APPENDIX 3A

2006 JAY PIPE AQUATIC BASELINE REPORT

EKATI DIAMOND MINE

2006 JAY PIPE AQUATIC BASELINE

EKATI Diamond Mine
BHP Billiton Diamonds Inc.

AUGUST 2007

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EKATI Diamond Mine

2006 Jay Pipe Aquatic Baseline

August 2007

Prepared for:

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EXECUTIVE SUMMARY

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Executive Summary

This report presents aquatic baseline 2006 data collected in the vicinity of the proposed Jay kimberlite pipe development. The data collected in 2006 are the first of two years of data required to support the future Aquatic Effects Monitoring Program for the development. EKATI has committed to two years of baseline Aquatic Effects Monitoring Program data to establish pre-development conditions against which to compare future potential impacts from development. These data will also support the preparation of an Environmental Assessment and Fish Habitat Compensation Plan for the Jay Pipe development.

The 2006 Jay Pipe aquatic baseline program included the following disciplines: bathymetry, water quality, sediment quality, physical limnology, phytoplankton, zooplankton, lake benthos, shoreline benthos, fish communities, and fish habitat. Samples were collected from Lac du Sauvage, Ursula Lake, and Christine Lake.

The water quality of Lac du Sauvage and Ursula Lake is typical of the oligotrophic or nutrient poor lakes in the EKATI claim block. The highest concentrations for most parameters were found in the winter samples. This is expected because the freeze out of ionic material as ice forms has a concentrating effect on water quality variables in underlying unfrozen water.

Christine Lake regularly had higher open-water season concentrations of sulphate, total dissolved solids, chloride, potassium, aluminium, copper, and nickel than either Lac du Sauvage or Ursula Lake stations. Christine Lake is downstream of discharge water from the King Pond Settling Facility and it is possible higher concentrations observed for some parameters are related to this discharge.

There appeared to be no spatial trend in Lac du Sauvage or Ursula Lake in open-water samples from 2006. In Ursula Lake stations, concentrations of most parameters were near or below the detection limit and there was little difference between sites.

Sediment quality parameter concentrations were generally below conservative guidelines for all parameters with the exception of total arsenic and total mercury. Total arsenic concentrations at all sites with the exception of LdS2 and B1 naturally exceeded the applicable guideline. Total mercury concentrations exceeded the conservative guideline at LdS3.

Cyanophytes, chlorophytes, and chrysophytes were the predominant taxonomic groups in the phytoplankton assemblages. Chrysophyte numbers were highest in July and decreased throughout the open-water season, while chlorophyte and cyanophyte numbers increased. Phytoplankton biomass was generally highest in September, while phytoplankton abundance was generally highest in August. Overall, phytoplankton diversity was highest in July.

There were no spatial or seasonal patterns observed in Lac du Sauvage or the reference lake sites for zooplankton parameters (biomass, abundance, and diversity) with the exception of consistent low values at LdS2.

Generally, the shallow stations had higher benthos densities and dipteran diversity index values, while the deep stations had lower densities and dipteran diversity index values. Dipterans comprised the majority of the community at most stations, while coelenterates and molluscs were also found in large proportions at many sites.

Shoreline benthos densities had a wide range in values, both in the littoral and the boulder habitats. Dipterans were predominant in all but one site. The communities of the littoral sites were comprised of primarily dipterans, molluscs, and nematodes, while the communities of the boulder sites were comprised primarily of dipterans and oligochaetes. One station had a large number of cladocerans. Dipteran diversity index values were low in both habitats but lowest in the boulder sites, as the majority of the dipterans present belonged to only a few genera.

The two streams draining into the Jay Pipe area were both non-fish bearing at the time of survey. Water levels were low, and the channels of both streams were undefined and littered with debris that likely act as barriers for fish movement. These streams should be re-surveyed during spring freshet to confirm that fish are not able to use either stream for spawning or rearing.

The quadrat, shoreline and transect surveys yielded contrasting results. Shoreline surveys suggested a substrate dominated by boulders and cobble with little gravel, bedrock and fines. Quadrat surveys generally agreed with this, but inconsistencies were observed in several areas. The transect surveys of the areas removed from the shoreline suggest that shoals are much more heterogeneous, being split among boulder, cobble and gravel substrate. The presence of gravel and cobble in such large amounts increase the probability that these areas are used by fish.

The Jay Pipe area holds habitat potentially used by spawning, young-of-year and juvenile burbot; spawning, young-of-year and juvenile lake trout; spawning, juvenile and adult lake whitefish; and all life stages of round whitefish. Further survey work is needed to assess the appropriate habitat for fish in the Jay Pipe area.

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2006 Jay Pipe Aquatic Baseline

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1. INTRODUCTION

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1. Introduction

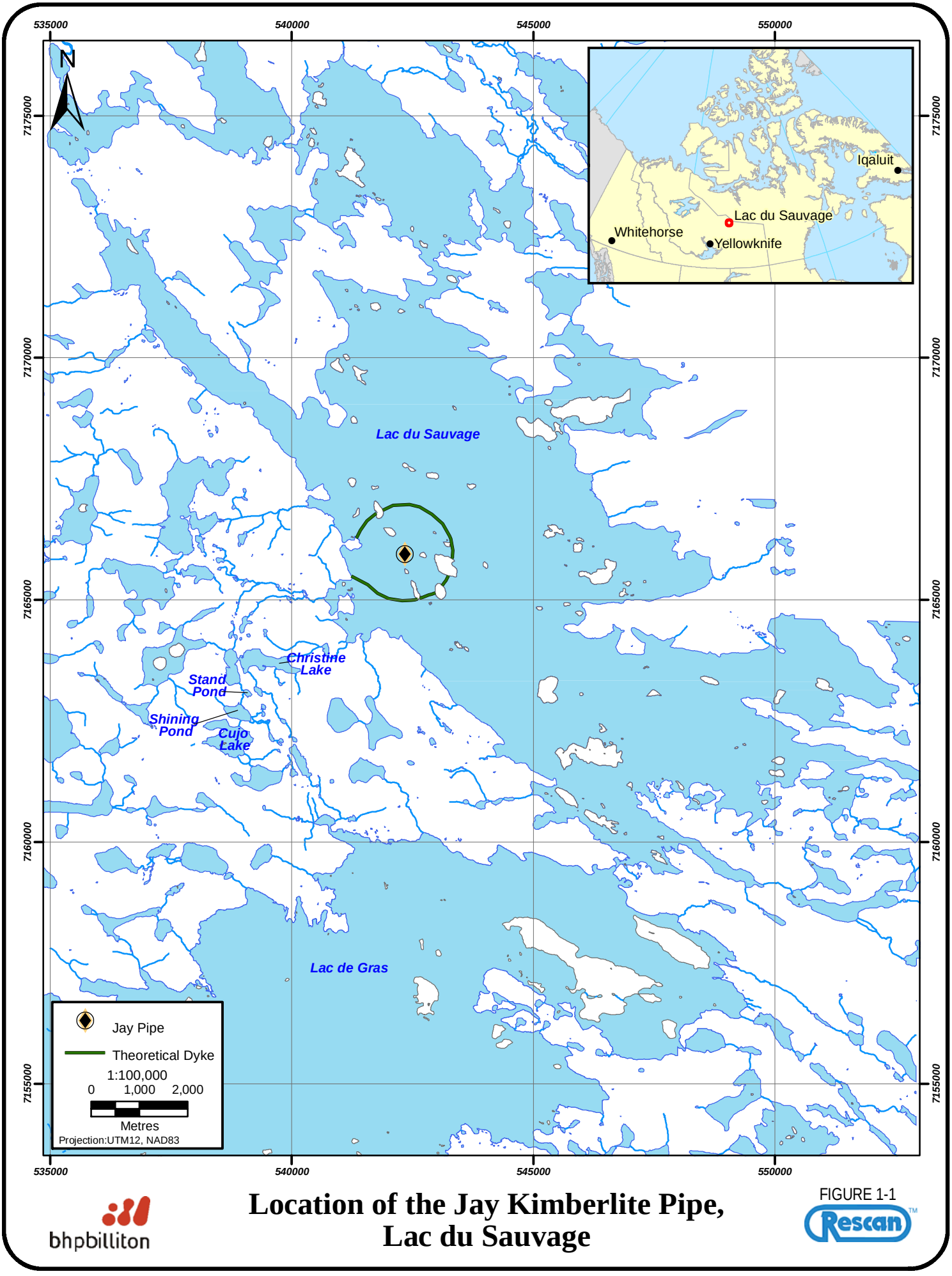
This report presents aquatic baseline data collected in the vicinity of the proposed Jay kimberlite pipe (Jay Pipe) development. The data collected in 2006 are the first of two years of data required to support the future Aquatic Effects Monitoring Program (AEMP) for the development, and to support the preparation of an Environmental Assessment for this new development. These data will also support the preparation of a Fish Habitat Compensation Plan for the Jay Pipe development.

Baseline data were collected in 2006 from Lac du Sauvage where the Jay Pipe is located (Figure 1-1) as well as at reference locations in Ursula Lake. Christine Lake was also sampled as a potential alternate lake for the AEMP King-Cujo Watershed because of the proposed development within Lac du Sauvage. Baseline data were collected from one station in Lac du Sauvage in 2004 and these data are also presented in this report. The sampling program for 2006 is the first of two years of baseline data required by EKATI to support the AEMP.

Aquatic components monitored in 2006 included winter water quality and limnology, bathymetry, open-water season water quality and limnology, primary producers, secondary producers, and fish communities and fish habitat. These parameters are integral components of aquatic ecosystems and it is important to document them prior to any mine development in new areas. Baseline data collected from all baseline sampling campaigns are considered to be representative of predevelopment conditions within the watershed. These data will form part of the baseline database for which future post-baseline data will be compared to determine if a waterbody has been impacted by development activities.

It is expected that the development of the Jay Pipe will include the construction of a dyke within Lac du Sauvage and subsequent dewatering within the dyke area. To avoid a loss of fish habitat, a Fish Habitat Compensation Plan will be prepared during permitting.

Chapter 2 of this report summarizes the 2006 aquatic baseline sampling program and presents methodologies for all disciplines. Chapter 3 presents the results of all data collected in 2004 and 2006 and includes a general summary for each discipline.



Location of the Jay Kimberlite Pipe, Lac du Sauvage

FIGURE 1-1

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2. METHODS

2. Methods

2.1 Sampling Locations

Jay Pipe is located under the southeast region of Lac du Sauvage. The potential development for Jay Pit will be constructed within Lac du Sauvage and will be surrounded by a dyke. The sites chosen for this sampling campaign are presented in Figure 2.1-1 and include three sites within the likely dyke location that are designed to characterize conditions in the area that will be lost to support the Environmental Assessment, and 9 sites located outside of the theoretical dyke that are designed to be the long-term monitoring locations. Two of these sites (LdS1 and LdS2) are coincident with the current AEMP and therefore a station in Christine Lake was also monitored as a possible alternate location in the event that LdS1 and LdS2 are negatively affected by construction activities due to Jay Pipe development. Three stations in Ursula Lake were monitored as reference locations as Ursula Lake is also a large lake completely within the EKATI claim block, and there are no known kimberlite pipe development plans near this lake. However, in the most recent Interim Closure and Reclamation Plan (BHP Billiton, 2007), Ursula Lake has been slated as a source lake for pit infilling. In addition, five shallow benthos stations near the shoreline of the area that will be dewatered were monitored to characterize the benthos communities in order to support the Fish Habitat Compensation Plan that will be developed.

2.2 Sampling Program

This study begins the first of two years of comprehensive baseline data to fulfill BHP Billiton's commitment to two years of baseline data as outline in the *2003 AEMP Re-Evaluation and Refinement Report* (Rescan, 2003). Sites sampled in 2006 included 12 water quality and aquatics stations (LdS1 to LdS12) and 5 benthos stations (B1 to B5) in Lac du Sauvage, 3 stations in Ursula Lake (UL1 to UL3), and 1 station in Christine Lake. Sampling occurred in the ice-covered season (February, March, and May) and the open-water season (July, August, and September). A summary of the sampling details for these stations is provided in Tables 2.2-1 and 2.2-2. A full suite of water quality, physical limnology, and biology samples was also collected at station LdS3 in 2004.

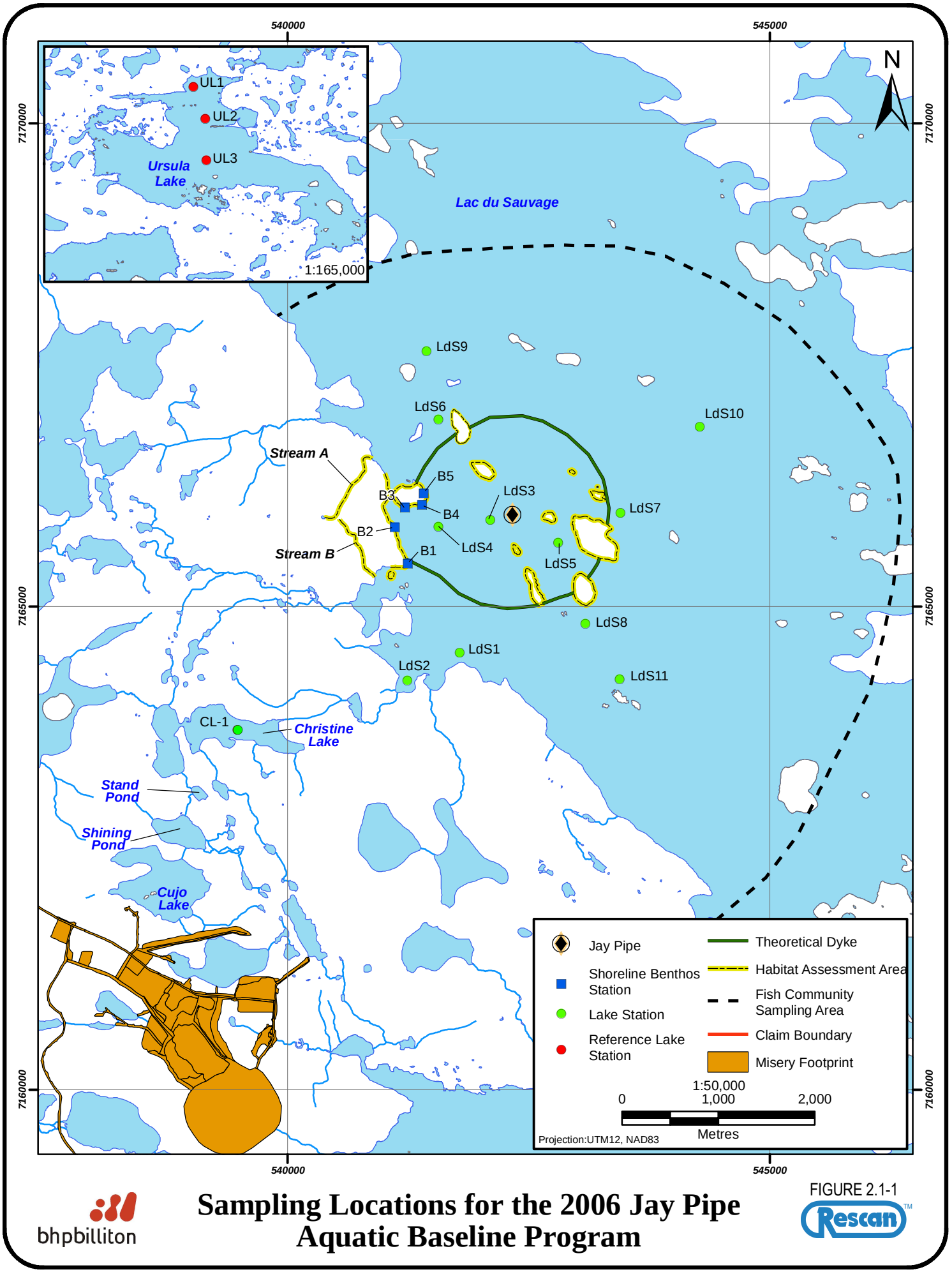
2.3 Bathymetry

The following section presents the methods used to collect the bathymetry data presented in this report. The methods are divided into two sections, one describing field data collection, the other, data analysis.

2.3.1 Field Data Collection

Bathymetric surveys of Lac du Sauvage and Christine and Ursula lakes were undertaken in August 2006. Each survey consisted of two components:

- Global Positioning System (GPS)-linked depth records taken on transects along the water surface; and
- GPS surveys of shorelines and islands.



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Sampling Locations for the 2006 Jay Pipe Aquatic Baseline Program

FIGURE 2.1-1

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Table 2.2-1
Jay Pipe Aquatic Baseline Sampling Locations

Lake Sites	Bathymetry	Winter Water Quality & Limnology	Summer Water Quality	Limnology	Phytoplankton and Zooplankton	Lake Benthos, Sediment Quality	Fish Community & Habitat	Benthos in Boulders (shoreline)
LdS1[1]	X	X	X	X	X	X		
LdS2[1]	X	X	X	X	X	X		
LdS3	X	X	X	X	X	X	X	
LdS4	X	X	X	X	X	X	X	
LdS5	X	X	X	X	X	X	X	
LdS6	X	X	X	X	X	X	X	
LdS7	X	X	X	X	X	X	X	
LdS8	X	X	X	X	X	X	X	
LdS9	X	X	X	X	X	X	X	
LdS10	X	X	X	X	X	X	X	
LdS11	X	X	X	X	X	X	X	
LdS12	X	X	X	X	X	X	X	
B1	X					X	X	X
B2	X					X	X	X
B3	X					X	X	X
B4	X					X	X	X
B5	X					X	X	X
Ursula Lake	X	X	X	X	X	X	X	
Christine Lake	X	X	X	X	X	X		

[1]: LdS1 & LdS2 are sampled as part of the AEMP

The depth surveys used a Trimble Pathfinder Pro XRS GPS for positioning, a 200 kHz SeaMax depth sounder to measure depth to bottom, and a Trimble TSC1 data logger to collect the electronic data files. The sounder was mounted to the side of a boat.

Depth surveys were carried out by navigating transects over the lake surface. The transect shape and spacing were determined from a number of factors including the lake area, area of interest, accessibility of the water body, water levels, and the level of bathymetry detail required. Table 2.3-1 presents the details of each bathymetric survey and the depth sounding locations are included in Appendix 2.3-1.

The sounder signal was recorded every four seconds directly onto the data logger at a boat speed of less than 5 knots (9.26 km/hr). Therefore, one depth measurement was recorded for approximately every 10 m that the boat travelled.

GPS data was intended to be corrected using base station data supplied by a base station receiver on site. Due to technical limitations of the base station data, the rover data collected during the lake bathymetry survey was not corrected. Since this data has not been corrected the error is greater than expected. The accuracy of the data is influenced by:

- The number of visible satellites
- Multipath

Table 2.2-2
Sampling Details for 2006 Jay Pipe Aquatic Baseline Program

Monitoring Parameter	Sampling Frequency	Sample Replication & Depths
Summer Lake Water Quality		
Same parameters as AEMP	3 x (Jul, Aug, Sep)	n=1 @ 1 m and mid-depth; 10% duplicates
Winter Lake Water Quality		
Same parameters as AEMP	3 x (Lac du Sauvage) (Feb, Mar, May)	n=2 @ mid-depth and 2 m above water-sediment interface
Summer Limnological Characteristics		
Dissolved oxygen/temperature profiles Secchi depth	3 x (Jul, Aug, Sep)	once at each lake station
Winter Limnological Characteristics		
Dissolved oxygen/temperature profile	3 x (Lac du Sauvage) (Feb, Mar, May) 1 x (Christine and Ursula lakes) (April)	once at each lake station
Phytoplankton		
Biomass as chlorophyll *a*	3 x (Jul, Aug, Sep)	n=3 @ 1 m
Abundance and taxa. comp.	3 x (Jul, Aug, Sep)	n=3 @ 1 m
Zooplankton		
Biomass as dry weight	3 x (Jul, Aug, Sep)	n=3 vertical hauls @ 1 m above bottom
Abundance and taxa. comp.	3 x (Jul, Aug, Sep)	n=3 vertical hauls @ 1 m above bottom
Lake Benthos		
Density and taxa. comp.	1 x (Aug)	n=3 @ each lake station
Sediment Quality		
Same parameters as AEMP	1 x (Aug)	n=3 @ each lake station
Lake Fish Community		
Same methods as other baseline CPUE, condition Length, weight, age, diet Metals (muscle & liver) Eggs, liver & gonad weight	1 x (Aug)	n/a
Shoreline Benthos: Hester-Dendy samples		
Density and taxa. Comp.	1 x (Aug-Sep)	n=5
Shoreline Benthos: Ekman samples		
Density and taxa. Comp.	1 x (Aug)	n=3
Shoreline Fish Habitat		
Habitat unit delineation and substrate characterization with underwater camera and/or, video camera, etc.	1 x (Aug)	n/a
Bathymetry		
Sounding within and outside the proposed dyke; Ursula Lake; Christine Lake	1 x (Aug)	n/a

n/a=not applicable

- Position Dilution of Precision (PDOP)
- Signal-to-noise ratio (SNR)
- Satellite elevations

GPS data that has been post corrected has an assumed error of 50 cm per 1 km or 0.05%. However, because differential correction was not available for the bathymetry survey data the vertical precision of the data points is assumed to be < 1 m (Trimble, 2007). The depth sounder was able to accurately measure water depths to the nearest tenth of a meter.

Table 2.3-1
Details of Lake Bathymetry Surveys

Water Body	Lake Area (m^2)	Number of Soundings	Shoreline Survey
Lac du Sauvage	6,499,735	9,206	Partial*
Ursula Lake	20,025,022	6,887	No
Christine Lake	494,380	922	Yes

***A partial survey was conducted to determine the bathymetry of the area of interest, both within and outside of the dyke where the sampling stations are located.**

The water level elevation at each lake was not recorded. However, the average GPS elevation from each of the depth sounding locations was calculated and used to approximate the water level elevation. Table 2.3-2 presents the average water level elevations and associated standard error.

Table 2.3-2
Average Water Level Elevations

Water Body	Average Elevation (m - asl)	Standard Error
Lac du Sauvage	418.8	0.018
Ursula Lake	464.5	0.031
Christine Lake	430.3	0.032

m - asl = Meters above sea level

A complete shoreline survey was conducted for Christine Lake. The shoreline was walked and positions were logged to the TSC1 data logger every second. A number of small islands and part of the shore of Lac du Sauvage were also surveyed. Existing geographic data from the GIS database were used to check the accuracy of the shore survey data. In the case of Ursula Lake, existing geographic data were used to approximate the shoreline because the lake was too large to survey in a timely manner. Appendix 2.3-1 presents the corrected shoreline data.

2.3.2 Data Analysis

The locations of each depth recording were output in the Universal Transverse Mercator (UTM) coordinate system (UTM zone 12N, NAD 83). Depth soundings were corrected to compensate for the height of the GPS above the water. Raw data points were imported to ArcGIS 9.2 and

visually inspected. 3D Analyst was used to develop a Triangulated Irregular Network model (TIN).

The point data was overlain on the TIN and erroneous data points were deleted. Errors arise in the depth sounding when the sounder records multiple soundings. These data are usually very noticeable because the depths are inconsistent from nearby data points by several meters. Once all erroneous data points were removed from the data set a second output TIN was built. The TIN's were clipped from the corrected shoreline data. A survey area in Lac du Sauvage was established and was used as the maximum extent for the Lac du Sauvage TIN. Appendix 2.3-2 presents the second output TIN's for each water body.

Bathymetric contours were modelled from the second output TIN. The contours were smoothed using the B-spline algorithm in edit tools, an extension of ArcGIS. Shoreline data was added and used to produce the 0 m lake contour. The final data set was used to calculate the morphometric characteristics of each water body. Morphometric characteristics are defined as follows:

- area of the lake (A, m^2);
- volume of the lake (V, m^3);
- maximum depth of the lake (Z_m, m);
- lake length (l, m). The shortest distance, through the water or on the water surface, between the most distant points on the lakeshore. Also known as the maximum fetch for wind to interact with the lake without land interruption;
- shoreline length or lake perimeter (L, m);
- mean depth of a lake (Z, m). Calculated as the ratio of volume to area or V/A;
- mean breadth (b, m). The length of a line from shore to shore cutting the line defining lake length at right angles at any point. Calculated as the ratio of lake surface area to lake length or A/l; and
- water level (m above sea level or ASL). The water surface elevation at the time of the bathymetric survey.

2.4 Water Quality

Water quality samples were collected six times in 2006. In the February, March, and May (ice-covered season) surveys a reduced number of stations was sampled while in July, August, and September (open-water season) all stations were sampled. Figure 2.1-1 shows the sampling locations.

Ice-Covered Season

Winter water quality was collected by BHP Billiton Environmental staff. Duplicate samples were collected using a 2.5 L acid cleaned Niskin bottle from 2 depths: 1 m from the bottom and mid-depth. In addition travel and field blanks were collected. A dissolved oxygen and temperature profile was collected at the same time.

Open-Water Season

Samples were collected from 2 depths within the water column at each designated station location: 1 m and mid-depth. Single samples were collected at each depth plus 10% duplicates (*i.e.*, for every 10th sample collected, a duplicate sample was also collected). In addition travel and field blanks were collected. Water samples were collected using metal-clean techniques, consistent with the 2006 AEMP. A 5 L Teflon-lined GO-FLO bottle was used for water collection in the lakes.

All samples were sent to ALS Environmental in Vancouver, B.C. for analysis. Table 2.4-1 presents the water quality parameters analyzed. Detection limits are the same as for the 2006 AEMP, and all were below the CCME guidelines for the protection of aquatic life.

Table 2.4-1
2006 Water Quality Parameters

Parameters	Units	Parameters	Units
Physical/Ion Parameters		**Total Metals**	
Alkalinity, Total	mg/L	Aluminum (Al)	mg/L
Bicarbonate (HCO_3)	mg/L	Antimony (Sb)	mg/L
Carbonate (CO_3)	mg/L	Arsenic (As)	mg/L
Conductivity (EC)	µS/cm	Barium (Ba)	mg/L
Hydroxide	mg/L	Beryllium (Be)	mg/L
pH	pH	Boron (B)	mg/L
Chloride (Cl)	mg/L	Cadmium (Cd)	mg/L
Silicon (Si)-Total	mg/L	Calcium (Ca)	mg/L
Sulphate (SO_4)	mg/L	Chromium (Cr)	mg/L
Total Suspended Solids	mg/L	Cobalt (Co)	mg/L
Turbidity	NTU	Copper (Cu)	mg/L
Hardness	mg/L	Iron (Fe)	mg/L
Ion Balance	%	Lead (Pb)	mg/L
TDS (Calculated)	mg/L	Magnesium (Mg)	mg/L
Calcium (Ca)	mg/L	Manganese (Mn)	mg/L
Magnesium (Mg)	mg/L	Mercury (Hg)	mg/L
Potassium (K)	mg/L	Molybdenum (Mo)	mg/L
Sodium (Na)	mg/L	Nickel (Ni)	mg/L
Nutrients/Organics		Potassium (K)	mg/L
Total Ammonia-N	mg/L	Selenium (Se)	mg/L
Nitrate-N	mg/L	Silver (Ag)	mg/L
Nitrite-N	mg/L	Sodium (Na)	mg/L
Orthophosphate (PO_4-P)	mg/L	Strontium (Sr)	mg/L
Total Phosphorus	mg/L	Uranium (U)	mg/L
Total Organic Carbon	mg/L	Vanadium (V)	mg/L
Total Kjeldahl Nitrogen	mg/L	Zinc (Zn)	mg/L

Field and travel blanks combined were at least 5% of the number of samples for a given survey. A survey constitutes a discrete sampling event, such as the September lake water quality sampling.

At the beginning of each survey an equipment blank was collected from each GO-FLO sampler used.

2.5 Sediment

Sediment quality samples were collected from lake stations one time during the open-water season in August, in conjunction with lake benthos samples.

Sediment quality samples were collected and processed using techniques consistent with previous years. An Ekman grab sampler was used to collect sediment samples. Triplicate samples were collected from all sites. Sediment quality samples were placed on a white tray, photographed, and described for colour, texture, and other characteristics. The top 2 cm of sediment was collected and analyzed for grain size, moisture, nutrients and solid-phase metals. Table 2.5-1 presents the sediment quality parameters analyzed. All sediment quality samples were analyzed at ALS Environmental.

Table 2.5-1
2006 Sediment Quality Parameters

Parameters	Units	Parameters	Units
Physical/Nutrient		**Total Metals**	
% Moisture	%	Aluminum (Al)	mg/kg
Available Phosphorus (P)	mg/kg	Arsenic (As)	mg/kg
Total Nitrogen (N)	%	Cadmium (Cd)	mg/kg
Total Organic Carbon	%	Chromium (Cr)	mg/kg
Particle Size	%	Cobalt (Co)	mg/kg
Gravel (>2.00 mm)		Copper (Cu)	mg/kg
Sand (2.00 mm–0.063 mm)		Iron (Fe)	mg/kg
Silt (0.063 mm–4 µm)		Lead (Pb)	mg/kg
Clay (<4 µm)		Manganese (Mn)	mg/kg
		Mercury (Hg)	mg/kg
		Molybdenum (Mo)	mg/kg
		Nickel (Ni)	mg/kg
		Phosphorus (P)	mg/kg
		Selenium (Se)	mg/kg
		Silver (Ag)	mg/kg
		Zinc (Zn)	mg/kg

Results will be expressed on a dry weight basis.
Detection limits vary with the amount of sediment available.

2.6 Physical Limnology

Physical limnology parameters were collected from the lake stations during each survey. Dissolved oxygen (DO) and temperature profiles were collected in the ice-covered season using a YSI 650 continuous profiler and measuring from the bottom of the ice-surface to 1 m above the sediment-water interface. Open-water season profiles were collected using a YSI 52 profiler which measures at discrete depths. Measurements were taken at 0.5 m or 1 m intervals

(depending on the depth at the station) from the lake surface to 1 m above the sediment-water interface. Secchi depths were also collected in the open-water season using a standard Secchi disk.

2.7 Phytoplankton

Phytoplankton biomass samples (as chlorophyll *a*) and phytoplankton taxonomy samples were collected from the lake stations in the open-water season (July, August, and September).

Samples were collected from 1 m depth near the designated station location. Triplicate samples were collected for both phytoplankton biomass (as chlorophyll *a*) and phytoplankton taxonomy.

Phytoplankton samples were collected and processed using techniques consistent with previous years. A 5 L GO-FLO bottle was used for water collection. Filtration for phytoplankton biomass was conducted in the environmental laboratory at EKATI. Taxonomic samples were sent for analysis to Fraser Environmental Services, Surrey, B.C., and biomass samples were sent to ALS Environmental, Vancouver, B.C.

Taxonomic samples were measured for total density of organisms, relative abundance (by phylum) of organisms, and diversity using Shannon and Simpson diversity indices.

Shannon's index of diversity (H) was defined as:

$$(1) \qquad H = - \Sigma \, p_i \ln p_i$$

Where the proportion of species *i* relative to the total number of species (p_i) is calculated, and then multiplied by the natural logarithm of this proportion ($\ln p_i$). The resulting product is summed across species, and multiplied by -1

Simpson's index of diversity (D_2) was defined as:

$$(2) \qquad D_2 = 1 - \Sigma \, (p_i)^2$$

where p_i = the proportion of the *ith* taxon at a sampling station, and Σ indicates that $(p_i)^2$ is summed over all taxa.

2.8 Zooplankton

Zooplankton samples were collected from the lake stations in the open-water season (July, August, and September).

Zooplankton samples were collected near the designated station location, as described for phytoplankton sampling. Triplicate vertical hauls were collected for both zooplankton taxonomy and zooplankton biomass (as dry weight).

A 118 µm mesh net was used for sample collection. An internally-mounted flowmeter was used to record the volume of water passing through the net during all hauls, as in previous years.

Filtration, weighing, and drying for zooplankton biomass was conducted in the environmental laboratory at EKATI. Taxonomic samples were sent to Applied Technical Services, Victoria, B.C. for analysis.

Taxonomic samples were measured for total density of organisms, relative abundance (by phylum) of organisms, and diversity using Shannon and Simpson diversity indices (see Section 2.7 for a description of these calculations).

2.9 Benthic Invertebrates

Lake Benthos

Lake benthos samples were collected from the same sampling locations and depths as the sediment quality samples in August. All benthos samples were collected in triplicate using an Ekman grab sampler (0.0225 m^2 surface area). The Ekman grab was first opened and lowered into the sediments using a metered line and then triggered shut using a brass messenger and then carefully raised to the surface. The sediments were placed in a 595 µm sieve bucket and gently agitated, allowing the fine sediments to pass through the sieve. The remaining sample was transferred to a 500 mL well labelled plastic jar and buffered formalin added to a final concentration of 10%. Samples were stored in coolers until further processing.

Benthos samples were shipped to Applied Technical Services for identification. All organisms were identified to the lowest taxonomic level possible. Raw numbers were converted to density (organisms/m^2) using the surface area of the Ekman grab sampler (0.0225 m^2).

Shoreline Benthos - Littoral Habitat

Shoreline benthos were collected using the same methods as the lake benthos. Triplicate samples were collected from five stations in the month of August. These samples were collected specifically to support the preparation of a Fish Habitat Compensation Plan.

Shoreline Benthos – Boulder Habitat

Shoreline benthos samples were collected from one time period: late July/early August to late August/early September. Samples were collected from five stations along the south west shore of Lac du Sauvage. These samples were collected specifically to support the preparation of a Fish Habitat Compensation Plan.

Five replicate samples were collected from each station. Samplers were placed in among the boulders on the shoreline in late July/early August, and retrieved and processed in late August/early September.

Samples were collected using Hester-Dendy artificial substrate samplers. Benthos samples were collected and processed by disassembling the sampler and gently scraping the animals that colonized them with a soft toothbrush into a small-meshed sieve so that no organisms were lost. The benthos were then rinsed into plastic pre-labelled jars and preserved with formalin. Taxonomic samples were sent to Applied Technical Services

Benthos numbers were converted to density using the surface area of the Hester-Dendy samplers. Any densities that appeared to be questionably high or low as compared to the other replicates were confirmed with the taxonomist and edited if necessary.

Taxonomic samples were measured for total density of organisms, relative abundance (by phylum) of organisms, and diversity using Shannon and Simpson diversity indices (see Section 2.7 for a description of these calculations).

2.10 Fish Communities

2.10.1 Sample Collection and Processing

The fish communities of Lac du Sauvage and Ursula Lake were assessed through gillnet and minnow trapping surveys conducted in August and September of 2006. Sampling dates, set duration, set location and catch are presented in Appendices 2.10-1 and 2.10-2. Gillnet and minnow trap locations in Lac du Sauvage can be found in Figure 2.10-1 and for Ursula Lake in Figure 2.10-2.

Index gillnets were composed of three 15 m by 2.4 m deep panels of 3.8 cm stretched mesh tied together at the float line and lead line, providing a total area of 109.8 m^2 per net gang. Nets were anchored along the bottom of the lake and held aloft by floats along the top. Gillnets were set and allowed to fish for approximately one hour at each site (in an effort to limit mortality) and were relocated after each set to ensure that each lake was surveyed over all types of habitat. Location of the start and endpoint of each gillnet set was determined by a hand-held GPS unit and the depth of each end of the net set was measured with a depth sounder.

Minnow traps were also used to assess the small-bodied fish communities in the shallow water areas of each lake. Minnow traps consisted of two wire mesh cylinders joined together by a clip attached to a rope and buoy. Baited minnow traps were placed in shallow water within the island complexes of both Ursula Lake and Lac du Sauvage for approximately twenty-four hours, after which the minnow traps were removed, and the catch assessed. Location of the minnow traps were determined by a hand-held GPS unit, and the depth was measured by a depth sounder.

All fish captured were identified to species, measured for fork length, weight, and wherever possible, sex and reproductive status were also assigned. Scale and fin ray samples were removed for age analysis from all fish. Any mortalities also had the two sagittal otoliths extracted from the otic capsule for age determination. Otoliths provide the most accurate estimate of age for species in the EKATI area.

Age analysis was performed by John Tost of North Shore Environmental Services, Thunder Bay, Ontario. Age was estimated by counting the number of completed annuli (rings) of each calcified aging structure. Scales were cleaned, pressed into an acetate sheet, and annuli counted under a microfiche reader. Fin rays were air-dried and mounted in a 50:50 epoxy medium. Sections were then cut using a Bueler Isomet saw, mounted on a slide, and placed under a compound microscope to count the number of completed annuli with a compound microscope. Otoliths were air dried, cracked, and passed over a flame to increase the visibility of the rings

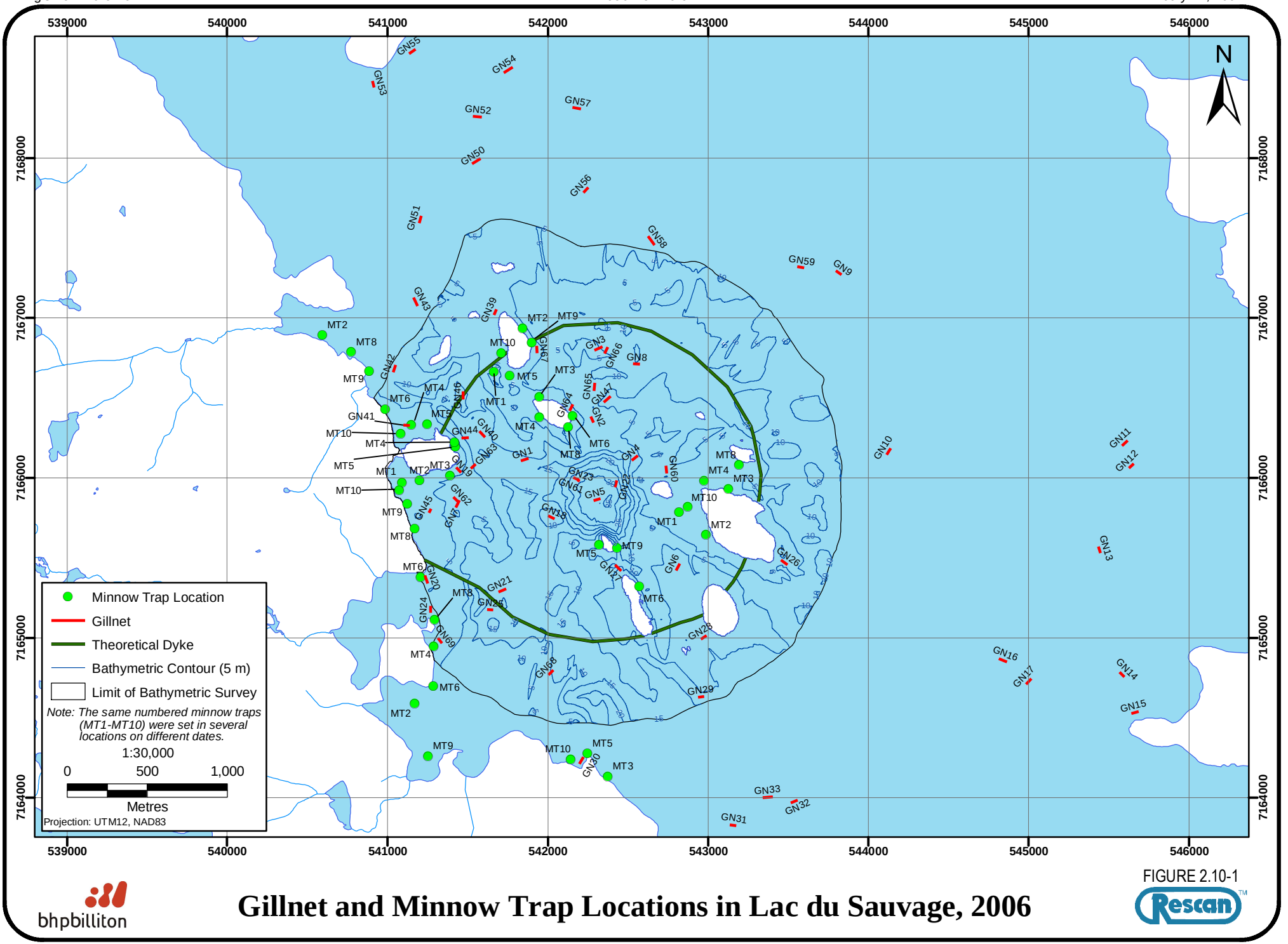


FIGURE 2.10-1

Gillnet and Minnow Trap Locations in Lac du Sauvage, 2006

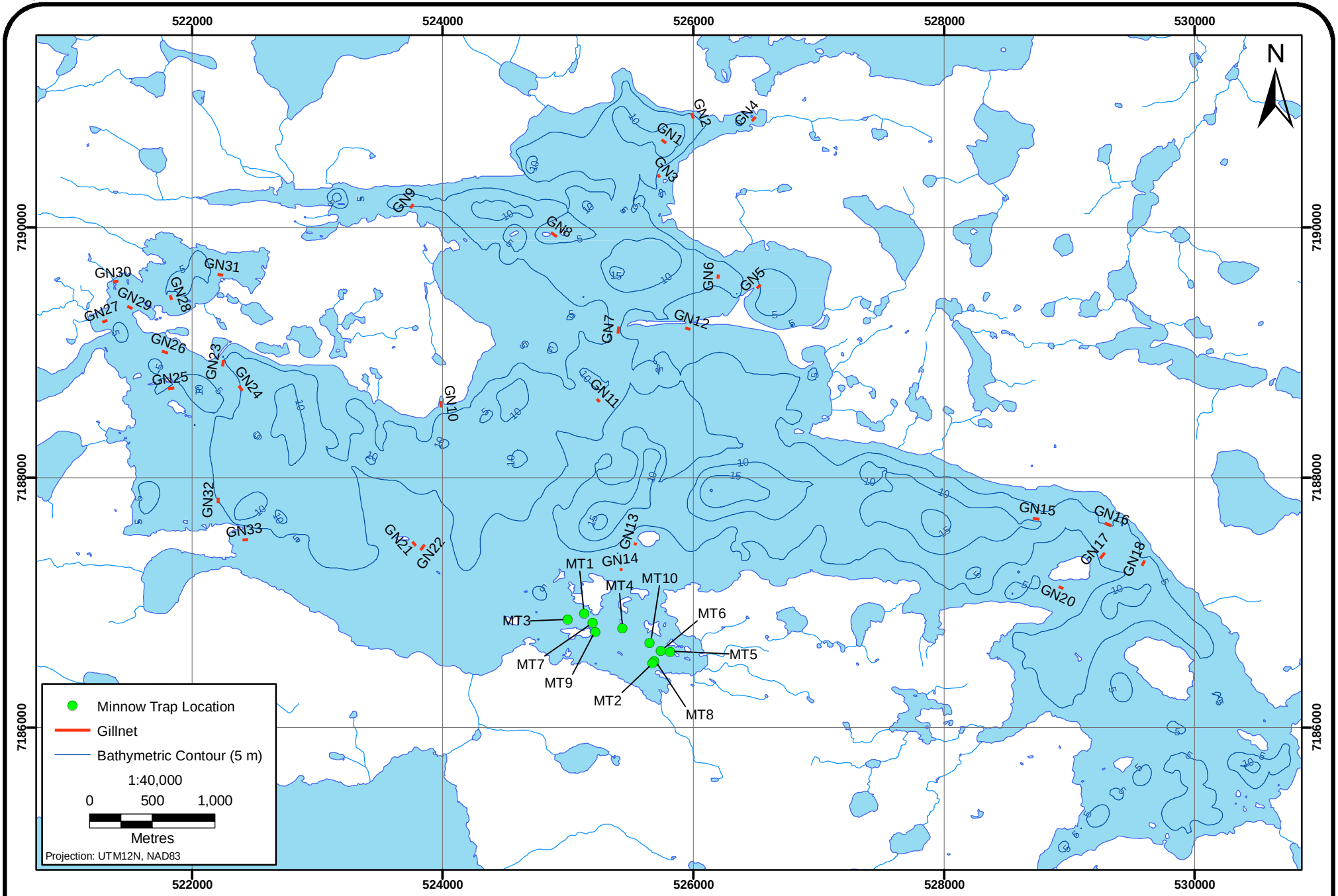


FIGURE 2.10-2

Gillnet and Minnow Trap Locations in Ursula Lake, 2006

(crack and burn methodology). Prepared otoliths were then mounted in moulding clay, and immersed in oil to improve readability. Wherever possible, multiple aging structures were read, and the structure with the highest confidence was reported as the true age.

A limited number of individuals were also sacrificed for dorsal myomere (muscle) samples and livers samples for determination of metal body burden. Tissue samples were frozen, and shipped in a cooler to ALS Environmental in Vancouver. In the lab, samples were dried and moisture content determined. Samples were then ground and digested in acid. Total concentrations of 24 metals were determined by Inductively Coupled Mass-Spectroscopy (ICP-MS). Total mercury concentrations were determined by Cold Vapour Atomic Spectroscopy. Minimum analytical detection limits for each metal species are presented in Table 2.10-1.

Table 2.10-1
Metals and Analytical Detection Limits for Analysis of Fish Tissue Collected in Lac du Sauvage and Ursula Lake, 2006

Metal	Symbol	Units	Detection Limit
Aluminum	Al	mg/kg wet weight	2 - 7*
Antimony	Sb	mg/kg wet weight	0.01
Arsenic	As	mg/kg wet weight	0.01
Barium	Ba	mg/kg wet weight	0.01
Beryllium	Be	mg/kg wet weight	0.1
Bismuth	Bi	mg/kg wet weight	0.1
Cadmium	Cd	mg/kg wet weight	0.005
Calcium	Ca	mg/kg wet weight	2
Chromium	Cr	mg/kg wet weight	0.1
Cobalt	Co	mg/kg wet weight	0.02
Copper	Cu	mg/kg wet weight	0.01
Lead	Pb	mg/kg wet weight	0.02
Lithium	Li	mg/kg wet weight	0.1
Magnesium	Mg	mg/kg wet weight	1
Manganese	Mn	mg/kg wet weight	0.01
Mercury	Hg	mg/kg wet weight	0.050 - 0.005*
Molybdenum	Mo	mg/kg wet weight	0.01
Nickel	Ni	mg/kg wet weight	0.1
Selenium	Se	mg/kg wet weight	0.2
Strontium	Sr	mg/kg wet weight	0.01
Thallium	Tl	mg/kg wet weight	0.01
Tin	Sn	mg/kg wet weight	0.05
Uranium	U	mg/kg wet weight	0.002
Vanadium	V	mg/kg wet weight	0.1
Zinc	Zn	mg/kg wet weight	0.1

Ovaries from sacrificed females identified in the field as mature were removed, weighed, and preserved in 10% formalin. Preserved samples were shipped to Applied Technical Services Ltd.,

Victoria, British Columbia, for counts of total fecundity. Counts were broken down into two distinct size fractions which provides an estimate of fully developed eggs (the larger fraction), and those that would most likely be withheld for further development (the smaller fraction). Ovarian counts have been broken down by size, however total fecundity estimates are based on the total number of eggs of all size fractions counted.

Stomachs were also removed from any mortalities. Stomachs were preserved in a buffered 10% formalin solution after dissection in the field and sent to Applied Technical Service Ltd. for determination of stomach fullness. Stomach contents were then counted, and identified to the lowest taxonomic level possible. Weights of stomach contents were also measured.

All field data were recorded on paper sheets and entered into MS-Excel spreadsheets in the office.

2.10.2 Data Analysis

Catch-per-Unit-Effort (CPUE) for each gillnet is expressed as # fish·100 m^{-2}·24 hrs^{-1}. This allows a direct scaled comparison of catch between lakes, and will allow for future comparisons across years. CPUE was defined as:

(1) CPUE = (Number of fish captured)/(total net area (m^2)/100) · (24/set time (hrs))

Because the relationship between fish-length and fish-weight is non-linear, weight-length relationships were built for each fish species using natural-log-transformed weight and length measurements. This relationship can be defined as follows:

(2) ln(weight, g) = $a + b \cdot ln$(fork length, mm)

where a is the intercept of the regression, b is the estimate of the slope of the relationship and ln denotes the natural logarithm. For all regressions (both linear and non-linear) used in this study, a coefficient of determination (r^2) adjusted for the degrees of freedom of the regression is also presented. All linear regressions are also provided with a probability (P) that is an estimate of the probability of a Type I error (*i.e.*, falsely stating a difference).

For those fish populations where the 95% confidence interval of the slope estimate of the weight-length regression encompassed a value of 3 (Jones *et al.*, 1999), a condition estimate for each individual fish was calculated using Fulton's estimate of condition (Fulton, 1911). This condition estimate is widely used in fisheries science and provides a relative measure of the fatness of the fish. Fulton's index (K) is defined as follows:

(3) K = [weight of fish (g) / fork length of fish $(mm)^3$]·10^5

The condition estimate was scaled up by 10^5 to avoid very small values of condition.

The relationship between liver weight and fish length is non-linear. To account for this non-linearity, the liver weight-body size relationship for each fish species was defined as follows:

(4) ln(liver weight, g) = $a + b \cdot ln$(fork length, mm)

where *a* is the intercept of the regression, *b* is the estimate of the slope of the relationship, and *ln* denotes the natural logarithm.

Measured liver weight for individual fish was converted into a hepatosomatic index (HSI). The HSI is defined as follows:

(5) HSI = [liver weight (g) / body weight (g)] · 100

This provides a proportion of the total body weight accounted for by the liver and has been used to assess the degree of stress from contaminant exposure (as the liver becomes enlarged due to the act of detoxifying contaminants).

The relationship between gonad weight and fish length is non-linear. To account for this non-linearity, the gonad weight-body size relationship for females of each species was defined as follows:

(6) $ln(\text{gonad weight, g}) = a + b \cdot ln(\text{fork length, mm})$

where *a* is the intercept of the regression, *b* is the estimate of the slope of the relationship, and *ln* denotes the natural logarithm.

Measured gonad mass for individual female fish was converted into a gonadosomatic index (GSI). The GSI is defined as follows:

(7) GSI = [gonad weight (g) / body weight (g)] · 100

This provides an estimate of gonadal investment expressed as a proportion of body weight. Low GSI estimates have been linked to poor forage and/or highly contaminated environments.

Relative fecundity was calculated from egg counts of the ovaries removed from identified mature females. Relative fecundity was derived as follows:

(8) relative fecundity = total egg count of gonad/total body weight (g)

Growth of each fish species was modelled using the ages provided from the calcified structures and the lengths at the time of sampling. This data was fit to a von Bertalanffy growth model using an un-weighted non-linear fit. The growth model was defined as:

(9) $L_t = L_{inf}[1 - \exp^{(-K(age))}]$

where L_t is the fork length (mm) at the time of sampling, L_{inf} is the maximum attainable fork length (mm), K is the coefficient of growth (defined as the rate at which length approaches L_{inf}) and t is the age at the time of sampling (years).

2.11 Fish Habitat

Any project or development that requires dewatering of aquatic areas must first assess the existing habitat as well as identify what species-specific life stages will be most vulnerable to the proposed development. Therefore, the objective of the habitat assessment was to classify habitat in the Jay Pipe area of Lac du Sauvage that may be lost to project development, with special emphasis on shallow water habitat used by the more sensitive life stages of fish (*i.e.*, embryo and young-of-year). Drainages into Lac du Sauvage potentially impacted by the construction of the Jay Pipe were also assessed for fish habitat based on the same criteria.

2.11.1 Stream Habitat

Habitat was assessed in August 2006 for the two streams (designated A and B) that presently drain into the proposed dewatering area. Habitat assessment began at the confluence with Lac du Sauvage and continued upstream until the drainage could no longer be defined. All potential barriers to fish migration, functional substrate, and flow patterns were described along the reach. Fish communities were not assessed for these streams because the physical structure of the streams was not conducive to electrofishing, seining, or minnow trapping.

Habitat within each stream was assessed based on techniques commonly used in British Columbia (Johnston and Slaney, 1996). Tributaries were split into zones characterized by the dominant habitat therein, including pool, glide, riffle, cascade and non-classified drainages (Johnston and Slaney, 1996). Within each unique habitat zone, a suite of physical characteristics were measured including: length to the nearest meter; width to the nearest meter; substrate composition; stream depth (measured with a metre stick); and gradient (to the nearest 0.5% with a clinometer). The habitat could not be broken down into the aforementioned categories nor could measurements be taken for these areas because the two streams flowing into the Jay Pipe area have substantial areas with no clearly defined channel. Measurements were taken wherever possible.

2.11.2 Lake Habitat

The lake habitat assessment was conducted using a combination of three different techniques designed to provide the most complete description possible of the habitat in the potentially impacted area. Habitat was assessed based on mean substrate particle size and five unique substrate types were identified in Lac du Sauvage, defined as follows:

1) *Bedrock* - any rock with a diameter over 4,000 mm
2) *Boulder* - any rock with a diameter between 256 and 4,000 mm
3) *Cobble* - any rock with a diameter between 64 and 256 mm
4) *Gravel* - any rock with angular edges and a diameter between 2 and 64 mm
5) *Fines* - particles with a diameter less than 2 mm

These substrate types were used in shoreline assessments, quadrat surveys, and transect surveys.

2.11.2.1 Shoreline Surveys

Shoreline surveys were conducted along the shoreline of the area of interest in Lac du Sauvage (Figure 2.1-1), and the littoral zone was assessed within 5 m of the waters edge. Habitat zones were identified and characterized based on a proportion of the area within each identified habitat zone that was attributed to each substrate type.

The area of each unique habitat zone was calculated from field collections of GPS points demarcating the start and end points of each habitat zone. All surveyed areas were summed to provide an overall area of littoral zone surveyed. The contribution of each substrate type to the littoral zone as a whole was calculated. This was linked with literature based species-specific preferences centred on the fish species captured in the fish community survey.

A series of 1 m by 1 m quadrats were also assessed at 88 sites within the littoral zone of the Jay Pipe area. Quadrats were taken between 1 and 2 m of water depth and used to truth the shoreline surveys. At all sites, water depth, GPS location, and proportional coverage of each habitat type was recorded. Quadrat information was reconciled with shoreline surveys by comparing the proportional substrate coverage from each survey method for overlapping areas. This procedure allows for a gross assessment of substrate heterogeneity in the sample areas.

2.11.2.2 Transect Surveys

Lake habitat was assessed for shoal areas beyond 5 m from the shoreline. Videos of the lake bottom were recorded for 60 transects where water depth was less than 4 m. Transects ranged between 10 and 30 m in length and < 1 to 4 m in water depth. Start and end points of each transect were assessed by a hand-held GPS unit with depth determined by a sounding device. The contribution of each substrate type was assessed for each transect. The effective field of view of the camera was approximately 1 m, allowing the length of each transect to represent the approximate area covered, and thus the total area that could be attributed to each substrate type.

In the lab, video transects were reviewed by a fisheries biologist experienced in evaluating salmonid spawner habitat to determine the suitability of each shoal for spawning activity. Evaluations were performed based on the habitat requirements of each species of interest (lake trout, lake whitefish and round whitefish). Videos were characterized for substrate continuity, silt deposition, shoal depth, and gradient. Shoals were then classified as poor (low spawning potential), fair (some adequate habitat), or good (high-quality habitat observed throughout).

3. RESULTS AND DISCUSSION

3. Results and Discussion

3.1 Bathymetry

The bathymetry contour data for the Lac du Sauvage study area, and Ursula and Christine lakes respectively are shown in Figures 3.1-1, 3.1-2, and 3.1-3. Table 3.1-1 presents the morphometric data as calculated from each bathymetric survey.

Table 3.1-1
Lake Morphometry, August 2006

Lake	Area (A, m^2)	Volume (V, m^3)	Maximum Depth (Z_m, m)	Lake Length (l, m)	Shoreline Length (L, m)	Mean Depth (Z, m)	Mean Breadth (b, m)	Water Level (m ASL)
Lac du Sauvage Study Area	6,499,735	47,648,882	36.0	N/A	10,092	7.3	N/A	418.8
Ursula Lake	20,025,022	102,204,620	20.7	9560	61,147	5.1	310.54	464.5
Christine Lake	494,380	1,558,113	14.6	1592	6,629	3.2	2,094.67	430.3

N/A – Not available because bathymetric survey only covers study area.

3.2 Water Quality

3.2.1 Results

Water quality data can be found in Appendices 3.2-1 (ice-covered season; February, March, and May), 3.2-2 (open-water season; July, August, and September), and 3.2-3 (QA/QC data).

3.2.1.1 pH and Sulphate

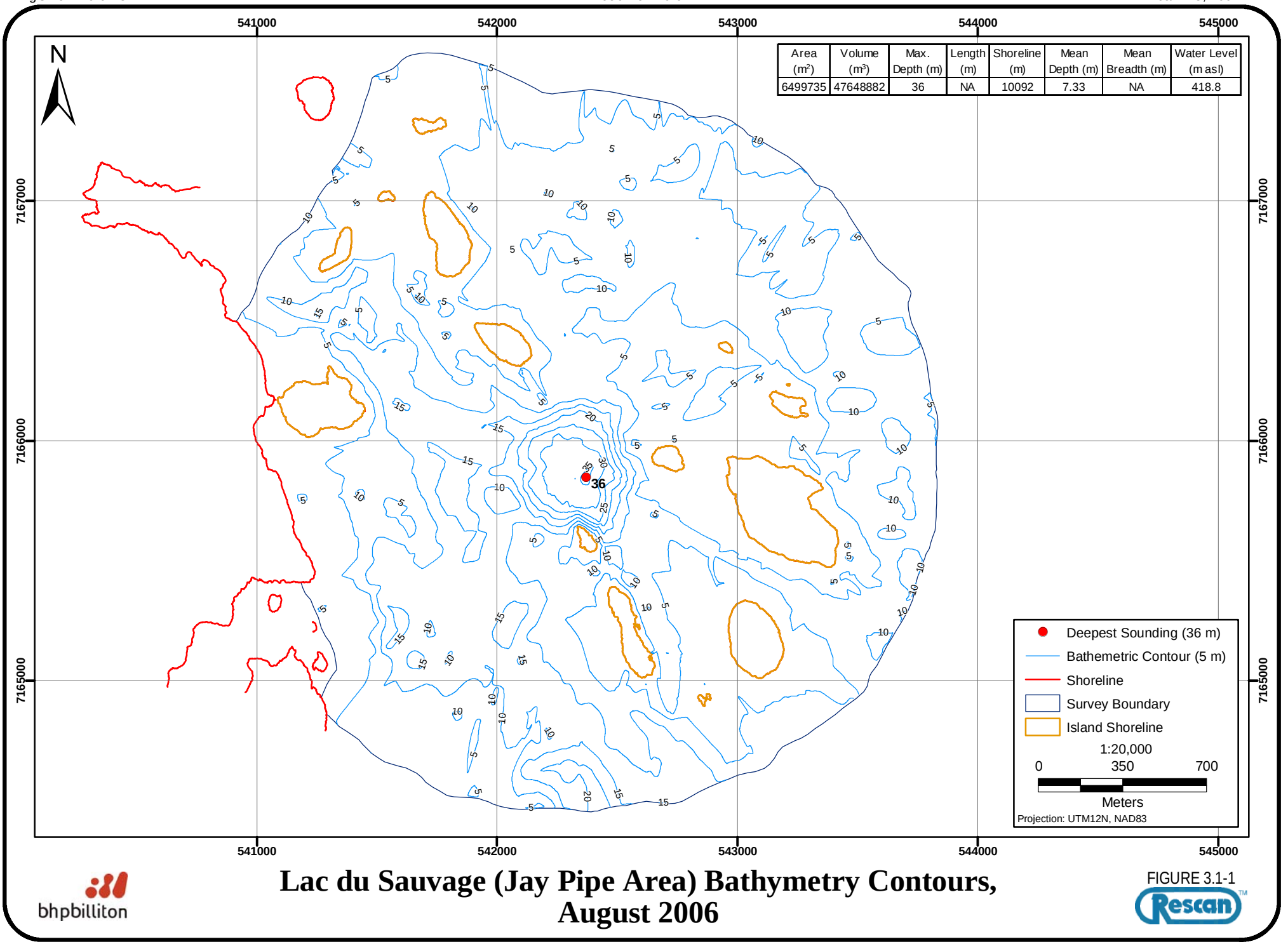
Average pH in Lac du Sauvage, Ursula and Christine lakes at each sample site was typically slightly acidic ranging from 6.14 (LdS2 May 2006) to 7.73 (LdS12 February 2006) (Figure 3.2-1). All open-water season pH values were within the CCME guideline of 6.5 to 9.0 while some ice-covered season pH values were naturally below this guideline range, due to the natural acidity of Arctic lakes.

Sulphate concentrations in 2006 ranged from 1.06 mg/L (UL3 July 2006) to 6.06 mg/L (Christine Lake September 2006). Sulphate concentrations during the 2006 open-water season were consistently higher in Christine Lake than Ursula Lake or Lac du Sauvage (Figure 3.2-1). Christine Lake is in the downstream pathway of discharge from the King-Pond Settling Facility (KPSF). There are no CCME guidelines for sulphate.

Mean sulphate concentrations were relatively constant during the open-water season with the exceptions of LdS2, which had lower concentrations in August and Christine Lake, which had elevated sulphate concentrations in September.

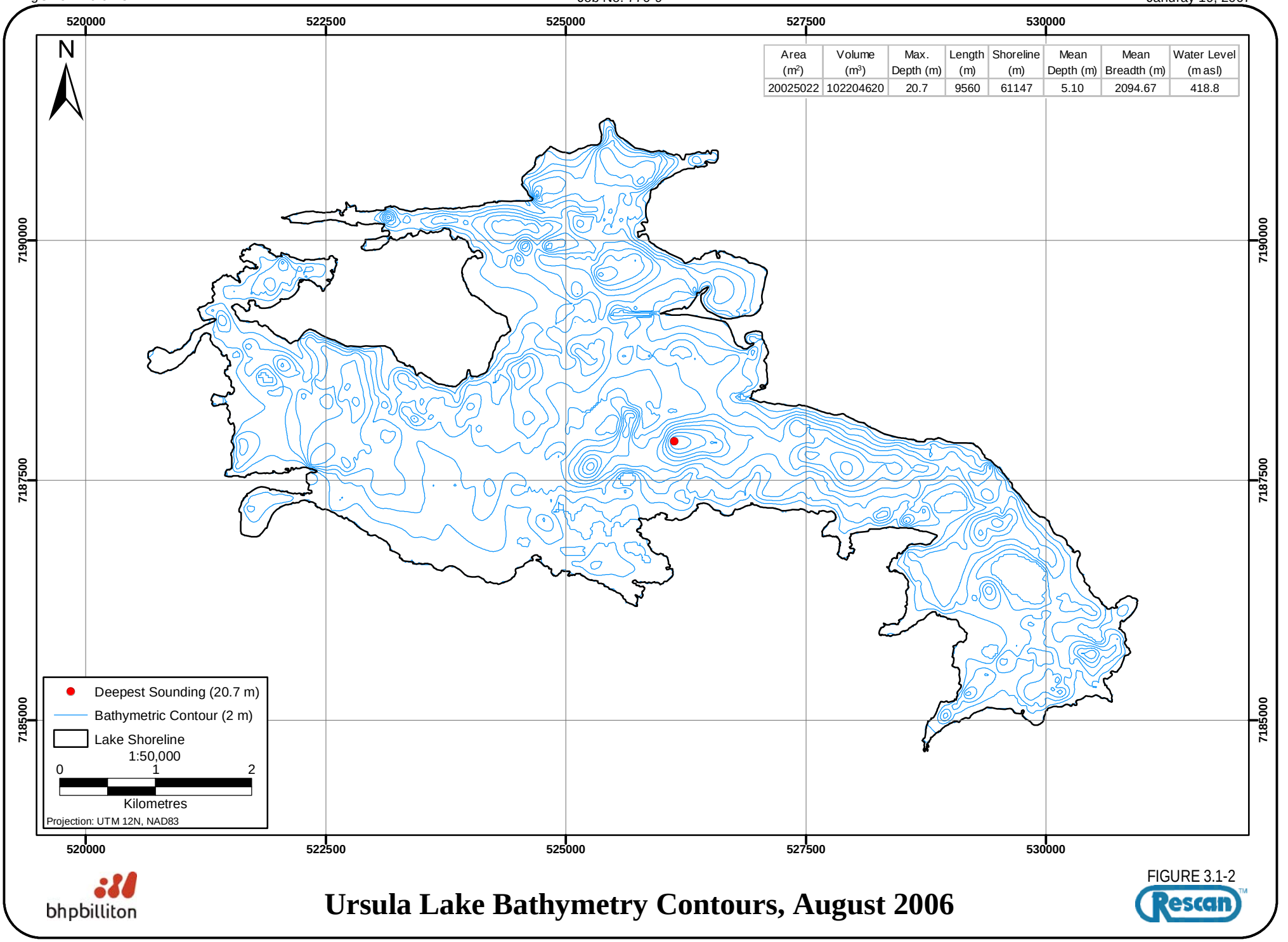
3.2.1.2 Total Dissolved Solids, Chloride, and Potassium

Total dissolved solids (TDS) concentrations ranged from 2.8 mg/L (UL1 September 2006, UL2 August 2006) to 25.9 mg/L (LdS2 March). During the open-water season TDS was consistently



Lac du Sauvage (Jay Pipe Area) Bathymetry Contours, August 2006

FIGURE 3.1-1



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Ursula Lake Bathymetry Contours, August 2006

FIGURE 3.1-2

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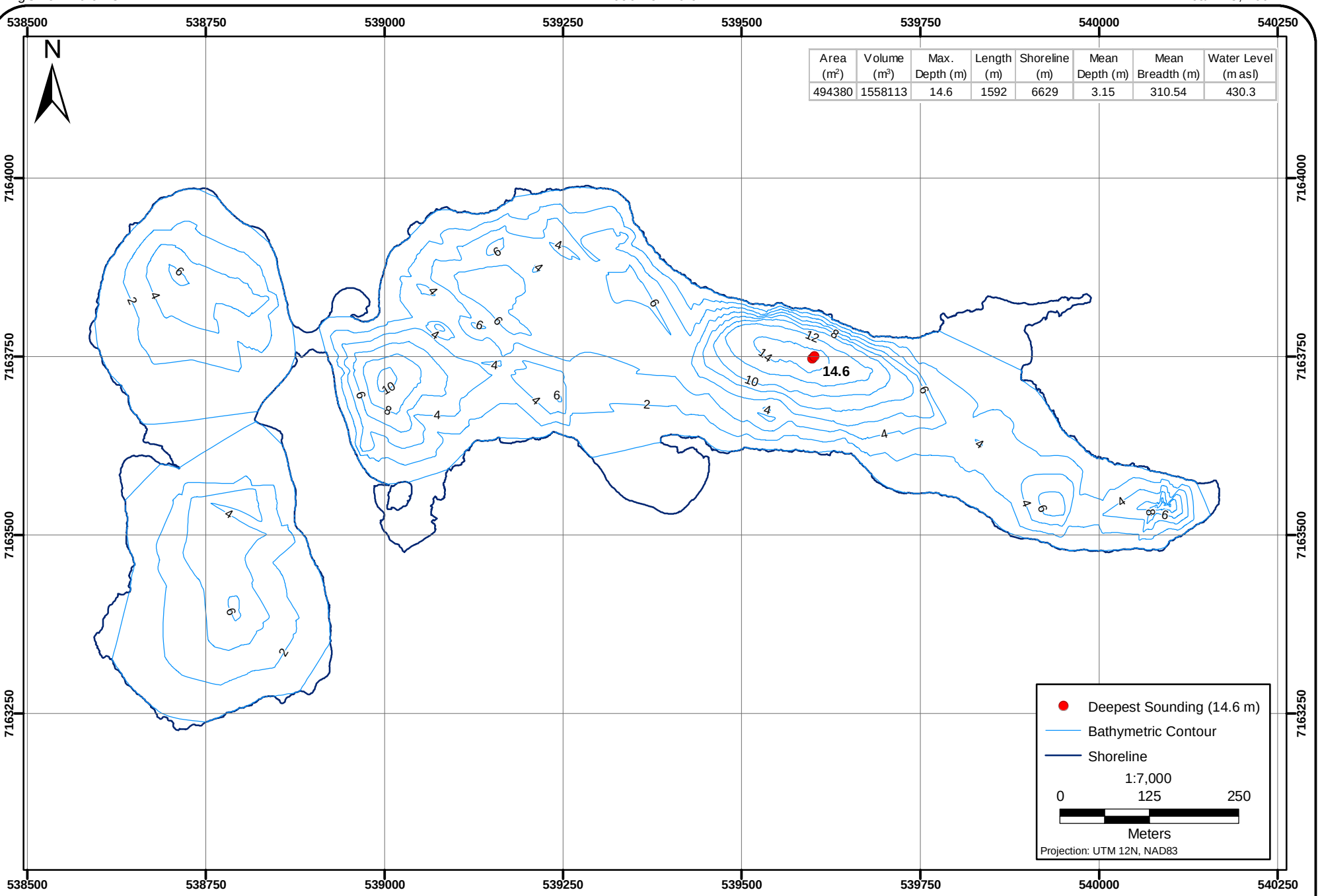

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Christine Lake Bathymetry Contours, August 2006

FIGURE 3.1-3

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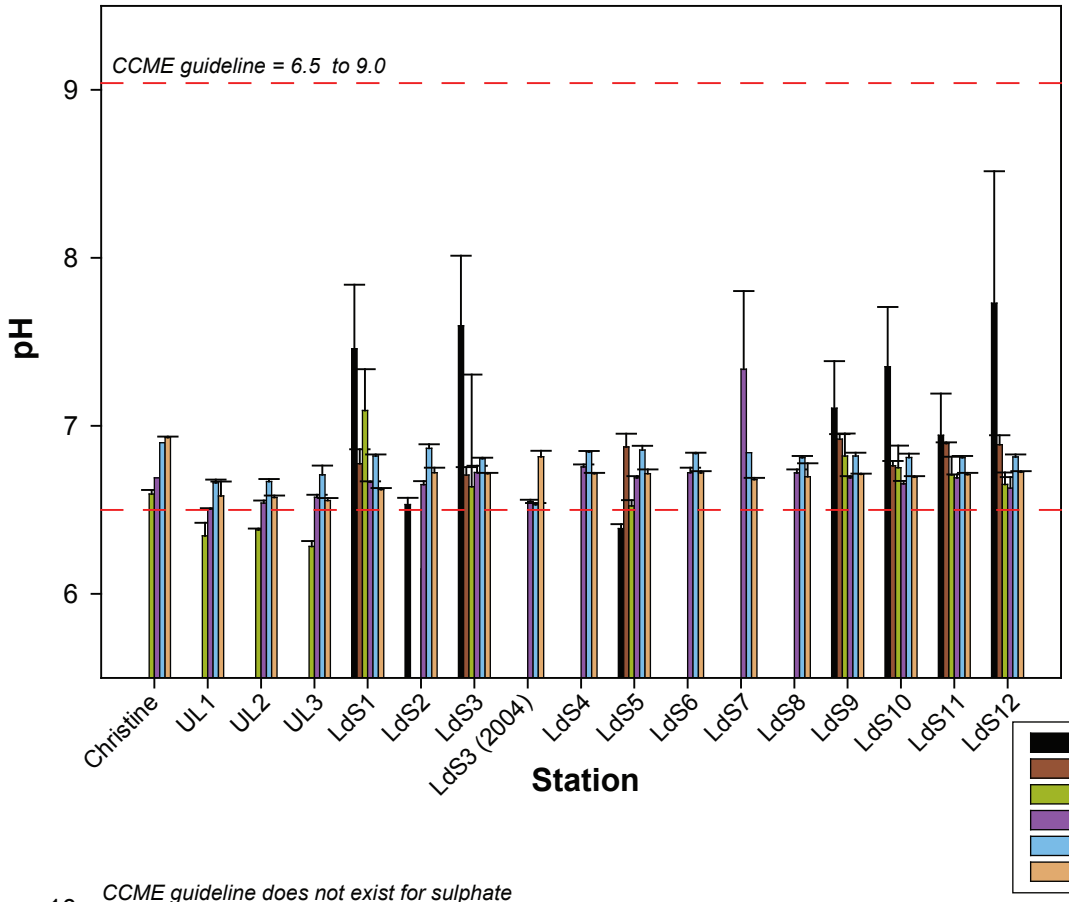

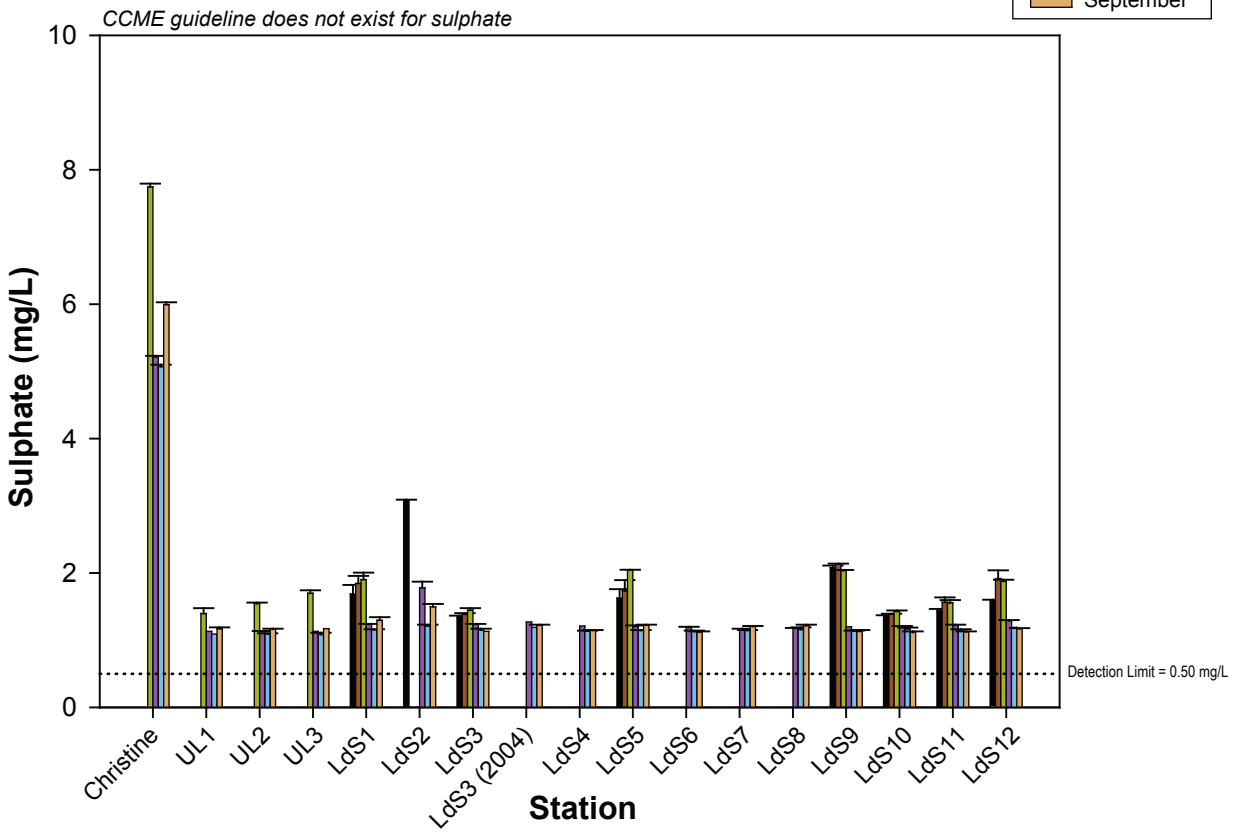

Note: Error bars represent standard error of the mean
Horizontal dashed lines indicate CCME guidelines
Horizontal dotted line indicates analytical detection limit

FIGURE 3.2-1

pH and Sulphate for Lac du Sauvage, Christine Lake, and Reference Lake Sites, 2004 and 2006

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higher in Christine Lake than in Ursula Lake or Lac du Sauvage (Figure 3.2-2). There are no CCME guidelines for TDS.

Chloride concentrations ranged from below the detection limit of 0.5 mg/L to 1.42 mg/L (LdS2 March). Chloride concentrations were highest in winter samples from LdS1, LdS2, LdS5, LdS9, LdS12, and Christine Lake (Figure 3.2-2).Christine Lake is consistently higher than the Lac du Sauvage stations as it is in the downstream pathway foe KPSF discharge. Open-water season chloride concentrations were all below the detection limit with the exception of samples from Christine Lake. There were no spatial trends observed in chloride concentrations during the open-water season in Lac du Sauvage or Ursula Lake. There are no CCME guidelines for chloride.

Potassium concentrations ranged from 0.3 mg/L (UL1, UL2, UL3 July, August, September 2006) to 2.3 mg/L (LdS2 March 2006) (Figure 3.2-3). Similar to chloride, potassium concentrations in Lac du Sauvage and Christine Lake were greatest in winter samples. Open-water season potassium concentrations were in highest Christine Lake at 1.02 mg/L (September 2006). There are no CCME guidelines for potassium.

3.2.1.3 Total Ammonia, Nitrate, and Nitrite

Total ammonia concentrations ranged from below the detection limit of 0.005 mg/L to 0.039 mg/L (LdS11 March 2006) (Figure 3.2-3). Total ammonia concentrations in 2006 were highly variable between sites and were substantially higher during the ice-covered season than the open-water season samples. Concentrations were typically higher during the winter months compared to the open-water season. The CCME guideline for total ammonia is pH and temperature dependent, and all measured concentrations were below the lowest CCME guideline value.

Nitrate concentrations were typically low in most water samples ranging from less than the detection limit of 0.0050 mg/L to a high of 0.070 mg/L (LdS2 February 2006) (Figure 3.2-4). All nitrate concentrations were below the CCME guideline of 2.93 mg/L.

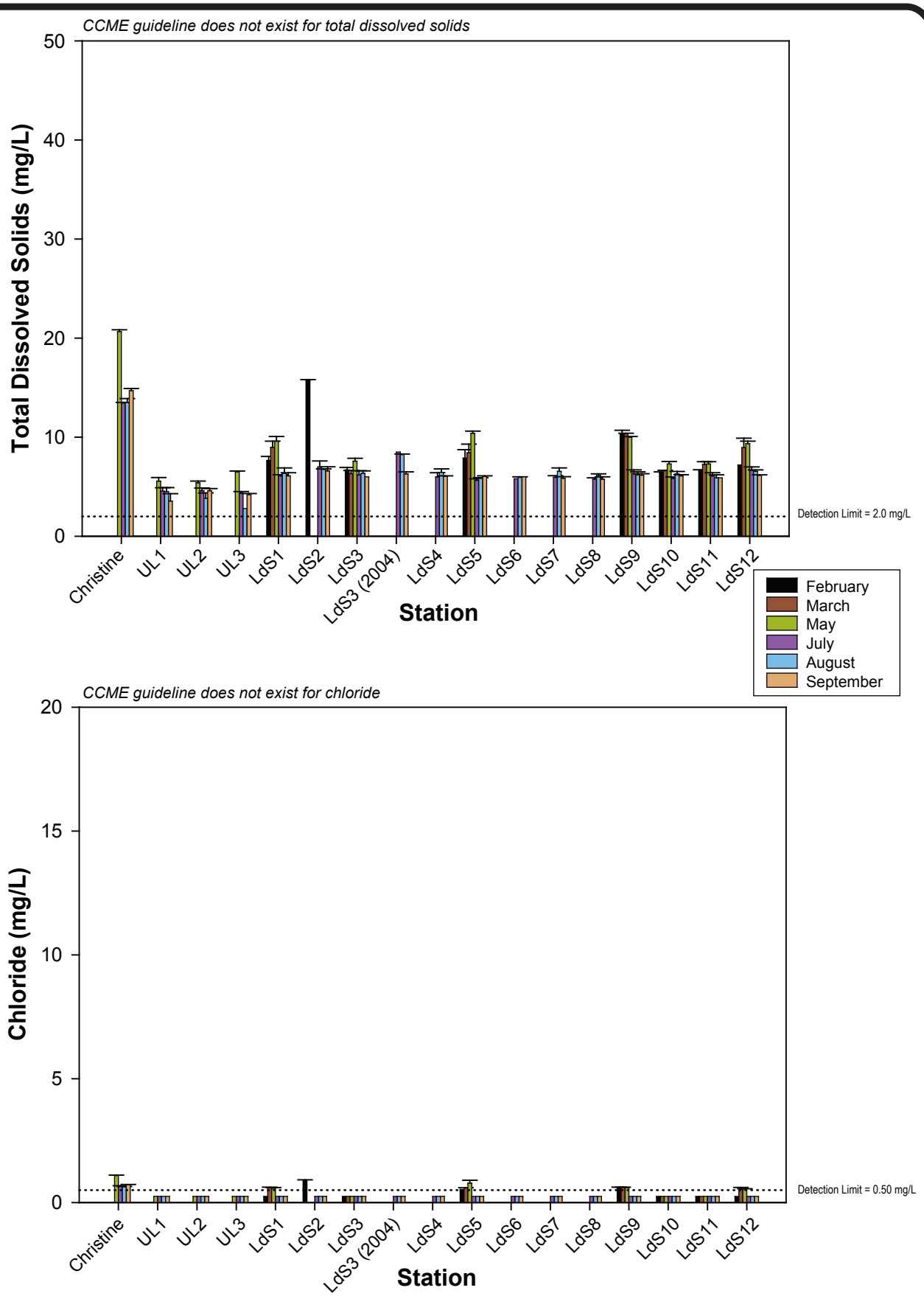
Nitrate concentrations were highest in the winter months. In the open-water season, nitrate was only detected in two sites LdS8 (August 2006) and LdS11 (July 2006).

Nitrite concentrations were all below the detection limit of 0.001 mg/L for the open-water season. In winter samples, nitrite concentrations ranged from less than 0.001 mg/L to 0.002 mg/L (Figure 3.2-4). All nitrite concentrations were below the CCME guideline of 0.06 mg/L.

3.2.1.4 Ortho-Phosphate and Total Phosphorus

Phosphorus is typically the nutrient most limiting to growth in northern lakes (Shindler, 1977) and lakes of the EKATI claim block are characterized by low concentrations of both phosphorus and nitrogen.

Ortho-phosphate concentrations ranged from below the detection limit of 0.0010 mg/L for most samples to 0.0058 mg/L at LdS2 (February 2006) (Figure 3.2-5). Open-water season samples typically did not contain ortho-phosphate with the exception of LdS3 (September 2006). There are no CCME guidelines for ortho-phosphate.



Note: Error bars represent standard error of the mean
Horizontal dotted line indicates analytical detection limit

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Total Dissolved Solids and Chloride in Lac du Sauvage, Christine Lake, and Reference Lake Sites, 2004 and 2006

FIGURE 3.2-2

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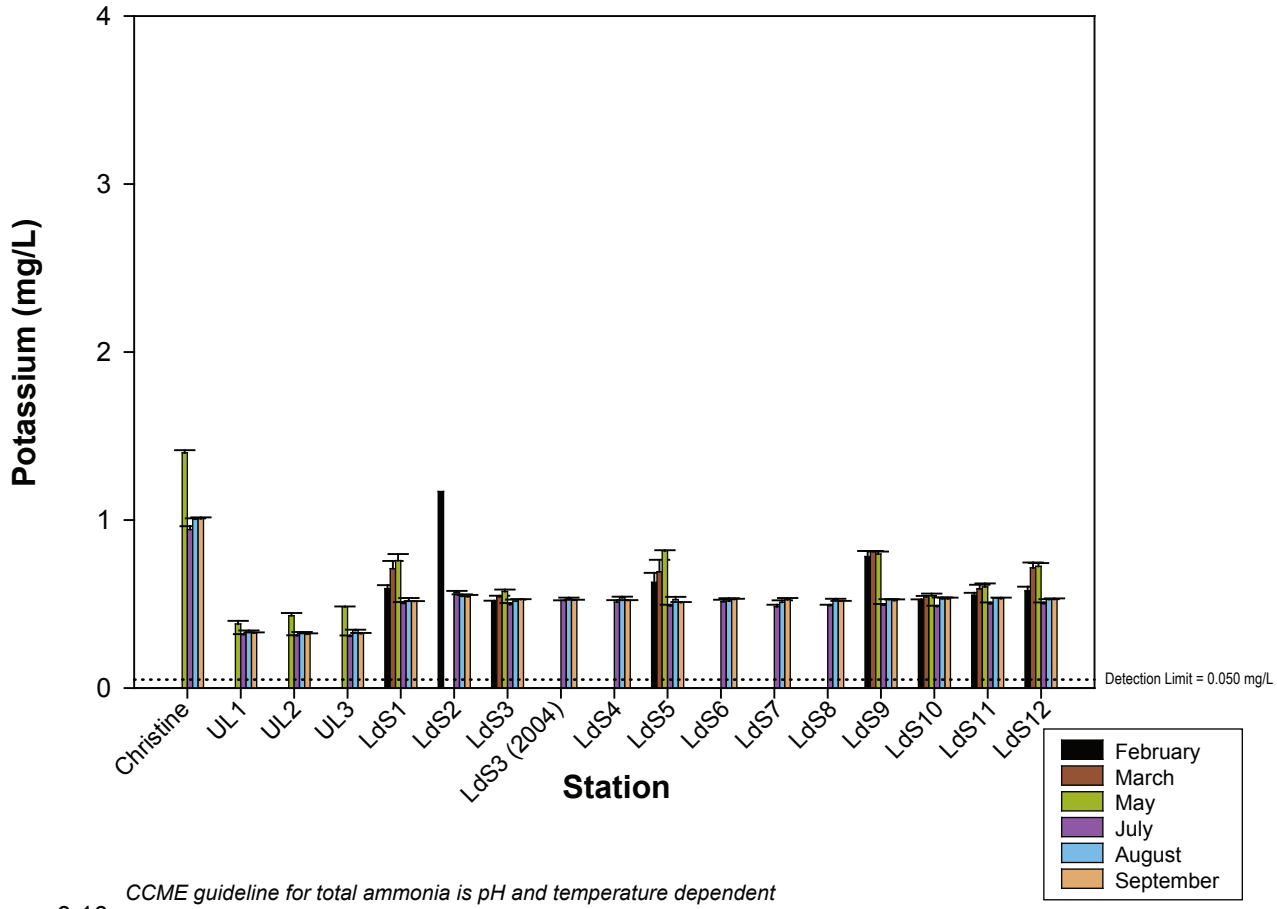
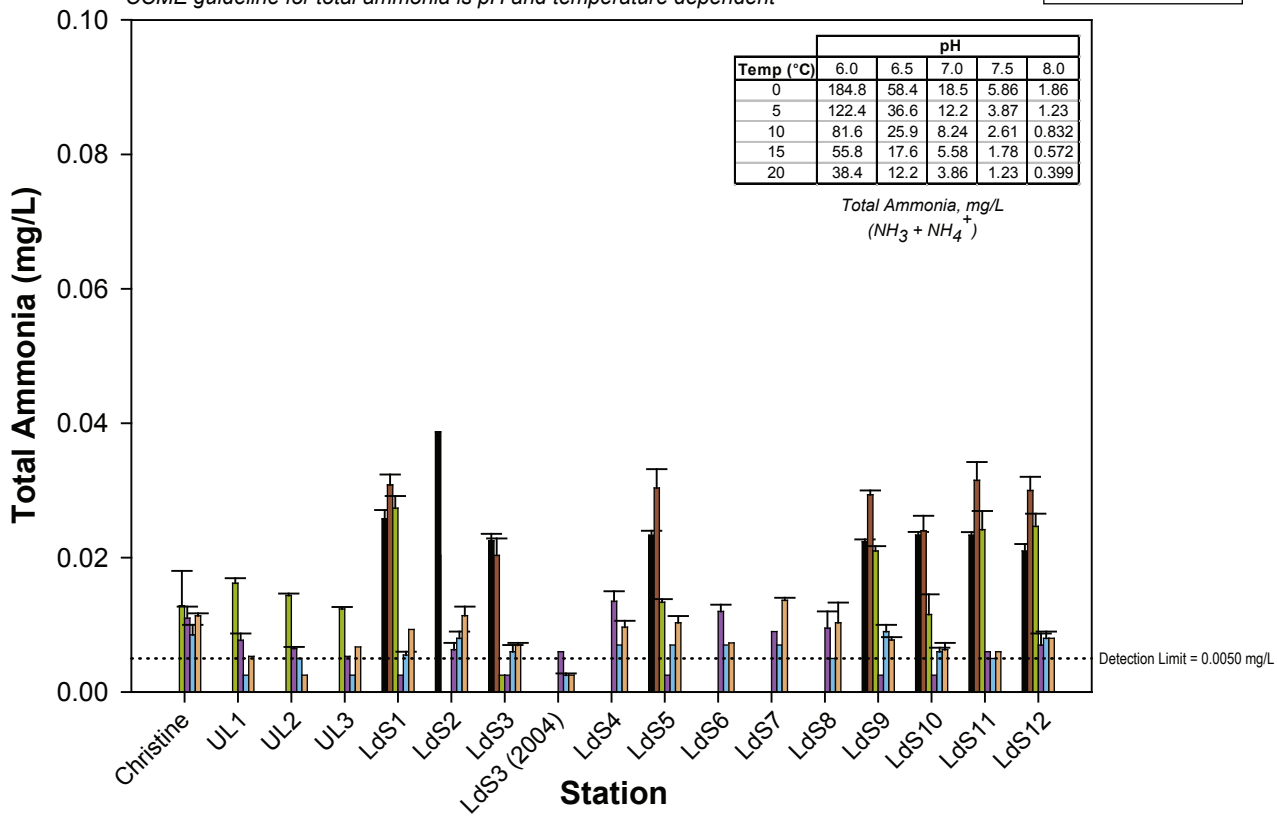
CCME guideline does not exist for potassium



CCME guideline for total ammonia is pH and temperature dependent



Temp (°C)	pH 6.0	6.5	7.0	7.5	8.0
0	184.8	58.4	18.5	5.86	1.86
5	122.4	36.6	12.2	3.87	1.23
10	81.6	25.9	8.24	2.61	0.832
15	55.8	17.6	5.58	1.78	0.572
20	38.4	12.2	3.86	1.23	0.399

Total Ammonia, mg/L
(NH_3 + NH_4^+)

Note: Error bars represent standard error of the mean
Horizontal dotted line indicates analytical detection limit

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Potassium and Total Ammonia in Lac du Sauvage, Christine Lake, and Reference Lake Sites, 2004 and 2006

FIGURE 3.2-3

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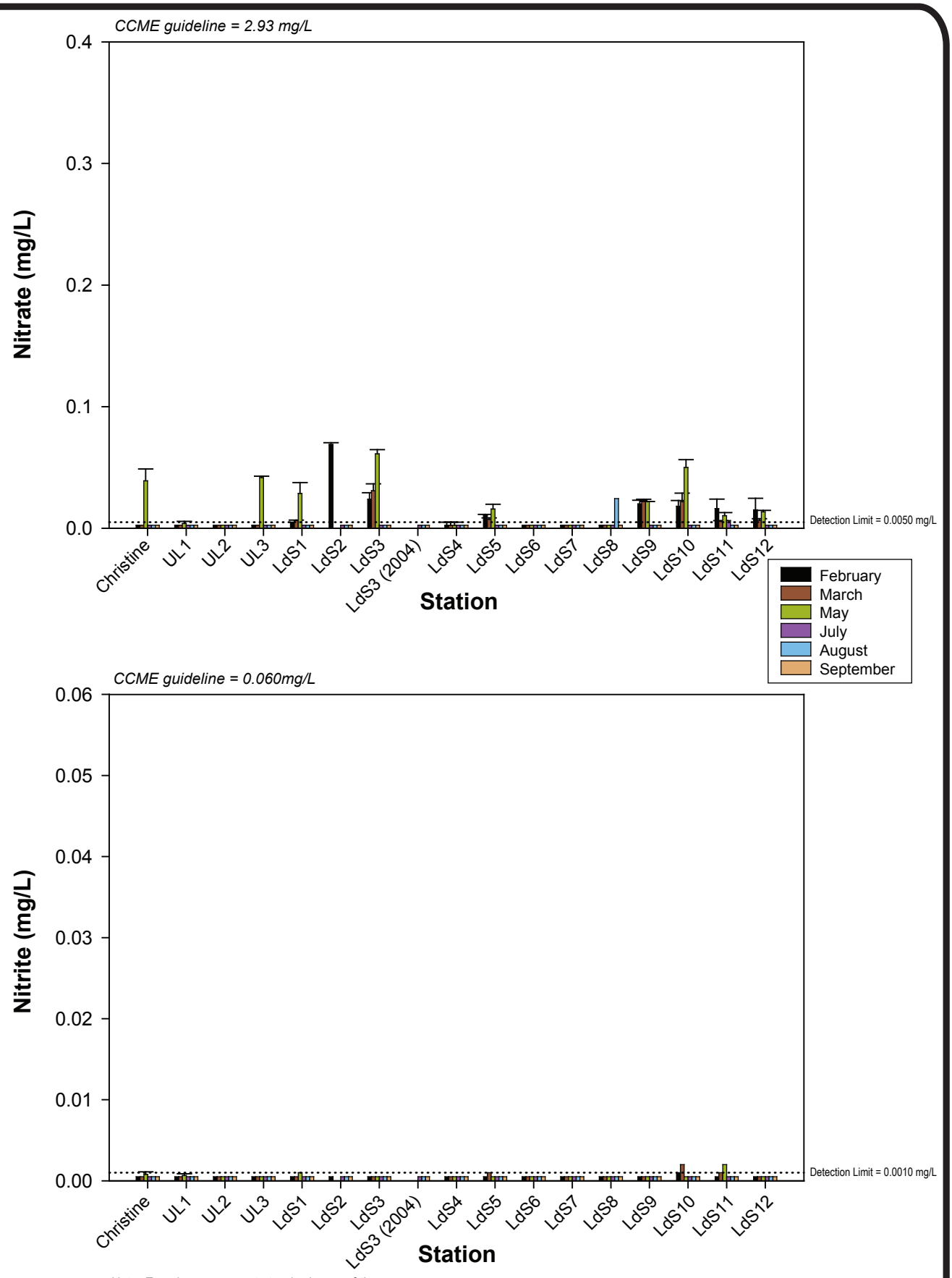


Note: Error bars represent standard error of the mean
Horizontal dotted line indicates analytical detection limit

FIGURE 3.2-4

Nitrate and Nitrite in Lac du Sauvage, Christine Lake, and Reference Lake Sites, 2004 and 2006

Total phosphorus concentrations were typically low ranging from 0.0026 mg/L (UL1 April 2006) to 0.0082 mg/L (LdS3 May 2006) (Figure 3.2-5). There are no CCME guidelines for total phosphorus.

3.2.1.5 Total Metals

Aluminium concentrations ranged from 0.002 mg/L (LdS11 February 2006) to 0.058 mg/L (LdS3 May 2006) (Figure 3.2-6).

The CCME guideline for total aluminium varies according to pH. For pH values below 6.5, the guideline is 0.005 mg/L, while for pH values equal to or greater than 6.5, the guideline is 0.10 mg/L. Total aluminium concentrations at LdS3 (May 2006) had a pH of less than 6.5 and exceeded the CCME guideline for aluminium.

Total arsenic concentrations ranged from 0.000092 mg/L (UL3 July 2006) to 0.000473 mg/L (LdS2 February 2006). Total arsenic concentrations in Ursula Lake stations were notably lower than either Lac du Sauvage stations or Christine Lake (Figure 3.2-6).

Total copper concentrations ranged from below limit of 0.00050 mg/L to a maximum of 0.00120 mg/L for LdS2 (February 2006). Total copper concentrations in Ursula Lake stations were all below the detection limit while Lac du Sauvage and Christine Lake stations had detectable copper concentrations (Figure 3.2-7).

Total molybdenum concentrations were all below the detection limit of 0.00005 mg/L with the exception of two sites LdS5 (September 2006) and Christine Lake (September 2006) at 0.000263 and 0.000060 mg/L, respectively (Figure 3.2-7). All samples had total molybdenum concentrations well below the CCME guideline of 0.073 mg/L.

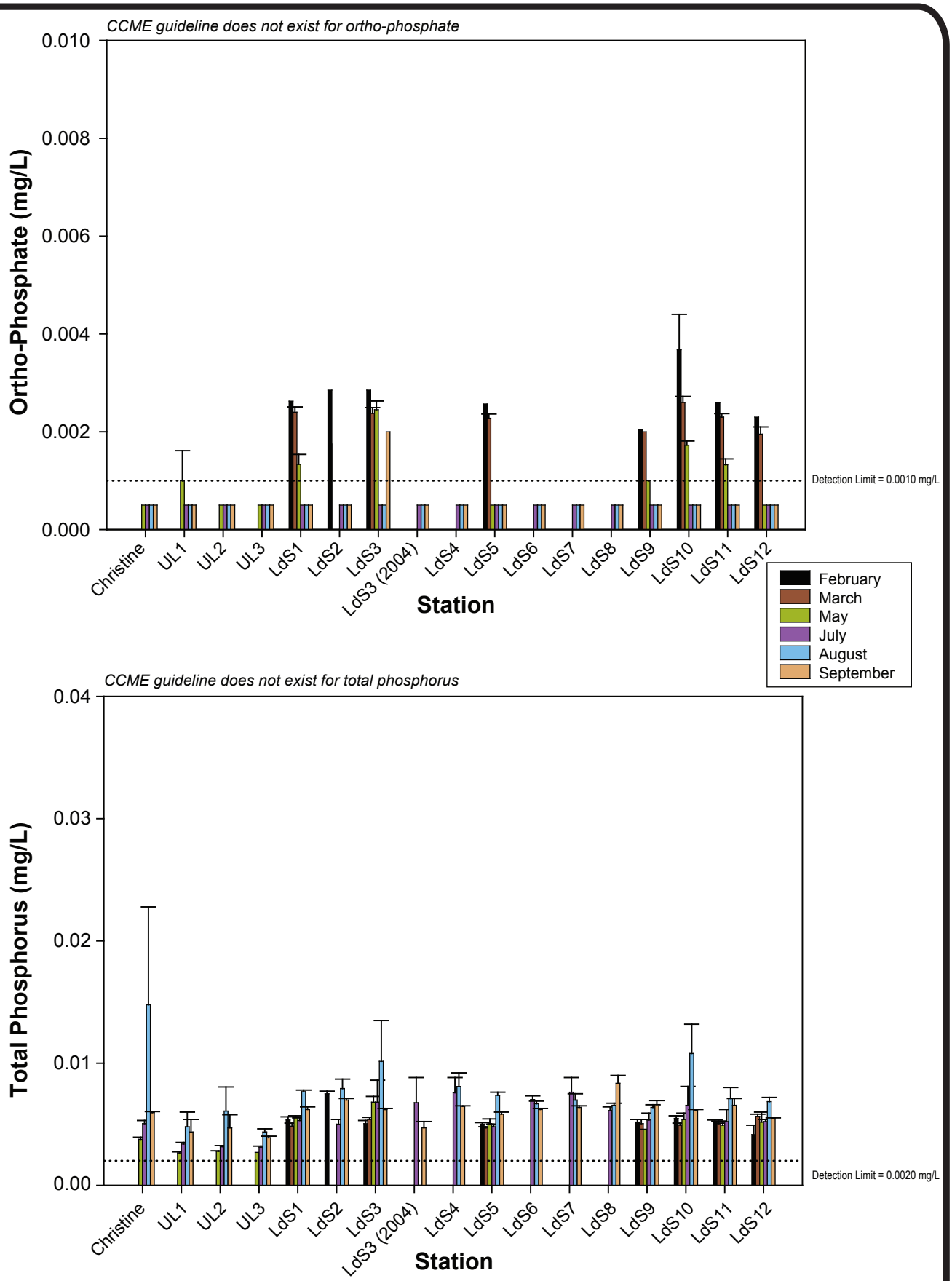
Total nickel concentrations ranged from 0.00019 mg/L (UL2 September 2006) to 0.00177 mg/L (LdS3 May 2006) (Figure 3.2-8). Total nickel concentrations were consistently elevated for Christine Lake relative to Ursula Lake and Lac du Sauvage stations.

The CCME guideline for total nickel is dependent on hardness. For a hardness of 0 to 60 mg/L [$CaCO_3$], the range that Jay Pipe Baseline lakes fall within, the total nickel guideline is 0.025 mg/L. All samples had total nickel concentrations below the CCME guideline for the protection of aquatic life.

Total zinc concentrations ranged from less then the limit of detection of <0.001 mg/L to a maximum of 0.0066 mg/L (LdS2 February 2006). The CCME guideline for the protection of aquatic life for total zinc is 0.030 mg/L and all samples were below this guideline.

3.2.2 Water Quality Assurance/Quality Control

Field and travel blanks were collected as part of the QA/QC measures for the Jay Pipe Baseline fieldwork. Analytical results of all lake QA/QC blanks are available in Appendix 3.2-3.



Note: Error bars represent standard error of the mean
Horizontal dotted line indicates analytical detection limit

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Ortho-Phosphate and Total Phosphorus in Lac du Sauvage, Christine Lake, and Reference Lake Sites, 2004 and 2006

FIGURE 3.2-5

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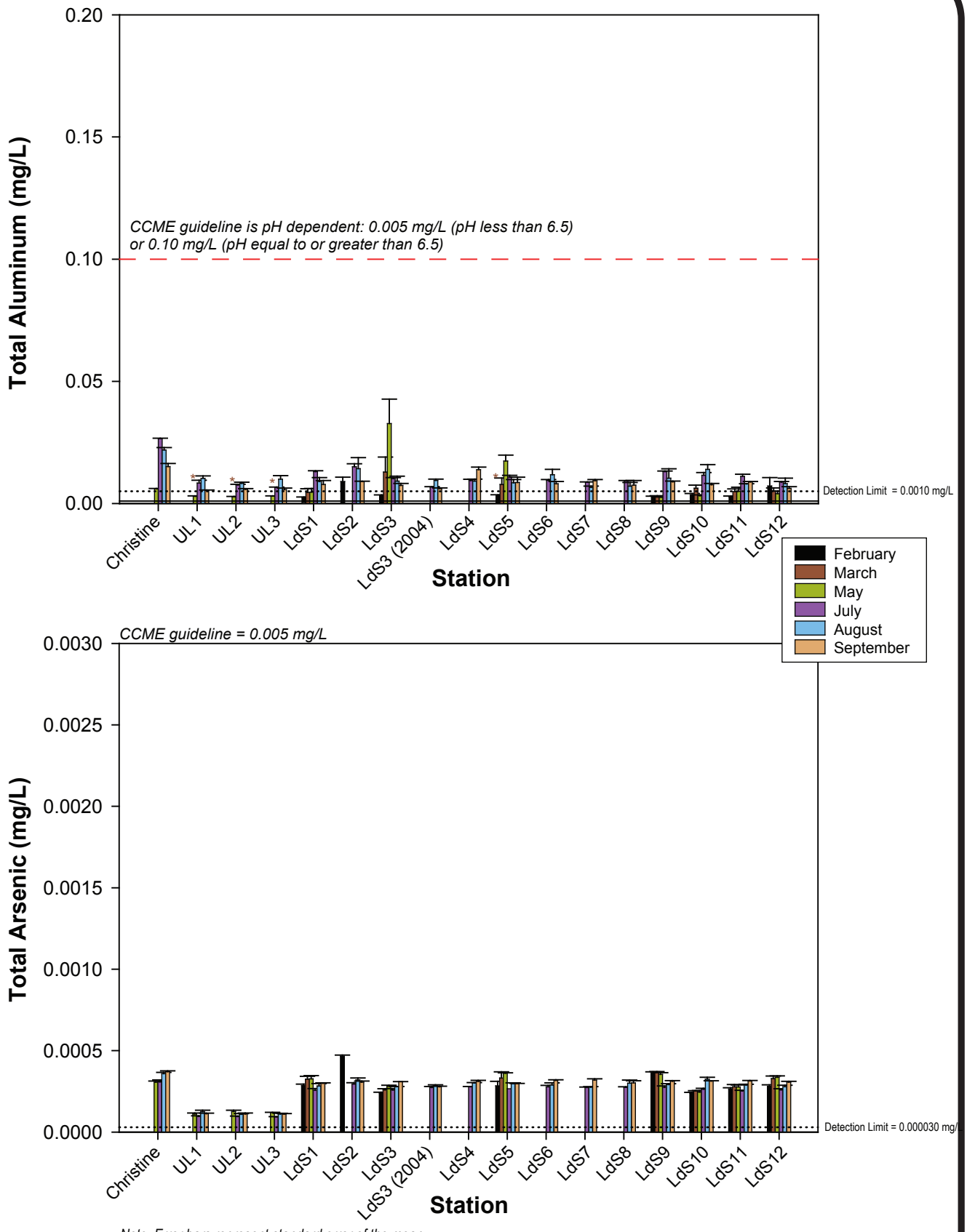

Note: Error bars represent standard error of the mean
Horizontal dashed lines indicate CCME guidelines
Horizontal dotted lines indicate analytical detection limit
* indicates when pH < 6.5

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Total Aluminum and Total Arsenic in Lac du Sauvage, Christine Lake, and Reference Lake Sites, 2004 and 2006

FIGURE 3.2-6

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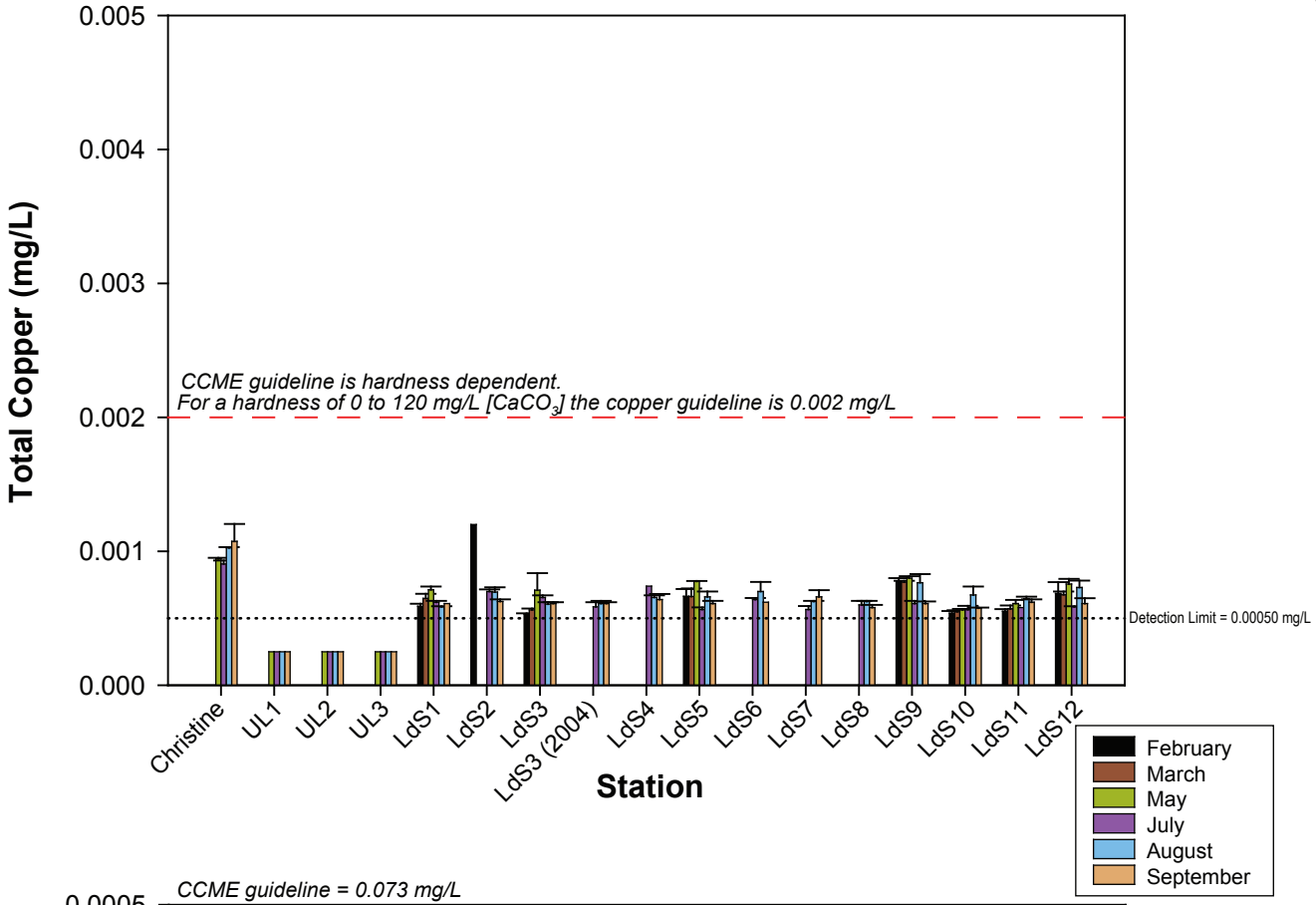
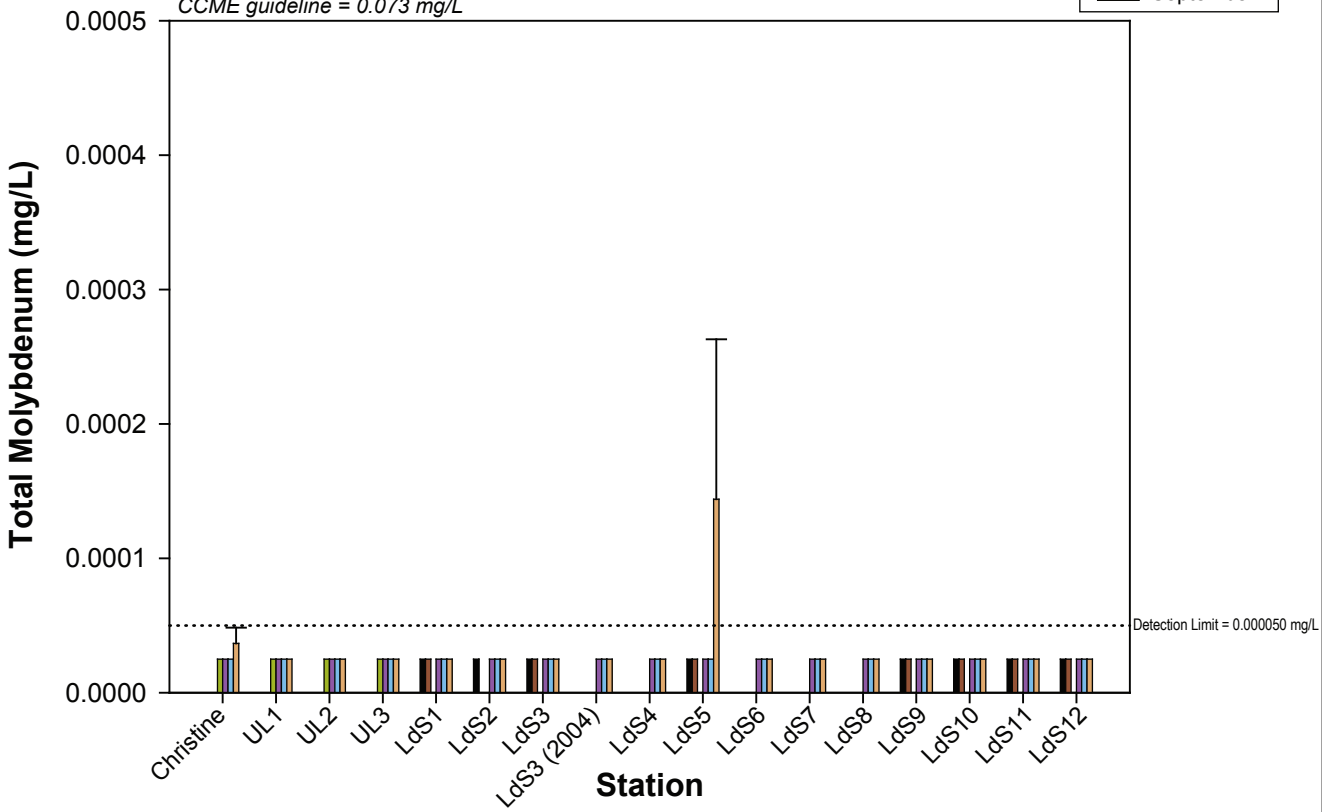
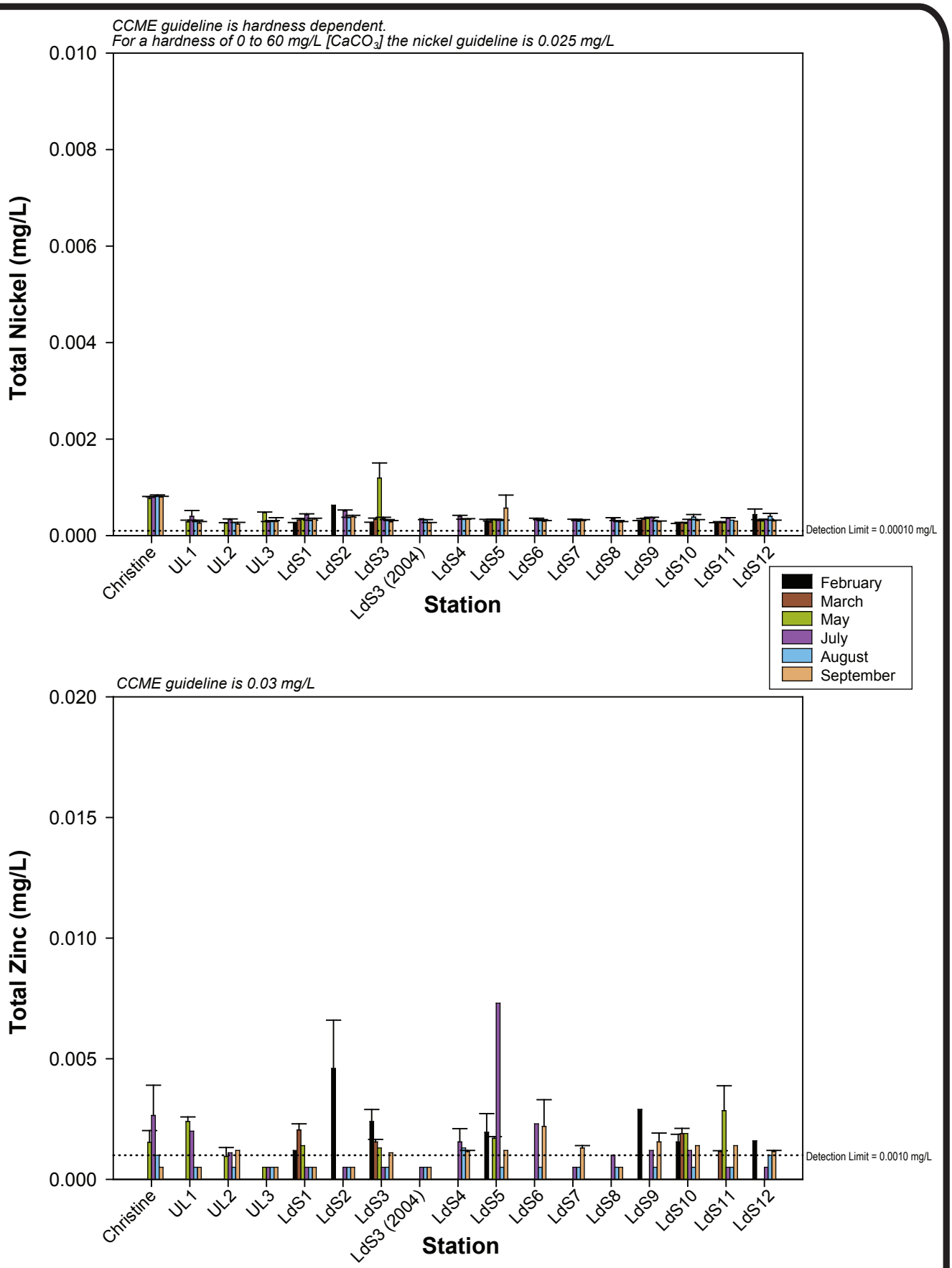




Note: Error bars represent standard error of the mean
Horizontal dashed lines indicate CCME guidelines
Horizontal dotted lines indicate analytical detection limit

FIGURE 3.2-7

Total Copper and Total Molybdenum in Lac du Sauvage, Christine Lake, and Reference Lake Sites, 2004 and 2006



Note: Error bars represent standard error of the mean
Horizontal dotted lines indicate analytical detection limit

FIGURE 3.2-8

Total Nickel and Total Zinc in Lac du Sauvage, Christine Lake, and Reference Lake Sites, 2004 and 2006

In total, six equipment blanks, eight travel blanks, and eight field blanks were collected over the 2006 sampling period. Analytical results indicate that the majority of field and travel blanks had concentrations that were below the detection limits analyzed. Metal concentrations in the field blank from February 11, 2006 were elevated and it is possible this sample became contaminated. In addition the equipment blank from March 20, 2006 had high conductivity and concentrations of select metals several times the detection limit. For the concentrations that were detectable, there was no indication that these parameters reflected contamination of the lake samples, and therefore no data were removed from the dataset due to detectable values in the QA/QC blanks.

Four samples were removed from the dataset due to clear contamination from sediment. The LdS2 samples from March and May had total suspended solids (TSS) concentrations >50 mg/L (should be near 3 mg/L). This likely occurred because the maximum depth at LdS2 is 1.6 m and by late March the ice thickness is <1 m, and the sediment could very easily have been disrupted.

3.2.3 Water Quality Summary

The water quality of Lac du Sauvage and Ursula Lake is typical of the oligotrophic or nutrient poor lakes in the EKATI claim block. The highest concentrations for most parameters were found in the winter samples. This is expected because the freeze out of ionic material as ice forms has a concentrating effect on conservative water quality variables in underlying unfrozen water.

Christine Lake regularly had higher open-water season concentrations of sulphate, total dissolved solids, chloride, potassium, aluminium, copper, and nickel than either Lac du Sauvage or Ursula Lake stations. Christine Lake is downstream of discharge water from the King Pond Settling Facility (KPSF) and it is possible higher concentrations observed for some parameters are related to this discharge.

There appeared to be no spatial trend in Lac du Sauvage or Ursula Lake in open-water samples from 2006. In Ursula Lake stations, concentrations of most parameters were near or below the detection limit and there was little difference between sites.

3.3 Sediment

Sediment samples were collected from LdS1 through LdS12, Christine Lake and UL1. In addition, shallow water sediment samples were collected at B1, B2, B4, and B5 in Lac du Sauvage to characterize the shoreline sediments. Attempts to collect sediment at UL2, UL3 and B3 failed due to the presence of hard compacted sediment and/or boulders interfering with use of the Ekman dredge. Sediment Quality data are provided in Appendix 3.3-1.

3.3.1 Results

3.3.1.1 Sediment Descriptions

Descriptions of sediment samples collected from Lac du Sauvage and reference lake stations were made with special attention paid to the water depth from which the sample was collected, the grab thickness, physical characteristics of sediment (including classification of sediment type

according to grain size), sediment colour, and the presence of biological organisms or debris material.

Photographs were taken of most sediment samples and are presented in Appendix 3.3-2. Sediment colour was typically brown to grey with layers of red (iron oxides) occasionally observable at the surface.

Sediment grain sizes were generally dominated by clays and silts (< 4 µm to between 4 µm to <0.063 mm) (Table 3.3-1). Shoreline stations B1 and B2 were the only sites containing gravel in sediment samples. While sand was found in all samples, it was most abundant in sediments from LdS1 and LdS11 at 29.2% and 47.5%, respectively. It should be noted that samples could not be collected at UL2, UL3 and LdS9 due to the hard compacted nature of these sediments. It is likely that sediments at these sites are dominated by sand and/or gravel.

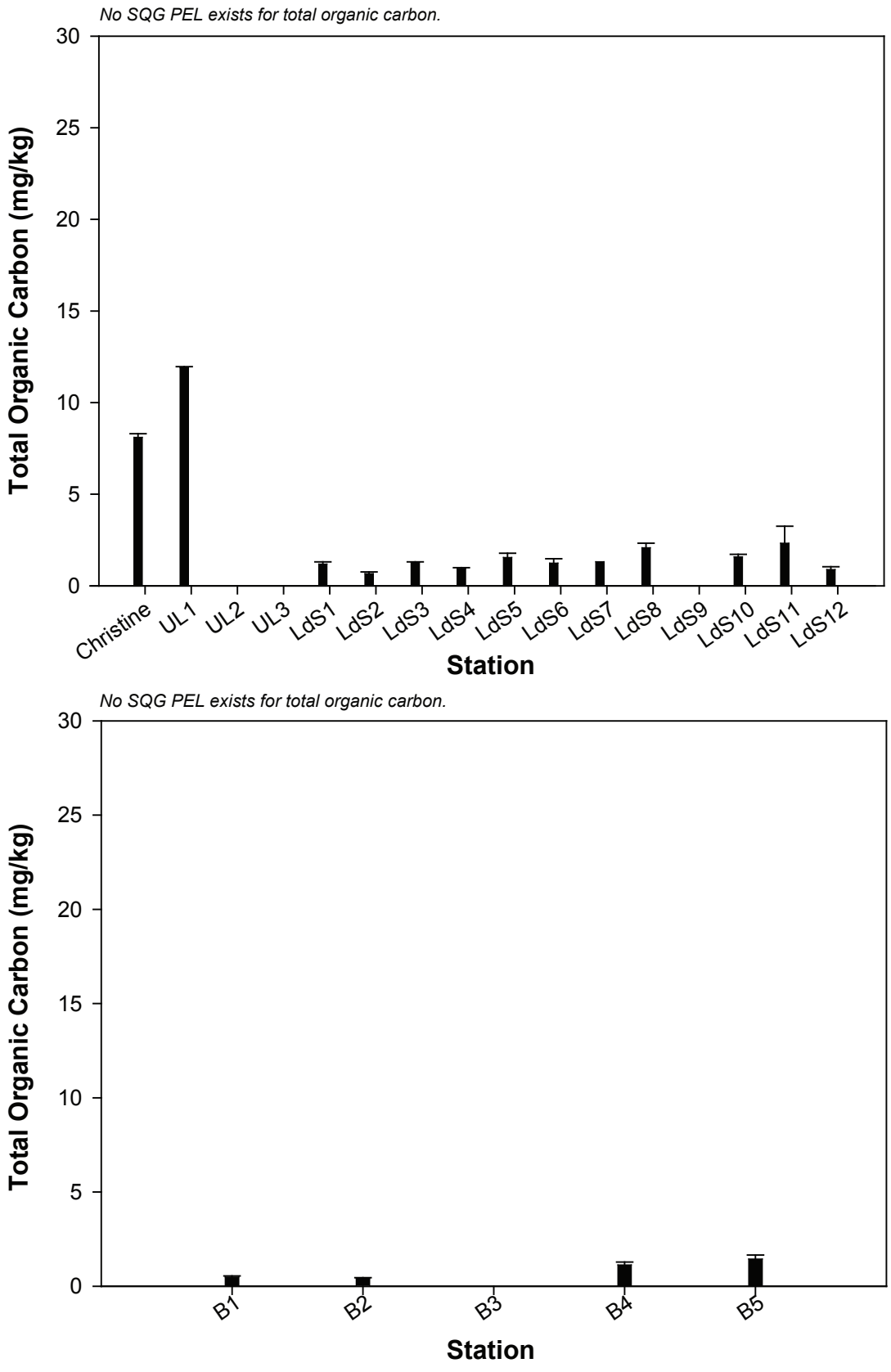
Table 3.3-1
Sediment Grain Size for Lac du Sauvage, Christine Lake, and Reference Lake Sites, August 2004 and 2006

	Gravel (%) (>2.00mm)		Sand (%) (2.00mm - 0.063mm)		Silt (%) (0.063mm - 4um)		Clay (%) (<4um)	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
LdS1	<0.10	<0.10	29.2	2.1	46.7	1.3	24.1	0.9
LdS2								
LdS3	<0.10	<0.10	12.1	0.8	51.0	2.5	36.9	3.0
LdS4	<0.10	<0.10	10.0	0.4	49.4	0.2	40.6	0.3
LdS5	<0.10	<0.10	10.8	1.5	48.4	0.6	40.8	1.9
LdS6	<0.10	<0.10	10.1	0.8	47.3	0.8	42.5	0.4
LdS7	<0.10		9.8		46.6		43.6	
LdS8	<0.10	<0.10	6.3	0.9	51.8	1.4	41.9	1.8
LdS9								
LdS10	<0.10	<0.10	9.2	1.4	46.2	0.2	44.7	1.2
LdS11	<0.10	<0.10	47.5	20.7	33.8	7.1	18.7	13.7
LdS12	<0.10	<0.10	8.0		62.7		29.3	
B1	8.7	0.5	22.1	1.9	41.8	0.8	27.4	0.8
B2	29.5	6.3	28.6	0.7	25.5	4.1	16.5	2.5
B3*								
B4	<0.10	<0.10	7.0	0.8	55.2	0.8	37.8	0.4
B5	<0.10	<0.10	5.9	0.9	54.4	1.1	39.7	0.3
UL1	<0.10	<0.10	0.4	0.1	34.7	2.0	64.9	2.0
UL2*								
UL3*								
Christine Lake	<0.10	<0.10	0.4	0.1	56.2	1.8	43.4	1.9

*** No sample collected due to rocky substrate**

3.3.1.2 Nutrient Parameters

Total organic carbon ranged from 0.35 mg/kg (B2) to 12 mg/kg (UL1) (Figure 3.3-1). There are no CCME sediment quality guidelines for total organic carbon.



Notes: Error bars represent standard error of the mean.
LdS9 UL2, UL3, and B3 could not be sampled due to rocky substrate.

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Total Organic Carbon in Sediments in Lac du Sauvage, Christine Lake, and Reference Lake Sites, Open-Water Season, 2006

FIGURE 3.3-1

Rescan™

Available phosphorus concentrations ranged from 1 mg/kg (LdS11) to 178 mg/kg (B1) (Figure 3.3-2). Available phosphorus was highly variable among sites and between replicates. There are no CCME sediment quality guidelines for available phosphorus.

Total nitrogen concentrations ranged from less than the detection limit of 0.10% to 0.91% (UL1). Total nitrogen concentrations were below detection limits for LdS2, LdS4, LdS11, LdS12, B1, and B2 (Figure 3.3-3). Total nitrogen was substantially higher in Christine Lake and Ursula Lake sediments than in sediments from Lac du Sauvage stations. It is important to note however that Ursula and Christine lake samples only represented one section of each lake which may or may not be representative of the overall sediment chemistry of these lakes. These sites will be sampled again in 2007, including three sites in Ursula Lake.

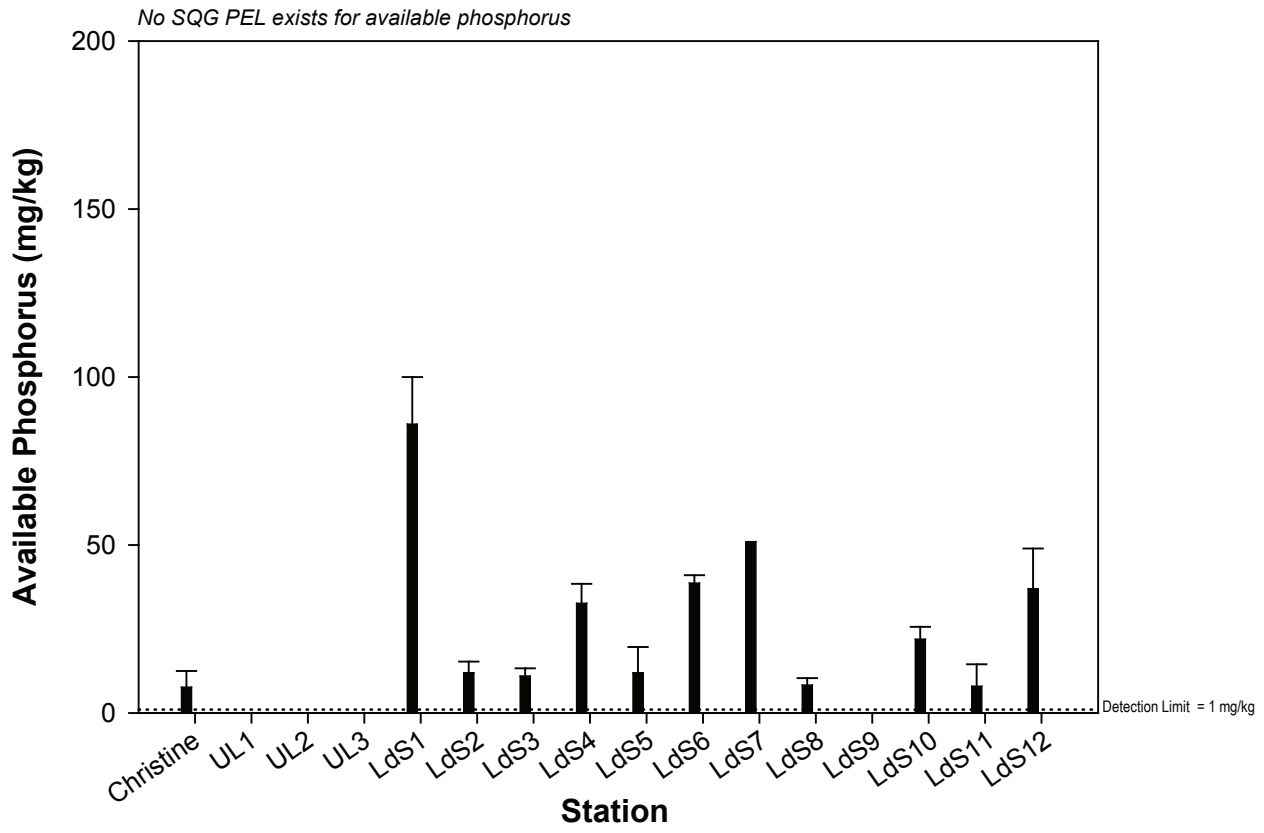
3.3.1.3 Total Metals

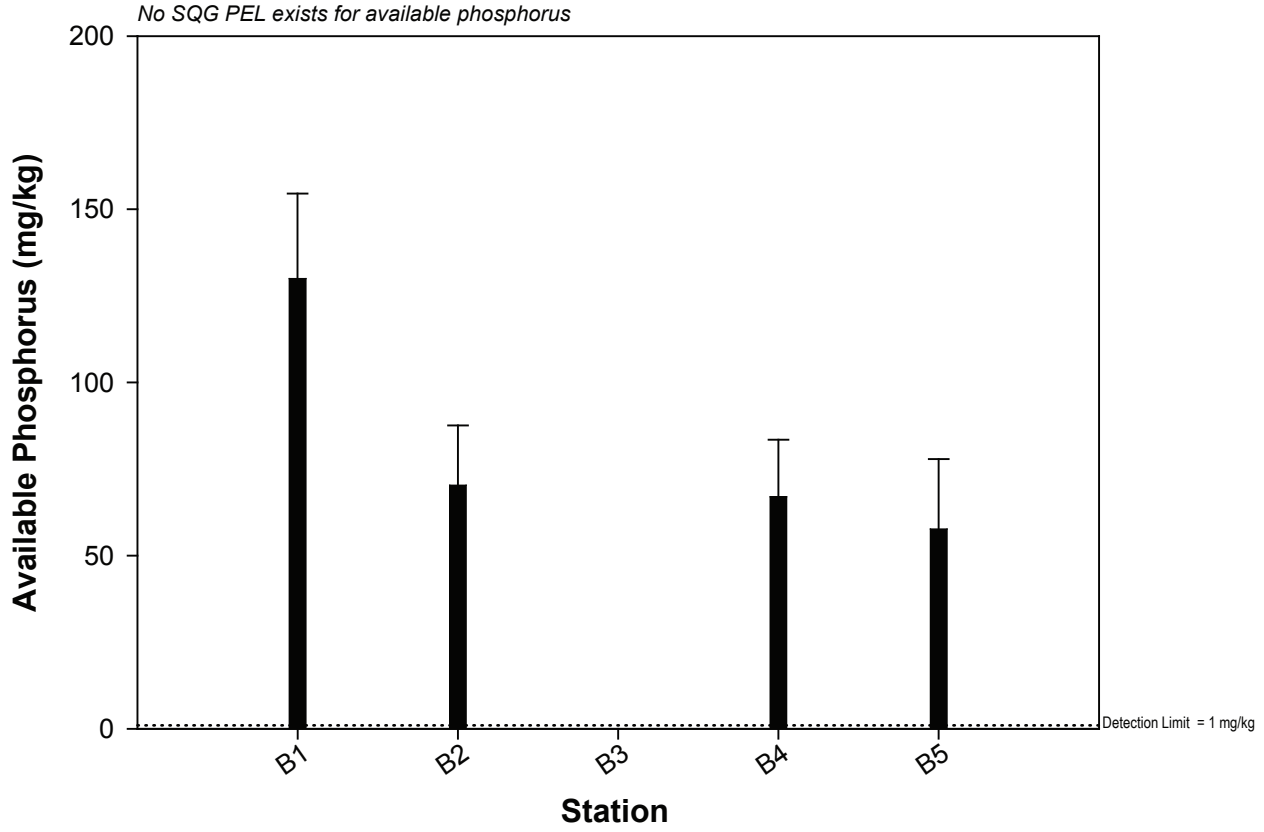
Concentrations of select metals in sediment samples collected at Jay Pipe Baseline sites in 2006 are presented in Figures 3.3-4 to 3.3-8. A summary of the minimum and maximum average metal concentrations for each parameter measured in 2006 along with the CCME sediment quality guideline probable effect levels (SQG PEL) where applicable is presented in Table 3.3-2. The concentration ranges presented represent the natural variability in Jay Pipe Baseline lakes.

Table 3.3-2
Summary of Total Metal Maximum and Minimum Concentrations in Sediments, Lac du Sauvage, Christine Lake, and Reference Lake Sites, August 2004 and 2006

Parameter	Min (mg/kg)	Max (mg/kg)	CCME SQG PEL (mg/kg)
Antimony T-Sb	<10	<10	-
Arsenic T-As	7.8	**411**	17
Barium T-Ba	63.1	236	-
Beryllium T-Be	<0.5	0.9	-
Cadmium T-Cd	<0.5	<0.5	3.5
Chromium T-Cr	34.1	72.5	90
Cobalt T-Co	7.3	114	-
Copper T-Cu	9.5	101.4	197
Lead T-Pb	<30	<30	91.3
Mercury T-Hg	<0.005	**2**	0.486
Molybdenum T-Mo	<4.0	11	-
Nickel T-Ni	19	78.9	-
Selenium T-Se	<2.0	<4.0	-
Silver T-Ag	<2.0	<4.0	-
Thallium T-Tl	<1.0	<1.0	-
Tin T-Sn	<5.0	<5.0	-
Vanadium T-V	31.4	64.3	-
Zinc T-Zn	35.8	154.3	315

Bolded values indicate values greater than the PEL value





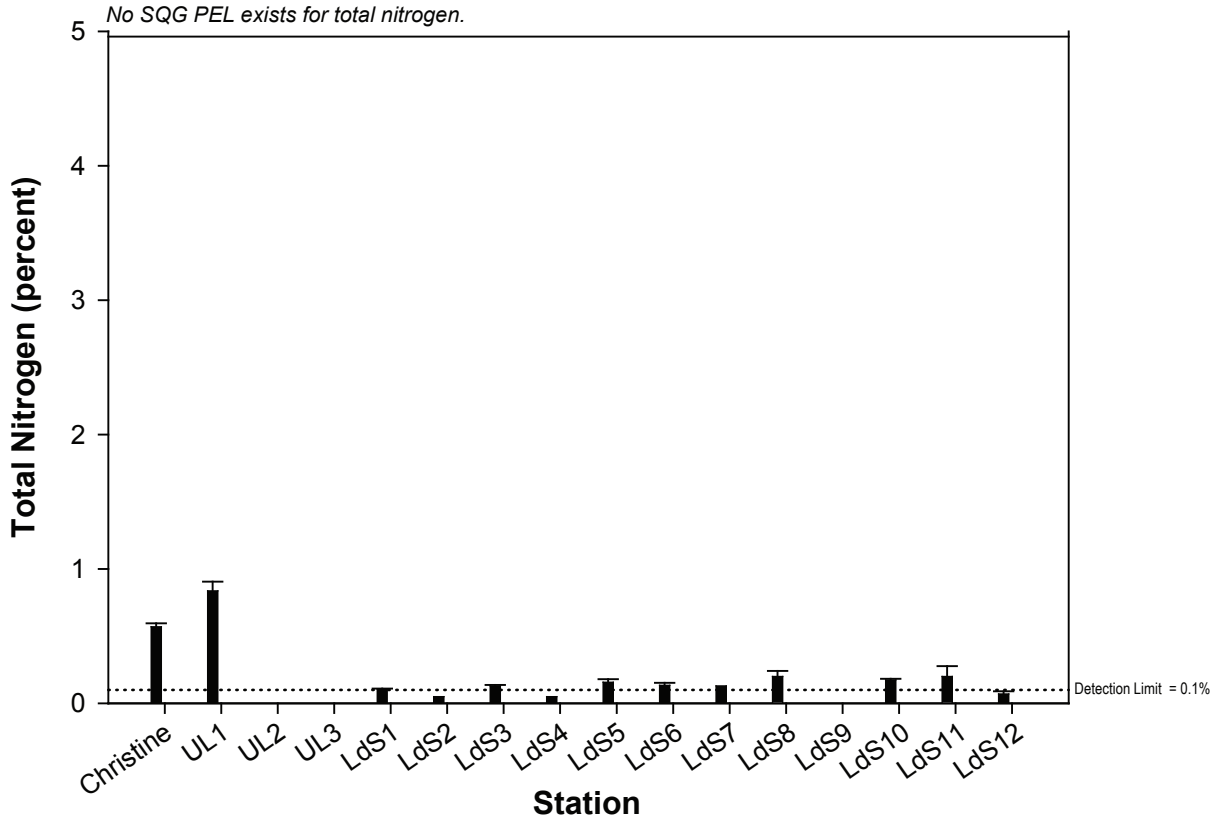
Notes: Error bars represent standard error of the mean.
Horizontal dotted line indicates analytical detection limit of 1 mg/kg.
LdS9 UL2, UL3, and B3 could not be sampled due to rocky substrate.

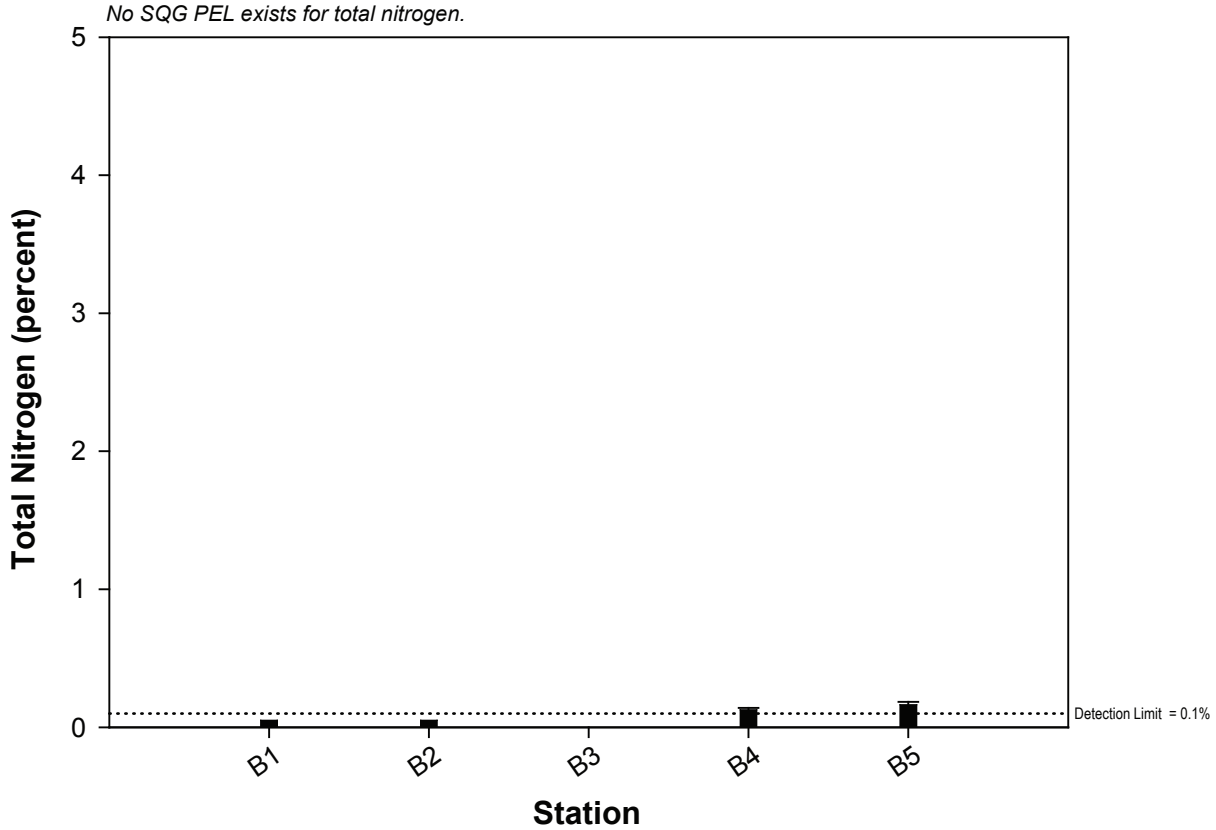
bhpbilliton

Available Phosphorus in Sediments in Lac du Sauvage, Christine Lake, and Reference Lake Sites, Open-Water Season, 2006

FIGURE 3.3-2

Rescan™





Notes: Error bars represent standard error of the mean.
Horizontal dotted line indicates analytical detection limit of 0.1%.
LdS9 UL2, UL3, and B3 could not be sampled due to rocky substrate.

bhpbilliton

Total Nitrogen in Sediments in Lac du Sauvage, Christine Lake, and Reference Lake Sites, Open-Water Season, 2006

FIGURE 3.3-3

Rescan™

Total arsenic concentrations in individual samples ranged from less than the detection limit of 5 mg/kg (LdS2, replicate 2) to 563 mg/kg (LdS3, replicate 3). Mean total arsenic concentrations ranged from 7.7 mg/kg (LdS2) to 411 mg/kg (LdS3) (Figure 3.3-4). Average total arsenic concentrations were above the SQG PEL guideline of 17 mg/kg at LdS1, LdS3, LdS4, LdS5, LdS7, LdS8, LdS10, LdS11, LdS12, UL1 and Christine Lake. Concentrations were up to 24 times the CCME SQG PEL. These exceedances are natural exceedances. In the shoreline sediment stations, total arsenic concentrations exceeded guidelines at B2, B4, and B5.

Total copper concentrations in individual samples ranged from 8.2 mg/kg (LdS2, replicate 2) to 112 mg/kg (Christine Lake, replicate 2). Mean total copper concentrations ranged from 9.5 mg/kg (LdS2) to 111 mg/kg (Christine Lake) (Figure 3.3-5). All total copper concentrations were below the CCME SQG PEL of 197 mg/kg.

Total molybdenum concentrations ranged from below the detection limit of 4 mg/kg to 13.4 mg/kg (LdS3). Total molybdenum concentrations were near or below the detection limit for most samples (Figure 3.3-6). There is no CCME SQG PEL for total molybdenum.

Total nickel concentrations in individual samples ranged from 16.5 mg/kg (LdS11, replicate 2) to 91 mg/kg (Christine Lake, replicate 2). Average total nickel concentrations ranged from 19 mg/kg (LdS2) to 79 mg/kg (Christine Lake) (Figure 3.3.-7). Average total nickel concentrations in the shoreline stations in Lac du Sauvage ranged from 34 mg/kg (B2) to 43 mg/kg (B5). There is no CCME SQG PEL for total nickel.

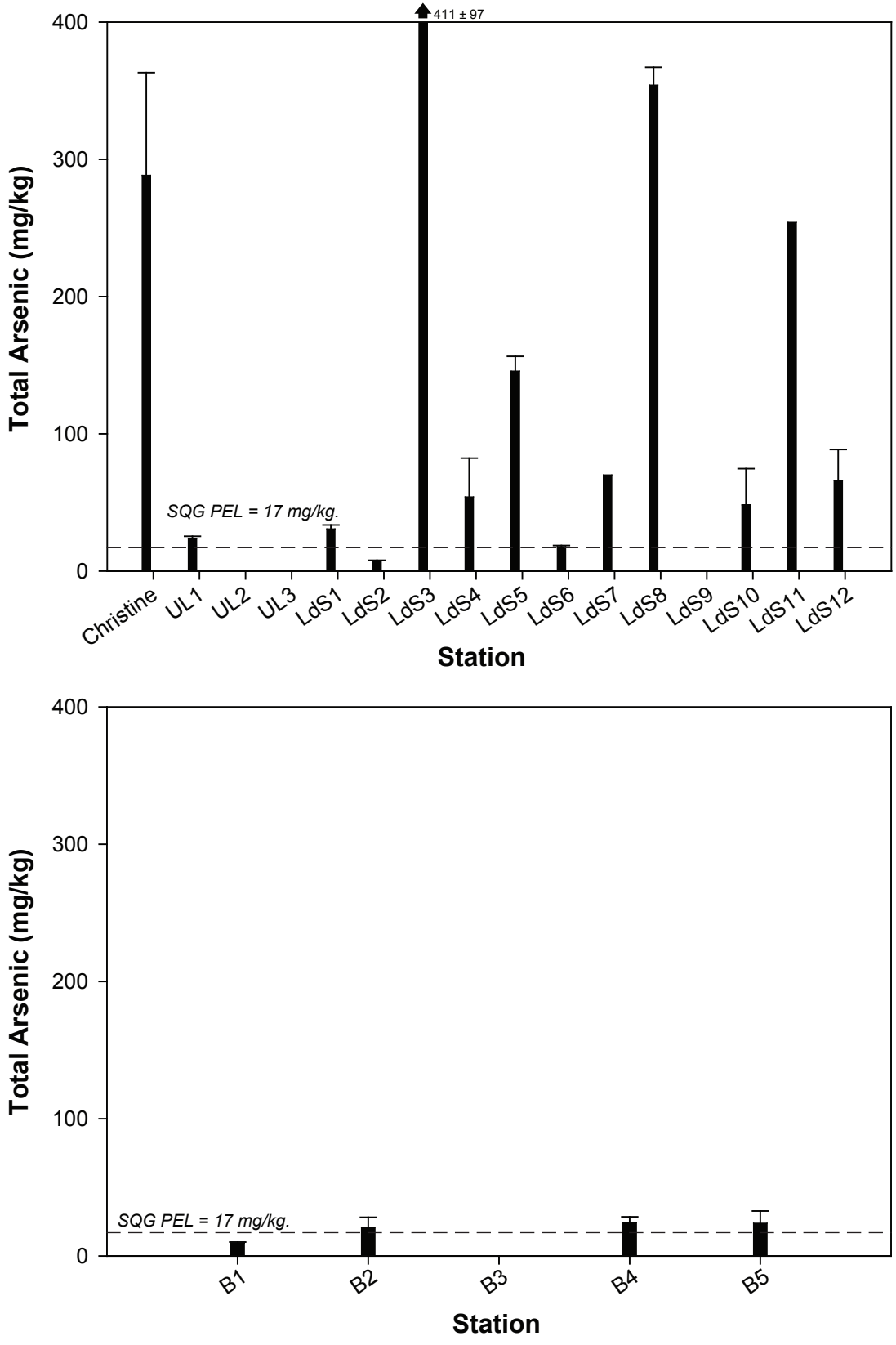
Mean total zinc concentrations ranged from 36 mg/kg (LdS2) to 154 mg/kg (UL1) (Figure 3.3-8). Mean total zinc concentrations in the shoreline stations ranged from 59 mg/kg (B2) to 77 mg/kg (B5).

3.3.2 Sediment Quality Summary

Sediment quality parameter concentrations were generally below the CCME SQG PEL for all parameters with the exception of total arsenic and total mercury. Total arsenic concentrations at all sites with the exception of LdS2 and B1 naturally exceeded the applicable guideline. Total mercury concentrations exceeded the CCME SQG PEL at LdS3.

3.4 Physical Limnology

The physical limnology parameters that were examined in 2006 were Secchi depth (open-water season) and dissolved oxygen and temperature profiles (ice-covered and open-water seasons). Secchi depth is a measure of water clarity and can be used to determine the maximum depth to which net photosynthetic activity is possible, which greatly affects the distribution of biological organisms. Dissolved oxygen is required for the survival of all aquatic organisms. Decreased concentrations of dissolved oxygen can cause inhibition of growth and reproduction of aquatic organisms including fish, aquatic invertebrates and may lead to mortalities. All raw data for depth profiles can be found in Appendices 3.4-1 (open-water season) and 3.4-2 (ice-covered season).



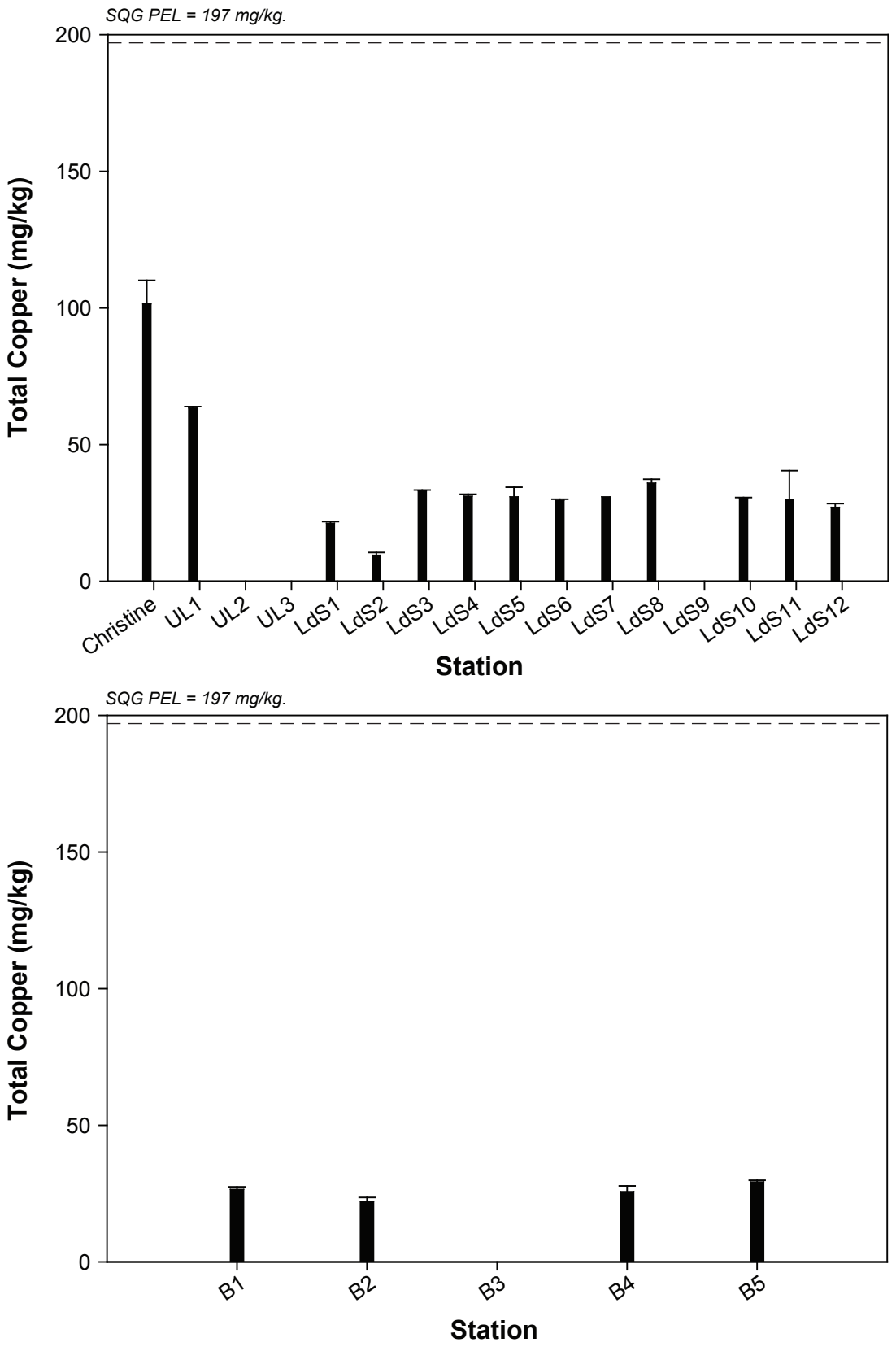
Notes: Error bars represent standard error of the mean.
Horizontal dashed line indicates CCME Sediment Quality Guideline Probable Effects Level.
LdS9 UL2, UL3, and B3 could not be sampled due to rocky substrate.

bhpbilliton

Total Arsenic in Sediments in Lac du Sauvage, Christine Lake, and Reference Lake Sites, Open-Water Season, 2006

FIGURE 3.3-4

Rescan™



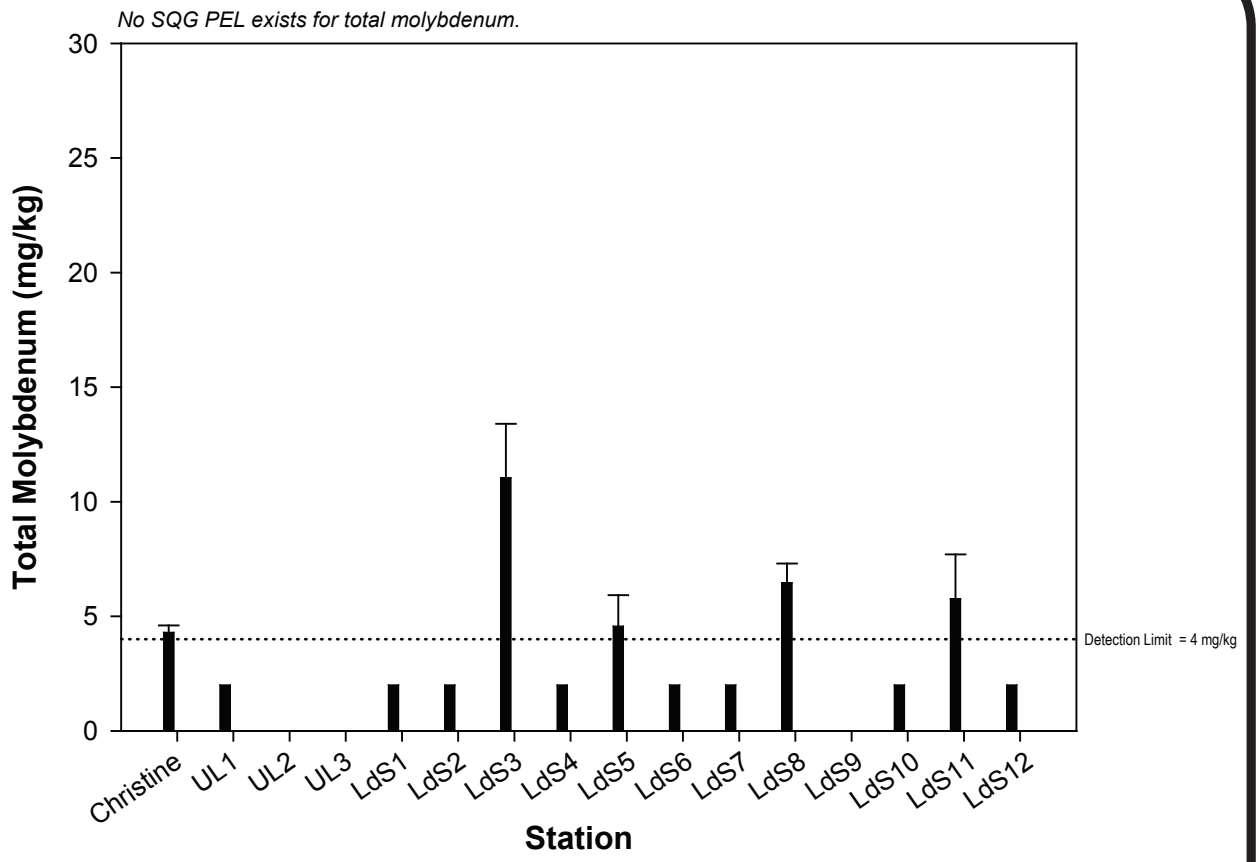
Notes: Error bars represent standard error of the mean.
Horizontal dashed line indicates CCME Sediment Quality Guideline Probable Effects Level.
LdS9 UL2, UL3, and B3 could not be sampled due to rocky substrate.

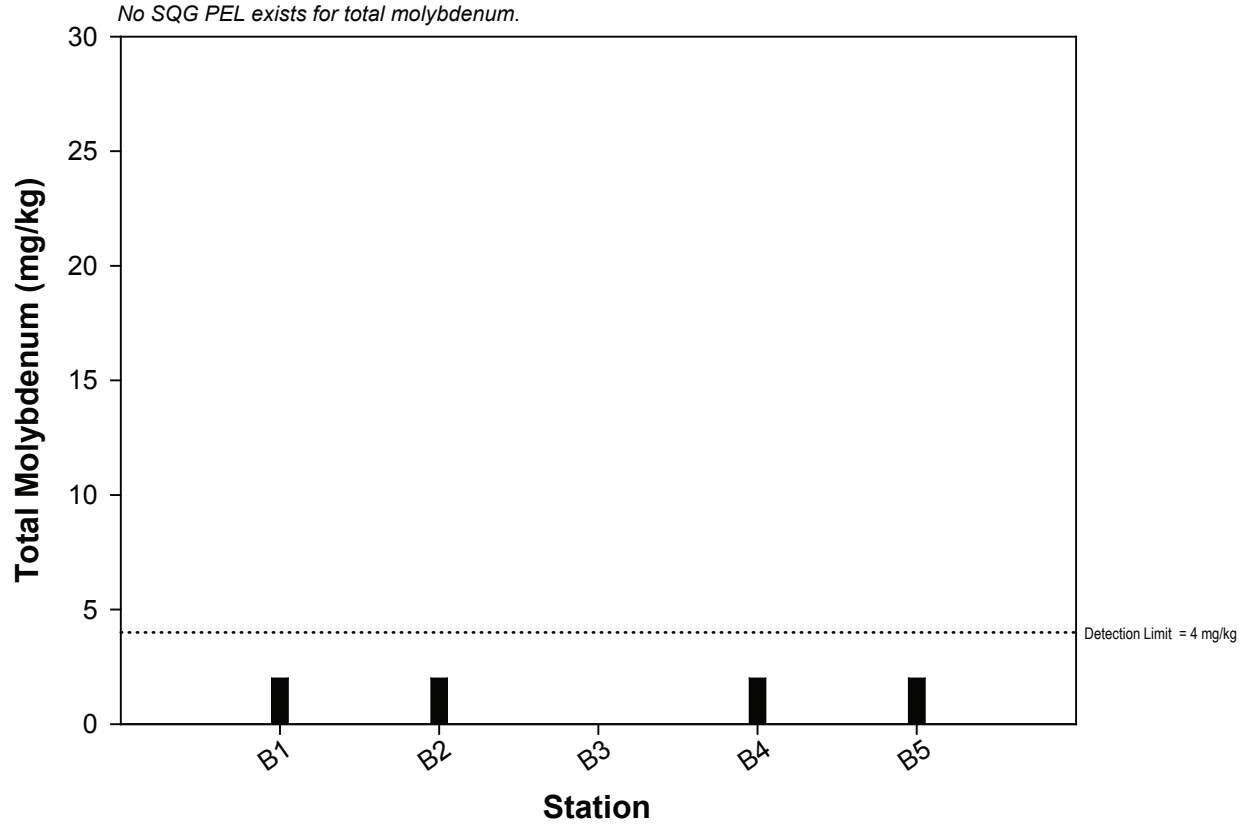
bhpbilliton

Total Copper in Sediments in Lac du Sauvage, Christine Lake, and Reference Lake Sites, Open-Water Season, 2006

FIGURE 3.3-5

Rescan™





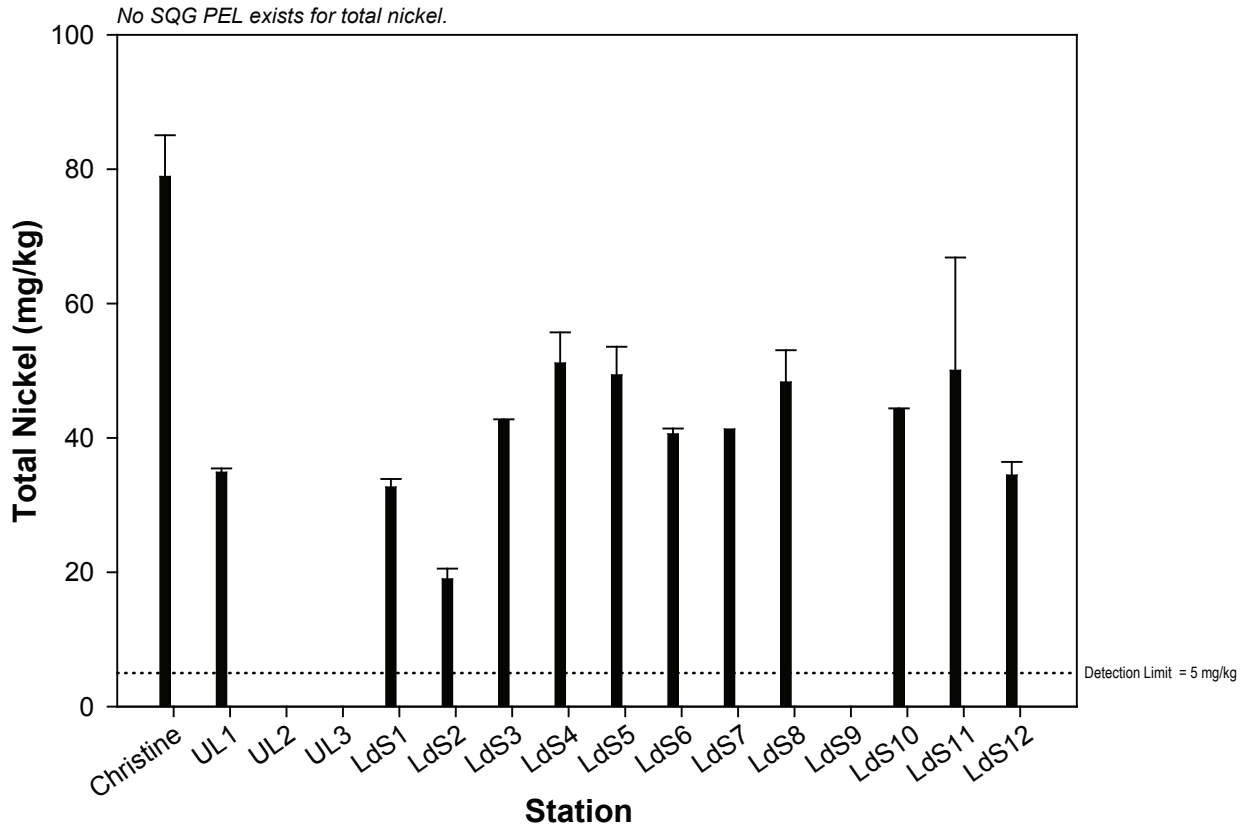
Notes: Error bars represent standard error of the mean.
Horizontal dotted line indicates analytical detection limit of 4 mg/kg.
LdS9 UL2, UL3, and B3 could not be sampled due to rocky substrate.

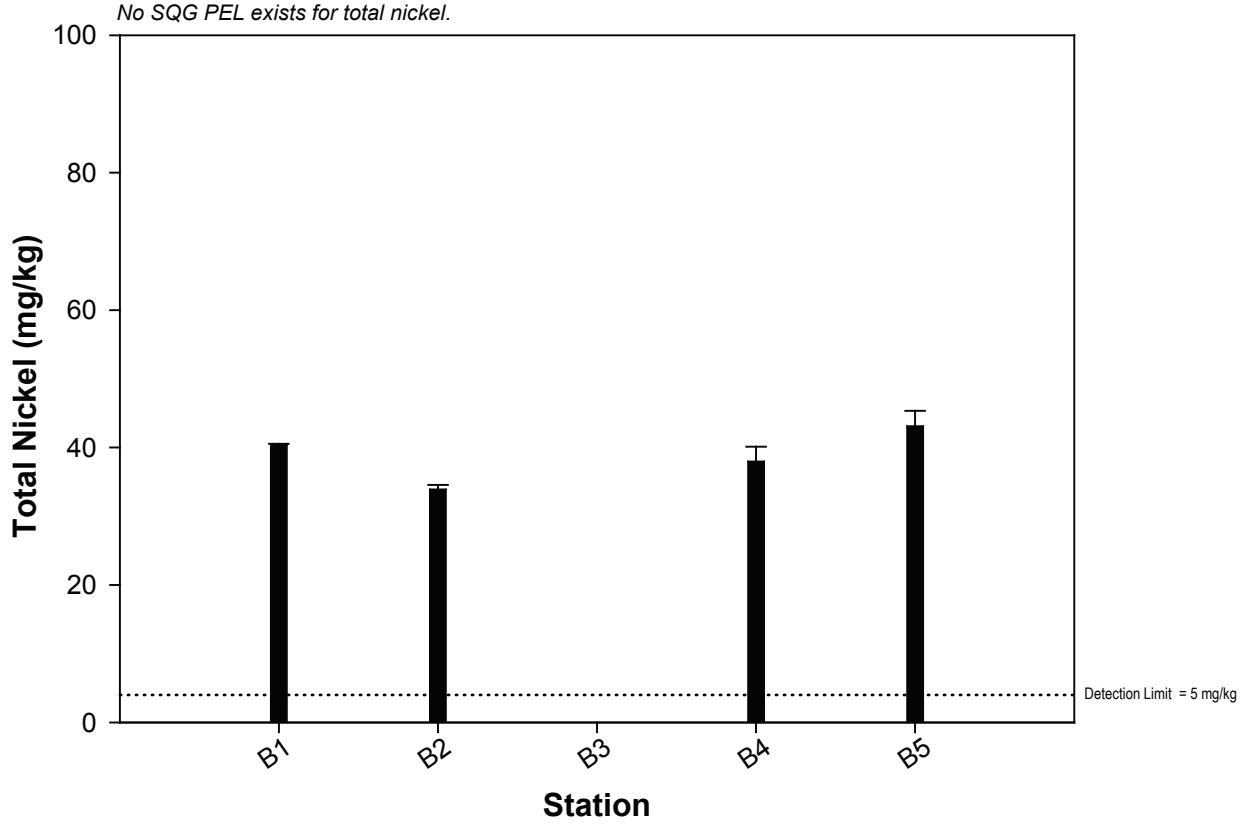
bhpbilliton

Total Molybdenum in Sediments in Lac du Sauvage, Christine Lake, and Reference Lake Sites, Open-Water Season, 2006

FIGURE 3.3-6

Rescan™





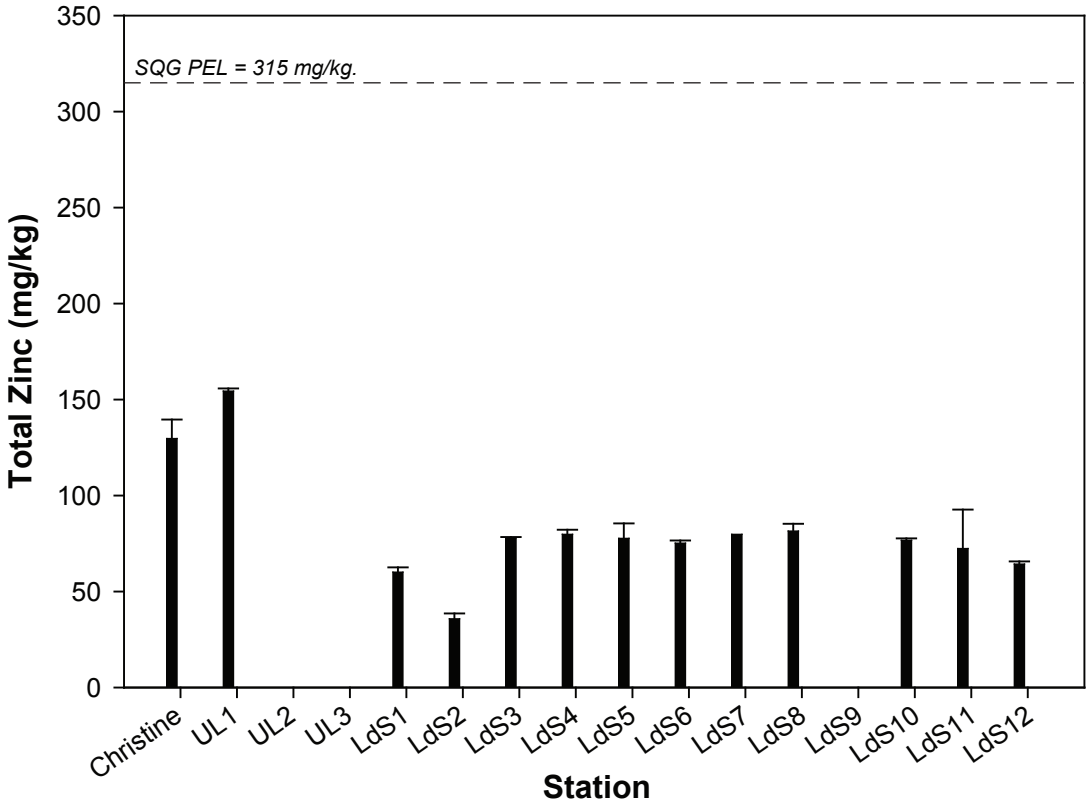
Notes: Error bars represent standard error of the mean.
Horizontal dotted line indicates analytical detection limit of 5 mg/kg.
LdS9 UL2, UL3, and B3 could not be sampled due to rocky substrate.

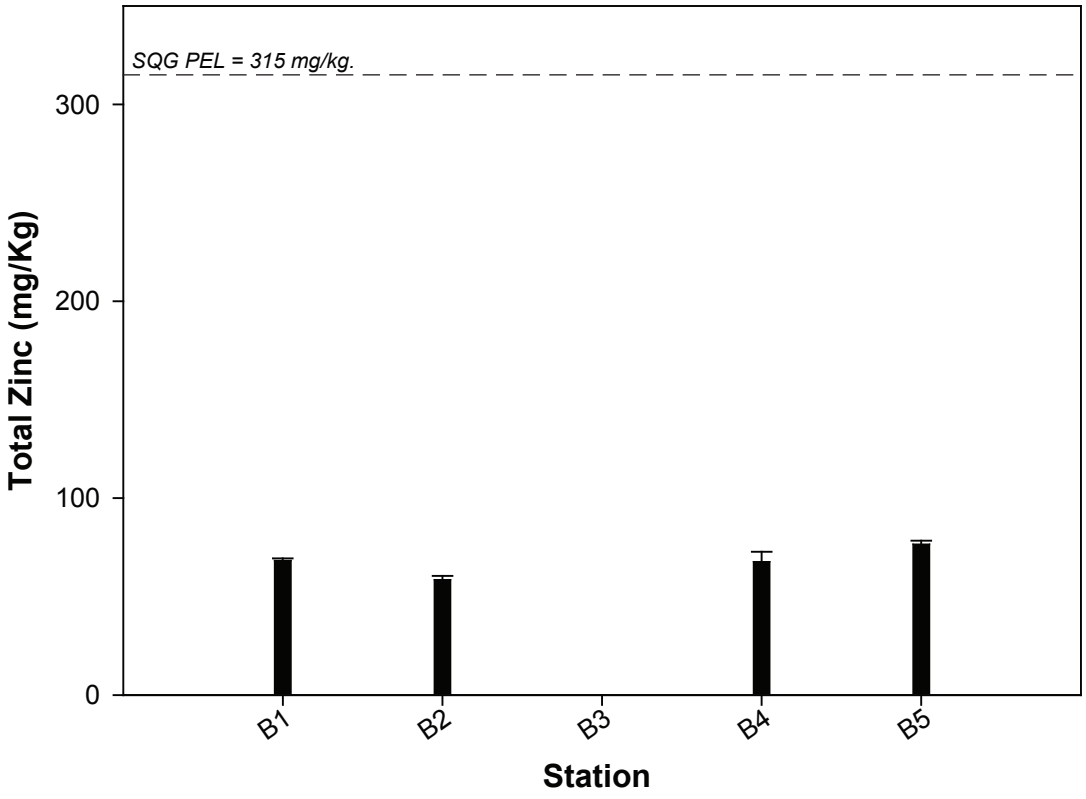
bhpbilliton

Total Nickel in Sediments in Lac du Sauvage, Christine Lake, and Reference Lake Sites, Open-Water Season, 2006

FIGURE 3.3-7

Rescan™





Notes: Error bars represent standard error of the mean.
Horizontal dashed line indicates CCME Sediment Quality Guideline Probable Effects Level.
LdS9 UL2, UL3, and B3 could not be sampled due to rocky substrate.

bhpbilliton

Total Zinc in Sediments in Lac du Sauvage, Christine Lake, and Reference Lake Sites, Open-Water Season, 2006

FIGURE 3.3-8

Rescan™

3.4.1 Secchi Depth

Figure 3.4-1 and Table 3.4-1 present annual open-water season Secchi depths for Jay Pipe Baseline sampling stations. Secchi depth ranged from 4 to 8 metres. Secchi depth was greater than the actual water column depth at five, eight and seven out of the 16 stations for July, August and September, respectively. The maximum depth of the euphotic zone is defined as the depth to which irradiance is equal to 1.0% of the surface level (Goldman and Horne 1983). The depth of the euphotic zone can be roughly estimated from Secchi depth where the ratio of the Secchi depth to the euphotic zone depth has been estimated to vary between 2.7 and 3.2 (Tilzer, 1988). Many of the sites sampled in 2006 had a Secchi disk depth greater than the depth of the water column and thus did not produce useful estimates of the euphotic zone depth. Jay Pipe Baseline sampling locations can be described as having clear water and thus light was not limiting to photosynthetic production at these stations.

Table 3.4-1
Secchi and Euphotic Zone Depths for Lac du Sauvage, Christine Lake, and Reference Lake Sites, Open-Water Season 2006

Site	Secchi Depth			Estimated average Range of Euphotic Zone Depth (m)
	July	August	September	
LdS1	5.4	5	5.5	14.3 – 17.0
LdS2	n/a	n/a	n/a	
LdS3	5.8	8	7	18.7 – 22.2
LdS4	n/a	n/a	n/a	
LdS5	5.5	6	5.6	15.4 – 18.2
LdS6	n/a	n/a	n/a	
LdS7	6.05	6.4	6.2	16.8 – 19.9
LdS8	5.5	6.5	5.2	15.5 – 18.3
LdS9	n/a	n/a	n/a	
LdS10	5.3	n/a	4.5	13.2 – 15.7
LdS11	5.9	6.8	5	15.9 – 18.9
LdS12	4.1	n/a	n/a	11.1 – 13.1
UL1	6.2	6.8	6.5	17.6 – 20.8
UL2	5.3	n/a	n/a	14.3 – 17.0
UL3	n/a	n/a	n/a	
Christine	4.1	4	5	11.8 – 14.0

n/a indicates that the Secchi depth was not available as the water-sediment interface was visible from the boat

3.4.2 Dissolved Oxygen and Temperature Profiles

3.4.2.1 Open-Water Season

Temperature and oxygen profiles from the 2006 open-water season indicated oxygen concentrations were sufficient to support aquatic life and that there was no evidence of thermal stratification in any of the lakes (Figure 3.4-2). Dissolved oxygen concentrations were relatively constant throughout the water column with the exceptions of LdS3, LdS5 (July 19), LdS8 (July 19), LdS10 (July 9), LdS11 (July 8), and Ursula Lake (July 7), where the dissolved oxygen concentrations decreased with increasing depth.

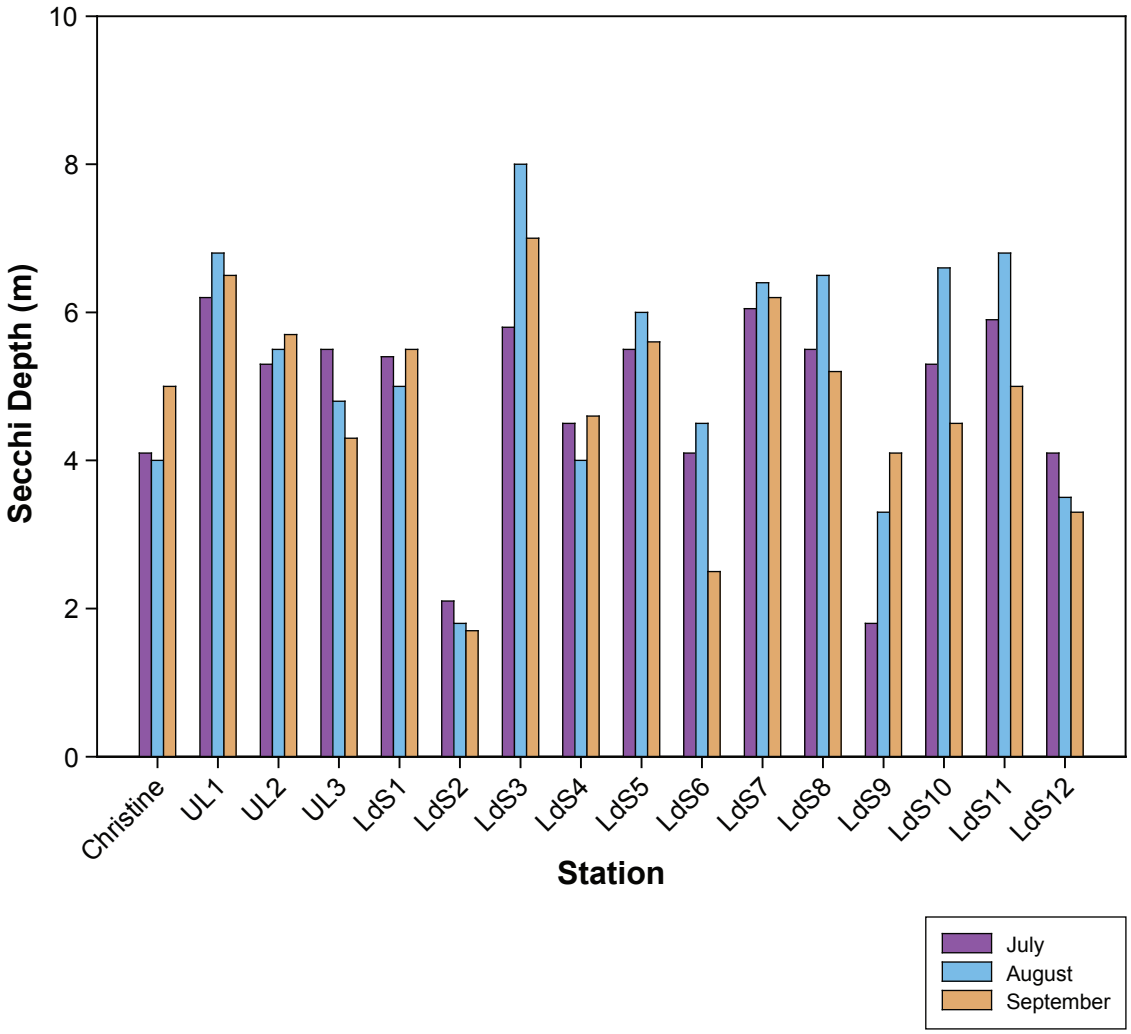
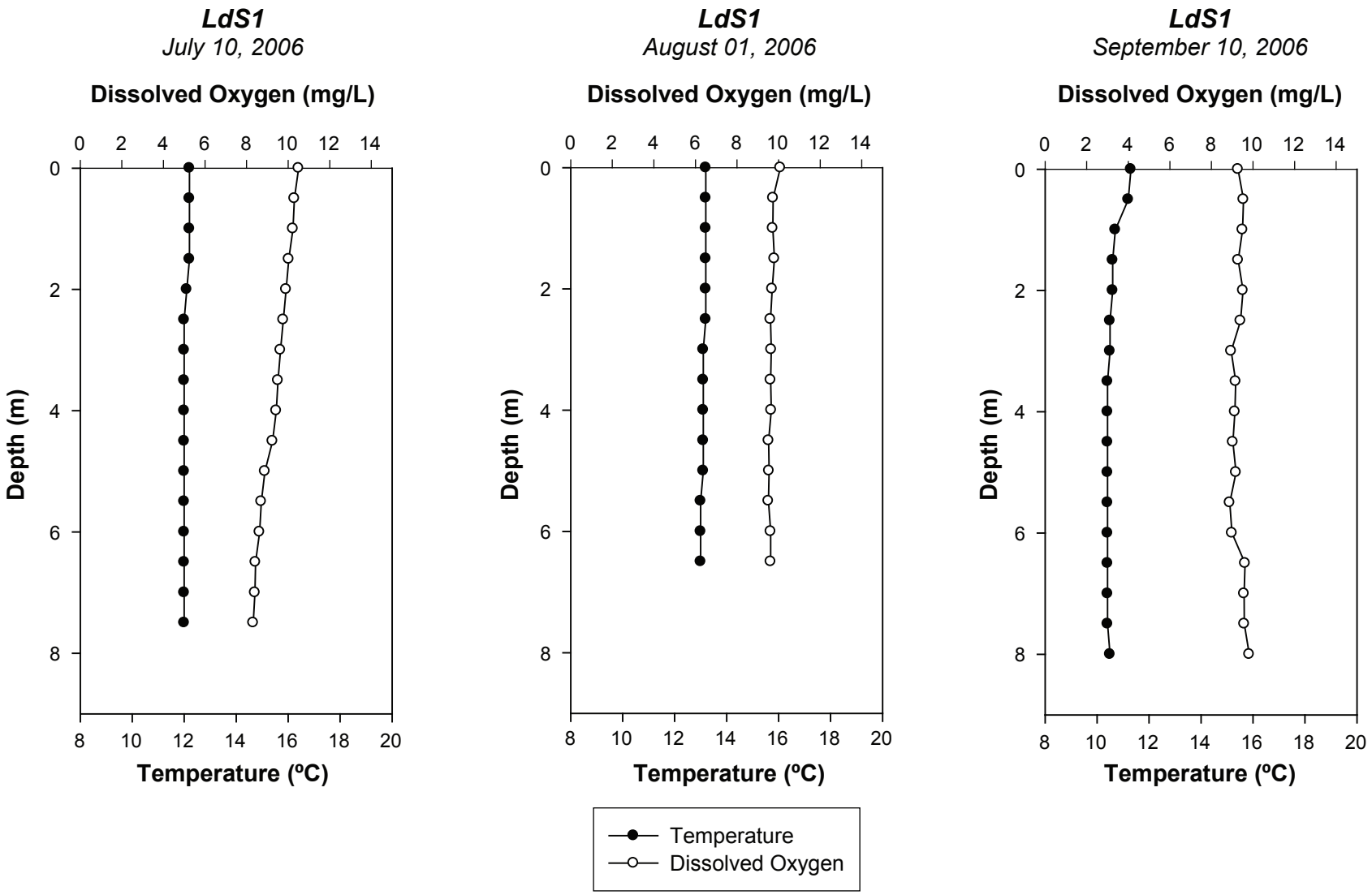


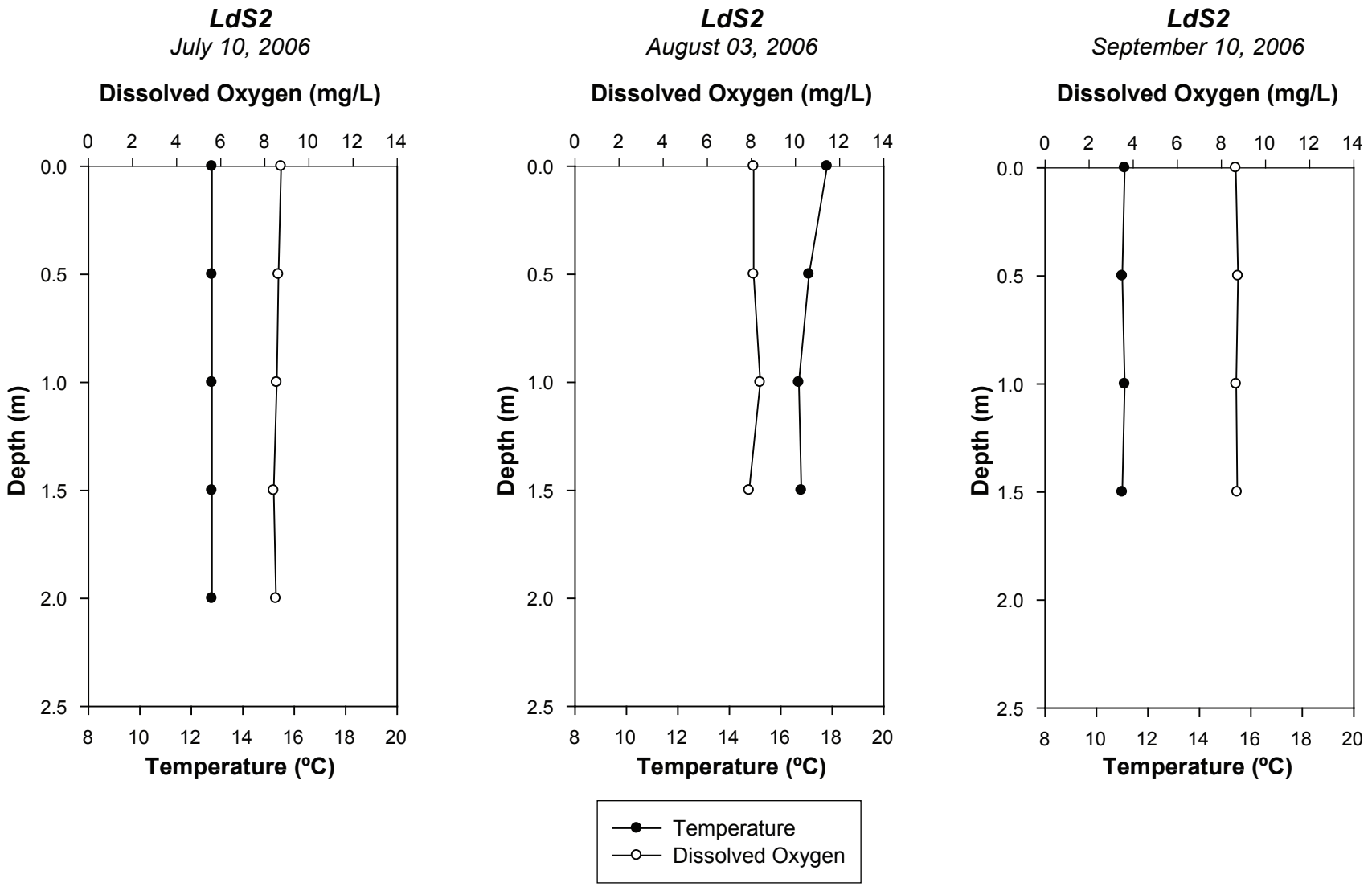
FIGURE 3.4-1

Secchi Depths for Lac du Sauvage, Christine Lake, and Reference Lake Sites, Open-Water Season, 2006



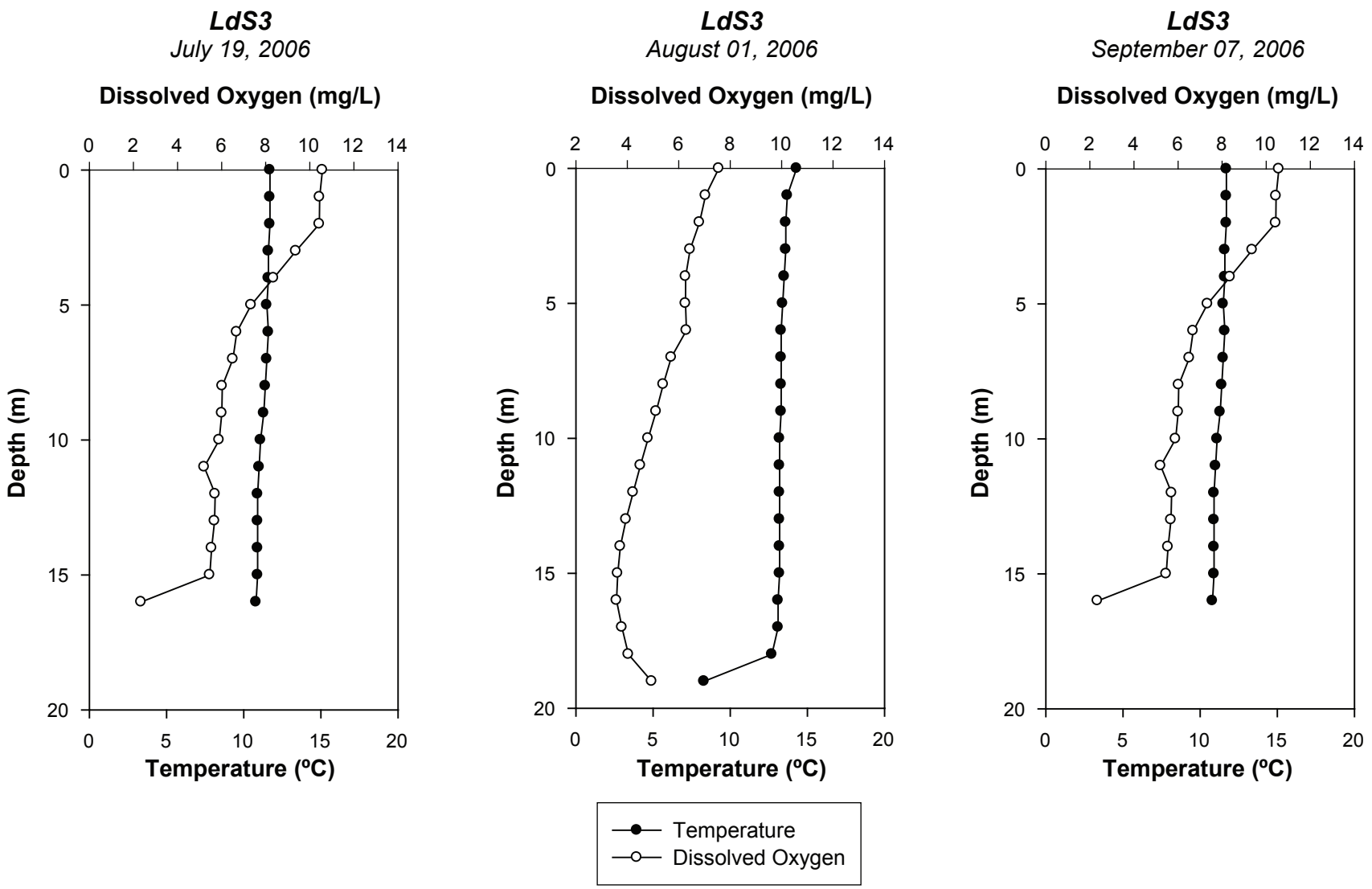
Dissolved Oxygen and Temperature Profiles for Lac du Sauvage, Christine Lake, and Reference Lake Sites, Open-water Season, 2006

FIGURE 3.4-2a



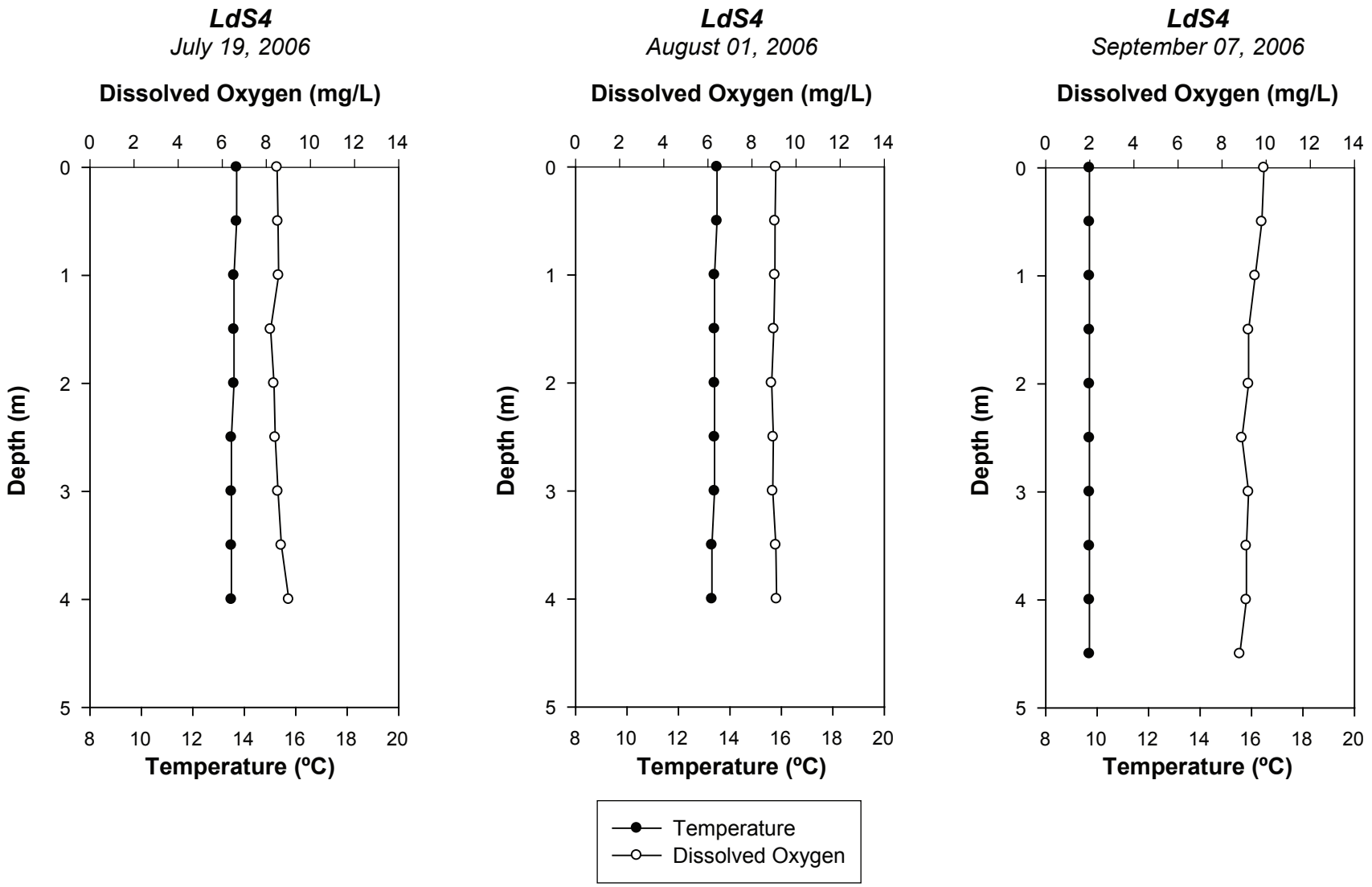
Dissolved Oxygen and Temperature Profiles for Lac du Sauvage, Christine Lake, and Reference Lake Sites, Open-water Season, 2006

FIGURE 3.4-2b



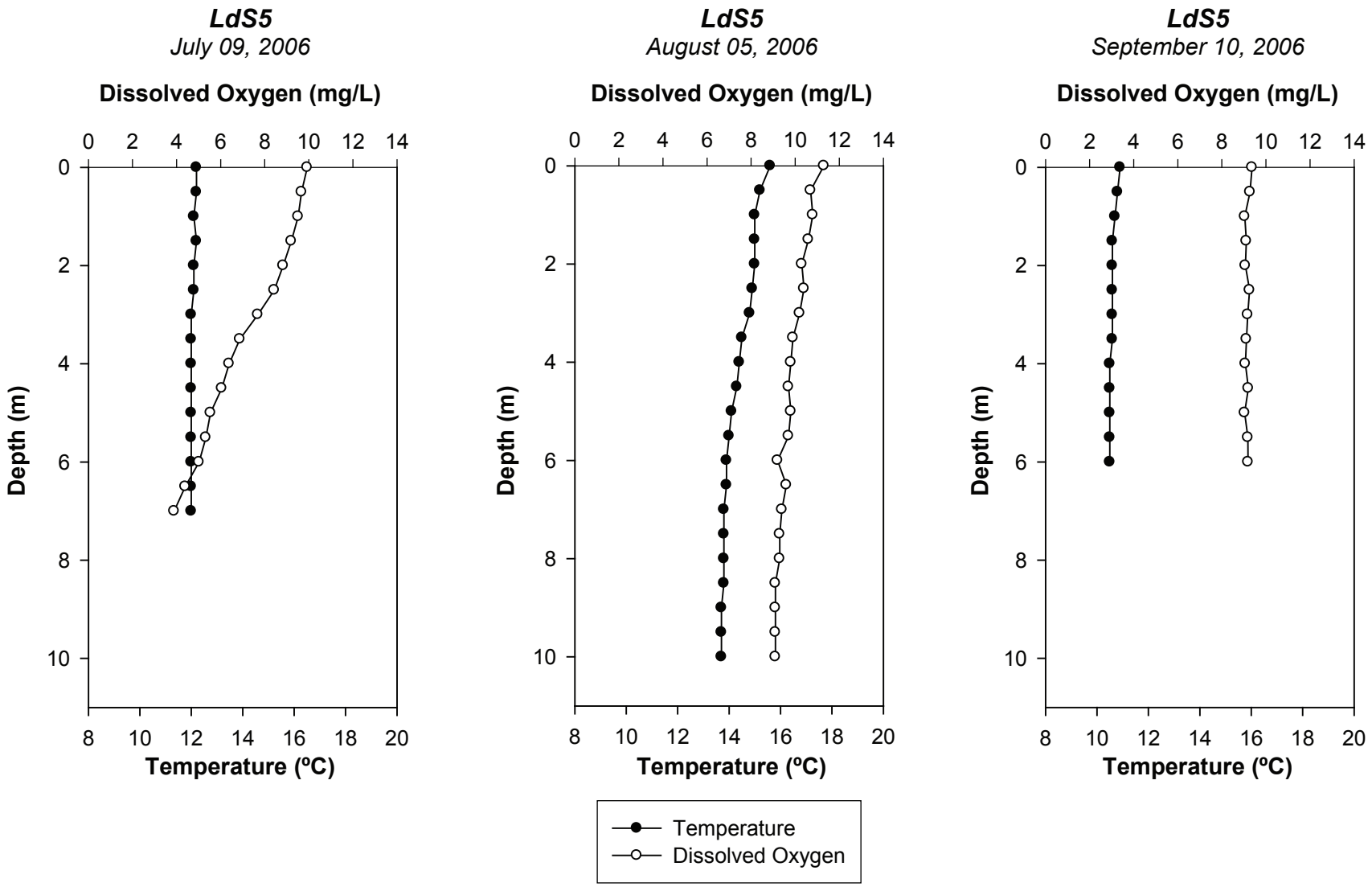
Dissolved Oxygen and Temperature Profiles for Lac du Sauvage, Christine Lake, and Reference Lake Sites, Open-water Season, 2006

FIGURE 3.4-2c



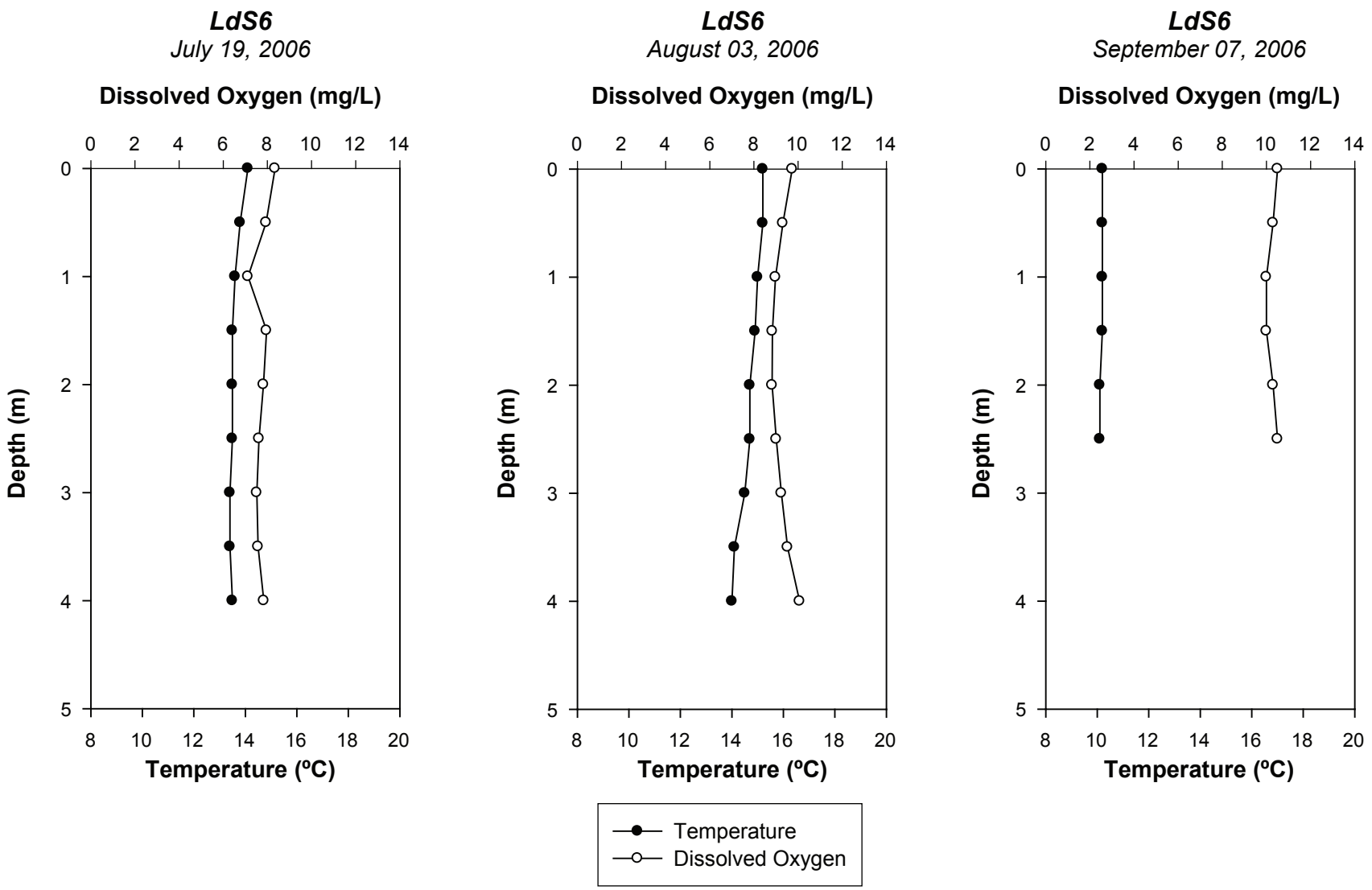
Dissolved Oxygen and Temperature Profiles for Lac du Sauvage, Christine Lake, and Reference Lake Sites, Open-water Season, 2006

FIGURE 3.4-2d



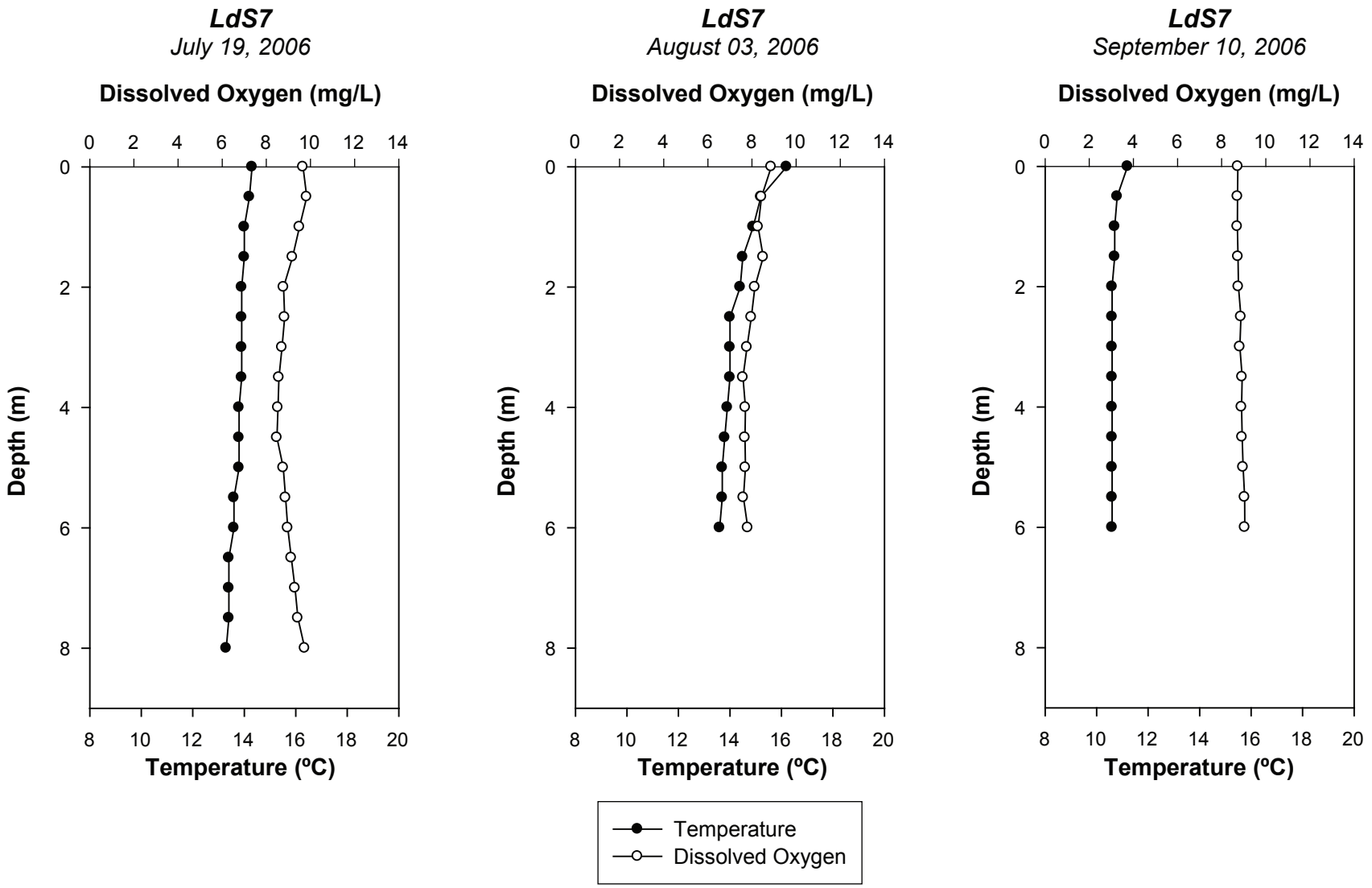
Dissolved Oxygen and Temperature Profiles for Lac du Sauvage, Christine Lake, and Reference Lake Sites, Open-water Season, 2006

FIGURE 3.4-2e



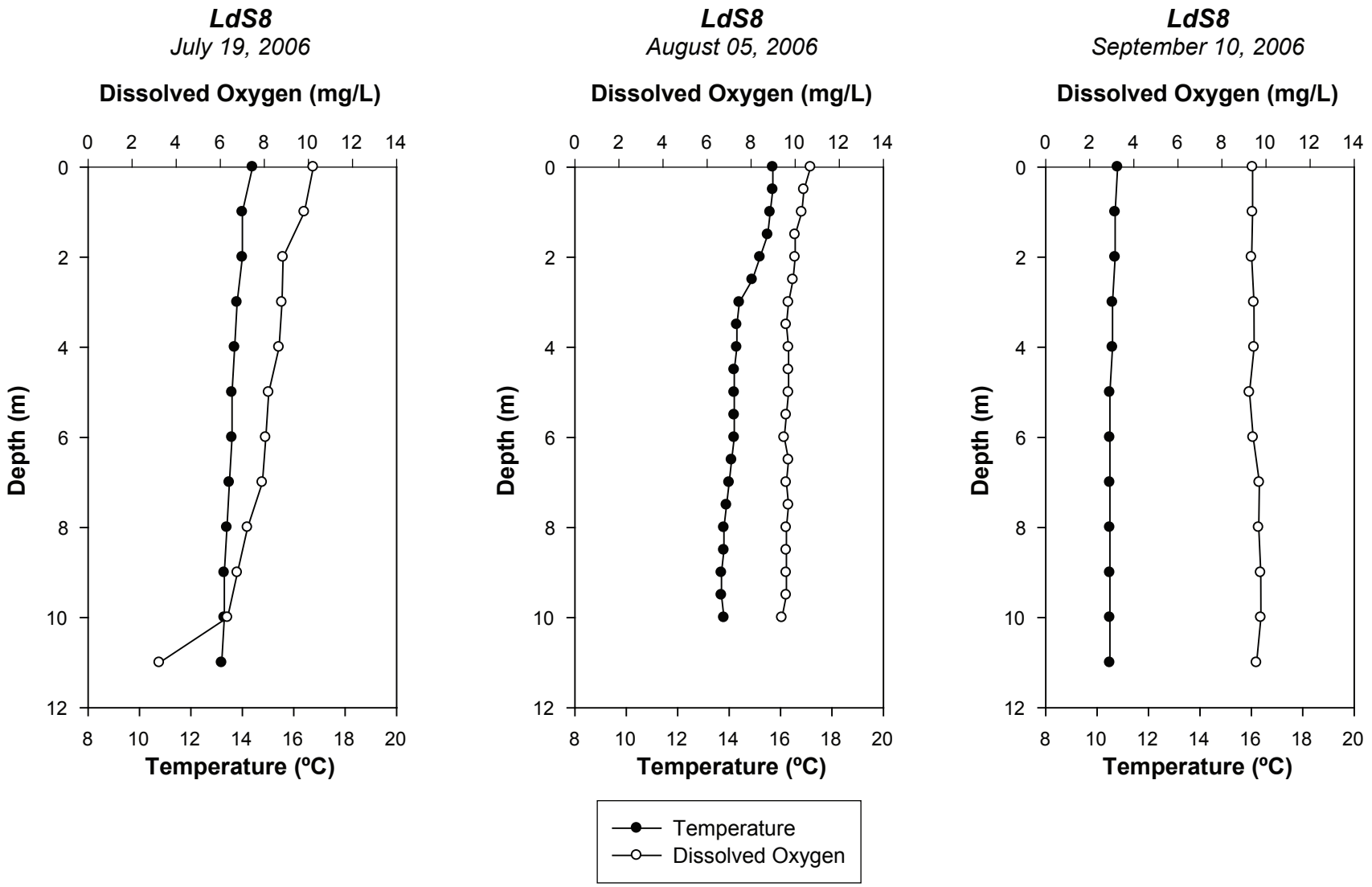
Dissolved Oxygen and Temperature Profiles for Lac du Sauvage, Christine Lake, and Reference Lake Sites, Open-water Season, 2006

FIGURE 3.4-2f



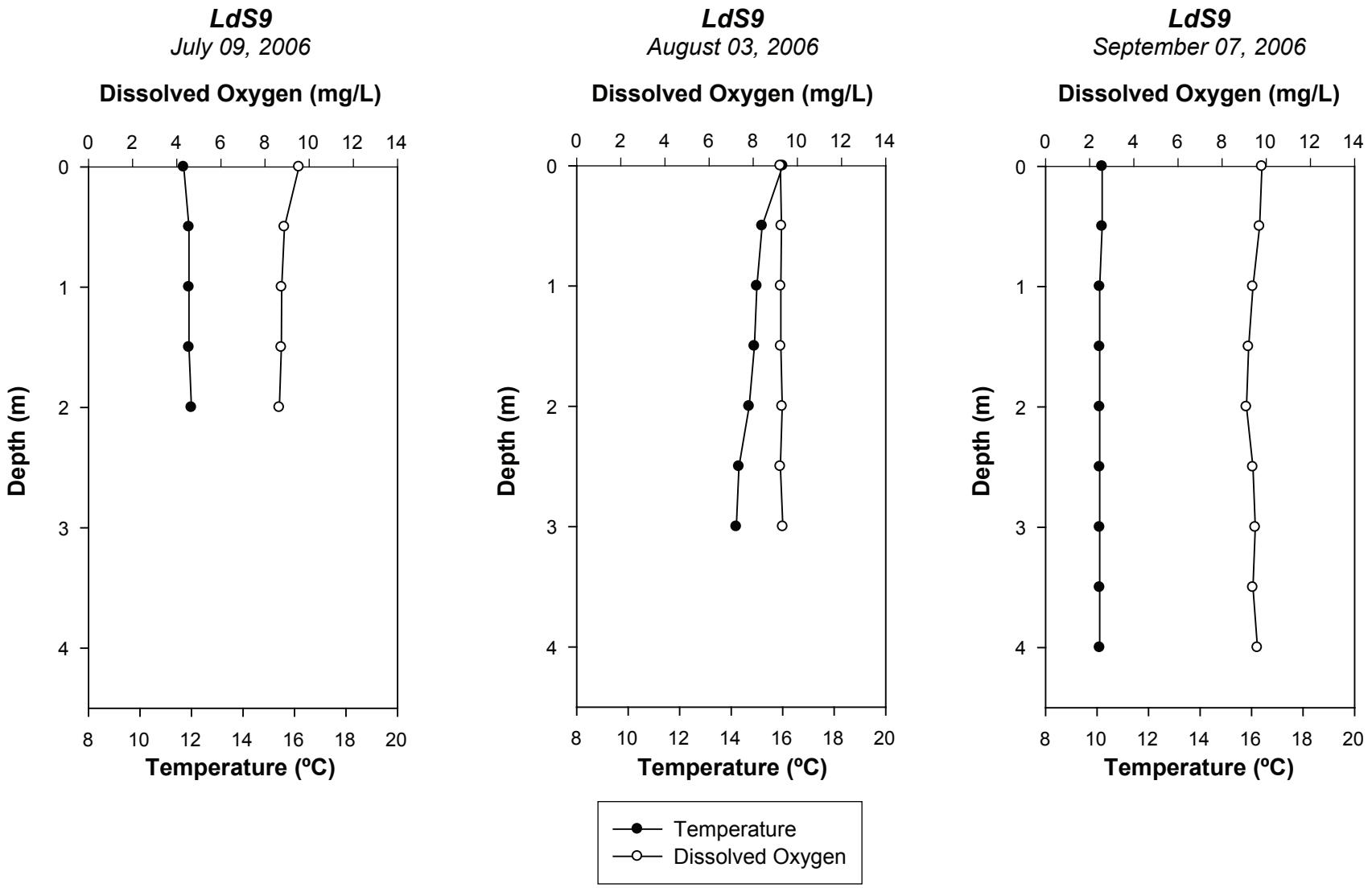
Dissolved Oxygen and Temperature Profiles for Lac du Sauvage, Christine Lake, and Reference Lake Sites, Open-water Season, 2006

FIGURE 3.4-2g



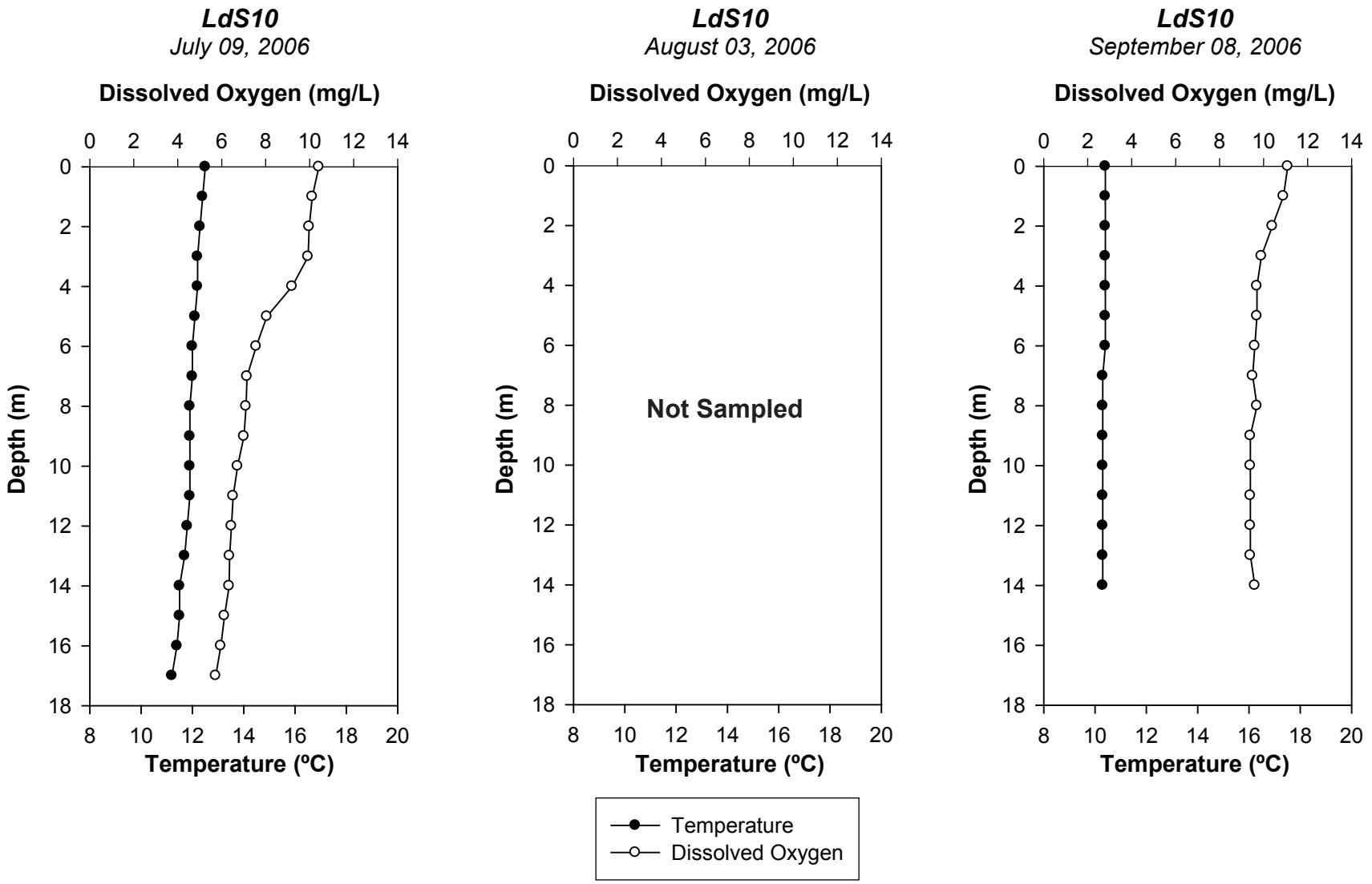
Dissolved Oxygen and Temperature Profiles for Lac du Sauvage, Christine Lake, and Reference Lake Sites, Open-water Season, 2006

FIGURE 3.4-2h



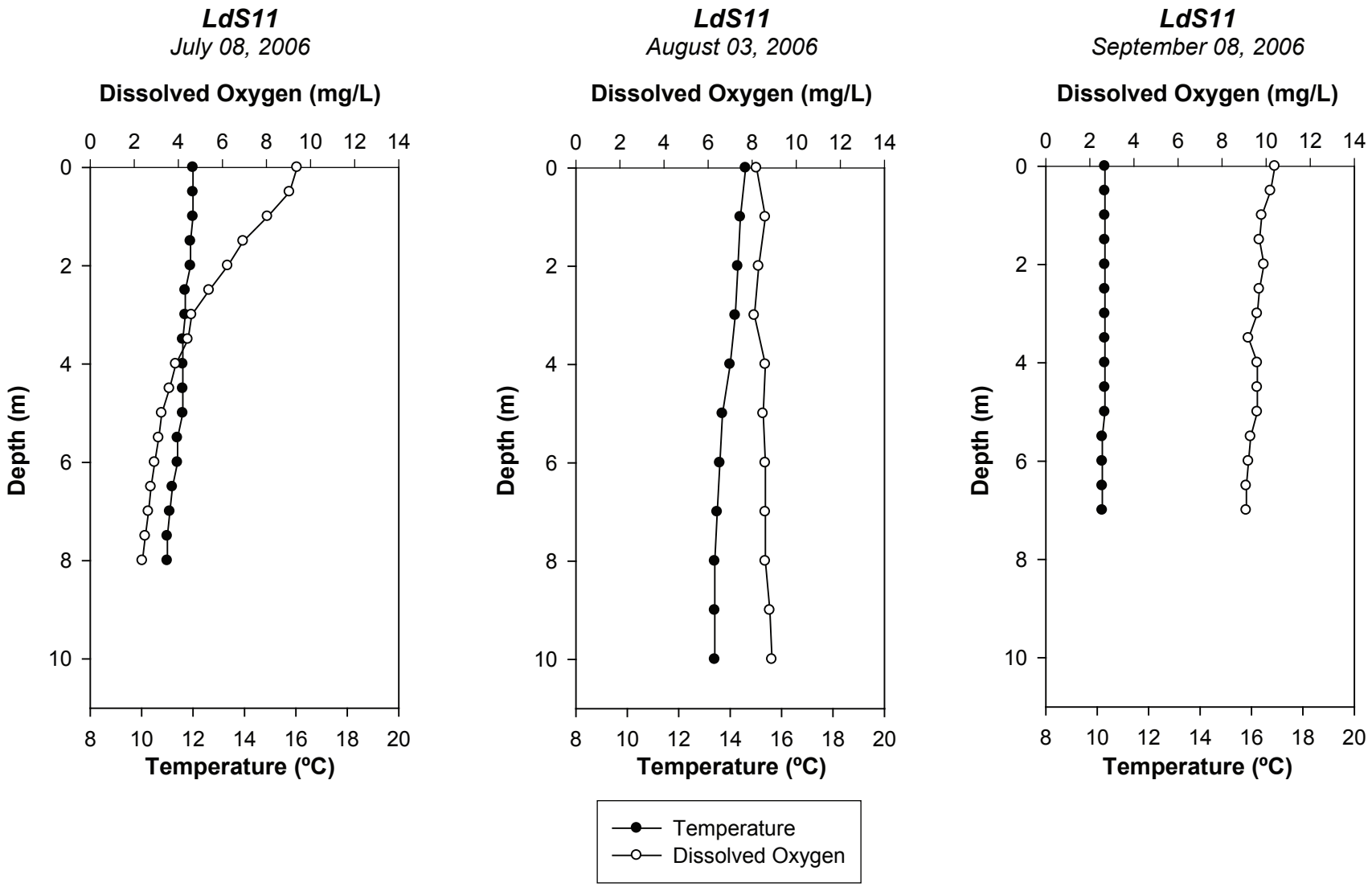
Dissolved Oxygen and Temperature Profiles for Lac du Sauvage, Christine Lake, and Reference Lake Sites, Open-water Season, 2006

FIGURE 3.4-2i



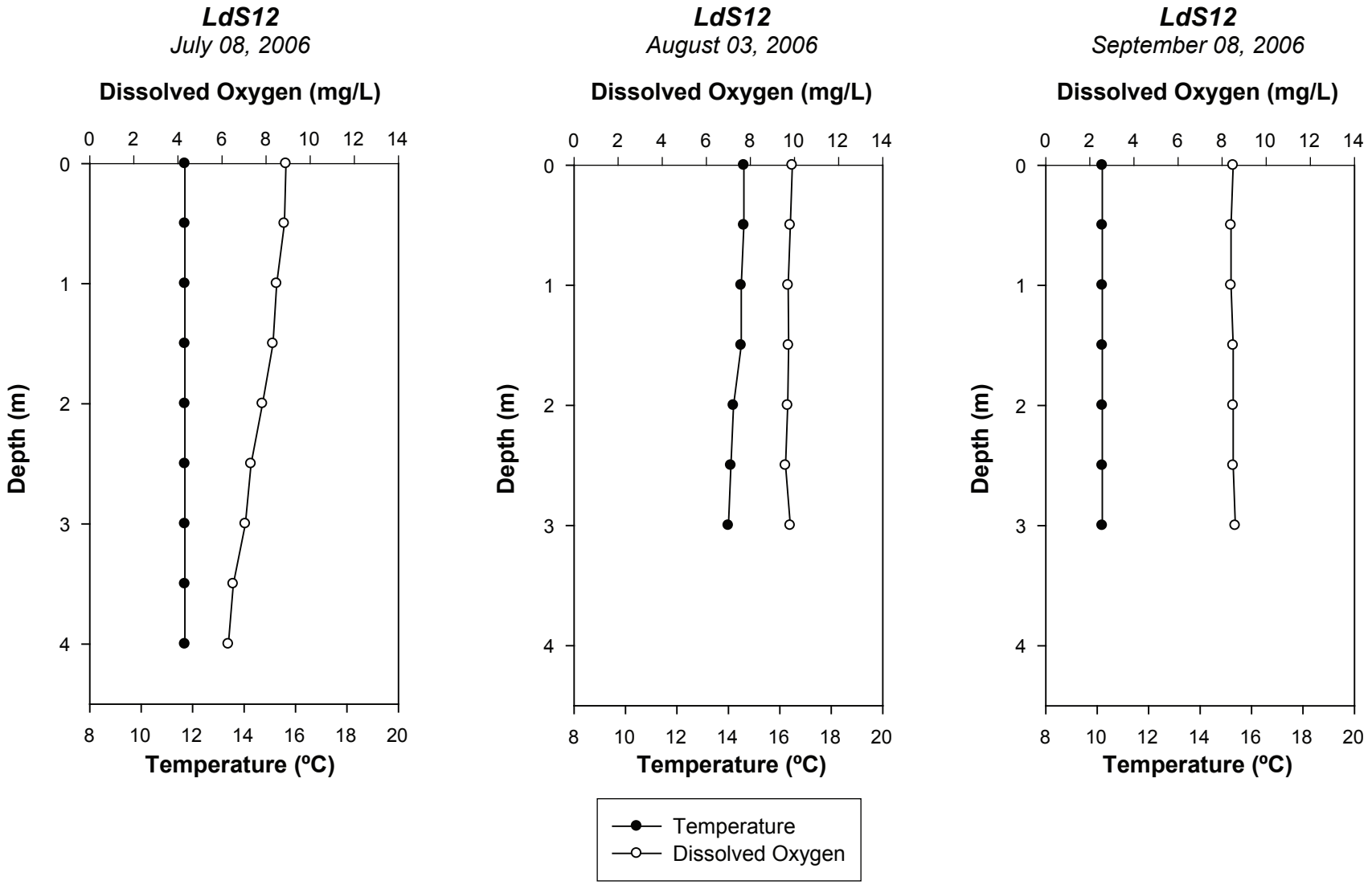
Dissolved Oxygen and Temperature Profiles for Lac du Sauvage, Christine Lake, and Reference Lake Sites, Open-water Season, 2006

FIGURE 3.4-2j



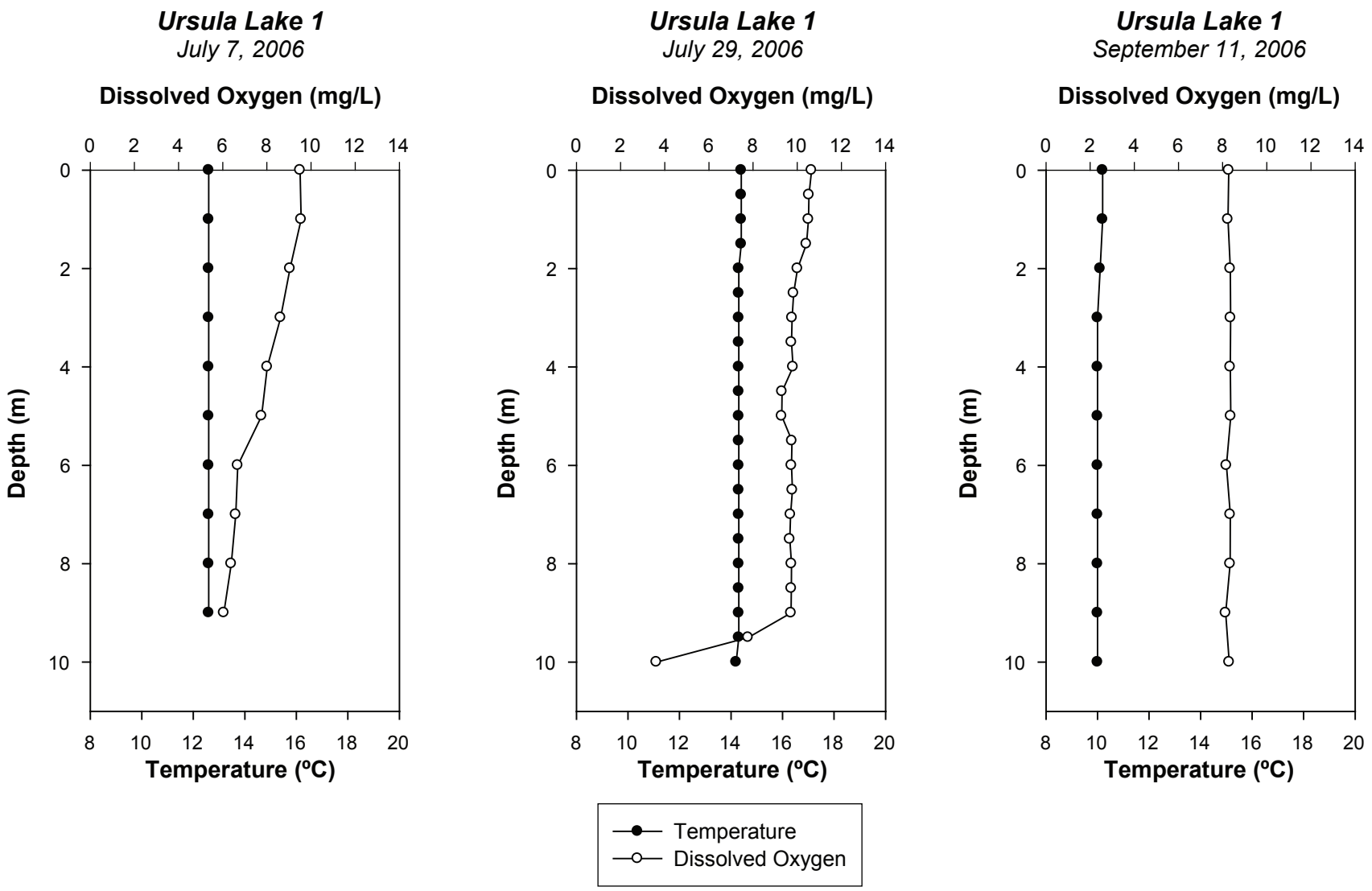
Dissolved Oxygen and Temperature Profiles for Lac du Sauvage, Christine Lake, and Reference Lake Sites, Open-water Season, 2006

FIGURE 3.4-2k



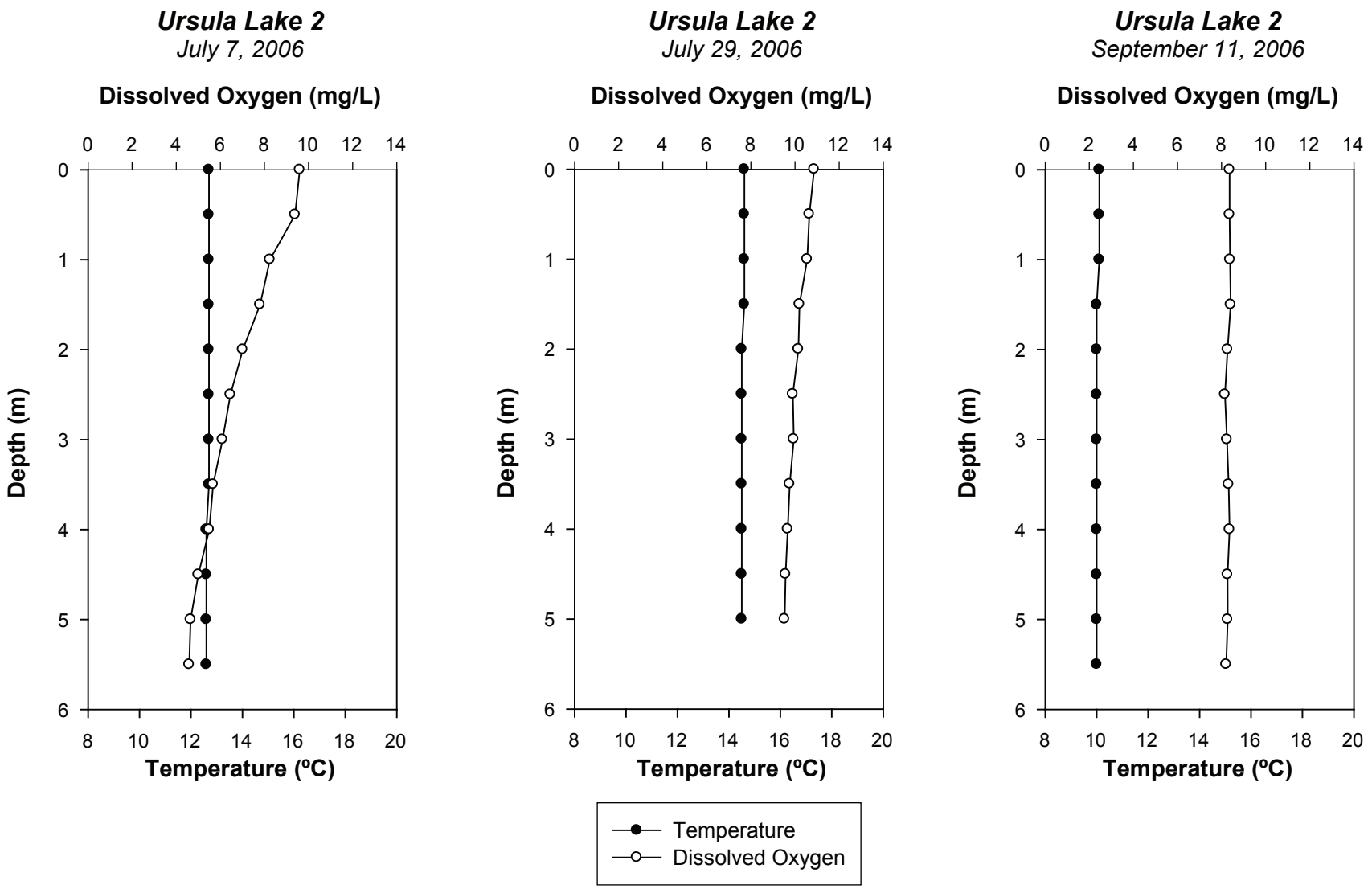
Dissolved Oxygen and Temperature Profiles for Lac du Sauvage, Christine Lake, and Reference Lake Sites, Open-water Season, 2006

FIGURE 3.4-2l



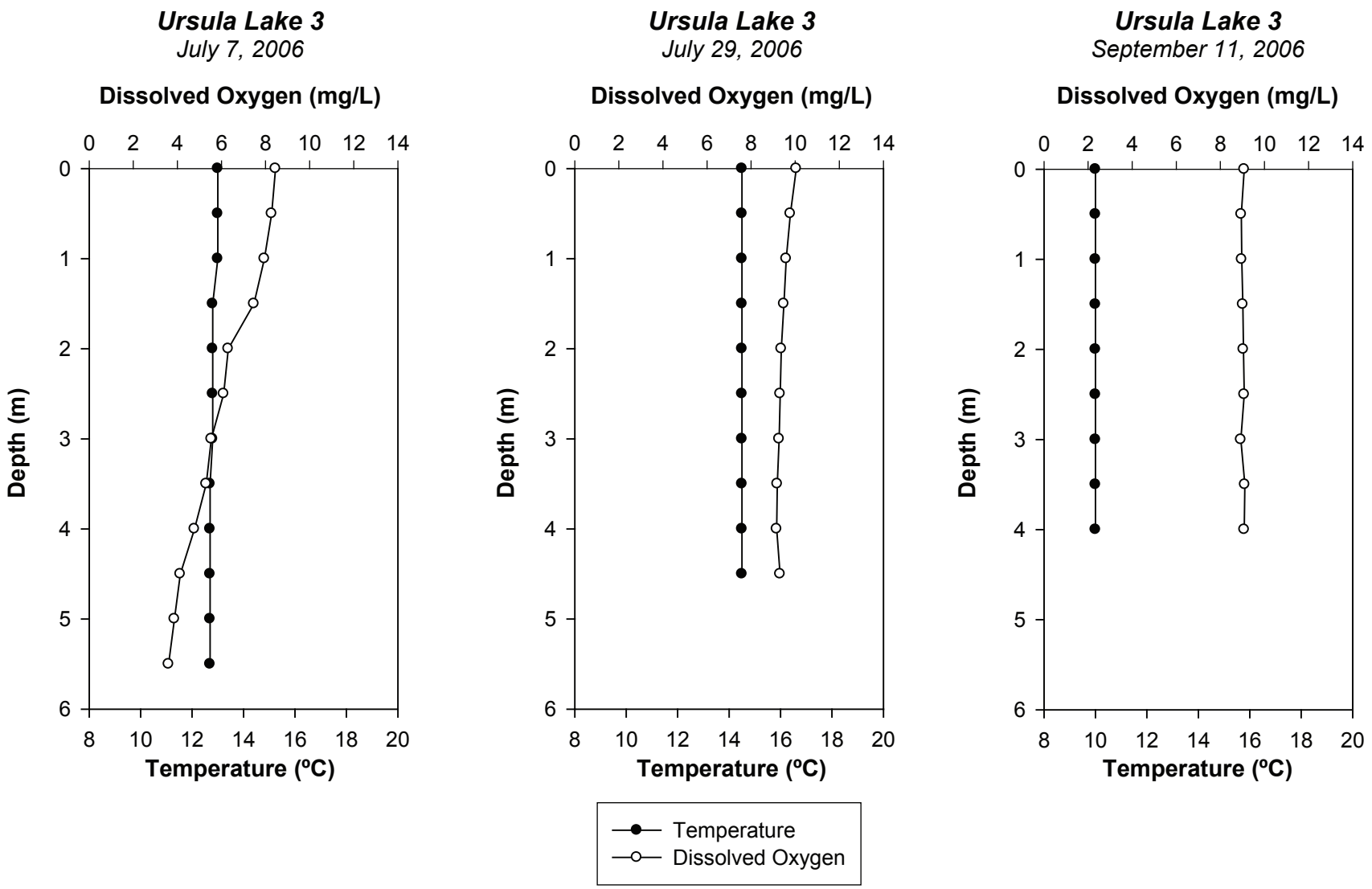
Dissolved Oxygen and Temperature Profiles for Lac du Sauvage, Christine Lake, and Reference Lake Sites, Open-water Season, 2006

FIGURE 3.4-2m



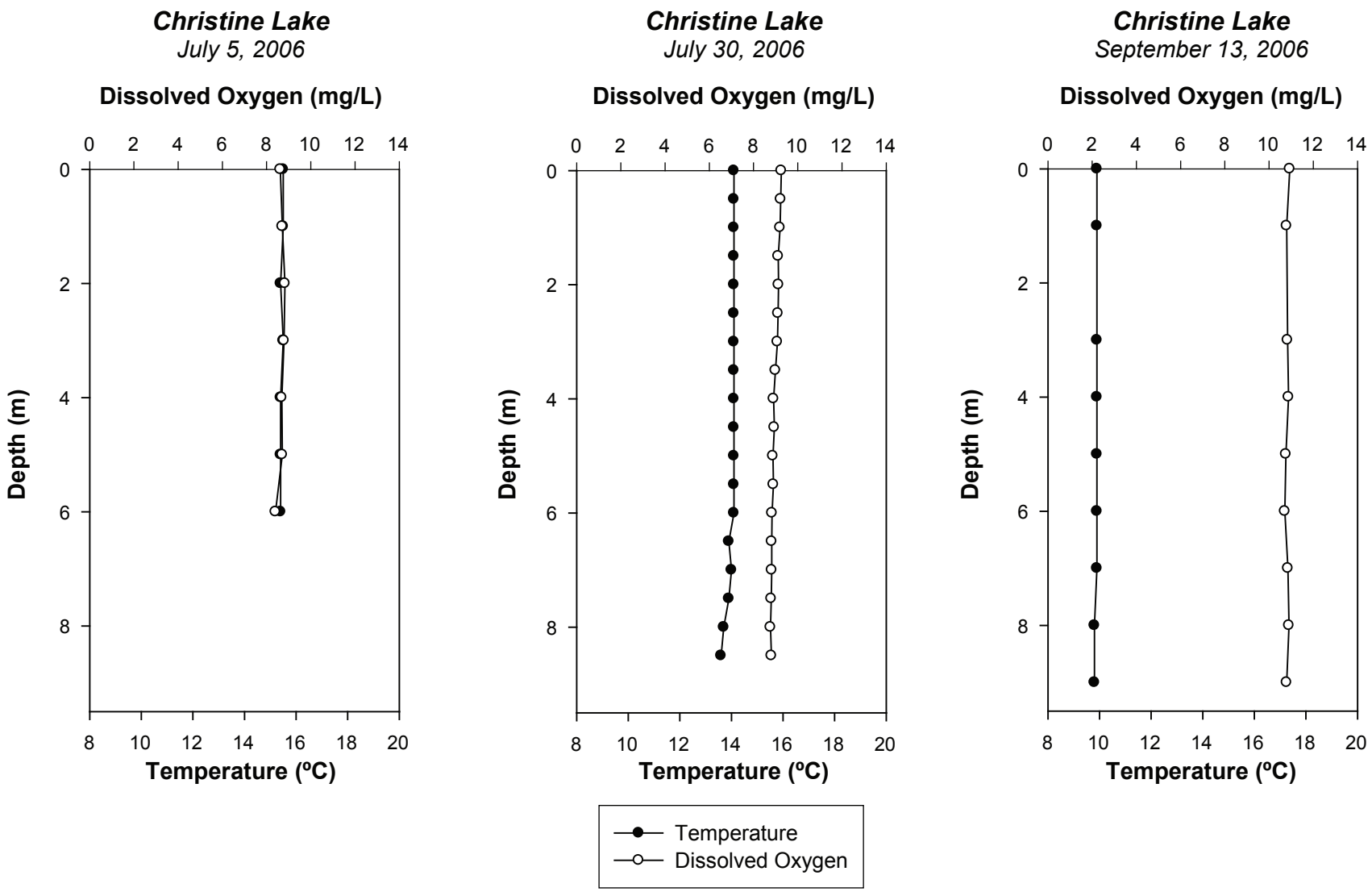
Dissolved Oxygen and Temperature Profiles for Lac du Sauvage, Christine Lake, and Reference Lake Sites, Open-water Season, 2006

FIGURE 3.4-2n



Dissolved Oxygen and Temperature Profiles for Lac du Sauvage, Christine Lake, and Reference Lake Sites, Open-water Season, 2006

FIGURE 3.4-2o



Dissolved Oxygen and Temperature Profiles for Lac du Sauvage, Christine Lake, and Reference Lake Sites, Open-water Season, 2006

FIGURE 3.4-2p

3.4.2.2 Ice-Covered Season

Temperature and dissolved oxygen profiles from the 2006 ice-covered season are presented in Figure 3.4-3. Temperature typically increased slightly with increasing depth while dissolved oxygen concentration and percent saturation typically decreased. Winter dissolved oxygen and temperature profiles were typical for those of EKATI area lakes. Winter dissolved oxygen concentrations at all sites monitored were sufficient to support aquatic life. Note LdS2, LdS4, LdS6, LdS7, and LdS8 were not monitored during the ice-covered season.

3.4.3 Physical Limnology Summary

The physical limnology of Lac du Sauvage and Ursula Lake sampling stations was consistent with other large lakes of the EKATI claim block. Temperature and oxygen profile data indicated relatively cool temperatures and sufficient oxygen concentrations to support aquatic life. Secchi depth data indicated that Jay Pipe Baseline sites have clear water and the Secchi depth was often greater than the total depth of the sampling station. Given the high water clarity, light was not expected to be limiting to photosynthetic activity during the open-water season of 2006.

3.5 Phytoplankton

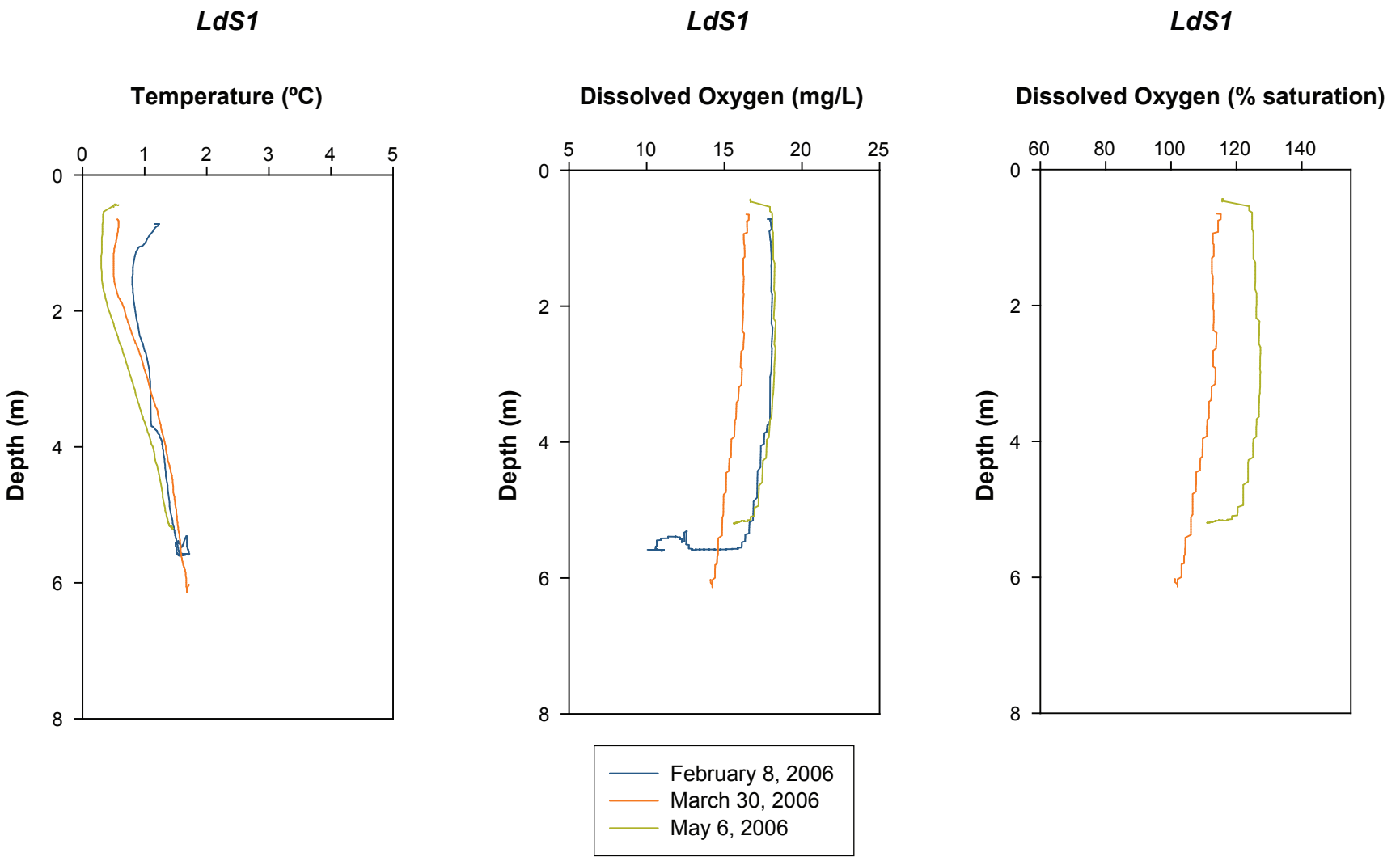
Phytoplankton parameters (biomass, abundance, and diversity) were monitored at one station in Christine Lake, three stations in Ursula Lake, and twelve stations in Lac du Sauvage. Samples were collected from all stations in July, August, and September of 2006 and from one station (LdS3) in July, August, and September of 2004. Separate samples were collected for biomass and taxonomy, and all samples were collected in triplicate. Biomass and abundance data can be found in Appendix 3.5-1 and phytoplankton taxonomic results can be found in Appendix 3.5-2.

3.5.1 Phytoplankton Biomass

Average phytoplankton biomass values ranged from 0.16 µg/L at UL2 (August 2006) to 1.85 µg/L at LdS8 (July 2006) (Figure 3.5-1). The lowest single individual replicate value was collected from UL2 in August 2006 (0.07 µg/L) and the highest single replicate value was collected from LdS8 in July 2006 (3.58 µg/L). Phytoplankton biomass was generally highest in September and lower in July and August at all stations. The exceptions to this were LdS8 in August 2006 which had high July biomass values and LdS3 in 2004 which had high July and August biomass values.

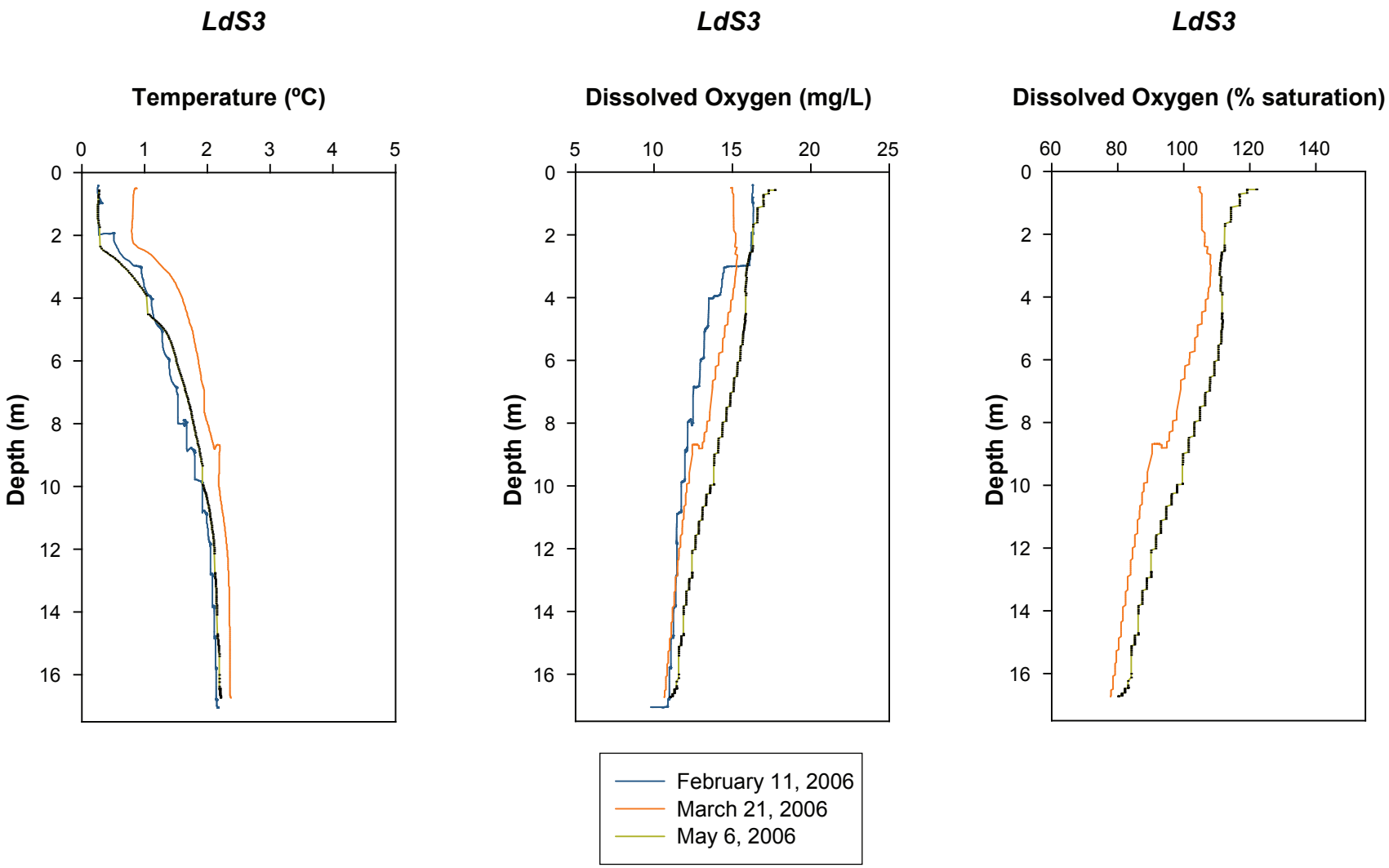
3.5.2 Phytoplankton Abundance

Average phytoplankton abundance values ranged from 260 cells/mL at UL3 (July 2006) to 1,196 cells/mL at LdS6 (August 2006) (Figure 3.5-1). The lowest single replicate value was collected from LdS11 in July 2006 (211 cells/mL) and the highest single replicate value was collected from LdS4 in August 2006 (1,571 cells/mL). Phytoplankton abundance was highest in Christine Lake and 8 of the 12 Lac du Sauvage stations in August, highest in the Ursula Lake stations and LdS1, LdS11, and LdS12 in September, and highest at LdS7 in July.



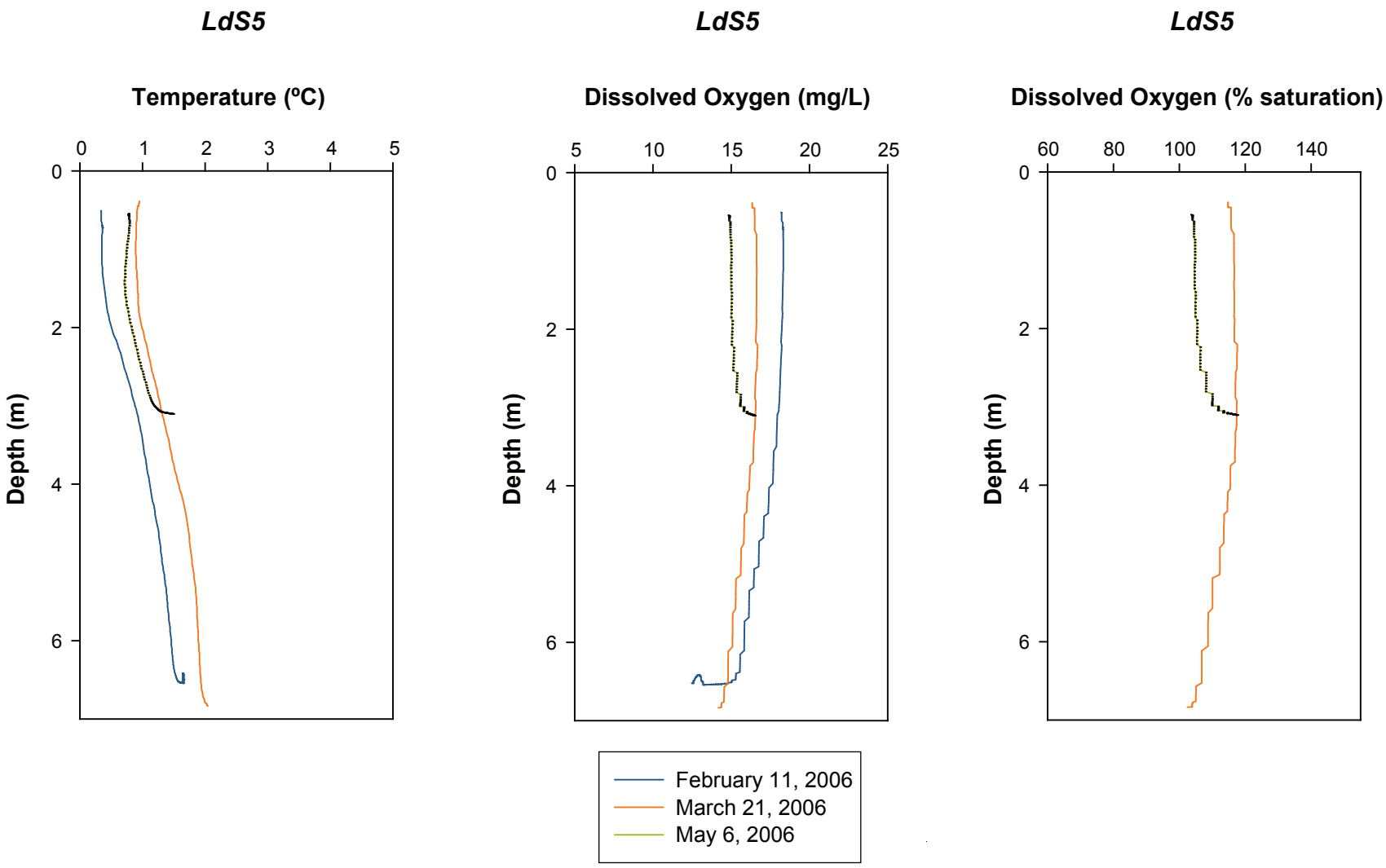
Dissolved Oxygen and Temperature Profiles for Lac du Sauvage, Christine Lake, and Reference Lake Sites, Ice-Covered Season, 2006

FIGURE 3.4-3a



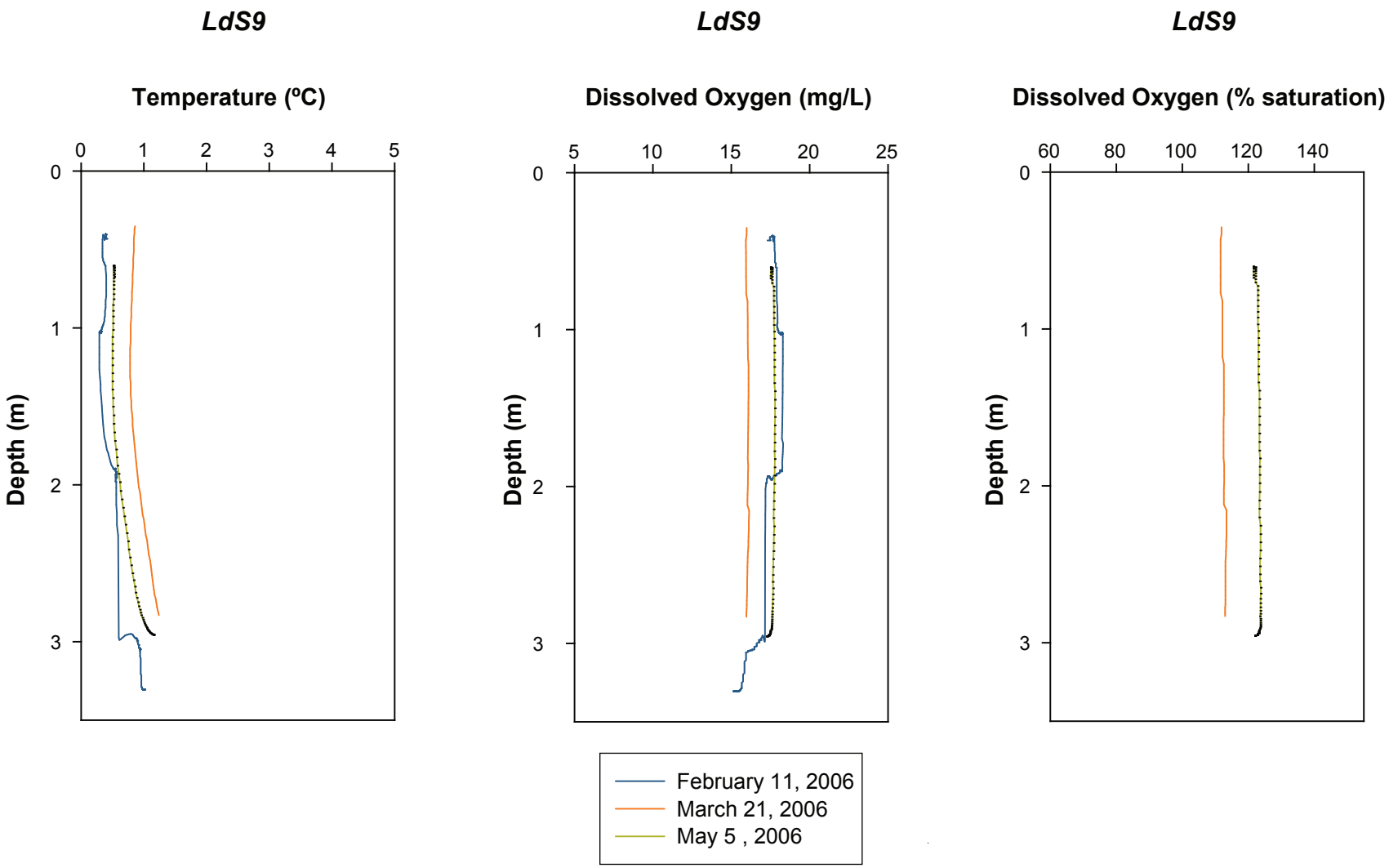
Dissolved Oxygen and Temperature Profiles for Lac du Sauvage, Christine Lake, and Reference Lake Sites, Ice-Covered Season, 2006

FIGURE 3.4-3b



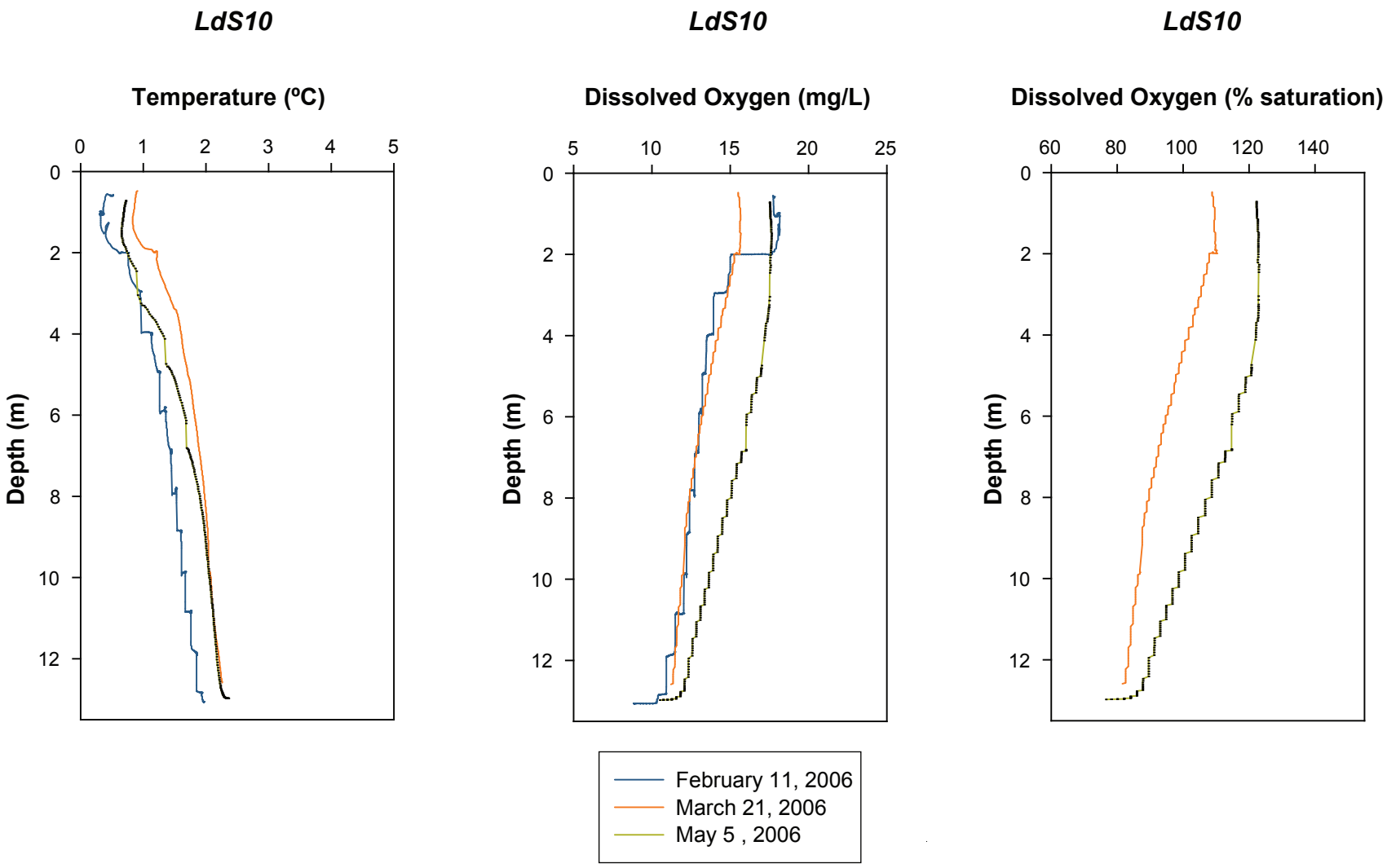
Dissolved Oxygen and Temperature Profiles for Lac du Sauvage, Christine Lake, and Reference Lake Sites, Ice-Covered Season, 2006

FIGURE 3.4-3c



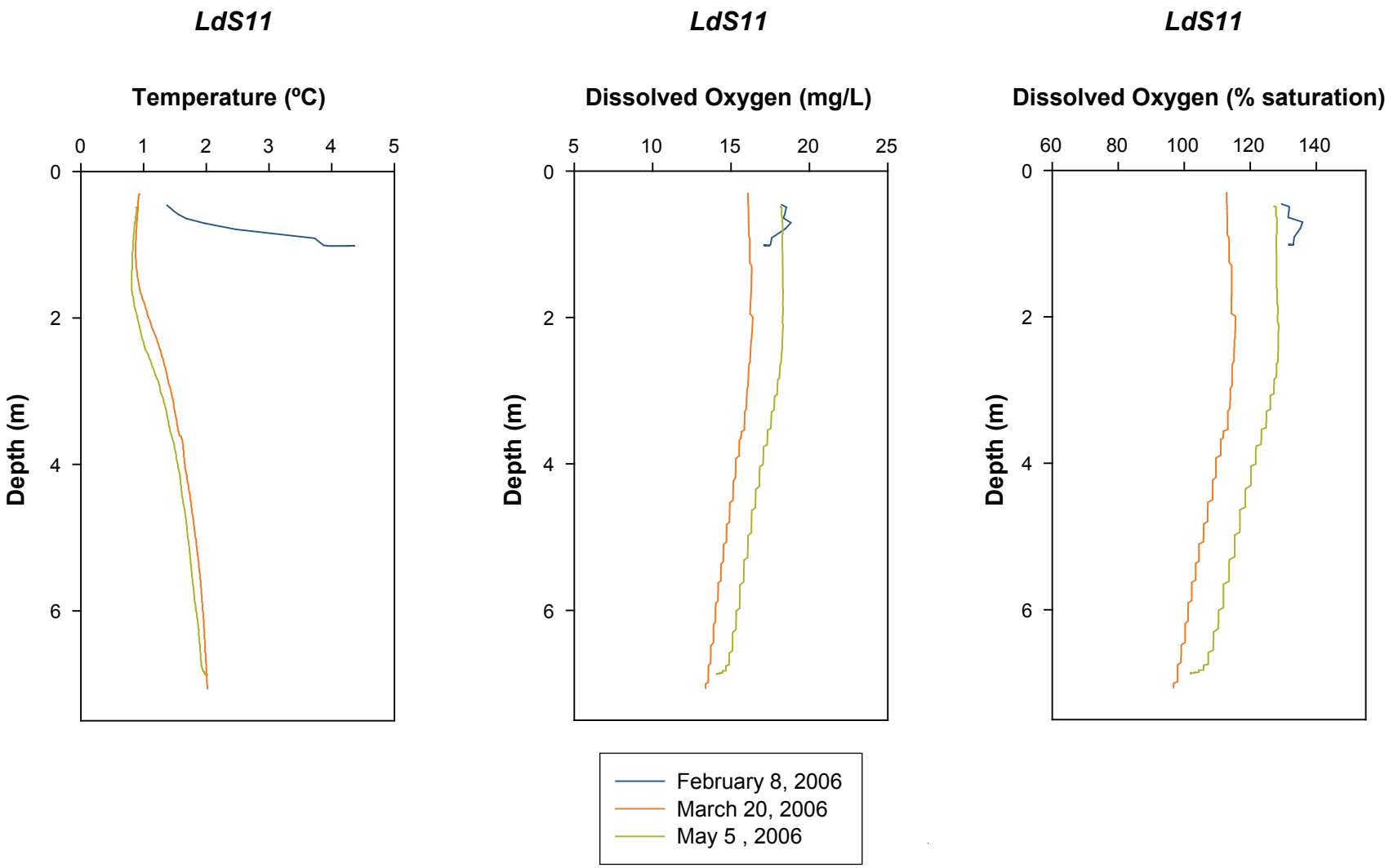
Dissolved Oxygen and Temperature Profiles for Lac du Sauvage, Christine Lake, and Reference Lake Sites, Ice-Covered Season, 2006

FIGURE 3.4-3d



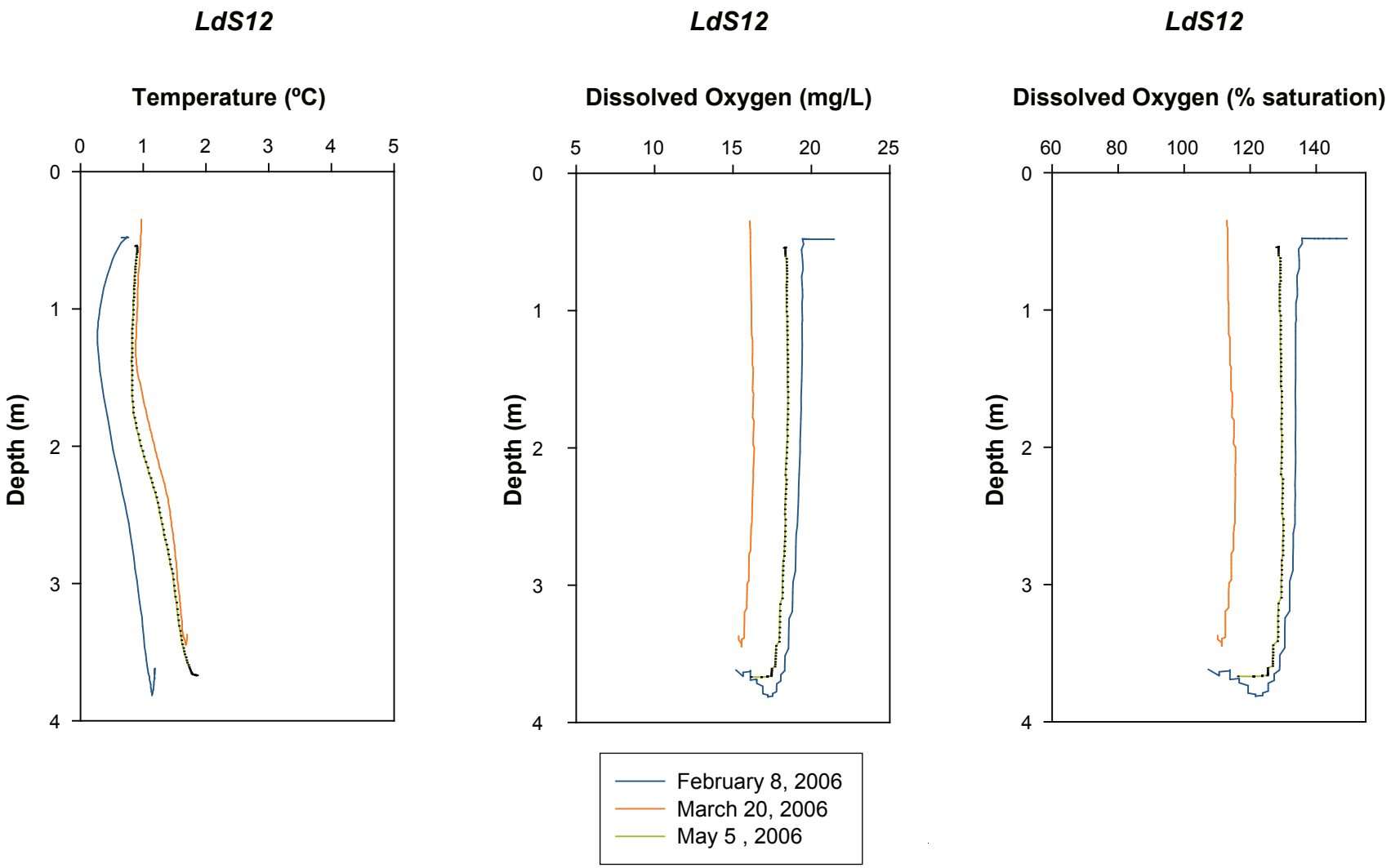
Dissolved Oxygen and Temperature Profiles for Lac du Sauvage, Christine Lake, and Reference Lake Sites, Ice-Covered Season, 2006

FIGURE 3.4-3e



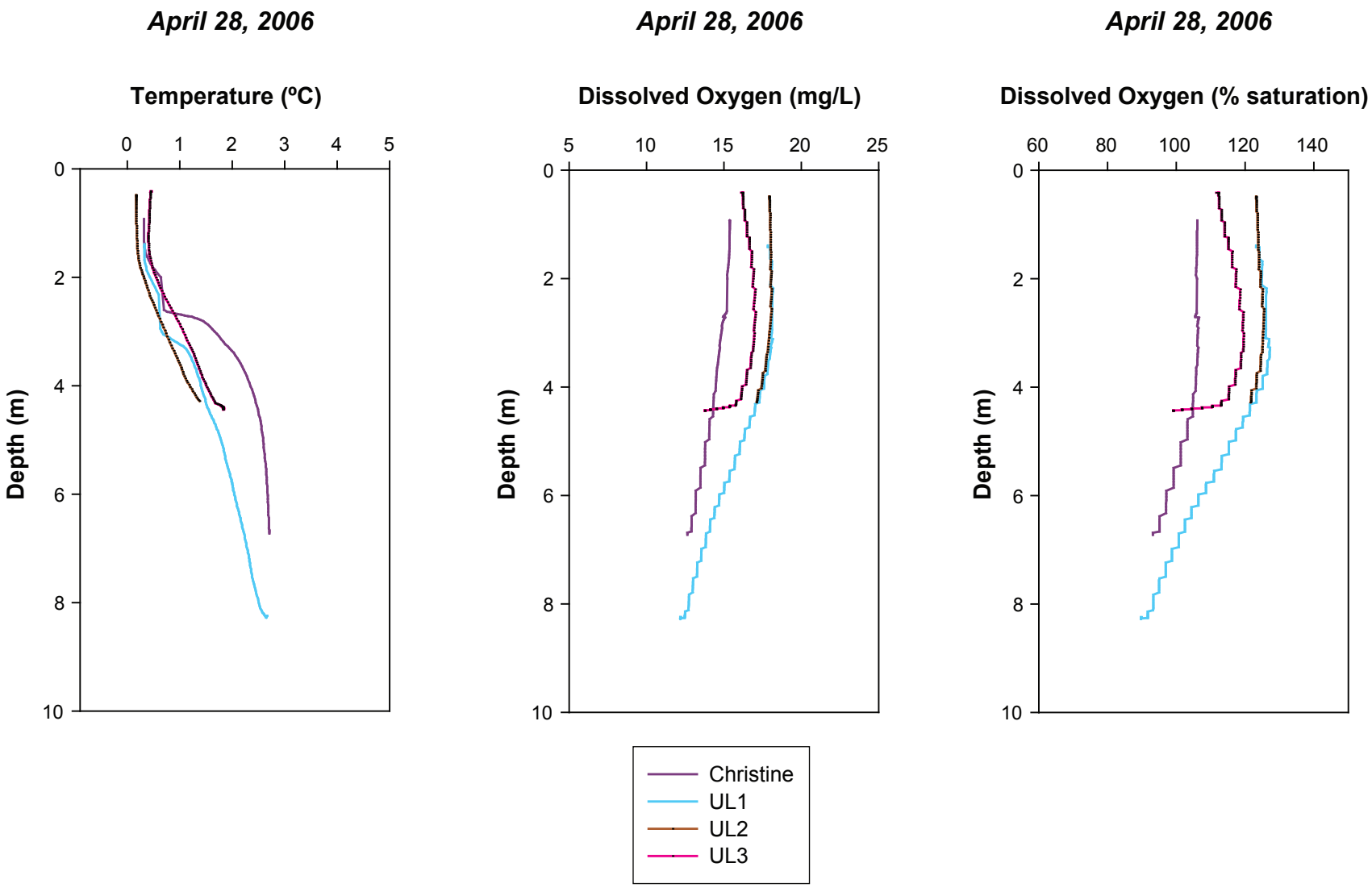
Dissolved Oxygen and Temperature Profiles for Lac du Sauvage, Christine Lake, and Reference Lake Sites, Ice-Covered Season, 2006

FIGURE 3.4-3f



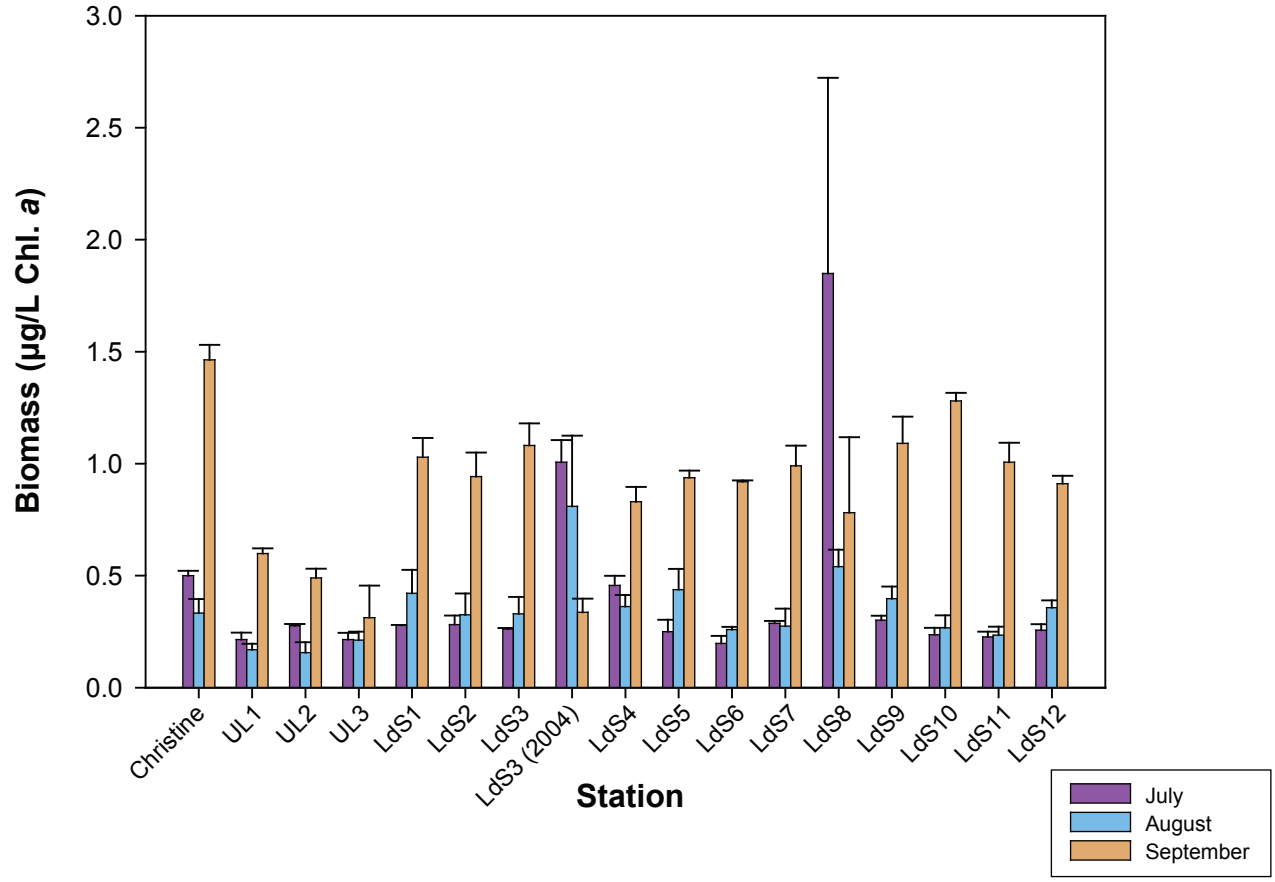
Dissolved Oxygen and Temperature Profiles for Lac du Sauvage, Christine Lake, and Reference Lake Sites, Ice-Covered Season, 2006

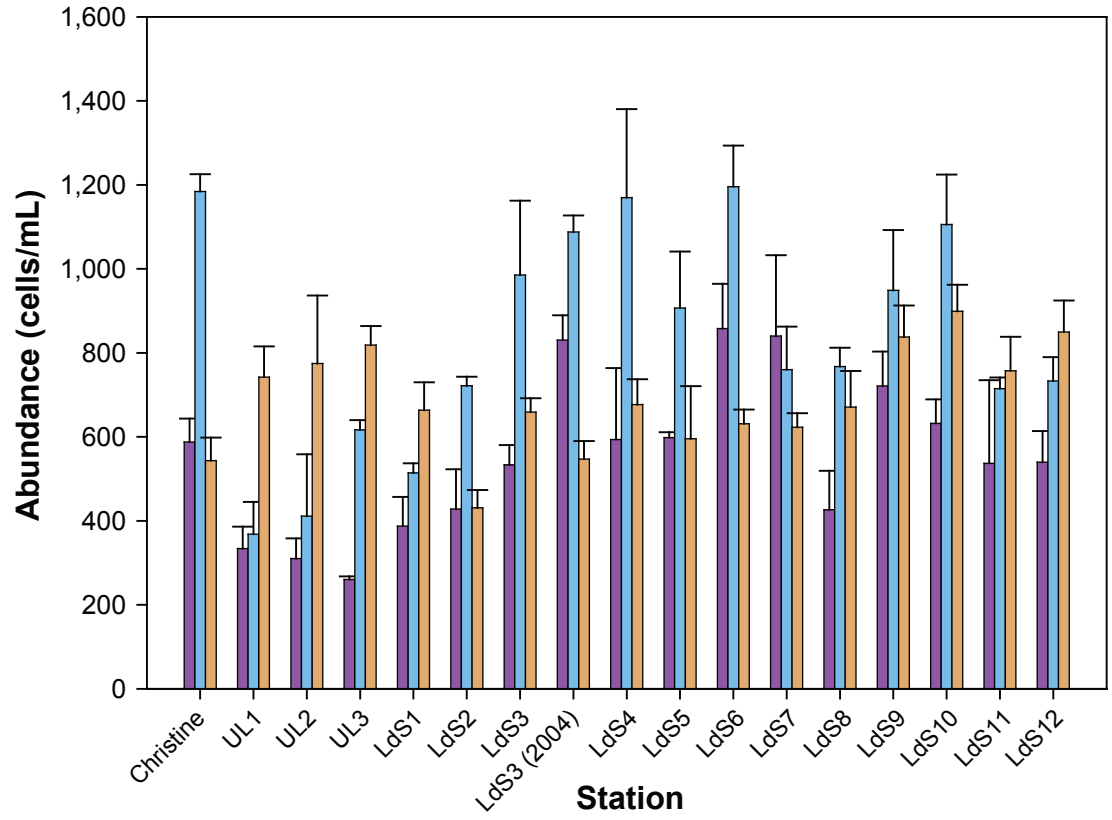
FIGURE 3.4-3g



Dissolved Oxygen and Temperature Profiles for Lac du Sauvage, Christine Lake, and Reference Lake Sites, Ice-Covered Season, 2006

FIGURE 3.4-3h





Note: Error bars represent standard error of the mean

Biomass and Abundance of Phytoplankton in Lac du Sauvage, Christine Lake, and Reference Sites, Open-Water Season 2004 and 2006

FIGURE 3.5-1

3.5.3 Phytoplankton Taxonomic Composition

The most abundant phytoplankton taxonomic groups in all assemblages were cyanophytes, chrysophytes and chlorophytes (Figure 3.5-2). In July, 12 sites were predominated by cyanophytes (LdS2 to LdS12), while the other 5 stations were predominated by chrysophytes (Christine Lake, UL1, 2, 3, LdS1). Chlorophytes and diatoms (phylum Bacillariophyceae) were well represented at all sites, comprising 14 to 33% and 4 to 23% of the phytoplankton assemblages, respectively. By August, the proportions of chrysophytes had decreased while cyanophytes had increased, with 15 sites predominated by cyanophytes (Christine Lake, UL3, LdS1 to LdS12), one site predominated by chrysophytes (UL1), and one site predominated by chlorophytes (UL2). Chlorophyte and diatom proportions remained high. By September, chrysophyte proportions decreased further, comprising only 3 to 10% of the taxonomic assemblages. Cyanophyte and chlorophyte proportions increased, and all sites were predominated by cyanophytes. Other groups found in smaller proportions (<10%) throughout the open-water season were cryptophytes, pyrrhophytes, and unidentified flagellates. Euglenophytes were only found in a proportion >1% at LdS2.

3.5.4 Phytoplankton Diversity

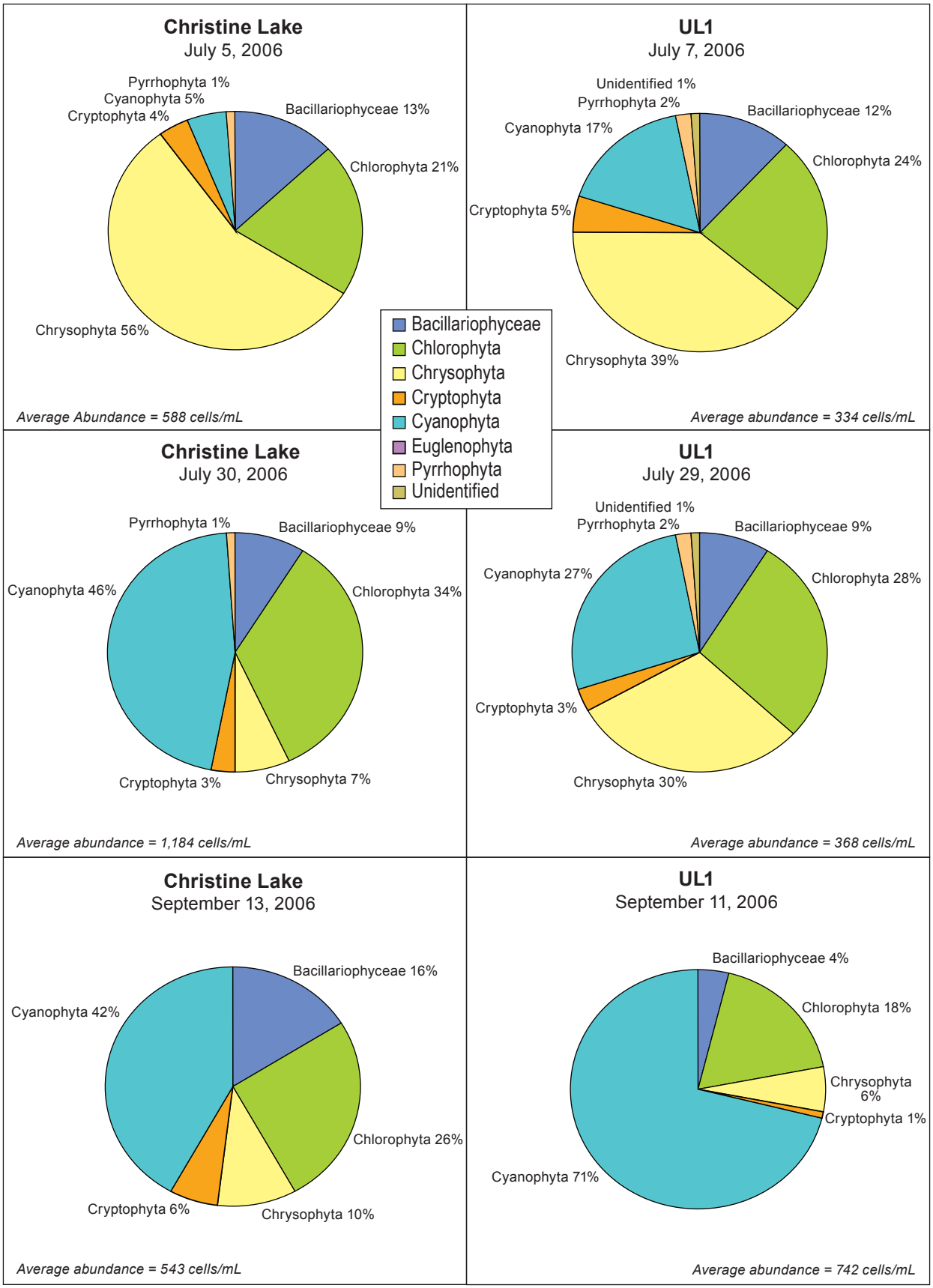
Average Shannon diversity index values ranged from 1.68 at LdS11 (August 2006) to 2.55 at LdS2 (July 2006) (Figure 3.5-3) (Table 3.5-1). Average Simpson diversity index values ranged from 0.61 at UL1 (September 2006) to 0.88 Christine Lake (August 2006). The average number of phytoplankton genera present at a site ranged from 33 at UL2 (July 2006) to a maximum of 53 at LdS1 (August 2006). The average number of genera comprising 90% of the assemblage ranged from 6 genera (LdS3, LdS5, and LdS9, August 2006) to 22 genera at LdS2 (July 2006), while the average maximum percent dominance by one phytoplankton genus ranged from 21% (Christine Lake, August 2006) to 59% (UL3 and LdS12, September 2006).

3.5.5 Phytoplankton Summary

Cyanophytes, chlorophytes, and chrysophytes were the predominant taxonomic groups in the phytoplankton assemblages. Chrysophyte numbers were highest in July and decreased throughout the open-water season, while chlorophyte and cyanophyte numbers increased. Phytoplankton biomass was generally highest in September, while phytoplankton abundance was generally highest in August. Overall, phytoplankton diversity was highest in July.

3.6 Zooplankton

Zooplankton parameters (biomass, abundance, and diversity) were monitored at one station in Christine Lake, three stations in Ursula Lake, and twelve stations in Lac du Sauvage. Samples were collected from all stations in July, August, and September of 2006 and from one station (LdS3) in July, August, and September of 2004. Separate tows were collected for biomass and taxonomy, and all samples were collected in triplicate. Biomass and abundance data can be found in Appendix 3.6-1 and zooplankton taxonomic results can be found in Appendix 3.6-2.



Taxonomic Composition of Phytoplankton in Lac du Sauvage, Christine Lake, and Reference Sites, Open-Water Season 2004 and 2006

FIGURE 3.5-2a

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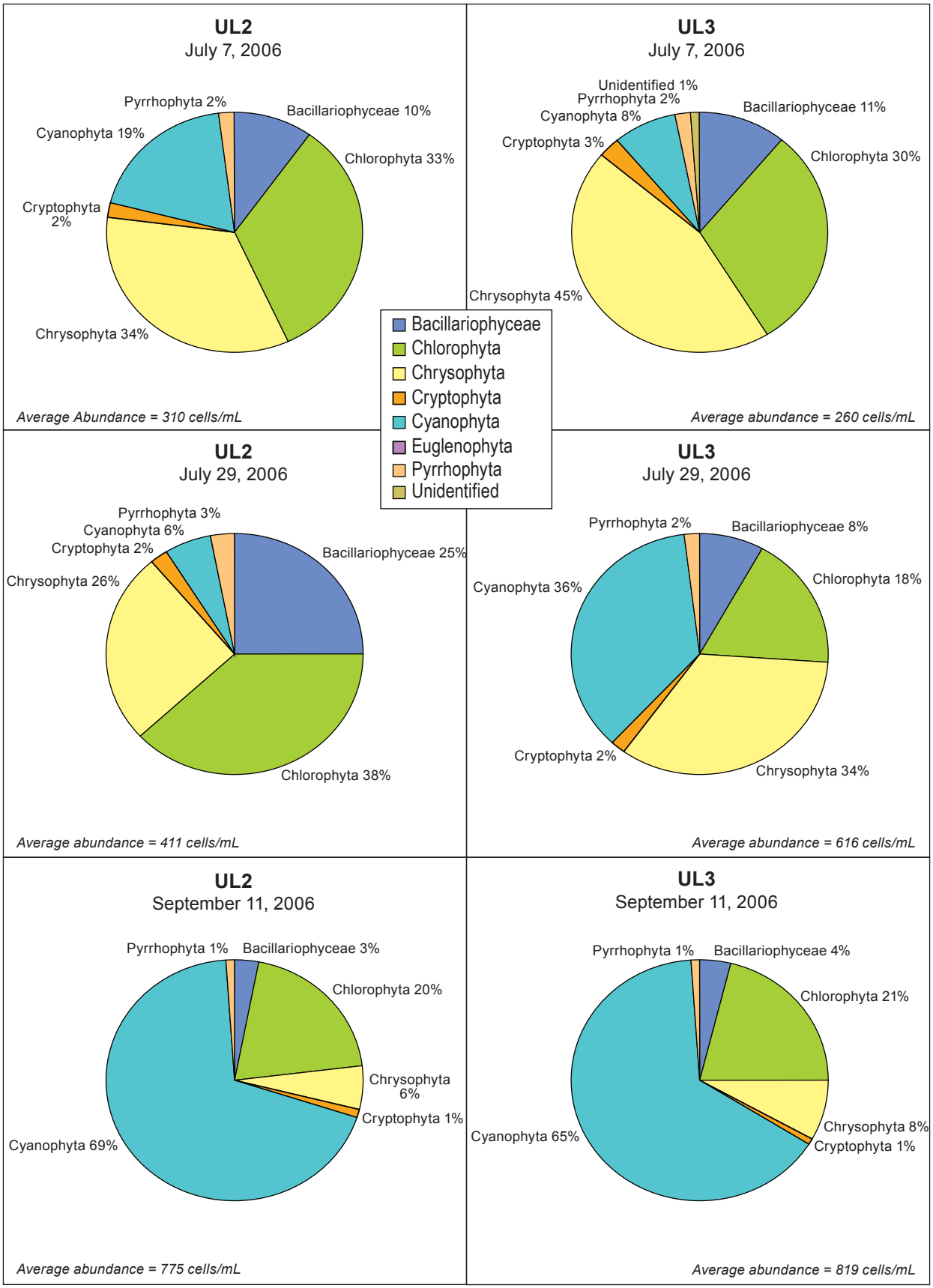

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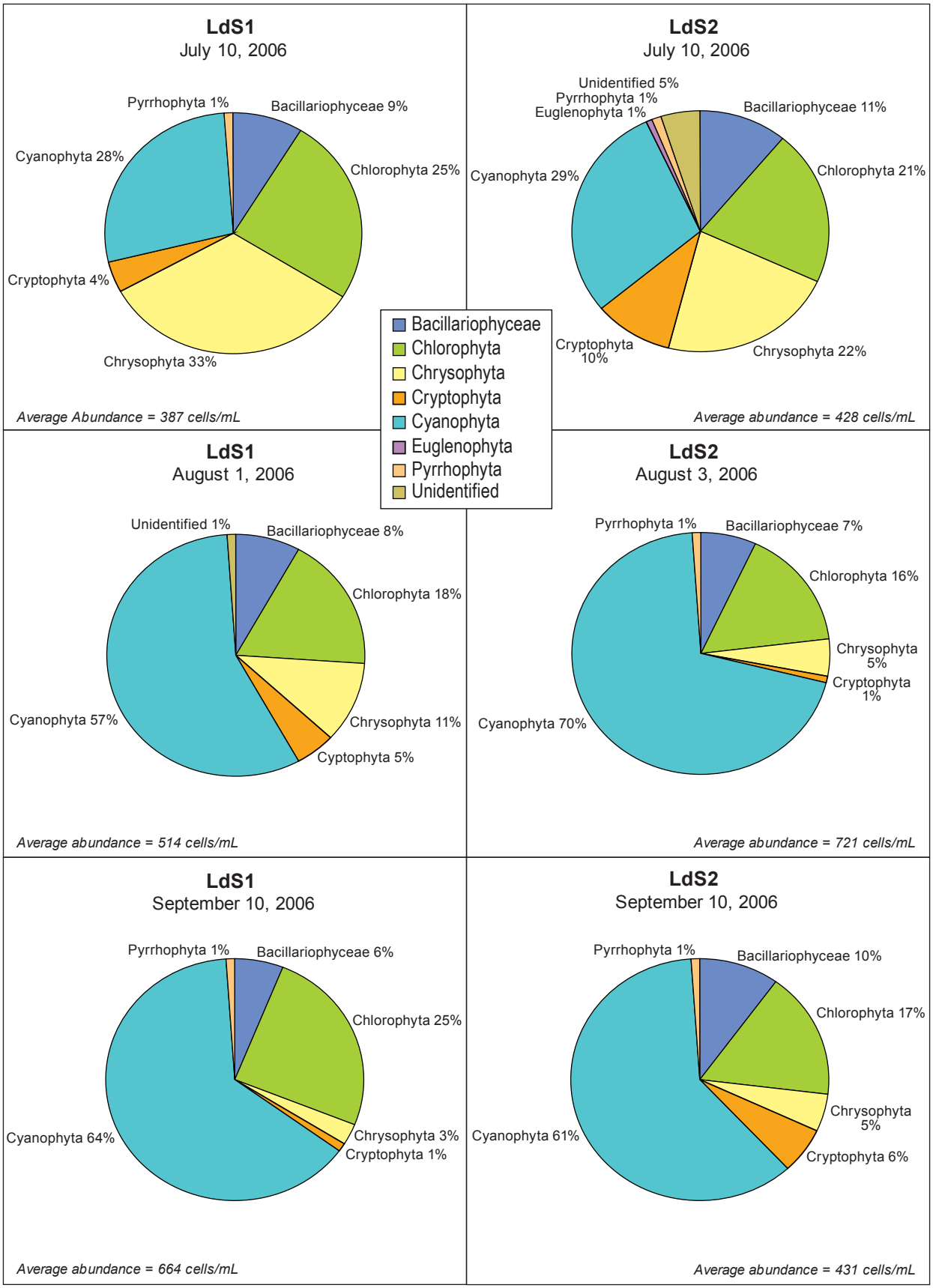
Taxonomic Composition of Phytoplankton in Lac du Sauvage, Christine Lake, and Reference Sites, Open-Water Season 2004 and 2006

FIGURE 3.5-2b

Rescan™



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Taxonomic Composition of Phytoplankton in Lac du Sauvage, Christine Lake, and Reference Sites, Open-Water Season 2004 and 2006

FIGURE 3.5-2c

Rescan™

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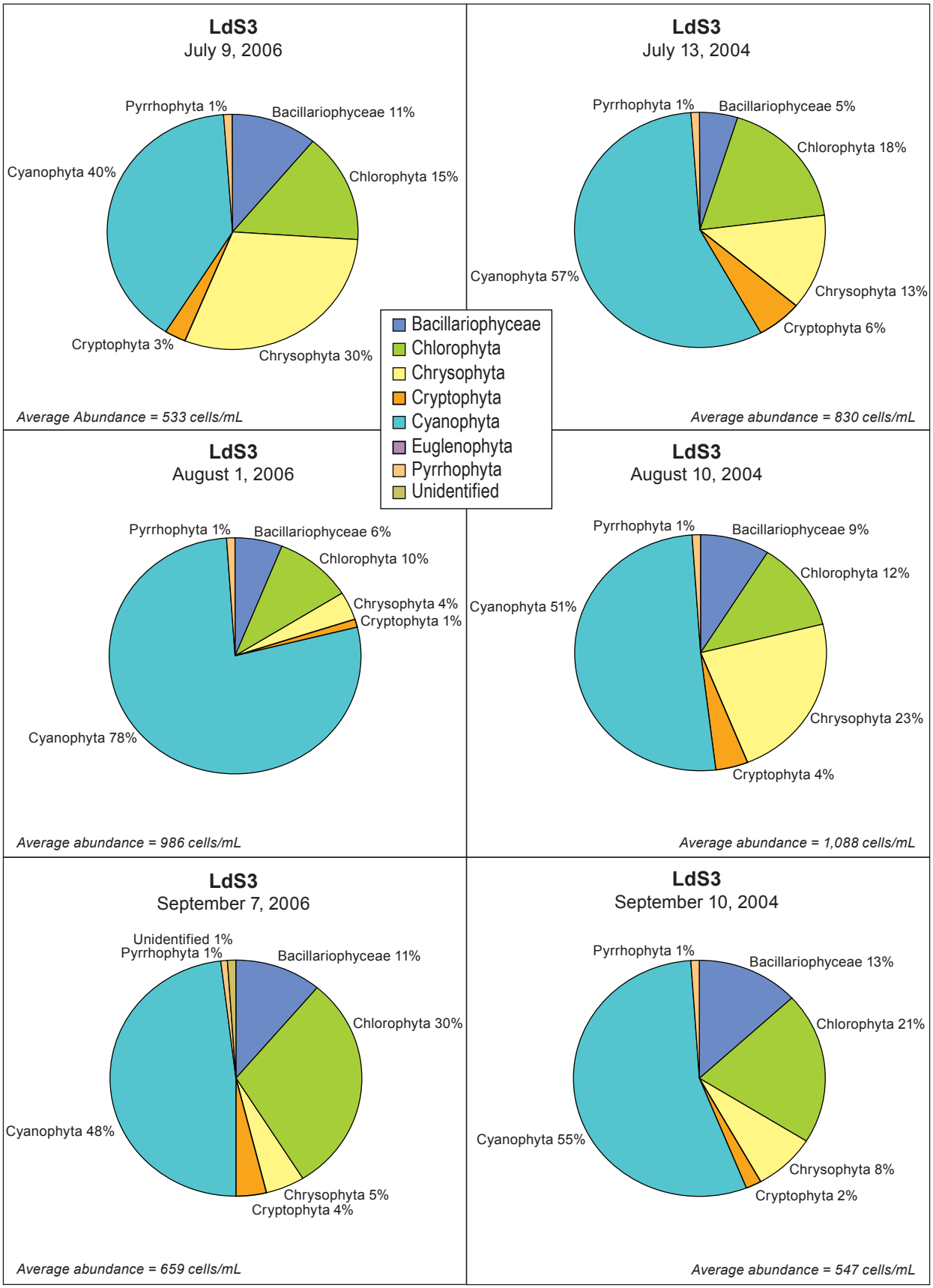

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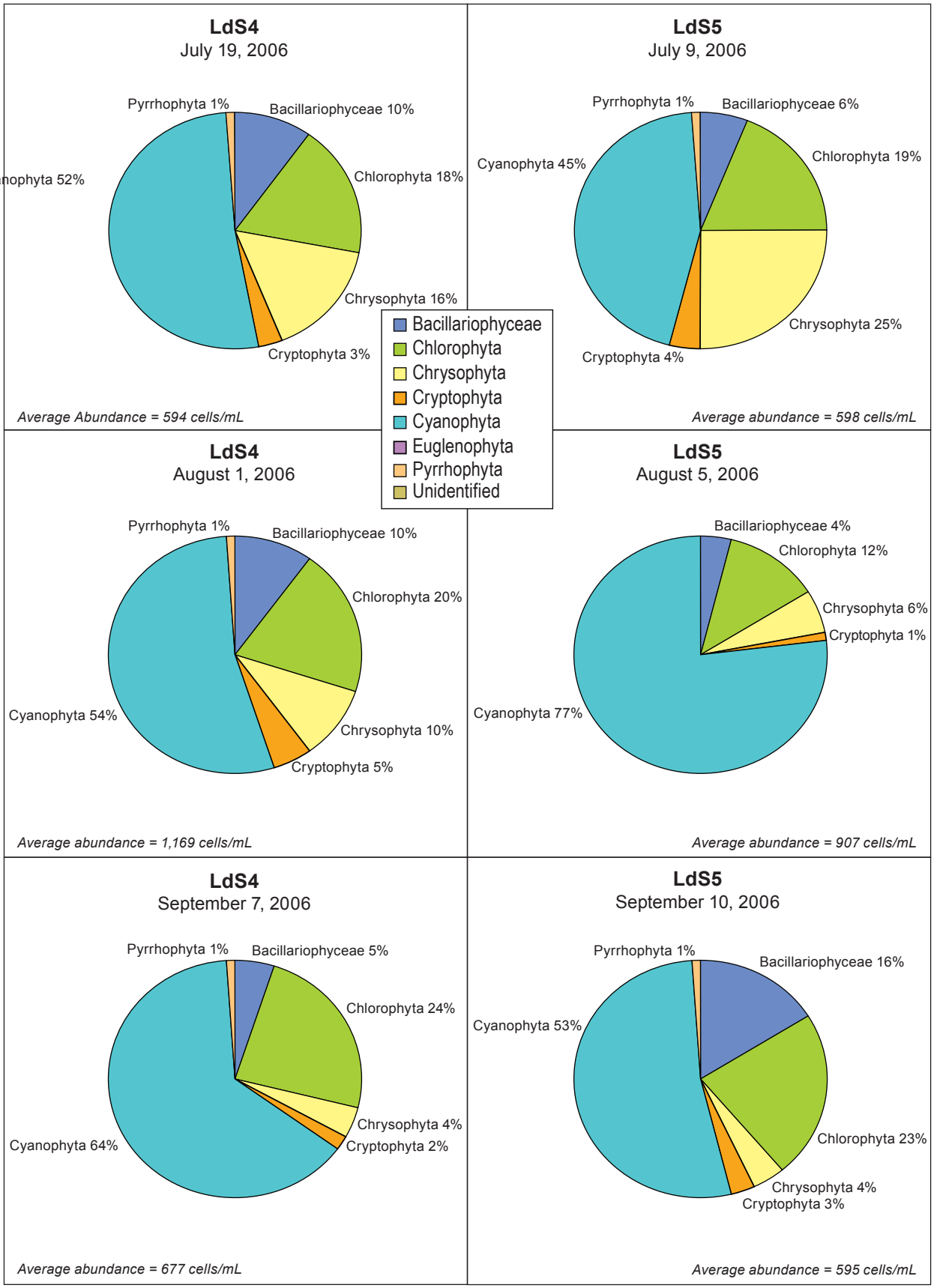
Taxonomic Composition of Phytoplankton in Lac du Sauvage, Christine Lake, and Reference Sites, Open-Water Season 2004 and 2006

FIGURE 3.5-2d

Rescan™



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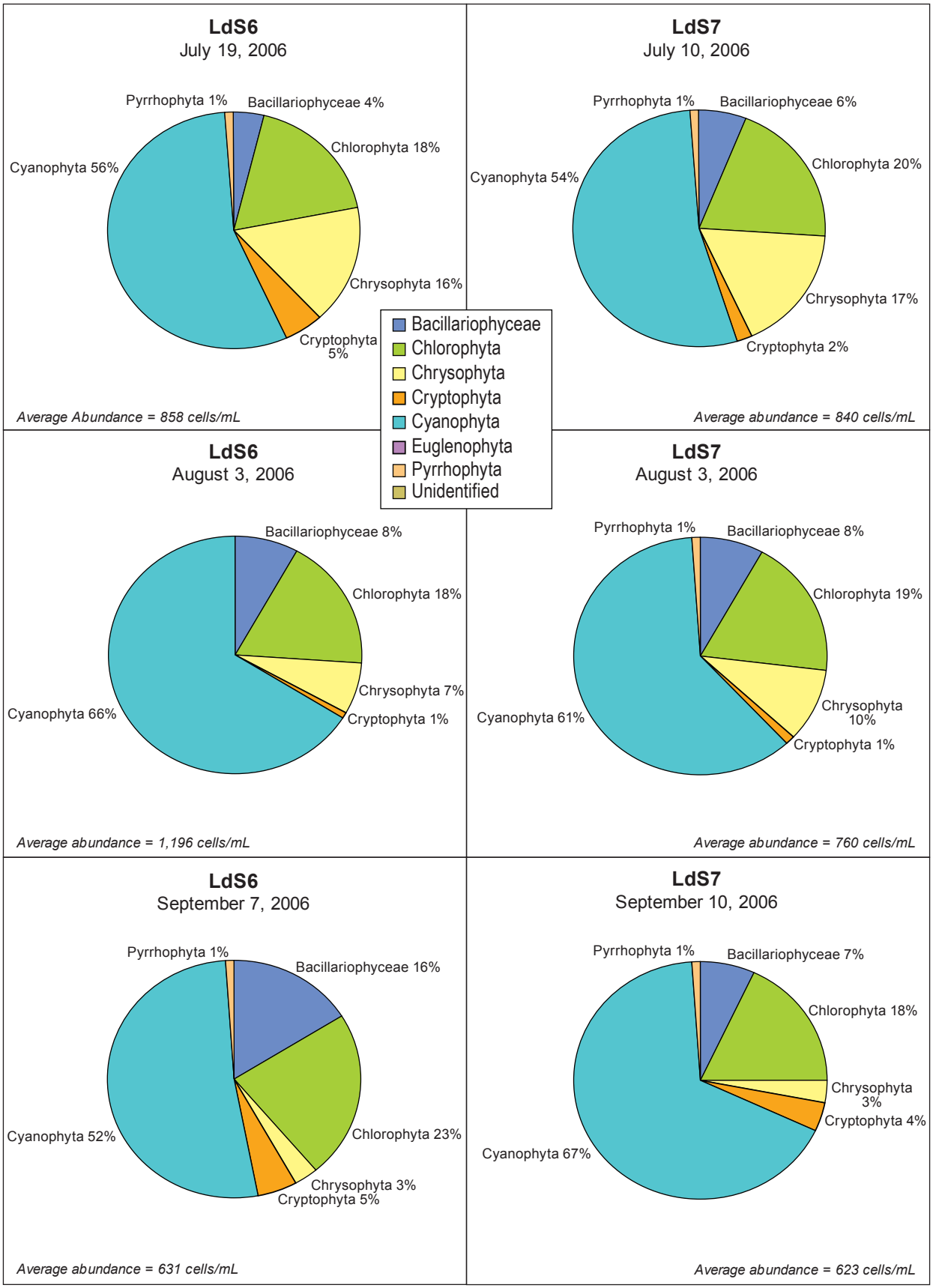
Taxonomic Composition of Phytoplankton in Lac du Sauvage, Christine Lake, and Reference Sites, Open-Water Season 2004 and 2006

FIGURE 3.5-2e

Rescan™



Taxonomic Composition of Phytoplankton in Lac du Sauvage, Christine Lake, and Reference Sites, Open-Water Season 2004 and 2006

FIGURE 3.5-2f

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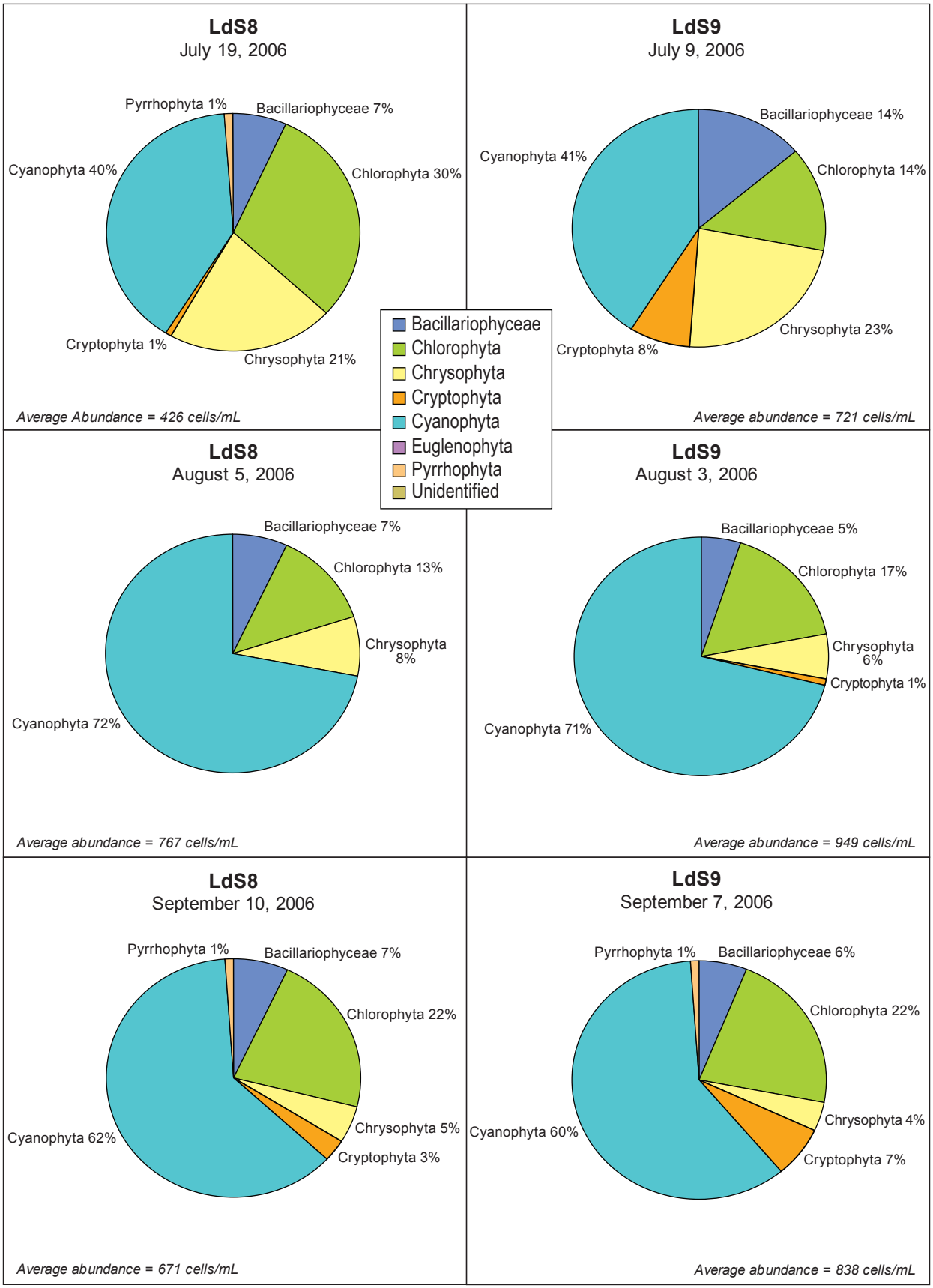

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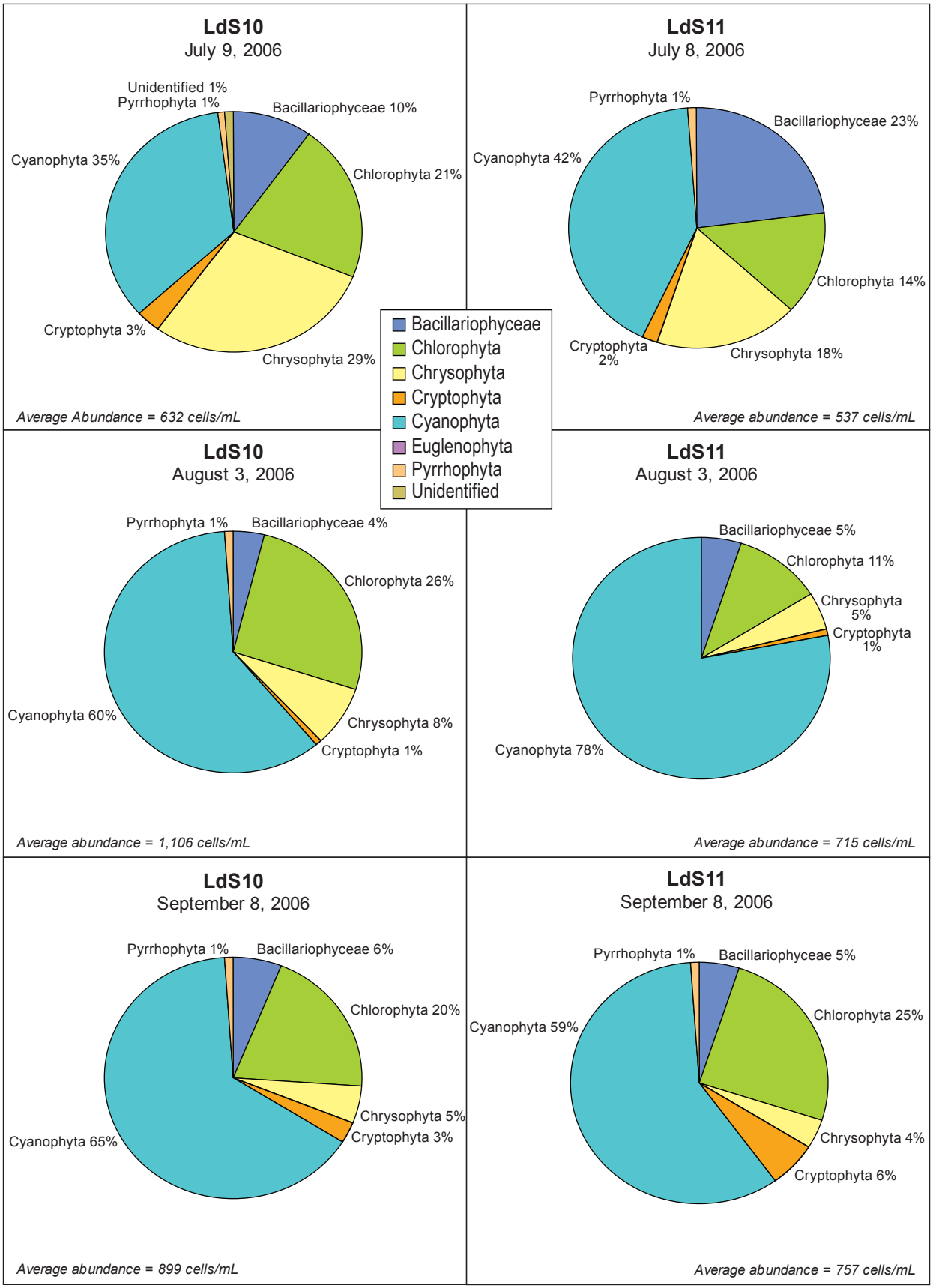
Taxonomic Composition of Phytoplankton in Lac du Sauvage, Christine Lake, and Reference Sites, Open-Water Season 2004 and 2006

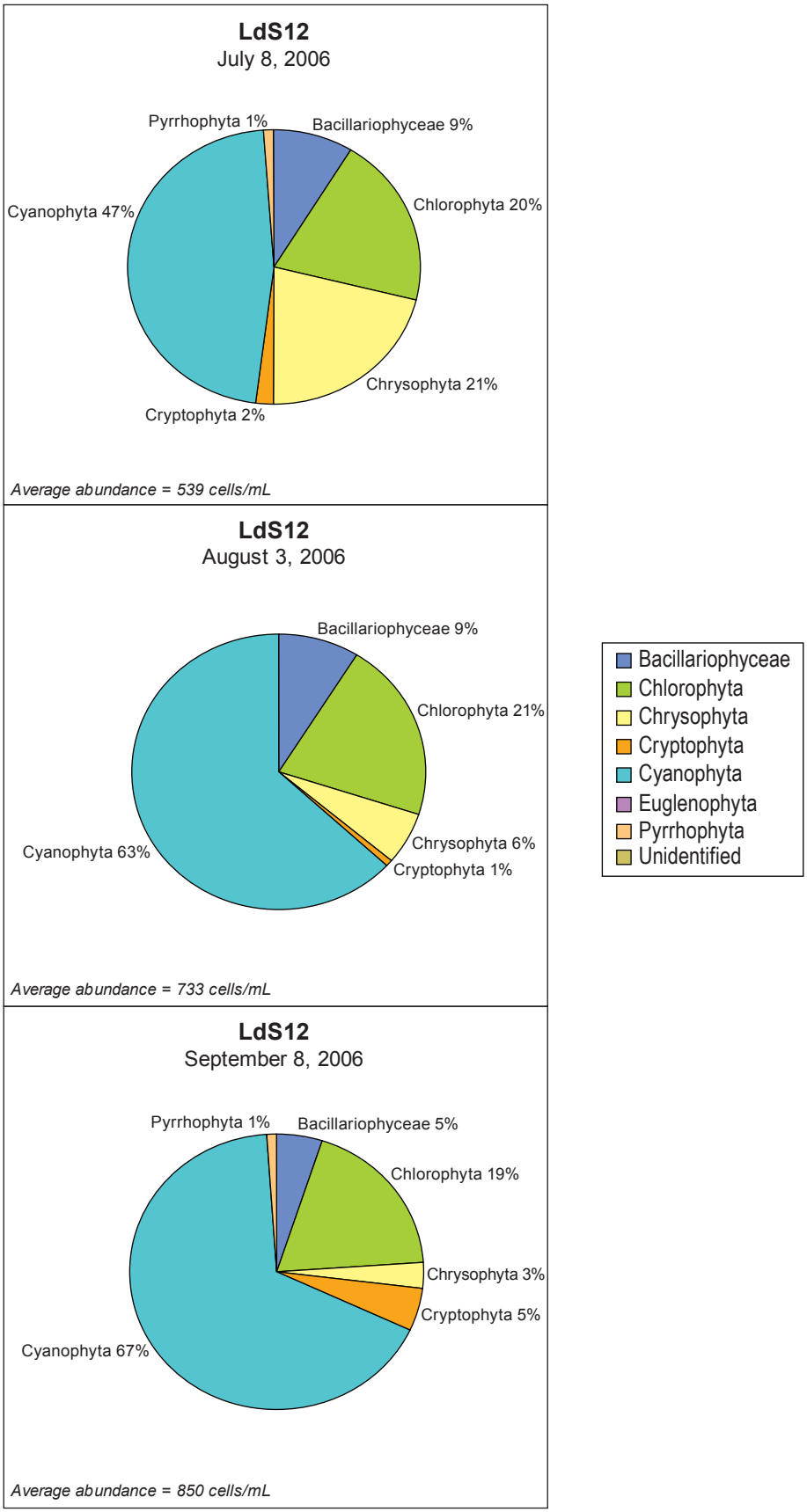
FIGURE 3.5-2g

Rescan™



Taxonomic Composition of Phytoplankton in Lac du Sauvage, Christine Lake, and Reference Sites, Open-Water Season 2004 and 2006

FIGURE 3.5-2h



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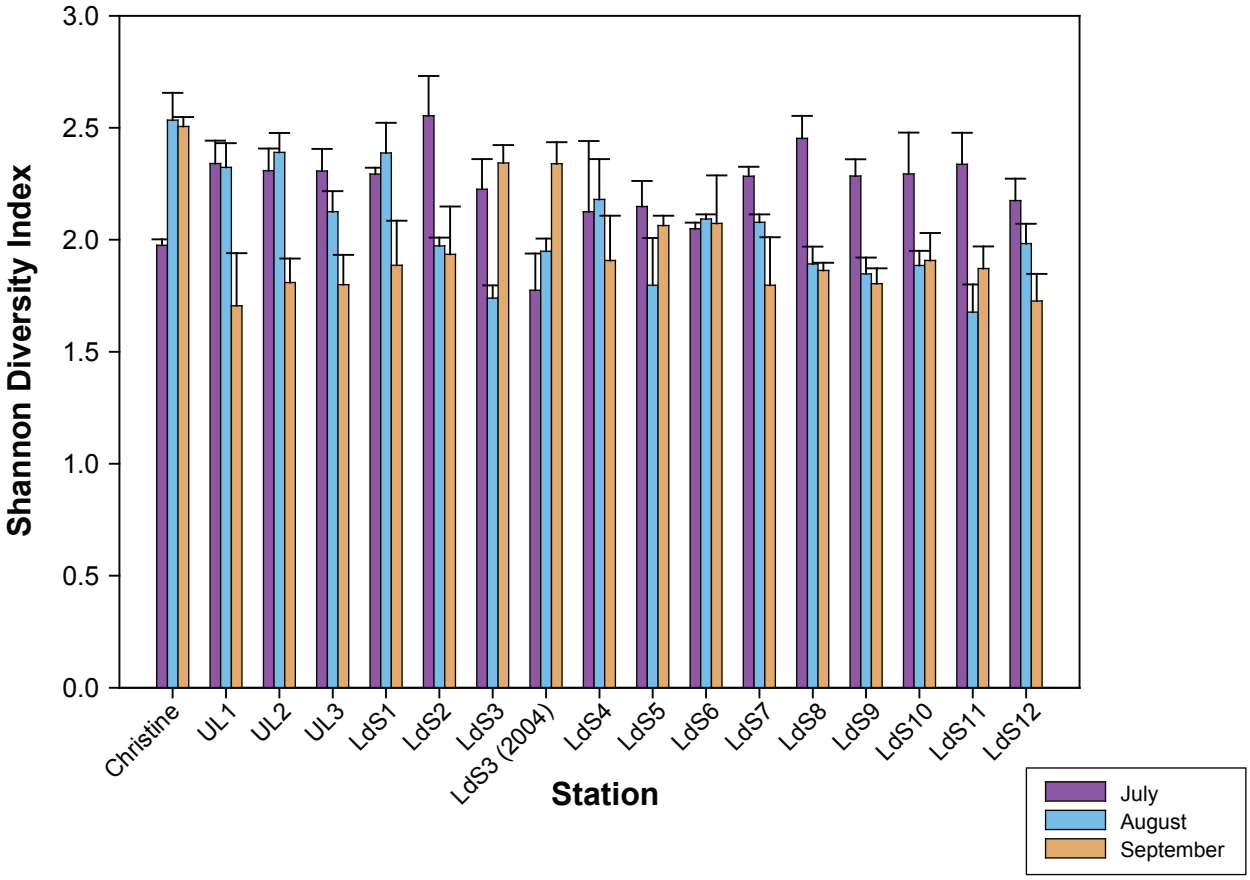
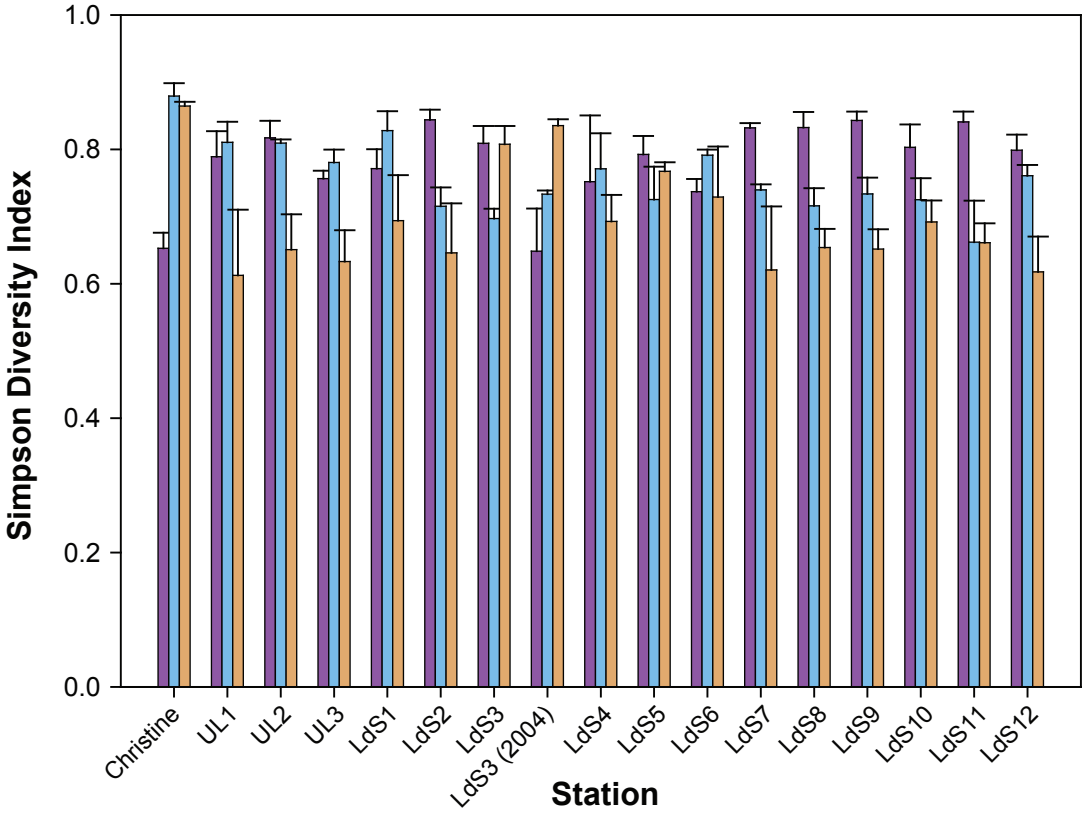
Taxonomic Composition of Phytoplankton in Lac du Sauvage, Christine Lake, and Reference Sites, Open-Water Season 2004 and 2006

FIGURE 3.5-2i

Rescan™





Note: Error bars represent standard error of the mean

Shannon and Simpson Diversity Indices for Phytoplankton in Lac du Sauvage, Christine Lake, and Reference Sites, Open-Water Season 2004 and 2006

FIGURE 3.5-3

Table 3.5-1
Phytoplankton Diversity Results for Lac du Sauvage, Christine Lake, and Reference Lake Sites

Station	Date	G	G (90%)	Maximum Dominance (%)	Shannon Diversity Index	Simpson Diversity Index
Christine Lake	5-Jul-06	52	16	57	1.98	0.65
	30-Jul-06	46	12	21	2.53	0.88
	8-Sep-06	46	13	26	2.51	0.86
UL1	7-Jul-06	38	18	41	2.34	0.79
	29-Jul-06	40	14	34	2.32	0.81
	8-Sep-06	47	8	58	1.71	0.61
UL2	7-Jul-06	33	14	34	2.31	0.82
	29-Jul-06	43	16	37	2.39	0.81
	8-Sep-06	48	8	56	1.81	0.65
UL3	7-Jul-06	39	21	47	2.31	0.76
	29-Jul-06	45	11	35	2.13	0.78
	8-Sep-06	45	9	59	1.80	0.63
LdS1	10-Jul-06	44	18	41	2.29	0.77
	1-Aug-06	53	13	30	2.39	0.83
	10-Sep-06	40	8	50	1.89	0.69
LdS2	10-Jul-06	46	22	31	2.55	0.84
	3-Aug-06	44	10	48	1.97	0.72
	10-Sep-06	40	13	57	1.93	0.65
LdS3	9-Jul-06	38	11	32	2.23	0.81
	1-Aug-06	47	6	46	1.74	0.70
	7-Sep-06	45	12	38	2.34	0.81
LdS3 (2004)	13-Jul-04	38	8	56	1.77	0.65
	10-Aug-04	45	9	45	1.95	0.73
	12-Sep-04	39	12	32	2.34	0.84
LdS4	19-Jul-06	38	11	40	2.13	0.75
	1-Aug-06	44	11	42	2.18	0.77
	7-Sep-06	45	9	51	1.91	0.69
LdS5	9-Jul-06	43	10	34	2.15	0.79
	5-Aug-06	38	6	42	1.80	0.73
	10-Sep-06	39	11	38	2.06	0.77
LdS6	19-Jul-06	45	10	47	2.05	0.74
	3-Aug-06	39	9	35	2.09	0.79
	7-Sep-06	44	10	45	2.07	0.73
LdS7	19-Jul-06	42	11	27	2.28	0.83
	3-Aug-06	41	12	47	2.08	0.74
	10-Sep-06	40	11	58	1.80	0.62
LdS8	11-Jul-06	44	17	33	2.45	0.83
	5-Aug-06	41	8	48	1.89	0.72
	10-Sep-06	40	10	57	1.86	0.65
LdS9	9-Jul-06	36	9	27	2.29	0.84
	3-Aug-06	40	6	42	1.85	0.73
	7-Sep-06	38	9	57	1.80	0.65
LdS10	9-Jul-06	43	13	36	2.29	0.80
	3-Aug-06	42	7	45	1.89	0.73
	8-Sep-06	39	9	53	1.91	0.69
LdS11	8-Jul-06	37	13	27	2.34	0.84
	3-Aug-06	39	7	50	1.68	0.66
	8-Sep-06	44	10	56	1.87	0.66
LdS12	8-Jul-06	38	11	33	2.17	0.80
	3-Aug-06	38	7	41	1.98	0.76
	8-Sep-06	44	9	59	1.73	0.62

Note: G is the number of genera present at a site

G (90%) is the number of genera comprising 90% of the assemblage

Maximum dominance is the maximum percent dominance by one genus at a site

3.6.1 Zooplankton Biomass

Average zooplankton biomass values ranged from 9.11 mg/m^3 at LdS2 (July 2006) to 549.48 mg/m^3 at LdS3 (September 2006) (Figure 3.6-1). The lowest single replicate value was collected from LdS2 in July 2006 (1.25 mg/m^3) and the highest single replicate value was collected from LdS8 in August 2006 (945.38 mg/m^3). There were no real seasonal or spatial trends observed in zooplankton biomass values other than biomass concentrations were always lowest at LdS2.

3.6.2 Zooplankton Abundance

Average zooplankton abundance values ranged from 1,998 organisms/m^3 at LdS2 (August 2006) to 193,980 organisms/m^3 at LdS6 (August 2006) (Figure 3.6-1). The lowest single replicate value was collected from LdS2 in August 2006 (1,654 organisms/m^3) and the highest single replicate value was collected from LdS5 in August 2006 (419,175 organisms/m^3). There were no real seasonal or spatial trends observed in zooplankton abundance values other than abundances were always lowest at LdS2.

3.6.3 Zooplankton Taxonomic Composition

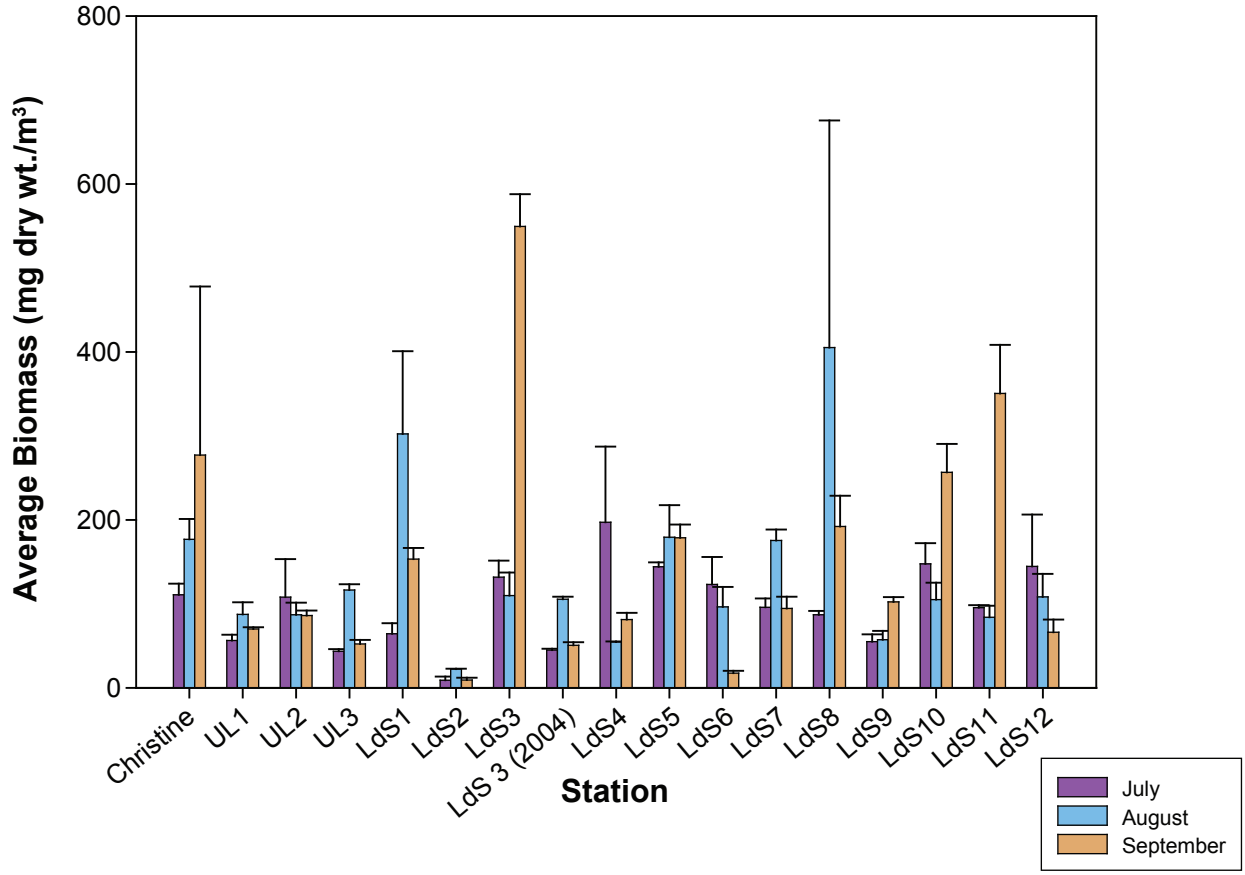
Zooplankton communities in all of the sites were predominated by rotifers, calanoid copepods, and cyclopoid copepods (Figure 3.6-2). In July, 5 stations were predominated by rotifers (Christine Lake, LdS1, 2, 3, 9), 8 stations were predominated by calanoid copepods (UL1, 2, 3, LdS4, 5, 7, 10, 11, 12), and 3 stations were predominated by cyclopoid copepods (LdS6, 8, 10). In August the proportions of calanoid copepods increased and 2 stations were predominated by rotifers (Christine Lake, LdS6), 13 stations were predominated by calanoid copepods (UL1, 2, 3, LdS1, 2, 3, 5, 7, 8, 9, 10, 11, 12), and 1 station was predominated by cyclopoid copepods (LdS6). The proportion of calanoid copepods decreased in September as 7 stations were predominated by rotifers (LdS1, 2, 3, 4, 6, 9, 12), 3 stations were predominated by calanoid copepods (UL1, 2, 3), and 6 stations were predominated by cyclopoid copepods (Christine Lake, LdS5, 7, 8, 10, 11). Cladocerans were present at some stations but were always in very small proportions (≤10%).

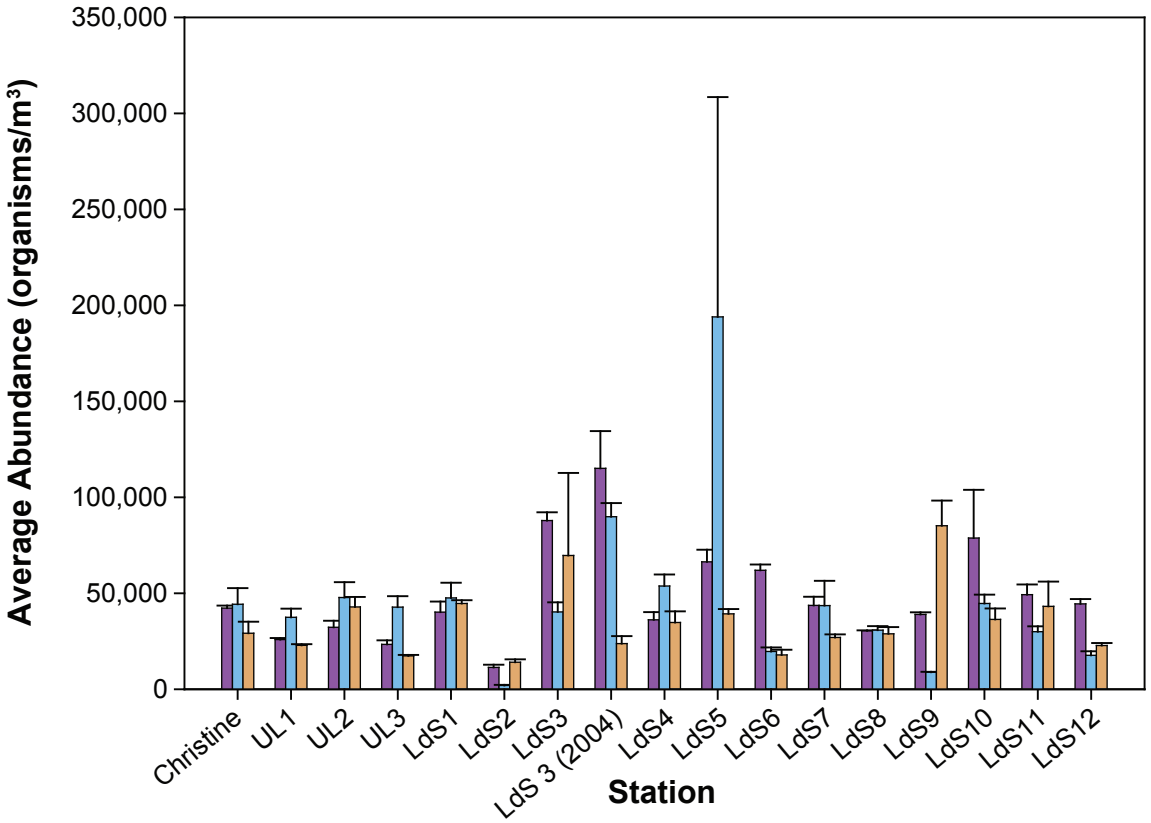
3.6.4 Zooplankton Diversity

Average Shannon Diversity index values ranged from 0.70 at LdS2 (September 2006) to 1.36 at LdS8 (September 2006) (Figure 3.6-3) (Table 3.6-1). Average Simpson Diversity index values ranged from 0.40 at LdS2 and LdS6 (September 2006) to 0.70 at Christine Lake (August 2006) and LdS8 (September 2006). The average number of zooplankton genera present at a site ranged from 6 at LdS10 (September 2006) to a maximum of 9 at many stations. The average number of genera comprising 90% of the assemblage ranged from 2 to 4 for all stations, while the average maximum percent dominance by one zooplankton genus ranged from 36% (LdS10, July 2006) to 74% (LdS2 and LdS6, September 2006). Low diversity values observed in September 2006 values at LdS2 and LdS6 were a reflection of the fact the zooplankton communities were comprised of 77 and 76% rotifers, respectively.

3.6.5 Zooplankton Summary

There were no spatial or seasonal patterns observed in Lac du Sauvage or the reference lake sites for zooplankton parameters (biomass, abundance, and diversity) with the exception of consistent low values at LdS2.

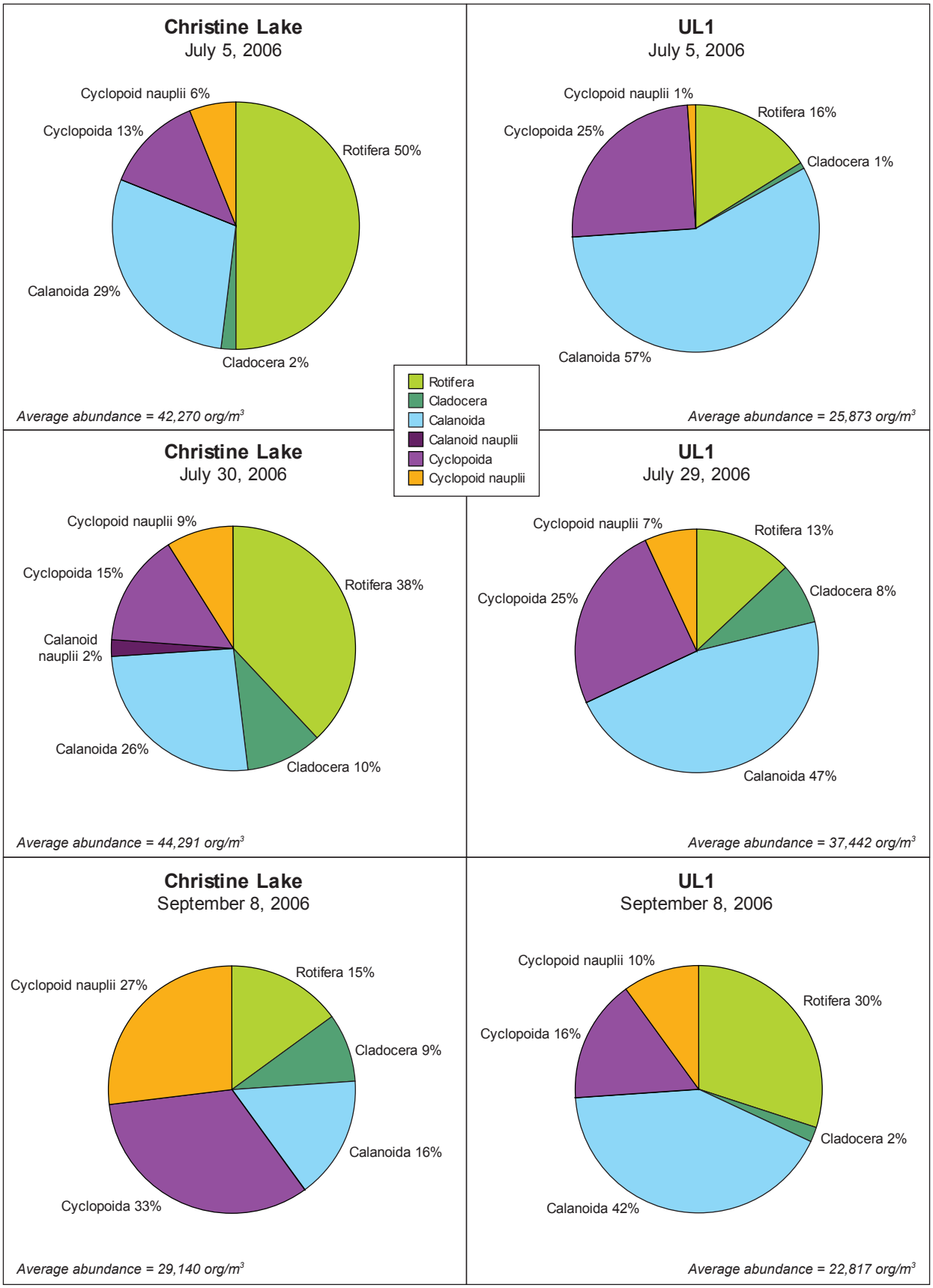




Note: Error bars represent standard error of the mean.

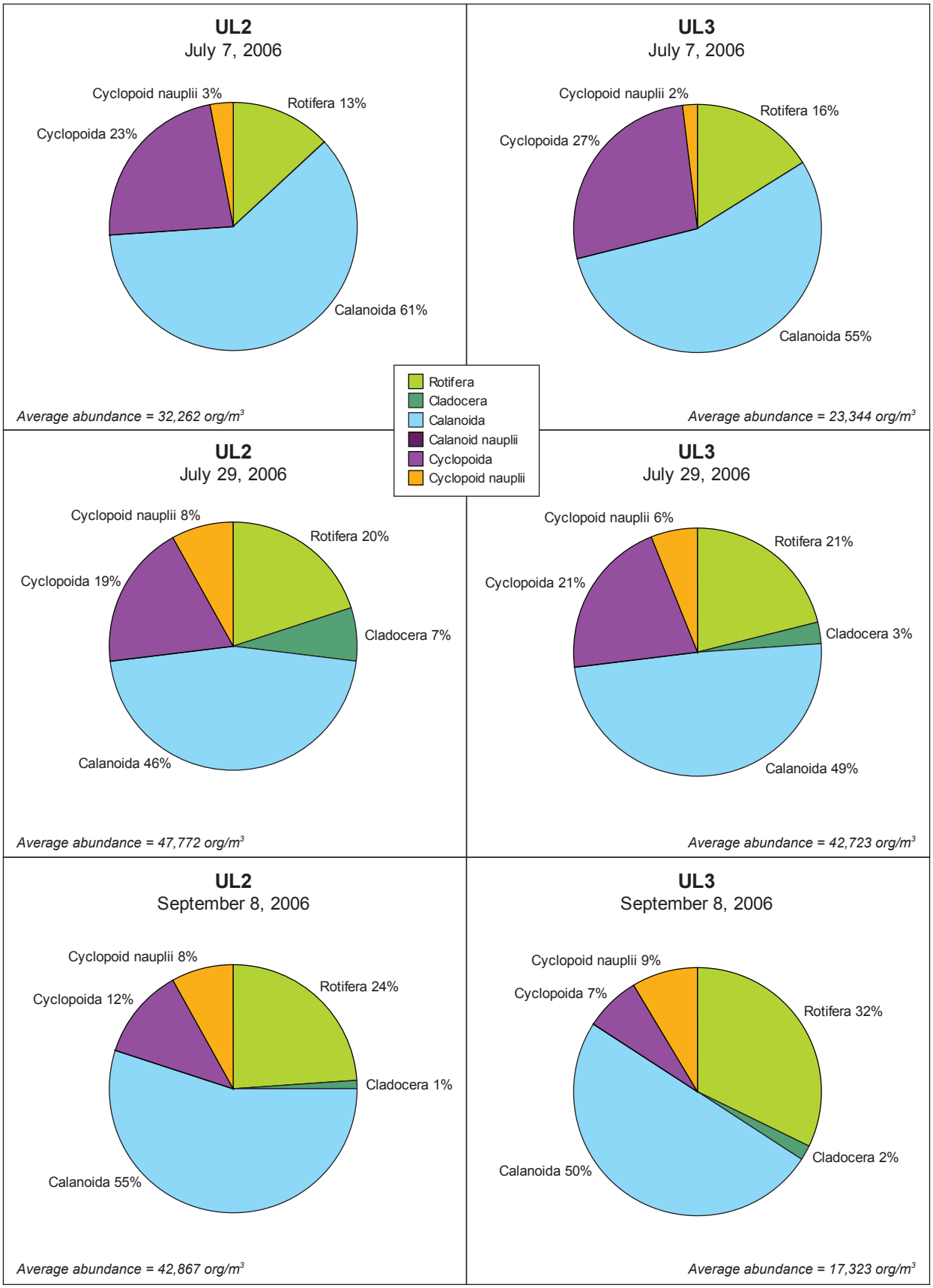
Biomass and Abundance of Zooplankton in Lac du Sauvage, Christine Lake, and Reference Sites, Open-Water Season 2004 and 2006

FIGURE 3.6-1



Taxonomic Composition of Zooplankton in Lac du Sauvage, Christine Lake, and Reference Sites, Open-water Season, 2004 and 2006

FIGURE 3.6-2a



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Taxonomic Composition of Zooplankton in Lac du Sauvage, Christine Lake, and Reference Sites, Open-water Season, 2004 and 2006

FIGURE 3.6-2b

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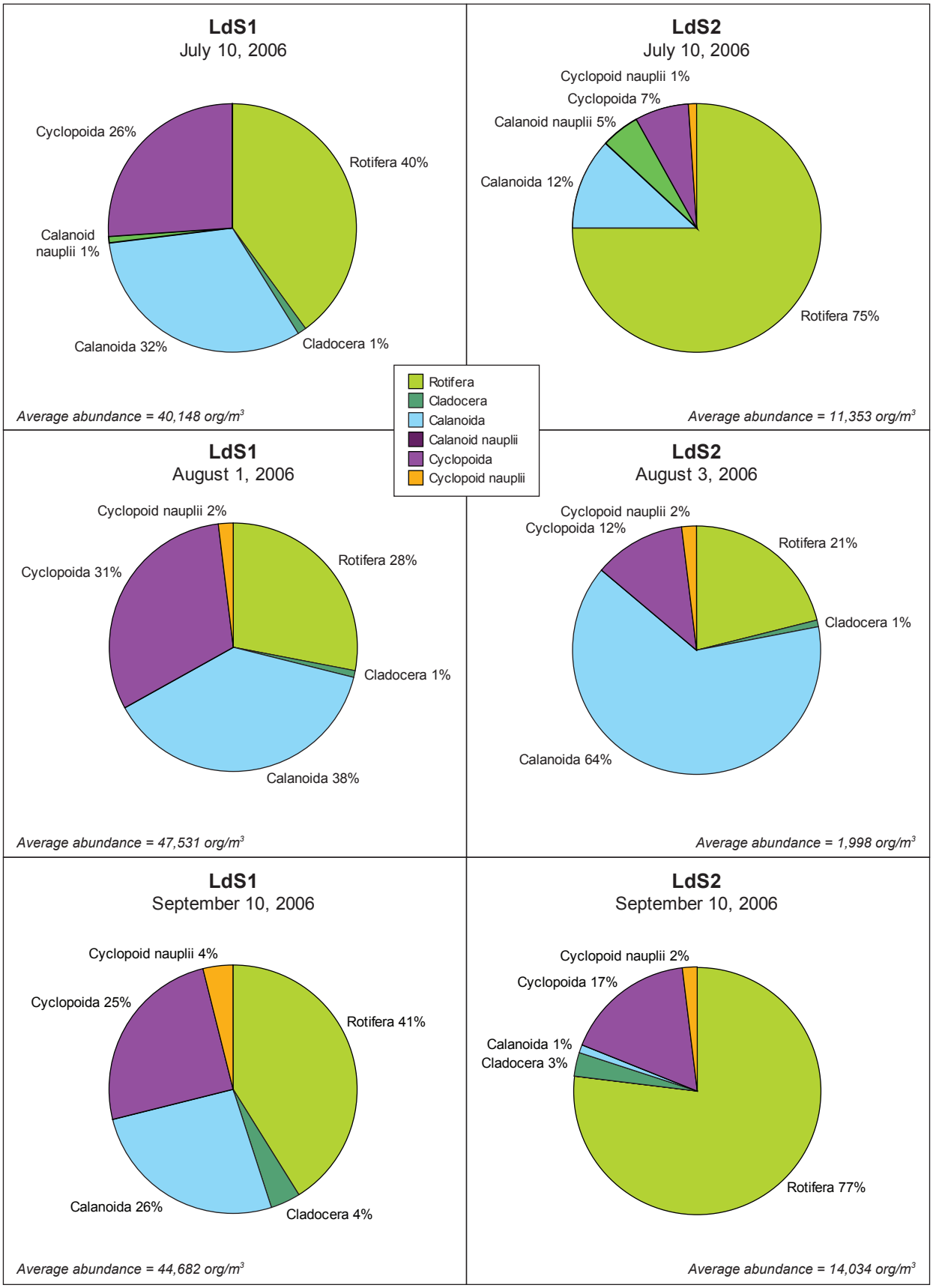
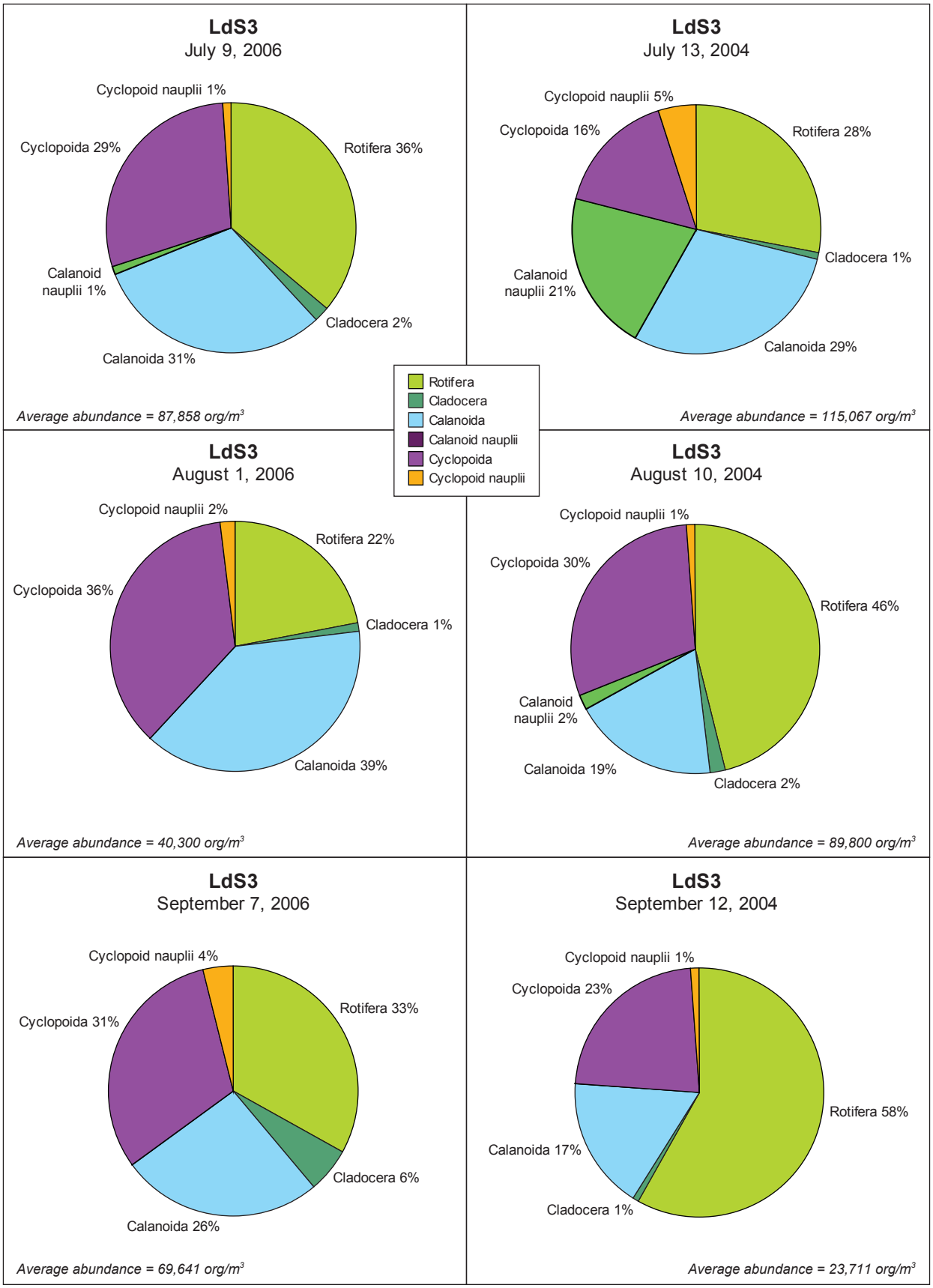
ai no. a15598w Job No. 770-9 18/01/2007-3:30pm Res_AP



Taxonomic Composition of Zooplankton in Lac du Sauvage, Christine Lake, and Reference Sites, Open-water Season, 2004 and 2006

FIGURE 3.6-2c

ai no. a15599w Job No. 770-9 18/01/2007-3:30pm Res_AP



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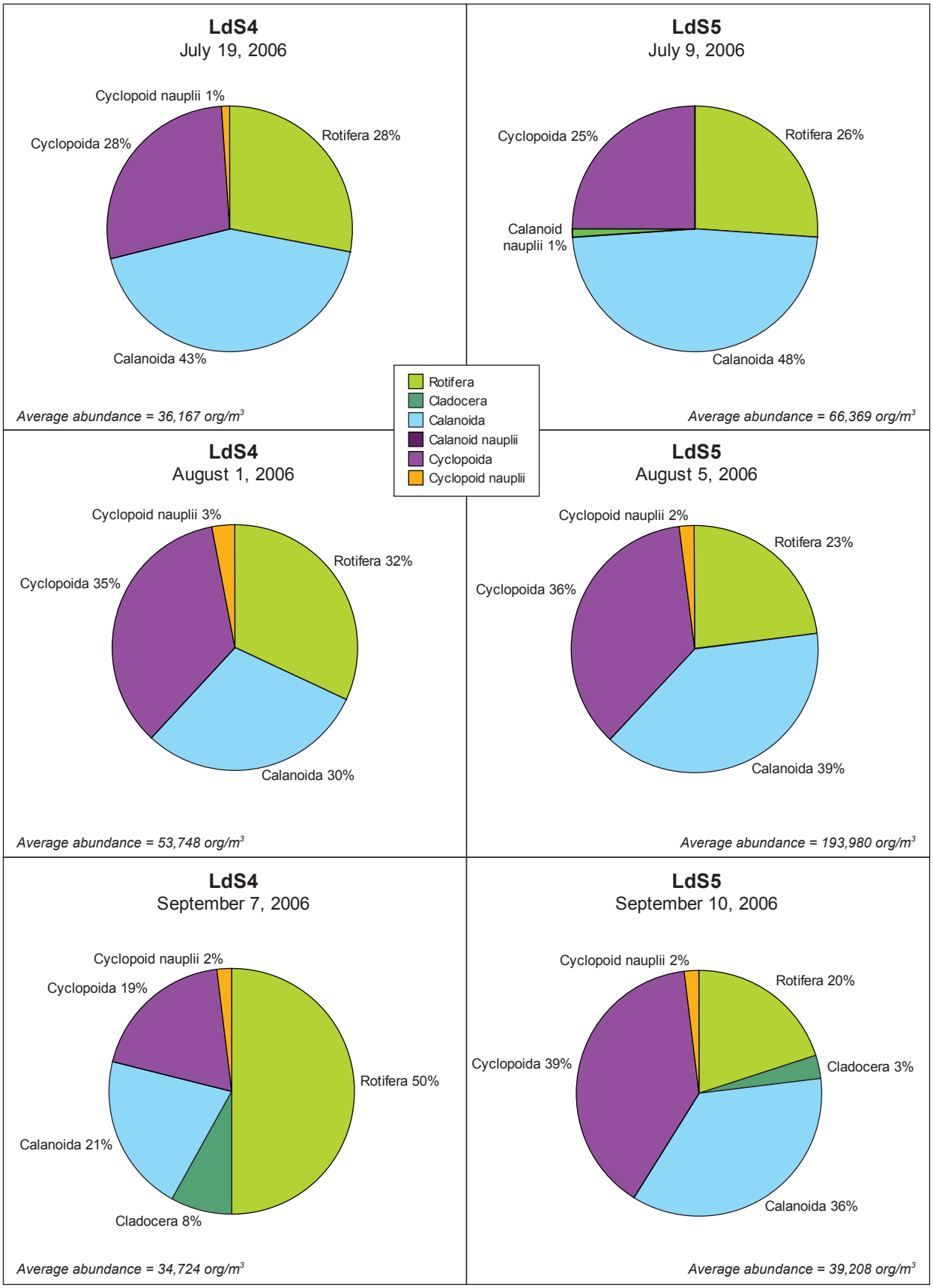
Taxonomic Composition of Zooplankton in Lac du Sauvage, Christine Lake, and Reference Sites, Open-water Season, 2004 and 2006

FIGURE 3.6-2d

Rescan™



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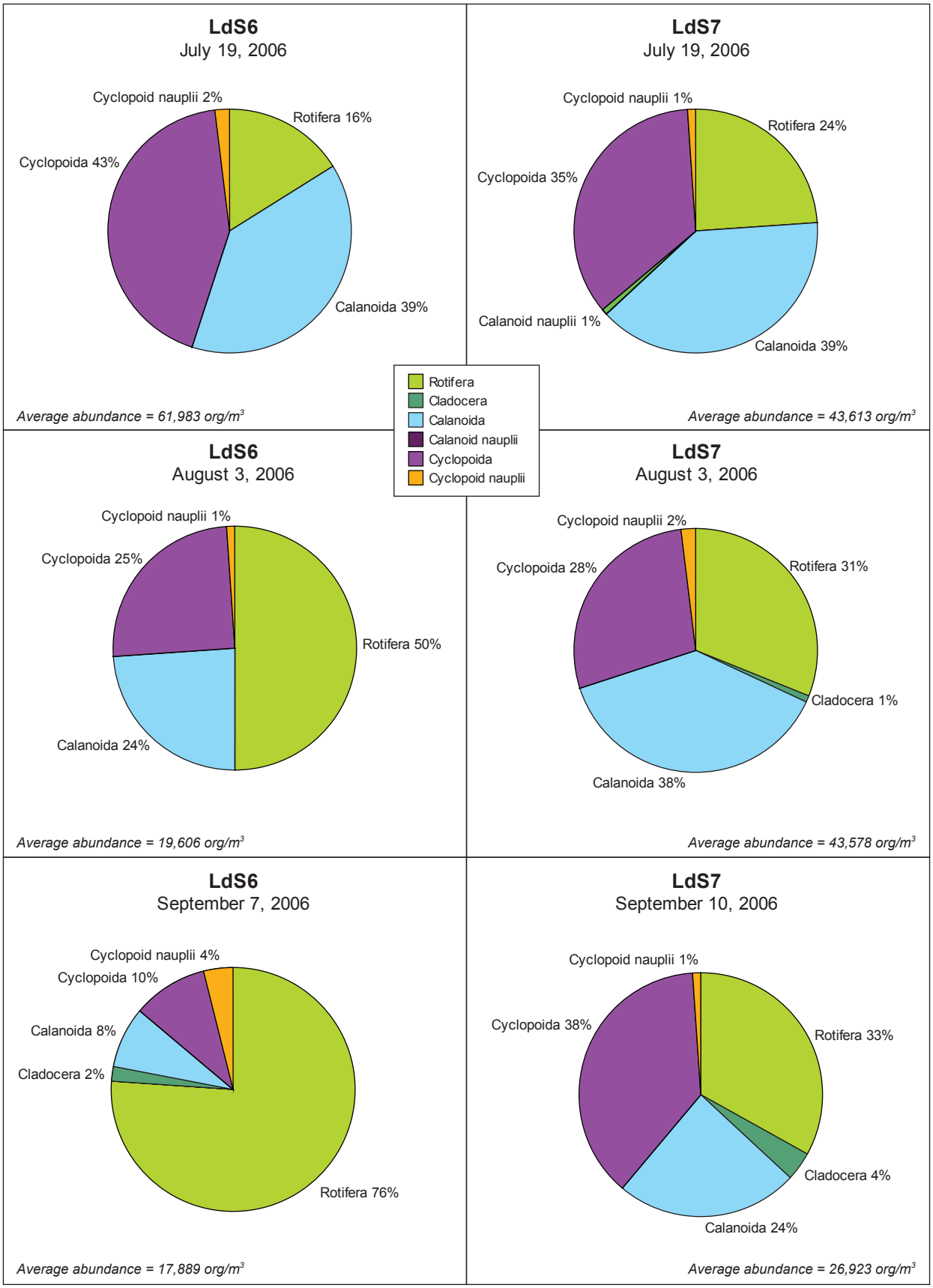
Taxonomic Composition of Zooplankton in Lac du Sauvage, Christine Lake, and Reference Sites, Open-water Season, 2004 and 2006

FIGURE 3.6-2e

Rescan™



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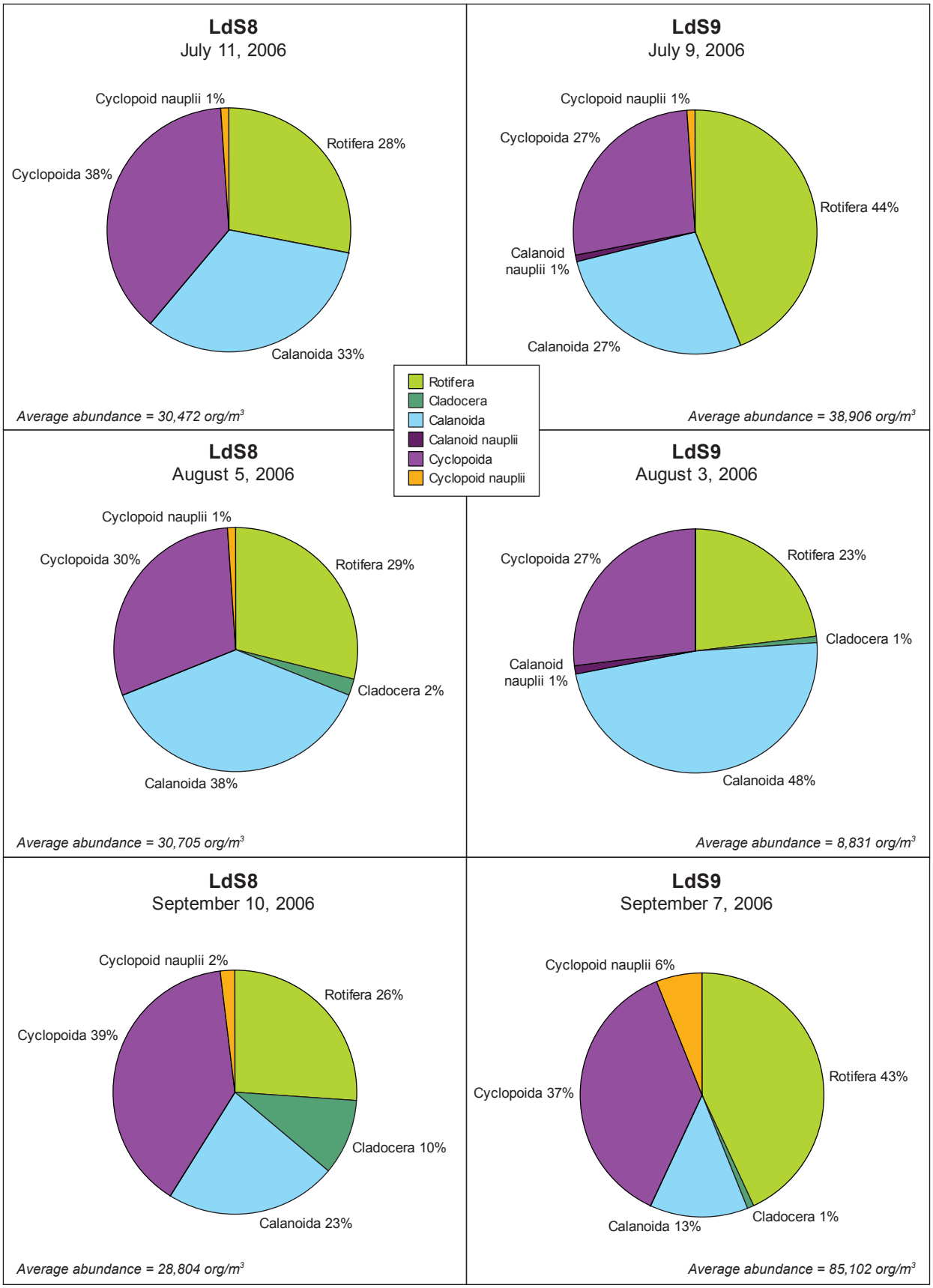
Taxonomic Composition of Zooplankton in Lac du Sauvage, Christine Lake, and Reference Sites, Open-water Season, 2004 and 2006

FIGURE 3.6-2f

Rescan™



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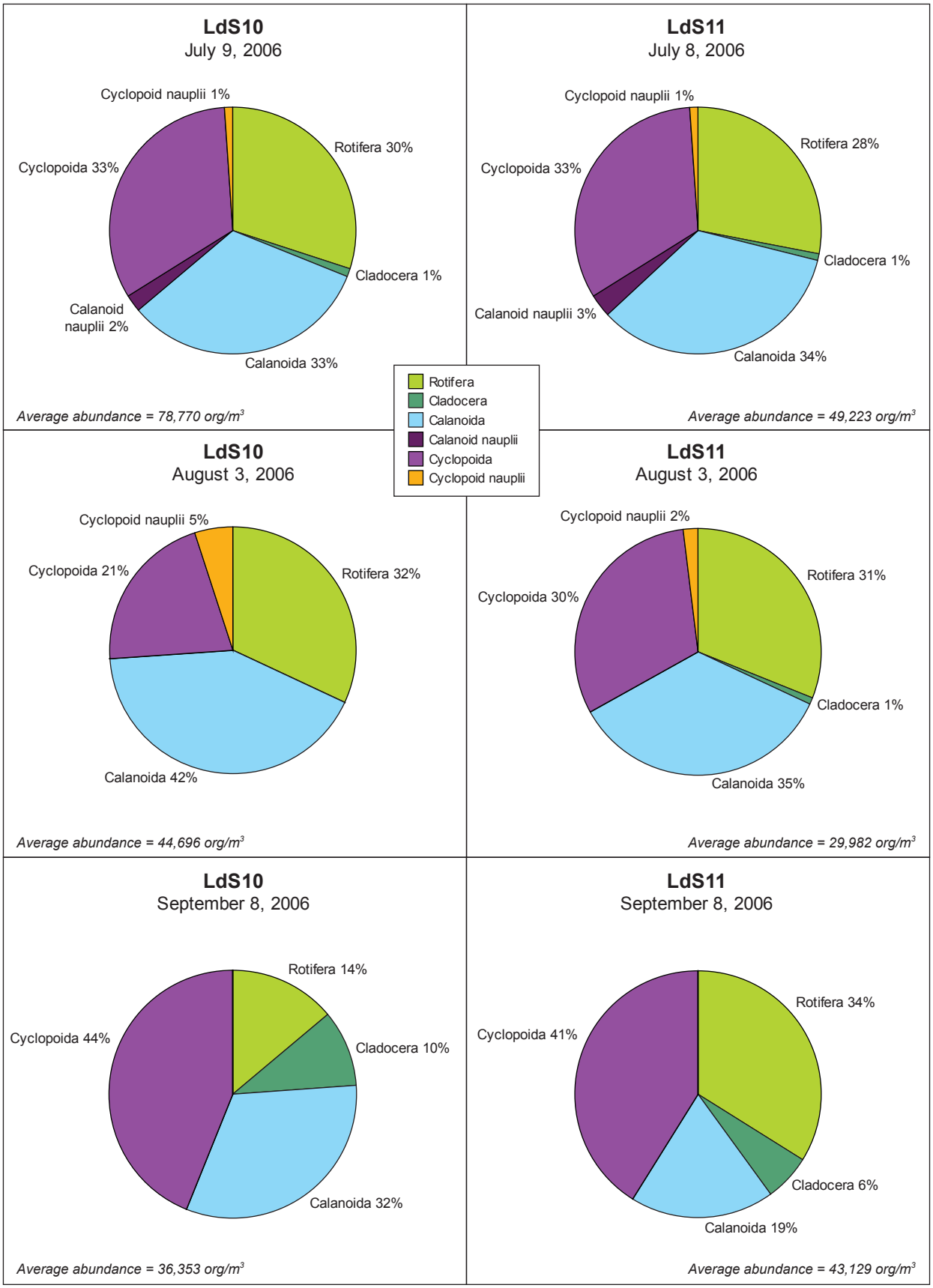
Taxonomic Composition of Zooplankton in Lac du Sauvage, Christine Lake, and Reference Sites, Open-water Season, 2004 and 2006

FIGURE 3.6-2g

Rescan™



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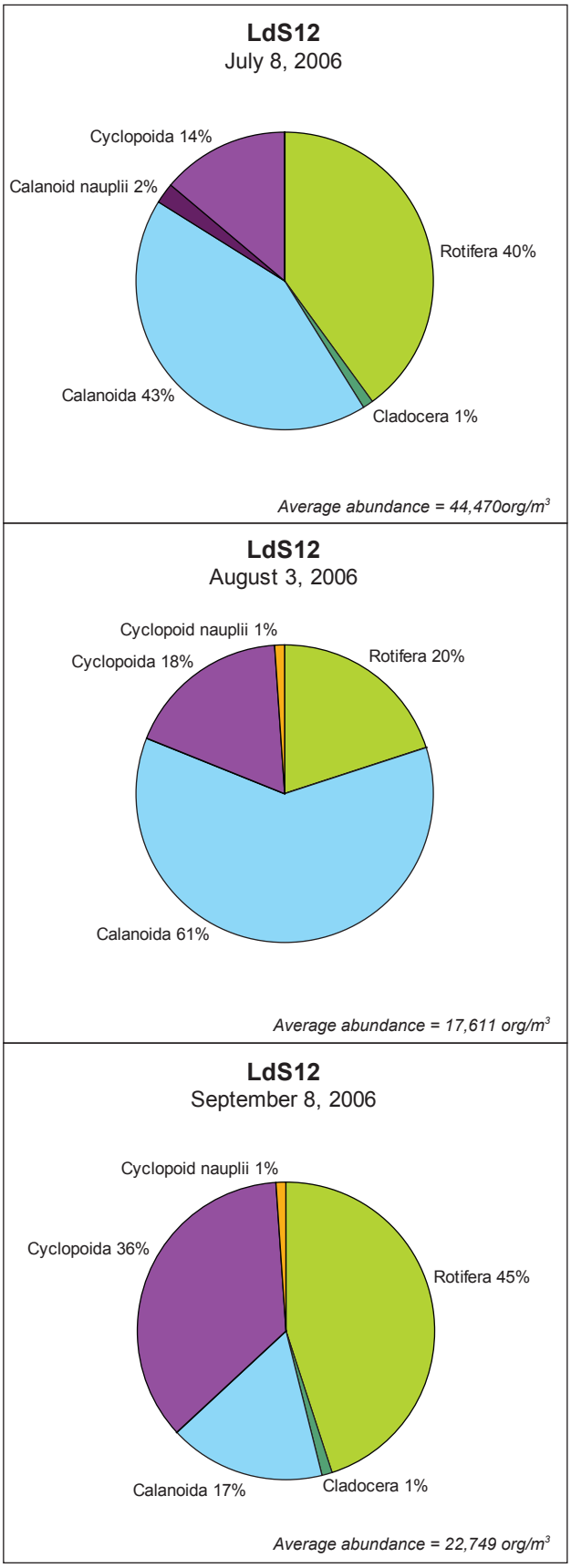
Taxonomic Composition of Zooplankton in Lac du Sauvage, Christine Lake, and Reference Sites, Open-water Season, 2004 and 2006

FIGURE 3.6-2h

Rescan™



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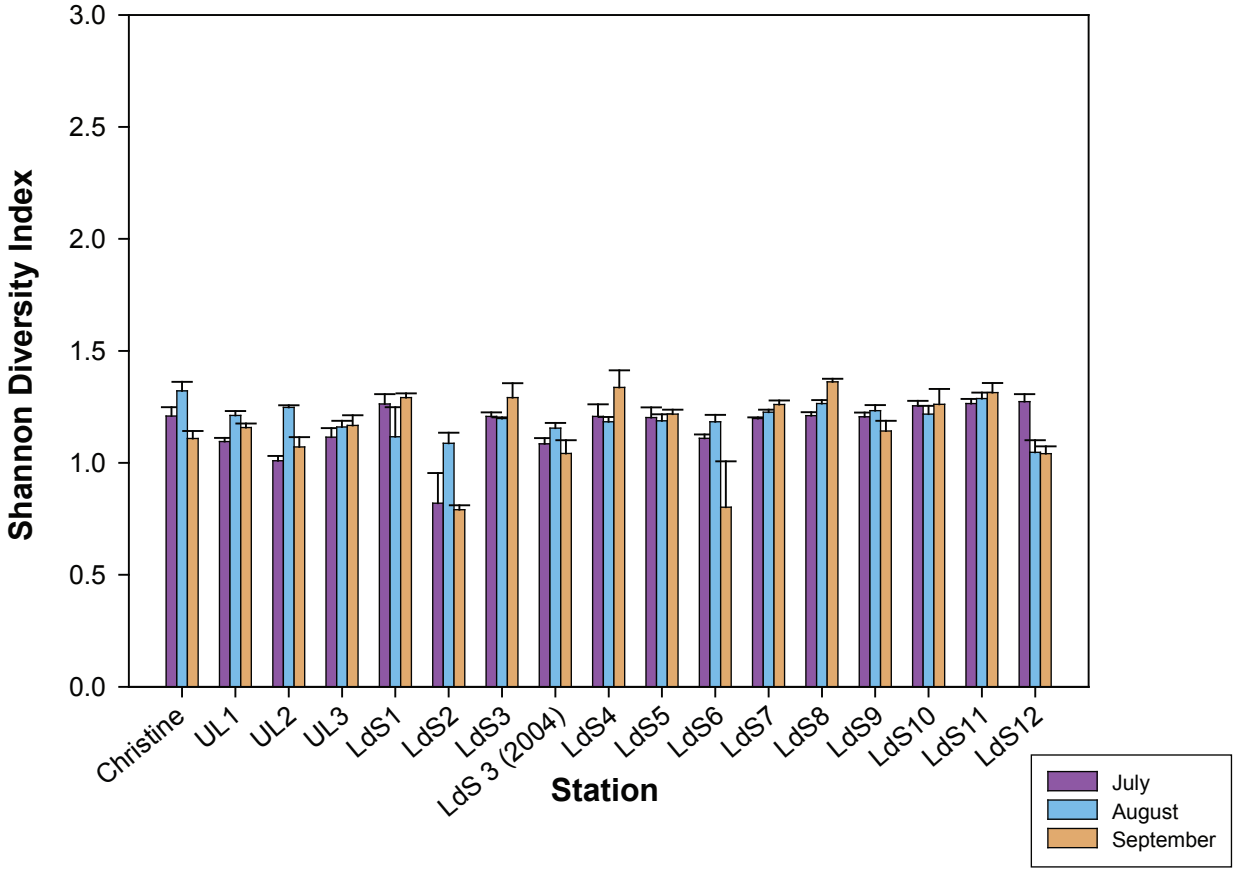
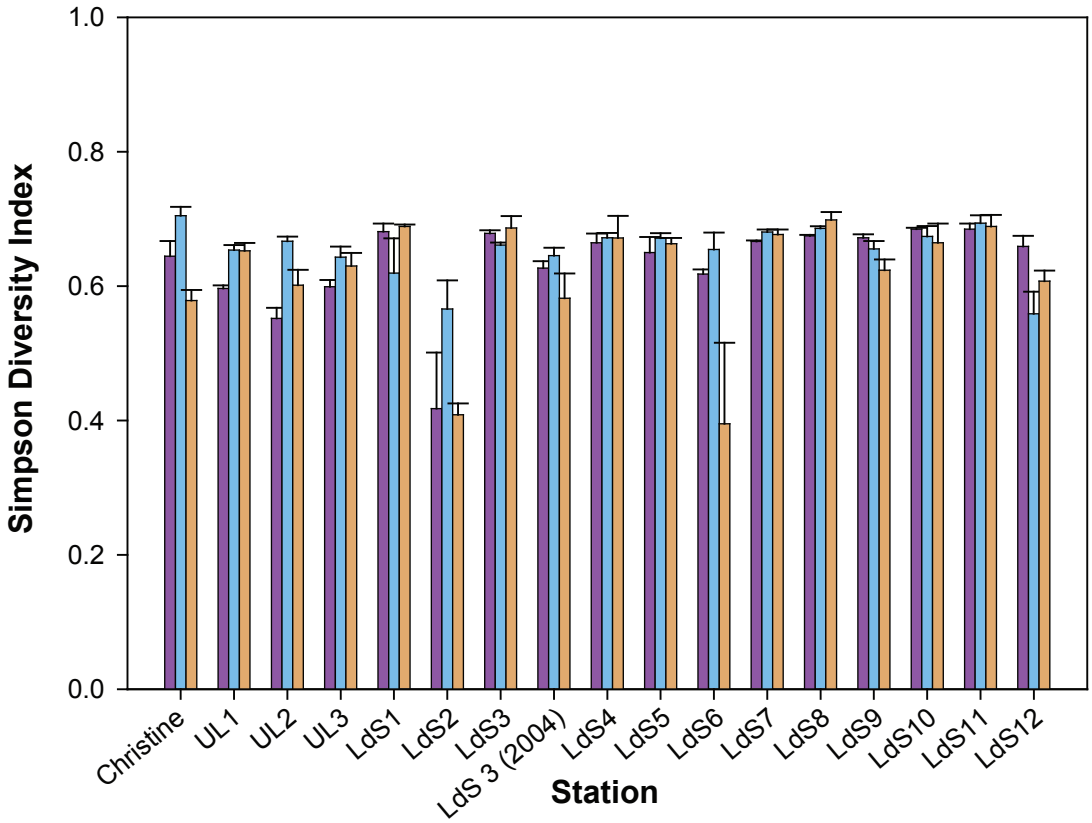
Taxonomic Composition of Zooplankton in Lac du Sauvage, Christine Lake, and Reference Sites, Open-water Season, 2004 and 2006

FIGURE 3.6-2i

Rescan™





Note: Error bars represent standard error of the mean.

Shannon and Simpson Diversity Indices for Zooplankton in Lac du Sauvage, Christine Lake, and Reference Sites, Open-Water Season 2004 and 2006

FIGURE 3.6-3

Table 3.6-1
Zooplankton Diversity Results for Lac du Sauvage, Christine Lake, and Reference Lake Sites

Station	Date	G	G (90%)	Maximum Dominance (%)	Shannon Diversity Index	Simpson Diversity Index
Christine Lake	5-Jul-06	9	3	48	1.21	0.64
	30-Jul-06	9	3	39	1.32	0.70
	8-Sep-06	8	3	61	1.11	0.58
UL1	7-Jul-06	9	3	56	1.10	0.60
	29-Jul-06	8	3	47	1.21	0.65
	8-Sep-06	8	3	44	1.16	0.65
UL2	7-Jul-06	8	3	61	1.01	0.55
	29-Jul-06	9	3	46	1.25	0.67
	8-Sep-06	9	3	54	1.07	0.60
UL3	7-Jul-06	8	3	55	1.11	0.60
	29-Jul-06	7	3	49	1.16	0.64
	8-Sep-06	9	3	50	1.17	0.63
LdS1	10-Jul-06	8	3	39	1.26	0.68
	1-Aug-06	8	3	48	1.12	0.62
	10-Sep-06	8	3	40	1.29	0.69
LdS2	10-Jul-06	8	2	73	0.82	0.42
	3-Aug-06	7	3	59	1.09	0.57
	10-Sep-06	8	2	74	0.79	0.41
LdS3	9-Jul-06	8	3	37	1.21	0.68
	1-Aug-06	8	3	42	1.20	0.66
	7-Sep-06	8	3	41	1.29	0.69
LdS3 (2004)	13-Jul-04	8	3	50	1.09	0.63
	10-Aug-04	9	3	46	1.15	0.65
	12-Sep-04	8	3	56	1.04	0.58
LdS4	19-Jul-06	8	3	43	1.21	0.66
	1-Aug-06	8	3	38	1.18	0.67
	7-Sep-06	9	4	48	1.34	0.67
LdS5	9-Jul-06	9	3	48	1.20	0.65
	5-Aug-06	8	3	38	1.19	0.67
	10-Sep-06	7	3	42	1.22	0.66
LdS6	19-Jul-06	8	3	50	1.11	0.62
	3-Aug-06	7	3	45	1.18	0.65
	7-Sep-06	9	2	74	0.80	0.40
LdS7	19-Jul-06	8	3	41	1.20	0.67
	3-Aug-06	8	3	37	1.23	0.68
	10-Sep-06	8	3	40	1.26	0.68
LdS8	11-Jul-06	9	3	39	1.21	0.67
	5-Aug-06	8	3	38	1.26	0.69
	10-Sep-06	9	3	42	1.36	0.70
LdS9	9-Jul-06	8	3	42	1.21	0.67
	3-Aug-06	8	3	48	1.23	0.66
	7-Sep-06	8	3	49	1.14	0.62
LdS10	9-Jul-06	9	3	36	1.25	0.68
	3-Aug-06	8	3	42	1.22	0.67
	8-Sep-06	6	3	45	1.26	0.66
LdS11	8-Jul-06	8	3	37	1.26	0.68
	3-Aug-06	8	3	38	1.29	0.69
	8-Sep-06	7	3	41	1.31	0.69
LdS12	8-Jul-06	8	3	48	1.27	0.66
	3-Aug-06	8	3	61	1.05	0.56
	8-Sep-06	7	3	52	1.04	0.61

Note: G is the number of genera present at a site

G (90%) is the number of genera comprising 90% of the assemblage

Maximum dominance is the maximum percent dominance by one genus at a site

3.7 Lake Benthos

Lake benthos parameters (density and dipteran diversity) were monitored at one station in Christine Lake, one station in Ursula Lake, and twelve stations in Lac du Sauvage. Only one station was sampled in Ursula Lake due to the presence of a rocky substrate at the other two stations. Samples were collected from all stations in August of 2006 and from one station (LdS3) in August of 2004. All samples were collected in triplicate. Stations UL3, LdS2, LdS4, LdS6, LdS9, and LdS12 were shallow water stations (<5 m). Stations LdS1, LdS7, LdS10, and Christine Lake were mid-depth stations (5 to 10 m). Stations LdS3, LdS5, LdS8, and LdS11 were deep water stations (>10 m). Density data can be found in Appendix 3.7-1 and lake benthos taxonomic results can be found in Appendix 3.7-2.

3.7.1 Lake Benthos Density

Average lake benthos density ranged from 504 organisms/m^2 (LdS3 2006) to 11,926 organisms/m^2 (LdS9 2006) (Figure 3.7-1). The lowest single replicate value was 311 organisms/m^2 (LdS3 2006) and the highest single replicate value was 22,533 organisms/m^2 (LdS9 2006). LdS3 is characterized as a deep water station (>10 m) while LdS9 is characterized as a shallow water station (<5 m). This would account for the large density range observed between these stations.

3.7.2 Lake Benthos Taxonomic Composition

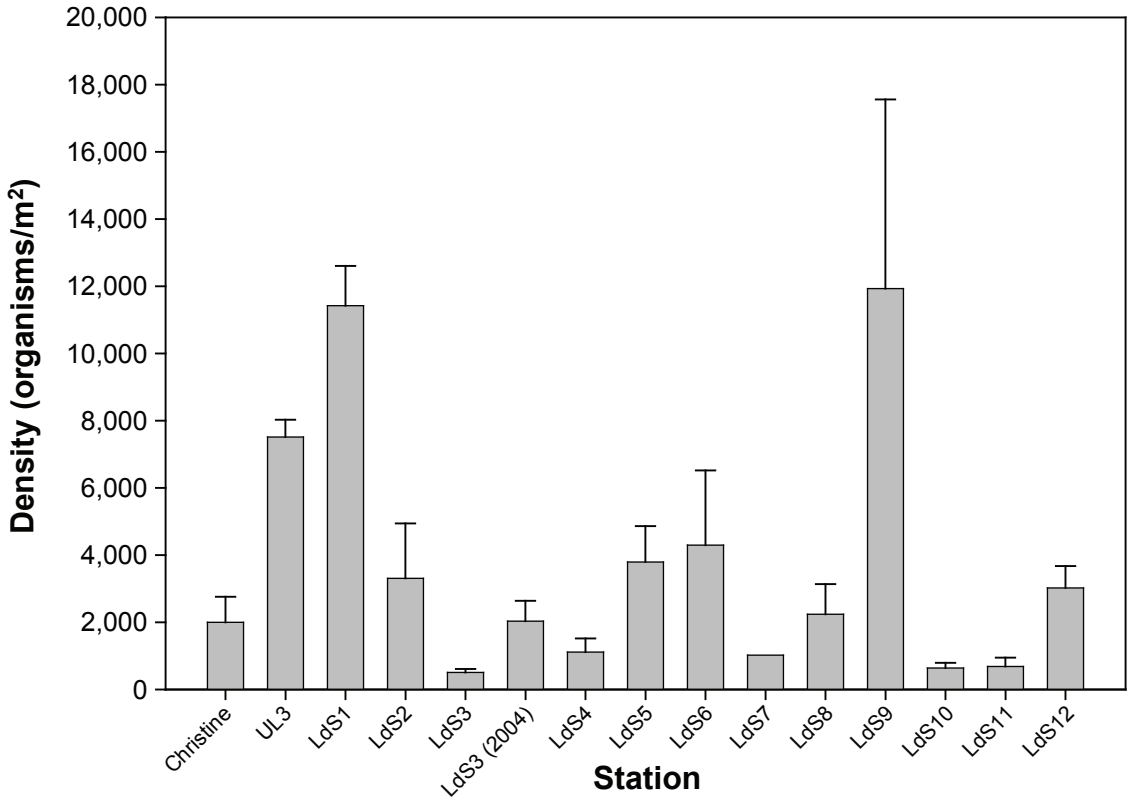
Dipterans were the predominant group in the benthos assemblage at 13 of the 15 sites sampled (Figure 3.7-2), comprising 20% to 78% of the community assemblages. The exceptions to this were LdS1 and LdS3 (2006) in which coelenterates were predominant (52% and 65%, respectively). Coelenterates were found in large proportions at many stations, making up 2 to 65% of the community assemblages. Molluscs were found in the benthos communities at all stations, comprising 2% to 34%. Other groups present in smaller proportions (<10%) are oligochaetes, cladocerans, arachnids, nematodes, copepods, hemipterans, trichopterans, and ostracods.

3.7.3 Lake Benthos Dipteran Diversity

Average Shannon dipteran diversity index values ranged from 0.58 (LdS3 2006) to 1.71 (LdS12 2006) (Figure 3.7-3). Average Simpson dipteran diversity index values ranged from 0.37 (LdS3 2006) to 0.78 (LdS12 2006). The average number of dipteran genera at a station ranged from 2 genera (LdS3 2006) to 9 genera (LdS6 2006) (Table 3.7-1). The average number of genera comprising 90% of the assemblage ranged from 2 (LdS3 2006) to 6 (LdS2 and LdS6 2006), while the average maximum dominance by one dipteran genus ranged from 34% (LdS12 2006) to 67% (LdS3 2006).

3.7.4 Lake Benthos Summary

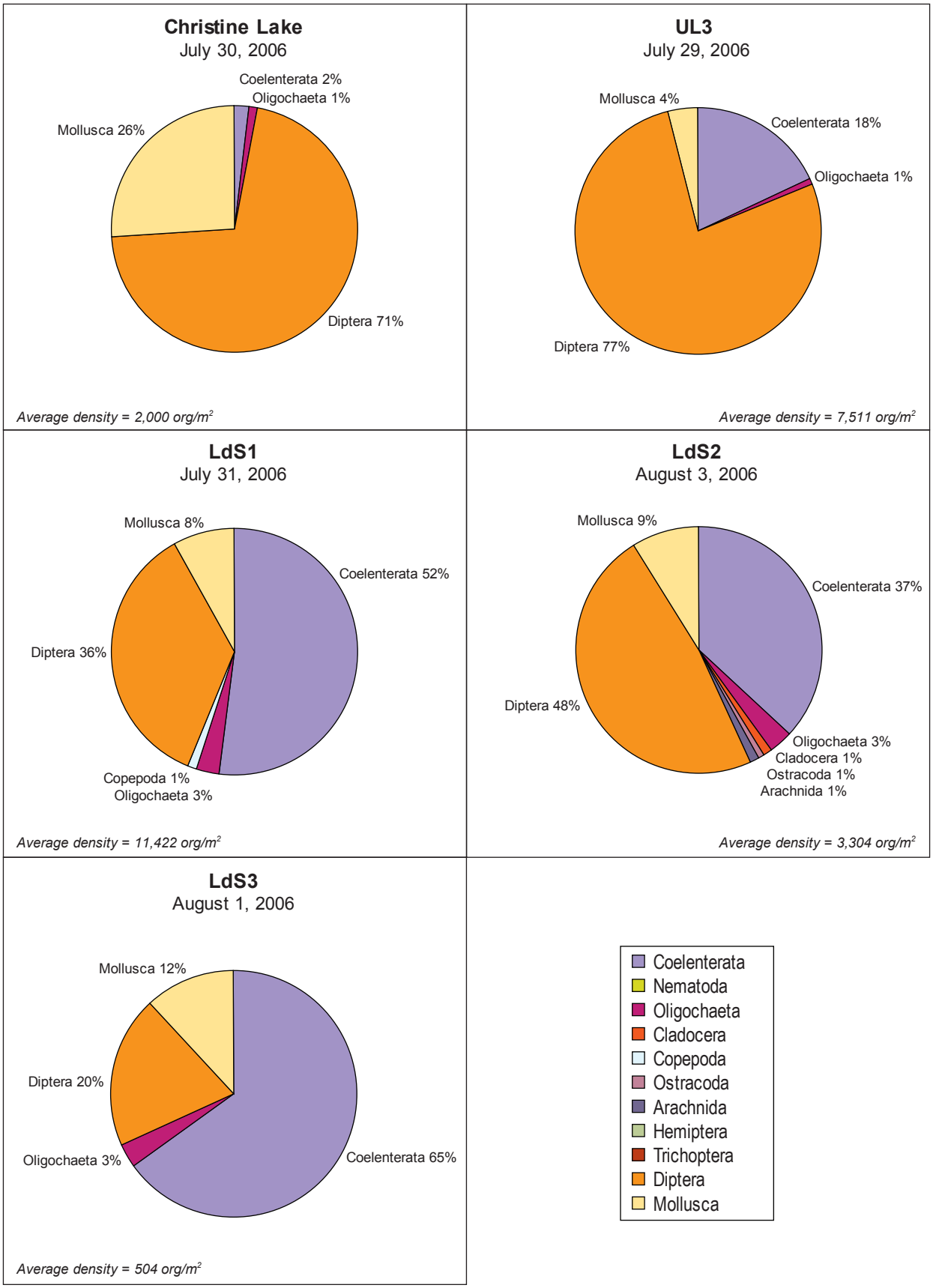
Generally, the shallow stations had higher benthos densities and dipteran diversity index values, while the deep stations had lower densities and dipteran diversity index values. Dipterans comprised the majority of the community at most stations, while coelenterates and molluscs were also found in large proportions at many sites.



Notes: Error bars represent standard error of the mean.

Lake Benthos Density in Lac du Sauvage, Christine Lake, and Reference Lake Sites, Open-Water Season 2004 and 2006

FIGURE 3.7-1



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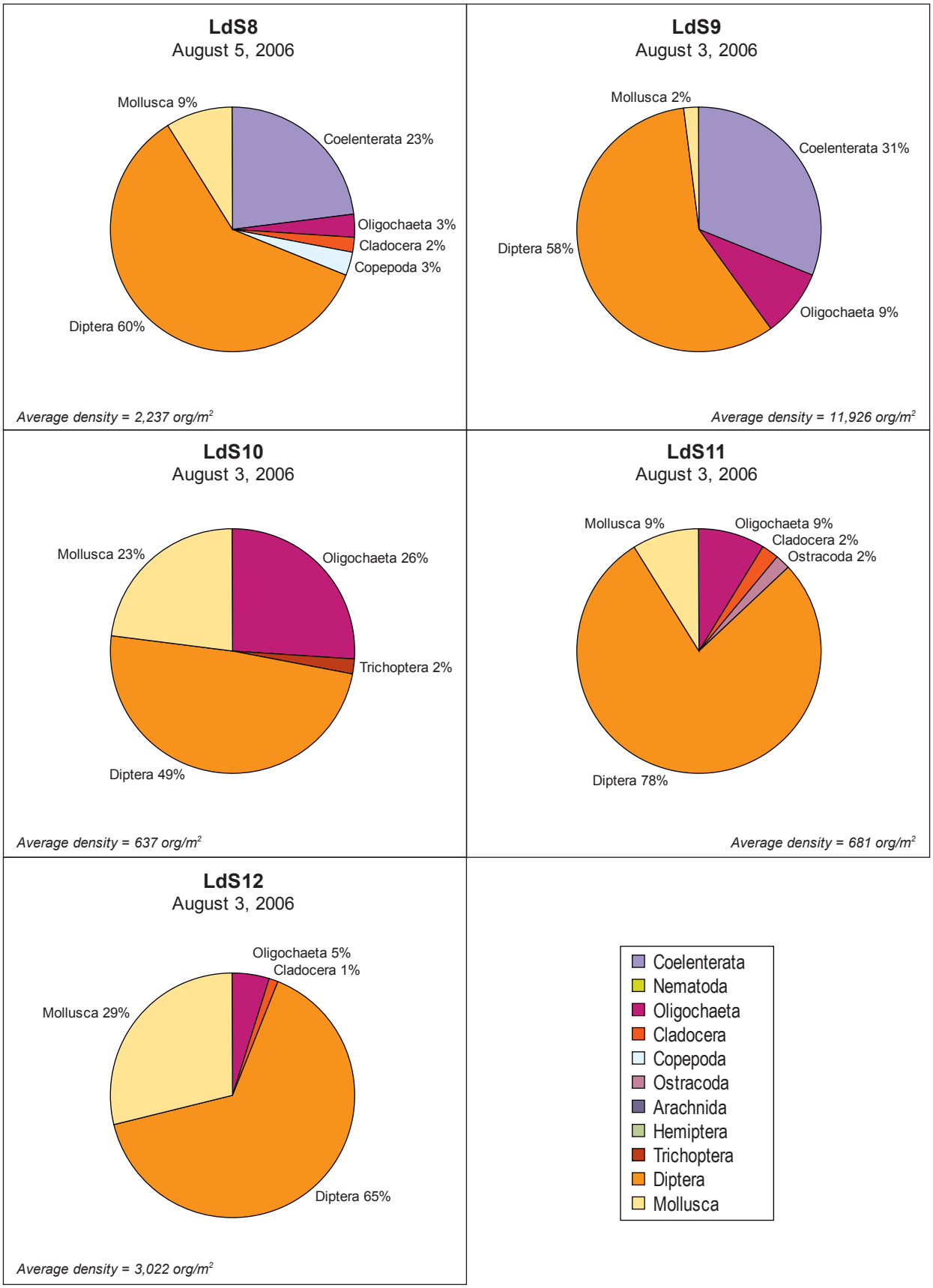
Taxonomic Composition of Lake Benthos in Lac du Sauvage, Christine Lake, and Reference Sites, August 2004 and 2006

FIGURE 3.7-2a

Rescan™

Taxonomic Composition of Lake Benthos in Lac du Sauvage, Christine Lake, and Reference Sites, August 2004 and 2006

FIGURE 3.7-2b



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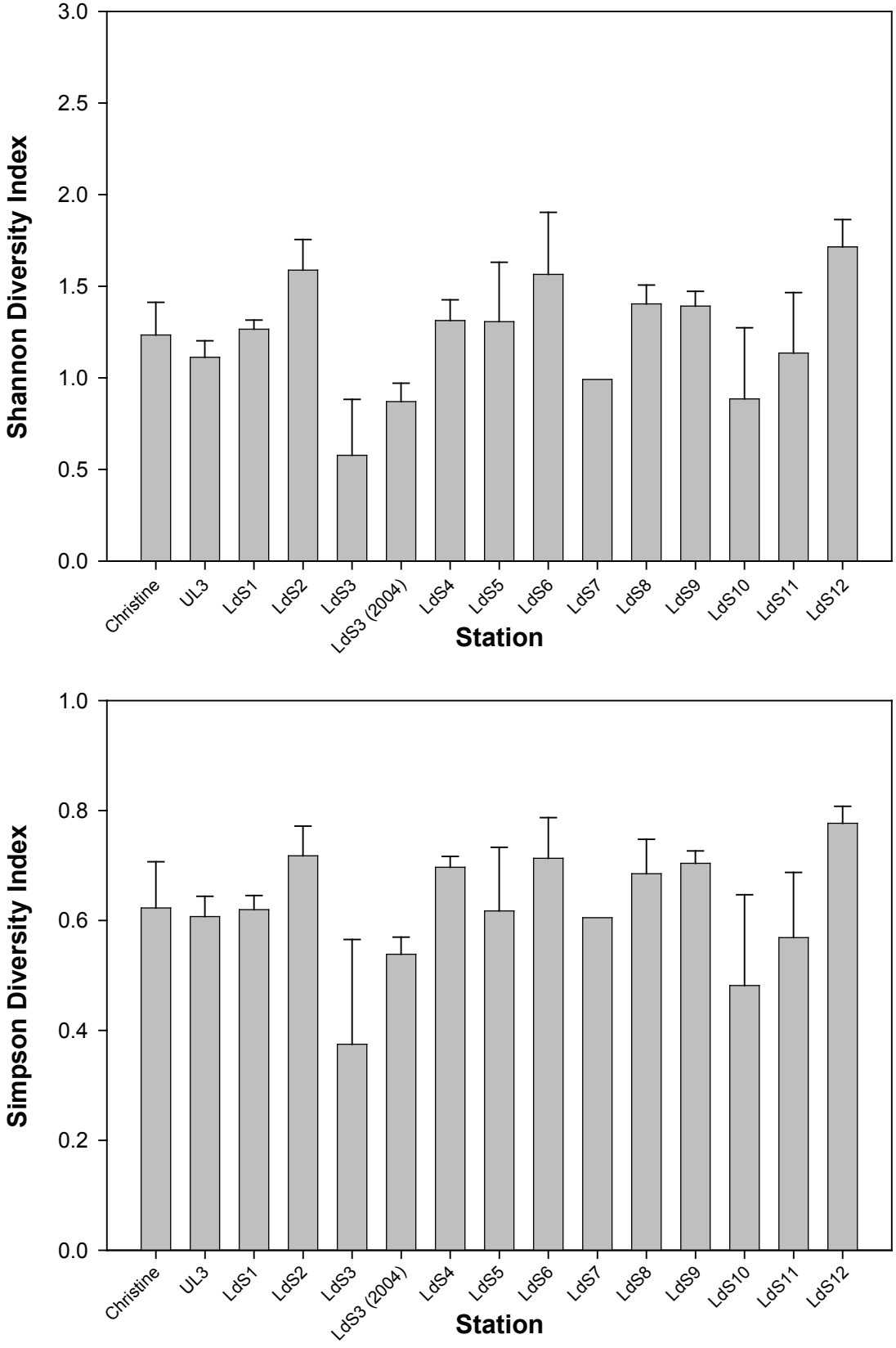
Taxonomic Composition of Lake Benthos in Lac du Sauvage, Christine Lake, and Reference Sites, August 2004 and 2006

FIGURE 3.7-2c

Rescan™



Notes: Error bars represent standard error of the mean.

Shannon and Simpson Dipteran Diversity Indices for Lake Benthos in Lac du Sauvage, Christine Lake, and Reference Lake Sites, Open-Water Season 2004 and 2006

FIGURE 3.7-3

Table 3.7-1
Lake Benthos Dipteran Diversity Results for
Lac du Sauvage, Christine Lake, and Reference Lake Sites

Station	Date	G	G (90%)	Maximum Dominance (%)	Shannon Diversity Index	Simpson Diversity Index
Christine	30-Jul-06	5	4	55	1.23	0.62
UL3	29-Jul-06	7	3	48	1.11	0.61
LdS1	31-Jul-06	7	4	56	1.27	0.62
LdS2	3-Aug-06	8	6	44	1.59	0.72
LdS3	1-Aug-06	2	2	67	0.58	0.37
LdS3	10-Aug-04	3	3	56	0.87	0.54
LdS4	1-Aug-06	5	4	37	1.31	0.70
LdS5	5-Aug-06	7	4	51	1.31	0.62
LdS6	3-Aug-06	9	6	39	1.56	0.71
LdS7	3-Aug-06	3	3	45	0.99	0.61
LdS8	5-Aug-06	6	4	45	1.40	0.69
LdS9	3-Aug-06	6	4	44	1.39	0.70
LdS10	3-Aug-06	3	3	61	0.89	0.48
LdS11	3-Aug-06	5	4	59	1.14	0.57
LdS12	3-Aug-06	8	5	34	1.71	0.78

Note: G is the number of genera present at a site
G (90%) is the number of genera comprising 90% of the assemblage
Maximum dominance is the maximum percent dominance by one genus at a site

3.8 Shoreline Benthos

Shoreline benthos parameters (density and dipteran diversity) were measured in two different habitats: a littoral habitat just off of the shoreline, and a boulder habitat among the boulders at the perimeter of the lake in order to characterize habitat that may be lost due to dyke construction. Four stations (B1, B2, B4, B5) were sampled in the littoral habitat with three replicate samples collected from each station, and five stations (B1 to B5) were sampled in the boulder habitats with five replicate samples collected from each station (Figure 2.1-1). Station B3 was not collected in the littoral habitat due to a rocky substrate preventing the collection of a sample. Density data can be found in Appendix 3.8-1 and shoreline benthos taxonomic results can be found in Appendix 3.8-2.

3.8.1 Shoreline Benthos Density

Littoral Habitat

Average benthos density ranged from 607 organisms/m^2 (B1) to 3,496 organisms/m^2 (B5). The lowest single replicate value was 311 organisms/m^2 (B2) and the highest single replicate value was 4,933 organisms/m^2 (B4) (Figure 3.8-1).

Boulder Habitat

Average benthos density ranged from 414 organisms/m^2 (B4) to 3,360 organisms/m2 (B3). The lowest single replicate value was 278 organisms/m^2 (B4) and the highest single replicate value was 9,311 organisms/m^2 (B3).

3.8.2 Shoreline Benthos Taxonomic Composition

Littoral Habitat

Dipterans were the predominant group in all four stations, comprising 47% to 58% of the benthos community (Figure 3.8-2). Molluscs were also well represented as 10% to 32% of the benthos community. Nematodes were also found at all sites in proportions of 6% to 18%. Other groups that were observed in smaller proportions (<10%) were oligochaetes, cladocerans, copepods, arachnids, and trichopterans.

Boulder Habitat

Dipterans were the predominant group in the benthos community at four of the five stations, comprising 48% to 85% of the community (Figure 3.8-3). The exception to this was B3 in which the predominant group in the benthos assemblage was cladocerans (50%). Cladocerans made up only 2% to 5% in the other stations. Oligochaetes were found at all stations, comprising 6% to 24% of the benthos community. Other groups found in smaller proportions (<10%) were coelenterates, nematodes, tardigrads, copepods, plecopterans, and hemipterans.

3.8.3 Shoreline Benthos Dipteran Diversity

Littoral Habitat

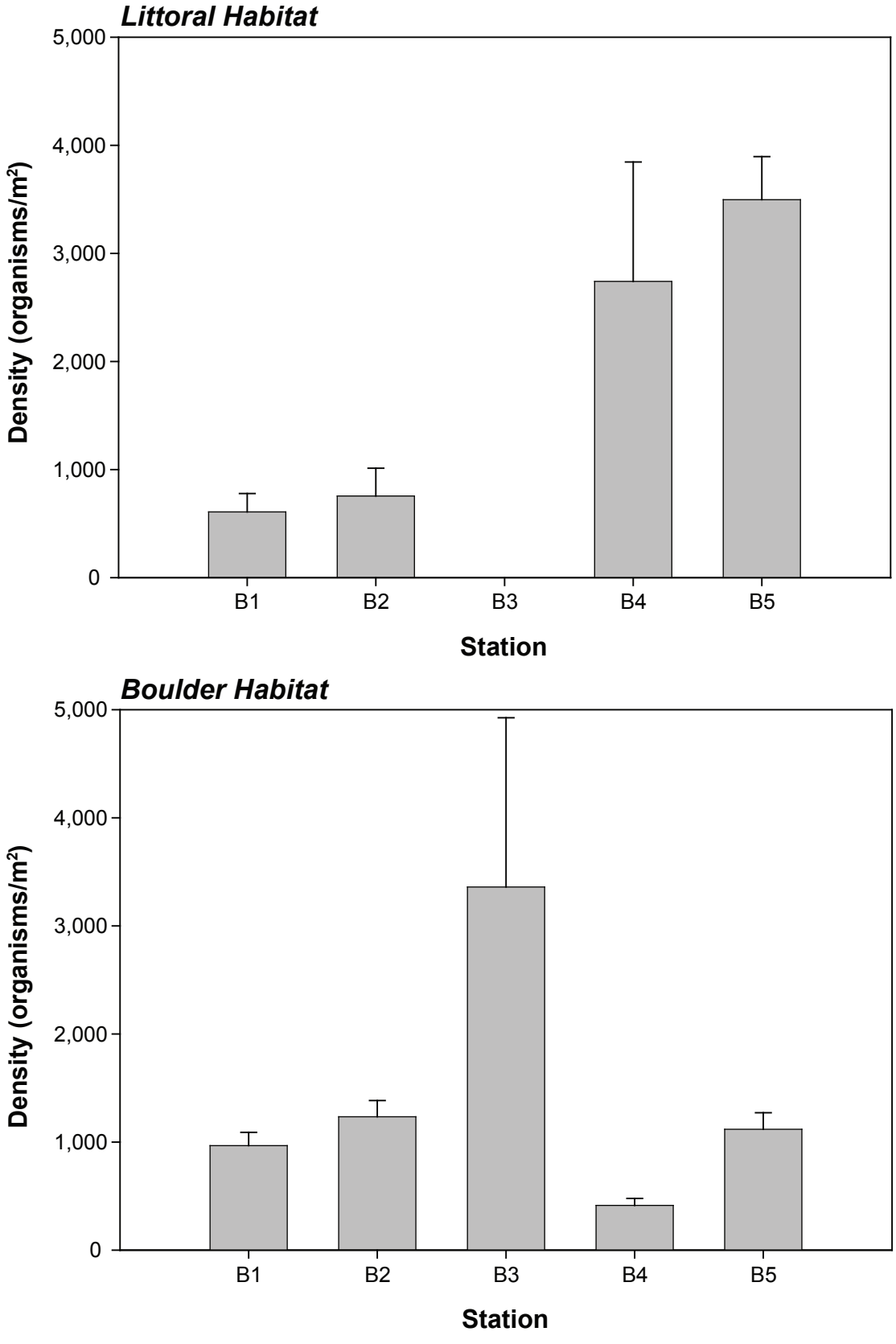
Average Shannon diversity index values for dipterans ranged from 0.50 (B1) to 2.03 (B5) (Figure 3.8-4) (Table 3.8-1). Average Simpson diversity index values for dipterans ranged from 0.32 (B1) to 0.84 (B5). The average number of dipteran genera at a site ranged from 2 genera (B1) to 10 genera (B5). The average number of genera comprising 90% of the assemblage ranged from 2 (B1) to 7 (B5), while the maximum dominance of one dipteran genus ranged from 28% (B5) to 80% (B1).

Boulder Habitat

Average Shannon diversity index values for dipterans ranged from 0.06 (B2) to 0.24 (B4) (Figure 3.8-5) (Table 3.8-1). Average Simpson diversity index values for dipterans ranged from 0.02 (B2) to 0.12 (B4). The average number of dipteran genera at a site ranged from 2 to 3 for all sites. The average number of genera comprising 90% of the assemblage was 1 genus for all sites, while the maximum dominance of one dipteran genus ranged from 93 to 99% for all sites.

3.8.4 Shoreline Benthos Summary

Shoreline benthos densities had a wide range in values, both in the littoral and the boulder habitats. Dipterans were predominant in all but one site. The communities of the littoral sites were comprised of primarily dipterans, molluscs, and nematodes, while the communities of the boulder sites were comprised primarily of dipterans and oligochaetes. One station had a large number of cladocerans. Dipteran diversity index values were low in both habitats but lowest in the boulder sites, as the majority of the dipterans present belonged to only a few genera.



Notes: Error bars represent standard error of the mean.

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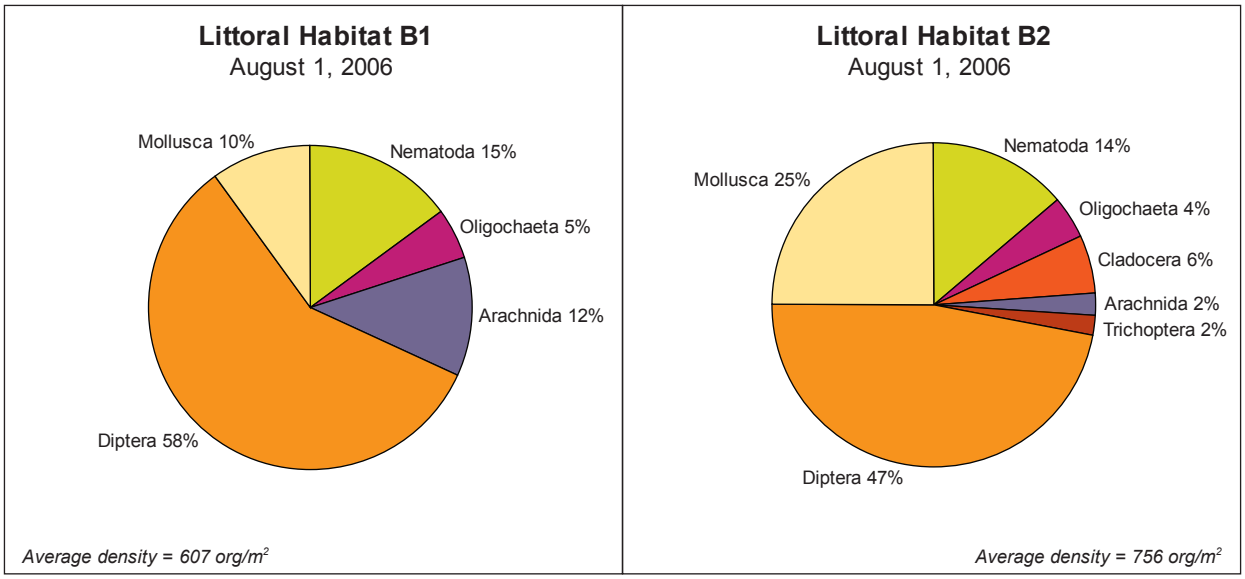
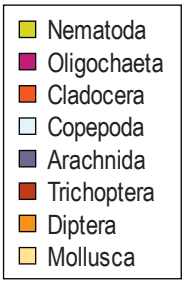
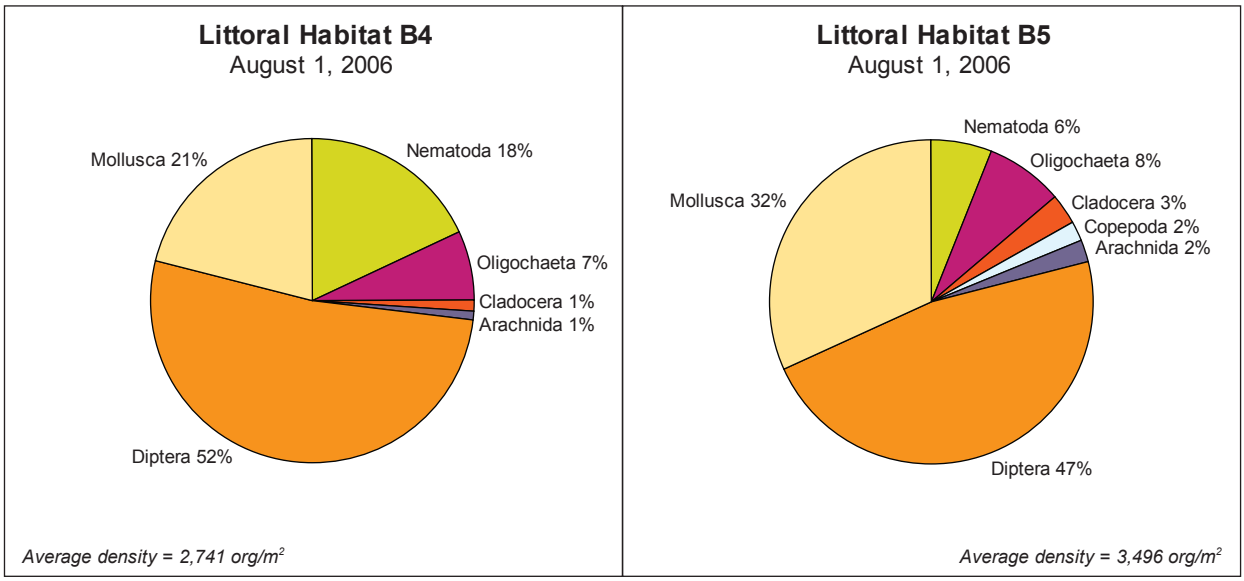
Shoreline Benthos Density in Lac du Sauvage Sites, Open-Water Season 2006

FIGURE 3.8-1

Rescan™







Taxonomic Composition of Shoreline Benthos in Littoral Habitat in Lac du Sauvage, August 2006

FIGURE 3.8-2

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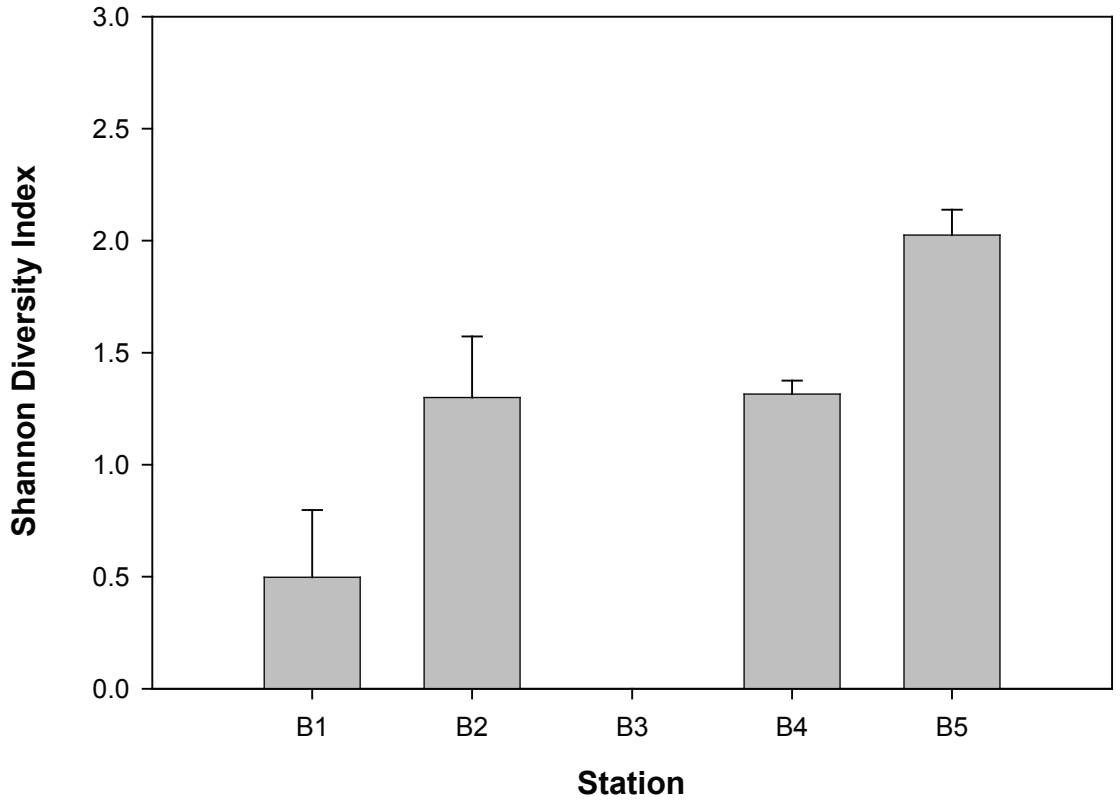
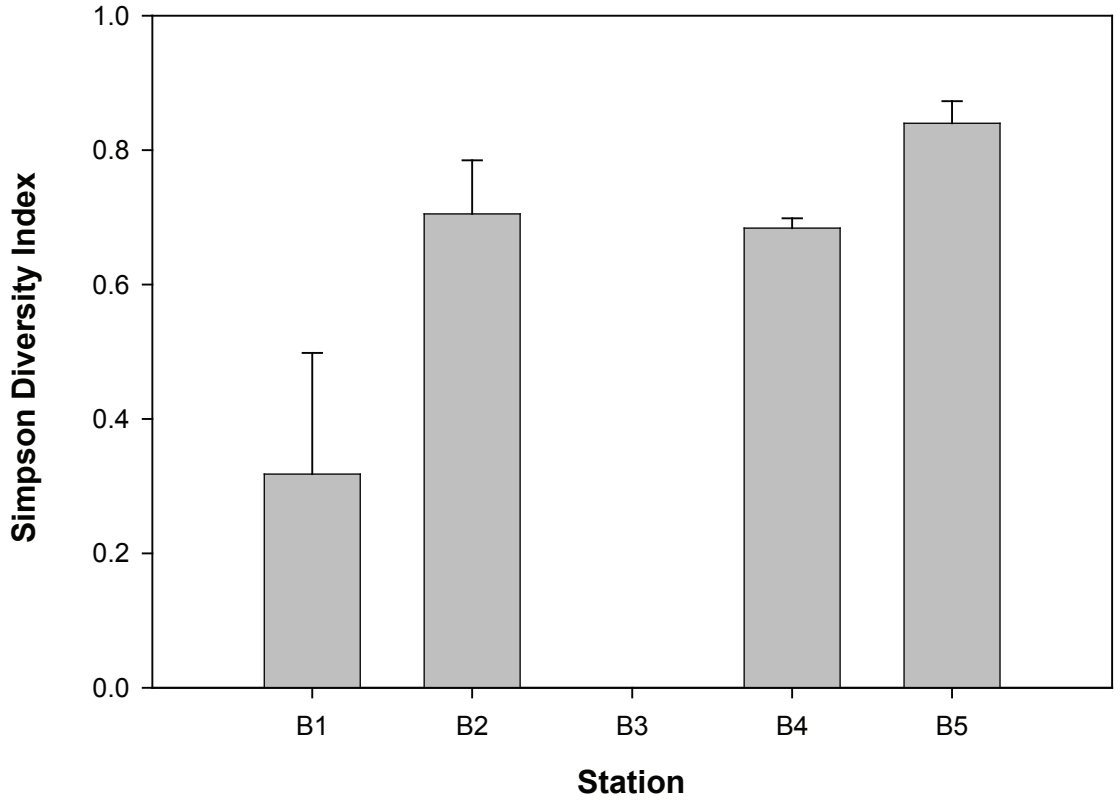
Taxonomic Composition of Shoreline Benthos in Boulder Habitat in Lac du Sauvage, August 2006

FIGURE 3.8-3

Rescan™

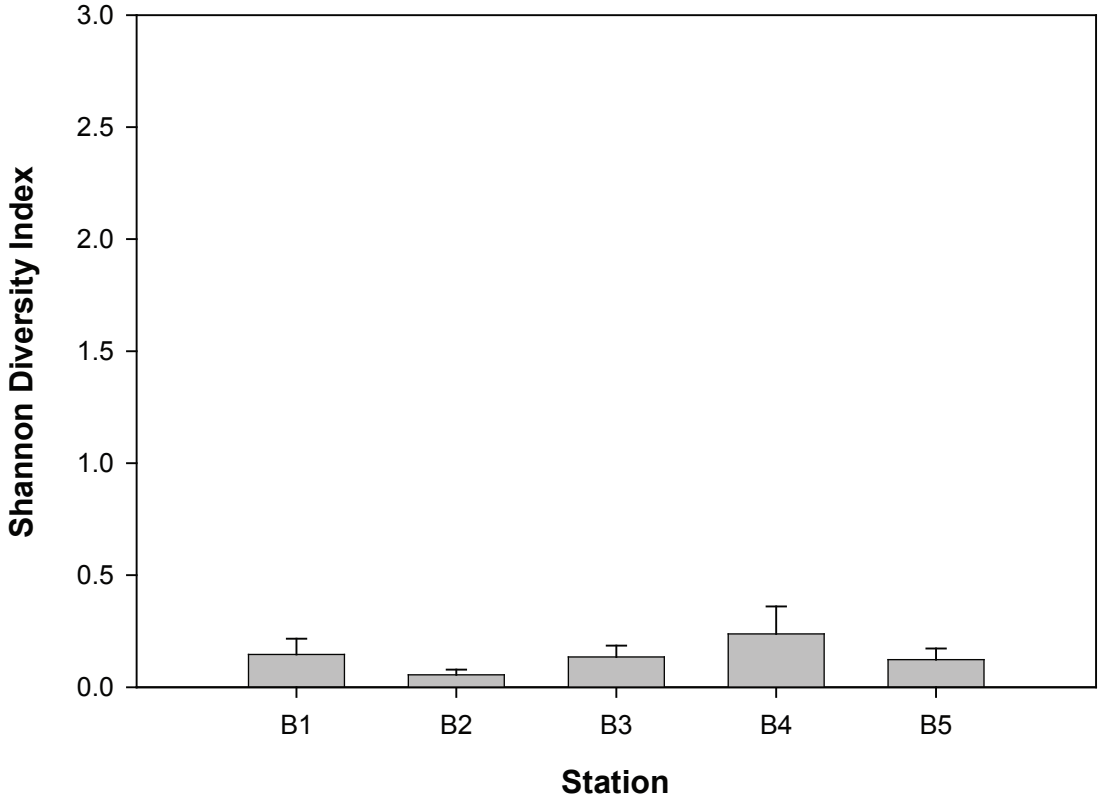


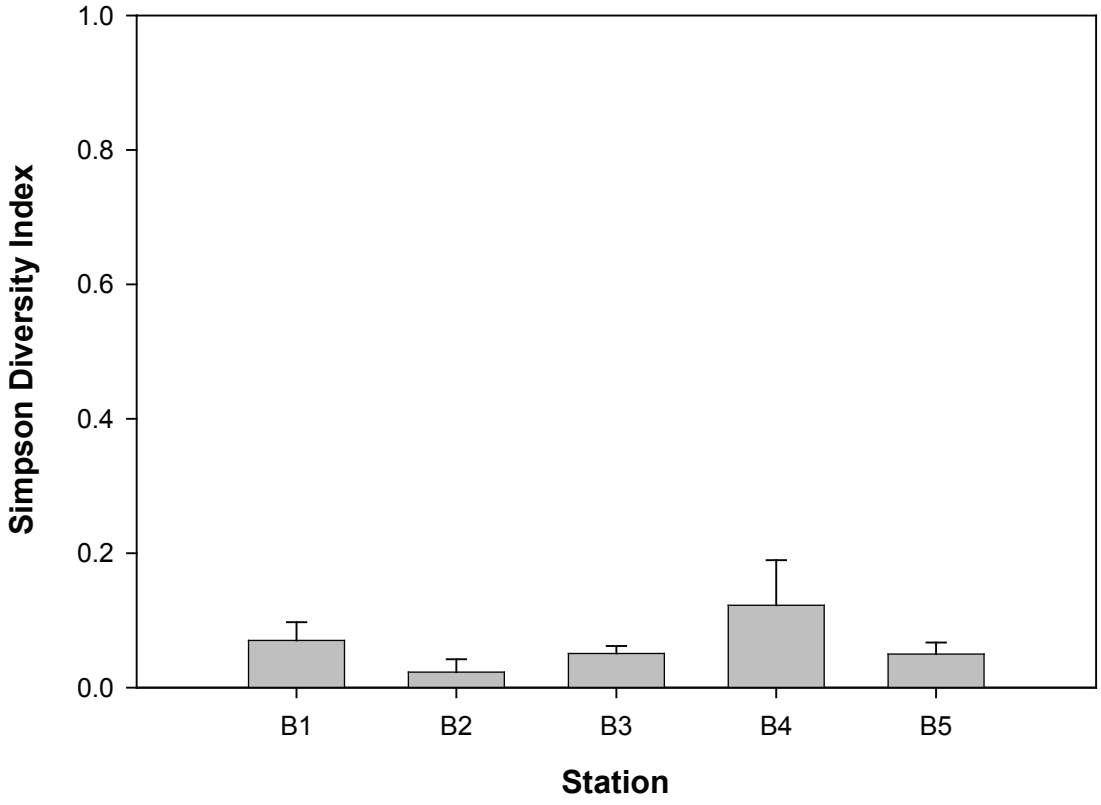


Notes: Error bars represent standard error of the mean.

Shannon and Simpson Dipteran Diversity Indices for Shoreline Benthos Littoral Habitat in Lac du Sauvage Sites , Open-Water Season 2006

FIGURE 3.8-4





Notes: Error bars represent standard error of the mean.

Shannon and Simpson Dipteran Diversity Indices for Shoreline Benthos Boulder Habitat in Lac du Sauvage Sites , Open-Water Season 2006

FIGURE 3.8-5

Table 3.8-1
Littoral and Boulder Habitat Benthos Dipteran Diversity Results for Lac du Sauvage

Station	Date	G	G (90%)	Maximum Dominance (%)	Shannon Diversity Index	Simpson Diversity Index
Littoral Habitat B1	1-Aug-06	2	2	80	0.50	0.32
Littoral Habitat B2	1-Aug-06	4	4	42	1.30	0.71
Littoral Habitat B4	1-Aug-06	5	4	41	1.32	0.68
Littoral Habitat B5	1-Aug-06	10	7	28	2.03	0.84
Boulder Habitat B1	7-Sep-06	2	1	96	0.15	0.07
Boulder Habitat B2	7-Sep-06	2	1	99	0.06	0.02
Boulder Habitat B3	7-Sep-06	3	1	97	0.13	0.05
Boulder Habitat B4	7-Sep-06	2	1	93	0.24	0.12
Boulder Habitat B5	7-Sep-06	2	1	97	0.12	0.05

Note: G is the number of genera present at a site
G (90%) is the number of genera comprising 90% of the assemblage
Maximum dominance is the maximum percent dominance by one genus at a site

3.9 Fish Community

3.9.1 Community Composition and Catch-Per-Unit-Effort

3.9.1.1 Number of Species

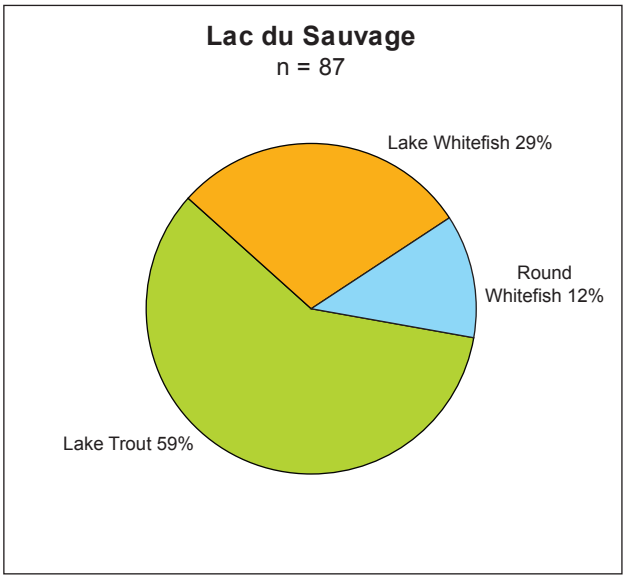
The fish communities of Lac du Sauvage and Ursula Lake were assessed by a combination of gillnets and minnow traps in 2006. A total of five species were captured among the two lakes, with four species being observed in Lac du Sauvage (lake trout, lake whitefish, round whitefish, and burbot), and four species being observed in Ursula Lake (lake trout, round whitefish, burbot, and slimy sculpin) (Table 3.9-1, Appendices 3.9-1 and 3.9-2). Christine Lake was not sampled at this time because it is not a reference lake but a potential alternate AEMP station.

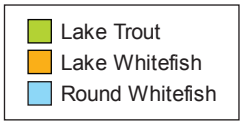
Gillnet catch in Lac du Sauvage was dominated by lake trout (59%) followed by lake whitefish (29%), and round whitefish (12%). Community structure was similar in Ursula Lake, with lake trout making up the majority of the catch (71%) followed by round whitefish (29%) (Figure 3.9-1).

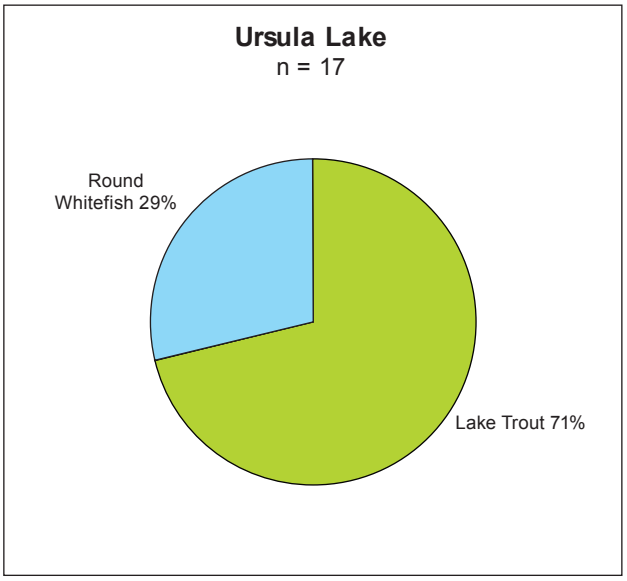
Table 3.9-1
Effort and Catch Summary of Fish Community Assessment of Lac du Sauvage and Ursula Lake, 2006

	Gillnets					Minnow Traps			
		Total Effort	Number Caught				Total Effort	Number Caught	
Lake	# Sets	(hours)	LKTR	LKWH	RDWH	# Sets	(days)	BURB	SLSC
Lac du Sauvage	67	69.3	51	25	11	47	65.7	3	0
Ursula Lake	33	31.2	12	0	5	10	29.1	1	1

LKTR = lake trout, LKWH = lake whitefish, RDWH = round whitefish, BURB = burbot, SLSC = slimy sculpin







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Species Composition of Fish Captured by Gillnets in Lac du Sauvage and Ursula Lake, 2006

FIGURE 3.9-1

Rescan™

3.9.1.2 Catch-per-Unit-Effort

In Lac du Sauvage, the average catch-per-unit-effort (CPUE) was 32 fish·100 m^{-2}·24 hrs^{-1} (SE = 6.7, n = 67) which was higher than the 13 fish·100 m^{-2}·24 hrs^{-1}(SE = 6.7, n = 33) observed in Ursula Lake (Figure 3.9-2). There was no significant difference in the gillnet CPUE of all fish between the two lakes ($F_{1,98}$ = 3.02, P = 0.09).

Although the mean CPUE of all fish was more than twice as high in Lac du Sauvage than Ursula Lake, because there was a high number of nets in which no fish were caught, any difference between these two lakes was masked. The CPUE of fish captured by gillnets in both lakes are within the range observed in the AEMP control lakes sampled by similar gear (Rescan, 2002).

When catch for both lakes is broken down by species, catch rates for lake trout were slightly higher in Lac du Sauvage while catch rates for round whitefish were similar (Figure 3.9-3). No difference was detected in CPUE estimates of lake trout ($F_{1,98}$ = 2.32, P = 0.13) or round whitefish ($F_{1,98}$ = 0.10, P = 0.75) between the two lakes.

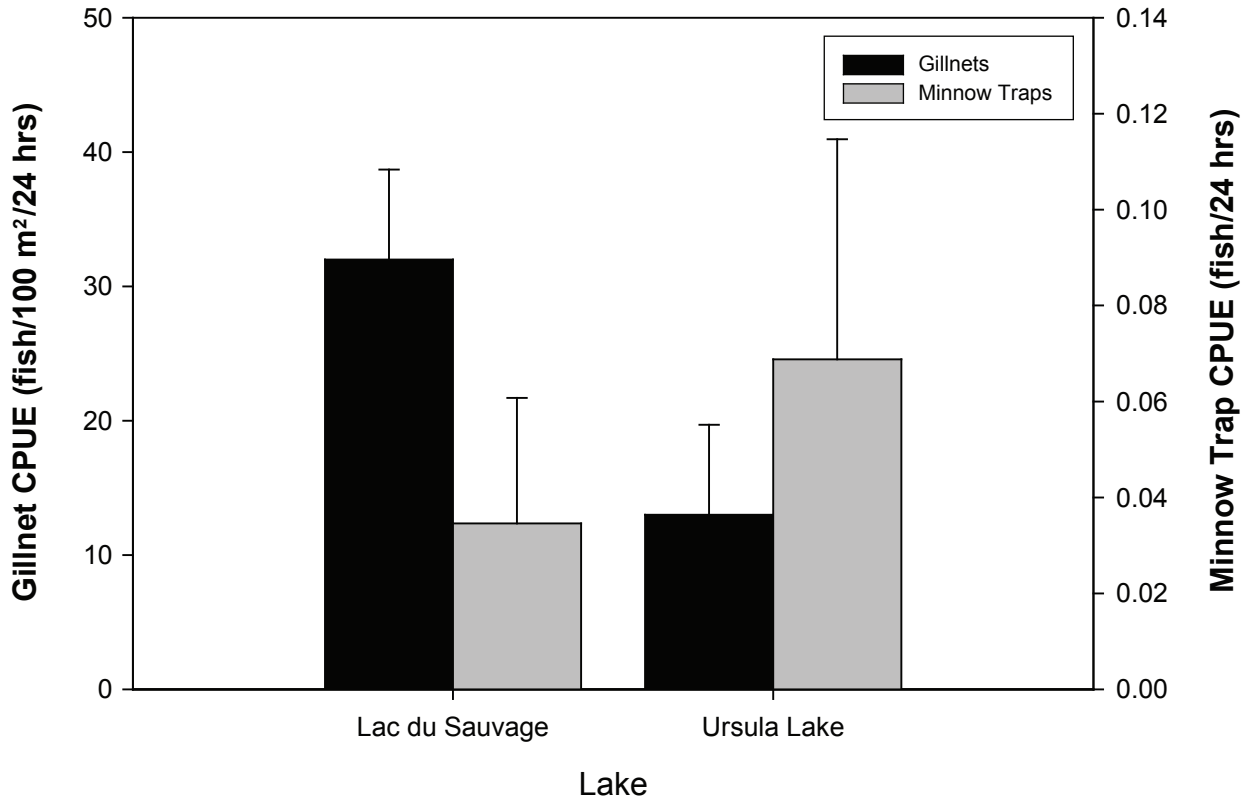
To assess if fish catches in the area to be dewatered were representative of that in the rest of the Lac du Sauvage, sites were broken down into those within 500 m of the proposed dyke (infield sites), and those far beyond the dyke (farfield sites). Gillnet CPUE estimates for all fish, and by species are presented in Figure 3.9-4. CPUE estimates for all species (ANOVA, $F_{1,65}$ = 1.23, P = 0.27), lake trout, (ANOVA, $F_{1,65}$ = 0.13, P = 0.72), and round whitefish (ANOVA, $F_{1,65}$ = 0.48 , P = 0.49) did not differ between the two areas. There was a significant difference in catches of lake whitefish with the mean CPUE being higher outside of the proposed dewatering area (ANOVA, $F_{1,65}$ = 4.12, P = 0.05).

Minnow traps were less effective in capturing fish in both lakes. Minnow trapping CPUE in Lac du Sauvage was 0.03 fish·24 hrs^{-1}(SE = 0.03, n = 47) which was lower than the 0.07 fish·24 hrs^{-1} (SE = 0.05, n = 10) observed in Ursula Lake. In Lac du Sauvage, burbot was the sole species captured by the minnow traps. Catches in Ursula Lake were evenly split between slimy sculpin fry and burbot fry. There was no difference in the CPUE of the minnow traps between the two lakes ($F_{1,55}$ = 0.32, P = 0.58).

3.9.2 Length and Weight

3.9.2.1 Lac du Sauvage

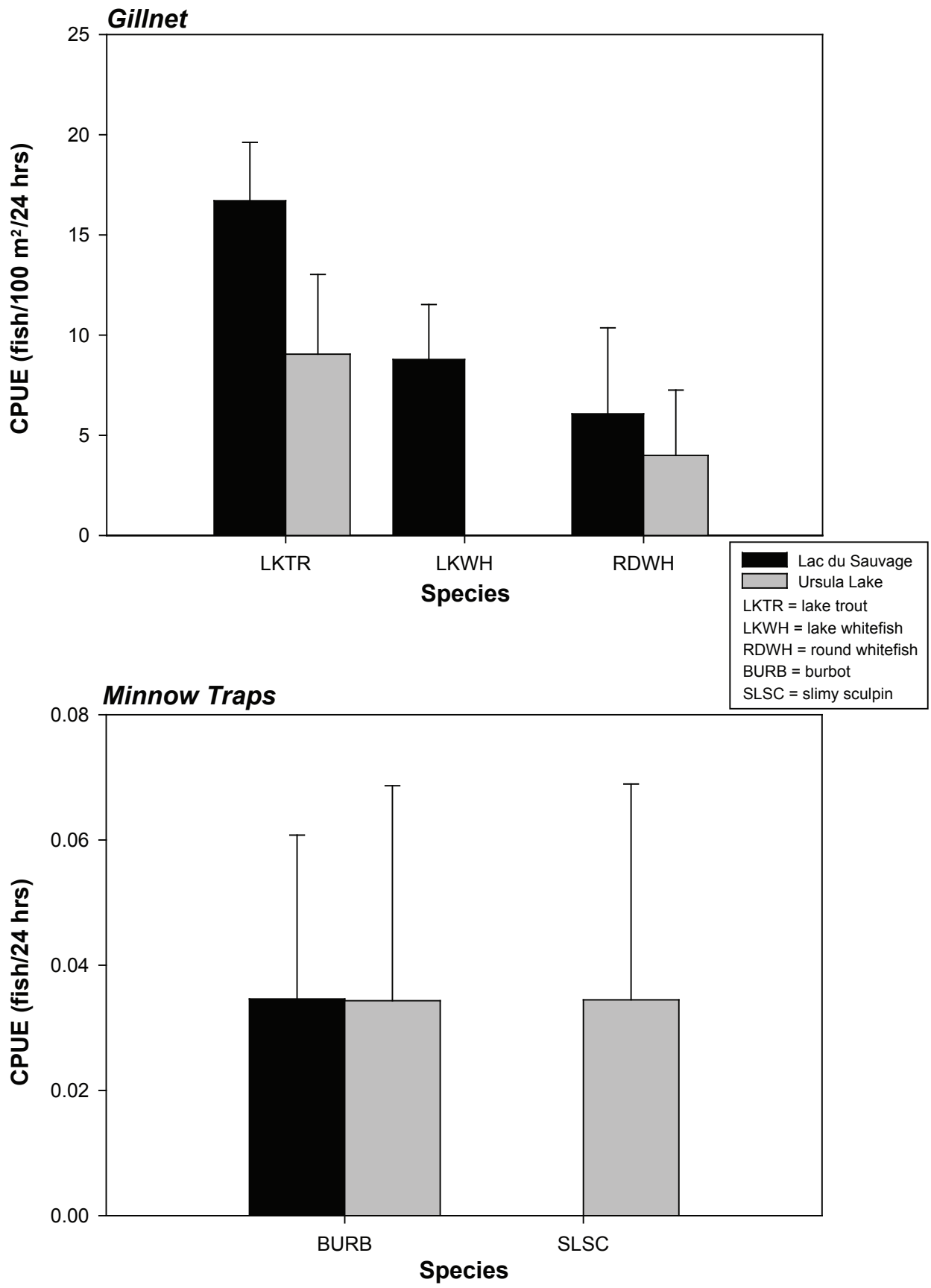
Length-frequency distributions of each species captured in Lac du Sauvage and Jay Pipe can be found in Figure 3.9-5. The modal fork length of lake trout was between 550 to 599 mm in both Lac du Sauvage and Ursula Lake, and the length-frequency distributions overlapped extensively. Lake whitefish were only captured in Lac du Sauvage with a modal fork length of 450 to 499 mm. Round whitefish were much smaller in both populations, and had a modal fork length between 350 and 399 mm, and 300 and 349 mm in Lac du Sauvage and Ursula Lake, respectively.



Note: Error bars represent standard error of the mean

Average Catch-per-Unit-Effort of Gillnets and Minnow Traps in Lac du Sauvage and Ursula Lake, 2006

FIGURE 3.9-2



Note: Error bars represent standard error of the mean

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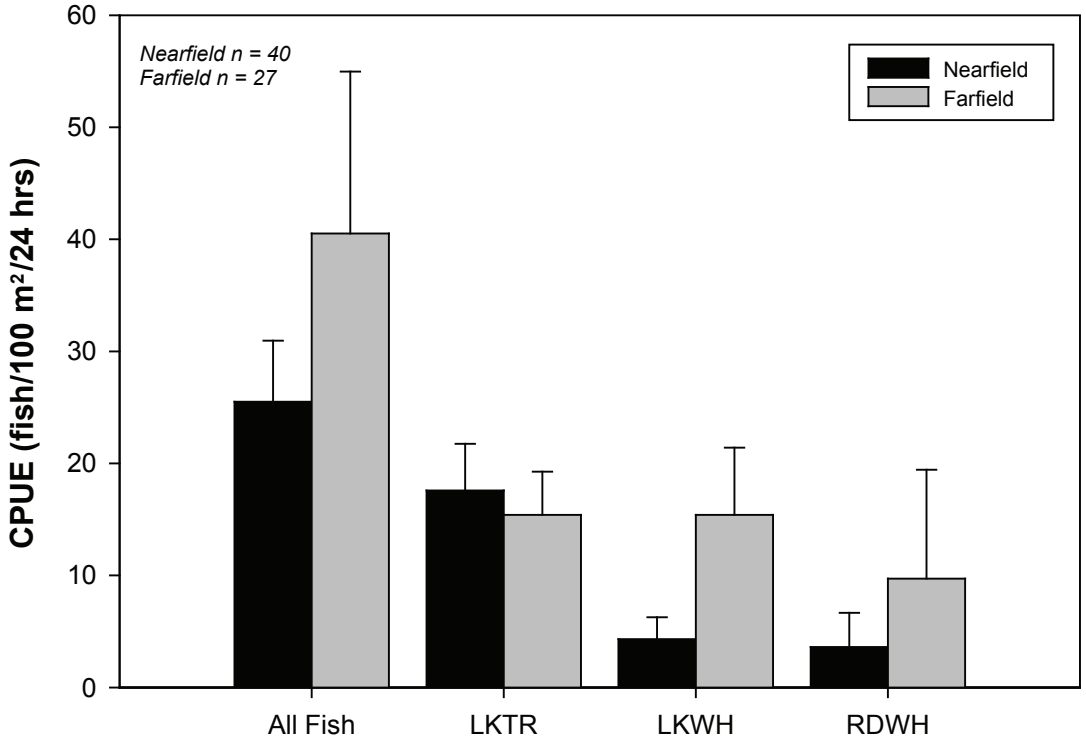
Average Catch-per-Unit-Effort of Gillnets and Minnow Traps by Species in Lac du Sauvage and Ursula Lake, 2006

FIGURE 3.9-3

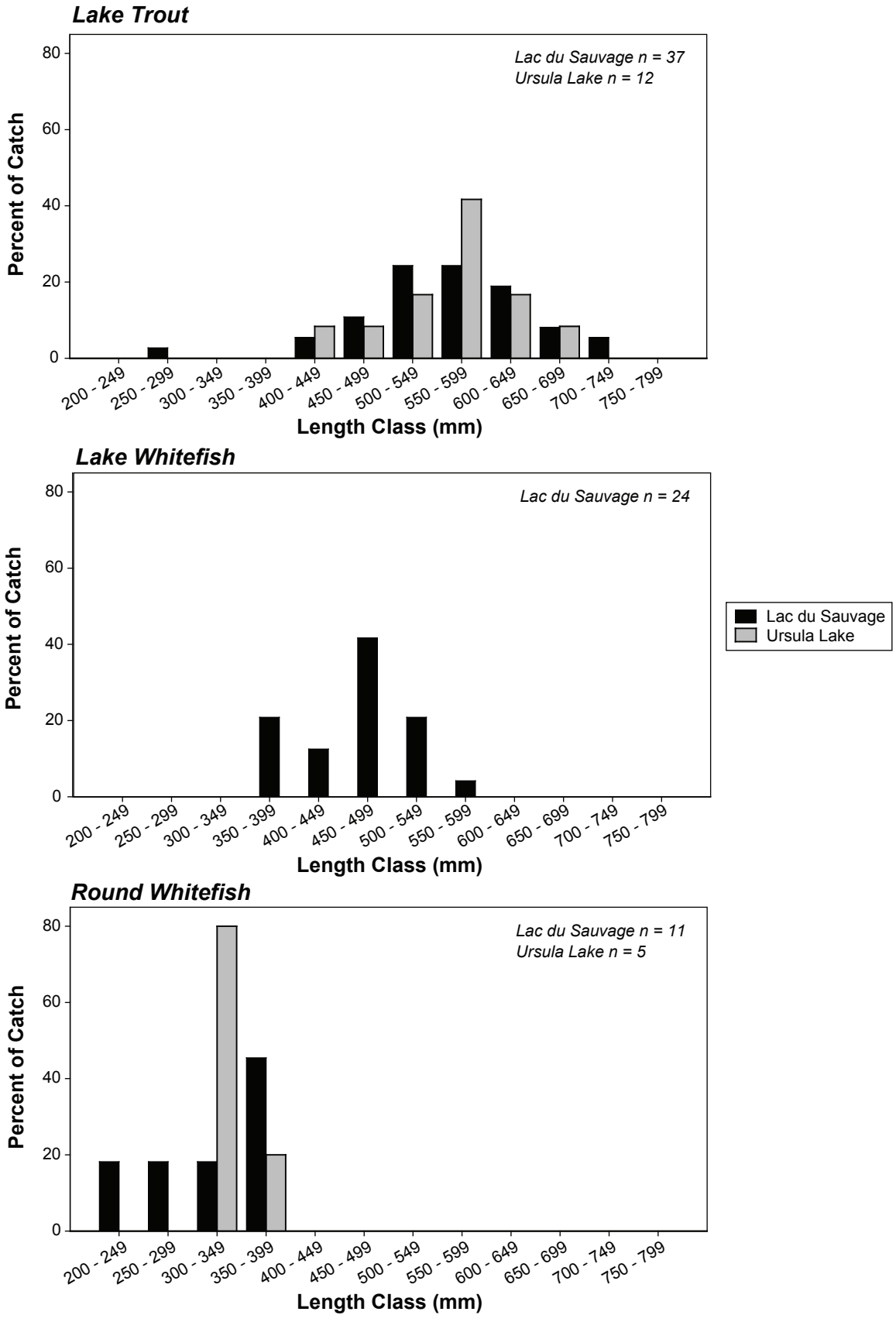
Rescan™



Note: Error bars represent standard error of the mean
LKTR = lake trout, LKWH = lake whitefish, RDWH = round whitefish, BURB = burbot, SLSC = slimy sculpin

Average Catch-per-Unit-Effort of Gillnets Categorized by Proximity to Jay Pipe in Lac du Sauvage, 2006

FIGURE 3.9-4



Length-Frequency Distributions for Lake Trout, Lake Whitefish and Round Whitefish Captured by Gillnets in Lac du Sauvage and Ursula Lake, 2006

FIGURE 3.9-5

A summary of the biological characteristics of fish captured in the Jay Pipe area can be found in Table 3.9-2. Lake trout captured in Lac du Sauvage spanned a wider range of lengths (292 to 272 mm), weights (260 to 4,600 g) and condition (0.81 to 1.38 g/mm^3) than was observed in Ursula lake (length ranged 445 to 692 mm; weight ranged 964 to 2,985 g; and condition ranged from 0.90 to 1.15 g/mm^3). This was also true for round whitefish, with fish from Lac du Sauvage showing a greater range of lengths (232 to 378 mm), weights (127 to 627 g) and condition (0.77 to 1.16 g/mm^3) than those captured in Ursula Lake (length ranged between 309 and 357 mm; weight ranged 299 to 450 g; and condition ranged from 0.93 to 1.01 g/mm^3). Lake whitefish were only captured in Lac du Sauvage, and ranged from 354 to 560 mm in length, 427 to 2,027 g in weight and 0.93 to 1.78 g/mm^3 in condition. Juvenile burbot were captured in both Lac du Sauvage and Ursula Lake, and slimy sculpin were only captured in Ursula Lake.

One-way ANOVAs were used to assess any differences in mean size of fish captured through the gillnet surveys between Lac du Sauvage and Ursula Lake. This analysis was performed using the mean weight and length of both lake trout, and round whitefish.

Lake trout captured through gillnets in Lac du Sauvage and Ursula Lake did not differ with respect to length ($F_{1,47} = 0.04$, $P = 0.85$) or weight ($F_{1,46} = 0.82$, $P = 0.37$). Catches of round whitefish were also similar with respect to length ($F_{1,14} = 0.16$, $P = 0.69$) and weight ($F_{1,14} = 0.05$, $P = 0.82$) between the two lakes.

The similarity in the mean size and weight of lake trout, and round whitefish from Lac du Sauvage and Ursula Lake suggest that the body size of both populations is similar. A second possibility is that only specific segments of the population were actually vulnerable to the equipment. This second possibility is not supported by the extensive size range of both species observed in the gillnet catches.

Mean length of lake trout captured in Lac du Sauvage was close to that observed during baseline data collected for Diavik during 1996 (Acres and Bryant, 1996).

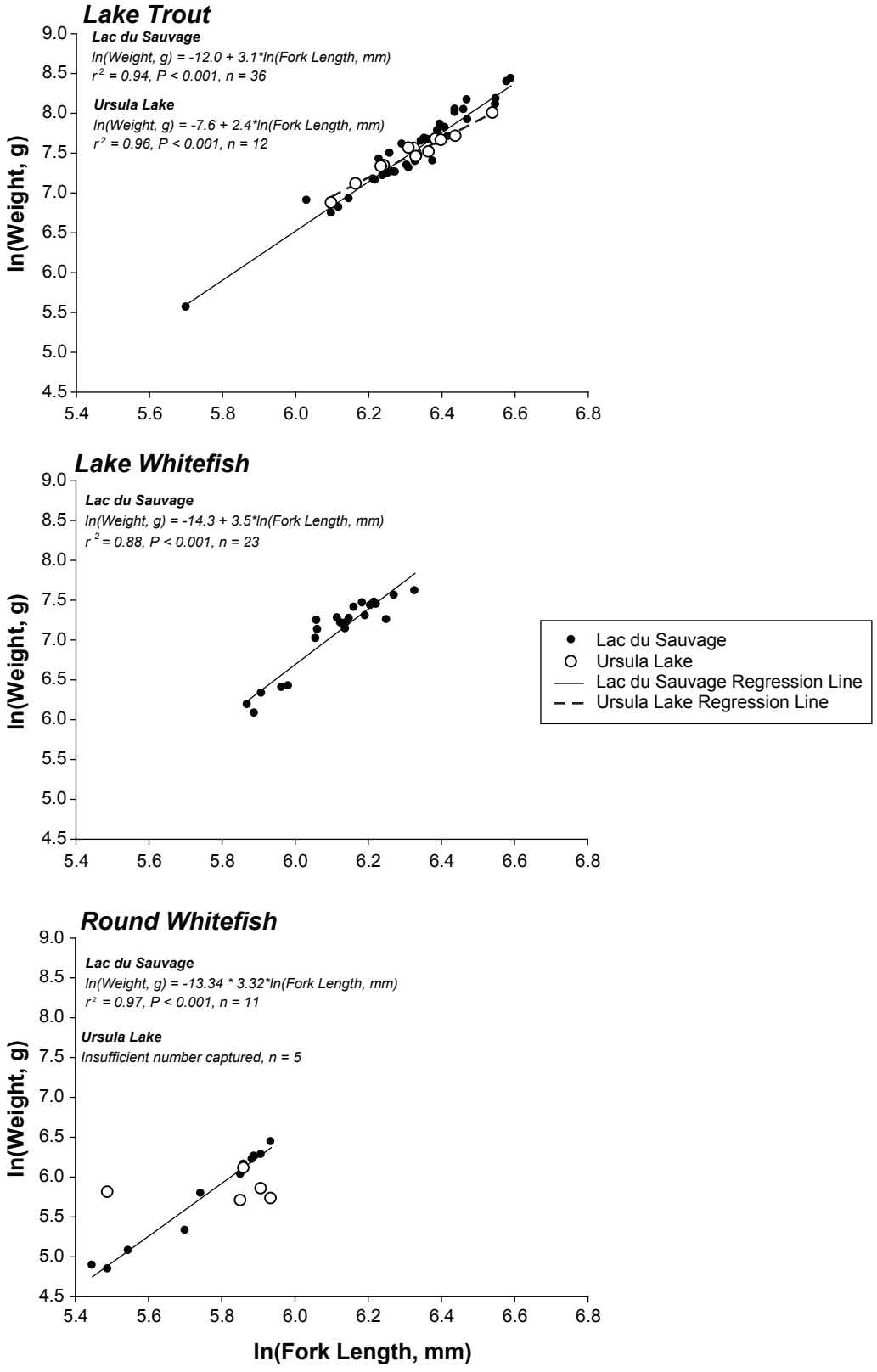
3.9.3 Weight-Length Relationships and Condition

Weight-length relationships were generated for all species captured by gillnets in Lac du Sauvage and for lake trout captured in Ursula Lake (Figure 3.9-6). Observed lengths and weights were first natural-log transformed to improve the linearity of the weight-length relationships. All relationships were highly significant, and the regression with length explained a minimum of 88% of the observed variation in weight. For all species from Lac du Sauvage the 95% confidence intervals of all slope coefficients overlapped with the expected value of 3 (given the isometric nature between fish length and shape (Peters, 1983)). This suggests that growth occurs with unchanged body proportions (hence juvenile or adult fish are experiencing similar growth conditions (Jones *et al.* 1999)). The slope of the weight-length relationship for lake trout from Ursula Lake was less than the expected value of 3, suggesting that fish in this population may become less rotund as length increases (although this may also be due to a limited size range of lake trout sampled and an underestimation of the true slope of the relationship).

Table 3.9-2
Summary of Biological Characteristics of Fish Captured in Lac du Sauvage and Ursula Lake, 2006

		Fork Length (mm)			Weight (g)			Condition (g/mm^3)		
Lake	**Species**	**n**	**Range**	**Mean ± SE**	**n**	**Range**	**Mean ± SE**	**n**	**Range**	**Mean ± SE**
Lac du Sauvage										
	Burbot	3	61 - 64	63 ± 0.9	3	3 - 5	4 ± 0.7	3	1.32 - 2.00	1.74 ± 0.21
	Lake Trout	37	292 - 727	564 ± 14.8	36	260 - 4,600	2,119 ± 167.6	36	0.81 - 1.38	1.08 ± 0.02
	Lake Whitefish	24	354 - 560	459 ± 11.6	23	427 - 2,027	1,307 ± 97.5	23	0.93 - 1.78	1.32 ± 0.05
	Round Whitefish	11	232 - 378	319 ± 16.2	11	127 - 627	366 ± 55.1	11	0.77 - 1.16	1.02 ± 0.03
Ursula Lake										
	Burbot	1	-	-	-	-	-	-	-	-
	Lake Trout	12	445 - 692	559 ± 19.4	12	964 - 2,985	1,843 ± 150.6	12	0.90 - 1.15	1.04 ± 0.03
	Round Whitefish	5	309 - 357	329 ± 8.0	5	299 - 450	347 ± 27.1	5	0.93 - 1.01	0.97 ± 0.01
	Slimy Sculpin	1	-	-	-	-	-	-	-	-

Dashes indicate insufficient data available.



Weight-Length Relationships for Lake Trout, Lake Whitefish and Round Whitefish Captured by Gillnets in Lac du Sauvage and Ursula Lake, 2006

FIGURE 3.9-6

To assess if any differences existed between weight-length relationships of the lake trout populations of Ursula Lake and Lac du Sauvage, an ANCOVA design was used to compare the slope and intercept of the weight-length relationships. Fulton's K was not included in this comparison because the slope estimate of the weight-length relationship of the Ursula Lake population was significantly less than three. To ensure that the comparison of the two populations was valid, a single individual less than 300 mm fork length was removed from the Lac du Sauvage dataset because a single small-bodied individual has the potential to pull the entire line down. The slope of the weight-length relationship for both populations was homogeneous (ANCOVA, $F_{1,43} = 3.94$, $P > 0.05$), and no effect of lake was observed on the intercept of the relationship (ANCOVA, $F_{1,44} = 0.74$, $P = 0.39$). These results show that the condition of the lake trout populations in both Lac du Sauvage and Ursula Lake are not statistically different.

Fulton's condition estimate was used to compare the condition of round whitefish from Lac du Sauvage and Ursula Lake. Condition estimates did not differ between the two populations (ANOVA, $F_{1,13} = 0.68$, $P > 0.05$). These results suggest that individual condition of round whitefish in the two lakes is similar.

The analysis of the weight-length relationships and condition estimates for lake trout and round whitefish from Lac du Sauvage and Ursula Lake suggest that populations in both lakes were similar with respect to the body morpohology of all life stages. This suggests that small-bodied and large-bodied individuals of both species experience similar foraging environments in both systems.

3.9.4 Liver Weight-Body Relationships and Hepatosomatic Indices

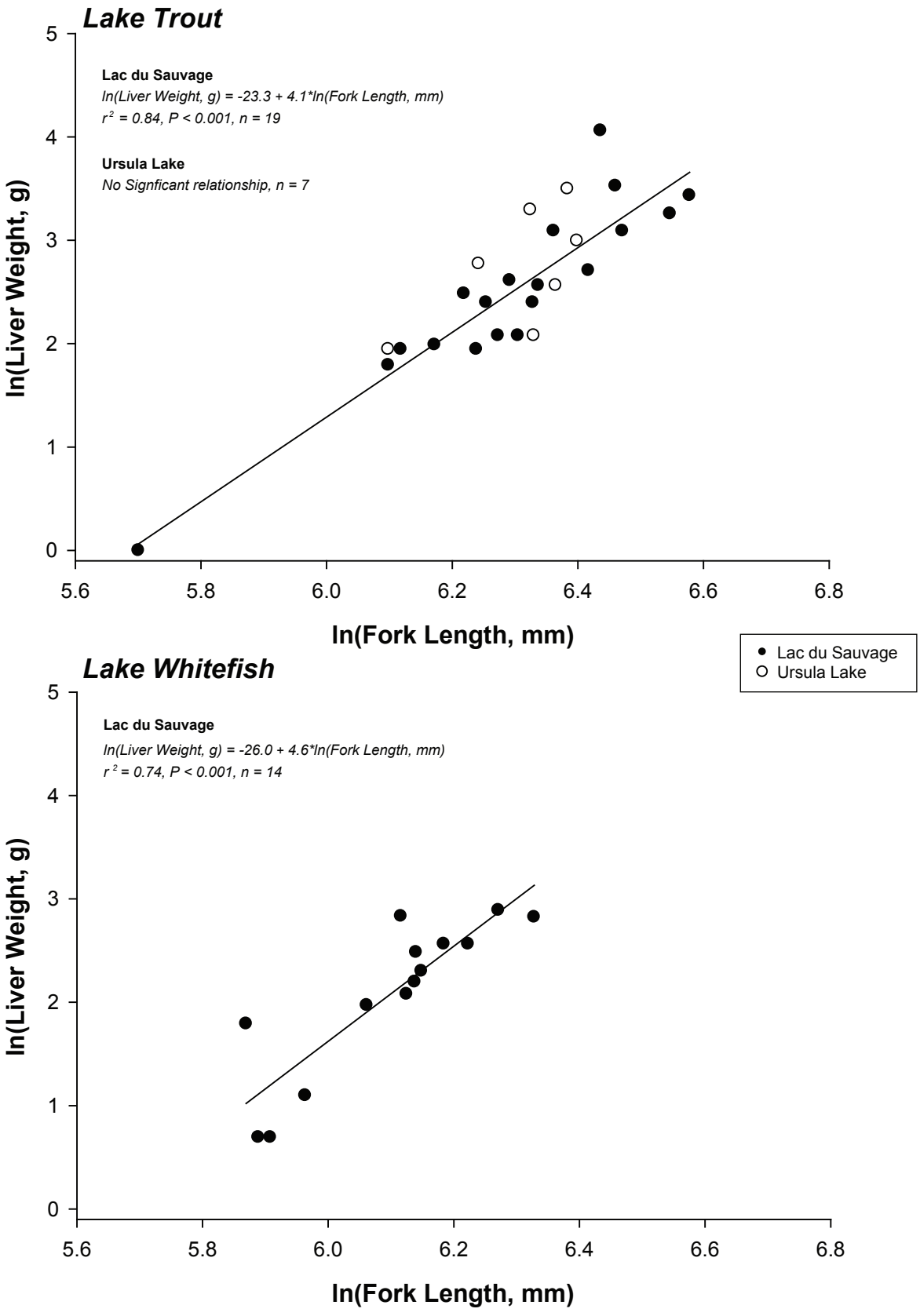
Significant liver weight to body length relationships were established for lake trout and lake whitefish from Lac du Sauvage (Figure 3.9-7). Length explained between 74% and 84% of the variation in liver weight. Relationships were not significant for round whitefish from both lakes, and lake trout from Ursula Lake.

A hepatosomatic index (HSI) was generated for fish captured in Lac du Sauvage and Ursula Lake (Table 3.9-3). Although lake trout from Ursula Lake showed higher average HSI measurements, the large range of HSI measurements masked any lake effect (ANOVA, $F_{1,23} = 1.56$, $P = 0.22$). The HSI estimates for round whitefish also did not differ between the two lakes (ANOVA, $F_{1,5} = 1.78$, $P = 0.24$).

Although sample numbers were limited for the HSI analysis, results indicate fish from Lac du Sauvage and Ursula Lake have similar HSIs. This information also provides a valuable baseline such that any long-term changes can be detected.

3.9.5 Sex Ratios and Size at Maturity

A total of 15 lake trout, 11 lake whitefish and 6 round whitefish were assessed for sex and maturity from Lac du Sauvage. From Ursula Lake, 5 lake trout and 4 round whitefish had sex and maturity assessed (Table 3.9-4).



Liver Weight-Length Relationships for Lake Trout and Lake Whitefish Captured by Gillnets in Lac du Sauvage and Ursula Lake, 2006

FIGURE 3.9-7

Table 3.9-3
Summary of Liver Weights and Hepatosomatic Indices of Fish Captured in Lac du Sauvage and Ursula Lake, 2006

		Liver Weight (g)			Hepatosomatic Index ((g liver/g body weight)*100)		
Lake	Species	n	Range	Mean ± SE	n	Range	Mean ± SE
Lac du Sauvage							
	Lake Trout	18	1 - 58	16 ± 3	18	0.38 - 1.85	0.79 ± 0.08
	Lake Whitefish	14	2 - 18	10 ± 1	14	0.36 - 1.23	0.75 ± 0.07
	Round Whitefish	3	2 - 5	3 ± 1	3	0.42 - 0.80	0.59 ± 0.11
Ursula Lake							
	Lake Trout	7	7 - 33	18 ± 4	7	0.46 - 1.54	0.98 ± 0.15
	Round Whitefish	4	2 - 3	3 ± 0.3	4	0.60 - 0.98	0.78 ± 0.09

Table 3.9-4
Maturity Characteristics of Fish Captured in Lac du Sauvage and Ursula Lake, 2006

Lake	Species	Number Immature	Number of Mature Males	Number of Mature Females	Sex Ratio (% Female)
Lac du Sauvage					
	Lake Trout	4 (299 - 624 mm)	9 (502 - 719 mm)	6 (454 - 698 mm)	40
	Lake Whitefish	0	6 (361 - 529 mm)	5 (354 - 560 mm)	45
	Round Whitefish	0	4 (133 - 637 mm)	2 (351 - 368 mm)	33
Ursula Lake					
	Lake Trout	1 (561 mm)	0	4 (445 - 601 mm)	100
	Round Whitefish	0	2 (329 - 357 mm)	2 (319 - 331 mm)	50

Numbers in parentheses represent size range of fish captured of that sex.

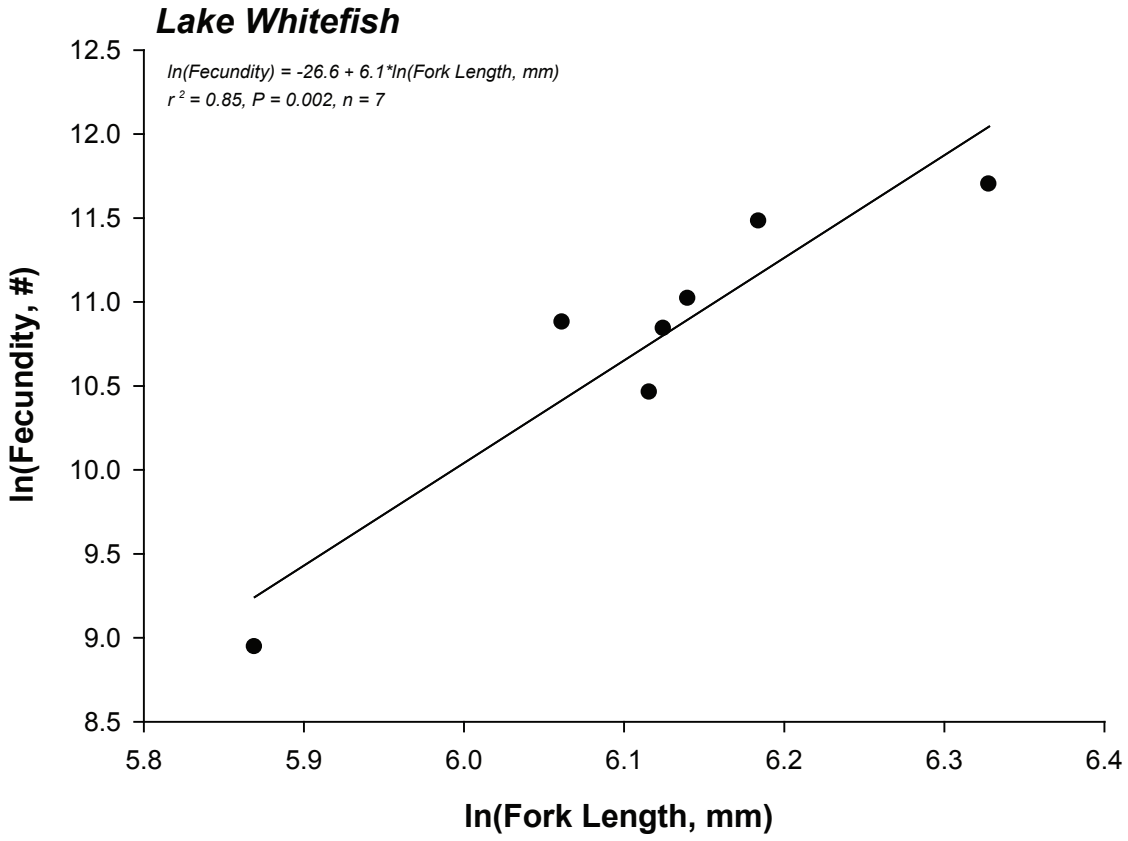
Sex ratios of all fish species were skewed towards males in Lac du Sauvage. This was not the case for Ursula Lake, where only female lake trout were captured and sex was split equally for round whitefish. Due to the relatively small sample size of sacrificed fish from both lakes, size at maturity could not be accurately calculated for any species. For lake trout in Lac du Sauvage, the size range of immature fish spanned that of mature fish, as was the case in Ursula Lake. This suggests that reproduction may be not occur annually, which is typically a result of inadequate energy reserves within cold water systems (Martin, 1966).

3.9.6 Fecundity-Body Relationships and Gonadosomatic Indices

Egg counts were available for 14 fish captured in Lac du Sauvage, and 7 captured in Ursula Lake (summarized in Table 3.9-5, full counts available in Appendix 3.9-3). Adequate numbers and sizes of lake whitefish were available from Lac du Sauvage to build a fecundity-body size relationship (Figure 3.9-8). Length explained 85% of the variation in natural log-transformed fecundity and was highly significant. Insufficient size ranges and/or numbers of fish were caught to assess the relationship for the other species captured in Lac du Sauvage and Ursula Lake.

Table 3.9-5
Summary of Fecundity and Relative Fecundity of Fish Captured in Lac du Sauvage and Ursula Lake, 2006

		Fecundity (# of eggs per gonad)							Relative Fecundity (eggs/g body weight)		
			Small Fraction		Large Fraction		Total				
Lake	**Species**	**n**	**Range**	**Mean ± SE**	**Range**	**Mean ± SE**	**Range**	**Mean ± SE**	**n**	**Range**	**Mean ± SE**
Lac du Sauvage											
	Lake Trout	5	0 - 17,460	7,842 ± 3,141	0 - 6,860	1,372 ± 1,372	2,800 - 17,460	9,214 ± 2,524	5	2.2. - 6.4	4.5 ± 0.81
	Lake Whitefish	7	0 - 120,000	54,429 ± 16,910	0 - 34,900	6,251 ± 4,889	7,660 - 120,500	60,680 ± 14,229	7	15.7 - 59.4	40.0 ± 5.96
	Round Whitefish	2	-	-	4,700 - 5,300	5,000 ± 300	4,700 - 5,300	5,000 ± 300	2	9.9 - 9.9	9.9 ± 0.01
Ursula Lake											
	Lake Trout	5	0 - 9,730	4,508 ± 2,066	0 - 2,630	1,036 ± 635	2,550 - 9,730	4,642 ± 1,382	5	1.2 - 4.6	2.7 ± 0.65
	Round Whitefish	2	-	-	2,940 - 3,500	3,220 ± 280	2,940 - 3,500	3,220 ± 280	2	9.6 - 10.1	9.73 ± 0.25



Fecundity-Length Relationship for Lake Whitefish Captured by Gillnets in Lac du Sauvage, 2006

FIGURE 3.9-8

Relative fecundity (calculated as eggs/gram of body weight) was calculated for fish captured in both lakes. Adequate numbers of samples were available to compare lake trout captured in Lac du Sauvage and Ursula Lake. Results suggest no difference in relative fecundity between populations (ANOVA, $F_{1,8} = 2.93$, $P = 0.13$). This shows that allocation to egg production is similar in the two populations.

A gonadosomatic index (GSI) was generated for female fish captured in Lac du Sauvage and Ursula Lake (Table 3.9-6). Comparison of GSI between the two systems could only be performed for lake trout because insufficient numbers of round whitefish were sampled to assess any differences. No difference was observed in GSI measurements (ANOVA, $F_{1,8} = 0.01$, $P = 0.93$) suggesting that gonadal investment is similar in the two systems.

Table 3.9-6
Summary of Gonad Weights and Gonadosomatic Indices of Fish Captured in Lac du Sauvage and Ursula Lake, 2006

		Ovary Weight (g)			Gonadosomatic Index (g ovary/g body weight)		
Lake	**Species**	**n**	**Range**	**Mean ± SE**	**n**	**Range**	**Mean ± SE**
Lac du Sauvage							
	Lake Trout	5	4 - 535	130 ± 102	5	0.4 - 15.0	4.11 ± 2.73
	Lake Whitefish	7	8 - 140	42 ± 34	7	0.6 - 9.7	2.67 ± 1..27
	Round Whitefish	1	-	-	1	-	-
Ursula Lake							
	Lake Trout	5	7 - 272	86 ± 50	5	0.7 - 4.2	4.46 ± 2.57
	Round Whitefish	2	8 - 13	11 ± 2	2	2.6 - 3.7	3.18 ± 0.57

Dashes indicate insufficient data available.

3.9.7 Age and Growth

The ages of fish captured in Lac du Sauvage and Ursula Lake can be found in Table 3.9-7. Lake trout had an average age of 15 years in Lac du Sauvage, and 19 years in Ursula Lake. These ages were older than the average age of captured for round whitefish in the same lakes (9 and 11 years, respectively). Lake whitefish from Lac du Sauvage had an average age of 11 years.

Table 3.9-7
Summary of Fish Ages in Lac du Sauvage and Ursula Lake, 2006

Lake	Species	n	Range	Mean ± S.E.
Lac du Sauvage	Lake Trout	26	7 - 32	15 ± 1.0
	Lake Whitefish	18	8 - 19	13 ± 0.6
	Round Whitefish	7	4 - 12	9 ± 1.3
Ursula Lake	Lake Trout	7	10 - 32	19 ± 2.7
	Round Whitefish	4	9 - 13	11 ± 1.4

S.E. = standard error of the mean

Age-frequency distributions and growth models for lake trout captured in Lac du Sauvage and Ursula Lake are presented in Figure 3.9-9. The modal age of capture was between 12 and 14 years in Lac du Sauvage, and between 18 and 20 years in Ursula Lake. An age distribution dominated by older fish is commonplace in Arctic lakes where recruitment is limited, however more fish must be sampled to adequately assess any lake-specific differences. The mean age, as well as the distribution of ages, is consistent with that previously reported for Lac du Sauvage (Acres and Brant, 1996). The growth model for Lac du Sauvage suggests a maximum size of 734 mm and age explained 56% of the variance in length. No model could be built for lake trout from Ursula Lake because of inadequate sample size.

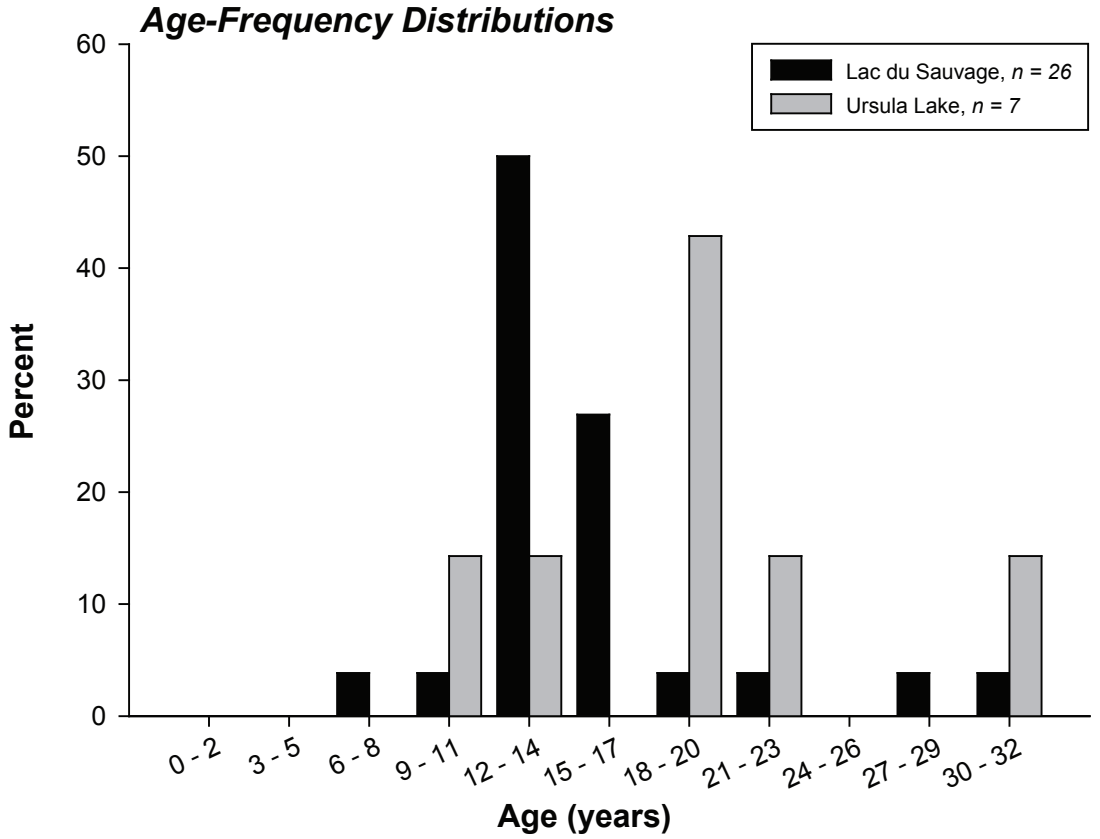
The age-frequency distribution and growth model for lake whitefish captured in Lac du Sauvage are presented in Figure 3.9-10. The modal length of capture was between 12 and 13 years. The growth model suggests a maximum attainable size of 546 mm, although only 20% of the variation in length was explained by age. A larger sample size would improve this relationship because only adults were captured during this survey.

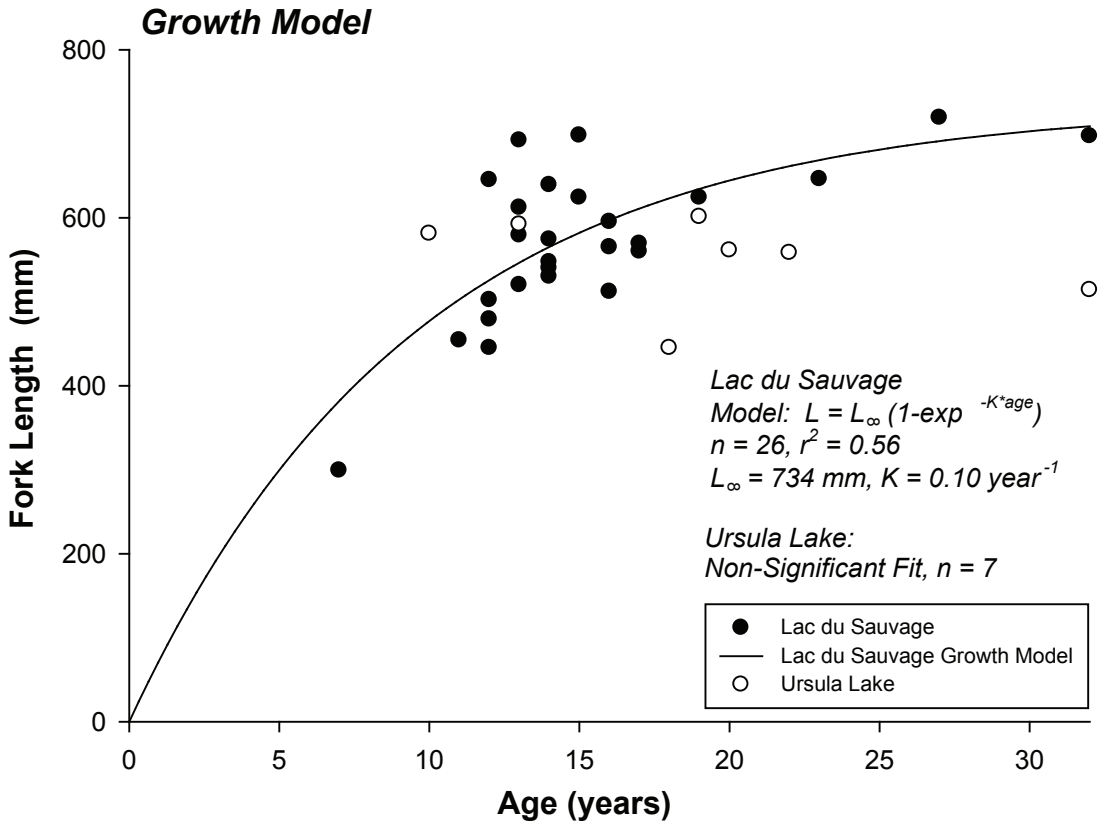
Age-frequency distributions and growth models for round whitefish captured in Lac du Sauvage and Ursula Lake are presented in Figure 3.9-11. The modal age of capture was between 12 and 13 years in Lac du Sauvage and between 8 and 9 years in Ursula Lake. The structure of the age distribution, alongside the modal age of capture was similar to that observed in 1996 during baseline sampling for the Diavik mine (Acres and Brant, 1996). Growth models for both populations suggest similar patterns of growth with a maximum size of 408 mm in Lac du Sauvage and 370 mm in Ursula Lake. Growth models explained 95% and 70% of the variation in length, respectively. Care must be taken when interpreting these results because ages were available from a limited number of fish (7 from Lac du Sauvage and 4 from Ursula Lake).

3.9.8 Diet

Taxonomic analyses of preserved stomachs were performed on 47 samples (full taxonomic results are presented in Appendix 3.9-4 by number and 3.9-5 by weight). This included 19 lake trout, 14 lake whitefish, and 3 round whitefish from Lac du Sauvage, of which 7 lake trout, and 2 lake whitefish had empty stomachs. From Ursula Lake, 7 lake trout, and 4 round whitefish stomachs were assessed, of which none were empty. For each species from each lake, the average contribution of each group to the diet was calculated based on those stomachs that held identifiable food items.

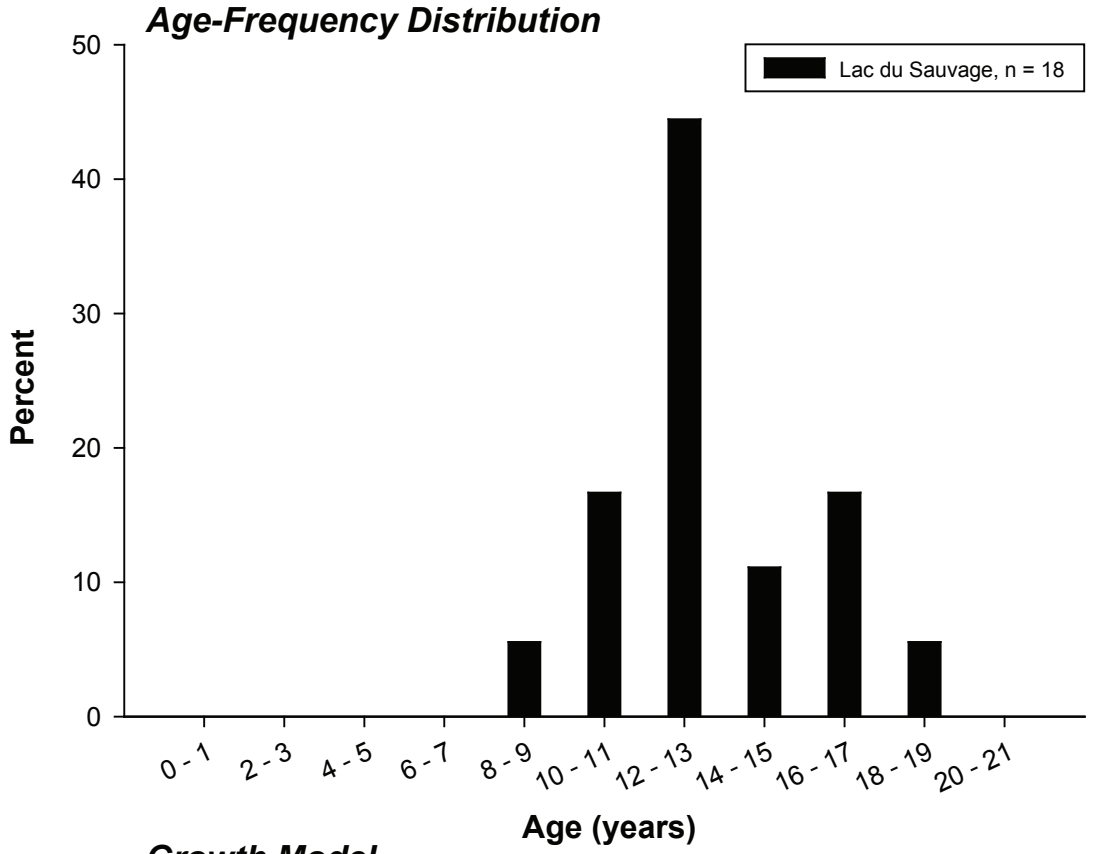
Average stomach contents by both number, and weight for lake trout captured in Lac du Sauvage and Ursula Lake are presented in Figure 3.9-12. Although these results represent only a snapshot of the summer diet available to fish in these systems, results suggest that the Lac du Sauvage population relies more heavily on fish than those from Ursula Lake because 74% of the lake trout diet by weight in Lac du Sauvage was composed of fish compared to 28 % in Ursula Lake. Lake trout captured in Ursula Lake appear to be much more benthically oriented relying on benthic macroinvertebrates represented by trichopterans (caddisflies). However, these results are based on a small sample size.

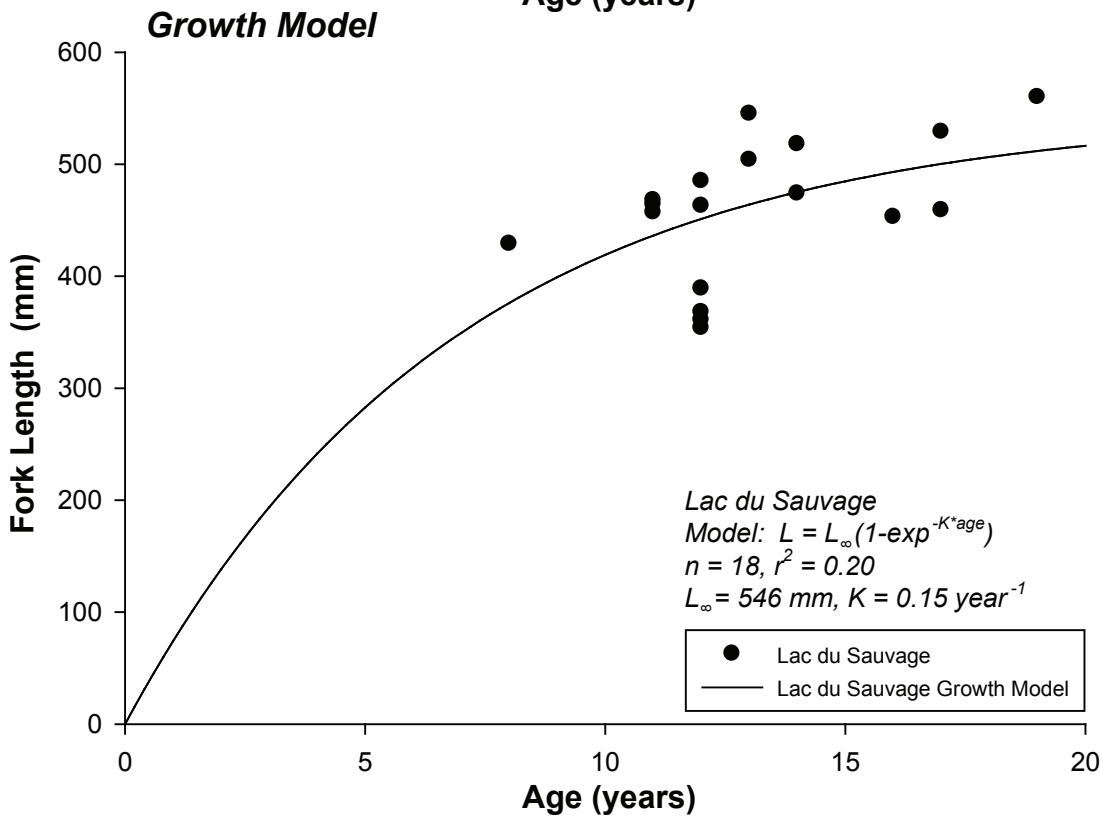




Age-Frequency Distributions and Von Bertalanffy Growth Models for Lake Trout Captured in Lac du Sauvage and Ursula Lake, 2006

FIGURE 3.9-9





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Age-Frequency Distribution and Von Bertalanffy Growth Model for Lake Whitefish Captured in Lac du Sauvage, 2006

FIGURE 3.9-10

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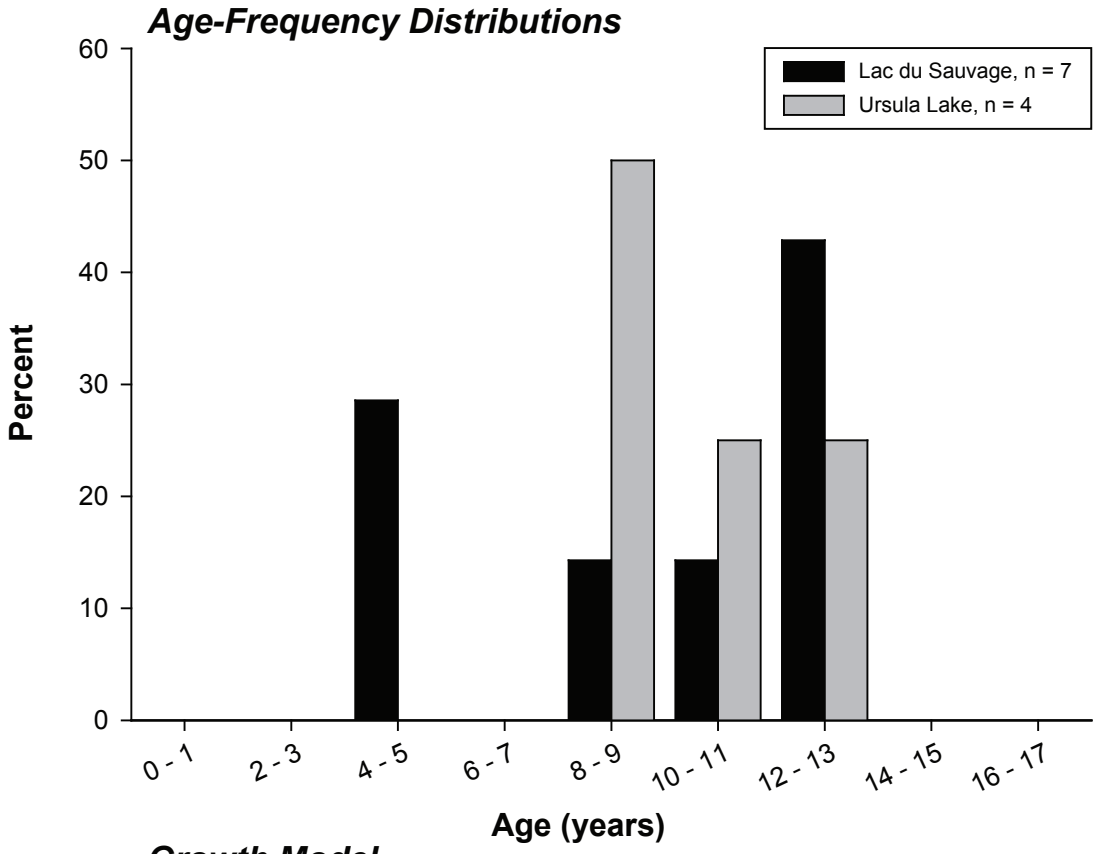
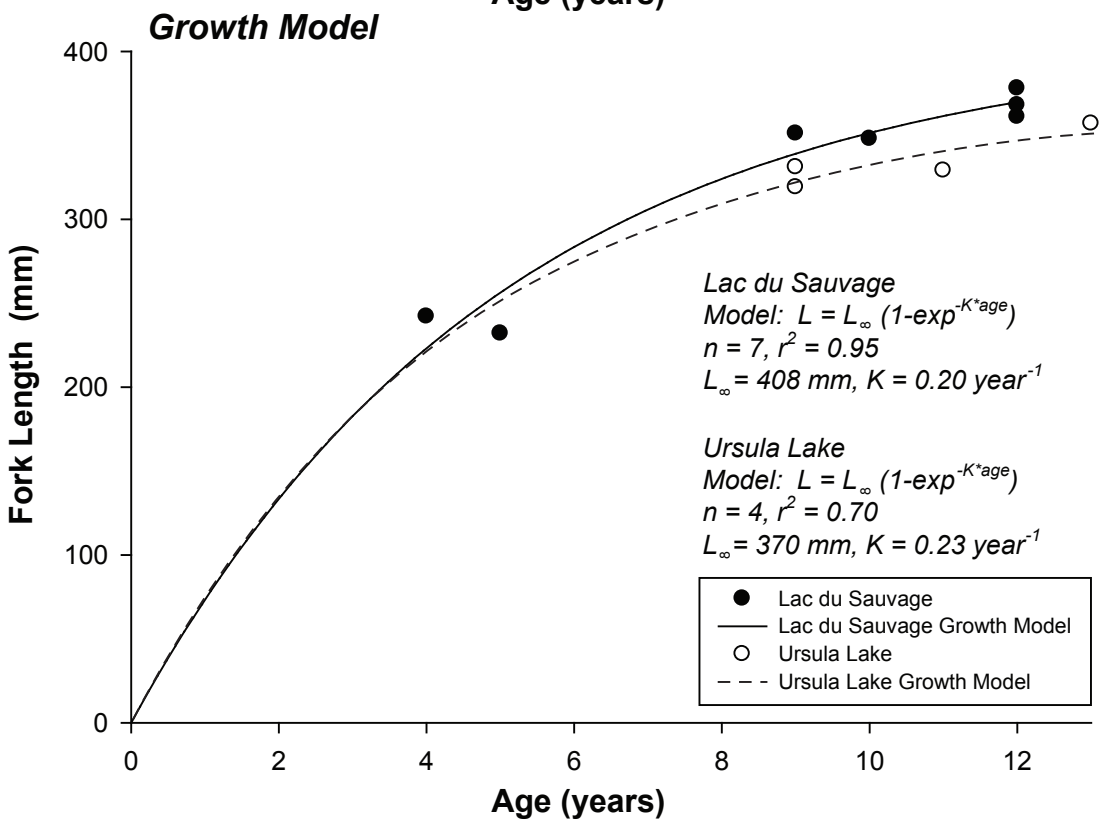
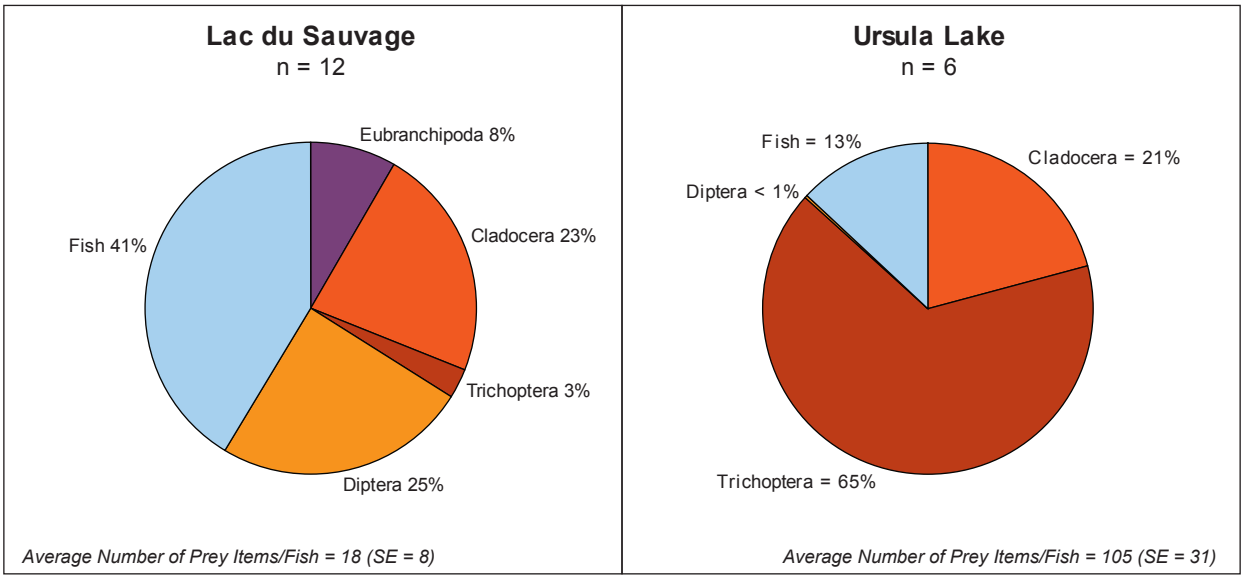




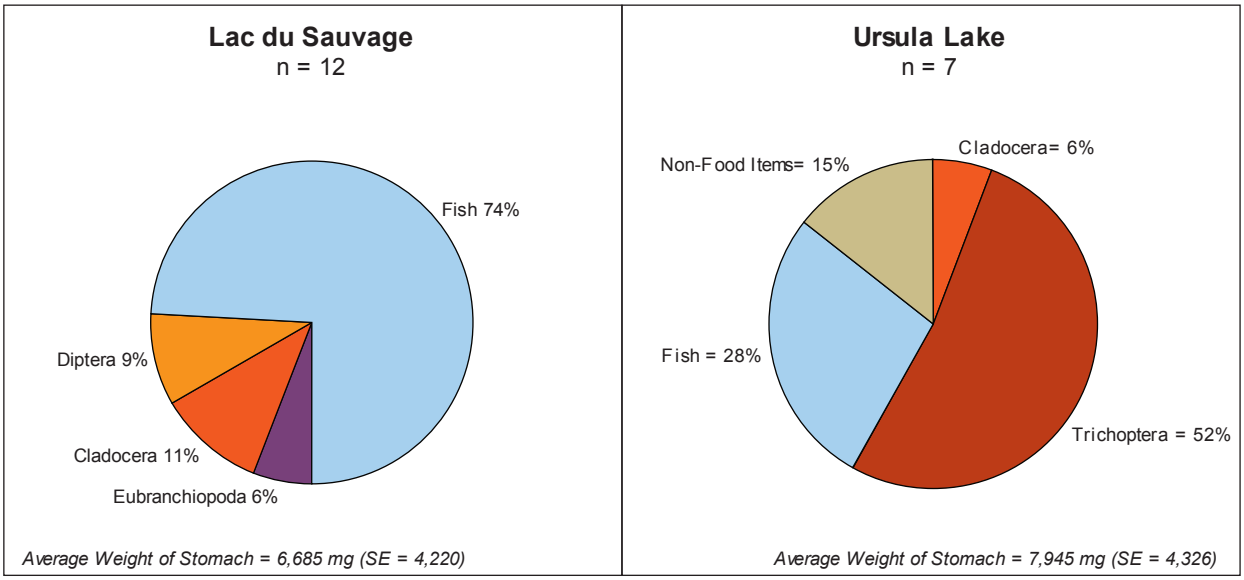
Age-Frequency Distributions and Von Bertalanffy Growth Models for Round Whitefish Captured in Lac du Sauvage and Ursula Lake, 2006

FIGURE 3.9-11

By Number



By Weight



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Taxonomic Composition of Lake Trout Stomachs by Number and Weight from Lac du Sauvage and Ursula Lake, 2006

FIGURE 3.9-12

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Taxonomic analysis by both number and weight for lake whitefish stomachs collected in Lac du Sauvage are presented in Figure 3.9-13. The pelagic nature of lake whitefish is clearly evident with the diet dominated in both number and weight by cladocera (zooplankton). When looking at the detailed taxonomy of the cladocerans, numbers are dominated by *Daphnia middendorffiana* followed by *Eurycercus glacialis* – both common species of water flea found in Arctic lakes.

Taxonomic summaries of stomach contents by both number and weight for round whitefish captured in Lac du Sauvage and Ursula Lake are presented in Figure 3.9-14. The benthic nature of the round whitefish diet is clear in both lakes with the diet dominated by trichopterans in Lac du Sauvage, alongside benthically oriented dipteran larvae in Ursula Lake. The diet of round whitefish in Ursula Lake also showed substantial numbers of cladocera suggesting some reliance on pelagic zooplankton. The reliance of round whitefish on benthos is consistent with that reported in the literature wherein diet is dominated by bottom-oriented invertebrates. The non-food items reported from both lakes were composed largely of case-materials from caddisflies that support the dietary contribution of trichopterans in both lakes.

Although the presented information does suggest some difference in diet for lake trout and round whitefish between Lac du Sauvage and Ursula Lake, caution must be taken when interpreting this information. The taxonomic analysis presented here represents a snapshot of the summer diet, and cannot be extrapolated to other time periods. Further baseline data collection will allow for improved resolution of the variability associated with fish diets in these lakes.

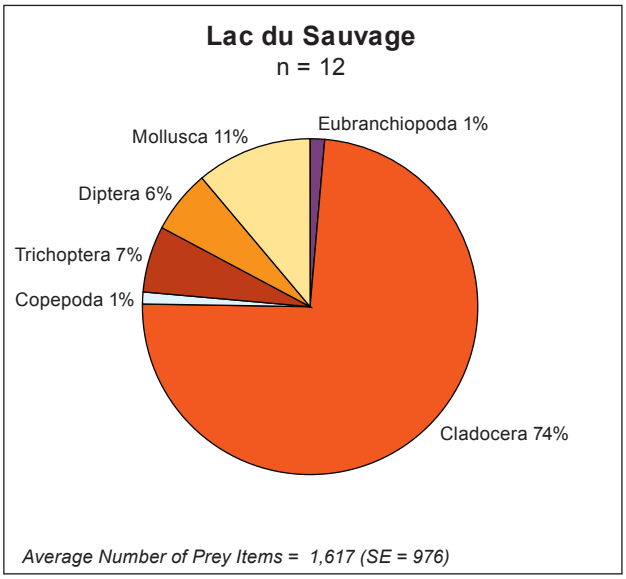
3.9.9 Tissue Metal Concentration

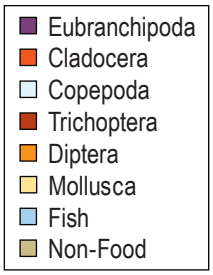
Eight of the 25 metals measured in the muscle and liver tissues of lake trout, lake whitefish, and round whitefish had 90% or more of their values below the minimum detection limit in either the muscle or liver tissue, and were removed from further analysis (Be, Bi, Ni, Li, Sb, Sn, V and U, Appendix 3.9.6). Two additional elements (molybdenum (Mb) and chromium (Cr)) were present in concentrations above the minimum detection limit in only lake trout from Lac du Sauvage and were included in that description. The remaining 15 elements were analyzed including: aluminium (Al), arsenic (As), barium (Ba), cadmium (Cd), calcium (Ca), cobalt (Co), copper (Cu), lead (Pb), magnesium (Mg), manganese (Mn), mercury (Hg), selenium (Se), strontium (Sr), thallium (Tl), and zinc (Zn). To calculate the average metal concentrations of these elements, values below the minimum detection limit were replaced with one-half of the detection limit (a conventional approach used when dealing with such data).

Differences in tissue metal concentrations between Lac du Sauvage and Ursula Lake were consistent between muscle and liver tissue (Figures 3.9-15 and 3.9-16). The most relevant difference appeared in lead (Pb) concentrations with Lac du Sauvage tissues containing approximately twice the lead-load of Ursula tissues. Aluminium concentrations were also substantially higher in tissues from Lac du Sauvage.

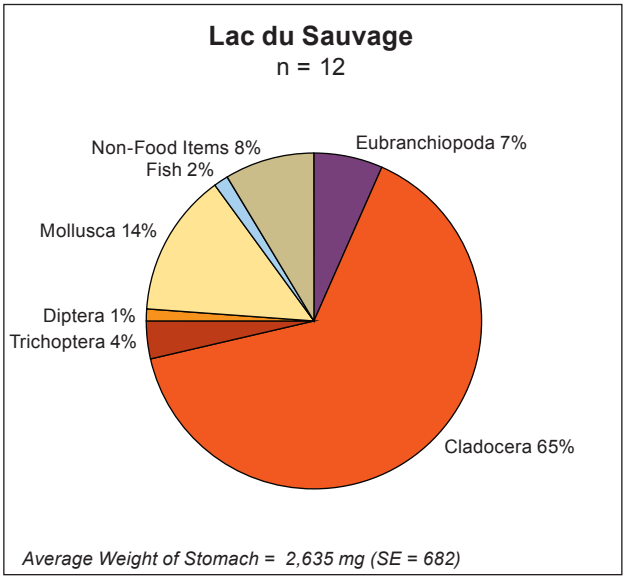
Average tissue concentration values for lake whitefish captured in Lac du Sauvage can be found in Figure 3.9-17. For most metals, liver tissue showed higher concentrations of metals relative to muscle. The exception to this was lead (Pb), strontium (Sr), and those elements associated with structural proteins (calcium (Ca) and magnesium (Mg)).

By Number





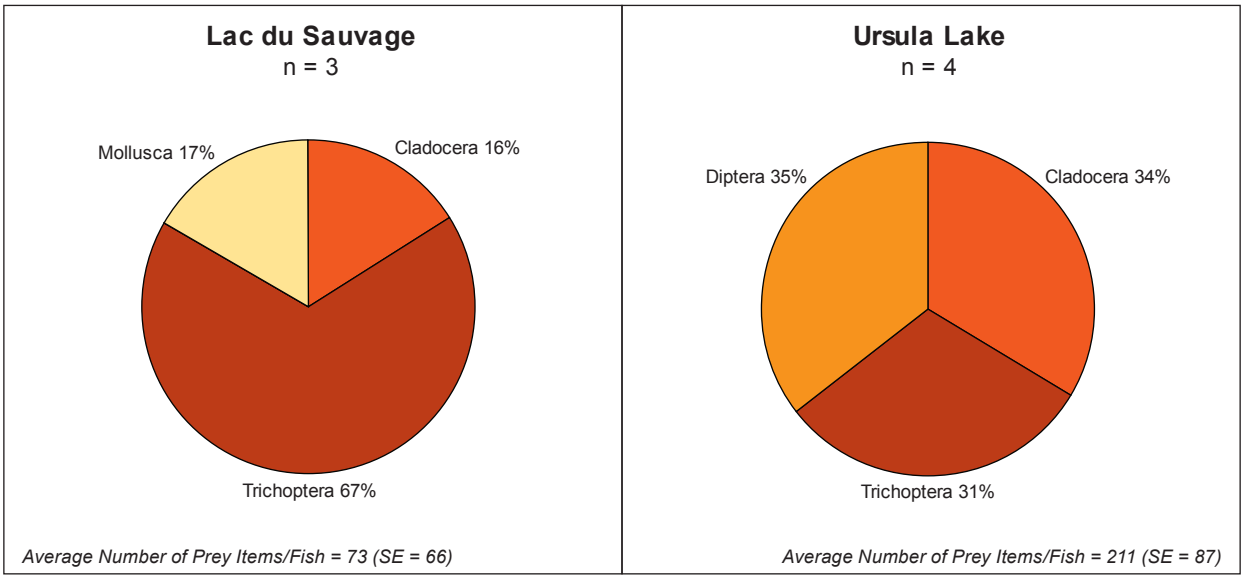
By Weight

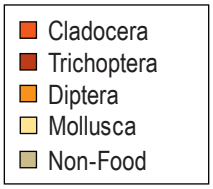


Taxonomic Composition of Lake Whitefish Stomachs by Number and Weight from Lac du Sauvage, 2006

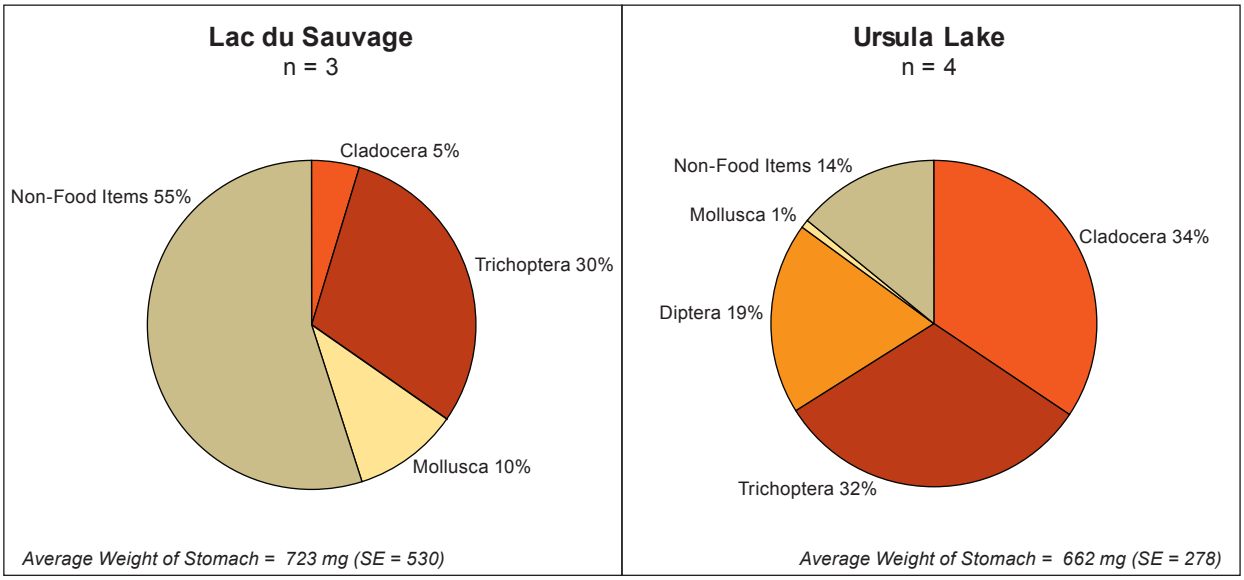
FIGURE 3.9-13

By Number



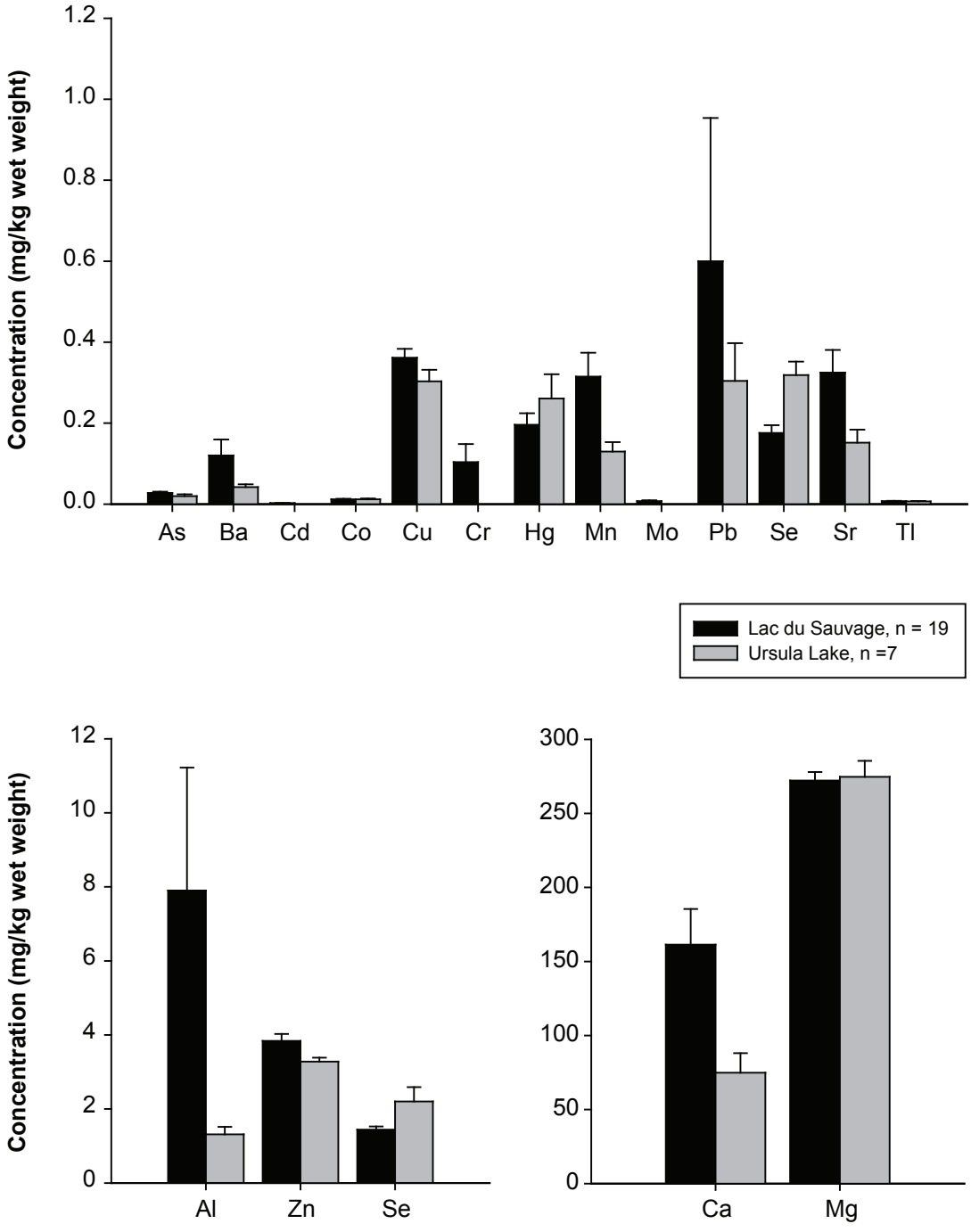


By Weight



Taxonomic Composition of Round Whitefish Stomachs by Number and Weight from Lac du Sauvage and Ursula Lake, 2006

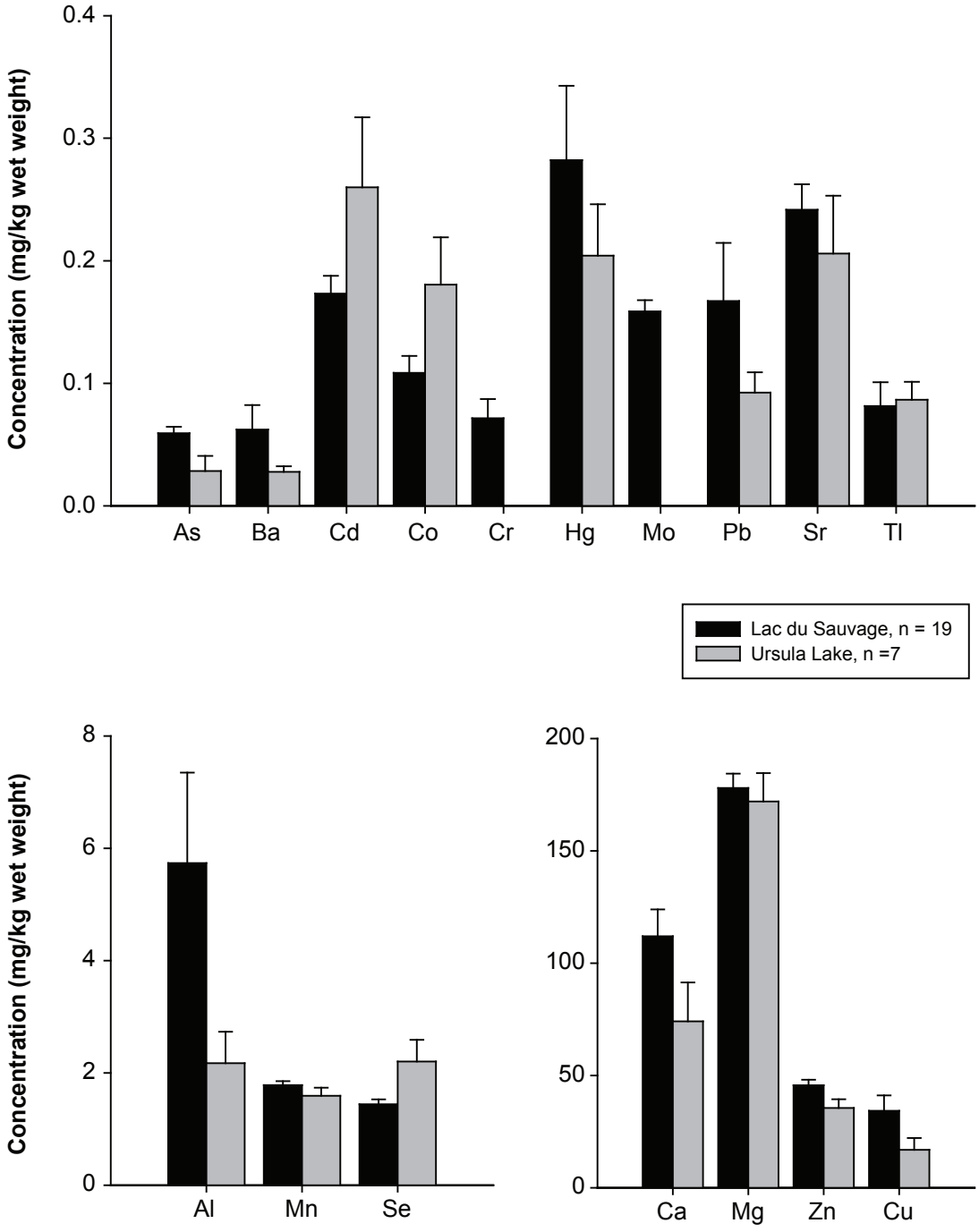
FIGURE 3.9-14



Note: Error bars represent standard error of the mean

FIGURE 3.9-15

Average Muscle Metal Concentrations, Lake Trout, Lac du Sauvage and Ursula Lake, 2006



Note: Error bars represent standard error of the mean

FIGURE 3.9-16

Average Liver Metal Concentrations, Lake Trout, Lac du Sauvage and Ursula Lake, 2006

Tissue metal concentrations in round whitefish (Figures 3.9-18 and 3.9-19) followed much the same pattern as lake trout between the two lakes. Fish from Lac du Sauvage showed higher Pb levels, and livers were also higher in Al. As with the lake trout, levels of Se were higher in tissue from Ursula Lake.

Heavy metals, such as mercury and lead, have a tendency to accumulate in tissues over the lifetime of an organism causing a correlation between tissue metal concentrations and body size. Edible tissue content guidelines have been established by the Canadian Food Inspection Agency (CFIA) for these metals. To test for any substantial bioaccumulation occurring in the sample lakes, correlations between the tissue concentrations of the two metals of interest (Hg and Pb) and fork length were assessed for significance. Fork length was chosen as the index for body size because it varies little with season and reproductive status. Observed metal concentrations were also assessed relative to the upper Canadian tissue contaminant guidelines of 0.5 ppm for both mercury and lead. Mercury concentrations were positively correlated with body size in lake trout muscle and liver tissues from Lac du Sauvage, and muscle tissues of round whitefish captured in Ursula Lake (Figure 3.9-20). Contrary to expectations, lead concentrations were significantly, negatively correlated with body size of lake whitefish from Lac du Sauvage for both muscle and liver tissue (Figure 3.9-21). The negative correlation is likely the result of low sample sizes.

Of the guidelines provided by the Canadian Food Inspection Agency, Mercury guidelines were exceeded in 5 lake trout liver samples in Lac du Sauvage. Lead guidelines were exceeded in 4 lake trout muscle samples, 1 lake trout liver sample, 2 round whitefish muscle samples, and 1 round whitefish liver sample from Lac du Sauvage. Lead guidelines were exceeded in one lake trout muscle sample from Ursula Lake. Arsenic, a metal acknowledged to not bioaccumulate in aquatic systems, has a maximum CFIA guideline of 3.5 ppm in edible fish tissue. This was not exceeded in any sample.

3.10 Fish Habitat

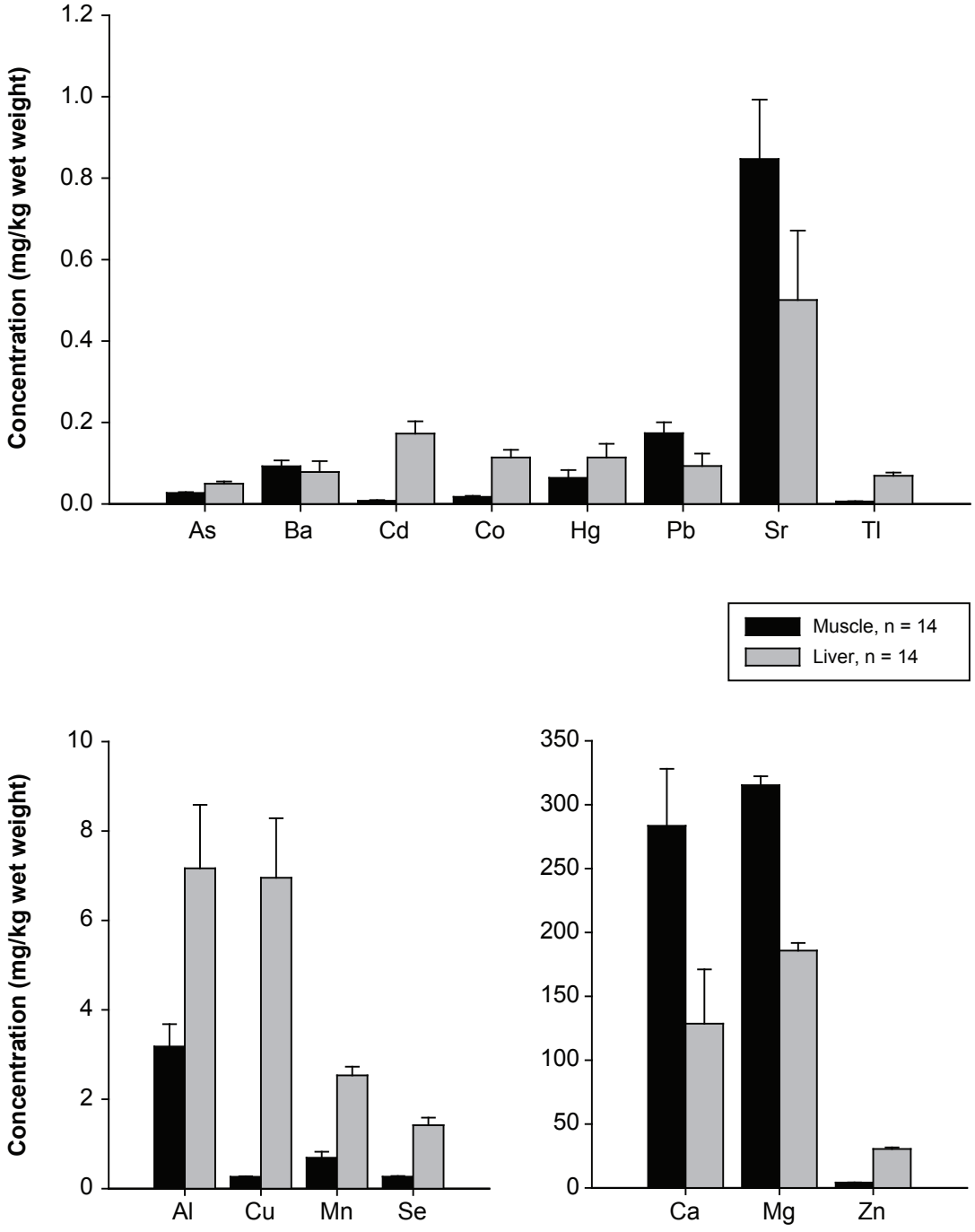
3.10.1 Habitat Preferences

There were five fish species captured in Lac du Sauvage (burbot, lake trout, lake whitefish, and round whitefish). To link available habitat with species-specific preferences, a summary of habitat preferences based on Richardson *et al.* (2001) can be found in Table 3.10-1. A written summary for each species appears below.

Table 3.10-1
Habitat Preferences of Fish Species Captured in Lac du Sauvage, 2006

Part 1	Substrate Preference				
Species	**Sand/Silt**	**Gravel**	**Cobble**	**Boulder**	**Bedrock**
Burbot	S	S-Y-J-A	S-Y-J-A	Y-J-A	A
Lake Trout		S	S-Y-J-A	S-Y-J-A	
Lake Whitefish	Y-A	S-Y-J-A	S-Y-J-A	S-Y-J-A	
Round Whitefish	A	S-Y	Y-A		

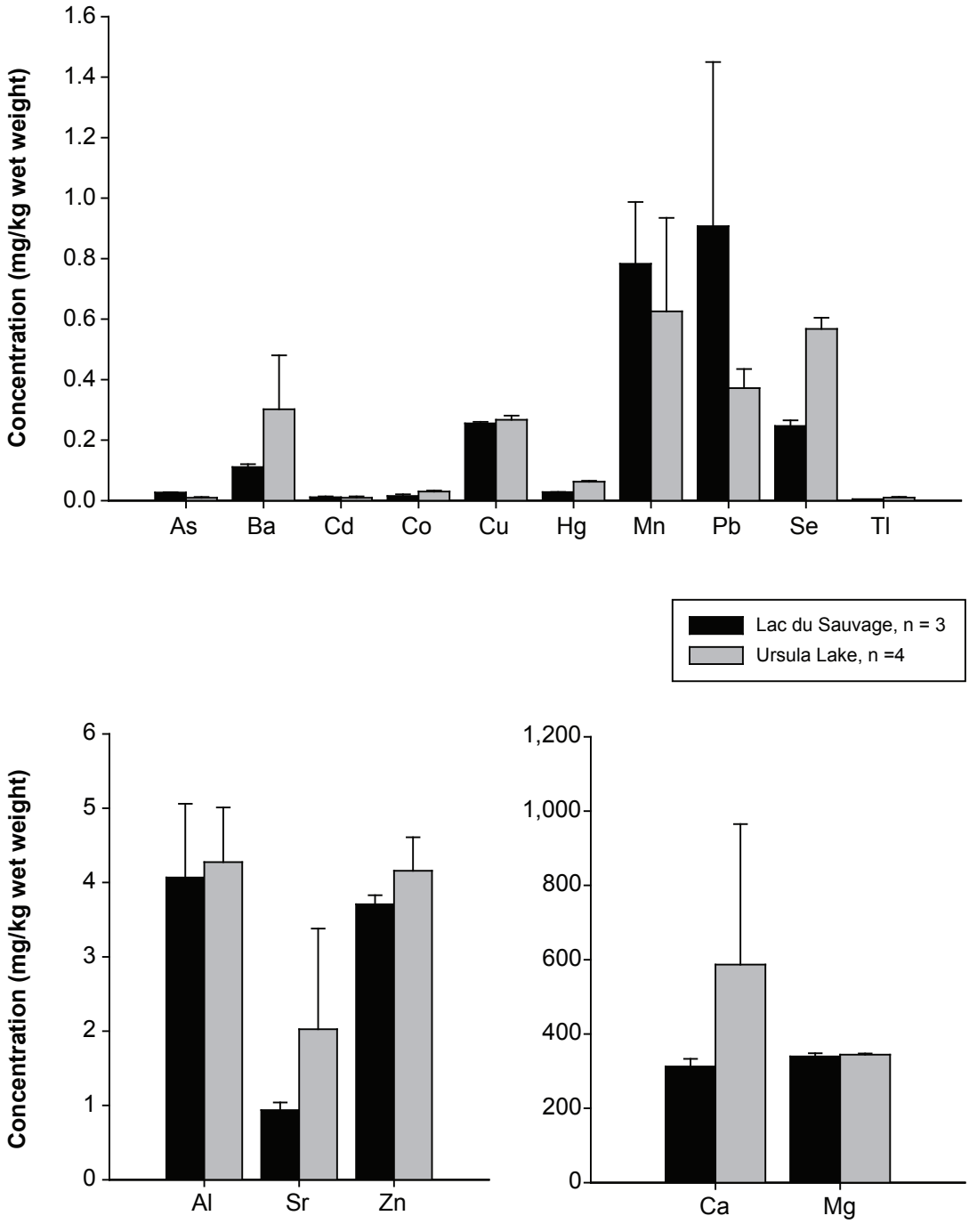
(continued)



Note: Error bars represent standard error of the mean

FIGURE 3.9-17

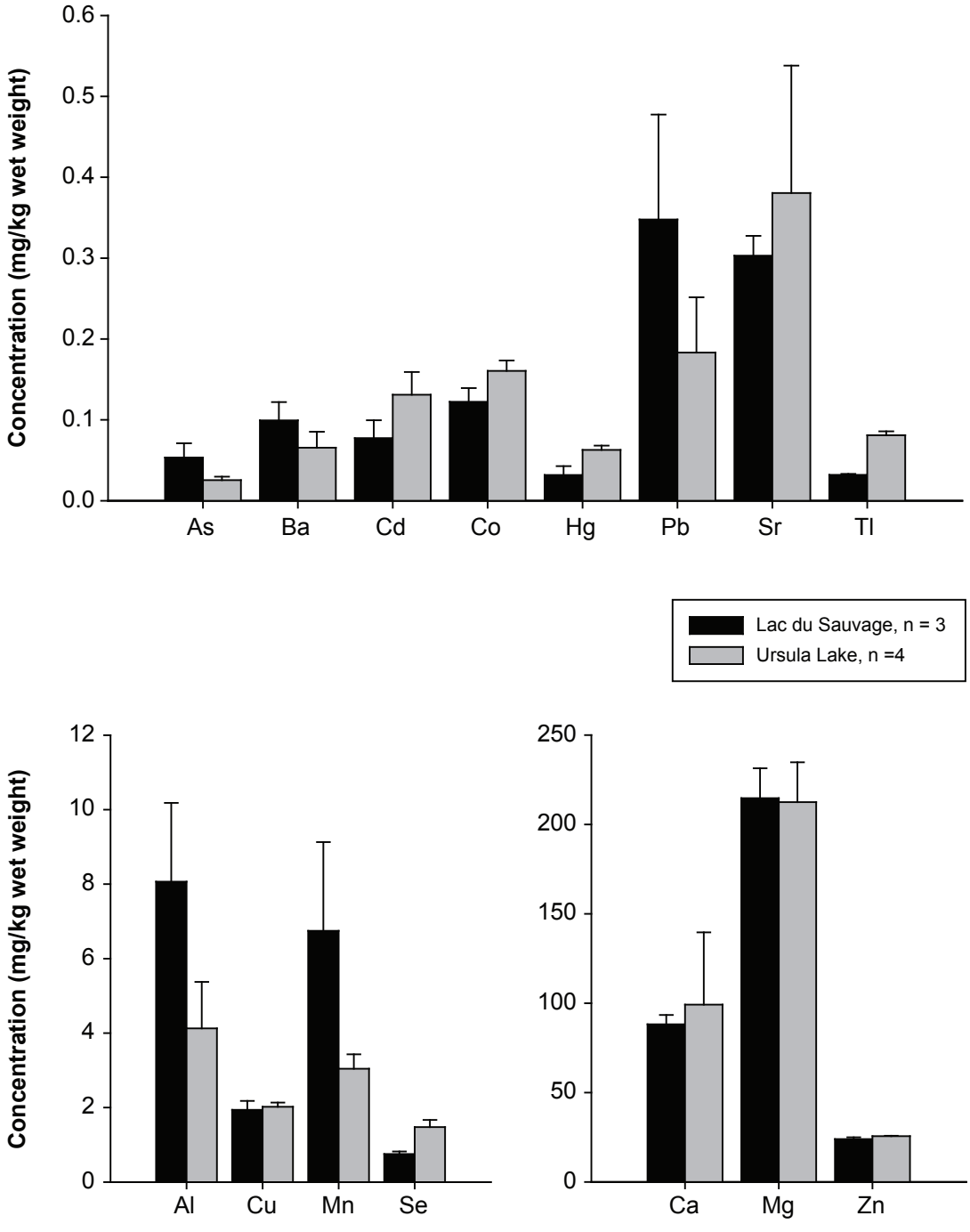
Average Muscle and Liver Metal Concentrations, Lake Whitefish, Lac du Sauvage, 2006



Note: Error bars represent standard error of the mean

FIGURE 3.9-18

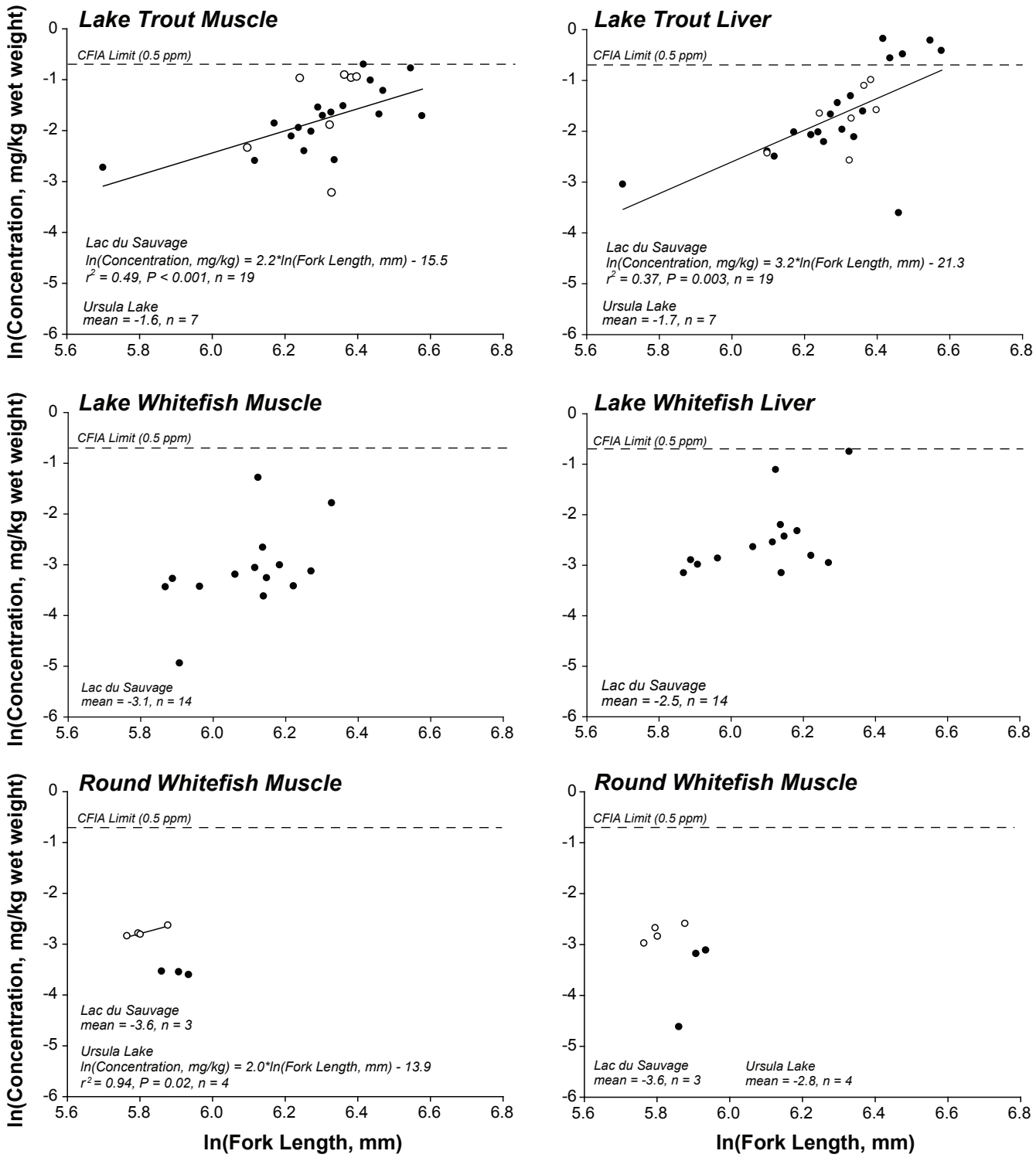
Average Muscle Metal Concentrations, Round Whitefish, Lac du Sauvage and Ursula Lake, 2006



Note: Error bars represent standard error of the mean

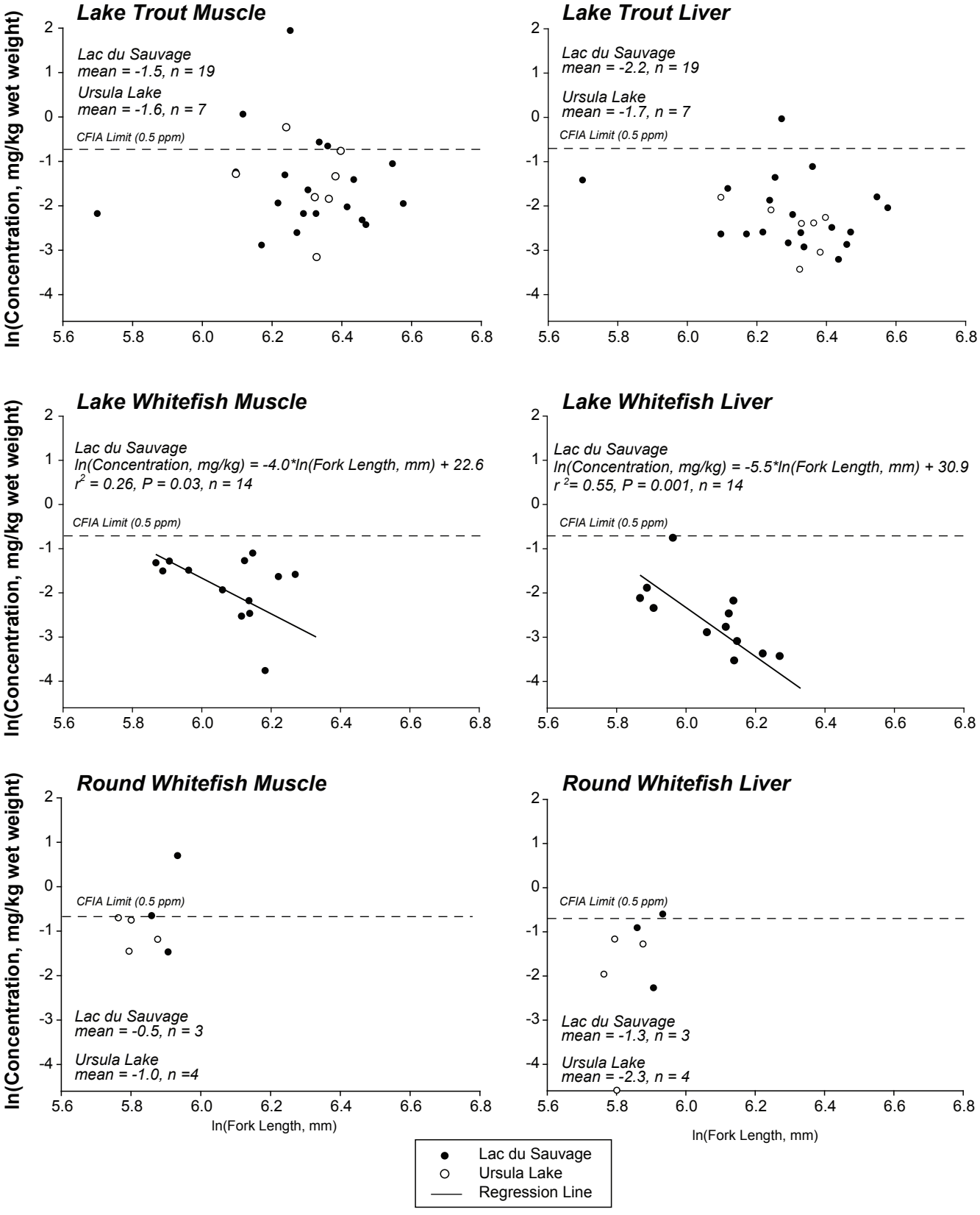
FIGURE 3.9-19

Average Liver Metal Concentrations, Round Whitefish, Lac du Sauvage and Ursula Lake, 2006



Regressions of Mercury Concentration on Length for Muscle and Liver Tissue from Lake Trout, Lake Whitefish and Round Whitefish Captured in Lac du Sauvage and Ursula Lake, 2006

FIGURE 3.9-20



Regressions of Lead Concentration on Length for Muscle and Liver Tissue from Lake Trout, Lake Whitefish and Round Whitefish Captured in Lac du Sauvage and Ursula Lake, 2006

FIGURE 3.9-21

Table 3.10-1
Habitat Preferences of Fish Species Captured in Lac du Sauvage, 2006 (completed)

Part 2	Cover		Depth Preference			
Species	**None**	**In Situ**	**S**	**Y**	**J**	**A**
Burbot			0 - 2 m	0 - 5 m	0 - 5 m	0 - 10+ m
Lake Trout	S-A	Y-J	0 - 10+ m	2 - 10+ m	2 - 10+ m	10+ m
Lake Whitefish			1 - 5 m	5 - 19 m	1 - 10 m	2 - 10+ m
Round Whitefish			0 - 1 m	0 - 2 m	0 - 2 m	0 - 2 m, 5 - 10+ m

Source: Richardson *et al*. 2001
Age Categories: S = spawning, Y = young of year, J = juveniles, A = adult
Cover: In situ defined as rock/cobble/gravel substrate cover
Substrate Categories defined by mean particle size, broken down as follows:
Sand/Silt: < 2 mm in diameter
Gravel: 2 - 64 mm diameter - note that this represents a combination of pebble and gravel from the littoral zone habitat surveys
Cobble: 64 - 256 mm diameter
Boulder: 256 - 4000 mm diameter
Bedrock: > 4000 mm diameter

3.10.1.1 Burbot

Burbot, the only truly freshwater member of the cod family, is characterized by an elongate body with smooth skin (Plate 3.10-1). Typically, burbot are found in lakes with substantial deepwater habitat, however they have been observed to inhabit rivers, streams, and low-lying ponds (McPhail and Lindsey, 1970; Scott and Crossman, 1973). Burbot are known to spawn during the ice covered periods in both rivers and lakes, and generally prefer sand and gravel substrates at depths of 1 to 5 m (Richardson *et al.* 2001). Larvae emerge between 3 weeks and 3 months after eggs are deposited, and will remain over gravel-cobble substrate along shorelines (Richardson *et al.* 2001; Scott and Crossman, 1973). Juveniles and adults will move out of shallow water areas as the water warms and head towards deeper water where these nocturnal predators can be found over boulder, cobble, and sandy substrates (Richardson *et al.* 2001; Scott and Crossman, 1973).

Plate 3.10-1. A young burbot from the EKATI area.

3.10.1.2 Lake Trout

Lake trout is a deepwater salmonid (Plate 3.10-2) common in deep lakes across the continental Northwest Territories as well as on many of the Arctic islands (Scott and Crossman, 1973). They have also been found to inhabit large clear rivers (McPhail and Lindsey, 1970). Spawning occurs in late summer/early fall over cobble/gravel areas interspersed with large boulders free of any sand or silt, typically at depths less than 12.2 m (40 ft) (McPhail and Lindsey, 1970; Scott and Crossman, 1973). Eggs hatch between March and June with the young-of-year remaining in the spawning areas until water temperatures rise above 15°C wherein they head to deeper, cooler water between 2 and 10 m of depth (McPhail and Lindsey, 1970; Scott and Crossman, 1973). Juveniles and adults are confined to waters over 10 m of depth and are most commonly found over rocky substrate (Richardson *et al.* 2001).

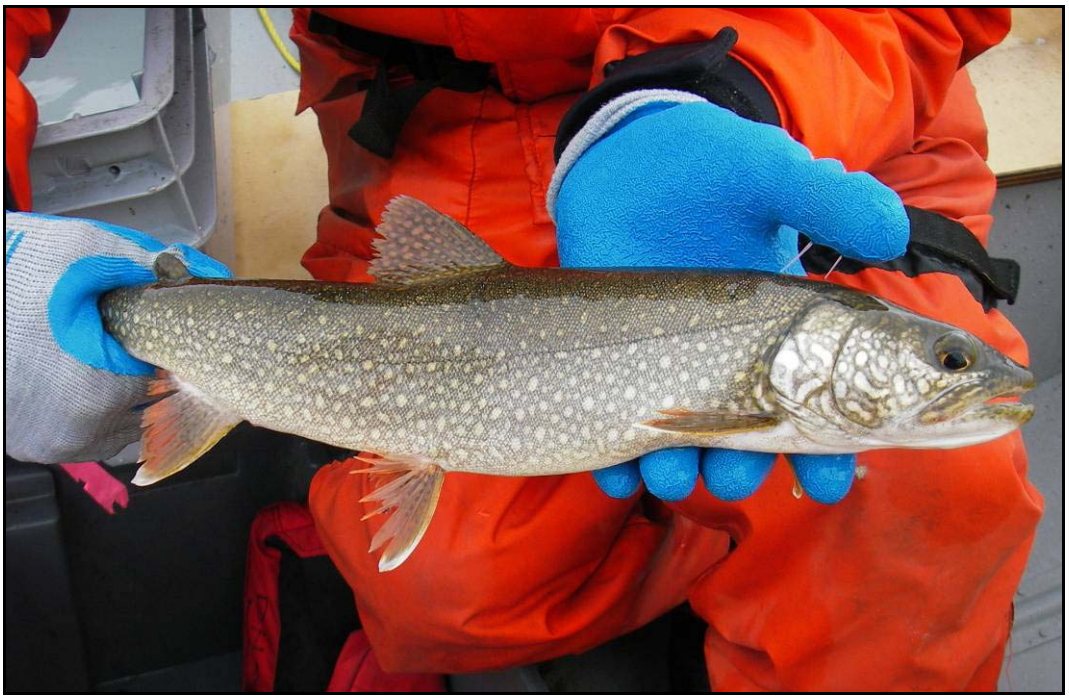


Plate 3.10-2. The classical torpedo shape of an Arctic Lake Trout.

3.10.1.3 Lake Whitefish

The freshwater resident form of lake whitefish spawns over a wide variety of substrates ranging from sand to cobble (McPhail and Lindsey, 1970; Scott and Crossman, 1973; Richardson *et al.* 2001). Spawning occurs in late summer/early fall, and eggs are generally deposited in waters less than 5 m in depth. Eggs hatch between March and early-May and the young-of-year generally remain in the spawning area at depths of less than 1 m (Cucin and Faber, 1985). As temperatures warm, young move into deeper, cooler waters (3 – 15 m) (Scott and Crossman, 1973). During the summer months, lake whitefish are most often found over boulder-cobble substrate in deeper water. Much of the habitat preferences can be linked with diet because lake whitefish are generally bottom-feeders known to feed on snails, clams, chironimid larvae, and small fishes typical of rocky substrate (McPhail and Lindsey, 1970; Scott and Crossman, 1973).

3.10.1.4 Round Whitefish

Round whitefish (Plate 3.10-3) are commonly found in ponds, shallow areas of lakes, streams, and rivers (McPhail and Lindsey, 1970; Scott and Crossman, 1973). Spawning occurs in late fall/early winter in flowing waters over gravel substrate. Hatch-out occurs in early spring and the newly emerged fry remain over gravel-cobble substrate in shallow water (Richardson *et al.*, 2001). Adults will generally use shallow waters (less than 10 m deep) because the diet consists almost exclusively of small benthic macroinvertebrates (Scott and Crossman, 1973; Richardson *et al.* 2001).

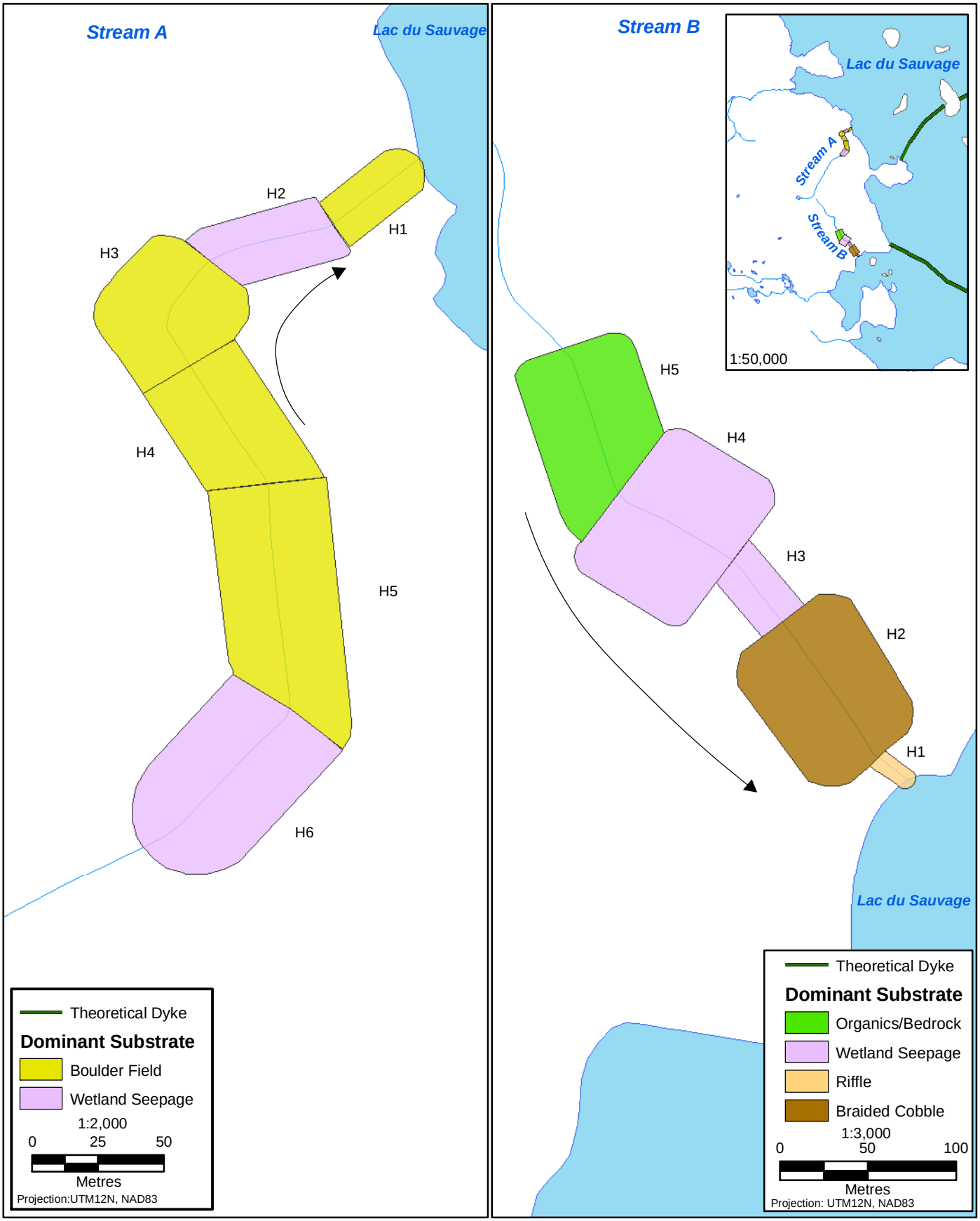
Plate 3.10-3. A typical round whitefish common throughout the Northwest Territories.

3.10.2 Streams

Fish habitat in the streams in the Jay Pipe area was assessed in August of 2006. The location of the two streams (Stream A and Stream B) and defined habitat zones can be found in Figure 3.10-1. A summary of the habitat zones of each stream can be found in Table 3.10-2.

Stream A

This drainage extended from Lac du Sauvage to its origin 325 m upstream. For this study, the stream was broken into six distinct habitat zones based on channel morphology, bed substrate, and gradient. Each zone was described beginning at the confluence with Lac du Sauvage. The mouth of Stream A had a bankfull width of 20 m, although no clear channel was evident through



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Location and Defined Habitat Zones of Stream A and Stream B, 2006

FIGURE 3.10-1

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Table 3.10-2
Summary of Habitat Surveyed in Stream A and Stream B, 2006

Stream	Zone	Zone Start		Zone End		Slope	Length (m)	Bankfull Width (m)	Channel Description	Channel Description	Barriers
		Easting	Northing	Easting	Northing						
Stream A	H1	540859	7166571	540835	7166552	1%	30	20	NC	Boulder Field	Present
	H2	540835	7166552	540788	7166539	1%	50	20 - 30	NCD	Wetland Seepage	Present
	H3	540788	7166539	540770	7166515	1%	30	50	NCD	Boulder Field	Present
	H4	540770	7166515	540810	7166455	2%	60	40	NCD	Boulder Field	Present
	H5	540810	7166455	540819	7166370	2%	90	55	NCD	Boulder Field	Present
	H6	540819	7166370			-	65	50	NCD	Wetland Seepage	Present
Stream B	H1	540932	7165380	540921	7165387	2%	6.5	12	Riffle	Cobble/Boulder	Present
	H2	540921	7165387	540866	7165466	1%	50	100	NCD	Braided Cobble	Present
	H3	540866	7165466	540838	7165499	-	15	30	NC	Wetland	Present
	H4	540838	7165499	540774	7165538	-	50	100	NCD	Wetland	Present
	H5	540774	7165538			-	80	70	NCD	Organics/Bedrock	Absent

Riffle - turbulent water flowing over gradient of less than 4%, NCD - non-classified drainage, NC - no channel evident

the boulder field that dominated the stream (Plate 3.10-4). No flowing water was observed through this section at time of sampling, but some standing water was evident in the crevices between the rocks. Roughly 30 m back from the Lac du Sauvage and extending 50 m upstream, the stream widens to a bankfull width of 50 m, and enters into a wetland/seepage area covered by grasses and mosses (Plate 3.10-5). At this point, the land is saturated with water, no channel was evident, and surface water was present only in stagnant pools (Plate 3.10-6). A third habitat zone begins above this seepage, and is comprised of a second boulder field extending 30 m upstream. Surface water was confined to crevices between the rocks with a maximum depth of less than 5 cm (Plate 3.10-7). In the fourth zone, the boulder field lessens for 60 m and becomes interspersed with small willow bushes. For a large portion of this reach, flow was subsurface with only periodic, shallow pools of stagnant water evident on the surface (Plate 3.10-8). The stream then resurfaces, extending approximately 90 m upstream, and flows around the base of the boulders. Beyond this, the stream enters the final identified habitat zone and returns to subsurface flow as a saturated groundwater seep.

At time of sampling, Stream A did not have adequate water levels to conduct any fish community assessment. Field staff reported that the boulder field located at the confluence with Lac du Sauvage (Zone H1) (Plate 3.10-4) likely acted as an effective fish barrier to any upstream movement. This survey was conducted in August (during summer periods of low water levels) suggesting that adequate flow may exist during spring freshet to allow spawning migration up the boulder-strewn stream.

Plate 3.10-4. Stream A - Looking upstream over the boulder field at confluence of Stream A and Lac du Sauvage. (Zone H1)

Plate 3.10-5. Stream A - Looking downstream through the seepage area of Stream A. (Zone H2)

Plate 3.10-6. Stream A - Stagnant pools typical of the saturated area of Stream A. (Zone H2)

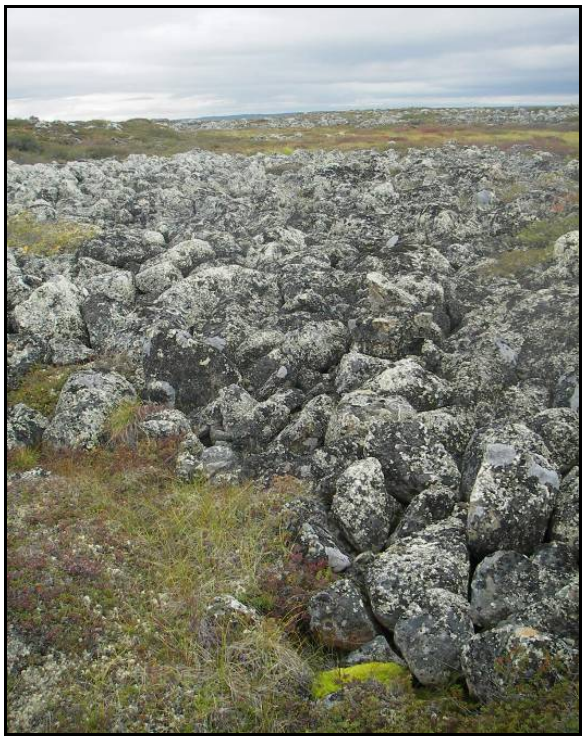


Plate 3.10-7. Stream A - An upstream view through the second boulder field of Stream A. (Zone H3)

Plate 3.10-8. Stream A - The only surface water evident in the far upstream sections of Stream A was confined to the crevices between the rocks. (Zone H4)

Stream B

Habitat in Stream B was assessed on August 23, 2006 by walking the entire 312 m length. This identified five distinct habitat zones that are described beginning with the downstream confluence with Lac du Sauvage. At the mouth of Stream B, the bankfull width was 6.5 m, and some flow was evident over a 12 m long riffle section among small boulders (Plate 3.10-9). The stream then enters the second habitat zone as it widens out to a width of 50 m. This continues for 100 m through a flat braided area characterized by high amounts of rubble and small shrubs (Plate 3.10-10). Through this section no channel was evident and the area has been characterized as being a large seep with several pools of water that show little connectivity. The third habitat zone is characterized by subsurface flow through 100 m of saturated ground. The surface was dominated by mosses and small shrubs across this wetland (Plate 3.10-11). This groundwater seep terminated in the fourth habitat zone which is characterized by a 70 m long by 80 m wide marshy area with shallow pools of stagnant water. There was some evidence of a channel through this section, although fish habitat was quite limited. The stream terminated in the final habitat zone characterized by a series of connected shallow ponds. These ponds likely act as the headwater to the stream and appeared to be shallow depressions in the bedrock (Plate 3.10-12). No flow was evident and emergent grasses covered the area.

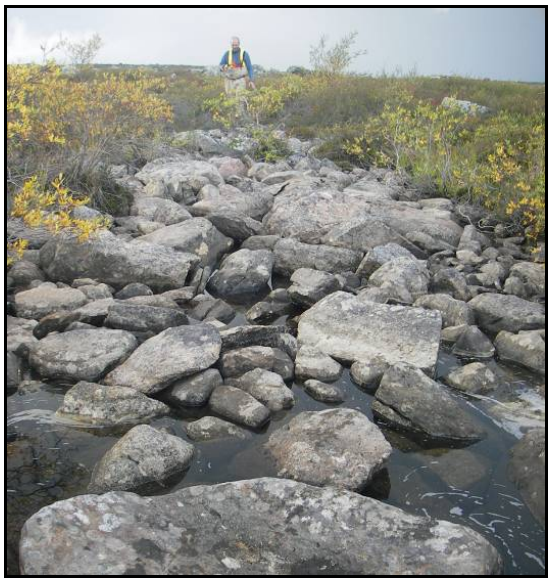


Plate 3.10-9. Stream B - Looking upstream through the riffle section at the confluence of Stream B with Lac du Sauvage. (Zone H1)

Plate 3.10-10. Stream B - The boulder strewn, shrubby section above the riffle section of Stream B. (Zone H2)

Plate 3.10-11. Stream B - A view upstream of the wetland in the upper reaches of Stream B. (Zone H3)

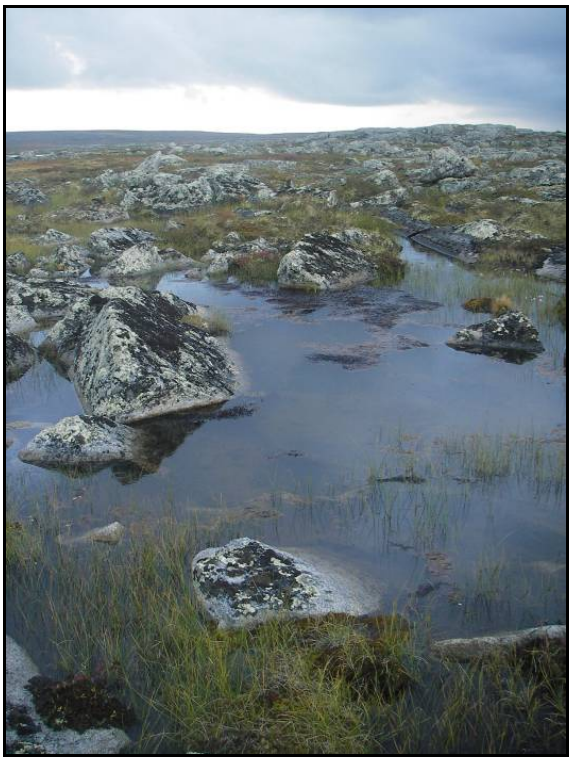


Plate 3.10-12. Stream B - The stagnant, ponded, bedrock area that acts as a headwater for Stream B. (Zone H5)

Fish community was not assessed for this stream because water levels were too low for the sampling gear. The flow through the riffle section at the confluence of Stream B and Lac du Sauvage suggest that water levels may be adequate for fish migration up this stream during spring freshet. Upstream areas provide good potential for spawning and some limited rearing areas provided water levels were substantially higher.

3.10.2.1 Stream Habitat Summary

The two streams draining into the Jay Pipe area were both non-fish bearing at the time of survey. Water levels were low, and the channels of both streams were undefined and littered with debris that likely act as barriers for fish movement. .

3.10.3 Lake Habitat

3.10.3.1 Littoral Zone Habitat

The littoral zone habitat assessment identified 155 unique habitat zones in the Jay Pipe area of Lac du Sauvage (Appendix 3.10-1). The location of each habitat zone, alongside a pie chart representing the proportional substrate composition can be found in Figures 3.10-2a-d. Contribution of each identified substrate to the 44,600 m^2 of littoral zone surveyed can be found in Figure 3.10-3.

The majority of the area assessed was dominated by boulder (53%) (Plate 3.10-13) followed by cobble (27%) (Plate 3.10-14), gravel (11%) (Plate 3.10-15), bedrock (6%), and fines (3%).

A total of 12,600 m^2 of littoral habitat, represented by 50 habitat zones, associated with the mainland and one small island were surveyed. Over 50% of the surveyed habitat was composed of boulder habitat. Cobble made up 28%, followed by gravel (13%), bedrock (4%) and fines (2%). Aquatic vegetation was observed in the sheltered areas.

A total of 7,850 m^2 of littoral zone was surveyed around two smaller islands surveyed at the northwest section of the Jay Pipe area. This resulted in 34 unique habitat zones being identified. Boulder habitat represented the largest area (48%), followed by cobble (32%), gravel (16%) and the remaining being fines and bedrock. Some vegetation was evident at sites on the eastern side of the islands.

Seven islands from a complex at the eastern edge of the proposed dyke location were surveyed. The littoral zone of the largest island represented an area of 8,972 m^2 and identified 20 unique habitat zones. The majority of the littoral zone was boulder habitat (66%), followed by cobble (23%), gravel (6%) and fines (5%). Cobble appeared sporadic about the island, but concentrations were found on the southern edge.

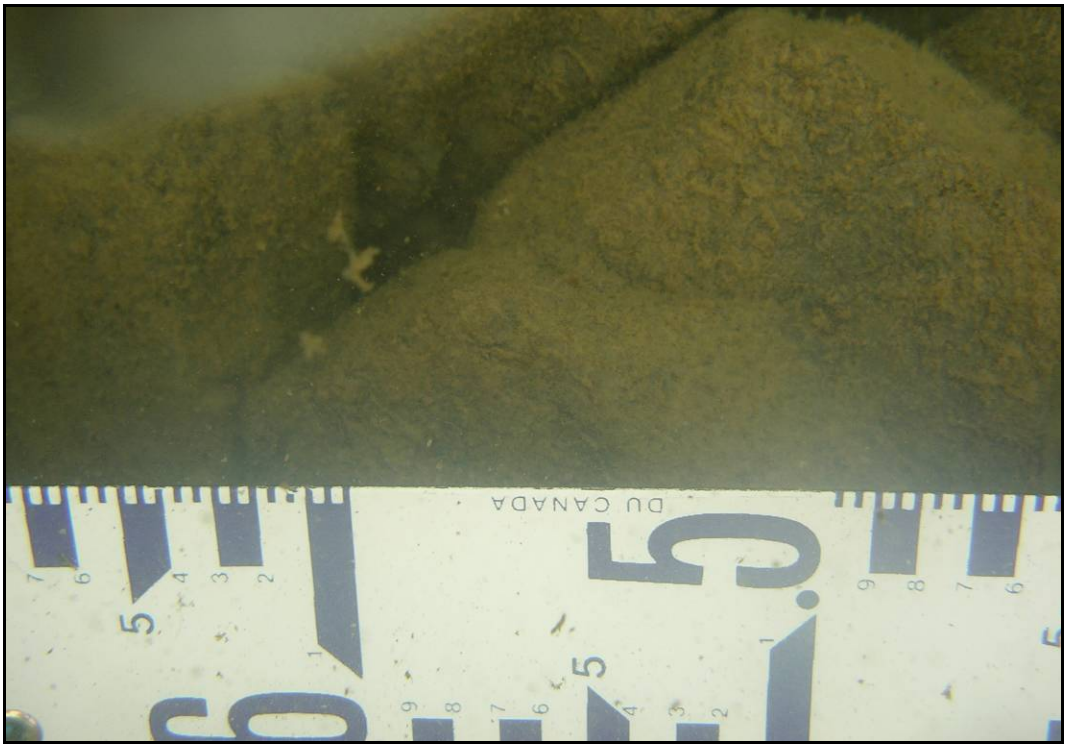
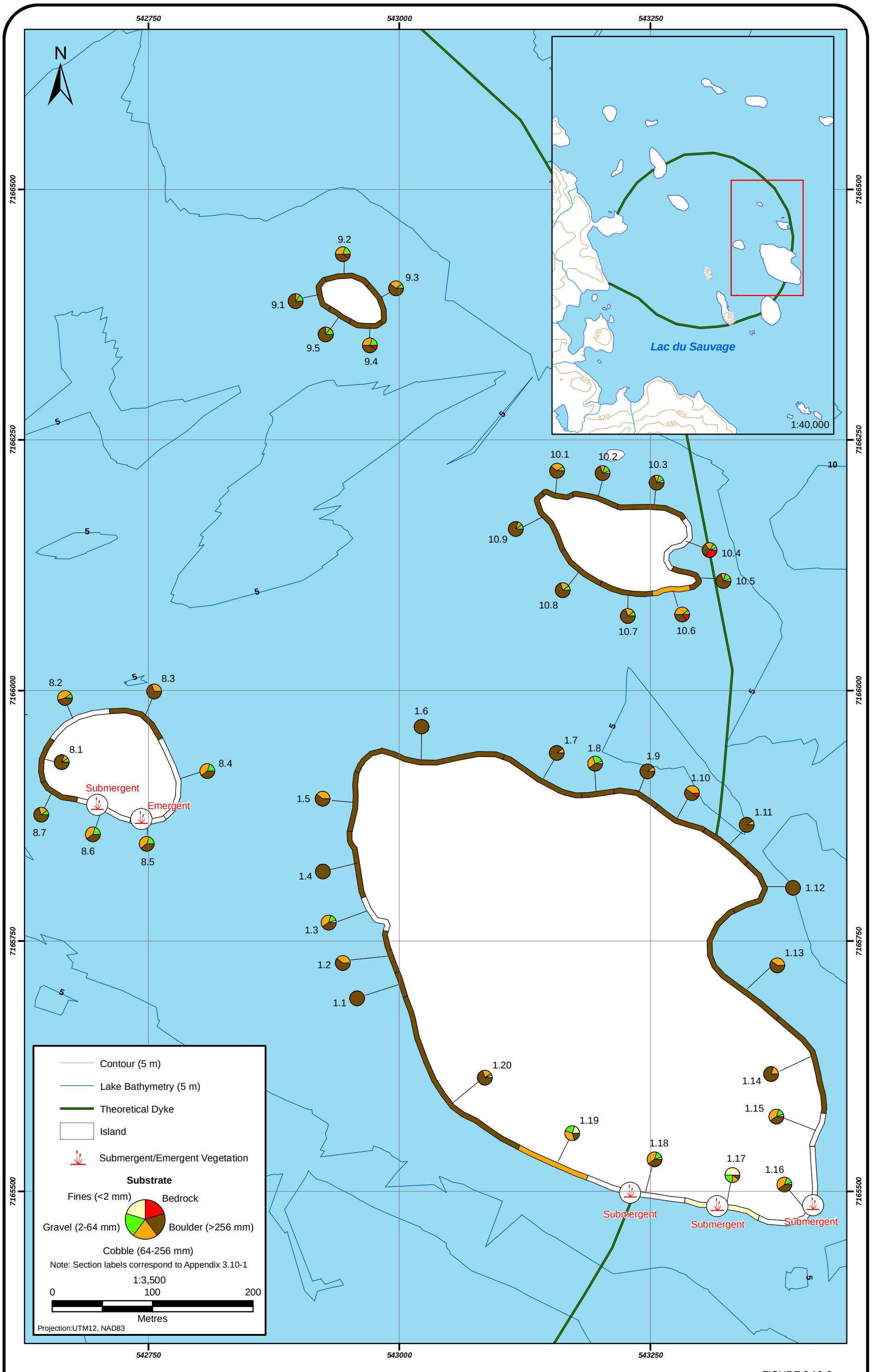


Plate 3.10-13. Boulders of this size were typical habitat in the shallow-water zones of the Jay Pipe area.



Fish Habitat Assessment of the Littoral Zone in the Jay Pipe Area of Lac du Sauvage, 2006 - Part 1

FIGURE 3.10-2a

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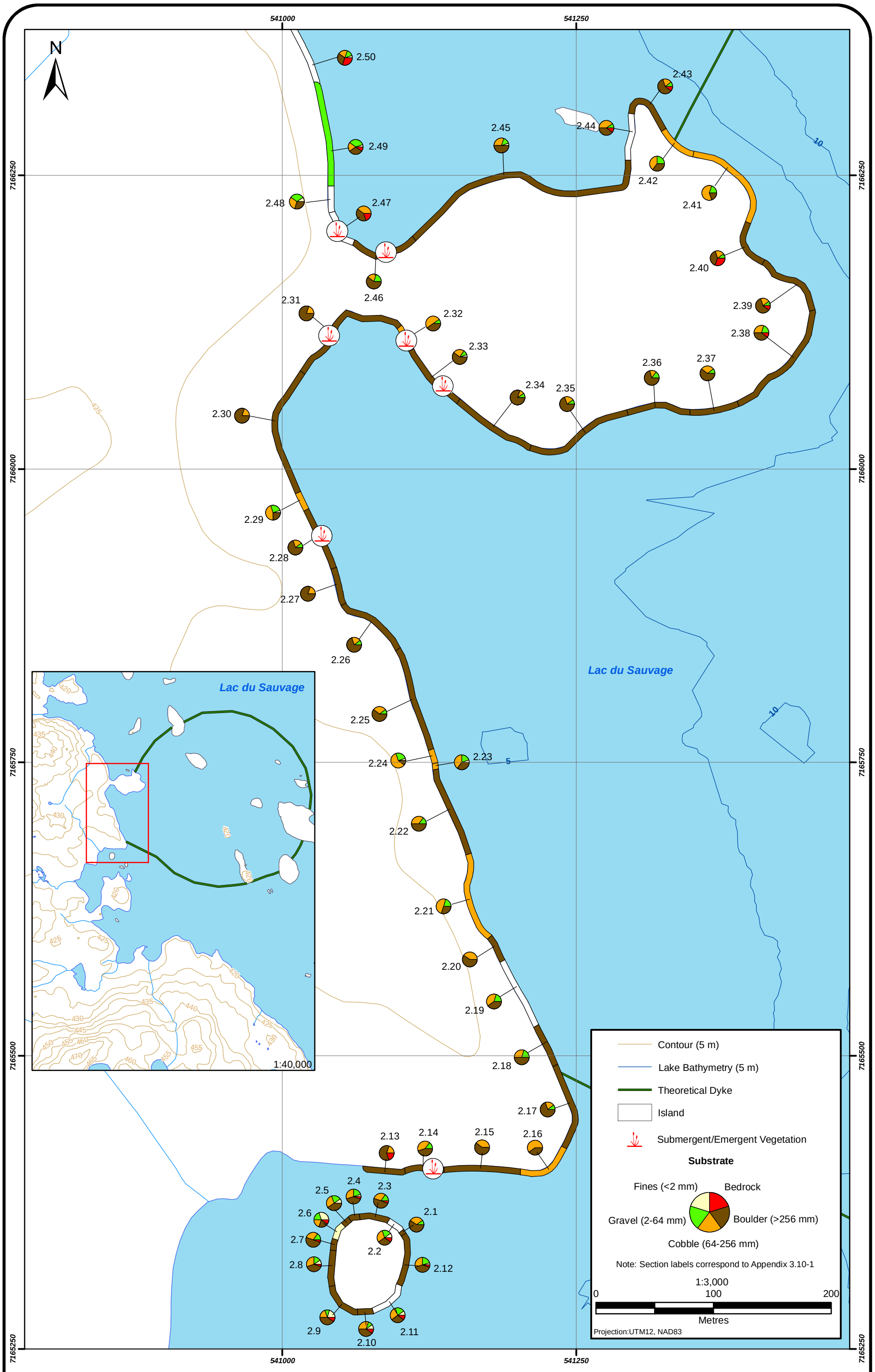

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Fish Habitat Assessment of the Littoral Zone in the Jay Pipe Area of Lac du Sauvage, 2006 - Part 2

FIGURE 3.10-2b

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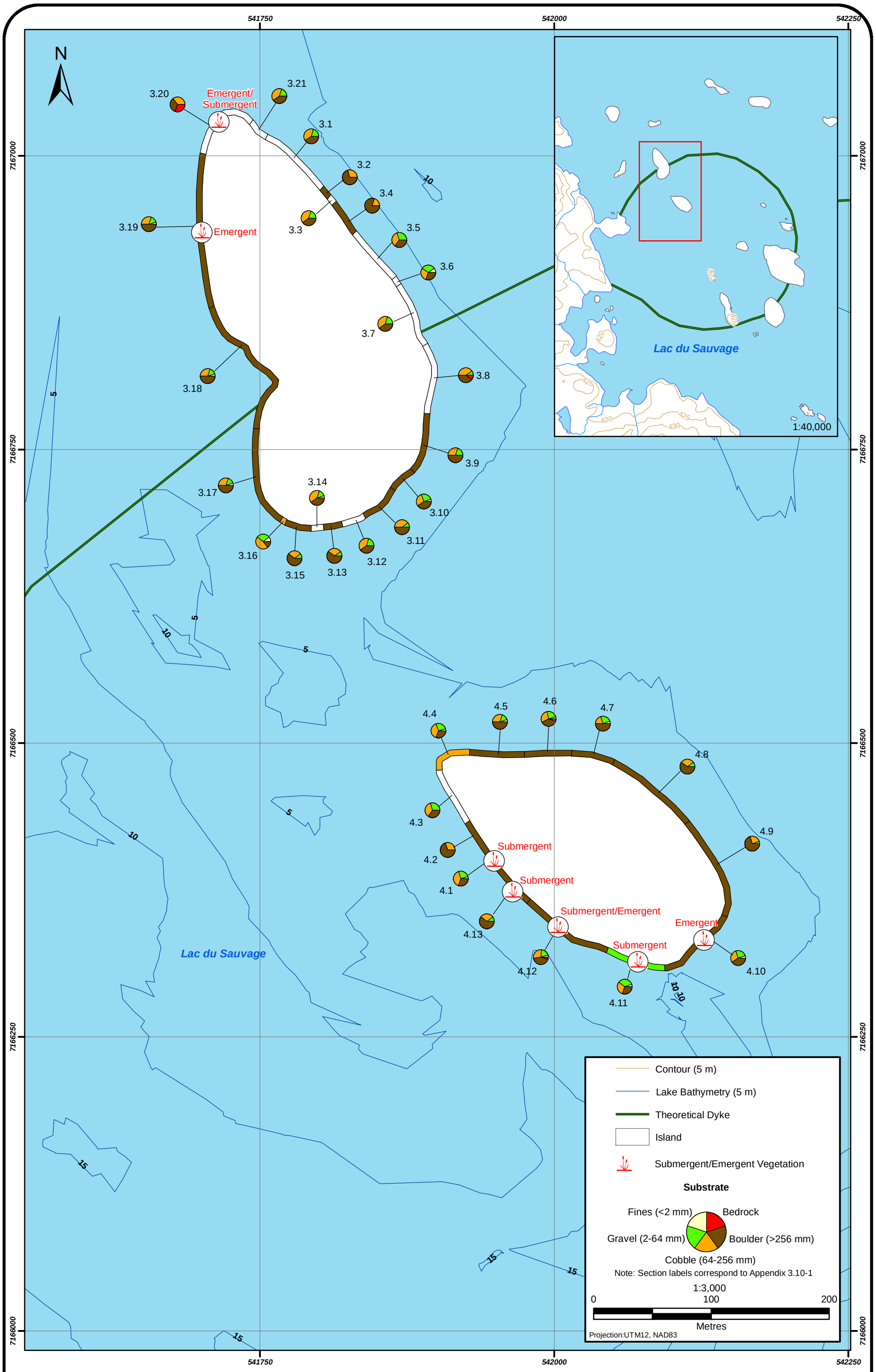

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Fish Habitat Assessment of the Littoral Zone in the Jay Pipe Area of Lac du Sauvage, 2006 - Part 3

FIGURE 3.10-2c

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N

542250 542500 542750 543000 543250

7165750 7165500 7165250 7165000

7.1 7.2 7.3 7.4 7.5

5.1 5.2 5.3 5.4 5.5 5.6 5.7 5.8 5.9 5.10 5.11

6.1 6.2 6.3 6.4 6.5 6.6 6.7 6.8 6.9 6.10 6.11 6.12 6.13 6.14

Submergent/ Emergent

Emergent

Submergent/ Emergent

Submergent/ Emergent

Lake du Sauvage

1:40,000

Contour (5 m)

Lake Bathymetry (5 m)

Theoretical Dyke

Island

Submergent/Emergent Vegetation

Substrate

Fines (<2 mm) Bedrock

Gravel (2-64 mm) Boulder (>256 mm)

Cobble (64-256 mm)

Note: Section labels correspong to Appendix 3.10-1

1:3,500

0 100 200

Metres

Projection:UTM12, NAD83

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FIGURE 3.10-2d

Fish Habitat Assessment of the Littoral Zone in the Jay Pipe Area of Lac du Sauvage, 2006 - Part 4

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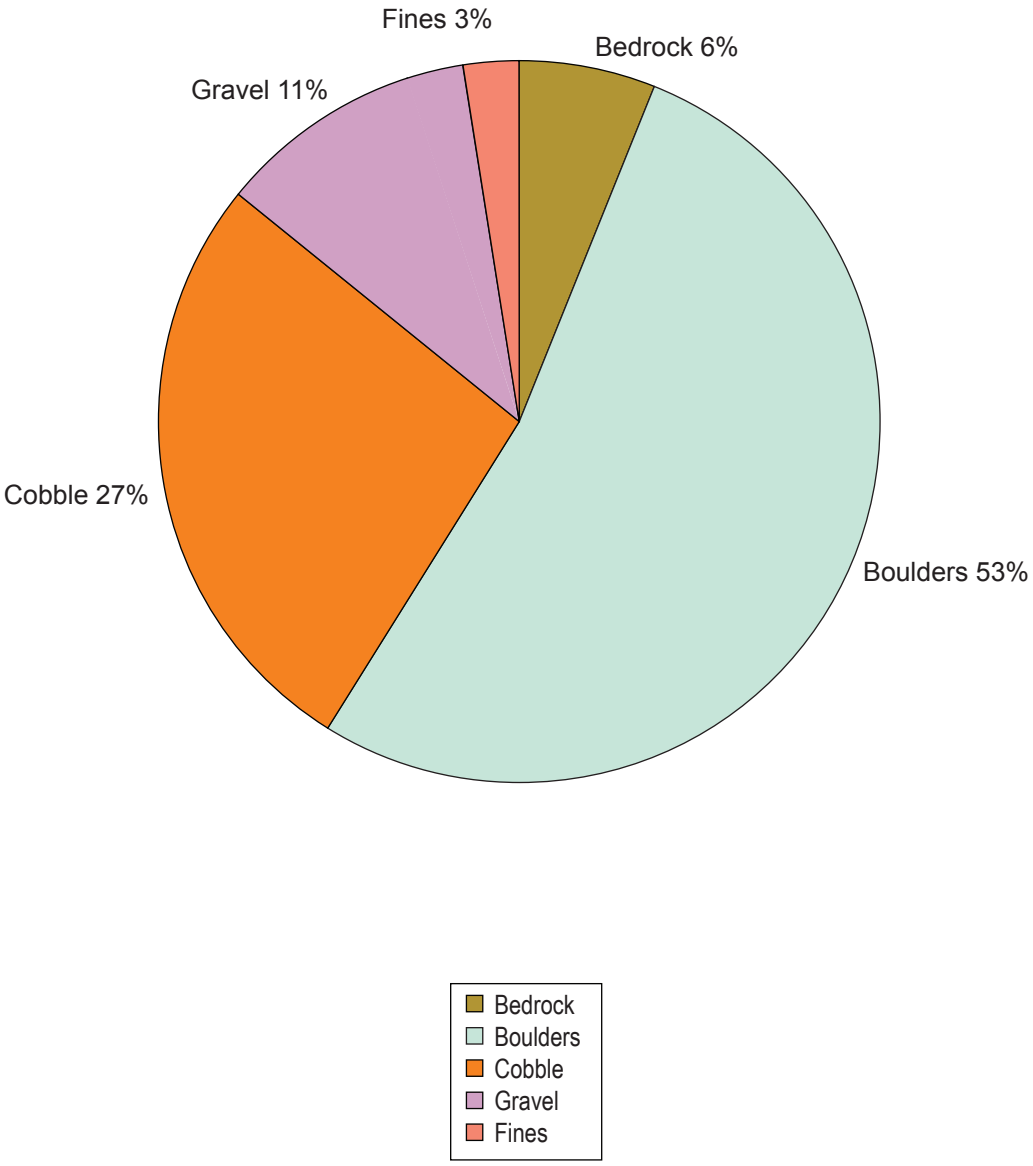

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Proportion of Surveyed Littoral Zone Allocated to Each Substrate Type, Lac du Sauvage, 2006

FIGURE 3.10-3

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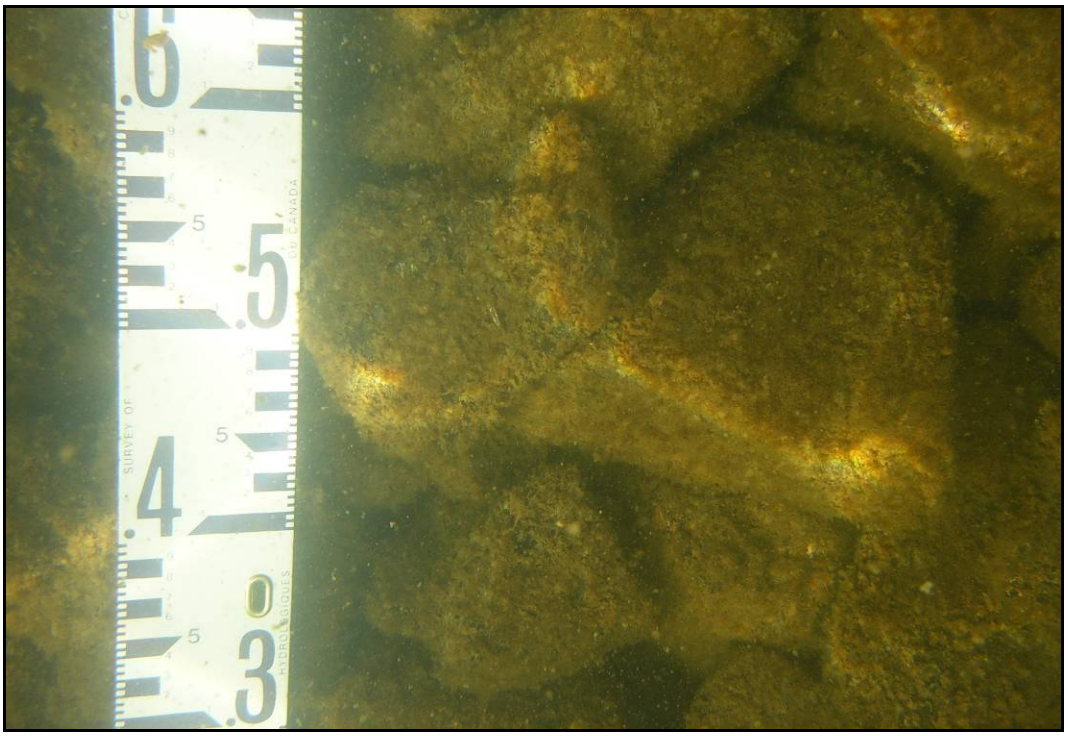


Plate 3.10-14. Typical cobble habitat that dominates the littoral zone in the Jay Pipe area.

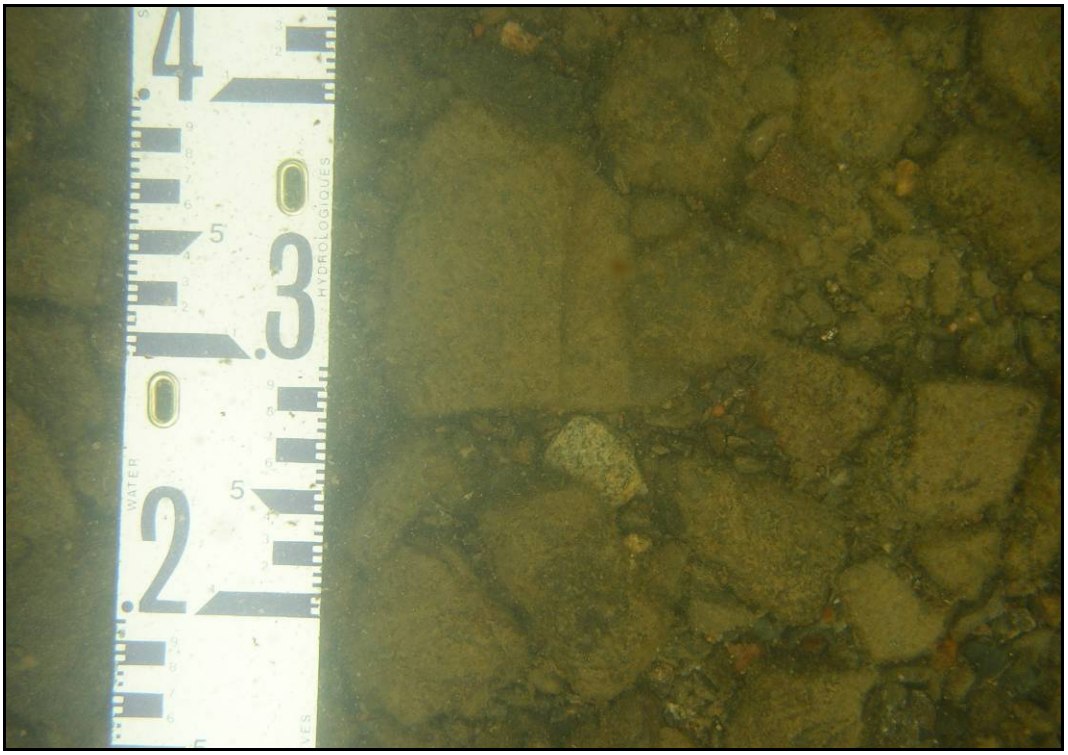


Plate 3.10-15. Pebble and gravel substrate were generally found together in the Jay Pipe area.

In four of the six smaller islands associated with the eastern island complex the littoral habitat was dominated by boulders (58%), followed by cobble (26%), gravel (12%) and the remainder being composed of fines and bedrock. The remaining two islands had littoral habitats composed of a combination bedrock (30%), boulder (34%) and cobble (24%). Gravel pockets were also evident throughout these island areas, suggesting that these areas may be used by whitefish.

Vegetation, both submerged and emergent, provide valuable habitat for larval and juvenile fish of all species. In addition to providing a refuge from predators, vegetation also attracts large numbers of invertebrates for young fish to forage on. Emergent vegetation was found in 10% of the identified habitat zones in dense mats (Plate 3.10-16). Submerged vegetation was found in 8% of the identified habitat zones.

For the majority of the areas surveyed, quadrat habitat summaries were similar to those generated from the shoreline walks (Table 3.10-3). The exceptions to this were the two smaller islands (Sections 5.1 to 5.11 and Sections 6.1 to 6.14) located in the southeast corner of the sampling area. Here, the quadrat surveys suggested that there was a greater contribution to gravel that was suggested by the shoreline walks. The inconsistencies between these two survey methodologies suggest that the substrate in these areas might be more spatially heterogeneous than other sampled areas.

Plate 3.10-16. Surface vegetation along the shoreline of Lac du Sauvage.

Table 3.10-3
Comparison of Habitat Summaries from Shoreline Walks and Quadrat Surveys

	% Cover from Shoreline Survey					% Cover From Quadrat Samples				
	Br	B	C	G	Fines	Br	B	C	G	Fines
Large Island (Section 1.1 to 1.20)	0	75	19	5	1	0	69	25	5	0
Mainland Shoreline (Section 2.1 to 2.50)	3	51	29	14	2	0	47	41	12	1
Smaller Island (Section 4.1 to 4.13)	1	51	31	16	2	0	45	32	21	3
Smaller Island (Section 5.1 to 5.11)	36	31	23	9	1	1	31	43	19	6
Smaller Island (Section 6.1 to 6.14)	0	59	28	11	2	0	15	57	27	2

Legend: Br = bedrock, B = boulder, C = cobble, G = gravel

In summary, the littoral zone of both the islands and the mainland in the Jay Pipe area were dominated by boulder habitat, with substantial areas of both cobble and gravel. Bedrock and fines, although present, did not substantially contribute to the overall substrate area, and are considered low value for fish species in Lac du Sauvage.

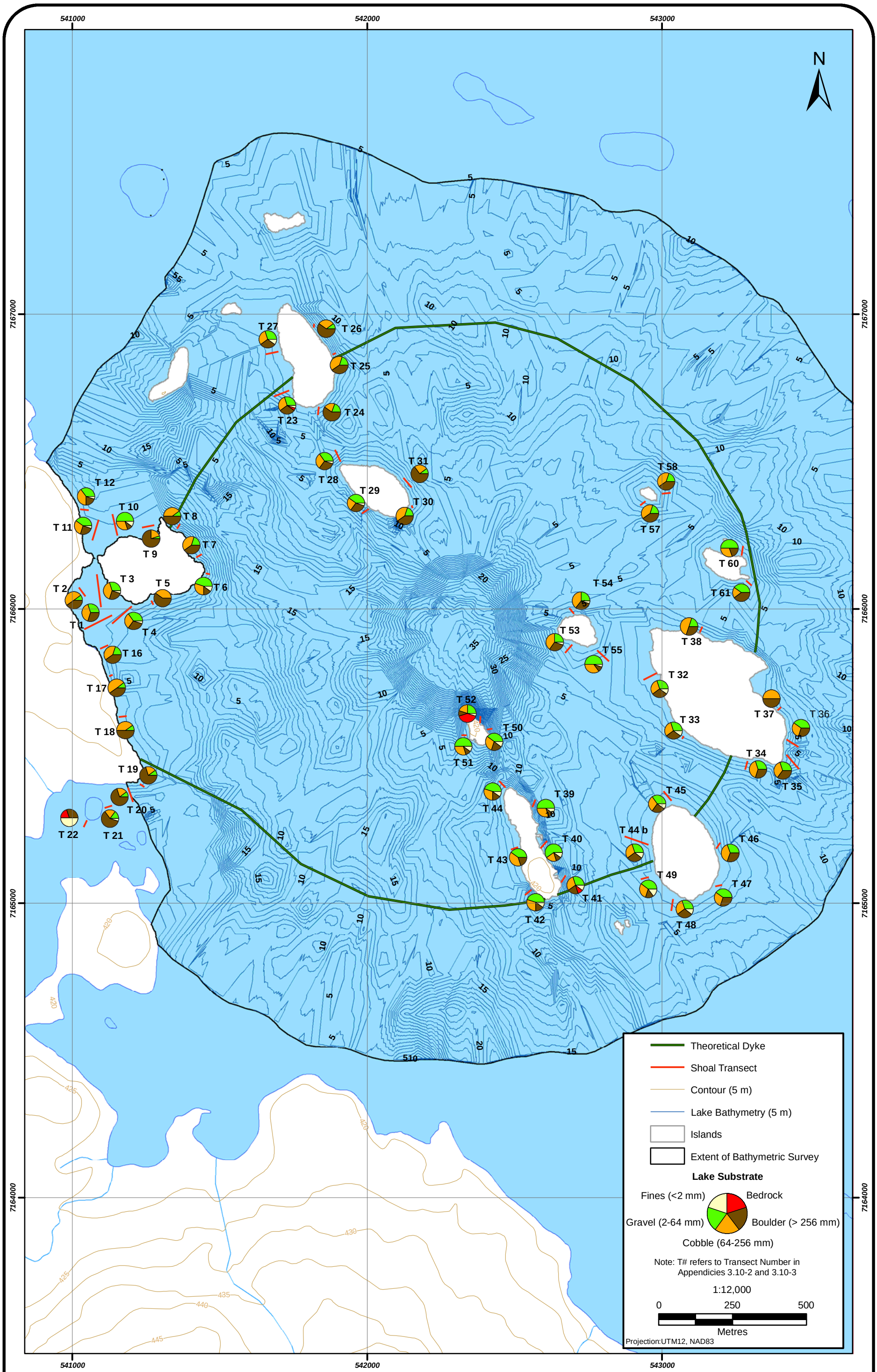
3.10.3.2 Shoreline Shoal Assessment

A total of 61 shoal transects were identified and surveyed with the video equipment in 2006 (Figure 3.10-4, site details can be found in Appendix 3.10-2 and videos in Appendix 3.10-3). Overall, shoal substrate was dominated by cobble (32%), followed by boulders (31%), gravel (31%), fines (5%), and bedrock (1%).

A total of 22 transects representing 893 m of shoals associated with the mainland area were assessed (T1 to T22). Transects conducted in the bays of the northern area were longer than those in other parts of the zone, due largely to the shallow, sloping nature of the shoreline. Identified substrate was split between boulder (35%), cobble (33%) and gravel (26%), with the remainder being composed of fines and bedrock. Gravel was found on the northern end of the mainland while boulder habitat was more common on the south. Cobble habitat was interspersed throughout.

A total of 656 m of shoal transects across 9 transects were assessed for the two small islands in the northwest corner of the study area (T23 to T31). Similar to the mainland area, substrate was split between boulder (35%), cobble (29%) and gravel (31%) habitat. There was no apparent spatial structure to the habitat, save that transects along the eastern side of the island were generally longer than those on the west, suggesting a shallower slope of the shoreline.

A total of 804 m of shoal transects across 25 sections were assessed for the six small islands in the east side of the study area (T32 to T34 and T39 to T61). Similar to the other sampled areas, the substrate was split between boulder (24%), cobble (32%), and gravel (36%). Transect length followed what would be expected from the bathymetry, with transects conducted over the steep dropoffs being somewhat shorter than those from shallower slopes.



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Fish Habitat Assessment of Shoals in the Jay Pipe area of Lac du Sauvage, 2006

FIGURE 3.10-4

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A total of four transects (representing a total length of 151 m) were taken around the large island of the eastern island complex (T35 to T38). Similar to the rest of the Jay Pipe area, the substrate was composed of boulder (34%), cobble (37%) and gravel (28%).

Although the majority of the identified shoal areas were dominated by substrate amicable to spawning activity for all species, most shoals were poor quality due to shallow depth, heavy silt deposition, and inconsistent substrate types. A summary of the suitability shoals for spawning as determined from the video footage can be found in Table 3.10-4. For all species, less than 5% of all shoals examined were considered 'good' habitat for spawning activity

Table 3.10-4
Suitability of Observed Shoals for Spawning Activity

	Quality	Number of Shoals	Percent of all shoals sampled
Lake Trout	Good	3	5
	Fair	6	10
	Poor	51	85
Lake Whitefish	Good	3	5
	Fair	12	20
	Poor	45	75
Round Whitefish	Good	2	3
	Fair	8	13
	Poor	50	83

A total of three shoals were considered 'good' habitat for lake trout spawning and another six were considered 'fair'. Two of the 'good' shoals (T16 and T18) and four of the 'fair shoals' (T3, T8, T13 and T21) were associated with the mainland. The remaining 'good' shoal (T35) was located on the southern tip of the large island of the eastern island complex. The remaining 'fair' shoals (T24 and T58) were scattered about the study area. The concentration of shoals classified as 'fair' and 'good' associated with the mainland suggests that future studies should concentrate on these areas to assess usage by lake trout.

Two of the three shoals classified as 'good' for lake whitefish spawning (T55 and T44) were found along the shoreline of islands in the eastern island complex. In addition, four shoals in the area (T36, T41, T46 and T50) were also considered as 'fair', suggesting that future work should concentrate on this area as it holds high potential to hold spawning lake whitefish. A single shoal (T10) associated with the mainland was classified as 'good', and five shoals in the area (T2, T12, T13, T22 and T23) classified as 'fair'. This area should also be re-surveyed to assess usa ge by lake whitefish. The three final shoals assessed as fair (T27, T28 and T29) were located on islands in the northwest corner of the study area.

Associated with the mainland, one shoal (T12) was identified as 'good' and one shoal (T10) was identified as 'fair' spawning habitat for round whitefish. In the northwest island complex, one shoal was identified as 'good' (T28) and three were identified as fair (T23, T27 and T29), suggesting that future surveys should concentrate on this area to assess usage by round whitefish.

The remaining four 'fair' shoals (T39, T40, T51 and T60) were located around the smaller islands of the eastern island complex.

3.10.3.3 Lake Habitat Summary

The quadrat, shoreline and transect surveys yielded contrasting results. Shoreline surveys suggested a substrate dominated by boulders and cobble with little gravel, bedrock and fines. Quadrat surveys generally agreed with this, but inconsistencies were observed in several areas. The transect surveys of the areas removed from the shoreline suggest that shoals are much more heterogeneous, being split among boulder, cobble and gravel substrate. The presence of gravel and cobble in such large amounts increase the probability that these areas are used by fish.

Based on the habitat requirements for species captured in Lac du Sauvage and the species-specific habitat preferences presented by Richardson *et al.* 2001, the Jay Pipe area holds habitat potentially used by spawning, young-of-year and juvenile burbot; spawning, young-of-year and juvenile lake trout; spawning, juvenile and adult lake whitefish; and all life stages of round whitefish.

3.10.4 Recommendations for Further Work

- Revisit Streams A and B during periods of high flow to determine if migration potential exists
- Future work to assess habitat usage by lake trout should focus on the southern edge of the proposed dyke location
- Cobble areas should be further surveyed for potential usage by spawning lake trout.
- The shoals in the area encompassing T2, T12, T13, T22, and T23 (Figure 3.10-4) should be re-surveyed to assess usage by lake whitefish
- Future studies should be directed to define shoal areas in deeper water and determine what habitat is being actively used by fish.
- Further survey work is needed to assess fish habitat use during various life-history stages for fish species in the Jay Pipe area.

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APPENDIX 2.3-1
DEPTH SOUNDINGS AND CORRECTED SHORELINE

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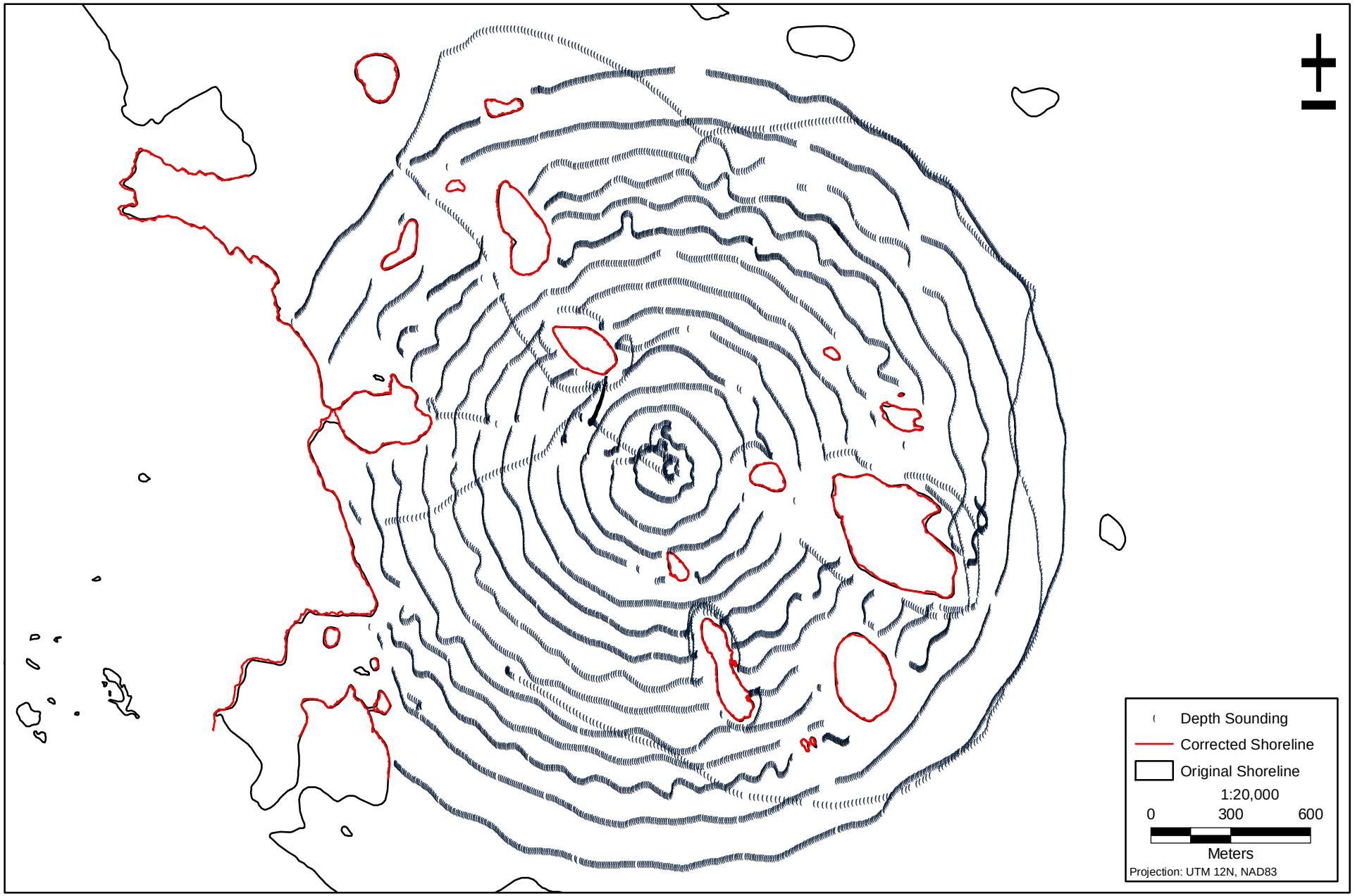

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Depth Soundings and Corrected Shoreline of Lac du Sauvage (Jay Pipe Area), August 2006

APPENDIX 2.3-1a

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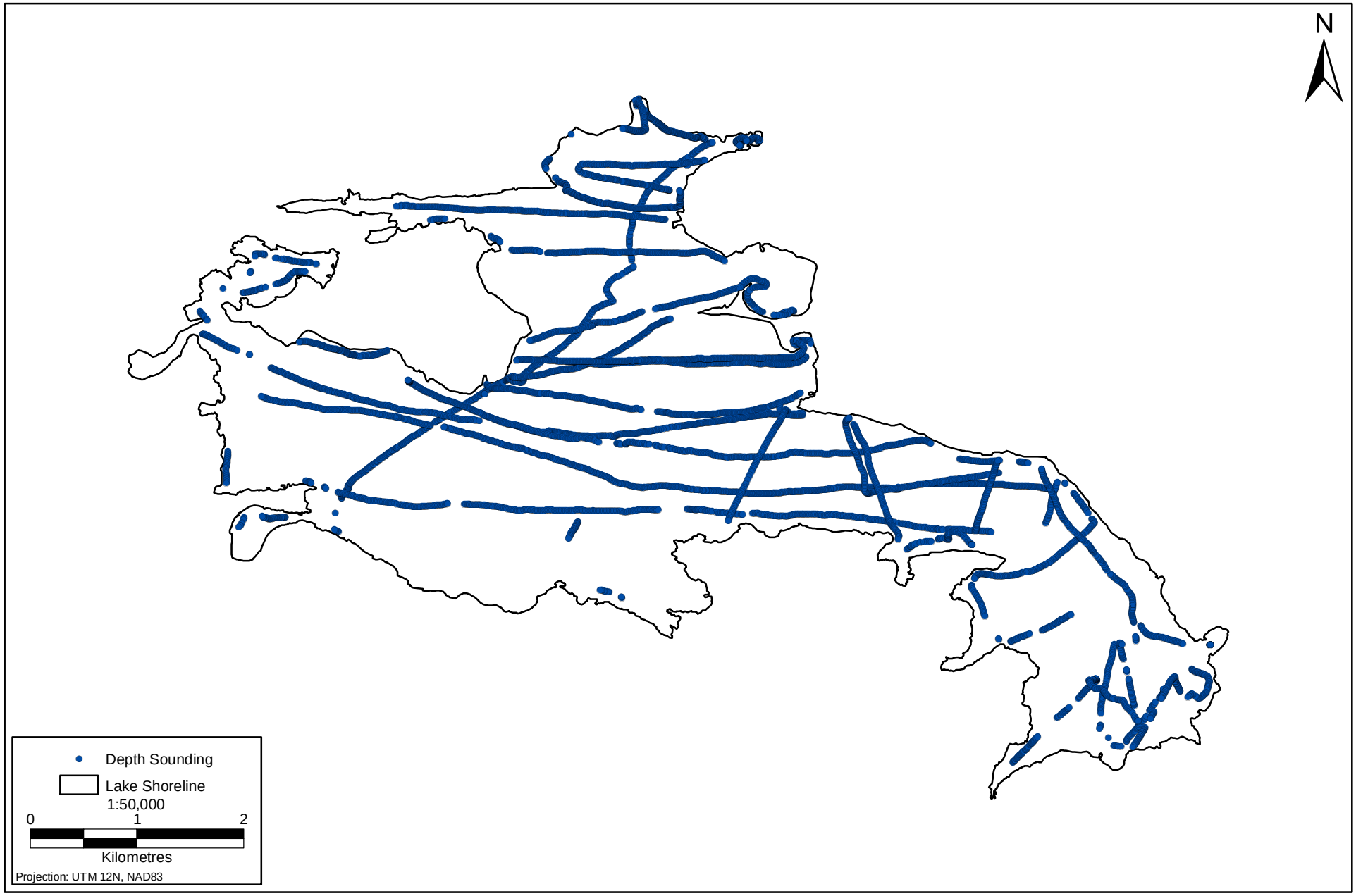

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Depth Soundings of Ursula Lake, August 2006

APPENDIX 2.3-1b

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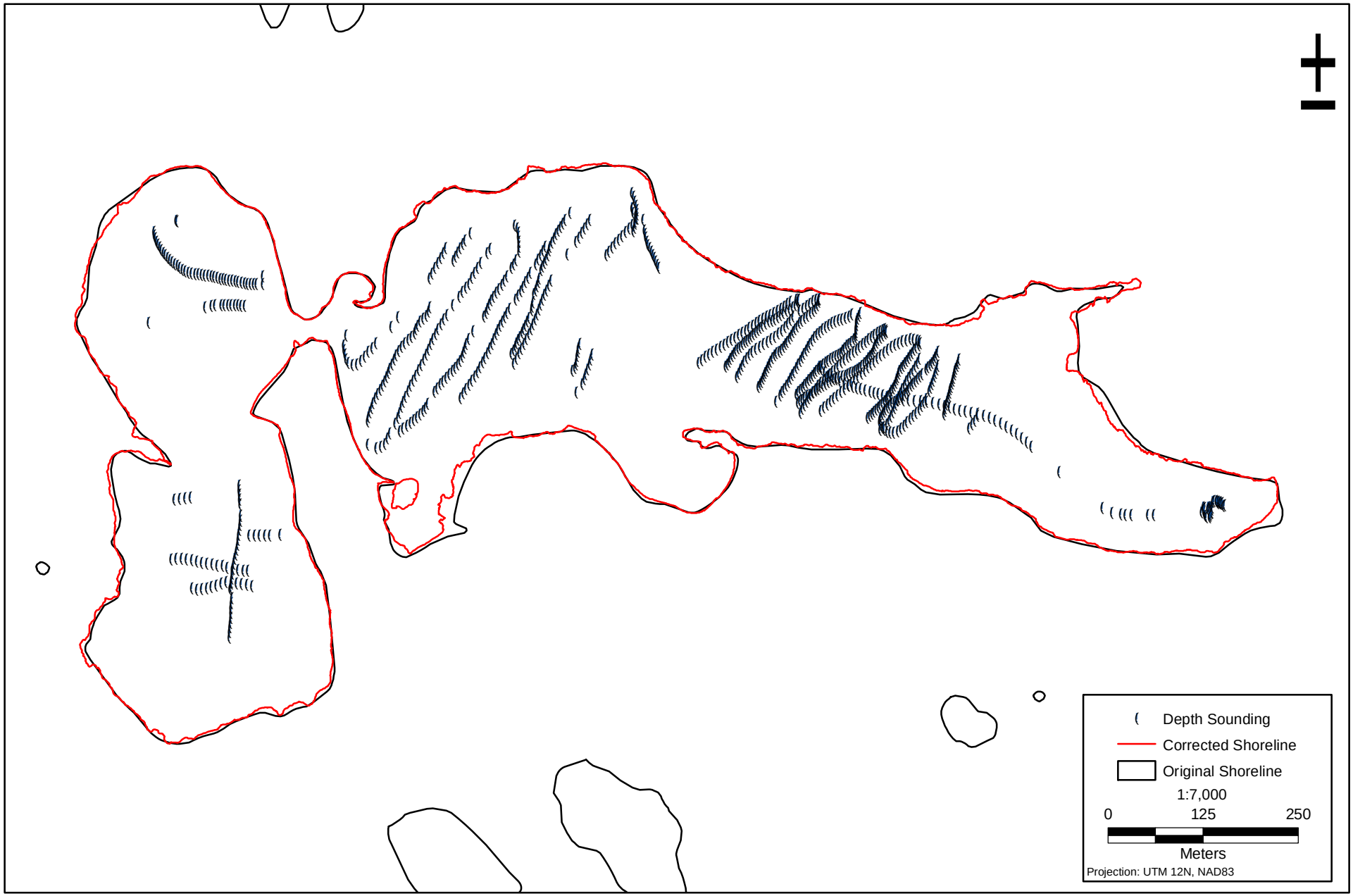

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Depth Soundings and Corrected Shoreline of Christine Lake, August 2006

APPENDIX 2.3-1c

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APPENDIX 2.3-2
TRIANGULATED IRREGULAR NETWORK

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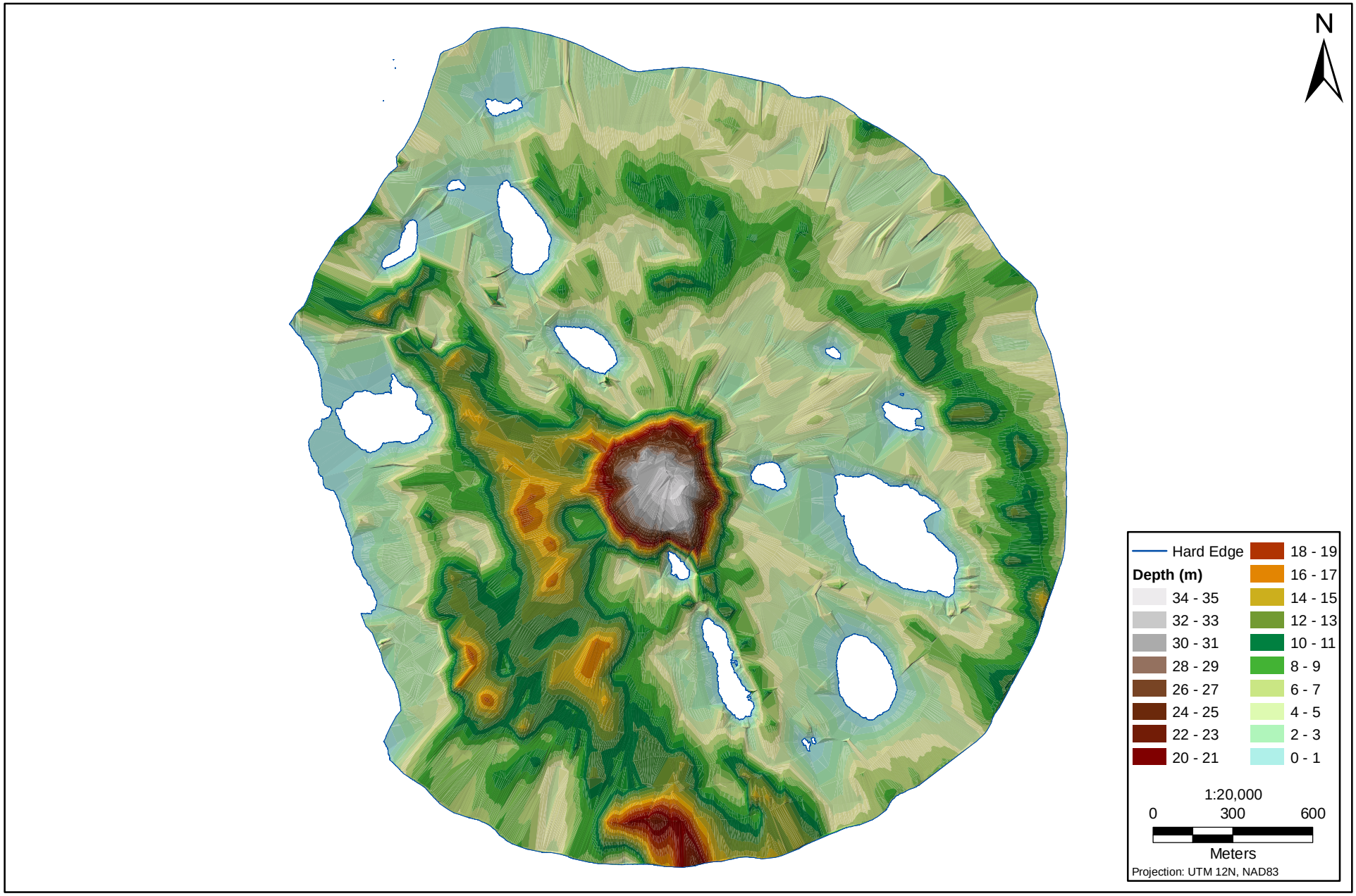

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Triangulated Irregular Network of Lac du Sauvage (Jay Pipe Area)

APPENDIX 2.3-2a

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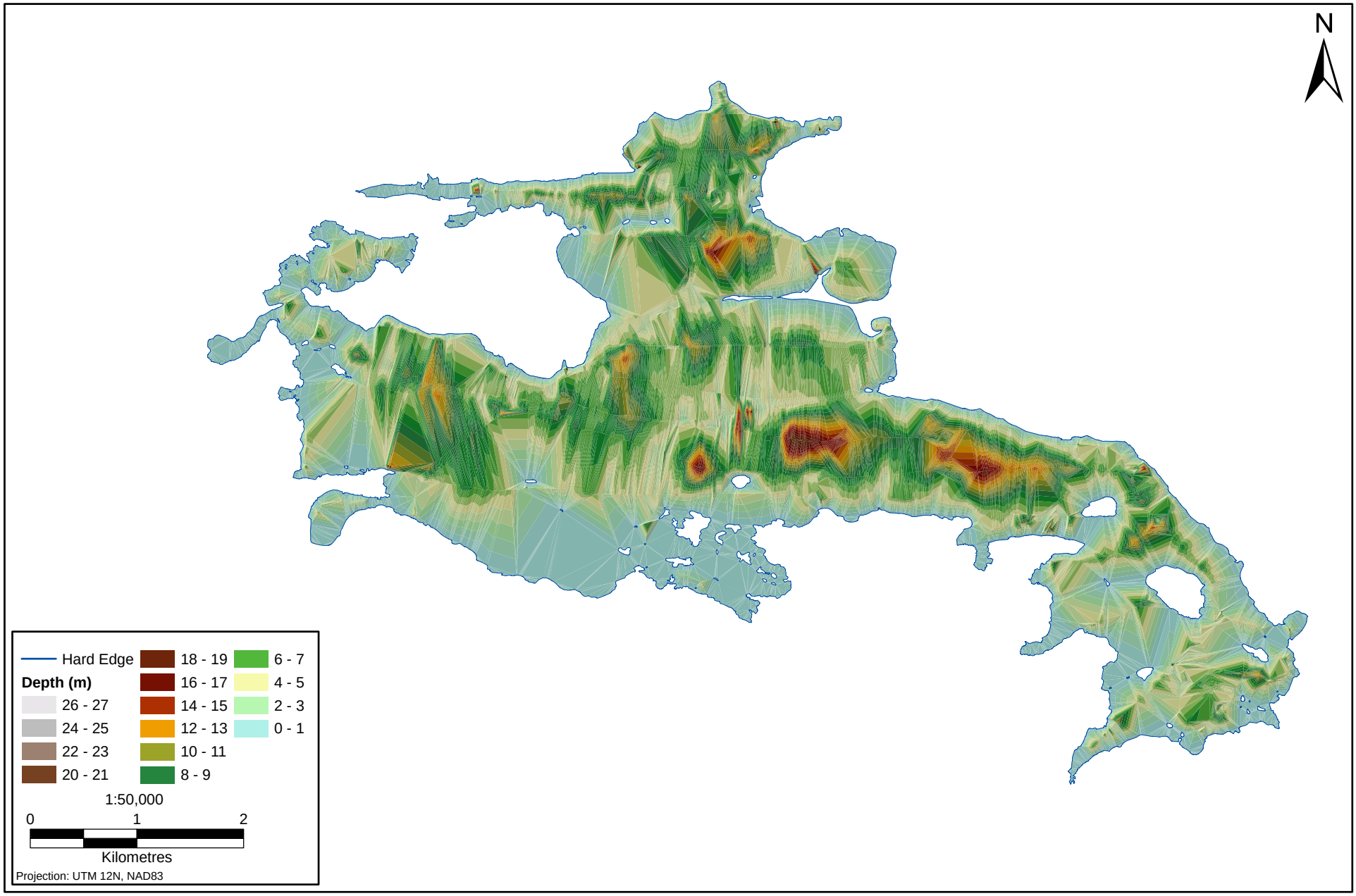

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Triangulated Irregular Network of Ursula Lake

APPENDIX 2.3-2b

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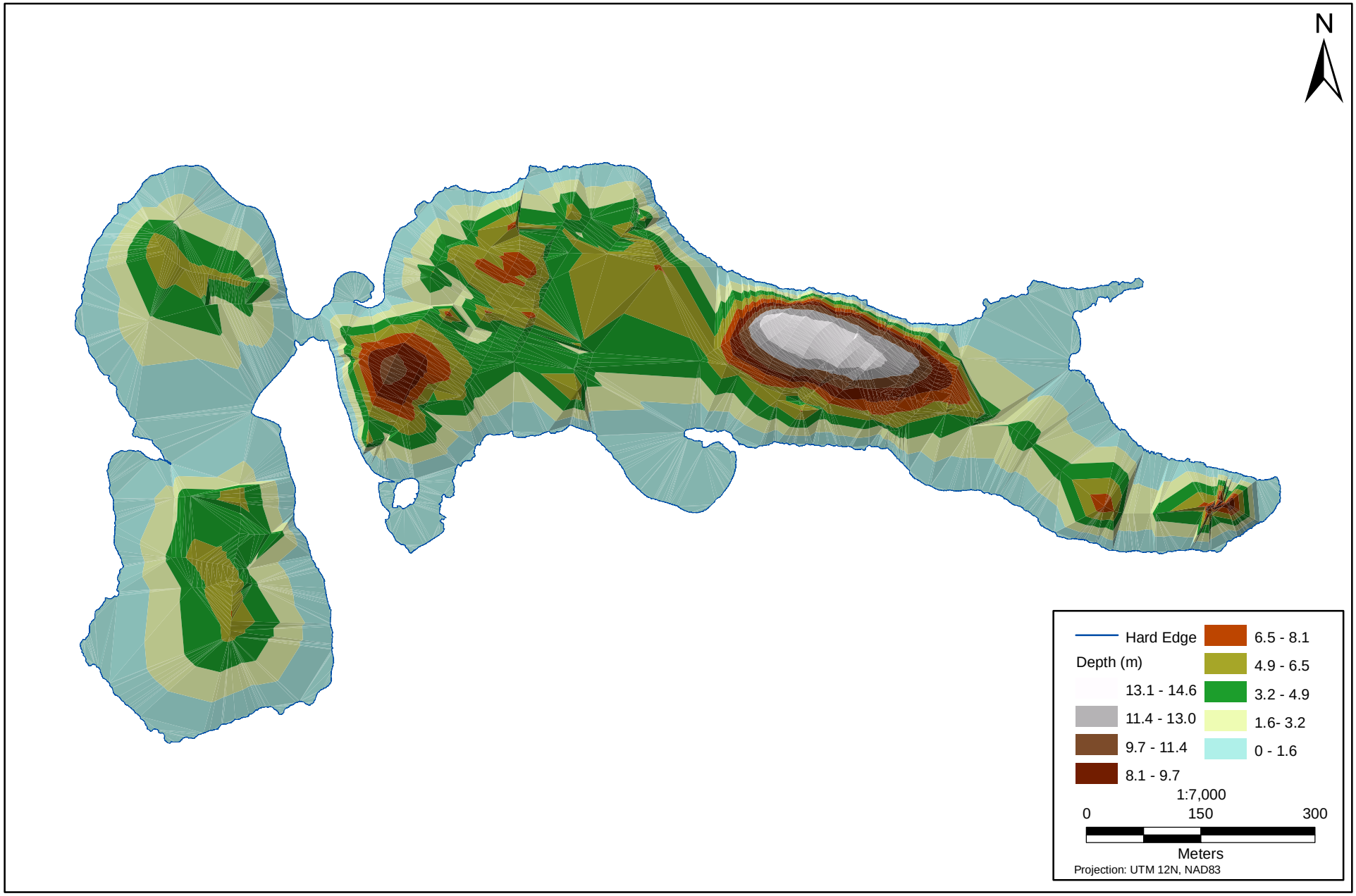

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Triangulated Irregular Network of Christine Lake

APPENDIX 2.3-2c

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APPENDIX 2.10-1
SET TIME, LOCATION DEPTH AND CATCH OF GILLNET SAMPLING IN LAC DU SAUVAGE AND URSULA LAKE, 2006

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Appendix 2.10-1
Set Time, Location Depth and Catch of Gillnet Sampling in Lac du Sauvage and Ursula Lake, 2006

					Fishing								Catch			CPUE		
				Pulled	Time	Net Start			Net Finish			Number of Fish			Fish/100 m2/24 hrs		
Lake	Net#	Date	Set Time	Time	(Hours)	Easting	Northing	Depth	Easting	Northing	Depth	LKTR	LKWH	RDWH	LKTR	LKWH	RDWH
Lac du Sauvage	GN1	16-Aug-06	13:30	14:40	1.2	541879	7166123	11.5	541829	7166108	13.5	0	0	0.0	0.0	0.0	0.0
Lac du Sauvage	GN2	16-Aug-06	14:45	15:35	0.8	542268	7166384	7.5	542285	7166346	6.9	0	0	0.0	0.0	0.0	0.0
Lac du Sauvage	GN3	16-Aug-06	15:55	16:45	0.8	542341	7166821	6.5	542291	7166797	2.8	0	0	0.0	0.0	0.0	0.0
Lac du Sauvage	GN4	17-Aug-06	9:30	10:35	1.1	542561	7166139	4.4	542523	7166110	7.7	1	2	0.0	20.2	40.4	0.0
Lac du Sauvage	GN5	17-Aug-06	13:30	14:27	0.9	542284	7165859		542902	7165969		1	0	1.0	23.0	0.0	23.0
Lac du Sauvage	GN6	17-Aug-06	13:35	14:41	1.1	542824	7165464		542801	7165420		0	0	0.0	0.0	0.0	0.0
Lac du Sauvage	GN7	17-Aug-06	15:05	15:39	0.6	541426	7165815		541450	7165861		0	0	0.0	0.0	0.0	0.0
Lac du Sauvage	GN8	18-Aug-06	7:30	8:25	0.9	542530	7166714	7.5	543540	7166642	7.6	0	0	0.0	0.0	0.0	0.0
Lac du Sauvage	GN9	18-Aug-06	7:45	8:42	0.9	543797	7167295	2.4	543831	7167270	7.6	0	0	0.0	0.0	0.0	0.0
Lac du Sauvage	GN10	18-Aug-06	8:29	9:27	1.0	544140	7166187	9.1	544114	7166145	8.8	0	1	0.0	0.0	22.6	0.0
Lac du Sauvage	GN11	18-Aug-06	8:50	9:48	1.0	545583	7166200	3.7	545619	7166233	2.4	0	0	0.0	0.0	0.0	0.0
Lac du Sauvage	GN13	18-Aug-06	9:52	10:59	1.1	545626	7166061	4	545656	7166089	7.6	1	0	0.0	19.6	0.0	0.0
Lac du Sauvage	GN12	18-Aug-06	9:30	10:32	1.0	545448	7165531	9.5	545436	7165572	9.1	0	3	0.0	0.0	63.5	0.0
Lac du Sauvage	GN14	18-Aug-06	10:37	11:55	1.3	545566	7164787	5.8	545597	7164756	6.4	2	0	0.0	33.6	0.0	0.0
Lac du Sauvage	GN15	18-Aug-06	12:12	13:15	1.1	545687	7164539	3.4	545642	7164527	4.3	0	0	0.0	0.0	0.0	0.0
Lac du Sauvage	GN16	18-Aug-06	12:28	13:32	1.1	544866	7164850	10.7	544816	7164869	7.3	0	2	0.0	0.0	41.0	0.0
Lac du Sauvage	GN17	18-Aug-06	13:25	14:45	1.3	544985	7164711	1.8	545018	7164746	3.7	1	0	0.0	16.4	0.0	0.0
Lac du Sauvage	GN18	18-Aug-06	15:14	16:15	1.0	542042	7165744	9.1	542000	7165763	8.5	0	2	0.0	0.0	43.0	0.0
Lac du Sauvage	GN19	18-Aug-06	15:30	16:30	1.0	541428	7166067	1.2	541459	7166033	5.5	1	0	0.0	21.9	0.0	0.0
Lac du Sauvage	GN20	19-Aug-06	14:24	15:22	1.0	541234	7165391	2.4	541250	7165339	3	0	0	0.0	0.0	0.0	0.0
Lac du Sauvage	GN21	19-Aug-06	14:30	15:25	0.9	541738	7165307	12.8	541693	7165286	10.7	1	0	0.0	23.8	0.0	0.0
Lac du Sauvage	GN22	19-Aug-06	15:30	16:25	0.9	542420	7165941	33.5	542429	7165985	32.1	0	0	0.0	0.0	0.0	0.0
Lac du Sauvage	GN23	19-Aug-06	15:34	16:28	0.9	542182	7165987	29.6	542199	7165981	31.1	0	0	0.0	0.0	0.0	0.0
Lac du Sauvage	GN24	21-Aug-06	8:20	9:15	0.9	541268	7165139	1.2	541269	7165201	0.7	0	0	0.0	0.0	0.0	0.0
Lac du Sauvage	GN25	21-Aug-06	8:31	9:40	1.2	541660	7165174	12.8	541621	7165177	16.8	0	0	0.0	0.0	0.0	0.0
Lac du Sauvage	GN26	21-Aug-06	9:25	10:40	1.3	543453	7165488	1.8	543495	7165458	3	2	0	0.0	35.0	0.0	0.0
Lac du Sauvage	GN27	21-Aug-06	9:46	10:52	1.1	542458	7165419	3	542419	7165457	13.7	2	2	0.0	39.7	39.7	0.0
Lac du Sauvage	GN28	21-Aug-06	10:45	11:50	1.1	542992	7165015	1.2	542955	7164993	2.4	1	0	6.0	20.2	0.0	121.1
Lac du Sauvage	GN29	21-Aug-06	11:05	12:13	1.1	542976	7164633	6.4	542938	7164628	7.3	0	0	0.0	0.0	0.0	0.0
Lac du Sauvage	GN30	21-Aug-06	12:07	13:19	1.2	542195	7164212	1.2	542220	7164256	1.8	1	0	0.0	18.2	0.0	0.0
Lac du Sauvage	GN31	21-Aug-06	12:21	13:38	1.3	543176	7163826	11	543136	7163832	9.5	0	0	0.0	0.0	0.0	0.0
Lac du Sauvage	GN32	21-Aug-06	13:25	13:45	0.3	543557	7163987	1.8	543515	7163968	1.9	0	2	4.0	0.0	131.1	262.3
Lac du Sauvage	GN33	21-Aug-06	13:43	14:50	1.1	543402	7164007	2.7	543341	7164001	5.8	2	3	0.0	39.1	58.7	0.0
Lac du Sauvage	GN34	21-Aug-06	15:09	16:10	1.0	544744	7163423	7.9	544792	7163440	11	0	3	0.0	0.0	64.5	0.0
Lac du Sauvage	GN35	21-Aug-06	15:11	16:20	1.2	544983	7163524	3.7	544945	7163493	3.8	2	0	0.0	38.0	0.0	0.0
Lac du Sauvage	GN36	21-Aug-06	16:32	17:25	0.9	543414	7163492	12.5	543445	7163529	11.1	0	0	0.0	0.0	0.0	0.0
Lac du Sauvage	GN37	21-Aug-06	16:47	17:50	1.1	543019	7163416	1.2	542981	7163457	2.1	0	1	0.0	0.0	20.8	0.0
Lac du Sauvage	GN38	26-Aug-06	8:46	9:45	1.0	541923	7166629	12.5	5419954	7166853	10.4	0	0	0.0	0.0	0.0	0.0
Lac du Sauvage	GN39	26-Aug-06	8:55	9:58	1.1	541665	7167020	2.4	541680	7167055	3	2	0	0.0	41.6	0.0	0.0
Lac du Sauvage	GN40	26-Aug-06	16:30	17:30	1.0	541574	7166292	13.1	541608	7166254	13.7	1	0	0.0	21.9	0.0	0.0
Lac du Sauvage	GN41	26-Aug-06	16:46	17:45	1.0	541139	7166327	1.8	541098	7166331	2.1	0	0	0.0	0.0	0.0	0.0
Lac du Sauvage	GN42	27-Aug-06	8:40	9:30	0.8	541050	7166706	6.7	541034	7166662	10.1	1	0	0.0	26.2	0.0	0.0
Lac du Sauvage	GN43	27-Aug-06	9:45	10:50	1.1	541161	7167128	6.1	541188	7167075	10.1	1	0	0.0	20.2	0.0	0.0
Lac du Sauvage	GN44	27-Aug-06	14:23	15:45	1.4	541462	7166250	2.4	541507	7166253	3.4	1	0	0.0	16.0	0.0	0.0
Lac du Sauvage	GN45	27-Aug-06	14:40	15:54	1.2	541258	7165782	3.1	541272	7165808	2.2	2	0	0.0	35.4	0.0	0.0
Lac du Sauvage	GN46	27-Aug-06	16:01	16:45	0.7	541472	7166490	1.2	541472	7166541	1.8	0	0	0.0	0.0	0.0	0.0
Lac du Sauvage	GN47	27-Aug-06	16:09	16:50	0.7	542349	7166474	1.6	542391	7166512	3.2	4	0	0.0	127.9	0.0	0.0
Lac du Sauvage	GN50	28-Aug-06	9:25	10:28	1.1	541580	7167998	3.4	541528	7167965	3	1	0	0.0	20.8	0.0	0.0
Lac du Sauvage	GN51	28-Aug-06	9:45	10:43	1.0	541211	7167638	3	541198	7167593	3.4	1	0	0.0	22.6	0.0	0.0
Lac du Sauvage	GN52	28-Aug-06	10:32	11:44	1.2	541588	7168256	4.3	541533	7168261	3.7	4	0	0.0	72.9	0.0	0.0
Lac du Sauvage	GN53	28-Aug-06	10:55	12:04	1.2	540904	7168483	1.8	540916	7168442	2.4	1	0	0.0	19.0	0.0	0.0
Lac du Sauvage	GN54	28-Aug-06	11:55	13:20	1.4	541778	7168570	8.8	541722	7168534	9.1	1	0	0.0	15.4	0.0	0.0
Lac du Sauvage	GN55	28-Aug-06	12:15	13:50	1.6	541175	7168680	1.8	541135	7168653	2.4	0	1	0.0	0.0	13.8	0.0
Lac du Sauvage	GN56	28-Aug-06	14:00	14:55	0.9	542252	7167816	2.4	542221	7167783	3	2	0	0.0	47.7	0.0	0.0
Lac du Sauvage	GN57	28-Aug-06	14:20	15:15	0.9	542205	7168307	12.5	542152	7168318	14	0	0	0.0	0.0	0.0	0.0
Lac du Sauvage	GN58	28-Aug-06	15:12	16:04	0.9	542665	7167457	4.9	542626	7167513	4.3	2	0	0.0	50.4	0.0	0.0
Lac du Sauvage	GN59	28-Aug-06	15:24	16:22	1.0	543599	7167314	5.5	543556	7167321	7.3	0	0	0.0	0.0	0.0	0.0
Lac du Sauvage	GN60	28-Aug-06	16:25	17:31	1.1	542741	7166029	4.3	542737	7166076	4.9	1	0	0.0	19.9	0.0	0.0
Lac du Sauvage	GN61	28-Aug-06	16:40	17:45	1.1	542193	7165987	28	542157	7166002	26.5	0	0	0.0	0.0	0.0	0.0

(continued)

Appendix 2.10-1
Set Time, Location Depth and Catch of Gillnet Sampling in Lac du Sauvage and Ursula Lake, 2006 (completed)

					Fishing	Net Start			Net Finish			Catch Number of Fish			CPUE Fish/100 m2/24 hrs		
Lake	Net#	Date	Set Time	Pulled Time	Time (Hours)	Easting	Northing	Depth	Easting	Northing	Depth	LKTR	LKWH	RDWH	LKTR	LKWH	RDWH
Lac du Sauvage	GN62	10-Aug-06	14:34	15:02	0.5	541438	7165852	8.8	541412	7165880	7.4	2	0	0.0	93.7	0.0	0.0
Lac du Sauvage	GN63	10-Aug-06	15:48	16:25	0.6	541550	7166088		541520	7166060	7.3	1	0	0.0	35.4	0.0	0.0
Lac du Sauvage	GN64	1-Sep-06	12:27	13:33	1.1	542154	7166461	2.4	542135	7166419	1.9	1	0	0.0	19.9	0.0	0.0
Lac du Sauvage	GN65	1-Sep-06	12:31	13:39	1.1	542288	7166543	1.1	542293	7166595	0.7	0	2	0.0	0.0	38.6	0.0
Lac du Sauvage	GN66	1-Sep-06	13:43	14:50	1.1	542353	7166777	5.2	542374	7166819	6.1	0	0	0.0	0.0	0.0	0.0
Lac du Sauvage	GN67	1-Sep-06	13:55	14:58	1.1	541928	7166826	2.9	541942	7166580	2.9	2	0	0.0	41.6	0.0	0.0
Lac du Sauvage	GN68	1-Sep-06	14:14	16:14	2.0	542033	7164798	10.2	542003	7164768	9.9	2	1	0.0	21.9	10.9	0.0
Lac du Sauvage	GN69	1-Sep-06	15:20	16:24	1.1	541339	7164967	1.8	541313	7165000	2.2	0	0	0.0	0.0	0.0	0.0
Ursula Lake	GN1	24-Aug-06	10:28	11:10	0.7	525746	7190703	14	525783	7190677	10.0	2.0	0.0	0.0	62.5	0.0	0.0
Ursula Lake	GN2	24-Aug-06	10:47	11:27	0.7	525985	7190916	0.9	526000	7190873	2.4	0.0	0.0	0.0	0.0	0.0	0.0
Ursula Lake	GN3	24-Aug-06	11:15	12:07	0.9	525734	7190402	2.4	525715	7190424	4.6	0.0	0.0	0.0	0.0	0.0	0.0
Ursula Lake	GN4	24-Aug-06	11:30	12:20	0.8	526499	7190885	2.7	526469	7190850	3.0	0.0	0.0	0.0	0.0	0.0	0.0
Ursula Lake	GN5	24-Aug-06	12:35	13:40	1.1	526508	7189515	1.2	526539	7189544	6.4	0.0	0.0	0.0	0.0	0.0	0.0
Ursula Lake	GN6	24-Aug-06	12:43	13:48	1.1	526198	7189590	6.4	526199	7189624	7.3	0.0	0.0	0.0	0.0	0.0	0.0
Ursula Lake	GN7	24-Aug-06	13:55	15:09	1.2	525404	7189208	2.7	525397	7189151	2.7	0.0	0.0	0.0	0.0	0.0	0.0
Ursula Lake	GN8	24-Aug-06	15:20	16:05	0.7	524863	7189959	1.8	524908	7189928	1.8	0.0	0.0	0.0	0.0	0.0	0.0
Ursula Lake	GN9	24-Aug-06	15:40	16:30	0.8	523741	7190154	4.6	523766	7190186	7.6	0.0	0.0	0.0	0.0	0.0	0.0
Ursula Lake	GN10	24-Aug-06	16:22	17:15	0.9	523982	7188612	1.2	523988	7188562	4.0	0.0	0.0	1.0	0.0	0.0	24.7
Ursula Lake	GN11	24-Aug-06	16:46	17:30	0.7	525252	7188606	7.3	525229	7188628	8.5	0.0	0.0	0.0	0.0	0.0	0.0
Ursula Lake	GN12	24-Aug-06	17:20	17:50	0.5	525937	7189200	2.7	525978	7189186	3.0	0.0	0.0	0.0	0.0	0.0	0.0
Ursula Lake	GN13	31-Aug-06	11:00	12:34	1.6	525538	7187482	4.2	525531	7187459	3.7	0.0	0.0	0.0	0.0	0.0	0.0
Ursula Lake	GN14	31-Aug-06	11:07	12:50	1.7	525412	7187264	3.7	525433	7187266	4.3	0.0	0.0	0.0	0.0	0.0	0.0
Ursula Lake	GN15	31-Aug-06	13:01	14:00	1.0	528709	7187673	12.8	528763	7187667	12.8	0.0	0.0	0.0	0.0	0.0	0.0
Ursula Lake	GN16	31-Aug-06	13:30	14:25	0.9	529334	7187617	5.5	529281	7187636	4.9	0.0	0.0	0.0	0.0	0.0	0.0
Ursula Lake	GN17	31-Aug-06	14:01	14:53	0.9	529244	7187353	9.1	529284	7187401	9.8	0.0	0.0	0.0	0.0	0.0	0.0
Ursula Lake	GN18	31-Aug-06	14:28	15:18	0.8	529581	7187294	14.6	529600	7187339	6.1	0.0	0.0	0.0	0.0	0.0	0.0
Ursula Lake	GN19	31-Aug-06	14:50	15:49	1.0	520130	7186163	7.3	520090	7186212	2.7	0.0	0.0	0.0	0.0	0.0	0.0
Ursula Lake	GN20	31-Aug-06	15:20	16:09	0.8	528954	7187111	4.3	528915	7187129	4.3	0.0	0.0	0.0	0.0	0.0	0.0
Ursula Lake	GN21	3-Sep-06	8:25	9:30	1.1	523786	7187454	3.7	523757	7187487	1.5	0.0	0.0	0.0	0.0	0.0	0.0
Ursula Lake	GN22	3-Sep-06	8:30	9:37	1.1	523857	7187465	4.3	523823	7187421	4.9	1.0	0.0	0.0	19.6	0.0	0.0
Ursula Lake	GN23	3-Sep-06	9:45	10:42	0.9	522243	7188890	2.1	522251	7188940	2.7	0.0	0.0	0.0	0.0	0.0	0.0
Ursula Lake	GN24	3-Sep-06	9:49	10:51	1.0	522373	7188736	10.7	522403	7188695	9.1	0.0	0.0	0.0	0.0	0.0	0.0
Ursula Lake	GN25	3-Sep-06	10:45	11:16	0.5	521856	7188717	3.0	521805	7188711	3.0	1.0	0.0	0.0	42.3	0.0	0.0
Ursula Lake	GN26	3-Sep-06	11:30	12:36	1.1	521805	7188996	4.6	521759	7189012	4.6	0.0	0.0	0.0	0.0	0.0	0.0
Ursula Lake	GN27	3-Sep-06	11:48	12:53	1.1	521323	7189259	2.7	521282	7189244	2.1	0.0	0.0	0.0	0.0	0.0	0.0
Ursula Lake	GN28	3-Sep-06	12:50	13:55	1.1	521823	7189461	3.7	521837	7189422	2.4	0.0	0.0	0.0	0.0	0.0	0.0
Ursula Lake	GN29	3-Sep-06	12:55	13:59	1.1	821481	7189371	2.1	521523	7189350	1.2	2.0	0.0	0.0	41.0	0.0	0.0
Ursula Lake	GN30	3-Sep-06	14:02	14:51	0.8	521288	7189613	2.1	521849	7189647	2.4	4.0	0.0	4.0	107.1	0.0	107.1
Ursula Lake	GN31	3-Sep-06	14:05	14:56	0.9	522203	7189624	1.0	522246	7189618	2.3	0.0	0.0	0.0	0.0	0.0	0.0
Ursula Lake	GN32	3-Sep-06	15:01	15:49	0.8	522206	7187796		522208	7187840		0.0	0.0	0.0	0.0	0.0	0.0
Ursula Lake	GN33	3-Sep-06	15:05	15:55	0.8	522401	7187500		522443	7187506		1.0	0.0	0.0	26.2	0.0	0.0

Legend: LKTR = lake trout, LKWH = lake whitefihs, RDWH = round whitefish

Note: All coordinates are presented in UTM, Zone 9, NAD83

APPENDIX 2.10-2
SET TIME, LOCATION AND CATCH OF MINNOW TRAP SAMPLING IN LAC DU SAUVAGE AND URSULA LAKE, 2006

bhpbilliton

Appendix 2.10-2
Set Time, Locationa and Catch of Minnow Trap Sampling in Lac du Sauvage and Ursula Lake, 2006

Lake	Trap #	Date Set	Time Set	Date Pulled	Time Pulled	Effort (D	Depth	Easting	Northing	Catch Number of Fish BURB	Catch Number of Fish SLSC	CPUE Fish/trap/24 hrs BURB	CPUE Fish/trap/24 hrs SLSC
Lac du Sauvage	MT1	10-Aug-06	13:42	11-Aug-06	15:45	1.09	1.6	541087	7165975	0	0	0.0	0.0
Lac du Sauvage	MT2	10-Aug-06	13:46	11-Aug-06	15:47	1.08	2	541198	7165987	0	0	0.0	0.0
Lac du Sauvage	MT3	10-Aug-06	13:49	11-Aug-06	15:50	1.08	2.5	541388	7166018	0	0	0.0	0.0
Lac du Sauvage	MT4	10-Aug-06	13:52	11-Aug-06	16:03	1.09	2.4	541422	7166198	0	0	0.0	0.0
Lac du Sauvage	MT5	10-Aug-06	13:56	11-Aug-06	15:53	1.08	1.6	541416	7166226	0	0	0.0	0.0
Lac du Sauvage	MT6	10-Aug-06	14:04	11-Aug-06	15:31	1.06	1.4	541205	7165381	0	0	0.0	0.0
Lac du Sauvage	MT7	10-Aug-06	14:07	11-Aug-06	15:35	1.06	2.4	541243	7165515	0	0	0.0	0.0
Lac du Sauvage	MT8	10-Aug-06	14:09	11-Aug-06	16:01	1.08	2.7	541168	7165682	0	0	0.0	0.0
Lac du Sauvage	MT9	10-Aug-06	14:11	11-Aug-06	15:36	1.06	2.1	541121	7165839	0	0	0.0	0.0
Lac du Sauvage	MT10	10-Aug-06	14:14	11-Aug-06	15:38	1.06	1.2	541071	7165928	0	0	0.0	0.0
Lac du Sauvage	MT7	16-Aug-06	13:44	17-Aug-06	9:42	0.83	1.8	540273	7166294	0	0	0.0	0.0
Lac du Sauvage	MT4	16-Aug-06	13:47	17-Aug-06	9:44	0.83	1.7	541946	7166382	0	0	0.0	0.0
Lac du Sauvage	MT3	16-Aug-06	13:50	17-Aug-06	9:46	0.83	2.6	541946	7166508	0	0	0.0	0.0
Lac du Sauvage	MT6	16-Aug-06	13:55	17-Aug-06	9:50	0.83	3	542155	7166392	0	0	0.0	0.0
Lac du Sauvage	MT8	16-Aug-06	14:00	17-Aug-06	9:41	0.82	2.9	542128	7166320	0	0	0.0	0.0
Lac du Sauvage	MT10	16-Aug-06	14:09	17-Aug-06	1:01	0.45	1.7	541708	7166783	0	0	0.0	0.0
Lac du Sauvage	MT1	16-Aug-06	14:11	17-Aug-06	10:04	0.83	1.7	541662	7166666	0	0	0.0	0.0
Lac du Sauvage	MT5	16-Aug-06	14:16	17-Aug-06	10:06	0.83	2.3	541762	7166642	0	0	0.0	0.0
Lac du Sauvage	MT9	16-Aug-06	14:22	17-Aug-06	9:54	0.81	3.6	541899	7166848	0	0	0.0	0.0
Lac du Sauvage	MT2	16-Aug-06	14:25	17-Aug-06	9:56	0.81	3	541843	7166937	0	0	0.0	0.0
Lac du Sauvage	MT2	17-Aug-06	10:49	19-Aug-06	12:59	2.09	1.8	542986	7165645	0	0	0.0	0.0
Lac du Sauvage	MT1	17-Aug-06	10:50	19-Aug-06	13:05	2.09	0.9	542819	7165788	0	0	0.0	0.0
Lac du Sauvage	MT10	17-Aug-06	10:51	19-Aug-06	13:02	2.09	1.2	542871	7165821	0	0	0.0	0.0
Lac du Sauvage	MT4	17-Aug-06	10:54	19-Aug-06	16:10	2.22	1.8	542972	7165986	0	0	0.0	0.0
Lac du Sauvage	MT3	17-Aug-06	10:52	19-Aug-06	16:12	2.22	1.8	543126	7165935	0	0	0.0	0.0
Lac du Sauvage	MT8	17-Aug-06	10:58	19-Aug-06	16:14	2.22	2.1	543192	7166085	0	0	0.0	0.0
Lac du Sauvage	MT9	17-Aug-06	11:06	19-Aug-06	12:55	2.08	0.9	542433	7165563	0	0	0.0	0.0
Lac du Sauvage	MT5	17-Aug-06	11:09	19-Aug-06	12:40	2.06	2.4	542320	7165581	0	0	0.0	0.0
Lac du Sauvage	MT7	17-Aug-06	11:11	19-Aug-06	12:44	2.06	2.4	542456	7165276	0	0	0.0	0.0
Lac du Sauvage	MT6	17-Aug-06	11:15	19-Aug-06	12:50	2.07	4.2	542569	7165322	1	0	0.5	0.0
Lac du Sauvage	MT8	18-Aug-06	15:40	20-Aug-06	8:38	1.71	2.4	541292	7165115	0	0	0.0	0.0
Lac du Sauvage	MT4	18-Aug-06	15:41	20-Aug-06	8:41	1.71	2.4	541285	7164946	0	0	0.0	0.0
Lac du Sauvage	MT6	18-Aug-06	15:44	20-Aug-06	8:45	1.71	1.5	541283	7164700	0	0	0.0	0.0
Lac du Sauvage	MT2	18-Aug-06	15:47	20-Aug-06	8:48	1.71	1.2	541166	7164590	0	0	0.0	0.0
Lac du Sauvage	MT9	18-Aug-06	15:50	20-Aug-06	8:51	1.71	1.5	541251	7164260	0	0	0.0	0.0
Lac du Sauvage	MT7	18-Aug-06	15:55	20-Aug-06	9:51	1.75	2.1	541794	7164436	0	0	0.0	0.0
Lac du Sauvage	MT10	18-Aug-06	15:59	20-Aug-06	9:59	1.75	0.9	542143	7164240	0	0	0.0	0.0
Lac du Sauvage	MT5	18-Aug-06	16:00	20-Aug-06	10:03	1.75	1.5	542247	7164278	0	0	0.0	0.0
Lac du Sauvage	MT3	18-Aug-06	16:02	20-Aug-06	10:05	1.75	1.5	542374	7164134	2	0	1.1	0.0
Lac du Sauvage	MT5	26-Aug-06	9:09	27-Aug-06	16:00	1.29	1.8	541246	7166339	0	0	0.0	0.0
Lac du Sauvage	MT4	26-Aug-06	9:11	27-Aug-06	15:55	1.28	2.4	541147	7166335	0	0	0.0	0.0
Lac du Sauvage	MT10	26-Aug-06	9:12	27-Aug-06	16:25	1.30	1.2	541080	7166280	0	0	0.0	0.0
Lac du Sauvage	MT6	26-Aug-06	9:16	27-Aug-06	16:22	1.30	0.9	540983	7166433	0	0	0.0	0.0
Lac du Sauvage	MT7	26-Aug-06	9:18	27-Aug-06	16:28	1.30	1.5	540919	7166521	0	0	0.0	0.0
Lac du Sauvage	MT9	26-Aug-06	9:20	27-Aug-06	16:29	1.30	1.8	540882	7166670	0	0	0.0	0.0
Lac du Sauvage	MT8	26-Aug-06	9:25	27-Aug-06	16:31	1.30	1.8	540774	7166790	0	0	0.0	0.0
Lac du Sauvage	MT2	26-Aug-06	9:27	27-Aug-06	16:34	1.30	0.9	540593	7166897	0	0	0.0	0.0
Ursula Lake	MT2	31-Aug-06	11:22	3-Sep-06	9:27	2.92	1.7	525688	7186531	0	0	0.0	0.0
Ursula Lake	MT8	31-Aug-06	11:24	3-Sep-06	9:23	2.92	0.9	525676	7186515	0	0	0.0	0.0
Ursula Lake	MT6	31-Aug-06	11:38	3-Sep-06	9:28	2.91	1.9	525814	7186608	0	0	0.0	0.0
Ursula Lake	MT5	31-Aug-06	11:39	3-Sep-06	9:25	2.91	1.5	525744	7186613	0	0	0.0	0.0
Ursula Lake	MT10	31-Aug-06	11:36	3-Sep-06	9:31	2.91	0.8	525651	7186679	0	0	0.0	0.0
Ursula Lake	MT4	31-Aug-06	11:37	3-Sep-06	9:32	2.91	0.9	525433	7186792	1	0	0.3	0.0
Ursula Lake	MT9	31-Aug-06	11:42	3-Sep-06	9:21	2.90	1.2	525217	7186767	0	1	0.0	0.3
Ursula Lake	MT7	31-Aug-06	11:44	3-Sep-06	9:36	2.91	1.1	525198	7186837	0	0	0.0	0.0
Ursula Lake	MT1	31-Aug-06	11:45	3-Sep-06	9:37	2.91	0.6	525130	7186913	0	0	0.0	0.0
Ursula Lake	MT3	31-Aug-06	11:47	3-Sep-06	9:39	2.91	1	524998	7186865	0	0	0.0	0.0

Legend: BURB = burbot, SLSC = slimy sculpin

Note: All coordinates are presented in UTM, Zone 9, NAD83

APPENDIX 3.2-1
WATER QUALITY RESULTS FOR LAC DU SAUVAGE AND REFERENCE LAKE SITES, ICE-COVERED SEASON 2006

bhpbilliton

Appendix 3.2-1

Water Quality Results for Lac du Sauvage and Reference Lake Sites, Ice-Covered Season 2006

Sample ID	LdS1	LdS1	LdS1	LdS1	LdS2	LdS2	LdS3	LdS3	LdS3	LdS3	LdS5	LdS5	LdS5	LdS9
Depth	Bottom	Bottom	Mid	Mid	Mid	Mid	Bottom	Bottom	Mid	Mid	Bottom	Mid	Mid	Mid
Date Sampled	8-Feb-06	8-Feb-06	8-Feb-06	8-Feb-06	8-Feb-06	8-Feb-06	11-Feb-06	11-Feb-06	11-Feb-06	8-Feb-06	11-Feb-06	11-Feb-06	11-Feb-06	11-Feb-06
Physical Tests														
Anion Sum (meq/L)	0.114	0.144	0.145	0.157	0.288	0.295	0.135	0.112	0.130	0.108	0.109	0.147	0.172	0.183
Cation Sum (meq/L)	0.129	0.146	0.148	0.150	0.281	0.282	0.130	0.126	0.128	0.125	0.126	0.167	0.159	0.178
Ion Balance %	6.3	0.6	1.0	-2.2	-1.3	-2.2	-2.1	5.9	-0.7	7.5	7.4	6.4	-3.9	-1.6
Conductivity (uS/cm)	14.0	14.2	16.4	15.6	29.0	28.8	13.1	13.6	13.0	13.5	12.7	15.4	16.9	20.2
Total Dissolved Solids	6.5	7.8	8.0	8.3	15.6	15.8	7.2	6.4	7.0	6.2	6.3	8.3	9.1	9.9
Hardness CaCO3	4.39	4.97	5.02	5.10	9.52	9.52	4.45	4.29	4.39	4.27	4.29	5.63	5.42	6.03
pH	8.00	6.34	7.00	6.43	6.57	6.49	6.43	7.80	6.44	7.95	6.44	6.36	6.36	7.30
Total Suspended Solids	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Turbidity (NTU)	0.18	0.17	0.16	0.17	0.29	0.29	0.22	0.24	0.17	0.24	0.27	0.14	0.16	0.23
Dissolved Anions														
Alkalinity-Total CaCO3	4.1	5.5	5.0	6.0	9.6	9.9	5.2	4.0	5.0	3.9	3.9	5.5	5.8	6.0
Alkalinity-Bicarbonate CaCO3	4.1	5.5	5.0	6.0	9.6	9.9	5.2	4.0	5.0	3.9	3.9	5.5	5.8	6.0
Alkalinity-Carbonate CaCO3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Alkalinity-Hydroxide CaCO3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Chloride Cl	<0.50	<0.50	<0.50	<0.50	0.90	0.92	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.53	0.60
Fluoride F	0.024	0.025	0.026	0.027	0.041	0.040	0.023	0.022	0.022	0.022	0.024	0.027	0.028	0.031
Sulphate SO4	1.44	1.56	2.06	1.69	3.09	3.08	1.37	1.32	1.38	1.32	1.38	1.67	1.83	2.05
Nutrients														
Ammonia Nitrogen N	0.0230	0.0247	0.0260	0.0293	0.0387	0.0387	0.0253	0.0213	0.0207	0.0227	0.0240	0.0220	0.0240	0.0227
Total Kjeldahl Nitrogen N	0.280	0.265	0.300	0.290	0.312	0.300	0.242	0.253	0.276	0.264	0.250	0.270	0.268	0.283
Nitrate Nitrogen N	<0.0050	0.0051	<0.0050	<0.0050	0.0676	0.0703	0.0285	0.0368	0.0136	0.0164	0.0098	<0.0050	0.0115	0.0172
Nitrite Nitrogen N	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Dissolved ortho-Phosphate P	0.0028	0.0024	0.0027	0.0026	0.0032	0.0025	0.0029	0.0034	0.0027	0.0024	0.0020	0.0030	0.0027	0.0023
Total Phosphate P	0.0061	0.0050	0.0050	0.0052	0.0077	0.0073	0.0051	0.0057	0.0043	0.0050	0.0050	0.0048	0.0052	0.0054
Total Metals														
Aluminum T-Al	0.0026	0.0026	0.0028	0.0024	0.0072	0.0108	0.0031	0.0041	0.0030	0.0025	0.0039	0.0032	0.0024	0.0028
Antimony T-Sb	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic T-As	0.000261	0.000294	0.000298	0.000291	0.000473	0.000458	0.000247	0.000244	0.000230	0.000242	0.000231	0.000321	0.000300	0.000357
Barium T-Ba	0.00111	0.00120	0.00124	0.00121	0.00342	0.00345	0.00107	0.00106	0.00112	0.00108	0.00110	0.00146	0.00136	0.00166
Beryllium T-Be	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Boron T-B	0.0013	0.0012	0.0016	0.0015	0.0028	0.0029	0.0012	0.0012	0.0013	0.0014	0.0013	0.0015	0.0015	0.0017
Cadmium T-Cd	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Calcium T-Ca	0.845	0.972	0.977	0.997	1.87	1.85	0.884	0.836	0.865	0.838	0.841	1.10	1.06	1.18
Chromium T-Cr	0.00024	0.00025	0.00023	0.00023	0.00017	0.00013	0.00026	0.00029	0.00024	0.00024	0.00020	0.00030	0.00023	0.00028
Cobalt T-Co	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper T-Cu	0.00054	0.00062	0.00059	0.00061	0.00120	0.00120	0.00054	0.00053	0.00054	0.00051	0.00057	0.00076	0.00066	0.00076
Iron T-Fe	<0.010	<0.010	<0.010	<0.010	0.022	0.022	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Lead T-Pb	<0.000050	<0.000050	0.000051	0.000116	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000061	0.000064	<0.000050	<0.000050
Magnesium T-Mg	0.554	0.618	0.626	0.634	1.18	1.19	0.545	0.534	0.541	0.529	0.533	0.699	0.675	0.746
Manganese T-Mn	0.00164	0.00137	0.00127	0.00130	0.00321	0.00319	0.0141	0.0147	0.00745	0.00755	0.00182	0.00124	0.00123	0.00125
Mercury T-Hg	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Molybdenum T-Mo	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel T-Ni	0.00025	0.00024	0.00028	0.00027	0.00063	0.00063	0.00029	0.00027	0.00025	0.00025	0.00023	0.00038	0.00026	0.00029
Potassium T-K	0.533	0.595	0.621	0.619	1.17	1.17	0.519	0.518	0.521	0.513	0.521	0.706	0.661	0.749
Selenium T-Se	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Silicon T-Si	<0.050	<0.050	0.050	<0.050	0.100	0.097	0.085	0.091	0.052	0.057	<0.050	<0.050	<0.050	0.056
Silver T-Ag	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium T-Na	0.580	0.639	0.656	0.665	1.25	1.27	0.542	0.539	0.555	0.545	0.551	0.748	0.712	0.804
Strontium T-Sr	0.00546	0.00596	0.00618	0.00618	0.0117	0.0118	0.00559	0.00545	0.00539	0.00529	0.00531	0.00699	0.00671	0.00751
Uranium T-U	0.000018	0.000020	0.000021	0.000019	0.000038	0.000035	0.000018	0.000016	0.000017	0.000015	0.000018	0.000024	0.000023	0.000023
Vanadium T-V	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Zinc T-Zn	0.0012	<0.0010	<0.0010	<0.0010	0.0066	0.0026	0.0031	0.0017	<0.0010	<0.0010	<0.0010	0.0029	0.0010	<0.0010
Organic Parameters														
Total Organic Carbon C	2.83	4.94	3.12	5.59	7.20	7.26	5.21	2.43	4.86	2.46	2.58	5.66	3.18	3.58

Results are expressed as milligrams per litre except where noted.

Anion/Cation sums are expressed as milli-equivalents per litre.

< = Less than the detection limit indicated.

(continued)

Appendix 3.2-1
Water Quality Results for Lac du Sauvage and Reference Lake Sites, Ice-Covered Season 2006 (continued)

Sample ID	LdS9	LdS10	LdS10	LdS10	LdS10	LdS11	LdS11	LdS11	LdS11	LdS12	LdS12	LdS1	LdS1	LdS1	LdS1
Depth	Mid	Bottom	Bottom	Mid	Mid	Bottom	Bottom	Mid	Mid	Mid	Mid	Bottom	Bottom	Mid	Mid
Date Sampled	11-Feb-06	11-Feb-06	11-Feb-06	11-Feb-06	11-Feb-06	8-Feb-06	11-Feb-06	8-Feb-06	11-Feb-06	8-Feb-06	11-Feb-06	30-Mar-06	30-Mar-06	30-Mar-06	30-Mar-06
Physical Tests															
Anion Sum (meq/L)	0.196	0.112	0.114	0.110	0.117	0.116	0.114	0.118	0.118	0.128	0.125	0.143	0.142	0.193	0.180
Cation Sum (meq/L)	0.197	0.123	0.130	0.122	0.130	0.127	0.139	0.136	0.134	0.139	0.146	0.165	0.145	0.191	0.173
Ion Balance %	0.3	4.5	6.6	5.3	5.0	4.6	9.9	7.1	6.4	4.4	7.7	7.3	1.3	-0.5	-1.9
Conductivity (uS/cm)	20.5	13.4	13.2	13.3	13.1	13.2	13.2	13.2	13.3	15.2	14.3	16.6	15.8	20.3	19.3
Total Dissolved Solids	10.7	6.3	6.5	6.2	6.6	6.5	6.7	6.7	6.7	7.2	7.2	8.2	7.7	10.4	9.6
Hardness CaCO3	6.75	4.19	4.44	4.15	4.40	4.32	4.69	4.63	4.57	4.75	4.96	5.57	4.96	6.44	5.85
pH	6.74	7.67	6.33	7.58	6.47	7.43	6.40	6.45	6.47	8.02	6.45	6.67	6.63	7.00	6.69
Total Suspended Solids	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Turbidity (NTU)	0.22	0.29	0.22	0.20	0.27	0.25	0.24	0.21	0.25	0.43	0.21	0.14	0.12	0.18	0.14
Dissolved Anions															
Alkalinity-Total CaCO3	6.6	4.0	4.2	4.0	4.3	4.2	4.1	4.3	4.3	4.6	4.5	5.2	5.3	6.5	6.0
Alkalinity-Bicarbonate CaCO3	6.6	4.0	4.2	4.0	4.3	4.2	4.1	4.3	4.3	4.6	4.5	5.2	5.3	6.5	6.0
Alkalinity-Carbonate CaCO3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Alkalinity-Hydroxide CaCO3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Chloride Cl	0.62	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.63	0.58
Fluoride F	0.031	0.022	0.023	0.022	0.023	0.022	0.023	0.024	0.024	0.026	0.025	0.028	0.027	0.034	0.032
Sulphate SO4	2.11	1.35	1.35	1.35	1.39	1.36	1.42	1.47	1.49	1.60	1.58	1.73	1.60	2.08	1.97
Nutrients															
Ammonia Nitrogen N	0.0220	0.0227	0.0233	0.0227	0.0247	0.0240	0.0240	0.0220	0.0233	0.0220	0.0200	0.0293	0.0273	0.0340	0.0327
Total Kjeldahl Nitrogen N	0.277	0.238	0.250	0.250	0.249	0.254	0.255	0.250	0.250	0.285	0.264	0.213	0.203	0.244	0.234
Nitrate Nitrogen N	0.0230	0.0306	0.0204	0.0102	0.0111	0.0272	0.0052	<0.0050	<0.0050	0.0246	0.0056	0.0068	0.0069	0.0057	0.0061
Nitrite Nitrogen N	<0.0010	0.0011	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Dissolved ortho-Phosphate P	0.0018	0.0033	0.0030	0.0026	0.0058	0.0026	0.0026	0.0026	0.0026	0.0023	0.0023	0.0021	0.0025	0.0026	0.0024
Total Phosphate P	0.0049	0.0058	0.0059	0.0050	0.0052	0.0051	0.0055	0.0047	0.0054	0.0034	0.0049	0.0043	0.0050	0.0045	0.0055
Total Metals															
Aluminum T-Al	0.0030	0.0035	0.0033	0.0027	0.0049	0.0027	0.0028	0.0035	0.0015	0.0106	0.0038	0.0089	0.0042	0.0029	0.0021
Antimony T-Sb	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic T-As	0.000370	0.000229	0.000242	0.000232	0.000252	0.000254	0.000280	0.000276	0.000249	0.000274	0.000290	0.000318	0.000283	0.000363	0.000337
Barium T-Ba	0.00184	0.00109	0.00113	0.00107	0.00115	0.00105	0.00115	0.00113	0.00107	0.00127	0.00123	0.00142	0.00121	0.00157	0.00142
Beryllium T-Be	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Boron T-B	0.0020	0.0012	0.0012	0.0011	0.0013	0.0014	0.0014	0.0012	0.0014	0.0013	0.0013	0.0016	0.0014	0.0018	0.0014
Cadmium T-Cd	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Calcium T-Ca	1.35	0.823	0.866	0.815	0.854	0.851	0.913	0.898	0.891	0.881	0.957	1.06	0.946	1.23	1.12
Chromium T-Cr	0.00036	0.00029	0.00028	0.00022	0.00027	0.00027	0.00025	0.00027	0.00031	0.00032	0.00031	0.00011	<0.00010	<0.00010	<0.00010
Cobalt T-Co	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00051	<0.00010	<0.00010	<0.00010
Copper T-Cu	0.00080	0.00051	0.00054	0.00052	0.00058	0.00052	0.00056	0.00059	0.00054	0.00060	0.00077	0.00063	0.00057	0.00074	0.00065
Iron T-Fe	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.015	<0.010	<0.010	<0.010	<0.010	<0.010
Lead T-Pb	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000156	0.000060	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium T-Mg	0.817	0.519	0.554	0.514	0.550	0.533	0.585	0.579	0.570	0.619	0.625	0.712	0.631	0.817	0.745
Manganese T-Mn	0.00117	0.00482	0.00396	0.00249	0.00233	0.00159	0.00140	0.00123	0.000182	0.00165	0.00154	0.00122	0.00140	0.00127	0.00112
Mercury T-Hg	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Molybdenum T-Mo	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel T-Ni	0.00031	0.00027	0.00023	0.00023	0.00023	0.00023	0.00028	0.00027	0.00024	0.00055	0.00032	0.00032	0.00027	0.00040	0.00030
Potassium T-K	0.815	0.502	0.531	0.512	0.534	0.519	0.584	0.553	0.554	0.555	0.603	0.692	0.596	0.817	0.736
Selenium T-Se	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Silicon T-Si	0.057	0.073	0.063	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.074	0.053	<0.050	0.055	0.077	<0.050
Silver T-Ag	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium T-Na	0.877	0.532	0.563	0.544	0.573	0.560	0.614	0.597	0.594	0.600	0.648	0.725	0.634	0.859	0.776
Strontium T-Sr	0.00808	0.00525	0.00552	0.00519	0.00532	0.00524	0.00583	0.00562	0.00552	0.00546	0.00596	0.00673	0.00595	0.00766	0.00705
Uranium T-U	0.000026	0.000019	0.000020	0.000018	0.000016	0.000018	0.000019	0.000019	0.000013	0.000022	0.000019	0.000022	0.000019	0.000022	0.000023
Vanadium T-V	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000064	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Zinc T-Zn	0.0029	0.0020	0.0011	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0016	<0.0010	0.0017	<0.0010	0.0024	<0.0010
Organic Parameters															
Total Organic Carbon C	3.63	2.45	2.51	2.52	2.61	2.57	2.60	2.69	2.80	2.82	2.94	2.97	2.67	3.41	3.22

Results are expressed as milligrams per litre except where noted.

Anion/Cation sums are expressed as milli-equivalents per litre.

< = Less than the detection limit indicated.

(continued)

Appendix 3.2-1
Water Quality Results for Lac du Sauvage and Reference Lake Sites, Ice-Covered Season 2006 (continued)

Sample ID	LdS3	LdS3	LdS3	LdS3	LdS5	LdS5	LdS5	LdS5	LdS9	LdS9	LdS10	LdS10	LdS10	LdS10	LdS11
Depth	Bottom	Bottom	Mid	Mid	Bottom	Bottom	Mid	Mid	Mid	Mid	Bottom	Bottom	Mid	Mid	Bottom
Date Sampled	21-Mar-06	21-Mar-06	21-Mar-06	21-Mar-06	21-Mar-06	21-Mar-06	21-Mar-06	21-Mar-06	21-Mar-06	21-Mar-06	21-Mar-06	21-Mar-06	21-Mar-06	21-Mar-06	20-Mar-06
Physical Tests															
Anion Sum (meq/L)	0.077	0.094	0.126	0.111	0.127	0.115	0.182	0.164	0.184	0.187	0.114	0.113	0.119	0.112	0.121
Cation Sum (meq/L)	0.138	0.139	0.139	0.139	0.141	0.142	0.196	0.196	0.197	0.198	0.133	0.135	0.135	0.137	0.137
Ion Balance %	28.6	19.7	4.6	11.3	5.3	10.3	3.7	8.9	3.5	2.8	7.8	8.8	6.1	9.9	6.4
Conductivity (uS/cm)	13.3	13.0	13.9	13.7	14.3	13.8	19.8	18.6	20.0	20.5	13.4	13.2	13.4	13.3	13.7
Total Dissolved Solids	5.6	6.1	7.0	6.6	7.1	6.8	10.2	9.6	10.3	10.4	6.6	6.6	6.7	6.6	6.9
Hardness CaCO3	4.71	4.87	4.76	4.77	4.84	4.84	6.70	6.64	6.78	6.76	4.59	4.68	4.60	4.68	4.69
pH	6.61	6.68	6.68	6.83	6.63	6.86	6.96	6.97	6.89	6.95	6.84	6.71	6.74	6.75	6.89
Total Suspended Solids	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Turbidity (NTU)	0.25	0.27	0.46	0.44	0.44	0.17	0.16	0.19	0.34	0.18	0.19	0.25	0.22	0.18	0.23
Dissolved Anions															
Alkalinity-Total CaCO3	2.2	3.0	4.8	3.9	4.7	4.2	6.0	5.2	6.0	6.1	4.1	4.0	4.4	4.0	4.4
Alkalinity-Bicarbonate CaCO3	2.2	3.0	4.8	3.9	4.7	4.2	6.0	5.2	6.0	6.1	4.1	4.0	4.4	4.0	4.4
Alkalinity-Carbonate CaCO3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Alkalinity-Hydroxide CaCO3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Chloride Cl	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.60	0.58	0.61	0.62	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride F	0.023	0.022	0.022	0.024	0.024	0.024	0.031	0.030	0.034	0.032	0.022	0.023	0.023	0.023	0.023
Sulphate SO4	1.38	1.37	1.36	1.43	1.46	1.45	2.03	1.99	2.13	2.14	1.39	1.37	1.40	1.39	1.46
Nutrients															
Ammonia Nitrogen N	0.0153	0.0167	0.0253	0.0240	0.0247	0.0267	0.0333	0.0367	0.0287	0.0300	0.0220	0.0187	0.0280	0.0273	0.0267
Total Kjeldahl Nitrogen N	0.189	0.180	0.198	0.159	0.221	0.219	0.275	0.274	0.268	0.226	0.157	0.174	0.172	0.188	0.164
Nitrate Nitrogen N	0.0410	0.0403	0.0217	0.0206	0.0090	0.0095	0.0053	0.0058	0.0223	0.0238	0.0319	0.0359	0.0082	0.0116	0.0050
Nitrite Nitrogen N	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0011	<0.0010	<0.0010	<0.0010	<0.0010	0.0015	<0.0010	<0.0010	<0.0010	0.0013
Dissolved ortho-Phosphate P	0.0027	0.0024	0.0022	0.0022	0.0022	0.0021	0.0025	0.0023	0.0020	0.0020	0.0027	0.0029	0.0024	0.0024	0.0021
Total Phosphate P	0.0058	0.0054	0.0052	0.0051	0.0046	0.0045	0.0049	0.0047	0.0047	0.0054	0.0051	0.0052	0.0049	0.0045	0.0046
Total Metals															
Aluminum T-Al	0.0309	0.0041	0.0088	0.0078	0.0035	0.0112	0.0030	0.0134	0.0032	0.0028	0.0083	0.0037	0.0085	0.0046	0.0060
Antimony T-Sb	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic T-As	0.000259	0.000250	0.000278	0.000251	0.000268	0.000263	0.000395	0.000401	0.000372	0.000365	0.000251	0.000255	0.000252	0.000255	0.000255
Barium T-Ba	0.00121	0.00119	0.00121	0.00122	0.00118	0.00118	0.00163	0.00158	0.00187	0.00184	0.00120	0.00117	0.00118	0.00121	0.00118
Beryllium T-Be	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Boron T-B	0.0011	0.0011	0.0013	<0.0010	0.0014	0.0012	0.0020	0.0017	0.0016	0.0020	<0.0010	0.0012	0.0011	0.0011	0.0012
Cadmium T-Cd	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Calcium T-Ca	0.908	0.948	0.930	0.918	0.942	0.921	1.30	1.26	1.30	1.30	0.886	0.902	0.880	0.894	0.892
Chromium T-Cr	0.00015	0.00015	<0.00020	0.00017	<0.00010	0.00015	0.00014	0.00018	0.00017	0.00017	0.00017	0.00015	0.00015	0.00015	0.00011
Cobalt T-Co	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper T-Cu	0.00059	0.00054	0.00056	0.00056	0.00057	0.00055	0.00077	0.00076	0.00078	0.00076	0.00054	0.00056	0.00052	0.00057	0.00057
Iron T-Fe	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Lead T-Pb	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000176	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000065
Magnesium T-Mg	0.592	0.608	0.593	0.601	0.605	0.616	0.840	0.845	0.860	0.856	0.578	0.590	0.585	0.593	0.598
Manganese T-Mn	0.0213	0.0213	0.0103	0.0124	0.00142	0.00143	0.00125	0.00125	0.00122	0.00124	0.00596	0.00712	0.00207	0.00213	0.00133
Mercury T-Hg	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Molybdenum T-Mo	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel T-Ni	0.00038	0.00038	0.00029	0.00029	0.00021	0.00024	0.00034	0.00031	0.00033	0.00035	0.00026	0.00026	0.00028	0.00027	0.00027
Potassium T-K	0.533	0.540	0.548	0.555	0.564	0.573	0.822	0.808	0.815	0.811	0.534	0.541	0.546	0.555	0.556
Selenium T-Se	<0.00010	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Silicon T-Si	0.110	0.106	0.063	0.051	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.061	0.060	<0.050	<0.050	<0.050
Silver T-Ag	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium T-Na	0.562	0.572	0.578	0.585	0.606	0.611	0.860	0.851	0.859	0.877	0.559	0.568	0.572	0.586	0.593
Strontium T-Sr	0.00572	0.00580	0.00556	0.00565	0.00558	0.00567	0.00772	0.00775	0.00804	0.00791	0.00554	0.00557	0.00537	0.00546	0.00554
Uranium T-U	0.000020	0.000022	0.000020	0.000020	0.000018	0.000020	0.000023	0.000025	0.000026	0.000026	0.000018	0.000018	0.000018	0.000020	0.000020
Vanadium T-V	<0.000050	<0.000050	0.000124	<0.000050	0.000078	<0.000050	0.000069	<0.000050	0.000057	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Zinc T-Zn	<0.0010	0.0014	0.0017	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0016	0.0022	<0.0010	<0.0010	0.0011
Organic Parameters															
Total Organic Carbon C	2.39	2.35	2.42	2.38	2.59	2.57	3.47	3.48	3.52	2.88	2.37	2.04	2.50	2.28	2.54

Results are expressed as milligrams per litre except where noted.

Anion/Cation sums are expressed as milli-equivalents per litre.

< = Less than the detection limit indicated.

(continued)

Appendix 3.2-1
Water Quality Results for Lac du Sauvage and Reference Lake Sites, Ice-Covered Season 2006 (continued)

Sample ID	LdS11	LdS11	LdS11	LdS12	LdS12	LdS1	LdS1	LdS1	LdS1	LdS3	LdS3	LdS3	LdS3	LdS5	LdS5
Depth	Bottom	Mid	Mid	Mid	Mid	Bottom	Bottom	Mid	Mid	Bottom	Bottom	Mid	Mid	Mid	Mid
Date Sampled	20-Mar-06	20-Mar-06	20-Mar-06	20-Mar-06	20-Mar-06	6-May-06	6-May-06	6-May-06	6-May-06	6-May-06	6-May-06	6-May-06	6-May-06	6-May-06	6-May-06
Physical Tests															
Anion Sum (meq/L)	0.117	0.136	0.134	0.133	0.181	0.149	0.172	0.193	0.180	0.150	0.121	0.118	0.139	0.178	0.199
Cation Sum (meq/L)	0.135	0.158	0.151	0.167	0.183	0.161	0.174	0.190	0.194	0.252	0.153	0.146	0.152	0.195	0.195
Ion Balance %	7.2	7.4	5.7	11.2	0.5	4.1	0.6	-0.6	3.7	25.2	11.5	10.7	4.4	4.6	-1.1
Conductivity (uS/cm)	13.5	16.4	15.6	16.7	19.5	14.7	16.9	19.1	19.3	14.0	13.8	17.1	14.5	19.7	19.3
Total Dissolved Solids	6.7	7.8	7.6	8.0	9.9	8.4	9.4	10.5	10.1	8.3	7.2	7.0	7.8	10.1	10.7
Hardness CaCO3	4.59	5.40	5.14	5.70	6.22	5.50	5.95	6.50	6.56	5.70	5.28	5.02	5.21	6.60	6.59
pH	6.88	6.91	6.90	6.83	6.94	6.38	6.76	7.55	6.76	4.07	7.02	6.58	6.49	6.57	6.47
Total Suspended Solids	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Turbidity (NTU)	0.14	0.14	0.30	0.29	0.20	0.16	0.15	0.20	0.25	1.48	1.62	0.64	0.72	0.24	0.23
Dissolved Anions															
Alkalinity-Total CaCO3	4.3	5.0	4.9	4.0	6.0	4.7	5.8	6.4	5.8	5.8	4.3	4.1	5.1	5.2	6.8
Alkalinity-Bicarbonate CaCO3	4.3	5.0	4.9	4.0	6.0	4.7	5.8	6.4	5.8	<2.0	4.3	4.1	5.1	5.2	6.8
Alkalinity-Carbonate CaCO3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Alkalinity-Hydroxide CaCO3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Chloride Cl	<0.50	<0.50	<0.50	0.51	0.61	0.55	0.53	0.63	0.61	<0.50	<0.50	<0.50	<0.50	0.95	0.62
Fluoride F	0.023	0.027	0.026	0.027	0.031	0.030	0.029	0.033	0.033	0.024	0.023	0.024	0.025	0.038	0.037
Sulphate SO4	1.43	1.71	1.66	1.79	2.04	1.65	1.83	2.07	2.06	1.40	1.41	1.45	1.53	2.05	2.04
Nutrients															
Ammonia Nitrogen N	0.0393	0.0300	0.0300	0.0280	0.0320	0.0260	0.0247	0.0260	0.0327	<0.0050	<0.0050	<0.0050	<0.0050	0.0140	0.0127
Total Kjeldahl Nitrogen N	0.192	0.190	0.210	0.255	0.212	0.145	0.129	0.136	0.144	0.089	0.106	0.128	0.142	0.180	0.223
Nitrate Nitrogen N	0.0064	<0.0050	<0.0050	0.0051	0.0078	0.0546	0.0209	0.0238	0.0154	0.0670	0.0668	0.0535	0.0575	0.0213	0.0104
Nitrite Nitrogen N	0.0012	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0011	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Dissolved ortho-Phosphate P	0.0024	0.0023	0.0024	0.0021	0.0018	0.0011	<0.0010	0.0011	0.0018	0.0027	0.0022	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphate P	0.0049	0.0049	0.0057	0.0055	0.0058	0.0054	0.0056	0.0057	0.0057	0.0062	0.0082	0.0059	0.0068	0.0045	0.0056
Total Metals															
Aluminum T-Al	0.0031	0.0074	0.0030	0.0038	0.0064	0.0091	0.0033	0.0031	0.0031	0.0576	0.0403	0.0157	0.0173	0.0140	0.0208
Antimony T-Sb	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic T-As	0.000254	0.000304	0.000299	0.000313	0.000344	0.000279	0.000316	0.000340	0.000372	0.000293	0.000266	0.000288	0.000279	0.000365	0.000357
Barium T-Ba	0.00113	0.00133	0.00130	0.00146	0.00161	0.00146	0.00161	0.00180	0.00165	0.00272	0.00292	0.00169	0.00168	0.00165	0.00169
Beryllium T-Be	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Boron T-B	0.0012	0.0014	0.0014	0.0013	0.0016	0.0012	0.0013	0.0016	0.0014	0.0010	<0.0010	0.0011	<0.0010	0.0017	0.0014
Cadmium T-Cd	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Calcium T-Ca	0.874	1.02	0.966	1.08	1.18	1.06	1.15	1.26	1.27	1.01	0.927	0.966	0.993	1.27	1.28
Chromium T-Cr	<0.00010	0.00016	0.00017	<0.00010	0.00020	0.00013	0.00017	0.00017	0.00019	0.00039	0.00042	0.00023	0.00030	0.00016	0.00013
Cobalt T-Co	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	0.00011	<0.00010	<0.00010	<0.00010	<0.00010
Copper T-Cu	0.00050	0.00062	0.00059	0.00065	0.00070	0.00065	0.00071	0.00076	0.00073	0.00060	0.00109	0.00056	0.00059	0.00077	0.00078
Iron T-Fe	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.081	0.087	0.041	0.039	<0.010	0.010
Lead T-Pb	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium T-Mg	0.585	0.693	0.663	0.729	0.797	0.692	0.747	0.817	0.824	0.769	0.719	0.634	0.663	0.834	0.823
Manganese T-Mn	0.00178	0.00106	0.00106	0.00124	0.00133	0.00162	0.00135	0.00119	0.000823	0.0385	0.0354	0.0220	0.0249	0.00116	0.00116
Mercury T-Hg	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Molybdenum T-Mo	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel T-Ni	0.00023	0.00031	0.00027	0.00029	0.00033	0.00031	0.00031	0.00040	0.00032	0.00177	0.00169	0.00061	0.00070	0.00034	0.00033
Potassium T-K	0.542	0.641	0.621	0.682	0.747	0.663	0.728	0.813	0.830	0.584	0.540	0.574	0.597	0.822	0.812
Selenium T-Se	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Silicon T-Si	<0.050	<0.050	<0.050	0.065	0.053	<0.050	0.051	0.054	0.055	0.303	0.332	0.135	0.148	0.052	0.053
Silver T-Ag	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium T-Na	0.578	0.686	0.655	0.735	0.811	0.694	0.762	0.836	0.862	0.601	0.545	0.597	0.618	0.866	0.855
Strontium T-Sr	0.00533	0.00633	0.00600	0.00670	0.00735	0.00652	0.00701	0.00767	0.00767	0.00681	0.00630	0.00604	0.00638	0.00800	0.00783
Uranium T-U	0.000019	0.000021	0.000021	0.000023	0.000025	0.000023	0.000023	0.000023	0.000023	0.000026	0.000026	0.000024	0.000025	0.000024	0.000025
Vanadium T-V	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000096	0.000168	<0.000050	<0.000050	<0.000050	<0.000050
Zinc T-Zn	<0.0010	0.0012	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0014	<0.0010	<0.0010	<0.0010	0.0013	0.0018	0.0016
Organic Parameters															
Total Organic Carbon C	2.10	2.92	2.31	3.06	3.36	4.10	4.42	4.65	4.34	3.37	3.68	3.41	3.21	4.64	4.32

Results are expressed as milligrams per litre except where noted.

Anion/Cation sums are expressed as milli-equivalents per litre.

< = Less than the detection limit indicated.

(continued)

Appendix 3.2-1
Water Quality Results for Lac du Sauvage and Reference Lake Sites, Ice-Covered Season 2006 (continued)

Sample ID	LdS9	LdS9	LdS10	LdS10	LdS10	LdS10	LdS11	LdS11	LdS11	LdS11	LdS12	LdS12	Christine	Christine	Christine
Depth	Mid	Mid	Bottom	Bottom	Mid	Mid	Bottom	Bottom	Mid	Mid	Mid	Mid	Bottom	Mid	Mid
Date Sampled	6-May-06	5-May-06	6-May-06	5-May-06	5-May-06	5-May-06	5-May-06	5-May-06	5-May-06	5-May-06	5-May-06	5-May-06	28-Apr-06	28-Apr-06	28-Apr-06
Physical Tests															
Anion Sum (meq/L)	0.172	0.184	0.114	0.156	0.124	0.146	0.126	0.116	0.134	0.131	0.177	0.164	0.367	0.355	0.358
Cation Sum (meq/L)	0.198	0.187	0.140	0.128	0.139	0.135	0.147	0.134	0.155	0.155	0.180	0.168	0.359	0.357	0.351
Ion Balance %	7.1	1.0	10.1	-9.8	5.9	-4.0	7.9	7.2	7.0	8.3	0.9	1.3	-1.1	0.3	-1
Conductivity (uS/cm)	19.2	19.1	13.8	13.4	13.3	13.7	13.9	13.5	14.8	15.2	17.8	17.1	39.2	39.7	38.7
Total Dissolved Solids	9.9	10.1	6.8	7.8	7.0	7.6	7.2	6.7	7.7	7.6	9.7	9.0	21	20.5	20.5
Hardness CaCO3	6.83	6.45	4.84	4.46	4.80	4.66	5.05	4.61	5.30	5.29	6.15	5.74	12.6	12.4	12.3
pH	6.59	6.97	6.48	6.95	6.45	6.89	6.48	6.87	6.49	6.84	6.54	6.74	6.64	6.56	6.58
Total Suspended Solids	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Turbidity (NTU)	0.16	0.14	0.17	0.18	0.17	0.14	0.26	0.16	0.20	0.17	0.18	0.30	0.21	0.24	0.24
Dissolved Anions															
Alkalinity-Total CaCO3	5.5	6.0	4.0	6.0	4.5	5.6	4.6	4.2	5.0	4.8	6.0	5.4	8.6	7.8	8.1
Alkalinity-Bicarbonate CaCO3	5.5	6.0	4.0	6.0	4.5	5.6	4.6	4.2	5.0	4.8	6.0	5.4	<2.0	<2.0	<2.0
Alkalinity-Carbonate CaCO3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Alkalinity-Hydroxide CaCO3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	8.6	7.8	8.1
Chloride Cl	0.60	0.60	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.56	0.54	1.09	1.11	1.09
Fluoride F	0.032	0.032	0.024	0.023	0.023	0.024	0.025	0.024	0.026	0.027	0.031	0.030	0.029	0.032	0.035
Sulphate SO4	2.02	2.05	1.44	1.39	1.44	1.44	1.53	1.45	1.61	1.63	1.91	1.84	7.67	7.84	7.72
Nutrients															
Ammonia Nitrogen N	0.0200	0.0220	0.0173	<0.0050	0.0120	0.0053	0.0253	0.0160	0.0273	0.0280	0.0273	0.0220	<0.0050	0.0187	0.0173
Total Kjeldahl Nitrogen N	0.196	0.168	0.124	0.102	0.161	0.100	0.169	0.111	0.174	0.133	0.198	0.135	0.122	0.142	0.148
Nitrate Nitrogen N	0.0220	0.0217	0.0558	0.0654	0.0386	0.0402	0.0107	0.0172	0.0063	0.0071	0.0121	0.0151	0.0583	0.0269	0.0319
Nitrite Nitrogen N	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0015	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0014	<0.0010
Dissolved ortho-Phosphate P	<0.0010	0.0010	0.0018	0.0019	0.0017	0.0015	0.0015	0.0013	0.0015	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphate P	0.0045	0.0046	0.0053	0.0050	0.0068	0.0045	0.0048	0.0045	0.0052	0.0052	0.0063	0.0040	0.0041	0.0035	0.0036
Total Metals															
Aluminum T-Al	0.0027	0.0025	0.0031	0.0042	0.0023	0.0030	0.0088	0.0069	0.0021	0.0021	0.0026	0.0055	0.0062	0.0059	0.006
Antimony T-Sb	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic T-As	0.000369	0.000340	0.000252	0.000221	0.000265	0.000246	0.000274	0.000243	0.000296	0.000295	0.000349	0.000324	0.000297	0.000319	0.000304
Barium T-Ba	0.00186	0.00174	0.00125	0.00112	0.00122	0.00119	0.00118	0.00107	0.00127	0.00125	0.00153	0.00147	0.00537	0.00466	0.00469
Beryllium T-Be	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Boron T-B	0.0016	0.0015	0.0011	<0.0010	0.0010	<0.0010	0.0012	<0.0010	0.0012	0.0011	0.0014	0.0011	0.0024	0.0023	0.002
Cadmium T-Cd	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Calcium T-Ca	1.33	1.25	0.956	0.874	0.928	0.896	0.980	0.887	1.02	1.02	1.18	1.11	1.91	1.87	1.85
Chromium T-Cr	0.00018	0.00018	0.00019	0.00017	0.00016	0.00012	0.00011	0.00013	0.00010	0.00014	0.00014	0.00013	0.00022	<0.00010	<0.00010
Cobalt T-Co	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper T-Cu	0.00082	0.00078	0.00056	0.00056	0.00055	0.00058	0.00059	0.00057	0.00059	0.00069	0.00070	0.00081	0.00093	0.00095	0.00095
Iron T-Fe	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.013	<0.010	0.013
Lead T-Pb	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium T-Mg	0.851	0.807	0.596	0.552	0.603	0.588	0.631	0.582	0.667	0.666	0.777	0.725	1.9	1.89	1.85
Manganese T-Mn	0.00134	0.00119	0.00925	0.00890	0.00317	0.00335	0.00120	0.00171	0.000990	0.000995	0.00109	0.00138	0.0156	0.00365	0.00401
Mercury T-Hg	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Molybdenum T-Mo	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel T-Ni	0.00035	0.00036	0.00024	0.00025	0.00029	0.00023	0.00025	0.00024	0.00028	0.00029	0.00031	0.00030	0.00085	0.00074	0.00071
Potassium T-K	0.818	0.776	0.563	0.517	0.572	0.546	0.590	0.547	0.627	0.641	0.752	0.696	1.42	1.41	1.37
Selenium T-Se	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Silicon T-Si	<0.050	0.054	0.079	0.094	0.050	0.052	<0.050	<0.050	<0.050	<0.050	0.052	<0.050	0.151	0.107	0.114
Silver T-Ag	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium T-Na	0.862	0.817	0.592	0.549	0.601	0.593	0.634	0.577	0.672	0.670	0.792	0.737	1.54	1.55	1.51
Strontium T-Sr	0.00807	0.00767	0.00585	0.00544	0.00574	0.00553	0.00594	0.00544	0.00632	0.00644	0.00735	0.00673	0.0129	0.0126	0.0124
Uranium T-U	0.000027	0.000024	0.000021	0.000018	0.000021	0.000021	0.000019	0.000019	0.000020	0.000021	0.000023	0.000022	0.000017	0.000018	0.000018
Vanadium T-V	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Zinc T-Zn	<0.0010	<0.0010	0.0019	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0014	0.0043	<0.0010	<0.0010	0.0011	0.0025	0.001
Organic Parameters															
Total Organic Carbon C	4.15	4.56	3.42	3.44	3.58	3.58	3.96	3.83	3.92	4.23	4.18	4.16	4.61	5	4.84

Results are expressed as milligrams per litre except where noted.

Anion/Cation sums are expressed as milli-equivalents per litre.

< = Less than the detection limit indicated.

(continued)

Appendix 3.2-1
Water Quality Results for Lac du Sauvage and Reference Lake Sites, Ice-Covered Season 2006 (completed)

Sample ID	UL3	UL2	UL1	UL3	UL2	UL1	UL1
Depth	Mid	Mid	Mid	Mid	Mid	Mid	Bottom
Date Sampled	28-Apr-06	28-Apr-06	28-Apr-06	28-Apr-06	28-Apr-06	28-Apr-06	28-Apr-06
Physical Tests							
Anion Sum (meq/L)	0.112	0.092	0.087	0.107	0.084	0.095	0.12
Cation Sum (meq/L)	0.13	0.118	0.103	0.127	0.11	0.11	0.102
Ion Balance %	7.4	12.4	8.1	8.2	13.4	7.1	-8.3
Conductivity (uS/cm)	14.6	12.5	11.2	14	12	11.4	10.6
Total Dissolved Solids	6.6	5.6	5.1	6.4	5.2	5.5	6.1
Hardness CaCO3	4.54	4.07	3.6	4.41	3.81	3.8	3.57
pH	6.24	6.39	6.41	6.32	6.37	6.39	6.21
Total Suspended Solids	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Turbidity (NTU)	0.14	0.12	0.13	0.12	0.12	0.13	0.14
Dissolved Anions							
Alkalinity-Total CaCO3	3.7	3	2.9	3.4	2.6	3.2	4.7
Alkalinity-Bicarbonate CaCO3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Alkalinity-Carbonate CaCO3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Alkalinity-Hydroxide CaCO3	3.7	3	2.9	3.4	2.6	3.2	4.7
Chloride Cl	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride F	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Sulphate SO4	1.65	1.56	1.41	1.75	1.53	1.5	1.28
Nutrients							
Ammonia Nitrogen N	0.0127	0.014	0.016	0.012	0.0147	0.0153	0.0173
Total Kjeldahl Nitrogen N	0.093	0.11	0.089	0.08	0.09	0.08	0.093
Nitrate Nitrogen N	0.043	<0.0050	<0.0050	0.0404	<0.0050	<0.0050	0.0068
Nitrite Nitrogen N	<0.0010	<0.0010	0.001	<0.0010	<0.0010	<0.0010	<0.0010
Dissolved ortho-Phosphate P	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.002	<0.0010
Total Phosphate P	0.0027	0.0028	0.0025	0.0027	0.0027	0.0026	0.0028
Total Metals							
Aluminum T-Al	0.0031	0.0029	0.0027	0.003	0.0026	0.0031	0.0031
Antimony T-Sb	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic T-As	0.00012	0.000136	0.000111	0.000121	0.000117	0.000119	0.000102
Barium T-Ba	0.00359	0.00228	0.0018	0.00313	0.00212	0.00195	0.00212
Beryllium T-Be	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Boron T-B	0.0012	0.001	<0.0010	0.0012	0.0011	0.0011	<0.0010
Cadmium T-Cd	0.000067	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Calcium T-Ca	0.865	0.763	0.639	0.828	0.705	0.705	0.643
Chromium T-Cr	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Cobalt T-Co	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00019	0.00017
Copper T-Cu	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron T-Fe	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Lead T-Pb	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium T-Mg	0.579	0.526	0.487	0.57	0.497	0.496	0.478
Manganese T-Mn	0.00131	0.000529	0.000471	0.00103	0.000609	0.000494	0.00232
Mercury T-Hg	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Molybdenum T-Mo	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel T-Ni	0.00049	0.00027	0.00023	0.00046	0.00024	0.00029	0.00033
Potassium T-K	0.486	0.45	0.363	0.481	0.411	0.411	0.37
Selenium T-Se	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Silicon T-Si	0.057	<0.050	<0.050	0.062	0.05	0.05	0.062
Silver T-Ag	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium T-Na	0.552	0.517	0.434	0.544	0.472	0.478	0.416
Strontium T-Sr	0.00609	0.00522	0.00439	0.00602	0.005	0.00489	0.00458
Uranium T-U	0.00001	0.000012	0.000011	0.00001	<0.000010	0.00001	<0.000010
Vanadium T-V	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Zinc T-Zn	<0.0010	0.0014	0.0021	<0.0010	<0.0010	0.0026	0.0025
Organic Parameters							
Total Organic Carbon C	1.96	2.05	1.82	2.01	2	1.91	1.63

Results are expressed as milligrams per litre except where noted.

Anion/Cation sums are expressed as milli-equivalents per litre.

< = Less than the detection limit indicated.

APPENDIX 3.2-2
WATER QUALITY RESULTS FOR LAC DU SAUVAGE AND REFERENCE LAKE SITES, OPEN-WATER SEASON 2004 AND 2006

bhpbilliton

Appendix 3.2-2

Water Quality Results for Lac du Sauvage and Reference Lake Sites, Open-Water Season 2004 and 2006

Sample ID	LdS3	LdS3	LdS3	LdS3	LdS3	LdS3	LdS1	LdS1	LdS2	LdS2	LdS2 ,	LdS3	LdS3
Depth	Top	Mid	Top	Mid	Top	Mid	Top	Mid	Top	Mid	Mid	Top	Mid
Date Sampled	13-Jul-04	13-Jul-04	10-Aug-04	10-Aug-04	12-Sep-04	12-Sep-04	10-Jul-06	10-Jul-06	10-Jul-06	10-Jul-06	10-Jul-06	9-Jul-06	9-Jul-06
Physical Tests													
Anion Sum (meq/L)							0.106	0.110	0.103	-	0.134	0.123	0.098
Cation Sum (meq/L)							0.122	0.125	0.140	-	0.146	0.122	0.120
Ion Balance %	6.83	6.53	7.49	9.22	6.18	0.750	7.4	6.2	15.0	-	4.6	-0.5	9.8
Conductivity (uS/cm)	12.4	12.6	12.4	12.5	11.6	11.8	11.8	12.2	13.8	-	15.2	11.9	12.8
Total Dissolved Solids	8.5	8.5	8.3	8.2	6.1	6.5	6.0	6.2	6.4	-	7.6	6.6	5.8
Hardness CaCO3	4.42	4.44	4.22	4.19	4.24	4.25	4.14	4.22	4.72	4.7	4.96	4.13	4.05
pH	6.56	6.54	6.54	6.52	6.85	6.78	6.67	6.66	6.67	-	6.63	6.76	6.68
Total Suspended Solids	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	-	<3.0	<3.0	<3.0
Turbidity (NTU)	0.41	0.45	0.54	0.52	0.44	0.37	0.61	0.57	0.54	-	0.68	0.53	0.62
Dissolved Anions													
Alkalinity-Total CaCO3	4.2	4.2	4.1	4.0	4.1	4.8	4.0	4.2	3.3	-	4.7	4.9	3.6
Alkalinity-Bicarbonate CaCO3	4.2	4.2	4.1	4.0	4.1	4.8	4.0	4.2	3.3	-	4.7	4.9	3.6
Alkalinity-Carbonate CaCO3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	-	<2.0	<2.0	<2.0
Alkalinity-Hydroxide CaCO3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	-	<2.0	<2.0	<2.0
Chloride Cl	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	<0.50	<0.50	<0.50
Fluoride F	0.022	0.021	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	-	0.023	<0.020	<0.020
Sulphate SO4	1.27	1.27	1.19	1.19	1.23	1.22	1.24	1.23	1.69	-	1.87	1.23	1.24
Nutrients													
Ammonia Nitrogen N	0.006	0.006			<0.0050	<0.0050	<0.0050	<0.0050	0.0073	-	0.0053	<0.0050	<0.0050
Total Kjeldahl Nitrogen N	0.272	0.196			0.183	0.177	0.200	0.210	0.230	-	0.220	0.150	0.200
Nitrate Nitrogen N	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	-	<0.0050	<0.0050	<0.0050
Nitrite Nitrogen N	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	-	<0.0010	<0.0010	<0.0010
Dissolved ortho-Phosphate P	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	-	<0.0010	<0.0010	<0.0010
Total Phosphate P	0.0047	0.0088			0.0042	0.0052	0.0055	0.0051	0.0046	-	0.0054	0.0050	0.0086
Total Metals													
Aluminum T-Al	0.0066	0.0069	0.0100	0.0089	0.0058	0.0064	0.0127	0.0134	0.0133	0.0174	0.0144	0.0106	0.0098
Antimony T-Sb	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic T-As	0.00028	0.000267	0.000290	0.000278	0.000282	0.000274	0.000247	0.000267	0.000285	0.000292	0.000310	0.000267	0.000250
Barium T-Ba	0.00171	0.00134	0.00182	0.00150	0.00134	0.00200	0.00137	0.00168	0.00172	0.00182	0.00187	0.00139	0.00136
Beryllium T-Be	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Boron T-B	0.0012	0.0011	<0.0010	<0.0010	<0.0010	<0.0010	0.0011	0.0012	0.0012	0.0012	0.0014	0.0011	0.0012
Cadmium T-Cd	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000074	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Calcium T-Ca	0.826	0.835	0.821	0.825	0.783	0.787	0.825	0.825	0.893	0.875	0.920	0.809	0.793
Chromium T-Cr	<0.00010	<0.00010	0.00014	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Cobalt T-Co	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper T-Cu	0.00062	0.00055	0.00063	0.00059	0.00060	0.00062	0.00061	0.00063	0.00067	0.00071	0.00072	0.00067	0.00064
Iron T-Fe	0.012	0.011	0.011	0.082	<0.010	<0.010	0.022	0.021	0.037	0.046	0.042	0.020	0.020
Lead T-Pb	<0.000050	<0.000050	0.000305	<0.000050	<0.000050	0.000059	0.000149	0.000095	0.000058	0.000113	0.000090	<0.000050	<0.000050
Magnesium T-Mg	0.573	0.573	0.527	0.516	0.554	0.555	0.506	0.524	0.605	0.621	0.647	0.512	0.503
Manganese T-Mn	0.00575	0.00555	0.00390	0.00386	0.00303	0.00300	0.00705	0.00731	0.00637	0.00595	0.00549	0.00733	0.00699
Mercury T-Hg	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Molybdenum T-Mo	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel T-Ni	0.00035	0.00035	0.00033	0.00032	0.00027	0.00026	0.00045	0.00041	0.00053	0.00047	0.00053	0.00038	0.00033
Potassium T-K	0.522	0.521	0.538	0.531	0.525	0.520	0.497	0.511	0.561	0.562	0.586	0.506	0.487
Selenium T-Se	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Silicon T-Si	0.059	0.057	<0.050	<0.050	<0.050	<0.050	0.068	0.068	0.079	0.090	0.085	0.063	0.062
Silver T-Ag	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium T-Na	0.526	0.534	0.560	0.548	0.528	0.537	0.543	0.552	0.602	0.607	0.632	0.546	0.535
Strontium T-Sr	0.0052	0.0051	0.00530	0.00521	0.00495	0.00497	0.00507	0.00526	0.00570	0.00566	0.00593	0.00518	0.00497
Uranium T-U	0.000024	0.000022	0.000023	0.000023	0.000018	0.000018	0.000021	0.000025	0.000024	0.000024	0.000024	0.000026	0.000025
Vanadium T-V	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Zinc T-Zn	<0.0010	<0.0010	<0.0010	0.0016	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Organic Parameters													
Total Organic Carbon C	2.19	2.15	2.19	2.11			4.39	4.31	4.67	-	4.98	4.64	4.41

Results are expressed as milligrams per litre except where noted.

Anion/Cation sums are expressed as milli-equivalents per litre.

< = Less than the detection limit indicated.

(continued)

Appendix 3.2-2

Water Quality Results for Lac du Sauvage and Reference Lake Sites, Open-Water Season 2004 and 2006 (continued)

Sample ID	LdS4	LdS4	LdS5	LdS5	LdS6	LdS6	LdS7	LdS7	LdS8	LdS8	LdS9	LdS9	LdS10	LdS10	LdS10	LdS11	LdS11
Depth	Top	Mid	Top	Mid	Top	Mid	Top	Mid	Top	Mid	Top	Mid	Top	Mid	Mid	Top	Mid
Date Sampled	19-Jul-06	19-Jul-06	9-Jul-06	9-Jul-06	19-Jul-06	19-Jul-06	19-Jul-06	19-Jul-06	19-Jul-06	19-Jul-06	9-Jul-06	9-Jul-06	9-Jul-06	9-Jul-06	9-Jul-06	8-Jul-06	8-Jul-06
Physical Tests																	
Anion Sum (meq/L)	0.115	0.091	0.097	0.092	0.098	0.094	0.110	0.097	0.101	0.092	0.130	0.102	0.097	0.096	0.109	0.098	0.116
Cation Sum (meq/L)	0.129	0.122	0.122	0.117	0.125	0.129	0.119	0.123	0.123	0.123	0.122	0.119	0.121	0.115	0.118	0.120	0.125
Ion Balance %	5.7	14.2	11.1	11.9	12.0	15.6	3.9	11.5	9.9	14.4	-3.3	7.7	11.1	9.1	3.9	9.9	3.6
Conductivity (uS/cm)	12.5	12.4	12.5	12.6	12.1	12.2	12.1	24.6	12.3	12.3	12.7	12.6	12.5	12.6	12.0	12.7	13.2
Total Dissolved Solids	6.4	5.6	5.8	5.5	5.8	5.8	6.1	5.8	5.9	5.6	6.7	5.9	5.8	5.6	6.1	5.8	6.4
Hardness CaCO3	4.38	4.13	4.09	3.97	4.26	4.42	4.05	4.21	4.19	4.24	4.08	4.02	4.03	3.89	3.98	4.05	4.23
pH	6.77	6.74	6.68	6.70	6.69	6.75	6.66	7.59	6.74	6.70	6.68	6.70	6.69	6.67	6.63	6.71	6.67
Total Suspended Solids	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Turbidity (NTU)	0.47	0.49	0.52	0.56	0.58	0.51	0.56	0.56	0.63	0.63	0.64	0.64	0.67	0.70	0.48	0.51	0.59
Dissolved Anions																	
Alkalinity-Total CaCO3	4.5	3.3	3.6	3.4	3.7	3.5	4.3	3.6	3.8	3.4	5.2	3.9	3.6	3.6	4.1	3.6	4.4
Alkalinity-Bicarbonate CaCO3	4.5	3.3	3.6	3.4	3.7	3.5	4.3	3.6	3.8	3.4	5.2	3.9	3.6	3.6	4.1	3.6	4.4
Alkalinity-Carbonate CaCO3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Alkalinity-Hydroxide CaCO3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Chloride Cl	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride F	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	<0.020	0.020
Sulphate SO4	1.21	1.21	1.22	1.19	1.20	1.18	1.16	1.17	1.17	1.18	1.20	1.20	1.19	1.19	1.22	1.22	1.23
Nutrients																	
Ammonia Nitrogen N	0.0150	0.0120	<0.0050	<0.0050	0.0130	0.0110	0.0090	0.0090	0.0120	0.0070	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0060	<0.0050
Total Kjeldahl Nitrogen N	0.180	0.180	0.190	0.200	0.180	0.200	0.170	0.160	0.190	0.160	0.210	0.220	0.200	0.210	0.160	0.200	0.204
Nitrate Nitrogen N	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0063
Nitrite Nitrogen N	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Dissolved ortho-Phosphate P	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphate P	0.0088	0.0063	0.0046	0.0050	0.0073	0.0067	0.0064	0.0088	0.0058	0.0064	0.0059	0.0048	0.0046	0.0096	0.0054	0.0042	0.0062
Total Metals																	
Aluminum T-Al	0.0099	0.0089	0.0115	0.0102	0.0098	0.0091	0.0086	0.0088	0.0094	0.0093	0.0128	0.0133	0.0137	0.0103	0.0107	0.0102	0.0120
Antimony T-Sb	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic T-As	0.000280	0.000277	0.000266	0.000266	0.000269	0.000287	0.000276	0.000272	0.000278	0.000272	0.000283	0.000266	0.000273	0.000256	0.000263	0.000248	0.000257
Barium T-Ba	0.00139	0.00127	0.00138	0.00134	0.00128	0.00127	0.00122	0.00126	0.00132	0.00123	0.00160	0.00139	0.00147	0.00133	0.00137	0.00135	0.00138
Beryllium T-Be	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Boron T-B	0.0012	0.0012	0.0011	0.0011	0.0014	0.0012	<0.0010	0.0012	0.0012	0.0012	0.0011	0.0011	0.0011	0.0011	0.0010	0.0012	0.0010
Cadmium T-Cd	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Calcium T-Ca	0.824	0.774	0.800	0.785	0.809	0.844	0.755	0.795	0.794	0.802	0.795	0.789	0.795	0.765	0.786	0.795	0.840
Chromium T-Cr	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00014	<0.00010	<0.00010
Cobalt T-Co	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper T-Cu	0.00074	0.00074	0.00058	0.00055	0.00063	0.00065	0.00054	0.00059	0.00063	0.00057	0.00059	0.00063	0.00062	0.00053	0.00054	0.00058	0.00058
Iron T-Fe	0.018	0.018	0.022	0.022	0.017	0.018	0.018	0.018	0.022	0.018	0.025	0.024	0.054	0.022	0.028	0.020	0.020
Lead T-Pb	0.00719	0.00121	<0.000050	<0.000050	0.000990	0.00217	0.00204	0.000279	0.00552	0.00149	<0.000050	<0.000050	0.000091	<0.000050	0.000119	0.000469	0.00241
Magnesium T-Mg	0.565	0.535	0.509	0.488	0.544	0.561	0.526	0.541	0.537	0.543	0.508	0.497	0.498	0.481	0.491	0.500	0.518
Manganese T-Mn	0.00560	0.00517	0.00759	0.00722	0.00587	0.00570	0.00558	0.00575	0.00549	0.00568	0.00742	0.00719	0.0113	0.00726	0.00771	0.00709	0.00758
Mercury T-Hg	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Molybdenum T-Mo	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel T-Ni	0.00037	0.00042	0.00033	0.00031	0.00036	0.00033	0.00033	0.00034	0.00037	0.00032	0.00038	0.00037	0.00034	0.00031	0.00033	0.00035	0.00037
Potassium T-K	0.523	0.500	0.496	0.482	0.503	0.525	0.473	0.496	0.495	0.487	0.500	0.486	0.494	0.476	0.484	0.493	0.509
Selenium T-Se	0.00011	0.00010	<0.00010	<0.00010	0.00012	<0.00010	<0.00010	<0.00010	<0.00010	0.00012	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Silicon T-Si	0.066	0.067	0.071	0.068	0.070	0.071	0.068	0.063	0.074	0.067	0.074	0.071	0.071	0.070	0.063	0.064	0.065
Silver T-Ag	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium T-Na	0.550	0.518	0.543	0.525	0.535	0.551	0.516	0.522	0.517	0.524	0.547	0.530	0.536	0.516	0.527	0.533	0.555
Strontium T-Sr	0.00530	0.00500	0.00520	0.00497	0.00513	0.00529	0.00489	0.00506	0.00503	0.00499	0.00514	0.00501	0.00512	0.00485	0.00493	0.00513	0.00525
Uranium T-U	0.000023	0.000021	0.000025	0.000024	0.000023	0.000024	0.000024	0.000024	0.000022	0.000021	0.000026	0.000027	0.000028	0.000025	0.000026	0.000025	0.000025
Vanadium T-V	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Zinc T-Zn	0.0010	0.0021	0.0073	<0.0010	0.0023	<0.0010	<0.0010	<0.0010	0.0010	<0.0010	<0.0010	0.0012	0.0012	<0.0010	<0.0010	<0.0010	<0.0010
Organic Parameters																	
Total Organic Carbon C	3.43	3.64	4.50	4.76	3.55	3.51	3.78	3.77	3.68	3.89	4.67	4.56	2.38	4.50	4.89	4.45	4.05

Results are expressed as milligrams per litre except where noted.

Anion/Cation sums are expressed as milli-equivalents per litre.

< = Less than the detection limit indicated.

(continued)

Appendix 3.2-2

Water Quality Results for Lac du Sauvage and Reference Lake Sites, Open-Water Season 2004 and 2006 (continued)

Sample ID	LdS12	LdS12	UL1	UL1	UL1	UL2	UL2	UL2	UL3	Christine	Christine	LdS1	LdS1	LdS2	LdS2	LdS3	LdS3	LdS4
Depth	Top	Mid	Top	Mid	Top	Top	Mid	Top	Mid	Top	Mid	Top	Mid	Top	Mid	Top	Mid	Top
Date Sampled	8-Jul-06	8-Jul-06	7-Jul-06	7-Jul-06	7-Jul-06	7-Jul-06	7-Jul-06	7-Jul-06	7-Jul-06	5-Jul-06	5-Jul-06	1-Aug-06	1-Aug-06	3-Aug-06	3-Aug-06	1-Aug-06	1-Aug-06	1-Aug-06
Physical Tests																		
Anion Sum (meq/L)	0.114	0.138	0.095	0.073	0.101	0.069	0.090	0.073	0.086	0.228	0.239	0.099	0.128	0.119	0.122	0.106	0.123	0.103
Cation Sum (meq/L)	0.123	0.120	0.084	0.082	0.081	0.083	0.082	0.081	0.079	0.236	0.227	0.124	0.132	0.140	0.134	0.126	0.130	0.132
Ion Balance %	4.2	-6.9	-5.9	5.7	-11.0	8.9	-4.8	5.4	-4.4	1.7	-2.6	11.7	1.6	8.2	4.7	8.4	2.9	12.3
Conductivity (uS/cm)	12.3	12.4	8.0	7.9	8.0	8.0	8.1	8.0	8.0	24.9	25.1	12.9	12.5	13.0	13.0	12.6	12.6	12.7
Total Dissolved Solids	6.3	7.0	4.9	4.2	5.0	4.1	4.7	4.2	4.5	13.4	13.5	5.8	6.9	6.8	6.7	6.1	6.6	6.1
Hardness CaCO3	4.19	4.07	2.83	2.77	2.71	2.78	2.76	2.74	2.65	8.02	7.67	4.27	4.51	4.78	4.61	4.33	4.45	4.55
pH	6.69	6.56	6.50	6.51	6.50	6.54	6.55	6.59	6.56	6.69	6.69	6.81	6.83	6.89	6.84	6.81	6.80	6.84
Total Suspended Solids	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Turbidity (NTU)	0.51	0.56	0.42	0.34	0.44	0.56	0.35	0.32	0.35	0.62	0.67	0.98	1.22	1.59	0.42	1.18	0.85	0.96
Dissolved Anions																		
Alkalinity-Total CaCO3	4.3	5.5	3.6	2.5	3.9	2.3	3.3	2.5	3.1	5.0	5.5	3.7	5.2	4.7	4.9	4.1	5.0	4.0
Alkalinity-Bicarbonate CaCO3	4.3	5.5	3.6	2.5	3.9	2.3	3.3	2.5	3.1	5.0	5.5	3.7	5.2	4.7	4.9	4.1	5.0	4.0
Alkalinity-Carbonate CaCO3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Alkalinity-Hydroxide CaCO3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Chloride Cl	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.66	0.68	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride F	0.022	0.021	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.027	0.028	<0.020	0.020	0.021	0.020	0.022	0.020	0.021
Sulphate SO4	1.28	1.30	1.13	1.13	1.13	1.14	1.13	1.13	1.13	5.20	5.23	1.15	1.16	1.23	1.19	1.17	1.13	1.13
Nutrients																		
Ammonia Nitrogen N	0.0053	0.0087	0.0087	0.0067	0.0067	0.0060	0.0067	0.0053	0.0053	0.0127	0.0093	0.0060	0.0050	0.0070	0.0090	0.0070	0.0050	0.0070
Total Kjeldahl Nitrogen N	0.160	0.160	0.120	0.110	0.120	0.120	0.120	0.120	0.130	0.220	0.280	0.160	0.150	0.180	0.140	0.170	0.160	0.170
Nitrate Nitrogen N	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrite Nitrogen N	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Dissolved ortho-Phosphate P	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphate P	0.0050	0.0054	0.0035	0.0032	0.0032	0.0030	0.0033	0.0032	0.0030	0.0053	0.0048	0.0075	0.0078	0.0087	0.0071	0.0068	0.0135	0.0070
Total Metals																		
Aluminum T-Al	0.0085	0.0090	0.0095	0.0073	0.0073	0.0081	0.0074	0.0067	0.0066	0.0264	0.0267	0.0074	0.0106	0.0188	0.0097	0.0072	0.0112	0.0083
Antimony T-Sb	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic T-As	0.000266	0.000252	0.000100	0.000093	0.000100	0.000094	0.000094	0.000092	0.000095	0.000320	0.000297	0.000268	0.000298	0.000332	0.000308	0.000280	0.000278	0.000304
Barium T-Ba	0.00126	0.00121	0.00206	0.00192	0.00184	0.00188	0.00187	0.00179	0.00175	0.00377	0.00367	0.00120	0.00131	0.00238	0.00176	0.00118	0.00127	0.00124
Beryllium T-Be	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Boron T-B	<0.0010	0.0011	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	<0.0010	0.0021	0.0019	<0.0010	0.0010	0.0011	0.0012	0.0011	<0.0010	0.0012
Cadmium T-Cd	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Calcium T-Ca	0.828	0.804	0.558	0.539	0.527	0.540	0.543	0.533	0.514	1.24	1.16	0.792	0.851	0.896	0.863	0.817	0.833	0.858
Chromium T-Cr	<0.00010	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00015	0.00015	<0.00010	<0.00010	0.00013	<0.00010	<0.00010	<0.00010	<0.00010
Cobalt T-Co	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper T-Cu	0.00059	0.00058	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00093	0.00088	0.00058	0.00059	0.00073	0.00066	0.00059	0.00062	0.00064
Iron T-Fe	0.018	0.019	0.026	0.021	0.025	0.022	0.023	0.019	0.020	0.044	0.045	0.018	0.036	0.042	0.032	0.019	0.021	0.016
Lead T-Pb	0.000964	0.00103	0.00313	0.000093	0.000318	0.000995	0.000461	0.000636	0.000120	0.000092	0.000181	0.000384	0.000473	0.000734	0.000376	0.00297	0.000545	0.00194
Magnesium T-Mg	0.515	0.501	0.348	0.346	0.338	0.348	0.342	0.341	0.333	1.20	1.16	0.558	0.578	0.618	0.597	0.556	0.576	0.584
Manganese T-Mn	0.00624	0.00602	0.00402	0.00387	0.00371	0.00380	0.00380	0.00335	0.00326	0.00624	0.00596	0.00493	0.00524	0.00600	0.00456	0.00485	0.00534	0.00541
Mercury T-Hg	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Molybdenum T-Mo	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel T-Ni	0.00034	0.00033	0.00052	0.00028	0.00031	0.00036	0.00031	0.00029	0.00028	0.00080	0.00079	0.00030	0.00032	0.00037	0.00038	0.00032	0.00033	0.00034
Potassium T-K	0.509	0.496	0.321	0.315	0.311	0.316	0.310	0.313	0.303	0.963	0.925	0.501	0.535	0.557	0.534	0.508	0.526	0.533
Selenium T-Se	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Silicon T-Si	0.058	0.065	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.125	0.122	0.075	0.090	0.093	0.075	0.055	0.092	0.066
Silver T-Ag	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium T-Na	0.545	0.526	0.368	0.366	0.359	0.365	0.365	0.364	0.350	1.02	0.980	0.536	0.561	0.575	0.565	0.535	0.556	0.562
Strontium T-Sr	0.00514	0.00496	0.00387	0.00384	0.00383	0.00390	0.00375	0.00381	0.00366	0.00873	0.00835	0.00513	0.00533	0.00553	0.00543	0.00513	0.00529	0.00539
Uranium T-U	0.000021	0.000019	0.000012	0.000014	0.000013	0.000014	0.000012	0.000011	0.000010	0.000028	0.000027	0.000022	0.000022	0.000028	0.000023	0.000021	0.000021	0.000023
Vanadium T-V	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000078	<0.000050	<0.000050	<0.000050	<0.000050
Zinc T-Zn	<0.0010	<0.0010	0.0020	<0.0010	<0.0010	0.0011	<0.0010	<0.0010	<0.0010	0.0014	0.0039	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Organic Parameters																		
Total Organic Carbon C	4.55	4.94	3.75	3.73	3.18	3.88	3.66	3.55	3.63	6.38	6.92	3.68	3.49	3.81	3.42	3.52	3.70	3.64

Results are expressed as milligrams per litre except where noted.

Anion/Cation sums are expressed as milli-equivalents per litre.

< = Less than the detection limit indicated.

(continued)

Appendix 3.2-2

Water Quality Results for Lac du Sauvage and Reference Lake Sites, Open-Water Season 2004 and 2006 (continued)

Sample ID	LdS4	LdS5	LdS5	LdS6	LdS6	LdS7	LdS7	LdS8	LdS8	LdS9	LdS9	LdS10	LdS10	LdS10	LdS11	LdS11	LdS12	LdS12
Depth	Mid	Top	Mid	Top	Mid	Top	Mid	Top	Mid	Top	Mid	Top	Mid	Mid	Top	Mid	Top	Mid
Date Sampled	1-Aug-06	5-Aug-06	5-Aug-06	3-Aug-06	3-Aug-06	3-Aug-06	3-Aug-06	5-Aug-06	5-Aug-06	3-Aug-06	3-Aug-06	3-Aug-06	3-Aug-06	3-Aug-06	3-Aug-06	3-Aug-06	3-Aug-06	3-Aug-06
Physical Tests																		
Anion Sum (meq/L)	0.124	0.097	0.096	0.096	0.105	0.134	0.108	0.108	0.101	0.100	0.118	0.110	0.119	0.099	0.108	0.088	0.116	0.122
Cation Sum (meq/L)	0.133	0.131	0.127	0.134	0.127	0.125	0.129	0.130	0.131	0.128	0.129	0.130	0.137	0.129	0.132	0.132	0.129	0.131
Ion Balance %	3.8	14.8	13.6	16.5	9.3	-3.6	8.8	9.3	12.8	12.6	4.4	8.4	7.2	13.3	10.0	20.1	5.3	3.5
Conductivity (uS/cm)	12.6	12.5	12.6	12.5	12.6	12.8	12.7	12.7	12.6	12.6	12.8	12.8	13.2	12.6	12.9	12.8	13.1	13.0
Total Dissolved Solids	6.8	5.9	5.8	5.9	6.0	6.9	6.2	6.3	6.0	5.9	6.5	6.3	6.7	5.9	6.2	5.6	6.4	6.7
Hardness CaCO3	4.59	4.52	4.39	4.47	4.36	4.30	4.50	4.45	4.52	4.42	4.39	4.46	4.69	4.40	4.55	4.53	4.43	4.53
pH	6.85	6.88	6.83	6.84	6.83	6.84	6.84	6.82	6.80	6.84	6.80	6.81	6.85	6.77	6.80	6.82	6.83	6.80
Total Suspended Solids	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Turbidity (NTU)	0.44	1.55	1.39	0.52	1.08	0.88	1.49	1.70	1.72	1.09	1.02	1.21	1.42	1.32	1.18	1.73	1.41	0.94
Dissolved Anions																		
Alkalinity-Total CaCO3	5.0	3.7	3.6	3.6	4.1	5.5	4.2	4.1	3.9	3.8	4.7	4.3	4.7	3.7	4.2	3.2	4.6	4.8
Alkalinity-Bicarbonate CaCO3	5.0	3.7	3.6	3.6	4.1	5.5	4.2	4.1	3.9	3.8	4.7	4.3	4.7	3.7	4.2	3.2	4.7	4.8
Alkalinity-Carbonate CaCO3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Alkalinity-Hydroxide CaCO3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Chloride Cl	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride F	0.021	<0.020	0.020	<0.020	0.020	0.020	0.020	0.024	<0.020	0.021	0.020	0.020	0.022	0.020	0.021	0.021	0.020	0.021
Sulphate SO4	1.14	1.14	1.15	1.12	1.14	1.14	1.15	1.19	1.13	1.14	1.13	1.14	1.21	1.15	1.16	1.15	1.19	1.19
Nutrients																		
Ammonia Nitrogen N	<0.0050	0.0070	0.0070	0.0070	0.0070	0.0070	0.0070	0.0050	0.0050	0.0080	0.0100	0.0060	0.0070	0.0050	0.0050	0.0050	0.0070	0.0090
Total Kjeldahl Nitrogen N	0.140	0.170	0.170	0.140	0.150	0.140	0.140	0.136	0.140	0.150	0.150	0.150	0.140	0.160	0.150	0.140	0.150	0.160
Nitrate Nitrogen N	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0244	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrite Nitrogen N	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Dissolved ortho-Phosphate P	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphate P	0.0092	0.0076	0.0071	0.0064	0.0069	0.0075	0.0064	0.0067	0.0064	0.0061	0.0066	0.0155	0.0091	0.0077	0.0062	0.0080	0.0072	0.0065
Total Metals																		
Aluminum T-Al	0.0100	0.0098	0.0072	0.0140	0.0096	0.0071	0.0061	0.0086	0.0056	0.0065	0.0142	0.0102	0.0166	0.0152	0.0081	0.0080	0.0104	0.0059
Antimony T-Sb	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic T-As	0.000300	0.000302	0.000292	0.000302	0.000276	0.000273	0.000279	0.000319	0.000282	0.000287	0.000297	0.000335	0.000303	0.000337	0.000294	0.000283	0.000288	0.000270
Barium T-Ba	0.00133	0.00129	0.00126	0.00120	0.00118	0.00117	0.00120	0.00126	0.00116	0.00123	0.00134	0.00155	0.00252	0.00149	0.00171	0.00137	0.00131	0.00116
Beryllium T-Be	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Boron T-B	0.0010	0.0011	0.0010	0.0011	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0011	0.0012	0.0011	0.0010	0.0010	0.0011	0.0011	0.0010	0.0011
Cadmium T-Cd	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Calcium T-Ca	0.880	0.858	0.831	0.841	0.821	0.816	0.849	0.836	0.851	0.829	0.822	0.842	0.870	0.832	0.855	0.845	0.832	0.856
Chromium T-Cr	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Cobalt T-Co	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper T-Cu	0.00067	0.00070	0.00062	0.00077	0.00063	0.00063	0.00062	0.00063	0.00062	0.00070	0.00083	0.00062	0.00080	0.00060	0.00066	0.00063	0.00078	0.00068
Iron T-Fe	0.022	<0.010	0.017	0.023	0.016	0.013	<0.010	0.035	0.014	0.010	0.015	0.028	0.041	0.038	0.012	0.025	0.027	0.021
Lead T-Pb	0.00110	0.000094	0.000065	0.000072	<0.000050	<0.000050	<0.000050	0.000074	<0.000050	0.000057	0.000321	0.00214	0.00270	0.00135	0.00324	0.000457	0.000267	0.000138
Magnesium T-Mg	0.581	0.577	0.562	0.576	0.562	0.550	0.579	0.572	0.581	0.569	0.567	0.573	0.612	0.565	0.586	0.587	0.571	0.580
Manganese T-Mn	0.00537	0.00417	0.00469	0.00503	0.00467	0.00452	0.00447	0.0135	0.00460	0.00507	0.00508	0.00682	0.00643	0.00672	0.00455	0.00520	0.00491	0.00404
Mercury T-Hg	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Molybdenum T-Mo	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel T-Ni	0.00033	0.00031	0.00032	0.00033	0.00030	0.00029	0.00031	0.00031	0.00028	0.00032	0.00032	0.00033	0.00049	0.00033	0.00032	0.00032	0.00046	0.00034
Potassium T-K	0.543	0.542	0.511	0.534	0.501	0.499	0.522	0.519	0.531	0.529	0.527	0.534	0.543	0.516	0.536	0.536	0.525	0.529
Selenium T-Se	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Silicon T-Si	0.083	0.066	0.072	0.072	0.075	0.075	0.073	0.067	0.069	0.075	0.073	0.081	0.098	0.096	0.068	0.075	0.069	0.073
Silver T-Ag	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium T-Na	0.568	0.555	0.533	0.617	0.538	0.533	0.549	0.549	0.563	0.546	0.541	0.535	0.562	0.539	0.558	0.558	0.536	0.544
Strontium T-Sr	0.00541	0.00533	0.00520	0.00531	0.00511	0.00506	0.00526	0.00530	0.00534	0.00523	0.00514	0.00524	0.00544	0.00516	0.00527	0.00532	0.00516	0.00516
Uranium T-U	0.000025	0.000022	0.000022	0.000024	0.000022	0.000020	0.000022	0.000023	0.000022	0.000025	0.000022	0.000022	0.000023	0.000024	0.000021	0.000022	0.000021	0.000019
Vanadium T-V	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Zinc T-Zn	0.0013	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	<0.0010
Organic Parameters																		
Total Organic Carbon C	3.51	3.70	3.72	3.59	3.69	3.64	3.45	3.69	3.64	3.61	3.68	3.52	3.59	3.52	3.59	3.64	3.66	3.58

Results are expressed as milligrams per litre except where noted.

Anion/Cation sums are expressed as milli-equivalents per litre.

< = Less than the detection limit indicated.

(continued)

Appendix 3.2-2

Water Quality Results for Lac du Sauvage and Reference Lake Sites, Open-Water Season 2004 and 2006 (continued)

Sample ID	UL1	UL1	UL2	UL2	UL2	UL3	UL3	Christine	Christine	LdS1	LdS1	LdS2	LD 2	LdS3	LdS3	LdS4	LdS4	LdS5
Depth	Top	Mid	Top	Top	Mid	Top	Mid	Top	Mid	Top	Mid	Top	Mid	Top	Mid	Top	Mid	Top
Date Sampled	29-Jul-06	29-Jul-06	29-Jul-06	29-Jul-06	29-Jul-06	29-Jul-06	29-Jul-06	30-Jul-06	30-Jul-06	10-Sep-06	10-Sep-06	10-Sep-06	10-Sep-06	7-Sep-06	7-Sep-06	7-Sep-06	7-Sep-06	10-Sep-06
Physical Tests																		
Anion Sum (meq/L)	0.067	0.093	0.083	0.023	0.070	0.023	0.022	0.236	0.209	0.095	0.115	0.104	0.125	0.103	0.102	0.103	0.107	0.109
Cation Sum (meq/L)	0.087	0.086	0.084	0.086	0.085	0.085	0.088	0.256	0.254	0.126	0.127	0.133	0.138	0.128	0.127	0.127	0.128	0.125
Ion Balance %	13.4	-3.6	1.1	58.3	9.4	57.3	59.7	4.1	9.6	14.1	4.9	12.4	4.8	10.6	11.0	10.5	8.9	7.0
Conductivity (uS/cm)	7.3	8.8	8.1	8.4	8.0	8.7	8.7	25.5	25.6	12.8	12.7	13.0	13.4	12.8	12.9	13.0	13.1	12.3
Total Dissolved Solids	4.1	4.9	4.5	2.8	4.2	2.8	2.8	13.9	13.1	5.8	6.4	6.2	7.0	6.0	6.0	6.0	6.1	6.1
Hardness CaCO3	2.96	2.93	2.84	2.89	2.86	2.88	2.96	8.85	8.78	4.35	4.36	4.55	4.74	4.36	4.37	4.31	4.33	4.24
pH	6.68	6.64	6.70	6.68	6.65	6.65	6.76	6.90	6.90	6.61	6.63	6.69	6.75	6.72	6.71	6.72	6.71	6.74
Total Suspended Solids	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Turbidity (NTU)	0.87	1.42	1.10	0.82	1.40	0.74	0.38	0.59	0.60	1.25	1.27	0.91	0.58	1.20	0.83	1.01	0.71	1.26
Dissolved Anions																		
Alkalinity-Total CaCO3	2.2	3.5	3.0	<2.0	2.4	<2.0	<2.0	5.6	4.3	3.3	4.4	3.6	4.6	3.9	3.9	3.9	4.1	4.1
Alkalinity-Bicarbonate CaCO3	2.2	3.5	3.0	<2.0	2.4	<2.0	<2.0	5.6	4.3	3.3	4.4	3.6	4.6	3.9	3.9	3.9	4.1	4.1
Alkalinity-Carbonate CaCO3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Alkalinity-Hydroxide CaCO3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Chloride Cl	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.64	0.65	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride F	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.030	0.029	0.023	0.022	0.022	0.023	0.025	0.026	0.026	0.026	0.020
Sulphate SO4	1.09	1.09	1.08	1.09	1.11	1.11	1.06	5.10	5.04	1.34	1.25	1.45	1.54	1.13	1.13	1.14	1.15	1.22
Nutrients																		
Ammonia Nitrogen N	<0.0050	<0.0050	<0.0050	0.0050	<0.0050	<0.0050	<0.0050	0.0100	0.0070	<0.0050	0.0093	0.0127	0.0100	0.0073	0.0066	0.0087	0.0106	0.0113
Total Kjeldahl Nitrogen N	0.130	0.140	0.130	0.140	0.130	0.130	0.091	0.230	0.230	0.210	0.200	0.200	0.200	0.190	0.170	0.180	0.180	0.190
Nitrate Nitrogen N	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrite Nitrogen N	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Dissolved ortho-Phosphate P	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0019	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphate P	0.0060	0.0036	0.0043	0.0039	0.0100	0.0046	0.0041	0.0228	0.0067	0.0064	0.0060	0.0071	0.0068	0.0063	0.0061	0.0064	0.0065	0.0056
Total Metals																		
Aluminum T-Al	0.0093	0.0113	0.0080	0.0077	0.0091	0.0085	0.0114	0.0209	0.0229	0.0094	0.0062	0.0091	0.0089	0.0082	0.0066	0.0128	0.0149	0.0108
Antimony T-Sb	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic T-As	0.000117	0.000134	0.000117	0.000105	0.000106	0.000115	0.000107	0.000366	0.000351	0.000302	0.000298	0.000313	0.000300	0.000309	0.000310	0.000306	0.000318	0.000299
Barium T-Ba	0.00190	0.00179	0.00179	0.00173	0.00172	0.00174	0.00172	0.00352	0.00357	0.00117	0.00116	0.00128	0.00168	0.00115	0.00113	0.00142	0.00132	0.00122
Beryllium T-Be	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Boron T-B	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0020	0.0019	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0013
Cadmium T-Cd	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Calcium T-Ca	0.563	0.547	0.533	0.549	0.537	0.537	0.555	1.27	1.27	0.809	0.813	0.841	0.867	0.828	0.825	0.817	0.812	0.802
Chromium T-Cr	<0.00010	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00026	0.00037	0.00024	0.00029	0.00013	0.00014	0.00012	0.00015	0.00028
Cobalt T-Co	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper T-Cu	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00103	0.00102	0.00061	0.00061	0.00061	0.00064	0.00062	0.00060	0.00068	0.00060	0.00063
Iron T-Fe	0.022	<0.010	0.031	0.032	0.023	0.025	0.022	0.062	0.061	0.017	0.011	0.022	0.019	<0.010	<0.010	0.012	0.018	0.018
Lead T-Pb	0.00248	0.00194	0.00228	0.00339	0.00720	0.00102	0.000519	0.00142	0.00199	0.0340	0.000860	0.00493	0.00340	0.00307	0.000474	0.0223	0.00127	0.00468
Magnesium T-Mg	0.377	0.379	0.365	0.369	0.369	0.373	0.382	1.38	1.36	0.565	0.565	0.595	0.626	0.557	0.560	0.552	0.559	0.544
Manganese T-Mn	0.00291	0.00258	0.00274	0.00267	0.00260	0.00297	0.00287	0.00853	0.00854	0.00446	0.00463	0.00460	0.00445	0.00506	0.00484	0.00506	0.00480	0.00489
Mercury T-Hg	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Molybdenum T-Mo	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel T-Ni	0.00032	0.00030	0.00027	0.00027	0.00027	0.00027	0.00031	0.00084	0.00079	0.00036	0.00033	0.00036	0.00042	0.00031	0.00026	0.00035	0.00033	0.00030
Potassium T-K	0.342	0.341	0.334	0.331	0.329	0.339	0.347	1.01	1.00	0.517	0.516	0.533	0.554	0.527	0.529	0.520	0.523	0.508
Selenium T-Se	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Silicon T-Si	0.053	0.061	0.051	0.054	0.055	0.051	<0.050	0.142	0.138	0.100	0.081	0.102	0.111	0.077	0.063	0.095	0.119	0.081
Silver T-Ag	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium T-Na	0.386	0.392	0.379	0.382	0.377	0.380	0.390	1.05	1.04	0.536	0.547	0.566	0.581	0.560	0.559	0.553	0.553	0.540
Strontium T-Sr	0.00400	0.00413	0.00381	0.00389	0.00382	0.00391	0.00389	0.00894	0.00890	0.00513	0.00521	0.00536	0.00555	0.00527	0.00527	0.00522	0.00530	0.00507
Uranium T-U	0.000012	0.000012	<0.000010	0.000011	0.000012	0.000011	0.000012	0.000029	0.000024	0.000021	0.000023	0.000022	0.000024	0.000024	0.000021	0.000027	0.000025	0.000021
Vanadium T-V	<0.000050	0.000083	<0.000050	<0.000050	<0.000050	0.000056	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Zinc T-Zn	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0011	<0.0010	0.0012	0.0011	<0.0010
Organic Parameters																		
Total Organic Carbon C	2.95	3.12	2.92	2.99	2.82	2.95	3.00	5.80	5.74	2.87	2.61	2.81	2.82	2.66	2.57	2.76	2.64	2.71

Results are expressed as milligrams per litre except where noted.

Anion/Cation sums are expressed as milli-equivalents per litre.

< = Less than the detection limit indicated.

(continued)

Appendix 3.2-2

Water Quality Results for Lac du Sauvage and Reference Lake Sites, Open-Water Season 2004 and 2006 (continued)

Sample ID	LdS5	LdS6	LdS6	LdS7	LdS7	LdS8	LdS8	LdS9	LdS9	LdS9	LdS10	LdS10	LdS11	LdS11	LdS12	LdS12	UL1	UL1
Depth	Mid	Top	Mid	Top	Mid	Top	Mid	Top	Top	Mid	Top	Mid	Top	Mid	Top	Mid	Top	Mid
Date Sampled	10-Sep-06	7-Sep-06	7-Sep-06	10-Sep-06	10-Sep-06	10-Sep-06	10-Sep-06	7-Sep-06	7-Sep-06	7-Sep-06	8-Sep-06	8-Sep-06	8-Sep-06	8-Sep-06	8-Sep-06	8-Sep-06	11-Sep-06	11-Sep-06
Physical Tests																		
Anion Sum (meq/L)	0.104	0.103	0.103	0.101	0.092	0.086	0.105	0.109	0.119	0.100	0.106	0.110	0.099	0.099	0.106	0.108	0.025	0.076
Cation Sum (meq/L)	0.123	0.127	0.127	0.129	0.125	0.125	0.125	0.126	0.125	0.128	0.125	0.127	0.130	0.127	0.125	0.128	0.084	0.083
Ion Balance %	8.5	10.8	10.5	12.0	15.0	18.6	8.6	7.3	2.3	12.3	8.3	7.4	13.5	12.4	8.3	8.4	54.7	4.3
Conductivity (uS/cm)	12.4	12.9	12.9	12.5	12.3	12.2	12.4	13.0	12.9	12.9	12.9	12.8	12.9	13.0	13.1	13.1	8.4	8.1
Total Dissolved Solids	6.0	6.0	6.0	6.0	5.7	5.5	6.0	6.2	6.4	5.9	6.0	6.2	5.9	5.9	6.1	6.2	2.8	4.3
Hardness CaCO3	4.19	4.34	4.32	4.33	4.23	4.27	4.24	4.28	4.27	4.35	4.28	4.34	4.43	4.35	4.29	4.40	2.89	2.83
pH	6.69	6.73	6.71	6.67	6.69	6.77	6.61	6.72	6.71	6.71	6.69	6.70	6.72	6.70	6.72	6.73	6.49	6.66
Total Suspended Solids	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Turbidity (NTU)	0.90	0.82	0.72	1.18	1.59	0.70	1.08	0.72	0.62	1.06	0.88	0.55	1.03	0.66	0.62	0.55	1.37	0.74
Dissolved Anions																		
Alkalinity-Total CaCO3	3.8	3.9	3.9	3.7	3.3	3.0	3.9	4.2	4.8	3.8	4.1	4.2	3.7	3.7	4.0	4.1	<2.0	2.6
Alkalinity-Bicarbonate CaCO3	3.8	3.9	3.9	3.7	3.3	3.0	3.9	4.2	4.8	3.8	4.1	4.2	3.7	3.7	4.0	4.1	<2.0	2.6
Alkalinity-Carbonate CaCO3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Alkalinity-Hydroxide CaCO3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Chloride Cl	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride F	0.021	0.026	0.026	0.022	0.021	0.021	0.022	0.025	0.025	0.026	0.026	0.026	0.026	0.026	0.027	0.024	<0.020	<0.020
Sulphate SO4	1.23	1.13	1.11	1.20	1.21	1.20	1.23	1.17	1.10	1.12	1.10	1.13	1.12	1.13	1.16	1.18	1.19	1.15
Nutrients																		
Ammonia Nitrogen N	0.0093	0.0073	0.0073	0.0140	0.0133	0.0073	0.0133	0.0073	0.0073	0.0086	0.0053	0.0073	0.0060	<0.0050	0.0080	<0.0050	<0.0050	0.0053
Total Kjeldahl Nitrogen N	0.190	0.180	0.180	0.200	0.230	0.200	0.220	0.180	0.170	0.190	0.190	0.200	0.150	0.190	0.170	0.200	0.160	0.150
Nitrate Nitrogen N	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrite Nitrogen N	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Dissolved ortho-Phosphate P	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphate P	0.0060	0.0063	0.0061	0.0065	0.0062	0.0077	0.0090	0.0059	0.0070	0.0068	0.0060	0.0062	0.0071	0.0060	0.0055	0.0054	0.0033	0.0054
Total Metals																		
Aluminum T-Al	0.0064	0.0072	0.0090	0.0098	0.0089	0.0094	0.0056	0.0093	0.0083	0.0090	0.0082	0.0072	0.0087	0.0090	0.0069	0.0055	0.0055	0.0051
Antimony T-Sb	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic T-As	0.000296	0.000314	0.000321	0.000327	0.000311	0.000315	0.000290	0.000307	0.000311	0.000319	0.000311	0.000315	0.000312	0.000317	0.000301	0.000312	0.000116	0.000109
Barium T-Ba	0.00112	0.00122	0.00123	0.00122	0.00117	0.00112	0.00104	0.00111	0.00105	0.00113	0.00115	0.00112	0.00112	0.00113	0.00107	0.00105	0.00152	0.00149
Beryllium T-Be	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Boron T-B	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cadmium T-Cd	<0.000050	<0.000050	<0.000050	0.000056	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Calcium T-Ca	0.792	0.819	0.813	0.817	0.800	0.803	0.803	0.807	0.803	0.822	0.807	0.812	0.839	0.815	0.802	0.836	0.518	0.508
Chromium T-Cr	0.00146	0.00016	0.00012	0.00038	0.00029	0.00028	0.00029	0.00019	<0.00010	0.00018	0.00018	0.00020	0.00013	0.00013	0.00012	0.00012	0.00028	0.00024
Cobalt T-Co	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper T-Cu	0.00059	0.00062	0.00062	0.00071	0.00061	0.00060	0.00056	0.00062	0.00058	0.00063	0.00057	0.00058	0.00064	0.00060	0.00065	0.00057	<0.00050	<0.00050
Iron T-Fe	0.014	<0.010	<0.010	0.018	0.016	0.020	0.012	0.012	<0.010	<0.010	<0.010	<0.010	0.021	0.014	<0.010	<0.010	0.017	0.017
Lead T-Pb	0.00208	0.00878	0.00208	0.00211	0.00239	0.0181	0.000111	0.00127	0.00371	0.00684	0.00866	0.00616	0.00775	0.00323	0.000641	0.000355	0.00288	0.00134
Magnesium T-Mg	0.538	0.558	0.557	0.557	0.542	0.550	0.544	0.549	0.550	0.558	0.549	0.562	0.567	0.562	0.556	0.562	0.388	0.380
Manganese T-Mn	0.00462	0.00512	0.00514	0.00508	0.00490	0.00501	0.00466	0.00502	0.00487	0.00515	0.00502	0.00499	0.00497	0.00485	0.00445	0.00454	0.00231	0.00229
Mercury T-Hg	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Molybdenum T-Mo	0.000263	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel T-Ni	0.00084	0.00028	0.00031	0.00033	0.00029	0.00027	0.00029	0.00031	0.00026	0.00029	0.00029	0.00033	0.00030	0.00030	0.00029	0.00032	0.00029	0.00023
Potassium T-K	0.511	0.531	0.524	0.535	0.516	0.518	0.517	0.524	0.509	0.530	0.523	0.538	0.538	0.527	0.521	0.533	0.331	0.324
Selenium T-Se	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00013	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Silicon T-Si	0.072	0.073	0.092	0.093	0.084	0.085	0.081	0.069	0.070	0.077	0.072	0.075	0.079	0.087	0.065	0.076	0.070	0.075
Silver T-Ag	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium T-Na	0.529	0.565	0.556	0.563	0.538	0.542	0.538	0.553	0.547	0.559	0.549	0.561	0.562	0.556	0.549	0.559	0.370	0.371
Strontium T-Sr	0.00511	0.00525	0.00524	0.00520	0.00507	0.00520	0.00504	0.00515	0.00509	0.00532	0.00516	0.00524	0.00525	0.00519	0.00514	0.00525	0.00380	0.00371
Uranium T-U	0.000022	0.000023	0.000025	0.000024	0.000024	0.000022	0.000022	0.000023	0.000022	0.000024	0.000023	0.000021	0.000023	0.000023	0.000018	0.000019	0.000013	0.000013
Vanadium T-V	<0.000050	<0.000050	<0.000050	0.000054	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Zinc T-Zn	0.0012	0.0011	0.0033	0.0012	0.0014	<0.0010	<0.0010	0.0020	<0.0010	0.0011	0.0014	0.0014	0.0014	0.0014	0.0011	0.0012	<0.0010	<0.0010
Organic Parameters																		
Total Organic Carbon C	2.63	2.62	2.59	2.70	2.70	2.70	2.74	2.62	2.62	2.68	2.57	2.62	2.57	2.57	2.60	2.68	2.11	2.00

Results are expressed as milligrams per litre except where noted.

Anion/Cation sums are expressed as milli-equivalents per litre.

< = Less than the detection limit indicated.

(continued)

Appendix 3.2-2

Water Quality Results for Lac du Sauvage and Reference Lake Sites, Open-Water Season 2004 and 2006 (completed)

Sample ID	UL2	UL2	UL2	UL3	UL3	Christine	Christine	Christine
Depth	Top	Top	Mid	Top	Mid	Top	Top	Top
Date Sampled	11-Sep-06	11-Sep-06	11-Sep-06	11-Sep-06	11-Sep-06	12-Sep-06	12-Sep-06	12-Sep-06
Physical Tests								
Anion Sum (meq/L)	0.088	0.072	0.098	0.067	0.075	0.248	0.260	0.240
Cation Sum (meq/L)	0.083	0.084	0.081	0.085	0.083	0.256	0.263	0.260
Ion Balance %	-3.3	7.7	-9.3	11.9	4.8	1.8	0.6	4.2
Conductivity (uS/cm)	8.1	8.2	8.3	8.2	8.1	27.6	27.6	27.6
Total Dissolved Solids	4.7	4.2	4.9	4.1	4.3	14.6	15.1	14.4
Hardness CaCO3	2.81	2.88	2.78	2.91	2.83	8.90	9.14	9.02
pH	6.60	6.56	6.57	6.57	6.54	6.92	6.94	6.93
Total Suspended Solids	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Turbidity (NTU)	0.45	0.57	0.80	1.45	0.31	0.67	0.68	0.87
Dissolved Anions								
Alkalinity-Total CaCO3	3.2	2.4	3.7	2.1	2.5	5.1	5.6	4.6
Alkalinity-Bicarbonate CaCO3	3.2	2.4	3.7	2.1	2.5	5.1	5.6	4.6
Alkalinity-Carbonate CaCO3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Alkalinity-Hydroxide CaCO3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Chloride Cl	<0.50	<0.50	<0.50	<0.50	<0.50	0.72	0.73	0.73
Fluoride F	<0.020	<0.020	<0.020	<0.020	<0.020	0.034	0.032	0.036
Sulphate SO4	1.17	1.16	1.17	1.17	1.17	5.96	6.06	5.96
Nutrients								
Ammonia Nitrogen N	<0.0050	<0.0050	<0.0050	0.0067	<0.0050	0.0113	0.0107	0.0120
Total Kjeldahl Nitrogen N	0.150	0.150	0.150	0.150	0.150	0.280	0.270	0.270
Nitrate Nitrogen N	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrite Nitrogen N	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Dissolved ortho-Phosphate P	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphate P	0.0044	0.0067	0.0030	0.0040	0.0038	0.0058	0.0061	0.0059
Total Metals								
Aluminum T-Al	0.0062	0.0060	0.0052	0.0063	0.0051	0.0148	0.0174	0.0131
Antimony T-Sb	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic T-As	0.000123	0.000103	0.000108	0.000114	0.000106	0.000376	0.000376	0.000360
Barium T-Ba	0.00155	0.00156	0.00150	0.00155	0.00149	0.00345	0.00369	0.00347
Beryllium T-Be	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Boron T-B	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0012	0.0011	<0.0010
Cadmium T-Cd	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Calcium T-Ca	0.505	0.511	0.493	0.521	0.503	1.28	1.32	1.29
Chromium T-Cr	0.00017	0.00022	0.00011	0.00019	0.00020	0.00024	0.00031	0.00029
Cobalt T-Co	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper T-Cu	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00132	0.00102	0.00088
Iron T-Fe	0.018	0.016	0.017	0.017	0.015	0.054	0.060	0.043
Lead T-Pb	0.0328	0.0192	0.0210	0.00373	0.000220	0.000451	0.000289	0.0146
Magnesium T-Mg	0.376	0.389	0.375	0.390	0.383	1.39	1.42	1.41
Manganese T-Mn	0.00230	0.00223	0.00221	0.00238	0.00215	0.00780	0.00828	0.00767
Mercury T-Hg	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Molybdenum T-Mo	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000060	<0.000050	<0.000050
Nickel T-Ni	0.00030	0.00019	0.00023	0.00021	0.00037	0.00078	0.00082	0.00080
Potassium T-K	0.326	0.324	0.313	0.327	0.322	0.993	1.02	1.01
Selenium T-Se	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Silicon T-Si	0.077	0.075	0.073	0.078	0.068	0.202	0.203	0.198
Silver T-Ag	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium T-Na	0.371	0.374	0.358	0.371	0.362	1.07	1.09	1.11
Strontium T-Sr	0.00365	0.00370	0.00360	0.00372	0.00366	0.00891	0.00918	0.00923
Uranium T-U	0.000012	0.000012	0.000012	0.000012	<0.000010	0.000023	0.000022	0.000021
Vanadium T-V	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Zinc T-Zn	0.0012	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Organic Parameters								
Total Organic Carbon C	2.03	2.07	2.06	2.04	2.03	4.66	4.82	4.69

Results are expressed as milligrams per litre except where noted.

Anion/Cation sums are expressed as milli-equivalents per litre.

< = Less than the detection limit indicated.

APPENDIX 3.2-3
QUALITY CONTROL/QUALITY ASSURANCE FOR LAC DU SAUVAGE SITES, 2006

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Appendix 3.2-3
Quality Control/Quality Assurance for Lac du Sauvage Sites, 2006

Type of Blank	Equipment	Equipment	Equipment	Equipment	Equipment	Equipment	Travel	Travel	Travel	Travel	Travel	Travel	Travel	Field	Field	Field	Field	Field	Field	Field	Field
Date Sampled	8-Feb-06	20-Mar-06	21-Mar-06	5-May-06	5-Jul-06	29-Jul-06	11-Feb-06	21-Mar-06	6-May-06	5-May-06	10-Jul-06	29-Jul-06	10-Sep-06	11-Feb-06	21-Mar-06	5-May-06	6-May-06	7-Jul-06	10-Jul-06	29-Jul-06	10-Sep-06
Physical Tests																					
Anion Sum (meq/L)	<0.010	**8.03**	**0.021**	<0.010	<0.010	**0.059**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cation Sum (meq/L)	<0.010	**7.08**	**0.016**	<0.010	<0.010	**0.070**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	**0.061**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Ion Balance %	27.7	-6.3	-14.4	100	100	9.1	100	0.0	59.9	40.3	100	100	100	100	0.0	100	100	100	100	100	79.6
Conductivity (uS/cm)	<2.0	**3550**	**5.5**	<2.0	<2.0	**12.0**	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Dissolved Solids	<2.0	**397**	<2.0	<2.0	<2.0	**2.8**	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Hardness CaCO3	<0.50	**0.59**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**1.97**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
pH	5.59	2.15	4.81	5.47	5.43	4.90	5.64	5.58	5.70	5.90	5.57	5.59	5.73	5.84	5.62	5.84	5.86	5.62	5.58	5.59	5.55
Total Suspended Solids	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Turbidity (NTU)	**0.13**	**0.21**	**0.25**	**0.20**	**0.36**	**0.78**	<0.10	<0.10	<0.10	<0.10	<0.10	**1.07**	**1.25**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dissolved Anions																					
Alkalinity-Total CaCO3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Alkalinity-Bicarbonate CaCO3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Alkalinity-Carbonate CaCO3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Alkalinity-Hydroxide CaCO3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Chloride Cl	<0.50	**136**	<0.50	<0.50	<0.50	**2.09**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride F	<0.020	<0.20	**0.398**	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Sulphate SO4	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Nutrients																					
Ammonia Nitrogen N	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	**0.0090**	<0.0050	**0.0060**	<0.0050	<0.0050	<0.0050	<0.0050	**0.0133**	<0.0050	<0.0050	<0.0050	<0.0050	**0.0067**	<0.0050	<0.0050	<0.0050
Total Kjeldahl Nitrogen N	**0.109**	<0.050	**0.060**	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Nitrate Nitrogen N	**0.0214**	**58.8**	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	**0.0065**	**0.0072**	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	**0.0128**
Nitrite Nitrogen N	<0.0010	<0.010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Dissolved ortho-Phosphate P	**0.0010**	**0.0025**	<0.0010	<0.0010	<0.0010	<0.0010	**0.0010**	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphate P	<0.0020	**0.0030**	<0.0020	<0.0020	**0.0060**	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	**0.0029**	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Total Metals																					
Aluminum T-Al	<0.0010	**0.0099**	**0.0016**	<0.0010	**0.0130**	**0.404**	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	**0.0060**	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Antimony T-Sb	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic T-As	<0.000030	**0.00104**	<0.000030	<0.000030	<0.000030	<0.000030	<0.000030	<0.000030	<0.000030	<0.000030	<0.000030	<0.000030	<0.000030	<0.000030	<0.000030	<0.000030	<0.000030	<0.000030	<0.000030	<0.000030	<0.000030
Barium T-Ba	**0.000052**	**0.00256**	**0.000064**	**0.000101**	**0.000956**	**0.000160**	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	**0.000235**	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Beryllium T-Be	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Boron T-B	<0.0010	**0.0013**	**0.0046**	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cadmium T-Cd	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Calcium T-Ca	<0.020	**0.145**	<0.020	<0.020	<0.020	**0.034**	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	**0.712**	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	**0.106**
Chromium T-Cr	<0.00010	<0.00030	<0.00020	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	**0.00013**	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Cobalt T-Co	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper T-Cu	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	**0.00050**	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron T-Fe	<0.010	**0.019**	<0.010	<0.010	<0.010	**0.018**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	**0.029**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Lead T-Pb	<0.000050	**0.000127**	<0.000050	<0.000050	**0.000357**	**0.00556**	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	**0.000056**	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium T-Mg	<0.010	**0.055**	<0.010	<0.010	**0.017**	**0.028**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.046	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Manganese T-Mn	<0.000050	**0.00101**	<0.000050	<0.000050	**0.000227**	**0.000667**	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000144	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Mercury T-Hg	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Molybdenum T-Mo	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel T-Ni	<0.00010	**0.00044**	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	**0.00020**	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Potassium T-K	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	**0.052**	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Selenium T-Se	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Silicon T-Si	<0.050	**0.276**	**0.136**	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Silver T-Ag	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium T-Na	<0.010	**0.230**	<0.010	<0.010	<0.010	**0.175**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	**0.391**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Strontium T-Sr	<0.00010	**0.00138**	<0.00010	**0.00018**	<0.00010	**0.00081**	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	**0.00069**	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium T-U	<0.000010	**0.000014**	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Vanadium T-V	<0.000050	**0.000421**	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Zinc T-Zn	**0.0050**	**0.0056**	<0.0010	<0.0010	**0.0109**	**0.0024**	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	**0.0011**	**0.0061**	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Organic Parameters																					
Total Organic Carbon C	<0.50	<0.50	**3.24**	**1.77**	**1.83**	**1.17**	-	<0.50	**1.17**	**1.33**	**1.91**	**0.90**	<0.50	-	<0.50	**1.65**	**1.20**	**1.58**	**1.90**	**1.12**	<0.50

APPENDIX 3.3-1
SEDIMENT QUALITY DATA FOR LAC DU SAUVAGE AND REFERENCE LAKE SITES, OPEN-WATER SEASON 2006

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Appendix 3.3-1
Sediment Quality Data for Lac du Sauvage and Reference Lake Sites, Open-Water Season 2006

Station	LdS1	LdS1	LdS1	LdS2	LdS2	LdS2	LdS3	LdS3	LdS3	LdS4	LdS4	LdS4
Replicate	1	2	3	1	2	3	1	2	3	1	2	3
Date	1-Aug-06	1-Aug-06	1-Aug-06	3-Aug-06	3-Aug-06	3-Aug-06	1-Aug-06	1-Aug-06	1-Aug-06	1-Aug-06	1-Aug-06	1-Aug-06
Physical Tests												
Moisture %	53.8	55.9	58.4	33.7	33.8	28.2	66.3	66.4	65.9	50.0	53.9	55.0
pH	5.64	5.61	5.77	6.14	6.10	5.97	6.70	6.79	6.00	5.92	5.87	5.82
Nutrients												
Available Ammonia	13.0	16.0	13.0	6.70	6.70	-	12.0	9.30	8.00	5.30	7.00	7.00
Available Nitrate	<3.0	<1.5	<1.0	2.90	<1.0	-	1.50	1.00	1.00	1.00	<3.0	<3.0
Available Phosphorus P	58.0	100	100	8.0	16.0	-	11.0	15.0	7.0	32.0	23.0	43.0
Total Nitrogen N (a)	0.10	0.11	0.11	<0.10	<0.10	-	0.14	0.12	0.13	<0.10	<0.10	<0.10
Total Metals												
Antimony T-Sb	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Arsenic T-As	27.9	36.4	27.8	7.9	<5.0	7.6	438	563	232	32.2	110	19.7
Barium T-Ba	131	134	138	85.5	83.5	103	229	238	187	159	146	141
Beryllium T-Be	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.51	0.53	0.55	0.51
Cadmium T-Cd	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chromium T-Cr	56.2	59.3	60.1	36.4	35.4	45.0	67.2	67.6	69.7	73.6	70.2	73.7
Cobalt T-Co	12.4	13.4	14.5	8.0	6.2	7.7	25.7	24.6	25.0	46.3	36.3	24.0
Copper T-Cu	20.1	21.7	21.9	8.9	8.2	11.4	32.7	32.8	33.6	32.4	30.8	30.2
Lead T-Pb	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30
Mercury T-Hg	0.0478	0.0111	0.0259	0.0062	<0.0050	<0.0050	5.61	0.288	0.113	0.0790	0.0423	0.0201
Molybdenum T-Mo	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	13.4	13.4	6.3	<4.0	<4.0	<4.0
Nickel T-Ni	30.8	32.3	34.9	18.1	16.9	22.0	42.7	42.3	42.8	59.6	49.9	43.9
Selenium T-Se	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Silver T-Ag	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Thallium T-Tl	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Tin T-Sn	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Vanadium T-V	43.3	46.8	44.5	30.1	28.3	35.7	63.8	61.7	67.3	65.8	56.6	59.0
Zinc T-Zn	55.6	60.8	63.9	33.6	32.5	41.3	77.4	78.7	77.9	84.6	77.3	77.4
Organic Parameters												
Total Organic Carbon C	1.43	1.08	1.04	0.540	0.610	0.850	1.28	1.32	1.27	0.880	1.00	0.970
Particle Size (b)												
Gravel (>2.00mm) (%)	<0.10	<0.10	<0.10	-	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Sand (2.00mm - 0.063mm) (%)	33.4	26.9	27.2	-	-	-	12.9	12.9	10.4	9.60	10.8	9.50
Silt (0.063mm - 4um) (%)	44.2	47.7	48.2	-	-	-	56.0	48.6	48.5	49.5	49.1	49.6
Clay (<4um) (%)	22.4	25.4	24.6	-	-	-	31.1	38.5	41.1	40.9	40.1	40.9

(continued)

Appendix 3.3-1
Sediment Quality Data for Lac du Sauvage and Reference Lake Sites, Open-Water Season 2006 (continued)

Station	LdS5	LdS5	LdS5	LdS6	LdS6	LdS6	LdS7	LdS8	LdS8	LdS8	LdS10	LdS10	LdS10	LdS11	LdS11
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**
Date	**5-Aug-06**	**5-Aug-06**	**5-Aug-06**	**3-Aug-06**	**3-Aug-06**	**3-Aug-06**	**3-Aug-06**	**5-Aug-06**	**5-Aug-06**	**5-Aug-06**	**3-Aug-06**	**3-Aug-06**	**3-Aug-06**	**3-Aug-06**	**3-Aug-06**
Physical Tests															
Moisture %	70.6	72.5	63.8	62.1	57.6	70.1	60.9	69.8	77.9	69.7	66.1	65.5	64.2	80.3	26.7
pH	5.70	5.83	6.37	5.59	5.75	5.98	5.51	5.85	5.86	6.08	5.82	5.71	6.01	6.36	5.98
Nutrients															
Available Ammonia	12.0	16.0	17.0	11.0	12.0	13.0	10.0	20.0	24.0	14.0	12.0	12.0	12.0	18.0	7.60
Available Nitrate	<1.5	<1.5	<1.5	<2.0	<2.0	<2.0	<2.0	<1.5	<2.0	<1.5	1.50	2.30	<2.0	<2.0	<1.5
Available Phosphorus P	27.0	7.0	2.0	35.0	43.0	38.0	51.0	8.0	5.0	12.0	15.0	27.0	24.0	2.0	21.0
Total Nitrogen N (a)	0.18	0.18	0.11	0.12	0.11	0.17	0.13	0.17	0.28	0.15	0.17	0.16	0.19	0.25	<0.10
Total Metals															
Antimony T-Sb	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Arsenic T-As	134	136	167	18.8	18.4	16.2	70.0	330	357	375	101	22.0	21.5	254	<5.0
Barium T-Ba	205	202	204	131	138	135	145	193	298	198	149	138	138	324	85.0
Beryllium T-Be	<0.50	<0.50	0.54	<0.50	0.53	0.51	0.53	0.50	0.50	<0.50	<0.50	0.51	0.52	<0.50	<0.50
Cadmium T-Cd	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chromium T-Cr	69.4	50.6	72.2	69.3	75.2	69.4	71.6	65.8	62.0	60.9	67.5	70.8	70.0	58.8	35.5
Cobalt T-Co	19.8	19.5	23.1	22.4	20.0	17.4	20.0	19.4	31.2	19.3	37.4	21.5	21.3	33.5	5.8
Copper T-Cu	34.4	24.0	34.3	29.5	30.3	29.0	30.9	36.4	38.0	33.4	29.7	30.4	30.8	40.1	8.4
Lead T-Pb	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30
Mercury T-Hg	0.0284	0.0176	0.0124	0.0244	0.0158	0.0367	0.0450	0.0233	0.0344	0.0203	0.0260	0.0285	0.0875	0.0546	0.0070
Molybdenum T-Mo	5.1	6.6	<4.0	<4.0	<4.0	<4.0	<4.0	4.8	7.3	7.3	<4.0	<4.0	<4.0	8.4	<4.0
Nickel T-Ni	53.9	41.0	53.2	39.2	41.9	40.7	41.3	48.7	56.3	39.9	44.4	44.0	44.4	64.8	16.5
Selenium T-Se	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Silver T-Ag	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Thallium T-Tl	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Tin T-Sn	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Vanadium T-V	59.6	50.7	62.3	58.8	57.5	56.5	56.7	55.5	59.4	51.0	54.5	57.5	57.1	51.6	25.9
Zinc T-Zn	86.1	62.3	84.7	73.1	77.9	74.5	79.8	81.3	88.1	75.1	78.6	75.6	75.9	91.5	31.9
Organic Parameters															
Total Organic Carbon C	1.76	1.79	1.09	1.07	0.930	1.71	1.32	1.92	2.57	1.74	1.40	1.50	1.85	3.35	0.470
Particle Size (b)															
Gravel (>2.00mm) (%)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Sand (2.00mm - 0.063mm) (%)	7.80	12.0	12.5	8.60	11.4	10.4	9.80	8.00	5.70	5.10	11.5	6.80	9.20	64.9	71.3
Silt (0.063mm - 4um) (%)	47.8	47.9	49.5	48.4	45.8	47.8	46.6	51.7	54.3	49.5	46.0	46.6	45.9	29.8	24.0
Clay (<4um) (%)	44.4	40.1	38.0	43.0	42.8	41.8	43.6	40.3	40.0	45.4	42.5	46.6	44.9	5.30	4.70

(continued)

Appendix 3.3-1
Sediment Quality Data for Lac du Sauvage and Reference Lake Sites, Open-Water Season 2006 (continued)

Station	LdS11	LdS12	LdS12	LdS12	B1	B1	B1	B2	B2	B2	B4	B4	B4	B5	B5	B5
Replicate	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Date	3-Aug-06	3-Aug-06	3-Aug-06	3-Aug-06	1-Aug-06	1-Aug-06	1-Aug-06	1-Aug-06	1-Aug-06	1-Aug-06	5-Aug-06	5-Aug-06	5-Aug-06	5-Aug-06	5-Aug-06	5-Aug-06
Physical Tests																
Moisture %	77.6	57.7	49.6	58.1	46.6	46.7	42.1	30.9	34.2	42.3	64.5	57.7	57.9	61.0	67.5	61.2
pH	6.36	5.88	5.79	5.79	6.18	6.02	6.14	6.31	6.38	6.27	5.55	5.80	5.78	6.05	6.17	6.05
Nutrients																
Available Ammonia	18.0	12.0	10.0	10.0	7.20	14.0	8.00	24.0	6.70	16.0	20.0	13.0	15.0	8.90	16.0	12.0
Available Nitrate	2.00	1.50	1.50	<2.0	1.70	<3.0	<1.5	<3.0	1.50	<3.0	<1.5	<1.0	1.00	<1.0	1.40	<1.5
Available Phosphorus P	1.0	54.0	14.0	43.0	97.0	178	115	97.0	38.0	76.0	38.0	68.0	95.0	92.0	22.0	59.0
Total Nitrogen N (a)	0.30	0.11	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.14	0.14	0.10	0.13	0.20	0.16
Total Metals																
Antimony T-Sb	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Arsenic T-As	254	43.8	43.4	111	10.9	9.0	8.2	35.3	13.8	13.7	30.2	26.6	16.1	13.1	41.6	16.8
Barium T-Ba	299	118	116	119	129	128	131	109	110	120	113	134	139	140	176	146
Beryllium T-Be	<0.50	<0.50	<0.50	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.53	<0.50	0.50	0.54
Cadmium T-Cd	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chromium T-Cr	61.1	61.8	60.9	60.9	63.7	67.8	67.1	59.0	59.4	61.7	52.2	62.4	70.6	68.6	67.8	72.4
Cobalt T-Co	32.9	17.9	19.2	30.4	14.2	13.2	12.2	19.4	14.0	17.2	14.4	16.0	16.8	16.8	28.6	17.0
Copper T-Cu	40.8	27.5	24.6	29.1	24.7	27.5	27.4	19.8	22.3	24.5	21.9	26.2	29.1	28.4	29.0	30.4
Lead T-Pb	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30
Mercury T-Hg	0.0394	0.0113	0.0174	0.0073	0.0056	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0120	0.0109	0.0148	0.0126	0.0178	0.0156
Molybdenum T-Mo	6.9	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Nickel T-Ni	68.8	34.6	30.9	37.8	40.3	40.2	40.7	33.3	33.3	35.2	34.2	38.3	41.5	39.8	47.3	42.3
Selenium T-Se	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Silver T-Ag	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Thallium T-Tl	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Tin T-Sn	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Vanadium T-V	55.7	49.4	48.6	52.2	50.6	54.3	53.7	50.6	49.1	50.4	42.8	51.6	57.7	53.0	58.6	59.4
Zinc T-Zn	93.7	65.1	61.6	66.2	66.1	69.8	69.0	55.3	58.4	62.0	58.7	68.7	75.9	73.1	79.5	77.1
Organic Parameters																
Total Organic Carbon C	3.16	1.14	0.600	0.910	0.580	0.500	0.370	0.350	0.400	0.490	1.42	1.04	0.940	1.16	1.86	1.31
Particle Size (b)																
Gravel (>2.00mm) (%)	<0.10	<0.10	<0.10	<0.10	9.10	7.80	9.30	40.2	29.7	18.5	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Sand (2.00mm - 0.063mm) (%)	6.30	7.60	9.80	6.50	24.1	23.8	18.4	28.5	29.9	27.4	7.60	7.91	5.40	5.10	7.70	5.00
Silt (0.063mm - 4um) (%)	47.5	62.2	63.2	62.8	40.4	41.6	43.3	18.9	24.5	33.0	54.0	55.1	56.6	55.8	52.1	55.2
Clay (<4um) (%)	46.2	30.2	27.0	30.7	26.4	26.8	29.0	12.4	15.9	21.1	38.4	37.0	38.0	39.1	40.2	39.8

(continued)

Appendix 3.3-1

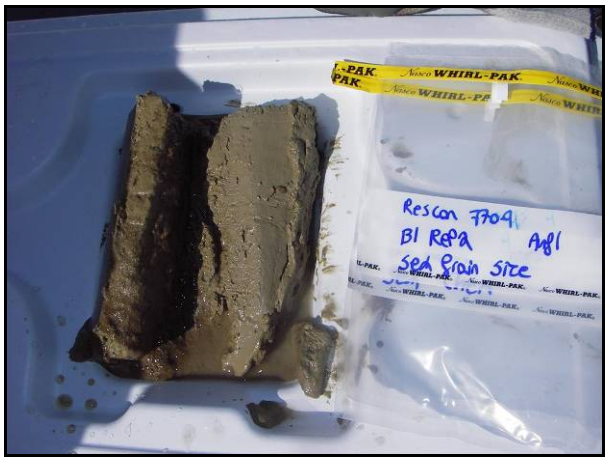
Sediment Quality Data for Lac du Sauvage and Reference Lake Sites, Open-Water Season 2006 (completed)

Station	Christine Lake	Christine Lake	Christine Lake	UL1	UL1	UL1
Replicate	1	2	3	1	2	3
Date	30-Jul-06	30-Jul-06	30-Jul-06	29-Jul-06	29-Jul-06	29-Jul-06
Physical Tests						
Moisture %	86.5	88.0	88.6	91.2	91.1	90.7
pH	5.74	5.73	5.40	4.81	4.70	4.73
Nutrients						
Available Ammonia	32.0	40.0	40.0	-	-	-
Available Nitrate	3.10	<3.0	<3.0	-	-	-
Available Phosphorus P	1.0	5.0	17.0	-	-	-
Total Nitrogen N (a)	0.52	0.60	0.59	0.91	0.90	0.70
Total Metals						
Antimony T-Sb	<20	<20	<10	<10	<10	<10
Arsenic T-As	431	256	178	21.0	24.8	25.8
Barium T-Ba	209	205	150	68.5	60.8	59.9
Beryllium T-Be	<1.0	<1.0	0.86	0.94	0.92	0.95
Cadmium T-Cd	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50
Chromium T-Cr	41.7	57.2	58.1	33.6	34.0	34.6
Cobalt T-Co	159	124	58.9	15.3	20.3	20.5
Copper T-Cu	84.3	112	108	62.3	63.8	63.9
Lead T-Pb	<60	<60	<30	<30	<30	<30
Mercury T-Hg	0.279	0.160	0.339	0.249	0.121	0.114
Molybdenum T-Mo	<8.0	<8.0	4.9	<4.0	<4.0	<4.0
Nickel T-Ni	71	91	74.7	33.7	35.6	35.3
Selenium T-Se	<4.0	<4.0	<3.0	<2.0	<2.0	<2.0
Silver T-Ag	<4.0	<4.0	<2.0	<2.0	<2.0	<2.0
Thallium T-Tl	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Tin T-Sn	<10	<10	<5.0	<5.0	<5.0	<5.0
Vanadium T-V	29.8	48.1	51.2	33.7	32.6	33.8
Zinc T-Zn	110	139	140	157	154	152
Organic Parameters						
Total Organic Carbon C	7.88	7.93	8.50	11.8	12.0	11.9
Particle Size (b)						
Gravel (>2.00mm) (%)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Sand (2.00mm - 0.063mm) (%)	0.20	0.50	0.60	0.60	0.50	0.20
Silt (0.063mm - 4um) (%)	52.6	57.7	58.2	35.7	30.8	37.6
Clay (<4um) (%)	47.2	41.8	41.2	63.7	68.7	62.2

APPENDIX 3.3-2
SEDIMENT PHOTOGRAPHS FOR LAC DU SAUVAGE AND REFERENCE LAKE SITES, OPEN-WATER SEASON 2006

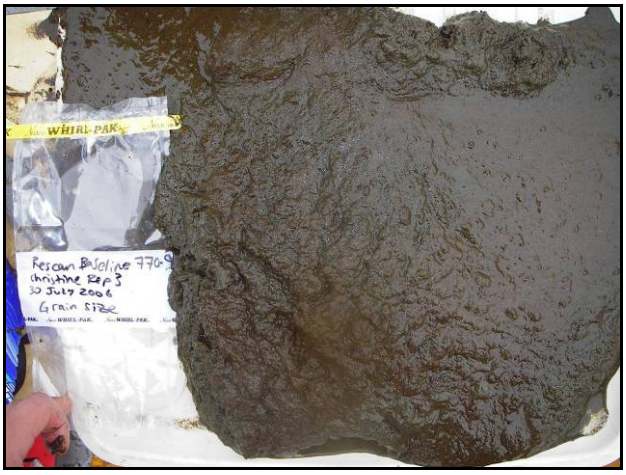
bhpbilliton

Appendix 3.3-2 – Sediment Photographs for Lac du Sauvage and Reference Lake Sites, Open-Water Season 2006

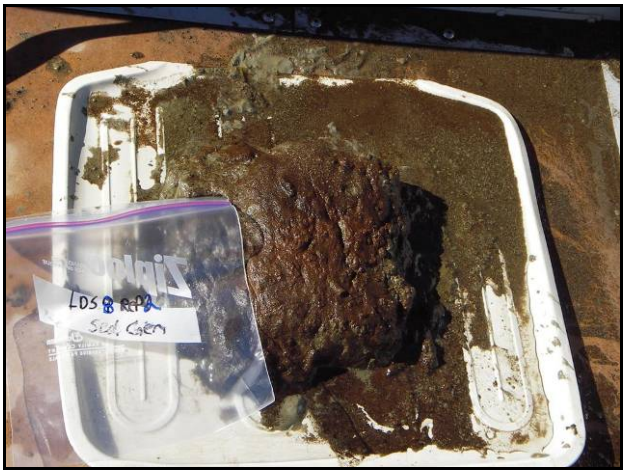


Appendix 3.3-2 – Sediment Photographs for Lac du Sauvage and Reference Lake Sites, Open-Water Season 2006

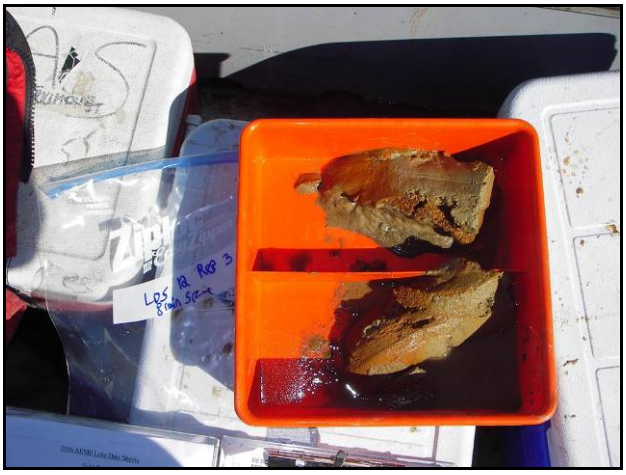
Appendix 3.3-2 – Sediment Photographs for Lac du Sauvage and Reference Lake Sites, Open-Water Season 2006

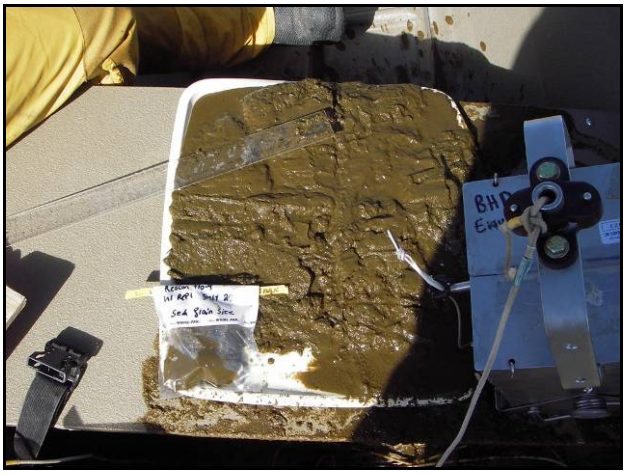


Appendix 3.3-2 – Sediment Photographs for Lac du Sauvage and Reference Lake Sites, Open-Water Season 2006



Appendix 3.3-2 – Sediment Photographs for Lac du Sauvage and Reference Lake Sites, Open-Water Season 2006





APPENDIX 3.4-1
DISSOLVED OXYGEN AND TEMPERATURE DATA FOR LAC DU SAUVAGE AND REFERENCE LAKE SITES, OPEN-WATER SEASON 2004 AND 2006

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Appendix 3.4-1

Dissolved Oxygen and Temperature Data for Lac du Sauvage and Reference Lake Sites, Open-Water Season 2004 and 2006

Lake: LdS1
Date: 10-Jul-06
Secchi Depth (m): 5.4
Maximum Depth (m): 8.4

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	12.2	10.50	97.8
0.5	12.2	10.30	96.0
1.0	12.2	10.23	95.3
1.5	12.2	10.03	94.3
2.0	12.1	9.90	92.1
2.5	12.0	9.77	90.6
3.0	12.0	9.63	89.3
3.5	12.0	9.51	88.1
4.0	12.0	9.43	87.5
4.5	12.0	9.25	85.8
5.0	12.0	8.88	82.4
5.5	12.0	8.71	80.7
6.0	12.0	8.63	80.0
6.5	12.0	8.43	78.1
7.0	12.0	8.40	77.9
7.5	12.0	8.32	77.1

Lake: LdS1
Date: 01-Aug-06
Secchi Depth (m): 5.0
Maximum Depth (m): 7.5

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	13.2	10.08	96.0
0.5	13.2	9.74	92.6
1.0	13.2	9.72	92.8
1.5	13.2	9.80	92.4
2.0	13.2	9.69	92.4
2.5	13.2	9.61	91.5
3.0	13.1	9.65	91.8
3.5	13.1	9.62	91.5
4.0	13.1	9.65	91.9
4.5	13.1	9.52	90.9
5.0	13.1	9.54	90.8
5.5	13.0	9.51	90.3
6.0	13.0	9.62	91.4
6.5	13.0	9.62	91.4

Lake: LdS1
Date: 10-Sep-06
Secchi Depth (m): 5.5
Maximum Depth (m): 8.0

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	11.3	9.28	84.6
0.5	11.2	9.54	87.1
1.0	10.7	9.50	85.8
1.5	10.6	9.29	83.8
2.0	10.6	9.52	85.3
2.5	10.5	9.40	84.3
3.0	10.5	8.95	80.1
3.5	10.4	9.17	81.9
4.0	10.4	9.13	81.8
4.5	10.4	9.03	80.7
5.0	10.4	9.18	82.1
5.5	10.4	8.88	79.5
6.0	10.4	8.99	80.7
6.5	10.4	9.62	85.8
7.0	10.4	9.57	85.7
7.5	10.4	9.58	85.6
8	10.5	9.82	87.9

Lake: LdS2
Date: 10-Jul-06
Secchi Depth (m): 2.1
Maximum Depth (m): 2.1

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	12.8	8.74	81.8
0.5	12.8	8.62	81.5
1.0	12.8	8.54	80.5
1.5	12.8	8.40	79.3
2.0	12.8	8.51	80.3

Lake: LdS2
Date: 03-Aug-06
Secchi Depth (m): 1.8
Maximum Depth (m): 1.8

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	17.8	8.10	83.0
0.5	17.1	8.10	84.0
1.0	16.7	8.40	85.0
1.5	16.8	7.90	81.0

Lake: LdS2
Date: 10-Sep-06
Secchi Depth (m): 1.7
Maximum Depth (m): 1.7

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	11.1	8.65	78.6
0.5	11.0	8.75	79.2
1.0	11.1	8.67	78.7
1.5	11.0	8.72	78.7

Lake: LdS3
Date: 09-Jul-06
Secchi Depth (m): 5.8
Maximum Depth (m): 19.0

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	11.7	10.57	97.1
1.0	11.7	10.45	97.0
2.0	11.7	10.43	81.4
3.0	11.6	9.37	85.4
4.0	11.6	8.36	77.7
5.0	11.5	7.34	67.7
6.0	11.6	6.69	60.4
7.0	11.5	6.51	59.6
8.0	11.4	6.03	55.3
9.0	11.3	6.01	54.6
10.0	11.1	5.89	53.3
11.0	11.0	5.21	52.5
12.0	10.9	5.71	51.7
13.0	10.9	5.68	51.4
14.0	10.9	5.55	50.2
15.0	10.9	5.46	49.5
16.0	10.8	2.35	23.5

Lake: LdS3
Date: 01-Aug-06
Secchi Depth (m): 8.0
Maximum Depth (m): 19.5

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	14.3	7.56	74.3
1.0	13.7	7.04	67.6
2.0	13.6	6.81	66.0
3.0	13.6	6.44	62.1
4.0	13.5	6.27	60.2
5.0	13.4	6.26	59.7
6.0	13.3	6.30	60.5
7.0	13.3	5.71	55.0
8.0	13.3	5.40	51.8
9.0	13.3	5.12	49.2
10.0	13.2	4.81	45.5
11.0	13.2	4.51	42.8
12.0	13.2	4.23	40.6
13.0	13.2	3.95	37.9
14.0	13.2	3.73	35.7
15.0	13.2	3.63	34.6
16.0	13.1	3.58	34.1
17.0	13.1	3.79	35.8
18.0	12.7	4.04	37.8
19.0	8.3	4.95	41.7

Lake: LdS3
Date: 07-Sep-06
Secchi Depth (m): 7.0
Maximum Depth (m): 20.0

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	10.2	11.50	102.0
1.0	10.2	10.80	94.0
2.0	10.2	10.30	91.0
3.0	10.2	9.60	86.0
4.0	10.2	9.40	84.0
5.0	10.2	9.50	84.0
6.0	10.1	9.50	84.0
7.0	10.2	9.50	84.0
8.0	10.1	9.60	85.0
9.0	10.1	9.60	85.0
10.0	10.1	9.60	85.0
11.0	10.1	9.60	85.0
12.0	10.1	9.60	86.0
13.0	10.1	9.60	85.0
14.0	10.1	9.60	86.0
15.0	10.1	9.60	85.0
16.0	10.0	9.70	86.0
17.0	10.0	9.60	85.0
18.0	10.0	9.50	84.0
19.0	10.0	9.50	84.0

(continued)

Appendix 3.4-1

Dissolved Oxygen and Temperature Data for Lac du Sauvage and Reference Lake Sites, Open-Water Season 2004 and 2006 (continued)

Lake: LdS-3
Date: 13-Jul-04
Secchi Depth (m): 6.3
Maximum Depth (m): 17.2

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	5.20	13.26	104.2
1.0	5.20	13.27	104.3
2.0	5.10	13.27	104.3
3.0	5.10	13.34	104.7
4.0	4.90	13.49	105.2
5.0	4.80	13.43	104.8
6.0	4.70	13.49	105.0
7.0	4.60	13.46	104.3
8.0	4.60	13.44	104.1
9.0	4.50	13.45	103.9
10.0	4.40	13.43	103.6
11.0	4.40	13.43	103.6
12.0	4.40	13.47	103.8
13.0	4.40	13.53	104.1
14.0	4.40	13.68	105.3
15.0	4.30	13.76	105.9
16.0	4.30	13.67	105.3

Lake: LdS-3
Date: 10-Aug-04
Secchi Depth (m): 4.2
Maximum Depth (m): 18.0

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	11.0	9.79	88.9
1.0	11.0	9.81	88.6
2.0	11.0	9.77	88.7
3.0	11.0	9.81	88.8
4.0	11.0	9.82	89.0
5.0	11.0	9.82	89.0
6.0	11.0	9.84	89.1
7.0	11.0	9.86	89.2
8.0	11.0	9.91	89.8
9.0	11.0	9.89	89.6
10.0	11.0	9.91	89.9
11.0	11.0	9.94	90.0
12.0	11.0	9.97	90.4
13.0	11.0	9.99	90.6
14.0	11.0	10.02	90.7
15.0	11.0	10.09	91.5
16.0	11.0	10.12	91.6
17.0	11.0	10.61	92.8

Lake: LdS-3
Date: 12-Sep-04
Secchi Depth (m): 4.6
Maximum Depth (m): 18.2

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	6.9	10.94	89.9
1.0	6.9	10.87	89.5
2.0	6.9	10.90	89.5
3.0	6.9	10.96	89.8
4.0	6.9	10.88	89.3
5.0	6.9	11.02	90.4
6.0	6.9	10.98	90.1
7.0	6.9	11.01	90.5
8.0	6.8	10.98	90.1
9.0	6.9	11.01	90.1
10.0	6.9	11.03	90.4
11.0	6.9	10.99	90.2
12.0	6.9	11.05	90.6
13.0	6.9	11.07	90.9
14.0	6.8	11.02	90.5
15.0	6.8	11.10	91.0
16.0	6.8	11.12	91.0
17.0	6.8	11.16	91.6

Lake: LdS4
Date: 19-Jul-06
Secchi Depth (m): 4.5
Maximum Depth (m): 4.5

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	13.7	8.49	82.0
0.5	13.7	8.53	82.3
1.0	13.6	8.56	82.3
1.5	13.6	8.19	78.8
2.0	13.6	8.35	80.3
2.5	13.5	8.40	80.7
3.0	13.5	8.53	81.7
3.5	13.5	8.68	82.9
4.0	13.5	9.02	86.2

Lake: LdS4
Date: 01-Aug-06
Secchi Depth (m): 4.0
Maximum Depth (m): 4.0

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	13.5	9.08	87.1
0.5	13.5	9.05	86.7
1.0	13.4	9.04	86.6
1.5	13.4	8.99	86.0
2.0	13.4	8.89	86.1
2.5	13.4	8.97	85.7
3.0	13.4	8.94	86.0
3.5	13.3	9.08	86.6
4.0	13.3	9.12	87.8

Lake: LdS4
Date: 07-Sep-06
Secchi Depth (m): 4.6
Maximum Depth (m): 4.6

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	9.7	9.90	87.0
0.5	9.7	9.80	86.0
1.0	9.7	9.50	84.0
1.5	9.7	9.20	81.0
2.0	9.7	9.20	81.0
2.5	9.7	8.90	79.0
3.0	9.7	9.20	81.0
3.5	9.7	9.10	80.0
4.0	9.7	9.10	80.0
4.5	9.7	8.80	79.0

(continued)

Appendix 3.4-1

Dissolved Oxygen and Temperature Data for Lac du Sauvage and Reference Lake Sites, Open-Water Season 2004 and 2006 (continued)

Lake: LdS5
Date: 09-Jul-06
Secchi Depth (m): 5.5
Maximum Depth (m): 7.2

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	12.2	9.93	92.4
0.5	12.2	9.67	90.1
1.0	12.1	9.52	88.3
1.5	12.2	9.21	85.5
2.0	12.1	8.84	82.2
2.5	12.1	8.43	78.1
3.0	12.0	7.69	70.5
3.5	12.0	6.87	63.5
4.0	12.0	6.39	58.7
4.5	12.0	6.05	55.7
5.0	12.0	5.54	51.6
5.5	12.0	5.33	48.9
6.0	12.0	5.02	46.2
6.5	12.0	4.39	40.7
7.0	12.0	3.89	36.5

Lake: LdS5
Date: 05-Aug-06
Secchi Depth (m): 6.0
Maximum Depth (m): 10.5

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	15.6	11.30	110.0
0.5	15.2	10.70	107.0
1.0	15.0	10.80	107.0
1.5	15.0	10.60	104.0
2.0	15.0	10.30	102.0
2.5	14.9	10.40	102.0
3.0	14.8	10.20	101.0
3.5	14.5	9.90	98.0
4.0	14.4	9.80	95.0
4.5	14.3	9.70	94.0
5.0	14.1	9.80	95.0
5.5	14.0	9.70	94.0
6.0	13.9	9.20	90.0
6.5	13.9	9.60	93.0
7.0	13.8	9.40	91.0
7.5	13.8	9.30	91.0
8.0	13.8	9.30	90.0
8.5	13.8	9.10	88.0
9.0	13.7	9.10	88.0
9.5	13.7	9.10	88.0
10.0	13.7	9.10	97.0

Lake: LdS5
Date: 10-Sep-06
Secchi Depth (m): 5.6
Maximum Depth (m): 6.2

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	10.9	9.37	85.0
0.5	10.8	9.28	83.7
1.0	10.7	9.04	81.4
1.5	10.6	9.11	82.0
2.0	10.6	9.07	81.6
2.5	10.6	9.26	83.2
3.0	10.6	9.17	82.3
3.5	10.6	9.12	82.1
4.0	10.5	9.07	81.5
4.5	10.5	9.20	82.6
5.0	10.5	9.03	81.1
5.5	10.5	9.18	82.5
6.0	10.5	9.19	82.6

Lake: LdS6
Date: 19-Jul-06
Secchi Depth (m): 4.1
Maximum Depth (m): 4.1

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	14.1	8.35	80.8
0.5	13.8	7.94	76.5
1.0	13.6	7.12	78.6
1.5	13.5	7.96	76.4
2.0	13.5	7.82	75.2
2.5	13.5	7.62	73.3
3.0	13.4	7.52	72.4
3.5	13.4	7.58	72.9
4.0	13.5	7.84	74.5

Lake: LdS6
Date: 03-Aug-06
Secchi Depth (m): 4.5
Maximum Depth (m): 4.5

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	15.2	9.73	97.8
0.5	15.2	9.31	93.2
1.0	15.0	8.98	89.4
1.5	14.9	8.84	87.5
2.0	14.7	8.82	86.7
2.5	14.7	9.01	87.9
3.0	14.5	9.24	90.2
3.5	14.1	9.52	92.2
4.0	14.0	10.07	97.4

Lake: LdS6
Date: 07-Sep-06
Secchi Depth (m): 2.5
Maximum Depth (m): 2.5

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	10.2	10.50	93.0
0.5	10.2	10.30	91.0
1.0	10.2	10.00	88.0
1.5	10.2	10.00	89.0
2.0	10.1	10.30	91.0
2.5	10.1	10.50	92.0

(continued)

Appendix 3.4-1

Dissolved Oxygen and Temperature Data for Lac du Sauvage and Reference Lake Sites, Open-Water Season 2004 and 2006 (continued)

Lake: LdS7
Date: 19-Jul-06
Secchi Depth (m): 6.1
Maximum Depth (m): 8.5

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	14.3	9.66	94.4
0.5	14.2	9.83	96.1
1.0	14.0	9.50	92.2
1.5	14.0	9.19	89.1
2.0	13.9	8.78	85.6
2.5	13.9	8.83	85.5
3.0	13.9	8.71	84.3
3.5	13.9	8.57	83.0
4.0	13.8	8.53	82.9
4.5	13.8	8.48	81.9
5.0	13.8	8.77	84.7
5.5	13.6	8.87	85.4
6.0	13.6	8.97	86.2
6.5	13.4	9.13	87.4
7.0	13.4	9.30	88.9
7.5	13.4	9.43	90.2
8.0	13.3	9.74	91.9

Lake: LdS7
Date: 03-Aug-06
Secchi Depth (m): 6.4
Maximum Depth (m): 6.9

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	16.2	8.87	90.7
0.5	15.2	8.43	84.4
1.0	14.9	8.28	81.5
1.5	14.5	8.51	84.3
2.0	14.4	8.13	79.6
2.5	14.0	7.97	77.4
3.0	14.0	7.77	75.3
3.5	14.0	7.59	73.7
4.0	13.9	7.70	74.6
4.5	13.8	7.68	74.2
5.0	13.7	7.70	74.1
5.5	13.7	7.61	73.4
6.0	13.6	7.81	75.7

Lake: LdS7
Date: 10-Sep-06
Secchi Depth (m): 6.2
Maximum Depth (m): 6.3

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	11.2	8.73	79.5
0.5	10.8	8.72	78.6
1.0	10.7	8.71	78.5
1.5	10.7	8.74	78.5
2.0	10.6	8.76	78.4
2.5	10.6	8.87	79.5
3.0	10.6	8.82	79.1
3.5	10.6	8.93	80.1
4.0	10.6	8.90	79.1
4.5	10.6	8.93	80.1
5.0	10.6	8.97	80.1
5.5	10.6	9.04	81.1
6.0	10.6	9.05	81.2

Lake: LdS8
Date: 19-Jul-06
Secchi Depth (m): 5.5
Maximum Depth (m): 12.0

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	14.4	10.22	103.0
1.0	14.0	9.82	94.4
2.0	14.0	8.85	85.2
3.0	13.8	8.80	84.3
4.0	13.7	8.67	81.7
5.0	13.6	8.20	77.8
6.0	13.6	8.07	76.7
7.0	13.5	7.91	76.4
8.0	13.4	7.24	69.0
9.0	13.3	6.78	64.1
10.0	13.3	6.33	60.1
11.0	13.2	3.24	30.5

Lake: LdS8
Date: 05-Aug-06
Secchi Depth (m): 6.5
Maximum Depth (m): 11.5

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	15.7	10.70	109.0
0.5	15.7	10.40	104.0
1.0	15.6	10.30	103.0
1.5	15.5	10.00	100.0
2.0	15.2	10.00	100.0
2.5	14.9	9.90	98.0
3.0	14.4	9.70	95.0
3.5	14.3	9.60	94.0
4.0	14.3	9.70	95.0
4.5	14.2	9.70	95.0
5.0	14.2	9.70	95.0
5.5	14.2	9.60	94.0
6.0	14.2	9.50	92.0
6.5	14.1	9.70	95.0
7.0	14.0	9.60	94.0
7.5	13.9	9.70	94.0
8.0	13.8	9.60	93.0
8.5	13.8	9.60	92.0
9.0	13.7	9.60	92.0
9.5	13.7	9.60	93.0
10.0	13.8	9.40	91.0

Lake: LdS8
Date: 10-Sep-06
Secchi Depth (m): 5.2
Maximum Depth (m): 11.9

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	10.8	9.39	84.7
1.0	10.7	9.39	84.4
2.0	10.7	9.35	83.7
3.0	10.6	9.45	84.6
4.0	10.6	9.46	84.7
5.0	10.5	9.25	82.9
6.0	10.5	9.42	84.3
7.0	10.5	9.70	87.0
8.0	10.5	9.67	86.8
9.0	10.5	9.76	87.2
10.0	10.5	9.77	87.8
11.0	10.5	9.57	84.8

(continued)

Appendix 3.4-1

Dissolved Oxygen and Temperature Data for Lac du Sauvage and Reference Lake Sites, Open-Water Season 2004 and 2006 (continued)

Lake: LdS9
Date: 09-Jul-06
Secchi Depth (m): 1.8
Maximum Depth (m): 1.8

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	11.7	9.54	86.6
0.5	11.9	8.88	82.0
1.0	11.9	8.75	80.8
1.5	11.9	8.74	81.0
2.0	12.0	8.65	79.9

Lake: LdS9
Date: 03-Aug-06
Secchi Depth (m): 3.3
Maximum Depth (m): 3.3

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	16.0	9.23	93.6
0.5	15.2	9.28	92.5
1.0	15.0	9.25	91.6
1.5	14.9	9.25	91.7
2.0	14.7	9.31	91.7
2.5	14.3	9.23	91.2
3.0	14.2	9.34	90.4

Lake: LdS9
Date: 07-Sep-06
Secchi Depth (m): 4.1
Maximum Depth (m): 4.1

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	10.2	9.80	87.0
0.5	10.2	9.70	86.0
1.0	10.1	9.40	83.0
1.5	10.1	9.20	81.0
2.0	10.1	9.10	81.0
2.5	10.1	9.40	83.0
3.0	10.1	9.50	84.0
3.5	10.1	9.40	84.0
4.0	10.1	9.60	84.0

Lake: LdS10
Date: 09-Jul-06
Secchi Depth (m): 5.3
Maximum Depth (m): 17.0

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	12.5	10.42	97.0
1.0	12.4	10.12	93.9
2.0	12.3	9.98	93.4
3.0	12.2	9.93	89.7
4.0	12.2	9.20	85.4
5.0	12.1	8.05	76.0
6.0	12.0	7.57	70.2
7.0	12.0	7.15	66.4
8.0	11.9	7.11	66.0
9.0	11.9	7.01	65.3
10.0	11.9	6.72	62.2
11.0	11.9	6.52	61.0
12.0	11.8	6.44	59.3
13.0	11.7	6.36	58.5
14.0	11.5	6.34	57.8
15.0	11.5	6.13	56.3
16.0	11.4	5.96	54.5
17.0	11.2	5.7	52.4

Lake: LdS10
Date:
Secchi Depth (m):
Maximum Depth (m):

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
not sampled			

Lake: LdS10
Date: 08-Sep-06
Secchi Depth (m): 4.5
Maximum Depth (m): 14.6

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	10.4	11.10	99.0
1.0	10.4	10.90	97.0
2.0	10.4	10.40	93.0
3.0	10.4	9.90	88.0
4.0	10.4	9.70	87.0
5.0	10.4	9.70	86.0
6.0	10.4	9.60	86.0
7.0	10.3	9.50	85.0
8.0	10.3	9.70	86.0
9.0	10.3	9.40	84.0
10.0	10.3	9.40	83.0
11.0	10.3	9.40	84.0
12.0	10.3	9.40	83.0
13.0	10.3	9.40	84.0
14.0	10.3	9.60	85.0

(continued)

Appendix 3.4-1

Dissolved Oxygen and Temperature Data for Lac du Sauvage and Reference Lake Sites, Open-Water Season 2004 and 2006 (continued)

Lake: LdS11
Date: 08-Jul-06
Secchi Depth (m): 5.9
Maximum Depth (m): 8.0

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	12.0	9.39	87.0
0.5	12.0	9.05	83.8
1.0	12.0	8.05	74.6
1.5	11.9	6.95	64.1
2.0	11.9	6.25	57.7
2.5	11.7	5.40	49.6
3.0	11.7	4.61	43.0
3.5	11.6	4.44	40.7
4.0	11.6	3.89	35.8
4.5	11.6	3.60	33.3
5.0	11.6	3.25	30.0
5.5	11.4	3.11	28.7
6.0	11.4	2.93	27.0
6.5	11.2	2.76	25.1
7.0	11.1	2.65	24.0
7.5	11.0	2.50	22.7
8.0	11.0	2.37	21.5

Lake: LdS11
Date: 03-Aug-06
Secchi Depth (m): 6.8
Maximum Depth (m): 10.6

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	14.6	8.20	81.0
1.0	14.4	8.60	84.0
2.0	14.3	8.30	82.0
3.0	14.2	8.10	79.0
4.0	14.0	8.60	83.0
5.0	13.7	8.50	82.0
6.0	13.6	8.60	83.0
7.0	13.5	8.60	82.0
8.0	13.4	8.60	83.0
9.0	13.4	8.80	84.0
10.0	13.4	8.90	85.0

Lake: LdS11
Date: 08-Sep-06
Secchi Depth (m): 5.0
Maximum Depth (m): 7.4

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	10.3	10.40	92.0
0.5	10.3	10.20	91.0
1.0	10.3	9.80	87.0
1.5	10.3	9.70	86.0
2.0	10.3	9.90	89.0
2.5	10.3	9.70	86.0
3.0	10.3	9.60	85.0
3.5	10.3	9.20	82.0
4.0	10.3	9.60	85.0
4.5	10.3	9.60	85.0
5.0	10.3	9.60	86.0
5.5	10.2	9.30	83.0
6.0	10.2	9.20	81.0
6.5	10.2	9.10	81.0
7.0	10.2	9.10	81.0

Lake: LdS12
Date: 08-Jul-06
Secchi Depth (m): 4.1
Maximum Depth (m): 4.6

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	11.7	8.90	81.9
0.5	11.7	8.83	81.2
1.0	11.7	8.48	78.2
1.5	11.7	8.31	76.6
2.0	11.7	7.84	72.3
2.5	11.7	7.32	67.5
3.0	11.7	7.06	64.9
3.5	11.7	6.51	60.0
4.0	11.7	6.29	57.9

Lake: LdS12
Date: 03-Aug-06
Secchi Depth (m): 3.5
Maximum Depth (m): 3.5

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	14.6	9.90	97.4
0.5	14.6	9.81	96.5
1.0	14.5	9.71	95.5
1.5	14.5	9.73	95.2
2.0	14.2	9.69	94.6
2.5	14.1	9.59	93.6
3.0	14.0	9.81	94.6

Lake: LdS12
Date: 08-Sep-06
Secchi Depth (m): 3.3
Maximum Depth (m): 3.3

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	10.2	8.50	76.0
0.5	10.2	8.40	75.0
1.0	10.2	8.40	75.0
1.5	10.2	8.50	75.0
2.0	10.2	8.50	76.0
2.5	10.2	8.50	76.0
3.0	10.2	8.60	77.0

(continued)

Appendix 3.4-1

Dissolved Oxygen and Temperature Data for Lac du Sauvage and Reference Lake Sites, Open-Water Season 2004 and 2006 (continued)

Lake: UL1
Date: 07-Jul-06
Secchi Depth (m): 6.2
Maximum Depth (m): 10.0

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	12.6	9.50	93.0
1.0	12.6	9.55	89.3
2.0	12.6	9.05	84.7
3.0	12.6	8.62	80.7
4.0	12.6	8.02	75.0
5.0	12.6	7.76	72.7
6.0	12.6	6.68	62.6
7.0	12.6	6.59	61.9
8.0	12.6	6.39	59.9
9.0	12.6	6.05	56.8

Lake: UL1
Date: 29-Jul-06
Secchi Depth (m): 6.8
Maximum Depth (m): 10.0

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	14.4	10.65	104.0
0.5	14.4	10.53	103.5
1.0	14.4	10.51	102.7
1.5	14.4	10.42	101.1
2.0	14.3	10.01	97.8
2.5	14.3	9.84	96.2
3.0	14.3	9.77	95.6
3.5	14.3	9.74	95.6
4.0	14.3	9.81	95.3
4.5	14.3	9.31	95.8
5.0	14.3	9.30	95.6
5.5	14.3	9.76	95.7
6.0	14.3	9.74	95.2
6.5	14.3	9.78	95.8
7.0	14.3	9.70	94.8
7.5	14.3	9.66	94.3
8.0	14.3	9.74	95.4
8.5	14.3	9.73	95.2
9.0	14.3	9.72	94.8
9.5	14.3	7.78	78.2
10.0	14.2	3.62	36.9

Lake: UL1
Date: 11-Sep-06
Secchi Depth (m): 6.5
Maximum Depth (m): 9.9

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	10.2	8.28	73.6
1.0	10.2	8.24	73.4
2.0	10.1	8.35	74.2
3.0	10.0	8.36	74.1
4.0	10.0	8.35	74.0
5.0	10.0	8.37	74.0
6.0	10.0	8.17	72.7
7.0	10.0	8.35	74.0
8.0	10.0	8.34	73.8
9.0	10.0	8.14	72.0
10.0	10.0	8.30	73.4

Lake: UL2
Date: 07-Jul-06
Secchi Depth (m): 5.3
Maximum Depth (m): 5.6

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	12.7	9.60	90.4
0.5	12.7	9.39	88.2
1.0	12.7	8.25	77.7
1.5	12.7	7.80	73.4
2.0	12.7	7.02	66.1
2.5	12.7	6.46	60.8
3.0	12.7	6.10	57.4
3.5	12.7	5.67	53.3
4.0	12.6	5.50	51.4
4.5	12.6	5.00	47.0
5.0	12.6	4.65	43.6
5.5	12.6	4.59	43.1

Lake: UL2
Date: 29-Jul-06
Secchi Depth (m): 5.5
Maximum Depth (m): 5.5

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	14.6	10.87	106.1
0.5	14.6	10.65	104.7
1.0	14.6	10.55	103.3
1.5	14.6	10.20	99.8
2.0	14.5	10.15	99.4
2.5	14.5	9.90	97.9
3.0	14.5	9.94	97.5
3.5	14.5	9.76	96.4
4.0	14.5	9.67	94.6
4.5	14.5	9.57	94.1
5.0	14.5	9.53	93.5

Lake: UL2
Date: 11-Sep-06
Secchi Depth (m): 5.7
Maximum Depth (m): 5.7

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	10.1	8.36	74.2
0.5	10.1	8.36	74.2
1.0	10.1	8.38	74.4
1.5	10.0	8.41	74.5
2.0	10.0	8.27	73.3
2.5	10.0	8.15	72.3
3.0	10.0	8.24	72.7
3.5	10.0	8.32	73.7
4.0	10.0	8.36	74.1
4.5	10.0	8.27	73.1
5.0	10.0	8.28	73.4
5.5	10.0	8.21	72.9

(continued)

Appendix 3.4-1

Dissolved Oxygen and Temperature Data for Lac du Sauvage and Reference Lake Sites, Open-Water Season 2004 and 2006 (completed)

Lake: UL3
Date: 07-Jul-06
Secchi Depth (m): 5.5
Maximum Depth (m): 5.5

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	13.0	8.45	80.1
0.5	13.0	8.28	78.0
1.0	13.0	7.95	75.3
1.5	12.8	7.47	69.8
2.0	12.8	6.31	59.9
2.5	12.8	6.10	57.3
3.0	12.8	5.54	52.0
3.5	12.7	5.31	49.9
4.0	12.7	4.78	44.8
4.5	12.7	4.13	38.8
5.0	12.7	3.87	36.3
5.5	12.7	3.60	33.8

Lake: UL3
Date: 29-Jul-06
Secchi Depth (m): 4.8
Maximum Depth (m): 4.8

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	14.5	10.05	97.9
0.5	14.5	9.78	96.1
1.0	14.5	9.59	93.9
1.5	14.5	9.49	93.0
2.0	14.5	9.37	92.2
2.5	14.5	9.32	91.2
3.0	14.5	9.27	90.8
3.5	14.5	9.19	90.3
4.0	14.5	9.16	89.6
4.5	14.5	9.31	91.5

Lake: UL3
Date: 11-Sep-06
Secchi Depth (m): 4.3
Maximum Depth (m): 4.3

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	10.0	9.08	80.4
0.5	10.0	8.95	79.4
1.0	10.0	8.97	79.4
1.5	10.0	9.02	79.6
2.0	10.0	9.05	79.9
2.5	10.0	9.08	80.4
3.0	10.0	8.93	80.1
3.5	10.0	9.11	80.9
4.0	10.0	9.08	81.0

Lake: Christine
Date: 05-Jul-06
Secchi Depth (m): 4.1
Maximum Depth (m): 14.0

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	15.5	8.62	86.4
1.0	15.5	87.10	87.3
2.0	15.4	88.30	88.1
3.0	15.5	8.79	88.1
4.0	15.4	8.69	86.6
5.0	15.4	8.71	85.4
6.0	15.4	8.40	81.4

Lake: Christine
Date: 30-Jul-06
Secchi Depth (m): 4.0
Maximum Depth (m): 8.8

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	14.1	9.26	90.0
0.5	14.1	9.23	89.7
1.0	14.1	9.20	89.4
1.5	14.1	9.12	88.7
2.0	14.1	9.13	88.8
2.5	14.1	9.11	88.6
3.0	14.1	9.08	88.3
3.5	14.1	8.99	87.3
4.0	14.1	8.91	86.6
4.5	14.1	8.94	86.6
5.0	14.1	8.88	86.2
5.5	14.1	8.90	86.4
6.0	14.1	8.84	85.8
6.5	13.9	8.82	85.2
7.0	14.0	8.82	85.3
7.5	13.9	8.80	84.7
8.0	13.7	8.77	84.5
8.5	13.6	8.81	84.8

Lake: Christine
Date: 13-Sep-06
Secchi Depth (m): 5.0
Maximum Depth (m): 9.0

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.0	9.9	10.94	96.8
1.0	9.9	10.80	95.7
2.0			
3.0	9.9	10.84	96.1
4.0	9.9	10.88	95.3
5.0	9.9	10.76	95.2
6.0	9.9	10.71	94.5
7.0	9.9	10.85	96.0
8.0	9.8	10.90	96.1
9.0	9.8	10.80	95.5

APPENDIX 3.4-2
DISSOLVED OXYGEN AND TEMPERATURE DATA FOR LAC DU SAUVAGE AND REFERENCE LAKE SITES, ICE-COVERED SEASON 2006

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Appendix 3.4-2
Dissolved Oxygen and Temperature Data for Lac du Sauvage and Reference Lake Sites, Ice-Covered Season 2006

Lake: LdS1
Date: 8-Feb-06

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.7	1.22	17.98	
0.8	1.15	18.00	
0.9	1.07	17.90	
1.0	0.99	17.96	
1.1	0.88	17.99	
1.2	0.84	18.02	
1.3	0.82	18.03	
1.4	0.81	18.02	
1.5	0.80	18.03	
1.6	0.80	18.03	
1.7	0.81	18.02	
1.8	0.82	18.08	
2.0	0.84	18.07	
2.0	0.85	18.06	
2.1	0.87	18.05	
2.2	0.89	18.04	
2.3	0.90	18.03	
2.4	0.95	18.08	
2.5	0.97	18.07	
2.6	0.99	18.05	
2.7	1.03	18.06	
2.8	1.05	18.05	
2.9	1.08	18.03	
3.0	1.08	18.02	
3.6	1.10	17.94	
3.7	1.11	17.94	
3.8	1.18	17.77	
3.9	1.25	17.59	
4.0	1.28	17.56	
4.1	1.30	17.35	
4.2	1.32	17.34	
4.3	1.33	17.33	
4.4	1.34	17.33	
4.5	1.35	17.14	
4.6	1.37	17.13	
4.7	1.38	17.12	
4.8	1.39	17.11	
4.9	1.40	16.88	
5.0	1.42	16.87	
5.1	1.44	16.86	
5.2	1.46	16.85	
5.3	1.48	16.61	
5.4	1.51	16.35	
5.5	1.53	16.34	
5.6	1.56	16.12	

Lake: LdS1
Date: 30-Mar-06

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.7	0.56	16.41	114.0
0.8	0.58	16.45	114.4
0.9	0.56	16.47	114.4
1.0	0.54	16.25	112.8
1.1	0.52	16.26	112.8
1.2	0.50	16.30	113.1
1.3	0.50	16.31	113.1
1.4	0.50	16.22	112.5
1.5	0.50	16.22	112.5
1.6	0.51	16.25	112.8
1.7	0.54	16.24	112.8
1.8	0.57	16.22	112.7
1.9	0.61	16.24	113.0
2.0	0.67	16.21	113.0
2.1	0.70	16.22	113.1
2.2	0.73	16.20	113.1
2.3	0.76	16.18	113.1
2.4	0.81	16.15	113.0
2.5	0.85	16.26	113.9
2.6	0.90	16.23	113.9
2.7	0.94	16.09	112.9
2.8	0.97	16.07	112.9
2.9	1.00	16.05	112.9
3.0	1.03	16.14	113.6
3.1	1.07	16.12	113.6
3.2	1.09	16.10	113.5
3.3	1.12	15.93	112.4
3.4	1.16	15.90	112.3
3.5	1.21	15.78	111.6
3.6	1.23	15.76	111.6
3.7	1.25	15.75	111.6
3.8	1.27	15.67	111.1
3.9	1.30	15.65	111.0
4.0	1.33	15.45	109.7
4.1	1.35	15.44	109.7
4.2	1.37	15.43	109.6
4.3	1.40	15.32	109.0
4.4	1.42	15.30	108.9
4.5	1.44	15.12	107.7
4.6	1.46	15.11	107.7
4.7	1.46	15.11	107.6
4.8	1.48	14.96	106.6
4.9	1.50	14.95	106.6
5.0	1.51	14.94	106.6
5.1	1.52	14.93	106.6
5.2	1.53	14.87	106.1
5.3	1.55	14.86	106.1
5.4	1.57	14.85	106.1
5.5	1.58	14.60	104.4
5.6	1.59	14.60	104.3
5.7	1.60	14.59	104.3
5.8	1.63	14.53	104.0
5.9	1.66	14.40	103.2
6.0	1.67	14.40	103.2
6.1	1.67	14.24	102.0

Lake: LdS1
Date: 6-May-06

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.4	0.58	16.66	115.8
0.5	0.50	16.69	115.7
0.6	0.34	17.94	123.9
0.7	0.33	18.08	124.8
0.8	0.32	18.09	124.8
0.9	0.32	18.09	124.8
1.0	0.31	18.14	125.2
1.1	0.31	18.15	125.2
1.2	0.30	18.15	125.2
1.3	0.30	18.15	125.2
1.4	0.30	18.24	125.8
1.5	0.31	18.23	125.8
1.6	0.32	18.22	125.8
1.7	0.33	18.22	125.8
1.8	0.36	18.20	125.7
1.9	0.39	18.26	126.2
2.0	0.42	18.23	126.2
2.1	0.46	18.20	126.1
2.2	0.50	18.18	126.1
2.3	0.53	18.30	127.0
2.4	0.57	18.27	127.0
2.5	0.60	18.25	126.9
2.6	0.64	18.22	126.9
2.7	0.67	18.28	127.4
2.9	0.73	18.23	127.3
3.1	0.81	18.20	127.3
3.4	0.91	18.10	127.0
3.6	0.97	18.06	126.9
3.8	1.04	17.92	126.2
4.1	1.15	17.72	125.1
4.3	1.20	17.49	123.7
4.5	1.24	17.46	123.6
4.7	1.29	17.23	122.1
5.0	1.34	16.95	120.4
5.2	1.39	16.48	117.2

(continued)

Appendix 3.4-2
Dissolved Oxygen and Temperature Data for Lac du Sauvage and Reference Lake Sites, Ice-Covered Season 2006 (continued)

Lake: LdS3
Date: 11-Feb-06

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.4	0.27	16.28	
0.5	0.26	16.30	
0.6	0.25	16.30	
0.7	0.25	16.30	
0.8	0.26	16.25	
0.9	0.28	16.24	
1.0	0.31	16.27	
1.1	0.26	16.32	
1.2	0.26	16.34	
1.3	0.26	16.34	
1.4	0.26	16.33	
2.0	0.27	16.33	
2.1	0.51	16.21	
2.2	0.51	16.21	
2.3	0.53	16.20	
2.4	0.56	16.20	
2.5	0.59	16.18	
2.6	0.61	16.17	
2.7	0.65	16.15	
2.8	0.70	16.14	
2.9	0.77	16.10	
3.0	0.82	16.07	
3.1	0.94	14.46	
3.2	0.95	14.46	
3.3	0.96	14.40	
3.4	0.97	14.39	
3.5	0.98	14.34	
3.6	0.99	14.34	
3.7	1.00	14.33	
3.8	1.02	14.28	
3.9	1.04	14.22	
4.0	1.09	14.04	
4.1	1.11	13.50	
4.2	1.11	13.50	
4.3	1.12	13.49	
4.4	1.12	13.49	
4.5	1.13	13.48	
4.6	1.14	13.47	
4.7	1.16	13.46	
4.8	1.17	13.45	
4.9	1.20	13.45	
5.0	1.25	13.37	
5.1	1.27	13.24	
5.2	1.28	13.21	
5.3	1.28	13.21	
5.4	1.28	13.20	
5.5	1.29	13.20	
5.6	1.29	13.20	
5.7	1.30	13.19	
5.8	1.32	13.19	
5.9	1.35	13.18	
6.0	1.38	13.10	
6.1	1.39	12.96	
6.1	1.39	12.94	
6.2	1.39	12.94	
6.3	1.40	12.94	
6.4	1.40	12.93	
6.5	1.41	12.93	
6.6	1.42	12.91	
6.7	1.44	12.90	
6.8	1.46	12.89	
6.9	1.50	12.72	
7.0	1.51	12.52	
7.1	1.52	12.51	
7.8	1.53	12.49	

Lake: LdS3
Date: 11-Feb-06

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
7.9	1.53	12.49	
8.0	1.53	12.49	
8.1	1.63	12.43	
8.8	1.67	12.14	
8.9	1.68	12.14	
9.0	1.79	11.97	
9.7	1.80	11.97	
9.8	1.80	11.97	
9.9	1.90	11.89	
10.0	1.92	11.74	
10.7	1.92	11.74	
10.8	1.92	11.74	
10.9	1.98	11.62	
11.0	1.99	11.46	
11.0	1.99	11.46	
11.1	1.99	11.46	
11.2	1.99	11.46	
11.3	2.00	11.45	
11.4	2.01	11.44	
11.5	2.01	11.44	
11.6	2.01	11.44	
11.7	2.02	11.44	
11.8	2.03	11.43	
11.9	2.04	11.45	
12.0	2.05	11.46	
12.6	2.05	11.46	
12.7	2.05	11.46	
12.8	2.05	11.46	
12.9	2.08	11.45	
13.0	2.08	11.40	
13.1	2.08	11.40	
13.2	2.08	11.39	
13.8	2.08	11.39	
13.9	2.08	11.39	
14.0	2.11	11.25	
14.6	2.11	11.24	
14.9	2.11	11.24	
15.0	2.13	11.08	
15.7	2.13	11.08	
15.8	2.13	11.08	
15.9	2.14	10.98	
16.0	2.14	10.98	
16.1	2.14	10.98	
16.2	2.14	10.98	
16.3	2.14	10.98	
16.4	2.14	10.98	
16.5	2.14	10.98	
16.6	2.14	10.98	
16.7	2.14	10.98	
16.8	2.14	10.97	
16.9	2.15	10.90	
17.0	2.15	10.88	
17.1	2.16	10.67	

Lake: LdS3
Date: 21-Mar-06

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.5	0.88	14.89	104.4
0.6	0.83	14.99	104.9
0.7	0.82	15.07	105.5
0.8	0.82	15.07	105.5
1.4	0.81	15.07	105.5
1.5	0.81	15.08	105.5
1.6	0.80	15.08	105.5
1.7	0.80	15.08	105.5
1.8	0.80	15.08	105.5
1.9	0.79	15.09	105.5
2.0	0.80	15.21	106.4
2.1	0.80	15.21	106.4
2.2	0.81	15.21	106.4
2.3	0.83	15.19	106.4
2.4	0.89	15.16	106.3
2.5	0.97	15.26	107.2
2.6	1.07	15.19	107.1
2.7	1.12	15.32	108.1
2.8	1.18	15.29	108.1
2.9	1.22	15.26	108
3.0	1.26	15.24	108
3.1	1.32	15.25	108.2
3.2	1.36	15.23	108.2
3.3	1.41	15.20	108.1
3.4	1.44	15.17	108
3.5	1.47	15.16	108
3.6	1.50	15.14	108
3.7	1.52	15.13	107.9
3.8	1.55	15.05	107.5
3.9	1.57	15.04	107.4
4.0	1.59	15.03	107.4
4.1	1.61	14.91	106.6
4.2	1.63	14.90	106.6
4.3	1.65	14.89	106.6
4.4	1.66	14.88	106.6
4.5	1.68	14.73	105.5
4.6	1.69	14.72	105.5
4.7	1.70	14.71	105.5
4.8	1.71	14.71	105.5
4.9	1.73	14.70	105.5
5.0	1.75	14.51	104.2
5.1	1.77	14.51	104.2
5.2	1.78	14.50	104.2
5.3	1.78	14.50	104.2
5.4	1.79	14.39	103.4
5.5	1.81	14.38	103.4
5.6	1.81	14.38	103.4
5.7	1.82	14.37	103.4
5.8	1.84	14.14	101.8
5.9	1.85	14.13	101.8
6.0	1.86	14.13	101.7
6.1	1.86	14.12	101.7
6.2	1.87	13.93	100.4
6.3	1.88	13.93	100.4
6.4	1.89	13.92	100.3
6.5	1.90	13.92	100.3
6.6	1.90	13.91	100.3
6.7	1.91	13.74	99.1
6.8	1.93	13.73	99.1
6.9	1.94	13.73	99.1
7.6	1.95	13.56	97.9
7.7	1.96	13.56	97.9
7.8	1.97	13.56	97.9
7.9	1.98	13.55	97.9
8.0	2.00	13.38	96.7

(continued)

Appendix 3.4-2
Dissolved Oxygen and Temperature Data for Lac du Sauvage and Reference Lake Sites, Ice-Covered Season 2006 (continued)

Lake: LdS3
Date: 21-Mar-06

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
8.1	2.02	13.37	96.7
8.2	2.03	13.37	96.7
8.3	2.04	13.36	96.7
8.4	2.06	13.21	95.6
8.5	2.07	13.20	95.6
8.6	2.08	13.20	95.6
8.7	2.09	13.10	94.9
8.8	2.10	13.09	94.9
8.9	2.20	12.44	90.4
8.9	2.19	12.44	90.4
9.0	2.19	12.45	90.4
9.6	2.19	12.25	89
9.7	2.18	12.25	89
9.8	2.18	12.25	89
9.9	2.18	12.25	89
10.0	2.18	12.09	87.9
10.1	2.19	12.09	87.9
10.2	2.20	12.09	87.9
10.3	2.20	12.02	87.4
10.4	2.21	12.02	87.4
10.5	2.22	12.02	87.4
10.6	2.22	12.02	87.4
10.7	2.23	11.91	86.7
10.8	2.24	11.91	86.7
10.9	2.25	11.90	86.6
11.0	2.26	11.90	86.6
11.1	2.26	11.90	86.6
11.2	2.27	11.81	86
11.3	2.28	11.81	86
11.4	2.28	11.80	86
11.5	2.29	11.80	86
11.6	2.29	11.70	85.2
11.7	2.30	11.69	85.2
11.8	2.30	11.69	85.2
11.9	2.31	11.69	85.2
12.0	2.31	11.69	85.2
12.1	2.32	11.59	84.5
12.2	2.32	11.59	84.5
12.3	2.33	11.58	84.5
12.4	2.33	11.51	83.9
12.5	2.33	11.51	83.9
12.6	2.33	11.50	83.9
12.7	2.33	11.50	83.9
12.8	2.34	11.50	83.9
12.9	2.34	11.50	83.9
13.0	2.34	11.37	83
13.1	2.34	11.37	83
13.2	2.34	11.37	83
13.3	2.35	11.37	83
13.4	2.35	11.29	82.4
13.5	2.35	11.29	82.4
13.6	2.35	11.29	82.4
13.7	2.35	11.29	82.4
13.8	2.35	11.29	82.4
13.9	2.35	11.18	81.6
14.0	2.35	11.18	81.6
14.1	2.35	11.18	81.6
14.2	2.35	11.18	81.6
14.3	2.35	11.18	81.6
14.4	2.35	11.10	81
14.5	2.36	11.10	81
14.6	2.36	11.10	81
14.7	2.36	11.10	81
14.8	2.36	11.10	81
14.9	2.36	11.00	80.3

Lake: LdS3
Date: 21-Mar-06

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
15.0	2.36	11.00	80.3
15.1	2.36	11.00	80.3
15.2	2.36	11.00	80.3
15.3	2.36	10.91	79.6
15.4	2.36	10.91	79.6
15.5	2.36	10.91	79.6
15.6	2.36	10.91	79.6
15.7	2.36	10.84	79.2
15.8	2.36	10.84	79.2
15.9	2.36	10.84	79.2
16.0	2.36	10.84	79.2
16.1	2.36	10.76	78.6
16.2	2.36	10.76	78.6
16.3	2.36	10.76	78.6
16.4	2.36	10.76	78.6
16.5	2.36	10.76	78.6
16.6	2.36	10.68	78
16.7	2.36	10.68	78

Lake: LdS3
Date: 6-May-06

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.6	0.27	17.70	122.0
0.7	0.27	17.29	119.1
0.8	0.26	16.96	116.8
0.9	0.26	16.96	116.9
1.0	0.26	16.96	116.9
1.1	0.25	16.97	116.9
1.2	0.25	16.58	114.2
1.3	0.25	16.58	114.2
1.4	0.25	16.58	114.2
1.5	0.25	16.57	114.2
1.6	0.26	16.57	114.1
1.7	0.27	16.31	112.4
2.4	0.29	16.29	112.3
2.5	0.34	16.26	112.3
2.6	0.41	16.10	111.4
2.7	0.46	16.07	111.4
2.8	0.54	16.02	111.3
2.9	0.59	15.99	111.2
3.0	0.64	15.94	111.0
3.1	0.70	15.90	110.9
3.2	0.75	15.87	110.9
3.3	0.80	15.84	110.8
3.4	0.83	15.89	111.3
3.5	0.88	15.86	111.2
3.6	0.90	15.85	111.2
3.7	0.95	15.82	111.1
3.8	0.99	15.80	111.1
3.9	1.01	15.86	111.6
4.5	1.05	15.84	111.6
4.6	1.09	15.81	111.5
4.7	1.13	15.79	111.5
4.8	1.20	15.79	111.7
4.9	1.26	15.75	111.6
5.0	1.30	15.73	111.6
5.1	1.34	15.68	111.3
5.2	1.37	15.66	111.3
5.3	1.39	15.65	111.3
5.4	1.41	15.64	111.3
5.5	1.43	15.63	111.2
5.6	1.44	15.51	110.4
5.7	1.46	15.50	110.4
5.8	1.48	15.49	110.4
5.9	1.49	15.48	110.4
6.0	1.50	15.47	110.4
6.1	1.51	15.31	109.2
6.2	1.53	15.30	109.2
6.3	1.54	15.30	109.2
6.4	1.56	15.29	109.2
6.5	1.58	15.27	109.2
6.6	1.59	15.09	107.9
6.7	1.61	15.08	107.9
6.8	1.62	15.07	107.9
6.9	1.64	15.06	107.8
7.0	1.65	15.05	107.8
7.1	1.66	14.86	106.5
7.2	1.68	14.85	106.4
7.3	1.69	14.84	106.4
7.4	1.71	14.83	106.4
7.5	1.72	14.83	106.4
7.6	1.73	14.61	104.8
7.7	1.74	14.60	104.8
7.8	1.75	14.59	104.8
7.9	1.76	14.59	104.8
8.0	1.77	14.36	103.2
8.1	1.79	14.35	103.1

(continued)

Appendix 3.4-2
Dissolved Oxygen and Temperature Data for Lac du Sauvage and Reference Lake Sites, Ice-Covered Season 2006 (continued)

Lake: LdS3
Date: 6-May-06

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
8.2	1.79	14.34	103.1
8.3	1.81	14.34	103.1
8.4	1.81	14.33	103.1
8.5	1.83	14.10	101.5
8.6	1.84	14.09	101.4
8.7	1.85	14.09	101.4
8.8	1.87	14.08	101.4
8.9	1.87	14.07	101.4
9.0	1.88	13.83	99.7
9.1	1.89	13.83	99.7
9.2	1.90	13.82	99.7
9.3	1.91	13.82	99.7
9.9	1.92	13.81	99.6
10.0	1.93	13.81	99.6
10.1	1.94	13.57	97.9
10.2	1.96	13.56	97.9
10.3	1.98	13.32	96.3
10.4	1.99	13.32	96.2
10.5	2.00	13.31	96.2
10.6	2.01	13.30	96.2
10.7	2.02	13.08	94.6
10.8	2.03	13.07	94.6
10.9	2.04	13.07	94.6
11.0	2.04	13.06	94.6
11.1	2.05	13.06	94.6
11.2	2.06	12.84	93.0
11.3	2.07	12.84	93.0
11.4	2.07	12.84	93.0
11.5	2.08	12.83	93.0
11.6	2.09	12.63	91.6
11.7	2.09	12.63	91.5
11.8	2.10	12.63	91.5
11.9	2.10	12.62	91.5
12.0	2.11	12.62	91.5
12.1	2.11	12.42	90.1
12.8	2.12	12.42	90.1
12.9	2.12	12.42	90.1
13.0	2.13	12.23	88.7
13.1	2.13	12.22	88.7
13.1	2.13	12.22	88.7
13.2	2.13	12.22	88.7
13.3	2.14	12.22	88.7
13.4	2.14	12.04	87.4
13.5	2.14	12.04	87.4
13.6	2.14	12.04	87.4
13.7	2.14	12.04	87.4
13.8	2.15	12.04	87.4
13.9	2.15	11.87	86.2
14.0	2.15	11.87	86.2
14.1	2.15	11.87	86.2
14.7	2.16	11.87	86.2
14.8	2.16	11.87	86.2
14.9	2.17	11.72	85.1
15.0	2.17	11.72	85.1
15.1	2.18	11.71	85.1
15.2	2.18	11.57	84.1
15.3	2.18	11.57	84.1
15.4	2.19	11.57	84.1
16.0	2.19	11.57	84.1
16.1	2.19	11.57	84.1
16.2	2.19	11.43	83.1
16.4	2.19	11.43	83.1
16.5	2.19	11.43	83.1
16.6	2.20	11.29	82.1
16.7	2.20	11.16	81.2

Lake: LdS5
Date: 11-Feb-06

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.5	0.34	18.18	
0.6	0.34	18.22	
0.7	0.35	18.30	
0.8	0.36	18.32	
0.9	0.35	18.33	
1.0	0.35	18.33	
1.1	0.35	18.33	
1.2	0.35	18.33	
1.3	0.36	18.31	
1.4	0.37	18.31	
1.5	0.39	18.29	
1.6	0.40	18.29	
1.7	0.42	18.27	
1.8	0.44	18.28	
1.9	0.46	18.27	
2.0	0.49	18.24	
2.1	0.53	18.21	
2.2	0.58	18.18	
2.3	0.62	18.22	
2.4	0.67	18.18	
2.5	0.69	18.17	
2.6	0.74	18.14	
2.7	0.78	18.13	
2.8	0.82	18.10	
2.9	0.83	18.09	
3.0	0.87	18.06	
3.1	0.91	17.95	
3.2	0.94	17.93	
3.3	0.96	17.92	
3.4	0.99	17.90	
3.5	1.01	17.89	
3.6	1.02	17.72	
3.7	1.05	17.70	
3.8	1.07	17.69	
3.9	1.08	17.68	
4.0	1.11	17.66	
4.1	1.13	17.41	
4.2	1.15	17.40	
4.3	1.18	17.38	
4.4	1.20	17.37	
4.5	1.22	17.08	
4.6	1.25	17.07	
4.7	1.26	17.06	
4.8	1.28	16.78	
4.9	1.29	16.77	
5.0	1.31	16.76	
5.1	1.33	16.46	
5.2	1.35	16.45	
5.3	1.36	16.44	
5.4	1.38	16.15	
5.5	1.39	16.14	
5.6	1.40	16.14	
5.7	1.42	16.13	
5.8	1.43	15.85	
5.9	1.44	15.84	
6.0	1.46	15.83	
6.1	1.46	15.83	
6.2	1.47	15.57	
6.3	1.49	15.56	
6.4	1.50	15.55	
6.5	1.53	15.29	
6.7	1.39	12.83	
6.9	1.40	12.82	

Lake: LdS5
Date: 21-Mar-06

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.4	0.95	16.34	114.8
0.5	0.93	16.35	114.8
0.6	0.91	16.50	115.7
0.7	0.90	16.50	115.7
0.8	0.90	16.62	116.6
0.9	0.90	16.62	116.6
1.0	0.89	16.62	116.6
1.1	0.89	16.62	116.6
1.2	0.90	16.63	116.7
1.3	0.91	16.63	116.7
1.4	0.91	16.62	116.7
1.5	0.92	16.62	116.6
1.6	0.93	16.62	116.7
1.7	0.93	16.62	116.7
1.8	0.94	16.61	116.7
1.9	0.96	16.62	116.8
2.0	0.98	16.61	116.7
2.1	1.02	16.58	116.7
2.2	1.04	16.57	116.7
2.3	1.08	16.68	117.6
2.4	1.10	16.66	117.5
2.5	1.13	16.65	117.5
2.6	1.15	16.58	117.1
2.7	1.20	16.55	117
2.8	1.23	16.53	117
2.9	1.25	16.51	117
3.0	1.28	16.57	117.4
3.1	1.31	16.55	117.4
3.2	1.34	16.53	117.4
3.3	1.37	16.51	117.3
3.4	1.40	16.45	117
3.5	1.43	16.43	117
3.6	1.46	16.41	116.9
3.7	1.47	16.41	116.9
3.8	1.51	16.20	115.5
3.9	1.54	16.18	115.5
4.0	1.56	16.16	115.5
4.1	1.59	16.15	115.4
4.2	1.63	16.02	114.7
4.3	1.66	16.00	114.6
4.4	1.69	15.84	113.6
4.5	1.71	15.83	113.6
4.6	1.73	15.82	113.5
4.7	1.75	15.81	113.5
4.8	1.76	15.64	112.3
4.9	1.77	15.63	112.3
5.0	1.79	15.62	112.3
5.1	1.80	15.61	112.3
5.2	1.82	15.31	110.1
5.3	1.84	15.30	110.1
5.4	1.85	15.29	110.1
5.5	1.86	15.28	110.1
5.6	1.87	15.28	110.1
5.7	1.87	15.09	108.8
5.8	1.88	15.09	108.7
5.9	1.89	15.09	108.7
6.0	1.89	15.08	108.7
6.1	1.90	15.08	108.7
6.1	1.90	14.81	106.8
6.2	1.91	14.81	106.8
6.2	1.91	14.80	106.8
6.3	1.91	14.80	106.8
6.4	1.92	14.80	106.8
6.5	1.93	14.80	106.8
6.6	1.94	14.56	105.1
6.7	1.96	14.55	105
6.8	1.99	14.53	105

(continued)

Appendix 3.4-2
Dissolved Oxygen and Temperature Data for Lac du Sauvage and Reference Lake Sites, Ice-Covered Season 2006 (continued)

Lake: LdS5
Date: 6-May-06

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.5	0.78	14.82	103.6
0.6	0.78	14.87	103.9
0.7	0.79	14.93	104.4
0.8	0.78	14.93	104.4
0.9	0.77	14.98	104.7
1.0	0.75	14.99	104.7
1.1	0.74	15.00	104.7
1.2	0.73	14.98	104.6
1.3	0.72	14.99	104.6
1.4	0.72	14.99	104.6
1.5	0.72	14.99	104.6
1.6	0.72	15.02	104.9
1.7	0.74	15.02	104.8
1.8	0.76	15.01	104.8
1.9	0.79	15.08	105.4
2.0	0.82	15.06	105.4
2.1	0.84	15.04	105.4
2.2	0.87	15.03	105.3
2.3	0.91	15.16	106.4
2.4	0.93	15.15	106.3
2.5	0.97	15.12	106.3
2.6	1.00	15.37	108.1
2.7	1.03	15.35	108.1
2.8	1.07	15.33	108.0
2.9	1.11	15.59	110.0
3.0	1.15	15.56	109.9
3.1	1.25	16.01	113.4

Lake: LdS9
Date: 11-Feb-06

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.4	0.41	17.31	
0.5	0.34	17.76	
0.6	0.34	17.79	
0.7	0.40	17.90	
0.8	0.40	17.90	
0.9	0.39	17.94	
1.0	0.37	17.96	
1.1	0.29	18.29	
1.2	0.29	18.29	
1.3	0.29	18.28	
1.4	0.31	18.28	
1.5	0.33	18.27	
1.6	0.34	18.26	
1.7	0.36	18.24	
1.8	0.40	18.30	
1.9	0.47	18.25	
2.0	0.56	17.62	
2.1	0.56	17.18	
2.2	0.57	17.17	
2.3	0.57	17.17	
3.0	0.60	17.15	
3.1	0.94	16.06	
3.2	0.95	15.84	
3.3	0.96	15.67	

Lake: LdS9
Date: 21-Mar-06

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.4	0.86	15.98	111.9
0.5	0.84	15.93	111.6
0.6	0.83	15.94	111.6
0.7	0.82	15.94	111.6
0.8	0.81	15.95	111.6
0.9	0.80	16.04	112.2
1.0	0.79	16.05	112.2
1.1	0.79	16.05	112.2
1.2	0.78	16.06	112.2
1.3	0.78	16.10	112.6
1.4	0.79	16.10	112.6
1.5	0.80	16.09	112.6
1.6	0.82	16.08	112.5
1.7	0.83	16.07	112.5
1.8	0.86	16.06	112.5
1.9	0.88	16.08	112.7
2.0	0.91	16.06	112.7
2.1	0.94	16.04	112.6
2.2	0.97	16.14	113.4
2.3	1.01	16.12	113.4
2.4	1.05	16.09	113.3
2.5	1.10	16.04	113.1
2.6	1.13	16.02	113.1
2.7	1.16	16.01	113.1
2.8	1.20	15.99	113.1

(continued)

Appendix 3.4-2
Dissolved Oxygen and Temperature Data for Lac du Sauvage and Reference Lake Sites, Ice-Covered Season 2006 (continued)

Lake: LdS9
Date: 5-May-06

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.7	0.53	17.51	121.6
0.6	0.53	17.52	121.6
0.7	0.52	17.60	122.2
0.8	0.52	17.71	122.9
0.9	0.51	17.72	122.9
1.0	0.51	17.72	122.9
1.1	0.50	17.75	123.1
1.2	0.50	17.75	123.1
1.3	0.50	17.75	123.1
1.4	0.50	17.79	123.4
1.5	0.51	17.79	123.4
1.6	0.52	17.79	123.4
1.7	0.53	17.77	123.4
1.8	0.56	17.76	123.4
1.9	0.58	17.77	123.5
2.0	0.62	17.75	123.5
2.1	0.65	17.72	123.4
2.2	0.69	17.70	123.4
2.3	0.71	17.74	123.7
2.4	0.75	17.71	123.7
2.5	0.78	17.68	123.6
2.6	0.82	17.66	123.6
2.7	0.87	17.66	123.8
2.8	0.92	17.63	123.7
2.9	0.99	17.59	123.7
3.0	1.13	17.39	122.8

Lake: LdS10
Date: 11-Feb-06

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.6	0.47	17.78	
0.7	0.39	17.76	
0.8	0.37	17.76	
0.9	0.37	17.77	
1.0	0.36	17.77	
1.1	0.36	17.85	
1.2	0.32	18.16	
1.3	0.32	18.15	
1.4	0.33	18.17	
1.5	0.36	18.15	
1.6	0.40	18.06	
1.7	0.42	17.98	
1.8	0.45	17.95	
1.9	0.50	17.92	
2.0	0.59	17.67	
2.1	0.76	15.00	
2.2	0.76	15.00	
2.3	0.76	15.00	
2.4	0.77	15.00	
2.5	0.78	14.89	
2.6	0.79	14.89	
2.7	0.81	14.88	
2.8	0.84	14.86	
2.9	0.89	14.82	
3.0	0.95	14.48	
3.1	0.95	13.93	
3.2	0.96	13.93	
3.3	0.96	13.93	
3.9	0.97	13.93	
4.0	0.97	13.92	
4.1	1.13	13.50	
4.2	1.13	13.48	
4.3	1.14	13.48	
4.4	1.14	13.48	
4.5	1.16	13.47	
4.6	1.18	13.45	
4.7	1.19	13.45	
4.8	1.20	13.44	
4.9	1.22	13.43	
5.0	1.26	13.26	
5.1	1.26	13.22	
5.8	1.26	13.22	
5.9	1.26	13.22	
6.0	1.27	13.21	
6.1	1.36	13.00	
6.2	1.36	13.00	
6.3	1.37	12.99	
6.4	1.38	12.99	
6.5	1.38	12.99	
6.6	1.39	12.98	
6.7	1.40	12.98	
6.8	1.41	12.97	
6.9	1.43	12.96	
7.0	1.44	12.73	
7.1	1.44	12.73	
7.2	1.44	12.72	
7.3	1.45	12.72	
7.4	1.45	12.72	
7.9	1.46	12.72	
8.0	1.53	12.40	
8.1	1.53	12.40	
8.2	1.53	12.40	
8.8	1.54	12.40	
8.9	1.54	12.39	
9.0	1.60	12.22	
9.1	1.60	12.22	

Lake: LdS10
Date: 11-Feb-06

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
9.2	1.61	12.22	
9.3	1.61	12.21	
9.9	1.61	12.21	
10.0	1.67	12.05	
10.6	1.67	12.03	
10.8	1.67	12.03	
10.9	1.67	12.03	
11.0	1.76	11.49	
11.6	1.76	11.49	
11.7	1.76	11.48	
11.8	1.77	11.47	
11.9	1.84	11.34	
12.0	1.85	10.92	
12.7	1.85	10.92	
12.8	1.85	10.91	
12.9	1.93	10.44	
13.0	1.94	10.32	
13.1	1.95	10.27	

(continued)

Appendix 3.4-2
Dissolved Oxygen and Temperature Data for Lac du Sauvage and Reference Lake Sites, Ice-Covered Season 2006 (continued)

Lake: LdS10
Date: 21-Mar-06

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.5	0.91	15.50	108.8
0.6	0.88	15.52	108.8
0.7	0.87	15.58	109.2
0.8	0.87	15.59	109.2
0.9	0.86	15.65	109.6
1.0	0.85	15.65	109.6
1.1	0.84	15.66	109.6
1.2	0.83	15.66	109.6
1.3	0.83	15.62	109.4
1.4	0.84	15.62	109.4
1.5	0.86	15.68	109.8
1.6	0.88	15.66	109.8
1.7	0.92	15.64	109.8
1.8	0.95	15.62	109.7
1.9	0.99	15.62	109.8
2.0	1.15	15.58	110.1
2.1	1.22	15.25	107.9
2.2	1.21	15.26	107.9
2.3	1.23	15.16	107.3
2.4	1.24	15.15	107.3
2.5	1.26	15.14	107.2
2.6	1.28	14.99	106.3
2.7	1.31	14.98	106.3
2.8	1.34	14.96	106.2
2.9	1.36	14.85	105.5
3.0	1.39	14.83	105.5
3.1	1.42	14.71	104.7
3.2	1.44	14.70	104.6
3.3	1.47	14.68	104.6
3.4	1.49	14.53	103.6
3.5	1.53	14.51	103.6
3.6	1.55	14.43	103
3.7	1.57	14.42	103
3.8	1.58	14.41	103
3.9	1.59	14.23	101.7
4.0	1.60	14.22	101.7
4.1	1.61	14.22	101.7
4.2	1.62	14.06	100.6
4.3	1.63	14.05	100.6
4.4	1.64	14.05	100.6
4.5	1.64	13.91	99.6
4.6	1.66	13.90	99.6
4.7	1.67	13.89	99.6
4.8	1.69	13.78	98.8
4.9	1.70	13.77	98.7
5.0	1.71	13.64	97.8
5.1	1.72	13.63	97.8
5.2	1.74	13.62	97.8
5.3	1.76	13.55	97.3
5.4	1.76	13.55	97.3
5.5	1.77	13.42	96.4
5.6	1.78	13.41	96.4
5.7	1.79	13.41	96.4
5.8	1.80	13.28	95.5
5.9	1.81	13.27	95.4
6.0	1.81	13.27	95.4
6.1	1.82	13.16	94.7
6.2	1.83	13.16	94.7
6.3	1.84	13.06	94
6.4	1.85	13.05	94
6.5	1.86	12.95	93.3
6.6	1.87	12.95	93.3
6.7	1.87	12.95	93.3
6.8	1.88	12.83	92.5
6.9	1.89	12.83	92.5
7.0	1.90	12.82	92.5

Lake: LdS10
Date: 21-Mar-06

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
7.1	1.91	12.74	91.9
7.2	1.92	12.73	91.8
7.3	1.93	12.64	91.2
7.4	1.94	12.63	91.2
7.5	1.94	12.63	91.2
7.6	1.95	12.52	90.4
7.7	1.96	12.52	90.4
7.8	1.97	12.51	90.4
7.9	1.97	12.42	89.7
8.0	1.98	12.41	89.7
8.1	1.98	12.41	89.7
8.2	1.99	12.31	89
8.3	2.00	12.30	89
8.4	2.00	12.30	89
8.5	2.01	12.20	88.3
8.6	2.01	12.20	88.2
8.7	2.02	12.20	88.2
8.8	2.03	12.10	87.6
8.9	2.03	12.10	87.6
9.0	2.03	12.10	87.6
9.1	2.04	12.10	87.6
9.2	2.04	12.10	87.6
9.8	2.04	12.01	86.9
9.9	2.06	12.00	86.9
10.0	2.07	11.91	86.3
10.1	2.08	11.90	86.3
10.2	2.08	11.90	86.2
10.3	2.09	11.81	85.6
10.4	2.09	11.81	85.6
10.5	2.09	11.81	85.6
10.6	2.10	11.81	85.6
10.7	2.10	11.70	84.8
10.8	2.11	11.70	84.8
10.9	2.11	11.69	84.8
11.0	2.12	11.69	84.8
11.1	2.13	11.69	84.8
11.2	2.14	11.60	84.1
11.3	2.15	11.59	84.1
11.4	2.15	11.59	84.1
11.5	2.16	11.58	84.1
11.6	2.17	11.58	84.1
11.7	2.18	11.48	83.4
11.8	2.19	11.48	83.4
11.9	2.20	11.47	83.4
12.0	2.21	11.47	83.4
12.1	2.22	11.47	83.4
12.2	2.22	11.46	83.4
12.3	2.23	11.36	82.6
12.4	2.24	11.35	82.6
12.5	2.24	11.35	82.6
12.6	2.26	11.35	82.6

Lake: LdS10
Date: 5-May-06

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.7	0.72	17.51	122.2
0.8	0.71	17.52	122.2
0.9	0.70	17.53	122.2
1.0	0.69	17.54	122.3
1.1	0.68	17.54	122.3
1.2	0.67	17.58	122.6
1.3	0.66	17.59	122.6
1.4	0.65	17.60	122.6
1.5	0.65	17.63	122.8
1.6	0.65	17.62	122.8
1.7	0.67	17.61	122.7
1.8	0.68	17.60	122.7
1.9	0.71	17.59	122.7
2.0	0.73	17.57	122.7
2.1	0.76	17.55	122.7
2.2	0.78	17.54	122.6
2.3	0.82	17.57	123.0
2.4	0.87	17.54	122.9
2.5	0.89	17.52	122.9
3.0	0.91	17.51	122.8
3.1	0.94	17.49	122.8
3.3	0.96	17.48	122.8
3.4	1.06	17.43	122.8
3.5	1.08	17.41	122.7
3.6	1.13	17.38	122.7
3.7	1.18	17.35	122.6
3.8	1.22	17.25	122.1
3.9	1.26	17.22	122.0
4.0	1.30	17.20	122.0
4.1	1.32	17.18	122.0
4.7	1.36	17.00	120.7
4.8	1.38	16.98	120.7
4.9	1.42	16.95	120.7
5.0	1.46	16.93	120.6
5.1	1.49	16.68	118.9
5.2	1.51	16.66	118.9
5.3	1.53	16.65	118.8
5.4	1.55	16.63	118.8
5.5	1.56	16.36	116.9
5.6	1.58	16.34	116.8
5.7	1.61	16.33	116.8
5.8	1.62	16.32	116.8
5.9	1.64	16.31	116.8
6.0	1.66	16.03	114.8
6.1	1.67	16.02	114.8
6.2	1.68	16.01	114.7
6.8	1.69	16.00	114.7
6.9	1.72	15.71	112.7
7.0	1.74	15.69	112.7
7.1	1.75	15.68	112.6
7.2	1.78	15.40	110.7
7.3	1.79	15.39	110.6
7.4	1.81	15.38	110.6
7.5	1.82	15.37	110.6
7.6	1.84	15.09	108.6
7.7	1.86	15.08	108.6
7.8	1.87	15.08	108.6
7.9	1.88	15.07	108.6
8.0	1.90	15.06	108.6
8.1	1.90	14.78	106.6
8.2	1.91	14.78	106.6
8.3	1.92	14.77	106.6
8.4	1.94	14.77	106.6
8.5	1.95	14.48	104.5
8.6	1.95	14.48	104.5
8.7	1.96	14.47	104.5

(continued)

Appendix 3.4-2
Dissolved Oxygen and Temperature Data for Lac du Sauvage and Reference Lake Sites, Ice-Covered Season 2006 (continued)

Lake: LdS10
Date: 5-May-06

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
8.8	1.97	14.47	104.5
8.9	1.98	14.46	104.5
9.0	1.99	14.18	102.5
9.1	1.99	14.18	102.5
9.2	2.00	14.18	102.5
9.3	2.00	14.17	102.5
9.4	2.01	13.90	100.5
9.5	2.02	13.89	100.5
9.6	2.02	13.89	100.5
9.7	2.03	13.89	100.5
9.8	2.04	13.89	100.5
9.9	2.04	13.62	98.6
10.0	2.05	13.62	98.6
10.1	2.06	13.61	98.6
10.2	2.06	13.61	98.6
10.3	2.07	13.35	96.7
10.4	2.08	13.34	96.7
10.5	2.08	13.34	96.7
10.6	2.09	13.34	96.7
10.7	2.10	13.08	94.8
10.8	2.10	13.08	94.8
10.9	2.11	13.08	94.8
11.0	2.11	13.08	94.8
11.1	2.12	12.82	93.0
11.2	2.12	12.82	93.0
11.3	2.13	12.82	93.0
11.4	2.14	12.81	93.0
11.5	2.14	12.57	91.3
11.6	2.15	12.57	91.3
11.7	2.16	12.57	91.2
11.8	2.16	12.57	91.2
11.9	2.17	12.56	91.2
12.0	2.17	12.33	89.5
12.1	2.18	12.32	89.5
12.2	2.18	12.32	89.5
12.3	2.19	12.32	89.5
12.4	2.20	12.31	89.5
12.5	2.21	12.07	87.8
12.6	2.22	12.06	87.7
12.7	2.23	12.06	87.7
12.8	2.24	11.81	85.9
12.9	2.26	11.80	85.9
13.0	2.30	11.25	82.0

Lake: LdS11
Date: 11-Feb-06

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
1.0	3.87	17.51	133.1
0.9	3.73	17.6	133.3
0.8	2.47	18.46	135.2
0.7	1.97	18.82	135.9
0.6	1.56	18.43	131.6
0.5	1.37	18.22	129.5

Lake: LdS11
Date: 20-Mar-06

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.3	0.94	16.06	112.8
0.4	0.92	16.08	112.9
0.5	0.91	16.11	113
0.6	0.90	16.11	113
0.7	0.89	16.12	113.1
0.8	0.89	16.13	113.1
0.9	0.88	16.13	113.1
1.0	0.87	16.20	113.6
1.1	0.87	16.20	113.6
1.2	0.87	16.20	113.6
1.3	0.88	16.20	113.6
1.4	0.90	16.32	114.4
1.5	0.91	16.31	114.4
1.6	0.93	16.30	114.4
1.7	0.95	16.28	114.4
1.8	1.00	16.25	114.3
1.9	1.03	16.23	114.3
2.0	1.06	16.21	114.2
2.1	1.12	16.37	115.5
2.1	1.13	16.36	115.5
2.2	1.15	16.35	115.5
2.3	1.21	16.31	115.4
2.4	1.24	16.27	115.2
2.5	1.28	16.24	115.1
2.6	1.31	16.22	115.1
2.7	1.35	16.13	114.5
2.8	1.37	16.11	114.5
2.9	1.39	16.10	114.5
3.0	1.43	16.02	114
3.1	1.45	16.01	114
3.2	1.48	15.99	113.9
3.3	1.50	15.88	113.2
3.4	1.52	15.87	113.2
3.5	1.54	15.85	113.2
3.6	1.56	15.66	111.9
3.7	1.61	15.63	111.8
3.8	1.63	15.52	111.1
3.9	1.64	15.52	111.1
4.0	1.65	15.30	109.6
4.1	1.67	15.29	109.6
4.2	1.69	15.28	109.6
4.3	1.71	15.15	108.6
4.4	1.73	15.13	108.6
4.5	1.74	15.13	108.6
4.6	1.76	14.92	107.2
4.7	1.77	14.91	107.1
4.8	1.79	14.90	107.1
4.9	1.81	14.72	105.9
5.0	1.82	14.71	105.9
5.1	1.84	14.70	105.8
5.2	1.85	14.52	104.5
5.3	1.87	14.51	104.5
5.4	1.88	14.36	103.5
5.5	1.89	14.35	103.5
5.6	1.90	14.35	103.5
5.7	1.91	14.18	102.3
5.8	1.92	14.17	102.3
5.9	1.93	14.17	102.3
6.0	1.94	14.01	101.2
6.1	1.95	14.01	101.2
6.2	1.96	14.01	101.1
6.3	1.97	13.88	100.3
6.4	1.97	13.88	100.3
6.5	1.98	13.71	99.1
6.6	1.98	13.71	99.1
6.7	1.99	13.70	99.0

(continued)

Appendix 3.4-2
Dissolved Oxygen and Temperature Data for Lac du Sauvage and Reference Lake Sites, Ice-Covered Season 2006 (continued)

Lake: LdS11
Date: 20-Mar-06

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
6.8	2.00	13.56	98.0
6.9	2.00	13.55	98.0
7.0	2.01	13.55	98.0
7.1	2.02	13.38	96.8

Lake: LdS11
Date: 5-May-06

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.5	0.88	18.16	127.3
0.6	0.88	18.23	127.8
0.7	0.87	18.28	128.1
0.8	0.85	18.29	128.1
0.9	0.84	18.30	128.1
1.0	0.83	18.27	127.9
1.1	0.83	18.28	127.9
1.2	0.82	18.29	128.0
1.3	0.82	18.30	128.0
1.4	0.81	18.30	128.0
1.5	0.81	18.30	128.0
1.6	0.81	18.30	128.0
1.7	0.82	18.32	128.2
1.8	0.84	18.31	128.2
1.9	0.86	18.32	128.4
2.0	0.90	18.30	128.3
2.1	0.92	18.28	128.3
2.2	0.95	18.30	128.6
2.3	0.98	18.28	128.5
2.4	1.01	18.26	128.5
2.5	1.05	18.24	128.5
2.6	1.09	18.21	128.4
2.7	1.14	18.13	128.0
2.8	1.18	18.10	128.0
2.9	1.23	17.98	127.3
3.0	1.26	17.96	127.2
3.1	1.29	17.94	127.2
3.2	1.33	17.76	126.1
3.3	1.36	17.74	126.1
3.4	1.38	17.57	124.9
3.5	1.40	17.55	124.8
3.6	1.43	17.33	123.4
3.7	1.47	17.31	123.4
3.8	1.49	17.08	121.8
3.9	1.52	17.06	121.7
4.0	1.53	17.05	121.7
4.1	1.56	16.83	120.2
4.2	1.58	16.82	120.2
4.3	1.59	16.81	120.2
4.4	1.61	16.57	118.5
4.5	1.62	16.57	118.5
4.6	1.64	16.55	118.5
4.7	1.66	16.32	116.9
4.8	1.68	16.31	116.9
4.9	1.69	16.30	116.9
5.0	1.70	16.08	115.3
5.1	1.72	16.08	115.3
5.2	1.73	16.07	115.3
5.3	1.74	16.06	115.3
5.4	1.75	15.83	113.6
5.5	1.77	15.82	113.6
5.6	1.78	15.81	113.6
5.7	1.79	15.57	111.9
5.8	1.81	15.56	111.9
5.9	1.82	15.55	111.9
6.0	1.83	15.55	111.9
6.1	1.85	15.33	110.4
6.2	1.87	15.32	110.4
6.3	1.88	15.31	110.3
6.4	1.89	15.10	108.9
6.5	1.90	15.10	108.8
6.6	1.90	15.09	108.8
6.7	1.91	14.88	107.3
6.8	1.93	14.68	105.9
6.9	1.97	14.45	104.4

Lake: LdS12
Date: 8-Feb-06

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.5	0.63	27.09	188.6
0.6	0.6	19.37	134.7
0.7	0.47	19.47	134.9
0.8	0.43	19.38	134.2
0.9	0.37	19.43	134.3
1.0	0.31	19.41	133.9
1.1	0.29	19.43	134
1.2	0.27	19.41	133.8
1.3	0.27	19.42	133.8
1.4	0.3	19.4	133.8
1.5	0.31	19.39	133.8
1.6	0.35	19.36	133.7
1.7	0.4	19.35	133.8
1.8	0.43	19.33	133.8
1.9	0.46	19.31	133.8
2.0	0.52	19.28	133.8
2.1	0.56	19.25	133.8
2.2	0.6	19.22	133.7
2.3	0.64	19.19	133.6
2.4	0.71	19.16	133.6
2.5	0.74	19.13	133.6
2.6	0.77	19.11	133.6
2.7	0.82	19.01	133.1
2.8	0.85	19	133
2.9	0.87	18.98	133
3.0	0.9	18.83	132
3.1	0.92	18.81	132
3.2	0.96	18.78	132
3.3	0.99	18.56	130.5
3.4	1.01	18.55	130.5
3.5	1.02	18.54	130.5
3.6	1.05	18.31	129
3.7	1.08	18.06	127.3
3.8	1.12	17.78	125.5

(continued)

Appendix 3.4-2
Dissolved Oxygen and Temperature Data for Lac du Sauvage and Reference Lake Sites, Ice-Covered Season 2006 (continued)

Lake: LdS12
Date: 20-Mar-06

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.3	0.97	16.08	113
0.4	0.97	16.08	113
0.5	0.96	16.11	113.2
0.6	0.95	16.11	113.2
0.7	0.94	16.14	113.3
0.8	0.92	16.14	113.3
0.9	0.91	16.15	113.3
1.0	0.91	16.18	113.5
1.1	0.90	16.18	113.5
1.2	0.89	16.19	113.5
1.3	0.88	16.25	113.9
1.4	0.89	16.24	113.9
1.5	0.91	16.28	114.2
1.6	0.96	16.25	114.2
1.7	1.00	16.29	114.6
1.8	1.05	16.26	114.5
1.9	1.10	16.32	115.1
2.0	1.15	16.29	115
2.1	1.21	16.34	115.6
2.2	1.26	16.30	115.5
2.3	1.34	16.27	115.5
2.4	1.39	16.24	115.5
2.5	1.42	16.22	115.4
2.6	1.45	16.20	115.4
2.7	1.48	16.14	115
2.8	1.51	16.03	114.3
2.9	1.53	16.02	114.3
3.0	1.54	16.01	114.3
3.1	1.57	15.89	113.5
3.2	1.59	15.88	113.5
3.3	1.61	15.73	112.5
3.4	1.63	15.72	112.5

Lake: LdS12
Date: 5-May-06

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.5	0.87	18.24	127.9
0.6	0.90	18.32	128.5
0.7	0.88	18.42	129.1
0.8	0.86	18.43	129.1
0.9	0.85	18.41	128.9
1.0	0.84	18.41	128.9
1.1	0.83	18.45	129.2
1.2	0.82	18.46	129.2
1.3	0.82	18.46	129.2
1.4	0.82	18.48	129.3
1.5	0.82	18.48	129.3
1.6	0.82	18.48	129.3
1.7	0.83	18.50	129.5
1.8	0.84	18.49	129.5
1.9	0.89	18.45	129.4
2.0	0.94	18.45	129.6
2.1	1.01	18.40	129.5
2.2	1.07	18.36	129.4
2.3	1.14	18.39	129.8
2.4	1.21	18.34	129.7
2.5	1.26	18.30	129.6
2.6	1.30	18.33	130.0
2.7	1.35	18.30	129.9
2.8	1.39	18.27	129.9
2.9	1.43	18.19	129.5
3.0	1.48	18.16	129.4
3.1	1.50	18.15	129.4
3.2	1.54	17.99	128.5
3.3	1.56	17.98	128.4
3.4	1.60	17.95	128.4
3.5	1.64	17.73	126.9
3.6	1.69	17.69	126.8
3.7	1.77	17.44	125.3

Lake: Christine Lake
Date: 28-Apr-06

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.9	0.32	15.37	106.1
1.0	0.32	15.38	106.1
1.1	0.32	15.38	106.1
1.2	0.32	15.37	106.0
1.3	0.32	15.36	106.0
1.4	0.33	15.36	106.0
1.5	0.34	15.35	106.0
1.7	0.41	15.31	105.9
1.8	0.48	15.27	105.8
1.9	0.53	15.24	105.8
2.0	0.64	15.22	106.0
2.6	0.70	15.19	105.9
2.7	0.89	15.07	105.7
2.8	1.34	14.98	106.4
2.9	1.54	14.87	106.1
3.0	1.62	14.86	106.3
3.1	1.75	14.79	106.2
3.2	1.83	14.74	106.1
3.3	1.92	14.74	106.4
3.4	1.99	14.70	106.3
3.5	2.10	14.64	106.1
3.6	2.16	14.60	106.1
3.7	2.22	14.54	105.8
3.8	2.25	14.53	105.8
3.9	2.30	14.50	105.7
4.0	2.35	14.47	105.6
4.1	2.38	14.46	105.6
4.2	2.42	14.34	104.9
4.3	2.44	14.33	104.9
4.4	2.47	14.31	104.8
4.5	2.50	14.30	104.8
4.6	2.53	14.08	103.3
4.7	2.55	14.07	103.2
4.8	2.56	14.06	103.2
4.9	2.57	14.05	103.2
5.0	2.59	14.05	103.2
5.1	2.60	13.79	101.3
5.2	2.61	13.78	101.3
5.3	2.62	13.78	101.3
5.4	2.63	13.77	101.3
5.5	2.64	13.49	99.2
5.6	2.65	13.49	99.2
5.7	2.66	13.48	99.2
5.8	2.66	13.48	99.2
5.9	2.67	13.48	99.2
6.0	2.67	13.18	97.1
6.1	2.68	13.18	97.1
6.2	2.69	13.17	97.0
6.3	2.69	13.17	97.0
6.4	2.69	12.91	95.1
6.5	2.70	12.91	95.1
6.6	2.70	12.91	95.1
6.7	2.71	12.90	95.1

(continued)

Appendix 3.4-2
Dissolved Oxygen and Temperature Data for Lac du Sauvage and Reference Lake Sites, Ice-Covered Season 2006 (completed)

Lake: UL1
Date: 28-Apr-06

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
1.4	0.33	17.84	123.2
1.5	0.33	17.98	124.1
1.6	0.33	17.98	124.1
1.7	0.33	18.10	125.0
1.7	0.34	18.10	125.0
1.8	0.36	18.09	124.9
1.9	0.37	18.07	124.9
1.9	0.40	18.06	124.9
2.0	0.43	18.04	124.8
2.1	0.46	18.01	124.8
2.2	0.53	18.18	126.2
2.3	0.60	18.13	126.1
2.9	0.63	18.11	126.1
3.0	0.66	18.09	126.0
3.1	0.69	18.06	126.0
3.2	0.88	18.11	127.0
3.3	1.04	18.00	126.7
3.4	1.16	17.99	127.1
3.5	1.22	17.95	127.0
3.6	1.25	17.86	126.5
3.7	1.29	17.83	126.4
3.8	1.33	17.81	126.4
3.9	1.37	17.61	125.1
4.0	1.40	17.59	125.1
4.1	1.42	17.34	123.4
4.2	1.45	17.31	123.3
4.3	1.49	17.29	123.3
4.4	1.52	17.01	121.4
4.5	1.56	16.99	121.3
4.6	1.60	16.70	119.4
4.7	1.65	16.66	119.3
4.8	1.70	16.36	117.4
4.9	1.74	16.34	117.3
5.0	1.77	16.32	117.3
5.1	1.81	16.03	115.3
5.2	1.84	16.02	115.3
5.3	1.86	15.72	113.2
5.4	1.88	15.70	113.2
5.5	1.91	15.69	113.1
5.6	1.94	15.37	111.0
5.7	1.96	15.36	110.9
5.8	1.99	15.03	108.7
5.9	2.01	15.02	108.6
6.0	2.03	15.01	108.6
6.1	2.06	14.70	106.4
6.2	2.08	14.68	106.4
6.3	2.11	14.40	104.4
6.4	2.13	14.39	104.4
6.5	2.16	14.12	102.5
6.6	2.19	14.10	102.5
6.7	2.21	14.09	102.5
6.8	2.24	13.84	100.7
6.9	2.26	13.83	100.7
7.0	2.27	13.82	100.7
7.1	2.30	13.54	98.7
7.2	2.32	13.53	98.7
7.3	2.34	13.28	96.9
7.4	2.36	13.27	96.9
7.5	2.37	13.26	96.9
7.6	2.39	13.01	95.0
7.7	2.42	12.99	95.0
7.8	2.45	12.98	95.0
7.9	2.47	12.74	93.3
8.0	2.50	12.73	93.3
8.1	2.52	12.72	93.3
8.2	2.57	12.49	91.7
8.3	2.64	12.46	91.7

Lake: UL2
Date: 28-Apr-06

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.5	0.17	17.93	123.2
0.6	0.17	17.95	123.3
0.7	0.17	17.95	123.3
0.8	0.17	17.95	123.3
0.9	0.17	17.99	123.6
1.0	0.17	17.98	123.6
1.1	0.18	17.98	123.6
1.2	0.18	18.01	123.8
1.3	0.18	18.01	123.8
1.4	0.19	18.01	123.8
1.5	0.19	18.01	123.8
1.6	0.20	18.03	124.0
1.7	0.22	18.02	124.0
1.8	0.24	18.00	124.0
1.9	0.27	18.07	124.5
2.0	0.31	18.04	124.5
2.1	0.34	18.02	124.4
2.2	0.37	18.00	124.4
2.3	0.42	18.07	125.0
2.4	0.45	18.05	125.0
2.5	0.49	18.02	124.9
2.6	0.53	18.08	125.5
2.7	0.57	18.05	125.4
2.8	0.62	18.02	125.4
2.9	0.67	17.98	125.3
3.0	0.72	17.94	125.2
3.1	0.76	17.91	125.1
3.2	0.81	17.87	125.1
3.3	0.84	17.85	125.0
3.4	0.89	17.82	125.0
3.5	0.95	17.73	124.5
3.6	0.99	17.70	124.5
3.7	1.03	17.67	124.4
3.8	1.07	17.50	123.3
3.9	1.11	17.48	123.3
4.0	1.18	17.43	123.2
4.1	1.23	17.21	121.8
4.2	1.30	17.17	121.7
4.3	1.36	17.12	121.7

Lake: UL3
Date: 28-Apr-06

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)
0.4	0.45	16.11	111.6
0.5	0.44	16.21	112.2
0.6	0.43	16.23	112.4
0.7	0.43	16.24	112.4
0.8	0.42	16.34	113.1
0.9	0.42	16.34	113.1
1.0	0.42	16.48	114.0
1.1	0.41	16.48	114.0
1.2	0.40	16.48	114.0
1.3	0.40	16.64	115.1
1.4	0.41	16.64	115.1
1.5	0.41	16.64	115.1
1.6	0.42	16.79	116.2
1.7	0.44	16.79	116.2
1.8	0.47	16.76	116.2
1.9	0.50	16.92	117.4
2.0	0.53	16.90	117.3
2.1	0.57	16.87	117.3
2.2	0.61	16.85	117.2
2.3	0.66	17.01	118.5
2.4	0.71	16.98	118.5
2.5	0.77	16.94	118.4
2.6	0.83	16.90	118.3
2.7	0.89	17.04	119.4
2.8	0.94	17.00	119.4
2.9	1.00	16.96	119.3
3.0	1.05	16.93	119.2
3.1	1.10	16.95	119.6
3.2	1.14	16.92	119.5
3.3	1.19	16.89	119.5
3.4	1.25	16.78	118.8
3.5	1.28	16.75	118.8
3.6	1.33	16.73	118.7
3.7	1.36	16.71	118.7
3.8	1.40	16.47	117.2
3.9	1.45	16.44	117.1
4.0	1.49	16.42	117.1
4.1	1.54	16.15	115.3
4.2	1.59	16.11	115.2
4.3	1.64	15.79	113.1
4.4	1.76	15.37	110.4

APPENDIX 3.5-1
PHYTOPLANKTON BIOMASS AND ABUNDANCE RESULTS FOR LAC DU SAUVAGE AND REFERENCE SITES, OPEN-WATER SEASON, 2004 AND 2006

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Appendix 3.5-1
Phytoplankton Biomass and Abundance Results for Lac du Sauvage and Reference Sites, Open-Water Season, 2004 and 2006

			Biomass			Abundance		
Station	Date	Replicate	µg/L	Mean	SE	cells/mL	Mean	SE
Christine Lake	05-Jul-06	1	0.49	**0.50**	**0.02**	605	**588**	**56**
		2	0.54			675		
		3	0.47			483		
UL1	07-Jul-06	1	0.19	**0.21**	**0.03**	335	**334**	**52**
		2	0.18			244		
		3	0.28			424		
UL2	07-Jul-06	1	0.29	**0.28**	**0.01**	260	**310**	**48**
		2	0.28			406		
		3	0.27			265		
UL3	07-Jul-06	1	0.15	**0.21**	**0.03**	255	**260**	**7**
		2	0.25			252		
		3	0.24			274		
LdS1	10-Jul-06	1	0.28	**0.28**	**0.00**	493	**387**	**69**
		2	0.28			256		
		3	0.28			413		
LdS2	10-Jul-06	1	0.24	**0.28**	**0.04**	613	**428**	**95**
		2	0.25			300		
		3	0.36			372		
LdS3	09-Jul-06	1	0.27	**0.26**	**0.00**	592	**533**	**47**
		2	0.26			567		
		3	0.26			441		
LdS3	13-Jul-04	1	0.83	**1.01**	**0.10**	946	**830**	**59**
		2	1.02			790		
		3	1.17			755		
LdS4	19-Jul-06	1	0.51	**0.46**	**0.04**	510	**594**	**170**
		2	0.37			350		
		3	0.49			921		
LdS5	09-Jul-06	1	0.18	**0.25**	**0.05**	577	**598**	**13**
		2	0.22			620		
		3	0.35			598		
LdS6	19-Jul-06	1	0.25	**0.20**	**0.03**	1,051	**858**	**107**
		2	0.13			839		
		3	0.21			683		
LdS7	19-Jul-06	1	0.28	**0.29**	**0.01**	638	**840**	**193**
		2				657		
		3	0.30			1,225		
LdS8	11-Jul-06	1	1.19	**1.85**	**0.87**	540	**426**	**93**
		2	3.58			242		
		3	0.78			496		
LdS9	09-Jul-06	1	0.34	**0.30**	**0.02**	566	**721**	**82**
		2	0.29			753		
		3	0.28			844		
LdS10	09-Jul-06	1	0.25	**0.24**	**0.03**	662	**632**	**57**
		2	0.18			521		
		3	0.28			713		
LdS11	08-Jul-06	1	0.19	**0.23**	**0.02**	895	**537**	**198**
		2	0.27			211		
		3	0.23			505		
LdS12	08-Jul-06	1	0.29	**0.26**	**0.03**	391	**539**	**74**
		2	0.20			612		
		3	0.28			616		
Christine Lake	30-Jul-06	1	0.32	**0.33**	**0.06**	1,210	**1,184**	**41**
		2	0.23			1,239		
		3	0.45			1,105		
UL1	29-Jul-06	1	0.18	**0.17**	**0.03**	245	**368**	**77**
		2	0.12			510		
		3	0.21			350		
UL2	29-Jul-06	1	0.23	**0.16**	**0.05**	704	**411**	**147**
		2	0.17			239		
		3	0.07			290		
UL3	29-Jul-06	1	0.29	**0.21**	**0.04**	573	**616**	**23**
		2	0.18			626		
		3	0.17			651		
LdS1	01-Aug-06	1	0.56	**0.42**	**0.10**	483	**514**	**23**
		2	0.49			500		
		3	0.22			559		
LdS2	03-Aug-06	1	0.49	**0.33**	**0.09**	679	**721**	**22**
		2	0.16			749		
		3	0.32			736		
LdS3	01-Aug-06	1	0.30	**0.33**	**0.08**	917	**986**	**177**
		2	0.22			1,320		
		3	0.47			720		
LdS3	10-Aug-04	1	1.15	**0.81**	**0.32**	1,019	**1,088**	**39**
		2	1.10			1,155		
		3	0.18			1,089		
LdS4	01-Aug-06	1	0.28	**0.36**	**0.05**	855	**1,169**	**211**
		2	0.35			1,082		
		3	0.46			1,571		
LdS5	05-Aug-06	1	0.48	**0.44**	**0.09**	860	**907**	**134**
		2	0.57			1,159		
		3	0.26			701		
LdS6	03-Aug-06	1	0.27	**0.26**	**0.01**	1,149	**1,196**	**98**
		2	0.24			1,054		
		3	0.28			1,383		
LdS7	03-Aug-06	1	0.12	**0.28**	**0.08**	672	**760**	**102**
		2	0.32			644		
		3	0.38			964		
LdS8	05-Aug-06	1	0.39	**0.54**	**0.08**	703	**767**	**45**
		2	0.64			854		
		3	0.59			745		
LdS9	03-Aug-06	1	0.31	**0.40**	**0.05**	1,220	**949**	**143**
		2	0.49			732		
		3	0.39			895		
LdS10	03-Aug-06	1	0.37	**0.27**	**0.06**	1,322	**1,106**	**119**
		2	0.18			1,084		
		3	0.25			911		
LdS11	03-Aug-06	1	0.31	**0.23**	**0.04**	750	**715**	**27**
		2	0.19			663		
		3	0.20			731		
LdS12	03-Aug-06	1	0.31	**0.36**	**0.03**	668	**733**	**56**
		2	0.34			846		
		3	0.42			686		
Christine Lake	08-Sep-06	1	1.33	**1.46**	**0.07**	518	**543**	**55**
		2	1.52			648		
		3	1.54			463		
UL1	08-Sep-06	1	0.64	**0.60**	**0.02**	883	**742**	**73**
		2	0.60			638		
		3	0.56			704		
UL2	08-Sep-06	1	0.42	**0.49**	**0.04**	505	**775**	**162**
		2	0.49			753		
		3	0.56			1,065		
UL3	08-Sep-06	1	0.28	**0.31**	**0.14**	790	**819**	**45**
		2	0.09			907		
		3	0.58			759		
LdS1	10-Sep-06	1	1.06	**1.03**	**0.09**	571	**664**	**66**
		2	1.16			627		
		3	0.87			792		
LdS2	10-Sep-06	1	1.15	**0.94**	**0.11**	448	**431**	**43**
		2	0.80			494		
		3	0.88			350		
LdS3	07-Sep-06	1	1.18	**1.08**	**0.10**	678	**659**	**33**
		2	0.88			704		
		3	1.18			595		
LdS3	12-Sep-04	1	0.28	**0.34**	**0.06**	510	**547**	**43**
		2	0.27			633		
		3	0.46			498		
LdS4	07-Sep-06	1	0.95	**0.83**	**0.07**	701	**677**	**60**
		2	0.72			767		
		3	0.82			563		
LdS5	10-Sep-06	1	1.00	**0.94**	**0.03**	504	**595**	**125**
		2	0.92			440		
		3	0.90			843		
LdS6	07-Sep-06	1	0.93	**0.92**	**0.01**	640	**631**	**34**
		2	0.92			685		
		3	0.91			568		
LdS7	10-Sep-06	1	0.81	**0.99**	**0.09**	650	**623**	**33**
		2	1.09			662		
		3	1.07			557		
LdS8	10-Sep-06	1	0.13	**0.78**	**0.34**	829	**671**	**86**
		2	1.24			650		
		3	0.98			535		
LdS9	07-Sep-06	1	1.21	**1.09**	**0.12**	697	**838**	**75**
		2	1.21			862		
		3	0.85			953		
LdS10	08-Sep-06	1	1.33	**1.28**	**0.04**	1,018	**899**	**63**
		2	1.21			802		
		3	1.30			876		
LdS11	08-Sep-06	1	0.86	**1.01**	**0.09**	874	**757**	**81**
		2	1.16			797		
		3	1.00			602		
LdS12	08-Sep-06	1	0.98	**0.91**	**0.04**	706	**850**	**75**
		2	0.89			889		
		3	0.87			955		

APPENDIX 3.5-2
TAXONOMIC RESULTS FOR PHYTOPLANKTON IN LAC DU SAUVAGE AND REFERENCE LAKE STATIONS, OPEN-WATER SEASON 2004 AND 2006

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Appendix 3.5-2

Taxonomic Results for Phytoplankton in Lac du Sauvage and Reference Sites, Open-Water Season 2004 and 2006

Sampling Station	LdS3			LdS3			LdS3			Christine			UL1			UL2			UL3			LdS1			LdS2			LdS3			LdS4		
Sample Replicate	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Sampling Date	13-Jul-04			10-Aug-04			12-Sep-04			05-Jul-06			07-Jul-06			07-Jul-06			07-Jul-06			10-Jul-06			10-Jul-06			09-Jul-06			19-Jul-06		
Units = cells / mL																																	
PHYLUM BACILLARIOPHYCEAE																																	
Order Centrales																																	
Cyclotella glomerata	<2.8	2.8		5.6	8.4	<2.8	2.8	5.6	2.8				<2.8		<2.8	<2.8	<2.8		<2.8	2.8	11.2	2.8	5.6	5.6		<2.8	8.4	2.8	5.6	5.6	5.6	2.8	5.6
Cyclotella	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	5.6	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8		<2.8	2.8	<2.8	<2.8	2.8	<2.8	2.8		2.8	<2.8	2.8	<2.8	<2.8
Cyclotella ?																																	
Melosira italica																																	
Melosira	11.2	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8			<2.8	<2.8	<2.8							<2.8	<2.8	5.6	<2.8	<2.8					<2.8	<2.8	<2.8
Melosira ?																																	
Rhizosolenia eriensis / longiseta													16.8	16.8	28.0	8.4	22.4	14.0	11.2	<2.8	8.4												
UID																																	
Order Pennales																																	
Achnanthes minutissima					2.8	<2.8	<2.8	5.6	5.6	2.8	11.2	2.8	<2.8	2.8	<2.8	<2.8	<2.8	2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	5.6	<2.8	5.6	<2.8	2.8	<2.8	<2.8		<2.8
Achnanthes flexella																																	
Achnanthes																																	
Amphipleura																																	
Amphora																																	
Amphora ?					<2.8																												
Amphora ovalis																																	
Asterionella formosa	2.8	8.4	2.8	19.6	22.4	11.2	8.4	14	16.8	<2.8	<2.8	<2.8										5.6	<2.8	14	<2.8	<2.8	16.8	<2.8	<2.8	8.4	25.2	11.2	22.4
Ceratoneis arcus																																	
Ceratoneis								<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8		<2.8	<2.8				<2.8	<2.8			<2.8	<2.8	<2.8	<2.8				
Ceratoneis ?																																	
Cocconeis placentula																																	
Cocconeis																										<2.8							
Cymatopleura	<2.8				<2.8	<2.8																									<2.8		
Cymbella minuta	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8				<2.8									2.8		<2.8		<2.8	<2.8	<2.8	<2.8		2.8	<2.8			
Cymbella	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8		2.8	<2.8	2.8	<2.8			<2.8	<2.8	<2.8	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8
Diatoma elongatum										<2.8						2.8																	
Diatoma hiemale																																	
Diatoma					<2.8	<2.8												<2.8															
Diatoma ?	2.8	<2.8		<2.8																			<2.8			<2.8	<2.8		<2.8		<2.8		<2.8
Diploneis					<2.8																					<2.8			<2.8				
Eunotia pectinalis																																	
Eunotia		<2.8	<2.8	<2.8				<2.8		2.8			<2.8	<2.8	<2.8				<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8		<2.8	<2.8			
Fragilaria crotonensis	<2.8	<2.8		<2.8	2.8	<2.8	<2.8	2.8	2.8	5.6	<2.8	8.4	<2.8		2.8	<2.8	<2.8		<2.8		<2.8	<2.8	<2.8		<2.8	<2.8			<2.8			2.8	
Fragilaria vaucheriae																																	
Fragilaria	5.6	<2.8	<2.8	5.6	<2.8	<2.8	5.6	2.8	2.8	<2.8	<2.8	2.8		<2.8	<2.8	<2.8		2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	2.8	2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8
Frustulia	<2.8		<2.8	2.8		<2.8				<2.8	<2.8	<2.8	<2.8		<2.8		<2.8		<2.8		<2.8							2.8	<2.8		<2.8	<2.8	<2.8
Frustulia ?	<2.8						<2.8	<2.8	<2.8					<2.8																	<2.8		
Gomphonema olivaceum																																	
Gomphonema	<2.8	<2.8					<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8			<2.8				<2.8	<2.8	<2.8					<2.8	<2.8			
Licmorpha ?																																	
Meridion ?													<2.8																				
Meridion																																	
Navicula	<2.8	<2.8	5.6	<2.8	2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	5.6	2.8
Nedium																																	
Nitzschia					<2.8				<2.8													<2.8		<2.8		<2.8			<2.8				
Nitzschia ?	<2.8		<2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8							<2.8				<2.8			<2.8	2.8	<2.8	<2.8	<2.8		<2.8
Pinnularia					<2.8																					<2.8					<2.8		
Pleurosigma / Gyrosigma	<2.8	<2.8		<2.8	<2.8	<2.8		<2.8	<2.8	<2.8			<2.8		<2.8				<2.8	<2.8		<2.8		<2.8	<2.8	<2.8	<2.8				<2.8	<2.8	<2.8
Stauroneis				<2.8	<2.8						<2.8											<2.8		<2.8		<2.8	<2.8				<2.8	<2.8	2.8
Surirella					<2.8			<2.8	<2.8																								
Surirella ?				<2.8			<2.8																										
Synedra ulna																																	
Synedra					<2.8	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8							<2.8	<2.8	<2.8	<2.8											
Tabellaria fenestrata	<2.8	<2.8	16.8	22.4	<2.8	11.2	11.2	2.8	11.2	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8							<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	67.2	<2.8	<2.8	<2.8	<2.8	<2.8
Tabellaria flocculosa	<2.8		<2.8	<2.8	33.6	16.8	16.8	<2.8	16.8	<2.8	123.2	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	19.6	8.4	<2.8	<2.8	16.8	<2.8	<2.8	33.6	<2.8
UID	2.8	<2.8	<2.8	2.8	<2.8	44.8	8.4	<2.8	11.2	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8
PHYLUM CHLOROPHYTA																																	
Order Chaetophorales																																	
Stigeoclonium ?																																	
Order Chlorococcales																																	
Ankistrodesmus falcatus	<2.8	<2.8	11.2	30.8	25.2	30.8	16.8	22.4	39.2	22.4	25.2	5.6	2.8	2.8	8.4	14.0	16.8	5.6	16.8	11.2	19.6	<2.8		<2.8	8.4	2.8	<2.8	11.2	5.6	5.6		2.8	<2.8
Ankistrodesmus	25.2	50.4	19.6	14	14	14	33.6	36.4	14	28.0	28.0	28.0	5.6	<2.8	<2.8	<2.8		5.6		2.8		14	14	11.2	25.2	14	14	16.8	14	14	8.4	16.8	16.8
Botryococcus braunii	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	22.4	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Botryococcus sp.																																	
Closteriopsis									<2.8																<2.8	<2.8							
Closteriopsis ?					<2.8				<2.8	<2.8		<2.8							<2.8			2.8	<2.8			<2.8	<2.8	<2.8	2.8				
Coelastrum ?																																	
Coelastrum																																	
Crucigenia crucifera																																	
Crucigenia quadrata	22.4	<2.8	22.4	11.2	<2.8	<2.8		<2.8	11.2	11.2	<2.8	<2.8	<2.8		<2.8				<2.8	<2.8	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	
Crucigenia rectangularis											<2.8			22.4	<2.8		<2.8		<2.8		<2.8										<2.8		<2.8
Crucigenia tetrapedia				<2.8	<2.8		<2.8		11.2	<2.8												<2.8	<2.8		<2.8	<2.8	<2.8		11.2	<2.8	<2.8	<2.8	<2.8
Crucigenia		<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8			<2.8	<2.8	<2.8	<2.8				<2.8	<2.8	<2.8		<2.8		<2.8			<2.8				<2.8	<2.8
Crucigenia ?									<2.8																								

(continued)

Appendix 3.5-2

Taxonomic Results for Phytoplankton in Lac du Sauvage and Reference Sites, Open-Water Season 2004 and 2006 (continued)

Sampling Station	LdS3			LdS3			LdS3			Christine			UL1			UL2			UL3			LdS1			LdS2			LdS3			LdS4		
Sample Replicate	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Sampling Date	13-Jul-04			10-Aug-04			12-Sep-04			05-Jul-06			07-Jul-06			07-Jul-06			07-Jul-06			10-Jul-06			10-Jul-06			09-Jul-06			19-Jul-06		
Units = cells / mL																																	
PHYLUM CHLOROPHYTA																																	
Order Chlorococcales																																	
Dictyosphaerium	39.2	56	<2.8	<2.8	<2.8					<2.8	<2.8	<2.8	<2.8	<2.8	33.6	<2.8	<2.8	<2.8	<2.8	<2.8		<2.8		44.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	11.2
Elakatothrix gelatinosa				5.6	5.6	11.2	2.8	8.4	5.6	<2.8	11.2	5.6	<2.8	<2.8	5.6	5.6	2.8	<2.8	5.6	<2.8	<2.8	19.6	11.2	5.6	5.6	11.2	5.6	<2.8	8.4	14	22.4	16.8	8.4
Elakatothrix																											<2.8						
Kirchneriella																																	
Kirchneriella ?																			<2.8	<2.8	<2.8												
Lagerhiemia																																	
Lagerhiemia ?	16.8	16.8	16.8	<2.8	11.2	<2.8		<2.8	2.8																				<2.8		<2.8	<2.8	<2.8
Nephrocytium limneticum																																	
Nephrocytium																																	
Nephrocytium ?		11.2									<2.8	<2.8				<2.8	<2.8					<2.8		<2.8		<2.8			<2.8				
Oocystis	<2.8		11.2	<2.8	<2.8	<2.8	<2.8	<2.8		<2.8	<2.8	<2.8	5.6	5.6	<2.8	<2.8	5.6	<2.8	19.6	<2.8	16.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8
Pediastrum				<2.8	<2.8																	<2.8	<2.8		<2.8	<2.8							
Pediastrum tetras										<2.8																							
Quadrigula closterioides										<2.8	<2.8	<2.8	<2.8	<2.8	<2.8																		
Quadrigula lacustris																																	
Quadrigula																																	
Scenedesmus cf denticulatus																						<2.8		<2.8									
Scenedesmus quadricauda													<2.8	<2.8	<2.8																		
Scenedesmus														<2.8	<2.8								<2.8	<2.8		<2.8							
Schroederia setigera																																	
Selenastrum minutum																																	
Selenastrum										2.8	<2.8	2.8	<2.8			<2.8	<2.8	2.8		2.8						<2.8		2.8						
Sorastrum																																	
Sphaerocystis schroeteri				11.2	<2.8	<2.8	<2.8	<2.8	<2.8	16.8	<2.8	<2.8		22.4	<2.8	22.4	67.2	<2.8	<2.8		<2.8	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8
Tetraedron minimum	5.6	2.8	5.6	2.8	14	5.6	11.2	2.8	<2.8	8.4	<2.8	5.6	<2.8	<2.8	2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	14	11.2	5.6	8.4	5.6	2.8	14	19.6	16.8	11.2	8.4	2.8
Tetraderon		<2.8			<2.8	2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8			<2.8							2.8	<2.8		<2.8	<2.8	<2.8	<2.8	2.8	<2.8			<2.8
Treubaria																																	
Treubaria ?									<2.8													<2.8											
Order Oedogoniales																																	
Bulbochaete																																	
Bulbochaete ?																																	
Oedogonium																																	
Oedogonium?	<2.8	<2.8	<2.8					<2.8	<2.8		<2.8								<2.8		<2.8					<2.8							
UID																																	
Order Tetrasporales																																	
Gloeocystis cf ampla	<2.8	14	<2.8	5.6	19.6	47.6	25.2	5.6	5.6	<2.8	16.8	<2.8	19.6	<2.8	11.2	30.8	14.0	11.2	<2.8	8.4	19.6	33.6	5.6	2.8	53.2	<2.8	2.8	2.8	8.4	2.8	72.8	11.2	28
Gloeocystis																																	
Order Ulothricales																																	
Geminella																																	
Ulothrix																						<2.8											
Ulothrix ?	<2.8	2.8	5.6	8.4	16.8	2.8	<2.8	5.6	<2.8	2.8	2.8	2.8				<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	8.4	2.8	<2.8	<2.8	<2.8	<2.8	2.8	2.8	5.6	<2.8		2.8
Order Volvocales																																	
Chlamydomonas	<2.8	<2.8			<2.8	<2.8		<2.8		2.8	2.8	<2.8				<2.8	<2.8		<2.8				<2.8								<2.8		
Chlamydomonas ?	<2.8		<2.8	2.8			<2.8		<2.8				<2.8	2.8				<2.8			<2.8	<2.8		<2.8							<2.8	
Eudorina	<2.8	33.6																															
Eudorina ?			<2.8						<2.8																	<2.8			<2.8				
Pandorina morum																																	
UID	<2.8	<2.8	<2.8	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	11.2	<2.8	<2.8	<2.8	<2.8	<2.8	11.2	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	11.2	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	11.2
Order Zygnematales																																	
Arthrodesmus	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8		<2.8	8.4	<2.8	<2.8	2.8	2.8	8.4	11.2	8.4	<2.8	5.6	5.6	8.4	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Bambusina																																	
Closterium										<2.8															<2.8	<2.8							
Closterium ?																																	
Cosmarium					<2.8	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8				<2.8		<2.8	<2.8				<2.8	<2.8		<2.8	<2.8	<2.8			
Cosmarium ?		<2.8		<2.8			<2.8	2.8		<2.8										<2.8				<2.8	<2.8	<2.8		<2.8				<2.8	<2.8
Cylindrocystis ?																										<2.8							
Euastrum				<2.8	<2.8	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8				<2.8	<2.8	<2.8	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8							
Gonatozygon ?																																	
Gonatozygon										<2.8	<2.8	<2.8	<2.8		<2.8	<2.8	<2.8																
Hyalotheca					<2.8						<2.8								<2.8			<2.8											
Hyalotheca ?																																	
Mougeotia																																	
Mougeotia ?	<2.8										<2.8	<2.8							<2.8	<2.8	<2.8					<2.8					<2.8		
Netrium?										<2.8	<2.8	<2.8					<2.8																
Netrium																																	
Pleurotaenium																																	
Roya?																																	
Spirogyra ?										<2.8	<2.8	<2.8																					
Spirogyra sp.?																																	
Spondylosium planum	<2.8	2.8	<2.8	2.8	8.4	14	2.8	11.2	<2.8	11.2	8.4	14.0	<2.8	<2.8	2.8	2.8	2.8	2.8	2.8	2.8	5.6	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	2.8
Staurastrum				<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8				<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Xanthidium					<2.8																								<2.8	<2.8			
Xanthidium ?	2.8			<2.8	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8				<2.8		<2.8			<2.8	<2.8		<2.8	<2.8		<2.8	<2.8					
Zygnema																																	

(continued)

Appendix 3.5-2

Taxonomic Results for Phytoplankton in Lac du Sauvage and Reference Sites, Open-Water Season 2004 and 2006 (continued)

Sampling Station	LdS3			LdS3			LdS3			Christine			UL1			UL2			UL3			LdS1			LdS2			LdS3			LdS4		
Sample Replicate	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Sampling Date	13-Jul-04			10-Aug-04			12-Sep-04			05-Jul-06			07-Jul-06			07-Jul-06			07-Jul-06			10-Jul-06			10-Jul-06			09-Jul-06			19-Jul-06		
Units = cells / mL																																	
PHYLUM CHLOROPHYTA																																	
Order Zygnematales																																	
Zygnema ?										<2.8	<2.8														<2.8								
UID	<2.8	<2.8	<2.8			<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8			<2.8	<2.8	<2.8
UID unicellular Chlorophyta																																	
PHYLUM CHRYSOPHYTA																																	
Order Chromulinales																																	
UID																																	
Order Ochromonadales																																	
Chrysosphaerella																																	
Chrysosphaerella ?																																	
Dinobryon cf. bavaricum	5.6	2.8	2.8	117.6	103.6	140	25.2	25.2	16.8	64.4	39.2	56.0	123.2	70.0	75.6	33.6	86.8	50.4	92.4	44.8	78.4	50.4	53.2	36.4	58.4	30.8	25.2	47.6	53.2	42	22.4	50.4	42
Dinobryon divergens				<2.8	2.8		<2.8	<2.8	<2.8						<2.8							2.8	<2.8					<2.8	<2.8	<2.8	<2.8		<2.8
Dinobryon elegantissimum	2.8	<2.8	<2.8	2.8	2.8	<2.8	<2.8	<2.8	<2.8		2.8					2.8	2.8	<2.8	<2.8	50.4	2.8	<2.8	<2.8	5.6	2.8	<2.8	<2.8	5.6	2.8	<2.8	2.8	2.8	8.4
Dinobryon sertularia	53.2	95.2	72.8	98	75.6	86.8	5.6	5.6	5.6	274.4	274.4	235.2	14.0	11.2	25.2	25.2	25.2	36.4	14.0	2.8	19.6	22.4	44.8	75.6	47.6	16.8	39.2	72.8	19.6	100.8	5.6	16.8	64.4
Dinobryon	16.8	28.0	28	25.2	22.4	53.2	8.4	11.2	11.2	8.4	25.2	<2.8	22.4	16.8	25.2	11.2	14.0	22.4	<2.8	19.6	22.4	39.2	28	8.4	22.4	5.6	33.6	28	53.2	33.6	22.4	30.8	16.8
Mallomonas akrokomos				<2.8	<2.8																												
Mallomonas cf pseudocoronata				<2.8	<2.8																												
Mallomonas	<2.8				<2.8	<2.8																											
Mallomonas ?				<2.8	2.8																												
Synura uvella ?																													<2.8				
Uroglenopsis cf americana																																	
UID																																	
Order Rhizochrysidales																																	
Diceras phaseolus	2.8	<2.8	<2.8	<2.8	2.8	2.8	<2.8	<2.8	2.8	2.8	2.8	2.8	<2.8	2.8	<2.8	2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	2.8	2.8	<2.8	<2.8	2.8	2.8	2.8	2.8	<2.8	<2.8
Order Vaucheriales																																	
Vaucheria ?																																	
UID Chrysophyta				<2.8	<2.8																												
PHYLUM CRYPTOPHYTA																																	
Order Cryptomonadales																																	
Chroomonas acuta	56	61.6	36.4	42	47.6	11.2	5.6	5.6	5.6	11.2	11.2	11.2	8.4	<2.8	25.2	<2.8	5.6	2.8	5.6	5.6	2.8	8.4	5.6	11.2	50.4	16.8	44.8	8.4	25.2	8.4	5.6	14	16.8
Cryptomonas ovata / erosa	<2.8	<2.8	<2.8	8.4	5.6	8.4	<2.8	<2.8	<2.8	5.6	8.4	5.6	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8	8.4	2.8	<2.8	8.4	<2.8	<2.8	<2.8	2.8	<2.8	<2.8
Cryptomonas	<2.8	2.8	2.8	2.8	2.8	5.6	<2.8	<2.8	5.6	2.8	<2.8	2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	2.8
UID																							<2.8							2.8			
PHYLUM CYANOPHYTA																																	
Order Chaemosiphonales																																	
UID																																	
Order Chroococcales																																	
Agmenellum tenuissima										<2.8	<2.8	22.4	<2.8	<2.8					<2.8		<2.8												
Agmenellum																																	
Anacystis cf aeruginosa																																	
Anacystis elachista	<2.8		<2.8	<2.8	<2.8			112	42	<2.8	<2.8	<2.8	42.0	<2.8	42.0				<2.8										16.8	<2.8			
Anacystis cf limneticus										<2.8	<2.8	<2.8																					
Anacystis	<2.8	11.2	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8		<2.8					<2.8	<2.8	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	16.8	<2.8	<2.8	<2.8	<2.8
Anacystis ?																																	
Dactylococcopsis																																	
Dactylococcopsis?											<2.8																						
Gloeocapsa																																	
Gomphosphaeria					<2.8								<2.8																				
Gomphosphaeria ?						<2.8								<2.8					<2.8		<2.8												
Marssoniella elegans																																	
Order Nostocales																																	
Anabaena				<2.8	<2.8		67.2		<2.8													<2.8	<2.8		<2.8	<2.8	<2.8		<2.8	<2.8	<2.8		<2.8
Anabaena ?	<2.8	<2.8	<2.8	56.0	106.4	67.2	36.4	109.2	36.4	<2.8	<2.8	<2.8										<2.8	<2.8	5.6	11.2	<2.8	<2.8	<2.8	56	22.4	<2.8	8.4	16.8
Aphanizomenon?																																	
Nostoc ?											<2.8											<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	140	<2.8	<2.8	112	<2.8	<2.8
UID									<2.8																								
Order Oscillatoriales																																	
Lyngbya limnetica	613.2	336	448	456.4	520.8	448	159.6	187.6	154	28.0	<2.8	<2.8	<2.8	<2.8	70.0	44.8	84.0	42.0	<2.8	<2.8	<2.8	190.4	8.4	109.2	184.8	84	64.4	114.8	154	103.6	126	70	588
Lyngbya																																	
Lyngbya ?	<2.8									<2.8	<2.8	<2.8	<2.8	<2.8	<2.8				<2.8		<2.8				<2.8	<2.8	<2.8						
Oscillatoria cf tenuis	<2.8		<2.8	<2.8	<2.8					<2.8	<2.8	<2.8														<2.8							
Oscillatoria	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8				<2.8	<2.8	<2.8				<2.8	<2.8		<2.8	42.0		<2.8			<2.8	<2.8			<2.8				
Oscillatoria ?		<2.8															<2.8	<2.8			<2.8			<2.8	<2.8	<2.8	<2.8	<2.8					
Phormidium mucicola																																	
UID																																	
PHYLUM EUGLENOPHYTA																																	
Order Euglenales																																	
Euglena	<2.8		<2.8								<2.8											<2.8		<2.8		<2.8	<2.8				<2.8		
Euglena ?		<2.8																														<2.8	
Trachelomonas																									<2.8	<2.8	<2.8						
Phacus?																																	
PHYLUM PYRRHOPHYTA																																	
Order Dinokontae																																	
Ceratium sp.																																	
Gymnodinium ?	<2.8	<2.8	<2.8		<2.8				<2.8	<2.8	<2.8	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8		<2.8	<2.8		<2.8		2.8	<2.8		<2.8					

(continued)

Appendix 3.5-2

Taxonomic Results for Phytoplankton in Lac du Sauvage and Reference Sites, Open-Water Season 2004 and 2006 (continued)

Sampling Station	LdS3			LdS3			LdS3			Christine			UL1			UL2			UL3			LdS1			LdS2			LdS3			LdS4		
Sample Replicate	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Sampling Date	13-Jul-04			10-Aug-04			12-Sep-04			05-Jul-06			07-Jul-06			07-Jul-06			07-Jul-06			10-Jul-06			10-Jul-06			09-Jul-06			19-Jul-06		
Units = cells / mL																																	
PHYLUM PYRRHOPHYTA																																	
Order Dinokontae																																	
Peridinium cf inconspicuum				2.8	<2.8	<2.8	<2.8	<2.8	<2.8	5.6	2.8	2.8	<2.8	2.8	<2.8	<2.8	<2.8	2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8				<2.8	<2.8	<2.8
Peridinium / Glenodinium	2.8	5.6	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8		<2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	5.6	<2.8	<2.8	<2.8	<2.8	<2.8
UID						<2.8	<2.8			5.6			2.8			<2.8	<2.8		<2.8	<2.8	2.8		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8				
UID branched filamentous algae																																	
UID filamentous algae	<2.8	<2.8	<2.8								<2.8		<2.8	<2.8	<2.8				<2.8	<2.8	<2.8		<2.8		39.2	<2.8	19.6		<2.8	<2.8			
UID unicellular algae					<2.8								<2.8	<2.8								<2.8											

Note : Unidentified flagellates observed but not counted.

(continued)

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

Appendix 3.5-2

Taxonomic Results for Phytoplankton in Lac du Sauvage and Reference Sites, Open-Water Season 2004 and 2006 (continued)

Sampling Station	LdS5			LdS6			LdS7			LdS8			LdS9			LdS10			LdS11			LdS12			Christine			UL1		
Sample Replicate	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Sampling Date		09-Jul-06			19-Jul-06			19-Jul-06			19-Jul-06			09-Jul-06			09-Jul-06			08-Jul-06			08-Jul-06			30-Jul-06			29-Jul-06	
Units = cells / mL																														
PHYLUM BACILLARIOPHYCEAE																														
Order Centrales																														
Cyclotella glomerata	<2.8	<2.8	<2.8	2.8	2.8	2.8	14	8.4	14	<2.8	<2.8	<2.8	5.6	8.4	14	2.8	14	8.4	8.4	11.2	5.6	11.2	2.8	<2.8	14	5.6	14	16.8	8.4	<2.8
Cyclotella	<2.8	<2.8	8.4	11.2	<2.8	<2.8		2.8	<2.8	5.6		<2.8	<2.8		<2.8	2.8	<2.8	2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8		<2.8	2.8	<2.8	<2.8	<2.8
Cyclotella ?							<2.8			<2.8																				
Melosira italica																														
Melosira	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8		<2.8	<2.8	<2.8				8.4	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8		<2.8	<2.8			
Melosira ?										<2.8																		<2.8	<2.8	5.6
Rhizosolenia eriensis / longiseta																						<2.8	<2.8	<2.8					<2.8	2.8
UID																														
Order Pennales																														
Achnanthes minutissima		<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	5.6	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8			<2.8	2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	2.8	<2.8
Achnanthes flexella																														
Achnanthes																														
Amphipleura																														
Amphora					<2.8																									
Amphora ?				<2.8						<2.8																				
Amphora ovalis																														
Asterionella formosa	5.6	28	<2.8	<2.8	<2.8	<2.8	16.8	14	8.4	2.8	<2.8	<2.8	22.4	47.6	<2.8	5.6	5.6	<2.8	<2.8	25.2	30.8	2.8	22.4	8.4	<2.8	<2.8	<2.8			
Ceratoneis arcus																														
Ceratoneis											<2.8			<2.8	<2.8														<2.8	
Ceratoneis ?																														
Cocconeis placentula																														
Cocconeis					<2.8	<2.8																								
Cymatopleura										<2.8		<2.8																		
Cymbella minuta	<2.8		<2.8	<2.8	<2.8		<2.8	<2.8		<2.8		<2.8	<2.8	5.6	<2.8	<2.8			<2.8			<2.8	<2.8							<2.8
Cymbella	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8		<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Diatoma elongatum								<2.8		2.8		<2.8											<2.8	<2.8						
Diatoma hiemale																														
Diatoma							<2.8			<2.8												<2.8								
Diatoma ?					<2.8																									
Diploneis																														
Eunotia pectinalis																														
Eunotia				<2.8	<2.8								<2.8	<2.8	<2.8							<2.8			<2.8	<2.8		<2.8	<2.8	<2.8
Fragilaria crotonensis	<2.8	<2.8	<2.8		<2.8	<2.8			2.8				<2.8			5.6	<2.8	<2.8	<2.8			<2.8	<2.8	<2.8		<2.8				
Fragilaria vaucheriae																														
Fragilaria	<2.8	2.8	<2.8	5.6	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	2.8	<2.8		<2.8	<2.8	<2.8	<2.8			<2.8
Frustulia							<2.8	<2.8		<2.8	<2.8					<2.8	<2.8								<2.8	<2.8	<2.8		<2.8	
Frustulia ?			<2.8					<2.8	<2.8			<2.8					<2.8	<2.8				<2.8						<2.8		2.8
Gomphonema olivaceum																														
Gomphonema		<2.8	<2.8	<2.8				<2.8		<2.8	<2.8					<2.8	<2.8					<2.8	<2.8	2.8	2.8			2.8	<2.8	<2.8
Licmorpha ?																														
Meridion ?																														
Meridion																														
Navicula	<2.8	<2.8	<2.8	2.8	2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	2.8	<2.8	2.8	5.6	5.6	<2.8	2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Nedium																														
Nitzschia							2.8	2.8											<2.8											
Nitzschia ?	<2.8		<2.8	<2.8	<2.8	<2.8		<2.8	<2.8	<2.8		<2.8	<2.8		<2.8	<2.8	2.8	2.8		2.8	<2.8		<2.8		2.8				<2.8	<2.8
Pinnularia																														
Pleurosigma / Gyrosigma	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8		<2.8	<2.8			<2.8	<2.8							2.8				<2.8				
Stauroneis	<2.8		2.8	<2.8	<2.8					<2.8		<2.8	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8								<2.8	<2.8	
Surirella	<2.8																												<2.8	
Surirella ?			<2.8														<2.8	<2.8												<2.8
Synedra ulna																														
Synedra					<2.8	<2.8		<2.8	<2.8	<2.8		<2.8							<2.8	<2.8	<2.8									
Tabellaria fenestrata	<2.8	<2.8	<2.8	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	56	89.6	<2.8	<2.8	<2.8	25.2	<2.8						
Tabellaria flocculosa	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	151.2	2.8	<2.8	<2.8	151.2	<2.8	<2.8	<2.8	<2.8	<2.8	70	67.2	95.2	<2.8	<2.8	2.8
UID	<2.8	2.8	5.6	<2.8	2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	2.8	<2.8
PHYLUM CHLOROPHYTA																														
Order Chaetophorales																														
Stigeoclonium ?																														
Order Chlorococcales																														
Ankistrodesmus falcatus	28.0	11.2	5.6	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	8.4	8.4	14	8.4	36.4	5.6	19.6	33.6	8.4	5.6	8.4	8.4	<2.8	<2.8				
Ankistrodesmus	2.8	5.6	2.8	25.2	30.8	44.8	14	8.4	39.2	25.2	<2.8	33.6	8.4	8.4	16.8	11.2	<2.8	19.6	<2.8	<2.8	<2.8	2.8	5.6	5.6	159.6	145.6	131.6	8.4	2.8	8.4
Botryococcus braunii	<2.8	<2.8	89.6	<2.8	<2.8	<2.8	<2.8	67.2	123.2	<2.8	<2.8	<2.8	22.4	<2.8	<2.8	<2.8	22.4	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	44.8	44.8	<2.8	<2.8	44.8	<2.8
Botryococcus sp.							<2.8	<2.8			<2.8														<2.8	<2.8				
Closteriopsis		2.8						<2.8																		<2.8			<2.8	
Closteriopsis ?	<2.8		<2.8		<2.8			<2.8	<2.8	<2.8	<2.8	2.8		2.8	<2.8	<2.8	5.6	<2.8	<2.8						<2.8					<2.8
Coelastrum ?																														
Coelastrum																														
Crucigenia crucifera															<2.8															
Crucigenia quadrata	<2.8	<2.8	11.2		11.2	11.2	<2.8	<2.8	22.4						22.4	<2.8	33.6	<2.8	<2.8	11.2			<2.8	11.2		<2.8	<2.8		<2.8	
Crucigenia rectangularis	<2.8		<2.8				<2.8	<2.8																	<2.8	<2.8	<2.8	<2.8	<2.8	
Crucigenia tetrapedia	<2.8		<2.8		<2.8	<2.8		<2.8	<2.8	<2.8		<2.8	11.2		<2.8		<2.8	<2.8												
Crucigenia					11.2	11.2	<2.8	<2.8	<2.8		<2.8					<2.8					<2.8				<2.8			<2.8		
Crucigenia ?				<2.8																										

(continued)

Appendix 3.5-2

Taxonomic Results for Phytoplankton in Lac du Sauvage and Reference Sites, Open-Water Season 2004 and 2006 (continued)

Sampling Station	LdS5			LdS6			LdS7			LdS8			LdS9			LdS10			LdS11			LdS12			Christine			UL1		
Sample Replicate	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Sampling Date	09-Jul-06			19-Jul-06			19-Jul-06			19-Jul-06			09-Jul-06			09-Jul-06			08-Jul-06			08-Jul-06			30-Jul-06			29-Jul-06		
Units = cells / mL																														
PHYLUM CHLOROPHYTA																														
Order Chlorococcales																														
Dictyosphaerium	11.2	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8		<2.8	<2.8	22.4	50.4	<2.8		<2.8	<2.8	22.4	<2.8				<2.8	<2.8	33.6				<2.8	<2.8	
Elakatothrix gelatinosa	11.2	<2.8	22.4	30.8	14	16.8	11.2		42	30.8	22.4	11.2	11.2	5.6	<2.8	8.4	19.6	16.8	<2.8	5.6	5.6	5.6	8.4	2.8	30.8	16.8	2.8	5.6	16.8	11.2
Elakatothrix																														
Kirchneriella																														
Kirchneriella ?																													<2.8	
Lagerhiemia	<2.8																		<2.8				<2.8							
Lagerhiemia ?		<2.8						<2.8						<2.8	<2.8		<2.8													
Nephrocytium limneticum																														
Nephrocytium																														
Nephrocytium ?	<2.8	<2.8	<2.8					<2.8							<2.8		<2.8	<2.8							11.2	<2.8	11.2			
Oocystis	<2.8	<2.8	<2.8	<2.8	11.2	11.2	<2.8	<2.8	<2.8	<2.8	<2.8	5.6	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	5.6	8.4	<2.8	<2.8	16.8	11.2		<2.8	<2.8	<2.8
Pediastrum								<2.8	<2.8	<2.8												<2.8	<2.8							
Pediastrum tetras																														
Quadrigula closterioides																										<2.8				
Quadrigula lacustris																														
Quadrigula		<2.8	<2.8							<2.8					<2.8	<2.8	<2.8	<2.8							<2.8	<2.8	<2.8			
Scenedesmus cf denticulatus																														
Scenedesmus quadricauda																														
Scenedesmus	<2.8		<2.8				<2.8	<2.8	<2.8	<2.8							<2.8									<2.8	<2.8		<2.8	<2.8
Schroederia setigera																														
Selenastrum minutum																									28		14			
Selenastrum								<2.8		<2.8													<2.8			2.8		<2.8	2.8	
Sorastrum																														
Sphaerocystis schroeteri		<2.8	<2.8	22.4	<2.8	<2.8		<2.8	<2.8	<2.8		<2.8		<2.8	<2.8	<2.8	<2.8	22.4	<2.8	<2.8	<2.8				22.4	<2.8		<2.8	67.2	<2.8
Tetraedron minimum	5.6	2.8	11.2	11.2	8.4	8.4	14	5.6	8.4	22.4	5.6	8.4	19.6	8.4	19.6	14	28	19.6	11.2	8.4	11.2	19.6	5.6	8.4	22.4	28	14	<2.8	<2.8	<2.8
Tetraderon		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8					<2.8			2.8	<2.8	<2.8							<2.8	5.6	<2.8	<2.8	2.8	<2.8
Treubaria																														
Treubaria ?																														
Order Oedogoniales																														
Bulbochaete								<2.8																					<2.8	
Bulbochaete ?																														
Oedogonium																			<2.8						<2.8	<2.8		11.2	<2.8	<2.8
Oedogonium?					<2.8		<2.8	<2.8	<2.8	<2.8	<2.8				<2.8					<2.8						<2.8	<2.8				
UID																														
Order Tetrasporales																														
Gloeocystis cf ampla	8.4	5.6	<2.8	33.6	33.6	36.4	8.4	11.2	22.4	42	5.6	11.2	14	33.6	2.8	<2.8	8.4	8.4	<2.8	<2.8	25.2	<2.8	2.8	109.2	67.2	238	19.6	5.6	5.6	22.4
Gloeocystis								<2.8																						
Order Ulothricales																														
Geminella																														
Ulothrix					<2.8																									
Ulothrix ?	2.8	8.4	<2.8	2.8	<2.8	2.8	2.8	5.6	2.8	<2.8	11.2	2.8	2.8	<2.8	2.8	<2.8	5.6	8.4	8.4	2.8	2.8	5.6	<2.8	2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Order Volvocales																														
Chlamydomonas						<2.8			<2.8									<2.8												
Chlamydomonas ?	<2.8		<2.8	<2.8	<2.8		<2.8	<2.8								2.8	<2.8													
Eudorina																														
Eudorina ?																														
Pandorina morum																														
UID	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	5.6	<2.8	<2.8	<2.8	<2.8	<2.8	11.2	<2.8	<2.8	11.2	<2.8	<2.8		<2.8	11.2
Order Zygnematales																														
Arthrodesmus	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	5.6	<2.8	14
Bambusina																														
Closterium																														
Closterium ?																														
Cosmarium	<2.8	<2.8	<2.8				<2.8	<2.8		<2.8					<2.8				<2.8			<2.8	<2.8		2.8	<2.8	<2.8	<2.8	2.8	
Cosmarium ?				<2.8	<2.8				<2.8		<2.8	<2.8	<2.8			<2.8	<2.8		<2.8	<2.8	<2.8			<2.8	2.8	<2.8					
Cylindrocystis ?																														
Euastrum	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8				<2.8	<2.8	<2.8			<2.8	<2.8	<2.8	<2.8	<2.8		2.8		<2.8	<2.8	<2.8	<2.8	2.8			
Gonatozygon ?	<2.8															<2.8	<2.8													
Gonatozygon					<2.8																					<2.8	<2.8			
Hyalotheca								<2.8		<2.8																<2.8				
Hyalotheca ?					<2.8																									
Mougeotia																														
Mougeotia ?				<2.8	<2.8	<2.8																				<2.8	<2.8			
Netrium?																														
Netrium																														
Pleurotaenium																														
Roya?																														
Spirogyra ?																														
Spirogyra sp.?																														
Spondylosium planum	2.8	<2.8	8.4	2.8	5.6	2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	2.8	19.6	2.8	16.8	<2.8	<2.8	2.8
Staurastrum	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Xanthidium																			<2.8	<2.8										
Xanthidium ?	<2.8	2.8	<2.8	<2.8	<2.8			<2.8		<2.8		<2.8				<2.8	<2.8		<2.8		<2.8				<2.8	2.8		2.8	2.8	2.8
Zygnema				<2.8	<2.8																									

(continued)

Appendix 3.5-2

Taxonomic Results for Phytoplankton in Lac du Sauvage and Reference Sites, Open-Water Season 2004 and 2006 (continued)

Sampling Station	LdS5			LdS6			LdS7			LdS8			LdS9			LdS10			LdS11			LdS12			Christine			UL1		
Sample Replicate	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Sampling Date	09-Jul-06			19-Jul-06			19-Jul-06			19-Jul-06			09-Jul-06			09-Jul-06			08-Jul-06			08-Jul-06			30-Jul-06			29-Jul-06		
Units = cells / mL																														
PHYLUM CHLOROPHYTA																														
Order Zygnematales																														
Zygnema ?					<2.8	<2.8																								
UID	<2.8	<2.8	<2.8	<2.8		<2.8	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8			<2.8		<2.8		<2.8			<2.8	<2.8	2.8		<2.8	<2.8
UID unicellular Chlorophyta																														
PHYLUM CHRYSOPHYTA																														
Order Chromulinales																														
UID																														
Order Ochromonadales																														
Chrysosphaerella																														
Chrysosphaerella ?																														
Dinobryon cf. bavaricum	78.4	14.0	44.8	42	56	64.4	70	56	56	39.2	30.8	28	86.8	92.4	78.4	67.2	72.8	75.6	50.4	30.8	25.2	50.4	53.2	39.2	36.4	36.4	22.4	64.4	70	112
Dinobryon divergens		<2.8		<2.8	2.8	5.6	<2.8	2.8		<2.8	<2.8		<2.8		<2.8	2.8	<2.8		<2.8											
Dinobryon elegantissimum	2.8	8.4	8.4	8.4	2.8	2.8	2.8	2.8	<2.8	2.8	<2.8	<2.8	2.8	11.2	8.4	2.8	<2.8	<2.8	2.8	5.6	<2.8	2.8	14.0	5.6	<2.8	<2.8	2.8		<2.8	2.8
Dinobryon sertularia	70.0	2.8	42.0	50.4	44.8	36.4	53.2	8.4	36.4	33.6	22.4	<2.8	16.8	39.2	44.8	39.2	44.8	75.6	39.2	8.4	42.0	28.0	44.8	16.8	19.6	14	8.4	8.4	<2.8	<2.8
Dinobryon	25.2	86.8	50.4	33.6	28	16.8	22.4	44.8	67.2	28	39.2	33.6	50.4	16.8	30.8	50.4	70.0	33.6	28.0	16.8	36.4	28.0	25.2	28.0	25.2	8.4	22.4	14	30.8	25.2
Mallomonas akrokomos																														
Mallomonas cf pseudocoronata																														
Mallomonas																										<2.8				
Mallomonas ?																											<2.8			
Synura uvella ?																														
Uroglenopsis cf americana																														
UID																														
Order Rhizochrysidales																														
Diceras phaseolus	<2.8	2.8	<2.8	<2.8	2.8	2.8	5.6	5.6	2.8	2.8	<2.8	<2.8	2.8	<2.8	2.8	5.6	5.6	2.8	2.8	<2.8	<2.8	<2.8		2.8	8.4	11.2	8.4	2.8	2.8	<2.8
Order Vaucheriales																														
Vaucheria ?																														
UID Chrysophyta																														
PHYLUM CRYPTOPHYTA																														
Order Cryptomonadales																														
Chroomonas acuta	8.4	14	42	47.6	36.4	19.6	5.6	11.2	8.4	2.8	2.8	<2.8	50.4	64.4	42	14	11.2	14	14.0	<2.8	5.6	5.6	5.6	14.0	42	44.8	22.4	5.6	14	<2.8
Cryptomonas ovata / erosa	<2.8	<2.8	<2.8	2.8	5.6	5.6	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8			<2.8	<2.8	2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Cryptomonas	<2.8	<2.8	<2.8	8.4	2.8	<2.8	2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	5.6	2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
UID																														
PHYLUM CYANOPHYTA																														
Order Chaemosiphonales																														
UID																														
Order Chroococcales																														
Agmenellum tenuissima																									123.2	44.8	67.2	<2.8	<2.8	
Agmenellum																										<2.8			<2.8	<2.8
Anacystis cf aeruginosa																														
Anacystis elachista	<2.8	<2.8											56		<2.8		<2.8	<2.8	56.0	<2.8					193.2	182	238		112	<2.8
Anacystis cf limneticus										<2.8																<2.8				
Anacystis			<2.8						22.4	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8			<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Anacystis ?							<2.8	<2.8																						
Dactylococcopsis																														
Dactylococcopsis?																										<2.8	16.8			
Gloeocapsa																														
Gomphosphaeria																					112.0					<2.8				
Gomphosphaeria ?										<2.8	<2.8				<2.8		<2.8	<2.8							<2.8		<2.8		<2.8	
Marssoniella elegans																														
Order Nostocales																														
Anabaena	106.4	92.4	<2.8					<2.8	<2.8	<2.8						53.2	<2.8	168	<2.8	<2.8	50.4		<2.8	<2.8		<2.8				
Anabaena ?	8.4	<2.8	22.4	11.2	19.6	19.6	123.2	159.6	327.6	39.2	19.6	64.4	36.4	64.4	58.8	<2.8	<2.8	<2.8	100.8	<2.8	<2.8	92.4	30.8		137.2	25.2	22.4	<2.8	<2.8	<2.8
Aphanizomenon?				14	2.8	8.4		<2.8																						
Nostoc ?	<2.8	<2.8	<2.8	168	<2.8	<2.8	<2.8	<2.8	84	112	<2.8	<2.8		168	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	168.0	<2.8		<2.8				
UID								<2.8																	<2.8					<2.8
Order Oscillatoriales																														
Lyngbya limnetica	140	271.6	154	462	431.2	299.6	182	154	277.2	72.8	<2.8	182	95.2	131.6	266	277.2	42.0	112.0	252.0	<2.8	84.0	56.0	134.4	266.0	42	221.2	294	42	56	70
Lyngbya																										<2.8	<2.8			
Lyngbya ?	<2.8																				<2.8				<2.8	<2.8				
Oscillatoria cf tenuis					<2.8			<2.8	<2.8																					
Oscillatoria	<2.8	<2.8			<2.8	<2.8	28								<2.8				<2.8	<2.8				<2.8	<2.8	<2.8				
Oscillatoria ?			<2.8	<2.8								<2.8		<2.8							<2.8	<2.8	<2.8				<2.8			
Phormidium mucicola																														
UID																														
PHYLUM EUGLENOPHYTA																														
Order Euglenales																														
Euglena																							<2.8	<2.8						
Euglena ?					<2.8					<2.8		<2.8			<2.8											<2.8	<2.8			
Trachelomonas																									<2.8	<2.8			<2.8	
Phacus?																														
PHYLUM PYRRHOPHYTA																														
Order Dinokontae																														
Ceratium sp.																														
Gymnodinium ?		<2.8	2.8		<2.8	<2.8		<2.8		<2.8	<2.8						<2.8	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8		<2.8		<2.8	<2.8	

(continued)

Appendix 3.5-2

Taxonomic Results for Phytoplankton in Lac du Sauvage and Reference Sites, Open-Water Season 2004 and 2006 (continued)

Sampling Station	LdS5			LdS6			LdS7			LdS8			LdS9			LdS10			LdS11			LdS12			Christine			UL1		
Sample Replicate	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Sampling Date	09-Jul-06			19-Jul-06			19-Jul-06			19-Jul-06			09-Jul-06			09-Jul-06			08-Jul-06			08-Jul-06			30-Jul-06			29-Jul-06		
Units = cells / mL																														
PHYLUM PYRRHOPHYTA																														
Order Dinokontae																														
Peridinium cf inconspicuum		<2.8	<2.8	<2.8	<2.8	<2.8	5.6	5.6	2.8	<2.8	<2.8	<2.8				<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	2.8	5.6	2.8	2.8
Peridinium / Glenodinium	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8			
UID				<2.8		<2.8	<2.8	<2.8			<2.8	<2.8	<2.8			<2.8			<2.8	<2.8	<2.8				<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
UID branched filamentous algae																										<2.8				
UID filamentous algae	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8							<2.8		<2.8	16.8						<2.8	<2.8	<2.8	<2.8	<2.8	<2.8		<2.8	<2.8
UID unicellular algae																	<2.8											<2.8		<2.8

Note : Unidentified flagellates observed but not counted.

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

(continued)

Appendix 3.5-2

Taxonomic Results for Phytoplankton in Lac du Sauvage and Reference Sites, Open-Water Season 2004 and 2006 (continued)

Sampling Station	UL2			UL3			LdS1			LdS2			LdS3			LdS4			LdS5			LdS6			LdS7			LdS8		
Sample Replicate	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Sampling Date	29-Jul-06			29-Jul-06			01-Aug-06			03-Aug-06			01-Aug-06			01-Aug-06			05-Aug-06			03-Aug-06			03-Aug-06			05-Aug-06		
Units = cells / mL																														
PHYLUM BACILLARIOPHYCEAE																														
Order Centrales																														
Cyclotella glomerata	2.8	2.8	2.8	<2.8		<2.8	2.8	9.8	21.0	2.8	2.8	<2.8	14.0	14.0	5.6	8.4	5.6	11.2	8.4	5.6	5.6	2.8	2.8	11.4		5.6	5.7	<2.8	2.8	8.4
Cyclotella	<2.8	8.4	<2.8	<2.8	<2.8	<2.8	1.4	<1.4	5.6	<2.8	<2.8	5.6	<2.8	2.8	<2.8		<2.8	<2.8	<2.8	<2.8	14	<2.8	5.6	5.7	<2.8	5.6	<5.7	5.6	2.8	5.6
Cyclotella ?																														
Melosira italica																<2.8														
Melosira	<2.8	<2.8					<1.4	2.8	<1.4	5.6	2.8	5.6	<2.8	<2.8	<2.8	<2.8	<2.8	5.6						<5.7	<2.8	5.6	<5.7	14	2.8	5.6
Melosira ?																														
Rhizosolenia eriensis / longiseta	2.8	5.6	2.8	5.6	5.6	5.6																								
UID																				<2.8						<2.8			<2.8	
Order Pennales																														
Achnanthes minutissima	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	1.4	5.6	<1.4	5.6	<2.8	2.8	2.8	<2.8	<2.8	5.6	<2.8	5.6	<2.8	<2.8	2.8	2.8	<2.8	<5.7	5.6	<2.8	<5.7	<2.8	<2.8	<2.8
Achnanthes flexella								<1.4				<2.8																		
Achnanthes								<1.4	<1.4	<2.8																			<2.8	
Amphipleura																														
Amphora											<2.8						<2.8									<2.8				
Amphora ?							<1.4																							<2.8
Amphora ovalis										<2.8						<2.8		<2.8												
Asterionella formosa							<1.4	1.4	<1.4	<2.8	8.4	<2.8	11.2	<2.8	<2.8	<2.8	14	<2.8		<2.8	<2.8	<2.8	5.6	51.3	11.2	11.2	5.7	<2.8	11.2	5.6
Ceratoneis arcus									<1.4																					
Ceratoneis	<2.8					<2.8	<1.4	<1.4		<2.8				<2.8		<2.8				<2.8		<2.8	<2.8	<5.7	<2.8	<2.8	<5.7			
Ceratoneis ?													<2.8																	
Cocconeis placentula																														
Cocconeis																													<2.8	
Cymatopleura										<2.8																				
Cymbella minuta							<1.4	<1.4	<1.4	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	2.8		2.8	<2.8	<2.8			<5.7	<2.8	<2.8	11.4		<2.8	<2.8
Cymbella	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	<1.4	<1.4	<1.4	<2.8	<2.8	<2.8	2.8	<2.8	2.8	2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8			<2.8	<2.8	<5.7	2.8	<2.8	<2.8
Diatoma elongatum																<2.8		<2.8									<5.7	<2.8		
Diatoma hiemale																														
Diatoma							<1.4	<1.4								<2.8	<2.8	<2.8					<2.8			<2.8				
Diatoma ?	<2.8	<2.8			<2.8	<2.8			<1.4	2.8	<2.8	<2.8	<2.8	<2.8	<2.8							<2.8		<5.7	<2.8		<5.7		<2.8	
Diploneis														<2.8																
Eunotia pectinalis																														
Eunotia	<2.8		<2.8		<2.8	<2.8	<1.4	<1.4	<1.4	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8								<2.8			<2.8	<2.8
Fragilaria crotonensis	<2.8	<2.8									<2.8		<2.8			<2.8		<2.8	<2.8	<2.8				<5.7			<5.7		<2.8	<2.8
Fragilaria vaucheriae																														
Fragilaria	<2.8	<2.8	<2.8	<2.8	<2.8		<1.4	<1.4	4.2	5.6	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<5.7	2.8	2.8	<5.7	<2.8	2.8	<2.8
Frustulia				<2.8		<2.8	<1.4	<1.4	<1.4	<2.8			<2.8	<2.8	<2.8	<2.8	<2.8			<2.8	2.8					<2.8	<5.7			
Frustulia ?					<2.8						2.8		<2.8	<2.8					<2.8					<5.7				<2.8		
Gomphonema olivaceum													<2.8																<2.8	
Gomphonema			<2.8		<2.8	<2.8		<1.4		<2.8	<2.8	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8		<2.8		<2.8	<2.8	<5.7			<5.7		<2.8	<2.8
Licmorpha ?																														
Meridion ?																														
Meridion																														
Navicula	<2.8	<2.8	<2.8	2.8	2.8	<2.8	<1.4	4.2	2.8	5.6	<2.8	5.6	<2.8	2.8	<2.8	14	2.8	<2.8	<2.8	2.8	2.8	<2.8	2.8	<5.7	<2.8	5.6	<5.7	2.8	2.8	<2.8
Nedium																														
Nitzschia							<1.4	<1.4	<1.4	<2.8			2.8	<2.8	<2.8	<2.8	<2.8			<2.8			<2.8				<5.7		<2.8	
Nitzschia ?	<2.8	<2.8	<2.8				<1.4					<2.8							<2.8	<2.8	<2.8	<2.8				2.8		<2.8		
Pinnularia						<2.8				<2.8	<2.8																		<2.8	<2.8
Pleurosigma / Gyrosigma	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<1.4	<1.4	<1.4	2.8	<2.8		<2.8	<2.8	<2.8							<2.8	<2.8	<5.7				<2.8	<2.8	
Stauroneis	<2.8		<2.8	<2.8		<2.8	<1.4			<2.8		<2.8	2.8	<2.8	<2.8	<2.8	<2.8				<2.8	<2.8		<5.7	<2.8	<2.8	<5.7	<2.8	<2.8	2.8
Surirella																														
Surirella ?										<2.8			<2.8			<2.8	<2.8													
Synedra ulna																														
Synedra								<1.4	<1.4	<2.8	<2.8			<2.8						<2.8						<2.8	<5.7			<2.8
Tabellaria fenestrata					<2.8	<2.8	<1.4	1.4	<1.4	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	168	<2.8	<2.8	<2.8	<2.8	<2.8	<5.7	11.2	<2.8	<5.7	<2.8	<2.8	<2.8
Tabellaria flocculosa	224	<2.8	<2.8	11.2	16.8	50.4	11.2	2.8	8.4	2.8	11.2	<2.8	11.2	39.2	<2.8	<2.8	42	<2.8	<2.8	<2.8	<2.8	<2.8	112	<5.7	<2.8	<2.8	<5.7	<2.8	<2.8	2.8
UID	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	1.4	<1.4	1.4	2.8	5.6	2.8	<2.8	<2.8	<2.8	<2.8	2.8	11.2	<2.8	2.8	<2.8	2.8	2.8	<5.7	<2.8	<2.8	<5.7	2.8	11.2	2.8
PHYLUM CHLOROPHYTA																														
Order Chaetophorales																														
Stigeoclonium ?																														
Order Chlorococcales																														
Ankistrodesmus falcatus	<2.8		<2.8	<2.8	<2.8	<2.8	14.0	12.9	7.0	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	22.4	47.6	75.6	<2.8	<2.8	<2.8	5.6	14	34.2	5.6	30.8	5.7	<2.8	<2.8	<2.8
Ankistrodesmus	19.6	11.2	16.8	5.6	14	19.6	7.0	8.4	9.8	8.4	33.6	42	47.6	25.2	19.6	8.4	19.6	16.8	11.2	19.6	16.8	8.4	2.8	11.4	5.6	8.4	5.7	14	28	33.6
Botryococcus braunii	156.8	<2.8	16.8	<2.8	<2.8	<2.8	<1.4	<1.4	<1.4	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	78.4	<2.8	<2.8	<2.8	67.2	67.2	<5.7	<2.8	<2.8	<5.7	<2.8	<2.8	<2.8
Botryococcus sp.	<2.8		<2.8			<2.8		<1.4	<1.4											<2.8										<2.8
Closteriopsis																														
Closteriopsis ?						<2.8	<1.4			<2.8				<2.8	<2.8					<2.8					<2.8				<2.8	
Coelastrum ?																														
Coelastrum																														
Crucigenia crucifera																														
Crucigenia quadrata	<2.8	<2.8	<2.8	<2.8		<2.8	16.8	5.6	<1.4	<2.8	11.2	<2.8		11.2	<2.8	<2.8	11.2			<2.8				22.8	<2.8	<2.8	<5.7	<2.8	<2.8	
Crucigenia rectangularis	<2.8	<2.8	<2.8																				<2.8		<2.8	<2.8	<5.7			
Crucigenia tetrapedia							<1.4	<1.4	5.6	11.2	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8		5.6	<2.8	<2.8	22.4	11.2	<2.8	<5.7	11.2	<2.8	<5.7			
Crucigenia	<2.8		<2.8		<2.8	<2.8						<2.8									<2.8	<2.8		22.8		<2.8				<2.8
Crucigenia ?		<2.8																<2.8		<2.8										

(continued)

Appendix 3.5-2
Taxonomic Results for Phytoplankton in Lac du Sauvage and Reference Sites, Open-Water Season 2004 and 2006 (continued)

Sampling Station	UL2			UL3			LdS1			LdS2			LdS3			LdS4			LdS5			LdS6			LdS7			LdS8		
Sample Replicate	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Sampling Date	29-Jul-06			29-Jul-06			01-Aug-06			03-Aug-06			01-Aug-06			01-Aug-06			05-Aug-06			03-Aug-06			03-Aug-06			05-Aug-06		
Units = cells / mL																														
PHYLUM CHLOROPHYTA																														
Order Chlorococcales																														
Dictyosphaerium	<2.8		<2.8	<2.8	22.4	<2.8	<1.4	<1.4	28.0	<2.8	<2.8	33.6	<2.8	<2.8	44.8	<2.8	22.4	44.8	<2.8	11.2	<2.8	22.4	<2.8	<5.7	44.8	11.2	<5.7	44.8	<2.8	<2.8
Elakatothrix gelatinosa	19.6	30.8	11.2	<2.8	5.6	56	4.2	2.8	8.4	<2.8	11.2	2.8	<2.8	8.4	5.6	14	5.6	5.6	<2.8	11.2	<2.8	8.4	16.8	28.5	5.6	16.8	11.4	5.6	2.8	11.2
Elakatothrix																														
Kirchneriella																														
Kirchneriella ?						<2.8																								
Lagerhiemia																														
Lagerhiemia ?										<2.8	<2.8							<2.8							<2.8			<2.8		
Nephrocytium limneticum																														
Nephrocytium																														
Nephrocytium ?	11.2	<2.8	<2.8				5.6	<1.4	<1.4		<2.8							<2.8	<2.8	<2.8				<5.7	<2.8		<5.7	<2.8		
Oocystis	<2.8	5.6	<2.8	<2.8	<2.8	11.2	<1.4	2.8	<1.4	22.4	<2.8	16.8	<2.8	<2.8	11.2	28	<2.8	22.4	<2.8	<2.8	<2.8	11.2	39.2	11.4	5.6	28	11.4		5.6	<2.8
Pediastrum							<1.4	<1.4	<1.4										<2.8	<2.8	19.6									
Pediastrum tetras																														
Quadrigula closterioides					<2.8	<2.8	<1.4			<2.8	<2.8									<2.8	<2.8			<5.7						
Quadrigula lacustris																														
Quadrigula				<2.8	<2.8	<2.8				<2.8		<2.8									<2.8									
Scenedesmus cf denticulatus																														
Scenedesmus quadricauda																														
Scenedesmus				<2.8		<2.8		<1.4	<1.4	<2.8		<2.8				<2.8								<5.7						
Schroederia setigera																														
Selenastrum minutum																		5.6	2.8	5.6	<2.8							<2.8	2.8	
Selenastrum	2.8	5.6	2.8	2.8	2.8	<2.8										<2.8	<2.8					<2.8		5.7	2.8					
Sorastrum																														
Sphaerocystis schroeteri	<2.8	<2.8	<2.8	<2.8	<2.8	22.4	<1.4	<1.4	<1.4	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	44.8	<2.8	22.4	<2.8	<2.8	<2.8	<5.7	<2.8	<2.8	<5.7	<2.8	<2.8	<2.8
Tetraedron minimum	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	7.0	5.6	2.8	16.8	<2.8	16.8	<2.8	<2.8	<2.8	8.4	14	14	5.6	2.8	5.6	11.2	19.6	17.1	5.6	14	22.8	5.6	14	5.6
Tetraderon	<2.8	<2.8		<2.8	<2.8	<2.8				2.8	<2.8	<2.8	<2.8			<2.8	<2.8												<2.8	<2.8
Treubaria																														
Treubaria ?						<2.8																								
Order Oedogoniales																														
Bulbochaete	<2.8	<2.8				<2.8																								
Bulbochaete ?																												<2.8		
Oedogonium	<2.8	<2.8	<2.8	<2.8			2.8	<1.4	<1.4							<2.8		5.6		<2.8								<2.8		
Oedogonium?					<2.8	<2.8	<1.4			<2.8			<2.8	<2.8	<2.8					<2.8	<2.8			<5.7				5.6	5.6	<2.8
UID																														
Order Tetrasporales																														
Gloeocystis cf ampla	11.2	2.8	42	2.8	19.6	16.8	32.2	<1.4	28.0	16.8	<2.8	<2.8	<2.8	2.8	5.6	8.4	14	47.6	<2.8	44.8	22.4	14	30.8	22.8	2.8	47.6	22.8	2.8	22.4	8.4
Gloeocystis										<2.8		<2.8								<2.8								5.6	<2.8	
Order Ulothricales																														
Geminella																														
Ulothrix										<2.8	<2.8			<2.8		<2.8				<2.8			<2.8						<2.8	<2.8
Ulothrix ?	<2.8	2.8	<2.8	<2.8	2.8	<2.8	5.6	2.8	2.8	8.4	5.6	5.6	5.6	<2.8	<2.8	8.4	16.8	19.6	2.8	5.6	2.8	5.6	2.8	11.4	2.8	2.8	11.4	5.6	2.8	<2.8
Order Volvocales																														
Chlamydomonas							<1.4						2.8		<2.8	<2.8													<2.8	2.8
Chlamydomonas ?									<1.4			2.8	<2.8					<2.8					<2.8		<2.8	<2.8	<5.7			
Eudorina																														
Eudorina ?																														
Pandorina morum																														
UID		<2.8	<2.8	<2.8	<2.8	<2.8	<1.4		<1.4	<2.8	<2.8	<2.8	<2.8	22.4	<2.8	<2.8	11.2	<2.8	<2.8	<2.8	<2.8	11.2	<2.8	22.8	<2.8		<5.7	<2.8	<2.8	<2.8
Order Zygnematales																														
Arthrodesmus	5.6	<2.8	5.6	5.6	8.4	2.8	<1.4	<1.4	<1.4	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	8.4	5.6	<2.8	<2.8	2.8	<2.8	<5.7	<2.8	<2.8	5.7	<2.8	<2.8	<2.8
Bambusina																														
Closterium																														
Closterium ?																														
Cosmarium	<2.8		2.8	2.8	5.6	<2.8	1.4	<1.4	1.4	<2.8		<2.8	<2.8			<2.8				<2.8		<2.8		<5.7	<2.8		<5.7		<2.8	<2.8
Cosmarium ?	2.8	<2.8				<2.8				<2.8	<2.8		<2.8	2.8	<2.8			<2.8	<2.8			<2.8			2.8	<2.8		2.8			
Cylindrocystis ?																														
Euastrum	<2.8		2.8	<2.8	<2.8	<2.8	<1.4	<1.4	<1.4		2.8		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	2.8	<2.8		<5.7	<2.8	<2.8	<5.7	<2.8	<2.8	
Gonatozygon ?						<2.8																								
Gonatozygon					<2.8		<1.4	<1.4	<1.4														<2.8							
Hyalotheca							<1.4		<1.4				<2.8																	
Hyalotheca ?																														
Mougeotia													<2.8																	
Mougeotia ?	<2.8		<2.8	<2.8		<2.8		<1.4	<1.4	<2.8			<2.8	<2.8	<2.8	<2.8									<2.8					
Netrium?																														
Netrium																														
Pleurotaenium							<1.4																							
Roya?																														
Spirogyra ?																														
Spirogyra sp.?																														
Spondylosium planum	8.4	2.8	5.6	<2.8	5.6	<2.8	2.8	<1.4	<1.4	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	8.4	<2.8	<2.8	<2.8	<2.8	<2.8	<5.7	2.8	8.4	5.7	<2.8	<2.8	<2.8
Staurastrum	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<1.4	<1.4	<1.4	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8			<2.8	2.8		<2.8			<2.8	<2.8	<2.8
Xanthidium																														
Xanthidium ?	<2.8		<2.8		<2.8	<2.8	<1.4						<2.8		<2.8						2.8									
Zygnema								<1.4					<2.8																	

(continued)

Appendix 3.5-2

Taxonomic Results for Phytoplankton in Lac du Sauvage and Reference Sites, Open-Water Season 2004 and 2006 (continued)

Sampling Station	UL2			UL3			LdS1			LdS2			LdS3			LdS4			LdS5			LdS6			LdS7			LdS8		
Sample Replicate	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Sampling Date	29-Jul-06			29-Jul-06			01-Aug-06			03-Aug-06			01-Aug-06			01-Aug-06			05-Aug-06			03-Aug-06			03-Aug-06			05-Aug-06		
Units = cells / mL																														
PHYLUM CHLOROPHYTA																														
Order Zygnematales																														
Zygnema ?							<1.4		<1.4	<2.8						<2.8				<2.8										
UID	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<1.4	<1.4	<1.4	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<5.7	<2.8	<2.8	<5.7	<2.8	<2.8	<2.8
UID unicellular Chlorophyta																														
PHYLUM CHRYSOPHYTA																														
Order Chromulinales																														
UID																														
Order Ochromonadales																														
Chrysosphaerella																														
Chrysosphaerella ?																														
Dinobryon cf. bavaricum	75.6	61.6	86.8	168	162.4	184.8	22.4	12.6	16.8	25.2	19.6	19.6	11.2	8.4	25.2	58.8	67.2	70	36.4	36.4	33.6	44.8	16.8	68.4	22.4	33.6	51.3	16.8	28	53.2
Dinobryon divergens													<2.8		2.8	<2.8	<2.8			<2.8	<2.8		8.4		<2.8	<2.8		<2.8	<2.8	<2.8
Dinobryon elegantissimum	2.8	<2.8		2.8	2.8			<1.4		<2.8	2.8	<2.8	5.6	<2.8	<2.8	<2.8	5.6	2.8	8.4	<2.8	<2.8	<2.8	8.4	5.7	8.4	2.8	11.4	<2.8		
Dinobryon sertularia	<2.8	8.4	5.6	8.4	2.8	14	12.6	11.2	7.0	<2.8	<2.8	2.8	2.8	8.4	2.8	5.6	8.4	5.6	<2.8	2.8	8.4	<2.8	19.6	11.4	47.6	11.2	5.7	2.8	2.8	8.4
Dinobryon	30.8	22.4	11.2	30.8	28	25.2	11.2	29.4	35.0	11.2	11.2	2.8	28.0	2.8	2.8	25.2	36.4	33.6	5.6	14	5.6	22.4		22.8	2.8	8.4	17.1	16.8	11.2	14
Mallomonas akrokomos																														
Mallomonas cf pseudocoronata																														
Mallomonas																														
Mallomonas ?																														
Synura uvella ?																														
Uroglenopsis cf americana																														
UID																											<5.7			
Order Rhizochrysidales																														
Diceras phaseolus	5.6	2.8	<2.8	2.8	<2.8	<2.8	1.4	<1.4	5.6			<2.8	<2.8	<2.8	<2.8	2.8	<2.8	5.6	2.8	2.8	2.8	2.8	5.6	5.7	2.8	<2.8	<5.7	<2.8	11.2	<2.8
Order Vaucheriales																														
Vaucheria ?																														
UID Chrysophyta																														
PHYLUM CRYPTOPHYTA																														
Order Cryptomonadales																														
Chroomonas acuta	5.6	5.6	5.6	11.2	5.6	5.6	22.4	21.0	26.6	2.8	2.8	<2.8	5.6	11.2	16.8	39.2	64.4	44.8	<2.8	<2.8	<2.8	<2.8		5.7	<2.8	2.8	<5.7	<2.8		
Cryptomonas ovata / erosa	<2.8	<2.8	<2.8	5.6	<2.8	<2.8	2.8	<1.4	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	<5.7		<2.8	5.7	<2.8	<2.8	<2.8
Cryptomonas	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	1.4	1.4	<1.4	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	5.6	<2.8	2.8		<2.8		<2.8	2.8	<5.7	5.6	<2.8	<5.7		<2.8	<2.8
UID																				<2.8		2.8					<5.7			
PHYLUM CYANOPHYTA																														
Order Chaemosiphonales																														
UID																														
Order Chroococcales																														
Agmenellum tenuissima	<2.8	<2.8	<2.8	<2.8	179.2	<2.8				<2.8	<2.8								<2.8	<2.8										
Agmenellum						<2.8	<1.4						<2.8	<2.8		<2.8								<5.7						
Anacystis cf aeruginosa																														
Anacystis elachista	<2.8	<2.8		28		<2.8			42.0	<2.8													112	<5.7						
Anacystis cf limneticus																							<2.8							
Anacystis	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<1.4		<1.4			<2.8		<2.8	<2.8	<2.8				<2.8		<2.8	5.6	<5.7	<2.8	<2.8	<5.7			22.4
Anacystis ?																														
Dactylococcopsis																														
Dactylococcopsis?																														
Gloeocapsa																														
Gomphosphaeria	<2.8							<1.4	<1.4																					
Gomphosphaeria ?			<2.8	<2.8		<2.8	<1.4																							
Marssoniella elegans																														
Order Nostocales																														
Anabaena							117.6	128.8	113.4	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8			<2.8	<2.8	<2.8	<2.8	<2.8	<5.7	<2.8		<5.7	<2.8	<2.8	<2.8
Anabaena ?	<2.8	<2.8	<2.8	<2.8	<2.8	14	<1.4	<1.4	<1.4	92.4	260.4	72.8	240.8	134.4	224	67.2	126	235.2	411.6	224	120.4	372.4	257.6	393.3	109.2	25.2	176.7	341.6	338.8	98
Aphanizomenon?							<1.4	<1.4	<1.4									42						<5.7				<2.8	16.8
Nostoc ?								<1.4	<1.4	<2.8	84	44.8	<2.8	616	<2.8	<2.8	<2.8	56	<2.8	288.4	70	84		<5.7	<2.8	<2.8	<5.7	<2.8	140	<2.8
UID																														
Order Oscillatoriales																														
Lyngbya limnetica	42	<2.8	<2.8	182	72.8	140	133.0	191.8	140.0	350	210	392	445.2	338.8	282.8	448.0	484.4	434.0	308	386.4	294	274.4	364	484.5	294	308	456	156.8	140	386.4
Lyngbya						<2.8		<1.4																						
Lyngbya ?	<2.8	<2.8		<2.8	<2.8	<2.8		<1.4	<1.4					<2.8	<2.8															
Oscillatoria cf tenuis																														
Oscillatoria				33.6	<2.8	<2.8	<1.4		<1.4	<2.8						<2.8														
Oscillatoria ?	<2.8	<2.8	<2.8														<2.8													
Phormidium mucicola																														
UID																														
PHYLUM EUGLENOPHYTA																														
Order Euglenales																														
Euglena							<1.4	<1.4	<1.4																					
Euglena ?																				<2.8										
Trachelomonas								<1.4	<1.4					<2.8																
Phacus?																														
PHYLUM PYRRHOPHYTA																														
Order Dinokontae																														
Ceratium sp.																														
Gymnodinium ?	2.8	<2.8		<2.8		<2.8	<1.4						<2.8	<2.8	<2.8	<2.8		<2.8					<2.8						<2.8	

(continued)

Appendix 3.5-2
Taxonomic Results for Phytoplankton in Lac du Sauvage and Reference Sites, Open-Water Season 2004 and 2006 (continued)

Sampling Station	UL2			UL3			LdS1			LdS2			LdS3			LdS4			LdS5			LdS6			LdS7			LdS8		
Sample Replicate	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Sampling Date	29-Jul-06			29-Jul-06			01-Aug-06			03-Aug-06			01-Aug-06			01-Aug-06			05-Aug-06			03-Aug-06			03-Aug-06			05-Aug-06		
Units = cells / mL																														
PHYLUM PYRRHOPHYTA																														
Order Dinokontae																														
Peridinium cf inconspicuum	5.6	2.8	8.4	8.4	8.4	<2.8	<1.4	2.8	<1.4	2.8	<2.8	<2.8	2.8	<2.8	<2.8	2.8	8.4	<2.8		<2.8	2.8	2.8	<2.8	<5.7	<2.8	5.6	<5.7	2.8	<2.8	<2.8
Peridinium / Glenodinium	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8					2.8			<2.8	<2.8	<2.8	<2.8	<2.8					<2.8			<2.8				
UID	2.8	2.8	<2.8		<2.8	<2.8				<2.8		2.8					<2.8					2.8						2.8		
														<2.8																
UID branched filamentous algae																											<5.7			
UID filamentous algae	<2.8		<2.8	<2.8	<2.8	<2.8	<1.4	<1.4	<1.4	<2.8	<2.8	<2.8	<2.8		<2.8	<2.8						<2.8	<2.8	<5.7	<2.8		<5.7			
UID unicellular algae							8.4																							

Note : Unidentified flagellates observed but not counted.

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

(continued)

Appendix 3.5-2

Taxonomic Results for Phytoplankton in Lac du Sauvage and Reference Sites, Open-Water Season 2004 and 2006 (continued)

Sampling Station	LdS9			LdS10			LdS11			LdS12			Christine			UL1			UL2			UL3			LdS1			LdS2		
Sample Replicate	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Sampling Date	03-Aug-06			03-Aug-06			03-Aug-06			03-Aug-06			13-Sep-06			11-Sep-06			11-Sep-06			11-Sep-06			10-Sep-06			10-Sep-06		
Units = cells / mL																														
PHYLUM BACILLARIOPHYCEAE																														
Order Centrales																														
Cyclotella glomerata	<2.8	5.6	2.8	<2.8	<2.8	<2.8	5.6	8.4	2.8	<2.8	2.8	2.8	50.4	81.2	16.8	<2.8	2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	5.6	2.8	8.4	<2.8	2.8	5.6
Cyclotella	<2.8	5.6	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	2.8	<2.8	5.6	2.8	<2.8	5.6	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Cyclotella ?																														
Melosira italica																														
Melosira	<2.8	<2.8		5.6	<2.8	<2.8	<2.8		<2.8		<2.8	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8			
Melosira ?																														
Rhizosolenia eriensis / longiseta																<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	2.8						
UID							<2.8	<2.8					<2.8			<2.8		<2.8				<2.8								
Order Pennales																														
Achnanthes minutissima	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	2.8	<2.8	<2.8	5.6	2.8	<2.8	2.8	<2.8	2.8	<2.8	2.8	<2.8	2.8	<2.8	<2.8	<2.8	2.8	2.8	<2.8	2.8	<2.8	2.8	<2.8	2.8
Achnanthes flexella				<2.8	<2.8																									
Achnanthes	<2.8																											2.8	2.8	
Amphipleura																														
Amphora							<2.8																							
Amphora ?																														
Amphora ovalis																														
Asterionella formosa	22.8	<2.8	19.6	2.8	11.2	<2.8	8.4	<2.8	5.6	44.8	28	<2.8	<2.8	<2.8	<2.8										<2.8	<2.8	<2.8	<2.8	<2.8	25.2
Ceratoneis arcus																														
Ceratoneis																2.8			<2.8			<2.8			<2.8				<2.8	<2.8
Ceratoneis ?																														
Cocconeis placentula																														
Cocconeis																														
Cymatopleura																														
Cymbella minuta				<2.8			<2.8		<2.8		<2.8	<2.8				<2.8	<2.8		<2.8										<2.8	<2.8
Cymbella	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8
Diatoma elongatum																														
Diatoma hiemale																														
Diatoma	<2.8						<2.8	<2.8											<2.8		<2.8							<2.8	<2.8	
Diatoma ?											<2.8	2.8			<2.8	<2.8					<2.8									<2.8
Diploneis																														
Eunotia pectinalis																														
Eunotia				<2.8	<2.8			<2.8		<2.8	<2.8		<2.8		<2.8		<2.8		<2.8		<2.8	<2.8	<2.8	<2.8			<2.8	<2.8	<2.8	<2.8
Fragilaria crotonensis	<2.8			<2.8	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8			2.8	2.8		<2.8					<2.8			<2.8			2.8	2.8	<2.8
Fragilaria vaucheriae																														
Fragilaria	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	5.6	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8			<2.8	<2.8	2.8	2.8	<2.8	<2.8	<2.8
Frustulia				2.8	<2.8	<2.8	<2.8		<2.8		<2.8			2.8	<2.8	<2.8					<2.8	2.8	<2.8	<2.8						
Frustulia ?								<2.8		<2.8			<2.8				<2.8	<2.8	<2.8										<2.8	<2.8
Gomphonema olivaceum																														
Gomphonema	<2.8	<2.8	<2.8	<2.8			<2.8				<2.8	<2.8			<2.8	<2.8	<2.8					<2.8			<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Licmorpha ?																														
Meridion ?																														
Meridion																														
Navicula	<2.8	<2.8	5.6	8.4	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	2.8	2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	2.8		<2.8	<2.8	5.6	2.8	<2.8
Nedium																														
Nitzschia				2.8						<2.8	<2.8					<2.8	<2.8													
Nitzschia ?	<2.8	<2.8	2.8				<2.8	<2.8	<2.8			<2.8	<2.8	<2.8		<2.8			<2.8		<2.8				<2.8	<2.8			<2.8	<2.8
Pinnularia																		<2.8												
Pleurosigma / Gyrosigma				<2.8			<2.8	<2.8	<2.8				<2.8		<2.8	<2.8				<2.8	<2.8	<2.8	<2.8	<2.8				<2.8	<2.8	
Stauroneis	<2.8	<2.8					<2.8	<2.8	2.8	<2.8	<2.8		<2.8			<2.8	<2.8	<2.8		<2.8								<2.8	<2.8	<2.8
Surirella							<2.8																							
Surirella ?																														
Synedra ulna																					<2.8									
Synedra	<2.8	<2.8	<2.8	<2.8	2.8		<2.8	<2.8		<2.8	<2.8				<2.8	<2.8	<2.8		2.8	<2.8	<2.8	<2.8	<2.8		<2.8	<2.8				<2.8
Tabellaria fenestrata	<2.8	<2.8	<2.8	<2.8	<2.8	33.6	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8				<2.8							<2.8	<2.8	<2.8	<2.8	8.4	<2.8	<2.8	<2.8
Tabellaria flocculosa	<2.8	16.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	22.4	<2.8	22.4	<2.8	30.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	22.4	<2.8	<2.8	<2.8	<2.8	33.6	<2.8	<2.8	<2.8
UID	<2.8	<2.8	<2.8	5.6	2.8	14	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	5.6	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	5.6	<2.8	2.8	<2.8	<2.8	<2.8	5.6
PHYLUM CHLOROPHYTA																														
Order Chaetophorales																														
Stigeoclonium ?																														
Order Chlorococcales																														
Ankistrodesmus falcatus	62.7	5.6	<2.8	8.4	50.4	47.6	<2.8	5.6	<2.8	2.8	14	25.2	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Ankistrodesmus	5.7	42	47.6	16.8	11.2	14	14	8.4	14	8.4	8.4	11.2	58.8	25.2	36.4	16.8	14	19.6	22.4	42	25.2	22.4	50.4	33.6	36.4	14	22.4	5.6	22.4	30.8
Botryococcus braunii	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	22.8	<2.8	<2.8	<2.8	<2.8	<2.8	44.8	<2.8	<2.8	67.2	<2.8	22.4	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Botryococcus sp.	<2.8		<2.8									<2.8				22.4	<2.8		<2.8		<2.8				<2.8		<2.8	<2.8	<2.8	
Closteriopsis															<2.8															
Closteriopsis ?	<2.8	<2.8											<2.8		2.8	<2.8				<2.8	<2.8		<2.8			2.8				
Coelastrum ?																														
Coelastrum																														
Crucigenia crucifera																														
Crucigenia quadrata	<2.8	<2.8	<2.8	11.2	11.2		<2.8		<2.8				33.6		<2.8	<2.8	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	
Crucigenia rectangularis		<2.8	<2.8				<2.8													<2.8	<2.8		<2.8							
Crucigenia tetrapedia	<2.8	<2.8	<2.8	11.2	11.2	11.2	<2.8	11.2	11.2																<2.8		<2.8	<2.8	<2.8	<2.8
Crucigenia		<2.8		<2.8	11.2	<2.8		<2.8					<2.8	<2.8	<2.8				<2.8	<2.8	<2.8	<2.8		<2.8		<2.8		<2.8		<2.8
Crucigenia ?																<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8							

(continued)

Appendix 3.5-2

Taxonomic Results for Phytoplankton in Lac du Sauvage and Reference Sites, Open-Water Season 2004 and 2006 (continued)

Sampling Station	LdS9			LdS10			LdS11			LdS12			Christine			UL1			UL2			UL3			LdS1			LdS2		
Sample Replicate	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Sampling Date	03-Aug-06			03-Aug-06			03-Aug-06			03-Aug-06			13-Sep-06			11-Sep-06			11-Sep-06			11-Sep-06			10-Sep-06			10-Sep-06		
Units = cells / mL																														
PHYLUM CHLOROPHYTA																														
Order Chlorococcales																														
Dictyosphaerium	<2.8	<2.8	<2.8	22.4	<2.8	<2.8	<2.8	<2.8	<2.8	33.6	<2.8	<2.8	<2.8			<2.8	<2.8	<2.8	<2.8	<2.8	<2.8				33.6	<2.8	<2.8	<2.8	<2.8	11.2
Elakatothrix gelatinosa	22.8	<2.8	2.8	16.8	11.2	<2.8	11.2	11.2	<2.8	<2.8	11.2	5.6	<2.8	11.2	2.8	8.4	2.8	22.4	11.2	16.8	5.6	11.2	19.6	19.6		19.6	<2.8	2.8	11.2	2.8
Elakatothrix																														
Kirchneriella																														
Kirchneriella ?													<2.8		<2.8		<2.8			<2.8	<2.8	<2.8	<2.8							
Lagerhiemia																														
Lagerhiemia ?		<2.8		<2.8	<2.8	<2.8					<2.8														<2.8			<2.8		
Nephrocytium limneticum																														
Nephrocytium																														
Nephrocytium ?	<2.8	<2.8		<2.8	<2.8		<2.8			<2.8	<2.8		<2.8	11.2	<2.8	<2.8		<2.8							<2.8			<2.8	<2.8	<2.8
Oocystis	11.4	<2.8	<2.8	11.2	5.6	<2.8	<2.8	<2.8	11.2	44.8	11.2	<2.8	<2.8	<2.8	<2.8	11.2	11.2	11.2	<2.8	<2.8	<2.8	22.4	11.2	22.4	<2.8	5.6	5.6	<2.8	5.6	<2.8
Pediastrum	<2.8	<2.8			<2.8	<2.8	<2.8																						<2.8	
Pediastrum tetras																														
Quadrigula closterioides	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8										<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8		<2.8			
Quadrigula lacustris																														
Quadrigula													<2.8	5.6	<2.8	<2.8			<2.8	<2.8	<2.8		<2.8	<2.8	<2.8	5.6				
Scenedesmus cf denticulatus				<2.8																										
Scenedesmus quadricauda																			<2.8	<2.8										
Scenedesmus	<2.8			<2.8	<2.8	<2.8					<2.8	<2.8				<2.8			<2.8			11.2	<2.8	<2.8	<2.8		<2.8			
Schroederia setigera																<2.8	<2.8	<2.8												
Selenastrum minutum				<2.8		<2.8		<2.8					<2.8	2.8	11.2	2.8	16.8	11.2	<2.8	11.2	30.8	2.8	16.8	14		<2.8	2.8	2.8	<2.8	<2.8
Selenastrum	<2.8				2.8		<2.8		<2.8	5.6				<2.8	<2.8													<2.8	<2.8	
Sorastrum																														
Sphaerocystis schroeteri	<2.8	<2.8	89.6	179.2	179.2	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	44.8	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	44.8	<2.8	<2.8			
Tetraedron minimum	17.1	5.6	2.8	16.8	16.8	25.2	5.6	8.4	2.8	5.6	8.4	11.2	<2.8	5.6	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	2.8	2.8	<2.8	<2.8	2.8	2.8	<2.8	2.8	2.8	5.6
Tetraderon	<2.8	<2.8	<2.8	<2.8								<2.8		<2.8	<2.8			<2.8		<2.8		<2.8	<2.8	<2.8			<2.8		2.8	<2.8
Treubaria																														
Treubaria ?																														
Order Oedogoniales																														
Bulbochaete																														
Bulbochaete ?																														
Oedogonium				<2.8	<2.8																<2.8	<2.8								
Oedogonium?							<2.8												<2.8		<2.8	<2.8	<2.8							
UID																														
Order Tetrasporales																														
Gloeocystis cf ampla	51.3	<2.8	<2.8	11.2	<2.8	44.8	<2.8	2.8	<2.8	53.2	95.2	19.6	<2.8	<2.8	<2.8	2.8	30.8	2.8	16.8	36.4	106.4	36.4	58.8	16.8	56	33.6	89.6	<2.8	<2.8	<2.8
Gloeocystis								<2.8			<2.8			<2.8	<2.8	<2.8	<2.8	<2.8			<2.8	<2.8	<2.8	<2.8	<2.8	16.8			<2.8	<2.8
Order Ulothricales																														
Geminella																														
Ulothrix	<2.8						<2.8																		<2.8					
Ulothrix ?	5.7	11.2	8.4	5.6	5.6	5.6	<2.8	<2.8	8.4	2.8	2.8	8.4	8.4	2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Order Volvocales																														
Chlamydomonas				2.8	<2.8								<2.8		<2.8	<2.8	<2.8			<2.8	<2.8	<2.8	2.8							
Chlamydomonas ?	<2.8	<2.8				<2.8				<2.8	<2.8			2.8				<2.8	<2.8		2.8	<2.8	<2.8	2.8				<2.8	<2.8	
Eudorina																														
Eudorina ?																														
Pandorina morum																														
UID	<2.8	<2.8	<2.8	<2.8	11.2	<2.8	<2.8	11.2	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	11.2	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	11.2	<2.8	5.6	<2.8	<2.8	11.2	<2.8
Order Zygnematales																														
Arthrodesmus	<2.8	<2.8	<2.8	<2.8	2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	11.2	2.8	5.6	<2.8	2.8	<2.8	2.8	2.8	8.4	2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Bambusina																														
Closterium																														
Closterium ?																									<2.8					
Cosmarium	<2.8			<2.8			2.8		<2.8	<2.8	2.8	<2.8				<2.8	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8			<2.8	<2.8
Cosmarium ?	<2.8	<2.8	<2.8		2.8	<2.8	<2.8				<2.8	<2.8	2.8	<2.8	<2.8	<2.8		<2.8			<2.8	<2.8			<2.8		<2.8	<2.8		
Cylindrocystis ?																														
Euastrum										<2.8	<2.8		2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8		<2.8	<2.8	
Gonatozygon ?																														
Gonatozygon							<2.8									<2.8		<2.8	<2.8		<2.8	<2.8		<2.8						
Hyalotheca																<2.8												<2.8	<2.8	
Hyalotheca ?																														
Mougeotia					<2.8																									
Mougeotia ?						<2.8							<2.8		<2.8	<2.8	<2.8			<2.8			<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	
Netrium?																														
Netrium																														
Pleurotaenium																														
Roya?																														
Spirogyra ?																														
Spirogyra sp.?																														
Spondylosium planum	2.8	5.6	<2.8	2.8	<2.8	5.6	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	5.6	2.8	8.4	2.8	<2.8	2.8	8.4	<2.8	8.4	<2.8	5.6	5.6	<2.8	5.6	<2.8	<2.8	2.8	14
Staurastrum	<2.8	<2.8	<2.8				<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8			<2.8	<2.8	<2.8	<2.8	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Xanthidium																														
Xanthidium ?	<2.8												2.8		<2.8	5.6	2.8	<2.8		<2.8	<2.8	<2.8	2.8	<2.8						
Zygnema																														

(continued)

Appendix 3.5-2

Taxonomic Results for Phytoplankton in Lac du Sauvage and Reference Sites, Open-Water Season 2004 and 2006 (continued)

Sampling Station	LdS9			LdS10			LdS11			LdS12			Christine			UL1			UL2			UL3			LdS1			LdS2		
Sample Replicate	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Sampling Date	03-Aug-06			03-Aug-06			03-Aug-06			03-Aug-06			13-Sep-06			11-Sep-06			11-Sep-06			11-Sep-06			10-Sep-06			10-Sep-06		
Units = cells / mL																														
PHYLUM CHLOROPHYTA																														
Order Zygnematales																														
Zygnema ?										<2.8			<2.8	<2.8	<2.8		<2.8								<2.8		<2.8			
UID	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8		<2.8
UID unicellular Chlorophyta																														
PHYLUM CHRYSOPHYTA																														
Order Chromulinales																														
UID																														
Order Ochromonadales																														
Chrysosphaerella																														
Chrysosphaerella ?																														
Dinobryon cf. bavaricum	28.5	33.6	25.2	58.8	64.4	42	19.6	14	25.2	19.6	30.8	19.6	11.2	25.2	16.8	28	30.8	33.6	19.6	47.6	28	42	36.4	50.4	16.8	11.2	8.4	16.8	16.8	11.2
Dinobryon divergens	<2.8		<2.8		<2.8						<2.8							<2.8		<2.8										
Dinobryon elegantissimum	<2.8	2.8		8.4	2.8		2.8	2.8	<2.8	<2.8	<2.8	16.8	25.2	36.4	8.4	<2.8		<2.8		<2.8	<2.8				2.8	<2.8	<2.8	2.8		
Dinobryon sertularia	17.1	5.6	<2.8	5.6	8.4	<2.8	<2.8	<2.8	11.2	2.8	<2.8	2.8				<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8				
Dinobryon	28.5	14	8.4	28.0	16.8	28	5.6	16.8	2.8	5.6	11.2	11.2	5.6	5.6	8.4	16.8	5.6	<2.8	11.2	8.4	5.6	16.8	28	11.2	2.8	8.4	2.8	2.8	2.8	8.4
Mallomonas akrokomos													2.8		2.8															
Mallomonas cf pseudocoronata																														
Mallomonas														<2.8																
Mallomonas ?															<2.8															
Synura uvella ?																														
Uroglenopsis cf americana																														
UID																														
Order Rhizochrysidales																														
Diceras phaseolus	<2.8	<2.8	<2.8	8.4	<2.8		5.6	<2.8	2.8	2.8	2.8	2.8	<2.8	<2.8	<2.8	<2.8	2.8	2.8	<2.8	<2.8	<2.8	5.6	2.8	<2.8	2.8	<2.8		2.8	<2.8	<2.8
Order Vaucheriales																														
Vaucheria ?																														
UID Chrysophyta																														
PHYLUM CRYPTOPHYTA																														
Order Cryptomonadales																														
Chroomonas acuta	<2.8	<2.8	2.8		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	25.2	25.2	25.2	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	5.6	5.6	<2.8	2.8	30.8	11.2	16.8
Cryptomonas ovata / erosa	<2.8	2.8	<2.8	2.8	<2.8	<2.8		<2.8	<2.8	<2.8			2.8	8.4	2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	5.6
Cryptomonas	5.7	2.8	2.8		<2.8	11.2	<2.8	<2.8	<2.8	<2.8	5.6	<2.8	2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	2.8	2.8	2.8	<2.8
UID																												2.8		
PHYLUM CYANOPHYTA																														
Order Chaemosiphonales																														
UID																														
Order Chroococcales																														
Agmenellum tenuissima				<2.8	<2.8								89.6	134.4	44.8					<2.8	<2.8	<2.8	<2.8							
Agmenellum			<2.8													<2.8	<2.8													
Anacystis cf aeruginosa																														
Anacystis elachista		<2.8	70										<2.8	<2.8	<2.8	168	84	<2.8		112		42	<2.8	<2.8	<2.8	<2.8	<2.8		<2.8	<2.8	
Anacystis cf limneticus																						<2.8		<2.8						
Anacystis	<2.8	<2.8	11.2				<2.8			<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	11.2	16.8	50.4	<2.8	5.6	<2.8	<2.8	56	<2.8	<2.8	<2.8	<2.8
Anacystis ?																														
Dactylococcopsis																														
Dactylococcopsis?														<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	56	<2.8	<2.8	<2.8	<2.8						
Gloeocapsa																														
Gomphosphaeria															<2.8						<2.8									
Gomphosphaeria ?													<2.8	<2.8	<2.8	42		<2.8	<2.8	<2.8	67.2	84	<2.8	42						
Marssoniella elegans																														
Order Nostocales																														
Anabaena	<2.8		<2.8	84	<2.8		<2.8	<2.8	<2.8		<2.8	<2.8		<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8				<2.8	56	<2.8	<2.8	<2.8	
Anabaena ?	267.9	246.4	176.4	308	78.4	84	134.4	128.8	212.8	95.2	344.4	204.4	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	22.4	84	39.2	22.4	16.8	5.6
Aphanizomenon?				<2.8	<2.8	<2.8																							<2.8	
Nostoc ?	<2.8	<2.8	16.8	<2.8	<2.8	<2.8	<2.8	<2.8	196	<2.8	<2.8	<2.8							<2.8	<2.8	<2.8		<2.8		<2.8					
UID															<2.8												<2.8			<2.8
Order Oscillatoriales																														
Lyngbya limnetica	598.5	266	350	422.8	504.0	490	459.2	358.4	168	266	198.8	266	126	123.2	142.8	442.4	294	520.8	308	324.8	644	392	588	436.8	266	210	504	277.2	308	140
Lyngbya															<2.8															
Lyngbya ?													<2.8			<2.8										28	<2.8			
Oscillatoria cf tenuis													<2.8		<2.8															
Oscillatoria														<2.8																
Oscillatoria ?																									<2.8		<2.8			
Phormidium mucicola																														
UID																														
PHYLUM EUGLENOPHYTA																														
Order Euglenales																														
Euglena																						<2.8								
Euglena ?																								<2.8						
Trachelomonas																														
Phacus?															<2.8															
PHYLUM PYRRHOPHYTA																														
Order Dinokontae																														
Ceratium sp.																														
Gymnodinium ?					2.8	<2.8					<2.8										<2.8				<2.8		2.8			

(continued)

Appendix 3.5-2

Taxonomic Results for Phytoplankton in Lac du Sauvage and Reference Sites, Open-Water Season 2004 and 2006 (continued)

Sampling Station	LdS9			LdS10			LdS11			LdS12			Christine			UL1			UL2			UL3			LdS1			LdS2		
Sample Replicate	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Sampling Date	03-Aug-06			03-Aug-06			03-Aug-06			03-Aug-06			13-Sep-06			11-Sep-06			11-Sep-06			11-Sep-06			10-Sep-06			10-Sep-06		
Units = cells / mL																														
PHYLUM PYRRHOPHYTA																														
Order Dinokontae																														
Peridinium cf inconspicuum	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	5.6	<2.8	<2.8	<2.8	<2.8	<2.8	2.8
Peridinium / Glenodinium	<2.8	<2.8		<2.8	<2.8	<2.8													<2.8	<2.8	<2.8				<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
UID	<2.8	<2.8	<2.8	<2.8		<2.8				<2.8			<2.8	<2.8	<2.8	2.8			<2.8		<2.8	<2.8		<2.8				<2.8		2.8
UID branched filamentous algae																														
UID filamentous algae	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8		<2.8	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8					<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
UID unicellular algae																														

Note : Unidentified flagellates observed but not counted.

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

(continued)

Appendix 3.5-2

Taxonomic Results for Phytoplankton in Lac du Sauvage and Reference Sites, Open-Water Season 2004 and 2006 (continued)

Sampling Station	LdS3			LdS4			LdS5			LdS6			LdS7			LdS8			LdS9			LdS10			LdS11			LdS12		
Sample Replicate	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Sampling Date	07-Sep-06			07-Sep-06			10-Sep-06			07-Sep-06			10-Sep-06			10-Sep-06			07-Sep-06			08-Sep-06			08-Sep-06			08-Sep-06		
Units = cells / mL																														
PHYLUM BACILLARIOPHYCEAE																														
Order Centrales																														
Cyclotella glomerata	5.6	11.2	8.4	8.4	2.8	<2.8	16.8	11.2	<2.8	19.6	8.4	2.8	5.6	11.2	<2.8	11.2	<2.8	5.6	5.6	8.4	16.8		8.4	<2.8	5.6	2.8	5.6	5.6	5.6	8.4
Cyclotella	2.8	2.8	<2.8	<2.8	<2.8	2.8	2.8	2.8	<2.8	2.8	5.6	2.8	2.8	<2.8	2.8	<2.8	<2.8	2.8	2.8	<2.8	5.6	2.8	<2.8	<2.8	<2.8	2.8	2.8	<2.8	<2.8	<2.8
Cyclotella ?																														
Melosira italica																														
Melosira	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8		<2.8	5.6	2.8	5.6	<2.8	<2.8		<2.8	<2.8	2.8	<2.8		<2.8	<2.8	<2.8	2.8
Melosira ?																														
Rhizosolenia eriensis / longiseta																														
UID														<2.8	<2.8			<2.8		<2.8						<2.8				
Order Pennales																														
Achnanthes minutissima	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	2.8	2.8	<2.8		2.8	<2.8	<2.8	<2.8	2.8	5.6	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8		<2.8	<2.8
Achnanthes flexella											<2.8																			
Achnanthes																														
Amphipleura																														
Amphora																														
Amphora ?						<2.8										<2.8														
Amphora ovalis																														
Asterionella formosa	<2.8	14	<2.8	<2.8	<2.8	16.8	8.4	5.6	<2.8	<2.8	22.4	<2.8	<2.8	11.2	8.4	8.4	<2.8	<2.8	5.6	19.6	11.2	16.8	19.6	8.4	<2.8	<2.8	<2.8	<2.8	<2.8	14
Ceratoneis arcus																														
Ceratoneis	<2.8									<2.8	<2.8														<2.8					
Ceratoneis ?																														
Cocconeis placentula																														
Cocconeis																														
Cymatopleura																														
Cymbella minuta		<2.8		<2.8	2.8			<2.8		<2.8	<2.8	<2.8	<2.8			<2.8		<2.8					<2.8	<2.8	<2.8	<2.8		<2.8	<2.8	2.8
Cymbella	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8		<2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	5.6	<2.8		
Diatoma elongatum						<2.8																								
Diatoma hiemale																														
Diatoma				<2.8							<2.8																			
Diatoma ?	<2.8	<2.8			<2.8	<2.8				<2.8		<2.8	<2.8		2.8	<2.8		<2.8		<2.8					<2.8	<2.8	<2.8	<2.8	<2.8	
Diploneis							<2.8																							
Eunotia pectinalis																														
Eunotia	<2.8	<2.8	<2.8				<2.8	<2.8					<2.8		<2.8	<2.8	<2.8				<2.8	<2.8	<2.8			<2.8			<2.8	
Fragilaria crotonensis		<2.8		<2.8		<2.8	<2.8	<2.8	<2.8						<2.8	<2.8		<2.8	2.8	<2.8		<2.8		5.6				<2.8	2.8	<2.8
Fragilaria vaucheriae																														
Fragilaria	2.8	2.8	2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	8.4	<2.8	<2.8	<2.8		<2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	5.6	<2.8	2.8	<2.8
Frustulia	2.8		<2.8	<2.8	<2.8	<2.8				<2.8	<2.8	<2.8										<2.8			<2.8	<2.8	<2.8	<2.8		<2.8
Frustulia ?		<2.8																	<2.8				<2.8					<2.8		
Gomphonema olivaceum																													<2.8	
Gomphonema	<2.8	<2.8		<2.8	<2.8	<2.8		<2.8				<2.8	2.8	<2.8	2.8	<2.8			<2.8	<2.8		<2.8	<2.8						<2.8	2.8
Licmorpha ?																														
Meridion ?																														
Meridion																														
Navicula	2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	8.4	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	2.8	<2.8	<2.8	<2.8	2.8	<2.8	5.6	11.2	2.8	<2.8	<2.8
Nedium																														
Nitzschia		<2.8																							<2.8					
Nitzschia ?	<2.8								<2.8							<2.8	<2.8			<2.8		<2.8			<2.8	<2.8		<2.8		
Pinnularia																														
Pleurosigma / Gyrosigma	<2.8	<2.8											<2.8	<2.8					<2.8	<2.8								<2.8		2.8
Stauroneis		<2.8	<2.8			<2.8	<2.8	<2.8				<2.8		<2.8														<2.8		
Surirella																														
Surirella ?																						<2.8	<2.8		<2.8	<2.8				
Synedra ulna																														
Synedra	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8		<2.8	<2.8		<2.8		<2.8						<2.8		<2.8	<2.8	<2.8		<2.8		<2.8	
Tabellaria fenestrata	<2.8	95.2	<2.8	<2.8	<2.8	<2.8	<2.8	100.8	89.6	<2.8	100.8	42	<2.8	<2.8	<2.8	<2.8	33.6	<2.8	<2.8	<2.8	<2.8	56	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Tabellaria flocculosa	<2.8	<2.8	2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	22.4	<2.8	16.8	<2.8	<2.8	<2.8	<2.8	<2.8	8.4	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	25.2	<2.8
UID	<2.8	<2.8	2.8	2.8	<2.8	2.8	5.6	<2.8	<2.8	5.6	<2.8	<2.8	2.8	2.8	<2.8	2.8	2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	5.6	<2.8	5.6	2.8	<2.8	<2.8
PHYLUM CHLOROPHYTA																														
Order Chaetophorales																														
Stigeoclonium ?																														
Order Chlorococcales																														
Ankistrodesmus falcatus	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	5.6	2.8	<2.8	<2.8	2.8	8.4	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	16.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	5.6	2.8
Ankistrodesmus	33.6	39.2	25.2	22.4	33.6	36.4	11.2	<2.8	14	14	33.6	11.2	2.8	14	5.6	33.6	25.2	58.8	36.4	81.2	53.2	33.6	33.6	33.6	16.8	89.6	53.2	28	11.2	14
Botryococcus braunii	<2.8	44.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Botryococcus sp.	<2.8				<2.8	<2.8	<2.8							<2.8	<2.8							<2.8		<2.8	<2.8		<2.8	<2.8		
Closteriopsis																														
Closteriopsis ?	<2.8				<2.8											<2.8						<2.8								
Coelastrum ?																														
Coelastrum																														
Crucigenia crucifera																														
Crucigenia quadrata	<2.8	11.2		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	11.2		<2.8	<2.8	11.2	<2.8	<2.8	<2.8	11.2	<2.8			<2.8	<2.8		<2.8	<2.8	<2.8
Crucigenia rectangularis	<2.8				<2.8	<2.8																						<2.8		
Crucigenia tetrapedia	<2.8	<2.8	11.2		<2.8	<2.8	<2.8		<2.8	11.2	<2.8		<2.8		<2.8	<2.8	<2.8	11.2	<2.8	<2.8		11.2		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Crucigenia				<2.8	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8			<2.8	<2.8					<2.8	<2.8				<2.8	<2.8		<2.8
Crucigenia ?		<2.8	<2.8																		<2.8			<2.8						

(continued)

Appendix 3.5-2

Taxonomic Results for Phytoplankton in Lac du Sauvage and Reference Sites, Open-Water Season 2004 and 2006 (continued)

Sampling Station	LdS3			LdS4			LdS5			LdS6			LdS7			LdS8			LdS9			LdS10			LdS11			LdS12		
Sample Replicate	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Sampling Date	07-Sep-06			07-Sep-06			10-Sep-06			07-Sep-06			10-Sep-06			10-Sep-06			07-Sep-06			08-Sep-06			08-Sep-06			08-Sep-06		
Units = cells / mL																														
PHYLUM CHLOROPHYTA																														
Order Chlorococcales																														
Dictyosphaerium	<2.8		44.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	22.4	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	22.4	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	22.4	<2.8
Elakatothrix gelatinosa	19.6	14	22.4	2.4	16.8	11.2	11.2	11.2	14	19.6	11.2	8.4	11.2	2.8	8.4	8.4	16.8	<2.8	8.4	19.6	5.6	22.4	5.6	14	19.6	11.2	<2.8	<2.8	16.8	5.6
Elakatothrix Kirchneriella																<2.8														
Kirchneriella ?		<2.8		<2.8																							<2.8			
Lagerhiemia																														
Lagerhiemia ?	<2.8	<2.8				<2.8					<2.8					<2.8										<2.8				
Nephrocytium limneticum																														
Nephrocytium																														
Nephrocytium ?	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8			<2.8	<2.8	22.4		<2.8	<2.8	<2.8				<2.8	11.2				<2.8	<2.8		<2.8	33.6	<2.8
Oocystis	5.6	5.6	16.8	<2.8	16.8	<2.8	<2.8	<2.8	5.6	<2.8	5.6	<2.8	<2.8	16.8	5.6	<2.8	5.6	<2.8	<2.8	<2.8	<2.8	14	<2.8	16.8	<2.8	22.4	22.4	11.2	<2.8	22.4
Pediastrum					<2.8	<2.8					<2.8	<2.8										<2.8			<2.8				<2.8	
Pediastrum tetras																														
Quadrigula closterioides	<2.8	<2.8			<2.8																				<2.8	<2.8				
Quadrigula lacustris																														
Quadrigula	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8			<2.8	<2.8						5.6		<2.8	11.2	<2.8	8.4	<2.8		<2.8		<2.8	<2.8	<2.8	<2.8
Scenedesmus cf denticulatus																														
Scenedesmus quadricauda																														
Scenedesmus				<2.8	<2.8	<2.8										<2.8	<2.8		<2.8	<2.8	<2.8							<2.8		
Schroederia setigera																														
Selenastrum minutum					<2.8				<2.8	<2.8	<2.8	<2.8				2.8	2.8		2.8	<2.8	<2.8	2.8	<2.8	2.8			<2.8	2.8	<2.8	<2.8
Selenastrum		2.8		<2.8		2.8		2.8		<2.8				<2.8	<2.8	<2.8							<2.8		<2.8	<2.8	<2.8		<2.8	
Sorastrum																														
Sphaerocystis schroeteri	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	44.8	<2.8	<2.8	134.4	<2.8
Tetraedron minimum	5.6	8.4	2.8	<2.8	2.8	14	5.6	2.8	8.4	5.6	2.8	2.8	8.4	2.8	2.8	5.6	16.8	22.4	16.8	16.8	14	14	8.4	8.4	11.2	11.2	19.6	<2.8	2.8	16.8
Tetraderon		2.8	<2.8	<2.8				2.8	<2.8		2.8	2.8					2.8	2.8		<2.8		<2.8	<2.8				<2.8			<2.8
Treubaria																														
Treubaria ?																														
Order Oedogoniales																														
Bulbochaete											<2.8				<2.8															
Bulbochaete ?																														
Oedogonium																												<2.8	<2.8	
Oedogonium?	<2.8				<2.8	<2.8					<2.8	<2.8										<2.8			<2.8			<2.8		<2.8
UID				<2.8			<2.8		<2.8				<2.8																	
Order Tetrasporales																														
Gloeocystis cf ampla	50.4	100.8	<2.8	112	44.8	2.8	8.4	<2.8	201.6	<2.8	92.4	<2.8	44.8	95.2	2.8	89.6	<2.8	2.8	100.8	16.8	11.2	50.4	5.6	89.6	61.6	16.8	<2.8	16.8	44.8	5.6
Gloeocystis	<2.8	<2.8	<2.8	44.8	<2.8	16.8	<2.8	2.8		<2.8	<2.8				5.6	<2.8	<2.8		11.2	<2.8		<2.8	<2.8	22.4	44.8	<2.8		<2.8	<2.8	
Order Ulothricales																														
Geminella																														
Ulothrix	<2.8		<2.8								<2.8				<2.8	<2.8				<2.8						16.8				
Ulothrix ?	<2.8	<2.8	<2.8	2.8	<2.8		2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Order Volvocales																														
Chlamydomonas																2.8	<2.8			<2.8										
Chlamydomonas ?	<2.8		<2.8			<2.8					<2.8	<2.8	<2.8	<2.8	<2.8	2.8			2.8			<2.8	<2.8					<2.8		
Eudorina																														
Eudorina ?																														
Pandorina morum																														
UID	<2.8	11.2	<2.8	<2.8	<2.8	<2.8		<2.8	11.2	<2.8	<2.8	11.2	<2.8	<2.8	<2.8	11.2	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	11.2	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Order Zygnematales																														
Arthrodesmus	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	2.8	<2.8	<2.8	<2.8	2.8	<2.8	2.8	<2.8	5.6	<2.8	<2.8	5.6	<2.8	<2.8	<2.8
Bambusina																														
Closterium											<2.8																			
Closterium ?							<2.8																							
Cosmarium	<2.8	<2.8		<2.8		<2.8			<2.8	<2.8	<2.8			<2.8	<2.8	<2.8		<2.8		<2.8		<2.8	<2.8			<2.8		<2.8	2.8	<2.8
Cosmarium ?	<2.8		2.8		<2.8	<2.8	<2.8	<2.8		<2.8		<2.8	<2.8		<2.8	<2.8	<2.8			2.8	<2.8	<2.8		<2.8	<2.8		<2.8				
Cylindrocystis ?																														
Euastrum	<2.8	<2.8	<2.8	<2.8			<2.8		<2.8	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8					<2.8	<2.8		<2.8	<2.8	<2.8		<2.8	2.8
Gonatozygon ?																														
Gonatozygon	<2.8		<2.8			<2.8	<2.8		<2.8	<2.8															<2.8	<2.8	<2.8			
Hyalotheca																<2.8													<2.8	
Hyalotheca ?																														
Mougeotia																														
Mougeotia ?							<2.8	11.2	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8		<2.8	<2.8	<2.8					<2.8			<2.8				
Netrium?																														
Netrium																														
Pleurotaenium																														
Roya?																														
Spirogyra ?																														
Spirogyra sp.?																														
Spondylosium planum	<2.8	8.4	5.6	2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	44.8	2.8	8.4	5.6	5.6	11.2	<2.8	5.6	8.4	<2.8	25.2	<2.8	8.4	<2.8	11.2	<2.8	<2.8	<2.8	<2.8
Staurastrum	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Xanthidium																														
Xanthidium ?					<2.8	<2.8																<2.8			<2.8					
Zygnema																														

(continued)

Appendix 3.5-2

Taxonomic Results for Phytoplankton in Lac du Sauvage and Reference Sites, Open-Water Season 2004 and 2006 (continued)

Sampling Station	LdS3			LdS4			LdS5			LdS6			LdS7			LdS8			LdS9			LdS10			LdS11			LdS12		
Sample Replicate	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Sampling Date	07-Sep-06			07-Sep-06			10-Sep-06			07-Sep-06			10-Sep-06			10-Sep-06			07-Sep-06			08-Sep-06			08-Sep-06			08-Sep-06		
Units = cells / mL																														
PHYLUM CHLOROPHYTA																														
Order Zygnematales																														
Zygnema ?					<2.8						<2.8														<2.8		<2.8			
UID	<2.8	5.6	<2.8	2.8		<2.8	<2.8	<2.8		<2.8	<2.8	<2.8		<2.8	<2.8		<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
UID unicellular Chlorophyta																														
PHYLUM CHRYSOPHYTA																														
Order Chromulinales																														
UID																														
Order Ochromonadales																														
Chrysosphaerella																														
Chrysosphaerella ?																														
Dinobryon cf. bavaricum	11.2	19.6	33.6	2.8	19.6	16.8	14	11.2	19.6	16.8	5.6	5.6	14	11.2	14	25.2	14	14	19.6	30.8	25.2	28	16.8	14	16.8	22.4	11.2	16.8	5.6	22.4
Dinobryon divergens																												<2.8		
Dinobryon elegantissimum			2.8				<2.8	2.8											<2.8			2.8	<2.8	2.8				<2.8		
Dinobryon sertularia	<2.8	2.8	<2.8			<2.8																<2.8	<2.8						<2.8	
Dinobryon	14	8.4	<2.8	5.6	5.6	11.2	8.4	<2.8	2.8	8.4	<2.8	5.6	5.6	<2.8	5.6	5.6	11.2	8.4	16.8	5.6	5.6	11.2	14	22.4	8.4	8.4	2.8	<2.8	14	8.4
Mallomonas akrokomos																														
Mallomonas cf pseudocoronata																														
Mallomonas																														
Mallomonas ?																							<2.8					<2.8		
Synura uvella ?																														
Uroglenopsis cf americana																														
UID																														
Order Rhizochrysidales																														
Diceras phaseolus	5.6		<2.8	<2.8	<2.8	2.8	<2.8	2.8	<2.8	<2.8	2.8	2.8	5.6	<2.8	2.8	8.4	2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	5.6	<2.8	<2.8	2.8	2.8	<2.8
Order Vaucheriales																														
Vaucheria ?																														
UID Chrysophyta																														
PHYLUM CRYPTOPHYTA																														
Order Cryptomonadales																														
Chroomonas acuta	39.2	22.4	14	16.8	8.4	8.4	14	14	11.2	25.2	47.6	11.2	16.8	14	8.4	16.8	16.8	16.8	39.2	61.6	53.2	25.2	14	33.6	58.8	30.8	19.6	33.6	28	50.4
Cryptomonas ovata / erosa	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	2.8	<2.8	<2.8	<2.8	2.8	<2.8	2.8	<2.8	<2.8	5.6	5.6	<2.8	2.8	2.8	<2.8
Cryptomonas	<2.8	2.8	2.8	2.8	2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	2.8	11.2	5.6	2.8	5.6	<2.8	2.8	11.2	2.8	2.8	2.8	<2.8	5.6	2.8	11.2	2.8	5.6	<2.8
UID											<2.8		<2.8			<2.8											<2.8			
PHYLUM CYANOPHYTA																														
Order Chaemosiphonales																														
UID																														
Order Chroococcales																														
Agmenellum tenuissima						33.6										<2.8														
Agmenellum	<2.8				<2.8													<2.8											<2.8	<2.8
Anacystis cf aeruginosa																														
Anacystis elachista	<2.8		28	<2.8	<2.8	<2.8				<2.8	<2.8		<2.8	112	<2.8			<2.8		<2.8	<2.8	<2.8	84		<2.8		<2.8	<2.8	<2.8	168
Anacystis cf limneticus																	<2.8													
Anacystis	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	22.4			<2.8	<2.8	<2.8		<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	28	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	
Anacystis ?																														
Dactylococcopsis																														
Dactylococcopsis?						<2.8					<2.8			16.8		<2.8	<2.8										<2.8	<2.8	<2.8	<2.8
Gloeocapsa																														
Gomphosphaeria																									<2.8					
Gomphosphaeria ?					<2.8																					<2.8		<2.8		
Marssoniella elegans																														
Order Nostocales																														
Anabaena	<2.8	<2.8	<2.8	<2.8	112	<2.8	<2.8	<2.8	98	<2.8	92.4	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8		11.2	19.6	<2.8	16.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Anabaena ?	56	11.2	72.8	16.8	61.6	30.8	5.6	5.6	14	53.2	11.2	11.2	33.6	28	16.8	22.4	25.2	56	16.8	<2.8	42	92.4	44.8	86.8	16.8	25.2	33.6	25.2	11.2	<2.8
Aphanizomenon?							<2.8																							
Nostoc ?	33.6	<2.8			14	<2.8	140	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8		<2.8				<2.8	<2.8		<2.8		<2.8	<2.8	<2.8	<2.8
UID		<2.8			<2.8	<2.8	<2.8	2.8		<2.8				<2.8	2.8	5.6	<2.8	<2.8					2.8	2.8		<2.8	<2.8		<2.8	2.8
Order Oscillatoriales																														
Lyngbya limnetica	294	196	238	392	350	263.2	182	184.8	280	378	154	280	420	235.2	378	476	383.6	266	352.8	476	588	490	462	436.8	518	406	322	473.2	448	546
Lyngbya																														
Lyngbya ?																													<2.8	
Oscillatoria cf tenuis	<2.8																								<2.8					
Oscillatoria			<2.8			<2.8				<2.8	<2.8			<2.8	<2.8												<2.8			
Oscillatoria ?		<2.8		<2.8			<2.8				<2.8	<2.8								<2.8								<2.8		
Phormidium mucicola																														
UID																														
PHYLUM EUGLENOPHYTA																														
Order Euglenales																														
Euglena																				<2.8										
Euglena ?	<2.8																				<2.8									
Trachelomonas																														
Phacus?																														
PHYLUM PYRRHOPHYTA																														
Order Dinokontae																														
Ceratium sp.																														
Gymnodinium ?	<2.8	<2.8			<2.8	<2.8		<2.8										2.8										<2.8	<2.8	

(continued)

Appendix 3.5-2

Taxonomic Results for Phytoplankton in Lac du Sauvage and Reference Sites, Open-Water Season 2004 and 2006 (completed)

Sampling Station	LdS3			LdS4			LdS5			LdS6			LdS7			LdS8			LdS9			LdS10			LdS11			LdS12		
Sample Replicate	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Sampling Date	07-Sep-06			07-Sep-06			10-Sep-06			07-Sep-06			10-Sep-06			10-Sep-06			07-Sep-06			08-Sep-06			08-Sep-06			08-Sep-06		
Units = cells / mL																														
PHYLUM PYRRHOPHYTA																														
Order Dinokontae																														
Peridinium cf inconspicuum	<2.8	<2.8	2.8	<2.8	<2.8	5.6	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	5.6	2.8	<2.8	5.6	<2.8	2.8	2.8	<2.8	5.6	<2.8	2.8	<2.8	<2.8
Peridinium / Glenodinium	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	2.8	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8	<2.8			<2.8	<2.8	<2.8
UID	<2.8	<2.8	<2.8	2.8	2.8	<2.8	<2.8	2.8		2.8	2.8	<2.8	<2.8		<2.8	<2.8	2.8		<2.8	2.8		<2.8			<2.8		5.6	<2.8		<2.8
UID branched filamentous algae																													<2.8	
UID filamentous algae	16.8	<2.8	<2.8		<2.8	<2.8	<2.8	<2.8	<2.8					<2.8	<2.8			<2.8	<2.8	<2.8	<2.8				<2.8	<2.8				
UID unicellular algae																														

Note : Unidentified flagellates observed but not counted.

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

APPENDIX 3.6-1
ZOOPLANKTON BIOMASS AND ABUNDANCE RESULTS FOR LAC DU SAUVAGE AND REFERENCE SITES, OPEN-WATER SEASON, 2004 AND 2006

bhpbilliton

Appendix 3.6-1

Zooplankton Biomass and Abundance Results for Lac du Sauvage and Reference Sites, Open-Water Season, 2004 and 2006

			Biomass			Abundance		
Station	Date	Replicate	mg/m^3	Mean	SE	org./m^3	Mean	SE
Christine Lake	05-Jul-06	1	112.39	**110.67**	**13.31**	44,885	**42,270**	**1,318**
		2	86.80			41,247		
		3	132.82			40,677		
UL1	07-Jul-06	1	48.20	**56.23**	**6.87**	27,502	**25,873**	**815**
		2	69.91			24,999		
		3	50.59			25,118		
UL2	07-Jul-06	1	45.90	**108.04**	**45.19**	38,731	**32,262**	**3,433**
		2	82.27			27,033		
		3	195.94			31,023		
UL3	07-Jul-06	1	38.52	**43.59**	**2.54**	27,209	**23,344**	**2,085**
		2	45.78			20,058		
		3	46.47			22,763		
LdS1	10-Jul-06	1	39.42	**64.37**	**12.60**	29,293	**40,148**	**5,513**
		2	80.00			47,248		
		3	73.68			43,902		
LdS2	10-Jul-06	1	1.25	**9.11**	**4.25**	9,821	**11,353**	**1,434**
		2	10.25			14,218		
		3	15.83			10,020		
LdS3	09-Jul-06	1	108.08	**131.80**	**19.52**	79,366	**87,858**	**4,253**
		2	170.50			91,696		
		3	116.82			92,512		
LdS3	13-Jul-04	1	42.86	**44.95**	**1.61**	96,366	**115,067**	**19,412**
		2	43.89			153,882		
		3	48.11			94,952		
LdS4	19-Jul-06	1	366.73	**197.08**	**90.16**	31,412	**36,167**	**3,945**
		2	59.31			33,092		
		3	165.20			43,996		
LdS5	09-Jul-06	1	143.81	**144.14**	**5.12**	60,524	**66,369**	**6,307**
		2	153.18			59,612		
		3	135.44			78,971		
LdS6	19-Jul-06	1	70.43	**122.98**	**32.68**	62,341	**61,983**	**2,944**
		2	115.60			66,892		
		3	182.91			56,714		
LdS7	19-Jul-06	1	113.68	**95.96**	**10.38**	52,651	**43,613**	**4,525**
		2	77.73			38,689		
		3	96.48			39,498		
LdS8	11-Jul-06	1	78.81	**86.87**	**4.59**	30,907	**30,472**	**219**
		2	87.11			30,210		
		3	94.70			30,301		
LdS9	09-Jul-06	1	71.96	**54.96**	**8.71**	39,257	**38,906**	**1,094**
		2	43.19			40,601		
		3	49.73			36,860		
LdS10	09-Jul-06	1	112.81	**147.46**	**24.68**	51,856	**78,770**	**25,109**
		2	134.32			128,944		
		3	195.23			55,509		
LdS11	08-Jul-06	1	99.88	**95.53**	**2.98**	42,217	**49,223**	**5,337**
		2	96.88			45,752		
		3	89.83			59,700		
LdS12	08-Jul-06	1	267.93	**144.46**	**61.86**	40,484	**44,470**	**2,468**
		2	89.61			48,984		
		3	75.85			43,941		
Christine Lake	30-Jul-06	1	131.68	**176.81**	**24.31**	34,615	**44,291**	**8,388**
		2	215.03			60,998		
		3	183.74			37,258		
UL1	29-Jul-06	1	104.79	**87.46**	**14.27**	40,348	**37,442**	**4,480**
		2	59.15			43,329		
		3	98.45			28,649		
UL2	29-Jul-06	1	72.52	**86.88**	**14.43**	37,307	**47,772**	**7,973**
		2	72.37			42,585		
		3	115.74			63,425		
UL3	29-Jul-06	1	125.43	**116.56**	**6.66**	51,162	**42,723**	**5,737**
		2	120.73			31,772		
		3	103.53			45,236		
LdS1	01-Aug-06	1	481.32	**302.21**	**98.62**	34,856	**47,531**	**7,944**
		2	284.22			62,165		
		3	141.10			45,573		
LdS2	03-Aug-06	1	23.21	**22.21**	**0.58**	2,354	**1,998**	**202**
		2	21.19			1,654		
		3	22.22			1,986		
LdS3	01-Aug-06	1	57.16	**109.93**	**27.39**	49,283	**40,300**	**4,981**
		2	149.01			32,079		
		3	123.62			39,538		
LdS3	10-Aug-04	1	103.43	**105.38**	**2.98**	103,949	**89,800**	**7,143**
		2	111.22			84,444		
		3	101.48			81,008		
LdS4	01-Aug-06	1	53.67	**54.44**	**0.68**	41,894	**53,748**	**6,039**
		2	53.85			57,675		
		3	55.81			61,676		
LdS5	05-Aug-06	1	127.74	**179.22**	**38.29**	117,358	**193,980**	**114,498**
		2	155.85			45,406		
		3	254.07			419,175		
LdS6	03-Aug-06	1	141.81	**96.38**	**23.70**	22,870	**19,606**	**2,126**
		2	85.39			20,334		
		3	61.94			15,615		
LdS7	03-Aug-06	1	178.77	**175.41**	**13.01**	36,540	**43,578**	**12,916**
		2	196.07			68,622		
		3	151.39			25,570		
LdS8	05-Aug-06	1	157.52	**405.22**	**270.39**	34,198	**30,705**	**2,109**
		2	945.38			26,911		
		3	112.77			31,005		
LdS9	03-Aug-06	1	78.51	**57.23**	**10.64**	9,337	**8,831**	**253**
		2	47.09			8,572		
		3	46.09			8,585		
LdS10	03-Aug-06	1	72.37	**105.14**	**19.97**	35,627	**44,696**	**4,571**
		2	101.76			48,230		
		3	141.29			50,232		
LdS11	03-Aug-06	1	57.02	**83.98**	**13.69**	24,476	**29,982**	**2,762**
		2	101.58			33,118		
		3	93.34			32,352		
LdS12	03-Aug-06	1	70.50	**108.15**	**27.53**	16,340	**17,611**	**2,171**
		2	161.78			21,843		
		3	92.17			14,652		
Christine Lake	#######	1	55.02	**277.12**	**200.68**	17,198	**29,140**	**5,972**
		2	98.65			35,219		
		3	677.70			35,005		
UL1	#######	1	72.59	**70.10**	**2.10**	23,960	**22,817**	**615**
		2	65.93			21,852		
		3	71.78			22,641		
UL2	#######	1	83.40	**86.04**	**5.85**	32,584	**42,867**	**5,202**
		2	77.49			46,644		
		3	97.24			49,375		
UL3	#######	1	55.18	**52.33**	**4.62**	17,257	**17,323**	**522**
		2	43.29			16,454		
		3	58.52			18,259		
LdS1	#######	1	173.27	**153.21**	**13.37**	47,813	**44,682**	**1,670**
		2	158.49			42,108		
		3	127.85			44,125		
LdS2	#######	1	9.26	**9.22**	**2.72**	12,189	**14,034**	**1,471**
		2	13.91			16,941		
		3	4.50			12,971		
LdS3	#######	1	523.52	**549.48**	**38.36**	155,578	**69,641**	**42,970**
		2	624.98			27,250		
		3	499.94			26,094		
LdS3	#######	1	57.55	**50.73**	**3.53**	27,609	**23,711**	**3,907**
		2	45.75			15,897		
		3	48.90			27,626		
LdS4	#######	1	95.12	**81.20**	**8.11**	23,001	**34,724**	**5,862**
		2	81.44			40,758		
		3	67.04			40,414		
LdS5	#######	1	205.08	**178.73**	**15.57**	39,525	**39,208**	**2,551**
		2	179.92			43,459		
		3	151.19			34,640		
LdS6	#######	1	18.88	**17.52**	**2.79**	14,708	**17,889**	**2,636**
		2	21.52			23,121		
		3	12.15			15,840		
LdS7	#######	1	91.95	**94.48**	**13.92**	24,535	**26,923**	**1,633**
		2	71.73			26,189		
		3	119.76			30,045		
LdS8	#######	1	262.74	**192.05**	**36.56**	28,350	**28,804**	**3,524**
		2	140.55			22,940		
		3	172.87			35,121		
LdS9	#######	1	92.70	**102.40**	**5.51**	102,728	**85,102**	**13,133**
		2	111.78			93,154		
		3	102.71			59,425		
LdS10	#######	1	228.71	**256.66**	**33.86**	30,411	**36,353**	**5,739**
		2	324.04			30,818		
		3	217.22			47,828		
LdS11	#######	1	460.30	**350.43**	**57.98**	24,191	**43,129**	**12,964**
		2	263.35			67,934		
		3	327.63			37,261		
LdS12	#######	1	45.52	**66.22**	**14.97**	21,331	**22,749**	**1,272**
		2	95.31			25,286		
		3	57.82			21,630		

APPENDIX 3.6-2
TAXONOMIC RESULTS FOR ZOOPLANKTON IN LAC DU SAUVAGE AND REFERENCE LAKE STATIONS, OPEN-WATER SEASON 2004 AND 2006

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Appendix 3.6-2
Taxonomic Results for Zooplankton in Lac du Sauvage and Reference Lake Stations, Open-Water Season 2004 and 2006

Location		Christine Lake			Ursula 1			Ursula 2			Ursula 3			LDS 1			LDS 2			LDS 3		
Date		05-Jul-06			07-Jul-06			07-Jul-06			07-Jul-06			10-Jul-06			10-Jul-06			09-Jul-06		
Replicate		1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Volume filtered (m^3)		0.463	0.463	0.399	0.478	0.501	0.615	0.249	0.258	0.247	0.251	0.277	0.279	0.237	0.232	0.249	0.940	1.103	1.078	0.496	0.594	0.562
Species/group	Stage																					
ROTIFERA																						
Kellicottia longispina		20,291	17,701	22,824	2,926	4,190	4,389	2,814	3,873	3,646	3,990	2,345	2,329	8,217	18,780	18,897	5,640	11,151	8,253	22,602	34,160	36,834
Keratella cochlearis		0	0	0	0	0	0	0	0	0	40	0	537	0	0	0	0	0	0	202	0	178
Conochilus sp.	colony	1,230	756	727	1,254	20	33	1,086	271	648	519	325	896	632	302	482	255	145	139	161	337	53
Lecane sp.		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Notommata?		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Polyarthra		0	0	0	0	0	0	0	0	0	0	0	0	211	0	0	0	0	0	0	0	0
Rotifera Subtotal		**21,522**	**18,456**	**23,551**	**4,180**	**4,210**	**4,422**	**3,900**	**4,144**	**4,295**	**4,549**	**2,670**	**3,762**	**9,059**	**19,082**	**19,380**	**5,895**	**11,296**	**8,392**	**22,965**	**34,497**	**37,065**
CLADOCERA																						
Holopediidae																						
Holopedium gibberum		432	669	376	146	100	114	56	74	49	52	58	39	337	453	422	5	3	1	1,816	1,414	872
Daphnidae																						
Daphnia longiremis		17	32	28	2	0	0	0	0	0	0	0	0	34	39	44	0	0	0	14	19	11
Daphnia middendorffiana		30	43	10	2	8	3	0	8	0	0	0	0	55	60	72	0	0	0	26	57	50
Bosminidae																						
Bosmina longirostris		151	237	301	23	38	81	16	8	53	16	54	36	0	0	0	4	1	2	0	2	2
Chydoridae																						
Chydorus sphaericus		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
Cladocera Subtotal		**630**	**982**	**715**	**173**	**146**	**198**	**72**	**89**	**101**	**68**	**112**	**75**	**426**	**553**	**539**	**10**	**5**	**3**	**1,857**	**1,491**	**934**
COPEPODA																						
Calanoida																						
Leptodiaptomus pribilofensis	M	22	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Leptodiaptomus pribilofensis	F	43	151	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
Leptodiaptomus ashlandi	M	22	0	0	84	6	16	16	15	20	8	14	7	0	0	4	0	0	3	4	5	2
Leptodiaptomus ashlandi	F	0	0	0	105	26	65	44	35	24	52	61	36	169	26	16	0	2	1	12	10	9
Leptodiaptomus sicilis	M	0	0	0	0	0	0	0	0	0	0	0	0	4	4	4	0	0	0	2	2	4
Leptodiaptomus sicilis	F	22	2	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	5	7
Leptodiaptomus sp.	V	2,590	1,727	1,505	0	160	49	56	194	81	200	54	54	0	65	0	3	2	1	40	34	53
Leptodiaptomus sp.	IV	11,441	10,146	8,026	12,750	10,774	10,079	20,103	13,168	17,017	11,173	9,380	10,391	4,214	5,828	6,835	851	480	176	15,135	13,967	13,880
Leptodiaptomus sp.	III	302	389	351	2,508	1,995	2,926	2,814	929	1,256	2,195	1,263	1,075	3,371	5,397	4,825	458	354	195	9,888	11,779	11,744
Leptodiaptomus sp.	II	0	43	0	355	479	667	724	929	932	1,596	289	340	590	1,511	1,809	266	145	121	1,211	1,010	712
Leptodiaptomus sp.	I	0	43	25	21	100	81	121	155	122	120	54	125	1,264	1,079	382	192	326	158	404	673	178
Heterocope septentrionalis	M	58	37	13	0	0	5	4	0	0	0	11	4	8	13	20	2	1	1	16	19	11
Heterocope septentrionalis	F	65	50	23	4	6	3	0	0	0	0	0	0	29	17	20	2	1	0	16	17	20
Heterocope septentrionalis	V	78	43	13	167	140	146	28	97	81	84	58	50	253	281	181	48	23	26	283	337	267
Heterocope septentrionalis	IV	2	0	3	125	100	114	44	74	65	52	47	29	228	108	60	40	18	31	91	135	125
Heterocope septentrionalis	III	0	0	0	6	0	5	4	0	4	4	0	0	25	4	20	10	5	3	8	15	7
Heterocope septentrionalis	II	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0
Heterocope septentrionalis	I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Epischura nevadensis	M	6	11	20	0	0	2	0	0	0	0	0	0	4	0	0	0	0	1	0	0	0
Epischura nevadensis	F	4	13	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Epischura nevadensis	V	4	2	0	0	0	0	0	0	0	0	0	0	4	0	4	2	0	0	0	0	0
Epischura nevadensis	IV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Epischura nevadensis	III	22	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0
Epischura nevadensis	IV	0	0	0	0	20	0	0	0	0	0	0	0	0	0	201	11	0	0	0	0	0
Epischura nevadensis	III	0	0	0	0	0	0	40	0	0	0	0	18	0	0	0	32	9	9	0	0	0
Calanoida Subtotal		**14,681**	**12,656**	**10,065**	**16,125**	**13,804**	**14,158**	**23,999**	**15,596**	**19,602**	**15,482**	**11,230**	**12,129**	**10,163**	**14,333**	**14,402**	**1,916**	**1,375**	**724**	**27,118**	**28,006**	**27,017**
Unidentified Calanoida	nauplius	0	0	25	125	40	33	0	0	203	40	54	0	253	432	804	958	471	315	404	1,346	178
Calanoid nauplii Subtotal		**0**	**0**	**25**	**125**	**40**	**33**	**0**	**0**	**203**	**40**	**54**	**0**	**253**	**432**	**804**	**958**	**471**	**315**	**404**	**1,346**	**178**
Cyclopoida																						
Cyclops bicuspidatus thomasi	M	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0	1	4	0	53
Cyclops bicuspidatus thomasi	F	0	0	0	0	0	0	0	0	0	0	4	21	21	17	4	0	0	0	16	19	36
Cyclops scutifer	M	43	0	25	84	34	114	24	77	16	8	72	21	8	0	0	0	0	0	40	20	53
Cyclops scutifer	F	885	518	778	857	758	992	1,086	929	770	559	559	484	88	91	88	0	1	0	121	66	125
Cyclops capillatus	M	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cyclops capillatus	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Cyclops varicans rubra	F																					
Cyclops sp.	copepodite	3,670	7,124	3,261	5,852	5,586	4,877	8,443	5,035	5,672	6,384	5,231	5,195	9,270	12,736	8,644	958	997	556	25,427	25,242	26,691
Cyclopoida Subtotal		**4,598**	**7,642**	**4,063**	**6,793**	**6,380**	**5,982**	**9,553**	**6,042**	**6,458**	**6,951**	**5,866**	**5,722**	**9,392**	**12,848**	**8,737**	**958**	**998**	**557**	**25,609**	**25,346**	**26,962**
Unidentified Cyclopoida	nauplius	3,454	1,511	2,257	105	419	325	1,206	1,162	365	120	126	1,075	0	0	40	85	73	28	1,413	1,010	356
Cyclopoid nauplii Subtotal		**3,454**	**1,511**	**2,257**	**105**	**419**	**325**	**1,206**	**1,162**	**365**	**120**	**126**	**1,075**	**0**	**0**	**40**	**85**	**73**	**28**	**1,413**	**1,010**	**356**
Total		**44,885**	**41,247**	**40,677**	**27,502**	**24,999**	**25,118**	**38,731**	**27,033**	**31,023**	**27,209**	**20,058**	**22,763**	**29,293**	**47,248**	**43,902**	**9,821**	**14,218**	**10,020**	**79,366**	**91,696**	**92,512**

(continued)

Appendix 3.6-2
Taxonomic Results for Zooplankton in Lac du Sauvage and Reference Lake Stations, Open-Water Season 2004 and 2006 (continued)

Location	LDS 4			LDS 5			LDS 6			LDS 7			LDS 8			LDS 9			LDS 10			LDS 11		
Date	19-Jul-06			09-Jul-06			19-Jul-06			19-Jul-06			11-Jul-06			09-Jul-06			09-Jul-06			08-Jul-06		
Replicate	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Volume filtered (m^3)	0.205	0.197	0.222	0.230	0.203	0.171	0.190	0.190	0.194	0.408	0.505	0.380	0.585	0.619	0.564	0.769	0.972	1.058	0.499	0.201	0.425	0.361	0.374	0.342
Species/group																								
ROTIFERA																								
Kellicottia longispina	11,217	7,090	7,653	14,365	13,783	18,142	8,427	10,534	6,197	10,044	8,712	8,691	7,182	6,624	9,577	16,777	16,563	15,697	10,214	40,249	17,871	14,138	13,368	11,997
Keratella cochlearis	488	0	0	44	49	0	527	0	0	0	0	0	0	0	18	0	0	0	0	0	0	0	0	0
Conochilus sp.	1,853	608	1,396	1,393	738	3,511	1,106	1,633	1,704	1,960	812	895	667	1,293	231	780	1,337	662	2,203	398	94	970	722	907
Lecane sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Notommata?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Polyarthra	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rotifera Subtotal	**13,558**	**7,698**	**9,049**	**15,801**	**14,571**	**21,654**	**10,060**	**12,167**	**7,901**	**12,004**	**9,524**	**9,586**	**7,849**	**7,917**	**9,825**	**17,557**	**17,900**	**16,359**	**12,417**	**40,646**	**17,965**	**15,108**	**14,090**	**12,904**
CLADOCERA																								
Holopediidae																								
Holopedium gibberum	10	5	5	57	84	140	21	0	15	10	44	24	41	44	37	104	82	47	360	1,540	564	305	428	556
Daphnidae																								
Daphnia longiremis	0	0	0	9	20	12	0	5	0	7	0	8	2	0	0	0	0	0	22	348	40	30	40	15
Daphnia middendorffiana	10	10	5	26	30	53	11	5	10	29	30	29	17	5	9	1	0	3	36	154	45	75	91	102
Bosminidae																								
Bosmina longirostris	0	0	0	0	0	6	0	0	0	2	0	0	2	0	0	0	0	2	0	5	5	3	0	6
Chydoridae																								
Chydorus sphaericus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cladocera Subtotal	**20**	**15**	**9**	**91**	**133**	**211**	**32**	**11**	**26**	**49**	**73**	**61**	**62**	**48**	**46**	**105**	**82**	**52**	**419**	**2,047**	**654**	**413**	**559**	**679**
COPEPODA																								
Calanoida																								
Leptodiaptomus pribilofensis	0	0	5	4	0	0	0	16	5	51	14	21	5	6	7	0	0	0	2	5	0	0	0	0
Leptodiaptomus pribilofensis	0	15	5	0	0	0	11	5	15	20	18	11	5	8	7	0	0	0	0	0	0	0	0	0
Leptodiaptomus ashlandi	5	5	14	17	25	18	5	16	0	7	16	32	2	11	16	1	1	0	16	15	28	6	13	9
Leptodiaptomus ashlandi	24	25	27	35	15	35	26	16	103	147	38	29	21	97	89	5	7	5	26	45	52	47	37	67
Leptodiaptomus sicilis	0	0	0	0	15	6	5	5	0	0	0	0	2	3	0	0	1	0	2	5	9	11	11	3
Leptodiaptomus sicilis	0	0	0	0	5	12	11	21	0	0	0	0	0	0	0	1	1	1	4	20	9	6	0	15
Leptodiaptomus sp.	634	608	360	87	98	23	1,106	579	723	2,205	990	1,843	257	808	514	0	0	95	601	199	47	0	0	0
Leptodiaptomus sp.	10,242	13,168	18,908	16,541	19,690	15,801	21,068	18,435	24,786	15,679	14,257	12,378	9,748	7,271	8,867	8,193	5,864	5,579	9,413	27,826	15,519	4,158	5,882	5,560
Leptodiaptomus sp.	683	760	765	8,271	7,876	9,949	685	316	3,098	980	990	553	222	275	390	2,341	3,292	2,364	5,407	6,957	1,881	7,208	5,080	13,753
Leptodiaptomus sp.	98	203	0	784	3,446	4,097	105	211	52	98	139	132	137	81	177	260	720	567	1,202	1,292	1,646	1,109	455	3,219
Leptodiaptomus sp.	49	0	90	1,088	1,083	2,926	53	0	0	24	40	26	51	323	71	520	617	567	501	1,888	588	388	481	410
Heterocope septentrionalis	20	15	9	9	10	12	32	58	21	42	38	18	34	32	46	0	3	6	22	104	28	0	11	3
Heterocope septentrionalis	20	25	14	4	15	6	42	42	21	22	50	37	53	29	41	5	9	2	22	75	35	11	8	18
Heterocope septentrionalis	44	51	45	348	345	585	63	21	15	44	48	37	65	129	83	124	267	123	401	646	423	333	241	205
Heterocope septentrionalis	20	25	14	126	256	410	5	11	5	10	6	11	22	23	18	44	72	47	140	596	188	183	428	322
Heterocope septentrionalis	0	0	0	26	20	12	0	0	0	0	0	0	0	0	0	1	6	0	12	40	9	33	37	41
Heterocope septentrionalis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heterocope septentrionalis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Epischura nevadensis	0	0	5	0	0	0	5	0	5	5	0	0	3	3	5	1	1	1	0	0	0	0	0	0
Epischura nevadensis	0	0	0	0	0	6	5	21	0	7	4	0	2	2	2	3	0	0	2	0	0	0	0	0
Epischura nevadensis	5	0	0	0	0	0	5	11	10	5	4	13	5	3	2	4	0	1	40	5	2	3	0	0
Epischura nevadensis	10	0	23	0	0	0	53	53	31	49	139	26	17	16	18	13	0	0	0	0	2	0	0	0
Epischura nevadensis	49	0	0	0	0	0	105	0	52	0	0	26	0	0	0	0	0	0	0	0	0	0	0	0
Epischura nevadensis	0	0	0	0	49	0	0	0	52	24	0	0	0	0	0	0	0	0	0	50	0	0	0	0
Epischura nevadensis	0	0	0	44	148	117	0	0	0	24	0	0	0	0	0	13	0	0	40	298	24	0	27	0
Calanoida Subtotal	**11,900**	**14,900**	**20,281**	**27,385**	**33,094**	**34,014**	**23,391**	**19,836**	**28,995**	**19,444**	**16,787**	**15,193**	**10,650**	**9,120**	**10,353**	**11,530**	**10,862**	**9,358**	**17,852**	**40,065**	**20,492**	**13,495**	**12,711**	**23,623**
Unidentified Calanoida	98	152	0	958	689	585	53	53	52	24	396	527	17	0	53	286	206	378	1,001	3,478	423	1,386	1,872	790
Calanoid nauplii Subtotal	**98**	**152**	**0**	**958**	**689**	**585**	**53**	**53**	**52**	**24**	**396**	**527**	**17**	**0**	**53**	**286**	**206**	**378**	**1,001**	**3,478**	**423**	**1,386**	**1,872**	**790**
Cyclopoida																								
Cyclops bicuspidatus thomasi	0	0	0	0	5	0	5	5	0	24	0	3	17	0	4	0	10	0	40	0	24	0	0	29
Cyclops bicuspidatus thomasi	0	0	0	4	5	0	5	11	0	0	2	8	0	5	12	5	0	5	40	75	19	14	19	9
Cyclops scutifer	0	0	5	9	0	0	5	11	5	5	0	3	5	0	9	3	4	3	4	10	7	8	5	12
Cyclops scutifer	34	46	23	78	89	152	32	37	62	32	26	29	27	31	32	16	14	19	54	184	78	94	187	146
Cyclops capillatus	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cyclops capillatus	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	1	2	5	0	0	0	0
Cyclops varicans rubra																								
Cyclops sp.	5,365	10,129	14,406	16,106	10,830	22,239	28,442	32,129	19,623	20,333	11,287	13,958	12,142	12,602	9,754	9,364	11,316	10,402	19,827	41,739	15,754	11,643	15,775	21,361
Cyclopoida Subtotal	**5,399**	**10,175**	**14,433**	**16,202**	**10,928**	**22,391**	**28,490**	**32,192**	**19,690**	**20,395**	**11,314**	**14,000**	**12,191**	**12,639**	**9,811**	**9,388**	**11,345**	**10,429**	**19,967**	**42,013**	**15,881**	**11,759**	**15,986**	**21,557**
Unidentified Cyclopoida	439	152	225	87	197	117	316	2,634	52	735	594	132	137	485	213	390	206	284	200	696	94	55	535	146
Cyclopoid nauplii Subtotal	**439**	**152**	**225**	**87**	**197**	**117**	**316**	**2,634**	**52**	**735**	**594**	**132**	**137**	**485**	**213**	**390**	**206**	**284**	**200**	**696**	**94**	**55**	**535**	**146**
Total	**31,412**	**33,092**	**43,996**	**60,524**	**59,612**	**78,971**	**62,341**	**66,892**	**56,714**	**52,651**	**38,689**	**39,498**	**30,907**	**30,210**	**30,301**	**39,257**	**40,601**	**36,860**	**51,856**	**128,944**	**55,509**	**42,217**	**45,752**	**59,700**

(continued)

Appendix 3.6-2
Taxonomic Results for Zooplankton in Lac du Sauvage and Reference Lake Stations, Open-Water Season 2004 and 2006 (continued)

Location	LDS 12			Christine Lake			Ursula 1			Ursula 2			Ursula 3			LDS 1			LDS 2			LDS 3		
Date	08-Jul-06			30-Jul-06			29-Jul-06			29-Jul-06			29-Jul-06			01-Aug-06			03-Aug-06			01-Aug-06		
Replicate	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Volume filtered (m^3)	0.277	0.144	0.218	0.285	0.239	0.275	0.292	0.188	0.328	0.167	0.178	0.150	0.169	0.207	0.228	0.268	0.230	0.311	0.630	0.621	0.621	0.522	0.832	0.725
Species/group																								
ROTIFERA																								
Kellicottia longispina	13,348	14,554	19,694	8,778	25,917	15,620	4,446	6,384	3,653	5,387	8,965	13,334	8,877	7,248	10,534	12,327	11,318	11,241	793	258	177	10,726	5,051	6,618
Keratella cochlearis	0	0	0	0	0	0	0	0	0	60	56	0	0	0	0	0	0	321	0	0	0	0	0	0
Conochilus sp.	1,804	2,010	2,748	25	25	25	41	69	183	96	336	667	65	338	44	1,457	3,047	771	5	2	11	1,341	1,443	1,241
Lecane sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Notommata?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Polyarthra	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rotifera Subtotal	**15,152**	**16,564**	**22,442**	**8,803**	**25,943**	**15,645**	**4,487**	**6,454**	**3,836**	**5,542**	**9,358**	**14,001**	**8,942**	**7,587**	**10,578**	**13,784**	**14,365**	**12,333**	**800**	**259**	**188**	**12,066**	**6,494**	**7,859**
CLADOCERA																								
Holopediidae																								
Holopedium gibberum	180	180	101	3,863	5,434	2,288	3,420	4,256	1,461	2,454	2,578	4,000	1,716	773	1,010	187	479	321	8	0	23	10	120	97
Daphnidae																								
Daphnia longiremis	14	21	32	14	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
Daphnia middendorffiana	4	42	27	63	50	18	17	11	9	24	6	7	0	0	9	41	261	67	0	0	0	172	84	124
Bosminidae																								
Bosmina longirostris	0	0	0	386	376	91	21	64	18	78	50	13	36	14	9	0	4	0	2	0	0	0	0	0
Chydoridae																								
Chydorus sphaericus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0
Cladocera Subtotal	**198**	**243**	**160**	**4,326**	**5,865**	**2,397**	**3,458**	**4,331**	**1,489**	**2,556**	**2,634**	**4,020**	**1,752**	**788**	**1,027**	**228**	**744**	**389**	**10**	**0**	**26**	**182**	**207**	**221**
COPEPODA																								
Calanoida																								
Leptodiaptomus pribilofensis	0	0	0	316	293	182	3	5	0	0	11	0	12	14	0	336	958	482	8	13	24	96	72	41
Leptodiaptomus pribilofensis	0	0	0	351	376	254	7	0	6	60	0	0	0	10	9	374	696	289	0	2	2	77	96	152
Leptodiaptomus ashlandi	126	450	128	0	0	0	0	0	0	0	0	0	0	0	0	336	174	193	698	725	999	38	108	165
Leptodiaptomus ashlandi	69	118	46	4	0	0	0	0	0	0	0	0	0	0	0	261	87	64	79	161	193	230	180	248
Leptodiaptomus sicilis	11	55	0	0	4	4	0	0	0	0	0	0	0	0	0	37	0	0	3	0	0	0	0	0
Leptodiaptomus sicilis	4	14	9	0	8	4	0	0	0	0	0	0	0	0	0	37	0	32	0	0	0	0	0	1
Leptodiaptomus sp.	0	0	46	9,832	13,795	9,081	18,811	20,217	13,396	14,963	21,293	28,669	27,815	14,013	21,068	13,821	11,318	9,314	238	97	48	9,193	7,095	9,100
Leptodiaptomus sp.	6,854	11,089	4,122	0	0	0	137	319	91	359	56	0	0	48	176	5,603	3,482	5,460	16	64	81	6,704	6,013	7,170
Leptodiaptomus sp.	10,101	9,010	4,122	0	0	0	0	0	0	0	0	0	0	0	0	0	435	0	0	0	0	192	0	14
Leptodiaptomus sp.	794	2,010	962	0	0	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Leptodiaptomus sp.	505	901	824	35	42	36	0	0	0	0	0	0	0	0	0	0	0	0	32	0	0	0	24	0
Heterocope septentrionalis	4	0	14	14	29	7	10	32	9	6	6	7	0	24	26	11	65	96	38	52	166	19	10	18
Heterocope septentrionalis	14	21	14	32	0	7	24	11	12	6	22	0	36	14	9	22	61	55	13	19	16	23	18	30
Heterocope septentrionalis	397	762	458	0	0	0	24	16	30	12	0	13	53	29	18	4	0	3	17	16	24	10	5	28
Heterocope septentrionalis	469	970	824	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
Heterocope septentrionalis	180	347	229	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heterocope septentrionalis	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heterocope septentrionalis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Epischura nevadensis	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	2	6
Epischura nevadensis	0	0	0	7	13	4	0	0	0	0	0	0	0	0	0	0	13	13	2	0	0	13	6	6
Epischura nevadensis	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	2	10	0	28
Epischura nevadensis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32	0	0	0	0	0	0
Epischura nevadensis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Epischura nevadensis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Epischura nevadensis	0	69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Calanoida Subtotal	**19,532**	**25,823**	**11,798**	**10,594**	**14,560**	**9,615**	**19,020**	**20,600**	**13,545**	**15,406**	**21,388**	**28,689**	**27,916**	**14,154**	**21,305**	**20,844**	**17,290**	**16,039**	**1,144**	**1,152**	**1,558**	**16,604**	**13,630**	**17,006**
Unidentified Calanoida	758	1,317	1,053	702	2,090	145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Calanoid nauplii Subtotal	**758**	**1,317**	**1,053**	**702**	**2,090**	**145**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Cyclopoida																								
Cyclops bicuspidatus thomasi	4	21	5	0	0	0	0	0	0	0	0	0	0	0	0	0	131	64	3	2	3	4	24	14
Cyclops bicuspidatus thomasi	22	42	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32	2	0	2	19	0	14
Cyclops scutifer	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	13	10	0	0	0	10	48	69
Cyclops scutifer	58	125	50	7	0	11	44	27	33	36	73	47	65	14	35	0	22	6	0	0	0	96	12	15
Cyclops capillatus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cyclops capillatus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cyclops varicans rubra																								
Cyclops sp.	4,690	4,851	8,244	8,778	7,524	3,996	11,287	9,577	6,698	10,175	6,164	11,334	9,469	7,732	9,656	0	27,859	16,379	286	242	209	18,962	11,304	12,823
Cyclopoida Subtotal	**4,773**	**5,038**	**8,304**	**8,786**	**7,524**	**4,007**	**11,331**	**9,603**	**6,735**	**10,211**	**6,236**	**11,381**	**9,534**	**7,746**	**9,691**	**0**	**28,024**	**16,492**	**290**	**243**	**214**	**19,090**	**11,388**	**12,935**
Unidentified Cyclopoida	72	0	183	1,405	5,016	5,449	2,052	2,341	3,045	3,591	2,970	5,334	3,018	1,498	2,634	0	1,741	321	111	0	0	1,341	361	1,517
Cyclopoid nauplii Subtotal	**72**	**0**	**183**	**1,405**	**5,016**	**5,449**	**2,052**	**2,341**	**3,045**	**3,591**	**2,970**	**5,334**	**3,018**	**1,498**	**2,634**	**0**	**1,741**	**321**	**111**	**0**	**0**	**1,341**	**361**	**1,517**
Total	**40,484**	**48,984**	**43,941**	**34,615**	**60,998**	**37,258**	**40,348**	**43,329**	**28,649**	**37,307**	**42,585**	**63,425**	**51,162**	**31,772**	**45,236**	**34,856**	**62,165**	**45,573**	**2,354**	**1,654**	**1,986**	**49,283**	**32,079**	**39,538**

(continued)

Appendix 3.6-2
Taxonomic Results for Zooplankton in Lac du Sauvage and Reference Lake Stations, Open-Water Season 2004 and 2006 (continued)

Location	LDS 4			LDS 5			LDS 6			LDS 7			LDS 8			LDS 9			LDS 10			LDS 11		
Date	01-Aug-06			05-Aug-06			03-Aug-06			03-Aug-06			05-Aug-06			03-Aug-06			03-Aug-06			03-Aug-06		
Replicate	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Volume filtered (m^3)	0.148	0.125	0.137	0.142	0.469	0.070	0.216	0.197	0.188	0.273	0.294	0.260	0.450	0.471	0.535	0.146	0.131	0.127	0.270	0.264	0.241	0.497	0.353	0.467
Species/group																								
ROTIFERA																								
Kellicottia longispina	10,129	17,557	20,483	25,282	14,074	83,989	12,937	8,610	5,320	12,436	16,651	8,458	9,556	6,796	8,778	1,642	1,832	1,415	9,644	10,989	16,175	4,825	9,911	7,494
Keratella cochlearis	0	0	0	0	0	0	46	0	0	0	0	0	0	0	187	0	0	79	0	0	0	0	0	0
Conochilus sp.	1,080	638	1,317	5,618	320	7,118	1,109	962	319	1,207	1,699	654	1,333	382	149	479	611	79	1,706	1,099	3,318	1,146	2,350	1,927
Lecane sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Notommata?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Polyarthra	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rotifera Subtotal	**11,209**	**18,195**	**21,800**	**30,900**	**14,394**	**91,107**	**14,092**	**9,572**	**5,640**	**13,643**	**18,350**	**9,112**	**10,890**	**7,179**	**9,115**	**2,121**	**2,443**	**1,572**	**11,350**	**12,088**	**19,492**	**5,971**	**12,262**	**9,421**
CLADOCERA																								
Holopediidae																								
Holopedium gibberum	34	32	22	77	23	299	0	0	5	73	306	100	222	149	187	21	23	16	7	15	21	68	57	236
Daphnidae																								
Daphnia longiremis	0	0	0	0	0	0	0	0	0	4	0	0	0	4	2	0	0	0	0	4	0	2	8	0
Daphnia middendorffiana	34	56	37	309	75	1,424	23	10	21	37	272	62	356	467	336	7	53	55	45	27	29	101	227	47
Bosminidae																								
Bosmina longirostris	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chydoridae																								
Chydorus sphaericus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cladocera Subtotal	**68**	**88**	**59**	**386**	**98**	**1,722**	**23**	**10**	**27**	**113**	**578**	**161**	**578**	**620**	**525**	**27**	**76**	**71**	**52**	**45**	**50**	**171**	**292**	**283**
COPEPODA																								
Calanoida																								
Leptodiaptomus pribilofensis	108	128	88	492	128	1,566	277	96	64	62	850	281	356	234	318	280	168	173	297	455	415	261	68	171
Leptodiaptomus pribilofensis	95	104	95	702	320	2,847	51	91	53	110	510	215	156	191	299	21	38	31	223	303	290	221	311	128
Leptodiaptomus ashlandi	675	638	512	632	107	1,139	323	132	165	55	476	96	333	467	355	684	992	708	74	341	166	121	142	193
Leptodiaptomus ashlandi	1,013	319	439	843	320	2,278	1,063	1,114	585	329	306	538	244	425	280	889	382	550	408	379	581	342	368	343
Leptodiaptomus sicilis	0	0	0	7	0	0	0	0	0	0	0	0	2	21	0	0	0	0	0	0	0	0	0	0
Leptodiaptomus sicilis	14	0	0	0	0	43	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
Leptodiaptomus sp.	8,778	8,778	10,242	33,007	10,022	118,154	1,941	1,671	1,702	11,339	18,010	7,305	9,112	5,734	6,164	1,368	1,145	1,494	10,015	15,915	12,027	6,634	5,947	6,852
Leptodiaptomus sp.	4,457	4,309	6,584	9,130	3,838	37,012	1,109	1,975	1,596	2,560	5,437	346	3,334	3,186	3,549	752	1,298	1,336	4,822	5,305	4,147	3,016	2,265	4,282
Leptodiaptomus sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	64	0	137	8	0	0	38	41	0	0	21
Leptodiaptomus sp.	0	0	0	70	0	0	0	0	0	0	0	0	0	21	0	0	8	8	0	38	0	40	0	21
Leptodiaptomus sp.	7	16	15	211	0	1,424	0	0	0	37	0	0	0	0	0	68	0	8	0	38	0	0	28	0
Heterocope septentrionalis	7	0	7	63	13	299	0	0	0	7	82	19	9	38	19	14	8	8	37	11	25	6	14	13
Heterocope septentrionalis	0	8	0	119	36	299	0	5	5	7	61	15	20	15	24	0	0	0	52	23	17	8	14	6
Heterocope septentrionalis	0	0	0	21	4	0	0	0	0	0	0	4	0	2	2	0	0	8	0	0	4	4	0	4
Heterocope septentrionalis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heterocope septentrionalis	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heterocope septentrionalis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0
Heterocope septentrionalis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Epischura nevadensis	41	32	29	14	4	28	5	5	5	0	3	0	16	2	2	7	8	24	0	0	0	6	6	0
Epischura nevadensis	14	32	29	42	6	85	5	20	16	0	3	0	20	8	13	7	15	63	7	8	12	2	14	9
Epischura nevadensis	34	48	29	0	2	0	0	0	11	4	10	0	0	2	2	7	0	8	0	0	4	4	6	0
Epischura nevadensis	135	0	0	0	0	0	0	5	0	0	0	0	0	2	0	0	0	8	0	38	0	0	6	0
Epischura nevadensis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0
Epischura nevadensis	0	0	0	0	0	0	0	0	0	0	0	38	0	0	0	0	0	0	0	0	0	0	0	0
Epischura nevadensis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Calanoida Subtotal	**15,376**	**14,413**	**18,069**	**45,353**	**14,801**	**165,173**	**4,773**	**5,115**	**4,208**	**14,510**	**25,748**	**8,862**	**13,601**	**10,413**	**11,025**	**4,248**	**4,069**	**4,426**	**15,935**	**22,891**	**17,730**	**10,665**	**9,189**	**12,044**
Unidentified Calanoida	0	0	0	140	0	0	0	0	213	37	34	0	22	0	56	137	23	31	111	0	0	0	85	0
Calanoid nauplii Subtotal	**0**	**0**	**0**	**140**	**0**	**0**	**0**	**0**	**213**	**37**	**34**	**0**	**22**	**0**	**56**	**137**	**23**	**31**	**111**	**0**	**0**	**0**	**85**	**0**
Cyclopoida																								
Cyclops bicuspidatus thomasi	27	40	512	351	21	569	46	25	27	110	68	77	44	64	56	0	15	0	74	227	83	20	57	43
Cyclops bicuspidatus thomasi	0	8	7	0	2	28	5	15	11	11	34	77	0	8	6	0	0	8	7	76	4	20	8	0
Cyclops scutifer	7	8	0	14	85	427	0	5	5	11	10	77	67	42	13	0	0	0	7	4	4	40	85	43
Cyclops scutifer	14	24	15	42	11	712	5	20	5	22	14	15	18	4	11	0	0	16	4	15	12	10	11	6
Cyclops capillatus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cyclops capillatus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cyclops varicans rubra																								
Cyclops sp.	14,181	22,345	19,020	39,328	14,927	152,319	3,789	5,571	5,320	7,681	21,748	6,536	8,667	8,495	10,086	2,805	1,908	2,437	7,048	9,852	10,783	7,237	10,761	9,849
Cyclopoida Subtotal	**14,228**	**22,425**	**19,554**	**39,735**	**15,046**	**154,055**	**3,844**	**5,637**	**5,368**	**7,835**	**21,874**	**6,782**	**8,796**	**8,614**	**10,172**	**2,805**	**1,924**	**2,461**	**7,140**	**10,174**	**10,887**	**7,328**	**10,922**	**9,941**
Unidentified Cyclopoida	1,013	2,554	2,195	843	1,066	7,118	139	0	160	402	2,039	654	311	85	112	0	38	24	1,039	3,031	2,074	342	368	664
Cyclopoid nauplii Subtotal	**1,013**	**2,554**	**2,195**	**843**	**1,066**	**7,118**	**139**	**0**	**160**	**402**	**2,039**	**654**	**311**	**85**	**112**	**0**	**38**	**24**	**1,039**	**3,031**	**2,074**	**342**	**368**	**664**
Total	**41,894**	**57,675**	**61,676**	**117,358**	**45,406**	**419,175**	**22,870**	**20,334**	**15,615**	**36,540**	**68,622**	**25,570**	**34,198**	**26,911**	**31,005**	**9,337**	**8,572**	**8,585**	**35,627**	**48,230**	**50,232**	**24,476**	**33,118**	**32,352**

(continued)

Appendix 3.6-2
Taxonomic Results for Zooplankton in Lac du Sauvage and Reference Lake Stations, Open-Water Season 2004 and 2006 (continued)

Location	LDS 12			Christine Lake			Ursula 1			Ursula 2			Ursula 3			LDS 1			LDS 2			LDS 3		
Date	03-Aug-06			08-Sep-06			08-Sep-06			08-Sep-06			08-Sep-06			10-Sep-06			10-Sep-06			07-Sep-06		
Replicate	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Volume filtered (m^3)	0.173	0.161	0.156	0.638	0.522	0.327	0.260	0.292	0.264	0.194	0.167	0.177	0.144	0.135	0.154	0.161	0.209	0.228	0.587	0.581	0.611	0.161	0.951	0.963
Species/group																								
ROTIFERA																								
Kellicottia longispina	1,794	4,152	2,955	2,351	4,980	5,206	5,767	6,498	8,336	10,844	8,379	11,327	5,128	5,861	4,747	19,209	18,674	14,923	9,034	13,082	9,324	55,769	6,098	5,506
Keratella cochlearis	0	0	0	0	0	0	0	0	0	516	60	57	0	74	65	0	0	0	0	2	0	0	0	0
Conochilus sp.	116	1,115	257	16	19	122	38	103	38	103	30	11	62	371	130	558	862	483	205	465	393	372	210	21
Lecane sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Notommata?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Polyarthra	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rotifera Subtotal	**1,910**	**5,267**	**3,212**	**2,367**	**4,999**	**5,328**	**5,805**	**6,601**	**8,374**	**11,464**	**8,469**	**11,395**	**5,191**	**6,306**	**4,942**	**19,767**	**19,536**	**15,406**	**9,239**	**13,548**	**9,716**	**56,141**	**6,308**	**5,527**
CLADOCERA																								
Holopediidae				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Holopedium gibberum	6	0	0	0	2	0	104	116	117	31	66	85	14	37	52	372	335	105	0	2	0	1,673	946	166
Daphnidae																								
Daphnia longiremis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	62	0	21
Daphnia middendorffiana	29	93	6	8	6	9	42	48	38	10	0	28	7	15	7	2,045	1,820	1,185	545	396	262	6,816	1,682	519
Bosminidae																								
Bosmina longirostris	12	6	0	1,411	2,298	3,675	242	168	224	160	389	368	243	430	449	0	0	0	2	0	0	0	0	0
Chydoridae																								
Chydorus sphaericus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62	48	0	7	19	15	1,239	11	0
Cladocera Subtotal	**46**	**99**	**6**	**1,419**	**2,306**	**3,684**	**388**	**332**	**379**	**201**	**455**	**481**	**263**	**482**	**507**	**2,479**	**2,207**	**1,290**	**554**	**417**	**276**	**9,791**	**2,639**	**706**
COPEPODA																								
Calanoida																								
Leptodiaptomus pribilofensis	208	310	193	878	1,341	1,102	1,307	1,471	1,061	361	359	227	1,525	519	1,691	310	527	395	36	53	3	2,417	378	831
Leptodiaptomus pribilofensis	87	248	116	1,881	3,639	3,675	3,460	1,060	985	516	898	793	762	445	975	434	239	614	56	108	36	1,177	305	416
Leptodiaptomus ashlandi	1,505	991	707	0	0	0	2,307	4,104	1,895	5,680	12,569	13,026	2,980	3,338	3,772	1,053	575	702	7	3	7	3,098	315	312
Leptodiaptomus ashlandi	810	929	835	0	19	0	4,614	3,762	2,652	8,262	13,168	14,725	3,396	2,671	3,706	744	622	483	3	3	2	3,718	231	416
Leptodiaptomus sicilis	0	0	0	63	192	367	0	0	0	0	0	0	0	0	0	3,098	4,788	3,511	20	22	38	11,774	2,313	2,701
Leptodiaptomus sicilis	0	0	0	188	345	490	0	0	0	0	0	0	0	0	0	6,197	3,831	5,706	36	9	21	13,013	3,049	2,078
Leptodiaptomus sp.	5,036	5,639	3,340	0	0	0	38	34	76	0	0	6	69	7	65	248	96	132	17	9	3	3,718	421	935
Leptodiaptomus sp.	3,357	4,647	3,019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	0	0	0	0	0	0
Leptodiaptomus sp.	58	62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Leptodiaptomus sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Leptodiaptomus sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heterocope septentrionalis	46	19	13	9	29	18	4	3	4	5	6	11	0	7	13	0	0	0	0	0	0	0	0	1
Heterocope septentrionalis	12	12	0	9	29	55	12	3	15	0	6	45	21	7	39	0	0	0	0	0	0	0	0	1
Heterocope septentrionalis	12	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heterocope septentrionalis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heterocope septentrionalis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heterocope septentrionalis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heterocope septentrionalis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Epischura nevadensis	35	12	6	0	8	3	0	0	0	0	0	0	0	0	0	6	10	13	2	5	2	12	5	8
Epischura nevadensis	81	37	6	5	0	6	0	0	0	0	0	0	0	0	0	25	5	26	3	9	10	31	13	6
Epischura nevadensis	29	25	13	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	2	0	0	0	0	0
Epischura nevadensis	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Epischura nevadensis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Epischura nevadensis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Epischura nevadensis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Calanoida Subtotal	**11,281**	**12,932**	**8,260**	**3,033**	**5,600**	**5,717**	**11,741**	**10,438**	**6,688**	**14,825**	**27,006**	**28,833**	**8,753**	**6,996**	**10,261**	**12,121**	**10,692**	**11,627**	**182**	**222**	**121**	**38,958**	**7,030**	**7,704**
Unidentified Calanoida	0	62	64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Calanoid nauplii Subtotal	**0**	**62**	**64**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Cyclopoida																								
Cyclops bicuspidatus thomasi	58	124	128	0	0	0	0	0	0	0	0	0	0	0	0	868	622	746	49	103	7	868	736	519
Cyclops bicuspidatus thomasi	6	0	0	0	0	0	38	0	0	0	0	0	0	0	0	744	718	658	307	241	98	248	147	416
Cyclops scutifer	116	12	6	768	958	1,470	923	684	1,402	671	359	1,019	139	297	65	1,301	1,197	1,448	136	207	52	4,957	631	623
Cyclops scutifer	29	0	19	361	287	429	27	68	114	207	180	453	0	0	13	496	718	658	119	69	51	3,098	294	831
Cyclops capillatus	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
Cyclops capillatus	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Cyclops varicans rubra																								
Cyclops sp.	2,836	3,098	2,890	5,016	9,577	10,412	2,345	2,018	3,031	2,634	5,985	4,361	970	1,113	1,170	8,675	5,267	10,095	1,381	1,893	2,290	34,701	8,831	8,311
Cyclopoida Subtotal	**3,044**	**3,235**	**3,045**	**6,147**	**10,821**	**12,313**	**3,333**	**2,770**	**4,547**	**3,511**	**6,524**	**5,833**	**1,109**	**1,410**	**1,248**	**12,083**	**8,523**	**13,607**	**1,993**	**2,513**	**2,498**	**43,872**	**10,642**	**10,702**
Unidentified Cyclopoida	58	248	64	4,232	11,492	7,962	2,691	1,710	2,652	2,582	4,190	2,832	1,941	1,261	1,301	1,363	1,149	2,195	222	241	360	6,816	631	1,454
Cyclopoid nauplii Subtotal	**58**	**248**	**64**	**4,232**	**11,492**	**7,962**	**2,691**	**1,710**	**2,652**	**2,582**	**4,190**	**2,832**	**1,941**	**1,261**	**1,301**	**1,363**	**1,149**	**2,195**	**222**	**241**	**360**	**6,816**	**631**	**1,454**
Total	**16,340**	**21,843**	**14,652**	**17,198**	**35,219**	**35,005**	**23,960**	**21,852**	**22,641**	**32,584**	**46,644**	**49,375**	**17,257**	**16,454**	**18,259**	**47,813**	**42,108**	**44,125**	**12,189**	**16,941**	**12,971**	**155,578**	**27,250**	**26,094**

(continued)

Appendix 3.6-2
Taxonomic Results for Zooplankton in Lac du Sauvage and Reference Lake Stations, Open-Water Season 2004 and 2006 (continued)

Location	LDS 4			LDS 5			LDS 6			LDS 7			LDS 8			LDS 9			LDS 10			LDS 11		
Date	07-Sep-06			10-Sep-06			07-Sep-06			10-Sep-06			10-Sep-06			07-Sep-06			08-Sep-06			08-Sep-06		
Replicate	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Volume filtered (m^3)	0.224	0.224	0.224	0.180	0.175	0.188	0.549	0.549	0.727	0.199	0.205	0.220	0.370	0.425	0.332	0.051	0.068	0.182	0.327	0.338	0.283	0.184	0.087	0.140
Species/group																								
ROTIFERA																								
Kellicottia longispina	10,713	16,962	22,765	7,208	8,015	6,916	12,758	18,954	8,251	8,528	10,729	6,357	9,724	4,232	7,825	52,671	30,725	20,849	3,981	1,480	10,251	5,973	24,045	12,100
Keratella cochlearis	134	0	0	0	0	0	0	18	138	0	49	0	270	235	0	195	0	549	0	0	0	0	1,145	71
Conochilus sp.	670	491	670	222	458	426	310	310	165	351	293	272	108	118	120	2,341	1,609	988	0	0	0	0	0	0
Lecane sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Notommata?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Polyarthra	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rotifera Subtotal	**11,516**	**17,453**	**23,434**	**7,429**	**8,473**	**7,342**	**13,068**	**19,282**	**8,554**	**8,879**	**11,071**	**6,629**	**10,102**	**4,585**	**7,946**	**55,207**	**32,334**	**22,385**	**3,981**	**1,480**	**10,251**	**5,973**	**25,190**	**12,171**
CLADOCERA																								
Holopediidae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Holopedium gibberum	848	1,741	937	205	155	372	38	237	220	100	59	227	621	564	632	137	176	274	1,102	799	1,767	1,466	1,031	854
Daphnidae																								
Daphnia longiremis	45	9	0	6	6	0	0	0	0	0	0	45	54	47	60	0	0	0	122	59	35	5	0	71
Daphnia middendorffiana	625	3,571	714	1,053	1,431	745	26	128	110	903	732	1,271	1,351	1,082	3,913	1,756	307	933	1,654	1,775	3,181	1,086	2,290	1,424
Bosminidae																								
Bosmina longirostris	4	0	0	0	0	0	0	2	1	0	0	0	0	24	0	0	29	0	0	0	0	0	0	0
Chydoridae																								
Chydorus sphaericus	0	0	4	0	0	0	0	7	3	0	0	0	0	0	0	0	0	0	31	0	0	0	0	0
Cladocera Subtotal	**1,522**	**5,321**	**1,656**	**1,264**	**1,592**	**1,117**	**64**	**374**	**334**	**1,003**	**790**	**1,544**	**2,026**	**1,717**	**4,605**	**1,892**	**512**	**1,207**	**2,909**	**2,634**	**4,984**	**2,558**	**3,321**	**2,349**
COPEPODA																								
Calanoida																								
Leptodiaptomus pribilofensis	625	312	85	610	744	372	22	47	248	451	341	454	162	165	241	273	614	439	276	533	283	597	1,145	427
Leptodiaptomus pribilofensis	71	312	134	222	630	213	9	26	55	120	127	227	162	282	301	351	556	439	429	414	353	271	573	427
Leptodiaptomus ashlandi	625	759	759	887	630	372	36	91	261	401	195	454	378	423	331	1,561	878	768	490	473	530	163	687	214
Leptodiaptomus ashlandi	402	937	714	721	859	213	42	26	165	251	146	318	459	212	241	312	585	329	551	473	884	489	573	427
Leptodiaptomus sicilis	1,785	4,464	2,232	6,099	4,580	4,788	77	328	1,375	1,756	1,268	1,952	2,431	1,881	2,107	4,292	3,511	2,798	4,287	4,734	4,595	1,357	3,664	2,206
Leptodiaptomus sicilis	982	2,589	2,366	3,327	9,733	6,916	118	255	963	1,906	2,341	5,903	1,891	2,822	5,117	4,292	4,389	4,115	3,368	4,439	7,070	3,801	4,008	2,562
Leptodiaptomus sp.	491	402	402	0	115	53	15	91	124	251	49	182	54	71	120	585	1,024	658	214	592	71	217	229	214
Leptodiaptomus sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Leptodiaptomus sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Leptodiaptomus sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Leptodiaptomus sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heterocope septentrionalis	0	0	0	0	0	0	5	4	18	0	5	0	0	2	6	0	0	5	0	0	0	0	0	7
Heterocope septentrionalis	0	4	4	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heterocope septentrionalis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heterocope septentrionalis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heterocope septentrionalis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heterocope septentrionalis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heterocope septentrionalis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Epischura nevadensis	4	13	18	0	0	0	0	0	6	10	5	5	3	2	6	0	0	0	12	9	14	33	23	14
Epischura nevadensis	22	22	40	6	17	5	0	0	11	15	49	27	14	9	15	20	15	0	21	6	21	43	11	14
Epischura nevadensis	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Epischura nevadensis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Epischura nevadensis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Epischura nevadensis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Epischura nevadensis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Calanoida Subtotal	**5,008**	**9,816**	**6,753**	**11,870**	**17,307**	**12,934**	**324**	**869**	**3,225**	**5,167**	**4,526**	**9,522**	**5,553**	**5,869**	**8,485**	**11,685**	**11,573**	**9,552**	**9,649**	**11,673**	**13,822**	**6,972**	**10,912**	**6,513**
Unidentified Calanoida	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Calanoid nauplii Subtotal	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Cyclopoida																								
Cyclops bicuspidatus thomasi	625	1,294	937	1,164	1,031	904	46	36	193	552	390	590	756	400	602	975	2,487	1,756	429	621	2,121	597	916	569
Cyclops bicuspidatus thomasi	89	312	491	998	1,031	1,277	15	55	138	652	585	817	405	306	361	975	878	274	643	1,775	990	543	802	569
Cyclops scutifer	625	714	580	1,774	1,374	1,277	29	164	289	1,104	1,073	954	837	1,058	1,384	2,146	2,341	1,646	1,837	2,071	1,767	1,629	2,634	1,352
Cyclops scutifer	268	536	491	832	1,317	585	33	44	83	1,104	683	681	837	541	903	585	1,609	658	429	740	778	760	1,031	854
Cyclops capillatus	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	15	0	0	0	0	0	0	0
Cyclops capillatus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cyclops varicans rubra																								
Cyclops sp.	2,723	4,910	5,356	13,306	10,878	8,512	656	1,567	2,200	6,020	6,828	9,081	7,023	7,995	10,233	22,434	38,040	18,106	10,412	9,765	13,079	5,158	22,900	12,812
Cyclopoida Subtotal	**4,330**	**7,767**	**7,856**	**18,074**	**15,630**	**12,556**	**778**	**1,866**	**2,902**	**9,436**	**9,559**	**12,123**	**9,859**	**10,299**	**13,484**	**27,116**	**45,370**	**22,440**	**13,750**	**14,973**	**18,735**	**8,688**	**28,282**	**16,157**
Unidentified Cyclopoida	625	402	714	887	458	692	474	729	825	50	244	227	810	470	602	6,828	3,365	3,841	122	59	35	0	229	71
Cyclopoid nauplii Subtotal	**625**	**402**	**714**	**887**	**458**	**692**	**474**	**729**	**825**	**50**	**244**	**227**	**810**	**470**	**602**	**6,828**	**3,365**	**3,841**	**122**	**59**	**35**	**0**	**229**	**71**
Total	**23,001**	**40,758**	**40,414**	**39,525**	**43,459**	**34,640**	**14,708**	**23,121**	**15,840**	**24,535**	**26,189**	**30,045**	**28,350**	**22,940**	**35,121**	**102,728**	**93,154**	**59,425**	**30,411**	**30,818**	**47,828**	**24,191**	**67,934**	**37,261**

(continued)

Appendix 3.6-2

Taxonomic Results for Zooplankton in Lac du Sauvage and Reference Lake Stations, Open-Water Season 2004 and 2006 (completed)

Location		**LDS 12**			**LDS 3**			**LDS 3**			**LDS 3**	
Date		**08-Sep-06**			**13-Jul-04**			**10-Aug-04**			**12-Sep-04**	
Replicate	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Volume filtered (m^3)	**0.431**	**0.226**	**0.340**	**0.695**	**0.663**	**0.674**	**0.824**	**0.775**	**0.769**	**0.824**	**0.813**	**0.835**
Species/group												
ROTIFERA												
Kellicottia longispina	11,602	7,524	11,476	23,026	45,276	28,190	46,117	38,729	39,016	17,355	6,892	16,879
Keratella cochlearis	0	0	0	0	1,509	0	0	0	0	0	0	0
Conochilus sp.	0	0	0	14	15	15	121	129	130	121	123	120
Lecane sp.	0	0	0	0	0	0	0	0	0	0	0	120
Notommata?	0	0	0	0	0	0	0	0	0	0	0	0
Polyarthra	0	0	0	0	0	0	0	0	0	0	0	0
Rotifera Subtotal	**11,602**	**7,524**	**11,476**	**23,040**	**46,800**	**28,205**	**46,239**	**38,858**	**39,146**	**17,476**	**7,015**	**17,118**
CLADOCERA												
Holopediidae	0	0	0									
Holopedium gibberum	28	266	38	14	604	1,187	1,578	852	1,691	121	148	120
Daphnidae												
Daphnia longiremis	23	9	0	29	45	9	49	116	23	1	0	0
Daphnia middendorffiana	42	27	38	0	0	0	0	0	0	4	0	2
Bosminidae												
Bosmina longirostris	2	9	9	0	0	0	2	3	1	0	0	0
Chydoridae												
Chydorus sphaericus	23	0	0	1	3	1	0	0	0	0	0	0
Cladocera Subtotal	**118**	**310**	**85**	**45**	**652**	**1,197**	**1,629**	**971**	**1,715**	**126**	**148**	
COPEPODA												
Calanoida												
Leptodiaptomus pribilofensis	139	44	118	0	0	0	0	0	0	218	222	156
Leptodiaptomus pribilofensis	139	310	94	0	0	0	0	0	0	158	123	180
Leptodiaptomus ashlandi	418	575	265	0	0	0	0	0	0	243	197	311
Leptodiaptomus ashlandi	278	575	412	0	0	0	0	13	0	316	320	311
Leptodiaptomus sicilis	650	1,195	1,236	14	0	1	0	0	0	1,092	1,231	1,436
Leptodiaptomus sicilis	951	2,257	1,265	6	0	3	36	0	0	1,456	861	1,018
Leptodiaptomus sp.	186	354	147	0	0	0	1,456	1,162	1,431	850	357	491
Leptodiaptomus sp.	0	0	29	0	0	15	13,350	11,619	7,283	0	0	0
Leptodiaptomus sp.	0	0	0	43	91	59	1,335	1,936	1,170	12	0	0
Leptodiaptomus sp.	0	0	0	5,181	7,697	4,154	1,942	775	520	0	0	0
Leptodiaptomus sp.	0	0	0	25,904	39,239	17,804	4,248	1,162	390	0	0	0
Heterocope septentrionalis	0	4	0	0	0	0	30	52	130	10	16	11
Heterocope septentrionalis	0	0	0	0	0	0	97	103	78	32	39	30
Heterocope septentrionalis	0	0	0	0	0	0	97	142	78	1	0	0
Heterocope septentrionalis	0	0	0	0	0	0	6	39	52	0	0	0
Heterocope septentrionalis	0	0	0	0	0	0	0	0	0	0	0	0
Heterocope septentrionalis	0	0	0	58	45	7	0	0	0	0	0	0
Heterocope septentrionalis	0	0	0	230	136	193	12	13	0	0	0	0
Epischura nevadensis	0	0	0	0	0	0	12	13	0	0	2	1
Epischura nevadensis	5	9	0	0	0	0	0	26	0	12	1	1
Epischura nevadensis	0	0	0	0	0	0	24	0	130	0	0	0
Epischura nevadensis	0	0	0	0	0	0	12	0	0	0	0	0
Epischura nevadensis	0	0	0	0	0	0	0	0	0	0	0	0
Epischura nevadensis	0	0	0	0	0	0	121	0	0	0	0	0
Epischura nevadensis	0	0	0	0	0	0	1,092	129	130	0	0	0
Calanoida Subtotal	**2,766**	**5,325**	**3,566**	**31,436**	**47,208**	**22,238**	**23,872**	**17,183**	**11,393**	**4,399**	**3,369**	**3,946**
Unidentified Calanoida	0	0	0	20,147	30,184	22,255	3,884	387	260	12	12	0
Calanoid nauplii Subtotal	**0**	**0**	**0**	**20,147**	**30,184**	**22,255**	**3,884**	**387**	**260**	**12**	**12**	**0**
Cyclopoida												
Cyclops bicuspidatus thomasi	510	752	559	3	30	15	243	387	130	61	49	120
Cyclops bicuspidatus thomasi	46	266	118	26	45	59	243	258	130	12	25	24
Cyclops scutifer	441	885	559	36	91	89	85	116	169	473	443	527
Cyclops scutifer	673	841	235	47	196	119	85	77	104	194	160	371
Cyclops capillatus	0	0	0	0	0	3	0	0	0	0	0	0
Cyclops capillatus	0	0	0	0	2	0	0	0	0	0	0	0
Cyclops varicans rubra				0	0	0	0	0	0	0	0	12
Cyclops sp.	4,873	8,852	5,002	18,708	19,620	16,321	26,700	25,819	27,311	4,733	4,430	4,908
Cyclopoida Subtotal	**6,543**	**11,596**	**6,474**	**18,821**	**19,983**	**16,605**	**27,355**	**26,658**	**27,844**	**5,473**	**5,107**	**5,961**
Unidentified Cyclopoida	302	531	29	2,878	9,055	4,451	971	387	650	121	246	479
Cyclopoid nauplii Subtotal	**302**	**531**	**29**	**2,878**	**9,055**	**4,451**	**971**	**387**	**650**	**121**	**246**	**479**
Total	**21,331**	**25,286**	**21,630**	**96,366**	**153,882**	**94,952**	**103,949**	**84,444**	**81,008**	**27,609**	**15,897**	**27,626**

APPENDIX 3.7-1
LAKE BENTHOS DENSITY RESULTS FOR LAC DU SAUVAGE AND REFERENCE LAKE SITES, AUGUST 2004 AND 2006

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Appendix 3.7-1
Lake Benthos Density Results for Lac du Sauvage and Reference Lake Sites, August 2004 and 2006

Site	Date	Replicate	Density (org/m^2)	Mean	SE
Christine Lake	30-Jul-06	1	3,511	2,000	756
		2	1,244		
		3	1,244		
UL1	29-Jul-06	1	6,933	7,511	513
		2	8,533		
		3	7,067		
LdS1	31-Jul-06	1	9,156	11,422	1,178
		2	13,111		
		3	12,000		
LdS2	03-Aug-06	1	1,689	3,304	1,637
		2	1,644		
		3	6,578		
LdS3	01-Aug-06	1	667	504	104
		2	533		
		3	311		
LdS3	10-Aug-04	1	1,378	2,030	608
		2	1,467		
		3	3,244		
LdS4	01-Aug-06	1	578	1,111	407
		2	1,911		
		3	844		
LdS5	05-Aug-06	1	5,778	3,793	1,065
		2	3,467		
		3	2,133		
LdS6	03-Aug-06	1	8,044	4,296	2,222
		2	356		
		3	4,489		
LdS7	03-Aug-06	1	1,022	1,022	
		2	empty		
		3	empty		
LdS8	05-Aug-06	1	1,644	2,237	897
		2	4,000		
		3	1,067		
LdS9	03-Aug-06	1	22,533	11,926	5,633
		2	3,333		
		3	9,911		
LdS10	03-Aug-06	1	356	637	155
		2	667		
		3	889		
LdS11	03-Aug-06	1	356	681	262
		2	1,200		
		3	489		
LdS12	03-Aug-06	1	3,333	3,022	648
		2	3,956		
		3	1,778		

APPENDIX 3.7-2
TAXONOMIC RESULTS FOR LAKE BENTHOS IN LAC DU SAUVAGE AND REFERENCE LAKE STATIONS, AUGUST 2004 AND 2006

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Appendix 3.7-2
Taxonomic Results for Lake Benthos in Lac du Sauvage and Reference Lakes, August 2004 and 2006

Location		Christine Lake			Ursula 3			LdS1			LdS2			LdS3			LdS3			LdS4			LdS5		
Date		30-Jul-06			29-Jul-06			31-Jul-06			03-Aug-06			01-Aug-06			10-Aug-04			01-Aug-06			05-Aug-06		
Replicate		1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Species/group	Stage																								
COELENTERATA																									
Hydra		89	0	0	1,244	1,067	1,733	5,333	7,556	4,889	533	489	2,667	444	311	222	44	44	44	178	711	89	1,600	800	222
NEMATODA		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	0
TURBELLARIA	juv	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OLIGOCHAETA		0	0	0	0	0	0	222	533	222	0	44	89	0	0	0	0	0	0	0	0	0	133	89	0
Enchytraeidae		0	0	0	0	0	44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Naididae	juv	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chaetogaster		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nais		0	0	44	0	0	44	0	44	0	0	0	133	0	0	0	0	0	0	44	44	44	0	44	44
Lumbriculidae	juv	0	0	0	0	0	44	44	0	44	0	0	0	44	0	0	0	0	0	0	0	44	0	44	0
Tubificidae	juv	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hirudinea		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Piscicola salmositica		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TARDIGRADA		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CLADOCERA		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chydoridae		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Acroperus harpae		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alonella		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chydorus sphaericus		0	0	0	0	0	0	0	89	44	0	0	0	0	0	0	0	0	0	0	0	44	133	178	0
Eurycercus glacialis		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Macrothricidae		0	0	0	0	0	0	0	0	0	89	0	0	0	0	0	0	0	0	0	0	0	44	0	44
Ophyroxus gracilis		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Streblocerus serricaudatus		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COPEPODA		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cyclopoida		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	0
Eucyclops	M/F	0	0	0	0	0	0	0	89	133	0	0	0	0	0	0	0	0	0	0	0	0	44	0	0
Macrocyclops	M/F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Harpacticoida		0	0	0	0	0	0	0	44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Canthocamptidae		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OSTRACODA		0	0	0	0	0	0	0	0	0	0	44	44	0	0	0	0	0	0	0	0	0	0	0	0
Candona		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cypria		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cypris		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ARACHNIDA		0	0	0	0	0	0	0	0	0	0	44	0	0	0	0	0	0	0	0	0	0	0	0	0
Oribatidae	A	0	0	0	44	0	0	0	44	44	44	0	0	0	0	0	0	0	44	0	0	0	44	0	0
Hydracarina	A	0	0	0	0	0	0	0	0	44	0	44	0	0	0	0	0	0	0	0	0	0	0	0	0
Forelia	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COLLEMBOLA		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Isotomidae		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PLECOPTERA		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nemouridae		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nemoura	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Perlodidae		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Skwala	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEMIPTERA		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aphididae	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	0	0	44
TRICHOPTERA	L*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Limnephilidae	L*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apatania	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dicosmoecus	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grensia praeterita	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hesperophylax	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DIPTERA		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Empididae		0	0	0	0	0	0	0	133	44	44	44	89	0	0	0	0	0	0	0	0	0	0	0	0
Chelifera	L	0	0	0	133	0	44	44	0	0	0	0	356	0	44	0	0	0	0	0	0	44	178	44	0
Chironomidae	L*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chironomidae	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tanypodinae	L*	44	44	0	44	89	444	0	89	133	44	0	0	0	0	0	44	133	89	0	0	44	44	44	311
Procladius	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	89	0
Procladius	P	0	0	0	0	0	44	0	0	0	0	0	0	0	0	0	0	0	0	44	44	0	0	133	0
Thiennemannimyia	L	2,000	311	267	1,556	2,978	1,511	578	756	933	311	222	1,778	0	0	0	0	0	0	44	44	44	2,489	44	0
Tanytarsini	L	89	44	44	0	0	0	0	0	133	0	89	89	44	0	0	0	0	89	0	0	0	0	0	44
Micropsectra	L	0	0	0	0	89	89	0	0	0	44	133	133	0	0	0	0	0	0	0	0	0	0	0	0
Paratanytarsus	L	44	44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stempellinella	L	0	0	0	3,111	3,111	2,000	133	178	311	0	44	89	44	0	44	400	133	667	0	44	0	0	0	0
Tanytarsus	L	0	0	0	0	44	0	0	0	0	0	0	0	0	0	0	0	0	133	0	0	0	0	0	0
Tanytarsus	P	0	0	44	0	44	44	44	0	44	0	0	0	0	0	0	0	0	0	0	0	0	0	44	0
Chironomini	L*	0	0	0	44	0	44	0	0	0	0	0	0	0	0	0	0	133	44	0	0	0	0	0	0
Chironomus	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dicrotendipes	L	44	0	0	222	978	667	1,600	2,044	3,200	0	0	0	44	44	0	0	0	44	44	489	89	578	267	444
Microtendipes	L	578	89	133	0	0	0	667	267	444	0	0	44	0	0	0	0	89	133	0	178	0	0	89	267
Phaenopsectra	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Phaenopsectra	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Polypedilum (polypedilum)	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stictochironomus	L	0	0	44	44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Orthocladiinae	L*	44	0	0	0	0	0	0	44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Orthocladiinae	P	0	0	0	0	0	0	0	0	89	0	0	0	0	0	0	0	0	0	0	0	0	0	44	0
Abiskomyia	L	0	0	0	0	0	0	0	0	44	0	0	0	0	0	0	0	0	0	0	0	0	0	44	0
Abiskomyia	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chaetocladius	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Corynoneura	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Corynoneura	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eukiefferiella	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eukiefferiella	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gymnometriocnemus	L	0	0	0	0	0	0	0	0	0	0	44	44	0	0	0	311	622	800	0	44	89	44	89	89
Heterotrissocladius	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heterotrissocladius	P	0	0	0	0	0	0	0	0	0	0	133	178	0	0	0	0	0	0	0	0	0	0	0	0
Orthocladius	L	0	0	0	0	0	0	0	0	0	0	0	44	0	0	0	0	0	0	0	0	0	0	0	0
Orthocladius	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paracladius	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paracladius	P	0	0	0	0	44	0	0	0	0	0	0	0	44	0	0	0	0	0	0	0	0	44	0	0
Psectrocladius	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Psectrocladius	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diamesinae		44	178	44	0	0	44	89	44	44	178	133	267	0	0	0	0	0	0	0	44	0	44	44	44
Monodiamesa	L	0	0	0	0	0	0	0	0	0	44	0	44	0	0	0	0	0	0	0	0	0	0	0	0
Potthastia	L	44	0	44	0	0	0	44	44	0	44	0	44	0	0	0	0	0	0	0	89	0	0	44	0
Protanypus	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MOLLUSCA		311	178	400	0	0	0	89	533	489	89	0	178	0	133	0	267	178	400	44	44	178	267	933	222
Sphaeriidae	juv	178	356	178	444	44	267	133	489	622	133	133	133	0	0	44	222	44	711	133	89	89	89	178	178
Pisidium		0	0	0	0	44	0	89	89	44	44	0	0	0	0	0	89	89	44	44	44	0	0	89	178
Sphaerium		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Valvatidae		0	0	0	44	0	0	44	0	0	44	0	133	0	0	0	0	0	0	0	0	0	0	0	0
Valvata sincera sincera		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL		3,511	1,244	1,244	6,933	8,533	7,067	9,156	13,111	12,000	1,689	1,644	6,578	667	533	311	1,378	1,467	3,244	578	1,911	844	5,778	3,467	2,133

(continued)

Appendix 3.7-2
Taxonomic Results for Lake Benthos in Lac du Sauvage and Reference Lakes, August 2004 and 2006 (completed)

Location	LdS6			LdS7			LdS8			LdS9			LdS10			LdS11			LdS12		
Date	03-Aug-06			03-Aug-06			05-Aug-06			03-Aug-06			03-Aug-06			03-Aug-06			03-Aug-06		
Replicate	1	2	3	1	2 empty	3 empty	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Species/group																					
COELENTERATA																					
Hydra	2,000	89	1,556	0			133	1,244	133	7,022	1,111	2,889	0	0	0	0	0	0	0	0	0
NEMATODA	133	0	44	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TURBELLARIA	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OLIGOCHAETA	44	0	44	0			0	0	0	889	444	133	0	0	0	44	0	89	0	0	44
Enchytraeidae	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Naididae	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chaetogaster	0	0	0	0			0	0	0	1,378	44	89	0	0	0	0	0	0	0	0	0
Nais	222	0	0	0			44	89	44	0	0	44	44	44	0	44	0	0	133	44	178
Lumbriculidae	178	0	89	267			44	0	0	44	0	0	133	44	222	0	0	0	0	89	0
Tubificidae	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hirudinea	44	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Piscicola salmositica	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TARDIGRADA	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CLADOCERA	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chydoridae	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Acroperus harpae	0	0	0	0			0	0	0	44	0	0	0	0	0	0	0	0	0	0	0
Alonella	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chydorus sphaericus	44	0	44	0			0	133	0	44	0	0	0	0	0	44	0	0	0	0	44
Eurycercus glacialis	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Macrothricidae	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ophyroxus gracilis	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Streblocerus serricaudatus	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COPEPODA	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cyclopoida	44	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eucyclops	0	0	0	0			178	0	44	0	0	0	0	0	0	0	0	0	0	0	0
Macrocyclops	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Harpacticoida	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Canthocamptidae	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OSTRACODA	44	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Candona	0	0	0	0			0	0	0	0	0	0	0	0	0	0	44	0	0	0	0
Cypria	44	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cypris	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ARACHNIDA	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oribatidae	89	0	0	0			0	0	0	0	0	44	0	0	0	0	0	0	0	0	0
Hydracarina	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forelia	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COLLEMBOLA	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Isotomidae	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PLECOPTERA	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nemouridae	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nemoura	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Perlodidae	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Skwala	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEMIPTERA	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aphididae	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TRICHOPTERA	0	0	0	0			0	0	0	0	44	0	0	0	44	0	0	0	0	0	0
Limnephilidae	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apatania	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dicosmoecus	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grensia praeterita	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hesperophylax	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DIPTERA	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Empididae	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	44	0
Chelifera	89	0	0	0			0	0	0	2,000	267	444	0	44	0	0	0	0	0	0	0
Chironomidae	0	0	0	44			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chironomidae	0	0	0	0			0	0	0	44	0	0	0	0	0	0	0	0	0	0	0
Tanypodinae	267	0	178	44			222	400	44	89	0	133	0	44	89	0	44	0	89	44	44
Procladius	44	0	0	0			44	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Procladius	178	44	44	0			0	0	0	0	0	0	0	0	0	0	0	0	89	89	0
Thiennemannimyia	622	0	1,156	89			0	0	44	5,778	667	1,778	0	0	0	0	44	0	222	578	267
Tanytarsini	222	0	178	44			0	0	0	44	0	0	0	0	0	0	0	0	0	89	0
Micropsectra	178	0	44	0			0	178	0	0	0	0	0	0	0	0	0	0	400	533	178
Paratanytarsus	44	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stempellinella	89	0	0	0			0	44	0	0	0	0	0	89	44	0	0	44	0	0	44
Tanytarsus	0	44	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tanytarsus	178	0	0	0			0	0	0	0	0	0	0	0	0	0	44	0	44	0	0
Chironomini	0	0	0	44			89	133	89	0	0	0	0	0	0	0	44	0	0	0	0
Chironomus	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dicrotendipes	711	0	267	44			356	1,022	133	0	133	89	44	44	0	44	356	311	222	178	44
Microtendipes	1,067	0	89	133			44	178	0	0	0	0	89	89	311	133	178	44	0	0	0
Phaenopsectra	0	0	0	0			0	0	0	0	0	0	0	0	0	44	44	0	0	0	0
Phaenopsectra	44	0	0	0			44	0	0	0	0	0	0	0	0	0	44	0	0	0	0
Polypedilum (polypedilum)	0	0	0	0			0	0	44	0	0	0	0	0	0	0	0	0	0	0	0
Stictochironomus	0	0	0	0			0	0	0	3,022	267	2,889	0	0	0	0	0	0	0	44	0
Orthocladiinae	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Orthocladiinae	0	0	0	0			0	0	0	89	0	0	0	0	0	0	0	0	0	0	44
Abiskomyia	0	0	0	0			0	0	0	89	0	0	0	0	0	0	0	0	0	0	0
Abiskomyia	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chaetocladius	44	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Corynoneura	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Corynoneura	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eukiefferiella	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eukiefferiella	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gymnometriocnemus	311	0	44	0			267	133	133	0	0	0	0	0	0	0	44	0	578	844	311
Heterotrissocladius	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	133	89
Heterotrissocladius	44	0	0	0			0	0	0	1,511	267	1,022	0	0	0	0	0	0	44	44	0
Orthocladius	44	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Orthocladius	0	0	0	0			0	0	0	0	44	0	0	0	0	0	0	0	0	0	0
Paracladius	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paracladius	0	0	0	0			0	0	0	44	0	44	0	0	0	0	0	0	133	0	0
Psectrocladius	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	44	0	0
Psectrocladius	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diamesinae	133	0	133	0			44	0	178	0	0	0	0	44	0	0	133	0	0	0	0
Monodiamesa	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Potthastia	44	44	0	0			0	89	44	0	0	44	0	0	0	0	0	0	222	89	89
Protanypus	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MOLLUSCA	489	89	444	89			89	178	44	311	44	133	44	44	133	0	89	0	711	667	356
Sphaeriidae	133	44	133	222			0	133	89	44	0	89	0	178	0	0	89	0	356	356	44
Pisidium	44	0	0	0			44	44	0	0	0	0	0	0	0	0	0	0	0	0	0
Sphaerium	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Valvatidae	133	0	0	0			0	0	0	44	0	44	0	0	44	0	0	0	44	89	0
Valvata sincera sincera	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	8,044	356	4,489	1,022			1,644	4,000	1,067	22,533	3,333	9,911	356	667	889	356	1,200	489	3,333	3,956	1,778

APPENDIX 3.8-1
LITTORAL AND BOULDER HABITAT BENTHOS DENSITY RESULTS FOR LAC DU SAUVAGE AND REFERENCE LAKE SITES, AUGUST 2006

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Appendix 3.8-1
Littoral and Boulder Habitat Benthos Density Results for Lac du Sauvage and Reference Lake Sites, August 2006

Site	Date	Replicate	Density (org/m^2)	Mean	SE
Littoral Habitat B1	1-Aug-06	1	533	607	171
		2	933		
		3	356		
Littoral Habitat B2	1-Aug-06	1	1,200	756	257
		2	756		
		3	311		
Littoral Habitat B4	1-Aug-06	1	1,867	2,741	1,104
		2	4,933		
		3	1,422		
Littoral Habitat B5	1-Aug-06	1	3,289	3,496	399
		2	2,933		
		3	4,267		
Boulder Habitat B1	7-Sep-06	1	633	967	122
		2	1,022		
		3	989		
		4	1,222		
		5			
Boulder Habitat B2	7-Sep-06	1	978	1,233	151
		2	933		
		3	1,456		
		4	1,089		
		5	1,711		
Boulder Habitat B3	7-Sep-06	1	3,656	3,360	1,565
		2	9,311		
		3	1,567		
		4	1,567		
		5	700		
Boulder Habitat B4	7-Sep-06	1	278	414	64
		2	533		
		3			
		4	333		
		5	511		
Boulder Habitat B5	7-Sep-06	1	1,100	1,118	153
		2	711		
		3	1,000		
		4	1,656		
		5	1,122		

APPENDIX 3.8-2
TAXONOMIC RESULTS FOR LITTORAL AND BOULDER HABITAT BENTHOS IN LAC DU SAUVAGE AND REFERENCE LAKE STATIONS, AUGUST 2006

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Appendix 3.8-2
Taxonomic Results for Littoral and Boulder Habitat Benthos in Lac du Sauvage and Reference Lakes, August 2006

Location		Littoral Habitat B1			Littoral Habitat B2			Littoral Habitat B4			Littoral Habitat B5			Boulder Habitat B1				
Date		01-Aug-06			01-Aug-06			01-Aug-06			01-Aug-06			07-Sep-06				
Replicate		1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	4	5
Species/group	Stage																	
COELENTERATA																		
Hydra		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NEMATODA		133	89	44	222	89	0	267	1,200	44	267	89	222	0	0	0	0	0
TURBELLARIA	juv	0	0	0	0	0	0	0	0	0	0	0	0	22	0	26	153	67
OLIGOCHAETA		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Enchytraeidae		0	0	0	0	0	44	0	0	0	0	0	0	0	0	0	0	0
Naididae	juv	0	0	0	0	0	0	0	0	0	0	0	0	0	11	4	22	0
Chaetogaster		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nais		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lumbriculidae	juv	0	44	0	44	0	0	89	44	0	0	133	400	0	0	0	0	0
Tubificidae	juv	0	0	44	0	0	0	267	89	89	133	44	133	0	0	4	22	22
Hirudinea		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	67
Piscicola salmositica		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TARDIGRADA		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CLADOCERA		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chydoridae		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Acroperus harpae		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alonella		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chydorus sphaericus		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eurycercus glacialis		0	0	0	89	0	44	0	44	44	133	133	89	0	0	0	0	0
Macrothricidae		0	0	0	0	0	0	0	0	0	0	0	0	0	11	11	65	0
Ophyroxus gracilis		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Streblocerus serricaudatus		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COPEPODA		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cyclopoida		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eucyclops	M/F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Macrocyclops	M/F	0	0	0	0	0	0	0	0	0	44	44	89	0	0	0	0	0
Harpacticoida		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Canthocamptidae		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OSTRACODA		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Candona		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cypria		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cypris		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ARACHNIDA		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oribatidae	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hydracarina	A	0	133	44	44	0	0	89	0	0	0	44	178	0	0	0	0	0
Forelia	A	0	44	0	0	0	0	0	0	0	0	0	0	0	0	4	22	22
COLLEMBOLA		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Isotomidae		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PLECOPTERA		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nemouridae		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nemoura	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Perlodidae		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Skwala	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEMIPTERA		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aphididae	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TRICHOPTERA	L*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Limnephilidae	L*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apatania	L	0	0	0	0	44	0	0	0	0	0	0	0	0	0	0	0	0
Dicosmoecus	L	0	0	0	0	0	0	0	0	0	0	0	0	11	0	4	22	0
Grensia praeterita	L	0	0	0	0	0	0	0	0	0	0	0	44	0	0	0	0	0
Hesperophylax	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DIPTERA		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Empididae		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chelifera	L	0	0	0	0	0	44	0	0	0	44	0	44	0	0	0	0	0
Chironomidae	L*	89	0	44	0	0	0	0	0	0	0	0	0	0	11	4	22	0
Chironomidae	P	44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tanypodinae	L*	0	44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Procladius	L	0	0	0	89	178	44	44	89	44	356	44	267	0	0	0	0	0
Procladius	P	0	0	0	0	0	0	0	0	0	0	0	0	44	11	26	153	11
Thiennemannimyia	L	0	0	0	89	44	0	0	0	0	133	133	44	0	0	0	0	0
Tanytarsini	L	133	311	89	89	0	44	44	178	89	133	0	222	11	0	11	65	0
Micropsectra	L	0	0	0	0	0	0	0	133	0	89	0	44	0	11	11	65	11
Paratanytarsus	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stempellinella	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tanytarsus	L	44	0	0	0	0	0	44	89	0	0	89	0	0	0	0	0	0
Tanytarsus	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
Chironomini	L*	0	0	0	0	44	0	0	0	0	0	0	0	0	0	0	0	0
Chironomus	L	0	0	0	0	0	0	0	44	44	44	0	44	11	0	4	22	0
Dicrotendipes	L	0	0	0	0	44	0	0	0	0	0	0	0	0	0	0	0	0
Microtendipes	L	0	44	0	0	44	0	311	1,022	311	489	578	400	11	0	4	22	0
Phaenopsectra	L	0	0	0	0	0	0	267	933	222	133	222	178	11	0	4	22	78
Phaenopsectra	P	0	0	0	0	0	0	0	0	0	0	0	44	0	0	0	0	67
Polypedilum (polypedilum)	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stictochironomus	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Orthocladiinae	L*	0	0	0	0	0	0	0	0	0	89	0	44	0	0	0	0	0
Orthocladiinae	P	0	0	0	44	0	0	0	0	0	0	0	0	0	0	0	0	0
Abiskomyia	L	0	0	0	0	0	0	0	0	0	0	44	0	0	0	4	22	0
Abiskomyia	P	0	0	0	0	0	0	0	0	0	0	0	133	0	0	0	0	0
Chaetocladius	L	0	44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Corynoneura	L	0	0	0	0	0	0	0	0	0	0	44	0	0	0	0	0	0
Corynoneura	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eukiefferiella	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eukiefferiella	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gymnometriocnemus	L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heterotrissocladius	L	0	0	0	0	0	0	0	0	0	44	89	89	0	0	0	0	0
Heterotrissocladius	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Orthocladius	L	0	0	0	0	0	0	0	0	0	0	0	44	0	0	0	0	0
Orthocladius	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paracladius	L	0	89	44	89	0	0	0	0	0	0	0	0	0	0	0	0	0
Paracladius	P	0	0	0	44	0	0	0	0	0	0	0	0	0	0	7	44	0
Psectrocladius	L	0	0	0	0	44	0	0	44	0	0	0	0	0	0	4	22	0
Psectrocladius	P	0	0	0	44	0	0	0	0	0	0	0	0	11	0	4	22	0
Diamesinae		0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	22	0
Monodiamesa	L	0	0	0	0	0	0	44	89	133	44	44	133	0	0	0	0	0
Potthastia	L	0	0	0	0	44	0	0	0	0	0	0	0	0	0	0	0	11
Protanypus	L	44	0	0	0	0	0	0	0	44	178	44	44	11	0	4	22	0
MOLLUSCA		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sphaeriidae	juv	0	0	0	89	133	0	267	489	133	400	756	889	0	0	0	0	0
Pisidium		44	44	44	133	0	44	133	444	222	489	267	400	33	0	19	109	67
Sphaerium		0	0	0	0	0	0	0	0	0	44	0	44	0	11	15	87	33
Gastropoda		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Valvatidae		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Valvata sincera sincera		0	44	0	89	44	44	0	0	0	0	89	0	0	0	0	0	0
TOTAL		533	933	356	1,200	756	311	1,867	4,933	1,422	3,289	2,933	4,267	178	67	174	1,024	

(continued)

Appendix 3.8-2

Taxonomic Results for Littoral and Boulder Habitat Benthos in Lac du Sauvage and Reference Lakes, August 2006 (completed)

Location	Boulder Habitat B2					Boulder Habitat B3					Boulder Habitat B4					Boulder Habitat B5				
Date	07-Sep-06					07-Sep-06					07-Sep-06					07-Sep-06				
Replicate	1	2	3	4	5	1	2	3	4	5	1	2		4	5	1	2	3	4	5
Species/group																				
COELENTERATA																				
Hydra	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NEMATODA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TURBELLARIA	126	204	67	22	56	22	0	0	7	16	433	337	199	1,333	1,889	576	133	122	667	307
OLIGOCHAETA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Enchytraeidae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Naididae	0	0	0	0	0	0	0	0	0	0	0	0	0	56	133	32	0	11	22	11
Chaetogaster	0	0	0	0	0	0	0	0	0	0	11	4	2	0	0	0	0	0	0	0
Nais	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lumbriculidae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tubificidae	11	18	0	33	100	0	0	11	4	8	11	4	2	0	11	1	0	0	33	11
Hirudinea	37	60	33	11	33	0	0	0	0	0	11	4	2	11	0	3	0	0	0	0
Piscicola salmositica	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TARDIGRADA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CLADOCERA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chydoridae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Acroperus harpae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alonella	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chydorus sphaericus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eurycercus glacialis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Macrothricidae	7	12	33	33	22	0	0	0	0	0	0	0	0	0	22	4	0	0	0	0
Ophyroxus gracilis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Streblocerus serricaudatus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	0	0	7
COPEPODA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cyclopoida	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eucyclops	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Macrocyclops	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Harpacticoida	0	0	11	11	22	0	0	0	0	0	0	0	0	0	22	7	0	0	0	0
Canthocamptidae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OSTRACODA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	1	0	0	0	0
Candona	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cypria	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11	7
Cypris	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ARACHNIDA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oribatidae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hydracarina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	4
Forelia	7	12	0	11	44	0	0	0	0	0	0	4	2	0	11	3	11	0	0	4
COLLEMBOLA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	11	0	4
Isotomidae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PLECOPTERA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nemouridae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nemoura	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Perlodidae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Skwala	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEMIPTERA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aphididae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TRICHOPTERA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Limnephilidae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apatania	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dicosmoecus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grensia praeterita	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hesperophylax	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DIPTERA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Empididae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chelifera	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chironomidae	0	0	11	0	11	0	0	0	0	0	0	0	0	0	33	6	11	11	22	15
Chironomidae	0	0	0	0	0	0	0	0	0	0	11	15	9	11	0	1	0	0	89	30
Tanypodinae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Procladius	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Procladius	15	24	89	11	67	11	11	0	7	16	111	48	28	0	22	7	11	0	0	4
Thiennemannimyia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tanytarsini	0	0	33	33	11	0	0	0	0	0	11	4	2	0	0	0	0	0	0	0
Micropsectra	26	42	33	0	56	500	78	67	215	477	378	504	298	144	189	73	78	56	444	193
Paratanytarsus	11	18	22	0	11	22	11	11	15	33	0	0	0	0	0	4	0	22	22	15
Stempellinella	0	0	0	0	0	0	0	0	0	0	22	15	9	0	0	0	11	33	33	26
Tanytarsus	0	0	0	0	0	11	11	0	7	16	0	0	0	0	0	0	0	0	0	0
Tanytarsus	11	18	0	22	0	0	0	0	0	0	500	685	405	33	44	20	0	11	22	11
Chironomini	0	0	0	0	0	0	0	0	0	0	0	4	2	0	0	0	0	0	0	0
Chironomus	0	0	0	0	0	0	0	11	4	8	11	7	4	11	0	3	0	0	0	0
Dicrotendipes	7	12	11	0	11	0	0	0	0	0	11	7	4	0	0	0	0	0	0	0
Microtendipes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Phaenopsectra	137	222	122	144	100	11	0	0	4	8	167	156	92	400	511	222	0	0	0	0
Phaenopsectra	119	192	33	56	44	144	22	33	67	148	0	0	0	167	67	45	0	0	11	4
Polypedilum (polypedilum)	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stictochironomus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Orthocladiinae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Orthocladiinae	0	0	22	0	11	0	0	11	4	8	0	4	2	0	0	0	0	0	0	0
Abiskomyia	0	0	0	0	0	11	0	0	4	8	0	0	0	0	11	1	0	0	0	0
Abiskomyia	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
Chaetocladius	0	0	0	0	33	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Corynoneura	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Corynoneura	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eukiefferiella	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eukiefferiella	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gymnometriocnemus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heterotrissocladius	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heterotrissocladius	0	0	11	22	22	0	0	0	0	0	0	0	0	0	0	0	0	11	11	7
Orthocladius	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Orthocladius	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	33	44	26
Paracladius	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	4
Paracladius	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Psectrocladius	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Psectrocladius	4	6	0	0	0	0	0	0	0	0	0	4	2	0	0	0	0	0	0	0
Diamesinae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Monodiamesa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Potthastia	22	36	11	11	33	11	44	11	22	49	11	4	2	22	11	6	44	33	67	48
Protanypus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	11	7
MOLLUSCA	4	6	44	11	11	11	0	11	7	16	0	0	0	11	11	3	11	0	11	7
Sphaeriidae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pisidium	74	120	100	189	222	78	44	100	74	165	0	0	0	22	133	36	22	0	44	22
Sphaerium	67	108	122	67	100	44	89	44	59	132	67	63	37	33	122	40	33	33	33	33
Gastropoda	0	0	11	0	11	0	0	0	0	0	0	4	2	22	22	7	11	0	0	4
Valvatidae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Valvata sincera sincera	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	685	1,111	822	711	1,067	878	311	311	500	1,111	1,767	1,874		2,278	3,278	1,110	411	411	1,611	811

APPENDIX 3.9-1
BIOLOGICAL CHARACTERISTICS OF FISH CAPTURED IN LAC DU SAUVAGE, 2006

bhpbilliton

Appendix 3.9-1
Biological Characteristics of Fish Captured in Lac du Sauvage, 2006

Fish#	Date	Capture Method	Species	Net #	Fork Length (mm)	Weight (g)	Liver Weight (g)	Gonad Weight (g)	Mortality (Y/N)	Sex (Male/Female)	Reproductive Status (Immature/Mature)	Age
1	17/08/2006	Gillnet	LKTR	4	547	1550	8	21	Y	M	M	14
2	17/08/2006	Gillnet	LKWH	4	457	1355	8	8	Y	F	M	11
3	17/08/2006	Gillnet	LKWH	4	485	1742	13	17	Y	F	M	12
4	17/08/2006	Gillnet	LKTR	5	445	848	6		Y		I	12
5	17/08/2006	Gillnet	RDWH	5	242	127			N			4
6	18/08/2006	Gillnet	LKWH	10	463	1258	9		Y	M	M	12
7	18/08/2006	Gillnet	LKWH	12	501	1756			N			
8	18/08/2006	Gillnet	LKWH	12	453	1444	17	140	Y	F	M	16
9	18/08/2006	Gillnet	LKWH	12	464	1359	12	15	Y	F	M	11
10	18/08/2006	Gillnet	LKTR	14	512	1358	7	17	Y	M	M	16
11	18/08/2006	Gillnet	LKTR	14	520	1404	11	19	Y	F	M	13
12	18/08/2006	Gillnet	LKWH	16	529	1918	18		Y	M	M	17
13	18/08/2006	Gillnet	LKWH	16	459	1340			N	M	M'	17
14	18/08/2006	Gillnet	LKTR	17	698	3575		535	Y	F	M	15
15	18/08/2006	Gillnet	LKWH	18	474	1649			N			14
16	18/08/2006	Gillnet	LKWH	18	545				N			13
17	18/08/2006	Gillnet	LKTR	19	624	3127	58		Y		I	19
18	21/08/2006	Gillnet	LKTR	26	727	4601			N			
19	21/08/2006	Gillnet	LKTR	27	612	2218	15	22	Y	M	M	13
20	21/08/2006	Gillnet	LKWH	27	368	561	2	17	Y	M	M	12
21	21/08/2006	Gillnet	LKTR	28	565	1757	13	17	Y	M	M	16
22	21/08/2006	Gillnet	RDWH	28	351	473	2		Y	F	M	9
23	21/08/2006	Gillnet	RDWH	28	378	627	5		Y	M	M	12
24	21/08/2006	Gillnet	RDWH	28	368	534	3	19	Y	F	M	12
25	21/08/2006	Gillnet	RDWH	28	348	416			N	M	M	10
26	21/08/2006	Gillnet	RDWH	28	361	522			N	M	M	12
27	21/08/2006	Gillnet	RDWH	28	359	502			N			
28	21/08/2006	Gillnet	LKWH	32	427	1116			N			
29	21/08/2006	Gillnet	RDWH	32	299	206			N			
30	21/08/2006	Gillnet	RDWH	32	312	328			N			
31	21/08/2006	Gillnet	RDWH	32	232	133			Y	M	M	5
32	21/08/2006	Gillnet	RDWH	32	256	160			N			
33	21/08/2006	Gillnet	LKWH	32	361	437	2		Y	M	M	12
34	21/08/2006	Gillnet	LKTR	33	502	1285	12		Y	M	M	12
35	21/08/2006	Gillnet	LKTR	33	467	1016			N			
36	21/08/2006	Gillnet	LKWH	33	354	487	6	21	Y	F	M	12
37	21/08/2006	Gillnet	LKWH	33	389	602	3	16	Y	M	M	12
38	21/08/2006	Gillnet	LKWH	33	396	614			N			
39	21/08/2006	Gillnet	LKWH	34	504	1713	13		Y			13
40	21/08/2006	Gillnet	LKWH	34	468	1432	10		Y			11
41	21/08/2006	Gillnet	LKWH	34	428	1399			N			
42	21/08/2006	Gillnet	LKWH	37	496	1689			N			
43	18/08/2006	Gillnet	LKTR	13								
44	19/08/2006	Gillnet	LKTR	21								
45	21/08/2006	Gillnet	LKTR	26								
46	21/08/2006	Gillnet	LKWH	27								
47	21/08/2006	Gillnet	LKTR	27								
48	21/08/2006	Gillnet	LKTR	30								
49	21/08/2006	Gillnet	LKTR	35								
50	21/08/2006	Gillnet	LKTR	35								
51	27/08/2006	Gillnet	LKTR	44								
52	27/08/2006	Gillnet	LKTR	45								
53	27/08/2006	Gillnet	LKTR	45								
54	27/08/2006	Gillnet	LKTR	47								
55	27/08/2006	Gillnet	LKTR	47								
56	27/08/2006	Gillnet	LKTR	47								
57	27/08/2006	Gillnet	LKTR	47								
58	26/08/2006	Gillnet	LKTR	39	579	2143	22	65	Y	M	M	13
59	26/08/2006	Gillnet	LKTR	39	697	3327	26	1.24	Y	M	M	32
60	26/08/2006	Gillnet	LKTR	40	454	914	7	4	Y	F	M	11
61	27/08/2006	Gillnet	LKTR	42	499	1299			N			
62	27/08/2006	Gillnet	LKTR	43	299	261	1		Y		I	7
63	28/08/2006	Gillnet	LKTR	50	719	4425	31	156	Y	M	M	27
64	28/08/2006	Gillnet	LKTR	51	527	1426			N			
65	28/08/2006	Gillnet	LKTR	52	530	1420	8	44	Y	M	M	14
66	28/08/2006	Gillnet	LKTR	52	560	1625	11	52	Y	M	M	17
67	28/08/2006	Gillnet	LKTR	52	646	2745	22	54	Y	F	M	23
68	28/08/2006	Gillnet	LKTR	52	550	1497			N			
69	28/08/2006	Gillnet	LKTR	53	639	3118	34	71	Y	M	M	14
70	28/08/2006	Gillnet	LKTR	54	692	2929			N	F	M	13
71	28/08/2006	Gillnet	LKWH	55	518	1412			N			14
72	28/08/2006	Gillnet	LKTR	56	416	996			N			
73	28/08/2006	Gillnet	LKTR	56	607	2489			N			
74	28/08/2006	Gillnet	LKTR	58	522	1801			N			
75	28/08/2006	Gillnet	LKTR	58	587	1635			N			
76	28/08/2006	Gillnet	LKTR	60	624	3010			N			15
77	10/08/2006	Gillnet	LKTR	62	599	2593			N			
78	10/08/2006	Gillnet	LKTR	62	645	3522			N			12
79	10/08/2006	Gillnet	LKTR	63	569	2100			N			17
80	01/09/2006	Gillnet	LKTR	64	507	1675			N			
81	01/09/2006	Gillnet	LKWH	65	489	1483			N			
82	01/09/2006	Gillnet	LKWH	65	560	2027	16.83	24.25	Y	F	M	19
83	01/09/2006	Gillnet	LKTR	67	595	2395			N			16
84	01/09/2006	Gillnet	LKTR	67	574	2170			N			14
85	01/09/2006	Gillnet	LKWH	68	429	1247	7.18	10.21	Y	F	M	8
86	01/09/2006	Gillnet	LKTR	68	540	2022	13.64	37.82	Y	F	M	14
87	01/09/2006	Gillnet	LKTR	68	479		7.31		Y	I	I	12
1	18/08/2006	Minnow Trap	BURB	6	63	5			N			
2	20/08/2006	Minnow Trap	BURB	3	64	5			Y			
3	20/08/2006	Minnow Trap	BURB	3	61	3			Y			

Legend: LKTR = lake trout, LKWH = lake whitefish, RDWH = round whitefish, BURB = burbot

APPENDIX 3.9-2
BIOLOGICAL CHARACTERISTICS OF FISH CAPTURED IN URSULA LAKE, 2006

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Appendix 3.9-2
Biological Characteristics of Fish Captured in Ursula Lake, 2006

Fish#	Date	Capture Method	Species	Net #	Fork Length (mm)	Weight (g)	Liver Weight (g)	Gonad Weight (g)	Mortality (Y/N)	Sex (Male/Female)	Reproductive Status (Immature/Mature)	Age
1	24/08/2006	Gillnet	LKTR	1	558	1910	27	272	Y	F	M	22
2	24/08/2006	Gillnet	LKTR	1	561	1723	8		Y		I	20
3	24/08/2006	Gillnet	RDWH	10	329	332	2	7	Y	M	M	11
4	03/09/2006	Gillnet	LKTR	22	514	1540	16	15	Y	F	M	32
5	03/09/2006	Gillnet	LKTR	25	445	964	7	7	Y	F	M	18
6	03/09/2006	Gillnet	LKTR	29	581	1828	13		Y			10
7	03/09/2006	Gillnet	LKTR	29	692	2985			N			
8	03/09/2006	Gillnet	LKTR	30	592	2148	33	107	Y	F	M	13
9	03/09/2006	Gillnet	LKTR	30	601	2120	20	29	Y	F	M	19
10	03/09/2006	Gillnet	RDWH	30	357	450	3	13	Y	M	M	13
11	03/09/2006	Gillnet	RDWH	30	319	307	3	8	Y	F	M	9
12	03/09/2006	Gillnet	RDWH	30	331	347	3	13	Y	F	M	9
13	03/09/2006	Gillnet	RDWH	30	309	299			N			
14	03/09/2006	Gillnet	LKTR	30	510	1522			N			
15	03/09/2006	Gillnet	LKTR	30	476	1226			N			
16	03/09/2006	Gillnet	LKTR	33	625	2226			N			
17	03/09/2006	Gillnet	LKTR	34	550	1918			N			
1	03/09/2006	Minnow Trap	BURB	4	68	5			N			
2	03/09/2006	Minnow Trap	SLSC	9	59	4			N			

Legend: LKTR = lake trout, RDWH = round whitefish, BURB = burbot, SLSC = slimy sculpin

APPENDIX 3.9-3
FECUNDITY OF LAKE TROUT, LAKE WHITEFISH AND ROUND WHITEFISH COLLECTED IN LAC DU SAUVAGE AND URSULA LAKE, 2006

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Appendix 3.9-3
Fecundity of Lake Trout, Lake Whitefish and Round Whitefish Collected in Lac du Sauvage and Ursula Lake, 2006

Lake	Fish Sample Number	Species Code	Egg Diameter(mm)	Number of Eggs by Size Class	Total Number of Eggs
Lac du Sauvage	2	LKWH	2 mm	0	51000
			0.2-0.5mm	51000	
	3	LKWH	2 mm	700	96700
			0.2-0.5mm	96000	
	8	LKWH	2 mm	34900	34900
			0.2-0.5mm	0	
	9	LKWH	2 mm	0	61000
			0.2-0.5mm	61000	
	11	LKTR	6 mm	0	6970
			1-2.5 mm	6970	
	17	LKTR	6 mm	6860	6860
			1-2.5 mm	0	
	22	RDWH	2 mm	4700	4700
			0.2-0.5mm	0	
	24	RDWH	2 mm	5300	5300
			0.2-0.5mm	0	
	36	LKWH	2 mm	7660	7660
			0.2-0.5mm	0	
	60	LKTR	6 mm	0	2800
			0.5-1 mm	2800	
	67	LKTR	6 mm	0	17460
			1-2.5 mm	17460	
	82	LKWH	2 mm	500	120500
			0.2-0.5mm	120000	
	85	LKWH	2 mm	0	53000
			0.5-1.5 mm	53000	
	86	LKTR		0	11980
			1-2.5 mm	11980	
Ursula Lake	1	LKTR	6 mm	2550	2550
			1-2.5 mm	0	
	4	LKTR	6 mm	0	5450
			1-2.5 mm	5450	
	5	LKTR	6 mm	0	2850
			1-2.5 mm	2850	
	8	LKTR	6 mm	2630	2630
			1-2.5 mm		
	9	LKTR	6 mm	0	9730
			1-2.5 mm	9730	
	11	RDWH	2 mm	2940	2940
			0.2-0.5mm	0	
	12	RDWH	2 mm	3500	3500
			0.2-0.5mm	0	

APPENDIX 3.9-4
TAXONOMIC IDENTIFICATION OF PRESERVED STOMACH CONTENTS BY NUMBER FOR FISH CAPTURED IN LAC DU SAUVAGE AND URSULA LAKE, 2006

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Appendix 3.9-4
Taxonomic Identification of Preserved Stomach Contents by Number for Fish Captured in Lac du Sauvage and Ursula Lake, 2006

Fish Species		LKTR	LKTR	LKWH	LKWH	LKWH	LKWH	LKWH	LKTR	LKTR	LKWH	LKTR
Location		LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS
Fish Number		1	4	2	3	6	8	9	10	11	12	17
Date		17-Aug-06	17-Aug-06	17-Aug-06	17-Aug-06	18-Aug-06	18-Aug-06	18-Aug-06	18-Aug-06	18-Aug-06	18-Aug-06	18-Aug-06
Sample Number		061467	061468	061490	061491	061492	061493	061494	061469	061470	061495	061471
Fullness (%)		5	0	75	0	40	75	25	5	25	0	2
Digestion (%)		90	100	75	100	10	75	10	90	75	100	75
Wet Weight (mg)		813	0	3691	0	1321	3271	1952	1437	5531	0	277
Species/Group	**Stage**											
EUBRANCHIOPODA												
Triops longicadata		2		1			36		1	4		
CLADOCERA												
Holopediidae												
Holpedium gibberum												
Daphnidae												
Daphnia middendorffiana				1190		1290	50	1935				
Chydoridae												
Eurycercus glacialis		4		167		3	250		2	23		5
COPEPODA												
Calanoida												
Heterocope septentrionalis	M/F					3	50					
OSTRACODA												
Cypria							1					
ARACHNIDA												
Hydracarina	A			3			3					
HEMIPTERA												
Aphididae	A											
Corixidae												
Corisella	A											
TRICHOPTERA												
Trichoptera	L*						1	1				
Trichoptera	P								1			
Trichoptera	A											
Hydroptilidae												
Agraylea	L											
Phryganeidae	L*											
Limnephilidae	P											
Limnephilidae	A											
Limnephilidae	L*											
Apatania	L											
Dicosmoecus	L											
Grensia	L											
Limnephilus	L											
LEPIDOPTERA												
Lepidoptera	L						1					
COLEOPTERA												
Colepotera	A									1		
Dytiscidae	A											
DIPTERA												
Diptera	A											
Muscidae	A											
Chironomidae	L*											
Chironomidae	P						1					30
Tanypodinae	L*											
Procladius	L											9
Thiennemannimyia	L											
Thiennemannimyia	P											
Tanytarsini												
Paratanytarsus	L											
Paratanytarsus	P								2			
Tanytarsus	L											
Tanytarsus	P								1			
Chironomini												
Chironomus	L								75			
Dicrotendipes	L											
Microtendipes	L						7		6	17		
Phaenopsectra	L											
Orthocladiinae												
Orthocladius	L											
Psectrocladius	L											
Diamesinae												
Monodiamesa	L											
Monodiamesa	P											3
Protanypus	L											
Protanypus	P	1										1
MOLLUSCA												
Sphaeriidae	juv											
Pisidium				1								
Sphaerium												
Gastropoda	juv											
Valvatidae												
Valvata sincera sincera				75			6					
FISH												
Fish	L	1										
Fish	juv	1							1	2		
Coregonidae												
Gasterostidae												
Pungitius pungitius	juv											
Cottidae												
NON-FOOD ITEMS												
Hair												
Plant				P			P	P				
Case materials							P	P				
TOTAL NUMBER		9		1437		1296	406	1936	89	47		48

LKTR = lake trout, LKWH = lake whitefish, RDWH = round whitefish, LDS = Lac du Sauvage, Ursula = Ursula Lake

(continued)

Appendix 3.9-4

Taxonomic Identification of Preserved Stomach Contents by Number for Fish Captured in Lac du Sauvage and Ursula Lake, 2006 (continued)

Fish Species	LKTR	LKWH	LKTR	RDWH	RDWH	RDWH	LKWH	LKTR	LKWH	LKWH	LKWH	LKWH
Location	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS
Fish Number	19	20	21	22	23	24	33	34	36	37	39	40
Date	21-Aug-06	18-Aug-06	21-Aug-06	18-Aug-06	18-Aug-06	18-Aug-06	21-Aug-06	26-Aug-06	21-Aug-06	21-Aug-06	21-Aug-06	21-Aug-06
Sample Number	061472	061496	061497	061507	061508	061509	061498	061473	061499	061500	061501	061502
Fullness (%)	0	90	5	25	5	75	80	1	75	25	90	90
Digestion (%)	100	50	50	75	75	75	75	50	50	25	50	25
Wet Weight (mg)	0	2181	855	318	47	1775	1601	35	1100	546	8047	6324
Species/Group												
EUBRANCHIOPODA												
Triops longicadata		2	1								1	
CLADOCERA												
Holopediidae												
Holpedium gibberum												12160
Daphnidae												
Daphnia middendorffiana												
Chydoridae												
Eurycercus glacialis		350		1	1	28	110	4	140	66	1000	
COPEPODA												
Calanoida												
Heterocope septentrionalis												
OSTRACODA												
Cypria												
ARACHNIDA												
Hydracarina											38	
HEMIPTERA												
Aphididae												
Corixidae												
Corisella												
TRICHOPTERA												
Trichoptera												
Trichoptera												
Trichoptera			1									
Hydroptilidae												
Agraylea									1			
Phryganeidae		1									1	
Limnephilidae												
Limnephilidae												
Limnephilidae				5		57						
Apatania						62	10		3			
Dicosmoecus				2	1	17						
Grensia												
Limnephilus				2		40	122		30	2		
LEPIDOPTERA												
Lepidoptera												
COLEOPTERA												
Colepotera												
Dytiscidae												
DIPTERA												
Diptera												
Muscidae												
Chironomidae												
Chironomidae												
Tanypodinae												
Procladius		1					1					
Thiennemannimyia							1			1		
Thiennemannimyia												
Tanytarsini												
Paratanytarsus												
Paratanytarsus												
Tanytarsus												
Tanytarsus												
Chironomini												
Chironomus												
Dicrotendipes												
Microtendipes		37							2	1	1	
Phaenopsectra												
Orthocladiinae												
Orthocladius		1					1		1			
Psectrocladius												
Diamesinae												
Monodiamesa												
Monodiamesa												
Protanypus		1										
Protanypus												
MOLLUSCA												
Sphaeriidae												
Pisidium											1	
Sphaerium											60	
Gastropoda												
Valvatidae												
Valvata sincera sincera					2						35	
FISH												
Fish												
Fish			1									
Coregonidae												
Gasterostidae												
Pungitius pungitius												
Cottidae												
NON-FOOD ITEMS												
Hair												
Plant												
Case materials				P	P	P	P		P	P	P	
TOTAL NUMBER		393	3	10	4	204	245	4	177	70	1137	12160

LKTR = lake trout, LKWH = lake whitefish, RDWH = round whitefish, LDS = Lac du Sauvage, Ursula = Ursula Lake

(continued)

Appendix 3.9-4

Taxonomic Identification of Preserved Stomach Contents by Number for Fish Captured in Lac du Sauvage and Ursula Lake, 2006 (continued)

Fish Species	LKTR	LKTR	LKTR	LKTR	LKTR	LKTR	LKTR	LKTR	LKTR	LKWH	LKWH	LKTR
Location	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS
Fish Number	58	59	60	62	63	65	66	67	69	82	85	86
Date	26-Aug-06	26-Aug-06	26-Aug-06	28-Aug-06	28-Aug-06	28-Aug-06	28-Aug-06	28-Aug-06	28-Aug-06	01-Sep-06	01-Sep-06	01-Sep-06
Sample Number	061474	061475	061476	061477	061478	061479	061480	061481	061482	061503	061504	061505
Fullness (%)	100	0	0	75	0	25	0	0	100	2	25	155
Digestion (%)	50	100	100	50	100	75	100	100	50	50	75	50
Wet Weight (mg)	14124	0	0	2406	0	994	0	0	51416	440	1044	1297
Species/Group												
EUBRANCHIOPODA												
Triops longicadata						1				1		
CLADOCERA												
Holopediidae												
Holpedium gibberum											16	
Daphnidae												
Daphnia middendorffiana												
Chydoridae												
Eurycercus glacialis										1		2
COPEPODA												
Calanoida												
Heterocope septentrionalis												
OSTRACODA												
Cypria												
ARACHNIDA												
Hydracarina												
HEMIPTERA												
Aphididae												
Corixidae												
Corisella												
TRICHOPTERA												
Trichoptera												
Trichoptera												
Trichoptera												
Hydroptilidae												
Agraylea												
Phryganeidae											1	
Limnephilidae												
Limnephilidae												
Limnephilidae												
Apatania												
Dicosmoecus												
Grensia												
Limnephilus											1	
LEPIDOPTERA												
Lepidoptera												
COLEOPTERA												
Colepotera												
Dytiscidae												
DIPTERA												
Diptera												
Muscidae												
Chironomidae												
Chironomidae												
Tanypodinae												
Procladius												1
Thiennemannimyia												
Thiennemannimyia												
Tanytarsini												
Paratanytarsus												
Paratanytarsus												
Tanytarsus												
Tanytarsus												
Chironomini												
Chironomus											3	
Dicrotendipes												
Microtendipes											11	4
Phaenopsectra												
Orthocladiinae												
Orthocladius										7		
Psectrocladius											1	
Diamesinae												
Monodiamesa											2	
Monodiamesa												
Protanypus											2	1
Protanypus												1
MOLLUSCA												
Sphaeriidae												
Pisidium											100	
Sphaerium										7		
Gastropoda												
Valvatidae												
Valvata sincera sincera										1	1	
FISH												
Fish										1		
Fish												1
Coregonidae	1								1			
Gasterostidae												
Pungitius pungitius												1
Cottidae				2		2						
NON-FOOD ITEMS												
Hair												
Plant										P		
Case materials											P	
TOTAL NUMBER	1			2		3			1	18	138	11

LKTR = lake trout, LKWH = lake whitefish, RDWH = round whitefish, LDS = Lac du Sauvage, Ursula = Ursula Lake

(continued)

Appendix 3.9-4

Taxonomic Identification of Preserved Stomach Contents by Number for Fish Captured in Lac du Sauvage and Ursula Lake, 2006 (completed)

Fish Species	LKTR	LKTR	LKTR	RDWH	LKTR	LKTR	LKTR	LKTR	LKTR	RDWH	RDWH	RDWH
Location	LDS	Ursula	Ursula	Ursula	Ursula	Ursula	Ursula	Ursula	Ursula	Ursula	Ursula	Ursula
Fish Number	87	1	2	3	4	5	6	8	9	10	11	12
Date	01-Sep-06	24-Aug-06	24-Aug-06	24-Aug-06	03-Sep-06	03-Sep-06	03-Sep-06	03-Sep-06	03-Sep-06	03-Sep-06	03-Sep-06	03-Sep-06
Sample Number	061506	061483	061484	061510	061485	061486	061487	061488	061489	061511	061512	061513
Fullness (%)	5	50	10	1	90	15	50	20	75	90	50	75
Digestion (%)	90	50	99	99	50	25	50	10	50	50	50	90
Wet Weight (mg)	582	5245	1251	1	33024	472	7031	992	7600	1289	422	917
Species/Group												
EUBRANCHIOPODA												
Triops longicadata												
CLADOCERA												
Holopediidae												
Holpedium gibberum												
Daphnidae												
Daphnia middendorffiana						163						
Chydoridae												
Eurycercus glacialis	1	1			3		3			190	50	120
COPEPODA												
Calanoida						2						
Heterocope septentrionalis												
OSTRACODA												
Cypria												
ARACHNIDA												
Hydracarina												
HEMIPTERA												
Aphididae										1		
Corixidae												
Corisella							2		1			
TRICHOPTERA												
Trichoptera												
Trichoptera												
Trichoptera												
Hydroptilidae												
Agraylea												
Phryganeidae												
Limnephilidae					46	2	160	2	33			
Limnephilidae					61	5	19	18	95			
Limnephilidae				1								35
Apatania												
Dicosmoecus												
Grensia										1	1	
Limnephilus										7		
LEPIDOPTERA												
Lepidoptera												
COLEOPTERA												
Colepotera												
Dytiscidae									1			
DIPTERA												
Diptera												
Muscidae					2							
Chironomidae										30		
Chironomidae										15		
Tanypodinae												
Procladius											3	1
Thiennemannimyia											1	
Thiennemannimyia					1							
Tanytarsini												
Paratanytarsus											1	
Paratanytarsus												
Tanytarsus										45	90	2
Tanytarsus												
Chironomini												
Chironomus										15		1
Dicrotendipes												1
Microtendipes										45	64	12
Phaenopsectra										60	10	
Orthocladiinae												
Orthocladius											10	
Psectrocladius										1	20	1
Diamesinae												
Monodiamesa												
Monodiamesa												
Protanypus										7		
Protanypus												
MOLLUSCA												
Sphaeriidae												
Pisidium											1	
Sphaerium												
Gastropoda												
Valvatidae												
Valvata sincera sincera					1					2		
FISH												
Fish					1		1					
Fish	1											
Coregonidae					1							
Gasterostidae												
Pungitius pungitius												
Cottidae		3										
NON-FOOD ITEMS												
Hair			P									
Plant												
Case materials										P		P
TOTAL NUMBER	2	4		1	116	172	185	20	130	419	251	173

LKTR = lake trout, LKWH = lake whitefish, RDWH = round whitefish, LDS = Lac du Sauvage, Ursula = Ursula Lake

APPENDIX 3.9-5
TAXONOMIC IDENTIFICATION OF PRESERVED STOMACH CONTENTS BY WEIGHT FOR FISH CAPTURED IN LAC DU SAUVAGE AND URSULA LAKE, 2006

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Appendix 3.9-5
Taxonomic Identification of Preserved Stomach Contents by Weight for Fish Captured in Lac du Sauvage and Ursula Lake, 2006

Fish Species		LKTR	LKWH	LKWH	LKTR	LKWH	LKWH	LKWH	LKTR	LKTR	LKWH	LKTR
Location		LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS
Fish Number		1	2	3	4	6	8	9	10	11	12	17
Date		17-Aug-06	17-Aug-06	17-Aug-06	17-Aug-06	18-Aug-06	18-Aug-06	18-Aug-06	18-Aug-06	18-Aug-06	18-Aug-06	18-Aug-06
Sample Number		061467	061490	061491	061468	061492	061493	061494	061469	061470	061495	061471
Fullness (%)		5	75	0	0	40	75	25	5	25	0	2
Digestion (%)		90	75	100	100	10	75	10	90	75	100	75
Wet Weight (mg)		813	3691	0	0	1321	3271	1952	1437	5531	0	277
Species/Group	Stage											
EUBRANCHIOPODA												
Triops longicadata		2	1				36		1	4		
CLADOCERA												
Holopediidae												
Holpedium gibberum												
Daphnidae												
Daphnia middendorffiana			1190			1290	50	1935				
Chydoridae												
Eurycercus glacialis		4	167			3	250		2	23		5
COPEPODA												
Calanoida												
Heterocope septentrionalis	M/F					3	50					
OSTRACODA												
Cypria							1					
ARACHNIDA												
Hydracarina	A		3				3					
HEMIPTERA												
Aphididae	A											
Corixidae												
Corisella	A											
TRICHOPTERA												
Trichoptera	L*						1	1				
Trichoptera	P								1			
Trichoptera	A											
Hydroptilidae												
Agraylea	L											
Phryganeidae	L*											
Limnephilidae	P											
Limnephilidae	A											
Limnephilidae	L*											
Apatania	L											
Dicosmoecus	L											
Grensia	L											
Limnephilus	L											
LEPIDOPTERA												
Lepidoptera	L						1					
COLEOPTERA												
Coleoptera	A									1		
Dytiscidae	A											
DIPTERA												
Diptera	A											
Muscidae	A											
Chironomidae	L*											
Chironomidae	P						1					30
Tanypodinae	L*											
Procladius	L											9
Thiennemannimyia	L											
Thiennemannimyia	P											
Tanytarsini												
Paratanytarsus	L											
Paratanytarsus	P								2			
Tanytarsus	L											
Tanytarsus	P								1			
Chironomini												
Chironomus	L								75			
Dicrotendipes	L											
Microtendipes	L						7		6	17		
Phaenopsectra	L											
Orthocladiinae												
Orthocladius	L											
Psectrocladius	L											
Diamesinae												
Monodiamesa	L											
Monodiamesa	P											3
Protanypus	L											
Protanypus	P	1										1
MOLLUSCA												
Sphaeriidae	juv											
Pisidium			1									
Sphaerium												
Gastropoda	juv											
Valvatidae												
Valvata sincera sincera			75				6					
FISH												
Fish	L	1										
Fish	juv	1							1	2		
Coregonidae												
Gasterostidae												
Pungitius pungitius	juv											
Cottidae												
NON-FOOD ITEMS												
Hair												
Plant			P				P	P				
Case materials							P	P				
Total Weight (mg)		9	1437			1296	406	1936	89	47		48

LKTR = lake trout, LKWH = lake whitefish, RDWH = round whitefish, LDS = Lac du Sauvage, Ursula = Ursula Lake

(continued)

Appendix 3.9-5

Taxonomic Identification of Preserved Stomach Contents by Weight for Fish Captured in Lac du Sauvage and Ursula Lake, 2006 (continued)

Fish Species	LKTR	LKWH	LKTR	RDWH	RDWH	RDWH	LKWH	LKTR	LKWH	LKWH	LKWH	LKWH
Location	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS
Fish Number	19	20	21	22	23	24	33	34	36	37	39	40
Date	21-Aug-06	18-Aug-06	21-Aug-06	18-Aug-06	18-Aug-06	18-Aug-06	21-Aug-06	26-Aug-06	21-Aug-06	21-Aug-06	21-Aug-06	21-Aug-06
Sample Number	061472	061496	061497	061507	061508	061509	061498	061473	061499	061500	061501	061502
Fullness (%)	0	90	5	25	5	75	80	1	75	25	90	90
Digestion (%)	100	50	50	75	75	75	75	50	50	25	50	25
Wet Weight (mg)	0	2181	855	318	47	1775	1601	35	1100	546	8047	6324
Species/Group												
EUBRANCHIOPODA												
Triops longicadata		2	1								1	
CLADOCERA												
Holopediidae												
Holpedium gibberum												12160
Daphnidae												
Daphnia middendorffiana												
Chydoridae												
Eurycercus glacialis		350		1	1	28	110	4	140	66	1000	
COPEPODA												
Calanoida												
Heterocope septentrionalis												
OSTRACODA												
Cypria												
ARACHNIDA												
Hydracarina											38	
HEMIPTERA												
Aphididae												
Corixidae												
Corisella												
TRICHOPTERA												
Trichoptera												
Trichoptera												
Trichoptera			1									
Hydroptilidae												
Agraylea									1			
Phryganeidae		1									1	
Limnephilidae												
Limnephilidae												
Limnephilidae				5		57						
Apatania						62	10		3			
Dicosmoecus				2	1	17						
Grensia												
Limnephilus				2		40	122		30	2		
LEPIDOPTERA												
Lepidoptera												
COLEOPTERA												
Coleoptera												
Dytiscidae												
DIPTERA												
Diptera												
Muscidae												
Chironomidae												
Chironomidae												
Tanypodinae												
Procladius		1					1					
Thiennemannimyia							1			1		
Thiennemannimyia												
Tanytarsini												
Paratanytarsus												
Paratanytarsus												
Tanytarsus												
Tanytarsus												
Chironomini												
Chironomus												
Dicrotendipes												
Microtendipes		37							2	1	1	
Phaenopsectra												
Orthocladiinae												
Orthocladius		1					1		1			
Psectrocladius												
Diamesinae												
Monodiamesa												
Monodiamesa												
Protanypus		1										
Protanypus												
MOLLUSCA												
Sphaeriidae												
Pisidium											1	
Sphaerium											60	
Gastropoda												
Valvatidae												
Valvata sincera sincera					2						35	
FISH												
Fish												
Fish			1									
Coregonidae												
Gasterostidae												
Pungitius pungitius												
Cottidae												
NON-FOOD ITEMS												
Hair												
Plant												
Case materials				P	P	P	P		P	P	P	
Total Weight (mg)		393	3	10	4	204	245	4	177	70	1137	12160

LKTR = lake trout, LKWH = lake whitefish, RDWH = round whitefish, LDS = Lac du Sauvage, Ursula = Ursula Lake

(continued)

Appendix 3.9-5

Taxonomic Identification of Preserved Stomach Contents by Weight for Fish Captured in Lac du Sauvage and Ursula Lake, 2006 (continued)

Fish Species	LKTR	LKTR	LKTR	LKTR	LKTR	LKTR	LKTR	LKTR	LKTR	LKWH	LKWH	LKTR
Location	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS
Fish Number	58	59	60	62	63	65	66	67	69	82	85	86
Date	26-Aug-06	26-Aug-06	26-Aug-06	28-Aug-06	28-Aug-06	28-Aug-06	28-Aug-06	28-Aug-06	28-Aug-06	01-Sep-06	01-Sep-06	01-Sep-06
Sample Number	061474	061475	061476	061477	061478	061479	061480	061481	061482	061503	061504	061505
Fullness (%)	100	0	0	75	0	25	0	0	100	2	25	155
Digestion (%)	50	100	100	50	100	75	100	100	50	50	75	50
Wet Weight (mg)	14124	0	0	2406	0	994	0	0	51416	440	1044	1297
Species/Group												
EUBRANCHIOPODA												
Triops longicadata						1				1		
CLADOCERA												
Holopediidae												
Holpedium gibberum											16	
Daphnidae												
Daphnia middendorffiana												
Chydoridae												
Eurycercus glacialis										1		2
COPEPODA												
Calanoida												
Heterocope septentrionalis												
OSTRACODA												
Cypria												
ARACHNIDA												
Hydracarina												
HEMIPTERA												
Aphididae												
Corixidae												
Corisella												
TRICHOPTERA												
Trichoptera												
Trichoptera												
Trichoptera												
Hydroptilidae												
Agraylea												
Phryganeidae											1	
Limnephilidae												
Limnephilidae												
Limnephilidae												
Apatania												
Dicosmoecus												
Grensia												
Limnephilus											1	
LEPIDOPTERA												
Lepidoptera												
COLEOPTERA												
Coleoptera												
Dytiscidae												
DIPTERA												
Diptera												
Muscidae												
Chironomidae												
Chironomidae												
Tanypodinae												
Procladius												1
Thiennemannimyia												
Thiennemannimyia												
Tanytarsini												
Paratanytarsus												
Paratanytarsus												
Tanytarsus												
Tanytarsus												
Chironomini												
Chironomus											3	
Dicrotendipes												
Microtendipes											11	4
Phaenopsectra												
Orthocladiinae												
Orthocladius										7		
Psectrocladius											1	
Diamesinae												
Monodiamesa											2	
Monodiamesa												
Protanypus											2	1
Protanypus												1
MOLLUSCA												
Sphaeriidae												
Pisidium											100	
Sphaerium										7		
Gastropoda												
Valvatidae												
Valvata sincera sincera										1	1	
FISH												
Fish										1		
Fish												1
Coregonidae	1								1			
Gasterostidae												
Pungitius pungitius												1
Cottidae				2		2						
NON-FOOD ITEMS												
Hair												
Plant										P		
Case materials											P	
Total Weight (mg)	1			2		3			1	18	138	11

LKTR = lake trout, LKWH = lake whitefish, RDWH = round whitefish, LDS = Lac du Sauvage, Ursula = Ursula Lake

(continued)

Appendix 3.9-5

Taxonomic Identification of Preserved Stomach Contents by Weight for Fish Captured in Lac du Sauvage and Ursula Lake, 2006 (completed)

Fish Species	LKTR	LKTR	LKTR	RDWH	LKTR	LKTR	LKTR	LKTR	LKTR	RDWH	RDWH	RDWH
Location	LDS	Ursula	Ursula	Ursula	Ursula	Ursula	Ursula	Ursula	Ursula	Ursula	Ursula	Ursula
Fish Number	87	1	2	3	4	5	6	8	9	10	11	12
Date	01-Sep-06	24-Aug-06	24-Aug-06	24-Aug-06	03-Sep-06	03-Sep-06	03-Sep-06	03-Sep-06	03-Sep-06	03-Sep-06	03-Sep-06	03-Sep-06
Sample Number	061506	061483	061484	061510	061485	061486	061487	061488	061489	061511	061512	061513
Fullness (%)	5	50	10	1	90	15	50	20	75	90	50	75
Digestion (%)	90	50	99	99	50	25	50	10	50	50	50	90
Wet Weight (mg)	582	5245	1251	1	33024	472	7031	992	7600	1289	422	917
Species/Group												
EUBRANCHIOPODA												
Triops longicadata												
CLADOCERA												
Holopediidae												
Holpedium gibberum												
Daphnidae												
Daphnia middendorffiana						163						
Chydoridae												
Eurycercus glacialis	1	1			3		3			190	50	120
COPEPODA												
Calanoida						2						
Heterocope septentrionalis												
OSTRACODA												
Cypria												
ARACHNIDA												
Hydracarina												
HEMIPTERA												
Aphididae										1		
Corixidae												
Corisella							2		1			
TRICHOPTERA												
Trichoptera												
Trichoptera												
Trichoptera												
Hydroptilidae												
Agraylea												
Phryganeidae												
Limnephilidae					46	2	160	2	33			
Limnephilidae					61	5	19	18	95			
Limnephilidae				1								35
Apatania												
Dicosmoecus												
Grensia										1	1	
Limnephilus										7		
LEPIDOPTERA												
Lepidoptera												
COLEOPTERA												
Coleoptera												
Dytiscidae									1			
DIPTERA												
Diptera												
Muscidae					2							
Chironomidae										30		
Chironomidae										15		
Tanypodinae												
Procladius											3	1
Thiennemannimyia											1	
Thiennemannimyia					1							
Tanytarsini												
Paratanytarsus											1	
Paratanytarsus												
Tanytarsus										45	90	2
Tanytarsus												
Chironomini												
Chironomus										15		1
Dicrotendipes												1
Microtendipes										45	64	12
Phaenopsectra										60	10	
Orthocladiinae												
Orthocladius											10	
Psectrocladius										1	20	1
Diamesinae												
Monodiamesa												
Monodiamesa												
Protanypus										7		
Protanypus												
MOLLUSCA												
Sphaeriidae												
Pisidium											1	
Sphaerium												
Gastropoda												
Valvatidae												
Valvata sincera sincera					1					2		
FISH												
Fish					1		1					
Fish	1											
Coregonidae					1							
Gasterostidae												
Pungitius pungitius												
Cottidae		3										
NON-FOOD ITEMS												
Hair			P									
Plant												
Case materials										P		P
Total Weight (mg)	2	4		1	116	172	185	20	130	419	251	173

LKTR = lake trout, LKWH = lake whitefish, RDWH = round whitefish, LDS = Lac du Sauvage, Ursula = Ursula Lake

APPENDIX 3.9-6
FISH TISSUE METAL CONCENTRATIONS, LAC DU SAUVAGE AND URSULA LAKE, 2006

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Appendix 3.9-6
Fish Tissue Metal Concentrations, Lac du Sauvage and Ursula Lake, 2006

Sample Number	1	1	2	2	3	3	4	4	6	6	8	8	9	9	10	10	11
Species	LKTR	LKTR	LKWH	LKWH	LKWH	LKWH	LKTR	LKTR	LKWH	LKWH	LKWH	LKWH	LKWH	LKWH	LKTR	LKTR	LKTR
Tissue	Liver	Muscle	Liver	Muscle	Liver	Muscle	Liver	Muscle	Liver	Muscle	Liver	Muscle	Liver	Muscle	Liver	Muscle	Liver
Lake	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS
Date Sampled	13/08/2006	13/08/2006	13/08/2006	13/08/2006	13/08/2006	13/08/2006	13/08/2006	13/08/2006	18/08/2006	18/08/2006	18/08/2006	18/08/2006	18/08/2006	18/08/2006	18/08/2006	18/08/2006	18/08/2006
ALS Sample ID	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
Moisture %	78.4	76.4	70.3	76.9	72.2	74.6	72.5	74.0	74.4	76.2	75.7	75.2	75.6	75.0	74.3	74.6	70.0
Total Metals																	
Aluminum T-Al	3.0	8.5	12.3	7.2	3.3	<2.0	3.6	4.9	5.8	2.5	6.8	2.1	3.9	3.3	2.3	2.1	2.8
Antimony T-Sb	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Arsenic T-As	0.015	0.029	0.016	0.024	0.065	0.033	0.024	0.024	0.087	0.039	0.041	0.033	0.061	0.037	0.061	0.029	0.072
Barium T-Ba	0.035	0.064	0.042	0.056	0.031	0.093	0.079	0.153	0.389	0.033	0.029	0.078	0.019	0.073	0.014	0.039	0.027
Beryllium T-Be	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Bismuth T-Bi	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium T-Cd	0.290	<0.0050	0.377	<0.0050	0.184	<0.0050	0.139	<0.0050	0.182	0.0070	0.129	0.0101	0.142	<0.0050	0.196	<0.0050	0.110
Calcium T-Ca	155	163	63.4	68.6	38.9	418	78.9	341	435	81.1	47.0	421	56.4	305	94.7	51.4	103
Chromium T-Cr	<0.10	<0.10	<0.10	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.13	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cobalt T-Co	0.141	<0.020	0.344	<0.020	0.056	<0.020	0.128	<0.020	0.131	0.022	0.057	<0.020	0.111	<0.020	0.129	<0.020	0.110
Copper T-Cu	1.12	0.229	21.4	0.269	8.99	0.302	17.4	0.425	4.38	0.226	8.50	0.200	5.64	0.214	47.3	0.569	76.1
Lead T-Pb	0.110	0.191	0.084	0.277	<0.020	0.023	0.071	0.286	0.112	0.112	0.062	0.079	0.029	0.084	0.152	0.267	0.254
Lithium T-Li	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Magnesium T-Mg	198	283	198	287	194	306	182	320	160	318	222	330	164	324	177	280	150
Manganese T-Mn	2.09	0.208	1.98	0.232	2.20	0.316	1.59	0.346	2.04	0.334	3.51	0.632	1.67	0.539	1.82	0.209	1.54
Mercury T-Hg	0.139	0.180	0.327	0.275	0.0974	0.0491	0.0906	0.0962	0.110	0.0695	0.0779	0.0466	0.0424	0.0266	0.132	0.142	0.109
Molybdenum T-Mo	0.088	<0.010	0.163	<0.010	0.170	<0.010	0.172	<0.010	0.153	<0.010	0.118	<0.010	0.151	<0.010	0.190	<0.010	0.136
Nickel T-Ni	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Selenium T-Se	1.21	0.39	3.45	0.42	1.39	0.24	1.67	0.25	1.30	0.26	1.12	0.27	1.11	0.23	1.54	0.22	1.27
Strontium T-Sr	0.352	0.386	0.206	0.163	0.136	1.31	0.281	0.773	2.04	0.207	0.143	1.20	0.261	0.930	0.189	0.066	0.283
Thallium T-Tl	0.256	<0.010	0.050	0.010	0.100	<0.010	0.040	<0.010	0.070	<0.010	0.078	<0.010	0.076	<0.010	0.028	<0.010	0.047
Tin T-Sn	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Uranium T-U	<0.0020	<0.0020	<0.0020	0.0023	0.0051	<0.0020	<0.0020	<0.0020	0.0112	<0.0020	0.0132	<0.0020	0.0061	<0.0020	<0.0020	<0.0020	<0.0020
Vanadium T-V	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.12	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Zinc T-Zn	27.3	2.91	41.3	3.55	35.8	4.29	46.0	6.44	26.4	4.63	30.4	4.19	30.7	4.07	51.2	4.34	58.9

LKTR = lake trout, LKWH = lake whitefish, RDWH = round whitefish, LDS = Lac du Sauvage, Ursula = Ursula Lake

(continued)

< = Less than the detection limit indicated.

Metals results expressed as milligrams per wet kilogram except where noted.

Appendix 3.9-6
Fish Tissue Metal Concentrations, Lac du Sauvage and Ursula Lake, 2006 (continued)

Sample Number	11	12	12	17	17	19	19	20	20	21	21	22	22	23	23	24	24
Species	LKTR	LKWH	LKWH	LKTR	LKTR	LKTR	LKTR	LKWH	LKWH	LKTR	LKTR	RDWH	RDWH	RDWH	RDWH	RDWH	RDWH
Tissue	Muscle	Liver	Muscle	Liver	Muscle	Liver	Muscle	Liver	Muscle	Liver	Muscle	Liver	Muscle	Liver	Muscle	Liver	Muscle
Lake	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS
Date Sampled	18/08/2006	18/08/2006	18/08/2006	18/08/2006	18/08/2006	18/08/2006	18/08/2006	18/08/2006	18/08/2006	18/08/2006	18/08/2006	18/08/2006	18/08/2006	18/08/2006	18/08/2006	18/08/2006	18/08/2006
ALS Sample ID	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
Moisture %	73.6	75.2	75.6	78.0	76.1	75.8	75.8	70.0	75.6	75.6	76.6	75.2	75.8	71.6	73.6	74.0	73.5
Total Metals																	
Aluminum T-Al	2.9	4.9	<4.0	<4.0	<7.0	<6.0	2.1	3.2	3.0	2.6	<2.0	4.0	3.5	11.1	2.7	9.1	6.0
Antimony T-Sb	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Arsenic T-As	0.060	0.050	0.034	0.046	0.057	0.064	0.029	0.039	0.017	0.043	0.014	0.029	0.029	0.088	0.026	0.043	0.025
Barium T-Ba	0.748	0.023	0.054	0.017	0.076	0.041	0.046	0.029	0.093	0.032	0.030	0.054	0.114	0.122	0.093	0.122	0.126
Beryllium T-Be	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Bismuth T-Bi	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium T-Cd	<0.0050	0.146	0.0056	0.123	<0.0050	0.172	<0.0050	0.0945	0.0158	0.156	<0.0050	0.0337	0.0088	0.104	0.0080	0.0946	0.0168
Calcium T-Ca	77.3	39.5	243	85.2	113	101	193	58.3	274	103	135	77.9	347	91.8	276	94.8	315
Chromium T-Cr	<0.10	<0.10	<0.10	<0.10	0.13	0.12	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.16	<0.10	<0.10	<0.10
Cobalt T-Co	<0.020	0.123	<0.020	0.050	<0.020	0.122	<0.020	0.110	0.026	0.120	<0.020	0.089	<0.020	0.145	<0.020	0.133	0.026
Copper T-Cu	0.385	7.51	0.231	3.41	0.289	19.5	0.415	2.24	0.275	36.3	0.316	1.62	0.263	2.41	0.246	1.79	0.257
Lead T-Pb	6.89	0.032	0.203	0.040	0.241	0.082	0.130	0.095	0.274	0.053	0.560	0.398	0.514	0.543	1.98	0.102	0.227
Lithium T-Li	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Magnesium T-Mg	289	147	308	262	252	161	267	177	300	162	273	191	347	247	323	206	349
Manganese T-Mn	0.414	1.88	0.446	1.63	0.617	1.54	0.296	3.20	0.625	1.68	0.370	3.26	0.609	5.68	0.549	11.3	1.19
Mercury T-Hg	0.0900	0.0517	0.0435	0.566	0.361	0.830	0.493	0.0501	0.0071	0.120	0.0754	0.0098	0.0289	0.0441	0.0270	0.0413	0.0286
Molybdenum T-Mo	<0.010	0.185	<0.010	0.063	<0.010	0.159	0.013	0.248	<0.010	0.162	<0.010	0.155	<0.010	0.208	<0.010	0.166	<0.010
Nickel T-Ni	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.69	<0.10	0.10	<0.10
Selenium T-Se	0.23	1.37	0.20	0.76	<0.20	1.32	<0.20	1.04	0.25	1.06	<0.20	0.63	0.26	0.87	0.21	0.76	0.27
Strontium T-Sr	0.164	0.149	0.645	0.109	0.205	0.206	0.407	0.183	0.725	0.191	0.227	0.329	1.12	0.254	0.765	0.326	0.926
Thallium T-Tl	<0.010	0.124	<0.010	0.350	<0.010	0.088	0.013	0.035	<0.010	0.036	<0.010	0.030	<0.010	0.032	<0.010	0.034	<0.010
Tin T-Sn	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Uranium T-U	<0.0020	0.0080	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0090	<0.0020	<0.0020	<0.0020	0.0031	<0.0020	0.0072	<0.0020	0.0093	<0.0020
Vanadium T-V	<0.10	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Zinc T-Zn	4.70	26.9	3.88	25.1	3.37	39.8	4.00	26.9	3.37	56.6	3.48	23.2	3.91	25.9	3.49	22.8	3.72

LKTR = lake trout, LKWH = lake whitefish, RDWH = round whitefish, LDS = Lac du Sauvage, Ursula = Ursula Lake

(continued)

< = Less than the detection limit indicated.

Metals results expressed as milligrams per wet kilogram except where noted.

Appendix 3.9-6
Fish Tissue Metal Concentrations, Lac du Sauvage and Ursula Lake, 2006 (continued)

Sample Number	33	33	34	34	36	36	37	37	39	39	40	40	58	58	59	59	60
Species	LKWH	LKWH	LKTR	LKTR	LKWH	LKWH	LKWH	LKWH	LKWH	LKWH	LKWH	LKWH	LKTR	LKTR	LKTR	LKTR	LKTR
Tissue	Liver	Muscle	Liver	Muscle	Liver	Muscle	Liver	Muscle	Liver	Muscle	Liver	Muscle	Liver	Muscle	Liver	Muscle	Liver
Lake	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS
Date Sampled	18/08/2006	18/08/2006	18/08/2006	18/08/2006	21/08/2006	21/08/2006	21/08/2006	21/08/2006	21/08/2006	21/08/2006	21/08/2006	21/08/2006	26/08/2006	26/08/2006	26/08/2006	26/08/2006	26/08/2006
ALS Sample ID	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73
Moisture %	74.8	75.3	77.5	76.0	75.1	75.7	69.2	74.6	75.2	74.5	72.4	74.2	79.1	77.3	75.2	77.5	73.6
Total Metals																	
Aluminum T-Al	5.1	4.1	5.5	<2.0	4.4	7.0	7.0	2.8	4.7	2.6	10.0	2.3	3.0	2.7	2.2	3.8	3.8
Antimony T-Sb	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Arsenic T-As	0.045	0.017	0.046	0.017	0.028	0.017	0.048	0.019	0.034	0.028	0.052	0.033	0.042	0.023	0.083	0.023	0.063
Barium T-Ba	0.052	0.166	0.023	0.037	0.049	0.186	0.188	0.169	0.093	0.043	0.026	0.101	0.045	0.053	0.013	0.024	0.027
Beryllium T-Be	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Bismuth T-Bi	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium T-Cd	0.164	0.0099	0.0908	0.0051	0.0920	0.0232	0.0710	0.0146	0.116	<0.0050	0.136	0.0070	0.114	<0.0050	0.299	<0.0050	0.106
Calcium T-Ca	52.4	438	59.2	279	69.6	475	491	572	317	136	43.1	335	65.2	105	175	79.7	110
Chromium T-Cr	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cobalt T-Co	0.103	0.022	0.026	<0.020	0.095	0.020	0.125	0.028	0.079	<0.020	0.108	0.026	0.079	<0.020	0.075	<0.020	0.090
Copper T-Cu	2.33	0.304	135	0.260	1.71	0.268	2.86	0.321	7.09	0.218	8.87	0.246	19.4	0.361	42.0	0.325	18.8
Lead T-Pb	0.150	0.219	0.074	0.142	0.119	0.264	0.464	0.223	0.034	0.193	0.045	0.328	0.325	0.511	0.164	0.344	0.198
Lithium T-Li	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Magnesium T-Mg	193	349	141	296	219	352	205	351	158	314	186	328	153	270	152	237	200
Manganese T-Mn	3.24	1.01	1.29	0.283	3.54	1.08	3.54	0.908	2.13	1.18	2.71	1.98	1.84	0.163	1.41	0.096	1.90
Mercury T-Hg	0.0547	0.0376	0.125	0.120	0.0423	0.0319	0.0566	0.0322	0.0597	0.0325	0.0874	0.0381	0.199	0.218	0.802	0.458	0.0818
Molybdenum T-Mo	0.226	<0.010	0.146	<0.010	0.167	<0.010	0.267	<0.010	0.121	<0.010	0.202	<0.010	0.103	<0.010	0.216	<0.010	0.174
Nickel T-Ni	0.11	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.13	<0.10	<0.10
Selenium T-Se	1.14	0.26	2.09	0.24	0.74	0.29	1.32	0.27	1.28	0.29	1.84	0.30	0.87	<0.20	1.93	<0.20	1.65
Strontium T-Sr	0.193	1.41	0.170	0.641	0.273	1.46	1.67	1.81	1.18	0.383	0.221	1.09	0.140	0.190	0.335	0.127	0.255
Thallium T-Tl	0.064	0.013	0.028	<0.010	0.037	<0.010	0.030	<0.010	0.044	<0.010	0.120	<0.010	0.060	<0.010	0.109	0.012	0.042
Tin T-Sn	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Uranium T-U	0.0125	<0.0020	<0.0020	<0.0020	0.0068	<0.0020	0.0122	<0.0020	0.0037	<0.0020	0.0067	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Vanadium T-V	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Zinc T-Zn	27.4	3.85	61.8	3.56	24.3	3.79	29.8	4.09	28.9	3.97	33.5	4.33	33.5	3.83	51.8	3.76	50.3

LKTR = lake trout, LKWH = lake whitefish, RDWH = round whitefish, LDS = Lac du Sauvage, Ursula = Ursula Lake

(continued)

< = Less than the detection limit indicated.

Metals results expressed as milligrams per wet kilogram except where noted.

Appendix 3.9-6
Fish Tissue Metal Concentrations, Lac du Sauvage and Ursula Lake, 2006 (continued)

Sample Number	60	62	62	63	63	65	65	66	66	67	67	69	69	82	82	85	85
Species	LKTR	LKTR	LKTR	LKTR	LKTR	LKTR	LKTR	LKTR	LKTR	LKTR	LKTR	LKTR	LKTR	LKWH	LKWH	LKWH	LKWH
Tissue	Muscle	Liver	Muscle	Liver	Muscle	Liver	Muscle	Liver	Muscle	Liver	Muscle	Liver	Muscle	Liver	Muscle	Liver	Muscle
Lake	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS	LDS
Date Sampled	26/08/2006	27/08/2006	27/08/2006	28/08/2006	28/08/2006	28/08/2006	28/08/2006	28/08/2006	28/08/2006	28/08/2006	28/08/2006	28/08/2006	28/08/2006	01/09/2006	01/09/2006	01/09/2006	01/09/2006
ALS Sample ID	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Moisture %	76.6	75.0	77.0	68.0	74.8	70.0	76.4	75.3	77.8	78.2	77.4	79.4	84.9	41.7	77.8	68.5	76.0
Total Metals																	
Aluminum T-Al	3.5	5.2	3.6	3.1	3.5	6.7	5.6	8.8	10.0	12.8	65.2	32.5	18.3	23.4	<2.0	5.5	3.6
Antimony T-Sb	0.015	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Arsenic T-As	0.011	0.124	0.020	0.068	0.041	0.071	0.020	0.054	0.020	0.064	0.034	0.074	0.038	0.084	0.027	0.045	0.017
Barium T-Ba	0.024	0.055	0.058	0.032	0.048	0.080	0.061	0.059	0.086	0.093	0.332	0.410	0.093	0.032	0.020	0.096	0.131
Beryllium T-Be	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Bismuth T-Bi	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium T-Cd	<0.0050	0.145	<0.0050	0.191	<0.0050	0.230	<0.0050	0.239	<0.0050	0.238	<0.0050	0.0881	<0.0050	0.473	<0.0050	0.109	<0.0050
Calcium T-Ca	41.5	71.5	329	135	275	58.8	328	115	110	169	83.5	67.5	50.4	39.4	117	49.2	84.3
Chromium T-Cr	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.14	0.26	1.01	0.33	0.32	0.18	<0.10	<0.10	<0.10
Cobalt T-Co	<0.020	0.074	<0.020	0.101	<0.020	0.265	<0.020	0.079	<0.020	0.079	0.042	0.079	<0.020	0.082	0.030	0.073	<0.020
Copper T-Cu	0.229	21.6	0.387	27.6	0.306	40.5	0.322	50.2	0.381	29.2	0.579	22.8	0.421	9.44	0.337	6.38	0.271
Lead T-Pb	1.05	0.239	0.112	0.128	0.140	0.954	0.073	0.073	0.112	0.074	0.087	0.056	0.097	<0.020	<0.020	0.055	0.143
Lithium T-Li	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.24	0.12	<0.10	<0.10	<0.10	<0.10	<0.10
Magnesium T-Mg	228	209	317	169	264	206	286	164	264	172	260	170	244	187	266	190	280
Manganese T-Mn	0.102	2.46	0.216	1.57	0.232	2.41	0.214	2.00	0.269	1.68	1.25	2.02	0.310	1.82	0.194	2.02	0.177
Mercury T-Hg	0.0744	0.0473	0.0651	0.656	0.179	0.187	0.132	0.269	0.192	0.612	0.294	0.0270	0.185	0.469	0.167	0.0710	0.0408
Molybdenum T-Mo	<0.010	0.214	<0.010	0.192	<0.010	0.175	<0.010	0.180	<0.010	0.167	0.042	0.137	<0.010	0.191	<0.010	0.127	<0.010
Nickel T-Ni	<0.10	0.15	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.11	0.85	0.22	0.19	<0.10	<0.10	<0.10	<0.10
Selenium T-Se	0.22	1.82	0.21	1.62	<0.20	2.02	0.21	1.44	0.21	1.41	<0.20	0.99	<0.20	1.44	0.23	1.30	0.21
Strontium T-Sr	0.055	0.241	0.805	0.263	0.541	0.120	0.625	0.204	0.181	0.329	0.175	0.169	0.099	0.092	0.239	0.263	0.286
Thallium T-Tl	<0.010	0.102	0.012	0.071	0.012	0.036	<0.010	0.028	<0.010	0.029	0.011	0.113	0.012	0.086	<0.010	0.052	<0.010
Tin T-Sn	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Uranium T-U	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0075	0.0043	0.0161	0.0054	<0.0020	0.0364	<0.0020	0.0044	<0.0020
Vanadium T-V	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.17	<0.10	<0.10	0.11	<0.10	<0.10	<0.10
Zinc T-Zn	2.67	45.8	4.67	38.7	3.47	50.0	3.24	60.9	3.79	47.8	4.05	38.9	3.26	32.8	5.34	30.9	4.24

LKTR = lake trout, LKWH = lake whitefish, RDWH = round whitefish, LDS = Lac du Sauvage, Ursula = Ursula Lake

(continued)

< = Less than the detection limit indicated.

Metals results expressed as milligrams per wet kilogram except where noted.

Appendix 3.9-6
Fish Tissue Metal Concentrations, Lac du Sauvage and Ursula Lake, 2006 (continued)

Sample Number	86	86	87	87	1	1	2	2	3	3	4	4	5	5	6	6	8
Species	LKTR	LKTR	LKTR	LKTR	LKTR	LKTR	LKTR	LKTR	RDWH	RDWH	LKTR	LKTR	LKTR	LKTR	LKTR	LKTR	LKTR
Tissue	Liver	Muscle	Liver	Muscle	Liver	Muscle	Liver	Muscle	Liver	Muscle	Liver	Muscle	Liver	Muscle	Liver	Muscle	Liver
Lake	LDS	LDS	LDS	LDS	Ursula	Ursula	Ursula	Ursula	Ursula	Ursula	Ursula	Ursula	Ursula	Ursula	Ursula	Ursula	Ursula
Date Sampled	01/09/2006	01/09/2006	01/09/2006	01/09/2006	24/08/2006	24/08/2006	24/08/2006	24/08/2006	24/08/2006	24/08/2006	03/09/2006	03/09/2006	03/09/2006	03/09/2006	03/09/2006	03/09/2006	03/09/2006
ALS Sample ID	91	92	93	94	1	2	3	4	5	6	7	8	9	10	11	12	15
Moisture %	71.6	77.6	75.3	81.9	75.2	76.4	75.0	75.7	76.8	76.6	77.1	79.7	74.5	77.3	73.0	77.8	75.7
Total Metals																	
Aluminum T-Al	2.2	6.9	3.9	<2.0	4.1	<2.0	<2.0	<2.0	7.6	5.1	3.2	2.1	3.9	2.1	<2.0	<2.0	<2.0
Antimony T-Sb	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Arsenic T-As	0.056	0.022	0.056	0.016	0.093	0.016	0.051	0.041	0.020	<0.010	0.014	0.030	0.019	0.012	<0.010	0.012	<0.010
Barium T-Ba	0.061	0.267	0.039	0.043	0.042	0.039	0.037	0.037	0.073	0.130	0.020	0.080	0.031	0.042	0.028	0.038	<0.010
Beryllium T-Be	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Bismuth T-Bi	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium T-Cd	0.183	<0.0050	0.180	<0.0050	0.126	<0.0050	0.110	<0.0050	0.190	0.0064	0.376	<0.0050	0.483	<0.0050	0.345	<0.0050	0.0995
Calcium T-Ca	272	242	108	68.7	65.1	78.7	62.7	72.4	65.7	212	52.3	106	55.0	42.9	46.1	134	60.3
Chromium T-Cr	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cobalt T-Co	0.063	<0.020	0.251	<0.020	0.101	<0.020	0.093	0.024	0.195	0.025	0.163	<0.020	0.156	<0.020	0.372	<0.020	0.116
Copper T-Cu	28.3	0.316	13.9	0.355	6.41	0.370	30.9	0.239	2.32	0.238	8.84	0.189	8.49	0.253	24.6	0.329	1.56
Lead T-Pb	0.058	0.112	0.071	0.055	0.032	0.162	0.090	0.042	0.308	0.231	0.122	0.781	0.162	0.273	0.091	0.156	0.047
Lithium T-Li	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Magnesium T-Mg	179	248	174	293	171	283	170	326	165	336	145	248	204	291	155	268	227
Manganese T-Mn	1.59	0.273	1.80	0.115	1.94	0.123	1.98	0.163	2.49	0.277	1.37	0.119	1.73	0.252	1.61	0.088	1.64
Mercury T-Hg	0.235	0.212	0.132	0.155	0.0758	0.150	0.173	0.0397	0.0683	0.0612	0.191	0.375	0.0873	0.0959	0.329	0.401	0.369
Molybdenum T-Mo	0.172	<0.010	0.169	<0.010	0.182	<0.010	0.149	<0.010	0.211	<0.010	0.087	<0.010	0.202	<0.010	0.118	<0.010	0.079
Nickel T-Ni	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.12	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Selenium T-Se	1.15	<0.20	1.55	0.26	1.19	0.21	1.28	0.20	1.98	0.67	2.42	0.41	2.10	0.43	3.72	0.34	1.36
Strontium T-Sr	0.470	0.397	0.284	0.108	0.236	0.141	0.151	0.151	0.320	0.701	0.148	0.251	0.179	0.091	0.126	0.284	0.125
Thallium T-Tl	0.048	<0.010	0.036	<0.010	0.108	<0.010	0.046	<0.010	0.094	0.017	0.097	0.011	0.063	<0.010	0.074	0.010	0.159
Tin T-Sn	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Uranium T-U	<0.0020	<0.0020	<0.0020	<0.0020	0.0069	<0.0020	<0.0020	<0.0020	0.0141	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Vanadium T-V	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Zinc T-Zn	45.5	3.76	37.4	3.64	29.4	3.47	49.9	3.67	25.6	3.49	23.8	3.06	37.7	3.42	39.5	3.17	23.6

LKTR = lake trout, LKWH = lake whitefish, RDWH = round whitefish, LDS = Lac du Sauvage, Ursula = Ursula Lake

(continued)

< = Less than the detection limit indicated.

Metals results expressed as milligrams per wet kilogram except where noted.

Appendix 3.9-6
Fish Tissue Metal Concentrations, Lac du Sauvage and Ursula Lake, 2006 (completed)

Sample Number	8	9	9	10	10	11	11	12	12
Species	LKTR	LKTR	LKTR	RDWH	RDWH	RDWH	RDWH	RDWH	RDWH
Tissue	Muscle	Liver	Muscle	Liver	Muscle	Liver	Muscle	Liver	Muscle
Lake	Ursula	Ursula	Ursula	Ursula	Ursula	Ursula	Ursula	Ursula	Ursula
Date Sampled	03/09/2006	03/09/2006	03/09/2006	03/09/2006	03/09/2006	03/09/2006	03/09/2006	03/09/2006	03/09/2006
ALS Sample ID	16	17	18	19	20	21	22	13	14
Moisture %	78.2	69.5	76.4	74.4	74.1	68.9	73.8	72.2	74.6
Total Metals									
Aluminum T-Al	<2.0	<2.0	<2.0	4.3	5.8	2.3	2.5	2.3	3.7
Antimony T-Sb	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Arsenic T-As	0.012	0.012	0.016	0.038	0.012	0.022	<0.010	0.022	0.016
Barium T-Ba	0.024	0.031	0.035	0.059	0.108	0.113	0.134	0.017	0.836
Beryllium T-Be	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Bismuth T-Bi	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium T-Cd	<0.0050	0.280	<0.0050	0.168	0.0050	0.0887	<0.0050	0.0772	0.0228
Calcium T-Ca	43.3	177	46.6	49.9	157	220	258	61.1	1720
Chromium T-Cr	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cobalt T-Co	<0.020	0.263	<0.020	0.158	0.031	0.157	0.025	0.132	0.039
Copper T-Cu	0.362	37.4	0.381	1.96	0.303	1.79	0.256	2.02	0.271
Lead T-Pb	0.259	0.103	0.458	0.276	0.302	0.139	0.490	<0.020	0.465
Lithium T-Li	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Magnesium T-Mg	242	132	265	185	345	258	344	242	352
Manganese T-Mn	0.076	0.872	0.087	2.27	0.392	3.78	0.283	3.63	1.55
Mercury T-Hg	0.378	0.204	0.386	0.0745	0.0715	0.0506	0.0580	0.0579	0.0597
Molybdenum T-Mo	<0.010	0.140	<0.010	0.216	<0.010	0.158	<0.010	0.168	<0.010
Nickel T-Ni	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Selenium T-Se	0.32	3.35	0.32	1.57	0.57	1.16	0.50	1.20	0.53
Strontium T-Sr	0.064	0.476	0.080	0.158	0.445	0.842	0.874	0.202	6.08
Thallium T-Tl	<0.010	0.059	<0.010	0.080	<0.010	0.071	0.012	0.079	<0.010
Tin T-Sn	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Uranium T-U	<0.0020	<0.0020	<0.0020	0.0319	<0.0020	0.0066	<0.0020	0.0047	0.0029
Vanadium T-V	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Zinc T-Zn	2.81	44.7	3.35	25.5	3.88	26.2	3.77	25.1	5.49

LKTR = lake trout, LKWH = lake whitefish, RDWH = round whitefish, LDS = Lac du Sauvage, Ursula = Ursula Lake

< = Less than the detection limit indicated.

Metals results expressed as milligrams per wet kilogram except where noted.

APPENDIX 3.10-1
SUBSTRATE COMPOSITION AND AREA OF THE LITTORAL ZONE IN THE JAY PIPE AREA OF LAC DU SAUVAGE, 2006

bhpbilliton

Appendix 3.10-1
Substrate Composition and Area of the Littoral Zone in the Jay Pipe Area of Lac du Sauvage, 2006

		Zone Start		Zone End			% Cover						Cover (m^2)				
	Section	Easting	Northing	Easting	Northing	Area (m^2)	Bedrock (%)	Boulder (%)	Cobble (%)	Gravel (%)	Fines (%)	Vegetation Type	Bedrock (m^2)	Boulder (m^2)	Cobble (m^2)	Gravel (m^2)	Fines (m^2)
Large Island	1.1	543002	7165692	542992	7165716	130	0	100	0	0	0		0	130	0	0	0
	1.2	542992	7165716	542981	7165761	215	0	60	40	0	0		0	129	86	0	0
	1.3	542981	7165761	542962	7165792	226	0	40	40	15	5		0	90	90	34	11
	1.4	542962	7165792	542947	7165860	343	0	100	0	0	0		0	343	0	0	0
	1.5	542947	7165860	542956	7165918	298	0	60	40	0	0		0	179	119	0	0
	1.6	542956	7165918	543103	7165933	797	0	100	0	0	0		0	797	0	0	0
	1.7	543103	7165933	543182	7165893	440	0	90	10	0	0		0	396	44	0	0
	1.8	543182	7165893	543214	7165898	162	0	40	30	25	5		0	65	49	40	8
	1.9	543214	7165898	543254	7165881	235	0	90	10	0	0		0	211	23	0	0
	1.10	543254	7165881	543296	7165854	269	10	50	40	0	0		27	135	108	0	0
	1.11	543296	7165848	543343	7165824	268	0	90	10	0	0		0	241	27	0	0
	1.12	543343	7165824	543329	7165787	363	0	100	0	0	0		0	363	0	0	0
	1.13	543329	7165787	543372	7165667	734	0	60	40	0	0		0	440	294	0	0
	1.14	543372	7165667	543418	7165579	557	0	80	20	0	0		0	446	111	0	0
	1.15	543417	7165579	543406	7165545	176	0	40	40	15	5		0	70	70	26	9
	1.16	543406	7165545	543360	7165482	609	0	40	40	15	5	Submergent	0	244	244	91	30
	1.17	543360	7165482	543285	7165493	382	0	10	15	25	50	Submergent	0	38	57	96	191
	1.18	543285	7165493	543189	7165519	502	0	40	40	15	5	Submergent	0	201	201	75	25
	1.19	543189	7165519	543121	7165547	371	0	20	35	25	20		0	74	130	93	74
	1.20	543121	7165547	543002	7165692	993	0	70	20	5	5		0	695	199	50	50
	Total					**8,072**						**Total**	**27**	**5,289**	**1,852**	**505**	**399**
												%	**0**	**66**	**23**	**6**	**5**
Mainland Shoreline	2.1	541099	7165345	541103	7165352	19	0	60	30	10	0		0	11	6	2	0
	2.2	541103	7165352	541092	7165361	70	10	30	30	20	10		7	21	21	14	7
	2.3	541092	7165361	541064	7165374	126	5	50	30	15	0		6	63	38	19	0
	2.4	541064	7165374	541049	7165374	44	5	40	30	20	5		2	18	13	9	2
	2.5	541049	7165374	541044	7165364	37	0	40	30	20	10		0	15	11	7	4
	2.6	541044	7165364	541037	7165346	72	10	20	20	20	30		7	14	14	14	22
	2.7	541037	7165346	541037	7165335	48	5	50	30	15	0		2	24	15	7	0
	2.8	541037	7165335	541043	7165304	153	5	40	30	15	10		8	61	46	23	15
	2.9	541043	7165304	541064	7165278	168	10	40	20	10	20		17	67	34	17	34
	2.10	541064	7165278	541079	7165275	66	10	40	30	10	10		7	26	20	7	7
	2.11	541079	7165275	541104	7165303	168	10	30	30	20	10		17	50	50	34	17
	2.12	541104	7165303	541099	7165345	223	5	40	30	20	5		11	89	67	45	11
	2.13	541073	7165404	541103	7165409	177	20	60	20	0	0		35	106	35	0	0
	2.14	541103	7165409	541137	7165411	169	0	45	40	15	0	Emergent	0	76	67	25	0
	2.15	541137	7165411	541203	7165405	327	0	60	40	0	0		0	196	131	0	0
	2.16	541203	7165405	541239	7165427	239	0	40	60	0	0		0	95	143	0	0
	2.17	541230	7165427	541231	7165491	376	0	70	20	10	0		0	263	75	38	0
	2.18	541231	7165491	541214	7165524	187	0	50	30	20	0		0	93	56	37	0
	2.19	541214	7165524	541187	7165580	311	0	40	40	20	0		0	125	125	62	0
	2.20	541187	7165580	541177	7165602	116	0	60	40	0	0		0	70	46	0	0
	2.21	541177	7165602	541153	7165670	384	0	30	50	20	0		0	115	192	77	0
	2.22	541153	7165670	541127	7165743	389	0	50	35	15	0		0	195	136	58	0
	2.23	541127	7165743	541127	7165748	26	0	35	40	20	5		0	9	10	5	1
	2.24	541127	7165748	541122	7165759	61	0	10	60	25	5		0	6	37	15	3
	2.25	541122	7165759	541097	7165845	452	0	60	30	10	0		0	271	136	45	0
	2.26	541097	7165845	541049	7165883	313	0	70	20	10	0		0	219	63	31	0
	2.27	541049	7165883	541040	7165914	159	0	80	20	0	0		0	127	32	0	0
	2.28	541040	7165914	541020	7165965	275	0	70	20	10	0	Emergent	0	192	55	27	0
	2.29	541020	7165965	541012	7165979	81	0	25	45	25	5		0	20	37	20	4
	2.30	541012	7165979	541008	7166089	564	0	80	20	0	0		0	451	113	0	0
	2.31	541008	7166089	541104	7166124	563	0	80	20	0	0	Emergent	0	450	113	0	0
	2.32	541104	7166124	541108	7166100	110	0	40	50	10	0	Emergent	0	44	55	11	0
	2.33	541108	7166100	541149	7166056	301	0	60	25	10	5	Emergent	0	180	75	30	15
	2.34	541149	7166056	541210	7166015	368	0	80	10	10	0		0	294	37	37	0
	2.35	541210	7166015	541293	7166051	467	0	70	20	10	0		0	327	93	47	0
	2.36	541293	7166051	541347	7166051	276	0	70	15	15	0		0	193	41	41	0
	2.37	541347	7166051	541386	7166060	208	0	60	30	10	0		0	125	62	21	0
	2.38	541386	7166060	541451	7166135	537	10	40	30	20	0		54	215	161	107	0
	2.39	541451	7166135	541390	7166212	316	10	60	20	10	0		32	190	63	32	0

Note: All coordinates are presented in UTM, Zone 12, NAD83

(continued)

Appendix 3.10-1
Substrate Composition and Area of the Littoral Zone in the Jay Pipe Area of Lac du Sauvage, 2006 (continued)

		Zone Start		Zone End			% Cover						Cover (m^2)				
	Section	Easting	Northing	Easting	Northing	Area (m^2)	Bedrock (%)	Boulder (%)	Cobble (%)	Gravel (%)	Fines (%)	Vegetation Type	Bedrock (m^2)	Boulder (m^2)	Cobble (m^2)	Gravel (m^2)	Fines (m^2)
Mainland Shoreline	2.40	541390	7166212	541374	7166157	213	30	40	20	10	0		64	85	43	21	0
	2.41	541374	7166157	541349	7166265	213	0	20	60	20	0		0	43	128	43	0
	2.42	541349	7166265	541322	7166287	168	0	35	40	25	0		0	59	67	42	0
	2.43	541322	7166287	541300	7166302	240	10	60	20	10	0		24	144	48	24	0
	2.44	541300	7166302	541295	7166263	201	10	40	40	10	0		20	80	80	20	0
	2.45	541295	7166263	541112	7166196	1,126	0	50	30	15	5		0	563	338	169	56
	2.46	541112	7166196	541062	7166197	294	0	60	20	20	0	Emergent	0	177	59	59	0
	2.47	541062	7166197	541047	7166220	173	20	40	40	0	0	Emergent	35	69	69	0	0
	2.48	541047	7166220	541045	7166241	111	0	30	30	30	10		0	33	33	33	11
	2.49	541045	7166241	541027	7166324	446	10	30	20	35	5		45	134	89	156	22
	2.50	541027	7166324	540998	7166409	466	30	30	20	15	5		140	140	93	70	23
	Total					**12,600**						**Total**	**532**	**6,638**	**3,573**	**1,603**	**254**
												%	**4**	**53**	**28**	**13**	**2**
Smaller Island	3.1	541755	7167014	541802	7166971	323	0	40	40	20	0		0	129	129	65	0
	3.2	541802	7166971	541808	7166963	49	0	70	30	0	0		0	35	15	0	0
	3.3	541808	7166963	541811	7166958	33	0	40	40	20	0		0	13	13	7	0
	3.4	541811	7166958	541829	7166933	152	0	80	20	0	0		0	122	30	0	0
	3.5	541829	7166933	541861	7166891	256	0	35	35	30	0		0	89	89	77	0
	3.6	541861	7166891	541865	7166888	37	0	30	30	30	10		0	11	11	11	4
	3.7	541865	7166888	541887	7166837	281	0	40	40	20	0		0	112	112	56	0
	3.8	541887	7166837	541888	7166781	304	10	40	40	10	0		30	122	122	30	0
	3.9	541888	7166781	541875	7166736	257	0	50	30	20	0		0	129	77	51	0
	3.10	541875	7166736	541861	7166718	115	0	40	30	25	5		0	46	35	29	6
	3.11	541861	7166718	541838	7166695	171	0	50	40	10	0		0	85	68	17	0
	3.12	541838	7166695	541820	7166685	102	0	40	40	20	0		0	41	41	20	0
	3.13	541820	7166685	541804	7166685	79	0	60	30	10	0		0	47	24	8	0
	3.14	541804	7166685	541794	7166687	52	0	40	40	15	5		0	21	21	8	3
	3.15	541794	7166687	541772	7166688	113	0	60	30	10	0		0	68	34	11	0
	3.16	541772	7166688	541769	7166691	22	0	15	45	30	10		0	3	10	7	2
	3.17	541769	7166691	541748	7166768	425	0	50	30	15	5		0	212	127	64	21
	3.18	541748	7166768	541714	7166873	656	0	50	30	15	5		0	328	197	98	33
	3.19	541714	7166873	541699	7167003	658	0	50	30	15	5	Emergent	0	329	198	99	33
	3.20	541699	7167003	541743	7167029	329	30	35	35	0	0	Emergent/Submergent	99	115	115	0	0
	3.21	541743	7167029	541755	7167014	93	0	40	40	20	0		0	37	37	19	0
	Total					**4,508**						**Total**	**129**	**2,096**	**1,505**	**676**	**101**
												%	**3**	**46**	**33**	**15**	**2**
Smaller Island	4.1	541952	7166401	541947	7166407	42	0	30	40	25	5	Submergent	0	13	17	11	2
	4.2	541947	7166407	541930	7166435	163	0	70	30	0	0		0	114	49	0	0
	4.3	541930	7166435	541908	7166477	254	0	35	35	30	0		0	89	89	76	0
	4.4	541908	7166477	541928	7166488	179	0	30	40	25	5		0	54	72	45	9
	4.5	541928	7166488	541975	7166487	233	0	50	30	15	5		0	117	70	35	12
	4.6	541975	7166487	542014	7166481	200	5	40	30	22.5	2.5		10	80	60	45	5
	4.7	542014	7166481	542048	7166478	185	0	50	20	25	5		0	93	37	46	9
	4.8	542048	7166478	542110	7166430	407	0	60	30	10	0		0	244	122	41	0
	4.9	542110	7166430	542142	7166354	448	0	70	25	5	0		0	313	112	22	0
	4.10	542142	7166354	542094	7166311	349	0	40	30	25	5	Emergent/Submergent	0	140	105	87	17
	4.11	542094	7166311	542046	7166325	257	0	30	30	35	5	Emergent	0	77	77	90	13
	4.12	542046	7166325	541981	7166368	403	2.5	45	30	20	2.5	Submergent	10	182	121	81	10
	4.13	541981	7166368	541952	7166401	221	0	60	30	10	0	Submergent	0	133	66	22	0
	Total					**3,342**						**Total**	**20**	**1,647**	**997**	**601**	**77**
												%	**1**	**49**	**30**	**18**	**2**
Smaller Island	5.1	542561	7165285	542571	7165219	573	40	30	20	10	0		229	172	115	57	0
	5.2	542571	7165219	542600	7165162	279	70	20	10	0	0		195	56	28	0	0
	5.3	542600	7165162	542628	7165119	246	10	40	30	15	5		25	98	74	37	12
	5.4	542628	7165119	542637	7165099	170	70	20	10	0	0		119	34	17	0	0
	5.5	542637	7165099	542651	7165074	125	10	40	20	25	5		13	50	25	31	6
	5.6	542651	7165074	542644	7165031	277	20	40	30	10	0		55	111	83	28	0
	5.7	542644	7165031	542577	7165039	497	30	30	30	10	0		149	149	149	50	0
	5.8	542577	7165039	542523	7165123	520	10	35	30	20	5		52	182	156	104	26

Note: All coordinates are presented in UTM, Zone 12, NAD83

(continued)

Appendix 3.10-1
Substrate Composition and Area of the Littoral Zone in the Jay Pipe Area of Lac du Sauvage, 2006 (completed)

		Zone Start		Zone End			% Cover						Cover (m^2)				
	Section	Easting	Northing	Easting	Northing	Area (m^2)	Bedrock (%)	Boulder (%)	Cobble (%)	Gravel (%)	Fines (%)	Vegetation Type	Bedrock (m^2)	Boulder (m^2)	Cobble (m^2)	Gravel (m^2)	Fines (m^2)
	5.9	542523	7165123	542466	7165347	1,196	10	40	30	15	5		120	478	359	179	60
	5.10	542466	7165347	542501	7165385	411	10	40	30	15	5		41	164	123	62	21
	5.11	542501	7165385	542561	7165285	623	40	30	20	10	0		249	187	125	62	0
	Total					**4,916**						**Total**	**1,247**	**1,681**	**1,253**	**610**	**125**
												%	**25**	**34**	**25**	**12**	**3**
Smaller Island	6.1	542974	7165177	542972	7165159	92	0	60	30	10	0	Emergent	0	55	28	9	0
	6.2	542972	7165159	542977	7165098	308	0	50	30	15	5	Emergent/Submergent	0	154	93	46	15
	6.3	542977	7165098	543036	7165032	444	0	60	30	10	0		0	267	133	44	0
	6.4	543036	7165032	543116	7165015	451	0	80	20	0	0		0	361	90	0	0
	6.5	543116	7165015	543164	7165046	281	0	50	30	15	5		0	140	84	42	14
	6.6	543164	7165046	543185	7165087	221	0	60	30	10	0		0	132	66	22	0
	6.7	543185	7165087	543191	7165147	310	0	60	30	10	0		0	186	93	31	0
	6.8	543191	7165147	543175	7165202	294	0	50	30	15	5	Emergent/Submergent	0	147	88	44	15
	6.9	543175	7165202	543134	7165276	433	0	60	30	10	0		0	260	130	43	0
	6.10	543134	7165276	543085	7165318	327	0	50	30	15	5	Emergent/Submergent	0	163	98	49	16
	6.11	543085	7165318	543045	7165339	231	0	50	30	15	5		0	115	69	35	12
	6.12	543045	7165339	542998	7165312	302	0	55	25	15	5		0	166	76	45	15
	6.13	542998	7165312	542962	7165258	342	0	55	25	15	5		0	188	86	51	17
	6.14	542962	7165258	542974	7165177	402	0	60	30	10	0		0	241	121	40	0
	Total					**4,438**						**Total**	**0**	**2,577**	**1,254**	**503**	**104**
												%	**0**	**58**	**28**	**11**	**2**
Smaller Island	7.1	542376	7165542	542351	7165563	193	10	40	30	15	5		19	77	58	29	10
	7.2	542351	7165563	542342	7165617	284	40	40	20	0	0		114	114	57	0	0
	7.3	542342	7165617	542366	7165626	323	80	10	10	0	0		258	32	32	0	0
	7.4	542366	7165626	542407	7165577	330	40	40	20	0	0		132	132	66	0	0
	7.5	542407	7165577	542376	7165542	411	40	40	20	0	0		165	165	82	0	0
	Total					**1,542**						**Total**	**688**	**520**	**295**	**29**	**10**
												%	**45**	**34**	**19**	**2**	**1**
Smaller Island	8.1	542654	7165912	542653	7165952	226	0	80	10	10	0		0	181	23	23	0
	8.2	542653	7165952	542712	7165977	333	0	45	45	10	0		0	150	150	33	0
	8.3	542712	7165977	542754	7165947	318	0	70	30	0	0		0	223	95	0	0
	8.4	542754	7165947	542763	7165877	433	0	40	40	20	0		0	173	173	87	0
	8.5	542763	7165877	542733	7165874	176	0	40	40	20	0	Emergent	0	70	70	35	0
	8.6	542733	7165874	542679	7165889	285	0	40	40	20	0	Submergent	0	114	114	57	0
	8.7	542679	7165889	542654	7165912	200	0	70	20	10	0		0	140	40	20	0
	Total					**1,972**						**Total**	**0**	**1,051**	**666**	**255**	**0**
												%	**0**	**53**	**34**	**13**	**0**
Smaller Island	9.1	542935	7166387	542927	7166409	184	0	75	10	15	0		0	138	18	28	0
	9.2	542927	7166409	542966	7166401	227	10	40	30	20	0		23	91	68	45	0
	9.3	542966	7166401	542979	7166372	219	0	60	30	10	0		0	131	66	22	0
	9.4	542979	7166372	542953	7166372	165	10	40	30	20	0		17	66	50	33	0
	9.5	542953	7166372	542935	7166387	119	0	75	10	15	0		0	89	12	18	0
	Total					**913**						**Total**	**39**	**515**	**214**	**146**	**0**
												%	**4**	**56**	**23**	**16**	**0**
Smaller Island	10.1	543141	7166199	543172	7166197	160	0	60	30	10	0		0	96	48	16	0
	10.2	543172	7166197	543217	7166182	233	0	70	10	15	5		0	163	23	35	12
	10.3	543217	7166182	543279	7166167	352	0	70	10	15	5		0	247	35	53	18
	10.4	543279	7166167	543272	7166121	332	35	30	20	10	5		116	99	66	33	17
	10.5	543272	7166121	543288	7166107	214	0	70	10	15	5		0	150	21	32	11
	10.6	543288	7166107	543252	7166100	191	15	35	40	10	0		29	67	76	19	0
	10.7	543252	7166100	543202	7166109	267	0	70	20	10	0		0	187	53	27	0
	10.8	543202	7166109	543164	7166141	256	0	70	20	10	0		0	179	51	26	0
	10.9	543164	7166141	543141	7166199	333	0	80	10	10	0		0	267	33	33	0
	Total					**2,338**						**Total**	**145**	**1,454**	**408**	**274**	**57**
												%	**6**	**62**	**17**	**12**	**2**
Total Area	**Total**					**44,641**						**Total**	**2,827**	**23,469**	**12,017**	**5,202**	**1,127**
												%	**6**	**53**	**27**	**12**	**3**

Note: All coordinates are presented in UTM, Zone 12, NAD83

APPENDIX 3.10-2
DETAILS OF VIDEO TRANSECTS PRESENTED IN APPENDIX 3.10-3

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Apppendix 3.10-2
Details of Video Transects Presented in Appendix 3.10-3

Transect	Waypoints				% Cover				
	Start		End						
Number	Easting	Northing	Easting	Northing	Br	B	C	G	Fines
T 1	541135	7165978	541041	7165930	0	30	40	30	0
T 2	541045	7166042	541023	7166073	0	40	50	10	0
T 3	541098	7166006	541084	7166117	0	25	40	30	5
T 4	541135	7165950	541203	7166009	0	30	30	35	5
T 5	541275	7166014	541268	7166028	0	60	40	0	0
T 6	541467	7166117	541452	7166120	0	15	30	45	10
T 7	541439	7166185	541420	7166174	0	40	40	20	0
T 8	541365	7166288	541355	7166272	0	50	40	10	0
T 9	541236	7166276	541278	7166284	0	75	20	5	0
T 10	541137	7166322	541154	7166248	0	10	30	50	10
T 11	541090	7166302	541068	7166232	0	25	30	40	5
T 12	541056	7166335	541027	7166338	0	20	40	35	5
T 13	540967	7166472	540955	7166461	0	20	40	35	5
T 14	540878	7166609	540859	7166614	20	20	30	30	0
T 15	540803	7166778	540785	7166759	30	20	30	15	5
T 16	541122	7165877	541095	7165864	0	40	40	20	0
T 17	541138	7165776	541125	7165771	0	40	50	10	0
T 18	541185	7165636	541158	7165633	0	50	40	10	0
T 19	541244	7165394	541229	7165404	0	70	20	10	0
T 20	541207	7165343	541189	7165392	0	70	20	10	0
T 21	541135	7165331	541110	7165323	0	60	20	15	5
T 22	541039	7165258	541050	7165281	20	30	0	0	50
T 23	541684	7166721	541736	7166741	5	30	30	30	5
T 24	541834	7166658	541837	7166686	0	60	20	20	0
T 25	541893	7166868	541883	7166863	0	40	40	20	0
T 26	541820	7166968	541819	7166955	0	60	30	10	0
T 27	541656	7166864	541699	7166873	0	30	30	30	10
T 28	541873	7166487	541699	7166873	0	30	30	35	5
T 29	541982	7166324	542005	7166339	0	30	25	40	5
T 30	542155	7166342	542151	7166351	0	40	40	20	0
T 31	542151	7166412	542123	7166445	0	65	25	10	0
T 32	542937	7165759	542983	7165782	0	30	30	30	10
T 33	543068	7165558	543074	7165568	0	30	30	30	10
T 34	543281	7165453	543290	7165482	0	30	40	30	0
T 35	543464	7165455	543422	7165504	0	35	35	30	0
T 36	543462	7165530	543422	7165555	0	30	30	40	0
T 37	543403	7165666	543391	7165655	0	50	50	0	0
T 38	543137	7165940	543128	7165919	0	30	50	20	0
T 39	542570	7165351	542560	7165326	0	10	30	50	10
T 40	542610	7165211	542587	7165186	0	10	20	60	10
T 41	542673	7165094	542658	7165070	10	20	30	30	10
T 42	542536	7165027	542558	7165045	0	15	30	45	10
T 43	542488	7165182	542512	7165190	0	20	40	40	0
T 44	542448	7165414	542470	7165392	0	15	30	45	10
T 44 b	542873	7165226	542954	7165198	0	30	30	30	10
T 45	543005	7165380	543033	7165347	0	25	30	35	10
T 46	543198	7165205	543184	7165185	0	30	40	30	0
T 47	543204	7165062	543181	7165057	0	30	30	40	0
T 48	543031	7164973	543038	7165014	0	30	30	30	10
T 49	542928	7165081	542955	7165088	0	15	30	40	15
T 50	542425	7165593	542407	7165590	0	20	30	40	10
T 51	542320	7165571	542337	7165571	0	10	30	50	10
T 52	542384	7165636	542383	7165611	40	10	20	25	5
T 53	542671	7165850	542695	7165879	0	30	40	25	5
T 54	542685	7166003	542701	7165983	0	30	40	25	5
T 55	542820	7165822	542780	7165859	0	10	35	50	5
T 57	542926	7166351	542944	7166365	0	40	40	20	0
T 58	543029	7166394	542999	7166391	0	40	40	20	0
T 60	543274	7166214	543269	7166180	0	20	30	50	0
T 61	543304	7166079	543285	7166096	0	40	20	40	0

Legend: Br = bedrock, B = boulder, C = cobble, G = gravel

Note: All coordinates are presented in UTM, Zone 12, NAD83

APPENDIX 3.10-3
VIDEO TRANSECTS OF LAKE SUBSTRATE (DVD)

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Video Transects Of Lake Substrate

Transect 1
Transect 2
Transect 3
Transect 4
Transect 5
Transect 6
Transect 7
Transect 8
Transect 9
Transect 10
Transect 11
Transect 12
Transect 13
Transect 14
Transect 15
Transect 16
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Transect 42
Transect 43
Transect 44a
Transect 44b
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Transect 55
Transect 57
Transect 58
Transect 60
Transect 61