	39				
Epischura spp.	301			719				572	109			345							
Heterocope septentrionalis			269			785				1333				53					
Heterocope spp.	38																	29	
Leptodiaptomus minutus [a]	3765	339	16244	741	669	4185	205	5688	136	46333		8055		4220	39				
Calanoid copepodid	56		1705	305	112	1221		909		392		732		481	39			382	
Calanoid nauplii	1174	254	570	20383	2318	8263	2469		4237	2908	1178	9400	4796	2823	1305	7014	9352		
Total Calanoida	**5334**	**593**	**19147**	**22498**	**3285**	**15586**	**2674**	**7168**	**4481**	**51633**	**1178**	**18533**	**4796**	**7631**	**1423**	**7014**	**9352**	**411**	
Cyclopoida (Cyclopoid copepods)																			
Cyclops scutifer	696	593	1256	2572	9183	1046	410	7808	516	2333	15	4480	1867	908	1258	171	225	118	
Diacyclops bicuspidatus			1795	218		7672	1026			4333	31			427	1455				
Cyclopoid copepodid	358	1186	628	2419	1896	1221	1094	5654	707	5000	62	1335	1867	214	865	727	200	59	51
Cyclopoid nauplii	4695	254	1278	36690	27817	4880	4321	4197	23301	4539	2397	56402	11191	1255	2498	31974	23381	5495	
Total Cyclopoida	**5749**	**2033**	**4957**	**41899**	**38897**	**14818**	**6851**	**17658**	**24524**	**16206**	**2505**	**62217**	**14924**	**2804**	**6076**	**32871**	**23806**	**5671**	**51**
Rotifera (Rotifers)																			
Asplanchna spp.	94	1376	1278	1359		1148	1329	2591	10084		7896	2757		2027		6688	2875	24208	133012
Brachionus spp.											282								
Conochilus unicornis	11736	1737	50384	259549	20863	31862	7478	253893	38129	9276	10434	249781	63948	19594	26071	347717	35071	98913	
Eosphora spp.				13589															
Euchlanis diliata																	2338		
Eudactylocota eudactylocota									4237										
Filinia longiseta																	2338		
Filinia sp.																			
Gastropus spp.																			
Kellicottia longispina	103280	2372	32677	89687	150677	10621	18114	142684	249956	7697	53159	41630	28777	15250	40433	119902	98200	71437	33253
Keratella cochlearis	7042	6395	26105	122300	20863	9616	13129	360906	249956	35131	20164	220237	137488	6853	15299	1083118	374095	1434243	409427
Keratella hiemalis																			
Keratella quadrata	1174			10871	2318	574	166	4197		1974	141			2703	781				
Lecane luna							166			197					156				
Lepadella patella																			
Monostyla bulla											141								
Monostyla lunaris		85				287	166				423		1599		468	3997			
Notholca aquminata			365	1359		144									156				
Notholca squamula															312				
Polyarthra delichoptera	7042	2880	15517	20383	13909	7463		31474	95322	32565	27919	8057	31974	8783	51361		189386	906705	133012
Pomopholyx sulcata	9389	1101	1278				19776			197	2961	8057	59152		9991				
Rotaria spp.																	4676		
Syncheata pectinata		169					2327	2098	80494	1776	7614				1405	7994		54952	29096
Trichotria tetracis																			
Trichocerca spp.							1994												
Total Rotifera	**139756**	**16115**	**127603**	**519097**	**208630**	**61715**	**64646**	**797844**	**728178**	**88813**	**131135**	**530519**	**322937**	**55210**	**146434**	**1569415**	**708980**	**2590459**	**737799**
Total Zooplankton Density (org./m³)	**153737**	**26047**	**156284**	**594544**	**264494**	**119581**	**78889**	**840204**	**760282**	**210653**	**135633**	**637546**	**353755**	**72429**	**159397**	**1614279**	**744163**	**2598011**	**737978**
Total Number of Taxa Per Sample	***17***	***15***	***18***	***21***	***15***	***22***	***19***	***16***	***17***	***19***	***18***	***17***	***14***	***19***	***23***	***13***	***16***	***12***	***7***

[a] Species was identified as *Diaptomus minutus in 1997 and Leptodiaptus minutus* in 1998; however, it is the same species (*Diaptomus minutus* was officially renamed to *Leptodiaptomus minutus*)

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Appendix E9. Summary of habitat data at benthic macroinvertebrate sampling sites in streams of the Meliadine Study Area, 1997 and 1998

Stream	UTM Coordinates (NAD 83, Zone 15V)		Samples Collected in July 1997					Samples Collected in July 1998				
	Easting	Northing	Date	Replicate Number	Depth (cm)	Velocity (cm/s)	Substrate[a] (%)	Date	Replicate Number	Depth (cm)	Velocity (cm/s)	Substrate (%)
A0-1	544368	6985802	21-Jul-97	1	7	13	Bo=5	17-Jul-98	1	16	23	Bo=5
				2	5	26	Co=30		2	21	26	Co=30
				3	6	6	Pb=40		3	20	32	Pb=40
				4	6	8	Gr=20		4	23	27	Gr=20
				5	6	12	Si/Sa=5		5	18	28	Si/Sa=5
A5-6	542426	6985968	23-Jul-97	1	7	8	Bo=30	24-Jul-98	1	17	28	Bo=30
				2	9	3	Co=40		2	19	33	Co=40
				3	9	3	Pb=10		3	19	33	Pb=10
				4	5	11	Gr=10		4	15	31	Gr=10
				5	9	6	Si/Sa=10		5	19	36	Si/Sa=10
A7-8	541768	6986477	22-Jul-97	1	10	11	Bo=50	23-Jul-98	1	10	18	Bo=30
				2	10	2	Co=20		2	10	22	Co=30
				3	7	1	Pb=10		3	12	21	Pb=20
				4	5	4	Gr=10		4	13	14	Gr=10
				5	6	12	Si/Sa=10		5	10	12	Si/Sa=10
B1-2	537425	6985795	21-Jul-97	1	13	42	Bo=0	21-Jul-98	1	12	35	Bo=0
				2	13	63	Co=40		2	14	22	Co=40
				3	12	40	Pb=40		3	15	32	Pb=40
				4	12	43	Gr=15		4	12	35	Gr=15
				5	13	47	Si/Sa=5		5	13	37	Si/Sa=5
B3-4	538070	6986890	not sampled in 1997					21-Jul-98	1	12	42	Bo=0
									2	11	50	Co=30
									3	16	43	Pb=40
									4	17	43	Gr=15
									5	16	47	Si/Sa=15
B4-5	538416	6987531	24-Jul-97	1	21	5	Bo=10	20-Jul-98	1	22	12	Bo=10
				2	17	5	Co=40		2	17	15	Co=40
				3	16	6	Pb=30		3	14	15	Pb=30
				4	14	8	Gr=10		4	14	18	Gr=10
				5	22	4	Si/Sa=10		5	23	14	Si/Sa=10
B5-6	537870	6988655	not sampled in 1997					19-Jul-98	1	26	23	Bo=10
									2	25	22	Co=30
									3	26	21	Pb=30
									4	26	24	Gr=20
									5	21	25	Si/Sa=10
B6-7	537809	6989294	17-Jul-97	1	5.5	21	Bo=50	19-Jul-98	1	15	32	Bo=40
				2	8	18	Co=30		2	18	33	Co=30
				3	16	3	Pb=10		3	16	37	Pb=20
				4	11	12	Gr=10		4	14	28	Gr=10
				5	8	34	Si/Sa=<1		5	16	29	Si/Sa=<1
D0-1	532769	6989482	24-Jul-97	1	6	23	Bo=40	not sampled in 1998				
				2	5	41	Co=30					
				3	12	17	Pb=20					
				4	13	21	Gr=5					
				5	11	18	Si/Sa=5					
D6-7	536036	6988812	17-Jul-97	1	10	12	Bo=20	not sampled in 1998				
				2	7	13	Co=40					
				3	7	21	Pb=20					
				4	5	65	Gr=10					
				5	4	28	Si/Sa=10					
ML-MR	530582	6989248	23-Jul-97	1	12	34	Bo=30	25-Jul-98	1	22	43	Bo=30
				2	16	42	Co=30		2	26	44	Co=30
				3	10	43	Pb=25		3	20	43	Pb=25
				4	12	32	Gr=10		4	22	45	Gr=10
				5	10	26	Si/Sa=5		5	20	46	Si/Sa=5
ML-PL	523751	7000635	22-Jul-97	1	16	44	Bo=45	27-Jul-98	1	18	45	Bo=45
				2	16	59	Co=10		2	19	54	Co=10
				3	18	41	Pb=30		3	18	44	Pb=30
				4	20	37	Gr=10		4	20	37	Gr=10
				5	13	51	Si/Sa=5		5	23	48	Si/Sa=5
MR-L	544650	6971720	not sampled in 1997					20-Jul-98	1	25	45	Bo=40
									2	24	34	Co=30
									3	26	33	Pb=20
									4	24	29	Gr=5
									5	10	40	Si/Sa=5

[a] Bo = boulder (>256 mm), Co = cobble (64-256 mm), Pb = pebble (16-64 mm), Gr = gravel (4-16 mm), and Si/Sa = silt/sand (<2 mm). Substrate data are averages for all five replicates.

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Appendix E10. Benthic macroinvertebrate densities (individuals/m^2) in streams of the Meliadine Study Area, 1997 and 1998

Taxa	A0-1						A0-1					A5-6									A7-8					
	July 1997						July 1998					July 1997					July 1998					July 1997					
	Rep 1	Rep 2	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 4	Mean	SE	Rep 1	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 4	Rep 5	Mean	SE
Bryozoa	P	P	P	P	P		P	P		P		P	P	P	P		P	P	P	P		P	P	P	P	P	
Coelenterata																											
Hydra	989	1806	4043	5194	3008	973	226	118	208	184	33							215	430	215	124	86			183	67	44
Turbellaria		86			22	22	333	108	512	318	117						355	785	108	416	198						
Nematoda	452	828	1903	1290	1118	313	3269	559	2034	1954	783	1290	1269	4043	2201	921	1602	2548	5527	3226	1183	4000	774	226	538	1384	879
Oligochaeta																									323	81	81
Enchytraeidae	204	1032		860	524	250		65	82	49	25	495	194	2473	1054	715	323	366	495	394	52	581	11	43	161	199	131
Lumbriculidae			97		24	24	22	11		11	6	86	22		36	26	473	688	118	427	166				11	3	3
Naididae	4624	3548	2312	409	2723	905	516	366	938	607	171	2022	3763	2581	2789	513	1753	1344	849	1315	261	2452	1172	2355	817	1699	414
Tubificidae	43			22	16	10	215	172	11	133	62			108	36	36	3871	1290	860	2007	940	108	344			113	81
Hirudinea																											
Piscicola																											
Gastropoda			140		35	35													11	4	4				151	38	38
Ancylidae																											
Ferrissia																											
Hydrobiidae																								11		3	3
Lymnaeidae																											
Physidae																						280	22			75	68
Physa	86	247		22	89	56	11	43	22	25	9	22		22	14	7		11	11	7	4		11	43		13	10
Physella																									11	3	3
Valvatidae																											
Valvata sincera h.	11	32	839	398	320	194	312	151	265	243	48														11	3	3
Tardigrada												108		86	65	33											
Hydracarina	5978	4731	2290	935	3484	1144	1301	1903	1236	1480	212	602	1226	753	860	188	1086	1516	2366	1656	376	860	613	699	1430	901	184
Arachnida																											
Dolomedes																	11			4	4						
Conchostraca	86	86		86	65	22						1032	688	2237	1319	469							1892	301		548	454
Cladocera																											
Bosminidae																											
Bosmina				86	22	22		215	154	123	64	86		86	57	29	215	871		362	262						
Chydoridae		516	720	602	460	159	753	108	573	478	192	20258	6172	7484	11305	4493	645	656	6892	2731	2081	7097	452	43	97	1922	1727
Daphnidae																											
Daphnia																											
Holopedidae																											
Holopedium							11			4	4																
Sididae																											
Diaphanosoma																											
Copepoda																											
Calanoida								22	72	31	21						1505	3258	860	1875	716	172				43	43
Cyclopoida	269	172	720	226	347	126	430	882	952	755	164	452	538	366	452	50	1075	4978	2172	2742	1162	3118	957	1000	677	1438	565
Harpacticoida	86		75	344	126	75	817	538	308	554	147	882	194	1032	703	258	1301	1796	1731	1609	155	430	258	215	172	269	57
Ostracoda																											
SpeciesA	763	946	355	2355	1105	435	1946	4785	727	2486	1202	1806	1140	2237	1728	319	6247	1774	3892	3971	1292	1290	6290	2753	269	2651	1316
SpeciesB	86	774	140	172	293	161								172	57	57						1032	86	215		333	237
SpeciesC																											
Amphipoda																											
Gammarus																											
Collembola			11		3	3	108		72	60	32						645	215		287	190				43	11	11
Ephemeroptera																											
Baetidae																											
Baetis (a)	43	43			22	12																					
Baetis	312	75			97	74	97	430	118	215	108						65	194	11	90	54						
Centroptilum																											
Ephemerellidae																											
Ephemerella																											
Leptophlebiidae																											
Plecoptera			75		19	19																					
Perlodidae																									43	11	11
Cultus																											
Isoperla																											
Skwala																											
Nemouridae																											
Nemoura	65	54	54	54	56	3	11	11	22	14	4														11	3	3
Soyedina																											
Hemiptera																											
Corixidae		11			3	3																		43		11	11
Trichoptera																											
Brachycentridae																											
Brachycentrus																											
Hydropsychidae																											
Potamyia																											
Trichoptera																											
Limnephilidae							22	11		11	6						11	43		18	13						
Grensia	32		11		11	8						108	65	86	86	12						366	301	129	32	207	77
Limnephilus									11	4	4																
Coleoptera																	11			4	4						
Curculionidae								11		4	4						22	129		50	40						
Dytiscidae(a)												22			7	7											
Dytiscidae																											
Hydroporus																			11	4	4						
Coptotomus (a)																		11		4	4						
Oreodytes (a)																									32	8	8
Oreodytes (l)																											
Hygrotus																											
Haliplidae																											
Brychius (a)																											
Brychius																		11	22	11	6						
Haliplus (a)																											
Haliplus (l)																											
Hydrophilidae																											
Diptera (a)			11		3	3	32	183		72	56																
Diptera (p)																											
Diptera																											
Ceratopogonidae (p)									11	4	4						11		22	11	6						
Bezzia	11			11	5	3							22		7	7											
Culicoides																									11	3	3
Dasyhelea																											
Chironomidae (a)				11	3	3		312	11	108	102						54	269		108	82		22			5	5
Chironomidae(p)	204	129	151	32	129	36	301	333	104	246	72	258	86	22	122	71	656	645	1570	957	306	430	183	226	22	215	84
Chironomidae(l)	5505	7258	5215	2602	5145	960	8839	3269	4559	5556	1683	13763	17376	15699	15613	1044	20215	30731	30118	27022	3408	17914	17108	7763	1935	11180	3847
Culicidae (a)																		11		4	4						
Empididae (a)																											
Empididae																											
Clinocera																		11		4	4						
Wiedemannia													22		7	7											
Simuliidae (a)	22			11	8	5	54	280	54	129	75						140	505	54	233	138						
Simuliidae(p)	11	11			5	3		140	22	54	43						989	785	161	645	249						
Simulium (p)	22				5	5																22	11	11		11	4
Simulium	11699	18957	215		7718	4637	118	258		125	75	1118	624	258	667	249	1699	1011	97	935	464			11		3	3
Stratiomyidae																											
Nemotelus																											
Tipulidae			108		27	27																	11			3	3
Tipulidae(p)																											
Tipulidae(l)							538	559	906	668	119						32	753	1151	645	327						
Limonia																		11		4	4						
Hexatoma								11		4	4																
Prionocera								11		4	4																
Dicranota												22		22	14	7											
Limophila																											
Tipula	237	183		204	156	53						172	215	409	265	73						946	301	204	86	384	192
Ephydridae (l)																	215			72	72						
Hymenoptera (a)																	11	11		7	4						
Fish							22	43	11	25	9						11	22		11	6				11	3	3
Terrestrial	22	11			8	5						22	43	86	50	19	215	22	22	86	65		11		11	5	3
Total (excludes shaded)	31505	40796	18032	14989	26331	6010	19000	13860	12166	15009	2055	23806	26903	32237	27649	2462	41591	46882	49559	46011	2341	30796	29387	15247	6290	20430	5877

NOTES: (a) = adult; (p) = pupa; (l) = larvae; P = present; Total number of taxa includes chironomids identified to genus in Appendix E11. Shaded taxa are pelagic or terrestrial groups, not included in totals.

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Appendix E10. Benthic macroinvertebrate densities (individuals/m^2) in streams of the Meliadine Study Area, 1997 and 1998

Taxa	A7-8						B1-2											B3-4					
	July 1998						July 1997						July 1998					July 1998					
	Rep 1	Rep 2	Rep 4	Rep 5	Mean	SE	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 3	Rep 4	Rep 5	Mean	SE
Bryozoa	P	P	P	P	P		P	P	P	P	P		P	P	P	P		P	P	P	P	P	
Coelenterata																				2118		530	530
Hydra	11				3	3	6151	23269	8409	23559	15347	4681	10548	3817	4333	6233	2163	1344	247		430	505	293
Turbellaria	215	143	645		251	139							1559	2742	785	1695	569	860	22	1376	935	798	283
Nematoda	3065	2378	4129	398	2492	786	1075	140	871	570	664	203	677	925	710	771	78	226	527	2914	677	1086	617
Oligochaeta																							
Enchytraeidae	226	440	2140	32	710	484	301		258	344	226	77							22	452	11	121	110
Lumbriculidae	65	233	118	43	115	42		32			8	8	97	11	22	43	27	86	22	108	32	62	21
Naididae	978	154	667	258	514	190	2022	968	527	957	1118	318	3710	258	1140	1703	1035	2086	3882	6054	8914	5234	1471
Tubificidae		236		108	86	56	43		11	75	32	17						462	527	817	484	573	83
Hirudinea																							
Piscicola										43	11	11											
Gastropoda								65			16	16											
Ancylidae																							
Ferrissia																							
Hydrobiidae				11	3	3																	
Lymnaeidae														11		4	4						
Physidae																							
Physa									54	108	40	26	86	11		32	27	22	22	11	237	73	55
Physella																							
Valvatidae																							
Valvata sincera h.																		11		194	473	169	111
Tardigrada										43	11	11											
Hydracarina	430	963	3032	1720	1537	564	3441	2011	2129	2957	2634	341	3742	4312	2204	3419	629	1570	2688	1409	2688	2089	348
Arachnida																							
Dolomedes																							
Conchostraca							172		258	516	237	108											
Cladocera																							
Bosminidae																							
Bosmina								430			108	108	6022	4376	7527	5975	910	2796	2796	989	860	1860	541
Chydoridae	860	143	430	215	412	161							3011	441	645	1366	825	430		323	860	403	178
Daphnidae													1505	1215	2581	1767	415						
Daphnia								215	86	43	86	46							215			54	54
Holopedidae																							
Holopedium							86	753	344	301	371	139	4946	6022	7312	6093	684	699	2247	935	1570	1363	347
Sididae																							
Diaphanosoma																							
Copepoda																							
Calanoida				108	27	27		11		43	13	10	3011	1645	3032	2563	459	645	699	183	645	543	121
Cyclopoida	226	154	645	226	313	112	215	355	344	430	336	45	2366	5290	4333	3996	861	14043	11645	8108	8645	10610	1384
Harpacticoida	430	32	441	22	231	118	86		258	86	108	54	1290	430	226	649	326	430		785	430	411	161
Ostracoda																							
SpeciesA	1301	2159	4172	3129	2690	619	430	118	946	1333	707	270	3871	1129	1290	2097	888	215	215	1742	871	761	362
SpeciesB							430		688	602	430	153											
SpeciesC								22			5	5											
Amphipoda																							
Gammarus																		75		129	54	65	27
Collembola		72		108	45	27														11		3	3
Ephemeroptera																							
Baetidae																							
Baetis (a)																							
Baetis	312	108	151	258	207	47	559	301	699	785	586	106	484	699	462	548	76	978	2237	1387	2634	1809	380
Centroptilum										11	3	3											
Ephemerellidae																							
Ephemerella																							
Leptophlebiidae																							
Plecoptera																							
Perlodidae							43		86	129	65	28	65	108	65	79	14						
Cultus									43		11	11											
Isoperla										32	8	8											
Skwala							43	65	43	65	54	6											
Nemouridae													11	226	11	82	72						
Nemoura									11	183	48	45						32	22	129	43	56	25
Soyedina																							
Hemiptera																							
Corixidae																							
Trichoptera																							
Brachycentridae																							
Brachycentrus																							
Hydropsychidae																							
Potamyia																							
Trichoptera																							
Limnephilidae	32	125	11	54	56	25		11			3	3								11	22	8	5
Grensia								22	11	11	11	4											
Limnephilus																							
Coleoptera																							
Curculionidae																							
Dytiscidae(a)																							
Dytiscidae			11		3	3				11	3	3											
Hydroporus	11	22		54	22	12																	
Coptotomus (a)																							
Oreodytes (a)																							
Oreodytes (l)																							
Hygrotus																							
Haliplidae			11		3	3																	
Brychius (a)																							
Brychius																							
Haliplus (a)																							
Haliplus (l)																							
Hydrophilidae																							
Diptera (a)	11	22			8	5		22			5	5			226	75	75			140		35	35
Diptera (p)	11				3	3																	
Diptera																							
Ceratopogonidae (p)	11		11		5	3												11	11	32		13	7
Bezzia								11		43	13	10											
Culicoides										22	5	5											
Dasyhelea																							
Chironomidae (a)	11	11		11	8	3	86		11	65	40	21	22		247	90	79	22		118		35	28
Chironomidae(p)	118	65	247	54	121	44	688	247	462	376	444	93	1172	935	1677	1262	219	258	860	602	774	624	133
Chironomidae(l)	16000	2581	13118	7366	9766	2993	3742	3183	3570	4892	3847	368	8151	6290	9183	7875	846	1473	3054	2527	5925	3245	952
Culicidae (a)																							
Empididae (a)																							
Empididae																				11		3	3
Clinocera																							
Wiedemannia																							
Simuliidae (a)	43			32	19	11	86		11		24	21	11		22	11	6	32	22		43	24	9
Simuliidae(p)	215		86		75	51		22			5	5	118	591	269	326	140	151	656	11	258	269	139
Simulium (p)							86		22	54	40	19											
Simulium	1570	65	1032	290	739	346	1118	194	151	559	505	224	2570	5097	1892	3186	975	183	1065	65	258	392	228
Stratiomyidae																							
Nemotelus																							
Tipulidae								11			3	3											
Tipulidae(p)																							
Tipulidae(l)	333	22	495	75	231	111							32	226	226	161	65	11	215	323	215	191	65
Limonia																							
Hexatoma																							
Prionocera													32	43	22	32	6			32		8	8
Dicranota																							
Limophila																							
Tipula	11				3	3	43		43	226	78	50											
Ephydridae (l)																							
Hymenoptera (a)																							
Fish			11		3	3																	
Terrestrial		82		11	23	20				54	13	13											
Total (excludes shaded)	25344	9796	30516	13978	19909	4826	20473	30688	19548	38591	27325	4525	38215	27860	24516	30197	4124	10484	16290	23247	26366	19097	3560

NOTES: (a) = adult; (p) = pupa; (l) = larvae; P = present; Total number of taxa includes chironomids identified to genus in Appendix E11. Shaded taxa are pelagic or terrestrial groups, not included in totals.

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Appendix E10. Benthic macroinvertebrate densities (individuals/m^2) in streams of the Meliadine Study Area, 1997 and 1998

Taxa	B4-5												B5-6					B6-7					
	July 1997							July 1998					July 1998					July 1997					
	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 2	Rep 3	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 5	Mean	SE
Bryozoa	P	P	P	P	P	P		P	P	P	P		P	P	P	P		P	P	P	P	P	
Coelenterata																							
Hydra	6538	6172	3806	4688	935	4428	1004	3269	1946	1516	2244	527	774	710	1290	925	184	3129	10946	4946	8516	6884	1756
Turbellaria								645	1075	323	681	218	215	161	785	387	200						
Nematoda	1935	774	1118	785	269	976	276	946	892	398	746	175	5129	1032	1333	2498	1318	1731	1581	1796	8430	3384	1683
Oligochaeta			269	430		140	89													2817		704	704
Enchytraeidae	774	914			129	363	199	11	43		18	13	742	43	194	326	212	538	1312		2452	1075	532
Lumbriculidae			151	527		135	102	75	118	151	115	22			11	4	4			43		11	11
Naididae	1419	624	570	763	54	686	219	5280	4989	3527	4599	542	742	935	16505	6061	5223	7667	2559	387	14903	6379	3225
Tubificidae	387	419	43	54	280	237	80	11	247	581	280	165	1312	226	452	663	331	22	151		108	70	36
Hirudinea																							
Piscicola																							
Gastropoda																				151		38	38
Ancylidae																							
Ferrissia																							
Hydrobiidae																				11		3	3
Lymnaeidae																							
Physidae																							
Physa													22	11	43	25	9		312			78	78
Physella																							
Valvatidae																							
Valvata sincera h.	43					9	9	11			4	4	280	344	796	473	162	269	280	516	129	298	80
Tardigrada	86		32			24	17						108			36	36						
Hydracarina	989	226	301	570	86	434	160	430	11	226	222	121	2097	1000	1161	1419	342	3430	2968	452	7591	3610	1480
Arachnida																							
Dolomedes																							
Conchostraca	35613	13161			978	9951	6883											172	1634		1118	731	389
Cladocera																							
Bosminidae																							
Bosmina	731	258	118	108	11	245	128	215	3011	753	1326	856	1301	688	1290	1093	203	24613	24344	9065	44000	25505	7156
Chydoridae	1892	1462	15312	8280	86	5406	2851	4946	8172	4516	5878	1154	1398	645	215	753	346			5591		1398	1398
Daphnidae																							
Daphnia														118	215	111	62	1892	1204	430	4559	2022	897
Holopedidae																							
Holopedium									11		4	4	323	108	430	287	95	2409	1548		3355	1828	712
Sidiae																							
Diaphanosoma																							
Copepoda																							
Calanoida								656	860	441	652	121			215	72	72	258	516	462	344	395	58
Cyclopoida	559	258	634	505	86	409	102	237			79	79	108	215	215	179	36	86	688	484	430	422	125
Harpacticoida	1118	602	430	215	151	503	173	430	860	538	609	129	430	11	430	290	140	570	516	871	3032	1247	600
Ostracoda																							
SpeciesA	2452	2247	1677	419	312	1422	450	903	2366	430	1233	583	1398	1075	1075	1183	108	1903	3957	8817	14194	7218	2740
SpeciesB	387	430	237	323	22	280	72											688	1376	247	1376	922	277
SpeciesC			129	22		30	25																
Amphipoda																							
Gammarus					22	4	4																
Collembola			11	11		4	3						11	54		22	16				86	22	22
Ephemeroptera																							
Baetidae																							
Baetis (a)																							
Baetis					11	2	2						452	54	290	265	116		43			11	11
Centroptilum																							
Ephemerellidae																							
Ephemerella																							
Leptophlebiidae																							
Plecoptera			97			19	19																
Perlodidae		11				2	2		32	118	50	35	11		32	14	9						
Cultus																							
Isoperla																							
Skwala		11	11	22		9	4												11			3	3
Nemouridae																							
Nemoura		22		22		9	5											22	11	11		11	4
Soyedina																							
Hemiptera																							
Corixidae																							
Trichoptera																							
Brachycentridae																							
Brachycentrus																							
Hydropsychidae																							
Potamyia																							
Trichoptera																							
Limnephilidae								43	32	22	32	6	312	1000	1118	810	251						
Grensia	258	43	129	108	172	142	36												32	11	22	16	7
Limnephilus																							
Coleoptera																							
Curculionidae													22			7	7						
Dytiscidae(a)																							
Dytiscidae	86		11			19	17																
Hydroporus				11		2	2	22	22		14	7											
Coptotomus (a)																							
Oreodytes (a)																							
Oreodytes (l)																				11		3	3
Hygrotus																							
Haliplidae					11	2	2																
Brychius (a)		11				2	2																
Brychius	215	129			108	90	41	22	11	11	14	4		11	11	7	4	22			22	11	6
Haliplus (a)			22	32		11	7																
Haliplus (l)			129	97		45	28																
Hydrophilidae		11			11	4	3																
Diptera (a)				22		4	4						65	11	11	29	18						
Diptera (p)																							
Diptera																							
Ceratopogonidae (p)													11	54		22	16						
Bezzia	43	65	129	32		54	22													11		3	3
Culicoides			22			4	4													11		3	3
Dasyhelea	43					9	9																
Chironomidae (a)	43				11	11	8						247		11	86	81	32	32		516	145	124
Chironomidae(p)	688	226	151	183	43	258	112	301	65	323	229	83	108	54	43	68	20	409	398	505	538	462	35
Chironomidae(l)	11355	6043	5118	6430	925	5974	1664	7624	3484	4667	5258	1231	430	269	968	556	211	6161	11161	2914	23226	10866	4456
Culicidae (a)																				11		3	3
Empididae (a)																				97		24	24
Empididae																							
Clinocera			11			2	2	11			4	4											
Wiedemannia																			11		344	89	85
Simuliidae (a)									11		4	4	54	22	11	29	13	43	32		65	35	13
Simuliidae(p)								11	11		7	4	11		22	11	6						
Simulium (p)	43			54	11	22	11											269	226		129	156	60
Simulium	172			11		37	34	54	54	11	39	14	312	43	677	344	184	247	97		237	145	59
Stratiomyidae																							
Nemotelus																					22	5	5
Tipulidae																				247		62	62
Tipulidae(p)																							
Tipulidae(l)								215			72	72	140	11	11	54	43						
Limonia																							
Hexatoma									22	11	11	6			11	4	4						
Prionocera								11	11		7	4	11		11	7	4						
Dicranota																							
Limophila																				22		5	5
Tipula	43					9	9											54	97	43	151	86	24
Ephydridae (l)																							
Hymenoptera (a)													11			4	4						
Fish														32		11	11						
Terrestrial			11		11	4	3											140	43		215	99	48
Total (excludes shaded)	64688	32140	14602	15806	4527	26353	10556	20323	16290	12849	16487	2160	15075	7097	27269	16480	5865	27301	39677	24839	86624	44610	14376

NOTES: (a) = adult; (p) = pupa; (l) = larvae; P = present; Total number of taxa includes chironomids identified to genus in Appendix E11. Shaded taxa are pelagic or terrestrial groups, not included in totals.

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Appendix E10. Benthic macroinvertebrate densities (individuals/m^2) in streams of the Meliadine Study Area, 1997 and 1998

Taxa	B6-7						D0-1					D6-7					ML-PL					
	July 1998						July 1997					July 1997					July 1997					
	Rep 1	Rep 2	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 4	Mean	SE	Rep 1	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 3	Rep 4	Rep 5	Mean	SE
Bryozoa	P	P	P	P	P		P	P	P	P		P	P	P	P							
Coelenterata		15699			3925	3925																
Hydra	1774		6796	12011	5145	2703	3000	2785	1355	2380	516	602	430	1247	760	249	2075	2914	3957	4387	3333	521
Turbellaria	215	215			108	62						43		43	29	14				194	48	48
Nematoda	5215	1516	495	688	1978	1101	1022	806	1387	1072	169	710	914	548	724	106	699	333	774	1011	704	140
Oligochaeta																						
Enchytraeidae	280	215	11	215	180	58	613	387	1032	677	189	97	860	43	333	264	634	301	860	774	642	123
Lumbriculidae		43	22	118	46	26						43			14	14	151				38	38
Naididae	462	1591	914	892	965	233	172	1602	645	806	421	441	581	1538	853	345	32		172	86	73	38
Tubificidae	2796	237	226	247	876	640	65	32	32	43	11	75	43	11	43	19		108	129	129	91	31
Hirudinea																						
Piscicola																						
Gastropoda																						
Ancylidae																						
Ferrissia																		43			11	11
Hydrobiidae							11			4	4											
Lymnaeidae																						
Physidae																						
Physa	32	43	97	151	81	27	505	247	43	265	134											
Physella																						
Valvatidae																						
Valvata sincera h.							1032	634	538	735	151	290	11	86	129	84						
Tardigrada																						
Hydracarina	462	247	65	32	202	99	54	763	860	559	254	355	376	215	315	51	258	11	86	108	116	52
Arachnida																						
Dolomedes																						
Conchostraca							86	129		72	38	172	43	172	129	43						
Cladocera																						
Bosminidae																						
Bosmina	3441	4333	3882	4516	4043	241	172	43		72	52						6591	1892	4258	2194	3734	1088
Chydoridae	1290	2796	1075	2581	1935	439		86	86	57	29						43				11	11
Daphnidae		215			54	54																
Daphnia	645		473	430	387	137						11			4	4	11882	4086	8430	3355	6938	1992
Holopedidae																						
Holopedium	5591	3667	6118	7548	5731	803	172			57	57						1634	1075	4731	516	1989	942
Sididae																						
Diaphanosoma																			215		54	54
Copepoda																						
Calanoida	10591	4323	10849	11548	9328	1681	258	86		115	76						753	301	2968	215	1059	647
Cyclopoida	4731	1720	5860	3667	3995	880		172	280	151	81	86			29	29	8882	12086	8516	5118	8651	1425
Harpacticoida	22	226		215	116	61	1118	86	774	659	303	344	54	258	219	86	806	785	2839	473	1226	543
Ostracoda																						
SpeciesA	860	4118	645	2151	1944	797	4634	1548	3258	3147	893	2194	860	1204	1419	400	903	258	344	1333	710	252
SpeciesB							1118	2151	1968	1746	318	301		688	330	199						
SpeciesC																						
Amphipoda																						
Gammarus							32	32	22	29	4											
Collembola													301	43	115	94		43			11	11
Ephemeroptera																						
Baetidae																						
Baetis (a)																						
Baetis		11	11		5	3						65	280	129	158	64	419	183	387	280	317	54
Centroptilum																						
Ephemerellidae																						
Ephemerella																		43			11	11
Leptophlebiidae																			86		22	22
Plecoptera		11			3	3																
Perlodidae	11			43	13	10						22		43	22	12						
Cultus												22			7	7						
Isoperla																						
Skwala													43	22	22	12						
Nemouridae																						
Nemoura	11	22	11	11	13	3	763	1022	527	771	143	11	54		22	16	376	419	1935		683	428
Soyedina																						
Hemiptera																						
Corixidae																		11	43		13	10
Trichoptera																						
Brachycentridae																						
Brachycentrus																						
Hydropsychidae																						
Potamyia			11		3	3																
Trichoptera																						
Limnephilidae	11	22	22	11	16	3																
Grensia							11			4	4	54			18	18	11			495	126	123
Limnephilus																						
Coleoptera																						
Curculionidae																		86		43	32	21
Dytiscidae(a)																						
Dytiscidae														11	4	4						
Hydroporus			11		3	3																
Coptotomus (a)																						
Oreodytes (a)	11				3	3	11			4	4											
Oreodytes (l)																						
Hygrotus			11		3	3																
Haliplidae																						
Brychius (a)																						
Brychius							11			4	4											
Haliplus (a)																						
Haliplus (l)																						
Hydrophilidae																						
Diptera (a)				11	3	3											43				11	11
Diptera (p)																						
Diptera																						
Ceratopogonidae (p)		11	11		5	3							11		4	4						
Bezzia																						
Culicoides							11			4	4											
Dasyhelea																						
Chironomidae (a)	43	54	86	22	51	13			11	4	4	22	108	43	57	26						
Chironomidae(p)	269	65	32	280	161	66	194	43	11	82	56	86	333	473	297	113	86	65	301	151	151	53
Chironomidae(l)	2344	3806	1204	1785	2285	558	5731	4538	4892	5054	354	1882	2011	4925	2939	994	2527	1806	6194	2495	3255	993
Culicidae (a)																						
Empididae (a)																	22				5	5
Empididae																						
Clinocera																						
Wiedemannia																						
Simuliidae (a)	11	11	11		8	3						22	43		22	12		11			3	3
Simuliidae(p)	2559	1699	2312	1914	2121	194																
Simulium (p)												22	108		43	33		11		22	8	5
Simulium	161	613	1237	935	737	230		430	172	201	125		183	43	75	55	108	419	1720	301	637	367
Stratiomyidae																						
Nemotelus																						
Tipulidae																						
Tipulidae(p)																						
Tipulidae(l)	710	548	301	559	530	85																
Limonia																						
Hexatoma																						
Prionocera	75	108	54	54	73	13																
Dicranota																						
Limophila																						
Tipula							129	65	118	104	20	269	75	54	133	68	32			86	30	20
Ephydridae (l)																						
Hymenoptera (a)																						
Fish				11	3	3							43		14	14						
Terrestrial								11	183	65	59	11	97	86	65	27	22		86		27	20
Total (excludes shaded)	18280	31065	14495	22312	21538	3554	20323	17301	17634	18419	956	8097	7570	11796	9154	1330	9118	7839	19828	12366	12288	2688

NOTES: (a) = adult; (p) = pupa; (l) = larvae; P = present; Total number of taxa includes chironomids identified to genus in Appendix E11. Shaded taxa are pelagic or terrestrial groups, not included in totals.

Appendix E10. Benthic macroinvertebrate densities (individuals/m^2) in streams of the Meliadine Study Area, 1997 and 1998

Taxa	ML-PL						ML-MR											MR-L				
	July 1998						July 1997					July 1998						July 1998				
	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 1	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE
Bryozoa												P	P	P	P	P						
Coelenterata												1086				272	272					
Hydra	72				18	18	2366	3043	4000	3136	474		2860	409	1839	1277	659			72	24	24
Turbellaria	594	183	129	161	267	110						1527	892	280	505	801	273	161	32	82	92	38
Nematoda	956	925	86	796	691	205	2860	806	2753	2140	667	7172	5602	2892	2559	4556	1107	2032	913	1500	1482	323
Oligochaeta																						
Enchytraeidae							452	688	710	616	83	989	11	22	65	272	240	22	143	11	58	42
Lumbriculidae													22	11	22	13	5					
Naididae	115	280		65	115	60	9849	4935	12581	9122	2237	11398	10333	4495	5839	8016	1682	731	154	401	429	167
Tubificidae	22				5	5		65	22	29	19	323	903	441	796	616	139	108	11	22	47	31
Hirudinea																						
Piscicola																						
Gastropoda																						
Ancylidae																						
Ferrissia																						
Hydrobiidae																						
Lymnaeidae																						
Physidae																						
Physa													22			5	5					
Physella																						
Valvatidae																						
Valvata sincera h.																		11	11	22	14	4
Tardigrada																						
Hydracarina	286	129	54	75	136	53		11	172	61	56	247		22	22	73	58	269	165	11	148	75
Arachnida																						
Dolomedes																						
Conchostraca									86	29	29											
Cladocera																						
Bosminidae																						
Bosmina				108	27	27	430	430	172	344	86	1290	1935	1538	2172	1734	197	323	501	215	346	84
Chydoridae	1862	430	129	215	659	406						1720	1097	645	1097	1140	221	645	430	358	478	86
Daphnidae												430	22		441	223	123	3667	1300	380	1782	979
Daphnia							172	129		100	52											
Holopedidae																						
Holopedium	143				36	36	344	387		244	122	656	11	667	516	462	154	215	72	358	215	83
Sididae																						
Diaphanosoma																						
Copepoda																						
Calanoida			22	108	32	26	258	301		186	94	441	892	1183	882	849	153	3946	1361	1228	2178	885
Cyclopoida	72			11	21	17	430	301		244	127	215	946	871		508	236	4527	3090	1003	2873	1023
Harpacticoida	1604	366	172	323	616	332	2538	1817	2172	2176	208	8419	11516	1624	4839	6599	2148	215	72	286	191	63
Ostracoda																						
SpeciesA	1719	871	172	269	758	356	516	1054	1462	1011	274	237	1301	344	1527	852	328	430	286	286	334	48
SpeciesB																						
SpeciesC																						
Amphipoda																						
Gammarus																						
Collembola															215	54	54			72	24	24
Ephemeroptera																						
Baetidae																						
Baetis (a)																						
Baetis	391	355	129	258	283	58	22	43		22	12	280	11	161	97	137	57	441	183	512	379	100
Centroptilum																						
Ephemerellidae																						
Ephemerella							86			29	29		11		226	59	56					
Leptophlebiidae																						
Plecoptera		54			13	13						11				3	3					
Perlodidae																		54	22	43	39	9
Cultus																						
Isoperla																						
Skwala																						
Nemouridae	11				3	3																
Nemoura	43	108	43	86	70	16						344	237	65	118	191	62	43		32	25	13
Soyedina			11		3	3							11			3	3					
Hemiptera																						
Corixidae																						
Trichoptera												11				3	3					
Brachycentridae																						
Brachycentrus																		11			4	4
Hydropsychidae																						
Potamyia																						
Trichoptera																						
Limnephilidae		11			3	3																
Grensia																						
Limnephilus																						
Coleoptera																						
Curculionidae																						
Dytiscidae(a)																						
Dytiscidae																						
Hydroporus																						
Coptotomus (a)																						
Oreodytes (a)																		11	11		7	4
Oreodytes (l)																						
Hygrotus																						
Haliplidae																						
Brychius (a)																						
Brychius																						
Haliplus (a)																						
Haliplus (l)																						
Hydrophilidae																						
Diptera (a)			22	11	8	5						86	22	22	11	35	17					
Diptera (p)																		11			4	4
Diptera																						
Ceratopogonidae (p)																						
Bezzia																						
Culicoides																						
Dasyhelea																						
Chironomidae (a)		11		11	5	3	151	22	65	79	38		237			59	59	11			4	4
Chironomidae(p)	498	65	75	86	181	106	2301	753	1871	1642	461	613	237	559	215	406	105	151	11	22	61	45
Chironomidae(l)	2785	4430	1484	6000	3675	982	13656	6882	12409	10982	2082	18935	18839	12011	10323	15027	2255	1183	699	1527	1136	240
Culicidae (a)																						
Empididae (a)																						
Empididae																						
Clinocera		54			13	13																
Wiedemannia																						
Simuliidae (a)													43	32	11	22	10					
Simuliidae(p)														43		11	11			11	4	4
Simulium (p)																						
Simulium	54	97	43	817	253	189	65		43	36	19	634	22	882	151	422	202	11	22	545	192	176
Stratiomyidae																						
Nemotelus																						
Tipulidae																						
Tipulidae(p)														32		8	8					
Tipulidae(l)	72		22		23	17								11	215	56	53	108	82	72	87	11
Limonia																						
Hexatoma																						
Prionocera		22			5	5							22			5	5		11	32	14	9
Dicranota																						
Limophila																						
Tipula	43				11	11	22	11	43	25	9											
Ephydridae (l)																						
Hymenoptera (a)																						
Fish	11				3	3																
Terrestrial							22			7	7		11		11	5	3					
Total (excludes shaded)	9263	7946	2419	8935	7141	1599	34731	20108	38323	31054	5570	52226	52849	24301	29570	39737	7470	6000	2826	5560	4795	993

NOTES: (a) = adult; (p) = pupa; (l) = larvae; P = present; Total number of taxa includes chironomids identified to genus in Appendix E11. Shaded taxa are pelagic or terrestrial groups, not included in totals.

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Appendix E11. Chironomid larvae densities (individuals/m^2) in streams of the Meliadine Study Area, 1997 and 1998

Taxa	A0-1						A0-1					A5-6										A7-8					
	July 1997						July 1998					July 1997					July 1998					July 1997					
	Rep 1	Rep 2	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 4	Mean	SE	Rep 1	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 4	Rep 5	Mean	SE
Chironomini		86			22	22	452		215	222								215		72	72	86				22	22
Chironomus																											
Cladopelma																											
Cryptochironomus																											
Dicrotendipes									86	29	29																
Glyptotendipes																											
Microtentipes																											
Pagastiella																											
Parachironomus																											
Polypedilum							43	11	11	22	11																
Stictochironomus																											
Paratendipes																											
Phaenopsectra		11			3	3																					
Diamesinae							108			36	36																
Potthastia (Longimanus)	75	65	43	22	51	12	226	247	22	165	72																
Protanypus																											
Pseudokiefferiella																											
Syndiamesa																											
Prodiamesinae																											
Monodiamesa																											
Orthocladiinae	1645	1333	86	946	1003	337	548	806	774	710	81	7548	13269	11613	10810	1699	16204	23280	22882	20789	2295	151	7495	5118	1032	3449	1729
Abiskomyia																											
Chaetocladius(?)																											
Corynoneura	2978	5323	3011	1237	3137	838	3925	1172	2161	2419	805	2860	3892	3763	3505	325	3882	7032	7140	6018	1069	1656	1656	2333	774	1605	320
Cricotopus	387	194	22		151	90	172		11	61	56	2129	108	215	817	657						10237	7570	129		4484	2609
Cricotopus/Orthocladius			1720		430	430																					
Eukiefferiella	43	86			32	21						1032	22		351	341											
Heleniella																											
Heterotanytarsus																											
Heterotrissocladius																											
Nanocladius								118	11	43	38																
Orthocladius	344	22		22	97	83						22	22	22	22	0						5591	258	108		1489	1368
Orthocladius/Cricotopus							323		75	133	97																
Paracricotopus																											
Paraphaenocladius																	118	129	54	100	24						
Psectrocladius																											
Pseudosmittia																											
Stilocladius(?)																											
Tvetenia																											
Tanypodinae		97		11	27	23			75	25	25	65	43	22	43	12		11		4	4						
Ablabesmyia	22	32		75	32	16							22		7	7						22	65	75		40	18
Guttipelopia																											
Natarsia																			11	4	4						
Pentaneurella																											
Procladius							11		11	7	4																
Thienemannimyia			32		8	8																			86	22	22
Tanytarsini		11		290	75	72	2462	591	935	1330	575	108		43	50	31		32		11	11	172				43	43
Cladotanytarsus														22	7	7							65			16	16
Cladotanytarsus/Paratanytarsus																											
Constempellina																											
Corynocera																											
Micropsectra																											
Micropsectra/Tanytarsus							290	32	32	118	86																
Paratanytarsus	11		86		24	21	280	290	140	237	48						11	32	32	25	7				43	11	11
Rheotanytarsus																											
Stempellinella																											
Tanytarsus			215		54	54																					
Total Chironomid Density	5505	7258	5215	2602	5145	960	8839	3269	4559	5556	1683	13763	17376	15699	15613	1044	20215	30731	30118	27022	3408	17914	17108	7763	1935	11180	3847

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Appendix E11. Chironomid larvae densities (individuals/m^2) in streams of the Meliadine Study Area, 1997 and 1998

Taxa	A7-8						B1-2											B3-4					
	July 1998						July 1997						July 1998					July 1998					
	Rep 1	Rep 2	Rep 4	Rep 5	Mean	SE	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 3	Rep 4	Rep 5	Mean	SE
Chironomini								108			27	27	645	215	11	290	187						
Chironomus																							
Cladopelma																							
Cryptochironomus																							
Dicrotendipes																							
Glyptotendipes									22		5	5											
Microtentipes																							
Pagastiella																							
Parachironomus													32	11	32	25	7						
Polypedilum																							
Stictochironomus																							
Paratendipes																							
Phaenopsectra																							
Diamesinae										11	3	3											
Potthastia (Longimanus)								22	32	43	24	9	32			11	11		11	11	11	8	3
Protanypus																							
Pseudokiefferiella								581		97	169	139											
Syndiamesa													22	32	129	61	34						
Prodiamesinae																							
Monodiamesa																							
Orthocladiinae	7656	1075	9129	4763	5656	1776		237		473	177	113		452		151	151	226	441	333	484	371	58
Abiskomyia																							
Chaetocladius(?)													387			129	129	22				5	5
Corynoneura	8118	1441	3710	2559	3957	1462	1505	677	860	903	987	180	3011	1333	1720	2022	507	882	1989	1108	4742	2180	887
Cricotopus	65				16	16	1505	731	914	11	790	308		1731	108	613	560	11	32	11		13	7
Cricotopus/Orthocladius																							
Eukiefferiella	118	54	269		110	58	688		1161	2366	1054	498											
Heleniella																							
Heterotanytarsus																							
Heterotrissocladius																				22		5	5
Nanocladius																		11				3	3
Orthocladius				22	5	5			258		65	65	656			219	219						
Orthocladius/Cricotopus													2613	957	5312	2961	1269	108	559	333	441	360	96
Paracricotopus								161		387	137	92											
Paraphaenocladius																				11		3	3
Psectrocladius															32	11	11						
Pseudosmittia																							
Stilocladius(?)																							
Tvetenia														215		72	72						
Tanypodinae								108	172		70	42		215		72	72						
Ablabesmyia									11	355	91	88											
Guttipelopia																							
Natarsia																							
Pentaneurella																							
Procladius				11	3	3							11		22	11	6						
Thienemannimyia																							
Tanytarsini		11	11		5	3	43		86	43	43	18	430	11	215	219	121	215		441	215	218	90
Cladotanytarsus								409			102	102											
Cladotanytarsus/Paratanytarsus																							
Constempellina																							
Corynocera																							
Micropsectra																							
Micropsectra/Tanytarsus													43	43	43	43			11	108	11	32	25
Paratanytarsus	43			11	13	10			54	204	65	48	269	1075	1559	968	376		11	151	22	46	35
Rheotanytarsus								118			30	30											
Stempellinella																							
Tanytarsus								32			8	8											
Total Chironomid Density	16000	2581	13118	7366	9766	2993	3742	3183	3570	4892	3847	368	8151	6290	9183	7875	846	1473	3054	2527	5925	3245	952

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Appendix E11. Chironomid larvae densities (individuals/m^2) in streams of the Meliadine Study Area, 1997 and 1998

Taxa	B4-5												B5-6					B6-7					
	July 1997							July 1998					July 1998					July 1997					
	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 2	Rep 3	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 5	Mean	SE
Chironomini		11				2	2												1376		194	392	331
Chironomus																							
Cladopelma																							
Cryptochironomus																							
Dicrotendipes				11	11	4	3																
Glyptotendipes			11			2	2																
Microtentipes																							
Pagastiella			11			2	2																
Parachironomus																							
Polypedilum																							
Stictochironomus																							
Paratendipes																				2366		591	591
Phaenopsectra																							
Diamesinae																							
Potthastia (Longimanus)																							
Protanypus																							
Pseudokiefferiella																							
Syndiamesa																							
Prodiamesinae																							
Monodiamesa																							
Orthocladiinae	6710	2774	957	430	290	2232	1204	430	11	538	326	161	355		11	122	117	1978	86		12495	3640	2987
Abiskomyia																							
Chaetocladius(?)																							
Corynoneura	2882	2656	2516	3892	290	2447	591	892	1075	1183	1050	85		54	645	233	207	3462	9043	194	8839	5384	2159
Cricotopus	129			925		211	180		11		4	4		11	226	79	74	11	43		731	196	179
Cricotopus/Orthocladius			409			82	82																
Eukiefferiella								1312	108	129	516	398											
Heleniella																							
Heterotanytarsus																							
Heterotrissocladius																							
Nanocladius																							
Orthocladius				11	22	6	4											11				3	3
Orthocladius/Cricotopus														54	11	22	16						
Paracricotopus			75			15	15																
Paraphaenocladius																							
Psectrocladius																							
Pseudosmittia																							
Stilocladius(?)																							
Tvetenia																							
Tanypodinae	817	97	75		22	202	155	860			287	287	11			4	4	430	258		774	366	162
Ablabesmyia	129	151			183	92	39											22	65		129	54	28
Guttipelopia																							
Natarsia																				11		3	3
Pentaneurella																							
Procladius								22	32	32	29	4	11	75	32	39	19						
Thienemannimyia			634	462		219	137													161		40	40
Tanytarsini	430	280			11	144	89	430	688	108	409	168		54	11	22	16	172	258			108	65
Cladotanytarsus	258	54	118			86	48												32		65	24	15
Cladotanytarsus/Paratanytarsus																							
Constempellina			172	22		39	34																
Corynocera																							
Micropsectra		22	22			9	5																
Micropsectra/Tanytarsus								2409	935	2108	1817	449	22	11		11	6						
Paratanytarsus			22	22		9	5	1269	624	570	821	225	32	11	32	25	7			151		38	38
Rheotanytarsus																							
Stempellinella																				32		8	8
Tanytarsus			97	656	97	170	123											75				19	19
Total Chironomid Density	11355	6043	5118	6430	925	5974	1664	7624	3484	4667	5258	1231	430	269	968	556	211	6161	11161	2914	23226	10866	4456

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Appendix E11. Chironomid larvae densities (individuals/m^2) in streams of the Meliadine Study Area, 1997 and 1998

Taxa	B6-7						D0-1					D6-7					ML-PL					
	July 1998						July 1997					July 1997					July 1997					
	Rep 1	Rep 2	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 4	Mean	SE	Rep 1	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 3	Rep 4	Rep 5	Mean	SE
Chironomini			215		54	54			11	4	4											
Chironomus																						
Cladopelma																						
Cryptochironomus												11			4	4						
Dicrotendipes		32			8	8								22	7	7		11			3	3
Glyptotendipes								129		43	43											
Microtentipes																						
Pagastiella																						
Parachironomus																						
Polypedilum																						
Stictochironomus																						
Paratendipes																						
Phaenopsectra								11		4	4											
Diamesinae																	75				19	19
Potthastia (Longimanus)							32	11	22	22	6			11	4	4	22				5	5
Protanypus																		591	3398	86	1019	804
Pseudokiefferiella																	538				134	134
Syndiamesa																						
Prodiamesinae																						
Monodiamesa																						
Orthocladiinae	430	860		452	435	176	3194	2237	2806	2746	278		215	172	129	66	129	269	516	129	261	91
Abiskomyia																						
Chaetocladius(?)																						
Corynoneura	1323	1559	441	1086	1102	241	2226	871	1312	1470	399	1591	1333	3355	2093	635	430	86	86	430	258	99
Cricotopus							54	1258	258	523	372	129	151	344	208	68	237	215	1505	581	634	302
Cricotopus/Orthocladius																	161	86	86		83	33
Eukiefferiella													43	129	57	38	882	430	516	602	608	98
Heleniella																						
Heterotanytarsus																						
Heterotrissocladius																						
Nanocladius																						
Orthocladius																		32		344	94	84
Orthocladius/Cricotopus		226	11		59	56																
Paracricotopus							22		172	65	54								86		22	22
Paraphaenocladius																						
Psectrocladius									65	22	22									258	65	65
Pseudosmittia																						
Stilocladius(?)																						
Tvetenia																						
Tanypodinae		226			56	56																
Ablabesmyia							22	11	97	43	27	54	129	344	176	87				43	11	11
Guttipelopia																						
Natarsia																						
Pentaneurella																						
Procladius	11		11	11	8	3																
Thienemannimyia																	43				11	11
Tanytarsini		645	430		269	161	86		97	61	31											
Cladotanytarsus							97		54	50	28	43		172	72	52		86			22	22
Cladotanytarsus/Paratanytarsus																						
Constempellina																						
Corynocera																						
Micropsectra												54	108	258	140	61						
Micropsectra/Tanytarsus	11	22	22		13	5																
Paratanytarsus	570	237	75	237	280	104		11		4	4			118	39	39				22	5	5
Rheotanytarsus																						
Stempellinella																						
Tanytarsus													32		11	11	11				3	3
Total Chironomid Density	2344	3806	1204	1785	2285	558	5731	4538	4892	5054	354	1882	2011	4925	2939	994	2527	1806	6194	2495	3255	993

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Appendix E11. Chironomid larvae densities (individuals/m^2) in streams of the Meliadine Study Area, 1997 and 1998

Taxa	ML-PL						ML-MR										MR-L				
	July 1998						July 1997					July 1998						July 1998				
	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE	Rep 1	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE
Chironomini																		22			7	7
Chironomus																						
Cladopelma																						
Cryptochironomus																		11			4	4
Dicrotendipes							301			100	100	32	43		32	27	9					
Glyptotendipes																						
Microtentipes																						
Pagastiella																						
Parachironomus																						
Polypedilum																						
Stictochironomus																		11	11	11	11	
Paratendipes																						
Phaenopsectra																						
Diamesinae																						
Potthastia (Longimanus)																						
Protanypus																						
Pseudokiefferiella	312				78	78	22			7	7	32	129	43	43	62	23	215			72	72
Syndiamesa																						
Prodiamesinae																						
Monodiamesa																						
Orthocladiinae	731				183	183						5022	2495	1194	2667	2844	797	473	387	710	523	96
Abiskomyia													11			3	3					
Chaetocladius(?)																						
Corynoneura	355				89	89	2151			717	717				430	108	108		108		36	36
Cricotopus	430				108	108	10968			3656	3656	11	333	129	22	124	75		151		50	50
Cricotopus/Orthocladius																						
Eukiefferiella																				376	125	125
Heleniella																				11	4	4
Heterotanytarsus																						
Heterotrissocladius																						
Nanocladius												22			430	113	106			22	7	7
Orthocladius	946				237	237								22		5	5					
Orthocladius/Cricotopus												10645	14538	10290	6086	10390	1727	161		86	82	47
Paracricotopus																						
Paraphaenocladius												1194	43	226	32	374	277	11		22	11	6
Psectrocladius							22			7	7	32				8	8					
Pseudosmittia																						
Stilocladius(?)																						
Tvetenia																						
Tanypodinae												54				13	13	269	22	32	108	81
Ablabesmyia																						
Guttipelopia																						
Natarsia																						
Pentaneurella													65	32	32	32	13					
Procladius																						
Thienemannimyia																						
Tanytarsini							86			29	29	441	11			113	109			86	29	29
Cladotanytarsus							108			36	36											
Cladotanytarsus/Paratanytarsus																						
Constempellina																		11		151	54	48
Corynocera																						
Micropsectra																						
Micropsectra/Tanytarsus	11				3	3						215	215			108	62		22	11	11	6
Paratanytarsus												1237	957	75	548	704	253			11	4	4
Rheotanytarsus																						
Stempellinella																						
Tanytarsus																						
Total Chironomid Density	2785				696	696	13656			4552	4552	18935	18839	12011	10323	15027	2255	1183	699	1527	1136	240

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Appendix E12. Depth and substrate data at benthic macroinvertebrate sampling sites in lakes of the Meliadine Study Area, 1997 and 1998.

Lake	Date	Sample Depth (m)	Replicates Collected [a]	Substrate Description
A6	23-Jul-97	2.5	5	brown silt
A6	24-Jul-98	3.9	5	brown silt
A8	22-Jul-97	3.6	5	black silt
A8	23-Jul-98	2.8	5	marbled brown and black silt
B2	21-Jul-97	2.6	5	brown silt
B2	21-Jul-98	3.0	5	brown silt
B5	19-Jul-97	2.8	5	brown silt
B5	20-Jul-98	2.0	5	brown silt
B7	18-Jul-97	3.2	5	brown silt
B7	19-Jul-98	3.5	5	brown silt
D7	17-Jul-97	2.2	5	brown silt
G1	24-Jul-97	2.3	5	brown silt
LML	29-Jul-98	14.5	5	grey-brown silt
ML-E	19-Jul-97	14.7	5	brown silt
ML-E	17-Jul-98	12.0	5	brown silt under 5 mm of rust colour
ML-S	20-Jul-97	6.3	1	silt/sand/gravel
ML-S	25-Jul-98	16.5	5	marbled brown and black silt
ML-SE	22-Jul-98	3.0	5	brown silt under 5 mm of rust colour
ML-W	20-Jul-97	8.0	5	brown silt
ML-W	27-Jul-98	6.5	5	brown silt
PL	28-Jul-98	18.0	5	orange clay under 5 mm sand/gravel

[a] not all replicates were analyzed

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Appendix E13. Benthic macroinvertebrate densities (individuals/m^2) in lakes of the Meliadine Study Area, 1997 and 1998

Taxa	Meliadine Lake East (ML-E)											Meliadine Lake South (ML-S)						
	July 1997						July 1998					Jul-97	July 1998					
	Rep 1	Rep 2	Rep 3	Rep 5	Mean	SE	Rep 1	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 1	Rep 2	Rep 4	Rep 5	Mean	SE
Coelenterata																		
Hydridae																		
Hydra	43				11	11												
Turbellaria									43	14	14							
Nematoda	696	522	435	304	489	82						6696	2435	7522	1783	435	3043	1550
Oligochaeta			87		22	22												
Enchytraeidae	478			43	130	116						348				435	109	109
Lumbriculidae			43		11	11												
Naididae	87		87		43	25						739	174	304			120	74
Tubificidae	174				43	43	43	261	304	203	81	87						
Gastropoda																		
Hydrobiidae																		
Physidae																		
Physa																		
Valvatidae																		
Valvata sincera h.	87	87	174		87	35		217	130	116	63	87	43	609	565		304	164
Pelecypoda																		
Sphaeriidae							783	391	739	638	124		435	2478	1348	261	1130	509
Sphaerium	304	174	304	783	391	134						261						
Pisidium	43				11	11						174						
Tardigrada																		
Hydracarina	261		609	43	228	139		87	43	43	25	435	43	435	217		174	99
Conchostraca												174						
Cladocera																		
Bosminidae																		
Bosmina	130		522		163	123												
Chydoridae			43		11	11			43	14	14			304		435	185	110
Daphnidae																		
Daphnia	130	174	435		185	91						87						
Holopedidae																		
Holopedium		130	87	43	65	28												
Copepoda																		
Calanoida	43	43	87	130	76	21								304			76	76
Cyclopoida	696	348	522	217	446	104	217	87	696	333	185	783		870	348		304	205
Harpacticoida	217			43	65	52						783		304	174		120	74
Ostracoda																		
Species A	87	43	304		109	68	43	87	130	87	25	174	174	1739	1043		739	404
Species B	43			43	22	13						696						
Species C			43		11	11												
Amphipoda																		
Gammarus		43			11	11						261						
Collembola																		
Plecoptera									43	14	14							
Perlodidae																		
Skwala																		
Hemiptera																		
Trichoptera																		
Limnephilidae																		
Grensia												43						
Coleoptera																		
Ditiscidae																		
Liodessus																		
Coleoptera																		
Haliplidae												87						
Brychius																		
Diptera (a)																		
Diptera (p)																		
Diptera																		
Chaoboridae																		
Chironomidae (a)								43		14	14							
Chironomidae (p)			87	43	33	21		87	43	43	25	739		87	43		33	21
Chironomidae (l)	2304	652	1435	1565	1489	338	1522	4174	2783	2826	766	15391	1478	7652	7174	217	4130	1915
Culicidae (a)																		
Simuliidae (a)																		
Tipulidae (l)																		
Hymenoptera (a)																		
Homoptera																		
Terrestrial												43						
Total Density	4826	1522	3522	2826	3174	689	2391	5217	4217	3942	827	26435	4783	21043	12304	1348	9870	4371

NOTES: (a) = adult; (p) = pupa; (l) = larvae; P = present; Total number of taxa includes chironomids identified to genus in Appendix E14.
Shaded taxa are pelagic or terrestrial groups, not included in totals

Appendix E13. Benthic macroinvertebrate densities (individuals/m^2) in lakes of the Meliadine Study Area, 1997 and 1998

Taxa	Meliadine Lake Southeast (ML-SE)							Meliadine Lake West (ML-W)									
	July 1998							July 1997						July 1998			
	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 3	Rep 5	Mean	SE
Coelenterata																		
Hydridae																		
Hydra																		
Turbellaria		304		217	435	191	85								130	43	58	38
Nematoda	2870	11957	12174	9565	19652	11243	2693	609	348	870	826	663	120	1870	1783	522	1391	436
Oligochaeta																		
Enchytraeidae		870				174	174				87	22	22			43	14	14
Lumbriculidae		43	130	87		52	25		43			11	11					
Naididae	87	1739	3043	1826	3174	1974	558		43	43	43	33	11	43	261	130	145	63
Tubificidae		304		261		113	70								87	87	58	29
Gastropoda																		
Hydrobiidae																		
Physidae																		
Physa																		
Valvatidae																		
Valvata sincera h.		87				17	17											
Pelecypoda																		
Sphaeriidae	217	1130	1130	1826	3174	1496	491							348	304	435	362	38
Sphaerium								304	43	43	43	109	65					
Pisidium									43			11	11					
Tardigrada																		
Hydracarina	87	43	957		1174	452	253		43		43	22	13	174	43	87	101	38
Conchostraca																		
Cladocera																		
Bosminidae																		
Bosmina														435			145	145
Chydoridae					2609	522	522							435	478	652	522	66
Daphnidae															130		43	43
Daphnia																		
Holopedidae																		
Holopedium																		
Copepoda																		
Calanoida		304				61	61								261		87	87
Cyclopoida	261	2043	1304	652	1739	1200	331	130	43			43	31	130	391	348	290	81
Harpacticoida		304	1739	652		539	323	391	478	43	130	261	103	1870	1000	957	1275	297
Ostracoda																		
Species A	87	870	435	870	2174	887	354	130	391		43	141	88	870	1000	1652	1174	242
Species B								87	348			109	82					
Species C																		
Amphipoda																		
Gammarus		348	43		3783	835	740							43	43	43	43	
Collembola																		
Plecoptera																		
Perlodidae																		
Skwala																		
Hemiptera																		
Trichoptera																		
Limnephilidae																		
Grensia																		
Coleoptera																		
Ditiscidae																		
Liodessus																		
Coleoptera																		
Haliplidae																		
Brychius																		
Diptera (a)			43			9	9											
Diptera (p)																		
Diptera																		
Chaoboridae																		
Chironomidae (a)																		
Chironomidae (p)								87	87			43	25	522	652	304	493	101
Chironomidae (l)	1522	19174	30826	15261	105348	34426	18338	696	696	174	174	435	151	9478	8217	3087	6928	1954
Culicidae (a)																		
Simuliidae (a)																		
Tipulidae (l)																		
Hymenoptera (a)																		
Homoptera																		
Terrestrial																		
Total Density	4870	37174	50478	30565	138913	52400	22865	2217	2478	1174	1391	1815	315	14696	12870	7087	11551	2293

NOTES: (a) = adult; (p) = pupa; (l) = larvae; P = present; Total number of taxa includes chironomids identified to genus in Appendix E14.
Shaded taxa are pelagic or terrestrial groups, not included in totals

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Appendix E13. Benthic macroinvertebrate densities (individuals/m^2) in lakes of the Meliadine Study Area, 1997 and 1998

Taxa	Peter Lake (PL)					Little Meliadine Lake (LML)							A6					
	July 1998					July 1998							July 1997					
	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 3	Rep 4	Rep 5	Mean	SE
Coelenterata																		
Hydridae						43					9	9						
Hydra													478			261	185	116
Turbellaria	217	435	174	275	81	1739		87	304	522	530	315						
Nematoda	826	652	3304	1594	857	8130	1783	2652	7522	1130	4243	1486	1348	2652	1130	3217	2087	505
Oligochaeta																		
Enchytraeidae	261	565	652	493	119													
Lumbriculidae			43	14	14	130	87	87	43	43	78	16	43				11	11
Naididae	261	130	348	246	63	391	217	87	565	87	270	93	1043	1739	1348	2609	1685	339
Tubificidae						87	43		609		148	116						
Gastropoda																		
Hydrobiidae																		
Physidae																		
Physa																		
Valvatidae																		
Valvata sincera h.	217	391	87	232	88	261	130	130	478	130	226	68	43	652	217	783	424	175
Pelecypoda																		
Sphaeriidae	87	174	261	174	50	1783	1957	304	478	391	983	364						
Sphaerium													696	1522	43	174	609	335
Pisidium													130	522	217	391	315	88
Tardigrada													43				11	11
Hydracarina	43	304	87	145	81	348		435	304		217	91	348		43		98	84
Conchostraca																		
Cladocera								87			17	17						
Bosminidae																		
Bosmina								174	304	261	148	64						
Chydoridae			43	14	14					87	17	17	826				207	207
Daphnidae	348	217	304	290	38	1739	217	522		348	565	306						
Daphnia																		
Holopedidae																		
Holopedium		130		43	43	565		174	304	87	226	99						
Copepoda																		
Calanoida	261		174	145	77			522	870	913	461	200	696	261	87		261	155
Cyclopoida	696	478	478	551	72	4913	3696	174	7522	1217	3504	1313	565	348	261	261	359	72
Harpacticoida		43	217	87	66	9565	11957	2870	15913	4522	8965	2393	2043	3043	1783	2783	2413	298
Ostracoda																		
Species A	87	217	43	116	52	1739	1304	304	1435	87	974	327	261				65	65
Species B													130	261	130		130	53
Species C													304				76	76
Amphipoda																		
Gammarus															43		11	11
Collembola															43		11	11
Plecoptera													43				11	11
Perlodidae																		
Skwala																		
Hemiptera																		
Trichoptera																		
Limnephilidae																		
Grensia													43				11	11
Coleoptera																		
Ditiscidae																		
Liodessus																		
Coleoptera																		
Haliplidae																		
Brychius														43			11	11
Diptera (a)			43	14	14													
Diptera (p)													43				11	11
Diptera																		
Chaoboridae																		
Chironomidae (a)	391	217	87	232	88		87		304		78	59						
Chironomidae (p)						696	130	348	217		278	119	130	43		87	65	28
Chironomidae (l)	1348	1261	1609	1406	105	5174	4913	2087	3870	826	3374	837	1609	5652	1043	3652	2989	1050
Culicidae (a)																		
Simuliidae (a)	87	43		43	25													
Tipulidae (l)	43			14	14													
Hymenoptera (a)						43				87	26	17						
Homoptera								87			17	17						
Terrestrial	43			14	14										43		11	11
Total Density	3391	4174	6826	4797	1039	29391	22391	9043	31522	7739	20017	4985	8565	16087	6043	13870	11141	2319

NOTES: (a) = adult; (p) = pupa; (l) = larvae; P = present; Total number of taxa includes chironomids identified to genus in Appendix E14.
Shaded taxa are pelagic or terrestrial groups, not included in totals

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Appendix E13. Benthic macroinvertebrate densities (individuals/m^2) in lakes of the Meliadine Study Area, 1997 and 1998

Taxa	A6					A8									
	July 1998					July 1997					July 1998				
	Rep 1	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 4	Mean	SE	Rep 2	Rep 4	Rep 5	Mean	SE
Coelenterata															
Hydridae		174	217	130	66							43	565	203	182
Hydra															
Turbellaria	652	348		333	188						1174			391	391
Nematoda	2174	1217	2174	1855	319	3348	7435	5957	5580	1195	54739	43652	20913	39768	9956
Oligochaeta															
Enchytraeidae															
Lumbriculidae															
Naididae	1304	870	2522	1565	494	391	130	304	275	77	15217	28130	13435	18928	4630
Tubificidae															
Gastropoda															
Hydrobiidae		174		58	58										
Physidae															
Physa															
Valvatidae															
Valvata sincera h.	217	261	304	261	25	43	174	261	159	63	3783	4130	913	2942	1019
Pelecypoda															
Sphaeriidae	2087	2130	3087	2435	326						2261	2522	1870	2217	190
Sphaerium						217	43	783	348	223					
Pisidium							174	43	72	52					
Tardigrada															
Hydracarina	304	435		246	129						2304	3478	1739	2507	512
Conchostraca															
Cladocera															
Bosminidae															
Bosmina	435	174		203	126										
Chydoridae		348		116	116										
Daphnidae															
Daphnia															
Holopedidae															
Holopedium															
Copepoda															
Calanoida	2391	1391	652	1478	504	304	130	43	159	77	1174	870	565	870	176
Cyclopoida	5217	3130	4348	4232	605	174	130		101	52	1174	1739		971	512
Harpacticoida	1522	2261	3043	2275	439	1217	261	304	594	312	1739	2609	4652	3000	863
Ostracoda															
Species A	3043	1739	2609	2464	383						565	2609	1174	1449	606
Species B						217			72	72					
Species C															
Amphipoda															
Gammarus															
Collembola															
Plecoptera															
Perlodidae							43		14	14					
Skwala							43		14	14					
Hemiptera															
Trichoptera															
Limnephilidae															
Grensia			43	14	14										
Coleoptera															
Ditiscidae															
Liodessus															
Coleoptera															
Haliplidae															
Brychius							87		29	29					
Diptera (a)	478		217	232	138						609			203	203
Diptera (p)															
Diptera															
Chaoboridae															
Chironomidae (a)															
Chironomidae (p)	43			14	14						130	87	43	87	25
Chironomidae (l)	5739	6522	7000	6420	367	2087	3870	4043	3333	625	217130	205478	109609	177406	34065
Culicidae (a)												43		14	14
Simuliidae (a)															
Tipulidae (l)															
Hymenoptera (a)															
Homoptera															
Terrestrial															
Total Density	17043	16130	21000	18058	1494	7522	12261	11696	10493	1494	298913	292652	154870	248812	47006

NOTES: (a) = adult; (p) = pupa; (l) = larvae; P = present; Total number of taxa includes chironomids identified to genus in Appendix E14.
Shaded taxa are pelagic or terrestrial groups, not included in totals

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Appendix E13. Benthic macroinvertebrate densities (individuals/m^2) in lakes of the Meliadine Study Area, 1997 and 1998

Taxa	B2													
	July 1997							July 1998						
	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE
Coelenterata														
Hydridae														
Hydra														
Turbellaria								1174	304		304	565	470	198
Nematoda	826	1174	6609	1000	870	2096	1130	2435	2304	1783	913	1739	1835	269
Oligochaeta														
Enchytraeidae														
Lumbriculidae														
Naididae	87	304	174	87		130	51	870					174	174
Tubificidae								43		87			26	17
Gastropoda														
Hydrobiidae														
Physidae														
Physa			87			17	17							
Valvatidae														
Valvata sincera h.			261	87		70	51	87	174		43		61	33
Pelecypoda														
Sphaeriidae								2870	739	1913	1609	1696	1765	341
Sphaerium	174	391	1957	217	826	713	332							
Pisidium			478	174	217	174	88							
Tardigrada														
Hydracarina		43	261	261	826	278	147	304		43	304		130	71
Conchostraca														
Cladocera														
Bosminidae														
Bosmina				87	435	104	84	565		565		1174	461	219
Chydoridae					130	26	26	304					61	61
Daphnidae														
Daphnia	43	174	348	739		261	134							
Holopedidae														
Holopedium	87	87	174			70	33			565			113	113
Copepoda														
Calanoida	87	43			217	70	40	565			304		174	114
Cyclopoida		174	609	87	348	243	108	4913	1609	1174	2609	7522	3565	1182
Harpacticoida	5739	6739	14696	12043	6652	9174	1772	6957	5087	3783	5522	4043	5078	569
Ostracoda														
Species A			435	43	1957	487	376	67739	3913	16783	27522	48696	32930	11385
Species B	87	304	9043	1522		2191	1735							
Species C					261	52	52							
Amphipoda														
Gammarus			87			17	17							
Collembola				174	435	122	85							
Plecoptera														
Perlodidae														
Skwala														
Hemiptera														
Trichoptera														
Limnephilidae														
Grensia														
Coleoptera														
Ditiscidae														
Liodessus											43		9	9
Coleoptera														
Haliplidae														
Brychius														
Diptera (a)					565	113	113				43		9	9
Diptera (p)														
Diptera														
Chaoboridae														
Chironomidae (a)			43			9	9		43				9	9
Chironomidae (p)								43			43	565	130	109
Chironomidae (l)	565	435	6391	1043	1783	2043	1112	5826	3696	9261	6870	13087	7748	1607
Culicidae (a)														
Simuliidae (a)				87		17	17							
Tipulidae (l)														
Hymenoptera (a)														
Homoptera														
Terrestrial			87		130	43	27							
Total Density	7478	9391	40478	16652	13826	17565	5951	88304	16217	33652	43130	69826	50226	12876

NOTES: (a) = adult; (p) = pupa; (l) = larvae; P = present; Total number of taxa includes chironomids identified to genus in Appendix E14.
Shaded taxa are pelagic or terrestrial groups, not included in totals

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Appendix E13. Benthic macroinvertebrate densities (individuals/m^2) in lakes of the Meliadine Study Area, 1997 and 1998

Taxa	B5											B7				
	July 1997						July 1998					July 1997				
	Rep 1	Rep 2	Rep 4	Rep 5	Mean	SE	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 5	Mean	SE
Coelenterata																
Hydridae							478			159	159					
Hydra				87	22	22										
Turbellaria																
Nematoda	1957	2261	2348	478	1761	436	10435	11174	8609	10072	762	4565	3130	1478	3058	892
Oligochaeta																
Enchytraeidae			87		22	22										
Lumbriculidae																
Naididae	652	739	913	174	620	158	2739	1783	1174	1899	456		87		29	29
Tubificidae									565	188	188	217	43	43	101	58
Gastropoda																
Hydrobiidae																
Physidae																
Physa																
Valvatidae																
Valvata sincera h.							435			145	145	43	87	217	116	52
Pelecypoda																
Sphaeriidae							4913	2826	3652	3797	607					
Sphaerium	1043	2478	739	435	1174	452						1739	609	1913	1420	409
Pisidium	522	913	304	174	478	162						435	217	522	391	91
Tardigrada																
Hydracarina		174	174	43	98	45	87	43		43	25			87	29	29
Conchostraca	174		87		65	42										
Cladocera																
Bosminidae																
Bosmina							435		304	246	129	174	522		232	153
Chydoridae			174	43	54	41		304		101	101	87	87	174	116	29
Daphnidae																
Daphnia													261	174	145	77
Holopedidae																
Holopedium												87	348		145	105
Copepoda																
Calanoida	174		87	217	120	48	435		304	246	129	609	1304	522	812	248
Cyclopoida	1087	1043	348	478	739	190	870	870	4348	2029	1159	2087	1652	870	1536	356
Harpacticoida	14087	15652	5826	4217	9946	2880	2174	1739	3478	2464	523	4000	4957	2087	3681	844
Ostracoda																
Species A	913	522	609	87	533	171	12609	6957	6957	8841	1884	348	348	696	464	116
Species B	53174	33217	9130	5348	25217	11177						12087	5304	20870	12754	4506
Species C				217	54	54										
Amphipoda																
Gammarus												87			29	29
Collembola																
Plecoptera																
Perlodidae																
Skwala																
Hemiptera																
Trichoptera																
Limnephilidae																
Grensia		43	43	43	33	11										
Coleoptera																
Ditiscidae																
Liodessus																
Coleoptera																
Haliplidae																
Brychius																
Diptera (a)				43	11	11										
Diptera (p)																
Diptera																
Chaoboridae																
Chironomidae (a)								304		101	101					
Chironomidae (p)							43			14	14					
Chironomidae (l)	30174	24000	11739	1913	16957	6310	16087	8435	6652	10391	2894	10957	6000	11000	9319	1659
Culicidae (a)																
Simuliidae (a)																
Tipulidae (l)																
Hymenoptera (a)							43			14	14					
Homoptera																
Terrestrial		43	87	43	43	18								87	29	29
Total Density	102696	80000	32000	13217	56978	20734	49957	32957	31087	38000	6003	34478	20783	38913	31391	5457

NOTES: (a) = adult; (p) = pupa; (l) = larvae; P = present; Total number of taxa includes chironomids identified to genus in Appendix E14.
Shaded taxa are pelagic or terrestrial groups, not included in totals

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Appendix E13. Benthic macroinvertebrate densities (individuals/m^2) in lakes of the Meliadine Study Area, 1997 and 1998

Taxa	B7					D7						G2				
	July 1998					July 1997						July 1997				
	Rep 1	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE
Coelenterata																
Hydridae																
Hydra								174	1783	489	433		43		14	14
Turbellaria	870	565		478	255											
Nematoda	8261	13609	16261	12710	2353							7174	3652	32478	14435	9079
Oligochaeta																
Enchytraeidae								43		11	11					
Lumbriculidae																
Naididae	2826	2348	130	1768	830	1391	2217	9130	8130	5217	1988	348	87	478	304	115
Tubificidae	130	87	261	159	52	217	130	43		98	48					
Gastropoda																
Hydrobiidae																
Physidae																
Physa																
Valvatidae	826	1304		710	381											
Valvata sincera h.			1913	638	638		43		43	22	13					
Pelecypoda																
Sphaeriidae	5174	6217	9087	6826	1170							2913	565		1159	892
Sphaerium						1000	1696	2522	957	1543	367			3261	1087	1087
Pisidium									1565	391	391	261			87	87
Tardigrada																
Hydracarina	348	565	1217	710	261			522	43	141	127					
Conchostraca								174		43	43					
Cladocera																
Bosminidae																
Bosmina																
Chydoridae							174	174		87	50					
Daphnidae	1435	565		667	417											
Daphnia																
Holopedidae																
Holopedium																
Copepoda																
Calanoida	565			188	188			522		130	130					
Cyclopoida	5217	7522	6957	6565	693	522	1739	1739	2696	1674	445	522		1304	609	379
Harpacticoida	1435	1174	1174	1261	87	16870	25739	32522	73739	37217	12589	3565	3261	10261	5696	2284
Ostracoda																
Species A	4348	4043	4043	4145	101	6435	5435	9609	8261	7435	931	696	217	783	565	176
Species B						29130	28043	55783	45652	39652	6719	2174	217	2217	1536	660
Species C									261	65	65					
Amphipoda																
Gammarus									43	11	11					
Collembola																
Plecoptera																
Perlodidae																
Skwala																
Hemiptera									870	217	217					
Trichoptera																
Limnephilidae			43	14	14											
Grensia								43	43	22	13					
Coleoptera																
Ditiscidae																
Liodessus																
Coleoptera																
Haliplidae																
Brychius																
Diptera (a)																
Diptera (p)																
Diptera																
Chaoboridae			565	188	188											
Chironomidae (a)	43		565	203	182							43			14	14
Chironomidae (p)	130	652	261	348	157											
Chironomidae (l)	30261	55217	75957	53812	13210	1043	2217	1391	1783	1609	253	1043	565	1522	1043	276
Culicidae (a)																
Simuliidae (a)																
Tipulidae (l)																
Hymenoptera (a)																
Homoptera																
Terrestrial							43		43	22	13			43	14	14
Total Density	54478	85130	110087	83232	16081	56087	65522	111957	143174	94185	20390	18174	8609	51000	25928	12837

NOTES: (a) = adult; (p) = pupa; (l) = larvae; P = present; Total number of taxa includes chironomids identified to genus in Appendix E14.
Shaded taxa are pelagic or terrestrial groups, not included in totals

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Appendix E14. Chironomid larvae density (individuals/m^2) in lakes of the Meliadine Study Area, 1997 and 1998

Taxa	Meliadine Lake East (ML-E)											Meliadine Lake South (ML-S)							Meliadine Lake Southeast (ML-SE)						
	July 1997						July 1998					Jul-97	July 1998						July 1998						
	Rep 1	Rep 2	Rep 3	Rep 5	Mean	SE	Rep 1	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 1	Rep 2	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE
Chironomini												2870	174	2913	348		859	688			870		435	261	174
Chironomus	130	217			87	53	522	348	478	449	52		43	43	87		43	18							
Cladopelma	87				22	22	43			14	14														
Cryptochironomus																			43	43		43		26	11
Dicrotendipes																									
Glyptotendipes																									
Microtentipes			87		22	22	43		43	29	14		43	783	652		370	203	43		87	217	913	252	169
Pagastiella																									
Parachironomus																							43	9	9
Paratendipes				43	11	11																			
Phaenopsectra				174	43	43						174													
Polypedilum																									
Stictochironomus														870	2087	174	783	474	304	1348	826	1739	696	983	252
Diamesinae																									
Potthastia (Longimanus)																									
Protanypus			130		33	33																			
Pseudokiefferiella																									
Syndiamesa																									
Prodiamesinae																									
Monodiamesa	43				11	11		43		14	14														
Orthocladiinae	43	43	87		43	18		87	130	72	38	304		391	174		141	93				43		9	9
Abiskomyia			43		11	11		43	43	29	14														
Chaetocladius(?)																									
Corynoneura																									
Cricotopus	43				11	11																			
Cricotopus/Orthocladius																									
Eukiefferiella		43			11	11						43													
Heleniella																									
Heterotrissocladius	348		130	522	250	116		826	130	319	256			174	217		98	57							
Heterotrissocladius																									
Nanocladius																									
Orthocladius																									
Orthocladius/Cricotopus																									
Paracricotopus																									
Paraphaenocladius																									
Psectrocladius	435		87	87	152	96			87	29	29	3000								913	87	87	217	261	167
Pseudosmittia																									
Stilocladius(?)							304	1696	783	928	408														
Tvetenia																									
Tanypodinae		261		348	152	90																			
Ablabesmyia												1087													
Guttipelopia														43			11	11		43			43	17	11
Natarsia																									
Pentaneurella																									
Procladius	1043	87	826	261	554	227	565	609	609	594	14	130	87	478	304		217	108		174	652	130	348	261	113
Thienemannimyia																									
Tanytarsini				130	33	33	43			14	14		174			43	54	41	870	11870	25217	8304	91783	27609	16522
Cladotanytarsus	87				22	22															43			9	9
Cladotanytarsus/Paratanytarsus																									
Constempellina																									
Corynocera															174		43	43	261	3826	3043	4696	9087	4183	1434
Micropsectra																									
Micropsectra/Tanytarsus								478	478	319	159		957	1957	3130		1511	672		43			1348	278	268
Paratanytarsus	43				11	11		43		14	14	261								913			435	270	182
Rheotanytarsus																									
Stempellinella			43		11	11																			
Tanytarsus												7522													
Total Chironomid Density	**2304**	**652**	**1435**	**1565**	**1489**	**338**	**1522**	**4174**	**2783**	**2826**	**766**	**15391**	**1478**	**7652**	**7174**	**217**	**4130**	**1915**	**1522**	**19174**	**30826**	**15261**	**105348**	**34426**	**18338**

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Appendix E14. Chironomid larvae density (individuals/m^2) in lakes of the Meliadine Study Area, 1997 and 1998

Taxa	Meliadine Lake West (ML-W)											Peter Lake (PL)					Little Meliadine Lake (LML)						
	July 1997						July 1998					July 1998					July 1998						
	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 3	Rep 5	Mean	SE	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE
Chironomini							870	739	435	681	129			43	14	14		652		870		304	190
Chironomus												43			14	14	87				43	26	17
Cladopelma																							
Cryptochironomus																							
Dicrotendipes																							
Glyptotendipes																							
Microtentipes												261	217	522	333	95							
Pagastiella		87	43	130	65	28																	
Parachironomus																							
Paratendipes																							
Phaenopsectra	43				11	11																	
Polypedilum																							
Stictochironomus							304	217	391	304	50												
Diamesinae																							
Potthastia (Longimanus)																							
Protanypus																							
Pseudokiefferiella																							
Syndiamesa																							
Prodiamesinae																							
Monodiamesa								43		14	14		43		14	14	43			43		17	11
Orthocladiinae	87	261			87	61	739	130	43	304	219	174	174	174	174			217				43	43
Abiskomyia												43			14	14							
Chaetocladius(?)																							
Corynoneura		43			11	11																	
Cricotopus																							
Cricotopus/Orthocladius																							
Eukiefferiella																							
Heleniella																							
Heterotrissocladius												87	87	217	130	43	130	696	43	217	43	226	122
Heterotrissocladius																							
Nanocladius																							
Orthocladius																							
Orthocladius/Cricotopus																							
Paracricotopus																							
Paraphaenocladius																							
Psectrocladius		87			22	22	1087	1652	565	1101	314	43	130		58	38							
Pseudosmittia																							
Stilocladius(?)												174	130	87	130	25							
Tvetenia																							
Tanypodinae														43	14	14							
Ablabesmyia																							
Guttipelopia							304	391	87	261	91						87	43	87	43		52	16
Natarsia																							
Pentaneurella																							
Procladius	87			43	33	21	435	696	522	551	77	174	130	174	159	14	261	348		130	43	157	65
Thienemannimyia																							
Tanytarsini	130	87			54	33	565	1957	130	884	551		43	87	43	25		739		870		322	198
Cladotanytarsus	43				11	11																	
Cladotanytarsus/Paratanytarsus																							
Constempellina																							
Corynocera							3565	1000	826	1797	885	43	87		43	25	1435	348		174	174	426	258
Micropsectra	43				11	11						261	87	43	130	66							
Micropsectra/Tanytarsus							870	1087	43	667	318	43		174	72	52	2652	1652	1826	1087	435	1530	371
Paratanytarsus			130		33	33	739	304	43	362	203		130	43	58	38	478	217	130	435	87	270	79
Rheotanytarsus																							
Stempellinella																							
Tanytarsus	261	130			98	62																	
Total Chironomid Density	**696**	**696**	**174**	**174**	**435**	**151**	**9478**	**8217**	**3087**	**6928**	**1954**	**1348**	**1261**	**1609**	**1406**	**105**	**5174**	**4913**	**2087**	**3870**	**826**	**3374**	**837**

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Appendix E14. Chironomid larvae density (individuals/m^2) in lakes of the Meliadine Study Area, 1997 and 1998

Taxa	A6						A6					A8									
	July 1997						July 1998					July 1997					July 1998				
	Rep 1	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 4	Mean	SE	Rep 2	Rep 4	Rep 5	Mean	SE
Chironomini		87			22	22	217	870		362	261						4043	7913		3986	2284
Chironomus		87			22	22								43	14	14		43		14	14
Cladopelma	261			43	76	62	826	870	1261	986	138	43	87		43	25		43		14	14
Cryptochironomus														43	14	14	217	130	261	203	38
Dicrotendipes		87		43	33	21											130	174	261	188	38
Glyptotendipes																					
Microtentipes																					
Pagastiella	87				22	22	2870	2609	2522	2667	105		43	43	29	14	565		565	377	188
Parachironomus																					
Paratendipes																					
Phaenopsectra				87	22	22															
Polypedilum																					
Stictochironomus																					
Diamesinae																					
Potthastia (Longimanus)									43	14	14						609			203	203
Protanypus																					
Pseudokiefferiella													87		29	29					
Syndiamesa																					
Prodiamesinae																					
Monodiamesa																					
Orthocladiinae		174	43	174	98	45		174	217	130	66	348	478	304	377	52	565			188	188
Abiskomyia																					
Chaetocladius(?)																					
Corynoneura												43			14	14					
Cricotopus																					
Cricotopus/Orthocladius																					
Eukiefferiella																					
Heleniella																					
Heterotrissocladius																					
Heterotrissocladius																					
Nanocladius																					
Orthocladius																					
Orthocladius/Cricotopus																					
Paracricotopus																					
Paraphaenocladius																					
Psectrocladius		130	43	87	65	28	565	304	696	522	115			43	14	14	652	1826	174	884	491
Pseudosmittia												43			14	14					
Stilocladius(?)																					
Tvetenia																					
Tanypodinae		174	130	174	120	41							87	43	43	25		174		58	58
Ablabesmyia		43	43		22	13															
Guttipelopia								522	43	188	167										
Natarsia																					
Pentaneurella																					
Procladius		130	43	43	54	27	261	391	478	377	63		43	43	29	14	43		130	58	38
Thienemannimyia																					
Tanytarsini	1174	3652	478	2000	1826	684	652	348	652	551	101	1217	2739	3000	2319	556	44826	58391	52174	51797	3920
Cladotanytarsus				43	11	11						130	174		101	52					
Cladotanytarsus/Paratanytarsus																					
Constempellina																					
Corynocera		43	87	43	43	18	43	217	217	159	58	217	130	304	217	50	164783	136652	55261	118899	32839
Micropsectra														87	29	29					
Micropsectra/Tanytarsus							304	174	870	449	213						696	87	43	275	211
Paratanytarsus								43		14	14							43	739	261	239
Rheotanytarsus																					
Stempellinella																					
Tanytarsus	87	1043	174	913	554	247						43		87	43	25					
Total Chironomid Density	**1609**	**5652**	**1043**	**3652**	**2989**	**1050**	**5739**	**6522**	**7000**	**6420**	**367**	**2087**	**3870**	**4043**	**3333**	**625**	**217130**	**205478**	**109609**	**177406**	**34065**

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Appendix E14. Chironomid larvae density (individuals/m^2) in lakes of the Meliadine Study Area, 1997 and 1998

Taxa	B2														B5										
	July 1997							July 1998							July 1997						July 1998				
	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 4	Rep 5	Mean	SE	Rep 3	Rep 4	Rep 5	Mean	SE
Chironomini	43			87	43	35	16			1174			235	235		1913	522		609	452	435	304		246	129
Chironomus															87				22	22					
Cladopelma											304		61	61	261	43	43	130	120	51		304	870	391	255
Cryptochironomus					43	9	9		43				9	9	261	348	130		185	76	174	304	261	246	38
Dicrotendipes																									
Glyptotendipes																									
Microtentipes																									
Pagastiella				87		17	17									2043	348		598	489	478		565	348	176
Parachironomus																									
Paratendipes																									
Phaenopsectra																									
Polypedilum																									
Stictochironomus																									
Diamesinae																									
Potthastia (Longimanus)																									
Protanypus																									
Pseudokiefferiella																									
Syndiamesa																									
Prodiamesinae																									
Monodiamesa																									
Orthocladiinae	174	130	739	174		243	128					565	113	113				43	11	11	478	304		261	140
Abiskomyia																									
Chaetocladius(?)																									
Corynoneura					130	26	26										261	522	196	125	435	304		246	129
Cricotopus			87			17	17	87				43	26	17	43				11	11					
Cricotopus/Orthocladius																									
Eukiefferiella																									
Heleniella																									
Heterotrissocladius																									
Heterotrissocladius																									
Nanocladius																									
Orthocladius																									
Orthocladius/Cricotopus																									
Paracricotopus																									
Paraphaenocladius																									
Psectrocladius			304			61	61	87	43	87		652	174	121	87				22	22	43		87	43	25
Pseudosmittia																									
Stilocladius(?)																									
Tvetenia																									
Tanypodinae			87			17	17																		
Ablabesmyia			43			9	9																		
Guttipelopia								130	130				52	32											
Natarsia																									
Pentaneurella																									
Procladius	87		174	87	217	113	38	1174	435	870	870	522	774	134	174	174		130	120	41	957	1522	522	1000	289
Thienemannimyia					130	26	26																		
Tanytarsini	130	261	4957		43	1078	971		43	565		2304	583	444		7391	5043		3109	1858	10913	4739	3783	6478	2235
Cladotanytarsus																87		87	43	25					
Cladotanytarsus/Paratanytarsus																87	217		76	51					
Constempellina																									
Corynocera								3000	2391	5261	5000	7696	4670	938	24609	9609	3783	391	9598	5353	2174	652	565	1130	522
Micropsectra															2435	783	348		891	539					
Micropsectra/Tanytarsus								1348	609	1304	652	1304	1043	169											
Paratanytarsus																130			33	33					
Rheotanytarsus																									
Stempellinella																									
Tanytarsus	130	43		609	1174	391	224				43		9	9	2217	1391	1043	609	1315	341					
Total Chironomid Density	**565**	**435**	**6391**	**1043**	**1783**	**2043**	**1112**	**5826**	**3696**	**9261**	**6870**	**13087**	**7748**	**1607**	**30174**	**24000**	**11739**	**1913**	**16957**	**6310**	**16087**	**8435**	**6652**	**10391**	**2894**

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Appendix E14. Chironomid larvae density (individuals/m^2) in lakes of the Meliadine Study Area, 1997 and 1998

Taxa	B7					B7					D7						G2				
	July 1997					July 1998					July 1997						July 1997				
	Rep 1	Rep 2	Rep 5	Mean	SE	Rep 1	Rep 4	Rep 5	Mean	SE	Rep 1	Rep 2	Rep 3	Rep 4	Mean	SE	Rep 1	Rep 2	Rep 3	Mean	SE
Chironomini						304		1783	696	551	522				130	130		130		43	43
Chironomus											43				11	11	217	43	43	101	58
Cladopelma	43		130	58	38	1304	6652	6000	4652	1684	478	1696	1261	1565	1250	273	43		261	101	81
Cryptochironomus		43		14	14	43	609	130	261	176		87	87	87	65	22					
Dicrotendipes																					
Glyptotendipes																					
Microtentipes																					
Pagastiella						652	565	565	594	29								87	261	116	77
Parachironomus																					
Paratendipes																					
Phaenopsectra	304	174	87	188	63																
Polypedilum																					
Stictochironomus																					
Diamesinae																					
Potthastia (Longimanus)												43			11	11					
Protanypus																					
Pseudokiefferiella																					
Syndiamesa																					
Prodiamesinae																					
Monodiamesa																					
Orthocladiinae	609	174		261	181		565	565	377	188							87		87	58	29
Abiskomyia																					
Chaetocladius(?)																					
Corynoneura												174			43	43					
Cricotopus																					
Cricotopus/Orthocladius																					
Eukiefferiella																					
Heleniella																					
Heterotrissocladius																					
Heterotrissocladius																					
Nanocladius																					
Orthocladius																					
Orthocladius/Cricotopus																					
Paracricotopus												43	43		22	13					
Paraphaenocladius																					
Psectrocladius	43			14	14	783	783	1304	957	174								43	43	29	14
Pseudosmittia																					
Stilocladius(?)																					
Tvetenia																					
Tanypodinae																					
Ablabesmyia																			87	29	29
Guttipelopia						43	43	43	43												
Natarsia																					
Pentaneurella																					
Procladius	130	130	609	290	159	348	522	522	464	58				87	22	22	87	43	87	72	14
Thienemannimyia																					
Tanytarsini	6957	5130	6609	6232	560	783	304	2739	1275	745		174			43	43	522			174	174
Cladotanytarsus								43	14	14				43	11	11					
Cladotanytarsus/Paratanytarsus		87		29	29																
Constempellina																					
Corynocera	522	174	478	391	109	25130	42478	60087	42565	10091											
Micropsectra																	87			29	29
Micropsectra/Tanytarsus						783	2696	2174	1884	571											
Paratanytarsus	478	87		188	147	87			29	29											
Rheotanytarsus																					
Stempellinella																					
Tanytarsus	1870		3087	1652	898													217	652	290	192
Total Chironomid Density	**10957**	**6000**	**11000**	**9319**	**1659**	**30261**	**55217**	**75957**	**53812**	**13210**	**1043**	**2217**	**1391**	**1783**	**1609**	**253**	**1043**	**565**	**1522**	**1043**	**276**

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APPENDIX F

Fish Populations

Appendix F1. Backpack electrofishing and egg sampling locations, effort, and catch data for streams in the Meliadine Study Area, 1997-2009

Basin	Stream	Date	Time	Location (15V)		Sampling Effort		Water Temp. (°C)	Cond. (µS/cm)	pH (units)	Dis-charge (m^3/s)	Number of Fish Captured or Observed									*Total CPUE (fish/ min)*	Egg Sampling[a]			
				Easting	Northing	(m)	(s)					ARCH	LKTR	ARGR	CISC	BURB	SLSC	NNST	THST	Total		No. Kicks	Prod. Kicks	Total Eggs	Max. Eg/kic
A	A0-1	15-Jun-97	-	544368	6985802	120	532	4.0	102	7.6	0.155		2	5			3	47	29	86	*9.70*	11	5	80	32
A	A0-1	21-Jul-97	-	544368	6985802	80	222	22.2	80	-	0.004						2	17	5	24	*6.49*				
A	A0-1	14-Jun-98	10:00	544368	6985802	110	494	2.0	81	7.1	-							1	1	2	*0.24*	8	3	30	24
A	A0-1	20-Jun-98	15:30	544368	6985802	100	421	9.6	100	7.6	-	3							6	9	*1.28*	19	7	84	57
A	A0-1	26-Jul-98	11:00	544368	6985802	155	412	14.5	-	-	-		3	7		2			12	24	*3.50*				
A	A0-1	18-Aug-98	9:00	544368	6985802	155	305	13.0	166	7.6	-		1	6					8	15	*2.95*				
A	A1-2	19-Jun-97	-	543738	6985813	85	324	14.0	80	8.2	0.106	1	1	8				33	2	45	*8.33*	4	4	44	23
A	A1-2	14-Jun-98	11:40	543738	6985813	80	177	-	50	7.9	-			2						2	*0.68*	8	8	118	50
A	A2-3	19-Jun-97	-	543128	6985937	110	320	14.0	70	8.0	0.083		1	12				5		18	*3.38*	4	4	41	23
A	A2-3	14-Jun-98	13:00	543128	6985937	70	174	-	40	7.7	-			9						9	*3.10*	8	7	184	53
A	A2-3	26-Jul-98	16:00	543128	6985937	90	304	14.0	-	-	-	1	1	6			1	5	4	18	*3.55*				
A	A2-3	18-Aug-98	11:00	543128	6985937	90	230	17.0	300	7.7	-		1	20				5	3	29	*7.57*				
A	A3-4	19-Jun-97	-	543035	6985984	35	135	16.0	80	7.9	0.089			1				2		3	*1.33*	6	4	8	4
A	A3-4	14-Jun-98	14:30	543035	6985984	30	109	-	30	7.7	-			1						1	*0.55*	6	5	57	23
A	A4-5	19-Jun-97	-	542934	6986057	115	411	16.0	70	8.0	0.085			14				4		18	*2.63*	5	3	6	4
A	A4-5	14-Jun-98	15:15	542934	6986057	90	320	-	30	7.7	-			3						3	*0.56*	6	6	96	55
A	A5-6	15-Jun-97	-	542510	6985853	300	800	6.0	91	7.8	0.112			13				80		93	*6.98*	17	10	83	25
A	A5-6	13-Jul-97	-	542426	6985968	170	461	18.5	70	-	trace		8				9	29		46	*5.99*				
A	A5-6	14-Jun-98	16:30	542510	6985853	165	385	-	30	7.7	-			3						3	*0.47*	9	0	0	0
A	A5-6	15-Jun-98	12:30	542510	6985853	200	545	7.0	30	7.5	-			8						8	*0.88*	10	2	11	6
A	A5-6	20-Jun-98	13:30	542510	6985853	250	1078	10.8	68	7.4	-			12				19		31	*1.73*	10	7	27	7
A	A5-6	24-Jul-98	12:00	542510	6985853	175	540	20.5	-	-	-	1	4	11				7		23	*2.56*				
A	A5-6	18-Aug-98	13:00	542510	6985853	135	315	20.5	96	8.1	-			16				5	1	22	*4.19*				
A	A5-6	09-Jul-09	14:00	537870	6988655	390	648	13.6	114	6.8	-			10			9	53	2	74	*6.85*				
A	A6-7	19-Jun-97	-	541228	6986104	110	829	18.0	60	8.0	-			17			6	5		28	*2.03*	6	3	6	3
A	A6-7	14-Jul-97	-	541224	6986127	60	313	10.5	80	-	0.004						4	2		6	*1.15*				
A	A6-7	15-Jun-98	10:00	541228	6986104	120	624	6.5	30	7.7	-			4			2	1		7	*0.67*	6	1	1	1
A	A6-7	23-Jun-00	12:30	541178	6986098	200	640	4.0	61	7.2	0.110						1	3		4	*0.38*	6	0	0	0
A	A6-7	22-Jul-00	15:10	541178	6986098	110	450	22.6	135	7.0	0.005						5	8		13	*1.73*				
A	A6-7	17-Sep-00	9:30	541178	6986098	150	533	4.0	160	7.9	0.011			1			1	26		28	*3.15*				
A	A6-7	17-Jun-08	12:30	541133	6986312	140	409	12.4	120	7.7	-			1			3	18		22	*3.23*				
A	A7-8	16-Jun-97	-	540768	6986477	80	345	5.5	60	8.0	0.042			4			2	10		16	*2.78*	14	9	22	6
A	A7-8	22-Jul-97	-	540768	6986477	100	203	19.7	95	8.6	0.002							8		8	*2.36*				
A	A7-8	15-Jun-98	9:00	540768	6986477	150	1105	5.5	30	7.3	-							15		15	*0.81*	14	5	7	2
A	A7-8	20-Jun-98	10:30	540768	6986477	120	866	6.8	57	7.5	-						1	15		16	*1.11*	8	6	41	33
A	A7-8	23-Jul-98	12:00	540768	6986477	125	300	18.0	-	-	-			1				12		13	*2.60*				
A	A7-8	18-Aug-98	15:00	540768	6986477	100	125	20.5	97	8.3	-			1				7		8	*3.84*				
A	A8-9	15-Jun-98	12:00	540150	6987600	250	360	14.0	120	7.6	-							6		6	*1.00*	5	0	0	0
A	A8-37	15-Jun-98	11:00	540200	6987550	40	106	14.0	90	7.1	-							4		4	*2.26*	4	0	0	0
A	A8-40	15-Jun-98	13:30	539700	6987750	70	221	19.0	30	6.6	trace							5		5	*1.36*	4	0	0	0
A	A8-40	22-Jun-00	15:00	539457	6987750	200	406	14.0	55	7.0	0.001							5		5	*0.74*				
A	A8-40	17-Sep-00	9:00	539457	6987750	65	294	2.0	130	7.2	0.001							4		4	*0.82*				
A	A39-54	22-Jun-00	14:00	540375	6988159	150	342	13.0	112	7.5	0.001							7		7	*1.23*				
A	A39-54	17-Sep-00	8:20	540375	6988159	80	225	2.0	480	7.6	no flow							11		11	*2.93*				
A	A44-45	27-Jul-98	16:00	541300	6985600	34	100	17.0	-	-	no flow							7		7	*4.20*				
A	A44-45	23-Jun-00	13:30	541255	6985600	40	136	9.0	64	7.5	0.001									0	*0.00*	3	0	0	0
A	A44-45	22-Jul-00	14:30	541255	6985600	30	80	25.1	136	8.1	no flow							5		5	*3.75*				
A	A44-45	17-Sep-00	10:15	541255	6985600	30	176	6.0	150	7.6	no flow							5		5	*1.70*				
A	A45-46	17-Jun-08	9:30	541223	6985481	180	398	9.6	64	7.5	-							27		27	*4.07*				

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Appendix F1. Backpack electrofishing and egg sampling locations, effort, and catch data for streams in the Meliadine Study Area, 1997-2009

Basin	Stream	Date	Time	Location (15V)		Sampling Effort		Water Temp. (°C)	Cond. (µS/cm)	pH (units)	Dis-charge (m³/s)	Number of Fish Captured or Observed									*Total CPUE (fish/ min)*	Egg Sampling[a]			
				Easting	Northing	(m)	(s)					ARCH	LKTR	ARGR	CISC	BURB	SLSC	NNST	THST	Total		No. Kicks	Prod. Kicks	Total Eggs	Max. Eg/kic
B	B0-1	22-Jun-97	-	537361	6985660	180	974	10.7	50	7.9	-		3	25	3		9	7	14	61	*3.76*	13	0	0	0
B	B0-1	19-Jul-97	-	537361	6985660	120	500	17.1	80	-	-	1	2	12		3	11	1	23	53	*6.36*				
B	B0-1	17-Jun-98	9:30	537361	6985660	100	638	4.2	61	7.1	-					1		1		2	*0.19*	7	0	0	0
B	B0-1	21-Jul-98	14:00	537361	6985660	110	450	9.5	-	-	-			2	1		3	2	9	17	*2.27*				
B	B0-1	19-Aug-98	16:30	537361	6985660	85	280	18.1	84	-	-			10			1		14	25	*5.36*				
B	B1-2	16-Jun-97	-	537425	6985795	220	717	2.5	101	6.8	0.417			9			1	2		12	*1.00*	11	4	10	5
B	B1-2	19-Jul-97	-	537425	6985795	90	419	17.2	80	-	0.018		10	21			1	1	1	34	*4.87*				
B	B1-2	25-Aug-97	-	537425	6985795	120	358	10.2	115	7.1	trace	17		2			2	3		24	*4.02*				
B	B1-2	13-Jun-98	16:15	537425	6985795	150	852	1.3	75	7.0	-						1			1	*0.07*	8	1	1	1
B	B1-2	17-Jun-98	10:00	537425	6985795	100	587	4.2	61	7.1	-						4	3		7	*0.72*	4	0	0	0
B	B1-2	21-Jul-98	13:30	537425	6985795	160	699	9.5	-	-	-	3	5	2		1	7			18	*1.55*				
B	B1-2	19-Aug-98	15:00	537425	6985795	120	451	9.5	83	-	-	8	3	8		2	1		3	25	*3.33*				
B	B3-4	16-Jun-97	-	538070	6986898	250	1025	5.5	107	7.2	0.331			10		2	1	10		23	*1.35*	8	3	8	5
B	B3-4	20-Jul-97	-	538070	6986898	100	605	18.0	90	-	0.018	1	2	3		4	15	2		27	*2.68*				
B	B3-4	24-Aug-97	-	538070	6986898	30	141	12.1	138	7.4	trace			2						2	*0.85*				
B	B3-4	14-Jun-98	16:30	538070	6986898	150	988	3.5	20	7.5	-							12		12	*0.73*	22	7	28	9
B	B3-4	17-Jun-98	19:30	538070	6986898	150	612	3.5	58	7.2	-			5						5	*0.49*	5	5	58	22
B	B3-4	19-Jun-98	14:30	538070	6986898	250	900	4.3	46	6.2	-			9						9	*0.60*	0	0	0	0
B	B3-4	21-Jul-98	10:00	538070	6986898	180	693	9.5	-	-	-	1	1	13		3		1		19	*1.65*				
B	B3-4	21-Aug-98	11:00	538070	6986898	110	280	7.7	117	7.4	-			4			1	3		8	*1.71*				
B	B4-5	16-Jun-97	-	538500	6987307	220	310	7.5	86	7.3	0.068							19		19	*3.68*	5	0	0	0
B	B4-5	15-Jul-97	-	538416	6987531	125	471	12.0	60	-	0.009			5			5	32		42	*5.35*				
B	B4-5	24-Aug-97	-	538416	6987531	80	164	12.8	97	7.1	trace			1			1	12		14	*5.12*				
B	B4-5	14-Jun-98	14:00	538500	6987307	150	521	4.0	10	7.3	-							13		13	*1.50*	11	2	8	4
B	B4-5	19-Jun-98	11:30	538500	6987307	100	331	5.0	46	6.5	-						2	3		5	*0.91*	7	7	65	35
B	B4-5	25-Jul-98	11:00	538500	6987307	150	400	18.0	-	-	-			2		1	1	7		11	*1.65*				
B	B4-5	21-Aug-98	12:30	538500	6987307	100	215	8.9	92	7.5	-			7				3		10	*2.79*				
B	B5-6	17-Jun-97	-	537870	6988655	85	276	14.0	60	8.0	0.015						1	34		35	*7.61*	8	5	10	3
B	B5-6	15-Jul-97	-	537870	6988655	90	248	11.0	60	-	0.003			19				21		40	*9.68*				
B	B5-6	14-Jun-98	11:30	537870	6988655	120	693	5.5	20	7.3	-							11		11	*0.95*	16	0	0	0
B	B5-6	19-Jun-98	11:00	537870	6988655	120	410	5.2	67	6.5	-			1				13		14	*2.05*	8	2	33	32
B	B5-6	26-Jul-98	17:40	537870	6988655	100	220	14.0	-	-	-			11			1	8		20	*5.45*				
B	B5-6	21-Aug-98	14:00	537870	6988655	85	184	11.3	87	7.4	-			2						2	*0.65*				
B	B6-7	17-Jun-97	-	537809	6989294	130	543	10.0	82	7.6	0.043			8			1	4		13	*1.44*	7	4	28	13
B	B6-7	18-Jul-97	-	537809	6989294	80	162	16.1	84	7.4	0.003			26				4		30	*11.11*				
B	B6-7	24-Aug-97	-	537809	6989294	35	115	12.3	103	7.3	trace			1				3		4	*2.09*				
B	B6-7	14-Jun-98	10:00	537809	6989294	80	971	4.0	20	7.6	-					2	2	13		17	*1.05*	11	6	23	10
B	B6-7	19-Jun-98	10:30	537809	6989294	80	466	5.4	55	6.1	-			3				1		4	*0.52*	8	7	48	13
B	B6-7	19-Jul-98	12:00	537809	6989294	125	438	10.5	-	-	-			8			6	6		20	*2.74*				
B	B6-7	21-Aug-98	14:50	537809	6989294	100	304	9.8	76	7.4	-			8			2			10	*1.97*				
B	B7-8	19-Jun-98	9:00	538950	6988700	60	348	11.1	92	6.5	-							1		1	*0.17*	0	0	0	0
B	B4-36	20-Jun-97	-	539027	6986857	180	332	10.9	180	7.8	0.002							6		6	*1.08*	3	0	0	0
B	B4-45	20-Jun-97	-	538938	6986224	50	172	6.7	50	8.0	0.063							6		6	*2.09*	6	0	0	0
B	B45-46	17-Jun-97	-	539906	6985212	110	362	9.0	60	8.0	0.035			2				24		26	*4.31*	6	5	95	41
B	B46-66	20-Jun-98	9:00	541200	6984550	300	803	7.7	90	7.5	0.005							4		4	*0.30*	9	0	0	0
B	B46-66	28-Jul-98	9:00	541200	6984550	120	340	16.0	-	-	<0.01			4				7		11	*1.94*				
B	B46-66	20-Jun-00	11:00	541059	6984497	300	605	9.0	65	7.3	0.007							2		2	*0.20*	6	0	0	0
B	B46-66	22-Jul-00	8:00	541059	6984497	100	140	13.2	172	7.2	<0.001									0	*0.00*				
B	B46-66	16-Sep-00	17:30	541059	6984497	120	392	9.5	80	8.0	0.030			8		4		5		17	*2.60*				
B	B51-52	17-Jun-97	-	540659	6984168	100	470	12.0	40	8.0	0.038			3				6		9	*1.15*	5	1	1	1
B	B52-53	22-Jun-97	-	541448	6983275	90	247	12.2	40	8.0	0.012							23		23	*5.59*	5	0	0	0

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Appendix F1. Backpack electrofishing and egg sampling locations, effort, and catch data for streams in the Meliadine Study Area, 1997-2009

Basin	Stream	Date	Time	Location (15V)		Sampling Effort		Water Temp. (°C)	Cond. (µS/cm)	pH (units)	Dis-charge (m^3/s)	Number of Fish Captured or Observed									*Total CPUE (fish/ min)*	Egg Sampling[a]			
				Easting	Northing	(m)	(s)					ARCH	LKTR	ARGR	CISC	BURB	SLSC	NNST	THST	Total		No. Kicks	Prod. Kicks	Total Eggs	Max. Eg/kic
B	B52-75	20-Jun-00	15:20	542340	6983506	200	440	15.0	51	7.0	0.003									0	*0.00*				
B	B52-75	16-Sep-00	16:20	542340	6983506	70	166	10.0	130	7.4	no flow							1		1	*0.36*				
B	B53-54	28-Jul-98	10:40	542150	6982800	120	220	18.0	-	-	trace							12		12	*3.27*				
B	B53-54	20-Jun-00	15:30	542441	6982797	200	440	14.5	57	7.1	0.003							3		3	*0.41*	3	0	0	0
B	B53-54	16-Sep-00	15:30	542441	6982797	80	176	9.5	80	7.8	0.005							12		12	*4.09*				
B	B68-69	22-Jun-97	-	542537	6983573	150	526	11.5	40	8.1	0.020			1			1	6		8	*0.91*	5	0	0	0
B	B68-69	27-Jul-98	17:20	542250	6983800	130	232	18.0	-	-	0.020			8						8	*2.07*				
B	B68-69	20-Jun-00	13:00	542457	6983800	320	506	7.5	69	7.1	0.060							1		1	*0.12*	6	0	0	0
B	B68-69	22-Jul-00	9:30	542457	6983800	220	390	15.0	97	6.6	<0.001						1	3		4	*0.62*				
B	B68-69	16-Sep-00	16:45	542457	6983800	120	350	9.5	40	7.6	0.015									0	*0.00*				
B	B75-80	20-Jun-00	4:30	542375	6983175	200	400	17.5	67	7.1	0.001							3		3	*0.45*				
B	B75-80	16-Sep-00	16:00	542375	6983175	100	232	10.0	230	7.9	<0.001									0	*0.00*				
D	D0-1	18-Jun-97	-	532618	6989779	90	610	7.0	79	7.6	0.099		2	2			29	26		59	*5.80*	7	4	23	8
D	D0-1	24-Jul-97	-	532618	6989779	100	568	13.4	126	7.5	0.007		4	5		1	14	2	3	29	*3.06*				
D	D0-1	25-Aug-97	-	532618	6989779	80	187	12.7	138	7.5	trace	1					3	10		14	*4.49*				
D	D0-1	15-Jun-98	19:30	532618	6989779	80	471	4.5	30	7.5	-	3		1			1	3	6	14	*1.78*	10	5	44	30
D	D0-1	21-Aug-98	16:00	532618	6989779	120	304	9.8	126	7.8	-			1			2		11	14	*2.76*				
D	D1-2	18-Jun-97	-	533480	6989310	32	164	15.0	60	8.0	0.088			6				76		82	*30.00*	5	5	26	13
D	D1-2	26-Jul-97	-	533480	6989310	30	166	16.3	100	-	0.004						10	17	2	29	*10.48*				
D	D1-2	25-Aug-97	-	533480	6989310	35	94	12.6	136	7.4	trace							11		11	*7.02*				
D	D3-4	18-Jun-97	-	534455	6989208	180	297	14.0	70	8.0	-							45		45	*9.09*	3	0	0	0
D	D4-5	22-Jun-97	-	535093	6989230	30	132	13.1	80	8.1	-							3		3	*1.36*	4	0	0	0
D	D5-6	18-Jun-97	-	535698	6988950	250	415	13.2	95	7.3	-							28		28	*4.05*	7	0	0	0
D	D5-6	17-Jul-97	-	535698	6988950	100	296	16.1	100	8.0	0.006							343		343	*69.53*				
D	D6-7	18-Jun-97	-	536036	6988812	40	125	7.2	95	7.3	0.019							61		61	*29.28*	4	0	0	0
D	D6-7	17-Jul-97	-	536036	6988812	30	110	16.1	133	8.0	0.001							79		79	*43.09*				
D	D6-7	25-Aug-97	-	536036	6988812	30	79	8.9	157	7.1	trace							8		8	*6.08*				
F	F0-1	21-Jun-97	-	533612	6991061	200	347	15.2	60	7.5	0.020		4	4			1	14	9	32	*5.53*	4	0	0	0
F	F5-6	21-Jun-97	-	534928	6990600	80	137	19.0	70	8.4	0.002							22		22	*9.64*	3	0	0	0
G	G0-1	18-Jun-97	-	537613	6991534	250	350	21.5	70	7.9	0.005		4					30	2	36	*6.17*	8	0	0	0
G	G0-1	13-Jul-09	-	537566	6991728	220	442	-	-	-	-							55		55	*7.47*				
G	G1-2	17-Jun-97	-	538175	6990721	200	399	18.5	72	8.1	0.004							15		15	*2.26*	5	0	0	0
H	H0-1	08-Jul-09	-	540886	6989612	200	382	13.4	105	7.4	-							50		50	*7.85*				
H	H5-17	05-Jul-09	-	540199	6989543	190	393	16.0	55	7.0										0	*0.00*				
J	J0-1	06-Jul-04	21:30	541727	6988673	450	1728	8.0	60	7.2	0.012							102		102	*3.54*	13	0	0	0
MR	ML-MR	21-Jun-97	-	530648	6989348	120	522	8.2	30	8.0	-			2			1	1	5	9	*1.03*	10	3	7	3
MR	ML-MR	20-Jul-97	-	530648	6989348	100	558	15.0	40	-	-	3	1	2			6	1		13	*1.40*				
MR	ML-MR	24-Aug-97	-	530648	6989348	100	525	11.6	62	7.5	-		5	3			1	2		11	*1.26*				
MR	ML-MR	17-Jun-98	12:30	530648	6989348	200	637	5.4	66	7.3	-						1	1		2	*0.19*	12	0	0	0
MR	ML-MR	27-Jul-98	14:00	530648	6989348	100	620	14.0	-	-	-			2			1		9	12	*1.16*				
MR	LML-MR	18-Jun-98	13:30	539950	6976200	100	560	4.8	80	6.5	-	2		3		1		2		8	*0.86*	15	0	0	0
ML	ML-PL	17-Jun-98	15:00	523700	7000800	250	912	6.2	37	7.1	-								1	1	*0.07*	30	0	0	0
LML	HSL-W	16-Jun-98	13:30	541050	6978100	120	649	5.5	52	7.3	0.300			2						2	*0.18*	26	1	7	7
LML	HSL-W	28-Jul-98	16:00	541050	6978100	100	210	18.0	-	-	0.100			5				6		11	*3.14*				
LML	HSL-W	25-Jun-00	8:00	541178	6978054	120	626	4.0	64	7.3	0.500						1	6		7	*0.67*	10	0	0	0
LML	HSL-W	26-Jul-00	9:00	541178	6978054	150	473	14.9	65	6.8	0.014		1	11		1	2			15	*1.90*				
LML	HSL-W	16-Sep-00	11:45	541178	6978054	120	521	9.0	50	7.4	0.116			28			3	6		37	*4.26*				
LML	W-LML	28-Jul-00	14:00	540350	6978050	85	346	17.5	56	7.8	0.015	3	1	19			1			24	*4.16*				

[a] No. Kicks = number of 0.1 m^2 areas sampled; Prod. Kicks = number of kicks with eggs present; Total Eggs = total number of eggs collected; Max. Eg/kick = maximum number of eggs collected in one kick

Note: m = metres; s = seconds; Cond. = conductivity; µS/cm = microSiemens per centimetre; ARCH = Arctic char; LKTR = lake trout; ARGR = Arctic grayling; CISC = cisco; BURB = burbot; SLSC = slimy sculpin; NNST = ninespine stickleback; THST = threespine stickleback; CPUE = catch-per-unit-effort; min = minute

Appendix F2. Backpack electrofishing locations, effort, and catch data for ponds in the Meliadine Study Area, 1998-2009

Basin	Pond	Date	Location (15V)		Effort (s)	Water Temp. (°C)	Cond. (µS/cm)	pH (units)	Number of Fish Captured or Observed			CPUE (fish/ min)
			Easting	Northing					ARGR	NNST	Total	
A	A5	09-Jul-09	542791	6986300	596	13.8	117	6.5		3	3	0.30
A	A9	13-Jul-08	540149	6988152	162	18.0	-	-			0	0.00
A	A10	13-Jul-08	540058	6988320	119	17.0	-	-		1	1	0.50
A	A12	13-Jul-08	539893	6988583	185	18.0	-	-			0	0.00
A	A13	12-Jul-08	539800	6988651	166	19.0	-	-			0	0.00
A	A17	19-Aug-98	539368	6989072	180	17.6	257	-		7	7	2.33
A	A35	13-Jul-08	540605	6987953	127	18.0	-	-			0	0.00
A	A37	13-Jul-08	540299	6987950	126	17.0	-	-		1	1	0.48
A	A38	13-Jul-08	540509	6988216	107	17.0	-	-			0	0.00
A	A39	13-Jul-08	540394	6988311	144	20.0	-	-			0	0.00
A	A40	13-Jul-08	539157	6988214	212	17.0	-	-			0	0.00
A	A40	02-Jul-09	539157	6988214	225	17.5	97	6.7		2	2	0.53
A	A41	02-Jul-09	539072	6988284	143	16.5	123	6.6			0	0.00
A	A50	09-Jul-09	542548	6986204	120	13.9	105	7.6			0	0.00
A	A51	09-Jul-09	542558	6986096	273	14.3	301	8.3		2	2	0.44
A	A53	09-Jul-09	542477	6986092	133	16.0	181	7.7		11	11	4.96
A	A54	13-Jul-08	540246	6988671	411	-	-	-		2	2	0.29
A	A55	19-Aug-98	540207	6988967	150	15.5	415	8.4		4	4	1.60
A	A56	19-Aug-98	539879	6988912	880	15.3	2007	-		1	1	0.07
A	A57	19-Aug-98	540021	6988822	185	17.0	350	-		4	4	1.30
A	A58	19-Aug-98	539711	6989171	650	16.9	223	-		5	5	0.46
B	B8	12-Jul-08	539024	6988906	279	17.0	-	-			0	0.00
B	B8	02-Jul-09	539024	6988906	217	18.1	1358	7.2		2	2	0.55
B	B9	12-Jul-08	539175	6988651	230	17.0	-	-			0	0.00
B	B9	02-Jul-09	539175	6988651	248	16.9	745	5.0			0	0.00
B	B10	12-Jul-08	539425	6988384	223	16.0	-	-			0	0.00
B	B10	02-Jul-09	539425	6988384	373	15.6	396	7.0			0	0.00
B	B25	02-Jul-09	537351	6990233	481	19.6	173	5.2		3	3	0.37
B	B26	02-Jul-09	537273	6990411	286	23.0	224	6.3		2	2	0.42
B	B27	02-Jul-09	536973	6990274	261	20.4	70	5.2		4	4	0.92
B	B28	02-Jul-09	538214	6989727	192	18.1	116	7.9		1	1	0.31
B	B28a	03-Jul-09	538150	6989801	46	20.8	219	7.6		4	4	5.22
B	B29	03-Jul-09	539516	6988320	93	14.7	40	6.8			0	0.00
B	B30	12-Jul-08	537999	6988890	156	20.0	-	-		10	10	3.85
B	B31	12-Jul-08	538103	6988807	125	19.0	-	-		25	25	12.00
B	B32	11-Jul-08	538240	6988756	294	18.0	-	-			0	0.00
B	B33	11-Jul-08	538748	6988659	285	19.0	-	-			0	0.00
G	G1	13-Jul-09	537979	6991509	485	-	-	-		77	77	9.53
H	H1	02-Aug-08	540755	6989620	396	15.6	126	8.2			0	0.00
H	H1	07-Jul-09	540755	6989620	435	13.9	145	7.1			0	0.00
H	H2	02-Aug-08	540577	6989433	120	15.9	169	8.1	1		1	0.50
H	H2	08-Jul-09	540577	6989433	254	13.6	107	7.5			0	0.00
H	H2a	07-Jul-09	540536	6989494	254	25.2	201	7.8			0	0.00
H	H3	02-Aug-08	540498	6989408	169	15.2	154	8.3			0	0.00
H	H3	08-Jul-09	540498	6989408	285	15.3	95	7.7			0	0.00
H	H4	02-Aug-08	540356	6989429	130	15.0	115	8.1		3	3	1.38
H	H4	07-Jul-09	540356	6989429	129	21.1	77	6.3			0	0.00
H	H5	02-Aug-08	540247	6989437	142	15.2	123	8.4		5	5	2.11
H	H5	07-Jul-09	540247	6989437	299	21.0	91	8.5			0	0.00
H	H5a	07-Jul-09	540263	6989334	94	21.5	451	7.1			0	0.00
H	H5b	07-Jul-09	540246	6989289	59	22.7	1138	6.1			0	0.00
H	H6	02-Aug-08	540075	6989336	226	18.9	182	8.6			0	0.00
H	H6	07-Jul-09	540075	6989336	344	20.3	67	8.5		4	4	0.70
H	H7	01-Aug-08	539960	6989480	117	20.9	97	8.6			0	0.00
H	H7	07-Jul-09	539960	6989480	124	21.9	157	8.0		3	3	1.45
H	H8	01-Aug-08	539846	6989533	149	18.5	111	8.6			0	0.00
H	H8	06-Jul-09	539846	6989533	276	19.6	187	8.2			0	0.00
H	H9	01-Aug-08	539755	6989607	212	18.7	173	8.3			0	0.00
H	H9	06-Jul-09	539755	6989607	238	18.6	126	8.1			0	0.00
H	H10	01-Aug-08	539658	6989562	100	22.1	193	8.5			0	0.00
H	H10	06-Jul-09	539658	6989562	124	23.1	184	7.3		2	2	0.97
H	H11	01-Aug-08	539559	6989529	147	20.2	140	8.3			0	0.00
H	H11	06-Jul-09	539559	6989529	157	19.9	142	5.7			0	0.00
H	H12	01-Aug-08	539435	6989597	164	18.9	120	8.4			0	0.00
H	H12	06-Jul-09	539435	6989597	497	15.5	119	7.9			0	0.00
H	H13	01-Aug-08	539214	6989623	221	16.5	191	8.3			0	0.00
H	H13	04-Jul-09	539214	6989623	1231	15.5	135	7.9		1	1	0.05
H	H13a	04-Jul-09	539117	6989841	130	23.9	220	8.7			0	0.00
H	H13d	04-Jul-09	538835	6989773	148	24.3	189	7.0			0	0.00
H	H14	01-Aug-08	539018	6989892	101	17.1	236	-			0	0.00
H	H14	04-Jul-09	539018	6989892	115	21.6	167	8.8			0	0.00
H	H14a	04-Jul-09	539165	6990024	257	21.8	72	8.1			0	0.00
H	H14b	04-Jul-09	539268	6990004	58	23.7	57	8.0			0	0.00
H	H14c	04-Jul-09	539233	6989832	54	23.0	157	9.0			0	0.00
H	H15	01-Aug-08	538850	6990014	287	15.1	159	9.0			0	0.00
H	H15	04-Jul-09	538850	6990014	673	19.6	107	8.2			0	0.00
H	H15a	04-Jul-09	538994	6990073	115	24.5	233	8.6			0	0.00
H	H15b	04-Jul-09	538542	6989866	75	17.7	270	6.2			0	0.00
H	H15c	04-Jul-09	538748	6990130	54	18.8	147	8.0			0	0.00
H	H15d	04-Jul-09	538663	6990168	180	15.7	119	7.2			0	0.00
H	H15e	04-Jul-09	538820	6990241	192	16.7	146	8.5			0	0.00
H	H15f	04-Jul-09	538726	6990324	70	18.6	187	8.3			0	0.00
H	H15g	03-Jul-09	538416	6990266	361	21.8	66	7.6		1	1	0.17
H	H15h	03-Jul-09	538391	6990134	600	23.5	166	8.1		2	2	0.20
H	H15i	03-Jul-09	538380	6990337	41	25.4	54	7.7			0	0.00
H	H15j	03-Jul-09	538345	6990286	61	25.0	91	6.9			0	0.00
H	H15k	03-Jul-09	538175	6990376	88	24.4	107	7.9			0	0.00
H	H15l	03-Jul-09	537985	6990384	55	27.6	201	7.9			0	0.00
H	H16	02-Aug-08	540455	6989685	120	16.1	48	7.9			0	0.00
H	H16	07-Jul-09	540455	6989685	217	21.9	31	7.0			0	0.00
H	H17	01-Aug-08	539843	6989901	444	18.4	89	8.3			0	0.00
H	H17	05-Jul-09	539843	6989901	1395	16.0	55	7.0		7	7	0.30
H	H18	01-Aug-08	539571	6989751	221	17.9	113	8.6			0	0.00
H	H18	06-Jul-09	539571	6989751	380	18.6	110	7.8			0	0.00
H	H19	02-Aug-08	540615	6989134	266	15.6	177	8.1			0	0.00
H	H20	02-Aug-08	540749	6988843	398	15.1	158	8.1			0	0.00

Note: s = seconds; Temp. = temperature; °C = degrees Celsius; Cond. = conductivity; µS/cm = microSiemens per centimetre; ARGR = Arctic grayling; NNST = ninespine stickleback; CPUE = catch-per-unit-effort; min = minute

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Appendix F3. Summary of backpack electrofishing catch data for streams and ponds in the Meliadine Study Area, 1997-2009

Waterbody	Basin	Site	No. Sampling Events	Total Effort (s)	Number of Fish Captured									Species Composition (%)									CPUE (fish / min)								
					ARCH	LKTR	ARGR	CISC	BURB	SLSC	NNST	THST	Total	ARCH	LKTR	ARGR	CISC	BURB	SLSC	NNST	THST	Total	ARCH	LKTR	ARGR	CISC	BURB	SLSC	NNST	THST	Total
Streams	A	A0-1	6	2386	3	6	18		2	5	65	61	160	1.9	3.8	11.3		1.3	3.1	40.6	38.1	100.0	0.08	0.15	0.45		0.05	0.13	1.63	1.53	4.02
		A1-2	2	501	1	1	10				33	2	47	2.1	2.1	21.3				70.2	4.3	100.0	0.12	0.12	1.20				3.95	0.24	5.63
		A2-3	4	1028	1	3	47			1	15	7	74	1.4	4.1	63.5			1.4	20.3	9.5	100.0	0.06	0.18	2.74			0.06	0.88	0.41	4.32
		A3-4	2	244			2				2		4			50.0				50.0		100.0			0.49				0.49		0.98
		A4-5	2	731			17				4		21			81.0				19.0		100.0			1.40				0.33		1.72
		A5-6	8	4772	1	12	73			18	193	3	300	0.3	4.0	24.3			6.0	64.3	1.0	100.0	0.01	0.15	0.92			0.23	2.43	0.04	3.77
		A6-7	7	3798			23			22	63		108			21.3			20.4	58.3		100.0			0.36			0.35	1.00		1.71
		A7-8	6	2944			6			3	67		76			7.9			3.9	88.2		100.0			0.12			0.06	1.37		1.55
		Other[a]	12	2844							86		86							100.0		100.0							1.81		1.81
	Basin A Streams		49	19248	6	22	196		2	49	528	73	876	0.7	2.5	22.4		0.2	5.6	60.3	8.3	100.0	0.02	0.07	0.61		0.01	0.15	1.65	0.23	2.73
	B	B0-1	5	2842	1	5	49	4	4	24	11	60	158	0.6	3.2	31.0	2.5	2.5	15.2	7.0	38.0	100.0	0.02	0.11	1.03	0.08	0.08	0.51	0.23	1.27	3.34
		B1-2	7	4083	28	18	42		3	17	9	4	121	23.1	14.9	34.7		2.5	14.0	7.4	3.3	100.0	0.41	0.26	0.62		0.04	0.25	0.13	0.06	1.78
		B3-4	8	5244	2	3	46		9	17	28		105	1.9	2.9	43.8		8.6	16.2	26.7		100.0	0.02	0.03	0.53		0.10	0.19	0.32		1.20
		B4-5	7	2412			15		1	9	89		114			13.2		0.9	7.9	78.1		100.0			0.37		0.02	0.22	2.21		2.84
		B5-6	6	2031			33			2	87		122			27.0			1.6	71.3		100.0			0.97			0.06	2.57		3.60
		B6-7	7	2999			54		2	11	31		98			55.1		2.0	11.2	31.6		100.0			1.08		0.04	0.22	0.62		1.96
		Other[a]	23	8289			26		4	2	125		157			16.6		2.5	1.3	79.6		100.0			0.19		0.03	0.01	0.90		1.14
	Basin B Streams		63	27900	31	26	265	4	23	82	380	64	875	3.5	3.0	30.3	0.5	2.6	9.4	43.4	7.3	100.0	0.07	0.06	0.57	0.01	0.05	0.18	0.82	0.14	1.88
	D	D0-1	5	2140	4	6	9		1	49	41	20	130	3.1	4.6	6.9		0.8	37.7	31.5	15.4	100.0	0.11	0.17	0.25		0.03	1.37	1.15	0.56	3.64
		D1-2	3	424			6			10	104	2	122			4.9			8.2	85.2	1.6	100.0			0.85			1.42	14.72	0.28	17.26
		D6-7	3	314							148		148							100.0		100.0							28.28		28.28
		Other[a]	4	1140							419		419							100.0		100.0							22.05		22.05
	Basin D Streams		15	4018	4	6	15		1	59	712	22	819	0.5	0.7	1.8		0.1	7.2	86.9	2.7	100.0	0.06	0.09	0.22		0.01	0.88	10.63	0.33	12.23
	F	n = 2[a]	2	484		4	4			1	36	9	54		7.4	7.4			1.9	66.7	16.7	100.0		0.50	0.50			0.12	4.46	1.12	6.69
	G	n = 2[a]	3	1191		4					100	2	106		3.8					94.3	1.9	100.0		0.20					5.04	0.10	5.34
	H	n = 2[a]	2	775							50		50							100.0		100.0							3.87		3.87
	J	J0-1	1	1728							102		102							100.0		100.0							3.54		3.54
	MR	n = 2[a]	6	3422	5	6	12		1	10	7	14	55	9.1	10.9	21.8		1.8	18.2	12.7	25.5	100.0	0.09	0.11	0.21		0.02	0.18	0.12	0.25	0.96
	ML	ML-PL	1	912								1	1								100.0	100.0								0.07	0.07
	LML	n = 2[a]	6	2825	3	2	65		1	7	18		96	3.1	2.1	67.7		1.0	7.3	18.8		100.0	0.06	0.04	1.38		0.02	0.15	0.38		2.04
All Streams Combined			148	62503	49	70	557	4	28	208	1933	185	3034	1.6	2.3	18.4	0.1	0.9	6.9	63.7	6.1	100.0	0.05	0.07	0.53	0.004	0.03	0.20	1.86	0.18	2.91
Ponds	A	n = 20[b]	21	5294							43		43							100.0		100.0							0.49		0.49
	B	n = 13[b]	16	3789							51		51							100.0		100.0							0.81		0.81
	G	G1	1	485							77		77							100.0		100.0							9.53		9.53
	H	n = 40[b]	58	14249			1				28		29			3.4				96.6		100.0			0.004				0.12		0.12
All Ponds Combined			96	23817			1				199		200			0.5				99.5		100.0			0.003				0.50		0.50
All Waterbodies			**244**	**86320**	**49**	**70**	**558**	**4**	**28**	**208**	**2132**	**185**	**3234**	**1.5**	**2.2**	**17.3**	**0.1**	**0.9**	**6.4**	**65.9**	**5.7**	**100.0**	**0.03**	**0.05**	**0.39**	**0.003**	**0.02**	**0.14**	**1.48**	**0.13**	**2.25**

[a] see Appendix F1 for detailed list of sites

[b] see Appendix F2 for detailed list of sites

Note: s = seconds; ARCH = Arctic char; LKTR = lake trout; ARGR = Arctic grayling; CISC = cisco; BURB = burbot; SLSC = slimy sculpin; NNST = ninespine stickleback; THST = threespine stickleback; CPUE = catch-per-unit-effort; min = minute

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Appendix F4. Gill net locations, effort, and catch data for the Meliadine Study Area, 1997-2009

Lake	Set #[a]	Mesh Sizes (mm)	Net Panels	Set Date / Time	Soak Time (h)	Effort[b] (net-unit)	UTM (Zone 15V)		Temp (°C)	Wind (km/h dir)	Cloud (%)	Depth (m)	Substrate[c]	Number of Fish Captured						CPUE (fish/ net-...
							Easting	Northing						ARCH	LKTR	ARGR	RNWH	CISC	BURB	Total
ML-E	1	19-38-64-89-114-140	6	12-Jul-97 17:15	1.8	0.44	541765	6989697	16.0	15 ESE	10	2.0-7.0	Bo		1					1	*2.29*
ML-E	2	19-38-64-89-114-140	6	14-Jul-97 14:50	1.9	0.48	543141	6987595	13.5	35 ESE	60	1.3-3.7	Bo/Sa		1					1	*2.09*
ML-E	3	19-38-64-89-114-140	6	15-Jul-97 16:10	0.8	0.21	542890	6991150	13.0	80 E	100	1.5-12.5	Bo/Co/Si		1		1			2	*9.60*
ML-E	4	19-38-64-89-114-140	6	18-Jul-97 15:50	0.8	0.21	539070	6990795	15.0	calm	0	2.0-12.0	Bo/Co/Si		2					2	*9.60*
ML-E	5	19-38-64-89-114-140	6	19-Jul-97 11:15	1.1	0.27	544680	6985831	15.5	calm	0	2.5-5.0	Bo/Co/Si		4					4	*14.77*
ML-E	6	19-38-64-89-114-140	6	22-Jul-97 15:05	2.0	0.50	543530	6988968	17.0	calm	0	2.0-4.5	Bo/Sa		2			21		23	*46.00*
ML-E	7	19-38-64-89-114-140	6	23-Jul-97 11:10	1.0	0.25	542535	6990267	17.0	calm	0	2.0-5.0	Bo/Sa		7		1			8	*32.00*
ML-S	1	19-38-64-89-114-140	6	22-Aug-97 9:20	1.3	0.33	532416	6989388	14.0	35 S	40	2.5-3.5	Si/Co/Bo		1					1	*3.00*
ML-S	2	19-38-64-89-114-140	6	22-Aug-97 10:55	4.1	1.02	532516	6989419	14.0	35 S	40	1.5-2.5	Bo/Co/Si		1					1	*0.98*
ML-S	1	25-38-64-89-114-140	6	10-Jul-98 15:00	2.5	0.63	532350	6988700	12.0	25 S	10	1.5-9.0	Si/Bo							0	*0.00*
ML-S	2	25-38-64-89-114-140	6	10-Jul-98 16:10	0.8	0.21	532250	6988650	12.0	25 S	10	2.0-4.0	Si/Bo/Co		1					1	*4.80*
ML-S	3	25-38-64-89-114-140	6	10-Jul-98 17:10	1.0	0.25	532200	6989550	12.0	25 S	10	1.5-6.5	Si/Co/Bo							0	*0.00*
ML-S	4	25-38-64-89-114-140	6	10-Jul-98 17:40	1.1	0.27	532550	6989300	12.0	25 S	10	1.2-3.0	Si/Bo/Co		1					1	*3.69*
ML-S	5*	25-38-64-89-114-140	6	12-Jul-98 10:35	28.4	7.10	534300	6987400	14.0	30 S	40	1.5-7.5	Si/Co/Bo		13		3	15		31	*4.36*
ML-S	6*	25-38-64-89-114-140	6	12-Jul-98 11:00	28.4	7.10	535100	6987250	14.0	30 S	40	1.3-3.2	Bo/Co/Si		19		3	26		48	*6.76*
ML-S	1*	25-38-64-89-114-140	6	30-Aug-98 17:00	22.5	5.63	534500	6987400	10.0	35 SE	80	1.5-3.0	Bo/Co/Si	1	12			5		18	*3.20*
ML-W	3	89-114-140	3	30-Sep-99 15:00	1.6	0.20	526500	7001950	4.0	5 N	100	2.0-4.5	Co/SiBo		1					1	*5.05*
ML-W	5	89-114-140	3	30-Sep-99 15:20	1.0	0.13	526550	7002550	4.0	5 N	100	1.5-4.0	Bo/Si		1					1	*8.00*
ML-W	4*	89-114-140	3	30-Sep-99 16:35	20.8	2.59	526500	7001950	4.0	5 N	100	2.0-4.5	Co/SiBo		8		3	2		13	*5.01*
ML-W	6*	89-114-140	3	30-Sep-99 16:20	21.9	2.74	526550	7002550	4.0	5 N	100	1.5-4.0	Bo/Si		8		1			9	*3.29*
ML-W	7	89-114-140	3	01-Oct-99 14:00	2.0	0.25	526000	7001800	3.0	25 N	90	2.5-5.0	Bo/Si							0	*0.00*
ML-W	8*	89-114-140	3	01-Oct-99 14:40	19.4	2.43	527200	7001700	3.0	25 N	90	2.0-3.5	Co/Bo/Si		5		1	1		7	*2.88*
ML-W	9*	89-114-140	3	01-Oct-99 16:35	18.0	2.25	527850	7002250	3.0	25 N	90	1.5-2.5	Co/Bo/Si	3	2					5	*2.22*
ML-W	10*	89-114-140	3	02-Oct-99 11:30	25.2	3.15	528500	7001950	3.0	10 N	100	1.5-3.0	Bo/Co/Gr	1	1			1		3	*0.95*
ML-W	11*	89-114-140	3	02-Oct-99 11:45	24.3	3.03	528050	7002350	3.0	10 N	100	1.5-2.5	Bo/Co/Gr		3	1				4	*1.32*
ML-W	3a	64-89-89-114	4	18-Sep-00 14:30	2.0	0.33	523750	7000900	6.0	NW 25	50	1.5-4.5	Co/Si/Bo							0	*0.00*
ML-W	3b*	64-89-89-114	4	18-Sep-00 16:30	17.3	2.88	523750	7000900	6.0	NW 25	40	1.5-4.5	Co/Si/Bo	2	11		2	1		16	*5.57*
ML-W	4a	64-89-89-114	4	18-Sep-00 14:40	1.6	0.26	524700	7001150	6.0	NW 25	40	2.5-4.0	Bo/Si/Co							0	*0.00*
ML-W	4b*	64-89-89-114	4	18-Sep-00 16:15	18.8	3.13	524700	7001150	6.0	NW 25	40	2.5-4.0	Bo/Si/Co	4	8	1		1		14	*4.48*
ML-W	3c	64-89-89-114	4	19-Sep-00 9:45	7.5	1.25	523800	7000900	6.0	NE 10	10	1.5-4.5	Co/Si/Bo		3					3	*2.40*
ML-W	3d*	64-89-89-114	4	19-Sep-00 17:15	18.0	3.00	523800	7000900	6.0	NE 10	10	1.5-4.5	Co/Si/Bo	2	8		4			14	*4.67*
ML-W	5a	64-89-89-114	4	20-Sep-00 13:30	2.8	0.46	524050	7001050	5.0	N 30	100	2.2-5.0	Bo/Si/Co		1					1	*2.18*
ML-W	5b*	64-89-89-114	4	20-Sep-00 16:15	18.1	3.01	524050	7001050	4.0	N 30	100	2.2-5.0	Bo/Si/Co	3	5		1			9	*2.99*
ML-W	5c	64-89-89-114	4	21-Sep-00 10:20	5.6	0.93	524050	7001050	4.0	N 30	100	2.2-5.0	Bo/Si/Co							0	*0.00*
ML-W	5d*	64-89-89-114	4	21-Sep-00 15:55	18.1	3.01	524050	7001050	4.0	N 30	100	2.2-5.0	Bo/Si/Co	3	8		1			12	*3.98*
ML-W	6a*	64-89-89-114	4	21-Sep-00 13:05	20.2	3.36	525800	7000200	4.0	N 30	100	2.5-3.5	Bo/Si/Co		11		3			14	*4.17*
ML-W	7a*	89	1	21-Sep-00 15:00	20.1	0.84	523750	7000650	4.0	N 30	70	0.6-1.0	Bo		1	1				2	*2.39*
ML-W	8a*	89-114	2	21-Sep-00 15:40	19.0	1.58	523800	7000800	4.0	N 30	50	2.0-3.2	Bo/Si	1	5		1			7	*4.42*
ML-W	5e	64-89-89-114	4	22-Sep-00 10:00	6.8	1.14	524050	7001050	4.0	W 5	100	2.2-5.0	Bo/Si/Co							0	*0.00*
ML-W	5f*	64-89-89-114	4	22-Sep-00 16:50	18.7	3.11	524050	7001050	3.0	W 15	100	2.2-5.0	Bo/Si/Co		7		1	1		9	*2.89*
ML-W	7b*	89	1	22-Sep-00 11:05	26.4	1.10	523750	7000650	3.0	W 15	100	0.6-1.0	Bo	1	2	1				4	*3.63*
ML-W	8b	89-114	2	22-Sep-00 10:40	6.4	0.53	523800	7000800	4.0	W 5	100	2.0-3.2	Bo/Si							0	*0.00*
ML-W	8c*	89-114	2	22-Sep-00 17:05	19.0	1.58	523800	7000800	3.0	W 15	100	2.0-3.2	Bo/Si		2					2	*1.26*
ML-W	9a*	64-89-89-114	4	22-Sep-00 16:30	19.3	3.21	523900	7001200	3.0	W 15	100	2.2-3.5	Co/Si/Gr	1	4	1	1			7	*2.18*
ML-W	8d	89-114	2	23-Sep-00 12:05	4.6	0.38	523800	7000800	3.0	SW 40	100	2.0-3.2	Bo/Si							0	*0.00*
ML-W	8e*	89-114	2	23-Sep-00 17:05	21.4	1.78	523800	7000800	3.0	NW 60	100	2.0-3.2	Bo/Si		2		1			3	*1.68*

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Appendix F4. Gill net locations, effort, and catch data for the Meliadine Study Area, 1997-2009

Lake	Set #[a]	Mesh Sizes (mm)	Net Panels	Set Date / Time	Soak Time (h)	Effort[b] (net-unit)	UTM (Zone 15V)		Temp (°C)	Wind (km/h dir)	Cloud (%)	Depth (m)	Substrate[c]	Number of Fish Captured							CPUE (fish/ net-)
							Easting	Northing						ARCH	LKTR	ARGR	RNWH	CISC	BURB	Total	
ML-PL	1*	89-114-140	3	30-Sep-99 13:06	21.3	2.66	523700	7000600	3.0	5 N	100	2.0-2.5	Co/Bo/Si	2	1					3	*1.13*
ML-PL	2*	89-114-140	3	30-Sep-99 13:20	22.3	2.79	522050	7000850	3.0	5 N	100	2.0-3.5	Bo/Co/Si	1	15			1		17	*6.09*
ML-PL	12*	89-114-140	3	02-Oct-99 12:05	23.1	2.89	524800	7000800	2.0	10 N	100	1.0-3.0	Bo/Co/Gr	5	7					12	*4.16*
A1	1	19-38-64-89-114-140	6	24-Jul-97 13:40	1.0	0.25	544450	6985650	18.0	60 S	0	1.0-2.0	Si/Bo/Co							0	*0.00*
A1	2	19-38-64-89-114-140	6	24-Jul-97 14:50	0.7	0.17	544000	6985800	18.0	60 S	0	1.0-1.5	Co/Bo/Si				1			1	*6.00*
A1	1	19-38-64-89-114-140	6	23-Aug-97 8:55	3.3	0.81	544360	6985425	14.6	35 S	100	1.0-1.8	Si/Bo/Co	1	1					2	*2.46*
A1	2	19-38-64-89-114-140	6	23-Aug-97 12:20	2.8	0.71	544259	6985638	14.5	25 S	100	1.0-1.2	Si/Bo/Co	2	3			1		6	*8.47*
A1	3	19-38-64-89-114-140	6	23-Aug-97 15:30	1.7	0.42	544451	6985602	14.6	25 S	100	1.0-1.7	Si/Co/Bo	1						1	*2.40*
A6	1	19-38-64-89-114-140	6	14-Jul-97 10:15	1.7	0.42	542150	6985300	13.5	70 SE	100	1.0-2.5	Bo/Si/Co			8		1		9	*21.60*
A6	1	19-38-64-89-114-140	6	17-Aug-97 17:00	1.8	0.46	541816	6985549	15.5	10 SW	20	2.0-2.5	Si/Bo/Co			1		2		3	*6.55*
A6	1	25-38-64-89-114-140	6	24-Jul-98 14:30	1.1	0.27	542150	6985950	17.0	10 S	10	1.7-3.0	Co/Bo/Sa							0	*0.00*
A6	2	25-38-64-89-114-140	6	24-Jul-98 15:45	2.3	0.56	542050	6985650	17.0	10 S	10	1.3-2.5	Co/Sa/Bo			4		1		5	*8.89*
A6	1	19-25-64-102	4	9-Jul-09 11:15	3.3	0.54	542182	6986298	-	-	-	2.0-3.0	-			5				5	*9.23*
A8	1	19-38-64-89-114-140	6	12-Jul-97 15:45	2.3	0.56	539899	6987270	18.0	20 SE	60	1.0-2.5	Bo/Si			5				5	*8.89*
A8	2	19-38-64-89-114-140	6	12-Jul-97 16:15	1.5	0.38	540240	6986966	18.0	20 SE	60	2.0-2.8	Bo/Si			2				2	*5.33*
A8	3	19-38-64-89-114-140	6	13-Jul-97 11:35	0.7	0.17	540700	6986880	16.5	60 SE	100	1.5-2.8	Bo/Si/Co			7				7	*42.00*
A8	1	19-38-64-89-114-140	6	18-Aug-97 8:10	2.3	0.58	540614	6986986	14.3	10 SW	100	1.5-2.5	Si/Bo/Co			4				4	*6.86*
A8	1	25-38-64-89-114-140	6	23-Jul-98 14:10	2.5	0.63	539950	6987700	16.0	10 S	30	1.5-3.0	Sa/Bo							0	*0.00*
A8	2	25-38-64-89-114-140	6	23-Jul-98 17:00	1.3	0.33	540350	6986950	16.0	10 S	30	1.0-1.5	Bo/Co/Gr			1				1	*3.00*
A52	1*	38-38-89	3	5-Aug-08 15:15	26.3	3.28	542813	6985923	13.2	-	-	1.0-1.5	-							0	*0.00*
A54	1*	25-38-64-89-114-140	6	19-Aug-98 8:40	25.6	6.40	540300	6988500	14.9	25 S	40	0.8-1.3	Bo/Co/Si							0	*0.00*
A54	2*	25-38-64-89-114-140	6	19-Aug-98 9:15	25.3	6.31	540200	6988750	14.9	25 S	40	0.7-1.1	Bo/Co/Si							0	*0.00*
B2	1	19-38-64-89-114-140	6	20-Jul-97 9:00	2.0	0.50	537500	6986100	15.8	20 S	0	1.0-1.5	Si/Bo/Co					5		5	*10.00*
B2	2	19-38-64-89-114-140	6	20-Jul-97 11:40	1.7	0.42	537600	6986850	15.8	20 SE	0	1.3-2.8	Si/Bo/Co		1			1		2	*4.80*
B2	1	19-38-64-89-114-140	6	18-Aug-97 13:10	2.5	0.63	537660	6986874	15.3	10 SW	100	1.5-2.5	Bo/Si/Co			1		5		6	*9.60*
B2	2	19-38-64-89-114-140	6	26-Aug-97 16:00	2.8	0.69	537432	6986480	12.6	10 NE	0	1.3-2.2	Si/Co/Bo			1		5		6	*8.73*
B2	3	19-38-64-89-114-140	6	26-Aug-97 18:55	1.3	0.31	537486	6986074	12.5	5 SW	0	1.0-2.0	Bo/Co/Si			4				4	*12.80*
B2	1	25-38-64-89-114-140	6	22-Jul-98 14:20	3.8	0.94	537500	6986550	12.0	10 S	30	1.7-2.2	Sa/Bo/Co		1	5		4		10	*10.67*
B2	1	25-38-64-89-114-140	6	30-Aug-98 9:30	4.5	1.13	537650	6987050	8.7	calm	80	1.5-2.5	Bo/Co/Si					4		4	*3.56*
B2	2	25-38-64-89-114-140	6	30-Aug-98 9:50	4.4	1.10	537150	6987050	8.7	calm	80	1.5-2.5	Bo/Co/Si					6		6	*5.43*
B2	3	25-38-64-89-114-140	6	30-Aug-98 14:30	2.5	0.63	537450	6986750	8.9	calm	80	1.0-2.5	Bo/Si/Co		2	1		1		4	*6.40*
B2	4	25-38-64-89-114-140	6	30-Aug-98 14:40	2.5	0.63	537450	6986400	8.9	calm	80	1.2-2.5	Bo/Si/Co		1	1		3		5	*8.00*
B4	1	19-38-64-89-114-140	6	26-Jul-97 17:00	1.7	0.42	538294	6986884	18.0	10 W	0	1.0-2.0	Bo/Si/Co							0	*0.00*
B4	2	19-38-64-89-114-140	6	27-Jul-97 13:40	4.0	1.00	538376	6986597	18.2	40 N	0	1.5-2.2	Co/Bo/Si							0	*0.00*
B4	3	19-38-64-89-114-140	6	27-Jul-97 17:00	0.9	0.23	538174	6987018	18.0	20 N	50	1.0-1.5	Bo/Co/Si							0	*0.00*
B4	1	25-38-64-89-114-140	6	25-Jul-98 13:00	2.0	0.50	538850	6986650	17.0	20 S	30	1.0-2.0	Bo/Co/Si							0	*0.00*
B4	2	25-38-64-89-114-140	6	25-Jul-98 15:30	2.5	0.63	538150	6987350	17.0	30 N	30	1.5-1.6	Co/Bo/Si							0	*0.00*
B5	1	19-38-64-89-114-140	6	15-Jul-97 11:30	1.3	0.31	538629	6987710	13.0	80 E	100	1.5-2.5	Si/Co/Bo			9				9	*28.80*
B5	1	19-38-64-89-114-140	6	18-Aug-97 16:40	2.5	0.63	537924	6988497	15.1	25 SW	100	1.5-2.0	Bo/Si/Co			4				4	*6.40*
B5	1	25-38-64-89-114-140	6	20-Jul-98 12:55	5.1	1.27	538650	6987950	11.0	40 N	100	1.3-2.5	Sa/Bo/Co			14				14	*11.02*
B5	1*	25-38-64-89-114-140	6	28-Aug-98 9:30	28.5	7.13	538550	6987850	8.8	35 S	100	1.3-2.2	Bo/Co/Si			11			1	12	*1.68*
B7	1	19-38-64-89-114-140	6	18-Jul-97 10:20	2.2	0.54	537820	6989375	14.5	2 NW	0	3.0-3.5	Sa/Bo/Co			3		1		4	*7.38*
B7	1	19-38-64-89-114-140	6	19-Aug-97 9:10	2.5	0.63	537683	6989368	15.1	15 SW	40	3.0-3.5	Si/Bo/Sa					4		4	*6.40*

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Appendix F4. Gill net locations, effort, and catch data for the Meliadine Study Area, 1997-2009

Lake	Set #[a]	Mesh Sizes (mm)	Net Panels	Set Date / Time	Soak Time (h)	Effort[b] (net-unit)	UTM (Zone 15V)		Temp (°C)	Wind (km/h dir)	Cloud (%)	Depth (m)	Substrate[c]	Number of Fish Captured							CPUE (fish/ net-)
							Easting	Northing						ARCH	LKTR	ARGR	RNWH	CISC	BURB	Total	
B7	1	25-38-64-89-114-140	6	19-Jul-98 13:25	2.6	0.65	538050	6989550	10.0	40 S	100	1.5-3.5	Sa/Co/Bo			3		2		5	*7.74*
B7	2	25-38-64-89-114-140	6	19-Jul-98 16:20	1.8	0.44	537700	6989900	10.0	40 S	100	1.5-2.0	Bo/Co/Si			1				1	*2.29*
B7	1	25-38-64-89-114-140	6	22-Aug-98 9:30	2.5	0.63	538150	6989500	9.3	calm	25	1.5-2.5	Bo/Co/Si					2		2	*3.20*
B7	2	25-38-64-89-114-140	6	22-Aug-98 10:00	2.3	0.56	537900	6989800	9.3	calm	25	1.5-2.0	Bo/Co/Si							0	*0.00*
B7	3	25-38-64-89-114-140	6	22-Aug-98 12:25	2.1	0.52	537850	6989550	10.0	calm	25	1.5-4.0	Bo/Si/Co					2		2	*3.84*
B7	4	25-38-64-89-114-140	6	22-Aug-98 12:35	2.2	0.54	537650	6989700	10.0	calm	25	1.5-3.0	Bo/Si/Co					1		1	*1.85*
B7	5	25-38-64-89-114-140	6	22-Aug-98 15:00	2.0	0.50	537400	6989900	11.5	calm	25	1.5-1.6	Bo/Co/Si			1		1		2	*4.00*
B7	6	25-38-64-89-114-140	6	22-Aug-98 15:15	2.1	0.52	538150	6989400	11.5	calm	25	1.3-2.0	Si/Bo			1				1	*1.92*
B7	7	25-38-64-89-114-140	6	22-Aug-98 19:00	1.7	0.42	538100	6989400	10.1	calm	25	1.5-2.0	Bo/Si			1				1	*2.40*
B7	8	25-38-64-89-114-140	6	23-Aug-98 8:30	2.7	0.67	537500	6989800	9.0	25 SE	5	1.5-2.0	Bo/Co/Si					2		2	*3.00*
B7	9	25-38-64-89-114-140	6	23-Aug-98 8:50	3.7	0.92	537850	6989550	9.0	25 SE	5	1.5-3.5	Bo/Si							0	*0.00*
B7	10	25-38-64-89-114-140	6	23-Aug-98 11:40	5.0	1.24	538350	6989300	12.0	calm	5	1.3-2.0	Bo/Si					1		1	*0.81*
B7	11	25-38-64-89-114-140	6	23-Aug-98 12:40	4.2	1.04	538300	6989450	12.0	calm	5	1.5-1.7	Bo/Si/Co							0	*0.00*
B7	1	89	1	9-Jul-08 9:00	8.0	0.33	537624	6989742	12.0	-	10	1.0	-			2		5		7	*21.00*
B7	2	38	1	9-Jul-08 10:25	7.0	0.29	537735	6989715	12.0	-	10	2.0	-			1		4		5	*17.14*
B7	3	38	1	9-Jul-08 12:00	5.5	0.23	537641	6989779	12.0	-	10	2.5	-			2		2		4	*17.45*
B7	1	38-89	2	31-Jul-08 10:45	5.0	0.42	537742	6989698	-	-	-	2.0-3.0	-			2		2		4	*9.60*
B7	2	89	1	31-Jul-08 10:45	5.0	0.21	537695	6989756	-	-	-	1.0-2.0	-			3				3	*14.40*
B9	1*	25-38-64-89-114-140	6	03-Oct-98 14:50	20.5	5.13	539100	6988800	3.0	calm	20	1.0-1.2	Si/Co							0	*0.00*
B10	1*	25-38-64-89-114-140	6	03-Oct-98 15:20	20.3	5.08	539200	6988500	2.0	calm	20	0.6-0.7	Si/Co							0	*0.00*
D1	1	19-38-64-89-114-140	6	26-Jul-97 14:00	1.8	0.46	533060	6989550	18.0	10 W	0	1.5-2.0	Si/Bo/Co	6				3		9	*19.64*
D1	1	19-38-64-89-114-140	6	19-Aug-97 16:05	1.7	0.42	533066	6989437	16.5	calm	20	1.5-2.2	Bo/Co/Si	7				4		11	*26.40*
D1	2	19-38-64-89-114-140	6	20-Aug-97 11:40	1.3	0.33	532990	6989517	16.3	5 NW	100	1.5-2.2	Bo/Co/Si	6				1		7	*21.00*
D1	3	19-38-64-89-114-140	6	20-Aug-97 13:40	0.7	0.17	532906	6989500	16.3	15 NW	50	1.0-1.8	Si/Bo/Co							0	*0.00*
D1	4	19-38-64-89-114-140	6	20-Aug-97 14:30	1.8	0.46	533008	6989520	16.3	15 NW	50	1.5-2.2	Bo/Co/Si	3	1					4	*8.73*
D1	5	19-38-64-89-114-140	6	21-Aug-97 8:20	3.8	0.96	532975	6989469	15.5	10 NW	50	1.5-2.0	Bo/Co/Si	3				5		8	*8.35*
D1	6	19-38-64-89-114-140	6	21-Aug-97 13:00	1.3	0.31	532975	6989469	15.8	20 W	50	1.5-2.0	Bo/Co/Si	1				3		4	*12.80*
D1	7	19-38-64-89-114-140	6	21-Aug-97 14:20	1.8	0.44	532750	6989650	16.2	20 W	50	1.5-2.0	Co/Bo/Si	1				1		2	*4.57*
D1	8	19-38-64-89-114-140	6	21-Aug-97 16:40	0.6	0.15	532700	6989850	16.2	20 W	50	1.0-1.5	Co/Bo/Si	3						3	*20.57*
D1	9	19-38-64-89-114-140	6	27-Aug-97 10:50	1.1	0.27	533097	6989440	11.7	35 SE	100	2.0-2.1	Bo/Co/Si							0	*0.00*
D1	10	19-38-64-89-114-140	6	27-Aug-97 12:10	4.3	1.08	532750	6989650	11.7	35 SE	100	1.0-1.3	Co/Bo/Si	13				1		14	*12.92*
D1	1	25-38-64-89-114-140	6	09-Jul-98 15:25	1.6	0.40	533000	6989700	16.0	10 S	40	1.5-2.2	Bo/Co/Si	1		3				4	*10.11*
D1	1	25-38-64-89-114-140	6	31-Aug-98 10:00	2.0	0.50	533050	6989650	8.0	45 SE	100	1.5-2.5	Bo/Si	1				1		2	*4.00*
D1	2	25-38-64-89-114-140	6	31-Aug-98 15:00	3.0	0.75	533150	6989800	8.0	45 SE	100	1.5-2.2	Bo/Si					1		1	*1.33*
D1	1	25-38-64-89-114-140	6	20-Jul-99 8:40	1.8	0.46	533100	6989700	11.0	40 W	30	0.5-2.0	Bo/Co/Si			2		4		6	*13.09*
D1	2	25-38-64-89-114-140	6	20-Jul-99 11:00	6.0	1.50	532700	6989700	11.3	45 W	30	1.5-2.0	Si/Bo	1				16		17	*11.33*
D1	3*	114-140	2	20-Jul-99 16:20	16.3	1.36	532950	6989650	11.0	45 W	35	3.0	Si/Bo		1					1	*0.73*
D1	4	25-38-64-89-114-140	6	21-Jul-99 9:06	8.2	2.06	532700	6989750	11.5	10 S	20	1.5-2.0	Bo/Co/Si			5		10		15	*7.29*
D1	5	25-38-64-89-114-140	6	21-Jul-99 10:30	6.5	1.63	533000	6989600	11.5	10 S	20	1.5-3.0	Bo/Co/Si	1		5		11		17	*10.46*
D1	6*	114-140	2	21-Jul-99 17:30	15.5	1.29	533000	6989600	12.5	15 S	15	3.0	Si/Bo			1				1	*0.77*
D1	1	89-89-114-114	4	20-Jul-00 9:22	6.6	1.11	532987	6989543	16.0	calm	0	1.3-2.0	Si/Bo			4				4	*3.62*
D1	2	89-89-114-114	4	20-Jul-00 12:45	3.8	0.63	532938	6989587	16.0	calm	0	1.3-1.5	Si/Bo			1				1	*1.60*
D1	3*	89-89-114-114	4	20-Jul-00 16:15	15.8	2.63	532791	6989702	18.0	calm	0	1.3-2.0	Si/Co/Bo	1		5		2		8	*3.05*
D1	4	89-89-114-114	4	21-Jul-00 9:00	7.5	1.25	533008	6989509	18.0	calm	0	1.2-2.0	Si/Co/Bo			1				1	*0.80*

Appendix F4. Gill net locations, effort, and catch data for the Meliadine Study Area, 1997-2009

Lake	Set #[a]	Mesh Sizes (mm)	Net Panels	Set Date / Time	Soak Time (h)	Effort[b] (net-unit)	UTM (Zone 15V)		Temp (°C)	Wind (km/h dir)	Cloud (%)	Depth (m)	Substrate[c]	Number of Fish Captured						CPUE (fish/net-...)
							Easting	Northing						ARCH	LKTR	ARGR	RNWH	CISC	BURB	Total
D1	5	89-89-114-114	4	21-Jul-00 9:13	7.5	1.26	532820	6989643	18.0	calm	0	1.0-2.0	Si/Co/Bo	1						1	*0.80*
D1	6	89-89-114-114	4	31-Jul-00 14:50	2.2	0.36	532814	6989620	16.0	10 S	10	1.2-2.2	Si/Bo							0	*0.00*
D1	7	89-89-114-114	4	31-Jul-00 15:02	2.3	0.38	533200	6989479	16.0	10 S	10	1.2-2.0	Si/Bo							0	*0.00*
D1	8	89-89-114-114	4	1-Aug-00 8:40	5.3	0.89	532800	6989718	15.0	20 S	20	1.2-1.2	Si/Bo							0	*0.00*
D1	9	89-89-114-114	4	1-Aug-00 8:55	7.3	1.21	533013	6989495	15.0	20 S	20	1.3-2.0	Si/Bo							0	*0.00*
D1	10	89-89-114-114	4	1-Aug-00 14:15	3.3	0.54	533170	6989493	16.0	30 S	20	1.5-2.0	Si/Bo							0	*0.00*
D1	1a	64-89-89-114	4	14-Sep-00 10:20	1.8	0.29	532750	6989750	8.0	NW 20	70	1.5-1.7	Co/Gr/Bo					1		1	*3.43*
D1	1b	64-89-89-114	4	14-Sep-00 12:05	2.6	0.43	532750	6989750	8.0	NW 25	80	1.5-1.7	Co/Gr/Bo	1						1	*2.32*
D1	2a	64-89-89-114	4	14-Sep-00 14:55	1.6	0.26	533050	6989550	7.5	NW 25	100	1.7-2.0	Gr/Co/Si					1		1	*3.79*
D1	2b*	64-89-89-114	4	14-Sep-00 16:30	16.3	2.72	533050	6989550	6.5	SE 20	100	1.7-2.0	Gr/Co/Si	2				7		9	*3.31*
D1	2c*	64-89-89-114	4	15-Sep-00 8:50	23.7	3.94	533050	6989550	6.0	NW 40	100	1.7-2.0	Gr/Co/Si	1		1		13		15	*3.80*
D1	1	19-25-64-102	4	10-Jul-09 10:30	2.0	0.33	532869	6989816	-	-	-	2.0	-			2				2	*6.00*
D3	1	19-38-64-89-114-140	6	28-Aug-97 9:10	3.4	0.85	534089	6988980	11.8	25 S	0	1.3-2.1	Bo/Co/Si	1		3				4	*4.68*
D3	2	19-38-64-89-114-140	6	28-Aug-97 13:20	2.8	0.69	534296	6989078	13.0	25 SW	0	1.4-2.3	Bo/Co/Si	1		4				5	*7.27*
D4	1	19-38-64-89-114-140	6	25-Jul-97 12:20	2.4	0.60	534748	6989084	16.0	30 E	0	1.3-1.5	Co/Si/Bo							0	*0.00*
D4	2*	19-38-64-89-114-140	6	25-Jul-97 13:10	20.5	5.13	534856	6989092	16.0	30 E	0	1.2-1.5	Si/Co/Bo							0	*0.00*
D5	1*	19-38-64-89-114-140	6	25-Jul-97 15:20	18.0	4.50	535459	6989117	16.0	20 E	0	1.2-2.0	Si/Co/Bo							0	*0.00*
D7	1	19-38-64-89-114-140	6	17-Jul-97 10:40	1.8	0.46	536470	6988726	16.1	2 SE	0	2.0-3.2	Bo/Si/Co			1				1	*2.18*
D7	2	19-38-64-89-114-140	6	17-Jul-97 12:35	5.0	1.25	536917	6988696	16.1	5 SE	0	1.2-2.2	Si/Bo/Co			3				3	*2.40*
D7	3	19-38-64-89-114-140	6	19-Jul-97 10:40	1.0	0.25	536350	6988650	16.3	5 W	0	1.0-1.5	Bo/Co/Si			2				2	*8.00*
D7	1	19-38-64-89-114-140	6	19-Aug-97 12:40	2.6	0.65	536726	6988734	15.8	15 SW	50	1.5-2.0	Si/Bo/Co							0	*0.00*
G1	1*	19-25-64-102	4	13-Jul-09 11:15	23.5	3.92	537959	6991469	-	-	-	2.0	-							0	*0.00*
G2	1	19-38-64-89-114-140	6	16-Jul-97 10:45	1.8	0.44	538670	6990495	12.9	30 E	70	1.3-2.5	Si/Co/Bo							0	*0.00*
G2	2	19-38-64-89-114-140	6	16-Jul-97 13:00	2.0	0.50	538397	6990533	12.9	30 E	70	1.5-2.0	Si/Co/Bo							0	*0.00*
G2	3	19-38-64-89-114-140	6	16-Jul-97 15:20	2.0	0.50	538816	6990349	12.9	30 E	70	1.0-1.5	Si/Bo/Co							0	*0.00*
G2	4*	19-38-64-89-114-140	6	16-Jul-97 21:00	12.0	3.00	538750	6990450	12.5	15 E	30	1.0-1.5	Si/Co/Bo							0	*0.00*
G2	1	19-38-64-89-114-140	6	22-Aug-97 16:05	2.1	0.52	538611	6990476	15.9	25 SE	50	1.3-2.0	Si/Co/Bo							0	*0.00*
H17	1*	38-38-89	3	1-Aug-08 17:00	16.8	2.09	539856	6990119	18.4	-	-	1.0-1.5	-							0	*0.00*
H17	1*	19-25-64-102	4	6-Jul-09 16:00	25.0	4.17	540026	6989580	16.0	-	-	1.0-1.5	-							0	*0.00*
H17	2	19-25-64-102	4	7-Jul-09 11:00	1.3	0.21	539688	6989901	16.0	-	-	1.0-1.5	-							0	*0.00*
H19	1*	38-38-89	3	5-Aug-08 8:15	48.0	6.00	540626	6989035	15.6	-	-	1.0-1.5	-							0	*0.00*
H20	1*	38-38-89	3	2-Aug-08 15:00	44.0	5.50	540801	6988953	15.1	-	-	1.0-1.5	-							0	*0.00*
J1	1*	19-25-64-102	4	11-Jul-09 16:30	39.0	6.50	541870	6988743	10.2	-	-	1.0-1.5	-							0	*0.00*
MR-U	13*	89-114-140	3	02-Oct-99 13:30	19.8	2.48	530550	6989250	2.0	10 N	100	1.0-2.5	Bo/Co/Si		2	1				3	*1.21*
LML	1	19-38-64-89-114-140	6	27-Sep-97 16:35	0.9	0.23	537500	6977900	6.0	25 E	100	2.0-6.0	Co/Bo/Gr		1		3			4	*17.45*
LML	2	19-38-64-89-114-140	6	28-Sep-97 9:45	2.3	0.58	536450	6979300	6.0	15 NE	80	1.5-3.0	Bo/Co/Si	1						1	*1.71*
LML	3	19-38-64-89-114-140	6	28-Sep-97 12:15	5.4	1.35	536250	6979600	5.0	15 NE	60	1.5-3.0	Bo/Co/Si	4	3		6			13	*9.60*
LML	1	25-38-64-89-114-140	6	30-Jul-98 9:50	1.4	0.35	536250	6979700	17.0	10 NE	10	2.0-9.0	Bo/Co/Si	1	1	1	1			4	*11.29*
LML	2	25-38-64-89-114-140	6	30-Jul-98 12:30	2.3	0.56	536100	6979850	17.0	10 NE	10	1.0-4.0	Bo/Co	1	1		2			4	*7.11*
LML	1	25-38-64-89-114-140	6	01-Sep-98 10:40	6.3	1.58	536150	6979900	10.0	20 S	100	1.3-4.0	Bo/Co/Si	2			3			5	*3.16*
LML	2	25-38-64-89-114-140	6	01-Sep-98 12:20	5.0	1.25	536250	6979750	10.0	20 S	100	1.5-3.5	Bo/Co/Si				4			4	*3.20*

Appendix F4. Gill net locations, effort, and catch data for the Meliadine Study Area, 1997-2009

Lake	Set #[a]	Mesh Sizes (mm)	Net Panels	Set Date / Time	Soak Time (h)	Effort[b] (net-unit)	UTM (Zone 15V)		Temp (°C)	Wind (km/h dir)	Cloud (%)	Depth (m)	Substrate[c]	Number of Fish Captured							CPUE (fish/ net-...)
							Easting	Northing						ARCH	LKTR	ARGR	RNWH	CISC	BURB	Total	
LML	3	25-38-64-89-114-140	6	02-Sep-98 9:40	3.8	0.96	536000	6979550	10.0	calm	0	1.2-4.0	Bo/Si/Co		1	2	7			10	*10.43*
LML	4	25-38-64-89-114-140	6	02-Sep-98 9:55	8.1	2.02	536250	6979750	10.0	calm	0	1.5-4.0	Bo/Si/Co	8			5			13	*6.43*
LML	5	25-38-64-89-114-140	6	02-Sep-98 14:00	4.3	1.08	536150	6979900	10.9	calm	0	1.3-3.5	Bo/Si/Co	9	1		2			12	*11.08*
LML	6	25-38-64-89-114-140	6	03-Sep-98 9:30	2.7	0.67	536250	6979750	10.0	20 S	100	1.5-3.5	Bo/Si/Co				1			1	*1.50*
LML	7	25-38-64-89-114-140	6	03-Sep-98 12:20	2.7	0.67	536100	6979750	10.0	20 S	100	1.5-2.0	Bo/Co/Si				1			1	*1.50*
LML	8	25-38-64-89-114-140	6	03-Sep-98 12:30	2.8	0.71	536250	6979900	10.0	20 S	100	1.2-3.5	Bo/Co/Si				1			1	*1.41*
LML	1	25-38-64-89-114-140	6	22-Jul-99 11:00	2.3	0.58	536400	6979200	12.0	45 S	75	3.0-4.5	Si/Bo		2	2	9			13	*22.29*
LML	2	25-38-64-89-114-140	6	22-Jul-99 13:35	3.7	0.92	536300	6979600	12.0	45 S	75	1.0-3.0	Bo/Co/Si		1	1	1			3	*3.27*
LML	3	25-38-64-89-114-140	6	23-Jul-99 9:10	0.9	0.23	537200	6978000	12.0	10 S	10	1.5-10.0	Bo/Co			1		3		4	*17.78*
LML	4	25-38-64-89-114-140	6	23-Jul-99 9:20	1.2	0.29	537000	6978300	12.0	10 S	10	1.5-12.0	Bo/Co/Si							0	*0.00*
LML	5	25-38-64-89-114-140	6	23-Jul-99 10:35	6.6	1.65	536600	6979000	12.0	10 S	10	1.5-3.5	Bo/Co/Si		5	3	13	1		22	*13.37*
LML	6	25-38-64-89-114-140	6	23-Jul-99 10:45	6.2	1.54	536550	6979100	12.0	10 S	10	1.5-4.0	Bo/Co/Si				7	6		13	*8.43*
LML	7*	114-140	2	23-Jul-99 17:30	14.5	1.21	536400	6979200	12.0	10 S	10	3.0	Si/Bo		2					2	*1.66*
LML	8	25-38-64-89-114-140	6	24-Jul-99 8:30	6.0	1.50	536100	6979200	12.0	50 N	80	2.0-4.0	Bo/Co/Si				9			9	*6.00*
LML	9*	114-140	2	24-Jul-99 17:00	15.0	1.25	536400	6979200	12.0	50 N	45	4.0	Si/Bo					1		1	*0.80*
LML	10	25-38-64-89-114-140	6	25-Jul-99 8:30	6.5	1.63	536300	6978500	13.0	5 S	5	1.5-6.0	Bo/Co/Si		3		8			11	*6.77*
LML	11	25-38-64-89-114-140	6	25-Jul-99 8:40	6.5	1.62	535800	6978700	13.0	5 S	5	1.5-5.0	Bo/Co/Si		2		3			5	*3.09*
LML	1	89-89-114-114	4	23-Jul-00 8:30	6.5	1.08	536293	6979532	16.0	15 SW	45	1.5-3.2	Si/Bo		1	1				2	*1.85*
LML	2	89-89-114-114	4	23-Jul-00 9:37	5.6	0.94	536218	6979532	16.0	15 SW	45	1.3-2.3	Si/Bo		1	3				4	*4.26*
LML	3	89-89-114-114	4	23-Jul-00 15:30	2.0	0.33	536512	6979176	16.0	10 SW	25	1.5-3.6	Si/Bo					2		2	*6.00*
LML	4	89-89-114-114	4	24-Jul-00 8:30	7.5	1.25	537611	6978760	13.0	calm	fog	1.5-9.0	Bo/Co/Si		2	1		1		4	*3.20*
LML	5*	89-89-114-114	4	24-Jul-00 8:45	23.8	3.96	538026	6978479	13.0	calm	fog	1.5-6.0	Bo/Co/Si	1	13	3	2	5		24	*6.06*
LML	6	89-89-114-114	4	25-Jul-00 8:50	1.3	0.21	536283	6978968	16.0	calm	0	1.5-4.5	Si/Bo							0	*0.00*
LML	7*	89-89-114-114	4	26-Jul-00 23:17	7.7	1.29	539261	6977292	17.0	5 S	10	1.5-2.5	Si/Bo							0	*0.00*
LML	8*	89-89-114-114	4	26-Jul-00 0:15	7.1	1.18	539125	6977661	17.0	5 S	0	3.5-4.2	Bo/Co/Si		1		3	1		5	*4.24*
HSL	1	89-89-114-114	4	30-Jul-00 11:30	5.0	0.83	541771	6978091	17.0	calm	65	1.5-3.0	Co/SiBo		2					2	*2.40*
HSL	2	89-89-114-114	4	30-Jul-00 12:20	4.3	0.72	542020	6978204	17.0	calm	65	1.5-4.3	Co/SiBo		2			4		6	*8.31*
HSL	3*	114-140	2	30-Jul-00 18:00	14.7	1.22	541996	6978200	17.0	35 N	100	2.9-3.8	Bo/Si		3					3	*2.45*
W	1	89-89-114-114	4	28-Jul-00 12:45	3.6	0.60	540955	6977960	17.0	25 S	60	1.5-3.5	Bo/Co/Si		2			1		3	*5.02*
W	2	89-89-114-114	4	28-Jul-00 13:57	2.6	0.43	540774	6977968	17.0	25 S	60	1.2-2.5	Bo/Co/Si		2					2	*4.71*
W	3*	114-140	2	28-Jul-00 17:45	19.0	1.59	540629	6978044	17.0	25 S	60	3.5-4.0	Si/Bo		5			1		6	*3.78*
W	4	89-89-114-114	4	29-Jul-00 14:11	2.5	0.41	540723	6978192	17.0	10 S	10	1.2-4.0	Bo/Co/Si		2			1		3	*7.25*
W	5	89-89-114-114	4	29-Jul-00 14:50	1.7	0.28	540493	6978140	17.0	10 S	10	1.5-3.5	Bo/Co/Si		7					7	*25.20*
W	6*	114-140	2	29-Jul-00 16:09	17.5	1.46	541071	6978008	17.0	10 S	10	1.8-3.6	Si/Bo		3					3	*2.06*
PAR	1	25-38-64-89-114-140	6	24-Aug-98 11:00	2.2	0.54	549450	6997350	13.0	calm	20	2.5-10.0	Si/Co							0	*0.00*
PAR	2	25-38-64-89-114-140	6	24-Aug-98 11:20	6.2	1.54	549550	6997300	13.0	calm	20	2.0-6.0	Si/Co		1		2			3	*1.95*
PAR	3*	25-38-64-89-114-140	6	24-Aug-98 13:20	26.4	6.60	549500	6997450	13.0	calm	20	1.5-6.0	Si/Co/Bo		25		9	6		40	*6.06*
PAR	4	25-38-64-89-114-140	6	25-Aug-98 10:45	6.4	1.60	549300	6997350	11.0	35 SE	20	1.5-6.0	Si/Co		1		1			2	*1.25*
PAR	5	25-38-64-89-114-140	6	25-Aug-98 9:00	6.5	1.63	549500	6997450	11.0	15 SE	20	1.5-6.0	Si/Co							0	*0.00*
CHL	1	38-89	2	03-Aug-08 15:00	1.0	0.08	556201	6979843	13.5	-	-	2.0-3.0	-							0	*0.00*
CHL	2*	38-89	2	03-Aug-08 16:00	20.5	1.71	556201	6979843	-	-	-	2.0-3.0	-		12	2				14	*8.20*
CHL	3	38-89	2	03-Aug-08 12:30	1.5	0.13	556201	6979843	-	-	-	2.0-3.0	-		1					1	*8.00*

[a] Asterix (*) denotes overnight set

[b] Effort of 1 net-unit is equivalent to one net panel (27.4 m^2 in total area) set for 24 h duration

[c] See Appendix D1 for definitions

Note: mm = millimetres; h = hours; °C = degrees Celsius; km = kilometre; dir = direction; % = percent; m = metres; ARCH = Arctic char; LKTR = lake trout; ARGR = Arctic grayling; RNWH = round whitefish; CISC = cisco; BURB = burbot; CPUE = catch-per-unit-effort

Golder Associates

Appendix F5. Summary of gill net catch data in the Meliadine Study Area, 1997-2009

Site	No. Sampling Events	Total Effort[a] (net-units)	Number of Fish Captured							Species Composition (%)							CPUE (fish / net-unit)						
			ARCH	LKTR	ARGR	RNWH	CISC	BURB	Total	ARCH	LKTR	ARGR	RNWH	CISC	BURB	Total	ARCH	LKTR	ARGR	RNWH	CISC	BURB	Total
ML-E	7	2.4		18		2	21		41		43.9		4.9	51.2		100.0		7.65		0.85	8.92		17.42
ML-S	9	22.5	1	48		6	46		101	1.0	47.5		5.9	45.5		100.0	0.04	2.13		0.27	2.04		4.48
ML-W	30	53.6	21	107	5	20	7		160	13.1	66.9	3.1	12.5	4.4		100.0	0.39	1.99	0.09	0.37	0.13		2.98
ML-PL	3	8.3	8	23			1		32	25.0	71.9			3.1		100.0	0.96	2.76			0.12		3.84
A1	5	2.4	4	4		1	1		10	40.0	40.0		10.0	10.0		100.0	1.70	1.70		0.42	0.42		4.25
A6	5	2.3			18		4		22			81.8		18.2		100.0			8.00		1.78		9.78
A8	6	2.6			19				19			100.0				100.0			7.18				7.18
A52	1	3.3							0							-							0.00
A54	2	12.7							0							-							0.00
B2	10	7.0		5	13		34		52		9.6	25.0		65.4		100.0		0.72	1.87		4.89		7.47
B4	5	2.8							0							-							0.00
B5	4	9.3			38			1	39			97.4			2.6	100.0			4.07			0.11	4.18
B7	20	11.3			20		29		49			40.8		59.2		100.0			1.77		2.57		4.34
B9	1	5.1							0							-							0.00
B10	1	5.1							0							-							0.00
D1	36	33.2	53	2	30		85		170	31.2	1.2	17.6		50.0		100.0	1.60	0.06	0.90		2.56		5.12
D3	2	1.5	2		7				9	22.2		77.8				100.0	1.30		4.54				5.84
D4	2	5.7							0							-							0.00
D5	1	4.5							0							-							0.00
D7	4	2.6			6				6			100.0				100.0			2.30				2.30
G1	1	3.9							0							-							0.00
G2	5	5.0							0							-							0.00
H17	3	6.5							0							-							0.00
H19	1	6.0							0							-							0.00
H20	1	5.5							0							-							0.00
J1	1	6.5							0							-							0.00
MR-U	1	2.5		2	1				3		66.7	33.3				100.0		0.81	0.40				1.21
LML	32	34.7	27	41	18	91	20		197	13.7	20.8	9.1	46.2	10.2		100.0	0.78	1.18	0.52	2.63	0.58		5.68
HSL	3	2.8		7			4		11		63.6			36.4		100.0		2.52			1.44		3.96
W	6	4.8		21			3		24		87.5			12.5		100.0		4.41			0.63		5.04
PAR	5	11.9		27		12	6		45		60.0		26.7	13.3		100.0		2.27		1.01	0.50		3.78
CHL	3	1.9		13	2				15									6.78	1.043				7.83
Total	**216**	**290.1**	**116**	**318**	**177**	**132**	**261**	**1**	**1005**	**11.5**	**31.6**	**17.6**	**13.1**	**26.0**	**0.1**	**100.0**	**0.40**	**1.10**	**0.61**	**0.45**	**0.90**	**0.003**	**3.46**

[a] Effort of 1 net-unit is equivalent to one net panel (27.4 m^2 in total area) set for 24 h duration.

Note: ARCH = Arctic char; LKTR = lake trout; ARGR = Arctic grayling; RNWH = roundfish; CISC = Cisco; BURB = burbot; % = percent; CPUE = catch-per-unit-effort

Golder Associates

Appendix F6. Catch and effort data for fish captured in fyke nets in the Meliadine Study Area, 1997-2009

Site	UTM (Zone 15V) Easting Northing (orientation)	Set No.	Set Period Start Date	Start Time	End Date	End Time	Effort (h)	Water Temp (°C)	Number of Fish Captured[a] ARCH Eb	ARCH Wb	ARCH Total	LKTR Eb	LKTR Wb	LKTR Total	ARGR Eb	ARGR Wb	ARGR Total	RNWH Eb	RNWH Wb	RNWH Total	CISC Eb	CISC Wb	CISC Total	BURB Eb	BURB Wb	BURB Total	SLSC Eb	SLSC Wb	SLSC Total	NNST Eb	NNST Wb	NNST Total	THST Eb	THST Wb	THST Total	All Species Eb	All Species Wb	All Species Total	CPUE (fish/h)
ML-E	542000 6988860 (along shore)	1	12-Jul-97	10:30	12-Jul-97	19:40	9.2	16.5	5	32	37	1	1	2	1		1		1	1							1	1				21	15	36	28	50	78	*8.51*
		2	12-Jul-97	19:40	13-Jul-97	09:40	14.0	15.5	4	30	34	5	6	11	4	1	5		4	4	1	65	66									24	62	86	38	168	206	*14.71*
		3	13-Jul-97	09:40	13-Jul-97	18:40	9.0	14.5	1	55	56		2	2	1	1	2		1	1		1	1									16	13	29	18	73	91	*10.11*
		4	13-Jul-97	18:40	14-Jul-97	10:00	15.3	11.5	1	2	3	1	5	6		1	1	2		2												11	10	21	15	18	33	*2.15*
		5	14-Jul-97	10:00	14-Jul-97	18:20	8.3	13.0		3	3	1	2	3					1	1												12	19	31	13	25	38	*4.56*
		6	14-Jul-97	18:20	15-Jul-97	09:30	15.2	12.8	1	3	4	1	4	5	1	1	2	1	3	4		2	2	1		1						14	10	24	19	23	42	*2.77*
		7	15-Jul-97	09:30	15-Jul-97	19:30	10.0	12.0					1	1	1		1		2	2							1		1			8	19	27	10	22	32	*3.20*
		8	15-Jul-97	19:30	16-Jul-97	09:30	14.0	13.0				5		5	3		3	7		7	3		3									20	5	25	38	5	43	*3.07*
		9	16-Jul-97	09:30	16-Jul-97	18:50	9.3	14.0				1		1							10		10									31		31	42		42	*4.50*
		10	16-Jul-97	18:50	17-Jul-97	08:45	13.9	15.5	6	1	7	6	4	10	17	7	24	6	2	8	35	2	37				1		1			16	6	22	87	22	109	*7.83*
		11	17-Jul-97	08:45	17-Jul-97	20:20	11.6	15.0		43	43	1		1				1		1		1	1									52	40	92	54	84	138	*11.91*
		12	17-Jul-97	20:20	18-Jul-97	08:50	12.5	16.0	2	1	3	5	1	6	1		1		4	4	163	9	172									28	25	53	199	40	239	*19.12*
		13	18-Jul-97	08:50	18-Jul-97	19:20	10.5	15.0	5	31	36	5		5					1	1	7	11	18									56	12	68	73	55	128	*12.19*
		14	18-Jul-97	19:20	19-Jul-97	08:40	13.3	15.0		4	4	2	13	15	2	1	3	2	1	3		1	1									30	14	44	36	34	70	*5.25*
		15	19-Jul-97	08:40	19-Jul-97	19:20	10.7	15.0	2	2	4	1		1	1		1	1		1	331	5	336									55	18	73	391	25	416	*39.00*
		16	19-Jul-97	19:20	20-Jul-97	08:40	13.3	14.5		10	10	5	12	17		1	1				3	2	5									38	18	56	46	43	89	*6.68*
		17	20-Jul-97	08:40	21-Jul-97	09:10	24.5	15.0	5	16	21	7	10	17	1	5	6	1	1	2	1	1	2									32	35	67	47	68	115	*4.69*
		18	21-Jul-97	09:10	22-Jul-97	09:10	24.0	16.5	3	2	5	4	2	6								2	2									20	54	74	27	60	87	*3.63*
		19	22-Jul-97	09:10	23-Jul-97	08:40	23.5	17.0	11	4	15		1	1	5		5		2	2		2	2									55	33	88	71	42	113	*4.81*
		20	23-Jul-97	08:40	24-Jul-97	08:45	24.1	14.0		2	2	6	8	14	1	6	7		2	2	575	149	724									59	54	113	641	221	862	*35.79*
		21	24-Jul-97	08:45	25-Jul-97	09:20	24.6	15.0	5		5	4	1	5	1		1	3		3	2	7	9	1		1						45	29	74	61	37	98	*3.99*
		22	25-Jul-97	09:20	26-Jul-97	09:00	23.7	16.5	1	2	3	4	5	9		3	3	6	6	12	5	23	28									144	138	282	160	177	337	*14.24*
		23	26-Jul-97	09:00	27-Jul-97	09:00	24.0	-	1	1	2	6	5	11							167	225	392									53	30	83	227	261	488	*20.33*
ML-E subtotal (12-27 Jul 1997)							**358.5**	**-**	**53**	**244**	**297**	**71**	**83**	**154**	**40**	**27**	**67**	**30**	**31**	**61**	**1303**	**508**	**1811**	**2**		**2**	**2**	**1**	**3**				**840**	**659**	**1499**	**2341**	**1553**	**3894**	***10.86***
ML-E	542000 6988860 (along shore)	1	08-Jul-98	20:30	09-Jul-98	20:00	23.5	10.8	5	5	10	7	4	11	3	2	5	2	6	8	15	174	189									75	154	229	107	345	452	*19.23*
		2	09-Jul-98	20:00	10-Jul-98	21:00	25.0	11.7	13	1	14	1	3	4	4	1	5	1	1	2	2	10	12									965	26	991	986	42	1028	*41.12*
		3	10-Jul-98	21:00	11-Jul-98	21:00	24.0	12.7	7	6	13	3	2	5		2	2				92	2	94									1020	34	1054	1122	46	1168	*48.67*
		4	11-Jul-98	21:00	12-Jul-98	21:00	24.0	12.3	4	1	5		4	4	5	2	7				1	2	3									508	26	534	518	35	553	*23.04*
		5	12-Jul-98	21:00	13-Jul-98	21:15	24.3	12.7	11	34	45	1	8	9	4	3	7				151	41	192									136	1121	1257	303	1207	1510	*62.27*
ML-E subtotal (8-13 Jul 1998)							**120.8**	**-**	**40**	**47**	**87**	**12**	**21**	**33**	**16**	**10**	**26**	**3**	**7**	**10**	**261**	**229**	**490**									**2704**	**1361**	**4065**	**3036**	**1675**	**4711**	***39.01***
ML-S	533630 6988000 (along shore)	6	21-Jul-98	09:00	22-Jul-98	09:15	24.3	10.9	4	7	11	3	3	6		8	8	6		6	5	19	24									2	4	6	20	41	61	*2.52*
		7	22-Jul-98	09:15	23-Jul-98	09:15	24.0	13.5	4	4	8	2		2	2	10	12				19	7	26									7	31	38	34	52	86	*3.58*
		8	23-Jul-98	09:15	24-Jul-98	09:00	23.8	15.2	5	5	10	4	2	6	22	7	29				4	16	20									4	8	12	39	38	77	*3.24*
		9	24-Jul-98	09:00	25-Jul-98	09:00	24.0	16.6	1	7	8	3	3	6	4	5	9				7	3	10									65	83	148	80	101	181	*7.54*
		10	25-Jul-98	09:00	26-Jul-98	08:45	23.8	14.9	4	13	17	2	4	6	9	7	16		1	1	1	4	5									45	32	77	61	61	122	*5.14*
		11	26-Jul-98	08:45	27-Jul-98	09:15	24.5	12.4	1		1	1	6	7	6	3	9	1	2	3												14	11	25	23	22	45	*1.84*
ML-S subtotal (21-27 Jul 1998)							**144.3**	**-**	**19**	**36**	**55**	**15**	**18**	**33**	**43**	**40**	**83**	**7**	**3**	**10**	**36**	**49**	**85**									**137**	**169**	**306**	**257**	**315**	**572**	***3.97***
ML-S	533630 6988000 (along shore)	12	27-Aug-98	17:00	28-Aug-98	12:00	19.0	8.3				1	1	2	3	6	9	1		1	3		3	1		1						12	27	39	21	34	55	*2.89*
		13	28-Aug-98	12:00	29-Aug-98	14:30	26.5	9.6					1	1		2	2		1	1		5	5		1	1						5	3	8	5	13	18	*0.68*
		14	29-Aug-98	14:30	30-Aug-98	15:00	24.5	9.9				1		1	2		2	1		1	3	3	6	1		1						49	8	57	57	11	68	*2.78*
		15	30-Aug-98	15:00	31-Aug-98	17:00	26.0	9.2													3		3									19	5	24	22	5	27	*1.04*
		16	31-Aug-98	17:00	01-Sep-98	11:00	18.0	8.7		1	1	4		4	2	1	3				15	4	19	3	1	4						34	8	42	58	15	73	*4.06*
ML-S subtotal (27 Aug - 1 Sep 1998)							**114.0**	**-**		**1**	**1**	**6**	**2**	**8**	**7**	**9**	**16**	**2**	**1**	**3**	**24**	**12**	**36**	**5**	**2**	**7**						**119**	**51**	**170**	**163**	**78**	**241**	***2.11***
ML-PL	523800 7000800 (u/s migrants)	A	18-Sep-00	13:30	19-Sep-00	09:00	19.5	5.5	-	-	1	-	-	2	-	-		-	-		-	-	1	-	-	1	-	-		-	-	-	-	1	-	-	6	*0.31*
		B	19-Sep-00	09:00	20-Sep-00	14:15	29.3	5.0	-	-		-	-	2	-	-		-	-	1	-	-	1	-	-	1	-	-		-	-	-	-	23	-	-	28	*0.96*
		C	20-Sep-00	14:15	21-Sep-00	13:35	23.3	4.5	-	-		-	-	1	-	-		-	-		-	-	4	-	-	1	-	-		-	-	-	-	64	-	-	70	*3.00*
		D	21-Sep-00	13:35	22-Sep-00	16:00	26.4	3.5	-	-		-	-	1	-	-		-	-		-	-		-	-		-	-		-	-	-	-	51	-	-	52	*1.97*
		E	22-Sep-00	16:00	23-Sep-00	16:15	24.3	3.0	-	-		-	-	1	-	-	1	-	-		-	-		-	-		-	-	1	-	-	-	-	28	-	-	31	*1.28*
		F	23-Sep-00	16:15	24-Sep-00	15:00	22.8	3.0	-	-		-	-		-	-		-	-	1	-	-		-	-	3	-	-		-	-	-	-	2	-	-	6	*0.26*
		G	24-Sep-00	15:00	26-Sep-00	13:15	46.3	2.5	-	-	2	-	-	1	-	-	1	-	-		-	-		-	-	3	-	-		-	-	-	-	3	-	-	10	*0.22*

Golder Associates

Appendix F6. Catch and effort data for fish captured in fyke nets in the Meliadine Study Area, 1997-2009

Site	UTM (Zone 15V) Easting Northing (orientation)	Set No.	Set Period Start Date	Start Time	End Date	End Time	Effort (h)	Water Temp (°C)	Number of Fish Captured[a] ARCH Eb	ARCH Wb	ARCH Total	LKTR Eb	LKTR Wb	LKTR Total	ARGR Eb	ARGR Wb	ARGR Total	RNWH Eb	RNWH Wb	RNWH Total	CISC Eb	CISC Wb	CISC Total	BURB Eb	BURB Wb	BURB Total	SLSC Eb	SLSC Wb	SLSC Total	NNST Eb	NNST Wb	NNST Total	THST Eb	THST Wb	THST Total	All Species Eb	All Species Wb	All Species Total	CPUE (fish/h)
ML-PL subtotal (18-26 Sep 2000)							**191.8**	**-**	**-**	**-**	**3**	**-**	**-**	**8**	**-**	**-**	**2**	**-**	**-**	**2**	**-**	**-**	**6**	**-**	**-**	**9**	**-**	**-**	**1**	**-**	**-**		**-**	**-**	**172**	**-**	**-**	**203**	***1.06***
A6	542277 6986298	1	08-Jul-09	16:00	09-Jul-09	09:45	17.8	-	-	-		-	-		-	-	107	-	-		-	-		-	-		-	-		-	-	1	-	-	1	-	-	109	*6.14*
	(along shore)		09-Jul-09	09:45	10-Jul-09	09:15	23.5	-	-	-		-	-		-	-	86	-	-		-	-		-	-		-	-		-	-	3	-	-		-	-	89	*3.79*
Lake A6 subtotal (8-10 Jul 2009)							**41.3**	**-**	**-**	**-**		**-**	**-**		**-**	**-**	**193**	**-**	**-**		**-**	**-**		**-**	**-**		**-**	**-**		**-**	**-**	**4**	**-**	**-**	**1**	**-**	**-**	**198**	***4.80***
A52	542676 6985947	1	03-Aug-08	17:15	04-Aug-08	17:45	24.5	13.2	-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-	56	-	-		-	-	56	*2.29*
	(along shore)	2	04-Aug-08	17:45	05-Aug-08	15:30	21.8	-	-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-	500	-	-		-	-	500	*22.99*
Pond A52 subtotal (3-5 Aug 2008)							**46.3**	**-**	**-**	**-**		**-**	**-**		**-**	**-**		**-**	**-**		**-**	**-**		**-**	**-**		**-**	**-**		**-**	**-**	**556**	**-**	**-**		**-**	**-**	**556**	***12.02***
B7	538192 6989270	1	11-Jul-08	12:00	12-Jul-08	08:30	20.5	-	-	-		-	-		-	-	59	-	-		-	-		-	-		-	-		-	-	4	-	-		-	-	63	*3.07*
	(along shore)	2	12-Jul-08	08:30	13-Jul-08	08:30	24.0	-	-	-		-	-		-	-	92	-	-		-	-		-	-		-	-		-	-		-	-		-	-	92	*3.83*
		3	13-Jul-08	08:30	14-Jul-08	08:30	24.0	-	-	-		-	-		-	-	40	-	-		-	-		-	-	1	-	-		-	-		-	-		-	-	41	*1.71*
Lake B7 subtotal (11-14 Jul 2008)							**68.5**	**-**	**-**	**-**		**-**	**-**		**-**	**-**	**191**	**-**	**-**		**-**	**-**		**-**	**-**	**1**	**-**	**-**		**-**	**-**	**4**	**-**	**-**		**-**	**-**	**196**	***2.86***
B7	538192 6989270	1	31-Jul-08	10:00	31-Jul-08	16:30	6.5	-	-	-		-	-		-	-	24	-	-		-	-		-	-		-	-		-	-		-	-		-	-	24	*3.69*
	(along shore)	2	31-Jul-08	16:30	01-Aug-08	08:00	15.5	-	-	-		-	-		-	-	44	-	-		-	-	3	-	-	1	-	-		-	-		-	-		-	-	48	*3.10*
		3	01-Aug-08	08:00	02-Aug-08	07:30	23.5	-	-	-		-	-		-	-	28	-	-		-	-	2	-	-		-	-		-	-		-	-		-	-	30	*1.28*
		4	02-Aug-08	07:30	03-Aug-08	08:00	24.5	-	-	-		-	-		-	-	5	-	-		-	-	1	-	-		-	-		-	-		-	-		-	-	6	*0.24*
Lake B7 subtotal (31 Jul - 3 Aug 2008)							**70.0**	**-**	**-**	**-**		**-**	**-**		**-**	**-**	**101**	**-**	**-**		**-**	**-**	**6**	**-**	**-**	**1**	**-**	**-**		**-**	**-**		**-**	**-**		**-**	**-**	**108**	***1.54***
B6	537978 6989144	1	12-Jul-08	12:15	13-Jul-08	10:45	22.5	-	-	-		-	-		-	-	1	-	-		-	-	3	-	-		-	-		-	-	6	-	-		-	-	10	*0.44*
	(along shore)	2	13-Jul-08	10:45	14-Jul-08	07:45	21.0	-	-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		
Lake B6 subtotal (12-14 Jul 2008)							**43.5**	**-**	**-**	**-**		**-**	**-**		**-**	**-**	**1**	**-**	**-**		**-**	**-**	**3**	**-**	**-**		**-**	**-**		**-**	**-**	**6**	**-**	**-**		**-**	**-**	**10**	***0.23***
D1	533150 6989800	A	14-Sep-00	16:15	15-Sep-00	09:15	17.0	8.0	-	-	8	-	-		-	-	47	-	-	2	-	-	65	-	-	7	-	-		-	-	115	-	-	43	-	-	287	*16.88*
	(along shore)	B	15-Sep-00	09:15	16-Sep-00	09:15	24.0	6.5	-	-	9	-	-		-	-	46	-	-	1	-	-	11	-	-	9	-	-		-	-	93	-	-	56	-	-	225	*9.38*
		C	17-Sep-00	16:00	18-Sep-00	09:30	17.5	4.0	-	-	4	-	-		-	-	8	-	-	1	-	-	2	-	-	3	-	-		-	-	25	-	-	56	-	-	99	*5.66*
Lake D1 subtotal (14-18 Sep 2000)							**58.5**	**-**	**-**	**-**	**21**	**-**	**-**		**-**	**-**	**101**	**-**	**-**	**4**	**-**	**-**	**78**	**-**	**-**	**19**	**-**	**-**		**-**	**-**	**233**	**-**	**-**	**155**	**-**	**-**	**611**	***10.44***
D1	533150 6989800	1	11-Jul-09	12:00	12-Jul-09	09:15	21.3	-	-	-		-	-		-	-	26	-	-		-	-		-	-		-	-		-	-	1	-	-	1	-	-	28	*1.32*
	(along shore)	2	12-Jul-09	09:15	14-Jul-09	09:00	47.8	-	-	-	1	-	-	2	-	-	107	-	-		-	-		-	-		-	-		-	-	11	-	-	1	-	-	122	*2.55*
Lake D1 subtotal (11-14 Jul 2009)							**69.0**	**-**	**-**	**-**	**1**	**-**	**-**	**2**	**-**	**-**	**133**	**-**	**-**		**-**	**-**		**-**	**-**		**-**	**-**		**-**	**-**	**12**	**-**	**-**	**2**	**-**	**-**	**150**	***2.17***
D0-1	532650 6989600	A	14-Sep-00	11:00	15-Sep-00	11:20	24.3	8.0	-	-	3	-	-		-	-	1	-	-		-	-	1	-	-		-	-		-	-	12	-	-	7	-	-	24	*0.99*
	(d/s migrants)	B	15-Sep-00	11:20	16-Sep-00	10:20	23.0	7.5	-	-	7	-	-		-	-		-	-	2	-	-	1	-	-	2	-	-		-	-	35	-	-	8	-	-	55	*2.39*
		C	16-Sep-00	10:20	18-Sep-00	09:10	46.8	4.0	-	-	1	-	-		-	-	1	-	-		-	-		-	-	2	-	-	3	-	-	7	-	-	12	-	-	26	*0.56*
Stream D0-1 subtotal (14-18 Sep 2000)							**94.2**	**-**	**-**	**-**	**11**	**-**	**-**		**-**	**-**	**2**	**-**	**-**	**2**	**-**	**-**	**2**	**-**	**-**	**4**	**-**	**-**	**3**	**-**	**-**	**54**	**-**	**-**	**27**	**-**	**-**	**105**	***1.12***
G2	538737 6990753	1	10-Jul-09	15:30	11-Jul-09	09:00	17.5	-	-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-	5	-	-		-	-	5	*0.29*
	(along shore)	2	11-Jul-09	09:00	14-Jul-09	08:30	71.5	-	-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-	2	-	-		-	-	2	*0.03*
Pond G2 subtotal (10-14 Jul 2009)							**89.0**	**-**	**-**	**-**		**-**	**-**		**-**	**-**		**-**	**-**		**-**	**-**		**-**	**-**		**-**	**-**		**-**	**-**	**7**	**-**	**-**		**-**	**-**	**7**	***0.08***
H17	539832 6989750	1	06-Jul-09	10:00	07-Jul-09	12:00	26.0	-	-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		
	(along shore)	2	07-Jul-09	12:00	08-Jul-09	12:00	24.0	-	-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-	4	-	-		-	-	4	*0.17*
Pond H17 subtotal (6-8 Jul 2009)							**50.0**	**-**	**-**	**-**		**-**	**-**		**-**	**-**		**-**	**-**		**-**	**-**		**-**	**-**		**-**	**-**		**-**	**-**	**4**	**-**	**-**		**-**	**-**	**4**	***0.08***
CHL	555404 6979934	1	03-Aug-08	14:15	04-Aug-08	13:30	23.3	14.3	-	-		-	-	3	-	-	8	-	-		-	-		-	-	1	-	-		-	-		-	-		-	-	12	*0.52*
	(along shore)	2	04-Aug-08	13:30	05-Aug-08	09:00	19.5	-	-	-		-	-	1	-	-	2	-	-		-	-		-	-		-	-		-	-		-	-		-	-	3	*0.15*
Lake CHL subtotal (3-5 Aug 2008)							**42.8**	**-**	**-**	**-**		**-**	**-**	**4**	**-**	**-**	**10**	**-**	**-**		**-**	**-**		**-**	**-**	**1**	**-**	**-**		**-**	**-**		**-**	**-**		**-**	**-**	**15**	***0.35***
All Sites Combined (1997-2009)							**1602**	**-**	**112**	**328**	**476**	**104**	**124**	**242**	**106**	**86**	**926**	**42**	**42**	**92**	**1624**	**798**	**2517**	**7**	**2**	**44**	**2**	**1**	**7**			**880**	**3800**	**2240**	**6397**	**5797**	**3621**	**11581**	***7.23***

[a] Eb = captured east-bound fish only; Wb = captured west-bound fish only; fyke nets set in 2000 and later did not register directionality (Eb and Wb fish caught in one trap)

Note: ARCH = Arctic char; LKTR = lake trout; ARGR = Arctic grayling; RNWH = roundfish; CISC = Cisco; BURB = burbot; SLSC = slimy sculpin; NNST = ninespine stickleback; THST = threespine stickleback; CPUE = catch-per-unit-effort; h = hour

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Appendix F7. Catch and effort data for fish captured in the upstream trap installed in the Meliadine River, 1997-1999

Trap Check #	Trap Check Date / Time	Set Duration (h)	Water Temp (°C)	Number of Fish Captured[a]																						*Total CPUE (fish/h)*
				Arctic char					Lake trout			Arctic grayling				Round whitefish					Cisco			All Species				
				New	R97	R98	R?	Total	New	R	Total	New	R97	R98	Total	New	R97	R98	R?	Total	New	R	Total	New	R97	R98	R?	Total	
1	16-Aug-97 9:20	11.3	13.0	6				6	1		1	1			1					0			0	8	0	0	0	8	*0.71*
2	16-Aug-97 21:20	12.0	18.0					0			0	1			1	1				1			0	2	0	0	0	2	*0.17*
3	17-Aug-97 9:00	11.7	14.0	11				11			0				0					0			0	11	0	0	0	11	*0.94*
4	17-Aug-97 21:30	12.5	18.5	24				24			0				0	1				1			0	25	0	0	0	25	*2.00*
5	18-Aug-97 10:20	12.8	13.5	36				36			0				0					0			0	36	0	0	0	36	*2.81*
6	18-Aug-97 21:45	11.4	17.5	27				27			0				0					0			0	27	0	0	0	27	*2.36*
7	19-Aug-97 10:00	12.3	14.0	47				47			0	1			1	2				2			0	50	0	0	0	50	*4.08*
8	19-Aug-97 21:00	11.0	18.0	16				16	1		1				0					0			0	17	0	0	0	17	*1.55*
9	20-Aug-97 9:00	12.0	13.0	57				57			0				0					0			0	57	0	0	0	57	*4.75*
10	20-Aug-97 21:00	12.0	18.0	43				43			0				0	1				1			0	44	0	0	0	44	*3.67*
11	21-Aug-97 9:30	12.5	13.5	18				18			0				0	1				1			0	19	0	0	0	19	*1.52*
12	21-Aug-97 21:45	12.3	17.0	3				3			0	2			2	1				1			0	6	0	0	0	6	*0.49*
13	22-Aug-97 9:30	11.8	12.0	42				42			0				0					0			0	42	0	0	0	42	*3.57*
14	22-Aug-97 21:20	11.8	16.0	38				38			0				0					0			0	38	0	0	0	38	*3.21*
15	23-Aug-97 9:15	11.9	12.0	57				57			0				0					0			0	57	0	0	0	57	*4.78*
16	23-Aug-97 21:25	12.2	15.0	40				40			0	1			1	2				2			0	43	0	0	0	43	*3.53*
17	24-Aug-97 9:25	12.0	11.0	45				45			0				0	1				1			0	46	0	0	0	46	*3.83*
18	24-Aug-97 20:00	10.6	14.5	21				21			0				0					0			0	21	0	0	0	21	*1.98*
19	25-Aug-97 9:30	13.5	10.0	59				59			0				0	1				1			0	60	0	0	0	60	*4.44*
20	25-Aug-97 21:30	12.0	11.0	60				60			0	1			1	8				8			0	69	0	0	0	69	*5.75*
21	26-Aug-97 9:00	11.5	10.0	42				42			0				0					0			0	42	0	0	0	42	*3.65*
22	26-Aug-97 21:30	12.5	14.0	33				33			0				0	3				3			0	36	0	0	0	36	*2.88*
23	27-Aug-97 10:00	12.5	10.0	29				29			0				0					0			0	29	0	0	0	29	*2.32*
24	27-Aug-97 22:00	12.0	13.0	46				46			0				0	1				1			0	47	0	0	0	47	*3.92*
25	28-Aug-97 10:00	12.0	10.0	40				40			0				0					0			0	40	0	0	0	40	*3.33*
26	28-Aug-97 21:40	11.7	15.0	30				30			0				0	1				1			0	31	0	0	0	31	*2.66*
27	29-Aug-97 10:00	12.3	11.0	24				24			0				0					0			0	24	0	0	0	24	*1.95*
28	29-Aug-97 20:40	10.7	15.0	24				24			0				0					0			0	24	0	0	0	24	*2.25*
29	30-Aug-97 10:00	13.3	10.0	13				13			0	1			1					0			0	14	0	0	0	14	*1.05*
30	30-Aug-97 21:30	11.5	13.0	17				17			0				0					0			0	17	0	0	0	17	*1.48*
31	31-Aug-97 11:00	13.5	8.0	12				12			0	1			1					0			0	13	0	0	0	13	*0.96*
32	31-Aug-97 20:05	9.1	10.0	11				11			0	1			1					0			0	12	0	0	0	12	*1.32*
33	1-Sep-97 9:40	13.6	4.5	5				5			0				0	1				1			0	6	0	0	0	6	*0.44*
34	1-Sep-97 21:30	11.8	7.0	16				16			0				0	1				1			0	17	0	0	0	17	*1.44*
35	2-Sep-97 10:30	13.0	8.0	14				14			0	2			2	2				2			0	18	0	0	0	18	*1.38*
36	2-Sep-97 23:25	12.9	10.0	6				6			0				0					0			0	6	0	0	0	6	*0.46*
37	3-Sep-97 7:30	8.1	11.0	10				10			0	1			1	1				1			0	12	0	0	0	12	*1.48*
1997 Subtotal		**441.5**	**-**	**1022**	**0**	**0**	**0**	**1022**	**2**	**0**	**2**	**13**	**0**	**0**	**13**	**29**	**0**	**0**	**0**	**29**	**0**	**0**	**0**	**1066**	**0**	**0**	**0**	**1066**	***2.41***
1	16-Aug-98 21:45	7.8	13.0	6	2			8			0				0	1	1			2			0	7	3	0	0	10	*1.28*
2	17-Aug-98 9:00	11.3	15.2	1	1			2			0	1			1	1				1			0	3	1	0	0	4	*0.36*
3	17-Aug-98 19:10	10.2	14.3	1	7			8			0	1			1					0			0	2	7	0	0	9	*0.89*
4	18-Aug-98 8:45	13.6	16.5	49	53			102	1		1				0	1				1			0	51	53	0	0	104	*7.66*
5	18-Aug-98 19:45	11.0	16.2	26	17			43			0	3			3	8	2			10			0	37	19	0	0	56	*5.09*
6	19-Aug-98 8:30	12.8	16.5	37	23			60	2		2				0		1			1			0	39	24	0	0	63	*4.94*
7	19-Aug-98 20:30	12.0	12.9		10			10			0				0					0			0	0	10	0	0	10	*0.83*
8	20-Aug-98 19:45	23.3	6.4	51	33			84			0				0	4				4			0	55	33	0	0	88	*3.78*

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Appendix F7. Catch and effort data for fish captured in the upstream trap installed in the Meliadine River, 1997-1999

Trap Check #	Trap Check Date / Time	Set Duration (h)	Water Temp (°C)	Number of Fish Captured[a]																						*Total CPUE (fish/h)*
				Arctic char					Lake trout			Arctic grayling				Round whitefish					Cisco			All Species					
				New	R97	R98	R?	Total	New	R	Total	New	R97	R98	Total	New	R97	R98	R?	Total	New	R	Total	New	R97	R98	R?	Total	
9	21-Aug-98 8:45	13.0	9.0	27	13			40			0				0					0			0	27	13	0	0	40	*3.08*
10	21-Aug-98 18:05	9.3	9.9	46	18			64			0		1		1	3				3			0	49	19	0	0	68	*7.29*
11	22-Aug-98 8:45	14.7	10.5	39	23			62			0				0		1			1			0	39	24	0	0	63	*4.30*
12	22-Aug-98 19:40	10.9	10.8	14	4			18			0	5			5	8				8			0	27	4	0	0	31	*2.84*
13	23-Aug-98 8:45	13.1	11.8	33	13			46			0				0	1				1			0	34	13	0	0	47	*3.59*
14	23-Aug-98 18:10	9.4	11.4	13	9			22	1		1				0		1			1			0	14	10	0	0	24	*2.55*
15	24-Aug-98 8:55	14.8	12.1	25	17			42	1		1				0	3				3			0	29	17	0	0	46	*3.12*
16	24-Aug-98 18:25	9.5	10.9	21	3			24			0	3			3	4				4			0	28	3	0	0	31	*3.26*
17	25-Aug-98 8:55	14.5	10.1	20	5			25	1		1				0					0	1		1	22	5	0	0	27	*1.86*
18	25-Aug-98 18:15	9.3	9.3	7	3			10			0	1			1	2				2			0	10	3	0	0	13	*1.39*
19	26-Aug-98 8:55	14.7	10.6	35	8			43			0				0	1	1			2			0	36	9	0	0	45	*3.07*
20	26-Aug-98 19:00	10.1	9.5	3				3			0	2			2	1				1			0	6	0	0	0	6	*0.60*
20a	27-Aug-98 8:45	13.8	9.5	14	5			19			0				0					0			0	14	5	0	0	19	*1.38*
21	29-Aug-98 18:30	57.8	9.2	67	6			73			0				0	3				3	1		1	71	6	0	0	77	*1.33*
22	30-Aug-98 8:45	14.3	11.2	23	4			27			0				0					0			0	23	4	0	0	27	*1.89*
23	30-Aug-98 20:30	11.8	9.9	14	2			16			0	3			3	1				1			0	18	2	0	0	20	*1.70*
24	31-Aug-98 18:45	22.3	8.1	22	2			24			0				0	1				1			0	23	2	0	0	25	*1.12*
25	1-Sep-98 19:35	24.8	9.2	29	6			35			0				0	1				1			0	30	6	0	0	36	*1.45*
26	2-Sep-98 8:45	13.2	11.2	13	3			16			0				0	1				1			0	14	3	0	0	17	*1.29*
1998 Subtotal		**402.8**	**-**	**636**	**290**	**0**	**0**	**926**	**6**	**0**	**6**	**19**	**1**	**0**	**20**	**45**	**7**	**0**	**0**	**52**	**2**	**0**	**2**	**708**	**298**	**0**	**0**	**1006**	***2.50***
1	10-Aug-99 10:00	16.7	14.2	21	2	1	2	26			0	1			1	16		4		20	2		2	40	2	5	2	49	*2.93*
2	10-Aug-99 19:00	9.0	18.3					0			0	4			4	8				8			0	12	0	0	0	12	*1.33*
3	11-Aug-99 7:00	12.0	13.2	9	1	1		11			0	1			1	16				16			0	26	1	1	0	28	*2.33*
4	11-Aug-99 19:00	12.0	17.1	5				5			0	1			1					0			0	6	0	0	0	6	*0.50*
5	12-Aug-99 7:00	12.0	13.0	9	3	1	2	15			0				0	1				1	2		2	12	3	1	2	18	*1.50*
6	12-Aug-99 19:00	12.0	15.9	2				2			0	4			4	1				1			0	7	0	0	0	7	*0.58*
7	13-Aug-99 7:05	12.1	12.0	5		3	1	9			0	1			1	2	1			3			0	8	1	3	1	13	*1.08*
8	13-Aug-99 19:00	11.9	14.5					0			0				0					0			0	0	0	0	0	0	*0.00*
9	14-Aug-99 7:00	12.0	10.9	1	1	1		3			0	6			6	1				1	1		1	9	1	1	0	11	*0.92*
10	14-Aug-99 19:00	12.0	14.2	7	2	1	2	12			0				0			1		1			0	7	2	2	2	13	*1.08*
11	15-Aug-99 7:00	12.0	11.1	16	5	2	2	25			0	1			1	1				1			0	18	5	2	2	27	*2.25*
12	15-Aug-99 19:00	12.0	14.8	1				1			0				0	3				3	1		1	5	0	0	0	5	*0.42*
13	16-Aug-99 8:50	13.8	12.4	3	3	2		8	1		1	2			2	1				1			0	7	3	2	0	12	*0.87*
14	16-Aug-99 19:00	10.2	15.5	1		1		2			0				0	1	1			2			0	2	1	1	0	4	*0.39*
15	17-Aug-99 7:00	12.0	13.0	1				1			0	1			1	7				7			0	9	0	0	0	9	*0.75*
16	17-Aug-99 19:10	12.2	15.5		2			2			0	5			5	4		2		6			0	9	2	2	0	13	*1.07*
17	18-Aug-99 7:05	11.9	11.4	1				1			0	15		1	16	10	1	4		15	1		1	27	1	5	0	33	*2.77*
18	18-Aug-99 19:00	11.9	11.5	2				2			0				0					0			0	2	0	0	0	2	*0.17*
19	19-Aug-99 7:20	12.3	10.2	45	26	24	7	102			0	2			2	2				2			0	49	26	24	7	106	*8.59*
20	19-Aug-99 19:00	11.7	14.6	9	4	8	2	23			0	28		3	31	3		5	1	9			0	40	4	16	3	63	*5.40*
21	20-Aug-99 6:50	11.8	12.0	11	6	5	2	24	2		2	12	1		13	1		1		2	1		1	27	7	6	2	42	*3.55*
22	20-Aug-99 19:15	12.4	12.6	50	16	13		79			0	1			1	3				3			0	54	16	13	0	83	*6.68*
23	21-Aug-99 9:15	14.0	8.6	50	14	17		81			0	2			2	1		1		2			0	53	14	18	0	85	*6.07*
24	21-Aug-99 19:02	9.8	11.1	19	8	12	2	41	1		1	5			5	3	1	5		9			0	28	9	17	2	56	*5.72*
25	22-Aug-99 7:20	12.3	7.5	35	10	5		50			0	15			15		1			1			0	50	11	5	0	66	*5.37*
26	22-Aug-99 19:01	11.7	10.2	28	5	6		39			0	22		2	24	4				4			0	54	5	8	0	67	*5.73*

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Appendix F7. Catch and effort data for fish captured in the upstream trap installed in the Meliadine River, 1997-1999

Trap Check #	Trap Check Date / Time	Set Duration (h)	Water Temp (°C)	Number of Fish Captured[a]																						*Total CPUE (fish/h)*
				Arctic char					Lake trout			Arctic grayling				Round whitefish					Cisco			All Species					
				New	R97	R98	R?	Total	New	R	Total	New	R97	R98	Total	New	R97	R98	R?	Total	New	R	Total	New	R97	R98	R?	Total	
27	23-Aug-99 8:03	13.0	9.2	36	8	7		51			0	14			14	8				8			0	58	8	7	0	73	*5.60*
28	23-Aug-99 19:30	11.5	8.9	17	9	10		36			0	6	1		7	0				0			0	23	10	10	0	43	*3.76*
29	24-Aug-99 8:30	13.0	7.3	27	6	9		42	1		1				0	1				1			0	29	6	9	0	44	*3.38*
30	24-Aug-99 19:03	10.6	8.9	16	2	2		20	1		1	2		1	3	3		1		4			0	22	2	4	0	28	*2.65*
31	25-Aug-99 7:35	12.5	7.0	3		3		6			0	11			11	2	1	1		4			0	16	1	4	0	21	*1.68*
32	25-Aug-99 19:39	12.1	12.0	5	1			6			0	4			4	1				1			0	10	1	0	0	11	*0.91*
33	26-Aug-99 7:43	12.1	8.1	31	1	8		40			0	3			3	1				1			0	35	1	8	0	44	*3.65*
34	26-Aug-99 18:53	11.2	8.3	15	2	2		19			0	2		1	3					0			0	17	2	3	0	22	*1.97*
35	27-Aug-99 7:45	12.9	8.6	14	4	7		25	1		1	4			4					0			0	19	4	7	0	30	*2.33*
36	27-Aug-99 19:15	11.5	8.1	6				6			0	16	1		17	1				1			0	23	1	0	0	24	*2.09*
37	28-Aug-99 8:00	12.8	5.8	30	1	5		36			0				0					0			0	30	1	5	0	36	*2.82*
38	28-Aug-99 19:55	11.9	9.2	18	1	3		22			0	8			8					0			0	26	1	3	0	30	*2.52*
39	29-Aug-99 8:02	12.1	7.8	29		4		33			0	5		1	6					0			0	34	0	5	0	39	*3.22*
40	29-Aug-99 19:45	11.7	9.8	5	1	1		7			0	3			3					0			0	8	1	1	0	10	*0.85*
41	30-Aug-99 8:05	12.3	8.6	42	1	8		51			0				0					0			0	42	1	8	0	51	*4.14*
42	30-Aug-99 20:00	11.9	8.6	5		2		7			0	1			1					0			0	6	0	2	0	8	*0.67*
43	31-Aug-99 8:20	12.3	5.9	46		4		50			0	1			1					0			0	47	0	4	0	51	*4.14*
44	31-Aug-99 20:00	11.7	6.2	2				2			0				0					0			0	2	0	0	0	2	*0.17*
45	1-Sep-99 8:15	12.3	5.3	28		1		29	1		1				0					0	1		1	30	0	1	0	31	*2.53*
46	1-Sep-99 20:00	11.8	5.5	12				12			0	1			1	2		1		3	1		1	16	0	1	0	17	*1.45*
47	2-Sep-99 7:50	11.8	5.8	13		4		17	1		1				0	1				1			0	15	0	4	0	19	*1.61*
48	2-Sep-99 19:45	11.9	7.3	18				18			0				0					0			0	18	0	0	0	18	*1.51*
49	3-Sep-99 7:50	12.1	5.9	13		1		14	1		1				0	1				1			0	15	0	1	0	16	*1.32*
50	3-Sep-99 19:40	11.8	7.7	26				26			0				0	1				1			0	27	0	0	0	27	*2.28*
51	4-Sep-99 8:00	12.3	5.6	26				26			0	2			2					0	1		1	29	0	0	0	29	*2.35*
52	4-Sep-99 19:50	11.8	9.3					0			0	1			1					0			0	1	0	0	0	1	*0.08*
53	5-Sep-99 7:50	12.0	7.5	17				17			0				0					0			0	17	0	0	0	17	*1.42*
54	5-Sep-99 19:40	11.8	10.2	7				7			0				0					0			0	7	0	0	0	7	*0.59*
55	6-Sep-99 7:55	12.3	7.0	25				25			0				0					0			0	25	0	0	0	25	*2.04*
56	6-Sep-99 19:45	11.8	8.4	1				1			0	1			1					0			0	2	0	0	0	2	*0.17*
57	7-Sep-99 7:45	12.0	6.8	12				12			0				0					0			0	12	0	0	0	12	*1.00*
58	7-Sep-99 19:45	12.0	10.1	11		1		12			0				0					0			0	11	0	1	0	12	*1.00*
59	8-Sep-99 7:45	12.0	7.7	4				4			0				0					0			0	4	0	0	0	4	*0.33*
60	8-Sep-99 19:50	12.1	9.5	4		1		5			0				0					0			0	4	0	1	0	5	*0.41*
61	9-Sep-99 7:50	12.0	7.1	5				5			0				0					0			0	5	0	0	0	5	*0.42*
62	9-Sep-99 19:50	12.0	8.4	8				8			0	1			1					0			0	9	0	0	0	9	*0.75*
63	10-Sep-99 7:50	12.0	5.8	7		1		8			0				0					0			0	7	0	1	0	8	*0.67*
64	10-Sep-99 19:45	11.9	8.9	3				3			0				0	1				1			0	4	0	0	0	4	*0.34*
65	11-Sep-99 7:50	12.1	6.1	2				2			0				0	1				1			0	3	0	0	0	3	*0.25*
66	11-Sep-99 19:50	12.0	9.0	7				7			0				0					0			0	7	0	0	0	7	*0.58*
67	12-Sep-99 7:45	11.9	6.1	11				11			0	3			3					0		0	0	14	0	0	0	14	*1.17*
1999 Subtotal		**806.5**		**938**	**145**	**187**	**22**	**1292**	**10**	**0**	**10**	**218**	**3**	**9**	**230**	**113**	**6**	**26**	**1**	**146**	**11**	**0**	**11**	**1290**	**154**	**222**	**23**	**1689**	***2.09***
1997-1999 Total		**1650.7**		**2596**	**435**	**187**	**22**	**3240**	**18**	**0**	**18**	**250**	**4**	**9**	**263**	**187**	**13**	**26**	**1**	**227**	**13**	**0**	**13**	**3064**	**452**	**222**	**23**	**3761**	***2.28***

[a] New = fish not captured previously; R = recaptured fish (R97 = tagged in 1997; R98 = tagged in 1998; R? = 1997 or 1998 tag lost with scar remaining)

Note: h = hours; °C = degrees Celsius; CPUE = catch-per-unit-effort

Golder Associates

Appendix F8. Summary of daily catches of upstream migrants at the fish fence in the lower Meliadine River, 1997-1999

Date	Mean Temp. (°C)	Effort (h)	Number of Fish Captured						Species Composition (%)						CPUE (fish/h)					
			ARCH	LKTR	ARGR	RNWH	CISC	Total	ARCH	LKTR	ARGR	RNWH	CISC	Total	ARCH	LKTR	ARGR	RNWH	CISC	Total
16-Aug-97	15.5	23.3	6	1	2	1		10	60.0	10.0	20.0	10.0		100.0	0.26	0.04	0.09	0.04		0.43
17-Aug-97	16.3	24.2	35			1		36	97.2			2.8		100.0	1.45			0.04		1.49
18-Aug-97	15.5	24.3	63					63	100.0					100.0	2.60					2.60
19-Aug-97	16.0	23.3	63	1	1	2		67	94.0	1.5	1.5	3.0		100.0	2.71	0.04	0.04	0.09		2.88
20-Aug-97	15.5	24.0	100			1		101	99.0			1.0		100.0	4.17			0.04		4.21
21-Aug-97	15.3	24.8	21		2	2		25	84.0		8.0	8.0		100.0	0.85		0.08	0.08		1.01
22-Aug-97	14.0	23.6	80					80	100.0					100.0	3.39					3.39
23-Aug-97	13.5	24.1	97		1	2		100	97.0		1.0	2.0		100.0	4.03		0.04	0.08		4.15
24-Aug-97	12.8	22.6	66			1		67	98.5			1.5		100.0	2.92			0.04		2.97
25-Aug-97	10.5	25.5	119		1	9		129	92.2		0.8	7.0		100.0	4.67		0.04	0.35		5.06
26-Aug-97	12.0	24.0	75			3		78	96.2			3.8		100.0	3.13			0.13		3.25
27-Aug-97	11.5	24.5	75			1		76	98.7			1.3		100.0	3.06			0.04		3.10
28-Aug-97	12.5	23.7	70			1		71	98.6			1.4		100.0	2.96			0.04		3.00
29-Aug-97	13.0	23.0	48					48	100.0					100.0	2.09					2.09
30-Aug-97	11.5	24.8	30		1			31	96.8		3.2			100.0	1.21		0.04			1.25
31-Aug-97	9.0	22.6	23		2			25	92.0		8.0			100.0	1.02		0.09			1.11
1-Sep-97	5.8	25.4	21			2		23	91.3			8.7		100.0	0.83			0.08		0.90
2-Sep-97	9.0	25.9	20		2	2		24	83.3		8.3	8.3		100.0	0.77		0.08	0.08		0.93
3-Sep-97	11.0	8.1	10		1	1		12	83.3		8.3	8.3		100.0	1.24		0.12	0.12		1.48
1997 Subtotal	**12.6**	**441.5**	**1022**	**2**	**13**	**29**		**1066**	**95.9**	**0.2**	**1.2**	**2.7**		**100.0**	**2.32**	**0.005**	**0.03**	**0.07**		**2.41**
16-Aug-98	13.0	7.8	8			2		10	80.0			20.0		100.0	1.03			0.26		1.28
17-Aug-98	14.8	21.4	10		2	1		13	76.9		15.4	7.7		100.0	0.47		0.09	0.05		0.61
18-Aug-98	16.4	24.6	145	1	3	11		160	90.6	0.6	1.9	6.9		100.0	5.90	0.04	0.12	0.45		6.51
19-Aug-98	14.7	24.8	70	2		1		73	95.9	2.7		1.4		100.0	2.83	0.08		0.04		2.95
20-Aug-98	6.4	23.3	84			4		88	95.5			4.5		100.0	3.61			0.17		3.78
21-Aug-98	9.5	22.3	104		1	3		108	96.3		0.9	2.8		100.0	4.66		0.04	0.13		4.84
22-Aug-98	10.7	25.6	80		5	9		94	85.1		5.3	9.6		100.0	3.13		0.20	0.35		3.67
23-Aug-98	11.6	22.5	68	1		2		71	95.8	1.4		2.8		100.0	3.02	0.04		0.09		3.16
24-Aug-98	11.5	24.3	66	1	3	7		77	85.7	1.3	3.9	9.1		100.0	2.72	0.04	0.12	0.29		3.18
25-Aug-98	9.7	23.8	35	1	1	2	1	40	87.5	2.5	2.5	5.0	2.5	100.0	1.47	0.04	0.04	0.08	0.04	1.68
26-Aug-98	10.1	24.8	46		2	3		51	90.2		3.9	5.9		100.0	1.86		0.08	0.12		2.06
27-Aug-98	9.5	13.8	19					19	100.0					100.0	1.38					1.38
28-Aug-98	trap not checked							-						-						-
29-Aug-98	9.2	57.8	73			3	1	77	94.8			3.9	1.3	100.0	1.26			0.05	0.02	1.33
30-Aug-98	10.6	26.0	43		3	1		47	91.5		6.4	2.1		100.0	1.65		0.12	0.04		1.81
31-Aug-98	8.1	22.3	24			1		25	96.0			4.0		100.0	1.08			0.04		1.12
1-Sep-98	9.2	24.8	35			1		36	97.2			2.8		100.0	1.41			0.04		1.45
2-Sep-98	11.2	13.2	16			1		17	94.1			5.9		100.0	1.22			0.08		1.29
1998 Subtotal	**10.9**	**402.8**	**926**	**6**	**20**	**52**	**2**	**1006**	**92.0**	**0.6**	**2.0**	**5.2**	**0.2**	**100.0**	**2.30**	**0.01**	**0.05**	**0.13**	**0.005**	**2.50**
10-Aug-99	16.3	25.7	26		5	28	2	61	42.6		8.2	45.9	3.3	100.0	1.01		0.19	1.09	0.08	2.37
11-Aug-99	15.2	24.0	16		2	16		34	47.1		5.9	47.1		100.0	0.67		0.08	0.67		1.42
12-Aug-99	14.5	24.0	17		4	2	2	25	68.0		16.0	8.0	8.0	100.0	0.71		0.17	0.08	0.08	1.04
13-Aug-99	13.3	24.0	9		1	3		13	69.2		7.7	23.1		100.0	0.38		0.04	0.13		0.54
14-Aug-99	12.6	24.0	15		6	2	1	24	62.5		25.0	8.3	4.2	100.0	0.63		0.25	0.08	0.04	1.00
15-Aug-99	13.0	24.0	26		1	4	1	32	81.3		3.1	12.5	3.1	100.0	1.08		0.04	0.17	0.04	1.33
16-Aug-99	14.0	24.0	10	1	2	3		16	62.5	6.3	12.5	18.8		100.0	0.42	0.04	0.08	0.13		0.67
17-Aug-99	14.3	24.2	3		6	13		22	13.6		27.3	59.1		100.0	0.12		0.25	0.54		0.91
18-Aug-99	11.5	23.8	3		16	15	1	35	8.6		45.7	42.9	2.9	100.0	0.13		0.67	0.63	0.04	1.47
19-Aug-99	12.4	24.0	125		33	11		169	74.0		19.5	6.5		100.0	5.21		1.38	0.46		7.04
20-Aug-99	12.3	24.3	103	2	14	5	1	125	82.4	1.6	11.2	4.0	0.8	100.0	4.25	0.08	0.58	0.21	0.04	5.15
21-Aug-99	9.9	23.8	122	1	7	11		141	86.5	0.7	5.0	7.8		100.0	5.13	0.04	0.29	0.46		5.93
22-Aug-99	8.9	24.0	89		39	5		133	66.9		29.3	3.8		100.0	3.71		1.63	0.21		5.55
23-Aug-99	9.1	24.5	87		21	8		116	75.0		18.1	6.9		100.0	3.55		0.86	0.33		4.74
24-Aug-99	8.1	23.6	62	2	3	5		72	86.1	2.8	4.2	6.9		100.0	2.63	0.08	0.13	0.21		3.06
25-Aug-99	9.5	24.6	12		15	5		32	37.5		46.9	15.6		100.0	0.49		0.61	0.20		1.30
26-Aug-99	8.2	23.2	59		6	1		66	89.4		9.1	1.5		100.0	2.54		0.26	0.04		2.84
27-Aug-99	8.4	24.4	31	1	21	1		54	57.4	1.9	38.9	1.9		100.0	1.27	0.04	0.86	0.04		2.22
28-Aug-99	7.5	24.7	58		8			66	87.9		12.1			100.0	2.35		0.32			2.68
29-Aug-99	8.8	23.8	40		9			49	81.6		18.4			100.0	1.68		0.38			2.06
30-Aug-99	8.6	24.3	58		1			59	98.3		1.7			100.0	2.39		0.04			2.43
31-Aug-99	6.1	24.0	52		1			53	98.1		1.9			100.0	2.17		0.04			2.21
1-Sep-99	5.4	24.0	41	1	1	3	2	48	85.4	2.1	2.1	6.3	4.2	100.0	1.71	0.04	0.04	0.13	0.08	2.00
2-Sep-99	6.6	23.8	35	1		1		37	94.6	2.7		2.7		100.0	1.47	0.04		0.04		1.56
3-Sep-99	6.8	23.9	40	1		2		43	93.0	2.3		4.7		100.0	1.67	0.04		0.08		1.80
4-Sep-99	7.5	24.2	26		3		1	30	86.7		10.0		3.3	100.0	1.08		0.12		0.04	1.24
5-Sep-99	8.9	23.8	24					24	100.0					100.0	1.01					1.01
6-Sep-99	7.7	24.1	26		1			27	96.3		3.7			100.0	1.08		0.04			1.12
7-Sep-99	8.5	24.0	24					24	100.0					100.0	1.00					1.00
8-Sep-99	8.6	24.1	9					9	100.0					100.0	0.37					0.37
9-Sep-99	7.8	24.0	13		1			14	92.9		7.1			100.0	0.54		0.04			0.58
10-Sep-99	7.4	23.9	11			1		12	91.7			8.3		100.0	0.46			0.04		0.50
11-Sep-99	7.6	24.1	9			1		10	90.0			10.0		100.0	0.37			0.04		0.42
12-Sep-99	6.1	11.9	11		3			14	78.6		21.4			100.0	0.92		0.25			1.17
1999 Subtotal	**9.7**	**806.5**	**1292**	**10**	**230**	**146**	**11**	**1689**	**76.5**	**0.6**	**13.6**	**8.6**	**0.7**	**100.0**	**1.60**	**0.01**	**0.29**	**0.18**	**0.01**	**2.09**
Total	**10.9**	**1650.7**	**3240**	**18**	**263**	**227**	**13**	**3761**	**86.1**	**0.5**	**7.0**	**6.0**	**0.3**	**100.0**	**1.96**	**0.01**	**0.16**	**0.14**	**0.01**	**2.28**

Note: Temp. = temperature; °C = degrees Celsius; h = hour; ARCH = Arctic char; LKTR = lake trout; ARGR = Arctic grayling; RNWH = round whitefish; CISC = cisco; % = percent; CPUE = catch-per-unit-effort

Golder Associates

Appendix F9. Minnow trap locations, effort, and catch data for the Meliadine Study Area, 2008-2009

Site	Set Date / Time	Soak Time (h)	No. Traps Set	Effort (trap-h)	UTM (Zone 15V)		Water Temp. (°C)	Cond. (µS/cm)	Number of Fish Captured			*CPUE (fish/ 24h)*
					Easting	Northing			ARGR	NNST	Total	
A5	09-Jul-09 15:30	20.0	6	120.0	542791	6986300				4	4	*0.80*
A6	09-Jul-09 11:00	23.5	2	47.0	542043	6986293					0	*0.00*
A6	09-Jul-09 11:00	23.8	3	71.3	542043	6986293				1	1	*0.34*
A6	09-Jul-09 11:30	23.5	5	117.5	542043	6986293					0	*0.00*
A12	12-Jul-08 17:30	21.0	2	42.0	539893	6988583	18.0			5	5	*2.86*
A13	12-Jul-08 17:15	21.0	1	21.0	539800	6988651	19.0			1	1	*1.14*
A40	12-Jul-08 16:20	21.2	2	42.3	539157	6988214	17.0			4	4	*2.27*
A40	02-Jul-09 16:15	18.0	2	36.0	539157	6988214				2	2	*1.33*
A41	02-Jul-09 16:00	18.0	2	36.0	539072	6988284					0	*0.00*
A50	09-Jul-09 15:00	20.3	1	20.3	542548	6986204					0	*0.00*
A51	09-Jul-09 14:30	20.8	2	41.5	542558	6986096					0	*0.00*
A52	03-Aug-08 15:30	48.0	3	144.0	542620	6986017					0	*0.00*
A53	09-Jul-09 14:18	21.0	1	21.0	542477	6986092				2	2	*2.29*
B8	12-Jul-08 14:15	21.8	2	43.5	539024	6988906	17.0			1	1	*0.55*
B8	2-Jul-09 15:00	20.0	2	40.0	539024	6988906					0	*0.00*
B9	12-Jul-08 15:15	21.3	2	42.5	539175	6988651	17.0				0	*0.00*
B9	02-Jul-09 15:15	19.5	2	39.0	539175	6988651					0	*0.00*
B10	12-Jul-08 15:30	21.3	2	42.5	539425	6988384	16.0				0	*0.00*
B10	02-Jul-09 17:00	15.8	2	31.5	539425	6988384					0	*0.00*
B25	02-Jul-09 12:15	24.5	3	73.5	537351	6990233					0	*0.00*
B26	02-Jul-09 11:30	26.3	2	52.5	537273	6990411					0	*0.00*
B27	02-Jul-09 11:00	26.6	2	53.2	536973	6990274				11	11	*4.97*
B28	02-Jul-09 13:45	22.0	2	44.0	538214	6989727				2	2	*1.09*
B28a	02-Jul-09 13:45	22.3	2	44.5	538150	6989801				1	1	*0.54*
B29	03-Jul-09 9:15	23.3	2	46.5	539516	6988320					0	*0.00*
B30	11-Jul-08 15:00	22.1	2	44.2	537999	6988890	20.0			4	4	*2.17*
B31	11-Jul-08 15:15	22.1	2	44.2	538103	6988807	19.0			2	2	*1.09*
B32	11-Jul-08 15:45	21.8	2	43.5	538240	6988756	18.0			1	1	*0.55*
B33	11-Jul-08 13:45	21.8	2	43.5	538748	6988659	19.0				0	*0.00*
G1	13-Jul-09 11:00	23.8	8	190.0	537979	6991509				1	1	*0.13*
G2	11-Jul-09 15:45	17.3	12	207.0	542043	6986293					0	*0.00*
G2	12-Jul-09 9:00	28.3	12	339.0	538794	6990675				1	1	*0.07*
H1	2-Aug-08 13:00	21.0	2	42.0	540755	6989620	15.6	126			0	*0.00*
H1	7-Jul-09 17:15	16.0	3	48.0	540755	6989620					0	*0.00*
H2	02-Aug-08 12:30	21.5	1	21.5	540577	6989433	15.9	169	1		1	*1.12*
H2	07-Jul-09 17:00	17.0	2	34.0	540577	6989433					0	*0.00*
H3	02-Aug-08 17:45	18.3	1	18.3	540498	6989408	15.2	154			0	*0.00*
H3	07-Jul-09 17:00	17.5	2	35.0	540498	6989408					0	*0.00*
H4	02-Aug-08 17:30	18.3	1	18.3	540356	6989429	15.0	115			0	*0.00*
H4	07-Jul-09 15:45	19.3	1	19.3	540356	6989429				1	1	*1.25*
H5	02-Aug-08 17:30	17.3	1	17.3	540247	6989437	15.2	123			0	*0.00*
H5	07-Jul-09 15:15	20.0	2	40.0	540247	6989437					0	*0.00*

Appendix F9. Minnow trap locations, effort, and catch data for the Meliadine Study Area, 2008-2009

Site	Set Date / Time	Soak Time (h)	No. Traps Set	Effort (trap-h)	UTM (Zone 15V)		Water Temp. (°C)	Cond. (µS/cm)	Number of Fish Captured			*CPUE (fish/ 24h)*
					Easting	Northing			ARGR	NNST	Total	
H5a	7-Jul-09 14:30	20.8	1	20.8	540263	6989334					0	*0.00*
H5b	7-Jul-09 14:15	21.0	2	42.0	540246	6989289					0	*0.00*
H6	02-Aug-08 17:30	17.3	1	17.3	540075	6989336	18.9	182			0	*0.00*
H6	07-Jul-09 13:00	22.5	4	90.0	540075	6989336					0	*0.00*
H7	01-Aug-08 15:30	18.0	1	18.0	539960	6989480	20.9	97			0	*0.00*
H7	07-Jul-09 13:00	22.5	2	45.0	539960	6989480				2	2	*1.07*
H8	01-Aug-08 15:15	18.3	1	18.3	539846	6989533	18.5	111			0	*0.00*
H8	06-Jul-09 15:15	19.0	3	57.0	539846	6989533				1	1	*0.42*
H9	01-Aug-08 15:00	18.3	1	18.3	539755	6989607	18.7	173			0	*0.00*
H9	06-Jul-09 14:45	19.3	2	38.5	539755	6989607					0	*0.00*
H10	06-Jul-09 14:15	19.8	1	19.8	539658	6989562					0	*0.00*
H11	01-Aug-08 13:30	19.8	1	19.8	539559	6989529	20.2	140			0	*0.00*
H11	06-Jul-09 13:45	20.0	2	40.0	539559	6989529					0	*0.00*
H12	01-Aug-08 13:00	20.0	1	20.0	539435	6989597	18.9	120			0	*0.00*
H12	06-Jul-09 12:00	21.5	2	43.0	539435	6989597					0	*0.00*
H13	01-Aug-08 12:15	20.8	1	20.8	539214	6989623	16.5	191			0	*0.00*
H13	04-Jul-09 16:45	22.8	6	136.5	539214	6989623					0	*0.00*
H13a	04-Jul-09 16:00	23.8	2	47.5	539117	6989841					0	*0.00*
H14	01-Aug-08 11:30	21.3	1	21.3	539018	6989892	17.1	236			0	*0.00*
H14	04-Jul-09 13:45	24.3	2	48.5	539018	6989892					0	*0.00*
H14a	04-Jul-09 14:30	25.3	2	50.7	539165	6990024					0	*0.00*
H15	01-Aug-08 10:45	22.0	1	22.0	538850	6990014	15.1	159			0	*0.00*
H15	04-Jul-09 11:30	28.8	4	115.0	538850	6990014				1	1	*0.21*
H15d	3-Jul-09 9:45	31.0	2	62.0	538663	6990168					0	*0.00*
H15e	04-Jul-09 10:30	30.0	2	60.0	538820	6990241					0	*0.00*
H15g	03-Jul-09 16:00	17.3	2	34.5	538416	6990266				1	1	*0.70*
H15h	03-Jul-09 16:45	16.5	2	33.0	538391	6990134				1	1	*0.73*
H16	02-Aug-08 13:45	20.0	1	20.0	540455	6989685	16.1	48			0	*0.00*
H16	07-Jul-09 16:30	17.3	1	17.3	540455	6989685					0	*0.00*
H17	01-Aug-08 16:45	17.0	1	17.0	539843	6989901	18.4	89			0	*0.00*
H17	06-Jul-09 10:45	25.0	8	200.0	539843	6989901				1	1	*0.12*
H18	01-Aug-08 14:15	19.0	1	19.0	539571	6989751	17.9	113			0	*0.00*
H18	06-Jul-09 13:15	20.5	2	41.0	539571	6989751					0	*0.00*
H19	02-Aug-08 15:45	18.5	4	74.0	540615	6989134	15.6	177			0	*0.00*
H19	03-Aug-08 10:15	31.3	8	250.0	540596	6989018					0	*0.00*
H19	04-Aug-08 17:30	14.0	8	112.0	540596	6989018					0	*0.00*
H20	02-Aug-08 15:30	64.8	4	259.0	540749	6988843	15.1	158			0	*0.00*
J1	13-Jul-09 16:45	17.8	11	195.3	541911	6988718				14	14	*1.72*
CHL	03-Aug-08 15:30	23.5	4	94.0	554767	6980081					0	*0.00*
Total		**1777.0**	**218**	**4975.5**	**-**	**-**	**-**	**-**	**1**	**65**	**66**	***0.32***

Note: h = hours; Temp. = temperature; °C = degrees Celsius; Cond. = conductivity; µS/cm = microSiemens per centimetre; ARGR = Arctic grayling; NNST = ninespine stickleback; CPUE = catch-per-unit-effort

Appendix F10. Angling locations, effort, and catch data for the Meliadine Study Area, 1997-2000

Site	Date	UTM (Zone 15V)		Effort (fish/rod-h)	Number of Fish Captured			CPUE (fish/rod-h)		
		Easting	Northing		LKTR	ARGR	Total	LKTR	ARGR	Total
A1	19-Jun-97	543750	6985850	0.5			0			*0.00*
A2	19-Jun-97	543150	6985900	0.5			0			*0.00*
A5	19-Jun-97	542900	6986000	0.5			0			*0.00*
B2	16-Jun-97	537700	6986850	1.5		4	4		*2.67*	*2.67*
B4	16-Jun-97	538250	6987450	0.5			0			*0.00*
B5	16-Jun-97	538450	6987600	0.5			0			*0.00*
B5	17-Jun-97	537850	6988600	0.5			0			*0.00*
B5	17-Jul-97	537250	6988850	0.5		1	1		*2.00*	*2.00*
B6	18-Jul-97	537900	6989050	1.0		2	2		*2.00*	*2.00*
B7	17-Jun-97	538000	6989150	1.0		3	3		*3.00*	*3.00*
B7	18-Jul-97	538000	6989150	0.8		2	2		*2.67*	*2.67*
B7	23-Aug-98	538000	6989150	5.0			0			*0.00*
B45	17-Jun-97	539700	6985300	0.5			0			*0.00*
B46	17-Jun-97	539900	6985400	0.5			0			*0.00*
B51	17-Jun-97	540650	6984200	0.5			0			*0.00*
B52	17-Jun-97	541450	6983300	0.5			0			*0.00*
D1	18-Jun-97	532700	6989600	0.8			0			*0.00*
D1	18-Jun-97	533400	6989400	1.0	1		1	*1.00*		*1.00*
D1	27-Aug-97	532700	6989600	2.0			0			*0.00*
D1	20-Jul-00	533000	6989500	3.5			0			*0.00*
D1	01-Aug-00	533000	6989500	3.0			0			*0.00*
D2	18-Jun-97	533500	6989350	0.4			0			*0.00*
D4	18-Jun-97	534500	6989200	0.4			0			*0.00*
D7	18-Jun-97	536100	6988750	0.6			0			*0.00*
D7	19-Jul-97	536100	6988750	2.0		3	3		*1.50*	*1.50*
G2	17-Jun-97	538300	6990600	0.8			0			*0.00*
ML-E	23-Jun-97	540700	6989700	1.8	1		1	*0.56*		*0.56*
ML-E	14-Jul-97	543100	6987600	1.0			0			*0.00*
ML-E	21-Jul-97	545000	6986000	4.0	5		5	*1.25*		*1.25*
ML-E	21-Jul-97	544000	6988000	5.0	4		4	*0.80*		*0.80*
ML-E	22-Jul-97	543500	6989000	2.0	2		2	*1.00*		*1.00*
ML-E	22-Jul-97	547000	6984000	4.0	5		5	*1.25*		*1.25*
ML-E	22-Jul-97	545500	6986300	2.0	2		2	*1.00*		*1.00*
ML-E	23-Jul-97	542500	6990500	2.0	1		1	*0.50*		*0.50*
ML-E	25-Jul-97	544000	6987000	4.0	2		2	*0.50*		*0.50*
ML-C	18-Jun-97	537550	6991600	0.5	1		1	*2.00*		*2.00*
ML-S	18-Jun-97	532600	6989500	0.5			0			*0.00*
ML-S	21-Jun-97	533600	6991100	0.6			0			*0.00*
ML-S	22-Jun-97	537200	6985600	2.0			0			*0.00*
ML-W	18-Sep-00	524600	7001000	0.3	2		2	*6.67*		*6.67*
ML-W	22-Sep-00	523900	7000900	0.2	1		1	*5.00*		*5.00*
ML-PL	17-Jun-98	523700	7000800	1.4	2		2	*1.43*		*1.43*
ML-MR	17-Jun-98	530600	6989350	2.0	1		1	*0.50*		*0.50*
ML-MR	12-Jul-98	530600	6989350	1.0	2		2	*2.00*		*2.00*
MR-U	14-Jun-97	530600	6989300	4.0	3		3	*0.75*		*0.75*
MR-U	21-Jun-97	530600	6989300	2.0	2		2	*1.00*		*1.00*
MR-U	20-Jul-97	530600	6989300	2.0	4		4	*2.00*		*2.00*
MR-L	15-Jun-97	540100	6976050	7.0	1	2	3	*0.14*	*0.29*	*0.43*
MR-L	18-Jun-98	544600	6971600	0.8			0			*0.00*
LML	23-Jul-00	536300	6979500	2.0			0			*0.00*
LML	24-Jul-00	538000	6978500	3.0	5		5	*1.67*		*1.67*
LML	26-Jul-00	536300	6979000	4.0	6		6	*1.50*		*1.50*
LML	27-Jul-00	539100	6977600	2.0			0			*0.00*
HSL	31-Jul-00	541800	6978100	2.0	1		1	*0.50*		*0.50*
W	28-Jul-00	540950	6978000	2.0			0			*0.00*
PAR	24-Aug-98	549500	6997300	3.0	1		1	*0.33*		*0.33*
PAR	25-Aug-98	549300	6997350	4.0	3		3	*0.75*		*0.75*
Total		**-**	**-**	**101.4**	**58**	**17**	**75**	***0.57***	***0.17***	***0.74***

Note: h = hours; LKTR = lake trout; ARGR = Arctic grayling; CPUE = catch-per-unit-effort

Golder Associates

Appendix F11. Summary of fish sampling effort and catch data in the Meliadine Study Area, 1997-2009

Basin	Site	Sampling Method[a]	No. of Sampling Events	Month	Sampling Effort	Number of Fish Captured										*Total CPUE*
						ARCH	LKTR	ARGR	RNWH	CISC	BURB	SLSC	NNST	THST	Total	
ML	ML-E	AL	2	Jun-97	2.3 rod-h		2								2	*0.87 fish/rod-h*
ML	ML-E	AL	8	Jul-97	24.0 rod-h		21								21	*0.88 fish/rod-h*
ML	ML-E	FN	23	Jul-97	358.5 h	297	154	67	61	1811	2	3		1499	3894	*10.86 fish/h*
ML	ML-E	FN	5	Jul-98	120.8 h	87	33	26	10	490				4065	4711	*39.01 fish/h*
ML	ML-E	GN	7	Jul-97	2.35 net-units		18		2	21					41	*17.42 fish/net-unit*
ML	ML-S	AL	3	Jun-97	3.1 rod-h										0	*0 fish/rod-h*
ML	ML-S	FN	6	Jul-98	144.3 h	55	33	83	10	85				306	572	*3.97 fish/h*
ML	ML-S	FN	5	Aug/Sep-98	114.0 h	1	8	16	3	36	7			170	241	*2.11 fish/h*
ML	ML-S	GN	2	Aug-97	1.35 net-units		2								2	*1.48 fish/net-unit*
ML	ML-S	GN	6	Jul-98	15.56 net-units		34		6	41					81	*5.20 fish/net-unit*
ML	ML-S	GN	1	Aug-98	5.63 net-units	1	12			5					18	*3.20 fish/net-unit*
ML	ML-W	AL	2	Sep-00	0.5 rod-h		3								3	*6.00 fish/rod-h*
ML	ML-W	GN	9	Oct-99	16.76 net-units	4	29	1	5	4					43	*2.57 fish/net-unit*
ML	ML-W	GN	21	Sep-00	36.89 net-units	17	78	4	15	3					117	*3.17 fish/net-unit*
ML	ML-PL	AL	1	Jun-98	1.4 rod-h		2								2	*1.43 fish/rod-h*
ML	ML-PL	FN	7	Sep-00	191.8 h	3	8	2	2	6	9	1		172	203	*1.06 fish/h*
ML	ML-PL	GN	3	Sep/Oct-99	8.34 net-units	8	23			1					32	*3.84 fish/net-unit*
ML	ML-PL	EF	1	Jun-98	912 s									1	1	*0.07 fish/min*
A	A0-1	EF	1	Jun-97	532 s		2	5				3	47	29	86	*9.70 fish/min*
A	A0-1	EF	1	Jul-97	222 s							2	17	5	24	*6.49 fish/min*
A	A0-1	EF	2	Jun-98	915 s	3							1	7	11	*0.72 fish/min*
A	A0-1	EF	1	Jul-98	412 s		3	7			2			12	24	*3.50 fish/min*
A	A0-1	EF	1	Aug-98	305 s		1	6						8	15	*2.95 fish/min*
A	A1	AL	1	Jun-97	0.5 rod-h										0	*0 fish/rod-h*
A	A1	GN	2	Jul-97	0.42 net-units				1						1	*2.40 fish/net-unit*
A	A1	GN	3	Aug-97	1.94 net-units	4	4			1					9	*4.65 fish/net-unit*
A	A1-2	EF	1	Jun-97	324 s	1	1	8					33	2	45	*8.33 fish/min*
A	A1-2	EF	1	Jun-98	177 s			2							2	*0.68 fish/min*
A	A2	AL	1	Jun-97	0.5 rod-h										0	*0 fish/rod-h*
A	A2-3	EF	1	Jun-97	320 s		1	12					5		18	*3.38 fish/min*
A	A2-3	EF	1	Jun-98	174 s			9							9	*3.10 fish/min*
A	A2-3	EF	1	Jul-98	304 s	1	1	6				1	5	4	18	*3.55 fish/min*
A	A2-3	EF	1	Aug-98	230 s		1	20					5	3	29	*7.57 fish/min*
A	A3-4	EF	1	Jun-97	135 s			1					2		3	*1.33 fish/min*
A	A3-4	EF	1	Jun-98	109 s			1							1	*0.55 fish/min*
A	A4-5	EF	1	Jun-97	411 s			14					4		18	*2.63 fish/min*
A	A4-5	EF	1	Jun-98	320 s			3							3	*0.56 fish/min*
A	A5	AL	1	Jun-97	0.5 rod-h										0	*0 fish/rod-h*
A	A5	EF	1	Jul-09	596 s								3		3	*0.30 fish/min*
A	A5	MT	1	Jul-09	120.0 trap-h								4		4	*0.80 fish/24h*
A	A5-6	EF	1	Jun-97	800 s			13					80		93	*6.98 fish/min*
A	A5-6	EF	1	Jul-97	461 s		8					9	29		46	*5.99 fish/min*
A	A5-6	EF	3	Jun-98	2008 s			23					19		42	*1.25 fish/min*
A	A5-6	EF	1	Jul-98	540 s	1	4	11					7		23	*2.56 fish/min*
A	A5-6	EF	1	Aug-98	315 s			16					5	1	22	*4.19 fish/min*
A	A5-6	EF	1	Jul-09	648 s			10				9	53	2	74	*6.85 fish/min*
A	A6	FN	2	Jul-09	41.3 h			193					4	1	198	*4.80 fish/h*
A	A6	GN	1	Jul-97	0.42 net-units			8		1					9	*21.60 fish/net-unit*
A	A6	GN	1	Aug-97	0.46 net-units			1		2					3	*6.55 fish/net-unit*
A	A6	GN	2	Jul-98	0.83 net-units			4		1					5	*6.00 fish/net-unit*
A	A6	GN	1	Jul-09	0.54 net-units			5							5	*9.23 fish/net-unit*
A	A6	MT	3	Jul-09	235.8 trap-h								1		1	*0.10 fish/24h*
A	A6-7	EF	1	Jun-97	829 s			17				6	5		28	*2.03 fish/min*
A	A6-7	EF	1	Jul-97	313 s							4	2		6	*1.15 fish/min*
A	A6-7	EF	1	Jun-98	624 s			4				2	1		7	*0.67 fish/min*
A	A6-7	EF	1	Jun-00	640 s							1	3		4	*0.38 fish/min*
A	A6-7	EF	1	Jul-00	450 s							5	8		13	*1.73 fish/min*
A	A6-7	EF	1	Sep-00	533 s			1				1	26		28	*3.15 fish/min*
A	A6-7	EF	1	Jun-08	409 s			1				3	18		22	*3.23 fish/min*
A	A7-8	EF	1	Jun-97	345 s			4				2	10		16	*2.78 fish/min*
A	A7-8	EF	1	Jul-97	203 s								8		8	*2.36 fish/min*
A	A7-8	EF	2	Jun-98	1971 s							1	30		31	*0.94 fish/min*
A	A7-8	EF	1	Jul-98	300 s			1					12		13	*2.60 fish/min*
A	A7-8	EF	1	Aug-98	125 s			1					7		8	*3.84 fish/min*
A	A8	GN	3	Jul-97	1.10 net-units			14							14	*12.68 fish/net-unit*
A	A8	GN	1	Aug-97	0.58 net-units			4							4	*6.86 fish/net-unit*
A	A8	GN	2	Jul-98	0.96 net-units			1							1	*1.04 fish/net-unit*
A	A8-9	EF	1	Jun-98	360 s								6		6	*1.00 fish/min*
A	A8-37	EF	1	Jun-98	106 s								4		4	*2.26 fish/min*
A	A8-40	EF	1	Jun-98	221 s								5		5	*1.36 fish/min*
A	A8-40	EF	1	Jun-00	406 s								5		5	*0.74 fish/min*
A	A8-40	EF	1	Sep-00	294 s								4		4	*0.82 fish/min*
A	A9	EF	1	Jul-08	162 s										0	*0 fish/min*

Golder Associates

Appendix F11. Summary of fish sampling effort and catch data in the Meliadine Study Area, 1997-2009

Basin	Site	Sampling Method[a]	No. of Sampling Events	Month	Sampling Effort	Number of Fish Captured										*Total CPUE*
						ARCH	LKTR	ARGR	RNWH	CISC	BURB	SLSC	NNST	THST	Total	
A	A10	EF	1	Jul-08	119 s								1		1	*0.50 fish/min*
A	A12	EF	1	Jul-08	185 s										0	*0 fish/min*
A	A12	MT	1	Jul-08	42.0 trap-h								5		5	*2.86 fish/24h*
A	A13	EF	1	Jul-08	166 s										0	*0 fish/min*
A	A13	MT	1	Jul-08	21.0 trap-h								1		1	*1.14 fish/24h*
A	A17	EF	1	Aug-98	180 s								7		7	*2.33 fish/min*
A	A35	EF	1	Jul-08	127 s										0	*0 fish/min*
A	A37	EF	1	Jul-08	126 s								1		1	*0.48 fish/min*
A	A38	EF	1	Jul-08	107 s										0	*0 fish/min*
A	A39	EF	1	Jul-08	144 s										0	*0 fish/min*
A	A39-54	EF	1	Jun-00	342 s								7		7	*1.23 fish/min*
A	A39-54	EF	1	Sep-00	225 s								11		11	*2.93 fish/min*
A	A40	EF	1	Jul-08	212 s										0	*0 fish/min*
A	A40	EF	1	Jul-09	225 s								2		2	*0.53 fish/min*
A	A40	MT	1	Jul-08	42.3 trap-h								4		4	*2.27 fish/24h*
A	A40	MT	1	Jul-09	36.0 trap-h								2		2	*1.33 fish/24h*
A	A41	EF	1	Jul-09	143 s										0	*0 fish/min*
A	A41	MT	1	Jul-09	36.0 trap-h										0	*0 fish/24h*
A	A44-45	EF	1	Jul-98	100 s								7		7	*4.20 fish/min*
A	A44-45	EF	1	Jun-00	136 s										0	*0 fish/min*
A	A44-45	EF	1	Jul-00	80 s								5		5	*3.75 fish/min*
A	A44-45	EF	1	Sep-00	176 s								5		5	*1.70 fish/min*
A	A45-46	EF	1	Jun-08	398 s								27		27	*4.07 fish/min*
A	A50	EF	1	Jul-09	120 s										0	*0 fish/min*
A	A50	MT	1	Jul-09	20.3 trap-h										0	*0 fish/24h*
A	A51	EF	1	Jul-09	273 s								2		2	*0.44 fish/min*
A	A51	MT	1	Jul-09	41.5 trap-h										0	*0 fish/24h*
A	A52	FN	2	Aug-08	46.3 h								556		556	*12.02 fish/h*
A	A52	GN	1	Aug-08	3.28 net-units										0	*0 fish/net-unit*
A	A52	MT	1	Aug-08	144.0 trap-h										0	*0 fish/24h*
A	A53	EF	1	Jul-09	133 s								11		11	*4.96 fish/min*
A	A53	MT	1	Jul-09	21.0 trap-h								2		2	*2.29 fish/24h*
A	A54	EF	1	Jul-08	411 s								2		2	*0.29 fish/min*
A	A54	GN	2	Aug-98	12.7 net-units										0	*0 fish/net-unit*
A	A55	EF	1	Aug-98	150 s								4		4	*1.60 fish/min*
A	A56	EF	1	Aug-98	880 s								1		1	*0.07 fish/min*
A	A57	EF	1	Aug-98	185 s								4		4	*1.30 fish/min*
A	A58	EF	1	Aug-98	650 s								5		5	*0.46 fish/min*
B	B0-1	EF	1	Jun-97	974 s		3	25		3		9	7	14	61	*3.76 fish/min*
B	B0-1	EF	1	Jul-97	500 s	1	2	12			3	11	1	23	53	*6.36 fish/min*
B	B0-1	EF	1	Jun-98	638 s						1		1		2	*0.19 fish/min*
B	B0-1	EF	1	Jul-98	450 s			2		1		3	2	9	17	*2.27 fish/min*
B	B0-1	EF	1	Aug-98	280 s			10				1		14	25	*5.36 fish/min*
B	B1-2	EF	1	Jun-97	717 s			9				1	2		12	*1.00 fish/min*
B	B1-2	EF	1	Jul-97	419 s		10	21				1	1	1	34	*4.87 fish/min*
B	B1-2	EF	1	Aug-97	358 s	17		2				2	3		24	*4.02 fish/min*
B	B1-2	EF	2	Jun-98	1439 s							5	3		8	*0.33 fish/min*
B	B1-2	EF	1	Jul-98	699 s	3	5	2			1	7			18	*1.55 fish/min*
B	B1-2	EF	1	Aug-98	451 s	8	3	8			2	1		3	25	*3.33 fish/min*
B	B2	AL	1	Jun-97	1.5 rod-h			4							4	*2.67 fish/rod-h*
B	B2	GN	2	Jul-97	0.92 net-units		1			6					7	*7.64*
B	B2	GN	3	Aug-97	1.63 net-units			6		10					16	*9.85 fish/net-unit*
B	B2	GN	1	Jul-98	0.94 net-units		1	5		4					10	*10.67 fish/net-unit*
B	B2	GN	4	Aug-98	3.48 net-units		3	2		14					19	*5.46 fish/net-unit*
B	B3-4	EF	1	Jun-97	1025 s			10			2	1	10		23	*1.35 fish/min*
B	B3-4	EF	1	Jul-97	605 s	1	2	3			4	15	2		27	*2.68 fish/min*
B	B3-4	EF	1	Aug-97	141 s			2							2	*0.85 fish/min*
B	B3-4	EF	3	Jun-98	2500 s			14					12		26	*0.62 fish/min*
B	B3-4	EF	1	Jul-98	693 s	1	1	13			3		1		19	*1.65 fish/min*
B	B3-4	EF	1	Aug-98	280 s			4				1	3		8	*1.71 fish/min*
B	B4	AL	1	Jun-97	0.5 rod-h										0	*0 fish/rod-h*
B	B4	GN	3	Jul-97	1.65 net-units										0	*0 fish/net-unit*
B	B4	GN	2	Jul-98	1.13 net-units										0	*0 fish/net-unit*
B	B4-5	EF	1	Jun-97	310 s								19		19	*3.68 fish/min*
B	B4-5	EF	1	Jul-97	471 s			5				5	32		42	*5.35 fish/min*
B	B4-5	EF	1	Aug-97	164 s			1				1	12		14	*5.12 fish/min*
B	B4-5	EF	2	Jun-98	852 s							2	16		18	*1.27 fish/min*
B	B4-5	EF	1	Jul-98	400 s			2			1	1	7		11	*1.65 fish/min*
B	B4-5	EF	1	Aug-98	215 s			7					3		10	*2.79 fish/min*
B	B5	AL	2	Jun-97	1.0 rod-h										0	*0 fish/rod-h*
B	B5	AL	1	Jul-97	0.5 rod-h			1							1	*2.00 fish/rod-h*
B	B5	GN	1	Jul-97	0.31 net-units			9							9	*28.80 fish/net-unit*
B	B5	GN	1	Aug-97	0.63 net-units			4							4	*6.40 fish/net-unit*
B	B5	GN	1	Jul-98	1.27 net-units			14							14	*11.02 fish/net-unit*
B	B5	GN	1	Aug-98	7.13 net-units			11			1				12	*1.68 fish/net-unit*

Appendix F11. Summary of fish sampling effort and catch data in the Meliadine Study Area, 1997-2009

Basin	Site	Sampling Method[a]	No. of Sampling Events	Month	Sampling Effort	Number of Fish Captured										*Total CPUE*
						ARCH	LKTR	ARGR	RNWH	CISC	BURB	SLSC	NNST	THST	Total	
B	B5-6	EF	1	Jun-97	276 s							1	34		35	*7.61 fish/min*
B	B5-6	EF	1	Jul-97	248 s			19					21		40	*9.68 fish/min*
B	B5-6	EF	2	Jun-98	1103 s			1					24		25	*1.36 fish/min*
B	B5-6	EF	1	Jul-98	220 s			11				1	8		20	*5.45 fish/min*
B	B5-6	EF	1	Aug-98	184 s			2							2	*0.65 fish/min*
B	B6	AL	1	Jul-97	1.0 rod-h			2							2	*2.00 fish/rod-h*
B	B6	FN	1	Jul-08	22.5 h			1		3			6		10	*0.44 fish/h*
B	B6	FN	1	Jul-08	21.0 h										0	*0 fish/h*
B	B6-7	EF	1	Jun-97	543 s			8				1	4		13	*1.44 fish/min*
B	B6-7	EF	1	Jul-97	162 s			26					4		30	*11.11 fish/min*
B	B6-7	EF	1	Aug-97	115 s			1					3		4	*2.09 fish/min*
B	B6-7	EF	1	Jun-98	971 s						2	2	13		17	*1.05 fish/min*
B	B6-7	EF	1	Jun-98	466 s			3					1		4	*0.52 fish/min*
B	B6-7	EF	1	Jul-98	438 s			8				6	6		20	*2.74 fish/min*
B	B6-7	EF	1	Aug-98	304 s			8				2			10	*1.97 fish/min*
B	B7	AL	1	Jun-97	1.0 rod-h			3							3	*3.00 fish/rod-h*
B	B7	AL	1	Jul-97	0.8 rod-h			2							2	*2.67 fish/rod-h*
B	B7	AL	1	Aug-98	5.0 rod-h										0	*0 fish/rod-h*
B	B7	FN	4	Jul-08	75.0 h			215			1		4		220	*2.93 fish/h*
B	B7	FN	3	Aug-08	63.5 h			77		6	1				84	*1.32 fish/h*
B	B7	GN	1	Jul-97	0.54 net-units			3		1					4	*7.38 fish/net-unit*
B	B7	GN	1	Aug-97	0.63 net-units					4					4	*6.40 fish/net-unit*
B	B7	GN	2	Jul-98	1.08 net-units			4		2					6	*5.54 fish/net-unit*
B	B7	GN	11	Aug-98	7.55 net-units			3		9					12	*1.59 fish/net-unit*
B	B7	GN	5	Jul-08	1.48 net-units			10		13					23	*15.55 fish/net-unit*
B	B7-8	EF	1	Jun-98	348 s								1		1	*0.17 fish/min*
B	B8	EF	1	Jul-08	279 s										0	*0 fish/min*
B	B8	EF	1	Jul-09	217 s								2		2	*0.55 fish/min*
B	B8	MT	1	Jul-08	43.5 trap-h								1		1	*0.55 fish/24h*
B	B8	MT	1	Jul-09	40.0 trap-h										0	*0 fish/24h*
B	B9	EF	1	Jul-08	230 s										0	*0 fish/min*
B	B9	EF	1	Jul-09	248 s										0	*0 fish/min*
B	B9	GN	1	Oct-98	5.13 net-units										0	*0 fish/net-unit*
B	B9	MT	1	Jul-08	42.5 trap-h										0	*0 fish/24h*
B	B9	MT	1	Jul-09	39.0 trap-h										0	*0 fish/24h*
B	B10	EF	1	Jul-08	223 s										0	*0 fish/min*
B	B10	EF	1	Jul-09	373 s										0	*0 fish/min*
B	B10	GN	1	Oct-98	5.08 net-units										0	*0 fish/net-unit*
B	B10	MT	1	Jul-08	42.5 trap-h										0	*0 fish/24h*
B	B10	MT	1	Jul-09	31.5 trap-h										0	*0 fish/24h*
B	B25	EF	1	Jul-09	481 s								3		3	*0.37 fish/min*
B	B25	MT	1	Jul-09	73.5 trap-h										0	*0 fish/24h*
B	B26	EF	1	Jul-09	286 s								2		2	*0.42 fish/min*
B	B26	MT	1	Jul-09	52.5 trap-h										0	*0 fish/24h*
B	B27	EF	1	Jul-09	261 s								4		4	*0.92 fish/min*
B	B27	MT	1	Jul-09	53.2 trap-h								11		11	*4.97 fish/24h*
B	B28	EF	1	Jul-09	192 s								1		1	*0.31 fish/min*
B	B28	MT	1	Jul-09	44.0 trap-h								2		2	*1.09 fish/24h*
B	B28a	EF	1	Jul-09	46 s								4		4	*5.22 fish/min*
B	B28a	MT	1	Jul-09	44.5 trap-h								1		1	*0.54 fish/24h*
B	B29	EF	1	Jul-09	93 s										0	*0 fish/min*
B	B29	MT	1	Jul-09	46.5 trap-h										0	*0 fish/24h*
B	B30	EF	1	Jul-08	156 s								10		10	*3.85 fish/min*
B	B30	MT	1	Jul-08	44.2 trap-h								4		4	*2.17 fish/24h*
B	B31	EF	1	Jul-08	125 s								25		25	*12.00 fish/min*
B	B31	MT	1	Jul-08	44.2 trap-h								2		2	*1.09 fish/24h*
B	B32	EF	1	Jul-08	294 s										0	*0 fish/min*
B	B32	MT	1	Jul-08	43.5 trap-h								1		1	*0.55 fish/24h*
B	B33	EF	1	Jul-08	285 s										0	*0 fish/min*
B	B33	MT	1	Jul-08	43.5 trap-h										0	*0 fish/24h*
B	B4-36	EF	1	Jun-97	332 s								6		6	*1.08 fish/min*
B	B4-45	EF	1	Jun-97	172 s								6		6	*2.09 fish/min*
B	B45	AL	1	Jun-97	0.5 rod-h										0	*0 fish/rod-h*
B	B45-46	EF	1	Jun-97	362 s			2					24		26	*4.31 fish/min*
B	B46	AL	1	Jun-97	0.5 rod-h										0	*0 fish/rod-h*
B	B46-66	EF	1	Jun-98	803 s								4		4	*0.30 fish/min*
B	B46-66	EF	1	Jul-98	340 s			4					7		11	*1.94 fish/min*
B	B46-66	EF	1	Jun-00	605 s								2		2	*0.20 fish/min*
B	B46-66	EF	1	Jul-00	140 s										0	*0 fish/min*
B	B46-66	EF	1	Sep-00	392 s			8			4		5		17	*2.60 fish/min*
B	B51	AL	1	Jun-97	0.5 rod-h										0	*0 fish/rod-h*
B	B51-52	EF	1	Jun-97	470 s			3					6		9	*1.15 fish/min*
B	B52	AL	1	Jun-97	0.5 rod-h										0	*0 fish/rod-h*
B	B52-53	EF	1	Jun-97	247 s								23		23	*5.59 fish/min*
B	B52-75	EF	1	Jun-00	440 s										0	*0 fish/min*

Appendix F11. Summary of fish sampling effort and catch data in the Meliadine Study Area, 1997-2009

Basin	Site	Sampling Method[a]	No. of Sampling Events	Month	Sampling Effort	Number of Fish Captured										*Total CPUE*
						ARCH	LKTR	ARGR	RNWH	CISC	BURB	SLSC	NNST	THST	Total	
B	B52-75	EF	1	Sep-00	166 s								1		1	*0.36 fish/min*
B	B53-54	EF	1	Jul-98	220 s								12		12	*3.27 fish/min*
B	B53-54	EF	1	Jun-00	440 s								3		3	*0.41 fish/min*
B	B53-54	EF	1	Sep-00	176 s								12		12	*4.09 fish/min*
B	B68-69	EF	1	Jun-97	526 s			1				1	6		8	*0.91 fish/min*
B	B68-69	EF	1	Jul-98	232 s			8							8	*2.07 fish/min*
B	B68-69	EF	1	Jun-00	506 s								1		1	*0.12 fish/min*
B	B68-69	EF	1	Jul-00	390 s							1	3		4	*0.62 fish/min*
B	B68-69	EF	1	Sep-00	350 s										0	*0 fish/min*
B	B75-80	EF	1	Jun-00	400 s								3		3	*0.45 fish/min*
B	B75-80	EF	1	Sep-00	232 s										0	*0 fish/min*
D	D0-1	EF	1	Jun-97	610 s		2	2				29	26		59	*5.80 fish/min*
D	D0-1	EF	1	Jul-97	568 s		4	5			1	14	2	3	29	*3.06 fish/min*
D	D0-1	EF	1	Aug-97	187 s	1						3	10		14	*4.49 fish/min*
D	D0-1	EF	1	Jun-98	471 s	3		1				1	3	6	14	*1.78 fish/min*
D	D0-1	EF	1	Aug-98	304 s			1				2		11	14	*2.76 fish/min*
D	D0-1	FN	3	Sep-00	94.2 h	11		2	2	2	4	3	54	27	105	*1.12 fish/h*
D	D1	AL	2	Jun-97	1.8 rod-h		1								1	*0.56 fish/rod-h*
D	D1	AL	1	Aug-97	2.0 rod-h										0	*0 fish/rod-h*
D	D1	AL	1	Jul-00	3.5 rod-h										0	*0 fish/rod-h*
D	D1	AL	1	Aug-00	3.0 rod-h										0	*0 fish/rod-h*
D	D1	FN	3	Sep-00	58.5 h	21		101	4	78	19		233	155	611	*10.44 fish/h*
D	D1	FN	2	Jul-09	69.0 h	1	2	133					12	2	150	*2.17 fish/h*
D	D1	GN	1	Jul-97	0.46 net-units	6				3					9	*19.64 fish/net-unit*
D	D1	GN	10	Aug-97	4.58 net-units	37	1			15					53	*11.56 fish/net-unit*
D	D1	GN	1	Jul-98	0.40 net-units	1		3							4	*10.11 fish/net-unit*
D	D1	GN	2	Aug-98	1.25 net-units	1				2					3	*2.40 fish/net-unit*
D	D1	GN	6	Jul-99	8.29 net-units	2	1	13		41					57	*6.87 fish/net-unit*
D	D1	GN	10	Jul/Aug-00	10.24 net-units	2		11		2					15	*1.46 fish/net-unit*
D	D1	GN	5	Sep-00	7.65 net-units	4		1		22					27	*3.53 fish/net-unit*
D	D1	GN	1	Jul-09	0.33 net-units			2							2	*6.00 fish/net-unit*
D	D1-2	EF	1	Jun-97	164 s			6					76		82	*30.00 fish/min*
D	D1-2	EF	1	Jul-97	166 s							10	17	2	29	*10.48 fish/min*
D	D1-2	EF	1	Aug-97	94 s								11		11	*7.02 fish/min*
D	D2	AL	1	Jun-97	0.4 rod-h										0	*0 fish/rod-h*
D	D3	GN	2	Aug-97	1.54 net-units	2		7							9	*5.84 fish/net-unit*
D	D3-4	EF	1	Jun-97	297 s								45		45	*9.09 fish/min*
D	D4	AL	1	Jun-97	0.4 rod-h										0	*0 fish/rod-h*
D	D4	GN	2	Jul-97	5.73 net-units										0	*0 fish/net-unit*
D	D4-5	EF	1	Jun-97	132 s								3		3	*1.36 fish/min*
D	D5	GN	1	Jul-97	4.50 net-units										0	*0 fish/net-unit*
D	D5-6	EF	1	Jun-97	415 s								28		28	*4.05 fish/min*
D	D5-6	EF	1	Jul-97	296 s								343		343	*69.53 fish/min*
D	D6-7	EF	1	Jun-97	125 s								61		61	*29.28 fish/min*
D	D6-7	EF	1	Jul-97	110 s								79		79	*43.09 fish/min*
D	D6-7	EF	1	Aug-97	79 s								8		8	*6.08 fish/min*
D	D7	AL	1	Jun-97	0.6 rod-h										0	*0 fish/rod-h*
D	D7	AL	1	Jul-97	2.0 rod-h			3							3	*1.50 fish/rod-h*
D	D7	GN	3	Jul-97	1.96 net-units			6							6	*3.06 fish/net-unit*
D	D7	GN	1	Aug-97	0.65 net-units										0	*0 fish/net-unit*
F	F0-1	EF	1	Jun-97	347 s		4	4				1	14	9	32	*5.53 fish/min*
F	F5-6	EF	1	Jun-97	137 s								22		22	*9.64 fish/min*
G	G0-1	EF	1	Jun-97	350 s		4						30	2	36	*6.17 fish/min*
G	G0-1	EF	1	Jul-09	442 s								55		55	*7.47 fish/min*
G	G1	EF	1	Jul-09	485 s								77		77	*9.53 fish/min*
G	G1	GN	1	Jul-09	3.92 net-units										0	*0 fish/net-unit*
G	G1	MT	1	Jul-09	190.0 trap-h								1		1	*0.13 fish/24h*
G	G1-2	EF	1	Jun-97	399 s								15		15	*2.26 fish/min*
G	G2	AL	1	Jun-97	0.8 rod-h										0	*0 fish/rod-h*
G	G2	FN	2	Jul-09	89.0 h								7		7	*0.08 fish/h*
G	G2	GN	4	Jul-97	4.44 net-units										0	*0 fish/net-unit*
G	G2	GN	1	Aug-97	0.52 net-units										0	*0 fish/net-unit*
G	G2	MT	2	Jul-09	546.0 trap-h								1		1	*0.04 fish/24h*
H	H0-1	EF	1	Jul-09	382 s								50		50	*7.85 fish/min*
H	H1	EF	1	Aug-08	396 s										0	*0 fish/min*
H	H1	EF	1	Jul-09	435 s										0	*0 fish/min*
H	H1	MT	1	Aug-08	42.0 trap-h										0	*0 fish/24h*
H	H1	MT	1	Jul-09	48.0 trap-h										0	*0 fish/24h*
H	H2	EF	1	Aug-08	120 s			1							1	*0.50 fish/min*
H	H2	EF	1	Jul-09	254 s										0	*0 fish/min*
H	H2	MT	1	Aug-08	21.5 trap-h			1							1	*1.12 fish/24h*
H	H2	MT	1	Jul-09	34.0 trap-h										0	*0 fish/24h*
H	H2a	EF	1	Jul-09	254 s										0	*0 fish/min*
H	H3	EF	1	Aug-08	169 s										0	*0 fish/min*
H	H3	EF	1	Jul-09	285 s										0	*0 fish/min*

Appendix F11. Summary of fish sampling effort and catch data in the Meliadine Study Area, 1997-2009

Basin	Site	Sampling Method[a]	No. of Sampling Events	Month	Sampling Effort	Number of Fish Captured										*Total CPUE*
						ARCH	LKTR	ARGR	RNWH	CISC	BURB	SLSC	NNST	THST	Total	
H	H3	MT	1	Aug-08	18.3 trap-h										0	*0 fish/24h*
H	H3	MT	1	Jul-09	35.0 trap-h										0	*0 fish/24h*
H	H4	EF	1	Aug-08	130 s								3		3	*1.38 fish/min*
H	H4	EF	1	Jul-09	129 s										0	*0 fish/min*
H	H4	MT	1	Aug-08	18.3 trap-h										0	*0 fish/24h*
H	H4	MT	1	Jul-09	19.3 trap-h								1		1	*1.25 fish/24h*
H	H5	EF	1	Aug-08	142 s								5		5	*2.11 fish/min*
H	H5	EF	1	Jul-09	299 s										0	*0 fish/min*
H	H5	MT	1	Aug-08	17.3 trap-h										0	*0 fish/24h*
H	H5	MT	1	Jul-09	40.0 trap-h										0	*0 fish/24h*
H	H5-17	EF	1	Jul-09	393 s										0	*0 fish/min*
H	H5a	EF	1	Jul-09	94 s										0	*0 fish/min*
H	H5a	MT	1	Jul-09	20.8 trap-h										0	*0 fish/24h*
H	H5b	EF	1	Jul-09	59 s										0	*0 fish/min*
H	H5b	MT	1	Jul-09	42.0 trap-h										0	*0 fish/24h*
H	H6	EF	1	Aug-08	226 s										0	*0 fish/min*
H	H6	EF	1	Jul-09	344 s								4		4	*0.70 fish/min*
H	H6	MT	1	Aug-08	17.3 trap-h										0	*0 fish/24h*
H	H6	MT	1	Jul-09	90.0 trap-h										0	*0 fish/24h*
H	H7	EF	1	Aug-08	117 s										0	*0 fish/min*
H	H7	EF	1	Jul-09	124 s								3		3	*1.45 fish/min*
H	H7	MT	1	Aug-08	18.0 trap-h										0	*0 fish/24h*
H	H7	MT	1	Jul-09	45.0 trap-h								2		2	*1.07 fish/24h*
H	H8	EF	1	Aug-08	149 s										0	*0 fish/min*
H	H8	EF	1	Jul-09	276 s										0	*0 fish/min*
H	H8	MT	1	Aug-08	18.3 trap-h										0	*0 fish/24h*
H	H8	MT	1	Jul-09	57.0 trap-h								1		1	*0.42 fish/24h*
H	H9	EF	1	Aug-08	212 s										0	*0 fish/min*
H	H9	EF	1	Jul-09	238 s										0	*0 fish/min*
H	H9	MT	1	Aug-08	18.3 trap-h										0	*0 fish/24h*
H	H9	MT	1	Jul-09	38.5 trap-h										0	*0 fish/24h*
H	H10	EF	1	Aug-08	100 s										0	*0 fish/min*
H	H10	EF	1	Jul-09	124 s								2		2	*0.97 fish/min*
H	H10	MT	1	Jul-09	19.8 trap-h										0	*0 fish/24h*
H	H11	EF	1	Aug-08	147 s										0	*0 fish/min*
H	H11	EF	1	Jul-09	157 s										0	*0 fish/min*
H	H11	MT	1	Aug-08	19.8 trap-h										0	*0 fish/24h*
H	H11	MT	1	Jul-09	40.0 trap-h										0	*0 fish/24h*
H	H12	EF	1	Aug-08	164 s										0	*0 fish/min*
H	H12	EF	1	Jul-09	497 s										0	*0 fish/min*
H	H12	MT	1	Aug-08	20.0 trap-h										0	*0 fish/24h*
H	H12	MT	1	Jul-09	43.0 trap-h										0	*0 fish/24h*
H	H13	EF	1	Aug-08	221 s										0	*0 fish/min*
H	H13	EF	1	Jul-09	1231 s								1		1	*0.05 fish/min*
H	H13	MT	1	Aug-08	20.8 trap-h										0	*0 fish/24h*
H	H13	MT	1	Jul-09	136.5 trap-h										0	*0 fish/24h*
H	H13a	EF	1	Jul-09	130 s										0	*0 fish/min*
H	H13a	MT	1	Jul-09	47.5 trap-h										0	*0 fish/24h*
H	H13d	EF	1	Jul-09	148 s										0	*0 fish/min*
H	H14	EF	1	Aug-08	101 s										0	*0 fish/min*
H	H14	EF	1	Jul-09	115 s										0	*0 fish/min*
H	H14	MT	1	Aug-08	21.3 trap-h										0	*0 fish/24h*
H	H14	MT	1	Jul-09	48.5 trap-h										0	*0 fish/24h*
H	H14a	EF	1	Jul-09	257 s										0	*0 fish/min*
H	H14a	MT	1	Jul-09	50.7 trap-h										0	*0 fish/24h*
H	H14b	EF	1	Jul-09	58 s										0	*0 fish/min*
H	H14c	EF	1	Jul-09	54 s										0	*0 fish/min*
H	H15	EF	1	Aug-08	287 s										0	*0 fish/min*
H	H15	EF	1	Jul-09	673 s										0	*0 fish/min*
H	H15	MT	1	Aug-08	22.0 trap-h										0	*0 fish/24h*
H	H15	MT	1	Jul-09	115.0 trap-h								1		1	*0.21 fish/24h*
H	H15a	EF	1	Jul-09	115 s										0	*0 fish/min*
H	H15b	EF	1	Jul-09	75 s										0	*0 fish/min*
H	H15c	EF	1	Jul-09	54 s										0	*0 fish/min*
H	H15d	EF	1	Jul-09	180 s										0	*0 fish/min*
H	H15d	MT	1	Jul-09	62.0 trap-h										0	*0 fish/24h*
H	H15e	EF	1	Jul-09	192 s										0	*0 fish/min*

Appendix F11. Summary of fish sampling effort and catch data in the Meliadine Study Area, 1997-2009

Basin	Site	Sampling Method[a]	No. of Sampling Events	Month	Sampling Effort	Number of Fish Captured										*Total CPUE*
						ARCH	LKTR	ARGR	RNWH	CISC	BURB	SLSC	NNST	THST	Total	
H	H15e	MT	1	Jul-09	60.0 trap-h										0	*0 fish/24h*
H	H15f	EF	1	Jul-09	70 s										0	*0 fish/min*
H	H15g	EF	1	Jul-09	361 s								1		1	*0.17 fish/min*
H	H15g	MT	1	Jul-09	34.5 trap-h								1		1	*0.70 fish/24h*
H	H15h	EF	1	Jul-09	600 s								2		2	*0.20 fish/min*
H	H15h	MT	1	Jul-09	33.0 trap-h								1		1	*0.73 fish/24h*
H	H15i	EF	1	Jul-09	41 s										0	*0 fish/min*
H	H15j	EF	1	Jul-09	61 s										0	*0 fish/min*
H	H15k	EF	1	Jul-09	88 s										0	*0 fish/min*
H	H15l	EF	1	Jul-09	55 s										0	*0 fish/min*
H	H16	EF	1	Aug-08	120 s										0	*0 fish/min*
H	H16	EF	1	Jul-09	217 s										0	*0 fish/min*
H	H16	MT	1	Aug-08	20.0 trap-h										0	*0 fish/24h*
H	H16	MT	1	Jul-09	17.3 trap-h										0	*0 fish/24h*
H	H17	EF	1	Aug-08	444 s										0	*0 fish/min*
H	H17	EF	1	Jul-09	1395 s								7		7	*0.30 fish/min*
H	H17	FN	2	Jul-09	50.0 h								4		4	*0.08 fish/h*
H	H17	GN	1	Aug-08	2.09 net-units										0	*0 fish/net-unit*
H	H17	GN	2	Jul-09	4.38 net-units										0	*0 fish/net-unit*
H	H17	MT	1	Aug-08	17.0 trap-h										0	*0 fish/24h*
H	H17	MT	1	Jul-09	200.0 trap-h								1		1	*0.12 fish/24h*
H	H18	EF	1	Aug-08	221 s										0	*0 fish/min*
H	H18	EF	1	Jul-09	380 s										0	*0 fish/min*
H	H18	MT	1	Aug-08	19.0 trap-h										0	*0 fish/24h*
H	H18	MT	1	Jul-09	41.0 trap-h										0	*0 fish/24h*
H	H19	EF	1	Aug-08	266 s										0	*0 fish/min*
H	H19	GN	1	Aug-08	6.00 net-units										0	*0 fish/net-unit*
H	H19	MT	3	Aug-08	436.0 trap-h										0	*0 fish/24h*
H	H20	EF	1	Aug-08	398 s										0	*0 fish/min*
H	H20	GN	1	Aug-08	5.50 net-units										0	*0 fish/net-unit*
H	H20	MT	1	Aug-08	259.0 trap-h										0	*0 fish/24h*
J	J0-1	EF	1	Jul-04	1728 s								102		102	*3.54 fish/min*
J	J1	GN	1	Jul-09	6.50 net-units										0	*0 fish/net-unit*
J	J1	MT	1	Jul-09	195.3 trap-h								14		14	*1.72 fish/24h*
LML	LML	AL	4	Jul-00	11.0 rod-h		11								11	*1.00 fish/rod-h*
LML	LML	GN	3	Sep-97	2.17 net-units	5	4		9						18	*8.31 fish/net-unit*
LML	LML	GN	2	Jul-98	0.92 net-units	2	2	1	3						8	*8.73 fish/net-unit*
LML	LML	GN	8	Sep-98	8.94 net-units	19	2	2	24						47	*5.26 fish/net-unit*
LML	LML	GN	11	Jul-99	12.40 net-units		15	7	50	11					83	*6.69 fish/net-unit*
LML	LML	GN	8	Jul-00	10.24 net-units	1	18	8	5	9					41	*4.00 fish/net-unit*
LML	HSL	AL	1	Jul-00	2.0 rod-h		1								1	*0.50 fish/rod-h*
LML	HSL	GN	3	Jul-00	2.78 net-units		7			4					11	*3.96 fish/net-unit*
LML	HSL-W	EF	1	Jun-98	649 s			2							2	*0.18 fish/min*
LML	HSL-W	EF	1	Jul-98	210 s			5					6		11	*3.14 fish/min*
LML	HSL-W	EF	1	Jun-00	626 s							1	6		7	*0.67 fish/min*
LML	HSL-W	EF	1	Jul-00	473 s		1	11			1	2			15	*1.90 fish/min*
LML	HSL-W	EF	1	Sep-00	521 s			28				3	6		37	*4.26 fish/min*
LML	W	AL	1	Jul-00	2.0 rod-h										0	*0 fish/rod-h*
LML	W	GN	6	Jul-00	4.76 net-units		21			3					24	*5.04 fish/net-unit*
LML	W-LML	EF	1	Jul-00	346 s	3	1	19				1			24	*4.16 fish/min*
MR	ML-MR	AL	1	Jun-98	2.0 rod-h		1								1	*0.50 fish/rod-h*
MR	ML-MR	AL	1	Jul-98	1.0 rod-h		2								2	*2.00 fish/rod-h*
MR	ML-MR	EF	1	Jun-97	522 s			2				1	1	5	9	*1.03 fish/min*
MR	ML-MR	EF	1	Jul-97	558 s	3	1	2				6	1		13	*1.40 fish/min*
MR	ML-MR	EF	1	Aug-97	525 s		5	3				1	2		11	*1.26 fish/min*
MR	ML-MR	EF	1	Jun-98	637 s							1	1		2	*0.19 fish/min*
MR	ML-MR	EF	1	Jul-98	620 s			2				1		9	12	*1.16 fish/min*
MR	MR-U	AL	2	Jun-97	6.0 rod-h		5								5	*0.83 fish/rod-h*
MR	MR-U	AL	1	Jul-97	2.0 rod-h		4								4	*2.00 fish/rod-h*
MR	MR-U	GN	1	Oct-99	2.48 net-units		2	1							3	*1.21 fish/net-unit*
MR	LML-MR	EF	1	Jun-98	560 s	2		3			1		2		8	*0.86 fish/min*
MR	MR-L	AL	1	Jun-97	7.0 rod-h		1	2							3	*0.43 fish/rod-h*
MR	MR-L	AL	1	Jun-98	0.8 rod-h										0	*0 fish/rod-h*
MR	MR-L	TU	37	Aug/Sep-97	441.5 h	1022	2	13	29						1066	*2.41 fish/h*
MR	MR-L	TU	27	Sep-98	402.8 h	926	6	20	52	2					1006	*2.50 fish/h*
MR	MR-L	TU	67	Sep-99	806.5 h	1292	10	230	146	11					1689	*2.09 fish/h*
PAR	PAR	AL	2	Aug-98	7.0 rod-h		4								4	*0.57 fish/rod-h*
PAR	PAR	GN	5	Aug-98	11.92 net-units		27		12	6					45	*3.78 fish/net-unit*
CHL	CHL	FN	2	Aug-08	42.8 h		4	10			1				15	*0.35 fish/h*
CHL	CHL	GN	3	Aug-08	1.92 net-units		13	2							15	*7.83 fish/net-unit*
CHL	CHL	MT	1	Aug-08	94.0 trap-h										0	*0 fish/24h*
All Methods/Sites Combined			**802**	**1997-2009**	**-**	**3881**	**706**	**1942**	**451**	**2795**	**73**	**215**	**3077**	**6582**	**19722**	**-**

[a] AL = angling; EF = backpack electrofishing; FN = fyke net; GN = gill nets; MT = minnow traps; TU = fish fence (upstream trap)

Note: s = seconds; h = hours; ARCH = Arctic char; LKTR = lake trout; ARGR = Arctic grayling; RNWH = round whitefish; CISC = cisco; BURB = burbot; SLSC = slimy sculpin; NNST = ninespine stickleback; THST = threespine stickleback; CPUE = catch-per-unit-effort; min = minute

Appendix F12a. Length-frequency (count) of Arctic Char captured in the Meliadine Study Area, 1997 to 2009

Fork Length (mm)	Number of Fish Captured per Basin/Site																									
	ML					A						B				D				LML			MR				
	ML-E	ML-S	ML-W	ML-PL	Subtotal	A0-1	A1	A1-2	A2-3	A5-6	Subtotal	B0-1	B1-2	B3-4	Subtotal	D0-1	D1	D3	Subtotal	LML	W-LML	Subtotal	LML-MR	ML-MR	MR-L	Subtotal	Total
60 - 69						1					1															**1**
70 - 79	2	1			3												1		1					3		3	**7**
80 - 89	11	1			12								5	1	6	1	4		5								**23**
90 - 99	7				7	1					1		7		7	3	3		6		1	1					**22**
100 - 109	2	1			3								5		5	8	6		14								**22**
110 - 119				1	1	1					1		3		3		1	1	2								**7**
120 - 129	3	3		1	7												1		1								**8**
130 - 139	1	5			6				1		1		4		4	3	1		4								**15**
140 - 149	9	3			12								1		1												**13**
150 - 159	6	4			10					1	1										1	1					**12**
160 - 169	29	5			34																1	1					**35**
170 - 179	38	10			48									1	1		3		3								**52**
180 - 189	52	8			60								2		2												**62**
190 - 199	46	4			50								1		1												**51**
200 - 209	45	4			49			1			1	1			1												**51**
210 - 219	31	2			33																				1	1	**34**
220 - 229	24	2			26												1		1								**27**
230 - 239	30	1			31																				2	2	**33**
240 - 249	16				16												2		2						2	2	**20**
250 - 259	12				12												4		4						5	5	**21**
260 - 269	6	1			7												2		2						14	14	**23**
270 - 279	6				6												1		1						10	10	**17**
280 - 289	3				3												3		3						23	23	**29**
290 - 299	3				3		1				1						1		1						28	28	**33**
300 - 309	1				1		1				1														43	43	**45**
310 - 319																	4	1	5						39	39	**44**
320 - 329							1				1						1		1						58	58	**60**
330 - 339																	1		1						59	59	**60**
340 - 349																	4		4						88	88	**92**
350 - 359																									104	104	**104**
360 - 369																	2		2						109	109	**111**
370 - 379							1				1						1		1						118	118	**120**
380 - 389																	2		2						117	117	**119**
390 - 399																	1		1						138	138	**139**
400 - 409																	4		4						103	103	**107**
410 - 419																									84	84	**84**
420 - 429																	1		1						100	100	**101**
430 - 439																	3		3						105	105	**108**
440 - 449																	3		3						97	97	**100**
450 - 459																									109	109	**109**
460 - 469																									102	102	**102**
470 - 479																	3		3						106	106	**109**
480 - 489	1				1												1		1	2		2			112	112	**116**
490 - 499																	3		3	1		1			133	133	**137**
500 - 509																	1		1	1		1			89	89	**91**
510 - 519																									110	110	**110**
520 - 529																				1		1			97	97	**98**
530 - 539																	2		2	2		2	1		104	105	**109**
540 - 549																				2		2			114	114	**116**
550 - 559			1		1															2		2	1		75	76	**79**
560 - 569			2		2																				78	78	**80**
570 - 579																	1		1	4		4			69	69	**74**
580 - 589			2		2															1		1			69	69	**72**
590 - 599																				1		1			83	83	**84**
600 - 609		1	1		2															3		3			70	70	**75**
610 - 619			1		1												2		2						59	59	**62**
620 - 629			2		2															3		3			48	48	**53**
630 - 639				3	3															1		1			50	50	**54**
640 - 649			1		1															1		1			38	38	**40**
650 - 659			2	2	4																				23	23	**27**
660 - 669			2	2	4																				11	11	**15**
670 - 679				2	2																				13	13	**15**
680 - 689			1		1																				4	4	**5**
690 - 699																									7	7	**7**
700 - 709	1				1															1		1			6	6	**8**
710 - 719				1	1																				5	5	**6**
720 - 729																									3	3	**3**
730 - 739																									1	1	**1**
740 - 749				2	2																				2	2	**4**
750 - 759				1	1																				1	1	**2**
760 - 769				1	1																				2	2	**3**
770 - 779				1	1																						**1**
Total	**385**	**56**	**15**	**17**	**473**	**3**	**4**	**1**	**1**	**1**	**10**	**1**	**28**	**2**	**31**	**15**	**74**	**2**	**91**	**26**	**3**	**29**	**2**	**3**	**3240**	**3245**	**3879**

Golder Associates

Appendix F12b. Length-frequency (count) of Lake Trout captured in the Meliadine Study Area, 1997 to 2009

Fork Length (mm)	Number of Fish Captured per Basin/Site																																	
	ML					A						B					D			F	G	LML						MR					PAR	CHL	Total
	ML-E	ML-S	ML-W	ML-PL	Subtotal	A0-1	A1	A1-2	A2-3	A5-6	Subtotal	B0-1	B1-2	B2	B3-4	Subtotal	D0-1	D1	Subtotal	F0-1	G0-1	HSL	HSL-W	LML	W	W-LML	Subtotal	LML-MR	ML-MR	MR-L	MR-U	Subtotal	PAR	CHL	
40 - 49																													2			2			**2**
50 - 59																													2			2			**2**
60 - 69						2					2	1				1	1		1										2			2			**6**
70 - 79	5	1			6					2	2		4			4	1		1	4	2														**19**
80 - 89	31	2		1	34	2			1	2	5	2	6			8	2		2				1			1	2								**51**
90 - 99	26	2		1	29	2				1	3	1	2			3																			**35**
100 - 109	3	1			4			1		2	3		2			2																			**9**
110 - 119	6	1			7				2	2	4		2		1	3	1		1														1		**16**
120 - 129	21				21					3	3																								**24**
130 - 139	11	2			13								1		1	2	1		1		1														**17**
140 - 149	5	4			9													1	1		1														**11**
150 - 159	9				9										1	1																			**10**
160 - 169	2	2			4																												1		**5**
170 - 179	4	2			6																													3	**9**
180 - 189	3	3			6								1			1																			**7**
190 - 199	2				2																												2	2	**6**
200 - 209		2	1		3																														**3**
210 - 219	2				2																												1	2	**5**
220 - 229	1	1			2																														**2**
230 - 239	2				2																													1	**3**
240 - 249																																		1	**1**
250 - 259							1				1							1	1															1	**3**
260 - 269	1	1			2																													1	**3**
270 - 279	2	1		1	4		1				1																								**5**
280 - 289	1		1		2		1				1							1	1					1		1								1	**6**
290 - 299		2			2																														**2**
300 - 309	3	1			4																			2			2			1		1			**7**
310 - 319	4	1		1	6																									2		2			**8**
320 - 329												1				1						1					1								**2**
330 - 339	3	1		1	5																														**5**
340 - 349	2				2		1				1													4			4								**7**
350 - 359	3	1			4																			2			2			5		5			**11**
360 - 369	3	1			4									2		2								2			2			1	1	2			**10**
370 - 379		2	2		4																			1			1	1				1	2	1	**9**
380 - 389	4	1		2	7									1		1								3			3			3		3	2		**16**
390 - 399	3	2	1	2	8									1		1								4	2		6						1	1	**17**
400 - 409	2	1	1	1	5																			1			1						2		**8**
410 - 419	3	1	3		7																				2		2			1		1	2		**12**
420 - 429	6		4	2	12																			2	2		4		1	1		2	1		**19**
430 - 439	8	2	1	3	14																			5			5						3	1	**23**
440 - 449	1	4	2	2	9									1		1						1		3	1		5			1		1	3		**19**
450 - 459	3	3	3	2	11																	1		8	1		10			2		2	1	1	**25**
460 - 469	1	1	2	4	8																			3	1		4			1		1			**13**
470 - 479	4	1	5	4	14																			1	1		2						1		**17**
480 - 489			2	3	5																	1		1			2		1			1	1		**9**
490 - 499	3	3	2	2	10																									1		1			**11**

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Appendix F12b. Length-frequency (count) of Lake Trout captured in the Meliadine Study Area, 1997 to 2009

| Fork Length (mm) | Number of Fish Captured per Basin/Site | | |

Appendix F12c. Length-frequency (count) of Arctic Grayling captured in the Meliadine Study Area, 1997 to 2009

| Fork Length (mm) | Number of Fish Captured per Basin/Site | | |

Appendix F12d. Length-frequency (count) of Round Whitefish captured in the Meliadine Study Area, 1997 to 2009

Fork Length (mm)	Number of Fish Captured per Basin/Site												
	ML					A	D			LML	MR	PAR	Total
	ML-E	ML-S	ML-W	ML-PL	Subtotal	A1	D0-1	D1	Subtotal	LML	MR-L	PAR	
80 - 89	5				5								**5**
90 - 99	18				18								**18**
100 - 109	10				10								**10**
110 - 119	1				1								**1**
120 - 129							1		1				**1**
130 - 139	1				1		1	3	4				**5**
140 - 149	6	1			7								**7**
150 - 159	6				6								**6**
160 - 169	5				5								**5**
170 - 179	1				1								**1**
180 - 189	1	1			2			1	1				**3**
190 - 199	1			1	2								**2**
200 - 209	1	1		1	3								**3**
210 - 219		1			1	1							**2**
220 - 229										1			**1**
230 - 239		2			2							1	**3**
240 - 249													**0**
250 - 259											3		**3**
260 - 269	2				2						7		**9**
270 - 279		1			1						7		**8**
280 - 289		1			1						3		**4**
290 - 299	1	1			2					1	7		**10**
300 - 309			1		1						10		**11**
310 - 319										2	16		**18**
320 - 329										1	5		**6**
330 - 339	1			1	2					2	6		**10**
340 - 349	1	2		4	7					5	6	1	**19**
350 - 359		1	1		2					6	8	2	**18**
360 - 369	3		2	1	6					7	15		**28**
370 - 379			2		2					6	7	1	**16**
380 - 389		3		1	4					10	6	1	**21**
390 - 399	1	1	1		3					8	13	2	**26**
400 - 409		1	2		3					16	15	1	**35**
410 - 419		1	1		2					2	20	1	**25**
420 - 429	1				1					7	39		**47**
430 - 439	2	1	1		4						22	1	**27**
440 - 449	2				2					4	7		**13**
450 - 459			1		1						3		**4**
460 - 469	2			1	3						2		**5**
470 - 479	1				1								**1**
480 - 489													**0**
490 - 499													**0**
500 - 509										3			**3**
510 - 519										2			**2**
Total	**73**	**19**	**12**	**10**	**114**	**1**	**2**	**4**	**6**	**83**	**227**	**11**	**442**

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Appendix F12e. Length-frequency (count) of Cisco captured in the Meliadine Study Area, 1997 to 2009

Fork Length (mm)	Number of Fish Captured per Basin/Site																						
	ML					A			B					D			LML				MR	PAR	
	ML-E	ML-S	ML-W	ML-PL	Subtotal	A1	A6	Subtotal	B0-1	B2	B6	B7	Subtotal	D0-1	D1	Subtotal	HSL	LML	W	Subtotal	MR-L	PAR	Total
70 - 79	2	2			4				1				1										**5**
80 - 89	20	19			39																		**39**
90 - 99	217	4			221				1				1										**222**
100 - 109	394			1	395										2	2							**397**
110 - 119	161	1			162				1	1			2	1	10	11							**175**
120 - 129	44	6			50					3			3		4	4							**57**
130 - 139	121	11			132				1				1		3	3							**136**
140 - 149	214	38			252																		**252**
150 - 159	103	24			127							1	1		1	1							**129**
160 - 169	19	8			27										10	10							**37**
170 - 179	5	1			6					1	3		4		14	14							**24**
180 - 189	4			4	8										14	14							**22**
190 - 199	7			1	8										21	21							**29**
200 - 209	3				3										11	11							**14**
210 - 219	4	2			6										6	6							**12**
220 - 229		3			3										6	6							**9**
230 - 239	1				1										10	10							**11**
240 - 249	1				1	1		1						1	6	7	1			1			**10**
250 - 259										1			1		5	5							**6**
260 - 269	1				1										8	8							**9**
270 - 279		1			1							3	3		5	5							**9**
280 - 289	1				1					1		10	11		1	1					2		**15**
290 - 299										2		9	11		2	2							**13**
300 - 309	5	10			15							3	3		1	1							**19**
310 - 319	10	13			23					2		1	3		3	3	1	1		2	2		**33**
320 - 329	21	8	1		30					4		2	6		2	2		1		1			**39**
330 - 339	8	8		1	17		1	1		5		2	7		3	3	1			1			**29**
340 - 349	3	3	1		7					2		2	4		4	4		1		1			**16**
350 - 359		1	2		3		1	1		5			5		2	2		2	1	3	2		**16**
360 - 369			2		2		1	1		2		1	3		3	3							**9**
370 - 379										4			4		1	1	1	2		3	2	1	**11**
380 - 389		1			1													5	2	7	4	2	**14**
390 - 399																		3		3	1	1	**5**
400 - 409															1	1						2	**3**
410 - 419							1	1															**1**
420 - 429																		1		1			**1**
430 - 439				1	1													2		2			**3**
440 - 449																		1		1			**1**
450 - 459																		1		1			**1**
Total	**1369**	**164**	**6**	**8**	**1547**	**1**	**4**	**5**	**4**	**33**	**3**	**34**	**74**	**2**	**159**	**161**	**4**	**20**	**3**	**27**	**13**	**6**	**1833**

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Appendix F12f. Length-frequency (count) of Burbot captured in the Meliadine Study Area, 1997 to 2009

Total Length (mm)	Number of Fish Captured per Basin/Site																			
	ML				A	B								D			LML	MR	CHL	
	ML-E	ML-S	ML-PL	Subtotal	A0-1	B0-1	B1-2	B3-4	B4-5	B46-66	B5	B6-7	B7	Subtotal	D0-1	D1	Subtotal	HSL-W	LML-MR	CHL	Total
70 - 79					1	1				4				5		1	1				7
80 - 89					1			1				1		2	2	1	3	1			7
90 - 99	1			1				1	1			1		3							4
100 - 109	1			1			1							1							2
110 - 119								1						1							1
120 - 129							1	1						2							2
130 - 139							1							1		3	3				4
140 - 149								1						1		2	2				3
150 - 159																2	2				2
160 - 169																3	3				3
170 - 179																					0
180 - 189																1	1				1
190 - 199																1	1		1		2
200 - 209								1						1	1	1	2				3
210 - 219																					0
220 - 229						1								1							1
230 - 239																					0
240 - 249																3	3				3
250 - 259																					0
260 - 269						2		1						3							3
270 - 279								1					1	2							2
280 - 289																					0
290 - 299		2	1	3											1		1				4
300 - 309		1	1	2							1		1	2							4
310 - 319		1		1				1						1							2
320 - 329		1		1											1		1				2
330 - 339			1	1																1	2
340 - 349			1	1																	1
350 - 359																					0
360 - 369		1		1																	1
370 - 379																					0
380 - 389																1	1				1
390 - 399																					0
400 - 409											1			1							1
410 - 419																					0
420 - 429																					0
430 - 439		1	3	4																	4
440 - 449																					0
450 - 459																					0
460 - 469																					0
470 - 479																					0
480 - 489																					0
490 - 499																					0
500 - 509																					0
510 - 519																					0
520 - 529																					0
530 - 539																					0
540 - 549			1	1																	1
550 - 559			1	1																	1
560 - 569																					0
570 - 579																					0
580 - 589																					0
590 - 599																					0
600 - 609													1	1							1
Total	**2**	**7**	**9**	**18**	**2**	**4**	**3**	**9**	**1**	**4**	**2**	**2**	**3**	**28**	**5**	**19**	**24**	**1**	**1**	**1**	**75**

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Appendix F12g. Length-frequency (count) of Slimy Sculpin captured in the Meliadine Study Area, 1997 to 2009

Total Length (mm)	Number of Fish Captured per Basin/Site																								
	ML			A						B								D			F	LML			MR	
	ML-E	ML-PL	Subtotal	A0-1	A2-3	A5-6	A6-7	A7-8	Subtotal	B0-1	B1-2	B3-4	B4-5	B5-6	B6-7	B68-69	Subtotal	D0-1	D1-2	Subtotal	F0-1	HSL-W	W-LML	Subtotal	ML-MR	Total
30 - 39							1		1																	1
40 - 49				1		2	3		6		3				3	1	7	5	1	6					2	21
50 - 59	1		1	1		7	7		15	4	1	3		1	2		11	20	1	21					6	54
60 - 69	2		2			3	2	1	6	5	3	8	3		2		21	13	3	16	1	2		2	1	49
70 - 79				1	1	2	1	2	7	2	5	2	1	1	3		14	9	3	12					1	34
80 - 89				1			6		7	1	4	4	1				10	3	1	4		4	1	5		26
90 - 99		1	1			1	2		3		1		2		1		4	1		1						9
100 - 109										1			1				2	1	1	2						4
110 - 119													1				1									1
120 - 129				1					1																	1
Total	**3**	**1**	**4**	**5**	**1**	**15**	**22**	**3**	**46**	**13**	**17**	**17**	**9**	**2**	**11**	**1**	**70**	**52**	**10**	**62**	**1**	**6**	**1**	**7**	**10**	**200**

Appendix F12h. Length-frequency (count) of Ninespine Stickleback captured in the Meliadine Study Area, 1997 to 2009

Total Length (mm)	Number of Fish Captured per Basin/Site																						
	A						B				D				F	G	H	J			LML	MR	
	A0-1	A5-6	A6	A6-7	26 other sites	Subtotal	B4-5	B6-7	B7	25 other sites	Subtotal	D0-1	D1	4 other sites	Subtotal	2 sites	4 sites	11 sites	J0-1	J1	Subtotal	HSL-W	2 sites	Total
10 - 19					5	5				1	1													6
20 - 29	2	1		11	16	30	5	1		14	20	3		7	10	2	8		4		4	2		76
30 - 39	39	8		7	21	75	10	2		24	36	12		24	36	10	45		68		68	6		276
40 - 49	16	26		15	47	104	29	6	1	56	92	15		40	55	9	64		21	2	23	3	2	352
50 - 59	6	78	1	18	83	186	33	13		117	163	7	1	50	58	7	36	9	5	6	11	5	4	479
60 - 69	2	40	3	11	53	109	9	7	1	61	78	4	9	18	31	8	11	7	4	6	10	2	1	257
70 - 79		7	1	1	13	22	3	2	2	16	23		2	2	4		1	1						51
80 - 89		1			4	5				3	3			1	1									9
Total	**65**	**161**	**5**	**63**	**242**	**536**	**89**	**31**	**4**	**292**	**416**	**41**	**12**	**142**	**195**	**36**	**165**	**17**	**102**	**14**	**116**	**18**	**7**	**1506**

Appendix F12i. Length-frequency (count) of Threespine Stickleback captured in the Meliadine Study Area, 1997 to 2009

Total Length (mm)	Number of Fish Captured per Basin/Site																			
	ML				A						B			D				F	G	MR	
	ML-E	ML-PL	ML-S	Subtotal	A0-1	A1-2	A2-3	A5-6	A6	Subtotal	B0-1	B1-2	Subtotal	D0-1	D1	D1-2	Subtotal	F0-1	G0-1	ML-MR	Total
20 - 29	2			2	9					9	2		2	1			1	2		3	19
30 - 39	12		4	16	5					5	3	1	4	1			1	1			27
40 - 49	29		65	94	7		2			9	18		18	8			8	1	1	7	138
50 - 59	48	3	52	103	25	1	4	2		32	9	1	10	6	1		7	4		3	159
60 - 69	43	3	10	56	15	1	1	1	1	19	6	2	8	4	1	1	6	1	1	1	92
70 - 79	15		3	18												1	1				19
80 - 89																					
Total	**149**	**6**	**134**	**289**	**61**	**2**	**7**	**3**	**1**	**74**	**38**	**4**	**42**	**20**	**2**	**2**	**24**	**9**	**2**	**14**	**454**

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Appendix F13. Length-weight relationships of fish captured in the Meliadine Study Area, 1997-2009

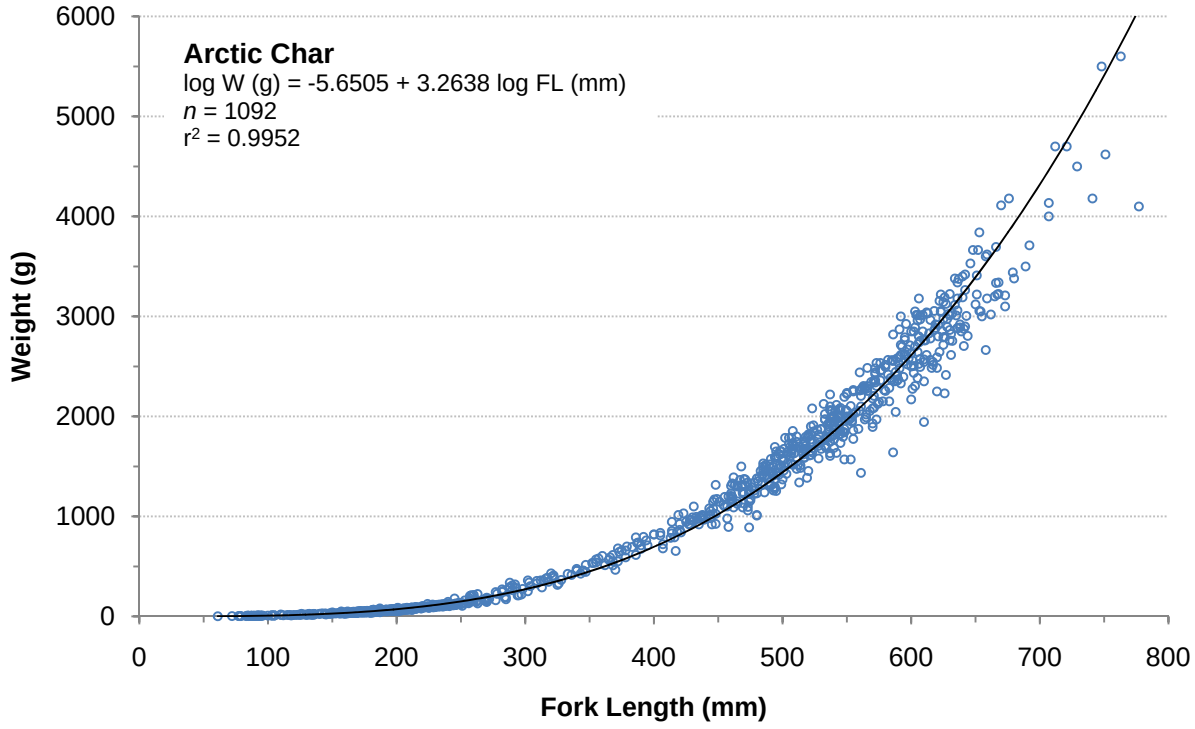
Species	Basin/Site	$\log_{10}$ (Weight) = a + b ($\log_{10}$ Fork Length)				Relative Weight		
		n	a	b	r^2	*n* [a]	Mean	SD
Arctic Char	ML-E	*381*	-5.0341	2.9808	0.984	*359*	81.11	8.12
	ML-S	*52*	-5.2824	3.0888	0.971	*51*	81.23	11.78
	ML-W	*15*	-5.1202	3.0579	0.996	*15*	92.97	6.95
	ML Total	*460*	-5.3492	3.1213	0.991	*436*	81.68	8.90
	A	*10*	-5.0975	3.0342	0.993	*7*	92.18	18.75
	B	*29*	-5.5673	3.2484	0.956	*9*	96.70	16.10
	D	*53*	-5.0735	3.0520	0.989	*51*	101.97	11.33
	Peninsula Total	*92*	-5.4225	3.1864	0.993	*67*	100.24	13.10
	MR	*516*	-5.1376	3.0806	0.986	*513*	101.30	8.70
	LML	*24*	-4.8000	2.9411	0.994	*24*	92.54	10.81
	Combined[b]	*1092*	-5.6505	3.2638	0.995	*1040*	92.80	13.23
Arctic Grayling	ML-E	*93*	-5.1190	3.0707	0.996	*88*	103.47	8.10
	ML-S	*82*	-5.0714	3.0402	0.986	*82*	97.14	9.37
	ML-W	*6*	-5.6658	3.2805	0.999	*6*	95.40	7.39
	ML Total	*181*	-5.1275	3.0687	0.992	*176*	100.24	9.24
	A6	*117*	-5.3043	3.1417	0.995	*101*	100.49	6.72
	A	*253*	-5.2810	3.1256	0.994	*201*	97.82	9.89
	B	*469*	-5.2495	3.1134	0.990	*396*	98.62	10.58
	B7	*305*	-5.2286	3.1031	0.988	*274*	98.41	9.29
	D	*103*	-5.3982	3.1972	0.993	*97*	110.59	9.34
	Peninsula Total	*829*	-5.3025	3.1388	0.991	*697*	100.04	11.11
	LML	*24*	-4.9457	2.9865	0.986	*23*	96.34	11.88
	MR	*60*	-5.6508	3.2925	0.993	*57*	105.71	11.26
	CHL	*12*	-5.1161	3.0635	0.997	*12*	99.06	4.84
	Combined[b]	*1116*	-5.3175	3.1456	0.993	*966*	100.29	10.86
Lake Trout	ML-E	*227*	-5.3387	3.1414	0.997	*157*	98.70	12.12
	ML-S	*77*	-5.2155	3.0909	0.994	*76*	99.62	11.60
	ML-W	*52*	-5.2767	3.1149	0.989	*102*	99.45	9.52
	ML Total	*407*	-5.3103	3.1283	0.997	*335*	99.14	11.24
	Peninsula Total	*55*	-5.1856	3.0979	0.989	*23*	110.55	22.88
	LML	*69*	-4.8338	2.9498	0.970	*69*	100.50	10.57
	MR	*16*	-5.1799	3.0861	0.974	*16*	103.82	9.93
	MR & LML	*85*	-4.8338	2.9498	0.970	*85*	101.12	10.47
	PAR	*29*	-5.0916	3.0492	0.989	*29*	102.50	13.20
	CHL	*16*	-5.1727	3.0818	0.995	*16*	104.17	7.21
	Combined[b]	*592*	-5.2483	3.1063	0.996	*488*	100.39	12.15
Round Whitefish	ML-E	*72*	-5.4245	3.1572	0.996	*46*	94.67	10.36
	ML-S	*17*	-5.0845	3.0287	0.976	*17*	100.88	15.47
	ML-W	*16*	-5.7311	3.2927	0.996	*16*	102.97	5.54
	ML Total	*105*	-5.4786	3.1848	0.996	*79*	97.69	11.41
	LML	*78*	-4.7549	2.9057	0.938	*78*	99.03	8.12
	MR	*85*	-3.9933	2.6173	0.925	*85*	103.24	10.82
	PAR	*11*	-5.3207	3.1359	0.969	*11*	105.88	8.97
	Combined[b]	*282*	-5.4918	3.1935	0.995	*256*	100.26	10.48
Cisco	ML-E	*313*	-5.4837	3.1965	0.995	*231*	98.04	9.42
	ML-S	*86*	-5.5611	3.2211	0.989	*85*	92.57	12.20
	ML-W	*8*	-5.9276	3.3907	0.996	*8*	99.58	8.17
	ML Total	*407*	-5.4832	3.1939	0.994	*324*	96.65	10.46
	B7	*21*	-5.5175	3.2123	0.873	*21*	95.57	9.41
	A & B	*62*	-5.5767	3.2558	0.979	*61*	107.26	18.33
	D	*117*	-5.9751	3.4292	0.981	*117*	109.40	16.74
	Peninsula Total	*179*	-5.7739	3.3406	0.982	*178*	108.67	17.28
	MR & LML	*32*	-4.0580	2.6466	0.856	*32*	96.71	14.70
	PAR	*6*	-5.5176	3.0994	0.678	*6*	105.72	7.73
	Combined[b]	*624*	-5.6068	3.2569	0.993	*540*	100.71	14.44
Burbot	Combined[b]	*46*	-4.8462	2.8502	0.977	*39*	102.33	19.97

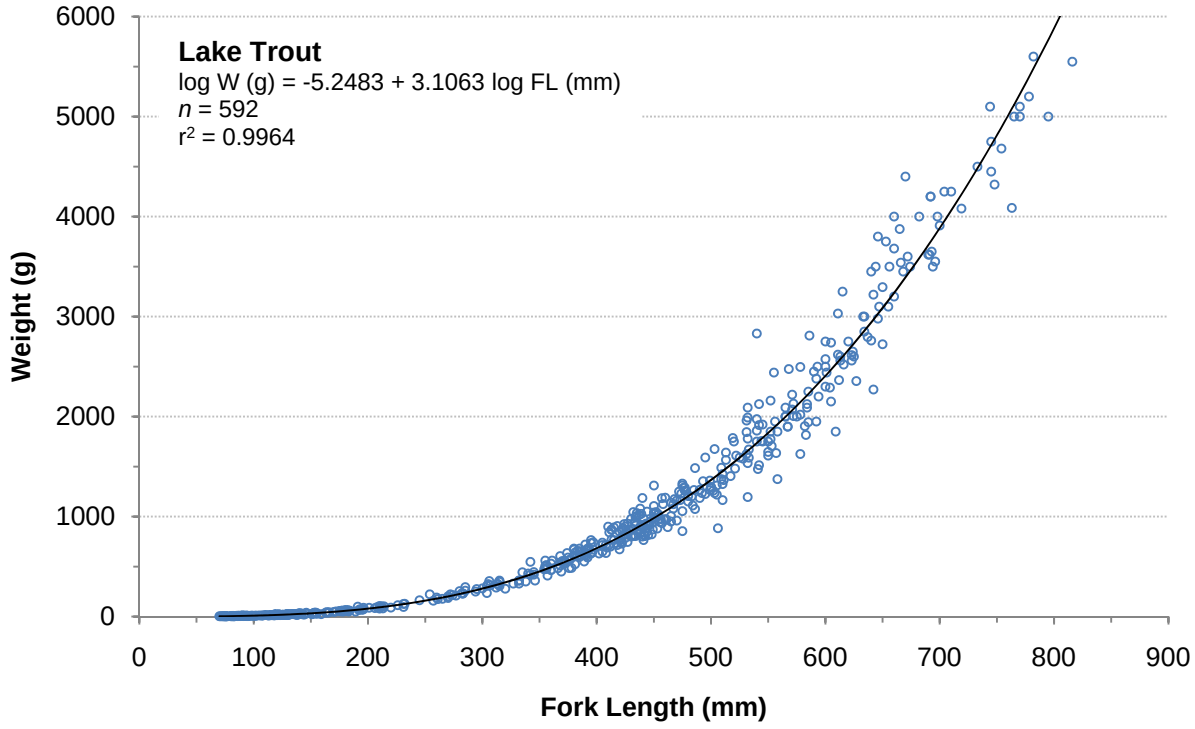
[a] Sample size based on minimum total length of 100 mm for Round Whitefish and Cisco; 120 mm for all other species.

[b] Combined length-weight regression developed using data for all fish collected in the Meliadine Study Area.

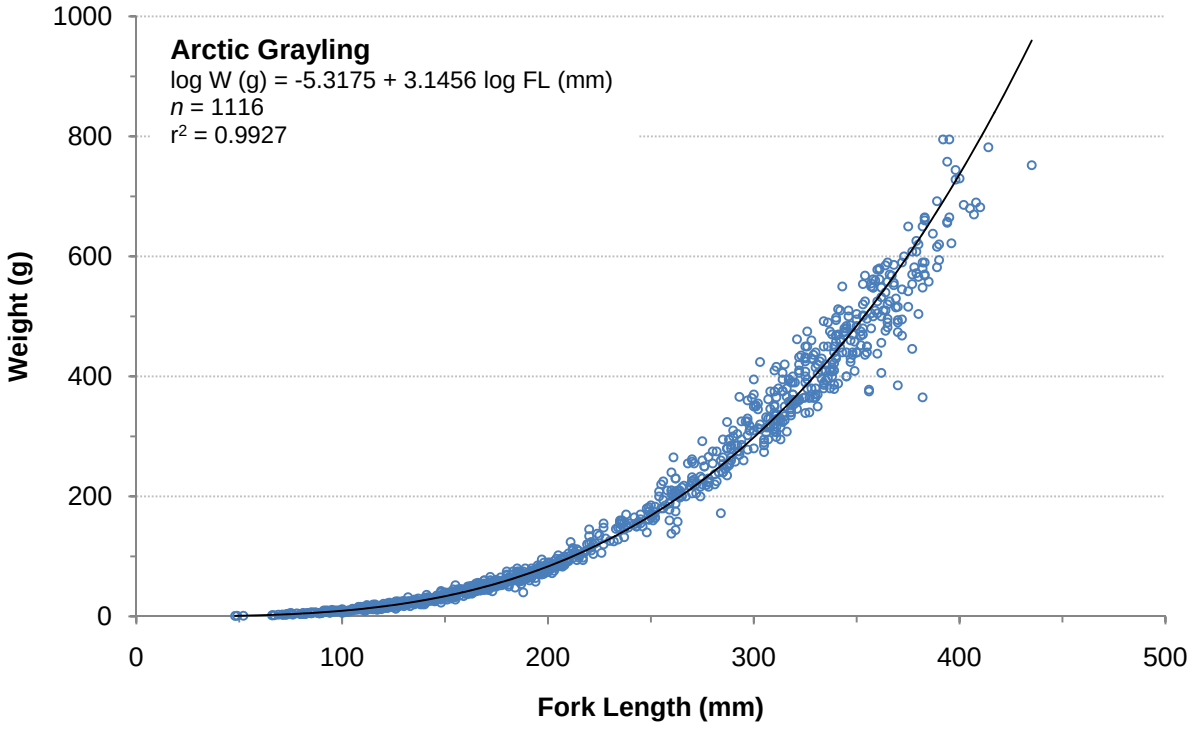
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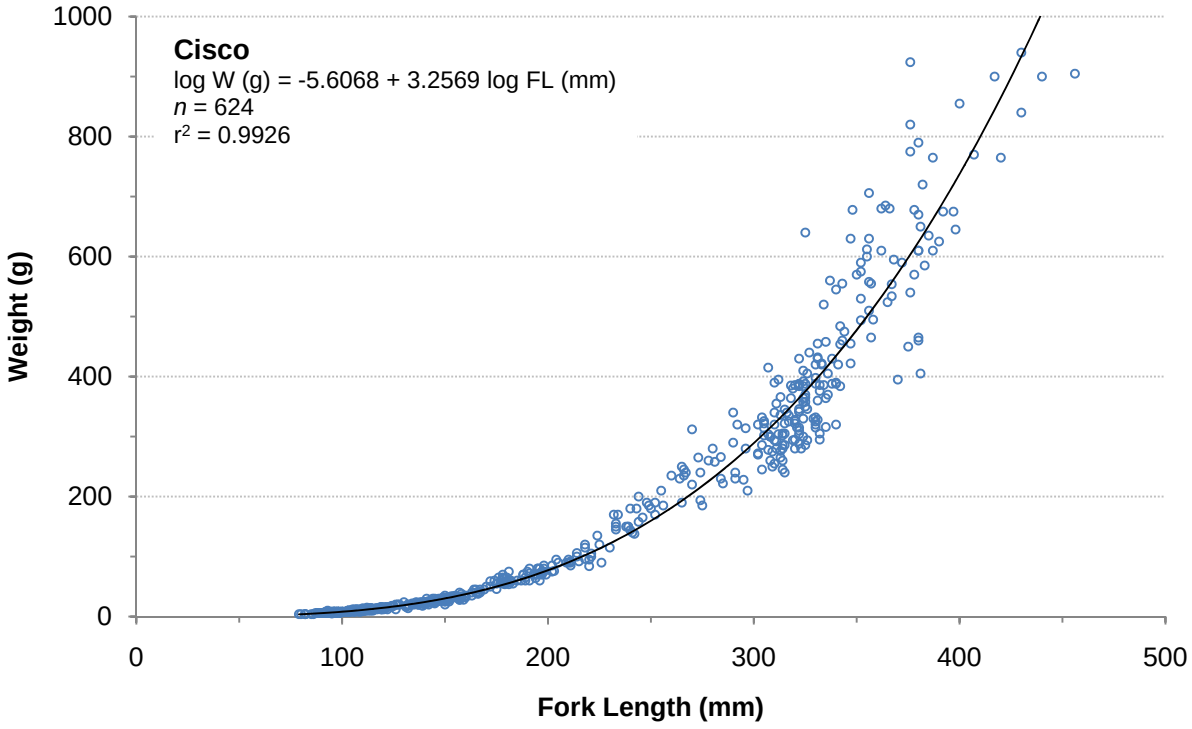
Appendix F14. Length-weight regression for fish species captured in the Meliadine Study Area, 1997 to 2009 (all areas combined)



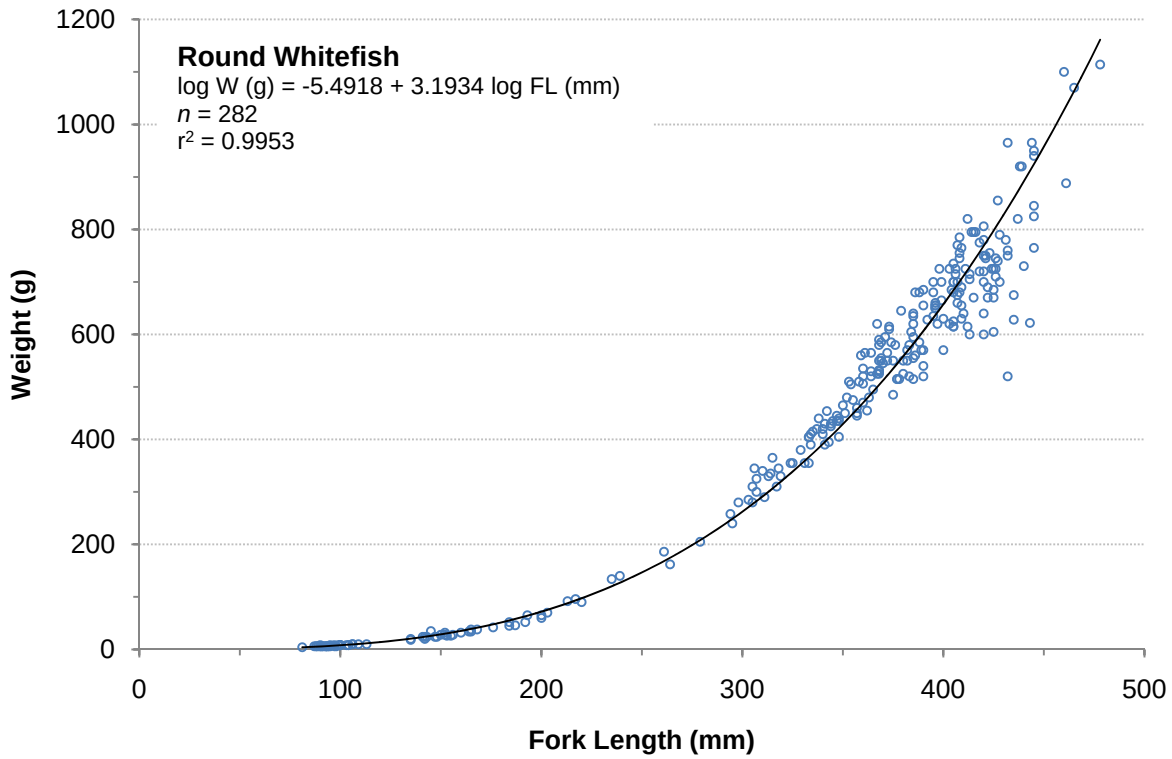


Appendix F14. Length-weight regression for fish species captured in the Meliadine Study Area, 1997 to 2009 (all areas combined)





Appendix F14. Length-weight regression for fish species captured in the Meliadine Study Area, 1997 to 2009 (all areas combined)



Appendix F15. Age-length statistics for Arctic Char captured in the Meliadine Study Area, 1997 to 2009

Location	Parameter	Fork Length (mm) at Age (years)										Not Aged	All Fish
		1	2	3	4	5	6	7	8	9	10		
Meliadine Lake (ML-E)	*n*	1	12	19	18	7	1					327	385
	Mean	**85**	**147**	**184**	**237**	**287**	**480**					**196**	**198**
	SD	-	11	14	17	17	-					167	50
	Min	85	124	161	203	250	480					77	77
	Max	85	162	212	270	302	480					703	703
Meliadine Lake (ML-S)	*n*	2	11	19	3			1				20	56
	Mean	**78**	**136**	**188**	**228**			**607**				**171**	**178**
	SD	4	17	20	40			-				22	68
	Min	72	105	155	185			607				130	77
	Max	82	162	227	263			607				210	607
Meliadine Lake (ML-W & ML-PL)	*n*								2	3		27	32
	Mean								**619**	**628**		**622**	**622**
	SD								19	59		156	143
	Min								605	561		117	117
	Max								632	665		177	177
ML Total	*n*	3	23	38	21	7	1	1	2	3		374	**473**
	Mean	81	141	186	235	287	480	607	619	628		226	**224**
	SD	4	15	17	20	17	-	-	19	58		127	**125**
	Min	77	105	155	185	250	480	607	605	561		77	**77**
	Max	85	162	227	270	302	480	607	632	665		777	**777**
Basin A	*n*	1	2		3	2						2	**10**
	Mean	61	102		266	348						145	**205**
	SD	-	14		54	32						18	**110**
	Min	61	92		204	325						132	**61**
	Max	61	112		304	370						157	**370**
Basin B	*n*	8	5	1								17	**31**
	Mean	93	133	182								120	**117**
	SD	9	9	-								42	**36**
	Min	84	118	182								85	**84**
	Max	104	142	182								200	**200**
Basin D	*n*	1	3	3	5	12	8	8	2			49	**91**
	Mean	92	102	197	266	341	414	487	512			210	**274**
	SD	-	5	38	17	35	36	54	25			151	**155**
	Min	92	96	173	245	283	345	407	494			76	**76**
	Max	92	106	240	288	405	446	577	530			610	**610**
Little Meliadine Lake (LML)	*n*						2	1	6	1	1	18	**29**
	Mean						514	554	600	603	707	487	**526**
	SD						47	-	24	-	-	169	**145**
	Min						480	554	570	603	707	92	**92**
	Max						547	554	632	603	707	643	**707**
Meliadine River (MR)	*n*				2	3	12	5	8	3	1	3206	3240
	Mean				**301**	**456**	**475**	**522**	**573**	**624**	**670**	**467**	**468**
	SD				12	122	66	29	37	59	-	98	98
	Min				292	322	375	474	533	557	670	217	217
	Max				309	561	600	545	636	668	670	763	763
All Areas Combined	*n*	16	33	42	31	24	23	17	18	7	2	3666	3879
	Mean	**86**	**134**	**187**	**247**	**340**	**457**	**515**	**580**	**623**	**689**	**437**	**430**
	SD	12	19	18	30	68	62	51	41	49	26	130	137
	Min	61	92	155	185	250	345	407	494	557	670	76	61
	Max	104	162	240	309	561	600	607	636	668	707	777	777

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Appendix F16. Age-length statistics for Lake Trout captured in the Meliadine Study Area, 1997 to 2009

Basin/Site	Para-meter	Fork Length (mm) at Age (years)																													Not Aged	All Fish
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
Meliadine Lake (ML-E)	*n*	17	11	11	5	5	3	4	7	6	3	1	2			1	1		1		1		1	2			1		1	1	1	150	236
	Mean	**87**	**128**	**150**	**176**	**215**	**269**	**305**	**319**	**348**	**443**	**532**	**441**			**583**	**585**		**650**		**647**		**694**	**739**			**684**		**763**	**965**	**780**	**290**	**283**
	SD	6	7	7	7	15	42	16	29	15	26	-	74			-	-		-		-		-	55			-		-	-	-	218	213
	Min	75	118	139	164	193	231	282	274	332	423	532	388			583	585		650		647		694	700			684		763	965	780	74	74
	Max	100	139	166	182	231	314	315	355	369	473	532	493			583	585		650		647		694	778			684		763	965	780	845	965
Meliadine Lake (ML-S)	*n*			1	3	1				1		1		1	4	3	7	8	2	1	1	5	1	1	1					1		46	89
	Mean			**130**	**180**	**201**				**396**		**378**		**454**	**512**	**513**	**552**	**554**	**537**	**585**	**666**	**661**	**710**	**745**	**863**					**865**		**302**	**412**
	SD			-	5	-				-		-		-	43	55	52	36	40	-	-	31	-	-	-					-		151	194
	Min			130	175	201				396		378		454	450	449	495	477	509	585	666	615	710	745	863					865		73	73
	Max			130	184	201				396		378		454	542	545	655	600	565	585	666	698	710	745	863					865		554	865
ML Total	*n*	17	11	12	8	6	3	4	7	7	3	2	2	1	4	4	8	8	3	1	2	5	2	3	1		1		1	2	1	339	468
	Mean	**87**	**128**	**149**	**178**	**212**	**269**	**305**	**319**	**355**	**443**	**455**	**441**	**454**	**512**	**530**	**556**	**554**	**575**	**585**	**657**	**661**	**702**	**741**	**863**		**684**		**763**	**915**	**780**	**396**	**385**
	SD	6	7	9	6	14	42	16	29	23	26	109	74	-	43	57	50	36	71	-	13	31	11	39	-		-		-	71	-	214	218
	Min	75	118	130	164	193	231	282	274	332	423	378	388	454	450	449	495	477	509	585	647	615	694	700	863		684		763	865	780	73	73
	Max	100	139	166	184	231	314	315	355	396	473	532	493	454	542	583	655	600	650	585	666	698	710	778	863		684		763	965	780	845	965
Basin A	*n*	6	5			1	1	2																								11	26
	Mean	**84**	**120**			**254**	**280**	**307**																								**92**	**126**
	SD	20	7			-	-	49																								13	74
	Min	64	108			254	280	272																								72	64
	Max	110	128			254	280	342																								115	342
Basin B	*n*	5	2	1				1	1																							21	31
	Mean	**75**	**123**	**155**				**320**	**360**																							**156**	**153**
	SD	12	11	-				-	-																							122	116
	Min	61	115	155				320	360																							79	61
	Max	94	130	155				320	360																							440	440
Basin D	*n*																															4	11
	Mean																															**70**	**208**
	SD																															1	170
	Min																															70	66
	Max																															71	540
Basin F	*n*																															4	4
	Mean																															**70**	**70**
	SD																															1	1
	Min																															70	70
	Max																															71	71
Basin G	*n*	1	2																													1	4
	Mean	**72**	**140**																													**70**	**106**
	SD	-	8																													-	40
	Min	72	134																													70	70
	Max	72	146																													70	146
Little Meliadine Lake (LML)	*n*																															79	79
	Mean																															**445**	**445**
	SD																															109	109
	Min																															84	84
	Max																															880	880
Meliadine River (MR)	*n*																															36	36
	Mean																															**370**	**370**
	SD																															166	166
	Min																															43	43
	Max																															611	611
Parallel Lake (PAR)	*n*								1	1	2	2	3	3	3	1	1	1			1				1	1		1				8	30
	Mean								**385**	**380**	**396**	**417**	**428**	**429**	**458**	**475**	**532**	**513**			**640**				**765**	**770**		**733**					**259**	**428**
	SD								-	-	8	11	10	16	20	-	-	-			-				-	-		-					120	159
	Min								385	380	390	409	417	410	443	475	532	513			640				765	770		733					119	119
	Max								385	380	402	425	435	441	480	475	532	513			640				765	770		733					445	770
Chickenhead Lake (CHL)	*n*																															17	17
	Mean																															**308**	**308**
	SD																															188	188
	Min																															172	172
	Max																															942	942
All Areas Combined	*n*	31	22	13	8	7	5	7	9	8	5	4	5	4	7	5	9	9	3	1	3	5	2	3	2	1	1	1	1	2	1	522	706
	Mean	**83**	**127**	**149**	**178**	**218**	**274**	**308**	**331**	**358**	**424**	**436**	**433**	**435**	**489**	**519**	**554**	**549**	**575**	**585**	**651**	**661**	**702**	**741**	**814**	**770**	**684**	**733**	**763**	**915**	**780**	**376**	**365**
	SD	12	9	9	6	21	31	24	35	23	32	67	38	18	44	55	47	37	71	-	13	31	11	39	69	-	-	-	-	71	-	204	209
	Min	61	108	130	164	193	231	272	274	332	390	378	388	410	443	449	495	477	509	585	640	615	694	700	765	770	684	733	763	865	780	43	43
	Max	110	146	166	184	254	314	342	385	396	473	532	493	454	542	583	655	600	650	585	666	698	710	778	863	770	684	733	763	965	780	942	965

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Appendix F17. Age-length statistics for Arctic Grayling captured in the Meliadine Study Area, 1997 to 2009

Basin/Site	Parameter	Fork Length (mm) at Age (years)												Not Aged	All Fish
		0	1	2	3	4	5	6	7	8	9	10	11		
Meliadine Lake (ML-E)	*n*		4	4	5	7	1	13	10	17	5	4		23	93
	Mean		**97**	**139**	**183**	**234**	**275**	**308**	**332**	**357**	**373**	**379**		**287**	**292**
	SD		13	4	22	21	-	30	15	25	21	24		79	84
	Min		81	135	167	200	275	266	314	314	342	354		119	81
	Max		112	144	220	260	275	353	360	394	398	400		396	400
Meliadine Lake (ML-S)	*n*	6					2						1	87	96
	Mean	**63**					**275**						**408**	**292**	**279**
	SD	5					18						-	68	86
	Min	58					262						408	132	58
	Max	70					287						408	395	408
ML Total	*n*	6	4	4	5	7	3	13	10	17	5	4	1	117	196
	Mean	**63**	**97**	**139**	**183**	**234**	**275**	**308**	**332**	**357**	**373**	**379**	**408**	**291**	**286**
	SD	5	13	4	22	21	13	30	15	25	21	24	-	72	86
	Min	58	81	135	167	200	262	266	314	314	342	354	408	119	58
	Max	70	112	144	220	260	287	353	360	394	398	400	408	396	408
Basin A	*n*	67	23	25	20	19	3	4	10	21	4	10	2	213	**421**
	Mean	**51**	**78**	**121**	**154**	**200**	**257**	**309**	**333**	**355**	**377**	**383**	**381**	**189**	**177**
	SD	10	10	11	12	15	35	7	30	18	27	18	6	75	**101**
	Min	30	55	107	129	181	230	299	278	321	350	354	377	72	**30**
	Max	70	93	146	173	234	297	316	372	380	414	410	385	391	**414**
Basin B	*n*	121	31	40	17	29	27	12	14	15	6	2		324	**638**
	Mean	**38**	**93**	**129**	**166**	**212**	**288**	**323**	**332**	**356**	**380**	**348**		**178**	**163**
	SD	14	14	26	25	28	28	17	31	34	38	13		65	**95**
	Min	20	57	92	120	170	246	298	275	306	336	339		41	**20**
	Max	70	126	210	220	277	331	346	383	394	435	357		352	**435**
Basin D	*n*	5	3	2	7	10	2	2	2	1				261	**295**
	Mean	**43**	**84**	**177**	**252**	**296**	**273**	**298**	**361**	**335**				**184**	**189**
	SD	10	14	4	22	26	18	33	11	-				83	**87**
	Min	32	73	174	227	244	260	274	353	335				60	**32**
	Max	57	100	180	278	328	285	321	368	335				422	**422**
Basin F	*n*			3	1										4
	Mean			**123**	**138**										**127**
	SD			9	-										10
	Min			115	138										115
	Max			132	138										138
Basin H	*n*	2													2
	Mean	**51**													**51**
	SD	2													2
	Min	49													49
	Max	52													52
Little Meliadine Lake (LML)	*n*	5				2								76	83
	Mean	**39**				**190**								**161**	**154**
	SD	6				15								94	95
	Min	30				179								52	30
	Max	45				200								382	382
Meliadine River (MR)	*n*		7		1	4	4	4	1					258	279
	Mean		**96**		**192**	**247**	**302**	**312**	**308**					**285**	**281**
	SD		33		-	28	9	47	-					37	48
	Min		55		192	206	290	263	308					48	48
	Max		135		192	267	311	363	308					392	392
Chickenhead Lake (CHL)	*n*													12	12
	Mean													**315**	**315**
	SD													68	68
	Min													168	168
	Max													402	402
All Areas Combined	*n*	206	68	74	51	71	39	35	37	54	15	16	3	1269	1938
	Mean	**43**	**88**	**128**	**175**	**224**	**285**	**313**	**333**	**355**	**377**	**378**	**390**	**213**	**199**
	SD	14	17	22	38	39	27	27	26	25	28	22	16	86	102
	Min	20	55	92	120	170	230	263	275	306	336	339	377	41	20
	Max	70	135	210	278	328	331	363	383	394	435	410	408	422	435

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Appendix F18. Age-length statistics for Round Whitefish captured in the Meliadine Study Area, 1997 to 2009

Basin/Site	Para-meter	Fork Length (mm) at Age (years)																Not Aged	All Fish
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	18		
Meliadine Lake (ML-E)	*n*	34	16	5	2	2	2		3		1	1		2	2	1	1	1	73
	Mean	**96**	**152**	**185**	**263**	**318**	**347**		**378**		**435**	**439**		**443**	**453**	**443**	**478**	**142**	**183**
	SD	7	9	13	2	34	19		18		-	-		32	11	-	-	-	121
	Min	81	135	168	261	294	333		368		435	439		420	445	443	478	142	81
	Max	113	165	200	264	342	360		399		435	439		465	461	443	478	142	478
Meliadine Lake (ML-S)	*n*		1	2	2	3	1			6			2					2	19
	Mean		**145**	**192**	**226**	**307**	**340**			**383**			**424**					**263**	**311**
	SD		-	11	13	36	-			16			12					33	87
	Min		145	184	217	279	340			353			415					239	145
	Max		145	200	235	347	340			400			432					286	432
ML Total	*n*	34	17	7	4	5	3		3	6	1	1	2	2	2	1	1	25	114
	Mean	**96**	**151**	**187**	**244**	**311**	**344**		**378**	**383**	**435**	**439**	**424**	**443**	**453**	**443**	**478**	**345**	**239**
	SD	7	9	12	22	31	14		18	16	-	-	12	32	11	-	-	80	131
	Min	81	135	168	217	279	333		368	353	435	439	415	420	445	443	478	142	81
	Max	113	165	200	264	347	360		399	400	435	439	432	465	461	443	478	460	478
Basin A	*n*			1															1
	Mean			**213**															**213**
	SD			-															-
	Min			213															213
	Max			213															213
Basin D	*n*																	2	2
	Mean																	**129**	**129**
	SD																	9	9
	Min																	122	122
	Max																	135	135
Little Meliadine Lake (LML)	*n*					1	1		1	1	2		1	2	1			73	83
	Mean					**311**	**347**		**357**	**385**	**393**		**407**	**415**	**444**			**391**	**390**
	SD					-	-		-	-	5		-	4	-			47	46
	Min					311	347		357	385	389		407	412	444			220	220
	Max					311	347		357	385	396		407	418	444			510	510
Meliadine River (MR)	*n*				1	5					1	7	6	2		1		204	227
	Mean				**283**	**336**					**422**	**420**	**431**	**435**		**459**		**373**	**376**
	SD				-	12					-	14	14	19		-		56	56
	Min				283	317					422	402	407	421		459		253	253
	Max				283	347					422	437	451	448		459		464	464
Parallel Lake (PAR)	*n*				1		1	1	2		4	1		1					11
	Mean				**239**		**344**	**358**	**372**		**399**	**377**		**432**					**372**
	SD				-		-	-	25		14	-		-					51
	Min				239		344	358	354		382	377		432					239
	Max				239		344	358	390		412	377		432					432
All Areas Combined	*n*	34	17	8	6	11	5	1	6	7	8	9	9	7	3	2	1	308	442
	Mean	**96**	**151**	**190**	**250**	**323**	**345**	**358**	**373**	**383**	**405**	**417**	**426**	**431**	**450**	**451**	**478**	**371**	**340**
	SD	7	9	14	24	25	10	-	18	15	18	20	15	19	10	11	-	65	104
	Min	81	135	168	217	279	333	358	354	353	382	377	407	412	444	443	478	122	81
	Max	113	165	213	283	347	360	358	399	400	435	439	451	465	461	459	478	510	510

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Appendix F19. Age-length statistics for Cisco captured in the Meliadine Study Area, 1997 to 2009

Basin/Site	Parameter	Fork Length (mm) at Age (years)										Not Aged	All Fish
		1	2	3	4	5	6	7	8	9	10		
Meliadine Lake (ML-E)	*n*	70	30	15	3	3	3	14	19	2		1210	1369
	Mean	**106**	**149**	**190**	**198**	**242**	**310**	**322**	**322**	**332**		**121**	**127**
	SD	11	8	12	5	24	21	9	10	9		28	44
	Min	82	134	177	194	218	285	304	304	325		72	72
	Max	132	166	214	203	265	322	340	332	338		342	342
Meliadine Lake (ML-S)	*n*		2	1	5		4	5	5	5	4	133	164
	Mean		**151**	**175**	**217**		**309**	**315**	**312**	**339**	**341**	**163**	**187**
	SD		1	-	7		25	10	5	11	31	74	87
	Min		150	175	210		275	302	308	330	305	77	77
	Max		152	175	226		335	326	318	356	381	347	381
ML Total	*n*	70	32	16	8	3	7	19	24	7	4	1357	1547
	Mean	**106**	**149**	**189**	**210**	**242**	**309**	**320**	**320**	**337**	**341**	**126**	**135**
	SD	11	7	12	12	24	22	10	10	10	31	42	56
	Min	82	134	175	194	218	275	302	304	325	305	72	72
	Max	132	166	214	226	265	335	340	332	356	381	437	437
Basin A	*n*				1		2	1				1	5
	Mean				**240**		**362**	**417**				**330**	**342**
	SD				-		8	-				-	65
	Min				240		356	417				330	240
	Max												417
Basin B	*n*	6	3	1	6	4	7	10	8	4	2	23	74
	Mean	**110**	**140**	**255**	**307**	**320**	**350**	**319**	**349**	**347**	**326**	**267**	**285**
	SD	20	30	-	20	33	26	24	19	17	25	46	76
	Min	77	110	255	285	274	317	291	322	331	308	152	77
	Max	127	170	255	337	352	376	362	378	367	343	308	378
Basin D	*n*	14	1	1	3							142	161
	Mean	**120**	**167**	**215**	**237**							**225**	**215**
	SD	7	-	-	41							61	65
	Min	109	167	215	191							108	108
	Max	132	167	215	270							404	404
Little Meliadine Lake (LML)	*n*											27	27
	Mean											**374**	**374**
	SD											45	45
	Min											240	240
	Max											456	456
Meliadine River (MR)	*n*							1				12	13
	Mean							**281**				**360**	**353**
	SD							-				35	40
	Min							281				283	281
	Max							281				395	395
Parallel Lake (PAR)	*n*											6	6
	Mean											**389**	**389**
	SD											13	13
	Min											372	372
	Max											407	407
All Areas Combined	*n*	90	36	18	18	7	16	31	32	11	6	1568	1833
	Mean	**109**	**149**	**194**	**249**	**286**	**334**	**321**	**327**	**340**	**336**	**144**	**154**
	SD	12	11	20	48	50	31	24	18	13	28	67	77
	Min	77	110	175	191	218	275	281	304	325	305	72	72
	Max	132	170	255	337	352	376	417	378	367	381	456	456

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Appendix F20. Frequency and composition of food items in fish stomachs in the Meliadine Study Area, 1997 to 2000

Food Item	Arctic Char		Lake Trout		Arctic Grayling		Round Whitefish		Cisco	
	% occur	% comp	% occur	% comp	% occur	% comp	% occur	% comp	% occur	% comp
Invertebrates										
Coelenterata (hydroids)							1.5	2.1		
Gastropoda (snails)	1.6	4.2	1.4	0.8			10.8	20.9	3.7	3.5
Pelecypoda (clams)			2.8	1.9			3.1	3.0	6.5	11.0
Amphipoda	6.5	48.6	5.6	12.3	12.9	23.2			8.3	21.3
Trichoptera (caddis flies)			0.7	1.6	22.6	22.1	10.8	17.9	0.9	1.5
Tipulidae (crane flies)					6.5	9.3				
Coleoptera (beetles)			0.7	0.3	9.7	5.0				
Hymenoptera (bees)			0.7	0.2						
Chironomidae (midges)			1.4	1.8	3.2	1.8	4.6	9.8	4.6	12.3
Culicidae (mosquitos)					3.2	1.8				
Lepidoptera (moths)			0.7	0.2						
Copepoda (zooplankton)									1.9	3.3
Plecoptera (stonefly)					3.2	3.6				
Unidentified	3.2	27.8	6.3	10.3	29.0	20.0	21.5	40.6	25.9	47.0
Inorganic (sand)							4.6	5.6		
Fish										
Ninespine Stickleback	1.6	9.7	3.5	5.9	22.6	13.2				
Threespine Stickleback			13.3	12.8						
Lake Trout			1.4	4.3						
Burbot			2.1	6.1						
Slimy Sculpin			2.1	2.7						
Cisco			5.6	15.4						
Unidentified fish remains	3.2	9.7	15.4	23.4						
No. of Stomachs Examined	*62*		*143*		*31*		*65*		*108*	
Total Fullness	**72**		**624**		**281**		**234**		**455**	
Mean Fullness (%)	**5.8**		**21.8**		**45.3**		**18.0**		**21.1**	
Empty Stomachs (%)	85.5		48.3		16.1		49.2		50.9	

Note: % occur = frequency of occurrence of each food item in the total number of stomachs examined
% comp = percent contribution of each food item (by volume) to the total amount of food found in all stomachs
Fullness was assessed on a scale of 0 (empty stomach) to 20 (stomach completely filled with food)

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Appendix F21. Floy tag recapture data for the Meliadine Study Area, 1997-2008

Fish Capture and Tag Application Data											Tag Recapture Data									
Sample No.	Species[a]	Fork Length (mm)	Weight (g)	Floy Tag Col.	Floy Tag No.	Radio Tag Ch. Code	Capture Method[b]	Date of Capture	Basin[c]	Release Location (UTM Zone 15V)	Sample No.	Fork Length (mm)	Capture Method[a]	Fisherman	Date of Recapture	Capt. Code[d]	Basin[c]	Recapture Location (UTM Zone 15V)		*Days at Large*
5709	ARCH	372		Or	4475		TU	26-Aug-97	MR-L	544600 6971600	10559	454	TU	RL&L	23-Aug-98	2	MR-L	544600	6971600	*362*
5710	ARCH	495		Or	4476		TU	26-Aug-97	MR-L	544600 6971600	9401		TR	John Towtoongie	12-Aug-98	3	LML	538700	6977000	*351*
5711	ARCH	379		Or	4477		TU	26-Aug-97	MR-L	544600 6971600	10402	470	TU	RL&L	21-Aug-98	2	MR-L	544600	6971600	*360*
5711	ARCH	379		Or	4477		TU	26-Aug-97	MR-L	544600 6971600	12599	553	TU	RL&L	21-Aug-99	4	MR-L	544600	6971600	*725*
5711	ARCH	379		Or	4477		TU	26-Aug-97	MR-L	544600 6971600	9955		TR	John Towtoongie	7-Nov-99	7	LML	537000	6979000	*803*
5712	ARCH	373		Or	4478		TU	26-Aug-97	MR-L	544600 6971600	12281	552	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*723*
5713	ARCH	424		Or	4479		TU	26-Aug-97	MR-L	544600 6971600	10348	517	TU	RL&L	21-Aug-98	2	MR-L	544600	6971600	*360*
5714	ARCH	511		Or	4480		TU	26-Aug-97	MR-L	544600 6971600	10034	576	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*357*
5714	ARCH	511		Or	4480		TU	26-Aug-97	MR-L	544600 6971600	9687		TR	John Towtoongie	12-Dec-98	5	LML	536400	6979500	*473*
5715	ARCH	455		Or	4481		TU	26-Aug-97	MR-L	544600 6971600	10554	530	TU	RL&L	23-Aug-98	2	MR-L	544600	6971600	*362*
5715	ARCH	455		Or	4481		TU	26-Aug-97	MR-L	544600 6971600	9114	530	GN	RL&L	1-Sep-98	4	LML	536150	6979900	*371*
5715	ARCH	455		Or	4481		TU	26-Aug-97	MR-L	544600 6971600	13061	578	TU	RL&L	26-Aug-99	6	MR-L	544600	6971600	*730*
5715	ARCH	455		Or	4481		TU	26-Aug-97	MR-L	544600 6971600	20005		TR	John Towtoongie	12-Apr-00	9	LML	538000	6978500	*960*
5717	ARCH	547		Or	4483		TU	26-Aug-97	MR-L	544600 6971600	6204		TR	Joe Scotty	29-Aug-97	3	LML	537600	6978200	*3*
5719	ARCH	480		Or	4485		TU	26-Aug-97	MR-L	544600 6971600	10060	562	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*357*
5720	ARCH	398		Or	4486		TU	26-Aug-97	MR-L	544600 6971600	10267	489	TU	RL&L	20-Aug-98	2	MR-L	544600	6971600	*359*
5720	ARCH	398		Or	4486		TU	26-Aug-97	MR-L	544600 6971600	9149	490	GN	RL&L	2-Sep-98	4	LML	536150	6979900	*372*
5720	ARCH	398		Or	4486		TU	26-Aug-97	MR-L	544600 6971600	12740	565	TU	RL&L	24-Aug-99	6	MR-L	544600	6971600	*728*
5720	ARCH	398		Or	4486		TU	26-Aug-97	MR-L	544600 6971600	20409		TR	Timothy Panika	20-Jun-01	9	PB	545250	6969350	*1394*
5721	ARCH	357		Or	4487		TU	26-Aug-97	MR-L	544600 6971600	12194	507	TU	RL&L	16-Aug-99	2	MR-L	544600	6971600	*720*
5721	ARCH	357		Or	4487		TU	26-Aug-97	MR-L	544600 6971600	20070		TR	Tommy Tudlik	16-Aug-00	5	PB	545300	6969450	*1086*
5722	ARCH	430		Or	4488		TU	26-Aug-97	MR-L	544600 6971600	10465	487	TU	RL&L	22-Aug-98	2	MR-L	544600	6971600	*361*
5725	ARCH	395		Or	4491		TU	26-Aug-97	MR-L	544600 6971600	10603	483	TU	RL&L	23-Aug-98	2	MR-L	544600	6971600	*362*
5725	ARCH	395		Or	4491		TU	26-Aug-97	MR-L	544600 6971600	12644	540	TU	RL&L	21-Aug-99	4	MR-L	544600	6971600	*725*
5725	ARCH	395		Or	4491		TU	26-Aug-97	MR-L	544600 6971600	20481		TR	Peter Ugjuk	18-Jun-01	7	LML	537500	6977500	*1392*
5728	ARCH	393		Or	4494		TU	26-Aug-97	MR-L	544600 6971600	10202	477	TU	RL&L	19-Aug-98	2	MR-L	544600	6971600	*358*
5729	ARCH	614		Or	4495		TU	26-Aug-97	MR-L	544600 6971600	9926		TR	Joe Issaluk	9-Nov-99	3	HB	615000	7026000	*805*
5732	ARCH	402		Or	4498		TU	26-Aug-97	MR-L	544600 6971600	9598		TR	Johnny Ittinuar	1-Aug-98	3	PB	548270	6969320	*340*
5733	ARCH	363		Or	4499		TU	26-Aug-97	MR-L	544600 6971600	10273	463	TU	RL&L	20-Aug-98	2	MR-L	544600	6971600	*359*
5734	ARCH	413		Or	4500		TU	26-Aug-97	MR-L	544600 6971600	20167		TR	Peter Ugjuk	8-Jul-00	3	PB	545500	6969500	*1047*
5035	ARCH	604	3015	Or	6302		TU	17-Aug-97	MR-L	544600 6971600	9402		TR	Harry Ittinuak	28-Jun-98	3	MR-L	545500	6970600	*315*
5033	ARCH	536	1860	Or	6303		TU	17-Aug-97	MR-L	544600 6971600	9403		TR	Henry Kablauitok	28-Jun-98	3	PB	545700	6969500	*315*
5013	ARCH	431	955	Or	6306		TU	17-Aug-97	MR-L	544600 6971600	9714		TR	John Towtoongie	22-Apr-99	3	LML	536400	6979500	*613*
5063	ARCH	592	3000	Or	6307	21 92	TU	18-Aug-97	MR-L	544600 6971600	9404		TR	Jerome Tattuinee	8-Jul-98	3	HB	559500	6964500	*324*
5019	ARCH	516	1620	Or	6312		TU	17-Aug-97	MR-L	544600 6971600	9686		TR	John Towtoongie	12-Dec-98	3	LML	536400	6979500	*482*
5020	ARCH	544	2070	Or	6313		TU	17-Aug-97	MR-L	544600 6971600	12707	600	TU	RL&L	22-Aug-99	2	MR-L	544600	6971600	*735*
5023	ARCH	414	830	Or	6316		TU	17-Aug-97	MR-L	544600 6971600	12777	523	TU	RL&L	22-Aug-99	2	MR-L	544600	6971600	*735*
5023	ARCH	414	830	Or	6316		TU	17-Aug-97	MR-L	544600 6971600	9940		TR	John Towtoongie	26-Oct-99	5	LML	537000	6979000	*800*
5027	ARCH	490	1380	Or	6320		TU	17-Aug-97	MR-L	544600 6971600	9405		TR	John Towtoongie	12-Aug-98	3	LML	538700	6977000	*360*
5029	ARCH	428	920	Or	6322		TU	17-Aug-97	MR-L	544600 6971600	9715		TR	John Towtoongie	15-Apr-99	3	LML	536400	6979500	*606*
5972	ARCH	382		Or	6854		TU	30-Aug-97	MR-L	544600 6971600	10621	467	TU	RL&L	24-Aug-98	2	MR-L	544600	6971600	*359*
5968	ARCH	375		Or	6855		TU	30-Aug-97	MR-L	544600 6971600	10600	467	TU	RL&L	23-Aug-98	2	MR-L	544600	6971600	*358*
5973	ARCH	371		Or	6856		TU	30-Aug-97	MR-L	544600 6971600	10462	455	TU	RL&L	22-Aug-98	2	MR-L	544600	6971600	*357*
5970	ARCH	328		Or	6859		TU	30-Aug-97	MR-L	544600 6971600	10788	351	TU	RL&L	27-Aug-98	2	MR-L	544600	6971600	*362*
5970	ARCH	328		Or	6859		TU	30-Aug-97	MR-L	544600 6971600	12952	380	TU	RL&L	24-Aug-99	4	MR-L	544600	6971600	*724*
5971	ARCH	398		Or	6860		TU	30-Aug-97	MR-L	544600 6971600	10387	478	TU	RL&L	21-Aug-98	2	MR-L	544600	6971600	*356*
5978	ARCH	460	1175	Or	6864	21 91	TU	30-Aug-97	MR-L	544600 6971600	9406		TR	Joe Makigak	1-Jul-98	3	PB	545500	6969500	*305*
5992	ARCH	378		Or	6865		TU	31-Aug-97	MR-L	544600 6971600	10793	463	TU	RL&L	29-Aug-98	2	MR-L	544600	6971600	*363*
5981	ARCH	394		Or	6867		TU	30-Aug-97	MR-L	544600 6971600	10458	480	TU	RL&L	22-Aug-98	2	MR-L	544600	6971600	*357*
5981	ARCH	394		Or	6867		TU	30-Aug-97	MR-L	544600 6971600	12701	546	TU	RL&L	22-Aug-99	4	MR-L	544600	6971600	*722*
5981	ARCH	394		Or	6867		TU	30-Aug-97	MR-L	544600 6971600	20047		TR	John Towtoongie	25-May-00	7	LML	537500	6978700	*999*
5984	ARCH	322		Or	6868		TU	30-Aug-97	MR-L	544600 6971600	10956	395	TU	RL&L	1-Sep-98	2	MR-L	544600	6971600	*367*

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Appendix F21. Floy tag recapture data for the Meliadine Study Area, 1997-2008

Fish Capture and Tag Application Data												Tag Recapture Data									
Sample No.	Species[a]	Fork Length (mm)	Weight (g)	Floy Tag Col.	Floy Tag No.	Radio Tag Ch.	Radio Tag Code	Capture Method[b]	Date of Capture	Basin[c]	Release Location (UTM Zone 15V)	Sample No.	Fork Length (mm)	Capture Method[a]	Fisherman	Date of Recapture	Capt. Code[d]	Basin[c]	Recapture Location (UTM Zone 15V)		*Days at Large*
5993	ARCH	379		Or	6869			TU	31-Aug-97	MR-L	544600 6971600	10789	455	TU	RL&L	27-Aug-98	2	MR-L	544600	6971600	*361*
5993	ARCH	379		Or	6869			TU	31-Aug-97	MR-L	544600 6971600	13127	523	TU	RL&L	27-Aug-99	4	MR-L	544600	6971600	*726*
5985	ARCH	413		Or	6870			TU	31-Aug-97	MR-L	544600 6971600	10041	491	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*352*
5985	ARCH	413		Or	6870			TU	31-Aug-97	MR-L	544600 6971600	9652		TR	John Towtoongie	10-Nov-98	5	LML	539500	6976600	*436*
5986	ARCH	348		Or	6871			TU	31-Aug-97	MR-L	544600 6971600	10397	426	TU	RL&L	21-Aug-98	2	MR-L	544600	6971600	*355*
5986	ARCH	348		Or	6871			TU	31-Aug-97	MR-L	544600 6971600	20075		TR	John Kabvitok	15-Jul-00	5	?			*1049*
5988	ARCH	331		Or	6873			TU	31-Aug-97	MR-L	544600 6971600	10887	392	TU	RL&L	30-Aug-98	2	MR-L	544600	6971600	*364*
5988	ARCH	331		Or	6873			TU	31-Aug-97	MR-L	544600 6971600	12910	458	TU	RL&L	23-Aug-99	4	MR-L	544600	6971600	*722*
5989	ARCH	320		Or	6874			TU	31-Aug-97	MR-L	544600 6971600	10743	380	TU	RL&L	26-Aug-98	2	MR-L	544600	6971600	*360*
5941	ARCH	365		Or	7002			TU	29-Aug-97	MR-L	544600 6971600	10061	448	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*354*
5949	ARCH	343		Or	7011			TU	29-Aug-97	MR-L	544600 6971600	10700	455	TU	RL&L	25-Aug-98	2	MR-L	544600	6971600	*361*
5953	ARCH	460		Or	7012			TU	29-Aug-97	MR-L	544600 6971600	10296	545	TU	RL&L	20-Aug-98	2	MR-L	544600	6971600	*356*
5953	ARCH	460		Or	7012			TU	29-Aug-97	MR-L	544600 6971600	9690		TR	John Towtoongie	18-Dec-98	5	LML	536400	6979500	*476*
5950	ARCH	378		Or	7013			TU	29-Aug-97	MR-L	544600 6971600	10555	480	TU	RL&L	23-Aug-98	2	MR-L	544600	6971600	*359*
5950	ARCH	378		Or	7013			TU	29-Aug-97	MR-L	544600 6971600	9407		TR	John Towtoongie	1-Sep-98	5	LML	537500	6977500	*368*
5951	ARCH	328		Or	7014			TU	29-Aug-97	MR-L	544600 6971600	10739	411	TU	RL&L	26-Aug-98	2	MR-L	544600	6971600	*362*
5951	ARCH	328		Or	7014			TU	29-Aug-97	MR-L	544600 6971600	13118	480	TU	RL&L	27-Aug-99	4	MR-L	544600	6971600	*728*
5955	ARCH	463	1315	Or	7016	20	62	TU	30-Aug-97	MR-L	544600 6971600	6208		TR	Joe Kavik	15-Sep-97	3	LML	538400	6977500	*16*
5957	ARCH	444		Or	7018			TU	30-Aug-97	MR-L	544600 6971600	10277	508	TU	RL&L	20-Aug-98	2	MR-L	544600	6971600	*355*
5958	ARCH	366		Or	7019			TU	30-Aug-97	MR-L	544600 6971600	10959	434	TU	RL&L	1-Sep-98	2	MR-L	544600	6971600	*367*
5959	ARCH	396		Or	7020			TU	30-Aug-97	MR-L	544600 6971600	10075	481	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*353*
5960	ARCH	406		Or	7021			TU	30-Aug-97	MR-L	544600 6971600	10624	480	TU	RL&L	24-Aug-98	2	MR-L	544600	6971600	*359*
5960	ARCH	406		Or	7021			TU	30-Aug-97	MR-L	544600 6971600	12909	547	TU	RL&L	23-Aug-99	4	MR-L	544600	6971600	*723*
5961	ARCH	381		Or	7022			TU	30-Aug-97	MR-L	544600 6971600	9595		TR	Johnny Ittinuar	1-Aug-98	3	PB	548270	6969320	*336*
5962	ARCH	350		Or	7023			TU	30-Aug-97	MR-L	544600 6971600	10633	435	TU	RL&L	24-Aug-98	2	MR-L	544600	6971600	*359*
5962	ARCH	350		Or	7023			TU	30-Aug-97	MR-L	544600 6971600	12834	511	TU	RL&L	23-Aug-99	4	MR-L	544600	6971600	*723*
5962	ARCH	350		Or	7023			TU	30-Aug-97	MR-L	544600 6971600	20059		TR	Joe Strickland	27-Aug-00	7	HB	550200	6966700	*1093*
5963	ARCH	325		Or	7024			TU	30-Aug-97	MR-L	544600 6971600	10724	404	TU	RL&L	25-Aug-98	2	MR-L	544600	6971600	*360*
5963	ARCH	325		Or	7024			TU	30-Aug-97	MR-L	544600 6971600	12647	457	TU	RL&L	21-Aug-99	4	MR-L	544600	6971600	*721*
5964	ARCH	350		Or	7025			TU	30-Aug-97	MR-L	544600 6971600	10957	443	TU	RL&L	1-Sep-98	2	MR-L	544600	6971600	*367*
4459	ARCH	400	820	Or	7034	21	83	GN	21-Aug-97	D1	533000 6989500	4493	400	GN	RL&L	27-Aug-97	2	D1	533000	6989500	*6*
4434	ARCH	340	458	Or	7046			GN	20-Aug-97	D1	533000 6989500	4494	340	GN	RL&L	27-Aug-97	2	D1	533000	6989500	*7*
4435	ARCH	258	210	Or	7047			GN	20-Aug-97	D1	533000 6989500	4495	258	GN	RL&L	27-Aug-97	2	D1	533000	6989500	*7*
4426	ARCH	482		Or	7048			GN	19-Aug-97	D1	533000 6989500	4443	478	GN	RL&L	20-Aug-97	3	D1	533000	6989500	*1*
4458	ARCH	470	1228	Or	7062	20	67	GN	21-Aug-97	D1	533000 6989500	4492	470	GN	RL&L	27-Aug-97	2	D1	533000	6989500	*6*
2272	ARCH	437	1010	Or	7077			GN	26-Jul-97	D1	533000 6989500	4438	445	GN	RL&L	20-Aug-97	2	D1	533000	6989500	*25*
5994	ARCH	364		Or	7101			TU	31-Aug-97	MR-L	544600 6971600	9617		TR	Johnny Natar	1-Aug-98	3	PB	545970	6969540	*335*
5995	ARCH	380		Or	7102			TU	31-Aug-97	MR-L	544600 6971600	9587		TR	Johnny Ittinuar	1-Aug-98	3	PB	548270	6969320	*335*
5996	ARCH	457	1100	Or	7103	20	71	TU	31-Aug-97	MR-L	544600 6971600	20195		TR	John Towtoongie	18-Sep-00	3	LML	539300	6977100	*1114*
5998	ARCH	355		Or	7104			TU	31-Aug-97	MR-L	544600 6971600	10518	430	TU	RL&L	22-Aug-98	2	MR-L	544600	6971600	*356*
5998	ARCH	355		Or	7104			TU	31-Aug-97	MR-L	544600 6971600	12831	485	TU	RL&L	23-Aug-99	4	MR-L	544600	6971600	*722*
6001	ARCH	360		Or	7107			TU	31-Aug-97	MR-L	544600 6971600	10271	437	TU	RL&L	20-Aug-98	2	MR-L	544600	6971600	*354*
6001	ARCH	360		Or	7107			TU	31-Aug-97	MR-L	544600 6971600	13175	511	TU	RL&L	28-Aug-99	4	MR-L	544600	6971600	*727*
6003	ARCH	453		Or	7109			TU	31-Aug-97	MR-L	544600 6971600	20461		TR	John Towtoongie	30-Oct-00	3	LML	537500	6977500	*1156*
6005	ARCH	387		Or	7111			TU	31-Aug-97	MR-L	544600 6971600	10302	469	TU	RL&L	20-Aug-98	2	MR-L	544600	6971600	*354*
6005	ARCH	387		Or	7111			TU	31-Aug-97	MR-L	544600 6971600	12268	519	TU	RL&L	19-Aug-99	4	MR-L	544600	6971600	*718*
6006	ARCH	415		Or	7112			TU	31-Aug-97	MR-L	544600 6971600	10625	507	TU	RL&L	24-Aug-98	2	MR-L	544600	6971600	*358*
6006	ARCH	415		Or	7112			TU	31-Aug-97	MR-L	544600 6971600	9655		TR	John Towtoongie	10-Nov-98	5	LML	538000	6978500	*436*
6008	ARCH	400		Or	7114			TU	31-Aug-97	MR-L	544600 6971600	20089		TR	Paul Kaludjak	8-Aug-00	3	HB	610000	6980000	*1073*
6009	ARCH	571	2355	Or	7115	20	51	TU	31-Aug-97	MR-L	544600 6971600	9408		TR	Tommy Ussak	29-Jun-98	3	PB	545500	6969500	*302*
5167	ARCH	516	1675	Or	7117			TU	19-Aug-97	MR-L	544600 6971600	9415		TR	John D. Gibbons	15-Aug-98	3	?			*361*
6012	ARCH	400		Or	7118			TU	1-Sep-97	MR-L	544600 6971600	20097		TR	Johnny Natar	16-Aug-00	3	PB	544950	6968850	*1080*

Golder Associates

Appendix F21. Floy tag recapture data for the Meliadine Study Area, 1997-2008

Fish Capture and Tag Application Data											Tag Recapture Data									
Sample No.	Species[a]	Fork Length (mm)	Weight (g)	Floy Tag Col.	Floy Tag No.	Radio Tag Ch. Code	Capture Method[b]	Date of Capture	Basin[c]	Release Location (UTM Zone 15V)	Sample No.	Fork Length (mm)	Capture Method[a]	Fisherman	Date of Recapture	Capt. Code[d]	Basin[c]	Recapture Location (UTM Zone 15V)		*Days at Large*
6013	ARCH	356		Or	7119		TU	1-Sep-97	MR-L	544600 6971600	10059	432	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*351*
6017	ARCH	360		Or	7123		TU	1-Sep-97	MR-L	544600 6971600	10349	452	TU	RL&L	21-Aug-98	2	MR-L	544600	6971600	*354*
6017	ARCH	360		Or	7123		TU	1-Sep-97	MR-L	544600 6971600	12103	537	TU	RL&L	12-Aug-99	4	MR-L	544600	6971600	*710*
6017	ARCH	360		Or	7123		TU	1-Sep-97	MR-L	544600 6971600	20066		TR	Nancy Makpah	3-Aug-00	7	PB	546900	6965900	*1067*
6018	ARCH	427		Or	7124		TU	1-Sep-97	MR-L	544600 6971600	10356	497	TU	RL&L	21-Aug-98	2	MR-L	544600	6971600	*354*
6018	ARCH	427		Or	7124		TU	1-Sep-97	MR-L	544600 6971600	9812		TR	John Towtoongie	8-Apr-99	5	LML	536400	6979500	*584*
5039	ARCH	501	1505	Or	7128		TU	17-Aug-97	MR-L	544600 6971600	9754		TR	Johnny Ugjuk	13-Jul-99	3	PB	545500	6969500	*695*
5054	ARCH	468	1300	Or	7142		TU	18-Aug-97	MR-L	544600 6971600	10255	547	TU	RL&L	19-Aug-98	2	MR-L	544600	6971600	*366*
5054	ARCH	468	1300	Or	7142		TU	18-Aug-97	MR-L	544600 6971600	12700	595	TU	RL&L	22-Aug-99	4	MR-L	544600	6971600	*734*
5055	ARCH	555	2250	Or	7143		TU	18-Aug-97	MR-L	544600 6971600	9409		TR	John Towtoongie	23-Aug-98	3	LML	537500	6977500	*370*
5056	ARCH	506	1700	Or	7144		TU	18-Aug-97	MR-L	544600 6971600	10393	550	TU	RL&L	21-Aug-98	2	MR-L	544600	6971600	*368*
5056	ARCH	506	1700	Or	7144		TU	18-Aug-97	MR-L	544600 6971600	12563	590	TU	RL&L	21-Aug-99	4	MR-L	544600	6971600	*733*
5056	ARCH	506	1700	Or	7144		TU	18-Aug-97	MR-L	544600 6971600	20146		TR	John Towtoongie	21-Nov-99	7	LML	537050	6979000	*825*
5057	ARCH	511	1800	Or	7145		TU	18-Aug-97	MR-L	544600 6971600	12284	614	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*731*
5058	ARCH	524	1850	Or	7146		TU	18-Aug-97	MR-L	544600 6971600	9410		TR	John Towtoongie	12-Aug-98	3	LML	538700	6977000	*359*
5060	ARCH	485	1500	Or	7148		TU	18-Aug-97	MR-L	544600 6971600	9716		TR	John Towtoongie	1-Jun-99	3	LML	536400	6979500	*652*
5061	ARCH	537	2100	Or	7149		TU	18-Aug-97	MR-L	544600 6971600	12948	636	TU	RL&L	24-Aug-99	2	MR-L	544600	6971600	*736*
5061	ARCH	537	2100	Or	7149		TU	18-Aug-97	MR-L	544600 6971600	20300		TR	Ollie Ittinuar	1-Sep-01	5	?			*1475*
5193	ARCH	420	925	Or	7153		TU	20-Aug-97	MR-L	544600 6971600	12145	545	TU	RL&L	14-Aug-99	2	MR-L	544600	6971600	*724*
5195	ARCH	499	1650	Or	7155		TU	20-Aug-97	MR-L	544600 6971600	9717		TR	John Towtoongie	19-May-99	3	LML	536400	6979500	*637*
5196	ARCH	592	2615	Or	7156		TU	20-Aug-97	MR-L	544600 6971600	6216		TR	Alex	23-Sep-97	3	LML	537200	6977000	*34*
5200	ARCH	533	1970	Or	7160		TU	20-Aug-97	MR-L	544600 6971600	9411		TR	John Towtoongie	12-Aug-98	3	LML	538700	6977000	*357*
5201	ARCH	530	1870	Or	7161		TU	20-Aug-97	MR-L	544600 6971600	6210		TR	Joe Kavik	16-Sep-97	3	ML-S	531650	6989300	*27*
5202	ARCH	487	1490	Or	7162		TU	20-Aug-97	MR-L	544600 6971600	9412		TR	Joe Makigak	1-Jul-98	3	PB	545500	6969500	*315*
5208	ARCH	520	1820	Or	7168		TU	20-Aug-97	MR-L	544600 6971600	9413		TR	Joe Makigak	1-Jul-98	3	PB	545500	6969500	*315*
5212	ARCH	636	3060	Or	7172		TU	20-Aug-97	MR-L	544600 6971600	12435	679	TU	RL&L	20-Aug-99	2	MR-L	544600	6971600	*730*
5214	ARCH	653	3840	Or	7174		TU	20-Aug-97	MR-L	544600 6971600	9414		TR	Joe Makigak	1-Jul-98	3	PB	545500	6969500	*315*
5166	ARCH	474	1245	Or	7176		TU	19-Aug-97	MR-L	544600 6971600	20383		TR	Rose Ussak	19-Jun-01	3	MR-L	542400	6973550	*1400*
5167	ARCH	516	1675	Or	7177		TU	19-Aug-97	MR-L	544600 6971600	9645		TR	John Towtoongie	10-Nov-98	3	LML	538000	6978500	*448*
5171	ARCH	544	1930	Or	7181		TU	19-Aug-97	MR-L	544600 6971600	9755		TR	Johnny Ugjuk	13-Jul-99	3	PB	545500	6969500	*693*
5172	ARCH	493	1410	Or	7182		TU	19-Aug-97	MR-L	544600 6971600	9416		TR	Moses Aliyak	4-Aug-98	3	PB	545500	6969500	*350*
5174	ARCH	550	2235	Or	7184		TU	19-Aug-97	MR-L	544600 6971600	9542		TR	Glen Kadlak	12-Oct-98	3	LML	539500	6977000	*419*
5175	ARCH	537	1985	Or	7185		TU	19-Aug-97	MR-L	544600 6971600	20149		TR	Dorothy Sateana	12-Jul-00	3	PB	548550	6969200	*1058*
5178	ARCH	582	2565	Or	7188		TU	20-Aug-97	MR-L	544600 6971600	9417		TR	Rose Ussak	1-Jul-98	3	PB	546000	6969500	*315*
5179	ARCH	583	2285	Or	7189		TU	20-Aug-97	MR-L	544600 6971600	6212		TR	J. Copp	26-Sep-97	3	LML	538200	6977200	*37*
5180	ARCH	559	1875	Or	7190		TU	20-Aug-97	MR-L	544600 6971600	6205		TR	Joe Scotty	5-Sep-97	3	LML	539000	6976850	*16*
5181	ARCH	555	2265	Or	7191		TU	20-Aug-97	MR-L	544600 6971600	9549		TR	John Towtoongie	16-Sep-98	3	LML	539500	6977000	*392*
5183	ARCH	520	1800	Or	7193		TU	20-Aug-97	MR-L	544600 6971600	9418		TR	Joe Makigak	1-Jul-98	3	PB	545500	6969500	*315*
5185	ARCH	540	1815	Or	7195		TU	20-Aug-97	MR-L	544600 6971600	9829		TR	Johnny Natar	15-Aug-99	3	?			*725*
5187	ARCH	527	1725	Or	7197		TU	20-Aug-97	MR-L	544600 6971600	9419		TR	Joe Makigak	1-Jul-98	3	PB	545500	6969500	*315*
5188	ARCH	474	1260	Or	7198		TU	20-Aug-97	MR-L	544600 6971600	10550	568	TU	RL&L	23-Aug-98	2	MR-L	544600	6971600	*368*
5190	ARCH	454	1115	Or	7200		TU	20-Aug-97	MR-L	544600 6971600	9718		TR	John Towtoongie	19-May-99	3	LML	536400	6979500	*637*
5244	ARCH	537	1945	Or	7204		TU	20-Aug-97	MR-L	544600 6971600	9420		TR	John Towtoongie	12-Aug-98	3	LML	538700	6977000	*357*
5245	ARCH	495	1650	Or	7205		TU	20-Aug-97	MR-L	544600 6971600	10050	593	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*363*
5245	ARCH	495	1650	Or	7205		TU	20-Aug-97	MR-L	544600 6971600	9793		TR	Ray Mercer	12-Aug-99	5	HB	550000	6968000	*722*
5246	ARCH	544	1915	Or	7206		TU	20-Aug-97	MR-L	544600 6971600	10076	625	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*363*
5247	ARCH	498	1620	Or	7207		TU	20-Aug-97	MR-L	544600 6971600	9631		TR	Johnny Natar	1-Aug-98	3	PB	548200	6965100	*346*
5248	ARCH	573	2535	Or	7208		TU	20-Aug-97	MR-L	544600 6971600	9756		TR	Louis Fequet	1-Jul-99	3	DR	530000	6969200	*680*
5249	ARCH	520	1810	Or	7209		TU	20-Aug-97	MR-L	544600 6971600	9421		TR	Joe Makigak	9-Jun-98	3	LML	539600	6976700	*293*
5250	ARCH	517	1755	Or	7210		TU	20-Aug-97	MR-L	544600 6971600	9622		TR	Johnny Natar	1-Aug-98	3	PB	545970	6969540	*346*
5253	ARCH	508	1715	Or	7213		TU	20-Aug-97	MR-L	544600 6971600	12280	616	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*729*
5253	ARCH	508	1715	Or	7213		TU	20-Aug-97	MR-L	544600 6971600	9908		TR	Glen Kadlak	27-Sep-99	5	MR-L	541500	6974000	*768*

Appendix F21. Floy tag recapture data for the Meliadine Study Area, 1997-2008

Fish Capture and Tag Application Data											Tag Recapture Data									
Sample No.	Species[a]	Fork Length (mm)	Weight (g)	Floy Tag Col.	Floy Tag No.	Radio Tag Ch. Code	Capture Method[b]	Date of Capture	Basin[c]	Release Location (UTM Zone 15V)	Sample No.	Fork Length (mm)	Capture Method[a]	Fisherman	Date of Recapture	Capt. Code[d]	Basin[c]	Recapture Location (UTM Zone 15V)		*Days at Large*
5254	ARCH	443	1080	Or	7214		TU	20-Aug-97	MR-L	544600 6971600	9422		TR	Sam Ittuak	18-Jul-98	3	HB	610000	6980000	*332*
5255	ARCH	482	1390	Or	7215		TU	20-Aug-97	MR-L	544600 6971600	12525	622	TU	RL&L	20-Aug-99	2	MR-L	544600	6971600	*730*
5255	ARCH	482	1390	Or	7215		TU	20-Aug-97	MR-L	544600 6971600	20362		TR	Billy Twyee	14-Aug-01	5	PB	545250	6969350	*1455*
5259	ARCH	490	1315	Or	7219		TU	20-Aug-97	MR-L	544600 6971600	9423		TR	Joe Makigak	1-Jul-98	3	PB	545500	6969500	*315*
5260	ARCH	569	2345	Or	7220		TU	20-Aug-97	MR-L	544600 6971600	6218		TR	Ollie Ittinuar	10-Oct-97	3	ML-S	532500	6989500	*51*
5261	ARCH	462	1390	Or	7221		TU	20-Aug-97	MR-L	544600 6971600	9590		TR	Johnny Ittinuar	1-Aug-98	3	PB	548270	6969320	*346*
5262	ARCH	465	1150	Or	7222		TU	20-Aug-97	MR-L	544600 6971600	9424		TR	Joe Makigak	1-Jul-98	3	PB	545500	6969500	*315*
5263	ARCH	549	2065	Or	7223		TU	20-Aug-97	MR-L	544600 6971600	9924		TR	Shawna Sammurtok	15-Jul-99	3	HB	610000	6980000	*694*
5265	ARCH	543	2010	Or	7225		TU	20-Aug-97	MR-L	544600 6971600	9541		TR	Glen Kadlak	12-Oct-98	3	LML	539500	6977000	*418*
5266	ARCH	387	735	Or	7226		TU	20-Aug-97	MR-L	544600 6971600	12283	530	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*729*
5268	ARCH	419	1015	Or	7228		TU	20-Aug-97	MR-L	544600 6971600	10551	507	TU	RL&L	23-Aug-98	2	MR-L	544600	6971600	*368*
5268	ARCH	419	1015	Or	7228		TU	20-Aug-97	MR-L	544600 6971600	9656		TR	John Towtoongie	10-Nov-98	5	LML	538000	6978500	*447*
5269	ARCH	490	1520	Or	7229		TU	20-Aug-97	MR-L	544600 6971600	9823		TR	Simon Twyee	13-Aug-99	3	PB	546500	6968500	*723*
5272	ARCH	465	1310	Or	7232		TU	20-Aug-97	MR-L	544600 6971600	9628		TR	Johnny Natar	1-Aug-98	3	PB	548200	6965100	*346*
5273	ARCH	517	1590	Or	7233		TU	20-Aug-97	MR-L	544600 6971600	9624		TR	Johnny Natar	1-Aug-98	3	PB	545970	6969540	*346*
5274	ARCH	392	795	Or	7234		TU	20-Aug-97	MR-L	544600 6971600	12509	544	TU	RL&L	20-Aug-99	2	MR-L	544600	6971600	*730*
5274	ARCH	392	795	Or	7234		TU	20-Aug-97	MR-L	544600 6971600	20027		TR	Samuel Amarook	24-Apr-00	5	MR-L	545000	6971000	*978*
5280	ARCH	484	1345	Or	7240		TU	21-Aug-97	MR-L	544600 6971600	10029	575	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*362*
5280	ARCH	484	1345	Or	7240		TU	21-Aug-97	MR-L	544600 6971600	9719		TR	John Towtoongie	1-Jun-99	5	LML	536400	6979500	*649*
5281	ARCH	618	3055	Or	7241		TU	21-Aug-97	MR-L	544600 6971600	13277	657	TU	RL&L	29-Aug-99	2	MR-L	544600	6971600	*738*
5281	ARCH	618	3055	Or	7241		TU	21-Aug-97	MR-L	544600 6971600	9966		TR	Adel Aingilik	17-Oct-99	5	LML	538200	6977000	*787*
5283	ARCH	522	1815	Or	7243		TU	21-Aug-97	MR-L	544600 6971600	10027	614	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*362*
5284	ARCH	473	1060	Or	7244		TU	21-Aug-97	MR-L	544600 6971600	10249	541	TU	RL&L	19-Aug-98	2	MR-L	544600	6971600	*363*
5284	ARCH	473	1060	Or	7244		TU	21-Aug-97	MR-L	544600 6971600	12764	560	TU	RL&L	22-Aug-99	4	MR-L	544600	6971600	*731*
5287	ARCH	461	1145	Or	7247		TU	21-Aug-97	MR-L	544600 6971600	9642		TR	John Towtoongie	10-Nov-98	3	LML	538000	6978500	*446*
5288	ARCH	508	1855	Or	7248		TU	21-Aug-97	MR-L	544600 6971600	12947	596	TU	RL&L	24-Aug-99	2	MR-L	544600	6971600	*733*
5289	ARCH	461	1330	Or	7249		TU	21-Aug-97	MR-L	544600 6971600	9647		TR	John Towtoongie	10-Nov-98	3	LML	538000	6978500	*446*
5291	ARCH	428	960	Or	7251		TU	21-Aug-97	MR-L	544600 6971600	10552	498	TU	RL&L	23-Aug-98	2	MR-L	544600	6971600	*367*
5292	ARCH	467	1365	Or	7252		TU	21-Aug-97	MR-L	544600 6971600	9425		TR	Justin Partridge	10-Aug-98	3	PB	545500	6967800	*354*
5296	ARCH	378	660	Or	7256		TU	21-Aug-97	MR-L	544600 6971600	10354	471	TU	RL&L	21-Aug-98	2	MR-L	544600	6971600	*365*
5296	ARCH	378	660	Or	7256		TU	21-Aug-97	MR-L	544600 6971600	9155	480	GN	RL&L	2-Sep-98	4	LML	536150	6979900	*377*
5296	ARCH	378	660	Or	7256		TU	21-Aug-97	MR-L	544600 6971600	12266	543	TU	RL&L	19-Aug-99	6	MR-L	544600	6971600	*728*
5298	ARCH	445		Or	7258		TU	21-Aug-97	MR-L	544600 6971600	9426		TR	Joe Makigak	1-Jul-98	3	PB	545500	6969500	*314*
5299	ARCH	481		Or	7259		TU	21-Aug-97	MR-L	544600 6971600	20408		TR	Timothy Panika	20-Jun-01	3	PB	545250	6969350	*1399*
5309	ARCH	425		Or	7264		TU	22-Aug-97	MR-L	544600 6971600	9720		TR	John Towtoongie	22-Apr-99	3	LML	536400	6979500	*608*
5310	ARCH	450		Or	7265		TU	22-Aug-97	MR-L	544600 6971600	10192	539	TU	RL&L	19-Aug-98	2	MR-L	544600	6971600	*362*
5310	ARCH	450		Or	7265		TU	22-Aug-97	MR-L	544600 6971600	9691		TR	John Towtoongie	18-Dec-98	5	LML	536400	6979500	*483*
5311	ARCH	392		Or	7266		TU	22-Aug-97	MR-L	544600 6971600	10351	497	TU	RL&L	21-Aug-98	2	MR-L	544600	6971600	*364*
5311	ARCH	392		Or	7266		TU	22-Aug-97	MR-L	544600 6971600	12561	569	TU	RL&L	21-Aug-99	4	MR-L	544600	6971600	*729*
5311	ARCH	392		Or	7266		TU	22-Aug-97	MR-L	544600 6971600	9957		TR	John Towtoongie	7-Nov-99	7	LML	537000	6979000	*807*
5312	ARCH	476		Or	7267		TU	22-Aug-97	MR-L	544600 6971600	10056	560	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*361*
5312	ARCH	476		Or	7267		TU	22-Aug-97	MR-L	544600 6971600	9794		TR	Johnny Natar	6-Aug-99	5	HB	545200	6961500	*714*
5313	ARCH	419		Or	7268		TU	22-Aug-97	MR-L	544600 6971600	9427		TR	Tommy Partridge	19-Aug-98	3	PB	545500	6967800	*362*
5315	ARCH	415		Or	7270		TU	22-Aug-97	MR-L	544600 6971600	10021	500	TU	RL&L	17-Aug-98	2	MR-L	544600	6971600	*360*
5315	ARCH	415		Or	7270		TU	22-Aug-97	MR-L	544600 6971600	12839	565	TU	RL&L	23-Aug-99	4	MR-L	544600	6971600	*731*
5315	ARCH	415		Or	7270		TU	22-Aug-97	MR-L	544600 6971600	20106		TR	Johnny Natar	16-Aug-00	7	PB	544950	6968850	*1090*
5318	ARCH	460		Or	7273		TU	22-Aug-97	MR-L	544600 6971600	9711		TR	John Towtoongie	20-Feb-99	3	LML	536400	6979500	*547*
5319	ARCH	455		Or	7274		TU	22-Aug-97	MR-L	544600 6971600	20213		TR	Ollie Ittinuar	15-Aug-00	3	HB	587000	6962000	*1089*
5320	ARCH	473		Or	7275		TU	22-Aug-97	MR-L	544600 6971600	9757		TR	John Towtoongie	7-Jun-99	3	LML	536400	6979500	*654*
5321	ARCH	468		Or	7276		TU	22-Aug-97	MR-L	544600 6971600	9752		TR	Bernice Sandy	15-Jun-98	3	MR-L	544600	6971600	*297*
5322	ARCH	390		Or	7277		TU	22-Aug-97	MR-L	544600 6971600	9650		TR	John Towtoongie	10-Nov-98	3	LML	538000	6978500	*445*
5323	ARCH	447		Or	7278		TU	22-Aug-97	MR-L	544600 6971600	9721		TR	John Towtoongie	1-Jun-99	3	LML	536400	6979500	*648*

Appendix F21. Floy tag recapture data for the Meliadine Study Area, 1997-2008

Fish Capture and Tag Application Data											Tag Recapture Data									
Sample No.	Species[a]	Fork Length (mm)	Weight (g)	Floy Tag Col.	Floy Tag No.	Radio Tag Ch. Code	Capture Method[b]	Date of Capture	Basin[c]	Release Location (UTM Zone 15V)	Sample No.	Fork Length (mm)	Capture Method[a]	Fisherman	Date of Recapture	Capt. Code[d]	Basin[c]	Recapture Location (UTM Zone 15V)		*Days at Large*
5324	ARCH	405		Or	7279		TU	22-Aug-97	MR-L	544600 6971600	10065	464	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*361*
5326	ARCH	368		Or	7281		TU	22-Aug-97	MR-L	544600 6971600	10020	428	TU	RL&L	17-Aug-98	2	MR-L	544600	6971600	*360*
5326	ARCH	368		Or	7281		TU	22-Aug-97	MR-L	544600 6971600	12160	474	TU	RL&L	15-Aug-99	4	MR-L	544600	6971600	*723*
5326	ARCH	368		Or	7281		TU	22-Aug-97	MR-L	544600 6971600	9909		TR	Glen Kadlak	27-Sep-99	7	MR-L	541500	6974000	*766*
5327	ARCH	403		Or	7282		TU	22-Aug-97	MR-L	544600 6971600	10033	496	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*361*
5327	ARCH	403		Or	7282		TU	22-Aug-97	MR-L	544600 6971600	12370	573	TU	RL&L	19-Aug-99	4	MR-L	544600	6971600	*727*
5327	ARCH	403		Or	7282		TU	22-Aug-97	MR-L	544600 6971600	9801		TR	Adel Aingilik	28-Aug-99	7	LML	539000	6976900	*736*
5328	ARCH	422		Or	7283		TU	22-Aug-97	MR-L	544600 6971600	10137	518	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*361*
5328	ARCH	422		Or	7283		TU	22-Aug-97	MR-L	544600 6971600	12191	597	TU	RL&L	16-Aug-99	4	MR-L	544600	6971600	*724*
5329	ARCH	457		Or	7284		TU	22-Aug-97	MR-L	544600 6971600	20112		TR	John Towtoongie	8-Aug-00	3	LML	539750	6976750	*1082*
5332	ARCH	508		Or	7287		TU	22-Aug-97	MR-L	544600 6971600	9428		TR	John D. Gibbons	17-Aug-98	3	?			*360*
5333	ARCH	470		Or	7288		TU	22-Aug-97	MR-L	544600 6971600	9688		TR	John Towtoongie	18-Dec-98	3	LML	536400	6979500	*483*
5334	ARCH	506		Or	7289		TU	22-Aug-97	MR-L	544600 6971600	10055	594	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*361*
5334	ARCH	506		Or	7289		TU	22-Aug-97	MR-L	544600 6971600	9546		TR	John Towtoongie	16-Sep-98	5	LML	539500	6977000	*390*
5335	ARCH	515		Or	7290		TU	22-Aug-97	MR-L	544600 6971600	9722		TR	John Towtoongie	1-Jun-99	3	LML	536400	6979500	*648*
5348	ARCH	446		Or	7293		TU	22-Aug-97	MR-L	544600 6971600	10077	525	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*361*
5349	ARCH	427		Or	7294		TU	22-Aug-97	MR-L	544600 6971600	9636		TR	Johnny Natar	1-Aug-98	3	PB	548200	6965100	*344*
5351	ARCH	388		Or	7296		TU	22-Aug-97	MR-L	544600 6971600	12276	547	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*727*
5351	ARCH	388		Or	7296		TU	22-Aug-97	MR-L	544600 6971600	20087		TR	Peter Ugjuk	15-Aug-00	5	MR-L	541950	6974050	*1089*
5352	ARCH	429		Or	7297		TU	22-Aug-97	MR-L	544600 6971600	10142	511	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*361*
5352	ARCH	429		Or	7297		TU	22-Aug-97	MR-L	544600 6971600	9723		TR	John Towtoongie	15-Apr-99	5	LML	536400	6979500	*601*
5353	ARCH	420		Or	7298		TU	22-Aug-97	MR-L	544600 6971600	12838	570	TU	RL&L	23-Aug-99	2	MR-L	544600	6971600	*731*
5354	ARCH	401		Or	7299		TU	22-Aug-97	MR-L	544600 6971600	20001		TR	William Pissuk	15-Aug-99	3	HB	610000	6980000	*723*
5356	ARCH	368		Or	7301		TU	22-Aug-97	MR-L	544600 6971600	10025	450	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*361*
5356	ARCH	368		Or	7301		TU	22-Aug-97	MR-L	544600 6971600	12542	513	TU	RL&L	20-Aug-99	4	MR-L	544600	6971600	*728*
5356	ARCH	368		Or	7301		TU	22-Aug-97	MR-L	544600 6971600	20074		TR	Tommy Tudlik	16-Aug-00	7	PB	545300	6969450	*1090*
5357	ARCH	491		Or	7302		TU	22-Aug-97	MR-L	544600 6971600	9429		TR	Harry Ittinuak	28-Jun-98	3	MR-L	545500	6970600	*310*
5359	ARCH	438		Or	7304		TU	22-Aug-97	MR-L	544600 6971600	9724		TR	John Towtoongie	7-May-99	3	LML	536400	6979500	*623*
5360	ARCH	541		Or	7305		TU	22-Aug-97	MR-L	544600 6971600	7174	553	EF	RL&L	18-Jun-98	2	MR-L	540000	6976100	*300*
5360	ARCH	541		Or	7305		TU	22-Aug-97	MR-L	544600 6971600	9431		TR	Joe Makigak	1-Jul-98	5	PB	545500	6969500	*313*
5362	ARCH	386		Or	7307		TU	22-Aug-97	MR-L	544600 6971600	10459	459	TU	RL&L	22-Aug-98	2	MR-L	544600	6971600	*365*
5362	ARCH	386		Or	7307		TU	22-Aug-97	MR-L	544600 6971600	12547	528	TU	RL&L	20-Aug-99	4	MR-L	544600	6971600	*728*
5362	ARCH	386		Or	7307		TU	22-Aug-97	MR-L	544600 6971600	9939		TR	John Towtoongie	20-Nov-99	7	LML	537000	6979000	*820*
5363	ARCH	373		Or	7308		TU	22-Aug-97	MR-L	544600 6971600	10028	463	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*361*
5363	ARCH	373		Or	7308		TU	22-Aug-97	MR-L	544600 6971600	12904	525	TU	RL&L	23-Aug-99	4	MR-L	544600	6971600	*731*
5363	ARCH	373		Or	7308		TU	22-Aug-97	MR-L	544600 6971600	20037		TR	John Towtoongie	1-May-00	7	LML	537500	6978700	*983*
5364	ARCH	517		Or	7309		TU	22-Aug-97	MR-L	544600 6971600	9432		TR	Hugh Nateela	27-Jun-98	3	PB	545500	6969500	*309*
5365	ARCH	398		Or	7310		TU	22-Aug-97	MR-L	544600 6971600	9894		TR	John Towtoongie	13-Sep-99	3	LML	536400	6979500	*752*
5366	ARCH	430		Or	7311		TU	22-Aug-97	MR-L	544600 6971600	9433		TR	Vitial Aksadjuak	1-Jul-98	3	PB	545800	6970200	*313*
5367	ARCH	458		Or	7312		TU	22-Aug-97	MR-L	544600 6971600	9635		TR	Johnny Natar	1-Aug-98	3	PB	548200	6965100	*344*
5368	ARCH	412		Or	7313		TU	22-Aug-97	MR-L	544600 6971600	20084		TR	John Patterk	6-Aug-00	3	PB	546200	6966750	*1080*
5369	ARCH	420		Or	7314		TU	22-Aug-97	MR-L	544600 6971600	10398	517	TU	RL&L	21-Aug-98	2	MR-L	544600	6971600	*364*
5369	ARCH	420		Or	7314		TU	22-Aug-97	MR-L	544600 6971600	12264	582	TU	RL&L	19-Aug-99	4	MR-L	544600	6971600	*727*
5369	ARCH	420		Or	7314		TU	22-Aug-97	MR-L	544600 6971600	20124		TR	Moses Aliyak	17-Aug-00	7	HB	545100	6961400	*1091*
5370	ARCH	407		Or	7315		TU	22-Aug-97	MR-L	544600 6971600	12783	554	TU	RL&L	22-Aug-99	2	MR-L	544600	6971600	*730*
5371	ARCH	450		Or	7316		TU	22-Aug-97	MR-L	544600 6971600	20038		TR	John Towtoongie	1-May-00	3	LML	537500	6978700	*983*
5372	ARCH	492		Or	7318		TU	22-Aug-97	MR-L	544600 6971600	9540		TR	Glen Kadlak	12-Oct-98	3	LML	539500	6977000	*416*
5373	ARCH	434		Or	7319		TU	22-Aug-97	MR-L	544600 6971600	10631	516	TU	RL&L	24-Aug-98	2	MR-L	544600	6971600	*367*
5373	ARCH	434		Or	7319		TU	22-Aug-97	MR-L	544600 6971600	9689		TR	John Towtoongie	18-Dec-98	5	LML	536400	6979500	*483*
5374	ARCH	470		Or	7320		TU	22-Aug-97	MR-L	544600 6971600	10131	537	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*361*
5374	ARCH	470		Or	7320		TU	22-Aug-97	MR-L	544600 6971600	9816		TR	Rose Ussak	2-Aug-99	5	MR-L	543400	6972400	*710*
5377	ARCH	508		Or	7324		TU	22-Aug-97	MR-L	544600 6971600	9571		TR	Joe Natar	15-Sep-98	3	LML	537440	6977460	*389*

Appendix F21. Floy tag recapture data for the Meliadine Study Area, 1997-2008

Fish Capture and Tag Application Data											Tag Recapture Data									
Sample No.	Species[a]	Fork Length (mm)	Weight (g)	Floy Tag Col.	Floy Tag No.	Radio Tag Ch. Code	Capture Method[b]	Date of Capture	Basin[c]	Release Location (UTM Zone 15V)	Sample No.	Fork Length (mm)	Capture Method[a]	Fisherman	Date of Recapture	Capt. Code[d]	Basin[c]	Recapture Location (UTM Zone 15V)		*Days at Large*
5378	ARCH	458		Or	7325		TU	22-Aug-97	MR-L	544600 6971600	10276	533	TU	RL&L	20-Aug-98	2	MR-L	544600	6971600	*363*
5378	ARCH	458		Or	7325		TU	22-Aug-97	MR-L	544600 6971600	9824		TR	Simon Twyee	13-Aug-99	5	PB	546500	6968500	*721*
5382	ARCH	428		Or	7327		TU	22-Aug-97	MR-L	544600 6971600	10044	512	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*361*
5382	ARCH	428		Or	7327		TU	22-Aug-97	MR-L	544600 6971600	12433	572	TU	RL&L	20-Aug-99	4	MR-L	544600	6971600	*728*
5382	ARCH	428		Or	7327		TU	22-Aug-97	MR-L	544600 6971600	20187		TR	Adel Aingilik	23-Jun-00	7	LML	538350	6976500	*1036*
5385	ARCH	398		Or	7329		TU	23-Aug-97	MR-L	544600 6971600	10058	488	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*360*
5386	ARCH	445		Or	7330		TU	23-Aug-97	MR-L	544600 6971600	9623		TR	Johnny Natar	1-Aug-98	3	PB	545970	6969540	*343*
5387	ARCH	375		Or	7331		TU	23-Aug-97	MR-L	544600 6971600	10134	476	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*360*
5387	ARCH	375		Or	7331		TU	23-Aug-97	MR-L	544600 6971600	9654		TR	John Towtoongie	10-Nov-98	5	LML	538000	6978500	*444*
5389	ARCH	396		Or	7333		TU	23-Aug-97	MR-L	544600 6971600	9151	480	GN	RL&L	2-Sep-98	2	LML	536150	6979900	*375*
5389	ARCH	396		Or	7333		TU	23-Aug-97	MR-L	544600 6971600	12216	519	TU	RL&L	17-Aug-99	4	MR-L	544600	6971600	*724*
5390	ARCH	455		Or	7334		TU	23-Aug-97	MR-L	544600 6971600	9434		TR	Peter Kadlak	15-Jul-98	3	HB	610000	6980000	*326*
5391	ARCH	488		Or	7335		TU	23-Aug-97	MR-L	544600 6971600	9632		TR	Johnny Natar	1-Aug-98	3	PB	548200	6965100	*343*
5393	ARCH	421		Or	7337		TU	23-Aug-97	MR-L	544600 6971600	10626	488	TU	RL&L	24-Aug-98	2	MR-L	544600	6971600	*366*
5393	ARCH	421		Or	7337		TU	23-Aug-97	MR-L	544600 6971600	12572	546	TU	RL&L	21-Aug-99	4	MR-L	544600	6971600	*728*
5393	ARCH	421		Or	7337		TU	23-Aug-97	MR-L	544600 6971600	9946		TR	John Towtoongie	10-Nov-99	7	LML	536500	6979200	*809*
5394	ARCH	455		Or	7338		TU	23-Aug-97	MR-L	544600 6971600	10198	556	TU	RL&L	19-Aug-98	2	MR-L	544600	6971600	*361*
5394	ARCH	455		Or	7338		TU	23-Aug-97	MR-L	544600 6971600	9819		TR	Tommy Tudlik	4-Aug-99	5	MR-L	540400	6975700	*711*
5396	ARCH	420		Or	7341		TU	23-Aug-97	MR-L	544600 6971600	10279	497	TU	RL&L	20-Aug-98	2	MR-L	544600	6971600	*362*
5396	ARCH	420		Or	7341		TU	23-Aug-97	MR-L	544600 6971600	9807		TR	John Towtoongie	25-Mar-99	5	LML	536600	6979200	*579*
5397	ARCH	451		Or	7342		TU	23-Aug-97	MR-L	544600 6971600	10193	533	TU	RL&L	19-Aug-98	2	MR-L	544600	6971600	*361*
5397	ARCH	451		Or	7342		TU	23-Aug-97	MR-L	544600 6971600	12656	590	TU	RL&L	21-Aug-99	4	MR-L	544600	6971600	*728*
5397	ARCH	451		Or	7342		TU	23-Aug-97	MR-L	544600 6971600	20044		TR	John Towtoongie	15-May-00	7	LML	537500	6978700	*996*
5398	ARCH	423		Or	7343		TU	23-Aug-97	MR-L	544600 6971600	9758		TR	Harry Ittinuak	4-Jul-99	3	HB	556000	6966000	*680*
5403	ARCH	450		Or	7348		TU	23-Aug-97	MR-L	544600 6971600	9646		TR	John Towtoongie	10-Nov-98	3	LML	538000	6978500	*444*
5405	ARCH	485		Or	7350		TU	23-Aug-97	MR-L	544600 6971600	9649		TR	John Towtoongie	10-Nov-98	3	LML	539500	6976600	*444*
5408	ARCH	432		Or	7352		TU	23-Aug-97	MR-L	544600 6971600	10253	518	TU	RL&L	19-Aug-98	2	MR-L	544600	6971600	*361*
5431	ARCH	437		Or	7354		TU	23-Aug-97	MR-L	544600 6971600	10015	523	TU	RL&L	17-Aug-98	3	MR-L	544600	6971600	*359*
5411	ARCH	455		Or	7356		TU	23-Aug-97	MR-L	544600 6971600	9435		TR	John Towtoongie	3-Sep-98	3	LML	537500	6977500	*376*
5412	ARCH	436		Or	7357		TU	23-Aug-97	MR-L	544600 6971600	10287	520	TU	RL&L	20-Aug-98	2	MR-L	544600	6971600	*362*
5412	ARCH	436		Or	7357		TU	23-Aug-97	MR-L	544600 6971600	9725		TR	John Towtoongie	15-Apr-99	5	LML	536400	6979500	*600*
5413	ARCH	391		Or	7358		TU	23-Aug-97	MR-L	544600 6971600	10203	469	TU	RL&L	19-Aug-98	2	MR-L	544600	6971600	*361*
5413	ARCH	391		Or	7358		TU	23-Aug-97	MR-L	544600 6971600	20411		TR	Martha Malliki	27-Jun-01	5	PB	545250	6969350	*1404*
5414	ARCH	500		Or	7359		TU	23-Aug-97	MR-L	544600 6971600	9436		TR	Peter Kadlak	15-Jul-98	3	HB	610000	6980000	*326*
5417	ARCH	404		Or	7362		TU	23-Aug-97	MR-L	544600 6971600	20422		TR	Patrick Karlik	6-Jul-01	3	MR-L	543500	6972600	*1413*
5419	ARCH	435		Or	7364		TU	23-Aug-97	MR-L	544600 6971600	10026	529	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*360*
5419	ARCH	435		Or	7364		TU	23-Aug-97	MR-L	544600 6971600	9695		TR	John Towtoongie	28-Dec-98	5	LML	536400	6979500	*492*
5420	ARCH	418		Or	7365		TU	23-Aug-97	MR-L	544600 6971600	10063	516	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*360*
5420	ARCH	418		Or	7365		TU	23-Aug-97	MR-L	544600 6971600	9759		TR	John Towtoongie	7-Jun-99	5	LML	536400	6979500	*653*
5422	ARCH	444		Or	7367		TU	23-Aug-97	MR-L	544600 6971600	10043	527	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*360*
5422	ARCH	444		Or	7367		TU	23-Aug-97	MR-L	544600 6971600	9694		TR	John Towtoongie	28-Dec-98	5	LML	536400	6979500	*492*
5423	ARCH	483		Or	7368		TU	23-Aug-97	MR-L	544600 6971600	9726		TR	John Towtoongie	7-May-99	3	LML	536400	6979500	*622*
5424	ARCH	564		Or	7369		TU	23-Aug-97	MR-L	544600 6971600	6217		TR	Ollie Ittinuar	10-Oct-97	3	ML-S	532500	6989500	*48*
5425	ARCH	411		Or	7370		TU	23-Aug-97	MR-L	544600 6971600	9630		TR	Johnny Natar	1-Aug-98	3	PB	548200	6965100	*343*
5430	ARCH	541		Or	7372		TU	23-Aug-97	MR-L	544600 6971600	6207		TR	Joe Kavik	12-Sep-97	3	LML	538400	6977500	*20*
5426	ARCH	493		Or	7373		TU	23-Aug-97	MR-L	544600 6971600	9437		TR	Adele Koanagoak	22-Aug-98	3	LML	538300	6976800	*364*
5427	ARCH	392		Or	7374		TU	23-Aug-97	MR-L	544600 6971600	10252	475	TU	RL&L	19-Aug-98	2	MR-L	544600	6971600	*361*
5427	ARCH	392		Or	7374		TU	23-Aug-97	MR-L	544600 6971600	12584	537	TU	RL&L	21-Aug-99	4	MR-L	544600	6971600	*728*
5428	ARCH	435		Or	7375		TU	23-Aug-97	MR-L	544600 6971600	10260	523	TU	RL&L	20-Aug-98	2	MR-L	544600	6971600	*362*
5836	ARCH	418		Or	7377		TU	28-Aug-97	MR-L	544600 6971600	10388	519	TU	RL&L	21-Aug-98	2	MR-L	544600	6971600	*358*
5836	ARCH	418		Or	7377		TU	28-Aug-97	MR-L	544600 6971600	9760		TR	Joe Makigak	3-Jul-99	5	PB	545500	6969100	*674*
5815	ARCH	390		Or	7382		TU	27-Aug-97	MR-L	544600 6971600	10792	472	TU	RL&L	27-Aug-98	2	MR-L	544600	6971600	*365*

Appendix F21. Floy tag recapture data for the Meliadine Study Area, 1997-2008

Fish Capture and Tag Application Data											Tag Recapture Data									
Sample No.	Species[a]	Fork Length (mm)	Weight (g)	Floy Tag Col.	Floy Tag No.	Radio Tag Ch. Code	Capture Method[b]	Date of Capture	Basin[c]	Release Location (UTM Zone 15V)	Sample No.	Fork Length (mm)	Capture Method[a]	Fisherman	Date of Recapture	Capt. Code[d]	Basin[c]	Recapture Location (UTM Zone 15V)		*Days at Large*
5818	ARCH	362		Or	7385		TU	27-Aug-97	MR-L	544600 6971600	10200	427	TU	RL&L	19-Aug-98	2	MR-L	544600	6971600	*357*
5818	ARCH	362		Or	7385		TU	27-Aug-97	MR-L	544600 6971600	12491	485	TU	RL&L	20-Aug-99	4	MR-L	544600	6971600	*723*
5819	ARCH	365		Or	7386		TU	27-Aug-97	MR-L	544600 6971600	10598	447	TU	RL&L	23-Aug-98	2	MR-L	544600	6971600	*361*
5819	ARCH	365		Or	7386		TU	27-Aug-97	MR-L	544600 6971600	12279	514	TU	RL&L	19-Aug-99	4	MR-L	544600	6971600	*722*
5819	ARCH	365		Or	7386		TU	27-Aug-97	MR-L	544600 6971600	20076		TR	John Towtoongie	15-Aug-00	7	LML	539350	6977000	*1084*
5820	ARCH	382		Or	7387		TU	27-Aug-97	MR-L	544600 6971600	10958	467	TU	RL&L	1-Sep-98	2	MR-L	544600	6971600	*370*
5820	ARCH	382		Or	7387		TU	27-Aug-97	MR-L	544600 6971600	12482	528	TU	RL&L	20-Aug-99	4	MR-L	544600	6971600	*723*
5821	ARCH	438		Or	7388		TU	27-Aug-97	MR-L	544600 6971600	9692		TR	John Towtoongie	28-Dec-98	3	LML	536400	6979500	*488*
5823	ARCH	369		Or	7390		TU	27-Aug-97	MR-L	544600 6971600	10390	466	TU	RL&L	21-Aug-98	2	MR-L	544600	6971600	*359*
5825	ARCH	392		Or	7392		TU	27-Aug-97	MR-L	544600 6971600	10048	473	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*356*
5828	ARCH	413		Or	7395		TU	27-Aug-97	MR-L	544600 6971600	10261	494	TU	RL&L	20-Aug-98	2	MR-L	544600	6971600	*358*
5890	ARCH	397		Or	7403		TU	28-Aug-97	MR-L	544600 6971600	10472	486	TU	RL&L	22-Aug-98	2	MR-L	544600	6971600	*359*
5890	ARCH	397		Or	7403		TU	28-Aug-97	MR-L	544600 6971600	13098	550	TU	RL&L	26-Aug-99	4	MR-L	544600	6971600	*728*
5890	ARCH	397		Or	7403		TU	28-Aug-97	MR-L	544600 6971600	20202		TR	John Towtoongie	10-Sep-00	7	LML	539300	6977100	*1109*
5897	ARCH	314		Or	7409		TU	28-Aug-97	MR-L	544600 6971600	10666	385	TU	RL&L	24-Aug-98	2	MR-L	544600	6971600	*361*
5897	ARCH	314		Or	7409		TU	28-Aug-97	MR-L	544600 6971600	13040	462	TU	RL&L	25-Aug-99	4	MR-L	544600	6971600	*727*
5897	ARCH	314		Or	7409		TU	28-Aug-97	MR-L	544600 6971600	20452		TR	Roger Ittinuar	10-Sep-01	7	PB	545250	6969350	*1474*
5898	ARCH	352		Or	7410		TU	28-Aug-97	MR-L	544600 6971600	10185	428	TU	RL&L	19-Aug-98	2	MR-L	544600	6971600	*356*
5899	ARCH	390		Or	7411		TU	28-Aug-97	MR-L	544600 6971600	10469	484	TU	RL&L	22-Aug-98	2	MR-L	544600	6971600	*359*
5900	ARCH	423		Or	7412		TU	28-Aug-97	MR-L	544600 6971600	9438		TR	John Towtoongie	19-Aug-98	3	LML	538700	6977000	*356*
5902	ARCH	411		Or	7414		TU	28-Aug-97	MR-L	544600 6971600	12557	554	TU	RL&L	21-Aug-99	2	MR-L	544600	6971600	*723*
5902	ARCH	411		Or	7414		TU	28-Aug-97	MR-L	544600 6971600	20006		TR	John Towtoongie	12-Apr-00	5	LML	538000	6978500	*958*
5903	ARCH	405		Or	7415		TU	28-Aug-97	MR-L	544600 6971600	10622	502	TU	RL&L	24-Aug-98	2	MR-L	544600	6971600	*361*
5903	ARCH	405		Or	7415		TU	28-Aug-97	MR-L	544600 6971600	12991	575	TU	RL&L	24-Aug-99	4	MR-L	544600	6971600	*726*
5908	ARCH	354		Or	7420		TU	29-Aug-97	MR-L	544600 6971600	10394	440	TU	RL&L	21-Aug-98	2	MR-L	544600	6971600	*357*
5908	ARCH	354		Or	7420		TU	29-Aug-97	MR-L	544600 6971600	12643	504	TU	RL&L	21-Aug-99	4	MR-L	544600	6971600	*722*
5908	ARCH	354		Or	7420		TU	29-Aug-97	MR-L	544600 6971600	9938		TR	John Towtoongie	20-Nov-99	7	LML	537000	6979000	*813*
5909	ARCH	375		Or	7421		TU	29-Aug-97	MR-L	544600 6971600	10206	449	TU	RL&L	19-Aug-98	2	MR-L	544600	6971600	*355*
5910	ARCH	484		Or	7422		TU	29-Aug-97	MR-L	544600 6971600	10254	574	TU	RL&L	19-Aug-98	2	MR-L	544600	6971600	*355*
5911	ARCH	350		Or	7423		TU	29-Aug-97	MR-L	544600 6971600	10475	433	TU	RL&L	22-Aug-98	2	MR-L	544600	6971600	*358*
5911	ARCH	350		Or	7423		TU	29-Aug-97	MR-L	544600 6971600	12274	485	TU	RL&L	19-Aug-99	4	MR-L	544600	6971600	*720*
5911	ARCH	350		Or	7423		TU	29-Aug-97	MR-L	544600 6971600	20469		TR	Johnny Tulugak	8-Jun-01	7	LML	537500	6977500	*1379*
5912	ARCH	403		Or	7424		TU	29-Aug-97	MR-L	544600 6971600	12645	533	TU	RL&L	21-Aug-99	2	MR-L	544600	6971600	*722*
5912	ARCH	403		Or	7424		TU	29-Aug-97	MR-L	544600 6971600	15874	554	GN	RL&L	21-Sep-00	5	ML-W	524050	7001050	*1119*
5837	ARCH	419		Or	7426		TU	28-Aug-97	MR-L	544600 6971600	9589		TR	Johnny Ittinuar	1-Aug-98	3	PB	548270	6969320	*338*
5838	ARCH	376		Or	7427		TU	28-Aug-97	MR-L	544600 6971600	10741	439	TU	RL&L	26-Aug-98	2	MR-L	544600	6971600	*363*
5839	ARCH	353		Or	7428		TU	28-Aug-97	MR-L	544600 6971600	10269	431	TU	RL&L	20-Aug-98	2	MR-L	544600	6971600	*357*
5840	ARCH	372		Or	7429		TU	28-Aug-97	MR-L	544600 6971600	10628	435	TU	RL&L	24-Aug-98	2	MR-L	544600	6971600	*361*
5843	ARCH	395		Or	7432		TU	28-Aug-97	MR-L	544600 6971600	10399	483	TU	RL&L	21-Aug-98	2	MR-L	544600	6971600	*358*
5844	ARCH	440		Or	7433		TU	28-Aug-97	MR-L	544600 6971600	9925		TR	Joe Issaluk	9-Nov-99	3	HB	615000	7026000	*803*
5845	ARCH	343		Or	7434		TU	28-Aug-97	MR-L	544600 6971600	9439		TR	Joe Makigak	16-Aug-98	3	?			*353*
5846	ARCH	391		Or	7435		TU	28-Aug-97	MR-L	544600 6971600	10520	448	TU	RL&L	22-Aug-98	2	MR-L	544600	6971600	*359*
5846	ARCH	391		Or	7435		TU	28-Aug-97	MR-L	544600 6971600	9615		TR	Johnny Natar	15-Sep-98	5	LML	536030	6979160	*383*
5848	ARCH	368		Or	7437		TU	28-Aug-97	MR-L	544600 6971600	10737	478	TU	RL&L	26-Aug-98	2	MR-L	544600	6971600	*363*
5848	ARCH	368		Or	7437		TU	28-Aug-97	MR-L	544600 6971600	9602		TR	Johnny Ittinuar	15-Sep-98	5	LML	538150	6977870	*383*
5849	ARCH	416		Or	7438		TU	28-Aug-97	MR-L	544600 6971600	10136	503	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*355*
5850	ARCH	386		Or	7439		TU	28-Aug-97	MR-L	544600 6971600	9627		TR	Johnny Natar	1-Aug-98	3	PB	548200	6965100	*338*
5851	ARCH	341		Or	7440		TU	28-Aug-97	MR-L	544600 6971600	10886	437	TU	RL&L	30-Aug-98	2	MR-L	544600	6971600	*367*
5855	ARCH	484		Or	7444		TU	28-Aug-97	MR-L	544600 6971600	10070	556	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*355*
5856	ARCH	440		Or	7445		TU	28-Aug-97	MR-L	544600 6971600	10460	541	TU	RL&L	22-Aug-98	2	MR-L	544600	6971600	*359*
5856	ARCH	440		Or	7445		TU	28-Aug-97	MR-L	544600 6971600	12642	615	TU	RL&L	21-Aug-99	4	MR-L	544600	6971600	*723*
5856	ARCH	440		Or	7445		TU	28-Aug-97	MR-L	544600 6971600	20175		TR	Rose Ussak	1-Jul-00	7	MR-L	542400	6973550	*1038*

Appendix F21. Floy tag recapture data for the Meliadine Study Area, 1997-2008

Fish Capture and Tag Application Data											Tag Recapture Data									
Sample No.	Species[a]	Fork Length (mm)	Weight (g)	Floy Tag Col.	Floy Tag No.	Radio Tag Ch. Code	Capture Method[b]	Date of Capture	Basin[c]	Release Location (UTM Zone 15V)	Sample No.	Fork Length (mm)	Capture Method[a]	Fisherman	Date of Recapture	Capt. Code[d]	Basin[c]	Recapture Location (UTM Zone 15V)		*Days at Large*
5857	ARCH	469		Or	7446		TU	28-Aug-97	MR-L	544600 6971600	10194	561	TU	RL&L	19-Aug-98	2	MR-L	544600	6971600	*356*
5860	ARCH	329		Or	7449		TU	28-Aug-97	MR-L	544600 6971600	10466	390	TU	RL&L	22-Aug-98	2	MR-L	544600	6971600	*359*
5861	ARCH	462		Or	7450		TU	28-Aug-97	MR-L	544600 6971600	10599	563	TU	RL&L	23-Aug-98	2	MR-L	544600	6971600	*360*
5863	ARCH	385		Or	7451		TU	28-Aug-97	MR-L	544600 6971600	10350	482	TU	RL&L	21-Aug-98	2	MR-L	544600	6971600	*358*
5864	ARCH	439		Or	7452		TU	28-Aug-97	MR-L	544600 6971600	10282	529	TU	RL&L	20-Aug-98	2	MR-L	544600	6971600	*357*
5865	ARCH	404		Or	7453		TU	28-Aug-97	MR-L	544600 6971600	10455	485	TU	RL&L	22-Aug-98	2	MR-L	544600	6971600	*359*
5866	ARCH	418		Or	7454		TU	28-Aug-97	MR-L	544600 6971600	10357	513	TU	RL&L	21-Aug-98	2	MR-L	544600	6971600	*358*
5866	ARCH	418		Or	7454		TU	28-Aug-97	MR-L	544600 6971600	13120	592	TU	RL&L	27-Aug-99	4	MR-L	544600	6971600	*729*
5866	ARCH	418		Or	7454		TU	28-Aug-97	MR-L	544600 6971600	9947		TR	John Towtoongie	10-Nov-99	7	LML	536500	6979200	*804*
5867	ARCH	478		Or	7455		TU	28-Aug-97	MR-L	544600 6971600	9693		TR	John Towtoongie	28-Dec-98	3	LML	536400	6979500	*487*
5868	ARCH	460		Or	7456		TU	28-Aug-97	MR-L	544600 6971600	10251	547	TU	RL&L	19-Aug-98	2	MR-L	544600	6971600	*356*
5868	ARCH	460		Or	7456		TU	28-Aug-97	MR-L	544600 6971600	9696		TR	John Towtoongie	28-Dec-98	5	LML	536400	6979500	*487*
5869	ARCH	414		Or	7457		TU	28-Aug-97	MR-L	544600 6971600	10132	492	TU	RL&L	18-Aug-98	3	MR-L	544600	6971600	*355*
5872	ARCH	450		Or	7460		TU	28-Aug-97	MR-L	544600 6971600	10190	534	TU	RL&L	19-Aug-98	2	MR-L	544600	6971600	*356*
5873	ARCH	391		Or	7461		TU	28-Aug-97	MR-L	544600 6971600	10143	478	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*355*
5873	ARCH	391		Or	7461		TU	28-Aug-97	MR-L	544600 6971600	12271	540	TU	RL&L	19-Aug-99	4	MR-L	544600	6971600	*721*
5875	ARCH	342		Or	7463		TU	28-Aug-97	MR-L	544600 6971600	10201	425	TU	RL&L	19-Aug-98	2	MR-L	544600	6971600	*356*
5876	ARCH	462		Or	7464		TU	28-Aug-97	MR-L	544600 6971600	9440		TR	Joe Makigak	1-Jul-98	3	PB	545500	6969500	*307*
5877	ARCH	425		Or	7465		TU	28-Aug-97	MR-L	544600 6971600	10992	530	TU	RL&L	2-Sep-98	2	MR-L	544600	6971600	*370*
5877	ARCH	425		Or	7465		TU	28-Aug-97	MR-L	544600 6971600	9833		TR	Glen Kadlak	19-Aug-99	5	HB	558500	6965000	*721*
5878	ARCH	394		Or	7466		TU	28-Aug-97	MR-L	544600 6971600	10519	485	TU	RL&L	22-Aug-98	2	MR-L	544600	6971600	*359*
5878	ARCH	394		Or	7466		TU	28-Aug-97	MR-L	544600 6971600	9537		TR	Johnny Ittinuar	21-Sep-98	5	LML	539500	6977000	*389*
5879	ARCH	515		Or	7467		TU	28-Aug-97	MR-L	544600 6971600	9441		TR	Joe Makigak	1-Jul-98	3	PB	545500	6969500	*307*
5881	ARCH	446		Or	7469		TU	28-Aug-97	MR-L	544600 6971600	10195	540	TU	RL&L	19-Aug-98	2	MR-L	544600	6971600	*356*
5881	ARCH	446		Or	7469		TU	28-Aug-97	MR-L	544600 6971600	9670		TR	John Towtoongie	24-Nov-98	5	LML	536400	6979500	*453*
5882	ARCH	415		Or	7470		TU	28-Aug-97	MR-L	544600 6971600	9442		TR	Tommy Partridge	19-Aug-98	3	PB	545500	6967800	*356*
5883	ARCH	444		Or	7471		TU	28-Aug-97	MR-L	544600 6971600	10796	528	TU	RL&L	29-Aug-98	2	MR-L	544600	6971600	*366*
5883	ARCH	444		Or	7471		TU	28-Aug-97	MR-L	544600 6971600	12949	597	TU	RL&L	24-Aug-99	4	MR-L	544600	6971600	*726*
5883	ARCH	444		Or	7471		TU	28-Aug-97	MR-L	544600 6971600	20186		TR	Tommy Tudlik	25-Jun-00	7	PB	545250	6969350	*1032*
5885	ARCH	420		Or	7473		TU	28-Aug-97	MR-L	544600 6971600	9626		TR	Johnny Natar	1-Aug-98	3	PB	548200	6965100	*338*
5887	ARCH	448		Or	7475		TU	28-Aug-97	MR-L	544600 6971600	10790	533	TU	RL&L	27-Aug-98	2	MR-L	544600	6971600	*364*
5887	ARCH	448		Or	7475		TU	28-Aug-97	MR-L	544600 6971600	9697		TR	John Towtoongie	2-Jan-99	5	LML	536400	6979500	*492*
5914	ARCH	399		Or	7476		TU	29-Aug-97	MR-L	544600 6971600	10258	483	TU	RL&L	19-Aug-98	2	MR-L	544600	6971600	*355*
5914	ARCH	399		Or	7476		TU	29-Aug-97	MR-L	544600 6971600	20382		TR	Rose Ussak	19-Jun-01	5	MR-L	542400	6973550	*1390*
5916	ARCH	309		Or	7478		TU	29-Aug-97	MR-L	544600 6971600	10911	405	TU	RL&L	30-Aug-98	2	MR-L	544600	6971600	*366*
5918	ARCH	353		Or	7480		TU	29-Aug-97	MR-L	544600 6971600	10738	442	TU	RL&L	26-Aug-98	2	MR-L	544600	6971600	*362*
5919	ARCH	375		Or	7481		TU	29-Aug-97	MR-L	544600 6971600	9592		TR	Johnny Ittinuar	1-Aug-98	3	PB	548270	6969320	*337*
5920	ARCH	352		Or	7482		TU	29-Aug-97	MR-L	544600 6971600	10699	435	TU	RL&L	25-Aug-98	2	MR-L	544600	6971600	*361*
5921	ARCH	495		Or	7483		TU	29-Aug-97	MR-L	544600 6971600	9443		TR	John Towtoongie	19-Aug-98	3	LML	538700	6977000	*355*
5922	ARCH	372		Or	7484		TU	29-Aug-97	MR-L	544600 6971600	12728	503	TU	RL&L	22-Aug-99	2	MR-L	544600	6971600	*723*
5922	ARCH	372		Or	7484		TU	29-Aug-97	MR-L	544600 6971600	20413		TR	Martha Malliki	27-Jun-01	5	PB	545250	6969350	*1398*
5923	ARCH	408		Or	7485		TU	29-Aug-97	MR-L	544600 6971600	10627	493	TU	RL&L	24-Aug-98	2	MR-L	544600	6971600	*360*
5923	ARCH	408		Or	7485		TU	29-Aug-97	MR-L	544600 6971600	9444		TR	John Towtoongie	1-Sep-98	5	LML	537500	6977500	*368*
5924	ARCH	351		Or	7486		TU	29-Aug-97	MR-L	544600 6971600	10140	425	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*354*
5925	ARCH	372		Or	7487		TU	29-Aug-97	MR-L	544600 6971600	10062	451	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*354*
5925	ARCH	372		Or	7487		TU	29-Aug-97	MR-L	544600 6971600	12490	510	TU	RL&L	20-Aug-99	4	MR-L	544600	6971600	*721*
5925	ARCH	372		Or	7487		TU	29-Aug-97	MR-L	544600 6971600	20077		TR	John Towtoongie	15-Aug-00	7	LML	539350	6977000	*1082*
5926	ARCH	359		Or	7488		TU	29-Aug-97	MR-L	544600 6971600	10129	438	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*354*
5926	ARCH	359		Or	7488		TU	29-Aug-97	MR-L	544600 6971600	12544	490	TU	RL&L	20-Aug-99	4	MR-L	544600	6971600	*721*
5929	ARCH	673	3210	Or	7491	21 75	TU	29-Aug-97	MR-L	544600 6971600	6215		TR	Alex	23-Sep-97	3	LML	537200	6977800	*25*
5939	ARCH	447		Or	7493		TU	29-Aug-97	MR-L	544600 6971600	10197	528	TU	RL&L	19-Aug-98	2	MR-L	544600	6971600	*355*
5939	ARCH	447		Or	7493		TU	29-Aug-97	MR-L	544600 6971600	9727		TR	John Towtoongie	19-May-99	5	LML	536400	6979500	*628*

Golder Associates

Appendix F21. Floy tag recapture data for the Meliadine Study Area, 1997-2008

Fish Capture and Tag Application Data											Tag Recapture Data									
Sample No.	Species[a]	Fork Length (mm)	Weight (g)	Floy Tag Col.	Floy Tag No.	Radio Tag Ch. Code	Capture Method[b]	Date of Capture	Basin[c]	Release Location (UTM Zone 15V)	Sample No.	Fork Length (mm)	Capture Method[a]	Fisherman	Date of Recapture	Capt. Code[d]	Basin[c]	Recapture Location (UTM Zone 15V)		*Days at Large*
5931	ARCH	420		Or	7494		TU	29-Aug-97	MR-L	544600 6971600	10278	512	TU	RL&L	20-Aug-98	2	MR-L	544600	6971600	*356*
5931	ARCH	420		Or	7494		TU	29-Aug-97	MR-L	544600 6971600	9445		TR	Louie Taopakti	22-Aug-98	5	LML	539500	6977000	*358*
5932	ARCH	428		Or	7495		TU	29-Aug-97	MR-L	544600 6971600	10067	527	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*354*
5932	ARCH	428		Or	7495		TU	29-Aug-97	MR-L	544600 6971600	9728		TR	John Towtoongie	22-Apr-99	5	LML	536400	6979500	*601*
5933	ARCH	332		Or	7496		TU	29-Aug-97	MR-L	544600 6971600	10016	423	TU	RL&L	17-Aug-98	2	MR-L	544600	6971600	*353*
5933	ARCH	332		Or	7496		TU	29-Aug-97	MR-L	544600 6971600	12190	493	TU	RL&L	16-Aug-99	4	MR-L	544600	6971600	*717*
5933	ARCH	332		Or	7496		TU	29-Aug-97	MR-L	544600 6971600	20467		TR	Joe Inukshuk	2-Jun-01	7	MR-L	543500	6972600	*1373*
5936	ARCH	337		Or	7498		TU	29-Aug-97	MR-L	544600 6971600	10697	413	TU	RL&L	25-Aug-98	2	MR-L	544600	6971600	*361*
5936	ARCH	337		Or	7498		TU	29-Aug-97	MR-L	544600 6971600	12564	457	TU	RL&L	21-Aug-99	4	MR-L	544600	6971600	*722*
5937	ARCH	324		Or	7499		TU	29-Aug-97	MR-L	544600 6971600	10257	405	TU	RL&L	19-Aug-98	2	MR-L	544600	6971600	*355*
5937	ARCH	324		Or	7499		TU	29-Aug-97	MR-L	544600 6971600	12158	469	TU	RL&L	15-Aug-99	4	MR-L	544600	6971600	*716*
5937	ARCH	324		Or	7499		TU	29-Aug-97	MR-L	544600 6971600	20379		TR	Dave Sotheran	25-Jun-01	7	MR-L	543500	6972600	*1396*
5634	ARCH	366		Or	7501		TU	25-Aug-97	MR-L	544600 6971600	9446		TR	Sam Ittuak	18-Jul-98	3	HB	610000	6980000	*327*
5635	ARCH	464		Or	7502		TU	25-Aug-97	MR-L	544600 6971600	9616		TR	Johnny Natar	1-Aug-98	3	PB	545970	6969540	*341*
5636	ARCH	438		Or	7503		TU	25-Aug-97	MR-L	544600 6971600	20130		TR	Honie Ittigiatok	24-Jul-00	3	PB	547050	6965700	*1064*
5639	ARCH	532		Or	7506		TU	25-Aug-97	MR-L	544600 6971600	9548		TR	John Towtoongie	16-Sep-98	3	LML	539500	6977000	*387*
5641	ARCH	409		Or	7508		TU	25-Aug-97	MR-L	544600 6971600	10993	499	TU	RL&L	2-Sep-98	2	MR-L	544600	6971600	*373*
5641	ARCH	409		Or	7508		TU	25-Aug-97	MR-L	544600 6971600	20212		TR	John Towtoongie	10-Sep-00	5	LML	539300	6977100	*1112*
5642	ARCH	416		Or	7509		TU	25-Aug-97	MR-L	544600 6971600	13294	545	TU	RL&L	30-Aug-99	2	MR-L	544600	6971600	*735*
5643	ARCH	383		Or	7510		TU	25-Aug-97	MR-L	544600 6971600	10313	463	TU	RL&L	20-Aug-98	2	MR-L	544600	6971600	*360*
5643	ARCH	383		Or	7510		TU	25-Aug-97	MR-L	544600 6971600	12267	521	TU	RL&L	19-Aug-99	4	MR-L	544600	6971600	*724*
5643	ARCH	383		Or	7510		TU	25-Aug-97	MR-L	544600 6971600	20007		TR	John Towtoongie	12-Apr-00	7	LML	538000	6978500	*961*
5645	ARCH	369		Or	7512		TU	25-Aug-97	MR-L	544600 6971600	12146	520	TU	RL&L	14-Aug-99	2	MR-L	544600	6971600	*719*
5645	ARCH	369		Or	7512		TU	25-Aug-97	MR-L	544600 6971600	20086		TR	John Amak	20-Aug-00	5	PB	545750	6969600	*1091*
5646	ARCH	364		Or	7513		TU	25-Aug-97	MR-L	544600 6971600	10477	451	TU	RL&L	22-Aug-98	2	MR-L	544600	6971600	*362*
5646	ARCH	364		Or	7513		TU	25-Aug-97	MR-L	544600 6971600	12265	519	TU	RL&L	19-Aug-99	4	MR-L	544600	6971600	*724*
5647	ARCH	392		Or	7514		TU	25-Aug-97	MR-L	544600 6971600	9599		TR	Johnny Ittinuar	1-Aug-98	3	PB	548270	6969320	*341*
5648	ARCH	408		Or	7515		TU	25-Aug-97	MR-L	544600 6971600	9596		TR	Johnny Ittinuar	1-Aug-98	3	PB	548270	6969320	*341*
5650	ARCH	438		Or	7517		TU	25-Aug-97	MR-L	544600 6971600	10046	528	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*358*
5650	ARCH	438		Or	7517		TU	25-Aug-97	MR-L	544600 6971600	9761		TR	John Towtoongie	7-Jun-99	5	LML	536400	6979500	*651*
5652	ARCH	405		Or	7519		TU	25-Aug-97	MR-L	544600 6971600	10144	496	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*358*
5652	ARCH	405		Or	7519		TU	25-Aug-97	MR-L	544600 6971600	12369	571	TU	RL&L	19-Aug-99	4	MR-L	544600	6971600	*724*
5656	ARCH	529		Or	7523		TU	25-Aug-97	MR-L	544600 6971600	9447		TR	Joe Makigak	1-Jul-98	3	PB	545500	6969500	*310*
5657	ARCH	384		Or	7524		TU	25-Aug-97	MR-L	544600 6971600	10389	466	TU	RL&L	21-Aug-98	2	MR-L	544600	6971600	*361*
5658	ARCH	413		Or	7525		TU	25-Aug-97	MR-L	544600 6971600	10073	499	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*358*
5658	ARCH	413		Or	7525		TU	25-Aug-97	MR-L	544600 6971600	9651		TR	John Towtoongie	10-Nov-98	5	LML	539500	6976600	*442*
5685	ARCH	531		Or	7527		TU	26-Aug-97	MR-L	544600 6971600	9448		TR	John Towtoongie	19-Aug-98	3	LML	538700	6977000	*358*
5687	ARCH	490		Or	7529		TU	26-Aug-97	MR-L	544600 6971600	9620		TR	Johnny Natar	1-Aug-98	3	PB	545970	6969540	*340*
5688	ARCH	425		Or	7530		TU	26-Aug-97	MR-L	544600 6971600	10471	496	TU	RL&L	22-Aug-98	2	MR-L	544600	6971600	*361*
5688	ARCH	425		Or	7530		TU	26-Aug-97	MR-L	544600 6971600	12278	550	TU	RL&L	19-Aug-99	4	MR-L	544600	6971600	*723*
5688	ARCH	425		Or	7530		TU	26-Aug-97	MR-L	544600 6971600	20399		TR	Honie Ittigiatok	29-Jun-01	7	PB	545250	6969350	*1403*
5690	ARCH	570		Or	7532		TU	26-Aug-97	MR-L	544600 6971600	9449		TR	Joe Makigak	1-Jul-98	3	PB	545500	6969500	*309*
5691	ARCH	475		Or	7533		TU	26-Aug-97	MR-L	544600 6971600	10002	557	TU	RL&L	16-Aug-98	2	MR-L	544600	6971600	*355*
5691	ARCH	475		Or	7533		TU	26-Aug-97	MR-L	544600 6971600	9729		TR	John Towtoongie	19-May-99	5	LML	536400	6979500	*631*
5694	ARCH	336		Or	7536		TU	26-Aug-97	MR-L	544600 6971600	10053	421	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*357*
5695	ARCH	418		Or	7537		TU	26-Aug-97	MR-L	544600 6971600	9839		TR	Mike Patterk	25-Aug-99	3	PB	546500	6968500	*729*
5696	ARCH	375		Or	7538		TU	26-Aug-97	MR-L	544600 6971600	10017	460	TU	RL&L	17-Aug-98	2	MR-L	544600	6971600	*356*
5696	ARCH	375		Or	7538		TU	26-Aug-97	MR-L	544600 6971600	9948		TR	John Towtoongie	10-Nov-99	5	LML	536500	6979200	*806*
5697	ARCH	578		Or	7539		TU	26-Aug-97	MR-L	544600 6971600	6220		TR	Alvin Sandy	14-Oct-97	3	ML-S	528000	6992700	*49*
5699	ARCH	372		Or	7541		TU	26-Aug-97	MR-L	544600 6971600	20480		TR	Peter Ugjuk	18-Jun-01	3	LML	537500	6977500	*1392*
5702	ARCH	351		Or	7544		TU	26-Aug-97	MR-L	544600 6971600	10623	439	TU	RL&L	24-Aug-98	2	MR-L	544600	6971600	*363*
5704	ARCH	440		Or	7546		TU	26-Aug-97	MR-L	544600 6971600	12698	580	TU	RL&L	22-Aug-99	2	MR-L	544600	6971600	*726*

Appendix F21. Floy tag recapture data for the Meliadine Study Area, 1997-2008

Fish Capture and Tag Application Data											Tag Recapture Data									
Sample No.	Species[a]	Fork Length (mm)	Weight (g)	Floy Tag Col.	Floy Tag No.	Radio Tag Ch. Code	Capture Method[b]	Date of Capture	Basin[c]	Release Location (UTM Zone 15V)	Sample No.	Fork Length (mm)	Capture Method[a]	Fisherman	Date of Recapture	Capt. Code[d]	Basin[c]	Recapture Location (UTM Zone 15V)		*Days at Large*
5659	ARCH	384		Or	7551		TU	25-Aug-97	MR-L	544600 6971600	9588		TR	Johnny Ittinuar	1-Aug-98	3	PB	548270	6969320	*341*
5660	ARCH	377		Or	7552		TU	25-Aug-97	MR-L	544600 6971600	10186	451	TU	RL&L	19-Aug-98	2	MR-L	544600	6971600	*359*
5660	ARCH	377		Or	7552		TU	25-Aug-97	MR-L	544600 6971600	12159	507	TU	RL&L	15-Aug-99	4	MR-L	544600	6971600	*720*
5660	ARCH	377		Or	7552		TU	25-Aug-97	MR-L	544600 6971600	20464		TR	Francis Ayaruak	2-Jun-01	7	MR-L	543500	6972600	*1377*
5661	ARCH	531		Or	7553		TU	25-Aug-97	MR-L	544600 6971600	9638		TR	Johnny Natar	1-Aug-98	3	PB	548200	6965100	*341*
5662	ARCH	538		Or	7554		TU	25-Aug-97	MR-L	544600 6971600	20203		TR	Ollie Ittinuar	15-Aug-00	3	HB	587000	6962000	*1086*
5663	ARCH	340		Or	7555		TU	25-Aug-97	MR-L	544600 6971600	9594		TR	Johnny Ittinuar	1-Aug-98	3	PB	548270	6969320	*341*
5664	ARCH	394		Or	7556		TU	25-Aug-97	MR-L	544600 6971600	10884	483	TU	RL&L	30-Aug-98	2	MR-L	544600	6971600	*370*
5667	ARCH	390		Or	7559		TU	25-Aug-97	MR-L	544600 6971600	10042	460	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*358*
5669	ARCH	378		Or	7561		TU	25-Aug-97	MR-L	544600 6971600	6211		TR	J. Copp	26-Sep-97	3	LML	538200	6977200	*32*
5671	ARCH	421		Or	7563		TU	25-Aug-97	MR-L	544600 6971600	10596	514	TU	RL&L	23-Aug-98	2	MR-L	544600	6971600	*363*
5671	ARCH	421		Or	7563		TU	25-Aug-97	MR-L	544600 6971600	12570	585	TU	RL&L	21-Aug-99	4	MR-L	544600	6971600	*726*
5671	ARCH	421		Or	7563		TU	25-Aug-97	MR-L	544600 6971600	20028		TR	Samuel Amarook	24-Apr-00	7	MR-L	545000	6971000	*973*
5682	ARCH	389		Or	7574		TU	26-Aug-97	MR-L	544600 6971600	10035	467	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*357*
5682	ARCH	389		Or	7574		TU	26-Aug-97	MR-L	544600 6971600	12434	527	TU	RL&L	20-Aug-99	4	MR-L	544600	6971600	*724*
5683	ARCH	339		Or	7575		TU	26-Aug-97	MR-L	544600 6971600	10601	420	TU	RL&L	23-Aug-98	2	MR-L	544600	6971600	*362*
5609	ARCH	443		Or	7576		TU	25-Aug-97	MR-L	544600 6971600	10072	496	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*358*
5609	ARCH	443		Or	7576		TU	25-Aug-97	MR-L	544600 6971600	12474	526	TU	RL&L	20-Aug-99	4	MR-L	544600	6971600	*725*
5612	ARCH	402		Or	7579		TU	25-Aug-97	MR-L	544600 6971600	10270	482	TU	RL&L	20-Aug-98	2	MR-L	544600	6971600	*360*
5613	ARCH	396		Or	7580		TU	25-Aug-97	MR-L	544600 6971600	10795	450	TU	RL&L	29-Aug-98	2	MR-L	544600	6971600	*369*
5613	ARCH	396		Or	7580		TU	25-Aug-97	MR-L	544600 6971600	12836	503	TU	RL&L	23-Aug-99	4	MR-L	544600	6971600	*728*
5614	ARCH	467		Or	7581		TU	25-Aug-97	MR-L	544600 6971600	10074	554	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*358*
5614	ARCH	467		Or	7581		TU	25-Aug-97	MR-L	544600 6971600	9808		TR	John Towtoongie	25-Mar-99	5	LML	536600	6979200	*577*
5615	ARCH	478		Or	7582		TU	25-Aug-97	MR-L	544600 6971600	9450		TR	Joe Makigak	1-Jul-98	3	PB	545500	6969500	*310*
5616	ARCH	409		Or	7583		TU	25-Aug-97	MR-L	544600 6971600	9730		TR	John Towtoongie	7-May-99	3	LML	536400	6979500	*620*
5617	ARCH	501		Or	7584		TU	25-Aug-97	MR-L	544600 6971600	10266	596	TU	RL&L	20-Aug-98	2	MR-L	544600	6971600	*360*
5617	ARCH	501		Or	7584		TU	25-Aug-97	MR-L	544600 6971600	9653		TR	John Towtoongie	10-Nov-98	5	LML	538000	6978500	*442*
5618	ARCH	393		Or	7585		TU	25-Aug-97	MR-L	544600 6971600	10280	477	TU	RL&L	20-Aug-98	2	MR-L	544600	6971600	*360*
5618	ARCH	393		Or	7585		TU	25-Aug-97	MR-L	544600 6971600	12277	531	TU	RL&L	19-Aug-99	4	MR-L	544600	6971600	*724*
5620	ARCH	361		Or	7587		TU	25-Aug-97	MR-L	544600 6971600	10476	440	TU	RL&L	22-Aug-98	2	MR-L	544600	6971600	*362*
5623	ARCH	412		Or	7590		TU	25-Aug-97	MR-L	544600 6971600	9836		TR	Camile Hamilton	22-Aug-99	3	PB	545000	6969600	*727*
5624	ARCH	561		Or	7591		TU	25-Aug-97	MR-L	544600 6971600	9451		TR	Henry Kablalik	25-Jun-98	3	PB	545700	6969500	*304*
5627	ARCH	440		Or	7594		TU	25-Aug-97	MR-L	544600 6971600	10051	541	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*358*
5628	ARCH	412		Or	7595		TU	25-Aug-97	MR-L	544600 6971600	10391	464	TU	RL&L	21-Aug-98	2	MR-L	544600	6971600	*361*
5628	ARCH	412		Or	7595		TU	25-Aug-97	MR-L	544600 6971600	12215	493	TU	RL&L	17-Aug-99	4	MR-L	544600	6971600	*722*
5628	ARCH	412		Or	7595		TU	25-Aug-97	MR-L	544600 6971600	20470		TR	Johnny Tulugak	8-Jun-01	7	LML	537500	6977500	*1383*
5629	ARCH	377		Or	7596		TU	25-Aug-97	MR-L	544600 6971600	12070	548	TU	RL&L	11-Aug-99	2	MR-L	544600	6971600	*716*
5629	ARCH	377		Or	7596		TU	25-Aug-97	MR-L	544600 6971600	20065		TR	Nancy Makpah	3-Aug-00	5	PB	548100	6964000	*1074*
6044	ARCH	543	1990	Or	7601	21 90	TU	2-Sep-97	MR-L	544600 6971600	9710		TR		1-Dec-98	3	?			*455*
6045	ARCH	390		Or	7602		TU	2-Sep-97	MR-L	544600 6971600	10740	454	TU	RL&L	26-Aug-98	2	MR-L	544600	6971600	*358*
6045	ARCH	390		Or	7602		TU	2-Sep-97	MR-L	544600 6971600	12911	517	TU	RL&L	23-Aug-99	4	MR-L	544600	6971600	*720*
6046	ARCH	360		Or	7603		TU	2-Sep-97	MR-L	544600 6971600	10199	431	TU	RL&L	19-Aug-98	2	MR-L	544600	6971600	*351*
6046	ARCH	360		Or	7603		TU	2-Sep-97	MR-L	544600 6971600	12908	494	TU	RL&L	23-Aug-99	4	MR-L	544600	6971600	*720*
6047	ARCH	403		Or	7604		TU	2-Sep-97	MR-L	544600 6971600	10597	492	TU	RL&L	23-Aug-98	2	MR-L	544600	6971600	*355*
6047	ARCH	403		Or	7604		TU	2-Sep-97	MR-L	544600 6971600	20002		TR	William Pissuk	15-Aug-99	5	HB	610000	6980000	*712*
6048	ARCH	408		Or	7606		TU	2-Sep-97	MR-L	544600 6971600	10698	475	TU	RL&L	25-Aug-98	2	MR-L	544600	6971600	*357*
6048	ARCH	408		Or	7606		TU	2-Sep-97	MR-L	544600 6971600	9762		TR	Fabian Tatty	22-Jun-99	5	LML	539000	6977300	*658*
6049	ARCH	450		Or	7607		TU	2-Sep-97	MR-L	544600 6971600	10264	518	TU	RL&L	20-Aug-98	2	MR-L	544600	6971600	*352*
6056	ARCH	379		Or	7609		TU	2-Sep-97	MR-L	544600 6971600	10632	469	TU	RL&L	24-Aug-98	2	MR-L	544600	6971600	*356*
6056	ARCH	379		Or	7609		TU	2-Sep-97	MR-L	544600 6971600	9763		TR	Philip Ugjuk	3-Jul-99	5	PB	548500	6964500	*669*
6059	ARCH	352	535	Or	7611		TU	3-Sep-97	MR-L	544600 6971600	10635	445	TU	RL&L	24-Aug-98	2	MR-L	544600	6971600	*355*
6059	ARCH	352	535	Or	7611		TU	3-Sep-97	MR-L	544600 6971600	12585	510	TU	RL&L	21-Aug-99	4	MR-L	544600	6971600	*717*

Appendix F21. Floy tag recapture data for the Meliadine Study Area, 1997-2008

Fish Capture and Tag Application Data											Tag Recapture Data									
Sample No.	Species[a]	Fork Length (mm)	Weight (g)	Floy Tag Col.	Floy Tag No.	Radio Tag Ch.	Radio Tag Code	Capture Method[b]	Date of Capture	Basin[c]	Release Location (UTM Zone 15V)		Sample No.	Fork Length (mm)	Capture Method[a]	Fisherman	Date of Recapture	Capt. Code[d]	Basin[c]	Recapture Location (UTM Zone 15V)		*Days at Large*
6058	ARCH	347	515	Or	7613			TU	3-Sep-97	MR-L	544600	6971600	10529	430	TU	RL&L	22-Aug-98	2	MR-L	544600	6971600	*353*
(a)	ARCH			Or	7614			TU	25-Aug-97	MR-L	544600	6971600	10668	404	TU	RL&L	24-Aug-98	2	MR-L	544600	6971600	*364*
6062	ARCH	395	710	Or	7618			TU	3-Sep-97	MR-L	544600	6971600	10885	486	TU	RL&L	30-Aug-98	2	MR-L	544600	6971600	*361*
6065	ARCH	321	400	Or	7619			TU	3-Sep-97	MR-L	544600	6971600	10629	398	TU	RL&L	24-Aug-98	2	MR-L	544600	6971600	*355*
6067	ARCH	386	790	Or	7621			TU	3-Sep-97	MR-L	544600	6971600	10019	471	TU	RL&L	17-Aug-98	2	MR-L	544600	6971600	*348*
6067	ARCH	386	790	Or	7621			TU	3-Sep-97	MR-L	544600	6971600	9601		TR	Johnny Ittinuar	15-Sep-98	5	LML	538150	6977870	*377*
6068	ARCH	347	445	Or	7622			TU	3-Sep-97	MR-L	544600	6971600	10806	433	TU	RL&L	29-Aug-98	2	MR-L	544600	6971600	*360*
6021	ARCH	367		Or	7627			TU	1-Sep-97	MR-L	544600	6971600	10549	457	TU	RL&L	23-Aug-98	2	MR-L	544600	6971600	*356*
6029	ARCH	345	455	Or	7630			TU	1-Sep-97	MR-L	544600	6971600	10994	424	TU	RL&L	2-Sep-98	2	MR-L	544600	6971600	*366*
6029	ARCH	345	455	Or	7630			TU	1-Sep-97	MR-L	544600	6971600	12709	492	TU	RL&L	22-Aug-99	4	MR-L	544600	6971600	*720*
6025	ARCH	542	1970	Or	7633	21	88	TU	1-Sep-97	MR-L	544600	6971600	9452		TR	Simon Twyee	20-Jul-98	3	PB	545500	6967800	*322*
6026	ARCH	602	2505	Or	7634	21	73	TU	1-Sep-97	MR-L	544600	6971600	9453		TR	Henry Kablalik	25-Jun-98	3	PB	545700	6969500	*297*
6030	ARCH	366	590	Or	7635			TU	1-Sep-97	MR-L	544600	6971600	9634		TR	Johnny Natar	1-Aug-98	3	PB	548200	6965100	*334*
6032	ARCH	355	570	Or	7636			TU	1-Sep-97	MR-L	544600	6971600	13217	478	TU	RL&L	28-Aug-99	2	MR-L	544600	6971600	*726*
6028	ARCH	430		Or	7637			TU	1-Sep-97	MR-L	544600	6971600	9698		TR	John Towtoongie	5-Jan-99	3	LML	536400	6979500	*491*
6027	ARCH	392		Or	7638			TU	1-Sep-97	MR-L	544600	6971600	10464	472	TU	RL&L	22-Aug-98	2	MR-L	544600	6971600	*355*
6031	ARCH	388		Or	7639			TU	1-Sep-97	MR-L	544600	6971600	10403	482	TU	RL&L	21-Aug-98	2	MR-L	544600	6971600	*354*
6033	ARCH	403		Or	7641			TU	2-Sep-97	MR-L	544600	6971600	9633		TR	Johnny Natar	1-Aug-98	3	PB	548200	6965100	*333*
6034	ARCH	388		Or	7642			TU	2-Sep-97	MR-L	544600	6971600	20098		TR	Johnny Natar	16-Aug-00	3	PB	544950	6968850	*1079*
6040	ARCH	438		Or	7648			TU	2-Sep-97	MR-L	544600	6971600	10141	521	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*350*
5115	ARCH	449	1175	Or	7652			TU	19-Aug-97	MR-L	544600	6971600	20190		TR	Ollie Ittinuar	3-Jul-00	3	PB	545250	6969350	*1049*
5116	ARCH	537	2220	Or	7653			TU	19-Aug-97	MR-L	544600	6971600	9641		TR	Fabian Tatty	15-Sep-98	3	ML-S	533000	6988000	*392*
5118	ARCH	460	1305	Or	7655			TU	19-Aug-97	MR-L	544600	6971600	9454		TR	Joe Makigak	1-Jul-98	3	PB	545500	6969500	*316*
5120	ARCH	431	1100	Or	7657			TU	19-Aug-97	MR-L	544600	6971600	10007	540	TU	RL&L	16-Aug-98	2	MR-L	544600	6971600	*362*
5120	ARCH	431	1100	Or	7657			TU	19-Aug-97	MR-L	544600	6971600	9731		TR	John Towtoongie	19-May-99	5	LML	536400	6979500	*638*
5121	ARCH	622	3155	Or	7658			TU	19-Aug-97	MR-L	544600	6971600	6214		TR	J. Copp	2-Nov-97	3	LML	539200	6977200	*75*
5124	ARCH	522	1900	Or	7661			TU	19-Aug-97	MR-L	544600	6971600	12009	651	TU	RL&L	10-Aug-99	2	MR-L	544600	6971600	*721*
5125	ARCH	513	1700	Or	7662			TU	19-Aug-97	MR-L	544600	6971600	9455		TR	Adele Koanagoak	22-Aug-98	3	LML	538300	6976800	*368*
5126	ARCH	637	3375	Or	7663			TU	19-Aug-97	MR-L	544600	6971600	20191		TR	Kashtin Simik	10-Aug-00	3	HB	615000	7026000	*1087*
5128	ARCH	471	1310	Or	7665			TU	19-Aug-97	MR-L	544600	6971600	10187	552	TU	RL&L	19-Aug-98	2	MR-L	544600	6971600	*365*
5128	ARCH	471	1310	Or	7665			TU	19-Aug-97	MR-L	544600	6971600	9732		TR	John Towtoongie	15-Apr-99	5	LML	536400	6979500	*604*
5129	ARCH	652	3665	Or	7666			TU	19-Aug-97	MR-L	544600	6971600	6201		TR	J. Copp	26-Sep-97	3	LML	538200	6977200	*38*
5132	ARCH	505	1725	Or	7669			TU	19-Aug-97	MR-L	544600	6971600	9456		TR	Moses Aliyak	11-Aug-98	3	PB	545500	6969500	*357*
5134	ARCH	458	1200	Or	7671			TU	19-Aug-97	MR-L	544600	6971600	9457		TR	Violet Twyee	16-Aug-98	3	?			*362*
5135	ARCH	498	1515	Or	7672			TU	19-Aug-97	MR-L	544600	6971600	9733		TR	John Towtoongie	7-May-99	3	LML	536400	6979500	*626*
5136	ARCH	666	3695	Or	7673			TU	19-Aug-97	MR-L	544600	6971600	9764		TR	Rose Ussak	3-Jul-98	3	PB	546000	6969500	*318*
5138	ARCH	518	1795	Or	7675			TU	19-Aug-97	MR-L	544600	6971600	9458		TR	Henry Kablalik	25-Jun-98	3	PB	545700	6969500	*310*
5066	ARCH	606		Or	7677			TU	18-Aug-97	MR-L	544600	6971600	9640		TR	Fabian Tatty	15-Sep-98	3	ML-S	533000	6988000	*393*
5068	ARCH	610		Or	7679			TU	18-Aug-97	MR-L	544600	6971600	9459		TR	Tomas Ugjuk	14-Jul-98	3	PB	545500	6969500	*330*
5069	ARCH	581		Or	7680			TU	18-Aug-97	MR-L	544600	6971600	6213		TR	J. Copp	2-Nov-97	3	LML	539200	6977200	*76*
5078	ARCH	636		Or	7689			TU	18-Aug-97	MR-L	544600	6971600	9460		TR	Silas Gordon	20-Jul-98	3	PB	545500	6967800	*336*
5081	ARCH	499		Or	7692			TU	18-Aug-97	MR-L	544600	6971600	9461		TR	Joe Makigak	1-Jul-98	3	PB	545500	6969500	*317*
5082	ARCH	458		Or	7693			TU	18-Aug-97	MR-L	544600	6971600	9699		TR	John Towtoongie	8-Jan-99	3	LML	536400	6979500	*508*
5084	ARCH	484	1315	Or	7695			TU	18-Aug-97	MR-L	544600	6971600	10031	564	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*365*
5084	ARCH	484	1315	Or	7695			TU	18-Aug-97	MR-L	544600	6971600	9734		TR	John Towtoongie	19-May-99	5	LML	536400	6979500	*639*
5087	ARCH	602	2850	Or	7698			TU	18-Aug-97	MR-L	544600	6971600	9462		TR	Simon Twyee	20-Jul-98	3	PB	545500	6967800	*336*
5088	ARCH	357	580	Or	7699			TU	18-Aug-97	MR-L	544600	6971600	12161	512	TU	RL&L	15-Aug-99	2	MR-L	544600	6971600	*727*
5089	ARCH	636	3340	Or	7700			TU	18-Aug-97	MR-L	544600	6971600	9463		TR	John Towtoongie	12-Aug-98	3	LML	538700	6977000	*359*
5094	ARCH	564	2290	Or	7705			TU	18-Aug-97	MR-L	544600	6971600	9765		TR	Rose Ussak	3-Jul-98	3	PB	546000	6969500	*319*
5095	ARCH	379	700	Or	7706			TU	18-Aug-97	MR-L	544600	6971600	9826		TR	Peter Kadlak Jr.	14-Aug-99	3	PB	546500	6968500	*726*
5097	ARCH	517		Or	7709			TU	18-Aug-97	MR-L	544600	6971600	12489	595	TU	RL&L	20-Aug-99	2	MR-L	544600	6971600	*732*
5097	ARCH	517		Or	7709			TU	18-Aug-97	MR-L	544600	6971600	20189		TR	Adel Aingilik	23-Jun-00	5	LML	538350	6976500	*1040*

Appendix F21. Floy tag recapture data for the Meliadine Study Area, 1997-2008

Fish Capture and Tag Application Data											Tag Recapture Data									
Sample No.	Species[a]	Fork Length (mm)	Weight (g)	Floy Tag Col.	Floy Tag No.	Radio Tag Ch. Code	Capture Method[b]	Date of Capture	Basin[c]	Release Location (UTM Zone 15V)	Sample No.	Fork Length (mm)	Capture Method[a]	Fisherman	Date of Recapture	Capt. Code[d]	Basin[c]	Recapture Location (UTM Zone 15V)		*Days at Large*
5099	ARCH	494		Or	7711		TU	18-Aug-97	MR-L	544600 6971600	10250	583	TU	RL&L	19-Aug-98	2	MR-L	544600	6971600	*366*
5099	ARCH	494		Or	7711		TU	18-Aug-97	MR-L	544600 6971600	9735		TR	John Towtoongie	15-Apr-99	5	LML	536400	6979500	*605*
5101	ARCH	518		Or	7713		TU	18-Aug-97	MR-L	544600 6971600	9464		TR	Henry Kablalik	25-Jun-98	3	PB	545700	6969500	*311*
5102	ARCH	619		Or	7714		TU	18-Aug-97	MR-L	544600 6971600	6219		TR	Alvin Sandy	14-Oct-97	3	ML-S	528000	6992700	*57*
5105	ARCH	499		Or	7717		TU	18-Aug-97	MR-L	544600 6971600	9465		TR	Adele Koanagoak	22-Aug-98	3	LML	538300	6976800	*369*
5109	ARCH	490		Or	7721		TU	18-Aug-97	MR-L	544600 6971600	9538		TR	Johnny Ittinuar	21-Sep-98	3	LML	539500	6977000	*399*
5110	ARCH	425		Or	7722		TU	18-Aug-97	MR-L	544600 6971600	9795		TR	Johnny Natar	6-Aug-99	3	HB	545200	6961500	*718*
5142	ARCH	603	2700	Or	7729		TU	19-Aug-97	MR-L	544600 6971600	9466		TR	Rose Ussak	1-Jul-98	3	PB	546000	6969500	*316*
5143	ARCH	597	2520	Or	7730		TU	19-Aug-97	MR-L	544600 6971600	9840		TR	Mike Patterk	25-Aug-99	3	PB	546500	6968500	*736*
5144	ARCH	615	2965	Or	7731		TU	19-Aug-97	MR-L	544600 6971600	9766		TR	Rose Ussak	3-Jul-98	3	PB	546000	6969500	*318*
5147	ARCH	599	2710	Or	7734		TU	19-Aug-97	MR-L	544600 6971600	9467		TR	Henry Kablalik	25-Jun-98	3	PB	545700	6969500	*310*
5148	ARCH	624	2855	Or	7735		TU	19-Aug-97	MR-L	544600 6971600	6203		TR	Adel Aingilik	25-Aug-97	3	LML	537300	6977850	*6*
5149	ARCH	540	1910	Or	7736		TU	19-Aug-97	MR-L	544600 6971600	9614		TR	Johnny Natar	1-Aug-98	3	PB	545970	6969540	*347*
5151	ARCH	473	1340	Or	7737		TU	19-Aug-97	MR-L	544600 6971600	9799		TR	Monica Ugjuk	13-Aug-99	3	PB	546500	6968500	*724*
5152	ARCH	494	1590	Or	7738		TU	19-Aug-97	MR-L	544600 6971600	9767		TR	Paul Kugjuk	23-Jun-99	3	PB	545500	6969500	*673*
5154	ARCH	509	1630	Or	7740		TU	19-Aug-97	MR-L	544600 6971600	9629		TR	Johnny Natar	1-Aug-98	3	PB	548200	6965100	*347*
5161	ARCH	574	2125	Or	7747		TU	19-Aug-97	MR-L	544600 6971600	9468		TR	Henry Kablauitok	28-Jun-98	3	PB	545700	6969500	*313*
5162	ARCH	461	1175	Or	7748		TU	19-Aug-97	MR-L	544600 6971600	12099	598	TU	RL&L	12-Aug-99	2	MR-L	544600	6971600	*723*
5162	ARCH	461	1175	Or	7748		TU	19-Aug-97	MR-L	544600 6971600	9876		TR	John Towtoongie	10-Sep-99	3	LML	536400	6979500	*752*
5560	ARCH	470		Or	7777		TU	25-Aug-97	MR-L	544600 6971600	10054	494	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*358*
5560	ARCH	470		Or	7777		TU	25-Aug-97	MR-L	544600 6971600	12096	555	TU	RL&L	12-Aug-99	4	MR-L	544600	6971600	*717*
5560	ARCH	470		Or	7777		TU	25-Aug-97	MR-L	544600 6971600	20471		TR	Johnny Tulugak	8-Jun-01	7	LML	537500	6977500	*1383*
5562	ARCH	373		Or	7779		TU	25-Aug-97	MR-L	544600 6971600	10191	454	TU	RL&L	19-Aug-98	2	MR-L	544600	6971600	*359*
5562	ARCH	373		Or	7779		TU	25-Aug-97	MR-L	544600 6971600	12275	517	TU	RL&L	19-Aug-99	4	MR-L	544600	6971600	*724*
5563	ARCH	400		Or	7780		TU	25-Aug-97	MR-L	544600 6971600	10293	491	TU	RL&L	20-Aug-98	2	MR-L	544600	6971600	*360*
5567	ARCH	350		Or	7784		TU	25-Aug-97	MR-L	544600 6971600	10320	433	TU	RL&L	20-Aug-98	2	MR-L	544600	6971600	*360*
5567	ARCH	350		Or	7784		TU	25-Aug-97	MR-L	544600 6971600	9832		TR	John Kasintok	16-Aug-99	5	?			*721*
5568	ARCH	460		Or	7785		TU	25-Aug-97	MR-L	544600 6971600	10138	525	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*358*
5568	ARCH	460		Or	7785		TU	25-Aug-97	MR-L	544600 6971600	12773	580	TU	RL&L	22-Aug-99	4	MR-L	544600	6971600	*727*
5569	ARCH	411		Or	7786		TU	25-Aug-97	MR-L	544600 6971600	10057	495	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*358*
5569	ARCH	411		Or	7786		TU	25-Aug-97	MR-L	544600 6971600	12293	577	TU	RL&L	19-Aug-99	4	MR-L	544600	6971600	*724*
5569	ARCH	411		Or	7786		TU	25-Aug-97	MR-L	544600 6971600	9956		TR	John Towtoongie	7-Nov-99	7	LML	537000	6979000	*804*
5571	ARCH	471		Or	7788		TU	25-Aug-97	MR-L	544600 6971600	9469		TR	Joe Makigak	1-Jul-98	3	PB	545500	6969500	*310*
5572	ARCH	383		Or	7789		TU	25-Aug-97	MR-L	544600 6971600	20466		TR	Remi Nokkitok	7-Nov-00	3	DL			*1170*
5573	ARCH	485		Or	7790		TU	25-Aug-97	MR-L	544600 6971600	10196	552	TU	RL&L	19-Aug-98	2	MR-L	544600	6971600	*359*
5573	ARCH	485		Or	7790		TU	25-Aug-97	MR-L	544600 6971600	9625		TR	Johnny Natar	15-Sep-98	5	LML	536030	6979160	*386*
5575	ARCH	396		Or	7792		TU	25-Aug-97	MR-L	544600 6971600	12026	499	TU	RL&L	10-Aug-99	2	MR-L	544600	6971600	*715*
5576	ARCH	468		Or	7793		TU	25-Aug-97	MR-L	544600 6971600	10268	538	TU	RL&L	20-Aug-98	2	MR-L	544600	6971600	*360*
5576	ARCH	468		Or	7793		TU	25-Aug-97	MR-L	544600 6971600	12273	584	TU	RL&L	19-Aug-99	4	MR-L	544600	6971600	*724*
5576	ARCH	468		Or	7793		TU	25-Aug-97	MR-L	544600 6971600	9917		TR	John Towtoongie	27-Sep-99	7	LML	538500	6977400	*763*
5578	ARCH	394		Or	7795		TU	25-Aug-97	MR-L	544600 6971600	10355	479	TU	RL&L	21-Aug-98	2	MR-L	544600	6971600	*361*
5578	ARCH	394		Or	7795		TU	25-Aug-97	MR-L	544600 6971600	12270	548	TU	RL&L	19-Aug-99	4	MR-L	544600	6971600	*724*
5580	ARCH	422		Or	7797		TU	25-Aug-97	MR-L	544600 6971600	10400	506	TU	RL&L	21-Aug-98	2	MR-L	544600	6971600	*361*
5582	ARCH	414		Or	7799		TU	25-Aug-97	MR-L	544600 6971600	9837		TR	Camile Hamilton	22-Aug-99	3	PB	545000	6969600	*727*
5583	ARCH	403		Or	7800		TU	25-Aug-97	MR-L	544600 6971600	10130	494	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*358*
5583	ARCH	403		Or	7800		TU	25-Aug-97	MR-L	544600 6971600	9700		TR	John Towtoongie	11-Jan-99	5	LML	536400	6979500	*504*
5736	ARCH	467		Or	7802		TU	26-Aug-97	MR-L	544600 6971600	9591		TR	Johnny Ittinuar	1-Aug-98	3	PB	548270	6969320	*340*
5737	ARCH	359		Or	7803		TU	26-Aug-97	MR-L	544600 6971600	10275	446	TU	RL&L	20-Aug-98	2	MR-L	544600	6971600	*359*
5737	ARCH	359		Or	7803		TU	26-Aug-97	MR-L	544600 6971600	12480	502	TU	RL&L	20-Aug-99	4	MR-L	544600	6971600	*724*
5738	ARCH	396		Or	7804		TU	26-Aug-97	MR-L	544600 6971600	10468	475	TU	RL&L	22-Aug-98	2	MR-L	544600	6971600	*361*
5738	ARCH	396		Or	7804		TU	26-Aug-97	MR-L	544600 6971600	12436	533	TU	RL&L	20-Aug-99	4	MR-L	544600	6971600	*724*
5738	ARCH	396		Or	7804		TU	26-Aug-97	MR-L	544600 6971600	20008		TR	John Towtoongie	12-Apr-00	7	LML	538000	6978500	*960*

Appendix F21. Floy tag recapture data for the Meliadine Study Area, 1997-2008

Fish Capture and Tag Application Data											Tag Recapture Data									
Sample No.	Species[a]	Fork Length (mm)	Weight (g)	Floy Tag Col.	Floy Tag No.	Radio Tag Ch. Code	Capture Method[b]	Date of Capture	Basin[c]	Release Location (UTM Zone 15V)	Sample No.	Fork Length (mm)	Capture Method[a]	Fisherman	Date of Recapture	Capt. Code[d]	Basin[c]	Recapture Location (UTM Zone 15V)		*Days at Large*
5739	ARCH	417		Or	7805		TU	26-Aug-97	MR-L	544600 6971600	10461	515	TU	RL&L	22-Aug-98	2	MR-L	544600	6971600	*361*
5739	ARCH	417		Or	7805		TU	26-Aug-97	MR-L	544600 6971600	9905		TR	John Towtoongie	22-Sep-99	5	MR-L	539900	6976300	*757*
5741	ARCH	421		Or	7807		TU	26-Aug-97	MR-L	544600 6971600	12708	585	TU	RL&L	22-Aug-99	2	MR-L	544600	6971600	*726*
5741	ARCH	421		Or	7807		TU	26-Aug-97	MR-L	544600 6971600	9910		TR	Glen Kadlak	27-Sep-99	5	MR-L	541500	6974000	*762*
5743	ARCH	423		Or	7809		TU	26-Aug-97	MR-L	544600 6971600	10396	524	TU	RL&L	21-Aug-98	2	MR-L	544600	6971600	*360*
5743	ARCH	423		Or	7809		TU	26-Aug-97	MR-L	544600 6971600	12650	600	TU	RL&L	21-Aug-99	4	MR-L	544600	6971600	*725*
5746	ARCH	399		Or	7812		TU	26-Aug-97	MR-L	544600 6971600	12950	568	TU	RL&L	24-Aug-99	2	MR-L	544600	6971600	*728*
5748	ARCH	472		Or	7814		TU	26-Aug-97	MR-L	544600 6971600	12551	608	TU	RL&L	20-Aug-99	2	MR-L	544600	6971600	*724*
5748	ARCH	472		Or	7814		TU	26-Aug-97	MR-L	544600 6971600	20039		TR	John Towtoongie	1-May-00	5	LML	537500	6978700	*979*
5749	ARCH	399		Or	7815		TU	26-Aug-97	MR-L	544600 6971600	10395	475	TU	RL&L	21-Aug-98	2	MR-L	544600	6971600	*360*
5749	ARCH	399		Or	7815		TU	26-Aug-97	MR-L	544600 6971600	12587	530	TU	RL&L	21-Aug-99	4	MR-L	544600	6971600	*725*
5749	ARCH	399		Or	7815		TU	26-Aug-97	MR-L	544600 6971600	20463		TR	John Towtoongie	30-Oct-00	7	LML	537500	6977500	*1161*
5750	ARCH	365		Or	7816		TU	26-Aug-97	MR-L	544600 6971600	9841		TR	Mike Patterk	25-Aug-99	3	PB	546500	6968500	*729*
5751	ARCH	349		Or	7817		TU	26-Aug-97	MR-L	544600 6971600	10133	437	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*357*
5751	ARCH	349		Or	7817		TU	26-Aug-97	MR-L	544600 6971600	9585		TR	Johnny Ittinuar	15-Sep-98	5	LML	538150	6977870	*385*
5753	ARCH	392		Or	7819		TU	26-Aug-97	MR-L	544600 6971600	9643		TR	John Towtoongie	10-Nov-98	3	LML	538000	6978500	*441*
5754	ARCH	390		Or	7820		TU	26-Aug-97	MR-L	544600 6971600	10135	477	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*357*
5754	ARCH	390		Or	7820		TU	26-Aug-97	MR-L	544600 6971600	9827		TR	Peter Kadlak Jr.	14-Aug-99	5	PB	546500	6968500	*718*
5755	ARCH	368		Or	7821		TU	26-Aug-97	MR-L	544600 6971600	10392	461	TU	RL&L	21-Aug-98	2	MR-L	544600	6971600	*360*
5755	ARCH	368		Or	7821		TU	26-Aug-97	MR-L	544600 6971600	9597		TR	Johnny Ittinuar	15-Sep-98	5	LML	538150	6977870	*385*
5760	ARCH	393		Or	7825		TU	27-Aug-97	MR-L	544600 6971600	10139	474	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*356*
5434	ARCH	435		Or	7828		TU	23-Aug-97	MR-L	544600 6971600	12162	544	TU	RL&L	15-Aug-99	2	MR-L	544600	6971600	*722*
5434	ARCH	435		Or	7828		TU	23-Aug-97	MR-L	544600 6971600	20456		TR	John Towtoongie	30-Oct-00	5	LML	537500	6977500	*1164*
5435	ARCH	368		Or	7829		TU	23-Aug-97	MR-L	544600 6971600	10047	451	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*360*
5435	ARCH	368		Or	7829		TU	23-Aug-97	MR-L	544600 6971600	20166		TR	Jim Papak	8-Jul-00	5	DR	532350	6966250	*1050*
5438	ARCH	364		Or	7832		TU	23-Aug-97	MR-L	544600 6971600	10742	426	TU	RL&L	26-Aug-98	2	MR-L	544600	6971600	*368*
5438	ARCH	364		Or	7832		TU	23-Aug-97	MR-L	544600 6971600	12371	491	TU	RL&L	19-Aug-99	4	MR-L	544600	6971600	*726*
5442	ARCH	441		Or	7835		TU	23-Aug-97	MR-L	544600 6971600	9701		TR	John Towtoongie	14-Jan-99	3	LML	536400	6979500	*509*
5443	ARCH	452		Or	7836		TU	23-Aug-97	MR-L	544600 6971600	10068	544	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*360*
5447	ARCH	524		Or	7840		TU	23-Aug-97	MR-L	544600 6971600	20204		TR	John Towtoongie	10-Sep-00	3	LML	539300	6977100	*1114*
5448	ARCH	395		Or	7841		TU	23-Aug-97	MR-L	544600 6971600	20177		TR	Tommy Tudlik	25-Jun-00	3	PB	545250	6969350	*1037*
5450	ARCH	502		Or	7843		TU	23-Aug-98	MR-L	544600 6971600	9809		TR	John Towtoongie	25-Mar-99	3	LML	536600	6979200	*214*
5453	ARCH	436		Or	7846		TU	23-Aug-98	MR-L	544600 6971600	20099		TR	Johnny Natar	16-Aug-00	3	PB	544950	6968850	*724*
5454	ARCH	342		Or	7847		TU	23-Aug-97	MR-L	544600 6971600	12837	478	TU	RL&L	23-Aug-99	2	MR-L	544600	6971600	*730*
5454	ARCH	342		Or	7847		TU	23-Aug-97	MR-L	544600 6971600	20009		TR	John Towtoongie	12-Apr-00	5	LML	538000	6978500	*963*
5456	ARCH	378		Or	7849		TU	23-Aug-97	MR-L	544600 6971600	10071	462	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*360*
5456	ARCH	378		Or	7849		TU	23-Aug-97	MR-L	544600 6971600	9768		TR	Fabian Tatty	22-Jun-99	5	LML	536600	6979100	*668*
5457	ARCH	431		Or	7850		TU	23-Aug-97	MR-L	544600 6971600	12512	690	TU	RL&L	20-Aug-99	2	MR-L	544600	6971600	*727*
5586	ARCH	481		Or	7853		TU	25-Aug-97	MR-L	544600 6971600	9470		TR	John D. Gibbons	15-Aug-98	3	?			*355*
5588	ARCH	422		Or	7855		TU	25-Aug-97	MR-L	544600 6971600	10265	508	TU	RL&L	20-Aug-98	2	MR-L	544600	6971600	*360*
5588	ARCH	422		Or	7855		TU	25-Aug-97	MR-L	544600 6971600	12287	569	TU	RL&L	19-Aug-99	4	MR-L	544600	6971600	*724*
5588	ARCH	422		Or	7855		TU	25-Aug-97	MR-L	544600 6971600	20153		TR	Dorothy Sateana	12-Jul-00	7	MR-L	544450	6971650	*1052*
5589	ARCH	424		Or	7856		TU	25-Aug-97	MR-L	544600 6971600	10207	520	TU	RL&L	19-Aug-98	2	MR-L	544600	6971600	*359*
5589	ARCH	424		Or	7856		TU	25-Aug-97	MR-L	544600 6971600	9830		TR	Johnny Natar	15-Aug-99	5	?			*720*
5590	ARCH	484		Or	7857		TU	25-Aug-97	MR-L	544600 6971600	9637		TR	Johnny Natar	1-Aug-98	3	PB	548200	6965100	*341*
5591	ARCH	474		Or	7858		TU	25-Aug-97	MR-L	544600 6971600	9600		TR	Johnny Ittinuar	1-Aug-98	3	PB	548270	6969320	*341*
5593	ARCH	347		Or	7860		TU	25-Aug-97	MR-L	544600 6971600	10064	425	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*358*
5593	ARCH	347		Or	7860		TU	25-Aug-97	MR-L	544600 6971600	12285	489	TU	RL&L	19-Aug-99	4	MR-L	544600	6971600	*724*
5593	ARCH	347		Or	7860		TU	25-Aug-97	MR-L	544600 6971600	20107		TR	Johnny Natar	16-Aug-00	7	PB	544950	6968850	*1087*
5594	ARCH	418		Or	7861		TU	25-Aug-97	MR-L	544600 6971600	6206		TR	Joe Kavik	7-Sep-97	3	ML-S	531650	6989300	*13*
5596	ARCH	593		Or	7863		TU	25-Aug-97	MR-L	544600 6971600	9471		TR	Rose Ussak	1-Jul-98	3	PB	546000	6969500	*310*
5600	ARCH	510		Or	7867		TU	25-Aug-97	MR-L	544600 6971600	9472		TR	Joe Makigak	1-Jul-98	3	PB	545500	6969500	*310*

Appendix F21. Floy tag recapture data for the Meliadine Study Area, 1997-2008

Fish Capture and Tag Application Data											Tag Recapture Data									
Sample No.	Species[a]	Fork Length (mm)	Weight (g)	Floy Tag Col.	Floy Tag No.	Radio Tag Ch. Code	Capture Method[b]	Date of Capture	Basin[c]	Release Location (UTM Zone 15V)	Sample No.	Fork Length (mm)	Capture Method[a]	Fisherman	Date of Recapture	Capt. Code[d]	Basin[c]	Recapture Location (UTM Zone 15V)		*Days at Large*
5602	ARCH	493		Or	7869		TU	25-Aug-97	MR-L	544600 6971600	10040	577	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*358*
5602	ARCH	493		Or	7869		TU	25-Aug-97	MR-L	544600 6971600	9473		TR	John Towtoongie	3-Sep-98	5	LML	537500	6977500	*374*
5605	ARCH	368		Or	7873		TU	25-Aug-97	MR-L	544600 6971600	10667	448	TU	RL&L	24-Aug-98	2	MR-L	544600	6971600	*364*
5606	ARCH	503		Or	7874		TU	25-Aug-97	MR-L	544600 6971600	10030	585	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*358*
5606	ARCH	503		Or	7874		TU	25-Aug-97	MR-L	544600 6971600	9702		TR	John Towtoongie	17-Jan-99	5	LML	536400	6979500	*510*
5485	ARCH	448		Or	7877		TU	24-Aug-97	MR-L	544600 6971600	10340	539	TU	RL&L	20-Aug-98	2	MR-L	544600	6971600	*361*
5487	ARCH	451		Or	7879		TU	24-Aug-97	MR-L	544600 6971600	10256	525	TU	RL&L	19-Aug-98	2	MR-L	544600	6971600	*360*
5488	ARCH	432		Or	7880		TU	24-Aug-97	MR-L	544600 6971600	10912	510	TU	RL&L	30-Aug-98	2	MR-L	544600	6971600	*371*
5488	ARCH	432		Or	7880		TU	24-Aug-97	MR-L	544600 6971600	9536		TR	Johnny Ittinuar	21-Sep-98	5	LML	539500	6977000	*393*
5491	ARCH	492		Or	7883		TU	24-Aug-97	MR-L	544600 6971600	10263	583	TU	RL&L	20-Aug-98	2	MR-L	544600	6971600	*361*
5492	ARCH	410		Or	7884		TU	24-Aug-97	MR-L	544600 6971600	10039	481	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*359*
5492	ARCH	410		Or	7884		TU	24-Aug-97	MR-L	544600 6971600	12269	537	TU	RL&L	19-Aug-99	4	MR-L	544600	6971600	*725*
5492	ARCH	410		Or	7884		TU	24-Aug-97	MR-L	544600 6971600	20029		TR	Samuel Amarook	24-Apr-00	7	MR-L	545000	6971000	*974*
5494	ARCH	374		Or	7886		TU	24-Aug-97	MR-L	544600 6971600	10931	466	TU	RL&L	31-Aug-98	2	MR-L	544600	6971600	*372*
5494	ARCH	374		Or	7886		TU	24-Aug-97	MR-L	544600 6971600	12705	539	TU	RL&L	22-Aug-99	4	MR-L	544600	6971600	*728*
5494	ARCH	374		Or	7886		TU	24-Aug-97	MR-L	544600 6971600	20051		TR	John Towtoongie	1-Jun-00	7	LML	537500	6978700	*1012*
5496	ARCH	465		Or	7888		TU	24-Aug-97	MR-L	544600 6971600	12905	611	TU	RL&L	23-Aug-99	2	MR-L	544600	6971600	*729*
5496	ARCH	465		Or	7888		TU	24-Aug-97	MR-L	544600 6971600	20194		TR	Ollie Ittinuar	3-Jul-00	5	PB	545250	6969350	*1044*
5497	ARCH	360		Or	7889		TU	24-Aug-97	MR-L	544600 6971600	10630	444	TU	RL&L	24-Aug-98	2	MR-L	544600	6971600	*365*
5497	ARCH	360		Or	7889		TU	24-Aug-97	MR-L	544600 6971600	12286	510	TU	RL&L	19-Aug-99	4	MR-L	544600	6971600	*725*
5497	ARCH	360		Or	7889		TU	24-Aug-97	MR-L	544600 6971600	20122		TR	John Towtoongie	8-Aug-00	7	LML	539750	6976750	*1080*
5498	ARCH	385		Or	7890		TU	24-Aug-97	MR-L	544600 6971600	10145	488	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*359*
5498	ARCH	385		Or	7890		TU	24-Aug-97	MR-L	544600 6971600	12562	564	TU	RL&L	21-Aug-99	4	MR-L	544600	6971600	*727*
5501	ARCH	412		Or	7893		TU	24-Aug-97	MR-L	544600 6971600	9593		TR	Johnny Ittinuar	1-Aug-98	3	PB	548270	6969320	*342*
5502	ARCH	395		Or	7894		TU	24-Aug-97	MR-L	544600 6971600	9648		TR	John Towtoongie	10-Nov-98	3	LML	538000	6978500	*443*
5503	ARCH	597		Or	7895		TU	24-Aug-97	MR-L	544600 6971600	6209		TR	Joe Kavik	16-Sep-97	3	ML-S	531650	6989300	*23*
5504	ARCH	436		Or	7896		TU	24-Aug-97	MR-L	544600 6971600	10558	522	TU	RL&L	23-Aug-98	2	MR-L	544600	6971600	*364*
5504	ARCH	436		Or	7896		TU	24-Aug-97	MR-L	544600 6971600	9140	537	GN	RL&L	2-Sep-98	4	LML	536250	6979750	*374*
5504	ARCH	436		Or	7896		TU	24-Aug-97	MR-L	544600 6971600	9838		TR	Camile Hamilton	22-Aug-99	7	PB	545000	6969600	*728*
5505	ARCH	394		Or	7897		TU	24-Aug-97	MR-L	544600 6971600	10353	475	TU	RL&L	21-Aug-98	2	MR-L	544600	6971600	*362*
5507	ARCH	442		Or	7899		TU	24-Aug-97	MR-L	544600 6971600	9941		TR	John Towtoongie	26-Oct-99	3	LML	537000	6979000	*793*
5763	ARCH	403		Or	7903		TU	27-Aug-97	MR-L	544600 6971600	10456	482	TU	RL&L	22-Aug-98	2	MR-L	544600	6971600	*360*
5766	ARCH	368		Or	7906		TU	27-Aug-97	MR-L	544600 6971600	20295		TR	Johnny Ungalau	1-Nov-01	3	?			*1527*
5768	ARCH	409		Or	7908		TU	27-Aug-97	MR-L	544600 6971600	10467	496	TU	RL&L	22-Aug-98	2	MR-L	544600	6971600	*360*
5768	ARCH	409		Or	7908		TU	27-Aug-97	MR-L	544600 6971600	12272	555	TU	RL&L	19-Aug-99	4	MR-L	544600	6971600	*722*
5768	ARCH	409		Or	7908		TU	27-Aug-97	MR-L	544600 6971600	20216		TR	Joachim Kavik	28-Sep-99	7	MR-U	534900	6980100	*762*
5771	ARCH	478		Or	7911		TU	27-Aug-97	MR-L	544600 6971600	9474		TR	John Towtoongie	23-Aug-98	3	LML	537500	6977500	*361*
5772	ARCH	394		Or	7912		TU	27-Aug-97	MR-L	544600 6971600	10602	485	TU	RL&L	23-Aug-98	2	MR-L	544600	6971600	*361*
5772	ARCH	394		Or	7912		TU	27-Aug-97	MR-L	544600 6971600	9831		TR	Simon Twyee	15-Aug-99	5	MR-L	546200	6970300	*718*
5773	ARCH	340		Or	7913		TU	27-Aug-97	MR-L	544600 6971600	10557	423	TU	RL&L	23-Aug-98	2	MR-L	544600	6971600	*361*
5774	ARCH	450		Or	7914		TU	27-Aug-97	MR-L	544600 6971600	10335	534	TU	RL&L	20-Aug-98	2	MR-L	544600	6971600	*358*
5777	ARCH	435		Or	7917		TU	27-Aug-97	MR-L	544600 6971600	9769		TR	Emily Brown	15-Jul-99	3	LML	539400	6976700	*687*
5778	ARCH	395		Or	7918		TU	27-Aug-97	MR-L	544600 6971600	12832	548	TU	RL&L	23-Aug-99	2	MR-L	544600	6971600	*726*
5778	ARCH	395		Or	7918		TU	27-Aug-97	MR-L	544600 6971600	20010		TR	John Towtoongie	12-Apr-00	5	LML	538000	6978500	*959*
5780	ARCH	395		Or	7920		TU	27-Aug-97	MR-L	544600 6971600	10274	479	TU	RL&L	20-Aug-98	2	MR-L	544600	6971600	*358*
5781	ARCH	526		Or	7921		TU	27-Aug-97	MR-L	544600 6971600	9475		TR	Hugh Nateela	27-Jun-98	3	PB	545500	6969500	*304*
5782	ARCH	444		Or	7922		TU	27-Aug-97	MR-L	544600 6971600	12992	596	TU	RL&L	24-Aug-99	2	MR-L	544600	6971600	*727*
5783	ARCH	382		Or	7923		TU	27-Aug-97	MR-L	544600 6971600	12766	523	TU	RL&L	22-Aug-99	2	MR-L	544600	6971600	*725*
5783	ARCH	382		Or	7923		TU	27-Aug-97	MR-L	544600 6971600	20030		TR	Samuel Amarook	24-Apr-00	5	MR-L	545000	6971000	*971*
5784	ARCH	360		Or	7924		TU	27-Aug-97	MR-L	544600 6971600	10474	430	TU	RL&L	22-Aug-98	2	MR-L	544600	6971600	*360*
5784	ARCH	360		Or	7924		TU	27-Aug-97	MR-L	544600 6971600	12733	483	TU	RL&L	22-Aug-99	4	MR-L	544600	6971600	*725*
5785	ARCH	364		Or	7925		TU	27-Aug-97	MR-L	544600 6971600	10066	463	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*356*

Appendix F21. Floy tag recapture data for the Meliadine Study Area, 1997-2008

Fish Capture and Tag Application Data											Tag Recapture Data									
Sample No.	Species[a]	Fork Length (mm)	Weight (g)	Floy Tag Col.	Floy Tag No.	Radio Tag Ch. Code	Capture Method[b]	Date of Capture	Basin[c]	Release Location (UTM Zone 15V)	Sample No.	Fork Length (mm)	Capture Method[a]	Fisherman	Date of Recapture	Capt. Code[d]	Basin[c]	Recapture Location (UTM Zone 15V)		*Days at Large*
5785	ARCH	364		Or	7925		TU	27-Aug-97	MR-L	544600 6971600	12835	538	TU	RL&L	23-Aug-99	4	MR-L	544600	6971600	*726*
5458	ARCH	348		Or	7951		TU	23-Aug-97	MR-L	544600 6971600	10794	402	TU	RL&L	29-Aug-98	2	MR-L	544600	6971600	*371*
5459	ARCH	480		Or	7952		TU	23-Aug-97	MR-L	544600 6971600	10262	549	TU	RL&L	20-Aug-98	2	MR-L	544600	6971600	*362*
5459	ARCH	480		Or	7952		TU	23-Aug-97	MR-L	544600 6971600	9736		TR	John Towtoongie	7-May-99	5	LML	536400	6979500	*622*
5461	ARCH	436		Or	7954		TU	23-Aug-97	MR-L	544600 6971600	9666		TR	John Towtoongie	24-Nov-98	3	LML	536400	6979500	*458*
5462	ARCH	376		Or	7955		TU	23-Aug-97	MR-L	544600 6971600	10018	464	TU	RL&L	17-Aug-98	2	MR-L	544600	6971600	*359*
5463	ARCH	416		Or	7956		TU	23-Aug-97	MR-L	544600 6971600	12432	555	TU	RL&L	20-Aug-99	2	MR-L	544600	6971600	*727*
5466	ARCH	492		Or	7960		TU	23-Aug-97	MR-L	544600 6971600	9770		TR	Harry Ittinuak	4-Jul-99	3	HB	556000	6966000	*680*
5467	ARCH	525		Or	7961		TU	23-Aug-97	MR-L	544600 6971600	9658		TR	John Towtoongie	16-Nov-98	3	LML	536400	6979500	*450*
5469	ARCH	385		Or	7963		TU	23-Aug-97	MR-L	544600 6971600	9771		TR	Philip Ugjuk	3-Jul-99	3	PB	548500	6964500	*679*
5470	ARCH	370		Or	7964		TU	23-Aug-97	MR-L	544600 6971600	10791	440	TU	RL&L	27-Aug-98	2	MR-L	544600	6971600	*369*
5473	ARCH	493		Or	7967		TU	23-Aug-97	MR-L	544600 6971600	10036	575	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*360*
5473	ARCH	493		Or	7967		TU	23-Aug-97	MR-L	544600 6971600	9842		TR	Mike Patterk	25-Aug-99	5	PB	546500	6968500	*732*
5474	ARCH	452		Or	7968		TU	23-Aug-97	MR-L	544600 6971600	12282	574	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*726*
5475	ARCH	389		Or	7970		TU	23-Aug-97	MR-L	544600 6971600	12479	530	TU	RL&L	20-Aug-99	2	MR-L	544600	6971600	*727*
5480	ARCH	441		Or	7975		TU	23-Aug-97	MR-L	544600 6971600	9703		TR	John Towtoongie	20-Jan-99	3	LML	536400	6979500	*515*
5786	ARCH	342		Or	7976		TU	27-Aug-97	MR-L	544600 6971600	10634	432	TU	RL&L	24-Aug-98	2	MR-L	544600	6971600	*362*
5788	ARCH	438		Or	7977		TU	27-Aug-97	MR-L	544600 6971600	10189	528	TU	RL&L	19-Aug-98	2	MR-L	544600	6971600	*357*
5788	ARCH	438		Or	7977		TU	27-Aug-97	MR-L	544600 6971600	12558	578	TU	RL&L	21-Aug-99	4	MR-L	544600	6971600	*724*
5788	ARCH	438		Or	7977		TU	27-Aug-97	MR-L	544600 6971600	20128		TR	Simon Twyee	27-Jul-00	7	PB	545650	6969650	*1065*
5793	ARCH	389		Or	7983		TU	27-Aug-97	MR-L	544600 6971600	9772		TR	Harry Ittinuak	4-Jul-99	3	HB	556000	6966000	*676*
5797	ARCH	487		Or	7987		TU	27-Aug-97	MR-L	544600 6971600	10604	579	TU	RL&L	23-Aug-98	2	MR-L	544600	6971600	*361*
5797	ARCH	487		Or	7987		TU	27-Aug-97	MR-L	544600 6971600	9547		TR	John Towtoongie	16-Sep-98	5	LML	539500	6977000	*385*
5835	ARCH	398		Or	7990		TU	28-Aug-97	MR-L	544600 6971600	9476		TR	Tommy Partridge	19-Aug-98	3	PB	545500	6967800	*356*
5802	ARCH	349		Or	7993		TU	27-Aug-97	MR-L	544600 6971600	10473	433	TU	RL&L	22-Aug-98	2	MR-L	544600	6971600	*360*
5802	ARCH	349		Or	7993		TU	27-Aug-97	MR-L	544600 6971600	13096	496	TU	RL&L	26-Aug-99	4	MR-L	544600	6971600	*729*
5802	ARCH	349		Or	7993		TU	27-Aug-97	MR-L	544600 6971600	20363		TR	Billy Twyee	14-Aug-01	7	PB	545250	6969350	*1448*
5803	ARCH	400		Or	7994		TU	27-Aug-97	MR-L	544600 6971600	10272	489	TU	RL&L	20-Aug-98	2	MR-L	544600	6971600	*358*
5809	ARCH	374		Or	7995		TU	27-Aug-97	MR-L	544600 6971600	10457	453	TU	RL&L	22-Aug-98	2	MR-L	544600	6971600	*360*
5809	ARCH	374		Or	7995		TU	27-Aug-97	MR-L	544600 6971600	13131	505	TU	RL&L	27-Aug-99	4	MR-L	544600	6971600	*730*
5809	ARCH	374		Or	7995		TU	27-Aug-97	MR-L	544600 6971600	9937		TR	John Towtoongie	20-Nov-99	7	LML	537000	6979000	*815*
5804	ARCH	485		Or	7996		TU	27-Aug-97	MR-L	544600 6971600	10401	576	TU	RL&L	21-Aug-98	2	MR-L	544600	6971600	*359*
5804	ARCH	485		Or	7996		TU	27-Aug-97	MR-L	544600 6971600	9621		TR	Johnny Natar	15-Sep-98	5	LML	536030	6979160	*384*
5805	ARCH	394		Or	7998		TU	27-Aug-97	MR-L	544600 6971600	10204	479	TU	RL&L	19-Aug-98	2	MR-L	544600	6971600	*357*
5805	ARCH	394		Or	7998		TU	27-Aug-97	MR-L	544600 6971600	12906	543	TU	RL&L	23-Aug-99	4	MR-L	544600	6971600	*726*
5805	ARCH	394		Or	7998		TU	27-Aug-97	MR-L	544600 6971600	20011		TR	John Towtoongie	12-Apr-00	7	LML	538000	6978500	*959*
5806	ARCH	439		Or	7999		TU	27-Aug-97	MR-L	544600 6971600	9800		TR	Henry Etegaitok	9-Aug-99	3	HB	541200	6964700	*712*
5216	ARCH	421	840	Or	8176		TU	20-Aug-97	MR-L	544600 6971600	10259	512	TU	RL&L	20-Aug-98	2	MR-L	544600	6971600	*365*
5217	ARCH	613	3030	Or	8177		TU	20-Aug-97	MR-L	544600 6971600	10386	701	TU	RL&L	21-Aug-98	2	MR-L	544600	6971600	*366*
5217	ARCH	613	3030	Or	8177		TU	20-Aug-97	MR-L	544600 6971600	9539		TR	Glen Kadlak	12-Oct-98	5	LML	539500	6977000	*418*
5219	ARCH	625	2975	Or	8179		TU	20-Aug-97	MR-L	544600 6971600	6202		TR	Adel Aingilik	25-Aug-97	3	LML	537300	6977850	*5*
5220	ARCH	492	1435	Or	8180		TU	20-Aug-97	MR-L	544600 6971600	9704		TR	John Towtoongie	23-Jan-99	3	LML	536400	6979500	*521*
5223	ARCH	504	1620	Or	8183		TU	20-Aug-97	MR-L	544600 6971600	7175	537	EF	RL&L	18-Jun-98	2	MR-L	539900	6976200	*302*
5224	ARCH	469	1245	Or	8184		TU	20-Aug-97	MR-L	544600 6971600	9705		TR	John Towtoongie	26-Jan-99	3	LML	536400	6979500	*524*
5227	ARCH	586	2820	Or	8187		TU	20-Aug-97	MR-L	544600 6971600	10620	670	TU	RL&L	24-Aug-98	2	MR-L	544600	6971600	*369*
5227	ARCH	586	2820	Or	8187		TU	20-Aug-97	MR-L	544600 6971600	9478		TR	John Towtoongie	1-Sep-98	5	LML	537500	6977500	*377*
5229	ARCH	475	1160	Or	8189		TU	20-Aug-97	MR-L	544600 6971600	9479		TR	Joe Makigak	1-Jul-98	3	PB	545500	6969500	*315*
5231	ARCH	528	1580	Or	8191		TU	20-Aug-97	MR-L	544600 6971600	12134	586	TU	RL&L	14-Aug-99	2	MR-L	544600	6971600	*724*
5233	ARCH	560	2260	Or	8193		TU	20-Aug-97	MR-L	544600 6971600	9480		TR	Joe Strickland	5-Aug-98	3	HB	556000	6966000	*350*
5237	ARCH	495	1605	Or	8197		TU	20-Aug-97	MR-L	544600 6971600	9618		TR	Johnny Natar	1-Aug-98	3	PB	545970	6969540	*346*
5239	ARCH	497	1415	Or	8199		TU	20-Aug-97	MR-L	544600 6971600	10205	571	TU	RL&L	19-Aug-98	2	MR-L	544600	6971600	*364*
5240	ARCH	533	2025	Or	8200		TU	20-Aug-97	MR-L	544600 6971600	9481		TR	Joe Makigak	1-Jul-98	3	PB	545500	6969500	*315*

Appendix F21. Floy tag recapture data for the Meliadine Study Area, 1997-2008

Fish Capture and Tag Application Data												Tag Recapture Data									
Sample No.	Species[a]	Fork Length (mm)	Weight (g)	Floy Tag Col.	Floy Tag No.	Radio Tag Ch.	Radio Tag Code	Capture Method[b]	Date of Capture	Basin[c]	Release Location (UTM Zone 15V)	Sample No.	Fork Length (mm)	Capture Method[a]	Fisherman	Date of Recapture	Capt. Code[d]	Basin[c]	Recapture Location (UTM Zone 15V)		*Days at Large*
5510	ARCH	402		Or	8602			TU	24-Aug-97	MR-L	544600 6971600	12619	548	TU	RL&L	21-Aug-99	2	MR-L	544600	6971600	*727*
5511	ARCH	419		Or	8603			TU	24-Aug-97	MR-L	544600 6971600	10069	508	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*359*
5512	ARCH	432		Or	8604			TU	24-Aug-97	MR-L	544600 6971600	10049	520	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*359*
5512	ARCH	432		Or	8604			TU	24-Aug-97	MR-L	544600 6971600	9706		TR	John Towtoongie	29-Jan-99	5	LML	536400	6979500	*523*
5514	ARCH	484		Or	8606			TU	24-Aug-97	MR-L	544600 6971600	9619		TR	Johnny Natar	1-Aug-98	3	PB	545970	6969540	*342*
5519	ARCH	558		Or	8612			TU	24-Aug-97	MR-L	544600 6971600	9482		TR	Henry Kablauitok	28-Jun-98	3	PB	545700	6969500	*308*
5556	ARCH	377		Or	8614			TU	25-Aug-97	MR-L	544600 6971600	10281	459	TU	RL&L	20-Aug-98	2	MR-L	544600	6971600	*360*
5556	ARCH	377		Or	8614			TU	25-Aug-97	MR-L	544600 6971600	9535		TR	Johnny Ittinuar	21-Sep-98	5	LML	539500	6977000	*392*
5521	ARCH	449		Or	8615			TU	24-Aug-97	MR-L	544600 6971600	10188	539	TU	RL&L	19-Aug-98	2	MR-L	544600	6971600	*360*
5521	ARCH	449		Or	8615			TU	24-Aug-97	MR-L	544600 6971600	9142	550	GN	RL&L	2-Sep-98	5	LML	536250	6979750	*374*
5523	ARCH	543		Or	8618			TU	24-Aug-97	MR-L	544600 6971600	9483		TR	Bill Taparti	20-Jun-98	3	LML	538500	6977500	*300*
5518	ARCH	562		Or	8619			TU	24-Aug-97	MR-L	544600 6971600	10052	645	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*359*
5518	ARCH	562		Or	8619			TU	24-Aug-97	MR-L	544600 6971600	9796		TR	Johnny Natar	6-Aug-99	5	HB	545200	6961500	*712*
5524	ARCH	367		Or	8620			TU	24-Aug-97	MR-L	544600 6971600	10038	449	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*359*
5525	ARCH	377		Or	8621			TU	24-Aug-97	MR-L	544600 6971600	10352	474	TU	RL&L	21-Aug-98	2	MR-L	544600	6971600	*362*
5525	ARCH	377		Or	8621			TU	24-Aug-97	MR-L	544600 6971600	9707		TR	John Towtoongie	1-Feb-99	5	LML	536400	6979500	*526*
5526	ARCH	356		Or	8622			TU	24-Aug-97	MR-L	544600 6971600	10032	449	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*359*
5526	ARCH	356		Or	8622			TU	24-Aug-97	MR-L	544600 6971600	12907	517	TU	RL&L	23-Aug-99	4	MR-L	544600	6971600	*729*
5527	ARCH	366		Or	8623			TU	24-Aug-97	MR-L	544600 6971600	10553	452	TU	RL&L	23-Aug-98	2	MR-L	544600	6971600	*364*
5527	ARCH	366		Or	8623			TU	24-Aug-97	MR-L	544600 6971600	12951	519	TU	RL&L	24-Aug-99	4	MR-L	544600	6971600	*730*
5527	ARCH	366		Or	8623			TU	24-Aug-97	MR-L	544600 6971600	20040		TR	John Towtoongie	1-May-00	7	LML	537500	6978700	*981*
5528	ARCH	396		Or	8624			TU	24-Aug-97	MR-L	544600 6971600	9484		TR	Tommy Partridge	19-Aug-98	3	PB	545500	6967800	*360*
5529	ARCH	378		Or	8625			TU	24-Aug-97	MR-L	544600 6971600	20386		TR	Billy Twyee	19-Jul-01	3	MR-L	543500	6972600	*1425*
5531	ARCH	423		Or	8626			TU	24-Aug-97	MR-L	544600 6971600	9485		TR	Joe Makigak	1-Jul-98	3	PB	545500	6969500	*311*
5533	ARCH	519		Or	8628			TU	24-Aug-97	MR-L	544600 6971600	9708		TR	John Towtoongie	4-Feb-99	3	LML	536400	6979500	*529*
5534	ARCH	379		Or	8629			TU	24-Aug-97	MR-L	544600 6971600	12560	530	TU	RL&L	21-Aug-99	2	MR-L	544600	6971600	*727*
5540	ARCH	376		Or	8635			TU	24-Aug-97	MR-L	544600 6971600	10470	459	TU	RL&L	22-Aug-98	2	MR-L	544600	6971600	*363*
5540	ARCH	376		Or	8635			TU	24-Aug-97	MR-L	544600 6971600	12517	523	TU	RL&L	20-Aug-99	4	MR-L	544600	6971600	*726*
5540	ARCH	376		Or	8635			TU	24-Aug-97	MR-L	544600 6971600	20301		TR	Ollie Ittinuar	1-Sep-01	7	?			*1469*
5541	ARCH	542		Or	8636			TU	24-Aug-97	MR-L	544600 6971600	9737		TR	John Towtoongie	1-Jun-99	3	LML	536400	6979500	*646*
5542	ARCH	455		Or	8637			TU	24-Aug-97	MR-L	544600 6971600	10011	543	TU	RL&L	17-Aug-98	2	MR-L	544600	6971600	*358*
5542	ARCH	455		Or	8637			TU	24-Aug-97	MR-L	544600 6971600	12596	616	TU	RL&L	21-Aug-99	4	MR-L	544600	6971600	*727*
5542	ARCH	455		Or	8637			TU	24-Aug-97	MR-L	544600 6971600	20031		TR	Samuel Amarook	24-Apr-00	7	MR-L	545000	6971000	*974*
5557	ARCH	370		Or	8639			TU	25-Aug-97	MR-L	544600 6971600	10463	443	TU	RL&L	22-Aug-98	2	MR-L	544600	6971600	*362*
5544	ARCH	370		Or	8640			TU	24-Aug-97	MR-L	544600 6971600	10347	464	TU	RL&L	21-Aug-98	2	MR-L	544600	6971600	*362*
5544	ARCH	370		Or	8640			TU	24-Aug-97	MR-L	544600 6971600	12263	534	TU	RL&L	19-Aug-99	4	MR-L	544600	6971600	*725*
5544	ARCH	370		Or	8640			TU	24-Aug-97	MR-L	544600 6971600	20125		TR	Moses Aliyak	17-Aug-00	7	HB	545100	6961400	*1089*
5545	ARCH	469		Or	8641			TU	24-Aug-97	MR-L	544600 6971600	10045	557	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*359*
5545	ARCH	469		Or	8641			TU	24-Aug-97	MR-L	544600 6971600	9709		TR	John Towtoongie	7-Feb-99	5	LML	536400	6979500	*532*
5546	ARCH	388		Or	8642			TU	24-Aug-97	MR-L	544600 6971600	9586		TR	Johnny Ittinuar	1-Aug-98	3	PB	548270	6969320	*342*
5548	ARCH	399		Or	8644			TU	24-Aug-97	MR-L	544600 6971600	10426	493	TU	RL&L	21-Aug-98	2	MR-L	544600	6971600	*362*
5548	ARCH	399		Or	8644			TU	24-Aug-97	MR-L	544600 6971600	9584		TR	Johnny Ittinuar	15-Sep-98	5	LML	538150	6977870	*387*
5549	ARCH	358		Or	8645			TU	24-Aug-97	MR-L	544600 6971600	10556	431	TU	RL&L	23-Aug-98	2	MR-L	544600	6971600	*364*
5552	ARCH	597		Or	8647			TU	25-Aug-97	MR-L	544600 6971600	9486		TR	Violet Twyee	16-Aug-98	3	?			*356*
5554	ARCH	499		Or	8649			TU	25-Aug-97	MR-L	544600 6971600	10024	596	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*358*
7513	ARCH	494	1282	Wh	3001			GN	9-Jul-98	D1	533000 6989500	9639		TR	Fabian Tatty	15-Sep-98	3	ML-S	533000	6988000	*68*
9139	ARCH	620	2250	Wh	3128			TU	2-Sep-98	MR-L	544600 6971600	12017	627	TU	RL&L	10-Aug-99	2	MR-L	544600	6971600	*342*
9139	ARCH	620	2250	Wh	3128			TU	2-Sep-98	MR-L	544600 6971600	20173		TR	Rose Ussak	1-Jul-00	5	MR-L	542400	6973550	*668*
(b)	ARCH			Wh	3129			TU	25-Aug-97	MR-L	544600 6971600	9144	573	GN	RL&L	2-Sep-98	2.5	LML	536250	6979750	*373*
9138	ARCH	620	2485	Wh	3130	20	6	GN	2-Sep-98	LML	536250 6979750	9573		TR	Joe Natar	15-Sep-98	3	LML	537440	6977460	*13*
9148	ARCH	632	3030	Wh	3131	20	9	GN	2-Sep-98	LML	536150 6979900	9613		TR	Johnny Natar	15-Sep-98	3	LML	536030	6979160	*13*
9150	ARCH	607	2575	Wh	3132			GN	2-Sep-98	LML	536150 6979900	9550		TR	John Towtoongie	16-Sep-98	3	LML	539500	6977000	*14*

Appendix F21. Floy tag recapture data for the Meliadine Study Area, 1997-2008

Fish Capture and Tag Application Data											Tag Recapture Data									
Sample No.	Species[a]	Fork Length (mm)	Weight (g)	Floy Tag Col.	Floy Tag No.	Radio Tag Ch.	Radio Tag Code	Capture Method[b]	Date of Capture	Basin[c]	Release Location (UTM Zone 15V)		Sample No.	Fork Length (mm)	Capture Method[a]	Fisherman	Date of Recapture	Capt. Code[d]	Basin[c]	Recapture Location (UTM Zone 15V)		*Days at Large*
8253	ARCH	263	130	Wh	3223			FN	24-Jul-98	ML-S	533650	6987800	8315		FN	RL&L	25-Jul-98	2	ML-S	533650	6987800	*1*
15403	ARCH	257	205	Wh	3805			FN	15-Sep-00	D1	533150	6989600	15447	259	GN	RL&L	16-Sep-00	2	D1	533050	6989550	*1*
15827	ARCH	741	4180	Wh	3821	20	13	GN	19-Sep-00	ML-PL	523750	7000650	20472		TR	Johnny Tulugak	8-Jun-01	3	LML	537500	6977500	*262*
15860	ARCH	639	2850	Wh	3833			GN	20-Sep-00	ML-PL	523750	7000650	20373		TR	Peter Ugjuk	26-Jun-01	3	PB	545250	6969350	*279*
15861	ARCH	667	3220	Wh	3834	20	6	GN	20-Sep-00	ML-PL	523750	7000650	20440		TR	Ambrose Karlik	30-Jun-01	3	PB	545250	6969350	*283*
15938	ARCH	751	4620	Wh	3870	24	19	GN	23-Sep-00	ML-PL	523750	7000650	20339		TR	Peter Kadlak Jr.	15-Jun-01	3	DR	530650	6967300	*265*
10005	ARCH	624		Wh	4004			TU	16-Aug-98	MR-L	544600	6971600	12290	684	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*368*
10005	ARCH	624		Wh	4004			TU	16-Aug-98	MR-L	544600	6971600	9901		TR	John Towtoongie	22-Sep-99	5	MR-L	539900	6976300	*402*
10008	ARCH	586		Wh	4005			TU	16-Aug-98	MR-L	544600	6971600	9141	626	GN	RL&L	2-Sep-98	2	LML	536250	6979750	*17*
10008	ARCH	586		Wh	4005			TU	16-Aug-98	MR-L	544600	6971600	9552		TR	John Towtoongie	16-Sep-98	5	LML	539500	6977000	*31*
10009	ARCH	638		Wh	4006			TU	16-Aug-98	MR-L	544600	6971600	20406		TR	John Towtoongie	4-Jul-01	3	LML	537500	6977500	*1053*
10012	ARCH	612		Wh	4008			TU	17-Aug-98	MR-L	544600	6971600	20113		TR	John Towtoongie	8-Aug-00	3	LML	539750	6976750	*722*
10022	ARCH	558		Wh	4011			TU	17-Aug-98	MR-L	544600	6971600	9575		TR	Johnny Ittinuar	15-Sep-98	3	LML	538150	6977870	*29*
10079	ARCH	548		Wh	4014			TU	18-Aug-98	MR-L	544600	6971600	9738		TR	John Towtoongie	1-Jun-99	3	LML	536400	6979500	*287*
10080	ARCH	643		Wh	4015			TU	18-Aug-98	MR-L	544600	6971600	9154		GN	RL&L	2-Sep-98	2	LML	536150	6979900	*15*
10080	ARCH	643		Wh	4015			TU	18-Aug-98	MR-L	544600	6971600	9773		TR	Simon Twyee	11-Jul-99	5	PB	546500	6969700	*327*
10081	ARCH	463		Wh	4016			TU	18-Aug-98	MR-L	544600	6971600	12136	513	TU	RL&L	14-Aug-99	2	MR-L	544600	6971600	*361*
10083	ARCH	600		Wh	4018			TU	18-Aug-98	MR-L	544600	6971600	9657		TR	John Towtoongie	16-Nov-98	3	LML	536400	6979500	*90*
10084	ARCH	535		Wh	4019			TU	18-Aug-98	MR-L	544600	6971600	9739		TR	John Towtoongie	7-May-99	3	LML	536400	6979500	*262*
10086	ARCH	498		Wh	4021			TU	18-Aug-98	MR-L	544600	6971600	12295	563	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*366*
10086	ARCH	498		Wh	4021			TU	18-Aug-98	MR-L	544600	6971600	20199		TR	John Towtoongie	18-Sep-00	5	LML	539300	6977100	*762*
10087	ARCH	592		Wh	4022			TU	18-Aug-98	MR-L	544600	6971600	20395		TR	Remi Nokkitok	4-Jul-01	3	LML	538500	6978000	*1051*
10089	ARCH	537		Wh	4024			TU	18-Aug-98	MR-L	544600	6971600	9673		TR	John Towtoongie	1-Dec-98	3	LML	536400	6979500	*105*
10093	ARCH	525		Wh	4028			TU	18-Aug-98	MR-L	544600	6971600	12289	607	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*366*
10094	ARCH	460		Wh	4029			TU	18-Aug-98	MR-L	544600	6971600	9574		TR	Johnny Ittinuar	15-Sep-98	3	LML	538150	6977870	*28*
10098	ARCH	560		Wh	4033			TU	18-Aug-98	MR-L	544600	6971600	9551		TR	John Towtoongie	16-Sep-98	3	LML	539500	6977000	*29*
10100	ARCH	483		Wh	4035			TU	18-Aug-98	MR-L	544600	6971600	20361		TR	Billy Twyee	14-Aug-01	3	PB	545250	6969350	*1092*
10101	ARCH	570		Wh	4036			TU	18-Aug-98	MR-L	544600	6971600	9774		TR	Harry Ittinuak	4-Jul-99	3	HB	556000	6966000	*320*
10105	ARCH	608		Wh	4040			TU	18-Aug-98	MR-L	544600	6971600	9487		TR	John Towtoongie	23-Aug-98	3	LML	537500	6977500	*5*
10106	ARCH	616		Wh	4041			TU	18-Aug-98	MR-L	544600	6971600	9775		TR	Adel Aingilik	10-Jul-99	3	LML	538500	6977200	*326*
10109	ARCH	592		Wh	4044			TU	18-Aug-98	MR-L	544600	6971600	9668		TR	John Towtoongie	24-Nov-98	3	LML	536400	6979500	*98*
10110	ARCH	633		Wh	4045			TU	18-Aug-98	MR-L	544600	6971600	9740		TR	John Towtoongie	1-Jun-99	3	LML	536400	6979500	*287*
10111	ARCH	513		Wh	4046			TU	18-Aug-98	MR-L	544600	6971600	12298	582	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*366*
10111	ARCH	513		Wh	4046			TU	18-Aug-98	MR-L	544600	6971600	20012		TR	John Towtoongie	12-Apr-00	5	LML	538000	6978500	*603*
10113	ARCH	634		Wh	4048			TU	18-Aug-98	MR-L	544600	6971600	12193	658	TU	RL&L	16-Aug-99	2	MR-L	544600	6971600	*363*
10113	ARCH	634		Wh	4048			TU	18-Aug-98	MR-L	544600	6971600	20048		TR	John Towtoongie	25-May-00	5	LML	537500	6978700	*646*
10114	ARCH	491		Wh	4049			TU	18-Aug-98	MR-L	544600	6971600	12922	550	TU	RL&L	23-Aug-99	2	MR-L	544600	6971600	*370*
10115	ARCH	530		Wh	4050			TU	18-Aug-98	MR-L	544600	6971600	9605		TR	Johnny Natar	15-Sep-98	3	LML	536030	6979160	*28*
10118	ARCH	549		Wh	4053			TU	18-Aug-98	MR-L	544600	6971600	9644		TR	John Towtoongie	10-Nov-98	3	LML	538000	6978500	*84*
10124	ARCH	628		Wh	4059			TU	18-Aug-98	MR-L	544600	6971600	9776		TR	Adel Aingilik	10-Jul-99	3	LML	538500	6977200	*326*
10125	ARCH	555		Wh	4060			TU	18-Aug-98	MR-L	544600	6971600	9671		TR	John Towtoongie	1-Dec-98	3	LML	536400	6979500	*105*
10147	ARCH	594		Wh	4065			TU	18-Aug-98	MR-L	544600	6971600	9603		TR	Johnny Natar	15-Sep-98	3	LML	536030	6979160	*28*
10151	ARCH	634		Wh	4069			TU	18-Aug-98	MR-L	544600	6971600	9777		TR	Adel Aingilik	10-Jul-99	3	LML	538500	6977200	*326*
10153	ARCH	554		Wh	4071			TU	18-Aug-98	MR-L	544600	6971600	12163	619	TU	RL&L	15-Aug-99	2	MR-L	544600	6971600	*362*
10153	ARCH	554		Wh	4071			TU	18-Aug-98	MR-L	544600	6971600	20132		TR	Tommy Tudlik	26-Jul-00	3	PB	545300	6969600	*708*
10154	ARCH	412		Wh	4072			TU	18-Aug-98	MR-L	544600	6971600	12485	491	TU	RL&L	20-Aug-99	2	MR-L	544600	6971600	*367*
10155	ARCH	441		Wh	4073			TU	18-Aug-98	MR-L	544600	6971600	12062	500	TU	RL&L	11-Aug-99	2	MR-L	544600	6971600	*358*
10155	ARCH	441		Wh	4073			TU	18-Aug-98	MR-L	544600	6971600	20473		TR	Johnny Tulugak	8-Jun-01	5	LML	537500	6977500	*1025*
10156	ARCH	573		Wh	4074			TU	18-Aug-98	MR-L	544600	6971600	9611		TR	Johnny Natar	15-Sep-98	3	LML	536030	6979160	*28*
10156	ARCH	573		Wh	4074			TU	18-Aug-98	MR-L	544600	6971600	20459		TR	John Towtoongie	30-Oct-00	5	LML	537500	6977500	*804*
10157	ARCH	618		Wh	4075			TU	18-Aug-98	MR-L	544600	6971600	20176		TR	Gene Kanayuk	7-Jul-00	3	DR	532350	6966250	*689*
10158	ARCH	511		Wh	4076			TU	18-Aug-98	MR-L	544600	6971600	12666	564	TU	RL&L	21-Aug-99	2	MR-L	544600	6971600	*368*

Appendix F21. Floy tag recapture data for the Meliadine Study Area, 1997-2008

Fish Capture and Tag Application Data											Tag Recapture Data									
Sample No.	Species[a]	Fork Length (mm)	Weight (g)	Floy Tag Col.	Floy Tag No.	Radio Tag Ch. Code	Capture Method[b]	Date of Capture	Basin[c]	Release Location (UTM Zone 15V)	Sample No.	Fork Length (mm)	Capture Method[a]	Fisherman	Date of Recapture	Capt. Code[d]	Basin[c]	Recapture Location (UTM Zone 15V)		*Days at Large*
10158	ARCH	511		Wh	4076		TU	18-Aug-98	MR-L	544600 6971600	9930		TR	John Towtoongie	20-Nov-99	5	LML	537000	6979000	*459*
10159	ARCH	430		Wh	4077		TU	18-Aug-98	MR-L	544600 6971600	12379	493	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*366*
10161	ARCH	612		Wh	4079		TU	18-Aug-98	MR-L	544600 6971600	9778		TR	Simon Twyee	23-Jun-99	3	MR-L	545000	6970800	*309*
10164	ARCH	608		Wh	4082		TU	18-Aug-98	MR-L	544600 6971600	9578		TR	Johnny Ittinuar	15-Sep-98	3	LML	538150	6977870	*28*
10165	ARCH	593		Wh	4083		TU	18-Aug-98	MR-L	544600 6971600	9565		TR	John Towtoongie	16-Sep-98	3	LML	539500	6977000	*29*
10166	ARCH	566		Wh	4084		TU	18-Aug-98	MR-L	544600 6971600	12530	636	TU	RL&L	20-Aug-99	2	MR-L	544600	6971600	*367*
10166	ARCH	566		Wh	4084		TU	18-Aug-98	MR-L	544600 6971600	9902		TR	John Towtoongie	22-Sep-99	5	MR-L	539900	6976300	*400*
10167	ARCH	452		Wh	4085		TU	18-Aug-98	MR-L	544600 6971600	12128	522	TU	RL&L	13-Aug-99	2	MR-L	544600	6971600	*360*
10167	ARCH	452		Wh	4085		TU	18-Aug-98	MR-L	544600 6971600	20474		TR	Johnny Tulugak	8-Jun-01	5	LML	537500	6977500	*1025*
10168	ARCH	570		Wh	4086		TU	18-Aug-98	MR-L	544600 6971600	9964		TR	Cecilia Amarook	27-Oct-99	3	LML	536500	6978200	*435*
10169	ARCH	497		Wh	4087		TU	18-Aug-98	MR-L	544600 6971600	12661	563	TU	RL&L	21-Aug-99	2	MR-L	544600	6971600	*368*
10169	ARCH	497		Wh	4087		TU	18-Aug-98	MR-L	544600 6971600	9934		TR	John Towtoongie	20-Nov-99	5	LML	537000	6979000	*459*
10170	ARCH	492		Wh	4088		TU	18-Aug-98	MR-L	544600 6971600	12104	540	TU	RL&L	12-Aug-99	2	MR-L	544600	6971600	*359*
10171	ARCH	429		Wh	4089		TU	18-Aug-98	MR-L	544600 6971600	12303	494	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*366*
10208	ARCH	584		Wh	4101		TU	19-Aug-98	MR-L	544600 6971600	9488		TR	John Towtoongie	25-Aug-98	3	LML	537500	6977500	*6*
10210	ARCH	568		Wh	4103		TU	19-Aug-98	MR-L	544600 6971600	9672		TR	John Towtoongie	1-Dec-98	3	LML	536400	6979500	*104*
10211	ARCH	576		Wh	4104		TU	19-Aug-98	MR-L	544600 6971600	9489		TR	John Towtoongie	3-Sep-98	3	LML	537500	6977500	*15*
10213	ARCH	628		Wh	4106		TU	19-Aug-98	MR-L	544600 6971600	9490		TR	Jerry Angidlik	4-Sep-98	3	LML	538200	6976800	*16*
10214	ARCH	592		Wh	4107		TU	19-Aug-98	MR-L	544600 6971600	9607		TR	Johnny Natar	15-Sep-98	3	LML	536030	6979160	*27*
10215	ARCH	558		Wh	4108		TU	19-Aug-98	MR-L	544600 6971600	9779		TR	Mary Graham	1-Jul-99	3	MR-L	540200	6976000	*316*
10217	ARCH	541		Wh	4110		TU	19-Aug-98	MR-L	544600 6971600	9491		TR	Adele Koanagoak	22-Aug-98	3	LML	538300	6976800	*3*
10218	ARCH	514		Wh	4111		TU	19-Aug-98	MR-L	544600 6971600	13178	584	TU	RL&L	28-Aug-99	2	MR-L	544600	6971600	*374*
10219	ARCH	560		Wh	4112		TU	19-Aug-98	MR-L	544600 6971600	9492		TR	Jerry Angidlik	4-Sep-98	3	LML	538200	6976800	*16*
10220	ARCH	589		Wh	4113		TU	19-Aug-98	MR-L	544600 6971600	9556		TR	John Towtoongie	16-Sep-98	3	LML	539500	6977000	*28*
10221	ARCH	559		Wh	4114		TU	19-Aug-98	MR-L	544600 6971600	9493		TR	Adel Aingilik	2-Sep-98	3	LML	538200	6976800	*14*
10224	ARCH	549		Wh	4116		TU	19-Aug-98	MR-L	544600 6971600	12164	626	TU	RL&L	15-Aug-99	2	MR-L	544600	6971600	*361*
10224	ARCH	549		Wh	4116		TU	19-Aug-98	MR-L	544600 6971600	9949		TR	John Towtoongie	10-Nov-99	5	LML	536500	6979200	*448*
10228	ARCH	547		Wh	4120		TU	19-Aug-98	MR-L	544600 6971600	9780		TR	Henry Etegaitok	21-Jun-99	3	MR-L	544000	6971600	*306*
10232	ARCH	449		Wh	4124		TU	19-Aug-98	MR-L	544600 6971600	12528	525	TU	RL&L	20-Aug-99	2	MR-L	544600	6971600	*366*
10233	ARCH	572		Wh	4125		TU	19-Aug-98	MR-L	544600 6971600	9675		TR	John Towtoongie	1-Dec-98	3	LML	536400	6979500	*104*
10235	ARCH	524		Wh	4127		TU	19-Aug-98	MR-L	544600 6971600	12500	592	TU	RL&L	20-Aug-99	2	MR-L	544600	6971600	*366*
10236	ARCH	558		Wh	4128		TU	19-Aug-98	MR-L	544600 6971600	9604		TR	Johnny Natar	15-Sep-98	3	LML	536030	6979160	*27*
10237	ARCH	625		Wh	4129		TU	19-Aug-98	MR-L	544600 6971600	9531		TR	Johnny Ittinuar	21-Sep-98	3	LML	539500	6977000	*33*
10240	ARCH	371		Wh	4132		TU	19-Aug-98	MR-L	544600 6971600	12129	428	TU	RL&L	13-Aug-99	2	MR-L	544600	6971600	*359*
10245	ARCH	535		Wh	4136		TU	19-Aug-98	MR-L	544600 6971600	12372	594	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*365*
10245	ARCH	535		Wh	4136		TU	19-Aug-98	MR-L	544600 6971600	20357		TR	Billy Twyee	31-Aug-01	5	PB	545250	6969350	*1108*
10283	ARCH	589		Wh	4139		TU	20-Aug-98	MR-L	544600 6971600	12510	656	TU	RL&L	20-Aug-99	2	MR-L	544600	6971600	*365*
10283	ARCH	589		Wh	4139		TU	20-Aug-98	MR-L	544600 6971600	20052		TR	John Towtoongie	1-Jun-00	5	LML	537500	6978700	*651*
10288	ARCH	366		Wh	4143		TU	20-Aug-98	MR-L	544600 6971600	12533	430	TU	RL&L	20-Aug-99	2	MR-L	544600	6971600	*365*
10289	ARCH	597		Wh	4144		TU	20-Aug-98	MR-L	544600 6971600	9606		TR	Johnny Natar	15-Sep-98	3	LML	536030	6979160	*26*
10290	ARCH	457		Wh	4145		TU	20-Aug-98	MR-L	544600 6971600	12960	437	TU	RL&L	24-Aug-99	2	MR-L	544600	6971600	*369*
10290	ARCH	457		Wh	4145		TU	20-Aug-98	MR-L	544600 6971600	9951		TR	John Towtoongie	10-Nov-99	5	LML	536500	6979200	*447*
10292	ARCH	657		Wh	4147		TU	20-Aug-98	MR-L	544600 6971600	9659		TR	John Towtoongie	16-Nov-98	3	LML	536400	6979500	*88*
10294	ARCH	630		Wh	4148		TU	20-Aug-98	MR-L	544600 6971600	9817		TR	Tommy Tudlik	4-Aug-99	3	MR-L	540400	6975700	*349*
10297	ARCH	559		Wh	4150		TU	20-Aug-98	MR-L	544600 6971600	9674		TR	John Towtoongie	1-Dec-98	3	LML	536400	6979500	*103*
10299	ARCH	612		Wh	4152		TU	20-Aug-98	MR-L	544600 6971600	9494		TR	John Towtoongie	27-Aug-98	3	LML	539300	6976800	*7*
10300	ARCH	643		Wh	4153		TU	20-Aug-98	MR-L	544600 6971600	9495		TR	John Towtoongie	27-Aug-98	3	LML	539300	6976800	*7*
10301	ARCH	568		Wh	4154		TU	20-Aug-98	MR-L	544600 6971600	9661		TR	John Towtoongie	16-Nov-98	3	LML	536400	6979500	*88*
10304	ARCH	615		Wh	4156		TU	20-Aug-98	MR-L	544600 6971600	9554		TR	John Towtoongie	16-Sep-98	3	LML	539500	6977000	*27*
10305	ARCH	637		Wh	4157		TU	20-Aug-98	MR-L	544600 6971600	9662		TR	John Towtoongie	16-Nov-98	3	LML	536400	6979500	*88*
10306	ARCH	570		Wh	4158		TU	20-Aug-98	MR-L	544600 6971600	9564		TR	John Towtoongie	16-Sep-98	3	LML	539500	6977000	*27*
10307	ARCH	467		Wh	4159		TU	20-Aug-98	MR-L	544600 6971600	12660	527	TU	RL&L	21-Aug-99	2	MR-L	544600	6971600	*366*

Appendix F21. Floy tag recapture data for the Meliadine Study Area, 1997-2008

Fish Capture and Tag Application Data											Tag Recapture Data									
Sample No.	Species[a]	Fork Length (mm)	Weight (g)	Floy Tag Col.	Floy Tag No.	Radio Tag Ch. Code	Capture Method[b]	Date of Capture	Basin[c]	Release Location (UTM Zone 15V)	Sample No.	Fork Length (mm)	Capture Method[a]	Fisherman	Date of Recapture	Capt. Code[d]	Basin[c]	Recapture Location (UTM Zone 15V)		*Days at Large*
10308	ARCH	598		Wh	4160		TU	20-Aug-98	MR-L	544600 6971600	9496		TR	John Towtoongie	26-Aug-98	3	LML	539600	6976600	*6*
10309	ARCH	357		Wh	4161		TU	20-Aug-98	MR-L	544600 6971600	12915	439	TU	RL&L	23-Aug-99	2	MR-L	544600	6971600	*368*
10309	ARCH	357		Wh	4161		TU	20-Aug-98	MR-L	544600 6971600	20152		TR	Dorothy Sateana	12-Jul-00	5	MR-L	544450	6971650	*692*
10310	ARCH	533		Wh	4162		TU	20-Aug-98	MR-L	544600 6971600	9678		TR	John Towtoongie	4-Dec-98	3	LML	536400	6979500	*106*
10312	ARCH	471		Wh	4164		TU	20-Aug-98	MR-L	544600 6971600	9558		TR	John Towtoongie	16-Sep-98	3	LML	539500	6977000	*27*
10315	ARCH	597		Wh	4166		TU	20-Aug-98	MR-L	544600 6971600	9802		TR	John Towtoongie	25-Mar-99	3	LML	536600	6979200	*217*
10319	ARCH	579		Wh	4170		TU	20-Aug-98	MR-L	544600 6971600	9543		TR	Glen Kadlak	12-Oct-98	3	LML	539500	6977000	*53*
10321	ARCH	444		Wh	4171		TU	20-Aug-98	MR-L	544600 6971600	12306	522	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*364*
10321	ARCH	444		Wh	4171		TU	20-Aug-98	MR-L	544600 6971600	9927		TR	John Towtoongie	20-Nov-99	5	LML	537000	6979000	*457*
10323	ARCH	481		Wh	4173		TU	20-Aug-98	MR-L	544600 6971600	12646	542	TU	RL&L	21-Aug-99	2	MR-L	544600	6971600	*366*
10323	ARCH	481		Wh	4173		TU	20-Aug-98	MR-L	544600 6971600	20350		TR	John Towtoongie	20-Aug-01	5	LML	537500	6977500	*1096*
10324	ARCH	649		Wh	4174		TU	20-Aug-98	MR-L	544600 6971600	9610		TR	Johnny Natar	15-Sep-98	3	LML	536030	6979160	*26*
10325	ARCH	650		Wh	4175		TU	20-Aug-98	MR-L	544600 6971600	9568		TR	Joe Natar	15-Sep-98	3	LML	537440	6977460	*26*
10328	ARCH	585		Wh	4178		TU	20-Aug-98	MR-L	544600 6971600	9497		TR	John Towtoongie	1-Sep-98	3	LML	537500	6977500	*12*
10329	ARCH	518		Wh	4179		TU	20-Aug-98	MR-L	544600 6971600	20372		TR	Tommy Tudlik	17-Aug-01	3	PB	545250	6969350	*1093*
10330	ARCH	484		Wh	4180		TU	20-Aug-98	MR-L	544600 6971600	9741		TR	John Towtoongie	15-Apr-99	3	LML	536400	6979500	*238*
10331	ARCH	403		Wh	4181		TU	20-Aug-98	MR-L	544600 6971600	9781		TR	Philip Ugjuk	4-Jul-99	3	PB	548500	6964500	*318*
10332	ARCH	520		Wh	4182		TU	20-Aug-98	MR-L	544600 6971600	9152		GN	RL&L	2-Sep-98	2	LML	536150	6979900	*13*
10333	ARCH	621		Wh	4183		TU	20-Aug-98	MR-L	544600 6971600	9498		TR	John Towtoongie	1-Sep-98	3	LML	537500	6977500	*12*
10334	ARCH	485		Wh	4184		TU	20-Aug-98	MR-L	544600 6971600	12513	553	TU	RL&L	20-Aug-99	2	MR-L	544600	6971600	*365*
10336	ARCH	482		Wh	4185		TU	20-Aug-98	MR-L	544600 6971600	12297	546	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*364*
(b)	ARCH			Wh	4188		TU	25-Aug-97	MR-L	544600 6971600	10339	442	TU	RL&L	20-Aug-98	2.5	MR-L	544600	6971600	*360*
(b)	ARCH			Wh	4188		TU	25-Aug-97	MR-L	544600 6971600	12376	507	TU	RL&L	19-Aug-99	4.5	MR-L	544600	6971600	*724*
(b)	ARCH			Wh	4188		TU	25-Aug-97	MR-L	544600 6971600	9928		TR	John Towtoongie	20-Nov-99	7.5	LML	537000	6979000	*817*
10341	ARCH	442		Wh	4189		TU	20-Aug-98	MR-L	544600 6971600	12601	486	TU	RL&L	21-Aug-99	2	MR-L	544600	6971600	*366*
10341	ARCH	442		Wh	4189		TU	20-Aug-98	MR-L	544600 6971600	9918		TR	John Towtoongie	4-Oct-99	5	LML	538300	6977600	*410*
10342	ARCH	642		Wh	4190		TU	20-Aug-98	MR-L	544600 6971600	9499		TR	John Towtoongie	26-Aug-98	3	LML	539600	6976600	*6*
10358	ARCH	653		Wh	4195		TU	21-Aug-98	MR-L	544600 6971600	9500		TR	John Towtoongie	3-Sep-98	3	LML	537500	6977500	*13*
10359	ARCH	633		Wh	4196		TU	21-Aug-98	MR-L	544600 6971600	9577		TR	Johnny Ittinuar	15-Sep-98	3	LML	538150	6977870	*25*
(b)	ARCH			Wh	4197		TU	25-Aug-97	MR-L	544600 6971600	10360	518	TU	RL&L	21-Aug-98	2.5	MR-L	544600	6971600	*361*
(b)	ARCH			Wh	4197		TU	25-Aug-97	MR-L	544600 6971600	12912	586	TU	RL&L	23-Aug-99	4.5	MR-L	544600	6971600	*728*
(b)	ARCH			Wh	4197		TU	25-Aug-97	MR-L	544600 6971600	9895		TR	John Towtoongie	15-Sep-99	7.5	MR-L	538600	6977500	*751*
10361	ARCH	598		Wh	4198		TU	21-Aug-98	MR-L	544600 6971600	9566		TR	Joe Natar	15-Sep-98	3	LML	537440	6977460	*25*
10363	ARCH	493		Wh	4200		TU	21-Aug-98	MR-L	544600 6971600	9803		TR	John Towtoongie	25-Mar-99	3	LML	536600	6979200	*216*
10364	ARCH	572		Wh	4201		TU	21-Aug-98	MR-L	544600 6971600	9814		TR	Celestino Makpah	13-Jul-99	3	HB	584400	6964000	*326*
10365	ARCH	705		Wh	4202		TU	21-Aug-98	MR-L	544600 6971600	9501		TR	John Towtoongie	1-Sep-98	3	LML	537500	6977500	*11*
10366	ARCH	560		Wh	4203		TU	21-Aug-98	MR-L	544600 6971600	9502		TR	John Towtoongie	25-Aug-98	3	LML	537500	6977500	*4*
10367	ARCH	572		Wh	4204		TU	21-Aug-98	MR-L	544600 6971600	9503		TR	John Towtoongie	1-Sep-98	3	LML	537500	6977500	*11*
10370	ARCH	705		Wh	4207		TU	21-Aug-98	MR-L	544600 6971600	9742		TR	John Towtoongie	1-Jun-99	3	LML	536400	6979500	*284*
10372	ARCH	593		Wh	4209		TU	21-Aug-98	MR-L	544600 6971600	9504		TR	John Towtoongie	23-Aug-98	3	LML	537500	6977500	*2*
10373	ARCH	447		Wh	4210		TU	21-Aug-98	MR-L	544600 6971600	9820		TR	Simon Twyee	13-Aug-99	3	PB	546500	6968500	*357*
10374	ARCH	571		Wh	4211		TU	21-Aug-98	MR-L	544600 6971600	9505		TR	Adel Aingilik	2-Sep-98	3	LML	538200	6976800	*12*
10376	ARCH	606		Wh	4213		TU	21-Aug-98	MR-L	544600 6971600	9818		TR	Tommy Tudlik	4-Aug-99	3	MR-L	540400	6975700	*348*
10377	ARCH	525		Wh	4214		TU	21-Aug-98	MR-L	544600 6971600	9825		TR	Peter Kadlak Jr.	14-Aug-99	3	PB	546500	6968500	*358*
10378	ARCH	611		Wh	4215		TU	21-Aug-98	MR-L	544600 6971600	9506		TR	Adel Aingilik	2-Sep-98	3	LML	538200	6976800	*12*
10379	ARCH	589		Wh	4216		TU	21-Aug-98	MR-L	544600 6971600	9507		TR	John Towtoongie	1-Sep-98	3	LML	537500	6977500	*11*
10380	ARCH	609		Wh	4217		TU	21-Aug-98	MR-L	544600 6971600	9508		TR	John Towtoongie	26-Aug-98	3	LML	539600	6976600	*5*
10381	ARCH	535		Wh	4218		TU	21-Aug-98	MR-L	544600 6971600	20217		TR	Joachim Kavik	28-Sep-00	3	MR-U	534900	6980100	*769*
10384	ARCH	420		Wh	4221		TU	21-Aug-98	MR-L	544600 6971600	12577	482	TU	RL&L	21-Aug-99	2	MR-L	544600	6971600	*365*
10385	ARCH	535		Wh	4222		TU	21-Aug-98	MR-L	544600 6971600	12192	589	TU	RL&L	16-Aug-99	2	MR-L	544600	6971600	*360*
10404	ARCH	519		Wh	4223		TU	21-Aug-98	MR-L	544600 6971600	9810		TR	John Towtoongie	8-Apr-99	3	LML	536400	6979500	*230*
10405	ARCH	520		Wh	4224		TU	21-Aug-98	MR-L	544600 6971600	9743		TR	John Towtoongie	1-Jun-99	3	LML	536400	6979500	*284*

Appendix F21. Floy tag recapture data for the Meliadine Study Area, 1997-2008

Fish Capture and Tag Application Data											Tag Recapture Data									
Sample No.	Species[a]	Fork Length (mm)	Weight (g)	Floy Tag Col.	Floy Tag No.	Radio Tag Ch. Code	Capture Method[b]	Date of Capture	Basin[c]	Release Location (UTM Zone 15V)	Sample No.	Fork Length (mm)	Capture Method[a]	Fisherman	Date of Recapture	Capt. Code[d]	Basin[c]	Recapture Location (UTM Zone 15V)		*Days at Large*
10406	ARCH	593		Wh	4225		TU	21-Aug-98	MR-L	544600 6971600	9744		TR	John Towtoongie	19-May-99	3	LML	536400	6979500	*271*
10407	ARCH	504		Wh	4226		TU	21-Aug-98	MR-L	544600 6971600	9153		GN	RL&L	2-Sep-98	2	LML	536150	6979900	*12*
10407	ARCH	504		Wh	4226		TU	21-Aug-98	MR-L	544600 6971600	9804		TR	John Towtoongie	25-Mar-99	5	LML	536600	6979200	*216*
10409	ARCH	670		Wh	4228		TU	21-Aug-98	MR-L	544600 6971600	9545		TR	Glen Kadlak	12-Oct-98	3	LML	539500	6977000	*52*
10412	ARCH	679		Wh	4231		TU	21-Aug-98	MR-L	544600 6971600	9509		TR	Louie Taopakti	22-Aug-98	3	LML	537500	6977500	*1*
10413	ARCH	580		Wh	4232		TU	21-Aug-98	MR-L	544600 6971600	9143		GN	RL&L	2-Sep-98	2	LML	536250	6979750	*12*
10414	ARCH	576		Wh	4233		TU	21-Aug-98	MR-L	544600 6971600	9560		TR	John Towtoongie	16-Sep-98	3	LML	539500	6977000	*26*
10415	ARCH	617		Wh	4234		TU	21-Aug-98	MR-L	544600 6971600	9510		TR	John Towtoongie	25-Aug-98	3	LML	537500	6977500	*4*
10417	ARCH	542		Wh	4236		TU	21-Aug-98	MR-L	544600 6971600	9815		TR	Rose Ussak	2-Aug-99	3	MR-L	543400	6972400	*346*
10418	ARCH	485		Wh	4237		TU	21-Aug-98	MR-L	544600 6971600	12600	565	TU	RL&L	21-Aug-99	2	MR-L	544600	6971600	*365*
10419	ARCH	617		Wh	4238		TU	21-Aug-98	MR-L	544600 6971600	9511		TR	John Towtoongie	23-Aug-98	3	LML	537500	6977500	*2*
10420	ARCH	564		Wh	4239		TU	21-Aug-98	MR-L	544600 6971600	9512		TR	John Towtoongie	25-Aug-98	3	LML	537500	6977500	*4*
10421	ARCH	601		Wh	4240		TU	21-Aug-98	MR-L	544600 6971600	9513		TR	John Towtoongie	3-Sep-98	3	LML	537500	6977500	*13*
10422	ARCH	652		Wh	4241		TU	21-Aug-98	MR-L	544600 6971600	9514		TR	John Towtoongie	1-Sep-98	3	LML	537500	6977500	*11*
10424	ARCH	484		Wh	4243		TU	21-Aug-98	MR-L	544600 6971600	12441	555	TU	RL&L	20-Aug-99	2	MR-L	544600	6971600	*364*
10424	ARCH	484		Wh	4243		TU	21-Aug-98	MR-L	544601 6971601	9879		TR	Adel Aingilik	13-Sep-99	5	LML	537800	6977200	*388*
10425	ARCH	522		Wh	4244		TU	21-Aug-98	MR-L	544600 6971600	9679		TR	John Towtoongie	4-Dec-98	3	LML	536400	6979500	*105*
10429	ARCH	558		Wh	4247		TU	21-Aug-98	MR-L	544600 6971600	9515		TR	John Towtoongie	25-Aug-98	3	LML	537500	6977500	*4*
10431	ARCH	573		Wh	4249		TU	21-Aug-98	MR-L	544600 6971600	9677		TR	John Towtoongie	4-Dec-98	3	LML	536400	6979500	*105*
10432	ARCH	472		Wh	4250		TU	21-Aug-98	MR-L	544600 6971600	13077	543	TU	RL&L	26-Aug-99	2	MR-L	544600	6971600	*370*
10432	ARCH	472		Wh	4250		TU	21-Aug-98	MR-L	544600 6971600	20144		TR	John Towtoongie	21-Nov-99	5	LML	537050	6979000	*457*
10433	ARCH	490		Wh	4251		TU	21-Aug-98	MR-L	544600 6971600	20003		TR	William Pissuk	15-Aug-99	3	HB	610000	6980000	*359*
10434	ARCH	615		Wh	4252		TU	21-Aug-98	MR-L	544600 6971600	9516		TR	John Towtoongie	27-Aug-98	3	LML	539300	6976800	*6*
10436	ARCH	457		Wh	4254		TU	21-Aug-98	MR-L	544600 6971600	13021	515	TU	RL&L	25-Aug-99	2	MR-L	544600	6971600	*369*
10436	ARCH	457		Wh	4254		TU	21-Aug-98	MR-L	544600 6971600	9935		TR	John Towtoongie	20-Nov-99	5	LML	537000	6979000	*456*
10437	ARCH	409		Wh	4255		TU	21-Aug-98	MR-L	544600 6971600	12659	482	TU	RL&L	21-Aug-99	2	MR-L	544600	6971600	*365*
10437	ARCH	409		Wh	4255		TU	21-Aug-98	MR-L	544600 6971600	20200		TR	John Towtoongie	18-Sep-00	5	LML	539300	6977100	*759*
10438	ARCH	514		Wh	4256		TU	21-Aug-98	MR-L	544600 6971600	12494	570	TU	RL&L	20-Aug-99	2	MR-L	544600	6971600	*364*
10439	ARCH	546		Wh	4257		TU	21-Aug-98	MR-L	544600 6971600	9712		TR	John Towtoongie	20-Feb-99	3	LML	536400	6979500	*183*
10441	ARCH	602		Wh	4259		TU	21-Aug-98	MR-L	544600 6971600	9530		TR	Johnny Ittinuar	21-Sep-98	3	LML	539500	6977000	*31*
10442	ARCH	536		Wh	4260		TU	21-Aug-98	MR-L	544600 6971600	9553		TR	John Towtoongie	16-Sep-98	3	LML	539500	6977000	*26*
10443	ARCH	349		Wh	4261		TU	21-Aug-98	MR-L	544600 6971600	12442	416	TU	RL&L	20-Aug-99	2	MR-L	544600	6971600	*364*
10443	ARCH	349		Wh	4261		TU	21-Aug-98	MR-L	544600 6971600	20328		TR	John Towtoongie	5-Oct-01	5	LML	537600	6977400	*1141*
10444	ARCH	376		Wh	4262		TU	21-Aug-98	MR-L	544600 6971600	12302	435	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*363*
10445	ARCH	448		Wh	4263		TU	21-Aug-98	MR-L	544600 6971600	9782		TR	Joe Makigak	3-Jul-99	3	PB	545500	6969100	*316*
10446	ARCH	555		Wh	4264		TU	21-Aug-98	MR-L	544600 6971600	9783		TR	Terry Espey	27-Jun-99	3	PB	545500	6969500	*310*
10447	ARCH	494		Wh	4265		TU	21-Aug-98	MR-L	544600 6971600	12310	551	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*363*
10447	ARCH	494		Wh	4265		TU	21-Aug-98	MR-L	544600 6971600	20145		TR	John Towtoongie	21-Nov-99	5	LML	537050	6979000	*457*
10448	ARCH	430		Wh	4266		TU	21-Aug-98	MR-L	544600 6971600	9784		TR	Joe Makigak	3-Jul-99	3	PB	545500	6969100	*316*
10449	ARCH	407		Wh	4267		TU	21-Aug-98	MR-L	544600 6971600	12481	470	TU	RL&L	20-Aug-99	2	MR-L	544600	6971600	*364*
10478	ARCH	629		Wh	4271		TU	22-Aug-98	MR-L	544600 6971600	9517		TR	John Towtoongie	27-Aug-98	3	LML	539300	6976800	*5*
10479	ARCH	661		Wh	4272		TU	22-Aug-98	MR-L	544600 6971600	9518		TR	John Towtoongie	26-Aug-98	3	LML	539600	6976600	*4*
10481	ARCH	441		Wh	4274		TU	22-Aug-98	MR-L	544600 6971600	12507	500	TU	RL&L	20-Aug-99	2	MR-L	544600	6971600	*363*
10482	ARCH	461		Wh	4275		TU	22-Aug-98	MR-L	544600 6971600	12916	543	TU	RL&L	23-Aug-99	2	MR-L	544600	6971600	*366*
10484	ARCH	603		Wh	4277		TU	22-Aug-98	MR-L	544600 6971600	9821		TR	Simon Twyee	13-Aug-99	3	PB	546500	6968500	*356*
10485	ARCH	564		Wh	4278		TU	22-Aug-98	MR-L	544600 6971600	9519		TR	John Towtoongie	26-Aug-98	3	LML	539600	6976600	*4*
10487	ARCH	528		Wh	4280		TU	22-Aug-98	MR-L	544600 6971600	9805		TR	John Towtoongie	25-Mar-99	3	LML	536600	6979200	*215*
10488	ARCH	492		Wh	4281		TU	22-Aug-98	MR-L	544600 6971600	9581		TR	Johnny Ittinuar	15-Sep-98	3	LML	538150	6977870	*24*
10489	ARCH	470		Wh	4282		TU	22-Aug-98	MR-L	544600 6971600	9660		TR	John Towtoongie	16-Nov-98	3	LML	536400	6979500	*86*
10490	ARCH	389		Wh	4283		TU	22-Aug-98	MR-L	544600 6971600	12913	457	TU	RL&L	23-Aug-99	2	MR-L	544600	6971600	*366*
10492	ARCH	485		Wh	4285		TU	22-Aug-98	MR-L	544600 6971600	9663		TR	Ciril Nanadut	24-Nov-98	3	LML	539500	6976600	*94*
10495	ARCH	552		Wh	4288		TU	22-Aug-98	MR-L	544600 6971600	9612		TR	Johnny Natar	15-Sep-98	3	LML	536030	6979160	*24*

Golder Associates

Appendix F21. Floy tag recapture data for the Meliadine Study Area, 1997-2008

Fish Capture and Tag Application Data											Tag Recapture Data									
Sample No.	Species[a]	Fork Length (mm)	Weight (g)	Floy Tag Col.	Floy Tag No.	Radio Tag Ch.	Radio Tag Code	Capture Method[b]	Date of Capture	Basin[c]	Release Location (UTM Zone 15V)		Sample No.	Fork Length (mm)	Capture Method[a]	Fisherman	Date of Recapture	Capt. Code[d]	Basin[c]	Recapture Location (UTM Zone 15V)		*Days at Large*
10496	ARCH	540		Wh	4289			TU	22-Aug-98	MR-L	544600	6971600	9828		TR	Johnny Natar	15-Aug-99	3	?			*358*
10497	ARCH	540		Wh	4290			TU	22-Aug-98	MR-L	544600	6971600	12486	523	TU	RL&L	20-Aug-99	2	MR-L	544600	6971600	*363*
10501	ARCH	513		Wh	4294			TU	22-Aug-98	MR-L	544600	6971600	9713		TR	John Towtoongie	20-Feb-99	3	LML	536400	6979500	*182*
10503	ARCH	488		Wh	4296			TU	22-Aug-98	MR-L	544600	6971600	12586	547	TU	RL&L	21-Aug-99	2	MR-L	544600	6971600	*364*
10505	ARCH	379		Wh	4298			TU	22-Aug-98	MR-L	544600	6971600	12364	438	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*362*
10506	ARCH	359		Wh	4299			TU	22-Aug-98	MR-L	544600	6971600	12671	430	TU	RL&L	21-Aug-99	2	MR-L	544600	6971600	*364*
10507	ARCH	397		Wh	4300			TU	22-Aug-98	MR-L	544600	6971600	12918	455	TU	RL&L	23-Aug-99	2	MR-L	544600	6971600	*366*
10508	ARCH	482		Wh	4301			TU	22-Aug-98	MR-L	544600	6971600	12649	545	TU	RL&L	21-Aug-99	2	MR-L	544600	6971600	*364*
10509	ARCH	357		Wh	4302			TU	22-Aug-98	MR-L	544600	6971600	20358		TR	Billy Twyee	31-Aug-01	3	PB	545250	6969350	*1105*
10512	ARCH	409		Wh	4305			TU	22-Aug-98	MR-L	544600	6971600	12725	468	TU	RL&L	22-Aug-99	2	MR-L	544600	6971600	*365*
10513	ARCH	330		Wh	4306			TU	22-Aug-98	MR-L	544600	6971600	13456	375	TU	RL&L	2-Sep-99	2	MR-L	544600	6971600	*376*
10514	ARCH	533		Wh	4307			TU	22-Aug-98	MR-L	544600	6971600	12769	576	TU	RL&L	22-Aug-99	2	MR-L	544600	6971600	*365*
10514	ARCH	533		Wh	4307			TU	22-Aug-98	MR-L	544600	6971600	20170		TR	Peter Ugjuk	8-Jul-00	5	PB	545500	6969500	*686*
10516	ARCH	381		Wh	4309			TU	22-Aug-98	MR-L	544600	6971600	12378	435	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*362*
10521	ARCH	498		Wh	4310			TU	22-Aug-98	MR-L	544600	6971600	9665		TR	John Towtoongie	24-Nov-98	3	LML	536400	6979500	*94*
10523	ARCH	448		Wh	4312			TU	22-Aug-98	MR-L	544600	6971600	12993	508	TU	RL&L	24-Aug-99	2	MR-L	544600	6971600	*367*
10523	ARCH	448		Wh	4312			TU	22-Aug-98	MR-L	544600	6971600	20417		TR	Peter Ugjuk	24-Jun-01	5	LML	537500	6977500	*1037*
10524	ARCH	380		Wh	4313			TU	22-Aug-98	MR-L	544600	6971600	12785	466	TU	RL&L	22-Aug-99	2	MR-L	544600	6971600	*365*
10524	ARCH	380		Wh	4313			TU	22-Aug-98	MR-L	544600	6971600	20460		TR	John Towtoongie	30-Oct-00	5	LML	537500	6977500	*800*
10525	ARCH	587		Wh	4314			TU	22-Aug-98	MR-L	544600	6971600	9608		TR	Johnny Natar	15-Sep-98	3	LML	536030	6979160	*24*
10527	ARCH	630		Wh	4316			TU	22-Aug-98	MR-L	544600	6971600	9570		TR	Joe Natar	15-Sep-98	3	LML	537440	6977460	*24*
10528	ARCH	508		Wh	4317			TU	22-Aug-98	MR-L	544600	6971600	13656	517	TU	RL&L	10-Sep-99	2	MR-L	544600	6971600	*384*
10530	ARCH	437		Wh	4318			TU	22-Aug-98	MR-L	544600	6971600	12716	495	TU	RL&L	22-Aug-99	2	MR-L	544600	6971600	*365*
10532	ARCH	473		Wh	4320			TU	22-Aug-98	MR-L	544600	6971600	9785		TR	Tony Diaz	1-Jul-99	3	MR-L	540500	6975200	*313*
10533	ARCH	425		Wh	4321			TU	22-Aug-98	MR-L	544600	6971600	12147	486	TU	RL&L	14-Aug-99	2	MR-L	544600	6971600	*357*
10534	ARCH	381		Wh	4322			TU	22-Aug-98	MR-L	544600	6971600	12439	436	TU	RL&L	20-Aug-99	2	MR-L	544600	6971600	*363*
10535	ARCH	342		Wh	4323			TU	22-Aug-98	MR-L	544600	6971600	12311	414	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*362*
10535	ARCH	342		Wh	4323			TU	22-Aug-98	MR-L	544600	6971600	20302		TR	Ollie Ittinuar	1-Sep-01	5	?			*1106*
10560	ARCH	565		Wh	4336			TU	23-Aug-98	MR-L	544600	6971600	9797		TR	Henry Etegaitok	9-Aug-99	3	HB	541200	6964700	*351*
10561	ARCH	593		Wh	4337			TU	23-Aug-98	MR-L	544600	6971600	9557		TR	John Towtoongie	16-Sep-98	3	LML	539500	6977000	*24*
10562	ARCH	591		Wh	4338			TU	23-Aug-98	MR-L	544600	6971600	12594	620	TU	RL&L	21-Aug-99	2	MR-L	544600	6971600	*363*
10562	ARCH	591		Wh	4338			TU	23-Aug-98	MR-L	544600	6971600	20174		TR	Rose Ussak	1-Jul-00	5	MR-L	542400	6973550	*678*
10563	ARCH	473		Wh	4339			TU	23-Aug-98	MR-L	544600	6971600	12793	524	TU	RL&L	22-Aug-99	2	MR-L	544600	6971600	*364*
10564	ARCH	584		Wh	4340			TU	23-Aug-98	MR-L	544600	6971600	9520		TR	John Towtoongie	1-Sep-98	3	LML	537500	6977500	*9*
10565	ARCH	584		Wh	4341			TU	23-Aug-98	MR-L	544600	6971600	9676		TR	John Towtoongie	4-Dec-98	3	LML	536400	6979500	*103*
(b)	ARCH			Wh	4342			TU	25-Aug-97	MR-L	544600	6971600	10566	490	TU	RL&L	23-Aug-98	2.5	MR-L	544600	6971600	*363*
(b)	ARCH			Wh	4342			TU	25-Aug-97	MR-L	544600	6971600	12438	544	TU	RL&L	20-Aug-99	4.5	MR-L	544600	6971600	*725*
10567	ARCH	433		Wh	4343			TU	23-Aug-98	MR-L	544600	6971600	12374	495	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*361*
10567	ARCH	433		Wh	4343			TU	23-Aug-98	MR-L	544600	6971600	20303		TR	Ollie Ittinuar	1-Sep-01	5	?			*1105*
10568	ARCH	468		Wh	4344			TU	23-Aug-98	MR-L	544600	6971600	12731	538	TU	RL&L	22-Aug-99	2	MR-L	544600	6971600	*364*
10568	ARCH	468		Wh	4344			TU	23-Aug-98	MR-L	544600	6971600	9903		TR	John Towtoongie	22-Sep-99	5	MR-L	539900	6976300	*395*
10569	ARCH	556		Wh	4345			TU	23-Aug-98	MR-L	544600	6971600	20061		TR	Nancy Makpah	3-Aug-00	3	PB	548100	6964000	*711*
(b)	ARCH			Wh	4346			TU	25-Aug-97	MR-L	544600	6971600	10570	452	TU	RL&L	23-Aug-98	2.5	MR-L	544600	6971600	*363*
(b)	ARCH			Wh	4346			TU	25-Aug-97	MR-L	544600	6971600	12648	518	TU	RL&L	21-Aug-99	4.5	MR-L	544600	6971600	*726*
(b)	ARCH			Wh	4346			TU	25-Aug-97	MR-L	544600	6971600	9943		TR	John Towtoongie	26-Oct-99	7.5	LML	537000	6979000	*792*
10573	ARCH	493		Wh	4349			TU	23-Aug-98	MR-L	544600	6971600	12299	551	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*361*
10573	ARCH	493		Wh	4349			TU	23-Aug-98	MR-L	544600	6971600	20133		TR	Tommy Tudlik	26-Jul-00	3	PB	545300	6969600	*703*
10574	ARCH	495		Wh	4350			TU	23-Aug-98	MR-L	544600	6971600	12668	557	TU	RL&L	21-Aug-99	2	MR-L	544600	6971600	*363*
10574	ARCH	495		Wh	4350			TU	23-Aug-98	MR-L	544600	6971600	20092		TR	Paul Kaludjak	8-Aug-00	5	HB	610000	6980000	*716*
10575	ARCH	618		Wh	4351			TU	23-Aug-98	MR-L	544600	6971600	9521		TR	John Towtoongie	25-Aug-98	3	LML	537500	6977500	*2*
10577	ARCH	582		Wh	4353			TU	23-Aug-98	MR-L	544600	6971600	9529		TR	Dino Kadlak	4-Sep-98	3	HB	525000	6930000	*12*
10578	ARCH	597		Wh	4354			TU	23-Aug-98	MR-L	544600	6971600	9745		TR	John Towtoongie	7-May-99	3	LML	536400	6979500	*257*

Appendix F21. Floy tag recapture data for the Meliadine Study Area, 1997-2008

Fish Capture and Tag Application Data											Tag Recapture Data									
Sample No.	Species[a]	Fork Length (mm)	Weight (g)	Floy Tag Col.	Floy Tag No.	Radio Tag Ch. Code	Capture Method[b]	Date of Capture	Basin[c]	Release Location (UTM Zone 15V)	Sample No.	Fork Length (mm)	Capture Method[a]	Fisherman	Date of Recapture	Capt. Code[d]	Basin[c]	Recapture Location (UTM Zone 15V)		*Days at Large*
10579	ARCH	479		Wh	4355		TU	23-Aug-98	MR-L	544600 6971600	12296	546	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*361*
10579	ARCH	479		Wh	4355		TU	23-Aug-98	MR-L	544600 6971600	20013		TR	John Towtoongie	12-Apr-00	5	LML	538000	6978500	*598*
10580	ARCH	333		Wh	4356		TU	23-Aug-98	MR-L	544600 6971600	13063	420	TU	RL&L	26-Aug-99	2	MR-L	544600	6971600	*368*
10580	ARCH	333		Wh	4356		TU	23-Aug-98	MR-L	544600 6971600	20340		TR	Henry Kannak	21-Aug-01	5	MR-L	545850	6970400	*1094*
10581	ARCH	417		Wh	4357		TU	23-Aug-98	MR-L	544600 6971600	12203	491	TU	RL&L	16-Aug-99	2	MR-L	544600	6971600	*358*
10583	ARCH	537		Wh	4359		TU	23-Aug-98	MR-L	544600 6971600	9680		TR	John Towtoongie	8-Dec-98	3	LML	536400	6979500	*107*
10584	ARCH	538		Wh	4360		TU	23-Aug-98	MR-L	544600 6971600	9609		TR	Johnny Natar	15-Sep-98	3	LML	536030	6979160	*23*
10585	ARCH	539		Wh	4361		TU	23-Aug-98	MR-L	544600 6971600	20150		TR	Dorothy Sateana	12-Jul-00	3	PB	548550	6969200	*689*
10582	ARCH	394		Wh	4362		TU	23-Aug-98	MR-L	544600 6971600	12753	470	TU	RL&L	22-Aug-99	2	MR-L	544600	6971600	*364*
10582	ARCH	394		Wh	4362		TU	23-Aug-98	MR-L	544600 6971600	20119		TR	John Towtoongie	8-Aug-00	5	LML	539750	6976750	*716*
10587	ARCH	553		Wh	4363		TU	23-Aug-98	MR-L	544600 6971600	9811		TR	John Towtoongie	8-Apr-99	3	LML	536400	6979500	*228*
10605	ARCH	684		Wh	4372		TU	23-Aug-98	MR-L	544600 6971600	9522		TR	John Towtoongie	1-Sep-98	3	LML	537500	6977500	*9*
10607	ARCH	564		Wh	4374		TU	23-Aug-98	MR-L	544600 6971600	9746		TR	John Towtoongie	15-Apr-99	3	LML	536400	6979500	*235*
10608	ARCH	606		Wh	4376		TU	23-Aug-98	MR-L	544600 6971600	9523		TR	John Towtoongie	1-Sep-98	3	LML	537500	6977500	*9*
10609	ARCH	494		Wh	4377		TU	23-Aug-98	MR-L	544600 6971600	9667		TR	John Towtoongie	24-Nov-98	3	LML	536400	6979500	*93*
10611	ARCH	471		Wh	4379		TU	23-Aug-98	MR-L	544600 6971600	13122	536	TU	RL&L	27-Aug-99	2	MR-L	544600	6971600	*369*
10611	ARCH	471		Wh	4379		TU	23-Aug-98	MR-L	544600 6971600	20071		TR	Tommy Tudlik	16-Aug-00	5	PB	545300	6969450	*724*
10612	ARCH	473		Wh	4380		TU	23-Aug-98	MR-L	544600 6971600	9669		TR	John Towtoongie	24-Nov-98	3	LML	536400	6979500	*93*
10613	ARCH	395		Wh	4381		TU	23-Aug-98	MR-L	544600 6971600	12291	462	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*361*
10614	ARCH	477		Wh	4382		TU	23-Aug-98	MR-L	544600 6971600	12440	547	TU	RL&L	20-Aug-99	2	MR-L	544600	6971600	*362*
10617	ARCH	377		Wh	4385		TU	23-Aug-98	MR-L	544600 6971600	12843	443	TU	RL&L	23-Aug-99	2	MR-L	544600	6971600	*365*
10617	ARCH	377		Wh	4385		TU	23-Aug-98	MR-L	544600 6971600	20394		TR	Paul Sanertanut	11-Jul-01	5	PB	545250	6969350	*1053*
10636	ARCH	747		Wh	4387		TU	23-Aug-98	MR-L	544600 6971600	9822		TR	Simon Twyee	13-Aug-99	3	PB	546500	6968500	*355*
10637	ARCH	588		Wh	4388		TU	24-Aug-98	MR-L	544600 6971600	9524		TR	John Towtoongie	1-Sep-98	3	LML	537500	6977500	*8*
10638	ARCH	464		Wh	4389		TU	24-Aug-98	MR-L	544600 6971600	13059	548	TU	RL&L	26-Aug-99	2	MR-L	544600	6971600	*367*
10639	ARCH	590		Wh	4390		TU	24-Aug-98	MR-L	544600 6971600	9747		TR	John Towtoongie	22-Apr-99	3	LML	536400	6979500	*241*
10640	ARCH	468		Wh	4391		TU	24-Aug-98	MR-L	544600 6971600	12535	544	TU	RL&L	20-Aug-99	2	MR-L	544600	6971600	*361*
10640	ARCH	468		Wh	4391		TU	24-Aug-98	MR-L	544600 6971600	20104		TR	Johnny Natar	16-Aug-00	5	PB	544950	6968850	*723*
10643	ARCH	401		Wh	4394		TU	24-Aug-98	MR-L	544600 6971600	12309	469	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*360*
10643	ARCH	401		Wh	4394		TU	24-Aug-98	MR-L	544600 6971600	20457		TR	John Towtoongie	30-Oct-00	5	LML	537500	6977500	*798*
10644	ARCH	449		Wh	4395		TU	24-Aug-98	MR-L	544600 6971600	12123	514	TU	RL&L	13-Aug-99	2	MR-L	544600	6971600	*354*
10647	ARCH	368		Wh	4398		TU	24-Aug-98	MR-L	544600 6971600	12375	446	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*360*
10649	ARCH	545		Wh	4400		TU	24-Aug-98	MR-L	544600 6971600	9748		TR	John Towtoongie	1-Jun-99	3	LML	536400	6979500	*281*
10651	ARCH	440		Wh	4402		TU	24-Aug-98	MR-L	544600 6971600	12377	503	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*360*
10652	ARCH	438		Wh	4403		TU	24-Aug-98	MR-L	544600 6971600	9532		TR	Johnny Ittinuar	21-Sep-98	3	LML	539500	6977000	*28*
(b)	ARCH			Wh	4406		TU	25-Aug-97	MR-L	544600 6971600	10655	496	TU	RL&L	24-Aug-98	2.5	MR-L	544600	6971600	*364*
(b)	ARCH			Wh	4406		TU	25-Aug-97	MR-L	544600 6971600	9749		TR	John Towtoongie	22-Apr-99	5	LML	536400	6979500	*605*
10656	ARCH	411		Wh	4407		TU	24-Aug-98	MR-L	544600 6971600	9813		TR	Dorothy Sateana	15-Jun-99	3	MR-L	540800	6974800	*295*
10661	ARCH	321		Wh	4412		TU	24-Aug-98	MR-L	544600 6971600	13386	366	TU	RL&L	31-Aug-99	2	MR-L	544600	6971600	*372*
10661	ARCH	321		Wh	4412		TU	24-Aug-98	MR-L	544600 6971600	20328		TR	John Towtoongie	5-Oct-01	5	LML	537600	6977400	*1138*
10673	ARCH	408		Wh	4421		TU	24-Aug-98	MR-L	544600 6971600	12914	474	TU	RL&L	23-Aug-99	2	MR-L	544600	6971600	*364*
10673	ARCH	408		Wh	4421		TU	24-Aug-98	MR-L	544600 6971600	20014		TR	John Towtoongie	12-Apr-00	5	LML	538000	6978500	*597*
10676	ARCH	430		Wh	4424		TU	24-Aug-98	MR-L	544600 6971600	13100	496	TU	RL&L	26-Aug-99	2	MR-L	544600	6971600	*367*
10676	ARCH	430		Wh	4424		TU	24-Aug-98	MR-L	544600 6971600	9954		TR	John Towtoongie	10-Nov-99	5	LML	536500	6979200	*443*
10678	ARCH	545		Wh	4427		TU	24-Aug-98	MR-L	544600 6971600	9682		TR	John Towtoongie	8-Dec-98	3	LML	536400	6979500	*106*
10680	ARCH	496		Wh	4429		TU	24-Aug-98	MR-L	544600 6971600	9806		TR	John Towtoongie	25-Mar-99	3	LML	536600	6979200	*213*
10683	ARCH	468		Wh	4432		TU	24-Aug-98	MR-L	544600 6971600	12768	542	TU	RL&L	22-Aug-99	2	MR-L	544600	6971600	*363*
10683	ARCH	468		Wh	4432		TU	24-Aug-98	MR-L	544600 6971600	9931		TR	John Towtoongie	20-Nov-99	5	LML	537000	6979000	*453*
10684	ARCH	521		Wh	4433		TU	24-Aug-98	MR-L	544600 6971600	9834		TR	Camile Hamilton	22-Aug-99	3	PB	545000	6969600	*363*
10685	ARCH	340		Wh	4434		TU	24-Aug-98	MR-L	544600 6971600	13276	385	TU	RL&L	29-Aug-99	2	MR-L	544600	6971600	*370*
10701	ARCH	634		Wh	4446		TU	25-Aug-98	MR-L	544600 6971600	9544		TR	Glen Kadlak	12-Oct-98	3	LML	539500	6977000	*48*
10703	ARCH	419		Wh	4448		TU	25-Aug-98	MR-L	544600 6971600	12954	487	TU	RL&L	24-Aug-99	2	MR-L	544600	6971600	*364*

Appendix F21. Floy tag recapture data for the Meliadine Study Area, 1997-2008

Fish Capture and Tag Application Data											Tag Recapture Data									
Sample No.	Species[a]	Fork Length (mm)	Weight (g)	Floy Tag Col.	Floy Tag No.	Radio Tag Ch.	Radio Tag Code	Capture Method[b]	Date of Capture	Basin[c]	Release Location (UTM Zone 15V)		Sample No.	Fork Length (mm)	Capture Method[a]	Fisherman	Date of Recapture	Capt. Code[d]	Basin[c]	Recapture Location (UTM Zone 15V)		*Days at Large*
10705	ARCH	518		Wh	4450			TU	25-Aug-98	MR-L	544600	6971600	12663	555	TU	RL&L	21-Aug-99	2	MR-L	544600	6971600	*361*
10707	ARCH	417		Wh	4452			TU	25-Aug-98	MR-L	544600	6971600	12567	503	TU	RL&L	21-Aug-99	2	MR-L	544600	6971600	*361*
10708	ARCH	418		Wh	4453			TU	25-Aug-98	MR-L	544600	6971600	20488		TR	Patrick Karlik	30-Jun-06	3	PB	545250	6969350	*2866*
10711	ARCH	488		Wh	4456			TU	25-Aug-98	MR-L	544600	6971600	9582		TR	Johnny Ittinuar	15-Sep-98	3	LML	538150	6977870	*21*
10713	ARCH	588		Wh	4458			TU	25-Aug-98	MR-L	544600	6971600	9567		TR	Joe Natar	15-Sep-98	3	LML	537440	6977460	*21*
(b)	ARCH			Wh	4460			TU	25-Aug-97	MR-L	544600	6971600	10715	433	TU	RL&L	25-Aug-98	2.5	MR-L	544600	6971600	*365*
10716	ARCH	382		Wh	4461			TU	25-Aug-98	MR-L	544600	6971600	12575	448	TU	RL&L	21-Aug-99	2	MR-L	544600	6971600	*361*
10716	ARCH	382		Wh	4461			TU	25-Aug-98	MR-L	544600	6971600	20136		TR	Simon Twyee	6-Jul-00	5	PB	545450	6969450	*681*
10719	ARCH	528		Wh	4464			TU	25-Aug-98	MR-L	544600	6971600	9750		TR	John Towtoongie	7-May-99	3	LML	536400	6979500	*255*
10720	ARCH	478		Wh	4465			TU	25-Aug-98	MR-L	544600	6971600	12654	522	TU	RL&L	21-Aug-99	2	MR-L	544600	6971600	*361*
10720	ARCH	478		Wh	4465			TU	25-Aug-98	MR-L	544600	6971600	20443		TR	Ambrose Karlik	30-Jun-01	5	PB	545250	6969350	*1040*
10725	ARCH	643		Wh	4469			TU	25-Aug-98	MR-L	544600	6971600	9580		TR	Johnny Ittinuar	15-Sep-98	3	LML	538150	6977870	*21*
(b)	ARCH			Wh	4471			TU	25-Aug-97	MR-L	544600	6971600	10727	498	TU	RL&L	25-Aug-98	2.5	MR-L	544600	6971600	*365*
(b)	ARCH			Wh	4472			TU	25-Aug-97	MR-L	544600	6971600	10728	425	TU	RL&L	25-Aug-98	2.5	MR-L	544600	6971600	*365*
10731	ARCH	353		Wh	4475			TU	25-Aug-98	MR-L	544600	6971600	9923		TR	Diane Kriterdeule	22-Aug-99	3	HB	615000	7026000	*362*
10732	ARCH	446		Wh	4476			TU	25-Aug-98	MR-L	544600	6971600	13282	526	TU	RL&L	29-Aug-99	2	MR-L	544600	6971600	*369*
10732	ARCH	446		Wh	4476			TU	25-Aug-98	MR-L	544600	6971600	20032		TR	Samuel Amarook	24-Apr-00	5	MR-L	545000	6971000	*608*
10744	ARCH	672		Wh	4481			TU	26-Aug-98	MR-L	544600	6971600	9751		TR	John Towtoongie	7-May-99	3	LML	536400	6979500	*254*
10746	ARCH	357		Wh	4483			TU	26-Aug-98	MR-L	544600	6971600	13637	404	TU	RL&L	8-Sep-99	2	MR-L	544600	6971600	*378*
10747	ARCH	476		Wh	4484			TU	26-Aug-98	MR-L	544600	6971600	12657	557	TU	RL&L	21-Aug-99	2	MR-L	544600	6971600	*360*
10747	ARCH	476		Wh	4484			TU	26-Aug-98	MR-L	544600	6971600	20485		TR	Peter Ugjuk	18-Jun-01	5	LML	537500	6977500	*1027*
10748	ARCH	564		Wh	4485			TU	26-Aug-98	MR-L	544600	6971600	9786		TR	Henry Etegaitok	21-Jun-99	3	MR-L	544000	6971600	*299*
10751	ARCH	500		Wh	4488			TU	26-Aug-98	MR-L	544600	6971600	9787		TR	Violet Twyee	28-Jun-99	3	PB	545000	6968500	*306*
10753	ARCH	395		Wh	4490			TU	26-Aug-98	MR-L	544600	6971600	12919	461	TU	RL&L	23-Aug-99	2	MR-L	544600	6971600	*362*
10753	ARCH	395		Wh	4490			TU	26-Aug-98	MR-L	544600	6971600	20218		TR	Joachim Kavik	22-Sep-00	5	MR-U	534900	6980100	*758*
10754	ARCH	370		Wh	4491			TU	26-Aug-98	MR-L	544600	6971600	12307	425	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*358*
10755	ARCH	373		Wh	4492			TU	26-Aug-98	MR-L	544600	6971600	12840	445	TU	RL&L	23-Aug-99	2	MR-L	544600	6971600	*362*
10756	ARCH	668		Wh	4493			TU	26-Aug-98	MR-L	544600	6971600	9579		TR	Johnny Ittinuar	15-Sep-98	3	LML	538150	6977870	*20*
10758	ARCH	358		Wh	4495			TU	26-Aug-98	MR-L	544600	6971600	12583	423	TU	RL&L	21-Aug-99	2	MR-L	544600	6971600	*360*
10758	ARCH	358		Wh	4495			TU	26-Aug-98	MR-L	544600	6971600	20072		TR	Tommy Tudlik	16-Aug-00	5	PB	545300	6969450	*721*
10760	ARCH	318		Wh	4497			TU	26-Aug-98	MR-L	544600	6971600	12658	382	TU	RL&L	21-Aug-99	2	MR-L	544600	6971600	*360*
5977	ARCH	494	1375	Wh	4498	20	57	TU	30-Aug-97	MR-L	544600	6971600	10761	541	TU	RL&L	26-Aug-98	2.5	MR-L	544600	6971600	*361*
10762	ARCH	472		Wh	4499			TU	26-Aug-98	MR-L	544600	6971600	12833	550	TU	RL&L	23-Aug-99	2	MR-L	544600	6971600	*362*
10763	ARCH	368		Wh	4500			TU	26-Aug-98	MR-L	544600	6971600	12559	439	TU	RL&L	21-Aug-99	2	MR-L	544600	6971600	*360*
10763	ARCH	368		Wh	4500			TU	26-Aug-98	MR-L	544600	6971600	20219		TR	Joachim Kavik	22-Sep-00	5	MR-U	534900	6980100	*758*
10765	ARCH	384		Wh	4502			TU	26-Aug-98	MR-L	544600	6971600	13195	445	TU	RL&L	28-Aug-99	2	MR-L	544600	6971600	*367*
10766	ARCH	377		Wh	4503			TU	26-Aug-98	MR-L	544600	6971600	12934	613	TU	RL&L	23-Aug-99	2	MR-L	544600	6971600	*362*
10767	ARCH	475		Wh	4504			TU	26-Aug-98	MR-L	544600	6971600	13375	530	TU	RL&L	31-Aug-99	2	MR-L	544600	6971600	*370*
10767	ARCH	475		Wh	4504			TU	26-Aug-98	MR-L	544600	6971600	20296		TR	Johnny Ungalau	1-Nov-01	5	?			*1163*
10769	ARCH	380		Wh	4506			TU	26-Aug-98	MR-L	544600	6971600	12959	454	TU	RL&L	24-Aug-99	2	MR-L	544600	6971600	*363*
10770	ARCH	458		Wh	4507			TU	26-Aug-98	MR-L	544600	6971600	12841	525	TU	RL&L	23-Aug-99	2	MR-L	544600	6971600	*362*
10771	ARCH	355		Wh	4508			TU	26-Aug-98	MR-L	544600	6971600	13307	418	TU	RL&L	30-Aug-99	2	MR-L	544600	6971600	*369*
10775	ARCH	386		Wh	4512			TU	26-Aug-98	MR-L	544600	6971600	20454		TR	Roger Ittinuar	10-Sep-01	3	PB	545250	6969350	*1111*
10776	ARCH	445		Wh	4513			TU	26-Aug-98	MR-L	544600	6971600	9534		TR	Johnny Ittinuar	21-Sep-98	3	LML	539500	6977000	*26*
10778	ARCH	335		Wh	4515			TU	26-Aug-98	MR-L	544600	6971600	12288	400	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*358*
10778	ARCH	335		Wh	4515			TU	26-Aug-98	MR-L	544600	6971600	20348		TR	Tommy Tudlik	22-Aug-01	3	MR-L	545850	6970400	*1092*
10779	ARCH	406		Wh	4516			TU	26-Aug-98	MR-L	544600	6971600	12618	493	TU	RL&L	21-Aug-99	2	MR-L	544600	6971600	*360*
10782	ARCH	416		Wh	4518			TU	26-Aug-98	MR-L	544600	6971600	12301	474	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*358*
10783	ARCH	393		Wh	4519			TU	26-Aug-98	MR-L	544600	6971600	13056	462	TU	RL&L	26-Aug-99	2	MR-L	544600	6971600	*365*
10783	ARCH	393		Wh	4519			TU	26-Aug-98	MR-L	544600	6971600	20384		TR	Rose Ussak	19-Jun-01	5	MR-L	542400	6973550	*1028*
10798	ARCH	409		Wh	4525			TU	27-Aug-98	MR-L	544600	6971600	13174	483	TU	RL&L	28-Aug-99	2	MR-L	544600	6971600	*366*
10798	ARCH	409		Wh	4525			TU	27-Aug-98	MR-L	544600	6971600	9919		TR	John Towtoongie	4-Oct-99	5	LML	538300	6977600	*403*

Appendix F21. Floy tag recapture data for the Meliadine Study Area, 1997-2008

Fish Capture and Tag Application Data											Tag Recapture Data									
Sample No.	Species[a]	Fork Length (mm)	Weight (g)	Floy Tag Col.	Floy Tag No.	Radio Tag Ch.	Radio Tag Code	Capture Method[b]	Date of Capture	Basin[c]	Release Location (UTM Zone 15V)		Sample No.	Fork Length (mm)	Capture Method[a]	Fisherman	Date of Recapture	Capt. Code[d]	Basin[c]	Recapture Location (UTM Zone 15V)		*Days at Large*
10801	ARCH	559		Wh	4528			TU	27-Aug-98	MR-L	544600	6971600	9563		TR	John Towtoongie	16-Sep-98	3	LML	539500	6977000	*20*
10802	ARCH	455		Wh	4529			TU	27-Aug-98	MR-L	544600	6971600	9576		TR	Johnny Ittinuar	15-Sep-98	3	LML	538150	6977870	*19*
10803	ARCH	501		Wh	4530			TU	27-Aug-98	MR-L	544600	6971600	12604	555	TU	RL&L	21-Aug-99	2	MR-L	544600	6971600	*359*
10803	ARCH	501		Wh	4530			TU	27-Aug-98	MR-L	544600	6971600	20127		TR	Simon Twyee	27-Jul-00	5	PB	545650	6969650	*700*
10805	ARCH	396		Wh	4532			TU	27-Aug-98	MR-L	544600	6971600	20364		TR	?	11-Aug-01	3	HB	587000	6962000	*1080*
10807	ARCH	535		Wh	4533			TU	27-Aug-98	MR-L	544600	6971600	9835		TR	Camile Hamilton	22-Aug-99	3	PB	545000	6969600	*360*
10811	ARCH	450		Wh	4537			TU	27-Aug-98	MR-L	544600	6971600	13076	513	TU	RL&L	26-Aug-99	2	MR-L	544600	6971600	*364*
10818	ARCH	467		Wh	4544			TU	29-Aug-98	MR-L	544600	6971600	20214		TR	Peter Ugjuk	5-Sep-00	3	PB	546000	6968200	*738*
10819	ARCH	383		Wh	4545			TU	29-Aug-98	MR-L	544600	6971600	12501	437	TU	RL&L	20-Aug-99	2	MR-L	544600	6971600	*356*
10822	ARCH	415		Wh	4548			TU	29-Aug-98	MR-L	544600	6971600	9788		TR	Joe Makigak	3-Jul-99	3	PB	545500	6969100	*308*
10823	ARCH	443		Wh	4549			TU	29-Aug-98	MR-L	544600	6971600	20004		TR	William Pissuk	15-Aug-99	3	HB	610000	6980000	*351*
10827	ARCH	320		Wh	4553			TU	29-Aug-98	MR-L	544600	6971600	13062	372	TU	RL&L	26-Aug-99	2	MR-L	544600	6971600	*362*
10827	ARCH	320		Wh	4553			TU	29-Aug-98	MR-L	544600	6971600	20304		TR	Ollie Ittinuar	1-Sep-01	5	?			
10829	ARCH	320		Wh	4555			TU	29-Aug-98	MR-L	544600	6971600	13069	373	TU	RL&L	26-Aug-99	2	MR-L	544600	6971600	*362*
10830	ARCH	399		Wh	4556			TU	29-Aug-98	MR-L	544600	6971600	12795	465	TU	RL&L	22-Aug-99	2	MR-L	544600	6971600	*358*
10832	ARCH	377		Wh	4558			TU	29-Aug-98	MR-L	544600	6971600	9555		TR	John Towtoongie	16-Sep-98	3	LML	539500	6977000	*18*
10834	ARCH	287		Wh	4560			TU	29-Aug-98	MR-L	544600	6971600	12380	372	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*355*
10835	ARCH	456		Wh	4561			TU	29-Aug-98	MR-L	544600	6971600	9533		TR	Johnny Ittinuar	21-Sep-98	3	LML	539500	6977000	*23*
10836	ARCH	412		Wh	4562			TU	29-Aug-98	MR-L	544600	6971600	13288	473	TU	RL&L	30-Aug-99	2	MR-L	544600	6971600	*366*
10837	ARCH	356		Wh	4563			TU	29-Aug-98	MR-L	544600	6971600	13265	405	TU	RL&L	29-Aug-99	2	MR-L	544600	6971600	*365*
10839	ARCH	417		Wh	4565			TU	29-Aug-98	MR-L	544600	6971600	13019	492	TU	RL&L	25-Aug-99	2	MR-L	544600	6971600	*361*
10839	ARCH	417		Wh	4565			TU	29-Aug-98	MR-L	544600	6971600	20305		TR	Ollie Ittinuar	1-Sep-01	5	?			*1099*
10840	ARCH	380		Wh	4566			TU	29-Aug-98	MR-L	544600	6971600	12917	440	TU	RL&L	23-Aug-99	2	MR-L	544600	6971600	*359*
10843	ARCH	382		Wh	4569			TU	29-Aug-98	MR-L	544600	6971600	12956	437	TU	RL&L	24-Aug-99	2	MR-L	544600	6971600	*360*
10844	ARCH	409		Wh	4570			TU	29-Aug-98	MR-L	544600	6971600	12566	476	TU	RL&L	21-Aug-99	2	MR-L	544600	6971600	*357*
10847	ARCH	375		Wh	4573			TU	29-Aug-98	MR-L	544600	6971600	12640	444	TU	RL&L	21-Aug-99	2	MR-L	544600	6971600	*357*
10847	ARCH	375		Wh	4573			TU	29-Aug-98	MR-L	544600	6971600	20360		TR	Billy Twyee	14-Aug-01	5	PB	545250	6969350	*1081*
10849	ARCH	401		Wh	4575			TU	29-Aug-98	MR-L	544600	6971600	13213	453	TU	RL&L	28-Aug-99	2	MR-L	544600	6971600	*364*
10850	ARCH	362		Wh	4576			TU	29-Aug-98	MR-L	544600	6971600	13193	422	TU	RL&L	28-Aug-99	2	MR-L	544600	6971600	*364*
10851	ARCH	318		Wh	4577			TU	29-Aug-98	MR-L	544600	6971600	13449	378	TU	RL&L	2-Sep-99	2	MR-L	544600	6971600	*369*
10852	ARCH	431		Wh	4578			TU	29-Aug-98	MR-L	544600	6971600	20085		TR	John Amak	20-Aug-00	3	PB	545750	6969600	*722*
10853	ARCH	369		Wh	4579			TU	29-Aug-98	MR-L	544600	6971600	13211	375	TU	RL&L	28-Aug-99	2	MR-L	544600	6971600	*364*
10854	ARCH	360		Wh	4580			TU	29-Aug-98	MR-L	544600	6971600	12294	427	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*355*
10854	ARCH	360		Wh	4580			TU	29-Aug-98	MR-L	544600	6971600	20441		TR	Ambrose Karlik	30-Jun-01	5	PB	545250	6969350	*1036*
10855	ARCH	302		Wh	4581			TU	29-Aug-98	MR-L	544600	6971600	13452	345	TU	RL&L	2-Sep-99	2	MR-L	544600	6971600	*369*
10856	ARCH	343		Wh	4582			TU	29-Aug-98	MR-L	544600	6971600	12961	412	TU	RL&L	24-Aug-99	2	MR-L	544600	6971600	*360*
10857	ARCH	372		Wh	4583			TU	29-Aug-98	MR-L	544600	6971600	13188	426	TU	RL&L	28-Aug-99	2	MR-L	544600	6971600	*364*
10857	ARCH	372		Wh	4583			TU	29-Aug-98	MR-L	544600	6971600	20375		TR	John Towtoongie	25-Jun-01	5	LML	537500	6977500	*1031*
10858	ARCH	397		Wh	4584			TU	29-Aug-98	MR-L	544600	6971600	12565	473	TU	RL&L	21-Aug-99	2	MR-L	544600	6971600	*357*
10860	ARCH	403		Wh	4586			TU	29-Aug-98	MR-L	544600	6971600	9789		TR	Harry Ittinuak	4-Jul-99	3	HB	556000	6966000	*309*
10861	ARCH	411		Wh	4587			TU	29-Aug-98	MR-L	544600	6971600	13124	471	TU	RL&L	27-Aug-99	2	MR-L	544600	6971600	*363*
10862	ARCH	400		Wh	4588			TU	29-Aug-98	MR-L	544600	6971600	12437	478	TU	RL&L	20-Aug-99	2	MR-L	544600	6971600	*356*
10863	ARCH	442		Wh	4589			TU	29-Aug-98	MR-L	544600	6971600	12703	490	TU	RL&L	22-Aug-99	2	MR-L	544600	6971600	*358*
10864	ARCH	422		Wh	4590			TU	29-Aug-98	MR-L	544600	6971600	12305	486	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*355*
10867	ARCH	337		Wh	4593			TU	29-Aug-98	MR-L	544600	6971600	12874	402	TU	RL&L	23-Aug-99	2	MR-L	544600	6971600	*359*
10871	ARCH	302		Wh	4597			TU	29-Aug-98	MR-L	544600	6971600	9664		TR	Ciril Nanadut	24-Nov-98	3	LML	539500	6976600	*87*
10872	ARCH	393		Wh	4598			TU	29-Aug-98	MR-L	544600	6971600	13216	456	TU	RL&L	28-Aug-99	2	MR-L	544600	6971600	*364*
10874	ARCH	393		Wh	4600			TU	29-Aug-98	MR-L	544600	6971600	13125	434	TU	RL&L	27-Aug-99	2	MR-L	544600	6971600	*363*
10875	ARCH	455		Wh	4601			TU	29-Aug-98	MR-L	544600	6971600	9790		TR	Joe Makigak	3-Jul-99	3	PB	545500	6969100	*308*
10877	ARCH	406		Wh	4603			TU	29-Aug-98	MR-L	544600	6971600	20134		TR	Simon Twyee	6-Jul-00	3	PB	545450	6969450	*677*
5991	ARCH	497	1480	Wh	4605	20	60	TU	31-Aug-97	MR-L	544600	6971600	10879	531	TU	RL&L	29-Aug-98	2.5	MR-L	544600	6971600	*363*
10889	ARCH	626		Wh	4611			TU	30-Aug-98	MR-L	544600	6971600	9525		TR	John Towtoongie	1-Sep-98	3	LML	537500	6977500	*2*

Appendix F21. Floy tag recapture data for the Meliadine Study Area, 1997-2008

Fish Capture and Tag Application Data											Tag Recapture Data									
Sample No.	Species[a]	Fork Length (mm)	Weight (g)	Floy Tag Col.	Floy Tag No.	Radio Tag Ch. Code	Capture Method[b]	Date of Capture	Basin[c]	Release Location (UTM Zone 15V)	Sample No.	Fork Length (mm)	Capture Method[a]	Fisherman	Date of Recapture	Capt. Code[d]	Basin[c]	Recapture Location (UTM Zone 15V)		*Days at Large*
10890	ARCH	510		Wh	4612		TU	30-Aug-98	MR-L	544600 6971600	9583		TR	Johnny Ittinuar	15-Sep-98	3	LML	538150	6977870	*16*
10892	ARCH	432		Wh	4614		TU	30-Aug-98	MR-L	544600 6971600	13484	442	TU	RL&L	3-Sep-99	2	MR-L	544600	6971600	*369*
10893	ARCH	318		Wh	4616		TU	30-Aug-98	MR-L	544600 6971600	12775	483	TU	RL&L	22-Aug-99	2	MR-L	544600	6971600	*357*
10895	ARCH	524		Wh	4617		TU	30-Aug-98	MR-L	544600 6971600	9681		TR	John Towtoongie	8-Dec-98	3	LML	536400	6979500	*100*
10897	ARCH	454		Wh	4619		TU	30-Aug-98	MR-L	544600 6971600	9791		TR	Joe Makigak	3-Jul-99	3	PB	545500	6969100	*307*
10899	ARCH	385		Wh	4621		TU	30-Aug-98	MR-L	544600 6971600	12953	473	TU	RL&L	24-Aug-99	2	MR-L	544600	6971600	*359*
10899	ARCH	385		Wh	4621		TU	30-Aug-98	MR-L	544600 6971600	20201		TR	John Towtoongie	18-Sep-00	5	LML	539300	6977100	*750*
10901	ARCH	368		Wh	4623		TU	30-Aug-98	MR-L	544600 6971600	12626	445	TU	RL&L	21-Aug-99	2	MR-L	544600	6971600	*356*
10902	ARCH	331		Wh	4624		TU	30-Aug-98	MR-L	544600 6971600	13411	367	TU	RL&L	1-Sep-99	2	MR-L	544600	6971600	*367*
10903	ARCH	426		Wh	4625		TU	30-Aug-98	MR-L	544600 6971600	12842	485	TU	RL&L	23-Aug-99	2	MR-L	544600	6971600	*358*
10904	ARCH	398		Wh	4626		TU	30-Aug-98	MR-L	544600 6971600	12844	458	TU	RL&L	23-Aug-99	2	MR-L	544600	6971600	*358*
10905	ARCH	334		Wh	4627		TU	30-Aug-98	MR-L	544600 6971600	20449		TR	John Towtoongie	10-Sep-01	3	LML	537500	6977500	*1107*
10906	ARCH	357		Wh	4628		TU	30-Aug-98	MR-L	544600 6971600	12300	419	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*354*
10910	ARCH	378		Wh	4632		TU	30-Aug-98	MR-L	544600 6971600	13119	443	TU	RL&L	27-Aug-99	2	MR-L	544600	6971600	*362*
10913	ARCH	488		Wh	4633		TU	30-Aug-98	MR-L	544600 6971600	20205		TR	John Towtoongie	10-Sep-00	3	LML	539300	6977100	*742*
10914	ARCH	266		Wh	4634		TU	30-Aug-98	MR-L	544600 6971600	13623	326	TU	RL&L	7-Sep-99	2	MR-L	544600	6971600	*373*
10915	ARCH	407		Wh	4635		TU	30-Aug-98	MR-L	544600 6971600	13138	467	TU	RL&L	27-Aug-99	2	MR-L	544600	6971600	*362*
10915	ARCH	407		Wh	4635		TU	30-Aug-98	MR-L	544600 6971600	20220		TR	Joachim Kavik	22-Sep-00	5	MR-U	534900	6980100	*754*
10916	ARCH	451		Wh	4636		TU	30-Aug-98	MR-L	544600 6971600	13129	504	TU	RL&L	27-Aug-99	2	MR-L	544600	6971600	*362*
10917	ARCH	312		Wh	4637		TU	30-Aug-98	MR-L	544600 6971600	13293	380	TU	RL&L	30-Aug-99	2	MR-L	544600	6971600	*365*
10918	ARCH	302		Wh	4638		TU	30-Aug-98	MR-L	544600 6971600	12308	380	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*354*
10919	ARCH	420		Wh	4639		TU	30-Aug-98	MR-L	544600 6971600	13290	492	TU	RL&L	30-Aug-99	2	MR-L	544600	6971600	*365*
10920	ARCH	353		Wh	4640		TU	30-Aug-98	MR-L	544600 6971600	13070	415	TU	RL&L	26-Aug-99	2	MR-L	544600	6971600	*361*
10920	ARCH	353		Wh	4640		TU	30-Aug-98	MR-L	544600 6971600	9906		TR	Glen Kadlak	27-Sep-99	5	MR-L	541500	6974000	*393*
10921	ARCH	356		Wh	4641		TU	30-Aug-98	MR-L	544600 6971600	13260	415	TU	RL&L	29-Aug-99	2	MR-L	544600	6971600	*364*
10922	ARCH	448		Wh	4642		TU	30-Aug-98	MR-L	544600 6971600	13292	508	TU	RL&L	30-Aug-99	2	MR-L	544600	6971600	*365*
10925	ARCH	628		Wh	4645		TU	30-Aug-98	MR-L	544600 6971600	9569		TR	Joe Natar	15-Sep-98	3	LML	537440	6977460	*16*
10932	ARCH	328		Wh	4651		TU	31-Aug-98	MR-L	544600 6971600	13339	398	TU	RL&L	30-Aug-99	2	MR-L	544600	6971600	*364*
10932	ARCH	328		Wh	4651		TU	31-Aug-98	MR-L	544600 6971600	20455		TR	Roger Ittinuar	10-Sep-01	5	PB	545250	6969350	*1106*
10933	ARCH	419		Wh	4652		TU	31-Aug-98	MR-L	544600 6971600	12955	493	TU	RL&L	24-Aug-99	2	MR-L	544600	6971600	*358*
10933	ARCH	419		Wh	4652		TU	31-Aug-98	MR-L	544600 6971600	20105		TR	Johnny Natar	16-Aug-00	5	PB	544950	6968850	*716*
10934	ARCH	387		Wh	4653		TU	31-Aug-98	MR-L	544600 6971600	12304	450	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*353*
10934	ARCH	387		Wh	4653		TU	31-Aug-98	MR-L	544600 6971600	20403		TR	Peter Ugjuk	3-Jul-01	5	PB	545250	6969350	*1037*
10937	ARCH	390		Wh	4656		TU	31-Aug-98	MR-L	544600 6971600	13256	447	TU	RL&L	29-Aug-99	2	MR-L	544600	6971600	*363*
(b)	ARCH			Wh	4658		TU	25-Aug-97	MR-L	544600 6971600	10939	478	TU	RL&L	31-Aug-98	2.5	MR-L	544600	6971600	*371*
10940	ARCH	307		Wh	4659		TU	31-Aug-98	MR-L	544600 6971600	13455	381	TU	RL&L	2-Sep-99	2	MR-L	544600	6971600	*367*
10940	ARCH	307		Wh	4659		TU	31-Aug-98	MR-L	544600 6971600	20451		TR	John Towtoongie	10-Sep-01	5	LML	537500	6977500	*1106*
10941	ARCH	369		Wh	4660		TU	31-Aug-98	MR-L	544600 6971600	13139	434	TU	RL&L	27-Aug-99	2	MR-L	544600	6971600	*361*
10942	ARCH	394		Wh	4661		TU	31-Aug-98	MR-L	544600 6971600	13102	472	TU	RL&L	26-Aug-99	2	MR-L	544600	6971600	*360*
10946	ARCH	320		Wh	4665		TU	31-Aug-98	MR-L	544600 6971600	13380	395	TU	RL&L	31-Aug-99	2	MR-L	544600	6971600	*365*
10947	ARCH	397		Wh	4666		TU	31-Aug-98	MR-L	544600 6971600	13020	434	TU	RL&L	25-Aug-99	2	MR-L	544600	6971600	*359*
10949	ARCH	372		Wh	4668		TU	31-Aug-98	MR-L	544600 6971600	12957	442	TU	RL&L	24-Aug-99	2	MR-L	544600	6971600	*358*
10949	ARCH	372		Wh	4668		TU	31-Aug-98	MR-L	544600 6971600	20172		TR	Tracy Wallace	2-Jul-00	5	MR-L	540250	6975500	*671*
10951	ARCH	355		Wh	4670		TU	31-Aug-98	MR-L	544600 6971600	13291	397	TU	RL&L	30-Aug-99	2	MR-L	544600	6971600	*364*
10952	ARCH	311		Wh	4671		TU	31-Aug-98	MR-L	544600 6971600	12962	392	TU	RL&L	24-Aug-99	2	MR-L	544600	6971600	*358*
(b)	ARCH			Wh	4675		TU	25-Aug-97	MR-L	544600 6971600	10960	634	TU	RL&L	1-Sep-98	2.5	MR-L	544600	6971600	*372*
(b)	ARCH			Wh	4675		TU	25-Aug-97	MR-L	544600 6971600	9561		TR	John Towtoongie	16-Sep-98	5	LML	539500	6977000	*387*
10962	ARCH	517		Wh	4677		TU	1-Sep-98	MR-L	544600 6971600	9683		TR	John Towtoongie	8-Dec-98	3	LML	536400	6979500	*98*
(b)	ARCH			Wh	4678		TU	25-Aug-97	MR-L	544600 6971600	10963	541	TU	RL&L	1-Sep-98	2.5	MR-L	544600	6971600	*372*
(b)	ARCH			Wh	4678		TU	25-Aug-97	MR-L	544600 6971600	12514	597	TU	RL&L	20-Aug-99	4.5	MR-L	544600	6971600	*725*
10964	ARCH	497		Wh	4679		TU	1-Sep-98	MR-L	544600 6971600	20483		TR	Peter Ugjuk	18-Jun-01	3	LML	537500	6977500	*1021*
10965	ARCH	442		Wh	4680		TU	1-Sep-98	MR-L	544600 6971600	12571	509	TU	RL&L	21-Aug-99	2	MR-L	544600	6971600	*354*

Appendix F21. Floy tag recapture data for the Meliadine Study Area, 1997-2008

Fish Capture and Tag Application Data											Tag Recapture Data									
Sample No.	Species[a]	Fork Length (mm)	Weight (g)	Floy Tag Col.	Floy Tag No.	Radio Tag Ch. Code	Capture Method[b]	Date of Capture	Basin[c]	Release Location (UTM Zone 15V)	Sample No.	Fork Length (mm)	Capture Method[a]	Fisherman	Date of Recapture	Capt. Code[d]	Basin[c]	Recapture Location (UTM Zone 15V)		*Days at Large*
10966	ARCH	351		Wh	4681		TU	1-Sep-98	MR-L	544600 6971600	12373	418	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*352*
10967	ARCH	605		Wh	4682		TU	1-Sep-98	MR-L	544600 6971600	9562		TR	John Towtoongie	16-Sep-98	3	LML	539500	6977000	*15*
10968	ARCH	510		Wh	4683		TU	1-Sep-98	MR-L	544600 6971600	9526		TR	John Towtoongie	3-Sep-98	3	LML	537500	6977500	*2*
10970	ARCH	454		Wh	4685		TU	1-Sep-98	MR-L	544600 6971600	20416		TR	Larry White	25-Jun-01	3	DR	532350	6966250	*1028*
10971	ARCH	485		Wh	4686		TU	1-Sep-98	MR-L	544600 6971600	13287	564	TU	RL&L	30-Aug-99	2	MR-L	544600	6971600	*363*
10972	ARCH	491		Wh	4687		TU	1-Sep-98	MR-L	544600 6971600	9684		TR	John Towtoongie	12-Dec-98	3	LML	536400	6979500	*102*
10973	ARCH	448		Wh	4688		TU	1-Sep-98	MR-L	544600 6971600	12292	520	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*352*
10973	ARCH	448		Wh	4688		TU	1-Sep-98	MR-L	544600 6971600	9962		TR	John Towtoongie	7-Nov-99	5	LML	537000	6979000	*432*
10974	ARCH	479		Wh	4689		TU	1-Sep-98	MR-L	544600 6971600	9685		TR	John Towtoongie	12-Dec-98	3	LML	536400	6979500	*102*
10975	ARCH	505		Wh	4690		TU	1-Sep-98	MR-L	544600 6971600	9559		TR	John Towtoongie	16-Sep-98	3	LML	539500	6977000	*15*
10977	ARCH	395		Wh	4692		TU	1-Sep-98	MR-L	544600 6971600	13338	471	TU	RL&L	30-Aug-99	2	MR-L	544600	6971600	*363*
10978	ARCH	398		Wh	4693		TU	1-Sep-98	MR-L	544600 6971600	13289	452	TU	RL&L	30-Aug-99	2	MR-L	544600	6971600	*363*
10985	ARCH	400		Wh	4700		TU	1-Sep-98	MR-L	544600 6971600	12929	482	TU	RL&L	23-Aug-99	2	MR-L	544600	6971600	*356*
10998	ARCH	442		Wh	4709		TU	2-Sep-98	MR-L	544600 6971600	9792		TR	Joe Makigak	3-Jul-99	3	PB	545500	6969100	*304*
11000	ARCH	472		Wh	4711		TU	2-Sep-98	MR-L	544600 6971600	13346	530	TU	RL&L	31-Aug-99	2	MR-L	544600	6971600	*363*
11005	ARCH	297		Wh	4716		TU	2-Sep-98	MR-L	544600 6971600	12994	362	TU	RL&L	24-Aug-99	2	MR-L	544600	6971600	*356*
13568	ARCH	452		Wh	4803		TU	5-Sep-99	MR-L	544600 6971600	20412		TR	Martha Malliki	27-Jun-01	3	PB	545250	6969350	*661*
13569	ARCH	351		Wh	4804		TU	5-Sep-99	MR-L	544600 6971600	20489		TR	Patrick Karlik	30-Jun-06	3	PB	545250	6969350	*2490*
13572	ARCH	344		Wh	4807		TU	5-Sep-99	MR-L	544600 6971600	20425		TR	John Towtoongie	31-Aug-01	3	LML	537500	6977500	*726*
13581	ARCH	464		Wh	4817		TU	6-Sep-99	MR-L	544600 6971600	20297		TR	Johnny Ungalau	1-Nov-01	3	?			*787*
13586	ARCH	386		Wh	4822		TU	6-Sep-99	MR-L	544600 6971600	20156		TR	Francis Ayaruak	26-Jun-00	3	MR-U	533900	6980350	*294*
13591	ARCH	305		Wh	4827		TU	6-Sep-99	MR-L	544600 6971600	20329		TR	John Towtoongie	5-Oct-01	3	LML	537600	6977400	*760*
13593	ARCH	377		Wh	4829		TU	6-Sep-99	MR-L	544600 6971600	20307		TR	Ollie Ittinuar	1-Sep-01	3	?			*726*
13606	ARCH	753		Wh	4842		TU	6-Sep-99	MR-L	544600 6971600	9880		TR	Adel Aingilik	13-Sep-99	3	LML	537800	6977200	*7*
13608	ARCH	517		Wh	4843		TU	7-Sep-99	MR-L	544600 6971600	20033		TR	Samuel Amarook	24-Apr-00	3	MR-L	545000	6971000	*230*
13609	ARCH	660		Wh	4844		TU	7-Sep-99	MR-L	544600 6971600	9881		TR	Adel Aingilik	13-Sep-99	3	LML	537800	6977200	*6*
13610	ARCH	646		Wh	4845		TU	7-Sep-99	MR-L	544600 6971600	9882		TR	Adel Aingilik	13-Sep-99	3	LML	537800	6977200	*6*
13612	ARCH	647		Wh	4847		TU	7-Sep-99	MR-L	544600 6971600	20178		TR	Tommy Tudlik	25-Jun-00	3	PB	545250	6969350	*292*
13614	ARCH	465		Wh	4849		TU	7-Sep-99	MR-L	544600 6971600	20088		TR	Peter Ugjuk	17-Aug-00	3	PB	545550	6969550	*345*
13615	ARCH	368	550	Wh	4850		TU	7-Sep-99	MR-L	544600 6971600	20330		TR	John Towtoongie	5-Oct-01	3	LML	537600	6977400	*759*
13626	ARCH	312	360	Wh	4860		TU	7-Sep-99	MR-L	544600 6971600	20435		TR	John Towtoongie	31-Aug-01	3	LML	537500	6977500	*724*
13635	ARCH	364		Wh	4869		TU	8-Sep-99	MR-L	544600 6971600	20168		TR	Peter Ugjuk	8-Jul-00	3	PB	545500	6969500	*304*
13650	ARCH	313		Wh	4883		TU	9-Sep-99	MR-L	544600 6971600	20157		TR	Francis Ayaruak	26-Jun-00	3	MR-U	533900	6980350	*291*
13655	ARCH	430		Wh	4887		TU	10-Sep-99	MR-L	544600 6971600	20196		TR	John Towtoongie	18-Sep-00	3	LML	539300	6977100	*374*
13662	ARCH	348		Wh	4893		TU	10-Sep-99	MR-L	544600 6971600	20308		TR	Ollie Ittinuar	1-Sep-01	3	?			*722*
13674	ARCH	408		Wh	4902		TU	11-Sep-99	MR-L	544600 6971600	20179		TR	Tommy Tudlik	25-Jun-00	3	PB	545250	6969350	*288*
13681	ARCH	305		Wh	4909		TU	12-Sep-99	MR-L	544600 6971600	20427		TR	John Towtoongie	31-Aug-01	3	LML	537500	6977500	*719*
(c)	ARCH			Wh	5042		TU	Aug 97/98	MR-L	544600 6971600	12002	630	TU	RL&L	10-Aug-99	2.6	MR-L	544600	6971600	
(c)	ARCH			Wh	5042		TU	Aug 97/98	MR-L	544600 6971600	20034		TR	Samuel Amarook	24-Apr-00	5.6	MR-L	545000	6971000	
12004	ARCH	605	3015	Wh	5044		TU	10-Aug-99	MR-L	544600 6971600	20370		TR	Tommy Tudlik	17-Aug-01	3	PB	545250	6969350	*738*
12005	ARCH	676	4180	Wh	5045		TU	10-Aug-99	MR-L	544600 6971600	20135		TR	Simon Twyee	6-Jul-00	3	PB	545450	6969450	*331*
(c)	ARCH			Wh	5047		TU	Aug 97/98	MR-L	544600 6971600	12007	588	TU	RL&L	10-Aug-99	2.6	MR-L	544600	6971600	
(c)	ARCH			Wh	5047		TU	Aug 97/98	MR-L	544600 6971600	9929		TR	John Towtoongie	20-Nov-99	5.6	LML	537000	6979000	
12010	ARCH	636	2885	Wh	5049		TU	10-Aug-99	MR-L	544600 6971600	20188		TR	Ollie Ittinuar	3-Jul-00	3	PB	545250	6969350	*328*
12011	ARCH	692	3710	Wh	5050		TU	10-Aug-99	MR-L	544600 6971600	20444		TR	Billy Twyee	7-Sep-01	3	MR-L	543500	6972600	*759*
12014	ARCH	721	4700	Wh	5053		TU	10-Aug-99	MR-L	544600 6971600	20090		TR	Paul Kaludjak	8-Aug-00	3	HB	610000	6980000	*364*
12015	ARCH	666	3335	Wh	5054		TU	10-Aug-99	MR-L	544600 6971600	20206		TR	John Towtoongie	10-Sep-00	3	LML	539300	6977100	*397*
12016	ARCH	638	2920	Wh	5055		TU	10-Aug-99	MR-L	544600 6971600	20207		TR	John Towtoongie	10-Sep-00	3	LML	539300	6977100	*397*
12018	ARCH	606	2740	Wh	5056		TU	10-Aug-99	MR-L	544600 6971600	9844		TR	Adel Aingilik	28-Aug-99	3	LML	539000	6976900	*18*
12020	ARCH	680	3380	Wh	5058		TU	10-Aug-99	MR-L	544600 6971600	20377		TR	John Towtoongie	25-Jun-01	3	LML	537500	6977500	*685*
12022	ARCH	565	2020	Wh	5060		TU	10-Aug-99	MR-L	544600 6971600	20053		TR	John Towtoongie	1-Jun-00	3	LML	537500	6978700	*296*
12607	ARCH	511		Wh	5074		TU	21-Aug-99	MR-L	544600 6971600	9932		TR	John Towtoongie	20-Nov-99	3	LML	537000	6979000	*91*

Appendix F21. Floy tag recapture data for the Meliadine Study Area, 1997-2008

Fish Capture and Tag Application Data											Tag Recapture Data									
Sample No.	Species[a]	Fork Length (mm)	Weight (g)	Floy Tag Col.	Floy Tag No.	Radio Tag Ch. Code	Capture Method[b]	Date of Capture	Basin[c]	Release Location (UTM Zone 15V)	Sample No.	Fork Length (mm)	Capture Method[a]	Fisherman	Date of Recapture	Capt. Code[d]	Basin[c]	Recapture Location (UTM Zone 15V)		*Days at Large*
(c)	ARCH			Wh	5082		TU	Aug 97/98	MR-L	544600 6971600	12097	538	TU	RL&L	12-Aug-99	2.6	MR-L	544600	6971600	
12135	ARCH	561	1435	Wh	5089		TU	14-Aug-99	MR-L	544600 6971600	9899		TR	Glen Kadlak	20-Sep-99	3	MR-L	540400	6975250	*37*
12114	ARCH	650	3120	Wh	5095		TU	12-Aug-99	MR-L	544600 6971600	9845		TR	Adel Aingilik	28-Aug-99	3	LML	539000	6976900	*16*
12063	ARCH	622	2645	Wh	5096		TU	11-Aug-99	MR-L	544600 6971600	20129		TR	Tom Samok	1-Aug-00	3	PB	545300	6969450	*356*
12065	ARCH	634	3115	Wh	5098		TU	11-Aug-99	MR-L	544600 6971600	9846		TR	Adel Aingilik	28-Aug-99	3	LML	539000	6976900	*17*
12066	ARCH	659	3180	Wh	5099		TU	11-Aug-99	MR-L	544600 6971600	20371		TR	Tommy Tudlik	17-Aug-01	3	PB	545250	6969350	*737*
12071	ARCH	641	2705	Wh	5101		TU	11-Aug-99	MR-L	544600 6971600	20082		TR	Simon Twyee	21-Jul-00	3	PB	545650	6969500	*345*
12090	ARCH	763	5600	Wh	5120		TU	11-Aug-99	MR-L	544600 6971600	9883		TR	Adel Aingilik	13-Sep-99	3	LML	537800	6977200	*33*
12091	ARCH	589	2580	Wh	5121		TU	11-Aug-99	MR-L	544600 6971600	20180		TR	Tommy Tudlik	25-Jun-00	3	PB	545250	6969350	*319*
12092	ARCH	707	4135	Wh	5122		TU	11-Aug-99	MR-L	544600 6971600	20078		TR	Tommy Tudlik	8-Aug-00	3	PB	545400	6969850	*363*
12093	ARCH	643	3005	Wh	5123		TU	11-Aug-99	MR-L	544600 6971600	20414		TR	Martha Malliki	27-Jun-01	3	PB	545250	6969350	*686*
12094	ARCH	625	2715	Wh	5124		TU	11-Aug-99	MR-L	544600 6971600	20062		TR	Nancy Makpah	3-Aug-00	3	PB	546900	6965900	*358*
12105	ARCH	617	2545	Wh	5129		TU	12-Aug-99	MR-L	544600 6971600	20291		TR	John Towtoongie	15-Nov-01	3	LML	536600	6979100	*826*
12106	ARCH	748	5500	Wh	5130		TU	12-Aug-99	MR-L	544600 6971600	20111		TR	Eric Tatty	3-Aug-00	3	HB	550200	6966700	*357*
12107	ARCH	712	4700	Wh	5131		TU	12-Aug-99	MR-L	544600 6971600	9847		TR	Adel Aingilik	28-Aug-99	3	LML	539000	6976900	*16*
12108	ARCH	628	2975	Wh	5132		TU	12-Aug-99	MR-L	544600 6971600	20015		TR	John Towtoongie	12-Apr-00	3	LML	538000	6978500	*244*
(c)	ARCH			Wh	5134		TU	Aug 97/98	MR-L	544600 6971600	12110	655	TU	RL&L	12-Aug-99	2.6	MR-L	544600	6971600	
12115	ARCH	609	3015	Wh	5136		TU	12-Aug-99	MR-L	544600 6971600	20083		TR	Simon Twyee	21-Jul-00	3	PB	545650	6969500	*344*
12124	ARCH	609	2850	Wh	5144		TU	13-Aug-99	MR-L	544600 6971600	9848		TR	Adel Aingilik	28-Aug-99	3	LML	539000	6976900	*15*
(c)	ARCH			Wh	5145		TU	Aug 97/98	MR-L	544600 6971600	12125	522	TU	RL&L	13-Aug-99	2.6	MR-L	544600	6971600	
(c)	ARCH			Wh	5145		TU	Aug 97/98	MR-L	544600 6971600	20073		TR	Tommy Tudlik	16-Aug-00	5.6	PB	545300	6969450	
12126	ARCH	539	1900	Wh	5146		TU	13-Aug-99	MR-L	544600 6971600	20016		TR	John Towtoongie	12-Apr-00	3	LML	538000	6978500	*243*
12127	ARCH	618	2865	Wh	5147		TU	13-Aug-99	MR-L	544600 6971600	9849		TR	Adel Aingilik	28-Aug-99	3	LML	539000	6976900	*15*
12150	ARCH	591	2870	Wh	5158		TU	14-Aug-99	MR-L	544600 6971600	9850		TR	Adel Aingilik	28-Aug-99	3	LML	539000	6976900	*14*
12153	ARCH	566	2255	Wh	5161		TU	14-Aug-99	MR-L	544600 6971600	20100		TR	Johnny Natar	16-Aug-00	3	PB	544950	6968850	*368*
(c)	ARCH			Wh	5163		TU	Aug 97/98	MR-L	544600 6971600	12155	505	TU	RL&L	14-Aug-99	2.6	MR-L	544600	6971600	
(c)	ARCH			Wh	5163		TU	Aug 97/98	MR-L	544600 6971600	20081		TR	Tommy Tudlik	8-Aug-00	5.6	PB	545400	6969850	
(c)	ARCH			Wh	5164		TU	Aug 97/98	MR-L	544600 6971600	12156	540	TU	RL&L	14-Aug-99	2.6	MR-L	544600	6971600	
(c)	ARCH			Wh	5164		TU	Aug 97/98	MR-L	544600 6971600	20131		TR	Honie Ittigiatok	24-Jul-00	5.6	PB	547050	6965700	
12608	ARCH	612		Wh	5167		TU	21-Aug-99	MR-L	544600 6971600	9851		TR	Adel Aingilik	28-Aug-99	3	LML	539000	6976900	*7*
12168	ARCH	621	2915	Wh	5168		TU	15-Aug-99	MR-L	544600 6971600	9884		TR	Adel Aingilik	13-Sep-99	3	LML	537800	6977200	*29*
12170	ARCH	659	3620	Wh	5170		TU	21-Aug-99	MR-L	544600 6971600	9852		TR	Adel Aingilik	28-Aug-99	3	LML	539000	6976900	*7*
12171	ARCH	619	2885	Wh	5171		TU	15-Aug-99	MR-L	544600 6971600	20374		TR	John Towtoongie	25-Jun-01	3	LML	537500	6977500	*680*
(c)	ARCH			Wh	5172		TU	Aug 97/98	MR-L	544600 6971600	12172	548	TU	RL&L	15-Aug-99	2.6	MR-L	544600	6971600	
12173	ARCH	548	1840	Wh	5173		TU	15-Aug-99	MR-L	544600 6971600	20341		TR	Henry Kannak	21-Aug-01	3	MR-L	545850	6970400	*737*
12174	ARCH	494	1695	Wh	5174		TU	15-Aug-99	MR-L	544600 6971600	9936		TR	John Towtoongie	20-Nov-99	3	LML	537000	6979000	*97*
(c)	ARCH			Wh	5179		TU	Aug 97/98	MR-L	544600 6971600	12179	491	TU	RL&L	15-Aug-99	2.6	MR-L	544600	6971600	
12181	ARCH	553	2105	Wh	5181		TU	15-Aug-99	MR-L	544600 6971600	20017		TR	John Towtoongie	12-Apr-00	3	LML	538000	6978500	*241*
12197	ARCH	588	2445	Wh	5192		TU	16-Aug-99	MR-L	544600 6971600	20351		TR	John Towtoongie	20-Aug-01	3	LML	537500	6977500	*735*
12206	ARCH	368	510	Wh	5199		TU	17-Aug-99	MR-L	544600 6971600	20181		TR	Tommy Tudlik	25-Jun-00	3	PB	545250	6969350	*313*
12606	ARCH	615		Wh	5215		TU	21-Aug-99	MR-L	544600 6971600	20366		TR	Ollie Ittinuar	17-Aug-01	3	PB	545250	6969350	*727*
12317	ARCH	605		Wh	5248		TU	19-Aug-99	MR-L	544600 6971600	9853		TR	Adel Aingilik	28-Aug-99	3	LML	539000	6976900	*9*
12320	ARCH	590		Wh	5251		TU	19-Aug-99	MR-L	544600 6971600	20147		TR	Jonah Anawak	16-Jul-00	3	PB	547800	6964800	*332*
12322	ARCH	544		Wh	5253		TU	19-Aug-99	MR-L	544600 6971600	9877		TR	Glen Kadlak	12-Sep-99	3	LML	539500	6977000	*24*
12323	ARCH	716		Wh	5254		TU	19-Aug-99	MR-L	544600 6971600	20035		TR	Samuel Amarook	24-Apr-00	3	MR-L	545000	6971000	*249*
12326	ARCH	608		Wh	5257		TU	19-Aug-99	MR-L	544600 6971600	9854		TR	Adel Aingilik	28-Aug-99	3	LML	539000	6976900	*9*
12328	ARCH	608		Wh	5259		TU	19-Aug-99	MR-L	544600 6971600	20036		TR	Samuel Amarook	24-Apr-00	3	MR-L	545000	6971000	*249*
12330	ARCH	635		Wh	5261		TU	19-Aug-99	MR-L	544600 6971600	20160		TR	John Towtoongie	3-Jul-00	3	LML	539300	6977100	*319*
(c)	ARCH			Wh	5262		TU	Aug 97/98	MR-L	544600 6971600	12331	532	TU	RL&L	19-Aug-99	2.6	MR-L	544600	6971600	
12332	ARCH	691		Wh	5263		TU	19-Aug-99	MR-L	544600 6971600	9855		TR	Adel Aingilik	28-Aug-99	3	LML	539000	6976900	*9*
12336	ARCH	678		Wh	5267		TU	19-Aug-99	MR-L	544600 6971600	9896		TR	John Towtoongie	15-Sep-99	3	LML	538600	6977500	*27*
(c)	ARCH			Wh	5268		TU	Aug 97/98	MR-L	544600 6971600	12337	493	TU	RL&L	19-Aug-99	2.6	MR-L	544600	6971600	

Appendix F21. Floy tag recapture data for the Meliadine Study Area, 1997-2008

Fish Capture and Tag Application Data											Tag Recapture Data									
Sample No.	Species[a]	Fork Length (mm)	Weight (g)	Floy Tag Col.	Floy Tag No.	Radio Tag Ch.	Radio Tag Code	Capture Method[b]	Date of Capture	Basin[c]	Release Location (UTM Zone 15V)		Sample No.	Fork Length (mm)	Capture Method[a]	Fisherman	Date of Recapture	Capt. Code[d]	Basin[c]	Recapture Location (UTM Zone 15V)		*Days at Large*
(c)	ARCH			Wh	5268			TU	Aug 97/98	MR-L	544600	6971600	20018		TR	John Towtoongie	12-Apr-00	5.6	LML	538000	6978500	
12339	ARCH	637		Wh	5270			TU	19-Aug-99	MR-L	544600	6971600	9885		TR	Adel Aingilik	13-Sep-99	3	LML	537800	6977200	*25*
12341	ARCH	725		Wh	5272			TU	19-Aug-99	MR-L	544600	6971600	9897		TR	John Towtoongie	15-Sep-99	3	LML	538600	6977500	*27*
(c)	ARCH			Wh	5274			TU	Aug 97/98	MR-L	544600	6971600	12343	534	TU	RL&L	19-Aug-99	2.6	MR-L	544600	6971600	
(c)	ARCH			Wh	5276			TU	Aug 97/98	MR-L	544600	6971600	12345	562	TU	RL&L	19-Aug-99	2.6	MR-L	544600	6971600	
(c)	ARCH			Wh	5277			TU	Aug 97/98	MR-L	544600	6971600	12346	508	TU	RL&L	19-Aug-99	2.6	MR-L	544600	6971600	
(c)	ARCH			Wh	5281			TU	Aug 97/98	MR-L	544600	6971600	12350	539	TU	RL&L	19-Aug-99	2.6	MR-L	544600	6971600	
(c)	ARCH			Wh	5281			TU	Aug 97/98	MR-L	544600	6971600	20120		TR	John Towtoongie	8-Aug-00	5.6	LML	539750	6976750	
12351	ARCH	565		Wh	5282			TU	19-Aug-99	MR-L	544600	6971600	9856		TR	Adel Aingilik	28-Aug-99	3	LML	539000	6976900	*9*
12352	ARCH	655		Wh	5283			TU	19-Aug-99	MR-L	544600	6971600	20331		TR	John Towtoongie	5-Oct-01	3	LML	537600	6977400	*778*
(c)	ARCH			Wh	5284			TU	Aug 97/98	MR-L	544600	6971600	12353	556	TU	RL&L	19-Aug-99	2.6	MR-L	544600	6971600	
(c)	ARCH			Wh	5284			TU	Aug 97/98	MR-L	544600	6971600	20121		TR	John Towtoongie	8-Aug-00	5.6	LML	539750	6976750	
12356	ARCH	607		Wh	5287			TU	19-Aug-99	MR-L	544600	6971600	9857		TR	Adel Aingilik	28-Aug-99	3	LML	539000	6976900	*9*
12357	ARCH	546		Wh	5288			TU	19-Aug-99	MR-L	544600	6971600	20041		TR	John Towtoongie	1-May-00	3	LML	537500	6978700	*256*
12359	ARCH	573		Wh	5290			TU	19-Aug-99	MR-L	544600	6971600	20155		TR	Peter Ugjuk	18-Jul-00	3	PB	545150	6969700	*334*
12382	ARCH	585	2560	Wh	5300			TU	19-Aug-99	MR-L	544600	6971600	9886		TR	Adel Aingilik	13-Sep-99	3	LML	537800	6977200	*25*
(c)	ARCH			Wh	5302			TU	Aug 97/98	MR-L	544600	6971600	12384	601	TU	RL&L	19-Aug-99	2.6	MR-L	544600	6971600	
12385	ARCH	590	2370	Wh	5303			TU	19-Aug-99	MR-L	544600	6971600	20126		TR	Joe Strickland	26-Jul-00	3	HB	550200	6966700	*342*
(c)	ARCH			Wh	5304			TU	Aug 97/98	MR-L	544600	6971600	12386	575	TU	RL&L	19-Aug-99	2.6	MR-L	544600	6971600	
(c)	ARCH			Wh	5314			TU	Aug 97/98	MR-L	544600	6971600	12443	562	TU	RL&L	20-Aug-99	2.6	MR-L	544600	6971600	
12445	ARCH	606	2800	Wh	5316			TU	20-Aug-99	MR-L	544600	6971600	20410		TR	Martha Malliki	27-Jun-01	3	PB	545250	6969350	*677*
12447	ARCH	642	3420	Wh	5318			TU	20-Aug-99	MR-L	544600	6971600	20192		TR	Ollie Ittinuar	3-Jul-00	3	PB	545250	6969350	*318*
12450	ARCH	572	2480	Wh	5321			TU	20-Aug-99	MR-L	544600	6971600	9911		TR	John Towtoongie	27-Sep-99	3	LML	538500	6977400	*38*
12451	ARCH	615	2780	Wh	5322			TU	20-Aug-99	MR-L	544600	6971600	20182		TR	Tommy Tudlik	25-Jun-00	3	PB	545250	6969350	*310*
12452	ARCH	595	2625	Wh	5323			TU	20-Aug-99	MR-L	544600	6971600	9904		TR	John Towtoongie	22-Sep-99	3	MR-L	539900	6976300	*33*
(c)	ARCH			Wh	5325			TU	Aug 97/98	MR-L	544600	6971600	12454	386	TU	RL&L	20-Aug-99	2.6	MR-L	544600	6971600	
12475	ARCH	647		Wh	5329			TU	20-Aug-99	MR-L	544600	6971600	15836	668	GN	RL&L	19-Sep-00	3	ML-W	524700	7001150	*396*
12476	ARCH	647		Wh	5330			TU	20-Aug-99	MR-L	544600	6971600	20049		TR	John Towtoongie	25-May-00	3	LML	537500	6978700	*279*
12477	ARCH	620		Wh	5331			TU	20-Aug-99	MR-L	544600	6971600	20154		TR	Moses Irkootee	19-Jul-00	3	HB	545050	6963400	*334*
12478	ARCH	692		Wh	5332			TU	20-Aug-99	MR-L	544600	6971600	9887		TR	Adel Aingilik	13-Sep-99	3	LML	537800	6977200	*24*
12483	ARCH	533		Wh	5333			TU	20-Aug-99	MR-L	544600	6971600	20387		TR	Billy Twyee	19-Jul-01	3	MR-L	543500	6972600	*699*
12484	ARCH	590		Wh	5334			TU	20-Aug-99	MR-L	544600	6971600	9858		TR	Adel Aingilik	28-Aug-99	3	LML	539000	6976900	*8*
12488	ARCH	450		Wh	5336			TU	20-Aug-99	MR-L	544600	6971600	20171		TR	Tracy Wallace	2-Jul-00	3	MR-L	540250	6975500	*317*
12493	ARCH	760		Wh	5338			TU	20-Aug-99	MR-L	544600	6971600	15883	777	GN	RL&L	22-Sep-00	2	ML-W	523800	7000800	*399*
12493	ARCH	760		Wh	5338	24	17	TU	20-Aug-99	MR-L	544600	6971600	20484		TR	Peter Ugjuk	18-Jun-01	5	LML	537500	6977500	*668*
12495	ARCH	622		Wh	5339			TU	20-Aug-99	MR-L	544600	6971600	20397		TR	Peter Ugjuk	27-Jun-01	3	PB	545250	6969350	*677*
12497	ARCH	530		Wh	5341			TU	20-Aug-99	MR-L	544600	6971600	20060		TR	Steven Makpah	4-Aug-00	3	MR-L	540950	6974250	*350*
12498	ARCH	605		Wh	5342			TU	20-Aug-99	MR-L	544600	6971600	9950		TR	John Towtoongie	10-Nov-99	3	LML	536500	6979200	*82*
12499	ARCH	575		Wh	5343			TU	20-Aug-99	MR-L	544600	6971600	9859		TR	Adel Aingilik	28-Aug-99	3	LML	539000	6976900	*8*
12502	ARCH	578		Wh	5344			TU	20-Aug-99	MR-L	544600	6971600	20390		TR	Peter Kadlak	17-Jun-01	3	HB	610000	6980000	*667*
12505	ARCH	490		Wh	5347			TU	20-Aug-99	MR-L	544600	6971600	20487		TR	Bridget Netser	10-Jun-01	3	MR-L	543500	6972600	*660*
12506	ARCH	390		Wh	5348			TU	20-Aug-99	MR-L	544600	6971600	20418		TR	Peter Ugjuk	24-Jun-01	3	LML	537500	6977500	*674*
12511	ARCH	593		Wh	5350			TU	20-Aug-99	MR-L	544600	6971600	20359		TR	Billy Twyee	31-Aug-01	3	PB	545250	6969350	*742*
12515	ARCH	635		Wh	5351			TU	20-Aug-99	MR-L	544600	6971600	9860		TR	Adel Aingilik	28-Aug-99	3	LML	539000	6976900	*8*
12516	ARCH	670		Wh	5352			TU	20-Aug-99	MR-L	544600	6971600	20407		TR	John Towtoongie	4-Jul-01	3	LML	537500	6977500	*684*
12518	ARCH	520		Wh	5353			TU	20-Aug-99	MR-L	544600	6971600	20309		TR	Ollie Ittinuar	1-Sep-01	3	?			*743*
12524	ARCH	696		Wh	5359			TU	20-Aug-99	MR-L	544600	6971600	20400		TR	Honie Ittigiatok	29-Jun-01	3	PB	545250	6969350	*679*
12529	ARCH	560		Wh	5362			TU	20-Aug-99	MR-L	544600	6971600	20193		TR	Ollie Ittinuar	3-Jul-00	3	PB	545250	6969350	*318*
12532	ARCH	617		Wh	5364			TU	20-Aug-99	MR-L	544600	6971600	20401		TR	Honie Ittigiatok	29-Jun-01	3	PB	545250	6969350	*679*
12537	ARCH	628		Wh	5367			TU	20-Aug-99	MR-L	544600	6971600	9898		TR	John Towtoongie	15-Sep-99	3	LML	538600	6977500	*26*
12546	ARCH	592		Wh	5374			TU	20-Aug-99	MR-L	544600	6971600	9920		TR	John Towtoongie	4-Oct-99	3	LML	538300	6977600	*45*
12548	ARCH	495		Wh	5375			TU	20-Aug-99	MR-L	544600	6971600	20391		TR	Steven Makayak	30-Jun-01	3	DR	532350	6966250	*680*

Appendix F21. Floy tag recapture data for the Meliadine Study Area, 1997-2008

Fish Capture and Tag Application Data											Tag Recapture Data								
Sample No.	Species[a]	Fork Length (mm)	Weight (g)	Floy Tag Col.	Floy Tag No.	Radio Tag Ch. Code	Capture Method[b]	Date of Capture	Basin[c]	Release Location (UTM Zone 15V)	Sample No.	Fork Length (mm)	Capture Method[a]	Fisherman	Date of Recapture	Capt. Code[d]	Basin[c]	Recapture Location (UTM Zone 15V)	*Days at Large*
12550	ARCH	612		Wh	5376		TU	20-Aug-99	MR-L	544600 6971600	9861		TR	Adel Aingilik	28-Aug-99	3	LML	539000 6976900	*8*
12554	ARCH	640		Wh	5378		TU	20-Aug-99	MR-L	544600 6971600	20419		TR	Minnie Tatty	25-Jun-01	3	DR	532350 6966250	*675*
12568	ARCH	635		Wh	5379		TU	21-Aug-99	MR-L	544600 6971600	9888		TR	Adel Aingilik	13-Sep-99	3	LML	537800 6977200	*23*
12569	ARCH	583		Wh	5380		TU	21-Aug-99	MR-L	544600 6971600	20161		TR	John Towtoongie	3-Jul-00	3	LML	539300 6977100	*317*
12580	ARCH	600		Wh	5386		TU	21-Aug-99	MR-L	544600 6971600	9872		TR	John Towtoongie	10-Sep-99	3	LML	536400 6979500	*20*
12581	ARCH	540		Wh	5387		TU	21-Aug-99	MR-L	544600 6971600	20352		TR	John Towtoongie	20-Aug-01	3	LML	537500 6977500	*730*
12588	ARCH	525		Wh	5389		TU	21-Aug-99	MR-L	544600 6971600	20169		TR	Peter Ugjuk	8-Jul-00	3	PB	545500 6969500	*322*
12590	ARCH	613		Wh	5391		TU	21-Aug-99	MR-L	544600 6971600	20398		TR	Peter Ugjuk	27-Jun-01	3	PB	545250 6969350	*676*
12597	ARCH	650		Wh	5396		TU	21-Aug-99	MR-L	544600 6971600	9862		TR	Adel Aingilik	28-Aug-99	3	LML	539000 6976900	*7*
12602	ARCH	640		Wh	5398		TU	21-Aug-99	MR-L	544600 6971600	9873		TR	John Towtoongie	10-Sep-99	3	LML	536400 6979500	*20*
12603	ARCH	644		Wh	5399		TU	21-Aug-99	MR-L	544600 6971600	20162		TR	John Towtoongie	3-Jul-00	3	LML	539300 6977100	*317*
12605	ARCH	537		Wh	5400		TU	21-Aug-99	MR-L	544600 6971600	9965		TR	Adel Aingilik	17-Oct-99	3	LML	538200 6977000	*57*
12609	ARCH	567		Wh	5401		TU	21-Aug-99	MR-L	544600 6971600	9863		TR	Adel Aingilik	28-Aug-99	3	LML	539000 6976900	*7*
12610	ARCH	620		Wh	5402		TU	21-Aug-99	MR-L	544600 6971600	9889		TR	Adel Aingilik	13-Sep-99	3	LML	537800 6977200	*23*
12611	ARCH	614		Wh	5403		TU	21-Aug-99	MR-L	544600 6971600	20123		TR	Moses Aliyak	17-Aug-00	3	HB	545100 6961400	*362*
12615	ARCH	595		Wh	5407		TU	21-Aug-99	MR-L	544600 6971600	9959		TR	John Towtoongie	7-Nov-99	3	LML	537000 6979000	*78*
12621	ARCH	545		Wh	5411		TU	21-Aug-99	MR-L	544600 6971600	20067		TR	Tommy Tudlik	16-Aug-00	3	PB	545300 6969450	*361*
12623	ARCH	596		Wh	5413		TU	21-Aug-99	MR-L	544600 6971600	20183		TR	Tommy Tudlik	25-Jun-00	3	PB	545250 6969350	*309*
12624	ARCH	555		Wh	5414		TU	21-Aug-99	MR-L	544600 6971600	9952		TR	John Towtoongie	10-Nov-99	3	LML	536500 6979200	*81*
12625	ARCH	535		Wh	5415		TU	21-Aug-99	MR-L	544600 6971600	20475		TR	Johnny Tulugak	8-Jun-01	3	LML	537500 6977500	*657*
12627	ARCH	590		Wh	5416		TU	21-Aug-99	MR-L	544600 6971600	9963		TR	John Towtoongie	7-Nov-99	3	LML	537000 6979000	*78*
12634	ARCH	487		Wh	5422		TU	21-Aug-99	MR-L	544600 6971600	20019		TR	John Towtoongie	12-Apr-00	3	LML	538000 6978500	*235*
12638	ARCH	632		Wh	5424		TU	21-Aug-99	MR-L	544600 6971600	9912		TR	John Towtoongie	27-Sep-99	3	LML	538500 6977400	*37*
12639	ARCH	590		Wh	5425		TU	21-Aug-99	MR-L	544600 6971600	9921		TR	John Towtoongie	4-Oct-99	3	LML	538300 6977600	*44*
12652	ARCH	627		Wh	5427		TU	21-Aug-99	MR-L	544600 6971600	9907		TR	Glen Kadlak	27-Sep-99	3	MR-L	541500 6974000	*37*
12653	ARCH	546		Wh	5428		TU	21-Aug-99	MR-L	544600 6971600	20020		TR	John Towtoongie	12-Apr-00	3	LML	538000 6978500	*235*
12665	ARCH	593		Wh	5432		TU	21-Aug-99	MR-L	544600 6971600	9864		TR	Adel Aingilik	28-Aug-99	3	LML	539000 6976900	*7*
12667	ARCH	635		Wh	5433		TU	21-Aug-99	MR-L	544600 6971600	20079		TR	Tommy Tudlik	8-Aug-00	3	PB	545400 6969850	*353*
12669	ARCH	582		Wh	5434		TU	21-Aug-99	MR-L	544600 6971600	20063		TR	Nancy Makpah	3-Aug-00	3	PB	546900 6965900	*348*
(c)	ARCH			Wh	5435		TU	Aug 97/98	MR-L	544600 6971600	12670	564	TU	RL&L	21-Aug-99	2.6	MR-L	544600 6971600	
12672	ARCH	537		Wh	5436		TU	21-Aug-99	MR-L	544600 6971600	9874		TR	John Towtoongie	10-Sep-99	3	LML	536400 6979500	*20*
12673	ARCH	628		Wh	5437		TU	21-Aug-99	MR-L	544600 6971600	20158		TR	Elena Amarook	12-Jul-00	3	MR-L	542400 6973550	*326*
12674	ARCH	570		Wh	5438		TU	21-Aug-99	MR-L	544600 6971600	9945		TR	John Towtoongie	26-Oct-99	3	LML	537000 6979000	*66*
12675	ARCH	644		Wh	5439		TU	21-Aug-99	MR-L	544600 6971600	9890		TR	Adel Aingilik	13-Sep-99	3	LML	537800 6977200	*23*
(c)	ARCH			Wh	5440		TU	Aug 97/98	MR-L	544600 6971600	12676	498	TU	RL&L	21-Aug-99	2.6	MR-L	544600 6971600	
12678	ARCH	560		Wh	5442		TU	21-Aug-99	MR-L	544600 6971600	9933		TR	John Towtoongie	20-Nov-99	3	LML	537000 6979000	*91*
12702	ARCH	629		Wh	5449		TU	22-Aug-99	MR-L	544600 6971600	20080		TR	Tommy Tudlik	8-Aug-00	3	PB	545400 6969850	*352*
12710	ARCH	490		Wh	5452		TU	22-Aug-99	MR-L	544600 6971600	9953		TR	John Towtoongie	10-Nov-99	3	LML	536500 6979200	*80*
12711	ARCH	500		Wh	5453		TU	22-Aug-99	MR-L	544600 6971600	20064		TR	Nancy Makpah	3-Aug-00	3	PB	546900 6965900	*347*
12714	ARCH	640		Wh	5456		TU	22-Aug-99	MR-L	544600 6971600	9913		TR	John Towtoongie	27-Sep-99	3	LML	538500 6977400	*36*
12718	ARCH	586		Wh	5459		TU	22-Aug-99	MR-L	544600 6971600	20356		TR	Billy Twyee	31-Aug-01	3	PB	545250 6969350	*740*
12719	ARCH	503		Wh	5460		TU	22-Aug-99	MR-L	544600 6971600	20138		TR	John Towtoongie	21-Nov-99	3	LML	537050 6979000	*91*
12720	ARCH	625		Wh	5461		TU	22-Aug-99	MR-L	544600 6971600	20045		TR	John Towtoongie	15-May-00	3	LML	537500 6978700	*267*
12721	ARCH	540		Wh	5462		TU	22-Aug-99	MR-L	544600 6971600	20159		TR	Moses Irkootee	10-Jul-00	3	PB	544500 6969000	*323*
12724	ARCH	586		Wh	5465		TU	22-Aug-99	MR-L	544600 6971600	20405		TR	John Towtoongie	4-Jul-01	3	LML	537500 6977500	*682*
12727	ARCH	523		Wh	5467		TU	22-Aug-99	MR-L	544600 6971600	20367		TR	Ollie Ittinuar	17-Aug-01	3	PB	545250 6969350	*726*
12732	ARCH	525		Wh	5470		TU	22-Aug-99	MR-L	544600 6971600	9865		TR	Adel Aingilik	28-Aug-99	3	LML	539000 6976900	*6*
12737	ARCH	607		Wh	5474		TU	22-Aug-99	MR-L	544600 6971600	9878		TR	Glen Kadlak	12-Sep-99	3	LML	539500 6977000	*21*
12765	ARCH	705		Wh	5483		TU	22-Aug-99	MR-L	544600 6971600	20163		TR	John Towtoongie	3-Jul-00	3	LML	539300 6977100	*316*
12771	ARCH	528	1820	Wh	5486		TU	22-Aug-99	MR-L	544600 6971600	20108		TR	Steven Siksik	17-Aug-00	3	ML-E	544600 6986000	*361*
12772	ARCH	577	2465	Wh	5487		TU	22-Aug-99	MR-L	544600 6971600	9900		TR	Glen Kadlak	20-Sep-99	3	MR-L	540400 6975250	*29*
12774	ARCH	630	3225	Wh	5488		TU	22-Aug-99	MR-L	544600 6971600	20101		TR	Johnny Natar	16-Aug-00	3	PB	544950 6968850	*360*

Appendix F21. Floy tag recapture data for the Meliadine Study Area, 1997-2008

Fish Capture and Tag Application Data											Tag Recapture Data									
Sample No.	Species[a]	Fork Length (mm)	Weight (g)	Floy Tag Col.	Floy Tag No.	Radio Tag Ch. Code	Capture Method[b]	Date of Capture	Basin[c]	Release Location (UTM Zone 15V)	Sample No.	Fork Length (mm)	Capture Method[a]	Fisherman	Date of Recapture	Capt. Code[d]	Basin[c]	Recapture Location (UTM Zone 15V)		*Days at Large*
12776	ARCH	564	2270	Wh	5489		TU	22-Aug-99	MR-L	544600 6971600	20109		TR	Steven Siksik	17-Aug-00	3	ML-E	544600	6986000	*361*
12780	ARCH	540		Wh	5492		TU	22-Aug-99	MR-L	544600 6971600	20046		TR	John Towtoongie	15-May-00	3	LML	537500	6978700	*267*
12781	ARCH	504	1645	Wh	5493		TU	22-Aug-99	MR-L	544600 6971600	20476		TR	Johnny Tulugak	8-Jun-01	3	LML	537500	6977500	*656*
12786	ARCH	507		Wh	5496		TU	22-Aug-99	MR-L	544600 6971600	20021		TR	John Towtoongie	12-Apr-00	3	LML	538000	6978500	*234*
12788	ARCH	585		Wh	5498		TU	22-Aug-99	MR-L	544600 6971600	9942		TR	John Towtoongie	26-Oct-99	3	LML	537000	6979000	*65*
12794	ARCH	506		Wh	5503		TU	22-Aug-99	MR-L	544600 6971600	20139		TR	John Towtoongie	21-Nov-99	3	LML	537050	6979000	*91*
12797	ARCH	568		Wh	5505		TU	22-Aug-99	MR-L	544600 6971600	9914		TR	John Towtoongie	27-Sep-99	3	LML	538500	6977400	*36*
12830	ARCH	487		Wh	5510		TU	22-Aug-99	MR-L	544600 6971600	20458		TR	John Towtoongie	30-Oct-00	3	LML	537500	6977500	*435*
12845	ARCH	695		Wh	5511		TU	23-Aug-99	MR-L	544600 6971600	20393		TR	Pauline Simik	14-Jul-01	3	PB	545250	6969350	*691*
12848	ARCH	615		Wh	5514		TU	23-Aug-99	MR-L	544600 6971600	9915		TR	John Towtoongie	27-Sep-99	3	LML	538500	6977400	*35*
12849	ARCH	643		Wh	5515		TU	23-Aug-99	MR-L	544600 6971600	20140		TR	John Towtoongie	21-Nov-99	3	LML	537050	6979000	*90*
12850	ARCH	655		Wh	5516		TU	23-Aug-99	MR-L	544600 6971600	20164		TR	John Towtoongie	3-Jul-00	3	LML	539300	6977100	*315*
12852	ARCH	627		Wh	5518		TU	23-Aug-99	MR-L	544600 6971600	20434		TR	John Towtoongie	31-Aug-01	3	LML	537500	6977500	*739*
12853	ARCH	678		Wh	5519		TU	23-Aug-99	MR-L	544600 6971600	9866		TR	Adel Aingilik	28-Aug-99	3	LML	539000	6976900	*5*
12854	ARCH	622		Wh	5520		TU	23-Aug-99	MR-L	544600 6971600	20114		TR	John Towtoongie	8-Aug-00	3	LML	539750	6976750	*351*
12855	ARCH	593		Wh	5521		TU	23-Aug-99	MR-L	544600 6971600	20115		TR	John Towtoongie	8-Aug-00	3	LML	539750	6976750	*351*
12856	ARCH	527		Wh	5522		TU	23-Aug-99	MR-L	544600 6971600	20050		TR	John Towtoongie	25-May-00	3	LML	537500	6978700	*276*
12859	ARCH	465		Wh	5525		TU	23-Aug-99	MR-L	544600 6971600	20022		TR	John Towtoongie	12-Apr-00	3	LML	538000	6978500	*233*
12862	ARCH	457		Wh	5528		TU	23-Aug-99	MR-L	544600 6971600	9960		TR	John Towtoongie	7-Nov-99	3	LML	537000	6979000	*76*
12864	ARCH	402		Wh	5530		TU	23-Aug-99	MR-L	544600 6971600	20396		TR	Sally Curley	8-Jul-01	3	DR	532350	6966250	*685*
12867	ARCH	370		Wh	5533		TU	23-Aug-99	MR-L	544600 6971600	20354		TR	John Towtoongie	20-Aug-01	3	LML	537500	6977500	*728*
12876	ARCH	458		Wh	5541		TU	23-Aug-99	MR-L	544600 6971600	20490		TR	?	3-Aug-06	3	HB	513600	6926500	*2537*
12920	ARCH	540		Wh	5547		TU	23-Aug-99	MR-L	544600 6971600	20415		TR	Martha Malliki	27-Jun-01	3	PB	545250	6969350	*674*
12923	ARCH	501		Wh	5549		TU	23-Aug-99	MR-L	544600 6971600	20388		TR	Billy Twyee	19-Jul-01	3	MR-L	543500	6972600	*696*
12924	ARCH	398		Wh	5550		TU	23-Aug-99	MR-L	544600 6971600	20453		TR	Roger Ittinuar	10-Sep-01	3	PB	545250	6969350	*749*
12926	ARCH	509		Wh	5552		TU	23-Aug-99	MR-L	544600 6971600	20095		TR	Peter Ugjuk	21-Aug-00	3	PB	545500	6967400	*364*
12927	ARCH	427		Wh	5553		TU	23-Aug-99	MR-L	544600 6971600	20102		TR	Johnny Natar	16-Aug-00	3	PB	544950	6968850	*359*
12930	ARCH	519		Wh	5555		TU	23-Aug-99	MR-L	544600 6971600	9944		TR	John Towtoongie	26-Oct-99	3	LML	537000	6979000	*64*
12932	ARCH	518		Wh	5557		TU	23-Aug-99	MR-L	544600 6971600	9875		TR	John Towtoongie	10-Sep-99	3	LML	536400	6979500	*18*
12935	ARCH	460		Wh	5559		TU	23-Aug-99	MR-L	544600 6971600	20420		TR	Patrick Karlik	6-Jul-01	3	MR-L	543500	6972600	*683*
12936	ARCH	463		Wh	5560		TU	23-Aug-99	MR-L	544600 6971600	20477		TR	Johnny Tulugak	8-Jun-01	3	LML	537500	6977500	*655*
13004	ARCH	492		Wh	5564		TU	24-Aug-99	MR-L	544600 6971600	20462		TR	John Towtoongie	30-Oct-00	3	LML	537500	6977500	*433*
12963	ARCH	536		Wh	5565		TU	24-Aug-99	MR-L	544600 6971600	20054		TR	Silu Oolooyuk	7-Jun-00	3	LML	539500	6976800	*288*
12967	ARCH	534		Wh	5569		TU	24-Aug-99	MR-L	544600 6971600	9891		TR	Adel Aingilik	13-Sep-99	3	LML	537800	6977200	*20*
12968	ARCH	573		Wh	5570		TU	24-Aug-99	MR-L	544600 6971600	20342		TR	Henry Kannak	21-Aug-01	3	MR-L	545850	6970400	*728*
12969	ARCH	687		Wh	5571		TU	24-Aug-99	MR-L	544600 6971600	9867		TR	Adel Aingilik	28-Aug-99	3	LML	539000	6976900	*4*
12970	ARCH	605		Wh	5572		TU	24-Aug-99	MR-L	544600 6971600	20116		TR	John Towtoongie	8-Aug-00	3	LML	539750	6976750	*350*
12972	ARCH	582		Wh	5574		TU	24-Aug-99	MR-L	544600 6971600	20378		TR	John Towtoongie	25-Jun-01		LML	537500	6977500	*671*
12973	ARCH	360		Wh	5575		TU	24-Aug-99	MR-L	544600 6971600	20491	756	TR	Remi Nokkitok	25-Jun-08	3	DR	532350	6966250	*3228*
12975	ARCH	643		Wh	5577		TU	24-Aug-99	MR-L	544600 6971600	20141		TR	John Towtoongie	21-Nov-99	3	LML	537050	6979000	*89*
12977	ARCH	618		Wh	5579		TU	24-Aug-99	MR-L	544600 6971600	20056		TR	John Towtoongie	25-Jun-00	3	LML	539500	6976800	*306*
12980	ARCH	459		Wh	5582		TU	24-Aug-99	MR-L	544600 6971600	20311		TR	Ollie Ittinuar	1-Sep-01	3	?			*739*
12983	ARCH	662		Wh	5585		TU	24-Aug-99	MR-L	544600 6971600	20392		TR	Gabriel Tiktaq	14-Jul-01	3	PB	545250	6969350	*690*
12985	ARCH	443		Wh	5587		TU	24-Aug-99	MR-L	544600 6971600	20292		TR	John Towtoongie	15-Nov-01	3	LML	536600	6979100	*814*
12986	ARCH	420		Wh	5588		TU	24-Aug-99	MR-L	544600 6971600	20439		TR	Ambrose Karlik	30-Jun-01	3	PB	545250	6969350	*676*
12996	ARCH	648		Wh	5593		TU	24-Aug-99	MR-L	544600 6971600	9868		TR	Adel Aingilik	28-Aug-99	3	LML	539000	6976900	*4*
12997	ARCH	641		Wh	5594		TU	24-Aug-99	MR-L	544600 6971600	20478		TR	Johnny Tulugak	8-Jun-01	3	LML	537500	6977500	*654*
12998	ARCH	485		Wh	5595		TU	24-Aug-99	MR-L	544600 6971600	20479		TR	Johnny Tulugak	8-Jun-01	3	LML	537500	6977500	*654*
13001	ARCH	380		Wh	5599		TU	24-Aug-99	MR-L	544600 6971600	20332		TR	John Towtoongie	5-Oct-01	3	LML	537600	6977400	*773*
13006	ARCH	330		Wh	5602		TU	24-Aug-99	MR-L	544600 6971600	20333		TR	John Towtoongie	5-Oct-01	3	LML	537600	6977400	*773*
13023	ARCH	487		Wh	5609		TU	25-Aug-99	MR-L	544600 6971600	20068		TR	Tommy Tudlik	16-Aug-00	3	PB	545300	6969450	*357*
13024	ARCH	473		Wh	5610		TU	25-Aug-99	MR-L	544600 6971600	20103		TR	Johnny Natar	16-Aug-00	3	PB	544950	6968850	*357*

Appendix F21. Floy tag recapture data for the Meliadine Study Area, 1997-2008

Fish Capture and Tag Application Data											Tag Recapture Data									
Sample No.	Species[a]	Fork Length (mm)	Weight (g)	Floy Tag Col.	Floy Tag No.	Radio Tag Ch. Code	Capture Method[b]	Date of Capture	Basin[c]	Release Location (UTM Zone 15V)	Sample No.	Fork Length (mm)	Capture Method[a]	Fisherman	Date of Recapture	Capt. Code[d]	Basin[c]	Recapture Location (UTM Zone 15V)		*Days at Large*
13054	ARCH	299		Wh	5618		TU	26-Aug-99	MR-L	544600 6971600	20447		TR	John Towtoongie	10-Sep-01	3	LML	537500	6977500	*746*
13067	ARCH	380		Wh	5626		TU	26-Aug-99	MR-L	544600 6971600	20165		TR	John Towtoongie	3-Jul-00	3	LML	539300	6977100	*312*
13075	ARCH	516		Wh	5632		TU	26-Aug-99	MR-L	544600 6971600	9922		TR	John Towtoongie	4-Oct-99	3	LML	538300	6977600	*39*
13081	ARCH	555		Wh	5636		TU	26-Aug-99	MR-L	544600 6971600	20055		TR	Silu Oolooyuk	7-Jun-00	3	LML	539500	6976800	*286*
13084	ARCH	455		Wh	5639		TU	26-Aug-99	MR-L	544600 6971600	20151		TR	Dorothy Sateana	12-Jul-00	3	MR-L	544450	6971650	*321*
13086	ARCH	388		Wh	5641		TU	26-Aug-99	MR-L	544600 6971600	20312		TR	Ollie Ittinuar	1-Sep-01	3	?			*737*
13090	ARCH	423		Wh	5645		TU	26-Aug-99	MR-L	544600 6971600	20313		TR	Ollie Ittinuar	1-Sep-01	3	?			*737*
13091	ARCH	367		Wh	5646		TU	26-Aug-99	MR-L	544600 6971600	20343		TR	Henry Kannak	21-Aug-01	3	MR-L	545850	6970400	*726*
13099	ARCH	524		Wh	5648		TU	26-Aug-99	MR-L	544600 6971600	20208		TR	John Towtoongie	10-Sep-00	3	LML	539300	6977100	*381*
13104	ARCH	633		Wh	5651		TU	26-Aug-99	MR-L	544600 6971600	9916		TR	John Towtoongie	27-Sep-99	3	LML	538500	6977400	*32*
13106	ARCH	502		Wh	5653		TU	26-Aug-99	MR-L	544600 6971600	20093		TR	Peter Ugjuk	21-Aug-00	3	PB	545750	6969600	*361*
13111	ARCH	497		Wh	5658		TU	26-Aug-99	MR-L	544600 6971600	20215		TR	Peter Ugjuk	27-Aug-00	3	PB	546000	6968200	*367*
13121	ARCH	503		Wh	5662		TU	27-Aug-99	MR-L	544600 6971600	20069		TR	Tommy Tudlik	16-Aug-00	3	PB	545300	6969450	*355*
13123	ARCH	524		Wh	5663		TU	27-Aug-99	MR-L	544600 6971600	9958		TR	John Towtoongie	7-Nov-99	3	LML	537000	6979000	*72*
13126	ARCH	654		Wh	5664		TU	27-Aug-99	MR-L	544600 6971600	9869		TR	Adel Aingilik	28-Aug-99	3	LML	539000	6976900	*1*
13132	ARCH	380		Wh	5667		TU	27-Aug-99	MR-L	544600 6971600	20314		TR	Ollie Ittinuar	1-Sep-01	3	?			*736*
13156	ARCH	453		Wh	5680		TU	27-Aug-99	MR-L	544600 6971600	20117		TR	John Towtoongie	8-Aug-00	3	LML	539750	6976750	*347*
13157	ARCH	357		Wh	5681		TU	27-Aug-99	MR-L	544600 6971600	20315		TR	Ollie Ittinuar	1-Sep-01	3	?			*736*
13173	ARCH	658		Wh	5684		TU	28-Aug-99	MR-L	544600 6971600	9870		TR	Adel Aingilik	28-Aug-99	3	LML	539000	6976900	*0*
13177	ARCH	464		Wh	5686		TU	28-Aug-99	MR-L	544600 6971600	20096		TR	Peter Ugjuk	21-Aug-00	3	PB	545500	6967400	*359*
13179	ARCH	594		Wh	5687		TU	28-Aug-99	MR-L	544600 6971600	20368		TR	Ollie Ittinuar	17-Aug-01	3	PB	545250	6969350	*720*
13184	ARCH	552		Wh	5692		TU	28-Aug-99	MR-L	544600 6971600	20482		TR	Peter Ugjuk	18-Jun-01	3	LML	537500	6977500	*660*
13186	ARCH	403		Wh	5694		TU	28-Aug-99	MR-L	544600 6971600	20316		TR	Ollie Ittinuar	1-Sep-01	3	?			*735*
13187	ARCH	573		Wh	5695		TU	28-Aug-99	MR-L	544600 6971600	9871		TR	Adel Aingilik	28-Aug-99	3	LML	539000	6976900	*0*
13192	ARCH	496		Wh	5699		TU	28-Aug-99	MR-L	544600 6971600	20209		TR	John Towtoongie	10-Sep-00	3	LML	539300	6977100	*379*
13194	ARCH	386		Wh	5700		TU	28-Aug-99	MR-L	544600 6971600	20298		TR	Johnny Ungalau	1-Nov-01	3	?			*796*
13199	ARCH	432		Wh	5704		TU	28-Aug-99	MR-L	544600 6971600	20365		TR	Ollie Ittinuar	17-Aug-01	3	PB	545250	6969350	*720*
13203	ARCH	413		Wh	5708		TU	28-Aug-99	MR-L	544600 6971600	20210		TR	John Towtoongie	10-Sep-00	3	LML	539300	6977100	*379*
13204	ARCH	370		Wh	5709		TU	28-Aug-99	MR-L	544600 6971600	20486		TR	Laban Awa	10-Jun-01	3	DR			*652*
13205	ARCH	372		Wh	5710		TU	28-Aug-99	MR-L	544600 6971600	20380		TR	Patrick Karlik	30-Jun-01	3	PB	545250	6969350	*672*
13206	ARCH	351		Wh	5711		TU	28-Aug-99	MR-L	544600 6971600	20446		TR	John Towtoongie	10-Sep-01	3	LML	537500	6977500	*744*
13209	ARCH	408		Wh	5714		TU	28-Aug-99	MR-L	544600 6971600	20148		TR	Jonah Anawak	16-Jul-00	3	PB	547800	6964800	*323*
13210	ARCH	394		Wh	5715		TU	28-Aug-99	MR-L	544600 6971600	20334		TR	John Towtoongie	5-Oct-01	3	LML	537600	6977400	*769*
13212	ARCH	562		Wh	5716		TU	28-Aug-99	MR-L	544600 6971600	20042		TR	John Towtoongie	1-May-00	3	LML	537500	6978700	*247*
13215	ARCH	665		Wh	5718		TU	28-Aug-99	MR-L	544600 6971600	20184		TR	Tommy Tudlik	25-Jun-00	3	PB	545250	6969350	*302*
13219	ARCH	444		Wh	5720		TU	28-Aug-99	MR-L	544600 6971600	20118		TR	John Towtoongie	8-Aug-00	3	LML	539750	6976750	*346*
13224	ARCH	335		Wh	5725		TU	28-Aug-99	MR-L	544600 6971600	20353		TR	John Towtoongie	20-Aug-01	3	LML	537500	6977500	*723*
13225	ARCH	422		Wh	5726		TU	28-Aug-99	MR-L	544600 6971600	20317		TR	Ollie Ittinuar	1-Sep-01	3	?			*735*
13240	ARCH	335		Wh	5733		TU	28-Aug-99	MR-L	544600 6971600	20318		TR	Ollie Ittinuar	1-Sep-01	3	?			*735*
13246	ARCH	310		Wh	5739		TU	29-Aug-99	MR-L	544600 6971600	20319		TR	Ollie Ittinuar	1-Sep-01	3	?			*734*
13257	ARCH	404		Wh	5749		TU	29-Aug-99	MR-L	544600 6971600	20299		TR	Johnny Ungalau	1-Nov-01	3	?			*795*
13261	ARCH	436		Wh	5752		TU	29-Aug-99	MR-L	544600 6971600	20211		TR	John Towtoongie	10-Sep-00	3	LML	539300	6977100	*378*
13262	ARCH	394		Wh	5753		TU	29-Aug-99	MR-L	544600 6971600	20094		TR	Peter Ugjuk	21-Aug-00	3	PB	545750	6969600	*358*
13263	ARCH	347		Wh	5754		TU	29-Aug-99	MR-L	544600 6971600	20450		TR	John Towtoongie	10-Sep-01	3	LML	537500	6977500	*743*
13278	ARCH	545		Wh	5760		TU	29-Aug-99	MR-L	544600 6971600	20023		TR	John Towtoongie	12-Apr-00	3	LML	538000	6978500	*227*
13283	ARCH	381		Wh	5764		TU	29-Aug-99	MR-L	544600 6971600	20465		TR	Francis Ayaruak	2-Jun-01	3	MR-L	543500	6972600	*643*
13295	ARCH	537		Wh	5765		TU	30-Aug-99	MR-L	544600 6971600	20142		TR	John Towtoongie	21-Nov-99	3	LML	537050	6979000	*83*
13297	ARCH	415		Wh	5767		TU	30-Aug-99	MR-L	544600 6971600	20288		TR	Samuel Amarook	26-Nov-01	3	MR-L	538200	6978200	*819*
13299	ARCH	359		Wh	5769		TU	30-Aug-99	MR-L	544600 6971600	20355		TR	?	?	3	?			
13300	ARCH	353		Wh	5770		TU	30-Aug-99	MR-L	544600 6971600	20448		TR	John Towtoongie	10-Sep-01	3	LML	537500	6977500	*742*
13301	ARCH	327		Wh	5771		TU	30-Aug-99	MR-L	544600 6971600	20335		TR	John Towtoongie	5-Oct-01	3	LML	537600	6977400	*767*
13306	ARCH	444		Wh	5776		TU	30-Aug-99	MR-L	544600 6971600	20404		TR	John Towtoongie	4-Jul-01	3	LML	537500	6977500	*674*

Appendix F21. Floy tag recapture data for the Meliadine Study Area, 1997-2008

Fish Capture and Tag Application Data											Tag Recapture Data									
Sample No.	Species[a]	Fork Length (mm)	Weight (g)	Floy Tag Col.	Floy Tag No.	Radio Tag Ch. Code	Capture Method[b]	Date of Capture	Basin[c]	Release Location (UTM Zone 15V)	Sample No.	Fork Length (mm)	Capture Method[a]	Fisherman	Date of Recapture	Capt. Code[d]	Basin[c]	Recapture Location (UTM Zone 15V)		*Days at Large*
13310	ARCH	418		Wh	5779		TU	30-Aug-99	MR-L	544600 6971600	20445		TR	John Towtoongie	10-Sep-01	3	LML	537500	6977500	*742*
13313	ARCH	388		Wh	5782		TU	30-Aug-99	MR-L	544600 6971600	20289		TR	Samuel Amarook	26-Nov-01	3	MR-L	538200	6978200	*819*
13314	ARCH	403		Wh	5783		TU	30-Aug-99	MR-L	544600 6971600	20442		TR	Ambrose Karlik	30-Jun-01	3	PB	545250	6969350	*670*
13315	ARCH	705		Wh	5784		TU	30-Aug-99	MR-L	544600 6971600	20185		TR	Tommy Tudlik	25-Jun-00	3	PB	545250	6969350	*300*
13320	ARCH	395		Wh	5789		TU	30-Aug-99	MR-L	544600 6971600	20293		TR	John Towtoongie	15-Nov-01	3	LML	536600	6979100	*808*
13322	ARCH	360		Wh	5791		TU	30-Aug-99	MR-L	544600 6971600	20320		TR	Ollie Ittinuar	1-Sep-01	3	?			*733*
13330	ARCH	397		Wh	5799		TU	30-Aug-99	MR-L	544600 6971600	20344		TR	Henry Kannak	21-Aug-01	3	MR-L	545850	6970400	*722*
13340	ARCH	386		Wh	5807		TU	30-Aug-99	MR-L	544600 6971600	20137		TR	Carl Hickes	30-Jun-00	3	DR	532300	6966450	*305*
13357	ARCH	470		Wh	5822		TU	31-Aug-99	MR-L	544600 6971600	20143		TR	John Towtoongie	21-Nov-99	3	LML	537050	6979000	*82*
13360	ARCH	343		Wh	5825		TU	31-Aug-99	MR-L	544600 6971600	20433		TR	John Towtoongie	31-Aug-01	3	LML	537500	6977500	*731*
13368	ARCH	419		Wh	5833		TU	31-Aug-99	MR-L	544600 6971600	20376		TR	John Towtoongie	25-Jun-01	3	LML	537500	6977500	*664*
13376	ARCH	384		Wh	5840		TU	31-Aug-99	MR-L	544600 6971600	20369		TR	Tommy Tudlik	17-Aug-01	3	PB	545250	6969350	*717*
13379	ARCH	406		Wh	5843		TU	31-Aug-99	MR-L	544600 6971600	20321		TR	Henry Kannak	21-Aug-01	3	MR-L	545850	6970400	*721*
13383	ARCH	383		Wh	5846		TU	31-Aug-99	MR-L	544600 6971600	20347		TR	Henry Kannak	21-Aug-01	3	MR-L	545850	6970400	*721*
13385	ARCH	420		Wh	5848		TU	31-Aug-99	MR-L	544600 6971600	20349		TR	Tommy Tudlik	22-Aug-01	3	MR-L	545850	6970400	*722*
13392	ARCH	511		Wh	5853		TU	31-Aug-99	MR-L	544600 6971600	20024		TR	John Towtoongie	12-Apr-00	3	LML	538000	6978500	*225*
13398	ARCH	526		Wh	5858		TU	31-Aug-99	MR-L	544600 6971600	20043		TR	John Towtoongie	1-May-00	3	LML	537500	6978700	*244*
13401	ARCH	346		Wh	5861		TU	1-Sep-99	MR-L	544600 6971600	20431		TR	John Towtoongie	31-Aug-01	3	LML	537500	6977500	*730*
13403	ARCH	425		Wh	5863		TU	1-Sep-99	MR-L	544600 6971600	20436		TR	John Towtoongie	31-Aug-01	3	LML	537500	6977500	*730*
13407	ARCH	646		Wh	5867		TU	1-Sep-99	MR-L	544600 6971600	9892		TR	Adel Aingilik	13-Sep-99	3	LML	537800	6977200	*12*
13421	ARCH	373		Wh	5880		TU	1-Sep-99	MR-L	544600 6971600	20323		TR	Ollie Ittinuar	1-Sep-01	3	?			*731*
13423	ARCH	389		Wh	5882		TU	1-Sep-99	MR-L	544600 6971600	20324		TR	Ollie Ittinuar	1-Sep-01	3	?			*731*
13435	ARCH	317		Wh	5893		TU	1-Sep-99	MR-L	544600 6971600	20423		TR	John Towtoongie	31-Aug-01	3	LML	537500	6977500	*730*
13438	ARCH	382		Wh	5895		TU	1-Sep-99	MR-L	544600 6971600	20325		TR	Ollie Ittinuar	1-Sep-01	3	?			*731*
13441	ARCH	313		Wh	5898		TU	1-Sep-99	MR-L	544600 6971600	20346		TR	Henry Kannak	21-Aug-01	3	MR-L	545850	6970400	*720*
13450	ARCH	602		Wh	5901		TU	2-Sep-99	MR-L	544600 6971600	9961		TR	John Towtoongie	7-Nov-99	3	LML	537000	6979000	*66*
13451	ARCH	429		Wh	5902		TU	2-Sep-99	MR-L	544600 6971600	20294		TR	John Towtoongie	15-Nov-01	3	LML	536600	6979100	*805*
13453	ARCH	453		Wh	5903		TU	2-Sep-99	MR-L	544600 6971600	20290		TR	Samuel Amarook	26-Nov-01	3	MR-L	538200	6978200	*816*
13459	ARCH	357		Wh	5907		TU	2-Sep-99	MR-L	544600 6971600	20336		TR	John Towtoongie	5-Oct-01	3	LML	537600	6977400	*764*
13460	ARCH	429		Wh	5908		TU	2-Sep-99	MR-L	544600 6971600	20326		TR	Ollie Ittinuar	1-Sep-01	3	?			*730*
13468	ARCH	385		Wh	5914		TU	2-Sep-99	MR-L	544600 6971600	20428		TR	John Towtoongie	31-Aug-01	3	LML	537500	6977500	*729*
13470	ARCH	317		Wh	5916		TU	2-Sep-99	MR-L	544600 6971600	20385		TR	Rose Ussak	19-Jun-01	3	MR-L	542400	6973550	*656*
13473	ARCH	369		Wh	5919		TU	2-Sep-99	MR-L	544600 6971600	20437		TR	John Towtoongie	31-Aug-01	3	LML	537500	6977500	*729*
13492	ARCH	363		Wh	5936		TU	3-Sep-99	MR-L	544600 6971600	20490		TR	?	16-Aug-06	3	PB	545250	6969350	*2539*
13500	ARCH	494		Wh	5943		TU	3-Sep-99	MR-L	544600 6971600	20025		TR	John Towtoongie	12-Apr-00	3	LML	538000	6978500	*222*
13502	ARCH	312		Wh	5945		TU	3-Sep-99	MR-L	544600 6971600	20424		TR	John Towtoongie	31-Aug-01	3	LML	537500	6977500	*728*
13511	ARCH	305		Wh	5952		TU	3-Sep-99	MR-L	544600 6971600	9893		TR	Glen Kadlak	13-Sep-99	3	MR-L	540400	6975250	*10*
13519	ARCH	280		Wh	5960		TU	3-Sep-99	MR-L	544600 6971600	20432		TR	John Towtoongie	31-Aug-01	3	LML	537500	6977500	*728*
13524	ARCH	319		Wh	5965		TU	3-Sep-99	MR-L	544600 6971600	20438		TR	John Towtoongie	31-Aug-01	3	LML	537500	6977500	*728*
13527	ARCH	480		Wh	5967		TU	4-Sep-99	MR-L	544600 6971600	20026		TR	John Towtoongie	12-Apr-00	3	LML	538000	6978500	*221*
13528	ARCH	393		Wh	5968		TU	4-Sep-99	MR-L	544600 6971600	20337		TR	John Towtoongie	5-Oct-01	3	LML	537600	6977400	*762*
13539	ARCH	363		Wh	5978		TU	4-Sep-99	MR-L	544600 6971600	20197		TR	John Towtoongie	18-Sep-00	3	LML	539300	6977100	*380*
13544	ARCH	293		Wh	5983		TU	4-Sep-99	MR-L	544600 6971600	20421		TR	Patrick Karlik	6-Jul-01	3	MR-L	543500	6972600	*671*
13545	ARCH	314		Wh	5984		TU	4-Sep-99	MR-L	544600 6971600	20430		TR	John Towtoongie	31-Aug-01	3	LML	537500	6977500	*727*
13547	ARCH	378		Wh	5986		TU	4-Sep-99	MR-L	544600 6971600	20429		TR	John Towtoongie	31-Aug-01	3	LML	537500	6977500	*727*
13551	ARCH	367		Wh	5990		TU	4-Sep-99	MR-L	544600 6971600	20426		TR	John Towtoongie	31-Aug-01	3	LML	537500	6977500	*727*
13559	ARCH	503		Wh	5994		TU	5-Sep-99	MR-L	544600 6971600	20402		TR	Ambrose Karlik	27-Jun-01	3	?			*661*
13560	ARCH	330		Wh	5995		TU	5-Sep-99	MR-L	544600 6971600	20338		TR	John Towtoongie	5-Oct-01	3	LML	537600	6977400	*761*
13565	ARCH	516		Wh	6000		TU	5-Sep-99	MR-L	544600 6971600	20091		TR	Paul Kaludjak	8-Aug-00	3	HB	610000	6980000	*338*
807	ARGR	329	364	Or	6376		EF	22-Jun-97	B1	537350 6985650	4477	335	GN	RL&L	26-Aug-97	2	B2	537400	6986500	*65*
1254	ARGR	398	728	Or	6387		FN	13-Jul-97	ML-E	542100 6988700	7684	396	FN	RL&L	12-Jul-98	2	ML-E	542100	6988700	*364*
1526	ARGR	360	578	Or	6823		FN	16-Jul-97	ML-E	542100 6988700	1611	361	FN	RL&L	17-Jul-97	2	ML-E	542100	6988700	*1*

Appendix F21. Floy tag recapture data for the Meliadine Study Area, 1997-2008

Fish Capture and Tag Application Data											Tag Recapture Data									
Sample No.	Species[a]	Fork Length (mm)	Weight (g)	Floy Tag Col.	Floy Tag No.	Radio Tag Ch.	Radio Tag Code	Capture Method[b]	Date of Capture	Basin[c]	Release Location (UTM Zone 15V)		Sample No.	Fork Length (mm)	Capture Method[a]	Fisherman	Date of Recapture	Capt. Code[d]	Basin[c]	Recapture Location (UTM Zone 15V)		*Days at Large*
1667	ARGR	382	590	Or	6842			FN	17-Jul-97	ML-E	542100	6988700	4071	377	FN	RL&L	23-Jul-97	2	ML-E	542100	6988700	*6*
5967	ARGR	339		Or	6853			TU	30-Aug-97	MR-L	544600	6971600	10451	348	TU	RL&L	21-Aug-98	2	MR-L	544600	6971600	*356*
5967	ARGR	339		Or	6853			TU	30-Aug-97	MR-L	544600	6971600	13151	346	TU	RL&L	27-Aug-99	4	MR-L	544600	6971600	*727*
5672	ARGR	305		Or	7564			TU	25-Aug-97	MR-L	544600	6971600	12458	345	TU	RL&L	20-Aug-99	2	MR-L	544600	6971600	*725*
7047	ARGR	340	468	Or	8465			EF	14-Jun-98	A5-6	542400	6986000	7115	340	EF	RL&L	15-Jun-98	2	A5-6	542400	6986000	*1*
4097	ARGR	358	548	Or	8555			FN	24-Jul-97	ML-E	542100	6988700	7042		EF	RL&L	14-Jun-98	2	A2-3	543100	6986000	*325*
4312	ARGR	344	474	Or	8573			FN	26-Jul-97	ML-E	542100	6988700	7938	349	FN	RL&L	13-Jul-98	2	ML-E	542100	6988700	*352*
8170	ARGR	338	470	Wh	3016			FN	23-Jul-98	ML-S	533650	6987800	8159		FN	RL&L	24-Jul-98	2	ML-S	533650	6987800	*1*
8380	ARGR	243	150	Wh	3155			FN	26-Jul-98	ML-S	533650	6987800	8490		FN	RL&L	27-Jul-98	2	ML-S	533650	6987800	*1*
8250	ARGR	252	165	Wh	3220			FN	24-Jul-98	ML-S	533650	6987800	8314		FN	RL&L	25-Jul-98	2	ML-S	533650	6987800	*1*
10182	ARGR	310		Wh	4098			TU	18-Aug-98	MR-L	544600	6971600	13113	317	TU	RL&L	26-Aug-99	2	MR-L	544600	6971600	*373*
10183	ARGR	325		Wh	4099			TU	18-Aug-98	MR-L	544600	6971600	12403	344	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*366*
10545	ARGR	268		Wh	4332			TU	22-Aug-98	MR-L	544600	6971600	13016	305	TU	RL&L	24-Aug-99	2	MR-L	544600	6971600	*367*
10546	ARGR	263		Wh	4333			TU	22-Aug-98	MR-L	544600	6971600	12944	295	TU	RL&L	23-Aug-99	2	MR-L	544600	6971600	*366*
10546	ARGR	263		Wh	4333			TU	22-Aug-98	MR-L	544600	6971600	20110		TR	Ed Faulkner	24-Aug-00	5	LML	538250	6976850	*733*
10547	ARGR	255		Wh	4334			TU	22-Aug-98	MR-L	544600	6971600	12814	292	TU	RL&L	22-Aug-99	2	MR-L	544600	6971600	*365*
10695	ARGR	251		Wh	4444			TU	24-Aug-98	MR-L	544600	6971600	12401	318	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*360*
10696	ARGR	250		Wh	4445			TU	24-Aug-98	MR-L	544600	6971600	12244	287	TU	RL&L	18-Aug-99	2	MR-L	544600	6971600	*359*
10736	ARGR	314		Wh	4480			TU	25-Aug-98	MR-L	544600	6971600	13269	328	TU	RL&L	29-Aug-99	2	MR-L	544600	6971600	*369*
10927	ARGR	249		Wh	4647			TU	30-Aug-98	MR-L	544600	6971600	12402	294	TU	RL&L	19-Aug-99	2	MR-L	544600	6971600	*354*
10929	ARGR	245		Wh	4649			TU	30-Aug-98	MR-L	544600	6971600	12816	285	TU	RL&L	22-Aug-99	2	MR-L	544600	6971600	*357*
8983	BURB	298		Wh	4998			FN	30-Aug-98	ML-S	533650	6987800	9085	297	FN	RL&L	1-Sep-98	2	ML-S	533650	6987800	*2*
6080	LKTR	444	1050	Or	4774			GN	28-Sep-97	LML	536250	6979600	9753		TR	Adel Aingilik	6-Jun-99	3	LML	536300	6979500	*616*
4366	LKTR	357	410	Or	6301			FN	27-Jul-97	ML-E	542100	6988700	20198		TR	John Towtoongie	18-Sep-00	3	LML	539300	6977100	*1149*
530	LKTR	540	2830	Or	6346	21	89	AL	18-Jun-97	D1	533400	6989400	9527		TR	Eugene Kablutok	8-May-98	3	ML-S	532700	6988800	*324*
4016	LKTR	692	4200	Or	6423			AL	21-Jul-97	ML-E	542100	6988700	4024	692	FN	RL&L	22-Jul-97	2	ML-E	542100	6988700	*1*
1579	LKTR	572	2130	Or	6835	20	54	FN	16-Jul-97	ML-E	542100	6988700	20057		TR	David Illungayok	12-Jul-00	3	ML-E	542100	6989100	*1092*
3744	LKTR	552	2160	Or	6888			FN	20-Jul-97	ML-E	542100	6988700	20058		TR	David Illungayok	10-Jul-00	3	ML-E	542100	6989100	*1086*
5177	LKTR	499	1265	Or	7187			TU	19-Aug-97	MR-L	544600	6971600	9528		TR	Joe Makigak	1-Jul-98	3	PB	545500	6969500	*316*
6075	LKTR	441	980	Or	7624			GN	28-Sep-97	LML	536250	6979600	9572		TR	Joe Natar	15-Sep-98	3	LML	537440	6977460	*352*
8321	LKTR	505	1310	Wh	3231			FN	25-Jul-98	ML-S	533650	6987800	9798		TR	Danny Hamilton	11-Aug-99	3	ML-S	533200	6988100	*382*
15857	LKTR	612	2365	Wh	3830			GN	20-Sep-00	ML-PL	523750	7000650	20381		TR	Louie Tattuinee	21-Jul-01	3	ML-W	527000	7000000	*304*
15862	LKTR	381	610	Wh	3831			FN	20-Sep-00	ML-W	523800	7000800	15884	381	GN	RL&L	22-Sep-00	3	ML-W	523800	7000800	*2*
15910	LKTR	474	1230	Wh	3851			GN	22-Sep-00	ML-W	524050	7001050	15926	472	GN	RL&L	23-Sep-00	3	ML-W	523900	7001200	*1*
11625	LKTR	437	870	Wh	5039			GN	25-Jul-99	LML	536300	6978500	9843		TR	Adel Aingilik	28-Aug-99	3	LML	539000	6976900	*34*
12456	LKTR	465	1140	Wh	5327			TU	20-Aug-99	MR-L	544600	6971600	20468		TR	Joe Inukshuk	2-Jun-01	3	MR-L	543500	6972600	*652*
5674	RNWH	357		Or	7566			TU	25-Aug-97	MR-L	544600	6971600	12231	372	TU	RL&L	18-Aug-99	2	MR-L	544600	6971600	*723*
5678	RNWH	347		Or	7570			TU	25-Aug-97	MR-L	544600	6971600	10172	362	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*358*
5678	RNWH	347		Or	7570			TU	25-Aug-97	MR-L	544600	6971600	12130	374	TU	RL&L	13-Aug-99	2	MR-L	544600	6971600	*718*
5611	RNWH	409		Or	7578			TU	25-Aug-97	MR-L	544600	6971600	10248	412	TU	RL&L	19-Aug-98	2	MR-L	544600	6971600	*359*
6024	RNWH	407		Or	7632			TU	1-Sep-97	MR-L	544600	6971600	10517	411	TU	RL&L	22-Aug-98	2	MR-L	544600	6971600	*355*
6038	RNWH	459		Or	7646			TU	2-Sep-97	MR-L	544600	6971600	12745	460	TU	RL&L	22-Aug-99	2	MR-L	544600	6971600	*719*
5159	RNWH	317	310	Or	7745			TU	19-Aug-97	MR-L	544600	6971600	12679	360	TU	RL&L	21-Aug-99	2	MR-L	544600	6971600	*732*
5160	RNWH	428	700	Or	7746			TU	19-Aug-97	MR-L	544600	6971600	10780	426	TU	RL&L	26-Aug-98	2	MR-L	544600	6971600	*372*
5757	RNWH	342		Or	7822			TU	26-Aug-97	MR-L	544600	6971600	10173	357	TU	RL&L	18-Aug-98	2	MR-L	544600	6971600	*357*
5757	RNWH	342		Or	7822			TU	26-Aug-97	MR-L	544600	6971600	12204	369	TU	RL&L	16-Aug-99	4	MR-L	544600	6971600	*720*
5484	RNWH	420		Or	7876			TU	23-Aug-97	MR-L	544600	6971600	10619	423	TU	RL&L	23-Aug-98	2	MR-L	544600	6971600	*365*
5484	RNWH	420		Or	7876			TU	23-Aug-97	MR-L	544600	6971600	13036	278	TU	RL&L	25-Aug-99	2	MR-L	544600	6971600	*732*
5530	RNWH	435		Or	8611			TU	24-Aug-97	MR-L	544600	6971600	10006	432	TU	RL&L	16-Aug-98	2	MR-L	544600	6971600	*357*
10001	RNWH	416		Wh	4001			TU	16-Aug-98	MR-L	544600	6971600	12688	425	TU	RL&L	21-Aug-99	2	MR-L	544600	6971600	*370*
10174	RNWH	405		Wh	4090			TU	18-Aug-98	MR-L	544600	6971600	12028	411	TU	RL&L	10-Aug-99	2	MR-L	544600	6971600	*357*
10176	RNWH	352		Wh	4092			TU	18-Aug-98	MR-L	544600	6971600	12157	368	TU	RL&L	14-Aug-99	2	MR-L	544600	6971600	*361*

Appendix F21. Floy tag recapture data for the Meliadine Study Area, 1997-2008

Fish Capture and Tag Application Data											Tag Recapture Data								
Sample No.	Species[a]	Fork Length (mm)	Weight (g)	Floy Tag Col.	Floy Tag No.	Radio Tag Ch. Code	Capture Method[b]	Date of Capture	Basin[c]	Release Location (UTM Zone 15V)	Sample No.	Fork Length (mm)	Capture Method[a]	Fisherman	Date of Recapture	Capt. Code[d]	Basin[c]	Recapture Location (UTM Zone 15V)	*Days at Large*
10178	RNWH	350		Wh	4094		TU	18-Aug-98	MR-L	544600 6971600	12033	360	TU	RL&L	10-Aug-99	2	MR-L	544600 6971600	*357*
10180	RNWH	303		Wh	4096		TU	18-Aug-98	MR-L	544600 6971600	12687	344	TU	RL&L	21-Aug-99	2	MR-L	544600 6971600	*368*
10343	RNWH	423		Wh	4191		TU	20-Aug-98	MR-L	544600 6971600	12030	425	TU	RL&L	10-Aug-99	2	MR-L	544600 6971600	*355*
10344	RNWH	267		Wh	4192		TU	20-Aug-98	MR-L	544600 6971600	12037	307	TU	RL&L	10-Aug-99	2	MR-L	544600 6971600	*355*
10345	RNWH	412		Wh	4193		TU	20-Aug-98	MR-L	544600 6971600	12230	416	TU	RL&L	18-Aug-99	2	MR-L	544600 6971600	*363*
10453	RNWH	426		Wh	4269		TU	21-Aug-98	MR-L	544600 6971600	12229	426	TU	RL&L	18-Aug-99	2	MR-L	544600 6971600	*362*
10454	RNWH	279		Wh	4270		TU	21-Aug-98	MR-L	544600 6971600	12392	315	TU	RL&L	19-Aug-99	2	MR-L	544600 6971600	*363*
10536	RNWH	423		Wh	4324		TU	22-Aug-98	MR-L	544600 6971600	12680	434	TU	RL&L	21-Aug-99	2	MR-L	544600 6971600	*364*
10537	RNWH	274		Wh	4325		TU	22-Aug-98	MR-L	544600 6971600	12233	314	TU	RL&L	18-Aug-99	2	MR-L	544600 6971600	*361*
10539	RNWH	314		Wh	4327		TU	22-Aug-98	MR-L	544600 6971600	12395	351	TU	RL&L	19-Aug-99	2	MR-L	544600 6971600	*362*
10540	RNWH	278		Wh	4328		TU	22-Aug-98	MR-L	544600 6971600	12396	313	TU	RL&L	19-Aug-99	2	MR-L	544600 6971600	*362*
10548	RNWH	268		Wh	4335		TU	22-Aug-98	MR-L	544600 6971600	12394	303	TU	RL&L	19-Aug-99	2	MR-L	544600 6971600	*362*
10595	RNWH	412		Wh	4371		TU	23-Aug-98	MR-L	544600 6971600	12232	413	TU	RL&L	18-Aug-99	2	MR-L	544600 6971600	*360*
10664	RNWH	291		Wh	4415		TU	24-Aug-98	MR-L	544600 6971600	12689	330	TU	RL&L	21-Aug-99	2	MR-L	544600 6971600	*362*
10665	RNWH	267		Wh	4416		TU	24-Aug-98	MR-L	544600 6971600	12393	305	TU	RL&L	19-Aug-99	2	MR-L	544600 6971600	*360*
10691	RNWH	272		Wh	4440		TU	24-Aug-98	MR-L	544600 6971600	12696	319	TU	RL&L	21-Aug-99	2	MR-L	544600 6971600	*362*
10692	RNWH	306		Wh	4441		TU	24-Aug-98	MR-L	544600 6971600	12218	337	TU	RL&L	17-Aug-99	2	MR-L	544600 6971600	*358*
10781	RNWH	253		Wh	4517		TU	26-Aug-98	MR-L	544600 6971600	13038	297	TU	RL&L	25-Aug-99	2	MR-L	544600 6971600	*364*
10787	RNWH	353		Wh	4523		TU	26-Aug-98	MR-L	544600 6971600	12217	364	TU	RL&L	17-Aug-99	2	MR-L	544600 6971600	*356*
10881	RNWH	435		Wh	4607		TU	29-Aug-98	MR-L	544600 6971600	12630	434	TU	RL&L	21-Aug-99	2	MR-L	544600 6971600	*357*
10882	RNWH	263		Wh	4608		TU	29-Aug-98	MR-L	544600 6971600	13444	363	TU	RL&L	1-Sep-99	2	MR-L	544600 6971600	*368*
10930	RNWH	423		Wh	4650		TU	30-Aug-98	MR-L	544600 6971600	13012	440	TU	RL&L	24-Aug-99	2	MR-L	544600 6971600	*359*
10955	RNWH	435		Wh	4674		TU	31-Aug-98	MR-L	544600 6971600	12471	432	TU	RL&L	20-Aug-99	2	MR-L	544600 6971600	*354*
(c)	RNWH			Wh	5311		TU	Aug 97/98	MR-L	544600 6971600	12398	409	TU	RL&L	19-Aug-99	2.6	MR-L	544600 6971600	

[b] Capture Methods: FN = fyke net; GN = gill net; AL = angling (using lures); EF = backpack electrofishing; TU = fish fence for upstream migrants; TR = tag return

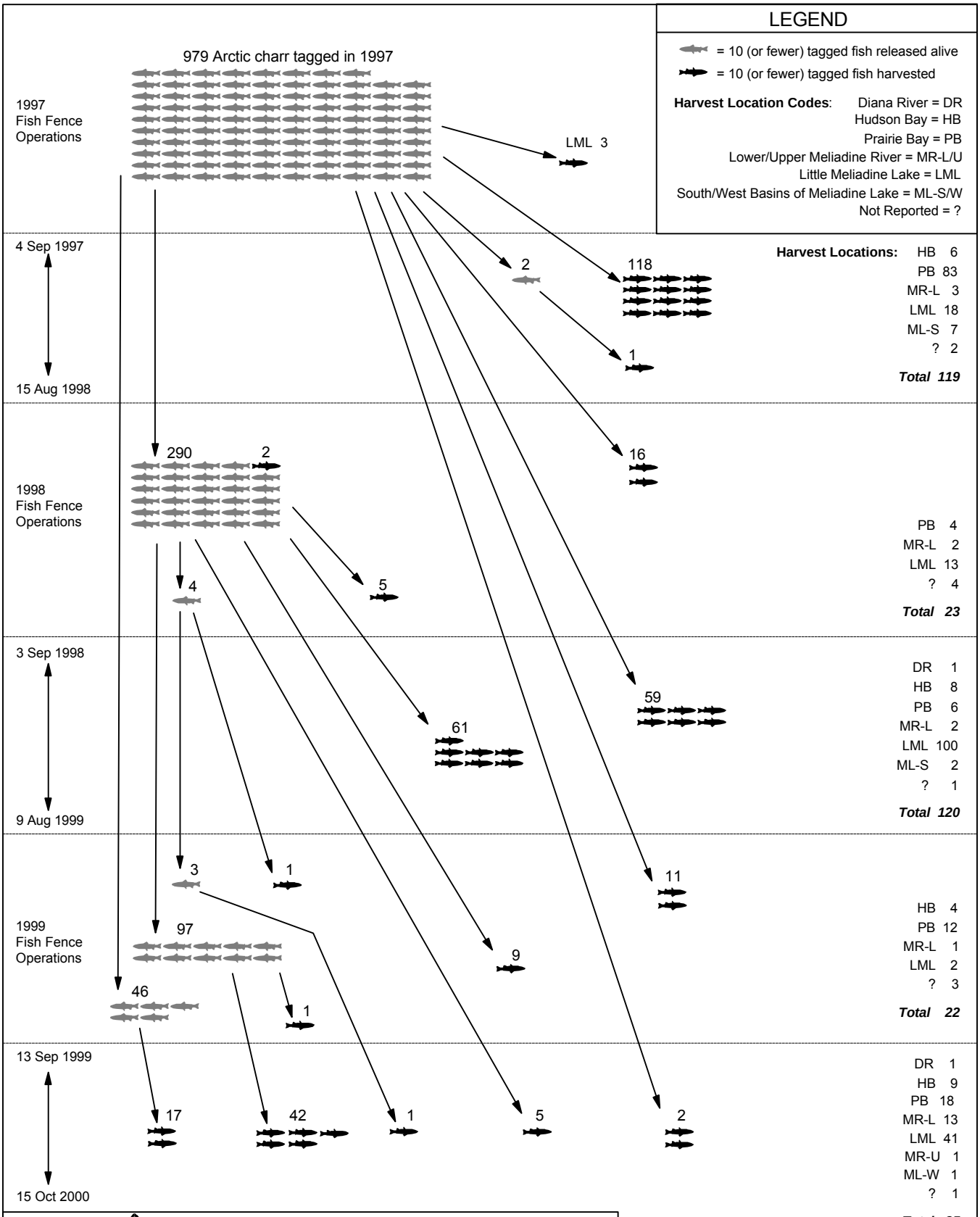
[c] Basins: LML = Little Meliadine Lake; MR-L = lower Meliadine River; MR-U = upper Meliadine River; ML-E = Meliadine Lake (east basin); ML-S = Meliadine Lake (south basin); ML-W = Meliadine Lake (west basin); A, B, & D = basins between ML-S and M

[d] Capture Codes: shaded rows indicate multiple recaptures (codes 4 to 9)

2 = released after recapture
2.5 = released after recapture in 1998 but with a new tag (original 1997 Floy tag was lost)
2.6 = released after recapture in 1999 but with a new tag (original 1997 or 1998 Floy tag was lost)
3 = recaptured and sacrificed
4 = recaptured two times and released
4.5 = released after second recapture in 1999 with tag applied in 1998 (original 1997 Floy tag was lost)
5 = recaptured two times and sacrificed
5.6 = recaptured two times and sacrificed (original 1997 or 1998 tag was lost)
6 = recaptured three times and released
7 = recaptured three times and sacrificed
7.5 = recaptured three times and sacrificed (with 1998 tag applied after loss of 1997 tag)
9 = recaptured four times and sacrificed

Note: mm = millimetre; g = gram; ARCH = Arctic char; ARGR = Arctic grayling; BURB = burbot; LKTR = lake trout; RNWH = round whitefish

(a) not in 1997 records
(b) Orange tag lost (scar on fish)
(c) Orange or white tag lost (scar on fish)

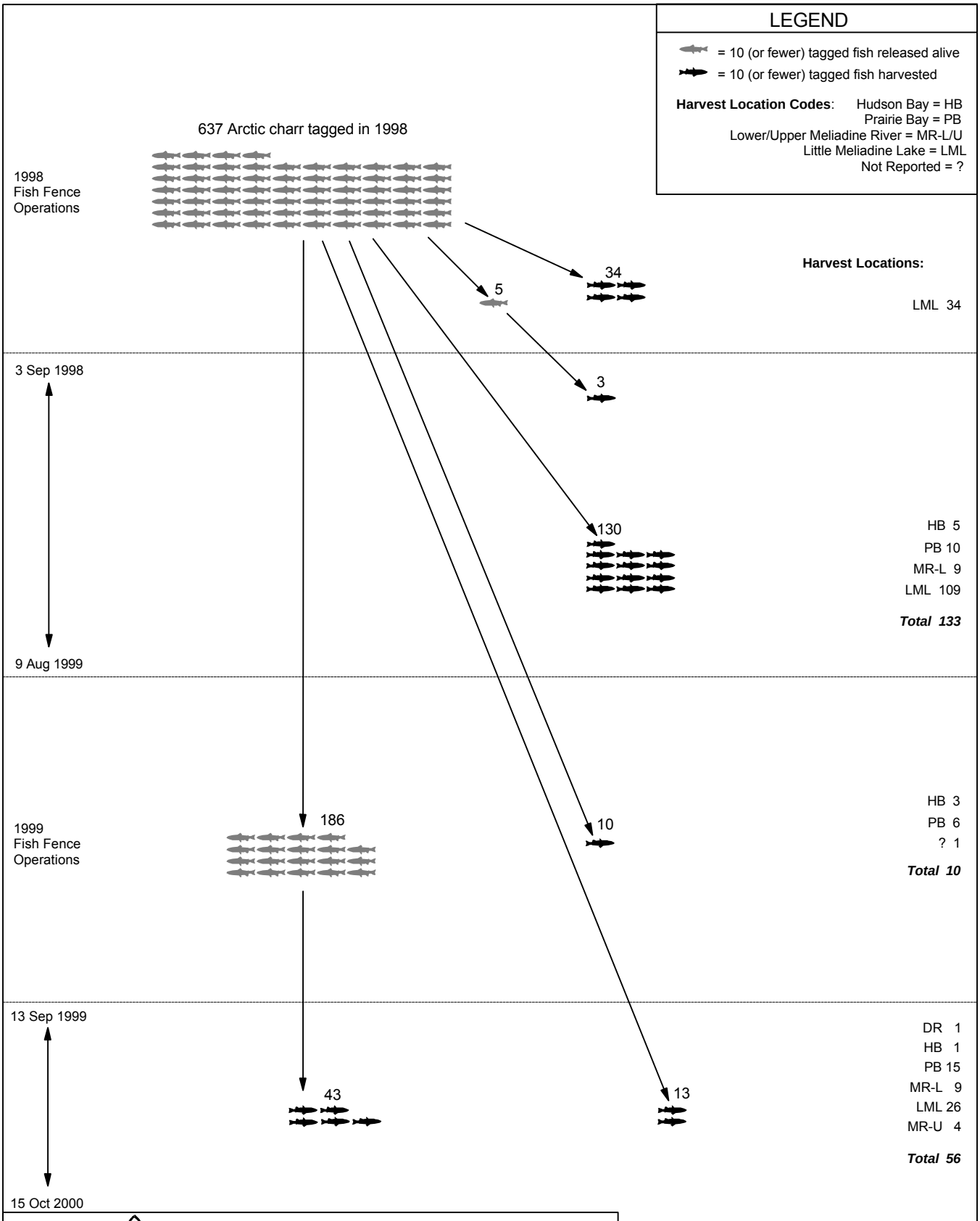


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Appendix F22a. Recapture events and harvest of Arctic Char tagged in the lower Meliadine River in 1997 (updated Oct 2000).

TOTAL HARVESTED:

DR	HB	PB	MR-L	LML	MR-U	ML	?	ALL
2	27	123	21	177	1	10	11	372

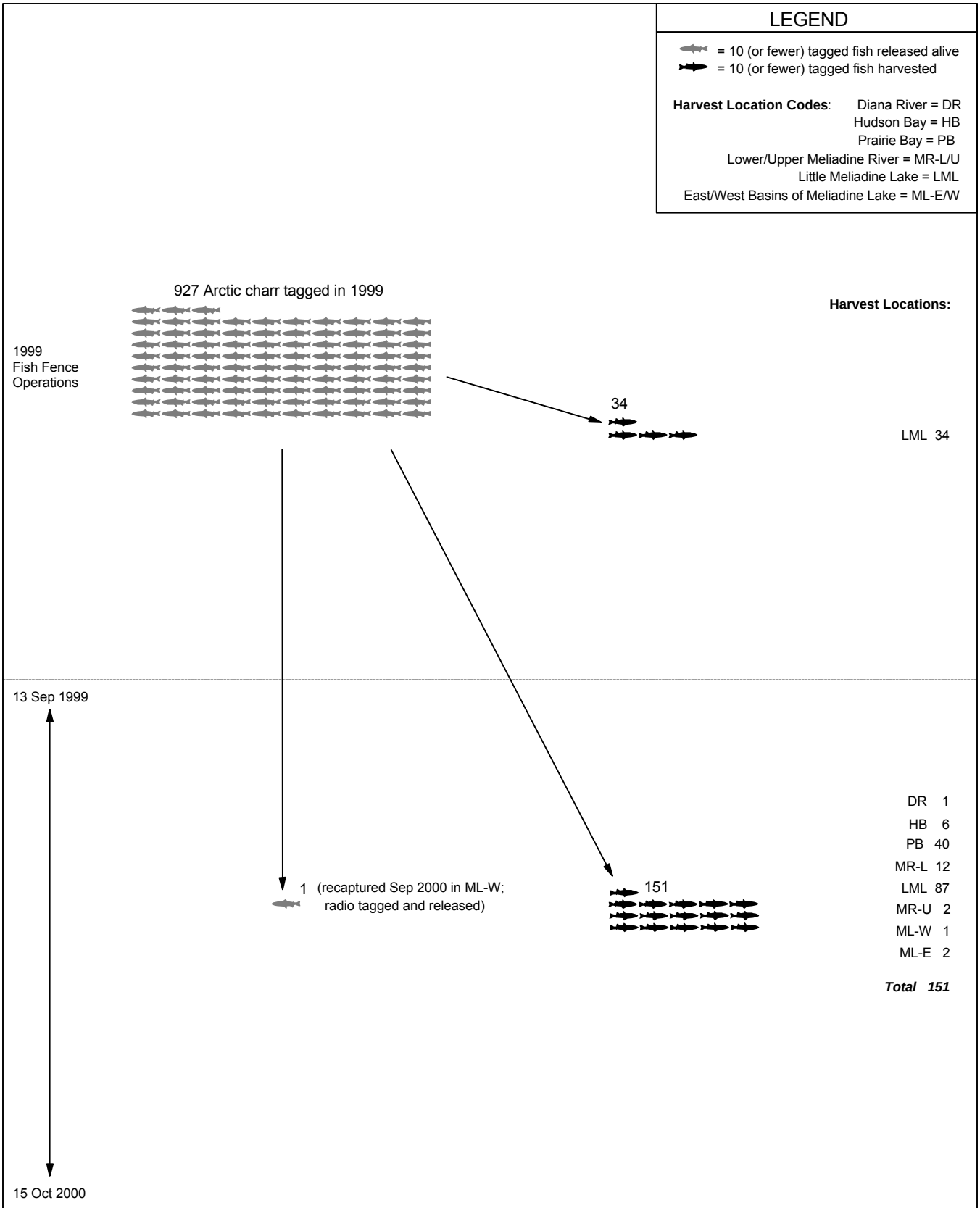


RL&L Environmental Services Ltd.

Appendix F22b. Recapture events and harvest of Arctic Char tagged in the lower Meliadine River in 1998 (updated Oct 2000).

TOTAL HARVESTED:

DR	HB	PB	MR-L	LML	MR-U	?	ALL
1	9	31	18	169	4	1	233



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Appendix F22c. Recapture events and harvest of Arctic Char tagged in the lower Meliadine River in 1999 (updated Oct 2000).

TOTAL HARVESTED:

DR	HB	PB	MR-L	LML	MR-U	ML	ALL
1	6	40	12	121	2	3	185

Appendix F23. Radio tagged fish in the Meliadine Study Area and tracking results, 1997-1999.

Fish #	Species	Fork Length (mm)	Weight (g)	Sex	Age (yr)	Floy Tag		Radio Tag		Release Date	Release Location			Tracked 21-23 Jul-97			Tracked 29-Jul-97			Tracked 17-Aug-97		
						Col	#	Ch.	Code		*Basin*	Easting (15V)	Northing (15V)	*Basin*	Easting (15V)	Northing (15V)	*Basin*	Easting (15V)	Northing (15V)	*Basin*	Easting (15V)	Northing (15V)
5015	ARCH	501	1675			Or	6308	21	87	17-Aug-97	*MR-L*	544600	6971600									
5016	ARCH	508	1735			Or	6310	21	74	17-Aug-97	*MR-L*	544600	6971600									
5063	ARCH**	592	3000			Or	6307	21	92	18-Aug-97	*MR-L*	544600	6971600									
4441	ARCH	530		10		Or	7040	21	72	20-Aug-97	*D1*	533300	6989500									
4444	ARCH	405	836			Or	7039	21	82	21-Aug-97	*D1*	533300	6989500									
4456	ARCH	494	1294			Or	7036	21	93	21-Aug-97	*D1*	533300	6989500									
4458	ARCH	470	1128			Or	7062	20	67	21-Aug-97	*D1*	533300	6989500									
4459	ARCH	400	820			Or	7034	21	83	21-Aug-97	*D1*	533300	6989500									
4487	ARCH	504		17		Or	7061	20	53	27-Aug-97	*D1*	533300	6989500									
4488	ARCH	577				Or	7066	20	52	27-Aug-97	*D1*	533300	6989500									
4490	ARCH	530				Or	7060	20	65	27-Aug-97	*D1*	533300	6989500									
5929	ARCH**	673	3210			Or	7491	21	75	29-Aug-97	*MR-L*	544600	6971600									
5930	ARCH	560	2055			Or	7492	21	76	29-Aug-97	*MR-L*	544600	6971600									
5954	ARCH**	476	1290			Or	7015	20	64	30-Aug-97	*MR-L*	544600	6971600									
5955	ARCH *	463	1315			Or	7016	20	62	30-Aug-97	*MR-L*	544600	6971600									
5956	ARCH	438	1015			Or	7017	20	58	30-Aug-97	*MR-L*	544600	6971600									
5977	ARCH	494	1375			Or	6863	20	57	30-Aug-97	*MR-L*	544600	6971600									
5978	ARCH**	460	1175			Or	6864	21	91	30-Aug-97	*MR-L*	544600	6971600									
5990	ARCH	523	1740			Or	6875	20	56	31-Aug-97	*MR-L*	544600	6971600									
5991	ARCH	497	1480			Or	7004	20	60	31-Aug-97	*MR-L*	544600	6971600									
5996	ARCH	457	1100			Or	7103	20	71	31-Aug-97	*MR-L*	544600	6971600									
6009	ARCH**	571	2355			Or	7115	20	51	31-Aug-97	*MR-L*	544600	6971600									
6014	ARCH	537	1805			Or	7120	21	80	01-Sep-97	*MR-L*	544600	6971600									
6025	ARCH**	542	1970			Or	7633	21	88	01-Sep-97	*MR-L*	544600	6971600									
6026	ARCH**	602	2505			Or	7634	21	73	01-Sep-97	*MR-L*	544600	6971600									
6044	ARCH	543	1990			Or	7601	21	90	02-Sep-97	*MR-L*	544600	6971600									
6078	ARCH	600	2170	14		Or	7625	20	62	28-Sep-97	*LML*	536550	6979300									
9113	ARCH	607	2970	17		Wh	3126	20	08	31-Aug-98	*ML-S*	532800	6988950									
9115	ARCH	570	2080			Wh	3127	20	07	01-Sep-98	*LML*	536350	6979450									
9138	ARCH**	620	2485			Wh	3130	20	06	02-Sep-98	*LML*	536350	6979450									
9139	ARCH	620	2250			Wh	3128	20	10	02-Sep-98	*LML*	536350	6979450									
9148	ARCH**	632	3030			Wh	3131	20	09	02-Sep-98	*LML*	536350	6979450									
240	ARGR	382	548	9		Or	6334	23	47	16-Jun-97	*B2*	537750	6986800	*B4*	538650	6986900	*ML-S*	530600	6991750	*ML-S*	530800	6991250
241	ARGR	308	346	20		Or	6335	22	29	16-Jun-97	*B2*	537750	6986800				*ML-W*	528100	6996150	*ML-W*	527350	6996750
311	ARGR	341	388	10		Or	6338	22	28	17-Jun-97	*B7*	537950	6989200	*B7*	538050	6989500	*B7*	537900	6989350	*B7*	538300	6989100
312	ARGR	339	386	20		Or	6339	23	42	17-Jun-97	*B7*	537950	6989200	*B7*	538200	6989250	*B7*	538350	6989050	*B7*	538250	6989150
313	ARGR	331	350	10		Or	6340	23	45	17-Jun-97	*B7*	537950	6989200	*B7*	538150	6989250	*B7*	538150	6989200	*B7*	538200	6989250
525	ARGR	321	346	20		Or	6341	23	46	18-Jun-97	*D1*	533400	6989400	*D1*	533150	6989500	*ML-S*	532500	6988900	*ML-S*	532700	6989000
526	ARGR	353	470	10		Or	6342	22	30	18-Jun-97	*D1*	533400	6989400	*ML-S*	532200	6990000	*ML-S*	531300	6990800	*ML-S*	532100	6990300
870	ARGR	311	416	10		Or	6352	23	43	13-Jul-97	*A8*	540850	6986800	*A8*	540650	6986550	*A8*	540350	6986700	*A8*	540450	6987000
871	ARGR	321	462	10		Or	6354	22	32	13-Jul-97	*A8*	540850	6986800	*A8*	540700	6986900	*A8*	540650	6987000	*A8*	540550	6986950
872	ARGR	375	650	10		Or	6355	23	44	13-Jul-97	*A8*	540850	6986800	*A8*	540650	6986950	*A8*	540400	6987250	*A8*	540500	6987300
873	ARGR	414	782	10		Or	6356	22	33	13-Jul-97	*A8*	540850	6986800	*A8*	540650	6986850	*A8*	540750	6986800	*A8*	540650	6986900
932	ARGR	354	568	20		Or	6359	22	36	14-Jul-97	*A6*	541900	6985300	*A6*	541700	6985450	*A6*	542250	6986050	*A6*	541800	6985400
933	ARGR	361	562	10		Or	6360	23	39	14-Jul-97	*A6*	541900	6985300	*A6*	541750	6985500	*A6*	541700	6985550	*A6*	542000	6985900
982	ARGR	387	638	10		Or	6366	23	48	15-Jul-97	*B5*	538700	6987700	*B5*	538350	6987900	*B5*	538400	6987700	*B5*	538450	6987650
983	ARGR	394	658	20		Or	6367	22	38	15-Jul-97	*B5*	538700	6987700	*B5*	538400	6987800	*B5*	538400	6987850	*B5*	538350	6987750
2030	ARGR	334	492	20		Or	6373	23	41	17-Jul-97	*B5*	537300	6988750	*B5*	538400	6987750	*B5*	537600	6988500	*B5*	537500	6988600
2031	ARGR	303	424	20		Or	6374	22	37	17-Jul-97	*D7*	536100	6988750	*D7*	536350	6989250	*D7*	536200	6988750	*D7*	536150	6988700
2072	ARGR	293	366	20		Or	6407	22	34	19-Jul-97	*D7*	536400	6988550	*D7*	536200	6988700	*D7*	536400	6988650	*D7*	536700	6988700
2073	ARGR	314	406	20		Or	6408	23	49	19-Jul-97	*D7*	536100	6988750	*D7*	536450	6988750	*D7*	536500	6988700	*ML-S*	533100	6991000
8954	ARGR	336	450	20		Wh	3181	22	03	29-Aug-98	*B5*	538500	6987700									
8955	ARGR	331	370	20		Wh	3180	22	02	29-Aug-98	*B5*	538500	6987700									
8957	ARGR	357	480	10		Wh	3178	22	01	29-Aug-98	*B5*	538500	6987700									
8958	ARGR	405	680	20		Wh	3177	22	05	29-Aug-98	*B5*	538500	6987700									
530	LKTR**	540	2830			Or	6346	21	89	18-Jun-97	*D1*	533400	6989400							*MR-U*	530550	6989250
765	LKTR	578	2497			Or	6349	21	84	21-Jun-97	*MR-U*	530650	6989250				*MR-U*	527700	6986900	*MR-U*	528550	6986400
1437	LKTR	845	7800			Or	6812	20	50	14-Jul-97	*ML-E*	542050	6988650	*ML-E*	547950	6983200	*ML-E*	547000	6984100			
1496	LKTR	682	4000			Or	6822	21	79	15-Jul-97	*ML-E*	542050	6988650							*ML-E*	541900	6989400
1579	LKTR	572	2130			Or	6835	20	54	16-Jul-97	*ML-E*	542050	6988650							*ML-C*	538400	6991250
3269	LKTR	656	3500			Or	6878	20	70	19-Jul-97	*ML-E*	542050	6988650	*ML-E*	545800	6986950	*ML-E*	546000	6989750	*ML-E*	545150	6990300
2178	LKTR	594	2200			Or	6414	20	66	20-Jul-97	*MR-U*	530650	6989250									
3742	LKTR	532	2090			Or	6886	21	85	20-Jul-97	*ML-E*	542050	6988650	*ML-E*	541600	6990150	*ML-E*	541800	6989400			
3743	LKTR	568	2475			Or	6887	20	69	20-Jul-97	*ML-E*	542050	6988650	*ML-E*	540650	6989950				*ML-E*	546050	6989700
3744	LKTR	552	2160			Or	6888	21	81	20-Jul-97	*ML-E*	542050	6988650	*ML-E*	545000	6988400	*ML-E*	546050	6986400	*ML-E*	543600	6987800
4010	LKTR	550	1610			Or	6417	20	59	21-Jul-97	*ML-E*	546500	6985300	*ML-E*	546100	6985600	*ML-E*	546200	6985300	*ML-E*	546000	6985800
4013	LKTR	770	5100			Or	6420	21	78	21-Jul-97	*ML-E*	546300	6985500	*ML-E*	546600	6985000				*ML-E*	547500	6983950
4016	LKTR	692	4200			Or	6423	21	77	21-Jul-97	*ML-E*	542050	6988650							*ML-W*	528000	7000250

* captured by local fisher in Little Meliadine Lake on 15 Sep 97; radio tag redeployed in fish # 6078 on 28 Sep 97

** captured by local fisher (see Appendix F21)

Note: mm = millimetre; g = gram; yr = year; ARCH = Arctic char; ARGR = Arctic grayling; LKTR = lake trout

Golder Associates

Appendix F23. Radio tagged fish in the Meliadine Study Area and tracking results, 1997-1999.

Fish #	Species	Fork Length (mm)	Tracked 1-Sep-97			Tracked 14-Sep-97			Tracked 26-27 Sep-97			Tracked 24-25 Oct-97			Tracked 23-Apr-98			Tracked 11-Jun-98		
			Basin	Easting (15V)	Northing (15V)	*Basin*	Easting (15V)	Northing (15V)	*Basin*	Easting (15V)	Northing (15V)	*Basin*	Easting (15V)	Northing (15V)	*Basin*	Easting (15V)	Northing (15V)	*Basin*	Easting (15V)	Northing (15V)
5015	ARCH	501	*LML*	536400	6979100	*LML*	537300	6978850	*LML*	536250	6979100	*LML*	536250	6979100	*LML*	536600	6978500	*LML*	536200	6979200
5016	ARCH	508	*LML*	539500	6976750				*LML*	536350	6979300	*LML*	536350	6979300	*LML*	536300	6978500	*LML*	536100	6979350
5063	ARCH**	592	*MR-L*	540600	6974900	*MR-L*	540550	6974950				*LML*	539000	6977000	*LML*	537200	6978900			
4441	ARCH	530	*D1*	533000	6989500	*D1*	533000	6989500				*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533000	6989500
4444	ARCH	405	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533100	6989400	*D1*	533100	6989400
4456	ARCH	494	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533000	6989500
4458	ARCH	470	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533200	6989400	*D1*	533200	6989400
4459	ARCH	400	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533000	6989500
4487	ARCH	504	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533000	6989500
4488	ARCH	577	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533200	6989600	*D1*	533200	6989600
4490	ARCH	530	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533000	6989500
5929	ARCH**	673	*MR-L*	543400	6972200	*LML*	535900	6979800	*LML*	caught 23 Sep										
5930	ARCH	560	*LML*	536100	6979700				*LML*	537050	6978800	*LML*	537050	6978800	*LML*	537050	6978800			
5954	ARCH**	476	*LML*	539700	6976750	*LML*	540300	6976000	*LML*	536750	6978850	*LML*	536750	6978850	*LML*	538300	6977600	*MR-L*	539900	6976200
5955	ARCH *	463				*LML*	caught 12 Sep													
5956	ARCH	438							*LML*	539300	6976800	*LML*	539300	6976800	*LML*	538000	6978400			
5977	ARCH	494							*LML*	538200	6977700	*LML*	538200	6977700	*LML*	537600	6978700	*MR-L*	539800	6976300
5978	ARCH**	460	*MR-L*	539900	6976300	*LML*	539050	6977300	*LML*	536300	6979500	*LML*	536300	6979500	*LML*	538100	6978300	*MR-L*	540050	6976050
5990	ARCH	523	*LML*	539300	6976800	*MR-L*	540250	6976000	*LML*	538800	6977750	*LML*	538800	6977750	*LML*	537000	6979100	*LML*	536800	6978750
5991	ARCH	497										*LML*	539100	6977000	*LML*	537300	6977800	*LML*	539100	6977300
5996	ARCH	457	*MR-L*	542500	6973250	*LML*	539150	6977050	*LML*	536150	6979550	*LML*	536150	6979550	*LML*	537600	6977500	*LML*	539600	6976700
6009	ARCH**	571	*MR-L*	543100	6972950	*MR-L*	540200	6976000	*LML*	539300	6977000	*LML*	539300	6977000	*LML*	537200	6978100	*LML*	536300	6978600
6014	ARCH	537	*MR-L*	543600	6972000	*LML*	536300	6979300							*LML*	536700	6978000	*LML*	539750	6976750
6025	ARCH**	542				*MR-L*	540350	6976000	*LML*	539700	6976800	*LML*	539700	6976800				*MR-L*	539800	6976400
6026	ARCH**	602				*LML*	538250	6978100	*LML*	536300	6979500	*LML*	536300	6979500	*LML*	537000	6977900	*MR-L*	540350	6975200
6044	ARCH	543										*LML*	538567	6977450	*LML*	537800	6977300			
6078	ARCH	600																*LML*	539300	6977100
9113	ARCH	607																		
9115	ARCH	570																		
9138	ARCH**	620																		
9139	ARCH	620																		
9148	ARCH**	632																		
240	ARGR	382				*ML-S*	531300	6989500	*ML-S*	535700	6986900	*ML-S*	535000	6986800	*ML-S*	535000	6986800			
241	ARGR	308	*ML-W*	527700	6996550	*ML-W*	531900	6999400	*ML-W*	532300	6999500	*ML-W*	529110	7000100	*ML-W*	526100	7001500	*ML-W*	526900	7001500
311	ARGR	341	*B7*	538000	6989300	*B7*	538400	6989100	*B7*	538600	6988900	*B7*	538600	6988900	*B7*	538600	6988900	*B7*	537900	6989400
312	ARGR	339	*B7*	538300	6989100	*B7*	538600	6989000	*B7*	538500	6989050	*B7*	538500	6989050	*B7*	538500	6989050	*B7*	537900	6989400
313	ARGR	331	*B7*	538450	6988950	*B7*	538650	6988900	*B7*	538250	6989250	*B7*	538250	6989250	*B7*	538250	6989250	*B7*	537900	6989400
525	ARGR	321				*ML-S*	531900	6989200	*ML-S*	533100	6988500	*ML-S*	532850	6989200	*ML-S*	532850	6989200	*ML-S*	532750	6989000
526	ARGR	353				*ML-S*	532500	6988950	*ML-S*	533700	6987850	*ML-S*	532250	6989500	*ML-S*	532250	6989500	*D2*	533700	6989500
870	ARGR	311	*A8*	540250	6987000	*A8*	540550	6987100	*A8*	540400	6987000	*A8*	540400	6987000	*A8*	540400	6987000	*A8*	540600	6986900
871	ARGR	321	*A8*	540250	6987100	*A8*	540350	6987050				*A8*	540500	6987000	*A8*	540500	6987000	*A8*	540550	6986900
872	ARGR	375	*A8*	540400	6987400	*A8*	540500	6987400	*A8*	540500	6987300	*A8*	540500	6987300	*A8*	540500	6987300	*A8*	540500	6987250
873	ARGR	414	*A8*	540500	6987200	*A8*	540550	6987100	*A8*	540500	6986600	*A8*	540500	6986950	*A8*	540500	6986950	*A8*	540500	6987000
932	ARGR	354	*A6*	541900	6985700	*A6*	541600	6985400	*A6*	542000	6985800	*A6*	541900	6985900	*A6*	541900	6985900	*A1*	544250	6985650
933	ARGR	361	*A6*	542100	6985800	*A6*	541800	6985600	*A6*	541800	6985400	*A6*	541800	6985400	*A6*	541800	6985400	*A6*	542000	6985800
982	ARGR	387	*B5*	538400	6987750	*B5*	538600	6987750	*B5*	538500	6987700									
983	ARGR	394	*B5*	538550	6987700	*B5*	538400	6987950	*B5*	538300	6988000	*B5*	538300	6988000						
2030	ARGR	334	*B5*	537400	6988700	*B5*	537900	6988400	*B5*	537800	6988500	*B5*	537800	6988500	*B5*	537800	6988500	*B5*	538250	6988200
2031	ARGR	303	*D7*	536200	6988700	*D7*	536350	6988850	*D7*	536250	6988750	*D7*	536250	6988750	*D7*	536250	6988750	*D7*	536250	6988750
2072	ARGR	293	*D7*	536400	6988900	*D7*	536300	6988800	*D7*	536500	6989100	*D7*	536650	6988650	*D7*	536650	6988650	*D7*	536750	6988500
2073	ARGR	314										*ML-S*	533300	6991000						
8954	ARGR	336																		
8955	ARGR	331																		
8957	ARGR	357																		
8958	ARGR	405																		
530	LKTR**	540							*ML-S*	532600	6989800	*ML-S*	532850	6988100	*ML-S*	532850	6988100	*ML-S*	ught 8 May	
765	LKTR	578	*MR-U*	528950	6986100	*MR-U*	529000	6986050	*MR-U*	526400	6988100	*MR-U*	526400	6988100	*MR-U*	526400	6988100	*MR-U*	528900	6986250
1437	LKTR	845	*ML-E*	544000	6987000	*ML-E*	543700	6987400				*ML-E*	543600	6987550	*ML-E*	542900	6987900	*ML-E*	542250	6988650
1496	LKTR	682	*ML-E*	544300	6986500							*ML-E*	545600	6989900	*ML-E*	545600	6989900	*ML-E*	546100	6989900
1579	LKTR	572	*ML-C*	538900	6991150	*ML-C*	538700	6991100				*ML-C*	538850	6992500	*ML-C*	539600	6992500			
3269	LKTR	656	*ML-E*	545400	6989950				*ML-E*	544100	6990900	*ML-E*	544100	6990900	*ML-E*	545800	6989900	*ML-E*	545600	6990400
2178	LKTR	594	*MR-U*	526700	6990100	*MR-U*	526950	6987300	*MR-U*	527000	6988800	*MR-U*	527000	6988800	*MR-U*	527000	6988800			
3742	LKTR	532	*ML-W*	526700	6998100										*ML-E*	544300	6986600	*ML-E*	544750	6986000
3743	LKTR	568	*ML-E*	546200	6989400	*ML-E*	546300	6989300	*ML-E*	545900	6989700	*ML-E*	545000	6990500	*ML-E*	546200	6989500	*ML-E*	545800	6989950
3744	LKTR	552	*ML-E*	546100	6990200	*ML-E*	545000	6986900	*ML-E*	545200	6986600	*ML-E*	545200	6986600	*ML-E*	545700	6986700	*ML-E*	544100	6987900
4010	LKTR	550	*ML-E*	546600	6985100	*ML-E*	545900	6985850	*ML-E*	545950	6985500	*ML-E*	545950	6985500	*ML-E*	546400	6985100	*ML-E*	546250	6985400
4013	LKTR	770	*ML-E*	547500	6983900				*ML-E*	547500	6983700							*ML-E*	544050	6989350
4016	LKTR	692	*ML-W*	528850	6999100	*ML-W*	530400	6993200	*ML-W*	528050	6998100	*ML-W*	530900	6996100	*ML-W*	528300	7001300			

* captured by local fisher in Little Meliadine Lake on 15 Sep 97; radio tag redeployed in fish # 6078 on 28 Sep 97

** captured by local fisher (see Appendix F21)

Note: mm = millimetre; g = gram; yr = year; ARCH = Arctic char; ARGR = Arctic grayling; LKTR = lake trout

Golder Associates

Appendix F23. Radio tagged fish in the Meliadine Study Area and tracking results, 1997-1999.

Fish #	Species	Fork Length (mm)	Tracked 21-Jun-98			Tracked 11-Jul-98			Tracked 30-Jul-98			Tracked 17-Aug-98			Tracked 2-Oct-98			Tracked 7-Nov-98		
			Basin	Easting (15V)	Northing (15V)	*Basin*	Easting (15V)	Northing (15V)	*Basin*	Easting (15V)	Northing (15V)	*Basin*	Easting (15V)	Northing (15V)	*Basin*	Easting (15V)	Northing (15V)	*Basin*	Easting (15V)	Northing (15V)
5015	ARCH	501	*LML*	536300	6979300	*LML*	536400	6979100	*LML*	536400	6978900	*LML*	536600	6978900						
5016	ARCH	508	*LML*	536100	6979500	*LML*	536200	6979350	*LML*	536300	6979200									
5063	ARCH**	592	*HB*	545600	6970200	*HB*	caught 8 Jul													
4441	ARCH	530	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533000	6989500						
4444	ARCH	405	*D1*	533100	6989400	*D1*	533100	6989400	*D1*	533100	6989400	*D1*	533100	6989400	*D1*	533100	6989400	*D1*	533100	6989400
4456	ARCH	494	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533000	6989500						
4458	ARCH	470	*D1*	533200	6989400	*D1*	533200	6989400	*D1*	533200	6989400	*D1*	533200	6989400						
4459	ARCH	400	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533000	6989500						
4487	ARCH	504	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533000	6989500			
4488	ARCH	577	*D1*	533200	6989600	*D1*	533200	6989600	*D1*	533200	6989600	*D1*	533200	6989600						
4490	ARCH	530	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533000	6989500	*D1*	533000	6989500						
5929	ARCH**	673																		
5930	ARCH	560																		
5954	ARCH**	476		in Rankin Town																
5955	ARCH *	463																		
5956	ARCH	438	*HB*	545300	6969700															
5977	ARCH	494													*MR-L*	543450	6972300			
5978	ARCH**	460	*HB*	545500	6969900	*HB*	caught 1 Jul													
5990	ARCH	523																		
5991	ARCH	497	*HB*	546000	6969500															
5996	ARCH	457	*MR-L*	540200	6975750															
6009	ARCH**	571	*MR-L*	541100	6974300	*HB*	caught 29 Jun													
6014	ARCH	537	*MR-L*	542700	6973300															
6025	ARCH**	542	*MR-L*	543400	6972800				*HB*	caught 20 Jul										
6026	ARCH**	602				*HB*	caught 25 Jun													
6044	ARCH	543	*MR-L*	540300	6976100															
6078	ARCH	600				*LML*	539500	6976800	*LML*	539700	6976800	*LML*	539500	6976800	*LML*	539500	6976800	*LML*	539500	6976800
9113	ARCH	607													*ML-W*	529950	6996000	*ML-W*	530000	6994600
9115	ARCH	570													*LML*	537300	6978500	*LML*	537300	6978500
9138	ARCH**	620													*LML*	caught Sep				
9139	ARCH	620													*LML*	536000	6979800			
9148	ARCH**	632													*LML*	caught Sep				
240	ARGR	382	*H2*	538100	6984900	*B2*	537400	6986350	*ML-S*	531200	6991000	*ML-S*	531300	6990700	*ML-S*	536600	6985800	*ML-S*	535000	6986800
241	ARGR	308	*ML-W*	529700	7002100	*ML-W*	529200	7001250	*ML-W*	529950	7000800	*ML-W*	531500	6999900	*ML-W*	532100	6999700	*ML-W*	529000	7000800
311	ARGR	341	*B7*	537900	6989350	*B7*	537450	6989750	*B7*	537500	6989750	*B7*	537550	6989750	*B7*	537550	6989750	*B7*	537550	6989750
312	ARGR	339	*B7*	538000	6989400	*B7*	537900	6989400	*B7*	537700	6989450	*B7*	538300	6989000						
313	ARGR	331	*B7*	537950	6989400	*B7*	537900	6989500	*B7*	538000	6989500	*B7*	538050	6989500	*B7*	538050	6989500	*B7*	538050	6989500
525	ARGR	321	*ML-S*	532800	6989000	*ML-S*	532700	6989000	*ML-S*	532700	6989050	*ML-S*	532600	6989000	*ML-S*	532600	6989000	*ML-S*	532600	6989000
526	ARGR	353	*D1*	533000	6989500	*ML-S*	531500	6990800	*ML-S*	531500	6990700	*ML-S*	532100	6989400	*ML-S*	532100	6989400	*ML-S*	531500	6990700
870	ARGR	311	*A8*	540500	6986900	*A8*	540550	6986900	*A8*	540600	6986900	*A8*	540550	6986900	*A8*	540550	6986900	*A8*	540550	6986900
871	ARGR	321	*A8*	540550	6987000	*A8*	540700	6986900	*A8*	540700	6986850	*A8*	540700	6986900	*A8*	540700	6986900	*A8*	540700	6986900
872	ARGR	375	*A8*	540550	6987250	*A8*	540500	6987250	*A8*	540550	6987150	*A8*	540500	6987250	*A8*	540500	6987250	*A8*	540500	6987250
873	ARGR	414	*A8*	540600	6987000	*A8*	540550	6987000	*A8*	540600	6987000	*A8*	540550	6987000	*A8*	540950	6987450	*A8*	540950	6987450
932	ARGR	354	*A6*	541950	6985550	*A6*	542000	6985750	*A6*	542200	6985850	*A6*	542000	6985750	*A6*	542000	6985750	*A6*	542000	6985750
933	ARGR	361	*A6*	542000	6985850	*A6*	541900	6985700	*A6*	542100	6985800	*A6*	541900	6985700	*A6*	541900	6985700			
982	ARGR	387																		
983	ARGR	394																		
2030	ARGR	334	*B5*	538250	6988150	*B5*	537750	6988600	*B5*	537750	6988550	*B5*	537700	6988550	*B5*	537700	6988550	*B5*	537700	6988550
2031	ARGR	303	*D7*	536250	6988750	*D7*	536250	6988750	*D7*	536250	6988750	*D7*	536250	6988750	*D7*	536250	6988750	*D7*	536250	6988750
2072	ARGR	293	*D7*	536700	6988500	*D7*	536600	6988400	*D7*	536500	6988450	*D7*	536500	6988450	*D7*	536500	6988450	*D7*	536500	6988450
2073	ARGR	314																		
8954	ARGR	336													*B5*	538200	6988450			
8955	ARGR	331													*B5*	538250	6988250	*B5*	538250	6988250
8957	ARGR	357													*B5*	538450	6988150	*B5*	538450	6988150
8958	ARGR	405													*B5*	538550	6988000	*B5*	538550	6988000
530	LKTR**	540																		
765	LKTR	578	*MR-U*	529700	6983800															
1437	LKTR	845	*ML-E*	542700	6988300															
1496	LKTR	682	*ML-E*	546150	6989900															
1579	LKTR	572				*ML-E*	542200	6988700	*ML-E*	543100	6987800									
3269	LKTR	656																		
2178	LKTR	594																		
3742	LKTR	532				*ML-E*	544600	6986100	*ML-E*	544600	6986250									
3743	LKTR	568	*ML-E*	545900	6989950	*ML-E*	545800	6989600	*ML-E*	546000	6989600	*ML-E*	546000	6989500	*ML-E*	546000	6989500			
3744	LKTR	552	*ML-E*	545400	6986400	*ML-E*	545600	6986700	*ML-E*	545650	6986900									
4010	LKTR	550	*ML-E*	546300	6985400	*ML-E*	546250	6985400	*ML-E*	546300	6985400	*ML-E*	546200	6985400						
4013	LKTR	770	*ML-E*	544100	6989350															
4016	LKTR	692	*ML-W*	524900	7001000	*ML-W*	525750	7000900	*ML-W*	525700	7000900									

* captured by local fisher in Little Meliadine Lake on 15 Sep 97; radio tag redeployed in fish # 6078 on 28 Sep 97

** captured by local fisher (see Appendix F21)

Note: mm = millimetre; g = gram; yr = year; ARCH = Arctic char; ARGR = Arctic grayling; LKTR = lake trout

Appendix F23. Radio tagged fish in the Meliadine Study Area and tracking results, 1997-1999.

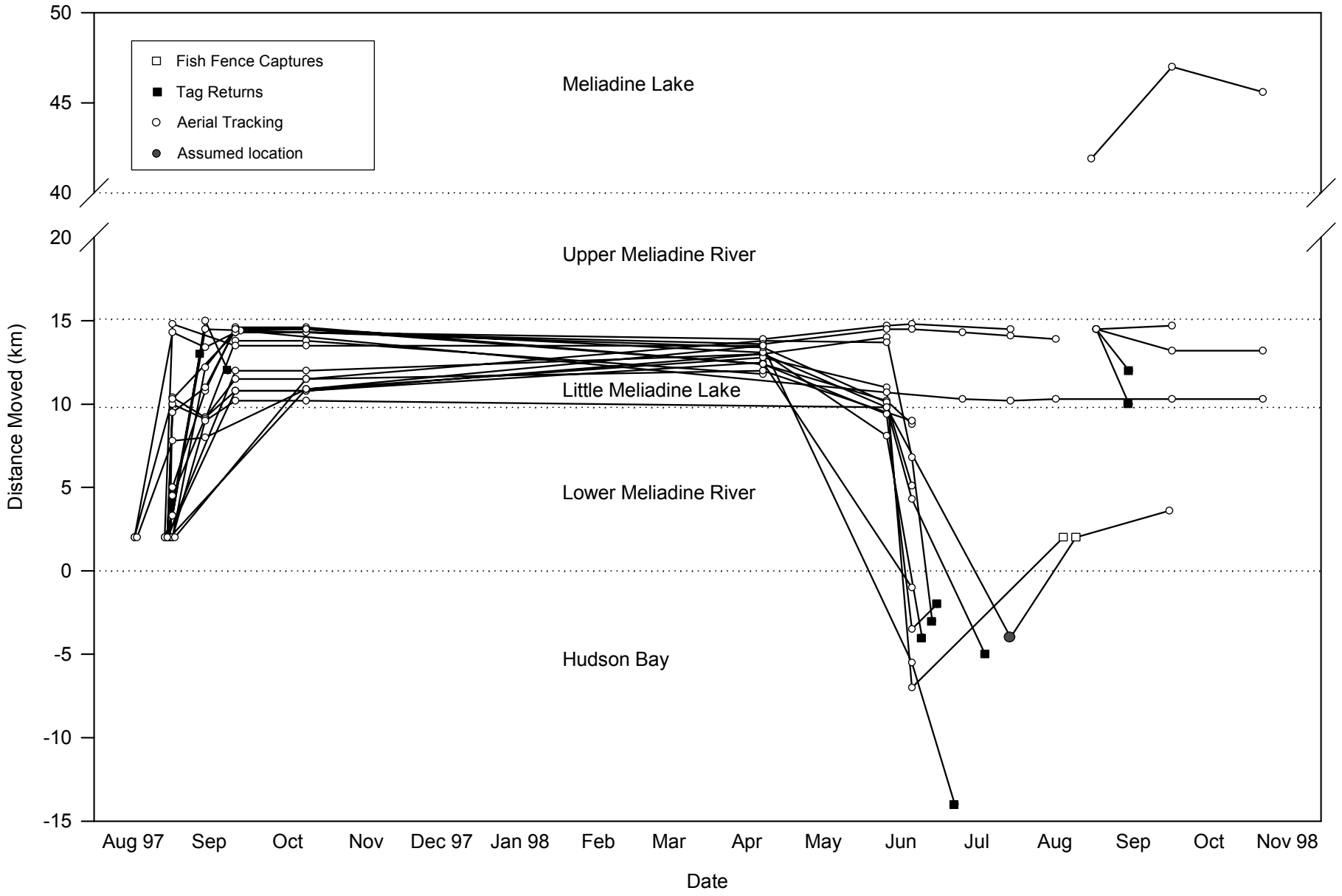
Fish #	Species	Fork Length (mm)	Tracked 20-Jun-99			Tracked 24-Jul-99			Tracked 3-Sep-99			Tracked 13-Sep-99		
			Basin	Easting (15V)	Northing (15V)	*Basin*	Easting (15V)	Northing (15V)	*Basin*	Easting (15V)	Northing (15V)	*Basin*	Easting (15V)	Northing (15V)
5015	ARCH	501												
5016	ARCH	508												
5063	ARCH**	592												
4441	ARCH	530												
4444	ARCH	405												
4456	ARCH	494												
4458	ARCH	470												
4459	ARCH	400												
4487	ARCH	504												
4488	ARCH	577												
4490	ARCH	530												
5929	ARCH**	673												
5930	ARCH	560												
5954	ARCH**	476												
5955	ARCH *	463												
5956	ARCH	438												
5977	ARCH	494												
5978	ARCH**	460												
5990	ARCH	523												
5991	ARCH	497												
5996	ARCH	457												
6009	ARCH**	571												
6014	ARCH	537												
6025	ARCH**	542												
6026	ARCH**	602												
6044	ARCH	543												
6078	ARCH	600												
9113	ARCH	607	*ML-W*	529680	6994930									
9115	ARCH	570	*LML*	538090	6977700	*LML*	538090	6977700	*LML*	538090	6977700	*LML*	538090	6977700
9138	ARCH**	620												
9139	ARCH	620	*HB*	545510	6970130				*LML*	536080	6979620	*LML*	536080	6979620
9148	ARCH**	632												
240	ARGR	382												
241	ARGR	308												
311	ARGR	341												
312	ARGR	339												
313	ARGR	331												
525	ARGR	321												
526	ARGR	353												
870	ARGR	311												
871	ARGR	321												
872	ARGR	375												
873	ARGR	414												
932	ARGR	354												
933	ARGR	361												
982	ARGR	387												
983	ARGR	394												
2030	ARGR	334												
2031	ARGR	303												
2072	ARGR	293												
2073	ARGR	314												
8954	ARGR	336	*B5*	537830	6988530	*B5*	537830	6988530	*B5*	537890	6988600	*B5*	538280	6988250
8955	ARGR	331	*B5*	538620	6987680	*B5*	538620	6987680	*B5*	538520	6987650	*B5*	538520	6987650
8957	ARGR	357	*B5*	538490	6987710	*B5*	538490	6987710	*B5*	538360	6987790	*B5*	538360	6987790
8958	ARGR	405	*B5*	538410	6988020	*B5*	538410	6988020	*B5*	538630	6987850	*B5*	538440	6987720
530	LKTR**	540												
765	LKTR	578												
1437	LKTR	845												
1496	LKTR	682												
1579	LKTR	572												
3269	LKTR	656												
2178	LKTR	594												
3742	LKTR	532												
3743	LKTR	568												
3744	LKTR	552												
4010	LKTR	550												
4013	LKTR	770												
4016	LKTR	692												

* captured by local fisher in Little Meliadine Lake on 15 Sep 97; radio tag redeployed in fish # 6078 on 28 Sep 97

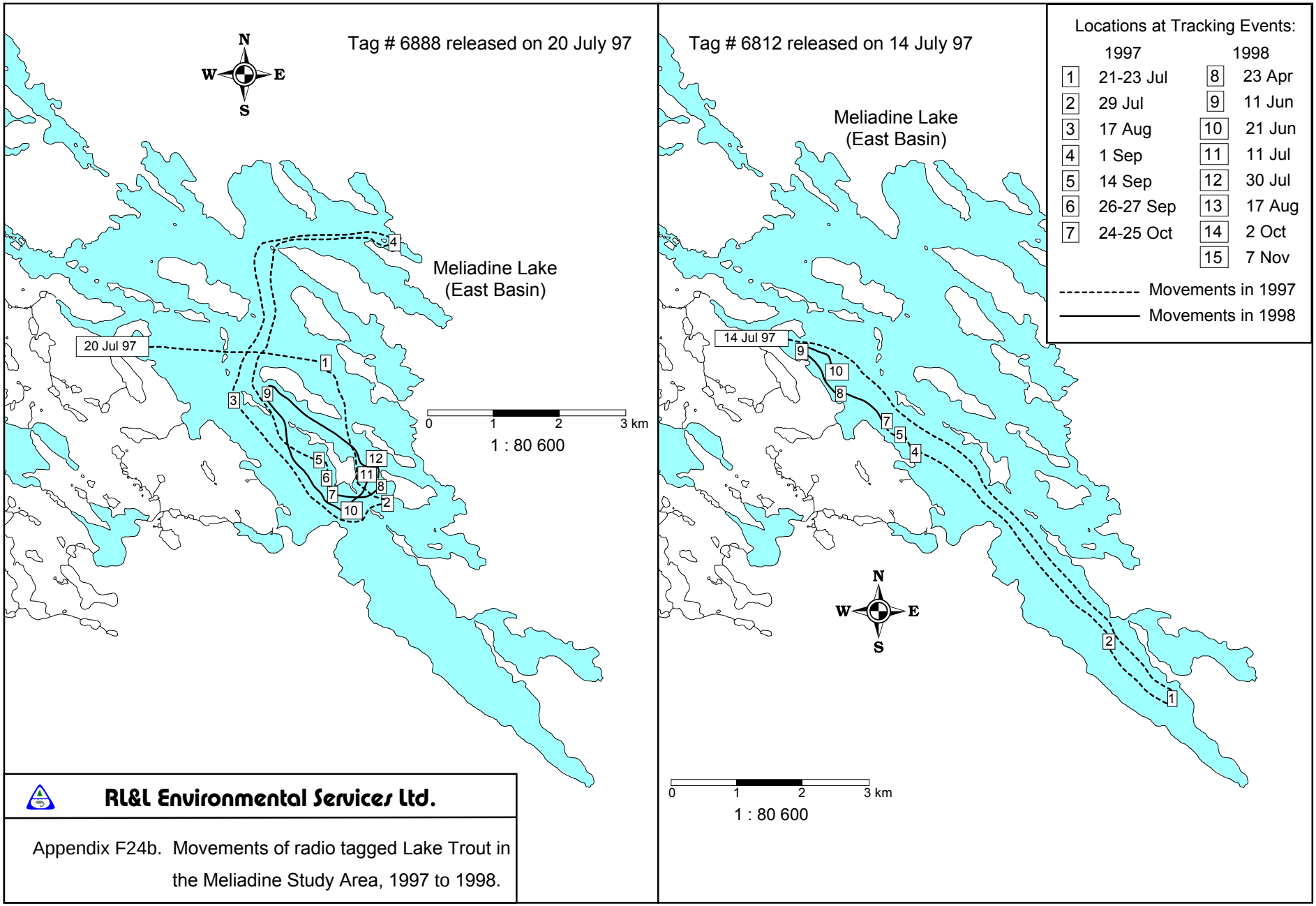
** captured by local fisher (see Appendix F21)

Note: mm = millimetre; g = gram; yr = year; ARCH = Arctic char; ARGR = Arctic grayling; LKTR = lake trout

Golder Associates

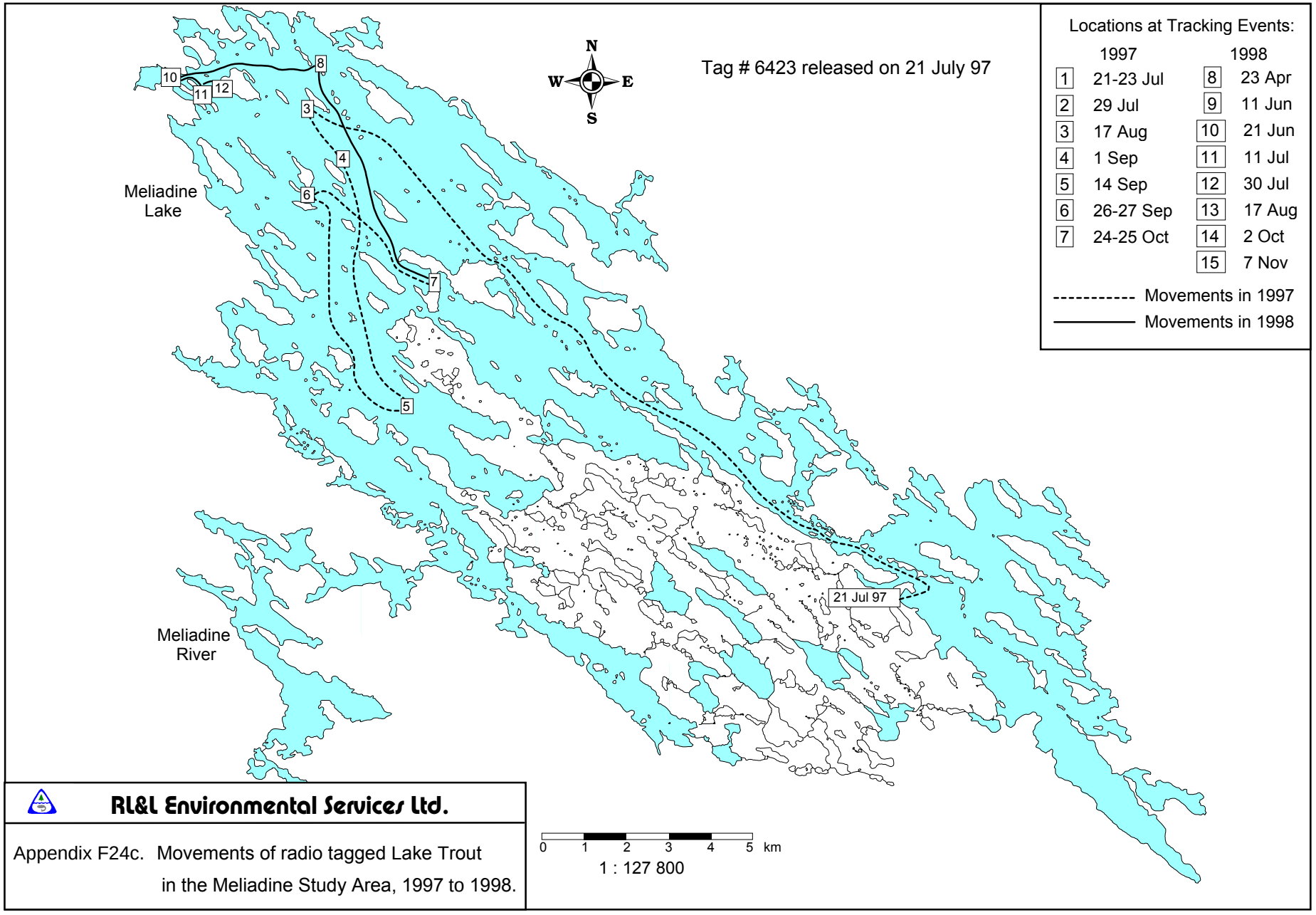


Appendix F24a. Movements of radio tagged Arctic Char in the Meliadine Study Area 1997 to 1998.



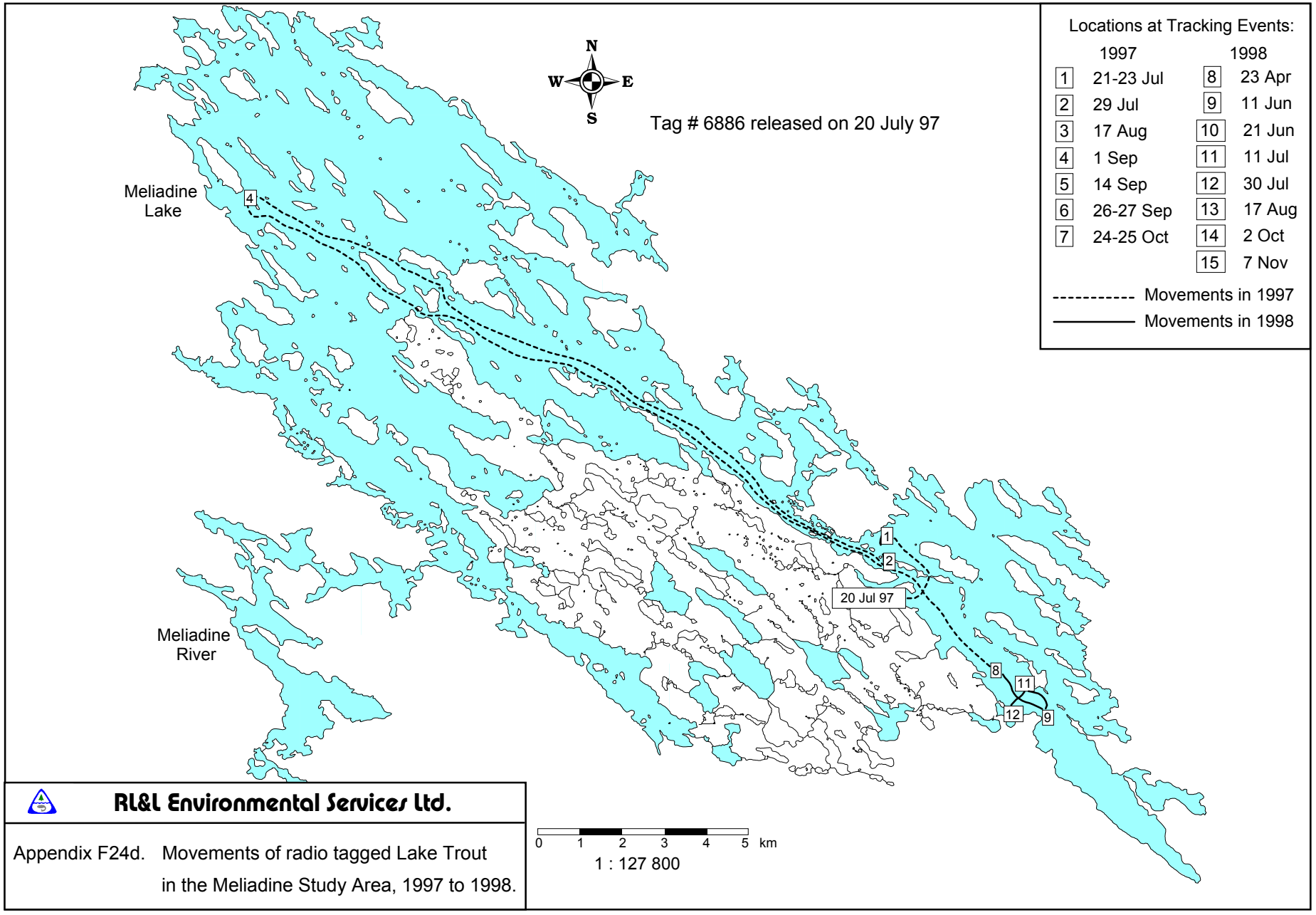
RL&L Environmental Services Ltd.

Appendix F24b. Movements of radio tagged Lake Trout in the Meliadine Study Area, 1997 to 1998.



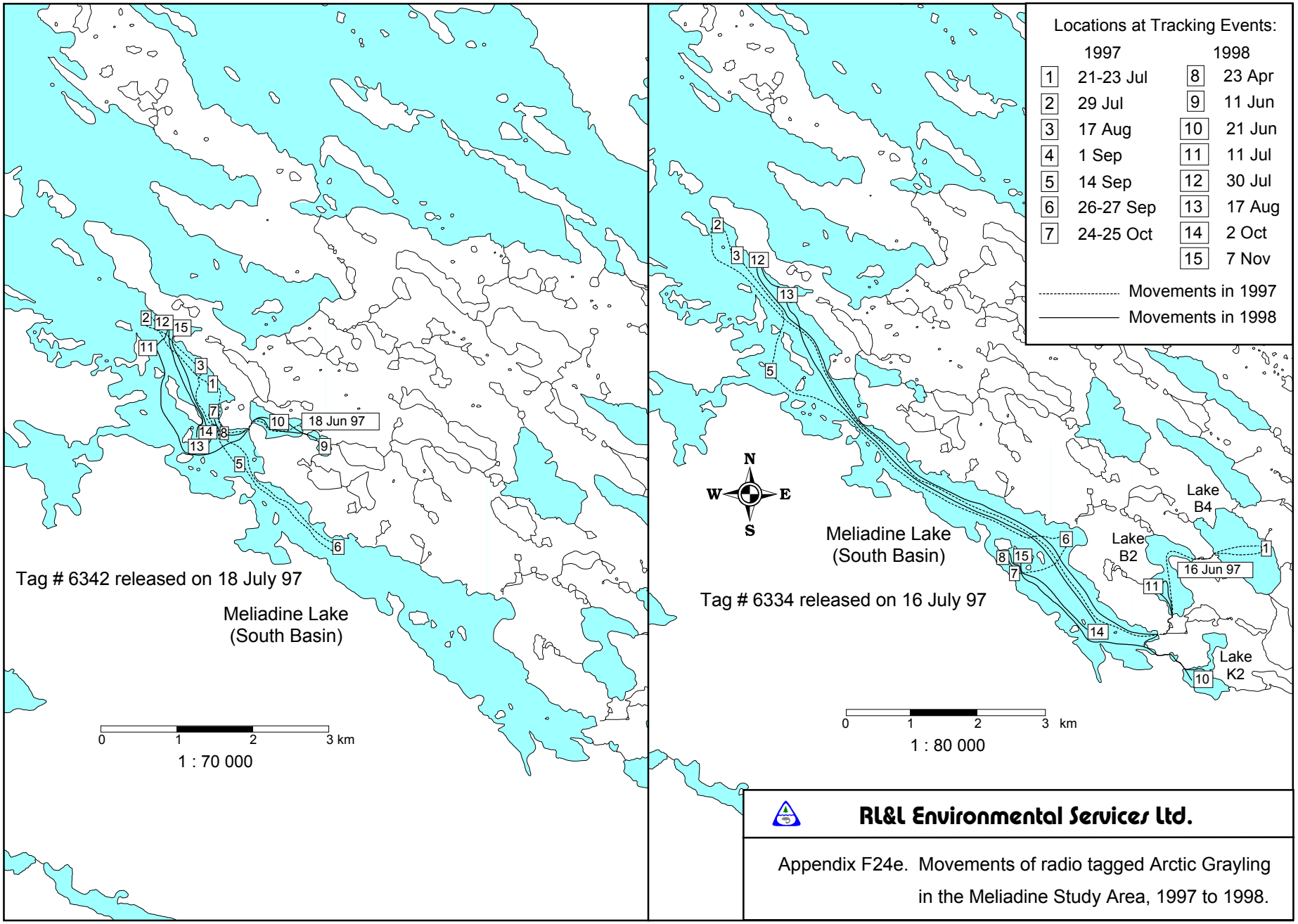
RL&L Environmental Services Ltd.

Appendix F24c. Movements of radio tagged Lake Trout in the Meliadine Study Area, 1997 to 1998.



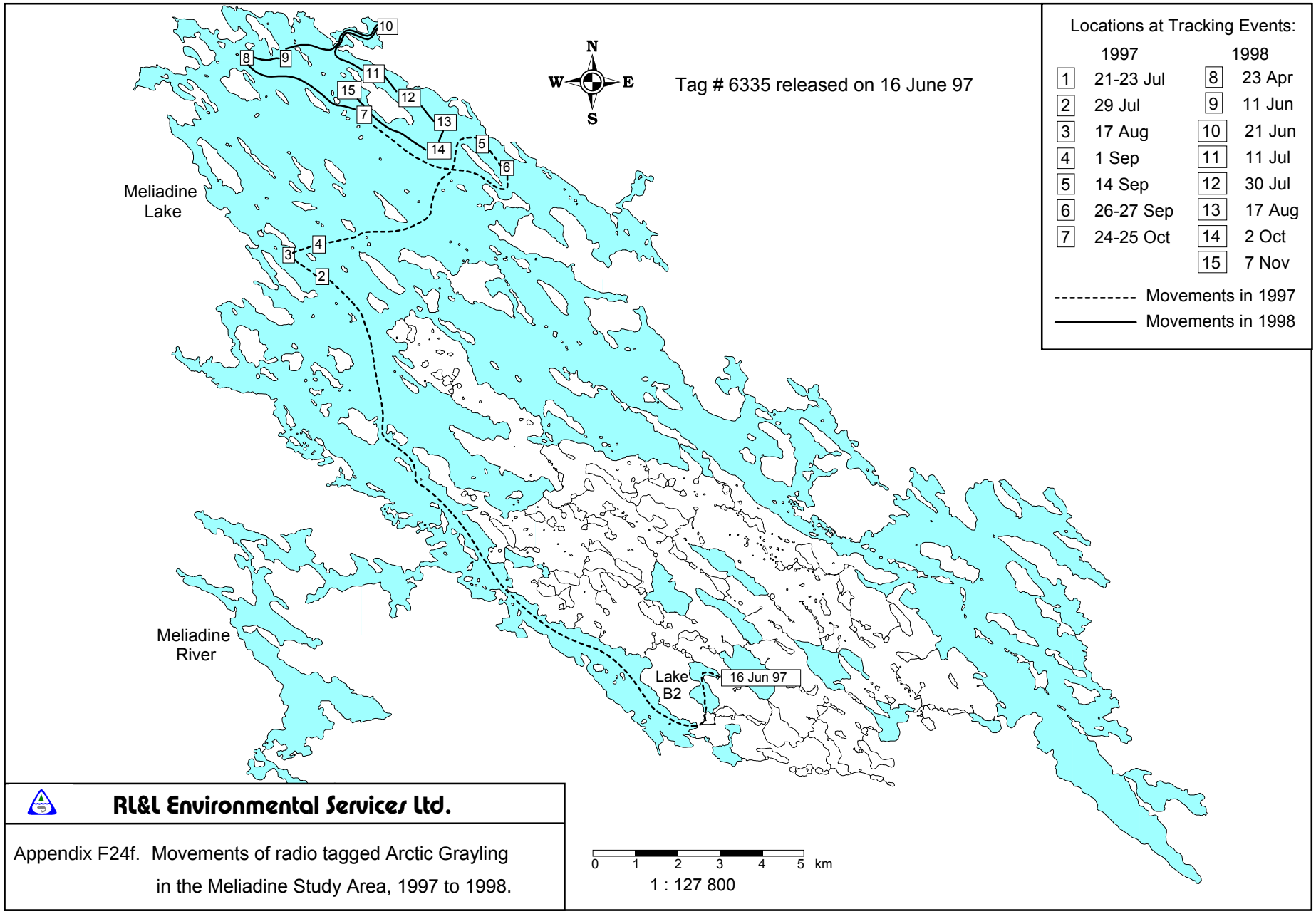
RL&L Environmental Services Ltd.

Appendix F24d. Movements of radio tagged Lake Trout in the Meliadine Study Area, 1997 to 1998.



RL&L Environmental Services Ltd.

Appendix F24e. Movements of radio tagged Arctic Grayling in the Meliadine Study Area, 1997 to 1998.



RL&L Environmental Services Ltd.

Appendix F24f. Movements of radio tagged Arctic Grayling in the Meliadine Study Area, 1997 to 1998.

Appendix F25. Radio tagged Arctic Char in the Meliadine Study Area and tracking results, 2000-2001

Parameter		Arctic Char Implanted with Radio Transmitters											
Fish Number		15861	15827	15883	15938	15814	15834	15835	15828	15906	15875	15904	15905
Fork Length (mm)		667	741	777	751	673	620	617	662	640	587	689	651
Weight (g)		3220	4180	4100	4620	3100	2590	2515	3020	3400	2350	3500	3220
Sex		male	male	male	male	female	female	female	female	female	female	female	?
Orange Color when Captured		bright	bright	bright	bright	pale	medium	medium	medium	medium	medium	bright	none
White Floy Tag No.		3834	3821	5338[a]	3870	3810	3819	3820	3822	3844	3840	3842	3843
Transmitter Frequency (MHz)		149.70	149.70	149.78	149.78	149.70	149.70	149.70	149.70	149.78	149.78	149.78	149.78
RadioTag Channel-Code		**20-06**	**20-13**	**24-17**	**24-19**	**20-09**	**20-11**	**20-12**	**20-14**	**24-15**	**24-16**	**24-18**	**24-20**
Captured	Date	20/Sep	19/Sep	22/Sep	23/Sep	19/Sep	19/Sep	19/Sep	19/Sep	22/Sep	21/Sep	22/Sep	22/Sep
	Easting	523750	523750	523800	523750	523800	524700	524700	523750	524050	524050	524050	524050
	Northing	7000900	7000900	7000800	7000650	7000800	7001150	7001150	7000900	7001050	7001050	7001050	7001050
0 Released	Date	20/Sep	19/Sep	24/Sep	24/Sep	19/Sep	19/Sep	20/Sep	19/Sep	24/Sep	24/Sep	24/Sep	24/Sep
	Easting	525200	524650	523900	523750	524650	524650	525200	524650	523900	523900	523900	523900
	Northing	7001050	7001100	7001200	7000650	7001100	7001100	7001050	7001100	7001200	7001200	7001200	7001200
1 Tracked	*Basin*	*ML-C*	*ML-W*	*n.e.*	*ML-PL*	*ML-E*	*ML-W*	*ML-W*	*ML-C*	*ML-W*	*ML-W*	*ML-W*	*ML-W*
27-Sep-00	Easting	541000	525700		524200	548300	525700	528650	534400	527000	527500	532250	526600
	Northing	6991950	7001200		6999900	6982700	7000050	6998050	6995900	7000300	6999300	6999600	7002050
Displacement[b] (km)		*18.2*	*1.1*		*0.9*	*30.0*	*1.5*	*4.6*	*11.1*	*3.2*	*4.1*	*8.5*	*2.8*
2 Tracked	*Basin*	*ML-E*	*ML-S*	*ML-W*	*ML-PL*	*ML-E*	*ML-S*	*ML-W*	*ML-C*	*ML-W*	*ML-W*	*ML-W*	*ML-W*
14-Oct-00	Easting	546100	529300	526250	522400	548100	530550	528200	536000	533400	532450	530250	531900
	Northing	6989750	6994700	7000200	6999400	6983250	6990750	6998500	6993700	6997900	6997900	7000600	6999400
Displacement[b] (km)		*5.6*	*7.4*	*2.6*	*1.9*	*0.6*	*10.5*	*0.6*	*2.7*	*6.8*	*5.1*	*2.2*	*5.9*
3 Tracked	*Basin*	*ML-E*	*n.e.*	*ML-C*	*ML-PL*	*ML-E*	*ML-W*	*ML-W*	*ML-W*	*ML-W*	*ML-W*	*ML-W*	*ML-W*
5-Nov-00	Easting	547500		532750	522100	548300	530500	525900	532100	532500	527800	530600	532200
	Northing	6983600		6996400	7000900	6982900	6997000	7000700	6997800	6998350	7001300	7000250	6999300
Displacement[b] (km)		*6.3*		*7.5*	*1.5*	*0.4*	*6.3*	*3.2*	*5.7*	*1.0*	*5.8*	*0.5*	*0.3*
4 Tracked	*Basin*	*ML-E*	*ML-W*	*ML-C*	*ML-PL*	*ML-E*	*ML-C*	*ML-W*	*ML-W*	*ML-W*	*ML-W*	*ML-W*	*ML-W*
11-Apr-01	Easting	546500	528050	529900	522500	547200	536700	525900	524300	532900	529200	530550	532800
	Northing	6986300	7000500	6995000	7000900	6984600	6993750	7001450	7001400	6998600	7000900	7000500	6999200
Displacement[b] (km)		*2.9*	*5.9*	*3.2*	*0.4*	*2.0*	*7.0*	*0.8*	*8.6*	*0.5*	*1.5*	*0.3*	*0.6*
5 Tracked	*Basin*	*ML-C*	*LML*	*MR-U*	*PL*	*ML-E*	*ML-W*	*ML-W*	*ML-PL*	*ML-C*	*ML-W*	*PL*	*ML-W*
9-Jun-01	Easting	538100	539800	533100	512500	547600	529500	525900	522500	539600	528800	516500	526300
	Northing	6992200	6976900	6980700	6995000	6984000	7000000	7001450	6996700	6990750	7001500	7001100	7001900
Displacement[b] (km)		*10.3*	*26.4*	*14.7*	*11.6*	*0.7*	*9.5*	*0.0*	*5.0*	*10.3*	*0.7*	*14.1*	*7.0*
6 Tracked	*Basin*	*MR-U*	*LML*	*LML*	*DR*	*ML-E*	*ML-C*	*ML-W*	*DR*	*ML-W*	*ML-W*	*n.e.*	*ML-W*
23-Jun-01	Easting	528000	harvested	harvested	harvested	547600	532200	525900	527750	529200	527000		525400
	Northing	6986000	9-Jun-01	18-Jun-01	15-Jun-01	6984000	6994400	7001450	6971400	6996300	7002000		7000000
Displacement[b] (km)		*11.9*				*0.0*	*6.2*	*0.0*	*25.8*	*11.8*	*1.9*		*2.1*

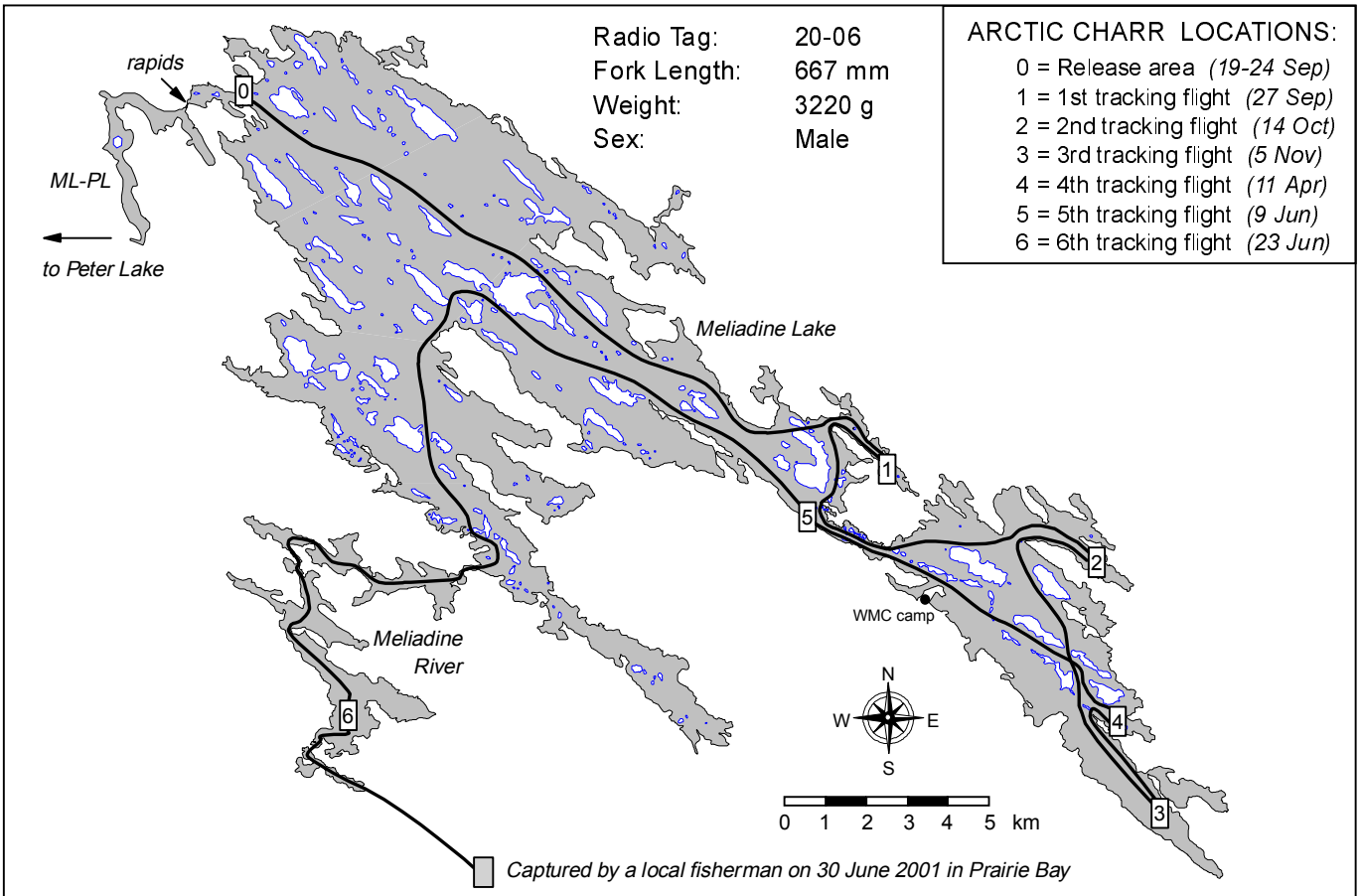
[a] Recaptured fish; Floy tag first applied on 20 Aug 1999 at the Meliadine River fish fence.

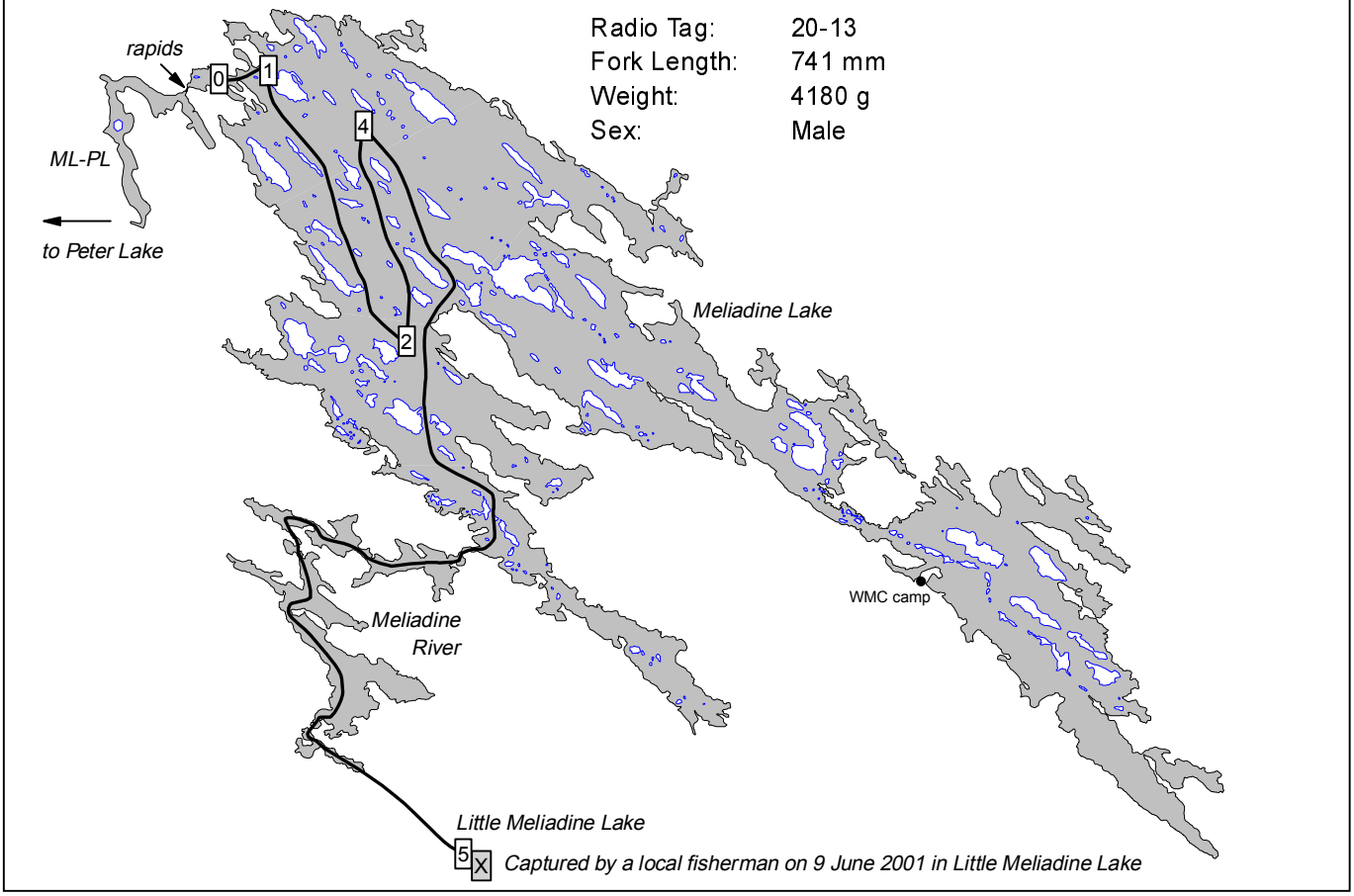
[b] Straight line distance between the tracked location and the previous location.

Note: mm = millimetre; g = gram; km = kilometre; n.e. = not encountered during the tracking flight

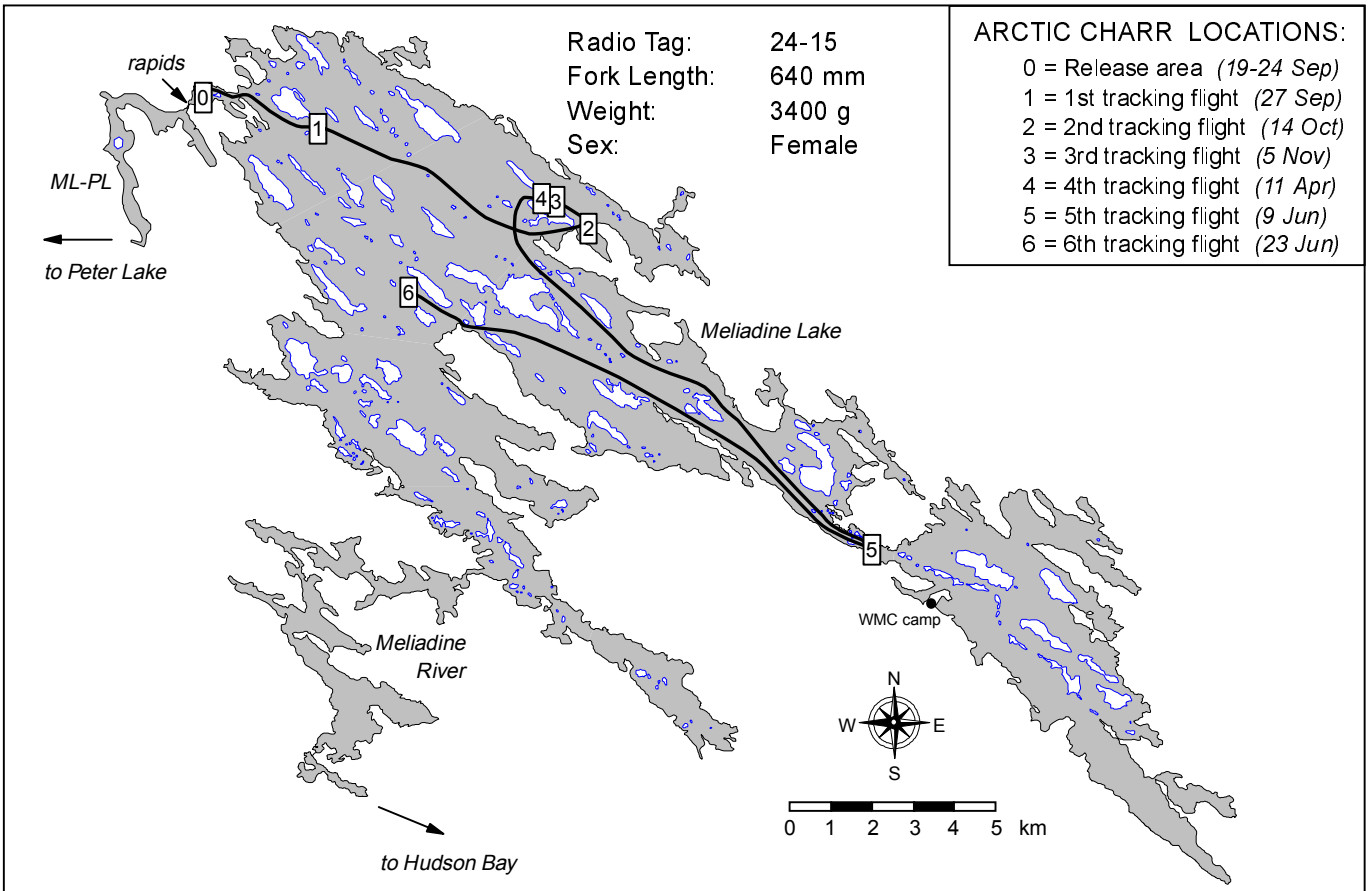
- On 11 April 23 June 2001, fish 20-06 could not be coded out; however, its location was assumed based on the uncoded signal and the process of elimination (all remaining fish signals were coded out).
- On 9 June 2001 (10 am), fish 20-13 was tracked near a local fisher's gill net set at the outlet of Little Meliadine Lake. This fish was tracked later on the same day in the Hamlet of Rankin Inlet.
- On 30 June 2001, fish 20-06 was captured by a local fisherman in Prairie Bay.

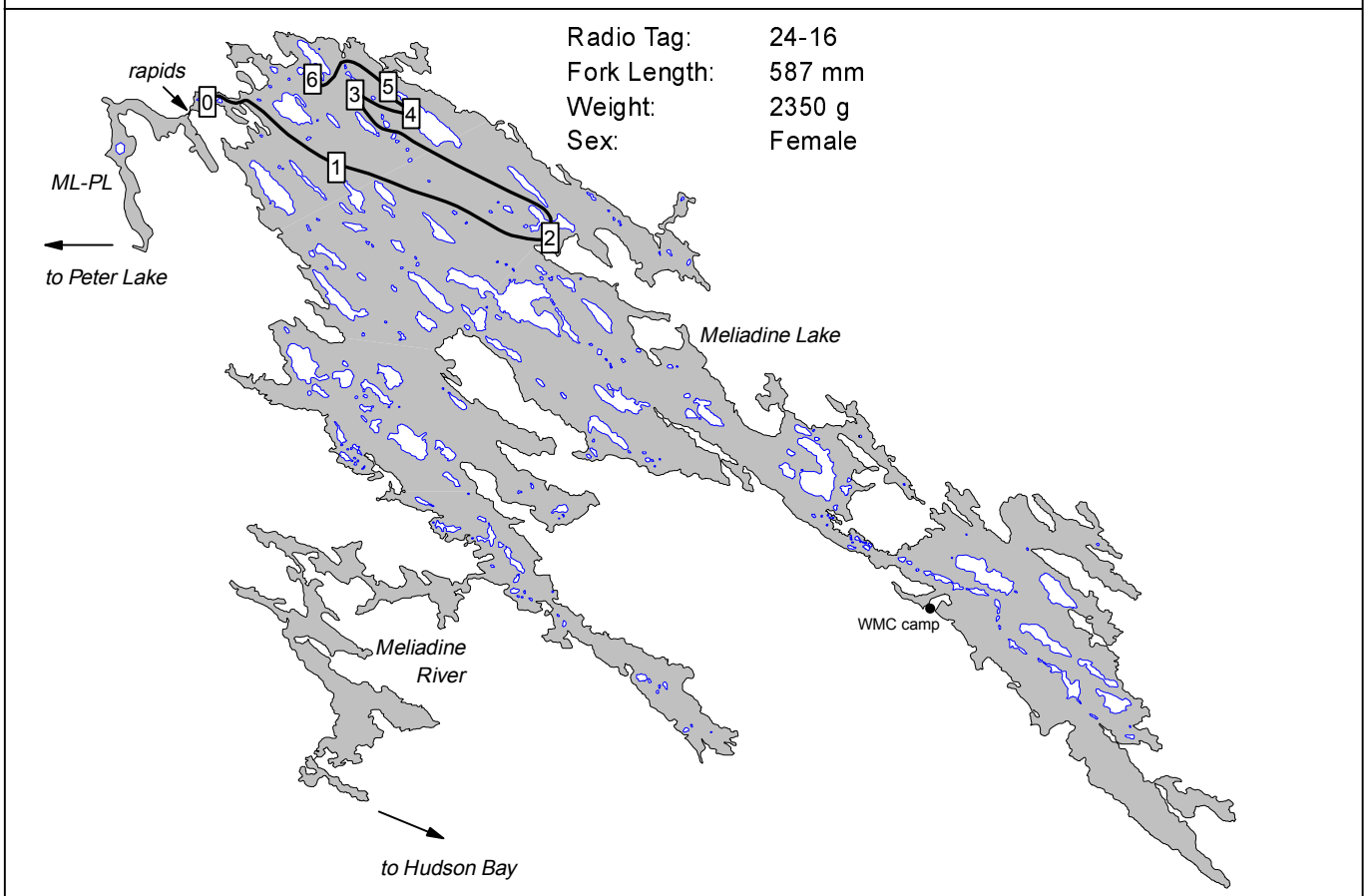
Golder Associates



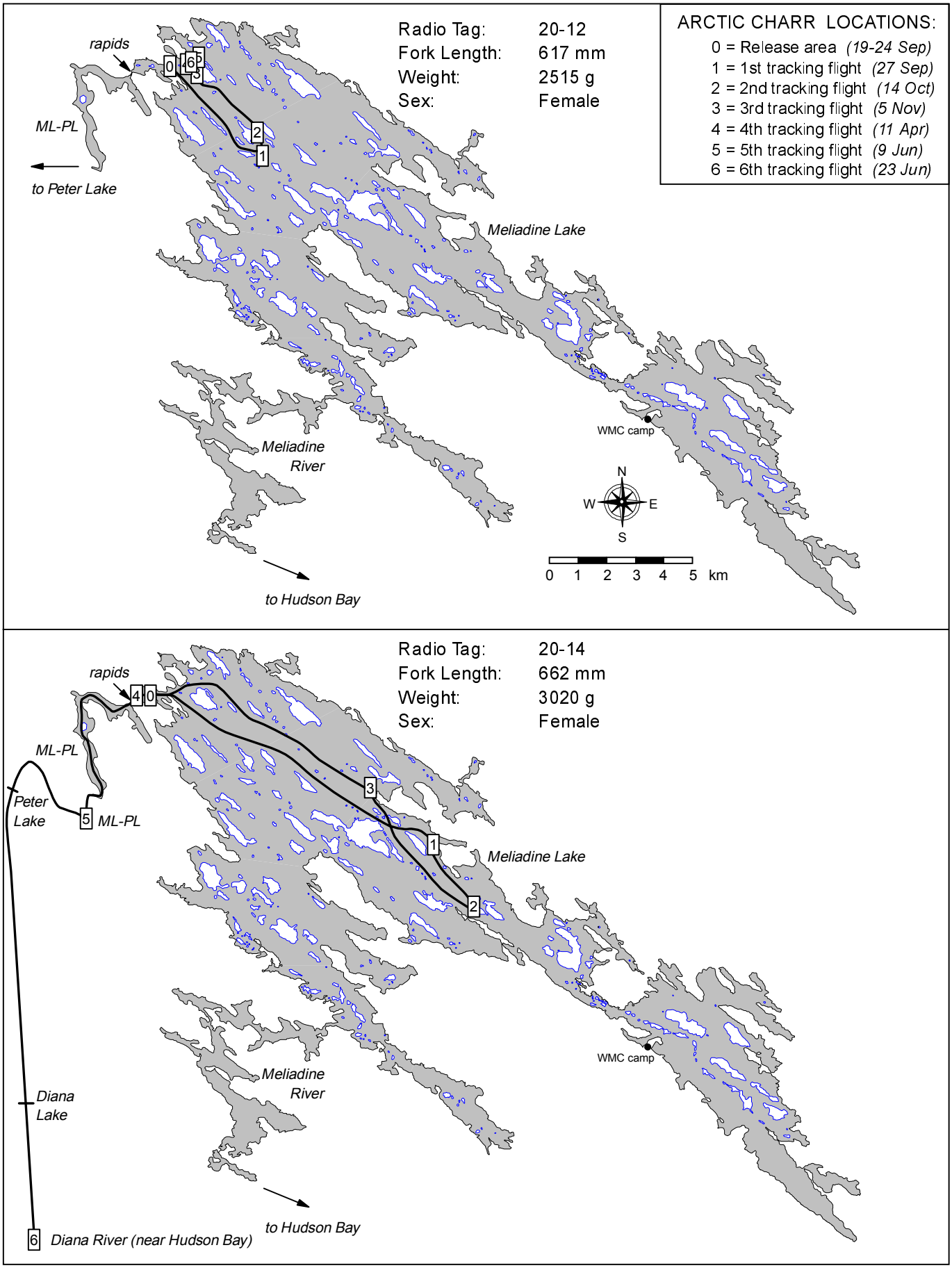


Appendix F26. Movements of radio tagged Arctic Char in the Meliadine Study Area, Sep 2000 to Jun 2001.

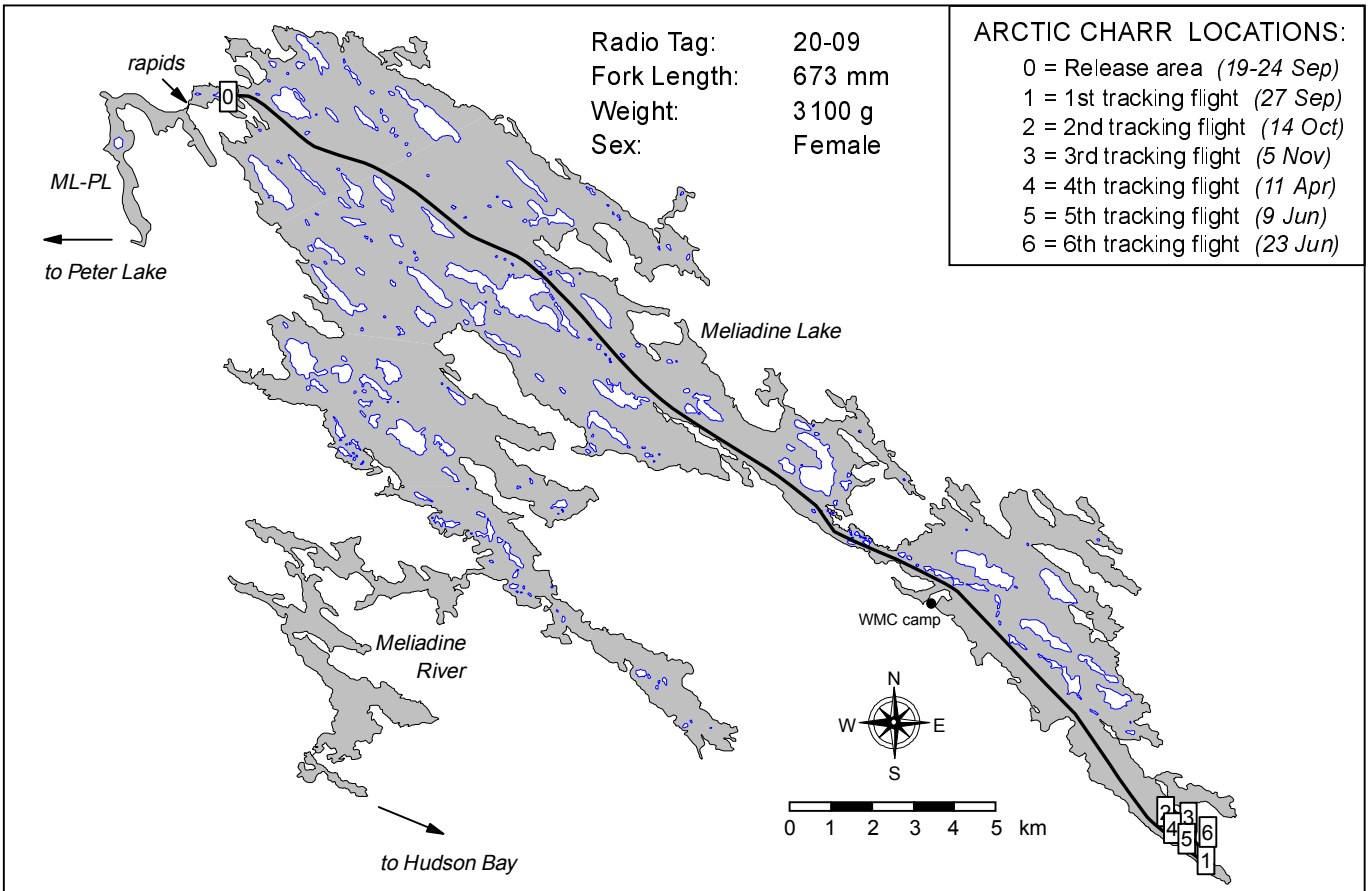


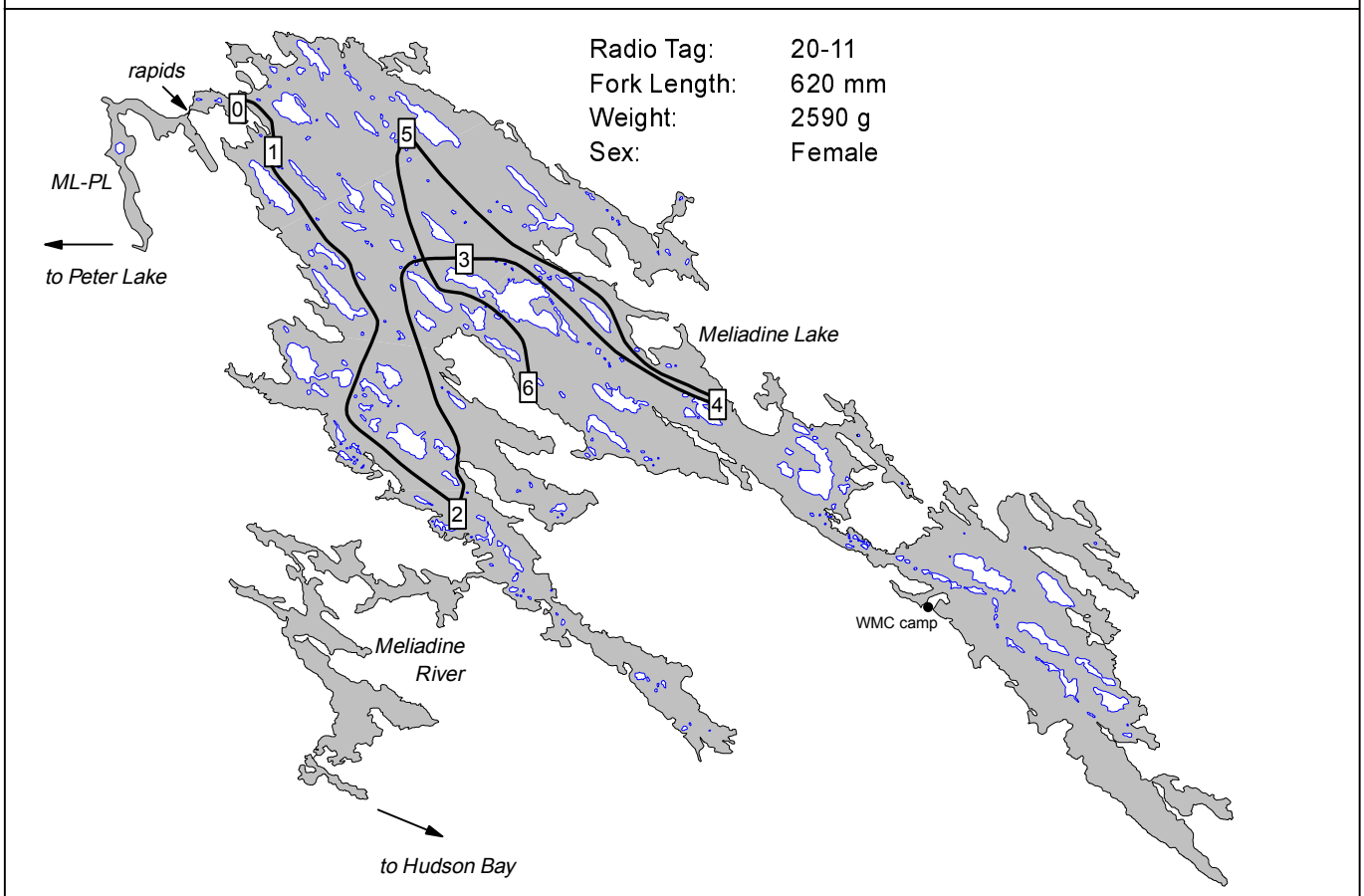


Appendix F26. Movements of radio tagged Arctic Char in the Meliadine Study Area, Sep 2000 to Jun 2001.

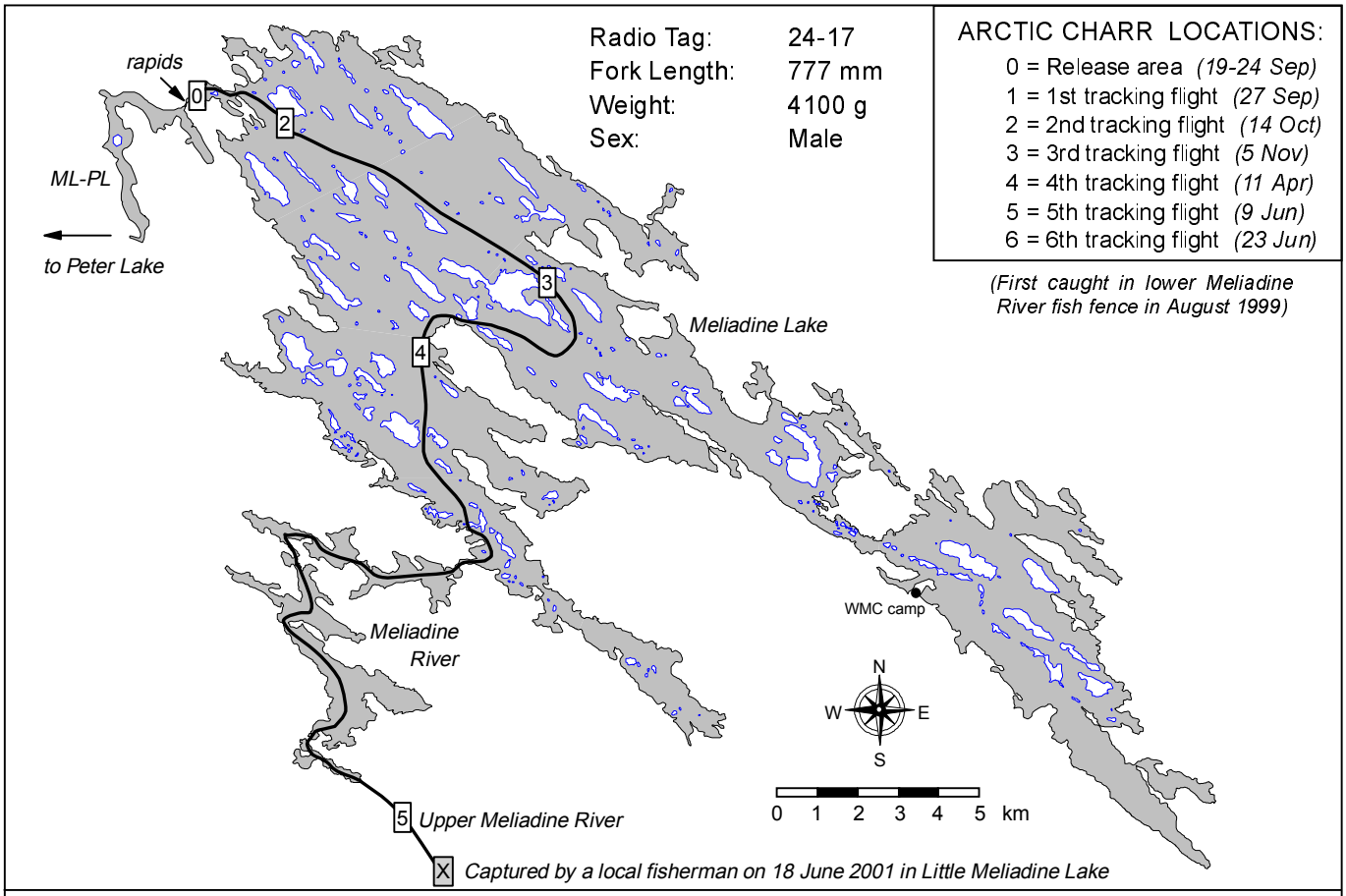


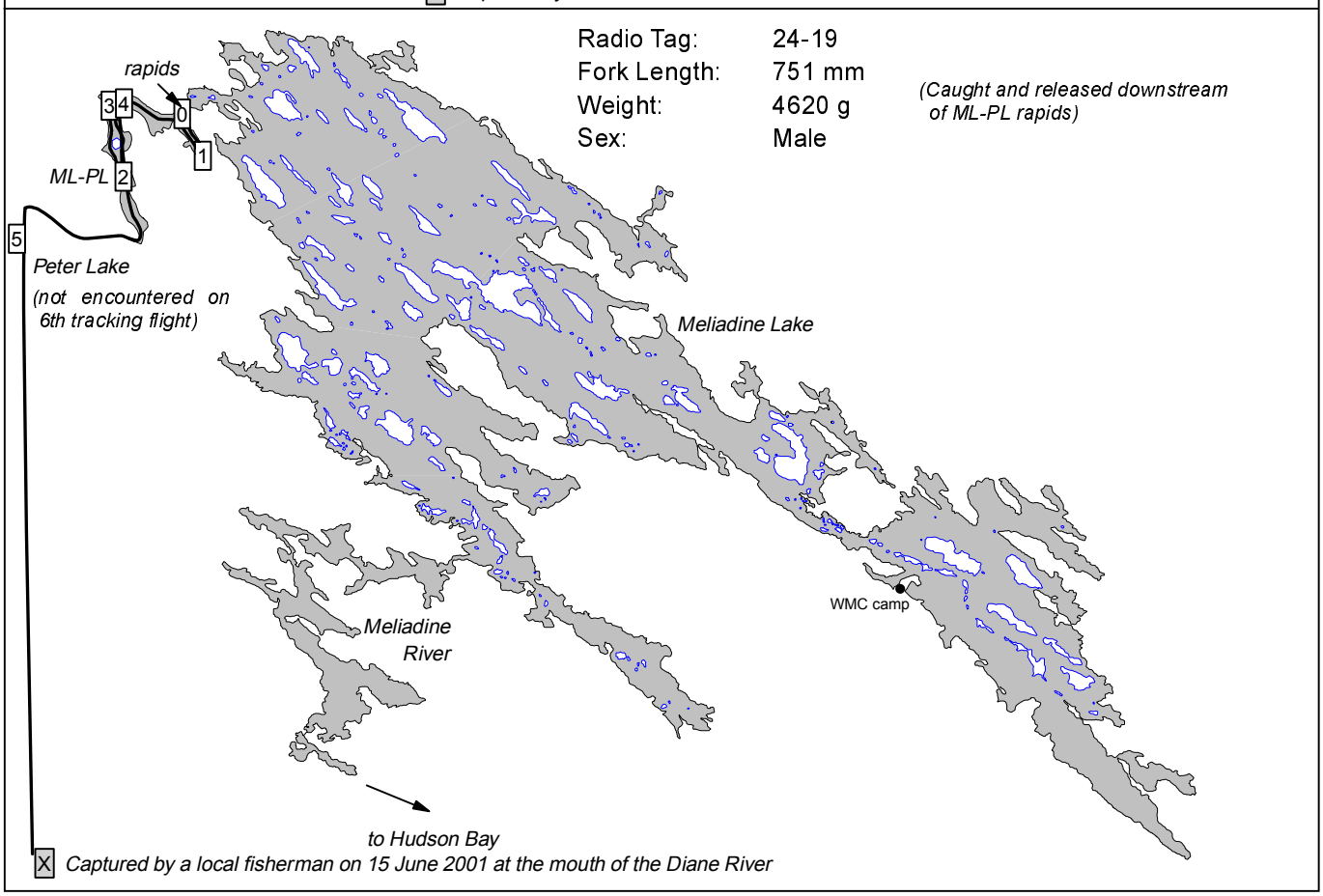
Appendix F26. Movements of radio tagged Arctic Char in the Meliadine Study Area, Sep 2000 to Jun 2001.



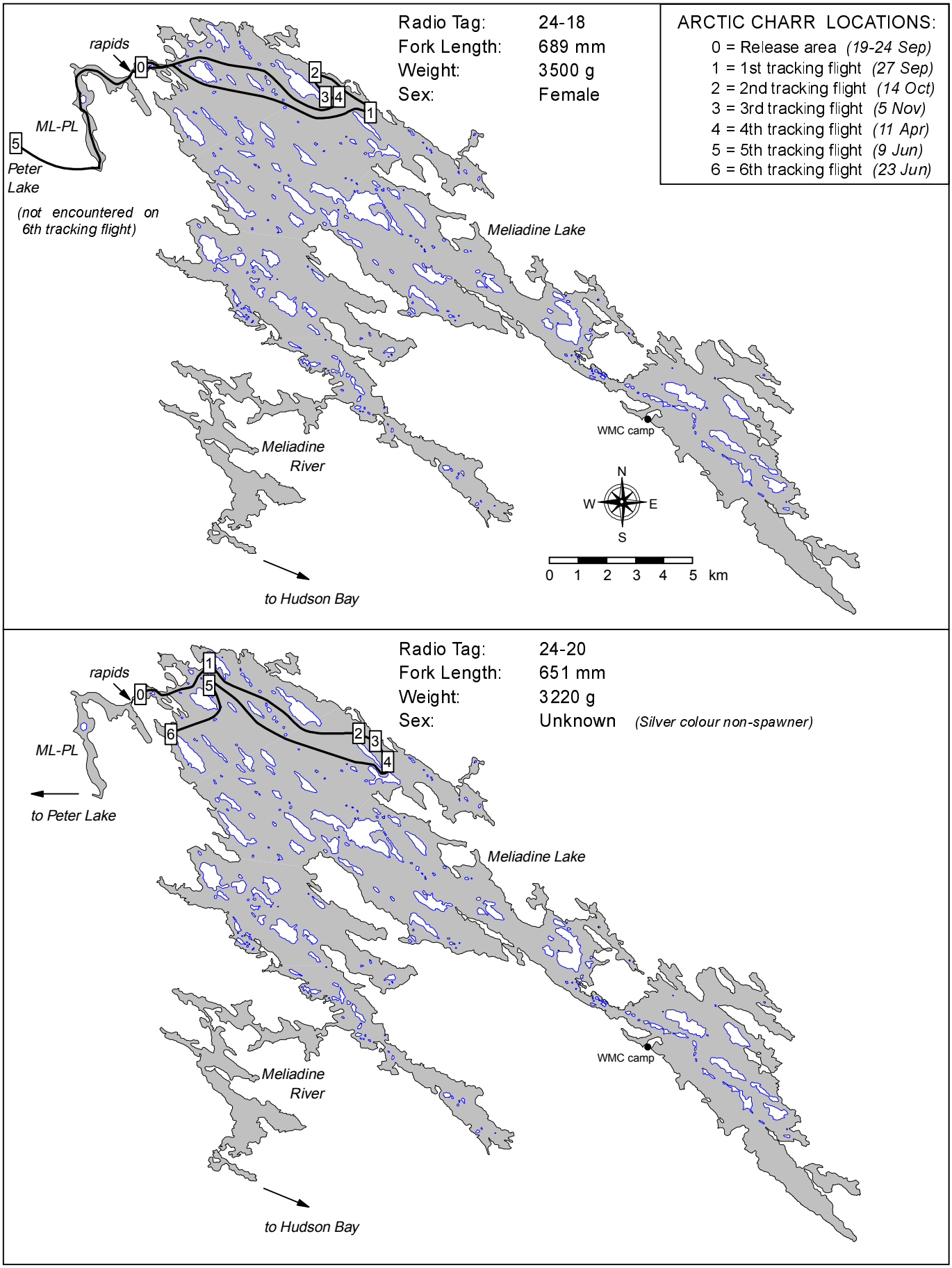


Appendix F26. Movements of radio tagged Arctic Char in the Meliadine Study Area, Sept 2000 to Jun 2001.





Appendix F26. Movements of radio tagged Arctic Char in the Meliadine Study Area, Sep 2000 to Jun 2001.



Appendix F26. Movements of radio tagged Arctic Char in the Meliadine Study Area, Sep 2000 to Jun 2001.

Appendix F27. Detection limits and metal concentrations (µg/g dry weight) in preparation blanks and Certified Reference Materials (CRM) for fish tissue analysis in the Meliadine Study Area, 1997-1998

Constituent	1997 Samples							1998 Samples							
	Detection Limit	Blank #1	Blank #2	CRM NBS 1566A		CRM DORM-2		Detection Limits	Blanks (n=15)		CRM NBS 1566A (n=12)		CRM DOLT-2 (n=6)		CRM DORM-2 (n=8)	
				L.V.[a]	C.V.[b] ± 95% C.I.	L.V.[a]	C.V.[b] ± 95% C.I.		*n>D.L.*[c]	M.V.[d]	L.V.[a] ± 2 SE	C.V.[b] ± 95% C.I.	L.V.[a] ± 2 SE	C.V.[b] ± 95% C.I.	L.V.[a] ± 2 SE	C.V.[b] ± 95% C.I.
Aluminium	1	<1	<1	165	202.5 ± 12.5	10	10.9 ± 1.7	0.5 - 1	*5*	1	167.9 ± 14.4	202.5 ± 12.5	26.3 ± 4.6	25.2 ± 2.4	10.5 ± 0.7	10.9 ± 1.7
Antimony	0.1	<0.1	<0.1	0.1		<0.1		0.01 - 0.1	*0*	<0.1						
Arsenic	0.05	<0.05	<0.05	17.20	14.0 ± 1.2	16.80	18.0 ± 1.1	0.05 - 0.1	*1*	0.13	13.5 ± 0.6	14.0 ± 1.2	15.1 ± 2.1	16.6 ± 1.1	18.0 ± 0.4	18.0 ± 1.1
Barium	0.01	<0.01	<0.01	3.18		2.97		0.01	*4*	0.05						
Beryllium	0.05	<0.05	<0.05	<0.05		<0.05		0.05	*0*	<0.05						
Boron	0.5	<0.5	<0.5	9.0		1.7		0.5	*1*	1						
Cadmium	0.05	<0.05	<0.05	4.08	4.15 ± 0.38	<0.05	0.043 ± 0.008	0.01 - 0.05	*0*	<0.05	3.84 ± 0.13	4.15 ± 0.38	18.7 ± 1.1	20.8 ± 0.5	0.0 ± 0.0	0.0 ± 0.0
Calcium	0.5	1.6	<0.5	1930	1960 ± 190	200		0.5 - 10	*11*	31.1	1889 ± 68	1960 ± 190				
Chromium	0.5	<0.5	<0.5	2.0	1.43 ± 0.46	33.1	34.7 ± 5.5	0.05 - 0.5	*0*	<0.5	1.85 ± 0.53	1.43 ± 0.46	0.62 ± 0.11	0.37 ± 0.08	32.82 ± 1.12	34.7 ± 5.5
Cobalt	0.05	<0.05	<0.05	0.58	0.57 ± 0.11	0.17	0.182 ± 0.031	0.05 - 0.1	*0*	<0.1	0.54 ± 0.03	0.57 ± 0.11	0.21 ± 0.03	0.24 ± 0.05	0.17 ± 0.02	0.18 ± 0.03
Copper	0.05	<0.05	<0.05	79.80	66.3 ± 4.3	2.39	2.34 ± 0.16	0.05	*11*	1.4	66.4 ± 7.8	66.3 ± 4.3	26.3 ± 0.5	26.8 ± 1.1	2.4 ± 0.2	2.34 ± 0.16
Iron	1	<1	<5	625	539 ± 15	110	142 ± 10	1 - 5	*4*	180	522 ± 18	539 ± 15	1034 ± 93	1103 ± 47	137 ± 11	142 ± 10
Lead	0.05	<0.05	<0.05	0.36	0.371 ± 0.014	<0.2	0.065 ± 0.007	0.01 - 0.1	*1*	0.1	0.358 ± 0.020	0.371 ± 0.014	0.20 ± 0.02	0.22 ± 0.02	0.06 ± 0.01	0.07 ± 0.01
Magnesium	0.5	<0.5	0.1	842	1180 ± 170	759		0.05 - 0.5	*9*	12.7	1139 ± 20	1180 ± 170				
Manganese	0.05	<0.05	<0.05	13.00	12.3 ± 1.5	2.77	3.66 ± 0.34	0.01 - 0.1	*1*	0.09	11.5 ± 1.0	12.3 ± 1.5	6.87 ± 0.14	6.88 ± 0.56	3.46 ± 0.19	3.66 ± 0.34
Mercury	0.005	<0.005	<0.005	0.09	0.0642 ± 0.0067	3.87	4.64 ± 0.26	0.005 - 0.01	*3*	0.025	0.0649 ± 0.0044	0.0642 ± 0.0067	1.93 ± 0.13	2.14 ± 0.28	3.69 ± 0.23	4.64 ± 0.26
Molybdenum	0.1	<0.1	<0.1	11.3		0.2		0.01 - 0.1	*0*	<0.1						
Nickel	0.1	<0.1	<0.1	2.3	2.25 ± 0.44	14.1	19.4 ± 3.1	0.1 - 0.5	*0*	<0.5	2.21 ± 0.19	2.25 ± 0.44	0.20 ± 0.27	0.20 ± 0.02	17.61 ± 1.08	19.40 ± 3.10
Phosphorus	10	<10	<10	5110	6230 ± 180	6360		0.5 - 20	*7*	120	6082 ± 228	6230 ± 180				
Potassium	0.5	<10	<0.5	7180	7900 ± 470	12000		0.5	*0*	<0.5	7848 ± 603	7900 ± 470				
Silver	0.01	<0.01	<0.01	1.92	1.68 ± 0.15	0.04	0.041 ± 0.013	0.01	*1*	0.01	1.48 ± 0.07	1.68 ± 0.15	0.545 ± 0.045	0.608 ± 0.032	0.040 ± 0.000	0.041 ± 0.013
Sodium	0.5	<0.5	<0.5	3340	4170 ± 130	3670		0.5 - 5	*9*	1.8	4267 ± 293	4170 ± 130				
Strontium	0.01	<0.01	<0.01	11.9	11.1 ± 1.0	1.90		0.01	*10*	0.05	10.2 ± 0.6	11.1 ± 1.0				
Tin	0.1	<0.1	<0.1	3.3		<0.1	0.023	0.01 - 0.1	*0*	<0.1			0.07 ± 0.11	0.13		
Titanium	0.1	<0.1	<0.1	266		1.30		0.01 - 0.1	*1*	0.1						
Vanadium	0.5	<0.5	<0.5	9.30	4.68 ± 0.15	0.9		0.5	*0*	<0.5	4.40 ± 0.59	4.68 ± 0.15				
Zinc	0.05	<0.05	<0.05	789	830 ± 57	24.6	25.6 ± 2.3	0.05 - 0.1	*10*	3	706 ± 124	830 ± 57	82.9 ± 3.64	85.8 ± 2.5	24.3 ± 0.91	25.6 ± 2.3

[a] L.V. ± 2 SE = mean laboratory value ± 2 standard errors

[b] C.V. ± 95% C.I. = certified value ± 95% confidence interval

[c] *n>D.L.* = number of preparation blanks with values above the detection limit

[d] M.V. = maximum value

Golder Associates

Table F28. Metal concentrations (µg/g dry weight) in fish tissue samples collected in the Meliadine Study Area, 1997-1998.

Fish #	Location	Species [a]	Tissue [b]	Fork Length (mm)	Age (years)	Moisture (%)	Aluminium	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Phosphorus	Potassium	Silver	Sodium	Strontium	Tin	Titanium	Vanadium	Zinc
5300	MR-L	ARCH	M	533	8	71.0	<1	<0.1	2.24	0.08	<0.05	1.2	<0.05	827	2.1	<0.05	2.45	78	0.08	663	0.24	0.312	2.6	0.2	1590	6260	<0.01	679	0.58	<0.1	12.2	0.7	9.7
5337	MR-L	ARCH	M	535	7	70.4	<1	<0.1	2.64	1.14	<0.05	1.8	0.08	2770	3.8	0.39	2.16	125	0.32	940	0.36	0.056	3.0	0.6	5950	7460	<0.01	729	4.56	<0.1	17.7	1.1	12.6
5338	MR-L	ARCH	M	636	8	67.6	<1	<0.1	3.79	0.11	<0.05	1.0	<0.05	1630	2.4	<0.05	1.37	70	0.07	1180	0.27	0.176	1.2	0.3	3600	9070	<0.01	1270	1.99	<0.1	12.4	0.7	7.3
5339	MR-L	ARCH	M	535	6	65.1	<1	<0.1	2.66	0.20	<0.05	1.6	<0.05	6260	3.9	0.28	2.26	104	0.42	574	0.54	<0.005	0.8	2.4	2340	6210	<0.01	588	10.50	<0.1	16.3	<0.5	15.0
5340	MR-L	ARCH	M	540	8	68.4	<1	<0.1	3.87	0.09	<0.05	1.6	<0.05	2810	3.5	0.34	2.82	73	<0.05	620	0.45	0.088	2.8	0.6	2520	7240	<0.01	748	4.50	<0.1	16.7	<0.5	15.9
5341	MR-L	ARCH	M	557	9	68.5	<1	<0.1	3.13	0.06	<0.05	1.2	<0.05	2440	4.2	0.33	2.23	94	0.07	625	0.26	0.080	2.5	2.3	3310	8320	<0.01	835	4.09	<0.1	13.5	<0.5	14.5
5342	MR-L	ARCH	M	548	6	68.6	<1	0.2	4.06	0.05	<0.05	2.2	0.13	2840	8.0	0.20	2.54	236	2.94	687	0.39	0.080	4.4	0.7	3860	9130	<0.01	1020	2.52	0.3	21.7	1.4	19.4
5343	MR-L	ARCH	M	540	7	66.6	<1	1.3	2.84	0.07	<0.05	1.7	<0.05	2180	6.1	0.07	2.33	122	0.24	658	0.37	<0.005	3.3	0.6	4440	9670	<0.01	1160	2.34	0.4	17.0	<0.5	19.7
6051	MR-L	ARCH	M	648	9	68.1	<1	0.3	7.32	0.03	<0.05	1.5	0.06	3410	2.4	0.25	2.49	93	<0.05	635	0.28	<0.005	2.6	0.4	4180	9720	0.02	1020	0.54	0.2	17.0	<0.5	11.6
6051*	MR-L	ARCH	M	648	9	68.1	6	<0.1	5.06	0.26	<0.05	1.3	<0.05	3970	3.3	0.08	3.07	116	0.06	695	0.43	<0.005	3.8	0.3	5290	10400	<0.01	1320	n.d.	<0.1	18.0	<0.5	16.9
6052	MR-L	ARCH	M	600	6	71.5	<1	<0.1	2.49	0.04	<0.05	1.0	<0.05	606	1.5	0.08	1.46	41	<0.05	736	0.19	0.272	1.2	0.1	5400	11900	<0.01	1260	0.35	<0.1	11.6	0.6	11.9
6053	MR-L	ARCH	M	605	8	64.4	<1	<0.1	2.63	0.04	<0.05	1.7	0.06	1180	4.1	<0.05	2.33	75	2.76	593	0.33	<0.005	<0.3	0.1	4440	9020	<0.01	1010	0.42	0.2	14.2	1.1	10.9
6054	MR-L	ARCH	M	485	5	70.1	<1	<0.1	7.20	0.05	<0.05	1.2	<0.05	1200	2.7	<0.05	1.87	58	0.08	745	0.27	<0.005	2.9	0.2	5030	11000	<0.01	1090	1.07	<0.1	14.8	0.5	8.1
6055	MR-L	ARCH	M	534	8	66.1	<1	<0.1	4.42	<0.01	<0.05	1.0	<0.05	805	2.4	<0.05	1.56	46	0.18	667	0.21	<0.005	1.9	0.1	5160	10300	<0.01	1120	0.35	<0.1	12.1	0.5	6.1
6069	MR-L	ARCH	M	545	7	68.9	1	<0.1	3.10	0.07	<0.05	1.8	0.09	1670	3.9	0.42	2.86	90	<0.05	635	0.39	<0.005	1.6	0.3	5050	10300	<0.01	1020	1.03	<0.1	22.2	<0.5	19.4
6074	LML	ARCH	M	578	8	75.0	<1	<0.1	4.19	0.02	<0.05	1.3	0.08	500	2.5	<0.05	2.07	30	<0.2	976	0.31	0.121	<0.1	<0.1	10100	14500	<0.01	1060	1.58	<0.1	1.3	0.5	12.8
6085	LML	ARCH	M	547	6	74.5	<1	0.1	3.12	<0.01	<0.05	0.7	<0.05	1180	2.1	<0.05	2.60	20	<0.2	985	0.17	<0.005	<0.1	<0.1	9040	16800	<0.01	1020	1.36	<0.1	1.3	<0.5	12.5
6086	LML	ARCH	M	570	8	82.2	<1	<0.1	4.70	0.06	<0.05	0.7	<0.05	1330	3.1	<0.05	1.47	29	<0.2	910	0.22	0.495	<0.1	<0.1	8670	23600	0.01	891	2.97	<0.1	1.3	<0.5	11.9
6087	LML	ARCH	M	554	7	75.7	<1	<0.1	4.61	<0.01	<0.05	0.8	<0.05	213	3.1	<0.05	1.09	25	<0.3	919	0.21	0.484	<0.1	<0.1	8460	18000	0.01	1130	0.24	<0.1	1.3	<0.5	12.4
5300	MR-L	ARCH	L	533	8	57.5	<1	<0.1	3.81	0.05	<0.05	0.8	0.13	610	2.6	0.14	12.90	375	0.45	214	2.21	0.472	9.1	<0.1	3570	4030	0.41	2760	0.15	<0.1	8.9	<0.5	57.6
5337	MR-L	ARCH	L	535	7	57.8	<1	<0.1	4.59	0.04	<0.05	0.8	0.15	624	2.9	0.24	5.00	320	<0.05	274	2.60	0.120	6.5	<0.1	3650	5080	0.12	1710	0.25	<0.1	10.7	<0.5	53.0
5338	MR-L	ARCH	L	636	8	57.9	<1	0.2	4.69	<0.01	<0.05	1.3	0.38	901	3.9	0.50	28.50	745	0.07	275	3.84	0.184	13.5	0.1	3680	4570	0.46	1990	0.20	<0.1	15.2	0.5	86.3
5339	MR-L	ARCH	L	535	6	52.7	<1	<0.1	4.87	<0.01	<0.05	0.7	0.11	618	2.6	0.23	6.93	298	0.60	253	1.94	0.248	8.3	<0.1	3490	3940	0.18	2210	0.10	<0.1	8.3	<0.5	42.4
5340	MR-L	ARCH	L	540	8	57.8	<1	<0.1	8.28	0.05	<0.05	1.3	0.21	933	4.7	0.27	36.20	705	0.05	270	3.99	0.168	15.5	0.2	3840	4200	0.88	2080	0.23	<0.1	14.9	<0.5	107.0
5341	MR-L	ARCH	L	557	9	57.9	<1	<0.1	2.66	<0.01	<0.05	0.7	0.20	537	3.0	0.12	36.50	369	<0.05	274	2.49	0.136	10.5	<0.1	4580	5450	0.51	3000	0.10	<0.1	8.3	<0.5	62.7
5342	MR-L	ARCH	L	548	6	49.9	<1	0.2	3.14	<0.01	<0.05	0.6	0.11	493	2.8	0.19	17.60	277	0.22	213	1.54	0.224	6.4	<0.1	3150	3480	0.34	1550	0.09	<0.1	6.6	<0.5	49.5
5343	MR-L	ARCH	L	540	7	57.6	185	<0.1	1.84	0.03	<0.05	0.7	0.12	614	2.7	0.19	13.30	239	0.26	264	3.12	0.176	9.0	<0.1	4180	4840	0.23	2670	0.16	<0.1	9.3	<0.5	71.9
6051	MR-L	ARCH	L	648	9	56.2	<1	<0.1	2.96	0.03	<0.05	0.7	0.17	856	2.4	0.23	62.70	636	<0.05	324	2.56	0.352	10.6	<0.1	4050	5670	0.94	2400	0.13	<0.1	10.3	<0.5	76.4
6051*	MR-L	ARCH	L	648	9	57.2	<1	<0.1	2.63	0.11	<0.05	1.2	0.20	878	2.6	0.25	88.80	940	<0.05	316	3.91	0.408	11.9	0.1	4370	5560	1.34	2360	0.16	<0.1	15.8	0.6	126.0
6052	MR-L	ARCH	L	600	6	53.7	<1	<0.1	3.32	<0.01	<0.05	0.9	0.17	726	3.5	0.29	38.00	471	<0.05	204	2.66	0.136	9.4	0.2	3700	4310	0.60	1830	0.11	<0.1	11.2	<0.5	85.8
6053	MR-L	ARCH	L	605	8	56.3	<1	0.2	2.18	<0.01	<0.05	0.6	0.14	514	2.3	0.11	6.24	391	0.27	282	2.22	0.128	8.7	0.1	3970	5250	0.14	1840	0.07	<0.1	9.7	<0.5	47.1
6054	MR-L	ARCH	L	485	5	58.2	<1	0.2	3.93	0.03	<0.05	0.7	0.20	577	2.6	0.14	22.90	334	0.40	316	2.40	<0.005	9.3	0.2	4340	5780	0.53	2280	0.11	0.1	9.0	<0.5	66.3
6055	MR-L	ARCH	L	534	8	58.3	<1	<0.1	4.54	0.04	<0.05	1.1	0.28	914	4.1	0.25	29.50	678	<0.05	269	3.35	0.144	10.6	0.2	4370	5400	0.56	2680	0.20	<0.1	14.2	<0.5	102.0
6069	MR-L	ARCH	L	545	7	55.1	<1	<0.1	2.07	<0.01	<0.05	1.1	0.21	953	3.7	0.27	18.00	455	<0.05	230	3.23	0.112	11.7	<0.1	3860	4270	0.18	2040	0.18	<0.1	13.6	<0.5	82.2
6074	LML	ARCH	L	578	8	72.1	<1	<0.1	1.98	<0.01	<0.05	0.5	0.65	728	2.5	0.25	3.49	664	<0.3	872	6.29	0.539	0.3	<0.1	15100	11000	<0.01	2160	0.24	<0.1	1.3	1.0	75.2
6074*	LML	ARCH	L	578	8	76.1	<1	<0.1	2.17	<0.01	<0.05	0.6	0.79	755	2.3	0.19	4.28	836	<0.3	1010	6.66	0.407	0.3	<0.1	16800	24400	0.02	2350	0.25	<0.1	1.8	0.6	82.3
6085	LML	ARCH	L	547	6	72.1	<1	<0.1	3.32	<0.01	<0.05	0.5	0.41	437	2.5	0.32	3.24	293	<0.3	727	4.14	0.616	0.2	<0.1	12200	16000	0.02	1570	0.17	<0.1	1.5	0.7	67.7
6086	LML	ARCH	L	570	8	75.1	<1	<0.1	6.23	<0.01	<0.05	0.7	0.32	571	2.0	0.36	3.04	647	<0.3	911	6.01	0.440	0.2	<0.1	15500	32800	0.01	2090	0.22	<0.1	1.8	0.5	73.6
6087	LML	ARCH	L	554	7	75.0	<1	<0.1	2.74	<0.01	<0.05	0.6	0.75	258	3.1	0.35	3.61	497	<0.3	832	5.31	0.484	0.2	<0.1	15000	16700	0.01	2130	0.22	<0.1	1.6	0.7	95.1
5300	MR-L	ARCH	K	533	8	80.3	31	<0.1	5.12	0.65	<0.05	1.9	0.73	1180	4.2	1.50	10.80	615	0.63	598	3.88	0.592	10.7	0.7	9710	11700	0.08	8550	1.33	0.1	29.7	1.5	153.0
5337	MR-L	ARCH	K	535	7	74.2	2	<0.1	3.32	0.19	<0.05	1.5	0.48	991	3.6	0.77	5.60	586	0.11	506	2.71	0.272	7.4	0.2	7140	11000	0.06	4340	1.26	<0.1	25.9	1.3	106.0
5338	MR-L	ARCH	K	636	8	79.5	<1	<0.1	3.73	0.36	<0.05	1.4	1.75	1300	4.5	0.67	7.32	851	0.09	534	4.12	0.736	10.8	1.0	8020	11600	0.02	5900	2.27	0.1	25.9	1.7	129.0
5339	MR-L	ARCH	K	535	6	79.4	2	<0.1	3.19	0.36	<0.05	1.4	0.95	1070	4.1	1.52	11.40	541	0.20	690	4.73	0.704	16.2	0.7	9260	11800	0.05	5600	1.21	<0.1	31.9	1.2	162.0
5340	MR-L	ARCH	K	540	8	75.1	<1	<0.1	2.35	0.14	<0.05	1.0	0.43	879	3.4	0.94	4.96	480	0.22	589	2.43	0.208	6.3	0.2	7650	12100	0.02	5550	1.47	<0.1	25.8	0.9	129.0
5341	MR-L	ARCH	K	557	9	77.8	<1	<0.1	0.98	0.15	<0.05	0.7	0.56	777	3.1	1.07	3.25	543	0.40	497	1.72	0.304	4.5	0.2	7510	11300	<0.01	4520	0.72	<0.1	15.1	0.9	88.7
5342	MR-L	ARCH	K	548	6	78.2	<1	<0.1	2.64	0.18	<0.05	1.1	0.40	1030	6.1	1.13	4.43	534	<0.05	575	2.58	0.472	7.6	0.4	8700	11400	<0.01	5650	1.14	<0.1	23.4	1.2	118.0
5343	MR-L	ARCH	K	540	7	78.5	<1	<0.1	2.06	0.28	<0.05	0.9	0.59	846	3.8	0.51	7.16	332	1.41	501	2.56	0.240	8.0	0.3	6800	10600	<0.01	5250	1.01	<0.1	16.7	0.9	90.2
6051	MR-L	ARCH	K	648	9	79.1	3	<0.1	3.16	0.22	<0.05	1.3	0.88	1180	4.5	1.70	5.52	806	0.10	750	3.28	0.160	7.8	0.6	9310	14900	<0.01	6150	1.37	<0.1	32.4	1.4	124.0
6051*	MR-L	ARCH	K	648	9	79.1	<1	<0.1	2.61	0.20	<0.05	0.8	0.71	1240	3.7	1.00	4.55	630	0.09	741	2.65	0.264	7.0	0.4	8120	14100	<0.01	6150	1.27	<0.1	20.9	1.2	138.0
6052	MR-L	ARCH	K	600	6	80.1	<1	<0.1	2.41	0.33	<0.05	1.2	0.96	1330	5.1	1.68	10.00	820	0.07	630	4.29	0.248	10.8	0.6	7380	11600	0.02	6200	1.19	<0.1	26.0	1.7	176.0
6053	MR-L	ARCH	K	605	8	75.7	<1	0.2	4.80	<0.01	<0.05	1.0	0.52	1140	4.3	2.24	5.96	682	0.15	626	2.87	0.048	8.4	0.4	7090	11400	0.16	5700	1.63	<0.1	27.9	1.3	146.0
6054	MR-L	ARCH	K	485	5	78.7	<1	<0.1	2.63	<0.01	<0.05	1.3	1.00	1400	6.1	1.71	7.64	946	<0.05	529	3.24	<0.005	10.1	1.5	8200	13100	0.03	6350	0.99	<0.1	30.2	1.8	152.0
6055	MR-L	ARCH	K	534	8	78.4	<1	<0.1	1.23	0.23	<0.05	0.6	0.52	663	2.6	0.64	9.03	361	0.08	699	2.09	0.240	8.9	0.1	7510	13100	0.06	5700	0.47	<0.1	16.5	1.0	90.1
6069	MR-L	ARCH	K	545	7	77.5	<1	<0.1	2.38	0.36	<0.05	1.3	0.94	1330	5.9	1.56	10.40	749	<0.05	708	4.24	0.088	13.0	0.5	7940	12900	0.02	4230	1.93	<0.1	31.7	1.9	174.0
6074	LML	ARCH	K	578	8	82.4	1	0.1	4.11	0.16	<0.05	1.0	3.18	847	2.6	0.37	5.39	290	<0.2	735	1.77	0.286	0.3	<0.1	15400	15800	0.04	8770	2.17	<0.1	1.9	0.9	86.7
6085	LML	ARCH	K	547	6	83.0	<1	<0.1	3.51	0.11	<0.05	1.1	1.46	1370	3.4	0.43	4.42	316	<0.3	857	1.53	0.572	0.1	<0.1	15800	15900	0.05	7280	1.41	<0.1	2.6	1.1	93.1
6086	LML	ARCH	K	570	8	82.2	2	<0.1	5.30	0.20	<0.05	1.2	1.41	413	3.2	0.78	4.92	346	<0.3	1010	2.43	0.836	0.2	<0.1	19700	18400	0.05	7290	1.90	<0.1	2.6	1.1	126.0
6087	LML	ARCH	K	554	7	81.9	2	<0.1	11.60	0.24	<0.05	0.8	2.56	610	3.1	0.06	7.03	341	<0.4	740	2.47	0.528	0.3	<0.1	14000	6000	0.10	8140	1.84	<0.1	2.2	1.0	97.4
7518	ML-S	LKTR	M	542	16	80.5	2	<0.01	2.00	0.75	<0.05	<0.5	<0.01	4990	2.2	<0.05	1.15	20	0.04	1220	0.69	1.00	0.02	0.1	12100	20400	0.01	1770	1.14	0.16	0.58	<0.5	14.8
7518*	ML-S	LKTR	M	542	16	80.5	2	<0.01	2.20	0.83	<0.05	<0.5	<0.01	5060	2.3	<0.05	1.23	25	0.06	1250	0.81	1.07	0.02	0.3	12400	21200	0.02	1800	1.19	0.17	0.62	<0.5	15.9

Golder Associates

Table F28. Metal concentrations (µg/g dry weight) in fish tissue samples collected in the Meliadine Study Area, 1997-1998.

Fish #	Location	Species [a]	Tissue [b]	Fork Length (mm)	Age (years)	Moisture (%)	Aluminium	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Phosphorus	Potassium	Silver	Sodium	Strontium	Tin	Titanium	Vanadium	Zinc
7519	ML-S	LKTR	M	531	16	80.3	3	<0.01	2.40	0.54	<0.05	<0.5	<0.01	4460	1.3	0.06	1.14	22	0.02	1270	0.78	0.26	<0.01	0.3	11900	21900	<0.01	1340	0.35	<0.01	0.51	<0.5	13.5
7519*	ML-S	LKTR	M	531	16	80.3	5	<0.01	2.20	0.61	<0.05	<0.5	<0.01	4780	1.3	0.06	1.25	30	0.04	1270	0.88	0.27	<0.01	0.6	11600	22500	<0.01	1320	0.48	0.01	0.58	<0.5	12.6
7521	ML-S	LKTR	M	615	21	76.4	3	0.01	1.30	1.25	<0.05	<0.5	<0.01	3860	0.8	<0.05	1.48	25	0.30	1050	0.79	1.95	<0.01	<0.1	10600	16700	<0.01	1210	0.27	0.01	0.40	<0.5	11.5
7522	ML-S	LKTR	M	575	17	80.0	1	<0.01	0.70	0.78	<0.05	<0.5	<0.01	4160	1.0	<0.05	0.79	14	<0.01	1070	0.57	1.56	<0.01	<0.1	11800	21600	<0.01	1920	0.31	0.01	0.40	<0.5	12.3
7694	ML-S	LKTR	M	865	29	81.9	2	<0.01	2.60	0.03	<0.05	<0.5	<0.01	4710	1.5	<0.05	0.79	11	0.03	1190	0.71	4.03	<0.01	0.2	12400	23400	<0.01	2650	0.17	<0.01	0.52	<0.5	13.3
7695	ML-S	LKTR	M	745	23	79.8	2	<0.01	1.90	0.23	<0.05	<0.5	<0.01	4050	1.3	<0.05	1.07	20	0.05	1090	0.71	2.56	<0.01	0.4	11300	17900	<0.01	1750	0.12	0.02	0.47	<0.5	13.2
7696	ML-S	LKTR	M	665	21	78.5	2	<0.01	1.20	0.17	<0.05	<0.5	<0.01	3840	0.9	<0.05	1.24	33	<0.01	1040	0.66	1.71	<0.01	0.4	11300	19900	<0.01	1120	0.17	0.02	0.55	<0.5	12.9
7697	ML-S	LKTR	M	674	21	76.5	3	<0.01	1.30	0.14	<0.05	<0.5	<0.01	3830	1.6	<0.05	1.39	30	0.02	1060	0.54	1.20	<0.01	0.2	10800	18700	<0.01	1450	0.22	0.01	0.44	<0.5	14.0
7698	ML-S	LKTR	M	600	17	77.6	2	<0.01	1.10	0.06	<0.05	<0.5	<0.01	4200	1.2	<0.05	0.98	17	<0.01	1130	0.48	1.10	<0.01	0.3	11600	20100	<0.01	1690	0.20	<0.01	0.48	<0.5	14.2
7699	ML-S	LKTR	M	565	16	78.5	2	<0.01	0.60	0.21	<0.05	<0.5	<0.01	4490	2.1	0.19	1.39	22	<0.01	1210	0.59	1.06	<0.01	0.4	12000	19400	<0.01	1350	0.26	<0.01	0.47	<0.5	12.2
7700	ML-S	LKTR	M	542	17	80.1	3	<0.01	0.90	0.26	<0.05	<0.5	<0.01	4530	1.5	<0.05	1.28	19	<0.01	1250	0.89	1.50	<0.01	0.4	12700	22000	<0.01	1300	0.18	0.01	0.58	<0.5	12.3
7700*	ML-S	LKTR	M	542	17	80.1	4	<0.01	0.90	0.28	<0.05	<0.5	<0.01	4580	1.6	<0.05	1.38	26	0.03	1260	0.80	1.54	<0.01	0.6	11900	18600	<0.01	1280	0.24	0.01	0.64	<0.5	12.8
7701	ML-S	LKTR	M	565	16	81.6	3	<0.01	0.60	0.56	<0.05	<0.5	<0.01	5370	1.9	<0.05	1.28	26	<0.01	1240	0.85	1.51	<0.01	0.2	12500	21400	<0.01	1590	0.97	0.01	0.56	<0.5	13.2
7702	ML-S	LKTR	M	550	17	80.0	5	<0.01	1.70	0.15	<0.05	<0.5	<0.01	4650	2.0	0.24	0.98	27	0.04	1240	0.83	0.47	<0.01	<0.1	11900	25100	<0.01	1780	0.55	0.04	0.52	<0.5	12.3
7703	ML-S	LKTR	M	545	15	78.2	4	<0.01	1.00	0.11	<0.05	<0.5	<0.01	4100	1.1	<0.05	1.32	16	<0.01	1140	1.08	0.66	<0.01	0.4	11600	19200	<0.01	1370	0.70	<0.01	0.68	<0.5	14.9
7704	ML-S	LKTR	M	863	24	79.9	2	<0.01	1.10	0.57	<0.05	<0.5	<0.01	4190	0.9	<0.05	1.25	15	0.10	1060	0.75	4.64	<0.01	0.3	11200	19900	<0.01	2680	0.13	0.01	0.46	<0.5	14.2
7705	ML-S	LKTR	M	710	22	75.1	2	<0.01	0.80	<0.01	<0.05	<0.5	<0.01	3670	0.7	<0.05	1.20	12	0.06	980	0.57	1.60	<0.01	0.2	10700	15800	<0.01	1620	0.13	<0.01	0.42	<0.5	10.8
7706	ML-S	LKTR	M	653	21	77.9	3	<0.01	1.90	0.31	<0.05	<0.5	<0.01	4170	1.3	<0.05	1.18	14	<0.01	1160	0.75	1.48	<0.01	1.2	11200	18400	<0.01	1350	0.46	<0.01	0.55	<0.5	13.4
7707	ML-S	LKTR	M	698	21	77.5	2	<0.01	1.60	0.35	<0.05	<0.5	<0.01	4070	1.7	<0.05	1.42	44	0.04	1210	0.87	2.22	<0.01	0.2	11500	18400	<0.01	1440	0.25	<0.01	0.55	<0.5	14.0
7708	ML-S	LKTR	M	655	16	76.4	2	<0.01	1.20	<0.01	<0.05	<0.5	<0.01	3710	1.1	<0.05	1.57	19	<0.01	1030	0.66	1.46	<0.01	0.5	12100	17400	<0.01	1550	0.37	<0.01	0.49	<0.5	15.6
7709	ML-S	LKTR	M	540	14	77.4	2	<0.01	1.20	0.12	<0.05	<0.5	<0.01	4110	1.1	0.06	1.38	13	0.05	1230	0.75	0.44	<0.01	0.8	11400	16800	<0.01	1920	0.55	0.02	0.53	<0.5	14.5
8103	ML-S	LKTR	M	565	18	75.3	2	<0.01	0.20	0.03	<0.05	<0.5	<0.01	3750	0.7	<0.05	0.98	<5.0	<0.01	1130	0.37	1.16	<0.01	0.3	11300	16000	<0.01	1290	0.10	<0.01	0.42	<0.5	9.7
8103*	ML-S	LKTR	M	565	18	75.3	3	<0.01	0.30	0.04	<0.05	<0.5	<0.01	3690	0.7	<0.05	0.96	<5.0	<0.01	1080	0.34	1.10	<0.01	0.2	10800	17500	<0.01	1310	0.09	<0.01	0.52	<0.5	9.3
8140	ML-S	LKTR	M	450	14	77.6	2	<0.01	0.30	0.03	<0.05	<0.5	<0.01	3930	0.6	<0.05	0.90	<5.0	<0.01	1210	0.59	1.33	<0.01	0.4	11600	18800	<0.01	795	0.14	<0.01	0.52	<0.5	12.8
9063	ML-S	LKTR	M	666	20	78.3	2	<0.01	1.40	<0.01	<0.05	<0.5	0.05	4190	1.0	<0.05	1.25	9	0.01	1230	0.58	1.54	<0.01	0.3	11200	18800	<0.01	1970	0.13	<0.01	0.52	<0.5	16.7
9064	ML-S	LKTR	M	544	15	75.8	3	0.01	0.40	<0.01	<0.05	<0.5	<0.01	4840	1.0	<0.05	1.61	24	0.06	1250	0.55	0.84	<0.01	0.3	12500	18900	0.04	1450	0.75	<0.01	0.60	<0.5	10.3
9065	ML-S	LKTR	M	542	14	76.5	2	<0.01	0.30	0.15	<0.05	<0.5	<0.01	3800	1.1	<0.05	1.62	20	0.15	1180	0.37	1.75	<0.01	0.5	12000	18300	<0.01	1390	0.15	<0.01	0.54	<0.5	12.1
9066	ML-S	LKTR	M	578	17	83.5	7	<0.01	1.30	0.78	<0.05	<0.5	0.01	8280	2.6	0.30	1.11	47	0.16	1450	1.40	0.69	0.02	0.9	15000	22800	<0.01	2630	5.10	0.02	0.69	<0.5	15.9
9067	ML-S	LKTR	M	517	14	79.0	5	0.01	2.20	0.15	<0.05	<0.5	<0.01	4680	1.7	0.07	1.12	42	0.08	1380	0.89	0.22	0.02	0.6	12100	20100	<0.01	1540	0.97	0.02	0.70	<0.5	15.0
9068	ML-S	LKTR	M	585	19	79.5	3	<0.01	0.40	0.13	<0.05	<0.5	<0.01	4560	2.1	<0.05	1.07	27	0.09	1330	0.50	1.30	0.02	0.6	12400	20000	<0.01	1810	0.18	0.09	0.53	<0.5	10.7
9069	ML-S	LKTR	M	558	17	84.4	6	<0.01	2.30	0.18	<0.05	<0.5	<0.01	5450	3.1	0.09	1.30	42	0.08	1350	0.70	0.69	0.04	0.7	14000	24100	<0.01	2100	0.49	0.01	0.62	<0.5	12.6
9070	ML-S	LKTR	M	477	17	74.5	2	<0.01	1.00	<0.01	<0.05	<0.5	<0.01	3720	2.5	<0.05	1.10	24	0.03	1190	0.47	0.73	0.04	0.3	11100	14900	<0.01	1630	0.12	0.02	0.46	<0.5	10.6
7518	ML-S	LKTR	L	542	16	93.1	29	<0.1	1.26	1.08	<0.05	<0.5	0.80	910	3.0	0.30	7.36	424	0.05	830	4.56	1.520	0.1	0.8	12800	14800	<0.01	12000	1.20	<0.1	3.9	<0.5	108.0
7519	ML-S	LKTR	L	531	16	80.6	83	<0.1	0.73	2.15	<0.05	0.6	1.85	617	4.7	2.41	346.00	1990	0.19	835	8.07	0.195	0.6	0.3	17700	17200	2.16	4880	0.70	<0.1	4.0	3.2	204.0
7521	ML-S	LKTR	L	615	21	81.0	27	<0.1	0.61	0.37	<0.05	1.0	0.33	721	3.5	1.49	54.20	292	<0.05	573	5.86	1.920	0.4	0.3	11500	9880	0.25	6790	0.41	<0.1	4.0	0.7	117.0
7522	ML-S	LKTR	L	575	17	75.3	27	<0.1	0.47	0.82	<0.05	<0.5	0.97	721	2.6	0.59	78.30	1160	<0.05	728	6.52	1.020	0.4	0.2	12800	15400	0.43	5040	0.50	<0.1	3.5	<0.5	121.0
7694	ML-S	LKTR	L	865	29	80.4	27	<0.1	1.79	0.15	<0.05	<0.5	0.61	659	3.4	0.49	67.20	3820	<0.05	808	24.00	6.600	0.8	0.2	15900	13200	0.26	6960	0.42	<0.1	4.5	1.7	156.0
7695	ML-S	LKTR	L	745	23	87.5	12	<0.1	0.86	0.14	<0.05	<0.5	0.38	1020	2.7	1.52	59.20	390	<0.05	950	7.74	4.050	0.6	0.3	17900	17000	0.20	16300	0.88	<0.1	4.8	0.6	170.0
7696	ML-S	LKTR	L	665	21	77.4	6	<0.1	0.55	0.17	<0.05	<0.5	0.19	696	3.5	0.51	71.40	397	0.07	574	7.88	1.900	0.4	0.2	10900	9610	0.22	7400	0.55	<0.1	3.4	0.8	109.0
7697	ML-S	LKTR	L	674	21	78.9	12	<0.1	1.02	0.34	<0.05	<0.5	0.27	646	3.0	0.64	25.30	380	<0.05	591	5.14	1.780	0.3	0.3	11400	10200	0.09	8600	0.61	<0.1	2.7	<0.5	86.5
7698	ML-S	LKTR	L	600	17	81.5	11	<0.1	1.20	0.53	<0.05	0.6	0.18	2090	3.8	0.62	21.00	717	<0.05	649	4.59	1.620	0.3	0.4	12000	11900	0.04	9550	1.85	<0.1	4.5	1.6	94.5
7698*	ML-S	LKTR	L	600	17	81.5	9	<0.1	1.00	0.53	<0.05	<0.5	0.19	1900	3.2	0.59	19.40	615	<0.05	634	4.85	1.660	0.3	0.4	10800	12300	0.04	9910	1.68	<0.1	3.5	1.3	89.7
7699	ML-S	LKTR	L	565	16	86.3	82	<0.1	0.92	8.59	<0.05	0.9	2.31	805	5.0	1.77	104.00	4350	0.15	684	11.70	0.804	0.6	0.6	14900	13700	0.27	4850	0.86	<0.1	4.0	2.6	136.0
7700	ML-S	LKTR	L	542	17	83.4	75	<0.1	0.56	0.03	<0.05	<0.5	1.51	669	1.7	1.52	86.10	1460	0.05	713	8.22	1.750	0.6	0.2	13200	12000	0.28	10100	0.62	<0.1	3.9	0.9	141.0
7700*	ML-S	LKTR	L	542	17	83.4	50	<0.1	0.56	0.03	<0.05	<0.5	1.52	784	1.8	1.55	88.30	1460	<0.05	687	9.66	1.730	0.5	0.2	13200	13000	0.29	9780	0.65	<0.1	4.5	1.1	148.0
7701	ML-S	LKTR	L	565	16	95.5	20	<0.1	1.62	0.72	<0.05	<0.5	3.83	1060	1.7	0.57	5.72	1130	<0.05	757	2.34	1.720	0.2	0.8	10700	12400	<0.01	13000	2.01	<0.1	3.0	<0.5	80.9
7702	ML-S	LKTR	L	550	17	80.8	210	<0.1	1.45	0.39	<0.05	<0.5	3.38	532	1.9	1.65	232.00	3670	0.39	807	7.60	0.588	0.7	0.4	18600	18700	0.50	9720	0.65	<0.1	4.7	4.4	187.0
7703	ML-S	LKTR	L	545	15	82.8	62	<0.1	0.50	0.16	<0.05	<0.5	1.27	609	1.6	0.97	55.90	2350	0.14	857	5.06	0.615	0.5	0.2	16100	15700	0.18	11200	0.63	0.10	3.5	1.3	114.0
7704	ML-S	LKTR	L	863	24	79.4	6	<0.1	0.84	0.05	<0.05	<0.5	0.29	673	2.2	0.67	33.90	694	<0.05	689	6.00	8.130	0.4	0.1	13500	13200	0.09	9910	0.45	<0.1	3.7	0.6	124.0
7705	ML-S	LKTR	L	710	22	72.3	4	<0.1	0.30	<0.01	<0.05	<0.5	0.11	432	2.6	0.29	28.60	770	<0.05	321	3.01	2.210	0.2	<0.1	5580	6280	0.07	5280	0.28	<0.1	2.7	<0.5	69.6
7706	ML-S	LKTR	L	653	21	79.9	8	<0.1	0.93	0.01	<0.05	<0.5	0.29	833	2.6	0.25	8.22	410	<0.05	877	8.05	1.720	0.2	<0.1	14600	14600	<0.01	7030	0.58	<0.1	3.6	1.2	91.1
7707	ML-S	LKTR	L	698	21	72.0	4	<0.1	0.68	<0.01	<0.05	<0.5	0.26	493	2.4	0.24	42.40	320	<0.05	399	4.40	2.000	0.3	0.2	7230	7060	0.16	5790	0.35	<0.1	2.4	<0.5	87.1
7708	ML-S	LKTR	L	655	16	80.4	8	<0.1	0.98	<0.01	<0.05	0.5	0.24	777	2.6	0.45	44.90	1080	<0.05	633	4.02	1.960	0.3	0.1	12500	14300	0.13	10200	0.63	<0.1	3.9	1.3	103.0
7709	ML-S	LKTR	L	540	14	82.3	71	<0.1	0.71	0.07	<0.05	0.6	1.32	735	1.8	1.42	92.30	3810	0.20	683	9.90	0.495	0.5	0.3	12000	13500	0.30	9280	1.19	<0.1	4.3	1.3	134.0
8103	ML-S	LKTR	L	565	18	82.5	6	<0.1	0.91	<0.01	<0.05	<0.5	0.40	452	2.0	0.35	143.00	175	0.13	616	6.78	1.250	0.4	<0.1	12200	10300	1.09	6200	0.22	<0.1	3.3	1.1	143.0
8103*	ML-S	LKTR	L	565	18	82.5	10	<0.1	1.02	<0.01	<0.05	<0.5	0.38	453	2.6	0.39	157.00	221	0.14	635	6.84	1.330	0.4	0.3	12100	10200	1.14	6410	0.25	<0.1	3.2	1.3	156.0
8140	ML-S	LKTR	L	450	14	88.6	9	<0.1	1.11	<0.01	<0.05	<0.5	0.38	494	1.2	0.49	110.00	3470	<0.05	915	9.54	1.010	0.4	<0.1	15200	9740	0.91	5040	0.15	<0.1	3.5	0.9	120.0
9063	ML-S	LKTR	L	666	20	82.4	14	<0.1	0.74	<0.01	<0.05	<0.5	49.70	692	2.0	0.43	112.00	1470	0.17	959	6.24	2.180	0.4	0.2	14600	15900	0.50	10600	0.47	<0.1	3.9	1.1	164.0
9064*	ML-S	LKTR	L	544	15	74.7	6	<0.1	0.50	<0.01	<0.05	<0.5	0.16	580	3.1	0.32	24.60	630	0.09	513	3.78	0.942	0.3	0.1	8770	10500	0.10	6970	0.47	<0.1	2.7	0.8	86.3
9064	ML-S	LKTR	L	544	15	74.7	4	<0.1	0.48	0.01	<0.05	<0.5	0.19	570	2.6	0.31	22.20	558	<0.05	499	3.02	1.050	0.3	0.1	7970	9500	0.11	6470	0.40	<0.1	2.7	<0.5	82.0

Golder Associates

Table F28. Metal concentrations (µg/g dry weight) in fish tissue samples collected in the Meliadine Study Area, 1997-1998.

Fish #	Location	Species [a]	Tissue [b]	Fork Length (mm)	Age (years)	Moisture (%)	Aluminium	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Phosphorus	Potassium	Silver	Sodium	Strontium	Tin	Titanium	Vanadium	Zinc
9065	ML-S	LKTR	L	542	14	69.3	4	<0.1	0.65	<0.01	<0.05	<0.5	0.19	541	3.5	0.55	45.30	1090	<0.05	296	2.06	0.885	0.2	0.2	6460	5910	0.20	5240	0.34	<0.1	2.3	<0.5	75.7
9066	ML-S	LKTR	L	578	17	87.0	160	<0.1	0.84	0.03	<0.05	0.7	5.05	411	3.4	4.00	224.00	17600	0.85	736	31.90	0.756	0.9	0.3	13500	10500	0.78	6920	0.60	<0.1	4.4	4.4	131.0
9067	ML-S	LKTR	L	517	14	83.8	103	<0.1	0.95	0.17	<0.05	0.7	2.52	973	2.5	2.45	178.00	12200	0.65	804	26.30	0.252	0.6	0.6	13100	15100	0.51	10700	2.15	<0.1	5.0	2.9	163.0
9068	ML-S	LKTR	L	585	19	85.2	43	<0.1	1.60	0.11	<0.05	0.6	2.58	700	2.9	1.03	151.00	6970	0.26	803	8.16	1.71	0.5	0.1	13900	12600	0.61	9680	0.57	<0.1	4.1	1.9	145.0
9069	ML-S	LKTR	L	558	17	82.2	288	<0.1	1.01	0.06	<0.05	<0.5	6.09	658	3.2	3.06	309.00	14800	1.16	722	33.50	0.74	0.9	0.5	14100	14000	0.77	7930	0.73	<0.1	6.9	11.7	196.0
9070	ML-S	LKTR	L	477	17	81.6	8	<0.1	1.28	0.03	<0.05	<0.5	0.36	606	2.0	0.45	62.30	867	<0.05	672	8.94	0.81	0.3	0.6	12700	13200	0.36	9590	0.40	<0.1	3.1	0.8	118.0
7518*	ML-S	LKTR	K	542	16	80.0	9	<0.1	1.97	5.00	<0.05	<0.5	9.06	679	4.8	1.16	4.50	1310	1.80	483	2.97	1.45	0.4	2.1	10100	11000	<0.01	8810	2.20	<0.1	1.3	0.9	83.9
7518	ML-S	LKTR	K	542	16	80.0	10	<0.1	1.92	4.66	<0.05	<0.5	9.20	688	4.7	1.19	3.81	1210	<0.1	498	2.84	1.28	0.4	1.7	9970	11400	<0.01	9310	1.86	<0.1	0.9	0.8	81.9
7518*	ML-S	LKTR	K	542	16	80.0	7	<0.1	1.80	4.01	<0.05	<0.5	8.37	686	4.2	1.11	3.54	1300	<0.1	481	2.66	1.31	0.3	1.8	9680	11400	<0.01	9200	1.79	<0.1	0.8	0.8	77.2
7519	ML-S	LKTR	K	531	16	81.0	26	<0.1	3.60	5.97	<0.05	<0.5	8.02	773	2.6	1.13	8.53	975	<0.1	765	4.07	0.82	1.0	3.4	12300	14000	<0.01	8490	2.18	<0.1	1.5	1.8	101.0
7521	ML-S	LKTR	K	615	21	79.7	7	<0.1	3.59	2.81	<0.05	<0.5	1.69	879	1.4	1.52	5.18	746	<0.1	600	2.72	5.55	0.5	1.3	10500	11000	<0.01	8470	1.46	<0.1	0.7	<0.5	127.0
7522	ML-S	LKTR	K	575	17	83.4	8	<0.1	0.62	2.78	<0.05	<0.5	4.37	515	0.5	0.56	3.75	445	<0.1	458	1.94	3.10	0.2	1.1	16900	14500	<0.01	9140	0.53	<0.1	0.4	<0.5	60.0
7694	ML-S	LKTR	K	865	29	78.7	11	<0.1	3.10	0.41	<0.05	<0.5	3.07	630	1.0	0.52	3.66	1770	<0.1	505	2.28	6.97	0.3	1.1	9320	11200	<0.01	8950	0.96	<0.1	1.5	<0.5	78.0
7695	ML-S	LKTR	K	745	23	81.2	13	<0.1	4.71	0.53	<0.05	<0.5	2.08	1050	1.9	0.32	8.49	628	<0.1	996	2.69	5.63	0.4	0.9	11500	14600	<0.01	10100	2.37	<0.1	1.2	<0.5	100.0
7696	ML-S	LKTR	K	665	21	81.5	4	<0.1	0.81	0.58	<0.05	<0.5	1.23	439	0.9	0.49	7.54	448	<0.1	556	2.54	4.10	0.2	0.8	11700	10300	<0.01	8450	0.57	<0.1	0.4	<0.5	119.0
7697	ML-S	LKTR	K	674	21	84.5	10	<0.1	3.41	0.98	<0.05	<0.5	2.89	981	2.3	0.86	10.20	995	<0.1	809	2.69	4.35	0.4	1.9	13500	11900	<0.01	12900	2.06	<0.1	1.0	<0.5	133.0
7698	ML-S	LKTR	K	600	17	83.7	7	<0.1	2.97	0.62	<0.05	<0.5	1.14	794	1.9	0.66	6.30	1070	<0.1	655	1.87	3.03	0.3	0.4	10600	12800	<0.01	10700	0.93	<0.1	0.8	<0.5	91.6
7699	ML-S	LKTR	K	565	16	79.5	4	<0.1	0.86	0.29	<0.05	<0.5	0.20	549	1.3	0.50	60.90	429	<0.1	765	7.71	1.39	0.5	0.1	10600	11800	0.49	8030	0.37	<0.1	0.6	<0.5	124.0
7700	ML-S	LKTR	K	542	17	81.8	6	<0.1	0.71	0.42	<0.05	<0.5	1.23	279	1.0	0.34	2.25	211	<0.1	330	0.67	1.02	0.1	0.5	10000	12000	<0.01	12200	0.53	<0.1	0.6	<0.5	31.6
7701	ML-S	LKTR	K	565	16	81.9	7	<0.1	0.73	0.22	<0.05	<0.5	2.15	582	3.1	1.47	68.90	3310	<0.1	721	9.90	1.41	0.6	0.2	11700	9840	0.34	7840	0.68	<0.1	0.5	<0.5	142.0
7702	ML-S	LKTR	K	550	17	82.7	64	<0.1	2.70	3.84	<0.05	<0.5	11.50	1080	2.3	1.87	7.87	1400	0.20	627	3.56	1.36	0.7	2.8	11000	10600	<0.01	11800	3.40	<0.1	2.3	2.9	126.0
7703	ML-S	LKTR	K	545	15	81.6	15	<0.1	2.84	1.63	<0.05	<0.5	4.34	1190	4.4	1.22	5.95	1040	0.10	622	3.17	0.97	0.6	2.2	7950	9830	<0.01	8560	2.26	<0.1	2.0	1.7	88.9
7704	ML-S	LKTR	K	863	24	80.4	4	<0.1	0.83	0.31	<0.05	<0.5	1.84	895	2.7	0.47	8.16	820	<0.1	842	2.85	9.30	0.4	0.9	8800	9820	<0.01	8920	1.01	<0.1	1.0	<0.5	107.0
7705	ML-S	LKTR	K	710	22	81.8	7	<0.1	3.16	0.14	<0.05	<0.5	0.99	718	1.0	0.33	11.40	757	26.1	671	1.33	4.03	0.2	0.5	10800	13500	<0.01	12500	1.05	0.2	0.7	<0.5	85.2
7706	ML-S	LKTR	K	653	21	82.2	7	<0.1	2.15	0.65	<0.05	<0.5	2.56	2880	2.5	0.48	6.30	1460	<0.1	897	3.21	3.35	0.3	1.2	13000	13700	<0.01	10700	3.22	<0.1	1.0	0.6	134.0
7707	ML-S	LKTR	K	698	21	83.2	8	<0.1	1.64	0.32	<0.05	<0.5	1.52	959	2.1	0.69	6.27	728	3.4	682	3.45	3.20	0.2	0.8	10600	13000	<0.01	9800	1.22	<0.1	1.0	<0.5	123.0
7708	ML-S	LKTR	K	655	16	83.4	5	<0.1	1.65	0.21	<0.05	<0.5	1.35	791	2.0	0.39	7.90	1140	2.8	902	2.64	2.95	0.3	0.6	11800	15400	<0.01	11800	0.99	<0.1	0.8	<0.5	92.8
7709	ML-S	LKTR	K	540	14	82.5	16	<0.1	1.65	1.08	<0.05	<0.5	5.23	668	2.3	0.69	9.54	1420	21.2	710	2.58	1.44	0.3	2.1	10900	13700	<0.01	12700	2.77	0.1	1.2	0.8	109.0
8103	ML-S	LKTR	K	565	18	81.3	10	<0.1	2.12	0.29	<0.05	<0.5	2.33	1010	1.5	0.90	12.20	770	21.9	759	3.39	3.40	0.4	1.0	11900	12400	<0.01	9800	1.76	<0.1	1.1	<0.5	141.0
8103*	ML-S	LKTR	K	565	18	81.3	10	<0.1	2.24	0.26	<0.05	<0.5	2.06	912	1.2	0.84	13.00	714	22.0	781	3.50	3.00	0.4	1.1	11800	12300	<0.01	9640	1.77	0.1	0.9	<0.5	134.0
8140	ML-S	LKTR	K	450	14	84.6	22	<0.1	5.11	0.58	<0.05	<0.5	3.56	2010	2.6	1.12	14.50	965	0.3	1050	4.74	3.47	0.8	1.2	13900	14700	<0.01	9130	3.78	<0.1	2.5	0.5	187.0
9063	ML-S	LKTR	K	666	20	82.9	6	<0.1	2.12	0.23	<0.05	<0.5	50.50	832	1.8	0.45	6.80	1340	2.2	710	2.04	3.25	0.3	1.6	10400	12600	<0.01	11600	1.72	0.2	0.9	<0.5	122.0
9064	ML-S	LKTR	K	544	15	81.8	5	<0.1	0.62	0.11	<0.05	<0.5	0.52	820	1.0	0.44	4.49	875	5.2	441	1.49	1.62	0.1	0.6	9770	13400	<0.01	8590	0.76	<0.1	0.7	<0.5	91.0
9065	ML-S	LKTR	K	542	14	80.8	7	<0.1	1.19	0.23	<0.05	<0.5	1.50	1090	2.4	1.01	9.27	1210	4.8	875	3.22	2.75	0.4	0.7	9520	13300	<0.01	9870	0.94	<0.1	1.1	<0.5	134.0
9066	ML-S	LKTR	K	578	17	85.7	125	<0.1	4.00	7.28	<0.05	<0.5	19.10	1720	8.1	4.06	42.40	2750	10.7	1350	5.57	3.22	1.3	6.7	10200	11500	0.02	14200	7.97	0.3	3.3	3.4	116.0
9067	ML-S	LKTR	K	517	14	82.5	22	<0.1	3.32	2.34	<0.05	<0.5	17.60	1510	4.8	1.97	10.10	2620	5.2	633	4.22	1.26	0.7	5.2	11200	13400	<0.01	8790	4.03	<0.1	1.7	1.9	167.0
9068	ML-S	LKTR	K	585	19	84.4	22	<0.1	2.58	1.10	<0.05	<0.5	10.80	1810	6.4	1.90	15.30	4200	11.2	1460	4.64	3.20	0.6	2.7	11300	16400	0.01	11500	4.02	0.7	1.9	0.8	149.0
9069	ML-S	LKTR	K	558	17	87.0	52	<0.1	3.05	3.73	<0.05	<0.5	12.10	1830	5.4	1.78	14.20	3010	3.5	814	2.69	2.37	0.5	4.6	10500	12100	0.03	13900	5.61	0.1	1.7	2.9	143.0
9070	ML-S	LKTR	K	477	17	81.9	3	<0.1	0.81	0.13	<0.05	<0.5	0.75	551	2.9	0.87	5.60	955	1.1	655	2.41	1.31	0.2	0.4	9360	13900	<0.01	9550	0.44	<0.1	0.8	<0.5	98.0
8851	PAR	LKTR	M	425	11	75.8	<1	<0.1	0.09	0.06	<0.05	<0.5	<0.05	915	1.1	<0.05	2.39	53	<0.05	1260	0.24	0.377	<0.1	0.3	8950	15900	<0.01	956	1.44	<0.1	1.2	<0.5	9.8
8851*	PAR	LKTR	M	425	11	75.8	<1	<0.1	0.09	0.08	<0.05	<0.5	<0.05	1070	1.1	<0.05	2.34	53	<0.05	1180	0.31	0.370	<0.1	0.3	10500	13500	<0.01	1160	1.37	<0.1	1.3	<0.5	10.6
8858	PAR	LKTR	M	380	9	77.0	<1	<0.1	0.09	0.04	<0.05	<0.5	<0.05	613	0.8	<0.05	0.86	19	<0.05	1070	0.12	0.311	<0.1	0.3	9420	15100	<0.01	755	0.70	<0.1	1.0	<0.5	9.7
8859	PAR	LKTR	M	513	17	78.1	<1	<0.1	0.24	0.05	<0.05	<0.5	<0.05	520	1.1	0.06	1.01	43	<0.05	1260	0.17	0.128	<0.1	<0.1	10600	14500	<0.01	1010	0.62	<0.1	1.6	<0.5	8.4
8860	PAR	LKTR	M	532	16	77.8	<1	<0.1	0.20	0.01	<0.05	<0.5	<0.05	399	0.8	<0.05	3.18	50	<0.05	1210	0.08	0.824	<0.1	<0.1	9920	14900	<0.01	1390	0.25	<0.1	1.9	<0.5	8.6
8861	PAR	LKTR	M	390	10	74.7	<1	<0.1	0.21	0.05	<0.05	<0.5	<0.05	700	1.2	0.06	2.19	28	<0.05	1250	0.22	0.281	<0.1	0.1	10900	14500	<0.01	944	0.85	<0.1	1.8	<0.5	10.5
8862	PAR	LKTR	M	409	11	76.2	<1	<0.1	0.90	0.03	<0.05	<0.5	<0.05	685	1.2	<0.05	2.10	28	<0.05	1130	0.06	0.457	<0.1	0.1	9020	16500	<0.01	1090	0.47	<0.1	1.3	<0.5	9.8
8863	PAR	LKTR	M	410	13	76.4	<1	<0.1	0.35	<0.01	<0.05	<0.5	<0.05	460	1.0	0.09	1.86	48	<0.05	1520	0.16	0.252	<0.1	<0.1	12400	13800	<0.01	845	0.33	<0.1	2.2	<0.5	10.1
8863*	PAR	LKTR	M	410	13	76.4	<1	<0.1	0.32	0.01	<0.05	<0.5	<0.05	677	1.8	0.10	1.90	47	<0.05	1320	0.24	0.290	<0.1	0.2	11300	14900	<0.01	1310	0.30	<0.1	1.3	<0.5	11.2
8864	PAR	LKTR	M	435	12	76.3	<1	<0.1	0.54	0.12	<0.05	<0.5	<0.05	1110	1.2	0.12	1.78	57	<0.05	1580	0.24	0.195	<0.1	0.2	14700	12800	<0.01	895	1.68	<0.1	1.9	<0.5	11.3
8865	PAR	LKTR	M	441	13	80.0	<1	<0.1	0.07	0.01	<0.05	<0.5	<0.05	687	1.1	<0.05	2.56	64	<0.05	1560	0.37	1.180	<0.1	0.2	16800	18600	<0.01	1100	0.68	<0.1	2.1	<0.5	13.1
8866	PAR	LKTR	M	417	12	79.4	<1	<0.1	0.95	0.03	<0.05	<0.5	<0.05	792	1.5	0.14	2.36	58	<0.05	1760	0.35	0.575	<0.1	0.3	15200	15300	<0.01	1760	0.72	<0.1	1.9	<0.5	12.5
8867*	PAR	LKTR	M	432	14	79.4	<1	<0.1	0.94	0.06	<0.05	<0.5	<0.05	706	1.4	0.05	2.80	62	<0.05	1490	0.39	0.125	<0.1	0.2	12500	13200	<0.01	1070	0.93	<0.1	1.9	<0.5	11.5
8867	PAR	LKTR	M	432	12	76.9	<1	<0.1	0.93	0.08	<0.05	<0.5	<0.05	598	1.3	<0.05	2.21	66	<0.05	1430	0.34	0.136	<0.1	0.2	11700	14500	<0.01	690	0.89	0.1	1.8	<0.5	11.9
8868	PAR	LKTR	M	450	14	77.8	<1	<0.1	0.16	0.01	<0.05	<0.5	<0.05	413	0.9	<0.05	0.95	45	<0.05	1220	0.21	0.454	<0.1	<0.1	11000	15600	<0.01	707	0.33	<0.1	2.0	<0.5	10.7
8876	PAR	LKTR	M	640	20	73.9	<1	<0.1	0.40	0.03	<0.05	<0.5	<0.05	600	1.2	<0.05	1.29	50	<0.05	1280	0.28	0.854	<0.1	0.3	11500	14600	<0.01	1020	0.26	<0.1	1.5	<0.5	9.1
8877	PAR	LKTR	M	480	14	77.0	<1	<0.1	0.27	0.03	<0.05	<0.5	<0.05	454	1.1	0.07	3.41	51	0.05	1590	<0.05	0.247	<0.1	0.1	14100	14200	<0.01	1010	0.55	<0.1	2.0	<0.5	10.0
8883	PAR	LKTR	M	443	14	76.9	<1	<0.1	0.18	<0.01	<0.05	<0.5	<0.05	495	0.9	0.08	2.29	55	<0.05	1230	0.06	0.446	<0.1	0.2	10900	14800	<0.01	1090	0.35	<0.1	1.7	<0.5	11.2
8884	PAR	LKTR	M	765	24	78.8	3	<0.1	0.82	<0.01	<0.05	<0.5	<0.05	703	2.0	0.06	1.77	57	<0.05	1580	0.36	1.880	<0.1	0.2	13600	15800	<0.01	2110	0.41	<0.1	2.1	<0.5	14.0
8886	PAR	LKTR	M	435	10	77.7	2	<0.1	0.27	0.25	<0.05	<0.5	<0.05	1480	1.9	<0.05	4.19	89	<0.05	2000	0.77	0.402	<0.1	0.3	17500	14800	<0.01	1890	2.33	<0.1	2.2	<0.5	13.5
8887	PAR	LKTR	M	733	13	79.0	<1	<0.1	0.79	0.03	<0.05	<0.5	<0.05	684	1.3	0.07	3.10	51	0.05	1230	0.36	2.440	<0.1	0.2	9910	15200	<0.01	1650	0.42	<0.1	1.8	<0.5	14.2

Golder Associates

Table F28. Metal concentrations (µg/g dry weight) in fish tissue samples collected in the Meliadine Study Area, 1997-1998.

Fish #	Location	Species [a]	Tissue [b]	Fork Length (mm)	Age (years)	Moisture (%)	Aluminium	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Phosphorus	Potassium	Silver	Sodium	Strontium	Tin	Titanium	Vanadium	Zinc
8889	PAR	LKTR	M	475	27	77.3	<1	<0.1	1.02	0.06	<0.05	<0.5	<0.05	1110	1.4	0.08	0.94	80	<0.05	1470	0.23	0.355	<0.1	0.3	13200	12400	<0.01	1190	1.21	<0.1	1.8	<0.5	10.2
8890	PAR	LKTR	M	770	25	74.2	<1	<0.1	0.50	<0.01	<0.05	<0.5	<0.05	507	1.2	<0.05	2.11	57	<0.05	1120	0.16	1.290	<0.1	0.2	9500	15800	<0.01	1430	0.29	<0.1	1.9	<0.5	9.5
8851*	PAR	LKTR	L	425	11	90.7	7	<0.1	0.42	0.10	<0.05	<0.5	0.96	531	<0.5	0.74	72.2	2000	0.08	684	10.40	0.584	0.6	0.5	14200	11300	0.62	7140	0.99	<0.1	0.6	<0.5	117.0
8851	PAR	LKTR	L	425	11	90.7	14	<0.1	0.47	0.09	<0.05	<0.5	1.01	596	<0.5	0.73	81.5	2010	0.08	697	9.61	0.564	0.6	0.5	14200	11400	0.59	7520	0.96	<0.1	0.6	<0.5	113.0
8858	PAR	LKTR	L	380	9	86.2	20	<0.1	0.17	0.05	<0.05	<0.5	1.93	229	<0.5	0.93	98.3	1430	0.11	691	12.10	0.360	0.6	0.2	13500	11500	1.12	2530	0.45	<0.1	0.6	<0.5	115.0
8859	PAR	LKTR	L	513	17	79.8	207	<0.1	0.16	0.32	<0.05	<0.5	6.01	1220	0.7	1.36	166.0	1890	0.18	680	9.89	0.284	0.9	0.2	14200	11000	1.00	3000	2.86	<0.1	1.3	2.5	132.0
8860	PAR	LKTR	L	532	16	85.5	15	<0.1	1.04	0.06	<0.05	<0.5	2.47	411	0.6	0.38	92.9	542	0.05	642	10.30	1.990	0.7	0.7	13300	10800	0.95	3210	0.54	<0.1	0.6	<0.5	129.0
8861	PAR	LKTR	L	390	10	87.9	13	<0.1	0.24	0.07	<0.05	<0.5	1.48	524	0.6	1.16	62.4	1190	0.09	626	8.88	0.436	0.5	0.4	13200	11600	0.54	8180	0.94	<0.1	0.5	<0.5	112.0
8862	PAR	LKTR	L	409	11	86.4	9	<0.1	0.64	0.05	<0.05	<0.5	1.93	314	0.5	1.03	116.0	1510	0.06	669	9.62	0.808	0.7	0.5	14000	11700	1.66	7370	0.67	<0.1	0.7	<0.5	159.0
8863	PAR	LKTR	L	410	13	85.6	18	<0.1	0.23	0.05	<0.05	<0.5	2.49	145	<0.5	1.31	89.0	2430	0.07	653	13.80	0.492	0.6	0.1	13700	10400	1.12	4090	0.44	<0.1	0.5	<0.5	122.0
8864	PAR	LKTR	L	435	12	87.2	33	<0.1	0.27	0.06	<0.05	<0.5	1.96	115	<0.5	1.19	81.7	1220	0.12	763	9.16	0.356	0.6	0.2	14800	13200	0.54	4020	0.61	<0.1	0.7	0.5	117.0
8865	PAR	LKTR	L	441	13	93.8	12	<0.1	0.17	0.06	<0.05	<0.5	1.35	436	0.6	0.69	91.7	2160	0.08	581	6.37	1.620	0.6	0.3	11700	10500	0.94	2640	0.70	<0.1	0.4	<0.5	119.0
8866	PAR	LKTR	L	417	12	85.8	19	<0.1	0.49	0.05	<0.05	<0.5	1.10	270	0.6	1.50	52.1	2740	0.06	743	12.20	0.884	0.9	0.3	16800	10400	0.21	5340	0.64	<0.1	0.5	<0.5	121.0
8867	PAR	LKTR	L	432	12	87.4	44	<0.1	0.40	0.08	<0.05	<0.5	2.44	354	<0.5	0.72	193.0	804	0.11	715	7.93	0.240	0.5	0.1	12800	11400	2.48	3070	0.75	<0.1	0.5	<0.5	129.0
8867*	PAR	LKTR	L	432	12	87.4	46	<0.1	0.37	0.08	<0.05	<0.5	2.40	368	<0.5	0.73	192.0	785	0.10	671	8.54	0.220	0.6	0.1	12900	12200	2.47	3050	0.73	<0.1	0.6	<0.5	132.0
8868	PAR	LKTR	L	450	14	77.1	20	<0.1	0.38	0.03	<0.05	<0.5	1.34	257	<0.5	0.51	81.5	234	<0.05	647	6.89	0.572	0.5	<0.1	12100	11000	0.53	2730	0.44	<0.1	0.4	<0.5	91.0
8876	PAR	LKTR	L	640	20	78.6	4	<0.1	0.22	0.03	<0.05	<0.5	0.88	191	<0.5	0.73	37.7	827	<0.05	581	6.93	1.620	0.5	0.1	11600	9770	0.31	6150	0.28	<0.1	0.4	<0.5	72.6
8877	PAR	LKTR	L	480	14	76.1	51	<0.1	0.29	0.05	<0.05	<0.5	3.04	210	0.5	1.18	110.0	480	0.09	656	9.71	0.308	0.9	0.2	13300	12500	0.68	3570	0.48	<0.1	0.8	0.6	134.0
8883	PAR	LKTR	L	443	14	82.3	8	<0.1	0.35	0.09	<0.05	<0.5	1.24	1440	<0.5	1.45	36.8	1520	<0.05	687	9.10	0.832	0.7	0.5	14100	11100	0.24	9030	2.02	<0.1	0.6	<0.5	110.0
8884	PAR	LKTR	L	765	24	73.4	47	<0.1	0.24	0.03	<0.05	<0.5	2.40	391	<0.5	1.26	72.3	370	<0.05	525	5.01	3.020	0.6	0.3	12100	10300	0.32	4690	0.48	<0.1	0.7	0.8	93.0
8884*	PAR	LKTR	L	765	24	73.4	57	<0.1	0.33	0.01	<0.05	<0.5	2.53	212	0.6	1.39	75.3	439	<0.05	516	5.08	3.050	0.6	0.5	11300	10100	0.35	4370	0.36	<0.1	0.7	0.8	91.7
8885	PAR	LKTR	L	402	10	88.4	10	<0.1	0.19	0.06	<0.05	<0.5	1.60	599	<0.5	0.92	118.0	1700	0.05	723	12.10	0.332	0.7	0.1	15700	13100	1.08	3680	0.94	<0.1	0.8	<0.5	127.0
8886	PAR	LKTR	L	435	13	76.7	71	<0.1	0.16	0.04	<0.05	<0.5	1.91	102	0.6	0.66	60.4	1020	0.12	693	8.23	0.788	0.5	<0.1	14600	12500	0.20	3600	0.58	<0.1	0.6	0.7	113.0
8887	PAR	LKTR	L	733	27	77.3	25	<0.1	0.28	0.05	<0.05	<0.5	1.47	129	0.5	1.05	43.8	934	<0.05	580	5.02	4.520	0.6	0.4	12000	10600	0.31	5670	0.59	<0.1	0.6	<0.5	100.0
8889	PAR	LKTR	L	475	15	79.6	21	<0.1	0.30	0.04	<0.05	<0.5	2.43	175	<0.5	0.87	171.0	1370	0.05	751	13.90	0.532	0.4	<0.1	17600	12600	3.06	3990	0.46	<0.1	0.6	<0.5	140.0
8890	PAR	LKTR	L	770	25	75.7	2	<0.1	0.24	0.02	<0.05	<0.5	0.82	184	<0.5	0.39	44.3	318	<0.05	526	4.38	4.840	0.4	0.1	11900	10600	0.27	5170	0.31	<0.1	0.4	<0.5	65.1
8890*	PAR	LKTR	L	770	25	75.7	4	<0.1	0.17	<0.01	<0.05	<0.5	0.84	169	<0.5	0.42	46.8	353	<0.05	549	4.78	4.960	0.4	0.2	12000	11100	0.29	5300	0.36	<0.1	0.4	<0.5	69.2
8851	PAR	LKTR	K	425	11	84.0	13	<0.1	0.42	0.51	<0.05	0.7	4.46	645	0.8	2.20	6.26	545	0.11	673	2.04	0.879	0.2	3.4	11700	11000	0.02	11900	1.89	<0.1	0.6	<0.5	112.0
8851*	PAR	LKTR	K	425	11	84.0	13	<0.1	0.44	0.49	<0.05	<0.5	4.32	630	1.2	1.45	6.09	568	0.11	683	1.98	0.861	0.2	3.2	11700	11000	0.01	12100	1.77	<0.1	0.7	<0.5	109.0
8858	PAR	LKTR	K	380	9	85.3	15	<0.1	0.46	0.50	<0.05	1.1	7.73	617	1.3	5.00	6.99	595	0.12	889	3.44	0.804	0.2	2.9	15300	17400	0.01	7670	1.66	<0.1	0.8	<0.5	127.0
8859	PAR	LKTR	K	513	17	84.2	65	<0.1	1.21	1.71	<0.05	<0.5	15.30	789	0.6	2.92	5.77	705	0.08	678	1.37	0.663	0.3	3.6	14600	13400	<0.01	9170	4.45	<0.1	1.4	1.0	81.1
8860	PAR	LKTR	K	532	16	80.8	28	<0.1	0.70	0.47	<0.05	<0.5	7.96	656	1.1	0.67	4.61	532	<0.05	664	1.59	2.340	0.3	3.8	10700	12700	<0.01	7940	2.17	<0.1	1.2	<0.5	120.0
8861	PAR	LKTR	K	390	10	84.9	13	<0.1	0.63	1.39	<0.05	<0.5	8.06	783	1.5	2.83	7.96	696	<0.05	730	2.53	0.798	0.2	2.9	12600	13500	0.02	12400	2.35	<0.1	0.7	<0.5	115.0
8862	PAR	LKTR	K	409	11	87.2	15	<0.1	0.53	0.28	<0.05	<0.5	4.24	681	1.6	1.57	6.42	868	<0.05	615	1.67	1.080	0.2	2.3	12000	12400	0.02	11000	1.71	<0.1	0.7	<0.5	81.0
8863	PAR	LKTR	K	410	13	84.9	11	<0.1	0.47	0.43	<0.05	<0.5	12.90	727	1.0	3.14	5.61	671	0.07	818	2.62	0.954	0.3	3.7	13700	16200	0.01	10300	1.96	<0.1	0.7	<0.5	150.0
8864	PAR	LKTR	K	435	12	85.4	14	<0.1	0.58	0.81	<0.05	<0.5	7.83	587	1.3	4.00	7.52	567	0.11	732	2.01	0.555	0.3	4.6	13000	15900	0.01	9520	2.04	<0.1	0.7	0.7	108.0
8865	PAR	LKTR	K	441	13	84.6	20	<0.1	0.49	0.32	<0.05	<0.5	7.21	804	1.2	1.03	12.20	854	<0.05	842	2.14	3.090	0.2	3.1	12700	16700	0.01	10200	2.65	<0.1	1.0	<0.5	108.0
8866	PAR	LKTR	K	417	12	84.8	11	<0.1	0.35	0.36	<0.05	<0.5	4.76	638	0.8	2.96	5.38	621	<0.05	777	2.17	0.975	0.2	3.0	12300	13500	<0.01	8740	1.93	<0.1	0.6	<0.5	111.0
8867	PAR	LKTR	K	432	12	84.5	13	<0.1	0.64	1.29	<0.05	<0.5	11.70	573	1.3	1.41	6.35	1170	0.12	672	2.05	0.408	0.3	2.4	10500	11800	<0.01	8450	2.01	<0.1	0.8	<0.5	131.0
8867*	PAR	LKTR	K	432	12	84.5	20	<0.1	0.66	1.21	<0.05	<0.5	11.30	560	1.3	1.51	6.37	1220	0.11	680	2.08	0.387	0.3	2.4	10800	12200	<0.01	8710	2.02	<0.1	0.7	<0.5	130.0
8868	PAR	LKTR	K	450	14	84.0	14	<0.1	0.36	0.58	<0.05	<0.5	4.72	477	0.7	1.28	4.53	436	<0.05	662	1.94	0.981	0.2	2.7	11600	14500	<0.01	6790	1.83	<0.1	0.7	<0.5	80.0
8876	PAR	LKTR	K	640	20	80.3	7	<0.1	0.90	0.40	<0.05	<0.5	5.40	587	0.9	0.93	5.57	458	0.12	700	2.37	3.030	0.4	3.4	10400	10100	<0.01	11300	2.39	<0.1	0.7	<0.5	101.0
8877	PAR	LKTR	K	480	14	80.0	20	<0.1	0.87	1.04	<0.05	<0.5	10.80	496	1.3	2.80	4.69	672	<0.05	717	2.20	0.723	0.4	4.3	10900	14500	<0.01	8940	2.58	<0.1	1.1	<0.5	92.7
8883	PAR	LKTR	K	443	14	84.1	14	<0.1	0.55	0.41	<0.05	<0.5	9.20	1030	1.0	2.42	6.40	563	<0.05	788	3.54	1.370	0.3	3.3	12700	13500	<0.01	12800	2.87	<0.1	0.8	<0.5	130.0
8884	PAR	LKTR	K	765	24	80.9	20	<0.1	1.12	2.10	<0.05	<0.5	18.80	1190	0.8	1.78	6.98	1730	0.05	784	1.92	6.630	0.5	7.0	11200	13600	0.01	12200	6.17	<0.1	0.8	<0.5	91.0
8885	PAR	LKTR	K	402	10	81.5	8	<0.1	0.35	0.34	<0.05	<0.5	5.39	506	0.8	1.12	4.33	438	<0.05	718	2.16	0.633	0.2	1.9	10900	14800	0.01	6910	1.72	<0.1	0.5	<0.5	103.0
8886	PAR	LKTR	K	435	13	82.1	17	<0.1	0.29	5.08	<0.05	<0.5	8.16	804	0.7	1.27	5.74	660	0.10	753	1.85	1.030	0.5	2.9	12200	16300	<0.01	10300	4.25	<0.1	0.9	0.8	110.0
8887	PAR	LKTR	K	733	27	79.5	13	<0.1	0.68	0.45	<0.05	<0.5	10.40	996	0.8	1.51	4.46	741	<0.05	662	1.39	5.490	0.3	5.7	9440	12100	<0.01	8750	3.83	<0.1	0.7	<0.5	77.1
8889	PAR	LKTR	K	475	15	82.2	17	<0.1	1.08	2.08	<0.05	<0.5	21.00	746	0.7	2.43	7.38	767	0.06	915	4.83	1.430	0.4	6.2	16300	16800	0.01	8750	3.84	<0.1	0.9	<0.5	132.0
8890	PAR	LKTR	K	770	25	80.0	6	<0.1	0.73	0.48	<0.05	<0.5	9.61	846	0.8	0.70	6.16	423	<0.05	818	2.20	6.150	0.3	5.1	12900	14600	0.02	9630	5.93	<0.1	0.5	<0.5	87.7
7520	ML-S	RNWH	M	392	9	75.2	<1	<0.1	0.21	0.37	<0.05	<0.5	<0.05	890	0.7	<0.05	1.83	25	<0.05	1210	1.21	0.117	<0.1	<0.1	12400	17200	<0.01	1150	0.65	<0.1	0.3	<0.5	15.4
7520*	ML-S	RNWH	M	392	9	75.2	<1	<0.1	0.20	0.38	<0.05	<0.5	<0.05	894	0.7	0.11	1.55	25	<0.05	1220	1.25	0.123	<0.1	<0.1	11100	16500	<0.01	1120	0.65	<0.1	0.3	<0.5	15.2
8100	ML-S	RNWH	M	385	9	75.4	<1	<0.1	0.17	0.24	<0.05	<0.5	<0.05	1440	<0.5	<0.05	1.92	23	<0.05	1160	1.79	0.123	<0.1	<0.1	11400	17200	<0.01	1190	2.01	<0.1	0.4	<0.5	18.1
8101	ML-S	RNWH	M	385	9	75.1	<1	<0.1	0.20	0.05	<0.05	<0.5	<0.05	677	<0.5	0.11	1.82	23	<0.05	1200	0.73	0.123	<0.1	<0.1	11200	16200	<0.01	1030	0.50	<0.1	0.3	<0.5	15.2
8102	ML-S	RNWH	M	382	9	76.8	<1	<0.1	0.15	0.07	<0.05	<0.5	<0.05	989	<0.5	<0.05	1.64	25	<0.05	1340	1.30	0.153	<0.1	<0.1	12900	19500	<0.01	1150	0.90	<0.1	0.4	<0.5	16.1
8499	ML-S	RNWH	M	400	9	76.5	<1	<0.1	0.45	0.10	<0.05	<0.5	<0.05	905	0.6	0.11	1.93	34	<0.05	1290	1.57	0.168	<0.1	<0.1	13100	18600	<0.01	1360	0.75	<0.1	0.3	<0.5	16.0
8500	ML-S	RNWH	M	415	12	75.2	<1	<0.1	0.26	0.06	<0.05	<0.5	<0.05	689	<0.5	<0.05	1.95	28	<0.05	1240	0.83	0.144	<0.1	<0.1	11000	16900	<0.01	1140	0.46	<0.1	0.3	<0.5	14.8
8969	ML-S	RNWH	M	347	5	76.6	<1	<0.1	0.17	0.15	<0.05	<0.5	<0.05	1040	<0.5	<0.05	1.74	18	<0.05	1350	1.59	0.138	<0.1	<0.1	12900	17500	<0.01	976	0.98	<0.1	0.4	<0.5	18.9
7520	ML-S	RNWH	L	392	9	93.2	20	<0.1	0.66	2.57	<0.05	<0.5	0.25	359	1.9	0.60	13.50	806	0.07	670	6.40	0.200	0.6	0.2	10500	12200	0.02	4740	0.30	<0.1	1.0	<0.5	87.5
7520*	ML-S	RNWH	L	392	9	93.2	18	<0.1	0.59	2.40	<0.05	<0.5	0.21	334	2.3	0.42	12.60	774	0.07	639	6.00	0.192	0.5	<0.1	11400	11500	0.01	4480	0.20	<0.1	0.7	<0.5	71.3

Golder Associates

Table F28. Metal concentrations (µg/g dry weight) in fish tissue samples collected in the Meliadine Study Area, 1997-1998.

Fish #	Location	Species [a]	Tissue [b]	Fork Length (mm)	Age (years)	Moisture (%)	Aluminium	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Phosphorus	Potassium	Silver	Sodium	Strontium	Tin	Titanium	Vanadium	Zinc
8100	ML-S	RNWH	L	385	9	76.9	15	<0.1	0.62	0.09	<0.05	<0.5	0.46	278	2.0	0.40	10.20	760	<0.05	649	13.60	0.216	0.6	<0.1	13900	11100	0.02	3270	0.14	<0.1	0.9	<0.5	73.9
8101	ML-S	RNWH	L	385	9	87.9	10	<0.1	0.42	0.10	<0.05	<0.5	0.49	971	1.2	0.43	9.93	768	<0.05	742	8.40	0.248	0.6	0.1	14500	12000	0.07	4450	1.09	<0.1	0.8	<0.5	77.8
8102	ML-S	RNWH	L	382	9	89.6	13	<0.1	0.40	0.05	<0.05	<0.5	0.60	330	2.2	0.63	11.30	817	<0.05	762	10.60	0.204	0.6	0.6	13800	12400	0.08	4480	0.28	<0.1	0.7	<0.5	87.3
8499	ML-S	RNWH	L	400	9	91.7	15	<0.1	0.35	0.11	<0.05	<0.5	0.44	505	1.5	0.22	10.50	599	0.10	579	7.50	0.184	0.6	<0.1	11100	11400	0.06	3280	0.53	<0.1	0.7	<0.5	71.8
8500	ML-S	RNWH	L	415	12	93.5	16	<0.1	0.59	0.06	<0.05	<0.5	0.42	418	1.6	0.22	11.90	1030	0.08	584	5.40	0.200	0.6	<0.1	11300	11400	0.02	3270	0.32	<0.1	0.5	<0.5	62.7
8969	ML-S	RNWH	L	347	5	92.5	11	<0.1	0.19	0.05	<0.05	<0.5	0.14	294	1.6	0.30	8.70	382	0.07	739	9.20	0.148	0.4	0.2	13300	14300	0.03	4510	0.19	<0.1	0.5	<0.5	48.2
7520	ML-S	RNWH	K	392	9	82.9	15	<0.1	1.37	9.14	<0.05	<0.5	1.04	1000	2.5	2.90	3.75	800	0.09	679	15.90	0.370	0.8	2.5	10600	9950	<0.01	9260	0.69	<0.1	75.4	5.6	62.7
7520*	ML-S	RNWH	K	392	9	82.9	18	<0.1	2.00	10.40	<0.05	<0.5	1.24	1280	2.4	2.71	3.42	700	0.08	516	18.30	0.270	0.9	3.0	10300	9830	<0.01	9220	0.83	<0.1	69.2	6.4	57.8
8100	ML-S	RNWH	K	385	9	84.5	25	<0.1	2.26	1.33	<0.05	<0.5	2.22	2290	2.2	1.85	6.05	1180	0.20	471	30.80	0.690	1.5	3.6	12200	11300	<0.01	8660	2.69	<0.1	52.8	5.9	70.6
8101	ML-S	RNWH	K	385	9	80.0	23	<0.1	2.25	0.52	<0.05	<0.5	3.24	1020	2.0	3.34	7.28	1490	0.17	639	4.25	0.560	1.1	4.3	9590	10200	0.02	7190	0.90	<0.1	87.7	6.2	85.1
8102	ML-S	RNWH	K	382	9	84.5	32	<0.1	3.58	1.30	<0.05	<0.5	3.14	4290	3.0	2.73	6.61	1840	0.11	840	29.10	0.810	1.4	4.6	14000	11500	0.02	8930	5.04	<0.1	125.0	11.2	101.0
8499	ML-S	RNWH	K	400	9	83.6	18	<0.1	1.96	1.52	<0.05	<0.5	2.34	1530	1.6	3.13	4.73	1510	0.22	584	26.50	0.510	0.8	3.8	9260	10800	<0.01	8160	1.98	<0.1	80.8	7.2	85.2
8500	ML-S	RNWH	K	415	12	85.7	27	<0.1	3.67	0.84	<0.05	<0.5	4.32	1430	2.1	11.70	7.68	2550	0.18	818	43.30	1.410	1.8	6.5	14400	13300	<0.01	9330	1.52	<0.1	120.0	6.1	117.0
8969	ML-S	RNWH	K	347	5	82.2	81	<0.1	1.22	2.43	<0.05	<0.5	1.64	1090	2.2	2.65	6.31	1380	0.09	713	22.70	0.490	0.6	3.7	12500	11900	0.02	8450	1.55	<0.1	101.0	6.0	91.0
8847	PAR	RNWH	M	344	6	75.4	<1	<0.1	0.26	0.15	<0.05	<0.5	<0.05	910	<0.5	<0.05	2.01	18	<0.05	1240	0.48	0.150	<0.1	<0.1	10600	17300	<0.01	1120	1.75	<0.1	0.5	<0.5	16.7
8848	PAR	RNWH	M	354	8	75.7	1	<0.1	0.19	0.08	<0.05	<0.5	<0.05	514	<0.5	<0.05	2.13	20	<0.05	1290	0.41	0.126	<0.1	<0.1	10900	17000	<0.01	1040	0.68	<0.1	0.5	<0.5	14.6
8849	PAR	RNWH	M	382	10	73.7	<1	<0.1	0.31	0.30	<0.05	<0.5	<0.05	1480	<0.5	<0.05	1.27	14	<0.05	1310	0.73	0.165	<0.1	<0.1	11500	17000	<0.01	993	2.73	<0.1	0.4	<0.5	15.2
8850	PAR	RNWH	M	408	10	75.3	2	<0.1	0.80	0.16	<0.05	<0.5	<0.05	980	<0.5	<0.05	1.49	23	<0.05	1280	0.50	0.336	<0.1	<0.1	12000	17300	<0.01	1220	1.78	<0.1	0.4	<0.5	15.2
8852	PAR	RNWH	M	432	13	76.3	<1	<0.1	0.14	0.23	<0.05	<0.5	<0.05	1100	<0.5	0.10	1.57	28	<0.05	1140	0.56	0.342	<0.1	<0.1	10800	16400	<0.01	1210	1.87	<0.1	0.5	<0.5	16.9
8852*	PAR	RNWH	M	432	13	76.3	1	<0.1	0.14	0.24	<0.05	<0.5	<0.05	1090	<0.5	0.10	1.56	28	<0.05	1120	0.58	0.345	<0.1	<0.1	11300	16200	<0.01	1150	1.88	<0.1	0.4	<0.5	16.3
8853	PAR	RNWH	M	412	10	76.1	1	<0.1	0.25	0.14	<0.05	<0.5	<0.05	873	0.6	<0.05	1.67	23	<0.05	1230	0.41	0.159	<0.1	<0.1	11500	17600	<0.01	1170	1.44	<0.1	0.4	<0.5	15.6
8854	PAR	RNWH	M	377	11	77.0	1	<0.1	0.23	0.20	<0.05	<0.5	<0.05	877	0.5	<0.05	1.63	23	<0.05	1410	0.33	0.429	<0.1	<0.1	11600	18200	<0.01	1480	1.51	<0.1	0.4	<0.5	17.8
8855	PAR	RNWH	M	358	7	74.6	<1	<0.1	0.10	0.04	<0.05	<0.5	<0.05	571	<0.5	0.10	1.39	16	<0.05	1320	0.27	0.084	<0.1	<0.1	12100	16300	<0.01	1180	0.68	<0.1	0.3	<0.5	13.2
8878	PAR	RNWH	M	390	8	75.5	<1	<0.1	0.22	0.25	<0.05	<0.5	<0.05	1290	<0.5	<0.05	1.36	18	<0.05	1250	0.70	0.162	<0.1	<0.1	12100	16500	<0.01	914	2.50	<0.1	0.4	<0.5	14.8
8879	PAR	RNWH	M	395	10	75.6	<1	<0.1	0.24	0.08	<0.05	<0.5	<0.05	459	<0.5	0.12	1.47	23	<0.05	1270	0.33	0.168	<0.1	<0.1	13700	16700	<0.01	1320	0.58	<0.1	0.4	<0.5	15.1
8847	PAR	RNWH	L	344	6	95.0	12	<0.1	0.59	0.20	<0.05	<0.5	0.57	425	2.4	0.32	11.60	632	<0.05	634	7.40	0.152	0.7	<0.1	13300	10400	0.04	3570	1.65	<0.1	0.5	<0.5	73.8
8848	PAR	RNWH	L	354	8	94.9	17	<0.1	0.17	0.10	<0.05	<0.5	0.28	289	1.7	0.33	12.50	187	0.18	857	16.10	0.160	0.6	0.4	16000	17500	0.03	5090	0.46	<0.1	0.9	<0.5	69.5
8849	PAR	RNWH	L	382	10	88.8	8	<0.1	0.14	0.04	<0.05	<0.5	0.36	248	1.0	0.16	8.05	173	<0.05	778	8.40	0.208	0.6	<0.1	14100	13600	0.01	2960	0.27	<0.1	0.5	<0.5	61.9
8850	PAR	RNWH	L	408	10	86.5	6	<0.1	0.22	0.03	<0.05	<0.5	1.10	259	1.1	0.40	7.93	323	<0.05	756	8.10	0.340	0.5	0.2	14500	12900	0.06	4610	0.42	<0.1	0.6	<0.5	55.4
8852	PAR	RNWH	L	432	13	88.6	17	<0.1	0.13	0.04	<0.05	<0.5	2.50	313	1.5	0.88	12.90	645	<0.05	905	10.60	0.480	0.7	0.4	15400	13700	0.11	3830	0.42	<0.1	0.7	<0.5	72.7
8853	PAR	RNWH	L	412	10	80.4	15	<0.1	0.27	0.06	<0.05	<0.5	0.82	425	2.0	0.58	10.70	630	<0.05	768	11.00	0.248	0.6	0.1	15700	13700	0.03	4910	0.66	<0.1	1.0	<0.5	65.9
8853*	PAR	RNWH	L	412	10	80.4	13	<0.1	0.26	0.06	<0.05	<0.5	0.79	362	1.7	0.49	9.77	572	0.05	802	9.70	0.236	0.6	<0.1	15400	13900	0.02	5150	0.59	<0.1	0.8	<0.5	59.1
8854	PAR	RNWH	L	377	11	91.9	19	<0.1	0.18	0.11	<0.05	<0.5	1.21	305	1.3	0.45	12.10	610	0.09	693	8.00	0.460	0.6	0.2	13600	12100	0.08	3550	0.62	<0.1	0.7	<0.5	59.5
8855	PAR	RNWH	L	358	7	92.8	11	<0.1	0.22	0.09	<0.05	<0.5	0.43	268	1.9	0.43	9.50	457	0.12	807	9.90	0.112	0.5	0.1	13600	16700	0.02	4840	0.46	<0.1	0.7	<0.5	56.4
8878	PAR	RNWH	L	390	8	88.8	4	<0.1	0.13	0.05	<0.05	<0.5	0.24	277	1.4	0.54	6.66	352	<0.05	797	6.70	0.216	0.5	0.3	14000	13100	0.04	6130	0.68	<0.1	0.4	<0.5	57.9
8879	PAR	RNWH	L	395	10	93.2	17	<0.1	0.18	0.03	<0.05	<0.5	0.95	231	2.0	0.48	13.10	956	0.07	678	7.10	0.284	0.7	0.3	12000	13000	0.09	5630	0.34	<0.1	0.6	<0.5	64.1
8847	PAR	RNWH	K	344	6	81.4	15	<0.1	0.82	2.57	<0.05	<0.5	2.96	770	1.6	3.92	5.29	1070	0.09	603	3.17	0.500	0.7	2.8	11900	10600	0.02	5880	1.38	<0.1	81.5	7.8	84.8
8848	PAR	RNWH	K	354	8	83.9	40	<0.1	2.13	3.43	<0.05	<0.5	4.18	3210	3.9	2.91	8.22	1590	0.15	855	30.60	0.640	1.2	5.6	12400	13400	0.03	9710	7.69	<0.1	160.0	13.1	127.0
8849	PAR	RNWH	K	382	10	84.5	27	<0.1	1.17	3.43	<0.05	<0.5	5.43	2420	2.1	1.60	6.10	1530	0.13	908	19.10	1.000	0.9	4.7	14800	14200	0.01	11000	6.16	<0.1	149.0	6.8	113.0
8850	PAR	RNWH	K	408	10	83.9	46	<0.1	2.74	4.99	<0.05	<0.5	18.30	6410	2.4	3.13	7.48	2050	0.13	887	33.60	1.730	1.2	7.8	14600	11900	0.05	13100	19.70	<0.1	143.0	8.2	90.5
8852	PAR	RNWH	K	432	13	83.4	55	<0.1	1.41	2.88	<0.05	<0.5	14.60	3100	1.8	4.35	7.14	2310	0.15	533	33.70	2.630	0.7	8.8	7980	8680	0.15	7490	7.91	<0.1	111.0	6.2	91.0
8852*	PAR	RNWH	K	432	13	83.4	68	<0.1	1.37	2.92	<0.05	<0.5	16.30	3890	1.7	5.05	9.96	2700	0.19	693	28.30	2.850	1.0	8.5	11400	12400	0.21	10700	8.91	<0.1	165.0	7.1	93.3
8853	PAR	RNWH	K	412	10	82.5	29	<0.1	0.76	7.30	<0.05	<0.5	4.33	1090	1.6	1.86	3.87	879	<0.05	679	2.98	1.000	0.6	3.2	11000	14900	0.01	8560	1.60	<0.1	88.6	5.8	82.0
8854	PAR	RNWH	K	377	11	82.7	59	<0.1	1.09	4.42	<0.05	<0.5	10.50	1140	1.8	1.90	6.83	1280	0.17	769	3.27	1.430	1.1	7.5	11700	12900	0.04	7500	3.17	<0.1	108.0	6.4	87.0
8855	PAR	RNWH	K	358	7	87.3	44	<0.1	0.72	1.63	<0.05	<0.5	2.07	2240	2.8	3.00	10.70	1260	0.66	665	3.37	0.460	0.7	4.1	11000	12300	<0.01	6210	4.84	<0.1	78.6	6.6	68.7
8878	PAR	RNWH	K	390	8	83.1	17	<0.1	0.62	1.92	<0.05	<0.5	3.62	818	1.7	1.83	5.37	925	0.06	692	14.70	0.790	0.8	3.6	12200	14500	0.02	8520	1.54	<0.1	58.3	4.5	106.0
8879	PAR	RNWH	K	395	10	82.0	18	<0.1	0.80	4.47	<0.05	<0.5	8.04	991	2.3	4.14	5.39	2170	0.05	787	26.10	1.190	0.5	4.1	9990	12800	0.02	9940	1.98	<0.1	114.0	5.9	110.0
8971	ML-S	CISC	M	309	8	77.2	<1	<0.1	0.26	0.12	<0.05	<0.5	<0.05	1460	<0.5	<0.05	<0.05	19	<0.05	1310	0.67	0.480	<0.1	<0.1	13000	15400	0.01	1290	1.84	<0.1	0.2	<0.5	15.9
8971*	ML-S	CISC	M	309	8	77.2	<1	<0.1	0.25	0.09	<0.05	<0.5	<0.05	1470	<0.5	<0.05	<0.05	17	<0.05	1320	0.64	0.485	<0.1	<0.1	12900	15800	<0.01	1290	1.76	<0.1	0.3	<0.5	15.5
8898	ML-S	CISC	M	341	9	73.3	<1	<0.1	0.35	0.04	<0.05	<0.5	<0.05	735	<0.5	<0.05	1.43	10	<0.05	1200	0.62	0.405	<0.1	<0.1	11500	13900	<0.01	1150	0.65	<0.1	0.2	<0.5	13.3
8899	ML-S	CISC	M	330	9	75.2	<1	<0.1	0.35	0.05	<0.05	<0.5	<0.05	838	<0.5	<0.05	1.74	13	<0.05	1230	0.48	0.465	<0.1	<0.1	12000	15200	<0.01	976	0.85	<0.1	0.2	<0.5	14.8
8960	ML-S	CISC	M	324	7	75.7	<1	<0.1	0.38	0.07	<0.05	<0.5	<0.05	1290	<0.5	0.14	1.00	18	<0.05	1230	0.95	0.620	<0.1	<0.1	12200	15300	<0.01	1280	1.43	<0.1	0.2	<0.5	15.7
8961	ML-S	CISC	M	326	7	74.8	<1	<0.1	0.13	0.03	<0.05	<0.5	<0.05	497	<0.5	<0.05	1.63	15	<0.05	1230	0.70	0.470	<0.1	<0.1	12300	14500	<0.01	1220	0.47	<0.1	0.2	<0.5	13.7
8962	ML-S	CISC	M	315	6	73.5	<1	<0.1	0.14	0.02	<0.05	<0.5	<0.05	572	<0.5	<0.05	1.21	13	<0.05	1210	0.76	0.255	<0.1	<0.1	11900	14400	<0.01	847	0.57	<0.1	0.2	<0.5	13.4
8970	ML-S	CISC	M	308	7	78.1	1	<0.1	0.56	0.13	<0.05	<0.5	<0.05	1970	<0.5	<0.05	3.21	17	0.10	1290	1.18	0.575	<0.1	<0.1	13200	16900	<0.01	1770	2.37	<0.1	0.2	<0.5	17.3
8985	ML-S	CISC	M	315	7	78.3	<1	<0.1	0.50	0.07	<0.05	<0.5	<0.05	1050	<0.5	0.17	0.66	28	<0.05	1270	0.56	0.675	<0.1	<0.1	13100	16500	<0.01	1890	1.21	<0.1	0.2	<0.5	17.9
9075	ML-S	CISC	M	356	9	76.2	<1	<0.1	0.18	0.03	<0.05	<0.5	<0.05	499	2.2	<0.05	1.08	34	0.06	1230	0.59	0.375	<0.1	<0.1	11500	15100	<0.01	1440	0.67	<0.1	0.2	<0.5	32.2
9076	ML-S	CISC	M	336	9	77.2	<1	<0.1	0.18	0.03	<0.05	<0.5	<0.05	415	4.4	<0.05	1.82	48	0.08	1290	0.84	0.350	0.2	0.1	11900	14900	<0.01	1680	0.38	<0.1	0.2	<0.5	18.4
9077	ML-S	CISC	M	331	9	77.8	<1	<0.1	0.35	0.02	<0.05	<0.5	<0.05	403	3.6	<0.05	0.74	41	<0.05	1330	0.74	0.375	<0.1	<0.1	12000	15600	<0.01	816	0.32	<0.1	0.2	<0.5	16.7
9077*	ML-S	CISC	M	331	9	77.8	<1	<0.1	0.35	0.02	<0.05	<0.5	<0.05	422	3.5	<0.05	0.72	39	<0.05	1310	0.73	0.375	<0.1	<0.1	12000	15500	<0.01	818	0.34	<0.1	0.2	<0.5	17.9

Table F28. Metal concentrations (µg/g dry weight) in fish tissue samples collected in the Meliadine Study Area, 1997-1998.

Fish #	Location	Species [a]	Tissue [b]	Fork Length (mm)	Age (years)	Moisture (%)	Aluminium	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Phosphorus	Potassium	Silver	Sodium	Strontium	Tin	Titanium	Vanadium	Zinc
9078	ML-S	CISC	M	308	8	76.8	<1	<0.1	0.21	0.09	<0.05	<0.5	<0.05	1820	3.8	0.17	1.68	41	0.06	1370	1.21	0.550	0.1	<0.1	13400	16300	<0.01	1150	2.13	<0.1	0.2	<0.5	14.1
9108	ML-S	CISC	M	309	8	80.5	<1	<0.1	0.30	0.20	<0.05	<0.5	<0.05	2330	0.6	0.18	2.51	21	0.14	1380	1.42	0.885	<0.1	<0.1	14400	19000	<0.01	2560	3.34	<0.1	0.4	<0.5	19.8
9109	ML-S	CISC	M	302	7	73.2	1	<0.1	0.22	0.05	<0.05	<0.5	<0.05	518	0.5	0.13	3.52	14	0.13	1250	0.53	0.250	<0.1	<0.1	12100	15000	<0.01	726	0.55	<0.1	0.3	<0.5	17.0
9110	ML-S	CISC	M	318	8	73.3	1	<0.1	0.15	0.05	<0.05	<0.5	<0.05	547	0.8	<0.05	3.71	15	0.10	1290	0.75	0.345	<0.1	<0.1	11600	14200	<0.01	831	0.52	<0.1	0.2	<0.5	16.8
9111	ML-S	CISC	M	381	11	80.1	<1	<0.1	0.18	0.07	<0.05	<0.5	<0.05	893	2.2	<0.05	1.41	39	0.06	1260	0.51	2.210	<0.1	<0.1	13100	17500	<0.01	1760	0.96	<0.1	0.3	<0.5	20.9
8971	ML-S	CISC	L	309	8	95.2	12	<0.05	0.56	0.08	<0.05	<0.5	0.49	283	1.4	0.11	14.70	734	0.13	612	4.38	0.79	0.37	0.2	10500	9850	0.17	7700	0.34	0.14	1.21	<0.5	112.0
8971*	ML-S	CISC	L	309	8	95.2	11	<0.05	0.65	0.07	<0.05	<0.5	0.51	282	1.4	0.11	14.60	763	0.16	597	4.46	0.83	0.44	0.2	10200	n.d.	0.17	7200	0.37	0.23	1.21	<0.5	118.0
8898	ML-S	CISC	L	341	9	76.2	9	<0.05	0.57	<0.01	<0.05	<0.5	0.27	159	1.8	0.13	7.69	429	0.05	511	4.97	0.70	0.46	<0.1	15100	5330	0.01	5410	0.25	<0.05	0.51	<0.5	186.0
8899	ML-S	CISC	L	330	9	78.3	10	<0.05	0.56	0.06	<0.05	<0.5	0.69	298	1.4	0.10	12.00	569	0.05	593	6.12	0.98	0.43	<0.1	14600	14700	0.04	5800	0.28	<0.05	0.56	<0.5	215.0
8960	ML-S	CISC	L	324	7	95.2	20	<0.05	3.73	<0.05	<0.05	<0.5	3.25	1030	4.1	0.43	81.20	2990	0.15	2990	22.90	4.47	1.73	<0.5	81100	77900	0.89	25300	1.07	<0.05	1.25	0.7	1030.0
8961	ML-S	CISC	L	326	7	78.1	3	<0.05	0.62	0.10	<0.05	<0.5	0.44	604	1.5	0.08	9.62	635	<0.05	697	8.81	0.58	0.43	0.7	16100	11800	0.09	5540	0.69	<0.05	0.57	<0.5	130.0
8962	ML-S	CISC	L	315	6	75.2	6	<0.05	0.80	<0.01	<0.05	<0.5	0.20	182	1.2	0.11	18.10	388	0.07	455	4.52	0.33	0.55	<0.1	15100	8160	0.29	3420	0.24	<0.05	0.32	<0.5	206.0
8970	ML-S	CISC	L	308	7	69.8	4	<0.05	0.70	<0.01	<0.05	<0.5	0.83	222	1.1	0.10	25.00	678	0.11	541	3.25	1.09	0.36	<0.1	13300	3970	0.46	4300	0.16	<0.05	0.36	<0.5	322.0
8985	ML-S	CISC	L	315	7	74.2	20	<0.05	1.39	0.02	<0.05	<0.5	1.01	338	2.0	0.18	34.80	1240	0.37	636	4.91	1.67	0.43	0.3	16400	9950	0.58	5570	0.25	<0.05	0.84	0.5	166.0
9075	ML-S	CISC	L	356	9	78.8	3	0.09	0.47	<0.01	<0.05	<0.5	0.30	238	1.2	0.11	7.28	237	<0.05	884	6.81	0.33	0.40	<0.1	18600	26500	0.09	4270	0.24	0.33	0.50	<0.5	105.0
9075*	ML-S	CISC	L	356	9	78.8	2	<0.05	0.25	<0.01	<0.05	<0.5	0.30	247	1.2	0.11	7.21	255	<0.05	869	7.53	0.30	0.37	<0.1	20100	24500	0.09	4250	0.24	<0.05	0.40	<0.5	123.0
9076	ML-S	CISC	L	336	9	83.7	12	<0.05	0.63	0.14	<0.05	<0.5	0.78	243	1.6	0.14	10.90	405	<0.05	531	4.49	0.55	0.43	0.3	14100	11400	0.06	4160	0.40	<0.05	0.49	<0.5	253.0
9077	ML-S	CISC	L	331	9	78.1	1	<0.05	0.65	0.01	<0.05	<0.5	0.34	375	1.8	0.09	9.07	572	<0.05	639	5.67	0.59	0.36	<0.1	13700	8620	0.04	3210	0.46	<0.05	0.31	<0.5	527.0
9078	ML-S	CISC	L	308	8	75.4	7	<0.05	1.07	0.17	<0.05	<0.5	0.38	246	2.4	0.18	12.00	767	0.06	642	5.29	0.71	0.42	<0.1	14900	7890	0.22	6390	0.51	<0.05	0.64	<0.5	381.0
9108	ML-S	CISC	L	309	8	78.1	9	<0.05	2.23	0.05	<0.05	<0.5	1.06	2710	2.3	0.21	19.40	887	0.07	881	5.78	1.77	0.36	<0.1	22000	18200	0.98	8700	2.93	<0.05	0.87	0.6	592.0
9109	ML-S	CISC	L	302	7	72.0	2	<0.05	0.63	0.10	<0.05	<0.5	0.16	183	1.0	0.07	3.16	149	<0.05	506	2.16	0.20	0.32	<0.1	11100	10900	<0.01	4990	0.14	<0.05	0.39	<0.5	57.3
9110	ML-S	CISC	L	318	8	77.4	4	<0.05	0.69	0.49	<0.05	<0.5	0.36	294	1.6	0.10	13.50	502	0.06	711	4.84	0.59	0.48	0.5	16600	8130	0.06	6550	0.32	<0.05	0.36	<0.5	330.0
9111	ML-S	CISC	L	381	11	73.7	14	<0.05	1.50	0.07	<0.05	<0.5	3.55	347	2.6	0.12	46.20	3190	0.11	829	3.81	6.65	0.61	0.3	18400	13500	1.17	7920	0.44	<0.05	0.60	<0.5	171.0
8971	ML-S	CISC	K	309	8	84.8	69	<0.1	1.08	0.70	<0.05	<0.5	0.22	2850	5.7	0.64	46.20	2520	0.67	1040	20.10	1.08	<0.1	1.5	10100	9710	0.03	10300	5.73	<0.1	2.8	1.9	128
8971*	ML-S	CISC	K	309	8	84.8	83	<0.1	1.28	0.63	<0.05	<0.5	0.19	3140	6.4	0.75	50.30	2790	0.60	1190	21.50	0.99	<0.1	2.0	9750	9620	0.02	11000	5.73	<0.1	3.8	2.9	133
8898	ML-S	CISC	K	341	9	84.2	15	<0.1	1.15	0.32	<0.05	<0.5	3.19	1550	4.0	0.92	12.30	1290	0.53	896	5.23	0.78	0.3	1.2	14100	12200	<0.01	11900	2.24	<0.1	2.4	1.6	299
8899	ML-S	CISC	K	330	9	82.4	33	<0.1	1.26	0.73	<0.05	<0.5	6.59	1950	7.5	1.94	34.60	1480	0.81	1380	12.30	1.03	0.7	5.1	15600	11100	0.02	10700	3.10	<0.1	3.6	2.6	427
8960	ML-S	CISC	K	324	7	89.1	43	<0.1	2.62	0.47	<0.05	<0.5	6.16	1750	2.6	1.41	17.60	3180	0.11	1360	7.12	1.74	0.6	4.1	20100	17000	0.03	11300	3.81	<0.1	3.4	2.1	453
8961	ML-S	CISC	K	326	7	84.7	19	<0.1	1.18	0.51	<0.05	<0.5	5.70	2670	1.8	0.81	18.30	1890	0.21	1200	5.22	0.99	0.3	1.8	14800	13100	0.02	14900	4.36	<0.1	2.7	2.0	184
8962	ML-S	CISC	K	315	6	84.7	15	<0.1	1.05	0.26	<0.05	<0.5	3.41	1180	1.8	1.61	15.30	1140	0.31	889	4.08	0.54	0.2	0.6	14500	12800	<0.01	10100	2.37	<0.1	2.7	2.3	354
8970	ML-S	CISC	K	308	7	83.5	40	<0.1	4.58	0.99	<0.05	<0.5	0.39	2190	8.8	0.69	86.00	4250	1.83	1370	29.20	2.31	<0.3	1.4	14500	11200	0.04	11300	6.10	0.2	3.1	8.8	249
8985	ML-S	CISC	K	315	7	85.6	8	<0.1	1.14	0.52	<0.05	<0.5	3.97	2170	2.9	1.44	15.50	2180	1.14	975	3.90	1.75	0.2	1.5	13700	15400	0.03	11400	4.13	<0.1	2.7	2.2	156
9075	ML-S	CISC	K	356	9	82.3	4	<0.1	0.54	0.28	<0.05	<0.5	2.56	1240	12.4	0.47	4.76	1350	0.18	769	3.81	0.52	0.2	1.3	12500	18500	<0.01	5150	2.32	<0.1	1.4	<0.5	172
9076	ML-S	CISC	K	336	9	81.2	5	<0.1	1.38	0.31	<0.05	<0.5	0.40	2080	11.5	0.46	6.98	1900	0.19	911	2.89	0.54	0.1	1.8	11800	18800	<0.01	5260	3.98	<0.1	2.3	1.3	266
9077	ML-S	CISC	K	331	9	74.4	4	<0.1	0.50	0.25	<0.05	<0.5	1.19	1430	7.5	0.55	5.06	1060	0.14	652	3.02	0.44	0.1	1.1	8340	9880	<0.01	4240	2.26	<0.1	1.3	0.8	180
9077*	ML-S	CISC	K	331	9	74.4	5	<0.1	0.60	0.26	<0.05	<0.5	1.23	1610	8.1	0.61	6.62	1150	0.16	685	3.42	0.41	0.1	1.3	8410	10100	<0.01	4380	2.48	<0.1	1.5	1.1	190
9078	ML-S	CISC	K	308	8	80.4	12	<0.1	0.74	0.51	<0.05	<0.5	1.48	4240	10.3	1.64	7.14	1790	0.18	869	4.22	0.72	0.1	1.2	11900	16200	<0.01	6080	6.43	<0.1	2.3	1.5	125
9108	ML-S	CISC	K	309	8	89.3	18	<0.1	1.08	0.88	<0.05	<0.5	2.20	7220	5.5	0.94	15.20	2100	0.33	1200	7.10	1.98	<0.1	2.8	13400	15000	0.03	20900	10.40	<0.1	3.7	3.2	196
9109	ML-S	CISC	K	302	7	80.6	3	<0.1	1.06	0.20	<0.05	<0.5	2.92	1070	4.2	1.14	6.94	1220	0.12	954	4.65	0.56	0.2	0.7	13100	13000	0.25	7880	1.70	1.1	2.1	1.5	202
9110	ML-S	CISC	K	318	8	80.2	4	<0.1	0.89	0.23	<0.05	<0.5	2.44	1530	4.1	0.78	6.53	1690	0.07	899	4.47	0.60	0.2	1.1	11300	13300	<0.01	8780	2.43	<0.1	2.6	2.2	195
9111	ML-S	CISC	K	381	11	83.0	8	<0.1	1.41	0.63	<0.05	<0.5	26.40	1980	5.6	1.05	7.78	4870	0.10	872	37.10	4.93	0.4	2.3	11200	13800	0.02	11900	5.56	<0.1	2.1	1.1	166
8948	B5	ARGR	M	301	5	85.0	<1	<0.1	0.34	0.11	<0.05	<0.5	<0.05	1670	<0.5	<0.05	1.95	22	<0.05	1350	1.30	0.219	<0.1	<0.1	11100	17700	0.01	1040	1.68	<0.1	0.4	<0.5	18.1
8949	B5	ARGR	M	303	5	83.9	1	<0.1	0.36	0.08	<0.05	<0.5	<0.05	1410	<0.5	<0.05	1.87	20	<0.05	1400	1.09	0.195	<0.1	<0.1	10900	17500	<0.01	963	1.49	<0.1	0.4	<0.5	16.9
8950	B5	ARGR	M	326	5	85.2	<1	<0.1	0.40	0.16	<0.05	<0.5	<0.05	1980	0.6	<0.05	1.72	25	<0.05	1350	1.19	0.192	<0.1	<0.1	13600	17800	<0.01	1110	2.61	<0.1	0.4	<0.5	18.0
8948	B5	ARGR	L	301	5	93.9	13	<0.1	0.22	<0.01	<0.05	<0.5	0.19	338	1.8	1.89	8.17	299	<0.05	703	5.30	0.164	0.5	<0.1	13400	10900	0.03	4800	0.26	<0.1	0.5	<0.5	57.1
8949	B5	ARGR	L	303	5	91.6	7	<0.1	0.29	<0.01	<0.05	<0.5	0.15	350	1.7	1.29	5.64	304	<0.05	743	7.10	0.208	0.4	<0.1	14300	14100	<0.01	5320	0.27	<0.1	0.7	<0.5	60.0
8950	B5	ARGR	L	326	5	90.4	3	<0.1	0.14	0.02	<0.05	<0.5	0.11	275	0.8	0.76	5.03	281	<0.05	666	3.30	0.144	0.3	<0.1	9010	10300	0.02	4470	0.37	<0.1	0.2	<0.5	38.3
8948	B5	ARGR	K	301	5	78.5	17	<0.1	0.85	0.41	<0.05	<0.5	0.60	2250	1.6	2.46	10.10	1290	0.41	924	3.84	0.350	0.4	1.2	10700	11800	0.02	9300	2.89	<0.1	2.2	5.5	86.3
8949	B5	ARGR	K	303	5	77.3	12	<0.1	0.92	0.33	<0.05	<0.5	0.59	2070	1.8	3.30	14.00	1330	0.52	986	3.92	0.480	0.7	1.5	12300	13400	0.02	10700	2.71	<0.1	2.5	3.9	106.0
8950	B5	ARGR	K	326	5	78.1	10	<0.1	0.66	0.78	<0.05	<0.5	0.40	2630	1.6	2.99	7.82	1650	<0.05	728	3.45	0.298	0.6	1.3	11100	14200	<0.01	11900	4.03	<0.1	1.9	2.7	90.2

[a] ARCH = Arctic char; LKTR = lake trout; RNWH = round whitefish; CISC = cisco; ARGR = Arctic grayling

[b] M = muscle (myomere); L = liver; K = kidney

n.d. = not determined

NOTE: Shaded rows indicate duplicate samples (denoted by * in Fish #) collected for QA/QC and not included in calculation of means

Golder Associates

Appendix F29. Mean metal concentrations (µg/g dry weight) in Arctic Char tissue samples collected in the Meliadine River, 1997.

Constituent	Muscle (n=18)				Liver (n=18)				Kidney (n=18)			
	Mean [a]	SD [b]	*n<D.L.* [c]	Range	**Mean** [a]	SD [b]	*n<D.L.* [c]	Range	**Mean** [a]	SD [b]	*n<D.L.* [c]	Range
Aluminium	**0.53**	0.12	*17*	0.50 - 1.00	**10.75**	43.49	*17*	0.50 - 185.00	**2.69**	7.11	*11*	0.50 - 31.00
Antimony	**0.14**	0.30	*15*	0.05 - 1.30	**0.08**	0.06	*14*	0.05 - 0.20	**0.06**	0.04	*16*	0.05 - 0.20
Arsenic	**3.83**	1.47	*0*	2.24 - 7.32	**3.73**	1.64	*0*	1.84 - 8.28	**3.58**	2.33	*0*	0.98 - 11.60
Barium	**0.12**	0.26	*3*	0.01 - 1.14	**0.02**	0.02	*12*	0.01 - 0.05	**0.23**	0.15	*2*	0.01 - 0.65
Beryllium	**0.025**	0.000	*18*	0.025 - 0.025	**0.025**	0.000	*18*	0.025 - 0.025	**0.025**	0.000	*18*	0.025 - 0.025
Boron	**1.33**	0.43	*0*	0.70 - 2.20	**0.79**	0.25	*0*	0.50 - 1.30	**1.15**	0.31	*0*	0.60 - 1.90
Cadmium	**0.04**	0.03	*12*	0.03 - 0.13	**0.26**	0.18	*0*	0.11 - 0.75	**1.07**	0.76	*0*	0.40 - 3.18
Calcium	**1881**	1433	*0*	213 - 6260	**659**	192	*0*	258 - 953	**1020**	288	*0*	413 - 1400
Chromium	**3.43**	1.57	*0*	1.50 - 8.00	**2.99**	0.71	*0*	2.00 - 4.70	**4.09**	1.12	*0*	2.60 - 6.10
Cobalt	**0.14**	0.15	*9*	0.03 - 0.42	**0.25**	0.10	*0*	0.11 - 0.50	**1.07**	0.59	*0*	0.06 - 2.24
Copper	**2.11**	0.52	*0*	1.09 - 2.86	**19.31**	16.53	*0*	3.04 - 62.70	**6.96**	2.46	*0*	3.25 - 11.40
Iron	**78**	51	*0*	20 - 236	**466**	170	*0*	239 - 745	**563**	209	*0*	290 - 946
Lead	**0.43**	0.89	*8*	0.03 - 2.94	**0.17**	0.17	*10*	0.03 - 0.60	**0.23**	0.33	*7*	0.03 - 1.41
Magnesium	**764**	175	*0*	574 - 1180	**389**	250	*0*	204 - 911	**654**	136	*0*	497 - 1010
Manganese	**0.30**	0.10	*0*	0.17 - 0.54	**3.33**	1.37	*0*	1.54 - 6.29	**2.94**	0.97	*0*	1.53 - 4.73
Mercury	**0.121**	0.164	*8*	0.003 - 0.495	**0.260**	0.177	*1*	0.003 - 0.616	**0.363**	0.248	*1*	0.003 - 0.836
Molybdenum	**1.73**	1.35	*5*	0.05 - 4.40	**7.78**	4.68	*0*	0.20 - 15.50	**7.30**	4.66	*0*	0.10 - 16.20
Nickel	**0.51**	0.71	*4*	0.05 - 2.40	**0.09**	0.06	*13*	0.05 - 0.20	**0.42**	0.39	*4*	0.05 - 1.50
Phosphorus	**5174**	2432	*0*	1590 - 10100	**6235**	4576	*0*	3150 - 15500	**9840**	3744	*0*	6800 - 19700
Potassium	**11028**	4532	*0*	6210 - 23600	**7932**	7355	*0*	3480 - 32800	**12478**	2643	*0*	6000 - 18400
Silver	**0.006**	0.004	*15*	0.005 - 0.020	**0.340**	0.291	*1*	0.005 - 0.940	**0.043**	0.040	*4*	0.005 - 0.160
Sodium	**981**	196	*0*	588 - 1270	**2166**	410	*0*	1550 - 3000	**6176**	1350	*0*	4230 - 8770
Strontium	**2.28**	2.51	*0*	0.24 - 10.50	**0.16**	0.06	*0*	0.07 - 0.25	**1.41**	0.48	*0*	0.47 - 2.27
Tin	**0.10**	0.10	*15*	0.05 - 0.40	**0.05**	0.01	*17*	0.05 - 0.10	**0.06**	0.02	*16*	0.05 - 0.10
Titanium	**12.48**	6.82	*0*	1.30 - 22.20	**8.69**	4.59	*0*	1.30 - 15.20	**20.47**	11.21	*0*	1.90 - 32.40
Vanadium	**0.52**	0.36	*9*	0.25 - 1.40	**0.37**	0.22	*13*	0.25 - 1.00	**1.27**	0.33	*0*	0.90 - 1.90
Zinc	**12.9**	4.0	*0*	6.1 - 19.7	**72.3**	18.6	*0*	42.4 - 107.0	**124.5**	30.4	*0*	86.7 - 176.0
% Moisture	***70.2***	*4.4*	*-*	*64.4 - 82.2*	***60.1***	*7.8*	*-*	*49.9 - 75.1*	***79.0***	*2.5*	*-*	*74.2 - 83.0*

[a] values below detection limit were coded as one-half of detection limit to allow statistical calculations

[b] SD = standard deviation

[c] number of samples below detection limit

NOTE: Duplicate samples not included in the above calculations

Golder Associates

Appendix F30. Mean metal concentrations (µg/g dry weight) in Lake Trout tissue samples collected from the south basin of Meliadine Lake, 1998.

Constituent	Muscle (n=30)				Liver (n=30)				Kidney (n=30)			
	Mean [a]	SD [b]	*n<D.L.* [c]	Range	**Mean** [a]	SD [b]	*n<D.L.* [c]	Range	**Mean** [a]	SD [b]	*n<D.L.* [c]	Range
Aluminium	**2.74**	1.41	*0*	1.10 - 7.00	**47.43**	67.01	*0*	4.00 - 288.00	**17.10**	24.53	*0*	3.00 - 125.00
Antimony	**0.01**	0.00	*27*	0.01 - 0.01	**0.05**	0.00	*0*	0.05 - 0.05	**0.05**	0.00	*0*	0.05 - 0.05
Arsenic	**1.23**	0.67	*0*	0.20 - 2.60	**0.92**	0.37	*0*	0.30 - 1.79	**2.29**	1.28	*0*	0.62 - 5.11
Barium	**0.27**	0.30	*5*	0.01 - 1.25	**0.54**	1.58	*7*	0.01 - 8.59	**1.48**	1.88	*0*	0.11 - 7.28
Beryllium	**0.025**	0.000	*30*	0.025 - 0.025	**0.025**	0.000	*30*	0.025 - 0.025	**0.025**	0.000	*30*	0.025 - 0.025
Boron	**0.25**	0.00	*30*	0.25 - 0.25	**0.38**	0.22	*21*	0.25 - 1.00	**0.25**	0.00	*30*	0.25 - 0.25
Cadmium	**0.01**	0.01	*28*	0.01 - 0.05	**2.93**	8.97	*0*	0.11 - 49.70	**6.18**	9.75	*0*	0.20 - 50.50
Calcium	**4412**	871	*0*	3670 - 8280	**727**	305	*0*	411 - 2090	**1017**	558	*0*	279 - 2880
Chromium	**1.45**	0.62	*0*	0.60 - 3.10	**2.72**	0.88	*0*	1.20 - 5.00	**2.63**	1.76	*0*	0.50 - 8.10
Cobalt	**0.05**	0.07	*23*	0.03 - 0.30	**1.05**	0.93	*0*	0.24 - 4.00	**1.01**	0.77	*0*	0.32 - 4.06
Copper	**1.21**	0.22	*0*	0.79 - 1.62	**94.03**	86.91	*0*	5.72 - 346.00	**12.93**	15.83	*0*	2.25 - 68.90
Iron	**23**	10	*0*	9 - 47	**2960**	4391	*0*	175 - 17600	**1323**	938	*0*	211 - 4200
Lead	**0.05**	0.06	*19*	0.01 - 0.30	**0.16**	0.27	*16*	0.03 - 1.16	**4.01**	7.15	*14*	0.03 - 26.10
Magnesium	**1186**	110	*0*	980 - 1450	**699**	168	*0*	296 - 959	**745**	243	*0*	330 - 1460
Manganese	**0.70**	0.21	*0*	0.37 - 1.40	**9.37**	8.26	*0*	2.06 - 33.50	**3.30**	1.84	*0*	0.67 - 9.90
Mercury	**1.422**	0.971	*0*	0.220 - 4.640	**1.775**	1.716	*0*	0.195 - 8.130	**3.037**	1.929	*0*	0.820 - 9.300
Molybdenum	**0.01**	0.01	*24*	0.01 - 0.04	**0.44**	0.21	*0*	0.10 - 0.90	**0.44**	0.27	*0*	0.10 - 1.30
Nickel	**0.39**	0.26	*3*	0.05 - 1.20	**0.29**	0.21	*4*	0.05 - 0.80	**1.64**	1.56	*0*	0.10 - 6.70
Phosphorus	**11860**	913	*0*	10600 - 15000	**12851**	3135	*0*	5580 - 18600	**11050**	1715	*0*	7950 - 16900
Potassium	**19570**	2462	*0*	14900 - 25100	**12579**	3189	*0*	5910 - 18700	**12620**	1706	*0*	9820 - 16400
Silver	**0.006**	0.006	*28*	0.005 - 0.040	**0.383**	0.437	*3*	0.005 - 2.160	**0.034**	0.106	*25*	0.005 - 0.490
Sodium	**1649**	438	*0*	795 - 2680	**8408**	2770	*0*	4850 - 16300	**10276**	1812	*0*	7840 - 14200
Strontium	**0.52**	0.91	*0*	0.10 - 5.10	**0.71**	0.50	*0*	0.15 - 2.15	**2.05**	1.73	*0*	0.37 - 7.97
Tin	**0.02**	0.03	*14*	0.01 - 0.16	**0.05**	0.01	*0*	0.05 - 0.10	**0.09**	0.13	*0*	0.05 - 0.70
Titanium	**0.53**	0.08	*0*	0.40 - 0.70	**3.81**	0.92	*0*	2.30 - 6.90	**1.19**	0.67	*0*	0.40 - 3.30
Vanadium	**0.25**	0.00	*30*	0.25 - 0.25	**1.63**	2.23	*8*	0.25 - 11.70	**0.76**	0.92	*19*	0.25 - 3.40
Zinc	**13.1**	1.7	*0*	9.7 - 16.7	**125.7**	36.1	*0*	69.6 - 204.0	**113.4**	31.7	*0*	31.6 - 187.0
% Moisture	***78.6***	*2.4*		*74.5 - 84.4*	***81.6***	*5.7*		*69.3 - 95.5*	***82.3***	*1.9*		*78.7 - 87.0*

[a] values below detection limit were coded as one-half of detection limit to allow statistical calculations

[b] SD = standard deviation

[c] number of samples below detection limit

NOTE: Duplicate samples not included in the above calculations

Golder Associates

Appendix F31. Mean metal concentrations (µg/g dry weight) in Lake Trout tissue samples collected from Parallel Lake (control basin), 1998.

Constituent	Muscle (n=20)				Liver (n=21)				Kidney (n=21)			
	Mean [a]	SD [b]	*n<D.L.* [c]	Range	**Mean** [a]	SD [b]	*n<D.L.* [c]	Range	**Mean** [a]	SD [b]	*n<D.L.* [c]	Range
Aluminium	**0.70**	0.64	*18*	0.50 - 3.00	**31.57**	43.79	*0*	2.00 - 207.00	**16.86**	12.09	*0*	6.00 - 65.00
Antimony	**0.05**	0.00	*20*	0.05 - 0.05	**0.05**	0.00	*21*	0.05 - 0.05	**0.05**	0.00	*21*	0.05 - 0.05
Arsenic	**0.45**	0.33	*0*	0.07 - 1.02	**0.33**	0.20	*0*	0.16 - 1.04	**0.64**	0.27	*0*	0.29 - 1.21
Barium	**0.05**	0.06	*4*	0.01 - 0.25	**0.07**	0.06	*0*	0.02 - 0.32	**1.00**	1.10	*0*	0.28 - 5.08
Beryllium	**0.025**	0.000	*20*	0.025 - 0.025	**0.025**	0.000	*21*	0.025 - 0.025	**0.025**	0.000	*21*	0.025 - 0.025
Boron	**0.25**	0.00	*20*	0.25 - 0.25	**0.25**	0.00	*21*	0.25 - 0.25	**0.31**	0.21	*19*	0.25 - 1.10
Cadmium	**0.03**	0.00	*20*	0.03 - 0.03	**1.97**	1.11	*0*	0.82 - 6.01	**9.32**	4.58	*0*	4.24 - 21.00
Calcium	**696**	274	*0*	399 - 1480	**395**	347	*0*	102 - 1440	**723**	183	*0*	477 - 1190
Chromium	**1.21**	0.31	*0*	0.80 - 2.00	**0.39**	0.17	*12*	0.25 - 0.70	**1.00**	0.29	*0*	0.60 - 1.60
Cobalt	**0.05**	0.04	*10*	0.03 - 0.14	**0.95**	0.34	*0*	0.38 - 1.50	**2.09**	1.14	*0*	0.67 - 5.00
Copper	**2.13**	0.89	*0*	0.86 - 4.19	**90.50**	43.74	*0*	36.80 - 193.00	**6.25**	1.72	*0*	4.33 - 12.20
Iron	**52**	16	*0*	19 - 89	**1271**	711	*0*	234 - 2740	**701**	293	*0*	423 - 1730
Lead	**0.03**	0.01	*18*	0.03 - 0.05	**0.07**	0.04	*6*	0.03 - 0.18	**0.06**	0.04	*11*	0.03 - 0.12
Magnesium	**1388**	240	*0*	1070 - 2000	**659**	69	*0*	525 - 763	**743**	81	*0*	615 - 915
Manganese	**0.24**	0.17	*1*	0.03 - 0.77	**9.10**	2.74	*0*	4.38 - 13.90	**2.29**	0.80	*0*	1.37 - 4.83
Mercury	**0.654**	0.613	*0*	0.128 - 2.440	**1.209**	1.345	*0*	0.240 - 4.840	**1.905**	1.907	*0*	0.408 - 6.630
Molybdenum	**0.05**	0.00	*20*	0.05 - 0.05	**0.62**	0.15	*0*	0.40 - 0.90	**0.30**	0.10	*0*	0.20 - 0.50
Nickel	**0.19**	0.10	*4*	0.05 - 0.30	**0.25**	0.19	*3*	0.05 - 0.70	**3.72**	1.33	*0*	1.90 - 7.00
Phosphorus	**12041**	2564	*0*	8950 - 17500	**13676**	1623	*0*	11600 - 17600	**12269**	1691	*0*	9440 - 16300
Potassium	**14980**	1307	*0*	12400 - 18600	**11332**	968	*0*	9770 - 13200	**14062**	2000	*0*	10100 - 17400
Silver	**0.005**	0.000	*20*	0.005 - 0.005	**0.864**	0.749	*0*	0.200 - 3.060	**0.010**	0.006	*10*	0.005 - 0.020
Sodium	**1177**	403	*0*	690 - 2110	**4726**	1937	*0*	2530 - 9030	**9698**	1759	*0*	6790 - 12800
Strontium	**0.74**	0.55	*0*	0.25 - 2.33	**0.77**	0.60	*0*	0.28 - 2.86	**2.87**	1.36	*0*	1.66 - 6.17
Tin	**0.05**	0.01	*19*	0.05 - 0.10	**0.05**	0.00	*21*	0.05 - 0.05	**0.05**	0.00	*21*	0.05 - 0.05
Titanium	**1.79**	0.32	*0*	1.00 - 2.20	**0.61**	0.20	*0*	0.40 - 1.30	**0.80**	0.22	*0*	0.50 - 1.40
Vanadium	**0.25**	0.00	*20*	0.25 - 0.25	**0.43**	0.50	*16*	0.25 - 2.50	**0.33**	0.21	*18*	0.25 - 1.00
Zinc	**10.9**	1.8	*0*	8.4 - 14.2	**114.9**	21.8	*0*	65.1 - 159.0	**107.1**	20.1	*0*	77.1 - 150.0
% Moisture	***77.1***	*1.6*		*73.9 - 80.0*	***83.1***	*2.2*		*79.5 - 87.2*	***83.1***	*2.2*		*79.5 - 87.2*

[a] values below detection limit were coded as one-half of detection limit to allow statistical calculations

[b] SD = standard deviation

[c] number of samples below detection limit

NOTE: Duplicate samples not included in the above calculations

Golder Associates

Appendix F32. Mean metal concentrations (µg/g dry weight) in Round Whitefish tissue samples collected from the south basin of Meliadine Lake, 1998.

Constituent	Muscle (n=7)				Liver (n=7)				Kidney (n=7)			
	Mean [a]	SD [b]	*n<D.L.* [c]	Range	**Mean** [a]	SD [b]	*n<D.L.* [c]	Range	**Mean** [a]	SD [b]	*n<D.L.* [c]	Range
Aluminium	**0.50**	0.00	*7*	0.50 - 0.50	**14.29**	3.35	*0*	10.00 - 20.00	**31.57**	22.51	*0*	15.00 - 81.00
Antimony	**0.05**	0.00	*7*	0.05 - 0.05	**0.05**	0.00	*7*	0.05 - 0.05	**0.05**	0.00	*7*	0.05 - 0.05
Arsenic	**0.23**	0.10	*0*	0.15 - 0.45	**0.46**	0.17	*0*	0.19 - 0.66	**2.33**	0.97	*0*	1.22 - 3.67
Barium	**0.15**	0.12	*0*	0.05 - 0.37	**0.43**	0.94	*0*	0.05 - 2.57	**2.44**	3.01	*0*	0.52 - 9.14
Beryllium	**0.025**	0.000	*7*	0.025 - 0.025	**0.025**	0.000	*7*	0.025 - 0.025	**0.025**	0.000	*7*	0.025 - 0.025
Boron	**0.25**	0.00	*7*	0.25 - 0.25	**0.25**	0.00	*7*	0.25 - 0.25	**0.25**	0.00	*7*	0.25 - 0.25
Cadmium	**0.03**	0.00	*7*	0.03 - 0.03	**0.40**	0.15	*0*	0.14 - 0.60	**2.56**	1.10	*0*	1.04 - 4.32
Calcium	**947**	258	*0*	677 - 1440	**451**	242	*0*	278 - 971	**1807**	1183	*0*	1000 - 4290
Chromium	**0.36**	0.20	*5*	0.25 - 0.70	**1.71**	0.34	*0*	1.20 - 2.20	**2.23**	0.43	*0*	1.60 - 3.00
Cobalt	**0.05**	0.04	*5*	0.03 - 0.11	**0.40**	0.17	*0*	0.22 - 0.63	**4.04**	3.41	*0*	1.85 - 11.70
Copper	**1.83**	0.11	*0*	1.64 - 1.95	**10.86**	1.55	*0*	8.70 - 13.50	**6.06**	1.39	*0*	3.75 - 7.68
Iron	**25**	5	*0*	18 - 34	**737**	201	*0*	382 - 1030	**1536**	550	*0*	800 - 2550
Lead	**0.03**	0.00	*7*	0.03 - 0.03	**0.06**	0.03	*3*	0.03 - 0.10	**0.15**	0.05	*0*	0.09 - 0.22
Magnesium	**1256**	73	*0*	1160 - 1350	**675**	76	*0*	579 - 762	**678**	129	*0*	471 - 840
Manganese	**1.29**	0.40	*0*	0.73 - 1.79	**8.73**	2.76	*0*	5.40 - 13.60	**24.65**	12.28	*0*	4.25 - 43.30
Mercury	**0.138**	0.019	*0*	0.117 - 0.168	**0.200**	0.030	*0*	0.148 - 0.248	**0.691**	0.348	*0*	0.370 - 1.410
Molybdenum	**0.05**	0.00	*7*	0.05 - 0.05	**0.57**	0.08	*0*	0.40 - 0.60	**1.14**	0.44	*0*	0.60 - 1.80
Nickel	**0.05**	0.00	*7*	0.05 - 0.05	**0.18**	0.20	*3*	0.05 - 0.60	**4.14**	1.23	*0*	2.50 - 6.50
Phosphorus	**12129**	901	*0*	11000 - 13100	**12629**	1611	*0*	10500 - 14500	**11793**	2042	*0*	9260 - 14400
Potassium	**17586**	1110	*0*	16200 - 19500	**12114**	1075	*0*	11100 - 14300	**11279**	1131	*0*	9950 - 13300
Silver	**0.005**	0.000	*7*	0.005 - 0.005	**0.043**	0.026	*0*	0.020 - 0.080	**0.011**	0.008	*4*	0.005 - 0.020
Sodium	**1142**	123	*0*	976 - 1360	**4000**	686	*0*	3270 - 4740	**8569**	739	*0*	7190 - 9330
Strontium	**0.89**	0.53	*0*	0.46 - 2.01	**0.41**	0.33	*0*	0.14 - 1.09	**2.05**	1.48	*0*	0.69 - 5.04
Tin	**0.05**	0.00	*7*	0.05 - 0.05	**0.05**	0.00	*7*	0.05 - 0.05	**0.05**	0.00	*7*	0.05 - 0.05
Titanium	**0.34**	0.05	*0*	0.30 - 0.40	**0.73**	0.19	*0*	0.50 - 1.00	**91.81**	25.53	*0*	52.80 - 125.00
Vanadium	**0.25**	0.00	*7*	0.25 - 0.25	**0.25**	0.00	*7*	0.25 - 0.25	**6.89**	1.97	*0*	5.60 - 11.20
Zinc	**16.4**	1.5	*0*	14.8 - 18.9	**72.7**	13.9	*0*	48.2 - 87.5	**87.5**	18.1	*0*	62.7 - 117.0
% Moisture	***75.8***	*0.8*		*75.1 - 76.8*	***89.3***	*5.8*		*76.9 - 93.5*	***83.3***	*1.9*		*80.0 - 85.7*

[a] values below detection limit were coded as one-half of detection limit to allow statistical calculations

[b] SD = standard deviation

[c] number of samples below detection limit

NOTE: Duplicate samples not included in the above calculations

Golder Associates

Appendix F33. Mean metal concentrations (µg/g dry weight) in Round Whitefish tissue samples collected from Parallel Lake (control basin), 1998.

Constituent	Muscle (n=10)				Liver (n=10)				Kidney (n=10)			
	Mean [a]	SD [b]	*n<D.L.* [c]	Range	**Mean** [a]	SD [b]	*n<D.L.* [c]	Range	**Mean** [a]	SD [b]	*n<D.L.* [c]	Range
Aluminium	**0.80**	0.48	*6*	0.50 - 2.00	**12.60**	5.23	*0*	4.00 - 19.00	**35.00**	16.04	*0*	15.00 - 59.00
Antimony	**0.05**	0.00	*10*	0.05 - 0.05	**0.05**	0.00	*10*	0.05 - 0.05	**0.05**	0.00	*10*	0.05 - 0.05
Arsenic	**0.27**	0.19	*0*	0.10 - 0.80	**0.22**	0.14	*0*	0.13 - 0.59	**1.23**	0.70	*0*	0.62 - 2.74
Barium	**0.16**	0.08	*0*	0.04 - 0.30	**0.08**	0.05	*0*	0.03 - 0.20	**3.70**	1.68	*0*	1.63 - 7.30
Beryllium	**0.025**	0.000	*10*	0.025 - 0.025	**0.025**	0.000	*10*	0.025 - 0.025	**0.025**	0.000	*10*	0.025 - 0.025
Boron	**0.25**	0.00	*10*	0.25 - 0.25	**0.25**	0.00	*10*	0.25 - 0.25	**0.25**	0.00	*10*	0.25 - 0.25
Cadmium	**0.03**	0.00	*10*	0.03 - 0.03	**0.85**	0.68	*0*	0.24 - 2.50	**7.40**	5.44	*0*	2.07 - 18.30
Calcium	**905**	331	*0*	459 - 1480	**304**	68	*0*	231 - 425	**2219**	1744	*0*	770 - 6410
Chromium	**0.31**	0.13	*8*	0.25 - 0.60	**1.63**	0.45	*0*	1.00 - 2.40	**2.20**	0.71	*0*	1.60 - 3.90
Cobalt	**0.05**	0.04	*7*	0.03 - 0.12	**0.46**	0.19	*0*	0.16 - 0.88	**2.86**	1.04	*0*	1.60 - 4.35
Copper	**1.60**	0.28	*0*	1.27 - 2.13	**10.50**	2.33	*0*	6.66 - 13.10	**6.64**	1.91	*0*	3.87 - 10.70
Iron	**21**	4	*0*	14 - 28	**497**	244	*0*	173 - 956	**1506**	519	*0*	879 - 2310
Lead	**0.03**	0.00	*10*	0.03 - 0.03	**0.06**	0.05	*6*	0.03 - 0.18	**0.16**	0.18	*1*	0.03 - 0.66
Magnesium	**1274**	70	*0*	1140 - 1410	**767**	82	*0*	634 - 905	**738**	124	*0*	533 - 908
Manganese	**0.47**	0.15	*0*	0.27 - 0.73	**9.33**	2.80	*0*	6.70 - 16.10	**17.06**	13.31	*0*	2.98 - 33.70
Mercury	**0.212**	0.114	*0*	0.084 - 0.429	**0.266**	0.126	*0*	0.112 - 0.480	**1.137**	0.662	*0*	0.460 - 2.630
Molybdenum	**0.05**	0.00	*10*	0.05 - 0.05	**0.60**	0.08	*0*	0.50 - 0.70	**0.84**	0.25	*0*	0.50 - 1.20
Nickel	**0.05**	0.00	*10*	0.05 - 0.05	**0.21**	0.14	*2*	0.05 - 0.40	**5.22**	2.11	*0*	2.80 - 8.80
Phosphorus	**11680**	892	*0*	10600 - 13700	**14220**	1222	*0*	12000 - 16000	**11757**	2014	*0*	7980 - 14800
Potassium	**17030**	593	*0*	16300 - 18200	**13670**	2065	*0*	10400 - 17500	**12618**	1891	*0*	8680 - 14900
Silver	**0.005**	0.000	*10*	0.005 - 0.005	**0.051**	0.033	*0*	0.010 - 0.110	**0.036**	0.043	*1*	0.005 - 0.150
Sodium	**1165**	163	*0*	914 - 1480	**4512**	1009	*0*	2960 - 6130	**8791**	2217	*0*	5880 - 13100
Strontium	**1.55**	0.74	*0*	0.58 - 2.73	**0.60**	0.39	*0*	0.27 - 1.65	**5.60**	5.56	*0*	1.38 - 19.70
Tin	**0.05**	0.00	*10*	0.05 - 0.05	**0.05**	0.00	*10*	0.05 - 0.05	**0.05**	0.00	*10*	0.05 - 0.05
Titanium	**0.42**	0.06	*0*	0.30 - 0.50	**0.66**	0.18	*0*	0.40 - 1.00	**109.20**	33.42	*0*	58.30 - 160.00
Vanadium	**0.25**	0.00	*10*	0.25 - 0.25	**0.25**	0.00	*10*	0.25 - 0.25	**7.13**	2.34	*0*	4.50 - 13.10
Zinc	**15.5**	1.3	*0*	13.2 - 17.8	**63.7**	6.7	*0*	55.4 - 73.8	**96.0**	17.5	*0*	68.7 - 127.0
% Moisture	***75.5***	*0.9*		*73.7 - 77.0*	***90.1***	*4.5*		*80.4 - 95.0*	***83.5***	*1.6*		*81.4 - 87.3*

[a] values below detection limit were coded as one-half of detection limit to allow statistical calculations

[b] SD = standard deviation

[c] number of samples below detection limit

NOTE: Duplicate samples not included in the above calculations

Golder Associates

Appendix F34. Mean metal concentrations (µg/g dry weight) in Cisco tissue samples collected from the south basin of Meliadine Lake, 1998.

Constituent	Muscle (n=16)				Liver (n=16)				Kidney (n=16)			
	Mean [a]	SD [b]	*n<D.L.* [c]	Range	**Mean** [a]	SD [b]	*n<D.L.* [c]	Range	**Mean** [a]	SD [b]	*n<D.L.* [c]	Range
Aluminium	**0.60**	0.20	*13*	0.50 - 1.00	**8.50**	5.90	*0*	1.00 - 20.00	**18.80**	18.60	*0*	3.00 - 69.00
Antimony	**0.05**	0.00	*16*	0.05 - 0.05	**0.03**	0.02	*16*	0.03 - 0.09	**0.05**	0.00	*16*	0.05 - 0.05
Arsenic	**0.28**	0.13	*0*	0.13 - 0.56	**1.05**	0.85	*0*	0.47 - 3.73	**1.35**	0.98	*0*	0.50 - 4.58
Barium	**0.07**	0.05	*0*	0.02 - 0.20	**0.08**	0.12	*4*	0.01 - 0.49	**0.49**	0.24	*0*	0.20 - 0.99
Beryllium	**0.025**	0.000	*16*	0.025 - 0.025	**0.025**	0.000	*16*	0.025 - 0.025	**0.025**	0.000	*16*	0.025 - 0.025
Boron	**0.25**	0.00	*16*	0.25 - 0.25	**0.25**	0.00	*16*	0.25 - 0.25	**0.25**	0.00	*16*	0.25 - 0.25
Cadmium	**0.03**	0.00	*16*	0.03 - 0.03	**0.88**	1.02	*0*	0.16 - 3.55	**4.33**	6.21	*0*	0.22 - 26.40
Calcium	**990**	612	*0*	403 - 2330	**485**	630	*0*	159 - 2710	**2319**	1523	*0*	1070 - 7220
Chromium	**1.26**	1.48	*8*	0.25 - 4.40	**1.81**	0.76	*0*	1.04 - 4.06	**6.01**	3.36	*0*	1.80 - 12.40
Cobalt	**0.07**	0.07	*11*	0.03 - 0.18	**0.14**	0.09	*0*	0.07 - 0.43	**1.03**	0.46	*0*	0.46 - 1.94
Copper	**1.71**	1.05	*1*	0.03 - 3.71	**20.29**	19.64	*0*	3.16 - 81.20	**19.14**	21.09	*0*	4.76 - 86.00
Iron	**24**	12	*0*	10 - 48	**898**	894	*0*	149 - 3190	**2119**	1107	*0*	1060 - 4870
Lead	**0.06**	0.04	*8*	0.03 - 0.14	**0.09**	0.09	*5*	0.03 - 0.37	**0.43**	0.48	*0*	0.07 - 1.83
Magnesium	**1273**	54	*0*	1200 - 1380	**791**	601	*0*	455 - 2990	**1015**	222	*0*	652 - 1380
Manganese	**0.78**	0.28	*0*	0.48 - 1.42	**6.17**	4.71	*0*	2.16 - 22.90	**9.65**	10.24	*0*	2.89 - 37.10
Mercury	**0.580**	0.464	*0*	0.250 - 2.210	**1.375**	1.737	*0*	0.200 - 6.650	**1.281**	1.138	*0*	0.438 - 4.930
Molybdenum	**0.06**	0.04	*14*	0.05 - 0.20	**0.51**	0.33	*0*	0.32 - 1.73	**0.24**	0.19	*2*	0.05 - 0.70
Nickel	**0.05**	0.01	*15*	0.05 - 0.10	**0.19**	0.20	*9*	0.05 - 0.70	**1.84**	1.22	*0*	0.60 - 5.10
Phosphorus	**12450**	823	*0*	11500 - 14400	**19475**	16672	*0*	10500 - 81100	**13184**	2651	*0*	8340 - 20100
Potassium	**15606**	1343	*0*	13900 - 19000	**15425**	17494	*0*	3970 - 77900	**13812**	2807	*0*	9710 - 18800
Silver	**0.005**	0.001	*15*	0.005 - 0.010	**0.322**	0.383	*1*	0.005 - 1.170	**0.032**	0.060	*7*	0.005 - 0.250
Sodium	**1337**	494	*0*	726 - 2560	**6827**	5173	*0*	3210 - 25300	**10131**	4133	*0*	4240 - 20900
Strontium	**1.14**	0.87	*0*	0.32 - 3.34	**0.55**	0.68	*0*	0.14 - 2.93	**4.18**	2.26	*0*	1.70 - 10.40
Tin	**0.05**	0.00	*16*	0.05 - 0.05	**0.05**	0.08	*14*	0.03 - 0.33	**0.13**	0.26	*14*	0.05 - 1.10
Titanium	**0.20**	0.10	*0*	0.20 - 0.40	**0.60**	0.30	*0*	0.30 - 1.30	**2.60**	0.70	*0*	1.30 - 3.70
Vanadium	**0.25**	0.00	*16*	0.25 - 0.25	**0.32**	0.15	*13*	0.25 - 0.70	**2.21**	1.90	*1*	0.25 - 8.80
Zinc	**17.0**	5.0	*0*	13.0 - 32.0	**299.0**	246.0	*0*	57.0 - 1030.0	**235.0**	101.0	*0*	125.0 - 453.0
% Moisture	***76.3***	*2.3*		*73.2 - 80.5*	***78.7***	*7.2*		*69.8 - 95.2*	***83.2***	*3.6*		*74.4 - 89.3*

[a] values below detection limit were coded as one-half of detection limit to allow statistical calculations

[b] SD = standard deviation

[c] number of samples below detection limit

NOTE: Duplicate samples not included in the above calculations

Golder Associates

Appendix F35. Mean metal concentrations (µg/g dry weight) in Arctic Grayling tissue samples collected from Lake B5, 1998.

Constituent	Muscle (n=3)				Liver (n=3)				Kidney (n=3)			
	Mean [a]	SD [b]	*n<D.L.* [c]	Range	**Mean** [a]	SD [b]	*n<D.L.* [c]	Range	**Mean** [a]	SD [b]	*n<D.L.* [c]	Range
Aluminium	**0.67**	0.29	*2*	0.50 - 1.00	**7.67**	5.03	*0*	3.00 - 13.00	**13.00**	3.61	*0*	10.00 - 17.00
Antimony	**0.05**	0.00	*3*	0.05 - 0.05	**0.05**	0.00	*3*	0.05 - 0.05	**0.05**	0.00	*3*	0.05 - 0.05
Arsenic	**0.37**	0.03	*0*	0.34 - 0.40	**0.22**	0.08	*0*	0.14 - 0.29	**0.81**	0.13	*0*	0.66 - 0.92
Barium	**0.12**	0.04	*0*	0.08 - 0.16	**0.01**	0.01	*2*	0.01 - 0.02	**0.51**	0.24	*0*	0.33 - 0.78
Beryllium	**0.025**	0.000	*3*	0.025 - 0.025	**0.025**	0.000	*3*	0.025 - 0.025	**0.025**	0.000	*3*	0.025 - 0.025
Boron	**0.25**	0.00	*3*	0.25 - 0.25	**0.25**	0.00	*3*	0.25 - 0.25	**0.25**	0.00	*3*	0.25 - 0.25
Cadmium	**0.03**	0.00	*3*	0.03 - 0.03	**0.15**	0.04	*0*	0.11 - 0.19	**0.53**	0.11	*0*	0.40 - 0.60
Calcium	**1687**	285	*0*	1410 - 1980	**321**	40	*0*	275 - 350	**2317**	286	*0*	2070 - 2630
Chromium	**0.37**	0.20	*2*	0.25 - 0.60	**1.43**	0.55	*0*	0.80 - 1.80	**1.67**	0.12	*0*	1.60 - 1.80
Cobalt	**0.03**	0.00	*3*	0.03 - 0.03	**1.31**	0.57	*0*	0.76 - 1.89	**2.92**	0.42	*0*	2.46 - 3.30
Copper	**1.85**	0.12	*0*	1.72 - 1.95	**6.28**	1.66	*0*	5.03 - 8.17	**10.64**	3.13	*0*	7.82 - 14.00
Iron	**22**	3	*0*	20 - 25	**295**	12	*0*	281 - 304	**1423**	197	*0*	1290 - 1650
Lead	**0.03**	0.00	*3*	0.03 - 0.03	**0.03**	0.00	*3*	0.03 - 0.03	**0.32**	0.26	*1*	0.03 - 0.52
Magnesium	**1367**	29	*0*	1350 - 1400	**704**	39	*0*	666 - 743	**879**	135	*0*	728 - 986
Manganese	**1.19**	0.11	*0*	1.09 - 1.30	**5.23**	1.90	*0*	3.30 - 7.10	**3.74**	0.25	*0*	3.45 - 3.92
Mercury	**0.202**	0.015	*0*	0.192 - 0.219	**0.172**	0.033	*0*	0.144 - 0.208	**0.376**	0.094	*0*	0.298 - 0.480
Molybdenum	**0.05**	0.00	*3*	0.05 - 0.05	**0.40**	0.10	*0*	0.30 - 0.50	**0.57**	0.15	*0*	0.40 - 0.70
Nickel	**0.05**	0.00	*3*	0.05 - 0.05	**0.05**	0.00	*3*	0.05 - 0.05	**1.33**	0.15	*0*	1.20 - 1.50
Phosphorus	**11867**	1504	*0*	10900 - 13600	**12237**	2830	*0*	9010 - 14300	**11367**	833	*0*	10700 - 12300
Potassium	**17667**	153	*0*	17500 - 17800	**11767**	2043	*0*	10300 - 14100	**13133**	1222	*0*	11800 - 14200
Silver	**0.007**	0.003	*2*	0.005 - 0.010	**0.018**	0.013	*1*	0.005 - 0.030	**0.015**	0.009	*1*	0.005 - 0.020
Sodium	**1038**	74	*0*	963 - 1110	**4863**	429	*0*	4470 - 5320	**10633**	1301	*0*	9300 - 11900
Strontium	**1.93**	0.60	*0*	1.49 - 2.61	**0.30**	0.06	*0*	0.26 - 0.37	**3.21**	0.72	*0*	2.71 - 4.03
Tin	**0.05**	0.00	*3*	0.05 - 0.05	**0.05**	0.00	*3*	0.05 - 0.05	**0.05**	0.00	*3*	0.05 - 0.05
Titanium	**0.40**	0.00	*0*	0.40 - 0.40	**0.47**	0.25	*0*	0.20 - 0.70	**2.20**	0.30	*0*	1.90 - 2.50
Vanadium	**0.25**	0.00	*3*	0.25 - 0.25	**0.25**	0.00	*3*	0.25 - 0.25	**4.03**	1.40	*0*	2.70 - 5.50
Zinc	**17.7**	0.7	*0*	16.9 - 18.1	**51.8**	11.8	*0*	38.3 - 60.0	**94.2**	10.4	*0*	86.3 - 106.0
% Moisture	***84.7***	*0.7*		*83.9 - 85.2*	***92.0***	*1.7*		*90.4 - 93.9*	***78.0***	*0.7*		*77.3 - 78.5*

[a] values below detection limit were coded as one-half of detection limit to allow statistical calculations

[b] SD = standard deviation

[c] number of samples below detection limit

NOTE: Duplicate samples not included in the above calculations

Golder Associates

APPENDIX G

Stream Crossing Assessments



Photo 459 - Juvenile Arctic grayling (FL: 48 mm).



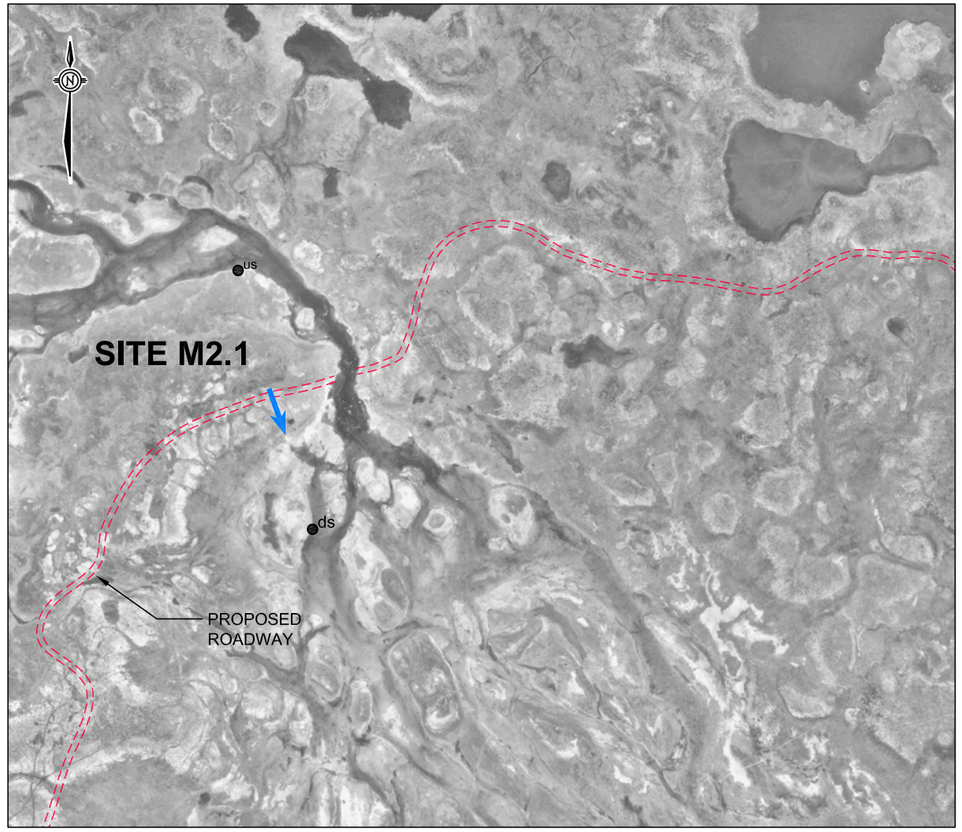
Photo 462 - Upstream view 200 m upstream from proposed crossing location.



Photo 467 - Upstream view from 400 m upstream from proposed crossing location.



Photo 474 - Downstream view from 690 m upstream from proposed crossing location.

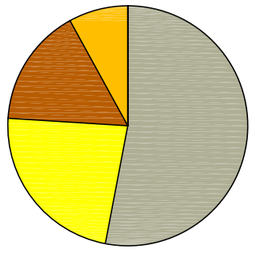


REFERENCE

IMAGE OBTAINED FROM COMAPLEX MINERALS CORPORATION. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 15

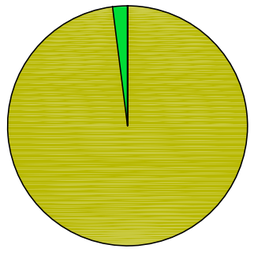
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SCALE METRES



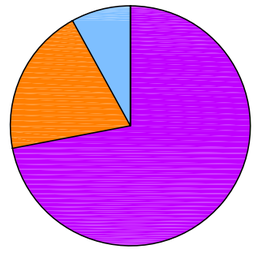
SUBSTRATE

- DETRITUS
- FINES
- GRAVEL
- COBBLE
- BOULDER



INSTREAM COVER

- VEGETATION
- BOULDER GARDENS
- UNDERCUT BANKS



HABITAT TYPE

- RIFFLES
- RUNS
- POOLS

Site M2.1
Date of Survey: June 20, 2008

Upstream UTM: 544595 E, 6971835 N

Downstream UTM: 544731, E 6971455 N

Water Quality:

Time	08:30
Temperature	3.0 °C
Conductivity	N/A
pH	N/A
DO	10 to 12 mg/L

Channel:

Stream length surveyed	690.0 m
Mean channel width	N/A
Mean flooded width	120.0 m
Discharge	N/A

Fish Captured / Observed:

Method	Capture (n)	Size range (mm)	Effort
E-fishing	ARGR (1)	48	557 s
Observations	NNST (2)	<100	—
Egg sampling	—	—	4 kicks

* N/A = Not Assessed

PROJECT

COMAPLEX
MELIADINE WEST GOLD PROJECT

TITLE

AQUATIC HABITAT SUMMARY FOR SITE M2.1

Golder Associates
Edmonton, Alberta

PROJECT 07.1373.0055.4000			FILE No.	1732934
DESIGN	RP	30/09/08	SCALE AS SHOWN	REV. 0
CADD	FN	21/10/08		
CHECK	RP	20/11/08		
REVIEW	JP	20/11/08		

FIGURE: G1

N:\CAD\2007\1373\0055 Meliande West Gold Project\4000\c01 – 1732934 site m2.1.dwg Nov 21, 2008 – 8:27am



Photo 497 - Downstream view from lake outlet.



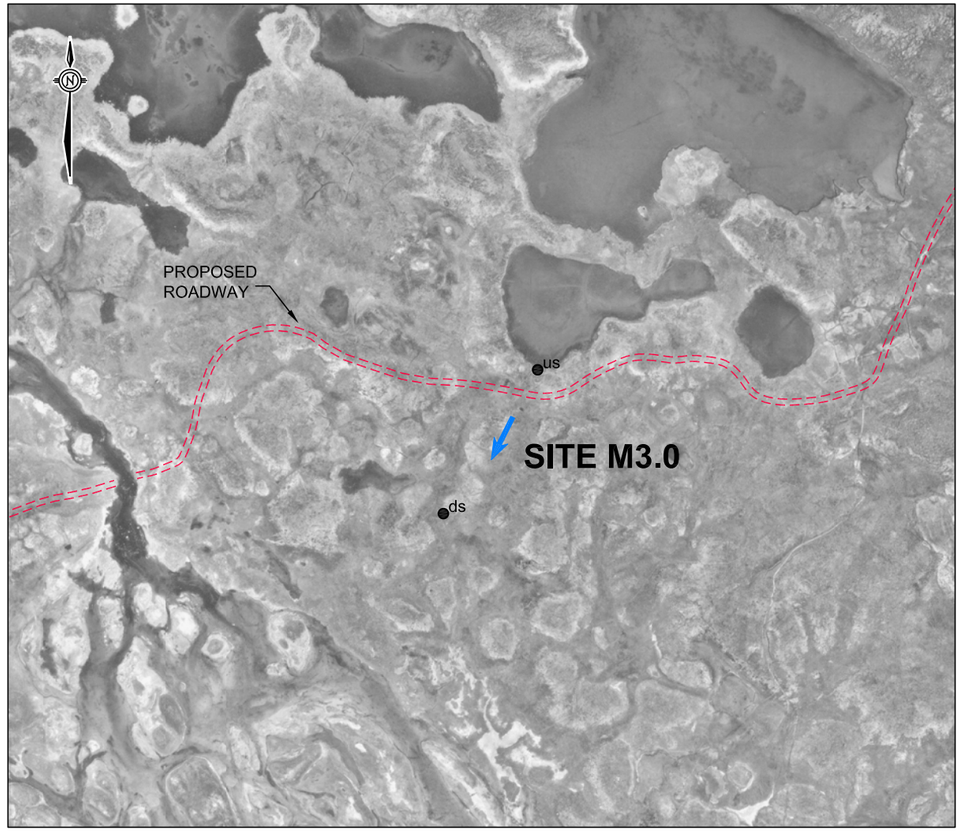
Photo 485 - Downstream view from downstream end of study section.



Photo 489 - Downstream view from 100 m upstream from proposed crossing location.



Photo 494 - Upstream view from proposed crossing location.

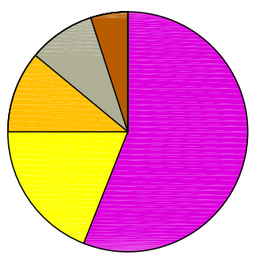


REFERENCE

IMAGE OBTAINED FROM COMAPLEX MINERALS CORPORATION. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 15

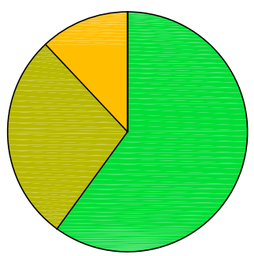
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SCALE METRES



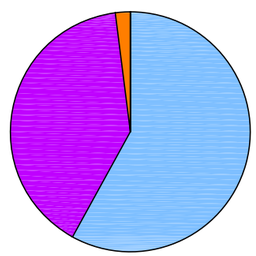
SUBSTRATE

- DETRITUS
- FINES
- GRAVEL
- COBBLE
- BOULDER



INSTREAM COVER

- VEGETATION
- BOULDER GARDENS
- UNDERCUT BANKS



HABITAT TYPE

- RIFFLES
- RUNS
- POOLS

Site M3.0
Date of Survey: June 20, 2008

Upstream UTM: 545477 E, 6971897 N
Downstream UTM: 545319 E, 6971656 N

Water Quality:	
Time	12:15
Temperature	11.5°C
Conductivity	N/A
pH	N/A
DO	8 to 10 mg/L

Channel:	
Stream length surveyed	400.0 m
Mean channel width	3.4 m
Mean flooded width	7.7 m
Discharge	N/A

Fish Captured / Observed:

Method	Capture (n)	Size range (mm)	Effort
E-fishing	—	—	211 s
Observations	NNST (2)	60	—
Egg sampling	—	—	—

* N/A = Not Assessed

PROJECT

COMAPLEX
MELIADINE WEST GOLD PROJECT

TITLE

AQUATIC HABITAT SUMMARY FOR SITE M3.0

Golder Associates
Edmonton, Alberta

PROJECT	07.1373.0055.4000		FILE No.	1732935	
DESIGN	RP	30/09/08	SCALE	AS SHOWN	REV. 0
CADD	FN	21/10/08			
CHECK	RP	20/11/08			
REVIEW	JP	20/11/08			

FIGURE: G2

N:\CAD\2007\1373\0055 Meliande West Gold Project\4000\c02 – 1732935 site m3.0.dwg Nov 21, 2008 – 8:29am

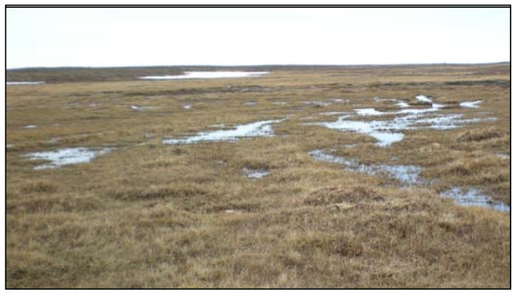


Photo 148 - Upstream view from lake inlet.



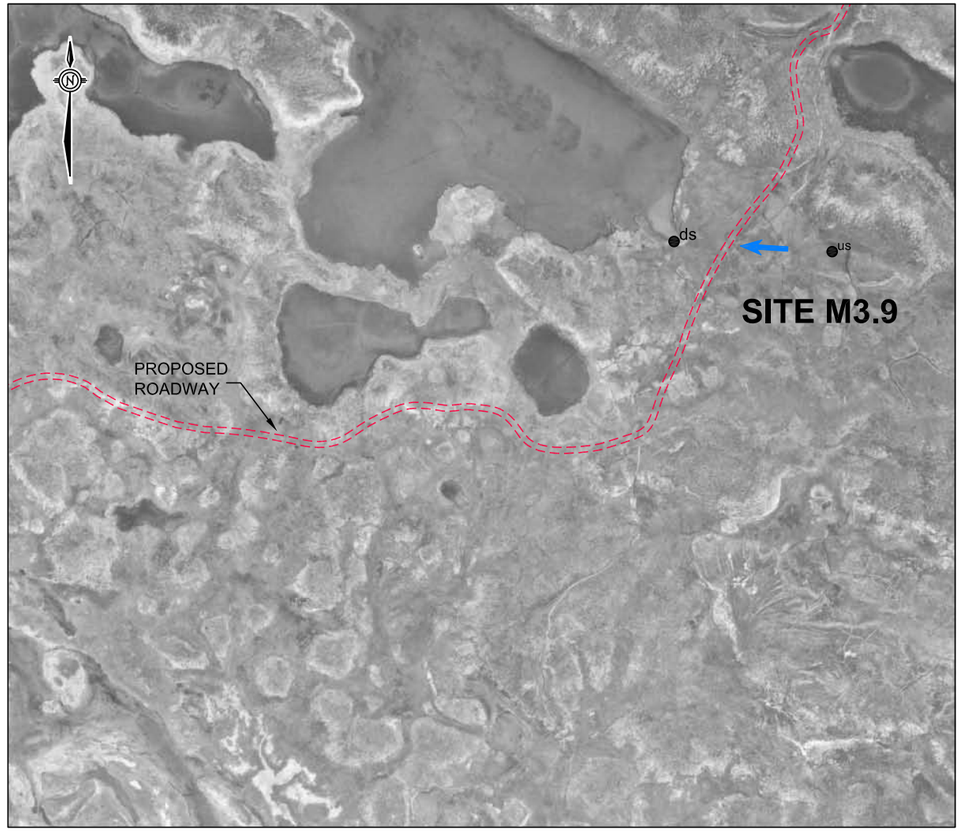
Photo 151 - Upstream view from 100 m upstream from the proposed crossing location.



Photo 154 - Downstream view of watercourse and ATV damage 150 m upstream from the proposed crossing location.



Photo 156 - Downstream view from 200 m upstream from proposed crossing location.

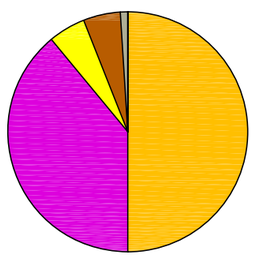


REFERENCE

IMAGE OBTAINED FROM COMAPLEX MINERALS CORPORATION. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 15

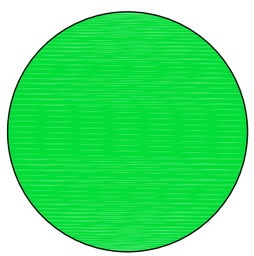
200 0 200

SCALE METRES



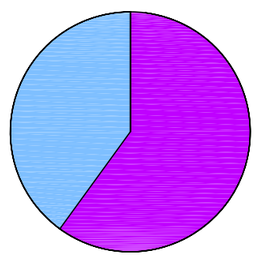
SUBSTRATE

- DETRITUS
- FINES
- GRAVEL
- COBBLE
- BOULDER



INSTREAM COVER

- VEGETATION
- BOULDER GARDENS
- UNDERCUT BANKS



HABITAT TYPE

- RIFFLES
- RUNS
- POOLS

Site M3.9
Date of Survey: June 18, 2008

Upstream UTM: 546349 E, 6972176 N

Downstream UTM: 546084 E, 6972193 N

Water Quality:	
Time	15:45
Temperature	9.0 °C
Conductivity	N/A
pH	N/A
DO	8-10 mg/L

Channel:	
Stream length surveyed	370.0 m
Mean channel width	1.8 m
Mean flooded width	44.3 m
Discharge	N/A

Fish Captured / Observed:

Method	Capture (n)	Size range (mm)	Effort
E-fishing	—	—	185 s
Observations	—	—	—
Egg sampling	—	—	—

* N/A = Not Assessed

PROJECT

COMAPLEX
MELIADINE WEST GOLD PROJECT

TITLE

AQUATIC HABITAT SUMMARY FOR SITE M3.9

Golder Associates Edmonton, Alberta

PROJECT	07.1373.0055.4000		FILE No.		1732936
DESIGN	RP	30/09/08	SCALE	AS SHOWN	REV. 0
CADD	FN	21/10/08			
CHECK	RP	20/11/08			
REVIEW	JP	20/11/08			

FIGURE: G3

N:\CAD\2007\1373\0055 Meliande West Gold Project\4000\c03 – 1732936 site m3.9.dwg Nov 21, 2008 – 8:31am



Photo 135 - Ninespine stickleback - note the variation in colouration.



Photo 138 - View of lake outlet and left bank approach.



Photo 140 - View of lake inlet.



Photo 141 - View of proposed crossing location.



REFERENCE

IMAGE OBTAINED FROM COMAPLEX MINERALS CORPORATION. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 15

200 0 200
SCALE METRES

Site M5.0
Date of Survey: June 18, 2008

Upstream UTM: 546623 E, 6973136 N

Downstream UTM: 546644 E, 6973126 N

Water Quality:	
Time	12:30
Temperature	11.0°C
Conductivity	N/A
pH	N/A
DO	8 to 10 mg/L

Channel:	
Stream length surveyed	29.0 m
Mean channel width	N/A
Mean flooded width	N/A
Discharge	0.034 m^3/s

Fish Captured / Observed:

Method	Capture (n)	Size range (mm)	Effort
E-fishing	NNST (20)	34-74	293 s
Observations	NNST (>200)	30-40	—
Egg sampling	—	—	10 kicks

* N/A = Not Assessed

PROJECT

COMAPLEX
MELIADINE WEST GOLD PROJECT

TITLE

AQUATIC HABITAT SUMMARY FOR SITE M5.0

Golder Associates Edmonton, Alberta

PROJECT 07.1373.0055.4000			FILE No.		1732937
DESIGN	RP	30/09/08	SCALE AS SHOWN	REV.	0
CADD	FN	21/10/08			
CHECK	RP	20/11/08			
REVIEW	JP	20/11/08			

FIGURE: G4

N:\CAD\2007\1373\0055 Meliande West Gold Project\4000\c04 – 1732937 site m5.0.dwg Nov 21, 2008 – 8:33am



Photo 118 - Downstream view from 50 m downstream from proposed crossing location.



Photo 121 - Downstream view from left channel from 50 m downstream from proposed crossing location.

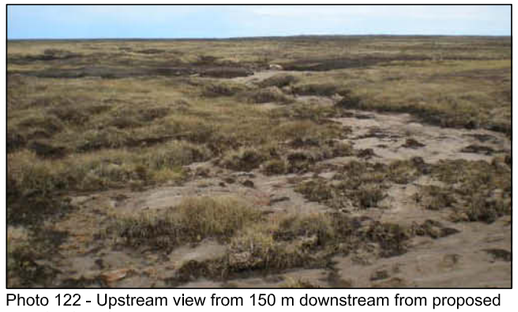


Photo 122 - Upstream view from 150 m downstream from proposed crossing location.

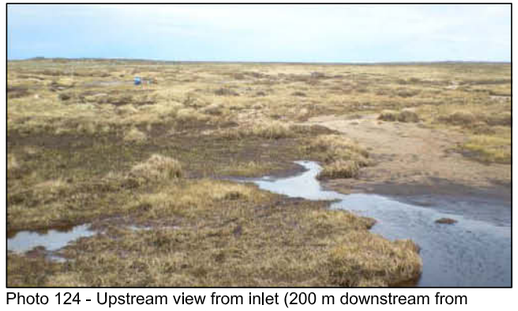
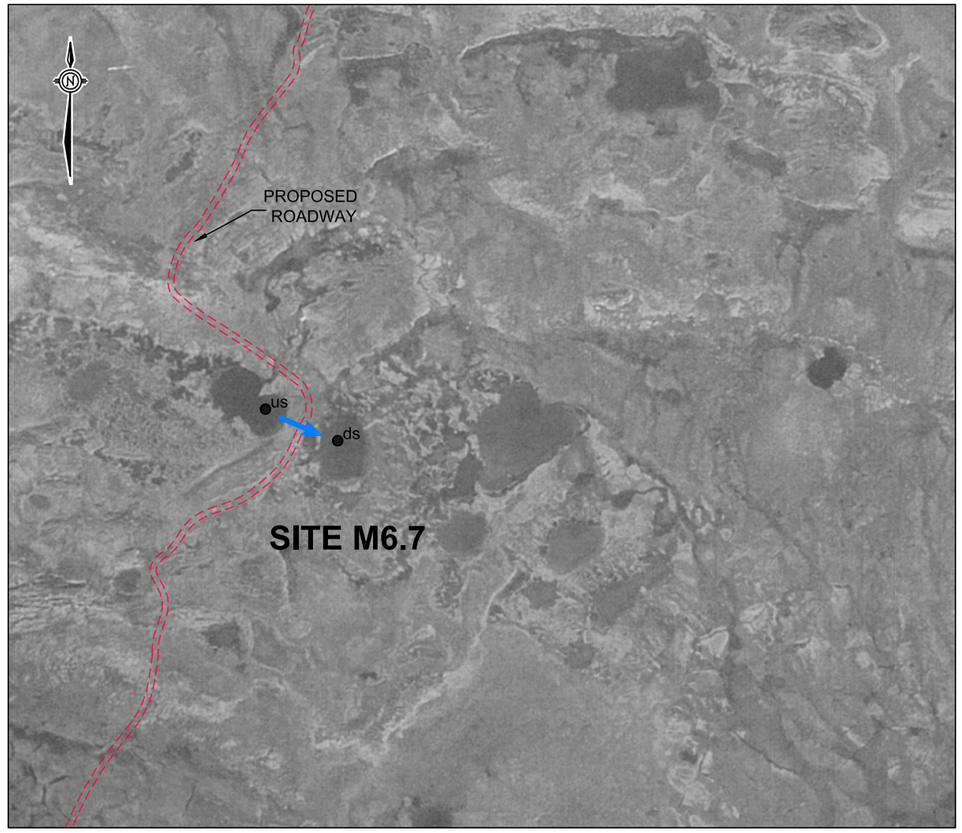


Photo 124 - Upstream view from inlet (200 m downstream from proposed crossing location).

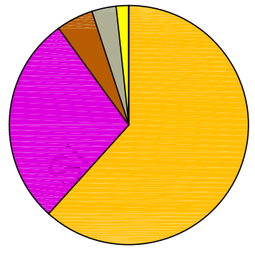


REFERENCE

IMAGE OBTAINED FROM COMAPLEX MINERALS CORPORATION, PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 15

200 0 200

SCALE METRES



SUBSTRATE

- DETRITUS
- FINES
- GRAVEL
- COBBLE
- BOULDER

Site M6.7
Date of Survey: June 20, 2008

Upstream UTM: 547336 E, 6974560 N

Downstream UTM: 547457 E, 6974507 N

Water Quality:	
Time	10:45
Temperature	DRY
Conductivity	DRY
pH	DRY
DO	DRY

Channel:	
Stream length surveyed	150.0 m
Mean channel width	DRY
Mean flooded width	38.7 m
Discharge	DRY

Fish Captured / Observed:

Method	Capture (n)	Size range (mm)	Effort
E-fishing	—	—	—
Observations	—	—	—
Egg sampling	—	—	—

* N/A = Not Assessed

PROJECT

COMAPLEX
MELIADINE WEST GOLD PROJECT

TITLE

AQUATIC HABITAT SUMMARY FOR SITE M6.7

Golder Associates Edmonton, Alberta

PROJECT 07.1373.0055.4000			FILE No.		1732938
DESIGN	RP	30/09/08	SCALE AS SHOWN		REV. 0
CADD	FN	21/10/08	**FIGURE: G5**		
CHECK	RP	20/11/08			
REVIEW	JP	20/11/08			

Nov 21, 2008 – 8:34am N:\CAD\2007\1373\0055 Meliande West Gold Project\4000\c05 – 1732938 site m6.7.dwg



Photo 095 - Upstream view 30 m upstream from outlet.



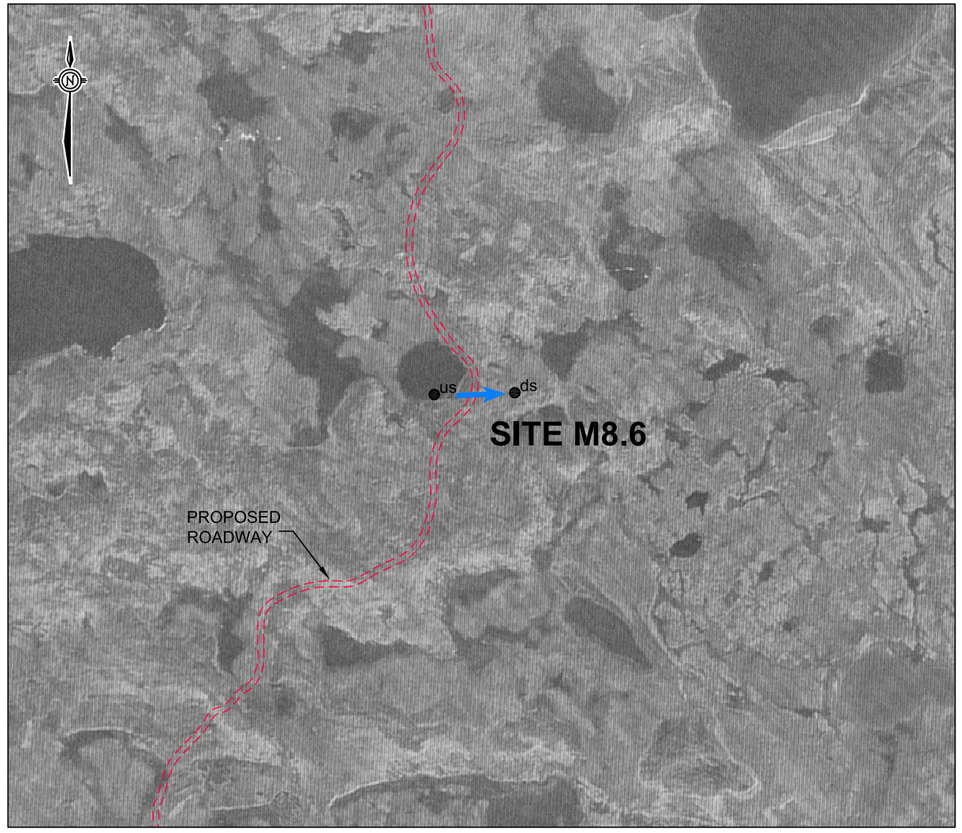
Photo 100 - Downstream view 90 m upstream from outlet.



Photo 102 - Downstream view 120 m upstream from outlet.



Photo 109 - Upstream view of watercourse inlet/lake outlet (secondary channel).

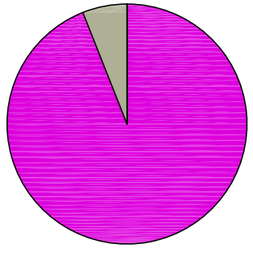


REFERENCE

IMAGE OBTAINED FROM COMAPLEX MINERALS CORPORATION. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 15

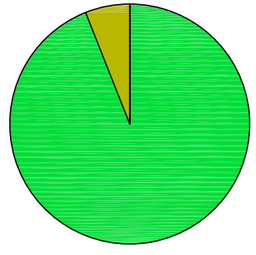
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SCALE METRES



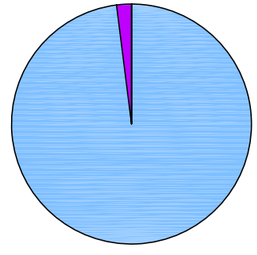
SUBSTRATE

- DETRITUS
- FINES
- GRAVEL
- COBBLE
- BOULDER



INSTREAM COVER

- VEGETATION
- BOULDER GARDENS
- UNDERCUT BANKS



HABITAT TYPE

- RIFFLES
- RUNS
- POOLS

Site M8.6
Date of Survey: June 18, 2008

Upstream UTM: 547855 E, 6975854 N

Downstream UTM: 547990 E, 6975857 N

Water Quality:

Time	07.30
Temperature	10.0°C
Conductivity	66.9 µS/cm
pH	7.8
DO	10 to 12 mg/L

Channel:

Stream length surveyed	310.0 m
Mean channel width	2.7 m
Mean flooded width	13.8 m
Discharge	N/A

Fish Captured / Observed:

Method	Capture (n)	Size range (mm)	Effort
E-fishing	—	—	262 s
Observations	—	—	—
Egg sampling	—	—	1 kick

* N/A = Not Assessed

PROJECT

COMAPLEX
MELIADINE WEST GOLD PROJECT

TITLE

AQUATIC HABITAT SUMMARY FOR SITE M8.6

Golder Associates
Edmonton, Alberta

PROJECT 07.1373.0055.4000			FILE No.		1732939
DESIGN	RP	30/09/08	SCALE AS SHOWN	REV.	0
CADD	FN	21/10/08			
CHECK	RP	20/11/08			
REVIEW	JP	20/11/08			

FIGURE: G6

N:\CAD\2007\1373\0055 Meliande West Gold Project\4000\c06 – 1732939 site m8.6.dwg Nov 21, 2008 – 8:35am



Photo 221 - Juvenile Arctic grayling (FL: 89 mm).



Photo 230 - Upslope view from proposed crossing location.

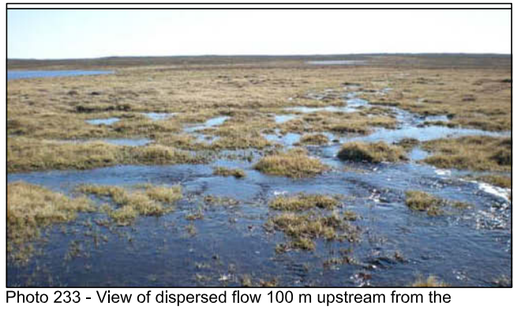
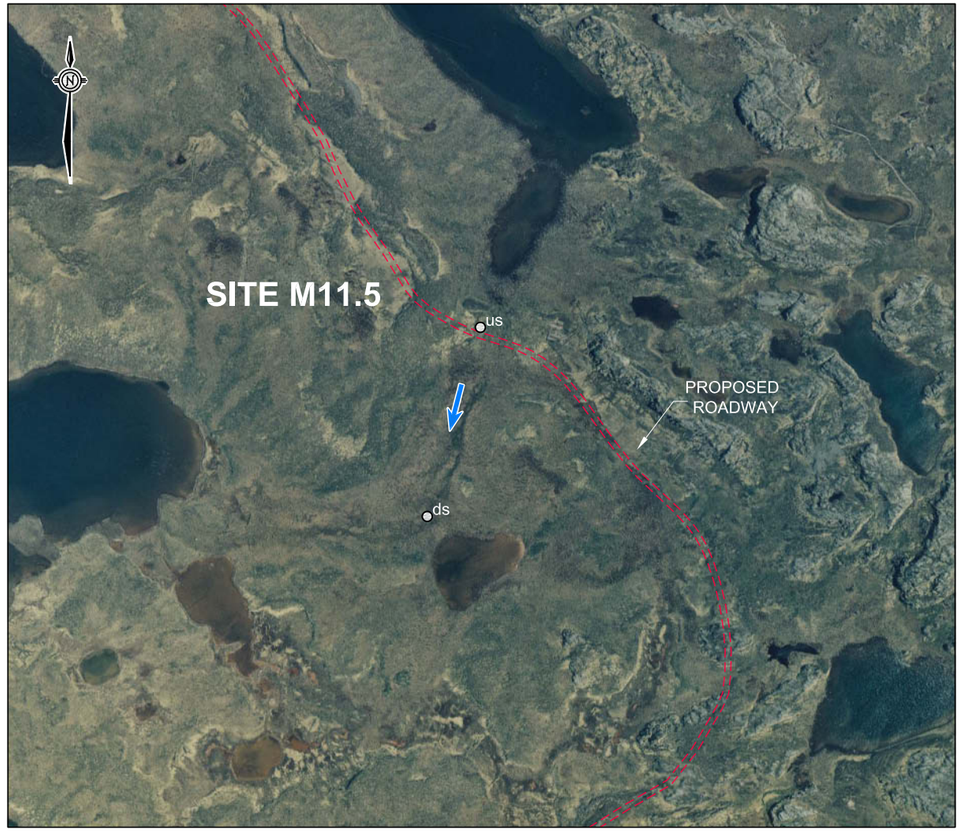


Photo 233 - View of dispersed flow 100 m upstream from the proposed crossing location.



Photo 237 - Downstream view from 300 m upstream from the proposed crossing location.

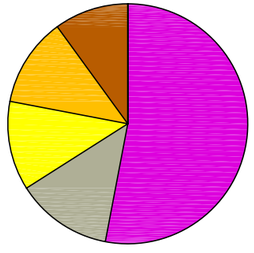


REFERENCE

IMAGE OBTAINED FROM COMAPLEX MINERALS CORPORATION. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 15

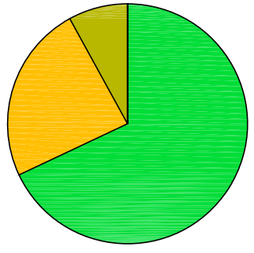
200 0 200

SCALE METRES



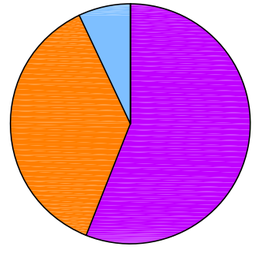
SUBSTRATE

- DETRITUS
- FINES
- GRAVEL
- COBBLE
- BOULDER



INSTREAM COVER

- VEGETATION
- BOULDER GARDENS
- UNDERCUT BANKS



HABITAT TYPE

- RIFFLES
- RUNS
- POOLS

Site M11.5
Date of Survey: June 19, 2008

Upstream UTM: 547466 E, 6978319 N

Downstream UTM: 547377 E, 6978002 N

Water Quality:

Time	16:15
Temperature	15.0°C
Conductivity	N/A
pH	N/A
DO	8 to 10 mg/L

Channel:

Stream length surveyed	380.0 m
Mean channel width	4.7 m
Mean flooded width	26.7 m
Discharge	2.56 m³/s

Fish Captured / Observed:

Method	Capture (n)	Size range (mm)	Effort
E-fishing	NNST (18) ARGR (1)	32-67 89	520 s
Observations	NNST (20) ARGR (5)	<200 10-60	—
Egg sampling	—	—	6 kicks

* N/A = Not Assessed

PROJECT

COMAPLEX
MELIADINE WEST GOLD PROJECT

TITLE

AQUATIC HABITAT SUMMARY FOR SITE M11.5

Golder Associates
Edmonton, Alberta

PROJECT 07.1373.0055.4000			FILE No.		1732940
DESIGN	RP	30/09/08	SCALE AS SHOWN	REV.	0
CADD	FN	21/10/08			
CHECK	RP	20/11/08			
REVIEW	JP	20/11/08			

FIGURE: G7

N:\CAD\2007\1373\0055 Meliande West Gold Project\4000\c07 – 1732940 site m11.5.dwg Nov 21, 2008 – 8:40am



Photo 201 - Downstream view from 100 m upstream from proposed crossing (ATV damage in foreground).



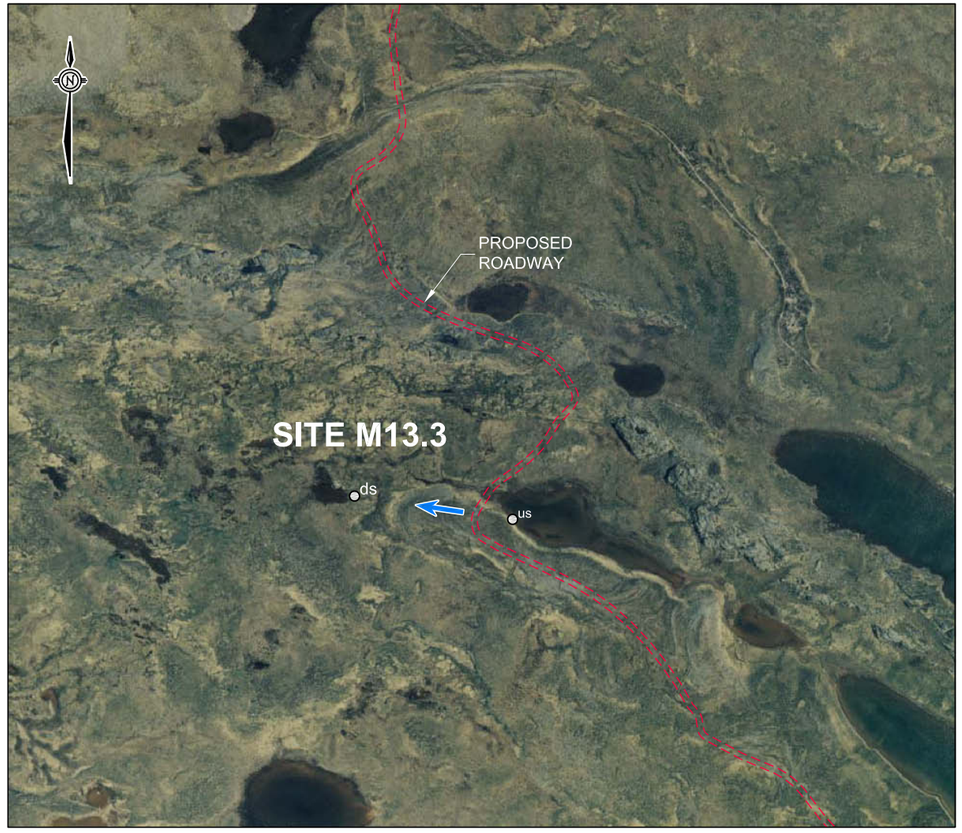
Photo 207 - Upstream view from 200 m upstream from proposed crossing location.



Photo 208 - Downstream view from 200 m downstream from proposed crossing location.



Photo 210 - Downstream view from 300 m upstream from proposed crossing location.

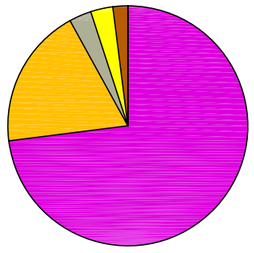


REFERENCE

IMAGE OBTAINED FROM COMAPLEX MINERALS CORPORATION. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 15

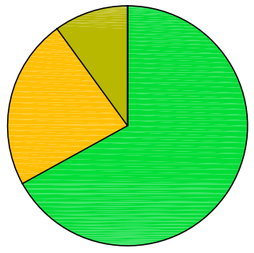
200 0 200

SCALE METRES



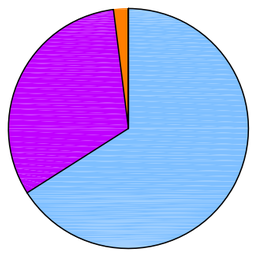
SUBSTRATE

- DETRITUS
- FINES
- GRAVEL
- COBBLE
- BOULDER



INSTREAM COVER

- VEGETATION
- BOULDER GARDENS
- UNDERCUT BANKS



HABITAT TYPE

- DEEPER THAN 5 m
- RUNS
- POOLS

Site M13.3
Date of Survey: June 19, 2008

Upstream UTM: 546338 E, 6979514 N

Downstream UTM: 546073 E, 6979553 N

Water Quality:	
Time	13:30
Temperature	15.0°C
Conductivity	N/A
pH	N/A
DO	8 to 10 mg/L

Channel:	
Stream length surveyed	340.0 m
Mean channel width	4.8 m
Mean flooded width	10.2 m
Discharge	N/A

Fish Captured / Observed:

Method	Capture (n)	Size range	Effort
E-fishing	—	—	222 s
Observations	NNST (10)	<100 mm	—
Egg sampling	—	—	—

* N/A = Not Assessed

PROJECT

COMAPLEX
MELIADINE WEST GOLD PROJECT

TITLE

AQUATIC HABITAT SUMMARY FOR SITE M13.3

Golder Associates Edmonton, Alberta

PROJECT	07.1373.0055.4000		FILE No.		1732941
DESIGN	RP	30/09/08	SCALE	AS SHOWN	REV. 0
CADD	FN	21/10/08			
CHECK	RP	20/11/08			
REVIEW	JP	20/11/08			

FIGURE: G8

N:\CAD\2007\1373\0055 Meliande West Gold Project\4000\c08 – 1732941 site m13.3.dwg Nov 21, 2008 – 8:47am



Photo 060 - Downstream view from 50 m upstream from watercourse outlet.



Photo 061 - Upstream view from 50 m upstream from watercourse outlet.



Photo 063 - Downstream view from 100 m upstream from watercourse outlet.



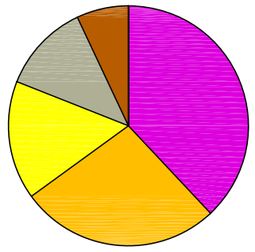
Photo 067 - View of ponded water and proposed left bank approach.



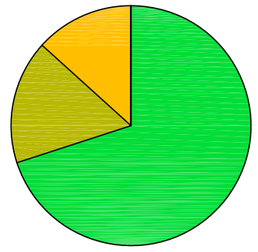
REFERENCE

IMAGE OBTAINED FROM COMAPLEX MINERALS CORPORATION. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 15

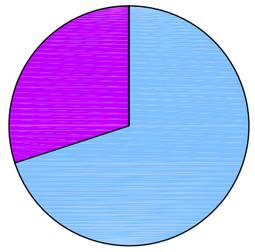
200 0 200
SCALE METRES



SUBSTRATE
- DETRITUS
- FINES
- GRAVEL
- COBBLE
- BOULDER



INSTREAM COVER
- VEGETATION
- BOULDER GARDENS
- UNDERCUT BANKS



HABITAT TYPE
- RIFFLES
- RUNS
- POOLS

Site M22.6
Date of Survey: June 17, 2008

Upstream UTM: 541223 E, 6985481 N

Downstream UTM: 541281, E 6985602 N

Water Quality:

Time	09:30
Temperature	9.6°C
Conductivity	63.6 µS/cm
pH	7.5
DO	9-10 mg/L

Channel:

Stream length surveyed	180.0 m
Mean channel width	9.0 m
Mean flooded width	33.3 m
Discharge	N/A

Fish Captured / Observed:

Method	Capture (n)	Size range (mm)	Effort
E-fishing	NNST (2)	28-68	398 s
Observations	NNST (25)	<100	—
Egg sampling	—	—	—

* N/A = Not Assessed

PROJECT

COMAPLEX
MELIADINE WEST GOLD PROJECT

TITLE

AQUATIC HABITAT SUMMARY FOR SITE M22.6

Golder Associates Edmonton, Alberta

PROJECT 07.1373.0055.4000			FILE No.		1732942
DESIGN	RP	30/09/08	SCALE AS SHOWN	REV.	0
CADD	FN	21/10/08			
CHECK	RP	20/11/08			
REVIEW	JP	20/11/08			

FIGURE: G9

N:\CAD\2007\1373\0055 Meliadine West Gold Project\4000\c09 – 1732942 site m22.6.dwg Nov 21, 2008 – 8:49am



Photo 034 - Slimy sculpin.



Photo 045 - Upstream view of single channel from 50 m upstream from proposed crossing.



Photo 047 - Upstream view from 100 m upstream from proposed crossing location.



Photo 048 - Downstream view from 100 m upstream from proposed crossing location.

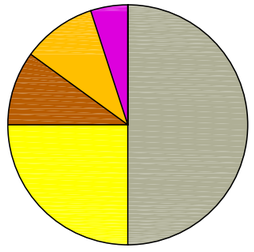


REFERENCE

IMAGE OBTAINED FROM COMAPLEX MINERALS CORPORATION. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 15

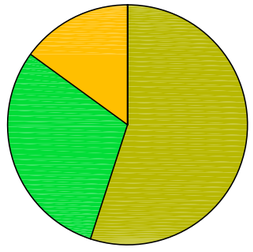
100 0 100

SCALE METRES



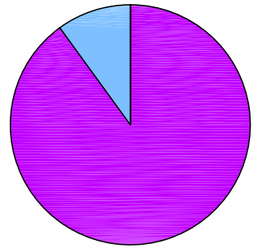
SUBSTRATE

- DETRITUS
- FINES
- GRAVEL
- COBBLE
- BOULDER



INSTREAM COVER

- VEGETATION
- BOULDER GARDENS
- UNDERCUT BANKS



HABITAT TYPE

- RIFFLES
- RUNS
- POOLS

Site M23.7
Date of Survey: June 17, 2008

Upstream UTM: 541133 E, 6986401 N

Downstream UTM: 541192 E, 6986312 N

Water Quality:	
Time	12:30
Temperature	12.4°C
Conductivity	119.9 µS/cm
pH	7.7
DO	10 - 12 mg/L

Channel:	
Stream length surveyed	140.0 m
Mean channel width	2.2 m
Mean flooded width	43.0 m
Discharge	N/A

Fish Captured / Observed:

Method	Capture (n)	Size range (mm)	Effort
E-fishing	NNST (18) SLSC(3)	38-67 69-94	409 s
Observations	ARGR (1)	250	—
Egg sampling	—	—	—

* N/A = Not Assessed

PROJECT

COMAPLEX
MELIADINE WEST GOLD PROJECT

TITLE

AQUATIC HABITAT SUMMARY FOR SITE M23.7

Golder Associates
Edmonton, Alberta

PROJECT 07.1373.0055.4000			FILE No.		1732943
DESIGN	RP	30/09/08	SCALE	AS SHOWN	REV. 0
CADD	FN	21/10/08			
CHECK	RP	20/11/08			
REVIEW	JP	20/11/08			

FIGURE: G10

N:\CAD\2007\1373\0055 Meliande West Gold Project\4000\c10 - 1732943 site m23.7.dwg Nov 21, 2008 - 8:56am



Photo 513 - Downstream view from 100 m upstream from proposed crossing location.



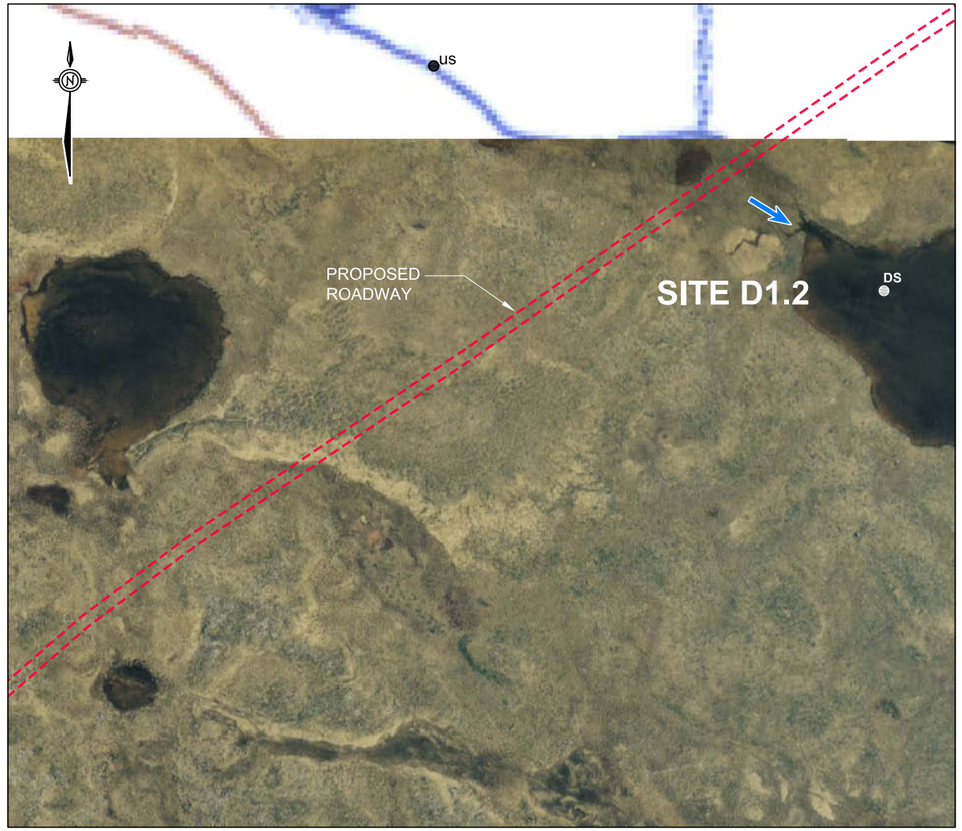
Photo 514 - Upstream view from 200 m upstream from proposed crossing location.



Photo 515 - Downstream view from 200 m upstream from proposed crossing location.



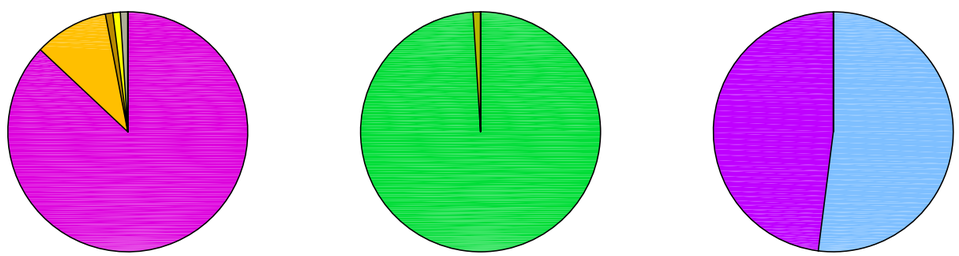
Photo 516 - Upstream view of ponded water 300 m upstream from proposed crossing location.



REFERENCE

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100 0 100
SCALE METRES



Site D1.2
Date of Survey: June 20, 2008

Upstream UTM: 546835 E, 6981369 N

Downstream UTM: 547190, E 6981152 N

Water Quality:

Time	14:45
Temperature	20°C
Conductivity	N/A
pH	N/A
DO	6 to 8 mg/L

Channel:

Stream length surveyed	530.0 m
Mean channel width	2.4 m
Mean flooded width	63.0 m
Discharge	N/A

Fish Captured / Observed:

Method	Capture (n)	Size range (mm)	Effort
E-fishing	—	—	211 s
Observations	NNST (2)	60-80	—
Egg sampling	—	—	—

* N/A = Not Assessed

PROJECT

COMAPLEX
MELIADINE WEST GOLD PROJECT

TITLE

AQUATIC HABITAT SUMMARY FOR SITE D1.2

Golder Associates
Edmonton, Alberta

PROJECT	07.1373.0055.4000		FILE No.	1732944	
DESIGN	RP	30/09/08	SCALE	AS SHOWN	REV. 0
CADD	FN	21/10/08			
CHECK	RP	20/11/08			
REVIEW	JP	20/11/08			

FIGURE: G11

N:\CAD\2007\1373\0055 Meliande West Gold Project\4000\c11 - 1732944 site d1.2.dwg Nov 21, 2008 - 9:06am



Photo 839 - Juvenile Arctic grayling (FL: 127 mm).



Photo 843 - Upstream view from 50 m downstream from pond outlet..



Photo 848 - Downstream view from 150 m downstream from outlet.



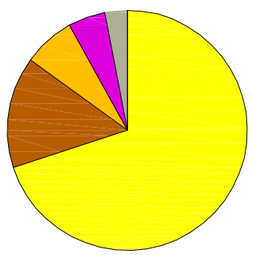
Photo 853 - Arctic grayling egg.



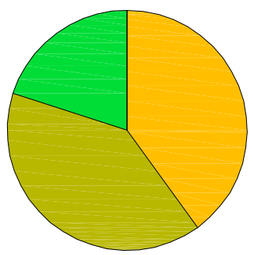
REFERENCE

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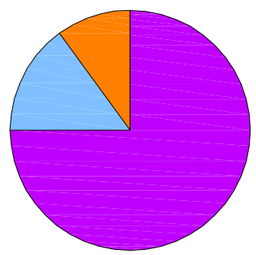
200 0 200
SCALE METRES



SUBSTRATE
- DETRITUS
- FINES
- GRAVEL
- COBBLE
- BOULDER



INSTREAM COVER
- VEGETATION
- BOULDER GARDENS
- UNDERCUT BANKS



HABITAT TYPE
- RIFFLES
- RUNS
- POOLS

Site D5.8
Date of Survey: June 21, 2008

Upstream UTM: 550681 E, 6981814 N
Downstream UTM: 550519 E, 6981899 N

Water Quality:

Time	08:00
Temperature	16.0°C
Conductivity	N/A
pH	N/A
DO	8 to 10 mg/L

Channel:

Stream length surveyed	270.0 m
Mean channel width	2.3 m
Mean flooded width	21.5 m
Discharge	N/A

Fish Captured / Observed:

Method	Capture (n)	Size range (mm)	Effort
E-fishing	NNST (12) ARGR (7)	36-71 67-127	322 s
Observations	NNST (20) ARGR (4)	50-70 100	—
Egg sampling	ARGR (9)	—	10 kicks

* N/A = Not Assessed

NOTE

ROAD ALIGNMENT HAS CHANGED SINCE THE INVESTIGATION.

PROJECT

COMAPLEX
MELIADINE WEST GOLD PROJECT

TITLE

AQUATIC HABITAT SUMMARY FOR SITE D5.8

Golder Associates
Edmonton, Alberta

PROJECT 07.1373.0055.4000			FILE No.		1732945
DESIGN	RP	26/11/09	SCALE AS SHOWN	REV.	0
CADD	FN	26/11/09			
CHECK	RP	26/11/09			
REVIEW	JP	26/11/09			

FIGURE: G12

N:\Bur-Graphics\Projects\2007\1373\07-1373-0055\Source\FromClient\RyanPopowitch\20091103\Old_Data\c12 - 1732945 site d5.8.dwg Nov 26, 2009 - 4:57pm



Photo 772 - Upstream view from



Photo 777 - View of



Photo 778 - View of



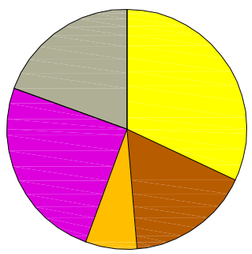
Photo 787 - View of



REFERENCE

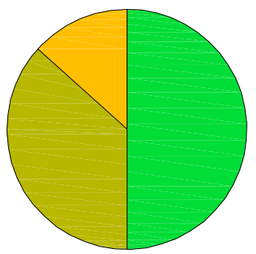
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200 0 200
SCALE METRES



SUBSTRATE

- DETRITUS
- FINES
- GRAVEL
- COBBLE
- BOULDER



INSTREAM COVER

- VEGETATION
- BOULDER GARDENS
- UNDERCUT BANKS

Site D5.8b
Date of Survey: July 15, 2009

Upstream UTM: 550949 E, 6981553 N
Downstream UTM: 550816 E, 6981644 N

Water Quality:

Time	13:15
Temperature	12.4°C
Conductivity	82 us/cm
pH	7.4
DO	11.9 ppm

Channel:

Stream length surveyed	300.0 m
Mean channel width	3.5 m
Mean flooded width	N/A
Discharge	0.032 cms

Fish Captured / Observed:

Method	Capture (n)	Size range (mm)	Effort
E-fishing			
Observations	NNST (10)		
Egg sampling			

* N/A = Not Assessed

PROJECT

COMAPLEX
MELIADINE WEST GOLD PROJECT

TITLE

AQUATIC HABITAT SUMMARY FOR SITE D5.8b

Golder Associates
Edmonton, Alberta

PROJECT 07.1373.0055.4000			FILE No.		1732945
DESIGN	RP	26/11/09	SCALE AS SHOWN	REV.	0
CADD	FN	26/11/09			
CHECK	RP	26/11/09	**FIGURE: G12b**		
REVIEW	JP	26/11/09			

N:\Bur-Graphics\Projects\2007\1373\07-1373-0055\Source\FromClient\RyanPopowitch\20091103\Old_Data\c12 - 1732945 site d5.8 Rev.20091126.dwg Nov 26, 2009 - 4:52pm



Photo 024 - Downstream view from 30 m upstream from proposed crossing location.



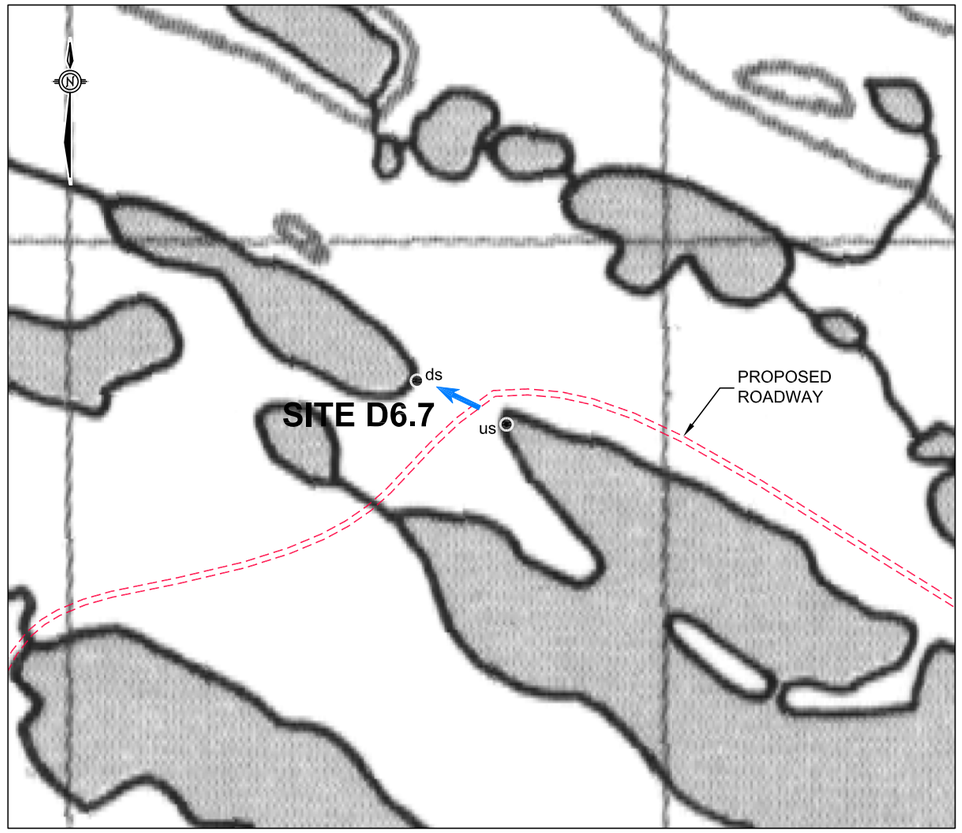
Photo 025 - Upstream view of dispersed water from 30 m upstream from proposed crossing location.



Photo 026 - Upstream view from 60 m upstream from proposed crossing, near end of wetted section.



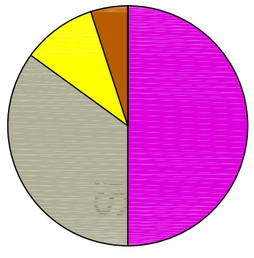
Photo 027 - Downstream view from 60 m upstream from proposed crossing, near end of wetted section.



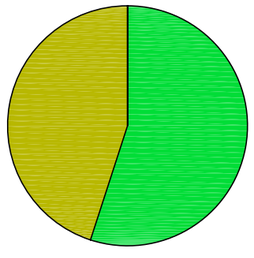
REFERENCE

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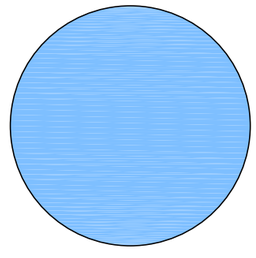
200 0 200
SCALE METRES



SUBSTRATE
- DETRITUS
- FINES
- GRAVEL
- COBBLE
- BOULDER



INSTREAM COVER
- VEGETATION
- BOULDER GARDENS
- UNDERCUT BANKS



HABITAT TYPE
- RIFFLES
- RUNS
- POOLS

Site D6.7
Date of Survey: June 17, 2008

Upstream UTM: 551736 E, 6981927 N

Downstream UTM: 551586 E, 6982000 N

Water Quality:

Time	17:00
Temperature	16.2°C
Conductivity	66.8 µS/cm
pH	7.5
DO	10 to 12 mg/L

Channel:

Stream length surveyed	140.0 m
Mean channel width	4.9 m
Mean flooded width	21.7 m
Discharge	N/A

Fish Captured / Observed:

Method	Capture (n)	Size range (mm)	Effort
E-fishing	—	—	138 s
Observations	—	—	—
Egg sampling	—	—	—

* N/A = Not Assessed

PROJECT

COMAPLEX
MELIADINE WEST GOLD PROJECT

TITLE

AQUATIC HABITAT SUMMARY FOR SITE D6.7

Golder Associates
Edmonton, Alberta

PROJECT 07.1373.0055.4000			FILE No.		1732946
DESIGN	RP	30/09/08	SCALE AS SHOWN	REV.	0
CADD	FN	21/10/08			
CHECK	RP	20/11/08			
REVIEW	JP	20/11/08			

FIGURE: G13

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Appendix G2. Habitat data from stream crossing sites along the Meliadine and Discovery Road Corridors, June 2008 and July 2009.

Parameter	Site M2.1				Site M3.0						Site M3.9						Site M5.0		Site M6.7		
	R1	*R2*	*R3*	*R4*	*Out*	*R1*	*R2*	*R3*	*R4*	*In*	*Out*	*R1*	*R2*	*R3*	*R4*	*In*	*Out*	*In*	*R1*	*R2*	*R3*
Stream Size (m)																					
Length Surveyed	200	200	200	90		50	50	50	50			50	50	50	50	170			50	50	50
Mean Channel Width					0.8	0.2	1.5	1.9	5.0	11.2			2.5	4.1	1.2						
Min Channel Width					0.2	0.2	0.5	0.1	0.2	0.3	0.2		0.8	1.9	1.0	13.9					
Max Channel Width	122	34	48	134	1.4	0.9	2.5	3.6	10.0	22.0	0.8		4.2	6.4	3.3	55.0	28.0	11.9			
Flooded Width	>200	58	102	148	22	38	18	16	10	46	12	50	27	66	34	55			36	26	54
Mean Depth	0.5	1.0	1.0	0.75	0.15	0.08	0.08	0.04	0.08	0.15	0.12	0.1	0.07	0.04	0.08	0.12	0.15	0.35			
Maximum Depth	>1	>1	>1	>1	0.18	0.19	0.12	0.16	0.15	0.22	0.42	0.12	0.1	0.11	0.15	0.17	0.26	0.58			
Channel Type (% Length)																					
Single	100	100	100	100	30	30	30	10					95	80				100			
Double													5								
Multiple Braids					70	40	40	30	15					20	50		100			100	70
Dispersed							30					100			50				100		30
Flooded Banks						30		60	85												
Habitat Type (% Length)																					
Riffles	30	20	10	20			10										5				
Runs	70	70	70	80	70	45	60	10	15				100	100	40		75	100			
Pools		10	20		30	55	30	90	85			100			60		20				
Substrate (% Area)																					
Detritus						80	60	90	70	35	90	50	10	5	90	100		5	85		
Fines (<2 mm)	10	5	10	5			30	10	15	10		50	90	50	10		10	5		90	95
Gravel (2-64 mm)	20	5	20	5	10		10		5	5				20			20	10		10	5
Cobble (65-256 mm)	30	20	20	20	70	15			5	25				20			60	40	5		
Boulder (>256 mm)	40	70	50	70	20	5			5	25	10			5			10	40	10		
Instream Cover (%)																					
Undercut Bank				10						70	50										
Boulder Gardens	95	100	100	90	90	50	10			20	20						80	95			
Vegetation	5				10	50	90	100	100	10	30	100			100	100	20	5			

Notes: R1, R2, etc = individual stream sections; Out = outlet from lake/pond; In = inlet to lake/pond

Golder Associates

Appendix G2. Habitat data from stream crossing sites along the Meliadine and Discovery Road Corridors, June 2008 and July 2009.

Parameter	Site M8.6						Site M11.5					Site M13.3					Site M22.6					Site M23.7			
	Out	*R1*	*R2*	*R3*	*R4*	*In*	*Out*	*R1*	*R2*	*R3*	*In*	*Out*	*R1*	*R2*	*R3*	*In*	*Out*	*R1*	*R2*	*R3*	*In*	*Out*	*R1*	*R2*	*In*
Stream Size (m)																									
Length Surveyed		30	30	30	30	170		100	100	100	80		100	100	100	40		50	50	50	50		50	50	40
Mean Channel Width	1.4	0.8	3.9	4.7	1.6	0.9	5.5	8.4	2.8	3.0	4.4	0.7	8.2	3.8	2.4	7.8	1.1	14.0	0.9	12.0	2.4	13.0	1.2	3.2	3.1
Min Channel Width	0.9	0.6	0.3	0.3	0.4	0.4	0.7	0.6	0.4	0.7	0.8	0.3	0.5	0.5	1.1	1.5	0.8	0.1	0.4	10.0	1.3	10.0	1.3	1.2	0.7
Max Channel Width	1.8	0.9	7.5	9.0	2.8	1.3	10.2	16.0	5.2	5.3	7.9	0.8	16.0	7.0	3.7	14.0	1.4	1.1	3.2	15.0	3.5	16.0	2.2	5.2	5.4
Flooded Width	20	9	12	12	22	16	46	16	16	48	28	0.82	3	9.5	18	44	12	60	15	25	5	42	42	44	48
Mean Depth	0.12	0.1	0.08	0.07	0.08	0.08	0.07	0.08	0.1	0.25	0.11	0.04	0.08	0.1	0.12	0.08	0.09	0.12	0.08	0.17	0.13	0.25	0.25	0.15	0.1
Maximum Depth	0.21	0.2	0.16	0.19	0.2	0.22	0.25	0.18	0.26	0.42	0.29	0.13	0.15	0.59	0.21	0.21	0.18	0.21	0.13	0.41	0.22	0.49	0.43	0.25	0.3
Channel Type (% Length)																									
Single				50					20	40			10	80	10				60						
Double									20																
Multiple Braids							80	90	40	30	80		45	20	30			70		50			100	100	100
Dispersed		100	100	50	100		20	10	20	30	20		45		60			20	40	50					
Flooded Banks																		10							
Habitat Type (% Length)																									
Riffles									40	70	20														
Runs				5	5		80	95	55	20	50			75	20			20	60	10			100	80	90
Pools		100	100	95	95		20	5	5	10	30		100	25	80			80	40	90				20	10
Substrate (% Area)																									
Detritus	95	95	95	95	90	80	80	70	85	5	20	80	70	80	70	70	20	60	10	45	10			10	5
Fines (<2 mm)						5	20	20	10	5	10		30	20	5	10		30	10	40	10	5	10	10	5
Gravel (2-64 mm)						5				30	20				5		10		20		10	5	10	10	10
Cobble (65-256 mm)								5		30	20				10	10	10	5	40	5	10	30	40	10	50
Boulder (>256 mm)	5	5	5	5	10	10		5	5	30	30	20			10	10	60	5	20	10	60	60	40	60	30
Instream Cover (%)																									
Undercut Bank										70	40	30		70		10	10	25	10	5	10	10	10	20	
Boulder Gardens	5	5		5	15	10			5	20	40	30			30	10	70	5	40	5	80	90	70	40	80
Vegetation	95	95	100	95	85	90		100	95	10	20	40	100	30	70	80	20	70	50	90	10		20	40	20

Notes: R1, R2, etc = individual stream sections; Out = outlet from lake/pond; In = inlet to lake/pond

Golder Associates

Appendix G2. Habitat data from stream crossing sites along the Meliadine and Discovery Road Corridors, June 2008 and July 2009.

Parameter	Site D1.2						Site D5.8				Site D5.8b						Site D6.7			
	Out	*R1*	*R2*	*R3*	*R4*	*In*	*Out*	*R1*	*R2*	*In*	*Out*	*R1*	*R2*	*R3*	*R4*	*In*	*Out*	*R1*	*R2*	*R3*
Stream Size (m)																				
Length Surveyed	100	100	100	100	100	100	50	50	50	60	50	50	50	50	50	50		30	30	30
Mean Channel Width	1.2	3.0	0.5	4.0	2.0	0.9	10.5	2.6	1.9	5.4	6.8	4.8	3.0	1.2	3.6	1.7	1.9	2.4	7.5	
Min Channel Width	0.6	0.9	0.4	0.7	0.5	1.8	1.4	1.4	1.2	1.5							1.1	0.9	1.2	
Max Channel Width	1.8	40	28	38	25	2.5	7.9	4.2	2.7	9.3							2.6	3.9	13.7	
Flooded Width	66	60	70	90	32	24	10.5	17.7	25.3	15.7							34	21	25	19
Mean Depth	0.10	0.15	0.20	0.20	0.15	0.10	0.15	0.10	0.10	0.10							0.15	0.05	0.01	
Maximum Depth	0.20	0.38	0.28	0.25	0.42	0.12	0.21	0.23	0.18	0.15		0.36	0.45	0.10	0.10	0.13	0.52	0.10	0.01	
Channel Type (% Length)																				
Single	40	40	90	50	90			10	80	20		90	20	100	100					
Double	10			30						10	100	10								
Multiple Braids	40	30		5			95	80	10	50								100	100	
Dispersed	10	10	5	10	5		5	10	10	20			80			100				
Flooded Banks		20	5	5	5															
Habitat Type (% Length)																				
Riffles								10	10	60										
Runs	80	20	70	10	90		90	70	80											
Pools	20	80	30	90	10		10	20	10	40								100	100	
Substrate (% Area)																				
Detritus	60	70	90	90	95	90		5	5	50		30	70	50			10	90	10	
Fines (<2 mm)	10	20	5	10	5	10	10	10	5	10	10	10		10		10	10			
Gravel (2-64 mm)	5	5					20	20	10	20	30	10	10		20	30			10	
Cobble (65-256 mm)	15	5					30	60	80	10	30	10	10	20	70	50			20	
Boulder (>256 mm)	10		5				40	5		10	30	40	10	20	10	10	80	10	60	
Instream Cover (%)																				
Undercut Bank								40	40			10		10	30	30				
Boulder Gardens	5				5		90	40	40	30	80	40	10	10	30	50	60		90	
Vegetation	95	100	100	100	95	100	10	20	20	70	20	50	90	80	40	20	40	100	10	

Notes: R1, R2, etc = individual stream sections; Out = outlet from lake/pond; In = inlet to lake/pond

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Appendix G3. Backpack electrofishing, egg sampling and in-situ water quality data for stream crossings along the Meliadine and Discovery Road corridors, 2008 and 2009

Site	Date	Time	Location (15V)		Sampling Effort		Water Temp. (°C)	Cond. (µS/cm)	pH (units)	Dis-charge (m^3/s)	Number of Fish Captured or Observed				*Total CPUE (fish/ min)*	Egg Sampling[a]			
			Easting	Northing	(m)	(s)					ARGR	SLSC	NNST	Total		No. Kicks	Prod. Kicks	Total Eggs	Max. Egg/k
M2.1	20-Jun-08	8:30	544788	6971714	690	557	3	-	-	-	1		2	**3**	0.32	4	0	0	0
M3.0	20-Jun-08	12:15	545428	6971863	400	211	11.5	-	-	-			2	**2**	0.57	-			
M3.9	18-Jun-08	15:45	546123	6972091	370	185	9	-	-	-				**0**	0.00	-			
M5.0	18-Jun-08	12:30	546637	6973130	29	293	11	-	-	0.034			220	**220**	45.05	10	0	0	0
M6.7	20-Jun-08	10:45	547397	6974529	150	-	-	-	-	-				**0**	0.00	-			
M8.6	18-Jun-08	7:30	547911	6975912	310	262	10	66.9	7.8	-				**0**	0.00	1	0	0	0
M11.5	19-Jun-08	16:15	547445	6978313	380	520	15	-	-	2.560	6		38	**44**	5.08	6	0	0	0
M13.3	19-Jun-08	13:30	546287	6979542	340	222	15	-	-	-			10	**10**	2.70	-			
M22.6	17-Jun-08	9:30	541243	6985579	180	398	9.6	63.6	7.5	-			27	**27**	4.07	-			
M23.7	17-Jun-08	12:30	541182	6986353	140	409	12.4	119.9	7.7	-	1	3	18	**22**	3.23	-			
D1.2	20-Jun-08	14:45	547004	6981213	530	211	20	-	-	-			2	**2**	0.57	-			
D5.8	21-Jun-08	8:00	550598	6981861	270	322	16	-	-	-	11		32	**43**	8.01	10	2	9	8
D5.8b	15-Jul-09	13:00	550911	6981544	300	-	12.4	82.0	7	0.032			10	**10**	0.00	-			
D6.7	17-Jun-08	17:00	551680	6981952	140	138	16.2	66.8	7.5	-				**0**	0.00	-			
Total					**4229**	**3728**					**19**	**3**	**361**	**383**	**6.16**	**31**	**2**	**9**	**8**

[a] No. Kicks = number of 0.1 m^2 areas sampled; Prod. Kicks = number of kicks with eggs present; Total Eggs = total number of eggs collected; Max. Egg/k = maximum number of eggs collected in one kick; - = not assessed

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