6-K: Portt 2015 Whale Tail Pit Baseline Report

It should be noted that this historical baseline report (Appendix 6-K) was reviewed and received conformity approval as part of the Approved Project FEIS submission (Agnico Eagle 2016c), and then final approval under Project Certificate No. 008. This baseline report remain unchanged.

WHALE TAIL PIT 2015 FISH AND FISH HABITAT FIELD INVESTIGATIONS: AGNICO EAGLE MINES LTD. - MEADOWBANK DIVISION

Submitted to:

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EXECUTIVE SUMMARY

Agnico Eagle Mines Limited: Meadowbank Division (Agnico Eagle) is proposing to develop Whale Tail Pit, a satellite deposit on the Amaruq property, in continuation of mine operations and milling of the Meadowbank Mine. Preliminary field investigations were undertaken in September 2014, which included aerial reconnaissance and photographing the study area by helicopter and two gill net sets in the three largest lakes in the study area. In 2015, field investigations examining fish and fish habitat in the Whale Tail Pit study area were undertaken during the period June 19 – August 30. The 2015 field investigations focussed on Whale Tail Lake and Mammoth Lake, and the tributary watercourses and smaller lakes within the study area that are most likely to be affected by future mining activity.

The primary activities conducted in 2015 were:

- downstream reconnaissance to determine if there are barriers to upstream fish migration,
- deployment of hoop nets on potential migration routes at the beginning of the field season to detect spring migrations if they occurred,
- habitat characterization, visual inspections for spawning fishes, and fish sampling to determine seasonal fish use using electrofishing and large minnow traps, in the tributaries to Whale Tail Lake,
- fish sampling in Whale Tail Lake and Mammoth Lake using gill nets, shoreline electrofishing and minnow traps to characterize the fish community,
- habitat characterization and fish sampling to determine species presence:absence, by gill netting and shoreline electrofishing, in smaller lakes and ponds with surface connections to Whale Tail Lake during the summer,
- collection of tissue samples from Lake Trout in Whale Tail Lake and Mammoth Lake for the determination of the concentrations of mercury and other metals,
- characterization of periphyton development at locations in Whale Tail Lake, Lake A53 and Mammoth Lake.

A total of six fish species were captured, comprised of four large-bodied species (Lake Trout , Arctic Char, Round Whitefish and Burbot) and two small-bodies species (Slimy Sculpin and Ninespine Stickleback). Lake Trout were the most abundant in gill net catches and the most widely distributed among the lakes, followed by Round Whitefish and Arctic Char. Only one Burbot was captured. Low numbers of juvenile Arctic Char and juvenile Lake Trout were captured in some of the Whale Tail Lake tributaries. Ninespine Stickleback and Slimy Sculpin were widely distributed in the larger lakes and in the tributaries.

Netting catch per unit effort was low for all species. In Mammoth, Whale Tail and Nemo Lakes combined, average catch per unit effort in gill nets, calculated as the number of individuals captured per hour of soak time using a standard AEM gill net was 0.5, 0.1 and 0.01 for Lake Trout, Round Whitefish and Arctic Char, respectively. Large mesh hoop nets set between June 19 and July 13, 2015, in areas where there was thought to be potential for fish movement between lakes caught one Lake Trout and one Arctic Char in 3000 hours of soak time. In total, electrofishing 1,978 m of lake shoreline resulted in

the capture of 145 Ninespine Stickleback, 55 Slimy Sculpin, 2 juvenile Arctic Char and 3 juvenile salmonids, either Arctic Char or Lake Trout, which were not identified to species. There were, however, several isolated or nearly isolated small lakes and ponds in which no fish were captured. Most of these were located north of Whale Tail Lake.

Electrofishing effort on study area tributaries over the 2015 field season totalled 24,709 electroseconds and 3,569 m. The most abundant species in the catches was Ninespine Stickleback (n=469) followed by Slimy Sculpin (n=237). Low numbers of juvenile Arctic Char (n=13), juvenile Lake Trout (n=8), as well as one juvenile each of Round Whitefish and Burbot were captured in the tributaries. Juvenile Arctic Char were captured by electrofishing in five of the tributaries to Whale Tail Lake and juvenile Lake Trout were captured in three. Large minnow traps set in tributaries caught 9 Slimy Sculpin and 1 juvenile Round Whitefish in 2640 hours of soak time.

There were several isolated or nearly isolated small lakes and ponds in which no fish were captured. There was only interstitial flow connection during the 2015 spring freshet between Whale Tail Lake and four of the larger lakes that drain to it. This was also the case for two lakes that drain to Mammoth Lake. The connection between Whale Tail and Mammoth Lake had only interstitial flow once water levels and flows subsided.

No Arctic Grayling were observed or captured in the study area. Their apparent absence is consistent with the paucity of suitable spawning habitat and absence of riverine adult habitat in the tributaries to Mammoth and Whale Tail Lake.

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1.0 INTRODUCTION

Agnico Eagle Mines Limited: Meadowbank Division (Agnico Eagle) is proposing to develop Whale Tail Pit, a satellite deposit on the Amaruq property, in continuation of mine operations and milling of the Meadowbank Mine. The Amaruq Exploration property is a 408 square kilometre (km^2) site located on Inuit Owned Land approximately 150 kilometres (km) north of the hamlet of Baker Lake and approximately 50 km northwest of the Meadowbank Mine in the Kivalliq region of Nunavut (**Figure 1-1**). The property was acquired by Agnico Eagle in April 2013 subject to a mineral exploration agreement with Nunavut Tunngavik Incorporated.

The Meadowbank Mine is an approved mining operation and Agnico Eagle is looking to extend the life of the mine by constructing and operating Whale Tail Pit (referred to in this document as the Project). As an amendment to the existing operations at the Meadowbank mine, it is subject to an environmental review established by Article 12, Part 5 of the *Nunavut Land Claims Agreement* (NLCA). Baseline data have been collected in support of the Environmental Review to document existing conditions and to provide the foundation for a qualitative and quantitative assessment of project operations and the extension of the mine development, to be evaluated in the Environmental Impact Statement (EIS) for the Project.

Preliminary field investigations were undertaken by C. Portt and Associates in September 2014. On September 2, 2014, oblique aerial photographs were taken from a helicopter of the shoreline and near-shore of Mammoth Lake, Whale Tail Lake, Nemo Lake and adjacent smaller lakes and ponds. In addition, two gill net sets were conducted in each of Mammoth Lake, Whale Tail Lake and Nemo Lake from September 4-6, 2014. In 2015, field investigations examining fish and fish habitat in the Whale Tail Pit study area were undertaken by C. Portt and Associates during the period June 19 – August 30. The 2015 field investigations focussed on Whale Tail Lake and Mammoth Lake, and the tributary watercourses and smaller lakes within the study area that are most likely to be affected by future mining activity. Preliminary field investigations conducted in September of 2014 had determined that Lake Trout (*Salvelinus namaycush*) and Arctic Char (*Salvelinus alpinus*) were present in Whale Tail Lake.

The primary activities conducted in 2015 were:

- downstream reconnaissance to determine if there are barriers to upstream fish migration,
- deployment of hoop nets on potential migration routes at the beginning of the field season to detect spring migrations if they occurred,
- habitat characterization, visual inspections for spawning fishes, and fish sampling to determine seasonal fish use using electrofishing and large minnow traps, in the tributaries to Whale Tail Lake,
- fish sampling in Whale Tail Lake and Mammoth Lake using gill nets, shoreline electrofishing and minnow traps to characterize the fish community,
- habitat characterization and fish sampling to determine species presence:absence, by gill netting and shoreline electrofishing, in smaller lakes and ponds with surface connections to Whale Tail Lake during the summer,

- collection of tissue samples from Lake Trout in Whale Tail Lake and Mammoth Lake for the determination of the concentrations of mercury and other metals,
- characterization of periphyton development at locations in Whale Tail Lake, Lake A53 and Mammoth Lake.

This report documents the methods and results of these investigations.

1.1 Scope

This report presents the investigations of fish and fish habitat conducted in the Whale Tail Pit study area based on field work conducted during the period June 19 to August 30, 2015.

1.2 Objectives

- Characterize the existing fish and fish habitat conditions in Mammoth Lake, Whale Tail Lake, and smaller lakes and watercourses that would potentially be impacted by future mining.

- Collect fish tissue samples from Mammoth Lake and Whale Tail Lake for metals, including mercury, determinations.

1.3 Physical Setting

The study area is located on the Canadian Shield within a Low Arctic ecoclimate of continuous permafrost, which is one of the coldest and driest regions of Canada (Azimuth, 2010). The lakes within the Whale Tail pit study area are ultra-oligotrophic/oligotrophic (nutrient poor, unproductive) headwater lakes that are typical of the Arctic. The ice-free season on the lakes is very short. Ice break-up usually occurs during mid- to late-June, and ice begins to form again on the lakes in late September or early October. Complete ice cover is attained by late October, with maximum ice thickness of about 2 m occurring in March/April (Azimuth, 2013). Many small watercourses become dry once the land begins to freeze in the fall and, where water is present, most freeze to the bottom during the winter (BAER, 2005; Jones *et al*, 2010). Flows during the spring melt and the summer vary with drainage area.

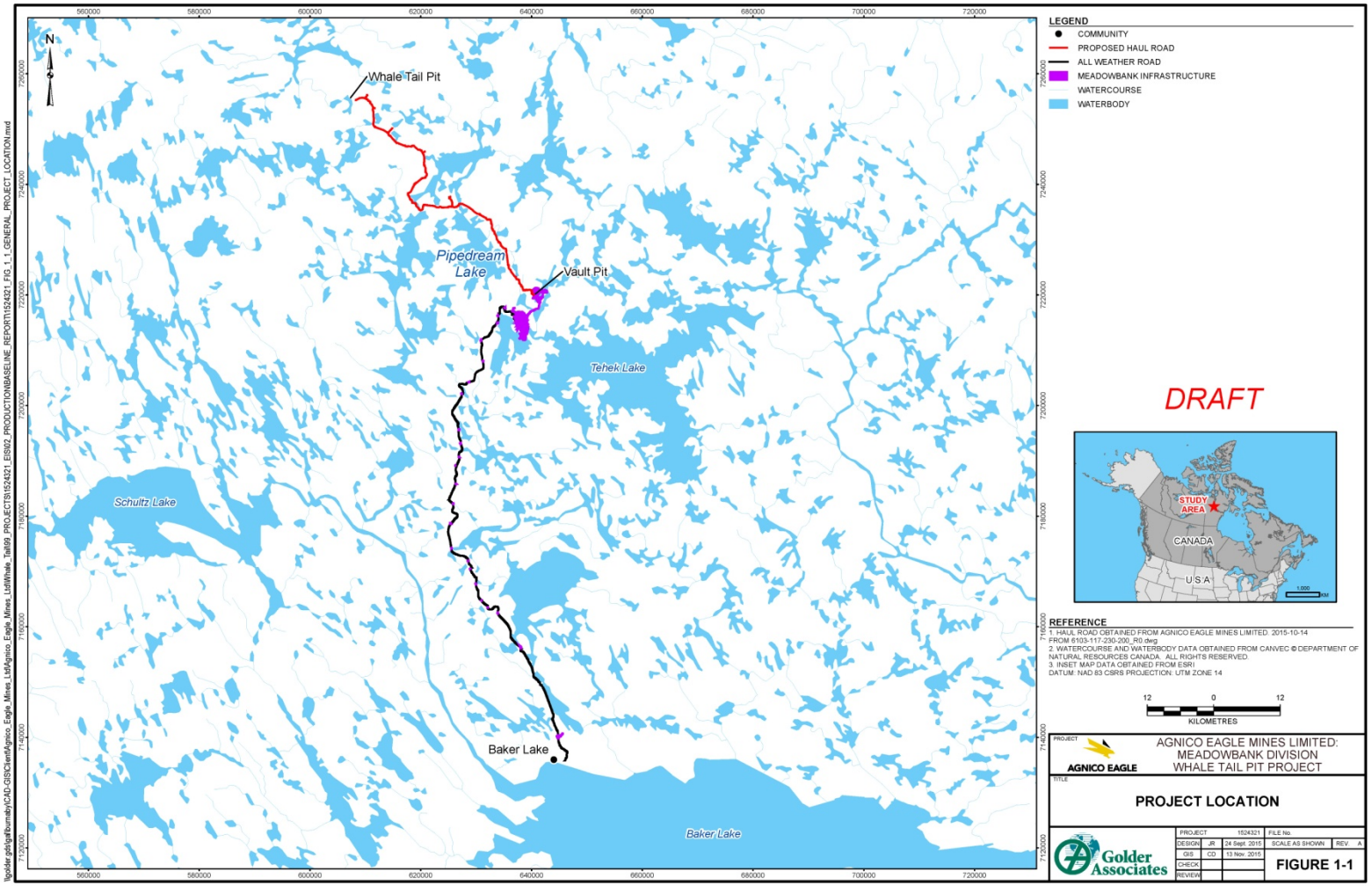

Figure 1-1. Location of the proposed Whale Tail Pit Study Area.

2.0 RECONNAISANCE TO ASSESS THE POTENTIAL FOR FISH PASSAGE FROM DOWNSTREAM

2.1 Methods

The hydrologic setting of the study area is shown in **Figure 2-1**. The lakes were assigned alpha-numeric codes to facilitate discussion, with the letter designating the subwatershed and, within each branch, the number increasing in an upstream direction. The primary study area is in the headwaters of subwatershed A, which drains via a series of lakes and connecting channels to a large lake downstream, labelled DS1.

On June 19, 2015, the lakes and connecting channels were observed and photographed, from the air, from the outlet of Mammoth Lake downstream to the connecting channel between lakes A10 and A9. On that date the spring melt was well underway, but ice still covered most of the surface of the lakes. No barriers to fish movement were observed. On July 4, 2015, the outlet of Mammoth Lake was examined and photographed on the ground. On July 12, 2015, the connecting watercourses from the outlet of Mammoth Lake downstream to the outlets of lake A75 were observed and photographed from the air, and the channel connecting lakes A76 and A75 was examined on the ground on July 13, 2015. On July 23, 2015, a video was taken from the air, flying from lake DS1 upstream along the lakes and connecting channels to lake A11, and the two outlets of lakes A12 and A76 were examined on the ground.

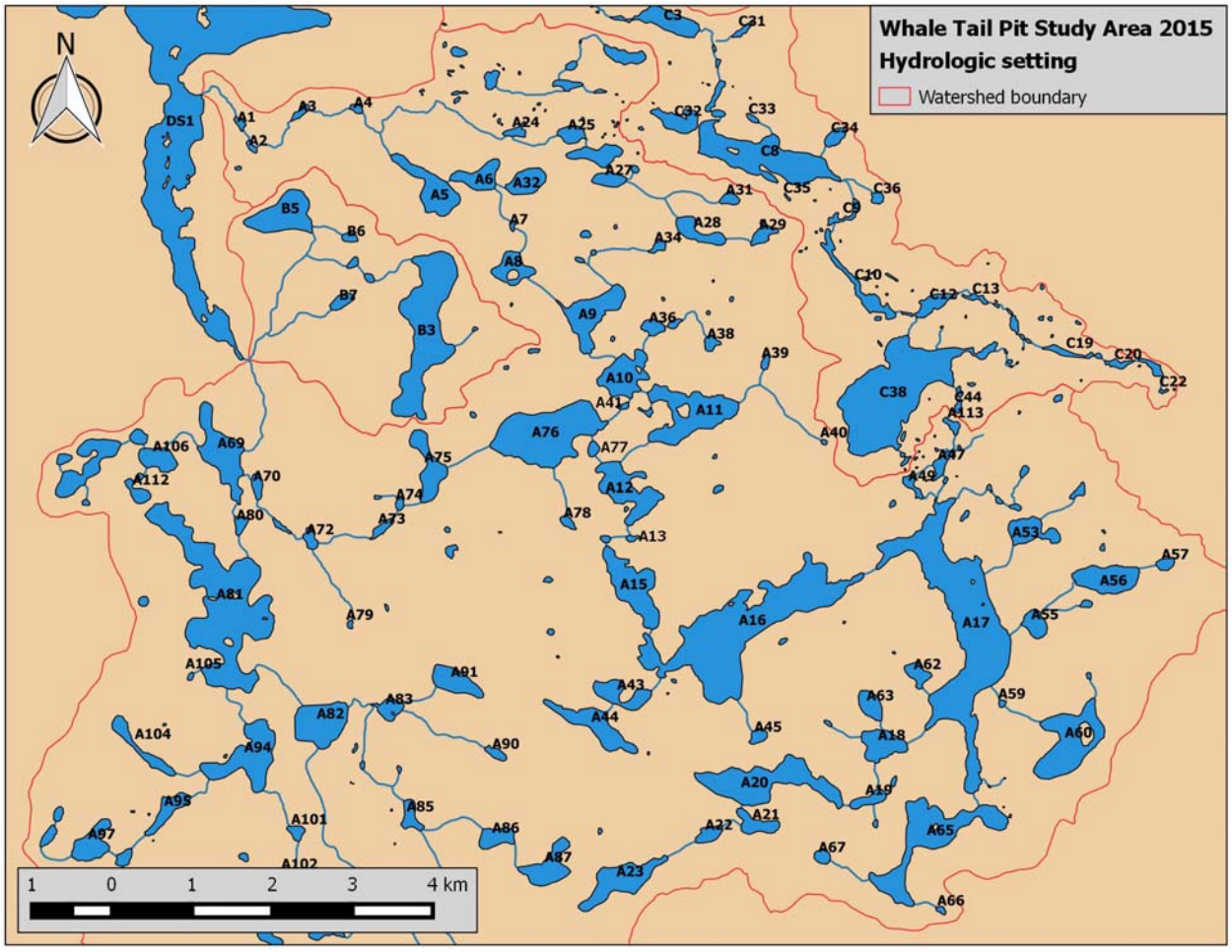

Figure 2-1. Hydrologic setting and lake identification codes. Mammoth Lake is A16 and Whale Tail Lake is A17.

2.2 Results

There was surface flow through the connecting channels and no barriers to fish movement were observed between lake A9 and Mammoth Lake on June 19, 2015. There was no barrier to fish movement between Mammoth Lake and lake A15 on July 4, 2015, although most of the rapids was less than 20 cm deep.

There are two locations downstream from Mammoth Lake where water flows out of a lake in two directions. There is flow from lake A12 to lake A11 and also to lake A77. There is flow from lake A76 to lake A75 and to lake A10. The connection between lakes A76 and A75 is via a boulder feature that is over 0.5 km long (**Figure 2-2**). Based on the aerial reconnaissance on July 12 and examination of watercourse A76-A75 on the ground on July 13 and July 23, 2015, it

is considered unlikely that there is ever a surface connection that would allow large fish passage between these two lakes.

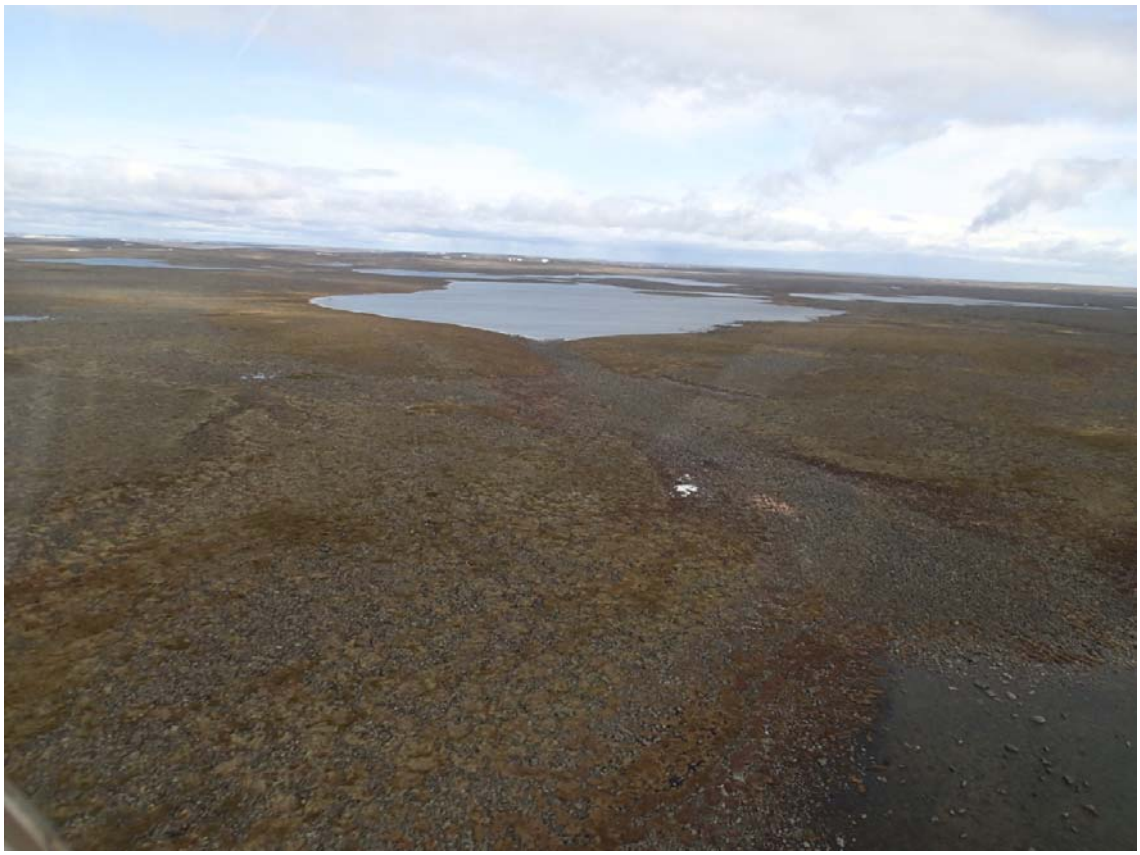

Figure 2-2. Connecting channel between lake A75 (foreground) and lake A76. July 12, 2015.

The primary flow path and the most likely route for fish passage, if it occurs, between lake DS1 and Mammoth Lake is via lakes A1-A2. . . . A10-A11-A12, etc. Via this route, the distance between lake DS1 and the outlet of Mammoth Lake, estimated from satellite imagery, is approximately 12.2 km. No waterfall or other vertical barrier to upstream fish migration was observed between lake DS1 and Mammoth Lake along this route, and large fish passage may be possible during the spring freshet. There are, however, a number of connecting channels where there is no surface connection, only interstitial flow, after water levels and flows decrease. Based on the July 12, 2015, aerial reconnaissance and photographs, large fish passage between lakes A13 and A12, between lakes A12 and A11, and between lakes A76 and A41 would have been difficult, if not impossible, under the prevailing flow conditions because there was only interstitial flow in portions of those connecting channels. The connections between lakes A10 and A76 (**Figure 2-3**), lakes A11 and A12 (**Figure 2-4**) and lakes A77 and A12 (**Figure 2-5**) were all considered impassable to large fish when examined on the ground on July 23, 2015. Based on the July 23, 2015, observations and a review of the aerial video taken on that date, it is thought that large fish passage would have been difficult or impossible on that date due to interstitial flow in portions of each of the connecting channels from lake A10

downstream to lake A6 and from the downstream end of lake A5 to where the tributary from lake A24 enters, approximately 9 km downstream from the Mammoth Lake outlet. There were no significant impediments to flow observed from that point downstream to Lake DS1.

Figure 2-3. Connecting channel between lake A10 and lake A76. July 23, 2015.

Figure 2-4. Connecting channel between lakes A11 and A12. July 23, 2015.

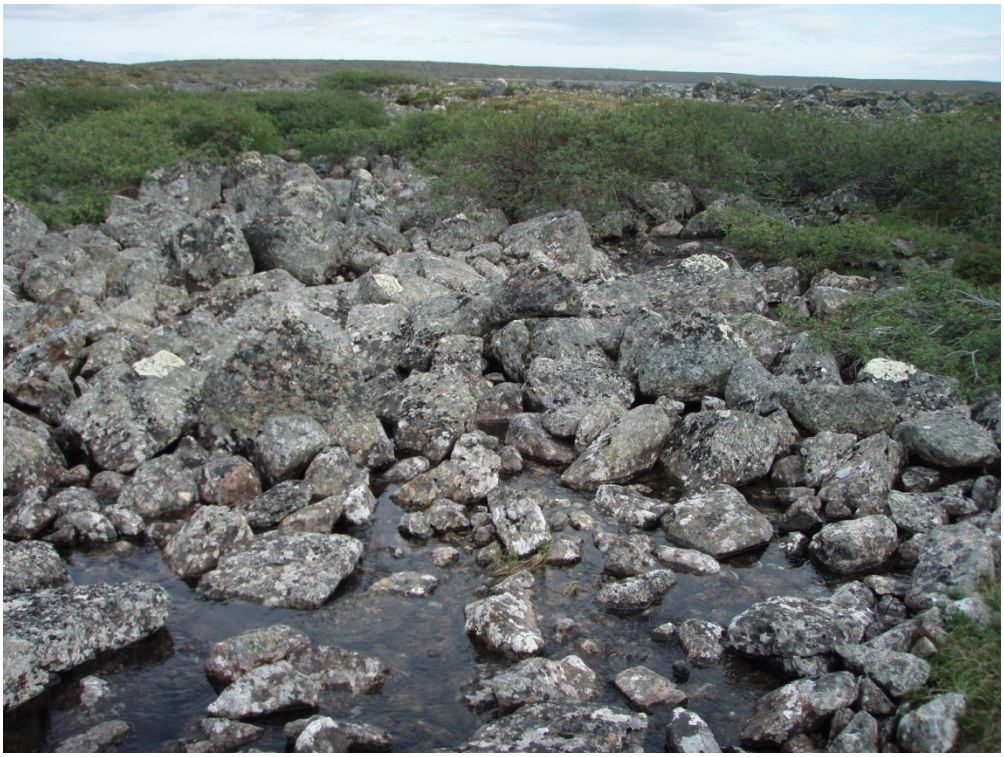

Figure 2-5. Connecting channel between lakes A77 and A12. July 23, 2015.

3.0 HOOP NETTING ON POTENTIAL MIGRATION ROUTES

3.1 Methods

Large-mesh hoop nets were set at four general locations (**Figure 3-1**): in the outlet from Mammoth Lake (LHN1; June 19-July 4), in the narrows between Mammoth and Whale Tail Lake (LHN2 and LHN3; June 19 – July 13), at the south end of Whale Tail Lake near the mouth of tributary A18-A17 (LHN4; June 26-July 13) and at the mouth of tributary A55-A17 (LHN5, June 26-July 13). These nets were constructed of 4.75 cm stretch mesh and are 3 m long. The D-shaped front 'hoop' was 0.76 m high with a 0.51 m base, followed by four circular hoops, with 0.14 m diameter funnel throats attached to the first and third circular hoops. The wings were 0.76 m high and constructed of the same 4.75 cm stretch mesh. Four of these nets (nets 2, 3, 4 and 5, **Table 3-1**) had 3 m long wings and two (nets 1 and 6, **Table 3-1**) had 6 m long wings. No leaders were attached.

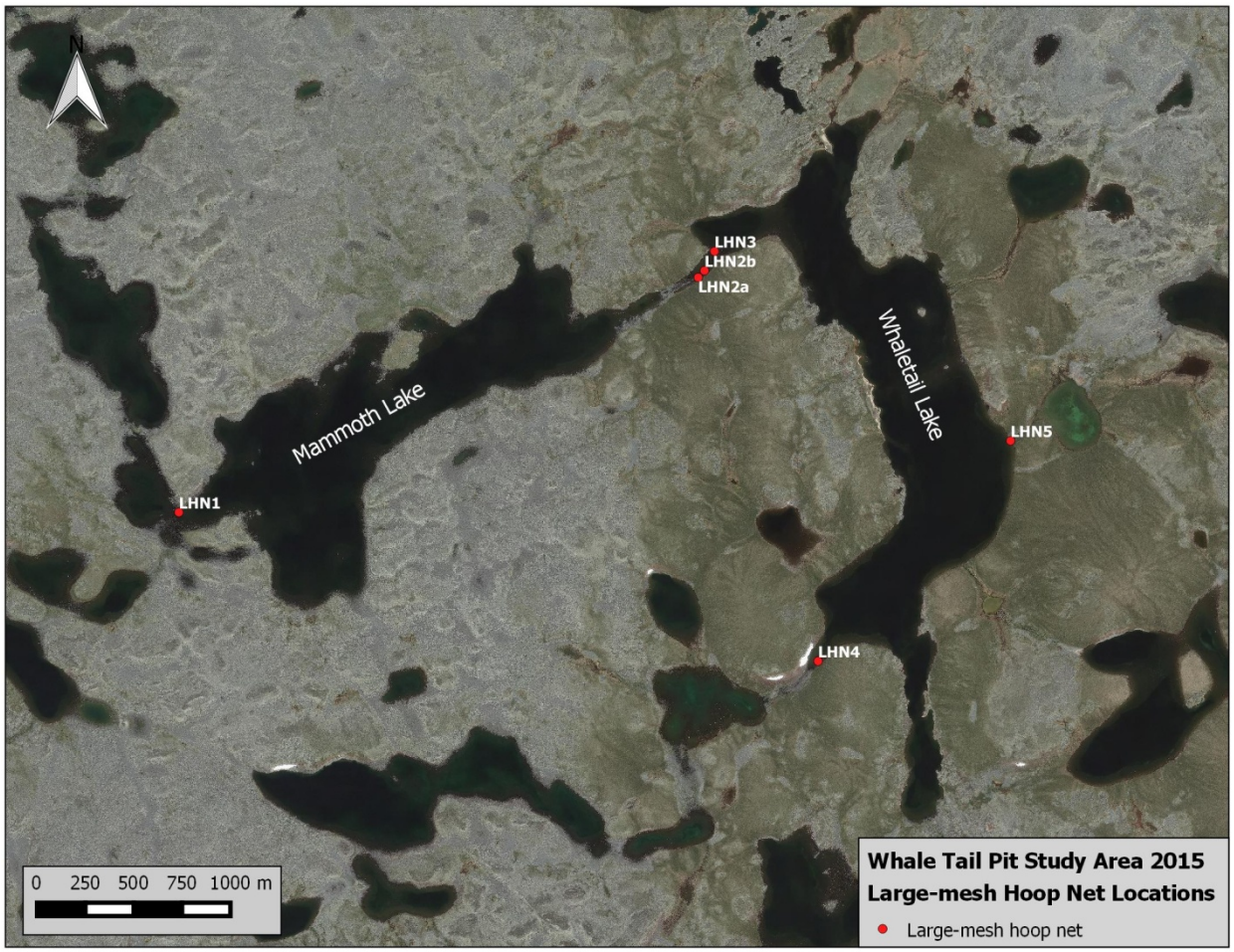

Figure 3-1. Locations where large-mesh hoop nets were set in 2015.

One net was deployed, facing downstream, in a narrows near the outlet of Mammoth Lake (LHN1) and in the narrows between Whale Tail and Mammoth lakes (LHN2a) on June 19, 2015. A second net was deployed at each of these locations, also facing downstream, on June 21, 2015. On June 27, 2015, one net at each of those locations was reversed to face upstream. At the outlet of Mammoth Lake water levels fell to below the first funnel in the net that was facing upstream between June 27 and July 3. The net was repositioned so that the funnels were all at least half submerged when it was lifted and redeployed on July 3. By July 4, 2015, however, the water level at the narrows near the outlet of Mammoth Lake had fallen to the point that there was no longer sufficient depth to deploy the large-mesh hoop nets. The two nets from that location were removed and redeployed, at Location LHN3, in the narrows between Whale Tail and Mammoth lakes, with one net facing upstream and the other facing downstream. The large-mesh hoop nets initially set in the narrows between Whale Tail and Mammoth lakes were moved to a deeper area (from LHN2a to LHN2b), approximately 50 m upstream from where they were originally deployed, on June 28, 2015. The net deployed in Whale Tail Lake near the mouth of tributary A18-A17 (LHN4) and at the mouth of tributary A55-A17 both faced downstream and remained in the same location for the duration of their deployments. The nets were typically lifted and redeployed daily, but longer soak times occurred on occasion due to weather conditions and other logistic factors.

3.2 Results

Dates of deployment and removal, the direction (upstream or downstream) that the opening of the net was facing, and total soak time are provided in Table 3-1. The dates and times that each net was checked for fish are provided in Appendix A. In a total of 3000 hours of soak time, only two fish were captured by the large-mesh hoop nets. Both of these fish, one lake trout (fork length=69 cm) and one Arctic Char (fork length=27cm) were entangled in a wing of the net at LHN5, at the mouth of tributary A55-A17, on July 6, 2015, while the net was being checked.

Table 3-1. Large-mesh hoop nets locations, deployment and removal dates, net orientation and total soak time. Refer to Figure 3-1 for locations.

Location description	Location code	Net #	Opening facing	Date set	Date removed	Total soak time (days)
Narrows near outlet of Mammoth Lake	LHN1	1	downstream	June 19, 2015	July 4, 2015	15
		3	downstream	June 21, 2015	June 27, 2015	6
			upstream	June 27, 2015	July 4, 2015	7[1]
Between Whale Tail and Mammoth Lakes	LHN2a	2	downstream	June 19, 2015	June 27, 2015	8
			upstream	June 27, 2015	June 28, 2015	1
		4	downstream	June 21, 2015	June 28, 2015	7
	LHN2b	2	upstream	June 28, 2015	July 13, 2015	15
		4	downstream	June 28, 2015	July 13, 2015	15
	LHN3	1	upstream	July 4, 2015	July 13, 2015	9
		3	downstream	July 4, 2015	July 13, 2015	9
South end of Whale Tail Lake	LHN4	6	downstream	June 26, 2015	July 13, 2015	17
Whale Tail tributary A55-A17	LHN5	5	downstream	June 26, 2015	July 13, 2015	17

1. Front funnel was not submerged when lifted on July 3.

4.0 FISH SAMPLING IN WHALE TAIL, MAMMOTH AND NEMO LAKES

In 2014 fish sampling was limited to two gill net sets in each of Whale Tail, Mammoth and Nemo Lakes. In 2015, short-duration and overnight gill netting, shoreline electrofishing and minnow trapping were undertaken to characterize the fish communities in Whale Tail and Mammoth Lakes. Two overnight sets of small-mesh hoop nets were also conducted in Whale Tail Lake in 2015. Fish sampling in Nemo Lake, which is not expected to be directly affected by the project, was limited to two gill net sets in 2015. The sampling locations are shown in Figure 4-1, Figure 4-2, and **Figure 4-3** for Mammoth, Whale Tail and Nemo Lakes, respectively.

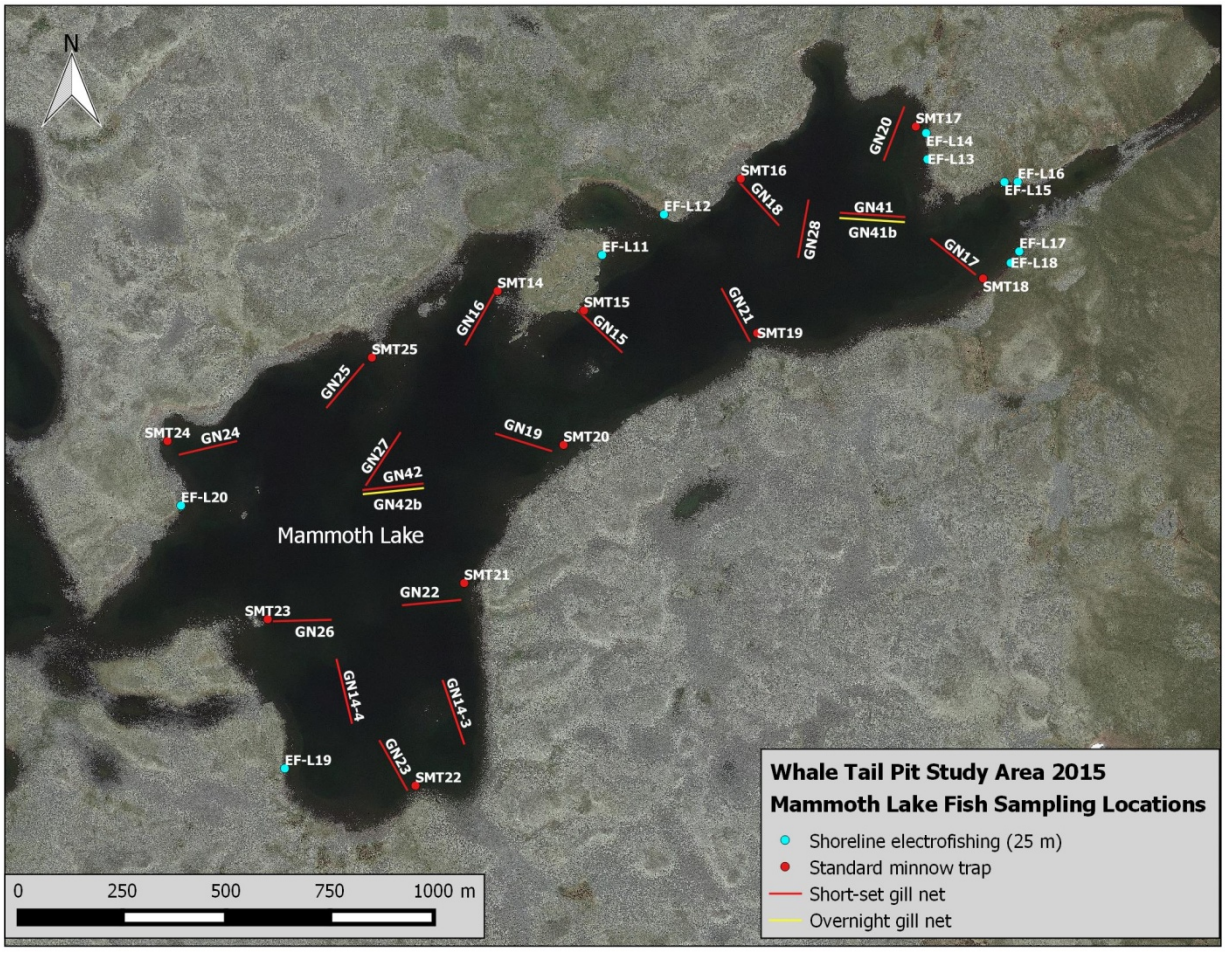

Figure 4-1. Fish sampling locations in Mammoth Lake in 2014 and 2015.

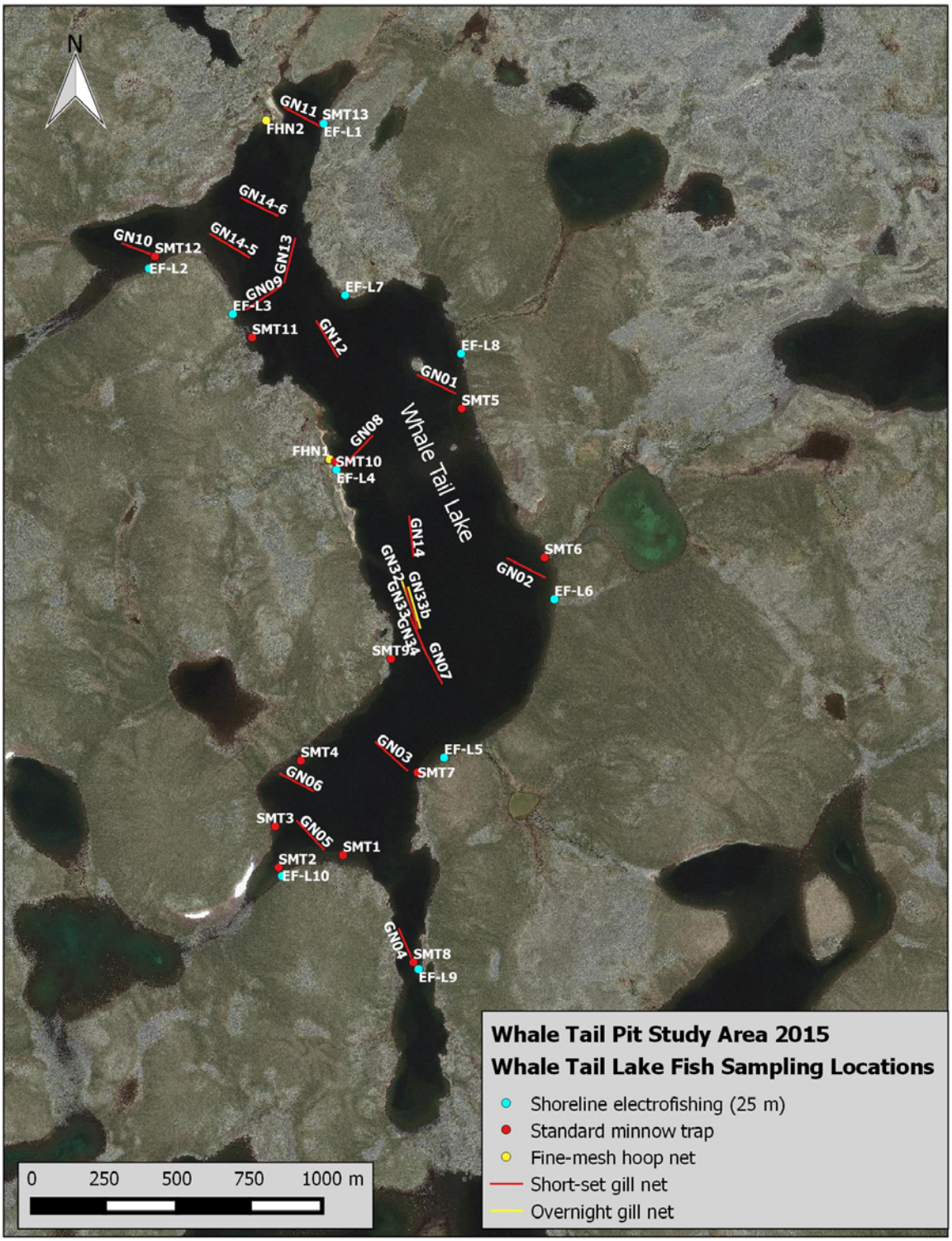

Figure 4-2. Fish sampling locations in Whale Tail Lake in 2014 and 2015.

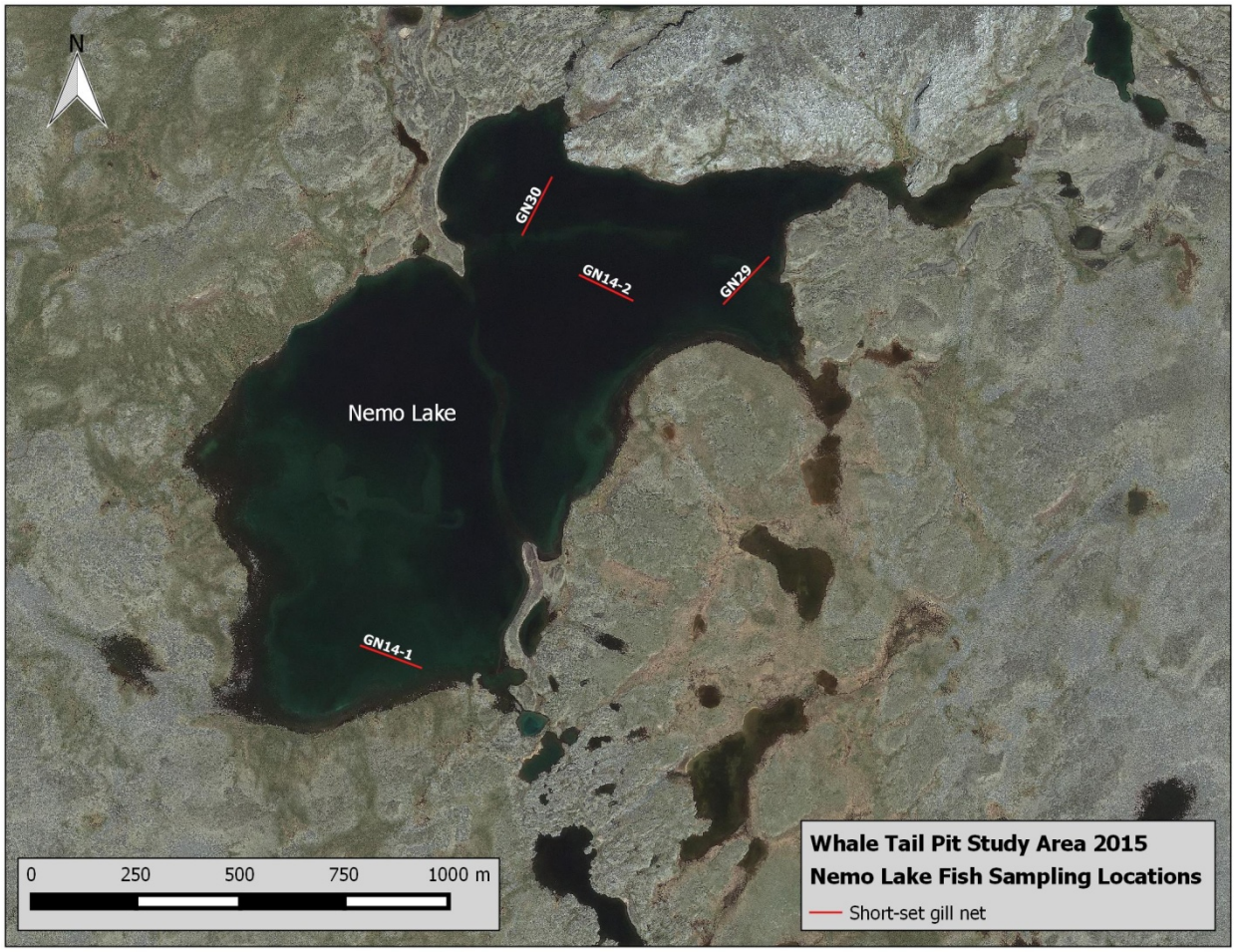

Figure 4-3. Fish sampling locations in Nemo Lake in 2014 and 2015.

4.1 Gill netting

4.1.1 Methods

All gill netting, unless otherwise noted, was conducted using standard AEM index gill nets comprised of six panels of stretched mesh (sizes 126, 102, 76, 51, 38, and 25 mm). Each panel of was 1.8 m (6 feet) deep by 22.7 m (25 yards) long, so that the length of a six-panel gang was 136.4 m (150 yards).

Two daytime gill net sets were conducted in each of Mammoth Lake, Whale Tail Lake, and Nemo Lake on September 4, 5 and 6, 2014, respectively. One gill net was set in a shallow shoal area and the second was set to sample a deeper part of each lake. The date and time of deployment and lifts were recorded as were the coordinates of each end of each net, determined using a Garmin GPSmap 76CSx hand-held receiver, and the depth, determined using a portable sonar unit. The gill nets were lifted after soak times of approximately 6.5

hours (range 6.3 – 6.7 hours). Each fish captured was identified to species and, with the exception of individuals that escaped during handling, its fork length was determined to the nearest mm using a standard fish measuring board and its weight was determined to the nearest gram using a Rapala digital hanging scale. Live fish were released immediately and dead fish were retained for later disposal.

Short-duration gill netting was conducted on Whale Tail Lake on July 24-26, 2015 and on Mammoth Lake on July 28 and 29, 2015. To select the gill net locations, the shoreline of each lake was divided into 12 segments of equal length. A gill net was set in each segment, approximately perpendicular to the depth contours, within the limitations imposed by shallow areas and wind conditions. Two additional sets were located in the deepest areas of each lake for a total of 14 net sets per lake (Figure 4-1, Figure 4-2). The date and time of deployment and lifts were recorded. The coordinates at each end of each net were determined using a Garmin Oregon 650 gps, and the depth at each end was determined using a Humminbird 798ci HD SI Sonar unit. These nets were set for a mean of 2.25 hours (range 1.92 hours – 2.83 hours).

The number of individuals of each species captured in each net was recorded. Each fish was examined for external anomalies and fork length was determined to the nearest mm using a standard fish measuring board. The total weight of each individual weighing more than 500 g was determined to the nearest 10 grams using a Rapala digital hanging scale. The total weight of individuals weighing less than 500 g was determined to the nearest g, or in some cases nearest 0.1 g, using an Ohaus Scout Pro Model 6001 electronic balance. Fish that were alive were tagged with a numbered Floy tag and released.

The body cavity of dead fish was opened and the viscera were examined for any anomalies. The gonads were examined to determine the sex and maturity of the specimen. Females with opaque ovaries containing developing eggs visible with the naked eye were considered to be sexually mature. Females with translucent ovaries that did not contain eggs which were visible to the naked eye were considered to be immature. Males with opaque testes were considered to be mature, and males with small translucent testes were considered to be immature. The liver and gonads were removed and weighed to the nearest 0.1 g using an Ohaus Scout Pro Model SP6001 electronic balance. One or both otoliths and the leading ray from the right pectoral fin were taken from the majority of the dead Lake Trout for subsequent aging.

Lake Trout were aged by Louise Stanley, a fish aging expert who provides consulting services. Otoliths were mounted whole on a glass slide with CrystalBond thermoplastic adhesive, ground to the core on one side, flipped to adhere the core area to the glass, and then ground to a thin section on the other side. The proximal end of each fin ray was ground flat and then cut away from the rest of the ray with wire cutters. The flat proximal end was mounted on a glass slide with CrystalBond thermoplastic adhesive and the remaining fin ray ground away to leave a thin section. Age was estimated based on the number of annuli counted using transmitted light and a Leica GZ6 Stereo Zoom microscope. The number of annuli on fin rays and otoliths were determined independently (i.e. without reference to each other) when both were available for a fish.

One overnight gill net set was conducted on Whale Tail Lake on August 17-18 and another on August 18-19 to determine the CPUE in overnight sets and to obtain Lake Trout tissue samples for mercury and metals analysis. Unlike the short duration gill net sets which were distributed about the lakes, these nets were set in locations thought to be good Lake Trout habitat. Each of these nets was reset for several hours at the same location on the second day in order to obtain a sufficient number of samples for mercury and metals analyses. These are referred to as miscellaneous gill net sets. Two overnight gill net sets were conducted in Mammoth Lake on August 26-26, preceded by daytime (miscellaneous) sets of 5.4 and 5.5 hours duration at the same locations, also in locations considered to be good Lake Trout habitat, to obtain Lake Trout tissue samples for mercury and metals analysis.

The Lake Trout captured were euthanized with a blow to the head followed by cervical severance and processed in the same manner as dead fish from the short gill net sets. Tissue samples for mercury and metals analyses were collected from these fish as described in Section 4.5. Live Round Whitefish (*Prosopium cylindraceum*) from these nets were released without being measured, weighed or tagged.

On August 2, 2015, short duration gill net sets were conducted at two locations in Nemo Lake (**Figure 4-3**). Each net was lifted once and reset at the same location, resulting in a total of four net sets with a mean soak time of 3.5 hours (range 3.33 hours – 3.63 hours). The catches were processed in the same manner as for Whale Tail and Mammoth Lakes.

4.1.2 Results

The gill netting results for Whale Tail, Mammoth and Nemo Lakes are summarized in Table 4-1. The data for individual net sets are provided in Appendix A (Table A 2). Lake Trout was the most abundant species in the gill net catches in all three lakes, followed by Round Whitefish. Arctic Char were only captured in Whale Tail. Only Lake Trout were captured in Nemo Lake. CPUE in the short-duration gill net sets was higher in Mammoth Lake than in Whale Tail Lake for both Lake Trout and Round Whitefish. Lake Trout CPUE was the same in both lakes for the overnight gill net sets. This may reflect the fact that the overnight sets targeted good Lake Trout habitat unlike the short-duration sets, which were distributed more or less evenly around the lakes.

The data for individual fish captured in gill nets are provided in Appendix A (**Table A 3** and **Table A 4**). The length distributions of Lake Trout captured by gill nets in 2015 differed between Whale Tail and Mammoth Lakes (Figure 4-4), with individuals 400 mm or shorter accounting for 81% of the catch in Mammoth Lake and only 36% of the catch in Whale Tail Lake. The Lake Trout age distributions in 2015 catches are consistent with the length distributions, with Lake Trout 15 years of age or younger, based on otolith ages, dominant in the catches from Mammoth Lake, and Lake Trout older than 15 years of age dominant in the Whale Tail Lake catches. As is typically the case, ages determined from fin rays tended to be younger than those determined from otoliths (Figure 4-6). There were too few individuals of other species captured to allow meaningful comparisons of length distributions to be made.

Table 4-1. Summary of gill net catches and catch per unit effort (CPUE; number of fish caught per hour of soak time), by lake, year, set duration and species.

Lake and year	Set duration	Number of sets	Total soak time (hours)	Lake Trout		Arctic Char		Round Whitefish	
				catch	CPUE	catch	CPUE	catch	CPUE
Whale Tail 2014	miscellaneous	2	12.7	5	0.39	1	0.08	0	0.00
Mammoth 2014	miscellaneous	2	13.2	13	0.98	0	0.00	0	0.00
Nemo 2014	miscellaneous	2	13.3	15	1.13	0	0.00	0	0.00
Whale Tail 2015	short-duration	14	30.5	5	0.15	1	0.03	3	0.09
	overnight	2	34.1	23	0.67	0	0.00	2	0.06
	miscellaneous	3	12.2	1	0.08	0	0.00	0	0.00
	all	19	76.8	29	0.38	1	0.01	5	0.07
Mammoth 2015	short-duration	14	32.5	8	0.25	0	0.00	16	0.59
	overnight	2	35.8	24	0.67	0	0.00	4	0.11
	miscellaneous	2	10.9	4	0.37	0	0.00	0	0.00
	all	18	79.2	36	0.45	0	0.00	20	0.25
Nemo 2015	miscellaneous	4	14.06	7	0.50	0	0.00	0	0.00

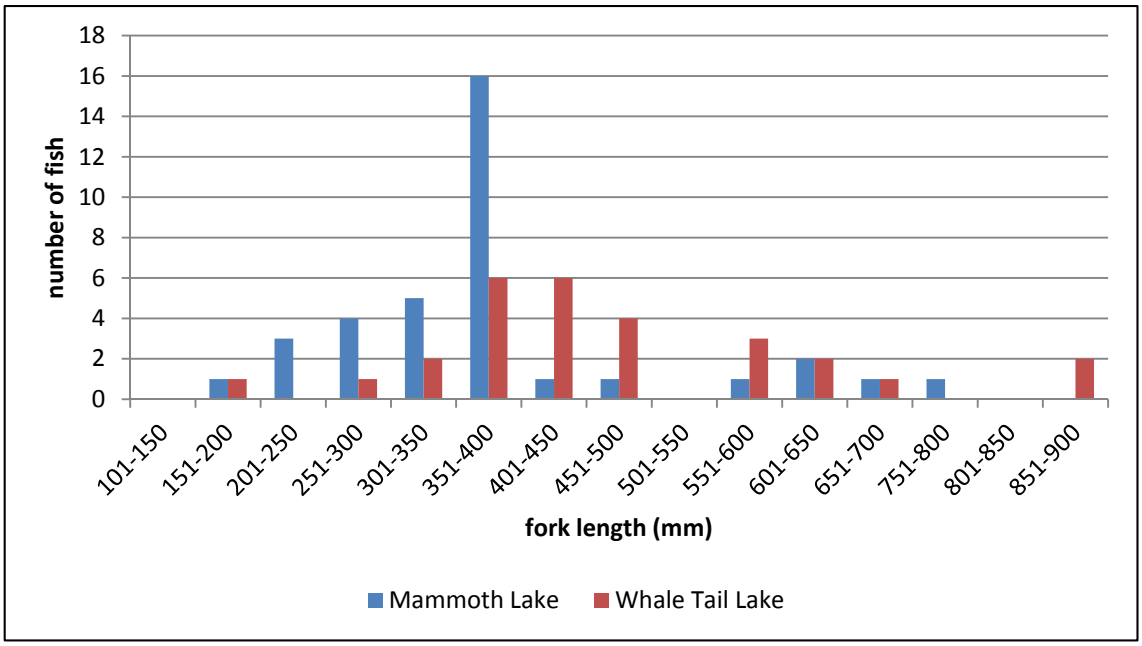

Figure 4-4. Length-frequency distributions of the Lake Trout captured by gill netting in Whale Tail and Mammoth Lakes in 2015.

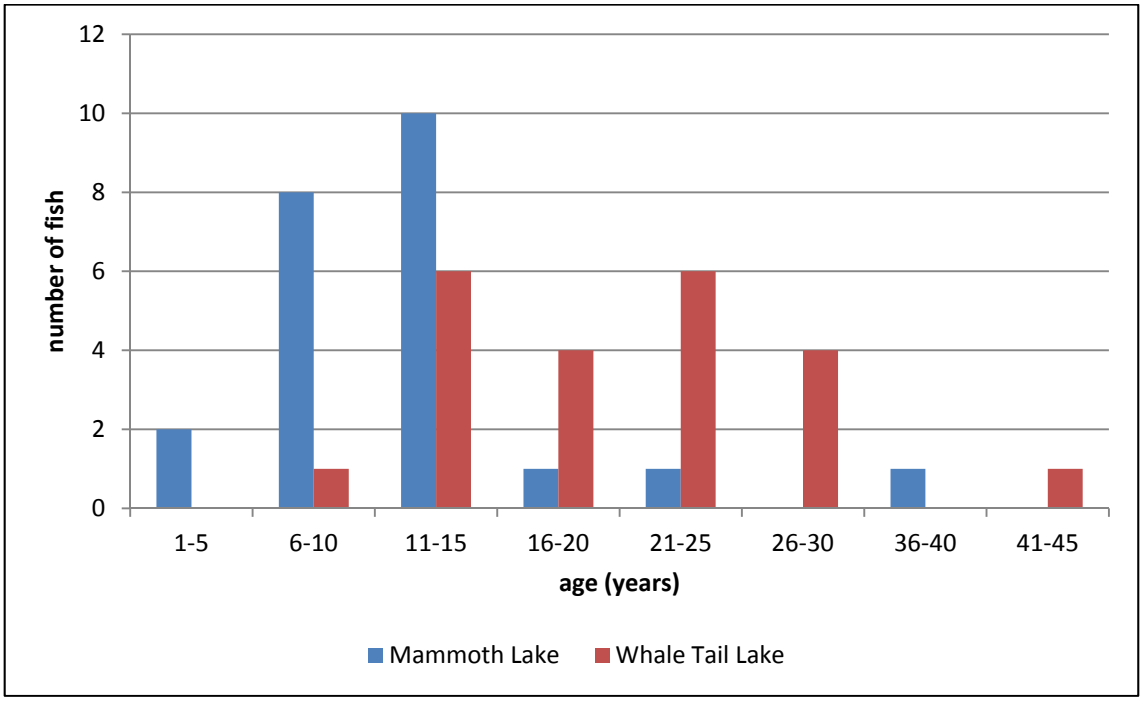

Figure 4-5. Age-frequency distributions, based on otolith ages, of Lake Trout from Mammoth and Whale Tail Lakes.

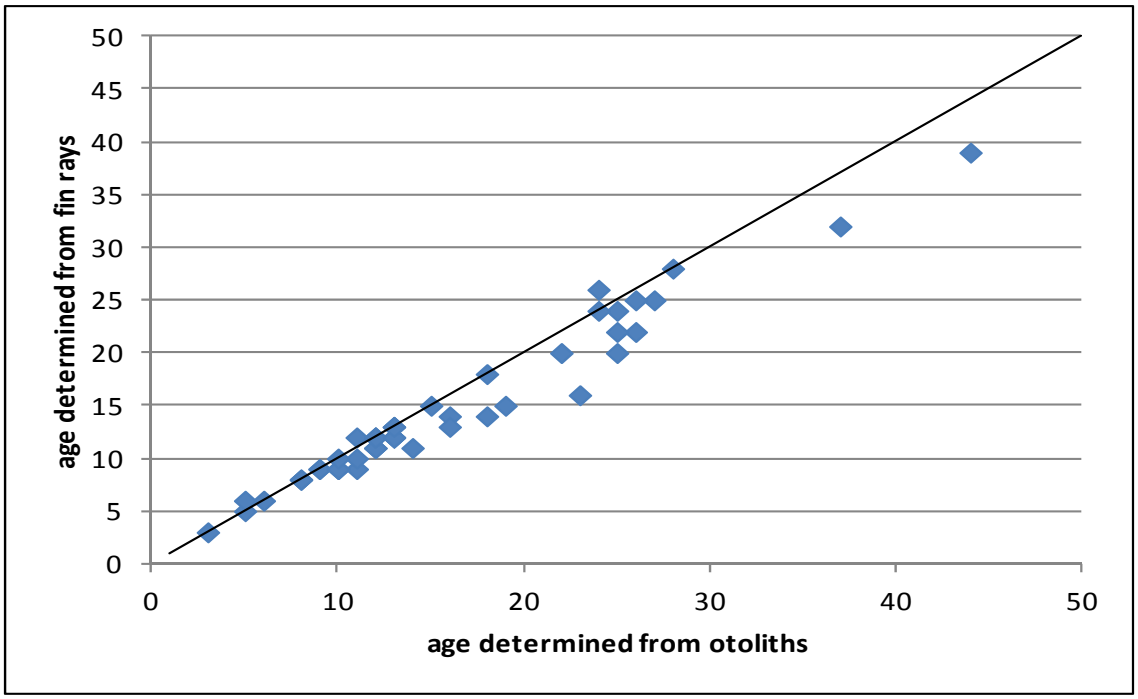

Figure 4-6. Lake Trout ages for individual fish determined from fin rays versus those determined from otoliths. The black line represents identical ages determined from both structures.

4.2 Shoreline Electrofishing

4.2.1 Methods

Shoreline electrofishing was conducted at 10 locations in Whale Tail Lake (Figure 4-1) on July 26-27 and at ten locations in Mammoth Lake on July 29-30 (Figure 4-2). The locations were selected with the objective of distributing them as widely as possible on each lake while taking safety considerations (substrate and slope) into account. At each location, 25 m was measured along the shoreline and a transect extending approximately 4 m out from the shore, was electrofished over the 25 m distance. The coordinates of the start location were determined with a Garmin Model 650 gps. The dominant substrate materials were visually identified and noted and each location was photographed. One member of a two-person crew operated the Halltech Model 200T backpack electrofisher, set at 950 volts and 60 hertz, and the second person netted immobilized fish with a dip net. The number of electroseconds was recorded at each location. The fish captured at each location were identified to species in the field. Ninespine Stickleback (*Pungitius pungitius*) were euthanized and retained for metals analyses (see Section 4.5). The other species captured were counted and released.

4.2.2 Results

The shoreline electrofishing effort and catches are summarized in Table 4-2. The data for individual transects are provided in Appendix A (Table A 5). The numbers of fish captured were

similar between the two lakes. Ninespine Stickleback was the most frequently caught species in both lakes, followed by Slimy Sculpin (*Cottus cognatus*). Two juvenile salmonids were captured in Whale Tail Lake and one was captured in Mammoth Lake. All three are thought to have been Arctic Char based on their parr marks, where the width of the dark areas along the lateral line is greater than the width of the light areas (McPhail and Lindsey, 1970), and the sparsity of melanophores on the lower jaw. Catches were highly variable among individual transects, ranging from none to 15 for Ninespine Stickleback and none to six for Slimy Sculpin and did not appear to correlate with substrate.

Table 4-2. Number of individuals captured by electrofishing ten 25-meter long segments (250 m total) of shoreline in Whale Tail Lake and Mammoth Lake on July 26-27 and July 29-30, 2015, respectively.

Lake	Total eseconds	Ninespine Stickleback	Slimy Sculpin	juvenile salmonids
Mammoth	3922	41	13	1
Whale Tail	3403	55	14	2

4.3 Minnow Traps

4.3.1 Methods

Unbaited standard (Gee) minnow traps were deployed at 13 locations in Whale Tail Lake (**Figure 4-2**) on July 25, 2015, lifted and redeployed on July 26, and lifted and removed on July 27. Unbaited standard (Gee) minnow traps were deployed at 12 locations in Mammoth Lake (Figure 4-1) on July 28, 2015, and lifted and removed on July 29. The date and time of deployments and lifts were recorded and the coordinates at each net location were determined using a Garmin Oregon 650 gps. Depth was estimated visually if the depth was 1.5 m or less and determined using a Humminbird 798ci HD SI Sonar unit if the depth was greater than 1.5 m. The dominant substrates at each set location were visually assessed.

4.3.2 Results

The standard minnow trap effort and catch data are summarized in **Table 4-3** and the data for individual sets are provided in Appendix A (Table A 6). Mean soak time per set was 22.7 hours in Mammoth Lake and 22.5 hours in Whale Tail Lake. Total soak time was 273 hours in Mammoth Lake and 586 hours in Whale Tail Lake. The total catches were one Ninespine Stickleback in Mammoth Lake and one Slimy Sculpin in Whale Tail Lake.

Table 4-3. Number of overnight sets, mean and total soak time, and total catch for overnight sets of standard minnow traps set in Mammoth Lake (July 28-29) and Whale Tail Lake (July 25-27).

Lake	Number of overnight sets	Mean soak time (hours)	Total soak time (hours)	catch	
				Slimy Sculpin	Ninespine Stickleback
Whale Tail	26	22.5	586.0	1	0
Mammoth	12	22.7	273.0	0	1

4.4 Fine-mesh hoop nets

4.4.1 Methods

Fine-mesh hoop nets, 2.5 m long, were constructed of 1.27 cm stretch mesh with two 1 m diameter hoops and a third 0.75 m diameter hoop at the rear of the trap. These nets had 4 m long by 1 m high wings and a 10 m long by 1 m high leader of the same 1.27 cm stretch mesh. Two of these nets were deployed for one overnight set each in Whale Tail Lake on August 18-19, 2015. Set locations, shown in **Figure 4-2**, were selected where the substrate was sand and gravel, adjacent to areas of cobble and boulder substrate. The lead was set perpendicular to the shoreline, with the trap located at the offshore end.

4.4.2 Results

The fine-mesh hoop net at FHN1 caught one Round Whitefish (fl=2.7 cm), and one Round Whitefish (fl=12.3 cm) and one Slimy Sculpin were captured at SHN2. The set locations, dates and times, depth, substrate and catches are provided in Appendix A (Table A 7).

4.5 Fish Tissue Samples for Mercury and Metals Analyses

4.5.1 Methods

Samples of skinless, boneless dorsal muscle were collected from 23 lake trout from Whale Tail Lake and 25 lake trout from Mammoth Lake and analyzed for total mercury. A second sample of skinless, boneless dorsal muscle was collected from a subset of ten of the same Lake Trout from each lake and analyzed for a suite of metals. The muscle samples were removed from each fish using a standard filleting knife and individually sealed in Whirl-Pak bags. The sealed Whirl-pak bags were sealed inside larger Ziplock bags and frozen in a -20°C freezer. The frozen samples were subsequently transported to Guelph, Ontario, in coolers with ice packs and held at -20°C prior to shipping to ALS Laboratories in Burnaby, BC, in coolers with dry ice.

Seven and eight composite samples, each composed of 4 to 6 Ninespine Stickleback, were submitted for metals analysis from Whale Tail Lake and Mammoth Lake respectively. The total length in mm was determined for each individual using a standard fish measuring board and the total weight to the nearest 0.1 g was determined for the individuals in all but one of the

composite samples using an Ohaus Scout Pro Model 60001 electronic balance. The number of individuals and the total length in mm of the largest and smallest individual in each composite sample are presented in **Table 4-4**. The composite samples were sealed in individual whirl-pak bags and frozen in a -20°C freezer. The samples were transported to Guelph, Ontario, in a cooler with frozen ice packs, and then stored in a -20°C freezer until they were shipped to ALS Laboratories in Burnaby, BC, in a cooler with dry ice. The laboratory methods, provided by ALS Laboratories, are provided in Appendix B.

Table 4-4. Number of and minimum and maximum fork length of Ninespine Stickleback in composite samples analyzed for metals.

Lake	Sample #	Number of individuals	minimum total length (mm)	maximum total length (mm)
Whale Tail	Composite # 1	5	53	68
	Composite # 2	5	45	55
	Composite # 3	5	40	46
	Composite # 4	5	37	41
	Composite # 5	5	36	45
	Composite # 6	5	31	40
	Composite # 7	8	30	47
Mammoth	Composite # 8	6	39	70
	Composite # 9	5	45	59
	Composite # 10	5	43	51
	Composite # 11	5	42	46
	Composite # 12	5	41	45
	Composite # 13	5	37	44
	Composite # 14	5	34	41
	Composite # 15	4	30	35

4.5.2 Results

The metal concentrations were determined by ALS Laboratories. The methods used to determine mercury and metals concentrations in the tissues and the results of those analyses, provided by ALS Laboratories, are presented in Appendix B. Due to a labelling error, two of the Lake Trout samples from Whale Tail Lake that were analyzed for mercury cannot be related to an individual fish. For the remaining Lake Trout samples the sample number corresponds to the fish numbers in Table A 4.

5.0 TRIBUTARY INVESTIGATIONS

Habitat was characterized in the tributaries to Whale Tail and Mammoth Lakes and fish sampling was conducted in the direct tributaries of Whale Tail and Mammoth Lakes that had surface flow and appeared capable of supporting fish during the open-water season. In most cases, these watercourses were walked from Whale Tail and Mammoth Lakes to the next lake upstream, often while electrofishing, to search for spawning grayling or potential grayling spawning habitat during the latter part of June. Most of the watercourses with areas of gravel substrate were electrofished in the latter part of June, in early July, and again in August to search for young-of-the-year (YOY) fishes and to characterize the stream habitat under low flow conditions. Digital photographs were taken of representative habitats. Large minnow traps were deployed in the lower reaches of several of these watercourses during the early part of the field season, in an attempt to capture fishes moving into these watercourses during the spring. Other direct tributaries of Whale Tail and Mammoth Lakes that were smaller and unlikely to provide upstream fish passage, as well as indirect tributaries located farther upstream were examined visually at least once during the 2015 open-water season. All of these additional tributaries were characterized with respect to habitat and photographed, and several were electrofished.

5.1 Habitat Characterization

5.1.1 Methods

Field observations of habitat characteristics including channel form, flow conditions, and substrate were recorded and photographs were taken. A Garmin Oregon 650 hand-held GPS unit was used to record the location of all observations and photographs, and aid in the distance measurements. Stream length was measured from an orthorectified aerial photograph taken on July 21, 2011, using GIS.

Flow was characterized as “surface” when water was present above the substrate and “interstitial” when surface flow was absent but there was water flowing through the interstitial spaces among boulders and cobbles. Typically, there were multiple observations of the state of flow over the open water season.

The dominant watercourse types were characterized as boulder or graminoid, examples of which are shown in Figure 5-1. Boulder habitats occur where the watercourse flows within a boulder deposit and in these watercourses the interstitial spaces are often sufficient to convey all of the flow, at least seasonally. In some of these watercourses there is no surface water visible along some or all of their length, even during the spring freshet. Graminoid habitats are typically found where finer substrates dominate. The banks are defined by graminoid vegetation and surface flow is typically present unless the stream goes dry. Some watercourses are a combination of both habitat types.

Figure 5-1. Examples of the stream habitat types encountered. The top row is boulder. The middle row is a mixture of boulder and graminoid. The bottom row is multiple channel graminoid (left) and single channel graminoid (right).

Channel configuration was characterized as single (one defined flow path), multiple (more than one defined flow path), or poorly defined (no obvious, defined flow path, suggesting that surface flow is ephemeral). Dominant and sub-dominant substrates were characterized based on particle size, following the modified Wentworth scale (Wentworth, 1922), with the additional category “peat”, which is a cohesive mat of vegetation-derived organic material that was the substrate in a number of the smaller watercourses.

5.1.2 Results

The watercourse characteristics are summarized in Table 5-1 and photographs of each are provided in Appendix B. Coarse substrates dominated and gravel substrate which might be suitable for Arctic Grayling spawning was relatively uncommon. Several of the watercourses were observed to have only interstitial flow, which would prevent the passage of large fish, during part or all of the open-water season.

Table 5-1. Habitat characteristics and length of watercourses examined during the 2015 field season. Refer to Figure 2-1 for lake identification codes. Watercourse ID is assigned as "downstream lake code-upstream lake code".

Water-course ID	Flow characteristics	Channel configuration	Dominant habitat	Substrate in order of dominance	Length (m)
A0-A48	Surface flow	Single	Graminoid	Peat with occasional patch of cobble.	357
A113-A47	Surface flow on June 28. Dry on August 1.	Poorly defined	Graminoid	Peat/tundra	198
A16-A15	Surface flow during high lake water levels in spring. Interstitial flow during lower summer and fall water levels.	Single	Boulder	Boulder/ cobble	60
A17-A16	Surface flow during high lake water levels in spring. Interstitial flow during lower summer and fall water levels.	Single	Boulder	Boulder/ cobble	172
A18-A17	Shallow surface flow during spring freshet. Only interstitial flow by August.	Single	Boulder	Boulder/ cobble with 3 small patches of gravel	296
A19-A18	Shallow surface flow during spring freshet. Interstitial sections on July 9.	Single	Boulder/ graminoid	Cobble/ boulder with tundra hummocks	338
A20-A19	Surface flow during spring freshet. Interstitial flow July 9.	Single	Boulder	Cobble/ boulder	78
A21-A20	Surface flow during spring freshet. Interstitial flow during lower summer lake water levels.	Single	Boulder	Boulder/ cobble	40
A22-A21	Interstitial flow	Single	Boulder	Boulder/ cobble	285
A23-A22	Interstitial flow	Not visible	Boulder	Boulder/ cobble	396
A43-A16	Interstitial	Not visible	Boulder	Boulder/ cobble	199
A45-A16	Interstitial	Not visible	Boulder	Boulder/ cobble	446
A46-A17	Surface flow	Multiple	Graminoid	Peat substrate in some sections and cobble/ boulder/gravel/sand in others	206
A47-A46	Surface flow	Multiple	Graminoid	Peat substrate in some sections and cobble/ boulder/gravel/sand in others	43

Water-course ID	Flow characteristics	Channel configuration	Dominant habitat	Substrate in order of dominance	Length (m)
A48-A47	Surface flow	Multiple. Poorly defined	Graminoid	Peat	53
A49-A17	Surface flow only during spring freshet. Interstitial flow.	Single	Boulder	Cobble/ boulder over bedrock	214
A49-A47	Not a watercourse				
A50-A17	Surface flow	Single near downstream lake. Multiple and poorly defined upstream	Graminoid	Lower 100 m section of watercourse with single channel has sand/cobble/gravel substrate. Upstream is primarily peat.	509
A53-A17	Surface flow	Multiple	Graminoid	Mainly peat with cobble/ boulder/gravel patches	577
A54-A53	Interstitial	Not visible	Boulder	Boulder/ cobble.	518
A55-A17	Surface flow in spring and early summer, but some short sections had become interstitial by the end of August	Multiple, with one main channel and a few smaller side channels	Graminoid	Cobble/ boulder. Total of ~5 m^2 of gravel	195
A56-A55	Sections of surface flow. Sections of interstitial flow.	Multiple. Poorly defined.	Boulder/ graminoid	Boulder/ cobble, with tundra in places.	610
A59-A17	Surface flow	Multiple	Graminoid	Peat with embedded boulder/cobble and 5 patches of gravel	205
A60-A59	Surface flow in graminoid sections. Interstitial flow in boulder sections	Multiple	Graminoid/ boulder	Peat/cobble/ boulder/near Lake 59. Then boulder/ cobble.	510
A62-A17	Surface flow during spring freshet and on July 7, but likely dry later in summer based upon vegetation.	Poorly defined	Graminoid	Peat/tundra	86
A63-A18	Surface flow during spring freshet and on July 5.	Multiple	Graminoid	Peat with 2 small areas of cobble/gravel/sand	122
A65-A17	Surface flow at isolated locations, but predominantly interstitial flow.	Single. Poorly defined	Boulder	Boulder/ cobble	176
A-P21-A52	Interstitial flow, except for short section of surface flow	Single	Boulder	Boulder/ cobble/peat	371

Water-course ID	Flow characteristics	Channel configuration	Dominant habitat	Substrate in order of dominance	Length (m)
A-P23-A17	Surface flow in June. Dry by mid-July.	Single	Boulder/ graminoid	Gravel/cobble in upstream section. Cobble/gravel/peat in mid-section, and then cobble/ boulder near Lake A17.	122
A-P38-A47	Surface flow on June 19. Dry on August 1.	Single. Poorly defined	Graminoid	Peat	157
A-P54-A-P23	Surface flow during spring freshet in downstream peat section, but predominantly interstitial flow. Dry by mid-July.	Single. Poorly defined	Boulder/ graminoid	Boulder/ cobble/peat	208

5.2 Visual Searches for Evidence of Arctic Grayling Spawning

5.2.1 Methods

As indicated in the previous section, gravel substrate was uncommon in the tributaries to Whale Tail Lake. Where surface flow and gravel substrate were present in early July, the watercourses were examined for areas of disturbed substrate that could indicate locations where Arctic Graying spawning had occurred. Disturbance was indicated by the presence of particles with little or no periphyton on their upper surface, indicating that they had recently been overturned. Where an area of disturbed gravel substrate was observed kick samples were collected by vigorously disturbing the substrate while holding a fine-meshed dip net immediately downstream in order to collect Arctic Grayling eggs if they were present.

5.2.2 Results

Only two areas of disturbed gravel were observed, both in the watercourse between lakes A63 and A18 on July 5, 2015. One area was 0.5 m wide by 1.5 m long in approximately 0.4 m of water and the other was 0.4 m wide by 0.6 m long in slightly shallower water. Multiple kick samples were collected at both of the areas but no fish eggs were observed in the samples.

5.3 Large Minnow Traps

5.3.1 Methods

Unbaited, large minnow traps were deployed in seven tributaries to Whale Tail Lake (**Figure 5-2**) for periods of seven to sixteen days in late June and early July. These traps, constructed of 0.9 cm (3/8 inch) square steel mesh, were 91.4 cm long and 31.5 cm in diameter, with a 22.0 cm long funnel at one end with a 7.0 cm diameter opening into the trap. Two traps were deployed in watercourse A53-A16 (locations MT2 and MT3) and in watercourse A63-A18 (location MT7). A single trap was deployed at the other locations. The traps were deployed with the funnel facing downstream except at location MT 7 (Tributary A63-A18), where one of the two traps was deployed with the funnel facing upstream. The traps were lifted periodically and captured fish were enumerated and identified to species. With the exception of one voucher specimen, the captured fish were released near their capture location. The trap in watercourse AP23-A17 (location MT1) was not fishing for an unknown period of time between June 26 and July 3 because falling water levels left the funnel opening above the water. At the other locations the traps' funnels openings were submerged throughout their deployments.

5.3.2 Results

The large minnow trap effort and catches are summarized in Table 5-2 sampling locations are shown in Figure 5-2. Detailed set, lift and catch data are provided in Appendix A (Table A 8). A total of nine Slimy Sculpin and one juvenile Round Whitefish (fork length = 8 cm) were captured by 109 nine trap-days of effort. At least one Slimy Sculpin was captured in four of the

seven watercourses where traps were deployed, but catch-per-unit-effort (CPUE) was very low at all locations.

Table 5-2. Summary of large minnow trap deployments and catches. Trap locations are shown in Figure 5-2. Data for individual sets and lifts are provided in Appendix A.

Watercourse	Location	Date deployed	Date removed	Soak time (days)	Funnel direction	Slimy Sculpin	juvenile Round Whitefish
A46-A17	MT4	27/06/15	13/07/15	16	downstream	3	0
A50-A17	MT5	28/06/15	13/07/15	15	downstream	1	0
A53-A17	MT3	27/06/15	13/07/15	16	downstream	2	0
A55-A17	MT9	03/07/15	13/07/15	10	downstream	0	0
A59-A17	MT2	27/06/15	13/07/15	16	downstream	1	0
	MT6	28/06/15	13/07/15	15	downstream	2	0
A63-A18	MT7	05/07/15	13/07/15	8	upstream	0	0
	MT8	05/07/15	13/07/15	8	downstream	0	1
AP23-A17	MT1	26/06/15	03/07/15	7	downstream	0	0
Total				110		9	1

Figure 5-2. Locations where large minnow traps were set in June-July of 2015.

5.4 Stream electrofishing

5.4.1 Methods

The stream electrofishing typically began near the lake to which the watercourse drained and progressed upstream. One member of the two-person crew operated the Halltech Model 200T backpack electrofisher, set at 950 volts and 60 hertz, and the second person netted the immobilized fish. The coordinates of the sampling sites were determined using a Garmin Oregon 650 gps and the length of watercourse sampled was determined from these coordinates superimposed on a photo-mosaic of the study area using GIS, unless the distance sampled was very short (<10 m), in which case the distance sampled was estimated in the field. The number of electroseconds was also recorded at each location. Slimy Sculpin and Ninespine Stickleback were identified and released as they were captured. Most juvenile salmonids were photographed and released but some were retained as voucher specimens. The identities of voucher specimens were confirmed by opening the abdominal cavity and counting the pyloric caeca using a dissecting microscope. Arctic Char have 20-74 pyloric caeca and Lake Trout typically have 93-208 (Scott and Crossman, 1973). The identities of photographed salmonids were confirmed by comparison to the voucher specimens, as well as using the juvenile salmonid key in McPhail and Lindsey (1970).

5.4.2 Results

The stream electrofishing effort and catches are summarized in **Table 5-3** and the sampling locations are shown in **Figure 5-3** and **Figure 5-4** (June), **Figure 5-5** and **Figure 5-6** (July), and **Figure 5-7**, **Figure 5-8** and **Figure 5-9** (August). The coordinates of the sampling locations are provided in Appendix A. A total of 17 watercourses were electrofished on one or more occasions. Slimy Sculpin and Ninespine Stickleback were the most widely distributed species, and were captured in 11 and 10 different streams respectively. Overall, Ninespine Stickleback were the most abundant species, although this was strongly influenced by the very large catches in watercourse A46-A17 in July. Juvenile Arctic Char and Lake Trout were each captured in low numbers from five watercourses. One juvenile Burbot (*Lota lota*), one juvenile Round Whitefish, and one 32 mm long (TL) juvenile salmonid, not identified to species, were also captured.

Table 5-3. Summary of stream electrofishing effort and catches. Based on size, all of the salmonids and the Burbot are juveniles while the Slimy Sculpin and Ninespine Stickleback are adults. Locations are shown in Figure 5-3 - Figure 5-9.

Watercourse	Location	Date (2015)	distance (m)	electro-seconds	Ninespine Stickleback	Slimy Sculpin	Arctic Char	Lake Trout	Unidentified Salmonid	Burbot	Round Whitefish
A0-A48	**EF-S1**	01-Aug	10	196	2	0	0	0	0	0	0
A113-A47	**EF-S2**	01-Aug	10	68	1	0	0	0	0	0	0
A16-A15	**EF-S3**	25-Aug	43	690	2	5	0	1	0	0	0
A17-A16	**EF-S4**	25-Aug	240	950	0	4	0	1	0	0	0
A18-A17	**EF-S32**	26-Jun	100	878	0	1	0	0	0	0	0
	EF-S5	05-Jul	112	1648	0	5	0	0	0	0	0
	EF-S6	30-Aug	30	210	6	0	0	1	0	0	0
		Total	242	1859	6	5	0	1	0	0	0
A19-A18	**EF-S7**	09-Jul	32	423	0	0	0	0	0	0	0
A46-A17	**EF-S8**	28-Jun	201	579	11	8	1	0	0	0	0
	EF-S9-10	09-Jul	148	925	153	8	1	0	0	0	0
	EF-S11	12-Jul	<10	85	100	0	0	0	0	0	0
	EF-S12	30-Aug	36	470	0	0	0	0	0	0	0
		Total	394	2059	264	16	2	0	0	0	0
A47-A46	**EF-S13**	09-Jul	17	136	0	1	0	0	0	0	0
A50-A17	**EF-S14**	28-Jun	51	265	5	0	0	0	0	0	0
	EF-S15	09-Jul	163	1204	56	9	2	1	0	0	0
	EF-S16	30-Aug	52	180	2	0	1	0	0	1	0
		Total	266	1649	**63**	9	**3**	**1**	0	**1**	0
A53-A17	**EF-S17**	20-Jun	571	1664	7	0	0	0	0	0	0
	EF-S18	08-Jul	182	2142	78	77	5	0	0	0	0
	EF-S19	30-Aug	359	518	0	26	0	4	0	0	0
		Total	**1112**	**4324**	**85**	**103**	**5**	**4**	0	0	0

Watercourse	Location	Date (2015)	distance (m)	electro-seconds	Ninespine Stickleback	Slimy Sculpin	Arctic Char	Lake Trout	Unidentified Salmonid	Burbot	Round Whitefish
A55-A17	**EF-S20**	21-Jun	166	996	6	0	0	0	0	0	0
	EF-S21	06-Jul	167	3330	20	50	1	0	1		0
	EF-S22	30-Aug	46	483	17	1	0	0	0	0	1
		Total	**379**	**4809**	**43**	**51**	**1**	0	**1**	0	**1**
A56-A55	**EF-S23**	08-Jul	60	634	0	0	0	0	0	0	0
A59-A17	**EF-S24**	27-Jun	126	730	0	6	1	0	0	0	0
	EF-S25	09-Jul	97	1444	2	21	0	0	0	0	0
	EF-S26	30-Aug	181	535	0	7	1	0	0	0	0
		Total	**404**	**2709**	**2**	**34**	**2**	0	0	0	0
A62-A17	**EF-S27**	07-Jul	107	1025	1	0	0	0	0	0	0
A63-A18	**EF-S28**	05-Jul	81	848	0	3	0	0	0	0	0
	EF-S29	07-Jul	81	793	0	3	0	0	0	0	0
		Total	**162**	**1641**	0	**6**	0	0	0	0	0
A-P21-A52	**EF-S30**	01-Aug	5	78	0	0	0	0	0	0	0
A-P23-A17	**EF-S31**	26-Jun	95	582	0	2	0	0	0	0	0
Grand Total			**3569**	**23832**	**469**	**236**	**13**	**8**	**1**	**1**	**1**

Figure 5-3. June 2015 electrofishing locations on tributaries at the north end of Whale Tail Lake.

Figure 5-4. June 2015 electrofishing locations on tributaries at the south end of Whale Tail Lake.

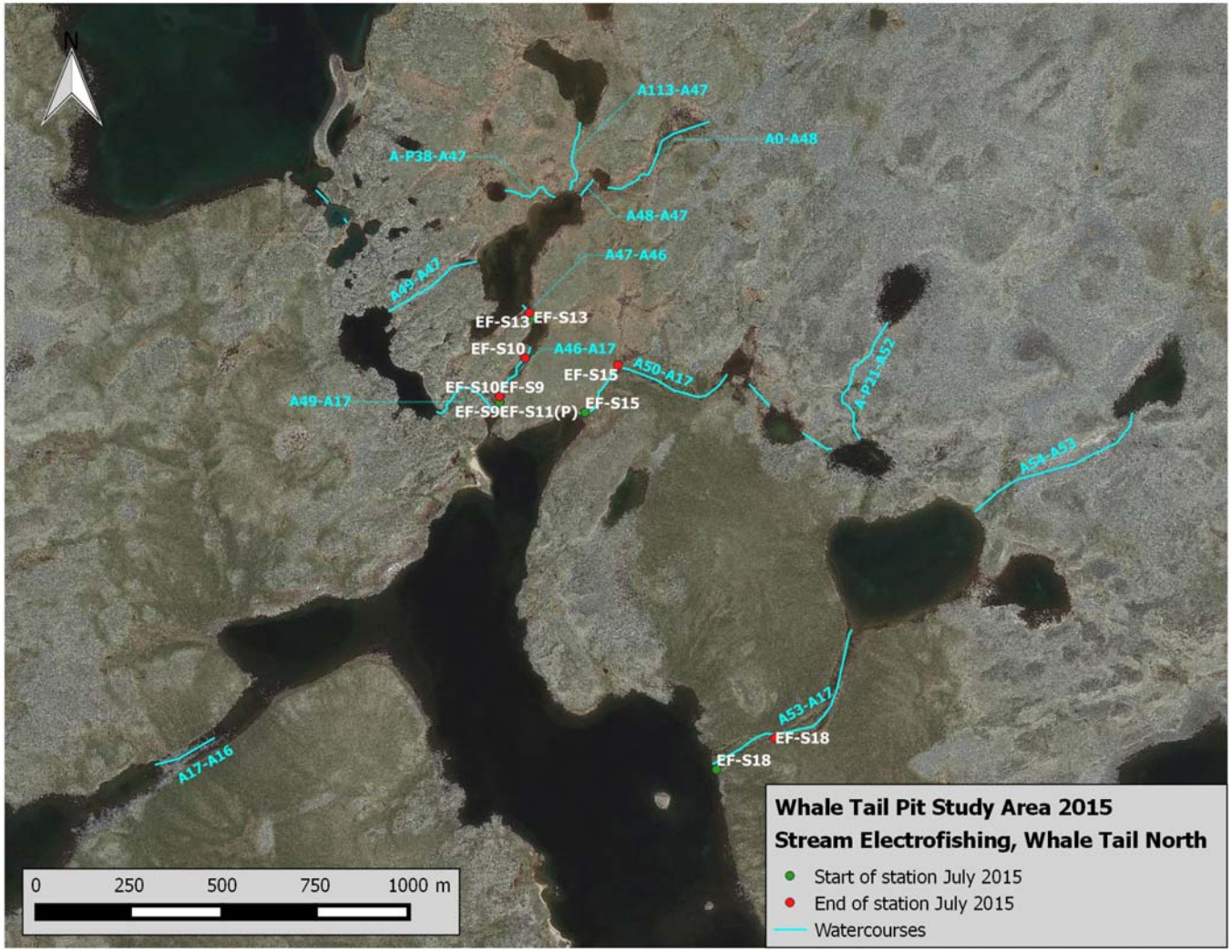

Figure 5-5. July 2015 electrofishing locations on tributaries at the north end of Whale Tail Lake.

Figure 5-6. July 2015 electrofishing locations on tributaries at the south end of Whale Tail Lake.

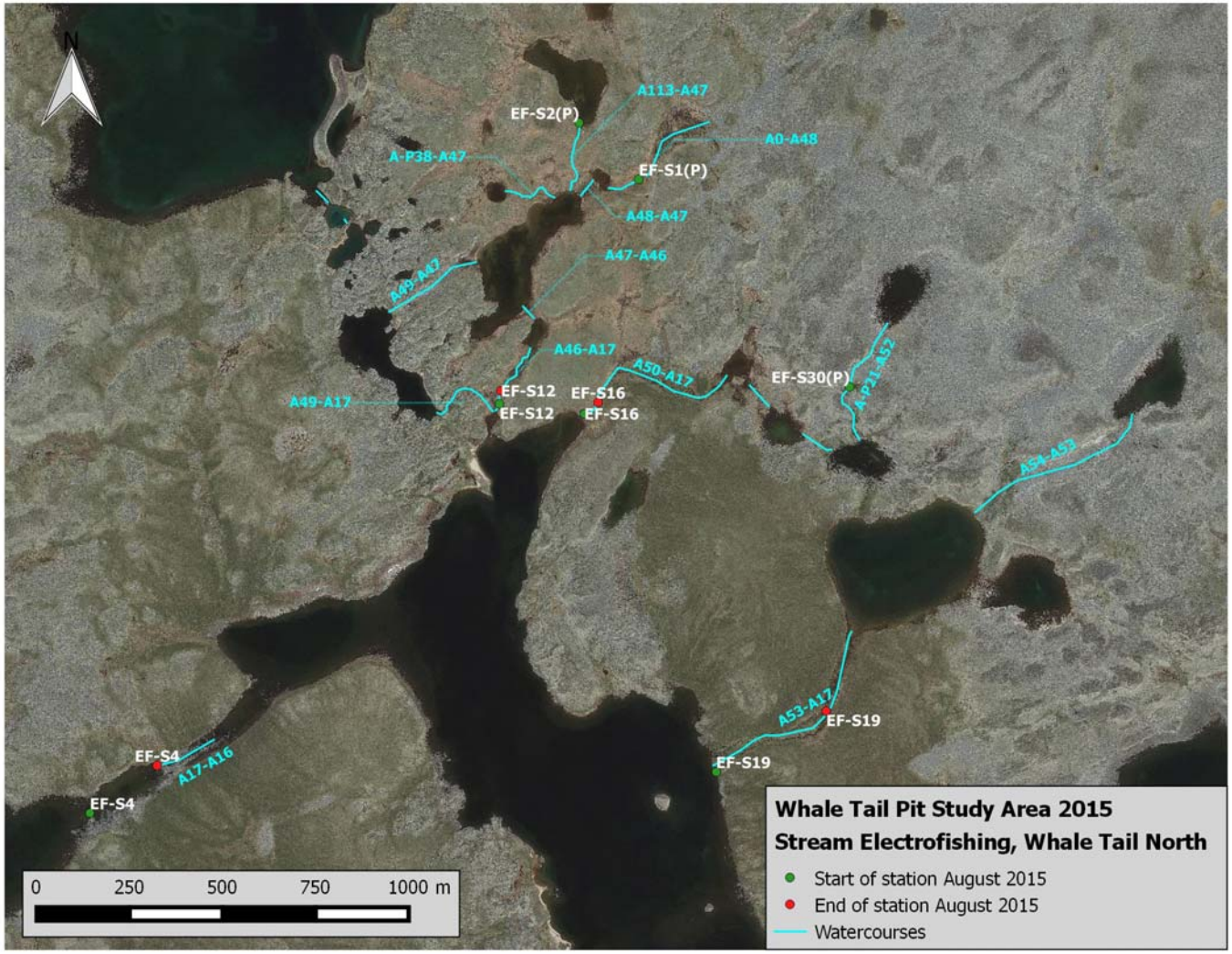

Figure 5-7. August 2015 electrofishing locations on tributaries at the north end of Whale Tail Lake.

Figure 5-8. August 2015 electrofishing locations on tributaries at the south end of Whale Tail Lake.

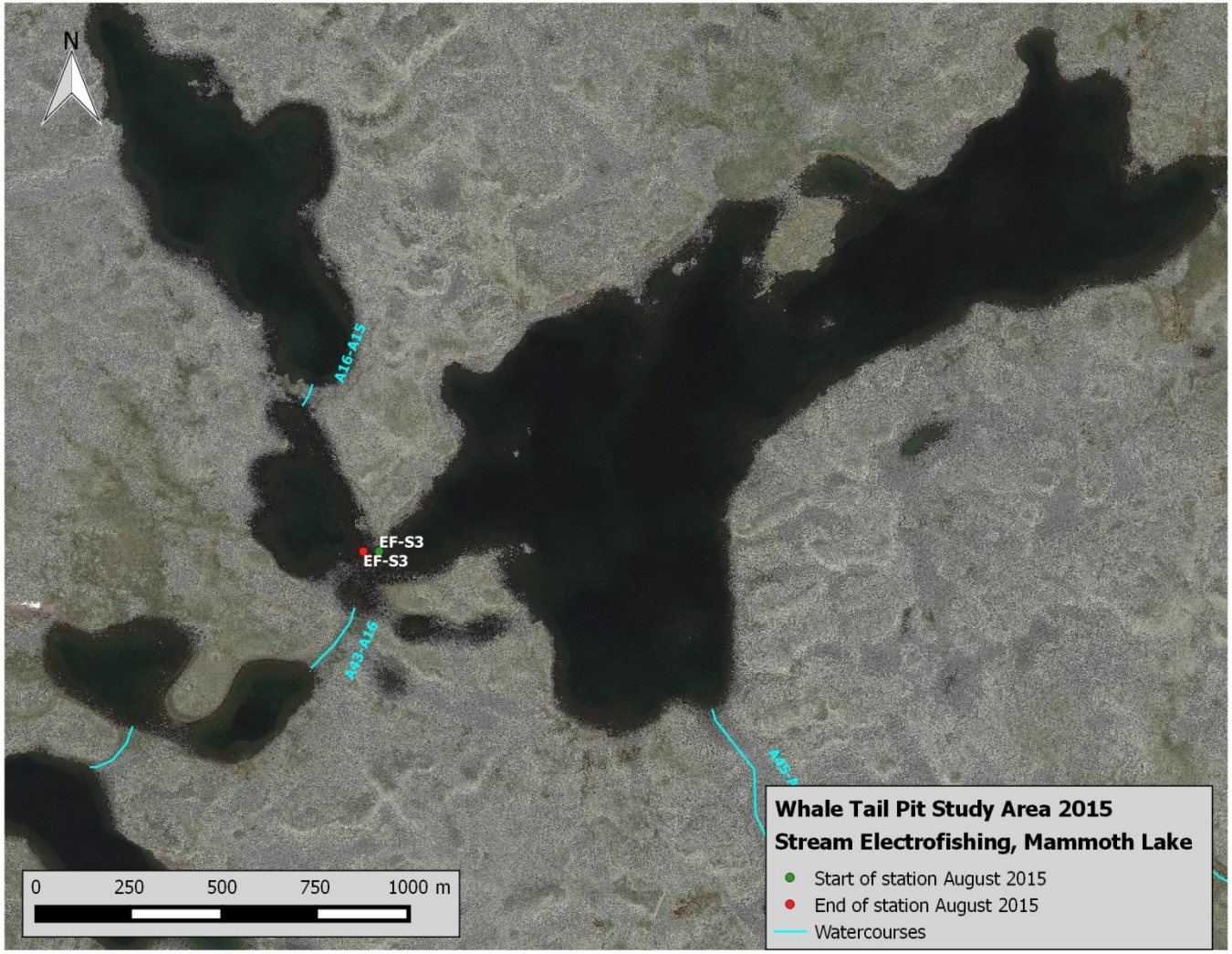

Figure 5-9. August 2015 electrofishing location near the outlet of Mammoth Lake.

6.0 HABITAT CHARACTERIZATION AND FISH SAMPLING OF SMALL LAKES AND PONDS

6.1 Methods

Fish sampling was conducted and the habitat was characterized on a number of lakes that are connected by surface flow to Whale Tail and Mammoth Lakes and two small lakes that drain to Nemo Lake. Where depth was sufficient, a jon boat powered by an outboard motor and equipped with a Humminbird 798ci HD SI Sonar unit was used to conduct the work.

In lakes with adequate depth, a standard AEM index gill net gang comprised of 22.7 m long and 1.8 m deep panels of 126, 102, 76, 51, 38, and 25 mm stretched mesh (total gang length = 136.4 m) was set, orientated to cross a deep (usually the deepest) portion of the lake and a shallow near-shore or shoal area, to maximize the variety of habitat fished. In lake A113 only three panels of gill net were set (38 mm, 51 mm and 76 mm) due to the small size of the lake. Most net sets were of short duration (range 1.6 – 3.3 hours) but occasionally sets were overnight. The date and time of deployment and lifts were recorded, the coordinates at each end of each net were determined using a Garmin Oregon 650 gps, and the depth at each end was determined using the sonar unit. The number of individuals of each species captured in each net was recorded. Each fish was examined for external anomalies and fork length was determined to the nearest mm using a standard fish measuring board. The total weight of each individual weighing more than 500 g was determined to the nearest 10 grams using a Rapala digital hanging scale. The total weight of individuals weighing less than 500 g was determined to the nearest g, or in some cases nearest 0.1 g, using an Ohaus Scout Pro Model 6001 electronic balance. Fish that were alive were tagged with a numbered Floy tag and released.

A section of shoreline was electrofished with a Halltech Model 200T backpack electrofisher, set at 950 volts and 250 hertz. The intent was primarily to determine what species were present, so the length of shoreline electrofished varied with habitat diversity and catch. The number of individuals of each species were recorded, as were the coordinates at each end of the electrofished shoreline, determined using a Garmin Oregon 650 gps unit.

The sonar unit was used to record georeferenced standard and side-scan sonar data. Straight, parallel boat runs, orientated to best characterize the lake's features, were used to record slightly overlapping side-scan images of the lake bottom. Additional sonar recordings were then made to obtain standard sonar data for as much of the lake bottom as was practical. In lakes for which these data were to be used to prepare bathymetric maps, a higher density of sonar transects were collected and a stake was driven into the ground at the water’s edge. This elevation was later determined by a survey crew so that the depth data could be converted to elevations. Visual point observations of the substrate were also made, either from the surface where the water was clear and shallow enough, or using an Aqua-Vu 740c underwater colour video system where the water was deeper. All visual substrate observations were georeferenced with a Garmin GPSmap76CSx gps unit.

The side-scan images were processed using ReefMaster software (ver. 1.8) to create a single georeferenced side-scan mosaic of the lake's bottom, and the standard sonar data were processed to create maps of bottom hardness and water depth. ReefMaster determines bottom hardness by an analysis of the sonar output/input ratio, and lag, to calculate a unitless relative hardness and roughness value that is displayed as a colour-coded map. The georeferenced data (side-scan image, bottom hardness and water depth maps, and visual point observations) were layered using GIS software (QGIS version 2.8). Using the overlaid data, with reference to the oblique aerial photographs, the various substrate types were identified and hand digitized into substrate maps. The water depth data for selected lakes was extracted from the sonar recordings and provided to AEM in ASCI file format for use by the sub-consultant undertaking the bathymetric mapping of all the Whale Tail Pit Study Area Lakes.

A number of smaller, shallow ponds near the north end of Whale Tail Lake were also investigated, some on two occasions. The substrates in these ponds were visually assessed from shore, and a portion of shoreline was electrofished. Images of these ponds were included in the oblique aerial photographs taken in 2014 and 2015.

6.2 Results

The fish catches for each of the small lakes and ponds that were sampled are presented in **Table 6-1** and the sampling locations are shown in **Figure 6-1**, **Figure 6-2**, **Figure 6-3** and **Figure 6-4**. The information for individual gill nets and electrofishing transects are provided in Appendix A (**Table A 2** and **Table A 5** respectively). The substrate maps have been provided to AEM under separate cover.

Table 6-1. Summary of 2015 gill net and electrofishing catches in small lakes and ponds (na indicates the gear type was not used).

	Gill net catches				Electrofishing catches	
Lake	Lake Trout	Arctic Char	Round Whitefish	Burbot	Ninespine Stickleback	Slimy Sculpin
A18	0	0	0	0	16	3
A19	0	0	0	0	7	1
A20	10	0	6	0	0	0
A22	2	1	0	0	1	10
A45	0	0	0	0	3	0
A47	0	1	0	0	>100	0
A49	0	0	0	0	0	3
A50	na	na	na	na	0	0
A51	na	na	na	na	0	0
A52	na	na	na	na	0	0
A53	1	1	0	0	2	0
A54	na	na	na	na	0	0
A55	5	0	0	1	0	2
A62	3	0	0	0	na	na
A63	1	0	0	0	0	3
A65	2	0	2	0	3	6
A113[1]	0	0	0	0	16	0
A-P5	na	na	na	na	0	0
A-P18	na	na	na	na	0	0
A-P21	na	na	na	na	0	0
A-P33	na	na	na	na	0	0
A-P37	na	na	na	na	0	0
A-P38	na	na	na	na	1	0
A-P49	na	na	na	na	0	0
A-P51	na	na	na	na	0	0
A-P67	dry on August 1, 2015					
C40	na	na	na	na	0	0
C42	na	na	na	na	0	0

1. Only 3 panels of net set (38 mm, 51 mm and 76 mm)

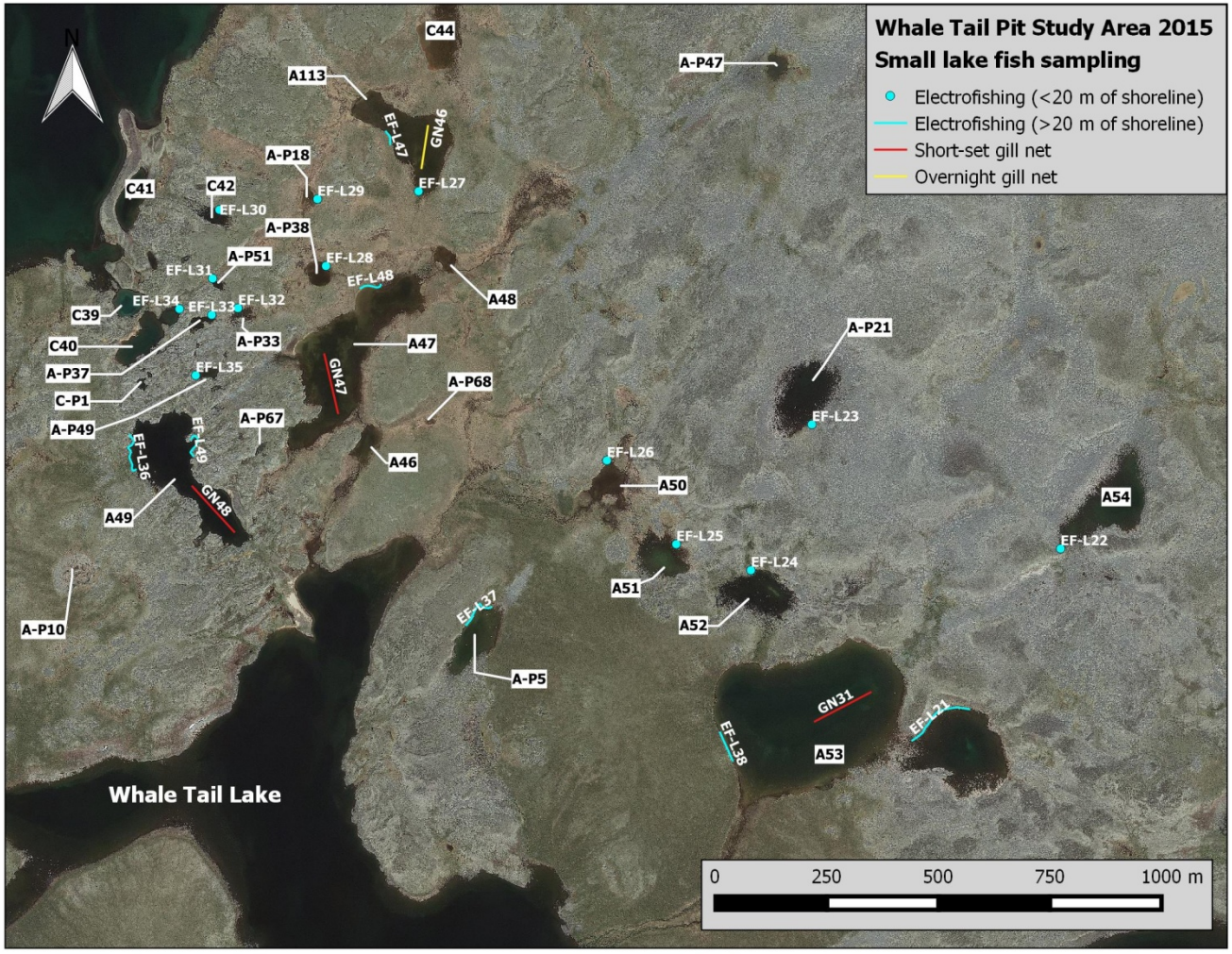

Figure 6-1. Fish sampling locations in lakes A47, A49, and A53 and smaller lake and ponds near the north end of Whale Tail Lake, 2015.

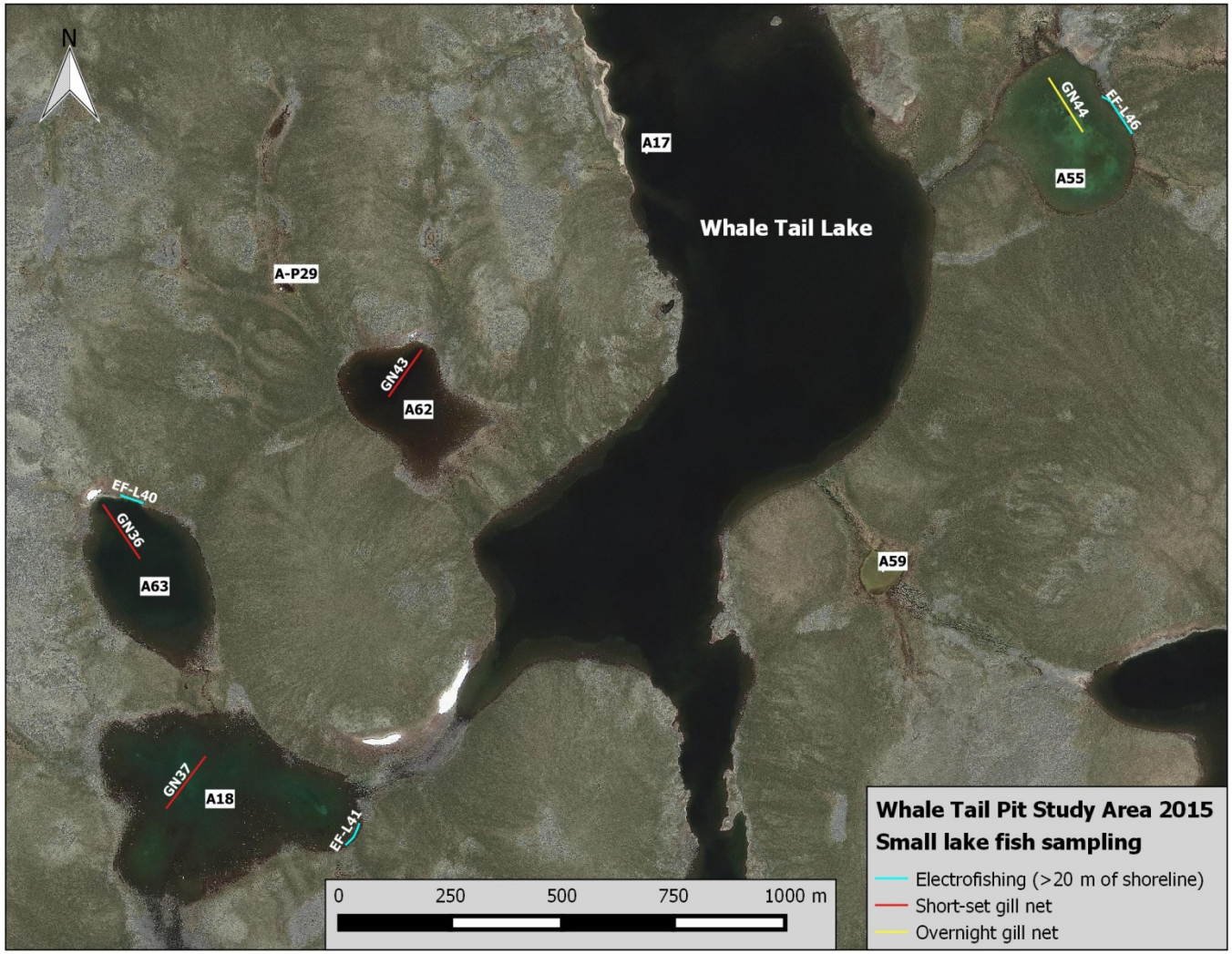

Figure 6-2. Fish sampling locations in lakes A18, A55, A62, and A63, 2015.

Figure 6-3. Fish sampling locations in lakes A19 and A65, 2015.

Figure 6-4. Fish sampling locations in lakes A20, A22 and A45, 2015.

7.0 WATER TEMPERATURE MONITORING

7.1 Methods

Temperature loggers (WaterTemp Pro V2, Onset Corporation) were deployed in the narrows between Whale Tail Lake and Mammoth Lake, and near the outlet of Mammoth Lake, on June 21, 2015 (**Figure 7-1**). Temperature loggers were also deployed at the south end of Whale Tail Lake and in five tributaries to Whale Tail Lake (**Figure 7-1**) on June 26 and 27, 2015. The loggers deployed between Whale Tail and Mammoth Lakes and in the Mammoth Lake outlet recorded the temperature at one minute intervals and the others recorded the temperature at 15 minute intervals. The logger between Whale Tail Lake and Mammoth Lake was moved to a deeper location, approximately 50 metres upstream, on June 28 and again, to a third location approximately 100 m farther upstream on July 13. The logger in watercourse A-P93-A17 was removed on July 3 because the watercourse was nearly dry and the logger was exposed to the air. The other loggers were removed in late August. The data were retrieved from the loggers on one or two occasions during their deployment using a Hobo waterproof shuttle (Onset Corporation).

The temperature data from the individual data retrievals for each temperature logger were combined and plotted using HOBOware Pro software (Version 3.7.5, Onset Corporation). The plots were examined to determine if there were temperatures logged during data retrievals when the loggers were exposed to the air, characterized by larger than expected deviations from the preceding and subsequent temperatures. When these were present, they were deleted from the dataset. Four aberrant values logged at Location L4 on August 22 that were probably the result of data corruption, as they were outside of the range of the loggers, were also deleted from the dataset. The 'clean' dataset was exported to Excel (Microsoft Corporation) for graphing and analysis. The datasets for the loggers that recorded at one minute intervals were reduced to include only those data recorded at 15 minute intervals, beginning on the hour.

As stated above, the temperature logger in watercourse A-P93-A17 was exposed to the air prior to its removal on July 3. Examination of the plotted data showed a marked increase in the diurnal fluctuations at that location on July 2. Therefore the data for dates/times after July 1 were deleted from the dataset. The temperature logger at the south end of Whale Tail Lake (L4) and in watercourse A46-A17 (L8) were partially exposed to the air when they were retrieved on August 30. To determine if and when the logged temperatures were influenced by exposure to the air the differences between temperatures logged at those locations and temperatures logged in watercourse A53-A17 (L7) where the logger was always submerged were calculated and plotted. The difference between the temperatures at L4 and L7 were consistent during the latter part of the deployment period, indicating that the logger at L4 was recording water temperature throughout the deployment. The difference between the temperatures at L7 and L8 were markedly greater on August 29 and 30, indicating that the logger in T8 was recording air temperature on those dates; therefore the data for T8 from those two dates were deleted from the dataset.

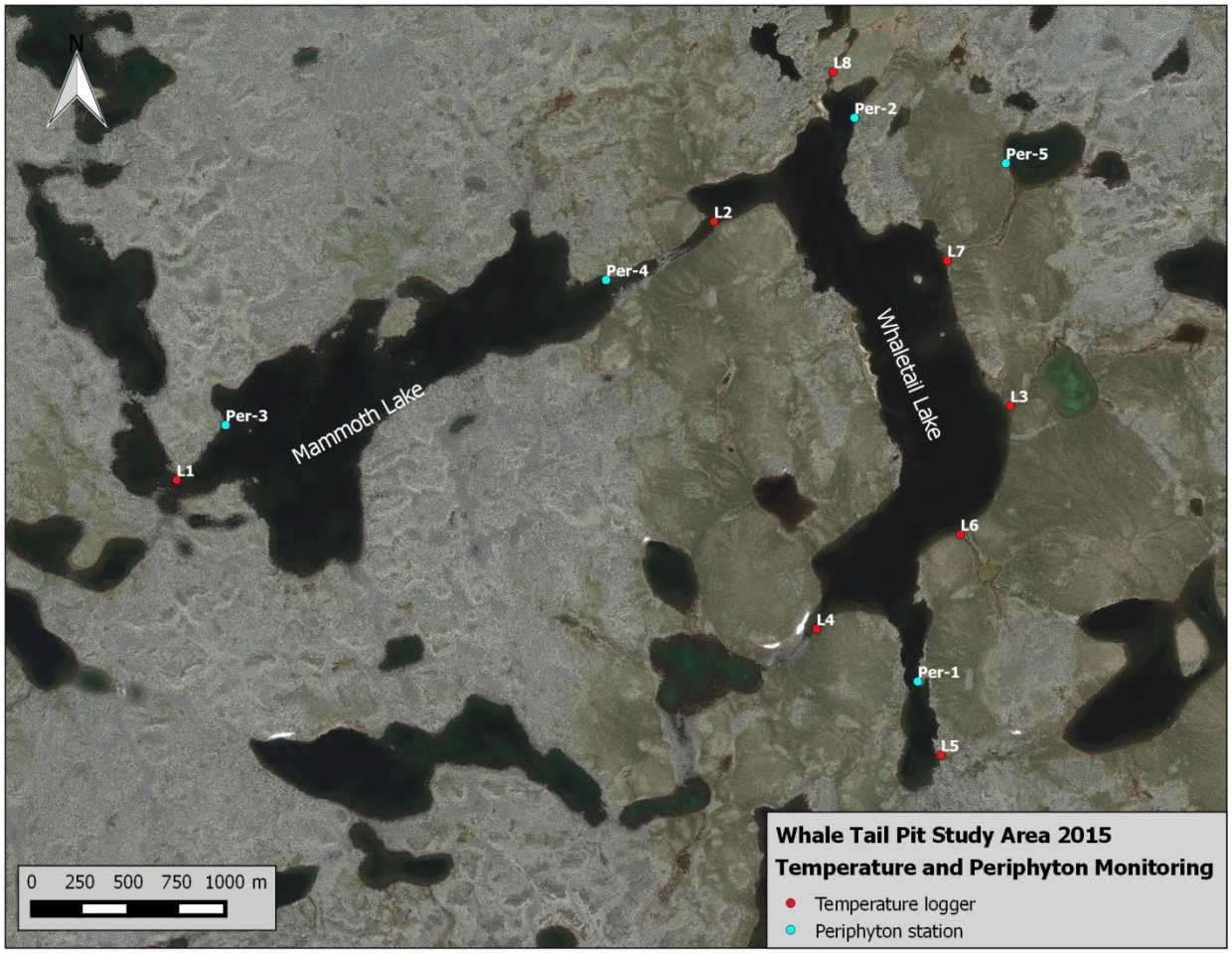

Figure 7-1. Temperature and periphyton monitoring locations in the Whale Tail Pit study area, 2015.

7.2 Results

The first and last complete day for which temperature data are available, the maximum water temperature recorded and the date on which the maximum temperature was recorded are presented for each location in Table 7-1. The temperature loggers at L1 and L2 stopped recording data on August 3 and August 12, respectively, when their memory capacity was reached. The other six loggers recorded temperatures from their deployment until their removal.

Table 7-1. The first and last full day for which temperature data are available, the maximum water temperature recorded and the day that the maximum water temperature was recorded at each location.

Location	Location ID	Start Date (2015)	End Date (2015)	Maximum temperature (°C)	Date of maximum temperature
Outlet of Mammoth Lake (A16-A17)	L1	June 22	August 2	17.1	July 29
Outlet of Whale Tail Lake (A17-A16)	L2	June 22	August 11	18.6	August 6
A55-A17	L3	June 27	August 29	19.5	August 4
South end of Whale Tail Lake (near mouth of A18-A17)	L4	June 27	August 29	20.5	July 29
A-P93-A17	L5	June 27	July 1	13.6	July 1
A59-A17	L6	June 28	August 29	21.1	August 6
A53-A17	L7	June 28	August 29	22.8	August 4
A46-A17	L8	June 28	August 27	24.5	July 27

The maximum water temperatures were recorded on July 29 in the outlet from Mammoth Lake (L1) and at the south end of Whale Tail Lake (L4) and were 17.1°C and 20.5°C respectively (Table 7-1). The maximum temperature in the outlet from Whale Tail Lake occurred on August 6 and was 18.6°C (Table 7-1). The maximum water temperatures in the four tributaries where temperatures were recorded from late June through late August and Whale Tail Lake (L2) occurred between July 27 and August 6 and ranged from 19.5°C to 24.5°C (Table 7-1).

The maximum daily water temperatures in the lake outlets were less than 3°C at the beginning of the deployments when the lakes were still ice-covered (**Figure 7-2**). Water temperatures in the outlets increased slowly until mid-July. Then a rapid increase in temperature occurred when the last of the ice in the lakes melted. The water temperature increased more rapidly at L4, at the south end of Whale Tail Lake, than it did in the lake outlet (**Figure 7-2**). This is probably because the ice melted from this arm of the lake sooner than it did on the main lake and also due to the influence of the warmer water from tributary A18-A17. After mid-July, when the last ice in the main part of Whale Tail Lake melted, the water temperatures at this location were more similar to those in the outlet from Whale Tail Lake.

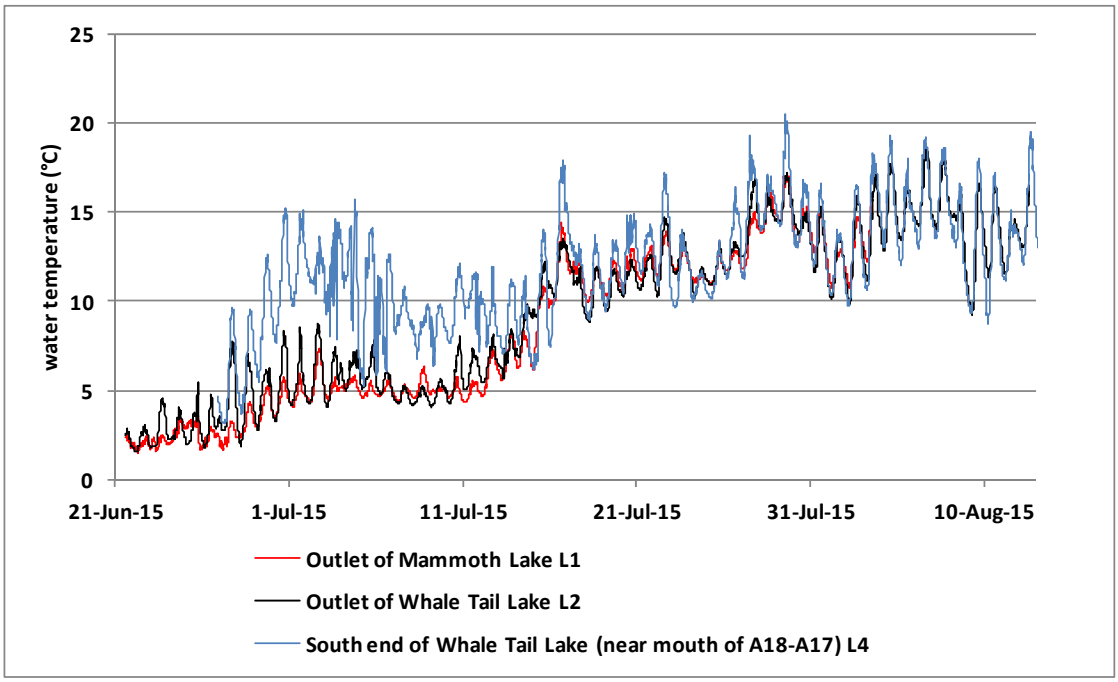

Figure 7-2. Water temperatures at the outlets of Mammoth (L1) and Whale Tail (L2) Lakes and at the south end of Whale Tail Lake (L4) for the period June 21 – August 12, 2015.

The daily mean, maximum and minimum water temperatures in the tributaries for the period June 27- August 28 are presented in Figure 7-3, Figure 7-4 and Figure 7-5 respectively. The rates of increase in temperature in late June and early July appear to be related to the duration of ice presence in the upstream lakes. Watercourse A55-A17, with only small shallow lakes and ponds upstream, warmed most quickly. Watercourse A59-A17, which has a large lake upstream, warmed most slowly. The mean temperatures of watercourses converged after mid-July and subsequently all four tributaries exhibited similar patterns in mean temperatures, presumably in response to weather conditions. In August, diurnal fluctuations were greatest in A53-17 and A46-17 (Figure 7-4 and Figure 7-5), which had the smallest drainage areas and shallow lakes upstream. Diurnal fluctuations were least in A55-A17.

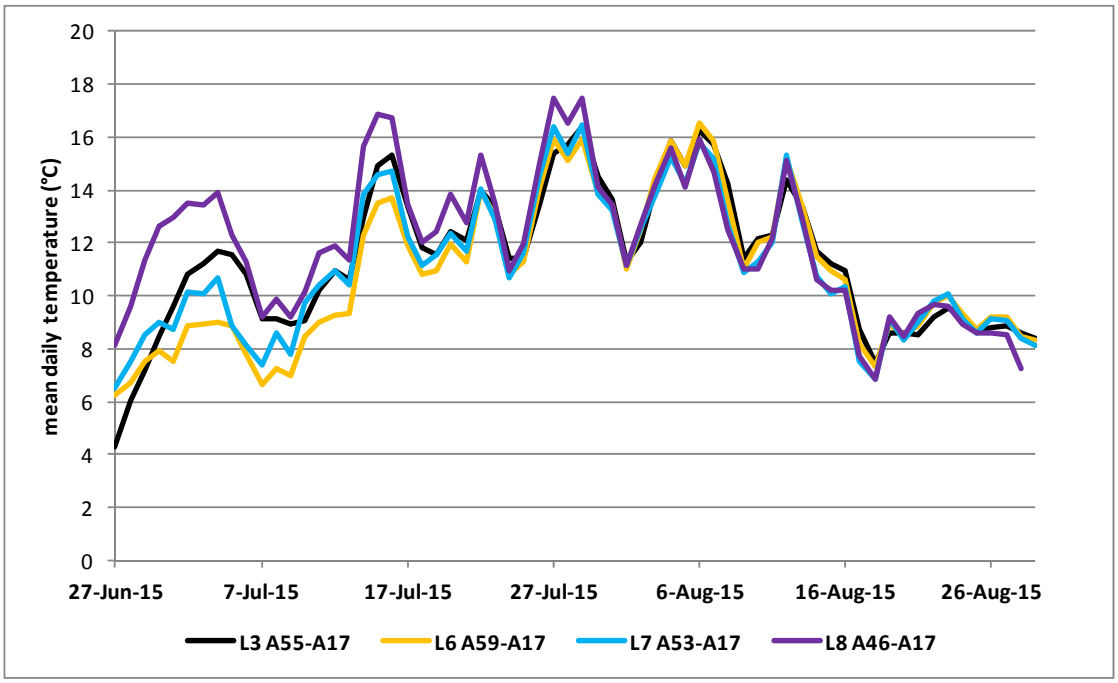

Figure 7-3. Mean daily water temperature in four tributaries to Whale Tail Lake for the period June 27 – August 28, 2015.

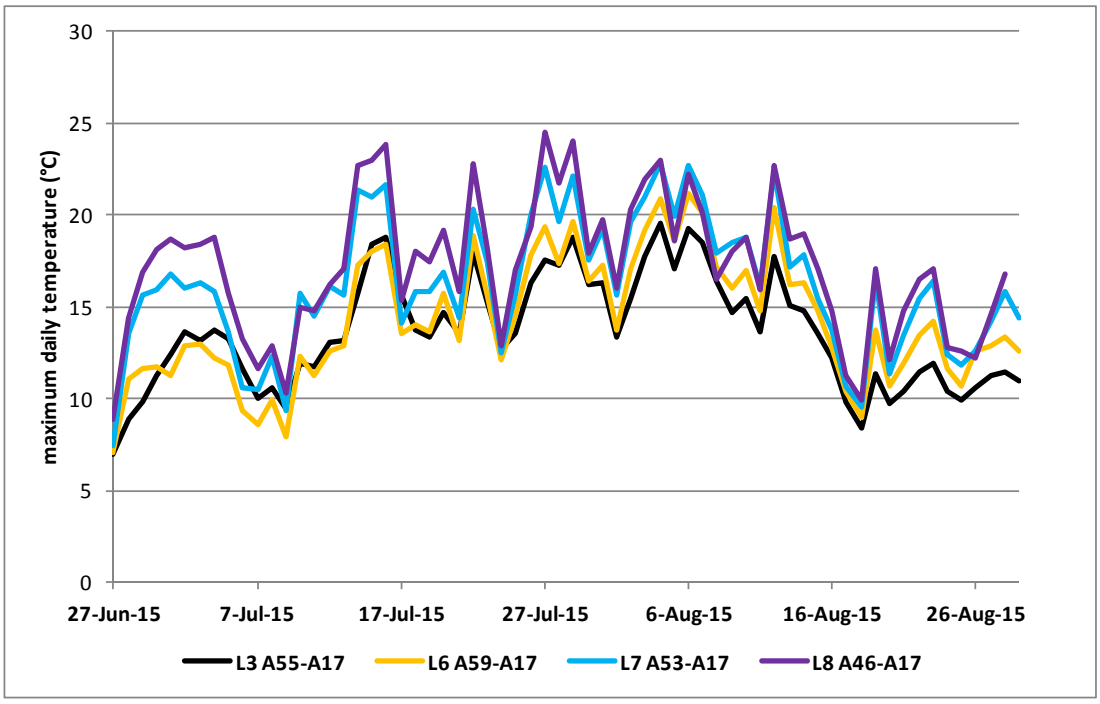

Figure 7-4. Maximum daily water temperature in four tributaries to Whale Tail Lake for the period June 27 – August 28, 2015.

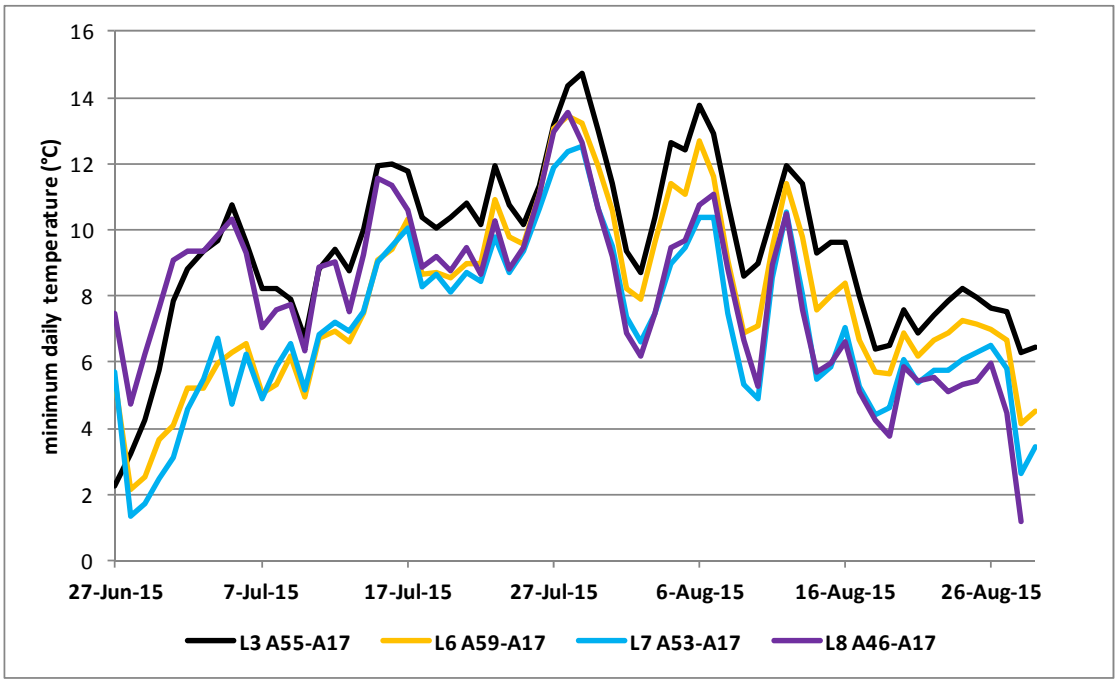

Figure 7-5. Minimum daily water temperature in four tributaries to Whale Tail Lake for the period June 27 – August 28, 2015.

8.0 PERIPHYTON MONITORING

8.1 Methods

Periphyton monitoring stations were established on Mammoth Lake, Whale Tail Lake, and Lake A53 (Figure 7-1). Stations were situated close to an accessible shore area, in water deep enough that the station would not become dry as water levels fell through the summer. The coordinates of each station were determined using a Garmin Oregon 650 gps, and a rectangular plot, approximately 2-3 m^2 in area, was established, marking each corner with flagging tape tied to a rock to ensure that the same location was examined and photographed over the course of the monitoring. Substrate type was characterized in each plot, following the Wentworth (1922) scale. Monitoring occurred when it corresponded with other field work being conducted in the vicinity, resulting in four monitoring occasions in Whale Tail Lake, two in Mammoth Lake, and three in Lake A53. Using the methods provided by Golder Associates Ltd., photographs of the substrate were taken and the following information was recorded during each monitoring event:

- date
- periphyton coverage (none 0%, sparse <5%, low 5-25%, moderate 25-75%, high >75%)
- colour of periphyton layer
- thickness (mm) of Periphyton layer
- water clarity and colour
- evenness of periphyton coverage over the broader surrounding area (even - patchy)

8.2 Results

The latitude and longitude, substrate composition and macro-scale photograph numbers are provided in Table 8-1 **and the periphyton observations and photograph numbers for each station and date are provided in**

Table 8-2. The photographs have been provided digitally. In all cases the periphyton was a spongy, non-filamentous mat that broke away in flat chunks when disturbed, and coverage was even in the vicinity of all of the plots on all occasions.

Table 8-1. Location of and substrate composition at the periphyton monitoring locations. The locations are shown in Figure 7-1.

Lake	Location	Latitude	Longitude	Substrate composition (%)				Photographs
				Large gravel	Small cobble	Large cobble	Boulder	
Whale Tail	**Per-1**	-96.688532	65.382087	0	40	60	0	4389, 4390
	Per-2	-96.693274	65.408335	0	20	75	5	4415
Mammoth	**Per-3**	-96.76458	65.395138	0	0	30	70	4441-4443
	Per-4	-96.721609	65.401235	0	0	20	80	4448-4450
Lake A53	**Per-5**	-96.676592	65.405969	10	70	20	0	4595, 4596

Table 8-2. Periphyton characteristics and numbers of the photographs that document the conditions. The locations are shown in Figure 7-1.

Lake	Location	Date (2015)	Periphyton characteristics			Photographs
			Cover (%)	Colour	Thickness (mm)	
Whale Tail	Per-1	July 26	50	olive	1-3	4382-4388
		August 4	>75	olive	1-5	4601-4605
		August 19	>75	olive-brown	1-5	4618-4625
		August 30	>75	brown	1-4	4767-4770
	Per-2	July 27	>75	olive	1-2	4412-4414
		August 4	>75	olive	1-2	4597-4600
		August 19	>75	olive	1-2	4626-4630
		August 30	>75	olive-brown	1-4	4782-4784
Mammoth Lake	Per-3	July 30	>75	olive	3-4	4437-4440
		August 25	>75	olive-brown	4-7	4678-4683
	Per-4	July 30	50	olive	1-2	4444-4447
		August 25	>75	olive-brown	1-2	4705-4709
Lake A53	Per-5	August 3	>75	brown	1	4591-4594
		August 20	>75	brown	1	27, 28
		August 31	>75	brown	1	4800, 4801

9.0 SUMMARY

In total, individuals of six fish species were captured during the 2014 and 2015 sampling. These were comprised of four large-bodied species (Lake Trout , Arctic Char, Round Whitefish and Burbot) and two small-bodies species (Slimy Sculpin and Ninespine Stickleback). Lake Trout were the most abundant in gill net catches and were captured in Mammoth, Whale Tail and Nemo Lakes and in seven of the smaller lakes (Table 6-1). Round Whitefish were captured in Mammoth and Whale Tail Lakes and in two of the smaller lakes (Table 6-1). Arctic Char were captured in Whale Tail Lake and in three of the smaller lakes. The Arctic Char are presumed to be land-locked, given the distance to a marine environment.

Netting catch per unit effort was low for all species. In Mammoth, Whale Tail and Nemo Lakes combined, average catch per unit effort in gill nets, calculated as the number of individuals captured per hour of soak time using a standard AEM gill net, was 0.5, 0.1 and 0.01 for Lake Trout, Round Whitefish and Arctic Char, respectively. Large mesh hoop nets set between June 19 and July 13, 2015, in areas where there was thought to be potential for fish movement between lakes caught one Lake Trout and one Arctic Char in 3000 hours of soak time. In total, electrofishing 1,978 m of lake shoreline resulted in the capture of 145 Ninespine Stickleback, 55 Slimy Sculpin, 2 juvenile Arctic Char and 3 juvenile salmonids, either Arctic Char or Lake Trout, which were not identified to species. There were, however, several isolated or nearly isolated small lakes and ponds in which no fish were captured. Most of these were located north of Whale Tail Lake.

Electrofishing effort on study area tributaries over the 2015 field season totalled 24,709 electroseconds and 3,569 m. The most abundant species in the catches was Ninespine Stickleback (n=469) followed by Slimy Sculpin (n=237). Low numbers of juvenile Arctic Char (n=13), juvenile Lake Trout (n=8), as well as one juvenile each of Round Whitefish and Burbot were captured in the tributaries. Juvenile Arctic Char were captured by electrofishing in five of the tributaries to Whale Tail Lake and juvenile Lake Trout were captured in three. Large minnow traps set in tributaries caught 9 Slimy Sculpin and 1 juvenile Round Whitefish in 2640 hours of soak time.

There was only an interstitial flow connection during the 2015 spring freshet between four of the larger tributary lakes (A21, A56, A60 and A65) and Whale Tail Lake. This was also the case for lakes A43 and A45 that drain to Mammoth Lake. The connection between Whale Tail and Mammoth Lake had only interstitial flow once water levels and flows subsided. This was also the case in a number of the connecting channels downstream from Mammoth Lake.

No Arctic Grayling were observed or captured in the study area. Their apparent absence is consistent with the paucity of suitable spawning habitat and absence of riverine adult habitat in the tributaries to Mammoth and Whale Tail Lake. Migrations by adults to and from downstream would be prevented by the absence of surface flow in several of the connecting channels except under freshet conditions.

10.0 LITERATURE CITED

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APPENDIX A – FISH SAMPLING DATA

Table A 1. Hoop net number, location ID (refer to Figure 3-1) and coordinates, set and lift dates and times, direction of opening, and catch for large-mesh hoop nets set in 2015. Nets 1 and 6 had six m long wings. Nets 2, 3, 4 and 5 had 3 m long wings.

Net Number	Location ID	Latitude	Longitude	Water-course	Date Set	Time Set	Date Lifted	Time lifted	Soak Time (hours)	Opening facing	Catch
1	LHN1	65.392670	-96.770258	A16-A15	19-Jun	14:35	20-Jun	14:30	24	downstream	none
1	LHN1	65.392670	-96.770258	A16-A15	20-Jun	14:30	21-Jun	12:00	22	downstream	none
1	LHN1	65.392670	-96.770258	A16-A15	21-Jun	12:00	27-Jun	13:15	145	downstream	none
1	LHN1	65.392670	-96.770258	A16-A15	27-Jun	13:15	28-Jun	15:21	26	downstream	none
1	LHN1	65.392670	-96.770258	A16-A15	28-Jun	15:21	03-Jul	15:35	120	downstream	none
1	LHN1	65.392670	-96.770258	A16-A15	03-Jul	15:35	04-Jul	9:30	18	downstream	none
3	LHN1	65.392670	-96.770258	A16-A15	21-Jun	12:30	27-Jun	13:15	145	downstream	none
3	LHN1	65.392670	-96.770258	A16-A15	27-Jun	13:15	28-Jun	15:03	26	upstream	none
3	LHN1	65.392670	-96.770258	A16-A15	28-Jun	15:03	03-Jul	15:45	121	upstream	none
3	LHN1	65.392670	-96.770258	A16-A15	03-Jul	15:45	04-Jul	9:30	18	upstream	none
1	LHN3	65.403864	-96.709527	A17-A16	04-Jul	14:30	06-Jul	15:00	49	upstream	none
1	LHN3	65.403864	-96.709527	A17-A16	06-Jul	15:00	07-Jul	15:30	25	upstream	none
1	LHN3	65.403864	-96.709527	A17-A16	07-Jul	15:30	08-Jul	15:20	24	upstream	none
1	LHN3	65.403864	-96.709527	A17-A16	08-Jul	15:20	09-Jul	12:10	21	upstream	none
1	LHN3	65.403864	-96.709527	A17-A16	09-Jul	12:10	10-Jul	13:45	26	upstream	none
1	LHN3	65.403864	-96.709527	A17-A16	10-Jul	13:45	12-Jul	16:17	51	upstream	none
1	LHN3	65.403864	-96.709527	A17-A16	12-Jul	16:17	13-Jul	9:15	17	upstream	none
3	LHN3	65.403948	-96.709764	A17-A16	04-Jul	14:30	06-Jul	15:00	49	downstream	none
3	LHN3	65.403948	-96.709764	A17-A16	06-Jul	15:00	07-Jul	15:30	25	downstream	none
3	LHN3	65.403948	-96.709764	A17-A16	07-Jul	15:30	08-Jul	15:20	24	downstream	none
3	LHN3	65.403948	-96.709764	A17-A16	08-Jul	15:20	09-Jul	12:10	21	downstream	none
3	LHN3	65.403948	-96.709764	A17-A16	09-Jul	12:10	10-Jul	13:45	26	downstream	none
3	LHN3	65.403948	-96.709764	A17-A16	10-Jul	13:45	12-Jul	16:17	51	downstream	none

Net Number	Location ID	Latitude	Longitude	Water-course	Date Set	Time Set	Date Lifted	Time lifted	Soak Time (hours)	Opening facing	Catch
3	LHN3	65.403948	-96.709764	A17-A16	12-Jul	16:17	13-Jul	9:15	17	downstream	none
2	LHN2a	65.402724	-96.711557	A17-A16	19-Jun	15:10	20-Jun	14:45	24	downstream	none
2	LHN2a	65.402724	-96.711557	A17-A16	20-Jun	14:45	21-Jun	13:00	22	downstream	none
2	LHN2a	65.402724	-96.711557	A17-A16	21-Jun	13:00	27-Jun	13:15	144	downstream	none
2	LHN2a	65.402724	-96.711557	A17-A16	27-Jun	13:15	28-Jun	15:21	26	upstream	none
2	LHN2b	65.403052	-96.710704	A17-A16	28-Jun	15:21	29-Jun	7:40	16	upstream	none
2	LHN2b	65.403052	-96.710704	A17-A16	29-Jun	7:40	03-Jul	15:15	104	upstream	none
2	LHN2b	65.403052	-96.710704	A17-A16	03-Jul	15:15	06-Jul	14:50	72	upstream	none
2	LHN2b	65.403052	-96.710704	A17-A16	06-Jul	14:50	07-Jul	15:15	24	upstream	none
2	LHN2b	65.403052	-96.710704	A17-A16	07-Jul	15:15	08-Jul	15:15	24	upstream	none
2	LHN2b	65.403052	-96.710704	A17-A16	08-Jul	15:15	09-Jul	12:10	21	upstream	none
2	LHN2b	65.403052	-96.710704	A17-A16	09-Jul	12:10	10-Jul	14:00	26	upstream	none
2	LHN2b	65.403052	-96.710704	A17-A16	10-Jul	14:00	12-Jul	16:07	50	upstream	none
2	LHN2b	65.403052	-96.710704	A17-A16	12-Jul	16:07	13-Jul	9:30	17	upstream	none
4	LHN2a	65.402724	-96.711557	A17-A16	21-Jun	13:45	27-Jun	13:15	144	downstream	none
4	LHN2a	65.402724	-96.711557	A17-A16	27-Jun	13:15	28-Jun	15:03	26	downstream	none
4	LHN2b	65.403006	-96.710979	A17-A16	28-Jun	15:03	29-Jun	7:45	17	downstream	none
4	LHN2b	65.403006	-96.710979	A17-A16	29-Jun	7:45	03-Jul	15:17	104	downstream	none
4	LHN2b	65.403006	-96.710979	A17-A16	03-Jul	15:17	06-Jul	14:50	72	downstream	none
4	LHN2b	65.403006	-96.710979	A17-A16	06-Jul	14:50	07-Jul	15:15	24	downstream	none
4	LHN2b	65.403006	-96.710979	A17-A16	07-Jul	15:15	08-Jul	15:15	24	downstream	none
4	LHN2b	65.403006	-96.710979	A17-A16	08-Jul	15:15	09-Jul	12:10	21	downstream	none
4	LHN2b	65.403006	-96.710979	A17-A16	09-Jul	12:10	10-Jul	14:00	26	downstream	none
4	LHN2b	65.403006	-96.710979	A17-A16	10-Jul	14:00	12-Jul	16:07	50	downstream	none
4	LHN2b	65.403006	-96.710979	A17-A16	12-Jul	16:07	13-Jul	9:30	17	downstream	none

Net Number	Location ID	Latitude	Longitude	Water-course	Date Set	Time Set	Date Lifted	Time lifted	Soak Time (hours)	Opening facing	Catch
5	LHN5	65.394604	-96.677482	A55-A17	26-Jun	8:40	27-Jun	10:30	26	downstream	none
5	LHN5	65.394604	-96.677482	A55-A17	27-Jun	10:30	28-Jun	13:45	27	downstream	none
5	LHN5	65.394604	-96.677482	A55-A17	28-Jun	13:45	29-Jun	10:45	21	downstream	none
5	LHN5	65.394604	-96.677482	A55-A17	29-Jun	10:45	03-Jul	7:55	93	downstream	none
5	LHN5	65.394604	-96.677482	A55-A17	03-Jul	7:55	06-Jul	8:30	73	downstream	1 Lake Trout toothed in wing - 69 cm 1 Arctic Char caught in wing 27 cm
5	LHN5	65.394604	-96.677482	A55-A17	06-Jul	8:30	07-Jul	15:50	31	downstream	none
5	LHN5	65.394604	-96.677482	A55-A17	07-Jul	15:50	08-Jul	14:50	23	downstream	none
5	LHN5	65.394604	-96.677482	A55-A17	08-Jul	14:50	09-Jul	16:15	25	downstream	none
5	LHN5	65.394604	-96.677482	A55-A17	09-Jul	16:15	12-Jul	11:34	67	downstream	none
5	LHN5	65.394604	-96.677482	A55-A17	12-Jul	11:34	13-Jul	12:40	25	downstream	none
6	LHN4	65.384689	-96.699785	A18-A17	26-Jun	10:40	29-Jun	9:47	71	downstream	none
6	LHN4	65.384689	-96.699785	A18-A17	29-Jun	9:47	04-Jul	15:10	125	downstream	none
6	LHN4	65.384689	-96.699785	A18-A17	04-Jul	15:10	05-Jul	15:35	24	downstream	none
6	LHN4	65.384689	-96.699785	A18-A17	05-Jul	15:35	08-Jul	14:58	71	downstream	none
6	LHN4	65.384689	-96.699785	A18-A17	08-Jul	14:58	09-Jul	14:55	24	downstream	none
6	LHN4	65.384689	-96.699785	A18-A17	09-Jul	14:55	13-Jul	11:30	93	downstream	none

Table A 2. Gill net set, lift and catch data. Refer to figures in the body of the report for locations.

Waterbody	Set type	Location ID	Start depth	Start latitude	Start longitude	End depth	End latitude	End longitude	Set date	Set time	Lift date	Lift time	Lake Trout	Arctic Char	Round Whitefish	Burbot
A113	miscellaneous gill net	GN46	0.6	65.417648	-96.690075	0.5	65.418488	-96.689693	28-Aug-15	15:14	29-Aug-15	7:50	0	0	0	0
A18	miscellaneous gill net	GN37	1	65.383806	-96.713253	1.1	65.382809	-96.715195	22-Aug-15	12:45	22-Aug-15	15:03	0	0	0	0
A19	miscellaneous gill net	GN38	1	65.377131	-96.713333	1	65.376886	-96.716198	23-Aug-15	9:36	23-Aug-15	11:30	0	0	0	0
A20	miscellaneous gill net	GN39a	2.4	65.379587	-96.746692	7.8	65.378869	-96.749023	23-Aug-15	14:16	23-Aug-15	16:01	0	0	1	0
A20	overnight gill net	GN39b	2.4	65.379587	-96.746692	7.8	65.378869	-96.749023	23-Aug-15	16:20	24-Aug-15	8:07	11	0	5	0
A22	miscellaneous gill net	GN40	3.5	65.373967	-96.757500	6.7	65.373660	-96.760268	24-Aug-15	15:02	24-Aug-15	16:38	2	1	0	0
A45	miscellaneous gill net	GN45	2	65.384859	-96.744752	3	65.384002	-96.746927	28-Aug-15	10:50	28-Aug-15	12:49	0	0	0	0
A47	miscellaneous gill net	GN47	0.7	65.412776	-96.694540	1	65.413968	-96.695097	29-Aug-15	9:25	29-Aug-15	11:40	0	1	0	0
A49	miscellaneous gill net	GN48	2.5	65.410462	-96.699762	3.5	65.411405	-96.701695	29-Aug-15	13:27	29-Aug-15	15:58	0	0	0	0
A53	miscellaneous gill net	GN31	1.2	65.406759	-96.669336	2	65.406215	-96.672075	03-Aug-15	14:28	03-Aug-15	16:51	1	2	0	0
A55	miscellaneous gill net	GN44	0.8	65.396819	-96.671340	0.7	65.395737	-96.669831	27-Aug-15	15:57	28-Aug-15	8:07	5	0	0	1
A62	miscellaneous gill net	GN43	1.5	65.391819	-96.702106	3.3	65.390929	-96.703743	27-Aug-15	11:49	27-Aug-15	13:46	3	0	0	0
A63	miscellaneous gill net	GN36	4.2	65.388938	-96.717718	3.3	65.387855	-96.716076	22-Aug-15	8:31	22-Aug-15	10:07	1	0	0	0
A65	miscellaneous gill net	GN35	1	65.373144	-96.694364	1.5	65.373712	-96.696831	20-Aug-15	10:37	20-Aug-15	13:57	2	0	2	0
Mammoth Lake	2014 miscellaneous gill net	GN14-5	3.2	65.389745	-96.750904	3.5	65.391114	-96.751886	04-Sep-14	11:03	04-Sep-14	17:35	7	0	0	0
Mammoth Lake	2014 miscellaneous gill net	GN14-6	5.3	65.390281	-96.756683	2	65.391654	-96.757351	04-Sep-14	11:23	04-Sep-14	18:03	6	0	0	0
Mammoth Lake	miscellaneous gill net	GN41a	2.5	65.400782	-96.727100	5	65.400924	-96.730386	25-Aug-15	8:48	25-Aug-15	14:11	1	0	0	0
Mammoth Lake	miscellaneous gill net	GN42a	8	65.395395	-96.752570	5.3	65.395304	-96.755652	25-Aug-15	9:07	25-Aug-15	14:36	3	0	0	0
Mammoth Lake	overnight gill net	GN41b	2.5	65.400782	-96.727100	5	65.400924	-96.730386	25-Aug-15	14:27	26-Aug-15	8:09	10	0	4	0
Mammoth Lake	overnight gill net	GN42b	8	65.395395	-96.752570	5.3	65.395304	-96.755652	25-Aug-15	14:45	26-Aug-15	8:50	14	0	0	0
Mammoth Lake	short-set gill net	GN15	1.3	65.399001	-96.744166	4.2	65.398085	-96.742010	28-Jul-15	8:24	28-Jul-15	10:39	1	0	3	0
Mammoth Lake	short-set gill net	GN16	1.4	65.399447	-96.748510	7.2	65.398371	-96.750074	28-Jul-15	8:39	28-Jul-15	11:15	3	0	5	0
Mammoth Lake	short-set gill net	GN17	0.9	65.399489	-96.723543	3.3	65.400282	-96.725747	28-Jul-15	9:23	28-Jul-15	12:02	0	0	0	0
Mammoth Lake	short-set gill net	GN18	1.8	65.401677	-96.735628	2.3	65.400710	-96.733640	28-Jul-15	11:10	28-Jul-15	13:30	0	0	1	0
Mammoth Lake	short-set gill net	GN19	1.5	65.396002	-96.745847	4.7	65.396414	-96.748668	28-Jul-15	11:50	28-Jul-15	13:51	1	0	1	0
Mammoth Lake	short-set gill net	GN20	2.7	65.403152	-96.726912	3	65.402034	-96.728046	28-Jul-15	12:19	28-Jul-15	14:26	1	0	4	0
Mammoth Lake	short-set gill net	GN21	1.7	65.398226	-96.735355	6.7	65.399367	-96.736694	28-Jul-15	13:47	28-Jul-15	15:46	0	0	0	0
Mammoth Lake	short-set gill net	GN22	3.1	65.392852	-96.750834	4.7	65.392783	-96.753812	28-Jul-15	14:15	28-Jul-15	16:11	2	0	2	0
Mammoth Lake	short-set gill net	GN23	2.1	65.388788	-96.753937	4.5	65.389863	-96.755265	29-Jul-15	7:59	29-Jul-15	10:13	0	0	0	0
Mammoth Lake	short-set gill net	GN24	1.8	65.396210	-96.765103	5.5	65.396455	-96.762148	29-Jul-15	8:40	29-Jul-15	10:38	0	0	0	0
Mammoth Lake	short-set gill net	GN25	2.1	65.398015	-96.755425	4.3	65.397118	-96.757389	29-Jul-15	8:49	29-Jul-15	11:10	0	0	0	0
Mammoth Lake	short-set gill net	GN26	3.8	65.392535	-96.760530	2.4	65.392523	-96.757591	29-Jul-15	10:30	29-Jul-15	12:33	0	0	0	0
Mammoth Lake	short-set gill net	GN27	6.8	65.396505	-96.753644	6	65.395413	-96.755496	29-Jul-15	11:08	29-Jul-15	13:08	0	0	0	0
Mammoth Lake	short-set gill net	GN28	8.7	65.401212	-96.732046	6.3	65.400005	-96.732679	29-Jul-15	11:36	29-Jul-15	13:36	0	0	0	0
Nemo Lake	2014 miscellaneous gill net	GN14-1	4.2	65.416952	-96.713128	2.3	65.416430	-96.710065	06-Sep-14	11:16	06-Sep-14	17:47	4	0	0	0

Waterbody	Set type	Location ID	Start depth	Start latitude	Start longitude	End depth	End latitude	End longitude	Set date	Set time	Lift date	Lift time	Lake Trout	Arctic Char	Round Whitefish	Burbot
Nemo Lake	2014 miscellaneous gill net	GN14-2	15	65.424743	-96.701119	17	65.424159	-96.698448	06-Sep-14	11:40	06-Sep-14	18:24	11	0	0	0
Nemo Lake	miscellaneous gill net	GN29a	3.4	65.424979	-96.691333	5.8	65.424018	-96.693733	02-Aug-15	8:00	02-Aug-15	11:20	2	0	0	0
Nemo Lake	miscellaneous gill net	GN29b	3.4	65.424979	-96.691333	5.8	65.424018	-96.693733	02-Aug-15	11:20	02-Aug-15	14:58	1	0	0	0
Nemo Lake	miscellaneous gill net	GN30a	16.7	65.426865	-96.702389	2.4	65.425660	-96.704009	02-Aug-15	8:22	02-Aug-15	11:50	1	0	0	0
Nemo Lake	miscellaneous gill net	GN30b	16.7	65.426865	-96.702389	2.4	65.425660	-96.704009	02-Aug-15	11:50	02-Aug-15	15:28	3	0	0	0
Whale Tail Lake	2014 miscellaneous gill net	GN14-3	1.2	65.405026	-96.701889	6	65.404261	-96.699056	05-Sep-14	13:39	05-Sep-14	20:00	4	1	0	0
Whale Tail Lake	2014 miscellaneous gill net	GN14-4	8.5	65.406093	-96.699462	5.5	65.405514	-96.696848	05-Sep-14	13:26	05-Sep-14	19:44	1	0	0	0
Whale Tail Lake	miscellaneous gill net	GN33a	3.3	65.393862	-96.688366	4.9	65.392600	-96.687569	18-Aug-15	9:34	18-Aug-15	14:43	0	0	0	0
Whale Tail Lake	miscellaneous gill net	GN34a	8.3	65.391789	-96.686985	3.2	65.392956	-96.688082	19-Aug-15	9:16	19-Aug-15	13:23	1	0	0	0
Whale Tail Lake	miscellaneous gill net	GN34b	8.3	65.391789	-96.686985	3.2	65.392956	-96.688082	19-Aug-15	13:40	19-Aug-15	16:37	0	0	0	0
Whale Tail Lake	overnight gill net	GN32	2.1	65.394058	-96.688595	6.3	65.392843	-96.687670	17-Aug-15	16:43	18-Aug-15	8:45	15	0	1	0
Whale Tail Lake	overnight gill net	GN33b	3.3	65.393862	-96.688366	4.9	65.392600	-96.687569	18-Aug-15	14:39	19-Aug-15	8:43	9	0	1	0
Whale Tail Lake	short-set gill net	GN01	1.5	65.399818	-96.684135	1.1	65.400431	-96.686871	24-Jul-15	9:23	24-Jul-15	11:21	0	0	0	0
Whale Tail Lake	short-set gill net	GN02	1.5	65.394034	-96.678016	2.4	65.394661	-96.680711	24-Jul-15	11:53	24-Jul-15	14:16	0	1	0	0
Whale Tail Lake	short-set gill net	GN03	4	65.388220	-96.688720	7.5	65.389392	-96.691743	24-Jul-15	14:10	24-Jul-15	16:05	0	0	0	0
Whale Tail Lake	short-set gill net	GN04	1	65.382051	-96.687806	7	65.383325	-96.689765	24-Jul-15	15:19	24-Jul-15	17:16	0	0	0	0
Whale Tail Lake	short-set gill net	GN05	1.5	65.385880	-96.695145	5.1	65.386787	-96.697035	25-Jul-15	9:35	25-Jul-15	11:54	0	0	0	0
Whale Tail Lake	short-set gill net	GN06	5.5	65.387701	-96.695769	0.6	65.388262	-96.698160	25-Jul-15	9:56	25-Jul-15	12:12	0	0	0	0
Whale Tail Lake	short-set gill net	GN07	8.8	65.390880	-96.685918	5.8	65.392023	-96.687253	25-Jul-15	11:23	25-Jul-15	14:07	1	0	0	0
Whale Tail Lake	short-set gill net	GN08	2	65.397723	-96.692555	4.7	65.398602	-96.690395	25-Jul-15	12:37	25-Jul-15	14:54	0	0	0	0
Whale Tail Lake	short-set gill net	GN09	4.2	65.402652	-96.699378	10.3	65.403331	-96.696805	25-Jul-15	12:48	25-Jul-15	15:38	2	0	1	0
Whale Tail Lake	short-set gill net	GN10	1.3	65.404365	-96.705779	4.3	65.404824	-96.708425	25-Jul-15	15:18	25-Jul-15	17:30	2	0	2	0
Whale Tail Lake	short-set gill net	GN11	1	65.408242	-96.693524	2.3	65.408855	-96.696033	25-Jul-15	15:34	25-Jul-15	18:07	0	0	0	0
Whale Tail Lake	short-set gill net	GN12	7.4	65.401087	-96.692770	3.5	65.402197	-96.694221	26-Jul-15	7:34	26-Jul-15	9:54	0	0	0	0
Whale Tail Lake	short-set gill net	GN13	11.2	65.403443	-96.696530	4.7	65.404775	-96.695607	26-Jul-15	7:46	26-Jul-15	10:08	0	0	0	0
Whale Tail Lake	short-set gill net	GN14	11.5	65.394851	-96.687671	6.3	65.396062	-96.687896	26-Jul-15	8:04	26-Jul-15	10:27	0	0	0	0

Table A 3. Capture location, net number and date of capture, mesh size, length and weight, liver weight, gonad weight, sex (male=m, female=f), maturity (m=mature, i=immature), age determined from fin rays and otoliths, and number of the tag applied to released individuals for fish captured in gill nets in 2015.

Waterbody name or code	Fish #	Net set # and lift	Date of lift	Mesh size (mm)	Species	Fork length (mm)	Weight (g)	Liver weight (g)	Gonad weight (g)	Sex	Maturity	Fin-ray age	Otolith age	Ext. DELT/ Parasites	Tag applied
Mammoth Lake	1	15	28-Jul-15	51	round whitefish	345	429	3.4	2	f	i	na	na	none	
Mammoth Lake	2	15	28-Jul-15	51	lake trout	497	860					na	na	none	0359
Mammoth Lake	3	15	28-Jul-15	51	round whitefish	342	435.2	3.2	1.3	m	i	na	na	none	
Mammoth Lake	4	15	28-Jul-15	38	round whitefish	272	198.8	1.8	na	m	i	na	na	none	
Mammoth Lake	5	16	28-Jul-15	76	lake trout	639	2920					na	na	none	0360
Mammoth Lake	6	16	28-Jul-15	51	lake trout	620	2570					na	na	none	0361
Mammoth Lake	7	16	28-Jul-15	51	lake trout	392	660					na	na	none	0362
Mammoth Lake	8	16	28-Jul-15	51	round whitefish	384	641.3	7	15.4	f	m	na	na	none	
Mammoth Lake	9	16	28-Jul-15	51	round whitefish	350	467.7	2.9	0.8	m	m	na	na	none	
Mammoth Lake	10	16	28-Jul-15	51	round whitefish	290	230.9	2.6	na	m	i	na	na	none	
Mammoth Lake	11	16	28-Jul-15	51	round whitefish	270	201.4	1.6	1.1	f	m	na	na	none	
Mammoth Lake	12	16	28-Jul-15	38	round whitefish	252	158.4	1	na	m	i	na	na	none	
Mammoth Lake	13	19	28-Jul-15	38	lake trout	752	3870					na	na	none	0363
Mammoth Lake	14	19	28-Jul-15	38	round whitefish	359	460	4.4	11.2	f	m	na	na	none	
Mammoth Lake	15	20	28-Jul-15	na	lake trout	311	323					na	na	none	0364
Mammoth Lake	16	20	28-Jul-15	na	round whitefish	310	333					na	na	none	0365
Mammoth Lake	17	20	28-Jul-15	na	round whitefish	284	238					na	na	none	
Mammoth Lake	18	20	28-Jul-15	na	round whitefish	296	256					na	na	none	
Mammoth Lake	19	20	28-Jul-15	na	round whitefish	328	362	2.7	4.9	f	m	na	na	none	
Mammoth Lake	20	21	28-Jul-15	51	round whitefish	353	281	4.2	1.6	m	i	na	na	none	
Mammoth Lake	21	21	28-Jul-15	38	lake trout	361	460					na	na	none	0366
Mammoth Lake	22	22	28-Jul-15	76	round whitefish	na	na					na	na	none	
Mammoth Lake	23	22	28-Jul-15	76	lake trout	414	675					na	na	none	
Mammoth Lake	24	22	28-Jul-15	38	round whitefish	na	na					na	na	none	
Mammoth Lake	25	22	28-Jul-15	38	lake trout	214	97					na	na	none	
Mammoth Lake	26	27	29-Jul-15	51	lake trout	342	475	6.6	na	m	i	7	na	none	
Nemo Lake	27	29a	02-Aug-15	102	lake trout	511	1290					na	na	none	0367
Nemo Lake	28	29a	02-Aug-15	102	lake trout	500	1290					na	na	none	0368
Nemo Lake	29	30a	02-Aug-15	76	lake trout	425	950					na	na	none	0369
Nemo Lake	30	29b	02-Aug-15	102	lake trout	483	1120					na	na	none	0370
Nemo Lake	31	30b	02-Aug-15	76	lake trout	800	7140					na	na	none	0371
Nemo Lake	32	30b	02-Aug-15	102	lake trout	828	7050					na	na	none	0372
Nemo Lake	33	30b	02-Aug-15	102	lake trout	612	2200	13.1	19.5	f	m	na	na	none	
A53	34	31	03-Aug-15	51	arctic char	433	970					na	na	none	0374

Waterbody name or code	Fish #	Net set # and lift	Date of lift	Mesh size (mm)	Species	Fork length (mm)	Weight (g)	Liver weight (g)	Gonad weight (g)	Sex	Maturity	Fin-ray age	Otolith age	Ext. DELT/ Parasites	Tag applied
A53	35	31	03-Aug-15	51	arctic char	515	1290					na	na	none	
A53	36	31	03-Aug-15	51	lake trout	580	2200					na	na	none	0375
Whale Tail Lake	37	7	25-Jul-15	76	lake trout	390	660					na	na	none	0352
Whale Tail Lake	38	9	25-Jul-15	51	lake trout	641	2710					na	na	none	0354
Whale Tail Lake	39	9	25-Jul-15	51	lake trout	880	8000					na	na	none	0353
Whale Tail Lake	40	9	25-Jul-15	51	round whitefish	411	775					na	na	none	
Whale Tail Lake	41	10	25-Jul-15	76	round whitefish	332	400					na	na	none	
Whale Tail Lake	42	10	25-Jul-15	51	round whitefish	388	590					na	na	none	0357
Whale Tail Lake	43	10	25-Jul-15	51	lake trout	263	170					na	na	none	0358
Whale Tail Lake	44	10	25-Jul-15	51	lake trout	355	440					na	na	none	
Whale Tail Lake	45	2	24-Jul-15	51	arctic char	453	780					na	na	none	0351
Whale Tail Lake	na	2	24-Jul-15	na	arctic char	510	780					na	na	none	0351
Whale Tail Lake	46	32	18-Aug-15	126	lake trout	568	1830	14	15.2	f	m	28	28	none	
Whale Tail Lake	47	32	18-Aug-15	102	lake trout	661	3110	22.2	3.3	m	m	26	24	none	
Whale Tail Lake	48	32	18-Aug-15	102	lake trout	581	2210	20	20.4	f	m	25	27	none	
Whale Tail Lake	49	32	18-Aug-15	76	lake trout	608	2230	35.4	194	f	m	25	26	none	
Whale Tail Lake	50	32	18-Aug-15	76	lake trout	481	1090		1	m	i	24	25	none	
Whale Tail Lake	51	32	18-Aug-15	76	round whitefish	na	na					na	na	na	
Whale Tail Lake	52	32	18-Aug-15	76	lake trout	445	1130	9.7	22	m	m	15	15	none	
Whale Tail Lake	53	32	18-Aug-15	76	lake trout	472	970	5.3	1	m	i	18	18	none	
Whale Tail Lake	54	32	18-Aug-15	76	lake trout	424	1060	14	130.1	f	m	20	22	none	
Whale Tail Lake	55	32	18-Aug-15	76	lake trout	396	778	11.3	91.3	f	m	14	16	none	
Whale Tail Lake	56	32	18-Aug-15	51	lake trout	407	775	5	25.1	m	m	16	23	none	
Whale Tail Lake	57	32	18-Aug-15	51	lake trout	388	607	4	34.5	m	m	12	13	none	
Whale Tail Lake	58	32	18-Aug-15	51	lake trout	469	987	11.5	0.7	m	i	14	18	none	
Whale Tail Lake	59	32	18-Aug-15	51	lake trout	380	655	3.6	15.6	m	m	11	12	none	
Whale Tail Lake	60	32	18-Aug-15	51	lake trout	430	687	6.1	4.5	f	m	12	13	none	
Whale Tail Lake	61	33b	19-Aug-15	25	lake trout	860	7320	55.6	371.4	m	m	39	44	none	
Whale Tail Lake	62	33b	19-Aug-15	38	lake trout	585	2110	14.6	74.7	m	m	22	26	none	
Whale Tail Lake	63	33b	19-Aug-15	38	lake trout	475	1020	6.7	25	m	m	20	25	none	
Whale Tail Lake	64	33b	19-Aug-15	38	lake trout	410	745	5.9	8.9	f	m	22	25	none	
Whale Tail Lake	65	33b	19-Aug-15	51	lake trout	423	693	5.3	3.6	f	m	11	14	none	
Whale Tail Lake	66	33b	19-Aug-15	51	lake trout	335	427	3.3		m	i	11	12	none	
Whale Tail Lake	67	33b	19-Aug-15	76	round whitefish	na	na					na	na	na	
Whale Tail Lake	68	33b	19-Aug-15	102	lake trout	319	348	2.5		m	i	9	9	none	
Whale Tail Lake	69	33b	19-Aug-15	102	lake trout	159	37.4	0.5		u	i	4	na	none	

Waterbody name or code	Fish #	Net set # and lift	Date of lift	Mesh size (mm)	Species	Fork length (mm)	Weight (g)	Liver weight (g)	Gonad weight (g)	Sex	Maturity	Fin-ray age	Otolith age	Ext. DELT/ Parasites	Tag applied
Whale Tail Lake	70	34b	19-Aug-15	51	lake trout	390	672	9.6	71	f	r	15	19	none	
A65	71	35	20-Aug-15	38	round whitefish	na	na					na	na	na	
A65	72	35	20-Aug-15	38	round whitefish	na	na					na	na	na	
A65	73	35	20-Aug-15	51	lake trout	na	na					na	na	na	
A65	74	35	20-Aug-15	51	lake trout	na	na					na	na	na	
A63	75	36	22-Aug-15	38	lake trout	na	na					na	na	na	
A20	76	39a	23-Aug-15	25	round whitefish	137	na					na	na	na	
A20	77	39b	24-Aug-15	76	round whitefish	na	na					na	na	na	
A20	78	39b	24-Aug-15	76	lake trout	349	420					na	na	none	0376
A20	79	39b	24-Aug-15	51	lake trout	549	1920					na	na	none	0377
A20	80	39b	24-Aug-15	51	lake trout	378	620					na	na	none	0378
A20	81	39b	24-Aug-15	51	lake trout	351	430					na	na	none	0379
A20	82	39b	24-Aug-15	51	lake trout	545	1980					na	na	none	0380
A20	83	39b	24-Aug-15	51	round whitefish	365	510					na	na	none	
A20	84	39b	24-Aug-15	51	round whitefish	369	530					na	na	none	
A20	85	39b	24-Aug-15	51	lake trout	381	500					12	12	none	
A20	86	39b	24-Aug-15	51	lake trout	305	280					na	na	none	0381
A20	87	39b	24-Aug-15	51	round whitefish	278	210					na	na	none	
A20	88	39b	24-Aug-15	51	lake trout	369	570					12	11	none	
A20	89	39b	24-Aug-15	38	round whitefish	230	120					na	na	none	
A20	90	39b	24-Aug-15	38	lake trout	189	80					3	3	none	
A20	91	39b	24-Aug-15	38	lake trout	250	170					na	na	none	
A20	92	39b	24-Aug-15	38	lake trout	366	550					na	na	none	0382
A22	93	40	24-Aug-15	51	lake trout	445	870					na	na	none	0383
A22	94	40	24-Aug-15	51	lake trout	na	na					na	na	na	
A22	95	40	24-Aug-15	28	arctic char	376	520					na	na	none	0384
Mammoth Lake	96	41a	25-Aug-15	38	lake trout	na	na					na	na	na	
Mammoth Lake	97	42a	25-Aug-15	51	lake trout	370	510	3.2	4.5	f	m	13	13	none	
Mammoth Lake	98	42a	25-Aug-15	51	lake trout	369	501	4	6.1	f	m	12	13	none	
Mammoth Lake	99	42a	25-Aug-15	51	lake trout	373	550	6.2	48.3	f	m	9	11	none	
Mammoth Lake	100	41b	26-Aug-15	126	lake trout	363	542	4.1	13	m	m	9	na	none	
Mammoth Lake	101	41b	26-Aug-15	76	lake trout	343	460	2.6	5.7	f	m	9	9	none	
Mammoth Lake	102	41b	26-Aug-15	76	lake trout	353	433	2.3	2	f	m	9	10	none	
Mammoth Lake	103	41b	26-Aug-15	76	lake trout	373	474	3.6	12	f	m	13	16	none	
Mammoth Lake	104	41b	26-Aug-15	76	round whitefish	430	763					na	na	none	
Mammoth Lake	105	41b	26-Aug-15	76	lake trout	385	612	3.5	12.1	f	m	10	11	none	

Waterbody name or code	Fish #	Net set # and lift	Date of lift	Mesh size (mm)	Species	Fork length (mm)	Weight (g)	Liver weight (g)	Gonad weight (g)	Sex	Maturity	Fin-ray age	Otolith age	Ext. DELT/ Parasites	Tag applied
Mammoth Lake	106	41b	26-Aug-15	76	lake trout	395	692	9.3	63	f	m	11	12	none	
Mammoth Lake	107	41b	26-Aug-15	76	round whitefish	390	596					na	na	none	
Mammoth Lake	108	41b	26-Aug-15	76	lake trout	351	474	2.2	8.5	m	m	8	na	none	
Mammoth Lake	109	41b	26-Aug-15	76	round whitefish	na	na					na	na	none	
Mammoth Lake	110	41b	26-Aug-15	76	lake trout	346	478	7.6	45	f	m	9	10	none	
Mammoth Lake	111	41b	26-Aug-15	51	lake trout	365	504	2.8	14.2	m	m	12	12	none	
Mammoth Lake	112	41b	26-Aug-15	51	lake trout	365	504	7.1	5.2	f	m	13	13	none	
Mammoth Lake	113	41b	26-Aug-15	51	round whitefish	na	na					na	na	none	
Mammoth Lake	114	42b	26-Aug-15	126	lake trout	590	2110	10.9	2.3	m	m	24	24	none	
Mammoth Lake	115	42b	26-Aug-15	76	lake trout	369	511	2.8	12.3	m	m	12	12	none	
Mammoth Lake	116	42b	26-Aug-15	76	lake trout	354	472	3.2	11.1	m	m	12	13	none	
Mammoth Lake	117	42b	26-Aug-15	76	lake trout	366	534	2.1		m	i	13	13	none	
Mammoth Lake	118	42b	26-Aug-15	76	lake trout	316	319	1.6		m	i	10	10	none	
Mammoth Lake	119	42b	26-Aug-15	76	lake trout	290	269	2.5		m	i	8	8	none	
Mammoth Lake	120	42b	26-Aug-15	76	lake trout	290	287	2.8	0.7	f	i	8	8	none	
Mammoth Lake	121	42b	26-Aug-15	51	lake trout	285	239	1.7		u	i	8	8	none	
Mammoth Lake	122	42b	26-Aug-15	51	lake trout	254	181	1.5	0.2	u	i	6	6	none	
Mammoth Lake	123	42b	26-Aug-15	51	lake trout	215	96.2	0.6		u	i	5	5	none	
Mammoth Lake	124	42b	26-Aug-15	38	lake trout	700	4670	51.5	630	f	m	32	37	none	
Mammoth Lake	125	42b	26-Aug-15	38	lake trout	176	50.1					4	na	none	
Mammoth Lake	126	42b	26-Aug-15	38	lake trout	218	111	0.5		u	i	6	5	none	
Mammoth Lake	127	42b	26-Aug-15	38	lake trout	na	na					na	na	na	
A62	129	43	27-Aug-15	102	lake trout	434	870					na	na	none	0385
A62	130	43	27-Aug-15	102	lake trout	440	980			f	m	na	na	none	0386
A62	131	43	27-Aug-15	102	lake trout	413	760					na	na	none	
A55	132	44	28-Aug-15	51	lake trout	267	210					na	na	none	
A55	133	44	28-Aug-15	51	lake trout	278	240					na	na	none	
A55	134	44	28-Aug-15	38	burbot	na	na					na	na	na	
A55	135	44	28-Aug-15	38	lake trout	181	na					na	na	none	
A55	136	44	28-Aug-15	38	lake trout	190	80					na	na	none	
A55	137	44	28-Aug-15	25	lake trout	127	na					na	na	none	
A47	138	47	29-Aug-15	51	arctic char	283	110					na	na	none	0388

Table A 4. Waterbody, net set ID, species, fork length and weight of fish captured by gill netting in 2014.

Waterbody	Net set ID	Species	Fork length (mm)	Weight (g)
Nemo Lake	GN14-1	lake trout	879	8510
Nemo Lake	GN14-1	lake trout	639	2580
Nemo Lake	GN14-1	lake trout	430	840
Nemo Lake	GN14-1	lake trout	855	8140
Nemo Lake	GN14-2	lake trout	478	1280
Nemo Lake	GN14-2	lake trout	395	750
Nemo Lake	GN14-2	lake trout	472	1300
Nemo Lake	GN14-2	lake trout	481	1180
Nemo Lake	GN14-2	lake trout	520	1520
Nemo Lake	GN14-2	lake trout	766	5290
Nemo Lake	GN14-2	lake trout	878	5840
Nemo Lake	GN14-2	lake trout	678	3100
Nemo Lake	GN14-2	lake trout	540	1600
Nemo Lake	GN14-2	lake trout	476	1310
Nemo Lake	GN14-2	lake trout	465	1220
Whale Tail Lake	GN14-3	Arctic char	424	850
Whale Tail Lake	GN14-3	lake trout	736	4450
Whale Tail Lake	GN14-3	lake trout	646	2940
Whale Tail Lake	GN14-3	lake trout	500	1190
Whale Tail Lake	GN14-3	lake trout	510	1180
Whale Tail Lake	GN14-4	lake trout	570	1790
Mammoth Lake	GN14-5	lake trout	700	3670
Mammoth Lake	GN14-5	lake trout	705	3480
Mammoth Lake	GN14-5	lake trout	629	2680
Mammoth Lake	GN14-5	lake trout	619	2310
Mammoth Lake	GN14-5	lake trout	464	1240
Mammoth Lake	GN14-6	lake trout	323	410
Mammoth Lake	GN14-6	lake trout	305	350
Mammoth Lake	GN14-6	lake trout	427	760
Mammoth Lake	GN14-6	lake trout	850	6200
Mammoth Lake	GN14-6	lake trout	255	170

Table A 5. Lake electrofishing locations, dates, effort, catches and dominant substrates at the sampling locations. All Lake Trout and Arctic Char were juveniles. Juvenile salmonids are individuals that were released and could not be identified to species in the field.

waterbody / watercourse	location ID	Date (2015)	Start latitude	Start longitude	distance (m)	e-seconds	Nine-spine Stickle-back	Slimy Sculpin	Lake Trout	Arctic Char	juvenile salmonid	dominant substrates
Whale Tail	EF-L1	26-Jul	65.408307	-96.693163	25	195	0	0	0	0	0	cobble
Whale Tail	EF-L2	26-Jul	65.404024	-96.706512	25	458	11	1	0	0	0	cobble/boulder
Whale Tail	EF-L3	26-Jul	65.402524	-96.700425	25	616	12	1	0	0	0	cobble/boulder
Whale Tail	EF-L4	26-Jul	65.397592	-96.693160	25	264	0	2	0	2	2	sand/gravel/cobble
Whale Tail	EF-L5	26-Jul	65.388576	-96.685952	25	248	3	4	0	0	0	gravel/cobble/few boulders
Whale Tail	EF-L6	26-Jul	65.393346	-96.677342	25	755	15	6	0	0	0	boulder/cobble
Whale Tail	EF-L7	27-Jul	65.402980	-96.692034	25	287	11	0	0	0	0	cobble/boulder
Whale Tail	EF-L8	27-Jul	65.401038	-96.683590	25	180	1	0	0	0	0	cobble/some boulder
Whale Tail	EF-L9	27-Jul	65.382070	-96.688423	25	170	0	0	0	0	0	cobble
Whale Tail	EF-L10	27-Jul	65.385106	-96.698296	25	230	2	0	0	0	0	cobble/gravel/boulder
Mammoth	EF-L11	29-Jul	65.400198	-96.742841	25	464	4	1	0	0	0	peat/cobble/gravel
Mammoth	EF-L12	29-Jul	65.401025	-96.739563	25	357	1	0	0	0	0	cobble/boulder/peat
Mammoth	EF-L13	29-Jul	65.402013	-96.725795	25	441	15	1	0	0	0	cobble/gravel/peat/boulder
Mammoth	EF-L14	29-Jul	65.402580	-96.725815	25	445	14	0	0	0	0	cobble/gravel/boulder/peat/ soil
Mammoth	EF-L15	30-Jul	65.401459	-96.721846	25	448	1	4	0	0	0	peat/cobble/boulder
Mammoth	EF-L16	30-Jul	65.401453	-96.721162	25	417	2	2	0	0	0	peat/cobble/boulder
Mammoth	EF-L17	30-Jul	65.399949	-96.721210	25	344	2	0	0	0	0	cobble/boulder/peat
Mammoth	EF-L18	30-Jul	65.399708	-96.721674	25	219	1	2	0	0	0	cobble/boulder/peat
Mammoth	EF-L19	30-Jul	65.389346	-96.760241	25	455	0	2	0	0	1	cobble/boulder
Mammoth	EF-L20	30-Jul	65.395107	-96.765136	25	332	1	1	0	0	0	cobble/boulder/peat

waterbody / watercourse	location ID	Date (2015)	Start latitude	Start longitude	distance (m)	e-seconds	Nine-spine Stickle-back	Slimy Sculpin	Lake Trout	Arctic Char	juvenile salmonid	dominant substrates
A53	EF-L21	01-Aug	65.405909	-96.666885	150	930	0	0	0	0	0	peats with protruding rocks and graminoid shoreline
A54	EF-L22	01-Aug	65.409510	-96.659912	40	301	0	0	0	0	0	na
A-P21	EF-L23	01-Aug	65.412196	-96.671690	25	372	0	0	0	0	0	boulder/cobble with some peat
A52	EF-L24	01-Aug	65.409306	-96.674894	34	360	0	0	0	0	0	boulder/cobble and peat with graminoid along shore.
A51	EF-L25	01-Aug	65.409886	-96.678449	44	200	0	0	0	0	0	cobble/boulder
A50	EF-L26	01-Aug	65.411624	-96.681647	54	284	0	0	0	0	0	boulder/cobble with graminoid vegetation along 80% of shoreline
A113	EF-L27	01-Aug	65.417182	-96.690260	31	68	1	0	0	0	0	na
A-P38	EF-L28	01-Aug	65.415746	-96.694860	55	306	1	0	0	0	0	detritus with some boulder/cobble
A-P18	EF-L29	01-Aug	65.417099	-96.695154	33	130	0	0	0	0	0	detritus with some boulder/cobble/gravel. Anaerobic beneath top layer of substrate
C42	EF-L30	01-Aug	65.416955	-96.699902	40	207	0	0	0	0	0	boulder/cobble
A-P51	EF-L31	01-Aug	65.415578	-96.700354	20	98	0	0	0	0	0	pelagic inverts observed
A-P33	EF-L32	01-Aug	65.414962	-96.699182	30	170	0	0	0	0	0	cobble/boulder. Very shallow
A-P37	EF-L33	01-Aug	65.414846	-96.700462	21	155	0	0	0	0	0	boulder/cobble. Very shallow.
C40	EF-L34	01-Aug	65.414989	-96.702009	45	181	0	0	0	0	0	cobble/gravel/boulder. Shallow, but deeper area to south
A-P49	EF-L35	01-Aug	65.413640	-96.701340	20	126	0	0	0	0	0	boulder/cobble. Isolated on bedrock

waterbody / watercourse	location ID	Date (2015)	Start latitude	Start longitude	distance (m)	e-seconds	Nine-spine Stickle-back	Slimy Sculpin	Lake Trout	Arctic Char	juvenile salmonid	dominant substrates
A49	EF-L36	01-Aug	65.412482	-96.704629	93	580	0	0	0	0	0	bedrock/cobble/boulder with graminoid patches.
A-P51	EF-L37	01-Aug	65.408414	-96.688723	88	668	0	0	0	0	0	most is shallow but may be up to 1.5 m max depth in small area
A53	EF-L38	20-Aug	65.406061	-96.676669	69	404	2	0	0	0	0	cobble/gravel/peat/boulder
A65	EF-L39	21-Aug	65.371734	-96.695557	36	342	3	6	0	0	0	na
A63	EF-L40	22-Aug	65.388957	-96.715819	51	332	0	3	0	0	0	boulder/cobble
A18	EF-L41	22-Aug	65.382344	-96.705942	54	483	16	3	0	0	0	na
A19	EF-L42	23-Aug	65.377185	-96.717139	49	437	7	1	0	0	0	na
A45	EF-L43	24-Aug	65.383594	-96.748582	47	239	3	0	0	0	0	boulder
A20	EF-L44	24-Aug	65.380931	-96.752270	43	324	0	0	0	0	0	na
A22	EF-L45	24-Aug	65.374540	-96.759132	45	409	1	10	0	0	0	na
A55	EF-L46	28-Aug	65.395661	-96.667459	111	417	0	2	0	0	0	cobble/boulder/peat
A113	EF-L47	28-Aug	65.418406	-96.691724	33	184	15	0	0	0	0	cobble/gravel/peat
A47	EF-L48	28-Aug	65.415275	-96.693228	51	244	>100	0	0	0	0	na
A49	EF-L49	29-Aug	65.412019	-96.701603	66	313	0	3	0	0	0	na

Table A 6. Standard minnow trap set locations, date and time of lifts and sets, soak times, depths, substrate and catches.

Waterbody	Location ID	Latitude	Longitude	Date Set (2015)	Time Set	Date Lifted (2015)	Time lifted	Soak Time (hours)	Depth	Substrate	Slimy Sculpin	Ninespine Stickleback
Whale Tail	SMT1	65.385682	-96.693709	25-Jul	10:08	26-Jul	9:04	22.93	0.5	boulder	0	0
Whale Tail	SMT2	65.385370	-96.698520	25-Jul	10:37	26-Jul	9:10	22.55	0.7	boulder	0	0
Whale Tail	SMT3	65.386642	-96.698668	25-Jul	10:39	26-Jul	9:14	22.58	0.7	boulder	0	0
Whale Tail	SMT4	65.388648	-96.696584	25-Jul	10:43	26-Jul	10:53	24.17	0.7	boulder	0	0
Whale Tail	SMT5	65.399344	-96.683697	25-Jul	10:55	26-Jul	11:20	24.42	0.7	cobble	0	0
Whale Tail	SMT6	65.394644	-96.677961	25-Jul	11:01	26-Jul	11:07	24.10	0.7	boulder	0	0
Whale Tail	SMT7	65.388146	-96.687963	25-Jul	11:09	26-Jul	10:59	23.83	0.7	cobble/boulder	0	0
Whale Tail	SMT8	65.382286	-96.688790	25-Jul	11:31	26-Jul	8:17	20.77	1.7	boulder/cobble	0	0
Whale Tail	SMT9	65.391694	-96.689627	25-Jul	17:08	26-Jul	10:44	17.60	0.7	cobble/boulder	0	0
Whale Tail	SMT10	65.397849	-96.693197	25-Jul	17:17	26-Jul	11:27	18.17	0.8	sand	1	0
Whale Tail	SMT11	65.401774	-96.699048	25-Jul	17:22	26-Jul	11:37	18.25	1.4	boulder	0	0
Whale Tail	SMT12	65.404388	-96.706044	25-Jul	17:46	26-Jul	11:45	17.98	1.5	boulder	0	0
Whale Tail	SMT13	65.408332	-96.693251	25-Jul	18:19	26-Jul	11:51	17.53	0.4	cobble	0	0
Whale Tail	SMT1	65.385682	-96.693709	26-Jul	9:04	27-Jul	10:15	25.18	0.5	boulder	0	0
Whale Tail	SMT2	65.385370	-96.698520	26-Jul	9:10	27-Jul	10:25	25.25	0.7	boulder	0	0
Whale Tail	SMT3	65.386642	-96.698668	26-Jul	9:14	27-Jul	10:43	25.48	0.7	boulder	0	0
Whale Tail	SMT4	65.388648	-96.696584	26-Jul	10:53	27-Jul	10:47	23.90	0.7	boulder	0	0
Whale Tail	SMT5	65.399344	-96.683697	26-Jul	11:20	27-Jul	9:30	22.17	0.7	cobble	0	0
Whale Tail	SMT6	65.394644	-96.677961	26-Jul	11:07	27-Jul	9:41	22.57	0.7	boulder	0	0
Whale Tail	SMT7	65.388146	-96.687963	26-Jul	10:59	27-Jul	9:48	22.82	0.7	cobble/boulder	0	0
Whale Tail	SMT8	65.382286	-96.688790	26-Jul	8:17	27-Jul	9:54	25.62	1.7	boulder/cobble	0	0
Whale Tail	SMT9	65.391694	-96.689627	26-Jul	10:44	27-Jul	10:51	24.12	0.7	cobble/boulder	0	0
Whale Tail	SMT10	65.397849	-96.693197	26-Jul	11:27	27-Jul	10:59	23.53	0.8	sand	0	0

Waterbody	Location ID	Latitude	Longitude	Date Set (2015)	Time Set	Date Lifted (2015)	Time lifted	Soak Time (hours)	Depth	Substrate	Slimy Sculpin	Ninespine Stickleback
Whale Tail	SMT11	65.401774	-96.699048	26-Jul	11:37	27-Jul	11:04	23.45	1.4	boulder	0	0
Whale Tail	SMT12	65.404388	-96.706044	26-Jul	11:45	27-Jul	11:13	23.47	1.5	boulder	0	0
Whale Tail	SMT13	65.408332	-96.693251	26-Jul	11:51	27-Jul	11:24	23.55	0.4	cobble	0	0
Mammoth	SMT14	65.399497	-96.748329	28-Jul	8:42	29-Jul	9:00	24.30	1	boulder	0	0
Mammoth	SMT15	65.399013	-96.743882	28-Jul	8:51	29-Jul	10:02	25.18	1	boulder	0	0
Mammoth	SMT16	65.401738	-96.735509	28-Jul	9:02	29-Jul	9:59	24.95	1.5	boulder	0	0
Mammoth	SMT17	65.402729	-96.726339	28-Jul	9:06	29-Jul	9:54	24.80	1	boulder	0	1
Mammoth	SMT18	65.399393	-96.723136	28-Jul	9:15	29-Jul	9:51	24.60	0.5	boulder/cobble	0	0
Mammoth	SMT19	65.398389	-96.734949	28-Jul	9:35	29-Jul	9:43	24.13	3.7	boulder	0	0
Mammoth	SMT20	65.396123	-96.745191	28-Jul	9:41	29-Jul	9:07	23.43	1.5	na	0	0
Mammoth	SMT21	65.393214	-96.750599	28-Jul	9:46	29-Jul	8:54	23.13	1	boulder	0	0
Mammoth	SMT22	65.388874	-96.753499	28-Jul	9:51	29-Jul	8:03	22.20	1	cobble/boulder	0	0
Mammoth	SMT23	65.392583	-96.760847	28-Jul	9:55	29-Jul	8:08	22.22	1	bedrock/cobble	0	0
Mammoth	SMT24	65.396511	-96.765716	28-Jul	15:36	29-Jul	8:33	16.95	1	na	0	0
Mammoth	SMT25	65.398159	-96.754967	28-Jul	15:40	29-Jul	8:43	17.05	1	boulder/cobble	0	0

Table A 7. Fine-mesh hoop net set locations, dates and times of sets and lifts, soak times, orientation and catches.

Waterbody	location ID	Latitude	Longitude	Date Set (2015)	Time Set	Date Lifted (2015)	Time lifted	Soak Time (hours)	Opening facing	Slimy Sculpin	Round Whitefish
Whale Tail	FH1	65.397921	-96.693629	18-Aug	16:00	19-Aug	14:00	22.00	toward shore	0	1
	FH2	65.408464	-96.697416	18-Aug	17:00	19-Aug	14:30	21.50	toward shore	1	1

Table A 8. Large minnow trap set locations, dates and times of sets and lifts, soak times, orientation and catches.

Watercourse code	Location ID	Latitude	Longitude	Date set (2015)	Time set	Date lifted (2015)	Time lifted	Soak time (hours)	Opening facing	Slimy Sculpin	Juvenile Round Whitefish
A46-A17	MT4	65.4105	-96.6955	27-Jun	15:48	28-Jun	12:32	20.73	downstream	0	0
A46-A17	MT4	65.4105	-96.6955	28-Jun	12:32	29-Jun	11:21	22.82	downstream	0	0
A46-A17	MT4	65.4105	-96.6955	29-Jun	11:21	03-Jul	14:00	98.65	downstream	0	0
A46-A17	MT4	65.4105	-96.6955	03-Jul	14:00	06-Jul	14:35	72.58	downstream	0	0
A46-A17	MT4	65.4105	-96.6955	06-Jul	14:35	07-Jul	16:10	25.58	downstream	0	0
A46-A17	MT4	65.4105	-96.6955	07-Jul	16:10	08-Jul	15:50	23.67	downstream	0	0
A46-A17	MT4	65.4105	-96.6955	08-Jul	15:50	09-Jul	11:20	19.50	downstream	0	0
A46-A17	MT4	65.4105	-96.6955	09-Jul	11:20	11-Jul	8:30	45.17	downstream	2	0
A46-A17	MT4	65.4105	-96.6955	11-Jul	8:30	12-Jul	13:20	28.83	downstream	1	0
A46-A17	MT4	65.4105	-96.6955	12-Jul	13:20	13-Jul	8:21	19.02	downstream	0	0
A50-A17	MT5	65.4104	-96.6898	28-Jun	13:25	29-Jun	11:30	22.08	downstream	0	0
A50-A17	MT5	65.4104	-96.6898	29-Jun	11:30	03-Jul	13:15	97.75	downstream	0	0
A50-A17	MT5	65.4104	-96.6898	03-Jul	13:15	06-Jul	14:20	73.08	downstream	0	0
A50-A17	MT5	65.4104	-96.6898	06-Jul	14:20	07-Jul	16:00	25.67	downstream	1	0
A50-A17	MT5	65.4104	-96.6898	07-Jul	16:00	08-Jul	15:50	23.83	downstream	0	0
A50-A17	MT5	65.4104	-96.6898	08-Jul	15:50	09-Jul	11:08	19.30	downstream	0	0
A50-A17	MT5	65.4104	-96.6898	09-Jul	11:08	11-Jul	8:50	45.70	downstream	0	0
A50-A17	MT5	65.4104	-96.6898	11-Jul	8:50	12-Jul	13:10	28.33	downstream	0	0
A50-A17	MT5	65.4104	-96.6898	12-Jul	13:10	13-Jul	8:10	19.00	downstream	0	0
A53-A17	MT3	65.4016	-96.6838	27-Jun	10:43	03-Jul	12:50	146.12	downstream	1	0
A53-A17	MT3	65.4016	-96.6838	03-Jul	12:50	06-Jul	13:50	73.00	downstream	1	0
A53-A17	MT3	65.4016	-96.6838	06-Jul	13:50	07-Jul	15:55	26.08	downstream	0	0

Watercourse code	Location ID	Latitude	Longitude	Date set (2015)	Time set	Date lifted (2015)	Time lifted	Soak time (hours)	Opening facing	Slimy Sculpin	Juvenile Round Whitefish
A53-A17	MT3	65.4016	-96.6838	07-Jul	15:55	08-Jul	11:35	19.67	downstream	0	0
A53-A17	MT3	65.4016	-96.6838	08-Jul	11:35	11-Jul	10:00	70.42	downstream	0	0
A53-A17	MT3	65.4016	-96.6838	11-Jul	10:00	13-Jul	7:30	45.50	downstream	0	0
A55-A17	MT9	65.3946	-96.6775	03-Jul	12:00	07-Jul	15:50	99.83	downstream	0	0
A55-A17	MT9	65.3946	-96.6775	07-Jul	15:50	08-Jul	14:50	23.00	downstream	0	0
A55-A17	MT9	65.3946	-96.6775	08-Jul	14:50	09-Jul	16:15	25.42	downstream	0	0
A55-A17	MT9	65.3946	-96.6775	09-Jul	16:15	12-Jul	11:00	66.75	downstream	0	0
A55-A17	MT9	65.3946	-96.6775	12-Jul	11:00	13-Jul	12:40	25.67	downstream	0	0
A59-A17	MT2	65.3888	-96.6832	27-Jun	9:00	28-Jun	13:55	28.92	downstream	0	0
A59-A17	MT2	65.3888	-96.6832	28-Jun	13:55	03-Jul	9:30	115.58	downstream	1	0
A59-A17	MT2	65.3888	-96.6832	03-Jul	9:30	06-Jul	9:10	71.67	downstream	0	0
A59-A17	MT2	65.3888	-96.6832	06-Jul	9:10	08-Jul	14:35	53.42	downstream	0	0
A59-A17	MT2	65.3888	-96.6832	08-Jul	14:35	09-Jul	15:10	24.58	downstream	0	0
A59-A17	MT2	65.3888	-96.6832	09-Jul	15:10	12-Jul	10:02	66.87	downstream	0	0
A59-A17	MT2	65.3888	-96.6832	12-Jul	10:02	13-Jul	12:15	26.22	downstream	0	0
A59-A17	MT6	65.3890	-96.6835	28-Jun	14:00	03-Jul	9:20	115.33	downstream	0	0
A59-A17	MT6	65.3890	-96.6835	03-Jul	9:20	06-Jul	9:10	71.83	downstream	2	0
A59-A17	MT6	65.3890	-96.6835	06-Jul	9:10	07-Jul	15:45	30.58	downstream	0	0
A59-A17	MT6	65.3890	-96.6835	07-Jul	15:45	08-Jul	14:35	22.83	downstream	0	0
A59-A17	MT6	65.3890	-96.6835	08-Jul	14:35	09-Jul	15:10	24.58	downstream	0	0
A59-A17	MT6	65.3890	-96.6835	09-Jul	15:10	12-Jul	10:00	66.83	downstream	0	0
A59-A17	MT6	65.3890	-96.6835	12-Jul	10:00	13-Jul	12:15	26.25	downstream	0	0
A63-A18	MT7	65.3848	-96.7127	05-Jul	15:12	06-Jul	15:50	24.63	upstream	0	0
A63-A18	MT7	65.3848	-96.7127	06-Jul	15:50	07-Jul	13:14	21.40	upstream	0	0

Watercourse code	Location ID	Latitude	Longitude	Date set (2015)	Time set	Date lifted (2015)	Time lifted	Soak time (hours)	Opening facing	Slimy Sculpin	Juvenile Round Whitefish
A63-A18	MT7	65.3848	-96.7127	07-Jul	13:14	08-Jul	15:00	25.77	upstream	0	0
A63-A18	MT7	65.3848	-96.7127	08-Jul	15:00	09-Jul	15:00	24.00	upstream	0	0
A63-A18	MT7	65.3848	-96.7127	09-Jul	15:00	13-Jul	12:00	93.00	upstream	0	0
A63-A18	MT8	65.3848	-96.7127	05-Jul	15:12	06-Jul	15:50	24.63	downstream	0	0
A63-A18	MT8	65.3848	-96.7127	06-Jul	15:50	07-Jul	13:14	21.40	downstream	0	1
A63-A18	MT8	65.3848	-96.7127	07-Jul	13:14	08-Jul	15:00	25.77	downstream	0	0
A63-A18	MT8	65.3848	-96.7127	08-Jul	15:00	09-Jul	15:00	24.00	downstream	0	0
A63-A18	MT8	65.3848	-96.7127	09-Jul	15:00	13-Jul	12:00	93.00	downstream	0	0
AP23-A17	MT1	65.3786	-96.6862	26-Jun	13:54	03-Jul	10:40	164.77	downstream	0	0

Table A 9. Stream electrofishing locations, dates, effort, and catches. All Arctic Char, Lake Trout, Round Whitefish, and Burbot were juveniles. Juvenile salmonids were either Arctic Char or Lake Trout that were released and could not be identified to species with certainty. Refer to Figure 5-3 and Figure 5-4 for June sampling locations, Figure 5-5 and Figure 5-6 for July sampling locations, and Figure 5-7, Figure 5-8 and Figure 5-9 for August sampling locations.

Watercourse	Location ID	Date (2015)	Start latitude	Start longitude	Voltage	Frequency	Electroseconds	Distance (m)	Slimy Sculpin	Arctic Char	Lake Trout	Round Whitefish	juvenile salmonid	Ninespine Stickleback	Burbot
A0-A48	EF-S1	01-Aug	65.415765	-96.686928	950	250	196	10						2	
A113-A47	EF-S2	01-Aug	65.417182	-96.690260	950	250	68	10						1	
A16-A15	EF-S3	25-Aug	65.392606	-96.770026	950	250	690	43	5		1			2	
A17-A16	EF-S4	25-Aug	65.400991	-96.720011	950	250	950	240	4		1				
A18-A17	EF-S32	26-Jun	65.384374	-96.700225	950	250	878	100	1						
A18-A17	EF-S5	05-Jul	65.383288	-96.703374	950	250	1648	112	5						
A18-A17	EF-S6	30-Aug	65.384323	-96.700957	950	250	210	30			1			6	
A19-A18	EF-S7	09-Jul	65.378628	-96.714845	950	250	423	32							
A46-A17	EF-S8	28-Jun	65.410496	-96.695450	950	250	579	201	8	1				11	
A46-A17	EF-S9	09-Jul	65.410496	-96.695450	950	250	393	16	8	1				153	
A46-A17	EF-S10	09-Jul	65.410634	-96.695442	950	250	532	132							
A46-A17	EF-S11	12-Jul	65.410496	-96.695450	950	250	85	<10 m						100	
A46-A17	EF-S12	30-Aug	65.410477	-96.695459	550	130	470	36							
A47-A46	EF-S13	09-Jul	65.412515	-96.693319	950	250	136	17	1						
A50-A17	EF-S14	28-Jun	65.410174	-96.690529	950	250	265	51						5	
A50-A17	EF-S15	09-Jul	65.410174	-96.690529	950	250	1204	163	9	2	1			56	
A50-A17	EF-S16	30-Aug	65.410162	-96.690570	550	130	180	52		1				2	1
A53-A17	EF-S17	20-Jun	65.401450	-96.683688	450	60	1664	571						7	
A53-A17	EF-S18	08-Jul	65.401450	-96.683688	950	250	2142	182	77	5				78	
A53-A17	EF-S19	30-Aug	65.401432	-96.683701	950	250	518	359	26		4				
A55-A17	EF-S20	21-Jun	65.394604	-96.677482	950	250	996	166						6	
A55-A17	EF-S21	06-Jul	65.394604	-96.677482	950	250	3330	167	50	1			1	20	
A55-A17	EF-S22	30-Aug	65.394722	-96.677244	950	250	483	46	1			1		17	
A56-A55	EF-S23	08-Jul	65.397864	-96.666318	950	250	634	60							
A59-A17	EF-S24	27-Jun	65.388830	-96.683468	950	250	730	126	6	1					
A59-A17	EF-S25	09-Jul	65.388829	-96.683167	950	250	1444	97	21					2	
A59-A17	EF-S26	30-Aug	65.388820	-96.683208	950	250	535	181	7	1					
A62-A17	EF-S27	07-Jul	65.388363	-96.699974	950	250	1025	107						1	
A63-A18	EF-S28	05-Jul	65.384819	-96.712699	950	250	848	81	3						
A63-A18	EF-S29	07-Jul	65.384819	-96.712699	950	250	793	81	3						
A-P21-A52	EF-S30	01-Aug	65.410581	-96.675165	950	250	78	5							
A-P23-A17	EF-S31	26-Jun	65.378590	-96.686449	950	250	582	95	2						

APPENDIX B – WATERCOURSE PHOTOGRAPHS

Watercourse A0-A48. Downstream view. August 1, 2015.

Watercourse A16-A15. Aerial view of outlet of Mammoth Lake. June 19, 2015. Flow is from left to right.

Watercourse A16-A15. Outlet of Mammoth Lake. July 4, 2015.

Watercourse A17-A16. Narrows between Whale Tail and Mammoth Lakes. July 4, 2015.

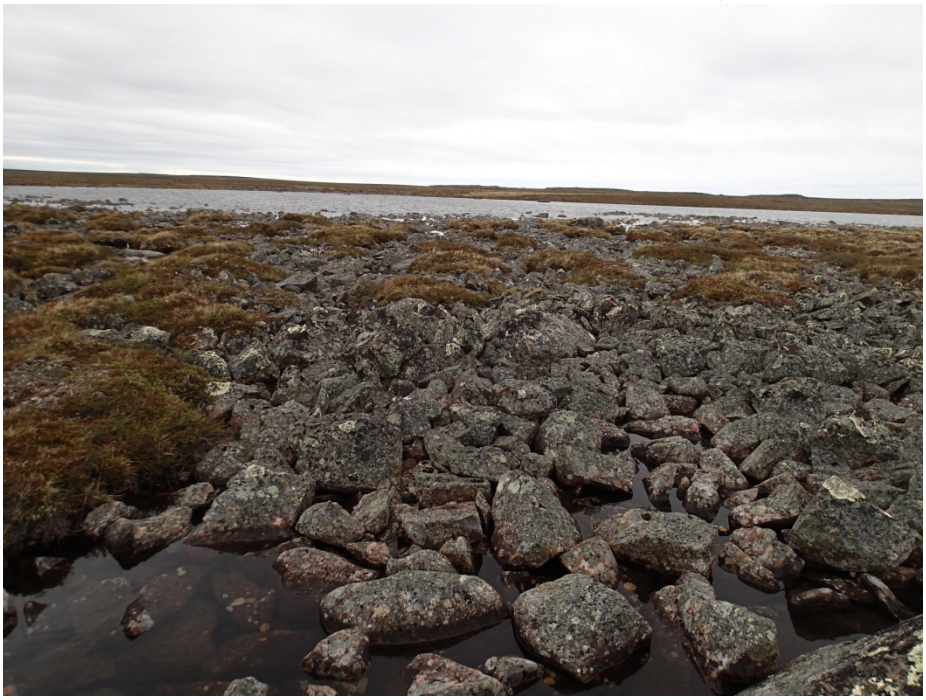
Watercourse A17-A16. Narrows between Whale Tail and Mammoth Lakes. August 25, 2015.

Watercourse A18-A17. Downstream view. June 26, 2015.

Watercourse A18-A17. Upstream view. August 30, 2015.

Watercourse A19-A18. Aerial view upstream. June 19, 2015.

Watercourse A19-A18. Downstream view. June 26, 2015.



Watercourse A19-A18. Upstream view. July 9, 2015.

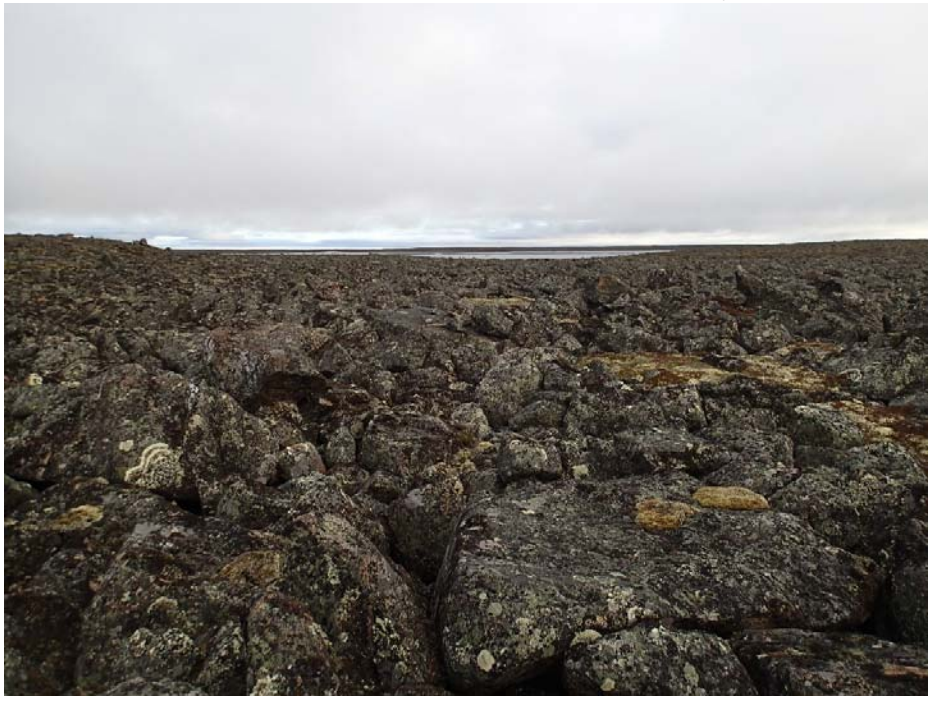
Watercourse A20-A19. Aerial view. Flow from right to left. June 19, 2015.

Watercourse A21-A20. Flow from right to left. July 10, 2015.

Watercourse A22-A21. Upstream view. July 10, 2015.

Watercourse A23-A22. Downstream view. July 10, 2015.

Watercourse A43-A16. Downstream view. June 29, 2015.



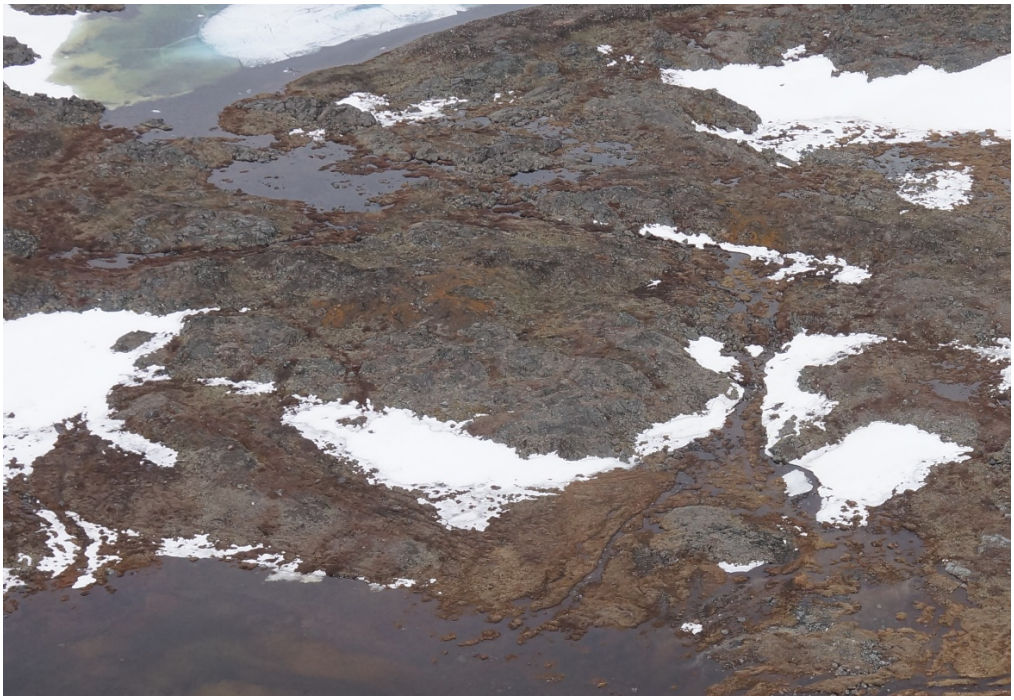
Watercourse A45-A16. Downstream view. July 11, 2015.

Watercourse A46-A17. Downstream view. June 28, 2015.

Watercourse A46-A17. Downstream view. August 30, 2015.

Watercourse A47-A46. Upstream view. July 9, 2015.

Watercourse A48-A47. Downstream view. August 1, 2015.



Watercourse A49-A17. A49 at top of photo, and A17 at bottom. June 19, 2015.

Watercourse A49-A17. Upstream view. August 1, 2015.

Watercourse A49-A47. Upstream view to A49. June 28, 2015.

Watercourse A50-A17. Upstream view. June 28, 2015.

Watercourse A50-A17. Upstream view. August 30, 2015.

Watercourse A53-A17. Upstream view. June 28, 2015.

Watercourse A53-A17. Upstream view. August 30, 2015.

Watercourse A54-A53. Downstream view. August 1, 2015.

Watercourse A55-A17. Upstream view. August 30, 2015.

Watercourse A56-A55. Downstream view. July 8, 2015.

Watercourse A59-A17. Upstream view. June 27, 2015.

Watercourse A59-A17. Upstream view. August 30, 2015.

Watercourse A60-A59. Downstream view. July 6, 2015.

Watercourse A62-A17. Aerial view. Flow from right to left. June 19, 2015.

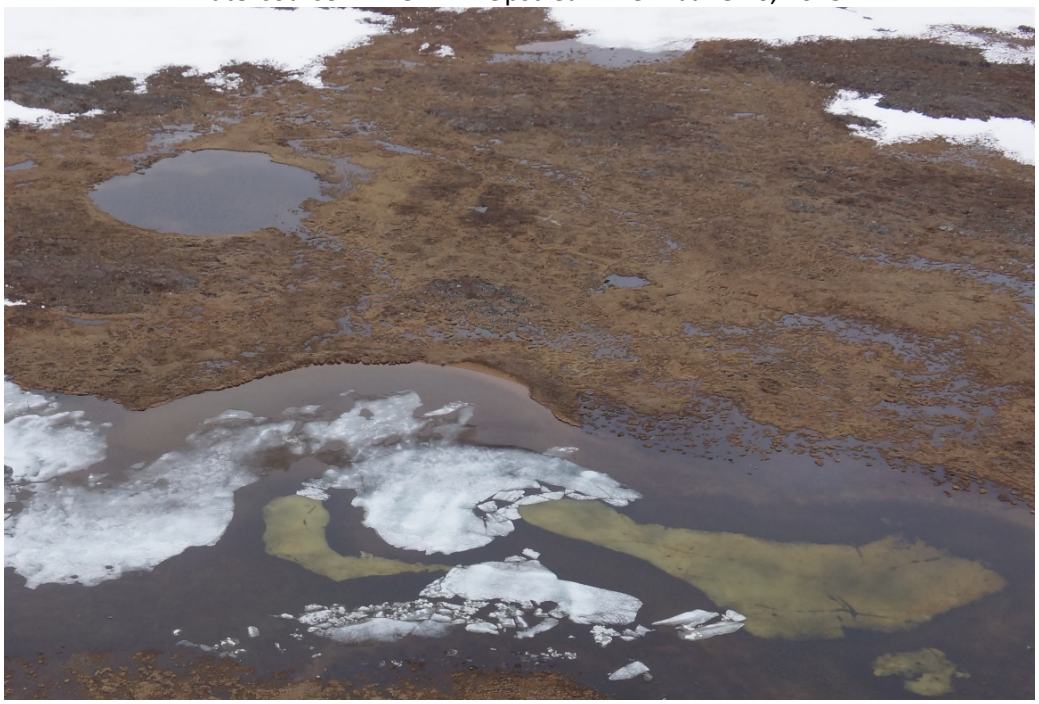
Watercourse A62-A17. Upstream view from near Lake A17. July 7, 2015.

Watercourse A63-A18. Downstream view from near Lake A63. July 5, 2015.

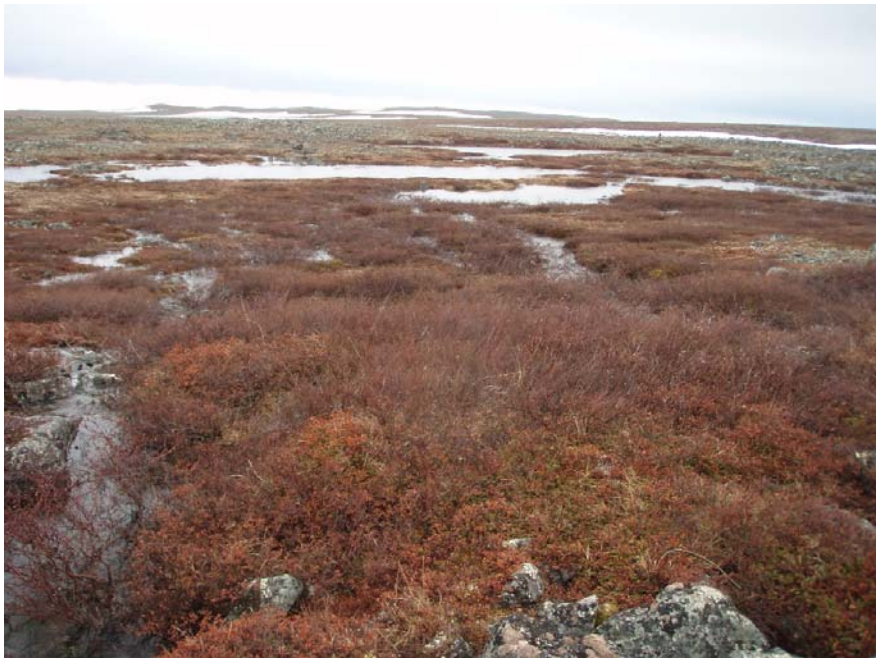
Watercourse A65-A17. Downstream view. June 27 2015.

Watercourse A-P21-A52. Downstream view. August 1, 2015.

Watercourse A-P23-A17. Upstream view. June 26, 2015.



Watercourse A-P38-A47. Aerial photo shows A-P38 as small pond in upper-left, with poorly defined watercourse flowing down to the right to A47 across bottom. June 19, 2015.



Watercourse A-P54-A-P23. Downstream view. June 26, 2015.

Watercourse A113-A47. Downstream view. June 28, 2015.

Watercourse A113-A47. Downstream view. August 1, 2015.

APPENDIX C. MERCURY AND METALS ANALYSES

Table C-1. Total length and weight of Ninespine Stickleback in composite samples submitted for mercury and metals analyses.

Lake	Composite Sample #	total length (mm)	weight (g)	Lake	Composite Sample #	total length (mm)	weight (g)
Whale Tail	1	68	2.2	Mammoth	8	64	na
		53	1.0			70	na
		58	1.1			60	na
		55	0.9			52	na
		56	1.0			53	na
	2	55	1.0			39	na
		45	0.5		9	47	0.5
		51	0.8			45	0.7
		53	0.7			51	0.9
		47	0.5			59	1.1
	3	45	0.5			47	0.5
		40	0.4		10	51	0.7
		40	0.3			46	0.6
		46	0.5			43	0.5
		45	0.5			45	0.6
	4	37	0.3			44	0.6
		37	0.3		11	46	0.6
		39	0.3			43	0.5
		40	0.4			42	0.6
		41	0.4			44	0.6
	5	44	0.5			43	0.5
		40	0.3		12	45	0.7
		36	0.2			42	0.4
		37	0.4			44	0.5
		45	0.6			45	0.5
	6	37	0.2			41	0.4
		31	0.1		13	38	0.4
		40	0.4			39	0.4
		37	0.3			38	0.3
		38	0.3			44	0.6
	7	31	<0.1			37	0.4
		40	0.4		14	37	0.3
		35	0.1			40	0.4
		42	0.5			40	0.4
		36	0.2			41	0.4
		30	<0.1			34	0.2
		47	0.3		15	30	0.2
		35	0.3			34	0.3
						35	0.3
						33	0.3

C. PORTT & ASSOCIATES
ATTN: Cameron Portt
56 Waterloo Avenue
Guelph ON N1H 3H5

Date Received: 23-SEP-15
Report Date: 10-NOV-15 11:49 (MT)
Version: FINAL

Client Phone: 519-824-8227

Certificate of Analysis

Lab Work Order #: L1677176

Project P.O. #: NOT SUBMITTED
Job Reference: AMARUQ 2015
C of C Numbers: 1, 2, 3, 4, 5, 6, 7
Legal Site Desc:

Courtney Duncan
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1677176-1	L1677176-2	L1677176-3	L1677176-4	L1677176-5
	Description	Tissue	Tissue	Tissue	Tissue	Tissue
	Sampled Date	18-AUG-15	18-AUG-15	18-AUG-15	18-AUG-15	18-AUG-15
	Sampled Time					
	Client ID	WHALE TAIL LAKE LAKE TROUT #46	WHALE TAIL LAKE LAKE TROUT #47	WHALE TAIL LAKE LAKE TROUT #48	WHALE TAIL LAKE LAKE TROUT #49	WHALE TAIL LAKE LAKE TROUT #50
Grouping	**Analyte**					
TISSUE						
Physical Tests	% Moisture (%)	80.4	78.3	79.1	80.1	78.4
Metals	Aluminum (Al)-Total (mg/kg)					
	Aluminum (Al)-Total (mg/kg wwt)					
	Antimony (Sb)-Total (mg/kg)					
	Antimony (Sb)-Total (mg/kg wwt)					
	Arsenic (As)-Total (mg/kg)					
	Arsenic (As)-Total (mg/kg wwt)					
	Barium (Ba)-Total (mg/kg)					
	Barium (Ba)-Total (mg/kg wwt)					
	Beryllium (Be)-Total (mg/kg)					
	Beryllium (Be)-Total (mg/kg wwt)					
	Bismuth (Bi)-Total (mg/kg)					
	Bismuth (Bi)-Total (mg/kg wwt)					
	Boron (B)-Total (mg/kg)					
	Boron (B)-Total (mg/kg wwt)					
	Cadmium (Cd)-Total (mg/kg)					
	Cadmium (Cd)-Total (mg/kg wwt)					
	Calcium (Ca)-Total (mg/kg)					
	Calcium (Ca)-Total (mg/kg wwt)					
	Cesium (Cs)-Total (mg/kg)					
	Cesium (Cs)-Total (mg/kg wwt)					
	Chromium (Cr)-Total (mg/kg)					
	Chromium (Cr)-Total (mg/kg wwt)					
	Cobalt (Co)-Total (mg/kg)					
	Cobalt (Co)-Total (mg/kg wwt)					
	Copper (Cu)-Total (mg/kg)					
	Copper (Cu)-Total (mg/kg wwt)					
	Iron (Fe)-Total (mg/kg)					
	Iron (Fe)-Total (mg/kg wwt)					
	Lead (Pb)-Total (mg/kg)					
	Lead (Pb)-Total (mg/kg wwt)					
	Lithium (Li)-Total (mg/kg)					
	Lithium (Li)-Total (mg/kg wwt)					
	Magnesium (Mg)-Total (mg/kg)					
	Magnesium (Mg)-Total (mg/kg wwt)					
	Manganese (Mn)-Total (mg/kg)					
	Manganese (Mn)-Total (mg/kg wwt)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1677176-6	L1677176-7	L1677176-8	L1677176-9	L1677176-10
	Description	Tissue	Tissue	Tissue	Tissue	Tissue
	Sampled Date	18-AUG-15	18-AUG-15	18-AUG-15	18-AUG-15	18-AUG-15
	Sampled Time					
	Client ID	WHALE TAIL LAKE LAKE TROUT #52	WHALE TAIL LAKE LAKE TROUT #53	WHALE TAIL LAKE LAKE TROUT #54A	WHALE TAIL LAKE LAKE TROUT #54B	WHALE TAIL LAKE LAKE TROUT #56
Grouping	**Analyte**					
TISSUE						
Physical Tests	% Moisture (%)	69.6	78.5	75.1	75.3	74.8
Metals	Aluminum (Al)-Total (mg/kg)					
	Aluminum (Al)-Total (mg/kg wwt)					
	Antimony (Sb)-Total (mg/kg)					
	Antimony (Sb)-Total (mg/kg wwt)					
	Arsenic (As)-Total (mg/kg)					
	Arsenic (As)-Total (mg/kg wwt)					
	Barium (Ba)-Total (mg/kg)					
	Barium (Ba)-Total (mg/kg wwt)					
	Beryllium (Be)-Total (mg/kg)					
	Beryllium (Be)-Total (mg/kg wwt)					
	Bismuth (Bi)-Total (mg/kg)					
	Bismuth (Bi)-Total (mg/kg wwt)					
	Boron (B)-Total (mg/kg)					
	Boron (B)-Total (mg/kg wwt)					
	Cadmium (Cd)-Total (mg/kg)					
	Cadmium (Cd)-Total (mg/kg wwt)					
	Calcium (Ca)-Total (mg/kg)					
	Calcium (Ca)-Total (mg/kg wwt)					
	Cesium (Cs)-Total (mg/kg)					
	Cesium (Cs)-Total (mg/kg wwt)					
	Chromium (Cr)-Total (mg/kg)					
	Chromium (Cr)-Total (mg/kg wwt)					
	Cobalt (Co)-Total (mg/kg)					
	Cobalt (Co)-Total (mg/kg wwt)					
	Copper (Cu)-Total (mg/kg)					
	Copper (Cu)-Total (mg/kg wwt)					
	Iron (Fe)-Total (mg/kg)					
	Iron (Fe)-Total (mg/kg wwt)					
	Lead (Pb)-Total (mg/kg)					
	Lead (Pb)-Total (mg/kg wwt)					
	Lithium (Li)-Total (mg/kg)					
	Lithium (Li)-Total (mg/kg wwt)					
	Magnesium (Mg)-Total (mg/kg)					
	Magnesium (Mg)-Total (mg/kg wwt)					
	Manganese (Mn)-Total (mg/kg)					
	Manganese (Mn)-Total (mg/kg wwt)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1677176-11 Tissue 18-AUG-15 WHALE TAIL LAKE LAKE TROUT #57	L1677176-12 Tissue 18-AUG-15 WHALE TAIL LAKE LAKE TROUT #58	L1677176-13 Tissue 18-AUG-15 WHALE TAIL LAKE LAKE TROUT #59	L1677176-14 Tissue 18-AUG-15 WHALE TAIL LAKE LAKE TROUT #60	L1677176-15 Tissue 18-AUG-15 WHALE TAIL LAKE LAKE TROUT #61
TISSUE						
Physical Tests	% Moisture (%)	72.7	75.3	76.0	78.7	77.0
Metals	Aluminum (Al)-Total (mg/kg)			<2.0		<2.0
	Aluminum (Al)-Total (mg/kg wwt)			<0.40		<0.40
	Antimony (Sb)-Total (mg/kg)			<0.010		<0.010
	Antimony (Sb)-Total (mg/kg wwt)			<0.0020		<0.0020
	Arsenic (As)-Total (mg/kg)			0.033		0.025
	Arsenic (As)-Total (mg/kg wwt)			0.0079		0.0058
	Barium (Ba)-Total (mg/kg)			0.090		<0.050
	Barium (Ba)-Total (mg/kg wwt)			0.022		<0.010
	Beryllium (Be)-Total (mg/kg)			<0.010		<0.010
	Beryllium (Be)-Total (mg/kg wwt)			<0.0020		<0.0020
	Bismuth (Bi)-Total (mg/kg)			<0.010		<0.010
	Bismuth (Bi)-Total (mg/kg wwt)			<0.0020		<0.0020
	Boron (B)-Total (mg/kg)			<1.0		<1.0
	Boron (B)-Total (mg/kg wwt)			<0.20		<0.20
	Cadmium (Cd)-Total (mg/kg)			<0.0050		<0.0050
	Cadmium (Cd)-Total (mg/kg wwt)			<0.0010		<0.0010
	Calcium (Ca)-Total (mg/kg)			508		261
	Calcium (Ca)-Total (mg/kg wwt)			122		60.0
	Cesium (Cs)-Total (mg/kg)			0.0273		0.0801
	Cesium (Cs)-Total (mg/kg wwt)			0.0066		0.0185
	Chromium (Cr)-Total (mg/kg)			<0.050		<0.050
	Chromium (Cr)-Total (mg/kg wwt)			<0.010		<0.010
	Cobalt (Co)-Total (mg/kg)			<0.020		<0.020
	Cobalt (Co)-Total (mg/kg wwt)			<0.0040		<0.0040
	Copper (Cu)-Total (mg/kg)			0.91		1.48
	Copper (Cu)-Total (mg/kg wwt)			0.218		0.341
	Iron (Fe)-Total (mg/kg)			12.9		10.5
	Iron (Fe)-Total (mg/kg wwt)			3.10		2.42
	Lead (Pb)-Total (mg/kg)			<0.020		<0.020
	Lead (Pb)-Total (mg/kg wwt)			<0.0040		<0.0040
	Lithium (Li)-Total (mg/kg)			<0.50		<0.50
	Lithium (Li)-Total (mg/kg wwt)			<0.10		<0.10
	Magnesium (Mg)-Total (mg/kg)			1270		1150
	Magnesium (Mg)-Total (mg/kg wwt)			306		266
	Manganese (Mn)-Total (mg/kg)			0.302		0.328
	Manganese (Mn)-Total (mg/kg wwt)			0.072		0.076

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1677176-16 Tissue 18-AUG-15 WHALE TAIL LAKE LAKE TROUT #62	L1677176-17 Tissue 18-AUG-15 WHALE TAIL LAKE LAKE TROUT #63	L1677176-18 Tissue 18-AUG-15 WHALE TAIL LAKE LAKE TROUT #64	L1677176-19 Tissue 18-AUG-15 WHALE TAIL LAKE LAKE TROUT #65	L1677176-20 Tissue 18-AUG-15 WHALE TAIL LAKE LAKE TROUT #66
TISSUE						
Physical Tests	% Moisture (%)	77.3	77.1	78.6	75.7	77.5
Metals	Aluminum (Al)-Total (mg/kg)	<2.0	<2.0	<2.0	<2.0	<2.0
	Aluminum (Al)-Total (mg/kg wwt)	<0.40	<0.40	<0.40	<0.40	<0.40
	Antimony (Sb)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Antimony (Sb)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Arsenic (As)-Total (mg/kg)	0.100	0.114	0.030	0.029	0.038
	Arsenic (As)-Total (mg/kg wwt)	0.0226	0.0261	0.0065	0.0071	0.0086
	Barium (Ba)-Total (mg/kg)	0.093	0.116	<0.050	<0.050	0.074
	Barium (Ba)-Total (mg/kg wwt)	0.021	0.027	0.010	<0.010	0.017
	Beryllium (Be)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Beryllium (Be)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Bismuth (Bi)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	0.020
	Bismuth (Bi)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	0.0046
	Boron (B)-Total (mg/kg)	<1.0	<1.0	<1.0	<1.0	<1.0
	Boron (B)-Total (mg/kg wwt)	<0.20	<0.20	<0.20	<0.20	<0.20
	Cadmium (Cd)-Total (mg/kg)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Cadmium (Cd)-Total (mg/kg wwt)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Calcium (Ca)-Total (mg/kg)	306	419	239	463	660
	Calcium (Ca)-Total (mg/kg wwt)	69.3	96.0	51.2	113	148
	Cesium (Cs)-Total (mg/kg)	0.114	0.0704	0.0372	0.107	0.0421
	Cesium (Cs)-Total (mg/kg wwt)	0.0259	0.0161	0.0080	0.0260	0.0094
	Chromium (Cr)-Total (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Chromium (Cr)-Total (mg/kg wwt)	<0.010	<0.010	<0.010	<0.010	<0.010
	Cobalt (Co)-Total (mg/kg)	<0.020	<0.020	0.022	<0.020	<0.020
	Cobalt (Co)-Total (mg/kg wwt)	<0.0040	<0.0040	0.0048	<0.0040	<0.0040
	Copper (Cu)-Total (mg/kg)	1.49	0.68	0.75	0.94	0.92
	Copper (Cu)-Total (mg/kg wwt)	0.338	0.157	0.161	0.230	0.206
	Iron (Fe)-Total (mg/kg)	11.4	13.1	12.6	10.6	10.4
	Iron (Fe)-Total (mg/kg wwt)	2.59	3.00	2.69	2.58	2.35
	Lead (Pb)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Lead (Pb)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Lithium (Li)-Total (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
	Lithium (Li)-Total (mg/kg wwt)	<0.10	<0.10	<0.10	<0.10	<0.10
	Magnesium (Mg)-Total (mg/kg)	1390	1290	989	1150	1260
	Magnesium (Mg)-Total (mg/kg wwt)	316	296	212	281	284
	Manganese (Mn)-Total (mg/kg)	0.468	0.611	0.444	0.471	0.593
	Manganese (Mn)-Total (mg/kg wwt)	0.106	0.140	0.095	0.115	0.133

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1677176-21 Tissue 18-AUG-15 WHALE TAIL LAKE LAKE TROUT #68	L1677176-22 Tissue 18-AUG-15 WHALE TAIL LAKE LAKE TROUT #69	L1677176-23 Tissue 18-AUG-15 WHALE TAIL LAKE LAKE TROUT #70	L1677176-24 Tissue 25-AUG-15 MAMMOTH LAKE LAKE TROUT #97	L1677176-25 Tissue 25-AUG-15 MAMMOTH LAKE LAKE TROUT #98
TISSUE						
Physical Tests	% Moisture (%)	77.8	76.9	75.3	74.8	75.1
Metals	Aluminum (Al)-Total (mg/kg)	<2.0	<5.0	2.3	<2.0	<2.0
	Aluminum (Al)-Total (mg/kg wwt)	<0.40	<1.0	0.56	<0.40	<0.40
	Antimony (Sb)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Antimony (Sb)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Arsenic (As)-Total (mg/kg)	0.031	<0.030	0.034	0.113	0.182
	Arsenic (As)-Total (mg/kg wwt)	0.0068	<0.0060	0.0084	0.0286	0.0453
	Barium (Ba)-Total (mg/kg)	0.146	0.162	0.080	0.095	0.159
	Barium (Ba)-Total (mg/kg wwt)	0.033	0.037	0.020	0.024	0.040
	Beryllium (Be)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Beryllium (Be)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Bismuth (Bi)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Bismuth (Bi)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Boron (B)-Total (mg/kg)	<1.0	<1.0	<1.0	<1.0	<1.0
	Boron (B)-Total (mg/kg wwt)	<0.20	<0.20	<0.20	<0.20	<0.20
	Cadmium (Cd)-Total (mg/kg)	<0.0050	<0.010	<0.0050	<0.0050	<0.0050
	Cadmium (Cd)-Total (mg/kg wwt)	<0.0010	<0.0020	<0.0010	<0.0010	<0.0010
	Calcium (Ca)-Total (mg/kg)	760	1350	647	499	549
	Calcium (Ca)-Total (mg/kg wwt)	169	312	160	126	137
	Cesium (Cs)-Total (mg/kg)	0.0335	0.0279	0.0339	0.0533	0.0832
	Cesium (Cs)-Total (mg/kg wwt)	0.0075	0.0064	0.0084	0.0134	0.0207
	Chromium (Cr)-Total (mg/kg)	<0.050	<0.20	<0.050	<0.050	<0.050
	Chromium (Cr)-Total (mg/kg wwt)	<0.010	<0.040	<0.010	<0.010	<0.010
	Cobalt (Co)-Total (mg/kg)	<0.020	<0.020	<0.020	0.029	0.049
	Cobalt (Co)-Total (mg/kg wwt)	<0.0040	0.0043	<0.0040	0.0072	0.0122
	Copper (Cu)-Total (mg/kg)	0.93	0.85	0.79	0.75	0.76
	Copper (Cu)-Total (mg/kg wwt)	0.207	0.196	0.195	0.188	0.188
	Iron (Fe)-Total (mg/kg)	9.7	10.8	16.6	11.6	9.5
	Iron (Fe)-Total (mg/kg wwt)	2.15	2.5	4.10	2.93	2.36
	Lead (Pb)-Total (mg/kg)	<0.020	<0.050	<0.020	<0.020	<0.020
	Lead (Pb)-Total (mg/kg wwt)	<0.0040	<0.010	<0.0040	<0.0040	<0.0040
	Lithium (Li)-Total (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
	Lithium (Li)-Total (mg/kg wwt)	<0.10	<0.10	<0.10	<0.10	<0.10
	Magnesium (Mg)-Total (mg/kg)	1340	1020	1130	1130	1230
	Magnesium (Mg)-Total (mg/kg wwt)	298	235	280	284	307
	Manganese (Mn)-Total (mg/kg)	0.533	0.543	0.538	0.676	0.539
	Manganese (Mn)-Total (mg/kg wwt)	0.119	0.125	0.133	0.171	0.134

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1677176-26 Tissue 25-AUG-15 MAMMOTH LAKE LAKE TROUT #99	L1677176-27 Tissue 26-AUG-15 MAMMOTH LAKE LAKE TROUT #100	L1677176-28 Tissue 26-AUG-15 MAMMOTH LAKE LAKE TROUT #101	L1677176-29 Tissue 26-AUG-15 MAMMOTH LAKE LAKE TROUT #102	L1677176-30 Tissue 26-AUG-15 MAMMOTH LAKE LAKE TROUT #103
TISSUE						
Physical Tests	% Moisture (%)	76.0	74.8	75.9	76.1	75.7
Metals	Aluminum (Al)-Total (mg/kg)	<2.0	3.5	<2.0	3.3	<2.0
	Aluminum (Al)-Total (mg/kg wwt)	0.42	0.89	<0.40	0.80	<0.40
	Antimony (Sb)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Antimony (Sb)-Total (mg/kg wwt)	<0.0020	0.0023	<0.0020	<0.0020	<0.0020
	Arsenic (As)-Total (mg/kg)	0.470	0.108	0.055	0.227	0.363
	Arsenic (As)-Total (mg/kg wwt)	0.113	0.0273	0.0134	0.0543	0.0883
	Barium (Ba)-Total (mg/kg)	0.126	0.154	0.067	0.210	0.058
	Barium (Ba)-Total (mg/kg wwt)	0.030	0.039	0.016	0.050	0.014
	Beryllium (Be)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Beryllium (Be)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Bismuth (Bi)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Bismuth (Bi)-Total (mg/kg wwt)	<0.0020	0.0021	<0.0020	<0.0020	<0.0020
	Boron (B)-Total (mg/kg)	<1.0	<1.0	<1.0	<1.0	<1.0
	Boron (B)-Total (mg/kg wwt)	<0.20	<0.20	<0.20	<0.20	<0.20
	Cadmium (Cd)-Total (mg/kg)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Cadmium (Cd)-Total (mg/kg wwt)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Calcium (Ca)-Total (mg/kg)	856	1030	294	1360	455
	Calcium (Ca)-Total (mg/kg wwt)	206	259	70.6	325	111
	Cesium (Cs)-Total (mg/kg)	0.0889	0.0650	0.0618	0.0827	0.0864
	Cesium (Cs)-Total (mg/kg wwt)	0.0213	0.0163	0.0149	0.0198	0.0210
	Chromium (Cr)-Total (mg/kg)	0.057	0.074	<0.050	0.060	<0.050
	Chromium (Cr)-Total (mg/kg wwt)	0.014	0.019	<0.010	0.014	<0.010
	Cobalt (Co)-Total (mg/kg)	0.054	<0.020	<0.020	0.043	0.070
	Cobalt (Co)-Total (mg/kg wwt)	0.0130	<0.0040	0.0041	0.0102	0.0171
	Copper (Cu)-Total (mg/kg)	0.95	0.69	1.16	0.85	0.85
	Copper (Cu)-Total (mg/kg wwt)	0.229	0.174	0.280	0.204	0.208
	Iron (Fe)-Total (mg/kg)	12.8	16.3	11.9	19.5	11.3
	Iron (Fe)-Total (mg/kg wwt)	3.08	4.11	2.86	4.65	2.74
	Lead (Pb)-Total (mg/kg)	<0.020	0.120	<0.020	0.042	0.029
	Lead (Pb)-Total (mg/kg wwt)	<0.0040	0.0302	0.0044	0.0102	0.0070
	Lithium (Li)-Total (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
	Lithium (Li)-Total (mg/kg wwt)	<0.10	<0.10	<0.10	<0.10	<0.10
	Magnesium (Mg)-Total (mg/kg)	1440	1210	1290	1250	1300
	Magnesium (Mg)-Total (mg/kg wwt)	347	304	310	299	317
	Manganese (Mn)-Total (mg/kg)	0.756	1.05	0.443	1.23	0.467
	Manganese (Mn)-Total (mg/kg wwt)	0.181	0.263	0.107	0.294	0.114

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1677176-31 Tissue 26-AUG-15 MAMMOTH LAKE LAKE TROUT #105	L1677176-32 Tissue 26-AUG-15 MAMMOTH LAKE LAKE TROUT #106	L1677176-33 Tissue 26-AUG-15 MAMMOTH LAKE LAKE TROUT #108	L1677176-34 Tissue 26-AUG-15 MAMMOTH LAKE LAKE TROUT #110	L1677176-35 Tissue 26-AUG-15 MAMMOTH LAKE LAKE TROUT #111
TISSUE						
Physical Tests	% Moisture (%)	75.4	80.0	77.4	74.0	75.9
Metals	Aluminum (Al)-Total (mg/kg)	<2.0	<2.0	<2.0		
	Aluminum (Al)-Total (mg/kg wwt)	<0.40	<0.40	0.44		
	Antimony (Sb)-Total (mg/kg)	<0.010	<0.010	<0.010		
	Antimony (Sb)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020		
	Arsenic (As)-Total (mg/kg)	0.188	0.358	0.109		
	Arsenic (As)-Total (mg/kg wwt)	0.0462	0.0715	0.0247		
	Barium (Ba)-Total (mg/kg)	0.053	0.152	0.153		
	Barium (Ba)-Total (mg/kg wwt)	0.013	0.030	0.035		
	Beryllium (Be)-Total (mg/kg)	<0.010	<0.010	<0.010		
	Beryllium (Be)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020		
	Bismuth (Bi)-Total (mg/kg)	<0.010	<0.010	<0.010		
	Bismuth (Bi)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020		
	Boron (B)-Total (mg/kg)	<1.0	<1.0	<1.0		
	Boron (B)-Total (mg/kg wwt)	<0.20	<0.20	<0.20		
	Cadmium (Cd)-Total (mg/kg)	0.0130	<0.0050	<0.0050		
	Cadmium (Cd)-Total (mg/kg wwt)	0.0032	<0.0010	<0.0010		
	Calcium (Ca)-Total (mg/kg)	381	550	641		
	Calcium (Ca)-Total (mg/kg wwt)	93.7	110	145		
	Cesium (Cs)-Total (mg/kg)	0.0594	0.0598	0.0682		
	Cesium (Cs)-Total (mg/kg wwt)	0.0146	0.0120	0.0154		
	Chromium (Cr)-Total (mg/kg)	<0.050	<0.050	<0.050		
	Chromium (Cr)-Total (mg/kg wwt)	<0.010	<0.010	<0.010		
	Cobalt (Co)-Total (mg/kg)	0.049	0.063	0.051		
	Cobalt (Co)-Total (mg/kg wwt)	0.0119	0.0126	0.0115		
	Copper (Cu)-Total (mg/kg)	0.88	0.98	1.00		
	Copper (Cu)-Total (mg/kg wwt)	0.217	0.196	0.227		
	Iron (Fe)-Total (mg/kg)	15.8	21.4	15.7		
	Iron (Fe)-Total (mg/kg wwt)	3.89	4.27	3.57		
	Lead (Pb)-Total (mg/kg)	<0.020	0.047	0.024		
	Lead (Pb)-Total (mg/kg wwt)	<0.0040	0.0094	0.0054		
	Lithium (Li)-Total (mg/kg)	<0.50	<0.50	<0.50		
	Lithium (Li)-Total (mg/kg wwt)	<0.10	<0.10	<0.10		
	Magnesium (Mg)-Total (mg/kg)	1210	1360	1420		
	Magnesium (Mg)-Total (mg/kg wwt)	297	271	321		
	Manganese (Mn)-Total (mg/kg)	0.622	0.474	0.677		
	Manganese (Mn)-Total (mg/kg wwt)	0.153	0.095	0.153		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1677176-36 Tissue 26-AUG-15 MAMMOTH LAKE LAKE TROUT #112	L1677176-37 Tissue 26-AUG-15 MAMMOTH LAKE LAKE TROUT #114	L1677176-38 Tissue 26-AUG-15 MAMMOTH LAKE LAKE TROUT #115	L1677176-39 Tissue 26-AUG-15 MAMMOTH LAKE LAKE TROUT #116	L1677176-40 Tissue 26-AUG-15 MAMMOTH LAKE LAKE TROUT #117
TISSUE						
Physical Tests	% Moisture (%)	74.8	80.0	77.2	77.0	74.6
Metals	Aluminum (Al)-Total (mg/kg)					
	Aluminum (Al)-Total (mg/kg wwt)					
	Antimony (Sb)-Total (mg/kg)					
	Antimony (Sb)-Total (mg/kg wwt)					
	Arsenic (As)-Total (mg/kg)					
	Arsenic (As)-Total (mg/kg wwt)					
	Barium (Ba)-Total (mg/kg)					
	Barium (Ba)-Total (mg/kg wwt)					
	Beryllium (Be)-Total (mg/kg)					
	Beryllium (Be)-Total (mg/kg wwt)					
	Bismuth (Bi)-Total (mg/kg)					
	Bismuth (Bi)-Total (mg/kg wwt)					
	Boron (B)-Total (mg/kg)					
	Boron (B)-Total (mg/kg wwt)					
	Cadmium (Cd)-Total (mg/kg)					
	Cadmium (Cd)-Total (mg/kg wwt)					
	Calcium (Ca)-Total (mg/kg)					
	Calcium (Ca)-Total (mg/kg wwt)					
	Cesium (Cs)-Total (mg/kg)					
	Cesium (Cs)-Total (mg/kg wwt)					
	Chromium (Cr)-Total (mg/kg)					
	Chromium (Cr)-Total (mg/kg wwt)					
	Cobalt (Co)-Total (mg/kg)					
	Cobalt (Co)-Total (mg/kg wwt)					
	Copper (Cu)-Total (mg/kg)					
	Copper (Cu)-Total (mg/kg wwt)					
	Iron (Fe)-Total (mg/kg)					
	Iron (Fe)-Total (mg/kg wwt)					
	Lead (Pb)-Total (mg/kg)					
	Lead (Pb)-Total (mg/kg wwt)					
	Lithium (Li)-Total (mg/kg)					
	Lithium (Li)-Total (mg/kg wwt)					
	Magnesium (Mg)-Total (mg/kg)					
	Magnesium (Mg)-Total (mg/kg wwt)					
	Manganese (Mn)-Total (mg/kg)					
	Manganese (Mn)-Total (mg/kg wwt)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1677176-41	L1677176-42	L1677176-43	L1677176-44	L1677176-45
	Description	Tissue	Tissue	Tissue	Tissue	Tissue
	Sampled Date	26-AUG-15	26-AUG-15	26-AUG-15	26-AUG-15	26-AUG-15
	Sampled Time					
	Client ID	MAMMOTH LAKE LAKE TROUT #118	MAMMOTH LAKE LAKE TROUT #119	MAMMOTH LAKE LAKE TROUT #120	MAMMOTH LAKE LAKE TROUT #121	MAMMOTH LAKE LAKE TROUT #122
Grouping	**Analyte**					
TISSUE						
Physical Tests	% Moisture (%)	77.8	75.4	75.3	74.6	76.1
Metals	Aluminum (Al)-Total (mg/kg)					
	Aluminum (Al)-Total (mg/kg wwt)					
	Antimony (Sb)-Total (mg/kg)					
	Antimony (Sb)-Total (mg/kg wwt)					
	Arsenic (As)-Total (mg/kg)					
	Arsenic (As)-Total (mg/kg wwt)					
	Barium (Ba)-Total (mg/kg)					
	Barium (Ba)-Total (mg/kg wwt)					
	Beryllium (Be)-Total (mg/kg)					
	Beryllium (Be)-Total (mg/kg wwt)					
	Bismuth (Bi)-Total (mg/kg)					
	Bismuth (Bi)-Total (mg/kg wwt)					
	Boron (B)-Total (mg/kg)					
	Boron (B)-Total (mg/kg wwt)					
	Cadmium (Cd)-Total (mg/kg)					
	Cadmium (Cd)-Total (mg/kg wwt)					
	Calcium (Ca)-Total (mg/kg)					
	Calcium (Ca)-Total (mg/kg wwt)					
	Cesium (Cs)-Total (mg/kg)					
	Cesium (Cs)-Total (mg/kg wwt)					
	Chromium (Cr)-Total (mg/kg)					
	Chromium (Cr)-Total (mg/kg wwt)					
	Cobalt (Co)-Total (mg/kg)					
	Cobalt (Co)-Total (mg/kg wwt)					
	Copper (Cu)-Total (mg/kg)					
	Copper (Cu)-Total (mg/kg wwt)					
	Iron (Fe)-Total (mg/kg)					
	Iron (Fe)-Total (mg/kg wwt)					
	Lead (Pb)-Total (mg/kg)					
	Lead (Pb)-Total (mg/kg wwt)					
	Lithium (Li)-Total (mg/kg)					
	Lithium (Li)-Total (mg/kg wwt)					
	Magnesium (Mg)-Total (mg/kg)					
	Magnesium (Mg)-Total (mg/kg wwt)					
	Manganese (Mn)-Total (mg/kg)					
	Manganese (Mn)-Total (mg/kg wwt)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1677176-46	L1677176-47	L1677176-48	L1677176-49	L1677176-50
Description	Tissue	Tissue	Tissue	Tissue	Tissue
Sampled Date	26-AUG-15	26-AUG-15	26-AUG-15	26-AUG-15	26-AUG-15
Sampled Time					
Client ID	MAMMOTH LAKE LAKE TROUT #123	MAMMOTH LAKE LAKE TROUT #124	MAMMOTH LAKE LAKE TROUT #126	WHALE TAIL LAKE SMALL FISH COMPOSITE #1	WHALE TAIL LAKE SMALL FISH COMPOSITE #2
Grouping / **Analyte**					
TISSUE					
Physical Tests % Moisture (%)	78.0	78.7	78.1	74.4	74.0
Metals Aluminum (Al)-Total (mg/kg)				8.0	<5.0
Aluminum (Al)-Total (mg/kg wwt)				2.1	<1.0
Antimony (Sb)-Total (mg/kg)				<0.010	<0.010
Antimony (Sb)-Total (mg/kg wwt)				<0.0020	<0.0020
Arsenic (As)-Total (mg/kg)				0.521	0.538
Arsenic (As)-Total (mg/kg wwt)				0.133	0.140
Barium (Ba)-Total (mg/kg)				19.1	16.0
Barium (Ba)-Total (mg/kg wwt)				4.89	4.16
Beryllium (Be)-Total (mg/kg)				<0.010	<0.010
Beryllium (Be)-Total (mg/kg wwt)				<0.0020	<0.0020
Bismuth (Bi)-Total (mg/kg)				<0.010	<0.010
Bismuth (Bi)-Total (mg/kg wwt)				<0.0020	<0.0020
Boron (B)-Total (mg/kg)				<1.0	<1.0
Boron (B)-Total (mg/kg wwt)				<0.20	<0.20
Cadmium (Cd)-Total (mg/kg)				0.140	0.233
Cadmium (Cd)-Total (mg/kg wwt)				0.0360	0.0604
Calcium (Ca)-Total (mg/kg)				50300	40500
Calcium (Ca)-Total (mg/kg wwt)				12900	10500
Cesium (Cs)-Total (mg/kg)				0.0427	0.0310
Cesium (Cs)-Total (mg/kg wwt)				0.0109	0.0081
Chromium (Cr)-Total (mg/kg)				<0.20	<0.20
Chromium (Cr)-Total (mg/kg wwt)				0.041	<0.040
Cobalt (Co)-Total (mg/kg)				0.071	0.057
Cobalt (Co)-Total (mg/kg wwt)				0.0182	0.0148
Copper (Cu)-Total (mg/kg)				6.89	6.81
Copper (Cu)-Total (mg/kg wwt)				1.76	1.77
Iron (Fe)-Total (mg/kg)				87.2	72.7
Iron (Fe)-Total (mg/kg wwt)				22.3	18.9
Lead (Pb)-Total (mg/kg)				0.066	0.057
Lead (Pb)-Total (mg/kg wwt)				0.017	0.015
Lithium (Li)-Total (mg/kg)				<0.50	<0.50
Lithium (Li)-Total (mg/kg wwt)				<0.10	<0.10
Magnesium (Mg)-Total (mg/kg)				1960	1570
Magnesium (Mg)-Total (mg/kg wwt)				503	409
Manganese (Mn)-Total (mg/kg)				59.3	63.8
Manganese (Mn)-Total (mg/kg wwt)				15.2	16.6

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1677176-51	L1677176-52	L1677176-53	L1677176-54	L1677176-55
	Description	Tissue	Tissue	Tissue	Tissue	Tissue
	Sampled Date	26-AUG-15	26-AUG-15	26-AUG-15	26-AUG-15	26-AUG-15
	Sampled Time					
	Client ID	WHALE TAIL LAKE SMALL FISH COMPOSITE #3	WHALE TAIL LAKE SMALL FISH COMPOSITE #4	WHALE TAIL LAKE SMALL FISH COMPOSITE #5	WHALE TAIL LAKE SMALL FISH COMPOSITE #6	WHALE TAIL LAKE SMALL FISH COMPOSITE #7
Grouping	**Analyte**					
TISSUE						
Physical Tests	% Moisture (%)	73.7	73.6	74.1	74.4	74.8
Metals	Aluminum (Al)-Total (mg/kg)	15.2	11.8	9.4	8.6	9.4
	Aluminum (Al)-Total (mg/kg wwt)	4.0	3.1	2.4	2.2	2.4
	Antimony (Sb)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Antimony (Sb)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Arsenic (As)-Total (mg/kg)	0.447	0.442	0.398	0.426	0.501
	Arsenic (As)-Total (mg/kg wwt)	0.118	0.117	0.103	0.109	0.126
	Barium (Ba)-Total (mg/kg)	13.8	15.8	13.1	18.8	18.3
	Barium (Ba)-Total (mg/kg wwt)	3.63	4.18	3.41	4.82	4.60
	Beryllium (Be)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Beryllium (Be)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Bismuth (Bi)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Bismuth (Bi)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Boron (B)-Total (mg/kg)	<1.0	<1.0	<1.0	<1.0	<1.0
	Boron (B)-Total (mg/kg wwt)	<0.20	<0.20	<0.20	<0.20	<0.20
	Cadmium (Cd)-Total (mg/kg)	0.293	0.255	0.199	0.228	0.251
	Cadmium (Cd)-Total (mg/kg wwt)	0.0771	0.0673	0.0515	0.0584	0.0632
	Calcium (Ca)-Total (mg/kg)	37000	44500	36000	47000	40000
	Calcium (Ca)-Total (mg/kg wwt)	9740	11800	9340	12000	10100
	Cesium (Cs)-Total (mg/kg)	0.0238	0.0204	0.0226	0.0198	0.0227
	Cesium (Cs)-Total (mg/kg wwt)	0.0063	0.0054	0.0059	0.0051	0.0057
	Chromium (Cr)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Chromium (Cr)-Total (mg/kg wwt)	<0.040	<0.040	<0.040	<0.040	<0.040
	Cobalt (Co)-Total (mg/kg)	0.061	0.056	0.058	0.059	0.064
	Cobalt (Co)-Total (mg/kg wwt)	0.0161	0.0148	0.0150	0.0152	0.0161
	Copper (Cu)-Total (mg/kg)	4.77	5.03	4.54	4.67	5.70
	Copper (Cu)-Total (mg/kg wwt)	1.25	1.33	1.18	1.19	1.44
	Iron (Fe)-Total (mg/kg)	81.2	83.2	76.1	83.1	84.1
	Iron (Fe)-Total (mg/kg wwt)	21.3	22.0	19.7	21.3	21.2
	Lead (Pb)-Total (mg/kg)	0.084	0.060	0.063	0.059	0.060
	Lead (Pb)-Total (mg/kg wwt)	0.022	0.016	0.016	0.015	0.015
	Lithium (Li)-Total (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
	Lithium (Li)-Total (mg/kg wwt)	<0.10	<0.10	<0.10	<0.10	<0.10
	Magnesium (Mg)-Total (mg/kg)	1600	1600	1510	1720	1560
	Magnesium (Mg)-Total (mg/kg wwt)	420	423	392	440	394
	Manganese (Mn)-Total (mg/kg)	42.9	48.1	46.8	64.5	56.8
	Manganese (Mn)-Total (mg/kg wwt)	11.3	12.7	12.1	16.5	14.3

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1677176-56	L1677176-57	L1677176-58	L1677176-59	L1677176-60
	Description	Tissue	Tissue	Tissue	Tissue	Tissue
	Sampled Date	30-AUG-15	29-AUG-15	29-AUG-15	29-AUG-15	29-AUG-15
	Sampled Time					
	Client ID	MAMMOTH LAKE SMALL FISH COMPOSITE #8	MAMMOTH LAKE SMALL FISH COMPOSITE #9	MAMMOTH LAKE SMALL FISH COMPOSITE #10	MAMMOTH LAKE SMALL FISH COMPOSITE #11	MAMMOTH LAKE SMALL FISH COMPOSITE #12
Grouping	**Analyte**					
TISSUE						
Physical Tests	% Moisture (%)	73.8	73.0	73.6	74.0	73.3
Metals	Aluminum (Al)-Total (mg/kg)	<5.0	11.6	8.4	14.8	12.8
	Aluminum (Al)-Total (mg/kg wwt)	<1.0	3.1	2.2	3.8	3.4
	Antimony (Sb)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Antimony (Sb)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Arsenic (As)-Total (mg/kg)	0.483	0.568	0.558	0.602	0.577
	Arsenic (As)-Total (mg/kg wwt)	0.127	0.154	0.148	0.156	0.154
	Barium (Ba)-Total (mg/kg)	13.5	10.9	12.2	11.5	14.4
	Barium (Ba)-Total (mg/kg wwt)	3.54	2.94	3.21	2.99	3.84
	Beryllium (Be)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Beryllium (Be)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Bismuth (Bi)-Total (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Bismuth (Bi)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Boron (B)-Total (mg/kg)	<1.0	<1.0	<1.0	<1.0	<1.0
	Boron (B)-Total (mg/kg wwt)	<0.20	<0.20	<0.20	<0.20	<0.20
	Cadmium (Cd)-Total (mg/kg)	0.121	0.203	0.253	0.309	0.266
	Cadmium (Cd)-Total (mg/kg wwt)	0.0316	0.0549	0.0670	0.0803	0.0710
	Calcium (Ca)-Total (mg/kg)	37400	34200	33300	34400	37600
	Calcium (Ca)-Total (mg/kg wwt)	9800	9240	8790	8940	10100
	Cesium (Cs)-Total (mg/kg)	0.0519	0.0583	0.0661	0.0620	0.0595
	Cesium (Cs)-Total (mg/kg wwt)	0.0136	0.0158	0.0175	0.0161	0.0159
	Chromium (Cr)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Chromium (Cr)-Total (mg/kg wwt)	<0.040	<0.040	<0.040	<0.040	<0.040
	Cobalt (Co)-Total (mg/kg)	0.038	0.075	0.064	0.086	0.087
	Cobalt (Co)-Total (mg/kg wwt)	0.0101	0.0204	0.0169	0.0224	0.0234
	Copper (Cu)-Total (mg/kg)	5.77	7.66	3.58	4.70	4.78
	Copper (Cu)-Total (mg/kg wwt)	1.51	2.07	0.947	1.22	1.28
	Iron (Fe)-Total (mg/kg)	48.9	74.2	52.8	77.4	77.4
	Iron (Fe)-Total (mg/kg wwt)	12.8	20.1	14.0	20.1	20.7
	Lead (Pb)-Total (mg/kg)	<0.050	0.091	0.076	0.069	0.079
	Lead (Pb)-Total (mg/kg wwt)	<0.010	0.025	0.020	0.018	0.021
	Lithium (Li)-Total (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
	Lithium (Li)-Total (mg/kg wwt)	<0.10	<0.10	<0.10	<0.10	<0.10
	Magnesium (Mg)-Total (mg/kg)	1560	1370	1360	1380	1410
	Magnesium (Mg)-Total (mg/kg wwt)	410	370	359	358	378
	Manganese (Mn)-Total (mg/kg)	45.0	55.7	53.4	57.8	47.7
	Manganese (Mn)-Total (mg/kg wwt)	11.8	15.1	14.1	15.0	12.7

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1677176-61	L1677176-62	L1677176-63		
	Description	Tissue	Tissue	Tissue		
	Sampled Date	29-AUG-15	29-AUG-15	29-AUG-15		
	Sampled Time					
	Client ID	MAMMOTH LAKE SMALL FISH COMPOSITE #13	MAMMOTH LAKE SMALL FISH COMPOSITE #14	MAMMOTH LAKE SMALL FISH COMPOSITE #15		
Grouping	**Analyte**					
TISSUE						
Physical Tests	% Moisture (%)	73.2	73.9	74.7		
Metals	Aluminum (Al)-Total (mg/kg)	8.8	15.9	10.2		
	Aluminum (Al)-Total (mg/kg wwt)	2.4	4.1	2.6		
	Antimony (Sb)-Total (mg/kg)	<0.010	<0.010	<0.010		
	Antimony (Sb)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020		
	Arsenic (As)-Total (mg/kg)	0.615	0.654	0.582		
	Arsenic (As)-Total (mg/kg wwt)	0.164	0.171	0.147		
	Barium (Ba)-Total (mg/kg)	13.5	15.0	14.4		
	Barium (Ba)-Total (mg/kg wwt)	3.61	3.91	3.66		
	Beryllium (Be)-Total (mg/kg)	<0.010	<0.010	<0.010		
	Beryllium (Be)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020		
	Bismuth (Bi)-Total (mg/kg)	<0.010	<0.010	<0.010		
	Bismuth (Bi)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020		
	Boron (B)-Total (mg/kg)	<1.0	<1.0	<1.0		
	Boron (B)-Total (mg/kg wwt)	<0.20	<0.20	<0.20		
	Cadmium (Cd)-Total (mg/kg)	0.223	0.359	0.207		
	Cadmium (Cd)-Total (mg/kg wwt)	0.0597	0.0937	0.0525		
	Calcium (Ca)-Total (mg/kg)	32900	39400	34900		
	Calcium (Ca)-Total (mg/kg wwt)	8810	10300	8830		
	Cesium (Cs)-Total (mg/kg)	0.0563	0.0636	0.0624		
	Cesium (Cs)-Total (mg/kg wwt)	0.0151	0.0166	0.0158		
	Chromium (Cr)-Total (mg/kg)	<0.20	<0.20	<0.20		
	Chromium (Cr)-Total (mg/kg wwt)	<0.040	<0.040	<0.040		
	Cobalt (Co)-Total (mg/kg)	0.081	1.51	0.143		
	Cobalt (Co)-Total (mg/kg wwt)	0.0216	0.393	0.0362		
	Copper (Cu)-Total (mg/kg)	5.45	4.80	4.38		
	Copper (Cu)-Total (mg/kg wwt)	1.46	1.25	1.11		
	Iron (Fe)-Total (mg/kg)	69.2	83.1	74.6		
	Iron (Fe)-Total (mg/kg wwt)	18.5	21.7	18.9		
	Lead (Pb)-Total (mg/kg)	0.088	0.102	0.103		
	Lead (Pb)-Total (mg/kg wwt)	0.023	0.027	0.026		
	Lithium (Li)-Total (mg/kg)	<0.50	<0.50	<0.50		
	Lithium (Li)-Total (mg/kg wwt)	<0.10	<0.10	<0.10		
	Magnesium (Mg)-Total (mg/kg)	1370	1560	1680		
	Magnesium (Mg)-Total (mg/kg wwt)	368	408	426		
	Manganese (Mn)-Total (mg/kg)	55.4	71.3	61.8		
	Manganese (Mn)-Total (mg/kg wwt)	14.8	18.6	15.7		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1677176-1 Tissue 18-AUG-15 WHALE TAIL LAKE LAKE TROUT #46	L1677176-2 Tissue 18-AUG-15 WHALE TAIL LAKE LAKE TROUT #47	L1677176-3 Tissue 18-AUG-15 WHALE TAIL LAKE LAKE TROUT #48	L1677176-4 Tissue 18-AUG-15 WHALE TAIL LAKE LAKE TROUT #49	L1677176-5 Tissue 18-AUG-15 WHALE TAIL LAKE LAKE TROUT #50
TISSUE						
Metals	Mercury (Hg)-Total (mg/kg)	3.01	3.84	4.13	4.84	2.20
	Mercury (Hg)-Total (mg/kg wwt)	0.590	0.831	0.863	0.965	0.474
	Molybdenum (Mo)-Total (mg/kg)					
	Molybdenum (Mo)-Total (mg/kg wwt)					
	Nickel (Ni)-Total (mg/kg)					
	Nickel (Ni)-Total (mg/kg wwt)					
	Phosphorus (P)-Total (mg/kg)					
	Phosphorus (P)-Total (mg/kg wwt)					
	Potassium (K)-Total (mg/kg)					
	Potassium (K)-Total (mg/kg wwt)					
	Rubidium (Rb)-Total (mg/kg)					
	Rubidium (Rb)-Total (mg/kg wwt)					
	Selenium (Se)-Total (mg/kg)					
	Selenium (Se)-Total (mg/kg wwt)					
	Sodium (Na)-Total (mg/kg)					
	Sodium (Na)-Total (mg/kg wwt)					
	Strontium (Sr)-Total (mg/kg)					
	Strontium (Sr)-Total (mg/kg wwt)					
	Tellurium (Te)-Total (mg/kg)					
	Tellurium (Te)-Total (mg/kg wwt)					
	Thallium (Tl)-Total (mg/kg)					
	Thallium (Tl)-Total (mg/kg wwt)					
	Tin (Sn)-Total (mg/kg)					
	Tin (Sn)-Total (mg/kg wwt)					
	Uranium (U)-Total (mg/kg)					
	Uranium (U)-Total (mg/kg wwt)					
	Vanadium (V)-Total (mg/kg)					
	Vanadium (V)-Total (mg/kg wwt)					
	Zinc (Zn)-Total (mg/kg)					
	Zinc (Zn)-Total (mg/kg wwt)					
	Zirconium (Zr)-Total (mg/kg)					
	Zirconium (Zr)-Total (mg/kg wwt)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1677176-6	L1677176-7	L1677176-8	L1677176-9	L1677176-10
	Description	Tissue	Tissue	Tissue	Tissue	Tissue
	Sampled Date	18-AUG-15	18-AUG-15	18-AUG-15	18-AUG-15	18-AUG-15
	Sampled Time					
	Client ID	WHALE TAIL LAKE LAKE TROUT #52	WHALE TAIL LAKE LAKE TROUT #53	WHALE TAIL LAKE LAKE TROUT #54A	WHALE TAIL LAKE LAKE TROUT #54B	WHALE TAIL LAKE LAKE TROUT #56
Grouping	**Analyte**					
TISSUE						
Metals	Mercury (Hg)-Total (mg/kg)	0.444	1.71	1.33	1.16	1.30
	Mercury (Hg)-Total (mg/kg wwt)	0.135	0.368	0.331	0.286	0.328
	Molybdenum (Mo)-Total (mg/kg)					
	Molybdenum (Mo)-Total (mg/kg wwt)					
	Nickel (Ni)-Total (mg/kg)					
	Nickel (Ni)-Total (mg/kg wwt)					
	Phosphorus (P)-Total (mg/kg)					
	Phosphorus (P)-Total (mg/kg wwt)					
	Potassium (K)-Total (mg/kg)					
	Potassium (K)-Total (mg/kg wwt)					
	Rubidium (Rb)-Total (mg/kg)					
	Rubidium (Rb)-Total (mg/kg wwt)					
	Selenium (Se)-Total (mg/kg)					
	Selenium (Se)-Total (mg/kg wwt)					
	Sodium (Na)-Total (mg/kg)					
	Sodium (Na)-Total (mg/kg wwt)					
	Strontium (Sr)-Total (mg/kg)					
	Strontium (Sr)-Total (mg/kg wwt)					
	Tellurium (Te)-Total (mg/kg)					
	Tellurium (Te)-Total (mg/kg wwt)					
	Thallium (Tl)-Total (mg/kg)					
	Thallium (Tl)-Total (mg/kg wwt)					
	Tin (Sn)-Total (mg/kg)					
	Tin (Sn)-Total (mg/kg wwt)					
	Uranium (U)-Total (mg/kg)					
	Uranium (U)-Total (mg/kg wwt)					
	Vanadium (V)-Total (mg/kg)					
	Vanadium (V)-Total (mg/kg wwt)					
	Zinc (Zn)-Total (mg/kg)					
	Zinc (Zn)-Total (mg/kg wwt)					
	Zirconium (Zr)-Total (mg/kg)					
	Zirconium (Zr)-Total (mg/kg wwt)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1677176-11 Tissue 18-AUG-15 WHALE TAIL LAKE LAKE TROUT #57	L1677176-12 Tissue 18-AUG-15 WHALE TAIL LAKE LAKE TROUT #58	L1677176-13 Tissue 18-AUG-15 WHALE TAIL LAKE LAKE TROUT #59	L1677176-14 Tissue 18-AUG-15 WHALE TAIL LAKE LAKE TROUT #60	L1677176-15 Tissue 18-AUG-15 WHALE TAIL LAKE LAKE TROUT #61
TISSUE						
Metals	Mercury (Hg)-Total (mg/kg)	1.03	1.49	0.727	2.13	9.52
	Mercury (Hg)-Total (mg/kg wwt)	0.281	0.370	0.175	0.453	2.19
	Molybdenum (Mo)-Total (mg/kg)			<0.020		<0.020
	Molybdenum (Mo)-Total (mg/kg wwt)			<0.0040		<0.0040
	Nickel (Ni)-Total (mg/kg)			<0.20		<0.20
	Nickel (Ni)-Total (mg/kg wwt)			<0.040		<0.040
	Phosphorus (P)-Total (mg/kg)			10500		10600
	Phosphorus (P)-Total (mg/kg wwt)			2520		2450
	Potassium (K)-Total (mg/kg)			16700		17500
	Potassium (K)-Total (mg/kg wwt)			4020		4030
	Rubidium (Rb)-Total (mg/kg)			12.1		19.1
	Rubidium (Rb)-Total (mg/kg wwt)			2.91		4.40
	Selenium (Se)-Total (mg/kg)			1.16		2.14
	Selenium (Se)-Total (mg/kg wwt)			0.279		0.494
	Sodium (Na)-Total (mg/kg)			603		1280
	Sodium (Na)-Total (mg/kg wwt)			145		294
	Strontium (Sr)-Total (mg/kg)			0.594		0.245
	Strontium (Sr)-Total (mg/kg wwt)			0.143		0.056
	Tellurium (Te)-Total (mg/kg)			<0.020		<0.020
	Tellurium (Te)-Total (mg/kg wwt)			<0.0040		<0.0040
	Thallium (Tl)-Total (mg/kg)			0.0149		0.0215
	Thallium (Tl)-Total (mg/kg wwt)			0.00359		0.00495
	Tin (Sn)-Total (mg/kg)			<0.10		<0.10
	Tin (Sn)-Total (mg/kg wwt)			0.023		<0.020
	Uranium (U)-Total (mg/kg)			<0.0020		<0.0020
	Uranium (U)-Total (mg/kg wwt)			<0.00040		<0.00040
	Vanadium (V)-Total (mg/kg)			<0.10		<0.10
	Vanadium (V)-Total (mg/kg wwt)			<0.020		<0.020
	Zinc (Zn)-Total (mg/kg)			12.4		13.8
	Zinc (Zn)-Total (mg/kg wwt)			2.98		3.19
	Zirconium (Zr)-Total (mg/kg)			<0.20		<0.20
	Zirconium (Zr)-Total (mg/kg wwt)			<0.040		<0.040

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1677176-16 Tissue 18-AUG-15 WHALE TAIL LAKE LAKE TROUT #62	L1677176-17 Tissue 18-AUG-15 WHALE TAIL LAKE LAKE TROUT #63	L1677176-18 Tissue 18-AUG-15 WHALE TAIL LAKE LAKE TROUT #64	L1677176-19 Tissue 18-AUG-15 WHALE TAIL LAKE LAKE TROUT #65	L1677176-20 Tissue 18-AUG-15 WHALE TAIL LAKE LAKE TROUT #66
TISSUE						
Metals	Mercury (Hg)-Total (mg/kg)	3.52	2.12	1.36	1.26	0.614
	Mercury (Hg)-Total (mg/kg wwt)	0.798	0.486	0.292	0.306	0.138
	Molybdenum (Mo)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Molybdenum (Mo)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Nickel (Ni)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Nickel (Ni)-Total (mg/kg wwt)	<0.040	<0.040	<0.040	<0.040	<0.040
	Phosphorus (P)-Total (mg/kg)	11800	10600	8460	10400	11100
	Phosphorus (P)-Total (mg/kg wwt)	2680	2430	1810	2520	2490
	Potassium (K)-Total (mg/kg)	19300	17900	13900	17300	18000
	Potassium (K)-Total (mg/kg wwt)	4370	4100	2980	4210	4050
	Rubidium (Rb)-Total (mg/kg)	27.2	19.5	9.74	22.5	17.5
	Rubidium (Rb)-Total (mg/kg wwt)	6.16	4.48	2.09	5.48	3.92
	Selenium (Se)-Total (mg/kg)	1.58	2.26	1.18	1.44	1.41
	Selenium (Se)-Total (mg/kg wwt)	0.358	0.519	0.252	0.350	0.317
	Sodium (Na)-Total (mg/kg)	1130	866	545	741	704
	Sodium (Na)-Total (mg/kg wwt)	256	199	117	180	158
	Strontium (Sr)-Total (mg/kg)	0.265	0.368	0.180	0.543	0.836
	Strontium (Sr)-Total (mg/kg wwt)	0.060	0.084	0.038	0.132	0.188
	Tellurium (Te)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Tellurium (Te)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Thallium (Tl)-Total (mg/kg)	0.0246	0.0152	0.0176	0.0191	0.0287
	Thallium (Tl)-Total (mg/kg wwt)	0.00557	0.00349	0.00378	0.00464	0.00645
	Tin (Sn)-Total (mg/kg)	<0.10	<0.10	0.10	<0.10	0.15
	Tin (Sn)-Total (mg/kg wwt)	<0.020	<0.020	0.022	<0.020	0.034
	Uranium (U)-Total (mg/kg)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Uranium (U)-Total (mg/kg wwt)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
	Vanadium (V)-Total (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
	Vanadium (V)-Total (mg/kg wwt)	<0.020	<0.020	<0.020	<0.020	<0.020
	Zinc (Zn)-Total (mg/kg)	14.4	12.5	9.93	12.8	16.1
	Zinc (Zn)-Total (mg/kg wwt)	3.26	2.87	2.13	3.11	3.61
	Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	0.26
	Zirconium (Zr)-Total (mg/kg wwt)	<0.040	<0.040	<0.040	<0.040	0.058

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1677176-21 Tissue 18-AUG-15 WHALE TAIL LAKE LAKE TROUT #68	L1677176-22 Tissue 18-AUG-15 WHALE TAIL LAKE LAKE TROUT #69	L1677176-23 Tissue 18-AUG-15 WHALE TAIL LAKE LAKE TROUT #70	L1677176-24 Tissue 25-AUG-15 MAMMOTH LAKE LAKE TROUT #97	L1677176-25 Tissue 25-AUG-15 MAMMOTH LAKE LAKE TROUT #98
TISSUE						
Metals	Mercury (Hg)-Total (mg/kg)	0.711	0.334	1.29	0.902	0.625
	Mercury (Hg)-Total (mg/kg wwt)	0.158	0.0771	0.318	0.227	0.156
	Molybdenum (Mo)-Total (mg/kg)	<0.020	<0.040	<0.020	<0.020	<0.020
	Molybdenum (Mo)-Total (mg/kg wwt)	<0.0040	<0.0080	<0.0040	<0.0040	<0.0040
	Nickel (Ni)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Nickel (Ni)-Total (mg/kg wwt)	<0.040	<0.040	<0.040	<0.040	<0.040
	Phosphorus (P)-Total (mg/kg)	11300	8620	9110	9460	10600
	Phosphorus (P)-Total (mg/kg wwt)	2510	1990	2250	2380	2640
	Potassium (K)-Total (mg/kg)	18200	16600	14600	15300	17200
	Potassium (K)-Total (mg/kg wwt)	4040	3830	3610	3860	4280
	Rubidium (Rb)-Total (mg/kg)	16.9	13.0	11.4	12.1	13.3
	Rubidium (Rb)-Total (mg/kg wwt)	3.75	3.01	2.82	3.06	3.31
	Selenium (Se)-Total (mg/kg)	1.25	1.58	0.981	1.03	1.24
	Selenium (Se)-Total (mg/kg wwt)	0.278	0.365	0.243	0.259	0.310
	Sodium (Na)-Total (mg/kg)	696	2770	831	896	822
	Sodium (Na)-Total (mg/kg wwt)	155	639	206	226	205
	Strontium (Sr)-Total (mg/kg)	0.999	4.30	0.728	0.448	0.490
	Strontium (Sr)-Total (mg/kg wwt)	0.222	0.992	0.180	0.113	0.122
	Tellurium (Te)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Tellurium (Te)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Thallium (Tl)-Total (mg/kg)	0.0177	0.0126	0.0151	0.0203	0.0137
	Thallium (Tl)-Total (mg/kg wwt)	0.00393	0.00292	0.00372	0.00512	0.00341
	Tin (Sn)-Total (mg/kg)	0.16	<0.10	0.13	0.11	0.11
	Tin (Sn)-Total (mg/kg wwt)	0.035	<0.020	0.031	0.027	0.028
	Uranium (U)-Total (mg/kg)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Uranium (U)-Total (mg/kg wwt)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
	Vanadium (V)-Total (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
	Vanadium (V)-Total (mg/kg wwt)	<0.020	<0.020	<0.020	<0.020	<0.020
	Zinc (Zn)-Total (mg/kg)	14.8	46.0	9.77	15.3	12.5
	Zinc (Zn)-Total (mg/kg wwt)	3.28	10.6	2.42	3.86	3.10
	Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Zirconium (Zr)-Total (mg/kg wwt)	<0.040	<0.040	<0.040	<0.040	<0.040

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1677176-26 Tissue 25-AUG-15 MAMMOTH LAKE LAKE TROUT #99	L1677176-27 Tissue 26-AUG-15 MAMMOTH LAKE LAKE TROUT #100	L1677176-28 Tissue 26-AUG-15 MAMMOTH LAKE LAKE TROUT #101	L1677176-29 Tissue 26-AUG-15 MAMMOTH LAKE LAKE TROUT #102	L1677176-30 Tissue 26-AUG-15 MAMMOTH LAKE LAKE TROUT #103
TISSUE						
Metals	Mercury (Hg)-Total (mg/kg)	0.655	0.504	0.566	0.578	0.739
	Mercury (Hg)-Total (mg/kg wwt)	0.157	0.127	0.136	0.138	0.180
	Molybdenum (Mo)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Molybdenum (Mo)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Nickel (Ni)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Nickel (Ni)-Total (mg/kg wwt)	<0.040	<0.040	<0.040	<0.040	<0.040
	Phosphorus (P)-Total (mg/kg)	12300	10900	10700	11400	11300
	Phosphorus (P)-Total (mg/kg wwt)	2940	2740	2570	2720	2750
	Potassium (K)-Total (mg/kg)	20300	16200	17000	17800	18400
	Potassium (K)-Total (mg/kg wwt)	4880	4090	4080	4250	4470
	Rubidium (Rb)-Total (mg/kg)	19.4	12.4	15.0	14.6	21.4
	Rubidium (Rb)-Total (mg/kg wwt)	4.66	3.12	3.61	3.49	5.20
	Selenium (Se)-Total (mg/kg)	1.62	1.31	1.22	1.42	1.57
	Selenium (Se)-Total (mg/kg wwt)	0.388	0.330	0.293	0.339	0.380
	Sodium (Na)-Total (mg/kg)	884	922	664	656	1020
	Sodium (Na)-Total (mg/kg wwt)	212	232	160	157	249
	Strontium (Sr)-Total (mg/kg)	0.944	1.27	0.298	1.72	0.396
	Strontium (Sr)-Total (mg/kg wwt)	0.227	0.321	0.072	0.411	0.096
	Tellurium (Te)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Tellurium (Te)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Thallium (Tl)-Total (mg/kg)	0.0257	0.0123	0.0155	0.0253	0.0184
	Thallium (Tl)-Total (mg/kg wwt)	0.00617	0.00309	0.00373	0.00604	0.00448
	Tin (Sn)-Total (mg/kg)	0.12	0.10	0.14	0.18	0.11
	Tin (Sn)-Total (mg/kg wwt)	0.028	0.025	0.033	0.043	0.026
	Uranium (U)-Total (mg/kg)	<0.0020	<0.0020	<0.0020	0.0026	<0.0020
	Uranium (U)-Total (mg/kg wwt)	<0.00040	<0.00040	<0.00040	0.00063	<0.00040
	Vanadium (V)-Total (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
	Vanadium (V)-Total (mg/kg wwt)	<0.020	<0.020	<0.020	<0.020	<0.020
	Zinc (Zn)-Total (mg/kg)	12.1	13.1	13.6	14.6	13.3
	Zinc (Zn)-Total (mg/kg wwt)	2.90	3.30	3.28	3.49	3.23
	Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Zirconium (Zr)-Total (mg/kg wwt)	<0.040	<0.040	<0.040	<0.040	<0.040

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1677176-31	L1677176-32	L1677176-33	L1677176-34	L1677176-35
	Description	Tissue	Tissue	Tissue	Tissue	Tissue
	Sampled Date	26-AUG-15	26-AUG-15	26-AUG-15	26-AUG-15	26-AUG-15
	Sampled Time					
	Client ID	MAMMOTH LAKE LAKE TROUT #105	MAMMOTH LAKE LAKE TROUT #106	MAMMOTH LAKE LAKE TROUT #108	MAMMOTH LAKE LAKE TROUT #110	MAMMOTH LAKE LAKE TROUT #111
Grouping	**Analyte**					
TISSUE						
Metals	Mercury (Hg)-Total (mg/kg)	0.700	1.34	0.531	0.602	0.785
	Mercury (Hg)-Total (mg/kg wwt)	0.172	0.268	0.120	0.156	0.189
	Molybdenum (Mo)-Total (mg/kg)	<0.020	<0.020	<0.020		
	Molybdenum (Mo)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040		
	Nickel (Ni)-Total (mg/kg)	<0.20	<0.20	<0.20		
	Nickel (Ni)-Total (mg/kg wwt)	<0.040	<0.040	<0.040		
	Phosphorus (P)-Total (mg/kg)	10400	11500	12000		
	Phosphorus (P)-Total (mg/kg wwt)	2560	2300	2720		
	Potassium (K)-Total (mg/kg)	17100	18700	20000		
	Potassium (K)-Total (mg/kg wwt)	4200	3730	4520		
	Rubidium (Rb)-Total (mg/kg)	12.8	13.2	13.7		
	Rubidium (Rb)-Total (mg/kg wwt)	3.15	2.63	3.09		
	Selenium (Se)-Total (mg/kg)	1.49	1.29	1.26		
	Selenium (Se)-Total (mg/kg wwt)	0.365	0.258	0.286		
	Sodium (Na)-Total (mg/kg)	759	742	614		
	Sodium (Na)-Total (mg/kg wwt)	187	148	139		
	Strontium (Sr)-Total (mg/kg)	0.328	0.610	0.702		
	Strontium (Sr)-Total (mg/kg wwt)	0.081	0.122	0.159		
	Tellurium (Te)-Total (mg/kg)	<0.020	<0.020	<0.020		
	Tellurium (Te)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040		
	Thallium (Tl)-Total (mg/kg)	0.0167	0.0156	0.0184		
	Thallium (Tl)-Total (mg/kg wwt)	0.00411	0.00312	0.00417		
	Tin (Sn)-Total (mg/kg)	0.11	0.20	0.16		
	Tin (Sn)-Total (mg/kg wwt)	0.028	0.039	0.035		
	Uranium (U)-Total (mg/kg)	<0.0020	<0.0020	<0.0020		
	Uranium (U)-Total (mg/kg wwt)	<0.00040	<0.00040	<0.00040		
	Vanadium (V)-Total (mg/kg)	<0.10	<0.10	<0.10		
	Vanadium (V)-Total (mg/kg wwt)	<0.020	<0.020	<0.020		
	Zinc (Zn)-Total (mg/kg)	12.3	13.6	13.2		
	Zinc (Zn)-Total (mg/kg wwt)	3.01	2.72	2.99		
	Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20	<0.20		
	Zirconium (Zr)-Total (mg/kg wwt)	<0.040	<0.040	<0.040		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1677176-36	L1677176-37	L1677176-38	L1677176-39	L1677176-40
	Description	Tissue	Tissue	Tissue	Tissue	Tissue
	Sampled Date	26-AUG-15	26-AUG-15	26-AUG-15	26-AUG-15	26-AUG-15
	Sampled Time					
	Client ID	MAMMOTH LAKE LAKE TROUT #112	MAMMOTH LAKE LAKE TROUT #114	MAMMOTH LAKE LAKE TROUT #115	MAMMOTH LAKE LAKE TROUT #116	MAMMOTH LAKE LAKE TROUT #117
Grouping	**Analyte**					
TISSUE						
Metals	Mercury (Hg)-Total (mg/kg)	0.693	2.91	0.572	0.811	0.845
	Mercury (Hg)-Total (mg/kg wwt)	0.175	0.583	0.130	0.187	0.215
	Molybdenum (Mo)-Total (mg/kg)					
	Molybdenum (Mo)-Total (mg/kg wwt)					
	Nickel (Ni)-Total (mg/kg)					
	Nickel (Ni)-Total (mg/kg wwt)					
	Phosphorus (P)-Total (mg/kg)					
	Phosphorus (P)-Total (mg/kg wwt)					
	Potassium (K)-Total (mg/kg)					
	Potassium (K)-Total (mg/kg wwt)					
	Rubidium (Rb)-Total (mg/kg)					
	Rubidium (Rb)-Total (mg/kg wwt)					
	Selenium (Se)-Total (mg/kg)					
	Selenium (Se)-Total (mg/kg wwt)					
	Sodium (Na)-Total (mg/kg)					
	Sodium (Na)-Total (mg/kg wwt)					
	Strontium (Sr)-Total (mg/kg)					
	Strontium (Sr)-Total (mg/kg wwt)					
	Tellurium (Te)-Total (mg/kg)					
	Tellurium (Te)-Total (mg/kg wwt)					
	Thallium (Tl)-Total (mg/kg)					
	Thallium (Tl)-Total (mg/kg wwt)					
	Tin (Sn)-Total (mg/kg)					
	Tin (Sn)-Total (mg/kg wwt)					
	Uranium (U)-Total (mg/kg)					
	Uranium (U)-Total (mg/kg wwt)					
	Vanadium (V)-Total (mg/kg)					
	Vanadium (V)-Total (mg/kg wwt)					
	Zinc (Zn)-Total (mg/kg)					
	Zinc (Zn)-Total (mg/kg wwt)					
	Zirconium (Zr)-Total (mg/kg)					
	Zirconium (Zr)-Total (mg/kg wwt)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1677176-41	L1677176-42	L1677176-43	L1677176-44	L1677176-45
	Description	Tissue	Tissue	Tissue	Tissue	Tissue
	Sampled Date	26-AUG-15	26-AUG-15	26-AUG-15	26-AUG-15	26-AUG-15
	Sampled Time					
	Client ID	MAMMOTH LAKE LAKE TROUT #118	MAMMOTH LAKE LAKE TROUT #119	MAMMOTH LAKE LAKE TROUT #120	MAMMOTH LAKE LAKE TROUT #121	MAMMOTH LAKE LAKE TROUT #122
Grouping	**Analyte**					
TISSUE						
Metals	Mercury (Hg)-Total (mg/kg)	0.986	0.523	0.492	0.531	0.325
	Mercury (Hg)-Total (mg/kg wwt)	0.219	0.129	0.122	0.135	0.0777
	Molybdenum (Mo)-Total (mg/kg)					
	Molybdenum (Mo)-Total (mg/kg wwt)					
	Nickel (Ni)-Total (mg/kg)					
	Nickel (Ni)-Total (mg/kg wwt)					
	Phosphorus (P)-Total (mg/kg)					
	Phosphorus (P)-Total (mg/kg wwt)					
	Potassium (K)-Total (mg/kg)					
	Potassium (K)-Total (mg/kg wwt)					
	Rubidium (Rb)-Total (mg/kg)					
	Rubidium (Rb)-Total (mg/kg wwt)					
	Selenium (Se)-Total (mg/kg)					
	Selenium (Se)-Total (mg/kg wwt)					
	Sodium (Na)-Total (mg/kg)					
	Sodium (Na)-Total (mg/kg wwt)					
	Strontium (Sr)-Total (mg/kg)					
	Strontium (Sr)-Total (mg/kg wwt)					
	Tellurium (Te)-Total (mg/kg)					
	Tellurium (Te)-Total (mg/kg wwt)					
	Thallium (Tl)-Total (mg/kg)					
	Thallium (Tl)-Total (mg/kg wwt)					
	Tin (Sn)-Total (mg/kg)					
	Tin (Sn)-Total (mg/kg wwt)					
	Uranium (U)-Total (mg/kg)					
	Uranium (U)-Total (mg/kg wwt)					
	Vanadium (V)-Total (mg/kg)					
	Vanadium (V)-Total (mg/kg wwt)					
	Zinc (Zn)-Total (mg/kg)					
	Zinc (Zn)-Total (mg/kg wwt)					
	Zirconium (Zr)-Total (mg/kg)					
	Zirconium (Zr)-Total (mg/kg wwt)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1677176-46 Tissue 26-AUG-15 MAMMOTH LAKE LAKE TROUT #123	L1677176-47 Tissue 26-AUG-15 MAMMOTH LAKE LAKE TROUT #124	L1677176-48 Tissue 26-AUG-15 MAMMOTH LAKE LAKE TROUT #126	L1677176-49 Tissue 26-AUG-15 WHALE TAIL LAKE SMALL FISH COMPOSITE #1	L1677176-50 Tissue 26-AUG-15 WHALE TAIL LAKE SMALL FISH COMPOSITE #2
TISSUE						
Metals	Mercury (Hg)-Total (mg/kg)	0.340	4.99	0.329	0.252	0.270
	Mercury (Hg)-Total (mg/kg wwt)	0.0747	1.07	0.0722	0.0645	0.0701
	Molybdenum (Mo)-Total (mg/kg)				0.129	0.128
	Molybdenum (Mo)-Total (mg/kg wwt)				0.0329	0.0332
	Nickel (Ni)-Total (mg/kg)				0.22	<0.20
	Nickel (Ni)-Total (mg/kg wwt)				0.057	0.042
	Phosphorus (P)-Total (mg/kg)				33800	28000
	Phosphorus (P)-Total (mg/kg wwt)				8660	7270
	Potassium (K)-Total (mg/kg)				10500	9820
	Potassium (K)-Total (mg/kg wwt)				2690	2550
	Rubidium (Rb)-Total (mg/kg)				17.4	14.2
	Rubidium (Rb)-Total (mg/kg wwt)				4.44	3.70
	Selenium (Se)-Total (mg/kg)				1.64	1.86
	Selenium (Se)-Total (mg/kg wwt)				0.419	0.484
	Sodium (Na)-Total (mg/kg)				4470	4080
	Sodium (Na)-Total (mg/kg wwt)				1140	1060
	Strontium (Sr)-Total (mg/kg)				68.1	59.1
	Strontium (Sr)-Total (mg/kg wwt)				17.4	15.3
	Tellurium (Te)-Total (mg/kg)				<0.020	<0.020
	Tellurium (Te)-Total (mg/kg wwt)				<0.0040	<0.0040
	Thallium (Tl)-Total (mg/kg)				0.0101	0.0101
	Thallium (Tl)-Total (mg/kg wwt)				0.00259	0.00262
	Tin (Sn)-Total (mg/kg)				0.11	0.14
	Tin (Sn)-Total (mg/kg wwt)				0.028	0.036
	Uranium (U)-Total (mg/kg)				0.0300	0.0361
	Uranium (U)-Total (mg/kg wwt)				0.00768	0.00938
	Vanadium (V)-Total (mg/kg)				<0.10	<0.10
	Vanadium (V)-Total (mg/kg wwt)				<0.020	<0.020
	Zinc (Zn)-Total (mg/kg)				173	151
	Zinc (Zn)-Total (mg/kg wwt)				44.4	39.2
	Zirconium (Zr)-Total (mg/kg)				<0.20	<0.20
	Zirconium (Zr)-Total (mg/kg wwt)				<0.040	<0.040

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1677176-51 Tissue 26-AUG-15 WHALE TAIL LAKE SMALL FISH COMPOSITE #3	L1677176-52 Tissue 26-AUG-15 WHALE TAIL LAKE SMALL FISH COMPOSITE #4	L1677176-53 Tissue 26-AUG-15 WHALE TAIL LAKE SMALL FISH COMPOSITE #5	L1677176-54 Tissue 26-AUG-15 WHALE TAIL LAKE SMALL FISH COMPOSITE #6	L1677176-55 Tissue 26-AUG-15 WHALE TAIL LAKE SMALL FISH COMPOSITE #7
TISSUE						
Metals	Mercury (Hg)-Total (mg/kg)	0.212	0.300	0.209	0.218	0.255
	Mercury (Hg)-Total (mg/kg wwt)	0.0557	0.0794	0.0543	0.0559	0.0643
	Molybdenum (Mo)-Total (mg/kg)	0.125	0.120	0.114	0.131	0.117
	Molybdenum (Mo)-Total (mg/kg wwt)	0.0330	0.0317	0.0296	0.0335	0.0295
	Nickel (Ni)-Total (mg/kg)	0.24	0.24	0.29	0.20	0.21
	Nickel (Ni)-Total (mg/kg wwt)	0.063	0.064	0.075	0.052	0.053
	Phosphorus (P)-Total (mg/kg)	27100	30000	26400	32100	28600
	Phosphorus (P)-Total (mg/kg wwt)	7130	7930	6850	8220	7200
	Potassium (K)-Total (mg/kg)	9790	10100	9550	11200	10100
	Potassium (K)-Total (mg/kg wwt)	2570	2660	2480	2870	2550
	Rubidium (Rb)-Total (mg/kg)	13.9	11.4	12.1	13.1	12.2
	Rubidium (Rb)-Total (mg/kg wwt)	3.66	3.01	3.14	3.34	3.08
	Selenium (Se)-Total (mg/kg)	1.60	1.64	1.50	1.63	1.38
	Selenium (Se)-Total (mg/kg wwt)	0.420	0.433	0.390	0.417	0.348
	Sodium (Na)-Total (mg/kg)	3740	3790	3490	4280	4000
	Sodium (Na)-Total (mg/kg wwt)	982	1000	906	1090	1010
	Strontium (Sr)-Total (mg/kg)	55.2	59.7	51.4	65.2	56.3
	Strontium (Sr)-Total (mg/kg wwt)	14.5	15.8	13.3	16.7	14.2
	Tellurium (Te)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Tellurium (Te)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Thallium (Tl)-Total (mg/kg)	0.0110	0.0102	0.0128	0.0125	0.0115
	Thallium (Tl)-Total (mg/kg wwt)	0.00288	0.00269	0.00332	0.00320	0.00291
	Tin (Sn)-Total (mg/kg)	0.25	0.29	0.32	0.25	0.30
	Tin (Sn)-Total (mg/kg wwt)	0.067	0.076	0.082	0.063	0.075
	Uranium (U)-Total (mg/kg)	0.0299	0.0544	0.0414	0.0652	0.0384
	Uranium (U)-Total (mg/kg wwt)	0.00787	0.0144	0.0108	0.0167	0.00966
	Vanadium (V)-Total (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
	Vanadium (V)-Total (mg/kg wwt)	<0.020	<0.020	<0.020	<0.020	<0.020
	Zinc (Zn)-Total (mg/kg)	146	167	153	180	161
	Zinc (Zn)-Total (mg/kg wwt)	38.5	44.0	39.7	46.1	40.6
	Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Zirconium (Zr)-Total (mg/kg wwt)	<0.040	<0.040	<0.040	<0.040	<0.040

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1677176-56	L1677176-57	L1677176-58	L1677176-59	L1677176-60
	Description	Tissue	Tissue	Tissue	Tissue	Tissue
	Sampled Date	30-AUG-15	29-AUG-15	29-AUG-15	29-AUG-15	29-AUG-15
	Sampled Time					
	Client ID	MAMMOTH LAKE SMALL FISH COMPOSITE #8	MAMMOTH LAKE SMALL FISH COMPOSITE #9	MAMMOTH LAKE SMALL FISH COMPOSITE #10	MAMMOTH LAKE SMALL FISH COMPOSITE #11	MAMMOTH LAKE SMALL FISH COMPOSITE #12
Grouping	**Analyte**					
TISSUE						
Metals	Mercury (Hg)-Total (mg/kg)	0.307	0.196	0.206	0.189	0.155
	Mercury (Hg)-Total (mg/kg wwt)	0.0805	0.0531	0.0544	0.0490	0.0414
	Molybdenum (Mo)-Total (mg/kg)	0.098	0.111	0.118	0.112	0.118
	Molybdenum (Mo)-Total (mg/kg wwt)	0.0256	0.0301	0.0313	0.0292	0.0314
	Nickel (Ni)-Total (mg/kg)	<0.20	0.29	0.28	0.38	0.32
	Nickel (Ni)-Total (mg/kg wwt)	<0.040	0.077	0.075	0.099	0.085
	Phosphorus (P)-Total (mg/kg)	24000	26700	24200	24000	25900
	Phosphorus (P)-Total (mg/kg wwt)	6290	7230	6390	6230	6930
	Potassium (K)-Total (mg/kg)	9300	8760	9100	10700	9200
	Potassium (K)-Total (mg/kg wwt)	2440	2370	2410	2780	2460
	Rubidium (Rb)-Total (mg/kg)	15.2	12.4	13.6	13.9	13.1
	Rubidium (Rb)-Total (mg/kg wwt)	3.97	3.36	3.59	3.62	3.49
	Selenium (Se)-Total (mg/kg)	1.61	1.48	1.61	1.66	1.54
	Selenium (Se)-Total (mg/kg wwt)	0.423	0.400	0.425	0.431	0.413
	Sodium (Na)-Total (mg/kg)	3720	3360	3800	4270	3770
	Sodium (Na)-Total (mg/kg wwt)	975	908	1000	1110	1010
	Strontium (Sr)-Total (mg/kg)	45.7	45.7	41.6	43.1	51.3
	Strontium (Sr)-Total (mg/kg wwt)	12.0	12.4	11.0	11.2	13.7
	Tellurium (Te)-Total (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	Tellurium (Te)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Thallium (Tl)-Total (mg/kg)	0.0094	0.0115	0.0130	0.0137	0.0141
	Thallium (Tl)-Total (mg/kg wwt)	0.00246	0.00310	0.00343	0.00355	0.00377
	Tin (Sn)-Total (mg/kg)	0.11	0.17	0.14	0.14	0.10
	Tin (Sn)-Total (mg/kg wwt)	0.028	0.047	0.036	0.035	0.027
	Uranium (U)-Total (mg/kg)	0.0222	0.0247	0.0232	0.0268	0.0270
	Uranium (U)-Total (mg/kg wwt)	0.00583	0.00667	0.00613	0.00697	0.00720
	Vanadium (V)-Total (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
	Vanadium (V)-Total (mg/kg wwt)	<0.020	<0.020	<0.020	<0.020	<0.020
	Zinc (Zn)-Total (mg/kg)	154	157	120	140	133
	Zinc (Zn)-Total (mg/kg wwt)	40.3	42.5	31.8	36.4	35.6
	Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Zirconium (Zr)-Total (mg/kg wwt)	<0.040	<0.040	<0.040	<0.040	<0.040

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1677176-61	L1677176-62	L1677176-63		
	Description	Tissue	Tissue	Tissue		
	Sampled Date	29-AUG-15	29-AUG-15	29-AUG-15		
	Sampled Time					
	Client ID	MAMMOTH LAKE SMALL FISH COMPOSITE #13	MAMMOTH LAKE SMALL FISH COMPOSITE #14	MAMMOTH LAKE SMALL FISH COMPOSITE #15		
Grouping	**Analyte**					
TISSUE						
Metals	Mercury (Hg)-Total (mg/kg)	0.192	0.193	0.205		
	Mercury (Hg)-Total (mg/kg wwt)	0.0513	0.0503	0.0520		
	Molybdenum (Mo)-Total (mg/kg)	0.115	0.130	0.154		
	Molybdenum (Mo)-Total (mg/kg wwt)	0.0308	0.0338	0.0390		
	Nickel (Ni)-Total (mg/kg)	0.27	0.38	0.52		
	Nickel (Ni)-Total (mg/kg wwt)	0.073	0.100	0.132		
	Phosphorus (P)-Total (mg/kg)	24600	27600	26700		
	Phosphorus (P)-Total (mg/kg wwt)	6570	7200	6770		
	Potassium (K)-Total (mg/kg)	9480	9440	11200		
	Potassium (K)-Total (mg/kg wwt)	2540	2460	2840		
	Rubidium (Rb)-Total (mg/kg)	12.3	13.9	14.3		
	Rubidium (Rb)-Total (mg/kg wwt)	3.29	3.63	3.62		
	Selenium (Se)-Total (mg/kg)	1.59	1.79	1.51		
	Selenium (Se)-Total (mg/kg wwt)	0.427	0.467	0.382		
	Sodium (Na)-Total (mg/kg)	3540	3890	4140		
	Sodium (Na)-Total (mg/kg wwt)	946	1010	1050		
	Strontium (Sr)-Total (mg/kg)	45.8	49.3	43.6		
	Strontium (Sr)-Total (mg/kg wwt)	12.3	12.9	11.1		
	Tellurium (Te)-Total (mg/kg)	<0.020	<0.020	<0.020		
	Tellurium (Te)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040		
	Thallium (Tl)-Total (mg/kg)	0.0128	0.0168	0.0146		
	Thallium (Tl)-Total (mg/kg wwt)	0.00343	0.00438	0.00370		
	Tin (Sn)-Total (mg/kg)	0.19	0.76	0.17		
	Tin (Sn)-Total (mg/kg wwt)	0.051	0.199	0.042		
	Uranium (U)-Total (mg/kg)	0.0229	0.0417	0.0357		
	Uranium (U)-Total (mg/kg wwt)	0.00612	0.0109	0.00905		
	Vanadium (V)-Total (mg/kg)	<0.10	<0.10	<0.10		
	Vanadium (V)-Total (mg/kg wwt)	<0.020	<0.020	<0.020		
	Zinc (Zn)-Total (mg/kg)	139	155	154		
	Zinc (Zn)-Total (mg/kg wwt)	37.1	40.5	39.1		
	Zirconium (Zr)-Total (mg/kg)	<0.20	<0.20	<0.20		
	Zirconium (Zr)-Total (mg/kg wwt)	<0.040	<0.040	<0.040		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Copper (Cu)-Total	DUP-H	L1677176-22, -49, -50, -51, -52, -53, -54, -55, -56, -57, -58, -59, -60, -61, -62, -63
Duplicate	Copper (Cu)-Total	DUP-H	L1677176-22, -49, -50, -51, -52, -53, -54, -55, -56, -57, -58, -59, -60, -61, -62, -63

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
HG-DRY-CVAFS-N-VA	Tissue	Mercury in Tissue by CVAFS (DRY)	EPA 200.3, EPA 245.7

This method is conducted following British Columbia Lab Manual method "Metals in Animal Tissue and Vegetation (Biota) - Prescriptive". Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with addition of hydrogen peroxide. Analysis is by atomic fluorescence spectrophotometry or atomic absorption spectrophotometry, adapted from US EPA Method 245.7.

HG-DRY-MICR-CVAF-VA	Tissue	Mercury in Tissue by CVAFS Micro (DRY)	EPA 200.3, EPA 245.7

This method is adapted from US EPA Method 200.3 "Sample Procedures for Spectrochemical Determination of Total Recoverable Elements in Biological Tissues" (1996). Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with repeated additions of hydrogen peroxide. Analysis is by atomic fluorescence spectrophotometry or atomic absorption spectrophotometry, adapted from US EPA Method 245.7.

HG-WET-CVAFS-N-VA	Tissue	Mercury in Tissue by CVAFS (WET)	EPA 200.3, EPA 245.7

This method is conducted following British Columbia Lab Manual method "Metals in Animal Tissue and Vegetation (Biota) - Prescriptive". Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with addition of hydrogen peroxide. Analysis is by atomic fluorescence spectrophotometry or atomic absorption spectrophotometry, adapted from US EPA Method 245.7.

HG-WET-MICR-CVAF-VA	Tissue	Mercury in Tissue by CVAFS Micro (WET)	EPA 200.3, EPA 245.7

This method is adapted from US EPA Method 200.3 "Sample Procedures for Spectrochemical Determination of Total Recoverable Elements in Biological Tissues" (1996). Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with repeated additions of hydrogen peroxide. Analysis is by atomic fluorescence spectrophotometry or atomic absorption spectrophotometry, adapted from US EPA Method 245.7.

MET-DRY-CCMS-N-VA	Tissue	Metals in Tissue by CRC ICPMS (DRY)	EPA 200.3/6020A

This method is conducted following British Columbia Lab Manual method "Metals in Animal Tissue and Vegetation (Biota) - Prescriptive". Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with addition of hydrogen peroxide. Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.

MET-DRY-MICR-HRMS-VA	Tissue	Metals in Tissue by HR-ICPMS Micro (DRY)	EPA 200.3/200.8

Trace metals in tissue are analyzed by high resolution inductively coupled plasma mass spectrometry (HR-ICPMS) modified from US EPA Method 200.8, (Revision 5.5). The sample preparation procedure is modified from US EPA 200.3. Analytical results are reported on dry weight basis.

Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.

MET-WET-CCMS-N-VA	Tissue	Metals in Tissue by CRC ICPMS (WET)	EPA 200.3/6020A

This method is conducted following British Columbia Lab Manual method "Metals in Animal Tissue and Vegetation (Biota) - Prescriptive". Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with addition of hydrogen peroxide. Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.

MET-WET-MICR-HRMS-VA	Tissue	Metals in Tissue by HR-ICPMS Micro (WET)	EPA 200.3/200.8

Trace metals in tissue are analyzed by high resolution inductively coupled plasma mass spectrometry (HR-ICPMS) modified from US EPA Method 200.8, (Revision 5.5). The sample preparation procedure is modified from US EPA 200.3. Analytical results are reported on wet weight basis.

Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals.

Reference Information

Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.

MOISTURE-TISS-VA Tissue % Moisture in Tissues ASTM D2974-00 Method A

This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of six hours.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location

Chain of Custody Numbers:

1 2 3 4 5

6 7

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Chain of Custody (COC) / Analyti Request Form

ALS Environmental

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L1677176-COFC

COC Number: 14 -

Page 1 of 7

Report To		Report Format / Distribution		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	C. Portt and Associates	Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)		R ☑ Regular (Standard TAT if received by 3 pm - business days)
Contact:	Cam Portt	Quality Control (QC) Report with Report		P ☐ Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT
Address:	56 Waterloo Avenue Guelph, ON N1H 3H5	☐ Criteria on Report - provide details below if box checked Select Distribution: ☑ EMAI ☐ MAI ☐ FAX		E ☐ Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT E2 ☐ Same day or weekend emergency - contact ALS to confirm TAT and surcharge
Phone:		Email 1 or Fax cportt@sentex.net		Specify Date Required for E2,E or P:
		Email 2		

Invoice To	Same as Report To	Invoice Distribution	
	Copy of Invoice with Report	Select Invoice Distribution: ☑ EMAI ☐ MAIL ☐ FAX	
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:	Q52131	Approver ID:	Cost Center:
Job #:	Amaruq 2015	GL Account:	Routing Code:
PO / AFE:		Activity Code:	
LSD:		Location:	

ALS Lab Work Order # (lab use only): L1677176 | ALS Contact: | Sampler: George Coker

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Moisture	Mercury (Wet and Dry)	Number of Containers
	Whale Tail Lake Lake Trout #46	18-Aug-15		Tissue	R	R	1
	Whale Tail Lake Lake Trout #47	18-Aug-15		Tissue	R	R	1
	Whale Tail Lake Lake Trout #48	18-Aug-15		Tissue	R	R	1
	Whale Tail Lake Lake Trout #49	18-Aug-15		Tissue	R	R	1
	Whale Tail Lake Lake Trout #50	18-Aug-15		Tissue	R	R	1
	Whale Tail Lake Lake Trout #52	18-Aug-15		Tissue	R	R	1
	Whale Tail Lake Lake Trout #53	18-Aug-15		Tissue	R	R	1
	Whale Tail Lake Lake Trout #54A	18-Aug-15		Tissue	R	R	1
	Whale Tail Lake Lake Trout #54B	18-Aug-15		Tissue	R	R	1
	Whale Tail Lake Lake Trout #56	18-Aug-15		Tissue	R	R	1
	Whale Tail Lake Lake Trout #57	18-Aug-15		Tissue	R	R	1
	Whale Tail Lake Lake Trout #58	18-Aug-15		Tissue	R	R	1

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System?	Please report wet and dry weight concentrations for Hg and metals.
Are samples for human drinking water use?	

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice packs Yes ☐ No ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
			-2		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: C. Portt	Date: Sept. 22/15	Time:	Received by:	Date:	Time:	Received by: DY	Date: Sep 23/15	Time: 8:45

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytic Request Form

ALS Environmental

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Canada Toll Free: 1 800 668 9878

L1677176-COFC

COC Number: 14 -

Page 2 of 7

Report To		Report Format / Distribution		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	C. Portt and Associates	Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	R ☑ Regular (Standard TAT if received by 3 pm - business days)
Contact:	Cam Portt	Quality Control (QC) Report with Report		P ☐ Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT
Address:	56 Waterloo Avenue	☐ Criteria on Report - provide details below if box checked		E ☐ Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT
	Guelph, ON N1H 3H5	Select Distribution:	☑ EMAI ☐ MAI ☐ FAX	E2 ☐ Same day or weekend emergency - contact ALS to confirm TAT and surcharge
Phone:		Email 1 or Fax	cportt@sentex.net	Specify Date Required for E2,E or P:
		Email 2		

Invoice To	Same as Report To	Invoice Distribution	
	Copy of Invoice with Report	Select Invoice Distribution:	☑ EMAI ☐ MAIL ☐ FAX
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:	Q52131	Approver ID:	Cost Center:
Job #:	Amaruq 2015	GL Account:	Routing Code:
PO / AFE:		Activity Code:	
LSD:		Location:	

ALS Lab Work Order # (lab use only)		ALS Contact:	Sampler: George Coker

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Mercury (Wet and Dry)	Metals scan (Wet and Dry)	Moisture	Number of Containers
	Whale Tail Lake Lake Trout #59	18-Aug-15		Tissue	R		R	1
	Whale Tail Lake Lake Trout #60	18-Aug-15		Tissue	R		R	1
	Whale Tail Lake Lake Trout #61	18-Aug-15		Tissue	R	R	R	2
	Whale Tail Lake Lake Trout #62	18-Aug-15		Tissue	R	R	R	2
	Whale Tail Lake Lake Trout #63	18-Aug-15		Tissue	R	R	R	2
	Whale Tail Lake Lake Trout #64	18-Aug-15		Tissue	R	R	R	2
	Whale Tail Lake Lake Trout #65	18-Aug-15		Tissue	R	R	R	2
	Whale Tail Lake Lake Trout #66	18-Aug-15		Tissue	R	R	R	2
	Whale Tail Lake Lake Trout #68	18-Aug-15		Tissue	R	R	R	2
	Whale Tail Lake Lake Trout #69	18-Aug-15		Tissue	R	R	R	2
	Whale Tail Lake Lake Trout #70	18-Aug-15		Tissue	R	R	R	2

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System?	Fish 69 is a small, whole fish. I would like to have a dorsal skinless boneless fillet analysed for both Hg and metals from this fish if possible, but if insufficient tissue Hg is the priority. Otherwise there are two samples, each in a separate bag, from fish for which metals are requested. I would like to have 10 metal analyses from Whale Tail lake trout, so if there is one sample (or two if fish 69 is too small to do metals) that is large enough for both Hg and metals to be done, please do that. Please report wet and dry weight concentrations for Hg and metals.
Are samples for human drinking water use?	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☑	SIF Observations	Yes ☐	No ☐
Ice packs	Yes ☐	No ☐	Custody seal intact	Yes ☐ No ☐
Cooling Initiated	☐			

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
			-2°		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: C. Portt	Date: Sept. 22/15	Time:	Received by:	Date:	Time:	Received by: DJ	Date: Sep 23/15	Time: 8:45

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

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1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

ALS Environmental

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Chain of Custody (COC) / Analyt Request Form

Canada Toll Free: 1 800 668 9878

L1677176-COFC

COC Number: 14 -

Page 3 of 7

Report To		Report Format / Distribution		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	C. Portt and Associates	Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	R ☑ Regular (Standard TAT if received by 3 pm - business days)
Contact:	Cam Portt	Quality Control (QC) Report with Report		P ☐ Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT
Address:	56 Waterloo Avenue	☐ Criteria on Report - provide details below if box checked		E ☐ Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT
	Guelph, ON N1H 3H5	Select Distribution:	☑ EMAI ☐ MAI ☐ FAX	E2 ☐ Same day or weekend emergency - contact ALS to confirm TAT and surcharge
Phone:		Email 1 or Fax	cportt@sentex.net	Specify Date Required for E2,E or P:
		Email 2		
Invoice To	Same as Report To	Invoice Distribution		
	Copy of Invoice with Report	Select Invoice Distribution:	☑ EMAI ☐ MAIL ☐ FAX	
Company:		Email 1 or Fax		
Contact:		Email 2		

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:	Q52131	Approver ID:	Cost Center:
Job #:	Amaruq 2015	GL Account:	Routing Code:
PO / AFE:		Activity Code:	
LSD:		Location:	
ALS Lab Work Order # (lab use only)		ALS Contact:	Sampler: George Coker

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Mercury (Wet and Dry)	Metals scan (Wet and Dry)	Moisture	Number of Containers
	Mammoth Lake Lake Trout #97	25-Aug-15		Tissue	R	R	R	2
	Mammoth Lake Lake Trout #98	25-Aug-15		Tissue	R	R	R	2
	Mammoth Lake Lake Trout #99	25-Aug-15		Tissue	R	R	R	2
	Mammoth Lake Lake Trout #100	26-Aug-15		Tissue	R	R	R	2
	Mammoth Lake Lake Trout #101	26-Aug-15		Tissue	R	R	R	2
	Mammoth Lake Lake Trout #102	26-Aug-15		Tissue	R	R	R	2
	Mammoth Lake Lake Trout #103	26-Aug-15		Tissue	R	R	R	2
	Mammoth Lake Lake Trout #105	26-Aug-15		Tissue	R	R	R	2
	Mammoth Lake Lake Trout #106	26-Aug-15		Tissue	R	R	R	2
	Mammoth Lake Lake Trout #108	26-Aug-15		Tissue	R	R	R	2
	Mammoth Lake Lake Trout #110	26-Aug-15		Tissue	R		R	1
	Mammoth Lake Lake Trout #111	26-Aug-15		Tissue	R		R	1

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System?	There are two samples, each in a separate bag, from fish for which metals are requested. Please report wet and dry weight concentrations for Hg and metals.
Are samples for human drinking water use?	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐			SIF Observations	Yes ☐	No ☐	
Ice packs	Yes ☐	No ☐		Custody seal intact	Yes ☐	No ☐	
Cooling Initiated	☐						

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
			-2		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: C. Portt	Date: Sept. 22/15	Time:	Received by:	Date:	Time:	Received by: DJ	Date: Sep 23/15	Time: 8:45

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY

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ALS Environmental

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Chain of Custody (COC) / Analyti Request Form

Canada Toll Free: 1 800 668 9878

L1677176-COFC

COC Number: 14 -

Report To		Report Format / Distribution		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	C. Portt and Associates	Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)		R ☑ Regular (Standard TAT if received by 3 pm - business days)
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Address:	56 Waterloo Avenue	☐ Criteria on Report - provide details below if box checked		E ☐ Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT
	Guelph, ON N1H 3H5	Select Distribution: ☑ EMAI ☐ MAI ☐ FAX		E2 ☐ Same day or weekend emergency - contact ALS to confirm TAT and surcharge
Phone:		Email 1 or Fax cportt@sentex.net		Specify Date Required for E2,E or P:
		Email 2		Analysis Request
Invoice To	Same as Report To	Invoice Distribution		Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
	Copy of Invoice with Report	Select Invoice Distribution: ☑ EMAI ☐ MAIL ☐ FAX		
Company:		Email 1 or Fax		
Contact:		Email 2		

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:	Q52131	Approver ID:	Cost Center:
Job #:	Amaruq 2015	GL Account:	Routing Code:
PO / AFE:		Activity Code:	
LSD:		Location:	

ALS Lab Work Order # (lab use only):

ALS Contact:

Sampler: George Coker

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Mercury (Wet and Dry)	Moisture	Number of Containers
	Mammoth Lake Lake Trout #112	26-Aug-15		Tissue	R	R	1
	Mammoth Lake Lake Trout #114	26-Aug-15		Tissue	R	R	1
	Mammoth Lake Lake Trout #115	26-Aug-15		Tissue	R	R	1
	Mammoth Lake Lake Trout #116	26-Aug-15		Tissue	R	R	1
	Mammoth Lake Lake Trout #117	26-Aug-15		Tissue	R	R	1
	Mammoth Lake Lake Trout #118	26-Aug-15		Tissue	R	R	1
	Mammoth Lake Lake Trout #119	26-Aug-15		Tissue	R	R	1
	Mammoth Lake Lake Trout #120	26-Aug-15		Tissue	R	R	1
	Mammoth Lake Lake Trout #121	26-Aug-15		Tissue	R	R	1
	Mammoth Lake Lake Trout #122	26-Aug-15		Tissue	R	R	1
	Mammoth Lake Lake Trout #123	26-Aug-15		Tissue	R	R	1
	Mammoth Lake Lake Trout #124	26-Aug-15		Tissue	R	R	1

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System?	Please report wet and dry weight concentrations for Hg and metals.
Are samples for human drinking water use?	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☑ SIF Observations Yes ☐ No ☐

Ice packs Yes ☐ No ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
			-2		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: C. Portt	Date: Sept. 22/15	Time:	Received by:	Date:	Time:	Received by: DJ	Date: Sept 23	Time: 8:45

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ALS FM-0223e v08 Front01 January 2014

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# of Custody (COC) / Analy Request Form

ALS Environmental

Canada Toll Free: 1 800 668 9878

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L1677176-COFC

COC Number: 14 -

Report To		Report		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
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Phone:		Email 1 or Fax cportt@sentex.net		Specify Date Required for E2,E or P:
		Email 2		
Invoice To	Same as Report To	**Invoice Distribution**		**Analysis Request**
	Copy of Invoice with Report	Select Invoice Distribution: ☑ EMAI ☐ MAIL ☐ FAX		Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
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Project Information		**Oil and Gas Required Fields (client use)**		
ALS Quote #:	Q52131	Approver ID:	Cost Center:	
Job #:	Amaruq 2015	GL Account:	Routing Code:	
PO / AFE:		Activity Code:		
LSD:		Location:		
ALS Lab Work Order # (lab use only)		**ALS Contact:**	**Sampler:** George Coker	

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Mercury (Wet and Dry)	Moisture	Number of Containers
	Mammoth Lake Lake Trout #126	26-Aug-15		Tissue	R	R	1

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System?	Please report wet and dry weight concentrations for Hg and metals.
Are samples for human drinking water use?	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐			SIF Observations	Yes ☐	No	☐
Ice packs	Yes ☐	No	☐	Custody seal intact	Yes ☐	No	☐
Cooling Initiated	☐						

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
			-2		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: C. Portt	Date: Sept. 22/15	Time:	Received by:	Date:	Time:	Received by: DJ	Date: Sept 23/15	Time: 8:45

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ALS Canada Ltd. Form04 January 2014

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ALS Environmental — Chain of Custody (COC) / Analytical Request Form

L1677176-COFC

COC Number: 14 -

Canada Toll Free: 1 800 668 9878

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Address:	56 Waterloo Avenue Guelph, ON N1H 3H5	☐ Criteria on Report - provide details below if box checked Select Distribution: ☑ EMAI ☐ MAI ☐ FAX	E ☐ Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT E2 ☐ Same day or weekend emergency - contact ALS to confirm TAT and surcharge
Phone:		Email 1 or Fax cportt@sentex.net	Specify Date Required for E2,E or P:
		Email 2	

Invoice To	Same as Report To	Invoice Distribution	Analysis Request
	Copy of Invoice with Report	Select Invoice Distribution: ☑ EMAI ☐ MAIL ☐ FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:	Q52131	Approver ID:	Cost Center:
Job #:	Amaruq 2015	GL Account:	Routing Code:
PO / AFE:		Activity Code:	
LSD		Location:	

ALS Lab Work Order # (lab use only)		ALS Contact:	Sampler: George Coker

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Mercury (Wet and Dry)	Metals scan (Wet and Dry)	Moisture	Number of Containers
	Whale Tail Lake Small Fish composite #1	26-Jul-15		Tissue	R	R	R	1
	Whale Tail Lake Small Fish composite #2	26-Jul-15		Tissue	R	R	R	1
	Whale Tail Lake Small Fish composite #3	26-Jul-15		Tissue	R	R	R	1
	Whale Tail Lake Small Fish composite #4	26-Jul-15		Tissue	R	R	R	1
	Whale Tail Lake Small Fish composite #5	26-Jul-15		Tissue	R	R	R	1
	Whale Tail Lake Small Fish composite #6	26-Jul-15		Tissue	R	R	R	1
	Whale Tail Lake Small Fish composite #7	26-Jul-15		Tissue	R	R	R	1
	Mammoth Lake Small Fish composite #8	30-Jul-15		Tissue	R	R	R	1
	Mammoth Lake Small Fish composite #9	29-Jul-15		Tissue	R	R	R	1
	Mammoth Lake Small Fish composite #10	29-Jul-15		Tissue	R	R	R	1
	Mammoth Lake Small Fish composite #11	29-Jul-15		Tissue	R	R	R	1
	Mammoth Lake Small Fish composite #12	29-Jul-15		Tissue	R	R	R	1

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System?	Please report wet and dry weight concentrations for Hg and metals.
Are samples for human drinking water use?	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☑ SIF Observations Yes ☐ No ☐

Ice packs Yes ☐ No ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
			-2°		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: C. Portt	Date: Sept. 22/15	Time:	Received by:	Date:	Time:	Received by: DJ	Date: Sept 23/15	Time: 8:45

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

ALS Environmental

stody (COC) / Analytical
equest Form

L1677176-COFC

Toll Free: 1 800 668 9878

www.alsglobal.com

COC Number: 14 -

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Report To		Report Format / Distribution		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	C. Portt and Associates	Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	R ☑ Regular (Standard TAT if received by 3 pm - business days)
Contact:	Cam Portt	Quality Control (QC) Report with Report		P ☐ Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT
Address:	56 Waterloo Avenue Guelph, ON N1H 3H5	☐ Criteria on Report - provide details below if box checked		E ☐ Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT
		Select Distribution:	☑ EMAI ☐ MAI ☐ FAX	E2 ☐ Same day or weekend emergency - contact ALS to confirm TAT and surcharge
Phone:		Email 1 or Fax	cportt@sentex.net	Specify Date Required for E2,E or P:
		Email 2		

Invoice To	Same as Report To	Invoice Distribution		
	Copy of Invoice with Report	Select Invoice Distribution:	☑ EMAI ☐ MAIL ☐ FAX	
Company:		Email 1 or Fax		
Contact:		Email 2		

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:	Q52131	Approver ID:	Cost Center:
Job #:	Amaruq 2015	GL Account:	Routing Code:
PO / AFE:		Activity Code:	
LSD:		Location:	

ALS Lab Work Order # (lab use only)		ALS Contact:	Sampler: George Coker

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Mercury (Wet and Dry)	Metals scan (Wet and Dry)	Moisture	Number of Containers
	Mammoth Lake Small Fish composite #12	29-Jul-15		Tissue	R	R	R	1
	Mammoth Lake Small Fish composite #13	29-Jul-15		Tissue	R	R	R	1
	Mammoth Lake Small Fish composite #14	29-Jul-15		Tissue	R	R	R	1
	Mammoth Lake Small Fish composite #15	29-Jul-15		Tissue	R	R	R	1

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System?	Please report wet and dry weight concentrations for Hg and metals.
Are samples for human drinking water use?	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☑			SIF Observations	Yes ☐	No ☐	
Ice packs	Yes ☐	No ☐		Custody seal intact	Yes ☐	No ☐	
Cooling Initiated	☐						

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
			-2°		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: C. Portt	Date: Sept. 22/15	Time:	Received by:	Date:	Time:	Received by: DJ	Date: Sep 23/15	Time: 8:45

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.