E2 (7 556 800m N, 448 000m E)

0 5 10 15 20 km

Scale 1 : 280,000

460,000m E

440,000m E

420,000m E

7,580,000m N

7,560,000m N

7,540,000m N

7,520,000m N

7,500,000m N

7,480,000m N

Angimajuq River

ELU INLET

Roberts Bay

Hope Bay

MELVILLE SOUND

KENT PENINSULA

PARRY BAY

Pelvic

Ogama

Patch

Tail

Wolverine

Doris Lake

Windy Lake Camp

Windy

Aimaoktak River

Koignuk River

Trout

Stickleback

Boston Camp

Boston Reference

E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12

G1 G2

H4 H5

P1 P2 P3 P4 P5 P7 P9 P10 P13 P15 P16 P17

R1 R2

LEGEND :

E GOLDEN EAGLE
G GYRFALCON
P PEREGRINE
H ROUGH-LEGGED HAWK
R RAVEN

NOTE :

POINT LABELS REFER TO OBSERVATIONS IN TABLE 10.4-2

Figure 10.4-18

Location of Active Raptor Nests, Hope Bay Belt, 1998

BHP

Rescan

Cad No. C1081 Sht. 13 View L1 Job No. 526-9 1998 Hope Bay Belt Project 03/25/1999- 2:22pm RES_BL

*10.4.4.3 Rough-legged Hawk*

Rough-legged hawks were less commonly observed in 1998 than in previous years. There were a total of six observations in 1998, and only two active nests. By comparison, in 1997 there were 13 observations and nine nests. Among the sites not occupied in 1998 was the cliff at the south end of Windy Lake.

*10.4.4.4 Golden Eagle*

There were 14 observations of golden eagles during the July survey, and 12 of these included occupied nests. Golden eagle nests appeared to be relatively uncommon south of Doris Lake.

Golden eagles were commonly seen throughout the study area in 1998, including in early December. No eagles were observed during a site visit in February. It is unknown whether golden eagles remain within the study area year-round, but it appears that some stay through much of the winter.

*10.4.4.5 Common Raven*

Ravens were observed on two occasions during the July raptor survey, and both sightings included active nests. Each nest contained several fledglings (raven fledglings are difficult to count in the nest).

Ravens were observed fairly regularly in the study area during 1998. Singles were occasionally observed incidentally in most parts of the study area, including in February and December. No occupied nests were found in 1997, but one recently-fledged brood was observed.

*10.4.4.6 Snowy Owl*

No snowy owls were observed on the July survey. This survey concentrated on cliff areas and was therefore not likely to locate snowy owl nests which are typically established on open tundra.

Few snowy owls were observed in the study area in 1998. Incidental records totaled two owls and no nests.

*10.4.4.7 Bald Eagle*

Bald eagles were not observed during the July raptor survey. However, adult bald eagles were observed on three occasions during 1998, all in the northern part of the study area. No bald eagle observations were recorded in previous years.

*10.4.4.8 Other Species*

Short-eared owls have been observed occasionally in the study area in previous years, but none was recorded in 1998. No other raptor species were recorded during any survey in 1998.

### 10.4.5 Breeding Bird Census Surveys

Breeding bird census plots were surveyed during June 26 to July 1. The 13 plots surveyed totaled 371 ha in area. Plots were distributed throughout the study area.

*10.4.5.1 Numbers, Density, and Species Diversity*

A total of 1156 "adult" (fully fledged) birds were observed on transect, comprising 29 species (Table 10.4-3). Three nests containing eggs or young were found, although no particular effort was made to locate nests in order to minimize disturbance. Overall density was 3.12 birds/ha, and ranged between plots from 0.56 to 6.27 birds/ha. Between five and sixteen species of birds were identified on each plot, and species diversity indices (number of species per ha) ranged from 0.19 to 0.38.

There were no substantial differences between different parts of the study area in total number of species recorded, number of nests found, observed bird density, or Diversity Index. Values for most of these parameters were slightly higher for plots located in the southern half of the survey area.

The total number of species observed on plots in 1998 was nearly double that in 1997. However, only one species—Smith's longspur—had not previously been recorded within the study area.

## Table 10.4-3
## Number of Adults and Nests of Bird Species Observed on Breeding Bird Plots Surveys in the Hope Bay Belt Area, June 1998

| | Plot Number | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | B1 | | B2 | | B3 | | B4 | | B5 | | B6 | | B7 | |
| Species | Ad | Nest | Ad | Nest | Ad | Nest | Ad | Nest | Ad | Nest | Ad | Nest | Ad | Nest |
| Redpoll spp. | 5 | | 12 | | 7 | | | | 1 | | | | 19 | |
| American tree sparrow | 2 | | 10 | | 1 | | | | 1 | | 1 | | 2 | |
| Lapland longspur | 47 | 1 | 50 | | 38 | | 13 | | 43 | | 34 | | 45 | |
| Willow ptarmigan | | | 1 | | | | | | | | | | | |
| Rock ptarmigan | | | | | | | | | | | | | | |
| Horned lark | 21 | | 2 | | 7 | | 3 | | 9 | | 7 | | 8 | |
| Savannah sparrow | 7 | | 51 | | 27 | | | | 20 | | 4 | | 26 | |
| Semipalmated sandpiper | 1 | | | | | | 2 | | | | | | | |
| Baird's sandpiper | | | | | | | | | | | 2 | | | |
| Raven | | | | | | | 2 | | | | 1 | | | |
| Semipalmated plover | 4 | | | | | | | | | | | | | |
| American pipit | | | 1 | | | | | | 2 | | | | | |
| White-crowned sparrow | | | | | | | | | | | | | | |
| White-fronted goose | 1 | | | | | | 6 | | | | | | | |
| Smith's longspur | | | 1 | | | | | | | | | | | |
| Snow bunting | | | | | | | 2 | | | | | | | |
| Sandhill crane | 2 | | | | 2 | | | | | | | | | |
| Long-tailed jaeger | | | | | | | 2 | | | | | | | |
| Herring gull | | | | | | | 1 | | | | 1 | | | |
| Glaucous gull | | | | | | | | | | | | | | |
| Snow goose | | | | | | | | | | | | | | |
| Canada goose | | | 7 | | 6 | | 7 | | 7 | | | | | |
| Greater scaup | | | 2 | | | | | | | | | | | |
| Red-breasted merganser | | | | | | | | | | | | | | |
| Golden eagle | | | | | | | | | | | | | | |
| Rough-legged hawk | | | | | | | | | | | | | | |
| Gyrfalcon | | | | | | | | | | | | | | |
| Oldsquaw | | | | | | | | | | | | | | |
| Pintail | | | | | | | | | 1 | | | | | |
| Unidentified passerine | | | | | 6 | | | | | | 3 | | | |
| Total birds | 88 | | 127 | | 80 | | 26 | | 84 | | 49 | | 100 | |
| Total species | 9 | | 10 | | 7 | | 9 | | 8 | | 7 | | 5 | |
| Total nests | 1 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| Plot area (ha) | 25 | | 26 | | 26 | | 26 | | 26 | | 26 | | 26 | |
| Bird density (# birds/ha) | 3.52 | | 4.88 | | 3.08 | | 1.00 | | 3.23 | | 1.88 | | 3.85 | |
| Diversity Index (# sp/ha) | 0.36 | | 0.38 | | 0.27 | | 0.35 | | 0.31 | | 0.27 | | 0.19 | |

The number of nests detected was very low in 1998. By comparison, 20 nests were located on 15 plots in 1997. The lower number may have resulted from chance, or by inadvertently reduced specific effort to locate nests in 1998.

*10.4.5.2 Habitat Association*

Habitats within plots were described using dominant vegetation types assessed on the scale of the plot itself. Characteristics used to define habitat types included dominant species identification and structure (*e.g.*, shrub), as well as drainage.

Mesic tundra was the most prevalent habitat type surveyed in the breeding bird census (Table 10.4-4). It was present on 11 of the 13 plots, at between 30 and 70 % occurrence. Within this type, no vegetation exceeded 15 cm in height, and plants above 10 cm were sparse. Some birds, notably Lapland longspurs, nested directly on the ground within this habitat type. Other nests were found within patches of broken rock cover (*e.g.*, horned larks).

**Table 10.4-4**
**Habitat Descriptions of Breeding Bird Census Plots Surveyed in the Hope Bay Belt Area, June/July 1998***

| | Plot Number | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Habitat type** | **B1** | **B2** | **B3** | **B4** | **B5** | **B6** | **B7** | **B8** | **D4** | **D5** | **D6** | **D7** | **D8** |
| mesic tundra | 70 | 30 | 50 | 50 | 40 | 40 | 30 | | 60 | 50 | 30 | | 30 |
| moist birch tundra | 20 | 60 | 40 | | 20 | 30 | 35 | | 10 | | | | 25 |
| riparian willow | | 5 | | | 5 | | | 60 | 5 | | | 40 | 20 |
| moist tundra | | | | 20 | | | 35 | 40 | | 30 | | | 10 |
| shoreline | | | | 10 | | | | | | | | | |
| wet sedge | | | | | 25 | | | | | | 50 | 55 | |
| rock/xeric tundra | | | | | 10 | 30 | | | 25 | | | | 15 |
| gravel | | 5 | | 20 | | | | | | | | | |
| rock | 10 | | 10 | | | | | | | 20 | 20 | 5 | |

***Values shown are the percentage of each plot covered by each habitat type.**

Most nests found this year and in previous years, however, were found suspended in above-ground vegetation 30-70 cm tall. Nests found in shrubs included those of redpolls, American tree sparrows, and white-crowned sparrows. Within each plot, more birds were observed within shrubby vegetation types (moist birch tundra and riparian willow habitat types) than other areas. There was a direct relationship

between the prevalence of shrubby vegetation on a plot and the bird density observed; the amount of shrub cover on plot explained about 76 % of the variability in observed bird density (Figure 10.4-19). The highest observed bird density value was for transect B8, which comprised 60 % shrub types. Three transects contained no shrub cover, and they produced the three lowest observed bird densities.

Shrub areas with vegetation greater than 30 cm tall are relatively uncommon in the Hope Bay Belt. River valleys, lake verges, and other riparian zones provide some of the few extensive shrub stands. Because of their high degree of use by breeding birds, these areas must be considered important habitat for these species. Additionally, because large expanses of the Hope Bay Belt lack any shrubby cover at all, even small stands are likely of relatively high value.

### 10.4.6 Waterfowl Surveys

Two aerial waterfowl surveys were conducted in 1998. The first was flown on July 15, and a replicate flight was flown on July 16. Results were tabulated by species for the Boston survey block (Table 10.4-5). For each species the higher count from the two surveys was used for analyses.

Eleven species of waterfowl were recorded, including sandhill cranes. Most prevalent were Canada geese, followed by white-fronted geese. Species which were rarely recorded included pintail, red-breasted merganser, greater scaup, and yellow-billed loon. Broods were documented only for white-fronted geese and an unidentified smaller species. Breeding was confirmed for Canada geese, oldsquaws, and sandhill cranes during other surveys in 1998.

Poor weather (low temperatures, accompanied by rain and snow) was again prevalent in late May and early June, and may have prevented successful breeding. It is possible that breeding was delayed until the arrival of warmer weather, and adults may have still been incubating at the time of this survey. In this case, brooding adults would have been difficult to see.

## Table 10.4-5
## Summary of Waterfowl Observations for Aerial Surveys of the Boston Property Area, July 15 (1) and July 16 (2), 1998*

| | Species | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C. Goose | | WF Goose | | T. Swan | | G. Scaup | | Oldsquaw | | Pintail | | R Merganser | | P. Loon | | RT Loon | | YB Loon | | S. Crane | | Unid. | |
| Line No. | Ad | Brood | Ad | Brood | Ad | Brood | Ad | Brood | Ad | Brood | Ad | Brood | Ad | Brood | Ad | Brood | Ad | Brood | Ad | Brood | Ad | Brood | Ad | Brood |
| B1-1 | 22 | | 1 | | 2 | | | | | | | | | | 2 | | | | | | | | | |
| B2-1 | 30 | | | | | | | | | | | | | | | | | | | | | | | |
| B3-1 | | | | | | | | | | | | | | | | | | | | | | | | |
| B4-1 | | | | | 1 | | | | 3 | | | | | | 2 | | | | | | | | | |
| B5-1 | 207 | | 52 | 3 | | | | | | | | | | | 1 | | 4 | | | | | | | |
| B6-1 | 50 | | | | | | | | | | | | | | 2 | | | | | | | | | |
| B7-1 | | | 2 | 1 | 4 | | | | | | | | 1 | | | | | | | | 2 | | 1 | |
| B8-1 | 80 | | 2 | | 5 | | | | 6 | | | | | | 3 | | | | 2 | | 2 | | | |
| 1 TOTAL | 389 | 0 | 57 | 4 | 12 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 1 | 0 | 10 | 0 | 4 | 0 | 2 | 0 | 4 | 0 | 2 | 1 |

| | Species | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C. Goose | | WF Goose | | T. Swan | | G. Scaup | | Oldsquaw | | Pintail | | R Merganser | | P. Loon | | RT Loon | | YB Loon | | S. Crane | | Unid. | |
| Line No. | Ad | Brood | Ad | Brood | Ad | Brood | Ad | Brood | Ad | Brood | Ad | Brood | Ad | Brood | Ad | Brood | Ad | Brood | Ad | Brood | Ad | Brood | Ad | Brood |
| B1-2 | 28 | | 1 | | 2 | | 2 | | | | | | | | | | | | | | | | | |
| B2-2 | 35 | | | | | | | | | | | | | | 4 | | | | | | | | | |
| B3-2 | | | | | | | | | | | | | | | | | | | | | | | | |
| B4-2 | 6 | | 5 | 2 | 2 | | | | 6 | | | | | | | | | | | | | | | |
| B5-2 | 54 | | | | 2 | | | | 2 | | | | | | | | | | | | 2 | | | |
| B6-2 | | | 5 | | 3 | | | | | | | | | | | | 4 | | | | 2 | | | |
| B7-2 | 70 | | 10 | | | | | | | | 1 | | | | | | | | | | | | | |
| B8-2 | | | | | 2 | | | | | | | | | | 2 | | | | | | | | | |
| 2 TOTAL | 193 | 0 | 21 | 2 | 11 | 0 | 2 | 0 | 8 | 0 | 1 | 0 | 0 | 0 | 1 | | | | | | | | | |
| | | | | | | | | | | | | | | | 7 | 0 | 4 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| Maximum | 389 | 0 | 57 | 4 | 12 | 0 | 2 | 0 | 9 | 0 | 1 | 0 | 1 | 0 | 10 | 0 | 4 | 0 | 2 | 0 | 4 | 0 | 2 | 1 |

*Values refer to numbers of "adult" (fully fledged) birds and number of broods observed.

### *10.4.6.1 Canada Goose*

Canada geese were the most common waterfowl recorded on this survey. A total of 389 adult Canada geese were recorded on the first survey. Canada geese totaled 79 % of all adult birds recorded during Survey 1, and 77 % of adult birds recorded during Survey 2. They were also widespread, and were recorded on seven of the eight survey lines in the Boston area. Canada geese were also commonly observed throughout the study area during wildlife surveys between July and August.

### *10.4.6.2 Greater White-fronted Goose*

White-fronted geese were the second most-common waterfowl species recorded on the aerial surveys, with a maximum total of 57 adults observed. They comprised 12 % and 8 % of adult birds observed on Surveys 1 and 2, respectively. White-fronted geese are also widely distributed, with observations recorded on six of the survey lines. Four broods of white-fronted geese were recorded on this survey.

White-fronted geese were observed throughout the study area between June and August. Observations were typically more concentrated in the southern portion of the area.

### *10.4.6.3 Tundra Swan*

Tundra swans are widespread throughout the study area at low densities. A maximum total of 12 adult swans was recorded. They accounted for 2 % and 4 % of the Survey 1 and Survey 2 totals, respectively. Swans were documented on 6 or the 8 survey lines.

No broods were observed during the July survey. By the next site visit, in mid-August, few swans were observed within the study area, so it was not possible to determine whether broods were successfully produced in 1998. In addition to the summer residents of the study area, large numbers of swans are frequently observed during spring and fall migrations.

### *10.4.6.4 Greater Scaup*

One pair of greater scaup was observed during the July 1998 survey. A single greater scaup was recorded during this survey in 1997. Ground surveys indicated that greater scaup were somewhat more common, and they were detected occasionally in small numbers throughout the study area. No broods were observed for this species in 1998.

### *10.4.6.5 Oldsquaw*

Oldsquaws were the most common duck observed on transect, although no more than 9 were counted on survey transects. Oldsquaws were commonly observed during ground surveys throughout the study area in 1998. They are likely the most common duck within the study area, and the most common breeders.

### *10.4.6.6 Northern Pintail*

A single pintail was observed on transect on July 16. During ground surveys, pintails were recorded fairly commonly, again suggesting that this species' secretive nature makes it particularly difficult to detect from the air. No sign of breeding was documented in 1998.

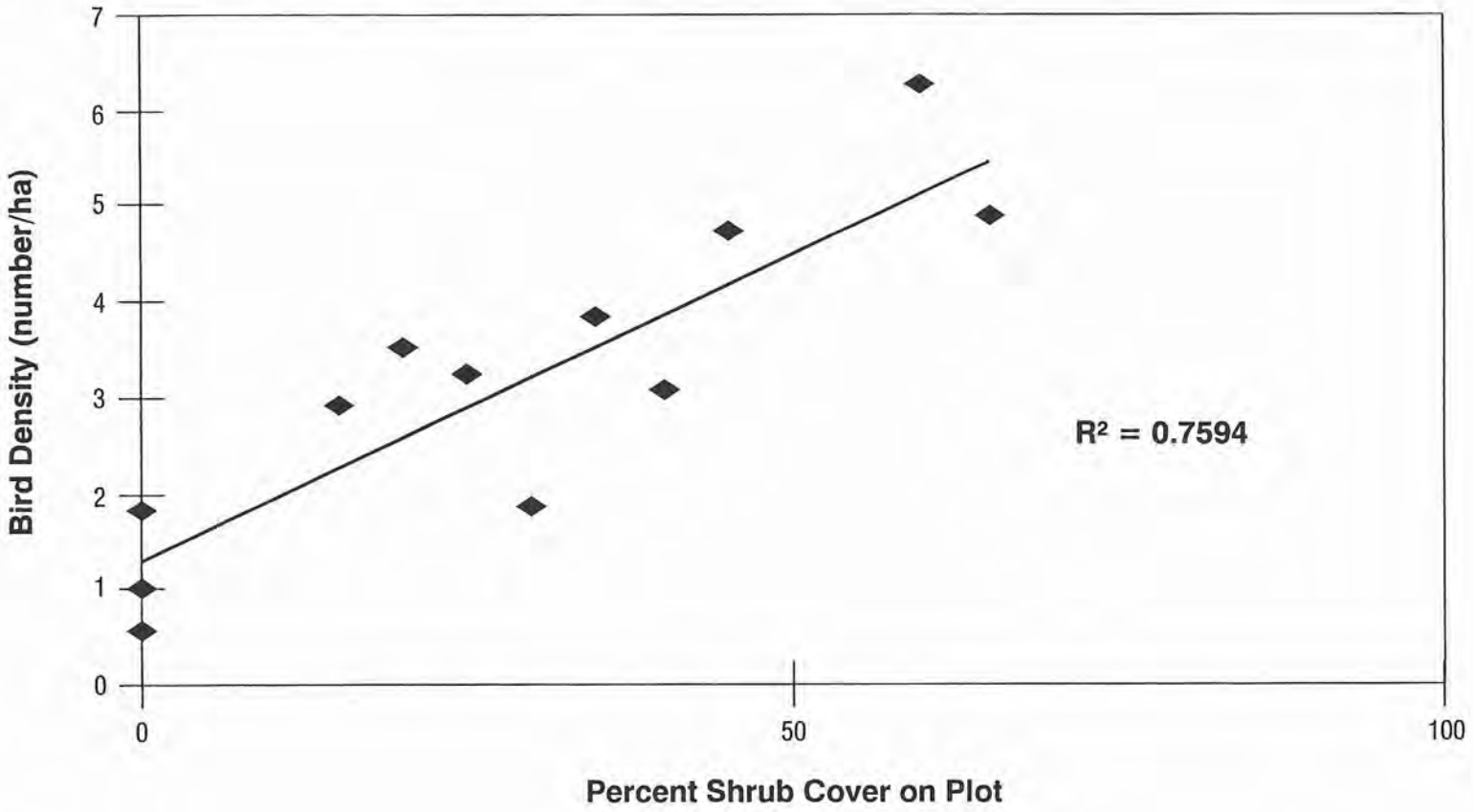
### *10.4.6.7 Red-breasted Merganser*

One red-breasted merganser was recorded during the 1998 waterfowl survey of the Boston area. Incidental observations throughout the season supported the impression that few mergansers were present. No broods were observed in 1998.

### *10.4.6.8 Pacific Loon*

The Pacific loon was relatively common and widespread in the study area. A total of 10 were observed on transect on July 15. They were recorded on five of the eight survey lines.

Pacific loons were commonly observed during ground surveys throughout the survey area. However, no broods were recorded in 1998.




*Data are from 13 breeding bird census plotssurveyed in the Hope Bay Belt area, June 1998*

**Relationship between Percent Shrub Cover on Plot and Observed Bird Density**

FIGURE 10.4-19

BHP

Rescan

### *10.4.6.9 Red-throated Loon*

Two pairs of red-throated loons were observed on the same transect line during each of the 1998 aerial surveys. Exclusive of these 4 birds, red-throated loons were also observed during ground surveys, including one incubating on a nest near Boston. Red-throated loons were occasionally observed during other surveys, but appeared to be uncommon near the coast.

### *10.4.6.10 Yellow-billed Loon*

One pair of yellow-billed loons was observed on the Boston survey grid. No broods were seen, and no other observations of yellow-billed loons were made in 1998.

### *10.4.6.11 Sandhill Crane*

As mentioned previously, sandhill cranes were classified as waterfowl for this survey, because of their affinity for wetlands, and because no other survey specifically addressed them.

Sandhill cranes were widespread at low densities throughout the Hope Bay Belt area. Four cranes were observed on transects on each of the two aerial surveys of the Boston area.

Breeding has been documented in the study area in previous years. Nearly all observations of cranes in 1998 were of pairs. However, no young cranes were observed during waterfowl surveys, or during any other surveys, in 1998.

### *10.4.6.12 Other Species*

Other species of waterfowl have been recorded in the study area, but were not detected during this survey. Snow geese were recorded during spring and fall migrations in 1998. Flocks of greater than 100 birds have been observed. A sighting of a pair of snow geese on July 1 was the first mid-summer record for this species in the Hope Bay Belt since wildlife studies began. It is unlikely that snow geese bred in the area in 1998.

Ross' goose may also occur within the study area, although none were recorded during 1998. Some white geese that were observed from aircraft and were classified as snow geese may have been, in fact, Ross' geese.

Three male king eiders were recorded in the Boston area during ground surveys in June 1998. King eiders were frequently seen in large flocks during breakup in June along the coast where small pockets of open water could be found.

Two mallards were observed in the Boston area in late June, the first record of this species since wildlife studies began in 1994. At the same time, and in the same area, 2 white-winged scoters were observed.

One gull species, one tern, and two jaegers appeared to be common residents. Herring gulls and Arctic terns were seen throughout the study area during summer. In addition, glaucous gulls were observed occasionally, especially in the north near the coast. Long-tailed and parasitic jaegers could be seen occasionally throughout the study area during summer.

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# Appendix 2-1
# Daily Mean Temperatures for Boston Weather Station, July '97 to August '98

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# Appendix 2-1
## Daily Mean Air Temperatures for Boston Weather Station, July '97 to August '98

| Date | Daily Mean Temperature (C) | Date | Daily Mean Temperature (C) | Date | Daily Mean Temperature (C) | Date | Daily Mean Temperature (C) | Date | Daily Mean Temperature (C) | Date | Daily Mean Temperature (C) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 01-Jul-97 | 12.4 | 01-Aug-97 | 12.6 | 01-Sep-97 | 10.9 | 01-Oct-97 | n/a | 01-Nov-97 | -12.7 | 01-Dec-97 | -14.3 |
| 02-Jul-97 | 4.0 | 02-Aug-97 | 14.5 | 02-Sep-97 | 2.4 | 02-Oct-97 | n/a | 02-Nov-97 | -6.8 | 02-Dec-97 | -8.9 |
| 03-Jul-97 | 4.8 | 03-Aug-97 | 14.1 | 03-Sep-97 | 3.8 | 03-Oct-97 | n/a | 03-Nov-97 | -6.2 | 03-Dec-97 | -7.3 |
| 04-Jul-97 | 4.3 | 04-Aug-97 | 10.2 | 04-Sep-97 | 8.5 | 04-Oct-97 | n/a | 04-Nov-97 | -3.8 | 04-Dec-97 | -9.1 |
| 05-Jul-97 | 4.3 | 05-Aug-97 | 6.8 | 05-Sep-97 | 3.3 | 05-Oct-97 | n/a | 05-Nov-97 | -8.5 | 05-Dec-97 | -16.5 |
| 06-Jul-97 | 4.7 | 06-Aug-97 | 6.7 | 06-Sep-97 | 4.9 | 06-Oct-97 | n/a | 06-Nov-97 | -7.9 | 06-Dec-97 | -15.4 |
| 07-Jul-97 | 7.3 | 07-Aug-97 | 5.0 | 07-Sep-97 | 8.4 | 07-Oct-97 | n/a | 07-Nov-97 | -12.2 | 07-Dec-97 | -14.8 |
| 08-Jul-97 | 7.0 | 08-Aug-97 | 4.4 | 08-Sep-97 | 3.8 | 08-Oct-97 | -9.8 | 08-Nov-97 | -11.4 | 08-Dec-97 | -13.1 |
| 09-Jul-97 | 10.1 | 09-Aug-97 | 6.2 | 09-Sep-97 | -0.3 | 09-Oct-97 | -9.5 | 09-Nov-97 | -7.4 | 09-Dec-97 | -22.4 |
| 10-Jul-97 | 16.5 | 10-Aug-97 | 5.1 | 10-Sep-97 | -1.9 | 10-Oct-97 | -9.5 | 10-Nov-97 | -11.4 | 10-Dec-97 | -31.0 |
| 11-Jul-97 | 21.7 | 11-Aug-97 | 12.7 | 11-Sep-97 | -0.9 | 11-Oct-97 | -9.5 | 11-Nov-97 | -8.6 | 11-Dec-97 | -29.9 |
| 12-Jul-97 | 19.0 | 12-Aug-97 | 16.6 | 12-Sep-97 | n/a | 12-Oct-97 | -9.1 | 12-Nov-97 | -3.7 | 12-Dec-97 | -22.2 |
| 13-Jul-97 | 14.5 | 13-Aug-97 | 10.6 | 13-Sep-97 | n/a | 13-Oct-97 | -10.0 | 13-Nov-97 | -8.3 | 13-Dec-97 | -15.9 |
| 14-Jul-97 | 10.0 | 14-Aug-97 | 6.4 | 14-Sep-97 | n/a | 14-Oct-97 | -11.2 | 14-Nov-97 | -17.2 | 14-Dec-97 | -16.7 |
| 15-Jul-97 | 12.4 | 15-Aug-97 | 9.1 | 15-Sep-97 | n/a | 15-Oct-97 | -10.6 | 15-Nov-97 | -21.5 | 15-Dec-97 | -22.3 |
| 16-Jul-97 | 16.8 | 16-Aug-97 | 14.1 | 16-Sep-97 | n/a | 16-Oct-97 | -15.8 | 16-Nov-97 | -20.9 | 16-Dec-97 | -28.1 |
| 17-Jul-97 | 17.7 | 17-Aug-97 | 14.4 | 17-Sep-97 | n/a | 17-Oct-97 | -14.5 | 17-Nov-97 | -18.7 | 17-Dec-97 | -27.4 |
| 18-Jul-97 | 18.4 | 18-Aug-97 | 5.6 | 18-Sep-97 | n/a | 18-Oct-97 | -13.8 | 18-Nov-97 | -21.4 | 18-Dec-97 | -29.6 |
| 19-Jul-97 | 17.5 | 19-Aug-97 | 6.8 | 19-Sep-97 | n/a | 19-Oct-97 | -13.6 | 19-Nov-97 | -19.9 | 19-Dec-97 | -30.1 |
| 20-Jul-97 | 16.1 | 20-Aug-97 | 9.1 | 20-Sep-97 | n/a | 20-Oct-97 | -13.4 | 20-Nov-97 | -20.8 | 20-Dec-97 | -23.0 |
| 21-Jul-97 | 17.1 | 21-Aug-97 | 12.0 | 21-Sep-97 | n/a | 21-Oct-97 | -9.6 | 21-Nov-97 | -22.3 | 21-Dec-97 | -30.2 |
| 22-Jul-97 | 15.9 | 22-Aug-97 | 4.8 | 22-Sep-97 | n/a | 22-Oct-97 | -6.3 | 22-Nov-97 | -26.3 | 22-Dec-97 | -28.8 |
| 23-Jul-97 | 16.6 | 23-Aug-97 | 6.7 | 23-Sep-97 | n/a | 23-Oct-97 | -8.0 | 23-Nov-97 | -25.8 | 23-Dec-97 | -31.7 |
| 24-Jul-97 | 18.4 | 24-Aug-97 | 4.1 | 24-Sep-97 | n/a | 24-Oct-97 | -9.6 | 24-Nov-97 | -28.4 | 24-Dec-97 | -36.3 |
| 25-Jul-97 | 21.0 | 25-Aug-97 | 5.5 | 25-Sep-97 | n/a | 25-Oct-97 | -15.1 | 25-Nov-97 | -25.5 | 25-Dec-97 | -37.8 |
| 26-Jul-97 | 15.2 | 26-Aug-97 | 6.7 | 26-Sep-97 | n/a | 26-Oct-97 | -21.0 | 26-Nov-97 | -20.3 | 26-Dec-97 | -40.9 |
| 27-Jul-97 | 10.7 | 27-Aug-97 | 5.4 | 27-Sep-97 | n/a | 27-Oct-97 | -19.8 | 27-Nov-97 | -19.3 | 27-Dec-97 | -41.1 |
| 28-Jul-97 | 6.0 | 28-Aug-97 | 1.1 | 28-Sep-97 | n/a | 28-Oct-97 | -20.3 | 28-Nov-97 | -25.8 | 28-Dec-97 | -38.6 |
| 29-Jul-97 | 7.6 | 29-Aug-97 | 0.0 | 29-Sep-97 | n/a | 29-Oct-97 | -18.5 | 29-Nov-97 | -15.4 | 29-Dec-97 | -35.9 |
| 30-Jul-97 | 5.7 | 30-Aug-97 | 3.3 | 30-Sep-97 | n/a | 30-Oct-97 | -21.4 | 30-Nov-97 | -15.3 | 30-Dec-97 | -32.6 |
| 31-Jul-97 | 8.8 | 31-Aug-97 | 8.7 | | | 31-Oct-97 | -20.4 | | | 31-Dec-97 | -32.2 |

# Appendix 2-1
## Daily Mean Air Temperatures for Boston Weather Station, July '97 to August '98

| Date | Daily Mean Temperature (C) | Date | Daily Mean Temperature (C) | Date | Daily Mean Temperature (C) | Date | Daily Mean Temperature (C) | Date | Daily Mean Temperature (C) | Date | Daily Mean Temperature (C) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 01-Jan-98 | -31.6 | 01-Feb-98 | -24.4 | 01-Mar-98 | -17.8 | 01-Apr-98 | -17.3 | 01-May-98 | -7.6 | 01-Jun-98 | 0.3 |
| 02-Jan-98 | -39.5 | 02-Feb-98 | -22.3 | 02-Mar-98 | -16.7 | 02-Apr-98 | -20.0 | 02-May-98 | -10.1 | 02-Jun-98 | 0.5 |
| 03-Jan-98 | -32.1 | 03-Feb-98 | -29.1 | 03-Mar-98 | -18.6 | 03-Apr-98 | -19.1 | 03-May-98 | -11.4 | 03-Jun-98 | 2.2 |
| 04-Jan-98 | -33.5 | 04-Feb-98 | -36.9 | 04-Mar-98 | -25.1 | 04-Apr-98 | -17.1 | 04-May-98 | -10.0 | 04-Jun-98 | 4.5 |
| 05-Jan-98 | -28.4 | 05-Feb-98 | -29.4 | 05-Mar-98 | -30.4 | 05-Apr-98 | -14.9 | 05-May-98 | -5.5 | 05-Jun-98 | 4.5 |
| 06-Jan-98 | -28.5 | 06-Feb-98 | -21.1 | 06-Mar-98 | -28.8 | 06-Apr-98 | -24.6 | 06-May-98 | -4.9 | 06-Jun-98 | 8.6 |
| 07-Jan-98 | -26.8 | 07-Feb-98 | -29.7 | 07-Mar-98 | -25.8 | 07-Apr-98 | -23.0 | 07-May-98 | -6.7 | 07-Jun-98 | 7.9 |
| 08-Jan-98 | -27.7 | 08-Feb-98 | -34.0 | 08-Mar-98 | -20.6 | 08-Apr-98 | -18.2 | 08-May-98 | -3.4 | 08-Jun-98 | 1.6 |
| 09-Jan-98 | -26.8 | 09-Feb-98 | -36.0 | 09-Mar-98 | -19.1 | 09-Apr-98 | -17.0 | 09-May-98 | -2.9 | 09-Jun-98 | 3.8 |
| 10-Jan-98 | -33.3 | 10-Feb-98 | -38.3 | 10-Mar-98 | -26.7 | 10-Apr-98 | -16.8 | 10-May-98 | -4.0 | 10-Jun-98 | 4.5 |
| 11-Jan-98 | -33.4 | 11-Feb-98 | -36.1 | 11-Mar-98 | -28.3 | 11-Apr-98 | -21.6 | 11-May-98 | 1.7 | 11-Jun-98 | 4.6 |
| 12-Jan-98 | -33.1 | 12-Feb-98 | -20.0 | 12-Mar-98 | -22.8 | 12-Apr-98 | -15.9 | 12-May-98 | 1.9 | 12-Jun-98 | 3.6 |
| 13-Jan-98 | -32.8 | 13-Feb-98 | -21.4 | 13-Mar-98 | -14.9 | 13-Apr-98 | -12.4 | 13-May-98 | 0.7 | 13-Jun-98 | 3.1 |
| 14-Jan-98 | -32.7 | 14-Feb-98 | -32.2 | 14-Mar-98 | -20.9 | 14-Apr-98 | -11.9 | 14-May-98 | 0.6 | 14-Jun-98 | 3.2 |
| 15-Jan-98 | -24.0 | 15-Feb-98 | -34.7 | 15-Mar-98 | -28.4 | 15-Apr-98 | -3.3 | 15-May-98 | 1.4 | 15-Jun-98 | 4.6 |
| 16-Jan-98 | -32.7 | 16-Feb-98 | -29.9 | 16-Mar-98 | -30.4 | 16-Apr-98 | -3.9 | 16-May-98 | -1.3 | 16-Jun-98 | 6.5 |
| 17-Jan-98 | -35.5 | 17-Feb-98 | -30.1 | 17-Mar-98 | -28.5 | 17-Apr-98 | -5.9 | 17-May-98 | -3.0 | 17-Jun-98 | 7.9 |
| 18-Jan-98 | -35.2 | 18-Feb-98 | -38.4 | 18-Mar-98 | -23.9 | 18-Apr-98 | -5.1 | 18-May-98 | 0.7 | 18-Jun-98 | 7.5 |
| 19-Jan-98 | -33.3 | 19-Feb-98 | -41.3 | 19-Mar-98 | -13.2 | 19-Apr-98 | -9.0 | 19-May-98 | -7.1 | 19-Jun-98 | 9.1 |
| 20-Jan-98 | -36.2 | 20-Feb-98 | -39.3 | 20-Mar-98 | -23.4 | 20-Apr-00 | -9.5 | 20-May-98 | -7.3 | 20-Jun-98 | 7.8 |
| 21-Jan-98 | -36.1 | 21-Feb-98 | -38.0 | 21-Mar-98 | -27.8 | 21-Apr-98 | -8.2 | 21-May-98 | -8.3 | 21-Jun-98 | 6.4 |
| 22-Jan-98 | -38.0 | 22-Feb-98 | -35.2 | 22-Mar-98 | -30.0 | 22-Apr-98 | -6.6 | 22-May-98 | -3.5 | 22-Jun-98 | 9.1 |
| 23-Jan-98 | -34.2 | 23-Feb-98 | -30.6 | 23-Mar-98 | -33.1 | 23-Apr-98 | -6.7 | 23-May-98 | -2.8 | 23-Jun-98 | 9.3 |
| 24-Jan-98 | -35.8 | 24-Feb-98 | -23.1 | 24-Mar-98 | -30.3 | 24-Apr-98 | -5.1 | 24-May-98 | -6.9 | 24-Jun-98 | 5.9 |
| 25-Jan-98 | -41.9 | 25-Feb-98 | -19.5 | 25-Mar-98 | -28.1 | 25-Apr-98 | -6.1 | 25-May-98 | -5.1 | 25-Jun-98 | 7.0 |
| 26-Jan-98 | -38.4 | 26-Feb-98 | -20.9 | 26-Mar-98 | -25.2 | 26-Apr-98 | -13.7 | 26-May-98 | -5.0 | 26-Jun-98 | 10.6 |
| 27-Jan-98 | -31.0 | 27-Feb-98 | -18.7 | 27-Mar-98 | -20.7 | 27-Apr-98 | -14.1 | 27-May-98 | -5.2 | 27-Jun-98 | 15.8 |
| 28-Jan-98 | -32.0 | 28-Feb-98 | -18.6 | 28-Mar-98 | -24.6 | 28-Apr-98 | -15.3 | 29-May-98 | -3.4 | 28-Jun-98 | 11.7 |
| 29-Jan-98 | -32.7 | | | 29-Mar-98 | -26.6 | 29-Apr-98 | -10.0 | 30-May-98 | -3.6 | 29-Jun-98 | 7.5 |
| 30-Jan-98 | -35.6 | | | 30-Mar-98 | -24.4 | 30-Apr-98 | -6.0 | 31-May-98 | -1.7 | 30-Jun-98 | 8.1 |
| 31-Jan-98 | -28.0 | | | 31-Mar-98 | -21.6 | | | | | | |

# Appendix 2-1
## Daily Mean Air Temperatures for Boston Weather Station, July '97 to August '98

| Date | Daily Mean Temperature (C) | Date | Daily Mean Temperature (C) |
|---|---|---|---|
| 01-Jul-98 | 10.9 | 01-Aug-98 | 14.8 |
| 02-Jul-98 | 15.3 | 02-Aug-98 | 13.0 |
| 03-Jul-98 | 15.1 | 03-Aug-98 | 19.4 |
| 04-Jul-98 | 14.7 | 04-Aug-98 | 16.4 |
| 05-Jul-98 | 14.6 | 05-Aug-98 | 10.0 |
| 06-Jul-98 | 14.0 | 06-Aug-98 | 13.9 |
| 07-Jul-98 | 18.4 | 07-Aug-98 | 10.7 |
| 08-Jul-98 | 21.9 | 08-Aug-98 | 10.1 |
| 09-Jul-98 | 11.9 | 09-Aug-98 | 10.9 |
| 10-Jul-98 | 12.5 | 10-Aug-98 | 15.9 |
| 11-Jul-98 | 14.3 | 11-Aug-98 | 14.6 |
| 12-Jul-98 | 13.5 | 12-Aug-98 | 11.2 |
| 13-Jul-98 | 7.2 | 13-Aug-98 | 11.1 |
| 14-Jul-98 | 8.1 | 14-Aug-98 | 10.4 |
| 15-Jul-98 | 8.7 | 15-Aug-98 | 12.2 |
| 16-Jul-98 | 11.6 | 16-Aug-98 | 15.6 |
| 17-Jul-98 | 9.8 | 17-Aug-98 | 12.6 |
| 18-Jul-98 | 7.5 | 18-Aug-98 | 9.1 |
| 19-Jul-98 | 9.8 | 19-Aug-98 | 5.6 |
| 20-Jul-98 | 10.5 | 20-Aug-98 | 8.4 |
| 21-Jul-98 | 13.4 | 21-Aug-98 | 7.2 |
| 22-Jul-98 | 14.0 | | |
| 23-Jul-98 | 17.8 | | |
| 24-Jul-98 | 18.7 | | |
| 25-Jul-98 | 14.3 | | |
| 26-Jul-98 | 13.7 | | |
| 27-Jul-98 | 13.0 | | |
| 28-Jul-98 | 13.9 | | |
| 29-Jul-98 | 14.9 | | |
| 30-Jul-98 | 16.6 | | |
| 31-Jul-98 | 14.0 | | |

# Appendix 2-2
# Calculation of Class A Evaporation Rates for 1998 at Boston Camp

## Appendix 2-2
## Calculation of Class A Evaporation Rates for 1998 at Boston Camp

| Date | Time [24 hours] | Hook-gauge reading (before) [cm] | Hook-gauge reading (after) [cm] | Precipitation [mm] | Temperature Min. deg. Celsius | Temperature Max. deg. Celsius | Class A Pan Evaporation [mm] | Comments | |
|---|---|---|---|---|---|---|---|---|---|
| 17-Jun-98 | 13:45 | 0 | 6.021 | 0 | 0 | 0 | | Initial setup | |
| 18-Jun-98 | 8:30 | 5.608 | 6.513 | 0 | 4 | 14 | 4.13 | Sunny | |
| 19-Jun-98 | 9:05 | 6.367 | 6.82 | 1.8 | 5.5 | 18 | 1.46 | Overcast | |
| 20-Jun-98 | 10:35 | 6.817 | 6.817 | 3.2 | 7 | 15.5 | 1.83 | Overcast (rain) | |
| 21-Jun-98 | 9:30 | 6.854 | 7.907 | 2.1 | 2 | 16 | 2.83 | Sunny with clouds | |
| 22-Jun-98 | 10:00 | 7.766 | 7.766 | 0.1 | 3 | 15 | 3.51 | Sunny with clouds | |
| 23-Jun-98 | | | | 0 | | | | No reading taken (Sunny) | |
| 24-Jun-98 | 8:50 | 6.744 | 6.744 | 0 | 4 | 19 | 10.32 | Overcast (cool) | **2 days!** |
| 25-Jun-98 | 16:00 | 6.899 | 6.899 | 2.8 | 2 | 11 | -1.55 | Overcast | |
| 26-Jun-98 | 15:06 | 6.536 | 7.005 | 0 | 2 | 17 | 6.43 | Sunny with clouds | |
| 27-Jun-98 | 17:00 | 6.737 | 6.737 | 2.8 | 9 | 24 | 2.68 | Sunny | |
| 28-Jun-98 | 8:30 | 6.627 | 6.627 | 2.6 | 8.5 | 25 | 3.90 | Overcast | |
| 29-Jun-98 | 16:30 | 6.069 | 6.069 | 0.3 | 9 | 12.5 | 8.18 | Overcast (cool) | |
| 30-Jun-98 | 11:30 | 6.171 | 6.888 | 0 | 6 | 8 | -0.72 | Overcast (cool) | |
| 01-Jul-98 | 11:10 | 6.494 | 6.494 | 0 | 11.5 | 11.5 | 3.94 | Sunny | |
| 02-Jul-98 | | | | | | | | no data available | |
| 03-Jul-98 | | | | | | | | no data available | |
| 04-Jul-98 | | | | | | | | no data available | |
| 05-Jul-98 | | | | | | | | no data available | |
| 06-Jul-98 | | | | | | | | no data available | |
| 07-Jul-98 | | | | | | | | no data available | |
| 08-Jul-98 | | | | | | | | no data available | |
| 09-Jul-98 | | | | | | | | no data available | |
| 10-Jul-98 | | | | | | | | no data available | |
| 11-Jul-98 | | | | | | | | no data available | |
| 12-Jul-98 | 13:16 | 6.354 | 7.058 | 0 | 14 | 20.5 | 1.40 | cloudy, warm | |
| 13-Jul-98 | 13:18 | 6.675 | 6.675 | 0 | 10 | 18 | 3.83 | rain | |
| 14-Jul-98 | 15:00 | 5.935 | 7.341 | 0.2 | 9 | 13 | 7.40 | overcast | |
| 15-Jul-98 | 15:32 | 6.973 | 7.295 | 0 | 8 | 18.5 | 3.88 | scattered | |
| 16-Jul-98 | 16:55 | 6.634 | 7.169 | 0 | 8 | 20 | 6.61 | clear | |
| 17-Jul-98 | 17:00 | 6.719 | 7.249 | 0 | 11 | 19 | 4.50 | clear | |
| 18-Jul-98 | 18:00 | 6.375 | 6.943 | 0 | 10 | 15 | 8.74 | windy, cool | |
| 19-Jul-98 | 9:33 | 6.533 | 7.123 | 0 | 11 | 18 | 4.1 | overcast | |
| 20-Jul-98 | 8:48 | 7.176 | 7.498 | 0 | 11 | 16 | -0.53 | overcast | |
| 21-Jul-98 | 9:06 | 7.477 | 7.488 | 1.8 | 11 | 16 | 0.21 | scattered showers | |
| 22-Jul-98 | 8:30 | 7.261 | 7.376 | 0 | 11 | 18 | 4.07 | overcast | |

## Appendix 2-2
## Calculation of Class A Evaporation Rates for 1998 at Boston Camp

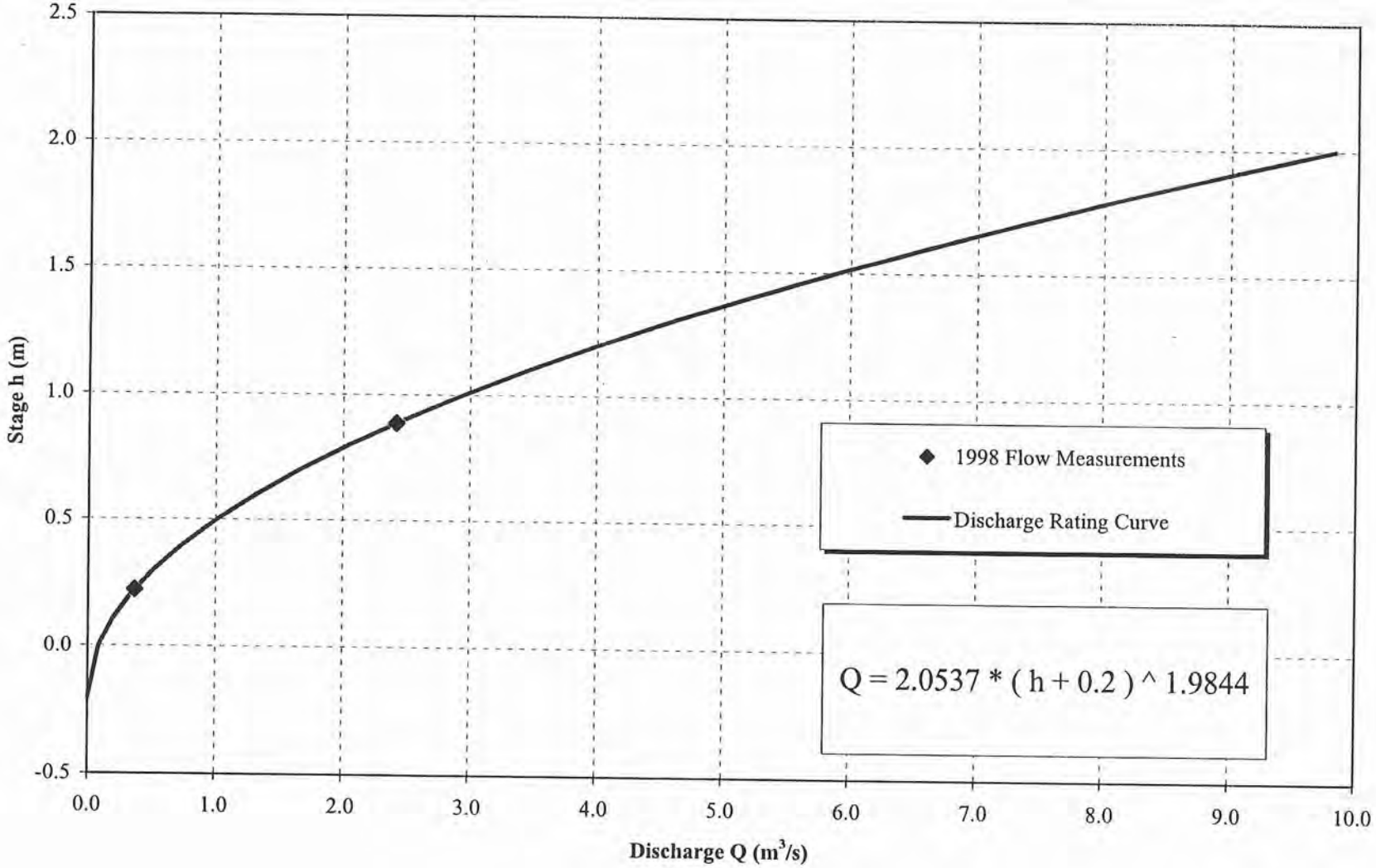
| Date | Time [24 hours] | Hook-gauge reading (before) [cm] | Hook-gauge reading (after) [cm] | Precipitation [mm] | Temperature Min. deg. Celsius | Temperature Max. deg. Celsius | Class A Pan Evaporation [mm] | Comments |
|---|---|---|---|---|---|---|---|---|
| 23-Jul-98 | 9:30 | 7.012 | 7.323 | 0 | 11 | 19 | 3.64 | clear |
| 23-Jul-98 | 16:30 | 7.002 | 6.853 | 0 | 15 | 25 | 3.21 | clear, pan cleaned, levelled, filled |
| 24-Jul-98 | 11:31 | 6.62 | 7.224 | 0 | 0 | 24 | 2.33 | smokey, add H2O, overcast |
| 25-Jul-98 | 10:30 | 7.04 | 7.698 | 1.4 | 2 | 22 | 1.84 | sunny, very windy, water spalshing |
| 26-Jul-98 | 9:50 | 7.136 | 7.664 | 0 | 6 | 22 | 7.02 | clear, sunny, added H20 |
| 27-Jul-98 | 10:00 | 7.712 | 7.712 | 4.1 | 8 | 26 | -0.48 | showers, overcast, H20 above max-line |
| 28-Jul-98 | 10:45 | 7.421 | 7.688 | 0 | 19 | 26 | 7.01 | add water, sunny |
| 29-Jul-98 | 9:30 | 7.228 | 7.699 | 0 | 15 | 26 | 4.6 | add water, sunny |
| 30-Jul-98 | 10:00 | 7.254 | 7.62 | 0 | 15 | 26 | 4.45 | add water, sunny |
| 31-Jul-98 | 9:34 | 7.2 | 7.71 | 0 | 14 | 26 | 4.2 | add water, cloudy |
| 01-Aug-98 | 10:02 | 7.632 | 7.742 | 0 | 13 | 26 | 0.78 | add water, cloudy |
| 02-Aug-98 | 9:36 | 7.45 | 7.774 | 0 | 10 | 25 | 2.92 | add water, sunny |
| 03-Aug-98 | 9:21 | 7.683 | 7.683 | 2.2 | 8 | 25 | 0.91 | showers overnight, sunny |
| 04-Aug-98 | 9:31 | 7.277 | 7.774 | 0 | 12 | 25 | 6.26 | clear, cloudy, windy, H2O added |
| 05-Aug-98 | 11:45 | 7.42 | 7.811 | 0.2 | 8 | 25 | 3.54 | add H20, sunny, showers overnight |
| 06-Aug-98 | 1:55 | 6.725 | 6.76 | 0 | 11.5 | 25 | 11.06 | overcast |
| 07-Aug-98 | 2:10 | 6.675 | 7.775 | 0 | 8 | 21 | 0.85 | clear, sunny |
| 08-Aug-98 | 12:55 | 7.485 | 7.78 | 0 | 8 | 23 | 2.9 | scattered, sunny |
| 09-Aug-98 | 1:36 | 6.173 | 7.278 | 0 | 7 | 17 | 16.07 | scattered, sunny |
| 10-Aug-98 | 2:00 | 6.174 | 7.78 | 0 | 12 | 22 | 11.04 | sunny, clear |
| 11-Aug-98 | 12:54 | 7.76 | 7.279 | 2 | 14 | 21 | 0.2 | sunny, clear |
| 12-Aug-98 | 15:00 | 7.279 | 7.279 | 3 | 12 | 19 | 2 | overcast, intermittant showers |

| | |
|---|---|
| **sum** | 187.5 |
| **average** | 4.1 |
| **max** | 16.07 |
| **min** | -1.55 |

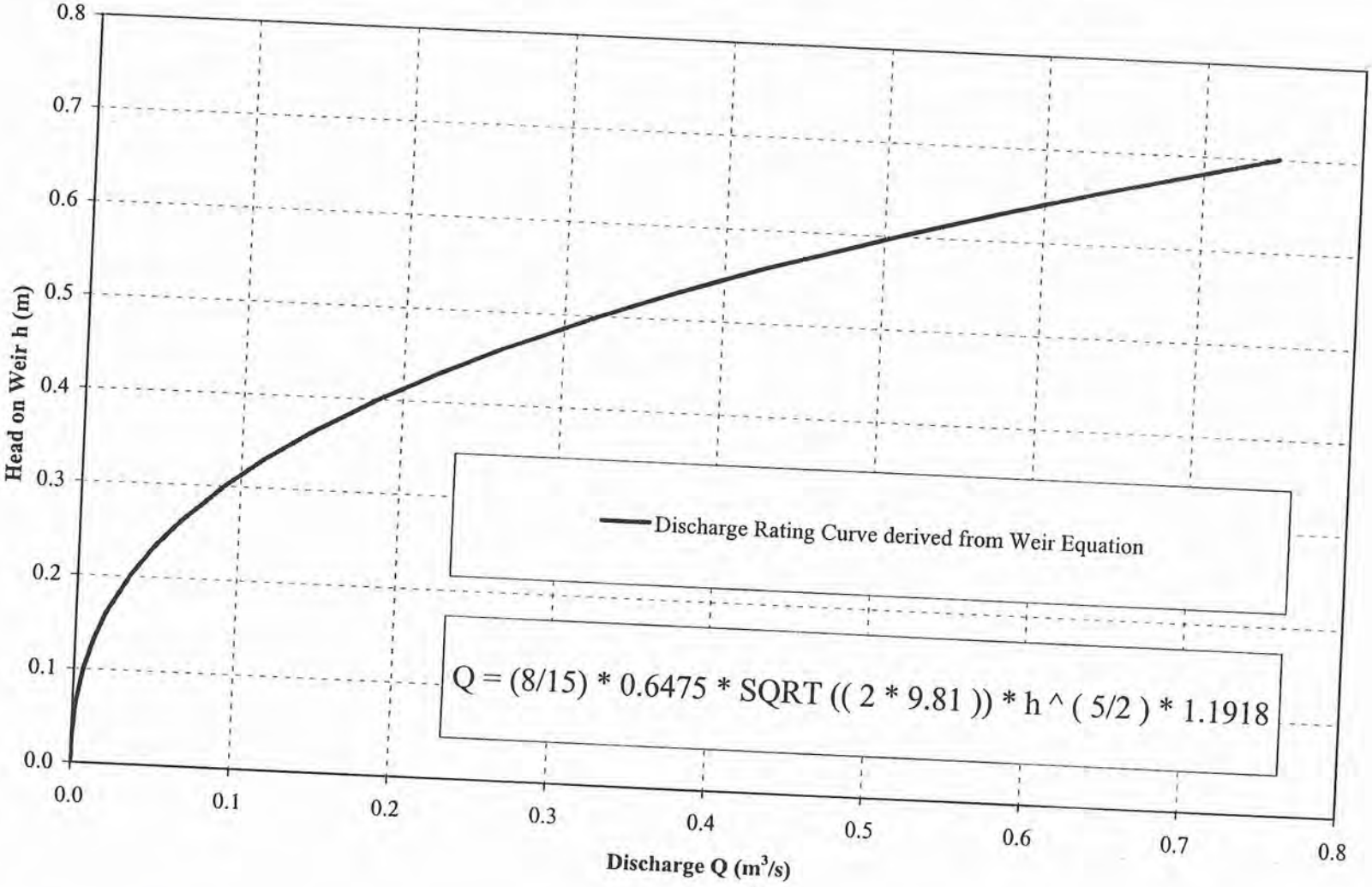
| 1998 | days measured | sum [mm] | average [mm/day] |
|---|---|---|---|
| **June** | 12 | 43.0 | 3.6 |
| **July** | 22 | 86.0 | 3.9 |
| **August** | 12 | 58.53 | 4.8775 |

# Appendix 3.1-1
# Discharge Rating Curve – Doris Outflow

## Appendix 3.1-1
## Discharge Rating Curve - Doris Outflow



## Appendix 3.1-1
## Discharge Rating Curve - Stickleback Outflow



# Appendix 3.2-1
# 1998 Streamflow Measurements

# Appendix 3.2-1
# 1998 Streamflow Measurements

| Location | Drainage Area ($km^2$) | Date | Discharge ($m^3/s$) | Unit Yield ($L/s/km^2$) |
|---|---|---|---|---|
| **Spyder River** | 769.0 | 26-Jun-98 | 20.689 | 26.904 |
| | | 31-Jul-98 | 1.358 | 1.766 |
| **Trout Outflow** | 32.0 | 26-Jun-98 | 0.352 | 11.000 |
| | | 30-Jul-98 | 0.006 | 0.185 |
| **NE Inflow** | 417.4 | 28-Jun-98 | 6.009 | 14.394 |
| | | 31-Jul-98 | 0.497 | 1.191 |
| **Spyder Outflow** | 1272.0 | 30-May-98 | 0.108 | 0.085 |
| | | 02-Aug-98 | 6.552 | 5.151 |
| **Boston Reference** | 136.9 | 01-Jun-98 | 0.031 | 0.227 |
| | | 28-Jun-98 | 2.467 | 18.022 |
| | | 01-Aug-98 | 0.083 | 0.605 |
| **Doris Outflow** | 93.1 | 30-Jun-98 | 2.419 | 25.983 |
| | | 03-Aug-98 | 0.367 | 3.944 |
| **Glen Outflow** | 31.6 | 30-Jun-98 | 0.674 | 21.326 |
| | | 03-Aug-98 | 0.154 | 4.875 |

# Appendix 4.1-1
# Water Quality Data – Boston Property Lakes

# Appendix 4.1-1
## Water Quality Data - Boston Property Lakes

**1998 HBB Boston Property Lakes WQ Data**

| Parameter | Units | Spyder Lake Station 4 3 m Rep 1 22-Apr-98 | Spyder Lake Station 4 3 m Rep 2 22-Apr-98 | Spyder Lake Station 6 3 m Rep 1 22-Apr-98 | Spyder Lake Station 6 3 m Rep 2 22-Apr-98 | Spyder Lake Station 6 3 m Rep 1A 22-Apr-98 | Spyder Lake Station 6 3 m Rep 2A 22-Apr-98 | Spyder Lake Station 6 10 m Rep 1 22-Apr-98 | Spyder Lake Station 6 10 m Rep 2 22-Apr-98 | Spyder Lake Station 6 20 m Rep 1 22-Apr-98 | Spyder Lake Station 6 20 m Rep 2 22-Apr-98 | Spyder Lake Station 6 25 m Rep 1 22-Apr-98 | Spyder Lake Station 6 25 m Rep 2 22-Apr-98 | Spyder Lake Station 6 1 m 18-Jul-98 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Physical Parameters** | | | | | | | | | | | | | | |
| Conductivity | µmhos/cm | 62 | 64 | 56 | 56 | - | 57 | 57 | 58 | 64 | 57 | 57 | 58 | 34 |
| Total Dissolved Solids | mg/L | 50 | 46 | 41 | 40 | - | 45 | 49 | 38 | 35 | 39 | 41 | 42 | 29 |
| Hardness | mg $CaCO_3$/L | 16.9 | 16.1 | 14.2 | 14.4 | - | 14 | 14.3 | 14.1 | 14.3 | 14.2 | 14.3 | 14 | 9.39 |
| pH | pH units | 6.8 | 6.85 | 6.73 | 6.72 | - | 6.74 | 6.76 | 6.77 | 6.86 | 6.74 | 6.45 | 6.59 | 6.1 |
| Total Suspended Solids | mg/L | <1 | 2 | 2 | <1 | - | 2 | <1 | <1 | <1 | <1 | <1 | <1 | 3 |
| Turbidity | NTU | 0.5 | 0.7 | 1.4 | 0.9 | - | 1.1 | 0.9 | 0.8 | 0.6 | 0.5 | 0.8 | 0.6 | 2.7 |
| **Dissolved Ions** | | | | | | | | | | | | | | |
| Acidity (to pH 8.3) | mg $CaCO_3$/L | 3 | 3 | 3 | 3 | - | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 |
| Alkalinity-Total | mg $CaCO_3$/L | 7 | 10 | 9 | 8 | - | 10 | 9 | 9 | 9 | 9 | 9 | 9 | 7 |
| Chloride | mg/L | 11.7 | 11.5 | 9.8 | 9.8 | - | 10.2 | 9.8 | 9.8 | 9.8 | 9.9 | 10.0 | 10.1 | 5.8 |
| Fluoride | mg/L | 0.04 | 0.07 | 0.05 | 0.04 | - | 0.06 | 0.05 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| Sulphate | mg/L | 2 | 3 | 2 | 2 | - | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 |
| **Nutrients** | | | | | | | | | | | | | | |
| Ammonia Nitrogen | mg/L | <0.005 | <0.005 | <0.005 | <0.005 | - | <0.005 | <0.005 | <0.005 | <0.005 | 0.006 | <0.005 | <0.005 | - |
| Nitrate Nitrogen | mg/L | 0.034 | 0.047 | 0.052 | 0.051 | - | 0.053 | 0.066 | 0.061 | 0.103 | 0.091 | 0.110 | 0.120 | - |
| Nitrite Nitrogen | mg/L | <0.001 | 0.001 | 0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | - |
| Dissolved ortho-Phosphate | mg/L | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | 0.001 | <0.001 | 0.001 | <0.001 | - |
| Total Dissolved Phosphate | mg/L | <0.001 | <0.001 | <0.001 | 0.001 | - | <0.001 | <0.001 | <0.001 | 0.001 | 0.003 | 0.003 | 0.006 | - |
| Total Phosphate | mg/L | 0.001 | 0.007 | 0.008 | 0.002 | - | 0.002 | 0.001 | <0.001 | 0.004 | 0.005 | 0.003 | 0.007 | - |
| **Total Metals** | | | | | | | | | | | | | | |
| Aluminum (Al) | mg/L | 0.019 | 0.019 | 0.024 | 0.028 | - | - | 0.022 | 0.018 | 0.024 | 0.022 | 0.026 | 0.027 | 0.051 |
| Antimony (Sb) | mg/L | <0.0001 | <0.0001 | <0.0001 | <0.0001 | - | - | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Arsenic (As) | mg/L | 0.0002 | 0.0002 | 0.0002 | 0.0002 | - | - | 0.0002 | 0.0002 | 0.0001 | 0.0001 | 0.0002 | 0.0001 | 0.0001 |
| Barium (Ba) | mg/L | 0.02 | 0.01 | <0.01 | <0.01 | - | - | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Beryllium (Be) | mg/L | <0.005 | <0.005 | <0.005 | <0.005 | - | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Bismuth (Bi) | mg/L | <0.1 | <0.1 | <0.1 | <0.1 | - | - | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Boron (B) | mg/L | <0.1 | <0.1 | <0.1 | <0.1 | - | - | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Cadmium (Cd) | mg/L | <0.0002 | <0.0002 | <0.0002 | <0.0002 | - | - | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 |
| Calcium (Ca) | mg/L | 3.32 | 3.23 | 2.86 | 2.9 | - | - | 2.91 | 3.08 | 2.92 | 2.9 | 2.86 | 2.82 | 1.9 |
| Chromium (Cr) | mg/L | 0.004 | 0.004 | 0.009 | 0.010 | - | - | 0.006 | 0.003 | <0.001 | <0.001 | 0.011 | <0.001 | <0.001 |
| Cobalt (Co) | mg/L | <0.001 | <0.001 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Copper (Cu) | mg/L | 0.018 | 0.014 | 0.011 | 0.013 | - | - | 0.007 | 0.004 | 0.002 | 0.002 | 0.003 | 0.001 | <0.001 |
| Iron (Fe) | mg/L | 0.06 | 0.05 | 0.09 | 0.09 | - | - | 0.08 | 0.05 | 0.04 | 0.04 | 0.10 | 0.04 | 0.12 |
| Lead (Pb) | mg/L | <0.001 | <0.001 | 0.003 | 0.003 | - | - | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Lithium (Li) | mg/L | <0.01 | <0.01 | <0.01 | <0.01 | - | - | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Magnesium (Mg) | mg/L | 2.1 | 2 | 1.8 | 1.8 | - | - | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.1 |
| Manganese (Mn) | mg/L | <0.005 | <0.005 | <0.005 | <0.005 | - | - | <0.005 | <0.005 | 0.008 | 0.007 | 0.013 | 0.013 | 0.009 |
| Mercury (Hg) | mg/L | <0.00005 | <0.00005 | <0.00005 | <0.00005 | - | - | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Molybdenum (Mo) | mg/L | <0.001 | <0.001 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Nickel (Ni) | mg/L | 0.006 | 0.008 | 0.011 | 0.012 | - | - | 0.008 | 0.004 | <0.001 | 0.001 | 0.012 | 0.001 | <0.001 |
| Phosphorus (P) | mg/L | <0.3 | <0.3 | <0.3 | <0.3 | - | - | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 |
| Potassium (K) | mg/L | 0.94 | 0.94 | 0.84 | 0.88 | - | - | 0.83 | 0.82 | 0.84 | 0.83 | 0.82 | 0.80 | 0.65 |
| Selenium (Se) | mg/L | <0.0005 | <0.0005 | <0.0005 | <0.0005 | - | - | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Silicon (Si) | mg/L | 0.33 | 0.27 | 0.29 | 0.28 | - | - | 0.30 | 0.32 | 0.59 | 0.54 | 0.65 | 0.68 | 0.25 |
| Silver (Ag) | mg/L | <0.0001 | <0.0001 | <0.0001 | <0.0001 | - | - | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Sodium (Na) | mg/L | 6 | 6 | 5 | 6 | - | - | 5 | 6 | 6 | 5 | 6 | 6 | 2.89 |
| Strontium (Sr) | mg/L | 0.017 | 0.017 | 0.015 | 0.015 | - | - | 0.015 | 0.015 | 0.015 | 0.015 | 0.015 | 0.015 | 0.02 |
| Thallium (Tl) | mg/L | <0.2 | <0.2 | <0.2 | <0.2 | - | - | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Tin (Sn) | mg/L | <0.03 | <0.03 | <0.03 | <0.03 | - | - | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 |
| Titanium (Ti) | mg/L | <0.01 | <0.01 | <0.01 | <0.01 | - | - | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Vanadium (V) | mg/L | <0.03 | <0.03 | <0.03 | <0.03 | - | - | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 |
| Zinc (Zn) | mg/L | 0.039 | 0.016 | 0.010 | 0.014 | - | - | 0.007 | 0.007 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| **Dissolved Metals** | | | | | | | | | | | | | | |
| Aluminum (Al) | mg/L | - | - | 0.015 | 0.015 | 0.014 | - | 0.014 | 0.012 | 0.014 | 0.013 | 0.015 | 0.015 | 0.011 |
| Antimony (Sb) | mg/L | - | - | <0.0001 | <0.0001 | <0.0001 | - | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Arsenic (As) | mg/L | - | - | 0.0002 | 0.0001 | 0.0001 | - | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| Barium (Ba) | mg/L | - | - | <0.01 | <0.01 | <0.01 | - | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Beryllium (Be) | mg/L | - | - | <0.005 | <0.005 | <0.005 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Bismuth (Bi) | mg/L | - | - | <0.1 | <0.1 | <0.1 | - | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Boron (B) | mg/L | - | - | <0.1 | <0.1 | <0.1 | - | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Cadmium (Cd) | mg/L | - | - | <0.0002 | <0.0002 | <0.0002 | - | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 |
| Calcium (Ca) | mg/L | - | - | 2.81 | 2.86 | 2.83 | - | 2.83 | 2.80 | 2.84 | 2.83 | 2.81 | 2.75 | 1.9 |
| Chromium (Cr) | mg/L | - | - | 0.006 | 0.006 | 0.006 | - | 0.005 | 0.002 | <0.001 | <0.001 | 0.007 | <0.001 | <0.001 |
| Cobalt (Co) | mg/L | - | - | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Copper (Cu) | mg/L | - | - | 0.010 | 0.010 | 0.009 | - | 0.006 | 0.004 | 0.001 | 0.001 | 0.002 | 0.001 | 0.001 |
| Iron (Fe) | mg/L | - | - | 0.06 | 0.06 | 0.06 | - | 0.04 | 0.03 | 0.02 | 0.02 | 0.06 | 0.02 | 0.03 |
| Lead (Pb) | mg/L | - | - | 0.002 | 0.002 | 0.002 | - | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Lithium (Li) | mg/L | - | - | <0.01 | <0.01 | <0.01 | - | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Magnesium (Mg) | mg/L | - | - | 1.8 | 1.8 | 1.8 | - | 1.8 | 1.7 | 1.8 | 1.7 | 1.8 | 1.7 | 1.1 |
| Manganese (Mn) | mg/L | - | - | <0.005 | <0.005 | <0.005 | - | <0.005 | <0.005 | 0.008 | 0.007 | 0.013 | 0.013 | <0.005 |
| Mercury (Hg) | mg/L | - | - | <0.00005 | <0.00005 | <0.00005 | - | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Molybdenum (Mo) | mg/L | - | - | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Nickel (Ni) | mg/L | - | - | 0.011 | 0.011 | 0.010 | - | 0.008 | 0.004 | <0.001 | <0.001 | 0.013 | 0.001 | <0.001 |
| Phosphorus (P) | mg/L | - | - | <0.3 | <0.3 | <0.3 | - | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 |
| Potassium (K) | mg/L | - | - | 0.84 | 0.86 | 0.84 | - | 0.83 | 0.82 | 0.80 | 0.80 | 0.80 | 0.78 | 0.65 |
| Selenium (Se) | mg/L | - | - | <0.0005 | <0.0005 | <0.0005 | - | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Silicon (Si) | mg/L | - | - | 0.26 | 0.25 | 0.26 | - | 0.28 | 0.29 | 0.55 | 0.51 | 0.61 | 0.61 | 0.2 |
| Silver (Ag) | mg/L | - | - | <0.0001 | <0.0001 | <0.0001 | - | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Sodium (Na) | mg/L | - | - | 5 | 5 | 5 | - | 5 | 5 | 5 | 5 | 5 | 5 | 2.89 |
| Strontium (Sr) | mg/L | - | - | 0.014 | 0.014 | 0.015 | - | 0.015 | 0.014 | 0.015 | 0.015 | 0.014 | 0.014 | 0.02 |
| Thallium (Tl) | mg/L | - | - | <0.2 | <0.2 | <0.2 | - | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Tin (Sn) | mg/L | - | - | <0.03 | <0.03 | <0.03 | - | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 |
| Titanium (Ti) | mg/L | - | - | <0.01 | <0.01 | <0.01 | - | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Uranium (U) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Vanadium (V) | mg/L | - | - | <0.03 | <0.03 | <0.03 | - | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 |
| Zinc (Zn) | mg/L | - | - | 0.010 | 0.010 | 0.010 | - | 0.006 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |

# Appendix 4.1-1
## Water Quality Data - Boston Property Lakes

| 1998 HBB Boston Property Lakes | | Spyder Lake Station 6 5 m Rep 1 | Spyder Lake Station 6 5 m Rep 2 | Spyder Lake Station 6 15 m Rep 1 | Spyder Lake Station 6 15 m Rep 2 | Spyder Lake Station 6 25 m Rep 1 | Spyder Lake Station 6 25 m Rep 2 | Spyder Lake Station 4 1 m | Spyder Lake Station 4 5 m | Stickleback Lake 1 m | Trout Lake 1 m | Boston Ref. Lake 2.5 m Rep 1 | Boston Ref. Lake 2.5 m Rep 2 | Boston Ref. Lake 1 m Rep 1 | Boston Ref. Lake 1 m Rep 2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Parameter** | **Units** | 18-Jul-98 | 18-Jul-98 | 18-Jul-98 | 18-Jul-98 | 18-Jul-98 | 18-Jul-98 | 18-Jul-98 | 18-Jul-98 | 19-Jul-98 | 19-Jul-98 | 22-Apr-98 | 22-Apr-98 | 22-Jul-98 | 22-Jul-98 |
| **Physical Parameters** | | | | | | | | | | | | | | | |
| Conductivity | µmhos/cm | 35 | - | 35 | - | 37 | 38 | 35 | 37 | 196 | 54 | 235 | 228 | 32 | 32 |
| Total Dissolved Solids | mg/L | 34 | - | 24 | - | 30 | 26 | 28 | <10 | 141 | 48 | 223 | 173 | 23 | 20 |
| Hardness | mg $CaCO_3$/L | 9.75 | - | 9.65 | - | 9.7 | 9.69 | 9.73 | 9.62 | 62.7 | 19.1 | 82.9 | 81.9 | 12 | 11.8 |
| pH | pH units | 6.38 | - | 6.43 | - | 6.5 | 6.57 | 6.56 | 6.64 | 7.26 | 7.1 | 7.07 | 7.09 | 6.72 | 6.79 |
| Total Suspended Solids | mg/L | 4 | - | 2 | - | 2 | 3 | 2 | 1 | 4 | 3 | 50 | 4 | 4 | 6 |
| Turbidity | NTU | 2.8 | - | 2.6 | - | 2.4 | 2.3 | 3.4 | 2.9 | 1.4 | 5.0 | 7.2 | 7.1 | 3.8 | 3.9 |
| **Dissolved Ions** | | | | | | | | | | | | | | | |
| Acidity (to pH 8.3) | mg $CaCO_3$/L | 3 | - | 3 | - | 3 | 3 | 3 | 3 | 3 | 3 | 16 | 17 | 3 | 3 |
| Alkalinity-Total | mg $CaCO_3$/L | 7 | - | 6 | - | 7 | 6 | 6 | 6 | 26 | 13 | 67 | 65 | 9 | 9 |
| Chloride | mg/L | 5.7 | - | 5.8 | - | 6.2 | 6.1 | 5.8 | 5.8 | 42.4 | 7.3 | 30.0 | 30.0 | 3.5 | 3.5 |
| Fluoride | mg/L | 0.02 | - | 0.03 | - | 0.03 | 0.02 | 0.03 | 0.06 | 0.07 | 0.06 | 0.11 | 0.12 | 0.03 | 0.04 |
| Sulphate | mg/L | 1 | - | 1 | - | 1 | 1 | 1 | 1 | <1 | 1 | 8 | 8 | 1 | 1 |
| **Nutrients** | | | | | | | | | | | | | | | |
| Ammonia Nitrogen | mg/L | - | - | - | - | - | - | - | - | - | - | 0.019 | 0.021 | - | - |
| Nitrate Nitrogen | mg/L | - | - | - | - | - | - | - | - | - | - | 0.226 | 0.226 | - | - |
| Nitrite Nitrogen | mg/L | - | - | - | - | - | - | - | - | - | - | 0.002 | <0.001 | - | - |
| Dissolved ortho-Phosphate | mg/L | - | - | - | - | - | - | - | - | - | - | 0.002 | 0.001 | - | - |
| Total Dissolved Phosphate | mg/L | - | - | - | - | - | - | - | - | - | - | 0.002 | 0.002 | - | - |
| Total Phosphate | mg/L | - | - | - | - | - | - | - | - | - | - | 0.016 | 0.018 | - | - |
| **Total Metals** | | | | | | | | | | | | | | | |
| Aluminum (Al) | mg/L | 0.045 | 0.045 | 0.048 | - | 0.040 | - | 0.051 | 0.053 | 0.011 | 0.122 | 0.036 | 0.037 | 0.080 | 0.088 |
| Antimony (Sb) | mg/L | <0.0001 | <0.0001 | <0.0001 | - | <0.0001 | - | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Arsenic (As) | mg/L | 0.0001 | 0.0001 | 0.0002 | - | 0.0001 | - | 0.0001 | 0.0001 | 0.0003 | 0.0002 | 0.0007 | 0.0008 | 0.0002 | 0.0002 |
| Barium (Ba) | mg/L | <0.01 | <0.01 | <0.01 | - | <0.01 | - | <0.01 | <0.01 | <0.01 | <0.01 | 0.03 | 0.02 | <0.01 | <0.01 |
| Beryllium (Be) | mg/L | <0.005 | <0.005 | <0.005 | - | <0.005 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Bismuth (Bi) | mg/L | <0.1 | <0.1 | <0.1 | - | <0.1 | - | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Boron (B) | mg/L | <0.1 | <0.1 | <0.1 | - | <0.1 | - | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Cadmium (Cd) | mg/L | <0.0002 | <0.0002 | <0.0002 | - | <0.0002 | - | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 |
| Calcium (Ca) | mg/L | 1.94 | 1.95 | 2.11 | - | 1.96 | - | 1.98 | 1.93 | 15.9 | 5.13 | 21.8 | 21.6 | 3.12 | 3.11 |
| Chromium (Cr) | mg/L | <0.001 | <0.001 | <0.001 | - | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | 0.003 | 0.003 | <0.001 | <0.001 |
| Cobalt (Co) | mg/L | <0.001 | <0.001 | <0.001 | - | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Copper (Cu) | mg/L | <0.001 | <0.001 | 0.001 | - | <0.001 | - | <0.001 | <0.001 | <0.001 | 0.001 | 0.030 | 0.030 | 0.001 | 0.002 |
| Iron (Fe) | mg/L | 0.13 | 0.11 | 0.12 | - | 0.12 | - | 0.12 | 0.13 | 0.06 | 0.27 | 1.84 | 1.84 | 0.24 | 0.24 |
| Lead (Pb) | mg/L | <0.001 | <0.001 | <0.001 | - | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Lithium (Li) | mg/L | <0.01 | <0.01 | <0.01 | - | <0.01 | - | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Magnesium (Mg) | mg/L | 1.2 | 1.2 | 1.2 | - | 1.2 | - | 1.2 | 1.2 | 5.6 | 1.5 | 6.9 | 6.8 | 1 | 1 |
| Manganese (Mn) | mg/L | 0.009 | 0.01 | 0.012 | - | 0.012 | - | 0.01 | 0.01 | 0.006 | <0.005 | 0.152 | 0.15 | 0.006 | 0.006 |
| Mercury (Hg) | mg/L | <0.00005 | <0.00005 | <0.00005 | - | <0.00005 | - | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Molybdenum (Mo) | mg/L | <0.001 | <0.001 | <0.001 | - | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Nickel (Ni) | mg/L | <0.001 | <0.001 | <0.001 | - | <0.001 | - | <0.001 | <0.001 | <0.001 | 0.001 | 0.004 | 0.004 | <0.001 | <0.001 |
| Phosphorus (P) | mg/L | <0.3 | <0.3 | <0.3 | - | <0.3 | - | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 |
| Potassium (K) | mg/L | 0.66 | 0.66 | 0.76 | - | 0.70 | - | 0.66 | 0.65 | 1.80 | 0.43 | 2.22 | 2.25 | 0.44 | 0.44 |
| Selenium (Se) | mg/L | <0.0005 | 0.0007 | <0.0005 | - | <0.0005 | - | 0.0008 | 0.0008 | <0.0005 | <0.0005 | <0.0005 | 0.0005 | <0.0005 | 0.0005 |
| Silicon (Si) | mg/L | 0.28 | 0.29 | 0.29 | - | 0.29 | - | 0.29 | 0.28 | 0.19 | 0.46 | 3.42 | 3.38 | 0.26 | 0.24 |
| Silver (Ag) | mg/L | <0.0001 | <0.0001 | <0.0001 | - | <0.0001 | - | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Sodium (Na) | mg/L | 2.98 | 2.91 | 3.45 | - | 3.11 | - | 2.65 | 2.9 | 12 | 3.38 | 17 | 17 | 2.26 | 2.13 |
| Strontium (Sr) | mg/L | 0.02 | 0.019 | 0.02 | - | 0.019 | - | 0.019 | 0.019 | 0.110 | 0.032 | 0.059 | 0.059 | 0.018 | 0.017 |
| Thallium (Tl) | mg/L | <0.2 | <0.2 | <0.2 | - | <0.2 | - | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Tin (Sn) | mg/L | <0.03 | <0.03 | <0.03 | - | <0.03 | - | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 |
| Titanium (Ti) | mg/L | <0.01 | <0.01 | <0.01 | - | <0.01 | - | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Vanadium (V) | mg/L | <0.03 | <0.03 | <0.03 | - | <0.03 | - | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 |
| Zinc (Zn) | mg/L | <0.005 | <0.005 | <0.005 | - | <0.005 | - | <0.005 | <0.005 | <0.005 | <0.005 | 0.014 | 0.009 | <0.005 | <0.005 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Aluminum (Al) | mg/L | 0.011 | - | 0.013 | 0.012 | 0.013 | - | - | - | - | - | - | - | - | - |
| Antimony (Sb) | mg/L | <0.0001 | - | <0.0001 | <0.0001 | <0.0001 | - | - | - | - | - | - | - | - | - |
| Arsenic (As) | mg/L | 0.0001 | - | 0.0001 | 0.0001 | 0.0001 | - | - | - | - | - | - | - | - | - |
| Barium (Ba) | mg/L | <0.01 | - | <0.01 | <0.01 | <0.01 | - | - | - | - | - | - | - | - | - |
| Beryllium (Be) | mg/L | <0.005 | - | <0.005 | <0.005 | <0.005 | - | - | - | - | - | - | - | - | - |
| Bismuth (Bi) | mg/L | <0.1 | - | <0.1 | <0.1 | <0.1 | - | - | - | - | - | - | - | - | - |
| Boron (B) | mg/L | <0.1 | - | <0.1 | <0.1 | <0.1 | - | - | - | - | - | - | - | - | - |
| Cadmium (Cd) | mg/L | <0.0002 | - | <0.0002 | <0.0002 | <0.0002 | - | - | - | - | - | - | - | - | - |
| Calcium (Ca) | mg/L | 1.95 | - | 1.95 | 1.97 | 1.94 | - | - | - | - | - | - | - | - | - |
| Chromium (Cr) | mg/L | <0.001 | - | <0.001 | <0.001 | <0.001 | - | - | - | - | - | - | - | - | - |
| Cobalt (Co) | mg/L | <0.001 | - | <0.001 | <0.001 | <0.001 | - | - | - | - | - | - | - | - | - |
| Copper (Cu) | mg/L | 0.001 | - | 0.001 | <0.001 | <0.001 | - | - | - | - | - | - | - | - | - |
| Iron (Fe) | mg/L | 0.03 | - | 0.03 | 0.03 | 0.03 | - | - | - | - | - | - | - | - | - |
| Lead (Pb) | mg/L | <0.001 | - | <0.001 | <0.001 | <0.001 | - | - | - | - | - | - | - | - | - |
| Lithium (Li) | mg/L | <0.01 | - | <0.01 | <0.01 | <0.01 | - | - | - | - | - | - | - | - | - |
| Magnesium (Mg) | mg/L | 1.2 | - | 1.2 | 1.2 | 1.2 | - | - | - | - | - | - | - | - | - |
| Manganese (Mn) | mg/L | <0.005 | - | <0.005 | <0.005 | <0.005 | - | - | - | - | - | - | - | - | - |
| Mercury (Hg) | mg/L | <0.00005 | - | <0.00005 | <0.00005 | <0.00005 | - | - | - | - | - | - | - | - | - |
| Molybdenum (Mo) | mg/L | <0.001 | - | <0.001 | <0.001 | <0.001 | - | - | - | - | - | - | - | - | - |
| Nickel (Ni) | mg/L | <0.001 | - | <0.001 | <0.001 | <0.001 | - | - | - | - | - | - | - | - | - |
| Phosphorus (P) | mg/L | <0.3 | - | <0.3 | <0.3 | <0.3 | - | - | - | - | - | - | - | - | - |
| Potassium (K) | mg/L | 0.63 | - | 0.67 | 0.65 | 0.67 | - | - | - | - | - | - | - | - | - |
| Selenium (Se) | mg/L | <0.0005 | - | <0.0005 | <0.0005 | <0.0005 | - | - | - | - | - | - | - | - | - |
| Silicon (Si) | mg/L | 0.21 | - | 0.23 | 0.24 | 0.24 | - | - | - | - | - | - | - | - | - |
| Silver (Ag) | mg/L | <0.0001 | - | <0.0001 | <0.0001 | <0.0001 | - | - | - | - | - | - | - | - | - |
| Sodium (Na) | mg/L | 2.88 | - | 3.03 | 3.01 | 3.12 | - | - | - | - | - | - | - | - | - |
| Strontium (Sr) | mg/L | 0.02 | - | 0.02 | 0.019 | 0.019 | - | - | - | - | - | - | - | - | - |
| Thallium (Tl) | mg/L | <0.2 | - | <0.2 | <0.2 | <0.2 | - | - | - | - | - | - | - | - | - |
| Tin (Sn) | mg/L | <0.03 | - | <0.03 | <0.03 | <0.03 | - | - | - | - | - | - | - | - | - |
| Titanium (Ti) | mg/L | <0.01 | - | <0.01 | <0.01 | <0.01 | - | - | - | - | - | - | - | - | - |
| Uranium (U) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Vanadium (V) | mg/L | <0.03 | - | <0.03 | <0.03 | <0.03 | - | - | - | - | - | - | - | - | - |
| Zinc (Zn) | mg/L | <0.005 | - | <0.005 | <0.005 | <0.005 | - | - | - | - | - | - | - | - | - |

# Appendix 4.1-2
## Water Quality Data - Boston Property Streams

**1998 HBB Boston Property Streams WQ Data**

| Parameter | Units | Spyder River Rep 1 31-May-98 | Spyder Outflow Rep 1 31-May-98 | Spyder Outflow Rep 2 31-May-98 | Boston Reference OF Rep1 1-Jun-98 | NE Inflow (Spyder) 28-Jun-98 | Spyder River 27-Jun-98 | Spyder Outflow 27-Jun-98 | Stickleback Outflow 26-Jun-98 | Trout Outflow 26-Jun-98 | Boston Reference OF Rep 1 28-Jun-98 | Boston Reference OF Rep 2 28-Jun-98 | Spyder Outflow 2-Aug-98 | Boston Reference OF 1-Aug-98 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Physical Parameters** | | | | | | | | | | | | | | |
| Conductivity | µmhos/cm | 75 | 57 | 55 | 37 | 44 | 19 | 36 | 102 | 34 | 27 | 27 | 36 | 38 |
| Total Dissolved Solids | mg/L | 52 | 38 | 36 | 38 | 26 | 11 | 19 | 70 | 19 | 15 | 15 | 35 | 34 |
| Hardness | mg $CaCO_3$/L | 22.0 | 13.6 | 13.8 | 12.0 | 11.4 | 5.68 | 9.47 | 31.0 | 13.7 | 10.4 | 10.4 | 9.97 | 14.8 |
| pH | pH units | 6.85 | 6.86 | 6.77 | 6.54 | 6.74 | 6.65 | 6.70 | 6.96 | 6.84 | 6.47 | 6.69 | 6.88 | 6.81 |
| Total Suspended Solids | mg/L | 4 | 4 | 2 | 4 | 2 | <1 | 1 | 2 | 1 | <1 | <1 | 2 | 3 |
| Turbidity | NTU | 0.4 | 1.0 | 1.4 | 3.1 | 4.7 | 1.3 | 2.5 | 0.9 | 2.2 | 1.9 | 1.8 | 1.1 | 2.9 |
| **Dissolved Ions** | | | | | | | | | | | | | | |
| Acidity (to pH 8.3) | mg $CaCO_3$/L | 4 | 3 | 3 | 7 | 3 | 3 | 4 | 4 | 3 | 4 | 3 | 3 | 4 |
| Alkalinity-Total | mg $CaCO_3$/L | 14 | 9 | 9 | 10 | 7 | 4 | 8 | 14 | 10 | 8 | 8 | 8 | 12 |
| Chloride | mg/L | 10.2 | 8.6 | 8.8 | 3.4 | 8.1 | 3.2 | 6.1 | 21.4 | 3.4 | 3.0 | 3.0 | 5.7 | 3.0 |
| Fluoride | mg/L | 0.09 | 0.07 | 0.05 | 0.02 | 0.05 | 0.03 | 0.02 | 0.03 | 0.02 | 0.03 | 0.03 | 0.03 | 0.06 |
| Sulphate | mg/L | 3 | 2 | 2 | 1 | 1 | <1 | 1 | <1 | <1 | <1 | <1 | 1 | 1 |
| **Nutrients** | | | | | | | | | | | | | | |
| Ammonia Nitrogen | mg/L | 0.023 | 0.008 | 0.021 | <0.005 | - | - | - | - | - | - | - | - | - |
| Nitrate Nitrogen | mg/L | 0.077 | 0.045 | 0.042 | <0.005 | - | - | - | - | - | - | - | - | - |
| Nitrite Nitrogen | mg/L | 0.001 | <0.001 | <0.001 | 0.002 | - | - | - | - | - | - | - | - | - |
| Dissolved ortho-Phosphate | mg/L | 0.002 | 0.001 | 0.002 | 0.002 | - | - | - | - | - | - | - | - | - |
| Total Dissolved Phosphate | mg/L | 0.002 | 0.002 | 0.005 | 0.007 | - | - | - | - | - | - | - | - | - |
| Total Phosphate | mg/L | 0.013 | 0.008 | 0.006 | 0.026 | - | - | - | - | - | - | - | - | - |
| **Total Metals** | | | | | | | | | | | | | | |
| Aluminum (Al) | mg/L | 0.025 | 0.012 | 0.013 | 0.038 | 0.177 | 0.032 | 0.080 | 0.015 | 0.072 | 0.085 | 0.078 | 0.026 | 0.047 |
| Antimony (Sb) | mg/L | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Arsenic (As) | mg/L | 0.0002 | 0.0001 | 0.0002 | 0.0004 | 0.0002 | 0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0001 | 0.0005 |
| Barium (Ba) | mg/L | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Beryllium (Be) | mg/L | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Bismuth (Bi) | mg/L | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Boron (B) | mg/L | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Cadmium (Cd) | mg/L | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 |
| Calcium (Ca) | mg/L | 4.99 | 2.85 | 2.75 | 3.16 | 2.14 | 1.10 | 2.18 | 7.92 | 3.92 | 2.83 | 2.83 | 1.97 | 4.01 |
| Chromium (Cr) | mg/L | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Cobalt (Co) | mg/L | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Copper (Cu) | mg/L | 0.002 | 0.001 | 0.001 | 0.002 | 0.001 | <0.001 | 0.003 | <0.001 | 0.001 | 0.002 | 0.001 | <0.001 | 0.002 |
| Iron (Fe) | mg/L | 0.24 | 0.03 | 0.03 | 0.41 | 0.43 | 0.12 | 0.18 | 0.06 | 0.24 | 0.14 | 0.14 | 0.07 | 0.42 |
| Lead (Pb) | mg/L | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Lithium (Li) | mg/L | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Magnesium (Mg) | mg/L | 2.3 | 1.7 | 1.7 | 1.0 | 1.5 | 0.7 | 1.2 | 2.7 | 1.0 | 0.8 | 0.8 | 1.2 | 1.2 |
| Manganese (Mn) | mg/L | 0.057 | <0.005 | <0.005 | 0.158 | 0.010 | <0.005 | 0.017 | 0.028 | <0.005 | <0.005 | <0.005 | 0.007 | 0.013 |
| Mercury (Hg) | mg/L | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Molybdenum (Mo) | mg/L | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Nickel (Ni) | mg/L | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Phosphorus (P) | mg/L | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 |
| Potassium (K) | mg/L | 1.97 | 0.75 | 0.75 | 2.45 | 0.52 | 0.37 | 0.63 | 0.83 | 0.27 | 0.34 | 0.32 | 0.59 | 0.35 |
| Selenium (Se) | mg/L | <0.0005 | <0.0005 | 0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | 0.0008 | 0.0006 |
| Silicon (Si) | mg/L | 0.52 | 0.30 | 0.30 | 0.33 | 0.56 | 0.15 | 0.40 | 0.18 | 0.47 | 0.29 | 0.29 | 0.21 | 0.23 |
| Silver (Ag) | mg/L | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Sodium (Na) | mg/L | 4.42 | 4.43 | 4.42 | 1.68 | 4.05 | 1.52 | 3.50 | 5.00 | 1.74 | 1.61 | 1.61 | 3.12 | 2.20 |
| Strontium (Sr) | mg/L | 0.017 | 0.014 | 0.013 | 0.006 | 0.020 | 0.015 | 0.019 | 0.057 | 0.023 | 0.015 | 0.015 | 0.020 | 0.020 |
| Thallium (Tl) | mg/L | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Tin (Sn) | mg/L | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 |
| Titanium (Ti) | mg/L | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Vanadium (V) | mg/L | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 |
| Zinc (Zn) | mg/L | <0.005 | <0.005 | <0.005 | 0.007 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| **Dissolved Metals** | | | | | | | | | | | | | | |
| Aluminum (Al) | mg/L | - | 0.008 | - | - | - | - | 0.016 | - | - | - | - | - | - |
| Antimony (Sb) | mg/L | - | <0.0001 | - | - | - | - | <0.0001 | - | - | - | - | - | - |
| Arsenic (As) | mg/L | - | 0.0001 | - | - | - | - | 0.0001 | - | - | - | - | - | - |
| Barium (Ba) | mg/L | - | <0.01 | - | - | - | - | <0.01 | - | - | - | - | - | - |
| Beryllium (Be) | mg/L | - | <0.005 | - | - | - | - | <0.005 | - | - | - | - | - | - |
| Bismuth (Bi) | mg/L | - | <0.1 | - | - | - | - | <0.1 | - | - | - | - | - | - |
| Boron (B) | mg/L | - | <0.1 | - | - | - | - | <0.1 | - | - | - | - | - | - |
| Cadmium (Cd) | mg/L | - | <0.0002 | - | - | - | - | <0.0002 | - | - | - | - | - | - |
| Calcium (Ca) | mg/L | - | 2.74 | - | - | - | - | 1.89 | - | - | - | - | - | - |
| Chromium (Cr) | mg/L | - | <0.001 | - | - | - | - | <0.001 | - | - | - | - | - | - |
| Cobalt (Co) | mg/L | - | <0.001 | - | - | - | - | <0.001 | - | - | - | - | - | - |
| Copper (Cu) | mg/L | - | 0.001 | - | - | - | - | <0.001 | - | - | - | - | - | - |
| Iron (Fe) | mg/L | - | 0.02 | - | - | - | - | 0.06 | - | - | - | - | - | - |
| Lead (Pb) | mg/L | - | 0.001 | - | - | - | - | <0.001 | - | - | - | - | - | - |
| Lithium (Li) | mg/L | - | <0.01 | - | - | - | - | <0.01 | - | - | - | - | - | - |
| Magnesium (Mg) | mg/L | - | 1.7 | - | - | - | - | 1.2 | - | - | - | - | - | - |
| Manganese (Mn) | mg/L | - | <0.005 | - | - | - | - | 0.011 | - | - | - | - | - | - |
| Mercury (Hg) | mg/L | - | <0.00005 | - | - | - | - | <0.00005 | - | - | - | - | - | - |
| Molybdenum (Mo) | mg/L | - | <0.001 | - | - | - | - | <0.001 | - | - | - | - | - | - |
| Nickel (Ni) | mg/L | - | <0.001 | - | - | - | - | <0.001 | - | - | - | - | - | - |
| Phosphorus (P) | mg/L | - | <0.3 | - | - | - | - | <0.3 | - | - | - | - | - | - |
| Potassium (K) | mg/L | - | 0.74 | - | - | - | - | 0.58 | - | - | - | - | - | - |
| Selenium (Se) | mg/L | - | <0.0005 | - | - | - | - | <0.0005 | - | - | - | - | - | - |
| Silicon (Si) | mg/L | - | 0.29 | - | - | - | - | 0.25 | - | - | - | - | - | - |
| Silver (Ag) | mg/L | - | <0.0001 | - | - | - | - | <0.0001 | - | - | - | - | - | - |
| Sodium (Na) | mg/L | - | 4.45 | - | - | - | - | 2.96 | - | - | - | - | - | - |
| Strontium (Sr) | mg/L | - | 0.014 | - | - | - | - | 0.019 | - | - | - | - | - | - |
| Thallium (Tl) | mg/L | - | <0.2 | - | - | - | - | <0.2 | - | - | - | - | - | - |
| Tin (Sn) | mg/L | - | <0.03 | - | - | - | - | <0.03 | - | - | - | - | - | - |
| Titanium (Ti) | mg/L | - | <0.01 | - | - | - | - | <0.01 | - | - | - | - | - | - |
| Vanadium (V) | mg/L | - | <0.03 | - | - | - | - | <0.03 | - | - | - | - | - | - |
| Zinc (Zn) | mg/L | - | <0.005 | - | - | - | - | <0.005 | - | - | - | - | - | - |

# Appendix 4.2-1
# Water Quality Data –
# Doris Property Lake and Marine Sites

# Appendix 4.2-1
# Water Quality Data - Doris Property Lake and Marine Sites

1998 HBB Doris Property Lakes & Marine WQ Data

| Parameter | Units | Wolverine Lake 3 m Rep 1 24-Apr-98 | Wolverine Lake 3 m Rep 1A 24-Apr-98 | Wolverine Lake 3 m Rep 2 24-Apr-98 | Wolverine Lake 3 m Rep 2A 24-Apr-98 | Patch Lake 3 m Rep 1 25-Apr-98 | Patch Lake 3 m Rep 1A 25-Apr-98 | Patch Lake 3 m Rep 2 25-Apr-98 | Ogama Lake 2.5 m Rep 1 24-Apr-98 | Ogama Lake 2.5 m Rep 1A 24-Apr-98 | Ogama Lake 2.5 m Rep 2 24-Apr-98 | Ogama Lake 2.5 m Rep 2A 24-Apr-98 | Doris Lake 3 m Rep 1 25-Apr-98 | Doris Lake 3 m Rep 1A 25-Apr-98 | Doris Lake 3 m Rep 2 25-Apr-98 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Physical Parameters** | | | | | | | | | | | | | | | |
| Conductivity | µmhos/cm | 642 | - | 644 | 647 | 428 | - | 431 | 565 | 572 | 571 | - | 266 | - | 268 |
| Total Dissolved Solids | mg/L | 366 | - | 342 | 366 | 218 | - | 226 | 331 | 329 | 336 | - | 156 | - | 162 |
| Hardness | mg $CaCO_3$/L | 117 | - | 119 | 118 | 77.2 | - | 77.8 | 100 | 100 | 99.8 | - | 49.3 | - | 50.8 |
| pH | pH units | 7.43 | - | 7.42 | 7.46 | 7.51 | - | 7.52 | 7.38 | 7.19 | 7.29 | - | 7.34 | - | 7.35 |
| Total Suspended Solids | mg/L | 1 | - | 2 | 5 | 1 | - | <1 | <1 | <1 | 1 | - | 3 | - | 5 |
| Salinity | o/oo | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| Turbidity | NTU | 1.1 | - | 1.2 | 1.1 | 0.9 | - | 0.8 | 4.4 | 4.5 | 4.1 | - | 4.3 | - | 4.5 |
| **Dissolved Ions** | | | | | | | | | | | | | | | |
| Acidity (to pH 8.3) | mg $CaCO_3$/L | 11 | - | 11 | 13 | 8 | - | 6 | 10 | 10 | 10 | - | 4 | - | 4 |
| Alkalinity-Total | mg $CaCO_3$/L | 78 | - | 78 | 77 | 52 | - | 53 | 59 | 58 | 56 | - | 29 | - | 29 |
| Chloride | mg/L | 155 | - | 155 | 154 | 98.3 | - | 99.8 | 140 | 138 | 138 | - | 62.8 | - | 63.1 |
| Fluoride | mg/L | 0.19 | - | 0.19 | 0.19 | 0.13 | - | 0.15 | 0.15 | 0.16 | 0.15 | - | 0.08 | - | 0.08 |
| Sulphate | mg/L | 1 | - | 1 | 1 | 3 | - | 3 | 5 | 5 | 5 | - | 3 | - | 3 |
| **Nutrients** | | | | | | | | | | | | | | | |
| Ammonia Nitrogen | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Nitrate Nitrogen | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Nitrite Nitrogen | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Dissolved ortho-Phosphate | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total Dissolved Phosphate | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total Phosphate | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Metals** | | | | | | | | | | | | | | | |
| Aluminum (Al) | mg/L | 0.012 | 0.015 | 0.016 | - | 0.032 | 0.030 | 0.030 | 0.221 | - | 0.227 | 0.216 | 0.008 | 0.009 | 0.013 |
| Antimony (Sb) | mg/L | <0.0001 | <0.0001 | <0.0001 | - | <0.0001 | <0.0001 | <0.0001 | <0.0001 | - | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Arsenic (As) | mg/L | 0.0008 | 0.0008 | 0.0006 | - | 0.0005 | 0.0005 | 0.0005 | 0.0008 | - | 0.0006 | 0.0008 | 0.0004 | 0.0004 | 0.0004 |
| Barium (Ba) | mg/L | <0.01 | <0.01 | <0.01 | - | <0.01 | <0.01 | <0.01 | <0.01 | - | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Beryllium (Be) | mg/L | <0.005 | <0.005 | <0.005 | - | <0.005 | <0.005 | <0.005 | <0.005 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Bismuth (Bi) | mg/L | <0.1 | <0.1 | <0.1 | - | <0.1 | <0.1 | <0.1 | <0.1 | - | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Boron (B) | mg/L | <0.1 | <0.1 | <0.1 | - | <0.1 | <0.1 | <0.1 | <0.1 | - | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Cadmium (Cd) | mg/L | <0.0002 | <0.0002 | <0.0002 | - | <0.0002 | <0.0002 | <0.0002 | <0.0002 | - | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 |
| Calcium (Ca) | mg/L | 17.3 | 17.4 | 17.5 | - | 13 | 13 | 13.1 | 14.4 | - | 14.3 | 14.3 | 8.2 | 8.25 | 8.48 |
| Chromium (Cr) | mg/L | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | 0.002 | - | 0.002 | 0.002 | <0.001 | <0.001 | <0.001 |
| Cobalt (Co) | mg/L | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Copper (Cu) | mg/L | 0.002 | 0.002 | 0.003 | - | 0.003 | 0.003 | 0.006 | 0.006 | - | 0.007 | 0.007 | 0.003 | 0.002 | 0.004 |
| Iron (Fe) | mg/L | 0.32 | 0.30 | 0.32 | - | 0.04 | 0.04 | 0.04 | 0.23 | - | 0.20 | 0.23 | 0.02 | 0.02 | 0.03 |
| Lead (Pb) | mg/L | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | 0.002 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | 0.004 |
| Lithium (Li) | mg/L | 0.01 | 0.01 | 0.01 | - | <0.01 | <0.01 | <0.01 | <0.01 | - | 0.01 | 0.01 | <0.01 | <0.01 | <0.01 |
| Magnesium (Mg) | mg/L | 17.9 | 18.1 | 18.2 | - | 10.9 | 10.9 | 11 | 15.6 | - | 15.6 | 15.6 | 7 | 7 | 7.2 |
| Manganese (Mn) | mg/L | 0.058 | 0.057 | 0.058 | - | <0.005 | <0.005 | <0.005 | 0.017 | - | 0.017 | 0.018 | <0.005 | <0.005 | <0.005 |
| Mercury (Hg) | mg/L | <0.00005 | <0.00005 | <0.00005 | - | <0.00005 | <0.00005 | <0.00005 | <0.00005 | - | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Molybdenum (Mo) | mg/L | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Nickel (Ni) | mg/L | 0.002 | 0.002 | 0.002 | - | <0.001 | <0.001 | <0.001 | 0.003 | - | 0.003 | 0.003 | <0.001 | <0.001 | <0.001 |
| Phosphorus (P) | mg/L | <0.3 | <0.3 | <0.3 | - | <0.3 | <0.3 | <0.3 | <0.3 | - | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 |
| Potassium (K) | mg/L | 5.00 | 4.67 | 5.00 | - | 4.01 | 4.06 | 4.06 | 4.97 | - | 5.41 | 6.00 | 2.65 | 2.73 | 2.75 |
| Selenium (Se) | mg/L | <0.0005 | <0.0005 | <0.0005 | - | <0.0005 | <0.0005 | <0.0005 | <0.0005 | - | <0.0005 | <0.0005 | <0.0005 | <0.0005 | 0.0005 |
| Silicon (Si) | mg/L | 0.98 | 0.99 | 0.99 | - | 0.55 | 0.56 | 0.56 | 4.09 | - | 4.11 | 4.05 | 1.34 | 1.34 | 1.37 |
| Silver (Ag) | mg/L | <0.0001 | <0.0001 | <0.0001 | - | <0.0001 | <0.0001 | <0.0001 | <0.0001 | - | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Sodium (Na) | mg/L | 84 | 86 | 86 | - | 54 | 54 | 54 | 76 | - | 76 | 75 | 34 | 34 | 35 |
| Strontium (Sr) | mg/L | 0.088 | 0.088 | 0.088 | - | 0.072 | 0.072 | 0.072 | 0.076 | - | 0.08 | 0.077 | 0.046 | 0.046 | 0.047 |
| Thallium (Tl) | mg/L | <0.2 | <0.2 | <0.2 | - | <0.2 | <0.2 | <0.2 | <0.2 | - | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Tin (Sn) | mg/L | <0.03 | <0.03 | <0.03 | - | <0.03 | <0.03 | <0.03 | <0.03 | - | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 |
| Titanium (Ti) | mg/L | <0.01 | <0.01 | <0.01 | - | <0.01 | <0.01 | <0.01 | <0.01 | - | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Vanadium (V) | mg/L | <0.03 | <0.03 | <0.03 | - | <0.03 | <0.03 | <0.03 | <0.03 | - | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 |
| Zinc (Zn) | mg/L | 0.013 | 0.013 | 0.011 | - | <0.005 | <0.005 | <0.005 | 0.015 | - | 0.011 | 0.014 | <0.005 | <0.005 | <0.005 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Aluminum (Al) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Antimony (Sb) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Arsenic (As) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Barium (Ba) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Beryllium (Be) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Bismuth (Bi) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Boron (B) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Cadmium (Cd) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Calcium (Ca) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Chromium (Cr) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Cobalt (Co) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Copper (Cu) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Iron (Fe) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Lead (Pb) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Lithium (Li) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Magnesium (Mg) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Manganese (Mn) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mercury (Hg) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Molybdenum (Mo) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Nickel (Ni) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Phosphorus (P) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Potassium (K) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Selenium (Se) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Silicon (Si) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Silver (Ag) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Sodium (Na) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Strontium (Sr) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Thallium (Tl) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Tin (Sn) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Titanium (Ti) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Uranium (U) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Vanadium (V) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Zinc (Zn) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

# Appendix 4.2-1
## Water Quality Data - Doris Property Lake and Marine Sites

| 1998 HBB Doris Property Lakes & Parameter | Units | Tail Lake 3 m Rep 1 25-Apr-98 | Tail Lake 3 m Rep 2 25-Apr-98 | Tail Lake 3 m Rep 2A 25-Apr-98 | Windy Lake 3 m Rep 1 25-Apr-98 | Windy Lake 3 m Rep 2 25-Apr-98 | Windy Lake 3 m Rep 2A 25-Apr-98 | Pelvic Lake 3 m Rep 1 24-Apr-98 | Pelvic Lake 3 m Rep 2 24-Apr-98 | Pelvic Lake 3 m Rep 2A 24-Apr-98 | Hope Bay Station 1 1 m 21-Jul-98 | Hope Bay Station 1 5 m Rep 1 21-Jul-98 | Hope Bay Station 1 5 m Rep 2 21-Jul-98 | Hope Bay Station 2 1 m Rep 1 21-Jul-98 | Hope Bay Station 2 1 m Rep 2 21-Jul-98 | Hope Bay Station 3 1 m Rep 1 21-Jul-98 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Physical Parameters** | | | | | | | | | | | | | | | | |
| Conductivity | umhos/cm | 243 | 244 | 244 | 496 | 500 | - | 259 | 259 | 260 | 32500 | 36900 | 36400 | 27200 | - | 18300 |
| Total Dissolved Solids | mg/L | 140 | 136 | 142 | 246 | 259 | - | 153 | 165 | 146 | 21700 | 25700 | 26400 | 21700 | - | 12100 |
| Hardness | mg $CaCO_3$/L | 58.6 | 60.4 | 60 | 82.2 | 82.8 | - | 44.1 | 43.5 | 44 | 3890 | 4730 | 4700 | 3860 | - | 2090 |
| pH | pH units | 7.35 | 7.34 | 7.39 | 7.69 | 7.73 | - | 7.08 | 7.19 | 7.16 | 7.73 | 7.83 | 7.85 | 7.87 | - | 7.56 |
| Total Suspended Solids | mg/L | <1 | <1 | <1 | 1 | <1 | - | 3 | 5 | <1 | 4 | 66 | 25 | 9 | - | 7 |
| Salinity | o/oo | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | 19 | 24 | 24 | 20 | - | 11 |
| Turbidity | NTU | 0.8 | 0.8 | 0.9 | 0.3 | 0.4 | - | 6.1 | 6.3 | 6.0 | 0.5 | 0.6 | 0.5 | 0.6 | - | 1.3 |
| **Dissolved Ions** | | | | | | | | | | | | | | | | |
| Acidity (to pH 8.3) | mg $CaCO_3$/L | 7 | 8 | 8 | 4 | 4 | - | 8 | 5 | 6 | 15 | 15 | 13 | 10 | - | 5 |
| Alkalinity-Total | mg $CaCO_3$/L | 44 | 44 | 44 | 56 | 55 | - | 24 | 25 | 25 | 90 | 105 | 104 | 90 | - | 62 |
| Chloride | mg/L | 46.6 | 47.1 | 46.8 | 112 | 111 | - | 61.7 | 62.6 | 61.6 | 12100 | 14800 | 12500 | 11600 | - | 6490 |
| Fluoride | mg/L | 0.13 | 0.11 | 0.13 | 0.18 | 0.16 | - | 0.08 | 0.08 | 0.09 | 0.66 | 0.75 | 0.75 | 0.66 | - | 0.44 |
| Sulphate | mg/L | 3 | 3 | 3 | 9 | 9 | - | 4 | 4 | 4 | 1560 | 1750 | 2100 | 1590 | - | 690 |
| **Nutrients** | | | | | | | | | | | | | | | | |
| Ammonia Nitrogen | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Nitrate Nitrogen | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Nitrite Nitrogen | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Dissolved ortho-Phosphate | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total Dissolved Phosphate | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total Phosphate | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Metals** | | | | | | | | | | | | | | | | |
| Aluminum (Al) | mg/L | 0.047 | 0.051 | - | 0.009 | 0.010 | 0.009 | 0.093 | 0.095 | - | - | - | - | - | - | - |
| Antimony (Sb) | mg/L | <0.0001 | <0.0001 | - | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | - | - | - | - | - | - | - |
| Arsenic (As) | mg/L | 0.0004 | 0.0004 | - | 0.0005 | 0.0005 | 0.0006 | 0.0005 | 0.0005 | - | - | - | - | - | - | - |
| Barium (Ba) | mg/L | <0.01 | <0.01 | - | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | - | - | - | - | - | - | - |
| Beryllium (Be) | mg/L | <0.005 | <0.005 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | - | - | - | - | - | - | - |
| Bismuth (Bi) | mg/L | <0.1 | <0.1 | - | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | - | - | - | - | - | - | - |
| Boron (B) | mg/L | <0.1 | <0.1 | - | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | - | - | - | - | - | - | - |
| Cadmium (Cd) | mg/L | <0.0002 | <0.0002 | - | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | - | - | - | - | - | - | - |
| Calcium (Ca) | mg/L | 10.2 | 10.3 | - | 13.9 | 14 | 14 | 5.69 | 5.55 | - | - | - | - | - | - | - |
| Chromium (Cr) | mg/L | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | 0.002 | 0.002 | - | - | - | - | - | - | - |
| Cobalt (Co) | mg/L | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | - | - | - | - | - | - | - |
| Copper (Cu) | mg/L | 0.004 | 0.007 | - | 0.002 | 0.002 | 0.002 | 0.013 | 0.014 | - | - | - | - | - | - | - |
| Iron (Fe) | mg/L | 0.12 | 0.13 | - | 0.01 | <0.01 | <0.01 | 0.11 | 0.08 | - | - | - | - | - | - | - |
| Lead (Pb) | mg/L | 0.001 | 0.001 | - | <0.001 | 0.001 | 0.001 | 0.002 | 0.001 | - | - | - | - | - | - | - |
| Lithium (Li) | mg/L | <0.01 | <0.01 | - | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | - | - | - | - | - | - | - |
| Magnesium (Mg) | mg/L | 8 | 8.4 | - | 11.5 | 11.6 | 11.6 | 7.3 | 7.2 | - | - | - | - | - | - | - |
| Manganese (Mn) | mg/L | 0.005 | 0.006 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | - | - | - | - | - | - | - |
| Mercury (Hg) | mg/L | <0.00005 | <0.00005 | - | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | - | - | - | - | - | - | - |
| Molybdenum (Mo) | mg/L | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | - | - | - | - | - | - | - |
| Nickel (Ni) | mg/L | 0.001 | 0.001 | - | <0.001 | <0.001 | <0.001 | 0.002 | 0.002 | - | - | - | - | - | - | - |
| Phosphorus (P) | mg/L | <0.3 | <0.3 | - | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | - | - | - | - | - | - | - |
| Potassium (K) | mg/L | 2.85 | 2.87 | - | 4.81 | 4.78 | 4.81 | 2.41 | 2.47 | - | - | - | - | - | - | - |
| Selenium (Se) | mg/L | <0.0005 | <0.0005 | - | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | - | - | - | - | - | - | - |
| Silicon (Si) | mg/L | 1.97 | 2.02 | - | 0.25 | 0.25 | 0.25 | 1.50 | 1.48 | - | - | - | - | - | - | - |
| Silver (Ag) | mg/L | <0.0001 | <0.0001 | - | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | - | - | - | - | - | - | - |
| Sodium (Na) | mg/L | 27 | 27 | - | 66 | 67 | 66 | 35 | 35 | - | - | - | - | - | - | - |
| Strontium (Sr) | mg/L | 0.041 | 0.040 | - | 0.068 | 0.069 | 0.068 | 0.038 | 0.038 | - | - | - | - | - | - | - |
| Thallium (Tl) | mg/L | <0.2 | <0.2 | - | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | - | - | - | - | - | - | - |
| Tin (Sn) | mg/L | <0.03 | <0.03 | - | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | - | - | - | - | - | - | - |
| Titanium (Ti) | mg/L | <0.01 | <0.01 | - | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | - | - | - | - | - | - | - |
| Vanadium (V) | mg/L | <0.03 | <0.03 | - | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | - | - | - | - | - | - | - |
| Zinc (Zn) | mg/L | 0.007 | 0.007 | - | <0.005 | <0.005 | <0.005 | 0.012 | 0.010 | - | - | - | - | - | - | - |
| **Dissolved Metals** | | | | | | | | | | | | | | | | |
| Aluminum (Al) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Antimony (Sb) | mg/L | - | - | - | - | - | - | - | - | - | <0.0002 | <0.0002 | - | <0.0002 | <0.0002 | <0.0002 |
| Arsenic (As) | mg/L | - | - | - | - | - | - | - | - | - | 0.001 | 0.009 | - | 0.0006 | 0.0005 | 0.0003 |
| Barium (Ba) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Beryllium (Be) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Bismuth (Bi) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Boron (B) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Cadmium (Cd) | mg/L | - | - | - | - | - | - | - | - | - | 0.00003 | 0.00004 | - | 0.00003 | 0.00003 | 0.00002 |
| Calcium (Ca) | mg/L | - | - | - | - | - | - | - | - | - | 243 | 293 | - | 241 | 233 | 131 |
| Chromium (Cr) | mg/L | - | - | - | - | - | - | - | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 |
| Cobalt (Co) | mg/L | - | - | - | - | - | - | - | - | - | <0.00005 | <0.00005 | - | <0.00005 | <0.00005 | <0.00005 |
| Copper (Cu) | mg/L | - | - | - | - | - | - | - | - | - | 0.00064 | 0.00062 | - | 0.00049 | 0.00049 | 0.00057 |
| Iron (Fe) | mg/L | - | - | - | - | - | - | - | - | - | <0.01 | <0.01 | - | <0.01 | <0.01 | <0.01 |
| Lead (Pb) | mg/L | - | - | - | - | - | - | - | - | - | <0.00005 | 0.00007 | - | 0.0004 | <0.00005 | <0.00005 |
| Lithium (Li) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Magnesium (Mg) | mg/L | - | - | - | - | - | - | - | - | - | 796 | 970 | - | 792 | 786 | 427 |
| Manganese (Mn) | mg/L | - | - | - | - | - | - | - | - | - | 0.00158 | 0.00124 | - | 0.00158 | 0.00165 | 0.00203 |
| Mercury (Hg) | mg/L | - | - | - | - | - | - | - | - | - | 0.00001 | <0.00001 | - | 0.00002 | 0.00001 | 0.00001 |
| Molybdenum (Mo) | mg/L | - | - | - | - | - | - | - | - | - | 0.008 | 0.009 | - | 0.008 | 0.007 | 0.005 |
| Nickel (Ni) | mg/L | - | - | - | - | - | - | - | - | - | 0.00055 | 0.00061 | - | 0.00056 | 0.00057 | 0.00047 |
| Phosphorus (P) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Potassium (K) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Selenium (Se) | mg/L | - | - | - | - | - | - | - | - | - | <0.0005 | <0.0005 | - | <0.0005 | <0.0005 | <0.0005 |
| Silicon (Si) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Silver (Ag) | mg/L | - | - | - | - | - | - | - | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 |
| Sodium (Na) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Strontium (Sr) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Thallium (Tl) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Tin (Sn) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Titanium (Ti) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Uranium (U) | mg/L | - | - | - | - | - | - | - | - | - | 0.00122 | 0.00174 | - | 0.00059 | 0.00162 | 0.00071 |
| Vanadium (V) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Zinc (Zn) | mg/L | - | - | - | - | - | - | - | - | - | <0.0005 | 0.0008 | - | 0.0005 | 0.0005 | 0.0005 |

# Appendix 4.2-1
## Water Quality Data - Doris Property Lake and Marine Sites

1998 HBB Doris Property Lakes &

| Parameter | Units | Hope Bay Station 3 1 m Rep 2 21-Jul-98 | Roberts Bay Station 1 1 m Split 1 20-Jul-98 | Roberts Bay Station 1 1 m Split 2 20-Jul-98 | Roberts Bay Station 1 14 m Split 1 20-Jul-98 | Roberts Bay Station 1 14 m Split 2 20-Jul-98 | Roberts Bay Station 2 1 m Rep 1 20-Jul-98 | Roberts Bay Station 2 1 m Rep 2 20-Jul-98 | Roberts Bay Station 2 14 m 20-Jul-98 | Roberts Bay Station 3 1 m 20-Jul-98 | Roberts Bay Station 3 9 m Rep 1 20-Jul-98 | Roberts Bay Station 3 9 m Rep 2 20-Jul-98 | Roberts Bay Station 4 1 m Split 1 21-Jul-98 | Roberts Bay Station 4 1 m Split 2 21-Jul-98 | Roberts Bay Station 5 0.5 m 21-Jul-98 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Physical Parameters** | | | | | | | | | | | | | | | |
| Conductivity | µmhos/cm | 15300 | 27200 | 27000 | 41400 | 41700 | 31900 | 30200 | 40700 | 26900 | 39000 | - | 29100 | 30500 | 30600 |
| Total Dissolved Solids | mg/L | 11900 | 19600 | 18000 | 27400 | 28100 | 20600 | 20100 | 28700 | 19400 | 28000 | - | 20000 | 19700 | 20700 |
| Hardness | mg $CaCO_3$/L | 2030 | 3410 | 3460 | 5190 | 5110 | 3930 | 4000 | 5240 | 3570 | 5050 | - | 3490 | 3520 | 3850 |
| pH | pH units | 7.70 | 7.77 | 7.82 | 7.87 | 7.87 | 7.91 | 7.91 | 7.89 | 7.92 | 7.92 | - | 7.94 | 7.93 | 7.95 |
| Total Suspended Solids | mg/L | 2 | 2 | 20 | <2 | 3 | 7 | 9 | 32 | 14 | 32 | - | 24 | 10 | 28 |
| Salinity | o/oo | 10 | 17 | 17 | 25 | 25 | 20 | 20 | 26 | 19 | 26 | - | 19 | 19 | 20 |
| Turbidity | NTU | 1.5 | 0.6 | 0.6 | 0.3 | 0.4 | 0.5 | 0.4 | 0.5 | 0.7 | 0.7 | - | 0.7 | 0.6 | 1.0 |
| **Dissolved Ions** | | | | | | | | | | | | | | | |
| Acidity (to pH 8.3) | mg $CaCO_3$/L | 5 | 9 | 8 | 13 | 13 | 12 | 10 | 14 | 11 | 14 | - | 9 | 8 | 8 |
| Alkalinity-Total | mg $CaCO_3$/L | 60 | 84 | 83 | 113 | 113 | 89 | 90 | 113 | 86 | 108 | - | 87 | 88 | 90 |
| Chloride | mg/L | 6310 | 8760 | 10100 | 15000 | 15800 | 10200 | 11600 | 14500 | 10800 | 15300 | - | 11000 | 9560 | 11100 |
| Fluoride | mg/L | 0.42 | 0.61 | 0.61 | 0.8 | 0.78 | 0.66 | 0.65 | 0.78 | 0.62 | 0.77 | - | 0.63 | 0.62 | 0.63 |
| Sulphate | mg/L | 630 | 1160 | 1650 | 1590 | 1490 | 1520 | 1140 | 1980 | 1230 | 1490 | - | 1480 | 1010 | 1580 |
| **Nutrients** | | | | | | | | | | | | | | | |
| Ammonia Nitrogen | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Nitrate Nitrogen | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Nitrite Nitrogen | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Dissolved ortho-Phosphate | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total Dissolved Phosphate | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total Phosphate | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Metals** | | | | | | | | | | | | | | | |
| Aluminum (Al) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Antimony (Sb) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Arsenic (As) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Barium (Ba) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Beryllium (Be) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Bismuth (Bi) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Boron (B) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Cadmium (Cd) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Calcium (Ca) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Chromium (Cr) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Cobalt (Co) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Copper (Cu) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Iron (Fe) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Lead (Pb) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Lithium (Li) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Magnesium (Mg) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Manganese (Mn) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mercury (Hg) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Molybdenum (Mo) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Nickel (Ni) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Phosphorus (P) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Potassium (K) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Selenium (Se) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Silicon (Si) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Silver (Ag) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Sodium (Na) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Strontium (Sr) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Thallium (Tl) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Tin (Sn) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Titanium (Ti) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Vanadium (V) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Zinc (Zn) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Aluminum (Al) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Antimony (Sb) | mg/L | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | - | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 |
| Arsenic (As) | mg/L | 0.0004 | 0.0006 | 0.0007 | 0.0008 | 0.0009 | 0.0006 | - | 0.0009 | 0.0006 | 0.0008 | 0.0009 | 0.0007 | 0.0007 | 0.0006 |
| Barium (Ba) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Beryllium (Be) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Bismuth (Bi) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Boron (B) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Cadmium (Cd) | mg/L | 0.00002 | 0.00004 | 0.00004 | 0.00008 | 0.00003 | 0.00003 | - | 0.00003 | 0.00003 | 0.00003 | 0.00006 | 0.00016 | 0.00005 | 0.00006 |
| Calcium (Ca) | mg/L | 128 | 211 | 217 | 322 | 319 | 247 | - | 326 | 223 | 314 | 317 | 218 | 219 | 240 |
| Chromium (Cr) | mg/L | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Cobalt (Co) | mg/L | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | - | <0.00005 | <0.00005 | <0.00005 | 0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Copper (Cu) | mg/L | 0.00064 | 0.00067 | 0.00062 | 0.00067 | 0.00037 | 0.00055 | - | 0.00049 | 0.00045 | 0.00041 | 0.00061 | 0.00102 | 0.00066 | 0.00054 |
| Iron (Fe) | mg/L | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | - | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Lead (Pb) | mg/L | <0.00005 | 0.00009 | <0.00005 | 0.00007 | <0.00005 | <0.00005 | - | <0.00005 | <0.00005 | <0.00005 | <0.00005 | 0.00013 | <0.00005 | 0.00005 |
| Lithium (Li) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Magnesium (Mg) | mg/L | 415 | 700 | 710 | 1060 | 1050 | 805 | - | 1070 | 733 | 1040 | 1040 | 715 | 723 | 789 |
| Manganese (Mn) | mg/L | 0.00188 | 0.00177 | 0.00119 | 0.00082 | 0.00095 | 0.00061 | - | 0.00068 | 0.00174 | 0.00119 | 0.00101 | 0.00193 | 0.00135 | 0.00194 |
| Mercury (Hg) | mg/L | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | - | 0.00002 | 0.00001 | <0.00001 | <0.00001 | 0.00001 | 0.00001 | <0.00001 |
| Molybdenum (Mo) | mg/L | 0.004 | 0.006 | 0.006 | 0.006 | 0.008 | 0.007 | - | 0.008 | 0.006 | 0.008 | 0.008 | 0.006 | 0.006 | 0.006 |
| Nickel (Ni) | mg/L | 0.00051 | 0.00059 | 0.00056 | 0.00059 | 0.00051 | 0.00051 | - | 0.00055 | 0.00049 | 0.00052 | 0.00066 | 0.00081 | 0.0005 | 0.00049 |
| Phosphorus (P) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Potassium (K) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Selenium (Se) | mg/L | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | - | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Silicon (Si) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Silver (Ag) | mg/L | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Sodium (Na) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Strontium (Sr) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Thallium (Tl) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Tin (Sn) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Titanium (Ti) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Uranium (U) | mg/L | 0.00086 | 0.00054 | 0.00094 | 0.00145 | 0.00213 | 0.00183 | - | 0.00178 | 0.00104 | 0.00132 | 0.00158 | 0.00129 | 0.00123 | 0.00134 |
| Vanadium (V) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Zinc (Zn) | mg/L | <0.0005 | 0.0011 | 0.0011 | 0.0017 | <0.0005 | 0.0005 | - | <0.0005 | 0.0009 | <0.0005 | 0.001 | 0.0014 | 0.0007 | <0.0005 |

# Appendix 4.2-2
# Water Quality Data – Doris Property Streams

# Appendix 4.2-2
# Water Quality Data - Doris Property Streams

**1998 HBB Doris Property Streams WQ Data**

| Parameter | Units | Koignuk River Rep 1 3-Jun-98 | Koignuk River Rep 2 3-Jun-98 | Koignuk River 3-Aug-98 |
|---|---|---|---|---|
| **Physical Parameters** | | | | |
| Conductivity | µmhos/cm | 90 | 90 | 65 |
| Total Dissolved Solids | mg/L | 74 | 74 | 48 |
| Hardness | mg $CaCO_3$/L | 22.3 | 22.7 | 13.7 |
| pH | pH units | 6.79 | 6.88 | 6.82 |
| Total Suspended Solids | mg/L | 14 | 12 | 2 |
| Turbidity | NTU | 35.5 | 36.3 | 3.2 |
| **Dissolved Ions** | | | | |
| Acidity (to pH 8.3) | mg $CaCO_3$/L | 3 | 3 | 3 |
| Alkalinity-Total | mg $CaCO_3$/L | 11 | 11 | 8 |
| Chloride | mg/L | 15.2 | 14.9 | 14.9 |
| Fluoride | mg/L | 0.08 | 0.09 | 0.05 |
| Sulphate | mg/L | 4 | 4 | 2 |
| **Nutrients** | | | | |
| Ammonia Nitrogen | mg/L | 0.022 | 0.020 | - |
| Nitrate Nitrogen | mg/L | 0.013 | 0.012 | - |
| Nitrite Nitrogen | mg/L | 0.001 | 0.001 | - |
| Dissolved ortho-Phosphate | mg/L | 0.004 | 0.006 | - |
| Total Dissolved Phosphate | mg/L | 0.006 | 0.007 | - |
| Total Phosphate | mg/L | 0.057 | 0.051 | - |
| **Total Metals** | | | | |
| Aluminum (Al) | mg/L | 1.400 | 1.400 | 0.100 |
| Antimony (Sb) | mg/L | <0.0001 | <0.0001 | <0.0001 |
| Arsenic (As) | mg/L | 0.0004 | 0.0004 | 0.0003 |
| Barium (Ba) | mg/L | 0.02 | 0.02 | <0.01 |
| Beryllium (Be) | mg/L | <0.005 | <0.005 | <0.005 |
| Bismuth (Bi) | mg/L | <0.1 | <0.1 | <0.1 |
| Boron (B) | mg/L | <0.1 | <0.1 | <0.1 |
| Cadmium (Cd) | mg/L | <0.0002 | <0.0002 | <0.0002 |
| Calcium (Ca) | mg/L | 4.01 | 4.07 | 2.61 |
| Chromium (Cr) | mg/L | 0.003 | 0.003 | <0.001 |
| Cobalt (Co) | mg/L | <0.001 | <0.001 | <0.001 |
| Copper (Cu) | mg/L | 0.020 | 0.003 | 0.001 |
| Iron (Fe) | mg/L | 1.18 | 1.20 | 0.14 |
| Lead (Pb) | mg/L | <0.001 | <0.001 | <0.001 |
| Lithium (Li) | mg/L | <0.01 | <0.01 | <0.01 |
| Magnesium (Mg) | mg/L | 3.0 | 3.1 | 1.7 |
| Manganese (Mn) | mg/L | 0.041 | 0.041 | 0.009 |
| Mercury (Hg) | mg/L | <0.00005 | <0.00005 | <0.00005 |
| Molybdenum (Mo) | mg/L | <0.001 | <0.001 | <0.001 |
| Nickel (Ni) | mg/L | 0.002 | 0.002 | <0.001 |
| Phosphorus (P) | mg/L | <0.3 | <0.3 | <0.3 |
| Potassium (K) | mg/L | 1.99 | 1.94 | 0.65 |
| Selenium (Se) | mg/L | <0.0005 | 0.0005 | 0.0006 |
| Silicon (Si) | mg/L | 3.85 | 3.79 | 0.30 |
| Silver (Ag) | mg/L | <0.0001 | <0.0001 | <0.0001 |
| Sodium (Na) | mg/L | 8.00 | 9.00 | 6.00 |
| Strontium (Sr) | mg/L | 0.022 | 0.022 | 0.024 |
| Thallium (Tl) | mg/L | <0.2 | <0.2 | <0.2 |
| Tin (Sn) | mg/L | <0.03 | <0.03 | <0.03 |
| Titanium (Ti) | mg/L | 0.07 | 0.07 | <0.01 |
| Vanadium (V) | mg/L | <0.03 | <0.03 | <0.03 |
| Zinc (Zn) | mg/L | <0.005 | <0.005 | <0.005 |
| **Dissolved Metals** | | | | |
| Aluminum (Al) | mg/L | - | - | - |
| Antimony (Sb) | mg/L | - | - | - |
| Arsenic (As) | mg/L | - | - | - |
| Barium (Ba) | mg/L | - | - | - |
| Beryllium (Be) | mg/L | - | - | - |
| Bismuth (Bi) | mg/L | - | - | - |
| Boron (B) | mg/L | - | - | - |
| Cadmium (Cd) | mg/L | - | - | - |
| Calcium (Ca) | mg/L | - | - | - |
| Chromium (Cr) | mg/L | - | - | - |
| Cobalt (Co) | mg/L | - | - | - |
| Copper (Cu) | mg/L | - | - | - |
| Iron (Fe) | mg/L | - | - | - |
| Lead (Pb) | mg/L | - | - | - |
| Lithium (Li) | mg/L | - | - | - |
| Magnesium (Mg) | mg/L | - | - | - |
| Manganese (Mn) | mg/L | - | - | - |
| Mercury (Hg) | mg/L | - | - | - |
| Molybdenum (Mo) | mg/L | - | - | - |
| Nickel (Ni) | mg/L | - | - | - |
| Phosphorus (P) | mg/L | - | - | - |
| Potassium (K) | mg/L | - | - | - |
| Selenium (Se) | mg/L | - | - | - |
| Silicon (Si) | mg/L | - | - | - |
| Silver (Ag) | mg/L | - | - | - |
| Sodium (Na) | mg/L | - | - | - |
| Strontium (Sr) | mg/L | - | - | - |
| Thallium (Tl) | mg/L | - | - | - |
| Tin (Sn) | mg/L | - | - | - |
| Titanium (Ti) | mg/L | - | - | - |
| Vanadium (V) | mg/L | - | - | - |
| Zinc (Zn) | mg/L | - | - | - |

# Appendix 5.1-1
# Hope Bay Belt Lakes
# Sediment Descriptions Boston Property (1998)

# Appendix 5.1-1
# Hope Bay Belt Lakes Sediment Descriptions
# Boston Property (1998)

| Sample ID: | Boston Reference Lake | Stickleback Lake | Trout Lake |
|---|---|---|---|
| Date: | July 22, 1998 | July 19, 1998 | July 19, 1998 |
| Depth (m): | 2.5 | 2.6 | 2.9 |
| Grab Thickness (mm): | 30 | See below | 35 |
| Physical Description: | Homogeneous clay sample with surface covered by mottles of two different types. | Bottom of lake in area sampled was completely covered in plant material growing in long, filamentous strands in bunches. Did not obtain any true sediment due to thickness of the plant material and its apparent wide and even distribution in the lake bottom. | Homogeneous clay sample with a ~1 mm patchy overlay of moist, brownish clay-base sediment. Underlayer has very small black specks throughout |
| Munsell Color Classification: | Mottle type I: dark yellowish orange (10YR 6/6)<br><br>Mottle type II: olive gray (5Y 4/1)<br><br>Remainder of sample: light olive gray (5Y 5/2) | | Overlayer: medium brown (5YR 4/4)<br><br>Underlayer: olive gray (5Y 4/1) |
| Biological Material: | Three macrophytes (~40 mm each) observed | Sample 100% plant material. Many organisms observed with the plant material, including snails and other invertebrates | |
| Debris Material: | | | Some blades of grass observed in underlayer. |
| Notes: | Very few type II mottles observed. | | |
| Photographs (Y/N): | Y | Y | Y |

# Appendix 5.1-1 (cont'd)
# Hope Bay Belt Lakes Sediment Descriptions
# Boston Property (1998)

| Sample ID: | Aimaoktak Lake – Stn 1 | Aimaoktak Lake – Stn 4 |
|---|---|---|
| Date: | July 17, 1998 | July 18, 1998 |
| Depth (m): | 1.2 | 6.5 |
| Grab Thickness (mm): | 30 | 8 |
| Physical Description: | Homogeneous sample of fine-medium grain sand with a very thin l. olive brown overlayer | Homogeneous fine sand-clay mix sample with spotted coarse sand mixed throughout. Sample is overlain with a ~1 mm thick layer of sediment of different color but same composition as rest of sample. |
| Munsell Color Classification: | Overlayer: light olive brown (5Y 5/6)<br><br>Underlayer: olive gray (5Y 4/1) | Overlayer: medium olive brown (5Y 4/4) to medium brown (5YR 4/4)<br><br>Underlayer: light olive gray (5Y 5/2) |
| Biological Material: | | |
| Debris Material: | A few small black leaves and a few <10 mm long twigs observed. | |
| Notes: | | |
| Photographs (Y/N): | Y | Y |

# Appendix 5.1-1 (completed)
# Hope Bay Belt Lakes Sediment Descriptions
# Boston Property (1998)

| **Sample ID:** | Aimaoktak Lake – Stn 5 | Aimaoktak Lake – Stn 6 |
|---|---|---|
| **Date:** | July 17, 1998 | July 18, 1998 |
| **Depth (m):** | 3.0 | 28 |
| **Grab Thickness (mm):** | 40 | 45 |
| **Physical Description:** | Striated sample of very fine grain sand throughout. Horizon boundaries vague. | Three horizons with abrupt and smooth horizon boundaries. Top layer is ~5 mm thick, middle layer is ~20 mm thick. Sample composed of fine sand and clay towards bottom. |
| **Munsell Color Classification:** | Top 10 mm: dark yellowish orange (10YR 6/6)<br><br>Middle: medium light gray (N6)<br><br>Bottom: medium olive brown (5Y 4/4) | Top: moderate yellowish brown (10YR 5/4)<br><br>Middle: pale yellowish brown (10YR 6/2)<br><br>Bottom: medium gray (N5) to medium light gray N6 |
| **Biological Material:** | | |
| **Debris Material:** | One blade of grass observed. | A few small, unidentified black specks throughout sample, possibly organic material |
| **Notes:** | Middle gray layer appears to contain a small amount of sandy clay | |
| **Photographs (Y/N):** | Y | Y |

# Appendix 5.2-1
# Hope Bay Belt Marine
# Sediment Descriptions Doris Property (1998)

# Appendix 5.2-1
# Hope Bay Belt Marine Sediment Descriptions
# Doris Property (1998)

| Sample ID: | Hope Bay – Stn 1 | Hope Bay – Stn 2 | Hope Bay – Stn 3 |
|---|---|---|---|
| Date: | July 21, 1998 | July 21, 1998 | July 21, 1998 |
| Depth (m): | 7.9 | 3.6 | 3.7 |
| Grab Thickness (mm): | 40 | 25 | ~30 |
| Physical Description: | Homogeneous clay sand sample with a broken and uneven overlay (~3 mm thick) of similar texture. | Top 4-5 mm is clay-sand mix. Remainder of sample is coarse sand. Horizon boundary is clear. Clay mottles (up to 10 mm ø) frequent between the two layers. | Homogeneous sand-coarse sand mixed with intermittent pebbles from 5-25 mm ø. Sand is sub-angular and multicolored. |
| Munsell Color Classification: | Overlayer: light olive brown (5Y 5/6) to medium olive brown (5Y 4/4)<br><br>Underlayer: medium gray (N5) to medium dark gray (N4) | Top layer: medium olive brown (5Y 4/4)<br><br>Clay mottles in between layers: medium gray (N5)<br><br>Bottom: multi-colored coarse sand | Multicolored sand |
| Biological Material: | Grass and conical rusty brown pieces of organic material. Small leaves and roots also abundant throughout sample | Frequent small clams observed. | Several snails and clams observed |
| Debris Material: | | | A few leaves and roots observed. |
| Notes: | Faint shellfish odour | Top layer completely covers underlayer | One clay/fine sand-textured d. gray N3 globule (~20 mm ø) observed. Globule v. well bound, soft and yields significant sheen when cleaved. |
| Photographs (Y/N): | Y | Y | Y |

# Appendix 5.2-1 (cont'd)
# Hope Bay Belt Marine Sediment Descriptions
# Doris Property (1998)

| **Sample ID:** | Roberts Bay – Stn 1 | Roberts Bay – Stn 2 | Roberts Bay – Stn 3 |
|---|---|---|---|
| **Date:** | July 20, 1998 | July 20, 1998 | July 20, 1998 |
| **Depth (m):** | 16.2 | 15.5 | 10.4 |
| **Grab Thickness (mm):** | 20 | 45 | 20 |
| **Physical Description:** | Homogeneous clay sample with a thin overlay of brown mottled sediment (clay-silt). | Homogeneous clay sample with a slightly darker colored overlay (~3 mm thick) and a few reddish mottles on the immediate surface | Homogeneous clay sample with a thin overlayer of "curdled" looking sed. Several small darker gray mottles found at depth in sample profile. |
| **Munsell Color Classification:** | Overlayer: light olive brown (5Y 5/6)<br><br>Overlayer mottles: dark gray (N3)<br><br>Underlayer: medium gray (N5 ) | Overlayer: pale olive (10Y 6/2)<br><br>Overlayer mottles: medium brown (5YR 3/4)<br><br>Remainder of sample: medium light gray (N6) | Overlayer: light olive gray (5Y 5/2)<br><br>Remainder of sample: medium gray (N5)<br><br>Mottles at depth: dark gray (N3) |
| **Biological Material:** | | Frequent mussels and shells | |
| **Debris Material:** | | | |
| **Notes:** | | Bottom of sample yielded dark gray (N3) streaks when sample was cleaved to observe the profile. This may indicate the presence of a few small mottles which are darker than the bulk of the sample at depth | |
| **Photographs (Y/N):** | Y | Y | Y |

# Appendix 5.2-1 (completed)
# Hope Bay Belt Marine Sediment Descriptions
# Doris Property (1998)

| **Sample ID:** | Roberts Bay – Stn 4 | Roberts Bay – Stn 5 |
|---|---|---|
| **Date:** | July 21, 1998 | July 21, 1998 |
| **Depth (m):** | 1.2 | 1.2 |
| **Grab Thickness (mm):** | 20 | 60 |
| **Physical Description:** | Homogeneous fine sand-silt sample with a ~2 mm overlayer of different colored sediment. | Top layer (~5 mm) and bottom layer have a distinct and abrupt horizon boundary. Overall texture through both horizons is fine sand. |
| **Munsell Color Classification:** | Overlayer: light olive gray (5Y 5/2)<br><br>Underlayer: medium dark gray (N4) to medium gray (N5) | Top layer: light olive gray (5Y 5/2)<br><br>Bottom layer: medium gray (N4) to dark gray (N5) |
| **Biological Material:** | Two small clams observed | |
| **Debris Material:** | | A few thin blades of grass and "hair-like" strands of unidentified debris |
| **Notes:** | Sample taken at low tide | Sulphide odour noted |
| **Photographs (Y/N):** | Y | Y |

# Appendix 6.2-1
# Dissolved Oxygen/Temperature Profiles, 1998

# Dissolved Oxygen/Temperature Profiles[a], 1998

**Location:** Boston Reference Lake
**Date:** April 22, 1998

| Depth (m) | Dissolved Oxygen (mg/l) | Temperature (deg C) |
|---|---|---|
| 0.5 | 7.48 | 0.3 |
| 1.0 | 7.62 | 0.3 |
| 1.5 | 7.55 | 0.4 |
| 2.0 | 6.14 | 0.8 |
| 2.5 | 3.48 | 1.2 |
| 3.0 | 0.43 | 1.2 |

**Location:** Trout Lake
**Date:** July 19, 1998

| Depth (m) | Dissolved Oxygen (mg/l) | Temperature (deg C) |
|---|---|---|
| 0.5 | 9.04 | 13.8 |
| 1.0 | 8.97 | 13.8 |
| 1.5 | 8.86 | 13.8 |
| 2.0 | 8.97 | 13.7 |
| 2.5 | 8.95 | 13.7 |

**Location:** Stickleback Lake
**Date:** July 19, 1998

| Depth (m) | Dissolved Oxygen (mg/l) | Temperature (deg C) |
|---|---|---|
| 0.5 | 9.89 | 14.2 |
| 1.0 | 9.50 | 14.3 |
| 1.5 | 9.66 | 14.2 |
| 2.0 | 9.70 | 14.2 |
| 2.5 | 9.56 | 14.2 |

**Location:** Aimaoktok Lake, Station 1
**Date:** July 17, 1998

| Depth (m) | Dissolved Oxygen (mg/l) | Temperature (deg C) |
|---|---|---|
| 0.5 | 8.98 | 15.3 |
| 1.0 | 8.79 | 15.3 |

**Location:** Boston Reference Lake
**Date:** July 22, 1998

| Depth (m) | Dissolved Oxygen (mg/l) | Temperature (deg C) |
|---|---|---|
| 0.5 | 9.14 | 14.9 |
| 1.0 | 8.80 | 14.9 |
| 1.5 | 9.14 | 14.9 |
| 2.0 | 9.28 | 14.9 |
| 2.5 | 9.14 | 14.8 |

Notes: a) The temperature and dissolved oxygen profiles for these four stations are shown in Appendix 6.1-2.

# Appendix 6.2-1
## Dissolved Oxygen/Temperature Profiles[a], 1998

**Location:** Aimaoktok Lake, Station 4
**Date:** April 22, 1998

| Depth (m) | Dissolved Oxygen (mg/l) | Temperature (deg C) |
|---|---|---|
| 0.5 | 16.98 | 0.2 |
| 1.0 | 16.52 | 0.3 |
| 1.5 | 16.42 | 0.3 |
| 2.0 | 15.21 | 0.4 |
| 2.5 | 13.08 | 1.1 |
| 3.0 | 11.98 | 1.2 |
| 3.5 | 11.55 | 1.2 |
| 4.0 | 11.38 | 1.3 |
| 4.5 | 11.28 | 1.3 |
| 5.0 | 11.30 | 1.3 |
| 5.5 | 11.49 | 1.3 |
| 6.0 | 10.69 | 1.4 |
| 6.5 | 7.89 | 1.8 |
| 7.0 | 5.02 | 2.0 |
| 7.5 | 4.87 | 2.2 |
| 8.0 | 3.24 | 2.4 |

**Location:** Aimaoktok Lake, Station 4
**Date:** July 18, 1998

| Depth (m) | Dissolved Oxygen (mg/l) | Temperature (deg C) |
|---|---|---|
| 0.5 | 10.18 | 11.9 |
| 1.0 | 10.08 | 11.9 |
| 1.5 | 10.03 | 11.9 |
| 2.0 | 9.94 | 11.9 |
| 2.5 | 10.13 | 11.9 |
| 3.0 | 10.07 | 11.9 |
| 3.5 | 10.16 | 11.9 |
| 4.0 | 10.00 | 11.9 |
| 4.5 | 10.00 | 11.9 |
| 5.0 | 10.04 | 11.9 |
| 5.5 | 9.94 | 11.9 |
| 6.0 | 9.85 | 11.9 |
| 6.5 | 9.03 | 11.3 |
| 7.0 | 8.84 | 11.1 |
| 7.5 | 8.60 | 9.7 |
| 8.0 | 9.31 | 9.4 |

**Location:** Aimaoktok Lake, Station 5
**Date:** July 17, 1998

| Depth (m) | Dissolved Oxygen (mg/l) | Temperature (deg C) |
|---|---|---|
| 0.5 | 9.95 | 10.8 |
| 1.0 | 9.84 | 10.8 |
| 1.5 | 9.95 | 10.7 |
| 2.0 | 10.13 | 10.6 |
| 2.5 | 10.03 | 10 |
| 3.0 | 10.13 | 9.8 |

**Location:** Aimaoktok Lake, Station 6
**Date:** July 18, 1998

| Depth (m) | Dissolved Oxygen (mg/l) | Temperature (deg C) |
|---|---|---|
| 0.5 | 10.39 | 10.8 |
| 1.0 | 10.43 | 10.8 |
| 1.5 | 10.44 | 10.8 |
| 2.0 | 10.39 | 10.7 |
| 2.5 | 10.43 | 10.8 |
| 3.0 | 10.41 | 10.8 |
| 3.5 | 10.40 | 10.6 |
| 4.0 | 10.37 | 10.4 |
| 4.5 | 10.34 | 10.6 |
| 5.0 | 10.42 | 10.7 |
| 5.5 | 10.44 | 10.7 |
| 6.0 | 10.41 | 10.7 |
| 6.5 | 10.42 | 10.6 |
| 7.0 | 10.27 | 10.6 |
| 7.5 | 10.17 | 10.5 |
| 8.0 | 10.34 | 10.4 |
| 8.5 | 10.37 | 9.9 |
| 9.0 | 10.38 | 9.2 |
| 9.5 | 10.37 | 9.1 |
| 10.0 | 10.41 | 9 |
| 10.5 | 10.47 | 9 |
| 11.0 | 10.38 | 9 |
| 11.5 | 10.36 | 9 |
| 12.0 | 10.42 | 9 |
| 12.5 | 10.40 | 9 |
| 13.0 | 10.46 | 8.9 |
| 13.5 | 10.49 | 8.6 |
| 14.0 | 10.36 | 8.4 |

(continued)

**Location:** Aimaoktok Lake, Station 6 (Cont'd)
**Date:** July 18, 1998

| Depth (m) | Dissolved Oxygen (mg/l) | Temperature (deg C) |
|---|---|---|
| 14.5 | 10.41 | 8.4 |
| 15.0 | 10.45 | 8.3 |
| 15.5 | 10.47 | 8.1 |
| 16.0 | 10.50 | 8 |
| 16.5 | 10.49 | 7.9 |
| 17.0 | 10.61 | 7.9 |
| 17.5 | 10.48 | 7.7 |
| 18.0 | 10.61 | 7.7 |
| 18.5 | 10.54 | 7.6 |
| 19.0 | 10.64 | 7.6 |
| 19.5 | 10.60 | 7.6 |
| 20.0 | 10.60 | 7.5 |
| 20.5 | 10.62 | 7.5 |
| 21.0 | 10.48 | 7.5 |
| 21.5 | 10.57 | 7.5 |
| 22.0 | 10.68 | 7.5 |
| 22.5 | 10.56 | 7.5 |
| 23.0 | 10.65 | 7.5 |
| 23.5 | 10.56 | 7.5 |
| 24.0 | 10.64 | 7.5 |
| 24.5 | 10.62 | 7.5 |
| 25.0 | 10.74 | 7.5 |
| 25.5 | 10.72 | 7.5 |
| 26.0 | 10.64 | 7.5 |
| 26.5 | 10.62 | 7.5 |
| 27.0 | 10.60 | 7.5 |
| 27.5 | 10.70 | 7.5 |
| 28.0 | 10.50 | 7.5 |

(completed)

Notes: a) The temperature and dissolved oxygen profiles for these four stations are shown in Appendix 6.1-2.

**Location:** Aimaoktok Lake, Station 6
**Date:** April 22, 1998

| Depth (m) | Dissolved Oxygen (mg/l) | Temperature (deg C) |
|---|---|---|
| 0.5 | n/a | n/a |
| 1.0 | n/a | n/a |
| 1.5 | 14.40 | 0.2 |
| 2.0 | 13.42 | 0.4 |
| 2.5 | 11.61 | 1.1 |
| 3.0 | 11.03 | 1.1 |
| 3.5 | 10.62 | 1.1 |
| 4.0 | 10.32 | 1.2 |
| 4.5 | 10.75 | 1.2 |
| 5.0 | 11.38 | 1.2 |
| 5.5 | 12.78 | 1.2 |
| 6.0 | 12.48 | 1.2 |
| 6.5 | 12.06 | 1.2 |
| 7.0 | 11.72 | 1.2 |
| 7.5 | 11.28 | 1.2 |
| 8.0 | 10.96 | 1.3 |
| 8.5 | 10.89 | 1.3 |
| 9.0 | 10.87 | 1.2 |
| 9.5 | 10.47 | 1.3 |
| 10.0 | 10.18 | 1.3 |
| 10.5 | 9.76 | 1.3 |
| 11.0 | 9.43 | 1.3 |
| 11.5 | 9.23 | 1.4 |
| 12.0 | 8.90 | 1.4 |
| 12.5 | 8.67 | 1.5 |
| 13.0 | 8.51 | 1.5 |
| 13.5 | 8.28 | 1.5 |
| 14.0 | 8.03 | 1.5 |

(continued)

**Location:** Aimaoktok Lake, Station 6 (Cont'd)
**Date:** April 22, 1998

| Depth (m) | Dissolved Oxygen (mg/l) | Temperature (deg C) |
|---|---|---|
| 14.5 | 7.83 | 1.6 |
| 15.0 | 7.71 | 1.6 |
| 15.5 | 7.57 | 1.6 |
| 16.0 | 7.49 | 1.6 |
| 16.5 | 7.56 | 1.7 |
| 17.0 | 7.48 | 1.7 |
| 17.5 | 7.38 | 1.7 |
| 18.0 | 7.26 | 1.7 |
| 18.5 | 7.17 | 1.7 |
| 19.0 | 7.08 | 1.7 |
| 19.5 | 7.00 | 1.7 |
| 20.0 | 6.95 | 1.7 |
| 20.5 | 6.82 | 1.8 |
| 21.0 | 6.77 | 1.8 |
| 21.5 | 6.72 | 1.8 |
| 22.0 | 6.62 | 1.8 |
| 22.5 | 6.50 | 1.8 |
| 23.0 | 6.42 | 1.8 |
| 23.5 | 6.07 | 1.9 |
| 24.0 | 5.85 | 1.9 |
| 24.5 | 5.60 | 2.0 |
| 25.0 | 5.08 | 2.0 |
| 25.5 | 4.43 | 2.1 |
| 26.0 | 3.85 | 2.1 |
| 26.5 | 3.03 | 2.3 |
| 27.0 | 2.70 | 2.3 |
| 27.5 | 2.39 | 2.4 |
| 28.0 | 1.88 | 2.4 |

(completed)

**Location:** Hope Bay, Station 1
**Date:** July 21, 1998

| Depth (m) | Dissolved Oxygen (mg/l) | Temperature (deg C) |
|---|---|---|
| 0.5 | 9.33 | 9.1 |
| 1.0 | 9.57 | 8.4 |
| 1.5 | 9.59 | 8.0 |
| 2.0 | 9.70 | 7.4 |
| 2.5 | 9.77 | 7.4 |
| 3.0 | 9.81 | 7.1 |
| 3.5 | 10.12 | 6.1 |
| 4.0 | 10.68 | 4.4 |
| 4.5 | 11.02 | 3.8 |
| 5.0 | 11.01 | 3.0 |
| 5.5 | 10.90 | 2.4 |
| 6.0 | 11.04 | 2.0 |
| 6.5 | 11.03 | 1.7 |
| 7.0 | 10.90 | 0.7 |
| 7.5 | 10.95 | 0.5 |

**Location:** Hope Bay, Station 2
**Date:** July 21, 1998

| Depth (m) | Dissolved Oxygen (mg/l) | Temperature (deg C) |
|---|---|---|
| 0.5 | 9.34 | 11.3 |
| 1.0 | 9.40 | 11.2 |
| 1.5 | 10.08 | 8.9 |
| 2.0 | 10.48 | 7.9 |
| 2.5 | 10.45 | 7.6 |
| 3.0 | 10.38 | 7.4 |
| 3.5 | 10.37 | 7.5 |

**Location:** Hope Bay, Station 3
**Date:** July 21, 1998

| Depth (m) | Dissolved Oxygen (mg/l) | Temperature (deg C) |
|---|---|---|
| 0.5 | 9.38 | 11.2 |
| 1.0 | 9.53 | 10.9 |
| 1.5 | 9.51 | 10.7 |
| 2.0 | 9.83 | 8.8 |
| 2.5 | 10.62 | 8.0 |
| 3.0 | 10.74 | 7.6 |
| 3.5 | 10.79 | 7.3 |
| 4.0 | 10.43 | 7.3 |

Notes: a) The temperature and dissolved oxygen profiles for these four stations are shown in Appendix 6.1-2.

# Appendix 6.2-1
## Dissolved Oxygen/Temperature Profiles[a], 1998

**Location:** Windy Lake
**Date:** April 26, 1998

| Depth (m) | Dissolved Oxygen (mg/l) | Temperature (deg C) |
|---|---|---|
| 0.5 | 16.42 | 0.3 |
| 1.0 | 16.24 | 0.4 |
| 1.5 | 16.03 | 0.6 |
| 2.0 | 15.82 | 0.7 |
| 2.5 | 15.61 | 1.3 |
| 3.0 | 15.43 | 1.3 |
| 3.5 | 15.42 | 1.3 |
| 4.0 | 15.33 | 1.3 |
| 4.5 | 15.23 | 1.3 |
| 5.0 | 15.06 | 1.3 |
| 5.5 | 14.80 | 1.3 |
| 6.0 | 15.02 | 1.3 |
| 6.5 | 14.88 | 1.3 |
| 7.0 | 14.68 | 1.3 |
| 7.5 | 14.82 | 1.3 |
| 8.0 | 14.70 | 1.3 |
| 8.5 | 14.79 | 1.3 |
| 9.0 | 14.63 | 1.3 |
| 9.5 | 14.39 | 1.3 |
| 10.0 | 14.72 | 1.4 |
| 10.5 | 14.50 | 1.4 |
| 11.0 | 14.39 | 1.5 |
| 11.5 | 14.26 | 1.5 |
| 12.0 | 14.02 | 1.6 |
| 12.5 | 13.80 | 1.6 |
| 13.0 | 13.83 | 1.7 |
| 13.5 | 13.66 | 1.7 |
| 14.0 | 13.44 | 1.8 |
| 14.5 | 13.26 | 1.9 |
| 15.0 | 13.03 | 2.0 |
| 15.5 | 12.00 | 2.2 |
| 16.0 | 11.19 | 2.3 |
| 16.5 | 10.17 | 2.5 |
| 17.0 | 8.97 | 2.6 |
| 17.5 | 1.34 | 2.5 |
| 18.0 | 1.92 | 2.5 |

**Location:** Doris Lake
**Date:** April 24, 1998

| Depth (m) | Dissolved Oxygen (mg/l) | Temperature (deg C) |
|---|---|---|
| 0.5 | 16.19 | 0.3 |
| 1.0 | 15.28 | 0.3 |
| 1.5 | 15.45 | 0.3 |
| 2.0 | 15.40 | 0.5 |
| 2.5 | 14.69 | 1.0 |
| 3.0 | 14.51 | 1.1 |
| 3.5 | 14.43 | 1.1 |
| 4.0 | 14.40 | 1.1 |
| 4.5 | 14.40 | 1.1 |
| 5.0 | 14.35 | 1.0 |
| 5.5 | 14.41 | 1.0 |
| 6.0 | 14.32 | 1.1 |
| 6.5 | 14.40 | 1.0 |
| 7.0 | 14.11 | 1.1 |
| 7.5 | 14.62 | 1.1 |
| 8.0 | 13.98 | 1.1 |
| 8.5 | 13.76 | 1.1 |
| 9.0 | 12.93 | 1.1 |
| 9.5 | 12.86 | 1.1 |
| 10.0 | 12.24 | 1.1 |
| 10.5 | 12.73 | 1.1 |
| 11.0 | 11.90 | 1.1 |
| 11.5 | 11.49 | 1.2 |
| 12.0 | 11.30 | 1.2 |
| 12.5 | 11.10 | 1.2 |
| 13.0 | 10.88 | 1.3 |
| 13.5 | 10.79 | 1.3 |
| 14.0 | 10.77 | 1.4 |
| 14.5 | 10.10 | 1.5 |
| 15.0 | 8.89 | 1.7 |
| 15.5 | 8.27 | 1.8 |
| 16.0 | 6.90 | 2.1 |
| 16.5 | 2.98 | 2.2 |

**Location:** Pelvic Lake
**Date:** April 24, 1998

| Depth (m) | Dissolved Oxygen (mg/l) | Temperature (deg C) |
|---|---|---|
| 0.5 | 12.67 | 0.1 |
| 1.0 | 12.53 | 0.2 |
| 1.5 | 12.29 | 0.2 |
| 2.0 | 12.03 | 0.3 |
| 2.5 | 11.39 | 0.9 |
| 3.0 | 11.11 | 1.0 |
| 3.5 | 10.89 | 1.0 |
| 4.0 | 10.50 | 1.0 |
| 4.5 | 9.33 | 1.0 |
| 5.0 | 8.90 | 1.0 |
| 5.5 | 9.21 | 1.0 |
| 6.0 | 9.14 | 1.0 |
| 6.5 | 9.20 | 1.0 |
| 7.0 | 9.41 | 1.0 |
| 7.5 | 9.52 | 1.0 |
| 8.0 | 9.13 | 1.1 |
| 8.5 | 9.06 | 1.1 |
| 9.0 | 8.90 | 1.1 |
| 9.5 | 8.78 | 1.1 |
| 10.0 | 8.46 | 1.2 |
| 10.5 | 8.30 | 1.2 |
| 11.0 | 8.00 | 1.2 |
| 11.5 | 7.75 | 1.4 |
| 12.0 | 7.17 | 1.4 |
| 12.5 | 6.79 | 1.5 |
| 13.0 | 6.16 | 1.5 |
| 13.5 | 5.30 | 1.7 |
| 14.0 | 4.28 | 1.7 |
| 14.5 | 4.12 | 1.8 |
| 15.0 | 3.56 | 1.8 |

**Location:** Patch Lake
**Date:** April 24, 1998

| Depth (m) | Dissolved Oxygen (mg/l) | Temperature (deg C) |
|---|---|---|
| 0.5 | 15.08 | 0.3 |
| 1.0 | 14.70 | 0.3 |
| 1.5 | 14.47 | 0.3 |
| 2.0 | 14.30 | 0.6 |
| 2.5 | 12.76 | 1.5 |
| 3.0 | 11.50 | 1.6 |
| 3.5 | 11.34 | 1.6 |
| 4.0 | 11.48 | 1.6 |
| 4.5 | 12.20 | 1.6 |
| 5.0 | 11.87 | 1.6 |
| 5.5 | 11.63 | 1.6 |
| 6.0 | 11.64 | 1.6 |
| 6.5 | 11.59 | 1.6 |
| 7.0 | 11.27 | 1.6 |
| 7.5 | 11.14 | 1.6 |
| 8.0 | 10.91 | 1.6 |
| 8.5 | 10.82 | 1.6 |
| 9.0 | 10.52 | 1.7 |
| 9.5 | 10.46 | 1.7 |
| 10.0 | 10.48 | 1.7 |
| 10.5 | 10.51 | 1.7 |
| 11.0 | 9.83 | 1.8 |
| 11.5 | 9.43 | 1.9 |
| 12.0 | 8.97 | 2.0 |
| 12.5 | 8.96 | 2.0 |
| 13.0 | 8.23 | 2.1 |

Notes: a) The temperature and dissolved oxygen profiles for these four stations are shown in Appendix 6.1-2.

# Appendix 6.2-1
# Dissolved Oxygen/Temperature Profiles[a], 1998

**Location:** Ogama Lake
**Date:** April 24, 1998

| Depth (m) | Dissolved Oxygen (mg/l) | Temperature (deg C) |
|---|---|---|
| 0.5 | 9.85 | 0.2 |
| 1.0 | 9.92 | 0.3 |
| 1.5 | 10.14 | 0.4 |
| 2.0 | 10.07 | 0.5 |
| 2.5 | 8.20 | 1.1 |

**Location:** Wolverine Lake
**Date:** April 24, 1998

| Depth (m) | Dissolved Oxygen (mg/l) | Temperature (deg C) |
|---|---|---|
| 0.5 | 6.29 | 0.4 |
| 1.0 | 6.07 | 0.5 |
| 1.5 | 6.01 | 0.7 |
| 2.0 | 5.91 | 0.9 |
| 2.5 | 5.63 | 1.8 |
| 3.0 | 3.58 | 2.1 |

Notes: a) The temperature and dissolved oxygen profiles for these two stations are shown in Appendix 6.1-2.

# Appendix 6.2-1
## Dissolved Oxygen/Temperature Profiles[a], 1998

**Location:** Roberts Bay, Station 1
**Date:** July 20, 1998

| Depth (m) | Dissolved Oxygen (mg/l) | Temperature (deg C) |
|---|---|---|
| 0.5 | 10.64 | 9.7 |
| 1.0 | 10.81 | 9.5 |
| 1.5 | 12.84 | 3.9 |
| 2.0 | 13.05 | 2.2 |
| 2.5 | 13.35 | 1.8 |
| 3.0 | 13.56 | 1.3 |
| 3.5 | 13.41 | 1.2 |
| 4.0 | 13.49 | 1.1 |
| 4.5 | 13.63 | 0.9 |
| 5.0 | 13.39 | 0.8 |
| 5.5 | 13.38 | 0.8 |
| 6.0 | 13.14 | 0.6 |
| 6.5 | 13.06 | 0.3 |
| 7.0 | 13.03 | 0.3 |
| 7.5 | 13.18 | 0.2 |
| 8.0 | 12.94 | 0.2 |
| 8.5 | 13.34 | 0.0 |
| 9.0 | 13.59 | -0.2 |
| 9.5 | 13.63 | -0.2 |
| 10.0 | 13.71 | -0.4 |
| 10.5 | 13.69 | -0.4 |
| 11.0 | 14.06 | -0.5 |
| 11.5 | 14.19 | -0.6 |
| 12.0 | 14.16 | -0.7 |
| 12.5 | 14.10 | -0.7 |
| 13.0 | 13.95 | -0.7 |
| 13.5 | 13.85 | -0.8 |
| 14.0 | 13.74 | -0.8 |
| 14.5 | 13.59 | -0.8 |
| 15.0 | 13.82 | -0.8 |
| 15.5 | 9.31 | -0.8 |
| 16.0 | 9.50 | -0.7 |

**Location:** Roberts Bay, Station 2
**Date:** July 20, 1998

| Depth (m) | Dissolved Oxygen (mg/l) | Temperature (deg C) |
|---|---|---|
| 0.5 | 10.84 | 10.5 |
| 1.0 | 10.75 | 10.9 |
| 1.5 | 11.64 | 8.8 |
| 2.0 | 11.72 | 8.6 |
| 2.5 | 12.02 | 8.2 |
| 3.0 | 13.52 | 4.7 |
| 3.5 | 14.06 | 2.9 |
| 4.0 | 14.08 | 2.8 |
| 4.5 | 13.90 | 2.8 |
| 5.0 | 14.16 | 2.7 |
| 5.5 | 13.86 | 2.7 |
| 6.0 | 13.82 | 2.6 |
| 6.5 | 13.81 | 2.2 |
| 7.0 | 13.64 | 1.8 |
| 7.5 | 13.97 | 1.4 |
| 8.0 | 14.13 | 1.3 |
| 8.5 | 14.34 | 1.2 |
| 9.0 | 14.32 | 1.3 |
| 9.5 | 14.23 | 1.0 |
| 10.0 | 14.42 | 1.2 |
| 10.5 | 14.43 | 1.1 |
| 11.0 | 14.47 | 1.3 |
| 11.5 | 14.49 | 0.7 |
| 12.0 | 14.45 | 0.6 |
| 12.5 | 14.62 | 0.0 |
| 13.0 | 14.67 | -0.2 |
| 13.5 | 14.81 | -0.3 |
| 14.0 | 14.86 | -0.3 |
| 14.5 | 14.91 | -0.4 |
| 15.0 | 14.93 | -0.4 |
| 15.5 | 14.94 | -0.5 |

**Location:** Roberts Bay, Station 3
**Date:** July 20, 1998

| Depth (m) | Dissolved Oxygen (mg/l) | Temperature (deg C) |
|---|---|---|
| 0.5 | 11.50 | 9.9 |
| 1.0 | 11.41 | 9.7 |
| 1.5 | 11.86 | 9.4 |
| 2.0 | 11.96 | 9.2 |
| 2.5 | 12.57 | 8.4 |
| 3.0 | 13.35 | 6.3 |
| 3.5 | 13.73 | 6.0 |
| 4.0 | 14.18 | 4.7 |
| 4.5 | 14.56 | 4.1 |
| 5.0 | 14.62 | 4.1 |
| 5.5 | 14.56 | 3.6 |
| 6.0 | 14.88 | 3.3 |
| 6.5 | 14.82 | 3.2 |
| 7.0 | 14.89 | 3.1 |
| 7.5 | 14.82 | 2.0 |
| 8.0 | 15.07 | 1.3 |
| 8.5 | 15.04 | 0.7 |
| 9.0 | 15.18 | 0.1 |
| 9.5 | 15.24 | 0.0 |

**Location:** Roberts Bay, Station 4
**Date:** July 21, 1998

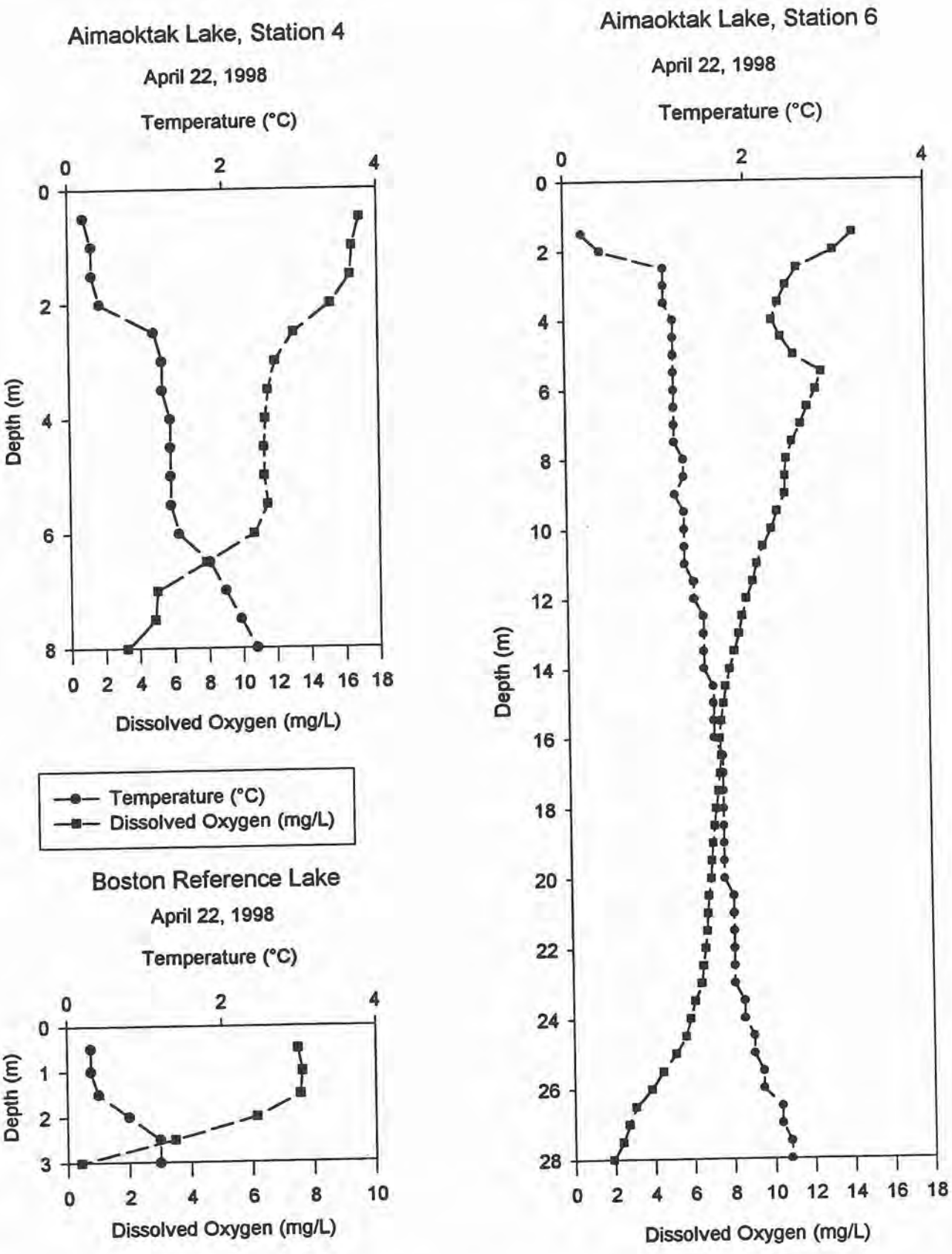
| Depth (m) | Dissolved Oxygen (mg/l) | Temperature (deg C) |
|---|---|---|
| 0.5 | 11.30 | 9.2 |
| 1.0 | 11.46 | 8.9 |

**Location:** Roberts Bay, Station 5
**Date:** July 21, 1998

| Depth (m) | Dissolved Oxygen (mg/l) | Temperature (deg C) |
|---|---|---|
| 0.5 | 11.36 | 9.1 |
| 1.0 | 11.17 | 9.1 |

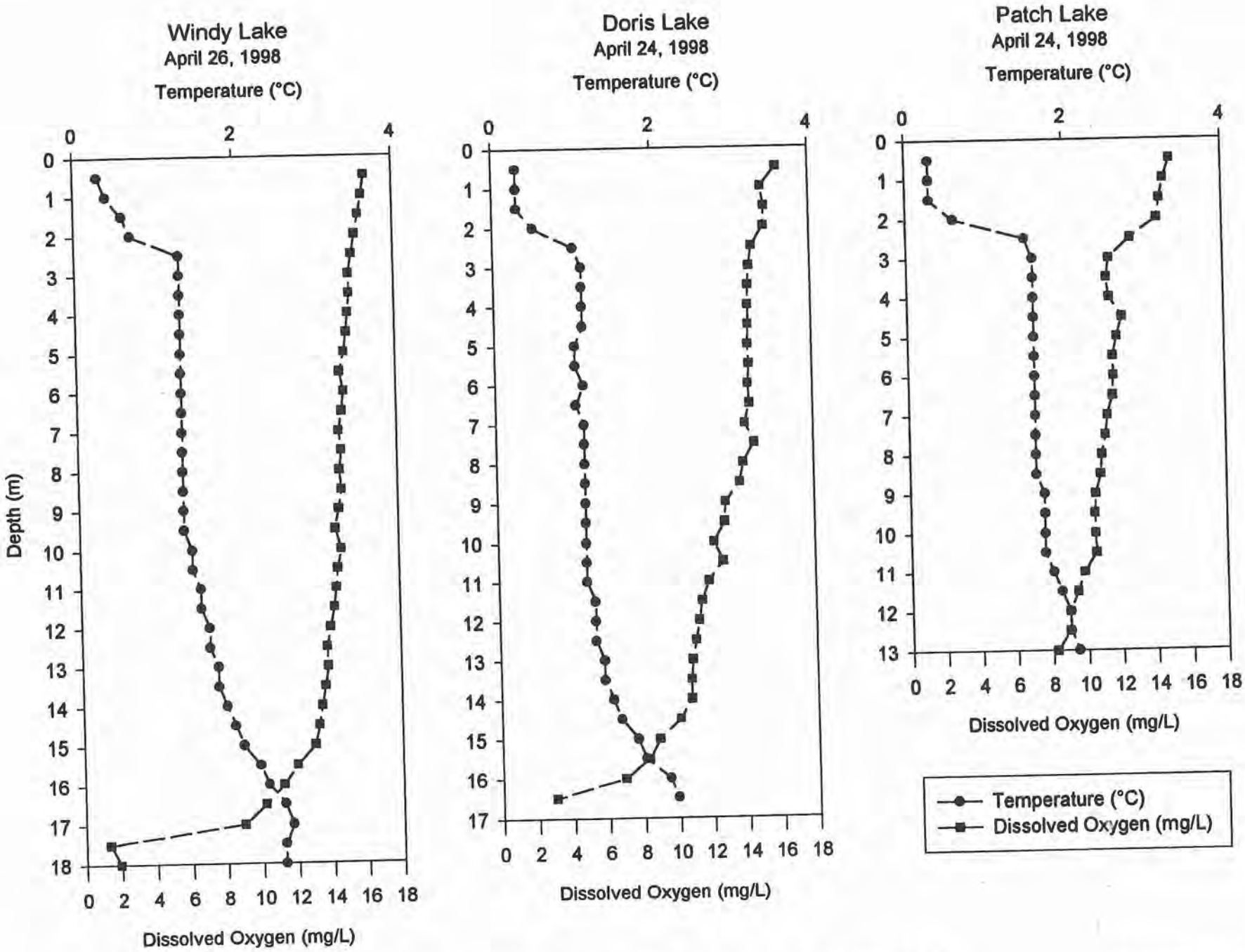
Notes: a) The temperature and dissolved oxygen profiles for these five stations are shown in Appendix 6.1-2.

# Appendix 6.2-2
# Dissolved Oxygen/Temperature Profiles, 1998



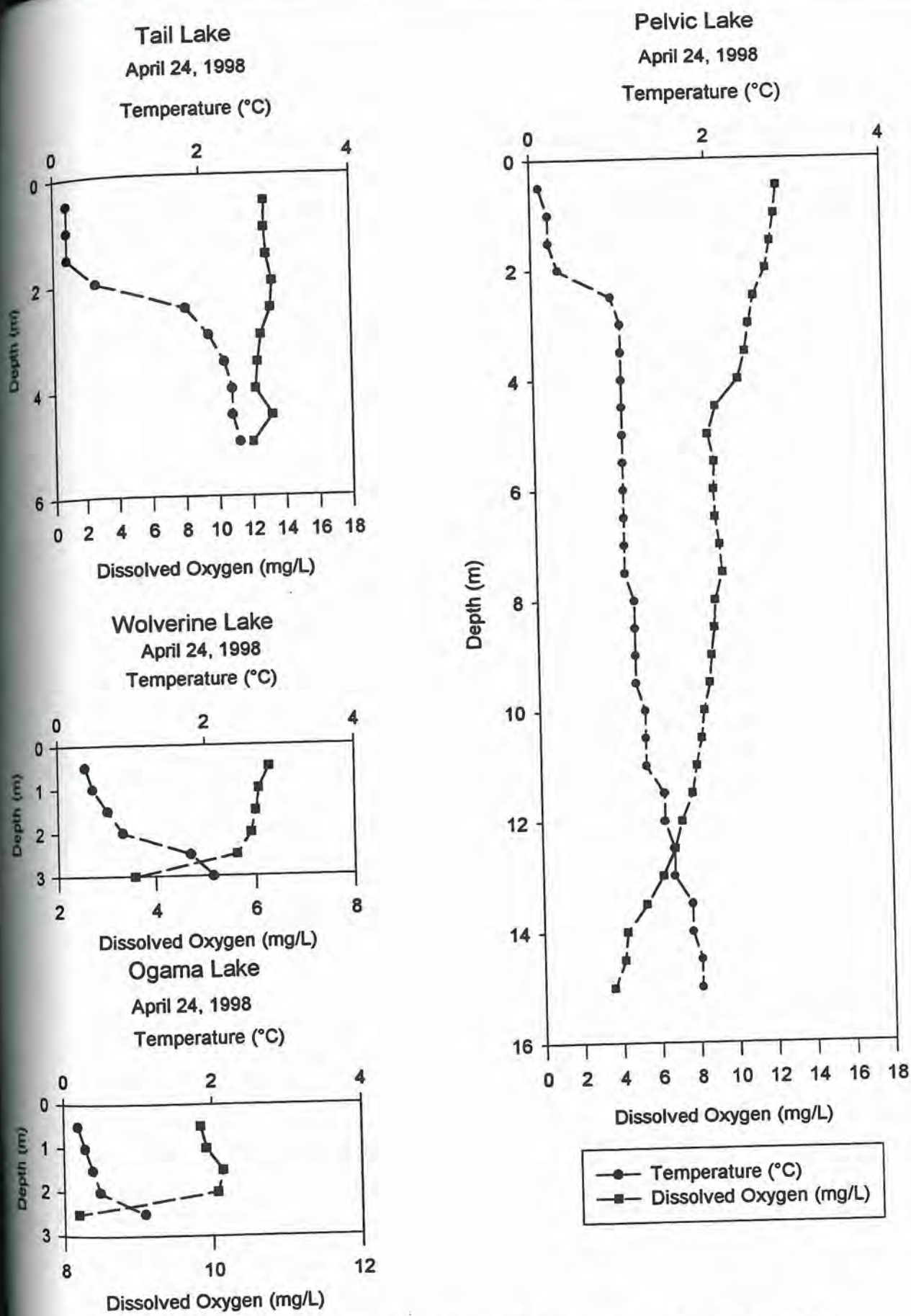

Dissolved Oxygen/Temperature Profiles, 1998

Appendix 6.1-2



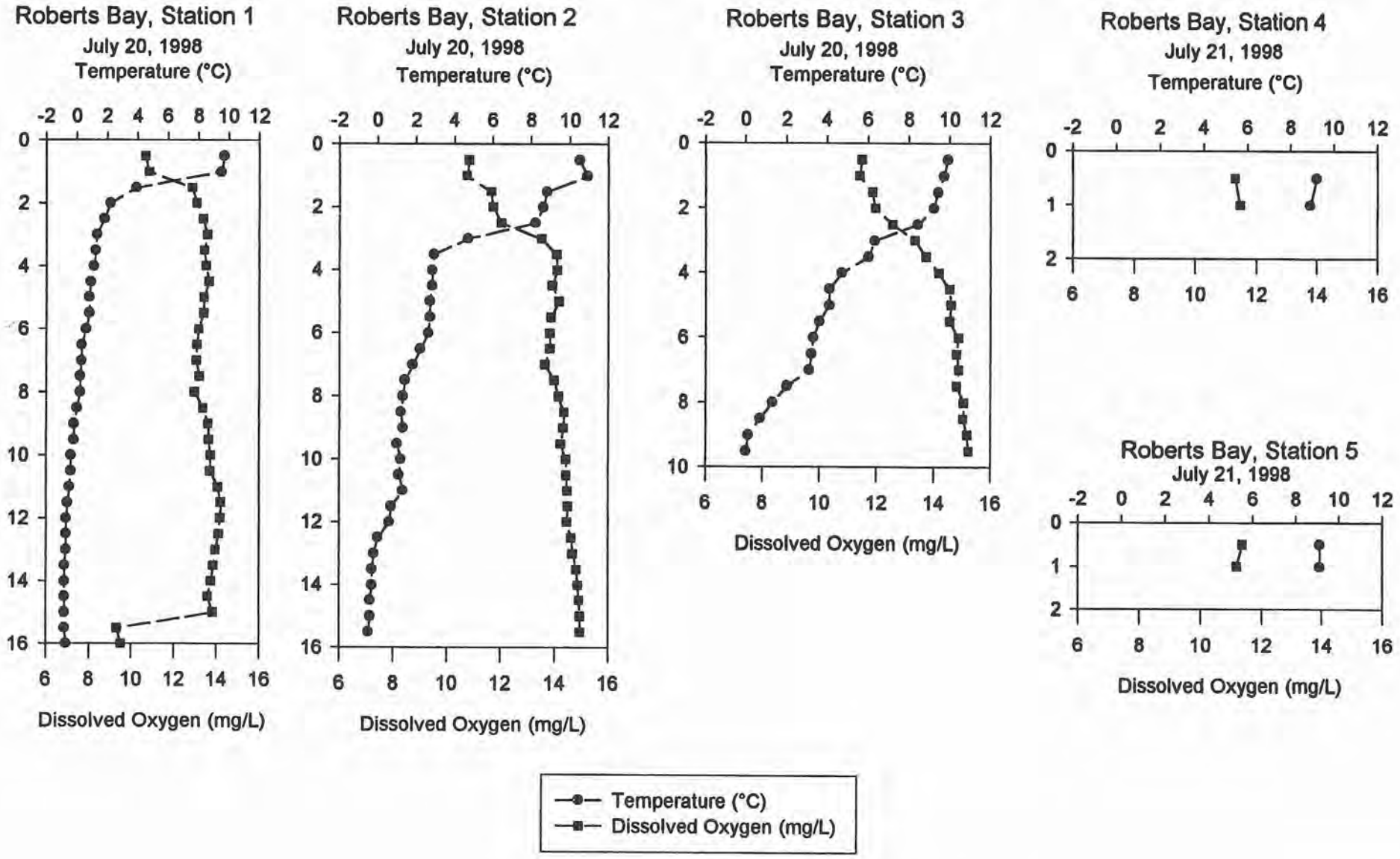

Dissolved Oxygen/Temperature Profiles, 1998

Appendix 6.1-2



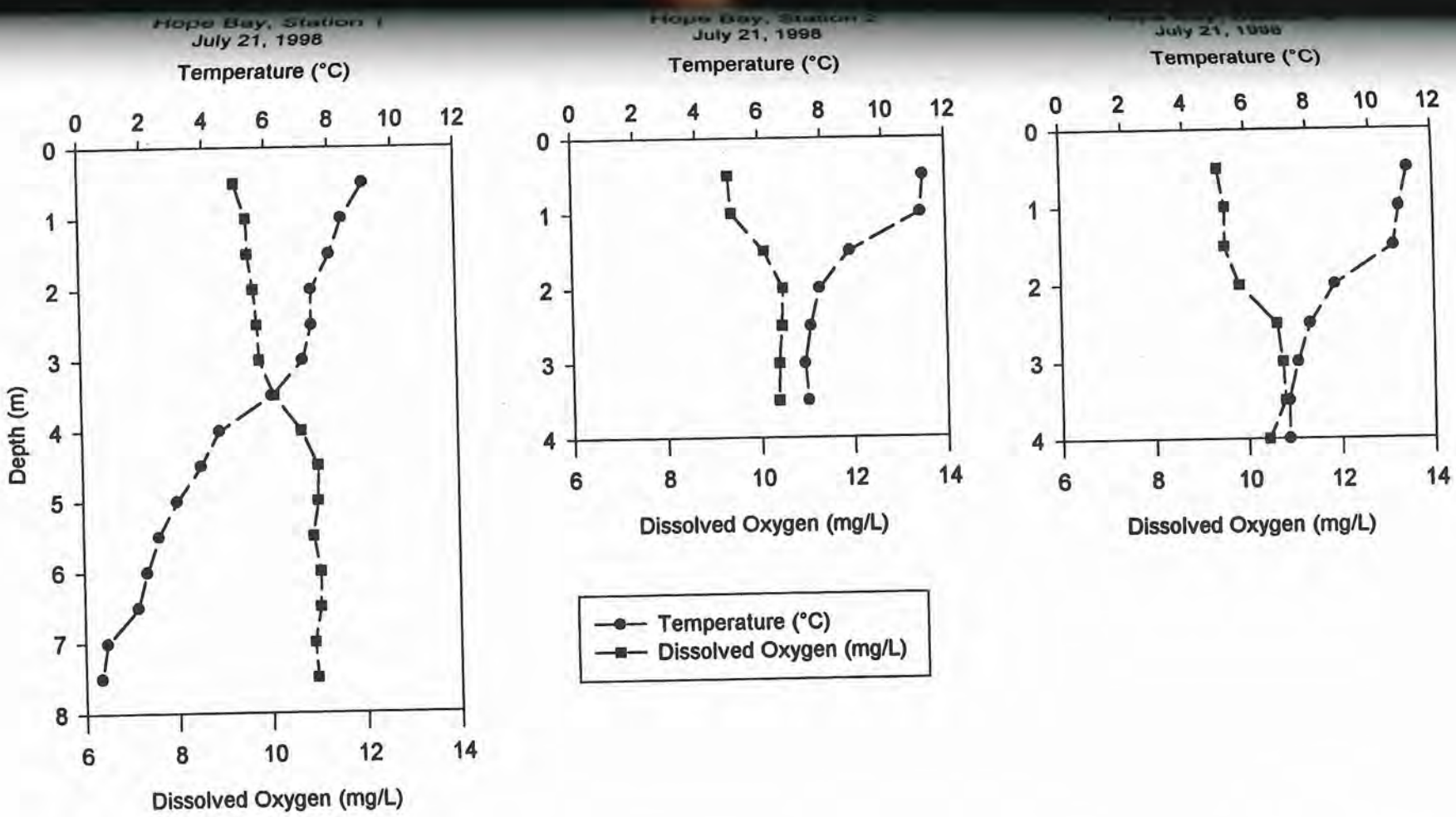

Dissolved Oxygen/Temperature Profiles, 1998

Appendix 6.1-2




Dissolved Oxygen/Temperature Profiles, 1998

Appendix 6.1-2

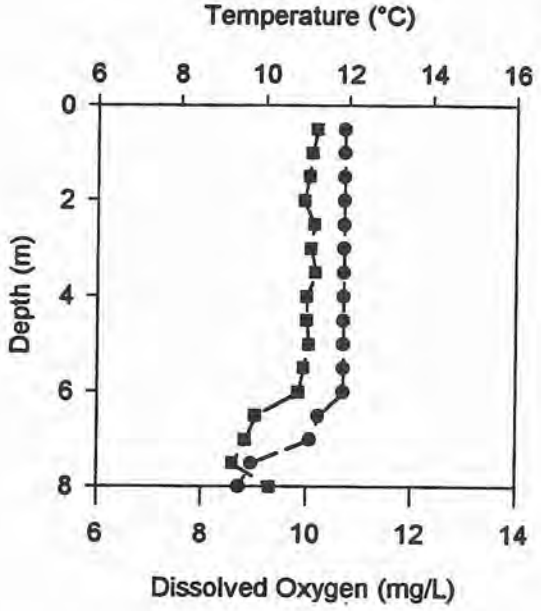



Dissolved Oxygen/Temperature Profiles, 1998

Appendix 6.1-2

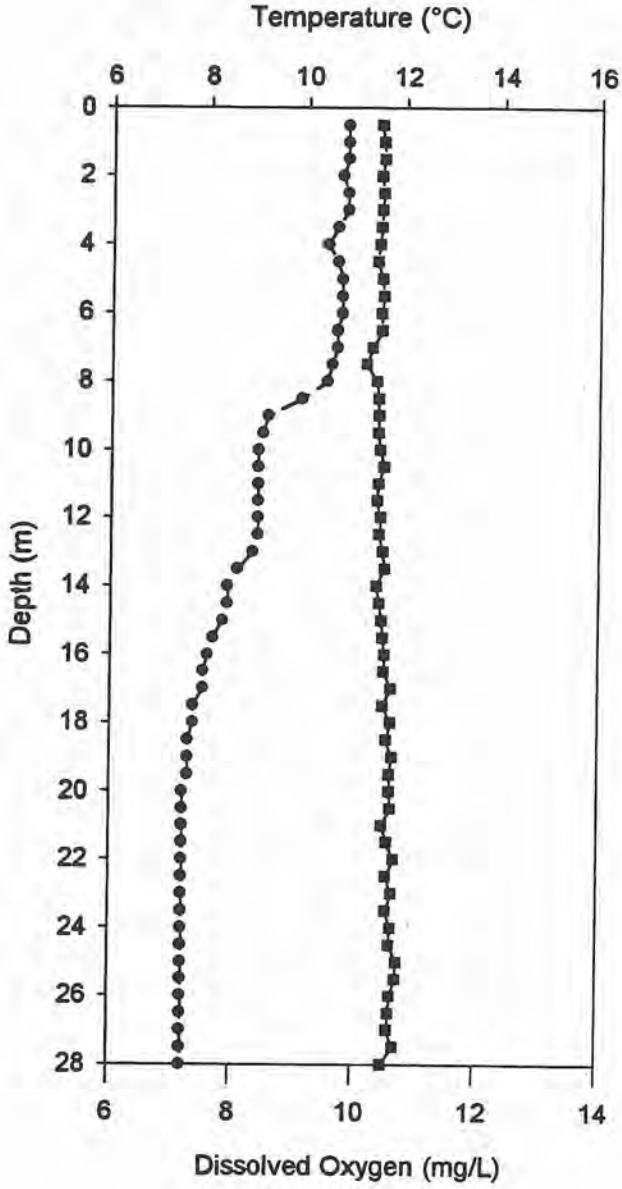
Aimaoktak Lake, Station 4

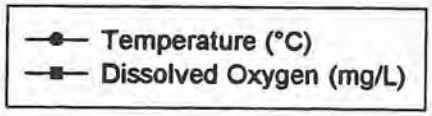
July 18, 1998




Aimaoktak Lake, Station 6

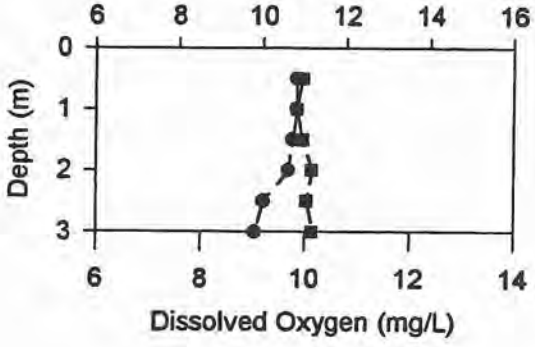
July 18, 1998




Aimaoktak Lake, Station 5

July 17, 1998




## Dissolved Oxygen/Temperature Profiles, 1998

Appendix 6.1-2

# Appendix 7.1-1
# Phytoplankton Biomass for Hope Bay Belt Lakes

# Appendix 7.1-1
# Phytoplankton Biomass for Hope Bay Belt Lakes

| Location | Year | Date | Replicate | Phytoplankton Chl *a* (µg/L) |
|---|---|---|---|---|
| Aimaoktak Lake Stn 1 | 1997 | 25-Jul | 1 | 0.21 |
| Aimaoktak Lake Stn 5 | 1997 | 23-Jul | 1 | 0.22 |
| Aimaoktak Lake Stn 6 | 1997 | 25-Jul | 1 | 0.63 |
| Stickleback Lake | 1997 | 24-Jul | 1 | 0.76 |
| Trout Lake | 1997 | 24-Jul | 1 | 0.65 |
| Boston Reference Lake | 1997 | 24-Jul | 1 | 1.24 |
| Pelvic Lake | 1997 | 18-Jul | 1 | 3.12 |
| Doris Lake | 1997 | 19-Jul | 1 | 2.25 |
| Tail Lake | 1997 | 17-Jul | 1 | 0.61 |
| Windy Lake | 1997 | 18-Jul | 1 | 0.06 |
| Patch Lake | 1997 | 19-Jul | 1 | 0.11 |
| Little Roberts Lake | 1997 | 16-Jul | 1 | 2.07 |
| Ogama Lake | 1997 | 17-Jul | 1 | 1.18 |
| Wolverine Lake | 1997 | 17-Jul | 1 | 0.57 |
| Aimaoktak Lake Stn 4 | 1998 | 18-Jul | 1 | 1.19 |
| Aimaoktak Lake Stn 4 | 1998 | 18-Jul | 2 | 1.50 |
| Aimaoktak Lake Stn 4 | 1998 | 18-Jul | 3 | 1.22 |
| Aimaoktak Lake Stn 6 | 1998 | 18-Jul | 1 | 1.88 |
| Aimaoktak Lake Stn 6 | 1998 | 18-Jul | 2 | 1.77 |
| Aimaoktak Lake Stn 6 | 1998 | 18-Jul | 3 | 1.78 |
| Stickleback Lake | 1998 | 19-Jul | 1 | 1.36 |
| Stickleback Lake | 1998 | 19-Jul | 2 | 1.39 |
| Stickleback Lake | 1998 | 19-Jul | 3 | 1.53 |
| Trout Lake | 1998 | 19-Jul | 1 | 1.16 |
| Trout Lake | 1998 | 19-Jul | 2 | 1.09 |
| Trout Lake | 1998 | 19-Jul | 3 | 1.11 |
| Boston Reference Lake | 1998 | 22-Jul | 1 | 4.00 |
| Boston Reference Lake | 1998 | 22-Jul | 2 | 3.63 |
| Boston Reference Lake | 1998 | 22-Jul | 3 | 3.19 |

Note: These 1997 data were not included in the 1997 report

# Appendix 7.1-2
# Phytoplankton Taxonomy Results, 1998

Rescan

# Appendix 7.1-2
# Phytoplankton Taxonomy Results, 1998

| | | | Aimaoktak Lake Stn. 4 | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 18-Jul-98 | | | | | |
| | | | Cell Abundance (cells/mL) | | | | | |
| FES Sample Number | | | 980146 | 980147 | 980148 | | | |
| Phylum | Order | Genera and Species | Rep. 1 | Rep. 2 | Rep. 3 | Avg. | Std. Error | % |
| Bacillariophyceae | Centrales | *Cyclotella glomerata* | | | 16.8 | | | |
| | | *Cyclotella* | <2.8 | <5.7 | 8.4 | | | |
| | | *Melosira* | 22.4 | 11.4 | <2.8 | | | |
| | | *Rhizosolenia* | | | | | | |
| | Pennales | *Achnanthes minutissima* | 25.2 | 79.8 | 11.2 | | | |
| | | *Achnanthes* | | | | | | |
| | | *Amphora* | | | <2.8 | | | |
| | | *Asterionella formosa* | 11.2 | 39.9 | 16.8 | | | |
| | | *Ceratoneis* | | <5.7 | <2.8 | | | |
| | | *Cocconeis* | <2.8 | | | | | |
| | | *Cymatopleura* | <2.8 | <5.7 | | | | |
| | | *Cymbella minuta* | | <5.7 | <2.8 | | | |
| | | *Cymbella* | | | 2.8 | | | |
| | | *Diatoma elongatum* | | | <2.8 | | | |
| | | *Diatoma* | <2.8 | <5.7 | | | | |
| | | *Eunotia pectinalis* | | | | | | |
| | | *Eunotia* | <2.8 | <5.7 | | | | |
| | | *Fragilaria crotonensis* | | 11.4 | 5.6 | | | |
| | | *Fragilaria* | | 5.7 | <2.8 | | | |
| | | *Frustulia* | | | | | | |
| | | *Gomphonema* | <2.8 | | | | | |
| | | *Navicula* | <2.8 | 5.7 | <2.8 | | | |
| | | *Nitzschia* | | 5.7 | 2.8 | | | |
| | | *Pleurosigma / Gyrosigma* | <2.8 | | | | | |
| | | *Stauroneis* | | | | | | |
| | | *Surirella* | 5.6 | <5.7 | <2.8 | | | |
| | | *Synedra ulna* | | | | | | |
| | | *Synedra* | 2.8 | | <2.8 | | | |
| | | *Tabellaria fenestrata* | | | | | | |
| | | *Tabellaria flocculosa* | <2.8 | <5.7 | <2.8 | | | |
| | | *Tabellaria* | | | | | | |
| | | SUM: | 67 | 160 | 64 | 97 | 31 | 11 |
| Chlorophyta | Chlorococcales | *Ankistrodesmus* | 16.8 | 28.5 | 58.8 | | | |
| | | *Botryococcus braunii* | 33.6 | <5.7 | <2.8 | | | |
| | | *Coelastrum* | | <5.7 | | | | |
| | | *Crucigenia quadrata* | <2.8 | | 22.4 | | | |
| | | *Crucigenia tetrapedia* | <2.8 | 22.8 | 11.2 | | | |
| | | *Crucigenia* | <2.8 | | <2.8 | | | |
| | | *Dictyosphaerium* | | <5.7 | | | | |
| | | *Elakatothrix* | <2.8 | <5.7 | <2.8 | | | |
| | | *Kirchneriella* | | | | | | |
| | | *Lagerheimia* | | | | | | |
| | | *Nephrocytium* | | | <2.8 | | | |
| | | *Oocystis* | <2.8 | <5.7 | <2.8 | | | |
| | | *Pediastrum* | <2.8 | <5.7 | <2.8 | | | |
| | | *Quadrigula* | | | | | | |
| | | *Scenedesmus quadricauda* | 22.4 | <5.7 | 22.4 | | | |
| | | *Scenedesmus* | <2.8 | 22.8 | <2.8 | | | |
| | | *Schroederia* | | | | | | |
| | | *Selenastrum* | | | <2.8 | | | |
| | | *Sphaerocystis schroeteri* | <2.8 | <5.7 | <2.8 | | | |
| | | *Tetraedron* | <2.8 | 5.7 | <2.8 | | | |
| | | *Treubaria* | | | | | | |
| | Euglenales | *Euglena* | <2.8 | | | | | |
| | | *Phacus* | | | | | | |
| | | *Trachelomonas* | | | | | | |
| | Oedogoniales | *Bulbochaete* | | | | | | |
| | | *Oedogonium* | | | | | | |
| | Tetrasporales | *Gloeocystis ampla* | 11.2 | | | | | |
| | Ulothricales | *Geminella* | | | | | | |
| | | *Ulothrix* | <2.8 | | <2.8 | | | |
| | Volvocales | *Chlamydomonas* | 2.8 | <5.7 | | | | |
| | | *Eudorina* | | <5.7 | <2.8 | | | |
| | Zygnematales | *Arthrodesmus* | <2.8 | <5.7 | <2.8 | | | |
| | | *Closteriopsis* | | | | | | |
| | | *Closterium* | | | | | | |

# Appendix 7.1-2
# Phytoplankton Taxonomy Results, 1998

| | | | Aimaoktak Lake Stn. 4 | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 18-Jul-98 | | | | | |
| | | | Cell Abundance (cells/mL) | | | | | |
| FES Sample Number | | | 980146 | 980147 | 980148 | | | |
| Phylum | Order | Genera and Species | Rep. 1 | Rep. 2 | Rep. 3 | Avg. | Std. Error | % |
| | | *Cosmarium* | | | | | | |
| | | *Euastrum* | | | | | | |
| | | *Gonatozygon* | | <5.7 | | | | |
| | | *Hyalotheca* | | | | | | |
| | | *Mougeotia* | | | | | | |
| | | *Spirogyra* | | | | | | |
| | | *Spondylosium planum* | <2.8 | 5.7 | <2.8 | | | |
| | | *Staurastrum paradoxum* | | | | | | |
| | | *Staurastrum* | | <5.7 | | | | |
| | | *Xanthidium* | | <5.7 | | | | |
| | | *Zygnema* | | | | | | |
| | | UID | | | | | | |
| | | SUM: | 87 | 86 | 115 | 96 | 10 | 11 |
| Chrysophyta | | UID flagellate | <2.8 | <5.7 | <2.8 | | | |
| | Ochromonadales | *Dinobryon bavaricum* | 39.2 | 57.0 | 56.0 | | | |
| | | *Dinobryon divergens* | 44.8 | 68.4 | 53.2 | | | |
| | | *Dinobryon elegantissimum* | <2.8 | | | | | |
| | | *Dinobryon sertularia* | | | | | | |
| | | *Dinobryon* | 16.8 | 114.0 | 61.6 | | | |
| | | *Mallomonas akrokomoos* | | <5.7 | | | | |
| | | *Mallomonas pseudocoronata* | 11.2 | 17.1 | 25.2 | | | |
| | | *Mallomonas* | | | <2.8 | | | |
| | | *Uroglenopsis americana* | | | | | | |
| | Rhizochrysidales | *Diceras phaseolus* | | | | | | |
| | | SUM: | 112 | 257 | 196 | 188 | 42 | 21 |
| Cyanophyta | Chroococcales | *Agmenellum tenuissima* | <2.8 | | <2.8 | | | |
| | | *Agmenellum* | | | | | | |
| | | *Anacystis elachista* | | | | | | |
| | | *Anacystis limneticus* | 22.4 | <5.7 | | | | |
| | | *Anacystis* | <2.8 | <5.7 | <2.8 | | | |
| | | *Gomphosphaeria Naegelianum* | | | | | | |
| | | *Gomphosphaeria pallidum* | <2.8 | | <2.8 | | | |
| | | *Gomphosphaeria* | | | | | | |
| | Nostocales | *Anabaena affinis* | | | <2.8 | | | |
| | | *Anabaena flos-aquae* | | | | | | |
| | | *Anabaena* | <2.8 | | <2.8 | | | |
| | | *Aphanizomenon flos-aquae* * | | | | | | |
| | | *Pseudanabaena catenata poss.* | | | | | | |
| | | *Rivularia possibly* | | | | | | |
| | Oscillatoriales | *Lyngbya Birgei* | | | | | | |
| | | *Lyngbya limnetica* | 78.4 | 108.3 | <2.8 | | | |
| | | *Lyngbya* | <2.8 | | | | | |
| | | *Oscillatoria tenuis* | 299.6 | 575.7 | 137.2 | | | |
| | | *Oscillatoria* | | | | | | |
| | | SUM: | 400 | 684 | 137 | 407 | 158 | 45 |
| Pyrrophyta | Cryptomonadales | *Chroomonas acuta* | 98.0 | 119.7 | 53.2 | | | |
| | | *Cryptomonas ovata/erosa* | | | | | | |
| | | *Cryptomonas* | 25.2 | 17.1 | 25.2 | | | |
| | Dinokontae | *Peridinium inconspicuum* | 5.6 | 11.4 | <2.8 | | | |
| | | *Peridinium / Glenodinium* | 5.6 | <5.7 | <2.8 | | | |
| | | SUM: | 134.4 | 148.2 | 78.4 | 120 | 21 | 13 |
| | | | | | Sum of Avg.: | 908 | | |
| | | Total (cells/mL): | 801 | 1334 | 591 | 908 | 262 | 100 |

UID = unidentified due to lack of size and/or missing morphological characters.

* Identification is tentative since gonidia were not always clearly observed within the filaments.

# Appendix 7.1-2
# Phytoplankton Taxonomy Results, 1998

| | | | Aimaoktak Lake Stn. 6 | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 18-Jul-98 | | | | | |
| | | | Cell Abundance (cells/mL) | | | | | |
| FES Sample Number | | | 980149 | 980150 | 980151 | | | |
| Phylum | Order | Genera and Species | Rep. 1 | Rep. 2 | Rep. 3 | Avg. | Std. Error | % |
| Bacillariophyceae | Centrales | *Cyclotella glomerata* | <11.4 | <11.4 | <2.8 | | | |
| | | *Cyclotella* | <11.4 | <11.4 | 11.2 | | | |
| | | *Melosira* | <11.4 | <11.4 | 33.6 | | | |
| | | *Rhizosolenia* | | | | | | |
| | Pennales | *Achnanthes minutissima* | 22.8 | <11.4 | 8.4 | | | |
| | | *Achnanthes* | | | <2.8 | | | |
| | | *Amphora* | | | | | | |
| | | *Asterionella formosa* | <11.4 | <11.4 | <2.8 | | | |
| | | *Ceratoneis* | | <11.4 | | | | |
| | | *Cocconeis* | | | | | | |
| | | *Cymatopleura* | 11.4 | <11.4 | <2.8 | | | |
| | | *Cymbella minuta* | <11.4 | <11.4 | <2.8 | | | |
| | | *Cymbella* | <11.4 | <11.4 | | | | |
| | | *Diatoma elongatum* | | 11.4 | | | | |
| | | *Diatoma* | | | 2.8 | | | |
| | | *Eunotia pectinalis* | | | | | | |
| | | *Eunotia* | <11.4 | <11.4 | | | | |
| | | *Fragilaria crotonensis* | 34.2 | 11.4 | 22.4 | | | |
| | | *Fragilaria* | <11.4 | | <2.8 | | | |
| | | *Frustulia* | | | | | | |
| | | *Gomphonema* | 11.4 | <11.4 | | | | |
| | | *Navicula* | <11.4 | <11.4 | 36.4 | | | |
| | | *Nitzschia* | | <11.4 | <2.8 | | | |
| | | *Pleurosigma / Gyrosigma* | | | | | | |
| | | *Stauroneis* | | | | | | |
| | | *Surirella* | <11.4 | <11.4 | <2.8 | | | |
| | | *Synedra ulna* | | | | | | |
| | | *Synedra* | <11.4 | | <2.8 | | | |
| | | *Tabellaria fenestrata* | <11.4 | | | | | |
| | | *Tabellaria flocculosa* | 91.2 | <11.4 | | | | |
| | | *Tabellaria* | | | | | | |
| | | SUM: | 171 | 23 | 115 | 103 | 43 | 6 |
| Chlorophyta | Chlorococcales | *Ankistrodesmus* | 91.2 | 34.2 | 47.6 | | | |
| | | *Botryococcus braunii* | <11.4 | <11.4 | <2.8 | | | |
| | | *Coelastrum* | | | | | | |
| | | *Crucigenia quadrata* | | 91.2 | | | | |
| | | *Crucigenia tetrapedia* | 45.6 | | <2.8 | | | |
| | | *Crucigenia* | <11.4 | | <2.8 | | | |
| | | *Dictyosphaerium* | | | | | | |
| | | *Elakatothrix* | <11.4 | <11.4 | | | | |
| | | *Kirchneriella* | | | | | | |
| | | *Lagerheimia* | <11.4 | | | | | |
| | | *Nephrocytium* | | | | | | |
| | | *Oocystis* | | | | | | |
| | | *Pediastrum* | | <11.4 | <2.8 | | | |
| | | *Quadrigula* | | | | | | |
| | | *Scenedesmus quadricauda* | | 45.6 | <2.8 | | | |
| | | *Scenedesmus* | <11.4 | <11.4 | <2.8 | | | |
| | | *Schroederia* | | | | | | |
| | | *Selenastrum* | | | | | | |
| | | *Sphaerocystis schroeteri* | | 91.2 | | | | |
| | | *Tetraedron* | <11.4 | 22.8 | | | | |
| | | *Treubaria* | | <11.4 | | | | |
| | Euglenales | *Euglena* | | | | | | |
| | | *Phacus* | | | | | | |
| | | *Trachelomonas* | | | | | | |
| | Oedogoniales | *Bulbochaete* | | | | | | |
| | | *Oedogonium* | | | | | | |
| | Tetrasporales | *Gloeocystis ampla* | | | | | | |
| | Ulothricales | *Geminella* | | | | | | |
| | | *Ulothrix* | | | | | | |
| | Volvocales | *Chlamydomonas* | | | | | | |
| | | *Eudorina* | | | | | | |
| | Zygnematales | *Arthrodesmus* | <11.4 | <11.4 | | | | |
| | | *Closteriopsis* | | | | | | |
| | | *Closterium* | | | <2.8 | | | |

# Appendix 7.1-2
# Phytoplankton Taxonomy Results, 1998

| | | | Aimaoktak Lake Stn. 6 | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 18-Jul-98 | | | | | |
| | | | Cell Abundance (cells/mL) | | | | | |
| FES Sample Number | | | 980149 | 980150 | 980151 | | | |
| Phylum | Order | Genera and Species | Rep. 1 | Rep. 2 | Rep. 3 | Avg. | Std. Error | % |
| | | *Cosmarium* | | | | | | |
| | | *Euastrum* | | | | | | |
| | | *Gonatozygon* | | | | | | |
| | | *Hyalotheca* | | | | | | |
| | | *Mougeotia* | | | | | | |
| | | *Spirogyra* | | | | | | |
| | | *Spondylosium planum* | <11.4 | <11.4 | <2.8 | | | |
| | | *Staurastrum paradoxum* | | | | | | |
| | | *Staurastrum* | | | | | | |
| | | *Xanthidium* | <11.4 | | | | | |
| | | *Zygnema* | | | | | | |
| | | UID | | | | | | |
| | | SUM: | 137 | 285 | 48 | 156 | 69 | 9 |
| Chrysophyta | | UID flagellate | <11.4 | <11.4 | <2.8 | | | |
| | Ochromonadales | *Dinobryon bavaricum* | 79.8 | 45.6 | 25.2 | | | |
| | | *Dinobryon divergens* | 91.2 | 34.2 | 100.8 | | | |
| | | *Dinobryon elegantissimum* | <11.4 | | | | | |
| | | *Dinobryon sertularia* | | | | | | |
| | | *Dinobryon* | 125.4 | 102.6 | 75.6 | | | |
| | | *Mallomonas akrokomoos* | | | | | | |
| | | *Mallomonas pseudocoronata* | 34.2 | 22.8 | <2.8 | | | |
| | | *Mallomonas* | | | | | | |
| | | *Uroglenopsis americana* | <11.4 | | | | | |
| | Rhizochrysidales | *Diceras phaseolus* | <11.4 | | | | | |
| | | SUM: | 331 | 205 | 202 | 246 | 42 | 15 |
| Cyanophyta | Chroococcales | *Agmenellum tenuissima* | 410.4 | 410.4 | 134.4 | | | |
| | | *Agmenellum* | | | | | | |
| | | *Anacystis elachista* | | <11.4 | <2.8 | | | |
| | | *Anacystis limneticus* | <11.4 | 182.4 | 134.4 | | | |
| | | *Anacystis* | <11.4 | | | | | |
| | | *Gomphosphaeria Naegelianum* | | | | | | |
| | | *Gomphosphaeria pallidum* | | | | | | |
| | | *Gomphosphaeria* | | | | | | |
| | Nostocales | *Anabaena affinis* | | | | | | |
| | | *Anabaena flos-aquae* | | | | | | |
| | | *Anabaena* | <11.4 | | | | | |
| | | *Aphanizomenon flos-aquae* * | | | | | | |
| | | *Pseudanabaena catenata poss.* | | | | | | |
| | | *Rivularia possibly* | | | | | | |
| | Oscillatoriales | *Lyngbya Birgei* | | | | | | |
| | | *Lyngbya limnetica* | 524.4 | 399.0 | 106.4 | | | |
| | | *Lyngbya* | | | | | | |
| | | *Oscillatoria tenuis* | 433.2 | <11.4 | <2.8 | | | |
| | | *Oscillatoria* | | | | | | |
| | | SUM: | 1368 | 992 | 375 | 912 | 289 | 54 |
| Pyrrophyta | Cryptomonadales | *Chroomonas acuta* | 91.2 | 364.8 | 173.6 | | | |
| | | *Cryptomonas ovata/erosa* | | | | | | |
| | | *Cryptomonas* | 45.6 | 68.4 | 44.8 | | | |
| | Dinokontae | *Peridinium inconspicuum* | 11.4 | <11.4 | 2.8 | | | |
| | | *Peridinium / Glenodinium* | <11.4 | <11.4 | <2.8 | | | |
| | | SUM: | 148.2 | 433.2 | 221.2 | 268 | 85 | 16 |
| | | | | | Sum of Avg.: | 1684 | | |
| | | Total (cells/mL): | 2155 | 1938 | 960 | 1684 | 530 | 100 |

UID = unidentified due to lack of size and/or missing morphological characters.

* Identification is tentative since gonidia were not always clearly observed within the filaments.

# Appendix 7.1-2
# Phytoplankton Taxonomy Results, 1998

| | | | Stickleback Lake 19-Jul-98 Cell Abundance (cells/mL) | | | | | |
|---|---|---|---|---|---|---|---|---|
| FES Sample Number | | | 980137 | 980138 | 980139 | | | |
| Phylum | Order | Genera and Species | Rep. 1 | Rep. 2 | Rep. 3 | Avg. | Std. Error | % |
| Bacillariophyceae | Centrales | *Cyclotella glomerata* | | | | | | |
| | | *Cyclotella* | | | | | | |
| | | *Melosira* | | < 35.6 | | | | |
| | | *Rhizosolenia* | | | | | | |
| | Pennales | *Achnanthes minutissima* | 106.8 | 106.8 | 35.6 | | | |
| | | *Achnanthes* | | | | | | |
| | | *Amphora* | | < 35.6 | | | | |
| | | *Asterionella formosa* | < 17.8 | < 35.6 | | | | |
| | | *Ceratoneis* | | | < 17.8 | | | |
| | | *Cocconeis* | | < 35.6 | < 17.8 | | | |
| | | *Cymatopleura* | | < 35.6 | < 17.8 | | | |
| | | *Cymbella minuta* | | | | | | |
| | | *Cymbella* | < 17.8 | < 35.6 | | | | |
| | | *Diatoma elongatum* | | | | | | |
| | | *Diatoma* | < 17.8 | < 35.6 | 17.8 | | | |
| | | *Eunotia pectinalis* | | | | | | |
| | | *Eunotia* | | < 35.6 | < 17.8 | | | |
| | | *Fragilaria crotonensis* | | | 71.2 | | | |
| | | *Fragilaria* | < 17.8 | 35.6 | < 17.8 | | | |
| | | *Frustulia* | | | | | | |
| | | *Gomphonema* | | | < 17.8 | | | |
| | | *Navicula* | < 17.8 | < 35.6 | < 17.8 | | | |
| | | *Nitzschia* | < 17.8 | < 35.6 | | | | |
| | | *Pleurosigma / Gyrosigma* | | < 35.6 | | | | |
| | | *Stauroneis* | | | < 17.8 | | | |
| | | *Surirella* | | < 35.6 | < 17.8 | | | |
| | | *Synedra ulna* | | | | | | |
| | | *Synedra* | | | | | | |
| | | *Tabellaria fenestrata* | | | | | | |
| | | *Tabellaria flocculosa* | | | | | | |
| | | *Tabellaria* | < 17.8 | | | | | |
| | | SUM: | 107 | 142 | 125 | 125 | 10 | 10 |
| Chlorophyta | Chlorococcales | *Ankistrodesmus* | < 17.8 | 35.6 | < 17.8 | | | |
| | | *Botryococcus braunii* | | | < 17.8 | | | |
| | | *Coelastrum* | | | | | | |
| | | *Crucigenia quadrata* | | < 35.6 | < 17.8 | | | |
| | | *Crucigenia tetrapedia* | 71.2 | 142.4 | < 17.8 | | | |
| | | *Crucigenia* | | | | | | |
| | | *Dictyosphaerium* | | | | | | |
| | | *Elakatothrix* | | < 35.6 | | | | |
| | | *Kirchneriella* | < 17.8 | | | | | |
| | | *Lagerheimia* | < 17.8 | < 35.6 | < 17.8 | | | |
| | | *Nephrocytium* | | | | | | |
| | | *Oocystis* | | < 35.6 | | | | |
| | | *Pediastrum* | < 17.8 | < 35.6 | < 17.8 | | | |
| | | *Quadrigula* | | | | | | |
| | | *Scenedesmus quadricauda* | | | | | | |
| | | *Scenedesmus* | < 17.8 | < 35.6 | 71.2 | | | |
| | | *Schroederia* | | | | | | |
| | | *Selenastrum* | | | | | | |
| | | *Sphaerocystis schroeteri* | < 17.8 | | | | | |
| | | *Tetraedron* | 35.6 | 35.6 | 17.8 | | | |
| | | *Treubaria* | | | | | | |
| | Euglenales | *Euglena* | | | | | | |
| | | *Phacus* | | | | | | |
| | | *Trachelomonas* | < 17.8 | | < 17.8 | | | |
| | Oedogoniales | *Bulbochaete* | | | | | | |
| | | *Oedogonium* | | | | | | |
| | Tetrasporales | *Gloeocystis ampla* | | < 35.6 | | | | |
| | Ulothricales | *Geminella* | | | | | | |
| | | *Ulothrix* | | | | | | |
| | Volvocales | *Chlamydomonas* | | | | | | |
| | | *Eudorina* | | | | | | |
| | Zygnematales | *Arthrodesmus* | | | | | | |
| | | *Closteriopsis* | | | | | | |
| | | *Closterium* | | | | | | |

# Appendix 7.1-2
# Phytoplankton Taxonomy Results, 1998

| | | | Stickleback Lake 19-Jul-98 Cell Abundance (cells/mL) | | | | | |
|---|---|---|---|---|---|---|---|---|
| FES Sample Number | | | 980137 | 980138 | 980139 | | | |
| Phylum | Order | Genera and Species | Rep. 1 | Rep. 2 | Rep. 3 | Avg. | Std. Error | % |
| | | *Cosmarium* | | | | | | |
| | | *Euastrum* | | | | | | |
| | | *Gonatozygon* | | | | | | |
| | | *Hyalotheca* | | | | | | |
| | | *Mougeotia* | | | | | | |
| | | *Spirogyra* | | | | | | |
| | | *Spondylosium planum* | < 17.8 | < 35.6 | < 17.8 | | | |
| | | *Staurastrum paradoxum* | | | | | | |
| | | *Staurastrum* | | | | | | |
| | | *Xanthidium* | | | | | | |
| | | *Zygnema* | | | | | | |
| | | UID | | | | | | |
| | | SUM: | 107 | 214 | 89 | 136 | 39 | 11 |
| Chrysophyta | | UID flagellate | < 17.8 | 142.4 | 106.8 | | | |
| | Ochromonadales | *Dinobryon bavaricum* | 1,068.0 | 534.0 | 427.2 | | | |
| | | *Dinobryon divergens* | < 17.8 | < 35.6 | < 17.8 | | | |
| | | *Dinobryon elegantissimum* | 35.6 | < 35.6 | | | | |
| | | *Dinobryon sertularia* | | < 35.6 | < 17.8 | | | |
| | | *Dinobryon* | | < 35.6 | < 17.8 | | | |
| | | *Mallomonas akrokomoos* | | < 35.6 | | | | |
| | | *Mallomonas pseudocoronata* | | | | | | |
| | | *Mallomonas* | < 17.8 | < 35.6 | < 17.8 | | | |
| | | *Uroglenopsis americana* | | | | | | |
| | Rhizochrysidales | *Diceras phaseolus* | | | | | | |
| | | SUM: | 1104 | 676 | 534 | 771 | 171 | 63 |
| Cyanophyta | Chroococcales | *Agmenellum tenuissima* | | < 35.6 | | | | |
| | | *Agmenellum* | | | | | | |
| | | *Anacystis elachista* | < 17.8 | | < 17.8 | | | |
| | | *Anacystis limneticus* | < 17.8 | < 35.6 | 213.6 | | | |
| | | *Anacystis* | | < 35.6 | | | | |
| | | *Gomphosphaeria Naegelianum* | | | | | | |
| | | *Gomphosphaeria pallidum* | | | | | | |
| | | *Gomphosphaeria* | < 17.8 | | | | | |
| | Nostocales | *Anabaena affinis* | | | | | | |
| | | *Anabaena flos-aquae* | | | | | | |
| | | *Anabaena* | < 17.8 | | < 17.8 | | | |
| | | *Aphanizomenon flos-aquae* * | | | | | | |
| | | *Pseudanabaena catenata poss.* | | | | | | |
| | | *Rivularia possibly* | | | | | | |
| | Oscillatoriales | *Lyngbya Birgei* | | | | | | |
| | | *Lyngbya limnetica* | < 17.8 | < 35.6 | < 17.8 | | | |
| | | *Lyngbya* | | | | | | |
| | | *Oscillatoria tenuis* | | | | | | |
| | | *Oscillatoria* | < 17.8 | < 35.6 | < 17.8 | | | |
| | | SUM: | 0 | 0 | 214 | 71 | 71 | 6 |
| Pyrrophyta | Cryptomonadales | *Chroomonas acuta* | 249.2 | 35.6 | 71.2 | | | |
| | | *Cryptomonas ovata/erosa* | | | | | | |
| | | *Cryptomonas* | 17.8 | < 35.6 | < 17.8 | | | |
| | Dinokontae | *Peridinium inconspicuum* | < 17.8 | < 35.6 | < 17.8 | | | |
| | | *Peridinium / Glenodinium* | < 17.8 | < 35.6 | < 17.8 | | | |
| | | SUM: | 267.0 | 35.6 | 71.2 | 125 | 72 | 10 |
| | | | | | Sum of Avg.: | 1228 | | |
| | | Total (cells/mL): | 1584 | 1068 | 1032 | 1228 | 363 | 100 |

UID = unidentified due to lack of size and/or missing morphological characters.

* Identification is tentative since gonidia were not always clearly observed within the filaments.

# Appendix 7.1-2
# Phytoplankton Taxonomy Results, 1998

| | | | Trout Lake 19-Jul-98 Cell Abundance (cells/mL) | | | | | |
|---|---|---|---|---|---|---|---|---|
| FES Sample Number | | | 980140 | 980141 | 980142 | | | |
| Phylum | Order | Genera and Species | Rep. 1 | Rep. 2 | Rep. 3 | Avg. | Std. Error | % |
| Bacillariophyceae | Centrales | *Cyclotella glomerata* | | | | | | |
| | | *Cyclotella* | | | | | | |
| | | *Melosira* | | < 2.8 | | | | |
| | | *Rhizosolenia* | | | | | | |
| | Pennales | *Achnanthes minutissima* | | 22.4 | 11.2 | | | |
| | | *Achnanthes* | | | | | | |
| | | *Amphora* | | < 2.8 | < 2.8 | | | |
| | | *Asterionella formosa* | 79.8 | 64.4 | 39.2 | | | |
| | | *Ceratoneis* | | < 2.8 | < 2.8 | | | |
| | | *Cocconeis* | | | | | | |
| | | *Cymatopleura* | < 5.7 | < 2.8 | < 2.8 | | | |
| | | *Cymbella minuta* | 11.4 | | < 2.8 | | | |
| | | *Cymbella* | < 5.7 | < 2.8 | 2.8 | | | |
| | | *Diatoma elongatum* | 5.7 | | < 2.8 | | | |
| | | *Diatoma* | | | | | | |
| | | *Eunotia pectinalis* | | | | | | |
| | | *Eunotia* | | < 2.8 | | | | |
| | | *Fragilaria crotonensis* | 34.2 | 11.2 | 14.0 | | | |
| | | *Fragilaria* | < 5.7 | | < 2.8 | | | |
| | | *Frustulia* | < 5.7 | | | | | |
| | | *Gomphonema* | 5.7 | | < 2.8 | | | |
| | | *Navicula* | < 5.7 | < 2.8 | 5.6 | | | |
| | | *Nitzschia* | | | < 2.8 | | | |
| | | *Pleurosigma / Gyrosigma* | < 5.7 | < 2.8 | < 2.8 | | | |
| | | *Stauroneis* | | | | | | |
| | | *Surirella* | < 5.7 | 2.8 | < 2.8 | | | |
| | | *Synedra ulna* | < 5.7 | | < 2.8 | | | |
| | | *Synedra* | | | | | | |
| | | *Tabellaria fenestrata* | | | | | | |
| | | *Tabellaria flocculosa* | | 36.4 | < 2.8 | | | |
| | | *Tabellaria* | | | | | | |
| | | SUM: | 137 | 137 | 73 | 116 | 21 | 10 |
| Chlorophyta | Chlorococcales | *Ankistrodesmus* | 11.4 | 8.4 | 5.6 | | | |
| | | *Botryococcus braunii* | < 5.7 | 44.8 | < 2.8 | | | |
| | | *Coelastrum* | | | | | | |
| | | *Crucigenia quadrata* | | | | | | |
| | | *Crucigenia tetrapedia* | 91.2 | 22.4 | 123.2 | | | |
| | | *Crucigenia* | | | | | | |
| | | *Dictyosphaerium* | | 67.2 | | | | |
| | | *Elakatothrix* | < 5.7 | 5.6 | < 2.8 | | | |
| | | *Kirchneriella* | | | < 2.8 | | | |
| | | *Lagerheimia* | | | | | | |
| | | *Nephrocytium* | | | | | | |
| | | *Oocystis* | | | | | | |
| | | *Pediastrum* | 45.6 | 22.4 | < 2.8 | | | |
| | | *Quadrigula* | | | | | | |
| | | *Scenedesmus quadricauda* | 22.8 | 33.6 | 11.2 | | | |
| | | *Scenedesmus* | | < 2.8 | | | | |
| | | *Schroederia* | | | | | | |
| | | *Selenastrum* | | | | | | |
| | | *Sphaerocystis schroeteri* | < 5.7 | < 2.8 | 123.2 | | | |
| | | *Tetraedron* | 5.7 | 2.8 | < 2.8 | | | |
| | | *Treubaria* | | | | | | |
| | Euglenales | *Euglena* | < 5.7 | | < 2.8 | | | |
| | | *Phacus* | | | | | | |
| | | *Trachelomonas* | | < 2.8 | | | | |
| | Oedogoniales | *Bulbochaete* | | | | | | |
| | | *Oedogonium* | | | < 2.8 | | | |
| | Tetrasporales | *Gloeocystis ampla* | | | | | | |
| | Ulothricales | *Geminella* | | | | | | |
| | | *Ulothrix* | < 5.7 | | | | | |
| | Volvocales | *Chlamydomonas* | | | | | | |
| | | *Eudorina* | | 89.6 | < 2.8 | | | |
| | Zygnematales | *Arthrodesmus* | | < 2.8 | | | | |
| | | *Closteriopsis* | | | | | | |
| | | *Closterium* | | | < 2.8 | | | |

# Appendix 7.1-2
# Phytoplankton Taxonomy Results, 1998

| FES Sample Number | | | Trout Lake 19-Jul-98 Cell Abundance (cells/mL) 980140 | 980141 | 980142 | | | |
|---|---|---|---|---|---|---|---|---|
| Phylum | Order | Genera and Species | Rep. 1 | Rep. 2 | Rep. 3 | Avg. | Std. Error | % |
| | | *Cosmarium* | < 5.7 | < 2.8 | | | | |
| | | *Euastrum* | | | < 2.8 | | | |
| | | *Gonatozygon* | | | | | | |
| | | *Hyalotheca* | | | | | | |
| | | *Mougeotia* | | | | | | |
| | | *Spirogyra* | | | | | | |
| | | *Spondylosium planum* | < 5.7 | | | | | |
| | | *Staurastrum paradoxum* | | < 2.8 | | | | |
| | | *Staurastrum* | | | | | | |
| | | *Xanthidium* | | | | | | |
| | | *Zygnema* | | | | | | |
| | | UID | | | | | | |
| | | SUM: | 177 | 297 | 263 | 246 | 36 | 21 |
| Chrysophyta | | UID flagellate | < 5.7 | < 2.8 | < 2.8 | | | |
| | Ochromonadales | *Dinobryon bavaricum* | 45.6 | < 2.8 | 33.6 | | | |
| | | *Dinobryon divergens* | | | | | | |
| | | *Dinobryon elegantissimum* | < 5.7 | | < 2.8 | | | |
| | | *Dinobryon sertularia* | | | | | | |
| | | *Dinobryon* | < 5.7 | | < 2.8 | | | |
| | | *Mallomonas akrokomoos* | | | | | | |
| | | *Mallomonas pseudocoronata* | | | | | | |
| | | *Mallomonas* | | | < 2.8 | | | |
| | | *Uroglenopsis americana* | | | | | | |
| | Rhizochrysidales | *Diceras phaseolus* | | | < 2.8 | | | |
| | | SUM: | 46 | 0 | 34 | 26 | 14 | 2 |
| Cyanophyta | Chroococcales | *Agmenellum tenuissima* | 182.4 | < 2.8 | < 2.8 | | | |
| | | *Agmenellum* | | | | | | |
| | | *Anacystis elachista* | < 5.7 | | | | | |
| | | *Anacystis limneticus* | 91.2 | 44.8 | < 2.8 | | | |
| | | *Anacystis* | | | | | | |
| | | *Gomphosphaeria Naegelianum* | | | | | | |
| | | *Gomphosphaeria pallidum* | | 168.0 | 56.0 | | | |
| | | *Gomphosphaeria* | | | | | | |
| | Nostocales | *Anabaena affinis* | 136.8 | 378.0 | 78.4 | | | |
| | | *Anabaena flos-aquae* | < 5.7 | | | | | |
| | | *Anabaena* | | | < 2.8 | | | |
| | | *Aphanizomenon flos-aquae* * | | | | | | |
| | | *Pseudanabaena catenata poss.* | | | 22.4 | | | |
| | | *Rivularia possibly* | | | | | | |
| | Oscillatoriales | *Lyngbya Birgei* | | | | | | |
| | | *Lyngbya limnetica* | 661.2 | 380.8 | < 2.8 | | | |
| | | *Lyngbya* | | | | | | |
| | | *Oscillatoria tenuis* | | | | | | |
| | | *Oscillatoria* | | | < 2.8 | | | |
| | | SUM: | 1072 | 972 | 157 | 733 | 290 | 64 |
| Pyrrophyta | Cryptomonadales | *Chroomonas acuta* | 51.3 | < 2.8 | 14.0 | | | |
| | | *Cryptomonas ovata/erosa* | | | | | | |
| | | *Cryptomonas* | 11.4 | 14.0 | 2.8 | | | |
| | Dinokontae | *Peridinium inconspicuum* | < 5.7 | 2.8 | 2.8 | | | |
| | | *Peridinium / Glenodinium* | | | | | | |
| | | SUM: | 62.7 | 16.8 | 19.6 | 33 | 15 | 3 |
| | | | | | Sum of Avg.: | 1154 | | |
| | | Total (cells/mL): | 1493 | 1422 | 546 | 1154 | 375 | 100 |

UID = unidentified due to lack of size and/or missing morphological characters.

* Identification is tentative since gonidia were not always clearly observed within the filaments.

# Appendix 7.1-2
# Phytoplankton Taxonomy Results, 1998

| | | | Boston Reference Lake 21-Jul-98 Cell Abundance (cells/mL) | | | | | |
|---|---|---|---|---|---|---|---|---|
| FES Sample Number | | | 980143 | 980144 | 980145 | | | |
| Phylum | Order | Genera and Species | Rep. 1 | Rep. 2 | Rep. 3 | Avg. | Std. Error | % |
| Bacillariophyceae | Centrales | *Cyclotella glomerata* | | | | | | |
| | | *Cyclotella* | | | | | | |
| | | *Melosira* | < 17.8 | | < 17.8 | | | |
| | | *Rhizosolenia* | | | | | | |
| | Pennales | *Achnanthes minutissima* | | < 35.6 | 71.2 | | | |
| | | *Achnanthes* | | | | | | |
| | | *Amphora* | | | | | | |
| | | *Asterionella formosa* | 53.4 | < 35.6 | 17.8 | | | |
| | | *Ceratoneis* | < 17.8 | < 35.6 | | | | |
| | | *Cocconeis* | | | | | | |
| | | *Cymatopleura* | < 17.8 | 71.2 | < 17.8 | | | |
| | | *Cymbella minuta* | < 17.8 | < 35.6 | < 17.8 | | | |
| | | *Cymbella* | < 17.8 | < 35.6 | < 17.8 | | | |
| | | *Diatoma elongatum* | < 17.8 | | | | | |
| | | *Diatoma* | | | < 17.8 | | | |
| | | *Eunotia pectinalis* | | | | | | |
| | | *Eunotia* | < 17.8 | < 35.6 | 17.8 | | | |
| | | *Fragilaria crotonensis* | 35.6 | 106.8 | 17.8 | | | |
| | | *Fragilaria* | | < 35.6 | < 17.8 | | | |
| | | *Frustulia* | | | | | | |
| | | *Gomphonema* | | < 35.6 | | | | |
| | | *Navicula* | 35.6 | < 35.6 | 35.6 | | | |
| | | *Nitzschia* | < 17.8 | < 35.6 | 17.8 | | | |
| | | *Pleurosigma / Gyrosigma* | < 17.8 | < 35.6 | 17.8 | | | |
| | | *Stauroneis* | | < 35.6 | < 17.8 | | | |
| | | *Surirella* | < 17.8 | < 35.6 | < 17.8 | | | |
| | | *Synedra ulna* | | | | | | |
| | | *Synedra* | | | < 17.8 | | | |
| | | *Tabellaria fenestrata* | < 17.8 | < 35.6 | | | | |
| | | *Tabellaria flocculosa* | 178.0 | < 35.6 | 249.2 | | | |
| | | *Tabellaria* | | | | | | |
| | | SUM: | 303 | 178 | 445 | 309 | 77 | 4 |
| Chlorophyta | Chlorococcales | *Ankistrodesmus* | 35.6 | 106.8 | 35.6 | | | |
| | | *Botryococcus braunii* | < 17.8 | | < 17.8 | | | |
| | | *Coelastrum* | | | | | | |
| | | *Crucigenia quadrata* | 71.2 | < 35.6 | < 17.8 | | | |
| | | *Crucigenia tetrapedia* | 213.6 | 284.8 | 142.4 | | | |
| | | *Crucigenia* | < 17.8 | < 35.6 | < 17.8 | | | |
| | | *Dictyosphaerium* | < 17.8 | < 35.6 | | | | |
| | | *Elakatothrix* | | < 35.6 | | | | |
| | | *Kirchneriella* | | | | | | |
| | | *Lagerheimia* | | < 35.6 | | | | |
| | | *Nephrocytium* | | | | | | |
| | | *Oocystis* | | | | | | |
| | | *Pediastrum* | < 17.8 | < 35.6 | < 17.8 | | | |
| | | *Quadrigula* | | | | | | |
| | | *Scenedesmus quadricauda* | < 17.8 | | | | | |
| | | *Scenedesmus* | < 17.8 | 71.2 | < 17.8 | | | |
| | | *Schroederia* | | | | | | |
| | | *Selenastrum* | | | | | | |
| | | *Sphaerocystis schroeteri* | < 17.8 | | | | | |
| | | *Tetraedron* | < 17.8 | 35.6 | < 17.8 | | | |
| | | *Treubaria* | | | | | | |
| | Euglenales | *Euglena* | < 17.8 | < 35.6 | < 17.8 | | | |
| | | *Phacus* | | | | | | |
| | | *Trachelomonas* | < 17.8 | | < 17.8 | | | |
| | Oedogoniales | *Bulbochaete* | | | | | | |
| | | *Oedogonium* | | | | | | |
| | Tetrasporales | *Gloeocystis ampla* | | < 35.6 | | | | |
| | Ulothricales | *Geminella* | | | | | | |
| | | *Ulothrix* | | | | | | |
| | Volvocales | *Chlamydomonas* | < 17.8 | | 17.8 | | | |
| | | *Eudorina* | < 17.8 | < 35.6 | | | | |
| | Zygnematales | *Arthrodesmus* | | | < 17.8 | | | |
| | | *Closteriopsis* | < 17.8 | | | | | |
| | | *Closterium* | | | | | | |

# Appendix 7.1-2
# Phytoplankton Taxonomy Results, 1998

| | | | Boston Reference Lake 21-Jul-98 Cell Abundance (cells/mL) | | | | | |
|---|---|---|---|---|---|---|---|---|
| FES Sample Number | | | 980143 | 980144 | 980145 | | | |
| Phylum | Order | Genera and Species | Rep. 1 | Rep. 2 | Rep. 3 | Avg. | Std. Error | % |
| | | *Cosmarium* | | | < 17.8 | | | |
| | | *Euastrum* | < 17.8 | | | | | |
| | | *Gonatozygon* | | | | | | |
| | | *Hyalotheca* | | | | | | |
| | | *Mougeotia* | | | | | | |
| | | *Spirogyra* | | | | | | |
| | | *Spondylosium planum* | 35.6 | < 35.6 | < 17.8 | | | |
| | | *Staurastrum paradoxum* | < 17.8 | | < 17.8 | | | |
| | | *Staurastrum* | | | | | | |
| | | *Xanthidium* | < 17.8 | < 35.6 | | | | |
| | | *Zygnema* | | | | | | |
| | | UID | | | | | | |
| | | SUM: | 356 | 498 | 196 | 350 | 87 | 4 |
| Chrysophyta | | UID flagellate | < 17.8 | < 35.6 | < 17.8 | | | |
| | Ochromonadales | *Dinobryon bavaricum* | 35.6 | 106.8 | 89.0 | | | |
| | | *Dinobryon divergens* | | < 35.6 | < 17.8 | | | |
| | | *Dinobryon elegantissimum* | | | | | | |
| | | *Dinobryon sertularia* | | | | | | |
| | | *Dinobryon* | < 17.8 | < 35.6 | < 17.8 | | | |
| | | *Mallomonas akrokomoos* | | | | | | |
| | | *Mallomonas pseudocoronata* | | | | | | |
| | | *Mallomonas* | | < 35.6 | | | | |
| | | *Uroglenopsis americana* | | | | | | |
| | Rhizochrysidales | *Diceras phaseolus* | | | 17.8 | | | |
| | | SUM: | 36 | 107 | 107 | 83 | 24 | 1 |
| Cyanophyta | Chroococcales | *Agmenellum tenuissima* | 284.8 | < 35.6 | < 17.8 | | | |
| | | *Agmenellum* | | | < 17.8 | | | |
| | | *Anacystis elachista* | < 17.8 | 2,136.0 | | | | |
| | | *Anacystis limneticus* | | < 35.6 | 71.2 | | | |
| | | *Anacystis* | < 17.8 | | < 17.8 | | | |
| | | *Gomphosphaeria Naegelianum* | | | | | | |
| | | *Gomphosphaeria pallidum* | < 17.8 | < 35.6 | | | | |
| | | *Gomphosphaeria* | | < 35.6 | < 17.8 | | | |
| | Nostocales | *Anabaena affinis* | 2,598.8 | 5,019.6 | 587.4 | | | |
| | | *Anabaena flos-aquae* | < 17.8 | < 35.6 | | | | |
| | | *Anabaena* | < 17.8 | < 35.6 | < 17.8 | | | |
| | | *Aphanizomenon flos-aquae* * | 2,919.2 | 6,764.0 | 3,132.8 | | | |
| | | *Pseudanabaena catenata poss.* | | | | | | |
| | | *Rivularia possibly* | | | | | | |
| | Oscillatoriales | *Lyngbya Birgei* | | | | | | |
| | | *Lyngbya limnetica* | < 17.8 | < 35.6 | < 17.8 | | | |
| | | *Lyngbya* | | | | | | |
| | | *Oscillatoria tenuis* | | | | | | |
| | | *Oscillatoria* | | | | | | |
| | | SUM: | 5803 | 13920 | 3791 | 7838 | 3096 | 91 |
| Pyrrophyta | Cryptomonadales | *Chroomonas acuta* | 71.2 | < 35.6 | < 17.8 | | | |
| | | *Cryptomonas ovata/erosa* | | | | | | |
| | | *Cryptomonas* | 53.4 | < 35.6 | < 17.8 | | | |
| | Dinokontae | *Peridinium inconspicuum* | < 17.8 | 35.6 | 71.2 | | | |
| | | *Peridinium / Glenodinium* | | | | | | |
| | | SUM: | 124.6 | 35.6 | 71.2 | 77 | 26 | 1 |
| | | | | | Sum of Avg.: | 8657 | | |
| | | Total (cells/mL): | 6622 | 14738 | 4610 | 8657 | 3310 | 100 |

UID = unidentified due to lack of size and/or missing morphological characters.

* Identification is tentative since gonidia were not always clearly observed within the filaments.

# Appendix 7.2-1
# Periphyton Biomass for Hope Bay Belt Streams

# Appendix 7.2-1
# Periphyton Biomass for Hope Bay Belt Streams

| Location | Year | Date | Replicate | Method | Periphyton Chl *a* ($\mu g/cm^2$) |
|---|---|---|---|---|---|
| Pelvic Outflow | 1997 | Jun 19-Jul 19 | 1 | substrate sampler | 20.87 |
| Doris Outflow | 1997 | Jun 19-Jul 19 | 1 | substrate sampler | 2.10 |
| Ogama Outflow | 1997 | Jun 18-Jul 18 | 1 | substrate sampler | 14.01 |
| Tail Outflow | 1997 | Jun19-Jul 19 | 1 | substrate sampler | 24.87 |
| Little Roberts Outflow | 1997 | Jun18-Jul 19 | 1 | substrate sampler | 16.30 |
| Windy Outflow | 1997 | Jun18-Jul 18 | 1 | substrate sampler | 2.10 |
| Aimaoktak River | 1998 | 01-Jul | 1 | instantaneous | 140.03 |
| Aimaoktak River | 1998 | 01-Jul | 2 | instantaneous | 225.21 |
| Aimaoktak River | 1998 | 01-Jul | 3 | instantaneous | 233.38 |
| NE Aimaoktak Inflow | 1998 | 30-Jun | 1 | instantaneous | 86.06 |
| NE Aimaoktak Inflow | 1998 | 30-Jun | 2 | instantaneous | 36.45 |
| NE Aimaoktak Inflow | 1998 | 30-Jun | 3 | instantaneous | 33.31 |
| Trout Outflow | 1998 | 30-Jun | 1 | instantaneous | 217.14 |
| Trout Outflow | 1998 | 30-Jun | 2 | instantaneous | 65.75 |
| Trout Outflow | 1998 | 30-Jun | 3 | instantaneous | 89.34 |
| Boston Reference Outflow | 1998 | 30-Jun | 1 | instantaneous | 201.71 |
| Boston Reference Outflow | 1998 | 30-Jun | 2 | instantaneous | 328.77 |
| Boston Reference Outflow | 1998 | 30-Jun | 3 | instantaneous | 584.48 |
| Aimaoktak River | 1998 | Jul 3-Aug 1 | 1 | substrate sampler | 33.72 |
| Aimaoktak River | 1998 | Jul 3-Aug 1 | 2 | substrate sampler | 62.81 |
| Aimaoktak River | 1998 | Jul 3-Aug 1 | 3 | substrate sampler | 51.61 |
| NE Aimaoktak Inflow | 1998 | Jul 3-July 31 | 1 | substrate sampler | 76.82 |
| NE Aimaoktak Inflow | 1998 | Jul 3-July 31 | 2 | substrate sampler | 538.78 |
| NE Aimaoktak Inflow | 1998 | Jul 3-July 31 | 3 | substrate sampler | 497.05 |
| Trout Outflow | 1998 | Jul 3-July 31 | 1 | substrate sampler | 56.22 |
| Trout Outflow | 1998 | Jul 3-July 31 | 2 | substrate sampler | 58.96 |
| Trout Outflow | 1998 | Jul 3-July 31 | 3 | substrate sampler | 151.05 |
| Boston Reference Outflow | 1998 | Jul 3-Aug 1 | 1 | substrate sampler | 67.47 |
| Boston Reference Outflow | 1998 | Jul 3-Aug 1 | 2 | substrate sampler | 135.59 |
| Boston Reference Outflow | 1998 | Jul 3-Aug 1 | 3 | substrate sampler | 82.01 |
| Stickleback Outflow | 1998 | Jul 3-Jul 30 | 1 | substrate sampler | 66.57 |
| Stickleback Outflow | 1998 | Jul 3-Jul 30 | 2 | substrate sampler | 52.23 |
| Stickleback Outflow | 1998 | Jul 3-Jul 30 | 3 | substrate sampler | 30.49 |

Note: These 1997 data were not included in the 1997 report

# Appendix 7.2-2
# Periphyton Taxonomic Results, 1998

# Appendix 7.2-2
# Periphyton Taxonomic Results, 1998

NE Aimaoktak Inflow
June 28 - Jul 31, 1998
Cell Density (cells/cm$^2$)

| FES Sample Number | | | 980190 | 980191 | 980192 | | | |
|---|---|---|---|---|---|---|---|---|
| Area Sampled (cm$^2$) | | | 14.40 | 14.95 | 12.00 | | | |
| Phylum | Order | Genera and Species | Rep. 1 | Rep. 2 | Rep. 3 | Ave. | Std. Error | % |
| Bacillariophyceae | Centrales | *Cyclotella* | | | | | | |
| | | *Melosira italica* | | | | | | |
| | | *Melosira* | <1,725.0 | | <2,513.5 | | | |
| | | *Rhizosolenia* | | | | | | |
| | Pennales | *Achnanthes minutissima* | 3,450.0 | 6,290.1 | 7,540.5 | | | |
| | | *Achnanthes* | 6,900.0 | 2,096.7 | 7,540.5 | | | |
| | | *Amphipleura pellucida* | | | | | | |
| | | *Amphora* | | | <2,513.5 | | | |
| | | *Asterionella formosa* | | | | | | |
| | | *Caloneis* | <1,725.0 | <2,096.7 | | | | |
| | | *Ceratoneis* | | | | | | |
| | | *Cocconeis* | | <2,096.7 | <2,513.5 | | | |
| | | *Cymatopleura* | | | | | | |
| | | *Cymbella minuta* | | | | | | |
| | | *Cymbella* | 1,725.0 | 6,290.1 | 5,027.0 | | | |
| | | *Diatoma elongatum* | 6,900.0 | 23,063.7 | 27,648.5 | | | |
| | | *Diatoma* | | | | | | |
| | | *Diploneis* | | | | | | |
| | | *Epithemia sorex* | | | | | | |
| | | *Eunotia* | <1725.0 | <2,096.7 | 2,513.5 | | | |
| | | *Fragilaria crotonensis* | | <2,096.7 | | | | |
| | | *Fragilaria* | 3,450.0 | 6,290.1 | 2,513.5 | | | |
| | | *Frustulia* | | | | | | |
| | | *Gomphonema* | <1,725.0 | 4,193.4 | 2,513.5 | | | |
| | | *Meridion circulare* | | | | | | |
| | | *Navicula radiosa* | | | | | | |
| | | *Navicula* | 1,725.0 | 4,193.4 | 2,513.5 | | | |
| | | *Neidium* | | | | | | |
| | | *Nitzschia aclcularis* | | 2,096.7 | <2,513.5 | | | |
| | | *Nitzschia* | 1,725.0 | 2,096.7 | <2,513.5 | | | |
| | | *Pinnularia* | <1,725.0 | <2,096.7 | <2,513.5 | | | |
| | | *Pleurosigma / Gyrosigma* | | | | | | |
| | | *Stauroneis* | | | | | | |
| | | *Surirella* | <1,725.0 | | <2,513.5 | | | |
| | | *Synedra ulna* | <1,725.0 | | | | | |
| | | *Synedra* | <1,725.0 | 2,096.7 | | | | |
| | | *Tabellaria fenestrata* | <1,725.0 | | | | | |
| | | *Tabellaria flocculosa* | 1,725.0 | 4,193.4 | 12,567.5 | | | |
| | | **SUM:** | 3,450.0 | 5,718.3 | 7,819.8 | 5,663 | 1,262 | 1 |
| Chlorophyta | | UID unicellular | 1,725.0 | 6,290.1 | <2,513.5 | | | |
| | | UID flagellate | | 2,096.7 | 5,027.0 | | | |
| | Chaetophorales | *Coleochaete* | | | | | | |
| | | *Stigeoclonium* | | | | | | |
| | | *Stigeoclonium poss.* [2] | | | | | | |
| | | UID | | | | | | |
| | Chlorococcales | *Ankistrodesmus falcatus* | 12,075.0 | 44,030.7 | 50,270.0 | | | |
| | | *Ankistrodesmus spiralis* | <1,725.0 | 8,386.8 | 10,054.0 | | | |
| | | *Ankistrodesmus* | | | | | | |
| | | *Botryococcus braunii* | | <2,096.7 | | | | |
| | | *Coelastrum* | <1,725.0 | <2,096.7 | <2,513.5 | | | |
| | | *Crucigenia quadrata* | | | | | | |
| | | *Crucigenia rectangularis* | | | | | | |
| | | *Crucigenia tetrapedia* | 6,900.0 | 8,386.8 | <2,513.5 | | | |
| | | *Crucigenia* | | | | | | |
| | | *Dictyosphaerium* | 20,700.0 | <2,096.7 | 17,594.5 | | | |
| | | *Euastropsis* | | | | | | |
| | | *Elakatothrix* | | <2,096.7 | | | | |
| | | *Kirchneriella* | | | | | | |
| | | *Lagerheimia* | | | <2,513.5 | | | |
| | | *Nephrocytium* | | | | | | |

# Appendix 7.2-2
# Periphyton Taxonomic Results, 1998

NE Aimaoktak Inflow
June 28 - Jul 31, 1998
Cell Density (cells/cm$^2$)

| FES Sample Number | | | 980190 | 980191 | 980192 | | | |
|---|---|---|---|---|---|---|---|---|
| Area Sampled (cm$^2$) | | | 14.40 | 14.95 | 12.00 | | | |
| Phylum | Order | Genera and Species | Rep. 1 | Rep. 2 | Rep. 3 | Ave. | Std. Error | % |
| | | *Oocystis* | <1,725.0 | 2,096.7 | <2,513.5 | | | |
| | | *Pediastrum* | <1,725.0 | 14,676.9 | 12,567.5 | | | |
| | | *Quadrigula* | | | | | | |
| | | *Scenedesmus* | 27,600.0 | 25,160.4 | 90,486.0 | | | |
| | | *Schroederia* | | | | | | |
| | | *Selenastrum minutum* | | | | | | |
| | | *Sphaerocystis schroeteri* | | 12,580.2 | 10,054.0 | | | |
| | | *Tetraedron* | | | | | | |
| | | *Treubaria* | | | | | | |
| | Euglenales | *Euglena* | | <2,096.7 | <2,513.5 | | | |
| | | *Phacus* | | | | | | |
| | | *Trachelomonas* | 5,175.0 | 4,193.4 | 2,513.5 | | | |
| | Oedogoniales | *Bulbochaete* | <1,725.0 | <2,096.7 | <2,513.5 | | | |
| | | *Oedogonium* | <1,725.0 | <2,096.7 | 5,027.0 | | | |
| | Tetrasporales | *Gloeocystis ampla* | | | | | | |
| | | *Apiocystis brauniana* | | | | | | |
| | | *Cylindrocapsa poss.* | | | | | | |
| | | *Tetraspora* | <1,725.0 | | | | | |
| | | *Tetraspora poss.* [1] | 6,900.0 | 8,386.8 | | | | |
| | Ulothricales | *Cylindrocapsa poss* | | | | | | |
| | | *Geminella* | <1,725.0 | | | | | |
| | | *Microspora* | | | | | | |
| | | *Ulothrix* | | | | | | |
| | Volvocales | *Chlamydomonas* | | <2,096.7 | 2,513.5 | | | |
| | | *Eudorina* | | | | | | |
| | Zygnematales | *Arthrodesmus* | | | | | | |
| | | *Bambussina* | | | | | | |
| | | *Closterium* | <1,725.0 | 2,096.7 | <2,513.5 | | | |
| | | *Cosmarium* | 5,175.0 | 25,160.0 | 17,594.5 | | | |
| | | *Euastrum* | | <2,096.7 | 2,513.5 | | | |
| | | *Gonatozygon* | | | | | | |
| | | *Hyalotheca* | | | <2,513.5 | | | |
| | | *Micrasterias* | <1,725.0 | | | | | |
| | | *Mougeotia* | 3,450.0 | 8,386.8 | 12,567.5 | | | |
| | | *Netrium* | | | | | | |
| | | *Penium* | | | | | | |
| | | *Pleurotaenium* | | | | | | |
| | | *Spirogyra* | 6,900.0 | 8,386.8 | 5,027.0 | | | |
| | | *Spondylosium planum* | <1,725.0 | <2,096.7 | <2,513.5 | | | |
| | | *Staurastrum* | <1725.0 | 2,096.7 | 5,027.0 | | | |
| | | *Teilingia* [4] | <1,725.0 | 4,193.4 | <2,513.5 | | | |
| | | *Xanthidium* | | <2,096.7 | | | | |
| | | *Zygnema* | 22,425.0 | 23,063.7 | 15,081.0 | | | |
| | | UID | | | | | | |
| | | **SUM:** | 119,025.0 | 209,669.6 | 263,917.5 | 197,537 | 42,264 | 21 |
| | | UID flagellate | 3,450.0 | 2,096.7 | <2,513.5 | | | |
| Chrysophyta | | UID unicellular | 1,725.0 | | | | | |
| | Chromulinales | *Hydrurus foetidus possibly* | | | | | | |
| | Ochromonadales | *Dinobryon bavaricum* | | | | | | |
| | | *Dinobryon cylindrium* | | | | | | |
| | | *Dinobryon divergens* | | | | | | |
| | | *Dinobryon sertularia* | 1,725.0 | <2,096.7 | | | | |
| | | *Dinobryon* | <1725.0 | | | | | |
| | | *Kephyrion/Psuedokephyrion* | | | | | | |
| | | *Mallomonas akrokomos* | | | | | | |
| | | *Mallomonas* | | | | | | |
| | | UID | | | | | | |
| | Rhizochrysidales | *Diceras phaseolus* | | | | | | |
| | Tribonematales | *Tribonema* | | | | | | |

# Appendix 7.2-2
# Periphyton Taxonomic Results, 1998

| | | | NE Aimaoktak Inflow<br>June 28 - Jul 31, 1998<br>Cell Density (cells/cm$^2$) | | | | | |
|---|---|---|---|---|---|---|---|---|
| FES Sample Number | | | 980190 | 980191 | 980192 | | | |
| Area Sampled (cm$^2$) | | | 14.40 | 14.95 | 12.00 | | | |
| Phylum | Order | Genera and Species | Rep. 1 | Rep. 2 | Rep. 3 | Ave. | Std. Error | % |
| | | **SUM:** | 6,900.0 | 2,096.7 | 0.0 | 2,999 | 2,042 | 0 |
| Cyanophyta | Chamaesiphonales | *Clastidium setiferum* | | | <2,513.5 | | | |
| | Chroococcales | *Agmenellum tenuissima* | | | | | | |
| | | *Agmenellum* | <1,725.0 | 16,773.6 | <2,513.5 | | | |
| | | *Anacystis limneticus* | | | | | | |
| | | *Anacystis* | 158,700.0 | 92,254.8 | 110,594.0 | | | |
| | | *Anacystis* [3] | | | | | | |
| | | *Gomphosphaeria Naegelianum* | 412,275.0 | 526,271.7 | 821,914.5 | | | |
| | | *Gomphosphaeria* | <1,725.0 | | | | | |
| | | *Rhabdoderma* | | | | | | |
| | | UID | | | | | | |
| | Nostocales | *Anabaena* | 10,350.3 | 20,967.0 | <2,513.5 | | | |
| | | *Aphanizomenon flos-aquae* | | | | | | |
| | | *Gloeotrichia possibly* | | | | | | |
| | | *Nostoc* | | | | | | |
| | | *Pseudanabaena catenata poss.* | | | | | | |
| | | *Rivularia* | | | | | | |
| | Oscillatoriales | *Lyngbya limnetica* | | | | | | |
| | | *Lyngbya* | 17,250.0 | | <2,513.5 | | | |
| | | *Oscillatoria tenuis* | | | | | | |
| | | *Oscillatoria* | | 12,580.2 | <2,513.5 | | | |
| | | UID sheathed filament | | | | | | |
| | | **SUM:** | 598,575.3 | 668,847.3 | 932,508.5 | 733,310 | 101,644 | 78 |
| Pyrrophyta | Cryptomonadales | *Chroomonas acuta* | | | | | | |
| | | *Cryptomonas* | | | | | | |
| | Dinokontae | *Peridinium inconspicuum* | | | | | | |
| | | *Peridinium / Glenodinium* | <1,725.0 | | | | | |
| | | **SUM:** | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 |
| Rhodophyta | | | <1,725.0 | | | | | |
| | | **SUM:** | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | | | sum of ave: | 939,509 | | |
| | | | 727,950 | 886,332 | 1,204,246 | 939,509 | 140,042 | 100 |

UID = unidentified

1 Loose cells possibly of *Tetraspora*

2 possibly *Psuedochaete* considered by some phycologists as a growth form of *Stigeoclonium.*

3 *Anacystis* includes *Coccochloris*

4 Formerly this species *Teilingia granulata* was included in the genus *Sphaerozosma*

# Appendix 7.2-2
# Periphyton Taxonomic Results, 1998

| | | | Aimaoktak River June 27 - Aug 1, 1998 Cell Density (cells/cm$^2$) | | | | | |
|---|---|---|---|---|---|---|---|---|
| FES Sample Number | | | 980193 | 980194 | 980195 | | | |
| Area Sampled (cm$^2$) | | | 23.40 | 29.00 | 27.50 | | | |
| Phylum | Order | Genera and Species | Rep. 1 | Rep. 2 | Rep. 3 | Ave. | Std. Error | % |
| Bacillariophyceae | Centrales | *Cyclotella* | | | | | | |
| | | *Melosira italica* | | | | | | |
| | | *Melosira* | | <611.8 | | | | |
| | | *Rhizosolenia* | | | | | | |
| | Pennales | *Achnanthes minutissima* | 7,961.4 | 7,341.6 | 5,505.6 | | | |
| | | *Achnanthes* | 8,846.0 | 5,506.2 | 8,258.4 | | | |
| | | *Amphipleura pellucida* | | | | | | |
| | | *Amphora* | <884.6 | | | | | |
| | | *Asterionella formosa* | | | | | | |
| | | *Caloneis* | | | | | | |
| | | *Ceratoneis* | | | | | | |
| | | *Cocconeis* | | | | | | |
| | | *Cymatopleura* | | | | | | |
| | | *Cymbella minuta* | | | | | | |
| | | *Cymbella* | 884.6 | 1,223.6 | 688.2 | | | |
| | | *Diatoma elongatum* | 16,807.4 | 16,518.6 | 9,634.8 | | | |
| | | *Diatoma* | | | | | | |
| | | *Diploneis* | | | | | | |
| | | *Epithemia sorex* | | | | | | |
| | | *Eunotia* | 1,769.2 | <611.8 | 688.2 | | | |
| | | *Fragilaria crotonensis* | | 1,223.6 | | | | |
| | | *Fragilaria* | 13,269.0 | 8,565.2 | 4,129.2 | | | |
| | | *Frustulia* | | | | | | |
| | | *Gomphonema* | | 611.8 | | | | |
| | | *Meridion circulare* | | | | | | |
| | | *Navicula radiosa* | | | | | | |
| | | *Navicula* | 884.6 | 1,223.6 | 688.2 | | | |
| | | *Neidium* | | | | | | |
| | | *Nitzschia aclcularis* | <884.6 | | | | | |
| | | *Nitzschia* | 2,653.8 | 611.8 | 1376.4 | | | |
| | | *Pinnularia* | | <611.8 | <688.2 | | | |
| | | *Pleurosigma / Gyrosigma* | | | | | | |
| | | *Stauroneis* | | | | | | |
| | | *Surirella* | | <611.8 | | | | |
| | | *Synedra ulna* | | | | | | |
| | | *Synedra* | 1,769.2 | 1,223.6 | 688.2 | | | |
| | | *Tabellaria fenestrata* | | | | | | |
| | | *Tabellaria flocculosa* | 174,266.2 | 102,170.6 | 106,671.0 | | | |
| | | **SUM:** | 22,911.1 | 13,292.7 | 13,832.8 | 16,679 | 3,120 | 4 |
| Chlorophyta | | UID unicellular | 22,999.6 | 22,636.6 | 33,721.8 | | | |
| | | UID flagellate | 884.6 | 1,835.4 | 688.2 | | | |
| | Chaetophorales | *Coleochaete* | | | | | | |
| | | *Stigeoclonium* | | | | | | |
| | | *Stigeoclonium poss.* [2] | | | | | | |
| | | UID | | | | | | |
| | Chlorococcales | *Ankistrodesmus falcatus* | 28,307.2 | 11,624.2 | 22,022.4 | | | |
| | | *Ankistrodesmus spiralis* | 3,538.4 | <611.8 | <688.2 | | | |
| | | *Ankistrodesmus* | | | | | | |
| | | *Botryococcus braunii* | <884.6 | <611.8 | <688.2 | | | |
| | | *Coelastrum* | <884.6 | 4,894.4 | <688.2 | | | |
| | | *Crucigenia quadrata* | <884.6 | <611.8 | <688.2 | | | |
| | | *Crucigenia rectangularis* | | | | | | |
| | | *Crucigenia tetrapedia* | <884.6 | 4,894.4 | 5,505.6 | | | |
| | | *Crucigenia* | | 2,447.2 | | | | |
| | | *Dictyosphaerium* | 7,076.8 | 2,447.2 | | | | |
| | | *Euastropsis* | <884.6 | <611.8 | | | | |
| | | *Elakatothrix* | | | | | | |
| | | *Kirchneriella* | <884.6 | <611.8 | <688.2 | | | |
| | | *Lagerheimia* | <884.6 | <611.8 | | | | |
| | | *Nephrocytium* | | | | | | |

# Appendix 7.2-2
# Periphyton Taxonomic Results, 1998

| | | | Aimaoktak River<br>June 27 - Aug 1, 1998<br>Cell Density (cells/cm$^2$) | | | | | |
|---|---|---|---|---|---|---|---|---|
| FES Sample Number | | | 980193 | 980194 | 980195 | | | |
| Area Sampled (cm$^2$) | | | 23.40 | 29.00 | 27.50 | | | |
| Phylum | Order | Genera and Species | Rep. 1 | Rep. 2 | Rep. 3 | Ave. | Std. Error | % |
| | | *Oocystis* | 1,769.2 | 7,341.6 | 4,817.4 | | | |
| | | *Pediastrum* | 8,846.0 | 8,565.2 | 13,174.4 | | | |
| | | *Quadrigula* | | | | | | |
| | | *Scenedesmus* | 14,153.6 | 20,801.2 | 19,269.6 | | | |
| | | *Schroederia* | | | | | | |
| | | *Selenastrum minutum* | | | | | | |
| | | *Sphaerocystis schroeteri* | 7,076.8 | 2,447.2 | 2,752.8 | | | |
| | | *Tetraedron* | <884.6 | <611.8 | 688.2 | | | |
| | | *Treubaria* | | | | | | |
| | Euglenales | *Euglena* | | | | | | |
| | | *Phacus* | | | | | | |
| | | *Trachelomonas* | 884.6 | | | | | |
| | Oedogoniales | *Bulbochaete* | <884.6 | <611.8 | <688.2 | | | |
| | | *Oedogonium* | 3,538.4 | 2,447.2 | 1,376.4 | | | |
| | Tetrasporales | *Gloeocystis ampla* | | | | | | |
| | | *Apiocystis brauniana* | | | | | | |
| | | *Cylindrocapsa poss.* | | 611.8 | 8,252.8 | | | |
| | | *Tetraspora* | | | | | | |
| | | *Tetraspora poss.* [1] | | | | | | |
| | Ulothricales | *Cylindrocapsa poss* | | | | | | |
| | | *Geminella* | <884.6 | <611.8 | <688.2 | | | |
| | | *Microspora* | <884.6 | <611.8 | | | | |
| | | *Ulothrix* | | | | | | |
| | Volvocales | *Chlamydomonas* | | | | | | |
| | | *Eudorina* | | | | | | |
| | Zygnematales | *Arthrodesmus* | 884.6 | 611.8 | 688.2 | | | |
| | | *Bambussina* | | | | | | |
| | | *Closterium* | <884.6 | 611.8 | 1,376.4 | | | |
| | | *Cosmarium* | 12,384.40 | 15,295.00 | 20,646.0 | | | |
| | | *Euastrum* | 1,769.2 | 1,223.6 | 1,376.4 | | | |
| | | *Gonatozygon* | <884.6 | <611.8 | <688.2 | | | |
| | | *Hyalotheca* | <884.6 | <611.8 | <688.2 | | | |
| | | *Micrasterias* | | | | | | |
| | | *Mougeotia* | <884.6 | 611.8 | 6,193.8 | | | |
| | | *Netrium* | | | | | | |
| | | *Penium* | | | <688.2 | | | |
| | | *Pleurotaenium* | <884.6 | <611.8 | <688.2 | | | |
| | | *Spirogyra* | <884.6 | <611.8 | 6193.8 | | | |
| | | *Spondylosium planum* | <884.6 | <611.8 | <688.2 | | | |
| | | *Staurastrum* | 5,307.6 | 5,506.2 | 4,129.2 | | | |
| | | *Teilingia* [4] | 9,730.6 | 9,177.0 | 11,699.4 | | | |
| | | *Xanthidium* | | | | | | |
| | | *Zygnema* | 7,076.8 | <611.8 | <688.2 | | | |
| | | UID | | | | | | |
| | | **SUM:** | 136,228.4 | 126,030.8 | 164,572.8 | 142,277 | 11,530 | 33 |
| Chrysophyta | | UID flagellate | 884.6 | 611.8 | 1,376.4 | | | |
| | | UID unicellular | | | | | | |
| | Chromulinales | *Hydrurus foetidus possibly* | | | | | | |
| | Ochromonadales | *Dinobryon bavaricum* | | | | | | |
| | | *Dinobryon cylindrium* | | | | | | |
| | | *Dinobryon divergens* | | | | | | |
| | | *Dinobryon sertularia* | <884.6 | 2,447.2 | <688.2 | | | |
| | | *Dinobryon* | | | | | | |
| | | *Kephyrion/Psuedokephyrion* | | 611.8 | | | | |
| | | *Mallomonas akrokomos* | | | | | | |
| | | *Mallomonas* | | | | | | |
| | | UID | | | | | | |
| | Rhizochrysidales | *Diceras phaseolus* | | | | | | |
| | Tribonematales | *Tribonema* | | | | | | |

# Appendix 7.2-2
# Periphyton Taxonomic Results, 1998

| | | | Aimaoktak River<br>June 27 - Aug 1, 1998<br>Cell Density (cells/cm$^2$) | | | | | |
|---|---|---|---|---|---|---|---|---|
| FES Sample Number | | | 980193 | 980194 | 980195 | | | |
| Area Sampled (cm$^2$) | | | 23.40 | 29.00 | 27.50 | | | |
| Phylum | Order | Genera and Species | Rep. 1 | Rep. 2 | Rep. 3 | Ave. | Std. Error | % |
| | | **SUM:** | 884.6 | 3,670.8 | 1,376.4 | 1,977 | 859 | 0 |
| Cyanophyta | Chamaesiphonales | *Clastidium setiferum* | 1,769.2 | <611.8 | <688.2 | | | |
| | Chroococcales | *Agmenellum tenuissima* | | | | | | |
| | | *Agmenellum* | 7,076.2 | 9,788.8 | 8,258.4 | | | |
| | | *Anacystis limneticus* | | | | | | |
| | | *Anacystis* | 70,768.0 | 41,602.4 | 100,477.2 | | | |
| | | *Anacystis* [3] | | | | | | |
| | | *Gomphosphaeria Naegelianum* | 199,035.0 | 55,062.0 | 138,328.2 | | | |
| | | *Gomphosphaeria* | | | | | | |
| | | *Rhabdoderma* | | | <688.2 | | | |
| | | UID | | | | | | |
| | Nostocales | *Anabaena* | 4,423.0 | <611.8 | <688.2 | | | |
| | | *Aphanizomenon flos-aquae* | | | | | | |
| | | *Gloeotrichia possibly* | | | | | | |
| | | *Nostoc* | | | | | | |
| | | *Pseudanabaena catenata poss.* | 10,615.2 | | | | | |
| | | *Rivularia* | | | | | | |
| | Oscillatoriales | *Lyngbya limnetica* | | | | | | |
| | | *Lyngbya* | | 9,177.0 | <688.2 | | | |
| | | *Oscillatoria tenuis* | | | | | | |
| | | *Oscillatoria* | 61,922.0 | 47,108.6 | 32,345.4 | | | |
| | | UID sheathed filament | | | | | | |
| | | **SUM:** | 355,608.6 | 162,738.8 | 279,409.2 | 265,919 | 56,084 | 62 |
| Pyrrophyta | Cryptomonadales | *Chroomonas acuta* | | | | | | |
| | | *Cryptomonas* | | | | | | |
| | Dinokontae | *Peridinium inconspicuum* | | | | | | |
| | | *Peridinium / Glenodinium* | 1,769.2 | 611.8 | <688.2 | | | |
| | | **SUM:** | 1,769.2 | 611.8 | 0.0 | 794 | 519 | 0 |
| Rhodophyta | | | | | | | | |
| | | **SUM:** | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | | | sum of ave: | 427,646 | | |
| | | | 517,402 | 306,345 | 459,191 | 427,646 | 62,935 | 100 |

UID = unidentified
1 Loose cells possibly of *Tetraspora*
2 possibly *Psuedochaete* considered by some phycologists as a growth form of *Stigeoclonium*
3 *Anacystis* includes *Coccochloris*
4 Formerly this species *Teilingia granulata* was included in the genus *Sphaerozosma*

# Appendix 7.2-2
# Periphyton Taxonomic Results, 1998

| | | | Stickleback Outflow June 26 - Jul 30, 1998 Cell Density (cells/cm$^2$) | | | | | |
|---|---|---|---|---|---|---|---|---|
| FES Sample Number | | | 980181a | 980182 | 980183 | | | |
| Area Sampled (cm$^2$) | | | 25.00 | 20.21 | 28.00 | | | |
| Phylum | Order | Genera and Species | Rep. 1 | Rep. 2 | Rep. 3 | Ave. | Std. Error | % |
| Bacillariophyceae | Centrales | *Cyclotella* | | | | | | |
| | | *Melosira italica* | | | | | | |
| | | *Melosira* | | | | | | |
| | | *Rhizosolenia* | | | | | | |
| | Pennales | *Achnanthes minutissima* | 75,412.5 | 66,575.6 | 27,561.6 | | | |
| | | *Achnanthes* | <603.3 | 1,097.4 | 633.6 | | | |
| | | *Amphipleura pellucida* | <603.3 | | | | | |
| | | *Amphora* | <603.3 | <365.8 | <158.4 | | | |
| | | *Asterionella formosa* | <603.3 | <365.8 | | | | |
| | | *Caloneis* | | | | | | |
| | | *Ceratoneis* | | | | | | |
| | | *Cocconeis* | <603.3 | 365.8 | 158.4 | | | |
| | | *Cymatopleura* | | | | | | |
| | | *Cymbella minuta* | | | | | | |
| | | *Cymbella* | 1,206.6 | 2,194.8 | 475.2 | | | |
| | | *Diatoma elongatum* | 10,859.4 | 11,339.8 | 316.8 | | | |
| | | *Diatoma* | 1,206.6 | 731.6 | <158.4 | | | |
| | | *Diploneis* | | | | | | |
| | | *Epithemia sorex* | 603.3 | <365.8 | <158.4 | | | |
| | | *Eunotia* | 603.3 | <365.8 | 158.4 | | | |
| | | *Fragilaria crotonensis* | 603.3 | <365.8 | 475.2 | | | |
| | | *Fragilaria* | 3,619.8 | 2,560.6 | 316.8 | | | |
| | | *Frustulia* | | | | | | |
| | | *Gomphonema* | 3,016.5 | 1,097.4 | 475.2 | | | |
| | | *Meridion circulare* | | | | | | |
| | | *Navicula radiosa* | <603.3 | <365.8 | | | | |
| | | *Navicula* | 3,016.5 | 2,926.4 | 633.6 | | | |
| | | *Neidium* | <603.3 | <365.8 | | | | |
| | | *Nitzschia aclcularis* | <603.3 | 365.8 | | | | |
| | | *Nitzschia* | 1,809.9 | 731.6 | <158.4 | | | |
| | | *Pinnularia* | <603.3 | <365.8 | | | | |
| | | *Pleurosigma / Gyrosigma* | <603.3 | | | | | |
| | | *Stauroneis* | <603.3 | <365.8 | <158.4 | | | |
| | | *Surirella* | <603.3 | <365.8 | | | | |
| | | *Synedra ulna* | <603.3 | <365.8 | <158.4 | | | |
| | | *Synedra* | 1,206.6 | 731.6 | 316.8 | | | |
| | | *Tabellaria fenestrata* | | | | | | |
| | | *Tabellaria flocculosa* | 2,413.2 | 5,852.8 | 633.6 | | | |
| | | **SUM:** | 8,121.3 | 7,428.6 | 2,679.6 | 6,077 | 1,710 | 10 |
| Chlorophyta | | UID unicellular | | | | | | |
| | | UID flagellate | 603.3 | | 316.8 | | | |
| | Chaetophorales | *Coleochaete* | | | | | | |
| | | *Stigeoclonium* | | | | | | |
| | | *Stigeoclonium poss.* [2] | 7,239.6 | 731.6 | 5,544.0 | | | |
| | | UID | | | | | | |
| | Chlorococcales | *Ankistrodesmus falcatus* | <603.3 | <365.8 | <158.4 | | | |
| | | *Ankistrodesmus spiralis* | | | <158.4 | | | |
| | | *Ankistrodesmus* | | | | | | |
| | | *Botryococcus braunii* | | | | | | |
| | | *Coelastrum* | 7,239.6 | <365.8 | <158.4 | | | |
| | | *Crucigenia quadrata* | | | | | | |
| | | *Crucigenia rectangularis* | <603.3 | | | | | |
| | | *Crucigenia tetrapedia* | 2,413.2 | 2,926.4 | <158.4 | | | |
| | | *Crucigenia* | | | | | | |
| | | *Dictyosphaerium* | | | | | | |
| | | *Euastropsis* | | | | | | |
| | | *Elakatothrix* | | | | | | |
| | | *Kirchneriella* | | | | | | |
| | | *Lagerheimia* | | | | | | |
| | | *Nephrocytium* | | | | | | |

# Appendix 7.2-2
# Periphyton Taxonomic Results, 1998

| | | | Stickleback Outflow June 26 - Jul 30, 1998 Cell Density (cells/cm$^2$) | | | | | |
|---|---|---|---|---|---|---|---|---|
| FES Sample Number | | | 980181a | 980182 | 980183 | | | |
| Area Sampled (cm$^2$) | | | 25.00 | 20.21 | 28.00 | | | |
| Phylum | Order | Genera and Species | Rep. 1 | Rep. 2 | Rep. 3 | Ave. | Std. Error | % |
| Bacillariophyceae | Centrales | *Cyclotella* | | | | | | |
| | | *Melosira italica* | | | | | | |
| | | *Melosira* | | | | | | |
| | | *Rhizosolenia* | | | | | | |
| | Pennales | *Achnanthes minutissima* | 75,412.5 | 66,575.6 | 27,561.6 | | | |
| | | *Achnanthes* | <603.3 | 1,097.4 | 633.6 | | | |
| | | *Amphipleura pellucida* | <603.3 | | | | | |
| | | *Amphora* | <603.3 | <365.8 | <158.4 | | | |
| | | *Asterionella formosa* | <603.3 | <365.8 | | | | |
| | | *Caloneis* | | | | | | |
| | | *Ceratoneis* | | | | | | |
| | | *Cocconeis* | <603.3 | 365.8 | 158.4 | | | |
| | | *Cymatopleura* | | | | | | |
| | | *Cymbella minuta* | | | | | | |
| | | *Cymbella* | 1,206.6 | 2,194.8 | 475.2 | | | |
| | | *Diatoma elongatum* | 10,859.4 | 11,339.8 | 316.8 | | | |
| | | *Diatoma* | 1,206.6 | 731.6 | <158.4 | | | |
| | | *Diploneis* | | | | | | |
| | | *Epithemia sorex* | 603.3 | <365.8 | <158.4 | | | |
| | | *Eunotia* | 603.3 | <365.8 | 158.4 | | | |
| | | *Fragilaria crotonensis* | 603.3 | <365.8 | 475.2 | | | |
| | | *Fragilaria* | 3,619.8 | 2,560.6 | 316.8 | | | |
| | | *Frustulia* | | | | | | |
| | | *Gomphonema* | 3,016.5 | 1,097.4 | 475.2 | | | |
| | | *Meridion circulare* | | | | | | |
| | | *Navicula radiosa* | <603.3 | <365.8 | | | | |
| | | *Navicula* | 3,016.5 | 2,926.4 | 633.6 | | | |
| | | *Neidium* | <603.3 | <365.8 | | | | |
| | | *Nitzschia aclcularis* | <603.3 | 365.8 | | | | |
| | | *Nitzschia* | 1,809.9 | 731.6 | <158.4 | | | |
| | | *Pinnularia* | <603.3 | <365.8 | | | | |
| | | *Pleurosigma / Gyrosigma* | <603.3 | | | | | |
| | | *Stauroneis* | <603.3 | <365.8 | <158.4 | | | |
| | | *Surirella* | <603.3 | <365.8 | | | | |
| | | *Synedra ulna* | <603.3 | <365.8 | <158.4 | | | |
| | | *Synedra* | 1,206.6 | 731.6 | 316.8 | | | |
| | | *Tabellaria fenestrata* | | | | | | |
| | | *Tabellaria flocculosa* | 2,413.2 | 5,852.8 | 633.6 | | | |
| | | **SUM:** | 8,121.3 | 7,428.6 | 2,679.6 | 6,077 | 1,710 | 10 |
| Chlorophyta | | UID unicellular | | | | | | |
| | | UID flagellate | 603.3 | | 316.8 | | | |
| | Chaetophorales | *Coleochaete* | | | | | | |
| | | *Stigeoclonium* | | | | | | |
| | | *Stigeoclonium poss.* [2] | 7,239.6 | 731.6 | 5,544.0 | | | |
| | Chlorococcales | UID | | | | | | |
| | | *Ankistrodesmus falcatus* | <603.3 | <365.8 | <158.4 | | | |
| | | *Ankistrodesmus spiralis* | | | <158.4 | | | |
| | | *Ankistrodesmus* | | | | | | |
| | | *Botryococcus braunii* | | | | | | |
| | | *Coelastrum* | 7,239.6 | <365.8 | <158.4 | | | |
| | | *Crucigenia quadrata* | | | | | | |
| | | *Crucigenia rectangularis* | <603.3 | | | | | |
| | | *Crucigenia tetrapedia* | 2,413.2 | 2,926.4 | <158.4 | | | |
| | | *Crucigenia* | | | | | | |
| | | *Dictyosphaerium* | | | | | | |
| | | *Euastropsis* | | | | | | |
| | | *Elakatothrix* | | | | | | |
| | | *Kirchneriella* | | | | | | |
| | | *Lagerheimia* | | | | | | |
| | | *Nephrocytium* | | | | | | |

# Appendix 7.2-2
# Periphyton Taxonomic Results, 1998

| | | | Stickleback Outflow June 26 - Jul 30, 1998 Cell Density (cells/cm$^2$) | | | | | |
|---|---|---|---|---|---|---|---|---|
| FES Sample Number | | | 980181a | 980182 | 980183 | | | |
| Area Sampled (cm$^2$) | | | 25.00 | 20.21 | 28.00 | | | |
| Phylum | Order | Genera and Species | Rep. 1 | Rep. 2 | Rep. 3 | Ave. | Std. Error | % |
| | | *Oocystis* | | <365.8 | <158.4 | | | |
| | | *Pediastrum* | <603.3 | 8,047.6 | <158.4 | | | |
| | | *Quadrigula* | | | | | | |
| | | *Scenedesmus* | 2,413.2 | 1,829.0 | 633.6 | | | |
| | | *Schroederia* | | | | | | |
| | | *Selenastrum minutum* | <603.3 | | | | | |
| | | *Sphaerocystis schroeteri* | | <365.8 | 1,267.2 | | | |
| | | *Tetraedron* | 1,809.9 | 365.8 | 158.4 | | | |
| | | *Treubaria* | | | | | | |
| | Euglenales | *Euglena* | | | | | | |
| | | *Phacus* | <603.3 | | | | | |
| | | *Trachelomonas* | 603.3 | <731.6 | 158.4 | | | |
| | Oedogoniales | *Bulbochaete* | <603.3 | <365.8 | <158.4 | | | |
| | | *Oedogonium* | <603.3 | 731.6 | 475.2 | | | |
| | Tetrasporales | *Gloeocystis ampla* | <603.3 | | | | | |
| | | *Apiocystis brauniana* | | | | | | |
| | | *Cylindrocapsa poss.* | | | | | | |
| | | *Tetraspora* | <603.3 | <365.8 | <158.4 | | | |
| | | *Tetraspora poss.* [1] | | | | | | |
| | Ulothricales | *Cylindrocapsa poss* | | | | | | |
| | | *Geminella* | | | | | | |
| | | *Microspora* | <603.3 | | <158.4 | | | |
| | | *Ulothrix* | | | | | | |
| | Volvocales | *Chlamydomonas* | | <365.8 | | | | |
| | | *Eudorina* | | | | | | |
| | Zygnematales | *Arthrodesmus* | | | | | | |
| | | *Bambussina* | | | | | | |
| | | *Closterium* | <603.3 | <365.8 | <158.4 | | | |
| | | *Cosmarium* | 1,206.6 | 365.8 | 158.4 | | | |
| | | *Euastrum* | | | | | | |
| | | *Gonatozygon* | | | | | | |
| | | *Hyalotheca* | | | | | | |
| | | *Micrasterias* | | | | | | |
| | | *Mougeotia* | 3,016.5 | 1,097.4 | <158.4 | | | |
| | | *Netrium* | | <365.8 | | | | |
| | | *Penium* | | | | | | |
| | | *Pleurotaenium* | | | | | | |
| | | *Spirogyra* | | <365.8 | | | | |
| | | *Spondylosium planum* | | | | | | |
| | | *Staurastrum* | <603.3 | <365.8 | | | | |
| | | *Teilingia* [4] | | | | | | |
| | | *Xanthidium* | | | | | | |
| | | *Zygnema* | | <365.8 | <158.4 | | | |
| | | UID | | | | | | |
| | | **SUM:** | 26,545.2 | 16,095.2 | 8,712.0 | 17,117 | 5,173 | 28 |
| Chrysophyta | | UID flagellate | 1,206.6 | 2,194.8 | | | | |
| | | UID unicellular | | | | | | |
| | Chromulinales | *Hydrurus foetidus possibly* | | | | | | |
| | Ochromonadales | *Dinobryon bavaricum* | | | | | | |
| | | *Dinobryon cylindrium* | <603.3 | | | | | |
| | | *Dinobryon divergens* | | | | | | |
| | | *Dinobryon sertularia* | | | | | | |
| | | *Dinobryon* | | | | | | |
| | | *Kephyrion/Psuedokephyrion* | | | | | | |
| | | *Mallomonas akrokomos* | | | | | | |
| | | *Mallomonas* | | | | | | |
| | | UID | | | | | | |
| | Rhizochrysidales | *Diceras phaseolus* | | | | | | |
| | Tribonematales | *Tribonema* | | | <158.4 | | | |