



Keeyask Generation Project Aquatic Effects Monitoring Plan

Water Quality Monitoring Report

AEMP-2023-13



KEEYASK GENERATION PROJECT

AQUATIC EFFECTS MONITORING PLAN

REPORT #AEMP-2023-13

RESULTS OF WATER QUALITY MONITORING IN THE NELSON RIVER, 2022: YEAR 1 OPERATION

Prepared for

Manitoba Hydro

By

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SUMMARY

Background

The Keeyask Hydropower Limited Partnership (KHL) was required to prepare a plan to monitor the effects of construction and operation of the Keeyask Generating Station (GS) on the environment. Besides measuring the accuracy of the predictions made and the actual effects of the GS on the environment, monitoring results will provide information on how construction and operation of the GS will affect the environment and if more needs to be done to reduce effects.

Construction of the Keeyask GS began in mid-July 2014 and instream work was completed in 2020. The reservoir was impounded with water levels being raised to full supply level between August 31 and September 5, 2020. Commissioning of the powerhouse turbines was initiated after impoundment. They were brought into service one at a time with the final of seven turbines completed on March 9, 2022.

Water quality is a key part of the monitoring program because it determines whether water is suitable to support aquatic life, including fish. The partner First Nations have expressed concern about changes to water quality on the Nelson River from historical hydroelectric developments, so tracking water quality during the Keeyask Project is important because human activities, including the construction and operation of the GS, can negatively affect it.

This report describes the results of water quality monitoring conducted during the second winter and open-water season after the reservoir was flooded.

Why is the study being done?

Water quality monitoring will show whether impoundment and operation of the Keeyask GS is causing changes to water quality that could harm aquatic life and determine if additional measures are required to reduce these effects.

Monitoring during the time when the Keeyask GS is operational is being done to answer five questions:

- *Does Project operation cause or contribute to changes in water quality to the point that fish and other aquatic life may be harmed?*
- *How large are the changes to water quality and how far do these changes extend?*
- *Are changes in water quality consistent with predictions?*
- *Are there seasonal differences in changes to water quality?*
- *How does water quality change over time?*

The EIS states predictions about changes to water quality caused by the Project, which were based on what has occurred in other places, such as after construction of the Kettle Generating

Station, which flooded what is now Stephens Lake. It is predicted the greatest changes to water quality will take place in the first few years after flooding because of the amount of flooded vegetation within the reservoir. Changes are expected to be greatest in the flooded backbays where there is a large amount of flooded vegetation, and the water doesn't mix with the rest of the reservoir for long periods of time. The changes to water quality are further influenced during the winter because ice cover prevents mixing of water with the main flow of the river and with the atmosphere.

Some predicted changes in water quality that may occur in the first years after impoundment include:

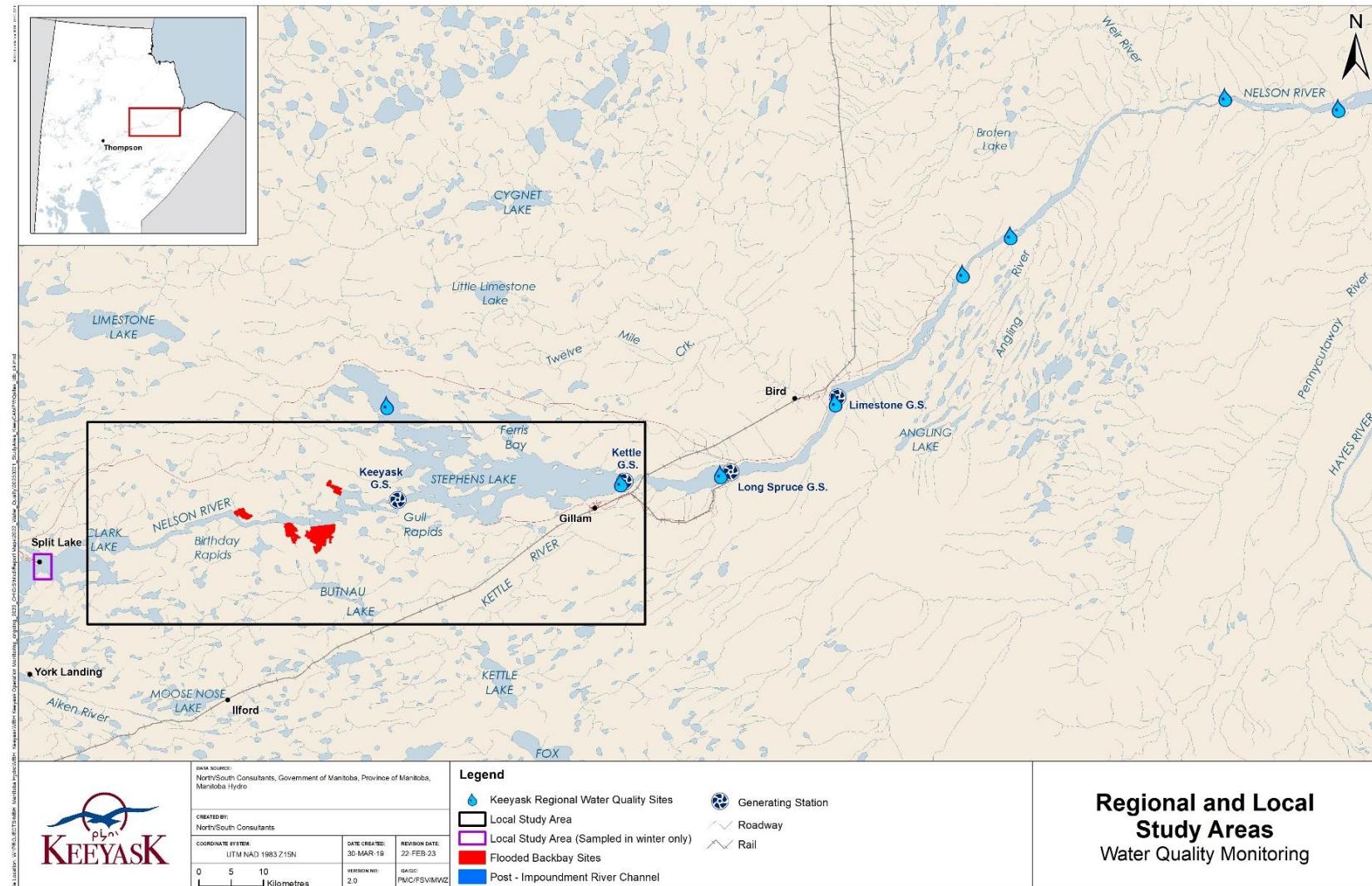
- Increases in nutrients, which can lead to increased plant growth and algal blooms;
- Decreases in water clarity and darker colour, which can impact the amount of light that allows plant growth, and the ability of predators to see their prey;
- Increases in suspended solids in the water, which can directly impact fish and aquatic bugs;
- Increases in metals, some of which can be toxic to aquatic life;
- Decreases in pH, which makes the water more acidic; and
- Decreases in the amount of dissolved oxygen, which is essential for aquatic life but is used up by decomposing vegetation.

What was done?

Water quality monitoring was conducted in Clark Lake (Split Lake in the winter), upstream of the effects of flooding; in the Keeyask reservoir; and at two sites in the southern portion of Stephens Lake, where most of the flow of water from upstream passes through, to see if the water quality has changed because of the Project. This area is known as the “local study area”. Water quality was also measured in four, newly flooded backbays within the Keeyask reservoir, where changes in water quality are anticipated to be the greatest. Monitoring was also conducted in the “regional study area”, which includes sites in the northern portion of Stephens Lake; in the forebays of Kettle, Long Spruce and Limestone generating stations; and farther downstream (as far as the Nelson River estuary) to confirm that changes to water quality caused by the Project did not occur farther downstream than predicted. Monitoring was carried out once in the ice-cover period (late March) and four times in the open-water period (late June, July, August, and September/October).

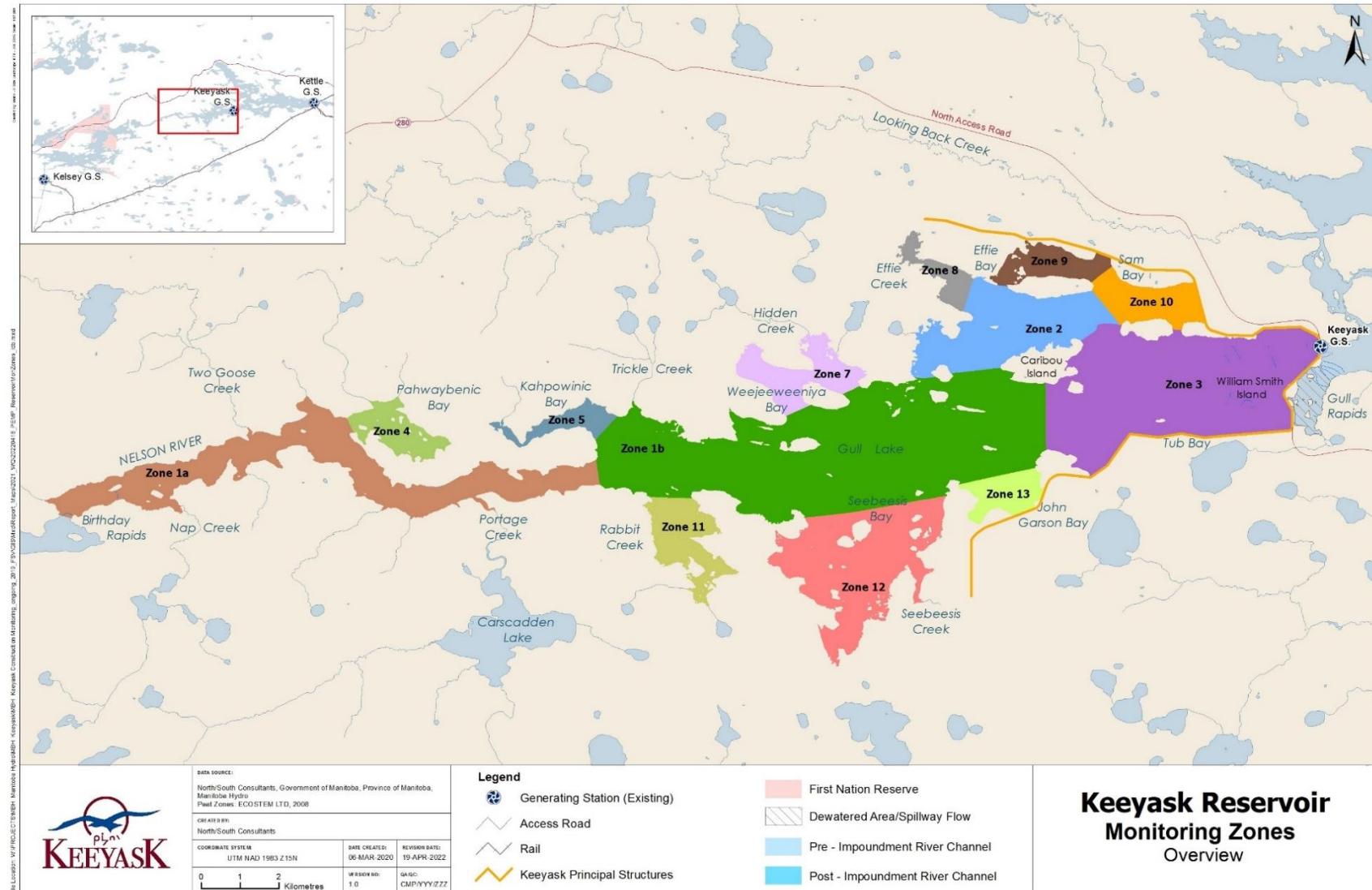
Samples were collected to measure many substances in the water, including:

- total suspended solids and turbidity (the “muddiness” of water);
- pH;
- oxygen;
- nutrients (compounds that may increase the amount of algae present);
- chlorophyll a (representing the amount of algae); and



Map showing water quality monitoring areas within the local study area, regional study area, and reservoir backbays during 2022.





Overview of water quality monitoring areas in the Keeyask reservoir backbays. A subset (zones 4, 8, 11, and 12) were sampled for water quality in 2022.

- metals and major ions (some of which are essential to aquatic life, but others may be harmful to aquatic life).



Kemmerer water sampler (left) used to collect water at specific depths for laboratory analysis and water quality meter (right) used to measure on-site parameters (such as pH, dissolved oxygen, and temperature).

What was found?

As was predicted in the EIS, changes in water quality parameters were observed and were generally greater in the flooded backbays than in the mainstem of the Keeyask reservoir. There was very little change in the water quality upstream or downstream from the Keeyask reservoir. Major findings are:

- The concentration of total phosphorus (TP), which is a nutrient that can contribute to algal blooms, was high in the reservoir backbays during sampling in March, July, and August.
- Chlorophyll a concentrations, which are a measure of the amount of algae present, were high in the flooded backbays during most sampling periods, which may be related to increases in TP.
- Dissolved oxygen (DO) levels were consistently low in the parts of the reservoir backbays located farthest away from the main river channel (*i.e.*, at the back of the bays closest to shore over flooded areas) during most sampling periods. The lowest oxygen levels were observed at the bottom where flooded vegetation uses it up as it decomposes. Low DO was seen at the largest number of sites in August 2022 but by October, all sites in each backbay displayed high DO levels throughout the entire water column.
- High levels of methylmercury were observed at one individual site during open-water and three individual sites during ice-cover sampling in the flooded backbays. These sites were located farthest within the backbays, over flooded areas and away from the main current. Generally, flooding causes the naturally existing mercury in vegetation and soils to change

form, resulting in greater concentrations of the more toxic methylmercury, which was predicted in the EIS. Most sites did not show high methylmercury concentrations.

- High levels of mercury were observed in a single bottom sample collected in the north arm of Stephens Lake in 2022. This result is considered suspect and not Project-related because results from the surface sample collected at the same site were not high, the sample had to be diluted during analysis, potentially contaminating the sample and/or increasing error, and high mercury levels were not seen during any other sampling period at any other location.
- Concentrations of iron, dissolved organic carbon, and true colour were high in the winter in two of the flooded backbays. These sites also showed low concentrations of oxygen. This was predicted in the EIS as these parameters often increase when peatlands are flooded.
- A high concentration of cadmium was observed at one individual backbay site in August. However, no nearby sites during this sampling period had elevated concentrations and cadmium was not elevated at this site during any other sampling period. This result is believed to be caused by issues during sampling or analysis and is not considered Project-related.
- A high concentration of copper was observed at the bottom sample collected in the north arm of Stephens Lake in August, which was the same site and same month that high copper concentrations were observed in 2021. This is likely attributed to the geology in the area, and it is not suspected that this is related to the Project.

What does it mean?

As predicted in the EIS, effects to water quality appear to be greatest in the reservoir backbays and in the winter under the ice, where water does not mix well with the main part of the river and the ice layer prevents introduction of oxygen from the atmosphere. Water quality changes in these areas include low dissolved oxygen, high nutrients, more algae, and a darker colour. Although high levels of methylmercury were observed at three sites sampled in winter and one site sampled in open-water, most sites did not show high levels of methylmercury. The changes to water quality were greatest in Zone 8 and Zone 12 in the winter, where oxygen was very low at sites closest to shore.

What will be done next?

Water quality monitoring will continue at the same locations in 2023 in March/April, June, July, August, and September.

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TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
2.0	STUDY SETTING	5
3.0	METHODS.....	7
3.1	STUDY DESIGN.....	7
3.2	SAMPLING SITES.....	7
3.2.1	Reservoir Backbays	7
3.2.2	Local Study Area.....	10
3.2.3	Regional Study Area.....	17
3.3	SAMPLING METHODS.....	19
3.3.1	<i>In Situ</i> Measurements	20
3.3.2	Sampling for Laboratory Analyses	20
3.4	QUALITY ASSURANCE/QUALITY CONTROL.....	21
3.4.1	General QA/QC	21
3.4.2	Triplicate Samples	21
3.4.3	Field Blanks	21
3.4.4	Trip Blanks.....	22
3.4.5	Water Quality Meter QA/QC.....	22
3.5	DATA ANALYSIS.....	22
4.0	RESULTS.....	24
4.1	KEEYASK RESERVOIR AND BACKBAYS.....	24
4.1.1	Key Indicators	24
4.1.1.1	Nutrients.....	24
4.1.1.2	Chlorophyll a	24
4.1.1.3	Total Suspended Solids	25
4.1.1.4	Dissolved Oxygen	25
4.1.1.5	pH	36
4.1.1.6	Metals	36

4.1.2	Additional Parameters.....	37
4.2	LOCAL AND REGIONAL STUDY AREAS.....	37
4.2.1	Key Indicators	37
4.2.1.1	Nutrients.....	37
4.2.1.2	Chlorophyll a.....	38
4.2.1.3	Total Suspended Solids	38
4.2.1.4	Dissolved Oxygen	38
4.2.1.5	pH	38
4.2.1.6	Metals	38
4.2.2	Additional Parameters.....	39
5.0	DISCUSSION	40
5.1	RESERVOIR BACKBAYS	40
5.2	LOCAL AND REGIONAL STUDY AREAS.....	42
6.0	SUMMARY AND CONCLUSIONS.....	43
7.0	LITERATURE CITED.....	45

LIST OF TABLES

Table 1:	Coordinates of water quality monitoring sites sampled in the Keeyask reservoir mainstem (Zone 1b) and backbays (zones 4, 8, 11, and 12) in 2022.....	9
Table 2:	Coordinates of water quality monitoring sites sampled in the local study area in 2022.....	17
Table 3:	Coordinates of water quality monitoring sites sampled in the regional study area in 2022.....	19

LIST OF FIGURES

Figure 1:	Water quality assessment management framework (AMF)	4
Figure 2:	Water depths of <i>in situ</i> dissolved oxygen measurements taken in the Keeyask reservoir mainstem (Zone 1b) during winter (March) and open-water (June, July, August, and October), 2022.	26
Figure 3:	Water depths of <i>in situ</i> dissolved oxygen measurements taken in the Keeyask reservoir backbay Zone 4 during winter (March) and open-water (June, July, August, and October), 2022.	27
Figure 4:	Water depths of <i>in situ</i> dissolved oxygen measurements taken in the Keeyask reservoir backbay Zone 8 during winter (March) and open-water (June, July, August, and October), 2022.	28
Figure 5:	Water depths of <i>in situ</i> dissolved oxygen measurements taken in the Keeyask reservoir backbay Zone 11 during winter (March) and open-water (June, July, August, and October), 2022.	29
Figure 6:	Water depths of <i>in situ</i> dissolved oxygen measurements taken in the Keeyask reservoir backbay Zone 12 during winter (March) and open-water (June, July, August, and October), 2022.	30

LIST OF MAPS

Map 1:	Map of the Nelson River showing water quality monitoring areas, 2022.....	3
Map 2:	Overview of water quality monitoring areas in the Keeyask reservoir backbays.	8
Map 3:	Overview of water quality monitoring areas in the Keeyask local study area during 2022.....	11
Map 4:	Water quality sampling locations in Split Lake sampled as part of the local study area during winter 2022.	12
Map 5:	Water quality sampling locations in Clark Lake sampled as part of the local study area during open-water 2022.....	13
Map 6:	Water quality sampling locations in the Nelson River upstream of the Keeyask GS sampled as part of the local study area during 2022.....	14
Map 7:	Water quality sampling locations in the near-field sampling area of Stephens Lake sampled as part of the local study area during 2022.....	15
Map 8:	Water quality sampling locations in the far-field sampling area of Stephens Lake sampled as part of the local study area during 2022.....	16
Map 9:	Water quality sampling locations monitored in the regional study area in 2022.....	18
Map 10:	Locations sampled in the Keeyask reservoir mainstem and backbays showing the results of dissolved oxygen monitoring, March 2022.	31
Map 11:	Locations sampled in the Keeyask reservoir mainstem and backbays showing the results of dissolved oxygen monitoring, June 2022.	32
Map 12:	Locations sampled in the Keeyask reservoir mainstem and backbays showing the results of dissolved oxygen monitoring, July 2022.....	33
Map 13:	Locations sampled in the Keeyask reservoir mainstem and backbays showing the results of dissolved oxygen monitoring, August 2022.	34
Map 14:	Locations sampled in the Keeyask reservoir mainstem and backbays showing the results of dissolved oxygen monitoring, October 2022.....	35

LIST OF APPENDICES

Appendix 1:	Tables of water quality parameters measured in the Keeyask reservoir backbays, the Local Study Area, and the Regional Study Area, 2022	47
Appendix 2:	Figures of water quality parameters measured in the Keeyask reservoir backbays, 2022.....	71
Appendix 3:	Figures of water quality parameters measured in the Keeyask Local and Regional Study Areas, 2022	96
Appendix 4:	Detailed results of water quality monitoring, 2022	153
Appendix 5:	Results of quality assurance/quality control samples, 2022.....	280

1.0 INTRODUCTION

The Keeyask Generation Project (the Project) is a 695-megawatt (MW) hydroelectric generating station on the lower Nelson River in northern Manitoba. The GS is approximately 725 kilometres (km) northeast of Winnipeg, 35 km upstream of the existing Kettle Generating Station, 60 km east of the community of Split Lake, 180 km east-northeast of Thompson, and 30 km west of Gillam. Construction of the GS began in July 2014 and the seven generating units were all in-service in March 2022.

The *Keeyask Generation Project: Response to EIS Guidelines*, completed in June 2012, provides a summary of predicted effects and planned mitigation for the Project. Technical supporting information for the aquatic environment, including a description of the environmental setting, effects and mitigation, and a summary of proposed monitoring and follow-up programs is provided in the *Keeyask Generation Project Environmental Impact Statement: Aquatic Environment Supporting Volume* (AE SV). As part of the licensing process for the Project, an Aquatic Effects Monitoring Plan (AEMP) was developed detailing the monitoring activities of various components of the aquatic environment, including the focus of this report, water quality, for the operation phase of the Project.

During the construction phase, the primary effect of the Project on water quality was predicted to be related to increases in total suspended solids (TSS), notably in relation to river management and cofferdam placement/removal. The primary mechanism for ongoing monitoring of the effects of Project activities on TSS/turbidity in the Nelson River is the *Keeyask Generation Project Physical Environment Monitoring Plan* (PEMP), which includes monitoring of TSS and turbidity in the Nelson River. TSS data collected under the PEMP are reported in the annual reports associated with those plans. Other pathways of effect (*i.e.*, discharge of point sources) were expected to result in highly localized and negligible to small effects on water quality, including TSS (*e.g.*, discharge of concrete batch plant effluent). The water quality monitoring program implemented during construction was intended to monitor effects on a broader array of water quality parameters in addition to TSS.

Impoundment of the Keeyask reservoir was completed on September 5, 2020, with the final powerhouse turbine brought online on March 9, 2022. Key questions that will be addressed through water quality monitoring during operation are:

- *Does Project operation cause or contribute to exceedances of water quality objectives or guidelines for the protection of aquatic life?*
- *What are the magnitude and spatial extent of effects of operation on water quality?*
- *Are changes in water quality consistent with predictions in the EIS?*
- *Are there seasonal differences in effects on water quality?*
- *How does water quality vary over time?*

The study area for the water quality component of the AEMP during 2022 was composed of: i) the local study area (LSA), which included Split Lake (ice-cover season) or Clark Lake (open-water season)¹, the reach of the Nelson River upstream of the Keeyask GS, and the southern area of Stephens Lake; ii) the regional study area (RSA) which included the lower Nelson River downstream of Stephens Lake; and iii) select flooded backbays within the Keeyask reservoir (Map 1).

The AEMP identified key indicators and benchmarks for the water quality monitoring program to focus the program and provide an adaptive management framework (AMF). Key indicators were identified as those most likely to be affected by the Project, for which there is the greatest risk for direct effects on aquatic life, and for which there are objectives or guidelines for the protection of aquatic life (PAL). Benchmarks were identified based on baseline water quality conditions, Manitoba Water Quality Standards, Objectives, and Guidelines (MWQSOGs) for PAL (MWS 2011), and the Canadian Council of Ministers of the Environment (CCME) phosphorus guidance framework for freshwater systems (CCME 1999; updated to 2014²). Monitoring was also designed to include measurement of additional parameters for which no benchmarks were developed.

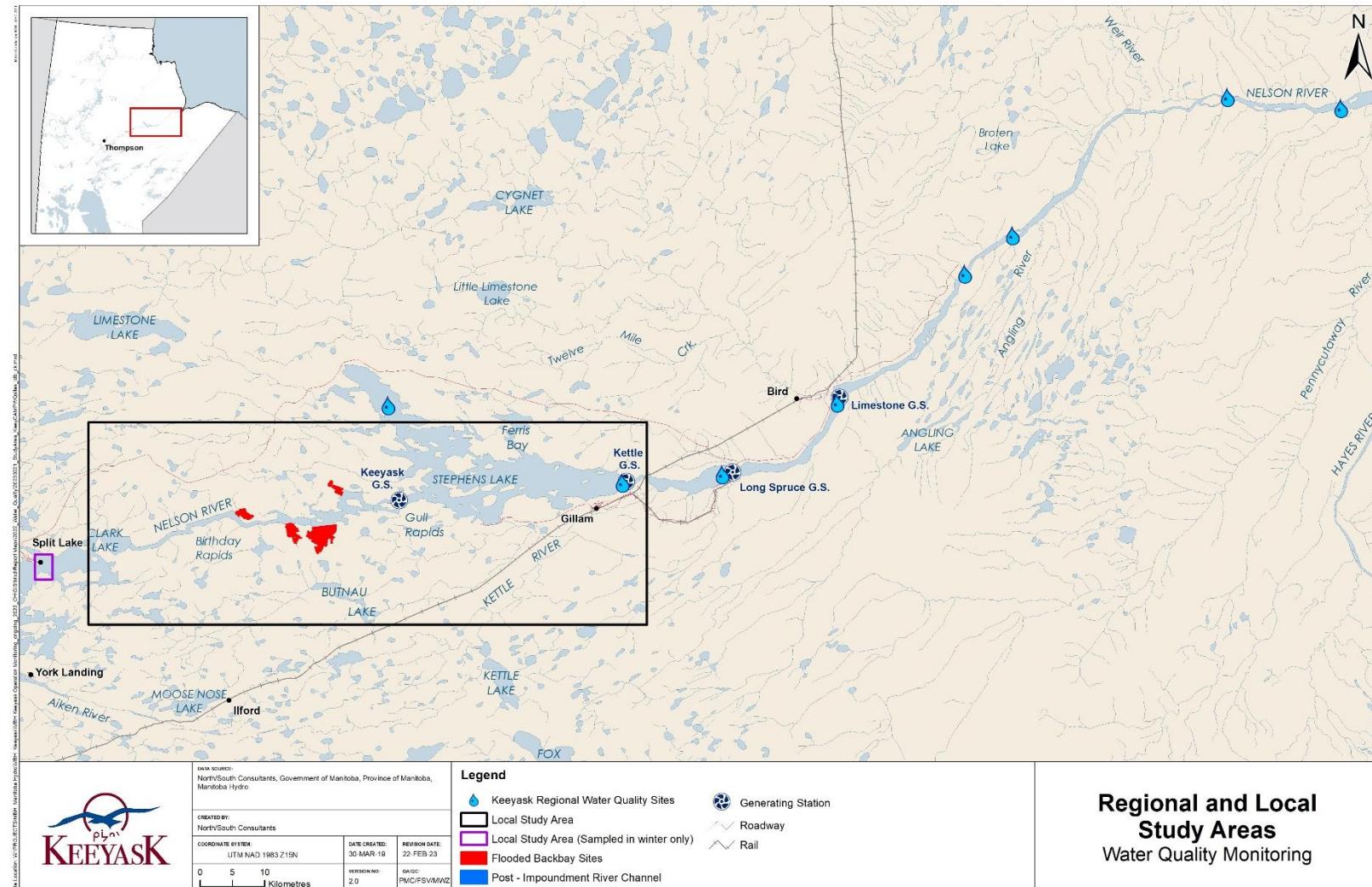
The water quality monitoring program was designed to facilitate comparisons of water quality spatially (*i.e.*, upstream versus downstream of construction activities) to delineate Project-related effects. Specifically, the program was designed to facilitate statistical comparisons of water quality in an upstream reference area to water quality monitored downstream of construction activities. The reference area is an area located upstream of Project activities in the lower Nelson River. The Nelson River upstream of the Keeyask GS (previously Gull Rapids) served as the reference during years 1 and 2 of the program; however, sites further upstream (*i.e.*, Clark Lake/Split Lake) were added after high water levels in 2014 caused backwater effects within the Nelson River upstream of the Keeyask GS.

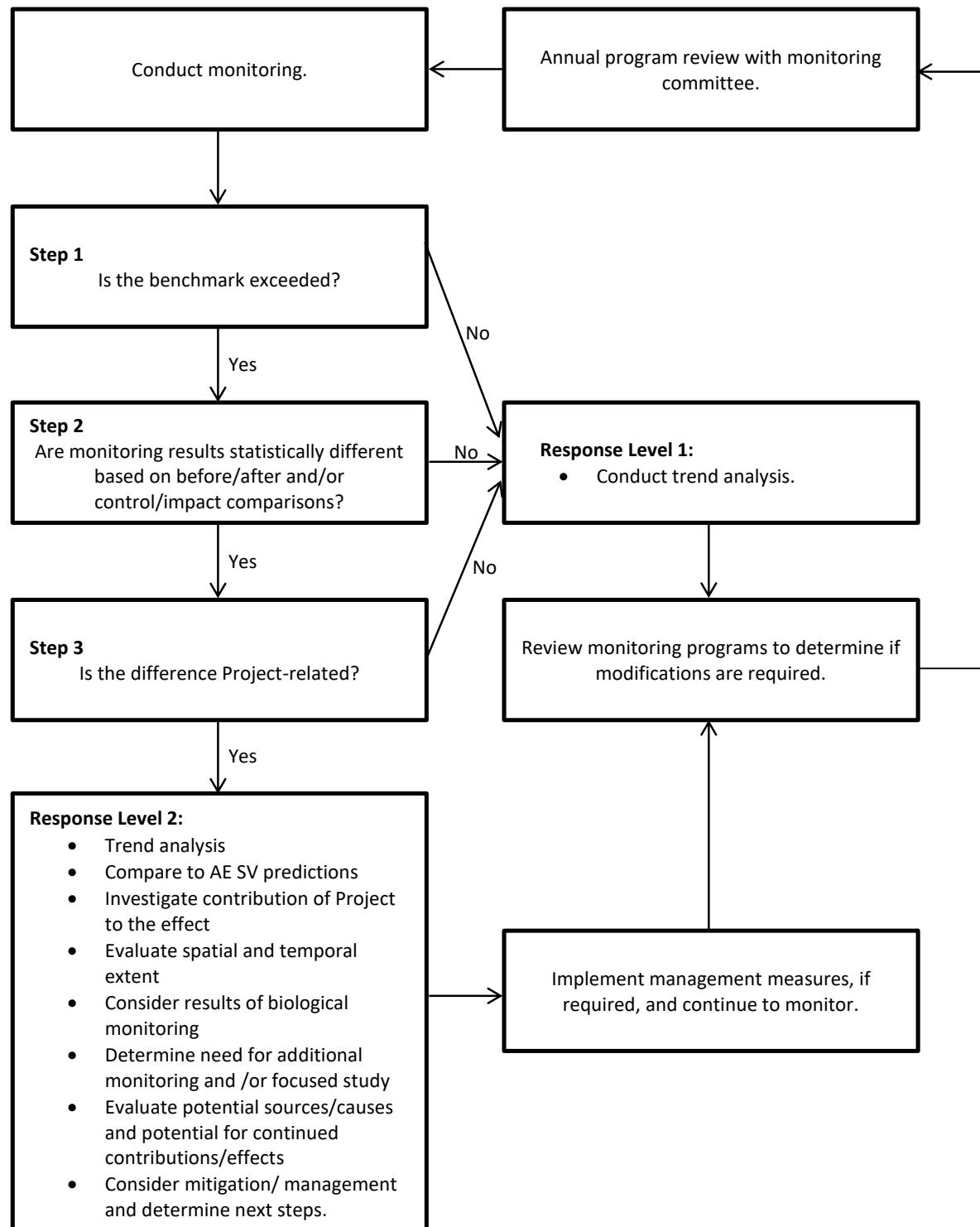
An AMF was developed for the water quality monitoring program, as presented in the AEMP. In brief, the framework entails initially comparing monitoring results to pre-established benchmarks (Step 1). If a benchmark is not exceeded, the assessment proceeds to Response Level 1 – trend analysis. If a benchmark is exceeded, the assessment proceeds to Step 2 – determination of whether there is a statistical difference between upstream and downstream areas (*i.e.*, control-impact). If a statistical difference is not observed, the assessment proceeds to Response Level 1. Where statistical differences are identified for key indicators, the assessment proceeds to Step 3, in which a determination of cause (*i.e.*, is the difference Project-related) would be undertaken (Figure 1).

The following report presents the results of water quality monitoring completed in 2022 during the first full year of operation of the Keeyask GS. Results are assessed using the adaptive management framework as summarized above and detailed in the AEMP.

¹ Clark Lake is the preferred reference area but does not become ice-covered in winter so Split Lake was included as the alternate winter sampling location.

² All guidelines were those current at that time of AEMP development.



**Figure 1:** Water quality assessment management framework (AMF).

2.0 STUDY SETTING

The study area encompasses an approximately 110 km long reach of the Nelson River from Clark Lake to the upstream end of the Limestone Reservoir (Map 1). This section of river offers a diversity of physical habitat conditions, including a variety of substrate types, and variable water depths (range: 0–30 m) and velocities. Clark Lake is located immediately downstream of Split Lake, and approximately 42 km upstream of the Keeyask GS. Current is restricted to the main section of the lake, with off-current bays outside the main channel. The Assean River is the only major tributary to Clark Lake and flows into the north side. Downstream from the outlet of Clark Lake, the Nelson River narrows and water velocity increases for a 3 km stretch, known as Long Rapids. For the next 7 km, the river widens, and water velocity decreases. The area between Clark Lake and Birthday Rapids is referred to herein as the upper Keeyask reservoir.

Birthday Rapids is located approximately 10 km downstream of Clark Lake and 30 km upstream of the Keeyask GS and marks the upstream end of major water level changes because of impoundment by the Keeyask GS. The drop in elevation from the upstream to downstream side of Birthday Rapids was approximately 2 m prior to impoundment but is now nearly level, albeit a fast-flowing section of river. The 14 km reach of the Nelson River between Birthday Rapids and Gull Lake was characterized as a large and somewhat uniform channel with medium to high water velocities and a few large bays. This area is now within the Keeyask reservoir, though flooding was limited to mainly shoreline areas, and is referred to herein as the middle Keeyask reservoir.

Prior to impoundment, Gull Lake was a widening of the Nelson River, with moderate to low water velocity beginning approximately 20 km upstream the Keeyask GS. Water levels on Gull Lake increased by several metres following impoundment and flooding along the shoreline and small tributaries entering this reach was extensive. Although this area is larger than prior to impoundment, the portion of the Keeyask reservoir is referred to herein as Gull Lake.

Just below the Keeyask GS, the Nelson River enters Stephens Lake. Stephens Lake was formed in 1971 by construction of the Kettle GS. Construction of the Keeyask GS has altered the flow distribution immediately downstream of the station.

Construction of the Kettle GS flooded Moose Nose Lake (north arm) and several other small lakes that previously drained into the Nelson River, as well as the old channels of the Nelson River that now lie within the southern portion of the lake. Major tributaries of Stephens Lake include the North and South Moswakot rivers that enter the north arm of the lake. Looking Back Creek is a second order stream that drains into the north arm of Stephens Lake. Kettle GS is located approximately 40 km downstream of the Keeyask GS.

The Long Spruce reservoir was formed in 1979 by the construction of the Long Spruce GS. It is a 16 km reach of the Nelson River extending from Long Spruce GS upstream to Kettle GS (Manitoba Hydro Public Affairs 1999). Kettle River and Boots Creek are the only major tributaries flowing into Long Spruce reservoir, with both tributaries entering the reservoir on the south shore.

The Limestone reservoir was formed in 1990 by the construction of the Limestone GS. It is a 23 km reach of the Nelson River extending from Limestone GS upstream to Long Spruce GS. Four tributaries of the Nelson River enter the reservoir; Wilson Creek and Brooks Creek enter from the south, and Sky Pilot Creek and Leslie Creek enter from the north. Aquatic habitat within the reservoir ranges from a riverine environment in the upper reach, to more lacustrine conditions just upstream of the Limestone GS.

3.0 METHODS

3.1 STUDY DESIGN

The monitoring program is designed to facilitate comparisons of water quality spatially (*i.e.*, areas within and outside of the hydraulic zone of influence of the Keeyask GS) to delineate Project-related effects. Specifically, the program is designed to facilitate statistical comparisons of water quality in an upstream reference area to water quality monitored upstream and downstream of the GS (*i.e.*, areas that are predicted to be most affected by the Project); this area is defined as the local study area (LSA). Sampling in the LSA includes monitoring at replicate sites upstream and downstream of the Keeyask GS and is to be conducted annually during the operation period. The objective of monitoring during the operation period is to determine if the Project caused or contributed to exceedances of benchmarks and to confirm predictions in the EIS.

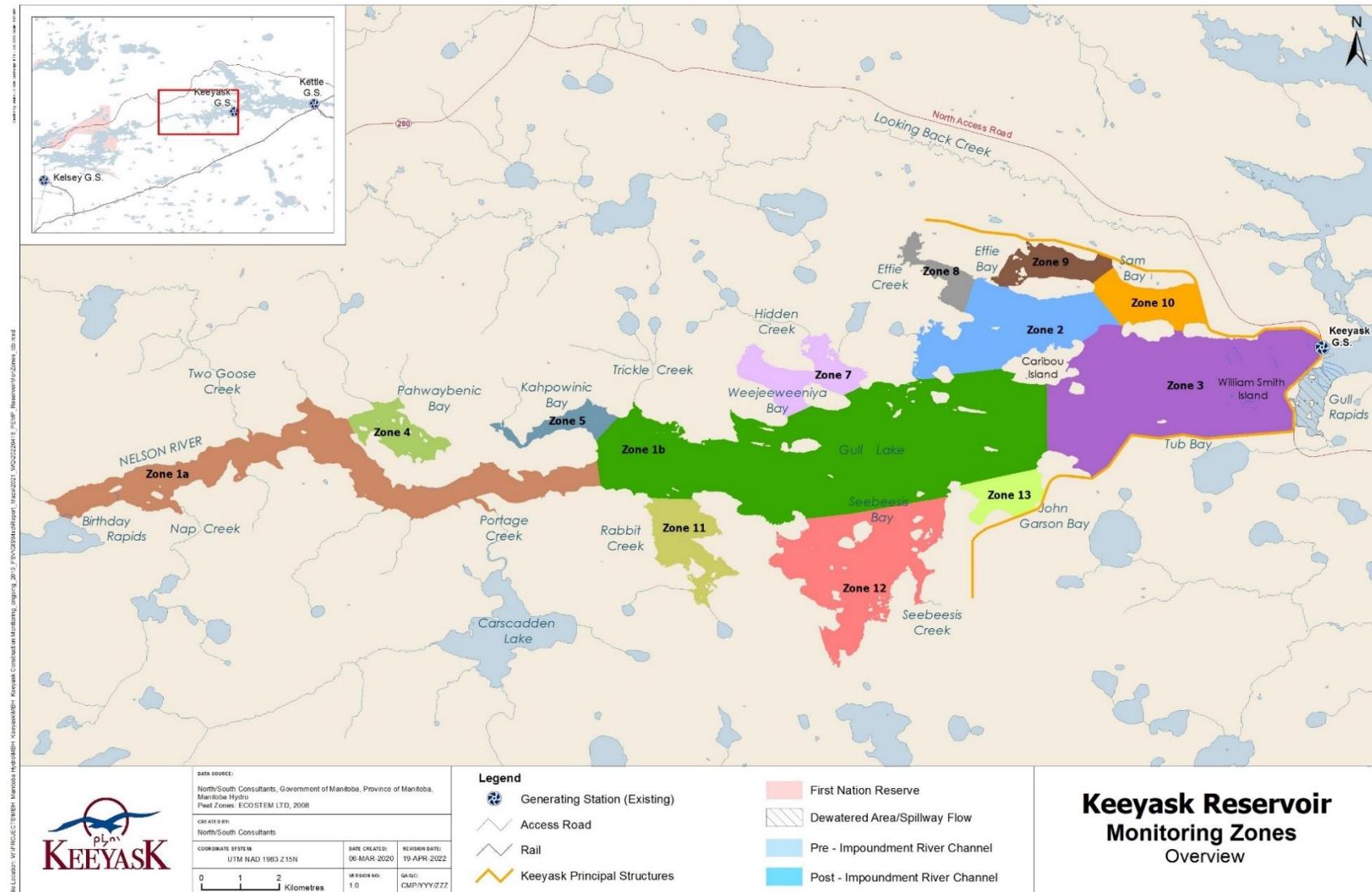
The AEMP also indicates that water quality will be periodically monitored at single stations downstream of the Keeyask GS from Stephens Lake to the Nelson River estuary (*i.e.*, in the regional study area, or RSA) in the years immediately following GS impoundment. Sampling was conducted within the RSA during all five sampling periods in 2022.

The EIS predicted that impacts to water quality would be greatest in flooded, isolated backbays in the Keeyask reservoir, with small changes expected along the main flow of the Nelson River. Therefore, in 2022, monitoring was conducted within a subset of flooded reservoir backbays for a second consecutive year. Zones 4, 8, 11, and 12 were sampled and parameters were compared to those collected in the reservoir mainstem (Zone 1b) (Map 2).

3.2 SAMPLING SITES

3.2.1 RESERVOIR BACKBAYS

The AEMP identified flooded backbays in the reservoir as areas where effects of the Project on water quality were predicted to be greatest, with most effects occurring during the initial years following impoundment. Four backbays (including zones 4, 8, 11, and 12) and a single site in the centre of the reservoir (Zone 1b) were sampled. The number of sites sampled within each backbay varied by study period, with fewer samples being taken during ice-cover than open-water. Sites extended from as far within the bay as a boat could travel, to near the confluence with the mainstem. UTM coordinates for the backbay sites are provided in Table 1.



Map 2: Overview of water quality monitoring areas in the Keeyask reservoir backbays. A subset (zones 1, 4, 8, 11, and 12) were sampled for water quality in 2022, as outlined in the AEMP.

Table 1: Coordinates of water quality monitoring sites sampled in the Keeyask reservoir mainstem (Zone 1b) and backbays (zones 4, 8, 11, and 12) in 2022.

Region	Site ID	Zone	Easting	Northing
Zone 1b	Z1-5	15V	353273	6244387
	Z1-6	15V	353359	6245611
	Z1-7	15V	353406	6244195
	Z1-8	15V	353315	6245383
	Z1-9	15V	353293	6244899
Zone 4	Z4-1	15V	340451	6244590
	Z4-2	15V	339747	6245037
	Z4-3	15V	339305	6245367
	Z4-4	15V	338677	6245153
	Z4-5	15V	340985	6244666
	Z4-6	15V	340057	6244735
	Z4-7	15V	339908	6245705
Zone 8	Z8-1	15V	354480	6248724
	Z8-2	15V	353778	6249357
	Z8-4	15V	354998	6248539
	Z8-5	15V	354177	6249171
	Z8-6	15V	354332	6248487
	Z8-7	15V	354588	6248732
	Z8-8	15V	354784	6248900
Zone 11	Z11-1	15V	347579	6241954
	Z11-2	15V	348186	6241634
	Z11-3	15V	346954	6241918
	Z11-4	15V	347234	6242442
	Z11-5	15V	347991	6242692
	Z11-6	15V	347442	6243330
	Z11-8	15V	347419	6242898
	Z11-9	15V	346798	6243077
	Z11-10	15V	348038	6241386
	Z11-11	15V	347969	6241702
	Z12-1	15V	352376	6241178
Zone 12	Z12-2	15V	353167	6241673
	Z12-3	15V	351470	6241004
	Z12-6	15V	352708	6242691
	Z12-7	15V	351194	6239541
	Z12-8	15V	351550	6239845
	Z12-9	15V	351914	6240706
	Z12-10	15V	349960	6241686
	Z12-11	15V	350682	6241825
	Z12-12	15V	351599	6241809
	Z12-13	15V	352485	6241890
	Z12-14	15V	353539	6241439
	Z12-15	15V	350834	6242517
	Z12-16	15V	351265	6242354
	Z12-17	15V	352967	6242259

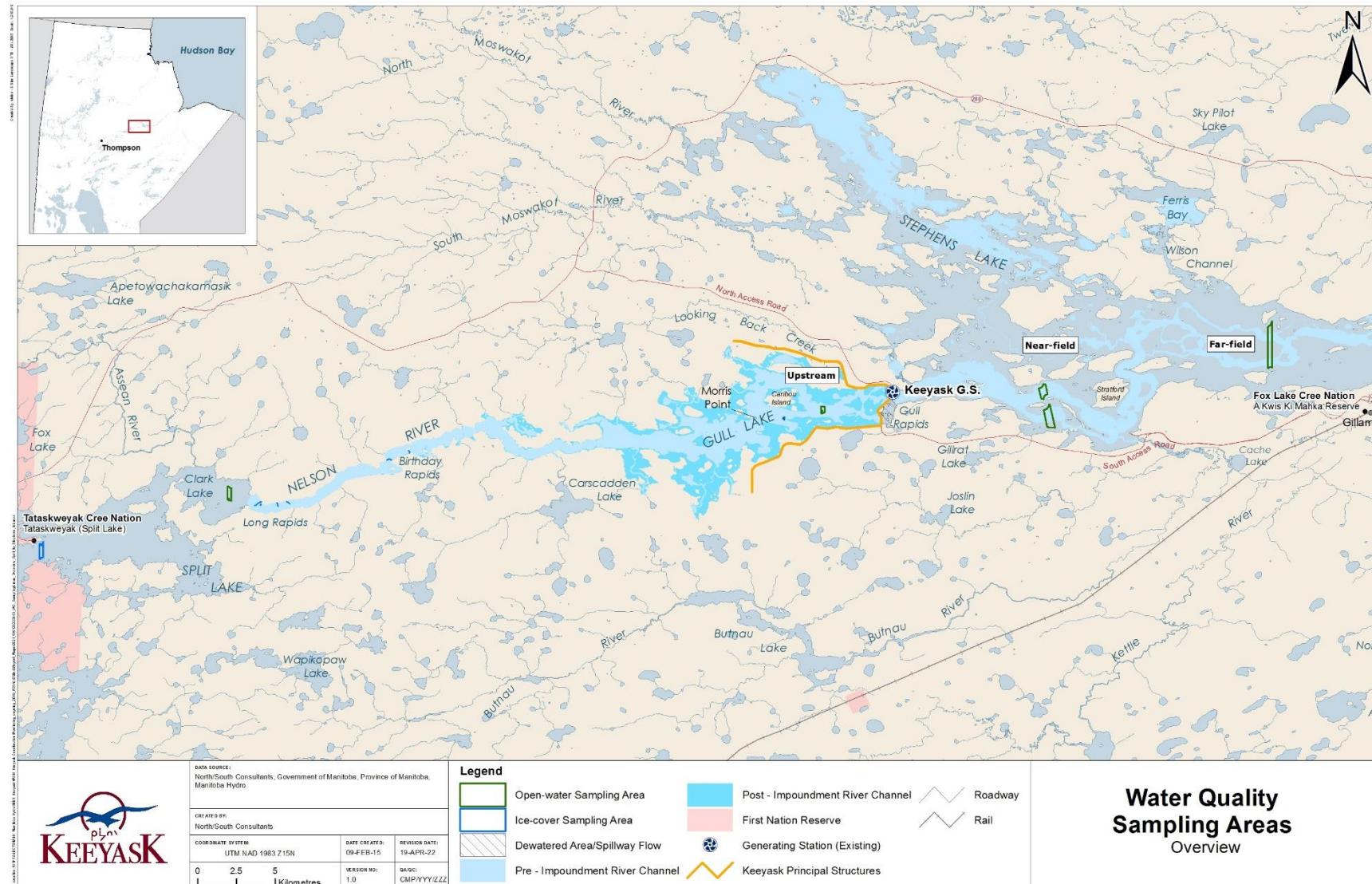
3.2.2 LOCAL STUDY AREA

The water quality monitoring program incorporated sites upstream and downstream of the Keeyask GS within the LSA (Map 3) as follows:

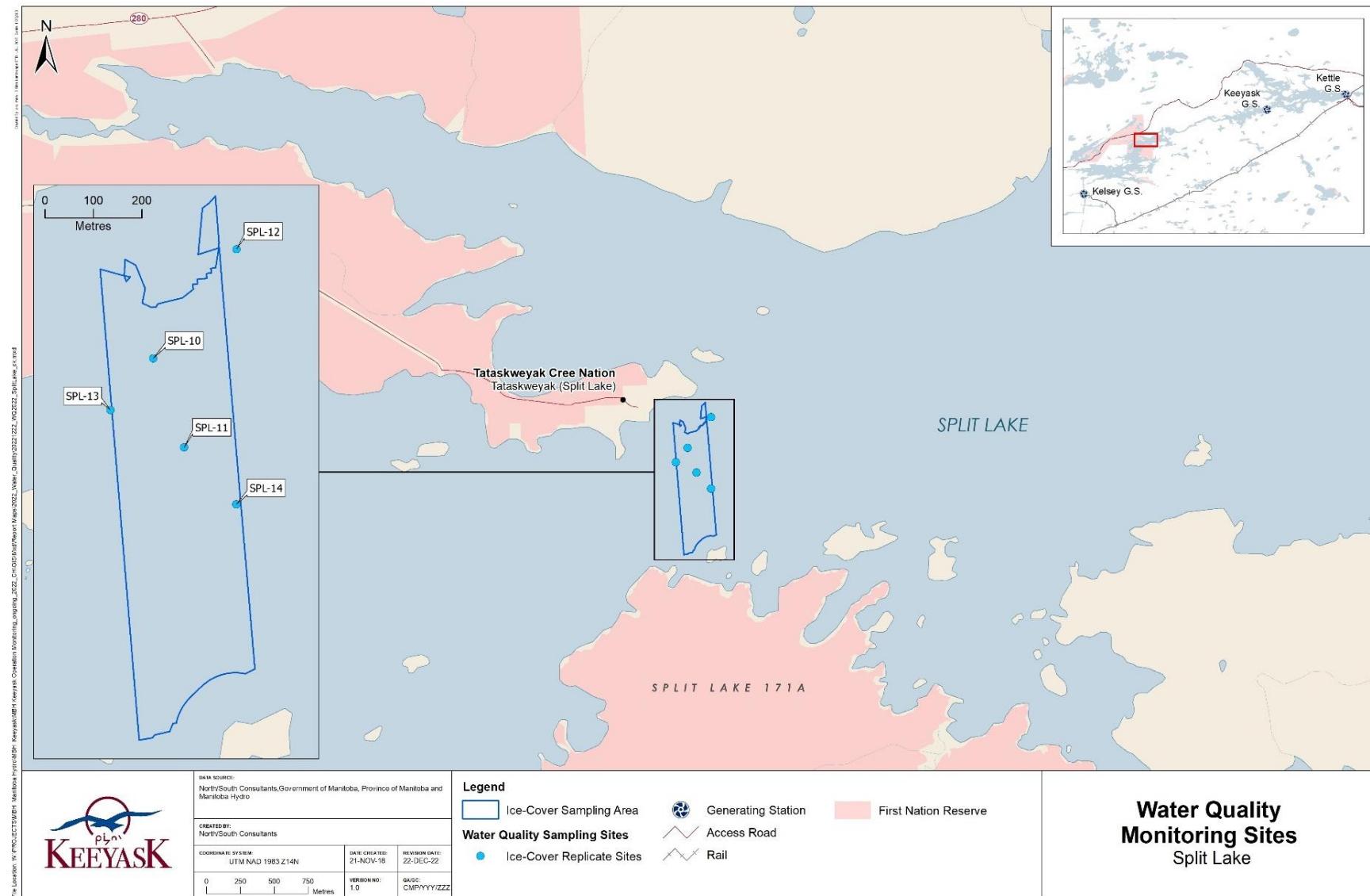
- Split Lake/Clark Lake (Maps 4 and 5): Split and Clark lakes are situated upstream of the hydraulic zone of influence and are not affected by water level increases related to the Project. Clark Lake is the preferred reference area but does not become ice-covered in winter so Split Lake was included as the alternate, winter sampling location;
- Nelson River Upstream Area (Map 6): the Nelson River upstream of the Keeyask GS;
- Near-Field Area (Map 7): this area is located approximately 9 km downstream of all construction activities in Stephens Lake; and
- Far-Field Area (Map 8): this area is located approximately 25 km downstream of all construction activities in Stephens Lake.

Five replicate sites were sampled in each of the sampling areas (*i.e.*, sampling polygons) during the open-water and ice-cover seasons (Maps 4–8). During the ice-cover season, sites were relocated to areas with sufficient ice formation to facilitate safe access. As the final open-water sampling period for the 2022 LSA program was conducted late in the season and poor weather was imminent, the far-field area of Stephens Lake was not sampled in September/October. Universal Transverse Mercator (UTM) coordinates for the water quality sites are provided in Table 2.

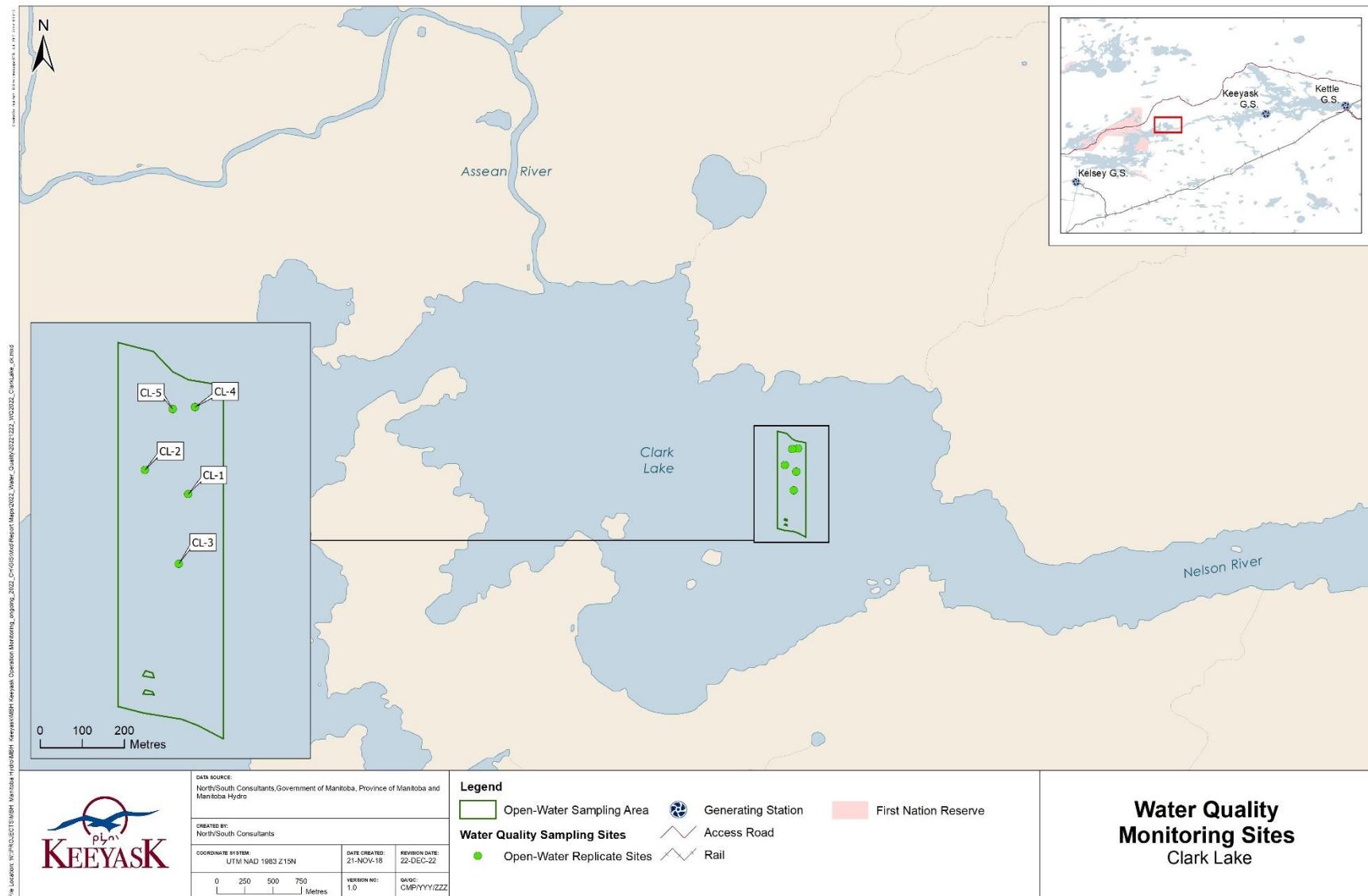
The locations of the sampling sites were defined differently for the upstream areas (*i.e.*, Nelson River upstream of the Keeyask GS and Split and Clark lakes) and the downstream near-field and far-field areas of Stephens Lake. As there are detailed bathymetry data for the areas upstream of the Keeyask GS up to and including Split Lake, the polygon boundary was defined based on open-water depths (> 5 m in depth at the 50th percentile water level), distance from shore (*i.e.*, > 100 m from shore), and length (*i.e.*, 250 m in length). Due to a lack of detailed bathymetry for the two downstream sampling areas in Stephens Lake, these polygons were defined based on distance from shorelines. Specifically, the polygons were located 250 m from shorelines (including islands) and were 250 m in length. These boundaries were identified to ensure sites were in relatively deep areas even under low water levels and to avoid nearshore areas where localized differences in water quality may occur (*e.g.*, localized shoreline erosion), while also being sufficiently large to accommodate five sampling sites with sufficient separation (*i.e.*, minimum of 20 m separation between sites). The same polygons have been used since 2014 to facilitate pre- and post-Project comparison.



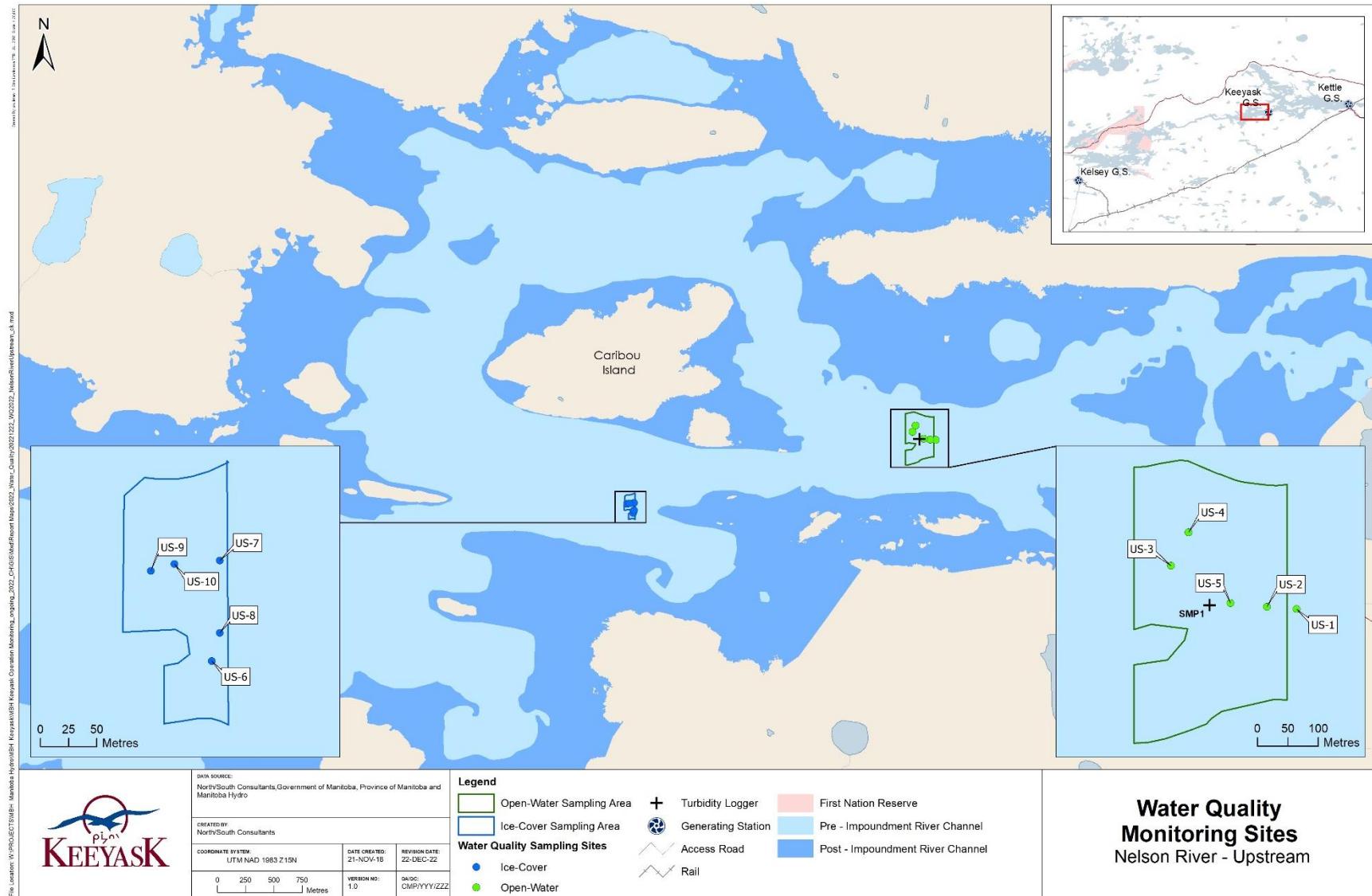
Map 3: Overview of water quality monitoring areas in the Keeyask local study area during 2022.



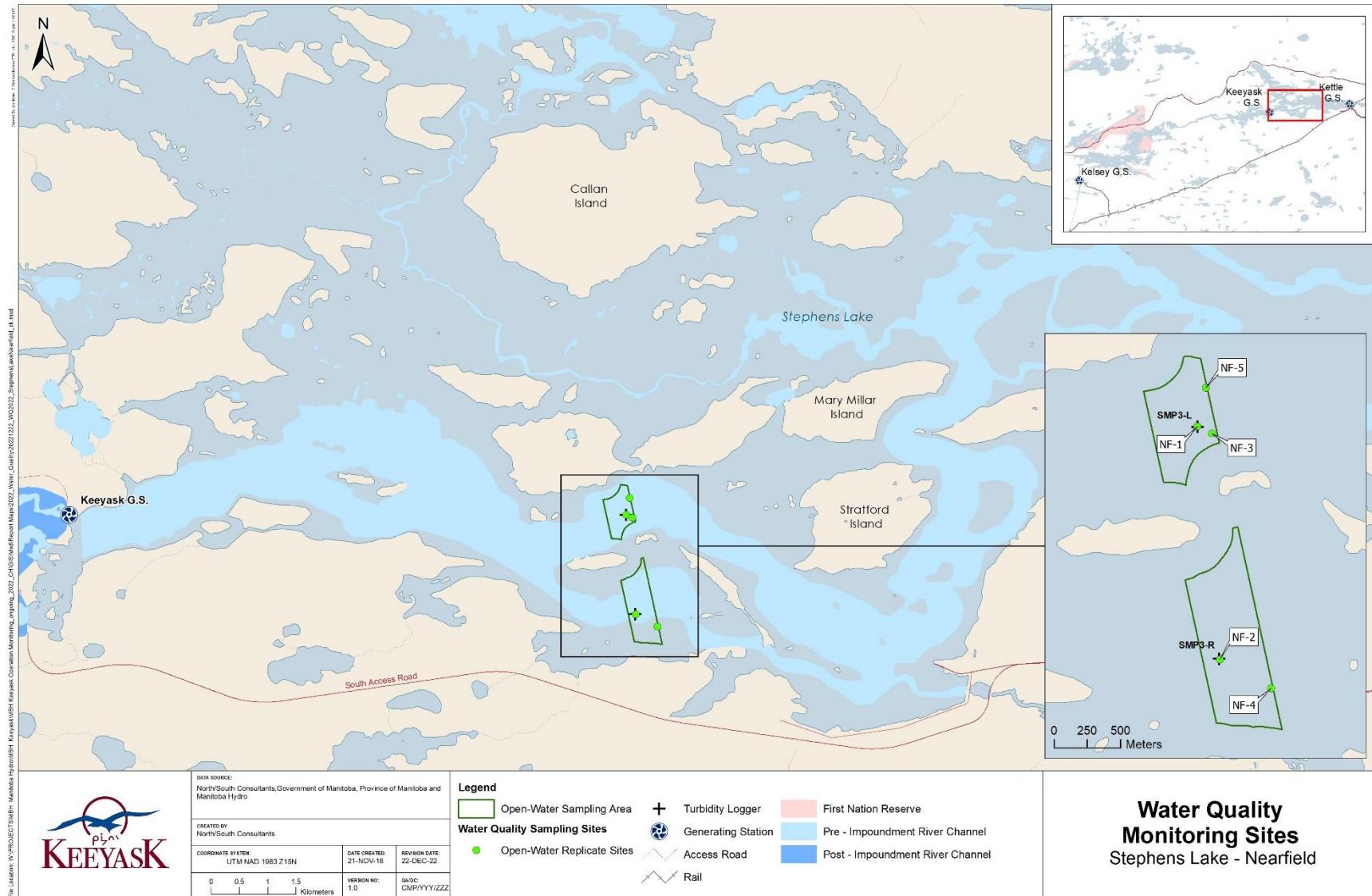
Map 4: Water quality sampling locations in Split Lake sampled as part of the local study area during winter 2022.



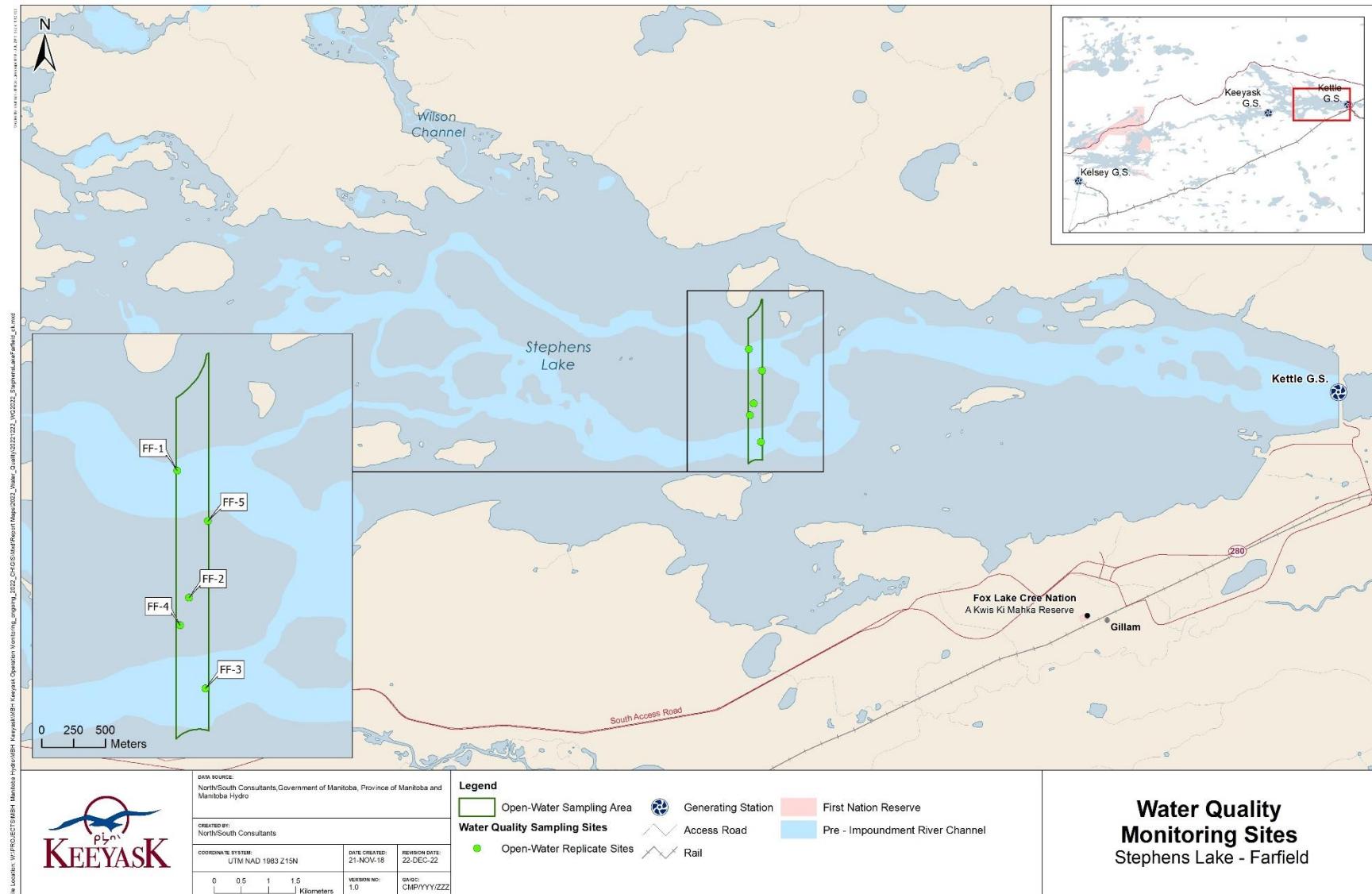
Map 5: Water quality sampling locations in Clark Lake sampled as part of the local study area during open-water 2022.



Map 6: Water quality sampling locations in the Nelson River upstream of the Keeyask GS sampled as part of the local study area during 2022.



Map 7: Water quality sampling locations in the near-field sampling area of Stephens Lake sampled as part of the local study area during 2022.



Map 8: Water quality sampling locations in the far-field sampling area of Stephens Lake sampled as part of the local study area during 2022.

Table 2: Coordinates of water quality monitoring sites sampled in the local study area in 2022.

Region	Site ID	Zone	Easting	Northing
Split Lake	SPL-10	14V	680817	6236792
	SPL-11	14V	680881	6236608
	SPL-12	14V	680990	6237017
	SPL-13	14V	680729	6236685
	SPL-14	14V	680989	6236490
Clark Lake	CL-1	15V	321221	6240775
	CL-2	15V	321118	6240832
	CL-3	15V	321198	6240610
	CL-4	15V	321237	6240981
	CL-5	15V	321184	6240976
Nelson River upstream of the Keeyask GS	US-1	15V	359587	6246057
	US-2	15V	359538	6246061
	US-3	15V	359380	6246129
	US-4	15V	359409	6246184
	US-5	15V	359478	6246067
	US-6	15V	356912	6245411
	US-7	15V	356919	6245500
	US-8	15V	356919	6245436
	US-9	15V	356858	6245491
	US-10	15V	356879	6245497
Stephens Lake near-field	NF-1	15V	373752	6247204
	NF-2	15V	373921	6245443
	NF-3	15V	373861	6247149
	NF-4	15V	374307	6245227
	NF-5	15V	373815	6247495
Stephens Lake far-field	FF-1	15V	388139	6250846
	FF-2	15V	388231	6249849
	FF-3	15V	388359	6249136
	FF-4	15V	388160	6249632
	FF-5	15V	388381	6250451

3.2.3 REGIONAL STUDY AREA

Eight sites within the RSA were identified in the AEMP based on sampling conducted during baseline monitoring in 2001–2004 and 2009 (Map 9). Monitoring sites included Stephens Lake North; one site immediately upstream of each of the Kettle, Long Spruce, and Limestone GSs; and four additional sites downstream of the Limestone GS along the Nelson River. The four sites downstream of the Limestone GS are not sampled during the ice-cover period due to insufficient ice. UTM coordinates for the RSA sites are provided in Table 3.

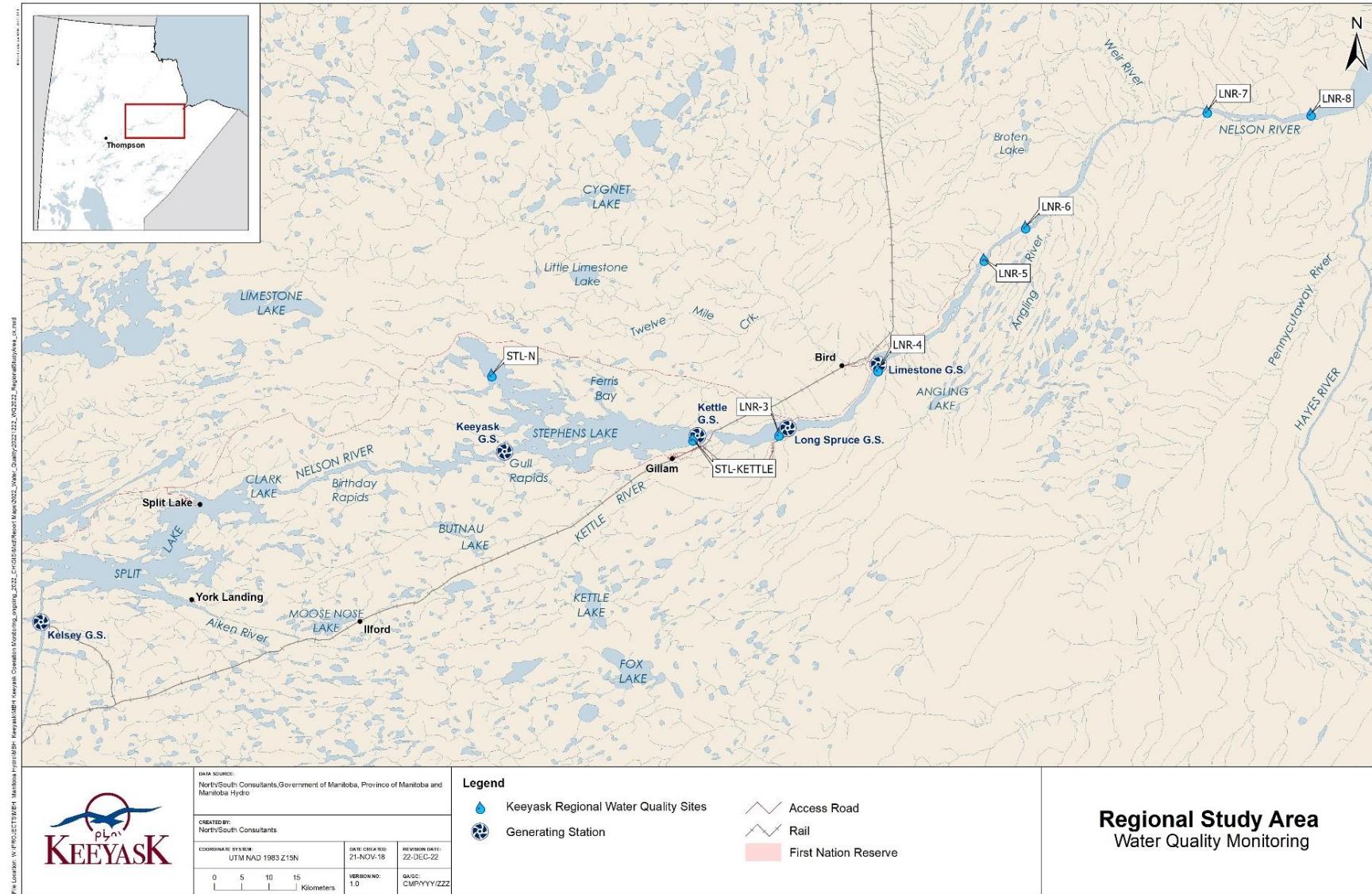


Table 3: Coordinates of water quality monitoring sites sampled in the regional study area in 2022.

Sample Location	Site ID	Zone	Easting	Northing
Stephens Lake North Arm	STL-N	15V	361580	6261209
Stephens Lake upstream of the Kettle GS	STL-KETTLE	15V	398177	6249528
Long Spruce GS Forebay	LNR-3	15V	413790	6250448
Limestone GS Forebay	LNR-4	15V	431821	6262168
Nelson River downstream of Limestone Rapids	LNR-5	15V	451053	6282231
Nelson River upstream of the Angling River	LNR-6	15V	458638	6288118
Nelson River downstream of Deer Island	LNR-7	15V	491666	6309092
Nelson River upstream of Gillam Island	LNR-8	15V	510511	6308609

3.3 SAMPLING METHODS

Sampling was conducted five times within the Keeyask reservoir backbays, LSA, and RSA during 2022. Sampling was conducted one time during the 2022 ice-cover season in March and four times during the 2022 open-water season in June, July, August, and September/October (RSA sampled in September, backbays and LSA sampled in October). Sites within the reservoir backbays and the LSA were accessed by helicopter in the ice-cover season and by boat in the open-water season. Sites within the RSA were accessed by helicopter in the ice-cover season and by float plane in the open-water season.

UTMs were recorded at each site using a hand-held Global Positioning System (GPS) unit and total water depth was measured using a HawkEye H22PX handheld depth sounder. General information recorded at each site included:

- Date and time of sample collection;
- Cloud cover, wind speed and direction, air temperature, and precipitation, including the occurrence of precipitation prior to sampling, where possible;
- Sampling equipment used;
- Site conditions and/or observations relevant to the sampling program; and
- Any deviations from field sampling protocols.

Sampling consisted of collection of *in situ* water quality measurements and collection of grab samples for laboratory analysis, as described below.

3.3.1 *IN SITU* MEASUREMENTS

Secchi disk depth was measured during the open-water season at each site, excluding the four sites located downstream of the Limestone GS as high water velocities at these sites do not allow for accurate measurements. Secchi disk depth was measured from the shady side of the boat (backbays and LSA) or plane (RSA) by lowering the disk until it was no longer visible; the disk was then lowered approximately 1 m deeper than the previous reading and raised until it was visible again. The Secchi disk depth was recorded as the average of the two readings.

In situ measurements of dissolved oxygen (DO), turbidity, pH, specific conductance, turbidity, and temperature were collected at each sampling site using a YSI EXO2 water quality multi-meter. At each site, *in situ* parameters were measured at 0.5 m, 1.0 m, or 2.0 m increments (for sites < 5.0 m, 5.0 m – 20.0 m, and > 20.0 m, respectively) beginning with a near surface measurement at 0.3 m.

3.3.2 SAMPLING FOR LABORATORY ANALYSES

At each site, grab samples of surface water were collected for laboratory analysis. Laboratory parameters included “routine” parameters (e.g., nutrients, TSS, and pH), total metals, total mercury, and methylmercury at all sites.

With the exception of sample collection for total mercury and methylmercury, sampling during the open-water season was conducted by wearing gloves and submerging each sample bottle (provided by the analytical laboratory) to elbow depth (*i.e.*, approximately 0.3 m depth) followed by uncapping, filling, recapping, and retrieving the bottle to the surface, then adding preservatives as required. Sample collection during the ice-cover season consisted of wearing gloves and submerging a Kemmerer water sampler 0.3 m below the bottom of the ice and filling each bottle directly from the sampler. For sample bottles pre-charged with preservative by the analytical laboratory, extra care was taken to ensure preservative was not lost during sampling. Samples for total mercury and methylmercury were collected using the “clean hands-dirty hands” protocol (U.S. Environmental Protection Agency 1996).

All sample bottles were filled with minimal headspace, except where instructed, to prevent chemical alteration and loss of compounds. Samples were subsequently kept cool (but not frozen) and in the dark until submission to a Canadian Association for Laboratory Accreditation (CALA) accredited laboratory (ALS Laboratories, Winnipeg, MB).

3.4 QUALITY ASSURANCE/QUALITY CONTROL

The quality assurance/quality control (QA/QC) program included application of standard procedures to limit sample contamination in the field, submission of QA/QC samples to the analytical laboratory, and QA/QC verifications of the water quality meter.

3.4.1 GENERAL QA/QC

Standard procedures for the control of sample contamination were adhered to throughout the sampling program, including:

- Use of gloves during sampling;
- Collecting samples facing in an upstream direction to minimize sample contamination. Where possible, sites were also approached moving in an upstream direction to avoid site disturbance and contamination;
- Avoiding contact with the insides of sample bottles, including lids;
- Limiting exposure of the insides of sample bottles to the atmosphere;
- Regular cleaning, calibration, inspection, and accuracy verification of field meters and equipment; and
- Adherence to sampling protocols wherever possible.

3.4.2 TRIPPLICATE SAMPLES

The sampling program incorporated the collection of triplicate samples at two randomly selected sampling sites during each sample collection period. The triplicates were collected at the same location and as close in time as practically feasible. Triplicate samples were identified with the Site ID followed by “A”, “B”, or “C”.

3.4.3 FIELD BLANKS

Two field blanks were submitted to the analytical laboratory (ALS Laboratories) during each sampling period. Field blanks were prepared by filling one set of sample bottles (provided by the analytical laboratory) with deionized water (also provided by the analytical laboratory) in the field and treating the blanks in the same manner as environmental samples.

Bottles were blindly labeled, stored, and transported according to sampling and handling protocols, and submitted along with environmental samples.

3.4.4 TRIP BLANKS

Two trip blanks were also submitted to the analytical laboratory (ALS Laboratories) during each sampling period. Trip blanks were prepared by the analytical laboratory by filling one set of sample bottles with deionized water and adding preservatives where appropriate.

The trip blank samples were transported to the field site, using the same handling and transport protocols as for environmental samples, and submitted along with environmental samples to the analytical laboratory for analysis. Trip blanks were treated similarly to field blanks, but the bottles were not opened at any point in the field and thus, were not exposed to the environment. Trip blanks were also blindly labelled.

3.4.5 WATER QUALITY METER QA/QC

The water quality meter was calibrated and inspected prior to departure for the field for each sampling trip. In the field, the functioning and accuracy of the meter was assessed at the end of each sampling day by verifying meter measurements in standards of known values for turbidity, pH, and specific conductance. Any discrepancies from the standard values were documented in the field notes.

3.5 DATA ANALYSIS

Prior to analysis, all environmental data were evaluated qualitatively for potential outliers and transcription or analytical errors. Suspect results were noted, and requests were made to the analytical laboratory to verify the values.

QA/QC samples were assessed according to standard criteria to evaluate precision and identify potential sample contamination issues (BCMELP 1998). Field and trip blank results were evaluated for evidence of sample contamination. Blank results that exceeded five times the analytical detection limit (DL) were considered to be indicative of sample contamination and/or laboratory error. Percent relative standard deviation (PRSD) was calculated for triplicate samples as follows:

$$\text{PRSD} = \frac{\text{Standard deviation of the triplicate values}}{\text{Mean of the triplicate values}} \times 100.$$

Precision of the QA/QC samples was evaluated using the “rule of thumb” criteria for precision of 18% for triplicate samples (BCMELP 1998). Where one or more of the measurements being compared was less than five times the analytical DL, an analysis of precision was not undertaken, in accordance with guidance provided in BCMELP (1998).

Mean and standard error (SE) were also calculated for all sampling sites within each sampling area during each sampling period. Results that were reported below the analytical DL were assigned a value of one half the DL for all statistical and graphical analyses.

As summarized in Section 1.0, and detailed in the AEMP, results of the water quality monitoring program are subject to the steps identified within the AMF (Figure 1). This framework prescribes data analysis methods and other tasks to be undertaken based on results of the monitoring program. Step 1 of the AMF entails comparison of the mean values of replicate samples for key indicators measured during a single sampling period to the benchmarks identified in the AEMP. If a benchmark is not exceeded, the assessment proceeds to Response Level 1 – trend analysis. If a benchmark is exceeded, the assessment proceeds to Step 2 – determination of whether there is a statistical difference between upstream and downstream areas (*i.e.*, control-impact) and/or relative to baseline conditions (before-after). If a statistical difference is not observed, the assessment proceeds to Response Level 1. Where statistical differences are identified for key indicators, the assessment proceeds to Step 3, in which a determination of cause (*i.e.*, is the difference Project-related) would be undertaken.

For data collected in 2022, means for key indicators were first compared to benchmarks (Appendix 1). For each key indicator that exceeded a benchmark, a statistical comparison between upstream and downstream sampling areas was undertaken during the respective sampling period. Parameters measured within the LSA that exceeded benchmark values were also compared to values collected in the same area prior to reservoir impoundment (2014–2020). Data subject to statistical analyses, as per the AMF, were analysed in XLStat 2014, version 3.01 by a non-parametric Kruskal-Wallis test ($\alpha = 0.05$). If a significant difference was found, a Dunn's test was conducted to determine which sample differed. Statistical comparisons were not made within backbay sites as the number of sites are not comparable between sampling locations and not in the RSA as each sampling location contains a single site.

In addition to the key water quality indicators, monitoring results for other water quality parameters (*e.g.*, parameters for which there are no PAL objectives or guidelines but may be indicative of general changes in water quality, such as conductivity) were also summarized to provide supporting information regarding potential effects of the Project and to assist with development of trend monitoring over the long-term.

4.0 RESULTS

Results of the water quality monitoring program for the 2022 ice-cover and open-water seasons are summarized below. Summary tables are presented in Appendix 1 and summary figures in Appendix 2 and 3. Raw data are provided in Appendix 4 and results of the QA/QC samples are presented in Appendix 5.

4.1 KEEYASK RESERVOIR AND BACKBAYS

4.1.1 KEY INDICATORS

4.1.1.1 NUTRIENTS

Mean ammonia and nitrate/nitrite concentrations measured in the reservoir mainstem (Zone 1b) and select backbays (zones 4, 8, 11, and 12) were within the benchmark values during each sampling event in March, June, July, August, and October (Table A1-1; Figures A2-1, and A2-2).

Total phosphorus (TP) exceeded the benchmark value of 0.058 mg/L in several locations over several of the sampling periods (Table A1-1; Figure A2-3). In March 2022, mean TP exceeded the benchmark in Zone 8 (0.100 mg/L), Zone 11 (0.078 mg/L), and Zone 12 (0.124 mg/L). In July, mean TP exceeded the benchmark in Zone 8 (0.067 mg/L) and Zone 11 (0.070 mg/L) and approached the benchmark in Zone 12 (0.055 mg/L). However, these means were largely driven by elevated values sampled from single sites (Z8-1: 0.118 mg/L; Z11-10: 0.117 mg/L; Z12-8: 0.109 mg/L). Mean TP was high in all four of the sampled backbays during August, exceeding the benchmark in Zone 4 and 11 and approaching it in Zone 8 and 12. Mean TP during October was below the benchmark at all five sampling locations.

4.1.1.2 CHLOROPHYLL *a*

Mean chlorophyll *a* concentrations were measured in the reservoir mainstem (Zone 1b) and select backbays (zones 4, 8, 11, and 12) during the five sampling periods in 2022 (Table A1-1; Figure A2-4). In March, the mean chlorophyll *a* concentration in Zone 8 (8.08 µg/L) approached the benchmark of 10.00 µg/L. All mean chlorophyll *a* concentrations were below the benchmark in June. Mean concentrations exceeded the benchmark in Zone 4 (12.2 µg/L) and approached the benchmark in Zone 12 (9.48 µg/L) in July. The mean chlorophyll *a* concentration in Zone 12 was driven by an elevated value at a single site (Z12-8; 39.5 µg/L). The mean chlorophyll *a* concentration in Zone 4 was above the benchmark in August and October, but remained below benchmark for Zone 8, 11, and 12.

4.1.1.3 TOTAL SUSPENDED SOLIDS

Mean TSS concentrations measured in the reservoir mainstem (Zone 1b) and select backbays (Zone 4, 8, 11, and 12) were below both the chronic and short-term benchmark values in all sampling periods (Table A1-1; Figure A2-5). Mean TSS measured in Zone 1b (7.0 mg/L) approached the chronic benchmark of 8.9 mg/L in July but did not approach the benchmark during any other sampling period. The chronic and short-term benchmarks are defined as a 5.0 and 25.0 mg/L increase above background, calculated from measurements at Split Lake (ice-cover) or Clark Lake (open-water) during each sampling period.

4.1.1.4 DISSOLVED OXYGEN

DO was measured throughout the water column within each backbay and the mainstem during each sampling period (Figures 2–6; Maps 10–14).

DO sampled within Zone 1b was above benchmark (>9.5 mg/L during ice cover (March) and >6.5 mg/L in the open water period) during all sampling events and at all depths (Figure 2).

DO sampled within Zone 4 was generally above benchmark at all sites and throughout the water column. Mean DO in Zone 4 (all sites combined) measurements (both surface and bottom) were above benchmark in all time periods (Table A1-1). However, DO values below benchmark were observed at several individual sites. DO values below benchmark were measured at the bottom of the water column at one site in March (8.3 mg/L), two sites in July (6.26 mg/L and 4.51 mg/L) and one site in August (6.17 mg/L) (Figure 3). DO values were below benchmark throughout the water column at one additional site in August (5.84–4.28 mg/L).

In Zone 8, mean DO measured below benchmark at the bottom in March and August and measured at the benchmark at the bottom in July (Figure 4). DO measured below the benchmark throughout the water column at two sites each in March (1.50–2.14 mg/L), July (0.46–5.44 mg/L), and August (0–3.96 mg/L). DO measured below benchmark halfway throughout the water column at one additional site in August (6.37–5.03 mg/L). DO concentrations below 0.75 mg/L were found to be acutely lethal to Northern Pike (CCME 1999). In Zone 8, DO values measured below this value at one site (Z8-2) at the bottom of the water column in July (0.46 mg/L) and throughout half of the water column in August (0–0.17 mg/L); this site is located near the end of the bay, farthest from the reservoir mainstem. DO measured above benchmark throughout the water column at all sites in October.

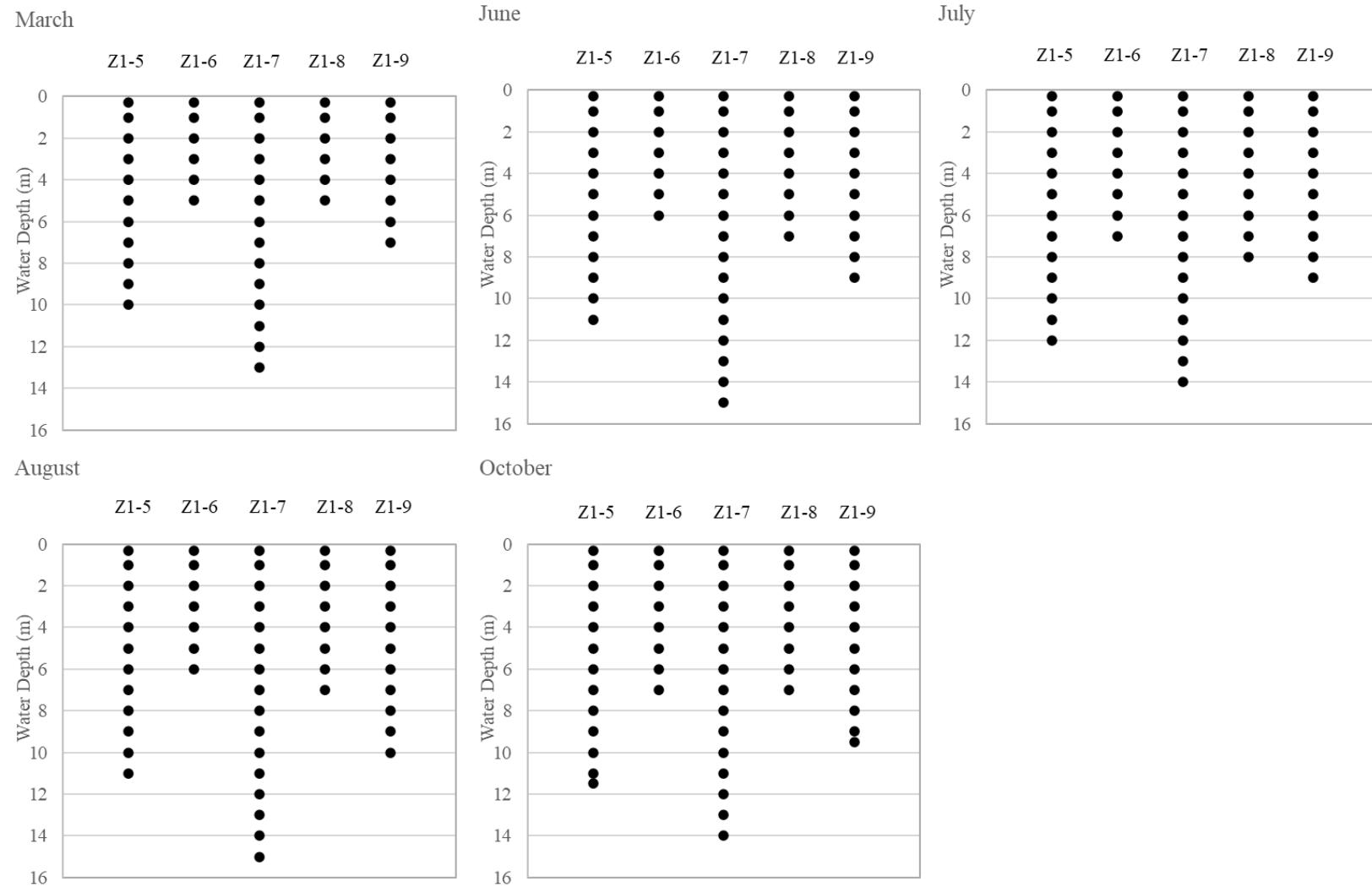


Figure 2: Water depths of *in situ* dissolved oxygen measurements taken in the Keeyask reservoir mainstem (Zone 1b) during winter (March) and open-water (June, July, August, and October), 2022. No dissolved oxygen readings were below benchmark.

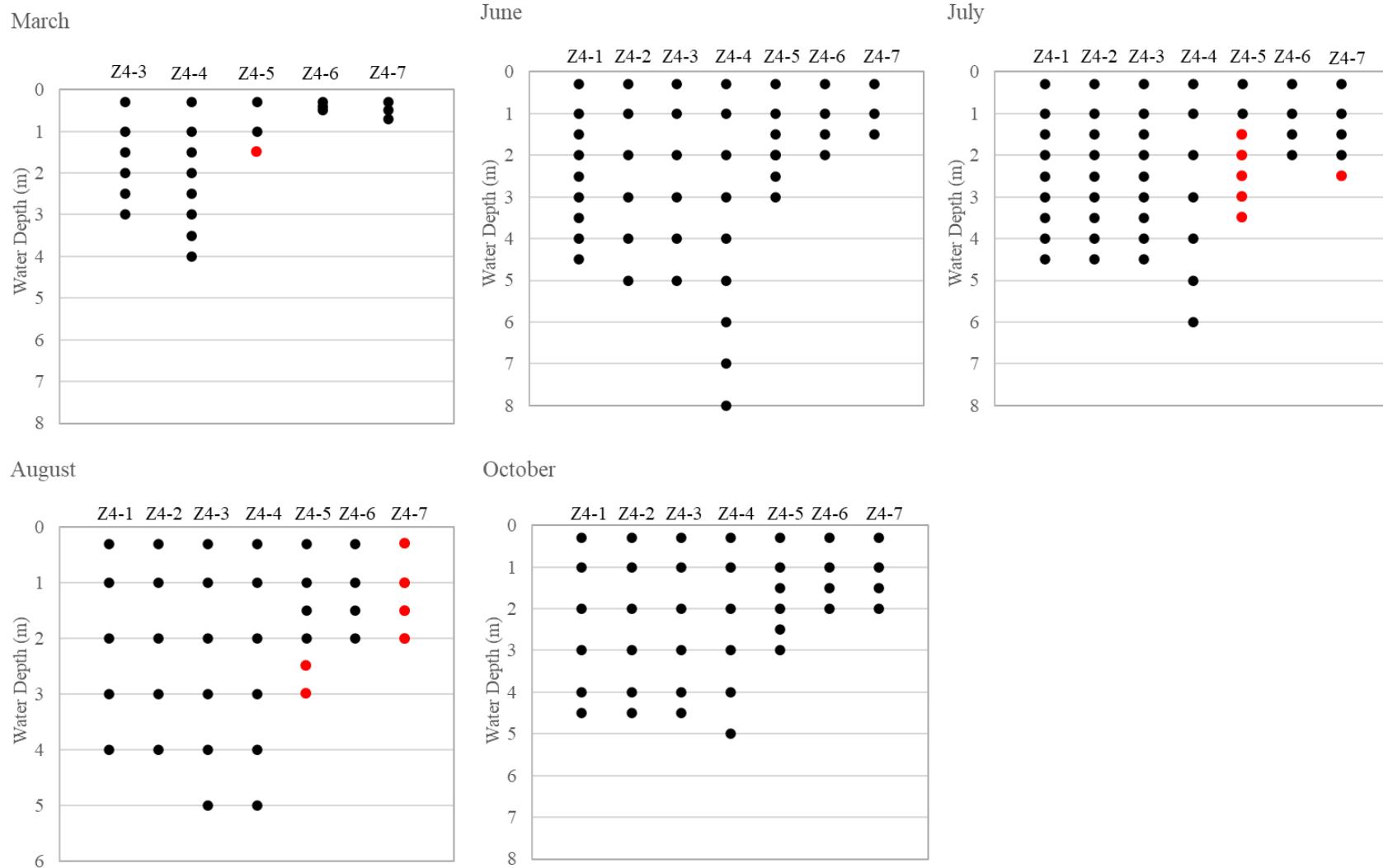


Figure 3: Water depths of *in situ* dissolved oxygen measurements taken in the Keeyask reservoir backbay Zone 4 during winter (March) and open-water (June, July, August, and October), 2022. Red dots indicate readings below benchmark.

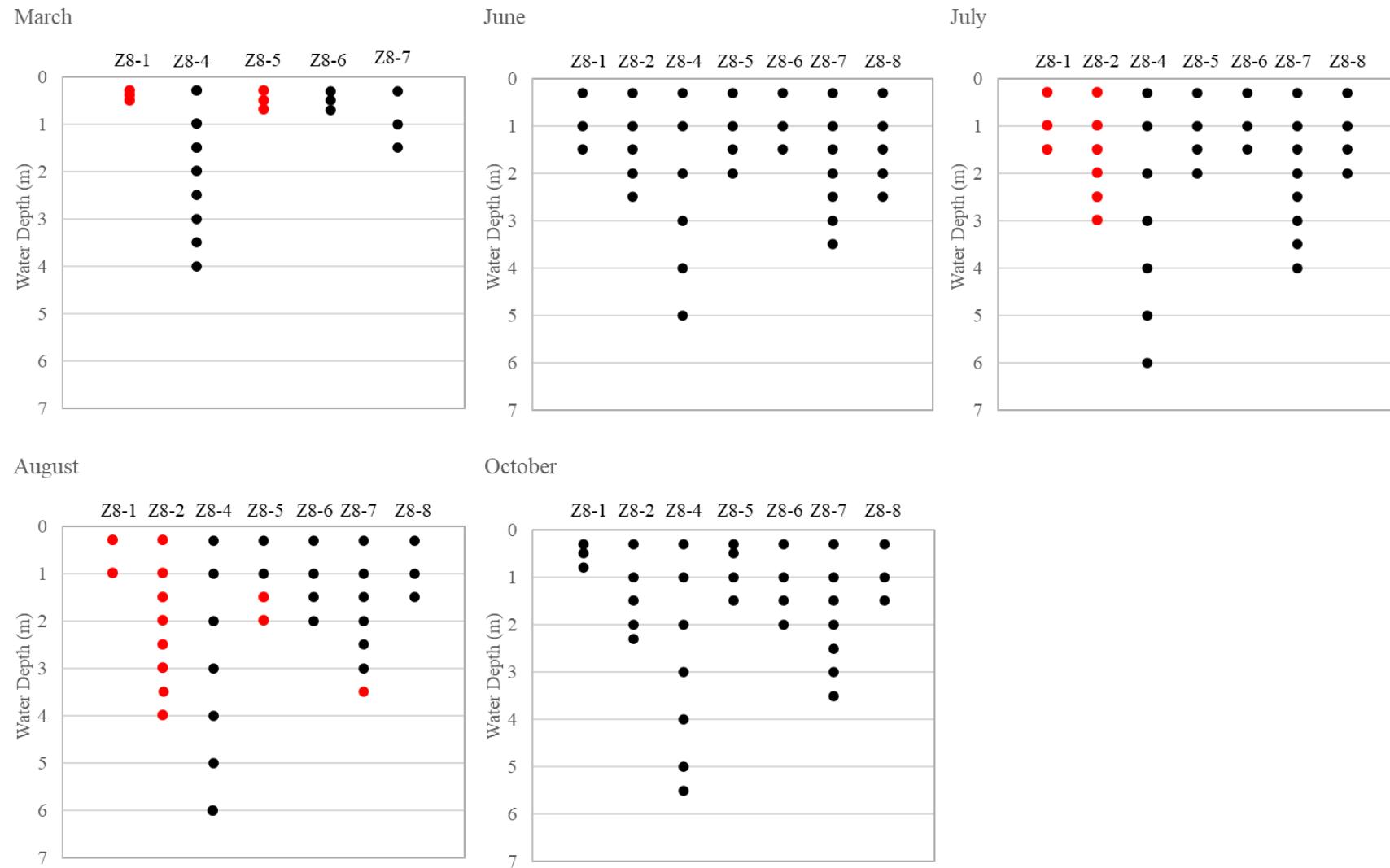


Figure 4: Water depths of *in situ* dissolved oxygen measurements taken in the Keeyask reservoir backbay Zone 8 during winter (March) and open-water (June, July, August, and October), 2022. Red dots indicate readings below benchmark.

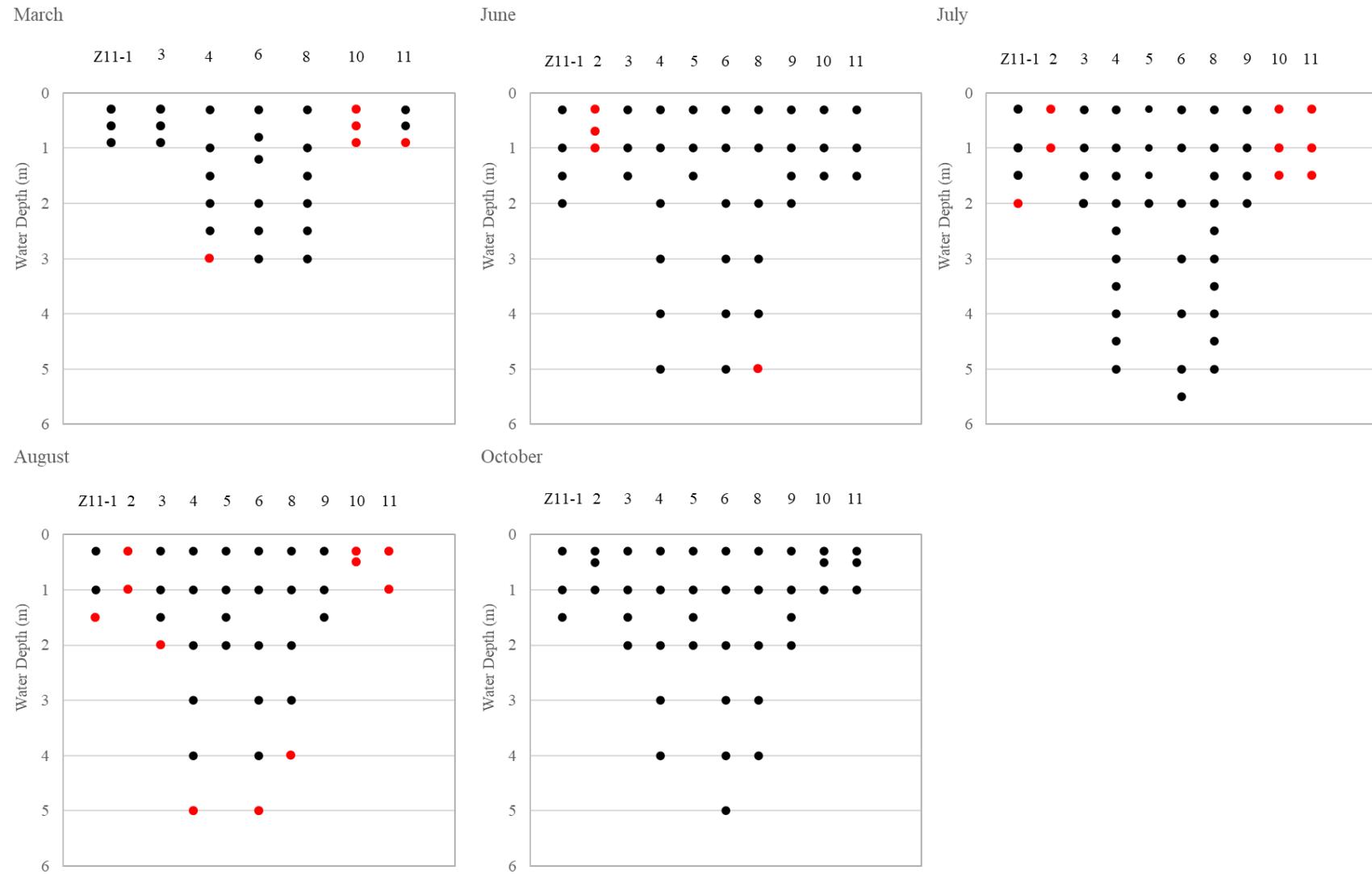


Figure 5: Water depths of *in situ* dissolved oxygen measurements taken in the Keeyask reservoir backbay Zone 11 during winter (March) and open-water (June, July, August, and October), 2022. Red dots indicate readings below benchmark.

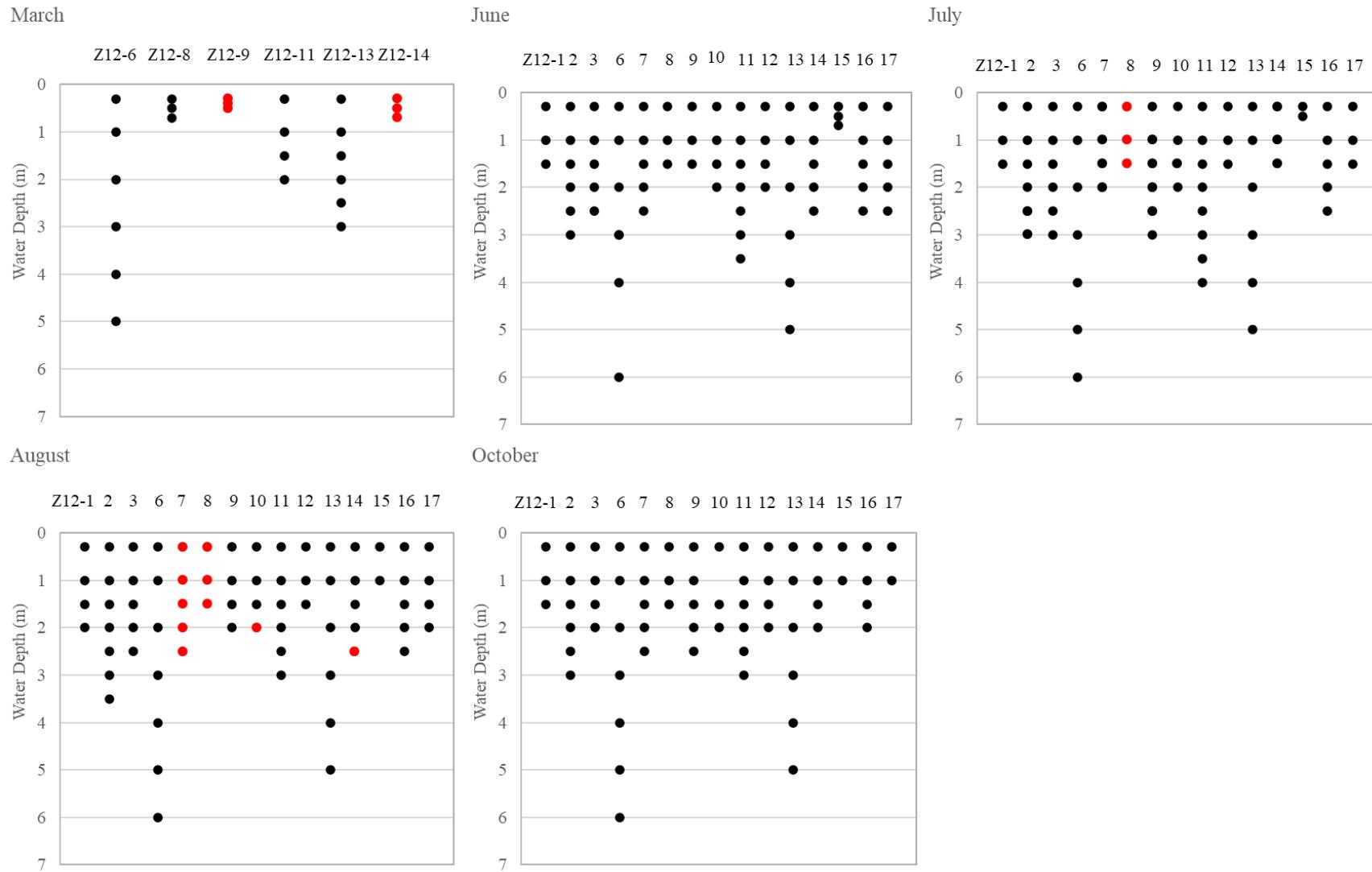
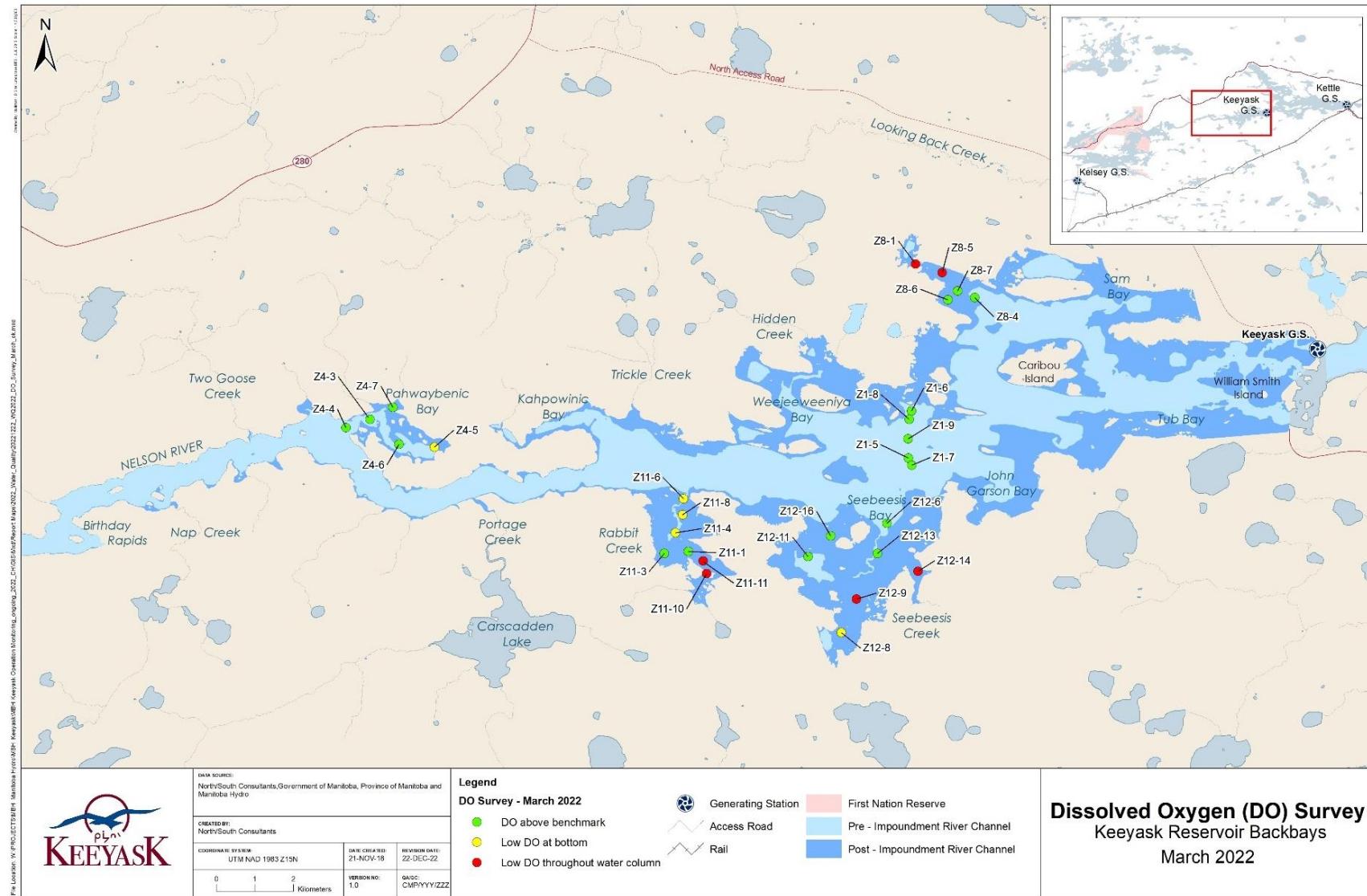
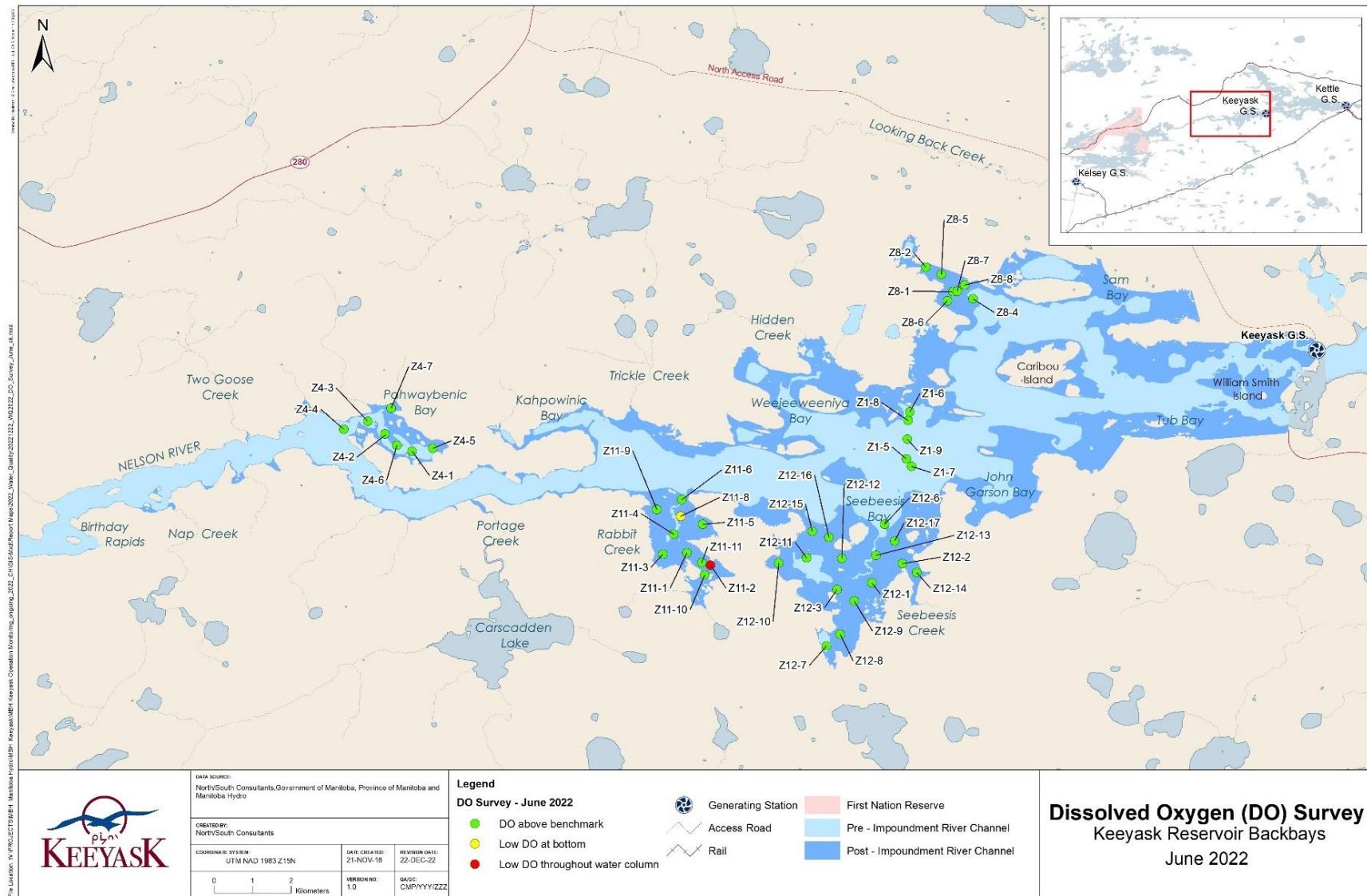


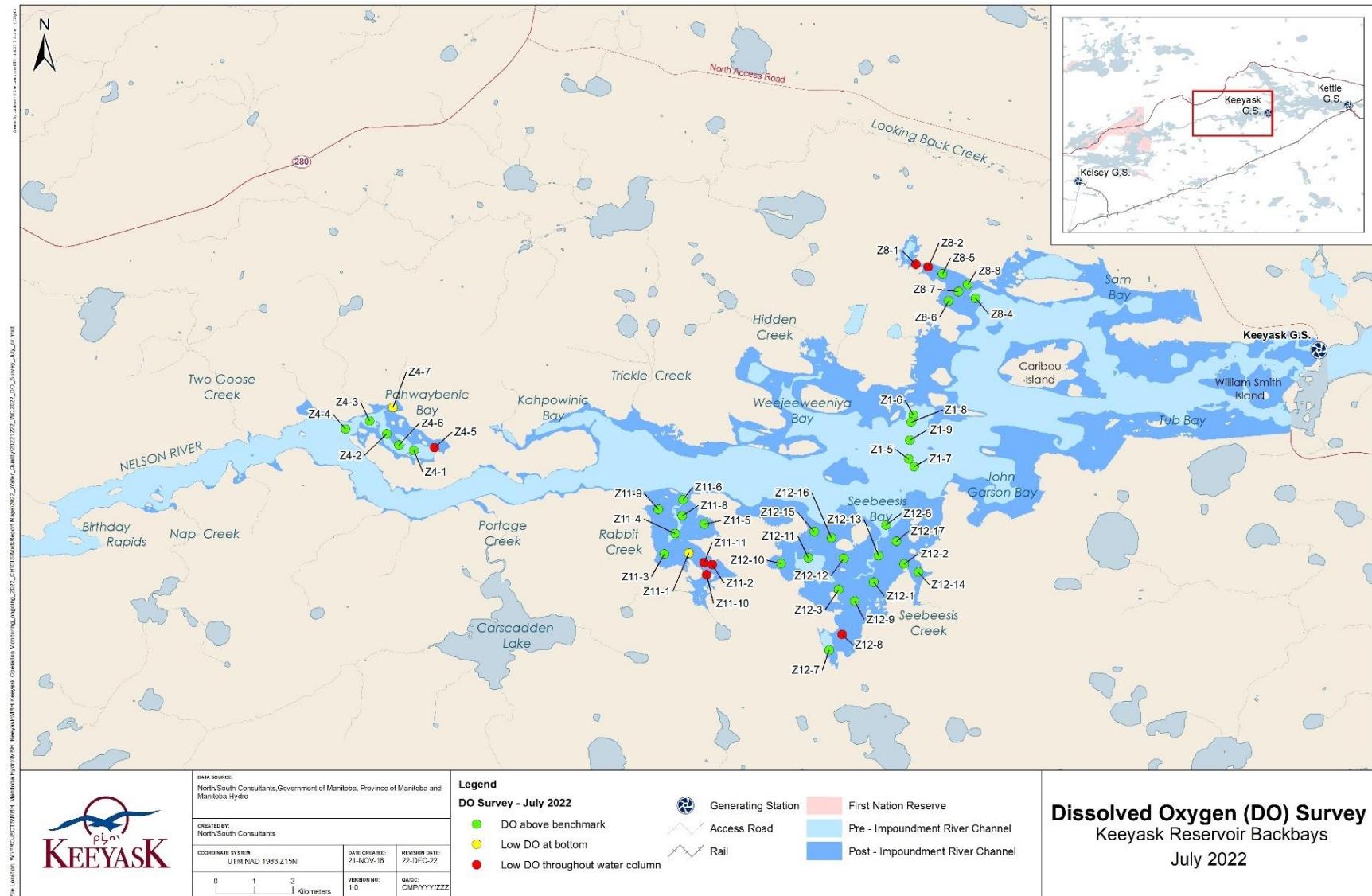
Figure 6: Water depths of *in situ* dissolved oxygen measurements taken in the Keeyask reservoir backbay Zone 12 during winter (March) and open-water (June, July, August, and October), 2022. Red dots indicate readings below benchmark.



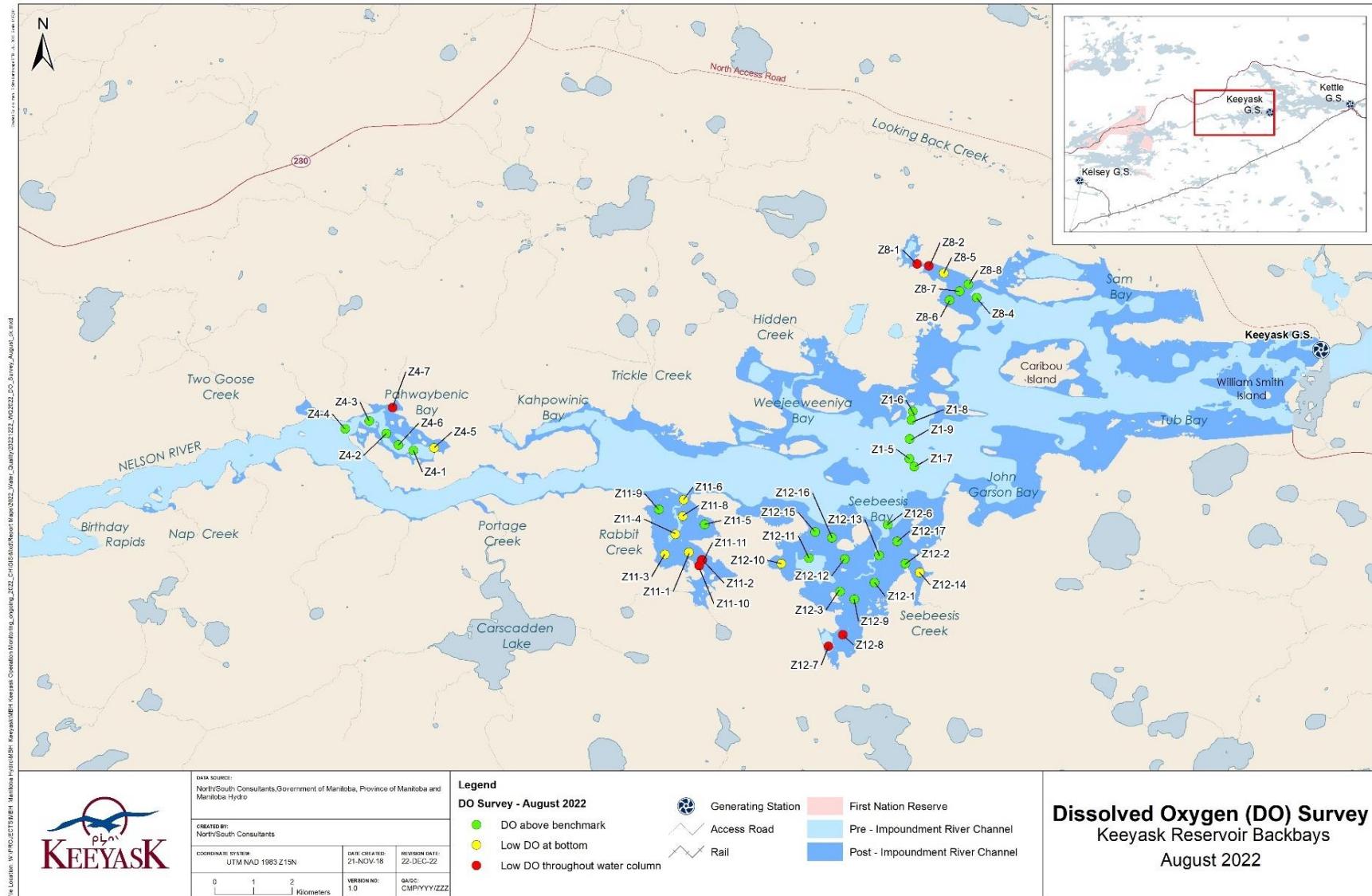
Map 10: Locations sampled in the Keeyask reservoir mainstem and backbays showing the results of dissolved oxygen monitoring, March 2022.



Map 11: Locations sampled in the Keeyask reservoir mainstem and backbays showing the results of dissolved oxygen monitoring, June 2022.

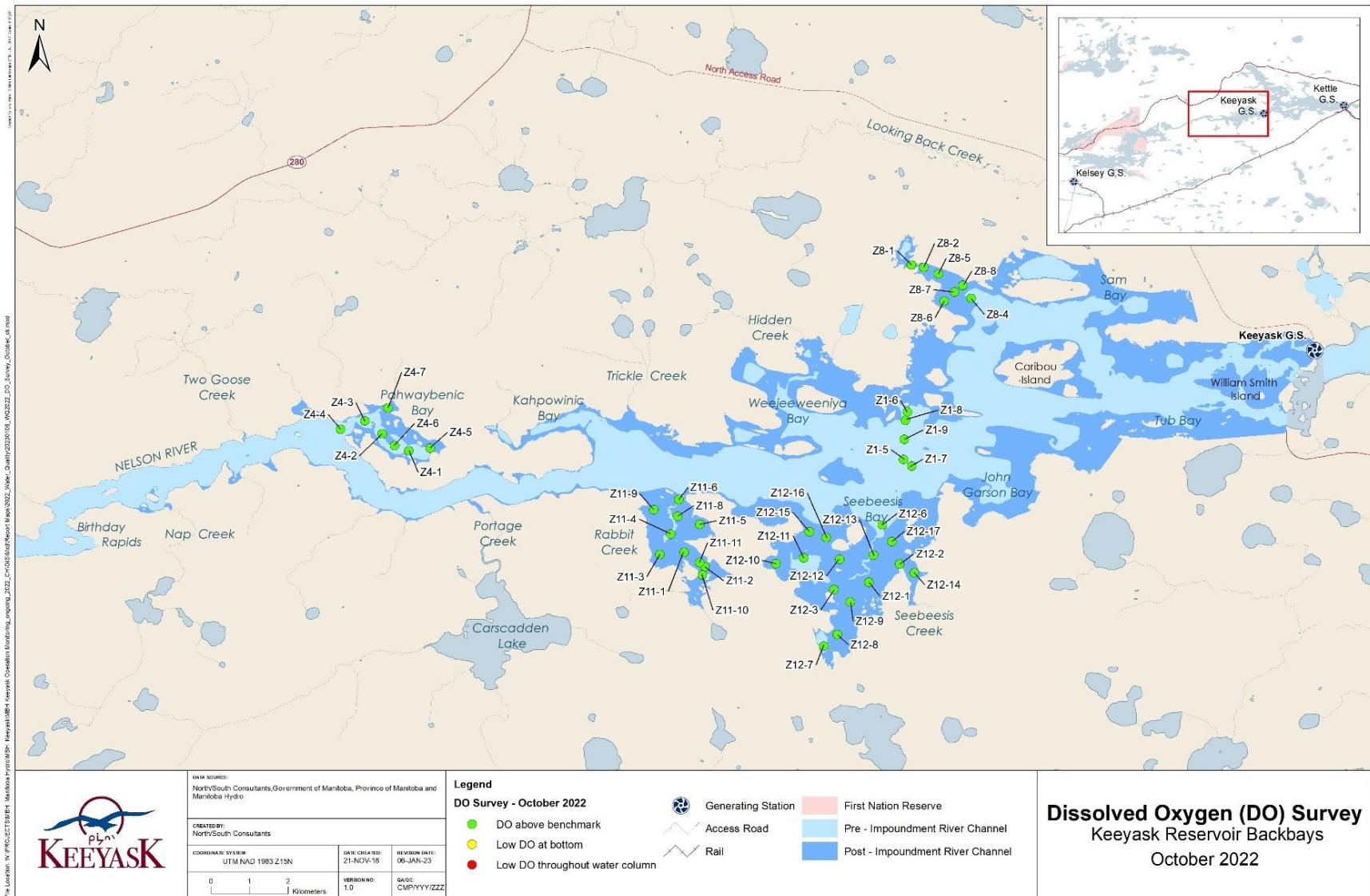


Map 12: Locations sampled in the Keeyask reservoir mainstem and backbays showing the results of dissolved oxygen monitoring, July 2022.



Map 13: Locations sampled in the Keeyask reservoir mainstem and backbays showing the results of dissolved oxygen monitoring, August 2022.





Map 14: Locations sampled in the Keeyask reservoir mainstem and backbays showing the results of dissolved oxygen monitoring, October 2022.

Mean DO in Zone 11 measured below benchmark at the surface and bottom in July, below benchmark at the bottom in August, but above benchmark in all other sampling periods (Figure 5). In March, DO values were below benchmark throughout the water column at one site (1.73–1.53 mg/L) and below benchmark at the bottom at two sites (6.43 mg/L and 6.17 mg/L). In June, one site had DO measure below benchmark throughout the water column (5.97–5.92 mg/L) and one site measure below benchmark at the bottom (4.59 mg/L). Three sites in July had DO measure below the benchmark throughout the water column (1.32–2.96 mg/L) and one site had DO measure below the benchmark at the bottom (6.47 mg/L). In August, DO values measured below benchmark throughout the water column at three sites (0.87–3.99 mg/L) and below benchmark at the bottom at five sites (4.30 mg/L; 6.08 mg/L; 5.38 mg/L; 6.20 mg/L; 6.02 mg/L). DO measured above the benchmark throughout the water column at all sites in October.

Mean DO measured above benchmark in Zone 12 in all sampling periods (Figure 6). DO measured below benchmark throughout the water column at two sites in March (1.62–5.01 mg/L), one site in July (5.15–5.29 mg/L), and two sites in August (3.38–4.74 mg/L). DO measured below benchmark at two additional sites in August at the bottom of the water column (6.16 mg/L; 6.27 mg/L). By October, DO measured above benchmark throughout the water column at all sites.

4.1.1.5 pH

Mean laboratory pH measurements collected in the reservoir mainstem (Zone 1b) and select backbays (zones 4, 8, 11, and 12) were within the benchmark values of 6.5 and 9.0 pH units during all sampling periods (Table A1-1; Figure A2-6).

4.1.1.6 METALS

Mean concentrations of total metals (including aluminum, arsenic, boron, chromium, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, uranium, and zinc) measured in the reservoir mainstem (Zone 1b) and select backbays (zones 4, 8, 11, and 12) were within the benchmark values during each sampling event (Table A1-1).

Cadmium exceeded the benchmark of 0.0030 mg/L at site Z11-11 in August (2.16 mg/L) (Table A1-1; Figure A2-10). All other cadmium concentrations were below the detection limit at all sites in the reservoir mainstem and the other backbays during this sampling period, and values at this site were not elevated during any other sampling period. As a result, this cadmium value is considered highly suspect and was removed from the mean calculations for Zone 11 in August.

Mean iron concentrations measured in March approached the benchmark of 1.45 mg/L in Zone 8 (1.25 mg/L) and Zone 12 (1.14 mg/L); however, both values were influenced by elevated measurements at single sites (Z8-1: 3.44 mg/L; Z12-8: 1.66 mg/L; Z12-14: 3.73 mg/L) (Table A1-1; Figure A2-13).

Mean mercury concentrations were below the benchmark of 26 ng/L during all sampling periods (Table A1-1; Figure A2-15). In August, the detection limit for mercury was adjusted at two of four sites in Zone 8 that required dilution, but the values remained well below the benchmark. Mean methylmercury concentrations collected in reservoir backbays were below the benchmark values (4 ng/L) during all sampling periods (Table A1-1; Figure A2-16). However, concentrations exceeded the benchmark at three individual sites in March (Z8-1: 6.01 ng/L; Z11-10: 5.76 ng/L; Z12-8: 7.75 ng/L) and one site in August (Z11-10: 4.59 ng/L).

4.1.2 ADDITIONAL PARAMETERS

Results for parameters measured in the Keeyask reservoir mainstem and backbays that are not key indicators (Table A1-2) are presented as follows: dissolved phosphorus (Figure A2-24), total nitrogen (Figure A2-25), dissolved organic carbon (Figure A2-26), true colour (Figure A2-27), *in situ* and laboratory turbidity (Figure A2-28), *in situ* and laboratory specific conductance (Figure A2-29), total dissolved solids (Figure A2-30), hardness (Figure A2-31), and major ions (chloride, sulfate, calcium, magnesium, potassium, and sodium; Figures A2-32–37).

In March, dissolved organic carbon (DOC) and true colour were higher in Zone 8 and Zone 12 than in the mainstem and other backbays (Table A1-2; Figures A2-26 and A2-27). However, these means were largely driven by elevated values at one site in Zone 8 (Z8-1) and two sites in Zone 12 (Z12-8; Z12-14), all of which are farthest from the Nelson River mainstem. True colour and DOC were only marginally elevated in July in Zone 8 and Zone 11 and in October, in Zone 8 only.

4.2 LOCAL AND REGIONAL STUDY AREAS

4.2.1 KEY INDICATORS

4.2.1.1 NUTRIENTS

Mean ammonia and nitrate/nitrite concentrations measured in Clark Lake, the upstream, near-field, and far-field areas of the LSA and individual measurements from sites in the RSA were within the benchmark values during each of the sampling events in March, June, July, August, and September (RSA)/October (LSA) (Tables A1-3 and A1-4; Figures A3-1–A3-4).

Mean total phosphorus (TP) from all LSA sampling areas (Table A1-3; Figure A3-5) and individual measurements from sites in the RSA (Table A1-4; Figure A3-6) were below the benchmark value of 0.058 mg/L for all sampling periods.

4.2.1.2 CHLOROPHYLL *a*

Mean chlorophyll *a* concentrations measured in all sampling areas of the LSA and individual measurements from sites in the RSA were below the benchmark of 10.00 µg/L in all sampling periods (Tables A1-3 and A1-4; Figures A3-7 and A3-8).

4.2.1.3 TOTAL SUSPENDED SOLIDS

Mean TSS concentrations measured in all sampling areas of the LSA and individual measurements from sites in the RSA were below both the chronic and short-term benchmark values (defined as a 5 and 25 mg/L increase above background calculated from measurements at Clark Lake during open-water sampling and Split Lake during ice-cover sampling) in all sampling periods (Tables A1-3 and A1-4; Figures A3-9 and A3-10).

4.2.1.4 DISSOLVED OXYGEN

Mean DO concentrations measured in all sampling areas in the LSA and individual sites within the RSA were within the benchmark values (>9.5 mg/L during ice cover (March) and >6.5 mg/L in the open-water period) during all five sampling events (Tables A1-3 and A1-4; Figures A3-11 and A3-12). Although slight variations in DO concentrations were observed across water depth during some sampling periods, all sites in the study area were well-oxygenated, with DO saturation generally exceeding 90%. All measurements collected across the water column at every site and sampling time exceeded the DO benchmarks.

4.2.1.5 pH

Mean laboratory pH measurements collected in all sampling areas of the LSA and individual measurements from sites in the RSA were within the benchmark values (6.5 and 9.0 pH units) during all sampling periods (Tables A1-3 and A1-4; Figures A3-13 and A3-14).

4.2.1.6 METALS

Mean concentrations of total metals (including aluminum, arsenic, boron, cadmium, chromium, iron, lead, molybdenum, nickel, selenium, silver, thallium, uranium, and zinc) measured in each of the LSA and RSA sampling areas were within the benchmark values during each sampling event (Tables A1-3 and A1-4; Figures A3-15–A3-48).

Mean mercury concentrations were well below the benchmark of 26 ng/L in all sampling areas in the LSA (Table A1-3; Figure A3-31). In September, mercury measured above the benchmark in the RSA in the north arm of Stephens Lake (101 ng/L) (Table A1-4; Figure A3-32). The detection limit for this site was adjusted as the sample required dilution. Mercury concentrations did not approach the benchmark at the surface sample collected at the same site in September, nor did

concentrations approach the benchmark at this site during any other sampling period. As a result, this value is considered suspect. Mean methylmercury concentrations collected in all sampling areas of the LSA and individual measurements from sites in the RSA were below the benchmark value (4 ng/L) during all sampling periods (Tables A1-3 and A1-4; Figures A3-33 and A3-34).

Copper measured above the benchmark of 0.00965 mg/L in the bottom sample collected in the RSA in the north arm of Stephens Lake in August 2022 (0.194 mg/L; Table A1-4; Figure A3-26). The same site showed elevated levels of copper in August 2021. However, as in 2021, the surface sample collected at the same site in the same sample period was well below benchmark (0.00120 mg/L), as were all other samples collected at this site throughout 2022.

4.2.2 ADDITIONAL PARAMETERS

Results for parameters measured in the LSA and RSA that are not key indicators (Tables A1-5 and A1-6) are presented as follows: dissolved phosphorus (Figures A3-49 and A3-50), total nitrogen (Figures A3-51 and A3-52), dissolved organic carbon (Figures A3-53 and A3-54), true colour (Figures A3-55 and A3-56), *in situ* and laboratory turbidity (Figures A3-57 and A3-58), *in situ* and laboratory specific conductance (Figures A3-59 and A3-60), total dissolved solids (Figures A3-61 and A3-62), hardness (Figures A3-63 and A3-64), and major ions (chloride, sulfate, calcium, magnesium, potassium, and sodium; Figures A3-65–A3-76).

5.0 DISCUSSION

Water quality monitoring was conducted in 2022 to determine if the Project contributed to exceedances of water quality benchmarks, to determine the magnitude and spatial extent of these effects, to confirm predictions made in the EIS, to determine if there are seasonal differences in water quality, and to examine changes in water quality over time. Water quality monitoring was conducted within three general areas: i) in four flooded backbays and one mainstem site within the Keeyask reservoir; ii) the local study area (Split Lake or Clark Lake, the area of the Nelson River upstream of the Keeyask GS, and near-field and far-field areas of Stephens Lake); and iii) the regional study area (from Stephens Lake to the Nelson River Estuary). The discussion below highlights key results of water quality monitoring conducted during the 2022 sampling period.

5.1 RESERVOIR BACKBAYS

The EIS predicted that impacts to water quality would be greatest in flooded backbays in the Keeyask reservoir, with small changes expected along the main flow of the Nelson River (in the reservoir and downstream from the GS). Flooded backbays were expected to experience reduced DO concentrations (notably in winter under ice cover), lower pH, reduced water clarity, and increased concentrations of nutrients, colour, TSS/turbidity, total dissolved solids (TDS)/conductivity, organic carbon, and metals. These effects are expected to be greatest during the initial years after impoundment and decline notably thereafter, stabilizing within ten to fifteen years.

During 2022 sampling, elevated total phosphorus (TP), chlorophyll a, iron, dissolved phosphorus, dissolved organic carbon, and true colour were observed in some backbays during several sampling periods. Low levels of dissolved oxygen were also observed. This is consistent with EIS predictions.

The EIS predicted that reservoir impoundment would lead to elevated levels of TP in the flooded backbays. Increased levels of nutrients can result from the flooding of terrestrial habitat and the subsequent decomposition of organic matter. Typically, the largest increases in nutrients are seen in shallow areas immediately over flooded terrestrial habitat where long residence times allow certain parameters, including nutrients, to build up. In 2022, elevated levels of TP were observed in March when water is poorly mixed under the ice and in July and August when high water temperatures increase rates of decomposition. Within each sampling period, TP was highest at sites farthest from the Nelson River mainstem, which are close to shore over flooded terrestrial vegetation.

Phytoplankton abundance is primarily affected by concentrations of key nutrients (nitrogen and phosphorus), water temperature, and light. Therefore, increases in chlorophyll a concentrations are often associated with elevated levels of TP. Mean chlorophyll a concentrations approached

the benchmark 10.00 µg/L in Zone 8 in March but were well below benchmarks at all sites in June. In July, August, and October, mean chlorophyll a concentrations were higher than in the mainstem in all four backbays and measured above benchmark in Zone 4. It is likely that these increases in chlorophyll a concentrations are related to increases in nutrients.

In March, dissolved organic carbon (DOC) and true colour were higher in Zone 8 and Zone 12 than in the mainstem and other backbays. True colour in Zone 8 was also higher in July and October, but DOC remained relatively consistent with other zones. Further, true colour in July was higher in Zone 11, but DOC remained consistent, and it was not elevated during any other sampling period. True colour increases with the content of humic and fulvic acids, typically high in peatland drainages. DOC is typically positively correlated with true colour and generally increases as true colour increases. The EIS predicted that both true colour and DOC would increase in backbays where peatlands were flooded. All three of these sites were also noted to have a strong sulfur smell during sampling, indicative of decomposition and low oxygen conditions in flooded peatlands.

Reduced dissolved oxygen (DO) concentrations were predicted in the EIS within flooded reservoir backbays due to breakdown of organic matter combined with poor mixing, being cut off from the atmosphere by overlying ice, and long residence times for water. Further, the EIS predicted that the effects on DO would be greatest during the initial years after impoundment when the amount of newly flooded terrestrial material was at a maximum.

During ice-cover sampling, low DO was observed at some sites in all four backbays, but to a lesser extent in Zone 4 compared to zones 8, 11, and 12. DO was lowest in Zone 8, Zone 11, and Zone 12 at the sites closest to shore and farthest from the reservoir mainstem. In 2021, anoxic conditions were observed during winter within Zone 8 (Hrenchuk 2022). Although low oxygen conditions were observed during winter 2022, DO remained above 1.5 mg/L (measured at the bottom at a single site) and no anoxic conditions were observed. Mean iron concentrations approached the benchmark of 1.45 mg/L in Zone 8 and Zone 12 in March. The EIS predicted that areas of the Keeyask reservoir that displayed low oxygen levels in winter may exhibit higher concentrations of manganese and iron relative to the open-water season as these metals become soluble and are released from sediments under low oxygen conditions.

During the open-water sampling period (June–October), the concentrations of DO varied by backbay, but in general, the lowest concentrations were near the bottom of the water column where oxygen consumption is greatest. DO concentrations were lowest in August, with at least two sites showing concentrations below benchmark, either throughout or at the bottom of the water column, in all four backbays. DO concentrations were lowest in Zone 8, reaching 0 mg/L at the bottom of the water column at one site in August. Higher water temperatures (as measured in July and August) speed up decomposition and associated oxygen consumption and reduce the solubility of oxygen in water. By October, all sites in all zones had DO concentrations above benchmark throughout the entire water column.

As the effects of flooding on mercury in water is a change in the form of mercury, the EIS did not predict large increases in total mercury concentrations, rather, the EIS predicted an increase in the fraction of methylmercury. With that, mean mercury concentrations remained below the benchmark of 26 ng/L at all backbay sites during all sampling periods, as predicted. Mean methylmercury concentrations were within the benchmark of 4 ng/L in all backbays during all sampling periods. However, methylmercury concentrations exceeded the benchmark at three individual sites in March (Z8-1, Z11-10, and Z12-8) and one site in August (Z11-10). These sites are located farthest from the Nelson River mainstem in poorly mixed areas of flooded terrestrial habitat with low dissolved oxygen levels. As flooding of vegetation and terrestrial soil combined with low oxygen levels typically results in increased concentrations of methylmercury in aquatic ecosystems, these results are consistent with the EIS predictions.

5.2 LOCAL AND REGIONAL STUDY AREAS

The EIS predicted small and few changes in water quality along the main flow of the Nelson River, either upstream of the GS in the Keeyask reservoir or downstream of the GS. The primary effect on water quality along the main flow of the river was predicted to be reductions in TSS concentrations in the reservoir and for several kilometres downstream in Stephens Lake in the long-term. Some variables that are correlated to TSS, such as total phosphorus (TP) and some metals, were predicted to slightly decrease in these areas in association with the deposition of suspended solids.

With the exception of copper in August and mercury in September, the mean and individual concentrations of all key indicators measured in the LSA and the RSA were within benchmarks during the March, June, July, August, and September/October sampling periods in 2022. As per Step 1 of the AMF, no further analysis was conducted for parameters within the benchmarks.

During the August sampling period, the concentration of copper at the bottom of the RSA site located in the north arm of Stephens Lake (0.194 mg/L) was well above the benchmark of 0.0096 mg/L. Similarly, the concentration of copper was also elevated at the same site in August 2021. As copper enters the water through the weathering of rocks and soils, it is likely that the elevated concentrations at this site are indicative of a local phenomenon and are not likely to be Project-related. Elevated copper concentrations were not measured at any other site or during any other sampling period.

The concentration of mercury at the bottom of the RSA site located in the north arm of Stephens Lake (101 ng/L) greatly exceeded the benchmark of 26 ng/L in September. Mercury was not elevated at this site during any other sampling period in 2022, nor was it elevated at the surface during the same sampling period. Moreover, the detection limit of this sample was increased due to sample dilution, which prevented comparisons with other sites. As Stephens Lake north is a flooded area, increased methylmercury concentrations would be expected, rather than increased total mercury concentrations. For all these reasons, this result is considered suspect.

6.0 SUMMARY AND CONCLUSIONS

Key questions that will be addressed through water quality monitoring following Keeyask reservoir impoundment are:

- *Does Project operation cause or contribute to exceedances of water quality objectives or guidelines for the protection of aquatic life?*
- *What are the magnitude and spatial extent of effects of operation on water quality?*
- *Are changes in water quality consistent with predictions in the AE SV?*
- *Are there seasonal differences in effects on water quality?*
- *How does water quality vary over time?*

The EIS predicted that impacts to water quality would be greatest in flooded backbays in the Keeyask reservoir, with small changes expected along the main flow of the Nelson River (in the Keeyask reservoir and downstream from the GS). Flooded backbays were expected to experience reduced DO concentrations (notably in winter under ice cover), lower pH, reduced water clarity, and increased concentrations of nutrients, colour, TSS/turbidity, total dissolved solids (TDS)/conductivity, organic carbon, and metals. These effects were expected to be greatest during the initial years after impoundment of the reservoir to the full supply level (FSL) and decline notably thereafter, stabilizing within ten to fifteen years.

Monitoring in 2022 indicated that, as predicted in the EIS, changes in water quality parameters were generally greater in the flooded backbays than in the mainstem of the Keeyask reservoir. Within the Keeyask reservoir backbays:

- Total phosphorus (TP) exceeded the benchmark in at least two backbays during sampling in March, July, and August. Elevated levels of TP in the backbays following reservoir impoundment was predicted in the EIS. Flooding of terrestrial habitat and the resulting decomposition of flooded organic materials can increase levels of nutrients including phosphorus.
- Mean chlorophyll a concentrations were above the benchmark of 10.00 µg/L within one backbay in July, August, and October. Increases in chlorophyll a concentrations in the backbays may be partially related to increases in nutrients (*i.e.*, phosphorus) leading to increased algal production.
- In March, concentrations of dissolved organic carbon (DOC), true colour, and iron were high in two backbays. Both true colour and DOC were expected to increase in backbays where peatlands were flooded as the vegetation breaks down and releases its organic components. Elevated iron concentrations were expected during the ice cover period in areas that exhibit low levels of oxygen as it becomes soluble and is released into the water under these conditions.

- Dissolved oxygen levels were low at several sites in each reservoir backbay during most sampling periods. Most measurements showing low DO were observed at the bottom of the water column where heterotrophic organisms use it up to break down the flooded vegetation. In August 2022, the largest number of sites showed DO levels below benchmark throughout the water column. However, by October, all sites in each backbay displayed DO levels above benchmark throughout the entire water column.
- Cadmium exceeded the benchmark at one site in one backbay in August. This result was marked suspect as all other cadmium concentrations measured well below the benchmark at other sites within the same backbay during this sampling period, and values at this site were not elevated during any other sampling period.
- Mean methylmercury concentrations were not above benchmark during any sampling period. However, elevated levels were observed at three individual backbay sites in March and one individual backbay site in August. Methylmercury concentrations were expected to increase as flooding typically increases the fraction of methylmercury in the water.

The EIS predicted small and few changes in water quality along the main flow of the Nelson River, either upstream of the GS in the Keeyask reservoir or downstream of the GS. The primary effect on water quality along the main flow of the river was predicted to be reductions in TSS concentrations in the reservoir and for several kilometres downstream in Stephens Lake in the long-term. Some variables that are correlated to TSS, such as total phosphorus (TP) and some metals, were predicted to slightly decrease in these areas in association with the deposition of suspended solids. Within the local and regional study areas:

- A high concentration of copper at the bottom of the north arm of Stephens Lake was seen in August 2021 and again in August 2022. Elevated concentrations of copper were not seen at the surface at this site, nor at the bottom during any other sampling period. Thus, these elevated values are not likely to be a result of the Project.
- The total mercury concentration in the bottom sample collected in the north arm of Stephens Lake was high; however, this result was marked as suspect given that mercury was not elevated at this site during any other sampling period, or at the surface during the same sampling period and the detection limit of the sample was increased due to sample dilution.

Water quality monitoring will continue in 2023 using the same parameters and at the same locations in March/April, June, July, August, and September.

7.0 LITERATURE CITED

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APPENDICES

APPENDIX 1:

TABLES OF WATER QUALITY PARAMETERS MEASURED IN THE KEEYASK RESERVOIR BACKBAYS, THE LOCAL STUDY AREA, AND THE REGIONAL STUDY AREA, 2022

Table A1-1: Benchmark and mean values of key water quality parameters measured in the Keeyask reservoir and backbays during the water quality monitoring program, 2022.	48
Table A1-2: Mean values of additional parameters measured in the Keeyask reservoir mainstem and backbays during the water quality monitoring program, 2022.	53
Table A1-3: Benchmark and mean values of key water quality parameters measured in the Local Study Area (LSA) during the water quality monitoring program, 2022.....	56
Table A1-4: Benchmark and mean values of key water quality parameters measured in the Regional Study Area (RSA) during the water quality monitoring program, 2022.....	59
Table A1-5: Mean values of additional parameters measured in the Local Study Area (LSA) during the water quality monitoring program, 2022.....	64
Table A1-6: Mean values of additional parameters measured in the Regional Study Area (RSA) during the water quality monitoring program, 2022.	66

Table A1-1: Benchmark and mean values of key water quality parameters measured in the Keeyask reservoir and backbays during the water quality monitoring program, 2022. Values in bold exceeded benchmark.

Indicator	Unit	Benchmark ¹	March				
			Zone 1b	Zone 4	Zone 8	Zone 11	Zone 12
Ammonia	(mg N/L)	0.49	<0.010	0.021	0.120	0.098	0.170
Nitrate/ Nitrite	(mg N/L)	2.93	0.115	0.121	0.0702	0.0945	0.0809
Total Phosphorous	(mg/L)	0.058	0.0407	0.0421	0.100	0.0775	0.124
Chlorophyll <i>a</i>	(µg/L)	10.0	0.73	1.53	8.08	1.45	1.73
Total Suspended Solids	(mg/L)	9.2/29.2 ²	3.4	1.4	2.9	2.1	2.9
Laboratory pH	-	6.5-9.0	8.11	7.95	7.69	7.87	7.64
Dissolved Oxygen	(mg/L)	9.5 ³	15.43	14.87	10.07	11.17	10.90
Aluminum	(mg/L)	1.98	0.454	0.447	0.306	0.293	0.283
Arsenic	(mg/L)	0.150	0.00120	0.00115	0.00141	0.00119	0.00135
Boron	(mg/L)	1.5	0.022	0.022	0.020	0.021	0.017
Cadmium	(mg/L)	0.00029	0.0000106	0.0000095	0.0000089	0.0000098	0.0000099
Chromium	(mg/L)	0.093	0.00077	0.00080	0.00056	0.00053	0.00051
Copper	(mg/L)	0.0101	0.00149	0.00219	0.00132	0.00133	0.00121
Iron	(mg/L)	1.45	0.440	0.459	1.25	0.587	1.14
Lead	(mg/L)	0.0036	0.000212	0.000413	0.000155	0.000150	0.000143
Mercury	(ng/L)	26	<0.50	0.63	2.13	1.81	3.00
Methylmercury	(ng/L)	4	0.027	0.046	1.91	1.18	2.04
Molybdenum	(mg/L)	0.073	0.000546	0.00055	0.000434	0.000483	0.000430
Nickel	(mg/L)	0.056	0.00136	0.0014	0.00119	0.00115	0.00107
Selenium	(mg/L)	0.0010	0.000099	0.000115	0.000130	0.000111	0.000095
Silver	(mg/L)	0.0001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thallium	(mg/L)	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Uranium	(mg/L)	0.033	0.000591	0.00060	0.00043	0.000473	0.000413
Zinc	(mg/L)	0.129	0.0032	0.0063	0.0036	0.0038	0.0030

1. Values indicated for calculated benchmarks (*i.e.*, ammonia and hardness dependent metals) are the most stringent calculated for the sampling period.

2. Lower value represents chronic benchmark (*i.e.*, background plus 5 mg/L); higher value represents short-term benchmark (*i.e.*, background plus 25 mg/L). Values are based on the mean TSS measured at Split/Clark Lake during the sampling period.

3. Benchmark indicated is specific to the sampling period; *i.e.*, 9.5 mg/L for ice-cover season, and 6.5 mg/L for the open-water season.

Table A1-1: Benchmark and mean values of key water quality parameters measured in the Keeyask reservoir and backbays during the water quality monitoring program, 2022 (continued).

Indicator	Unit	Benchmark ¹	June				
			Zone 1b	Zone 4	Zone 8	Zone 11	Zone 12
Ammonia	(mg N/L)	1.59	0.014	0.011	0.011	0.010	0.015
Nitrate/ Nitrite	(mg N/L)	2.93	0.0203	0.00624	0.0091	0.0084	0.0164
Total Phosphorous	(mg/L)	0.058	0.0334	0.0344	0.0436	0.0409	0.0455
Chlorophyll <i>a</i>	(µg/L)	10.0	1.78	4.22	4.54	5.10	4.74
Total Suspended Solids	(mg/L)	13.8/33.8 ²	6.8	4.0	5.3	3.5	4.5
Laboratory pH	-	6.5-9.0	8.14	8.05	7.95	8.04	8.04
Dissolved Oxygen	(mg/L)	6.5 ³	9.51	8.99	8.74	8.39	9.17
Aluminum	(mg/L)	1.98	0.204	0.137	0.183	0.180	0.181
Arsenic	(mg/L)	0.150	0.00120	0.00108	0.00115	0.00103	0.00120
Boron	(mg/L)	1.5	0.024	0.023	0.021	0.020	0.020
Cadmium	(mg/L)	0.00029	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Chromium	(mg/L)	0.093	0.00040	0.00029	0.00074	0.00032	0.00026
Copper	(mg/L)	0.0101	0.00160	0.00126	0.00125	0.00100	0.00108
Iron	(mg/L)	1.45	0.218	0.150	0.239	0.193	0.181
Lead	(mg/L)	0.0036	0.000169	0.000096	0.000121	0.000145	0.000115
Mercury	(ng/L)	26	0.98	0.99	1.24	1.69	1.56
Methylmercury	(ng/L)	4	0.052	0.194	0.363	0.469	0.404
Molybdenum	(mg/L)	0.073	0.000580	0.000557	0.000540	0.000462	0.000529
Nickel	(mg/L)	0.056	0.00121	0.00097	0.00110	0.00093	0.00078
Selenium	(mg/L)	0.0010	0.000115	0.000111	0.000130	0.000102	0.000094
Silver	(mg/L)	0.0001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thallium	(mg/L)	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Uranium	(mg/L)	0.033	0.000626	0.000482	0.000466	0.000339	0.000480
Zinc	(mg/L)	0.130	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030

1. Values indicated for calculated benchmarks (*i.e.*, ammonia and hardness dependent metals) are the most stringent calculated for the sampling period.

2. Lower value represents chronic benchmark (*i.e.*, background plus 5 mg/L); higher value represents short-term benchmark (*i.e.*, background plus 25 mg/L). Values are based on the mean TSS measured at Split/Clark Lake during the sampling period.

3. Benchmark indicated is specific to the sampling period; *i.e.*, 9.5 mg/L for ice-cover season, and 6.5 mg/L for the open-water season.

Table A1-1: Benchmark and mean values of key water quality parameters measured in the Keeyask reservoir and backbays during the water quality monitoring program, 2022. Values in bold exceeded benchmark (continued).

Indicator	Unit	Benchmark ¹	July				
			Zone 1b	Zone 4	Zone 8	Zone 11	Zone 12
Ammonia	(mg N/L)	0.98	0.063	0.017	0.031	0.036	0.041
Nitrate/ Nitrite	(mg N/L)	2.93	0.0280	<0.0051	0.0100	0.0132	0.0219
Total Phosphorous	(mg/L)	0.058	0.0388	0.0430	0.0665	0.0695	0.0548
Chlorophyll <i>a</i>	(µg/L)	10.0	1.31	12.2	4.41	5.00	9.48
Total Suspended Solids	(mg/L)	8.9/28.9 ²	7.0	3.1	2.0	2.9	3.3
Laboratory pH	-	6.5-9.0	8.15	7.96	8.08	7.97	8.13
Dissolved Oxygen	(mg/L)	6.5 ³	8.85	8.15	7.42	6.34	8.17
Aluminum	(mg/L)	1.98	0.150	0.069	0.0751	0.079	0.099
Arsenic	(mg/L)	0.150	0.00134	0.00128	0.00134	0.00118	0.00126
Boron	(mg/L)	1.5	0.025	0.024	0.022	0.021	0.022
Cadmium	(mg/L)	0.00031	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Chromium	(mg/L)	0.099	0.00036	0.00015	0.00012	0.00013	0.00016
Copper	(mg/L)	0.0108	0.00144	0.00101	0.00093	0.00081	0.00101
Iron	(mg/L)	1.45	0.174	0.134	0.238	0.282	0.178
Lead	(mg/L)	0.0040	0.000114	0.000039	0.000056	0.000054	0.000067
Mercury	(ng/L)	26	0.84	1.65	1.67	2.16	1.46
Methylmercury	(ng/L)	4	0.062	0.628	1.15	1.27	0.840
Molybdenum	(mg/L)	0.073	0.000640	0.000572	0.000524	0.000469	0.000556
Nickel	(mg/L)	0.060	0.00109	0.00084	0.00081	0.00064	0.00084
Selenium	(mg/L)	0.0010	0.000128	0.000106	0.000042	0.000093	0.000037
Silver	(mg/L)	0.0001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thallium	(mg/L)	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Uranium	(mg/L)	0.033	0.000631	0.000432	0.000403	0.000364	0.000457
Zinc	(mg/L)	0.138	<0.0030	<0.0030	<0.0030	<0.0030	0.0036

1. Values indicated for calculated benchmarks (*i.e.*, ammonia and hardness dependent metals) are the most stringent calculated for the sampling period.

2. Lower value represents chronic benchmark (*i.e.*, background plus 5 mg/L); higher value represents short-term benchmark (*i.e.*, background plus 25 mg/L). Values are based on the mean TSS measured at Split/Clark Lake during the sampling period.

3. Benchmark indicated is specific to the sampling period; *i.e.*, 9.5 mg/L for ice-cover season, and 6.5 mg/L for the open-water season.

Table A1-1: Benchmark and mean values of key water quality parameters measured in the Keeyask reservoir and backbays during the water quality monitoring program, 2022. Values in bold exceeded benchmark (continued).

Indicator	Unit	Benchmark ¹	August				
			Zone 1b	Zone 4	Zone 8	Zone 11	Zone 12
Ammonia	(mg N/L)	1.17	0.025	0.041	0.028	0.040	0.056
Nitrate/ Nitrite	(mg N/L)	2.93	0.0196	0.0097	0.0068	0.0194	0.0180
Total Phosphorous	(mg/L)	0.058	0.0322	0.0644	0.0528	0.0631	0.0500
Chlorophyll <i>a</i>	(µg/L)	10.0	2.09	11.4	5.38	6.92	5.27
Total Suspended Solids	(mg/L)	7.9/27.9 ²	2.5	3.3	2.0	1.9	1.5
Laboratory pH	-	6.5-9.0	8.14	7.94	8.15	8.17	8.04
Dissolved Oxygen	(mg/L)	6.5 ³	8.98	7.59	6.99	6.91	7.92
Aluminum	(mg/L)	1.98	0.151	0.118	0.068	0.050	0.082
Arsenic	(mg/L)	0.150	0.00133	0.00138	0.00131	0.00119	0.00132
Boron	(mg/L)	1.5	0.025	0.024	0.016	0.020	0.023
Cadmium	(mg/L)	0.00028	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Chromium	(mg/L)	0.089	0.00038	0.00033	0.00025	0.00015	0.00022
Copper	(mg/L)	0.0096	0.00135	0.00106	0.00091	0.00087	0.00100
Iron	(mg/L)	1.45	0.174	0.187	0.213	0.132	0.177
Lead	(mg/L)	0.0033	0.000091	0.000058	0.000047	0.000033	0.000056
Mercury	(ng/L)	26	0.75	1.91	3.01	2.40	0.96
Methylmercury	(ng/L)	4	0.094	0.838	1.36	1.62	0.700
Molybdenum	(mg/L)	0.073	0.000626	0.000577	0.000497	0.000471	0.000558
Nickel	(mg/L)	0.054	0.00104	0.00094	0.00075	0.00074	0.00086
Selenium	(mg/L)	0.0010	0.000120	0.000130	0.000108	0.000088	0.000111
Silver	(mg/L)	0.0001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thallium	(mg/L)	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Uranium	(mg/L)	0.033	0.000628	0.000452	0.000356	0.000335	0.000460
Zinc	(mg/L)	0.124	<0.0030	<0.0030	0.0100	<0.0030	<0.0030

1. Values indicated for calculated benchmarks (i.e., ammonia and hardness dependent metals) are the most stringent calculated for the sampling period.

2. Lower value represents chronic benchmark (i.e., background plus 5 mg/L); higher value represents short-term benchmark (i.e., background plus 25 mg/L). Values are based on the mean TSS measured at Split/Clark Lake during the sampling period.

3. Benchmark indicated is specific to the sampling period; i.e., 9.5 mg/L for ice-cover season, and 6.5 mg/L for the open-water season.

Table A1-1: Benchmark and mean values of key water quality parameters measured in the Keeyask reservoir and backbays during the water quality monitoring program, 2022. Values in bold exceeded benchmark (continued).

Indicator	Unit	Benchmark ¹	October				
			Zone 1b	Zone 4	Zone 8	Zone 11	Zone 12
Ammonia	(mg N/L)	1.53	0.035	0.021	0.014	0.034	0.027
Nitrate/ Nitrite	(mg N/L)	2.93	0.0826	0.0304	0.0289	0.0504	0.0726
Total Phosphorous	(mg/L)	0.058	0.0348	0.0350	0.0365	0.0334	0.0368
Chlorophyll <i>a</i>	(µg/L)	10.0	1.39	11.3	9.79	7.71	4.55
Total Suspended Solids	(mg/L)	7.2/27.2 ²	1.9	2.8	1.3	2.0	2.2
Laboratory pH	-	6.5-9.0	8.22	8.18	7.84	8.16	8.14
Dissolved Oxygen	(mg/L)	6.5 ³	11.31	10.90	10.11	10.54	11.20
Aluminum	(mg/L)	1.98	0.243	0.178	0.113	0.122	0.193
Arsenic	(mg/L)	0.150	0.00132	0.00110	0.00112	0.00110	0.00122
Boron	(mg/L)	1.5	0.026	0.024	0.017	0.022	0.023
Cadmium	(mg/L)	0.00029	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Chromium	(mg/L)	0.095	0.00053	0.00040	0.00035	0.00025	0.00032
Copper	(mg/L)	0.0103	0.00149	0.00106	0.00092	0.00094	0.00112
Iron	(mg/L)	1.45	0.255	0.194	0.211	0.164	0.191
Lead	(mg/L)	0.0037	0.000144	0.000077	0.000068	0.000072	0.000109
Mercury	(ng/L)	26	0.57	0.82	0.77	0.92	0.93
Methylmercury	(ng/L)	4	0.037	0.187	0.266	0.213	0.163
Molybdenum	(mg/L)	0.073	0.000676	0.000643	0.000454	0.000531	0.000619
Nickel	(mg/L)	0.057	0.00116	0.00089	0.00082	0.00078	0.00091
Selenium	(mg/L)	0.0010	0.000117	0.000098	0.000096	0.000100	0.000117
Silver	(mg/L)	0.0001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thallium	(mg/L)	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Uranium	(mg/L)	0.033	0.000716	0.000517	0.000399	0.000440	0.000573
Zinc	(mg/L)	0.132	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030

1. Values indicated for calculated benchmarks (*i.e.*, ammonia and hardness dependent metals) are the most stringent calculated for the sampling period.

2. Lower value represents chronic benchmark (*i.e.*, background plus 5 mg/L); higher value represents short-term benchmark (*i.e.*, background plus 25 mg/L). Values are based on the mean TSS measured at Split/Clark Lake during the sampling period.

3. Benchmark indicated is specific to the sampling period; *i.e.*, 9.5 mg/L for ice-cover season, and 6.5 mg/L for the open-water season.

Table A1-2: Mean values of additional parameters measured in the Keeyask reservoir mainstem and backbays during the water quality monitoring program, 2022.

Indicator	Unit	March					June				
		Zone 1b	Zone 4	Zone 8	Zone 11	Zone 12	Zone 1b	Zone 4	Zone 8	Zone 11	Zone 12
Dissolved Phosphorous	(mg/L)	0.0282	0.0290	0.0719	0.0551	0.0975	0.0263	0.0245	0.0305	0.0279	0.0341
Total Nitrogen	(mg/L)	0.45	0.50	0.76	0.63	0.76	0.43	0.42	0.52	0.45	0.48
Dissolved Organic Carbon	(mg/L)	8.66	8.95	14.2	10.4	12.7	8.50	9.01	9.61	10.7	9.78
<i>In situ</i> Turbidity	(NTU)	8.47	7.30	6.00	5.08	4.63	10.0	5.64	6.06	4.57	6.67
Laboratory Turbidity	(NTU)	11.5	10.2	8.11	8.46	10.9	12.5	6.00	7.42	5.16	7.35
<i>In situ</i> Specific Conductance	(µS/cm)	283	289	302	304	308	291	276	269	251	273
Laboratory Specific Conductance	(µmhos/cm)	288	285	319	309	304	284	270	265	243	266
Total Dissolved Solids	(mg/L)	180	177	200	177	193	184	169	165	151	169
True Color	(TCU)	13.5	15.5	53.9	27.4	43.0	18.3	23.1	24.6	31.1	31.6
<i>In situ</i> pH	-	7.85	7.66	7.34	7.39	7.30	7.93	7.79	7.74	7.56	7.82
Hardness as CaCO ₃	(mg/L)	113	122	144	128	127	126	118	116	114	110
Chloride	(mg/L)	11.8	11.7	12.3	12.5	12.0	13.1	11.9	11.4	10.0	11.7
Sulfate	(mg/L)	28.1	27.2	23.0	26.7	22.9	30.0	26.7	25.9	21.8	25.9
Calcium	(mg/L)	25.8	29.0	35.0	30.0	30.0	28.5	27.2	26.6	27.5	25.0
Magnesium	(mg/L)	11.9	12.2	13.7	12.9	12.6	13.2	12.2	12.0	11.0	11.6
Potassium	(mg/L)	2.58	2.50	2.80	2.76	2.70	2.65	2.41	2.43	2.17	2.45
Sodium	(mg/L)	12.9	13.3	13.9	13.7	12.5	15.1	13.9	13.7	12.5	13.0

Table A1-2: Mean values of additional parameters measured in the Keeyask reservoir mainstem and backbays during the water quality monitoring program, 2022 (continued).

Indicator	July					August				
	Zone 1b	Zone 4	Zone 8	Zone 11	Zone 12	Zone 1b	Zone 4	Zone 8	Zone 11	Zone 12
Dissolved Phosphorous	0.0254	0.0301	0.0520	0.0531	0.0327	0.0256	0.0368	0.0407	0.0475	0.0382
Total Nitrogen	0.29	0.41	0.38	0.35	0.43	0.51	0.54	0.51	0.59	0.64
Dissolved Organic Carbon	8.41	9.88	10.6	11.1	10.0	9.24	9.40	12.0	10.2	11.4
<i>In situ</i> Turbidity	7.70	3.73	3.75	3.96	6.21	5.79	3.44	3.02	2.42	3.71
Laboratory Turbidity	7.92	4.10	4.12	4.57	7.05	5.36	3.57	2.92	2.22	3.16
<i>In situ</i> Specific Conductance	304	296	288	285	296	311	300	290	301	303
Laboratory Specific Conductance	299	292	284	279	291	304	297	283	293	297
Total Dissolved Solids	194	176	193	206	195	179	193	175	183	174
True Color	14.0	23.0	49.4	42.8	29.8	6.5	31.5	33.6	31.3	23.5
<i>In situ</i> pH	7.86	7.73	7.55	7.38	7.67	7.99	7.63	7.59	7.62	7.72
Hardness as CaCO ₃	132	129	125	119	125	130	127	117	122	126
Chloride	13.8	13.3	12.8	12.2	13.3	14.6	13.6	12.9	13.7	14.2
Sulfate	32.1	29.1	26.6	25.1	28.9	34.4	28.6	26.0	27.1	30.3
Calcium	29.5	29.4	28.8	27.5	28.4	28.8	28.4	26.7	27.9	28.2
Magnesium	14.1	13.4	12.9	12.1	13.2	14.2	13.6	12.2	12.8	13.5
Potassium	2.65	2.59	2.65	2.43	2.69	2.91	2.70	2.50	2.68	2.79
Sodium	16.1	15.3	14.5	13.6	15.1	16.7	15.8	14.3	15.0	16.0

Table A1-2: Mean values of additional parameters measured in the Keeyask reservoir mainstem and backbays during the water quality monitoring program, 2022 (continued).

Indicator	October				
	Zone 1b	Zone 4	Zone 8	Zone 11	Zone 12
Dissolved Phosphorous	0.0285	0.0188	0.0129	0.0208	0.0263
Total Nitrogen	0.39	0.37	0.55	0.45	0.40
Dissolved Organic Carbon	7.54	8.71	12.1	10.6	8.91
<i>In situ</i> Turbidity	8.27	5.10	4.20	4.61	6.52
Laboratory Turbidity	7.72	4.45	4.06	4.33	5.97
<i>In situ</i> Specific Conductance	295	293	267	286	297
Laboratory Specific Conductance	306	305	272	294	307
Total Dissolved Solids	184	181	180	157	182
True Color	9.9	16.6	38.9	25.0	18.2
<i>In situ</i> pH	8.28	8.00	7.85	7.93	8.10
Hardness as CaCO ₃	135	133	116	131	134
Chloride	12.8	12.8	10.8	12.2	13.3
Sulfate	32.5	31.1	23.8	27.9	31.7
Calcium	30.7	30.2	27.1	30.3	30.7
Magnesium	14.1	14.0	11.6	13.4	13.9
Potassium	2.62	2.61	2.35	2.60	2.65
Sodium	15.4	15.5	12.9	14.8	15.7

Table A1-3: Benchmark and mean values of key water quality parameters measured in the Local Study Area (LSA) during the water quality monitoring program, 2022.

Indicator	Unit	Benchmark ¹	March				Benchmark ¹	June			
			Split Lake	Upstream	Near-field	Far-field		Clark Lake	Upstream	Near-field	Far-field
Ammonia	(mg N/L)	0.49	<0.010	0.010	<0.010	<0.010	1.59	0.020	0.021	<0.010	<0.010
Nitrate/ Nitrite	(mg N/L)	2.93	0.104	0.115	0.114	0.116	2.93	0.0127	0.0165	0.0237	0.0121
Total Phosphorous	(mg/L)	0.058	0.0386	0.0448	0.0406	0.0400	0.058	0.0342	0.0344	0.0335	0.0314
Chlorophyll <i>a</i>	(µg/L)	10.0	0.30	2.89	0.34	0.52	10.0	1.47	1.64	1.68	2.65
Total Suspended Solids	(mg/L)	9.2/29.2 ²	4.2	3.2	2.8	3.1	13.8/33.8 ²	8.8	7.8	7.7	5.6
Laboratory pH	-	6.5-9.0	7.98	8.12	8.08	7.79	6.5-9.0	8.14	8.13	8.09	8.10
Dissolved Oxygen	(mg/L)	9.5 ³	15.81	15.48	15.84	15.67	6.5 ³	9.60	9.54	10.07	9.93
Aluminum	(mg/L)	1.98	0.550	0.267	0.438	0.503	1.98	0.254	0.389	0.158	0.166
Arsenic	(mg/L)	0.150	0.00105	0.00128	0.00125	0.00128	0.150	0.00119	0.00131	0.00115	0.00118
Boron	(mg/L)	1.5	0.020	0.023	0.021	0.022	1.5	0.024	0.023	0.023	0.023
Cadmium	(mg/L)	0.00029	<0.0000050	0.0000108	0.0000085	0.0000063	0.00029	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Chromium	(mg/L)	0.093	0.00097	0.00051	0.00074	0.00097	0.093	0.00047	0.00061	0.00034	0.00046
Copper	(mg/L)	0.0101	0.00174	0.00174	0.00171	0.00178	0.0101	0.00160	0.00157	0.00153	0.00160
Iron	(mg/L)	1.45	0.554	0.285	0.403	0.515	1.45	0.266	0.355	0.173	0.193
Lead	(mg/L)	0.0036	0.000244	0.000185	0.000202	0.000221	0.0036	0.000196	0.000212	0.000160	0.000150
Mercury	(ng/L)	26	<0.50	<0.50	<0.50	<0.50	26	0.83	0.98	0.80	0.78
Methylmercury	(ng/L)	4	<0.020	0.023	0.023	0.029	4	0.029	0.040	0.099	0.045
Molybdenum	(mg/L)	0.073	0.000490	0.000579	0.000605	0.000641	0.073	0.000563	0.000610	0.000553	0.000566
Nickel	(mg/L)	0.056	0.00149	0.00129	0.00134	0.00152	0.056	0.00128	0.00121	0.00114	0.00122
Selenium	(mg/L)	0.0010	0.000104	0.000135	0.000108	0.000121	0.0010	0.000104	0.000115	0.000122	0.000121
Silver	(mg/L)	0.0001	0.000011	<0.000010	<0.000010	0.000015	0.0001	<0.000010	<0.000010	<0.000010	<0.000010
Thallium	(mg/L)	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	0.0008	<0.000010	<0.000010	<0.000010	<0.000010
Uranium	(mg/L)	0.033	0.000551	0.000554	0.000610	0.000654	0.033	0.000634	0.000665	0.000611	0.000604
Zinc	(mg/L)	0.129	0.0032	0.0033	<0.0030	<0.0030	0.130	<0.0030	<0.0030	<0.0030	<0.0030

1. Values indicated for calculated benchmarks (*i.e.*, ammonia and hardness dependent metals) are the most stringent calculated for the sampling period.

2. Lower value represents chronic benchmark (*i.e.*, background plus 5 mg/L); higher value represents short-term benchmark (*i.e.*, background plus 25 mg/L). Values are based on the mean TSS measured at Split/Clark Lake during the sampling period.

3. Benchmark indicated is specific to the sampling period; *i.e.*, 9.5 mg/L for ice-cover season, and 6.5 mg/L for the open-water season.

Table A1-3: Benchmark and mean values of key water quality parameters measured in the Local Study Area (LSA) during the water quality monitoring program, 2022 (continued).

Indicator	Unit	Benchmark ¹	July				Benchmark ¹	August			
			Clark Lake	Upstream	Near-Field	Far-Field		Clark Lake	Upstream	Near-Field	Far-Field
Ammonia	(mg N/L)	0.98	0.030	0.047	0.033	0.024	1.17	0.031	0.024	0.024	0.023
Nitrate/ Nitrite	(mg N/L)	2.93	0.0354	0.0247	0.0271	0.0281	2.93	0.0158	0.0197	0.0152	0.0169
Total Phosphorous	(mg/L)	0.058	0.0309	0.0394	0.0354	0.0348	0.058	0.0345	0.0323	0.0353	0.0349
Chlorophyll <i>a</i>	(µg/L)	10.0	1.25	1.47	1.93	2.25	10.0	1.83	1.97	2.02	2.25
Total Suspended Solids	(mg/L)	8.9/28.9 ²	3.9	4.4	5.0	3.5	7.9/27.9 ²	2.9	2.5	2.0	2.8
Laboratory pH	-	6.5-9.0	8.08	8.19	8.12	8.16	6.5-9.0	8.15	8.20	8.14	8.20
Dissolved Oxygen	(mg/L)	6.5 ³	8.93	8.84	9.47	9.03	6.5 ³	9.19	9.07	9.65	9.20
Aluminum	(mg/L)	1.98	0.160	0.140	0.191	0.159	1.98	0.156	0.134	0.139	0.150
Arsenic	(mg/L)	0.150	0.00131	0.00131	0.00136	0.00130	0.150	0.00132	0.00129	0.00135	0.00134
Boron	(mg/L)	1.5	0.024	0.025	0.022	0.024	1.5	0.026	0.022	0.025	0.025
Cadmium	(mg/L)	0.00031	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.00028	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Chromium	(mg/L)	0.099	0.00039	0.00035	0.00035	0.00036	0.089	0.00040	0.00044	0.00038	0.00041
Copper	(mg/L)	0.0108	0.00147	0.00145	0.00140	0.00145	0.0096	0.00144	0.00139	0.00140	0.00139
Iron	(mg/L)	1.45	0.192	0.173	0.180	0.181	1.45	0.188	0.169	0.165	0.185
Lead	(mg/L)	0.0040	0.000126	0.000114	0.000114	0.000116	0.0033	0.000113	0.000097	0.000097	0.000098
Mercury	(ng/L)	26	0.92	1.70	0.61	0.58	26	0.76	0.50	0.71	0.64
Methylmercury	(ng/L)	4	0.069	0.071	0.088	0.078	4	0.052	0.064	0.082	0.082
Molybdenum	(mg/L)	0.073	0.000640	0.000652	0.000626	0.000663	0.073	0.000648	0.000656	0.000646	0.000639
Nickel	(mg/L)	0.060	0.00116	0.00111	0.00107	0.00108	0.054	0.00116	0.00117	0.00108	0.00109
Selenium	(mg/L)	0.0010	0.000110	0.000112	0.000127	0.000121	0.0010	0.000163	0.000133	0.000129	0.000119
Silver	(mg/L)	0.0001	<0.000010	<0.000010	<0.000010	<0.000010	0.0001	<0.000010	<0.000010	<0.000010	<0.000010
Thallium	(mg/L)	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	0.0008	<0.000010	<0.000010	<0.000010	<0.000010
Uranium	(mg/L)	0.033	0.000628	0.000625	0.000617	0.000631	0.033	0.000634	0.000652	0.000622	0.000631
Zinc	(mg/L)	0.138	0.0043	<0.0030	<0.0030	<0.0030	0.124	<0.0030	<0.0030	<0.0030	<0.0030

1. Values indicated for calculated benchmarks (*i.e.*, ammonia and hardness dependent metals) are the most stringent calculated for the sampling period.

2. Lower value represents chronic benchmark (*i.e.*, background plus 5 mg/L); higher value represents short-term benchmark (*i.e.*, background plus 25 mg/L). Values are based on the mean TSS measured at Split/Clark Lake during the sampling period.

3. Benchmark indicated is specific to the sampling period; *i.e.*, 9.5 mg/L for ice-cover season, and 6.5 mg/L for the open-water season.

Table A1-3: Benchmark and mean values of key water quality parameters measured in the Local Study Area (LSA) during the water quality monitoring program, 2022 (continued).

Indicator	Unit	Benchmark ¹	October			
			Clark Lake	Upstream	Near-Field	Far-Field ⁴
Ammonia	(mg N/L)	1.53	0.032	0.028	0.034	-
Nitrate/ Nitrite	(mg N/L)	2.93	0.0726	0.0809	0.0841	-
Total Phosphorous	(mg/L)	0.058	0.0356	0.0350	0.0364	-
Chlorophyll <i>a</i>	(µg/L)	10.0	1.14	1.13	1.31	-
Total Suspended Solids	(mg/L)	7.2/27.2 ²	2.2	2.3	2.3	-
Laboratory pH	-	6.5-9.0	8.18	8.19	8.30	-
Dissolved Oxygen	(mg/L)	6.5 ³	11.46	11.34	12.06	-
Aluminum	(mg/L)	1.98	0.251	0.195	0.177	-
Arsenic	(mg/L)	0.150	0.00125	0.00132	0.00131	-
Boron	(mg/L)	1.5	0.023	0.024	0.024	-
Cadmium	(mg/L)	0.00029	<0.0000050	<0.0000050	<0.0000050	-
Chromium	(mg/L)	0.095	0.00059	0.00047	0.00044	-
Copper	(mg/L)	0.0103	0.00154	0.00149	0.00149	-
Iron	(mg/L)	1.45	0.313	0.233	0.216	-
Lead	(mg/L)	0.0037	0.000169	0.000133	0.000124	-
Mercury	(ng/L)	26	0.60	<0.50	<0.50	-
Methylmercury	(ng/L)	4	0.032	0.034	0.043	-
Molybdenum	(mg/L)	0.073	0.000586	0.000637	0.000643	-
Nickel	(mg/L)	0.057	0.00119	0.00113	0.00111	-
Selenium	(mg/L)	0.0010	0.000112	0.000116	0.000113	-
Silver	(mg/L)	0.0001	<0.000010	<0.000010	<0.000010	-
Thallium	(mg/L)	0.0008	<0.000010	<0.000010	<0.000010	-
Uranium	(mg/L)	0.033	0.000656	0.000720	0.000723	-
Zinc	(mg/L)	0.132	<0.0030	<0.0030	<0.0030	-

1. Values indicated for calculated benchmarks (*i.e.*, ammonia and hardness dependent metals) are the most stringent calculated for the sampling period.

2. Lower value represents chronic benchmark (*i.e.*, background plus 5 mg/L); higher value represents short-term benchmark (*i.e.*, background plus 25 mg/L). Values are based on the mean TSS measured at Split/Clark Lake during the sampling period.

3. Benchmark indicated is specific to the sampling period; *i.e.*, 9.5 mg/L for ice-cover season, and 6.5 mg/L for the open-water season.

4. Far-field not sampled in October 2022 due to safety concerns involved with weather.

Table A1-4: Benchmark and mean values of key water quality parameters measured in the Regional Study Area (RSA) during the water quality monitoring program, 2022.

Indicator	Unit	Benchmark ¹	March				
			STL-N SURF	STL-N BOT	STL-KETTLE	LNR-3	LNR-4
Ammonia	(mg N/L)	0.49	<0.010	<0.010	<0.010	<0.010	<0.010
Nitrate/ Nitrite	(mg N/L)	2.93	0.0423	0.0419	0.118	0.121	0.121
Total Phosphorous	(mg/L)	0.058	0.020	0.021	0.042	0.041	0.044
Chlorophyll <i>a</i>	(µg/L)	10.0	3.39	2.21	0.39	0.39	2.80
Total Suspended Solids	(mg/L)	9.2/29.2 ²	<1.0	<1.0	2.9	2.5	2.5
Laboratory pH	-	6.5-9.0	8.20	8.13	8.05	8.06	8.12
Dissolved Oxygen	(mg/L)	9.5 ³	15.76	14.86	15.78	15.78	15.63
Aluminum	(mg/L)	1.98	0.199	0.148	0.462	0.303	0.309
Arsenic	(mg/L)	0.150	0.00112	0.00108	0.00128	0.00135	0.00126
Boron	(mg/L)	1.5	0.020	0.019	0.023	0.023	0.023
Cadmium	(mg/L)	0.00029	0.0000144	0.0000063	0.0000171	0.0000205	0.0000222
Chromium	(mg/L)	0.093	0.00037	0.00030	0.00082	0.00055	0.00056
Copper	(mg/L)	0.0101	0.00658	0.00396	0.00208	0.00173	0.00210
Iron	(mg/L)	1.45	0.136	0.104	0.447	0.315	0.322
Lead	(mg/L)	0.0036	0.000259	0.000170	0.000254	0.000201	0.000256
Mercury	(ng/L)	26	0.86	1.02	0.68	<0.50	0.52
Methylmercury	(ng/L)	4	0.035	0.028	0.026	0.028	0.046
Molybdenum	(mg/L)	0.073	0.000455	0.000435	0.000629	0.000605	0.000596
Nickel	(mg/L)	0.056	0.00103	0.00088	0.00150	0.00129	0.00130
Selenium	(mg/L)	0.0010	0.000081	0.000086	0.000112	0.000107	0.000116
Silver	(mg/L)	0.0001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thallium	(mg/L)	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Uranium	(mg/L)	0.033	0.000494	0.000493	0.000638	0.000626	0.000622
Zinc	(mg/L)	0.129	0.0086	0.0047	0.0039	0.0033	0.0047

1. Values indicated for calculated benchmarks (*i.e.*, ammonia and hardness dependent metals) are the most stringent calculated for the sampling period.

2. Lower value represents chronic benchmark (*i.e.*, background plus 5 mg/L); higher value represents short-term benchmark (*i.e.*, background plus 25 mg/L). Values are based on the mean TSS measured at Split/Clark Lake during the sampling period.

3. Benchmark indicated is specific to the sampling period; *i.e.*, 9.5 mg/L for ice-cover season, and 6.5 mg/L for the open-water season.

Table A1-4: Benchmark and mean values of key water quality parameters measured in the Regional Study Area (RSA) during the water quality monitoring program, 2022 (continued).

Indicator	Unit	Benchmark¹	June								
			STL-N SURF	STL-N BOT	STL-KETTLE	LNR-3	LNR-4	LNR-5	LNR-6	LNR-7	LNR-8
Ammonia	(mg N/L)	1.59	<0.010	<0.010	0.013	0.017	0.018	0.017	0.013	0.015	<0.010
Nitrate/ Nitrite	(mg N/L)	2.93	<0.0051	<0.0051	0.0143	0.0127	0.0231	0.0139	0.0216	0.0151	0.0157
Total Phosphorous	(mg/L)	0.058	0.0164	0.0178	0.0332	0.0325	0.0320	0.0320	0.0318	0.0328	0.0330
Chlorophyll <i>a</i>	(µg/L)	10.0	2.59	2.18	1.88	1.50	1.03	1.41	1.47	1.42	1.49
Total Suspended Solids	(mg/L)	13.8/33.8 ²	<1.0	7.2	2.8	2.4	3.4	6.1	9.8	6.6	1.2
Laboratory pH	-	6.5-9.0	8.25	8.27	8.20	8.20	8.20	8.23	8.23	8.22	8.16
Dissolved Oxygen	(mg/L)	6.5 ³	9.91	9.91	9.76	10.03	10.13	10.74	11.47	10.70	10.36
Aluminum	(mg/L)	1.98	0.138	0.141	0.409	0.173	0.123	0.157	0.183	0.207	0.212
Arsenic	(mg/L)	0.150	0.00089	0.00091	0.00132	0.00126	0.00128	0.00120	0.00127	0.00122	0.00130
Boron	(mg/L)	1.5	0.016	0.017	0.025	0.024	0.024	0.023	0.025	0.024	0.023
Cadmium	(mg/L)	0.00029	<0.0000050	<0.0000050	<0.0000050	0.0000079	0.0000067	0.0000051	<0.0000050	<0.0000050	<0.0000050
Chromium	(mg/L)	0.093	0.00035	0.00036	0.00068	0.00038	0.00033	0.00036	0.00040	0.00046	0.00045
Copper	(mg/L)	0.0101	0.00133	0.00188	0.00164	0.00150	0.00144	0.00152	0.00147	0.00145	0.00147
Iron	(mg/L)	1.45	0.146	0.147	0.370	0.192	0.151	0.189	0.199	0.226	0.226
Lead	(mg/L)	0.0036	0.000135	0.000142	0.000205	0.000168	0.000171	0.000161	0.000157	0.000181	0.000165
Mercury	(ng/L)	26	<0.50	1.01	1.11	1.18	0.99	1.14	1.18	1.11	1.23
Methylmercury	(ng/L)	4	0.025	0.035	0.054	0.045	0.051	0.042	0.041	0.040	0.049
Molybdenum	(mg/L)	0.073	0.000299	0.000298	0.000643	0.000575	0.000560	0.000544	0.000641	0.000595	0.000559
Nickel	(mg/L)	0.056	0.00079	0.00085	0.00132	0.00112	0.00108	0.00108	0.00117	0.00121	0.00114
Selenium	(mg/L)	0.0010	0.000054	<0.000050	0.000109	0.000115	0.000094	0.000085	0.000134	0.000112	0.000093
Silver	(mg/L)	0.0001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thallium	(mg/L)	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Uranium	(mg/L)	0.033	0.000411	0.000413	0.000651	0.000620	0.000615	0.000611	0.000641	0.000619	0.000626
Zinc	(mg/L)	0.130	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030

1. Values indicated for calculated benchmarks (*i.e.*, ammonia and hardness dependent metals) are the most stringent calculated for the sampling period.

2. Lower value represents chronic benchmark (*i.e.*, background plus 5 mg/L); higher value represents short-term benchmark (*i.e.*, background plus 25 mg/L). Values are based on the mean TSS measured at Split/Clark Lake during the sampling period.

3. Benchmark indicated is specific to the sampling period; *i.e.*, 9.5 mg/L for ice-cover season, and 6.5 mg/L for the open-water season.

Table A1-4: Benchmark and mean values of key water quality parameters measured in the Regional Study Area (RSA) during the water quality monitoring program, 2022 (continued).

Indicator	Unit	Benchmark¹	July								
			STL-N SURF	STL-N BOT	STL-KETTLE	LNR-3	LNR-4	LNR-5	LNR-6	LNR-7	LNR-8
Ammonia	(mg N/L)	0.98	<0.010	<0.010	0.032	0.021	0.042	0.013	0.017	0.016	0.024
Nitrate/ Nitrite	(mg N/L)	2.93	<0.0051	<0.0051	0.0221	0.0209	0.0141	0.0204	0.0211	0.0202	0.0231
Total Phosphorous	(mg/L)	0.058	0.0155	0.0203	0.0331	0.0338	0.0322	0.0342	0.0337	0.0341	0.0343
Chlorophyll <i>a</i>	(µg/L)	10.0	3.02	1.78	1.42	0.87	0.77	1.05	0.97	1.06	1.22
Total Suspended Solids	(mg/L)	8.9/28.9 ²	1.9	1.7	2.8	1.6	1.1	2.7	2.5	5.3	6.6
Laboratory pH	-	6.5-9.0	8.36	8.34	8.15	8.28	8.29	8.29	8.29	8.29	8.24
Dissolved Oxygen	(mg/L)	6.5 ³	8.89	7.85	8.95	10.90*	9.91	9.97	10.18	9.72	9.61
Aluminum	(mg/L)	1.98	0.175	0.193	0.155	0.298	0.194	0.137	0.134	0.136	0.244
Arsenic	(mg/L)	0.150	0.00079	0.00082	0.00131	0.00131	0.00124	0.00130	0.00129	0.00131	0.00128
Boron	(mg/L)	1.5	0.016	0.016	0.024	0.024	0.024	0.025	0.025	0.025	0.025
Cadmium	(mg/L)	0.00031	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000052	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Chromium	(mg/L)	0.099	0.00036	0.00033	0.00035	0.00045	0.00035	0.00027	0.00025	0.00037	0.00044
Copper	(mg/L)	0.0108	0.00134	0.00134	0.00142	0.00155	0.00154	0.00150	0.00146	0.00151	0.00150
Iron	(mg/L)	1.45	0.127	0.139	0.169	0.243	0.170	0.146	0.142	0.154	0.224
Lead	(mg/L)	0.0040	0.000073	0.000077	0.000102	0.000123	0.000177	0.000110	0.000112	0.000127	0.000167
Mercury	(ng/L)	26	-	0.84	0.52	0.63	0.59	0.55	0.61	0.72	0.70
Methylmercury	(ng/L)	4	0.025	0.566	0.072	0.057	0.052	0.070	0.048	0.057	0.049
Molybdenum	(mg/L)	0.073	0.000403	0.000404	0.000678	0.000673	0.000686	0.000659	0.000635	0.000651	0.000704
Nickel	(mg/L)	0.060	0.00080	0.00079	0.00103	0.00113	0.00109	0.00110	0.00106	0.00111	0.00118
Selenium	(mg/L)	0.0010	0.000086	<0.000050	0.000110	0.000111	0.000098	0.000119	0.000139	0.000109	0.000107
Silver	(mg/L)	0.0001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thallium	(mg/L)	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Uranium	(mg/L)	0.033	0.000430	0.000426	0.000604	0.000657	0.000637	0.000649	0.000629	0.000653	0.000673
Zinc	(mg/L)	0.138	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030

1. Values indicated for calculated benchmarks (*i.e.*, ammonia and hardness dependent metals) are the most stringent calculated for the sampling period.

2. Lower value represents chronic benchmark (*i.e.*, background plus 5 mg/L); higher value represents short-term benchmark (*i.e.*, background plus 25 mg/L). Values are based on the mean TSS measured at Split/Clark Lake during the sampling period.

3. Benchmark indicated is specific to the sampling period; *i.e.*, 9.5 mg/L for ice-cover season, and 6.5 mg/L for the open-water season.

4. Water quality meter stopped working at this site, recorded values are considered suspect.

Table A1-4: Benchmark and mean values of key water quality parameters measured in the Regional Study Area (RSA) during the water quality monitoring program, 2022 (continued).

Indicator	Unit	Benchmark¹	August								
			STL-N SURF	STL-N BOT	STL-KETTLE	LNR-3	LNR-4	LNR-5	LNR-6	LNR-7	LNR-8
Ammonia	(mg N/L)	1.17	0.187	<0.010	<0.010	0.021	0.021	0.013	0.018	0.019	<0.010
Nitrate/ Nitrite	(mg N/L)	2.93	<0.0051	<0.0051	0.0133	0.0179	0.0157	0.0182	0.0449	0.0269	0.0208
Total Phosphorous	(mg/L)	0.058	0.0129	0.0166	0.0318	0.0323	0.0310	0.0315	0.0313	0.0329	0.0316
Chlorophyll <i>a</i>	(µg/L)	10.0	1.99	1.69	1.89	1.16	0.95	1.13	1.72	1.55	1.70
Total Suspended Solids	(mg/L)	7.9/27.9 ²	2.4	2.4	2.9	2.6	1.2	2.6	2.7	3.1	4.1
Laboratory pH	-	6.5-9.0	8.23	8.21	8.19	8.24	8.25	8.22	8.22	8.20	8.20
Dissolved Oxygen	(mg/L)	6.5 ³	8.97	7.88	9.24	9.62	9.72	9.95	10.32	9.62	9.68
Aluminum	(mg/L)	1.98	0.135	0.211	0.195	0.180	0.167	0.171	0.186	0.206	0.213
Arsenic	(mg/L)	0.150	0.00078	0.00081	0.00126	0.00130	0.00127	0.00128	0.00128	0.00125	0.00125
Boron	(mg/L)	1.5	0.016	0.014	0.021	0.020	0.020	0.020	0.020	0.020	0.020
Cadmium	(mg/L)	0.00028	<0.0000050	0.0000627	<0.0000050	<0.0000050	0.0000097	0.0000086	<0.0000050	<0.0000050	0.0000054
Chromium	(mg/L)	0.089	0.00025	0.00051	0.00035	0.00032	0.00030	0.00033	0.00033	0.00042	0.00037
Copper	(mg/L)	0.0096	0.00120	0.194	0.00142	0.00134	0.00136	0.00137	0.00134	0.00135	0.00135
Iron	(mg/L)	1.45	0.112	0.174	0.169	0.159	0.142	0.153	0.170	0.189	0.188
Lead	(mg/L)	0.0033	0.000066	0.000275	0.000098	0.000090	0.000136	0.000140	0.000091	0.000101	0.000102
Mercury	(ng/L)	26	0.69	0.84	1.45	0.57	0.54	0.80	0.54	0.79	0.62
Methylmercury	(ng/L)	4	0.027	0.030	0.076	0.068	0.053	0.078	0.075	0.061	0.066
Molybdenum	(mg/L)	0.073	0.000406	0.000391	0.000691	0.000682	0.000692	0.000664	0.000650	0.000658	0.000668
Nickel	(mg/L)	0.054	0.00075	0.00086	0.00099	0.00098	0.00106	0.00110	0.00099	0.00098	0.00096
Selenium	(mg/L)	0.0010	0.000068	0.000086	0.000127	0.000123	0.000105	0.000103	0.000115	0.000108	0.000102
Silver	(mg/L)	0.0001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thallium	(mg/L)	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Uranium	(mg/L)	0.033	0.000419	0.000427	0.000627	0.000653	0.000648	0.000648	0.000644	0.000638	0.000634
Zinc	(mg/L)	0.124	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030

1. Values indicated for calculated benchmarks (*i.e.*, ammonia and hardness dependent metals) are the most stringent calculated for the sampling period.

2. Lower value represents chronic benchmark (*i.e.*, background plus 5 mg/L); higher value represents short-term benchmark (*i.e.*, background plus 25 mg/L). Values are based on the mean TSS measured at Split/Clark Lake during the sampling period.

3. Benchmark indicated is specific to the sampling period; *i.e.*, 9.5 mg/L for ice-cover season, and 6.5 mg/L for the open-water season.

Table A1-4: Benchmark and mean values of key water quality parameters measured in the Regional Study Area (RSA) during the water quality monitoring program, 2022. Values in bold exceeded benchmark (continued).

Indicator	Unit	Benchmark ¹	September								
			STL-N SURF	STL-N BOT	STL-KETTLE	LNR-3	LNR-4	LNR-5	LNR-6	LNR-7	LNR-8
Ammonia	(mg N/L)	1.53	<0.010	0.014	0.031	<0.010	0.016	0.018	0.019	0.013	<0.020
Nitrate/ Nitrite	(mg N/L)	2.93	<0.0051	<0.0051	0.0443	0.0430	0.0441	0.0424	0.0603	0.0475	0.0304
Total Phosphorous	(mg/L)	0.058	0.0237	0.0221	0.0323	0.0307	0.0293	0.0312	0.0305	0.0308	0.0307
Chlorophyll <i>a</i>	(µg/L)	10.0	3.51	2.44	2.68	1.38	1.05	3.15	1.18	1.23	1.50
Total Suspended Solids	(mg/L)	7.2/27.2 ²	2.3	3.2	1.6	1.3	<1.0	1.7	1.7	3.2	2.5
Laboratory pH	-	6.5-9.0	8.15	8.11	8.14	8.15	8.18	8.18	8.17	8.25	8.25
Dissolved Oxygen	(mg/L)	6.5 ³	10.1	10.0	9.89	11.4	11.4	11.0	11.1	10.8	10.6
Aluminum	(mg/L)	1.98	0.407	0.202	0.118	0.181	0.122	0.170	0.202	0.163	0.222
Arsenic	(mg/L)	0.150	0.00106	0.00089	0.00133	0.00130	0.00128	0.00130	0.00132	0.00130	0.00132
Boron	(mg/L)	1.5	0.015	0.017	0.024	0.022	0.023	0.022	0.022	0.022	0.024
Cadmium	(mg/L)	0.00029	0.0000057	0.0000088	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Chromium	(mg/L)	0.095	0.00115	0.00042	0.00029	0.00036	0.00025	0.00033	0.00038	0.00044	0.00040
Copper	(mg/L)	0.0103	0.00187	0.00452	0.00130	0.00134	0.00129	0.00132	0.00134	0.00130	0.00137
Iron	(mg/L)	1.45	0.360	0.205	0.125	0.153	0.112	0.156	0.170	0.155	0.203
Lead	(mg/L)	0.0037	0.000173	0.000164	0.000055	0.000057	<0.000050	0.000060	0.000064	0.000058	0.000075
Mercury	(ng/L)	26	0.56	101	0.65	<0.50	<0.50	0.51	<0.50	<0.50	<0.50
Methylmercury	(ng/L)	4	0.027	0.073	0.070	0.064	0.062	0.056	0.061	0.059	0.076
Molybdenum	(mg/L)	0.073	0.000465	0.000403	0.000670	0.000692	0.000689	0.000659	0.000659	0.000671	0.000669
Nickel	(mg/L)	0.057	0.00214	0.00083	0.00094	0.00087	0.00082	0.00089	0.00093	0.00090	0.00093
Selenium	(mg/L)	0.0010	<0.000050	0.000138	0.000129	0.000115	0.000142	0.000125	0.000147	0.000114	0.000122
Silver	(mg/L)	0.0001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thallium	(mg/L)	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Uranium	(mg/L)	0.033	0.000467	0.000406	0.000613	0.000634	0.000618	0.000620	0.000640	0.000593	0.000609
Zinc	(mg/L)	0.132	0.0040	0.0041	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030

1. Values indicated for calculated benchmarks (*i.e.*, ammonia and hardness dependent metals) are the most stringent calculated for the sampling period.

2. Lower value represents chronic benchmark (*i.e.*, background plus 5 mg/L); higher value represents short-term benchmark (*i.e.*, background plus 25 mg/L). Values are based on the mean TSS measured at Split/Clark Lake during the sampling period.

3. Benchmark indicated is specific to the sampling period; *i.e.*, 9.5 mg/L for ice-cover season, and 6.5 mg/L for the open-water season.

Table A1-5: Mean values of additional parameters measured in the Local Study Area (LSA) during the water quality monitoring program, 2022.

Indicator	Unit	March				June				July			
		Split Lake	Upstream	Near- Field	Far- Field	Clark Lake	Upstream	Near- Field	Far- Field	Clark Lake	Upstream	Near- Field	Far- Field
Dissolved Phosphorous	(mg/L)	0.025	0.028	0.027	0.028	0.026	0.025	0.023	0.021	0.027	0.025	0.025	0.025
Total Nitrogen	(mg/L)	0.43	0.49	0.43	0.43	0.40	0.39	0.44	0.42	0.36	0.24	0.36	0.34
Dissolved Organic Carbon	(mg/L)	8.47	9.27	8.81	8.45	8.42	8.53	7.97	8.01	8.90	8.73	9.02	9.13
<i>In situ</i> Turbidity	(NTU)	10.43	8.22	8.18	7.75	11.12	10.35	10.06	8.78	7.98	7.48	8.15	7.16
Laboratory Turbidity	(NTU)	13.6	12.0	11.2	11.2	14.7	14.2	13.0	11.3	10.8	7.9	9.6	8.3
<i>In situ</i> Specific Conductance	(µS/cm)	256	291	287	284	287	292	288	287	300	305	307	304
Laboratory Specific Conductance	(µmhos/cm)	257	293	290	286	278	290	281	281	295	300	310	307
Total Dissolved Solids	(mg/L)	147	183	181	169	179	194	181	176	182	208	207	188
True Colour	(TCU)	16.0	14.6	14.8	11.8	18.7	18.3	18.3	17.1	13.4	13.1	13.8	15.2
<i>In situ</i> pH	-	7.87	7.89	7.89	7.86	7.96	7.92	7.89	7.98	7.82	7.97	7.98	7.96
Hardness as CaCO ₃	(mg/L)	109	122	118	116	124	120	123	123	128	131	121	130
Chloride	(mg/L)	10.1	12.5	13.0	12.3	12.7	13.0	12.6	12.6	13.7	13.8	13.8	13.7
Sulfate	(mg/L)	24.0	12.5	30.4	29.0	29.2	30.4	29.7	29.5	32.0	32.1	31.8	31.1
Calcium	(mg/L)	25.6	28.2	26.1	26.7	28.2	26.8	27.9	27.8	28.9	29.5	26.1	29.3
Magnesium	(mg/L)	11.1	12.6	12.7	12.1	13.0	12.9	13.1	13.1	13.7	14.0	13.5	13.8
Potassium	(mg/L)	2.33	2.55	2.56	2.68	2.59	2.63	2.57	2.61	2.60	2.64	2.77	2.61
Sodium	(mg/L)	11.6	13.7	13.8	14.1	14.6	14.5	14.8	15.1	15.5	16.1	15.5	15.7

Table A1-5: Mean values of additional parameters measured in the Local Study Area (LSA) during the water quality monitoring program, 2022 (continued)

Indicator	Unit	August				October			
		Clark Lake	Upstream	Near-Field	Far-Field	Clark Lake	Upstream	Near-Field	Far-Field ¹
Dissolved Phosphorous	(mg/L)	0.025	0.026	0.026	0.026	0.029	0.030	0.030	-
Total Nitrogen	(mg/L)	0.32	0.41	0.34	0.33	0.35	0.43	0.43	-
Dissolved Organic Carbon	(mg/L)	7.50	8.90	7.90	7.97	8.58	8.64	10.53	-
<i>In situ</i> Turbidity	(NTU)	6.79	5.80	6.23	5.50	10.27	8.05	7.96	-
Laboratory Turbidity	(NTU)	8.1	5.6	5.2	6.4	10.5	8.0	7.5	-
<i>In situ</i> Specific Conductance	(µS/cm)	305	313	310	307	276	295	298	-
Laboratory Specific Conductance	(µmhos/cm)	292	309	317	313	287	308	312	-
Total Dissolved Solids	(mg/L)	208	184	184	183	175	184	204	-
True Colour	(TCU)	13.1	7.1	8.3	5.8	8.0	9.0	9.8	-
<i>In situ</i> pH	-	8.03	8.03	8.03	8.04	8.25	8.30	8.29	-
Hardness as CaCO ₃	(mg/L)	126	124	127	130	123	131	132	-
Chloride	(mg/L)	13.7	14.7	14.1	14.1	11.6	12.9	13.5	-
Sulphate	(mg/L)	32.3	34.7	32.7	33.3	29.5	32.9	34.2	-
Calcium	(mg/L)	27.7	26.8	28.0	28.9	27.6	29.2	29.4	-
Magnesium	(mg/L)	13.9	13.9	13.8	14.0	13.1	14.2	14.2	-
Potassium	(mg/L)	2.61	2.71	2.84	2.88	2.38	2.53	2.55	-
Sodium	(mg/L)	15.8	15.9	16.5	16.8	14.2	15.8	15.9	-

1. Far-field not sampled in October 2022 due to safety concerns surrounding weather.

Table A1-6: Mean values of additional parameters measured in the Regional Study Area (RSA) during the water quality monitoring program, 2022.

Indicator	Unit	March				
		STL-N SURF	STL-N BOT	STL-KETTLE	LNR-3	LNR-4
Dissolved Phosphorous	(mg/L)	0.014	0.012	0.028	0.028	0.030
Total Nitrogen	(mg/L)	0.39	0.42	0.49	0.56	0.47
Dissolved Organic Carbon	(mg/L)	11.8	11.5	9.21	9.15	9.27
<i>In situ</i> Turbidity	(NTU)	0.91	1.47	8.16	8.77	8.78
Laboratory Turbidity	(NTU)	4.75	4.38	11.7	11.4	11.2
<i>In situ</i> Specific Conductance	(µS/cm)	301	299	285	246	286
Laboratory Specific Conductance	(µmhos/cm)	309	308	288	288	293
Total Dissolved Solids	(mg/L)	198	186	179	186	186
True Color	(TCU)	20.4	19.0	13.4	15.0	15.6
<i>In situ</i> pH	-	8.01	7.92	7.89	7.91	7.89
Hardness as CaCO ₃	(mg/L)	146	142	121	122	122
Chloride	(mg/L)	8.86	8.56	12.8	12.7	12.7
Sulfate	(mg/L)	6.25	5.81	9.97	10.2	9.83
Calcium	(mg/L)	38.1	37.5	27.1	27.3	27.7
Magnesium	(mg/L)	12.3	11.7	13.0	13.0	12.8
Potassium	(mg/L)	1.96	1.86	2.62	2.55	2.58
Sodium	(mg/L)	9.97	9.64	14.4	14.4	14.3

Table A1-6: Mean values of additional parameters measured in the Regional Study Area (RSA) during the water quality monitoring program, 2022 (continued).

Indicator	Unit	June								
		STL-N SURF	STL-N BOT	STL- KETTLE	LNR- 3	LNR- 4	LNR- 5	LNR- 6	LNR- 7	LNR- 8
Dissolved Phosphorous	(mg/L)	0.008	0.006	0.021	0.023	0.022	0.021	0.021	0.021	0.023
Total Nitrogen	(mg/L)	0.30	0.30	0.39	0.36	0.44	0.35	0.35	0.36	0.37
Dissolved Organic Carbon	(mg/L)	8.54	8.62	8.59	8.67	8.78	8.53	8.48	8.69	8.69
<i>In situ</i> Turbidity	(NTU)	8.32	9.02	7.85	7.78	6.88	11.50	9.12	8.67	8.81
Laboratory Turbidity	(NTU)	10.8	10.6	10.1	9.16	8.57	9.57	10.8	11.3	11.0
<i>In situ</i> Specific Conductance	(µS/cm)	246	246	291	287	286	280	282	284	285
Laboratory Specific Conductance	(µmhos/cm)	252	254	296	292	292	292	292	292	290
Total Dissolved Solids	(mg/L)	160	150	180	179	176	171	163	172	167
True Color	(TCU)	12.1	11.0	13.9	13.9	14.0	15.6	15.8	16.9	16.6
<i>In situ</i> pH	-	8.13	7.92	7.96	7.94	7.97	7.98	7.97	7.96	7.91
Hardness as CaCO ₃	(mg/L)	125	127	123	124	123	126	128	125	125
Chloride	(mg/L)	6.26	6.75	12.9	12.7	12.6	12.4	12.6	12.4	12.3
Sulphate	(mg/L)	12.3	12.4	30.3	29.7	29.5	29.1	29.5	29.0	28.8
Calcium	(mg/L)	34.4	34.9	28.2	28.5	28.5	29.3	29.7	29.1	28.9
Magnesium	(mg/L)	9.52	9.60	12.7	12.7	12.6	12.9	13.1	12.8	12.8
Potassium	(mg/L)	1.51	1.50	2.56	2.45	2.42	2.35	2.48	2.44	2.39
Sodium	(mg/L)	7.60	8.39	14.7	14.6	14.2	14.1	14.6	14.3	13.9

Table A1-6: Mean values of additional parameters measured in the Regional Study Area (RSA) during the water quality monitoring program, 2022 (continued).

Indicator	Unit	July								
		STL-N SURF	STL-N BOT	STL-KETTLE	LNR-3	LNR-4	LNR-5	LNR-6	LNR-7	LNR-8
Dissolved Phosphorous	(mg/L)	0.006	0.008	0.026	0.018	0.020	0.021	0.023	0.021	0.022
Total Nitrogen	(mg/L)	0.28	0.33	0.34	0.35	0.35	0.28	0.34	0.29	0.32
Dissolved Organic Carbon	(mg/L)	8.99	8.63	8.89	8.42	9.83	8.56	8.64	8.65	8.39
<i>In situ</i> Turbidity	(NTU)	4.82	10.0	6.33	N/A ¹	5.63	6.74	6.80	7.97	8.25
Laboratory Turbidity	(NTU)	5.02	5.00	7.46	7.05	6.38	7.24	7.33	8.21	8.47
<i>In situ</i> Specific Conductance	(µS/cm)	251	250	304	301 ¹	300	301	301	300	301
Laboratory Specific Conductance	(µmhos/cm)	249	248	306	296	294	295	296	296	295
Total Dissolved Solids	(mg/L)	148	141	203	173	160	168	160	171	163
True Color	(TCU)	12.1	12.0	13.4	12.2	13.1	12.3	13.9	12.2	14.9
<i>In situ</i> pH	-	8.18	7.82	7.86	N/A ¹	7.92	7.99	7.86	7.88	7.87
Hardness as CaCO ₃	(mg/L)	120	123	129	128	127	133	130	129	131
Chloride	(mg/L)	7.09	7.22	13.7	13.9	13.8	13.7	13.8	13.8	13.7
Sulphate	(mg/L)	5.70	5.74	11.6	11.8	11.9	11.5	12.2	12.0	12.1
Calcium	(mg/L)	30.7	31.5	29.0	27.7	27.7	28.9	28.0	28.9	29.0
Magnesium	(mg/L)	10.6	10.8	13.8	14.2	14.1	14.8	14.5	13.7	14.2
Potassium	(mg/L)	1.80	1.80	2.61	2.85	2.81	2.81	2.85	2.78	2.90
Sodium	(mg/L)	8.87	8.99	15.4	16.4	16.3	16.1	16.2	15.7	15.9

1. Water quality meter stopped working at this site, recorded values are considered suspect.

Table A1-6: Mean values of additional parameters measured in the Regional Study Area (RSA) during the water quality monitoring program, 2022 (continued).

Indicator	Unit	August								
		STL-N SURF	STL-N BOT	STL-KETTLE	LNR-3	LNR-4	LNR-5	LNR-6	LNR-7	LNR-8
Dissolved Phosphorous	(mg/L)	0.007	0.002	0.021	0.022	0.023	0.023	0.022	0.022	0.022
Total Nitrogen	(mg/L)	0.23	0.28	0.28	0.33	0.30	0.30	0.31	0.28	0.30
Dissolved Organic Carbon	(mg/L)	9.28	8.93	8.12	8.16	8.25	8.47	8.21	8.32	8.36
<i>In situ</i> Turbidity	(NTU)	4.77	14.17	4.90	4.15	4.06	4.83	5.02	5.26	5.49
Laboratory Turbidity	(NTU)	6.31	7.35	5.91	5.48	4.85	5.68	6.05	5.96	5.97
<i>In situ</i> Specific Conductance	(µS/cm)	254	252	303	303	303	304	304	302	302
Laboratory Specific Conductance	(µmhos/cm)	250	248	297	299	299	298	297	295	299
Total Dissolved Solids	(mg/L)	193	171	198	193	190	190	180	190	181
True Color	(TCU)	12.3	11.8	10.1	10.9	11.4	11.7	11.5	13.4	12.9
<i>In situ</i> pH	-	8.23	7.91	8.05	8.02	7.94	8.00	8.00	8.04	8.09
Hardness as CaCO ₃	(mg/L)	104	107	109	107	107	108	109	108	110
Chloride	(mg/L)	7.20	7.05	14.1	14.1	14.2	14.2	14.2	14.1	14.1
Sulphate	(mg/L)	14.6	14.3	32.1	32.2	32.2	32.3	32.2	31.9	31.9
Calcium	(mg/L)	28.0	28.5	24.8	23.8	23.9	24.4	24.4	24.0	25.2
Magnesium	(mg/L)	8.36	8.76	11.5	11.5	11.5	11.5	11.7	11.7	11.3
Potassium	(mg/L)	1.46	1.52	2.38	2.35	2.36	2.34	2.33	2.36	2.34
Sodium	(mg/L)	7.37	7.51	13.8	14.3	13.8	14.0	14.0	13.9	13.6

Table A1-6: Mean values of additional parameters measured in the Regional Study Area (RSA) during the water quality monitoring program, 2022 (continued).

Indicator	Unit	September								
		STL-N SURF	STL-N BOT	STL- KETTLE	LNR- 3	LNR- 4	LNR- 5	LNR- 6	LNR- 7	LNR- 8
Dissolved Phosphorous	(mg/L)	0.003	0.008	0.023	0.023	0.024	0.023	0.024	0.025	0.022
Total Nitrogen	(mg/L)	0.30	0.33	0.39	0.38	0.37	0.40	0.54	0.47	0.37
Dissolved Organic Carbon	(mg/L)	8.32	8.41	7.73	7.88	7.71	7.84	7.91	7.95	7.95
<i>In situ</i> Turbidity	(NTU)	8.59	N/A	5.10	5.16	4.13	4.88	4.95	5.44	6.94
Laboratory Turbidity	(NTU)	10.0	9.09	6.62	4.89	4.56	5.45	5.42	5.94	6.12
<i>In situ</i> Specific Conductance	(µS/cm)	254	254	313	313	311	309	311	309	307
Laboratory Specific Conductance	(µmhos/cm)	254	254	306	305	306	303	307	313	308
Total Dissolved Solids	(mg/L)	151	153	183	175	177	180	185	183	181
True Color	(TCU)	16.9	17.7	25.7	21.1	21.5	17.6	21.1	16.5	21.8
<i>In situ</i> pH	-	8.16	8.14	8.10	8.06	8.07	8.16	8.07	8.04	8.09
Hardness as CaCO ₃	(mg/L)	112	115	127	124	126	126	127	129	129
Chloride	(mg/L)	7.29	7.17	14.0	14.1	14.0	13.7	14.0	13.7	13.7
Sulphate	(mg/L)	14.9	14.7	34.4	34.4	33.8	33.3	34.1	33.3	33.5
Calcium	(mg/L)	28.0	30.8	28.1	27.3	27.9	28.1	27.7	28.9	28.9
Magnesium	(mg/L)	10.1	9.32	13.7	13.6	13.7	13.6	14.0	13.8	13.9
Potassium	(mg/L)	1.76	1.65	2.68	2.68	2.63	2.60	2.71	2.61	2.62
Sodium	(mg/L)	8.68	8.09	15.8	15.9	15.7	15.8	16.3	15.6	15.9

APPENDIX 2:

FIGURES OF WATER QUALITY PARAMETERS MEASURED IN THE KEEYASK RESERVOIR BACKBAYS, 2022

Figure A2-1: Mean (\pm SE) ammonia concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A,B), June 21–26 (C,D), July 23–27 (E,F), August 24–28 (G,H), and October 6–10 (I,J), 2022.	75
Figure A2-2: Mean (\pm SE) nitrate/nitrite concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A,B), June 21–26 (C,D), July 23–27 (E,F), August 24–28 (G,H), and October 6–10 (I,J), 2022.	76
Figure A2-3: Mean (\pm SE) concentrations of total phosphorus measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.	76
Figure A2-4: Mean (\pm SE) chlorophyll a concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.	77
Figure A2-5: Mean (\pm SE) concentration of total suspended solids measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.	77
Figure A2-6: Mean (\pm SE) laboratory (top) and <i>in situ</i> (bottom) pH measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A,B), June 21–26 (C,D), July 23–27 (E,F), August 24–28 (G,H), and October 6–10 (I,J), 2022.....	78
Figure A2-7: Mean (\pm SE) aluminum concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.	78
Figure A2-8: Mean (\pm SE) arsenic concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A,B), June 21–26 (C,D), July 23–27 (E,F), August 24–28 (G,H), and October 6–10 (I,J), 2022.	79
Figure A2-9: Mean (\pm SE) boron concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A,B), June 21–26 (C,D), July 23–27 (E,F), August 24–28 (G,H), and October 6–10 (I,J), 2022.	80
Figure A2-10: Mean (\pm SE) cadmium concentrations measured the Keeyask reservoir mainstem and backbays on March 19–27 (A,B), June 21–26 (C,D), July 23–27 (E,F), August 24–28 (G,H), and October 6–10 (I,J), 2022.	81

Figure A2-11: Mean (\pm SE) chromium concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A,B), June 21–26 (C,D), July 23–27 (E,F), August 24–28 (G,H), and October 6–10 (I,J), 2022.	82
Figure A2-12: Mean (\pm SE) copper concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.	82
Figure A2-13: Mean (\pm SE) iron concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.	83
Figure A2-14: Mean (\pm SE) lead concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A,B), June 21–26 (C,D), July 23–27 (E,F), August 24–28 (G,H), and October 6–10 (I,J), 2022.	83
Figure A2-15: Mean (\pm SE) mercury concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.	84
Figure A2-16: Mean (\pm SE) methylmercury concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.	84
Figure A2-17: Mean (\pm SE) molybdenum concentrations measured the Keeyask reservoir mainstem and backbays on March 19–27 (A,B), June 21–26 (C,D), July 23–27 (E,F), August 24–28 (G,H), and October 6–10 (I,J), 2022.	85
Figure A2-18: Mean (\pm SE) nickel concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A,B), June 21–26 (C,D), July 23–27 (E,F), August 24–28 (G,H), and October 6–10 (I,J), 2022.	86
Figure A2-19: Mean (\pm SE) selenium concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.	86
Figure A2-20: Mean (\pm SE) silver concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.	87
Figure A2-21: Mean (\pm SE) thallium concentrations measured in the Keeyask reservoir mainstem and backbays March 19–27 (A,B), June 21–26 (C,D), July 23–27 (E,F), August 24–28 (G,H), and October 6–10 (I,J), 2022.	87
Figure A2-22: Mean (\pm SE) uranium concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A,B), June 21–26 (C,D), July 23–27 (E,F), August 24–28 (G,H), and October 6–10 (I,J), 2022.	88
Figure A2-23: Mean (\pm SE) zinc concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A,B), June 21–26 (C,D), July 23–27 (E,F), August 24–28 (G,H), and October 6–10 (I,J), 2022.	89

Figure A2-24: Mean (\pm SE) dissolved phosphorus (P) concentrations measured in the Keeyask reservoir mainstem and backbays March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.....	89
Figure A2-25: Mean (\pm SE) concentrations of total nitrogen (N) measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022	90
Figure A2-26: Mean (\pm SE) dissolved organic carbon (C) concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.....	90
Figure A2-27: Mean (\pm SE) true colour measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.....	90
Figure A2-28: Mean (\pm SE) laboratory (top) and <i>in situ</i> (bottom) turbidity measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.....	91
Figure A2-29: Mean (\pm SE) laboratory conductivity (top) and <i>in situ</i> specific conductance (bottom) measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.....	92
Figure A2-30: Mean (\pm SE) concentrations of total dissolved solids (TDS) measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.....	92
Figure A2-31: Mean (\pm SE) hardness measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.....	93
Figure A2-32: Mean (\pm SE) chloride concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022	93
Figure A2-33: Mean (\pm SE) sulfate concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022	93
Figure A2-34: Mean (\pm SE) calcium concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022	94
Figure A2-35: Mean (\pm SE) magnesium concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022	94
Figure A2-36: Mean (\pm SE) potassium concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022	94

Figure A2-37: Mean (\pm SE) sodium concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.95

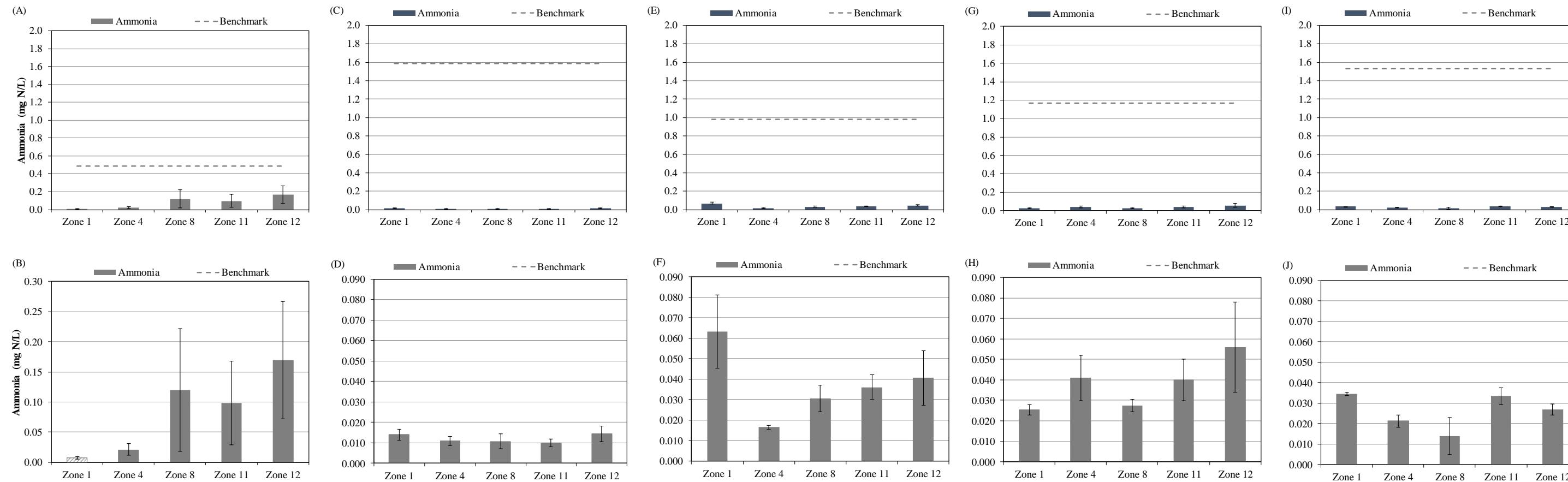


Figure A2-1: Mean (\pm SE) ammonia concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A,B), June 21–26 (C,D), July 23–27 (E,F), August 24–28 (G,H), and October 6–10 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom. Hashed bars represent results below the analytical detection limit.

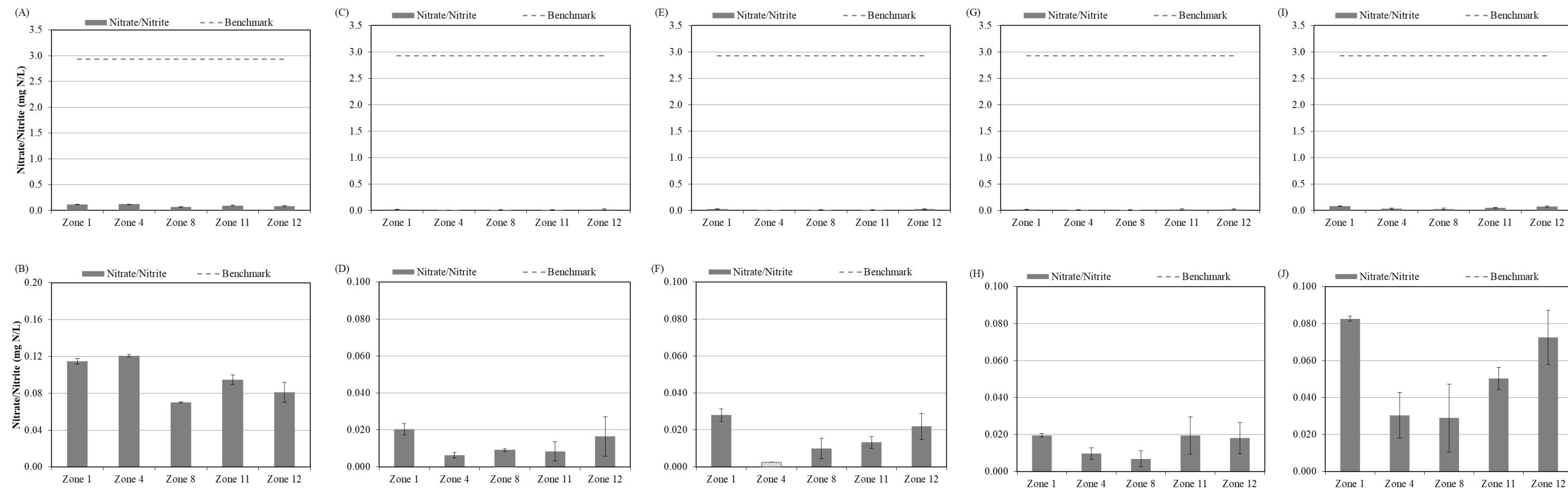


Figure A2-2: Mean (\pm SE) nitrate/nitrite concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A,B), June 21–26 (C,D), July 23–27 (E,F), August 24–28 (G,H), and October 6–10 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom. Hashed bars represent results below the analytical detection limit.

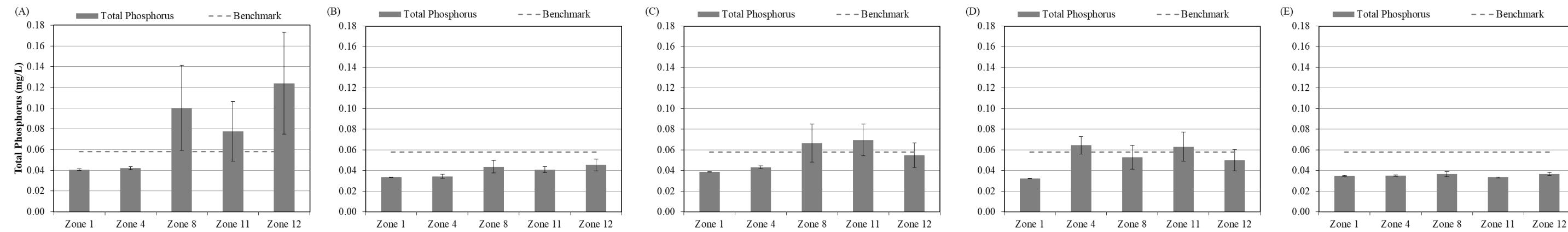


Figure A2-3: Mean (\pm SE) concentrations of total phosphorus measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.

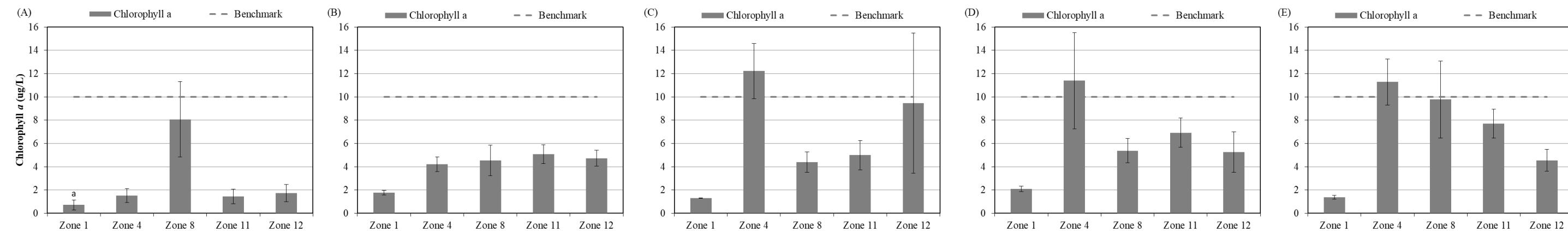


Figure A2-4: Mean (\pm SE) chlorophyll a concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.

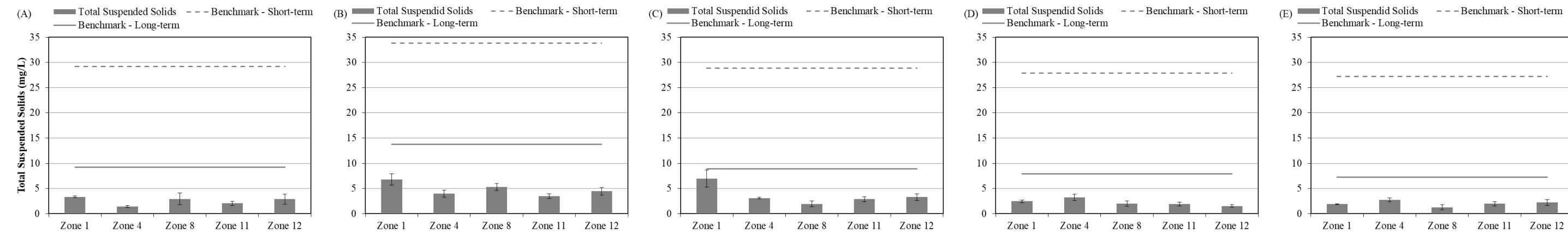


Figure A2-5: Mean (\pm SE) concentration of total suspended solids measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.

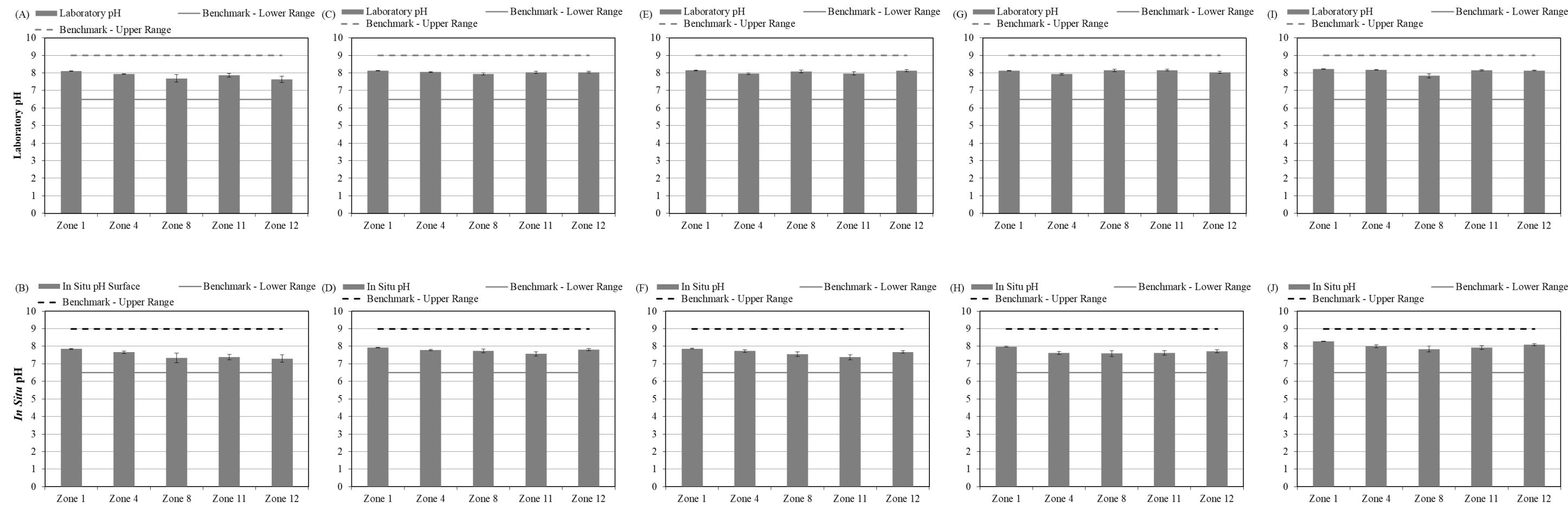


Figure A2-6: Mean (\pm SE) laboratory (top) and *in situ* (bottom) pH measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A,B), June 21–26 (C,D), July 23–27 (E,F), August 24–28 (G,H), and October 6–10 (I,J), 2022.

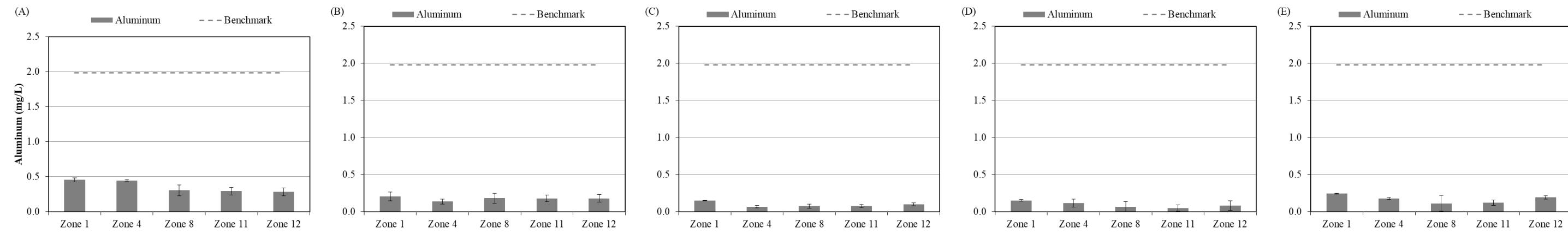


Figure A2-7: Mean (\pm SE) aluminum concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.

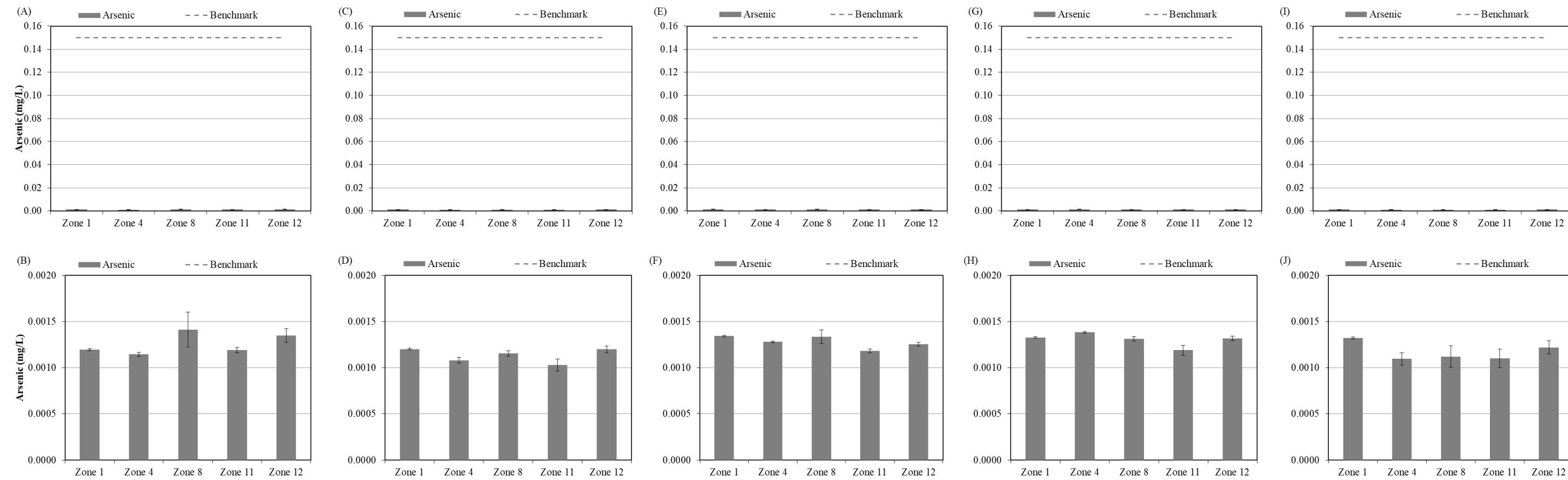


Figure A2-8: Mean (\pm SE) arsenic concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A,B), June 21–26 (C,D), July 23–27 (E,F), August 24–28 (G,H), and October 6–10 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

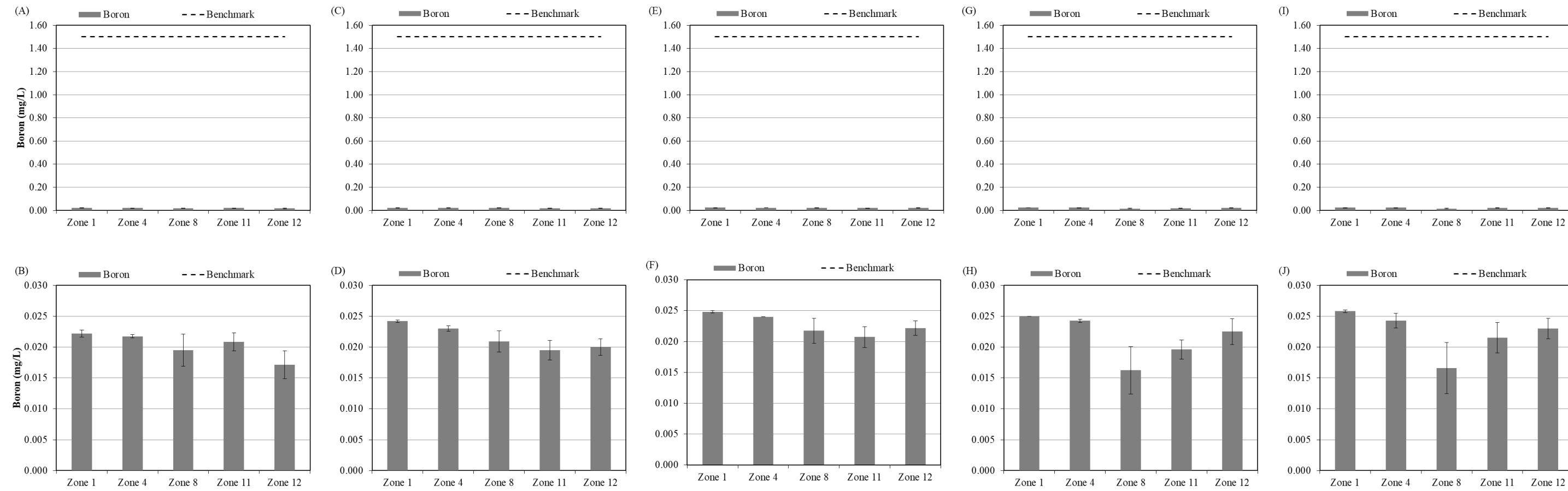


Figure A2-9: Mean (\pm SE) boron concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A,B), June 21–26 (C,D), July 23–27 (E,F), August 24–28 (G,H), and October 6–10 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

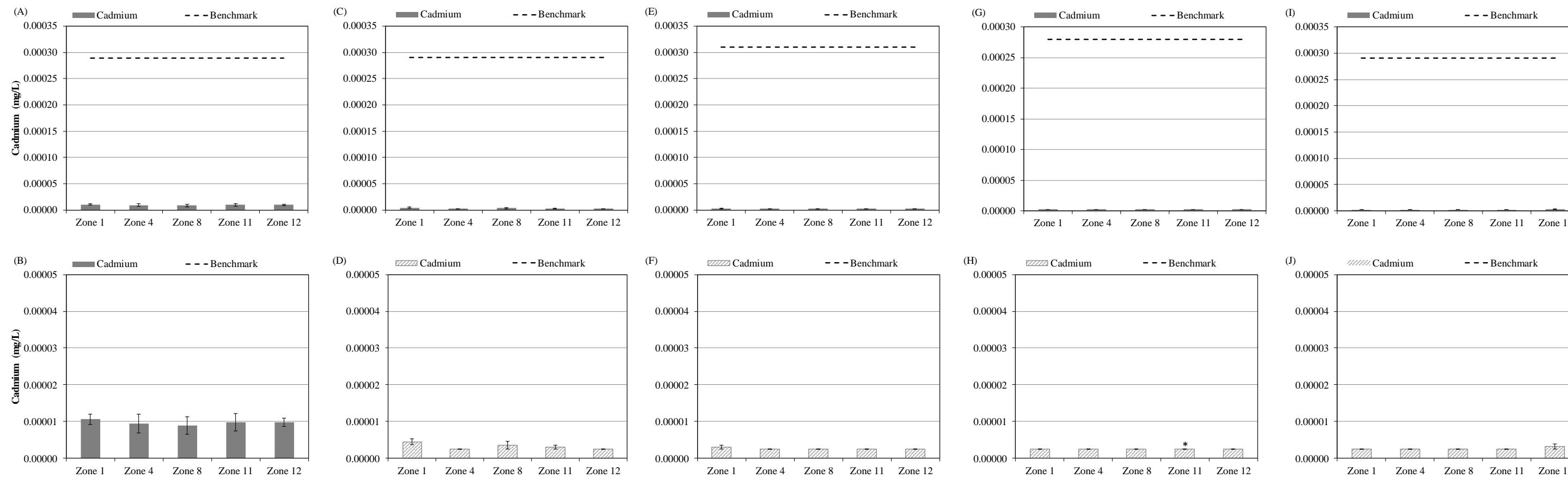


Figure A2-10: Mean (\pm SE) cadmium concentrations measured the Keeyask reservoir mainstem and backbays on March 19–27 (A,B), June 21–26 (C,D), July 23–27 (E,F), August 24–28 (G,H), and October 6–10 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom. Hashed bars represent results below the analytical detection limit. Site Z11-11 was removed from calculations in August (G, H) as the value (2.16 mg/L) was considered suspect.

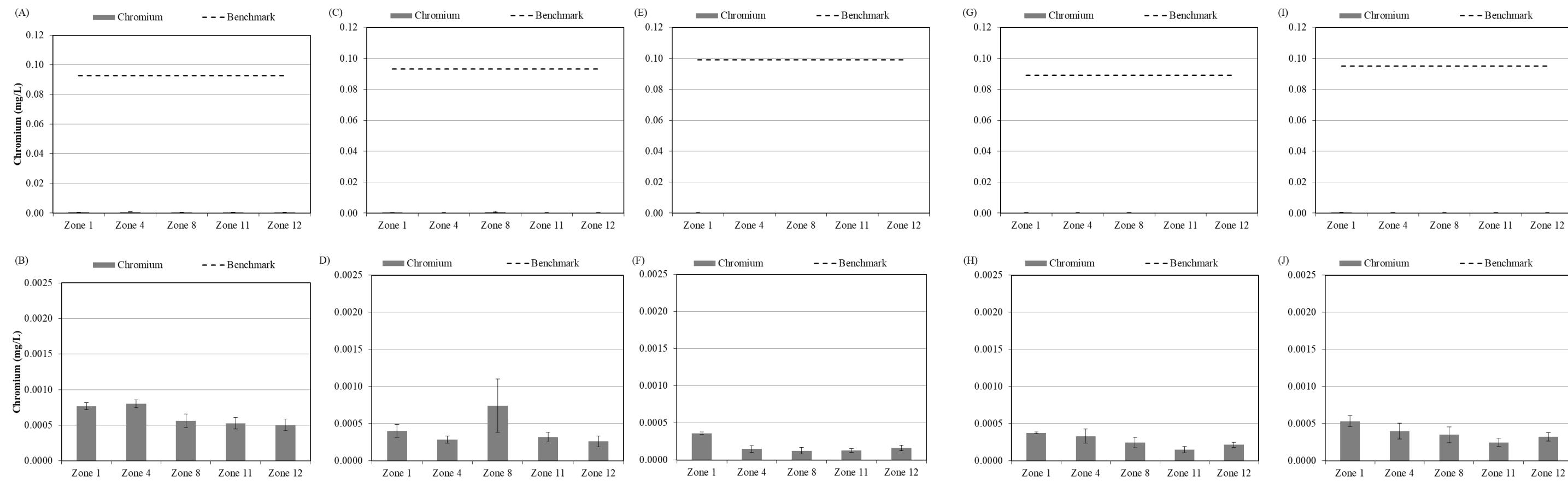


Figure A2-11: Mean (\pm SE) chromium concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A,B), June 21–26 (C,D), July 23–27 (E,F), August 24–28 (G,H), and October 6–10 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

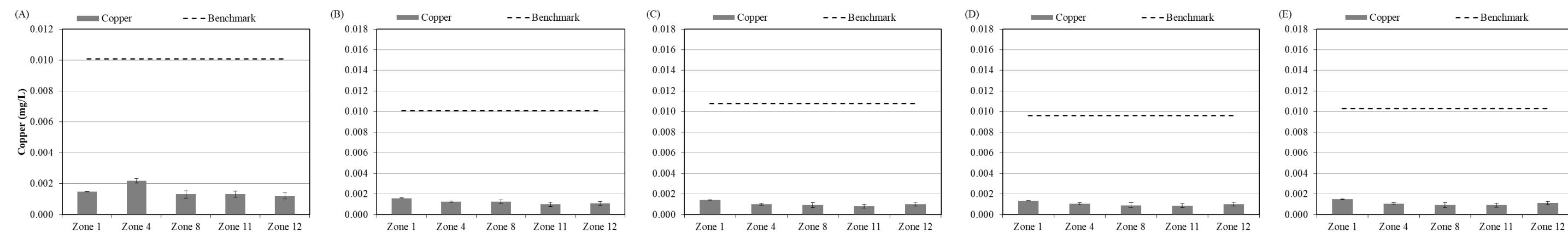


Figure A2-12: Mean (\pm SE) copper concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.

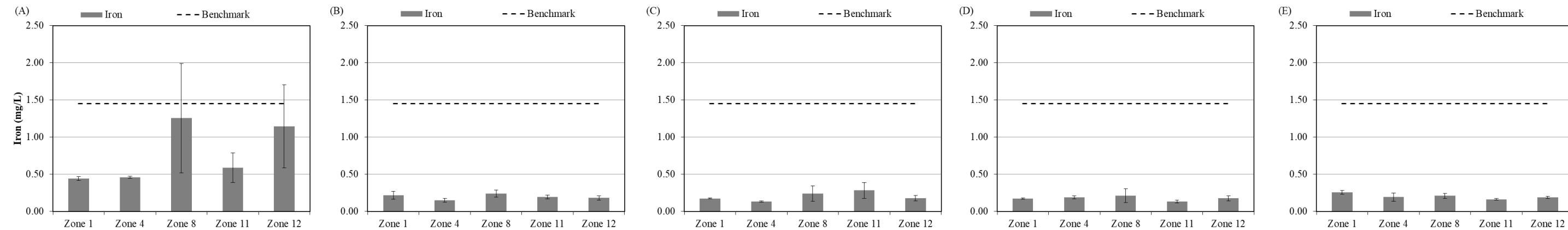


Figure A2-13: Mean (\pm SE) iron concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.

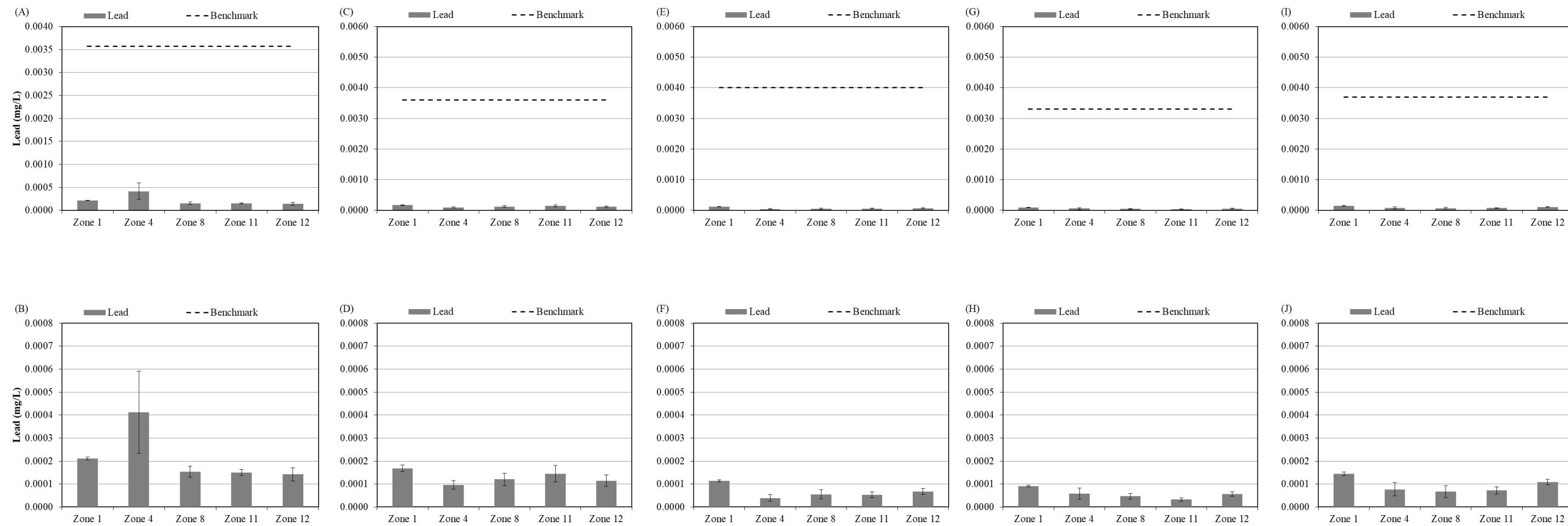


Figure A2-14: Mean (\pm SE) lead concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A,B), June 21–26 (C,D), July 23–27 (E,F), August 24–28 (G,H), and October 6–10 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

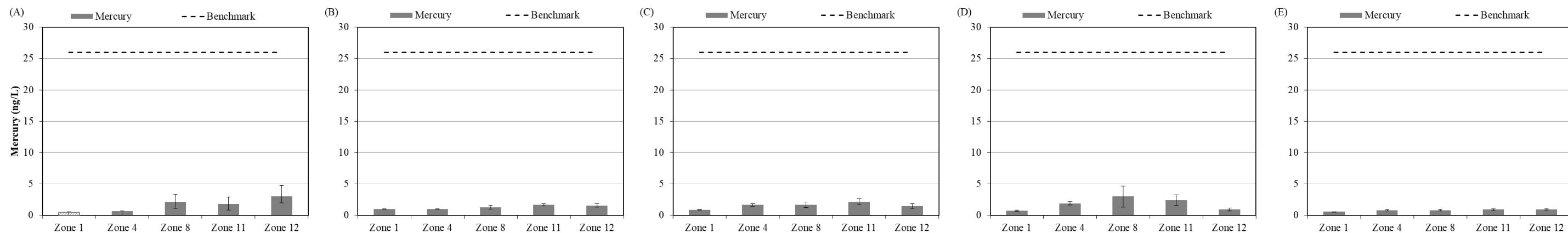


Figure A2-15: Mean (\pm SE) mercury concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022. Hashed bars represent results below the analytical detection limit.

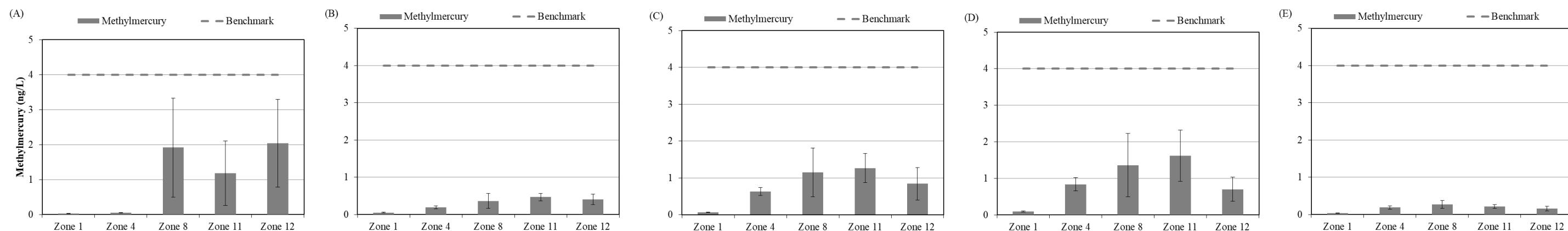


Figure A2-16: Mean (\pm SE) methylmercury concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.

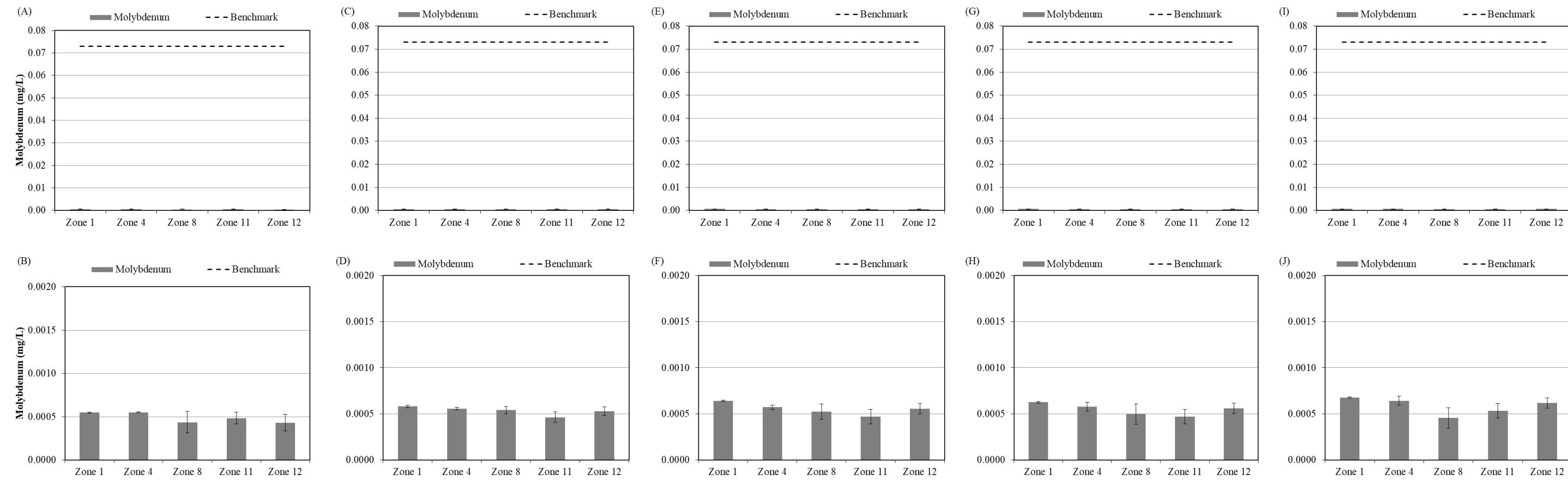


Figure A2-17: Mean (\pm SE) molybdenum concentrations measured the Keeyask reservoir mainstem and backbays on March 19–27 (A,B), June 21–26 (C,D), July 23–27 (E,F), August 24–28 (G,H), and October 6–10 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

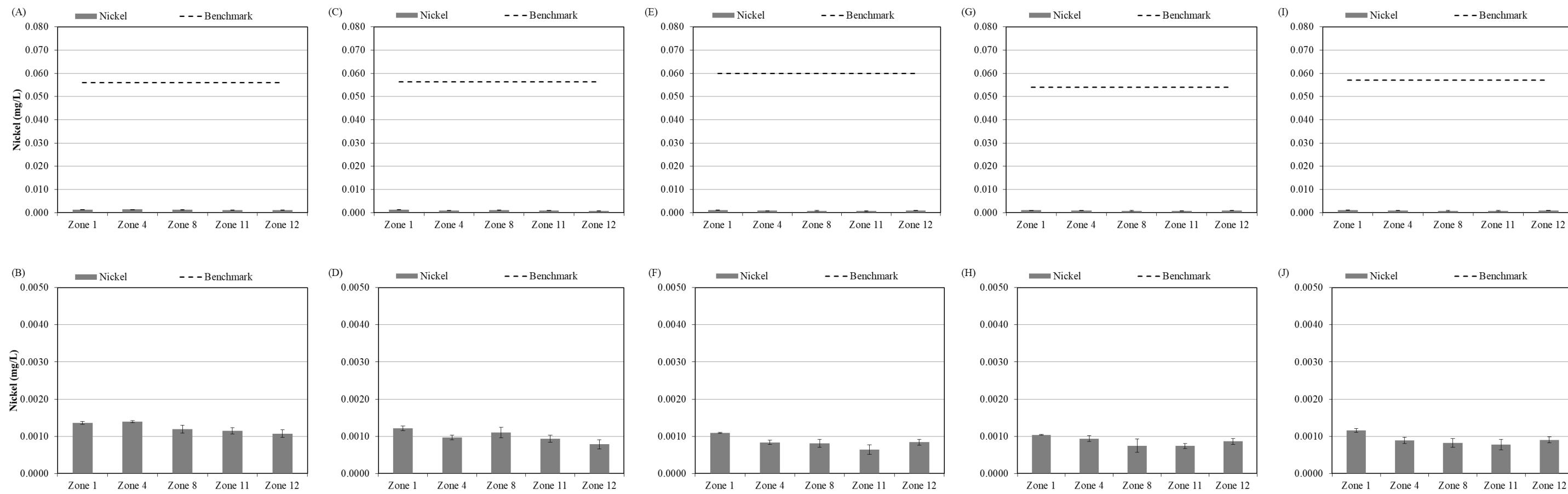


Figure A2-18: Mean (\pm SE) nickel concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A,B), June 21–26 (C,D), July 23–27 (E,F), August 24–28 (G,H), and October 6–10 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

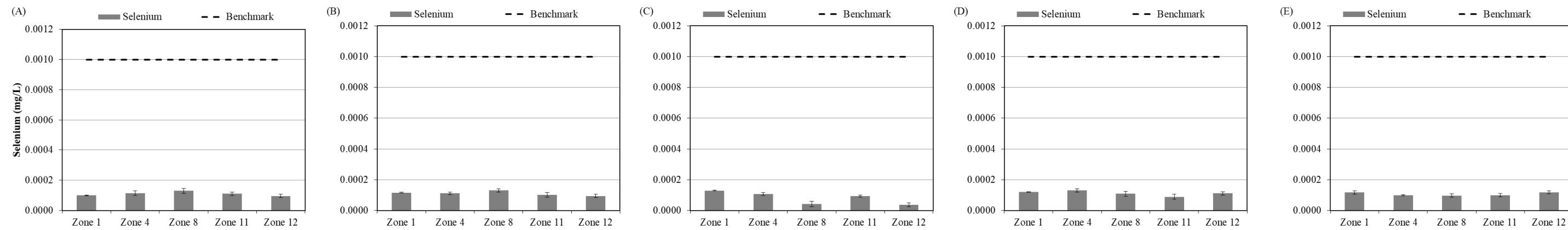


Figure A2-19: Mean (\pm SE) selenium concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.

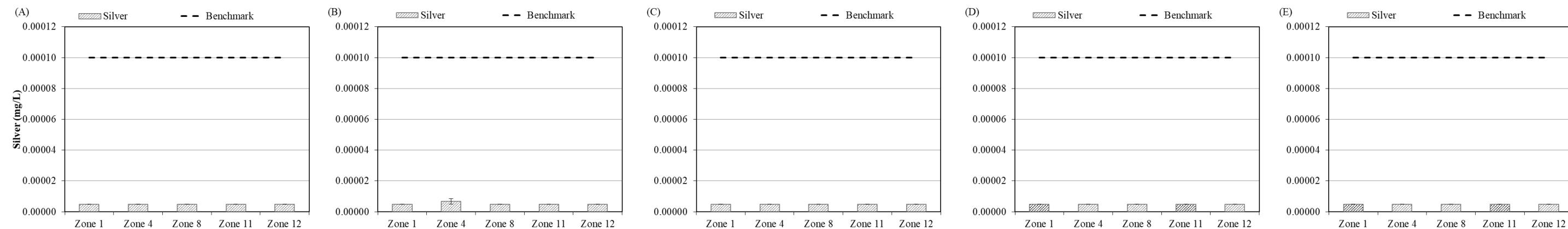


Figure A2-20: Mean (\pm SE) silver concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022. Hatched bars represent results below the analytical detection limit.

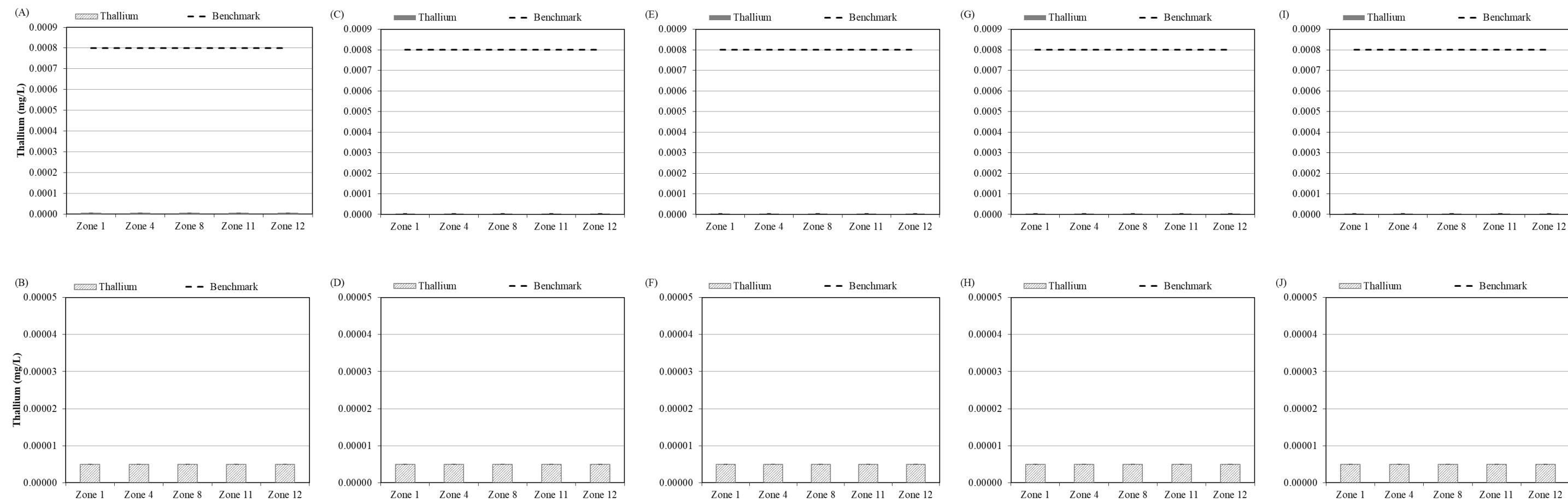


Figure A2-21: Mean (\pm SE) thallium concentrations measured in the Keeyask reservoir mainstem and backbays March 19–27 (A,B), June 21–26 (C,D), July 23–27 (E,F), August 24–28 (G,H), and October 6–10 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom. Hatched bars represent results below the analytical detection limit.

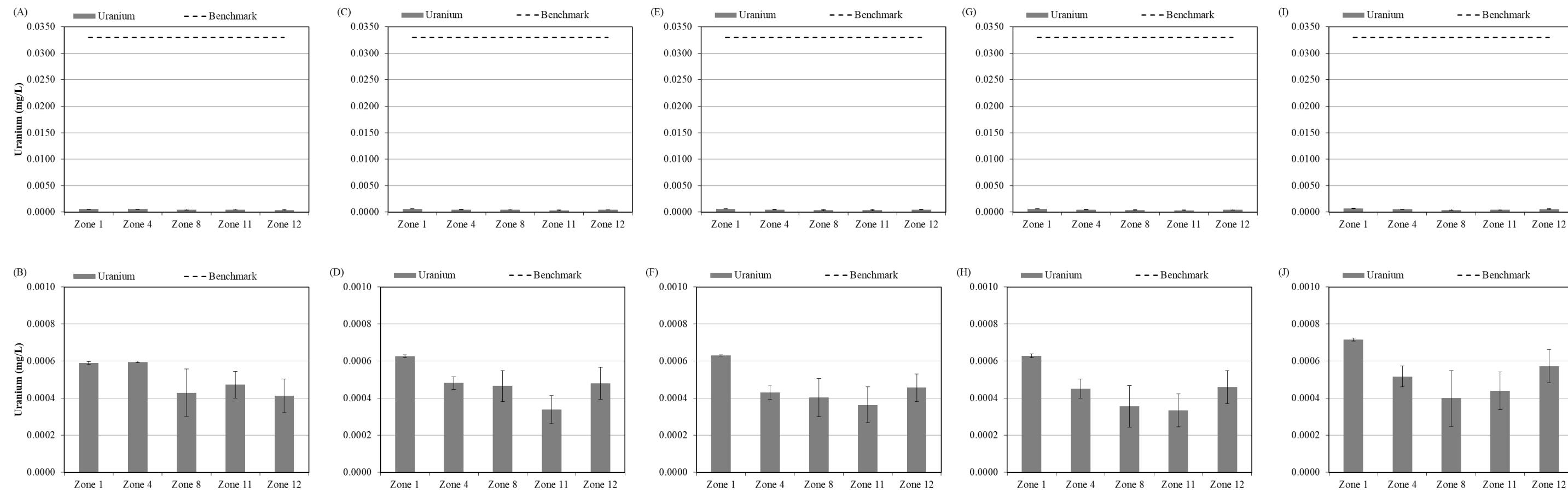


Figure A2-22: Mean (\pm SE) uranium concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A,B), June 21–26 (C,D), July 23–27 (E,F), August 24–28 (G,H), and October 6–10 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

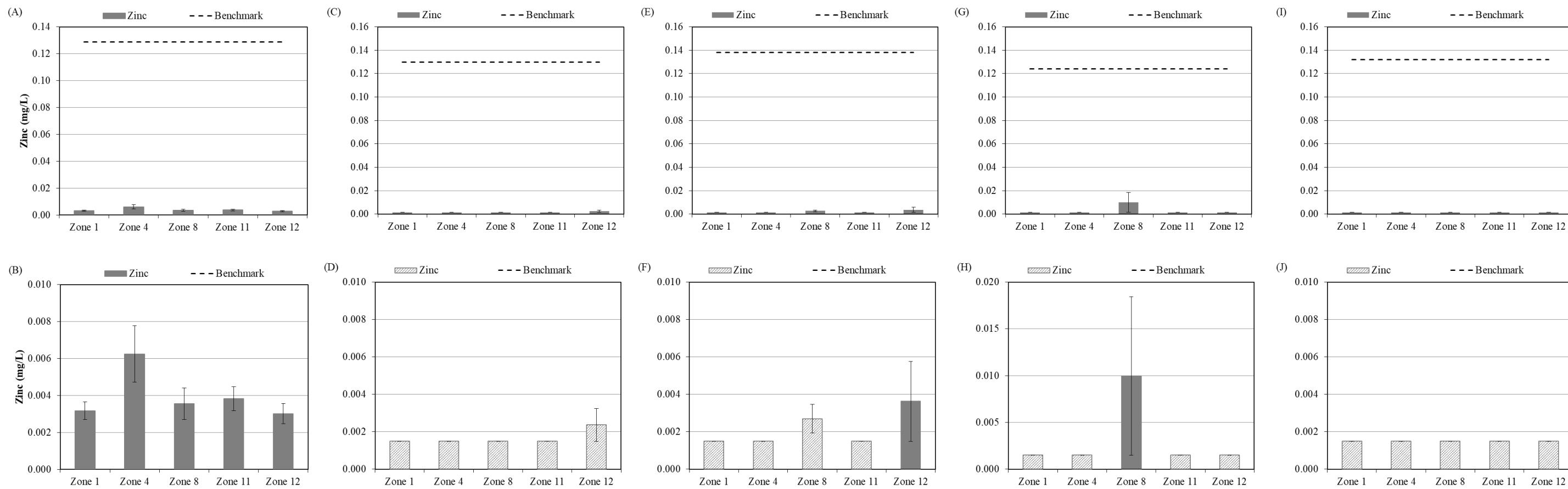


Figure A2-23: Mean (\pm SE) zinc concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A,B), June 21–26 (C,D), July 23–27 (E,F), August 24–28 (G,H), and October 6–10 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom. Hashed bars represent results below the analytical detection limit.

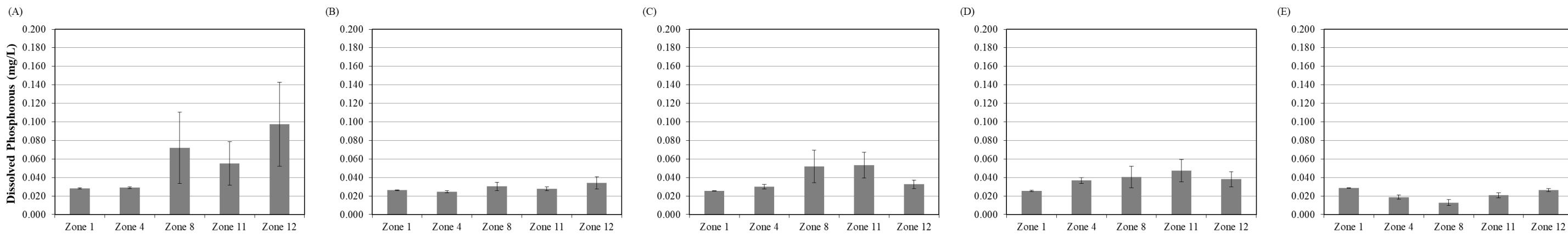


Figure A2-24: Mean (\pm SE) dissolved phosphorus (P) concentrations measured in the Keeyask reservoir mainstem and backbays March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.

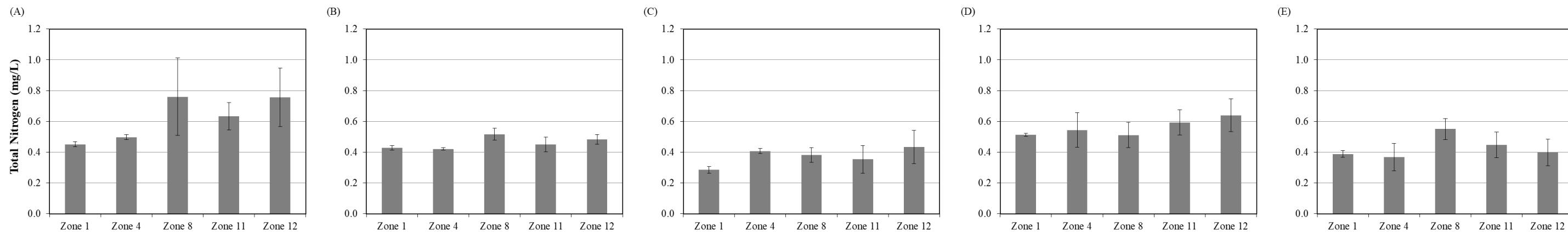


Figure A2-25: Mean (\pm SE) concentrations of total nitrogen (N) measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.

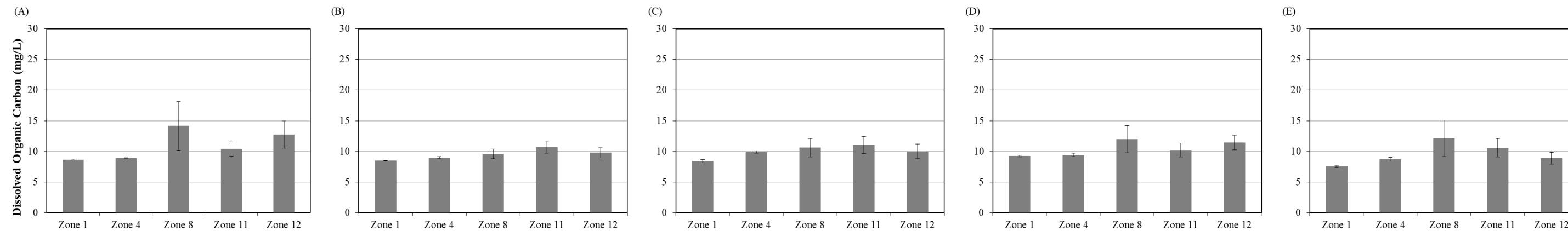


Figure A2-26: Mean (\pm SE) dissolved organic carbon (C) concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.

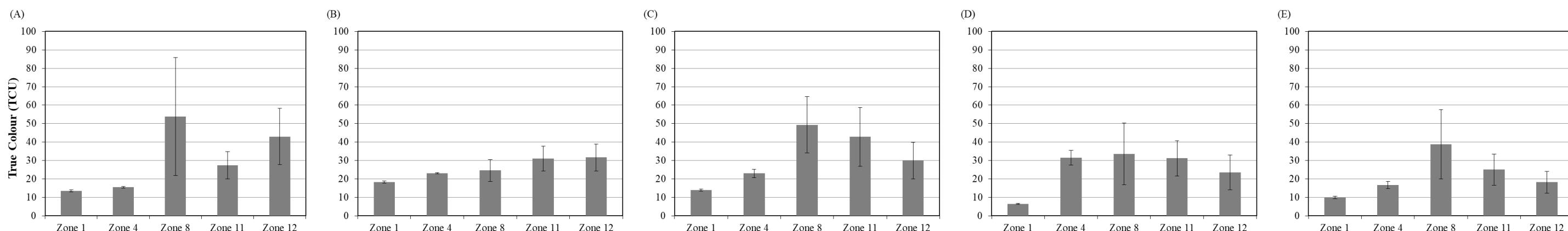


Figure A2-27: Mean (\pm SE) true colour measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.

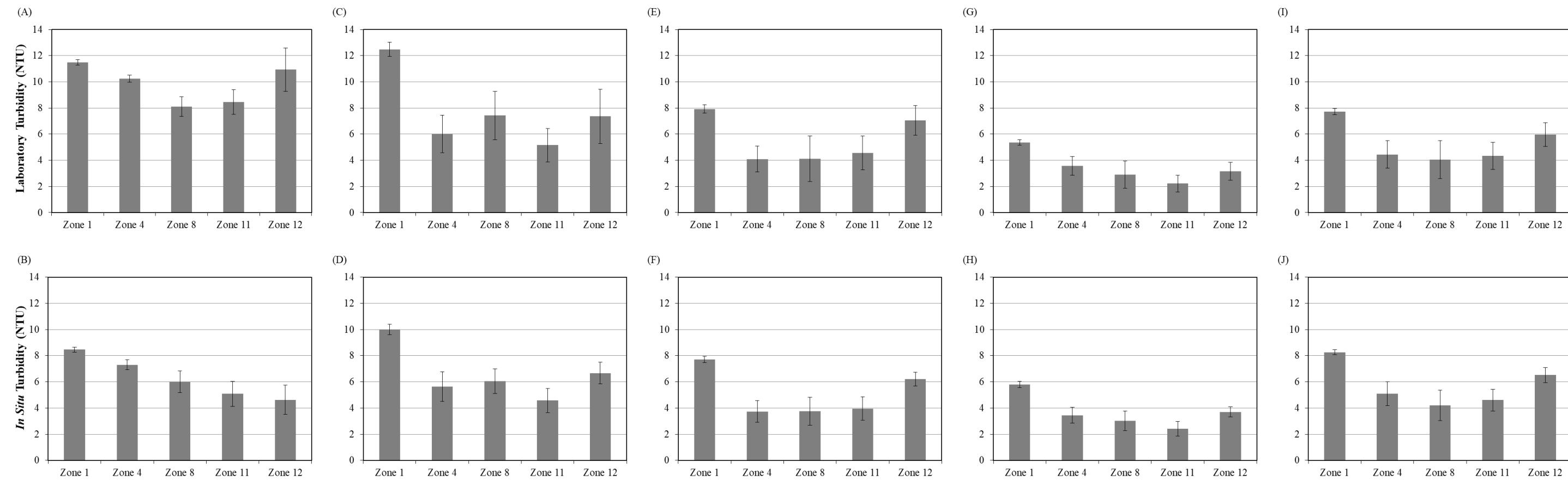


Figure A2-28: Mean (\pm SE) laboratory (top) and *in situ* (bottom) turbidity measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.

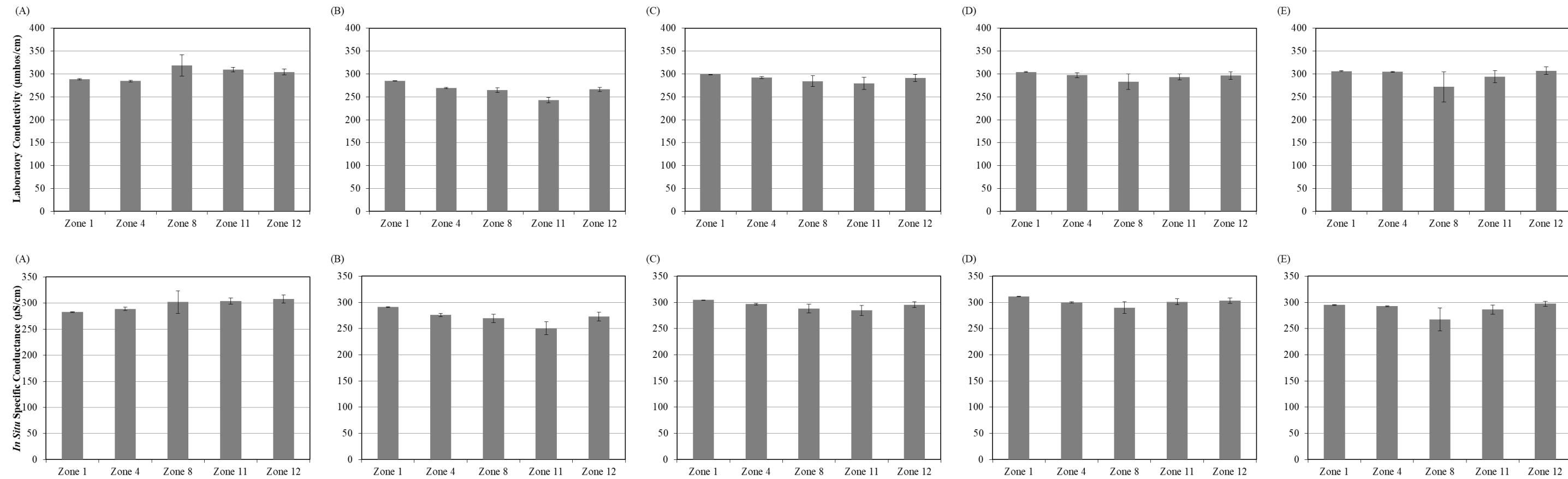


Figure A2-29: Mean (\pm SE) laboratory conductivity (top) and *in situ* specific conductance (bottom) measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.

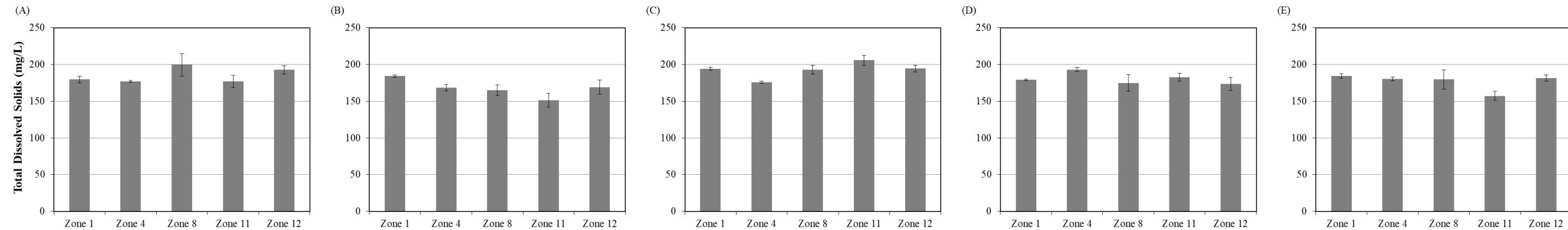


Figure A2-30: Mean (\pm SE) concentrations of total dissolved solids (TDS) measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.

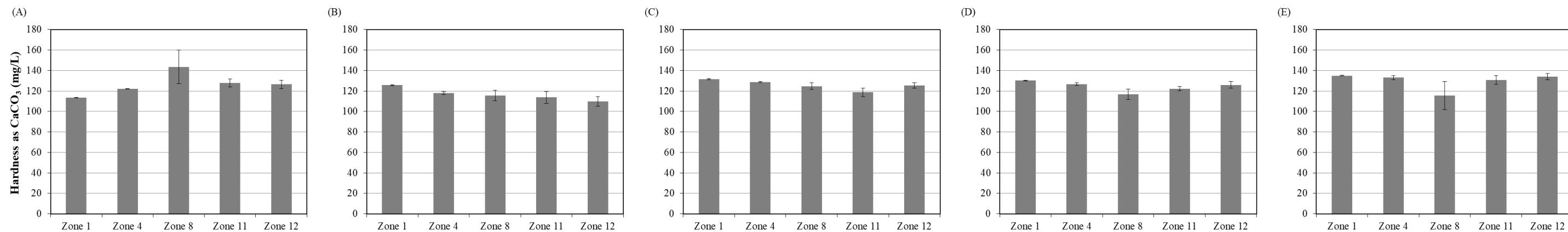


Figure A2-31: Mean (\pm SE) hardness measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.

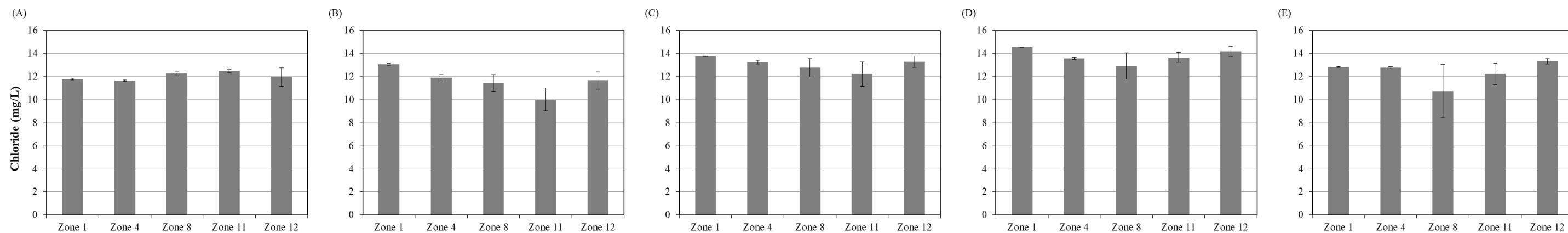


Figure A2-32: Mean (\pm SE) chloride concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.

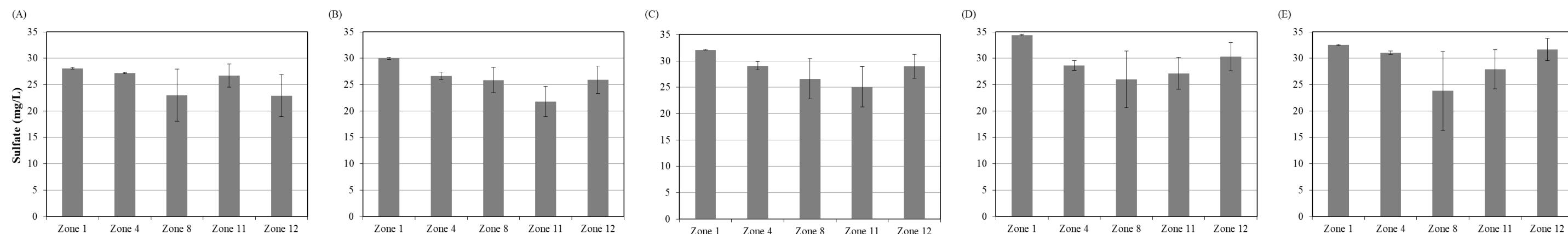


Figure A2-33: Mean (\pm SE) sulfate concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.

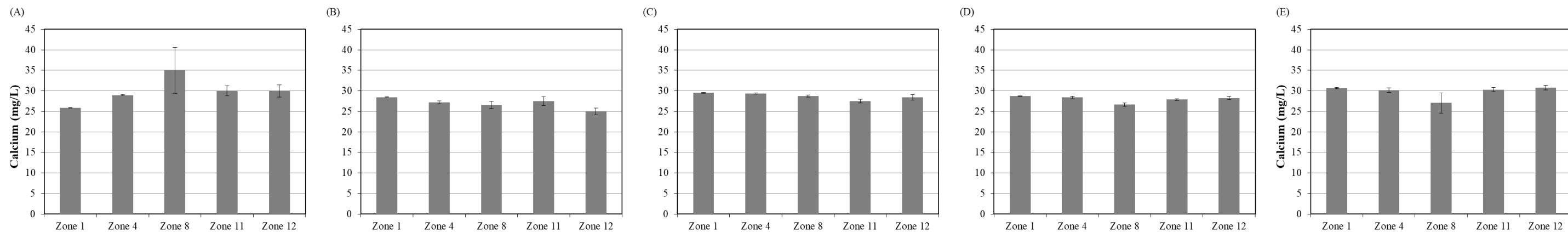


Figure A2-34: Mean (\pm SE) calcium concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.

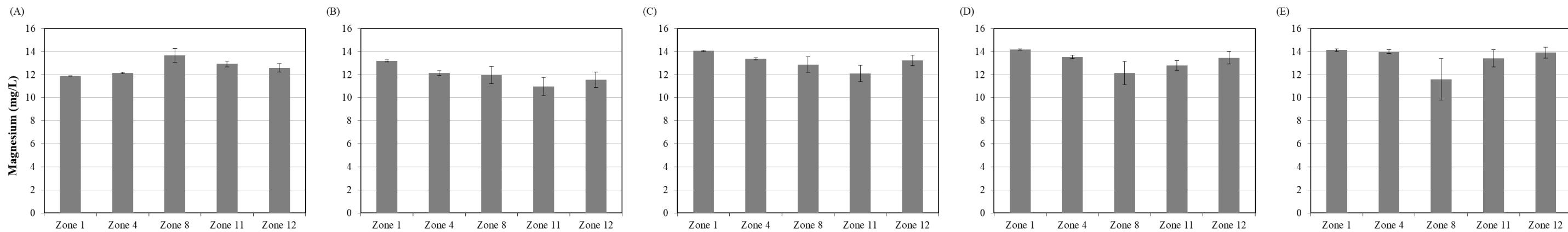


Figure A2-35: Mean (\pm SE) magnesium concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.

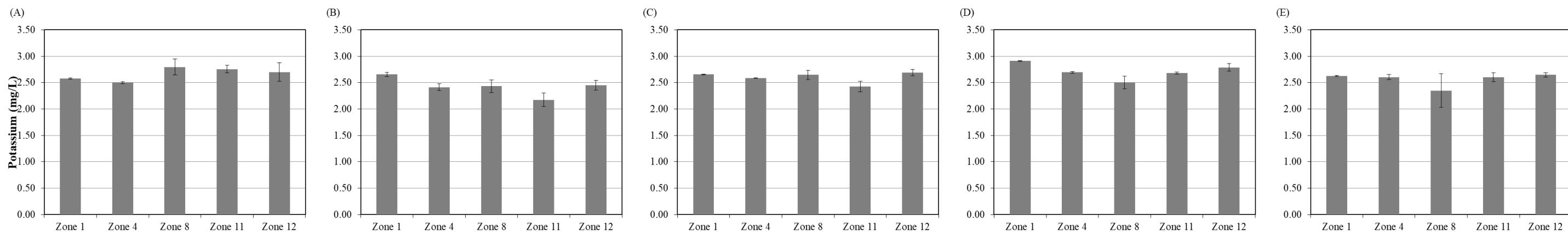


Figure A2-36: Mean (\pm SE) potassium concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.

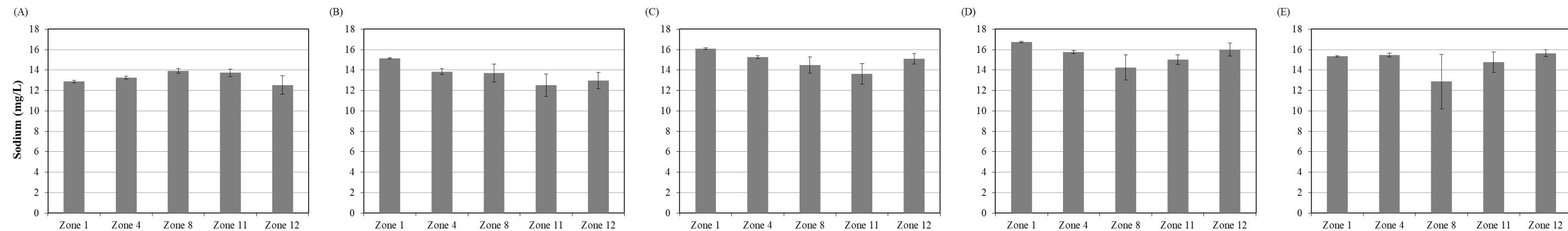


Figure A2-37: Mean (\pm SE) sodium concentrations measured in the Keeyask reservoir mainstem and backbays on March 19–27 (A), June 21–26 (B), July 23–27 (C), August 24–28 (D), and October 6–10 (E), 2022.

APPENDIX 3:

FIGURES OF WATER QUALITY PARAMETERS MEASURED IN THE KEEYASK LOCAL AND REGIONAL STUDY AREAS, 2022

Figure A3-1: Mean (\pm SE) ammonia concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A,B), June 24-26 (C,D), July 25-27 (E,F), August 24-26 (G,H), and October 11 (I,J), 2022.....	104
Figure A3-2: Ammonia concentrations measured in the Keeyask regional study area on March 26 (A,B), June 29 (C,D), July 20 (E,F), August 21 (G,H), and September 14 (I,J), 2022.....	105
Figure A3-3: Mean (\pm SE) nitrate/nitrite concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A,B), June 24-26 (C,D), July 25-27 (E,F), August 24-26 (G,H), and October 11 (I,J), 2022.....	106
Figure A3-4: Nitrate/nitrite concentrations measured in the Keeyask regional study area on March 26 (A,B), June 29 (C,D), July 20 (E,F), August 21 (G,H), and September 14 (I,J), 2022.....	107
Figure A3-5: Mean (\pm SE) concentrations of total phosphorus measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.....	107
Figure A3-6: Total phosphorus concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.....	108
Figure A3-7: Mean (\pm SE) chlorophyll a concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.....	108
Figure A3-8: Chlorophyll a concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.....	108
Figure A3-9: Mean (\pm SE) concentration of total suspended solids measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.....	109

Figure A3-10: Total suspended solid concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.....	109
Figure A3-11: Mean (\pm SE) dissolved oxygen concentrations measured near the surface in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.	
110	
Figure A3-12: Dissolved oxygen concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.....	110
Figure A3-13: Mean (\pm SE) laboratory (top) and <i>in situ</i> (bottom) pH measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A,B), June 24-26 (C,D), July 25-27 (E,F), August 24-26 (G,H), and October 11 (I,J), 2022.	111
Figure A3-14: Laboratory (top) and <i>in situ</i> (bottom) pH measured in the Keeyask regional study area on March 26 (A,B), June 29 (C,D), July 20 (E,F), August 21 (G,H), and September 14 (I,J), 2022.....	112
Figure A3-15: Mean (\pm SE) aluminum concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.	112
Figure A3-16: Aluminum concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.....	113
Figure A3-17: Mean (\pm SE) arsenic concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A,B), June 24-26 (C,D), July 25-27 (E,F), August 24-26 (G,H), and October 11 (I,J), 2022.	113
Figure A3-18: Arsenic concentrations measured in the Keeyask regional study area on March 26 (A,B), June 29 (C,D), July 20 (E,F), August 21 (G,H), and September 14 (I,J), 2022.	114
Figure A3-19: Mean (\pm SE) boron concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A,B), June 24-26 (C,D), July 25-27 (E,F), August 24-26 (G,H), and October 11 (I,J), 2022.	115
Figure A3-20: Boron concentrations measured in the Keeyask regional study area on March 26 (A,B), June 29 (C,D), July 20 (E,F), August 21 (G,H), and September 14 (I,J), 2022.	116

Figure A3-21: Mean (\pm SE) cadmium concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A,B), June 24-26 (C,D), July 25-27 (E,F), August 24-26 (G,H), and October 11 (I,J), 2022	117
Figure A3-22: Cadmium concentrations measured in the Keeyask regional study area on March 26 (A,B), June 29 (C,D), July 20 (E,F), August 21 (G,H), and September 14 (I,J), 2022	118
Figure A3-23: Mean (\pm SE) chromium concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A,B), June 24-26 (C,D), July 25-27 (E,F), August 24-26 (G,H), and October 11 (I,J), 2022	119
Figure A3-24: Chromium concentrations measured in the Keeyask regional study area on March 26 (A,B), June 29 (C,D), July 20 (E,F), August 21 (G,H), and September 14 (I,J), 2022	120
Figure A3-25: Mean (\pm SE) copper concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022	120
Figure A3-26: Copper concentrations measured in the Keeyask regional study area on March 26 (A,B), June 29 (C,D), July 20 (E,F), August 21 (G,H), and September 14 (I,J), 2022	121
Figure A3-27: Mean (\pm SE) iron concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022	121
Figure A3-28: Iron concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.	122
Figure A3-29: Mean (\pm SE) lead concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022	122
Figure A3-30: Lead concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.	123
Figure A3-31: Mean (\pm SE) mercury concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A,B), June 24-26 (C,D), July 25-27 (E,F), August 24-26 (G,H), and October 11 (I,J), 2022	123

Figure A3-32: Mercury concentrations measured in the Keeyask regional study area on March 26 (A,B), June 29 (C,D), July 20 (E,F), August 21 (G,H), and September 14 (I,J), 2022.	124
Figure A3-33: Mean (\pm SE) methylmercury concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A,B), June 24-26 (C,D), July 25-27 (E,F), August 24-26 (G,H), and October 11 (I,J), 2022.	125
Figure A3-34: Methylmercury concentrations measured in the Keeyask regional study area on March 26 (A,B), June 29 (C,D), July 20 (E,F), August 21 (G,H), and September 14 (I,J), 2022.	126
Figure A3-35: Mean (\pm SE) molybdenum concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A,B), June 24-26 (C,D), July 25-27 (E,F), August 24-26 (G,H), and October 11 (I,J), 2022.	127
Figure A3-36: Molybdenum concentrations measured in the Keeyask regional study area on March 26 (A,B), June 29 (C,D), July 20 (E,F), August 21 (G,H), and September 14 (I,J), 2022.	128
Figure A3-37: Mean (\pm SE) nickel concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A,B), June 24-26 (C,D), July 25-27 (E,F), August 24-26 (G,H), and October 11 (I,J), 2022.	129
Figure A3-38: Nickel concentrations measured in the Keeyask regional study area on March 26 (A,B), June 29 (C,D), July 20 (E,F), August 21 (G,H), and September 14 (I,J), 2022.	130
Figure A3-39: Mean (\pm SE) selenium concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.	131
Figure A3-40: Selenium concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.	131
Figure A3-41: Mean (\pm SE) silver concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.	131
Figure A3-42: Silver concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.	
132	

Figure A3-43: Mean (\pm SE) thallium concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A,B), June 24-26 (C,D), July 25-27 (E,F), August 24-26 (G,H), and October 11 (I,J), 2022	132
Figure A3-44: Thallium concentrations measured in the Keeyask regional study area on March 26 (A,B), June 29 (C,D), July 20 (E,F), August 21 (G,H), and September 14 (I,J), 2022	133
Figure A3-45: Mean (\pm SE) uranium concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A,B), June 24-26 (C,D), July 25-27 (E,F), August 24-26 (G,H), and October 11 (I,J), 2022	134
Figure A3-46: Uranium concentrations measured in the Keeyask regional study area on March 26 (A,B), June 29 (C,D), July 20 (E,F), August 21 (G,H), and September 14 (I,J), 2022	135
Figure A3-47: Mean (\pm SE) zinc concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A,B), June 24-26 (C,D), July 25-27 (E,F), August 24-26 (G,H), and October 11 (I,J), 2022	136
Figure A3-48: Zinc concentrations measured in the Keeyask regional study area on March 26 (A,B), June 29 (C,D), July 20 (E,F), August 21 (G,H), and September 14 (I,J), 2022.....	137
Figure A3-49: Mean (\pm SE) dissolved phosphorus concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022	137
Figure A3-50: Dissolved phosphorus concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.....	138
Figure A3-51: Mean (\pm SE) concentrations of total nitrogen measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.....	138
Figure A3-52: Total nitrogen concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.....	139
Figure A3-53: Mean (\pm SE) dissolved organic carbon concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022	139

Figure A3-54: Dissolved organic carbon concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.....	140
Figure A3-55: Mean (\pm SE) true colour measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.....	140
Figure A3-56: True colour measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.....	141
Figure A3-57: Mean (\pm SE) laboratory (top) and <i>in situ</i> (bottom) turbidity measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A,B), June 24-26 (C,D), July 25-27 (E,F), August 24-26 (G,H), and October 11 (I,J), 2022.....	141
Figure A3-58: Laboratory (top) and <i>in situ</i> (bottom) turbidity measured in the Keeyask regional study area on March 26 (A,B), June 29 (C,D), July 20 (E,F), August 21 (G,H), and September 14 (I,J), 2022.....	142
Figure A3-59: Mean (\pm SE) laboratory (top) and <i>in situ</i> (bottom) specific conductance measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A,B), June 24-26 (C,D), July 25-27 (E,F), August 24-26 (G,H), and October 11 (I,J), 2022.....	143
Figure A3-60: Laboratory (top) and <i>in situ</i> (bottom) specific conductance measured in the Keeyask regional study area on March 26 (A,B), June 29 (C,D), July 20 (E,F), August 21 (G,H), and September 14 (I,J), 2022.....	144
Figure A3-61: Mean (\pm SE) concentrations of total dissolved solids measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.....	144
Figure A3-62: Concentration of total dissolved solids measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.....	145
Figure A3-63: Mean (\pm SE) hardness measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.....	145
Figure A3-64: Hardness measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.....	146

Figure A3-65: Mean (\pm SE) chloride concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.....	146
Figure A3-66: Chloride concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.....	147
Figure A3-67: Mean (\pm SE) sulfate concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.....	147
Figure A3-68: Sulfate concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.....	148
Figure A3-69: Mean (\pm SE) calcium concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.....	148
Figure A3-70: Calcium concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.....	149
Figure A3-71: Mean (\pm SE) magnesium concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.....	149
Figure A3-72: Magnesium concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.....	150
Figure A3-73: Mean (\pm SE) potassium concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.....	150
Figure A3-74: Potassium concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.....	151
Figure A3-75: Mean (\pm SE) sodium concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.....	151

Figure A3-76: Sodium concentrations measured in the Keeyask regional study area on
March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14
(E), 2022.....152

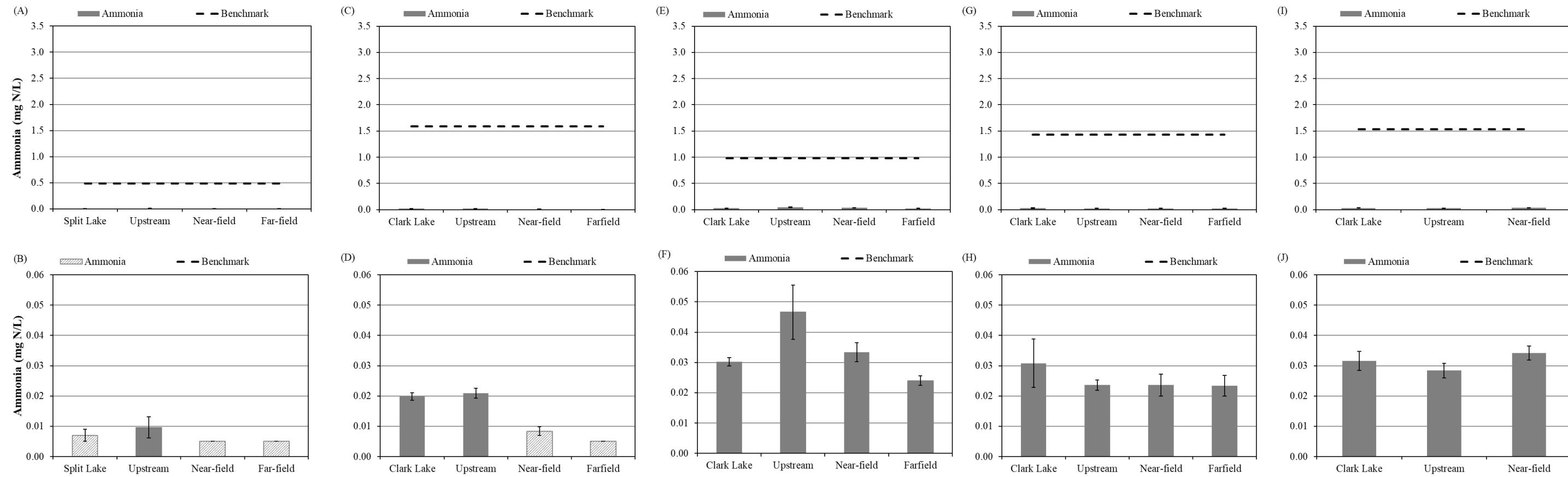


Figure A3-1: Mean (\pm SE) ammonia concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A,B), June 24-26 (C,D), July 25-27 (E,F), August 24-26 (G,H), and October 11 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom. Hashed bars represent results below the analytical detection limit.

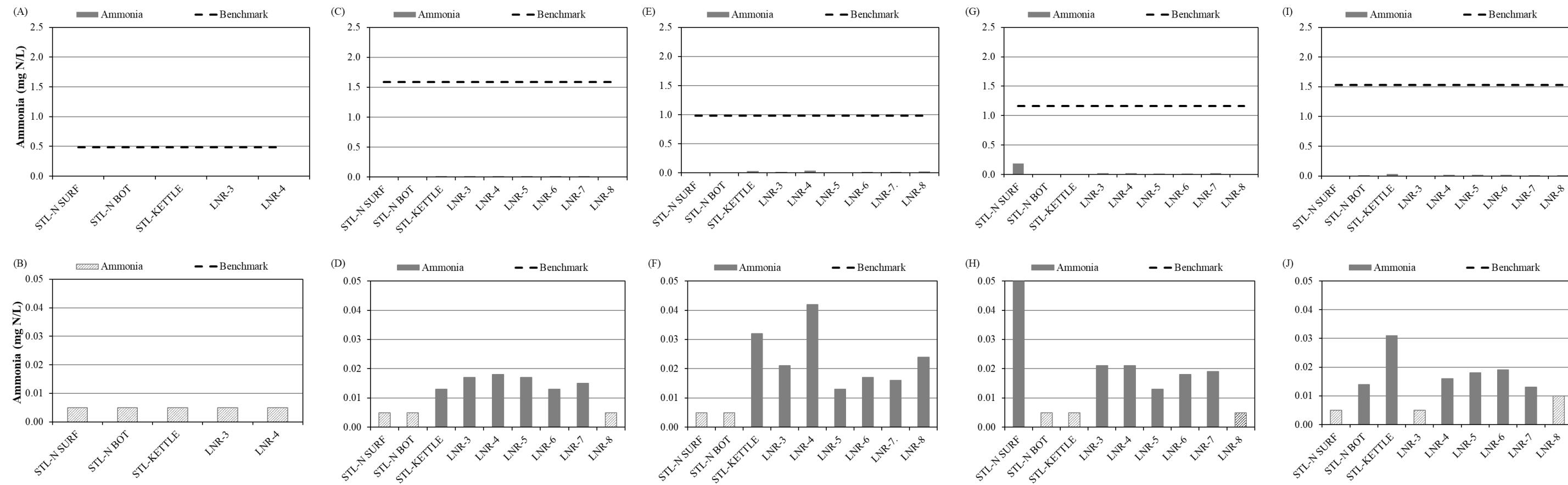


Figure A3-2: Ammonia concentrations measured in the Keeyask regional study area on March 26 (A,B), June 29 (C,D), July 20 (E,F), August 21 (G,H), and September 14 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom. Hashed bars represent results below the analytical detection limit.

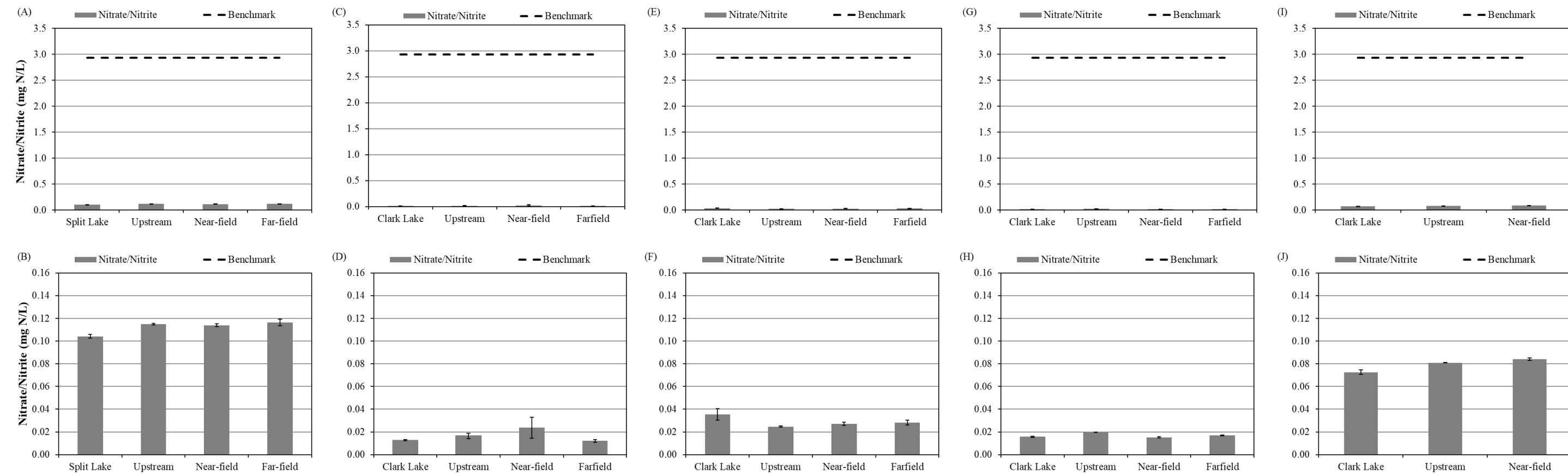


Figure A3-3: Mean (\pm SE) nitrate/nitrite concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A,B), June 24-26 (C,D), July 25-27 (E,F), August 24-26 (G,H), and October 11 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

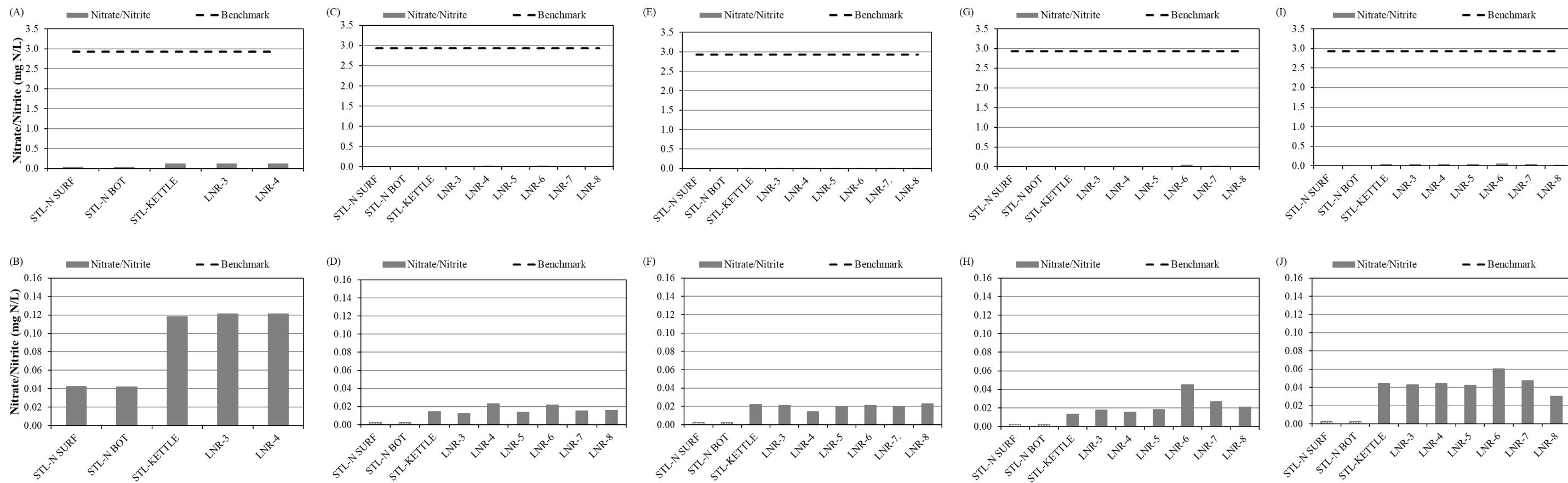


Figure A3-4: Nitrate/nitrite concentrations measured in the Keeyask regional study area on March 26 (A,B), June 29 (C,D), July 20 (E,F), August 21 (G,H), and September 14 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom. Hashed bars represent results below the analytical detection limit.

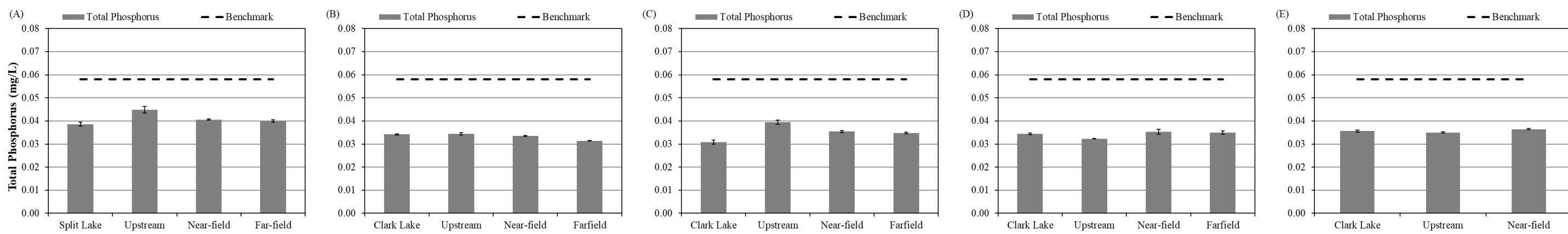


Figure A3-5: Mean (\pm SE) concentrations of total phosphorus measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022. Letters denote statistically significant differences.

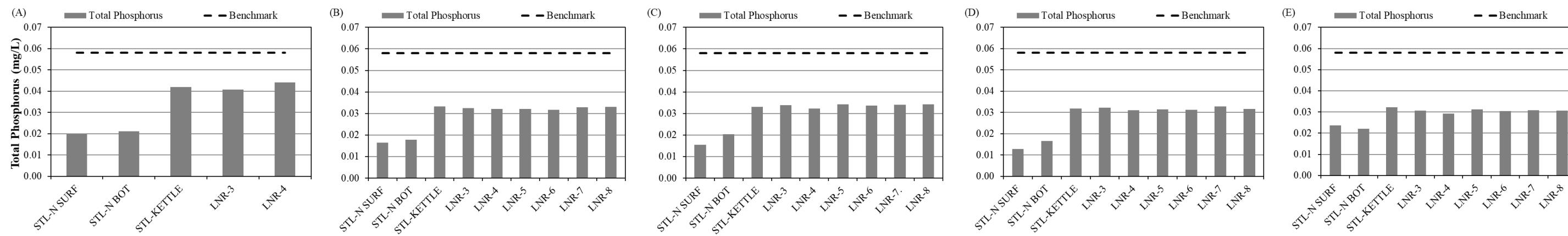


Figure A3-6: Total phosphorus concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.

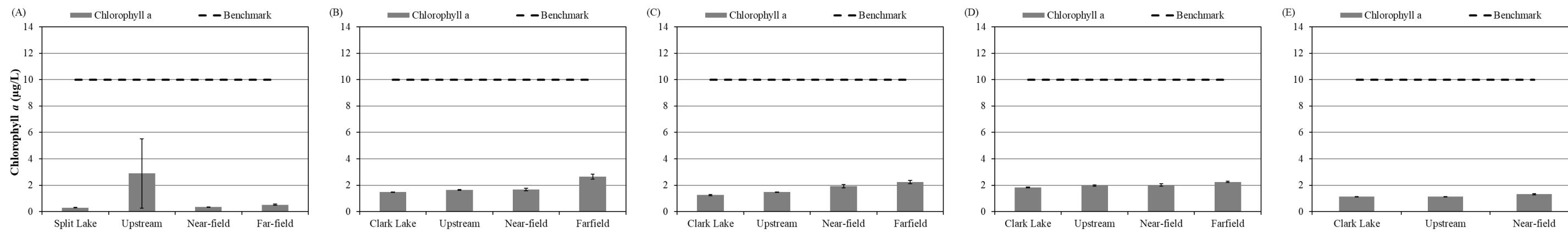


Figure A3-7: Mean (\pm SE) chlorophyll a concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.

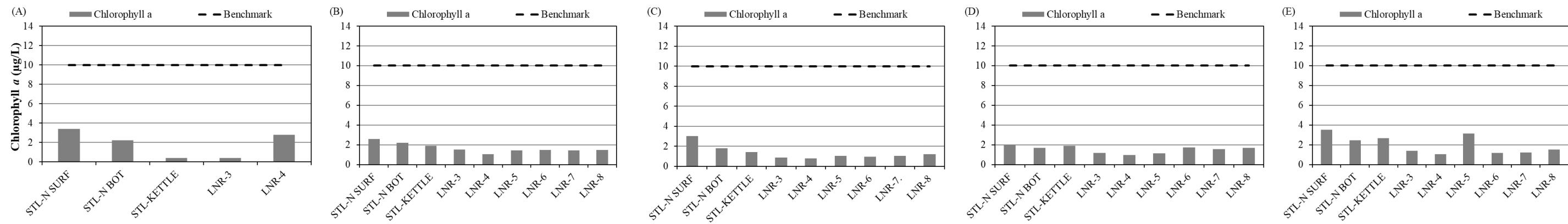


Figure A3-8: Chlorophyll a concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.

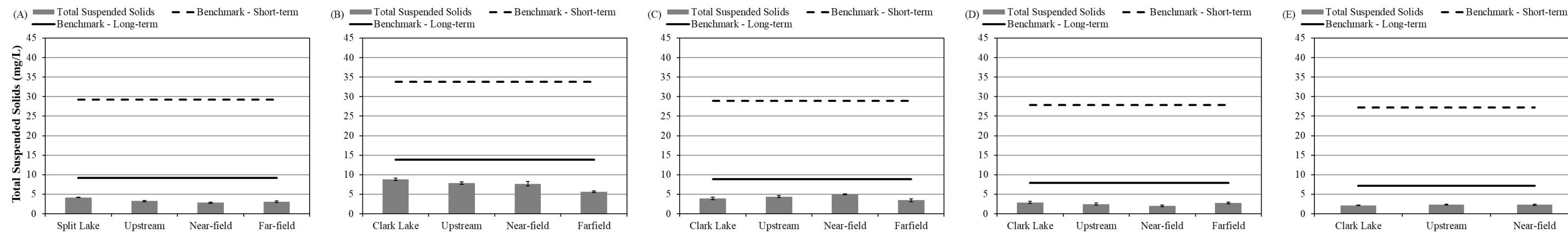


Figure A3-9: Mean (\pm SE) concentration of total suspended solids measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.

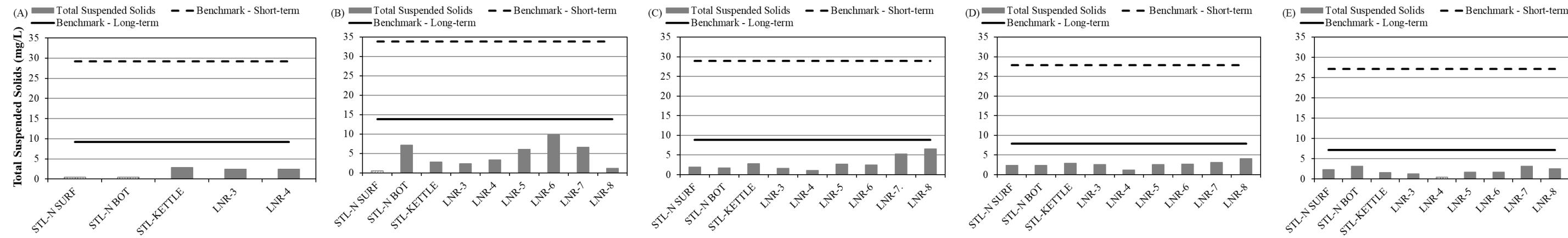


Figure A3-10: Total suspended solid concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.

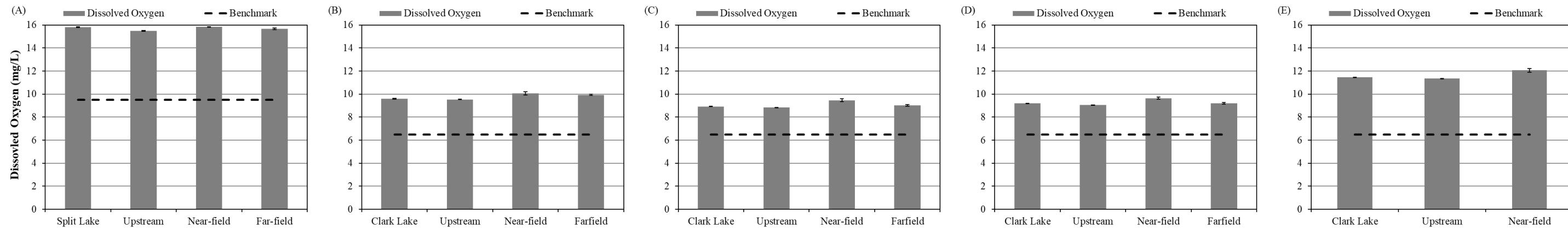


Figure A3-11: Mean (\pm SE) dissolved oxygen concentrations measured near the surface in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.

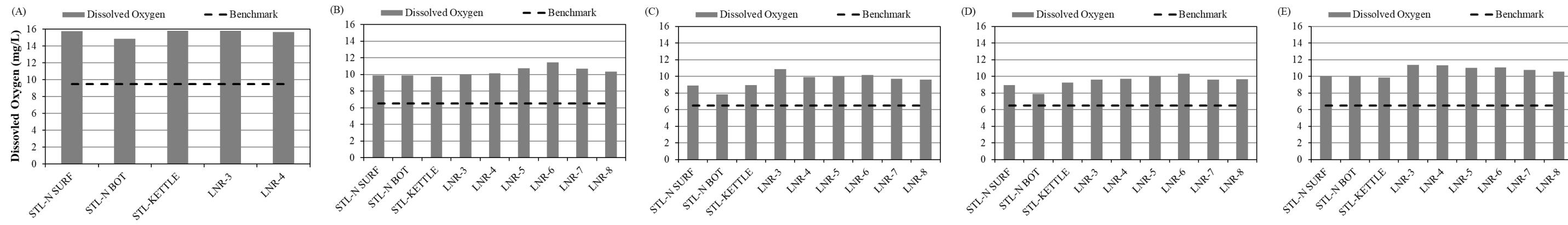


Figure A3-12: Dissolved oxygen concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.

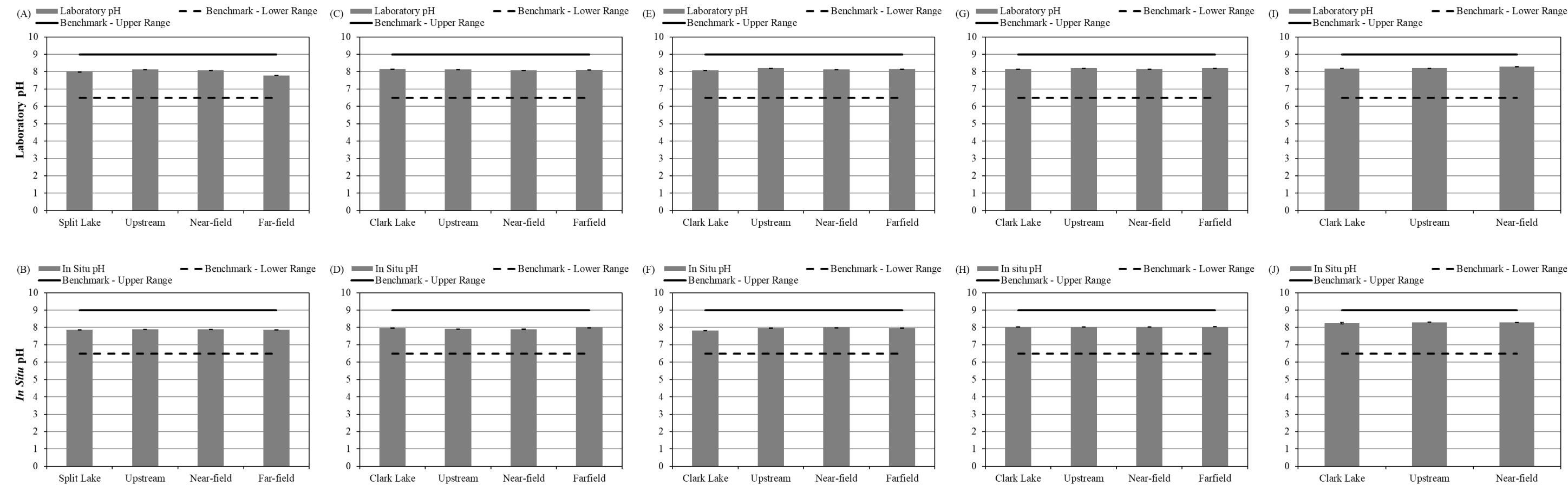


Figure A3-13: Mean (\pm SE) laboratory (top) and *in situ* (bottom) pH measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A,B), June 24-26 (C,D), July 25-27 (E,F), August 24-26 (G,H), and October 11 (I,J), 2022.

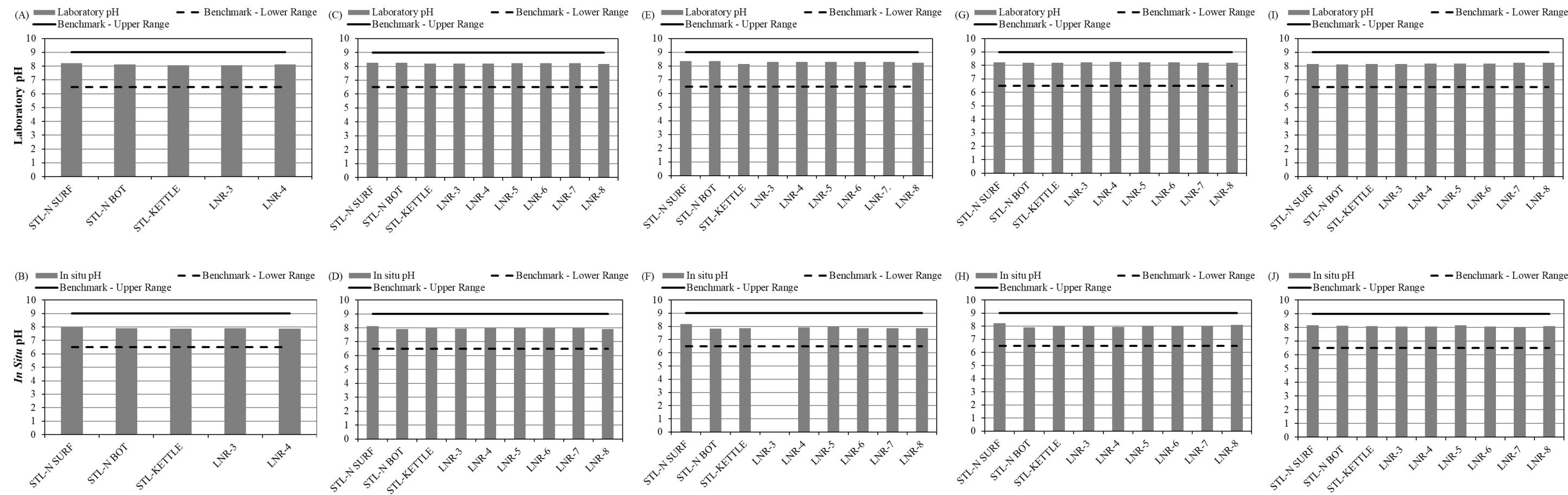


Figure A3-14: Laboratory (top) and in situ (bottom) pH measured in the Keeyask regional study area on March 26 (A,B), June 29 (C,D), July 20 (E,F), August 21 (G,H), and September 14 (I,J), 2022.

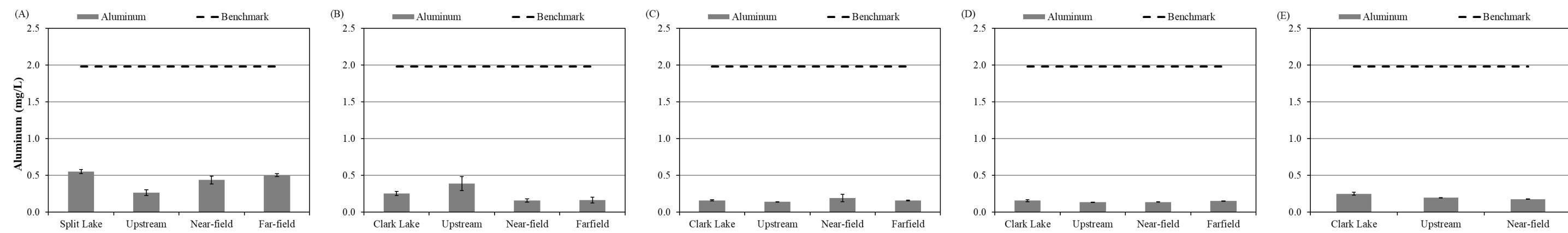


Figure A3-15: Mean (\pm SE) aluminum concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.

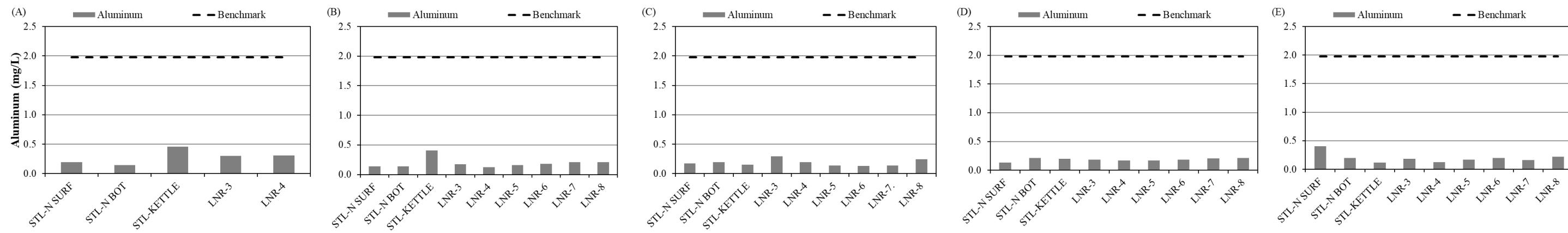


Figure A3-16: Aluminum concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.

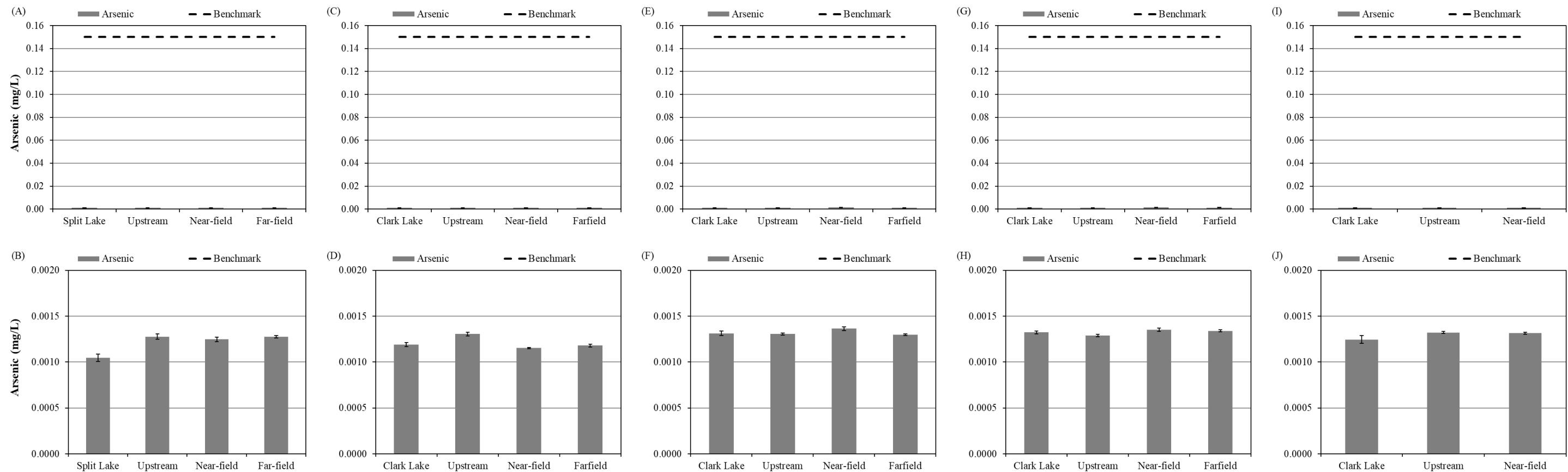


Figure A3-17: Mean (\pm SE) arsenic concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A,B), June 24-26 (C,D), July 25-27 (E,F), August 24-26 (G,H), and October 11 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

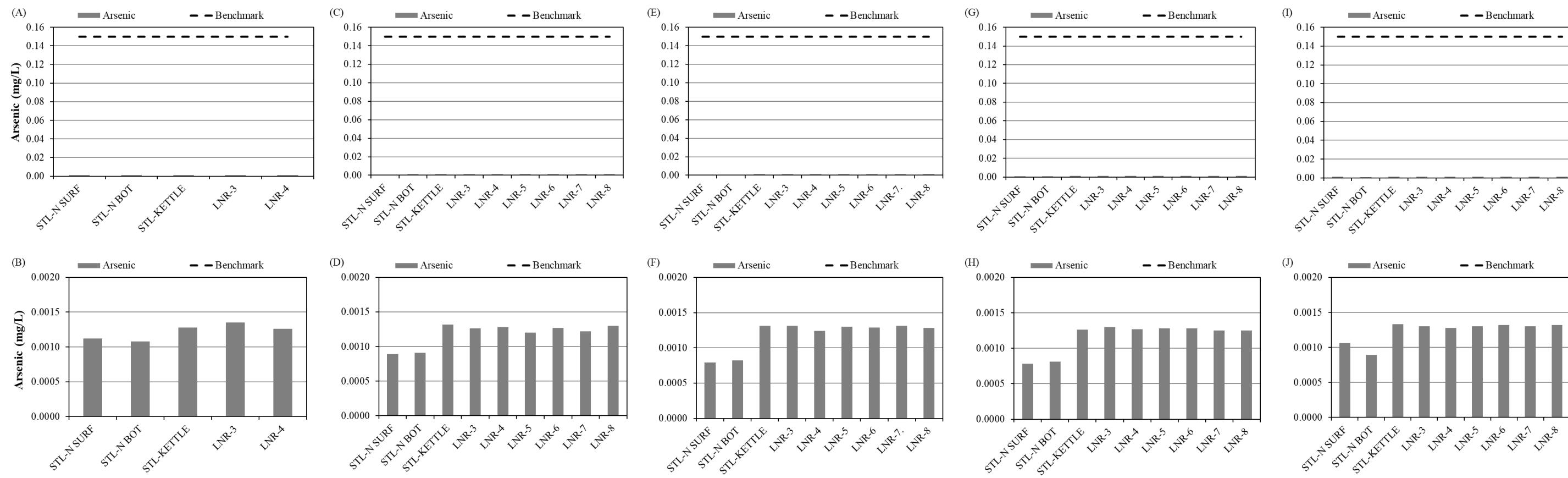


Figure A3-18: Arsenic concentrations measured in the Keeyask regional study area on March 26 (A,B), June 29 (C,D), July 20 (E,F), August 21 (G,H), and September 14 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom. Hashed bars represent results below the analytical detection limit.

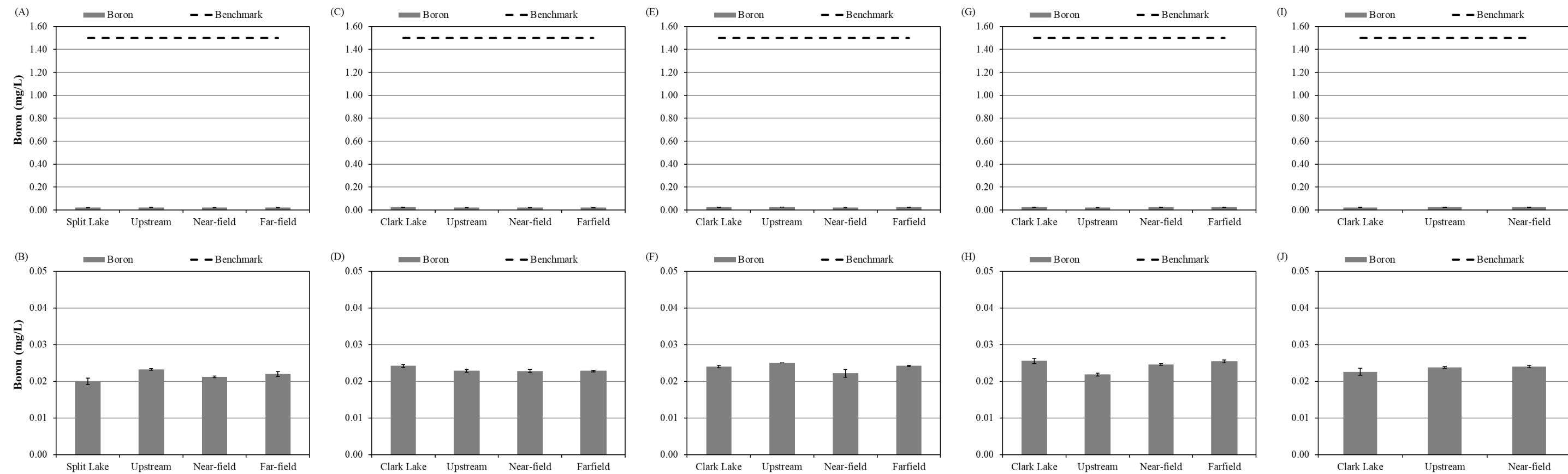


Figure A3-19: Mean (\pm SE) boron concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A,B), June 24-26 (C,D), July 25-27 (E,F), August 24-26 (G,H), and October 11 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

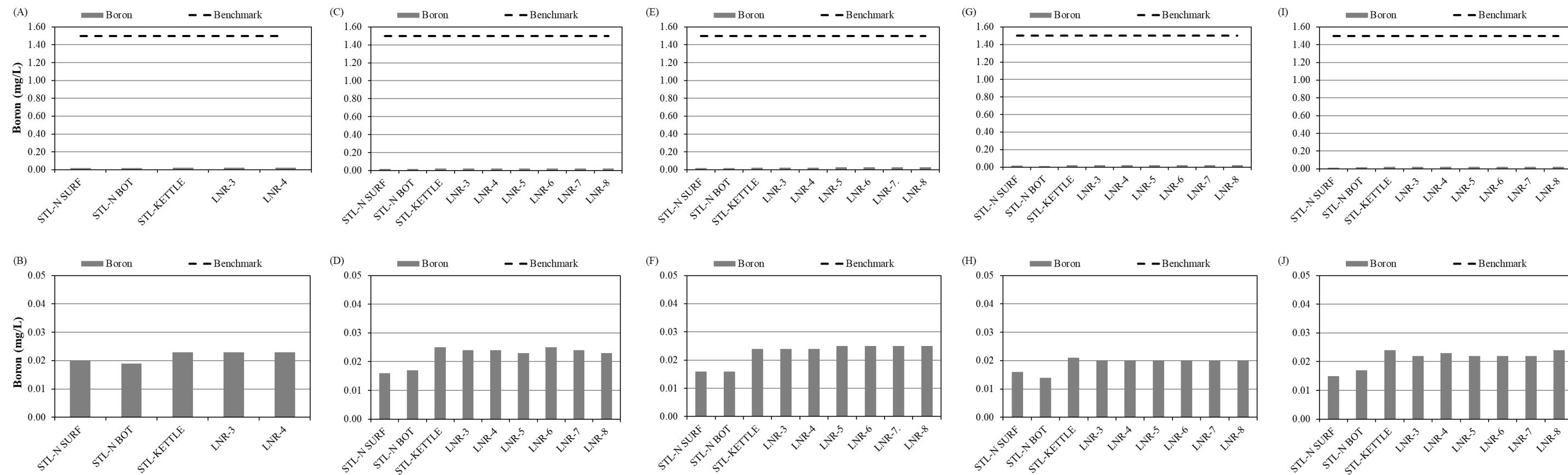


Figure A3-20: Boron concentrations measured in the Keeyask regional study area on March 26 (A,B), June 29 (C,D), July 20 (E,F), August 21 (G,H), and September 14 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

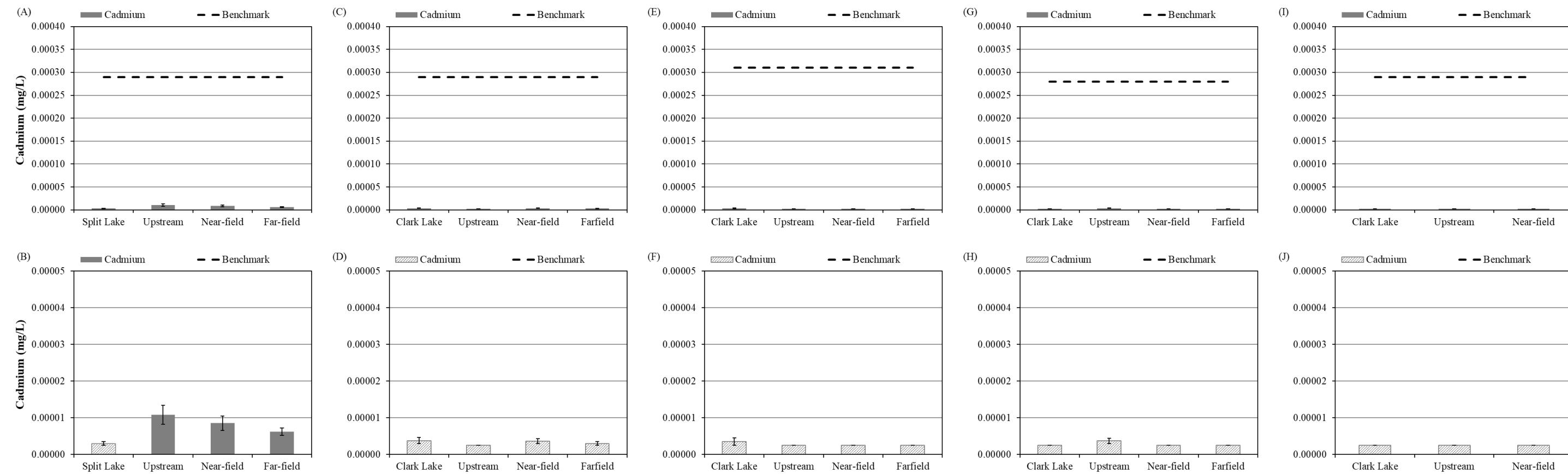


Figure A3-21: Mean (\pm SE) cadmium concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A,B), June 24-26 (C,D), July 25-27 (E,F), August 24-26 (G,H), and October 11 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom. Hashed bars represent results below the analytical detection limit.

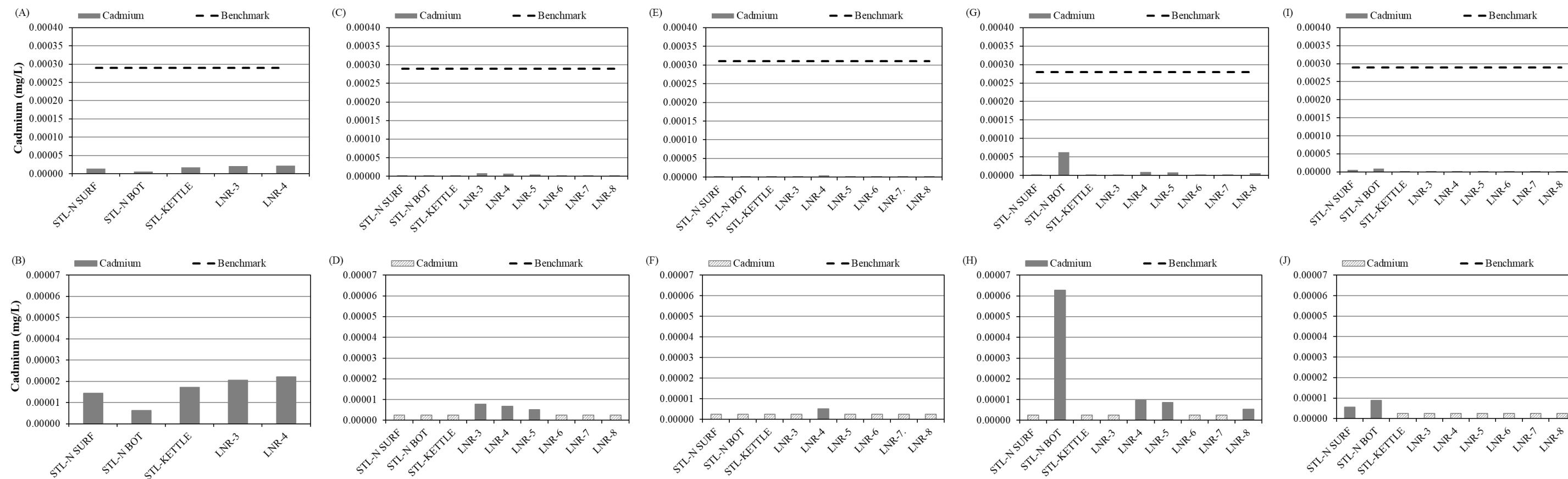


Figure A3-22: Cadmium concentrations measured in the Keeyask regional study area on March 26 (A,B), June 29 (C,D), July 20 (E,F), August 21 (G,H), and September 14 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom. Hashed bars represent results below the analytical detection limit.

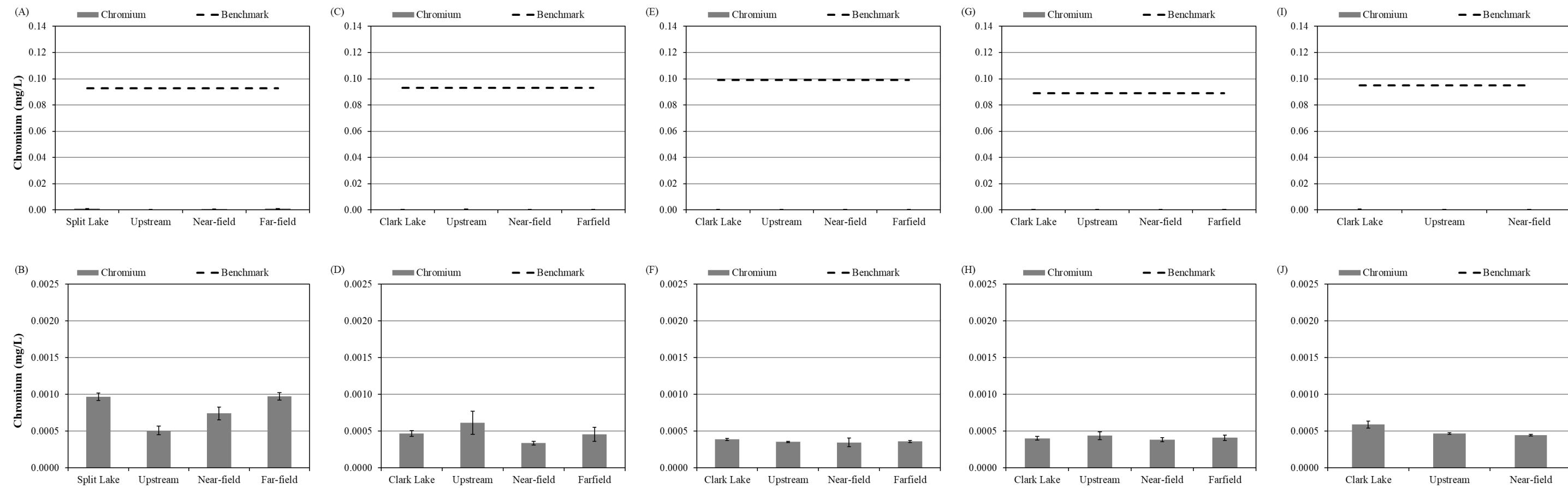


Figure A3-23: Mean (\pm SE) chromium concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A,B), June 24-26 (C,D), July 25-27 (E,F), August 24-26 (G,H), and October 11 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

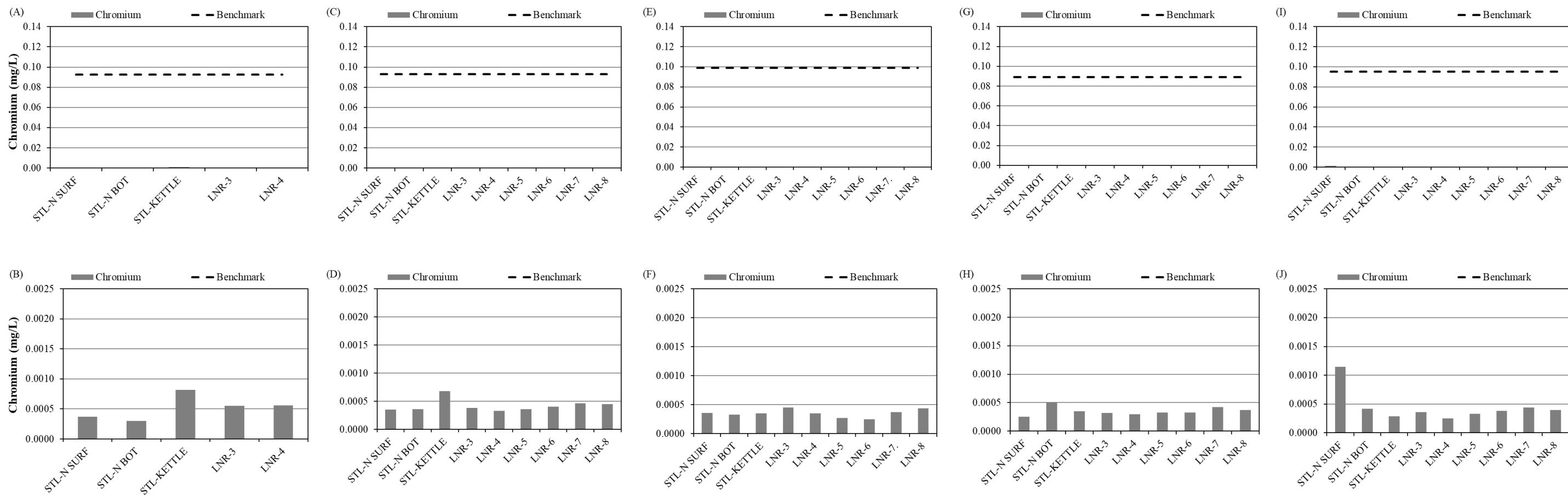


Figure A3-24: Chromium concentrations measured in the Keeyask regional study area on March 26 (A,B), June 29 (C,D), July 20 (E,F), August 21 (G,H), and September 14 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom. Hashed bars represent results below the analytical detection limit.

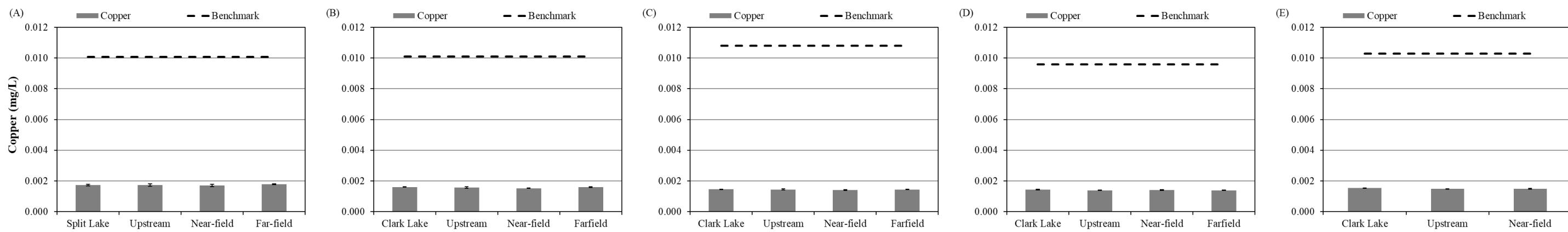


Figure A3-25: Mean (\pm SE) copper concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.

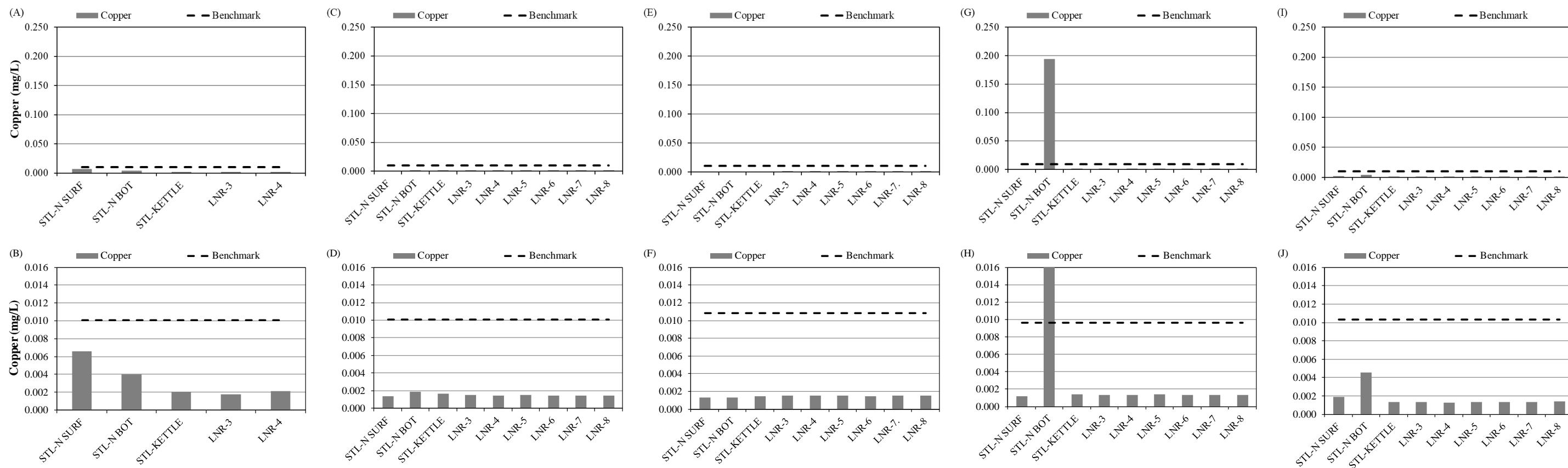


Figure A3-26: Copper concentrations measured in the Keeyask regional study area on March 26 (A,B), June 29 (C,D), July 20 (E,F), August 21 (G,H), and September 14 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom. Letters denote a statistically significant difference.

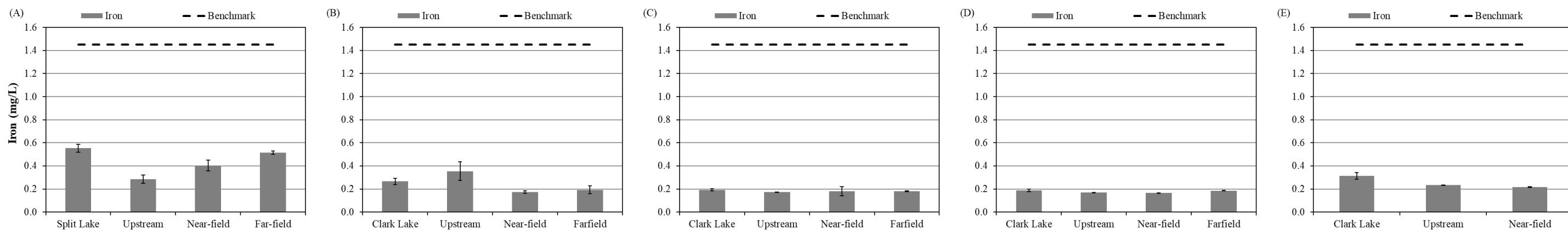


Figure A3-27: Mean (\pm SE) iron concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.

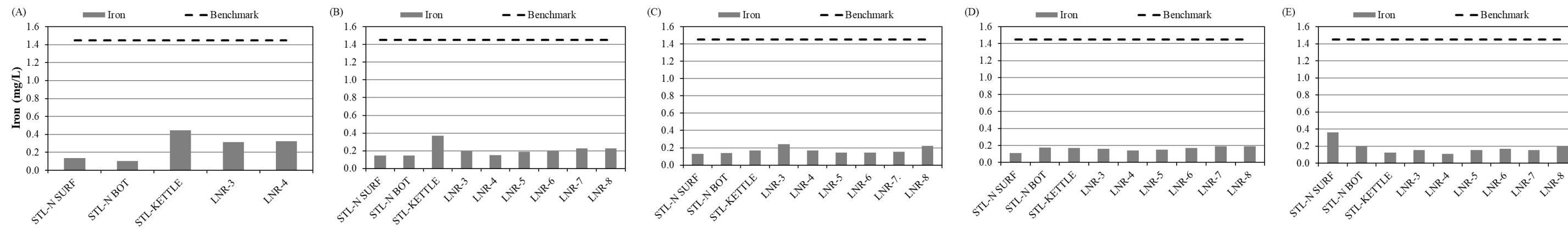


Figure A3-28: Iron concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.

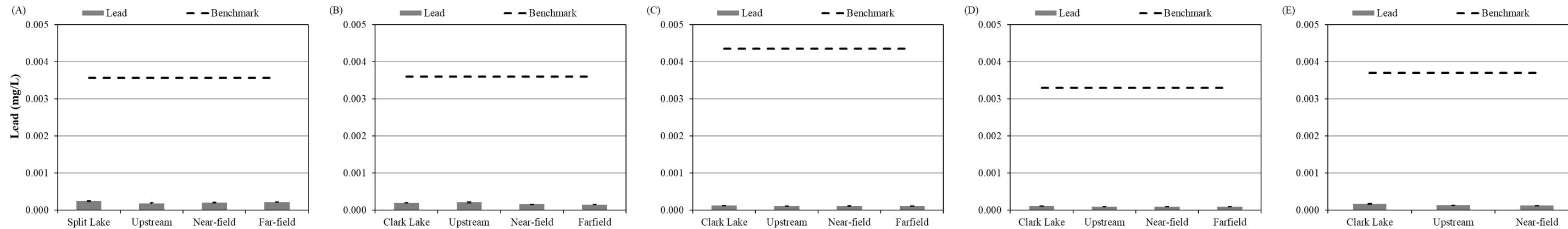


Figure A3-29: Mean (\pm SE) lead concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.

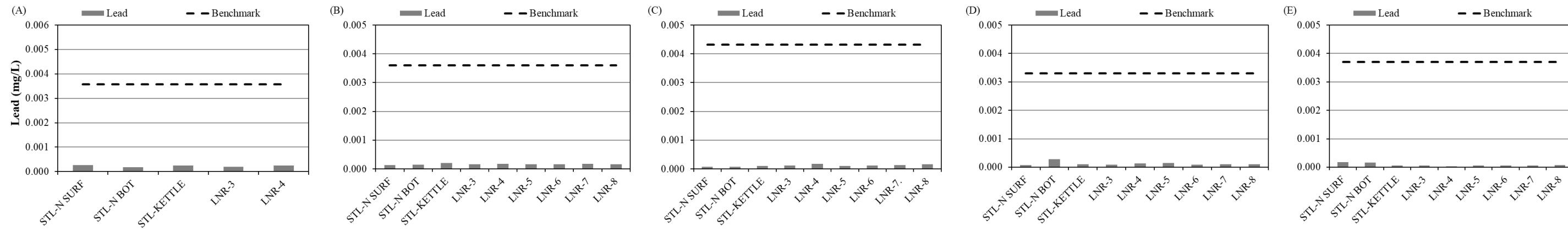


Figure A3-30: Lead concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.

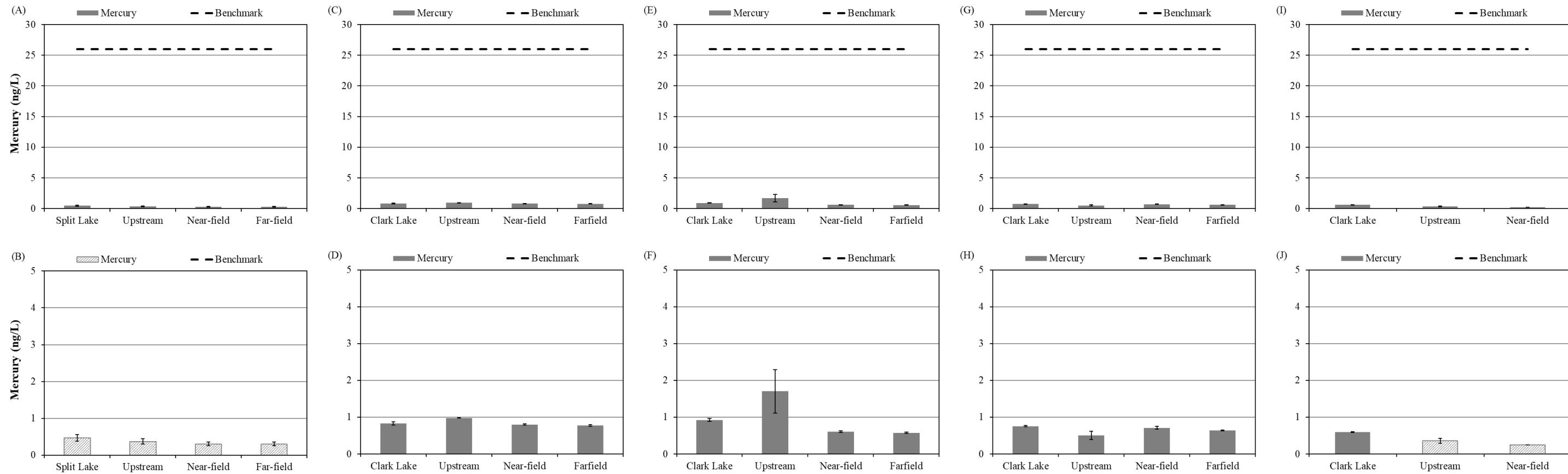


Figure A3-31: Mean (\pm SE) mercury concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A,B), June 24-26 (C,D), July 25-27 (E,F), August 24-26 (G,H), and October 11 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

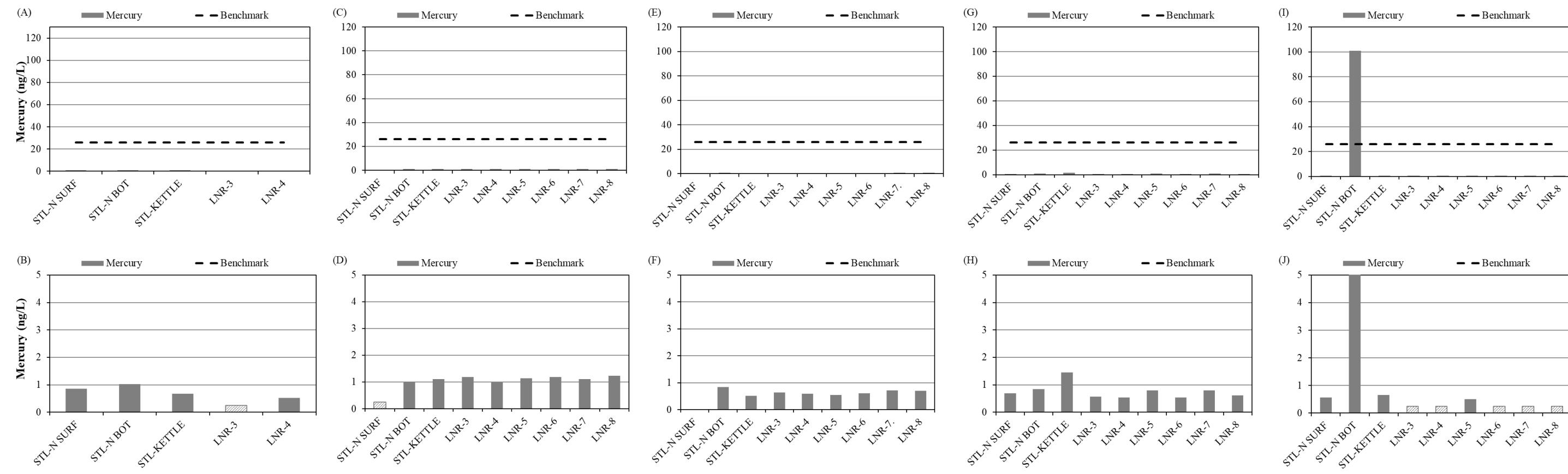


Figure A3-32: Mercury concentrations measured in the Keeyask regional study area on March 26 (A,B), June 29 (C,D), July 20 (E,F), August 21 (G,H), and September 14 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

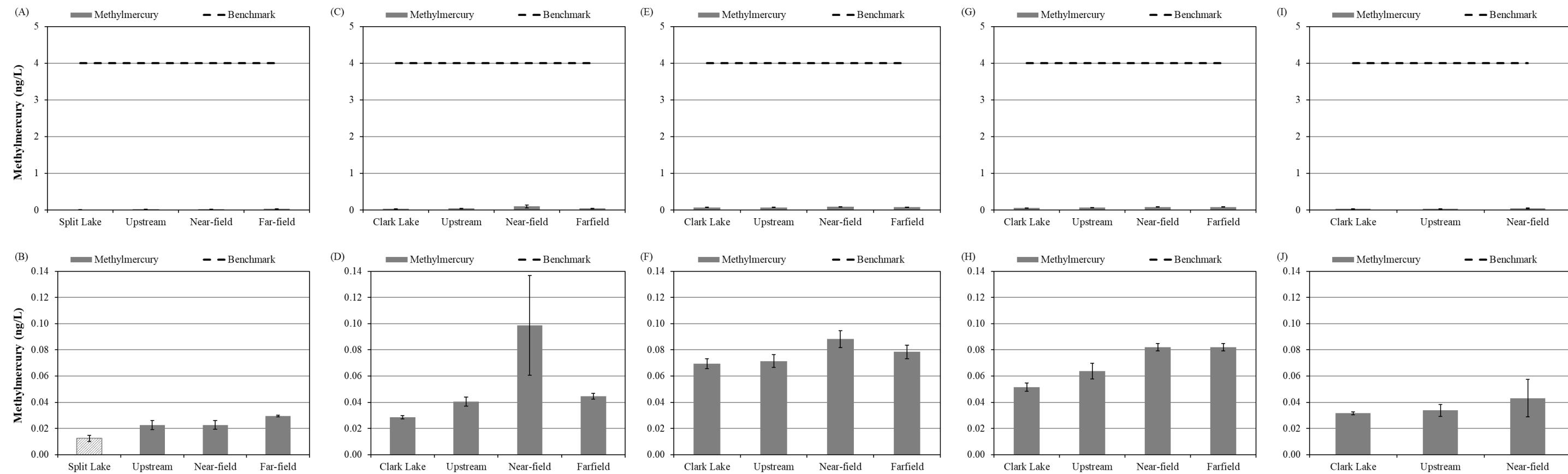


Figure A3-33: Mean (\pm SE) methylmercury concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A,B), June 24-26 (C,D), July 25-27 (E,F), August 24-26 (G,H), and October 11 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

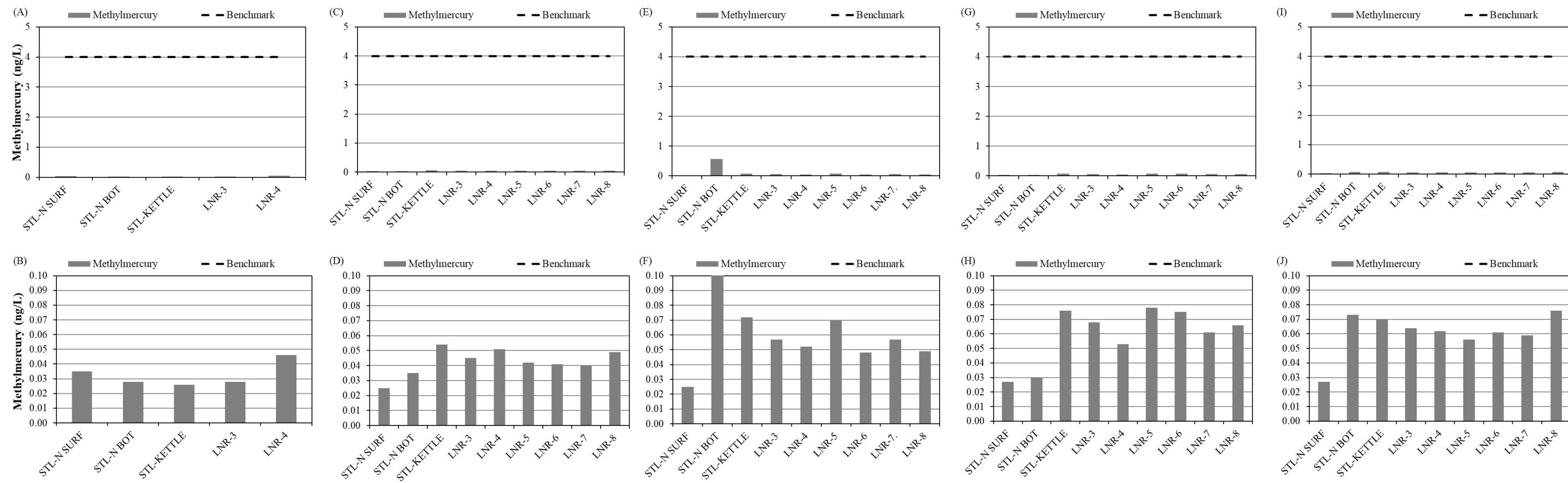


Figure A3-34: Methylmercury concentrations measured in the Keeyask regional study area on March 26 (A,B), June 29 (C,D), July 20 (E,F), August 21 (G,H), and September 14 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

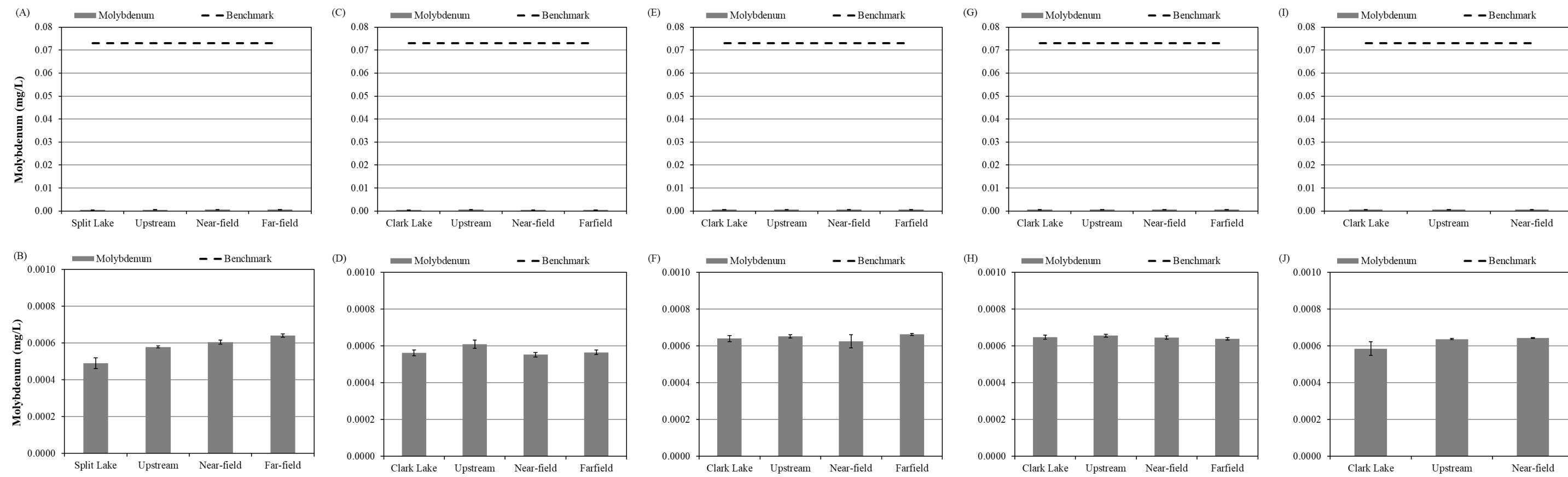


Figure A3-35: Mean (\pm SE) molybdenum concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A,B), June 24-26 (C,D), July 25-27 (E,F), August 24-26 (G,H), and October 11 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

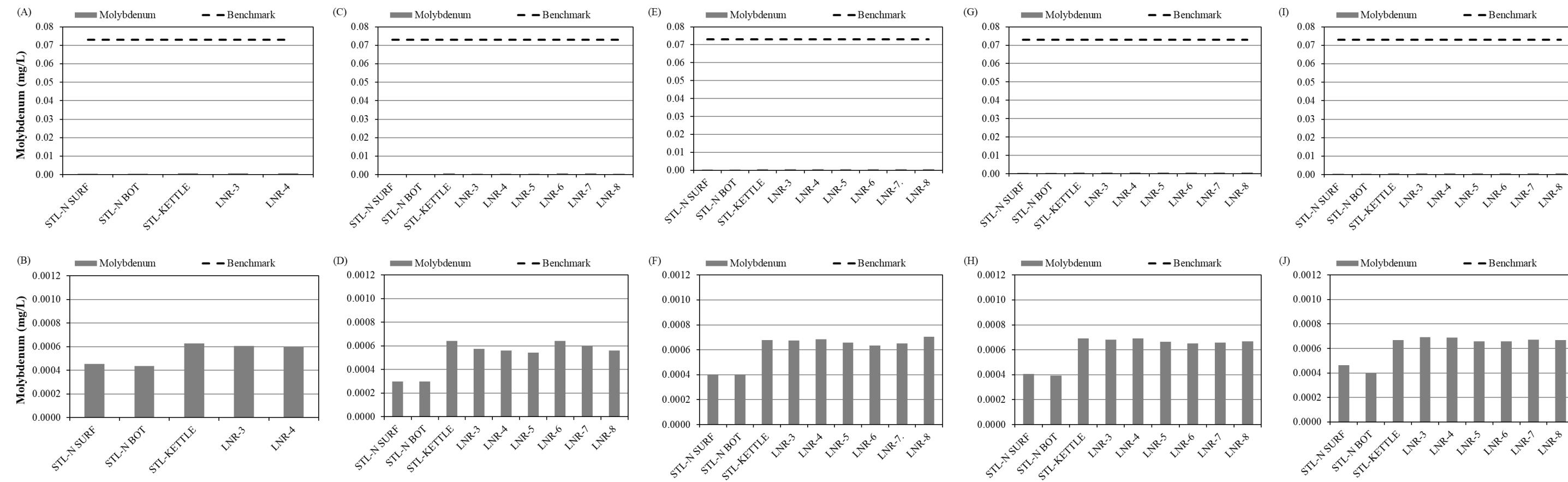


Figure A3-36: Molybdenum concentrations measured in the Keeyask regional study area on March 26 (A,B), June 29 (C,D), July 20 (E,F), August 21 (G,H), and September 14 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

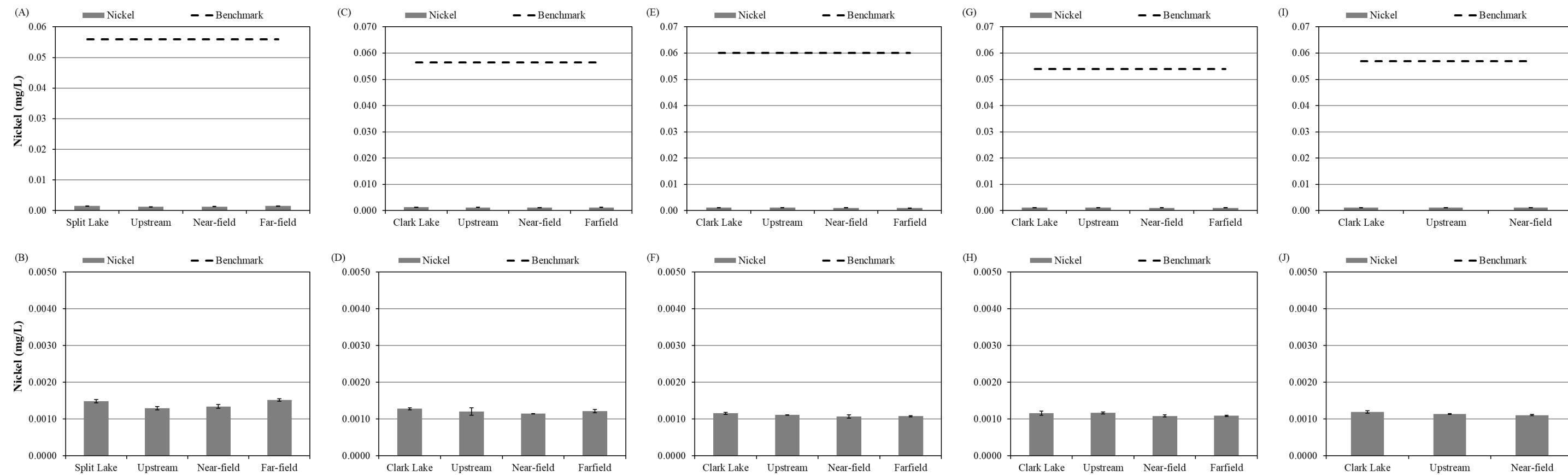


Figure A3-37: Mean (\pm SE) nickel concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A,B), June 24-26 (C,D), July 25-27 (E,F), August 24-26 (G,H), and October 11 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

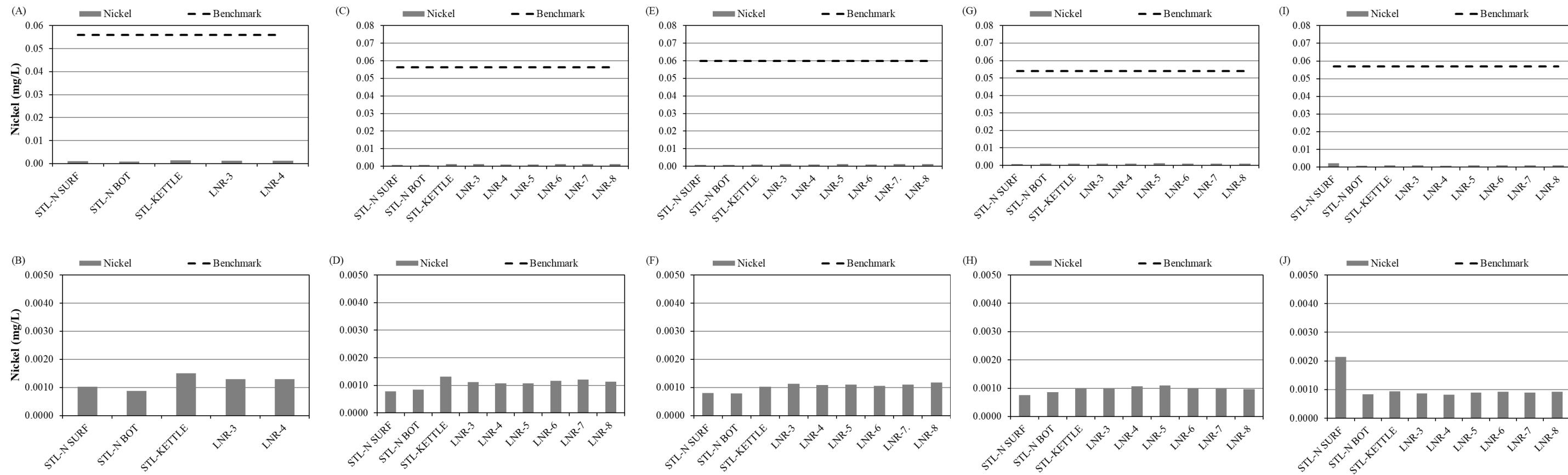


Figure A3-38: Nickel concentrations measured in the Keeyask regional study area on March 26 (A,B), June 29 (C,D), July 20 (E,F), August 21 (G,H), and September 14 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

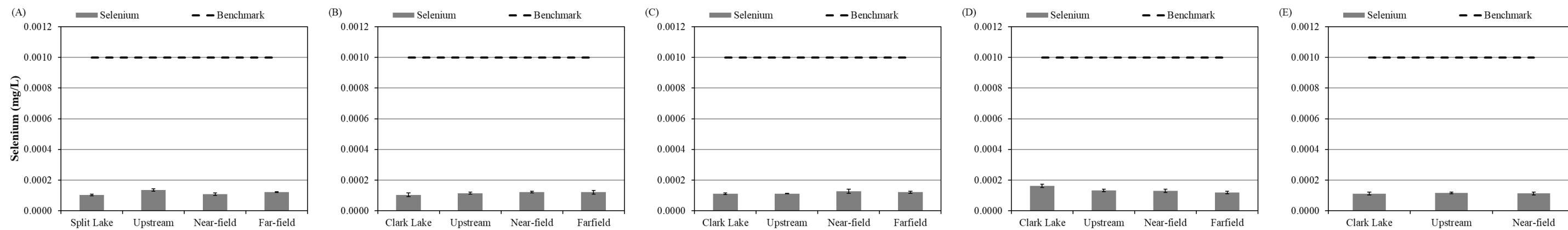


Figure A3-39: Mean (\pm SE) selenium concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.

Figure A3-40: Selenium concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.

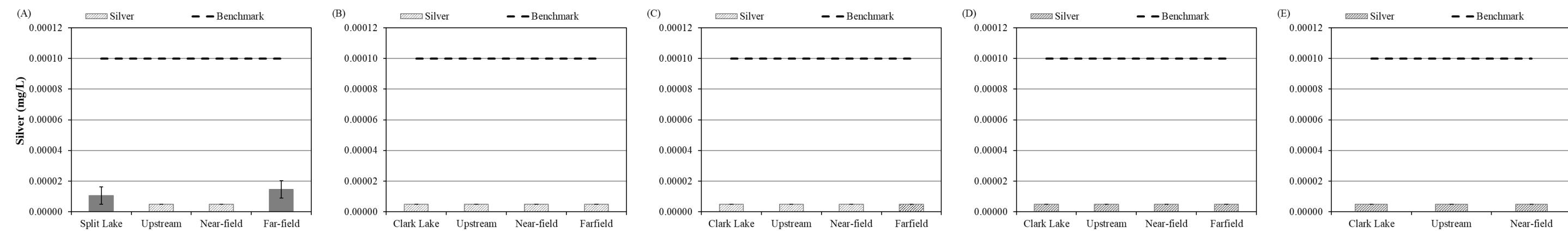
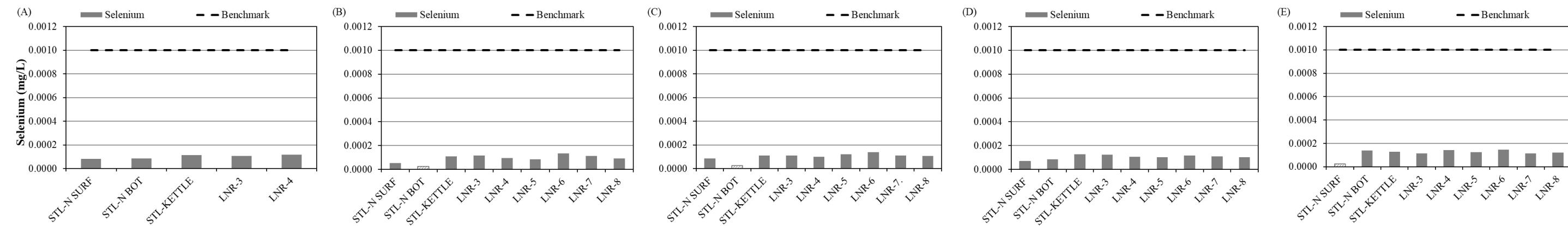


Figure A3-41: Mean (\pm SE) silver concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022. Hashed bars represent results below the analytical detection limit.

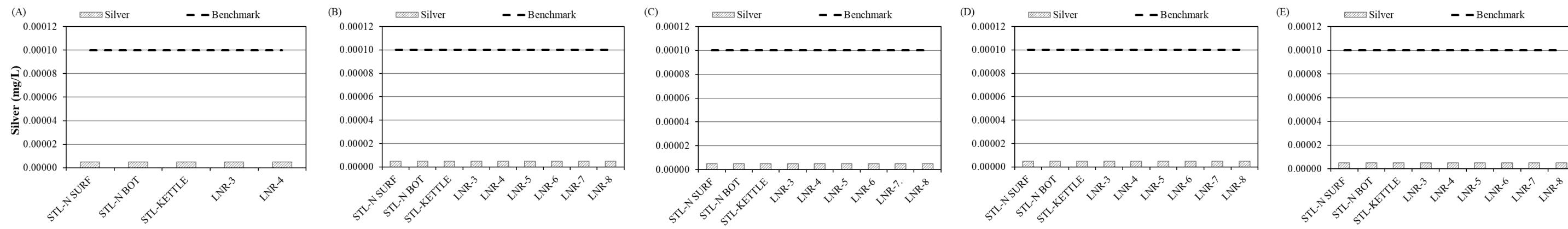


Figure A3-42: Silver concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022. Hashed bars represent results below the analytical detection limit.

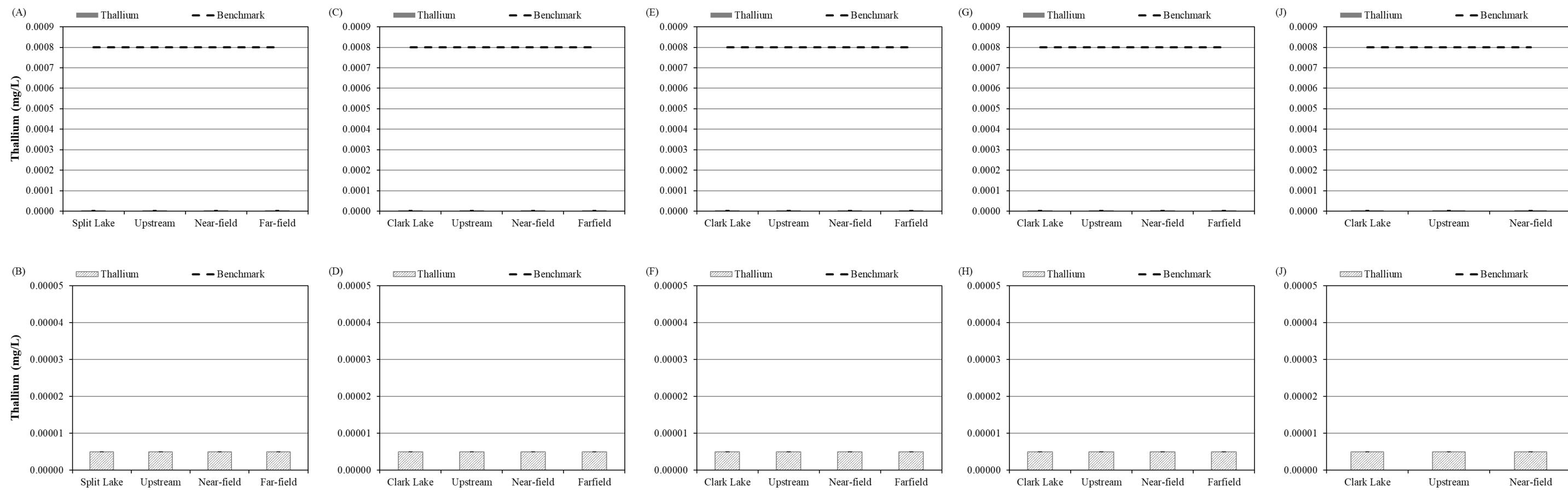


Figure A3-43: Mean (\pm SE) thallium concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A,B), June 24-26 (C,D), July 25-27 (E,F), August 24-26 (G,H), and October 11 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom. Hashed bars represent results below the analytical detection limit.

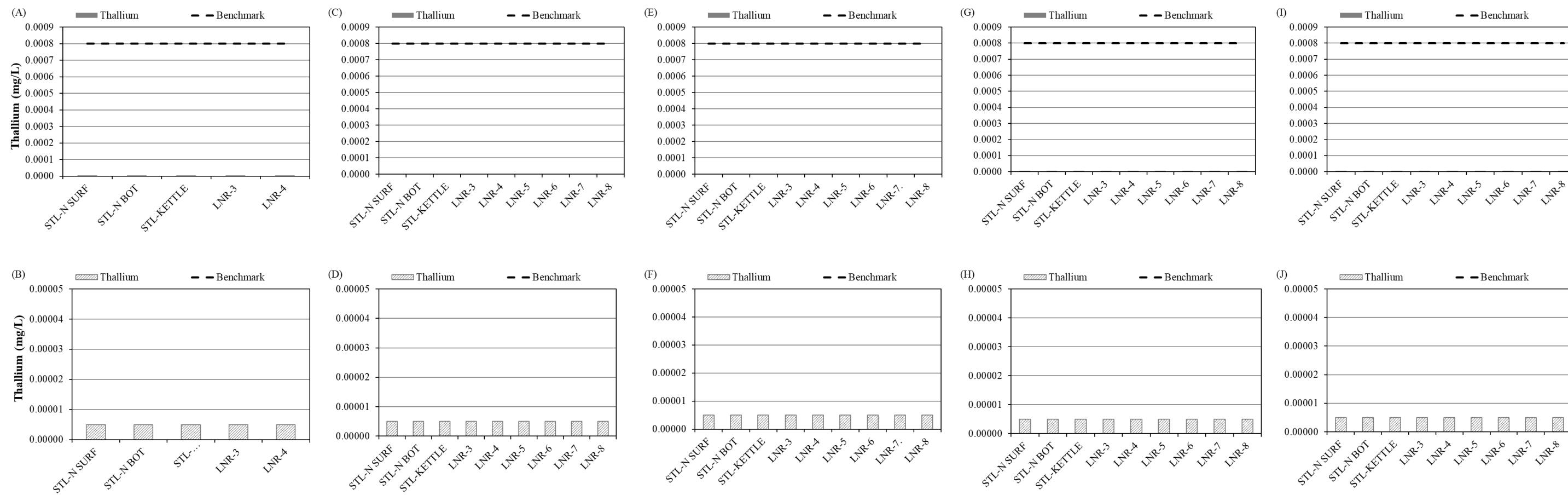


Figure A3-44: Thallium concentrations measured in the Keeyask regional study area on March 26 (A,B), June 29 (C,D), July 20 (E,F), August 21 (G,H), and September 14 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom. Hashed bars represent results below the analytical detection limit.

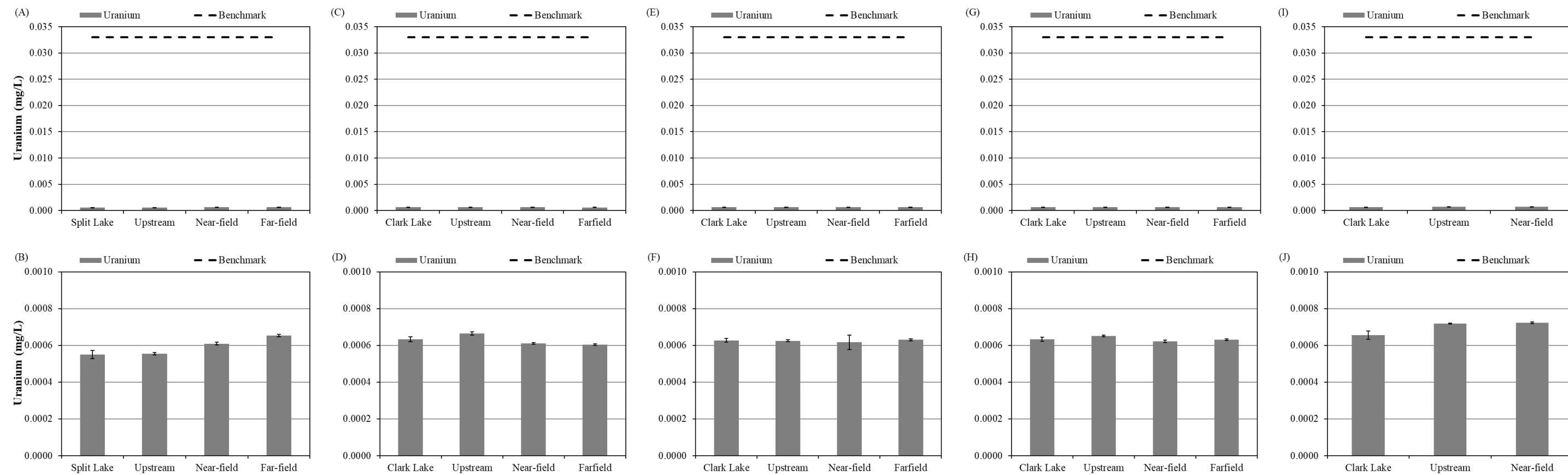


Figure A3-45: Mean (\pm SE) uranium concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A,B), June 24-26 (C,D), July 25-27 (E,F), August 24-26 (G,H), and October 11 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

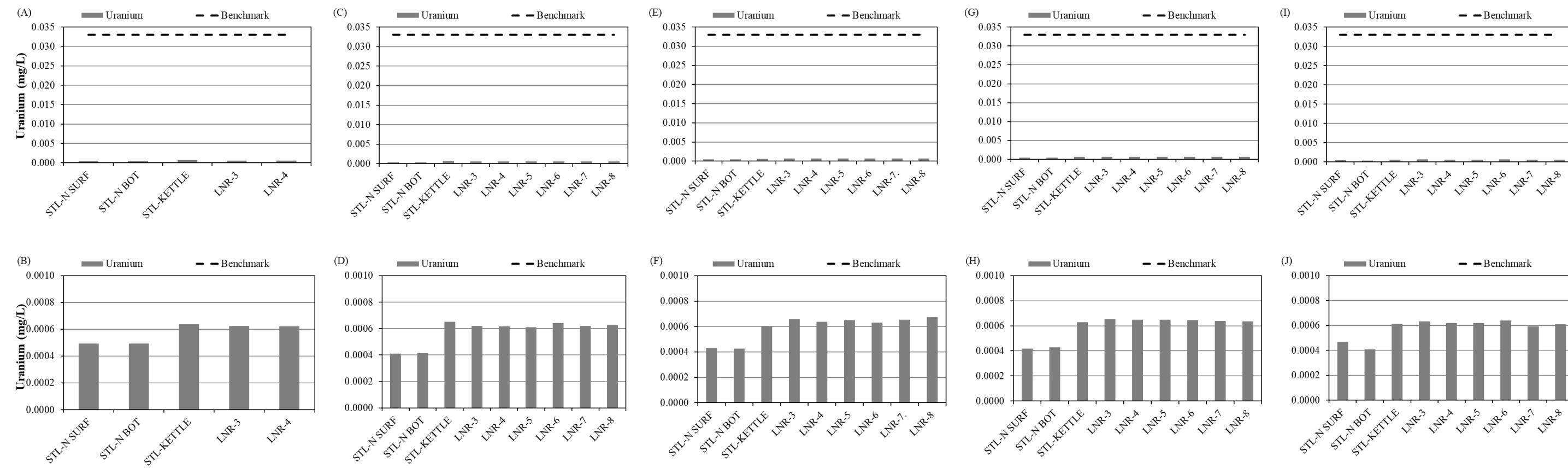


Figure A3-46: Uranium concentrations measured in the Keeyask regional study area on March 26 (A,B), June 29 (C,D), July 20 (E,F), August 21 (G,H), and September 14 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

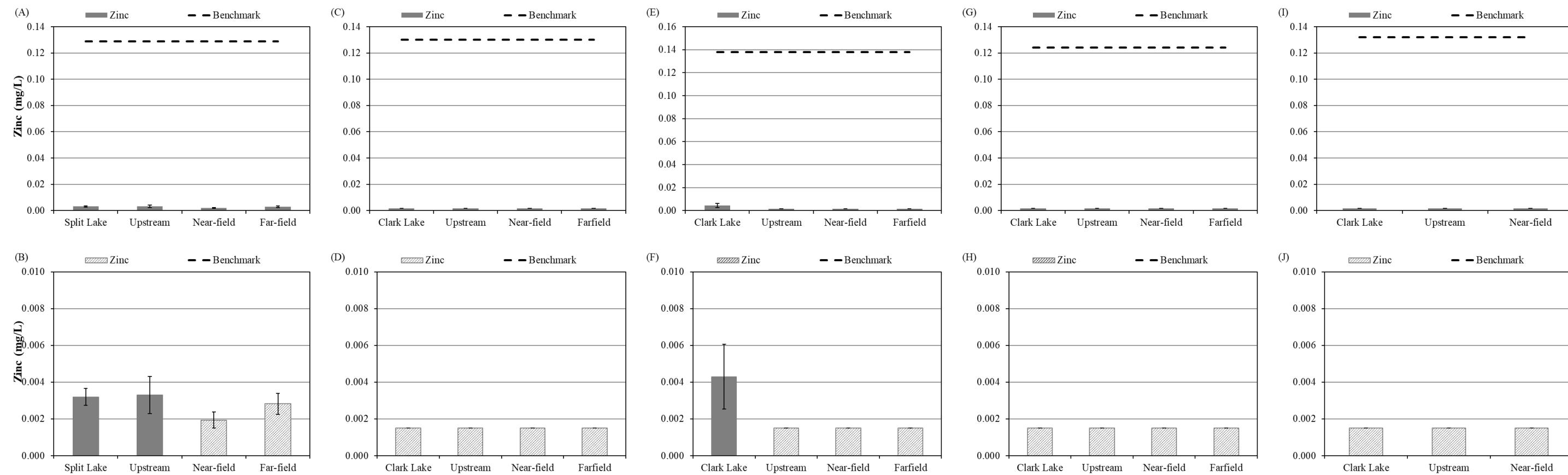


Figure A3-47: Mean (\pm SE) zinc concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A,B), June 24-26 (C,D), July 25-27 (E,F), August 24-26 (G,H), and October 11 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom. Hashed bars represent results below the analytical detection limit.

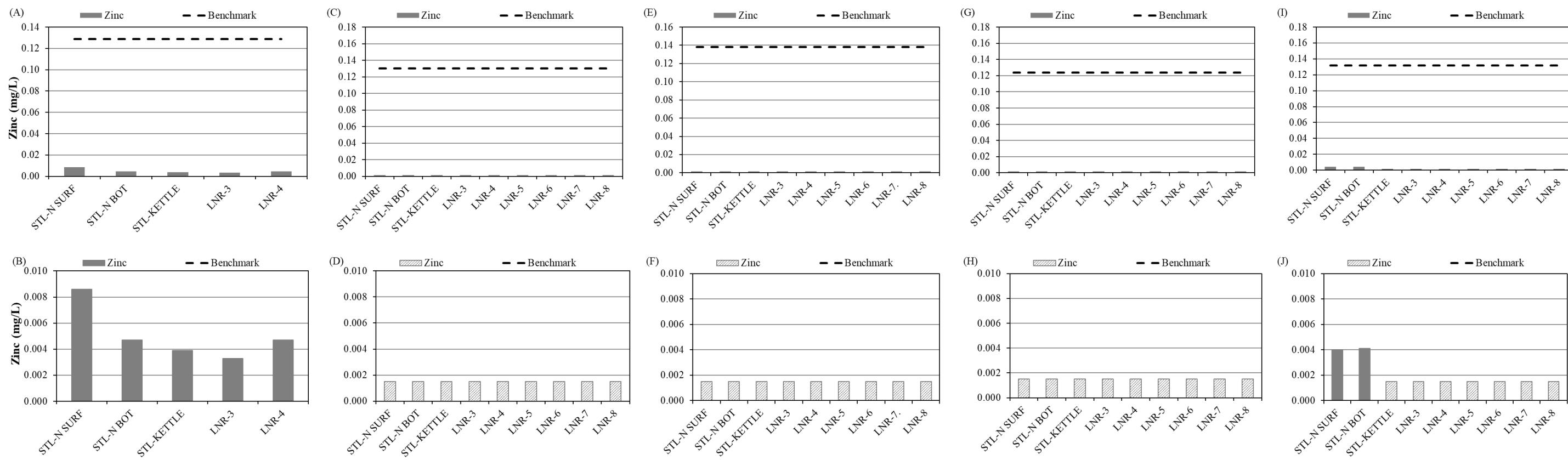


Figure A3-48: Zinc concentrations measured in the Keeyask regional study area on March 26 (A,B), June 29 (C,D), July 20 (E,F), August 21 (G,H), and September 14 (I,J), 2022. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom. Hashed bars represent results below the analytical detection limit.

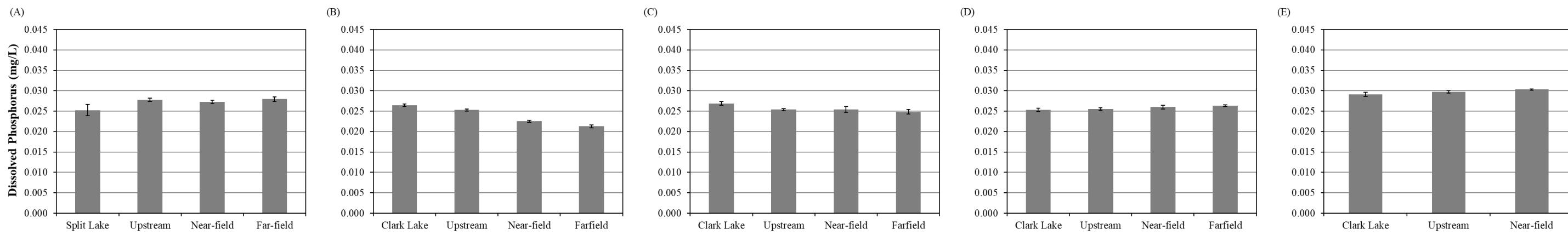


Figure A3-49: Mean (\pm SE) dissolved phosphorus concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.

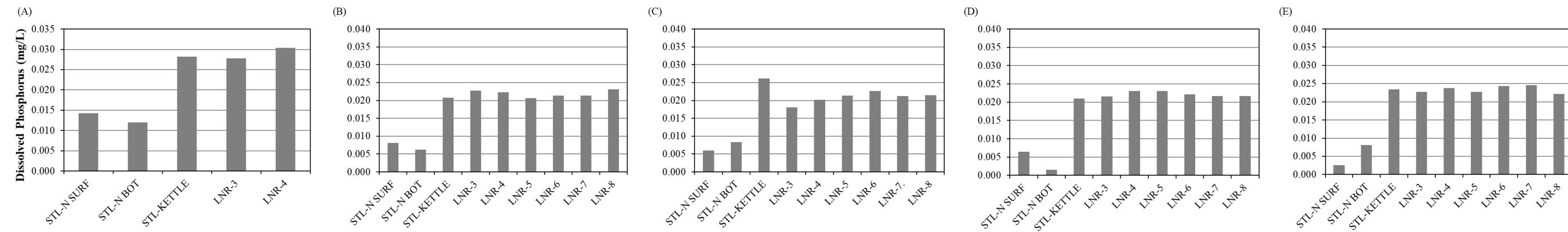


Figure A3-50: Dissolved phosphorus concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.

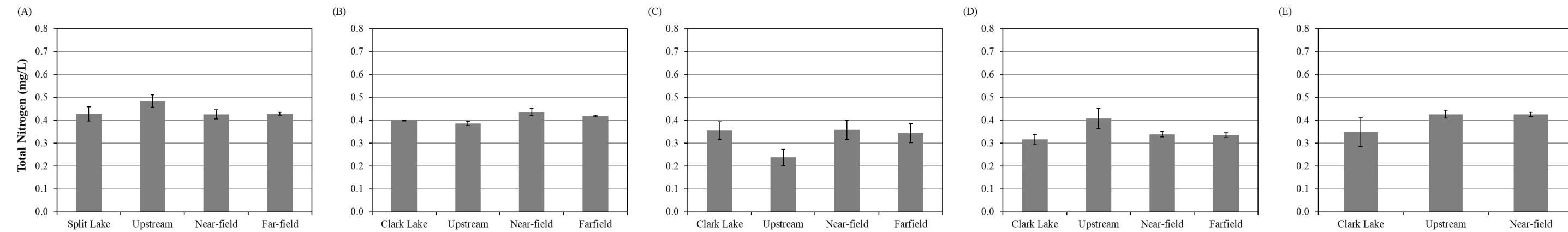


Figure A3-51: Mean (\pm SE) concentrations of total nitrogen measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.

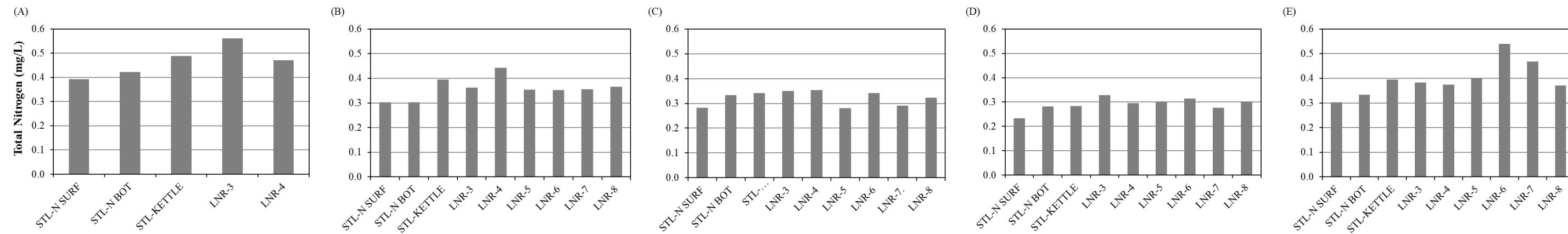


Figure A3-52: Total nitrogen concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.

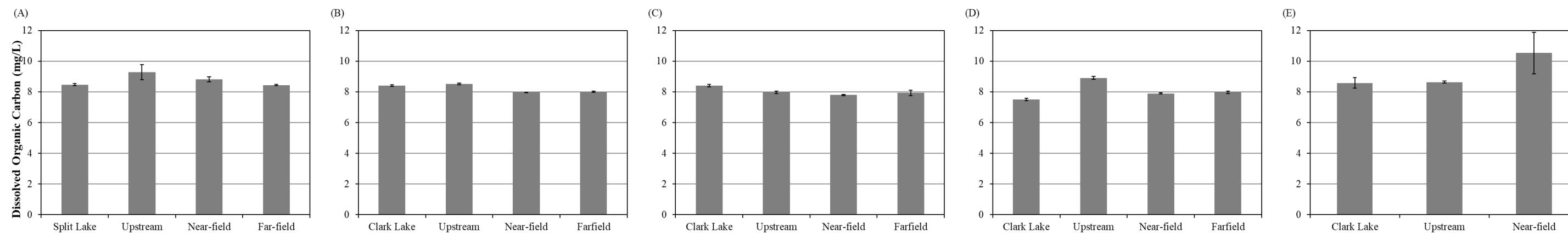


Figure A3-53: Mean (\pm SE) dissolved organic carbon concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.

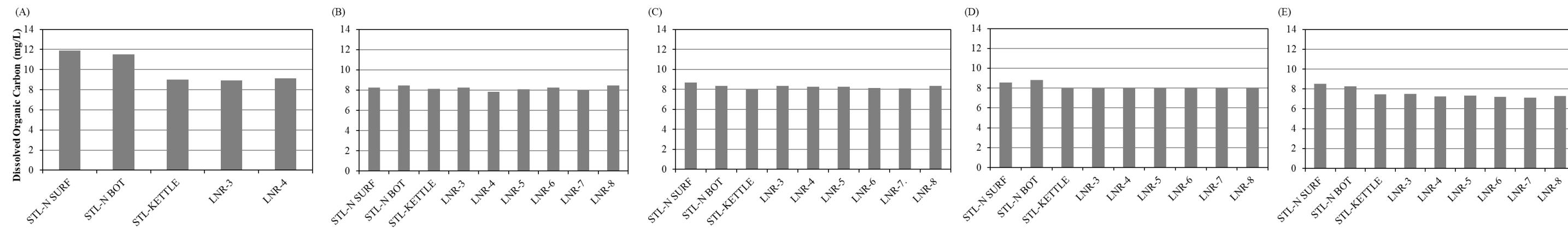


Figure A3-54: Dissolved organic carbon concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.

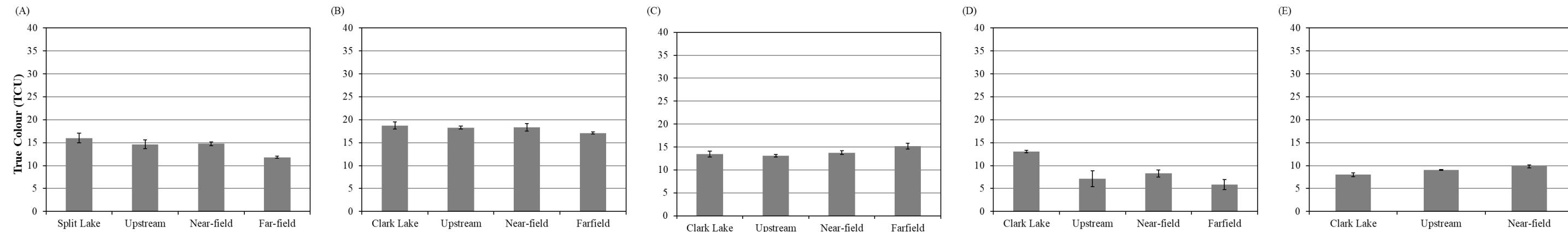


Figure A3-55: Mean (\pm SE) true colour measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.

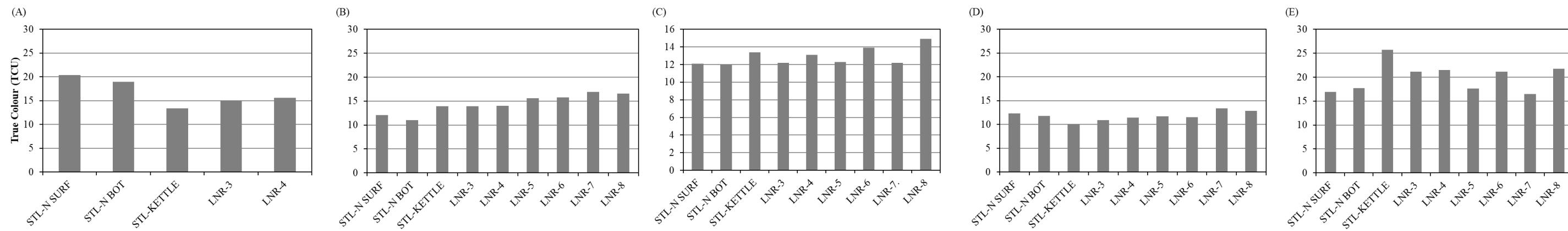


Figure A3-56: True colour measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.

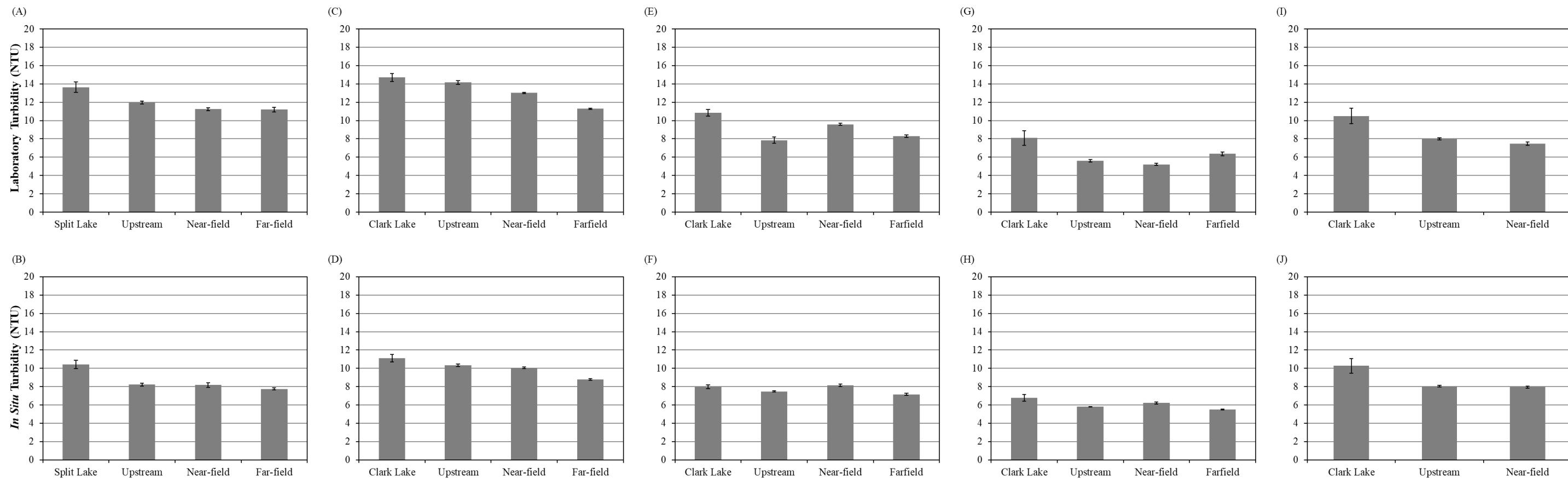


Figure A3-57: Mean (\pm SE) laboratory (top) and *in situ* (bottom) turbidity measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A,B), June 24-26 (C,D), July 25-27 (E,F), August 24-26 (G,H), and October 11 (I,J), 2022.

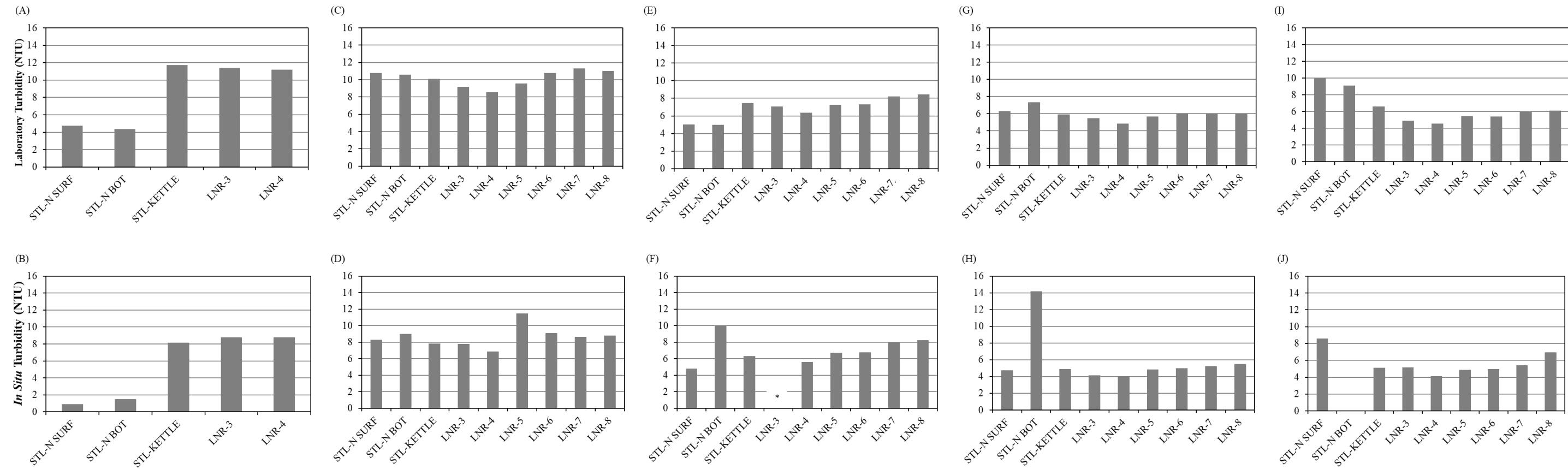


Figure A3-58: Laboratory (top) and *in situ* (bottom) turbidity measured in the Keeyask regional study area on March 26 (A,B), June 29 (C,D), July 20 (E,F), August 21 (G,H), and September 14 (I,J), 2022.

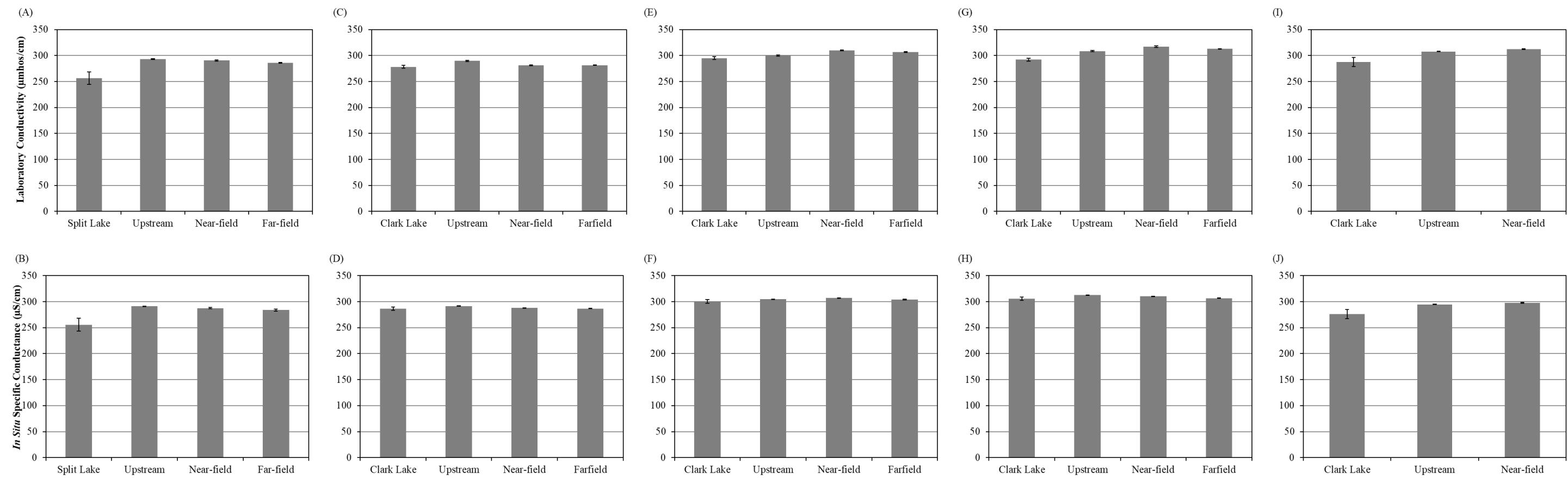


Figure A3-59: Mean (\pm SE) laboratory (top) and *in situ* (bottom) specific conductance measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A,B), June 24-26 (C,D), July 25-27 (E,F), August 24-26 (G,H), and October 11 (I,J), 2022.

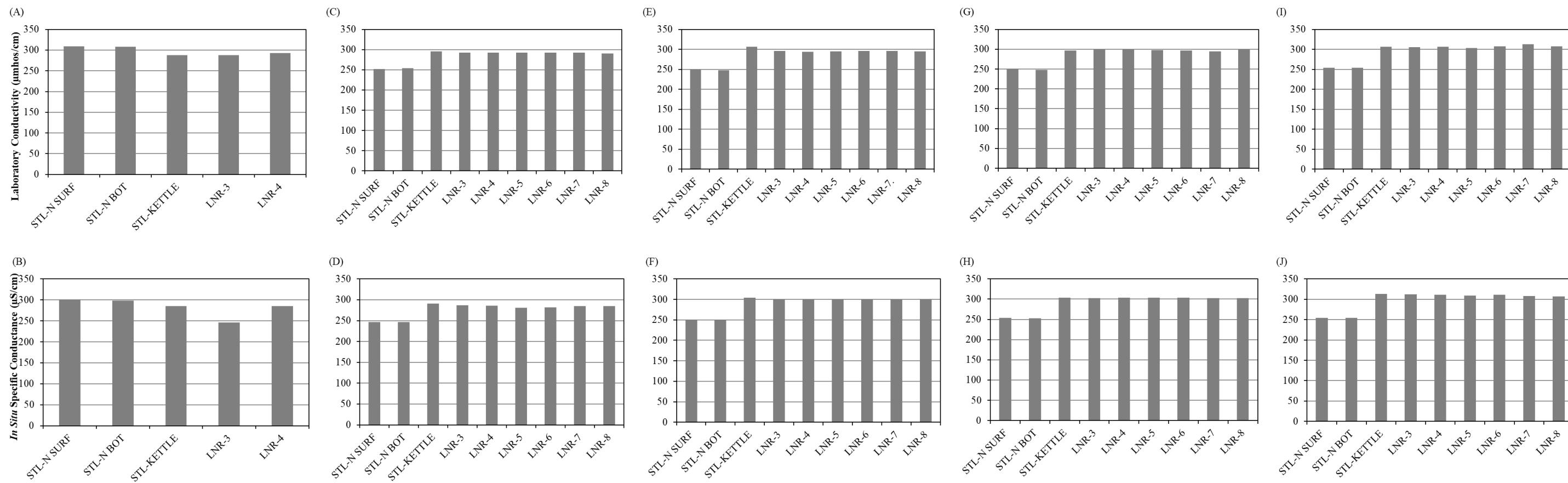


Figure A3-60: Laboratory (top) and *in situ* (bottom) specific conductance measured in the Keeyask regional study area on March 26 (A,B), June 29 (C,D), July 20 (E,F), August 21 (G,H), and September 14 (I,J), 2022.

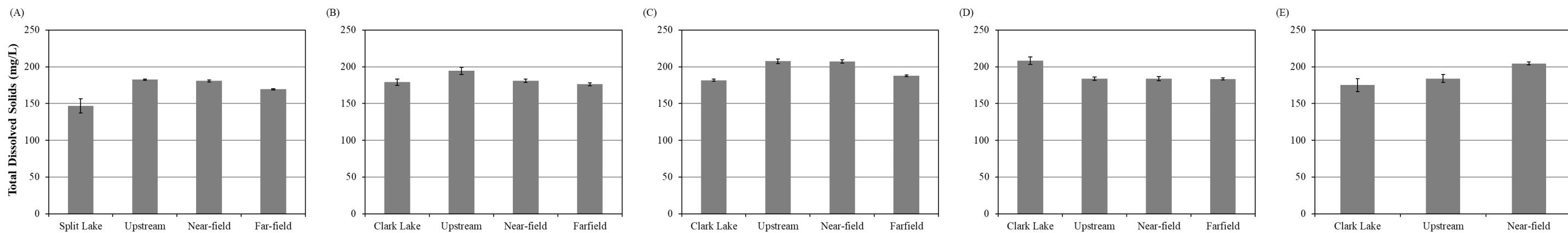


Figure A3-61: Mean (\pm SE) concentrations of total dissolved solids measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.

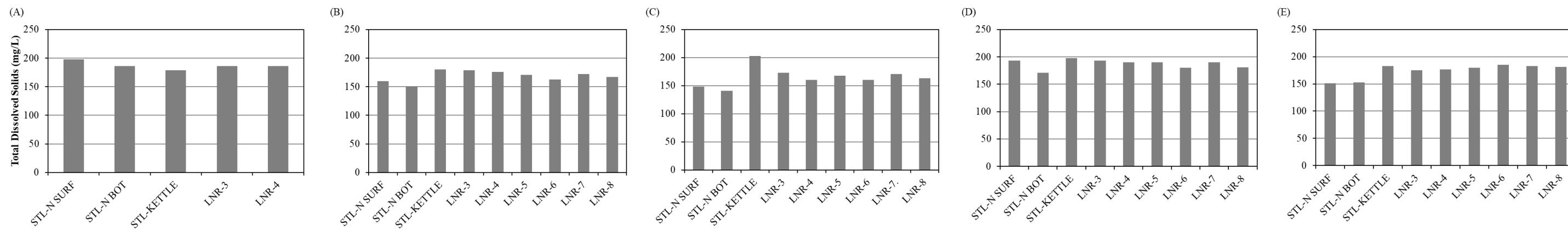


Figure A3-62: Concentration of total dissolved solids measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.

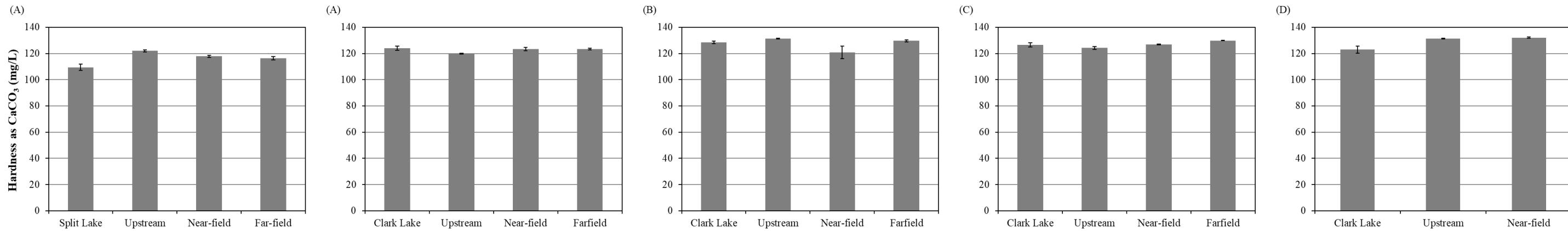


Figure A3-63: Mean (\pm SE) hardness measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.

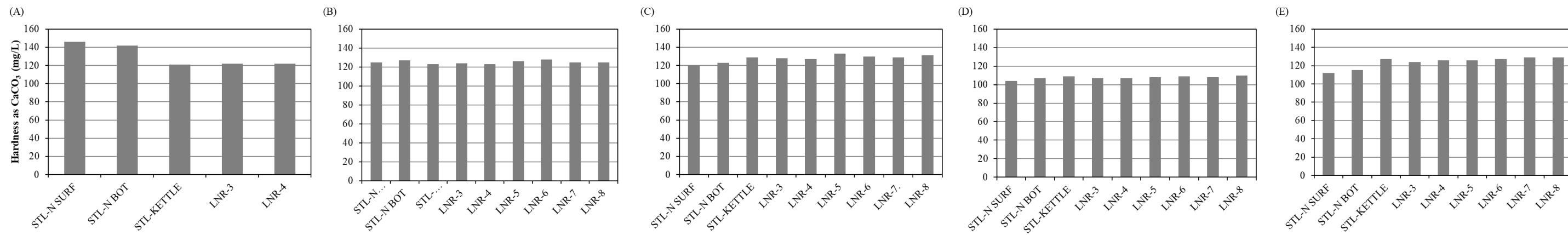


Figure A3-64: Hardness measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.

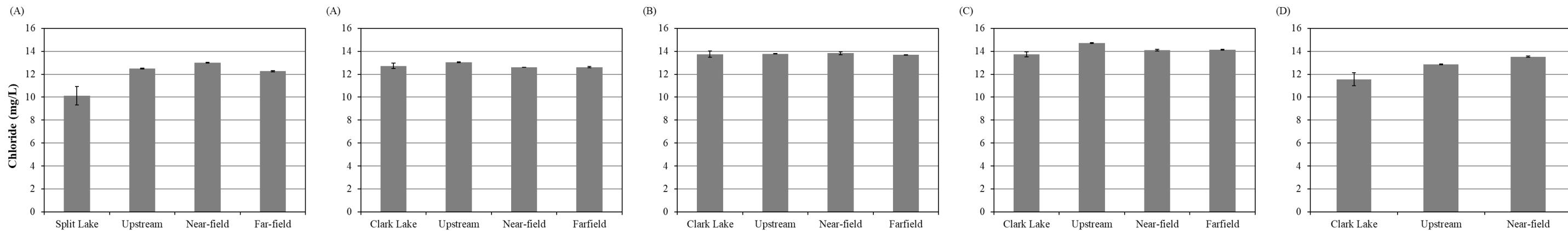


Figure A3-65: Mean (\pm SE) chloride concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.

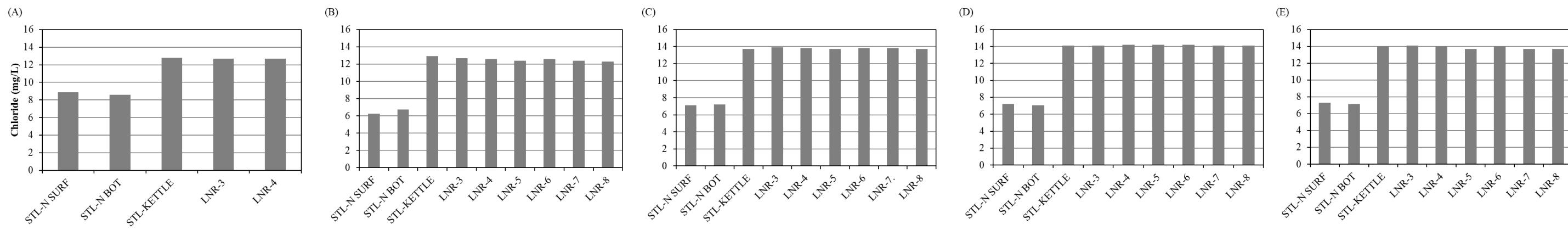


Figure A3-66: Chloride concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.

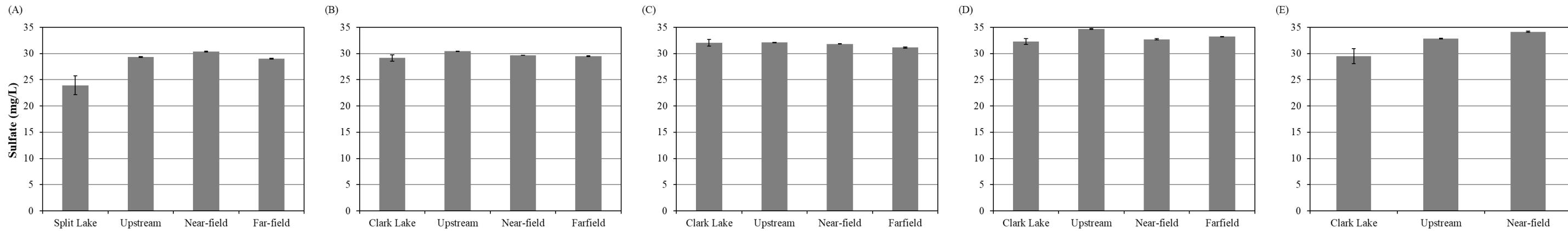


Figure A3-67: Mean (\pm SE) sulfate concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.

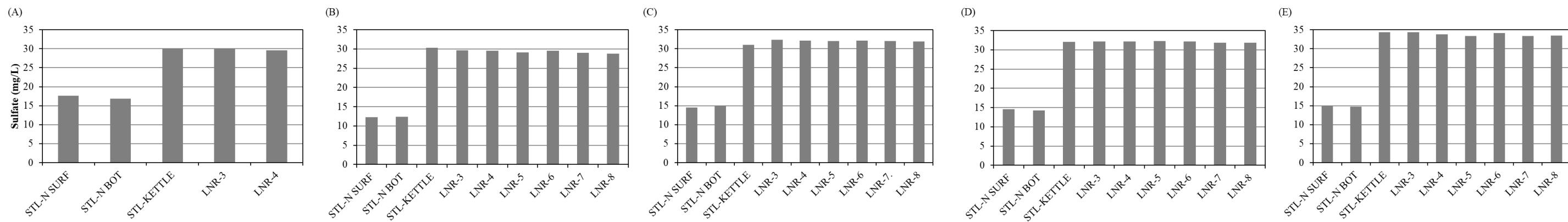


Figure A3-68: Sulfate concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.

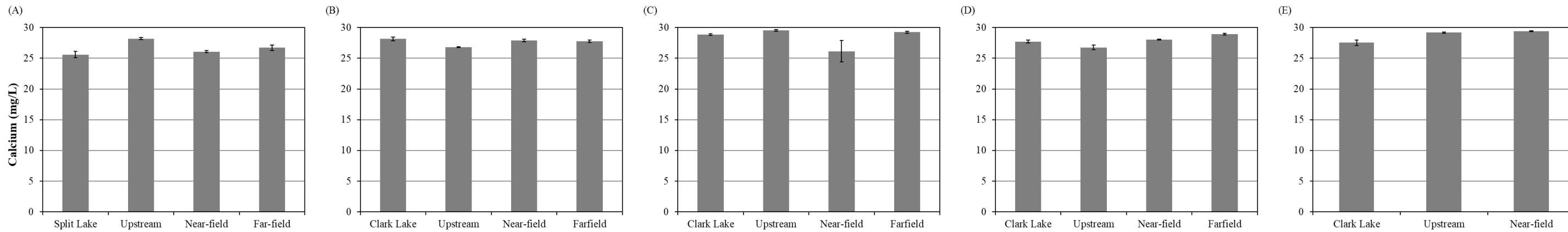


Figure A3-69: Mean (\pm SE) calcium concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.

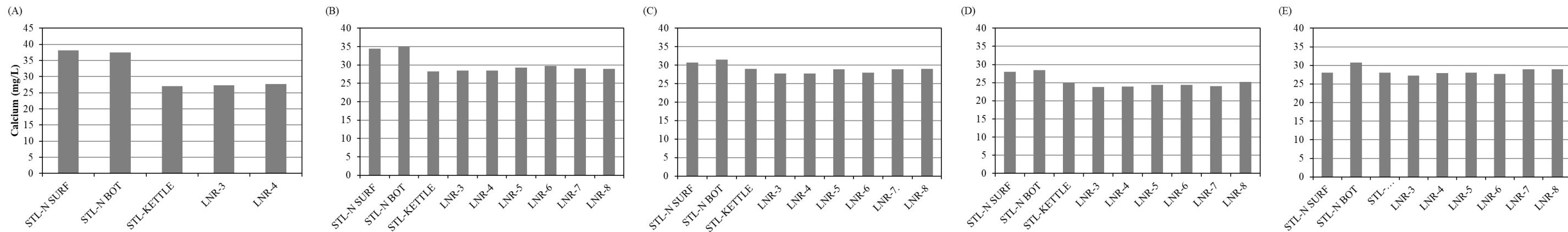


Figure A3-70: Calcium concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.

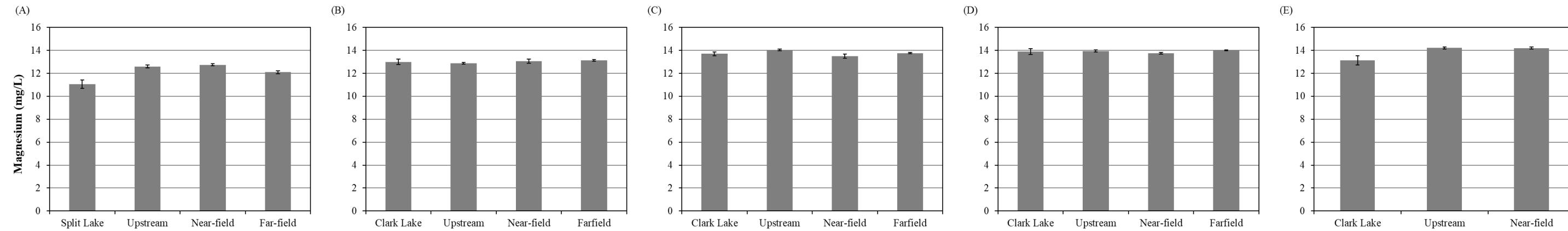


Figure A3-71: Mean (\pm SE) magnesium concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.

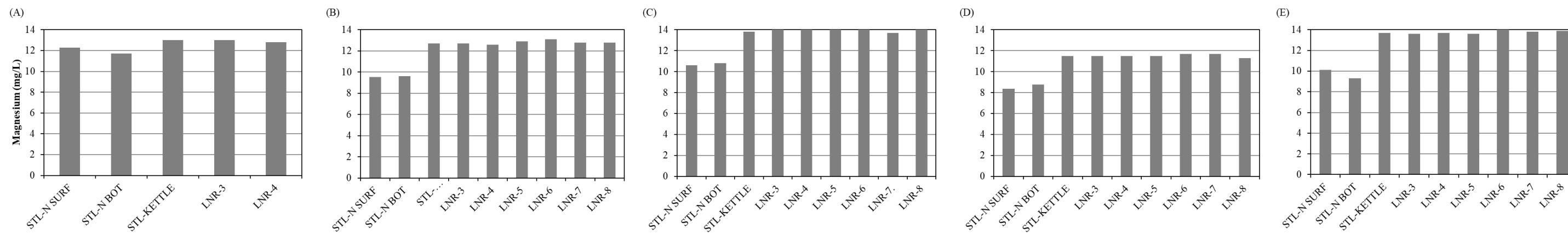


Figure A3-72: Magnesium concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.

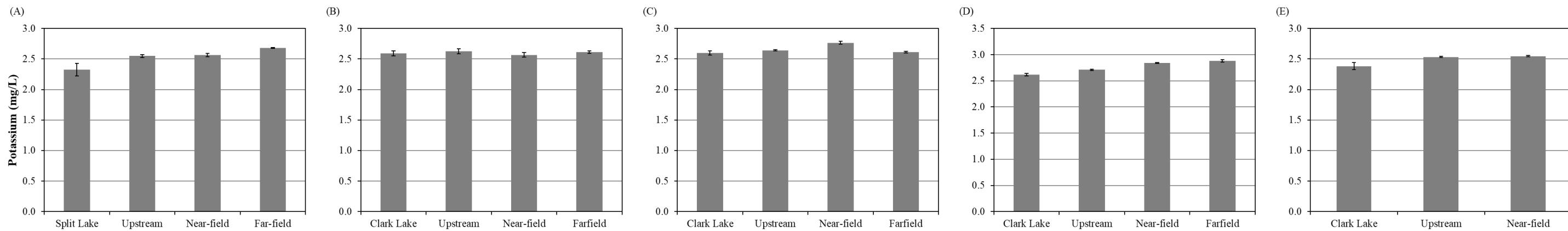


Figure A3-73: Mean (\pm SE) potassium concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.

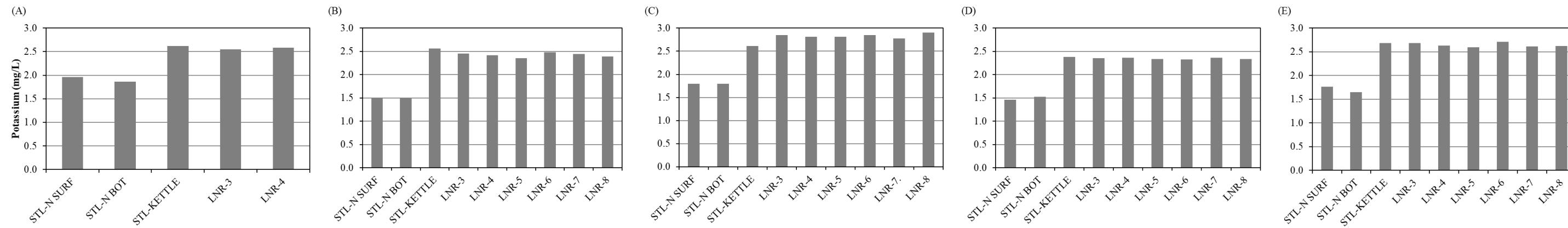


Figure A3-74: Potassium concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.

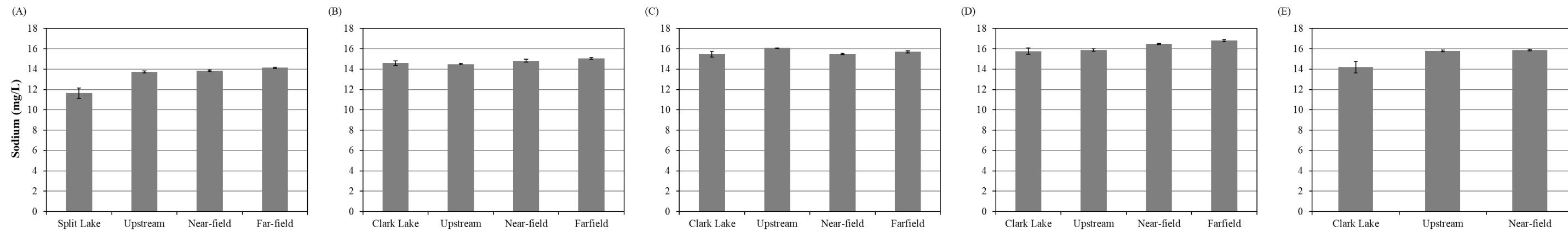


Figure A3-75: Mean (\pm SE) sodium concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on March 20-28 (A), June 24-26 (B), July 25-27 (C), August 24-26 (D), and October 11 (E), 2022.

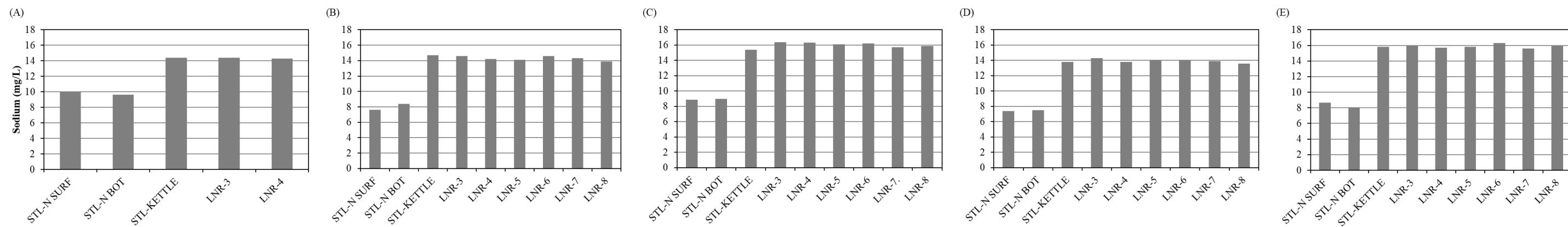


Figure A3-76: Sodium concentrations measured in the Keeyask regional study area on March 26 (A), June 29 (B), July 20 (C), August 21 (D), and September 14 (E), 2022.

APPENDIX 4:

DETAILED RESULTS OF WATER QUALITY MONITORING, 2022

Table A4-1:	<i>In situ</i> parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022.....	154
Table A4-2:	<i>In situ</i> parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022.....	193
Table A4-3:	<i>In situ</i> parameters measured in the Keeyask regional study area during the ice-cover and open-water seasons of 2022.....	233
Table A4-4:	Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022.....	235
Table A4-5:	Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2022.....	243
Table A4-6:	Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask regional study area during the ice-cover and open-water seasons of 2022.....	249
Table A4-7:	Metals and major ions measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022.....	253
Table A4-8:	Metals and major ions measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2022.....	265
Table A4-9:	Metals and major ions measured in the laboratory for sites monitored in the Keeyask regional study area during the ice-cover and open-water seasons of 2022.....	274

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022.

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z1-5	21-Mar-22	9:10	10.5	0.3	0.00	7.90	15.41	105.5	283.9	8.47	N/A
				1.0	0.00	7.90	15.41	105.5	284.3	8.93	
				2.0	0.00	7.89	15.36	105.1	284.4	8.21	
				3.0	0.00	7.89	15.35	104.8	284.8	9.49	
				4.0	0.00	7.89	15.35	105.1	284.8	10.12	
				5.0	0.00	7.88	15.36	105.1	285.1	8.71	
				6.0	0.00	7.88	15.38	105.2	284.8	8.63	
				7.0	0.00	7.88	15.39	105.4	285.1	8.26	
				8.0	0.00	7.88	15.39	105.3	285.0	9.07	
				9.0	0.00	7.88	15.39	105.3	285.0	8.49	
Z1-6	21-Mar-22	9:50	5.4	0.3	0.02	7.78	15.16	103.9	281.4	7.81	N/A
				1.0	0.02	7.78	15.17	103.9	281.4	8.32	
				2.0	0.02	7.72	15.01	102.8	281.6	7.72	
				3.0	0.03	7.64	14.69	100.6	282.4	7.61	
				4.0	0.03	7.57	14.45	98.9	283.4	7.23	
				5.0	0.05	7.53	14.18	97.2	284.1	7.08	
Z1-7	21-Mar-22	12:35	13.9	0.3	0.00	7.88	15.64	107.0	286.0	8.91	N/A
				1.0	-0.01	7.89	15.64	107.0	285.5	8.22	
				2.0	-0.01	7.89	15.65	107.1	285.3	8.17	
				3.0	0.00	7.88	15.63	107.0	286.0	8.44	
				4.0	-0.01	7.88	15.59	106.7	285.8	8.75	
				5.0	-0.01	7.88	15.58	106.6	286.8	8.56	
				6.0	0.00	7.88	15.59	106.7	287.3	8.05	
				7.0	-0.01	7.88	15.57	106.6	286.8	9.09	
				8.0	-0.01	7.88	15.58	106.7	287.0	8.32	
				9.0	-0.01	7.89	15.61	106.8	286.8	8.07	
				10.0	-0.01	7.88	15.63	107.0	287.2	8.53	
				11.0	-0.01	7.88	15.63	106.9	287.4	7.91	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z1-7	21-Mar-22	12:35	13.9	12.0	-0.01	7.88	15.61	106.8	287.5	7.71	
				13.0	-0.01	7.88	15.62	106.8	287.7	9.36	
Z1-8	21-Mar-22	10:30	6.2	0.3	0.02	7.83	15.36	105.2	281.2	8.75	N/A
				1.0	0.02	7.83	15.38	105.3	281.1	8.47	
				2.0	0.02	7.83	15.38	105.3	281.1	9.51	
				3.0	0.02	7.83	15.38	105.3	281.1	8.38	
				4.0	0.02	7.82	15.39	105.4	281.1	8.57	
				5.0	0.02	7.82	15.38	105.3	281.2	8.25	
Z1-9	21-Mar-22	11:35	8.0	0.3	0.00	7.87	15.58	106.7	281.6	8.39	N/A
				1.0	0.00	7.87	15.58	106.6	281.7	8.87	
				2.0	0.00	7.87	15.58	106.6	281.7	8.07	
				3.0	0.00	7.87	15.59	106.6	281.7	8.55	
				4.0	0.00	7.87	15.60	106.8	281.8	9.60	
				5.0	0.00	7.87	15.59	106.7	281.8	8.51	
				6.0	0.00	7.87	15.61	106.9	281.7	8.84	
				7.0	0.00	7.86	15.59	106.7	281.8	8.43	
Z4-3	19-Mar-22	15:35	3.7	0.3	0.02	7.79	15.37	105.3	276.8	7.37	N/A
				1.0	0.05	7.76	15.32	105.0	275.0	8.38	
				1.5	0.07	7.70	15.09	103.6	287.1	8.34	
				2.0	0.12	7.61	14.72	101.0	288.0	8.08	
				2.5	0.13	7.59	14.52	99.5	288.1	7.88	
				3.0	0.24	7.49	13.88	95.7	288.4	7.67	
Z4-4	19-Mar-22	16:00	4.6	0.3	-0.01	7.88	15.79	108.0	286.7	8.37	N/A
				1.0	-0.01	7.88	15.79	108.0	286.8	8.79	
				1.5	-0.01	7.88	15.79	108.1	286.8	8.85	
				2.0	-0.01	7.88	15.79	108.1	286.8	9.46	
				2.5	-0.01	7.87	15.80	108.1	286.9	9.15	
				3.0	-0.01	7.87	15.80	108.1	286.9	8.94	
				3.5	-0.01	7.87	15.80	108.1	286.8	9.10	
				4.0	-0.01	7.87	15.79	108.1	286.9	9.27	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z4-5	19-Mar-22	13:45	1.9	0.3	0.54	7.49	14.67	101.9	292.0	6.16	N/A
				1.0	0.47	7.45	14.31	98.3	292.4	6.77	
				1.5	0.36	7.01	8.30	57.3	299.6	4.52	
Z4-6	19-Mar-22	14:35	0.6	0.3	0.29	7.56	13.97	97.1	293.5	7.85	N/A
				0.4	0.17	7.55	12.38	85.5	292.0	7.07	
				0.5	0.17	7.52	12.01	84.1	291.8	7.12	
Z4-7	19-Mar-22	15:05	0.9	0.3	0.08	7.57	14.55	99.8	294.7	6.77	N/A
				0.5	0.08	7.56	14.58	100.0	294.9	6.68	
				0.7	0.24	7.37	13.79	95.1	294.5	4.50	
Z8-1	24-Mar-22	12:25	0.7	0.3	0.23	6.59	1.64	11.2	380.9	5.97	N/A
				0.4	0.24	6.54	1.56	10.7	381.1	4.99	
				0.5	0.24	6.54	1.50	10.3	380.9	5.91	
Z8-4	27-Mar-22	10:20	4.5	0.3	0.01	7.90	15.71	107.5	270.6	7.90	N/A
				1.0	0.01	7.88	15.66	107.2	276.3	8.23	
				1.5	0.01	7.87	15.66	107.2	277.6	8.17	
				2.0	0.01	7.85	15.65	107.2	278.5	7.65	
				2.5	0.01	7.84	15.65	107.2	280.1	7.59	
				3.0	0.01	7.83	15.64	107.1	282.1	7.86	
				3.5	0.02	7.83	15.63	107.1	282.3	7.61	
Z8-5	24-Mar-22	13:05	0.9	0.3	0.08	6.78	2.14	14.6	315.1	2.98	N/A
				0.5	0.09	6.76	1.89	12.9	316.4	2.95	
				0.7	0.09	6.74	1.71	11.5	320.7	2.79	
Z8-6	27-Mar-22	9:45	0.9	0.3	0.01	7.59	15.52	106.3	261.2	6.16	N/A
				0.5	0.01	7.49	14.47	98.9	262.5	6.86	
				0.7	0.06	7.37	13.77	93.7	264.1	7.01	
Z8-7	23-Mar-22	14:30	1.9	0.3	0.03	7.83	15.36	105.3	282.9	6.99	N/A
				1.0	0.03	7.80	15.37	105.4	282.1	6.54	
				1.5	0.04	7.77	15.09	103.4	282.6	7.41	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z11-1	21-Mar-22	14:35	1.2	0.3	0.08	7.27	11.52	79.0	305.0	4.82	N/A
				0.6	0.08	7.27	11.45	78.5	305.1	4.94	
				0.9	0.09	7.27	11.40	78.2	305.1	4.87	
Z11-3	21-Mar-22	15:25	1.1	0.3	0.09	7.65	14.67	100.6	300.0	6.16	N/A
				0.6	0.10	7.61	14.49	99.4	301.1	5.85	
				0.9	0.15	7.51	13.49	92.8	304.4	6.12	
Z11-4	23-Mar-22	9:15	3.5	0.3	0.31	7.67	13.86	97.9	290.1	6.60	N/A
				1.0	0.31	7.57	14.00	96.7	294.2	6.31	
				1.5	0.15	7.47	13.56	93.3	301.3	6.13	
				2.0	0.18	7.34	12.38	85.1	303.1	5.78	
				2.5	0.26	7.15	9.64	66.3	306.9	5.11	
				3.0	0.38	6.98	6.43	44.4	309.4	4.36	
Z11-6	23-Mar-22	10:30	3.6	0.3	0.08	7.71	14.75	101.2	293.8	7.02	N/A
				1.0	0.08	7.64	14.52	99.5	294.7	7.09	
				1.5	0.10	7.59	14.26	97.9	295.6	7.71	
				2.0	0.16	7.39	12.89	88.6	298.5	6.62	
				2.5	0.21	7.31	11.40	78.5	300.1	5.64	
				3.0	0.24	7.15	9.45	65.1	304.3	5.29	
Z11-8	23-Mar-22	9:50	3.6	0.3	0.12	7.77	14.80	101.9	293.8	7.12	N/A
				1.0	0.12	7.55	13.92	95.6	295.5	6.85	
				1.5	0.14	7.46	13.30	91.3	298.7	6.29	
				2.0	0.16	7.33	12.42	85.3	300.1	6.01	
				2.5	0.20	7.27	11.68	80.2	302.2	7.06	
				3.0	0.40	7.12	8.79	60.9	302.6	4.32	
Z11-10	21-Mar-22	14:00	1.2	0.3	0.10	6.69	1.73	11.9	334.8	0.00	N/A
				0.6	0.10	6.68	1.59	10.9	335.4	0.32	
				0.9	0.10	6.68	1.53	10.5	335.5	0.27	
Z11-11	21-Mar-22	13:15	1.1	0.3	0.05	6.98	6.86	47.0	310.3	3.84	N/A
				0.6	0.05	6.99	6.78	46.1	309.9	3.92	
				0.9	0.05	6.95	6.17	42.5	311.3	3.59	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z12-6	24-Mar-22	11:40	5.4	0.3	0.03	7.71	14.86	102.0	293.7	6.80	N/A
				1.0	0.03	7.71	14.90	102.1	293.9	6.59	
				2.0	0.03	7.70	14.89	102.0	293.9	6.74	
				3.0	0.05	7.60	14.83	99.1	294.7	6.69	
				4.0	0.09	7.52	13.86	95.1	295.1	6.33	
				5.0	0.13	7.48	13.55	93.0	296.0	6.79	
Z12-8	24-Mar-22	9:00	0.8	0.3	0.35	6.63	10.10	1.45	337.8	0.00	N/A
				0.5	0.40	6.63	9.30	1.34	336.4	0.00	
				0.7	0.40	6.62	8.70	1.26	337.1	0.00	
Z12-9	24-Mar-22	9:40	0.7	0.3	0.29	6.89	5.01	34.6	303.8	3.40	N/A
				0.4	0.29	6.89	4.93	33.8	304.4	3.67	
				0.5	0.30	6.88	4.83	33.8	304.3	3.68	
Z12-11	24-Mar-22	10:15	2.5	0.3	0.07	7.76	15.11	103.6	293.7	6.50	N/A
				1.0	0.03	7.76	15.10	103.5	293.5	6.82	
				1.5	0.04	7.73	14.99	102.7	293.6	6.55	
				2.0	0.04	7.71	14.93	102.3	293.6	6.72	
Z12-13	27-Mar-22	9:00	3.4	0.3	0.08	7.60	14.07	96.5	295.3	6.31	N/A
				1.0	0.09	7.58	14.04	96.3	295.2	6.23	
				1.5	0.10	7.56	13.95	95.8	295.1	6.01	
				2.0	0.12	7.51	13.70	94.0	295.7	5.76	
				2.5	0.12	7.49	13.54	92.9	295.8	5.93	
				3.0	0.20	7.40	12.84	88.3	300.9	5.72	
Z12-14	24-Mar-22	11:00	0.9	0.3	0.62	6.63	1.96	13.6	338.3	1.60	N/A
				0.5	0.77	6.64	1.74	12.1	349.1	1.33	
				0.7	0.93	6.65	1.62	11.3	356.3	1.40	
Z12-16	23-Mar-22	14:15	1.2	0.3	0.02	7.87	15.19	104.1	293.2	7.79	N/A
				0.6	0.02	7.85	15.27	104.6	293.0	7.32	
				0.9	0.02	7.84	15.30	104.8	293.0	7.66	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z1-5	26-Jun-22	12:40	12.3	0.3	16.27	7.96	9.54	97.2	291.8	10.69	0.65
				1.0	16.17	7.95	9.54	97.0	291.8	10.37	
				2.0	16.13	7.95	9.54	96.9	291.8	10.50	
				3.0	16.09	7.95	9.53	96.8	291.8	10.29	
				4.0	16.06	7.95	9.53	96.8	292.2	10.46	
				5.0	16.05	7.94	9.54	96.8	291.9	10.62	
				6.0	16.04	7.94	9.53	96.7	292.4	12.17	
				7.0	16.03	7.93	9.54	96.8	292.7	10.65	
				8.0	16.03	7.93	9.54	96.7	292.5	10.38	
				9.0	16.03	7.92	9.53	96.7	292.0	10.63	
				10.0	16.01	7.92	9.53	96.6	292.7	11.07	
				11.0	16.01	7.92	9.53	96.6	292.4	11.07	
Z1-6	26-Jun-22	13:25	7.2	0.3	16.76	7.90	9.37	96.5	289.6	9.22	0.60
				1.0	16.60	7.93	9.37	95.8	289.9	9.55	
				2.0	16.04	7.94	9.49	96.0	289.6	9.32	
				3.0	15.82	7.93	9.51	95.9	289.5	9.57	
				4.0	15.68	7.88	9.43	94.5	288.3	8.50	
				5.0	15.43	7.77	9.09	90.3	284.7	6.65	
				6.0	15.07	7.77	9.03	89.5	285.5	7.08	
Z1-7	26-Jun-22	12:15	15.4	0.3	16.30	7.91	9.60	98.0	292.4	10.27	0.55
				1.0	16.21	7.93	9.59	97.6	292.8	10.68	
				2.0	16.10	7.95	9.58	97.3	292.8	10.90	
				3.0	16.07	7.91	9.57	97.2	292.9	11.80	
				4.0	16.08	7.90	9.57	97.2	293.1	11.09	
				5.0	16.06	7.91	9.56	97.1	293.1	11.48	
				6.0	16.05	7.92	9.57	97.1	293.1	11.22	
				7.0	16.02	7.93	9.56	97.0	293.5	11.32	
				8.0	16.02	7.92	9.56	97.0	293.5	11.29	
				9.0	16.02	7.92	9.56	97.0	293.5	11.35	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z1-7	26-Jun-22	12:15	15.4	10.0	16.01	7.91	9.56	96.9	293.6	12.23	
				11.0	16.01	7.91	9.55	96.9	293.6	12.97	
				12.0	16.01	7.91	9.55	96.8	293.7	12.02	
				13.0	16.01	7.92	9.55	96.8	293.7	12.42	
				14.0	16.01	7.92	9.55	96.8	293.7	12.45	
				15.0	16.01	7.93	9.55	96.8	293.7	12.16	
Z1-8	26-Jun-22	13:10	8.3	0.3	16.16	7.94	9.48	96.4	289.3	8.96	
				1.0	16.15	7.94	9.48	96.3	289.3	9.03	
				2.0	16.14	7.94	9.48	96.5	289.2	8.94	
				3.0	16.07	7.94	9.48	96.2	289.4	9.34	
				4.0	15.82	7.93	9.48	95.6	289.4	9.31	
				5.0	15.76	7.92	9.45	95.3	289.3	9.28	
				6.0	15.59	7.89	9.41	94.4	288.9	8.44	
				7.0	15.26	7.84	9.30	92.3	287.9	8.55	
Z1-9	26-Jun-22	12:55	10.2	0.3	16.13	7.93	9.55	97.1	291.7	10.89	
				1.0	16.11	7.93	9.55	97.1	291.7	10.85	
				2.0	16.10	7.92	9.54	97.0	291.6	11.16	
				3.0	16.11	7.92	9.54	97.0	291.7	11.46	
				4.0	16.09	7.92	9.54	96.9	291.6	11.22	
				5.0	16.07	7.93	9.54	96.8	291.6	11.42	
				6.0	16.07	7.93	9.54	96.9	291.7	11.06	
				7.0	16.08	7.94	9.53	96.8	291.7	12.37	
				8.0	16.07	7.94	9.53	96.8	291.7	11.32	
				9.0	16.08	7.94	9.53	96.8	291.7	12.03	
Z4-1	26-Jun-22	10:35	4.9	0.3	16.05	7.71	8.73	88.6	268.0	3.25	
				1.0	15.96	7.71	8.71	88.2	267.8	3.21	
				1.5	15.85	7.70	8.68	87.7	267.7	3.27	
				2.0	15.74	7.69	8.62	87.0	267.4	3.41	
				2.5	15.68	7.69	8.61	86.7	267.6	3.33	
				3.0	15.66	7.69	8.61	86.7	267.6	3.29	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z4-1	26-Jun-22	10:35	4.9	3.5	15.66	7.69	8.60	86.6	267.6	3.42	
				4.0	15.61	7.66	8.52	85.7	267.7	3.51	
				4.5	15.47	7.58	8.13	81.4	267.4	3.24	
Z4-2	26-Jun-22	11:00	5.4	0.3	16.06	7.87	9.23	93.6	276.0	5.21	0.85
				1.0	16.00	7.86	9.16	92.8	275.7	5.06	
				2.0	15.80	7.79	8.93	90.2	271.8	4.11	
				3.0	15.72	7.77	8.87	89.3	270.3	3.93	
				4.0	15.66	7.72	8.71	87.6	270.2	3.91	
				5.0	15.58	7.70	8.59	86.1	272.3	5.01	
Z4-3	26-Jun-22	11:25	5.3	0.3	16.12	7.90	9.32	94.4	283.5	7.81	0.65
				1.0	15.95	7.91	9.32	94.4	283.8	8.27	
				2.0	15.83	7.91	9.31	94.1	282.9	8.05	
				3.0	15.78	7.91	9.31	94.0	283.0	7.79	
				4.0	15.71	7.89	9.27	93.4	282.7	8.12	
				5.0	15.42	7.81	8.95	89.6	282.5	8.02	
Z4-4	26-Jun-22	11:35	9.0	0.3	16.42	7.93	9.54	96.9	289.1	11.27	0.55
				1.0	16.31	7.93	9.54	96.9	289.3	11.72	
				2.0	16.15	7.93	9.51	96.7	289.1	11.06	
				3.0	16.05	7.93	9.49	96.3	288.9	10.79	
				4.0	16.01	7.93	9.48	96.1	288.8	11.01	
				5.0	16.00	7.93	9.47	96.0	288.9	10.86	
				6.0	15.96	7.93	9.46	95.9	289.4	10.79	
				7.0	15.96	7.93	9.47	96.0	289.2	10.93	
				8.0	15.95	7.92	9.47	96.0	289.2	11.09	
Z4-5	26-Jun-22	10:20	3.6	0.3	16.00	7.63	8.62	87.3	267.9	3.11	1.20
				1.0	15.70	7.62	8.47	85.2	267.5	3.19	
				1.5	15.37	7.55	8.12	81.2	267.5	2.84	
				2.0	15.28	7.56	8.14	81.4	267.7	3.09	
				2.5	15.12	7.54	8.05	79.9	267.0	3.07	
				3.0	14.96	7.50	7.86	77.9	266.9	3.06	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z4-6	26-Jun-22	10:55	2.5	0.3	16.15	7.77	8.85	90.1	268.5	3.46	1.30
				1.0	16.09	7.77	8.84	89.9	268.5	3.51	
				1.5	16.04	7.77	8.83	89.6	268.4	3.52	
				2.0	15.73	7.74	8.72	87.8	268.6	3.87	
Z4-7	26-Jun-22	11:15	2.6	0.3	15.82	7.69	8.65	87.7	279.3	5.35	0.95
				1.0	15.68	7.71	8.65	87.7	279.2	5.89	
				1.5	15.42	7.70	8.59	86.1	278.9	5.71	
				2.0	15.17	7.69	8.55	85.2	278.6	5.67	
Z8-1	23-Jun-22	9:10	1.9	0.3	15.64	7.28	6.96	70.0	232.8	2.24	1.70
				1.0	15.60	7.29	6.94	69.8	232.4	2.28	
				1.5	15.55	7.29	6.91	69.4	231.5	2.22	
Z8-2	23-Jun-22	9:35	3.1	0.3	15.56	7.38	7.42	74.5	246.3	2.98	1.10
				1.0	15.56	7.37	7.40	74.4	246.3	2.89	
				1.5	15.55	7.36	7.37	74.0	246.1	2.90	
				2.0	15.53	7.36	7.35	73.8	246.1	2.88	
				2.5	15.57	7.36	7.35	73.9	246.1	2.87	
Z8-4	23-Jun-22	11:15	6.2	0.3	15.53	7.95	9.54	95.8	283.7	8.51	0.60
				1.0	15.53	7.95	9.54	95.8	283.6	9.03	
				2.0	15.50	7.94	9.54	95.7	283.7	8.45	
				3.0	15.49	7.93	9.54	95.7	283.7	9.36	
				4.0	15.50	7.93	9.54	95.7	283.8	8.76	
				5.0	15.49	7.93	9.54	95.7	283.8	8.58	
Z8-5	23-Jun-22	9:55	2.4	0.3	15.39	7.82	9.02	90.3	276.9	6.02	0.75
				1.0	15.39	7.82	9.02	90.3	276.9	6.16	
				1.5	15.38	7.81	9.01	90.1	276.8	6.20	
				2.0	15.37	7.81	9.00	90.1	276.7	10.70	
Z8-6	23-Jun-22	11:00	2.1	0.3	15.25	7.90	9.42	94.0	282.5	7.33	0.60
				1.0	15.23	7.90	9.41	93.8	282.5	7.05	
				1.5	15.21	7.90	9.40	93.8	282.5	7.10	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z8-7	23-Jun-22	10:35	4.1	0.3	15.49	7.92	9.42	94.5	282.4	7.60	0.70
				1.0	15.48	7.92	9.43	94.5	282.4	7.76	
				1.5	15.47	7.92	9.43	94.5	282.5	7.76	
				2.0	15.46	7.92	9.43	94.6	282.5	7.78	
				2.5	15.45	7.92	9.44	94.5	282.6	8.09	
				3.0	15.44	7.92	9.43	94.5	282.6	7.68	
				3.5	15.41	7.92	9.42	94.4	282.6	7.86	
Z8-8	23-Jun-22	10:15	2.9	0.3	15.47	7.93	9.40	94.3	281.8	7.75	0.65
				1.0	15.46	7.94	9.41	94.3	282.1	7.74	
				1.5	15.47	7.93	9.41	94.3	282.1	7.93	
				2.0	15.45	7.93	9.41	94.3	282.3	7.93	
				2.5	15.43	7.93	9.40	94.2	282.8	7.93	
Z11-1	21-Jun-22	10:15	2.7	0.3	15.66	7.50	8.23	82.8	248.3	3.00	1.55
				1.0	15.65	7.51	8.24	83.1	249.7	3.13	
				1.5	15.61	7.49	8.20	82.6	251.1	3.03	
				2.0	15.57	7.48	8.19	82.5	254.7	3.59	
Z11-2	21-Jun-22	9:35	1.4	0.3	15.91	6.98	5.97	60.5	183.1	1.14	1.25
				0.7	15.92	6.99	5.94	60.4	183.2	1.24	
				1.0	15.93	7.00	5.92	59.7	183.1	2.04	
Z11-3	21-Jun-22	10:30	2.2	0.3	16.39	7.76	9.01	92.0	271.4	4.87	0.95
				1.0	16.36	7.77	9.02	92.2	271.9	4.93	
				1.5	16.22	7.77	9.06	92.3	272.8	5.07	
Z11-4	21-Jun-22	10:50	5.6	0.3	16.52	7.87	9.31	95.6	272.5	5.36	1.20
				1.0	16.52	7.87	9.32	95.6	272.7	5.42	
				2.0	16.27	7.83	9.20	93.9	274.2	5.84	
				3.0	15.99	7.85	9.16	93.2	279.7	6.24	
				4.0	15.45	7.84	9.14	93.1	278.2	6.92	
				5.0	14.43	7.40	7.37	71.4	281.9	6.51	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z11-5	21-Jun-22	11:25	2.1	0.3	15.64	7.75	9.16	92.1	274.9	5.45	1.10
				1.0	15.62	7.74	9.15	92.0	274.8	5.36	
				1.5	15.54	7.74	9.15	91.9	274.9	5.65	
Z11-6	21-Jun-22	12:30	5.7	0.3	15.44	7.87	9.42	94.4	282.1	7.68	0.55
				1.0	15.42	7.86	9.41	94.3	281.9	7.45	
				2.0	15.37	7.83	9.39	93.8	281.2	7.26	
				3.0	15.08	7.74	9.14	90.7	279.4	7.21	
				4.0	14.98	7.70	8.94	88.6	279.1	7.74	
				5.0	14.84	7.67	8.31	82.1	278.5	7.49	
Z11-8	21-Jun-22	11:45	5.6	0.3	15.69	7.82	9.39	94.6	276.6	6.39	1.00
				1.0	15.69	7.83	9.42	94.9	276.8	6.21	
				2.0	15.46	7.83	9.43	94.5	278.0	6.54	
				3.0	15.33	7.84	9.47	94.7	280.4	6.94	
				4.0	15.08	7.76	9.15	90.9	280.4	6.93	
				5.0	13.35	7.09	4.59	43.7	272.4	5.36	
Z11-9	21-Jun-22	12:10	2.7	0.3	15.54	7.86	9.78	98.2	289.6	9.42	0.55
				1.0	15.53	7.86	9.79	98.3	289.6	10.45	
				1.5	15.47	7.86	9.81	98.4	289.7	9.82	
				2.0	15.40	7.89	9.82	98.2	289.7	9.46	
Z11-10	21-Jun-22	9:10	1.9	0.3	16.11	7.12	6.83	69.4	194.7	1.04	1.10
				1.0	16.13	7.13	6.80	69.1	195.0	1.14	
				1.5	16.13	7.13	6.79	69.0	195.4	1.71	
Z11-11	21-Jun-22	9:55	2.1	0.3	16.01	7.11	6.78	68.7	215.8	1.37	1.40
				1.0	16.00	7.12	6.71	68.0	215.7	1.34	
				1.5	15.89	7.14	6.70	67.9	216.1	1.35	
Z12-1	21-Jun-22	13:55	1.8	0.3	16.20	7.66	8.86	90.2	274.7	5.65	0.90
				1.0	16.20	7.66	8.85	90.2	274.8	5.59	
				1.5	16.20	7.66	8.84	90.0	274.7	5.64	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z12-2	21-Jun-22	14:05	3.6	0.3	15.40	7.74	9.19	92.0	277.0	5.56	1.00
				1.0	15.38	7.73	9.18	91.8	277.3	5.68	
				1.5	15.39	7.73	9.18	91.9	277.1	5.68	
				2.0	15.37	7.72	9.16	91.7	277.3	5.81	
				2.5	15.37	7.72	9.15	91.6	277.3	5.74	
				3.0	15.35	7.71	9.13	91.3	277.5	5.58	
Z12-3	21-Jun-22	13:40	3.1	0.3	16.06	7.83	9.26	94.0	283.0	6.75	0.75
				1.0	16.06	7.82	9.23	93.7	282.9	6.85	
				1.5	16.03	7.82	9.24	93.7	283.0	6.92	
				2.0	16.02	7.83	9.23	93.6	283.0	6.75	
				2.5	15.88	7.82	9.18	92.9	283.2	6.72	
Z12-6	26-Jun-22	17:45	6.9	0.3	19.10	7.98	9.56	103.4	292.4	8.50	0.75
				1.0	17.20	8.02	9.70	100.8	293.0	7.26	
				2.0	16.40	8.01	9.70	98.3	290.2	8.56	
				3.0	16.31	7.96	9.54	96.4	289.6	8.19	
				4.0	15.74	7.92	9.40	94.6	289.4	9.17	
				5.0	15.59	7.89	9.32	93.5	289.2	8.51	
				6.0	15.35	7.82	9.14	91.1	287.1	7.75	
Z12-7	21-Jun-22	13:15	3.0	0.3	17.59	7.41	7.92	82.9	180.1	0.59	1.60
				1.0	17.65	7.39	7.88	82.7	178.7	0.60	
				1.5	17.65	7.41	7.84	82.3	179.6	0.65	
				2.0	17.64	7.40	7.87	82.6	179.9	0.63	
				2.5	17.69	7.37	7.72	80.9	179.6	0.62	
Z12-8	26-Jun-22	16:05	2.2	0.3	18.27	7.35	7.66	82.3	212.0	0.91	1.50
				1.0	16.08	7.47	7.46	80.4	190.4	0.83	
				1.5	14.83	7.23	7.01	67.4	200.0	0.90	
Z12-9	26-Jun-22	16:30	2.1	0.3	17.51	7.63	8.77	91.6	272.0	4.16	0.95
				1.0	16.64	7.76	9.28	95.5	271.8	4.40	
				1.5	16.95	7.66	9.03	93.3	274.3	4.52	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued). Values in blue are considered suspect.

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z12-10	26-Jun-22	18:25	2.4	0.3	19.14	7.96	9.59	103.7	292.2	9.78	0.50
				1.0	17.41	7.96	9.67	100.9	294.9	10.64	
				1.5	16.61	7.84	9.46	97.5	286.9	10.39	
				2.0	15.79	7.59	8.85	88.3	282.9	4.91	
Z12-11	26-Jun-22	18:15	3.9	0.3	17.45	8.01	9.84	102.8	292.7	10.13	0.50
				1.0	17.29	8.01	9.83	102.2	292.7	10.34	
				1.5	16.92	8.01	9.85	102.0	292.3	10.50	
				2.0	16.96	8.00	9.83	101.4	292.6	10.65	
				2.5	16.44	7.97	9.77	100.1	292.0	10.65	
				3.0	16.10	7.96	9.70	98.3	291.3	10.05	
				3.5	15.55	7.88	9.42	94.5	292.4	10.77	
Z12-12	26-Jun-22	N/A	2.3	0.3	16.89	7.94	9.47	97.8	293.4	9.53	0.55
				1.0	16.86	7.95	9.46	97.6	293.5	9.97	
				1.5	16.78	7.92	9.97	97.2	293.4	9.55	
				2.0	16.77	7.92	9.43	97.2	293.5	9.74	
Z12-13	26-Jun-22	17:10	5.4	0.3	18.92	7.98	9.50	102.2	290.7	7.76	0.75
				1.0	16.71	8.01	9.62	98.8	292.4	9.40	
				2.0	16.00	7.99	9.58	95.8	288.5	7.84	
				3.0	15.29	7.78	8.98	89.5	284.3	7.20	
				4.0	15.20	7.76	8.90	88.6	286.2	6.44	
				5.0	15.17	7.74	8.83	87.8	286.6	9.49	
Z12-14	26-Jun-22	16:45	2.9	0.3	18.68	7.74	9.09	97.9	256.8	3.71	1.30
				1.0	16.46	7.67	8.99	91.4	245.0	2.67	
				1.5	14.79	7.49	8.79	86.9	246.7	1.90	
				2.0	14.45	7.55	8.43	83.0	261.7	3.30	
				2.5	14.32	7.53	8.54	83.2	162.1	10.26	
Z12-15	26-Jun-22	18:40	0.9	0.3	16.97	8.06	9.79	101.3	293.2	10.71	0.55
				0.5	16.98	8.06	9.80	101.5	293.2	9.73	
				0.7	17.01	8.06	9.81	101.6	293.2	9.90	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z12-16	26-Jun-22	18:50	2.9	0.3	16.52	7.97	9.54	97.8	294.1	9.73	0.65
				1.0	16.51	7.97	9.54	97.8	294.1	10.22	
				1.5	16.51	7.96	9.54	97.7	294.1	10.10	
				2.0	16.52	7.96	9.53	97.7	294.1	9.82	
				2.5	16.52	7.95	9.53	97.7	294.1	9.84	
Z12-17	26-Jun-22	17:30	3.3	0.3	17.81	7.98	9.58	100.9	288.1	6.55	0.76
				1.0	16.72	7.96	9.64	98.7	289.4	6.89	
				1.5	15.64	7.82	9.33	93.7	286.5	6.36	
				2.0	14.93	7.73	8.75	87.4	285.5	5.96	
				2.5	14.67	7.64	8.47	83.5	285.8	5.35	
Z1-5	27-Jul-22	8:20	12.5	0.3	19.38	7.90	8.89	96.7	305.0	8.09	1.15
				1.0	19.38	7.90	8.89	96.7	305.1	8.15	
				2.0	19.40	7.90	8.89	96.7	305.0	8.05	
				3.0	19.41	7.90	8.89	96.6	305.1	8.08	
				4.0	19.40	7.90	8.88	96.6	305.0	8.25	
				5.0	19.39	7.91	8.88	96.6	304.9	8.15	
				6.0	19.41	7.91	8.88	96.6	305.0	8.03	
				7.0	19.41	7.91	8.88	96.6	304.9	8.19	
				8.0	19.41	7.92	8.88	96.6	304.9	8.10	
				9.0	19.41	7.92	8.88	96.6	305.0	8.10	
				10.0	19.41	7.92	8.88	96.6	305.1	8.11	
				11.0	19.41	7.92	8.88	96.6	305.1	8.17	
				12.0	19.41	7.92	8.88	96.6	305.2	8.46	
Z1-6	27-Jul-22	7:30	7.9	0.3	19.16	7.81	8.76	94.8	304.5	6.79	0.75
				1.0	19.17	7.82	8.76	94.8	304.5	6.96	
				2.0	19.18	7.82	8.75	94.8	304.5	6.90	
				3.0	19.19	7.82	8.75	94.7	304.6	6.90	
				4.0	19.19	7.81	8.74	94.6	304.6	6.80	
				5.0	19.17	7.81	8.72	94.4	304.6	6.86	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z1-6	27-Jul-22	7:30	7.9	6.0	19.10	7.80	8.67	93.7	304.8	6.67	
				7.0	19.10	7.80	8.67	93.7	304.9	6.77	
Z1-7	27-Jul-22	8:35	16.3	0.3	19.38	7.90	8.90	96.7	305.0	7.95	1.10
				1.0	19.38	7.92	8.92	96.9	304.9	8.05	
				2.0	19.39	7.91	8.89	96.7	305.1	7.91	
				3.0	19.40	7.91	8.89	96.7	305.5	7.99	
				4.0	19.39	7.92	8.89	96.6	305.4	7.94	
				5.0	19.39	7.92	8.89	96.7	305.4	7.90	
				6.0	19.40	7.92	8.88	96.6	305.3	7.92	
				7.0	19.40	7.92	8.89	96.6	305.4	8.00	
				8.0	19.40	7.92	8.88	96.6	305.6	7.93	
				9.0	19.40	7.92	8.88	96.6	305.7	8.13	
				10.0	19.39	7.92	8.88	96.6	305.5	8.01	
				11.0	19.40	7.92	8.88	96.6	305.7	7.97	
				12.0	19.40	7.92	8.88	96.6	305.8	8.24	
				13.0	19.40	7.92	8.88	96.5	305.9	8.21	
				14.0	19.40	7.93	8.88	96.5	305.9	8.10	
Z1-8	27-Jul-22	7:45	8.6	0.3	19.26	7.84	8.80	95.5	304.1	7.67	1.10
				1.0	19.30	7.84	8.81	95.7	303.6	7.57	
				2.0	19.29	7.84	8.80	95.5	304.0	7.38	
				3.0	19.30	7.84	8.79	95.5	304.0	7.42	
				4.0	19.31	7.84	8.80	95.5	303.9	7.50	
				5.0	19.34	7.84	8.80	95.6	303.6	7.67	
				6.0	19.32	7.84	8.80	95.5	303.9	7.32	
				7.0	19.32	7.85	8.79	95.5	303.9	7.58	
				8.0	19.33	7.85	8.79	95.5	303.9	7.58	
Z1-9	27-Jul-22	8:00	9.7	0.3	19.39	7.87	8.88	96.6	303.7	8.00	1.10
				1.0	19.39	7.87	8.88	96.5	303.7	8.00	
				2.0	19.40	7.86	8.87	96.5	303.7	8.09	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z1-9	27-Jul-22	8:00	9.7	3.0	19.40	7.87	8.88	96.5	303.8	8.01	
				4.0	19.40	7.87	8.87	96.5	303.8	8.22	
				5.0	19.41	7.87	8.87	96.5	303.8	7.95	
				6.0	19.40	7.87	8.87	96.5	303.8	8.31	
				7.0	19.41	7.87	8.87	96.5	303.8	8.23	
				8.0	19.41	7.87	8.87	96.5	303.8	8.59	
				9.0	19.41	7.87	8.87	96.4	303.9	8.66	
Z4-1	26-Jul-22	11:39	5.1	0.3	19.17	7.71	8.18	88.5	292.6	2.40	1.15
				1.0	19.18	7.71	8.18	88.6	292.7	2.36	
				1.5	19.14	7.70	8.15	88.0	292.7	2.12	
				2.0	19.11	7.69	8.10	87.5	292.8	2.41	
				2.5	19.04	7.66	7.96	85.8	293.6	2.31	
				3.0	19.02	7.64	7.86	84.7	293.8	2.52	
				3.5	19.01	7.63	7.79	84.1	293.9	2.30	
				4.0	19.00	7.62	7.73	83.2	293.9	2.59	
				4.5	18.93	7.49	6.94	74.4	294.7	2.84	
Z4-2	26-Jul-22	12:01	5.2	0.3	19.14	7.81	8.66	93.6	294.9	2.90	1.35
				1.0	19.11	7.81	8.62	93.3	295.2	3.24	
				1.5	19.10	7.81	8.60	93.0	295.4	2.95	
				2.0	19.07	7.80	8.58	92.6	295.6	2.85	
				2.5	19.04	7.79	8.51	91.8	295.7	3.28	
				3.0	19.10	7.80	8.59	92.9	295.3	3.13	
				3.5	19.09	7.81	8.59	92.9	295.3	2.88	
				4.0	19.06	7.79	8.56	92.2	295.7	3.11	
				4.5	18.93	7.67	8.13	87.5	295.8	3.04	
Z4-3	26-Jul-22	12:29	5.2	0.3	19.43	7.91	8.85	96.3	302.0	5.56	0.95
				1.0	19.43	7.92	8.86	96.4	302.1	5.78	
				1.5	19.44	7.92	8.86	96.4	302.1	5.77	
				2.0	19.43	7.92	8.86	96.4	302.2	5.66	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z4-3	26-Jul-22	12:29	5.2	2.5	19.44	7.92	8.86	96.4	302.3	5.74	
				3.0	19.44	7.93	8.87	96.5	302.2	5.69	
				3.5	19.46	7.92	8.87	96.6	302.3	5.77	
				4.0	19.44	7.92	8.88	96.6	302.3	5.91	
				4.5	19.44	7.90	8.88	96.6	302.0	5.90	
Z4-4	26-Jul-22	12:45	6.5	0.5	19.81	7.95	8.83	96.7	302.4	7.94	0.85
				1.0	19.72	7.94	8.85	96.8	302.3	8.18	
				2.0	19.70	7.94	8.84	96.7	302.3	7.88	
				3.0	19.70	7.94	8.85	96.8	302.3	7.99	
				4.0	19.69	7.94	8.86	96.9	302.3	8.13	
				5.0	19.70	7.93	8.86	96.9	302.3	8.02	
				6.0	19.70	7.93	8.85	96.8	302.3	8.07	
Z4-5	26-Jul-22	11:27	4.3	0.3	18.98	7.35	6.57	70.8	293.1	2.29	1.05
				1.0	18.96	7.35	6.51	70.2	293.1	2.29	
				1.5	18.95	7.35	6.49	70.0	293.2	2.28	
				2.0	18.89	7.32	6.30	67.7	293.2	2.46	
				2.5	18.85	7.26	5.91	62.2	293.2	2.44	
				3.0	18.80	7.20	5.23	55.6	293.2	2.49	
				3.5	18.76	7.14	4.51	48.1	293.8	2.12	
Z4-6	26-Jul-22	13:51	2.6	0.3	19.23	7.80	8.60	93.2	292.4	2.39	1.25
				1.0	19.25	7.80	8.60	93.3	292.5	2.47	
				1.5	19.24	7.80	8.60	93.2	292.4	2.18	
				2.0	19.22	7.79	8.56	92.7	292.6	2.81	
Z4-7	26-Jul-22	12:17	2.9	0.5	18.85	7.58	7.39	79.5	297.8	2.64	1.30
				1.0	18.78	7.54	7.29	77.9	297.9	2.64	
				1.5	18.80	7.55	7.25	77.8	297.9	2.60	
				2.0	18.74	7.50	7.10	76.0	297.9	2.77	
				2.5	18.53	7.41	6.26	65.6	301.5	2.66	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z8-1	24-Jul-22	12:38	1.8	0.3	18.17	7.12	5.44	57.7	247.6	0.54	1.35
				1.0	18.10	7.10	5.29	56.1	247.6	0.55	
				1.5	17.91	7.04	4.88	49.8	248.0	0.60	
Z8-2	24-Jul-22	12:50	3.3	0.3	18.29	7.07	5.20	55.1	269.1	0.70	1.45
				1.0	18.27	7.07	5.06	53.8	269.9	0.74	
				1.5	18.13	7.05	4.86	51.6	270.9	0.73	
				2.0	17.84	6.99	4.22	43.8	268.8	0.97	
				2.5	17.13	6.70	2.24	22.6	265.7	1.74	
				3.0	14.66	6.49	0.46	4.1	265.0	6.98	
Z8-4	24-Jul-22	13:45	6.5	0.3	19.21	7.91	8.75	94.8	304.1	7.60	1.10
				1.0	19.20	7.91	8.74	94.7	304.1	7.73	
				2.0	19.18	7.90	8.73	94.5	304.0	7.64	
				3.0	19.17	7.89	8.72	94.4	304.1	7.72	
				4.0	19.15	7.89	8.71	94.2	304.0	7.60	
				5.0	19.16	7.89	8.71	94.3	304.1	7.33	
				6.0	19.17	7.90	8.72	94.4	304.1	N/A	
Z8-5	24-Jul-22	13:03	2.3	0.3	18.31	7.33	6.87	73.1	291.4	1.66	1.50
				1.0	18.30	7.33	6.85	72.8	291.5	1.68	
				1.5	18.26	7.33	6.83	72.7	291.5	2.59	
				2.0	18.25	7.34	6.85	72.7	291.5	2.50	
Z8-6	24-Jul-22	13:33	2.4	0.3	18.62	7.72	8.48	90.8	299.9	4.22	1.45
				1.0	18.64	7.72	8.49	90.9	299.9	4.28	
				1.5	18.55	7.66	8.40	89.7	299.6	4.32	
Z8-7	24-Jul-22	13:25	4.2	0.3	18.99	7.82	8.52	91.8	302.2	5.70	1.15
				1.0	18.87	7.81	8.48	91.2	301.9	5.69	
				1.5	18.87	7.79	8.48	91.3	301.8	5.90	
				2.0	18.80	7.77	8.46	91.0	301.6	5.22	
				2.5	18.77	7.76	8.43	90.4	301.4	4.93	
				3.0	18.57	7.71	8.31	88.7	300.8	4.58	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z8-7	24-Jul-22	13:25	4.2	3.5	18.53	7.70	8.21	87.7	300.7	4.67	
				4.0	18.51	7.69	8.16	87.1	300.8	5.06	
Z8-8	24-Jul-22	13:15	2.4	0.3	19.02	7.86	8.70	94.0	302.3	5.83	0.95
				1.0	18.95	7.84	8.50	91.7	302.4	6.00	
				1.5	18.95	7.82	8.52	91.7	302.6	5.97	
				2.0	18.67	7.74	8.27	88.7	302.1	5.68	
Z11-1	23-Jul-22	12:00	2.2	0.3	17.59	7.29	6.90	72.4	292.0	2.43	1.35
				1.0	17.54	7.33	7.05	73.8	294.3	2.54	
				1.5	17.54	7.37	7.25	76.0	295.3	2.64	
				2.0	17.44	7.26	6.47	68.2	293.5	2.47	
Z11-2	23-Jul-22	11:30	1.6	0.3	18.06	6.76	2.10	22.6	247.3	0.48	1.10
				1.0	17.37	6.72	1.32	12.2	248.3	0.46	
Z11-3	23-Jul-22	12:15	2.5	0.3	18.26	7.57	8.03	85.3	304.3	5.84	1.20
				1.0	18.24	7.57	8.03	85.2	304.3	5.88	
				1.5	18.25	7.57	8.02	85.2	304.3	6.02	
				2.0	18.18	7.55	7.92	84.0	304.2	6.23	
Z11-4	23-Jul-22	12:25	5.4	0.3	18.74	7.66	8.25	88.5	304.5	6.10	1.05
				1.0	18.75	7.67	8.24	88.5	304.5	6.12	
				1.5	18.73	7.67	8.23	88.3	304.5	6.06	
				2.0	18.73	7.67	8.22	88.2	304.5	6.20	
				2.5	18.67	7.67	8.19	87.8	304.4	6.00	
				3.0	18.52	7.66	8.14	87.3	304.5	6.05	
				3.5	18.66	7.66	8.16	87.4	304.5	6.01	
				4.0	18.29	7.57	7.91	83.6	304.0	5.31	
				4.5	18.20	7.54	7.66	81.2	303.7	5.33	
				5.0	18.16	7.52	7.57	80.3	303.7	5.38	
Z11-5	23-Jul-22	12:45	2.5	0.3	19.01	7.47	7.11	76.8	301.9	2.89	1.05
				1.0	19.02	7.47	7.11	76.6	301.9	2.79	
				1.5	18.95	7.46	7.00	75.6	301.7	2.84	
				2.0	18.87	7.44	6.92	74.3	301.2	2.68	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued). Values in blue are considered suspect.

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z11-6	23-Jul-22	13:30	6.0	0.3	19.27	7.86	8.65	93.8	306.8	7.13	0.08
				1.0	19.28	7.86	8.64	93.8	306.8	7.17	
				2.0	19.27	7.86	8.64	93.8	306.8	7.22	
				3.0	19.27	7.80	8.64	93.7	306.8	7.22	
				4.0	19.14	7.80	8.57	92.0	306.3	6.76	
				5.0	18.96	7.74	8.30	89.2	305.1	9.62	
				5.5 ¹	18.83	7.71	8.12	87.2	304.9	19.45	
Z11-8	23-Jul-22	13:00	5.4	0.3	18.86	7.73	8.29	89.2	303.9	5.53	0.85
				1.0	18.86	7.73	8.28	89.1	303.9	5.55	
				1.5	18.84	7.72	8.27	88.9	303.8	5.46	
				2.0	18.84	7.73	8.25	88.8	303.8	5.58	
				2.5	18.82	7.72	8.22	88.2	303.7	5.39	
				3.0	18.79	7.71	8.17	87.7	303.6	5.40	
				3.5	18.61	7.65	8.00	85.5	303.5	5.23	
				4.0	18.57	7.61	7.86	84.0	303.5	5.20	
				4.5	18.56	7.60	7.78	83.1	303.5	5.28	
				5.0	18.53	7.51	7.68	81.7	303.5	6.11	
Z11-9	23-Jul-22	13:20	2.3	0.3	19.35	7.77	8.67	94.2	307.4	7.76	0.80
				1.0	19.34	7.77	8.68	94.4	307.4	7.61	
				1.5	19.29	7.76	8.67	94.0	307.3	7.24	
				2.0	19.09	7.73	8.59	92.8	307.0	7.00	
Z11-10	23-Jul-22	11:15	1.8	0.3	17.08	6.82	2.96	30.7	222.5	0.58	1.15
				1.0	16.82	6.76	2.80	28.8	222.3	0.67	
				1.5	16.42	6.74	1.66	19.5	226.5	0.85	
Z11-11	23-Jul-22	11:45	2.1	0.3	17.26	6.83	2.48	25.8	256.1	0.83	0.85
				1.0	17.24	6.82	2.45	25.5	255.6	0.85	
				1.5	17.25	6.82	2.44	25.4	255.3	0.84	

1. The water quality meter hit bottom at this depth, and as a result, all values are considered suspect.

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued). Values in blue are considered suspect.

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z12-1	24-Jul-22	9:34	2.2	0.3	18.11	7.67	8.20	86.9	303.5	5.66	0.75
				1.0	18.07	7.65	8.16	86.3	303.1	5.68	
				1.5	18.04	7.64	8.13	86.0	302.9	6.06	
Z12-2	24-Jul-22	10:00	3.7	0.3	17.74	7.66	8.14	85.6	301.0	4.46	1.15
				1.0	17.74	7.67	8.14	85.6	301.0	4.47	
				1.5	17.74	7.66	8.13	85.5	301.1	4.51	
				2.0	17.73	7.67	8.13	85.4	301.0	4.50	
				2.5	17.73	7.67	8.13	85.4	301.0	4.48	
				3.0	17.71	7.67	8.11	85.2	300.9	4.49	
Z12-3	24-Jul-22	9:19	3.2	0.3	18.59	7.78	8.55	91.5	306.4	6.70	0.85
				1.0	18.59	7.80	8.54	91.4	306.4	6.73	
				1.5	18.58	7.80	8.54	91.3	306.4	6.61	
				2.0	18.58	7.81	8.53	91.2	306.4	6.57	
				2.5	18.58	7.82	8.53	91.3	306.4	6.59	
				3.0	18.55	7.80	8.48	90.6	306.4	6.66	
Z12-6	24-Jul-22	11:39	7.2	0.3	18.58	7.77	8.36	89.4	306.9	6.38	1.25
				1.0	18.57	7.78	8.35	89.3	306.9	6.46	
				2.0	18.55	7.78	8.34	89.2	306.7	6.99	
				3.0	18.55	7.78	8.34	89.1	306.7	6.53	
				4.0	18.53	7.77	8.33	89.0	306.3	6.63	
				5.0	18.52	7.77	8.32	88.8	306.2	6.12	
				6.0	18.42	7.75	8.29	88.3	305.1	5.83	
Z12-7	24-Jul-22	8:37	2.9	0.3	17.21	7.43	8.44	87.8	231.4	10.20 ²	0.65
				1.0	17.15	7.40	8.35	86.8	231.4	9.41 ²	
				1.5	17.13	7.39	8.35	86.6	231.4	14.67 ²	
				2.0	17.12	7.35	8.29	85.8	231.4	15.80 ²	

2. Turbidity at this site was fluctuating as vegetation was present throughout the water column, all values are considered suspect.

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z12-8	24-Jul-22	8:52	1.9	0.3	16.75	6.94	5.29	54.4	257.4	3.70	0.75
				1.0	16.72	6.94	5.20	53.6	257.4	3.07	
				1.5	16.70	6.95	5.15	52.9	257.4	6.50	
Z12-9	24-Jul-22	9:03	3.6	0.3	17.52	7.53	7.99	83.9	303.2	6.08	0.95
				1.0	17.50	7.45	7.75	81.1	302.4	6.04	
				1.5	17.51	7.48	7.77	81.3	302.5	6.13	
				2.0	17.47	7.40	7.55	78.2	301.3	6.56	
				2.5	17.46	7.42	7.46	77.8	301.7	6.16	
				3.0	17.45	7.39	7.33	76.6	301.1	5.88	
Z12-10	24-Jul-22	10:54	2.3	0.3	17.96	7.72	8.36	88.3	305.1	5.88	1.15
				1.0	17.96	7.71	8.35	88.1	305.4	5.68	
				1.5	17.92	7.69	8.31	87.5	304.9	5.48	
				2.0	17.90	7.69	8.29	87.5	304.8	5.65	
Z12-11	24-Jul-22	10:43	4.5	0.3	18.91	7.90	8.73	94.0	307.7	7.61	0.85
				1.0	18.91	7.90	8.73	94.0	307.7	7.53	
				1.5	18.90	7.90	8.71	93.8	307.7	7.55	
				2.0	18.91	7.90	8.71	93.7	307.6	7.42	
				2.5	18.86	7.89	8.70	93.5	307.7	7.31	
				3.0	18.81	7.89	8.67	93.1	307.6	7.24	
				3.5	18.77	7.89	8.64	92.8	307.5	7.08	
				4.0	18.56	7.86	8.56	91.6	307.0	7.01	
Z12-12	24-Jul-22	10:30	2.0	0.3	19.05	7.91	8.72	94.2	308.4	7.02	0.80
				1.0	19.05	7.91	8.72	94.2	308.4	7.28	
				1.5	19.06	7.91	8.71	94.1	308.4	7.10	
Z12-13	24-Jul-22	10:16	5.5	0.3	18.54	7.78	8.42	89.9	303.1	6.66	0.95
				1.0	18.55	7.78	8.41	89.9	305.8	6.39	
				2.0	18.55	7.78	8.40	89.8	305.8	6.47	
				3.0	18.53	7.77	8.37	89.5	305.8	6.44	
				4.0	18.52	7.77	8.36	89.3	305.8	6.40	
				5.0	18.51	7.76	8.33	88.9	305.7	6.46	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z12-14	24-Jul-22	9:48	3.1	0.3	16.96	7.38	7.02	72.6	279.7	1.59	1.25
				1.0	16.96	7.38	6.99	72.3	279.6	1.61	
				1.5	16.97	7.37	6.97	72.0	279.6	1.72	
Z12-15	24-Jul-22	11:11	0.9	0.3	18.90	7.94	8.96	96.4	307.8	8.03	0.80
				0.5	18.91	7.98	9.03	97.6	307.8	7.93	
Z12-16	24-Jul-22	11:21	2.8	0.3	19.27	7.93	8.86	96.1	309.0	7.76	0.85
				1.0	19.27	7.93	8.86	96.1	309.0	7.87	
				1.5	19.27	7.93	8.86	96.1	309.0	7.90	
				2.0	19.27	7.93	8.85	96.1	309.0	8.19	
				2.5	19.26	7.94	8.84	95.9	309.0	8.99	
Z12-17	24-Jul-22	11:52	2.5	0.3	18.25	7.76	8.45	89.7	303.8	5.45	1.25
				1.0	18.24	7.75	8.42	89.5	303.8	5.50	
				1.5	18.23	7.74	8.41	89.3	303.8	5.53	
Z1-5	26-Aug-22	8:20	12.1	0.3	18.80	8.02	9.09	97.7	312.8	6.39	1.15
				1.0	18.77	8.02	9.09	97.6	312.8	6.16	
				2.0	18.77	8.02	9.09	97.6	312.8	6.07	
				3.0	18.76	8.03	9.09	97.5	312.8	6.15	
				4.0	18.76	8.02	9.09	97.6	312.8	6.24	
				5.0	18.74	8.02	9.08	97.5	312.8	6.09	
				6.0	18.75	8.02	9.08	97.5	312.9	6.21	
				7.0	18.74	8.02	9.08	97.3	312.8	6.06	
				8.0	18.71	8.02	9.07	97.3	312.8	5.97	
				9.0	18.70	8.01	9.06	97.1	313.0	5.92	
Z1-6	26-Aug-22	12:40	7.2	10.0	18.68	8.01	9.05	97.0	312.9	5.81	
				11.0	18.67	8.01	9.04	96.9	313.0	5.86	
				0.3	18.36	7.93	8.81	93.8	309.0	5.13	1.30
				1.0	18.37	7.94	8.82	93.9	309.0	5.23	
				2.0	18.38	7.94	8.82	94.0	309.1	5.05	
				3.0	18.38	7.94	8.81	93.9	309.0	5.04	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z1-6	26-Aug-22	12:40	7.2	4.0	18.40	7.94	8.80	93.7	309.0	5.08	
				5.0	18.40	7.92	8.78	93.3	308.9	5.07	
				6.0	18.29	7.77	8.61	90.2	308.3	4.78	
Z1-7	26-Aug-22	11:50	15.3	0.3	18.81	8.01	9.10	97.8	312.5	5.86	1.20
				1.0	18.81	8.01	9.10	97.7	312.6	6.02	
				2.0	18.79	8.02	9.09	97.7	312.6	6.17	
				3.0	18.76	8.02	9.09	97.7	312.7	6.11	
				4.0	18.76	8.02	9.09	97.6	312.9	6.12	
				5.0	18.76	8.01	9.09	97.7	312.8	6.16	
				6.0	18.76	8.01	9.09	97.6	312.9	6.16	
				7.0	18.75	8.01	9.09	97.6	313.0	6.17	
				8.0	18.75	8.01	9.09	97.6	313.1	6.08	
				9.0	18.75	8.01	9.09	97.6	313.0	6.07	
				10.0	18.75	8.01	9.09	97.6	313.1	6.05	
				11.0	18.75	8.02	9.09	97.6	313.1	6.05	
				12.0	18.75	8.02	9.09	97.5	313.1	6.16	
				13.0	18.75	8.02	9.09	97.5	313.1	6.44	
				14.0	18.75	8.02	9.09	97.5	313.2	6.23	
				15.0	18.75	8.02	9.09	97.5	313.1	6.40	
Z1-8	26-Aug-22	12:28	7.5	0.3	18.41	7.95	8.86	94.4	310.1	5.37	1.00
				1.0	18.44	7.95	8.85	94.3	310.2	5.33	
				2.0	18.41	7.94	8.83	94.0	310.1	5.40	
				3.0	18.38	7.94	8.82	93.8	310.0	5.33	
				4.0	18.28	7.93	8.77	93.2	309.6	5.44	
				5.0	18.25	7.92	8.75	92.9	309.5	5.28	
				6.0	18.24	7.91	8.73	92.4	309.3	5.16	
				7.0	18.04	7.82	8.55	89.8	308.4	5.09	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z1-9	26-Aug-22	12:16	10.6	0.3	18.78	8.02	9.06	97.4	311.6	6.20	1.10
				1.0	18.79	8.02	9.07	97.4	311.6	6.20	
				2.0	18.77	8.01	9.06	97.3	311.6	6.32	
				3.0	18.77	8.01	9.07	97.4	311.7	6.17	
				4.0	18.78	8.01	9.06	97.3	311.6	6.30	
				5.0	18.77	8.01	9.06	97.3	311.6	6.27	
				6.0	18.76	8.01	9.07	97.3	311.6	6.21	
				7.0	18.76	8.01	9.06	97.3	311.5	6.43	
				8.0	18.76	8.01	9.06	97.3	311.6	6.40	
				9.0	18.76	8.01	9.07	97.3	311.6	6.24	
				10.0	18.76	8.01	9.07	97.3	311.6	6.44	
Z4-1	24-Aug-22	13:40	5.1	0.3	18.89	7.56	7.46	80.3	297.1	2.60	1.15
				1.0	18.88	7.55	7.45	80.2	297.0	2.90	
				2.0	18.89	7.54	7.45	80.1	297.1	3.36	
				3.0	18.87	7.53	7.41	79.7	297.1	2.94	
				4.0	18.82	7.50	7.28	77.7	297.0	2.54	
Z4-2	24-Aug-22	14:05	5.0	0.3	18.57	7.55	7.42	79.3	299.1	2.53	1.25
				1.0	18.56	7.55	7.39	78.9	299.1	2.52	
				2.0	18.49	7.53	7.33	78.1	299.0	2.49	
				3.0	18.49	7.53	7.28	77.7	299.0	2.58	
				4.0	18.47	7.52	7.24	77.2	299.1	2.62	
Z4-3	24-Aug-22	13:02	5.2	0.3	18.69	7.83	8.40	90.1	304.0	4.88	0.95
				1.0	18.68	7.82	8.41	90.2	303.9	5.00	
				2.0	18.63	7.80	8.37	89.5	303.5	4.64	
				3.0	18.59	7.78	8.34	89.2	303.2	4.59	
				4.0	18.57	7.78	8.32	89.0	303.2	4.73	
				5.0	18.47	7.66	8.11	85.9	301.7	5.73	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z4-4	24-Aug-22	14:16	6.1	0.3	19.12	8.02	9.12	98.6	306.5	6.36	0.95
				1.0	19.12	8.02	9.11	98.6	306.4	6.47	
				2.0	19.11	8.02	9.11	98.3	306.4	6.47	
				3.0	19.05	8.01	9.09	98.0	306.3	6.33	
				4.0	18.99	8.00	9.05	97.5	306.3	6.84	
				5.0	18.97	7.99	9.05	97.2	306.6	6.87	
Z4-5	24-Aug-22	13:26	3.7	0.3	18.81	7.55	7.72	83.0	297.0	3.40	1.05
				1.0	18.81	7.55	7.67	82.4	296.9	3.23	
				1.5	18.81	7.56	7.71	82.8	296.9	3.81	
				2.0	18.76	7.45	7.25	77.8	296.7	3.24	
				2.5	18.37	7.28	6.17	63.9	297.1	2.37	
				3.0	18.11	7.08	4.35	42.0	297.4	1.34	
Z4-6	24-Aug-22	13:51	2.5	0.3	18.73	7.52	7.15	76.7	297.3	2.40	1.15
				1.0	18.71	7.51	7.12	76.3	297.3	2.02	
				1.5	18.68	7.50	7.08	75.9	297.3	2.54	
				2.0	18.68	7.50	7.05	75.6	297.2	2.18	
Z4-7	24-Aug-22	12:50	2.4	0.3	18.11	7.35	5.84	61.9	299.5	1.92	1.20
				1.0	18.10	7.35	5.78	61.2	299.6	2.04	
				1.5	17.89	7.27	5.28	55.6	299.4	1.74	
				2.0	17.69	7.18	4.28	43.9	298.8	1.70	
Z8-1	27-Aug-22	10:00	1.5	0.3	17.61	6.99	3.84	40.3	235.7	0.65	0.70
				1.0	17.54	6.99	3.96	41.5	233.9	1.36	
Z8-2	27-Aug-22	10:15	4.5	0.3	17.69	7.03	3.56	37.4	261.4	0.41	1.45
				1.0	17.67	7.02	3.51	36.7	260.9	0.45	
				1.5	17.40	6.95	2.88	30.2	262.4	0.51	
				2.0	17.21	6.89	1.80	18.0	263.0	0.56	
				2.5	16.13	6.73	0.17	1.6	259.7	1.05	
				3.0	15.83	6.62	-0.08 ³	-0.8 ³	259.6	1.16	
				3.5	15.49	6.56	-0.11 ³	-1.2 ³	261.3	1.25	
				4.0	15.16	6.51	-0.15 ³	-1.4 ³	261.0	1.36	

3. Negative DO values at this site indicate fully depleted oxygen concentrations.

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z8-4	27-Aug-22	11:10	6.9	0.3	18.84	8.02	8.90	95.7	310.2	5.38	1.25
				1.0	18.84	8.02	8.89	95.6	310.3	5.34	
				2.0	18.81	8.01	8.89	95.5	310.3	5.41	
				3.0	18.79	8.00	8.88	95.3	310.2	5.78	
				4.0	18.72	7.99	8.85	94.9	310.2	5.30	
				5.0	18.71	7.99	8.85	94.9	310.1	5.11	
				6.0	18.51	7.69	8.28	87.7	309.4	4.54	
Z8-5	27-Aug-22	10:30	2.3	0.3	18.37	7.43	7.04	75.0	298.8	2.20	1.45
				1.0	18.32	7.43	7.05	75.0	299.2	2.31	
				1.5	18.24	7.34	6.37	66.4	298.5	2.05	
				2.0	17.73	7.17	5.03	52.0	296.1	2.02	
Z8-6	27-Aug-22	11:00	2.6	0.3	18.37	7.74	8.13	86.6	306.0	3.38	1.55
				1.0	18.34	7.74	8.13	86.6	306.2	3.59	
				1.5	18.26	7.75	8.19	87.0	306.4	3.61	
				2.0	18.05	7.61	7.65	80.9	306.2	4.51	
Z8-7	27-Aug-22	10:50	4.2	0.3	18.60	8.00	8.84	94.6	309.5	4.67	1.45
				1.0	18.60	7.98	8.84	94.6	309.5	4.67	
				1.5	18.59	7.98	8.84	94.5	309.5	4.75	
				2.0	18.55	7.97	8.83	94.4	309.6	4.85	
				2.5	18.53	7.96	8.83	94.3	309.5	4.74	
				3.0	18.52	7.96	8.80	94.1	309.4	4.72	
				3.5	18.49	7.94	8.78	93.6	309.4	4.77	
Z8-8	27-Aug-22	10:41	1.9	0.3	18.64	7.91	8.65	92.6	308.6	4.44	1.45
				1.0	18.62	7.91	8.64	92.5	308.6	4.55	
				1.5	18.62	7.90	8.65	92.5	308.5	4.43	
Z11-1	28-Aug-22	9:35	2.2	0.3	18.35	7.53	7.35	78.3	299.1	1.30	> 1.90 ⁴
				1.0	18.26	7.53	7.32	77.8	299.1	1.39	
				1.5	17.41	7.03	4.30	43.2	284.1	1.40	
Z11-2	28-Aug-22	9:10	1.3	0.3	17.84	7.09	3.21	33.8	279.8	0.67	N/A

4. The Secchi Disk Depth at this site was greater than the depth of the water column (*i.e.*, the disk remained visible at the bottom of the water column).

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z11-3	28-Aug-22	9:55	2.6	1.0	17.78	7.06	2.80	29.3	279.7	0.68	
				0.3	18.49	7.88	8.28	88.5	309.6	2.54	2.15
				1.0	18.20	7.80	8.18	86.5	309.6	2.36	
				1.5	17.89	7.67	7.67	80.6	308.8	2.16	
				2.0	17.74	7.29	6.08	60.0	308.9	1.90	
Z11-4	28-Aug-22	10:05	5.6	0.3	18.68	7.86	8.44	90.5	310.2	2.61	1.90
				1.0	18.53	7.87	8.45	90.4	310.1	2.70	
				2.0	18.48	7.86	8.44	90.1	310.1	2.77	
				3.0	18.30	7.82	8.34	88.4	310.3	2.67	
				4.0	18.10	7.61	7.62	79.7	310.2	2.32	
				5.0	17.04	7.32	5.38	55.1	307.0	2.28	
Z11-5	28-Aug-22	10:25	2.9	0.3	18.90	7.66	7.82	84.2	306.9	1.60	2.45
				1.0	18.75	7.65	7.73	82.9	307.0	1.61	
				1.5	18.63	7.59	7.40	79.0	307.0	1.55	
				2.0	18.63	7.57	7.25	77.6	307.0	1.55	
Z11-6	28-Aug-22	11:00	5.7	0.3	19.46	8.04	8.86	96.5	317.2	4.73	1.20
				1.0	19.17	8.02	8.83	95.5	317.2	5.08	
				2.0	18.94	8.02	8.78	94.6	316.4	4.51	
				3.0	18.87	8.03	8.83	95.0	315.3	4.21	
				4.0	18.41	7.70	7.88	83.6	310.7	2.79	
				5.0	17.62	7.45	6.20	64.6	310.7	2.39	
Z11-8	28-Aug-22	10:35	5.0	0.3	19.44	8.03	8.89	96.7	317.3	4.75	1.45
				1.0	19.05	8.03	8.91	96.2	316.4	4.76	
				2.0	18.76	7.98	8.78	94.2	313.0	3.46	
				3.0	18.54	7.89	8.57	91.4	311.5	3.03	
				4.0	17.87	7.41	6.02	63.9	308.2	1.92	
Z11-9	28-Aug-22	10:48	2.8	0.3	19.28	7.95	8.60	93.3	317.4	4.70	1.50
				1.0	19.18	7.90	8.50	92.0	317.5	4.71	
				1.5	18.97	7.82	8.22	88.6	317.3	4.71	
				2.0	18.91	7.80	8.12	87.3	317.3	6.77	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z11-10	28-Aug-22	8:40	0.9	0.3	17.64	6.96	3.67	38.6	272.9	0.68	0.90
				0.5	17.16	6.76	0.87	9.1	271.7	0.89	
Z11-11	28-Aug-22	9:22	1.4	0.3	18.08	7.16	3.99	42.2	280.7	0.64	> 1.40 ⁴
				1.0	17.79	7.06	2.79	28.7	280.4	0.79	
Z12-1	26-Aug-22	9:26	2.2	0.3	17.19	7.74	8.25	85.5	310.1	3.91	1.10
				1.0	17.08	7.72	8.19	84.6	309.7	3.79	
				1.5	16.91	7.70	8.12	83.9	309.3	3.79	
				2.0	16.91	7.69	8.11	83.7	309.4	4.30	
Z12-2	26-Aug-22	9:50	4.0	0.3	17.26	7.76	8.27	86.1	309.2	3.62	1.10
				1.0	17.24	7.76	8.29	86.3	308.9	3.62	
				1.5	17.16	7.77	8.34	86.7	307.8	3.47	
				2.0	17.09	7.77	8.36	86.6	307.5	3.24	
				2.5	16.94	7.67	8.14	83.4	305.9	3.11	
				3.0	16.87	7.63	7.88	81.1	304.9	2.92	
				3.5	16.84	7.58	7.59	78.4	304.1	3.08	
Z12-3	26-Aug-22	9:14	2.7	0.3	17.89	7.90	8.60	90.7	312.5	4.68	1.05
				1.0	17.90	7.90	8.60	90.7	312.5	4.78	
				1.5	17.88	7.90	8.58	90.5	312.5	4.66	
				2.0	17.85	7.90	8.58	90.4	312.5	4.74	
				2.5	17.85	7.89	8.57	90.3	312.5	5.47	
Z12-6	26-Aug-22	10:32	7.0	0.3	17.96	7.92	8.68	91.7	312.2	4.43	1.35
				1.0	17.91	7.89	8.64	91.1	311.9	4.38	
				2.0	17.87	7.88	8.59	90.5	311.6	4.45	
				3.0	17.83	7.87	8.57	90.3	311.6	4.40	
				4.0	17.84	7.87	8.57	90.4	311.7	4.39	
				5.0	17.85	7.87	8.57	90.3	311.7	4.28	
				6.0	17.84	7.86	8.55	89.8	311.7	4.37	

4. The Secchi Disk Depth at this site was greater than the depth of the water column (*i.e.*, the disk remained visible at the bottom of the water column).

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z12-7	26-Aug-22	8:36	3.0	0.3	16.58	7.12	4.74	48.6	250.5	1.07	0.95
				1.0	16.58	7.10	4.68	48.0	250.5	1.05	
				1.5	16.57	7.09	4.56	46.8	250.5	1.00	
				2.0	16.58	7.09	4.57	46.8	250.5	1.03	
				2.5	16.57	7.09	4.57	46.8	250.5	1.11	
Z12-8	26-Aug-22	8:50	2.1	0.3	16.12	6.97	4.13	41.9	265.1	0.88	0.90
				1.0	16.10	6.97	3.94	39.7	266.1	1.49	
				1.5	16.05	6.98	3.38	34.7	266.3	1.18	
Z12-9	26-Aug-22	9:02	2.5	0.3	17.48	7.71	8.24	86.1	310.5	4.23	1.05
				1.0	17.48	7.73	8.24	86.1	310.5	4.28	
				1.5	17.46	7.77	8.28	86.7	310.8	4.34	
				2.0	17.35	7.59	7.90	81.3	309.3	3.97	
Z12-10	26-Aug-22	11:00	2.3	0.3	17.32	7.77	8.57	88.7	311.0	3.73	1.55
				1.0	17.31	7.75	8.46	88.1	311.1	3.63	
				1.5	17.17	7.67	8.17	84.9	310.6	3.59	
				2.0	16.86	7.26	6.16	62.5	305.2	3.20	
Z12-11	26-Aug-22	11:11	3.9	0.3	18.46	7.99	8.99	95.8	314.3	4.87	1.35
				1.0	18.42	7.99	8.96	95.5	314.2	4.76	
				1.5	18.35	7.96	8.91	94.7	313.9	4.80	
				2.0	18.34	7.96	8.88	94.3	313.9	4.72	
				2.5	18.28	7.95	8.84	94.0	313.8	4.92	
				3.0	18.22	7.91	8.72	92.4	313.5	4.85	
Z12-12	26-Aug-22	10:47	2.2	0.3	18.32	7.93	8.79	93.5	314.8	4.77	1.55
				1.0	18.30	7.93	8.78	93.3	314.9	4.78	
				1.5	18.29	7.93	8.76	93.2	314.9	5.07	
Z12-13	26-Aug-22	10:05	5.4	0.3	17.87	7.83	8.44	89.0	311.8	4.56	0.95
				1.0	17.88	7.82	8.43	88.8	311.8	4.58	
				2.0	17.82	7.81	8.37	88.1	311.7	4.46	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z12-13	26-Aug-22	10:05	5.4	3.0	17.76	7.79	8.32	87.3	311.6	4.42	
				4.0	17.65	7.76	8.23	85.9	311.3	4.13	
				5.0	17.54	7.74	8.07	84.3	311.0	4.17	
Z12-14	26-Aug-22	9:40	3.3	0.3	16.35	7.38	6.69	68.3	287.1	1.15	1.45
				1.0	16.33	7.37	6.64	67.8	287.2	1.18	
				1.5	16.28	7.35	6.56	66.8	287.0	1.20	
				2.0	16.25	7.35	6.52	66.5	288.3	1.22	
				2.5	16.18	7.31	6.27	63.4	288.2	1.21	
Z12-15	26-Aug-22	11:40	1.3	0.3	18.43	8.03	9.06	96.6	314.0	4.81	1.15
				1.0	18.41	8.02	9.08	96.8	313.8	5.05	
Z12-16	26-Aug-22	11:20	3.1	0.3	18.63	8.02	9.05	96.9	315.4	5.03	1.25
				1.0	18.61	8.02	9.05	96.9	315.3	5.12	
				1.5	18.61	8.01	9.05	96.8	315.3	5.02	
				2.0	18.61	8.01	9.04	96.7	315.3	5.22	
				2.5	18.61	8.01	9.04	96.7	315.3	4.99	
Z12-17	26-Aug-22	10:11	2.7	0.3	17.37	7.79	8.31	86.3	309.9	3.85	1.45
				1.0	17.38	7.78	8.30	86.6	310.0	3.89	
				1.5	17.31	7.77	8.27	86.1	309.9	3.86	
				2.0	17.22	7.74	8.21	85.3	309.8	3.75	
Z1-5	9-Oct-22	16:53	12.5	0.3	9.38	8.28	11.31	98.8	294.7	8.49	1.15
				1.0	9.39	8.28	11.29	98.7	294.7	8.63	
				2.0	9.40	8.29	11.29	98.7	294.7	8.58	
				3.0	9.41	8.29	11.28	98.6	294.8	8.45	
				4.0	9.42	8.29	11.27	98.5	294.8	8.50	
				5.0	9.42	8.29	11.26	98.5	294.7	8.51	
				6.0	9.42	8.29	11.25	98.4	294.8	8.60	
				7.0	9.38	8.28	11.24	98.2	294.7	8.67	
				8.0	9.37	8.28	11.22	98.0	294.7	8.56	
				9.0	9.35	8.28	11.21	97.9	294.7	8.57	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z1-5	9-Oct-22	16:53	12.5	10.0	9.37	8.28	11.21	97.9	294.8	8.57	
				11.0	9.36	8.28	11.19	97.7	294.7	8.36	
				11.5	9.35	8.28	11.18	97.6	294.7	8.36	
Z1-6	9-Oct-22	16:53	12.5	0.3	8.77	8.25	11.33	97.6	296.2	7.59	1.10
				1.0	8.80	8.27	11.30	97.5	295.9	7.77	
				2.0	8.84	8.26	11.28	97.3	295.9	7.74	
				3.0	8.75	8.25	11.26	96.8	296.4	7.24	
				4.0	8.72	8.24	11.25	96.7	296.5	7.26	
				5.0	8.70	8.24	11.24	96.6	296.4	7.41	
				6.0	8.68	8.23	11.21	96.3	296.6	7.48	
				7.0	8.66	8.23	11.20	96.2	296.6	7.49	
Z1-7	9-Oct-22	16:32	15.1	0.3	9.45	8.29	11.33	99.2	297.6	8.31	1.10
				1.0	9.45	8.29	11.33	99.1	296.7	8.00	
				2.0	9.45	8.29	11.32	99.1	297.1	8.04	
				3.0	9.45	8.30	11.31	99.0	297.0	7.97	
				4.0	9.45	8.29	11.30	98.9	297.0	7.99	
				5.0	9.46	8.29	11.28	98.8	297.3	8.02	
				6.0	9.46	8.29	11.28	98.7	297.4	8.45	
				7.0	9.46	8.28	11.26	98.5	297.3	8.53	
				8.0	9.46	8.28	11.25	98.5	297.6	8.50	
				9.0	9.46	8.29	11.25	98.4	297.2	8.03	
				10.0	9.46	8.29	11.22	98.2	297.5	8.30	
				11.0	9.46	8.29	11.21	98.1	297.3	8.02	
				12.0	9.46	8.30	11.20	98.0	297.6	8.31	
				13.0	9.46	8.29	11.19	98.0	297.3	8.66	
				14.0	9.46	8.31	11.17	97.8	297.3	9.26	
Z1-8	9-Oct-22	17:19	8.6	0.3	9.11	8.28	11.28	98.0	294.0	8.14	1.10
				1.0	9.12	8.27	11.28	97.9	294.0	8.23	
				2.0	9.11	8.27	11.26	97.8	294.0	8.13	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued). Values in blue are considered suspect.

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z1-8	9-Oct-22	17:19	8.6	3.0	9.08	8.27	11.25	97.6	294.1	8.22	
				4.0	9.02	8.26	11.23	97.4	294.5	8.22	
				5.0	8.97	8.26	11.21	97.0	294.8	7.95	
				6.0	8.98	8.26	11.20	96.9	294.7	8.10	
				7.0	8.95	8.25	11.18	96.5	295.1	8.06	
Z1-9	9-Oct-22	17:06	10.5	0.3	9.41	8.28	11.31	98.9	292.8	8.81	1.10
				1.0	9.41	8.29	11.31	98.9	294.4	8.17	
				2.0	9.41	8.28	11.30	98.8	294.3	8.51	
				3.0	9.42	8.29	11.29	98.8	294.4	8.31	
				4.0	9.42	8.29	11.28	98.7	294.3	8.45	
				5.0	9.42	8.29	11.27	98.6	294.3	8.34	
				6.0	9.42	8.28	11.27	98.7	294.4	8.54	
				7.0	9.42	8.29	11.26	98.4	294.4	8.45	
				8.0	9.42	8.29	11.25	98.4	294.3	8.37	
				9.0	9.42	8.29	11.24	98.3	294.3	8.46	
				9.5	9.42	8.29	11.23	98.2	294.3	8.50	
Z4-1	10-Oct-22	9:40	5.1	0.3	6.50	7.86	10.86	88.4	294.0	3.13	1.40
				1.0	6.49	7.86	10.83	88.2	293.9	3.09	
				2.0	6.49	7.86	10.81	88.0	293.9	3.04	
				3.0	6.47	7.86	10.79	87.8	293.9	3.09	
				4.0	6.48	7.86	10.78	87.6	293.9	2.98	
				4.5	6.47	7.86	10.74	87.4	293.9	3.03	
Z4-2	10-Oct-22	10:05	5.2	0.3	7.15	8.10	11.35	93.9	293.5	4.75	1.35
				1.0	7.16	8.10	11.33	93.7	293.5	4.88	
				2.0	7.16	8.10	11.31	93.6	293.5	4.82	
				3.0	7.13	8.09	11.28	93.3	293.6	4.62	
				4.0	7.11	8.08	11.25	92.9	293.6	4.55	
				4.5	7.06	8.04	11.14	91.6	293.7	8.66	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z4-3	10-Oct-22	10:47	5.2	0.3	8.43	8.22	11.34	96.9	290.9	7.89	1.10
				1.0	8.45	8.22	11.31	96.6	290.9	7.38	
				2.0	8.41	8.21	11.28	96.2	291.0	7.17	
				3.0	8.32	8.20	11.25	95.7	291.1	7.02	
				4.0	8.27	8.19	11.24	95.5	291.1	7.27	
				4.5	8.01	8.17	11.22	95.0	291.2	6.90	
Z4-4	10-Oct-22	10:55	6.4	0.3	9.30	8.30	11.40	99.4	289.3	8.97	1.05
				1.0	9.29	8.29	11.38	99.2	289.3	8.71	
				2.0	9.28	8.29	11.36	99.0	289.3	8.65	
				3.0	9.28	8.29	11.35	98.9	289.2	8.84	
				4.0	9.28	8.29	11.33	98.7	289.2	8.89	
				5.0	9.28	8.29	11.31	98.6	289.1	8.87	
Z4-5	10-Oct-22	9:25	3.6	0.3	6.17	7.63	9.81	79.3	293.6	2.53	1.35
				1.0	6.10	7.63	9.74	78.5	293.6	2.43	
				1.5	6.11	7.63	9.73	78.4	293.6	2.43	
				2.0	6.15	7.63	9.77	78.8	293.7	2.48	
				2.5	6.09	7.63	9.66	77.9	293.5	2.37	
				3.0	6.04	7.61	9.57	77.0	293.6	2.30	
Z4-6	10-Oct-22	9:55	2.4	0.3	6.75	7.96	11.07	90.7	294.0	3.73	1.10
				1.0	6.77	7.96	11.07	90.7	294.1	3.74	
				1.5	6.76	7.96	11.04	90.5	294.0	3.71	
				2.0	6.77	7.95	11.01	90.3	294.0	4.38	
Z4-7	10-Oct-22	10:15	2.6	0.3	6.82	7.92	10.44	85.6	292.3	4.68	1.35
				1.0	6.80	7.92	10.43	85.6	292.3	4.40	
				1.5	6.80	7.91	10.42	85.5	292.3	4.42	
				2.0	6.80	7.91	10.42	85.5	292.3	4.37	
Z8-1	6-Oct-22	14:26	0.9	0.3	5.72	7.10	8.65	69.0	175.5	0.44	1.15
				0.5	5.71	7.11	8.71	69.6	175.4	0.38	
				0.8	5.73	7.12	8.76	69.9	175.1	0.41	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z8-2	6-Oct-22	14:39	2.5	0.3	5.83	7.43	8.35	66.8	192.1	0.44	1.75
				1.0	5.83	7.40	8.32	66.6	192.2	0.51	
				1.5	5.84	7.40	8.33	66.7	192.7	0.48	
				2.0	5.83	7.40	8.33	66.7	192.6	0.46	
				2.3	5.83	7.39	8.33	66.6	192.5	0.47	
Z8-4	6-Oct-22	15:43	6.2	0.3	9.93	8.26	10.87	96.2	305.8	7.63	1.25
				1.0	9.96	8.24	10.87	96.3	305.8	7.60	
				2.0	9.98	8.26	10.86	96.2	305.8	7.98	
				3.0	9.99	8.26	10.86	96.3	305.8	7.84	
				4.0	9.99	8.25	10.86	96.3	305.8	7.40	
				5.0	10.00	8.25	10.84	96.1	305.8	7.66	
				5.5	10.00	8.22	10.84	96.1	305.8	7.50	
Z8-5	6-Oct-22	14:50	1.9	0.3	7.32	7.74	9.77	81.2	281.4	2.48	1.55
				0.5	7.32	7.74	9.74	80.9	281.2	2.44	
				1.0	7.32	7.73	9.75	81.1	281.7	2.51	
				1.5	7.33	7.74	9.75	81.0	281.7	2.50	
Z8-6	6-Oct-22	15:09	2.6	0.3	7.92	8.12	11.10	93.6	306.3	6.00	1.15
				1.0	7.85	8.08	11.07	93.2	306.3	6.00	
				1.5	7.86	8.09	11.07	93.2	306.3	6.18	
				2.0	7.82	8.07	11.06	93.1	306.2	5.93	
Z8-7	6-Oct-22	15:22	4.1	0.3	9.39	8.22	10.90	95.3	306.1	7.12	1.05
				1.0	9.49	8.19	10.90	95.4	306.0	7.17	
				1.5	9.45	8.19	10.87	95.1	306.0	7.21	
				2.0	9.46	8.19	10.86	95.1	305.9	7.42	
				2.5	9.41	8.18	10.86	94.9	306.0	7.06	
				3.0	9.28	8.18	10.84	94.4	306.0	7.11	
				3.5	9.22	8.20	10.84	94.3	305.8	7.12	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued). Values in blue are considered suspect.

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z8-8	6-Oct-22	15:37	1.9	0.3	7.96	8.05	11.11	93.8	303.9	5.32	1.15
				1.0	7.95	8.05	11.10	93.6	303.8	5.23	
				1.5	7.93	8.06	11.10	93.6	303.6	5.20	
Z11-1	10-Oct-22	12:05	2.2	0.3	5.62	7.74	10.52	83.8	287.7	3.30	1.45
				1.0	5.58	7.74	10.49	83.4	287.1	3.33	
				1.5	5.56	7.73	10.44	83.1	287.1	3.17	
Z11-2	10-Oct-22	11:45	1.5	0.3	6.15	7.46	8.17	65.9	251.5	0.95	1.15
				0.5	6.19	7.46	8.21	66.3	251.6	1.01	
				1.0	6.17	7.46	8.17	66.1	251.4	1.58	
Z11-3	10-Oct-22	12:11	2.8	0.3	6.84	8.05	11.29	92.7	301.7	6.32	1.05
				1.0	6.84	8.04	11.28	92.7	301.7	6.29	
				1.5	6.81	8.04	11.28	92.5	301.7	6.32	
				2.0	6.78	8.04	11.25	92.2	301.7	6.28	
Z11-4	10-Oct-22	12:22	5.7	0.3	7.28	8.12	11.35	94.2	302.2	6.52	0.95
				1.0	7.22	8.12	11.29	93.6	302.2	6.75	
				2.0	7.21	8.12	11.28	93.6	302.1	6.58	
				3.0	7.18	8.11	11.27	93.1	302.0	6.63	
				4.0	7.04	8.08	11.22	92.2	301.7	6.27	
Z11-5	10-Oct-22	12:35	2.1	0.3	6.46	8.01	11.43	93.0	302.7	5.66	1.05
				0.5	6.47	8.01	11.44	93.0	302.7	5.65	
				1.0	6.46	8.02	11.43	93.0	302.7	5.77	
				1.5	6.47	8.02	11.42	92.9	302.7	5.86	
Z11-6	10-Oct-22	13:02	5.7	0.3	9.23	8.29	11.35	98.8	304.2	7.14	1.05
				1.0	9.23	8.28	11.33	98.6	304.2	7.01	
				2.0	9.21	8.28	11.32	98.5	304.1	7.11	
				3.0	9.14	8.27	11.29	98.1	304.1	6.87	
				4.0	9.08	8.27	11.27	97.8	304.1	7.22	
				5.0	9.12	8.27	11.26	97.8	304.1	26.0	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z11-8	10-Oct-22	12:45	5.1	0.3	8.27	8.21	11.32	96.3	302.6	6.91	1.10
				1.0	8.26	8.21	11.31	96.2	302.6	6.92	
				2.0	8.23	8.20	11.30	96.0	302.6	6.89	
				3.0	8.09	8.19	11.28	95.4	302.7	6.74	
				4.0	7.53	8.12	11.21	93.3	302.9	6.66	
Z11-9	10-Oct-22	12:55	2.7	0.3	9.43	8.27	11.29	98.7	304.7	6.66	1.00
				1.0	9.41	8.27	11.29	98.7	304.6	6.92	
				1.5	9.41	8.27	11.29	98.7	304.6	7.27	
				2.0	9.23	8.24	11.19	97.6	304.3	6.92	
Z11-10	10-Oct-22	11:32	2.7	0.3	5.19	7.49	9.21	72.5	224.4	0.37	1.50
				0.5	5.19	7.38	9.10	71.6	225.2	0.42	
				1.0	5.18	7.39	9.09	71.5	225.6	0.41	
Z11-11	10-Oct-22	11:50	1.9	0.3	5.59	7.64	9.51	75.7	280.1	2.24	1.30
				0.5	5.52	7.61	9.42	74.9	280.2	2.33	
				1.0	5.54	7.61	9.43	74.8	279.0	2.25	
Z12-1	9-Oct-22	13:51	2.4	0.3	7.88	8.21	11.30	95.2	305.9	7.25	1.30
				1.0	7.88	8.20	11.29	95.1	305.9	7.27	
				1.5	7.90	8.21	11.28	95.1	305.8	7.30	
Z12-2	9-Oct-22	14:23	4.4	0.3	6.69	8.07	11.40	93.3	304.8	7.20	1.10
				1.0	6.45	8.08	11.45	93.2	304.5	6.92	
				1.5	6.38	8.07	11.47	93.2	304.2	6.87	
				2.0	6.40	8.07	11.46	93.1	304.4	6.77	
				2.5	6.39	8.07	11.47	93.0	304.4	6.75	
				3.0	6.32	8.06	11.46	92.9	304.2	6.93	
Z12-3	9-Oct-22	13:42	3.3	0.3	8.26	8.31	11.40	97.0	305.8	7.37	1.60
				1.0	8.24	8.29	11.40	96.9	305.8	7.45	
				1.5	8.22	8.27	11.41	97.0	305.8	7.58	
				2.0	8.24	8.29	11.40	96.9	305.8	7.44	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z12-6	9-Oct-22	15:00	6.8	0.3	8.16	8.20	11.17	94.8	306.1	7.16	1.15
				1.0	8.19	8.20	11.14	94.6	306.2	7.26	
				2.0	8.19	8.20	11.12	94.4	306.1	6.94	
				3.0	8.15	8.19	11.12	94.3	306.2	7.37	
				4.0	8.16	8.20	11.12	94.3	306.2	7.07	
				5.0	8.17	8.20	11.10	94.2	306.2	7.16	
				6.0	8.17	8.20	11.08	94.0	306.1	7.23	
Z12-7	9-Oct-22	13:05	3.0	0.3	4.69	7.60	10.80	84.0	247.3	0.89	1.75
				1.0	4.70	7.61	10.84	84.3	247.4	0.83	
				1.5	4.71	7.61	10.85	84.4	247.5	0.77	
				2.0	4.69	7.62	10.84	84.3	247.6	0.82	
				2.5	4.70	7.62	10.83	84.2	247.7	0.83	
Z12-8	9-Oct-22	13:18	1.9	0.3	4.21	7.50	9.90	75.9	260.4	1.17	1.60
				1.0	4.18	7.49	9.86	75.7	260.1	1.15	
				1.5	4.22	7.48	9.87	75.8	260.7	1.24	
Z12-9	9-Oct-22	13:28	3.1	0.3	6.52	8.14	11.27	92.0	303.8	7.07	1.05
				1.0	6.57	8.14	11.26	91.9	303.8	7.29	
				1.5	6.58	8.13	11.25	91.8	303.8	7.30	
				2.0	6.58	8.13	11.24	91.7	303.8	7.41	
				2.5	6.58	8.12	11.23	91.6	303.8	7.02	
Z12-10	9-Oct-22	15:46	2.2	0.3	6.10	7.97	11.23	90.6	304.8	7.03	1.05
				1.5	6.14	7.95	11.23	90.6	304.9	7.27	
				2.0	6.10	7.94	11.20	90.3	304.8	7.00	
Z12-11	9-Oct-22	15:31	3.5	0.3	7.92	8.21	11.41	96.2	306.2	7.93	0.95
				1.0	7.89	8.22	11.40	96.1	306.2	7.92	
				1.5	7.80	8.21	11.40	95.8	306.3	8.04	
				2.0	7.76	8.21	11.40	95.7	306.1	8.00	
				2.5	7.75	8.21	11.39	95.6	306.4	7.95	
				3.0	7.67	8.20	11.40	95.6	306.5	8.09	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z12-12	9-Oct-22	15:18	2.3	0.3	9.12	8.29	10.99	95.4	301.2	7.42	1.10
				1.0	9.11	8.30	10.95	95.1	301.2	7.21	
				1.5	9.13	8.29	10.97	95.2	301.2	7.16	
				2.0	9.13	8.30	10.96	95.1	301.2	7.23	
Z12-13	9-Oct-22	14:37	5.1	0.3	8.19	8.24	11.22	95.2	305.5	7.65	N/A
				1.0	8.19	8.22	11.21	95.2	305.4	7.47	
				2.0	8.18	8.23	11.21	95.1	305.4	7.36	
				3.0	8.15	8.22	11.19	94.1	305.5	7.71	
				4.0	8.12	8.21	11.16	94.6	305.5	7.34	
				5.0	8.02	8.20	11.14	94.1	305.6	7.35	
Z12-14	9-Oct-22	14:05	2.8	0.3	4.44	7.97	11.79	91.1	298.6	7.35	0.95
				1.0	4.44	7.91	11.78	90.9	298.0	7.06	
				1.5	4.43	7.90	11.76	90.8	297.6	7.13	
				2.0	4.43	7.90	11.76	90.8	297.6	7.10	
Z12-15	9-Oct-22	14:00	1.1	0.3	8.78	8.31	11.40	98.2	303.9	7.28	1.10
				1.0	8.78	8.31	11.42	98.4	303.9	7.33	
Z12-16	9-Oct-22	14:11	2.9	0.3	9.12	8.29	11.33	98.4	301.6	7.50	1.10
				1.0	9.12	8.29	11.33	98.3	301.6	7.53	
				1.5	9.13	8.28	11.31	98.2	301.6	7.57	
				2.0	9.13	8.28	11.31	98.2	301.6	7.51	
Z12-17	9-Oct-22	14:50	2.1	0.3	7.50	8.16	11.37	94.9	305.3	7.53	1.05
				1.0	7.51	8.17	11.36	94.8	305.3	7.38	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022.

Site ID	Sample Date	Sample Time	Total Water Depth ¹	Sample Depth ¹	Temperature	pH	Dissolved Oxygen		Specific Conductance	Turbidity	Secchi Depth
			(m)	(m)	(°C)	(pH units)	(mg/L)	(% Saturation)	(µS/cm)	(NTU)	(m)
SPL-10	20-Mar-22	15:50	17.4	0.3	0.02	7.88	15.85	108.6	236.9	11.42	N/A
				1.0	0.03	7.87	15.86	108.6	235.1	10.34	
				2.0	0.03	7.87	15.86	108.7	233.1	11.02	
				3.0	0.02	7.87	15.83	108.4	233.7	9.29	
				4.0	0.02	7.88	15.82	108.4	234.9	9.77	
				5.0	0.02	7.88	15.83	108.4	237.6	9.32	
				6.0	0.02	7.88	15.82	108.2	238.7	10.02	
				7.0	0.02	7.88	15.80	108.2	238.9	9.58	
				8.0	0.02	7.87	15.80	108.2	240.2	9.21	
				9.0	0.02	7.89	15.79	108.2	243.7	9.47	
				10.0	0.01	7.88	15.78	108.1	243.9	9.12	
				11.0	0.01	7.88	15.77	108.0	244.1	9.86	
				12.0	0.02	7.87	15.79	108.1	245.9	9.05	
				13.0	0.01	7.88	15.76	107.9	249.1	8.91	
				14.0	0.01	7.88	15.76	107.9	249.8	8.76	
				15.0	0.01	7.88	15.75	107.8	250.1	8.69	
				16.0	0.01	7.88	15.75	107.8	252.2	9.47	
SPL-11	20-Mar-22	15:10	15.9	0.3	0.02	7.88	15.87	108.7	236.8	11.04	N/A
				1.0	0.02	7.87	15.88	108.7	236.6	12.05	
				2.0	0.02	7.87	15.88	108.7	236.3	10.81	
				3.0	0.02	7.88	15.89	108.8	236.2	11.26	
				4.0	0.02	7.88	15.89	108.8	237.3	9.96	
				5.0	0.02	7.88	15.89	108.8	238.4	10.11	
				6.0	0.02	7.87	15.88	108.7	244.2	10.49	
				7.0	0.01	7.87	15.86	108.6	250.3	9.21	
				8.0	0.01	7.87	15.84	108.5	259.2	10.01	
				9.0	0.01	7.88	15.80	108.1	262.2	9.16	
				10.0	0.01	7.87	15.78	108.1	266.4	9.76	
				11.0	0.01	7.88	15.76	107.9	269.2	8.43	
				12.0	0.01	7.88	15.73	107.7	271.4	8.29	

1. In winter, total and sample depth are recorded as effective depth, or water depth minus ice depth.

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L) (% Saturation)		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
SPL-12	20-Mar-22	12:50	3.9	13.0	0.01	7.88	15.72	107.6	273.6	8.03	
				14.0	0.01	7.88	15.71	107.6	274.1	8.01	
				15.0	0.01	7.88	15.71	107.5	274.2	8.39	
				0.3	0.02	7.86	15.78	108.1	269.0	9.85	N/A
				1.0	0.02	7.86	15.80	108.2	269.5	9.01	
				1.5	0.02	7.86	15.83	108.4	270.2	9.21	
				2.0	0.02	7.86	15.84	108.5	268.5	9.06	
SPL-13	20-Mar-22	14:15	20.5	2.5	0.02	7.86	15.85	108.5	269.0	10.11	
				3.0	0.02	7.86	15.86	108.6	268.1	9.89	
				3.5	0.02	7.86	15.86	108.6	268.4	9.86	
				0.3	0.02	7.86	15.86	108.6	237.4	10.86	N/A
				2.0	0.02	7.86	15.86	108.6	240.4	10.61	
				4.0	0.02	7.86	15.86	108.6	240.9	11.81	
				6.0	0.02	7.87	15.85	108.5	242.5	10.26	
				8.0	0.01	7.86	15.84	108.5	260.7	10.09	
				10.0	0.01	7.85	15.81	108.3	265.7	9.59	
				12.0	0.01	7.87	15.80	108.2	266.3	10.19	
SPL-14	20-Mar-22	13:40	14.5	14.0	0.01	7.87	15.79	108.1	276.6	9.08	
				16.0	0.01	7.86	15.78	108.0	275.6	8.72	
				18.0	0.01	7.87	15.76	107.9	282.4	8.49	
				20.0	0.01	7.86	15.76	107.9	282.6	8.96	
				0.3	0.01	7.87	15.68	107.3	297.7	8.97	N/A
				1.0	0.01	7.87	15.68	107.4	297.8	7.58	
				2.0	0.01	7.87	15.68	107.4	297.4	10.43	
				3.0	0.01	7.87	15.68	107.4	297.7	7.99	
				4.0	0.01	7.86	15.69	107.5	297.1	8.19	
				5.0	0.01	7.87	15.68	107.4	297.5	7.42	
				6.0	0.01	7.87	15.68	107.4	296.9	7.99	
				7.0	0.01	7.87	15.68	107.4	296.9	7.99	
				8.0	0.01	7.87	15.67	107.3	297.8	8.27	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
US-6	23-Mar-22	11:25	5.1	9.0	0.01	7.87	15.67	107.3	297.6	7.68	
				10.0	0.01	7.87	15.67	107.3	299.9	7.81	
				11.0	0.01	7.87	15.66	107.3	300.4	8.23	
				12.0	0.01	7.87	15.67	107.3	298.7	7.83	
				13.0	0.01	7.87	15.66	107.2	299.1	7.87	
				14.0	0.01	7.87	15.66	107.2	299.5	7.68	
US-7	23-Mar-22	12:35	5.7	0.3	0.00	7.88	15.47	105.9	291.4	8.18	N/A
				1.0	0.01	7.87	15.50	106.2	291.4	7.98	
				2.0	0.00	7.87	15.49	106.0	291.4	8.15	
				3.0	0.00	7.87	15.51	106.1	291.4	7.78	
				4.0	0.00	7.87	15.51	106.2	291.4	8.15	
US-8	23-Mar-22	12:00	5.1	0.3	0.00	7.88	15.57	106.6	290.6	8.56	N/A
				1.0	0.00	7.88	15.58	106.7	290.5	8.66	
				2.0	0.00	7.88	15.58	106.7	290.5	8.65	
				3.0	0.00	7.88	15.59	106.7	290.5	8.75	
				4.0	0.00	7.88	15.59	106.7	290.5	8.45	
				5.0	0.00	7.87	15.59	106.7	290.5	7.74	
US-9	23-Mar-22	13:25	5.9	0.3	0.00	7.88	15.43	105.7	291.7	7.68	N/A
				1.0	0.01	7.87	15.44	105.7	291.7	8.07	
				2.0	0.00	7.86	15.46	105.9	291.7	8.55	
				3.0	0.00	7.86	15.48	106.0	291.7	8.08	
				4.0	0.01	7.85	15.48	106.0	291.7	8.81	
US-10	23-Mar-22	13:00	5.9	0.3	0.01	7.91	15.40	105.6	290.6	8.61	N/A
				1.0	0.01	7.90	15.45	105.9	290.7	8.26	
				2.0	0.01	7.89	15.49	106.0	290.8	7.79	
				3.0	0.01	7.89	15.49	106.1	290.7	8.21	
				4.0	0.01	7.89	15.53	106.3	290.6	8.56	
				5.0	0.01	7.89	15.54	106.4	290.7	7.66	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
				2.0	0.00	7.89	15.56	106.6	290.7	8.12	
				3.0	0.00	7.88	15.57	106.6	290.7	7.77	
				4.0	0.00	7.88	15.58	106.7	290.7	8.42	
				5.0	0.00	7.88	15.58	106.7	290.7	7.78	
NF-1	27-Mar-22	11:50	17.6	0.3	0.00	7.88	15.89	108.8	285.3	8.26	N/A
				1.0	0.00	7.87	15.90	108.8	285.3	9.51	
				2.0	0.00	7.88	15.90	108.8	285.3	8.17	
				3.0	0.00	7.88	15.90	108.9	285.4	8.91	
				4.0	0.00	7.88	15.89	108.7	285.4	8.12	
				5.0	0.00	7.88	15.84	108.4	285.6	7.91	
				6.0	0.00	7.88	15.83	108.3	285.6	7.53	
				7.0	0.00	7.87	15.83	108.3	285.7	7.79	
				8.0	0.00	7.88	15.82	108.3	285.6	8.26	
				9.0	0.00	7.88	15.82	108.3	285.8	7.71	
				10.0	0.00	7.88	15.82	108.2	285.8	8.19	
				11.0	0.00	7.88	15.81	108.2	285.9	7.61	
				12.0	0.00	7.88	15.76	107.9	285.9	7.32	
				13.0	0.00	7.88	15.74	107.7	285.9	7.41	
				14.0	0.00	7.88	15.73	107.7	286.0	8.59	
				15.0	0.00	7.88	15.72	107.6	286.0	7.81	
				16.0	0.00	7.88	15.73	107.7	286.0	7.71	
				17.0	0.00	7.88	15.74	107.7	286.0	8.05	
NF-2	27-Mar-22	12:40	8.9	0.3	0.00	7.89	15.85	108.5	289.4	8.51	N/A
				1.0	0.00	7.89	15.86	108.6	289.4	9.17	
				2.0	0.00	7.88	15.87	108.6	289.4	8.85	
				3.0	0.00	7.88	15.85	108.4	289.5	8.35	
				4.0	0.00	7.88	15.82	108.3	289.5	8.45	
				5.0	0.00	7.87	15.80	108.2	289.5	7.99	
				6.0	0.00	7.88	15.79	108.1	289.5	7.73	
				7.0	0.00	7.88	15.81	108.3	289.6	7.72	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
				8.0	0.00	7.88	15.82	108.3	289.5	8.24	
NF-3	27-Mar-22	14:10	17.6	0.3	0.00	7.89	15.83	108.3	288.5	7.45	N/A
				1.0	0.00	7.89	15.84	108.4	288.5	6.96	
				2.0	0.00	7.89	15.81	108.2	288.8	7.89	
				3.0	0.00	7.89	15.82	108.3	289.0	7.31	
				4.0	0.00	7.89	15.83	108.4	289.0	7.61	
				5.0	0.00	7.89	15.81	108.2	289.1	7.46	
				6.0	0.00	7.88	15.80	108.1	288.9	6.93	
				7.0	0.00	7.89	15.78	108.0	289.0	7.25	
				8.0	0.00	7.88	15.74	107.7	289.1	8.19	
				9.0	0.00	7.88	15.72	107.6	289.3	7.64	
				10.0	0.00	7.89	15.71	107.6	289.0	7.36	
				11.0	0.00	7.89	15.72	107.6	288.8	7.64	
				12.0	0.00	7.89	15.73	107.7	289.1	7.47	
				13.0	0.00	7.89	15.74	107.8	289.0	7.48	
				14.0	0.00	7.89	15.76	107.9	289.0	7.61	
				15.0	0.00	7.89	15.78	108.1	289.1	7.51	
				16.0	0.00	7.89	15.81	108.3	289.1	7.67	
				17.0	0.00	7.89	15.83	108.4	289.0	8.28	
NF-4	27-Mar-22	13:35	4.1	0.3	0.00	7.88	15.87	108.6	289.5	7.82	N/A
				1.0	0.00	7.88	15.86	108.6	289.5	8.78	
				1.5	0.00	7.88	15.85	108.5	289.5	7.85	
				2.0	0.00	7.89	15.80	108.1	289.5	7.66	
				2.5	0.00	7.89	15.79	108.1	289.5	7.96	
				3.0	0.00	7.88	15.78	108.1	289.3	7.84	
				3.5	0.00	7.88	15.80	108.2	289.5	8.06	
NF-5	27-Mar-22	11:05	16.8	0.3	0.00	7.90	15.78	108.1	284.5	8.86	N/A
				1.0	0.00	7.90	15.78	108.0	284.5	8.41	
				2.0	0.00	7.89	15.79	108.1	285.0	8.07	
				3.0	0.00	7.89	15.79	108.1	285.0	8.20	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L) (% Saturation)		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
FF-1	28-Mar-22	8:25	21.0	4.0	0.00	7.89	15.80	108.2	285.0	8.30	
				5.0	0.00	7.88	15.80	108.1	285.2	9.54	
				6.0	0.00	7.88	15.79	108.1	285.2	8.01	
				7.0	0.00	7.88	15.75	107.9	285.1	8.92	
				8.0	0.00	7.88	15.74	107.8	285.1	7.74	
				9.0	0.00	7.88	15.74	107.7	285.0	8.72	
				10.0	0.01	7.88	15.72	107.6	285.0	9.39	
				11.0	0.01	7.88	15.73	107.7	285.1	8.49	
				12.0	0.01	7.88	15.72	107.7	285.1	7.86	
				13.0	0.00	7.88	15.73	107.7	285.1	7.56	
				14.0	0.01	7.88	15.71	107.6	284.9	7.96	
				15.0	0.01	7.88	15.70	107.5	284.8	7.75	
				16.0	0.01	7.88	15.72	107.6	284.8	7.95	
				0.3	0.02	7.86	15.40	105.5	285.0	8.11	N/A
				2.0	0.02	7.84	15.49	106.2	284.5	7.85	
				4.0	0.02	7.83	15.60	106.8	284.6	7.76	
				6.0	0.02	7.82	15.65	107.2	284.6	7.73	
FF-2	28-Mar-22	8:55	12.7	8.0	0.02	7.82	15.67	107.3	284.6	8.10	
				10.0	0.02	7.82	15.69	107.5	284.7	8.01	
				12.0	0.02	7.82	15.70	107.6	284.7	7.96	
				14.0	0.02	7.82	15.71	107.6	284.7	7.66	
				16.0	0.02	7.82	15.66	107.2	284.7	7.55	
				18.0	0.02	7.82	15.62	107.0	284.7	7.64	
				20.0	0.02	7.82	15.63	107.1	284.7	8.08	
				0.3	0.01	7.86	15.66	107.2	275.6	7.67	N/A
				1.0	0.01	7.86	15.69	107.4	276.0	8.94	
				2.0	0.01	7.86	15.70	107.6	275.6	8.04	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
				6.0	0.01	7.85	15.82	108.2	279.7	8.21	
				7.0	0.01	7.85	15.83	108.4	280.7	8.76	
				8.0	0.01	7.85	15.84	108.5	283.9	9.09	
				9.0	0.01	7.85	15.85	108.5	284.2	8.15	
				10.0	0.01	7.85	15.85	108.5	284.6	8.85	
				11.0	0.01	7.85	15.72	107.6	285.0	7.81	
				12.0	0.01	7.85	15.69	107.5	285.6	7.59	
FF-3	28-Mar-22	9:40	24.4	0.3	0.01	7.85	15.78	108.1	287.1	7.69	N/A
				2.0	0.01	7.86	15.81	108.2	287.1	8.06	
				4.0	0.01	7.86	15.78	108.0	287.1	7.64	
				6.0	0.01	7.85	15.79	108.2	287.2	7.87	
				8.0	0.01	7.85	15.92	109.0	287.5	9.39	
				10.0	0.01	7.85	15.72	107.6	287.6	8.58	
				12.0	0.01	7.85	15.69	107.5	287.7	7.81	
				14.0	0.01	7.85	15.74	107.8	287.8	7.42	
				16.0	0.01	7.85	15.79	108.1	287.9	8.13	
				18.0	0.01	7.85	15.84	108.5	287.9	8.71	
				20.0	0.01	7.85	15.86	108.6	287.9	7.76	
				22.0	0.01	7.85	15.92	109.1	287.9	8.61	
				24.0	0.01	7.85	15.98	109.5	288.0	8.79	
FF-4	28-Mar-22	10:25	11.9	0.3	0.01	7.87	15.77	108.0	286.3	7.81	N/A
				1.0	0.01	7.87	15.77	108.0	286.2	8.31	
				2.0	0.01	7.87	15.78	108.0	286.2	8.29	
				3.0	0.01	7.87	15.79	108.1	286.2	7.37	
				4.0	0.01	7.87	15.82	108.4	286.2	8.04	
				5.0	0.01	7.87	15.85	108.6	286.3	7.71	
				6.0	0.01	7.86	15.87	108.8	286.2	8.06	
				7.0	0.01	7.86	15.96	109.3	286.3	8.39	
				8.0	0.01	7.86	15.77	107.9	286.2	7.91	
				9.0	0.01	7.86	15.73	107.7	286.3	7.74	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L) (% Saturation)		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
FF-5	28-Mar-22	11:05	9.7	10.0	0.01	7.86	15.71	107.6	286.2	8.16	
				11.0	0.01	7.86	15.69	107.5	286.4	7.76	
				0.3	0.01	7.85	15.72	107.7	284.8	7.47	N/A
				1.0	0.01	7.86	15.75	107.8	284.8	8.02	
				2.0	0.01	7.86	15.76	107.9	284.8	8.04	
				3.0	0.01	7.86	15.75	107.8	284.8	7.69	
				4.0	0.01	7.86	15.72	107.6	284.8	7.52	
				5.0	0.01	7.86	15.71	107.5	284.8	8.40	
				6.0	0.01	7.86	15.68	107.4	284.9	8.26	
				7.0	0.01	7.86	15.68	107.4	284.8	8.85	
CL-1	26-Jun-22	8:15	11.7	8.0	0.01	7.86	15.68	107.4	284.9	8.38	
				9.0	0.01	7.86	15.69	107.5	284.9	8.22	
				0.3	15.99	7.95	9.64	97.7	292.8	10.33	0.55
				1.0	15.98	7.95	9.63	97.6	294.0	10.41	
				2.0	15.98	7.98	9.63	97.6	294.1	10.38	
				3.0	15.98	7.99	9.63	97.6	295.0	10.12	
				4.0	15.98	7.99	9.63	97.6	295.0	9.99	
				5.0	15.98	7.99	9.63	97.6	294.7	10.06	
				6.0	15.97	8.00	9.63	97.6	295.3	10.31	
				7.0	15.98	8.00	9.63	97.6	294.7	10.43	
				8.0	15.98	8.00	9.63	97.6	294.2	10.59	
CL-2	26-Jun-22	8:35	13.7	9.0	15.98	8.00	9.63	97.6	293.8	10.75	
				10.0	15.98	8.02	9.63	97.6	294.1	10.51	
				11.0	15.98	8.03	9.63	97.6	293.1	10.71	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
CL-3	26-Jun-22	8:55	9.4	6.0	16.00	8.00	9.63	97.6	291.2	11.18	
				7.0	16.00	8.00	9.63	97.6	291.6	10.97	
				8.0	16.00	8.00	9.63	97.6	291.4	11.14	
				9.0	16.00	8.00	9.63	97.6	291.8	10.87	
				10.0	16.00	8.00	9.63	97.6	292.1	11.43	
				11.0	16.00	7.99	9.63	97.6	291.7	11.96	
				12.0	16.00	8.00	9.62	97.6	291.4	12.03	
CL-3	26-Jun-22	9:10	8.1	0.3	15.99	7.95	9.64	97.8	293.2	10.27	0.60
				1.0	15.99	7.94	9.64	97.7	293.3	10.46	
				2.0	15.99	7.97	9.64	97.7	292.7	10.38	
				3.0	15.99	7.97	9.64	97.7	292.6	10.19	
				4.0	15.99	7.98	9.64	97.7	292.7	10.63	
				5.0	15.99	7.98	9.64	97.7	292.8	10.71	
				6.0	15.99	7.99	9.64	97.7	292.7	10.87	
				7.0	15.99	8.00	9.64	97.7	292.7	10.99	
				8.0	15.99	8.00	9.63	97.6	292.7	12.07	
CL-4	26-Jun-22	9:20	9.2	0.3	16.00	7.98	9.54	96.7	278.0	12.38	0.60
				1.0	15.99	7.99	9.52	96.5	277.0	12.14	
				2.0	15.99	7.98	9.51	96.3	276.2	12.02	
				3.0	15.97	7.98	9.49	96.2	275.9	12.69	
				4.0	15.98	7.97	9.47	95.9	273.7	11.68	
				5.0	15.90	7.97	9.42	95.2	271.2	12.11	
				6.0	15.88	7.96	9.39	94.9	269.2	12.71	
				7.0	15.89	7.95	9.39	94.9	269.4	11.59	
				8.0	15.89	7.95	9.39	94.9	269.4	11.59	
CL-5	26-Jun-22	9:20	9.2	0.3	16.04	7.95	9.56	97.0	281.9	11.71	0.55
				1.0	16.03	7.95	9.57	97.1	282.4	11.97	
				2.0	16.01	7.96	9.58	97.2	283.1	12.05	
				3.0	16.02	7.98	9.57	97.1	282.0	12.44	
				4.0	16.01	7.99	9.59	97.2	283.8	11.96	
				5.0	16.01	7.99	9.58	97.2	283.2	11.75	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
US-1	26-Jun-22	14:05	12.0	6.0	16.01	7.99	9.58	97.2	283.7	11.72	
				7.0	16.02	7.98	9.58	97.1	283.5	12.09	
				8.0	16.01	7.98	9.60	97.3	284.4	13.46	
				0.3	16.18	7.92	9.54	97.1	292.9	10.42	0.65
				1.0	16.13	7.92	9.54	97.0	292.6	10.71	
				2.0	16.10	7.92	9.53	96.8	291.7	10.69	
				3.0	16.10	7.93	9.52	96.7	291.3	10.48	
				4.0	16.10	7.94	9.52	96.7	291.0	10.31	
				5.0	16.10	7.95	9.52	96.8	291.6	10.56	
				6.0	16.10	7.95	9.53	96.8	291.6	10.25	
				7.0	16.10	7.96	9.52	96.7	291.5	10.43	
				8.0	16.10	7.96	9.52	96.7	291.6	10.48	
US-2	26-Jun-22	14:20	11.9	9.0	16.10	7.96	9.52	96.7	291.9	11.01	
				10.0	16.10	7.96	9.53	96.8	291.9	10.41	
				11.0	16.10	7.96	9.53	96.8	292.0	10.50	
				0.3	16.18	7.89	9.54	97.1	292.0	10.42	0.60
				1.0	16.15	7.88	9.54	97.1	292.5	10.96	
				2.0	16.15	7.90	9.54	97.1	292.3	11.15	
				3.0	16.15	7.92	9.54	97.1	292.4	10.51	
				4.0	16.14	7.93	9.54	97.1	292.2	10.49	
				5.0	16.14	7.93	9.54	97.0	292.0	10.51	
				6.0	16.14	7.94	9.54	97.0	292.0	10.63	
				7.0	16.14	7.95	9.53	96.9	291.9	10.54	
				8.0	16.14	7.94	9.54	97.0	292.0	10.54	
US-3	26-Jun-22	15:10	14.1	9.0	16.14	7.95	9.54	97.0	292.0	10.82	
				10.0	16.14	7.95	9.53	97.0	292.1	10.79	
				11.0	16.14	7.95	9.53	97.0	292.2	10.91	
				0.3	16.26	7.95	9.54	97.2	291.0	9.80	0.65
				1.0	16.13	7.94	9.54	97.0	290.4	10.63	
				2.0	16.10	7.92	9.53	96.8	290.5	10.81	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L) (% Saturation)		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)	
							(mg/L)	(% Saturation)				
US-4	26-Jun-22	14:40	15.1	3.0	16.11	7.93	9.53	96.8	290.4	10.71		
				4.0	16.10	7.92	9.52	96.8	290.5	10.77		
				5.0	16.10	7.92	9.53	96.8	290.5	10.71		
				6.0	16.09	7.93	9.52	96.7	290.5	10.24		
				7.0	16.09	7.93	9.52	96.7	290.5	10.41		
				8.0	16.09	7.94	9.52	96.7	290.5	10.47		
				9.0	16.09	7.94	9.52	96.7	290.5	10.44		
				10.0	16.09	7.94	9.52	96.7	290.5	10.59		
				11.0	16.09	7.94	9.51	96.6	290.5	10.55		
				12.0	16.09	7.94	9.51	96.6	290.5	10.47		
				13.0	16.10	7.94	9.51	96.6	290.6	10.49		
				US-4	0.3	16.10	7.90	9.51	96.6	289.9	10.47	N/A
					1.0	16.09	7.91	9.51	96.6	290.0	10.51	
					2.0	16.07	7.91	9.51	96.5	290.0	10.57	
					3.0	16.07	7.93	9.50	96.5	290.0	10.46	
					4.0	16.06	7.93	9.50	96.5	290.0	10.36	
					5.0	16.07	7.92	9.50	96.5	290.0	10.09	
					6.0	16.06	7.92	9.50	96.4	290.0	10.21	
					7.0	16.06	7.92	9.50	96.5	290.1	10.47	
					8.0	16.06	7.94	9.50	96.4	290.1	10.68	
					9.0	16.06	7.93	9.50	96.4	290.1	10.43	
					10.0	16.05	7.94	9.50	96.4	290.1	10.77	
					11.0	16.06	7.93	9.50	96.4	290.1	10.39	
					12.0	16.05	7.93	9.50	96.4	290.1	10.76	
					13.0	16.05	7.92	9.50	96.4	290.0	11.04	
					14.0	16.05	7.93	9.49	96.3	290.0	11.21	
US-5	26-Jun-22	15:30	13.9	0.3	16.21	7.92	9.55	97.3	292.2	10.62	0.65	
				1.0	16.21	7.92	9.55	97.2	292.3	10.65		
				2.0	16.19	7.92	9.54	97.1	292.1	11.11		
				3.0	16.18	7.92	9.54	97.2	292.2	11.16		

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L) (% Saturation)		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
				4.0	16.20	7.93	9.54	97.2	292.7	10.82	
				5.0	16.19	7.94	9.54	97.1	292.4	10.51	
				6.0	16.20	7.94	9.54	97.1	292.5	10.66	
				7.0	16.19	7.94	9.54	97.1	292.4	10.40	
				8.0	16.18	7.95	9.54	97.1	292.3	10.92	
				9.0	16.18	7.95	9.54	97.1	292.2	10.95	
				10.0	16.18	7.95	9.54	97.1	292.1	10.42	
				11.0	16.18	7.93	9.53	97.0	292.1	10.65	
				12.0	16.18	7.93	9.53	97.0	291.7	10.62	
				13.0	16.18	7.93	9.53	97.0	291.8	11.25	
NF-1	24-Jun-22	9:50	19.3	0.3	15.80	7.91	9.81	99.0	287.5	9.89	0.60
				1.0	15.76	7.91	9.81	98.9	287.6	10.01	
				2.0	15.70	7.91	9.85	99.2	287.5	10.24	
				3.0	15.69	7.91	9.87	99.4	287.5	10.46	
				4.0	15.68	7.90	9.85	99.2	287.5	10.31	
				5.0	15.68	7.90	9.90	99.7	287.5	10.65	
				6.0	15.67	7.91	9.86	99.3	287.5	10.27	
				7.0	15.67	7.90	9.83	99.0	287.6	10.41	
				8.0	15.65	7.91	9.81	98.7	287.6	11.06	
				9.0	15.65	7.90	9.80	98.7	287.6	11.12	
				10.0	15.63	7.90	9.79	98.6	287.5	10.54	
				11.0	15.60	7.90	9.72	97.8	287.6	10.67	
				12.0	15.60	7.89	9.71	97.6	287.5	10.95	
				13.0	15.60	7.89	9.68	97.5	287.6	10.62	
				14.0	15.57	7.90	9.67	97.1	287.5	10.41	
				15.0	15.54	7.89	9.64	96.8	287.5	10.36	
				16.0	15.54	7.90	9.63	96.7	287.5	10.38	
				17.0	15.53	7.90	9.62	96.5	287.5	10.17	
				18.0	15.52	7.90	9.61	96.5	287.5	10.18	
NF-2	24-Jun-22	10:25	11.7	0.3	15.88	7.90	10.42	105.6	288.0	9.96	0.55

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L) (% Saturation)		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
NF-3	24-Jun-22	9:20	19.4	1.0	15.87	7.91	10.44	105.5	288.0	10.23	
				2.0	15.71	7.91	10.43	105.1	287.9	11.49	
				3.0	15.66	7.91	10.42	104.9	288.0	10.13	
				4.0	15.65	7.91	10.42	104.9	287.9	10.05	
				5.0	15.65	7.91	10.42	104.8	288.0	10.16	
				6.0	15.65	7.91	10.41	104.8	288.0	9.20	
				7.0	15.65	7.91	10.41	104.8	288.0	10.71	
				8.0	15.65	7.91	10.41	104.8	288.0	10.08	
				9.0	15.66	7.91	10.41	104.8	288.0	10.26	
				10.0	15.65	7.92	10.41	104.8	288.0	10.23	
				11.0	15.65	7.92	10.41	104.7	288.0	10.99	
NF-3	24-Jun-22	9:20	19.4	0.3	15.82	7.90	9.93	100.7	287.7	9.92	0.50
				1.0	15.78	7.90	9.93	100.6	287.7	10.09	
				2.0	15.72	7.90	9.92	100.0	287.5	10.88	
				3.0	15.70	7.90	9.86	99.4	287.5	10.31	
				4.0	15.68	7.90	9.93	100.1	287.5	10.30	
				5.0	15.69	7.90	9.92	99.9	287.5	10.55	
				6.0	15.69	7.90	9.94	100.3	287.6	10.60	
				7.0	15.68	7.90	9.95	99.9	287.6	11.06	
				8.0	15.69	7.90	9.90	99.7	287.6	10.51	
				9.0	15.68	7.90	9.90	99.7	287.6	10.43	
				10.0	15.69	7.89	9.91	99.8	287.6	10.49	
				11.0	15.69	7.90	9.92	100.0	287.6	10.62	
				12.0	15.68	7.90	9.94	100.4	287.6	10.65	
				13.0	15.69	7.90	9.99	100.6	287.7	11.33	
				14.0	15.69	7.90	10.01	100.9	287.6	10.57	
				15.0	15.69	7.90	10.02	100.9	287.6	10.49	
				16.0	15.69	7.90	10.01	100.8	287.6	10.91	
				17.0	15.68	7.90	10.02	100.9	287.5	11.71	
				18.0	15.69	7.90	10.03	101.0	287.6	11.54	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
NF-4	24-Jun-22	10:50	6.4	19.0	15.69	7.90	10.04	101.1	287.6	12.02	
				0.3	15.75	7.96	10.42	105.2	288.1	10.19	0.45
				1.0	15.74	7.96	10.42	105.1	288.1	11.05	
				2.0	15.71	7.96	10.42	105.1	288.1	11.25	
				3.0	15.70	7.96	10.41	104.9	288.1	11.41	
				4.0	15.68	7.96	10.40	104.8	288.2	10.54	
				5.0	15.68	7.96	10.40	104.7	288.1	10.67	
NF-5	24-Jun-22	8:45	19.8	6.0	15.65	7.96	10.38	104.5	288.2	10.11	
				0.3	15.70	7.78	9.75	98.2	287.7	10.34	0.45
				1.0	15.63	7.77	9.72	97.8	287.7	10.36	
				2.0	15.63	7.77	9.72	97.8	287.7	11.27	
				3.0	15.65	7.77	9.72	97.8	287.6	10.58	
				4.0	15.65	7.78	9.71	97.7	287.7	10.45	
				5.0	15.65	7.78	9.70	97.5	287.7	10.43	
				6.0	15.64	7.79	9.70	97.5	287.6	10.96	
				7.0	15.62	7.80	9.69	97.5	287.7	10.74	
				8.0	15.62	7.81	9.69	97.4	287.7	10.69	
				9.0	15.62	7.82	9.68	97.4	287.7	10.58	
				10.0	15.62	7.82	9.69	97.5	287.6	10.65	
				11.0	15.62	7.82	9.69	97.4	287.6	10.53	
				12.0	15.61	7.83	9.67	97.2	287.7	10.61	
				13.0	15.61	7.84	9.66	97.1	287.6	10.81	
				14.0	15.61	7.84	9.65	97.0	287.7	10.38	
				15.0	15.61	7.84	9.64	96.9	287.7	10.61	
				16.0	15.61	7.85	9.64	96.9	287.7	10.56	
				17.0	15.61	7.85	9.65	97.0	287.8	10.53	
				18.0	15.61	7.85	9.65	97.0	287.7	10.59	
FF-1	24-Jun-22	11:35	21.4	0.3	15.74	7.96	9.77	98.3	285.5	8.62	0.65
				2.0	15.70	7.96	9.75	98.1	285.5	8.16	
				4.0	15.45	7.95	9.72	97.0	285.4	8.17	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L) (% Saturation)		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
FF-2	24-Jun-22	12:45	15.6	6.0	15.26	7.94	9.70	96.8	285.2	8.26	
				8.0	15.26	7.94	9.69	96.7	285.3	8.69	
				10.0	15.24	7.94	9.69	96.6	285.3	8.18	
				12.0	15.24	7.94	9.68	96.6	285.3	8.26	
				14.0	15.24	7.93	9.68	96.6	285.3	8.51	
				16.0	15.24	7.93	9.68	96.6	285.3	8.67	
				18.0	15.25	7.92	9.67	96.5	285.4	8.48	
				20.0	15.25	7.91	9.67	96.5	285.5	8.71	
				0.3	16.99	8.00	9.99	103.4	287.1	8.76	0.65
				1.0	16.40	8.00	10.01	102.4	286.9	8.81	
FF-3	24-Jun-22	13:15	26.3	2.0	15.49	7.96	9.87	98.9	286.3	9.01	
				3.0	15.44	7.94	9.84	98.5	286.2	9.21	
				4.0	15.43	7.95	9.82	98.4	286.2	9.19	
				5.0	15.42	7.94	9.83	98.4	286.2	9.59	
				6.0	15.41	7.94	9.82	98.4	286.3	9.26	
				7.0	15.42	7.94	9.82	98.2	286.3	9.18	
				8.0	15.42	7.94	9.82	98.4	286.3	9.16	
				9.0	15.42	7.93	9.82	98.3	286.3	9.32	
				10.0	15.42	7.93	9.82	98.3	286.3	9.06	
				11.0	15.41	7.93	9.82	98.3	286.3	9.17	
				12.0	15.41	7.93	9.82	98.3	286.3	9.06	
				13.0	15.41	7.93	9.82	98.3	286.3	9.36	
				14.0	15.41	7.94	9.81	98.2	286.4	9.21	
				15.0	15.41	7.93	9.80	98.1	286.4	9.23	
				0.3	16.58	7.99	10.05	103.2	287.1	9.17	0.65
				2.0	15.59	7.97	9.99	100.4	286.9	9.46	
				4.0	15.55	7.94	9.95	100.0	286.5	9.37	
				6.0	15.43	7.93	9.91	99.3	286.5	9.35	
				8.0	15.40	7.93	9.91	99.2	286.5	9.64	
				10.0	15.40	7.93	9.92	99.2	286.6	9.81	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L) (% Saturation)		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
FF-4	24-Jun-22	13:40	13.7	12.0	15.35	7.94	9.93	99.3	286.7	9.11	
				14.0	15.35	7.94	9.93	99.3	286.7	9.15	
				16.0	15.35	7.94	9.93	99.3	286.7	9.27	
				18.0	15.35	7.93	9.93	99.3	286.8	9.15	
				20.0	15.35	7.93	9.92	99.2	286.7	9.41	
				22.0	15.35	7.93	9.92	99.2	286.7	9.15	
				24.0	15.35	7.93	9.92	99.2	286.7	9.45	
				26.0	15.35	7.93	9.92	99.2	286.8	9.56	
FF-4	24-Jun-22	12:05	12.1	0.3	17.18	7.99	10.02	104.1	287.2	8.76	0.60
				1.0	16.98	8.00	10.03	104.0	287.1	9.02	
				2.0	15.99	7.98	9.97	100.3	286.6	9.94	
				3.0	15.50	7.97	9.91	99.4	286.4	9.95	
				4.0	15.49	7.96	9.90	99.2	286.5	9.46	
				5.0	15.47	7.96	9.89	99.1	286.4	9.67	
				6.0	15.47	7.95	9.88	99.1	286.4	9.35	
				7.0	15.47	7.94	9.88	99.1	286.4	9.44	
				8.0	15.47	7.93	9.88	99.0	286.4	9.33	
				9.0	15.46	7.93	9.88	99.0	286.4	9.42	
				10.0	15.46	7.92	9.87	98.9	286.4	9.33	
				11.0	15.45	7.92	9.87	98.9	286.4	9.52	
				12.0	15.45	7.92	9.87	98.9	286.5	9.51	
				13.0	15.44	7.92	9.87	98.8	286.5	9.75	
FF-5	24-Jun-22	12:05	12.1	0.3	16.60	7.95	9.81	98.5	286.4	8.57	0.60
				1.0	16.10	7.95	9.79	98.0	286.2	8.69	
				2.0	15.42	7.95	9.77	97.8	285.6	9.01	
				3.0	15.38	7.94	9.74	97.4	285.5	9.07	
				4.0	15.35	7.92	9.72	97.2	285.5	10.25	
				5.0	15.35	7.93	9.72	97.1	285.5	9.03	
				6.0	15.34	7.93	9.71	97.1	285.5	9.16	
				7.0	15.34	7.93	9.71	97.1	285.5	10.35	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
CL-1	26-Jul-22	10:13	11.9	8.0	15.34	7.93	9.71	97.1	285.6	9.09	
				9.0	15.33	7.93	9.71	97.0	285.6	9.61	
				10.0	15.33	7.93	9.70	97.0	285.6	9.02	
				0.3	19.66	7.80	8.97	98.1	305.8	8.10	0.85
				1.0	19.66	7.81	8.98	98.1	305.6	7.73	
				2.0	19.66	7.82	8.97	98.0	304.5	8.00	
				3.0	19.65	7.82	8.97	98.1	306.0	8.18	
				4.0	19.65	7.83	8.96	98.0	305.1	7.89	
				5.0	19.65	7.83	8.96	97.9	304.8	8.15	
				6.0	19.66	7.83	8.96	97.9	304.1	7.94	
CL-2	26-Jul-22	9:51	14.1	7.0	19.66	7.84	8.96	97.9	303.9	7.90	
				8.0	19.65	7.84	8.96	98.0	304.2	8.24	
				9.0	19.65	7.84	8.96	98.0	305.2	8.22	
				10.0	19.66	7.85	8.96	98.0	305.2	8.77	
				0.3	19.65	7.84	8.97	98.0	304.4	7.81	1.05
				1.0	19.65	7.83	8.96	97.9	303.2	7.69	
				2.0	19.65	7.83	8.96	98.0	303.6	7.57	
				3.0	19.65	7.84	8.96	97.9	303.1	7.88	
				4.0	19.65	7.84	8.96	98.0	303.9	7.78	
				5.0	19.65	7.84	8.96	97.8	302.6	8.00	
				6.0	19.64	7.84	8.94	97.7	300.5	7.94	
CL-3	26-Jul-22	10:30	10.6	7.0	19.65	7.85	8.94	97.8	301.9	7.94	
				8.0	19.65	7.85	8.94	97.8	302.0	7.68	
				9.0	19.65	7.85	8.95	97.8	303.1	8.06	
				10.0	19.65	7.85	8.95	97.8	302.9	7.73	
				11.0	19.65	7.85	8.95	97.8	303.3	7.92	
				12.0	19.65	7.85	8.95	97.8	303.7	7.64	
				0.3	19.69	7.86	8.98	98.2	305.3	7.26	0.95
				1.0	19.69	7.86	8.99	98.3	306.4	7.37	
				2.0	19.67	7.87	8.98	98.3	306.7	7.59	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
CL-4	26-Jul-22	9:34	8.8	3.0	19.68	7.87	8.99	98.3	308.3	7.57	
				4.0	19.67	7.87	8.98	98.2	308.0	7.64	
				5.0	19.67	7.87	8.98	98.2	308.0	7.49	
				6.0	19.66	7.88	8.98	98.1	308.8	7.76	
				7.0	19.66	7.88	8.98	98.2	308.7	7.67	
				8.0	19.66	7.87	8.97	98.1	308.8	7.60	
				9.0	19.65	7.88	8.97	98.0	308.9	9.11	
				0.3	19.62	7.82	8.91	97.4	298.5	8.20	1.15
				1.0	19.62	7.82	8.91	97.3	297.9	8.57	
CL-5	26-Jul-22	9:15	8.9	2.0	19.62	7.83	8.90	97.3	298.0	5.22	
				3.0	19.62	7.83	8.91	97.3	298.5	8.29	
				4.0	19.63	7.83	8.91	97.4	299.1	8.20	
				5.0	19.63	7.83	8.91	97.4	299.3	8.08	
				6.0	19.62	7.83	8.91	97.2	298.8	8.43	
				7.0	19.62	7.83	8.90	97.2	297.7	8.54	
				8.0	19.62	7.84	8.90	97.2	296.8	8.29	
				0.3	19.50	7.78	8.82	96.0	288.0	8.54	0.75
				1.0	19.52	7.79	8.82	96.2	288.3	9.04	
US-1	27-Jul-22	10:25	11.5	2.0	19.47	7.80	8.80	95.8	287.1	8.77	
				3.0	19.51	7.80	8.81	96.0	288.1	8.84	
				4.0	19.54	7.80	8.83	96.3	289.5	8.99	
				5.0	19.54	7.80	8.83	96.4	289.7	9.00	
				6.0	19.58	7.80	8.85	96.6	291.5	9.09	
				7.0	19.59	7.81	8.85	96.6	291.8	8.89	
				8.0	19.59	7.81	8.86	96.7	292.3	9.05	
				0.3	19.35	7.96	8.88	96.5	305.5	7.76	1.15
				1.0	19.36	7.96	8.87	96.4	305.4	7.58	
				2.0	19.36	7.96	8.87	96.4	305.4	7.94	
				3.0	19.36	7.96	8.87	96.4	305.6	7.99	
				4.0	19.36	7.96	8.87	96.5	305.9	7.72	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
US-2	27-Jul-22	10:10	11.7	5.0	19.37	7.96	8.87	96.4	305.9	7.71	
				6.0	19.37	7.96	8.87	96.4	306.0	7.81	
				7.0	19.37	7.96	8.87	96.4	306.0	7.88	
				8.0	19.37	7.95	8.87	96.4	305.9	8.02	
				9.0	19.36	7.95	8.87	96.4	306.0	7.97	
				10.0	19.37	7.95	8.87	96.4	306.1	7.93	
				11.0	19.36	7.95	8.87	96.4	306.1	7.68	
				0.3	19.30	7.96	8.83	95.8	304.3	7.34	1.05
				1.0	19.31	7.97	8.83	95.9	304.3	7.71	
				2.0	19.33	7.97	8.84	96.1	304.5	7.82	
US-3	27-Jul-22	9:30	13.9	3.0	19.35	7.97	8.85	96.2	304.7	8.13	
				4.0	19.35	7.97	8.85	96.2	304.8	8.05	
				5.0	19.36	7.97	8.86	96.3	305.0	8.15	
				6.0	19.36	7.97	8.86	96.3	305.0	8.11	
				7.0	19.36	7.97	8.86	96.3	305.0	8.07	
				8.0	19.36	7.97	8.86	96.2	304.9	8.05	
				9.0	19.36	7.97	8.86	96.3	304.9	7.85	
				10.0	19.36	7.97	8.85	96.2	304.8	8.01	
				0.3	19.29	7.98	8.81	95.6	304.4	7.27	1.10
				1.0	19.30	7.99	8.81	95.6	304.4	7.89	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
US-4	27-Jul-22	9:46	17.0	12.0	19.31	7.97	8.79	95.4	304.4	7.65	
				12.5	19.31	7.97	8.79	95.4	304.4	7.66	
				0.3	19.33	7.97	8.82	95.8	304.5	7.51	1.10
				1.0	19.33	7.97	8.82	95.8	304.5	7.88	
				2.0	19.33	7.97	8.82	95.9	304.5	7.89	
				3.0	19.33	7.97	8.82	95.8	304.6	7.78	
				4.0	19.33	7.97	8.82	95.8	304.5	7.80	
				5.0	19.33	7.98	8.82	95.8	304.6	7.91	
				6.0	19.34	7.98	8.82	95.8	304.5	7.92	
				7.0	19.34	7.97	8.82	95.8	304.5	7.77	
				8.0	19.34	7.97	8.81	95.7	304.6	7.71	
				9.0	19.34	7.97	8.81	95.7	304.6	7.46	
				10.0	19.34	7.97	8.81	95.7	304.6	7.81	
				11.0	19.33	7.96	8.81	95.7	304.6	7.75	
				12.0	19.33	7.97	8.81	95.7	304.6	7.60	
				13.0	19.32	7.96	8.80	95.5	304.5	7.75	
				14.0	19.32	7.96	8.80	95.6	304.6	7.65	
				15.0	19.33	7.96	8.80	95.5	304.5	7.74	
				16.0	19.33	7.97	8.80	95.5	304.5	7.81	
				16.5	19.33	7.97	8.80	95.5	304.6	7.67	
US-5	27-Jul-22	9:00	14.5	0.3	19.36	7.98	8.87	96.4	304.9	7.53	1.05
				1.0	19.33	7.98	8.85	96.2	304.6	7.99	
				2.0	19.33	7.99	8.84	96.0	304.5	7.73	
				3.0	19.34	7.99	8.84	96.0	304.6	7.82	
				4.0	19.31	7.99	8.83	95.9	304.3	7.93	
				5.0	19.31	7.99	8.83	95.9	304.4	7.92	
				6.0	19.32	7.99	8.83	95.9	304.5	7.65	
				7.0	19.32	7.99	8.83	95.9	304.5	7.92	
				8.0	19.34	8.00	8.84	96.0	304.7	7.94	
				9.0	19.56	8.00	8.84	96.1	304.7	8.12	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L) (% Saturation)		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
				10.0	19.36	8.00	8.85	96.1	304.7	8.20	
				11.0	19.36	8.00	8.84	96.1	304.7	7.93	
				12.0	19.35	8.00	8.84	96.0	304.7	7.80	
				13.0	19.35	8.00	8.83	96.0	304.7	8.32	
				13.5	19.34	8.00	8.83	95.9	304.6	8.19	
NF-1	25-Jul-22	12:05	19.3	0.3	19.43	7.93	9.12	99.2	306.6	8.13	0.90
				1.0	19.43	7.94	9.12	99.2	306.6	7.96	
				2.0	19.42	7.94	9.12	99.2	306.7	8.22	
				3.0	19.42	7.95	9.11	99.2	306.7	8.10	
				4.0	19.42	7.95	9.12	99.3	307.7	8.06	
				5.0	19.39	7.95	9.24	100.9	307.0	8.17	
				6.0	19.38	7.95	9.34	101.6	307.0	8.18	
				7.0	19.39	7.95	9.30	101.1	306.9	8.18	
				8.0	19.39	7.95	9.30	101.1	307.0	8.12	
				9.0	19.39	7.96	9.31	101.3	307.0	8.20	
				10.0	19.38	7.95	9.36	101.9	307.1	8.25	
				11.0	19.38	7.96	9.41	102.3	307.1	8.31	
				12.0	19.38	7.96	9.40	102.2	307.1	8.22	
				13.0	19.38	7.96	9.38	102.0	307.1	8.32	
				14.0	19.38	7.96	9.41	102.3	307.1	8.10	
				15.0	19.38	7.96	9.41	102.3	307.2	8.17	
				16.0	19.38	7.96	9.43	102.6	307.2	8.36	
				17.0	19.38	7.95	9.45	102.7	307.2	8.42	
				18.0	19.38	7.95	9.45	102.8	307.2	8.70	
NF-2	25-Jul-22	12:45	11.6	0.3	19.47	7.96	9.74	106.0	307.5	7.89	0.95
				1.0	19.47	7.97	9.74	106.0	307.5	7.96	
				2.0	19.45	7.97	9.75	106.1	307.5	7.90	
				3.0	19.42	7.98	9.75	106.1	307.5	7.89	
				4.0	19.40	7.98	9.75	106.0	307.5	7.94	
				5.0	19.37	7.98	9.74	105.9	307.4	8.15	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth ¹	Sample Depth ¹	Temperature (°C)	pH (pH units)	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
NF-3	25-Jul-22	12:20	19.4	6.0	19.37	7.98	9.75	105.9	307.4	7.97	
				7.0	19.37	7.97	9.74	105.9	307.5	7.84	
				8.0	19.37	7.98	9.75	105.9	307.5	7.86	
				9.0	19.37	7.98	9.74	105.9	307.5	7.96	
				10.0	19.37	7.97	9.74	105.9	307.5	7.94	
NF-3	25-Jul-22	13:00	6.2	0.3	19.41	7.99	9.33	101.5	307.0	8.37	0.85
				1.0	19.41	7.97	9.31	101.3	307.0	7.83	
				2.0	19.41	7.97	9.31	101.2	307.0	8.03	
				3.0	19.42	7.96	9.30	101.2	307.0	8.07	
				4.0	19.40	7.96	9.33	101.6	307.1	8.23	
				5.0	19.40	7.96	9.35	101.6	307.1	8.18	
				6.0	19.39	7.96	9.38	102.1	307.1	7.98	
				7.0	19.39	7.96	9.40	102.3	307.2	7.94	
				8.0	19.39	7.96	9.43	102.6	307.2	8.04	
				9.0	19.40	7.96	9.44	102.7	307.2	7.97	
				10.0	19.39	7.96	9.42	102.5	307.2	8.09	
				11.0	19.40	7.96	9.44	102.7	307.3	8.14	
				12.0	19.40	7.96	9.45	102.8	307.3	8.27	
				13.0	19.40	7.97	9.43	102.6	307.2	8.17	
				14.0	19.40	7.97	9.44	102.7	307.3	8.20	
				15.0	19.40	7.96	9.45	102.8	307.3	8.26	
				16.0	19.40	7.95	9.46	102.8	307.3	8.78	
				17.0	19.39	7.95	9.46	102.9	307.4	9.27	
				18.0	19.39	7.95	9.46	102.8	307.3	N/A	
NF-4	25-Jul-22	13:00	6.2	0.3	19.49	8.02	9.73	106.0	307.2	7.86	0.90
				1.0	19.50	8.02	9.72	106.0	307.3	7.89	
				2.0	19.46	8.00	9.72	105.8	307.3	7.87	
				3.0	19.46	8.00	9.72	105.8	307.3	7.91	
				4.0	19.43	7.99	9.71	105.7	307.3	7.97	
				5.0	19.43	7.98	9.71	105.7	307.3	7.87	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L) (% Saturation)		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
NF-5	25-Jul-22	11:35	18.3	5.5	19.43	7.99	9.70	105.6	307.3	7.98	
				0.3	19.47	7.99	9.42	102.6	306.9	8.48	0.55
				1.0	19.46	7.99	9.40	102.4	306.9	8.40	
				2.0	19.42	7.98	9.41	102.4	306.9	8.30	
				3.0	19.42	7.97	9.39	102.1	306.9	9.03	
				4.0	19.42	7.96	9.41	102.3	306.9	8.52	
				5.0	19.42	7.96	9.38	102.1	307.0	8.43	
				6.0	19.42	7.95	9.38	102.0	307.0	8.58	
				7.0	19.41	7.96	9.30	101.1	306.8	8.73	
				8.0	19.40	7.95	9.22	100.2	306.8	8.72	
				9.0	19.40	7.96	9.20	99.9	306.8	8.71	
				10.0	19.39	7.96	9.22	100.3	306.9	8.75	
				11.0	19.39	7.95	9.20	100.0	306.8	8.86	
				12.0	19.39	7.95	9.18	99.8	306.8	8.82	
				13.0	19.39	7.95	9.14	99.4	306.7	8.80	
				14.0	19.38	7.96	9.12	99.1	306.8	9.03	
				15.0	19.39	7.95	9.10	99.0	306.7	8.91	
				16.0	19.38	7.95	9.09	98.8	306.7	8.81	
				17.0	19.38	7.95	9.07	98.5	306.7	8.69	
FF-1	25-Jul-22	10:45	23.5	0.3	19.18	7.96	8.78	95.1	302.0	6.78	0.65
				2.0	19.18	7.97	8.78	95.0	302.0	7.00	
				4.0	19.16	7.97	8.77	94.9	302.1	6.94	
				6.0	19.16	7.97	8.76	94.8	302.1	6.95	
				8.0	19.15	7.97	8.77	94.9	302.3	6.96	
				10.0	19.15	7.97	8.76	94.8	302.3	7.16	
				12.0	19.14	7.97	8.77	94.9	302.4	6.93	
				14.0	19.14	7.96	8.77	94.9	302.4	6.95	
				16.0	19.13	7.96	8.78	94.9	302.6	7.03	
				18.0	19.13	7.96	8.78	95.0	302.6	7.01	
				20.0	19.13	7.96	8.78	95.0	302.7	7.07	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued). Values in blue italics are considered suspect.

Site ID	Sample Date	Sample Time	Total Water Depth ¹	Sample Depth ¹	Temperature (°C)	pH (pH units)	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
				22.0	19.13	7.96	8.79	95.0	302.8	7.17	
FF-2	25-Jul-22	10:10	16.6	0.3	19.33	7.98	9.09	98.7	304.5	7.25	0.65
				1.0	19.33	7.98	9.09	98.7	304.5	7.25	
				2.0	19.33	7.98	9.10	98.8	304.5	7.24	
				3.0	19.32	7.98	9.09	98.7	304.5	7.34	
				4.0	19.31	7.98	9.08	98.6	304.5	7.37	
				5.0	19.30	7.97	9.06	98.3	304.5	7.52	
				6.0	19.30	7.97	9.06	98.4	304.5	7.39	
				7.0	19.30	7.97	9.06	98.3	304.5	7.34	
				8.0	19.30	7.97	9.06	98.3	304.5	7.54	
				9.0	19.30	7.97	9.05	98.3	304.5	7.41	
				10.0	19.30	7.98	9.05	98.2	304.4	7.38	
				11.0	19.30	7.97	9.06	98.3	304.5	7.47	
				12.0	19.30	7.98	9.05	98.3	304.5	7.37	
				13.0	19.30	7.98	9.05	98.3	304.4	7.32	
				14.0	19.30	7.97	9.05	98.2	304.5	7.29	
				15.0	19.30	7.97	9.05	98.2	304.5	26.69	
FF-3	25-Jul-22	9:30	26.3	0.3	19.28	7.92	9.16	99.4	305.3	7.47	0.55
				2.0	19.28	7.92	9.15	99.3	305.2	7.50	
				4.0	19.27	7.93	9.15	99.2	305.3	7.44	
				6.0	19.26	7.95	9.15	99.3	305.3	7.30	
				8.0	19.26	7.95	9.15	99.2	305.3	7.45	
				10.0	19.25	7.95	9.16	99.3	305.3	7.22	
				12.0	19.24	7.96	9.17	99.4	305.3	7.26	
				14.0	19.23	7.95	9.18	99.5	305.4	7.25	
				16.0	19.24	7.95	9.18	99.5	305.3	7.24	
				18.0	19.23	7.96	9.18	99.5	305.4	7.16	
				20.0	19.23	7.95	9.18	99.6	305.4	7.22	
				22.0	19.23	7.95	9.19	99.6	305.4	7.18	
				24.0	19.23	7.96	9.19	99.6	305.5	7.14	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
FF-4	25-Jul-22	9:55	13.9	24.0	19.23	7.96	9.19	99.6	305.5	7.14	
				0.3	19.33	7.98	9.11	98.9	304.9	7.27	0.60
				1.0	19.33	7.98	9.11	98.9	304.9	7.23	
				2.0	19.33	7.98	9.11	98.9	304.9	7.39	
				3.0	19.32	7.98	9.10	98.8	304.9	7.22	
				4.0	19.32	7.98	9.09	98.7	304.9	7.22	
				5.0	19.32	7.98	9.09	98.7	304.9	7.20	
				6.0	19.32	7.98	9.08	98.6	304.9	7.15	
				7.0	19.32	7.98	9.08	98.6	304.9	7.22	
				8.0	19.31	7.98	9.08	98.6	304.9	7.23	
				9.0	19.31	7.98	9.08	98.5	304.9	7.24	
				10.0	19.31	7.98	9.07	98.5	304.9	7.14	
				11.0	19.31	7.98	9.07	98.5	304.9	7.17	
FF-5	25-Jul-22	10:30	12.7	13.0	19.31	7.98	9.07	98.4	304.9	7.34	
				0.3	19.21	7.98	9.01	97.6	303.8	7.01	0.60
				1.0	19.19	7.98	8.99	97.4	303.7	7.02	
				2.0	19.20	7.98	9.00	97.5	303.8	7.00	
				3.0	19.18	7.98	8.98	97.2	303.7	7.04	
				4.0	19.18	7.98	8.97	97.1	303.6	7.03	
				5.0	19.17	7.98	8.96	97.0	303.6	7.05	
				6.0	19.16	7.97	8.94	96.7	303.5	7.05	
				7.0	19.13	7.97	8.92	96.4	303.5	7.16	
				8.0	19.14	7.97	8.91	96.4	303.5	7.06	
				9.0	19.13	7.97	8.91	96.3	303.5	7.14	
				10.0	19.12	7.97	8.90	96.3	303.5	7.01	
				11.0	19.12	7.97	8.90	96.2	303.5	7.09	
CL-1	24-Aug-22	11:44	12.6	0.3	19.02	8.05	9.22	99.5	311.6	6.13	1.05
				1.0	19.02	8.05	9.22	99.5	310.6	6.14	
				2.0	19.02	8.04	9.21	99.4	309.4	6.43	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued). Values in blue italics are considered suspect.

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L) (% Saturation)		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
CL-2	24-Aug-22	11:18	13.6	3.0	19.02	8.05	9.21	99.4	309.5	6.63	
				4.0	19.01	8.05	9.21	99.4	308.6	6.63	
				5.0	19.01	8.04	9.20	99.3	307.0	6.63	
				6.0	19.02	8.04	9.20	99.3	306.7	6.54	
				7.0	19.02	8.05	9.20	99.3	308.1	6.48	
				8.0	19.02	8.05	9.20	99.3	308.1	6.56	
				9.0	19.01	8.04	9.20	99.3	308.4	8.84	
				10.0	19.02	8.04	9.21	99.4	308.6	8.63	
				11.0	19.02	8.04	9.21	99.4	308.9	8.50	
				12.0	19.02	8.02	9.21	99.3	303.4	14.00	
CL-2	24-Aug-22	12:03	8.8	0.3	19.02	8.06	9.21	99.4	307.4	6.61	0.95
				1.0	19.01	8.05	9.21	99.4	308.0	6.21	
				2.0	19.01	8.04	9.21	99.4	310.5	6.31	
				3.0	19.00	8.05	9.21	99.4	310.6	6.11	
				4.0	19.01	8.05	9.22	99.5	311.8	5.99	
				5.0	19.00	8.05	9.21	99.4	311.4	6.12	
				6.0	19.00	8.05	9.21	99.4	311.9	6.15	
				7.0	19.00	8.05	9.21	99.4	311.7	6.02	
				8.0	19.00	8.06	9.21	99.4	311.8	6.30	
				9.0	19.00	8.04	9.21	99.4	311.5	6.37	
				10.0	19.00	8.03	9.21	99.3	310.9	6.24	
				11.0	19.00	8.03	9.21	99.3	311.4	6.27	
				12.0	19.00	8.03	9.21	99.3	310.6	6.40	
CL-3	24-Aug-22	12:03	8.8	0.3	19.03	8.01	9.23	99.6	311.9	5.90	0.95
				1.0	19.03	8.01	9.22	99.6	311.9	5.70	
				2.0	19.03	8.02	9.23	99.6	311.9	6.00	
				3.0	19.03	8.02	9.22	99.5	311.8	6.18	
				4.0	19.02	8.04	9.22	99.5	311.7	5.90	
				5.0	19.01	8.02	9.22	99.5	311.7	5.89	
				6.0	19.01	8.02	9.22	99.5	311.4	6.17	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued). Values in blue italics are considered suspect.

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L) (% Saturation)		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
CL-4	24-Aug-22	10:45	9.6	7.0	19.02	8.03	9.22	99.5	311.1	6.10	
				8.0	19.02	8.03	9.22	99.4	311.1	6.34	
				0.3	18.98	8.04	9.16	98.7	299.7	7.55	1.05
				1.0	18.94	8.04	9.14	98.5	296.2	7.59	
				2.0	18.97	8.03	9.15	98.7	298.6	7.77	
				3.0	18.95	8.02	9.14	98.4	297.1	7.58	
				4.0	18.90	8.03	9.12	98.3	295.9	7.82	
				5.0	18.94	8.04	9.13	98.5	297.7	7.76	
				6.0	18.96	8.03	9.14	98.6	298.6	7.68	
				7.0	18.96	8.03	9.14	98.5	298.6	7.53	
CL-5	24-Aug-22	10:04	9.6	8.0	18.90	8.03	9.12	98.2	295.7	7.64	
				9.0	18.95	8.03	9.13	98.5	297.8	13.64	
				0.3	18.97	8.01	9.15	98.6	296.3	7.75	0.85
				1.0	18.97	8.02	9.15	98.6	297.7	7.58	
				2.0	18.97	8.01	9.15	98.6	297.0	7.66	
				3.0	18.98	8.01	9.15	98.6	297.2	7.59	
				4.0	18.98	8.02	9.15	98.7	298.6	7.89	
				5.0	18.98	8.02	9.16	98.7	299.3	7.46	
				6.0	18.98	8.01	9.16	98.8	300.5	7.70	
				7.0	18.98	8.02	9.15	98.7	299.2	7.41	
US-1	26-Aug-22	14:20	16.0	8.0	18.99	8.02	9.15	98.8	300.2	7.23	
				9.0	18.97	8.00	9.17	98.9	299.7	7.48	
				0.3	18.84	8.03	9.08	97.6	312.7	5.82	1.05
				1.0	18.81	8.02	9.08	97.6	312.7	5.68	
				2.0	18.82	8.02	9.08	97.6	312.8	5.66	
				3.0	18.81	8.01	9.08	97.5	312.7	5.67	
				4.0	18.80	8.01	9.08	97.5	312.7	5.76	
				5.0	18.80	8.01	9.07	97.5	312.7	5.79	
				6.0	18.79	8.01	9.07	97.4	312.7	5.69	
				7.0	18.79	8.02	9.07	97.5	312.7	5.70	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L) (% Saturation)		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
US-2	26-Aug-22	13:34	11.5	8.0	18.80	8.04	9.07	97.4	312.7	5.71	
				9.0	18.78	8.01	9.07	97.4	312.6	5.70	
				10.0	18.78	8.02	9.06	97.3	312.7	5.91	
				11.0	18.78	8.02	9.06	97.3	312.6	5.92	
				12.0	18.78	8.02	9.06	97.3	312.6	5.85	
				13.0	18.78	8.02	9.06	97.3	312.7	5.92	
				14.0	18.77	8.02	9.06	97.4	312.7	6.04	
				15.0	18.77	8.02	9.06	97.3	312.7	6.08	
				0.3	18.78	8.05	9.06	97.3	313.1	5.82	1.10
				1.0	18.77	8.03	9.06	97.2	312.9	6.02	
US-3	26-Aug-22	13:50	14.6	2.0	18.77	8.03	9.05	97.2	313.0	5.99	
				3.0	18.76	8.03	9.05	97.2	313.0	6.00	
				4.0	18.76	8.02	9.05	97.2	312.9	5.85	
				5.0	18.75	8.02	9.05	97.1	312.8	5.86	
				6.0	18.74	8.02	9.04	97.1	312.9	5.88	
				7.0	18.74	8.02	9.04	97.1	312.8	5.85	
				8.0	18.74	8.02	9.04	97.1	312.8	5.90	
				9.0	18.75	8.02	9.05	97.1	312.9	5.84	
				10.0	18.75	8.02	9.05	97.1	313.1	5.98	
				11.0	18.74	8.02	9.04	97.1	312.9	5.74	
				12.0	18.73	8.01	9.04	97.0	312.9	5.99	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
US-4	26-Aug-22	14:04	16.1	9.0	18.71	8.02	9.04	97.0	312.3	6.00	
				10.0	18.71	8.02	9.04	97.0	312.3	5.97	
				11.0	18.72	8.02	9.04	97.0	312.2	5.94	
				12.0	18.72	8.02	9.04	97.0	312.4	6.03	
				13.0	18.72	8.02	9.04	97.0	312.3	5.80	
				14.0	18.71	8.02	9.04	96.9	312.3	6.00	
				0.3	18.79	8.03	9.06	97.3	312.4	5.86	1.00
				1.0	18.76	8.01	9.06	97.3	312.4	5.83	
				2.0	18.77	8.01	9.06	97.2	312.5	6.17	
				3.0	18.75	8.02	9.06	97.3	312.5	5.90	
				4.0	18.76	8.02	9.06	97.2	312.4	5.96	
				5.0	18.74	8.02	9.05	97.2	312.5	6.00	
				6.0	18.74	8.02	9.05	97.2	312.5	5.95	
				7.0	18.75	8.01	9.05	97.2	312.5	5.93	
				8.0	18.75	8.02	9.05	97.2	312.4	5.83	
				9.0	18.75	8.01	9.05	97.2	312.4	5.91	
US-5	26-Aug-22	13:05	14.6	10.0	18.75	8.01	9.05	97.1	312.5	5.92	
				11.0	18.74	8.01	9.05	97.1	312.4	5.82	
				12.0	18.75	8.01	9.05	97.1	312.5	5.80	
				13.0	18.74	8.01	9.05	97.1	312.5	5.97	
				14.0	18.74	8.01	9.05	97.1	312.5	5.83	
				15.0	18.74	8.01	9.05	97.1	312.4	5.72	
				0.3	18.77	8.01	9.07	97.4	313.0	5.75	1.30
				1.0	18.75	8.01	9.07	97.4	312.9	5.77	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued). Values in blue italics are considered suspect.

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L) (% Saturation)		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
NF-1	25-Aug-22	11:45	21.1	8.0	18.74	8.01	9.06	97.2	312.9	5.80	
				9.0	18.73	8.01	9.05	97.2	312.8	5.84	
				10.0	18.74	8.01	9.05	97.2	312.9	5.85	
				11.0	18.73	8.01	9.06	97.2	312.9	5.83	
				12.0	18.74	8.01	9.06	97.2	313.0	5.83	
				13.0	18.75	8.01	9.05	97.2	313.0	5.80	
				14.0	18.74	8.02	9.06	97.2	313.0	5.96	
				0.3	18.70	8.03	9.52	102.1	309.8	6.51	1.35
				2.0	18.69	8.02	9.55	102.4	309.9	6.41	
				4.0	18.68	8.02	9.58	102.8	309.9	6.41	
NF-2	25-Aug-22	12:20	11.5	6.0	18.65	8.02	9.66	103.6	310.1	6.41	
				8.0	18.65	8.02	9.73	104.2	310.1	6.52	
				10.0	18.65	8.02	9.75	104.5	310.1	6.42	
				12.0	18.64	8.02	9.75	104.5	310.2	6.50	
				14.0	18.64	8.02	9.80	105.0	310.2	6.55	
				16.0	18.64	8.02	9.80	105.0	310.3	6.75	
				18.0	18.64	8.02	9.81	105.1	310.2	6.67	
				20.0	18.64	8.03	9.76	104.6	310.3	12.26	
				0.3	18.73	8.03	9.91	106.4	310.6	6.03	1.30
				1.0	18.71	8.03	9.92	106.4	310.6	6.25	
NF-3	25-Aug-22	11:58	19.3	2.0	18.68	8.04	9.92	106.2	310.6	6.15	
				3.0	18.65	8.04	9.91	106.2	310.6	6.08	
				4.0	18.62	8.03	9.90	106.0	310.6	6.18	
				5.0	18.63	8.03	9.89	105.9	310.6	6.28	
				6.0	18.61	8.03	9.88	105.8	310.5	6.19	
				7.0	18.61	8.02	9.88	105.8	310.5	6.06	
				8.0	18.61	8.02	9.88	105.8	310.5	6.02	
				9.0	18.61	8.02	9.88	105.7	310.6	6.18	
				10.0	18.61	8.02	9.88	105.7	310.6	6.19	
				0.3	18.69	8.04	9.55	102.3	309.9	6.46	1.25

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L) (% Saturation)		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
NF-4	25-Aug-22	12:35	6.2	1.0	18.70	8.03	9.53	102.2	309.8	6.31	
				2.0	18.71	8.04	9.53	102.2	309.8	6.32	
				3.0	18.68	8.03	9.52	102.0	309.8	6.27	
				4.0	18.67	8.02	9.51	101.9	309.8	6.43	
				5.0	18.67	8.02	9.51	101.9	309.8	6.38	
				6.0	18.67	8.02	9.52	102.1	309.9	6.53	
				7.0	18.67	8.02	9.52	102.0	309.8	6.39	
				8.0	18.66	8.02	9.56	102.5	309.9	6.44	
				9.0	18.66	8.02	9.56	102.5	309.9	6.43	
				10.0	18.66	8.02	9.62	103.0	309.9	6.53	
				11.0	18.66	8.02	9.60	102.9	309.9	6.44	
				12.0	18.66	8.02	9.60	102.9	309.9	6.57	
				13.0	18.66	8.02	9.61	102.9	309.9	6.31	
				14.0	18.66	8.02	9.63	103.2	310.0	6.32	
				15.0	18.66	8.02	9.63	103.2	310.0	6.47	
				16.0	18.65	8.02	9.64	103.3	310.0	6.48	
				17.0	18.66	8.02	9.65	103.4	310.0	6.72	
				18.0	18.66	8.02	9.65	103.4	310.0	6.61	
NF-5	25-Aug-22	11:25	18.1	0.3	18.68	8.05	9.88	106.0	310.6	5.91	1.25
				1.0	18.67	8.05	9.89	105.9	310.7	6.06	
				2.0	18.67	8.04	9.89	105.9	310.6	6.32	
				3.0	18.63	8.04	9.89	105.9	310.7	6.00	
				4.0	18.60	8.04	9.89	105.8	310.7	6.07	
				5.0	18.60	8.05	9.88	105.7	310.8	5.96	
NF-5	25-Aug-22	11:25	18.1	0.3	18.68	7.99	9.39	100.6	309.9	6.22	1.25
				1.0	18.68	8.00	9.36	100.3	309.8	6.31	
				2.0	18.66	8.01	9.34	100.1	309.9	6.42	
				3.0	18.65	8.01	9.36	100.3	309.9	6.39	
				4.0	18.64	8.01	9.37	100.3	309.9	6.43	
				5.0	18.63	8.01	9.37	100.3	309.9	6.45	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L) (% Saturation)		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
FF-1	25-Aug-22	9:05	22.0	6.0	18.62	8.01	9.39	100.5	310.0	6.57	
				7.0	18.61	8.02	9.39	100.5	310.0	6.49	
				8.0	18.61	8.02	9.39	100.5	310.0	6.41	
				9.0	18.59	8.02	9.38	100.3	310.1	6.47	
				10.0	18.60	8.02	9.41	100.6	310.1	6.52	
				11.0	18.59	8.02	9.38	100.3	310.1	6.43	
				12.0	18.59	8.02	9.36	100.2	310.1	6.52	
				13.0	18.57	8.02	9.32	99.6	310.1	6.44	
				14.0	18.58	8.02	9.32	99.7	310.1	6.48	
				15.0	18.58	8.02	9.34	99.9	310.1	6.42	
				16.0	18.58	8.02	9.35	100.0	310.1	6.47	
				17.0	18.58	8.02	9.34	99.9	310.1	6.44	
FF-2	25-Aug-22	10:00	15.4	0.3	18.60	8.06	8.97	96.0	305.3	5.32	1.30
				2.0	18.60	8.06	8.96	95.9	305.3	5.51	
				4.0	18.60	8.07	8.96	95.9	305.3	5.42	
				6.0	18.60	8.07	8.96	95.9	305.4	5.45	
				8.0	18.60	8.07	8.96	95.9	305.4	5.31	
				10.0	18.60	8.07	8.96	95.9	305.4	5.34	
				12.0	18.60	8.06	8.96	95.9	305.4	5.45	
				14.0	18.59	8.05	8.96	95.9	305.3	5.48	
				16.0	18.60	8.04	8.95	95.8	305.4	5.35	
				18.0	18.60	8.04	8.96	95.9	305.4	5.40	
				20.0	18.59	8.04	8.96	95.9	305.4	5.41	
				21.0	18.59	8.05	8.96	95.9	305.4	5.35	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L) (% Saturation)		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
				6.0	18.74	8.04	9.27	99.4	307.0	5.83	
				7.0	18.74	8.04	9.26	99.4	307.0	5.79	
				8.0	18.74	8.03	9.27	99.5	307.1	5.85	
				9.0	18.74	8.04	9.26	99.4	307.0	5.79	
				10.0	18.74	8.04	9.26	99.4	307.1	5.77	
				11.0	18.74	8.04	9.26	99.4	307.0	5.78	
				12.0	18.74	8.04	9.26	99.4	307.1	5.72	
				13.0	18.74	8.04	9.26	99.4	307.0	5.82	
				14.0	18.74	8.04	9.26	99.4	307.1	5.66	
FF-3	25-Aug-22	10:38	26.3	0.3	18.73	8.01	9.42	101.1	308.3	5.67	1.35
				2.0	18.73	8.01	9.42	101.0	308.3	5.91	
				4.0	18.72	8.03	9.42	101.1	308.3	5.84	
				6.0	18.70	8.03	9.43	101.1	308.4	5.68	
				8.0	18.69	8.03	9.44	101.2	308.3	5.66	
				10.0	18.69	8.03	9.43	101.1	308.4	5.61	
				12.0	18.66	8.03	9.45	101.3	308.4	5.62	
				14.0	18.65	8.02	9.46	101.4	308.4	5.46	
				16.0	18.65	8.02	9.47	101.4	308.4	5.51	
				18.0	18.65	8.02	9.46	101.4	308.4	5.48	
				20.0	18.65	8.03	9.46	101.4	308.4	5.51	
				22.0	18.65	8.03	9.46	101.4	308.4	5.54	
				24.0	18.65	8.02	9.46	101.4	308.5	5.47	
				25.0	18.65	8.03	9.47	101.4	308.5	5.52	
FF-4	25-Aug-22	10:19	12.7	0.3	18.71	8.03	9.32	99.9	307.3	5.46	1.30
				1.0	18.71	8.04	9.31	99.9	307.3	5.56	
				2.0	18.71	8.03	9.31	99.9	307.3	5.68	
				3.0	18.71	8.04	9.31	99.9	307.3	5.49	
				4.0	18.71	8.04	9.31	99.9	307.3	5.52	
				5.0	18.71	8.04	9.31	99.9	307.4	5.77	
				6.0	18.71	8.04	9.31	99.9	307.3	5.61	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L) (% Saturation)		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
FF-5	25-Aug-22	9:27	10.1	7.0	18.71	8.04	9.31	99.8	307.3	5.76	
				8.0	18.70	8.04	9.30	99.8	307.3	5.60	
				9.0	18.70	8.05	9.30	99.8	307.3	5.62	
				10.0	18.71	8.05	9.31	99.8	307.3	5.63	
				11.0	18.70	8.04	9.30	99.8	307.3	5.76	
				0.3	18.62	8.03	9.02	96.5	305.7	5.42	1.30
				1.0	18.62	8.03	9.01	96.5	305.7	5.55	
				2.0	18.62	8.03	9.01	96.5	305.7	5.76	
				3.0	18.61	8.04	9.01	96.5	305.8	5.53	
				4.0	18.60	8.03	9.03	96.5	305.9	5.70	
CL-1	11-Oct-22	10:30	12.2	5.0	18.60	8.04	9.03	96.7	306.0	5.52	
				6.0	18.60	8.04	9.04	96.7	306.0	5.82	
				7.0	18.60	8.04	9.03	96.7	305.9	5.76	
				8.0	18.60	8.04	9.04	96.7	306.0	5.31	
				9.0	18.60	8.04	9.04	96.7	306.1	5.57	
				0.3	9.64	8.32	11.47	100.8	295.4	8.73	0.95
				1.0	9.63	8.31	11.47	100.8	294.6	8.84	
				2.0	9.62	8.31	11.46	100.7	291.2	8.79	
				3.0	9.61	8.30	11.44	100.5	291.5	8.73	
				4.0	9.62	8.30	11.43	100.4	293.1	8.91	
CL-2	11-Oct-22	10:10	13.8	5.0	9.62	8.30	11.41	100.3	294.5	8.54	
				6.0	9.63	8.30	11.40	100.2	294.0	8.62	
				7.0	9.62	8.30	11.39	100.1	292.5	8.81	
				8.0	9.62	8.30	11.38	100.0	293.3	9.01	
				9.0	9.62	8.30	11.37	99.9	292.6	8.72	
				10.0	9.61	8.30	11.37	99.9	289.2	9.45	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued). Values in blue italics are considered suspect.

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L) (% Saturation)		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
CL-3	11-Oct-22	10:47	9.5	4.0	9.61	8.30	11.43	100.4	291.6	8.67	
				5.0	9.61	8.30	11.43	100.4	291.9	8.75	
				6.0	9.63	8.30	11.41	100.3	293.9	8.79	
				7.0	9.62	8.30	11.40	100.2	293.0	9.09	
				8.0	9.63	8.29	11.39	100.1	293.9	8.70	
				9.0	9.63	8.29	11.36	100.0	294.0	8.55	
				10.0	9.63	8.29	11.37	99.9	293.9	8.71	
				11.0	9.63	8.29	11.35	99.8	294.1	8.75	
				12.0	9.63	8.29	11.34	99.7	294.3	20.00	
CL-4	11-Oct-22	9:57	8.3	0.3	9.64	8.31	11.51	101.2	293.7	8.36	0.95
				1.0	9.64	8.30	11.51	101.2	294.0	8.80	
				2.0	9.63	8.30	11.50	101.1	294.1	8.82	
				3.0	9.63	8.30	11.50	101.0	294.1	8.64	
				4.0	9.63	8.30	11.49	100.9	294.3	8.55	
				5.0	9.63	8.30	11.47	100.8	294.3	8.57	
				6.0	9.63	8.29	11.46	100.7	294.5	8.66	
				7.0	9.62	8.29	11.45	100.6	294.5	8.90	
CL-5	11-Oct-22	9:40	8.1	0.3	9.33	8.26	11.43	99.8	257.9	12.10	0.70
				1.0	9.33	8.27	11.43	99.8	258.2	11.85	
				2.0	9.36	8.28	11.42	99.6	257.6	12.95	
				3.0	9.35	8.28	11.41	99.6	259.9	12.45	
				4.0	9.33	8.27	11.40	99.4	256.6	12.84	
				5.0	9.32	8.27	11.38	99.3	258.3	12.36	
				6.0	9.30	8.27	11.37	99.2	258.6	12.38	
				7.0	9.32	8.27	11.36	99.1	258.8	17.68	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
US-1	11-Oct-22	13:46	16.1	5.0	9.31	8.10	11.39	99.4	257.4	13.54	
				6.0	9.35	8.10	11.38	99.3	260.3	12.77	
				0.3	9.59	8.31	11.33	99.5	294.1	8.14	1.05
				1.0	9.59	8.28	11.32	99.4	294.1	7.89	
				2.0	9.59	8.28	11.32	99.4	294.1	8.17	
				3.0	9.60	8.28	11.31	99.4	294.2	8.02	
				4.0	9.59	8.28	11.30	99.2	294.2	8.11	
				5.0	9.58	8.28	11.29	99.1	294.1	8.10	
				6.0	9.58	8.28	11.28	99.0	294.1	8.16	
				7.0	9.58	8.28	11.27	99.0	294.1	8.10	
				8.0	9.58	8.28	11.26	98.8	294.1	8.34	
				9.0	9.58	8.28	11.25	98.8	294.2	8.30	
				10.0	9.58	8.28	11.25	98.7	294.2	8.07	
				11.0	9.58	8.28	11.23	98.6	294.2	8.09	
				12.0	9.58	8.27	11.23	98.5	294.2	8.42	
				13.0	9.58	8.28	11.21	98.4	294.2	8.16	
				14.0	9.58	8.28	11.20	98.3	294.2	8.31	
				15.0	9.58	8.28	11.19	98.2	294.2	8.44	
US-2	11-Oct-22	12:21	11.6	0.3	9.63	8.32	11.37	100.0	295.7	8.30	1.05
				1.0	9.62	8.30	11.38	100.0	295.8	8.25	
				2.0	9.62	8.30	11.37	99.9	295.8	8.30	
				3.0	9.61	8.30	11.36	99.8	295.8	8.30	
				4.0	9.61	8.29	11.33	99.5	295.7	8.04	
				5.0	9.61	8.29	11.32	99.5	295.6	8.20	
				6.0	9.61	8.30	11.31	99.3	295.1	8.03	
				7.0	9.61	8.29	11.30	99.2	295.1	8.40	
				8.0	9.61	8.29	11.29	99.2	295.0	8.24	
				9.0	9.61	8.29	11.28	99.1	295.1	8.37	
				10.0	9.61	8.29	11.27	99.0	295.0	8.40	
				11.0	9.61	8.29	11.26	98.9	295.1	8.41	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued). Values in blue italics are considered suspect.

Site ID	Sample Date	Sample Time	Total Water Depth ¹	Sample Depth ¹	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
			(m)	(m)			(% Saturation)			
US-3	11-Oct-22	12:56	15.3	0.3	9.63	8.30	11.35	99.8	294.5	7.79
				1.0	9.62	8.29	11.37	99.9	294.5	8.40
				2.0	9.62	8.29	11.36	99.8	294.5	8.14
				3.0	9.61	8.29	11.35	99.7	294.6	8.17
				4.0	9.62	8.29	11.34	99.6	294.6	8.27
				5.0	9.61	8.29	11.32	99.5	294.6	8.17
				6.0	9.61	8.29	11.32	99.4	294.6	8.21
				7.0	9.62	8.28	11.30	99.3	294.6	8.18
				8.0	9.62	8.29	11.29	99.2	294.6	8.18
				9.0	9.62	8.28	11.28	99.1	294.6	8.06
				10.0	9.62	8.28	11.27	99.0	294.7	8.09
				11.0	9.62	8.29	11.26	98.9	294.8	8.02
				12.0	9.62	8.28	11.25	98.8	294.7	7.91
				13.0	9.62	8.28	11.24	98.7	294.7	8.02
				14.0	9.61	8.28	11.22	98.5	294.7	8.26
US-4	11-Oct-22	13:11	15.9	0.3	9.66	8.28	11.29	99.4	294.5	8.02
				1.0	9.64	8.27	11.33	99.6	294.7	7.74
				2.0	9.63	8.27	11.33	99.6	294.6	7.76
				3.0	9.63	8.27	11.33	99.6	294.8	7.86
				4.0	9.63	<i>8.05</i>	11.31	99.4	294.6	8.11
				5.0	9.63	8.27	11.31	99.4	294.7	7.98
				6.0	9.62	8.27	11.30	99.2	294.7	7.89
				7.0	9.62	8.27	11.28	99.2	294.7	7.92
				8.0	9.62	8.27	11.27	99.1	294.8	8.40
				9.0	9.63	8.28	11.27	99.0	294.9	8.24
				10.0	9.63	8.27	11.26	98.9	294.9	8.72
				11.0	9.63	8.27	11.25	98.8	294.9	8.33
				12.0	9.62	8.27	11.24	98.7	294.7	8.41
				13.0	9.62	8.27	11.22	98.6	294.8	8.39
				14.0	9.62	8.27	11.21	98.5	294.8	8.40

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
US-5	11-Oct-22	12:02	15.8	0.3	9.64	8.28	11.37	99.9	294.6	8.00	1.00
				1.0	9.61	8.28	11.37	99.8	295.1	8.23	
				2.0	9.62	8.28	11.36	99.7	295.3	8.30	
				3.0	9.60	8.28	11.35	99.7	295.4	8.21	
				4.0	9.61	8.28	11.35	99.7	295.7	8.09	
				5.0	9.60	8.28	11.33	99.5	295.6	8.05	
				6.0	9.60	8.28	11.33	99.5	295.5	8.16	
				7.0	9.60	8.28	11.31	99.3	295.6	8.11	
				8.0	9.59	8.28	11.30	99.3	295.6	8.31	
				9.0	9.60	8.28	11.29	99.2	295.7	8.09	
				10.0	9.60	8.28	11.29	99.1	295.7	8.08	
				11.0	9.60	8.28	11.28	99.0	295.8	8.06	
				12.0	9.60	8.28	11.27	99.0	296.1	7.94	
				13.0	9.60	8.28	11.26	98.9	296.1	8.21	
				14.0	9.60	8.29	11.25	98.9	295.9	8.26	
NF-1	11-Oct-22	15:58	19.1	0.3	9.71	8.29	11.97	105.4	296.8	8.13	1.05
				1.0	9.69	8.29	11.97	105.3	296.8	8.13	
				2.0	9.69	8.28	11.95	105.1	296.8	8.10	
				3.0	9.66	8.28	11.98	105.4	297.0	8.32	
				4.0	9.64	8.28	12.01	105.5	297.0	8.38	
				5.0	9.63	8.28	12.03	105.8	297.3	7.80	
				6.0	9.63	8.28	12.03	105.7	297.3	7.94	
				7.0	9.64	8.28	12.01	105.7	297.3	7.47	
				8.0	9.63	8.28	12.02	105.6	297.4	8.13	
				9.0	9.62	8.28	12.06	106.0	297.6	8.11	
				10.0	9.62	8.29	12.07	106.1	297.7	8.29	
				11.0	9.61	8.28	12.11	106.5	298.0	8.18	
				12.0	9.61	8.28	12.09	106.2	297.7	8.04	
				13.0	9.61	8.28	12.10	106.3	298.0	7.93	
				14.0	9.61	8.28	12.08	106.1	297.9	7.18	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth ¹	Sample Depth ¹	Temperature (°C)	pH (pH units)	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
NF-2	11-Oct-22	16:28	11.9	15.0	9.61	8.28	12.07	106.0	297.9	7.95	
				16.0	9.61	8.28	12.09	106.2	298.1	7.96	
				17.0	9.61	8.28	12.09	106.3	298.1	8.16	
				18.0	9.61	8.28	12.09	106.2	298.1	7.96	
				0.3	9.69	8.29	12.42	109.3	299.5	7.72	1.25
				1.0	9.68	8.28	12.44	109.5	299.5	7.53	
				2.0	9.68	8.28	12.43	109.4	299.5	7.40	
				3.0	9.68	8.28	12.42	109.2	299.5	7.64	
				4.0	9.68	8.28	12.40	109.1	299.5	7.83	
				5.0	9.66	8.28	12.40	109.0	299.5	7.47	
NF-3	11-Oct-22	16:13	20.1	6.0	9.60	8.28	12.40	108.9	299.6	7.83	
				7.0	9.61	8.28	12.40	108.9	299.6	7.91	
				8.0	9.60	8.28	12.39	108.8	299.5	7.50	
				9.0	9.57	8.28	12.38	108.7	299.6	7.95	
				10.0	9.55	8.28	12.38	108.7	299.6	8.22	
				11.0	9.56	8.28	12.37	108.6	299.6	7.47	
				0.3	9.79	8.30	11.71	103.3	296.1	8.15	1.15
				2.0	9.74	8.29	11.65	102.6	295.9	8.00	
				4.0	9.73	8.28	11.67	102.8	296.1	8.64	
				6.0	9.63	8.28	11.88	104.5	297.2	8.23	
NF-4	11-Oct-22	16:38	6.5	8.0	9.62	8.28	11.98	105.3	297.5	7.81	
				10.0	9.62	8.28	12.00	105.5	297.6	7.87	
				12.0	9.62	8.28	11.98	105.3	297.6	7.76	
				14.0	9.62	8.28	11.99	105.3	297.7	7.91	
				16.0	9.62	8.28	11.98	105.2	297.7	8.22	
				18.0	9.62	8.28	11.97	105.1	297.8	8.36	
				0.3	9.59	8.28	12.45	109.5	299.6	7.65	1.10
				1.0	9.58	8.28	12.46	109.3	299.7	7.62	
				2.0	9.57	8.28	12.46	109.3	299.7	7.51	
				3.0	9.55	8.28	12.46	109.3	299.7	7.71	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Saturation)			
NF-5	11-Oct-22	15:32	18.9	4.0	9.54	8.27	12.45	109.2	299.7	7.69	
				5.0	9.55	8.28	12.44	109.1	299.7	8.32	
				6.0	9.54	8.28	12.43	109.0	299.7	7.53	
				0.3	9.73	8.27	11.76	103.7	296.5	8.13	1.05
				1.0	9.68	8.28	11.74	103.2	296.6	8.27	
				2.0	9.69	8.28	11.72	103.0	296.6	8.46	
				3.0	9.65	8.28	11.69	102.8	296.6	8.23	
				4.0	9.62	8.28	11.66	102.4	296.6	8.34	
				5.0	9.59	8.28	11.64	102.2	296.7	8.85	
				6.0	9.57	8.28	11.62	102.0	296.8	8.37	
				7.0	9.60	8.28	11.61	101.9	296.8	8.22	
				8.0	9.55	8.28	11.61	101.9	296.8	8.31	
				9.0	9.53	8.28	11.61	101.8	297.1	8.08	
				10.0	9.54	8.28	11.60	101.7	297.0	8.70	
				11.0	9.53	8.28	11.60	101.7	297.2	8.37	
				12.0	9.51	8.28	11.59	101.6	297.3	8.26	
				13.0	9.51	8.28	11.58	101.5	297.3	8.37	
				14.0	9.51	8.28	11.58	101.5	297.4	8.16	
				15.0	9.50	8.29	11.57	101.4	297.4	8.13	
				16.0	9.51	8.28	11.57	101.4	297.5	8.31	
				17.0	9.51	8.28	11.56	101.2	297.5	8.25	
				18.0	9.49	8.28	11.54	101.1	297.5	8.32	
FF-1	Oct-22	-	-	-	-	-	-	-	-	-	-
FF-2	Oct-22	-	-	-	-	-	-	-	-	-	-
FF-3	Oct-22	-	-	-	-	-	-	-	-	-	-
FF-4	Oct-22	-	-	-	-	-	-	-	-	-	-
FF-5	Oct-22	-	-	-	-	-	-	-	-	-	-

2. Far-field not sampled in October 2022 due to inclement weather.

Table A4-3: *In situ* parameters measured in the Keeyask regional study area during the ice-cover and open-water seasons of 2022. Values in blue italics are considered suspect.

Site ID	Sample Date	Sample Time	Total Water Depth ¹ (m)	Sample Depth ¹ (m)	Temperature and pH			Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
					Temp. (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	(% Saturation)					
STL-N	26-Mar-22	14:55	5.6	0.3	0.06	8.01	15.76	108.1	300.7	0.91	166.1	N/A	
STL-N	26-Mar-22	14:55	5.6	5.0	0.34	7.92	14.86	102.7	298.5	1.47	170.6	N/A	
STL-KETTLE	26-Mar-22	14:25	34.3	0.3	0.01	7.89	15.78	108.1	284.8	8.16	208.1	N/A	
LNR-3	26-Mar-22	12:25	26.5	0.3	-0.01	7.91	15.78	108.0	246.2	8.77	213.5	N/A	
LNR-4	26-Mar-22	11:25	26.6	0.3	0.01	7.89	15.63	106.3	285.6	8.78	99.2	N/A	
STL-N	29-Jun-22	12:15	4.9	0.3	13.86	8.13	9.91	96.0	246.2	8.32	193.2	0.95	
STL-N	29-Jun-22	12:15	4.9	4.5	13.81	7.92	9.91	95.8	246.3	9.02	220.4	0.95	
STL-KETTLE	29-Jun-22	11:35	35.3	0.3	15.71	7.96	9.76	98.3	290.6	7.85	216.3	0.95	
LNR-3	29-Jun-22	11:05	7.8	0.3	15.62	7.94	10.03	100.9	287.3	7.78	224.9	1.10	
LNR-4	29-Jun-22	10:30	26.8	0.3	15.61	7.97	10.13	101.9	285.9	6.88	109.5	1.30	
LNR-5	29-Jun-22	10:05	3.5	0.3	15.56	7.98	10.74	107.9	280.4	11.50	208.5	N/A	
LNR-6	29-Jun-22	9:50	12.6	0.3	15.60	7.97	11.47	115.4	282.0	9.12	185.5	N/A	
LNR-7	29-Jun-22	9:20	4.3	0.3	15.49	7.96	10.70	107.3	284.4	8.67	205.1	N/A	
LNR-8	29-Jun-22	9:00	1.9	0.3	15.68	7.91	10.36	104.3	284.8	8.81	192.0	N/A	
STL-N	20-Jul-22	15:55	8.3	0.3	19.78	8.18	8.89	97.4	251.1	4.82	164.9	1.35	
STL-N	20-Jul-22	15:55	8.3	7.0	14.40	7.82	7.85	76.3	250.0	10.00	199.7	1.35	
STL-KETTLE	25-Jul-22	8:50	35.4	0.3	19.35	7.86	8.95	97.3	303.7	6.33	227.5	1.20	
LNR-3	20-Jul-22	14:55	22.4	0.3 ²	19.63	N/A	10.90	119.0	301.1	N/A	N/A	0.90	
LNR-4	20-Jul-22	14:02	26.0	0.3	19.56	7.92	9.91	108.1	300.4	5.63	182.3	1.30	
LNR-5	20-Jul-22	15:35	4.9	0.3	19.36	7.99	9.97	108.4	300.7	6.74	178.4	N/A	
LNR-6	20-Jul-22	13:08	5.5	0.3	19.36	7.86	10.18	110.6	300.7	6.80	182.6	N/A	
LNR-7	20-Jul-22	12:40	N/A	0.3	19.21	7.88	9.72	105.3	300.3	7.97	179.5	N/A	
LNR-8	20-Jul-22	12:20	10.6	0.3	19.28	7.87	9.61	104.3	300.6	8.25	155.1	N/A	
STL-N	21-Aug-22	12:15	7.9	0.3	19.40	8.23	8.97	97.5	253.9	4.77	209.9	1.40	
STL-N	21-Aug-22	12:15	7.9	7.0	16.23	7.91	7.88	80.1	252.3	14.17	239.7	1.40	
STL-KETTLE	21-Aug-22	11:40	34.7	0.3	19.84	8.05	9.24	101.4	303.1	4.90	229.5	1.55	

1. In winter, total and sample depth are recorded as effective depth, or total water depth minus ice depth.

2. Water quality meter stopped working at this site, recorded values are considered suspect.

Table A4-3: *In situ* parameters measured in the Keeyask regional study area during the ice-cover and open-water seasons of 2022 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth ¹	Sample Depth ¹	Temp.	pH	Dissolved Oxygen	Specific Conductance	Turbidity	ORP	Secchi Depth
	(m)	(m)	(°C)	(pH units)	(mg/L)	(% Saturation)	(µS/cm)	(NTU)	(mV)	(m)	
LNR-3	21-Aug-22	11:18	5.8	0.3	19.81	8.02	9.62	105.5	302.7	4.15	229.1
LNR-4	21-Aug-22	10:44	26.8	0.3	19.94	7.94	9.72	106.8	303.1	4.06	237.0
LNR-5	21-Aug-22	10:18	2.1	0.3	19.90	8.00	9.95	109.3	303.5	4.83	232.8
LNR-6	21-Aug-22	10:07	7.7	0.3	19.91	8.00	10.32	113.4	303.6	5.02	228.3
LNR-7	21-Aug-22	9:44	6.6	0.3	19.86	8.04	9.62	105.6	302.1	5.26	233.4
LNR-8	21-Aug-22	9:24	2.2	0.3	20.08	8.09	9.68	106.7	302.3	5.49	266.8
STL-N	14-Sep-22	14:00	8.7	0.3	14.07	8.16	10.07	98.0	253.8	8.59	240.4
STL-N	14-Sep-22	14:00	8.7	4.0	14.05	8.14	10.03	97.4	253.9	N/A	241.0
STL-KETTLE	14-Sep-22	13:19	33.9	0.3	15.75	8.10	9.89	99.7	312.7	5.10	245.8
LNR-3	14-Sep-22	12:44	24.6	0.3	15.48	8.06	11.38	114.1	312.6	5.16	281.5
LNR-4	14-Sep-22	12:04	26.4	0.3	15.53	8.07	11.35	114.0	311.2	4.13	356.7
LNR-5	14-Sep-22	11:42	2.3	0.3	15.52	8.16	11.04	111.0	308.8	4.88	314.7
LNR-6	14-Sep-22	11:26	9.0	0.3	15.46	8.07	11.09	111.2	310.9	4.95	282.0
LNR-7	14-Sep-22	11:02	6.1	0.3	15.31	8.04	10.78	107.7	308.5	5.44	239.8
LNR-8	14-Sep-22	10:42	N/A	0.3	15.43	8.09	10.59	106.2	306.8	6.94	214.9

Table A4-4: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022.

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Alkalinity				Nitrogen					Phosphorus		
					Total (CaCO ₃)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Hydroxide (OH)	Ammonia	Nitrate/nitrite	Nitrate	Nitrite	Total Kjeldahl Nitrogen	Total N ¹	Dissolved P	Total P
					(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L N)	(mg/L N)	(mg/L N)	(mg/L N)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
Detection Limit 2022															0.0010/0.0030	0.0030
Zone 1b	Z1-5	L2693729-1	21-Mar-22	9:10	104	127	<0.60	<0.34	0.016	0.114	0.114	<0.0010	0.40	0.51	0.0302	0.0415
Zone 1b	Z1-6	L2693729-2	21-Mar-22	9:50	100	122	<0.60	<0.34	<0.010	0.119	0.117	0.0019	0.32	0.44	0.0280	0.0417
Zone 1b	Z1-7	L2693729-3	21-Mar-22	12:35	99.2	121	<0.60	<0.34	<0.010	0.113	0.113	<0.0010	0.32	0.43	0.0275	0.0426
Zone 1b	Z1-8	L2693729-4	21-Mar-22	10:30	97.4	119	<0.60	<0.34	<0.010	0.114	0.113	0.0011	0.33	0.44	0.0269	0.0385
Zone 1b	Z1-9A, -9B, -9C	L2693729-5, -6, -7	21-Mar-22	11:35	98.9	121	<0.60	<0.34	<0.010	0.114	0.114	<0.0010	0.31	0.42	0.0282	0.0391
Zone 4	Z4-3 SURF	L2693459-1	19-Mar-22	15:35	99.3	121	<0.60	<0.34	0.049	0.115	0.115	<0.0010	0.35	0.47	0.0278	0.0407
Zone 4	Z4-5 SURF	L2693459-2	19-Mar-22	13:45	106	129	<0.60	<0.34	0.016	0.131	0.131	<0.0010	0.41	0.54	0.0322	0.0462
Zone 4	Z4-5 BOT	L2693459-5	19-Mar-22	13:50	105	129	<0.60	<0.34	0.023	0.130	0.130	<0.0010	0.34	0.47	0.0336	0.0437
Zone 4	Z4-6 SURF	L2693459-3	19-Mar-22	14:35	105	128	<0.60	<0.34	<0.010	0.120	0.120	<0.0010	0.38	0.50	0.0276	0.0408
Zone 4	Z4-7 SURF	L2693459-4	19-Mar-22	15:05	104	127	<0.60	<0.34	0.013	0.117	0.117	<0.0010	0.37	0.49	0.0283	0.0407
Zone 8	Z8-1 SURF	L2694745-6	24-Mar-22	12:25	176	214	<0.60	<0.34	0.423	<0.0051	<0.0050	<0.0010	1.48	1.48	0.186	0.215
Zone 8	Z8-4 SURF	L2694960-6	27-Mar-22	10:20	105	128	<0.60	<0.34	<0.010	0.108	0.108	<0.0010	0.30	0.41	0.0263	0.0421
Zone 8	Z8-5 SURF	L2694745-7	24-Mar-22	13:05	122	149	<0.60	<0.34	0.046	0.0581	0.0564	0.0017	0.66	0.72	0.0486	0.104
Zone 8	Z8-6 SURF	L2694960-7	27-Mar-22	9:45	105	128	<0.60	<0.34	<0.010	0.112	0.112	<0.0010	0.32	0.43	0.0268	0.0398
Zone 11	Z11-1 SURF	L2693729-8	21-Mar-22	14:35	112	137	<0.60	<0.34	0.033	0.118	0.117	0.0015	0.42	0.54	0.0329	0.0489
Zone 11	Z11-3 SURF	L2693729-9	21-Mar-22	15:25	108	132	<0.60	<0.34	0.013	0.122	0.122	<0.0010	0.42	0.54	0.0309	0.0446
Zone 11	Z11-4 SURF	L2694370-6	23-Mar-22	9:15	108	132	<0.60	<0.34	0.017	0.120	0.120	<0.0010	0.47	0.59	0.0313	0.0444
Zone 11	Z11-4 BOT	L2694370-7	23-Mar-22	9:20	107	130	<0.60	<0.34	0.017	0.122	0.122	<0.0010	0.32	0.44	0.0302	0.0441
Zone 11	Z11-6 SURF	L2694370-8	23-Mar-22	10:30	106	129	<0.60	<0.34	0.016	0.118	0.117	0.0011	0.36	0.48	0.0278	0.0437
Zone 11	Z11-6 BOT	L2694370-9	23-Mar-22	10:35	105	128	<0.60	<0.34	0.011	0.118	0.116	0.0011	0.34	0.46	0.0279	0.0423
Zone 11	Z11-10 SURF	L2693729-10	21-Mar-22	14:00	142	173	<0.60	<0.34	0.443	<0.0051	<0.0050	<0.0010	1.07	1.07	0.173	0.220
Zone 11	Z11-11 SURF	L2693729-11	21-Mar-22	13:15	115	140	<0.60	<0.34	0.068	0.0863	0.0846	0.0017	0.50	0.59	0.0349	0.0635
Zone 12	Z12-6 SURF	L2694745-1	24-Mar-22	11:40	106	130	<0.60	<0.34	0.012	0.120	0.120	<0.0010	0.28	0.40	0.0262	0.0402
Zone 12	Z12-8 SURF	L2694745-2	24-Mar-22	9:00	148	181	<0.60	<0.34	0.478	<0.0051	<0.0050	<0.0010	1.41	1.41	0.313	0.346
Zone 12	Z12-9 SURF	L2694745-3	24-Mar-22	9:40	115	140	<0.60	<0.34	0.040	0.111	0.109	0.0013	0.53	0.64	0.0733	0.100
Zone 12	Z12-11 SURF	L2694745-4	24-Mar-22	10:15	105	129	<0.60	<0.34	<0.010	0.122	0.120	0.0015	0.31	0.43	0.0282	0.0401
Zone 12	Z12-13 SURF	L2694960-8	27-Mar-22	9:00	107	130	<0.60	<0.34	<0.010	0.116	0.114	0.0014	0.27	0.39	0.0305	0.0453
Zone 12	Z12-14 SURF	L2694745-5	24-Mar-22	11:00	134	163	<0.60	<0.34	0.478	0.0139	0.0129	0.0010	1.26	1.27	0.114	0.172
Zone 1b	Z1-5	L2718170-10	26-Jun-22	12:40	99.3	121	<0.60	<0.34	0.018	0.0162	0.0162	<0.0010	0.46	0.48	0.0270	0.0326
Zone 1b	Z1-6	L2718170-11	26-Jun-22	13:25	99.2	121	<0.60	<0.34	0.011	0.0157	0.0157	<0.0010	0.43	0.45	0.0252	0.0334
Zone 1b	Z1-7	L2718170-12	26-Jun-22	12:15	99.2	121	<0.60	<0.34	0.016	0.0225	0.0225	<0.0010	0.38	0.40	0.0270	0.0329
Zone 1b	Z1-8	L2718170-13	26-Jun-22	13:10	99.1	121	<0.60	<0.34	<0.010	0.0156	0.0156	<0.0010	0.38	0.40	0.0254	0.0341
Zone 1b	Z1-9	L2718170-14	26-Jun-22	12:55	98.2	120	<0.60	<0.34	0.020	0.0315	0.0315	<0.0010	0.39	0.42	0.0267	0.0341
Zone 4	Z4-3 SURF	L2718170-6	26-Jun-22	11:25	98.4	120	<0.60	<0.34	<0.010	0.0085	0.0085	<0.0010	0.40	0.41	0.0241	0.0381
Zone 4	Z4-5 SURF	L2718170-7	26-Jun-22	10:20	96.7	118	<0.60	<0.34	0.016	<0.0051	<0.0050	<0.0010	0.43	0.43	0.0238	0.0313
Zone 4	Z4-6 SURF	L2718170-8	26-Jun-22	10:55</td												

Table A4-4: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Alkalinity				Nitrogen						Phosphorus	
					Total (CaCO ₃)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Hydroxide (OH)	Ammonia	Nitrate/nitrite	Nitrate	Nitrite	Total Kjeldahl Nitrogen	Total N ¹	Dissolved P	Total P
					(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L N)	(mg/L N)	(mg/L N)	(mg/L N)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
Detection Limit 2022					1.0	1.2	0.60	0.34	0.010	0.0051	0.0050	0.0010	0.20		0.0010/0.0030	0.0030
Zone 8	Z8-5A, -5B, -5C SURF	L2717871-3, -5, -6	23-Jun-22	9:55	97.3	119	<0.60	<0.34	<0.010	0.0073	0.0072	<0.0010	0.48	0.49	0.0301	0.0416
Zone 8	Z8-6 SURF	L2717871-4	23-Jun-22	11:00	99.0	121	<0.60	<0.34	<0.010	0.0099	0.0099	<0.0010	0.47	0.48	0.0244	0.0390
Zone 11	Z11-1 SURF	L2716982-1	21-Jun-22	10:15	94.8	116	<0.60	<0.34	<0.010	0.0056	0.0056	<0.0010	0.41	0.42	0.0271	0.0433
Zone 11	Z11-3 SURF	L2716982-2	21-Jun-22	10:30	96.3	117	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.36	0.36	0.0263	0.0383
Zone 11	Z11-4 SURF	L2716982-3	21-Jun-22	10:50	97.7	119	<0.60	<0.34	0.011	<0.0051	<0.0050	<0.0010	0.36	0.36	0.0221	0.0337
Zone 11	Z11-6 SURF	L2716982-4	21-Jun-22	12:30	99.6	122	<0.60	<0.34	0.010	0.0344	0.0344	<0.0010	0.34	0.37	0.0240	0.0334
Zone 11	Z11-10 SURF	L2716982-5	21-Jun-22	9:10	78.8	96.1	<0.60	<0.34	0.011	<0.0051	<0.0050	<0.0010	0.64	0.64	0.0320	0.0500
Zone 11	Z11-11 SURF	L2716982-6	21-Jun-22	9:55	83.3	102	<0.60	<0.34	0.018	<0.0051	<0.0050	<0.0010	0.54	0.54	0.0356	0.0466
Zone 11	Z11-4 BOT	L2716982-7	21-Jun-22	10:50	99.4	121	<0.60	<0.34	0.014	0.0063	0.0063	<0.0010	0.32	0.33	0.0251	0.0359
Zone 12	Z12-6 SURF	L2718487-8	26-Jun-22	17:45	99.3	121	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.37	0.37	0.0251	0.0362
Zone 12	Z12-8 SURF	L2718487-9	26-Jun-22	16:05	81.0	98.8	<0.60	<0.34	0.030	0.0109	0.0109	<0.0010	0.57	0.58	0.0638	0.0709
Zone 12	Z12-9 SURF	L2718487-10	26-Jun-22	16:30	94.1	115	<0.60	<0.34	0.015	0.0111	0.0111	<0.0010	0.51	0.52	0.0406	0.0515
Zone 12	Z12-11 SURF	L2718487-11	26-Jun-22	18:15	99.6	122	<0.60	<0.34	0.013	0.0688	0.0688	<0.0010	0.45	0.52	0.0236	0.0347
Zone 12	Z12-13 SURF	L2718487-12	26-Jun-22	17:10	99.0	121	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.42	0.42	0.0237	0.0371
Zone 12	Z12-14 SURF	L2718487-13	26-Jun-22	16:45	94.6	115	<0.60	<0.34	0.019	<0.0051	<0.0050	<0.0010	0.48	0.48	0.0277	0.0423
Zone 12	Z12-13 BOT	L2718487-14	26-Jun-22	17:10	99.2	121	<0.60	<0.34	0.024	<0.0051	<0.0050	<0.0010	0.31	0.31	0.0285	0.0356
Zone 12	Z12-14 BOT	L2718487-15	26-Jun-22	16:45	88.1	107	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.36	0.36	0.0316	0.0481
Zone 12	Z12-8 BOT	L2718487-16	26-Jun-22	16:05	79.7	97.2	<0.60	<0.34	0.032	0.0077	0.0077	<0.0010	0.53	0.54	0.0649	0.0725
Zone 1b	Z1-5	L2725407-1	27-Jul-22	8:20	104	126	<0.60	<0.34	0.033	0.0271	0.0271	<0.0010	0.27	0.30	0.0250	0.0391
Zone 1b	Z1-6	L2725407-2	27-Jul-22	7:30	105	128	<0.60	<0.34	0.042	0.0412	0.0412	<0.0010	0.22	0.26	0.0246	0.0392
Zone 1b	Z1-7	L2725407-3	27-Jul-22	8:35	103	125	<0.60	<0.34	0.127	0.0245	0.0245	<0.0010	0.34	0.36	0.0261	0.0388
Zone 1b	Z1-8	L2725407-4	27-Jul-22	7:45	105	128	<0.60	<0.34	0.036	0.0228	0.0228	<0.0010	0.25	0.27	0.0258	0.0382
Zone 1b	Z1-9A, -9B, -9C	L2725407-5, -8, -9	27-Jul-22	8:00	107	130	<0.60	<0.34	0.079	0.0244	0.0244	<0.0010	0.21	0.23	0.0255	0.0388
Zone 4	Z4-3 SURF	L2725100-6	26-Jul-22	11:27	106	129	<0.60	<0.34	0.016	<0.0051	<0.0050	<0.0010	0.37	0.37	0.0254	0.0430
Zone 4	Z4-5 SURF	L2725100-7	26-Jul-22	12:29	107	130	<0.60	<0.34	0.018	<0.0051	<0.0050	<0.0010	0.39	0.39	0.0335	0.0389
Zone 4	Z4-6 SURF	L2725100-8	26-Jul-22	11:51	105	128	<0.60	<0.34	0.014	<0.0051	<0.0050	<0.0010	0.41	0.41	0.0259	0.0441
Zone 4	Z4-7 SURF	L2725100-9	26-Jul-22	12:17	110	134	<0.60	<0.34	0.018	<0.0051	<0.0050	<0.0010	0.45	0.45	0.0354	0.0461
Zone 8	Z8-1 SURF	L2724410-17	24-Jul-22	12:38	98.2	120	<0.60	<0.34	0.031	<0.0051	<0.0050	<0.0010	0.52	0.52	0.101	0.118
Zone 8	Z8-4 SURF	L2724410-18	24-Jul-22	13:45	105	128	<0.60	<0.34	0.040	0.0259	0.0259	<0.0010	0.31	0.34	0.0240	0.0338
Zone 8	Z8-5 SURF	L2724410-19	24-Jul-22	13:03	104	127	<0.60	<0.34	0.039	<0.0051	<0.0050	<0.0010	0.36	0.36	0.0530	0.0673
Zone 8	Z8-6 SURF	L2724410-20	24-Jul-22	13:33	105	128	<0.60	<0.34	0.012	0.0088	0.0088	<0.0010	0.30	0.31	0.0301	0.0469
Zone 11	Z11-1 SURF	L2724410-1	23-Jul-22	12:00	106	129	<0.60	<0.34	0.032	0.0238	0.0238	<0.0010	0.28	0.30	0.0471	0.0691
Zone 11	Z11-3 SURF	L2724410-2	23-Jul-22	12:15	105	128	<0.60	<0.34	0.013	0.0119	0.0119	<0.0010	<0.20	<0.20	0.0283	0.0398
Zone 11	Z11-4 SURF	L2724410-3	23-Jul-22	12:25	105	128	<0.60	<0.34	0.032	0.0164	0.0164	<0.0010	0.26	0.28	0.0271	0.0412
Zone 11	Z11-6 SURF	L2724410-4	23-Jul-22	13:30	105	128	<0.60	<0.34	0.05							

Table A4-4: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Alkalinity				Nitrogen						Phosphorus	
					Total (CaCO ₃)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Hydroxide (OH)	Ammonia	Nitrate/nitrite	Nitrate	Nitrite	Total Kjeldahl Nitrogen	Total N ¹	Dissolved P	Total P
					(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L N)	(mg/L N)	(mg/L N)	(mg/L N)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
Detection Limit 2022					1.0	1.2	0.60	0.34	0.010	0.0051	0.0050	0.0010	0.20		0.0010/0.0030	0.0030
Zone 12	Z12-8 SURF	L2724410-12	24-Jul-22	8:52	96.0	117	<0.60	<0.34	0.102	0.0157	0.0135	0.0023	0.93	0.95	0.0448	0.109
Zone 12	Z12-9 SURF	L2724410-13	24-Jul-22	9:03	106	130	<0.60	<0.34	0.021	0.0116	0.0116	<0.0010	0.30	0.31	0.0283	0.0459
Zone 12	Z12-11 SURF	L2724410-14	24-Jul-22	10:43	105	128	<0.60	<0.34	0.027	0.0551	0.0551	<0.0010	0.22	0.28	0.0234	0.0348
Zone 12	Z12-13 SURF	L2724410-15	24-Jul-22	10:16	107	130	<0.60	<0.34	0.016	0.0199	0.0199	<0.0010	0.34	0.36	0.0250	0.0374
Zone 12	Z12-14 SURF	L2724410-16	24-Jul-22	9:48	105	128	<0.60	<0.34	0.025	0.0064	0.0064	<0.0010	0.46	0.47	0.0494	0.0656
Zone 1b	Z1-5	L2730369-1	26-Aug-22	14:40	108	131	<0.60	<0.34	0.024	0.0210	0.0210	<0.0010	0.50	0.52	0.0239	0.0322
Zone 1b	Z1-6	L2730369-2	26-Aug-22	13:35	108	131	<0.60	<0.34	0.020	0.0192	0.0192	<0.0010	0.50	0.52	0.0247	0.0331
Zone 1b	Z1-7	L2730369-3	26-Aug-22	13:50	108	131	<0.60	<0.34	0.024	0.0207	0.0207	<0.0010	0.52	0.54	0.0264	0.0322
Zone 1b	Z1-8	L2730369-4	26-Aug-22	14:04	109	132	<0.60	<0.34	0.024	0.0160	0.0160	<0.0010	0.49	0.51	0.0254	0.0317
Zone 1b	Z1-9	L2730369-5	26-Aug-22	13:05	110	134	<0.60	<0.34	0.035	0.0209	0.0209	<0.0010	0.46	0.48	0.0275	0.0317
Zone 4	Z4-3 SURF	L2730098-8	24-Aug-22	13:02	107	130	<0.60	<0.34	0.019	0.0106	0.0106	<0.0010	0.25	0.26	0.0302	0.0436
Zone 4	Z4-5 SURF	L2730098-10	24-Aug-22	13:51	110	134	<0.60	<0.34	0.043	<0.0051	<0.0050	<0.0010	0.80	0.80	0.0348	0.0840
Zone 4	Z4-6 SURF	L2730098-11	24-Aug-22	12:50	109	133	<0.60	<0.34	0.031	0.0082	0.0082	<0.0010	0.56	0.57	0.0366	0.0690
Zone 4	Z4-7 SURF	L2730098-9	24-Aug-22	13:26	108	132	<0.60	<0.34	0.071	0.0175	0.0157	0.0018	0.53	0.55	0.0457	0.0610
Zone 8	Z8-1 SURF	L2730475-1	27-Aug-22	10:00	100	122	<0.60	<0.34	0.025	<0.0051	<0.0050	<0.0010	0.74	0.74	0.0746	0.0853
Zone 8	Z8-4 SURF	L2730475-2	27-Aug-22	11:10	106	129	<0.60	<0.34	0.020	0.0197	0.0197	<0.0010	0.34	0.36	0.0246	0.0343
Zone 8	Z8-5 SURF	L2730475-3	27-Aug-22	10:30	106	129	<0.60	<0.34	0.034	<0.0051	<0.0050	<0.0010	0.48	0.48	0.0370	0.0524
Zone 8	Z8-6 SURF	L2730475-4	27-Aug-22	11:00	105	128	<0.60	<0.34	0.031	<0.0051	<0.0050	<0.0010	0.46	0.46	0.0266	0.0391
Zone 11	Z11-1A, -1B, -1C SURF	L2730475-5, -13, -14	28-Aug-22	9:35	109	132	<0.60	<0.34	0.034	<0.0051	<0.0050	<0.0010	0.63	0.63	0.0419	0.0593
Zone 11	Z11-3 SURF	L2730475-6	28-Aug-22	9:55	108	132	<0.60	<0.34	0.027	<0.0051	<0.0050	<0.0010	0.40	0.40	0.0265	0.0366
Zone 11	Z11-4 SURF	L2730475-7	28-Aug-22	10:05	108	132	<0.60	<0.34	0.019	0.0159	0.0159	<0.0010	0.46	0.48	0.0251	0.0391
Zone 11	Z11-6 SURF	L2730475-8	28-Aug-22	11:00	110	134	<0.60	<0.34	0.026	0.0189	0.0189	<0.0010	0.38	0.40	0.0228	0.0315
Zone 11	Z11-10 SURF	L2730475-9	28-Aug-22	8:40	111	135	<0.60	<0.34	0.047	0.0678	0.0678	<0.0010	0.76	0.83	0.0830	0.106
Zone 11	Z11-11 SURF	L2730475-10	28-Aug-22	9:22	109	133	<0.60	<0.34	0.087	0.0089	0.0071	0.0018	0.82	0.83	0.0857	0.106
Zone 11	Z11-4 BOT	L2730475-15	28-Aug-22	10:05	107	131	<0.60	<0.34	0.019	0.0054	0.0054	<0.0010	0.50	0.51	0.0376	0.0458
Zone 11	Z11-6 BOT	L2730475-16	28-Aug-22	11:00	111	131	1.92	<0.34	0.019	0.0058	0.0058	<0.0010	0.45	0.46	0.0276	0.0350
Zone 12	Z12-6 SURF	L2730369-6	26-Aug-22	10:32	109	133	<0.60	<0.34	0.026	0.0092	0.0092	<0.0010	0.50	0.51	0.0268	0.0340
Zone 12	Z12-8 SURF	L2730369-7	26-Aug-22	8:50	107	130	<0.60	<0.34	0.165	0.0581	0.0494	0.0088	1.11	1.17	0.0752	0.0978
Zone 12	Z12-9 SURF	L2730369-8	26-Aug-22	9:02	109	133	<0.60	<0.34	0.038	0.0062	0.0062	<0.0010	0.52	0.53	0.0274	0.0388
Zone 12	Z12-11 SURF	L2730369-9	26-Aug-22	11:11	109	133	<0.60	<0.34	0.022	0.0147	0.0147	<0.0010	0.52	0.53	0.0251	0.0330
Zone 12	Z12-13 SURF	L2730369-10	26-Aug-22	10:05	109	133	<0.60	<0.34	0.045	0.0174	0.0174	<0.0010	0.50	0.52	0.0268	0.0352
Zone 12	Z12-14 SURF	L2730369-11	26-Aug-22	9:40	111	135	<0.60	<0.34	0.040	<0.0051	<0.0050	<0.0010	0.58	0.58	0.0481	0.0613
Zone 1b	Z1-5	L2736200-7	9-Oct-22	16:53	111	136	<0.60	<0.34	0.032	0.0825	0.0797	0.0028	0.22	0.30	0.0283	0.0347
Zone 1b	Z1-6	L2736200-8	9-Oct-22	17:30	112	137	<0.60	<0.34	0.035	0.0881	0.0856	0.0025	0.33	0.42	0.0276	0.0344
Zone 1b	Z1-7	L2736200-9	9-Oct-22	16:32	110	134	<0.60	<0.34	0.034	0.0819	0.0792	0.0028	0.33	0.41	0.0288	0.0357
Zone 1b	Z1-8	L27362														

Table A4-4: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Alkalinity				Nitrogen						Phosphorus	
					Total (CaCO ₃)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Hydroxide (OH)	Ammonia	Nitrate/ nitrite	Nitrate	Nitrite	Total Kjeldahl Nitrogen	Total N ¹	Dissolved P	Total P
					(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L N)	(mg/L N)	(mg/L N)	(mg/L N)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
Detection Limit 2022					1.0	1.2	0.60	0.34	0.010	0.0051	0.0050	0.0010	0.20		0.0010/0.0030	0.0030
Zone 4	Z4-6 SURF	L2736200-20	10-Oct-22	9:55	111	135	<0.60	<0.34	0.019	<0.0051	<0.0050	<0.0010	0.45	0.45	0.0133	0.0335
Zone 4	Z4-7 SURF	L2736200-21	10-Oct-22	10:17	111	135	<0.60	<0.34	0.014	0.0378	0.0363	0.0015	0.42	0.46	0.0214	0.0351
Zone 8	Z8-1 SURF	L2736054-1	6-Oct-22	14:26	84.3	103	<0.60	<0.34	0.041	0.0054	0.0054	<0.0010	0.71	0.72	0.0060	0.0323
Zone 8	Z8-4 SURF	L2736054-2	6-Oct-22	15:43	108	132	<0.60	<0.34	<0.010	0.0815	0.0784	0.0031	0.32	0.40	0.0212	0.0356
Zone 8	Z8-6 SURF	L2736054-4	6-Oct-22	15:09	110	135	<0.60	<0.34	<0.010	0.0263	0.0245	0.0018	0.46	0.49	0.0139	0.0351
Zone 8	Z8-5A, -5B, -5C SURF	L2736054-3,-7,-8	6-Oct-22	14:50	106	129	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.60	0.60	0.0104	0.0431
Zone 11	Z11-1 SURF	L2736200-12	10-Oct-22	12:05	109	133	<0.60	<0.34	0.032	0.0409	0.0399	0.0011	0.55	0.59	0.0218	0.0338
Zone 11	Z11-3 SURF	L2736200-13	10-Oct-22	12:11	111	135	<0.60	<0.34	0.029	0.0393	0.0377	0.0016	0.44	0.48	0.0077	0.0343
Zone 11	Z11-4 SURF	L2736200-14	10-Oct-22	12:22	111	135	<0.60	<0.34	0.019	0.0482	0.0464	0.0018	0.38	0.43	0.0206	0.0331
Zone 11	Z11-6 SURF	L2736200-15	10-Oct-22	13:02	111	136	<0.60	<0.34	0.038	0.0797	0.0770	0.0027	0.31	0.39	0.0277	0.0344
Zone 11	Z11-10 SURF	L2736200-16	10-Oct-22	11:32	99.6	122	<0.60	<0.34	0.049	0.0464	0.0447	0.0018	0.65	0.70	0.0241	0.0319
Zone 11	Z11-11 SURF	L2736200-17	10-Oct-22	11:40	108	132	<0.60	<0.34	0.034	0.0478	0.0467	0.0011	<0.20	<0.20	0.0230	0.0328
Zone 12	Z12-6 SURF	L2736200-1	9-Oct-22	15:00	112	136	<0.60	<0.34	0.029	0.0791	0.0768	0.0023	0.31	0.39	0.0289	0.0345
Zone 12	Z12-8 SURF	L2736200-2	9-Oct-22	13:18	105	128	<0.60	<0.34	0.019	0.124	0.122	0.0014	0.63	0.75	0.0310	0.0403
Zone 12	Z12-9 SURF	L2736200-3	9-Oct-22	13:28	112	136	<0.60	<0.34	0.024	0.0637	0.0619	0.0018	0.37	0.43	0.0239	0.0338
Zone 12	Z12-11 SURF	L2736200-4	9-Oct-22	15:31	112	136	<0.60	<0.34	0.038	0.0760	0.0736	0.0024	0.31	0.39	0.0269	0.0360
Zone 12	Z12-13 SURF	L2736200-5	9-Oct-22	14:37	113	137	<0.60	<0.34	0.028	0.0800	0.0777	0.0023	0.25	0.33	0.0278	0.0342
Zone 12	Z12-14 SURF	L2736200-6	9-Oct-22	14:05	112	136	<0.60	<0.34	0.024	0.0125	0.0125	<0.0010	<0.20	<0.20	0.0193	0.0417

Table A4-4: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Carbon		Water Clarity			Laboratory Conductivity	Total Dissolved Solids	Productivity			
					Total Organic C	Dissolved Organic C	Total Suspended Solids	Turbidity (NTU)	True Colour (CU)			Chlorophyll <i>a</i>	Phaeophytin <i>a</i>		
												(mg/L)	(μg/L)		
Detection Limit 2022					0.50	0.50	1.0	0.10	5.0	0.10	1.0	13/20	0.10	0.10	
Zone 1b	Z1-5	L2693729-1	21-Mar-22	9:10	8.61	8.62	3.5	11.6	11.8	8.13	291	174	0.28	0.83	
Zone 1b	Z1-6	L2693729-2	21-Mar-22	9:50	8.84	9.14	2.8	10.8	14.7	8.10	290	171	2.47	0.99	
Zone 1b	Z1-7	L2693729-3	21-Mar-22	12:35	8.47	8.93	3.4	11.3	13.7	8.12	290	184	0.29	0.82	
Zone 1b	Z1-8	L2693729-4	21-Mar-22	10:30	8.57	9.66	3.2	11.6	13.2	8.10	285	173	0.31	0.79	
Zone 1b	Z1-9A,-9B,-9C	L2693729-5,-6,-7	21-Mar-22	11:35	8.79	9.20	3.9	12.1	14.0	8.11	286	196	0.29	0.81	
Zone 4	Z4-3 SURF	L2693459-1	19-Mar-22	15:35	8.68	8.70	1.9	11.0	13.9	7.93	282	177	0.37	0.73	
Zone 4	Z4-5 SURF	L2693459-2	19-Mar-22	13:45	9.37	9.51	1.1	9.67	15.7	7.93	287	181	2.05	0.99	
Zone 4	Z4-5 BOT	L2693459-5	19-Mar-22	13:50	9.71	9.49	1.3	10.0	16.8	7.91	283	180	1.65	0.95	
Zone 4	Z4-6 SURF	L2693459-3	19-Mar-22	14:35	8.99	9.39	1.5	10.1	15.7	7.96	288	173	0.74	0.92	
Zone 4	Z4-7 SURF	L2693459-4	19-Mar-22	15:05	8.76	9.28	1.1	10.2	16.5	7.97	281	177	2.96	1.14	
Zone 8	Z8-1 SURF	L2694745-6	24-Mar-22	12:25	25.7	25.9	4.1	6.56	149	7.17	384	243	16.6	10.6	
Zone 8	Z8-4 SURF	L2694960-6	27-Mar-22	10:20	9.04	9.07	1.6	9.92	16.6	8.05	286	175	5.52	1.25	
Zone 8	Z8-5 SURF	L2694745-7	24-Mar-22	13:05	12.9	12.6	5.5	7.21	34.2	7.51	317	200	8.88	3.54	
Zone 8	Z8-6 SURF	L2694960-7	27-Mar-22	9:45	8.97	9.20	<1.0	8.74	15.8	8.04	287	180	1.33	0.91	
Zone 11	Z11-1 SURF	L2693729-8	21-Mar-22	14:35	9.55	11.1	1.2	8.35	20.2	7.92	308	150	0.58	0.79	
Zone 11	Z11-3 SURF	L2693729-9	21-Mar-22	15:25	8.94	10.3	1.2	9.30	17.7	8.05	304	161	4.34	1.40	
Zone 11	Z11-4 SURF	L2694370-6	23-Mar-22	9:15	8.66	8.99	1.3	10.1	23.5	8.07	297	186	0.35	0.67	
Zone 11	Z11-4 BOT	L2694370-7	23-Mar-22	9:20	8.50	9.03	1.5	10.3	13.0	8.07	295	184	0.23	0.58	
Zone 11	Z11-6 SURF	L2694370-8	23-Mar-22	10:30	8.41	9.01	2.7	11.0	12.5	8.06	302	183	0.24	0.68	
Zone 11	Z11-6 BOT	L2694370-9	23-Mar-22	10:35	8.33	8.87	2.3	10.8	12.7	8.02	292	184	0.25	0.66	
Zone 11	Z11-10 SURF	L2693729-10	21-Mar-22	14:00	16.4	18.4	3.6	4.45	63.6	7.42	332	208	1.74	1.61	
Zone 11	Z11-11 SURF	L2693729-11	21-Mar-22	13:15	10.7	11.0	2.4	7.55	26.9	7.72	311	175	1.42	0.98	
Zone 12	Z12-6 SURF	L2694745-1	24-Mar-22	11:40	8.53	8.51	1.9	10.1	12.9	8.04	295	184	0.37	0.83	
Zone 12	Z12-8 SURF	L2694745-2	24-Mar-22	9:00	21.6	22.1	2.9	12.4	100	7.18	334	219	4.81	5.11	
Zone 12	Z12-9 SURF	L2694745-3	24-Mar-22	9:40	12.0	11.8	2.1	6.36	38.0	7.44	305	186	0.88	0.96	
Zone 12	Z12-11 SURF	L2694745-4	24-Mar-22	10:15	8.31	8.49	1.6	9.50	12.1	8.04	297	186	0.42	0.76	
Zone 12	Z12-13 SURF	L2694960-8	27-Mar-22	9:00	9.05	9.48	1.2	9.01	17.5	8.01	299	187	0.84	0.88	
Zone 12	Z12-14 SURF	L2694745-5	24-Mar-22	11:00	17.0	16.9	7.7	18.2	77.4	7.10	295	194	3.04	1.40	
Zone 1b	Z1-5	L2718170-10	26-Jun-22	12:40	8.45	9.04	9.7	12.9	17.3	8.16	285	182	1.30	0.73	
Zone 1b	Z1-6	L2718170-11	26-Jun-22	13:25	8.44	9.27	3.6	11.4	18.5	8.12	282	188	1.91	0.81	
Zone 1b	Z1-7	L2718170-12	26-Jun-22	12:15	8.53	9.27	5.5	12.6	17.8	8.16	286	186	1.69	0.86	
Zone 1b	Z1-8	L2718170-13	26-Jun-22	13:10	8.45	9.37	6.1	11.3	20.4	8.12	284	179	2.48	1.08	
Zone 1b	Z1-9	L2718170-14	26-Jun-22	12:55	8.61	9.03	8.9	14.2	17.4	8.15	285	186	1.51	0.87	
Zone 4	Z4-3 SURF	L2718170-6	26-Jun-22	11:25	8.59	9.42	6.0	9.85	22.5	8.11	278	178	2.70	1.04	
Zone 4	Z4-5 SURF	L2718170-7	26-Jun-22	10:20	9.20	9.67	3.7	3.71	22.6	8.01	264	162	4.33	1.55	
Zone 4	Z4-6 SURF	L2718170-8	26-Jun-22	10:55	9.25	10.1	3.7	3.91	23.4	8.04	263	161	5.74	1.87	
Zone 4	Z4-7 SURF	L2718170-9	26-Jun-22	11:15	9.01	9.79	2.5	6.54	23.7	8.05	273	173	4.11	1.60	
Zone 8	Z8-1 SURF	L2717871-1	23-Jun-22	9:10	12.0	13.3	3.5	2.61	42.2	7.80	231	147	8.38	3.91	
Zone 8	Z8-4 SURF	L2717871-2	23-Jun-22	11:15	8.80	9.36	6.9	11.5	16.5	8.06	281	176	2.52	1.03	
Zone 8	Z8-5A,-5B,-5C SURF	L2717871-3,-5,-6	23-Jun-22	9:55	9.05	9.89	5.8	7.13	21.9	8.00	273	160	4.13	1.58	

1. Total nitrogen calculated as the sum of total Kjeldahl nitrogen and nitrate/nitrite.

Table A4-4: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Carbon		Water Clarity			Laboratory Conductivity	Total Dissolved Solids	Productivity		
					Total Organic C	Dissolved Organic C	Total Suspended Solids	Turbidity	True Colour			Chlorophyll <i>a</i>	Phaeophytin <i>a</i>	
					(mg/L)	(mg/L)	(mg/L)	(NTU)	(CU)			(µmhos/cm)	(mg/L)	
Detection Limit 2022					0.50	0.50	1.0	0.10	5.0	0.10	1.0	13/20	0.10	0.10
Zone 8	Z8-6 SURF	L2717871-4	23-Jun-22	11:00	8.60	9.12	5.1	8.43	17.7	7.93	275	177	3.13	1.17
Zone 11	Z11-1 SURF	L2716982-1	21-Jun-22	10:15	10.6	11.8	3.3	4.38	26.1	8.07	243	149	5.08	2.63
Zone 11	Z11-3 SURF	L2716982-2	21-Jun-22	10:30	9.11	10.9	4.8	6.63	19.7	8.11	266	152	3.47	1.67
Zone 11	Z11-4 SURF	L2716982-3	21-Jun-22	10:50	8.93	10.7	4.3	7.43	19.8	8.13	269	162	4.35	1.64
Zone 11	Z11-6 SURF	L2716982-4	21-Jun-22	12:30	8.55	8.81	3.9	9.12	18.1	8.13	277	188	3.02	1.29
Zone 11	Z11-10 SURF	L2716982-5	21-Jun-22	9:10	14.6	14.5	2.5	1.35	58.0	7.86	188	125	8.34	5.20
Zone 11	Z11-11 SURF	L2716982-6	21-Jun-22	9:55	12.4	12.4	1.9	2.02	44.9	7.91	212	132	6.35	3.43
Zone 11	Z11-4 BOT	L2716982-7	21-Jun-22	10:50	8.94	8.97	3.9	8.37	18.6	8.14	275	173	2.27	1.23
Zone 12	Z12-6 SURF	L2718487-8	26-Jun-22	17:45	8.71	9.97	6.1	11.3	18.1	8.15	290	196	3.88	1.18
Zone 12	Z12-8 SURF	L2718487-9	26-Jun-22	16:05	13.4	13.7	1.8	1.25	64.0	7.85	208	131	4.80	2.63
Zone 12	Z12-9 SURF	L2718487-10	26-Jun-22	16:30	10.5	11.0	3.6	3.01	37.1	7.93	265	167	3.76	1.76
Zone 12	Z12-11 SURF	L2718487-11	26-Jun-22	18:15	8.32	9.47	6.7	13.0	19.6	8.15	289	178	3.77	1.38
Zone 12	Z12-13 SURF	L2718487-12	26-Jun-22	17:10	8.30	8.83	4.8	11.3	19.2	8.14	281	187	4.24	1.43
Zone 12	Z12-14 SURF	L2718487-13	26-Jun-22	16:45	9.46	9.47	3.7	4.26	31.7	8.03	264	156	8.01	1.76
Zone 12	Z12-13 BOT	L2718487-14	26-Jun-22	17:10	8.32	8.96	6.0	7.82	22.2	8.09	283	169	2.88	1.37
Zone 12	Z12-14 BOT	L2718487-15	26-Jun-22	16:45	11.2	11.1	3.3	2.11	43.0	7.95	240	187	7.39	2.88
Zone 12	Z12-8 BOT	L2718487-16	26-Jun-22	16:05	13.9	14.4	2.7	1.06	67.5	7.80	202	146	4.85	3.39
Zone 1b	Z1-5	L2725407-1	27-Jul-22	8:20	8.20	8.35	4.7	8.96	13.9	8.19	300	189	1.35	0.91
Zone 1b	Z1-6	L2725407-2	27-Jul-22	7:30	8.04	8.76	13.5	7.15	14.2	8.13	299	194	1.30	0.90
Zone 1b	Z1-7	L2725407-3	27-Jul-22	8:35	8.33	8.57	6.2	7.87	14.2	8.09	298	194	1.35	0.92
Zone 1b	Z1-8	L2725407-4	27-Jul-22	7:45	8.06	8.77	6.3	7.46	15.6	8.14	298	193	1.21	0.82
Zone 1b	Z1-9A,-9B,-9C	L2725407-5,-8,-9	27-Jul-22	8:00	9.44	9.18	4.2	8.17	12.0	8.18	300	201	1.36	0.85
Zone 4	Z4-3 SURF	L2725100-6	26-Jul-22	11:27	9.31	9.48	3.4	7.06	17.0	8.06	295	180	8.57	2.40
Zone 4	Z4-5 SURF	L2725100-7	26-Jul-22	12:29	10.0	10.3	2.9	2.82	26.4	7.84	288	173	11.7	3.68
Zone 4	Z4-6 SURF	L2725100-8	26-Jul-22	11:51	10.3	10.3	3.4	3.36	26.4	8.02	288	175	19.1	4.82
Zone 4	Z4-7 SURF	L2725100-9	26-Jul-22	12:17	9.91	10.8	2.7	3.14	22.1	7.92	297	176	9.53	3.08
Zone 8	Z8-1 SURF	L2724410-17	24-Jul-22	12:38	14.9	15.4	1.6	0.84	87.3	7.85	249	176	3.79	2.42
Zone 8	Z8-4 SURF	L2724410-18	24-Jul-22	13:45	8.25	8.57	2.7	8.74	14.2	8.26	302	203	2.35	0.86
Zone 8	Z8-5 SURF	L2724410-19	24-Jul-22	13:03	10.4	10.6	<1.0	2.13	40.3	8.05	289	195	5.04	1.96
Zone 8	Z8-6 SURF	L2724410-20	24-Jul-22	13:33	8.91	9.14	3.0	4.78	55.6	8.17	297	198	6.44	1.97
Zone 11	Z11-1 SURF	L2724410-1	23-Jul-22	12:00	10.7	10.4	3.6	3.01	30.9	7.97	291	188	11.1	3.85
Zone 11	Z11-3 SURF	L2724410-2	23-Jul-22	12:15	8.75	8.81	3.9	6.83	16.0	8.12	301	207	3.99	1.50
Zone 11	Z11-4 SURF	L2724410-3	23-Jul-22	12:25	8.54	8.60	4.2	7.07	14.7	8.14	301	201	4.7	1.45
Zone 11	Z11-6 SURF	L2724410-4	23-Jul-22	13:30	8.01	8.41	2.6	8.21	12.3	8.19	302	195	2.83	1.08
Zone 11	Z11-10 SURF	L2724410-5	23-Jul-22	11:15	16.5	17.5	1.0	0.91	103	7.68	224	237	3.21	3.73
Zone 11	Z11-11A, -11B,-11C SURF	L2724410-6, -7, -8	23-Jul-22	11:45	13.90	14.30	2.0	1.39	79.8	7.74	255	207	4.18	3.99
Zone 12	Z12-6 SURF	L2724410-11	24-Jul-22	11:39	8.00	8.82	3.0	7.53	15.0	8.22	305	200	2.53	1.00
Zone 12	Z12-8 SURF	L2724410-12	24-Jul-22	8:52	14.9	14.2	6.1	10.0	75.4	7.88	257	174	39.5	1.88
Zone 12	Z12-9 SURF	L2724410-13	24-Jul-22	9:03	8.71	8.94	2.8	6.34	20.1	8.16	301	200	5.12	2.13
Zone 12	Z12-11 SURF	L2724410-14	24-Jul-22	10:43	8.19	8.77	4.0	8.92	13.4	8.25	304	202	2.24	0.96

Table A4-4: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Carbon		Water Clarity			Laboratory Conductivity	Total Dissolved Solids	Productivity		
					Total Organic C	Dissolved Organic C	Total Suspended Solids	Turbidity	True Colour			Chlorophyll <i>a</i>	Phaeophytin <i>a</i>	
					(mg/L)	(mg/L)	(mg/L)	(NTU)	(CU)			(µmhos/cm)	(mg/L)	
Detection Limit 2022					0.50	0.50	1.0	0.10	5.0	0.10	1.0	13/20	0.10	0.10
Zone 12	Z12-13 SURF	L2724410-15	24-Jul-22	10:16	8.25	8.62	2.8	7.43	15.7	8.22	302	201	3.09	1.28
Zone 12	Z12-14 SURF	L2724410-16	24-Jul-22	9:48	12.1	11.4	1.1	2.06	39.3	8.03	278	190	4.37	3.00
Zone 1b	Z1-5	L2730369-1	26-Aug-22	14:40	9.12	7.72	2.7	5.83	5.2	8.14	307	183	1.78	1.00
Zone 1b	Z1-6	L2730369-2	26-Aug-22	13:35	9.08	7.87	1.9	5.18	6.5	8.10	301	178	3.03	1.00
Zone 1b	Z1-7	L2730369-3	26-Aug-22	13:50	9.58	7.65	2.7	5.19	6.2	8.15	306	175	1.72	0.94
Zone 1b	Z1-8	L2730369-4	26-Aug-22	14:04	8.94	7.75	1.9	4.73	7.4	8.12	303	179	2.08	0.91
Zone 1b	Z1-9	L2730369-5	26-Aug-22	13:05	9.47	7.79	3.1	5.87	7.0	8.17	304	180	1.86	0.95
Zone 4	Z4-3 SURF	L2730098-8	24-Aug-22	13:02	8.64	7.89	3.4	5.37	43.5	8.03	294	198	4.57	1.44
Zone 4	Z4-5 SURF	L2730098-10	24-Aug-22	13:51	9.95	9.53	4.6	4.01	28.5	7.92	289	195	21.7	5.71
Zone 4	Z4-6 SURF	L2730098-11	24-Aug-22	12:50	9.62	9.15	3.4	2.65	25.2	8.00	314	194	14.5	4.85
Zone 4	Z4-7 SURF	L2730098-9	24-Aug-22	13:26	9.40	8.93	1.6	2.24	28.8	7.79	292	185	4.81	2.35
Zone 8	Z8-1 SURF	L2730475-1	27-Aug-22	10:00	18.6	18.9	<1.0	0.53	82.6	7.96	233	141	5.17	3.02
Zone 8	Z8-4 SURF	L2730475-2	27-Aug-22	11:10	9.10	8.75	2.1	5.44	6.9	8.25	304	190	3.58	1.22
Zone 8	Z8-5 SURF	L2730475-3	27-Aug-22	10:30	10.8	10.6	2.9	2.23	26.1	8.14	295	180	8.33	3.16
Zone 8	Z8-6 SURF	L2730475-4	27-Aug-22	11:00	9.54	9.05	2.5	3.46	18.8	8.25	301	189	4.44	2.06
Zone 11	Z11-1A,-1B,-1C SURF	L2730475-5,-13,-14	28-Aug-22	9:35	9.98	10.18	2.1	1.47	28.3	8.19	296	185	8.07	3.19
Zone 11	Z11-3 SURF	L2730475-6	28-Aug-22	9:55	8.38	9.29	2.7	2.68	15.1	8.23	304	199	5.06	2.18
Zone 11	Z11-4 SURF	L2730475-7	28-Aug-22	10:05	8.34	9.43	2.4	2.58	12.8	8.23	304	181	5.56	2.24
Zone 11	Z11-6 SURF	L2730475-8	28-Aug-22	11:00	7.45	8.45	2.4	4.96	10.9	8.28	309	195	2.62	1.08
Zone 11	Z11-10 SURF	L2730475-9	28-Aug-22	8:40	14.4	14.2	1.3	0.94	64.8	8.02	271	172	11.0	5.77
Zone 11	Z11-11 SURF	L2730475-10	28-Aug-22	9:22	12.8	13.0	<1.0	0.72	55.7	8.04	277	165	9.23	4.54
Zone 11	Z11-4 BOT	L2730475-15	28-Aug-22	10:05	8.82	8.78	2.6	2.16	14.0	8.19	305	169	3.79	2.19
Zone 11	Z11-6 BOT	L2730475-16	28-Aug-22	11:00	8.31	8.06	2.6	3.10	12.2	8.30	306	189	2.30	1.33
Zone 12	Z12-6 SURF	L2730369-6	26-Aug-22	10:32	9.84	7.91	1.9	4.07	8.7	8.07	305	178	2.96	1.09
Zone 12	Z12-8 SURF	L2730369-7	26-Aug-22	8:50	16.9	13.9	<1.0	0.76	66.7	7.73	261	159	13.6	2.79
Zone 12	Z12-9 SURF	L2730369-8	26-Aug-22	9:02	10.2	8.16	2.1	3.81	11.7	8.11	307	140	3.74	1.35
Zone 12	Z12-11 SURF	L2730369-9	26-Aug-22	11:11	9.40	7.75	1.7	4.64	8.4	8.17	312	198	2.32	0.85
Zone 12	Z12-13 SURF	L2730369-10	26-Aug-22	10:05	9.55	7.90	1.9	4.32	11.1	8.11	309	190	2.86	1.34
Zone 12	Z12-14 SURF	L2730369-11	26-Aug-22	9:40	12.7	10.8	1.1	1.36	34.6	8.04	285	177	6.14	2.83
Zone 1b	Z1-5	L2736200-7	9-Oct-22	16:53	7.67	8.15	1.8	7.93	10.1	8.21	304	186	1.20	0.78
Zone 1b	Z1-6	L2736200-8	9-Oct-22	17:30	7.61	7.93	1.9	6.96	11.2	8.21	308	195	1.97	0.83
Zone 1b	Z1-7	L2736200-9	9-Oct-22	16:32	7.24	7.88	2.2	8.13	11.1	8.25	307	174	1.17	0.74
Zone 1b	Z1-8	L2736200-10	9-Oct-22	17:19	7.40	7.94	1.6	7.39	7.5	8.22	306	184	1.37	0.75
Zone 1b	Z1-9	L2736200-11	9-Oct-22	17:06	7.76	7.52	1.9	8.17	9.8	8.23	306	183	1.23	0.77
Zone 4	Z4-3 SURF	L2736200-18	10-Oct-22	10:45	7.91	7.98	1.8	7.33	11.3	8.21	303	177	6.47	1.72
Zone 4	Z4-5 SURF	L2736200-19	10-Oct-22	9:25	9.41	9.26	2.8	2.52	20.6	8.15	305	187	12.9	4.80
Zone 4	Z4-6 SURF	L2736200-20	10-Oct-22	9:55	8.83	8.50	3.0	3.40	17.6	8.19	306	183	15.7	4.56
Zone 4	Z4-7 SURF	L2736200-21	10-Oct-22	10:17	8.69	8.65	3.4	4.53	16.9	8.17	304	175	10.1	3.01
Zone 8	Z8-1 SURF	L2736054-1	6-Oct-22	14:26	20.8	21.2	<1.0	0.68	93.2	7.54	175	142	7.26	3.42
Zone 8	Z8-4 SURF	L2736054-2	6-Oct-22	15:43	7.89	7.97	<1.0	6.97	10.6	7.99	311	195	2.72	0.86

Table A4-4: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Carbon		Water Clarity			Laboratory Conductivity	Total Dissolved Solids	Productivity		
					Total Organic C	Dissolved Organic C	Total Suspended Solids	Turbidity	True Colour			Chlorophyll <i>a</i>	Phaeophytin <i>a</i>	
					(mg/L)	(mg/L)	(mg/L)	(NTU)	(CU)			(µmhos/cm)	(µg/L)	
Detection Limit 2022													0.10	0.10
Zone 8	Z8-6 SURF	L2736054-4	6-Oct-22	15:09	8.50	8.21	1.5	5.93	16.9	7.99	313	200	10.8	2.93
Zone 8	Z8-5A,-5B,-5C SURF	L2736054-3,-7,-8	6-Oct-22	14:50	11.4	11.3	2.6	2.67	34.8	7.82	288	181	18.4	5.06
Zone 11	Z11-1 SURF	L2736200-12	10-Oct-22	12:05	10.5	10.2	2.2	3.43	25.0	8.12	299	179	9.40	3.10
Zone 11	Z11-3 SURF	L2736200-13	10-Oct-22	12:11	8.41	8.36	3.2	6.51	11.8	8.19	312	172	10.9	2.68
Zone 11	Z11-4 SURF	L2736200-14	10-Oct-22	12:22	8.14	8.04	2.8	6.20	11.7	8.24	314	152	8.97	2.17
Zone 11	Z11-6 SURF	L2736200-15	10-Oct-22	13:02	7.60	7.63	1.4	6.72	8.9	8.27	317	152	2.16	0.90
Zone 11	Z11-10 SURF	L2736200-16	10-Oct-22	11:32	17.6	17.8	<1.0	0.59	64.2	8.09	231	139	6.58	2.91
Zone 11	Z11-11 SURF	L2736200-17	10-Oct-22	11:40	11.3	11.1	1.8	2.55	28.5	8.05	293	150	8.23	3.20
Zone 12	Z12-6 SURF	L2736200-1	9-Oct-22	15:00	7.83	7.77	1.2	6.77	9.8	8.16	318	193	2.40	0.89
Zone 12	Z12-8 SURF	L2736200-2	9-Oct-22	13:18	13.6	13.5	<1.0	1.48	46.9	8.04	267	163	5.47	2.94
Zone 12	Z12-9 SURF	L2736200-3	9-Oct-22	13:28	8.09	8.53	2.8	6.76	14.1	8.16	313	185	4.62	1.48
Zone 12	Z12-11 SURF	L2736200-4	9-Oct-22	15:31	7.42	7.66	2.2	7.50	10.5	8.19	317	186	3.21	1.07
Zone 12	Z12-13 SURF	L2736200-5	9-Oct-22	14:37	7.51	7.94	2.1	6.87	10.3	8.18	318	185	2.99	1.04
Zone 12	Z12-14 SURF	L2736200-6	9-Oct-22	14:05	9.00	8.87	4.5	6.45	17.5	8.12	308	178	8.62	2.79

Table A4-5: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2022.

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Alkalinity				Nitrogen				Phosphorus			
					Total (CaCO ₃) (mg/L)	Bicarbonate (HCO ₃) (mg/L)	Carbonate (CO ₃) (mg/L)	Hydroxide (OH) (mg/L)	Ammonia (mg/L N)	Nitrate/nitrite (mg/L N)	Nitrate (mg/L N)	Nitrite (mg/L N)	Total Kjeldahl Nitrogen (mg/L)	Total N ¹ (mg/L)	Dissolved P (mg/L)	Total P (mg/L)
Detection Limit 2022					1.0	1.2	0.60	0.34	0.010/0.020	0.0051	0.0050	0.0010	0.20	-	0.0010/0.0030	0.0030
Split Lake	SPL-10	L2693459-6	20-Mar-22	15:50	88.6	108	<0.60	<0.34	0.015	0.102	0.102	<0.0010	0.29	0.39	0.0239	0.0374
	SPL-11	L2693459-7	20-Mar-22	15:10	88.1	107	<0.60	<0.34	<0.010	0.101	0.101	<0.0010	0.26	0.36	0.0236	0.0362
	SPL-12	L2693459-8	20-Mar-22	12:50	96.8	118	<0.60	<0.34	<0.010	0.107	0.107	<0.0010	0.34	0.45	0.0265	0.0403
	SPL-13	L2693459-9	20-Mar-22	14:15	88.5	108	<0.60	<0.34	<0.010	0.102	0.102	<0.0010	0.30	0.40	0.0223	0.0385
	SPL-14	L2693459-10	20-Mar-22	13:40	106	129	<0.60	<0.34	<0.010	0.109	0.109	<0.0010	0.43	0.54	0.0300	0.0406
Nelson River - Upstream of the Keeyask GS	US-6	L2694370-1	23-Mar-22	11:25	105	128	<0.60	<0.34	<0.010	0.117	0.115	0.0017	0.32	0.44	0.0280	0.0443
	US-7	L2694370-2	23-Mar-22	12:35	105	128	<0.60	<0.34	<0.020	0.114	0.114	<0.0010	0.47	0.58	0.0278	0.0429
	US-8	L2694370-3	23-Mar-22	12:00	106	129	<0.60	<0.34	0.023	0.116	0.116	<0.0010	0.38	0.50	0.0273	0.0503
	US-9	L2694370-4	23-Mar-22	13:25	106	129	<0.60	<0.34	<0.010	0.114	0.114	<0.0010	0.36	0.47	0.0268	0.0427
	US-10	L2694370-5	23-Mar-22	13:00	106	129	<0.60	<0.34	<0.010	0.114	0.114	<0.0010	0.32	0.43	0.0290	0.0440
Stephens Lake - Near-field	NF-1A,-1B,-1C	L2694960-9,-14,-15	27-Mar-22	11:50	105	129	<0.60	<0.34	<0.010	0.119	0.119	<0.0010	0.32	0.44	0.0266	0.0413
	NF-2	L2694960-10	27-Mar-22	12:40	105	128	<0.60	<0.34	<0.010	0.113	0.113	<0.0010	0.31	0.42	0.0262	0.0402
	NF-3	L2694960-11	27-Mar-22	14:10	105	127	<0.60	<0.34	<0.010	0.113	0.113	<0.0010	0.33	0.44	0.0271	0.0408
	NF-4	L2694960-12	27-Mar-22	13:35	104	127	<0.60	<0.34	<0.010	0.113	0.113	<0.0010	0.24	0.35	0.0279	0.0397
	NF-5	L2694960-13	27-Mar-22	11:05	105	128	<0.60	<0.34	<0.010	0.112	0.112	<0.0010	0.36	0.47	0.0284	0.0408
Stephens Lake - Far-field	FF-1	L2695249-1	28-Mar-22	8:25	104	127	<0.60	<0.34	<0.010	0.128	0.128	<0.0010	0.30	0.43	0.0292	0.0413
	FF-2	L2695249-2	28-Mar-22	8:55	104	127	<0.60	<0.34	<0.010	0.115	0.115	<0.0010	0.32	0.44	0.0290	0.0411
	FF-3	L2695249-3	28-Mar-22	9:40	100	122	<0.60	<0.34	<0.010	0.112	0.112	<0.0010	0.33	0.44	0.0279	0.0392
	FF-4	L2695249-4	28-Mar-22	10:25	103	126	<0.60	<0.34	<0.010	0.114	0.113	0.0011	0.32	0.43	0.0269	0.0387
	FF-5	L2695249-5	28-Mar-22	11:05	98.6	120	<0.60	<0.34	<0.010	0.113	0.113	<0.0010	0.29	0.40	0.0267	0.0399
Clark Lake	CL-1	L2718170-1	26-Jun-22	8:15	102	125	<0.60	<0.34	0.017	0.0139	0.0139	<0.0010	0.38	0.39	0.0266	0.0341
	CL-2	L2718170-2	26-Jun-22	8:35	99.3	121	<0.60	<0.34	0.017	0.0137	0.0137	<0.0010	0.39	0.40	0.0265	0.0350
	CL-3	L2718170-3	26-Jun-22	8:55	100	122	<0.60	<0.34	0.022	0.0135	0.0135	<0.0010	0.39	0.40	0.0274	0.0342
	CL-4	L2718170-4	26-Jun-22	9:10	97.8	119	<0.60	<0.34	0.023	0.0115	0.0115	<0.0010	0.39	0.40	0.0263	0.0344
	CL-5	L2718170-5	26-Jun-22	9:20	97.4	119	<0.60	<0.34	0.020	0.0111	0.0111	<0.0010	0.38	0.39	0.0256	0.0334
Nelson River - Upstream of the Keeyask GS	US-1	L2718487-1	26-Jun-22	14:05	99.6	122	<0.60	<0.34	0.019	0.0134	0.0134	<0.0010	0.34	0.35	0.0246	0.0327
	US-2	L2718487-2	26-Jun-22	14:20	98.3	120	<0.60	<0.34	0.018	0.0255	0.0255	<0.0010	0.38	0.41	0.0260	0.0352
	US-3A,-3B,-3C	L2718487-3,-6,-7	26-Jun-22	15:10	99.4	122	<0.60	<0.34	0.019	0.0130	0.0130	<0.0010	0.37	0.38	0.0249	0.0352
	US-4	L2718487-4	26-Jun-22	14:40	98.7	120	<0.60	<0.34	0.022	0.0174	0.0174	<0.0010	0.37	0.39	0.0260	0.0337
	US-5	L2718487-5	26-Jun-22	15:30	98.7	120	<0.60	<0.34	0.027	0.0133	0.0133	<0.0010	0.39	0.40	0.0249	0.0351
Stephens Lake - Near-field	NF-1	L2717875-1	24-Jun-22	9:50	98.4	120	<0.60	<0.34	0.011	0.0128	0.0128	<0.0010	0.42	0.43	0.0226	0.0327
	NF-2	L2717875-2	24-Jun-22	10:25	98.2	120	<0.60	<0.34	<0.010	0.0197	0.0197	<0.0010	0.40	0.42	0.0218	0.0335
	NF-3	L2717875-3	24-Jun-22	9:20	98.5	120	<0.60	<0.34	<0.010	0.0149	0.0149	<0.0010	0.38	0.39	0.0223	0.0336
	NF-4	L2717875-4	24-Jun-22	10:50	98.5	120	<0.60	<0.34	0.011	0.0603	0.0603	<0.0010	0.43	0.49	0.0226	0.0342
	NF-5	L2717875-5	24-Jun-22	8:45	99.2	121	<0.60	<0.34	0.010	0.0108	0.0108	<0.0010	0.43	0.44	0.0233	0.0336
Stephens Lake - Far-field	FF-1	L2717875-6	24-Jun-22	11:35	99.3	121	<0.60	<0.34	<0.010	0.0132	0.0132	<0.0010	0.40	0.41</td		

Table A4-5: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Alkalinity				Nitrogen					Phosphorus		
					Total (CaCO ₃) (mg/L)	Bicarbonate (HCO ₃) (mg/L)	Carbonate (CO ₃) (mg/L)	Hydroxide (OH) (mg/L)	Ammonia (mg/L N)	Nitrate/nitrite (mg/L N)	Nitrate (mg/L N)	Nitrite (mg/L N)	Total Kjeldahl Nitrogen (mg/L)	Total N ¹ (mg/L)	Dissolved P (mg/L)	Total P (mg/L)
Detection Limit 2022					1.0	1.2	0.60	0.34	0.010/ 0.020	0.0051	0.0050	0.0010	0.20	-	0.0010/ 0.0030	0.0030
Clark Lake	CL-1	L2725100-1	26-Jul-22	10:13	107	130	<0.60	<0.34	0.034	0.0506	0.0506	<0.0010	0.33	0.38	0.0256	0.0308
	CL-2	L2725100-2	26-Jul-22	9:51	105	128	<0.60	<0.34	0.026	0.0406	0.0406	<0.0010	0.44	0.48	0.0281	0.0336
	CL-3	L2725100-3	26-Jul-22	10:30	105	128	<0.60	<0.34	0.029	0.0219	0.0219	<0.0010	0.29	0.31	0.0267	0.0312
	CL-4	L2725100-4	26-Jul-22	9:34	104	127	<0.60	<0.34	0.030	0.0271	0.0271	<0.0010	0.33	0.36	0.0277	0.0279
	CL-5	L2725100-5	26-Jul-22	9:15	100	122	<0.60	<0.34	0.032	0.0369	0.0369	<0.0010	0.21	0.25	0.0263	0.031
Nelson River - Upstream of the Keeyask GS	US-1	L2725407-10	27-Jul-22	10:24	107	130	<0.60	<0.34	0.026	0.0263	0.0263	<0.0010	0.27	0.30	0.0250	0.0429
	US-2	L2725407-11	27-Jul-22	10:10	107	130	<0.60	<0.34	0.041	0.0249	0.0249	<0.0010	0.24	0.26	0.0264	0.0387
	US-3	L2725407-12	27-Jul-22	9:30	108	132	<0.60	<0.34	0.080	0.0236	0.0236	<0.0010	0.25	0.27	0.0251	0.0385
	US-4	L2725407-13	27-Jul-22	9:46	107	130	<0.60	<0.34	0.041	0.0244	0.0244	<0.0010	<0.20	<0.20	0.0251	0.0381
	US-5	L2725407-14	27-Jul-22	9:00	108	132	<0.60	<0.34	0.045	0.0245	0.0245	<0.0010	0.23	0.25	0.0254	0.0387
Stephens Lake - Near-field	NF-1	L2724678-1	25-Jul-22	12:05	106	129	<0.60	<0.34	0.042	0.0259	0.0259	<0.0010	0.50	0.53	0.0249	0.0342
	NF-2	L2724678-2	25-Jul-22	12:45	107	130	<0.60	<0.34	0.030	0.0277	0.0277	<0.0010	0.31	0.34	0.0230	0.0352
	NF-3	L2724678-3	25-Jul-22	12:20	107	130	<0.60	<0.34	0.039	0.0227	0.0227	<0.0010	0.30	0.32	0.0264	0.0355
	NF-4	L2724678-4	25-Jul-22	13:00	107	130	<0.60	<0.34	0.025	0.0319	0.0319	<0.0010	0.28	0.31	0.0270	0.0355
	NF-5	L2724678-5	25-Jul-22	11:35	106	129	<0.60	<0.34	0.031	0.0272	0.0272	<0.0010	0.27	0.30	0.0258	0.0367
Stephens Lake - Far-field	FF-1	L2724678-7	25-Jul-22	10:45	105	128	<0.60	<0.34	0.019	0.0366	0.0366	<0.0010	0.24	0.28	0.0230	0.0337
	FF-2	L2724678-8	25-Jul-22	10:10	106	129	<0.60	<0.34	0.024	0.0245	0.0245	<0.0010	0.31	0.33	0.0266	0.0358
	FF-3	L2724678-9	25-Jul-22	9:30	106	130	<0.60	<0.34	0.023	0.0273	0.0273	<0.0010	0.48	0.51	0.0248	0.0351
	FF-4	L2724678-10	25-Jul-22	9:55	107	130	<0.60	<0.34	0.029	0.0254	0.0254	<0.0010	0.28	0.31	0.0248	0.0347
	FF-5	L2724678-11	25-Jul-22	10:30	106	129	<0.60	<0.34	0.025	0.0265	0.0265	<0.0010	0.27	0.30	0.0250	0.0348
Clark Lake	CL-1	L2730098-1	24-Aug-22	11:44	106	130	<0.60	<0.34	0.052	0.0154	0.0154	<0.0010	0.25	0.27	0.0249	0.0331
	CL-2	L2730098-2	24-Aug-22	11:18	105	128	<0.60	<0.34	0.015	0.0151	0.0151	<0.0010	0.25	0.27	0.0254	0.0344
	CL-3	L2730098-3	24-Aug-22	12:03	106	130	<0.60	<0.34	0.026	0.0165	0.0165	<0.0010	0.31	0.33	0.0267	0.0344
	CL-4	L2730098-4	24-Aug-22	10:45	104	127	<0.60	<0.34	0.014	0.0144	0.0144	<0.0010	0.36	0.37	0.0244	0.0350
	CL-5A,-5B,-5C	L2730098-5,-6,-7	24-Aug-22	10:04	105	128	<0.60	<0.34	0.047	0.0177	0.0177	<0.0010	0.33	0.35	0.0252	0.0354
Nelson River - Upstream of the Keeyask GS	US-1	L2730369-12	26-Aug-22	12:04	108	131	<0.60	<0.34	0.025	0.0199	0.0199	<0.0010	0.46	0.48	0.0256	0.0323
	US-2	L2730369-13	26-Aug-22	12:40	112	137	<0.60	<0.34	0.025	0.0198	0.0198	<0.0010	0.47	0.49	0.0256	0.0325
	US-3	L2730369-14	26-Aug-22	11:50	109	133	<0.60	<0.34	0.028	0.0194	0.0194	<0.0010	0.44	0.46	0.0244	0.0321
	US-4	L2730369-15	26-Aug-22	12:28	110	134	<0.60	<0.34	0.018	0.0197	0.0197	<0.0010	0.31	0.33	0.0256	0.0322
	US-5	L2730369-16	26-Aug-22	12:16	112	136	<0.60	<0.34	0.022	0.0199	0.0199	<0.0010	0.26	0.28	0.0265	0.0324
Stephens Lake - Near-field	NF-1	L2730318-6	25-Aug-22	11:45	108	132	<0.60	<0.34	0.023	0.0173	0.0173	<0.0010	0.28	0.30	0.0264	0.0331
	NF-2	L2730318-7	25-Aug-22	12:20	109	132	<0.60	<0.34	0.036	0.0168	0.0168	<0.0010	0.35	0.37	0.0257	0.0354
	NF-3	L2730318-8	25-Aug-22	11:58	109	133	<0.60	<0.34	0.017	0.0171	0.0171	<0.0010	0.32	0.34	0.0263	0.0357
	NF-4	L2730318-9	25-Aug-22	12:35	109	133	<0.60	<0.34	0.018	0.0162	0.0162	<0.0010	0.33	0.35	0.0265	0.0333
	NF-5	L2730318-10	25-Aug-22	11:25	112	136	<0.60	<0.34	0.023	0.0173	0.0173	<0.0010	0.31	0.33	0.0270	0.0372
Stephens Lake - Far-field	FF-1	L2730318-1	25-Aug-22	9:05	106	129	<0.60	<0.34	0.019	0.0139	0.0139	<0.0010	0.35	0.36	0.0251	0.0

Table A4-5: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Alkalinity				Nitrogen					Phosphorus		
					Total (CaCO ₃) (mg/L)	Bicarbonate (HCO ₃) (mg/L)	Carbonate (CO ₃) (mg/L)	Hydroxide (OH) (mg/L)	Ammonia (mg/L N)	Nitrate/nitrite (mg/L N)	Nitrate (mg/L N)	Nitrite (mg/L N)	Total Kjeldahl Nitrogen (mg/L)	Total N ¹ (mg/L)	Dissolved P (mg/L)	Total P (mg/L)
Detection Limit 2022					1.0	1.2	0.60	0.34	0.010/0.020	0.0051	0.0050	0.0010	0.20	-	0.0010/0.0030	0.0030
Clark Lake	CL-1	L2736430-1	11-Oct-22	10:30	106	129	<0.60	<0.34	0.022	0.0766	0.0739	0.0027	0.37	0.45	0.0299	0.0344
	CL-2	L2736430-2	11-Oct-22	10:10	104	127	<0.60	<0.34	0.036	0.0746	0.0720	0.0026	0.32	0.39	0.0295	0.0347
	CL-3	L2736430-3	11-Oct-22	10:47	107	131	<0.60	<0.34	0.032	0.0771	0.0745	0.0026	0.35	0.43	0.0303	0.0364
	CL-4	L2736430-4	11-Oct-22	9:57	96.1	117	<0.60	<0.34	0.040	0.0679	0.0655	0.0024	<0.20	<0.20	0.0279	0.0367
	CL-5	L2736430-5	11-Oct-22	9:40	95.6	117	<0.60	<0.34	0.028	0.0670	0.0646	0.0024	0.31	0.38	0.0278	0.0358
Nelson River - Upstream of the Keeyask GS	US-1	L2736430-6	11-Oct-22	13:46	106	130	<0.60	<0.34	0.030	0.0804	0.0779	0.0025	0.31	0.39	0.0298	0.0353
	US-2	L2736430-7	11-Oct-22	12:21	106	129	<0.60	<0.34	0.021	0.0812	0.0785	0.0027	0.34	0.42	0.0306	0.0356
	US-3	L2736430-8	11-Oct-22	12:56	106	129	<0.60	<0.34	0.028	0.0810	0.0783	0.0026	0.33	0.41	0.0289	0.0356
	US-4	L2736430-9	11-Oct-22	13:11	107	131	<0.60	<0.34	0.027	0.0810	0.0784	0.0026	0.34	0.42	0.0297	0.0341
	US-5	L2736430-10	11-Oct-22	12:02	107	130	<0.60	<0.34	0.036	0.0808	0.0783	0.0025	0.41	0.49	0.0296	0.0345
Stephens Lake - Near-field	NF-1A,-1B,-1C	L2736583-1,-6,-7	11-Oct-22	15:58	111	129	2.68	<0.34	0.035	0.0833	0.0807	0.0026	0.34	0.42	0.0308	0.0361
	NF-2	L2736583-2	11-Oct-22	16:28	112	137	<0.60	<0.34	0.037	0.0821	0.0798	0.0023	0.34	0.42	0.0299	0.0359
	NF-3	L2736583-3	11-Oct-22	16:13	112	137	<0.60	<0.34	0.033	0.0828	0.0803	0.0024	0.34	0.42	0.0299	0.0372
	NF-4	L2736583-4	11-Oct-22	16:38	112	137	<0.60	<0.34	0.026	0.0889	0.0865	0.0025	0.37	0.46	0.0305	0.0363
	NF-5	L2736583-5	11-Oct-22	15:32	109	128	2.64	<0.34	0.040	0.0832	0.0806	0.0026	0.32	0.40	0.0304	0.0367
Stephens Lake - Far-field ²	FF-1	-	Oct-22	-	-	-	-	-	-	-	-	-	-	-	-	
	FF-2	-	Oct-22	-	-	-	-	-	-	-	-	-	-	-	-	
	FF-3	-	Oct-22	-	-	-	-	-	-	-	-	-	-	-	-	
	FF-4	-	Oct-22	-	-	-	-	-	-	-	-	-	-	-	-	
	FF-5	-	Oct-22	-	-	-	-	-	-	-	-	-	-	-	-	

2. Far-field not sampled in October 2022 due to inclement weather.

Table A4-5: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Site ID	ALS Sample ID	Sample Date	Sample Time	Carbon		Water Clarity			Lab pH	Laboratory Conductivity	Total Dissolved Solids	Productivity		
					Total Organic C (mg/L)	Dissolved Organic C (mg/L)	Total Suspended Solids (mg/L)	Turbidity (NTU)	True Colour (CU)				Chlorophyll <i>a</i> (µg/L)	Phaeophytin <i>a</i> (µg/L)	
Detection Limit 2022															
Split Lake	SPL-10	L2693459-6	20-Mar-22	15:50	8.55	8.72	4.3	14.6	16.9	7.94	239	123	0.29	0.84	
	SPL-11	L2693459-7	20-Mar-22	15:10	8.22	8.57	4.3	14.6	15.1	7.96	237	137	0.31	0.87	
	SPL-12	L2693459-8	20-Mar-22	12:50	8.53	8.67	4.1	12.6	16.8	8.00	269	166	0.29	0.90	
	SPL-13	L2693459-9	20-Mar-22	14:15	8.45	8.69	4.1	14.4	18.8	7.98	240	135	0.29	0.90	
	SPL-14	L2693459-10	20-Mar-22	13:40	8.60	8.90	4.0	12.0	12.4	8.00	298	174	0.32	0.81	
Nelson River - Upstream of the Keeyask GS	US-6	L2694370-1	23-Mar-22	11:25	11.1	8.28	3.1	11.5	14.0	8.12	294	185	0.31	0.65	
	US-7	L2694370-2	23-Mar-22	12:35	9.31	8.43	2.9	11.8	12.5	8.12	292	181	0.25	0.61	
	US-8	L2694370-3	23-Mar-22	12:00	9.20	8.56	3.8	12.0	13.8	8.12	295	180	13.4	2.19	
	US-9	L2694370-4	23-Mar-22	13:25	8.36	9.29	2.9	11.9	14.9	8.11	293	183	0.26	0.77	
	US-10	L2694370-5	23-Mar-22	13:00	8.40	9.29	3.5	12.6	18.0	8.12	291	184	0.25	0.72	
Stephens Lake - Near-field	NF-1A,-1B,-1C	L2694960-9,-14,-15	27-Mar-22	11:50	8.70	9.15	2.8	11.6	15.5	8.10	289	176	0.36	0.83	
	NF-2	L2694960-10	27-Mar-22	12:40	9.40	9.11	3.1	10.8	13.8	8.06	294	181	0.34	0.88	
	NF-3	L2694960-11	27-Mar-22	14:10	8.39	8.65	2.3	11.0	14.9	8.04	289	183	0.33	0.77	
	NF-4	L2694960-12	27-Mar-22	13:35	8.78	8.76	2.6	11.2	13.9	8.12	293	185	0.30	0.78	
	NF-5	L2694960-13	27-Mar-22	11:05	8.78	8.63	3.3	11.6	15.8	8.07	287	179	0.36	0.80	
Stephens Lake - Far-field	FF-1	L2695249-1	28-Mar-22	8:25	8.53	9.01	2.5	10.8	11.1	7.75	287	172	0.59	0.82	
	FF-2	L2695249-2	28-Mar-22	8:55	8.60	8.92	3.8	12.0	12.4	7.79	287	171	0.55	0.90	
	FF-3	L2695249-3	28-Mar-22	9:40	8.35	8.69	3.3	10.7	12.1	7.78	285	166	0.42	0.90	
	FF-4	L2695249-4	28-Mar-22	10:25	8.37	8.73	2.9	11.0	11.9	7.80	286	169	0.41	0.80	
	FF-5	L2695249-5	28-Mar-22	11:05	8.38	8.92	2.9	11.5	11.5	7.81	284	169	0.64	0.83	
Clark Lake	CL-1	L2718170-1	26-Jun-22	8:15	8.46	9.42	8.3	13.8	17.6	8.16	285	189	1.44	0.89	
	CL-2	L2718170-2	26-Jun-22	8:35	8.28	9.51	9.1	15.0	17.0	8.14	280	182	1.50	0.89	
	CL-3	L2718170-3	26-Jun-22	8:55	8.28	10.1	8.1	13.6	17.9	8.15	284	185	1.47	0.77	
	CL-4	L2718170-4	26-Jun-22	9:10	8.52	9.47	9.9	15.9	20.4	8.13	270	174	1.45	0.85	
	CL-5	L2718170-5	26-Jun-22	9:20	8.54	9.45	8.5	15.2	20.7	8.13	272	165	1.51	0.91	
Nelson River - Upstream of the Keeyask GS	US-1	L2718487-1	26-Jun-22	14:05	8.35	8.70	8.1	13.6	17.3	8.09	293	209	1.52	0.90	
	US-2	L2718487-2	26-Jun-22	14:20	8.66	9.79	8.5	14.2	18.3	8.13	288	201	1.62	0.84	
	US-3A,-3B,-3C	L2718487-3,-6,-7	26-Jun-22	15:10	8.44	9.32	6.5	14.0	19.4	8.13	289	189	1.63	0.88	
	US-4	L2718487-4	26-Jun-22	14:40	8.62	9.17	8.1	14.2	17.9	8.14	288	182	1.71	0.92	
	US-5	L2718487-5	26-Jun-22	15:30	8.56	9.46	7.9	14.8	18.6	8.14	290	191	1.71	0.89	
Stephens Lake - Near-field	NF-1	L2717875-1	24-Jun-22	9:50	7.97	8.52	7.7	13.3	18.0	8.08	281	174	1.56	0.83	
	NF-2	L2717875-2	24-Jun-22	10:25	7.97	8.75	7.8	12.9	18.0	8.09	280	186	1.86	0.90	
	NF-3	L2717875-3	24-Jun-22	9:20	7.93	8.87	9.8	12.9	19.0	8.08	280	182	1.53	0.85	
	NF-4	L2717875-4	24-Jun-22	10:50	7.98	8.33	6.5	13.0	20.8	8.10	282	177	1.93	0.92	
	NF-5	L2717875-5	24-Jun-22	8:45	7.98	8.44	6.5	13.0	15.9	8.08	284	185	1.51	0.86	
Stephens Lake - Far-field	FF-1	L2717875-6	24-Jun-22	11:35	7.99	8.39	5.8	11.1	17.4	8.08	280	177	2.56	1.03	
	FF-2	L2717875-7	24-Jun-22	12:45	7.87	8.55	5.3	11.2	16.6	8.10	283	181	2.12	1.09	
	FF-3	L2717875-8	24-Jun-22	13:15	8.05	8.42	6.0	11.3	17.6	8.09	280	176	2.48	1.06	
	FF-4	L2717875-9	24-Jun-22	13:40	8.13	8.46	4.9	11.4	16.4	8.10	282	178	2.96	1.31	
	FF-5	L2717875-10	24-Jun-22	12:05	8.01	8.42	6.0	11.4	17.5	8.12	282	169	3.14	1.30	

1. Total nitrogen calculated as the sum of total Kjeldahl nitrogen and nitrate/nitrite.

Table A4-5: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Site ID	ALS Sample ID	Sample Date	Sample Time	Carbon		Water Clarity			Lab pH	Laboratory Conductivity	Total Dissolved Solids	Productivity		
					Total Organic C	Dissolved Organic C	Total Suspended Solids	Turbidity	True Colour				Chlorophyll a	Phaeophytin a	
					(mg/L)	(mg/L)	(mg/L)	(NTU)	(CU)				(mg/L)	(µg/L)	(µg/L)
Detection Limit 2022															
Clark Lake	CL-1	L2725100-1	26-Jul-22	10:13	8.58	8.85	3.5	10.1	12.5	8.07	299	180	1.22	0.73	
	CL-2	L2725100-2	26-Jul-22	9:51	8.54	8.76	3.0	10.1	12.8	8.09	296	184	1.30	0.86	
	CL-3	L2725100-3	26-Jul-22	10:30	8.22	8.95	3.8	10.7	12.4	8.08	300	180	1.25	0.78	
	CL-4	L2725100-4	26-Jul-22	9:34	8.24	8.71	4.6	11.6	13.6	8.08	294	187	1.09	0.76	
	CL-5	L2725100-5	26-Jul-22	9:15	8.46	9.21	4.6	11.7	15.8	8.08	285	178	1.40	0.87	
Nelson River - Upstream of the Keeyask GS	US-1	L2725407-10	27-Jul-22	10:24	7.88	8.69	3.2	6.60	12.3	8.18	299	209	1.42	0.74	
	US-2	L2725407-11	27-Jul-22	10:10	8.27	8.73	4.5	8.28	13.0	8.20	297	216	1.40	0.77	
	US-3	L2725407-12	27-Jul-22	9:30	7.95	8.87	4.8	8.73	12.6	8.17	302	203	1.52	0.91	
	US-4	L2725407-13	27-Jul-22	9:46	7.88	8.67	4.9	7.82	13.7	8.21	298	212	1.52	0.88	
	US-5	L2725407-14	27-Jul-22	9:00	7.84	8.67	4.6	7.86	13.8	8.20	303	198	1.50	0.90	
Stephens Lake - Near-field	NF-1	L2724678-1	25-Jul-22	12:05	7.66	8.84	5.0	9.68	12.9	8.12	312	213	1.77	0.82	
	NF-2	L2724678-2	25-Jul-22	12:45	7.77	8.87	5.2	9.44	13.2	8.12	311	199	2.04	0.89	
	NF-3	L2724678-3	25-Jul-22	12:20	7.85	9.24	5.2	9.25	15.4	8.11	309	208	1.69	0.82	
	NF-4	L2724678-4	25-Jul-22	13:00	7.87	9.04	4.8	9.62	13.8	8.10	309	209	2.37	0.81	
	NF-5	L2724678-5	25-Jul-22	11:35	7.85	9.09	4.6	9.94	13.5	8.15	309	207	1.80	0.80	
Stephens Lake - Far-field	FF-1	L2724678-7	25-Jul-22	10:45	7.92	9.21	2.9	8.01	15.1	8.15	305	183	1.99	0.81	
	FF-2	L2724678-8	25-Jul-22	10:10	7.70	8.98	3.0	8.49	16.4	8.16	307	190	2.42	0.85	
	FF-3	L2724678-9	25-Jul-22	9:30	8.58	9.29	4.3	8.51	13.6	8.16	308	190	1.94	0.83	
	FF-4	L2724678-10	25-Jul-22	9:55	7.67	8.99	4.4	8.47	16.7	8.16	307	187	2.34	0.79	
	FF-5	L2724678-11	25-Jul-22	10:30	7.79	9.16	2.8	7.97	14.1	8.16	306	189	2.55	0.98	
Clark Lake	CL-1	L2730098-1	24-Aug-22	11:44	7.30	7.35	2.4	7.29	13.3	8.12	296	209	1.80	0.86	
	CL-2	L2730098-2	24-Aug-22	11:18	7.69	7.27	2.6	7.29	12.5	8.14	293	227	1.95	0.93	
	CL-3	L2730098-3	24-Aug-22	12:03	7.36	7.32	2.4	6.64	14.0	8.17	300	207	1.89	0.88	
	CL-4	L2730098-4	24-Aug-22	10:45	7.77	7.33	3.6	11.1	12.7	8.16	284	200	1.78	1.03	
	CL-5A, -5B, -5C	L2730098-5, -6, -7	24-Aug-22	10:04	7.40	7.56	3.5	8.18	12.9	8.14	287	198	1.72	0.95	
Nelson River - Upstream of the Keeyask GS	US-1	L2730369-12	26-Aug-22	12:04	9.17	7.77	2.7	5.21	10.2	8.20	308	189	2.04	0.81	
	US-2	L2730369-13	26-Aug-22	12:40	8.80	7.61	3.1	5.63	11.8	8.18	307	184	1.90	0.82	
	US-3	L2730369-14	26-Aug-22	11:50	8.89	7.62	1.7	5.66	<5.0	8.19	308	188	1.92	0.80	
	US-4	L2730369-15	26-Aug-22	12:28	9.03	7.74	2.8	5.58	5.2	8.19	308	182	1.94	0.84	
	US-5	L2730369-16	26-Aug-22	12:16	8.63	8.91	2.1	5.95	5.9	8.22	312	177	2.07	0.75	
Stephens Lake - Near-field	NF-1	L2730318-6	25-Aug-22	11:45	7.88	8.00	3.4	6.68	9.3	8.17	313	188	2.17	0.95	
	NF-2	L2730318-7	25-Aug-22	12:20	8.01	8.07	2.3	5.56	<5.0	8.21	314	184	2.41	1.01	
	NF-3	L2730318-8	25-Aug-22	11:58	7.95	8.14	2.9	6.36	5.0	8.21	313	184	2.21	1.01	
	NF-4	L2730318-9	25-Aug-22	12:35	8.23	8.21	2.1	6.70	5.5	8.18	313	181	2.25	0.95	
	NF-5	L2730318-10	25-Aug-22	11:25	7.76	7.98	3.1	6.56	6.9	8.22	311	180	2.20	0.93	
Stephens Lake - Far-field	FF-1	L2730318-1	25-Aug-22	9:05	7.95	8.26	1.6	5.36	7.3	8.09	318	175	1.83	0.90	
	FF-2	L2730318-2	25-Aug-22	10:00	7.95	8.06	1.9	5.34	8.0	8.17	320	193	2.16	0.89	
	FF-3	L2730318-3	25-Aug-22	10:38	7.78	7.97	2.8	4.94	6.9	8.16	319	184	1.90	0.91	
	FF-4	L2730318-4	25-Aug-22	10:19	7.93	8.13	2.2	5.43	11.3	8.15	316	184	2.34	0.88	
	FF-5	L2730318-5	25-Aug-22	9:27	7.88	8.25	1.5	4.99	7.9	8.15	312	182	1.89	1.05	

Table A4-5: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Site ID	ALS Sample ID	Sample Date	Sample Time	Carbon		Water Clarity			Lab pH	Laboratory Conductivity ($\mu\text{mhos}/\text{cm}$)	Total Dissolved Solids (mg/L)	Productivity		
					Total Organic C	Dissolved Organic C	Total Suspended Solids (mg/L)	Turbidity (NTU)	True Colour (CU)				Chlorophyll <i>a</i> ($\mu\text{g}/\text{L}$)	Phaeophytin <i>a</i> ($\mu\text{g}/\text{L}$)	
					(mg/L)	(mg/L)	(mg/L)	(NTU)	(CU)				($\mu\text{g}/\text{L}$)	($\mu\text{g}/\text{L}$)	
Detection Limit 2022															
Clark Lake	CL-1	L2736430-1	11-Oct-22	10:30	8.12	8.65	2.1	8.83	6.5	8.17	304	187	1.11	0.68	
	CL-2	L2736430-2	11-Oct-22	10:10	8.16	8.85	2.1	10.5	8.4	8.17	296	190	1.15	0.70	
	CL-3	L2736430-3	11-Oct-22	10:47	8.37	8.87	2.1	8.48	7.9	8.21	305	192	1.18	0.67	
	CL-4	L2736430-4	11-Oct-22	9:57	9.95	8.94	2.3	12.6	8.6	8.18	267	155	1.15	0.84	
	CL-5	L2736430-5	11-Oct-22	9:40	8.32	9.23	2.2	12.1	8.6	8.18	265	152	1.12	0.81	
Nelson River - Upstream of the Keeyask GS	US-1	L2736430-6	11-Oct-22	13:46	8.45	8.86	2.2	7.81	9.2	8.24	307	169	1.15	0.64	
	US-2	L2736430-7	11-Oct-22	12:21	8.60	8.80	2.1	7.78	8.6	8.19	308	190	1.11	0.65	
	US-3	L2736430-8	11-Oct-22	12:56	8.64	9.05	2.6	8.14	9.3	8.15	309	173	1.13	0.67	
	US-4	L2736430-9	11-Oct-22	13:11	8.89	9.08	2.5	7.90	9.0	8.15	308	195	1.10	0.66	
	US-5	L2736430-10	11-Oct-22	12:02	8.61	9.45	2.2	8.31	9.1	8.21	307	193	1.16	0.62	
Stephens Lake - Near-field	NF-1A, -1B, -1C	L2736583-1,-6,-7	11-Oct-22	15:58	12.4	11.3	1.8	7.79	10.6	8.32	311	206	1.19	0.69	
	NF-2	L2736583-2	11-Oct-22	16:28	8.48	10.0	2.2	7.30	9.6	8.28	313	198	1.41	0.70	
	NF-3	L2736583-3	11-Oct-22	16:13	8.24	9.74	2.2	7.72	9.3	8.29	310	210	1.26	0.70	
	NF-4	L2736583-4	11-Oct-22	16:38	8.59	9.60	2.9	6.85	9.2	8.29	315	204	1.36	0.71	
	NF-5	L2736583-5	11-Oct-22	15:32	15.0	12.3	2.3	7.77	10.5	8.31	311	204	1.35	0.71	
Stephens Lake - Far-field ²	FF-1	-	Oct-22	-	-	-	-	-	-	-	-	-	-	-	
	FF-2	-	Oct-22	-	-	-	-	-	-	-	-	-	-	-	
	FF-3	-	Oct-22	-	-	-	-	-	-	-	-	-	-	-	
	FF-4	-	Oct-22	-	-	-	-	-	-	-	-	-	-	-	
	FF-5	-	Oct-22	-	-	-	-	-	-	-	-	-	-	-	

2. Far-field not sampled in October 2022 due to inclement weather.

Table A4-6: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask regional study area during the ice-cover and open-water seasons of 2022.

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Alkalinity				Nitrogen				Phosphorus			
					Total (CaCO ₃)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Hydroxide (OH)	Ammonia	Nitrate/nitrite	Nitrate	Nitrite	Total Kjeldahl Nitrogen	Total N ¹	Dissolved P	Total P
					(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L N)	(mg/L N)	(mg/L N)	(mg/L N)	(mg/L)	(mg/L)	(mg/L)	
Detection Limit 2022					1.0	1.2	0.60	0.34	0.010/ 0.020	0.0051	0.0050	0.0010	0.20	0.0010/ 0.0030	0.0030	
Stephens Lake - North Arm	STL-N SURF	L2694960-1	26-Mar-22	14:55	134	164	<0.60	<0.34	<0.010	0.0423	0.0423	<0.0010	0.35	0.39	0.0143	0.0197
Stephens Lake - North Arm	STL-N BOT	L2694960-2	26-Mar-22	15:00	135	165	<0.60	<0.34	<0.010	0.0419	0.0419	<0.0010	0.38	0.42	0.0120	0.0211
Stephens Lake - Kettle GS	STL-KETTLE	L2694960-3	26-Mar-22	14:25	105	129	<0.60	<0.34	<0.010	0.118	0.118	<0.0010	0.37	0.49	0.0282	0.0419
Longspruce Forebay	LNR-3	L2694960-4	26-Mar-22	12:55	105	129	<0.60	<0.34	<0.010	0.121	0.121	<0.0010	0.44	0.56	0.0278	0.0408
Limestone Forebay	LNR-4	L2694960-5	26-Mar-22	11:25	105	128	<0.60	<0.34	<0.010	0.121	0.121	<0.0010	0.35	0.47	0.0304	0.0441
Stephens Lake - North Arm	STL-N SURF	L2719447-1	29-Jun-22	12:15	110	135	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.30	0.30	0.0081	0.0164
Stephens Lake - North Arm	STL-N BOT	L2719447-2	29-Jun-22	12:15	110	134	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.30	0.30	0.0062	0.0178
Stephens Lake - Kettle GS	STL-KETTLE	L2719447-3	29-Jun-22	11:35	102	125	<0.60	<0.34	0.013	0.0143	0.0143	<0.0010	0.38	0.39	0.0208	0.0332
Longspruce Forebay	LNR-3	L2719447-4	29-Jun-22	11:05	98.8	121	<0.60	<0.34	0.017	0.0127	0.0127	<0.0010	0.35	0.36	0.0228	0.0325
Limestone Forebay	LNR-4	L2719447-5	29-Jun-22	10:30	98.9	121	<0.60	<0.34	0.018	0.0231	0.0231	<0.0010	0.42	0.44	0.0223	0.0320
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	L2719447-6	29-Jun-22	10:05	103	125	<0.60	<0.34	0.017	0.0139	0.0139	<0.0010	0.34	0.35	0.0207	0.0320
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	L2719447-7	29-Jun-22	9:50	103	125	<0.60	<0.34	0.013	0.0216	0.0216	<0.0010	0.33	0.35	0.0214	0.0318
Nelson River - downstream of Deer Island	LNR-7	L2719447-8	29-Jun-22	9:20	102	125	<0.60	<0.34	0.015	0.0151	0.0151	<0.0010	0.34	0.36	0.0213	0.0328
Nelson River - upstream of Gillam Island	LNR-8	L2719447-9	29-Jun-22	9:00	99.8	122	<0.60	<0.34	<0.010	0.0157	0.0157	<0.0010	0.35	0.37	0.0231	0.0330
Stephens Lake - North Arm	STL-N SURF	L2723974-1	20-Jul-22	15:55	112	131	2.88	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.28	0.28	0.0060	0.0155
Stephens Lake - North Arm	STL-N BOT	L2723974-2	20-Jul-22	15:55	110	130	2.28	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.33	0.33	0.0083	0.0203
Stephens Lake - Kettle GS	STL-KETTLE	L2724678-6	20-Jul-22	8:50	105	128	<0.60	<0.34	0.032	0.0221	0.0221	<0.0010	0.32	0.34	0.0262	0.0331
Longspruce Forebay	LNR-3	L2723974-3	20-Jul-22	14:55	105	128	<0.60	<0.34	0.021	0.0209	0.0209	<0.0010	0.33	0.35	0.0181	0.0338
Limestone Forebay	LNR-4	L2723974-4	20-Jul-22	14:02	106	129	<0.60	<0.34	0.042	0.0141	0.0141	<0.0010	0.34	0.35	0.0202	0.0322
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	L2723974-5	20-Jul-22	13:35	106	130	<0.60	<0.34	0.013	0.0204	0.0204	<0.0010	0.26	0.28	0.0213	0.0342
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	L2723974-6	20-Jul-22	13:08	106	130	<0.60	<0.34	0.017	0.0211	0.0211	<0.0010	0.32	0.34	0.0227	0.0337
Nelson River - downstream of Deer Island	LNR-7	L2723974-7	20-Jul-22	12:40	107	130	<0.60	<0.34	0.016	0.0202	0.0202	<0.0010	0.27	0.29	0.0212	0.0341
Nelson River - upstream of Gillam Island	LNR-8	L2723974-8	20-Jul-22	12:20	106	130	<0.60	<0.34	0.024	0.0231	0.0231	<0.0010	0.30	0.32	0.0215	0.0343
Stephens Lake - North Arm	STL-N-SURF	L2729414-1	21-Aug-22	12:15	111	135	<0.60	<0.34	0.187	<0.0051	<0.0050	<0.0010	0.23	0.23	0.0065	0.0129
Stephens Lake - North Arm	STL-N-BOT	L2729414-2	21-Aug-22	12:15	111	136	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.28	0.28	0.0015	0.0166
Stephens Lake - Kettle GS	STL-KETTLE	L2729414-3	21-Aug-22	11:40	106	129	<0.60	<0.34	<0.010	0.0133	0.0133	<0.0010	0.27	0.28	0.0210	0.0318
Longspruce Forebay	LNR-3	L2729414-4	21-Aug-22	11:18	104	127	<0.60	<0.34	0.021	0.0179	0.0179	<0.0010	0.31	0.33	0.0216	0.0323
Limestone Forebay	LNR-4	L2729414-5	21-Aug-22	10:44	105	129	<0.60	<0.34	0.021	0.0157	0.0157	<0.0010	0.28	0.30	0.0231	0.0310
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	L2729414-6	21-Aug-22	10:18	106	129	<0.60	<0.34	0.013	0.0182	0.0182	<0.0010	0.28	0.30	0.0231	0.0315

1. Total nitrogen calculated as the sum of total Kjeldahl nitrogen and nitrate/nitrite.

Table A4-6: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask regional study area during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Alkalinity				Nitrogen				Phosphorus			
					Total (CaCO ₃)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Hydroxide (OH)	Ammonia	Nitrate/nitrite	Nitrate	Nitrite	Total Kjeldahl Nitrogen	Total N ¹	Dissolved P	Total P
					(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L N)	(mg/L N)	(mg/L N)	(mg/L N)	(mg/L)	(mg/L)	(mg/L)	
Detection Limit 2022					1.0	1.2	0.60	0.34	0.010/ 0.020	0.0051	0.0050	0.0010	0.20	0.0010/ 0.0030	0.0030	
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	L2729414-7	21-Aug-22	10:07	105	129	<0.60	<0.34	0.018	0.0449	0.0449	<0.0010	0.27	0.31	0.0222	0.0313
Nelson River - downstream of Deer Island	LNR-7	L2729414-8	21-Aug-22	9:44	105	128	<0.60	<0.34	0.019	0.0269	0.0269	<0.0010	0.25	0.28	0.0217	0.0329
Nelson River - upstream of Gillam Island	LNR-8	L2729414-9	21-Aug-22	9:24	105	129	<0.60	<0.34	<0.010	0.0208	0.0208	<0.0010	0.28	0.30	0.0217	0.0316
Stephens Lake - North Arm	STL-N SURF	L2733061-1	14-Sep-22	14:00	107	130	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.30	0.30	0.0026	0.0237
Stephens Lake - North Arm	STL-N BOT	L2733061-2	14-Sep-22	14:00	107	131	<0.60	<0.34	0.014	<0.0051	<0.0050	<0.0010	0.33	0.33	0.0081	0.0221
Stephens Lake - Kettle GS	STL-KETTLE	L2733061-3	14-Sep-22	13:19	108	132	<0.60	<0.34	0.031	0.0443	0.0433	0.0011	0.35	0.39	0.0234	0.0323
Longspruce Forebay	LNR-3	L2733061-4	14-Sep-22	12:44	108	132	<0.60	<0.34	<0.010	0.0430	0.0420	0.0010	0.34	0.38	0.0227	0.0307
Limestone Forebay	LNR-4	L2733061-5	14-Sep-22	12:04	108	131	<0.60	<0.34	0.016	0.0441	0.0429	0.0012	0.33	0.37	0.0238	0.0293
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	L2733061-6	14-Sep-22	11:42	107	130	<0.60	<0.34	0.018	0.0424	0.0424	<0.0010	0.36	0.40	0.0227	0.0312
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	L2733061-7	14-Sep-22	11:26	107	131	<0.60	<0.34	0.019	0.0603	0.0592	0.0010	0.48	0.54	0.0243	0.0305
Nelson River - downstream of Deer Island	LNR-7	L2733061-8	14-Sep-22	11:02	108	132	<0.60	<0.34	0.013	0.0475	0.0464	0.0011	0.42	0.47	0.0246	0.0308

Table A4-6: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask regional study area during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Carbon		Water Clarity			Laboratory Conductivity	Total Dissolved Solids	Productivity		
					Total Organic C	Dissolved Organic C	Total Suspended Solids	Turbidity	True Colour			Chlorophyll <i>a</i>	Phaeophytin <i>a</i>	
					(mg/L)	(mg/L)	(mg/L)	(NTU)	(CU)	(µmhos/cm)	(mg/L)	(µg/L)	(µg/L)	
Detection Limit 2022					0.50	0.50	1.0	0.10	5.0	0.10	1.0	13/20	0.10	0.10
Stephens Lake - North Arm	STL-N SURF	L2694960-1	26-Mar-22	14:55	11.9	11.8	<1.0	4.75	20.4	8.20	309	198	3.39	0.91
Stephens Lake - North Arm	STL-N BOT	L2694960-2	26-Mar-22	15:00	11.5	11.5	<1.0	4.38	19.0	8.13	308	186	2.21	0.67
Stephens Lake - Kettle GS	STL-KETTLE	L2694960-3	26-Mar-22	14:25	9.00	9.21	2.9	11.7	13.4	8.05	288	179	0.39	0.84
Longspruce Forebay	LNR-3	L2694960-4	26-Mar-22	12:55	8.91	9.15	2.5	11.4	15.0	8.06	288	186	0.39	0.84
Limestone Forebay	LNR-4	L2694960-5	26-Mar-22	11:25	9.13	9.27	2.5	11.2	15.6	8.12	293	186	2.80	1.03
Stephens Lake - North Arm	STL-N SURF	L2719447-1	29-Jun-22	12:15	8.25	8.54	<1.0	10.8	12.1	8.25	252	160	2.59	0.74
Stephens Lake - North Arm	STL-N BOT	L2719447-2	29-Jun-22	12:15	8.44	8.62	7.2	10.6	11.0	8.27	254	150	2.18	0.77
Stephens Lake - Kettle GS	STL-KETTLE	L2719447-3	29-Jun-22	11:35	8.14	8.59	2.8	10.1	13.9	8.20	296	180	1.88	0.82
Longspruce Forebay	LNR-3	L2719447-4	29-Jun-22	11:05	8.26	8.67	2.4	9.16	13.9	8.20	292	179	1.50	0.75
Limestone Forebay	LNR-4	L2719447-5	29-Jun-22	10:30	7.82	8.78	3.4	8.57	14.0	8.20	292	176	1.03	0.57
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	L2719447-6	29-Jun-22	10:05	8.06	8.53	6.1	9.57	15.6	8.23	292	171	1.41	0.80
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	L2719447-7	29-Jun-22	9:50	8.24	8.48	9.8	10.8	15.8	8.23	292	163	1.47	0.78
Nelson River - downstream of Deer Island	LNR-7	L2719447-8	29-Jun-22	9:20	7.96	8.69	6.6	11.3	16.9	8.22	292	172	1.42	0.75
Nelson River - upstream of Gillam Island	LNR-8	L2719447-9	29-Jun-22	9:00	8.44	8.69	1.2	11.0	16.6	8.16	290	167	1.49	0.72
Stephens Lake - North Arm	STL-N SURF	L2723974-1	20-Jul-22	15:55	8.69	8.99	1.9	5.02	12.1	8.36	249	148	3.02	0.61
Stephens Lake - North Arm	STL-N BOT	L2723974-2	20-Jul-22	15:55	8.36	8.63	1.7	5.00	12.0	8.34	248	141	1.78	0.52
Stephens Lake - Kettle GS	STL-KETTLE	L2724678-6	20-Jul-22	8:50	8.06	8.89	2.8	7.46	13.4	8.15	306	203	1.42	0.57
Longspruce Forebay	LNR-3	L2723974-3	20-Jul-22	14:55	8.35	8.42	1.6	7.05	12.2	8.28	296	173	0.87	0.69
Limestone Forebay	LNR-4	L2723974-4	20-Jul-22	14:02	8.26	9.83	1.1	6.38	13.1	8.29	294	160	0.77	0.61
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	L2723974-5	20-Jul-22	13:35	8.28	8.56	2.7	7.24	12.3	8.29	295	168	1.05	0.79
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	L2723974-6	20-Jul-22	13:08	8.14	8.64	2.5	7.33	13.9	8.29	296	160	0.97	0.75
Nelson River - downstream of Deer Island	LNR-7	L2723974-7	20-Jul-22	12:40	8.08	8.65	5.3	8.21	12.2	8.29	296	171	1.06	0.87
Nelson River - upstream of Gillam Island	LNR-8	L2723974-8	20-Jul-22	12:20	8.34	8.39	6.6	8.47	14.9	8.24	295	163	1.22	0.77
Stephens Lake - North Arm	STL-N-SURF	L2729414-1	21-Aug-22	12:15	8.56	9.28	2.4	6.31	12.3	8.23	250	193	1.99	0.68
Stephens Lake - North Arm	STL-N-BOT	L2729414-2	21-Aug-22	12:15	8.82	8.93	2.4	7.35	11.8	8.21	248	171	1.69	0.49
Stephens Lake - Kettle GS	STL-KETTLE	L2729414-3	21-Aug-22	11:40	7.96	8.12	2.9	5.91	10.1	8.19	297	198	1.89	0.91
Longspruce Forebay	LNR-3	L2729414-4	21-Aug-22	11:18	7.97	8.16	2.6	5.48	10.9	8.24	299	193	1.16	0.71
Limestone Forebay	LNR-4	L2729414-5	21-Aug-22	10:44	7.99	8.25	1.2	4.85	11.4	8.25	299	190	0.95	0.61
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	L2729414-6	21-Aug-22	10:18	7.99	8.47	2.6	5.68	11.7	8.22	298	190	1.13	0.74
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	L2729414-7	21-Aug-22	10:07	8.06	8.21	2.7	6.05	11.5	8.22	297	180	1.72	1.10

1. Total nitrogen calculated as the sum of total Kjeldahl nitrogen and nitrate/nitrite.

Table A4-6: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask regional study area during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Carbon		Water Clarity			Laboratory Conductivity	Total Dissolved Solids	Productivity	
					Total Organic C	Dissolved Organic C	Total Suspended Solids	Turbidity	True Colour			Chlorophyll <i>a</i>	Phaeophytin <i>a</i>
					(mg/L)	(mg/L)	(mg/L)	(NTU)	(CU)	(µmhos/cm)	(mg/L)	(µg/L)	(µg/L)
Detection Limit 2022													
Nelson River - downstream of Deer Island	LNR-7	L2729414-8	21-Aug-22	9:44	8.06	8.32	3.1	5.96	13.4	8.20	295	190	1.55
Nelson River - upstream of Gillam Island	LNR-8	L2729414-9	21-Aug-22	9:24	8.05	8.36	4.1	5.97	12.9	8.20	299	181	1.70
Stephens Lake - North Arm	STL-N SURF	L2733061-1	14-Sep-22	14:00	8.52	8.32	2.3	10.0	16.9	8.15	254	151	3.51
Stephens Lake - North Arm	STL-N BOT	L2733061-2	14-Sep-22	14:00	8.25	8.41	3.2	9.09	17.7	8.11	254	153	2.44
Stephens Lake - Kettle GS	STL-KETTLE	L2733061-3	14-Sep-22	13:19	7.46	7.73	1.6	6.62	25.7	8.14	306	183	2.68
Longspruce Forebay	LNR-3	L2733061-4	14-Sep-22	12:44	7.52	7.88	1.3	4.89	21.1	8.15	305	175	1.38
Limestone Forebay	LNR-4	L2733061-5	14-Sep-22	12:04	7.26	7.71	<1.0	4.56	21.5	8.18	306	177	1.05
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	L2733061-6	14-Sep-22	11:42	7.35	7.84	1.7	5.45	17.6	8.18	303	180	3.15
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	L2733061-7	14-Sep-22	11:26	7.19	7.91	1.7	5.42	21.1	8.17	307	185	1.18
Nelson River - downstream of Deer Island	LNR-7	L2733061-8	14-Sep-22	11:02	7.13	7.95	3.2	5.94	16.5	8.25	313	183	1.23
Nelson River - upstream of Gillam Island	LNR-8	L2733061-9	14-Sep-22	10:42	7.28	7.95	2.5	6.12	21.8	8.25	308	181	1.50
													0.76

Table A4-7: Metals and major ions measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022.

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Hardness (as CaCO ₃)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Cesium (mg/L)	Chloride (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)
Detection Limit 2022					0.20	0.0030	0.00010	0.00010	0.00010	0.00010	0.000050	0.010	0.0000050	0.050	0.000010	0.10	0.00010	0.00010	0.00050
Zone 1b	Z1-5	L2693729-1	21-Mar-22	9:10	113	0.349	<0.00010	0.00116	0.0328	<0.00010	<0.000050	0.024	0.0000130	25.9	0.000039	11.9	0.00058	0.00016	0.00157
Zone 1b	Z1-6	L2693729-2	21-Mar-22	9:50	114	0.455	0.00017	0.00118	0.0329	<0.00010	<0.000050	0.022	0.0000100	25.9	0.000051	11.7	0.00075	0.00020	0.00143
Zone 1b	Z1-7	L2693729-3	21-Mar-22	12:35	113	0.465	<0.00010	0.00119	0.0339	<0.00010	<0.000050	0.023	0.0000066	25.7	0.000055	12.0	0.00082	0.00020	0.00146
Zone 1b	Z1-8	L2693729-4	21-Mar-22	10:30	113	0.511	0.00012	0.00123	0.0333	<0.00010	<0.000050	0.021	0.0000088	25.8	0.000055	11.6	0.00084	0.00022	0.00146
Zone 1b	Z1-9A,-9B,-9C	L2693729-5,-6,-7	21-Mar-22	11:35	114	0.489	0.00020	0.00122	0.0340	<0.00010	<0.000050	0.021	0.0000147	25.9	0.000056	11.7	0.00085	0.00022	0.00151
Zone 4	Z4-3 SURF	L2693459-1	19-Mar-22	15:35	122	0.467	<0.00010	0.00116	0.0364	<0.00010	<0.000050	0.022	0.0000093	29.2	0.000051	11.5	0.00081	0.00021	0.00213
Zone 4	Z4-5 SURF	L2693459-2	19-Mar-22	13:45	122	0.411	0.00011	0.00109	0.0353	<0.00010	<0.000050	0.022	0.0000120	28.7	0.000044	11.7	0.00070	0.00018	0.00251
Zone 4	Z4-5 BOT	L2693459-5	19-Mar-22	13:50	123	0.457	<0.00010	0.00110	0.0354	<0.00010	<0.000050	0.022	0.0000102	29.1	0.000052	11.6	0.00080	0.00020	0.00262
Zone 4	Z4-6 SURF	L2693459-3	19-Mar-22	14:35	123	0.444	0.00011	0.00120	0.0365	<0.00010	<0.000050	0.022	0.0000142	29.0	0.000050	11.8	0.00075	0.00020	0.00233
Zone 4	Z4-7 SURF	L2693459-4	19-Mar-22	15:05	122	0.464	<0.00010	0.00113	0.0361	<0.00010	<0.000050	0.021	<0.0000050	29.0	0.000052	11.6	0.00095	0.00020	0.00180
Zone 8	Z8-1-SURF	L2694745-6	24-Mar-22	12:25	190	0.0828	0.00016	0.00197	0.0282	<0.00010	<0.000050	0.012	0.0000095	51.0	0.000013	11.7	0.00029	0.00057	0.00061
Zone 8	Z8-4 SURF	L2694960-6	27-Mar-22	10:20	120	0.395	0.00013	0.00126	0.0372	<0.00010	<0.000050	0.023	0.0000141	27.0	0.000043	12.5	0.00069	0.00017	0.00172
Zone 8	Z8-5-SURF	L2694745-7	24-Mar-22	13:05	143	0.330	0.00015	0.00127	0.0333	<0.00010	<0.000050	0.020	0.0000094	34.4	0.000042	12.3	0.00056	0.00025	0.00129
Zone 8	Z8-6 SURF	L2694960-7	27-Mar-22	9:45	121	0.417	<0.00010	0.00115	0.0368	<0.00010	<0.000050	0.023	<0.0000050	27.6	0.000046	12.6	0.00071	0.00016	0.00164
Zone 11	Z11-1 SURF	L2693729-8	21-Mar-22	14:35	126	0.344	<0.00010	0.00109	0.0320	<0.00010	<0.000050	0.021	0.0000062	29.0	0.000037	12.5	0.00059	0.00016	0.00121
Zone 11	Z11-3 SURF	L2693729-9	21-Mar-22	15:25	119	0.391	0.00017	0.00125	0.0342	<0.00010	<0.000050	0.025	0.0000107	27.1	0.000042	12.7	0.00070	0.00016	0.00143
Zone 11	Z11-4 SURF	L2694370-6	23-Mar-22	9:15	121	0.146	0.00012	0.00122	0.0366	<0.00010	<0.000050	0.023	0.0000212	28.0	0.000016	12.7	0.00031	<0.00010	0.00184
Zone 11	Z11-4 BOT	L2694370-7	23-Mar-22	9:20	121	0.396	<0.00010	0.00125	0.0381	<0.00010	<0.000050	0.022	0.0000050	28.1	0.000043	12.5	0.00068	0.00018	0.00161
Zone 11	Z11-6 SURF	L2694370-8	23-Mar-22	10:30	122	0.428	0.00011	0.00126	0.0388	<0.00010	<0.000050	0.022	0.0000083	28.3	0.000050	12.6	0.00076	0.00019	0.00173
Zone 11	Z11-6 BOT	L2694370-9	23-Mar-22	10:35	118	0.342	0.00010	0.00128	0.0375	<0.00010	<0.000050	0.022	0.0000083	27.0	0.000037	12.6	0.00060	0.00016	0.00162
Zone 11	Z11-10 SURF	L2693729-10	21-Mar-22	14:00	140	0.119	<0.00010	0.00121	0.0243	<0.00010	<0.000050	0.015	0.0000061	34.8	0.000013	11.9	0.00028	0.00037	0.00051
Zone 11	Z11-11 SURF	L2693729-11	21-Mar-22	13:15	140	0.330	<0.00010	0.00112	0.0325	<0.00010	<0.000050	0.019	0.0000065	32.7	0.000034	12.5	0.00053	0.00020	0.00124
Zone 12	Z12-6-SURF	L2694745-1	24-Mar-22	11:40	118	0.454	0.00011	0.00125	0.0389	<0.00010	<0.000050	0.020	0.0000075	26.9	0.000054	12.6	0.00075	0.00018	0.00159
Zone 12	Z12-8-SURF	L2694745-2	24-Mar-22	9:00	144	0.109	<0.00010	0.00147	0.0266	<0.00010	<0.000050	0.011	0.0000127	35.9	0.000016	12.3	0.00024	0.00051	0.00056
Zone 12	Z12-9-SURF	L2694745-3	24-Mar-22	9:40	122	0.276	<0.00010	0.00123	0.0324	<0.00010	<0.000050	0.018	0.0000096	27.9	0.000031	13.0	0.00051	0.00014	0.00125
Zone 12	Z12-11-SURF	L2694745-4	24-Mar-22	10:15	118	0.305	<0.00010	0.00124	0.0379	<0.00010	<0.000050	0.020	0.0000064	26.8	0.000039	12.6	0.00051	0.00015	0.00147
Zone 12	Z12-13 SURF	L2694960-8	27-Mar-22	9:00	129	0.418	<0.00010	0.00124	0.0380	<0.00010	<0.000050	0.024	0.0000136	29.1	0.000043	13.3	0.00071	0.00018	0.00176
Zone 12	Z12-14-SURF	L2694745-5	24-Mar-22	11:00	128	0.135	0.00011	0.00167	0.0254	<0.00010	<0.000050	0.010	0.0000093	33.1	0.000014	8.06	0.00031	0.00064	0.00065
Zone 1b	Z1-5	L2718170-10	26-Jun-22	12:40	124	0.149	<0.00010	0.00121	0.0348	<0.00010	<0.000050	0.024	<0.0000050	28.2	0.000013	12.8	0.000		

Table A4-7: Metals and major ions measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Hardness (as CaCO ₃)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Cesium (mg/L)	Chloride (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)
Detection Limit 2022					0.20	0.0030	0.00010	0.00010	0.00010	0.000050	0.010	0.0000050	0.050	0.000010	0.10	0.00010	0.00010	0.00050	
Zone 11	Z11-1 SURF	L2716982-1	21-Jun-22	10:15	112	0.172	<0.00010	0.00102	0.0240	<0.00010	<0.000050	0.019	0.0000056	27.0	0.000013	10.2	0.00031	<0.00010	0.00100
Zone 11	Z11-3 SURF	L2716982-2	21-Jun-22	10:30	124	0.269	0.00011	0.00114	0.0305	<0.00010	<0.000050	0.023	<0.0000050	29.4	0.000026	11.6	0.00042	0.00012	0.00130
Zone 11	Z11-4 SURF	L2716982-3	21-Jun-22	10:50	125	0.309	<0.00010	0.00116	0.0312	<0.00010	<0.000050	0.022	<0.0000050	29.8	0.000027	11.7	0.00048	0.00013	0.00135
Zone 11	Z11-6 SURF	L2716982-4	21-Jun-22	12:30	128	0.238	<0.00010	0.00119	0.0336	<0.00010	<0.000050	0.023	<0.0000050	29.8	0.000023	12.3	0.00045	0.00014	0.00144
Zone 11	Z11-10 SURF	L2716982-5	21-Jun-22	9:10	93.4	0.0311	<0.00010	0.00082	0.0141	<0.00010	<0.000050	0.014	<0.0000050	24.1	<0.000010	6.13	0.00011	<0.00010	<0.00050
Zone 11	Z11-11 SURF	L2716982-6	21-Jun-22	9:55	100	0.0631	<0.00010	0.00085	0.0181	<0.00010	<0.000050	0.016	<0.0000050	24.8	<0.000010	8.24	0.00014	<0.00010	0.00065
Zone 11	Z11-4 BOT	L2716982-7	21-Jun-22	10:50	127	0.161	<0.00010	0.00113	0.0320	<0.00010	<0.000050	0.023	0.0000131	29.8	0.000026	12.1	0.00043	0.00014	0.00167
Zone 12	Z12-6 SURF	L2718487-8	26-Jun-22	17:45	117	0.186	<0.00010	0.00130	0.0328	<0.00010	<0.000050	0.023	<0.0000050	26.1	0.000013	13.0	0.00026	0.00010	0.00141
Zone 12	Z12-8 SURF	L2718487-9	26-Jun-22	16:05	88.1	0.0451	<0.00010	0.00105	0.0151	<0.00010	<0.000050	0.014	<0.0000050	21.2	<0.000010	8.11	<0.00010	<0.00010	<0.00050
Zone 12	Z12-9 SURF	L2718487-10	26-Jun-22	16:30	107	0.129	<0.00010	0.00117	0.0259	<0.00010	<0.000050	0.019	<0.0000050	24.6	0.000013	11.7	0.00017	<0.00010	0.00091
Zone 12	Z12-11 SURF	L2718487-11	26-Jun-22	18:15	118	0.402	<0.00010	0.00126	0.0348	<0.00010	<0.000050	0.022	<0.0000050	26.1	0.000039	13.0	0.00058	0.00017	0.00147
Zone 12	Z12-13 SURF	L2718487-12	26-Jun-22	17:10	117	0.210	<0.00010	0.00121	0.0327	<0.00010	<0.000050	0.022	<0.0000050	26.3	0.000018	13.1	0.00032	0.00012	0.00136
Zone 12	Z12-14 SURF	L2718487-13	26-Jun-22	16:45	112	0.111	<0.00010	0.00120	0.0281	<0.00010	<0.000050	0.020	<0.0000050	25.6	<0.000010	11.3	0.00019	<0.00010	0.00107
Zone 12	Z12-13 BOT	L2718487-14	26-Jun-22	17:10	115	0.147	<0.00010	0.00127	0.0310	<0.00010	<0.000050	0.022	<0.0000050	25.8	0.000016	12.1	0.00020	<0.00010	0.00128
Zone 12	Z12-14 BOT	L2718487-15	26-Jun-22	16:45	98.5	0.0881	<0.00010	0.00108	0.0205	<0.00010	<0.000050	0.016	<0.0000050	23.2	<0.000010	9.70	0.00010	<0.00010	0.00075
Zone 12	Z12-8 BOT	L2718487-16	26-Jun-22	16:05	86.9	0.0464	<0.00010	0.00106	0.0152	<0.00010	<0.000050	0.014	<0.0000050	20.9	<0.000010	7.81	<0.00010	<0.00010	0.00057
Zone 1b	Z1-5	L2725407-1	27-Jul-22	8:20	132	0.148	<0.00010	0.00137	0.0362	<0.00010	<0.000050	0.025	<0.0000050	29.4	0.000019	13.8	0.00034	0.00013	0.00145
Zone 1b	Z1-6	L2725407-2	27-Jul-22	7:30	132	0.150	<0.00010	0.00135	0.0357	<0.00010	<0.000050	0.025	0.0000053	29.5	0.000019	13.8	0.00034	0.00011	0.00139
Zone 1b	Z1-7	L2725407-3	27-Jul-22	8:35	133	0.159	<0.00010	0.00132	0.0364	<0.00010	<0.000050	0.025	<0.0000050	30.0	0.000020	13.8	0.00036	0.00013	0.00146
Zone 1b	Z1-8	L2725407-4	27-Jul-22	7:45	131	0.136	<0.00010	0.00132	0.0357	<0.00010	<0.000050	0.025	<0.0000050	29.5	0.000016	13.7	0.00033	0.00012	0.00140
Zone 1b	Z1-9A,-9B,-9C	L2725407-5,-8,-9	27-Jul-22	8:00	130	0.156	<0.00010	0.00135	0.0359	<0.00010	<0.000050	0.024	<0.0000050	29.2	0.000021	13.8	0.00042	0.00013	0.00148
Zone 4	Z4-3 SURF	L2725100-6	26-Jul-22	11:27	130	0.108	<0.00010	0.00129	0.0342	<0.00010	<0.000050	0.024	<0.0000050	29.6	0.000015	13.7	0.00027	<0.00010	0.00126
Zone 4	Z4-5 SURF	L2725100-7	26-Jul-22	12:29	128	0.0519	<0.00010	0.00130	0.0307	<0.00010	<0.000050	0.024	<0.0000050	29.6	<0.000010	13.0	0.00013	<0.00010	0.00090
Zone 4	Z4-6 SURF	L2725100-8	26-Jul-22	11:51	127	0.0327	<0.00010	0.00126	0.0306	<0.00010	<0.000050	0.024	<0.0000050	29.0	<0.000010	13.0	<0.00010	<0.00010	0.00090
Zone 4	Z4-7 SURF	L2725100-9	26-Jul-22	12:17	129	0.0822	<0.00010	0.00127	0.0318	<0.00010	<0.000050	0.024	<0.0000050	29.3	<0.000010	13.3	0.00014	<0.00010	0.00096
Zone 8	Z8-1 SURF	L2724410-17	24-Jul-22	12:38	115	0.0131	<0.00010	0.00155	0.0193	<0.00010	<0.000050	0.016	<0.0000050	28.1	<0.000010	10.4	<0.00010	<0.00010	<0.00050
Zone 8	Z8-4 SURF	L2724410-18	24-Jul-22	13:45	131	0.137	<0.00010	0.00123	0.0342	<0.00010	<0.000050	0.025	<0.0000050	29.3	0.000015	13.9	0.00024	<0.00010	0.00138
Zone 8	Z8-5 SURF	L2724410-19	24-Jul-22	13:03	126	0.0502	<0.00010	0.00131	0.0295	<0.00010	<0.000050	0.022	<0.0000050	28.8	<0.000010	13.2	<0.00010	<0.00010	0.00090
Zone 8	Z8-6 SURF	L2724410-20	24-Jul-22	13:33</td															

Table A4-7: Metals and major ions measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued). Values in blue are considered suspect.

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Hardness (as CaCO ₃)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Cesium (mg/L)	Chloride (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)
Detection Limit 2022					0.20	0.0030	0.00010	0.00010	0.00010	0.00010	0.000050	0.010	0.0000050	0.050	0.000010	0.10	0.00010	0.00010	0.00050
Zone 12	Z12-14 SURF	L2724410-16	24-Jul-22	9:48	125	0.0649	<0.00010	0.00122	0.0267	<0.00010	<0.000050	0.020	<0.000050	28.8	<0.000010	12.3	<0.00010	<0.00010	0.00069
Zone 1b	Z1-5	L2730369-1	26-Aug-22	14:40	129	0.135	<0.00010	0.00130	0.0385	<0.00010	<0.000050	0.025	<0.000050	28.6	0.000020	14.6	0.00039	0.00012	0.00136
Zone 1b	Z1-6	L2730369-2	26-Aug-22	13:35	129	0.120	<0.00010	0.00134	0.0375	<0.00010	<0.000050	0.025	<0.000050	28.6	0.000015	14.5	0.00034	<0.00010	0.00129
Zone 1b	Z1-7	L2730369-3	26-Aug-22	13:50	131	0.142	<0.00010	0.00134	0.0387	<0.00010	<0.000050	0.025	<0.000050	28.8	0.000019	14.6	0.00037	0.00011	0.00137
Zone 1b	Z1-8	L2730369-4	26-Aug-22	14:04	131	0.174	<0.00010	0.00132	0.0381	<0.00010	<0.000050	0.025	<0.000050	28.9	0.000022	14.6	0.00038	0.00012	0.00136
Zone 1b	Z1-9	L2730369-5	26-Aug-22	13:05	131	0.186	<0.00010	0.00134	0.0391	<0.00010	<0.000050	0.025	<0.000050	28.9	0.000025	14.6	0.00040	0.00012	0.00138
Zone 4	Z4-3 SURF	L2730098-8	24-Aug-22	13:02	127	0.113	<0.00010	0.00136	0.0326	<0.00010	<0.000050	0.024	<0.000050	28.6	<0.000010	13.8	0.00023	<0.00010	0.00098
Zone 4	Z4-5 SURF	L2730098-10	24-Aug-22	13:51	125	0.0417	<0.00010	0.00140	0.0312	<0.00010	<0.000050	0.024	<0.000050	27.9	<0.000010	13.4	0.00012	<0.00010	0.00085
Zone 4	Z4-6 SURF	L2730098-11	24-Aug-22	12:50	125	0.0534	<0.00010	0.00137	0.0317	<0.00010	<0.000050	0.024	<0.000050	27.9	<0.000010	13.5	0.00052	<0.00010	0.00103
Zone 4	Z4-7 SURF	L2730098-9	24-Aug-22	13:26	130	0.264	0.00015	0.00140	0.0360	<0.00010	<0.000050	0.025	<0.000050	29.1	0.000034	13.7	0.00046	0.00014	0.00136
Zone 8	Z8-1 SURF	L2730475-1	27-Aug-22	10:00	102	0.0144	<0.00010	0.00137	0.0163	<0.00010	<0.000050	<0.010	<0.000050	25.5	<0.000010	9.47	0.00012	<0.00010	<0.00050
Zone 8	Z8-4 SURF	L2730475-2	27-Aug-22	11:10	124	0.117	<0.00010	0.00133	0.0361	<0.00010	<0.000050	0.022	<0.000050	27.2	0.000016	14.2	0.00032	0.00011	0.00133
Zone 8	Z8-5 SURF	L2730475-3	27-Aug-22	10:30	118	0.0542	<0.00010	0.00126	0.0281	<0.00010	<0.000050	0.018	<0.000050	26.8	<0.000010	13.9	0.00014	<0.00010	0.00084
Zone 8	Z8-6 SURF	L2730475-4	27-Aug-22	11:00	123	0.0850	<0.00010	0.00129	0.0319	<0.00010	<0.000050	0.020	<0.000050	27.1	0.000012	14.1	0.00040	<0.00010	0.00120
Zone 11	Z11-1A,-1B,-1C	L2730475-5,-13,-14	28-Aug-22	9:35	122	0.0481	<0.00010	0.00121	0.0289	<0.00010	<0.000050	0.020	<0.000050	27.7	<0.000010	14.0	0.00014	<0.00010	0.00133
Zone 11	Z11-3 SURF	L2730475-6	28-Aug-22	9:55	126	0.0620	<0.00010	0.00128	0.0325	<0.00010	<0.000050	0.023	<0.000050	28.0	<0.000010	14.4	0.00018	<0.00010	0.00106
Zone 11	Z11-4 SURF	L2730475-7	28-Aug-22	10:05	126	0.0626	<0.00010	0.00124	0.0319	<0.00010	<0.000050	0.022	<0.000050	28.7	<0.000010	14.4	0.00017	<0.00010	0.00103
Zone 11	Z11-6 SURF	L2730475-8	28-Aug-22	11:00	127	0.107	<0.00010	0.00132	0.0367	<0.00010	<0.000050	0.023	<0.000050	28.1	0.000014	14.5	0.00031	<0.00010	0.00131
Zone 11	Z11-10 SURF	L2730475-9	28-Aug-22	8:40	117	0.0078	<0.00010	0.00097	0.0179	<0.00010	<0.000050	0.014	<0.000050	27.5	<0.000010	12.0	<0.00010	<0.00010	<0.00050
Zone 11	Z11-11 SURF	L2730475-10	28-Aug-22	9:22	115	0.0100	<0.00010	0.00112	0.0222	<0.00010	<0.000050	0.016	2.16	27.2	<0.000010	12.7	<0.00010	<0.00010	<0.00050
Zone 11	Z11-4 BOT	L2730475-15	28-Aug-22	10:05	125	0.104	<0.00010	0.00126	0.0330	<0.00010	<0.000050	0.022	<0.000050	27.8	0.000011	14.4	0.00023	<0.00010	0.00108
Zone 11	Z11-6 BOT	L2730475-16	28-Aug-22	11:00	127	0.113	<0.00010	0.00128	0.0351	<0.00010	<0.000050	0.024	<0.000050	28.3	0.000012	14.5	0.00030	<0.00010	0.00133
Zone 12	Z12-6 SURF	L2730369-6	26-Aug-22	10:32	131	0.108	<0.00010	0.00135	0.0369	<0.00010	<0.000050	0.025	<0.000050	29.0	0.000013	14.9	0.00027	<0.00010	0.00127
Zone 12	Z12-8 SURF	L2730369-7	26-Aug-22	8:50	114	0.0212	<0.00010	0.00125	0.0233	<0.00010	<0.000050	0.017	<0.000050	27.1	<0.000010	12.4	0.00010	0.00011	<0.00050
Zone 12	Z12-9 SURF	L2730369-8	26-Aug-22	9:02	131	0.102	<0.00010	0.00137	0.0362	<0.00010	<0.000050	0.025	<0.000050	28.8	0.000012	14.9	0.00025	<0.00010	0.00125
Zone 12	Z12-11 SURF	L2730369-9	26-Aug-22	11:11	132	0.116	<0.00010	0.00132	0.0378	<0.00010	<0.000050	0.027	<0.000050	29.0	0.000016	14.9	0.00030	<0.00010	0.00128
Zone 12	Z12-13 SURF	L2730369-10	26-Aug-22	10:05	130	0.111	<0.00010	0.00137	0.0371	<0.00010	<0.000050	0.026	<0.000050	28.7	0.000015	14.8	0.00026	<0.00010	0.00127
Zone 12	Z12-14 SURF	L2730369-11	26-Aug-22	9:40	117	0.0339	<0.00010	0.00124	0.0277	<0.00010	<0.000050	0.015	<0.000050	26.8	<0.000010	13.3	0.00011	<0.00010	0.00070
Zone 1b	Z1-5	L2736200-7	9-Oct-22</td																

Table A4-7: Metals and major ions measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Hardness (as CaCO ₃) (mg/L)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Cesium (mg/L)	Chloride (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)
Detection Limit 2022					0.20	0.0030	0.00010	0.00010	0.00010	<0.00010	<0.000050	0.010	0.0000050	0.050	0.000010	0.10	0.00010	0.00010	0.00050
Zone 11	Z11-1 SURF	L2736200-12	10-Oct-22	12:05	130	0.119	<0.00010	0.00106	0.0265	<0.00010	<0.000050	0.021	<0.000050	30.0	0.000013	12.7	0.00021	<0.00010	0.00082
Zone 11	Z11-3 SURF	L2736200-13	10-Oct-22	12:11	138	0.170	<0.00010	0.00125	0.0356	<0.00010	<0.000050	0.025	<0.000050	31.2	0.000023	13.5	0.00034	0.00011	0.00118
Zone 11	Z11-4 SURF	L2736200-14	10-Oct-22	12:22	139	0.139	<0.00010	0.00130	0.0360	<0.00010	<0.000050	0.026	<0.000050	31.2	0.000020	13.5	0.00033	0.00012	0.00128
Zone 11	Z11-6 SURF	L2736200-15	10-Oct-22	13:02	139	0.196	<0.00010	0.00134	0.0394	<0.00010	<0.000050	0.027	<0.000050	31.6	0.000025	13.6	0.00040	0.00013	0.00145
Zone 11	Z11-10 SURF	L2736200-16	10-Oct-22	11:32	112	0.0159	<0.00010	0.00071	0.0136	<0.00010	<0.000050	0.011	<0.000050	28.4	<0.000010	7.76	<0.00010	<0.00010	<0.00050
Zone 11	Z11-11 SURF	L2736200-17	10-Oct-22	11:40	127	0.0895	<0.00010	0.00095	0.0237	<0.00010	<0.000050	0.019	<0.000050	29.3	0.000010	12.4	0.00016	<0.00010	0.00063
Zone 12	Z12-6 SURF	L2736200-1	9-Oct-22	15:00	138	0.414	<0.00010	0.00129	0.0393	<0.00010	<0.000050	0.025	<0.000050	31.7	0.000028	13.7	0.00040	0.00012	0.00143
Zone 12	Z12-8 SURF	L2736200-2	9-Oct-22	13:18	118	0.0289	0.00011	0.00091	0.0179	<0.00010	<0.000050	0.016	<0.000050	28.0	<0.000010	12.1	<0.00010	<0.00010	<0.00050
Zone 12	Z12-9 SURF	L2736200-3	9-Oct-22	13:28	137	0.171	0.00011	0.00124	0.0358	<0.00010	<0.000050	0.025	<0.000050	31.2	0.000020	13.6	0.00038	0.00012	0.00124
Zone 12	Z12-11 SURF	L2736200-4	9-Oct-22	15:31	137	0.163	0.00014	0.00137	0.0384	<0.00010	<0.000050	0.026	<0.000050	30.8	0.000023	13.6	0.00036	0.00013	0.00138
Zone 12	Z12-13 SURF	L2736200-5	9-Oct-22	14:37	139	0.194	0.00011	0.00137	0.0385	<0.00010	<0.000050	0.026	0.0000067	31.6	0.000023	13.7	0.00041	0.00012	0.00142
Zone 12	Z12-14 SURF	L2736200-6	9-Oct-22	14:05	135	0.185	<0.00010	0.00114	0.0304	<0.00010	<0.000050	0.020	<0.000050	31.1	0.000022	13.3	0.00034	0.00012	0.00100

Table A4-7: Metals and major ions measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Site ID	ALS Sample ID	Sample Date	Sample Time	Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (ng/L)	Methyl-mercury (ng/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus (mg/L)	Potassium (mg/L)	Rubidium (mg/L)	Selenium (mg/L)	Silicon (mg/L)	Silver (mg/L)	Sodium (mg/L)
Detection Limit 2022					0.010	0.000050	0.0010	0.0050	0.00010	0.50/1.5	0.020	0.000050	0.00050	0.030	0.050	0.00020	0.000050	0.10	0.000010	0.050
Zone 1b	Z1-5	L2693729-1	21-Mar-22	9:10	0.343	0.000189	0.0077	11.9	0.00904	<0.50	0.022	0.000542	0.00124	0.038	2.56	0.00184	0.000107	3.26	<0.000010	13.2
Zone 1b	Z1-6	L2693729-2	21-Mar-22	9:50	0.434	0.000222	0.0075	11.9	0.00966	0.57	0.048	0.000548	0.00133	0.040	2.56	0.00212	0.000091	3.60	<0.000010	12.9
Zone 1b	Z1-7	L2693729-3	21-Mar-22	12:35	0.455	0.000209	0.0075	11.9	0.0102	0.51	0.026	0.000534	0.00140	0.037	2.60	0.00218	0.000094	3.58	<0.000010	13.0
Zone 1b	Z1-8	L2693729-4	21-Mar-22	10:30	0.487	0.000214	0.0072	11.8	0.0105	0.57	0.029	0.000566	0.00140	0.035	2.61	0.00224	0.000101	3.60	<0.000010	12.5
Zone 1b	Z1-9A,-9B,-9C	L2693729-5,-6,-7	21-Mar-22	11:35	0.480	0.000224	0.0075	11.9	0.0107	0.53	<0.020	0.000542	0.00143	0.039	2.57	0.00225	0.000102	3.55	<0.000010	12.8
Zone 4	Z4-3 SURF	L2693459-1	19-Mar-22	15:35	0.477	0.000225	0.0084	12.1	0.0103	0.77	0.037	0.000549	0.00140	0.037	2.47	0.00212	0.000151	3.69	<0.000010	13.1
Zone 4	Z4-5 SURF	L2693459-2	19-Mar-22	13:45	0.426	0.000948	0.0085	12.2	0.0109	0.70	0.058	0.000551	0.00133	0.056	2.52	0.00213	0.000076	3.73	<0.000010	13.3
Zone 4	Z4-5 BOT	L2693459-5	19-Mar-22	13:50	0.457	0.000620	0.0083	12.3	0.0112	0.51	0.061	0.000578	0.00145	0.042	2.49	0.00221	0.000082	3.87	<0.000010	13.2
Zone 4	Z4-6 SURF	L2693459-3	19-Mar-22	14:35	0.458	0.000269	0.0085	12.3	0.0104	0.52	0.039	0.000565	0.00146	0.050	2.55	0.00231	0.000110	3.69	<0.000010	13.6
Zone 4	Z4-7 SURF	L2693459-4	19-Mar-22	15:05	0.475	0.000209	0.0085	12.0	0.0105	0.54	0.049	0.000534	0.00138	0.049	2.46	0.00226	0.000122	3.70	<0.000010	13.0
Zone 8	Z8-1-SURF	L2694745-6	24-Mar-22	12:25	3.44	0.000089	0.0094	15.3	0.498	5.41	6.01	0.000077	0.00089	0.222	3.14	0.00275	0.000113	5.64	<0.000010	13.3
Zone 8	Z8-4 SURF	L2694960-6	27-Mar-22	10:20	0.387	0.000204	0.0090	12.8	0.00887	0.55	0.023	0.000605	0.00136	0.042	2.56	0.00217	0.000113	3.50	<0.000010	14.3
Zone 8	Z8-5-SURF	L2694745-7	24-Mar-22	13:05	0.797	0.000153	0.0095	13.8	0.116	2.29	1.55	0.000449	0.00121	0.111	2.95	0.00243	0.000179	4.31	<0.000010	14.1
Zone 8	Z8-6 SURF	L2694960-7	27-Mar-22	9:45	0.393	0.000172	0.0090	12.8	0.00889	<0.50	0.070	0.000604	0.00130	0.046	2.53	0.00211	0.000116	3.62	<0.000010	14.0
Zone 11	Z11-1 SURF	L2693729-8	21-Mar-22	14:35	0.405	0.000158	0.0079	13.0	0.0223	0.84	0.297	0.000522	0.00114	0.053	2.79	0.00197	0.000075	3.79	<0.000010	13.9
Zone 11	Z11-3 SURF	L2693729-9	21-Mar-22	15:25	0.370	0.000188	0.0087	12.5	0.0119	0.62	0.144	0.000597	0.00131	0.044	2.70	0.00209	0.000133	3.68	<0.000010	13.4
Zone 11	Z11-4 SURF	L2694370-6	23-Mar-22	9:15	0.188	0.000141	0.0079	12.5	0.00905	<0.50	0.068	0.000560	0.00112	0.041	2.53	0.00148	0.000146	2.95	<0.000010	13.7
Zone 11	Z11-4 BOT	L2694370-7	23-Mar-22	9:20	0.395	0.000162	0.0078	12.3	0.0128	<0.50	0.088	0.000584	0.00144	0.054	2.57	0.00212	0.000120	3.59	<0.000010	13.6
Zone 11	Z11-6 SURF	L2694370-8	23-Mar-22	10:30	0.449	0.000182	0.0080	12.5	0.0112	<0.50	0.038	0.000582	0.00140	0.034	2.60	0.00219	0.000120	3.58	<0.000010	13.7
Zone 11	Z11-6 BOT	L2694370-9	23-Mar-22	10:35	0.359	0.000164	0.0080	12.3	0.0106	<0.50	0.055	0.000591	0.00130	0.041	2.54	0.00210	0.000114	3.30	<0.000010	13.3
Zone 11	Z11-10 SURF	L2693729-10	21-Mar-22	14:00	1.55	0.000092	0.0073	13.0	0.280	7.33	5.76	0.000156	0.00079	0.210	3.01	0.00209	0.000098	4.68	<0.000010	12.5
Zone 11	Z11-11 SURF	L2693729-11	21-Mar-22	13:15	0.561	0.000139	0.0088	14.1	0.0657	1.55	0.787	0.000482	0.00111	0.070	2.91	0.00217	0.000091	4.46	<0.000010	15.2
Zone 12	Z12-6-SURF	L2694745-1	24-Mar-22	11:40	0.389	0.000258	0.0079	12.4	0.0102	0.50	0.056	0.000616	0.00131	0.043	2.69	0.00234	0.000090	3.53	<0.000010	13.1
Zone 12	Z12-8-SURF	L2694745-2	24-Mar-22	9:00	1.66	0.000070	0.0072	13.2	0.484	11.3	7.75	0.000103	0.00081	0.361	3.30	0.00272	0.000087	3.80	<0.000010	12.2
Zone 12	Z12-9-SURF	L2694745-3	24-Mar-22	9:40	0.382	0.000118	0.0079	12.8	0.0392	1.89	0.877	0.000468	0.00110	0.099	2.84	0.00213	0.000122	3.68	<0.000010	13.5
Zone 12	Z12-11-SURF	L2694745-4	24-Mar-22	10:15	0.286	0.000145	0.0077	12.4	0.00875	<0.50	0.058	0.000591	0.00119	0.041	2.68	0.00193	0.000070	3.25	<0.000010	13.2
Zone 12	Z12-13 SURF	L2694960-8	27-Mar-22	9:00	0.409	0.000183	0.0096	13.7	0.0140	0.61	0.136	0.000634	0.00132	0.050	2.71	0.00216	0.000133	3.76	<0.000010	14.8
Zone 12	Z12-14-SURF	L2694745-5	24-Mar-22	11:00	3.73	0.000081	0.0047	11.1	0.401	3.42	3.37	0.000170	0.00071	0.181	1.98	0.00178	0.000068	4.60	<0.000010	8.39
Zone 1b	Z1-5	L2718170-1																		

Table A4-7: Metals and major ions measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Site ID	ALS Sample ID	Sample Date	Sample Time	Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (ng/L)	Methyl-mercury (ng/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus (mg/L)	Potassium (mg/L)	Rubidium (mg/L)	Selenium (mg/L)	Silicon (mg/L)	Silver (mg/L)	Sodium (mg/L)
Detection Limit 2022					0.010	0.000050	0.0010	0.0050	0.00010	0.50/1.5	0.020	0.000050	0.00050	0.030	0.050	0.00020	0.000050	0.10	0.000010	0.050
Zone 8	Z8-5A,-5B,-5C SURF	L2717871-3,-5,-6	23-Jun-22	9:55	0.177	0.000111	0.0079	12.4	0.0161	0.11	0.269	0.000550	0.00108	0.039	2.52	0.00144	0.000119	1.93	<0.000010	14.3
Zone 8	Z8-6 SURF	L2717871-4	23-Jun-22	11:00	0.164	0.000124	0.0082	12.9	0.0115	0.92	0.144	0.000569	0.00126	0.032	2.48	0.00139	0.000126	1.98	<0.000010	14.7
Zone 11	Z11-1 SURF	L2716982-1	21-Jun-22	10:15	0.162	0.000308	0.0081	10.8	0.0129	1.77	0.592	0.000429	0.00090	0.038	2.19	0.00131	0.000076	1.48	<0.000010	12.5
Zone 11	Z11-3 SURF	L2716982-2	21-Jun-22	10:30	0.226	0.000128	0.0091	12.3	0.0183	1.39	0.364	0.000559	0.00109	0.042	2.37	0.00163	0.000126	2.09	<0.000010	14.4
Zone 11	Z11-4 SURF	L2716982-3	21-Jun-22	10:50	0.263	0.000149	0.0093	12.4	0.0114	1.33	0.273	0.000631	0.00112	0.035	2.39	0.00161	0.000160	2.23	<0.000010	14.4
Zone 11	Z11-6 SURF	L2716982-4	21-Jun-22	12:30	0.248	0.000147	0.0096	13.0	0.0108	1.23	0.138	0.000535	0.00118	0.031	2.49	0.00166	0.000104	2.22	<0.000010	15.1
Zone 11	Z11-10 SURF	L2716982-5	21-Jun-22	9:10	0.137	0.000079	0.0056	8.09	0.0260	2.29	0.667	0.000252	0.00063	0.036	1.66	0.00121	0.000065	0.65	<0.000010	8.22
Zone 11	Z11-11 SURF	L2716982-6	21-Jun-22	9:55	0.119	0.000061	0.0071	9.34	0.0132	2.10	0.781	0.000368	0.00067	0.058	1.94	0.00126	0.000079	0.89	<0.000010	10.5
Zone 11	Z11-4 BOT	L2716982-7	21-Jun-22	10:50	0.195	0.000385	0.0096	12.8	0.0115	1.03	0.223	0.000541	0.00180	<0.030	2.41	0.00146	0.000113	1.99	<0.000010	14.8
Zone 12	Z12-6 SURF	L2718487-8	26-Jun-22	17:45	0.156	0.000141	0.0097	12.7	0.00861	1.02	0.157	0.000597	0.00093	0.033	2.52	0.00141	0.000116	2.18	<0.000010	14.5
Zone 12	Z12-8 SURF	L2718487-9	26-Jun-22	16:05	0.166	<0.000050	0.0065	8.50	0.0257	2.64	0.905	0.000312	<0.00050	0.074	2.02	0.00158	0.000059	0.94	<0.000010	9.23
Zone 12	Z12-9 SURF	L2718487-10	26-Jun-22	16:30	0.139	0.000080	0.0084	11.2	0.0139	1.93	0.671	0.000541	0.00068	0.057	2.49	0.00148	0.000072	1.63	<0.000010	13.0
Zone 12	Z12-11 SURF	L2718487-11	26-Jun-22	18:15	0.323	0.000196	0.0096	12.9	0.00996	1.07	0.093	0.000614	0.00113	0.038	2.69	0.00195	0.000111	2.63	<0.000010	14.2
Zone 12	Z12-13 SURF	L2718487-12	26-Jun-22	17:10	0.183	0.000155	0.0093	12.4	0.00882	1.12	0.134	0.000586	0.00096	0.038	2.52	0.00155	0.000117	2.27	<0.000010	13.7
Zone 12	Z12-14 SURF	L2718487-13	26-Jun-22	16:45	0.117	0.000091	0.0088	11.7	0.0117	1.55	0.463	0.000523	0.00074	0.043	2.44	0.00133	0.000091	1.75	<0.000010	13.2
Zone 12	Z12-13 BOT	L2718487-14	26-Jun-22	17:10	0.140	0.000135	0.0093	12.2	0.0100	1.16	⁻¹	0.000576	0.00083	0.036	2.50	0.00140	0.000081	2.00	<0.000010	14.2
Zone 12	Z12-14 BOT	L2718487-15	26-Jun-22	16:45	0.123	0.000062	0.0073	9.83	0.0155	1.79	0.597	0.000408	0.00086	0.054	1.97	0.00123	0.000054	1.38	<0.000010	11.0
Zone 12	Z12-8 BOT	L2718487-16	26-Jun-22	16:05	0.163	0.000065	0.0062	8.46	0.0250	4.77	1.24	0.000334	<0.00050	0.073	2.00	0.00156	0.000070	0.90	<0.000010	9.39
Zone 1b	Z1-5	L2725407-1	27-Jul-22	8:20	0.178	0.000120	0.0100	14.2	0.00798	0.91	0.059	0.000622	0.00111	0.037	2.68	0.00170	0.000135	2.69	<0.000010	16.3
Zone 1b	Z1-6	L2725407-2	27-Jul-22	7:30	0.163	0.000102	0.0096	14.1	0.00732	0.75	0.085	0.000640	0.00107	0.044	2.66	0.00156	0.000122	2.73	<0.000010	16.0
Zone 1b	Z1-7	L2725407-3	27-Jul-22	8:35	0.183	0.000119	0.0100	14.2	0.00793	0.82	0.057	0.000662	0.00107	0.034	2.67	0.00155	0.000131	2.69	<0.000010	16.2
Zone 1b	Z1-8	L2725407-4	27-Jul-22	7:45	0.162	0.000107	0.0099	14.0	0.00750	0.83	0.063	0.000641	0.00106	0.035	2.64	0.00157	0.000122	2.69	<0.000010	16.1
Zone 1b	Z1-9A,-9B,-9C	L2725407-5,-8,-9	27-Jul-22	8:00	0.184	0.000123	0.0097	13.9	0.00805	0.91	0.048	0.000636	0.00115	0.032	2.62	0.00163	0.000132	2.71	<0.000010	15.9
Zone 4	Z4-3 SURF	L2725100-6	26-Jul-22	11:27	0.145	0.000081	0.0093	13.6	0.00990	1.04	0.308	0.000640	0.00100	0.033	2.58	0.00153	0.000127	2.38	<0.000010	15.7
Zone 4	Z4-5 SURF	L2725100-7	26-Jul-22	12:29	0.149	<0.000050	0.0089	13.2	0.0235	2.03	0.785	0.000543	0.00080	0.048	2.59	0.00141	0.000094	1.83	<0.000010	15.0
Zone 4	Z4-6 SURF	L2725100-8	26-Jul-22	11:51	0.117	<0.000050	0.0091	13.3	0.0178	1.86	0.676	0.000536	0.00076	0.040	2.59	0.00147	0.000087	1.52	<0.000010	15.2
Zone 4	Z4-7 SURF	L2725100-9	26-Jul-22	12:17	0.124	<0.000050	0.0091	13.5	0.0205	1.66	0.744	0.000567	0.00079	0.049	2.59	0.00141	0.000114	2.08	<0.000010	15.2
Zone 8	Z8-1 SURF	L2724410-17	24-Jul-22	12:38	0															

Table A4-7: Metals and major ions measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Site ID	ALS Sample ID	Sample Date	Sample Time	Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (ng/L)	Methyl-mercury (ng/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus (mg/L)	Potassium (mg/L)	Rubidium (mg/L)	Selenium (mg/L)	Silicon (mg/L)	Silver (mg/L)	Sodium (mg/L)
Detection Limit 2022					0.010	0.000050	0.0010	0.0050	0.00010	0.50/1.5	0.020	0.000050	0.00050	0.030	0.050	0.00020	0.000050	0.10	0.000010	0.050
Zone 12	Z12-9 SURF	L2724410-13	24-Jul-22	9:03	0.133	0.000075	0.0085	14.1	0.0125	1.10	0.502	0.000576	0.00090	<0.030	2.82	0.00142	<0.000050	2.56	<0.000010	16.3
Zone 12	Z12-11 SURF	L2724410-14	24-Jul-22	10:43	0.118	0.000100	0.0098	13.8	0.00767	0.79	0.138	0.000655	0.00102	<0.030	2.83	0.00140	<0.000050	2.59	<0.000010	15.7
Zone 12	Z12-13 SURF	L2724410-15	24-Jul-22	10:16	0.136	0.000086	0.0097	14.0	0.00964	0.92	0.282	0.000666	0.00100	<0.030	2.78	0.00157	<0.000050	2.62	<0.000010	15.8
Zone 12	Z12-14 SURF	L2724410-16	24-Jul-22	9:48	0.242	<0.000050	0.0084	13.0	0.0234	2.01	0.953	0.000485	0.00064	0.058	2.47	0.00130	<0.000050	2.14	<0.000010	14.3
Zone 1b	Z1-5	L2730369-1	26-Aug-22	14:40	0.171	0.000093	0.0106	14.0	0.00671	0.53	0.066	0.000633	0.00106	<0.030	2.93	0.00157	0.000114	2.79	<0.000010	16.7
Zone 1b	Z1-6	L2730369-2	26-Aug-22	13:35	0.143	0.000078	0.0106	14.1	0.00683	0.87	0.164	0.000604	0.00099	<0.030	2.92	0.00151	0.000125	2.82	<0.000010	16.9
Zone 1b	Z1-7	L2730369-3	26-Aug-22	13:50	0.174	0.000092	0.0106	14.3	0.00639	0.54	0.061	0.000617	0.00103	<0.030	2.88	0.00157	0.000123	2.80	<0.000010	16.7
Zone 1b	Z1-8	L2730369-4	26-Aug-22	14:04	0.180	0.000090	0.0106	14.2	0.00678	1.14	0.117	0.000622	0.00105	<0.030	2.89	0.00166	0.000118	2.91	<0.000010	16.5
Zone 1b	Z1-9	L2730369-5	26-Aug-22	13:05	0.201	0.000102	0.0106	14.3	0.00691	0.67	0.062	0.000653	0.00106	0.034	2.93	0.00166	0.000120	2.96	<0.000010	16.9
Zone 4	Z4-3 SURF	L2730098-8	24-Aug-22	13:02	0.163	0.000053	0.0096	13.4	0.0263	1.21	0.351	0.000561	0.00095	0.062	2.67	0.00157	0.000137	2.75	<0.000010	15.6
Zone 4	Z4-5 SURF	L2730098-10	24-Aug-22	13:51	0.172	<0.000050	0.0095	13.4	0.0285	2.48	1.19	0.000498	0.00072	0.082	2.69	0.00152	0.000119	2.13	<0.000010	15.6
Zone 4	Z4-6 SURF	L2730098-11	24-Aug-22	12:50	0.170	<0.000050	0.0095	13.4	0.0273	2.04	1.02	0.000535	0.00097	0.064	2.68	0.00143	0.000107	2.20	<0.000010	15.7
Zone 4	Z4-7 SURF	L2730098-9	24-Aug-22	13:26	0.244	0.000130	0.0102	14.0	0.0144	1.91	0.789	0.000714	0.00110	0.053	2.74	0.00184	0.000157	3.01	<0.000010	16.2
Zone 8	Z8-1 SURF	L2730475-1	27-Aug-22	10:00	0.489	<0.000050	0.0061	9.21	0.0211	6.30	3.88	0.000178	<0.00050	0.105	2.15	0.00185	0.000070	1.04	<0.000010	10.6
Zone 8	Z8-4 SURF	L2730475-2	27-Aug-22	11:10	0.147	0.000077	0.0093	13.6	0.00690	<1.5	0.123	0.000648	0.00104	<0.030	2.63	0.00145	0.000140	2.58	<0.000010	15.8
Zone 8	Z8-5 SURF	L2730475-3	27-Aug-22	10:30	0.108	<0.000050	0.0089	12.4	0.0152	1.98	1.03	0.000510	0.00072	0.058	2.55	0.00145	0.000097	2.08	<0.000010	14.8
Zone 8	Z8-6 SURF	L2730475-4	27-Aug-22	11:00	0.107	0.000060	0.0090	13.4	0.00936	-1	0.419	0.000653	0.00098	0.039	2.67	0.00144	0.000126	2.42	<0.000010	15.8
Zone 11	Z11-1A,-1B,-1C	L2730475-5,-13,-14	28-Aug-22	9:35	0.115	<0.000050	0.0088	12.9	0.0187	2.70	1.37	0.000462	0.00071	0.060	2.71	0.00139	0.000085	2.20	<0.000010	15.8
Zone 11	Z11-3 SURF	L2730475-6	28-Aug-22	9:55	0.084	<0.000050	0.0098	13.6	0.0105	-1	0.518	0.000594	0.00085	<0.030	2.66	0.00139	0.000133	2.41	<0.000010	15.2
Zone 11	Z11-4 SURF	L2730475-7	28-Aug-22	10:05	0.087	<0.000050	0.0097	13.3	0.0108	0.91	0.494	0.000621	0.00084	<0.030	2.68	0.00148	0.000101	2.40	<0.000010	15.6
Zone 11	Z11-6 SURF	L2730475-8	28-Aug-22	11:00	0.128	0.000070	0.0098	13.9	0.00569	<0.50	0.094	0.000674	0.00095	<0.030	2.73	0.00150	0.000124	2.60	<0.000010	16.1
Zone 11	Z11-10 SURF	L2730475-9	28-Aug-22	8:40	0.154	<0.000050	0.0079	11.7	0.0391	4.93	4.59	0.000217	0.00053	0.082	2.59	0.00158	0.000061	1.81	<0.000010	13.0
Zone 11	Z11-11 SURF	L2730475-10	28-Aug-22	9:22	0.224	<0.000050	0.0079	11.5	0.0451	3.19	2.66	0.000259	0.00056	0.103	2.70	0.00163	<0.000050	2.06	<0.000010	14.5
Zone 11	Z11-4 BOT	L2730475-15	28-Aug-22	10:05	0.122	0.000141	0.0092	13.5	0.0169	1.00	0.600	0.000587	0.00084	0.059	2.75	0.00139	0.000098	2.63	<0.000010	16.0
Zone 11	Z11-6 BOT	L2730475-16	28-Aug-22	11:00	0.127	0.000114	0.0093	13.7	0.00945	0.75	0.194	0.000605	0.00093	0.043	2.74	0.00146	0.000111	2.66	<0.000010	16.4
Zone 12	Z12-6 SURF	L2730369-6	26-Aug-22	10:32	0.129	0.000067	0.0107	14.3	0.00718	0.81	0.232	0.000640	0.00094	<0.030	2.92	0.00145	0.000121	2.74	<0.000010	17.1
Zone 12	Z12-8 SURF	L2730369-7	26-Aug-22	8:50	0.340	<0.000050	0.0086	11.3	0.0646	<0.50	2.21	0.000296	0.00052	0.077	2.63	0.00178	0.000061	2.37	<0.000010	14.3
Zone 12	Z12-9 SURF	L2730369-8	26-Aug-22	9:02	0.138	0.000075	0.0107	14.4	0.00926	0.87	0.36	0.000624	0.00094	<0.030						

Table A4-7: Metals and major ions measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Site ID	ALS Sample ID	Sample Date	Sample Time	Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (ng/L)	Methyl-mercury (ng/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus (mg/L)	Potassium (mg/L)	Rubidium (mg/L)	Selenium (mg/L)	Silicon (mg/L)	Silver (mg/L)	Sodium (mg/L)
Detection Limit 2022					0.010	0.000050	0.0010	0.0050	0.00010	0.50/1.5	0.020	0.000050	0.00050	0.030	0.050	0.00020	0.000050	0.10	0.000010	0.050
Zone 8	Z8-4 SURF	L2736054-2	6-Oct-22	15:43	0.233	0.000127	0.0096	13.9	0.00733	0.64	0.033	0.000660	0.00108	0.037	2.71	0.00161	0.000109	2.72	<0.000010	15.7
Zone 8	Z8-6 SURF	L2736054-4	6-Oct-22	15:09	0.179	0.000094	0.0097	13.8	0.0115	0.61	0.145	0.000623	0.00094	0.035	2.73	0.00152	0.000119	2.47	<0.000010	16.1
Zone 8	Z8-5A,-5B,-5C SURF	L2736054-3,-7,-8	6-Oct-22	14:50	0.137	<0.000050	0.0089	12.5	0.0126	1.02	0.480	0.000440	0.00065	<0.030	2.55	0.00157	0.000087	1.62	<0.000010	14.8
Zone 11	Z11-1 SURF	L2736200-12	10-Oct-22	12:05	0.141	0.000059	0.0099	13.4	0.0101	1.13	0.321	0.000523	0.00068	0.037	2.65	0.00156	0.000095	2.25	<0.000010	15.2
Zone 11	Z11-3 SURF	L2736200-13	10-Oct-22	12:11	0.190	0.000102	0.0107	14.7	0.0130	0.73	0.171	0.000657	0.00095	0.036	2.72	0.00162	0.000096	2.73	<0.000010	16.2
Zone 11	Z11-4 SURF	L2736200-14	10-Oct-22	12:22	0.170	0.000102	0.0108	14.7	0.00947	0.70	0.120	0.000626	0.00092	<0.030	2.69	0.00157	0.000120	2.67	<0.000010	16.1
Zone 11	Z11-6 SURF	L2736200-15	10-Oct-22	13:02	0.206	0.000119	0.0109	14.7	0.00678	0.55	0.036	0.000686	0.00126	0.040	2.73	0.00172	0.000133	2.94	<0.000010	16.3
Zone 11	Z11-10 SURF	L2736200-16	10-Oct-22	11:32	0.149	<0.000050	0.0064	9.97	0.0124	1.37	0.322	0.000202	<0.00050	<0.030	2.20	0.00164	0.000054	1.02	<0.000010	9.91
Zone 11	Z11-11 SURF	L2736200-17	10-Oct-22	11:40	0.126	<0.000050	0.0097	13.1	0.00842	1.01	0.310	0.000494	0.00061	0.038	2.62	0.00159	0.000099	1.97	<0.000010	15.0
Zone 12	Z12-6 SURF	L2736200-1	9-Oct-22	15:00	0.218	0.000123	0.0105	14.4	0.00695	0.66	0.064	0.000706	0.00103	0.031	2.74	0.00170	0.000134	2.97	<0.000010	15.9
Zone 12	Z12-8 SURF	L2736200-2	9-Oct-22	13:18	0.127	0.000050	0.0118	11.6	0.0295	1.30	0.439	0.000402	0.00054	0.031	2.50	0.00162	0.000101	1.86	<0.000010	14.1
Zone 12	Z12-9 SURF	L2736200-3	9-Oct-22	13:28	0.194	0.000114	0.0106	14.5	0.00809	0.86	0.132	0.000655	0.00095	<0.030	2.69	0.00163	0.000116	2.65	<0.000010	15.9
Zone 12	Z12-11 SURF	L2736200-4	9-Oct-22	15:31	0.190	0.000129	0.0106	14.6	0.00710	0.97	0.066	0.000684	0.00102	0.034	2.69	0.00150	0.000151	2.74	<0.000010	16.0
Zone 12	Z12-13 SURF	L2736200-5	9-Oct-22	14:37	0.206	0.000126	0.0105	14.5	0.00708	0.76	0.061	0.000702	0.00104	<0.030	2.72	0.00169	0.000096	2.79	<0.000010	16.2
Zone 12	Z12-14 SURF	L2736200-6	9-Oct-22	14:05	0.211	0.000110	0.0103	14.0	0.00955	1.01	0.216	0.000565	0.00085	<0.030	2.54	0.00156	0.000105	2.41	<0.000010	15.8

Table A4-7: Metals and major ions measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Strontium (mg/L)	Sulfate (mg/L)	Sulfur (mg/L)	Tellurium (mg/L)	Thallium (mg/L)	Thorium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Tungsten (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Zirconium (mg/L)
	Detection Limit 2022				0.00020	0.30	0.50	0.00020	0.000010	0.00010	0.00010	0.00030	0.00010	0.000010	0.00050	0.0030	0.00020
Zone 1b	Z1-5	L2693729-1	21-Mar-22	9:10	0.105	28.4	9.83	<0.00020	<0.000010	<0.000010	<0.000010	0.0142	<0.000010	0.000575	0.00142	0.0044	0.00040
Zone 1b	Z1-6	L2693729-2	21-Mar-22	9:50	0.104	27.9	9.75	<0.00020	<0.000010	0.00011	0.000011	0.0183	<0.000010	0.000583	0.00153	0.0036	0.00045
Zone 1b	Z1-7	L2693729-3	21-Mar-22	12:35	0.106	28.5	10.0	<0.00020	<0.000010	0.00012	0.000010	0.0195	<0.000010	0.000612	0.00166	0.0030	0.00045
Zone 1b	Z1-8	L2693729-4	21-Mar-22	10:30	0.103	27.7	9.79	<0.00020	<0.000010	0.00012	<0.000010	0.0210	<0.000010	0.000580	0.00163	0.0034	0.00044
Zone 1b	Z1-9A,-9B,-9C	L2693729-5,-6,-7	21-Mar-22	11:35	0.103	27.9	9.86	<0.00020	<0.000010	0.00012	<0.000010	0.0207	<0.000010	0.000605	0.00164	<0.0030	0.00047
Zone 4	Z4-3 SURF	L2693459-1	19-Mar-22	15:35	0.103	27.1	9.44	<0.00020	<0.000010	0.00011	<0.000010	0.0191	<0.000010	0.000589	0.00149	0.0040	0.00044
Zone 4	Z4-5 SURF	L2693459-2	19-Mar-22	13:45	0.103	26.9	8.66	<0.00020	<0.000010	0.00011	<0.000010	0.0156	<0.000010	0.000585	0.00141	0.0095	0.00044
Zone 4	Z4-5 BOT	L2693459-5	19-Mar-22	13:50	0.104	26.8	9.33	<0.00020	<0.000010	0.00013	<0.000010	0.0174	<0.000010	0.000600	0.00150	0.0075	0.00045
Zone 4	Z4-6 SURF	L2693459-3	19-Mar-22	14:35	0.105	27.5	9.42	<0.00020	<0.000010	0.00011	<0.000010	0.0175	<0.000010	0.000608	0.00150	0.0082	0.00044
Zone 4	Z4-7 SURF	L2693459-4	19-Mar-22	15:05	0.105	27.2	9.34	<0.00020	<0.000010	0.00012	<0.000010	0.0181	<0.000010	0.000602	0.00149	0.0033	0.00047
Zone 8	Z8-1-SURF	L2694745-6	24-Mar-22	12:25	0.101	8.62	3.48	<0.00020	<0.000010	<0.000010	<0.000010	0.00324	<0.000010	0.000074	0.00054	0.0055	<0.00020
Zone 8	Z8-4 SURF	L2694960-6	27-Mar-22	10:20	0.113	29.4	9.84	<0.00020	<0.000010	0.00010	<0.000010	0.0156	<0.000010	0.000631	0.00160	0.0030	0.00044
Zone 8	Z8-5-SURF	L2694745-7	24-Mar-22	13:05	0.110	24.8	8.57	0.00027	<0.000010	<0.000010	<0.000010	0.0119	<0.000010	0.000414	0.00119	0.0042	0.00034
Zone 8	Z8-6 SURF	L2694960-7	27-Mar-22	9:45	0.111	29.2	9.92	<0.00020	<0.000010	0.00011	<0.000010	0.0159	<0.000010	0.000599	0.00156	<0.0030	0.00044
Zone 11	Z11-1 SURF	L2693729-8	21-Mar-22	14:35	0.107	28.6	10.1	<0.00020	<0.000010	<0.000010	<0.000010	0.0128	<0.000010	0.000536	0.00126	0.0041	0.00034
Zone 11	Z11-3 SURF	L2693729-9	21-Mar-22	15:25	0.114	29.8	10.4	<0.00020	<0.000010	0.00010	<0.000010	0.0150	<0.000010	0.000631	0.00147	0.0045	0.00041
Zone 11	Z11-4 SURF	L2694370-6	23-Mar-22	9:15	0.117	29.5	9.93	<0.00020	<0.000010	<0.000010	<0.000010	0.00517	<0.000010	0.000549	0.00114	0.0063	0.00033
Zone 11	Z11-4 BOT	L2694370-7	23-Mar-22	9:20	0.117	29.0	9.95	<0.00020	<0.000010	<0.000010	<0.000010	0.0159	<0.000010	0.000536	0.00146	<0.0030	0.00043
Zone 11	Z11-6 SURF	L2694370-8	23-Mar-22	10:30	0.118	29.5	10.1	<0.00020	<0.000010	<0.000010	<0.000010	0.0174	<0.000010	0.000558	0.00156	0.0035	0.00042
Zone 11	Z11-6 BOT	L2694370-9	23-Mar-22	10:35	0.114	29.5	10.0	<0.00020	<0.000010	<0.000010	<0.000010	0.0135	<0.000010	0.000546	0.00144	<0.0030	0.00041
Zone 11	Z11-10 SURF	L2693729-10	21-Mar-22	14:00	0.0939	16.1	5.77	<0.00020	<0.000010	<0.000010	0.00014	0.00403	<0.000010	0.000136	0.00064	0.0031	<0.00020
Zone 11	Z11-11 SURF	L2693729-11	21-Mar-22	13:15	0.112	26.7	10.2	<0.00020	<0.000010	<0.000010	<0.000010	0.0115	<0.000010	0.000428	0.00110	<0.0030	0.00032
Zone 12	Z12-6-SURF	L2694745-1	24-Mar-22	11:40	0.116	29.6	10.5	<0.00020	<0.000010	0.00010	<0.000010	0.0176	<0.000010	0.000596	0.00169	0.0030	0.00043
Zone 12	Z12-8-SURF	L2694745-2	24-Mar-22	9:00	0.0982	9.55	4.18	<0.00020	<0.000010	<0.000010	0.00011	0.00368	<0.000010	0.000124	0.00079	<0.0030	<0.00020
Zone 12	Z12-9-SURF	L2694745-3	24-Mar-22	9:40	0.109	26.7	9.39	<0.00020	<0.000010	<0.000010	<0.000010	0.00898	<0.000010	0.000377	0.00113	0.0039	0.00033
Zone 12	Z12-11-SURF	L2694745-4	24-Mar-22	10:15	0.118	29.5	10.2	<0.00020	<0.000010	<0.000010	<0.000010	0.0117	<0.000010	0.000604	0.00154	<0.0030	0.00040
Zone 12	Z12-13 SURF	L2694960-8	27-Mar-22	9:00	0.118	30.7	10.4	<0.00020	<0.000010	0.00010	<0.000010	0.0162	<0.000010	0.000606	0.00163	0.0033	0.00042
Zone 12	Z12-14-SURF	L2694745-5	24-Mar-22	11:00	0.0871	11.5	3.97	<0.00020	<0.000010	<0.000010	<0.000010	0.00463	<0.000010	0.000169	0.00070	0.0049	<0.00020
Zone 1b	Z1-5	L2718170-10	26-Jun-22	12:40	0.119	30.2	11.2	<0.00020	<0.000010	<0.000010	<0.000010	0.00547	<0.000010	0.000639	0.00139	<0.0030	0.00040
Zone 1b	Z1-6	L2718170-11	26-Jun-22	13:25	0.118	29.2	10.7	<0.00020	<0.000010	<0.000010	<0.000010	0.00430	<0.000010	0.000601			

Table A4-7: Metals and major ions measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Strontium (mg/L)	Sulfate (mg/L)	Sulfur (mg/L)	Tellurium (mg/L)	Thallium (mg/L)	Thorium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Tungsten (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Zirconium (mg/L)
Detection Limit 2022					0.00020	0.30	0.50	0.00020	0.000010	0.00010	0.00010	0.00030	0.00010	0.000010	0.00050	0.0030	0.00020
Zone 11	Z11-1 SURF	L2716982-1	21-Jun-22	10:15	0.0871	21.7	8.35	<0.00020	<0.000010	<0.00010	<0.00010	0.00488	<0.00010	0.000299	0.00095	<0.0030	<0.00020
Zone 11	Z11-3 SURF	L2716982-2	21-Jun-22	10:30	0.108	26.5	9.64	0.00026	<0.000010	<0.00010	<0.00010	0.00908	<0.00010	0.000457	0.00128	<0.0030	0.00032
Zone 11	Z11-4 SURF	L2716982-3	21-Jun-22	10:50	0.105	26.9	9.73	<0.00020	<0.000010	<0.00010	<0.00010	0.0103	<0.00010	0.000487	0.00141	<0.0030	0.00039
Zone 11	Z11-6 SURF	L2716982-4	21-Jun-22	12:30	0.110	28.6	10.6	<0.00020	<0.000010	<0.00010	<0.00010	0.00880	<0.00010	0.000535	0.00149	<0.0030	0.00034
Zone 11	Z11-10 SURF	L2716982-5	21-Jun-22	9:10	0.0601	10.7	4.25	<0.00020	<0.000010	<0.00010	<0.00010	0.00092	<0.00010	0.000087	0.00057	<0.0030	<0.00020
Zone 11	Z11-11 SURF	L2716982-6	21-Jun-22	9:55	0.0718	16.4	6.08	<0.00020	<0.000010	<0.00010	<0.00010	0.00180	<0.00010	0.000168	0.00068	<0.0030	<0.00020
Zone 11	Z11-4 BOT	L2716982-7	21-Jun-22	10:50	0.108	28.2	10.1	<0.00020	<0.000010	<0.00010	<0.00010	0.00710	<0.00010	0.000523	0.00137	0.0068	0.00033
Zone 12	Z12-6 SURF	L2718487-8	26-Jun-22	17:45	0.115	30.3	10.8	<0.00020	<0.000010	<0.00010	<0.00010	0.00566	<0.00010	0.000620	0.00174	<0.0030	0.00035
Zone 12	Z12-8 SURF	L2718487-9	26-Jun-22	16:05	0.0664	14.1	5.38	<0.00020	<0.000010	<0.00010	<0.00010	0.00144	<0.00010	0.000113	0.00088	<0.0030	<0.00020
Zone 12	Z12-9 SURF	L2718487-10	26-Jun-22	16:30	0.101	25.2	9.01	<0.00020	<0.000010	<0.00010	<0.00010	0.00382	<0.00010	0.000386	0.00112	<0.0030	<0.00020
Zone 12	Z12-11 SURF	L2718487-11	26-Jun-22	18:15	0.118	30.5	10.7	<0.00020	<0.000010	0.00012	<0.00010	0.0136	<0.00010	0.000648	0.00175	0.0067	0.00060
Zone 12	Z12-13 SURF	L2718487-12	26-Jun-22	17:10	0.116	30.4	10.8	<0.00020	<0.000010	<0.00010	<0.00010	0.00707	<0.00010	0.000652	0.00163	<0.0030	0.00038
Zone 12	Z12-14 SURF	L2718487-13	26-Jun-22	16:45	0.107	24.8	9.50	<0.00020	<0.000010	<0.00010	<0.00010	0.00335	<0.00010	0.000462	0.00113	<0.0030	0.00021
Zone 12	Z12-13 BOT	L2718487-14	26-Jun-22	17:10	0.113	27.9	10.3	<0.00020	<0.000010	<0.00010	<0.00010	0.00463	<0.00010	0.000568	0.00158	<0.0030	0.00040
Zone 12	Z12-14 BOT	L2718487-15	26-Jun-22	16:45	0.0874	20.6	7.33	<0.00020	<0.000010	<0.00010	<0.00010	0.00237	<0.00010	0.000252	0.00102	0.0031	<0.00020
Zone 12	Z12-8 BOT	L2718487-16	26-Jun-22	16:05	0.0664	12.9	5.22	<0.00020	0.000019	<0.00010	<0.00010	0.00114	<0.00010	0.000117	0.00088	0.0035	<0.00020
Zone 1b	Z1-5	L2725407-1	27-Jul-22	8:20	0.122	32.2	12.1	<0.00020	<0.000010	<0.00010	<0.00010	0.00754	<0.00010	0.000635	0.00152	<0.0030	0.00031
Zone 1b	Z1-6	L2725407-2	27-Jul-22	7:30	0.122	32.0	11.9	<0.00020	<0.000010	<0.00010	<0.00010	0.00706	<0.00010	0.000626	0.00155	<0.0030	0.00028
Zone 1b	Z1-7	L2725407-3	27-Jul-22	8:35	0.123	32.3	12.1	<0.00020	<0.000010	<0.00010	<0.00010	0.00765	<0.00010	0.000643	0.00147	<0.0030	0.00031
Zone 1b	Z1-8	L2725407-4	27-Jul-22	7:45	0.120	32.0	12.0	<0.00020	<0.000010	<0.00010	<0.00010	0.00681	<0.00010	0.000621	0.00148	<0.0030	0.00028
Zone 1b	Z1-9A,-9B,-9C	L2725407-5,-8,-9	27-Jul-22	8:00	0.123	32.0	11.9	<0.00020	<0.000010	<0.00010	<0.00010	0.00772	<0.00010	0.000629	0.00148	<0.0030	0.00031
Zone 4	Z4-3 SURF	L2725100-6	26-Jul-22	11:27	0.120	31.4	11.6	<0.00020	<0.000010	<0.00010	<0.00010	0.00529	<0.00010	0.000542	0.00130	<0.0030	0.00025
Zone 4	Z4-5 SURF	L2725100-7	26-Jul-22	12:29	0.114	27.8	10.3	<0.00020	<0.000010	<0.00010	<0.00010	0.00185	<0.00010	0.000394	0.00096	<0.0030	<0.00020
Zone 4	Z4-6 SURF	L2725100-8	26-Jul-22	11:51	0.115	28.0	10.2	<0.00020	<0.000010	<0.00010	<0.00010	0.00124	<0.00010	0.000372	0.00082	<0.0030	<0.00020
Zone 4	Z4-7 SURF	L2725100-9	26-Jul-22	12:17	0.118	29.1	11.2	<0.00020	<0.000010	<0.00010	<0.00010	0.00277	<0.00010	0.000419	0.00100	<0.0030	<0.00020
Zone 8	Z8-1 SURF	L2724410-17	24-Jul-22	12:38	0.0816	15.5	6.04	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	0.000130	<0.00050	<0.0030	<0.00020
Zone 8	Z8-4 SURF	L2724410-18	24-Jul-22	13:45	0.118	32.3	11.9	<0.00020	<0.000010	<0.00010	<0.00010	0.00503	<0.00010	0.000615	0.00131	0.0047	0.00032
Zone 8	Z8-5 SURF	L2724410-19	24-Jul-22	13:03	0.109	27.8	10.2	<0.00020	<0.000010	<0.00010	<0.00010	0.00208	<0.00010	0.000386	0.00090	<0.0030	<0.00020
Zone 8	Z8-6 SURF	L2724410-20	24-Jul-22	13:33	0.119	30.8	11.4	<0.00020	<0.000010	<0.00010	<0.00010	0.00315	<0.00010	0.000481	0.00109	0.0031	<0.00020
Zone 11	Z11-1 SURF	L2724410-1	23-Jul-22	12:00	0.109	27.1	9.63	<0.00020	<0.000010	<0.00010	<0.00010	0.00235	<0.00010	0.000354	0.00072	<0.0030	<0.00020
Zone 11	Z11-3 SURF	L2724410-2	23-Jul-22	12:15	0.120	31.8	11.3	<0.00020	<0.000010	<0.00010	<0.00010	0.00390	<0.00010	0.000525	0.		

Table A4-7: Metals and major ions measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Strontium (mg/L)	Sulfate (mg/L)	Sulfur (mg/L)	Tellurium (mg/L)	Thallium (mg/L)	Thorium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Tungsten (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Zirconium (mg/L)
Detection Limit 2022					0.00020	0.30	0.50	0.00020	0.000010	0.00010	0.00010	0.00030	0.00010	0.000010	0.00050	0.0030	0.00020
Zone 1b	Z1-5	L2730369-1	26-Aug-22	14:40	0.129	34.7	12.2	<0.00020	<0.000010	<0.00010	<0.00010	0.00696	<0.00010	0.000641	0.00150	<0.0030	0.00028
Zone 1b	Z1-6	L2730369-2	26-Aug-22	13:35	0.125	33.9	12.3	<0.00020	<0.000010	<0.00010	<0.00010	0.00598	<0.00010	0.000598	0.00148	<0.0030	0.00025
Zone 1b	Z1-7	L2730369-3	26-Aug-22	13:50	0.130	34.6	12.2	<0.00020	<0.000010	<0.00010	<0.00010	0.00748	<0.00010	0.000639	0.00157	<0.0030	0.00030
Zone 1b	Z1-8	L2730369-4	26-Aug-22	14:04	0.123	34.1	12.3	<0.00020	<0.000010	<0.00010	<0.00010	0.00768	<0.00010	0.000614	0.00156	<0.0030	0.00027
Zone 1b	Z1-9	L2730369-5	26-Aug-22	13:05	0.130	34.6	12.2	<0.00020	<0.000010	<0.00010	<0.00010	0.00865	<0.00010	0.000649	0.00161	<0.0030	0.00032
Zone 4	Z4-3 SURF	L2730098-8	24-Aug-22	13:02	0.117	31.2	10.5	<0.00020	<0.000010	<0.00010	0.00066	0.00322	<0.00010	0.000436	0.00096	<0.0030	<0.00020
Zone 4	Z4-5 SURF	L2730098-10	24-Aug-22	13:51	0.117	27.1	9.93	<0.00020	<0.000010	<0.00010	<0.00010	0.00129	<0.00010	0.000368	0.00086	<0.0030	<0.00020
Zone 4	Z4-6 SURF	L2730098-11	24-Aug-22	12:50	0.112	27.5	9.82	<0.00020	<0.000010	<0.00010	<0.00010	0.00159	<0.00010	0.000402	0.00089	<0.0030	<0.00020
Zone 4	Z4-7 SURF	L2730098-9	24-Aug-22	13:26	0.121	28.7	11.3	0.00027	<0.000010	0.00010	<0.00010	0.00933	<0.00010	0.000602	0.00137	<0.0030	0.00032
Zone 8	Z8-1 SURF	L2730475-1	27-Aug-22	10:00	0.0733	10.1	3.40	<0.00020	<0.000010	<0.00010	<0.00010	0.00040	<0.00010	0.000061	<0.00050	0.0354	<0.00020
Zone 8	Z8-4 SURF	L2730475-2	27-Aug-22	11:10	0.124	33.3	12.0	<0.00020	<0.000010	<0.00010	<0.00010	0.00576	<0.00010	0.000573	0.00122	<0.0030	0.00026
Zone 8	Z8-5 SURF	L2730475-3	27-Aug-22	10:30	0.107	28.9	10.7	<0.00020	<0.000010	<0.00010	<0.00010	0.00236	<0.00010	0.000318	0.00082	<0.0030	<0.00020
Zone 8	Z8-6 SURF	L2730475-4	27-Aug-22	11:00	0.119	31.8	11.5	<0.00020	<0.000010	<0.00010	<0.00010	0.00394	<0.00010	0.000471	0.00105	<0.0030	0.00023
Zone 11	Z11-1A,-1B,-1C	L2730475-5,-13,-14	28-Aug-22	9:35	0.111	27.8	10.0	<0.00020	<0.000010	<0.00010	<0.00010	0.00156	<0.00010	0.000304	0.00072	<0.0030	<0.00020
Zone 11	Z11-3 SURF	L2730475-6	28-Aug-22	9:55	0.121	32.0	11.3	<0.00020	<0.000010	<0.00010	<0.00010	0.00255	<0.00010	0.000468	0.00099	<0.0030	<0.00020
Zone 11	Z11-4 SURF	L2730475-7	28-Aug-22	10:05	0.124	32.2	11.6	<0.00020	<0.000010	<0.00010	<0.00010	0.00270	<0.00010	0.000471	0.00100	<0.0030	<0.00020
Zone 11	Z11-6 SURF	L2730475-8	28-Aug-22	11:00	0.129	34.5	12.6	<0.00020	<0.000010	<0.00010	<0.00010	0.00575	<0.00010	0.000602	0.00125	<0.0030	0.00020
Zone 11	Z11-10 SURF	L2730475-9	28-Aug-22	8:40	0.0863	16.3	6.24	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	0.000065	<0.00050	<0.0030	<0.00020
Zone 11	Z11-11 SURF	L2730475-10	28-Aug-22	9:22	0.0958	19.9	7.64	<0.00020	<0.000010	<0.00010	<0.00010	0.00043	<0.00010	0.000102	<0.00050	<0.0030	<0.00020
Zone 11	Z11-4 BOT	L2730475-15	28-Aug-22	10:05	0.122	31.3	11.4	<0.00020	<0.000010	<0.00010	<0.00010	0.00344	<0.00010	0.000441	0.00097	0.0067	<0.00020
Zone 11	Z11-6 BOT	L2730475-16	28-Aug-22	11:00	0.128	32.9	12.4	<0.00020	<0.000010	<0.00010	<0.00010	0.00454	<0.00010	0.000524	0.00112	<0.0030	0.00020
Zone 12	Z12-6 SURF	L2730369-6	26-Aug-22	10:32	0.125	34.2	12.2	<0.00020	<0.000010	<0.00010	<0.00010	0.00505	<0.00010	0.000592	0.00145	<0.0030	0.00024
Zone 12	Z12-8 SURF	L2730369-7	26-Aug-22	8:50	0.0886	18.9	6.59	<0.00020	<0.000010	<0.00010	0.00027	0.00058	<0.00010	0.000104	0.00068	<0.0030	<0.00020
Zone 12	Z12-9 SURF	L2730369-8	26-Aug-22	9:02	0.123	33.8	12.2	<0.00020	<0.000010	<0.00010	0.00012	0.00478	<0.00010	0.000553	0.00145	<0.0030	0.00021
Zone 12	Z12-11 SURF	L2730369-9	26-Aug-22	11:11	0.128	34.9	12.1	<0.00020	<0.000010	<0.00010	<0.00010	0.00569	<0.00010	0.000630	0.00151	<0.0030	0.00024
Zone 12	Z12-13 SURF	L2730369-10	26-Aug-22	10:05	0.126	34.2	12.4	<0.00020	<0.000010	<0.00010	<0.00010	0.00523	<0.00010	0.000598	0.00148	<0.0030	0.00026
Zone 12	Z12-14 SURF	L2730369-11	26-Aug-22	9:40	0.101	25.8	9.19	<0.00020	<0.000010	<0.00010	0.00041	0.00117	<0.00010	0.000284	0.00068	<0.0030	<0.00020
Zone 1b	Z1-5	L2736200-7	9-Oct-22	16:53	0.129	32.6	12.7	<0.00020	<0.000010	0.00013	<0.00010	0.0134	<0.00010	0.000735	0.00156	<0.0030	0.00040
Zone 1b	Z1-6	L2736200-8	9-Oct-22	17:30	0.130	32.7	12.5	<0.00020	<0.000010	<0.00010	<0.00010	0.00748	<0.00010	0.000696	0.00134	<0.0030	0.00032
Zone 1b	Z1-7	L2736200-9	9-Oct-22	16:32	0.134	32.8	12.4	<0.00020	<0.000010	0.00011	<0.00010	0.0119	<0.00010	0.000729	0.00154	<0.0030	0.00037
Zone 1b	Z1-8	L2736200-10	9-Oct-22	17:19	0.131	32.2	12.3	<0.00020	<0.000010	<0.00010	<0.00010	0.00845	<0.00010	0.000704	0.00144	<0.0030	

Table A4-7: Metals and major ions measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Strontium (mg/L)	Sulfate (mg/L)	Sulfur (mg/L)	Tellurium (mg/L)	Thallium (mg/L)	Thorium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Tungsten (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Zirconium (mg/L)
Detection Limit 2022					0.00020	0.30	0.50	0.00020	0.000010	0.00010	0.00010	0.00030	0.00010	0.000010	0.00050	0.0030	0.00020
Zone 11	Z11-4 SURF	L2736200-14	10-Oct-22	12:22	0.127	33.6	13.1	<0.00020	<0.000010	<0.00010	<0.00010	0.00648	<0.00010	0.000606	0.00120	<0.0030	0.00022
Zone 11	Z11-6 SURF	L2736200-15	10-Oct-22	13:02	0.138	34.3	13.5	<0.00020	<0.000010	<0.00010	<0.00010	0.00836	<0.00010	0.000739	0.00143	<0.0030	0.00031
Zone 11	Z11-10 SURF	L2736200-16	10-Oct-22	11:32	0.0664	10.2	4.44	<0.00020	<0.000010	<0.00010	<0.00010	0.00034	<0.00010	0.000060	<0.00050	<0.0030	<0.00020
Zone 11	Z11-11 SURF	L2736200-17	10-Oct-22	11:40	0.105	27.3	10.7	<0.00020	<0.000010	<0.00010	<0.00010	0.00288	<0.00010	0.000293	0.00060	<0.0030	<0.00020
Zone 12	Z12-6 SURF	L2736200-1	9-Oct-22	15:00	0.137	34.5	13.5	<0.00020	<0.000010	0.00015	<0.00010	0.0129	<0.00010	0.000723	0.00144	<0.0030	0.00030
Zone 12	Z12-8 SURF	L2736200-2	9-Oct-22	13:18	0.0877	21.4	8.42	0.00033	<0.000010	<0.00010	<0.00010	0.00138	<0.00010	0.000158	<0.00050	<0.0030	<0.00020
Zone 12	Z12-9 SURF	L2736200-3	9-Oct-22	13:28	0.130	33.5	12.9	<0.00020	<0.000010	<0.00010	<0.00010	0.00714	<0.00010	0.000639	0.00125	<0.0030	0.00026
Zone 12	Z12-11 SURF	L2736200-4	9-Oct-22	15:31	0.135	34.3	13.1	<0.00020	<0.000010	<0.00010	<0.00010	0.00763	<0.00010	0.000709	0.00138	<0.0030	0.00029
Zone 12	Z12-13 SURF	L2736200-5	9-Oct-22	14:37	0.136	34.5	12.8	<0.00020	<0.000010	<0.00010	<0.00010	0.00841	<0.00010	0.000714	0.00141	<0.0030	0.00029
Zone 12	Z12-14 SURF	L2736200-6	9-Oct-22	14:05	0.117	31.7	12.3	<0.00020	<0.000010	<0.00010	<0.00010	0.00755	<0.00010	0.000496	0.00095	<0.0030	0.00021

Table A4-8: Metals and major ions measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2022.

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Hardness (as CaCO ₃)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Cesium (mg/L)	Chloride (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)
Detection Limit 2022					0.20	0.0030	0.00010	0.00010	0.00010	0.00010	0.000050	0.010	0.0000050	0.050	0.000010	0.10	0.00010	0.00010	0.000050
Split Lake	SPL-10	L2693459-6	20-Mar-22	15:50	106	0.600	<0.00010	0.00103	0.0326	<0.00010	<0.000050	0.019	<0.000050	25.1	0.000073	9.09	0.00110	0.00026	0.00176
	SPL-11	L2693459-7	20-Mar-22	15:10	105	0.621	<0.00010	0.00095	0.0323	<0.00010	<0.000050	0.019	<0.000050	24.9	0.000071	8.80	0.00106	0.00027	0.00179
	SPL-12	L2693459-8	20-Mar-22	12:50	117	0.469	<0.00010	0.00107	0.0354	<0.00010	<0.000050	0.021	<0.000050	27.6	0.000054	10.9	0.00086	0.00022	0.00180
	SPL-13	L2693459-9	20-Mar-22	14:15	106	0.552	<0.00010	0.00100	0.0324	<0.00010	<0.000050	0.018	<0.000050	25.2	0.000070	8.95	0.00098	0.00025	0.00183
	SPL-14	L2693459-10	20-Mar-22	13:40	113	0.508	0.00019	0.00119	0.0348	<0.00010	<0.000050	0.023	0.0000050	25.2	0.000051	12.9	0.00085	0.00022	0.00150
Nelson River - Upstream of the Keeyask GS	US-6	L2694370-1	23-Mar-22	11:25	125	0.233	<0.00010	0.00127	0.0379	<0.00010	<0.000050	0.024	0.0000069	28.8	0.000026	12.5	0.00045	0.00013	0.00167
	US-7	L2694370-2	23-Mar-22	12:35	121	0.260	0.00011	0.00120	0.0370	<0.00010	<0.000050	0.023	0.0000069	28.1	0.000031	12.4	0.00049	0.00014	0.00162
	US-8	L2694370-3	23-Mar-22	12:00	121	0.243	0.00015	0.00139	0.0383	<0.00010	<0.000050	0.023	0.0000204	28.0	0.000027	12.6	0.00049	0.00013	0.00204
	US-9	L2694370-4	23-Mar-22	13:25	121	0.183	0.00014	0.00125	0.0373	<0.00010	<0.000050	0.023	0.0000080	28.1	0.000020	12.5	0.00039	0.00012	0.00165
	US-10	L2694370-5	23-Mar-22	13:00	122	0.414	0.00011	0.00128	0.0386	<0.00010	<0.000050	0.023	0.0000120	28.0	0.000047	12.4	0.00073	0.00020	0.00172
Stephens Lake - Near-field	NF-1A,-1B,-1C	L2694960-9,-14,-15	27-Mar-22	11:50	117	0.487	0.00050	0.00128	0.0383	<0.00010	<0.000050	0.021	0.0000121	26.0	0.000052	13.0	0.00088	0.00020	0.00170
	NF-2	L2694960-10	27-Mar-22	12:40	116	0.257	<0.00010	0.00116	0.0358	<0.00010	<0.000050	0.021	0.0000052	25.6	0.000027	13.1	0.00044	0.00012	0.00149
	NF-3	L2694960-11	27-Mar-22	14:10	119	0.552	0.00016	0.00126	0.0385	<0.00010	<0.000050	0.021	0.0000057	26.2	0.000063	13.0	0.00089	0.00022	0.00172
	NF-4	L2694960-12	27-Mar-22	13:35	120	0.381	0.00011	0.00130	0.0381	<0.00010	<0.000050	0.021	0.0000053	26.6	0.000041	13.1	0.00065	0.00016	0.00166
	NF-5	L2694960-13	27-Mar-22	11:05	117	0.513	0.00023	0.00124	0.0384	<0.00010	<0.000050	0.022	0.0000144	26.0	0.000057	12.9	0.00085	0.00021	0.00197
Stephens Lake - Far-field	FF-1	L2695249-1	28-Mar-22	8:25	118	0.483	0.00013	0.00127	0.0384	<0.00010	<0.000050	0.024	0.0000064	27.5	0.000064	12.1	0.00087	0.00022	0.00181
	FF-2	L2695249-2	28-Mar-22	8:55	120	0.533	0.00017	0.00131	0.0390	<0.00010	<0.000050	0.023	0.0000083	28.0	0.000070	12.4	0.00098	0.00022	0.00190
	FF-3	L2695249-3	28-Mar-22	9:40	112	0.564	0.00012	0.00124	0.0375	<0.00010	<0.000050	0.020	<0.0000050	25.6	0.000071	12.3	0.00104	0.00025	0.00170
	FF-4	L2695249-4	28-Mar-22	10:25	117	0.482	0.00015	0.00131	0.0385	<0.00010	<0.000050	0.022	0.0000064	26.5	0.000064	12.3	0.00085	0.00022	0.00178
	FF-5	L2695249-5	28-Mar-22	11:05	115	0.452	0.00017	0.00125	0.0382	<0.00010	<0.000050	0.021	0.0000078	26.0	0.000057	12.2	0.00112	0.00022	0.00173
Clark Lake	CL-1	L2718170-1	26-Jun-22	8:15	126	0.241	<0.00010	0.00124	0.0359	<0.00010	<0.000050	0.025	0.0000061	28.2	0.000024	13.2	0.00044	0.00016	0.00156
	CL-2	L2718170-2	26-Jun-22	8:35	123	0.183	<0.00010	0.00116	0.0347	<0.00010	<0.000050	0.024	<0.0000050	28.2	0.000018	12.7	0.00037	0.00014	0.00160
	CL-3	L2718170-3	26-Jun-22	8:55	129	0.258	<0.00010	0.00122	0.0359	<0.00010	<0.000050	0.025	<0.0000050	29.2	0.000027	13.3	0.00045	0.00015	0.00161
	CL-4	L2718170-4	26-Jun-22	9:10	123	0.353	<0.00010	0.00121	0.0352	<0.00010	<0.000050	0.024	0.0000054	27.9	0.000040	12.1	0.00060	0.00020	0.00164
	CL-5	L2718170-5	26-Jun-22	9:20	119	0.237	<0.00010	0.00112	0.0337	<0.00010	<0.000050	0.023	<0.0000050	27.3	0.000025	12.3	0.00048	0.00016	0.00158
Nelson River - Upstream of the Keeyask GS	US-1	L2718487-1	26-Jun-22	14:05	119	0.564	0.00010	0.00136	0.0371	<0.00010	<0.000050	0.024	<0.0000050	26.6	0.000064	13.1	0.00085	0.00024	0.00169
	US-2	L2718487-2	26-Jun-22	14:20	120	0.624	<0.00010	0.00135	0.0370	<0.00010	<0.000050	0.022	<0.0000050	26.8	0.000071	13.1	0.00106	0.00025	0.00173
	US-3A,-3B,-3C	L2718487-3,-6,-7	26-Jun-22	15:10	119	0.185	<0.00010	0.00128	0.0340	<0.00010	<0.000050	0.023	<0.0000050	26.8	0.000018	13.0	0.00029	0.00012	0.00145
	US-4	L2718487-4	26-Jun-22	14:40	121	0.164	<0.00010	0.00127	0.0336	<0.00010	<0.000050	0.022	<0.0000050	27.0	0.000015	12.9	0.00026	0.00012	0.00144
	US-5	L2718487-5	26-Jun-22</																

Table A4-8: Metals and major ions measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Hardness (as CaCO ₃)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Cesium (mg/L)	Chloride (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)
Detection Limit 2022					0.20	0.0030	0.00010	0.00010	0.00010	0.00010	0.000050	0.010	0.0000050	0.050	0.000010	0.10	0.00010	0.00010	0.00050
Nelson River - Upstream of the Keeyask GS	US-1	L2725407-10	27-Jul-22	10:24	132	0.141	<0.00010	0.00132	0.0357	<0.00010	<0.000050	0.025	<0.0000050	29.9	0.000020	13.8	0.00035	0.00012	0.00139
	US-2	L2725407-11	27-Jul-22	10:10	131	0.142	<0.00010	0.00126	0.0357	<0.00010	<0.000050	0.025	<0.0000050	29.7	0.000019	13.8	0.00038	0.00012	0.00158
	US-3	L2725407-12	27-Jul-22	9:30	132	0.139	<0.00010	0.00131	0.0356	<0.00010	<0.000050	0.025	<0.0000050	29.6	0.000019	13.7	0.00036	0.00012	0.00143
	US-4	L2725407-13	27-Jul-22	9:46	131	0.141	<0.00010	0.00132	0.0358	<0.00010	<0.000050	0.025	<0.0000050	29.3	0.000019	13.8	0.00034	0.00012	0.00140
	US-5	L2725407-14	27-Jul-22	9:00	131	0.139	<0.00010	0.00132	0.0357	<0.00010	<0.000050	0.025	<0.0000050	29.1	0.000019	13.8	0.00034	0.00013	0.00143
Stephens Lake - Near-field	NF-1	L2724678-1	25-Jul-22	12:05	128	0.392	<0.00010	0.00131	0.0380	<0.00010	<0.000050	0.023	<0.0000050	28.6	0.000041	14.2	0.00059	0.00017	0.00153
	NF-2	L2724678-2	25-Jul-22	12:45	128	0.123	<0.00010	0.00140	0.0355	<0.00010	<0.000050	0.023	<0.0000050	29.1	0.000012	13.5	0.00025	<0.00010	0.00139
	NF-3	L2724678-3	25-Jul-22	12:20	129	0.169	<0.00010	0.00141	0.0362	<0.00010	<0.000050	0.024	<0.0000050	28.7	0.000017	13.6	0.00028	0.00010	0.00140
	NF-4	L2724678-4	25-Jul-22	13:00	104	0.128	<0.00010	0.00136	0.0373	<0.00010	<0.000050	0.018	<0.0000050	20.1	0.000014	14.0	0.00032	0.00010	0.00133
	NF-5	L2724678-5	25-Jul-22	11:35	115	0.142	<0.00010	0.00134	0.0384	<0.00010	<0.000050	0.023	<0.0000050	24.2	0.000018	13.9	0.00030	0.00011	0.00136
Stephens Lake - Far-field	FF-1	L2724678-7	25-Jul-22	10:45	128	0.141	0.00014	0.00133	0.0346	<0.00010	<0.000050	0.024	<0.0000050	29.0	0.000021	13.6	0.00032	0.00011	0.00144
	FF-2	L2724678-8	25-Jul-22	10:10	130	0.164	<0.00010	0.00131	0.0354	<0.00010	<0.000050	0.024	<0.0000050	29.3	0.000023	13.7	0.00035	0.00012	0.00148
	FF-3	L2724678-9	25-Jul-22	9:30	129	0.157	0.00011	0.00128	0.0353	<0.00010	<0.000050	0.024	<0.0000050	29.1	0.000022	13.7	0.00037	0.00013	0.00145
	FF-4	L2724678-10	25-Jul-22	9:55	129	0.162	0.00010	0.00128	0.0352	<0.00010	<0.000050	0.024	<0.0000050	29.0	0.000023	13.7	0.00036	0.00012	0.00144
	FF-5	L2724678-11	25-Jul-22	10:30	132	0.169	<0.00010	0.00129	0.0355	<0.00010	<0.000050	0.025	<0.0000050	29.9	0.000022	13.7	0.00040	0.00012	0.00143
Clark Lake	CL-1	L2730098-1	24-Aug-22	11:44	129	0.137	<0.00010	0.00138	0.0370	<0.00010	<0.000050	0.026	<0.0000050	28.1	0.000019	14.1	0.00040	0.00011	0.00137
	CL-2	L2730098-2	24-Aug-22	11:18	127	0.150	0.00017	0.00131	0.0359	<0.00010	<0.000050	0.027	<0.0000050	28.1	0.000023	13.9	0.00040	0.00012	0.00145
	CL-3	L2730098-3	24-Aug-22	12:03	130	0.131	0.00012	0.00134	0.0373	<0.00010	<0.000050	0.027	<0.0000050	28.0	0.000019	14.3	0.00032	0.00011	0.00140
	CL-4	L2730098-4	24-Aug-22	10:45	121	0.165	0.00013	0.00129	0.0349	<0.00010	<0.000050	0.023	<0.0000050	27.0	0.000023	13.1	0.00042	0.00014	0.00146
	CL-5A,-5B,-5C	L2730098-5,-6,-7	24-Aug-22	10:04	125	0.199	<0.00010	0.00130	0.0356	<0.00010	<0.000050	0.025	<0.0000050	27.4	0.000025	13.3	0.00048	0.00014	0.00152
Nelson River - Upstream of the Keeyask GS	US-1	L2730369-12	26-Aug-22	12:04	124	0.135	<0.00010	0.00130	0.0376	<0.00010	<0.000050	0.022	0.0000056	27.1	0.000022	14.7	0.00034	0.00012	0.00141
	US-2	L2730369-13	26-Aug-22	12:40	121	0.133	<0.00010	0.00124	0.0368	<0.00010	<0.000050	0.021	0.0000055	25.5	0.000020	14.8	0.00044	0.00011	0.00141
	US-3	L2730369-14	26-Aug-22	11:50	128	0.133	<0.00010	0.00129	0.0364	<0.00010	<0.000050	0.023	<0.0000050	27.7	0.000019	14.7	0.00038	0.00011	0.00140
	US-4	L2730369-15	26-Aug-22	12:28	123	0.137	<0.00010	0.00129	0.0365	<0.00010	<0.000050	0.021	<0.0000050	26.6	0.000018	14.7	0.00038	0.00011	0.00137
	US-5	L2730369-16	26-Aug-22	12:16	125	0.133	<0.00010	0.00132	0.0373	<0.00010	<0.000050	0.022	<0.0000050	26.9	0.000020	14.7	0.00065	0.00011	0.00137
Stephens Lake - Near-field	NF-1	L2730318-6	25-Aug-22	11:45	129	0.159	0.00010	0.00138	0.0379	<0.00010	<0.000050	0.024	<0.0000050	28.5	0.000021	14.1	0.00038	0.00013	0.00140
	NF-2	L2730318-7	25-Aug-22	12:20	130	0.143	0.00010	0.00131	0.0377	<0.00010	<0.000050	0.026	<0.0000050	29.2	0.000021	14.2	0.00037	0.00012	0.00137
	NF-3	L2730318-8	25-Aug-22	11:58	130	0.147	0.00010	0.00132	0.0382	<0.00010	<0.000050	0.026	<0.0000050	28.8	0.000020	14.1	0.00055	0.00012	0.00137
	NF-4	L2730318-9	25-Aug-22	12:35	130	0.149	<0.00010	0.00134	0.0381	<0.00010	<0.000050	0.026	<0.0000050	29.4	0.000021	14.2	0.00038	0.00013	0.

Table A4-8: Metals and major ions measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Hardness (as CaCO ₃)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Cesium (mg/L)	Chloride (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)
Detection Limit 2022					0.20	0.0030	0.00010	0.00010	0.00010	0.000050	0.010	0.0000050	0.050	0.000010	0.10	0.00010	0.00010	0.00050	
Nelson River - Upstream	US-1	L2725407-10	27-Jul-22	10:24	132	0.141	<0.00010	0.00132	0.0357	<0.00010	<0.000050	0.025	<0.0000050	29.9	0.000020	13.8	0.00035	0.00012	0.00139
Stephens Lake - Near-field	NF-1A,-1B,-1C	L2736583-1,-6,-7	11-Oct-22	15:58	131	0.183	<0.00010	0.00129	0.0376	<0.00010	<0.000050	0.024	<0.0000050	29.2	0.000024	13.5	0.00044	0.00014	0.00147
	NF-2	L2736583-2	11-Oct-22	16:28	133	0.174	<0.00010	0.00134	0.0374	<0.00010	<0.000050	0.023	<0.0000050	29.6	0.000022	13.7	0.00045	0.00014	0.00150
	NF-3	L2736583-3	11-Oct-22	16:13	132	0.184	<0.00010	0.00129	0.0374	<0.00010	<0.000050	0.024	<0.0000050	29.6	0.000022	13.4	0.00048	0.00015	0.00154
	NF-4	L2736583-4	11-Oct-22	16:38	133	0.173	<0.00010	0.00135	0.0381	<0.00010	<0.000050	0.025	<0.0000050	29.5	0.000023	13.7	0.00042	0.00014	0.00146
	NF-5	L2736583-5	11-Oct-22	15:32	131	0.173	<0.00010	0.00130	0.0367	<0.00010	<0.000050	0.024	<0.0000050	29.2	0.000023	13.4	0.00043	0.00014	0.00147
Stephens Lake - Far-field ¹	FF-1	-	Oct-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	FF-2	-	Oct-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	FF-3	-	Oct-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	FF-4	-	Oct-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	FF-5	-	Oct-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

1. Far-field not sampled in October 2022 due to inclement weather.

Table A4-8: Metals and major ions measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (ng/L)	Methyl-mercury (ng/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus (mg/L)	Potassium (mg/L)	Rubidium (mg/L)	Selenium (mg/L)	Silicon (mg/L)	Silver (mg/L)	Sodium (mg/L)
Detection Limit 2022					0.010	0.000050	0.0010	0.0050	0.00010	0.50	0.020	0.000050	0.00050	0.030	0.050	0.00020	0.000050	0.10	0.000010	0.050
Split Lake	SPL-10	L2693459-6	20-Mar-22	15:50	0.613	0.000269	0.0074	10.6	0.0126	0.55	<0.020	0.000445	0.00160	0.048	2.20	0.00260	0.000102	3.70	0.000033	10.9
	SPL-11	L2693459-7	20-Mar-22	15:10	0.634	0.000266	0.0073	10.4	0.0127	0.63	0.022	0.000438	0.00157	0.039	2.17	0.00268	0.000101	3.62	<0.000010	10.9
	SPL-12	L2693459-8	20-Mar-22	12:50	0.478	0.000208	0.0081	11.8	0.0108	<0.50	<0.020	0.000528	0.00140	0.054	2.37	0.00228	0.000104	3.48	<0.000010	12.7
	SPL-13	L2693459-9	20-Mar-22	14:15	0.577	0.000271	0.0071	10.4	0.0123	0.67	<0.020	0.000452	0.00149	0.041	2.17	0.00255	0.000091	3.53	<0.000010	10.6
	SPL-14	L2693459-10	20-Mar-22	13:40	0.469	0.000208	0.0086	12.1	0.0105	<0.50	<0.020	0.000587	0.00138	0.040	2.72	0.00234	0.000120	3.54	<0.000010	13.1
Nelson River - Upstream of the Keeyask GS	US-6	L2694370-1	23-Mar-22	11:25	0.252	0.000161	0.0083	13.0	0.00877	<0.50	0.029	0.000576	0.00128	0.043	2.57	0.00172	0.000146	3.16	<0.000010	14.1
	US-7	L2694370-2	23-Mar-22	12:35	0.282	0.000158	0.0081	12.4	0.00907	0.53	0.025	0.000576	0.00124	0.043	2.52	0.00181	0.000152	3.05	<0.000010	13.6
	US-8	L2694370-3	23-Mar-22	12:00	0.264	0.000239	0.0081	12.4	0.00918	0.56	0.022	0.000590	0.00136	0.047	2.56	0.00181	0.000140	3.06	<0.000010	13.7
	US-9	L2694370-4	23-Mar-22	13:25	0.205	0.000170	0.0081	12.4	0.00847	<0.50	0.027	0.000557	0.00118	0.037	2.48	0.00165	0.000122	2.90	<0.000010	13.6
	US-10	L2694370-5	23-Mar-22	13:00	0.421	0.000195	0.0083	12.8	0.0102	<0.50	<0.020	0.000595	0.00141	0.045	2.61	0.00223	0.000117	3.42	<0.000010	13.6
Stephens Lake - Near-field	NF-1A,-1B,-1C	L2694960-9, -14, -15	27-Mar-22	11:50	0.451	0.000225	0.0083	12.6	0.0105	<0.50	<0.020	0.000626	0.00143	0.046	2.57	0.00241	0.000125	3.67	<0.000010	13.9
	NF-2	L2694960-10	27-Mar-22	12:40	0.248	0.000158	0.0080	12.6	0.00837	<0.50	0.028	0.000558	0.00116	0.045	2.46	0.00172	0.000082	3.06	<0.000010	13.7
	NF-3	L2694960-11	27-Mar-22	14:10	0.495	0.000211	0.0085	12.9	0.0109	0.51	0.023	0.000617	0.00142	0.041	2.63	0.00238	0.000100	3.72	<0.000010	13.8
	NF-4	L2694960-12	27-Mar-22	13:35	0.350	0.000190	0.0084	13.0	0.00951	<0.50	0.027	0.000609	0.00130	0.048	2.57	0.00207	0.000113	3.44	<0.000010	14.1
	NF-5	L2694960-13	27-Mar-22	11:05	0.469	0.000226	0.0083	12.6	0.0106	<0.50	0.025	0.000615	0.00140	0.041	2.58	0.00239	0.000120	3.73	<0.000010	13.6
Stephens Lake - Far-field	FF-1	L2695249-1	28-Mar-22	8:25	0.505	0.000222	0.0090	12.1	0.0103	<0.50	0.029	0.000632	0.00147	0.042	2.67	0.00234	0.000128	3.46	<0.000010	14.1
	FF-2	L2695249-2	28-Mar-22	8:55	0.536	0.000230	0.0090	12.3	0.0111	<0.50	0.029	0.000671	0.00161	0.046	2.71	0.00249	0.000121	3.59	<0.000010	14.3
	FF-3	L2695249-3	28-Mar-22	9:40	0.563	0.000213	0.0085	11.6	0.0114	<0.50	0.029	0.000624	0.00157	0.040	2.68	0.00256	0.000115	3.58	0.000036	14.1
	FF-4	L2695249-4	28-Mar-22	10:25	0.498	0.000222	0.0088	12.2	0.0104	<0.50	0.028	0.000649	0.00146	0.045	2.68	0.00239	0.000116	3.47	0.000016	14.3
	FF-5	L2695249-5	28-Mar-22	11:05	0.471	0.000219	0.0086	12.3	0.0106	0.51	0.032	0.000629	0.00148	0.038	2.66	0.00226	0.000127	3.35	0.000011	13.9
Clark Lake	CL-1	L2718170-1	26-Jun-22	8:15	0.237	0.000193	0.0091	13.4	0.0104	0.76	0.031	0.000590	0.00129	0.038	2.71	0.00165	0.000150	2.46	<0.000010	15.0
	CL-2	L2718170-2	26-Jun-22	8:35	0.208	0.000184	0.0085	12.8	0.0102	0.86	0.032	0.000550	0.00121	0.034	2.57	0.00151	0.000098	2.29	<0.000010	14.5
	CL-3	L2718170-3	26-Jun-22	8:55	0.259	0.000186	0.0090	13.6	0.0101	0.73	0.027	0.000609	0.00128	0.036	2.64	0.00165	0.000068	2.50	<0.000010	15.1
	CL-4	L2718170-4	26-Jun-22	9:10	0.366	0.000219	0.0087	12.9	0.0122	0.97	0.025	0.000546	0.00138	0.039	2.57	0.00186	0.000098	2.66	<0.000010	14.6
	CL-5	L2718170-5	26-Jun-22	9:20	0.262	0.000196	0.0081	12.3	0.0113	0.84	0.028	0.000519	0.00124	0.034	2.46	0.00156	0.000107	2.36	<0.000010	13.8
Nelson River - Upstream of the Keeyask GS	US-1	L2718487-1	26-Jun-22	14:05	0.504	0.000248	0.0101	12.9	0.0127	0.99	0.039	0.000665	0.00136	0.045	2.66	0.00236	0.000101	3.07	<0.000010	14.4
	US-2	L2718487-2	26-Jun-22	14:20	0.557	0.000257	0.0103	13.0	0.0130	0.97	0.034	0.000653	0.00149	0.042	2.77	0.00243	0.000137	3.16	<0.000010	14.7
	US-3A,-3B,-3C	L2718487-3,-6,-7	26-Jun-22	15:10	0.186	0.000179	0.0097	12.7	0.00926	0.97	0.041	0.000579	0.00102	0.037	2.54	0.00148	0.000097	2.28	<0.000010	14.5
	US-4	L2718487-4	26-Jun-22	14:40	0.167	0.000167	0.0096	13.0	0.00968	0.98	0.053	0.000542	0.00098	0.045	2.53	0.00154	0.000121	2.13	<0.000010	14.4
	US-5	L2718487-5	26-Jun																	

Table A4-8: Metals and major ions measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (ng/L)	Methyl-mercury (ng/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus (mg/L)	Potassium (mg/L)	Rubidium (mg/L)	Selenium (mg/L)	Silicon (mg/L)	Silver (mg/L)	Sodium (mg/L)
Detection Limit 2022				0.010	0.000050	0.0010	0.0050	0.00010	0.50	0.020	0.000050	0.00050	0.030	0.050	0.00020	0.000050	0.10	0.000010	0.050	
Nelson River - Upstream of the Keeyask GS	US-1	L2725407-10	27-Jul-22	10:24	0.172	0.000114	0.0097	14.0	0.00800	0.98	0.085	0.000628	0.00110	0.039	2.61	0.00161	0.000110	2.69	<0.000010	16.1
	US-2	L2725407-11	27-Jul-22	10:10	0.174	0.000116	0.0097	13.8	0.00780	0.90	0.058	0.000652	0.00111	0.035	2.62	0.00155	0.000113	2.68	<0.000010	16.1
	US-3	L2725407-12	27-Jul-22	9:30	0.170	0.000111	0.0099	14.2	0.00770	1.38	0.08	0.000642	0.00112	<0.030	2.67	0.00156	0.000113	2.67	<0.000010	16.1
	US-4	L2725407-13	27-Jul-22	9:46	0.172	0.000111	0.0099	14.1	0.00767	4.05	0.067	0.000683	0.00112	0.038	2.66	0.00155	0.000118	2.74	<0.000010	16.1
	US-5	L2725407-14	27-Jul-22	9:00	0.175	0.000117	0.0098	14.1	0.00814	1.20	0.067	0.000655	0.00111	<0.030	2.65	0.00158	0.000108	2.67	<0.000010	16.0
Stephens Lake - Near-Field	NF-1	L2724678-1	25-Jul-22	12:05	0.341	0.000151	0.0092	13.7	0.00951	0.57	0.08	0.000661	0.00124	0.035	2.86	0.00202	0.000172	3.23	<0.000010	15.3
	NF-2	L2724678-2	25-Jul-22	12:45	0.119	0.000112	0.0092	13.5	0.00746	0.60	0.097	0.000648	0.00100	0.037	2.71	0.00152	0.000133	2.62	<0.000010	15.4
	NF-3	L2724678-3	25-Jul-22	12:20	0.153	0.000122	0.0093	14.1	0.00776	0.59	0.081	0.000699	0.00105	0.049	2.78	0.00146	0.000134	2.78	<0.000010	15.6
	NF-4	L2724678-4	25-Jul-22	13:00	0.139	0.000072	0.0064	13.1	0.00738	-2	0.109	0.000489	0.00102	0.042	2.73	0.00150	0.000111	2.67	<0.000010	15.5
	NF-5	L2724678-5	25-Jul-22	11:35	0.149	0.000115	0.0086	13.1	0.00787	0.67	0.074	0.000633	0.00103	<0.030	2.75	0.00147	0.000085	2.83	<0.000010	15.6
Stephens Lake - Far-field	FF-1	L2724678-7	25-Jul-22	10:45	0.166	0.000115	0.0093	13.6	0.00691	0.59	0.089	0.000656	0.00105	<0.030	2.59	0.00153	0.000143	2.56	<0.000010	15.5
	FF-2	L2724678-8	25-Jul-22	10:10	0.184	0.000116	0.0096	13.8	0.00757	0.53	0.082	0.000666	0.00107	0.030	2.66	0.00165	0.000113	2.72	<0.000010	15.8
	FF-3	L2724678-9	25-Jul-22	9:30	0.183	0.000117	0.0094	13.7	0.00737	0.57	0.087	0.000661	0.00110	0.038	2.60	0.00157	0.000111	2.62	<0.000010	15.6
	FF-4	L2724678-10	25-Jul-22	9:55	0.182	0.000117	0.0095	13.8	0.00725	0.60	0.073	0.000682	0.00105	0.032	2.59	0.00163	0.000134	2.68	<0.000010	15.6
	FF-5	L2724678-11	25-Jul-22	10:30	0.188	0.000115	0.0097	13.9	0.00712	0.60	0.061	0.000649	0.00112	<0.030	2.63	0.00164	0.000104	2.71	<0.000010	16.0
Clark Lake	CL-1	L2730098-1	24-Aug-22	11:44	0.163	0.000097	0.0106	14.3	0.00629	0.81	0.057	0.000663	0.00111	0.032	2.69	0.00155	0.000134	2.84	<0.000010	16.4
	CL-2	L2730098-2	24-Aug-22	11:18	0.185	0.000117	0.0103	13.8	0.00684	0.73	0.048	0.000658	0.00107	0.036	2.60	0.00162	0.000190	2.78	<0.000010	15.6
	CL-3	L2730098-3	24-Aug-22	12:03	0.161	0.000097	0.0105	14.5	0.00617	0.73	0.061	0.000673	0.00112	<0.030	2.65	0.00160	0.000177	2.81	<0.000010	16.5
	CL-4	L2730098-4	24-Aug-22	10:45	0.208	0.000124	0.0095	13.1	0.00720	0.78	0.045	0.000615	0.00110	0.033	2.56	0.00164	0.000171	2.73	<0.000010	14.9
	CL-5A,-5B,-5C	L2730098-5,-6,-7	24-Aug-22	10:04	0.223	0.000131	0.0098	13.8	0.00741	0.75	0.047	0.000631	0.00138	0.036	2.57	0.00172	0.000143	2.84	<0.000010	15.4
Nelson River - Upstream of the Keeyask GS	US-1	L2730369-12	26-Aug-22	12:04	0.168	0.000106	0.0091	13.8	0.00663	<0.50	0.047	0.000665	0.00114	<0.030	2.73	0.00160	0.000158	2.70	<0.000010	16.3
	US-2	L2730369-13	26-Aug-22	12:40	0.169	0.000096	0.0087	14.0	0.00662	0.79	0.076	0.000651	0.00120	<0.030	2.71	0.00153	0.000124	2.66	<0.000010	15.9
	US-3	L2730369-14	26-Aug-22	11:50	0.166	0.000095	0.0095	14.2	0.00661	0.71	0.053	0.000649	0.00112	<0.030	2.74	0.00165	0.000139	2.71	<0.000010	16.0
	US-4	L2730369-15	26-Aug-22	12:28	0.173	0.000098	0.0089	13.7	0.00677	<0.50	0.067	0.000632	0.00110	<0.030	2.67	0.00159	0.000135	2.74	<0.000010	15.6
	US-5	L2730369-16	26-Aug-22	12:16	0.168	0.000092	0.0093	14.0	0.00640	0.52	0.076	0.000684	0.00127	<0.030	2.71	0.00165	0.000108	2.58	<0.000010	15.7
Stephens Lake - Near-field	NF-1	L2730318-6	25-Aug-22	11:45	0.190	0.000100	0.0104	14.1	0.00730	0.67	0.076	0.000642	0.00108	<0.030	2.88	0.00161	0.000130	2.86	<0.000010	17.0
	NF-2	L2730318-7	25-Aug-22	12:20	0.181	0.000094	0.0106	13.9	0.00692	0.64	0.091	0.000660	0.00104	<0.030	2.80	0.00166	0.000128	2.80	<0.000010	16.6
	NF-3	L2730318-8	25-Aug-22	11:58	0.186	0.000103	0.0106	14.0	0.00722	0.65	0.077	0.000637	0.00115	<0.030	2.88	0.00162	0.000088	2.79	<0.000010	16.6
	NF-4	L2730318-9	25-Aug-22	12:35	0.180	0.000091	0.0107	13.9	0.00710	0.61	0.079	0.000								

Table A4-8: Metals and major ions measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (ng/L)	Methyl-mercury (ng/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus (mg/L)	Potassium (mg/L)	Rubidium (mg/L)	Selenium (mg/L)	Silicon (mg/L)	Silver (mg/L)	Sodium (mg/L)
Detection Limit 2022					0.010	0.000050	0.0010	0.0050	0.00010	0.50	0.020	0.000050	0.00050	0.030	0.050	0.00020	0.000050	0.10	0.000010	0.050
US-5	L2736430-10		11-Oct-22	12:02	0.241	0.000129	0.0096	14.3	0.00683	<0.50	0.023	0.000635	0.00114	0.041	2.54	0.00162	0.000106	2.83	<0.000010	16.1
Stephens Lake - Near-field	NF-1A,-1B,-1C-7	L2736583-1,-6,-7	11-Oct-22	15:58	0.223	0.000125	0.0095	14.2	0.00662	<0.050	0.029	0.000647	0.00109	0.037	2.55	0.00157	0.000100	2.78	<0.000010	15.8
	NF-2	L2736583-2	11-Oct-22	16:28	0.206	0.000118	0.0096	14.3	0.00629	<0.50	- ²	0.000654	0.00119	0.030	2.57	0.00151	0.000109	2.75	<0.000010	16.0
	NF-3	L2736583-3	11-Oct-22	16:13	0.225	0.000126	0.0096	14.0	0.00673	<0.50	0.030	0.000637	0.00111	0.033	2.52	0.00159	0.000150	2.76	<0.000010	15.8
	NF-4	L2736583-4	11-Oct-22	16:38	0.210	0.000123	0.0098	14.5	0.00643	<0.50	0.028	0.000640	0.00107	0.034	2.57	0.00159	0.000114	2.73	<0.000010	16.1
	NF-5	L2736583-5	11-Oct-22	15:32	0.214	0.000126	0.0094	14.0	0.00645	<0.50	0.086	0.000639	0.00108	<0.030	2.52	0.00157	0.000092	2.73	<0.000010	15.7
Stephens Lake - Far-field ¹	FF-1	-	Oct-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	FF-2	-	Oct-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	FF-3	-	Oct-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	FF-4	-	Oct-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	FF-5	-	Oct-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

1. Far-field not sampled in October 2022 due to inclement weather.

2. Sample bottle was broken in transit.

Table A4-8: Metals and major ions measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Site ID	ALS Sample ID	Sample Date	Sample Time	Strontium (mg/L)	Sulfate (mg/L)	Sulfur (mg/L)	Tellurium (mg/L)	Thallium (mg/L)	Thorium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Tungsten (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Zirconium (mg/L)
Detection Limit 2022					0.00020	0.30	0.50	0.00020	0.000010	0.00010	0.00010	0.00030	0.00010	0.000010	0.00050	0.0030	0.00020
Split Lake	SPL-10	L2693459-6	20-Mar-22	15:50	0.0883	21.5	7.34	<0.00020	<0.000010	0.00018	<0.00010	0.0258	<0.00010	0.000525	0.00166	0.0033	0.00054
	SPL-11	L2693459-7	20-Mar-22	15:10	0.0844	21.0	7.17	<0.00020	<0.000010	0.00017	<0.00010	0.0262	<0.00010	0.000500	0.00172	0.0039	0.00054
	SPL-12	L2693459-8	20-Mar-22	12:50	0.100	25.9	8.68	<0.00020	<0.000010	0.00013	<0.00010	0.0199	<0.00010	0.000577	0.00157	<0.0030	0.00046
	SPL-13	L2693459-9	20-Mar-22	14:15	0.0868	21.2	7.07	<0.00020	<0.000010	0.00017	<0.00010	0.0244	<0.00010	0.000526	0.00162	0.0041	0.00055
	SPL-14	L2693459-10	20-Mar-22	13:40	0.113	30.2	10.4	<0.00020	<0.000010	0.00012	<0.00010	0.0212	<0.00010	0.000626	0.00166	0.0032	0.00046
Nelson River - Upstream of the Keeyask GS	US-6	L2694370-1	23-Mar-22	11:25	0.115	29.3	11.0	<0.00020	<0.000010	<0.00010	<0.00010	0.00905	<0.00010	0.000579	0.00133	<0.0030	0.00037
	US-7	L2694370-2	23-Mar-22	12:35	0.114	29.3	9.97	<0.00020	<0.000010	<0.00010	<0.00010	0.0104	<0.00010	0.000557	0.00132	<0.0030	0.00039
	US-8	L2694370-3	23-Mar-22	12:00	0.118	29.7	10.2	<0.00020	<0.000010	<0.00010	0.00011	0.00986	<0.00010	0.000551	0.00132	0.0070	0.00040
	US-9	L2694370-4	23-Mar-22	13:25	0.112	29.3	10.0	<0.00020	<0.000010	<0.00010	<0.00010	0.00668	<0.00010	0.000535	0.00123	0.0031	0.00036
	US-10	L2694370-5	23-Mar-22	13:00	0.118	29.3	10.1	<0.00020	<0.000010	<0.00010	0.00013	0.0168	<0.00010	0.000549	0.00155	0.0034	0.00043
Stephens Lake - Near-field	NF-1A, -1B, -1C	L2694960-9, -14, -15	27-Mar-22	11:50	0.116	30.2	9.89	<0.00020	<0.000010	0.00012	<0.00010	0.0195	<0.00010	0.000615	0.00174	<0.0030	0.00047
	NF-2	L2694960-10	27-Mar-22	12:40	0.113	30.5	9.77	<0.00020	<0.000010	<0.00010	<0.00010	0.00963	<0.00010	0.000580	0.00144	<0.0030	0.00037
	NF-3	L2694960-11	27-Mar-22	14:10	0.117	30.4	9.63	<0.00020	<0.000010	0.00011	<0.00010	0.0222	<0.00010	0.000617	0.00186	<0.0030	0.00046
	NF-4	L2694960-12	27-Mar-22	13:35	0.116	30.6	10.1	<0.00020	<0.000010	0.00011	<0.00010	0.0147	<0.00010	0.000624	0.00162	<0.0030	0.00043
	NF-5	L2694960-13	27-Mar-22	11:05	0.112	30.1	9.75	<0.00020	<0.000010	0.00013	<0.00010	0.0202	<0.00010	0.000612	0.00177	0.0037	0.00046
Stephens Lake - Far-field	FF-1	L2695249-1	28-Mar-22	8:25	0.118	28.8	9.77	<0.00020	<0.000010	0.00014	<0.00010	0.0207	<0.00010	0.000651	0.00159	0.0033	0.00052
	FF-2	L2695249-2	28-Mar-22	8:55	0.117	29.2	9.98	<0.00020	<0.000010	0.00015	<0.00010	0.0229	<0.00010	0.000663	0.00168	0.0033	0.00054
	FF-3	L2695249-3	28-Mar-22	9:40	0.114	29.0	9.97	<0.00020	<0.000010	0.00014	<0.00010	0.0251	<0.00010	0.000629	0.00169	<0.0030	0.00048
	FF-4	L2695249-4	28-Mar-22	10:25	0.117	29.2	9.29	<0.00020	<0.000010	0.00014	<0.00010	0.0209	<0.00010	0.000672	0.00157	<0.0030	0.00050
	FF-5	L2695249-5	28-Mar-22	11:05	0.120	28.9	9.95	<0.00020	<0.000010	0.00013	<0.00010	0.0193	<0.00010	0.000653	0.00153	0.0045	0.00048
Clark Lake	CL-1	L2718170-1	26-Jun-22	8:15	0.123	30.4	11.2	<0.00020	<0.000010	0.00011	<0.00010	0.00844	<0.00010	0.000663	0.00152	<0.0030	0.00044
	CL-2	L2718170-2	26-Jun-22	8:35	0.116	29.2	10.7	<0.00020	<0.000010	<0.00010	<0.00010	0.00679	<0.00010	0.000634	0.00148	<0.0030	0.00043
	CL-3	L2718170-3	26-Jun-22	8:55	0.120	30.6	11.2	<0.00020	<0.000010	<0.00010	<0.00010	0.00950	<0.00010	0.000662	0.00149	<0.0030	0.00041
	CL-4	L2718170-4	26-Jun-22	9:10	0.115	27.6	10.7	<0.00020	<0.000010	0.00012	<0.00010	0.0137	<0.00010	0.000622	0.00167	<0.0030	0.00048
	CL-5	L2718170-5	26-Jun-22	9:20	0.111	28.0	10.2	<0.00020	<0.000010	<0.00010	<0.00010	0.00938	<0.00010	0.000591	0.00148	<0.0030	0.00045
Nelson River - Upstream of the Keeyask GS	US-1	L2718487-1	26-Jun-22	14:05	0.118	30.6	10.8	0.00022	<0.000010	0.00016	0.00010	0.0231	<0.00010	0.000663	0.00211	<0.0030	0.00054
	US-2	L2718487-2	26-Jun-22	14:20	0.118	30.5	10.9	<0.00020	<0.000010	0.00016	<0.00010	0.0248	<0.00010	0.000673	0.00220	<0.0030	0.00053
	US-3A, -3B, -3C	L2718487-3, -6, -7	26-Jun-22	15:10	0.116	30.3	10.7	<0.00020	<0.000010	<0.00010	<0.00010	0.00608	<0.00010	0.000652	0.00162	<0.0030	0.00042
	US-4	L2718487-4	26-Jun-22	14:40	0.116	30.2	10.6	<0.00020	<0.000010	<0.00010	<0.00010	0.00550	<0.00010	0.000641	0.00158	<0.0030	0.00040
	US-5	L2718487-5	26-Jun-22	15:30	0.119	30.5	10.9	<0.00020	<0.000010	0.00014	<0.00010	0.0149	<0.00010	0.000694	0.00188	<0.0030	0.00050
Stephens Lake - Near-field	NF-1	L2717875-1	24-Jun-22	9:50	0.114	29.7	10.6	<0.00020	<0.000010	<0.00010	<0.00010	0.00444	<0.00010	0.000620	0.00130	<0.0030	0.00039
	NF-2	L2717875-2	24-Jun-22	10:25</td													

Table A4-8: Metals and major ions measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Site ID	ALS Sample ID	Sample Date	Sample Time	Strontium (mg/L)	Sulfate (mg/L)	Sulfur (mg/L)	Tellurium (mg/L)	Thallium (mg/L)	Thorium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Tungsten (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Zirconium (mg/L)
Detection Limit 2022					0.00020	0.30	0.50	0.00020	0.000010	0.00010	0.00010	0.00030	0.00010	0.000010	0.00050	0.0030	0.00020
	US-4	L2725407-13	27-Jul-22	9:46	0.126	32.1	11.8	<0.00020	<0.000010	<0.00010	<0.00010	0.00711	<0.00010	0.000628	0.00136	<0.0030	0.00030
	US-5	L2725407-14	27-Jul-22	9:00	0.123	32.2	11.8	<0.00020	<0.000010	<0.00010	<0.00010	0.00737	<0.00010	0.000634			
Stephens Lake - Near-field	NF-1	L2724678-1	25-Jul-22	12:05	0.122	31.9	11.8	<0.00020	<0.000010	0.00010	<0.00010	0.0144	<0.00010	0.000649	0.00167	<0.0030	0.00037
	NF-2	L2724678-2	25-Jul-22	12:45	0.122	31.8	11.9	<0.00020	<0.000010	<0.00010	<0.00010	0.00377	<0.00010	0.000657	0.00128	<0.0030	0.00029
	NF-3	L2724678-3	25-Jul-22	12:20	0.122	31.8	11.8	<0.00020	<0.000010	<0.00010	<0.00010	0.00598	<0.00010	0.000678	0.00137	<0.0030	0.00036
	NF-4	L2724678-4	25-Jul-22	13:00	0.0883	31.9	12.1	<0.00020	<0.000010	<0.00010	<0.00010	0.00510	<0.00010	0.000461	0.00126	<0.0030	0.00023
	NF-5	L2724678-5	25-Jul-22	11:35	0.116	31.8	12.5	<0.00020	<0.000010	<0.00010	<0.00010	0.00564	<0.00010	0.000642	0.00123	<0.0030	0.00029
Stephens Lake - Far-field	FF-1	L2724678-7	25-Jul-22	10:45	0.122	30.8	11.5	0.00029	<0.000010	<0.00010	<0.00010	0.00686	<0.00010	0.000617	0.00140	<0.0030	0.00031
	FF-2	L2724678-8	25-Jul-22	10:10	0.125	31.0	11.4	<0.00020	<0.000010	<0.00010	<0.00010	0.00781	<0.00010	0.000634	0.00131	<0.0030	0.00031
	FF-3	L2724678-9	25-Jul-22	9:30	0.125	31.3	11.8	<0.00020	<0.000010	<0.00010	<0.00010	0.00786	<0.00010	0.000647	0.00146	<0.0030	0.00032
	FF-4	L2724678-10	25-Jul-22	9:55	0.124	31.2	11.8	<0.00020	<0.000010	<0.00010	<0.00010	0.00762	<0.00010	0.000634	0.00143	<0.0030	0.00031
	FF-5	L2724678-11	25-Jul-22	10:30	0.124	31.4	12.1	<0.00020	<0.000010	<0.00010	<0.00010	0.00832	<0.00010	0.000621	0.00155	<0.0030	0.00029
Clark Lake	CL-1	L2730098-1	24-Aug-22	11:44	0.127	33.2	12.3	<0.00020	<0.000010	<0.00010	<0.00010	0.00702	<0.00010	0.00066	0.00139	<0.0030	0.00030
	CL-2	L2730098-2	24-Aug-22	11:18	0.121	32.6	12.0	0.00044	<0.000010	<0.00010	<0.00010	0.00751	<0.00010	0.000627	0.00137	<0.0030	0.00036
	CL-3	L2730098-3	24-Aug-22	12:03	0.129	33.6	12.3	<0.00020	<0.000010	<0.00010	<0.00010	0.00678	<0.00010	0.000661	0.00141	<0.0030	0.00031
	CL-4	L2730098-4	24-Aug-22	10:45	0.119	30.9	10.7	<0.00020	<0.000010	<0.00010	<0.00010	0.00855	<0.00010	0.000611	0.00140	<0.0030	0.00035
	CL-5A, -5B, -5C	L2730098-5, -6, -7	24-Aug-22	10:04	0.122	31.2	11.2	<0.00020	<0.000010	<0.00010	<0.00010	0.00950	<0.00010	0.000611	0.00144	<0.0030	0.00038
Nelson River - Upstream of the Keeyask GS	US-1	L2730369-12	26-Aug-22	12:04	0.127	34.7	12.5	<0.00020	<0.000010	<0.00010	<0.00010	0.00686	<0.00010	0.000657	0.00129	<0.0030	0.00031
	US-2	L2730369-13	26-Aug-22	12:40	0.122	34.9	12.4	<0.00020	<0.000010	<0.00010	<0.00010	0.00709	<0.00010	0.000643	0.00130	<0.0030	0.00027
	US-3	L2730369-14	26-Aug-22	11:50	0.127	34.5	12.4	<0.00020	<0.000010	<0.00010	<0.00010	0.00702	<0.00010	0.000668	0.00129	<0.0030	0.00028
	US-4	L2730369-15	26-Aug-22	12:28	0.123	34.7	12.1	<0.00020	<0.000010	<0.00010	<0.00010	0.00693	<0.00010	0.000642	0.00131	<0.0030	0.00027
	US-5	L2730369-16	26-Aug-22	12:16	0.128	34.7	12.6	<0.00020	<0.000010	<0.00010	<0.00010	0.00668	<0.00010	0.000649	0.00127	<0.0030	0.00027
Stephens Lake - Near-field	NF-1	L2730318-6	25-Aug-22	11:45	0.126	33.2	11.8	<0.00020	<0.000010	<0.00010	<0.00010	0.00784	<0.00010	0.000624	0.00160	<0.0030	0.00029
	NF-2	L2730318-7	25-Aug-22	12:20	0.125	33.3	12.3	<0.00020	<0.000010	<0.00010	0.00015	0.00735	<0.00010	0.000636	0.00159	<0.0030	0.00027
	NF-3	L2730318-8	25-Aug-22	11:58	0.123	33.3	11.8	<0.00020	<0.000010	<0.00010	<0.00010	0.00736	<0.00010	0.000644	0.00163	<0.0030	0.00030
	NF-4	L2730318-9	25-Aug-22	12:35	0.127	33.3	12.1	<0.00020	<0.000010	<0.00010	<0.00010	0.00756	<0.00010	0.000636	0.00162	<0.0030	0.00028
	NF-5	L2730318-10	25-Aug-22	11:25	0.126	33.2	12.2	<0.00020	<0.000010	<0.00010	0.00010	0.00774	<0.00010	0.000615	0.00163	<0.0030	0.00030
Stephens Lake - Far-field	FF-1	L2730318-1	25-Aug-22	9:05	0.123	32.4	11.6	<0.00020	<0.000010	<0.00010	<0.00010	0.00626	<0.00010	0.000615	0.00155	<0.0030	0.00028
	FF-2	L2730318-2	25-Aug-22	10:00	0.125	32.8	11.7	0.00034	<0.000010	<0.00010	<0.00010	0.00696	<0.00010	0.000621	0.00154	<0.0030	0.00033
	FF-3	L2730318-3	25-Aug-22	10:38	0.123	33.1	11.8	<0.00020	<0.000010	<0.00010	<0.00010	0.00681	<0.00010	0.000642	0.00155	<0.0030	0.00030
	FF-4	L2730318-4	25-Aug-22	10:19	0.123	32.8	11.9	<0.00020	<0.000010	<0.00010	<0.00010	0.00686	<0.00010	0.000628	0.00161	<0.0030	0.00028
	FF-5	L2730318-5	25-Aug-22	9:27	0.123	32.5	12.0	<0.00020	<0.000010	<0.00010	0.00010	0.00657	<0.00010	0.000604	0.00155	<0.0030</td	

Table A4-8: Metals and major ions measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Site ID	ALS Sample ID	Sample Date	Sample Time	Strontium (mg/L)	Sulfate (mg/L)	Sulfur (mg/L)	Tellurium (mg/L)	Thallium (mg/L)	Thorium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Tungsten (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Zirconium (mg/L)
Detection Limit 2022					0.00020	0.30	0.50	0.00020	0.000010	0.00010	0.00010	0.00030	0.00010	0.000010	0.00050	0.0030	0.00020
Stephens Lake - Far-field ¹	FF-1	-	Oct-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	FF-2	-	Oct-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	FF-3	-	Oct-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	FF-4	-	Oct-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	FF-5	-	Oct-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1. Far-field not sampled in October 2022 due to inclement weather.

Table A4-9: Metals and major ions measured in the laboratory for sites monitored in the Keeyask regional study area during the ice-cover and open-water seasons of 2022.

Sample Location	ALS Sample ID	Sample ID	Date	Time	Hardness (as CaCO ₃)															
						Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Cesium (mg/L)	Chloride (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	
Detection Limit 2022					0.20	0.0030	0.00010	0.00010	0.00010	0.000050	0.010	0.0000050	0.050	0.000010	0.10	0.00010	0.00010	0.00050	0.00010	0.00050
Stephens Lake - North Arm	STL-N SURF	L2694960-1	26-Mar-22	14:55	146	0.199	0.00014	0.00112	0.0225	<0.00010	<0.000050	0.020	0.0000144	38.1	0.000014	8.86	0.00037	<0.00010	0.00658	
Stephens Lake - North Arm	STL-N BOT	L2694960-2	26-Mar-22	15:00	142	0.148	<0.00010	0.00108	0.0212	<0.00010	<0.000050	0.019	0.0000063	37.5	0.000012	8.56	0.00030	<0.00010	0.00396	
Stephens Lake - Kettle GS	STL-KETTLE	L2694960-3	26-Mar-22	14:25	121	0.462	0.00026	0.00128	0.0383	<0.00010	<0.000050	0.023	0.0000171	27.1	0.000051	12.8	0.00082	0.00021	0.00208	
Longspruce Forebay	LNR-3	L2694960-4	26-Mar-22	12:55	122	0.303	0.00018	0.00135	0.0373	<0.00010	<0.000050	0.023	0.0000205	27.3	0.000038	12.7	0.00055	0.00015	0.00173	
Limestone Forebay	LNR-4	L2694960-5	26-Mar-22	11:25	122	0.309	0.00014	0.00126	0.0368	<0.00010	<0.000050	0.023	0.0000222	27.7	0.000036	12.7	0.00056	0.00015	0.00210	
Stephens Lake - North Arm	STL-N SURF	L2719447-1	29-Jun-22	12:15	125	0.138	<0.00010	0.00089	0.0176	<0.00010	<0.000050	0.016	<0.0000050	34.4	0.000015	6.26	0.00035	<0.00010	0.00133	
Stephens Lake - North Arm	STL-N BOT	L2719447-2	29-Jun-22	12:15	127	0.141	<0.00010	0.00091	0.0176	<0.00010	<0.000050	0.017	<0.0000050	34.9	0.000028	6.75	0.00036	0.00011	0.00188	
Stephens Lake - Kettle GS	STL-KETTLE	L2719447-3	29-Jun-22	11:35	123	0.409	<0.00010	0.00132	0.0356	<0.00010	<0.000050	0.025	<0.0000050	28.2	0.000046	12.9	0.00068	0.00018	0.00164	
Longspruce Forebay	LNR-3	L2719447-4	29-Jun-22	11:05	124	0.173	<0.00010	0.00126	0.0337	<0.00010	<0.000050	0.024	0.0000079	28.5	0.000020	12.7	0.00038	0.00013	0.00150	
Limestone Forebay	LNR-4	L2719447-5	29-Jun-22	10:30	123	0.123	<0.00010	0.00128	0.0329	<0.00010	<0.000050	0.024	0.0000067	28.5	0.000016	12.6	0.00033	0.00011	0.00144	
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	L2719447-6	29-Jun-22	10:05	126	0.157	<0.00010	0.00120	0.0332	<0.00010	<0.000050	0.023	0.0000051	29.3	0.000016	12.4	0.00036	0.00012	0.00152	
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	L2719447-7	29-Jun-22	9:50	128	0.183	0.00011	0.00127	0.0344	<0.00010	<0.000050	0.025	<0.0000050	29.7	0.000023	12.6	0.00040	0.00012	0.00147	
Nelson River - downstream of Deer Island	LNR-7	L2719447-8	29-Jun-22	9:20	125	0.207	<0.00010	0.00122	0.0336	<0.00010	<0.000050	0.024	<0.0000050	29.1	0.000027	12.4	0.00046	0.00013	0.00145	
Nelson River - upstream of Gillam Island	LNR-8	L2719447-9	29-Jun-22	9:00	125	0.212	<0.00010	0.00130	0.0335	<0.00010	<0.000050	0.023	<0.0000050	28.9	0.000024	12.3	0.00045	0.00013	0.00147	
Stephens Lake - North Arm	STL-N SURF	L2723974-1	20-Jul-22	15:55	120	0.175	<0.00010	0.00079	0.0178	<0.00010	<0.000050	0.016	<0.0000050	30.7	0.000012	7.09	0.00036	<0.00010	0.00134	
Stephens Lake - North Arm	STL-N BOT	L2723974-2	20-Jul-22	15:55	123	0.193	<0.00010	0.00082	0.0184	<0.00010	<0.000050	0.016	<0.0000050	31.5	0.000013	7.22	0.00033	<0.00010	0.00134	
Stephens Lake - Kettle GS	STL-KETTLE	L2724678-6	20-Jul-22	8:50	129	0.155	<0.00010	0.00131	0.0348	<0.00010	<0.000050	0.024	<0.0000050	29.0	0.000020	13.7	0.00035	0.00011	0.00142	
Longspruce Forebay	LNR-3	L2723974-3	20-Jul-22	14:55	128	0.298	<0.00010	0.00131	0.0342	<0.00010	<0.000050	0.024	<0.0000050	27.7	0.000028	13.9	0.00045	0.00014	0.00155	
Limestone Forebay	LNR-4	L2723974-4	20-Jul-22	14:02	127	0.194	<0.00010	0.00124	0.0329	<0.00010	<0.000050	0.024	0.0000052	27.7	0.000021	13.8	0.00035	0.00011	0.00154	
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	L2723974-5	20-Jul-22	13:35	133	0.137	<0.00010	0.00130	0.0319	<0.00010	<0.000050	0.025	<0.0000050	28.9	0.000017	13.7	0.00027	0.00011	0.00150	
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	L2723974-6	20-Jul-22	13:08	130	0.134	<0.00010	0.00129	0.0330	<0.00010	<0.000050	0.025	<0.0000050	28.0	0.000014	13.8	0.00025	0.00010	0.00146	
Nelson River - downstream of Deer Island	LNR-7	L2723974-7	20-Jul-22	12:40	129	0.136	<0.00010	0.00131	0.0334	<0.00010	<0.000050	0.025	<0.0000050	28.9	0.000017	13.8	0.00037	0.00011	0.00151	
Nelson River - upstream of Gillam Island	LNR-8	L2723974-8	20-Jul-22	12:20	131	0.244	<0.00010	0.00128	0.0344	<0.00010	<0.000050	0.025	<0.0000050	29.0	0.000026	13.7	0.00044	0.00014	0.00150	
Stephens Lake - North Arm	STL-N-SURF	L2729414-1	21-Aug-22	12:15	104	0.135	<0.00010	0.00078	0.0198	<0.00010	<0.000050	0.016	<0.0000050	28.0	<0.000010	7.20	0.00025	<0.00010	0.00120	
Stephens Lake - North Arm	STL-N-BOT	L2729414-2	21-Aug-22	12:15	107	0.211	<0.00010	0.00081	0.0195	<0.00010	<0.000050	0.014	0.0000627	28.5	0.000020	7.05	0.00051	<0.00010	0.194	
Stephens Lake - Kettle GS	STL-KETTLE	L2729414-3	21-Aug-22	11:40	109	0.195	<0.00010	0.00126	0.0361	<0.00010	<0.000050	0.021	<0.0000050	24.8	0.000018	14.1	0.00035	<0.00010	0.00142	
Longspruce Forebay	LNR-3	L2729414-4	21-Aug-22	11:18	107	0.180	<0.00010	0.00130	0.0337	<0.00010	<0.000050	0.020	<0.0000050	23.8</td						

Table A4-9: Metals and major ions measured in the laboratory for sites monitored in the Keeyask regional study area during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	ALS Sample ID	Sample ID	Date	Time	Hardness (as CaCO ₃)	Metals and Major Ions Concentrations (mg/L)													
						Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Boron	Cadmium	Calcium	Cesium	Chloride	Chromium	Cobalt	Copper
Detection Limit 2022					0.20	0.0030	0.00010	0.00010	0.00010	0.000050	0.010	0.0000050	0.050	0.000010	0.10	0.00010	0.00010	0.00050	
Stephens Lake - North Arm	STL-N BOT	L2733061-2	14-Sep-22	14:00	115	0.202	0.00014	0.00089	0.0192	<0.00010	<0.000050	0.017	0.0000088	30.8	0.000027	7.17	0.00042	0.00013	0.00452
Stephens Lake - Kettle GS	STL-KETTLE	L2733061-3	14-Sep-22	13:19	127	0.118	0.00012	0.00133	0.0370	<0.00010	<0.000050	0.024	<0.0000050	28.1	0.000016	14.0	0.00029	<0.00010	0.00130
Longspruce Forebay	LNR-3	L2733061-4	14-Sep-22	12:44	124	0.181	0.00012	0.00130	0.0374	<0.00010	<0.000050	0.022	<0.0000050	27.3	0.000022	14.1	0.00036	<0.00010	0.00134
Limestone Forebay	LNR-4	L2733061-5	14-Sep-22	12:04	126	0.122	0.00011	0.00128	0.0368	<0.00010	<0.000050	0.023	<0.0000050	27.9	0.000014	14.0	0.00025	<0.00010	0.00129
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	L2733061-6	14-Sep-22	11:42	126	0.170	0.00010	0.00130	0.0368	<0.00010	<0.000050	0.022	<0.0000050	28.1	0.000019	13.7	0.00033	<0.00010	0.00132
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	L2733061-7	14-Sep-22	11:26	127	0.202	<0.00010	0.00132	0.0378	<0.00010	<0.000050	0.022	<0.0000050	27.7	0.000021	14.0	0.00038	<0.00010	0.00134
Nelson River - downstream of Deer Island	LNR-7	L2733061-8	14-Sep-22	11:02	129	0.163	<0.00010	0.00130	0.0372	<0.00010	<0.000050	0.022	<0.0000050	28.9	0.000021	13.7	0.00044	<0.00010	0.00130
Nelson River - upstream of Gillam Island	LNR-8	L2733061-9	14-Sep-22	10:42	129	0.222	0.00010	0.00132	0.0376	<0.00010	<0.000050	0.024	<0.0000050	28.9	0.000024	13.7	0.00040	0.00011	0.00137

Table A4-9: Metals and major ions measured in the laboratory for sites monitored in the Keeyask regional study area during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Site ID	ALS Sample ID	Sample Date	Sample Time	Methyl-															
					Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (ng/L)	mercury (ng/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus (mg/L)	Potassium (mg/L)	Rubidium (mg/L)	Selenium (mg/L)	Silicon (mg/L)	Silver (mg/L)	Sodium (mg/L)
Detection Limit 2022					0.010	0.000050	0.0010	0.0050	0.00010	0.50/10	0.020	0.000050	0.00050	0.030	0.050	0.00020	0.000050	0.10	0.000010	0.050
Stephens Lake - North Arm	STL-N SURF	L2694960-1	26-Mar-22	14:55	0.136	0.000259	0.0063	12.3	0.00396	0.86	0.035	0.000455	0.00103	<0.030	1.96	0.00105	0.000081	2.98	<0.000010	9.97
Stephens Lake - North Arm	STL-N BOT	L2694960-2	26-Mar-22	15:00	0.104	0.000170	0.0061	11.7	0.00348	1.02	0.028	0.000435	0.00088	<0.030	1.86	0.00094	0.000086	2.82	<0.000010	9.64
Stephens Lake - Kettle GS	STL-KETTLE	L2694960-3	26-Mar-22	14:25	0.447	0.000254	0.0093	13.0	0.0102	0.68	0.026	0.000629	0.00150	0.044	2.62	0.00225	0.000112	3.67	<0.000010	14.4
Longspruce Forebay	LNR-3	L2694960-4	26-Mar-22	12:55	0.315	0.000201	0.0088	13.0	0.00890	<0.50	0.028	0.000605	0.00129	0.045	2.55	0.00186	0.000107	3.32	<0.000010	14.4
Limestone Forebay	LNR-4	L2694960-5	26-Mar-22	11:25	0.322	0.000256	0.0091	12.8	0.00893	0.52	0.046	0.000596	0.00130	0.042	2.58	0.00193	0.000116	3.37	<0.000010	14.3
Stephens Lake - North Arm	STL-N SURF	L2719447-1	29-Jun-22	12:15	0.146	0.000135	0.0058	9.52	0.00496	<0.50	0.025	0.000299	0.00079	<0.030	1.51	0.00075	0.000054	2.19	<0.000010	7.60
Stephens Lake - North Arm	STL-N BOT	L2719447-2	29-Jun-22	12:15	0.147	0.000142	0.0056	9.60	0.00518	1.01	0.035	0.000298	0.00085	<0.030	1.50	0.00079	<0.000050	2.23	<0.000010	8.39
Stephens Lake - Kettle GS	STL-KETTLE	L2719447-3	29-Jun-22	11:35	0.370	0.000205	0.0101	12.7	0.00797	1.11	0.054	0.000643	0.00132	0.039	2.56	0.00194	0.000109	2.76	<0.000010	14.7
Longspruce Forebay	LNR-3	L2719447-4	29-Jun-22	11:05	0.192	0.000168	0.0099	12.7	0.00684	1.18	0.045	0.000575	0.00112	<0.030	2.45	0.00148	0.000115	2.23	<0.000010	14.6
Limestone Forebay	LNR-4	L2719447-5	29-Jun-22	10:30	0.151	0.000171	0.0096	12.6	0.00582	0.99	0.051	0.000560	0.00108	0.034	2.42	0.00140	0.000094	2.07	<0.000010	14.2
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	L2719447-6	29-Jun-22	10:05	0.189	0.000161	0.0097	12.9	0.00770	1.14	0.042	0.000544	0.00108	<0.030	2.35	0.00142	0.000085	2.12	<0.000010	14.1
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	L2719447-7	29-Jun-22	9:50	0.199	0.000157	0.0102	13.1	0.00701	1.18	0.041	0.000641	0.00117	0.044	2.48	0.00146	0.000134	2.25	<0.000010	14.6
Nelson River - downstream of Deer Island	LNR-7	L2719447-8	29-Jun-22	9:20	0.226	0.000181	0.0100	12.8	0.00777	1.11	0.040	0.000595	0.00121	0.036	2.44	0.00153	0.000112	2.27	<0.000010	14.3
Nelson River - upstream of Gillam Island	LNR-8	L2719447-9	29-Jun-22	9:00	0.226	0.000165	0.0098	12.8	0.00784	1.23	0.049	0.000559	0.00114	0.033	2.39	0.00164	0.000093	2.27	<0.000010	13.9
Stephens Lake - North Arm	STL-N SURF	L2723974-1	20-Jul-22	15:55	0.127	0.000073	0.0051	10.6	0.00309	-1	0.025	0.000403	0.00080	<0.030	1.80	0.00089	0.000086	2.34	<0.000010	8.87
Stephens Lake - North Arm	STL-N BOT	L2723974-2	20-Jul-22	15:55	0.139	0.000077	0.0053	10.8	0.00320	0.84	0.566	0.000404	0.00079	<0.030	1.80	0.00090	<0.000050	2.38	<0.000010	8.99
Stephens Lake - Kettle GS	STL-KETTLE	L2724678-6	20-Jul-22	8:50	0.169	0.000102	0.0094	13.8	0.00617	0.52	0.072	0.000678	0.00103	0.037	2.61	0.00156	0.000110	2.63	<0.000010	15.4
Longspruce Forebay	LNR-3	L2723974-3	20-Jul-22	14:55	0.243	0.000123	0.0094	14.2	0.00656	0.63	0.057	0.000673	0.00113	0.034	2.85	0.00179	0.000111	2.92	<0.000010	16.4
Limestone Forebay	LNR-4	L2723974-4	20-Jul-22	14:02	0.170	0.000177	0.0094	14.1	0.00535	0.59	0.052	0.000686	0.00109	<0.030	2.81	0.00166	0.000098	2.69	<0.000010	16.3
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	L2723974-5	20-Jul-22	13:35	0.146	0.000110	0.0095	14.8	0.00633	0.55	0.070	0.000659	0.00110	0.032	2.81	0.00150	0.000119	2.64	<0.000010	16.1
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	L2723974-6	20-Jul-22	13:08	0.142	0.000112	0.0097	14.5	0.00621	0.61	0.048	0.000635	0.00106	0.034	2.85	0.00152	0.000139	2.58	<0.000010	16.2
Nelson River - downstream of Deer Island	LNR-7	L2723974-7	20-Jul-22	12:40	0.154	0.000127	0.0101	13.7	0.00742	0.72	0.057	0.000651	0.00111	<0.030	2.78	0.00147	0.000109	2.56	<0.000010	15.7
Nelson River - upstream of Gillam Island	LNR-8	L2723974-8	20-Jul-22	12:20	0.224	0.000167	0.0104	14.2	0.00810	0.70	0.049	0.000704	0.00118	<0.030	2.90	0.00172	0.000107	2.85	<0.000010	15.9
Stephens Lake - North Arm	STL-N-SURF	L2729414-1	21-Aug-22	12:15	0.112	0.000066	0.0047	8.36	0.00326	0.69	0.027	0.000406	0.00075	<0.030	1.46	0.00084	0.000068	2.15	<0.000010	7.37
Stephens Lake - North Arm	STL-N-BOT	L2729414-2	21-Aug-22	12:15	0.174	0.000275	0.0047	8.76	0.00435	0.84	0.030	0.000391	0.00086	<0.030	1.52	0.00100	0.000086	2.31	<0.000010	7.51
Stephens Lake - Kettle GS	STL-KETTLE	L2729414-3	21-Aug-22	11:40	0.169	0.000098	0.0084	11.5	0.00541	1.45	0.076	0.000691	0.00099	<0.030	2.38	0.00160	0.000127	2.47	<0.000010	13.8
Longspruce Forebay	LNR-3	L2729414-4	21-Aug-22	11:18	0.159	0.000090	0.0084	11.5	0.00487	0.57	0.068	0.000682	0.00098	<0.030	2.35	0.00168	0.000123	2.48	<0.000010	14.3
Limestone Forebay	LNR-4	L2729414-5																		

Table A4-9: Metals and major ions measured in the laboratory for sites monitored in the Keeyask regional study area during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	ALS	Site ID	Sample ID	Date	Sample Time	Methyl-															
						Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury mercury (ng/L)	Molybdenum (ng/L)	Nickel (mg/L)	Phosphorus (mg/L)	Potassium (mg/L)	Rubidium (mg/L)	Selenium (mg/L)	Silicon (mg/L)	Silver (mg/L)	Sodium (mg/L)	
Detection Limit 2022						0.010	0.000050	0.0010	0.0050	0.00010	0.50/10	0.020	0.000050	0.00050	0.030	0.050	0.00020	0.000050	0.10	0.000010	0.050
Nelson River - upstream of Gillam Island	LNR-8	L2729414-9	21-Aug-22	9:24	0.188	0.000102	0.0085	11.3	0.00569	0.62	0.066	0.000668	0.00096	<0.030	2.34	0.00165	0.000102	2.46	<0.000010	13.6	
Stephens Lake - North Arm	STL-N SURF	L2733061-1	14-Sep-22	14:00	0.360	0.000173	0.0058	10.1	0.00689	0.56	0.027	0.000465	0.00214	<0.030	1.76	0.00135	<0.000050	2.99	<0.000010	8.68	
Stephens Lake - North Arm	STL-N BOT	L2733061-2	14-Sep-22	14:00	0.205	0.000164	0.0052	9.32	0.00628	<i>101</i>	0.073	0.000403	0.00083	<0.030	1.65	0.00101	0.000138	2.51	<0.000010	8.09	
Stephens Lake - Kettle GS	STL-KETTLE	L2733061-3	14-Sep-22	13:19	0.125	0.000055	0.0093	13.7	0.00507	0.65	0.070	0.000670	0.00094	<0.030	2.68	0.00147	0.000129	2.29	<0.000010	15.8	
Longspruce Forebay	LNR-3	L2733061-4	14-Sep-22	12:44	0.153	0.000057	0.0091	13.6	0.00435	<0.50	0.064	0.000692	0.00087	<0.030	2.68	0.00162	0.000115	2.44	<0.000010	15.9	
Limestone Forebay	LNR-4	L2733061-5	14-Sep-22	12:04	0.112	<0.000050	0.0092	13.7	0.00371	<0.50	0.062	0.000689	0.00082	<0.030	2.63	0.00148	0.000142	2.34	<0.000010	15.7	
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	L2733061-6	14-Sep-22	11:42	0.156	0.000060	0.0089	13.6	0.00513	0.51	0.056	0.000659	0.00089	<0.030	2.60	0.00147	0.000125	2.45	<0.000010	15.8	
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	L2733061-7	14-Sep-22	11:26	0.170	0.000064	0.0092	14.0	0.00462	<0.50	0.061	0.000659	0.00093	<0.030	2.71	0.00172	0.000147	2.51	<0.000010	16.3	
Nelson River - downstream of Deer Island	LNR-7	L2733061-8	14-Sep-22	11:02	0.155	0.000058	0.0091	13.8	0.00512	<0.50	0.059	0.000671	0.00090	<0.030	2.61	0.00157	0.000114	2.50	<0.000010	15.6	
Nelson River - upstream of Gillam Island	LNR-8	L2733061-9	14-Sep-22	10:42	0.203	0.000075	0.0095	13.9	0.00581	<0.50	0.076	0.000669	0.00093	<0.030	2.62	0.00164	0.000122	2.59	<0.000010	15.9	

Table A4-9: Metals and major ions measured in the laboratory for sites monitored in the Keeyask regional study area during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Site ID	ALS Sample ID	Sample Date	Sample Time	Strontium (mg/L)	Sulfate (mg/L)	Sulfur (mg/L)	Tellurium (mg/L)	Thallium (mg/L)	Thorium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Tungsten (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Zirconium (mg/L)
Detection Limit 2022					0.00020	0.30	0.50	0.00020	0.000010	0.00010	0.00010	0.00030	0.00010	0.000010	0.00050	0.0030	0.00020
Stephens Lake - North Arm	STL-N SURF	L2694960-1	26-Mar-22	14:55	0.0940	17.6	6.25	<0.00020	<0.000010	<0.00010	0.00015	0.00569	<0.00010	0.000494	0.0142	0.0086	0.00032
Stephens Lake - North Arm	STL-N BOT	L2694960-2	26-Mar-22	15:00	0.0911	16.8	5.81	<0.00020	<0.000010	<0.00010	<0.00010	0.00446	<0.00010	0.000493	0.00130	0.0047	0.00027
Stephens Lake - Kettle GS	STL-KETTLE	L2694960-3	26-Mar-22	14:25	0.114	29.9	9.97	<0.00020	<0.000010	0.00011	0.00010	0.0188	<0.00010	0.000638	0.00180	0.0039	0.00047
Longspruce Forebay	LNR-3	L2694960-4	26-Mar-22	12:55	0.117	29.9	10.2	<0.00020	<0.000010	<0.00010	<0.00010	0.0125	<0.00010	0.000626	0.00154	0.0033	0.00042
Limestone Forebay	LNR-4	L2694960-5	26-Mar-22	11:25	0.115	29.6	9.83	<0.00020	<0.000010	<0.00010	<0.00010	0.0124	<0.00010	0.000622	0.00153	0.0047	0.00042
Stephens Lake - North Arm	STL-N SURF	L2719447-1	29-Jun-22	12:15	0.0738	12.3	4.74	<0.00020	<0.000010	<0.00010	<0.00010	0.00594	<0.00010	0.000411	0.00134	<0.0030	0.00034
Stephens Lake - North Arm	STL-N BOT	L2719447-2	29-Jun-22	12:15	0.0768	12.4	4.62	<0.00020	<0.000010	<0.00010	<0.00010	0.00609	<0.00010	0.000413	0.00133	<0.0030	0.00038
Stephens Lake - Kettle GS	STL-KETTLE	L2719447-3	29-Jun-22	11:35	0.117	30.3	10.7	<0.00020	<0.000010	0.00011	<0.00010	0.0146	<0.00010	0.000651	0.00191	<0.0030	0.00044
Longspruce Forebay	LNR-3	L2719447-4	29-Jun-22	11:05	0.114	29.7	10.4	<0.00020	<0.000010	<0.00010	<0.00010	0.00746	<0.00010	0.000620	0.00161	<0.0030	0.00037
Limestone Forebay	LNR-4	L2719447-5	29-Jun-22	10:30	0.111	29.5	10.0	<0.00020	<0.000010	<0.00010	<0.00010	0.00544	<0.00010	0.000615	0.00149	<0.0030	0.00034
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	L2719447-6	29-Jun-22	10:05	0.110	29.1	10.1	<0.00020	<0.000010	<0.00010	<0.00010	0.00679	<0.00010	0.000611	0.00144	<0.0030	0.00037
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	L2719447-7	29-Jun-22	9:50	0.114	29.5	10.4	<0.00020	<0.000010	<0.00010	<0.00010	0.00737	<0.00010	0.000641	0.00129	<0.0030	0.00041
Nelson River - downstream of Deer Island	LNR-7	L2719447-8	29-Jun-22	9:20	0.115	29.0	10.2	<0.00020	<0.000010	0.00010	<0.00010	0.00879	<0.00010	0.000619	0.00140	<0.0030	0.00040
Nelson River - upstream of Gillam Island	LNR-8	L2719447-9	29-Jun-22	9:00	0.113	28.8	10.4	<0.00020	<0.000010	<0.00010	<0.00010	0.00878	<0.00010	0.000626	0.00141	<0.0030	0.00055
Stephens Lake - North Arm	STL-N SURF	L2723974-1	20-Jul-22	15:55	0.0819	14.5	5.70	<0.00020	<0.000010	<0.00010	<0.00010	0.00548	<0.00010	0.000430	0.00101	<0.0030	0.00026
Stephens Lake - North Arm	STL-N BOT	L2723974-2	20-Jul-22	15:55	0.0801	14.8	5.74	<0.00020	<0.000010	<0.00010	<0.00010	0.00642	<0.00010	0.000426	0.00106	<0.0030	0.00028
Stephens Lake - Kettle GS	STL-KETTLE	L2724678-6	20-Jul-22	8:50	0.120	31.0	11.6	<0.00020	<0.000010	<0.00010	<0.00010	0.00744	<0.00010	0.000604	0.00146	<0.0030	0.00027
Longspruce Forebay	LNR-3	L2723974-3	20-Jul-22	14:55	0.120	32.3	11.8	<0.00020	<0.000010	<0.00010	<0.00010	0.0105	<0.00010	0.000657	0.00145	<0.0030	0.00032
Limestone Forebay	LNR-4	L2723974-4	20-Jul-22	14:02	0.121	32.1	11.9	<0.00020	<0.000010	<0.00010	<0.00010	0.00721	<0.00010	0.000637	0.00134	<0.0030	0.00029
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	L2723974-5	20-Jul-22	13:35	0.119	32.0	11.5	<0.00020	<0.000010	<0.00010	<0.00010	0.00618	<0.00010	0.000649	0.00129	<0.0030	0.00029
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	L2723974-6	20-Jul-22	13:08	0.120	32.1	12.2	<0.00020	<0.000010	<0.00010	<0.00010	0.00564	<0.00010	0.000629	0.00131	<0.0030	0.00030
Nelson River - downstream of Deer Island	LNR-7	L2723974-7	20-Jul-22	12:40	0.120	32.0	12.0	<0.00020	<0.000010	<0.00010	<0.00010	0.00579	<0.00010	0.000653	0.00128	<0.0030	0.00031
Nelson River - upstream of Gillam Island	LNR-8	L2723974-8	20-Jul-22	12:20	0.124	31.9	12.1	<0.00020	<0.000010	<0.00010	<0.00010	0.00944	<0.00010	0.000673	0.00142	<0.0030	0.00035
Stephens Lake - North Arm	STL-N-SURF	L2729414-1	21-Aug-22	12:15	0.0778	14.6	5.04	<0.00020	<0.000010	<0.00010	<0.00010	0.00461	<0.00010	0.000419	0.00090	<0.0030	0.00039
Stephens Lake - North Arm	STL-N-BOT	L2729414-2	21-Aug-22	12:15	0.0818	14.3	4.78	<0.00020	<0.000010	<0.00010	<0.00010	0.00741	<0.00010	0.000427	0.00103	<0.0030	0.00034
Stephens Lake - Kettle GS	STL-KETTLE	L2729414-3	21-Aug-22	11:40	0.116	32.1	10.2	<0.00020	<0.000010	<0.00010	<0.00010	0.00692	<0.00010	0.000627	0.00116	<0.0030	0.00033
Longspruce Forebay	LNR-3	L2729414-4	21-Aug-22	11:18	0.113	32.2	10.6	<0.00020	<0.000010	<0.00010	<0.00010	0.00634	<0.00010	0.000653	0.00116	<0.0030	0.00026
Limestone Forebay	LNR-4	L2729414-5	21-Aug-22	10:44	0.115	32.2	10.2	<0.00020	<0.000010	<0.00010	<0.00010	0.00546	<0.00010	0.000648	0.00112	<0.0030	0.00031
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	L2729414-6	21-Aug-22	10:18	0.111	32.3	10.1	<0.00020	<0.000010	<0.00010	<0.00010	0.00600	<0.00010	0.000648	0.00115	<0.0030	0.00027
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	L2729414-7	21-Aug-22	10:07	0.116	32.2	10.1	<0.00020	<0.000010	<0.00010	<0.00010	0.00693	<0.00010	0.000644	0.00119	<0.0030	0.00029
Nelson River - downstream of Deer Island	LNR-7	L2729414-8	21-Aug-22	9:44	0.116	31.9	10.4	<0.00020	<0.000010	<0.00010	<0.00010	0.00711	<0.00010				

Table A4-9: Metals and major ions measured in the laboratory for sites monitored in the Keeyask regional study area during the ice-cover and open-water seasons of 2022 (continued).

Sample Location	Site ID	ALS Sample ID	Sample Date	Sample Time	Strontium (mg/L)	Sulfate (mg/L)	Sulfur (mg/L)	Tellurium (mg/L)	Thallium (mg/L)	Thorium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Tungsten (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Zirconium (mg/L)
Detection Limit 2022					0.00020	0.30	0.50	0.00020	0.000010	0.00010	0.00010	0.00030	0.00010	0.000010	0.00050	0.0030	0.00020
Stephens Lake - North Arm	STL-N SURF	L2733061-1	14-Sep-22	14:00	0.0823	14.9	5.52	<0.00020	<0.000010	0.00014	<0.00010	0.0143	<0.00010	0.000467	0.00155	0.0040	0.00043
Stephens Lake - North Arm	STL-N BOT	L2733061-2	14-Sep-22	14:00	0.0820	14.7	4.96	0.00035	<0.000010	<0.00010	0.00527	0.00746	<0.00010	0.000406	0.00131	0.0041	0.00038
Stephens Lake - Kettle GS	STL-KETTLE	L2733061-3	14-Sep-22	13:19	0.134	34.4	11.6	<0.00020	<0.000010	<0.00010	<0.00010	0.00529	<0.00010	0.000613	0.00126	<0.0030	0.00025
Longspruce Forebay	LNR-3	L2733061-4	14-Sep-22	12:44	0.135	34.4	11.6	<0.00020	<0.000010	<0.00010	<0.00010	0.00640	<0.00010	0.000634	0.00129	<0.0030	0.00024
Limestone Forebay	LNR-4	L2733061-5	14-Sep-22	12:04	0.135	33.8	11.2	<0.00020	<0.000010	<0.00010	<0.00010	0.00458	<0.00010	0.000618	0.00122	<0.0030	0.00026
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	L2733061-6	14-Sep-22	11:42	0.126	33.3	11.4	<0.00020	<0.000010	<0.00010	<0.00010	0.00602	<0.00010	0.000620	0.00131	<0.0030	0.00027
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	L2733061-7	14-Sep-22	11:26	0.131	34.1	11.7	<0.00020	<0.000010	<0.00010	<0.00010	0.00705	<0.00010	0.000640	0.00136	<0.0030	0.00029
Nelson River - downstream of Deer Island	LNR-7	L2733061-8	14-Sep-22	11:02	0.133	33.3	11.5	<0.00020	<0.000010	<0.00010	<0.00010	0.00641	<0.00010	0.000593	0.00133	<0.0030	0.00028
Nelson River - upstream of Gillam Island	LNR-8	L2733061-9	14-Sep-22	10:42	0.129	33.5	11.3	<0.00020	<0.000010	<0.00010	<0.00010	0.00802	<0.00010	0.000609	0.00139	<0.0030	0.00032

APPENDIX 5: RESULTS OF QUALITY ASSURANCE/QUALITY CONTROL SAMPLES, 2022

Table A5-1: Quality assurance/quality control results for routine water chemistry variables measured in the laboratory during ice-cover and open-water, 2022.....	281
Table A5-2: Quality assurance/quality control results for metals and major ions measured in the laboratory during open-water and ice-cover, 2022.....	287

Table A5-1: Quality assurance/quality control results for routine water chemistry variables measured in the laboratory during ice-cover and open-water, 2022. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit (DL). PRSD values exceeding 18% are indicated in bold red. Blank values exceeding five times the DL are indicated in bold red.

Sample Location	Site ID	ALS Sample ID	Sample Date	Sample Time	Alkalinity				Nitrogen					Phosphorus			
					Total (CaCO ₃) (mg/L)	Bicarbonate (HCO ₃) (mg/L)	Carbonate (CO ₃) (mg/L)	Hydroxide (OH) (mg/L)	Ammonia (mg/L N)	Nitrate/nitrite (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Total N ¹ (mg/L)	Dissolved P (mg/L)	Total P (mg/L)	
Detection Limit 2022					1.0	1.2	0.60	0.34	0.010	0.0051	0.0050	0.0010	0.20	-	0.0010/ 0.0030	0.0010/ 0.0030	
Replicates																	
Stephens Lake - Near-field	NF-1	L2694960-9	27-Mar-22	11:50	104	127	<0.60	<0.34	<0.010	0.122	0.122	<0.0010	0.33	0.45	0.0278	0.0427	
Stephens Lake - Near-field	NF-1	L2694960-14			107	131	<0.60	<0.34	<0.010	0.117	0.117	<0.0010	0.32	0.44	0.0252	0.0402	
Stephens Lake - Near-field	NF-1	L2694960-15			105	128	<0.60	<0.34	<0.010	0.119	0.119	<0.0010	0.31	0.43	0.0267	0.0410	
					Mean	105	129	<0.60	<0.34	<0.010	0.119	0.119	<0.0010	0.32	0.44	0.0266	0.0413
					SD	1.5	2.1	-	-	0.0025	0.0025	-	0.010	0.012	0.00131	0.00128	
					PRSD	1	2	-	-	-	2	2	-	-	5	3	
Zone 1b	Z1-9	L2693729-5	21-Mar-22	11:35	98.0	120	<0.60	<0.34	0.012	0.115	0.114	0.0011	0.29	0.41	0.0285	0.0404	
Zone 1b	Z1-9	L2693729-6			98.8	121	<0.60	<0.34	0.011	0.115	0.115	<0.0010	0.30	0.42	0.0287	0.0385	
Zone 1b	Z1-9	L2693729-7			99.8	122	<0.60	<0.34	<0.010	0.112	0.112	<0.0010	0.35	0.46	0.0274	0.0384	
					Mean	98.9	121	<0.60	<0.34	<0.010	0.114	0.114	<0.0010	0.31	0.43	0.0282	0.0391
					SD	0.90	1.0	-	-	-	0.0017	0.0015	-	0.032	0.030	0.00070	0.00113
					PRSD	1	1	-	-	-	2	1	-	-	2	3	
Zone 8	Z8-5	L2717871-3	23-Jun-22	9:55	97.5	119	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.47	0.47	0.0316	0.0414	
Zone 8	Z8-5	L2717871-5			97.7	119	<0.60	<0.34	0.011	0.0097	0.0097	<0.0010	0.51	0.52	0.0287	0.0415	
Zone 8	Z8-5	L2717871-6			96.6	118	<0.60	<0.34	<0.010	0.0095	0.0095	<0.0010	0.46	0.47	0.0301	0.0418	
					Mean	97.3	119	<0.60	<0.34	<0.010	0.0073	0.0072	<0.0010	0.48	0.49	0.0301	0.0416
					SD	0.59	0.6	-	-	-	0.00014	0.00410	-	0.026	0.028	0.00145	0.00021
					PRSD	1	0	-	-	-	-	-	-	-	5	1	
Nelson River upstream of the Keeyask GS	US-3	L2718487-3	26-Jun-22	15:10	98.8	121	<0.60	<0.34	0.018	0.0133	0.0133	<0.0010	0.34	0.35	0.0251	0.0341	
Nelson River upstream of the Keeyask GS	US-3	L2718487-6			99.8	122	<0.60	<0.34	0.018	0.0124	0.0124	<0.0010	0.38	0.39	0.0246	0.0353	
Nelson River upstream of the Keeyask GS	US-3	L2718487-7			99.6	122	<0.60	<0.34	0.020	0.0132	0.0132	<0.0010	0.38	0.39	0.0250	0.0363	
					Mean	99.4	122	<0.60	<0.34	0.019	0.0130	0.0130	<0.0010	0.37	0.38	0.0249	0.0352
					SD	0.53	0.6	-	-	0.0012	0.00049	0.00049	-	0.023	0.023	0.00026	0.00110
					PRSD	1	0	-	-	-	-	-	-	-	1	3	
Zone 11	Z11-11	L2724410-6	23-Jul-22	11:45	96.2	117	<0.60	<0.34	0.033	<0.0051	<0.0050	<0.0010	0.34	0.34	0.0988	0.118	
Zone 11	Z11-11	L2724410-7			98.0	120	<0.60	<0.34	0.037	0.0171	0.0171	<0.0010	0.52	0.54	0.0946	0.114	
Zone 11	Z11-11	L2724410-8			96.6	118	<0.60	<0.34	0.035	<0.0051	<0.0050	<0.0010	0.40	0.40	0.0938	0.112	
					Mean	96.9	118	<0.60	<0.34	0.035	0.0074	0.0074	<0.0010	0.42	0.43	0.0957	0.115
					SD	0.95	1.5	-	-	0.0020	-	-	-	0.092	0.100	0.00269	0.00306
					PRSD	1	1	-	-	-	-	-	-	-	3	3	
Zone 1b	Z1-9	L2725407-5	27-Jul-22	8:00	106	129	<0.60	<0.34	0.059	0.0244	0.0244	<0.0010	0.27	0.29	0.0249	0.0387	
Zone 1b	Z1-9	L2725407-8			108	132	<0.60	<0.34	0.030	0.0246	0.0246	<0.0010	<0.20	0.12	0.0255	0.0385	
Zone 1b	Z1-9	L2725407-9			106	129	<0.60	<0.34	0.148	0.0243	0.0243	<0.0010	0.26	0.28	0.0261	0.0391	

Table A5-1: Quality assurance/quality control results for routine water chemistry variables measured in the laboratory during ice-cover and open-water, 2022. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit (DL). PRSD values exceeding 18% are indicated in bold red. Blank values exceeding five times the DL are indicated in bold red (continued).

Sample Location	Site ID	ALS Sample ID	Sample Date	Sample Time	Alkalinity				Nitrogen					Phosphorus			
					Total (CaCO ₃) (mg/L)	Bicarbonate (HCO ₃) (mg/L)	Carbonate (CO ₃) (mg/L)	Hydroxide (OH) (mg/L)	Ammonia (mg/L N)	Nitrate/nitrite (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Total N ¹ (mg/L)	Dissolved P (mg/L)	Total P (mg/L)	
Detection Limit 2022					1.0	1.2	0.60	0.34	0.010	0.0051	0.0050	0.0010	0.20	-	0.0010/ 0.0030	0.0010/ 0.0030	
					Mean	107	130	<0.60	<0.34	0.079	0.0244	0.0244	<0.0010	0.21	0.23	0.0255	0.0388
					SD	1.2	1.7	-	-	0.0615	0.00015	0.00015	-	0.095	0.095	0.00060	0.00031
					PRSD	1	1	-	-	-	-	-	-	-	-	2	1
Zone 11	Z11-1	L2730475-5	28-Aug-22	9:35		108	131	<0.60	<0.34	0.038	<0.0051	<0.0050	<0.0010	0.59	0.59	0.0419	0.0601
Zone 11	Z11-1	L2730475-13				109	133	<0.60	<0.34	0.027	<0.0051	<0.0050	<0.0010	0.64	0.64	0.0436	0.0570
Zone 11	Z11-1	L2730475-14				109	133	<0.60	<0.34	0.038	<0.0051	<0.0050	<0.0010	0.65	0.65	0.0402	0.0607
					Mean	109	132	<0.60	<0.34	0.034	<0.0051	<0.0050	<0.0010	0.63	0.63	0.0419	0.0593
					SD	0.6	1.2	-	-	0.0064	-	-	-	0.032	0.032	0.00170	0.00199
					PRSD	1	1	-	-	-	-	-	-	-	-	4	3
Clark Lake	CL-5	L2730098-5	24-Aug-22	10:04		105	128	<0.60	<0.34	0.023	0.0249	0.0249	<0.0010	0.33	0.35	0.0250	0.0355
Clark Lake	CL-5	L2730098-6				105	128	<0.60	<0.34	0.033	0.0142	0.0142	<0.0010	0.31	0.32	0.0257	0.0349
Clark Lake	CL-5	L2730098-7				105	128	<0.60	<0.34	0.085	0.0141	0.0141	<0.0010	0.35	0.36	0.0249	0.0359
					Mean	105	128	<0.60	<0.34	0.047	0.0177	0.0177	<0.0010	0.33	0.35	0.0252	0.0354
					SD	0.0	0.0	-	-	0.0333	0.00621	0.00621	-	0.020	0.021	0.00044	0.00050
					PRSD	0	0	-	-	-	-	-	-	-	-	2	1
Zone 8	Z8-5	L2736054-3	6-Oct-22	14:50		105	129	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.59	0.59	0.0061	0.0425
Zone 8	Z8-5	L2736054-7				106	129	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.57	0.57	0.0125	0.0433
Zone 8	Z8-5	L2736054-8				106	129	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.64	0.64	0.0126	0.0434
					Mean	106	129	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.60	0.60	0.0104	0.0431
					SD	0.6	0.0	-	-	-	-	-	-	0.036	0.036	0.00372	0.00049
					PRSD	1	0	-	-	-	-	-	-	-	-	36	1
Stephens Lake - Near-field	NF-1	L2736583-1	11-Oct-22	15:58		111	131	2.28	<0.34	0.033	0.0830	0.0805	0.0024	0.33	0.41	0.0313	0.0364
Stephens Lake - Near-field	NF-1	L2736583-6				110	128	2.88	<0.34	0.031	0.0836	0.0810	0.0026	0.35	0.43	0.0306	0.0357
Stephens Lake - Near-field	NF-1	L2736583-7				111	129	2.88	<0.34	0.040	0.0834	0.0807	0.0027	0.34	0.42	0.0306	0.0362
					Mean	111	129	2.68	<0.34	0.035	0.0833	0.0807	0.0026	0.34	0.42	0.0308	0.0361
					SD	0.6	1.5	0.346	-	0.0047	0.00031	0.00025	0.0002	0.010	0.010	0.00040	0.00036
					PRSD	1	1	-	-	-	0	0	-	-	-	1	1

Table A5-1: Quality assurance/quality control results for routine water chemistry variables measured in the laboratory during ice-cover and open-water, 2022. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit (DL). PRSD values exceeding 18% are indicated in bold red. Blank values exceeding five times the DL are indicated in bold red (continued).

Sample Location	Site ID	ALS Sample ID	Sample Date	Sample Time	Alkalinity				Nitrogen					Phosphorus		
					Total (CaCO ₃) (mg/L)	Bicarbonate (HCO ₃) (mg/L)	Carbonate (CO ₃) (mg/L)	Hydroxide (OH) (mg/L)	Ammonia (mg/L N)	Nitrate/nitrite (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Total N ¹ (mg/L)	Dissolved P (mg/L)	Total P (mg/L)
Detection Limit 2022					1.0	1.2	0.60	0.34	0.010	0.0051	0.0050	0.0010	0.20	-	0.0010/0.0030	0.0010/0.0030
Field Blank	FB-1	L2693459-11	20-Mar-22	13:00	<1.0	<1.2	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	<0.20	<0.20	<0.0010	<0.0010
Field Blank	FB-2	L2694745-8	24-Mar-22	13:20	<1.0	<1.2	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	<0.20	<0.20	<0.0010	<0.0010
Field Blank	FB-1	L2716982-8	21-Jun-22	12:45	<1.0	<1.2	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	<0.20	<0.20	0.0011	0.0027
Field Blank	FB-2	L2718170-16	26-Jun-22	14:10	<1.0	<1.2	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	<0.20	<0.20	<0.0010	0.0014
Field Blank	FB-1	L2724410-9	23-Jul-22	11:15	<1.0	<1.2	<0.60	<0.34	0.018	<0.0051	<0.0050	<0.0010	<0.20	<0.20	<0.0010	0.0013
Field Blank	FB-2	L2725407-6	27-Jul-22	8:20	<1.0	<1.2	<0.60	<0.34	0.017	<0.0051	<0.0050	<0.0010	<0.20	<0.20	0.0014	<0.0010
Field Blank	FB-1	L2730098-13	24-Aug-22	12:50	<1.0	<1.2	<0.60	<0.34	0.015	<0.0051	<0.0050	<0.0010	<0.20	<0.20	<0.0010	<0.0010
Field Blank	FB-2	L2730475-12	28-Aug-22	8:40	<1.0	<1.2	<0.60	<0.34	0.013	<0.0051	<0.0050	<0.0010	<0.20	<0.20	<0.0010	<0.0010
Field Blank	FB-1	L2736054-5	06-Oct-22	14:26	<1.0	<1.2	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	<0.20	<0.20	<0.0010	<0.0010
Field Blank	FB-2	L2736583-8	11-Oct-22	15:32	<1.0	<1.2	<0.60	<0.34	0.011	<0.0051	<0.0050	<0.0010	<0.20	<0.20	<0.0010	<0.0010
Trip Blank	TB-1	L2693459-12	20-Mar-22	13:10	<1.0	<1.2	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	<0.20	<0.20	0.0011	0.0016
Trip Blank	TB-2	L2694745-9	24-Mar-22	13:30	<1.0	<1.2	<0.60	<0.34	0.012	<0.0051	<0.0050	<0.0010	<0.20	<0.20	<0.0010	<0.0010
Trip Blank	TB-1	L2716982-9	21-Jun-22	12:45	<1.0	<1.2	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	<0.20	<0.20	<0.0010	<0.0010
Trip Blank	TB-2	L2718170-15	26-Jun-22	14:00	<1.0	<1.2	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	<0.20	<0.20	<0.0010	0.0013
Trip Blank	TB-1	L2724410-10	23-Jul-22	11:15	<1.0	<1.2	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	<0.20	<0.20	<0.0010	-
Trip Blank	TB-2	L2725407-7	27-Jul-22	8:20	<1.0	<1.2	<0.60	<0.34	0.015	<0.0051	<0.0050	<0.0010	<0.20	<0.20	0.0012	<0.0010
Trip Blank	TB-1	L2730098-12	24-Aug-22	12:50	<1.0	<1.2	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	<0.20	<0.20	<0.0010	<0.0010
Trip Blank	TB-2	L2730475-11	28-Aug-22	8:40	<1.0	<1.2	<0.60	<0.34	0.020	<0.0051	<0.0050	<0.0010	<0.20	<0.20	<0.0010	<0.0010
Trip Blank	TB-1	L2736054-6	06-Oct-22	14:26	<1.0	<1.2	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	<0.20	<0.20	<0.0010	<0.0010
Trip Blank	TB-2	L2736583-9	11-Oct-22	15:32	<1.0	<1.2	<0.60	<0.34	0.013	<0.0051	<0.0050	<0.0010	<0.20	<0.20	<0.0010	<0.0010

Table A5-1: Quality assurance/quality control results for routine water chemistry variables measured in the laboratory during ice-cover and open-water, 2022. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit (DL). PRSD values exceeding 18% are indicated in bold red. Blank values exceeding five times the DL are indicated in bold red (continued).

Sample Location	Site ID	ALS Sample ID	Sample Date	Sample Time	Carbon		Water Clarity				Laboratory Conductivity	Total Dissolved Solids	Productivity				
					Total Organic C	Dissolved Organic C	Total Suspended Solids	Turbidity	True Colour	Lab pH			Chlorophyll <i>a</i>	Phaeophytin <i>a</i>			
					(mg/L)	(mg/L)	(mg/L)	(NTU)	(CU)	(0.10)	1.0	4.0/20	(µg/L)	(µg/L)			
Detection Limit 2022																	
Replicates																	
Stephens Lake - Near-field	NF-1	L2694960-9	27-Mar-22	11:50	8.76	9.92	3.4	11.9	13.8	8.07	290	180	0.35	0.82			
Stephens Lake - Near-field	NF-1	L2694960-14			8.71	8.75	2.8	11.8	15.9	8.13	291	178	0.35	0.85			
Stephens Lake - Near-field	NF-1	L2694960-15			8.63	8.77	2.2	11.1	16.9	8.01	286	171	0.37	0.83			
					Mean	8.70	9.15	2.8	11.6	15.5	8.07	289	176				
					SD	0.066	0.670	0.60	0.44	1.58	0.060	2.6	4.7				
					PRSD	1	7	-	4	-	1	1	3				
													-	2			
Zone 1b	Z1-9	L2693729-5	21-Mar-22	11:35	8.54	8.83	4.1	12.2	14.2	8.10	286	179	0.29	0.84			
Zone 1b	Z1-9	L2693729-6			8.89	8.81	3.6	11.5	13.0	8.10	285	200	0.28	0.78			
Zone 1b	Z1-9	L2693729-7			8.95	9.97	3.9	12.6	14.8	8.12	286	208	0.29	0.80			
					Mean	8.79	9.20	3.9	12.1	14.0	8.11	286	196				
					SD	0.221	0.664	0.25	0.56	0.92	0.012	0.6	15.0				
					PRSD	3	7	-	5	-	0	0	8				
													-	4			
Zone 8	Z8-5	L2717871-3	23-Jun-22	9:55	8.95	9.77	6.3	7.18	22.2	7.99	274	151	4.11	1.55			
Zone 8	Z8-5	L2717871-5			9.13	10.1	5.7	7.13	22.4	8.00	273	165	4.09	1.60			
Zone 8	Z8-5	L2717871-6			9.07	9.80	5.3	7.09	21.1	8.02	272	164	4.18	1.58			
					Mean	9.05	9.89	5.8	7.13	21.9	8.00	273	160				
					SD	0.092	0.182	0.50	0.045	0.70	0.015	1.0	7.8				
					PRSD	1	2	9	1	-	0	0	5				
													1	2			
Nelson River upstream of the Keeyask GS	US-3	L2718487-3	26-Jun-22	15:10	8.46	9.09	6.7	14.6	17.3	8.12	287	194	1.66	0.82			
Nelson River upstream of the Keeyask GS	US-3	L2718487-6			8.42	9.47	7.0	13.6	20.7	8.12	289	188	1.61	0.94			
Nelson River upstream of the Keeyask GS	US-3	L2718487-7			8.44	9.39	5.9	13.8	20.1	8.14	290	185	1.62	0.87			
					Mean	8.44	9.32	6.5	14.0	19.4	8.13	289	189				
					SD	0.020	0.200	0.57	0.53	1.81	0.012	1.5	4.6				
					PRSD	0	2	9	4	-	0	1	2				
													2	7			
Zone 11	Z11-11	L2724410-6	23-Jul-22	11:45	14.3	14.4	4.2	1.72	81.2	7.75	254	250	3.73	5.29			
Zone 11	Z11-11	L2724410-7			13.7	14.4	<1.0	1.35	78.2	7.74	255	185	4.43	3.39			
Zone 11	Z11-11	L2724410-8			13.7	14.1	1.4	1.11	80.0	7.73	256	187	4.39	3.30			
					Mean	13.9	14.3	2.0	1.39	79.8	7.74	255	207				
					SD	0.346	0.173	1.93	0.307	1.51	0.010	1.0	37.0				
					PRSD	2	1	-	22	2	0	0	18				
													9	28			
Zone 1b	Z1-9	L2725407-5	27-Jul-22	8:00	12.2	10.2	5.3	7.48	12.2	8.17	297	191	1.34	0.85			
Zone 1b	Z1-9	L2725407-8			8.22	8.74	3.2	8.25	11.5	8.16	306	197	1.33	0.78			
Zone 1b	Z1-9	L2725407-9			7.90	8.60	4.1	8.77	12.3	8.21	296	216	1.40	0.91			

Table A5-1: Quality assurance/quality control results for routine water chemistry variables measured in the laboratory during ice-cover and open-water, 2022. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit (DL). PRSD values exceeding 18% are indicated in bold red. Blank values exceeding five times the DL are indicated in bold red (continued).

Sample Location	Site ID	ALS Sample ID	Sample Date	Sample Time	Carbon		Water Clarity			Lab pH	Laboratory Conductivity	Total Dissolved Solids	Productivity		
					Total Organic C	Dissolved Organic C	Total Suspended Solids	Turbidity	True Colour				Chlorophyll <i>a</i>	Phaeophytin <i>a</i>	
					(mg/L)	(mg/L)	(mg/L)	(NTU)	(CU)				(mg/L)	(µg/L)	
Detection Limit 2022					0.50	0.50	1.0	0.10	5.0	0.10	1.0	4.0/20	0.10	0.10	
					Mean	9.44	9.18	4.2	8.17	12.0	8.18	300	201	1.36	0.85
					SD	2.40	0.886	1.05	0.649	0.44	0.026	5.5	13.1	0.038	0.065
					PRSD	25	10	-	8	-	0	2	6	3	8
Zone 11	Z11-1	L2730475-5	28-Aug-22	9:35		10.1	10.6	2.2	1.49	29.7	8.17	295	182	8.67	3.62
Zone 11	Z11-1	L2730475-13				9.90	10.1	1.9	1.40	25.9	8.20	296	188	7.60	2.77
Zone 11	Z11-1	L2730475-14				9.94	9.83	2.3	1.51	29.3	8.20	296	186	7.94	3.17
					Mean	9.98	10.18	2.1	1.47	28.3	8.19	296	185	8.07	3.19
					SD	0.106	0.391	0.21	0.059	2.09	0.017	0.6	3.1	0.547	0.425
					PRSD	1	4	-	4	7	0	0	2	7	13
Clark Lake	CL-5	L2730098-5	24-Aug-22	10:04		7.48	7.39	3.3	7.91	12.5	8.14	288	198	1.60	0.99
Clark Lake	CL-5	L2730098-6				7.33	7.80	3.4	8.69	13.9	8.14	287	199	1.84	0.90
Clark Lake	CL-5	L2730098-7				7.40	7.49	3.7	7.94	12.4	8.14	286	197	1.73	0.95
					Mean	7.40	7.56	3.5	8.18	12.9	8.14	287	198	1.72	0.95
					SD	0.075	0.214	0.21	0.442	0.84	0.000	1.0	1.0	0.120	0.045
					PRSD	1	3	-	5	-	0	0	1	7	5
Zone 8	Z8-5	L2736054-3	6-Oct-22	14:50		11.5	11.5	2.6	2.68	34.3	7.80	287	181	17.8	5.80
Zone 8	Z8-5	L2736054-7				11.2	11.1	2.5	2.71	34.9	7.87	288	182	18.3	3.93
Zone 8	Z8-5	L2736054-8				11.4	11.3	2.6	2.63	35.2	7.80	288	181	19.0	5.44
					Mean	11.4	11.3	2.6	2.67	34.8	7.82	288	181	18.4	5.06
					SD	0.15	0.20	0.06	0.040	0.46	0.040	0.6	0.6	0.60	0.992
					PRSD	1	2	-	2	1	1	0	0	3	20
Stephens Lake - Near-field	NF-1	L2736583-1	11-Oct-22	15:58		8.85	9.81	1.3	8.00	10.0	8.30	310	209	1.17	0.67
Stephens Lake - Near-field	NF-1	L2736583-6				14.2	12.3	1.9	7.75	10.6	8.33	312	200	1.20	0.71
Stephens Lake - Near-field	NF-1	L2736583-7				14.0	11.9	2.2	7.61	11.3	8.33	311	210	1.21	0.70
					Mean	12.4	11.3	1.8	7.79	10.6	8.32	311	206	1.19	0.69
					SD	3.03	1.34	0.46	0.198	0.65	0.017	1.0	5.5	0.021	0.021
					PRSD	25	12	-	3	-	0	0	3	2	3

Table A5-1: Quality assurance/quality control results for routine water chemistry variables measured in the laboratory during ice-cover and open-water, 2022. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit (DL). PRSD values exceeding 18% are indicated in bold red. Blank values exceeding five times the DL are indicated in bold red (continued).

Sample Location	Site ID	ALS Sample ID	Sample Date	Sample Time	Carbon		Water Clarity			Lab pH	Laboratory Conductivity	Total Dissolved Solids	Productivity	
					Total Organic C	Dissolved Organic C	Total Suspended Solids	Turbidity	True Colour				Chlorophyll <i>a</i>	Phaeophytin <i>a</i>
					(mg/L)	(mg/L)	(mg/L)	(NTU)	(CU)				(mg/L)	(µg/L)
Detection Limit 2022														
Field Blank	FB-1	L2693459-11	20-Mar-22	13:00	<0.50	<0.50	<1.0	0.22	<5.0	5.56	<1.0	<4.0	<0.10	<0.10
Field Blank	FB-2	L2694745-8	24-Mar-22	13:20	<0.50	<0.50	<1.0	0.30	<5.0	5.65	<1.0	<4.0	<0.10	<0.10
Field Blank	FB-1	L2716982-8	21-Jun-22	12:45	<0.50	<0.50	<1.0	<0.10	<5.0	5.14	<1.0	<4.0	<0.10	<0.10
Field Blank	FB-2	L2718170-16	26-Jun-22	14:10	<0.50	1.12	<1.0	<0.10	<5.0	5.21	<1.0	<4.0	<0.10	<0.10
Field Blank	FB-1	L2724410-9	23-Jul-22	11:15	<0.50	0.67	<1.0	<0.10	<5.0	5.65	<1.0	<4.0	<0.10	<0.10
Field Blank	FB-2	L2725407-6	27-Jul-22	8:20	<0.50	<0.50	<1.0	<0.10	<5.0	4.66	8.7	<4.0	<0.10	<0.10
Field Blank	FB-1	L2730098-13	24-Aug-22	12:50	<0.50	<0.50	<1.0	<0.10	<5.0	5.41	<1.0	<4.0	<0.10	<0.10
Field Blank	FB-2	L2730475-12	28-Aug-22	8:40	<0.50	<0.50	<1.0	<0.10	<5.0	5.47	<1.0	<4.0	<0.10	<0.10
Field Blank	FB-1	L2736054-5	06-Oct-22	14:26	<0.50	<0.50	<1.0	<0.10	<5.0	5.55	1.1	5.2	<0.10	<0.10
Field Blank	FB-2	L2736583-8	11-Oct-22	15:32	<0.50	0.86	<1.0	<0.10	<5.0	5.67	<1.0	<4.0	<0.10	<0.10
Trip Blank	TB-1	L2693459-12	20-Mar-22	13:10	<0.50	<0.50	<1.0	<0.10	<5.0	5.42	<1.0	<4.0	<0.10	<0.10
Trip Blank	TB-2	L2694745-9	24-Mar-22	13:30	<0.50	0.55	<1.0	<0.10	<5.0	5.67	<1.0	<4.0	<0.10	<0.10
Trip Blank	TB-1	L2716982-9	21-Jun-22	12:45	<0.50	<0.50	<1.0	<0.10	<5.0	5.14	<1.0	4.2	<0.10	<0.10
Trip Blank	TB-2	L2718170-15	26-Jun-22	14:00	<0.50	<0.50	<1.0	<0.10	<5.0	5.39	<1.0	<4.0	<0.10	<0.10
Trip Blank	TB-1	L2724410-10	23-Jul-22	11:15	<0.50	0.53	<1.0	<0.10	<5.0	5.65	<1.0	<4.0	<0.10	<0.10
Trip Blank	TB-2	L2725407-7	27-Jul-22	8:20	<0.50	<0.50	<1.0	<0.10	<5.0	5.46	<1.0	<4.0	<0.10	<0.10
Trip Blank	TB-1	L2730098-12	24-Aug-22	12:50	<0.50	<0.50	<1.0	<0.10	<5.0	5.54	<1.0	<4.0	<0.10	<0.10
Trip Blank	TB-2	L2730475-11	28-Aug-22	8:40	<0.50	<0.50	<1.0	<0.10	10.3	5.43	<1.0	<4.0	<0.10	<0.10
Trip Blank	TB-1	L2736054-6	06-Oct-22	14:26	<0.50	<0.50	<1.0	<0.10	<5.0	5.26	<1.0	4.6	<0.10	<0.10
Trip Blank	TB-2	L2736583-9	11-Oct-22	15:32	<0.50	0.92	<1.0	<0.10	<5.0	5.63	<1.0	<4.0	<0.10	<0.10

Table A5-2: Quality assurance/quality control results for metals and major ions measured in the laboratory during open-water and ice-cover, 2022. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit (DL). PRSD values exceeding 18% are indicated in bold red. Blank values exceeding five times the DL are indicated in bold red.

Sample Location	Site ID	ALS Sample ID	Sample Date	Sample Time	Hardness (as CaCO ₃)																			
					Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Cesium (mg/L)	Chloride (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)						
Detection Limit 2022																0.020	0.0030	0.00010	0.00010	0.00010				
Replicates																0.000050	0.010	0.0000050	0.050	0.000010				
Stephens Lake - Near-field																13.0	0.00080	0.00019	0.00172					
Zone 1b	Z1-9	L2694960-9	27-Mar-22	11:50	116	0.453	0.00068	0.00131	0.0377	<0.00010	<0.000050	0.021	0.0000145	25.8	0.000047	13.0	0.00095	0.00019	0.00173					
		L2694960-14			115	0.455	0.00047	0.00127	0.0376	<0.00010	<0.000050	0.021	0.0000132	25.4	0.000049	13.0	0.00089	0.00023	0.00165					
		L2694960-15			119	0.554	0.00034	0.00127	0.0395	<0.00010	<0.000050	0.022	0.0000085	26.7	0.000060	13.0	0.00088	0.00020	0.00170					
					Mean	117	0.487	0.00050	0.00128	0.0383	<0.00010	<0.000050	0.021	0.0000121	26.0	0.000052	13.0	0.00088	0.00023	0.00170				
					SD	2.1	0.0577	0.000172	0.000023	0.00107	-	-	0.0006	0.00000316	0.67	0.0000070	0.00	0.000075	0.000023	0.000044				
Zone 8	Z8-5	L2717871-3	23-Jun-22	9:55	114	0.460	0.00020	0.00123	0.0338	<0.00010	<0.000050	0.021	0.0000131	26.0	0.000054	11.8	0.00079	0.00021	0.00149					
		L2717871-5			114	0.484	0.00015	0.00120	0.0339	<0.00010	<0.000050	0.021	0.0000171	25.9	0.000055	11.7	0.00087	0.00021	0.00157					
		L2717871-7			114	0.522	0.00025	0.00122	0.0343	<0.00010	<0.000050	0.021	0.0000140	25.9	0.000058	11.7	0.00090	0.00023	0.00147					
					Mean	114	0.489	0.00020	0.00122	0.0340	<0.00010	<0.000050	0.021	0.0000147	25.9	0.000056	11.7	0.00085	0.00022	0.00151				
					SD	0.0	0.0313	0.000050	0.000015	0.00026	-	-	0.0000	0.00000210	0.06	0.0000021	0.06	0.000057	0.000012	0.000053				
Nelson River upstream of the Keeyask GS	US-3	L2718487-3	26-Jun-22	15:10	121	0.132	<0.00010	0.00112	0.0307	<0.00010	<0.000050	0.022	<0.0000050	27.7	0.000017	11.9	0.00034	0.00011	0.00133					
		L2718487-6			117	0.124	<0.00010	0.00113	0.0301	<0.00010	<0.000050	0.021	<0.0000050	26.9	0.000015	11.9	0.00031	0.00011	0.00128					
		L2718487-7			119	0.137	<0.00010	0.00113	0.0306	<0.00010	<0.000050	0.022	<0.0000050	26.8	0.000015	12.0	0.00031	0.00011	0.00131					
					Mean	119	0.131	<0.00010	0.00113	0.0305	<0.00010	<0.000050	0.022	<0.0000050	27.1	0.000016	11.9	0.00032	0.00011	0.00131				
					SD	2.0	0.0066	-	0.000006	0.00032	-	-	0.0006	-	0.49	0.0000012	0.06	0.000017	0.000000	0.000025				
Zone 11	Z11-11	L2724410-6	23-Jul-22	11:45	111	0.0344	<0.00010	0.00112	0.0224	<0.00010	<0.000050	0.018	<0.0000050	26.6	<0.000010	10.6	<0.00010	0.00012	<0.00050					
		L2724410-7			110	0.0179	<0.00010	0.00114	0.0227	<0.00010	<0.000050	0.017	<0.0000050	26.6	<0.000010	10.7	<0.00010	0.00011	<0.00050					
		L2724410-8			112	0.0249	<0.00010	0.00113	0.0227	<0.00010	<0.000050	0.017	<0.0000050	26.8	<0.000010	10.7	<0.00010	0.00012	<0.00050					
					Mean	111	0.0257	<0.00010	0.00113	0.0226	<0.00010	<0.000050	0.017	<0.0000050	26.7	<0.000010	10.7	0.00005	0.00012	<0.00050				
					SD	1.0	0.00828	-	0.000010	0.00017	-	-	0.0006	-	0.12	-	0.06	-	0.000006					
Zone 1b	Z1-9	L2725407-5	27-Jul-22	8:00	129	0.179	<0.00010	0.00136	0.0360	<0.00010	<0.000050	0.024	<0.0000050	28.7	0.000022	13.7	0.00049	0.00014	0.00144					
		L2725407-8			129	0.143	0.00010	0.00132	0.0358	<0.00010	<0.000050	0.024	<0.0000050	29.1	0.000019	13.8	0.00034	0.00012	0.00153					
		L2725407-9			132	0.147	0.00011	0.00138	0.0360	<0.00010	<0.000050	0.024	<0.0000050	29.7	0.000021	13.8	0.00044	0.00012	0.00146					

Table A5-2: Quality assurance/quality control results for metals and major ions measured in the laboratory during open-water and ice-cover, 2022. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit (DL). PRSD values exceeding 18% are indicated in bold red. Blank values exceeding five times the DL are indicated in bold red (continued).

Sample Location	Site ID	ALS Sample ID	Sample Date	Sample Time	Hardness (as CaCO ₃)															
					Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Cesium (mg/L)	Chloride (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)		
Detection Limit 2022					0.020	0.0030	0.00010	0.00010	0.00010	0.000050	0.010	0.0000050	0.050	0.000010	0.10	0.00010	0.00010	0.00050		
					Mean	130	0.156	<0.00010	0.00135	0.0359	<0.00010	<0.000050	0.024	<0.0000050	29.2	0.000021	13.8	0.00042	0.00013	0.00148
					SD	1.7	0.0197	-	0.000031	0.00012	-	-	0.0000	-	0.50	0.0000015	0.06	0.000076	0.000012	0.000047
					PRSD	1	13	-	2	0	-	-	-	-	2	-	0	-	-	-
Zone 11	Z11-1	L2730475-5	28-Aug-22	9:35	121	0.0343	<0.00010	0.00118	0.0282	<0.00010	<0.000050	0.019	<0.0000050	27.4	<0.000010	14.0	0.00013	<0.00010	0.00080	
		L2730475-13			124	0.0456	<0.00010	0.00123	0.0294	<0.00010	<0.000050	0.020	<0.0000050	27.8	<0.000010	14.1	0.00014	<0.00010	0.00076	
		L2730475-14			122	0.0645	<0.00010	0.00121	0.0292	<0.00010	<0.000050	0.020	<0.0000050	28.0	<0.000010	14.0	0.00015	<0.00010	0.00243	
					Mean	122	0.0481	<0.00010	0.00121	0.0289	<0.00010	<0.000050	0.020	<0.0000050	27.7	<0.000010	14.0	0.00014	<0.00010	0.00133
					SD	1.5	0.0153	-	0.000025	0.00064	-	-	0.0006	-	0.31	-	0.06	0.000010	-	0.000953
					PRSD	1	32	-	2	2	-	-	-	-	1	-	0	-	-	-
Clark Lake	CL-5	L2730098-5	24-Aug-22	10:04	125	0.188	0.00010	0.00134	0.0360	<0.00010	<0.000050	0.025	<0.0000050	27.3	0.000025	13.4	0.00042	0.00013	0.00152	
		L2730098-6			126	0.164	<0.00010	0.00127	0.0349	<0.00010	<0.000050	0.025	<0.0000050	27.8	0.000022	13.2	0.00050	0.00013	0.00156	
		L2730098-7			124	0.245	<0.00010	0.00130	0.0359	<0.00010	<0.000050	0.024	<0.0000050	27.1	0.000029	13.2	0.00051	0.00015	0.00148	
					Mean	125	0.199	<0.00010	0.00130	0.0356	<0.00010	<0.000050	0.025	<0.0000050	27.4	0.000025	13.3	0.00048	0.00014	0.00152
					SD	1.0	0.0416	-	0.000035	0.00061	-	-	0.0006	-	0.36	0.0000035	0.12	0.000049	0.000012	0.000040
					PRSD	1	21	-	3	2	-	-	-	-	1	-	1	-	-	-
Zone 8	Z8-5	L2736054-3	6-Oct-22	14:50	120	0.0676	<0.00010	0.00105	0.0257	<0.00010	<0.000050	0.016	<0.0000050	27.9	0.000010	12.3	0.00015	<0.00010	0.00066	
		L2736054-7			124	0.0842	<0.00010	0.00105	0.0255	<0.00010	<0.000050	0.016	<0.0000050	28.9	0.000010	12.3	0.00018	<0.00010	0.00073	
		L2736054-8			125	0.0767	<0.00010	0.00107	0.0259	<0.00010	<0.000050	0.017	<0.0000050	29.3	0.000011	12.3	0.00018	<0.00010	0.00078	
					Mean	123	0.0762	<0.00010	0.00106	0.0257	<0.00010	<0.000050	0.016	<0.0000050	28.7	0.000010	12.3	0.00017	<0.00010	0.00072
					SD	2.6	0.00831	-	0.000012	0.00020	-	-	0.0006	-	0.72	0.0000006	0.00	0.000017	-	0.000060
					PRSD	2	11	-	1	1	-	-	-	-	3	-	0	-	-	-
Stephens Lake - Near-field	NF-1	L2736583-1	11-Oct-22	15:58	130	0.187	<0.00010	0.00128	0.0370	<0.00010	<0.000050	0.024	<0.0000050	28.8	0.000025	13.5	0.00043	0.00014	0.00148	
		L2736583-6			131	0.184	<0.00010	0.00126	0.0375	<0.00010	<0.000050	0.024	<0.0000050	28.7	0.000022	13.5	0.00047	0.00014	0.00150	
		L2736583-7			133	0.179	0.00012	0.00134	0.0383	<0.00010	<0.000050	0.024	<0.0000050	30.0	0.000026	13.4	0.00043	0.00014	0.00144	
					Mean	131	0.183	<0.00010	0.00129	0.0376	<0.00010	<0.000050	0.024	<0.0000050	29.2	0.000024	13.5	0.00044	0.00014	0.00147
					SD	1.5	0.0040	-	0.000042	0.00066	-	-	0.0000	-	0.72	0.0000021	0.06	0.000023	0.000000	0.000031
					PRSD	1	2	-	3	2	-	-	-	-	2	-	0	-	-	-

Table A5-2: Quality assurance/quality control results for metals and major ions measured in the laboratory during open-water and ice-cover, 2022. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit (DL). PRSD values exceeding 18% are indicated in bold red. Blank values exceeding five times the DL are indicated in bold red (continued).

Sample Location	Site ID	ALS Sample ID	Sample Date	Sample Time	Hardness (as CaCO ₃)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Cesium (mg/L)	Chloride (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)
Detection Limit 2022					0.020	0.0030	0.00010	0.00010	0.00010	0.000050	0.010	0.0000050	0.050	0.000010	0.10	0.00010	0.00010	0.00050	
Field Blanks																			
Field Blank	FB-1	L2693459-11	20-Mar-22	13:00	<0.20	<0.0030	<0.00010	<0.00010	<0.00010	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050	
Field Blank	FB-2	L2694745-8	24-Mar-22	13:20	<0.20	<0.0030	<0.00010	<0.00010	<0.00010	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050	
Field Blank	FB-1	L2716982-8	21-Jun-22	12:45	<0.20	<0.0030	<0.00010	<0.00010	<0.00010	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050	
Field Blank	FB-2	L2718170-16	26-Jun-22	14:10	<0.20	<0.0030	<0.00010	<0.00010	<0.00010	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050	
Field Blank	FB-1	L2724410-9	23-Jul-22	11:15	<0.20	<0.0030	<0.00010	<0.00010	<0.00010	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050	
Field Blank	FB-2	L2725407-6	27-Jul-22	8:20	<0.20	<0.0030	<0.00010	<0.00010	<0.00010	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	0.00012	<0.00010	<0.00050	
Field Blank	FB-1	L2730098-13	24-Aug-22	12:50	<0.20	<0.0030	<0.00010	<0.00010	0.00040	<0.00010	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050
Field Blank	FB-2	L2730475-12	28-Aug-22	8:40	<0.20	<0.0030	<0.00010	<0.00010	0.00040	<0.00010	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050
Field Blank	FB-1	L2736054-5	06-Oct-22	14:26	<0.20	0.0050	<0.00010	<0.00010	0.00064	<0.00010	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050
Field Blank	FB-2	L2736583-8	11-Oct-22	15:32	<0.20	0.0053	<0.00010	<0.00010	0.00060	<0.00010	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	0.00010	<0.00010	<0.00050
Trip Blanks																			
Trip Blank	TB-1	L2693459-12	20-Mar-22	13:10	<0.20	<0.0030	<0.00010	<0.00010	<0.00010	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050	
Trip Blank	TB-2	L2694745-9	24-Mar-22	13:30	<0.20	<0.0030	<0.00010	<0.00010	0.00011	<0.00010	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050
Trip Blank	TB-1	L2716982-9	21-Jun-22	12:45	<0.20	<0.0030	<0.00010	<0.00010	<0.00010	<0.000050	<0.010	0.0000227	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050	
Trip Blank	TB-2	L2718170-15	26-Jun-22	14:00	<0.20	<0.0030	<0.00010	<0.00010	<0.00010	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050	
Trip Blank	TB-1	L2724410-10	23-Jul-22	11:15	<0.20	<0.0030	<0.00010	<0.00010	<0.00010	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050	
Trip Blank	TB-2	L2725407-7	27-Jul-22	8:20	<0.20	<0.0030	<0.00010	<0.00010	<0.00010	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050	
Trip Blank	TB-1	L2730098-12	24-Aug-22	12:50	<0.20	<0.0030	<0.00010	<0.00010	<0.00010	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050	
Trip Blank	TB-2	L2730475-11	28-Aug-22	8:40	<0.20	<0.0030	<0.00010	<0.00010	0.00038	<0.00010	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050
Trip Blank	TB-1	L2736054-6	06-Oct-22	14:26	<0.20	<0.0030	<0.00010	<0.00010	<0.00010	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050	
Trip Blank	TB-2	L2736583-9	11-Oct-22	15:32	<0.20	0.0056	<0.00010	<0.00010	0.00055	<0.00010	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050

Table A5-2: Quality assurance/quality control results for metals and major ions measured in the laboratory during open-water and ice-cover, 2022. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit (DL). PRSD values exceeding 18% are indicated in bold red. Blank values exceeding five times the DL are indicated in bold red (continued).

Sample Location	Site	ALS Sample ID	Sample ID	Sample Date	Sample Time	Methyl-																				
						Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury mercury (ng/L)	Molybdenum (ng/L)	Nickel (mg/L)	Phosphorus (mg/L)	Potassium (mg/L)	Rubidium (mg/L)	Selenium (mg/L)	Silicon (mg/L)	Silver (mg/L)	Sodium (mg/L)						
Detection Limit 2022						0.010	0.000050	0.0010	0.0050	0.00010	0.50	0.020	0.000050	0.00050	0.030	0.050	0.00020	0.000050	0.10	0.000010	0.050					
Replicates																										
Stephens Lake - Near-field	NF-1	L2694960-9	27-Mar-22	11:50		0.421	0.000226	0.0084	12.5	0.0102	<0.50	0.028	0.000616	0.00139	0.051	2.57	0.00226	0.000107	3.56	<0.000010	13.9					
		L2694960-14				0.431	0.000214	0.0079	12.5	0.0102	<0.50	<0.020	0.000643	0.00140	0.043	2.52	0.00237	0.000150	3.57	<0.000010	13.6					
		L2694960-15				0.502	0.000234	0.0085	12.8	0.0110	<0.50	0.029	0.000619	0.00150	0.045	2.62	0.00259	0.000119	3.87	<0.000010	14.1					
			Mean			0.451	0.000225	0.0083	12.6	0.0105	<0.50	0.022	0.000626	0.00143	0.046	2.57	0.00241	0.000125	3.67	<0.000010	13.9					
			SD			0.0442	0.0000101	0.00032	0.17	0.00046	-	0.0107	0.0000148	0.000061	0.0042	0.050	0.000168	0.0000222	0.176	-	0.25					
			PRSD			10	-	4	1	4	-	-	2	-	-	2	7	-	5	-	2					
Zone 1b	Z1-9	L2693729-5	21-Mar-22	11:35		0.454	0.000220	0.0075	11.8	0.0105	0.53	0.021	0.000516	0.00138	0.032	2.59	0.00219	0.000102	3.50	<0.000010	13.0					
		L2693729-6				0.473	0.000223	0.0075	11.9	0.0107	0.56	0.021	0.000565	0.00141	0.041	2.55	0.00224	0.000106	3.55	<0.000010	12.7					
		L2693729-7				0.512	0.000230	0.0075	11.9	0.0109	0.56	<0.020	0.000546	0.00149	0.043	2.57	0.00232	0.000097	3.61	<0.000010	12.7					
			Mean			0.480	0.000224	0.0075	11.9	0.0107	0.55	<0.020	0.000542	0.00143	0.039	2.57	0.00225	0.000102	3.55	<0.000010	12.8					
			SD			0.0296	0.0000051	0.000000	0.06	0.00020	0.017	-	0.0000247	0.000057	0.0059	0.020	0.000066	0.0000045	0.055	-	0.17					
			PRSD			6	-	0	0	2	-	-	5	-	-	1	3	-	2	-	1					
Zone 8	Z8-5	L2717871-3	23-Jun-22	9:55		0.178	0.000112	0.0078	12.6	0.0163	1.09	0.294	0.000547	0.00118	0.041	2.53	0.00142	0.000119	1.94	<0.000010	14.4					
		L2717871-5				0.172	0.000109	0.0079	12.1	0.0159	1.01	0.272	0.000539	0.00101	0.036	2.52	0.00140	0.000121	1.90	<0.000010	13.9					
		L2717871-6				0.180	0.000112	0.0080	12.6	0.0161	1.10	0.242	0.000565	0.00104	0.040	2.52	0.00150	0.000117	1.94	0.000011	14.6					
			Mean			0.177	0.000111	0.0079	12.4	0.0161	1.07	0.269	0.000550	0.00108	0.039	2.52	0.00144	0.000119	1.93	<0.000010	14.3					
			SD			0.0042	0.0000017	0.00010	0.29	0.00020	0.049	0.0261	0.0000133	0.000091	0.0026	0.006	0.000053	0.0000020	0.023	-	0.36					
			PRSD			2	-	1	2	1	-	10	2	-	-	0	4	-	1	-	3					
Nelson River upstream of the Keeyask GS	US-3	L2718487-3	26-Jun-22	15:10		0.178	0.000182	0.0097	12.6	0.00942	0.95	0.048	0.000568	0.00100	0.034	2.48	0.00143	0.000098	2.22	<0.000010	14.6					
		L2718487-6				0.203	0.000187	0.0098	12.8	0.00925	0.95	0.036	0.000609	0.00105	0.039	2.57	0.00153	0.000102	2.35	<0.000010	14.6					
		L2718487-7				0.177	0.000168	0.0097	12.7	0.00911	1.00	0.040	0.000559	0.00100	0.039	2.57	0.00147	0.000091	2.27	<0.000010	14.3					
			Mean			0.186	0.000179	0.0097	12.7	0.00926	0.97	0.041	0.000579	0.00102	0.037	2.54	0.00148	0.000097	2.28	<0.000010	14.5					
			SD			0.0147	0.0000098	0.00006	0.10	0.000155	0.029	0.0061	0.0000267	0.000029	0.0029	0.052	0.000050	0.0000056	0.066	-	0.17					
			PRSD			8	-	1	1	2	-	-	5	-	-	2	3	-	3	-	1					
Zone 11	Z11-11	L2724410-6	23-Jul-22	11:45		0.433	<0.000050	0.0069	10.7	0.0798	3.67	2.47	0.000277	0.00051	0.128	2.29	0.00149	0.000091	1.39	<0.000010	12.0					
		L2724410-7				0.412	<0.000050	0.0070	10.7	0.0829	3.46	3.29	0.000275	<0.00050	0.112	2.29	0.00153	0.000084	1.33	<0.000010	12.1					
		L2724410-8				0.412	<0.000050	0.0071	10.9	0.0815	3.54	1.45	0.000288	<0.00050	0.111	2.31	0.00148	<0.000050	1.34	<0.000010	12.3					
			Mean			0.419	<0.000050	0.0070	10.8	0.0814	3.56	2.40	0.000280	<0.00050	0.117	2.30	0.00150	0.000067	1.35	<0.000010	12.1					
			SD			0.0121	-	0.00010	0.12	0.00155	0.106	0.922	0.0000070	-	0.0095	0.012	0.000026	0.0000363	0.032	-	0.15					
			PRSD																							

Table A5-2: Quality assurance/quality control results for metals and major ions measured in the laboratory during open-water and ice-cover, 2022. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit (DL). PRSD values exceeding 18% are indicated in bold red. Blank values exceeding five times the DL are indicated in bold red (continued).

Sample Location	Site ID	ALS Sample ID	Sample Date	Sample Time	Methyl-																
					Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury mercury (ng/L)	Molybdenum (ng/L)	Nickel (mg/L)	Phosphorus (mg/L)	Potassium (mg/L)	Rubidium (mg/L)	Selenium (mg/L)	Silicon (mg/L)	Silver (mg/L)	Sodium (mg/L)		
Detection Limit 2022																					
Zone 11	Z11-1	L2725407-9	28-Aug-22	9:35	0.010	0.000050	0.0010	0.0050	0.00010	0.50	0.020	0.000050	0.00050	0.030	0.050	0.00020	0.000050	0.10	0.000010	0.050	
					0.180	0.000127	0.0097	14.0	0.00798	0.95	<0.020	0.000641	0.00125	0.033	2.62	0.00159	0.000137	2.69	<0.000010	15.9	
					Mean	0.184	0.000123	0.0097	13.9	0.00805	0.91	0.048	0.000636	0.00115	0.032	2.62	0.00163	0.000132	2.71	<0.000010	15.9
					SD	0.0102	0.000047	0.00006	0.15	0.000200	0.159	0.0537	0.0000167	0.000085	0.0010	0.010	0.000055	0.0000114	0.059	-	0.06
					PRSD	6	-	1	1	2	-	-	3	-	-	0	3	-	2	-	0
Clark Lake	CL-5	L2730098-5	24-Aug-22	10:04	0.115	<0.000050	0.0090	12.7	0.0188	2.23	1.40	0.000491	0.00074	0.073	2.67	0.00142	0.000077	2.09	<0.000010	15.4	
					L2730098-6	0.114	<0.000050	0.0087	13.2	0.0187	2.37	1.37	0.000460	0.00069	0.047	2.73	0.00143	0.000102	2.24	<0.000010	15.8
					L2730098-7	0.117	<0.000050	0.0088	12.7	0.0187	3.50	1.34	0.000436	0.00070	0.059	2.73	0.00133	0.000076	2.26	<0.000010	16.1
					Mean	0.115	<0.000050	0.0088	12.9	0.0187	2.70	1.37	0.000462	0.00071	0.060	2.71	0.00139	0.000085	2.20	<0.000010	15.8
					SD	0.0015	-	0.00015	0.29	0.00006	0.696	0.0300	0.0000276	0.000026	0.0130	0.035	0.000055	0.0000147	0.093	-	0.35
					PRSD	1	-	2	2	0	-	2	6	-	-	1	4	-	4	-	2
Zone 8	Z8-5	L2736054-3	6-Oct-22	14:50	0.212	0.000122	0.0096	13.9	0.00722	0.76	0.049	0.000645	0.00124	0.035	2.59	0.00170	0.000170	2.87	<0.000010	15.6	
					L2736054-7	0.203	0.000136	0.0098	13.7	0.00737	0.69	0.049	0.000600	0.00169	0.037	2.52	0.00160	0.000118	2.71	<0.000010	15.4
					L2736054-8	0.254	0.000135	0.0100	13.8	0.00763	0.73	0.045	0.000647	0.00121	0.035	2.61	0.00185	0.000140	2.95	<0.000010	15.3
					Mean	0.223	0.000131	0.0098	13.8	0.00741	0.73	0.047	0.000631	0.00138	0.036	2.57	0.00172	0.000143	2.84	<0.000010	15.4
					SD	0.0272	0.0000078	0.00020	0.10	0.00021	0.035	0.0028	0.0000266	0.000269	0.0012	0.047	0.000126	0.0000261	0.122	-	0.15
					PRSD	12	-	2	1	3	-	-	4	-	-	2	7	-	4	-	1
Stephens Lake - Near-field	NF-1	L2736583-1	11-Oct-22	15:58	0.131	<0.000050	0.0086	12.1	0.0125	1.10	0.522	0.000425	0.00062	0.032	2.53	0.00160	0.000088	1.59	<0.000010	14.6	
					L2736583-6	0.141	<0.000050	0.0089	12.6	0.0126	0.97	0.495	0.000458	0.00065	<0.030	2.54	0.00151	0.000098	1.61	<0.000010	14.8
					L2736583-7	0.138	<0.000050	0.0091	12.7	0.0127	1.00	0.422	0.000436	0.00067	0.032	2.58	0.00160	0.000074	1.65	<0.000010	15.0
					Mean	0.137	<0.000050	0.0089	12.5	0.0126	1.02	0.480	0.000440	0.00065	<0.030	2.55	0.00157	0.000087	1.62	<0.000010	14.8
					SD	0.0051	-	0.00025	0.32	0.00010	0.068	0.0517	0.0000168	0.000025	0.0098	0.026	0.000052	0.0000121	0.031	-	0.20
					PRSD	4	-	3	3	1	-	11	4	-	-	1	3	-	2	-	1

Table A5-2: Quality assurance/quality control results for metals and major ions measured in the laboratory during open-water and ice-cover, 2022. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit (DL). PRSD values exceeding 18% are indicated in bold red. Blank values exceeding five times the DL are indicated in bold red (continued).

Sample Location	Site	ALS Sample	Sample	Sample	Methyl-															
	ID	ID	Date	Time	Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (ng/L)	mercury (ng/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus (mg/L)	Potassium (mg/L)	Rubidium (mg/L)	Selenium (mg/L)	Silicon (mg/L)	Silver (mg/L)	Sodium (mg/L)
Detection Limit 2022					0.010	0.000050	0.0010	0.0050	0.00010	0.50	0.020	0.000050	0.00050	0.030	0.050	0.00020	0.000050	0.10	0.000010	0.050
Field Blanks																				
Field Blank	FB-1	L2693459-11	20-Mar-22	13:00	<0.010	<0.000050	<0.0010	<0.0050	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.030	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Field Blank	FB-2	L2694745-8	24-Mar-22	13:20	<0.010	<0.000050	<0.0010	<0.0050	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.030	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Field Blank	FB-1	L2716982-8	21-Jun-22	12:45	<0.010	<0.000050	<0.0010	0.0092	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.030	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Field Blank	FB-2	L2718170-16	26-Jun-22	14:10	<0.010	<0.000050	<0.0010	<0.0050	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.030	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Field Blank	FB-1	L2724410-9	23-Jul-22	11:15	<0.010	<0.000050	<0.0010	<0.0050	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.030	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Field Blank	FB-2	L2725407-6	27-Jul-22	8:20	<0.010	<0.000050	<0.0010	<0.0050	<0.00010	-1	-1	<0.000050	<0.00050	<0.030	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Field Blank	FB-1	L2730098-13	24-Aug-22	12:50	<0.010	<0.000050	<0.0010	<0.0050	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.030	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Field Blank	FB-2	L2730475-12	28-Aug-22	8:40	<0.010	<0.000050	<0.0010	<0.0050	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.030	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Field Blank	FB-1	L2736054-5	06-Oct-22	14:26	<0.010	<0.000050	<0.0010	<0.0050	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.030	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Field Blank	FB-2	L2736583-8	11-Oct-22	15:32	<0.010	<0.000050	<0.0010	<0.0050	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.030	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Trip Blanks																				
Trip Blank	TB-1	L2693459-12	20-Mar-22	13:10	<0.010	<0.000050	<0.0010	<0.0050	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.030	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Trip Blank	TB-2	L2694745-9	24-Mar-22	13:30	<0.010	<0.000050	<0.0010	<0.0050	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.030	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Trip Blank	TB-1	L2716982-9	21-Jun-22	12:45	<0.010	0.000557	<0.0010	<0.0050	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.030	<0.050	<0.00020	<0.000050	<0.10	<0.000010	0.050
Trip Blank	TB-2	L2718170-15	26-Jun-22	14:00	<0.010	<0.000050	<0.0010	<0.0050	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.030	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Trip Blank	TB-1	L2724410-10	23-Jul-22	11:15	<0.010	<0.000050	<0.0010	<0.0050	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.030	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Trip Blank	TB-2	L2725407-7	27-Jul-22	8:20	<0.010	<0.000050	<0.0010	<0.0050	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.030	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Trip Blank	TB-1	L2730098-12	24-Aug-22	12:50	<0.010	<0.000050	<0.0010	<0.0050	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.030	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Trip Blank	TB-2	L2730475-11	28-Aug-22	8:40	<0.010	<0.000050	<0.0010	<0.0050	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.030	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Trip Blank	TB-1	L2736054-6	06-Oct-22	14:26	<0.010	<0.000050	<0.0010	<0.0050	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.030	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Trip Blank	TB-2	L2736583-9	11-Oct-22	15:32	<0.010	<0.000050	<0.0010	<0.0050	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.030	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050

1. Sample bottle broken in transit.

Table A5-2: Quality assurance/quality control results for metals and major ions measured in the laboratory during open-water and ice-cover, 2022. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit (DL). PRSD values exceeding 18% are indicated in bold red. Blank values exceeding five times the DL are indicated in bold red (continued).

Sample Location	Site ID	ALS Sample ID	Sample Date	Sample Time	Strontium (mg/L)	Sulfate (mg/L)	Sulfur (mg/L)	Tellurium (mg/L)	Thallium (mg/L)	Thorium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Tungsten (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Zirconium (mg/L)	
Detection Limit 2022					0.00020	0.30	0.50	0.00020	0.000010	0.00010	0.00010	0.00030	0.00010	0.000010	0.00050	0.0030	0.00020	
Replicates																		
Stephens Lake - Near-field	NF-1	L2694960-9	27-Mar-22	11:50	0.116	30.2	9.76	<0.00020	<0.000010	0.00012	<0.00010	0.0183	<0.00010	0.000611	0.00162	0.0037	0.00047	
		L2694960-14			0.114	30.2	9.62	<0.00020	<0.000010	0.00012	<0.00010	0.0179	<0.00010	0.000604	0.00171	<0.0030	0.00046	
		L2694960-15			0.117	30.2	10.3	<0.00020	<0.000010	0.00013	<0.00010	0.0224	<0.00010	0.000630	0.00190	<0.0030	0.00048	
					Mean	0.116	30.2	9.89	<0.00020	<0.000010	0.00012	<0.00010	0.0195	<0.00010	0.000615	0.00174	<0.0030	0.00047
					SD	0.0015	0.00	0.36	-	-	0.000006	-	0.00249	-	0.0000135	0.000143	-	0.000010
					PRSD	1	0	4	-	-	-	-	13	-	2	-	-	
Zone 1b	Z1-9	L2693729-5	21-Mar-22	11:35	0.102	28.0	9.96	<0.00020	<0.000010	0.00011	<0.00010	0.0194	<0.00010	0.000603	0.00160	0.0035	0.00044	
		L2693729-6			0.104	27.8	9.90	<0.00020	<0.000010	0.00012	0.00013	0.0206	<0.00010	0.000612	0.00163	0.0039	0.00046	
		L2693729-7			0.103	28.0	9.73	<0.00020	<0.000010	0.00013	<0.00010	0.0222	<0.00010	0.000600	0.00168	0.0031	0.00051	
					Mean	0.103	27.9	9.86	<0.00020	<0.000010	0.00012	<0.00010	0.0207	<0.00010	0.000605	0.00164	0.0035	0.00047
					SD	0.0010	0.12	0.12	-	-	0.000010	-	0.00140	-	0.0000062	0.000040	0.00040	0.000036
					PRSD	1	0	1	-	-	-	-	7	-	1	-	-	
Zone 8	Z8-5	L2717871-3	23-Jun-22	9:55	0.109	27.4	9.78	<0.00020	<0.000010	<0.00010	<0.00010	0.00567	<0.00010	0.000498	0.00118	<0.0030	0.00028	
		L2717871-5			0.108	27.3	9.97	<0.00020	<0.000010	<0.00010	<0.00010	0.00535	<0.00010	0.000505	0.00120	<0.0030	0.00028	
		L2717871-6			0.109	27.5	10.3	<0.00020	<0.000010	<0.00010	<0.00010	0.00583	<0.00010	0.000501	0.00115	<0.0030	0.00028	
					Mean	0.109	27.4	10.0	<0.00020	<0.000010	<0.00010	<0.00010	0.00562	<0.00010	0.000501	0.00118	<0.0030	0.00028
					SD	0.0006	0.10	0.26	-	-	-	-	0.000244	-	0.0000035	0.000025	-	0.000000
					PRSD	1	0	3	-	-	-	-	4	-	1	-	-	
Nelson River upstream of the Keeyask GS	US-3	L2718487-3	26-Jun-22	15:10	0.116	30.4	10.6	<0.00020	<0.000010	<0.00010	<0.00010	0.00556	<0.00010	0.000634	0.00165	<0.0030	0.00044	
		L2718487-6			0.117	30.3	10.8	0.00037	<0.000010	0.00011	<0.00010	0.00700	<0.00010	0.000667	0.00167	<0.0030	0.00043	
		L2718487-7			0.115	30.3	10.6	<0.00020	<0.000010	<0.00010	<0.00010	0.00567	<0.00010	0.000654	0.00154	<0.0030	0.00040	
					Mean	0.116	30.3	10.7	<0.00020	<0.000010	<0.00010	<0.00010	0.00608	<0.00010	0.000652	0.00162	<0.0030	0.00042
					SD	0.0010	0.06	0.12	-	-	-	-	0.000802	-	0.0000166	0.000070	-	0.000021
					PRSD	1	0	1	-	-	-	-	13	-	3	-	-	
Zone 11	Z11-11	L2724410-6	23-Jul-22	11:45	0.0884	17.3	6.52	<0.00020	<0.000010	<0.00010	<0.00010	0.00107	<0.00010	0.000106	<0.00050	<0.0030	<0.00020	
		L2724410-7			0.0888	17.5	6.33	<0.00020	<0.000010	<0.00010	<0.00010	0.00054	<0.00010	0.000099	<0.00050	<0.0030	<0.00020	
		L2724410-8			0.0906	17.6	6.41	<0.00020	<0.000010	<0.00010	<0.00010	0.00072	<0.00010	0.000102	<0.00050	<0.0030	<0.00020	
					Mean	0.0893	17.5	6.42	<0.00020	<0.000010	<0.00010	<0.00010	0.00078	<0.00010	0.000102	<0.00050	<0.0030	<0.00020
					SD	0.0012	0.15	0.095	-	-	-	-	0.000270	-	0.0000035	-	-	
					PRSD	1	1	1	-	-	-	-	-	-	3	-	-	
Zone 1b	Z1-9	L2725407-5	27-Jul-22	8:00	0.121	32.0	12.0	<0.00020	<0.000010	<0.00010	<0.00010	0.00827	<0.00010	0.000622	0.00147	<0.0030	0.00032	
		L2725407-8			0.124	32.0	11.8	<0.00020	<0.000010	<0.00010	<0.00010	0.00744	<0.00010	0.000631	0.00146	<0.0030	0.00030	
		L2725407-9			0.124	32.0	11.8	<0.00020	0.000016	<0.000010	<0.00010	0.00744	<0.00010	0.000635	0.00150	<0.0030	0.00031	

Table A5-2: Quality assurance/quality control results for metals and major ions measured in the laboratory during open-water and ice-cover, 2022. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit (DL). PRSD values exceeding 18% are indicated in bold red. Blank values exceeding five times the DL are indicated in bold red (continued).

Sample Location	Site ID	ALS Sample ID	Sample Date	Sample Time	Strontium (mg/L)	Sulfate (mg/L)	Sulfur (mg/L)	Tellurium (mg/L)	Thallium (mg/L)	Thorium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Tungsten (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Zirconium (mg/L)	
Detection Limit 2022					0.00020	0.30	0.50	0.00020	0.000010	0.00010	0.00010	0.00030	0.00010	0.000010	0.00050	0.0030	0.00020	
					Mean	0.123	32.0	11.9	<0.00020	<0.000010	<0.00010	<0.00010	0.00772	<0.00010	0.000629	0.00148	<0.0030	0.00031
					SD	0.0017	0.00	0.12	-	-	-	-	0.000479	-	0.000067	0.000021	-	0.000010
					PRSD	1	0	1	-	-	-	-	6	-	1	-	-	-
Zone 11	Z11-1	L2730475-5	28-Aug-22	9:35	0.108	27.7	10.0	<0.00020	<0.000010	<0.00010	<0.00010	0.00141	<0.00010	0.000302	0.00072	<0.0030	<0.00020	
		L2730475-13			0.114	28.0	10.0	<0.00020	<0.000010	<0.00010	0.00012	0.00163	<0.00010	0.000302	0.00071	<0.0030	<0.00020	
		L2730475-14			0.111	27.8	9.87	<0.00020	<0.000010	<0.00010	<0.00010	0.00165	<0.00010	0.000307	0.00072	<0.0030	<0.00020	
					Mean	0.111	27.8	10.0	<0.00020	<0.000010	<0.00010	<0.00010	0.00156	<0.00010	0.000304	0.00072	<0.0030	<0.00020
					SD	0.0030	0.15	0.08	-	-	-	-	0.000133	-	0.000029	0.000006	-	-
					PRSD	3	1	1	-	-	-	-	-	-	1	-	-	-
Clark Lake	CL-5	L2730098-5	24-Aug-22	10:04	0.125	31.6	11.3	<0.00020	<0.000010	<0.00010	<0.00010	0.00928	<0.00010	0.000610	0.00143	<0.0030	0.00039	
		L2730098-6			0.119	31.1	10.9	<0.00020	<0.000010	<0.00010	<0.00010	0.00851	<0.00010	0.000608	0.00140	0.0040	0.00034	
		L2730098-7			0.123	30.9	11.3	<0.00020	<0.000010	<0.00010	<0.00010	0.0107	<0.00010	0.000614	0.00148	<0.0030	0.00040	
					Mean	0.122	31.2	11.2	<0.00020	<0.000010	<0.00010	<0.00010	0.00950	<0.00010	0.000611	0.00144	<0.0030	0.00038
					SD	0.0031	0.36	0.23	-	-	-	-	0.00111	-	0.000031	0.000040	-	0.000032
					PRSD	2	1	2	-	-	-	-	12	-	1	-	-	-
Zone 8	Z8-5	L2736054-3	6-Oct-22	14:50	0.0991	25.9	8.97	<0.00020	<0.000010	0.00010	<0.00010	0.00267	<0.00010	0.000292	0.00063	<0.0030	<0.00020	
		L2736054-7			0.100	26.3	9.50	<0.00020	<0.000010	<0.00010	<0.00010	0.00279	<0.00010	0.000309	0.00069	<0.0030	<0.00020	
		L2736054-8			0.100	26.1	9.78	<0.00020	<0.000010	<0.00010	<0.00010	0.00273	<0.00010	0.000308	0.00068	<0.0030	<0.00020	
					Mean	0.100	26.1	9.42	<0.00020	<0.000010	<0.00010	<0.00010	0.00273	<0.00010	0.000303	0.00067	<0.0030	<0.00020
					SD	0.0005	0.20	0.411	-	-	-	-	0.000060	-	0.000095	0.000032	-	-
					PRSD	1	1	4	-	-	-	-	2	-	3	-	-	-
Stephens Lake - Near-field	NF-1	L2736583-1	11-Oct-22	15:58	0.131	34.1	12.2	<0.00020	<0.000010	<0.00010	<0.00010	0.00888	<0.00010	0.000713	0.00144	<0.0030	0.00031	
		L2736583-6			0.128	34.0	12.3	<0.00020	<0.000010	<0.00010	<0.00010	0.00892	<0.00010	0.000737	0.00146	<0.0030	0.00032	
		L2736583-7			0.132	34.0	12.4	<0.00020	<0.000010	0.00011	<0.00010	0.00869	<0.00010	0.000741	0.00141	<0.0030	0.00032	
					Mean	0.130	34.0	12.3	<0.00020	<0.000010	<0.00010	<0.00010	0.00883	<0.00010	0.000730	0.00144	<0.0030	0.00032
					SD	0.0021	0.06	0.10	-	-	-	-	0.000123	-	0.0000151	0.000025	-	0.000006
					PRSD	2	0	1	-	-	-	-	1	-	2	-	-	-

Table A5-2: Quality assurance/quality control results for metals and major ions measured in the laboratory during open-water and ice-cover, 2022. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit (DL). PRSD values exceeding 18% are indicated in bold red. Blank values exceeding five times the DL are indicated in bold red (continued).

Sample Location	Site ID	ALS Sample ID	Sample Date	Sample Time	Strontium (mg/L)	Sulfate (mg/L)	Sulfur (mg/L)	Tellurium (mg/L)	Thallium (mg/L)	Thorium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Tungsten (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Zirconium (mg/L)
Detection Limit 2022					0.00020	0.30	0.50	0.00020	0.000010	0.00010	0.00010	0.00030	0.00010	0.000010	0.00050	0.0030	0.00020
Field Blanks																	
Field Blank	FB-1	L2693459-11	20-Mar-22	13:00	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Field Blank	FB-2	L2694745-8	24-Mar-22	13:20	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Field Blank	FB-1	L2716982-8	21-Jun-22	12:45	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Field Blank	FB-2	L2718170-16	26-Jun-22	14:10	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Field Blank	FB-1	L2724410-9	23-Jul-22	11:15	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Field Blank	FB-2	L2725407-6	27-Jul-22	8:20	<0.00020	1.19	<0.50	0.00025	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Field Blank	FB-1	L2730098-13	24-Aug-22	12:50	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Field Blank	FB-2	L2730475-12	28-Aug-22	8:40	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Field Blank	FB-1	L2736054-5	06-Oct-22	14:26	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Field Blank	FB-2	L2736583-8	11-Oct-22	15:32	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Trip Blank																	
Trip Blank	TB-1	L2693459-12	20-Mar-22	13:10	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Trip Blank	TB-2	L2694745-9	24-Mar-22	13:30	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Trip Blank	TB-1	L2716982-9	21-Jun-22	12:45	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Trip Blank	TB-2	L2718170-15	26-Jun-22	14:00	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Trip Blank	TB-1	L2724410-10	23-Jul-22	11:15	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Trip Blank	TB-2	L2725407-7	27-Jul-22	8:20	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Trip Blank	TB-1	L2730098-12	24-Aug-22	12:50	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Trip Blank	TB-2	L2730475-11	28-Aug-22	8:40	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Trip Blank	TB-1	L2736054-6	06-Oct-22	14:26	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Trip Blank	TB-2	L2736583-9	11-Oct-22	15:32	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020