Site C Clean Energy Project

Peace River Fish Community Monitoring Program (Mon-2)

Task 2b – Peace River Composition and Abundance Survey

Construction Year 6 (2020)

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Peace River Fish Composition and Abundance Survey Mon-2, Task 2b

Construction Year 6 (2020) Annual Report

BC Hydro

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Disclaimer

This report is rendered solely for the use of BC Hydro in connection with the Peace River Fish Composition and Abundance Survey (BC Hydro 2015a; Mon-2, Task 2b), a component of the Site C Fisheries and Aquatic Habitat Monitoring and Follow-up Program (FAHMFP), and no person may rely on it for any other purpose without Triton Environmental Consultants Ltd.'s (Triton) prior written approval. Should a third party use this report without Triton's approval, they may not rely upon it. Triton accepts no responsibility for loss or damages suffered by any third party as a result of decisions made or actions taken based on this report.

This report is based on information and data from the referenced documents inclusive of programs carried out under the FAHMFP. Triton has attempted to identify and consider facts and documents relevant to the scope of work, accurate as of the period during which we conducted this work. However, the plan, our opinions, or recommendations may change if new information becomes available or if information we have relied on is altered.

The following assumptions were relied on during the preparation of this report:

- Information provided by BC Hydro is accurate at the time of preparing this report. This includes plans and documents outlining the project's study design such as sampling methods, river sections, and historic data.
- The information contained within reports from prior versions of this study (Mainstream 2010, 2011, 2013) is accurate, including historic GPS and map locations, survey method descriptions, and presentation of the results.

In the process of developing and interpreting data provided by BC Hydro or third-party sources, we did not attempt to comprehensively verify the accuracy of any such data.

This report must be considered as a whole; selecting only portions of this report may result in a misleading view of the results, our opinions, or recommendations.

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Executive Summary

To meet Condition Number 7 of the Environmental Assessment Certificate as well as Condition Number 8.4.3 and 8.4.4 of the Federal Decision Statement for the Site C Clean Energy Project (the Project), BC Hydro developed the Site C Fisheries and Aquatic Habitat Monitoring and Follow-up Program (FAHMFP). The FAHMFP consists of 18 distinct monitoring programs that aim to monitor the effects to fish and fish habitat during the construction and operation of the Project, and to evaluate the effectiveness of mitigation and compensation measures as they relate to fish and fish habitat. Sources of baseline fisheries information supporting the FAHMFP have been gathered by BC Hydro since 2001 under various programs: the Large Fish Indexing Program: 2001-2007 (P&E 2002, P&E and Gazey 2003, and Mainstream and Gazey 2004 to 2008); Peace River Fish Community Indexing: 2008-2014 (Mainstream and Gazey 2009 to 2014); Peace River Large Fish Indexing Survey: 2015-2019 (Golder and Gazey 2016 to 2020) which have been used to describe the fish community in the Peace River from Peace Canyon Dam to the Many Islands area in Alberta.

The purpose of the Peace River Fish Composition and Abundance Survey (Mon-2, Task 2b) is to collect information on small-bodied fish (<200 mm) and younger age classes of large-bodied fish. This will provide more specific information on recruitment and conditions for early rearing. Data from Mon-2, Task 2b will be used to interpret results from the Peace River Large Fish Indexing Survey (Mon-2, Task 2a) and provide a linkage between Mon-2, Task 2a and the Peace River Fish Food Organisms Monitoring Program (Mon-7). Data collected under Mon-2, Task 2b will also supplement data collected under the Offset Effectiveness Monitoring Program (Mon-2, Task 2d).

The Mon-2, Task 2b study builds off baseline data collected by BC Hydro's Peace River Fish Inventory (Mainstream 2010, 2011, 2013). As such, similar methods and sites to those outlined in the baseline study were adhered to in the present study to the extent possible. Sampling under Mon-2, Task 2b occurred during the late September to early October period to correspond with the timing of the baseline datasets (Mainstream 2010, 2011, 2013), to provide a temporal linkage to the Mon-2, Task 2a and Mon-7 programs, and to facilitate the capture of spring-spawned age-0 fish that may be present in the area. The monitoring design is a reference design that has been developed to address the management questions based on experience monitoring in the Peace River and other systems, and input during the regulatory process for the Project. Data from this study will be used to help BC Hydro test six hypotheses within the FAHMFP and help answer the primary management question. These hypotheses will determine how the Project affects the total fish biomass, and community composition in the Peace River, 10 and 30 years post-construction.

In 2020, sampling for the Peace River Fish Composition and Abundance Survey was conducted in three different sections (Section 5, Section 7, and Section 9) of the Peace River from the dam site downstream to the Many Islands area in Alberta. Fish were sampled at predetermined sampling sites using a combination of sampling methods (backpack electrofisher, small boat electrofisher, beach seine, and gill net). Incidental

large fish captured were implanted with half-duplex (HDX) passive integrated transponder (PIT) tags, with lengths and weights collected from all fish, and ageing structures collected from fish of management concern, including: Arctic Grayling (*Thymallus arcticus)*, Bull Trout (*Salvelinus confluentus)*, Mountain Whitefish (*Prosopium williamsoni)*, Rainbow Trout (*Oncorhynchus mykiss)*, Walleye (*Sander vitreus)*, and Northern Pike (*Esox lucius)*. Methylmercury, stable isotope, and genetic samples were also taken from some fish of management concern. In addition to Redside Shiner (*Richardsonius balteatus)*.

The 2020 survey was successful in achieving its goal of collecting information on small-bodied fish and younger age classes of large-bodied fish. The Peace River supports a diverse fish community that includes several coldwater fish species, coolwater fish species, as well as numerous suckers, sculpins, and minnows. The fish community gradually transitioned from one dominated by Slimy Sculpin (*Cottus cognatus*) and Mountain Whitefish to a more diverse fish community downstream represented by multiple fish groups and species. The transition from cold, clear water to cool slightly turbid water downstream represents a shift in the species tolerance in the changing habitat downstream.

Overall, the 2020 study documented a greater number of total captured fish, representing more fish species, than previous fall small fish programs using comparable sampling effort (Mainstream 2010, 2011, 2013). The fish community was slightly different from previous fall small fish programs, with approximately twice as many sculpins and approximately half as many coldwater fish species caught. Species such as Slimy Sculpin and Mountain Whitefish had large enough sample sizes that appear to show viable, self-sustaining fish populations represented by various age classes and sizes. Fish species such as Kokanee (*Oncorhynchus nerka*), Spottail Shiner (*Notropis hudsonius*), and Lake Chub (*Couesius plumbeus*) appear to spawn or to have recruitment within Section 5 or upstream of the Project. For several fish species, small sample sizes limited the population inferences that could be made. These numerically scarce fish species include Finescale Dace (*Chrosomus neogaeus*), Lake Whitefish (*Coregonus clupeaformis*), Northern Pikeminnow (*Ptychocheilus oregonensis*), Northern Redbelly Dace (*Phoxinus eos*), and Yellow Perch (*Perca flavescens*); they may not be caught in large enough numbers during the small fish program to inform management decisions.

Environmental conditions were generally similar to previous fall sampling programs with the exception of discharge. The low discharge levels during sampling in 2020 was attributed to the lowering of water levels at Peace Canyon Dam to support river diversion. Tunnel gates were opened on September 30 duringthe second day of field sampling with the Peace River being fully closed off on October 3. This resulted in the relocation of several sampling sites, potentially influencing catch rates and consistency with previous studies.

The 2020 study and historic works provide a good description of the Peace River fish community.

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1.0 Introduction

In accordance with Provincial Environmental Assessment Certificate Condition No. 7 and Federal Decision Statement Condition Nos. 8.4.3 and 8.4.4 for the Site C Clean Energy Project (the Project), BC Hydro developed the Site C Fisheries and Aquatic Habitat Monitoring and Follow-up Program (FAHMFP). The FAHMFP consists of 18 spatially and logistically distinct monitoring programs that aim to:

- Monitor fish and fish habitat during the construction and operation of the Project;
- Understand the effects of the Project and the effectiveness of mitigation measures; and
- Evaluate and implement future mitigation and compensation options.

The FAHMFP includes implementation of the Peace River Fish Composition and Abundance Survey (Mon-2, Task 2b), for which Triton has been retained and which forms the basis for this report.

Mon-2, Task 2b specifically targets small-bodied fish (<200 mm) and the younger age classes of large-bodied fish in Sections 5, 7, and 9 of the Peace River (Figure 1). Multiple capture methods were used to ensure an adequate and thorough inventory. Fish collection methods included small fish boat electrofishing, backpack electrofishing, gill netting, and beach seining. The monitoring design is based on a reference design developed by Mainstream Aquatics Ltd. (Mainstream) along with Triton's experience monitoring in the Peace River and other river systems.

1.1 Study Objective

The purpose of the Peace River Fish Composition and Abundance Survey is to collect information on small-bodied fish (<200 mm) and younger age classes of large-bodied fish. This will provide information on recruitment and conditions for early rearing. Data from Mon-2, Task 2b will be used to interpret results from the Peace River Large Fish Indexing Survey (Mon-2, Task 2a) and provide a linkage between Mon-2, Task 2a and the Peace River Fish Food Organisms Monitoring Program (Mon-7) (BC Hydro 2015a). This data will help BC Hydro answer the primary management question for Mon-2.

1.2 Primary Management Question

The overarching fisheries management question for the Peace River Fish Community Monitoring Program is as follows:

1. How does the Project affect fish in the Peace River between the Project and the Many Islands area in Alberta during the short (10 years after Project operations begin) and longer (30 years after Project operations begin) term?

1.3 Management Hypotheses

Mon-2 focuses on monitoring fish abundance and biomass, species distribution, community composition, and population structure, and assessing whether any changes observed in these metrics are related to the construction or operation of the Project. To address the primary management question, six management hypotheses were developed, as follows:

H_1: Post-Project total fish biomass in the Peace River between the Project and the Many Islands area in Alberta will be less than pre-Project conditions (current = 37.42 tons (t); at 10 years of operations = 30.78 t; >30 years of operations = 30.79 t).

H_2: Post-Project harvestable fish biomass in the Peace River between the Project and the Many Islands area in Alberta will be greater than pre-Project estimates of harvestable fish biomass (current = 13.93t; at 10 years of operations = 18.77 t; >30 years of operations = 18.78 t).

H_3: Post-Project biomass of each fish species in the Peace River between the Project and the Many Islands area in Alberta will be consistent with biomass estimates in the Environmental Impact Statement (EIS) (Table 1).

H_4: Changes in post-Project fish community composition in the Peace River between the Project and the Many Islands area in Alberta will be consistent with EIS predictions.

H_5: The fish community can support angling effort that is similar to baseline conditions.

H_6: Indicator fish species will use the Site C offset habitat areas in the Peace River between the Project and the Many Islands area in Alberta for rearing, feeding, and/or spawning (Table 2).

The management hypotheses are currently planned to be tested in the post-Project condition for the Peace River (i.e., after river diversion in 2020). The data collected during this study will be used to help test the six management hypotheses.

Table 1. Short- and longer-term predictions of fish biomass (t) for pre- and post-Project conditions for the Peace River from the Project to the Many Islands area in Alberta. Fish biomass is presented for the "Most Likely" scenario (plus a minimum to maximum range). Data summarized from Mon 2 of the FAHMFP (BC Hydro 2015a).

Species Group	Species Name	Pre-Project Biomass (t)	Post-Project Biomass (t)			
			Short Term (10 Years)		Longer Term (>30 Years)	
			Most Likely	Range	Most Likely	Range
1	Walleye	3.38	1.69	0.34 - 1.69	1.69	0.34 - 1.69
	Lake Trout	0.00	0.00	0.00 - 0.01	0.00	0.00 - 0.01
	Rainbow Trout	0.17	0.35	0.17 - 0.35	0.35	0.17 - 0.35
	Northern Pike	0.74	0.37	0.37 - 0.74	0.37	0.37 - 0.74
	Burbot	0.10	0.05	0.01 - 0.05	0.05	0.01 - 0.05

Species Group	Species Name	Pre-Project Biomass (t)	Post-Project Biomass (t)			
			Short Term (10 Years)		Longer Term (>30 Years)	
			Most Likely	Range	Most Likely	Range
Group 1 Subtotal		**4.39**	**2.46**	**0.89 - 2.83**	**2.46**	**0.89 - 2.83**
2	Bull Trout	1.49	1.23	1.23 - 2.54	1.23	1.23 - 2.54
	Arctic Grayling	0.69	0.23	0.06 - 0.64	0.32	0.06 - 0.64
	Mountain Whitefish	7.38	14.74	14.74 - 14.74	14.74	14.74 - 14.74
Group 2 Subtotal		**9.50**	**16.29**	**16.03 - 17.91**	**16.29**	**16.03 - 17.91**
3	Kokanee	0.03	0.01	0.00 - 0.02	0.03	0.01 - 0.04
	Lake Whitefish	0.00	0.01	0.00 - 0.01	0.00	0.00 - 0.01
Group 3 Subtotal		**0.03**	**0.02**	**0.01 - 0.03**	**0.03**	**0.01 - 0.04**
Total Harvestable Fish Biomass		**13.93**	**18.77**	**16.94 - 20.78**	**18.78**	**16.94 - 20.79**
4	Sucker Species	21.74	10.87	10.87 - 10.87	10.87	10.87 - 10.87
	Small-bodied Fish	0.87	0.70	0.43 - 0.87	0.70	0.43 - 0.87
	Northern Pikeminnow	0.87	0.44	0.26 - 0.52	0.44	0.26 - 0.52
Group 4 Subtotal		**23.49**	**12.01**	**11.57 - 12.27**	**12.01**	**11.57 - 12.27**
Total Fish Biomass		**37.42**	**30.78**	**28.50 - 33.05**	**30.79**	**28.50 - 33.06**

Table 2. Expected fish use of proposed offset locations in the Peace River between the Project and the Many Islands area in Alberta (BC Hydro 2015b, 2015c).

Location	Species				
	Arctic Grayling	Bull Trout	Mountain Whitefish	Rainbow Trout	Walleye
River Road Rock Spurs	R, F	F	R, F	R, F	
Upper Site 109L	R	F	R, F, S	R, F	F
Side Channel Site 108R	R, F		R, F	R, F	
Main Channel Bar Excavation	R, F	R, F	R, F	F	F
Lower Site 109 L	R	F	R, F, S	R, F	F

R = rearing; F = feeding; and S = Spawning

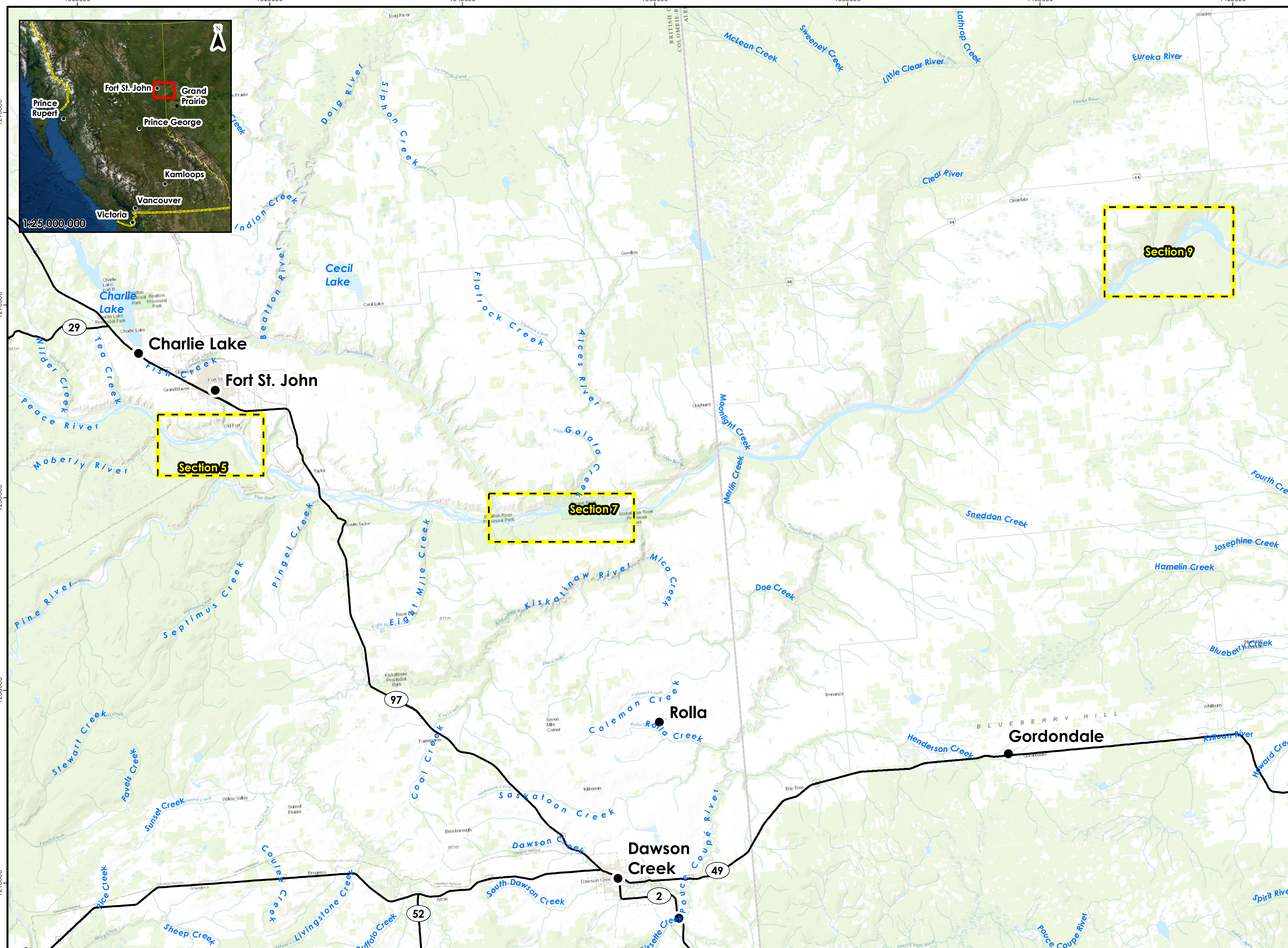
1.4 Study Area

The study area for Mon-2, Task 2b includes an approximately 125.5 km section of the Peace River from the Project (river km 105.5) downstream to the Many Islands area in Alberta (river km 231) as measured downstream from the WAC Bennett Dam. The Peace River was further divided into river sections using information provided by Mainstream (2013), with sampling taking place during this study in three historic river sections: Sections 5, 7, and 9 (Figure 1, Table 3).

Similar to previous project years (Mainstream 2010, 2011, 2013), sampling was conducted over an 8-day period between September 26 and October 3, 2020.

Table 3. Location and distance from WAC Bennett Dam of sample locations on the Peace River as delineated by Golder and Gazey (2018).

River Section	*Location*	*River Kilometre*		*No. of sites sampled in 2020*
		Upstream	**Downstream**	
5	Site C Dam downstream to the Canadian National Railway bridge	105.5	117.7	25
7	Beatton River confluence downstream to the Kiskatinaw River confluence	140.0	158.0	25
9	Dunvegan West Wildland Provincial Park boundary downstream to Many Islands Park	217.5	231.0	26



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BC Hydro Peace River Fish Composition and Abundance Survey

Figure 1

Project Overview

Legend

- Town
- Highway
- Section

Sources and Disclaimer

1. Base Map Source: ESRI World Topographic Map
2. Inset Base Map Source: ESRI World Imagery
3. Base Map Data: DataBC Data Catalogue
4. Disclaimer: This map is a visual aid only to be used together with the accompanying report, including and incorporating any disclaimer contained therein. This map has been prepared to illustrate the results of our work, and is **not intended to be used for navigational purposes**. Information displayed on this map is based, in whole or in part, on geographic information that may have been provided by third parties, including government data. Triton Environmental Consultants Ltd. disclaims (without limiting the generality of the foregoing) all responsibility for the accuracy of any such third party information, regardless of the source.

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2.0 Methods

2.1 Sampling Design

Sampling took place in Sections 5, 7, and 9 of the Peace River, with historical sampling locations identified by Mainstream (2013) being used to the extent possible. Some refinements were necessary where river conditions had changed such that a site became impractical to sample due to the low water levels in 2020. The number of sampling sites for each river section and gear type can be found in Table 4, and a list of sampling locations is presented in Appendix 1. One additional beach seine site was conducted in Section 9.

Table 4. Number of sample sites by sampling method and river section.

River Section	*Number of Sampling Sites*			
	Small Boat Electrofisher	Backpack Electrofisher	Gill Net	Beach Seine
5	12	4	1	8
7	12	4	1	8
9	12	4	1	9

In Section 5, two boat electrofishing sites (SF0517 and SF0518), two beach seine sites (BS0502 and BS0512), and three backpack electrofishing sites (EF0503, EF0508, and EF0509) were not possible to sample due to proximity to the Project. As such, they were replaced with sites in representative areas identified by Ecofish (2020) within the 108R Offset Channel to contribute additional sampling effort toward the Offset Effectiveness Monitoring Program (Mon-2, Task 2d).

One boat electrofishing site (SF0716) in Section 7 was too shallow to sample and was moved to another site in the area. Sections 7 and 9 only had three historical backpack electrofishing sites, so one additional site in each section was identified in the field. No historical gill net sites were present in Section 9, so a suitable site was identified during the 2020 field program.

Due to the low discharge to support river diversion, many historic sampling locations needed to be adjusted during the field program to accommodate the lack of water. Crews continued to use the historic start and stop UTMs for the site where possible, but the sites were generally shifted away from shore to accommodate the new shoreline (Appendix 2).

Sampling occurred within the three major Peace River habitats previously described and sampled by Mainstream (2013).

- <u>Main channel</u> – Portion of active channel that is permanently wetted and that is characterized by moving water under the typical flow regime, and the dominance of rock (i.e., gravel, pebble, cobble, boulder, and/or bedrock) bed materials. This includes the thalweg channel and smaller channels that exhibit similar characteristics.

- Side channel – Portion of the active channel that is permanently wetted and that is characterized by slow moving or still water under the typical flow regime, and the presence of silt and sand bed materials. Includes channels protected from the main river flow that exhibit unique features such as standing water and emergent/submergent vegetation.
- Tributary confluence – Portion of the tributary confluence that is within the immediate influence of the Peace River flow regime. The habitat can be divided into the tributary channel proper and the confluence zone within the active Peace River channel. The confluence zone includes an upstream area that exhibits higher water velocities and is dominated by rock bed materials (i.e., riffle section) and a downstream area that exhibits low water velocities and bed materials dominated by silts and sands (i.e., backwater section).

Crews used Avenza Maps ® moving-map software as well as handheld Garmin ® GPS to provide real-time location status on digital base maps with predetermined sampling locations demarcated. Maps of the sample site locations can be found in Appendix 2.

2.2 Data Collection

2.2.1 Water Quality

Water quality parameters such as temperature, pH, and conductivity were measured in the field using an Oakton ® PCTSTestr 50 pen-type water quality reader (temperature resolution 0.1°C; accuracy ± 0.5°C, pH resolution 0.01; accuracy ± 0.01, conductivity resolution 0.1 µs; accuracy ± 1 % full scale). Water clarity was measured using a Secchi disk. Water quality parameters recorded, and the collection methods are consistent with those described in Mainstream (2010, 2011, 2013).

2.2.2 Fish Capture

Sampling involved the use of a small boat electrofisher, backpack electrofisher, gill net, and beach seine. The sampling methods listed below follow the methods summarized by Mainstream (2013).

2.2.2.1 Boat Electrofishing

The typical small boat electrofishing sampling approach:

1. Site identification and scouting – To familiarize themselves with current site conditions, the crew completed a scouting pass prior to electrofishing along the proposed sampling route. Upstream and downstream site limits were verified along with any limitations to completing the full sample length (approximately 500 m), and maintaining the suitable water depth of 0.1 to 0.3 m. To minimize the risk of scaring fish away, care was taken not to disturb the target habitat (e.g., to measure habitat variables) until after sampling was complete.

2. Sampling was completed in a single pass in an upstream to downstream direction, adhering to protocols that have been followed during previous sampling events. Briefly, this involves:
   I. Using oars, positioning the Zodiac Mark II boat perpendicular to the channel margin while drifting with the current and operating the Smith-Root Generator Powered Pulsator (GPP) 2.5 electrofisher with a continuous DC current.
   II. Settings were maintained at 3.5 to 6.0 Amperage (A), pulsed Direct current (DC) at 60 Hertz (Hz) using a Smith Root GPP 2.5 unit, electrofisher settings were consistent with previous sampling programs (Mainstream 2010, 2011, 2013).
   III. A single netter was positioned at the bow, using a net with 0.5 cm mesh. The netter did not bias their catch to a particular species unless a rare species or life stage was encountered.
3. All fish captured were held in a live well (tubs/buckets) equipped with an aeration system prior to processing and release.
4. Fish were released near the middle of the site where they were captured, to minimize the risk of recapturing the same fish at multiple sites.

2.2.2.2 Backpack Electrofisher

The typical backpack electrofishing sampling approach:

1. Prior to sampling, sites were inspected to ensure sampling conditions were within the range of parameters observed during previous sampling events, and that the prescribed capture method was suitable. To minimize the risk of scaring fish away, care was taken not to disturb the target habitat (e.g., to measure habitat variables) until after sampling was complete.
2. Backpack electrofishing involved a single pass (approximately 100 m), with the operator wading along the channel margin moving in a downstream to upstream direction. The netter was strategically positioned nearby to capture immobilized fish and place them in a holding bucket.
   I. Settings were maintained between 300-400 Volts pulsed DC current, at 60 Hz and a pulse width of 6 milliseconds using a Smith Root 12-B electrofishing unit

2.2.2.3 Beach Seine

The typical beach seine sampling approach:

1. Prior to sampling, sites were inspected to ensure sampling conditions were within the range of parameters observed during previous sampling events, and that the prescribed capture method was suitable. To minimize the risk of scaring fish away, care was taken not to disturb the target habitat (e.g., to measure habitat variables) until after sampling was complete.

2. Beach seine sites involved three discrete, 25 m long hauls completed adjacent to one another. Low velocity, deep water habitat that could not be effectively sampled with a backpack electrofisher was targeted.
    I. Seine net specifications were 4.2 m long by 1.5 m high with 5.0 mm mesh.
    II. Captured fish were placed in a holding bucket after each haul before being measured.

2.2.2.4 Gill Net

The typical gill net sampling approach:

1. Prior to sampling, sites were inspected to ensure sampling conditions were within the range of parameters observed during previous sampling events, and that the prescribed capture method was suitable. To minimize the risk of scaring fish away, care was taken not to disturb the target habitat (e.g., to measure habitat variables) until after sampling was complete.
2. Gill nets were set in low velocity, deep water habitat (1 to 3 m deep) that could not be effectively sampled by other methods.
    I. Gill nets consisted of three 15.2 m by 2.4 m panels with 3.8, 6.4, and 8.9 cm mesh.
    II. Gill net soak times were recorded and kept to a maximum of 2 hours.

2.2.3 Fish Processing

Captured fish were processed for the following standard metrics and procedures:

- Species identification
- Scanning for existing passive integrated transponder (PIT) tag and applying a new tag if no existing tag was present (if appropriate species and size class)
- Fork length (FL; or total length for Sculpin species and Burbot)
- Weight (using a digital scale or spring scales)
- External health assessment
- Genetic sampling (Table 6)
- Methylmercury and stable isotope sampling (Table 7)
- Collecting ageing structures from select fish species

2.2.3.1 Species Identification

To help validate species identifications made in the field, representative photographs were taken of every species captured. Individuals that succumbed to sampling were retained as voucher specimens, especially small, difficult to identify species. Voucher specimen collection and preservation followed the guidelines in Fish Collection Methods and Standards (BC Ministry of Environment, Lands, and Parks 1997). Fish identified to species were recorded using the species codes found in Table 5.

Table 5. Nomenclature and abbreviations used for recorded fish species in 2020 report.

Group	Species	Scientific Name	Species Code*
Coldwater	Arctic Grayling	*Thymallus arcticus*	GR
	Bull Trout	*Salvelinus confluentus*	BT
	Kokanee	*Oncorhynchus nerka*	KO
	Lake Whitefish	*Coregonus clupeaformis*	LW
	Mountain Whitefish	*Prosopium williamsoni*	MW
	Rainbow Trout	*Oncorhynchus mykiss*	RT
Coolwater	Burbot	*Lota lota*	BB
	Northern Pike	*Esox lucius*	NP
	Walleye	*Sander vitreus*	WP
	Yellow Perch	*Perca flavescens*	YP
Suckers	Largescale Sucker	*Catostomus macrocheilus*	CSU
	Longnose Sucker	*Catostomus catostomus*	LSU
	White Sucker	*Catostomus commersoni*	WSU
Sculpins	Prickly Sculpin	*Cottus asper*	CAS
	Slimy Sculpin	*Cottus cognatus*	CCG
	Spoonhead Sculpin	*Cottus ricei*	CRI
Minnows	Flathead Chub	*Platygobio gracilis*	FHC
	Finescale Dace	*Chrosomus neogaeus*	FDC
	Lake Chub	*Couesius plumbeus*	LKC
	Longnose Dace	*Rhinichthys cataractae*	LNC
	Northern Pikeminnow	*Ptychocheilus oregonensis*	NSC
	Northern Redbelly Dace	*Phoxinus eos*	RDC
	Redside Shiner	*Richardsonius balteatus*	RSC
	Spottail Shiner	*Notropis hudsonius*	STC
	Trout Perch	*Percopsis omiscomaycus*	TP

*Species codes from *Fish Collection Methods and Standards* (BC Ministry of Environment, Lands and Parks 1997)

2.2.3.2 PIT Tags

Larger fish in good condition with no existing tag detected were marked with a half-duplex (HDX) PIT tag (ISO 11784/11785 compliant) sourced from Biomark, Boise, ID, USA. This included all Arctic Grayling, Bull Trout, Burbot, Goldeye, Rainbow Trout, and Walleye greater than 149 mm in length and all Lake Trout, Largescale Sucker, Longnose Sucker, Mountain Whitefish, Northern Pike, and White Sucker that were greater than 199 mm in length. Tags were implanted within the left axial muscle below the dorsal fin origin, and oriented parallel with the anteroposterior axis of the fish. All tags and applicators were immersed in antiseptic and rinsed with distilled water prior to being implanted. Tags were applied based on fish length (either fork length or total length as applicable) consistent with the approach followed by other programs such as the Peace River Large Fish Indexing Survey (BC Hydro 2015a, Mon-2, Task 2a):

- Fish between 150 and 199 mm received 12.0 mm x 2.12 mm HDX+ tag;
- Fish between 200 and 299 mm received 23.0 mm x 3.65 mm HDX+ tag; and
- Fish greater than 300 mm received 32.0 mm x 3.65 mm HDX+ tag.

2.2.3.3 External Health Assessment

The DELT Index (Ohio EPA 1996) was used to characterize the health of fish collected during this study, following similar methodology as Mainstream (2013). External examination to identify and count the number of deformities (D), erosions (E), lesions (L), tumours (T), cuts (C), and electrofisher injury (I) on each fish with severity was as follows:

Deformities
Defined as twisted, missing, forked, or bulging body parts including deformed fins, abdomen, or skeleton (e.g., head, vertebrae). Deformities are classified as:

- Light (DL) when they are limited to 1 deformed fin or 1 deformed barbel; or
- Heavy (DH) when there are >2 deformed fins or barbels, or any deformity of the skeleton of other body part exclusive of fins or barbels.

Erosions
Defined as loss of tissue on the fins and/or gill covers. Erosion is classified as:

- Light (EL) when 1 fin is not eroded past a ray fork, or the gill cover is eroded, but there is no exposed gill tissue; or
- Heavy (EH) when >2 eroded fins, or the gill cover is eroded with exposed gill tissue.

Lesions
Defined as open sores, exposed tissue, and/or prominent bloody areas. Lesions are classified as:

- Light (LL) when there are ≤2 lesions smaller than or equal to the size of the largest scale; or
- Heavy (LH) when there are >2 small lesions, when there is a lesion larger than the size of the largest scales, or when there is raw tissue.

Tumours
Defined as tumour-like masses that cannot be easily broken when squeezed. Tumours are defined as:

- Light (TL) when there are ≤3 tumours larger than the diameter of the eye. Lymphocystis patches are counted as one tumour; or
- Heavy (TH) when there are >3 tumours or there is 1 tumour larger than the diameter of the eye.

<u>Cuts</u>
Defined as distinct open wounds on the body caused by predation. Cuts are classified as:

- Light (CL) when there are ≤2 cuts; or
- Heavy (CH) when there are >2 cuts.

<u>Electrofisher Injury (I)</u>
Defined as misalignment of vertebrae (not a deformity). Electrofisher injury was classified as:

- Medium (IM) when there is evidence of vertebrae misalignment from an electrofisher injury.

<u>Multiple DELTS (M)</u>
Occur when fish have two or more DELT anomalies. Recorded as the DELT types followed by the letter M.

2.2.3.4 Genetic Samples

Genetic samples from a subset of fish (Table 6) were clipped from a 5 x 5 mm portion of the upper caudal fin lobe. Slimy Sculpin was the only species with a high enough number of individuals caught to collect the target samples for each section. Samples were preserved in 2 mL microcentrifuge vials containing 95% non-denatured ethanol and provided to BC Hydro for analysis.

Table 6. Targeted and actual number of genetic samples.

Genetic Samples				
Species	**Section 5***		**Section 7***	
	Targeted	**Actual**	**Target**	**Actual**
Redside Shiner*	≥60	7 (6)	≥60	4 (3)
Longnose Dace*	≥60	1 (1)	≥60	8 (4)
Prickly Sculpin*	≥60	7 (7)	≥60	1 (1)
Slimy Sculpin*	≥60	60 (7)	≥60	81 (13)
Bull Trout	Collect opportunistically	0	Collect opportunistically	2
Arctic Grayling		0		2
Rainbow Trout		0		2

*Sampling plan prescribed targeting at least 30 samples from each of two sites in Section 5, and a two sites in Section 7, but capture numbers were insufficient to achieve that ideal. Numbers in parentheses denote the number of sites that contributed to the actual number of samples collected.

2.2.3.5 Methylmercury and Stable Isotope Samples

Methylmercury and stable isotope samples were collected from a subset of Redside Shiners to support the Site C Methylmercury Monitoring Plan (Table 7). The target number was not reached as only 11 samples were taken for this species. Two fillets were taken from each individual fish (i.e., terminal sampling), including one for methylmercury, and one for stable isotope analysis. Fillets were retained individually in whirl-pac or Ziploc bags on ice in the field, and then stored in a freezer at the end of each field day. Care was taken during sample collection and shipment to prevent desiccation and freeze-thaw cycles to ensure sample integrity.

Methylmercury samples were express shipped on ice to ALS Laboratories in Burnaby, BC at the end of the field program and analyzed for:

- Mercury (HG-WET-CVAFS-N-VA + prep PREP-TISS-DIGEST-VA) and moisture (MOISTURE-TISS-VA) applied to all samples; and
- Methylmercury (MEHG-WET-MIC-GCAF-VA) for 20% of samples.

Stable isotope samples were express shipped on ice to the University of New Brunswick's SINLAB at the end of the field program and analyzed for ^{13}C and ^{15}N.

Table 7. Targeted and actual number of methylmercury and stable isotope samples.

Methylmercury and Stable Isotope Samples				
Species	**Section 5**		**Section 7**	
	Targeted	**Actual**	**Target**	**Actual**
Redside Shiner	≥35	7	≥35	4

2.2.3.6 Ageing Structures

Ageing structures were collected from all indicator species, consistent with the protocol described in Golder and Gazey (2018), including:

- Scale samples: Arctic Grayling, Kokanee, Mountain Whitefish, and Rainbow Trout;
- Fin ray samples (first two rays of right pectoral): Bull Trout, Northern Pike, and Walleye; and
- Otoliths: Mountain Whitefish that succumbed to sampling.

It was assumed that ageing structures have previously been collected from captured fish where an existing PIT tag were identified. No structures were collected from fish with an existing PIT tag. Prior to collecting fin ray or scale samples from fish smaller than 150 mm (i.e., too small for PIT tags), the right pectorals were closely inspected to determine if structures were removed, suggesting they were collected during another sampling event earlier in the year under another component of the FAHMFP (especially within the 108R Offset Channel). Ageing structures were placed in an envelope and air-dried prior to storage. Ageing structures were shipped to North/South Consultants Inc. for age analysis.

2.2.4 Field Data

Field data were recorded using tablet computers on customized forms. Hard copy paper forms that approximate the digital forms were available in the event of a tablet malfunction or if software issues were encountered. Site and sampling parameters collected at each site, by both crews included the following:

- Crew identification
- Site identification
- General weather observations (e.g., temperature, precipitation, cloud cover)
- Date and time each sampling event commenced and ended
- Gear specifications (e.g., electrofisher settings, gill net panel configuration)
- Sample site description (i.e., site length, mean and maximum water depth, flow stage, instream cover)
- Water physiochemistry (i.e., temperature, pH, conductivity, turbidity, Secchi depth)
- Sampling effort (e.g., electrofishing seconds and time duration, area)
- Any substantial deviations from previous habitat conditions were also noted (e.g., bank erosion, channel bed aggradation or degradation, new or missing LWD complexes)
- Any other relevant comments

2.3 Data Analyses

2.3.1 Quality Assurance and Quality Control

The day prior to going into the field the entire crew, led by Triton's Project Manager, participated in an internal orientation session that included a comprehensive review of the Work Plan to ensure everyone was aware of the goals, objectives, and expectations for the program. The crew also reviewed in-house fish identification resources and training, including synoptic keys for difficult species groups, tailored to the species that may be encountered on the Project.

In the field, data was entered directly into a custom-built FileMaker Pro database using iPad tablets. Quality Assurance/Quality Control (QAQC) features were incorporated into the database design to standardize data entry and minimize the risk for transcription errors. Some of the QAQC features included:

- Use of pick lists wherever possible (e.g., fish species, weather conditions, DELT codes);
- Fields that auto-populate with the push of a button, such as sampling dates, times and UTM coordinates; and
- Built in restrictions on numerical data fields such as establishing range limits for acceptable values, standardizing decimal place settings, and precluding negative numbers.

At the conclusion of the field program data was transferred into a Microsoft Access® database for further QAQC routines. Some of the validation steps included:

- Ensuring PIT tag numbers were accurate by comparing the tag readers and database;
- Ensuring the number of biological samples that were collected for genetics, methymercury, stable isotopes and ageing were identical to what was entered in the database and that identification codes were consistent; and
- Removing age, weight, or length outliers identified by graphical examination.

Data presented in graphs and tables were reviewed by a Registered Professional Biologist, to the extent practical, to confirm that correct calculation approaches were applied and to generally reality check the results.

2.3.2 Mapping

Site location information (UTM coordinates) were tabulated and plotted on geo-referenced base maps using ESRI World Topographic Map, ArcMap® 10.8. Base map data for areas within British Columbia were sourced from DataBC Data Catalogue, while data for base maps within Alberta came from Government of Alberta Open Data. Scales for the three base maps generated ranged from 1:35,000 to 1:50,000 NTS.

2.3.3 Water Quality

Analysis of field water quality included calculating the mean for each parameter across all sites for each day as well as for each river section. Water quality parameters were graphed using Microsoft Excel® and compared to Mainstream (2010, 2011, 2013) historical data where possible.

2.3.4 Discharge

Historic daily discharge data were obtained from several Water Survey of Canada (Government of Canada 2020) gauging stations. Discharge data from station 07FA004 (Peace River Above Pine River) were used to represent Section 5. Data from station 07FD010 (Peace River Above Alces River) were used to represent discharge in Section 7 with flows from station 07FD001 (Kiskatinaw River Near Farmington) subtracted since the sample sites in that section were located at or upstream of the confluence with the Kiskatinaw River confluence. Maximum, minimum, and mean were calculated for each day and section and presented in graphical form using Microsoft Excel®. Five-minute interval discharge data for the exact dates of the study period (September 26 to October 3) were also obtained from the same gauging stations. From this data, daily mean discharge was calculated and graphed for each river section. Accurate historic discharge data for Section 9 were not available since the nearest downstream station 07FD003 (Peace River at Dunvegan Bridge) was approximately 66 km downstream from sample sites.

2.3.5 Catch Rate (Relative Abundance)

Catch rates were presented as catch-per-unit-effort (CPUE) for each site and expressed as the number of fish captured divided by the sampling effort. For boat and backpack electrofishers, CPUE was expressed as the number of fish caught per kilometre of river sampled per hour fished (#fish/km/hr). Beach seine CPUE was expressed as the number of fish caught per area sampled (#fish/m^2), while gill net CPUE was expressed as the number of fish caught per area sampled per length of time the gill net was set (#fish/m^2/hr). Area sampled for beach seine was calculated using the length of the beach seine site (i.e., 75 m) times the length of the net, while gill net area was calculated using the length and height of the net.

CPUE was calculated and graphed for each species of fish, sampling method, river section, and year. The average CPUE for each river section and year was calculated by averaging the CPUE across all sample sites for each sample method. Individual species CPUEs were also calculated by averaging the CPUE across all sample sites for each sample method. The standard deviation of the CPUE was calculated as the square root of the variance from each species for all sampling sites divided by the number of sampling events and across all sites.

2.3.6 Community Composition

Parameters used to describe fish community structure included: species composition, species assemblage, species diversity, and species occurrence. These parameters were calculated and presented throughout the report as follows:

- **Species Composition** – Calculated as the percentage of the total fish caught for each fish species, fish group (coldwater, coolwater, minnows, suckers, and sculpins) and sample year (2009, 2010, 2011, 2020).
- **Fish Assemblage** – Relative species abundance of each species group by river section and sample year.
- **Species Diversity** – Diversity profiles were calculated for each river section and sample year.
- **Species Occurrence** – Percentage occurrence of each fish species by river section and percentage occurrence of each fish species by habitat type sampled.

Diversity Profiles were calculated to replicate methodology applied by Golder and Gazey (2020) using the following equation developed by Leinster and Cobbold (2012):

1. $$ {}^{q}\mathbf{D}^{\mathbf{Z}}(\mathbf{p}) = \left(\sum \boldsymbol{pi}\,(\mathbf{Zp})_{\mathbf{i}}^{\mathbf{q-1}}\right)^{\mathbf{1/(1-q)}} $$

Where D is the effective number of species, p is the relative abundance of species present, q is the parameter representing the relative contribution of relative abundance data, Z is the similarity matrix among species (Leinster and Cobbold 2012). The shape of diversity profiles can be used to interpret the community composition and compare between datasets. A flat profile indicates near equal abundance of species, while an increasingly steeper profile indicates more unequal species abundances. A q value of 0 is equivalent to species richness, a q value of 1 is equivalent to the Shannon index, and further increasing values of q results in decreasing significance of rare species (Leinster and Cobbold 2012).

Similarity values were assigned based on the criteria in Golder and Gazey (2020) where Z values were set to 1 for all "small fish" and for all sucker species, which treated each of these groups as one species. Similarity matrix values were set to 0 for all pairs of species with the interpretation that all these pairs of species were equally and completely different.

2.3.7 Biological Characteristics

Analysis of fish biological characteristics included examining fish length distribution, length-weight relationships, fish growth rate, age length relationships, and body condition. All analyses were graphed using SigmaPlot® 14.5.

Length-weight relationships were examined using the power function:

2. $$\boldsymbol{W = aL^b}$$

Where *W* = weight (g), *a* = constant, *b* = exponent, and *L* = length (mm). Values for the exponent (b) are generally equal to 3 because the volume of a 3-dimensional object is roughly proportional to the cube of its length. The cubic relationship between a fishes length and its weight has been widely used to characterize the growth of fish (Neuman et al. 2012). Exponent values where b equals 3 constitute isometric growth where a fishes weight increase almost directly proportional to an increase in length (Neuman et al. 2012). Consequently, allometric growth (b > 3) occurs when a fishes weight increases faster than an increase in length (Neuman et al. 2012). Negative allometry in contrast (b < 3) occurs when a fishes length increases faster than an increase in weight, this generally occurs in species with thin elongated bodies or when the larger fish are not significantly different in length and weight from the smaller fish (Neuman et al. 2012).

The von Bertalanffy growth equation was used to describe the growth rate. This equation was only applied to Mountain Whitefish where sufficient quantities of data were present and convergence was possible. The von Bertalanffy equation was calculated using the following equation:

3. $$\boldsymbol{Lt = L_\infty\left[1 - e^{\{-k(t-t0)\}}\right]}$$

Where *t* = the age of fish in years from the starting time t_0, L_∞ = maximum length, *k* = growth coefficient and *e* = the base of the natural logarithm.

A simple linear best fit regression was applied when convergence was not possible to describe the age-length relationship. The linear regression used was:

4. $$\boldsymbol{Y = a + bX}$$

Where *Y* = fork length (mm), *a* = fork length intercept, *b* = slope, and *X* (age in years). Fish body condition was characterized by Fulton's Condition Index, and was calculated using the following equation:

5. $$\boldsymbol{K = \left(\frac{W}{L^3}\right) \times 100,000}$$

Where *W* = weight (g), and *L* = length (mm). Fulton's Condition Index is a measure of a fish's relative condition, robustness, or well-being at the time of capture. The larger the value of *K* the better the condition or health of the individual fish. Mainstream has historically used a body condition value of $K > 1.0$ to indicate good condition, however Barnham and Baxter (1998) proposed a grading scale. The values proposed in this scale are that $K = 1.0$ would be poor fish, 1.2 would be considered fair, and 1.4 good. The condition can be influenced by age, sex, season, maturity, fullness of gut, food consumed, fat reserves, and the degree of muscle development (Barnham and Baxter 1998). Given that our target of young fishes generally have a K value of 1.4 or less, we have simplified the interpretation and kept the value of $K > 1.0$ to be considered good condition (Mainstream 2013), as the young fish targeted tend to have variable condition and therefore condition may not be the best representative measurement for young fishes.

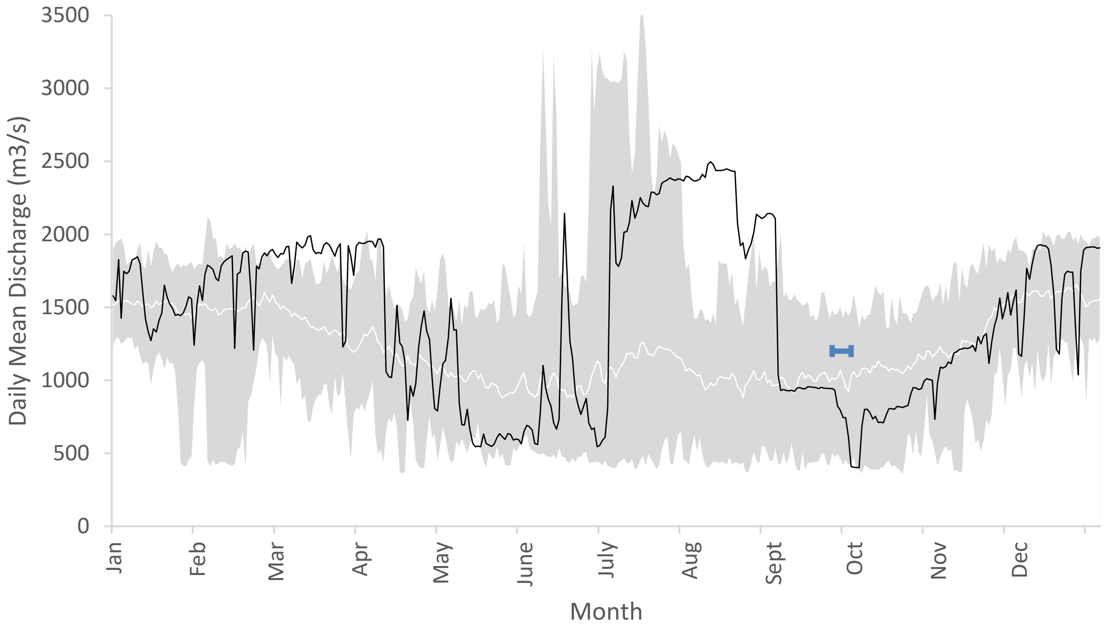
3.0 Results

3.1 Environmental Conditions

3.1.1 Discharge

Flows in the Peace River are regulated by the WAC Bennett Dam and Peace Canyon Dam. Daily mean discharges were found to follow different trends in Section 5 and Section 7 (Figure 2). Overall, historical flows for the Peace River tended to gradually decrease from January until May, increase during spring freshet from June until August, before gradually increasing until December. Historic mean discharge in Section 5 was found to vary from a low of 969 m^3/s in June to a high of 1,585 m^3/s in December (Figure 2, Appendix 3, Table 1). In Section 7 daily mean discharge varied from 1,175 m^3/s in August to a high of 1,790 m^3/s in June (Figure 2, Appendix 3, Table 1).

Discharge began decreasing beginning on September 24 at Peace Canyon Dam to support river diversion. This coincided with field sampling in 2020, where on September 30, 2020 the two diversion tunnels were opened and on October 3 the entire Peace River flows were blocked off. The resulting lower flows occurred towards the end of field sampling in Section 5 and at the beginning of sampling in Section 7 (Figure 3). Daily mean discharge in Section 5 decreased substantially over an eight-day period from a high on September 26 of 782 m^3/s to a low of 392 m^3/s on October 3. Daily mean discharge in Section 7 also experienced a substantial decrease in flows with discharge dropping from 940 m^3/s on September 26 to 591 m^3/s on October 3. Mean discharge in 2020 was lower for two days than the historical minimum flows recorded for Section 5 (September 30, October 1) and Section 7 (October 2, 3). Peace River discharge during previous fall fish sampling (Mainstream 2013) has varied from 600 to 1381 m^3/s, while lows in 2020 varied from a low of 392 m^3/s in Section 5 to a high of 940 m^3/s in Section 7.



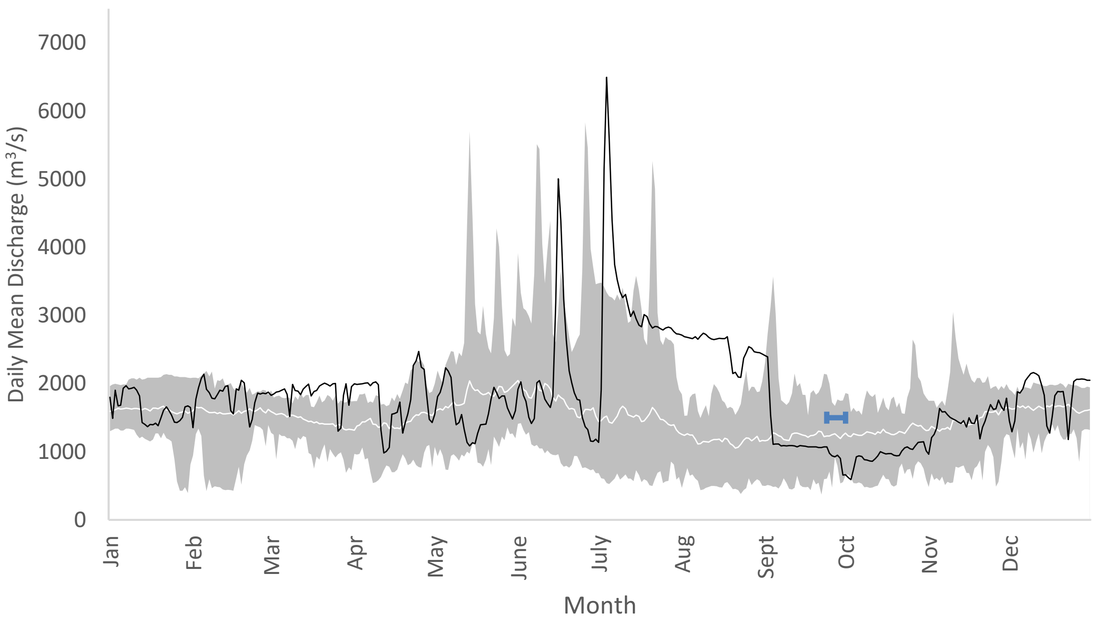
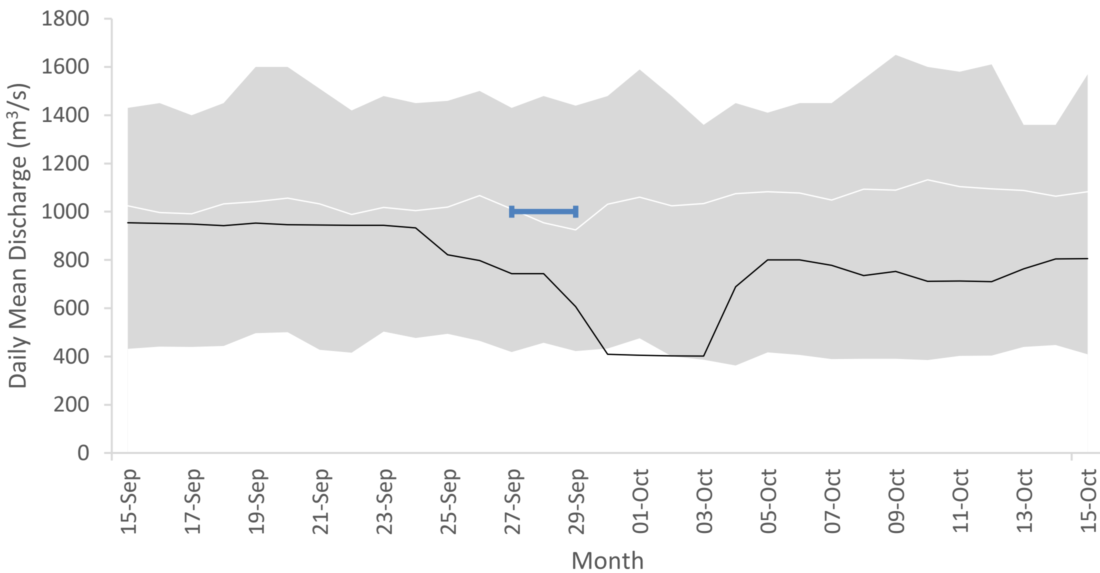


Figure 2. Daily mean discharge (black line) for Section 5 (top) and Section 7 (bottom) in 2020. The shaded area represents historical minimum and maximum mean daily discharge. The white line represents the historical mean discharge. The blue bar indicates the sampling period in 2020. Historical data range from 2000 to 2017 (Gov. of Canada 2020). Section 5 data derived from WSC 07FA004 and Section 7 data derived from WSC 07FD010 minus WSC 07FD001.



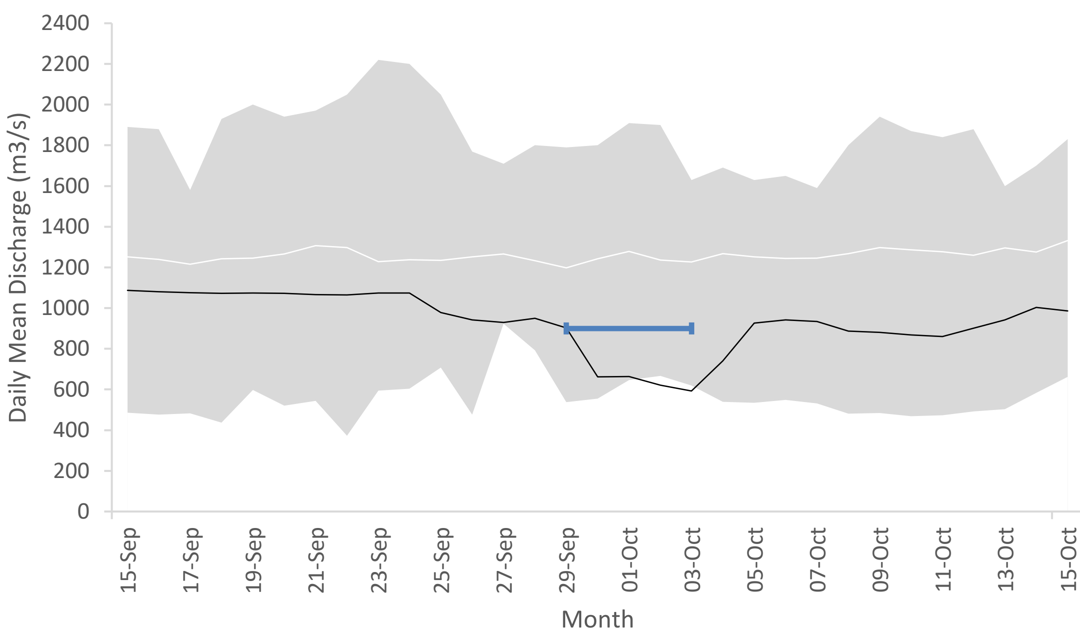


Figure 3. Daily mean discharge (black line) for Section 5 (top) and Section 7 (bottom) in 2020. The shaded area represents historical minimum and maximum mean daily discharge. The white line represents the historical mean discharge. The blue bar indicates the sampling period in 2020 within the respective river sections. Historical data range from 2000 to 2017 (Gov. of Canada 2020).

3.1.2 Water Temperature

Surface water temperatures in the Peace River measured at sampled sites varied by date, river section, and habitat type (Figure 4). Mean water temperatures across all habitats in 2020 were highest in Section 5 (10.1°C), followed by Section 7 (9.7°C), and lowest in Section 9 (9.3°C). There were no discernible trends found in water temperature by habitat. Mean water temperatures in 2020 were found to be similar to historic water temperatures recorded by Mainstream in 2009, 2010, 2011, with the exception of Section 9 when temperatures were slightly lower than in 2011 (Figure 4). No data were available for Section 9 in 2009 and 2010.

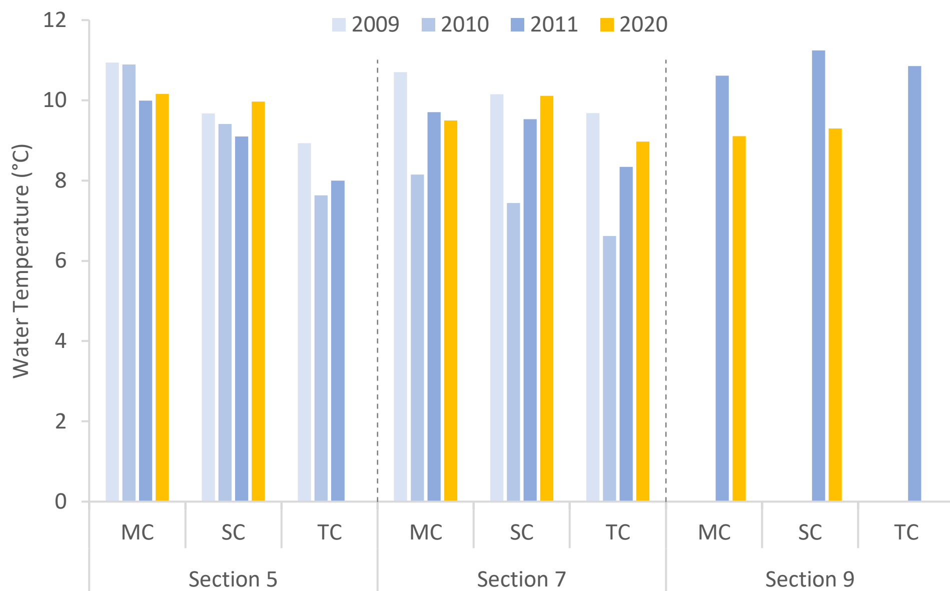


Figure 4. Daily mean water temperatures for the Peace River in Sections 5, 7, and 9 in 2009, 2010, 2011, and 2020 by habitat type. Main Channel (MC), Side Channel (SC) and Tributary Confluence (TC). No data were available for Section 9 in 2009 and 2010. Historic data provided by Mainstream.

3.1.3 Water Clarity

Water clarity of the Peace River measured at sample sites varied by date, river section, and habitat type (Figure 5). Mean water clarity across all habitats in 2020 was highest in Section 5 at 0.91 m, followed by Section 7 at 0.89 m, and was lowest in Section 9 at 0.55 m. Water clarity was slightly lower in 2020 than the mean historic water clarity in Sections 5 and 7 between 1.1 m and 1.2 m and was higher than historic values in Section 9 of 0.3 m (Mainstream 2010, 2011, 2013). By habitat, water clarity in 2020 was slightly lower in main channel habitats compared to side channels or tributary confluences. Water clarity in 2020 was substantially lower for main channels in Section 5 than historic years. No historic water clarity data were available in 2009 and 2010 in Section 9 as no sampling was conducted (Figure 5).

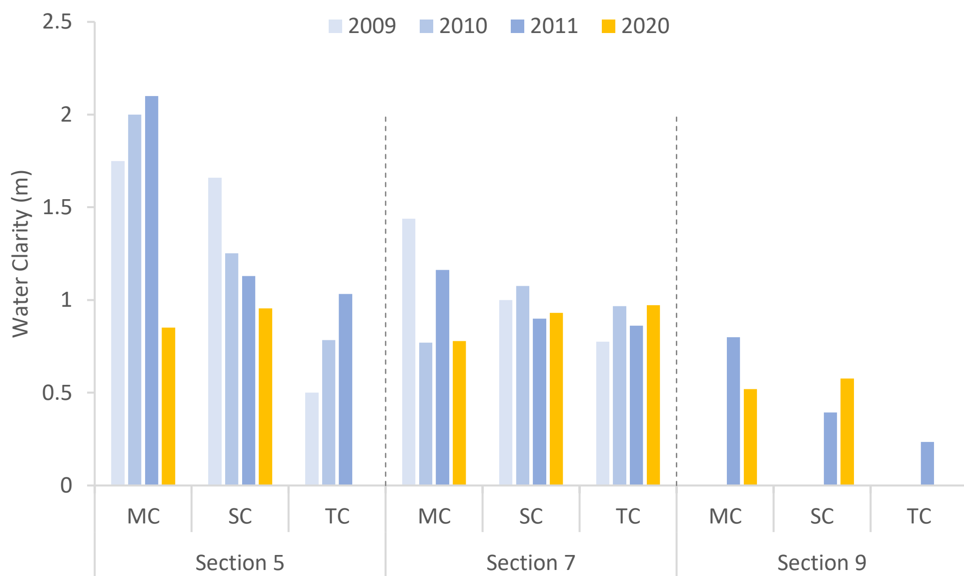


Figure 5. Mean water clarity on the Peace River for Sections 5, 7, and 9 in 2009, 2010, 2011, and 2020 by habitat type. Main Channel (MC), Side Channel (SC) and Tributary Confluence (TC). No data available for Section 9 in 2009 and 2010. Historic data provided by Mainstream.

3.1.4 Water Conductivity

Water conductivity on the Peace River measured at sample sites varied by date, river section, and habitat type (Figure 6). Mean conductivity across all habitats in 2020 was lowest in Section 5 at 241 µS/cm, followed by Section 9 at 245 µS/cm, and highest in Section 7 at 262 µS/cm. Historically, mean conductivity has varied from 178 to 259 µS/cm in Section 5, and from 183 to 234 µS/cm in Section 7 between 2009 and 2010, with a value of 190 µS/cm in 2011 for Section 9. By habitat, conductivity appears lowest in main channels and highest at tributary confluences. Water conductivity was on average generally marginally higher in 2020 than in previous sampling years.

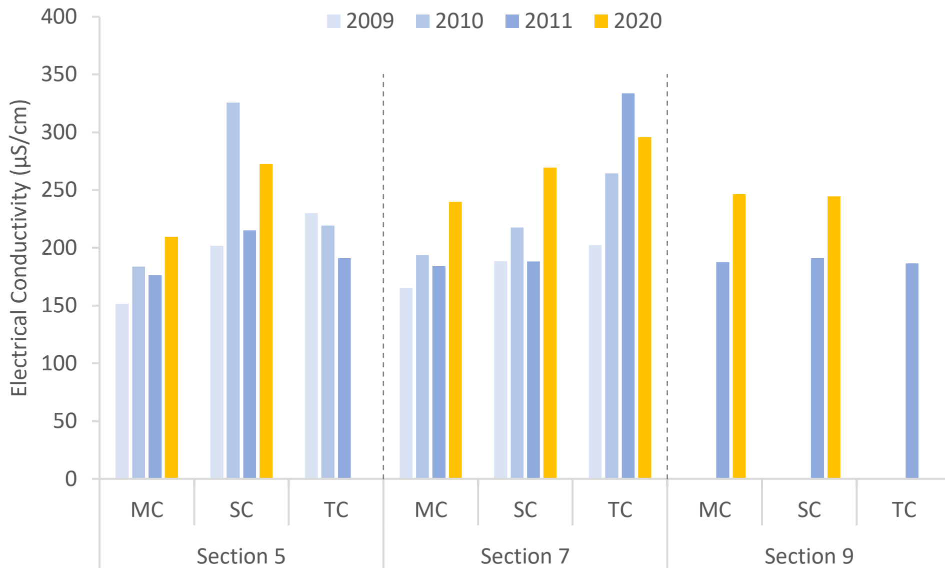


Figure 6. Mean conductivity for the Peace River for Sections 5, 7, and 9 during sample years 2009, 2010, 2011, 2020 by habitat type. Main Channel (MC), Side Channel (SC) and Tributary Confluence (TC). No data available for Section 9 in 2009 or 2010. Historic data provided by Mainstream.

3.2 Fish Community Structure

3.2.1 Species Composition

A total of 1,505 fish were captured during sampling in 2020, representing 25 species of fishes (Table 8). Six of these species were coldwater species, 4 coolwater species, 3 suckers, 3 sculpins, and 9 minnows (Table 8). Sculpins accounted for the greatest proportion of the species captured at 36.6%, followed next by the minnow group at 29.3%, coldwater fish at 19.8%, suckers (12.4%), and coolwater fish were captured the least of all fish groups at 1.9%. The three most numerically abundant fish caught were Slimy Sculpin (n = 509) followed by Mountain Whitefish (n = 256) and Lake Chub (n = 196). Lake Whitefish (n = 1), Finescale Dace (n = 1), and Northern Redbelly Dace (n = 1) were least abundant and considered scarce throughout.

Table 8. Composition of captured fish by fish group and fish species along with percentage of total catch for 2020.

Group	*Species*	*Total*	*% of Total Catch*
Coldwater	Arctic Grayling	17	1.1
	Bull Trout	5	0.3
	Kokanee	17	1.1
	Lake Whitefish	1	0.1
	Mountain Whitefish	256	17.0
	Rainbow Trout	2	0.1

Group	Species	Total	% of Total Catch
	Sub Total	**298**	**19.8**
Coolwater	Burbot	3	0.2
	Northern Pike	15	1.0
	Walleye	9	0.6
	Yellow Perch	2	0.1
	Sub Total	**29**	**1.9**
Suckers	Largescale Sucker	23	1.5
	Longnose Sucker	131	8.7
	White Sucker	32	2.1
	Sub Total	**186**	**12.4**
Sculpins	Prickly Sculpin	14	0.9
	Slimy Sculpin	509	33.8
	Spoonhead Sculpin	28	1.9
	Sub Total	**551**	**36.6**
Minnows*	Finescale Dace	1	0.1
	Flathead Chub	31	2.1
	Lake Chub	196	13.0
	Longnose Dace	113	7.5
	Northern Pikeminnow	3	0.2
	Northern Redbelly Dace	1	0.1
	Redside Shiner	30	2.0
	Spottail Shiner	32	2.1
	Trout-perch	34	2.3
	Sub Total	**441**	**29.3**
	Grand Total	**1505**	**100.0**

* Note that the Minnow group includes true minnows of the family Cyprinidae and Trout-perch of the family Percopsidae.

When comparing to previous sampling years, coldwater species generally made up a smaller percentage of the total catch in 2020 while sculpin percentage was higher (Figure 7). Coolwater species, suckers, and minnows accounted for approximately the same percentage of the total catch as previous sampling years (2009, 2010), however more suckers and minnows were caught in 2011. Fewer fish were captured during previous small fish programs in the fall, with a total of 1,248 fish captured in 2009, 864 fish captured in 2010, and 982 captured in 2011, however the number of sites sampled each year (2009: n = 50, 2010: n = 51, 2011: n = 72, 2020: n = 76) and the location of sampling (no sampling in Section 9 in 2009 or 2010) has not been consistent from year to year (Mainstream 2010, 2011, 2013).

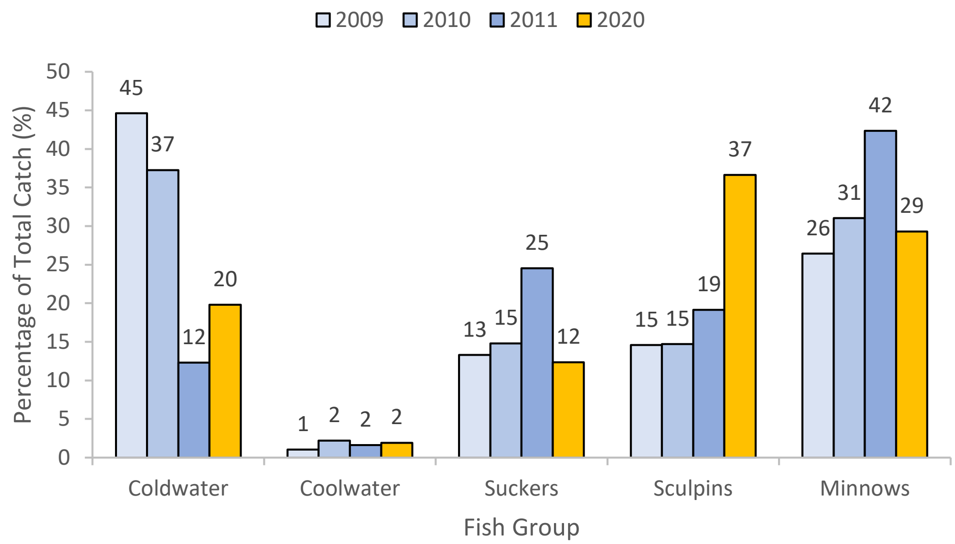


Figure 7. Percent of total catch by fish group and sample year. Historic data provided by Mainstream (2010, 2011, 2013).

3.2.2 Fish Assemblage

Fish assemblage varied across sampled sections and habitats (Figure 8). Sculpins were the numerically dominant fish group captured in Sections 5 and 7, while minnows accounted for the majority of the fish in Section 9. The assemblage of coldwater species and sculpins decreased from upstream to downstream, while minnows and suckers displayed the opposite trend. Historically, fish assemblages by river section were similar to 2020 with the exception of sculpin assemblage in all river sections which was approximately double that of historic values (Mainstream 2010, 2011, 2013). Minnow assemblage in 2011 for Section 9 was approximately double the 2020 assemblage (Mainstream 2013).

When comparing across the three habitats sampled in 2020, coldwater fish were typically found in main channels, sculpins were the dominant fish group in side channels and minnows were the dominant fish group found at tributary confluences. Fish assemblage by habitat has historically fluctuated from year to year based on the relative abundances of each species group, however coldwater fish are primarily found in main channels, suckers and minnows in side channels and tributaries with no discernible trends for the remaining species groups (Mainstream 2010, 2011, 2013).

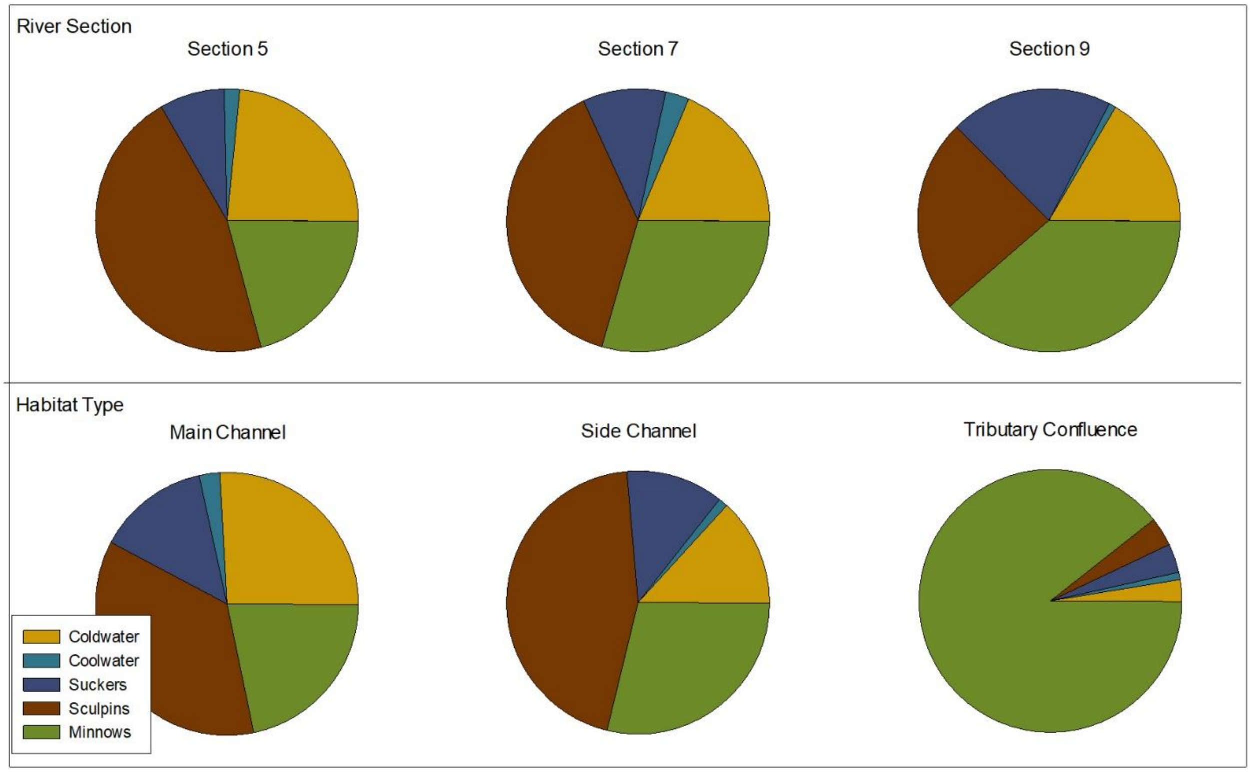


Figure 8. Fish assemblage in 2020 by fish group, river section, and habitat type.

3.2.3 Species Diversity

The diversity profiles show the effective number of species for varying values of q. As the value of q increases, the relative contribution of less common species decreases. The profiles in each of the sampling years illustrate a trend whereby two or three species comprise the majority of fish within the community, while an additional four to 10 species are present in lower numbers (Figure 9). Data from the 2020 program showed greater species richness then in the previous three sample years, which resulted in steeper curves then historically observed.

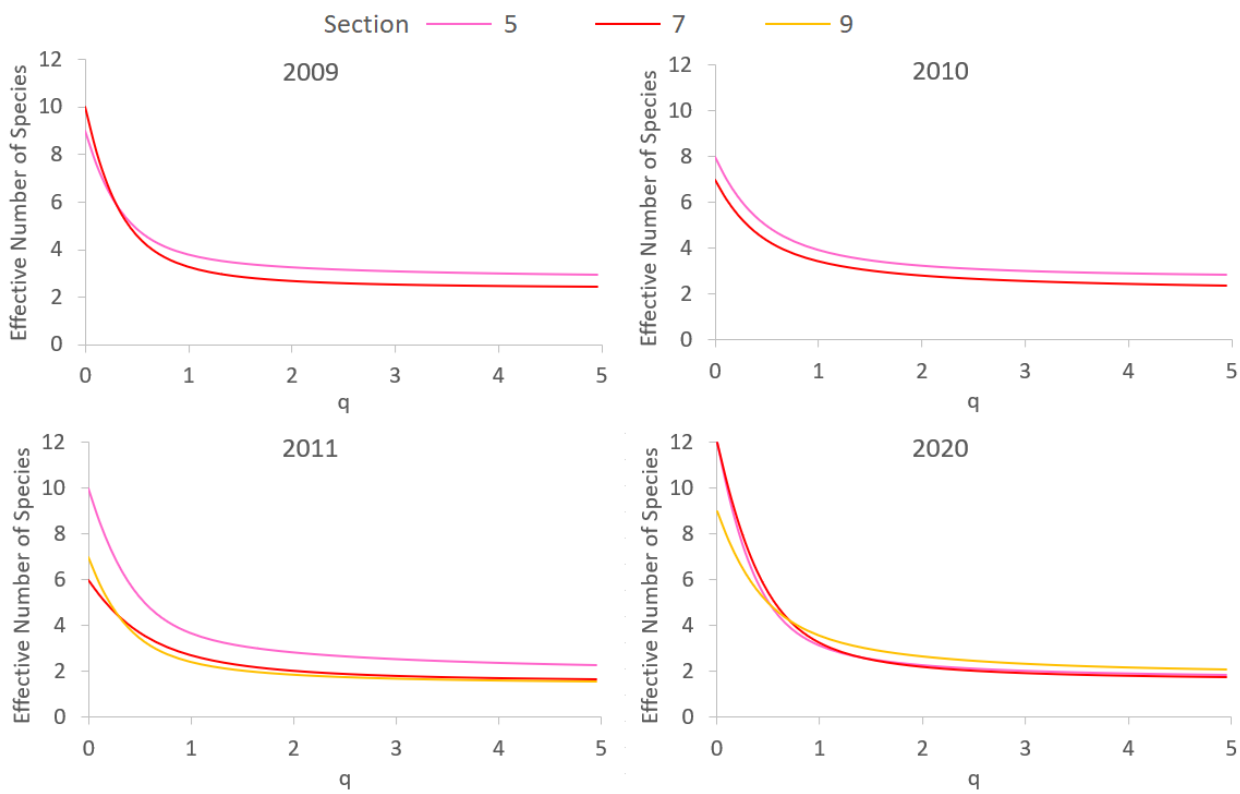


Figure 9. Diversity profiles showing the effective number of species versus the parameter (q) representing the importance of less common to common species in the calculation. A value of q=0 corresponds to species richness while a value of q-1 corresponds to the Shannon index.

3.2.4 Species Occurrence

Fish species occurrence was compared between species and river section (Figure 10). Within each section, Slimy Sculpin was encountered the most often (43% for Section 5 and 36% for Section 7) with the exception of Section 9 (20%), where Lake Chub (23%) was the numerically dominant fish species to occur. Mountain Whitefish was the second most prevalent species in Sections 5 and 7, occurring between 16% to 21%, whereas in Section 9 their numbers were slightly fewer (14%). Longnose Sucker was the third most common species in Sections 5 and 9 with 4% and 16% respectively, with Longnose Dace (10%) occurring third most commonly, at approximately 10% in Section 7.

Slimy Sculpin (35%) followed by Mountain Whitefish (24%) and Lake Chub (12%) were the most frequent of the fish species in main channel habitat (Figure 11). Slimy Sculpins accounted for almost half (47%) of the fish in side channel habitat, followed next by Mountain Whitefish (13%) and Longnose Sucker (9%). Within the tributary confluence site, the majority were Longnose Dace (52%), Lake Chub (15%), and Flathead Chub (11%).

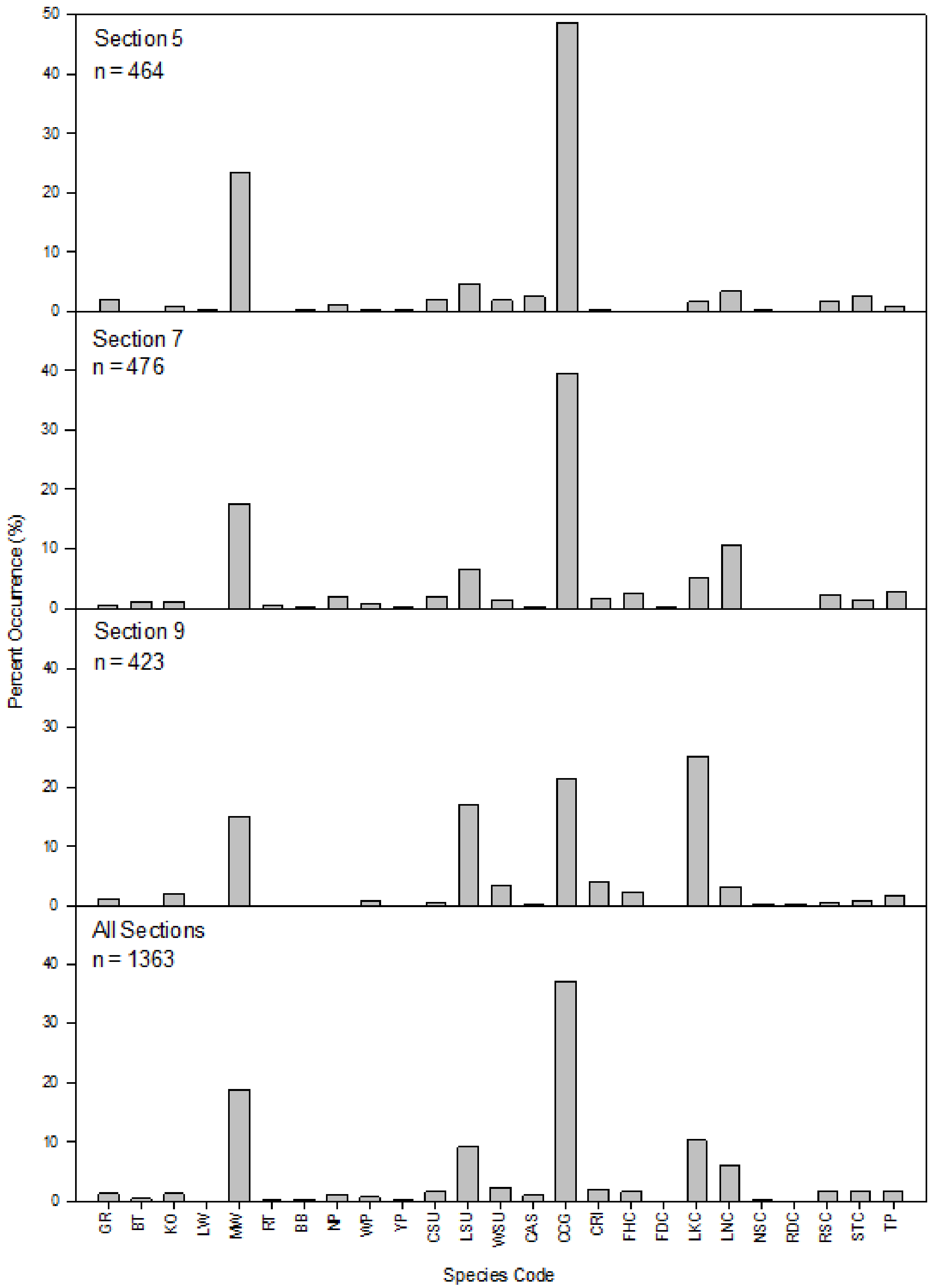


Figure 10. Percent occurrence of fish species at sampled sites by river section in 2020.

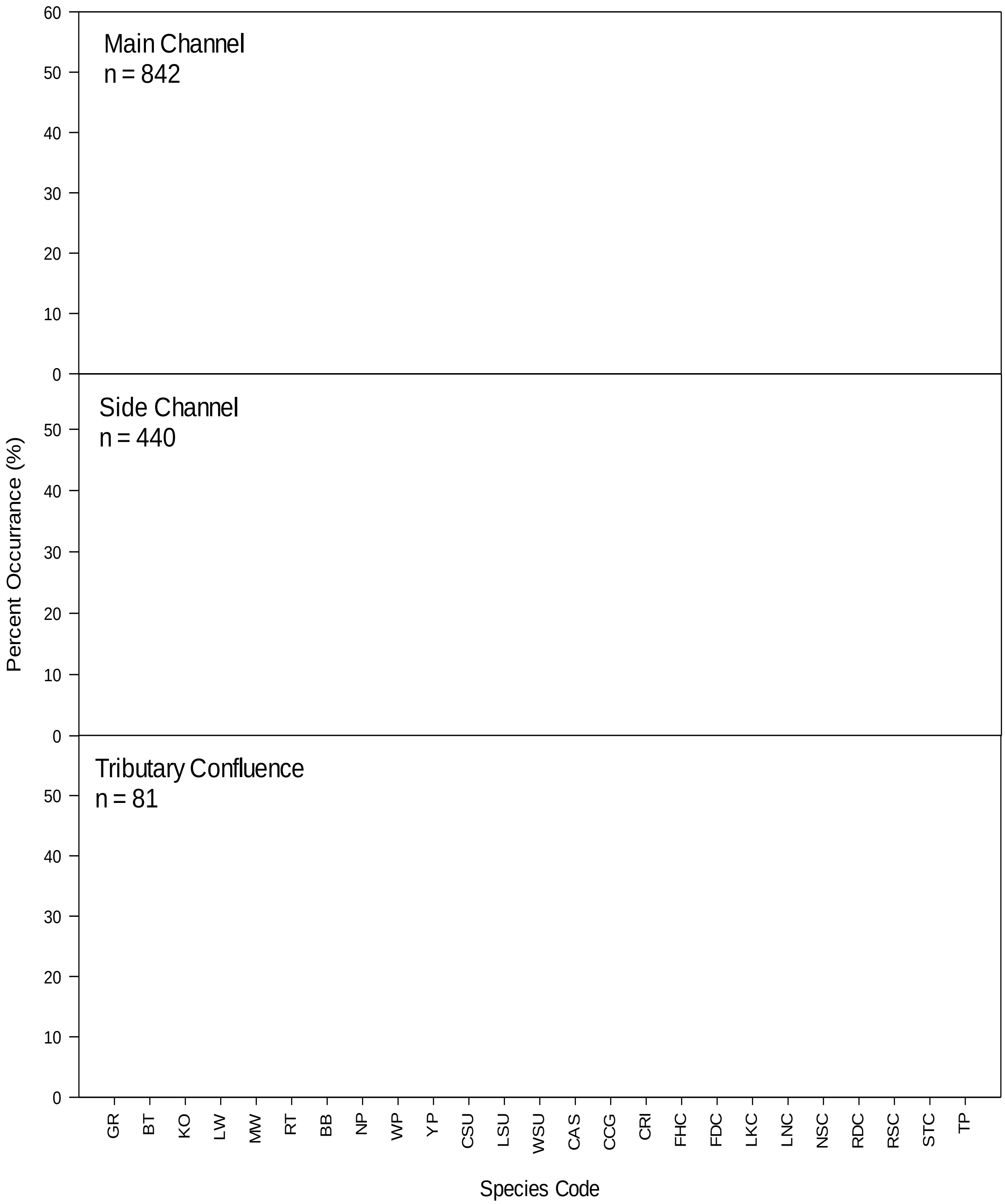


Figure 11. Percent occurrence of fish species at sampled sites by habitat type in 2020.

3.3 Catch Rates

Of the total 1,505 fish captured in 2020, 59% were caught by boat electrofisher, 27% were caught by backpack electrofisher, 14% were caught by beach seine, and 2 fish or 0.01% were caught by gill net. Across all sites and sample sections the backpack electrofisher had the highest average CPUE at 1,592 fish/km/hr, followed by the boat electrofisher with 180 fish/km/hr, beach seine with 0.04 fish/m^2, and gill net with 0.001 fish/m^2/hr (Figure 12; Appendix 4). CPUE calculations fluctuated from year to year, however, catch rates in 2020 by sample method were similar to historic years (Figure 13). The number of sites has varied among sampling years, with no sampling of Section 9 in 2009 and 2010, and some sites in 2020 were changed due to low water levels. These variables alone do not appear to have had any impact on CPUE calculations from year to year with large confidence intervals for all sample years.

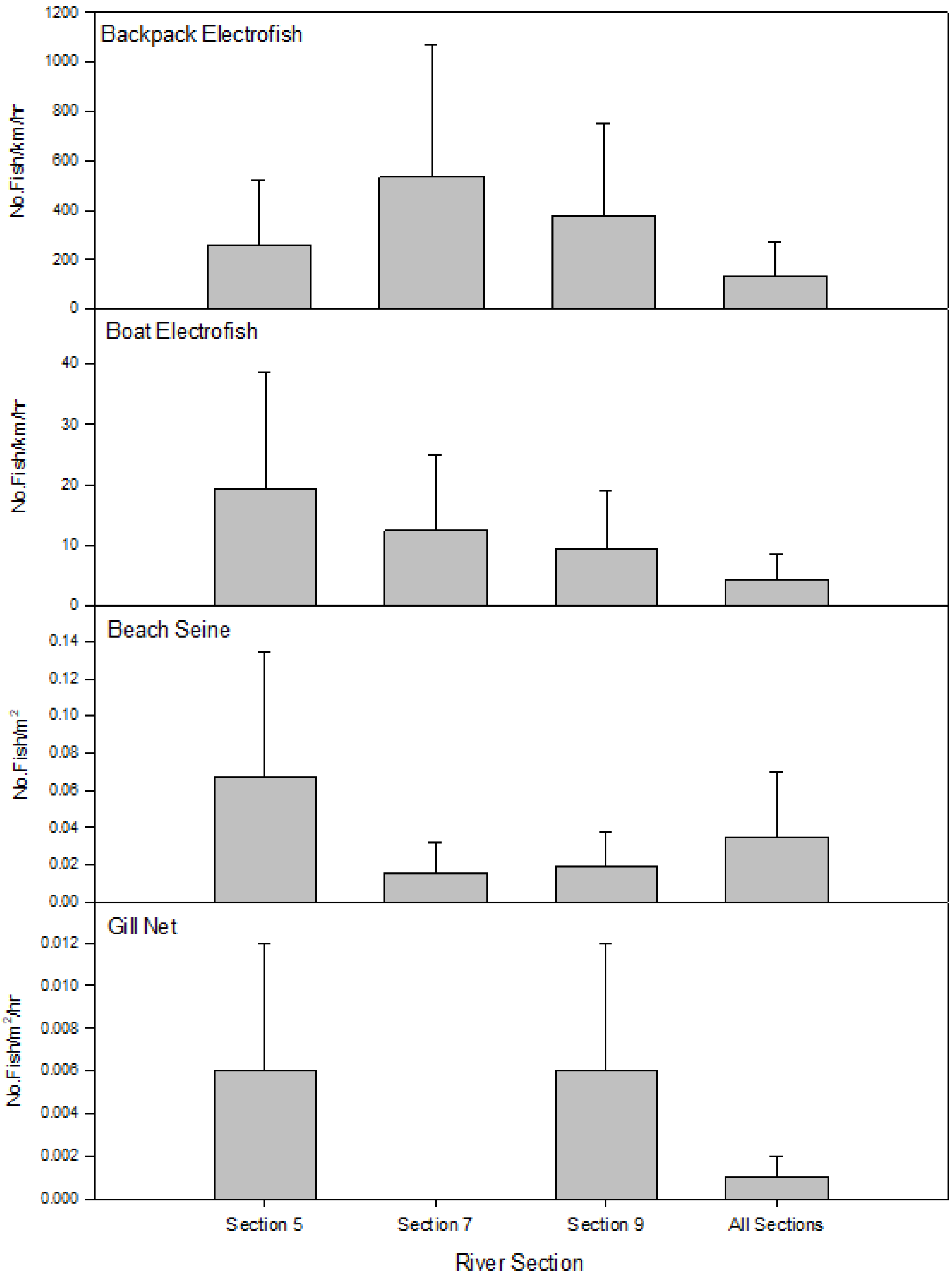


Figure 12. Average CPUE along with standard error bars for each sample method and river section in 2020. No fish were caught by gill net in section 7.

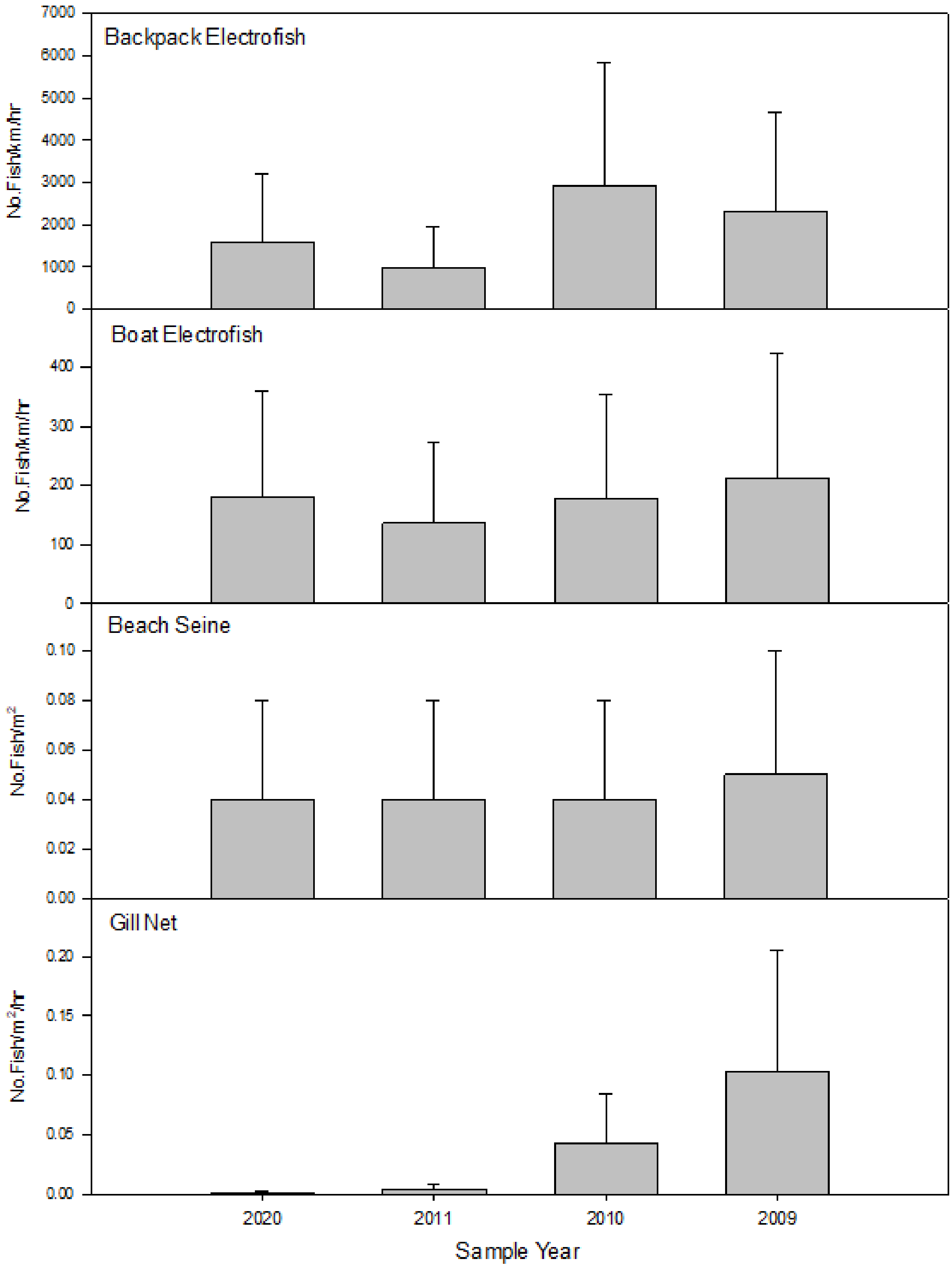


Figure 13. Average CPUE along with standard error bars for each sample method and sample year.

Catch rates for backpack electrofishing sites showed that side channel habitats had a distinctly higher density of fish compared to main channel habitat (Figure 14). This trend was also evident in the beach seine sites, although to a lesser extent. Tributary sites exhibited the lowest catch rates, although this result could be attributed to the limited number of sites in that habitat type (n = 4). All but one boat electrofishing site was in main channel habitat and only one gill net site occurred in each river section, so insufficient data exists to infer any habitat related trends from those capture methods.

In total, 157 of the 1,505 fish captured in 2020 either had existing PIT tags (n=25) or were implanted with new PIT tags (n=132). One of the recaptures also included a radio tagged Walleye being monitored under the Site C Fish Movement Assessment (Mon-1b, Task 2d;LGL Limited 2020).

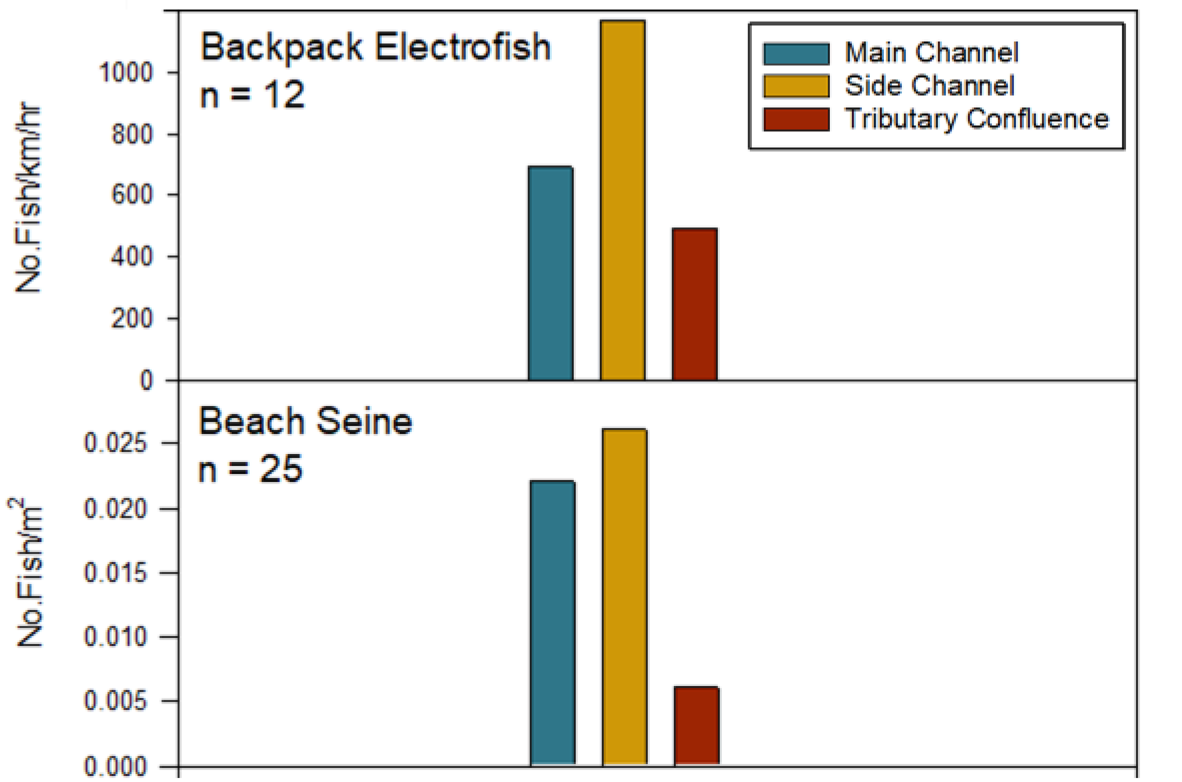


Figure 14. Average CPUE for backpack electrofisher and beach seine by habitat type in 2020.

3.4 Fish Health

Based on the DELT Index values, 17 (1.13%) of the 1,505 fish captured in 2020 showed evidence of impairment to health (presence of deformity, erosion, lesion, cut, or tumour). These included two species in the coldwater fish group (Kokanee and Mountain Whitefish), two in the sucker group (Longnose Sucker and Largescale Sucker), one in the sculpin group (Slimy Sculpin), and one in the minnow group (unknown species).

Of the health issues identified, light cuts were found in six fish and appeared to be the most common impairment. Four fish exhibited heavy cuts, two fish light lesions, two fish light tumours, and the remaining three fish each had either heavy lesions, an electrofisher injury, or heavy erosion. The majority (n = 7) of the fish with DELT codes were Mountain Whitefish, followed by Longnose Sucker (n = 4), Kokanee and Largescale Sucker (n = 2 of each), Slimy Sculpin (n = 1), and the other an unknown minnow species (n = 1). Eight of the 17 fish with DELT codes were captured in Section 5, 3 fish had DELT codes in Section 7, and 6 fish with DELT codes were captured in Section 9. Historically, less than 1% of the fish captured had DELT codes with 4 fish in 2009, 2 fish 2010, and 1 in 2011 during the small fish program in the fall (Mainstream 2010, 2011, 2013).

3.5 Coldwater Fish Abundance

Overall, coldwater fish was the third most numerous fish group, accounting for 20% of the total fish in 2020 across all sample sections and fish groups. The 2020 data falls within the 12% to 45% proportional range for the coldwater fish group documented by historical baseline studies (Mainstream 2010, 2011, 2013).

Six species of coldwater fish were recorded during sampling in the Peace River in 2020, with Mountain Whitefish representing overwhelming the majority (Table 9). The other five species each comprised 6% or less of the catch within the coldwater fish group. The abundance of coldwater fish decreased from upstream to downstream.

Table 9. Number of coldwater fish species caught and their frequency of occurrence in sampled sections, 2020.

Species	*Section 5*	*Section 7*	*Section 9*	*Total*	*% of Coldwater fish Group*
Arctic Grayling	10	2	5	**17**	**6**
Bull Trout	0	5	0	**5**	**2**
Kokanee	4	5	8	**17**	**6**
Lake Whitefish	1	0	0	**1**	**0**
Mountain Whitefish	109	84	63	**256**	**86**
Rainbow Trout	0	2	0	**2**	**0**
Subtotal	**124**	**98**	**76**	**298**	**100**

Arctic Grayling were captured in all three river sections that were sampled in 2020 and accounted for 1.1% of the total fish caught. More Arctic Grayling were captured upstream in Section 5 than in Section 7 and 9 combined. Historically in Section 5, one Arctic Grayling was caught in 2011, five in 2010, and 28 in 2009. In Section 7, four were caught in 2011, 31 were caught in 2010, and 16 in 2009 (Mainstream 2010, 2011, 2013). Only one Arctic Grayling has been caught in Section 9 (in 2011), however no sampling took place in Section 9 in 2009 or 2010 (Mainstream 2010, 2011).

All five Bull Trout were captured in Section 7, with Bull Trout accounting for 0.3% of the total fish caught in 2020. In past years (2009, 2010, and 2011), only a single Bull Trout has been captured downstream of the Project in Section 5(Mainstream 2010, 2011, 2013).

Kokanee were captured in all three river sections in 2020 and accounted for 1.1% of the total fish caught. Kokanee were the second most abundant coldwater fish encountered in 2020 with Kokanee abundance increasing with distance downstream. Historically, Mainstream captured three Kokanee in Section 5 in 2009 and 2011, and two Kokanee in Section 7 in 2009 and 2011, with no Kokanee being caught in 2010 (Mainstream 2010, 2011, 2013).

One Lake Whitefish was captured during field sampling in 2020, which accounted for 0.1% of the total fish caught. Lake Whitefish was the least abundant coldwater fish. With only one fish being captured, spatial trends in their abundance could not be interpreted. Historically, no Lake Whitefish have been captured during the small fish program in the fall sampling season (Mainstream 2010, 2011, 2013).

Mountain Whitefish were captured in all three river sections sampled in 2020, accounting for 17% of the total fish caught. In similar programs (Mon-2, Task 2a, Mon-2, Task 2b) on the Peace River using large and small fish sampling methods, Mountain Whitefish have made up between 40 and 50 percent of the total fish caught (Mainstream 2013, Golder and Gazey 2018). In 2020, Mountain Whitefish were the second most abundant fish captured, and most abundant of the coldwater fish with their abundance decreasing from upstream to downstream. Historically, Mainstream captured between 58 and 198 Mountain Whitefish in Section 5, between 31 and 308 Mountain Whitefish in Section 7 during sampling in 2009, 2010, and 2011, and 20 Mountain Whitefish in Section 9 in 2011 (Mainstream 2010, 2011, 2013). Overall, the relative abundance of Mountain Whitefish has fluctuated from year to year and by section, however they still account for a sizeable portion of the total fish biomass in the Peace River (Golder and Gazey 2018).

Both of the Rainbow Trout were captured in Section 7, with Rainbow Trout accounting for 0.1% of the total fish caught. Historically only one Rainbow Trout was captured during the small fish program in the fall of 2009 (Mainstream 2010, 2011, 2013). With only two fish being captured in 2020, spatial trends in their abundance could not be interpreted.

3.5.1 Arctic Grayling

3.5.1.1 Catch Rate

Of the 17 Arctic Grayling captured, all were caught using the boat electrofisher sampling method. In Section 5, catch rate of Arctic Grayling was highest with a mean CPUE of 7.2 fish/km/hr, compared to Sections 7 and 9 where mean CPUE were 1.5 and 2.3 fish/km/hr, respectively (Figure 15, Appendix 4). The majority (n = 15) of the Arctic Grayling were caught in main channel habitats, with only two being caught in side channel habitat. No Arctic Grayling were caught in the 108R offset channels created in Section 5.

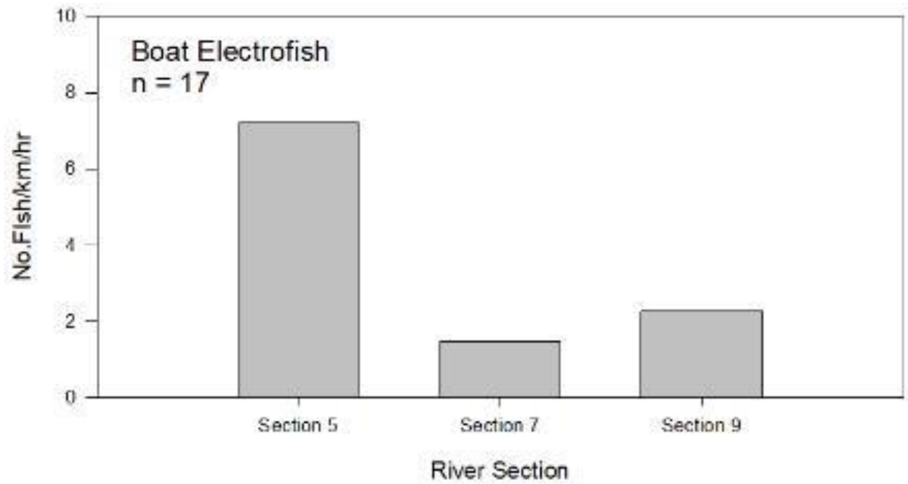


Figure 15. Average boat electrofishing catch rate for Arctic Grayling by river section in 2020.

3.5.1.2 Biological Characteristics

Two age classes of Arctic Grayling were captured in 2020 based on the 17 scale samples collected: age-0 and age-1 (Table 10). Sampled Arctic Grayling ranged in length from 67 mm to 151 mm, ranged in weight from 5 g to 36 g, and ranged in body condition from 0.51 to 2.03.

Table 10. Average fork length, weight, and body condition along with standard deviation and sample range by age for Arctic Grayling captured by boat electrofishing in 2020.

Age	*Fork Length (mm)*			*Weight (g)*			*Body Condition (K)*		
	n	Average ± SD	Range	n	Average ± SD	Range	n	Average ± SD	Range
0	15	96 ± 9	67 - 103	15	8 ± 2	5 - 12	15	1.00 ± 0.33	0.51 - 2.03
1	2	147 ± 4	143 - 151	2	34 ± 2	32 - 36	2	1.07 ± 0.02	1.05 - 1.09

Interpretation of the length-frequency (Figure 16) and age-frequency (Figure 17) distributions is limited given the low catch numbers, but age-0 appear to be well represented (n = 15). The age-0 cohort had higher abundance (n = 10) in Section 5 compared to Sections 7 (n = 2) and 9 (n = 3) combined (Figure 17). The two age-1 Arctic Grayling were caught in Section 9.. Mean body condition for Arctic Grayling would be considered good (K > 1), however the numbers are limited and standard deviation was large for age-0 fish. The length-weight regression was expressed by the power function to improve clarity and showed allometric growth (Figure 18).

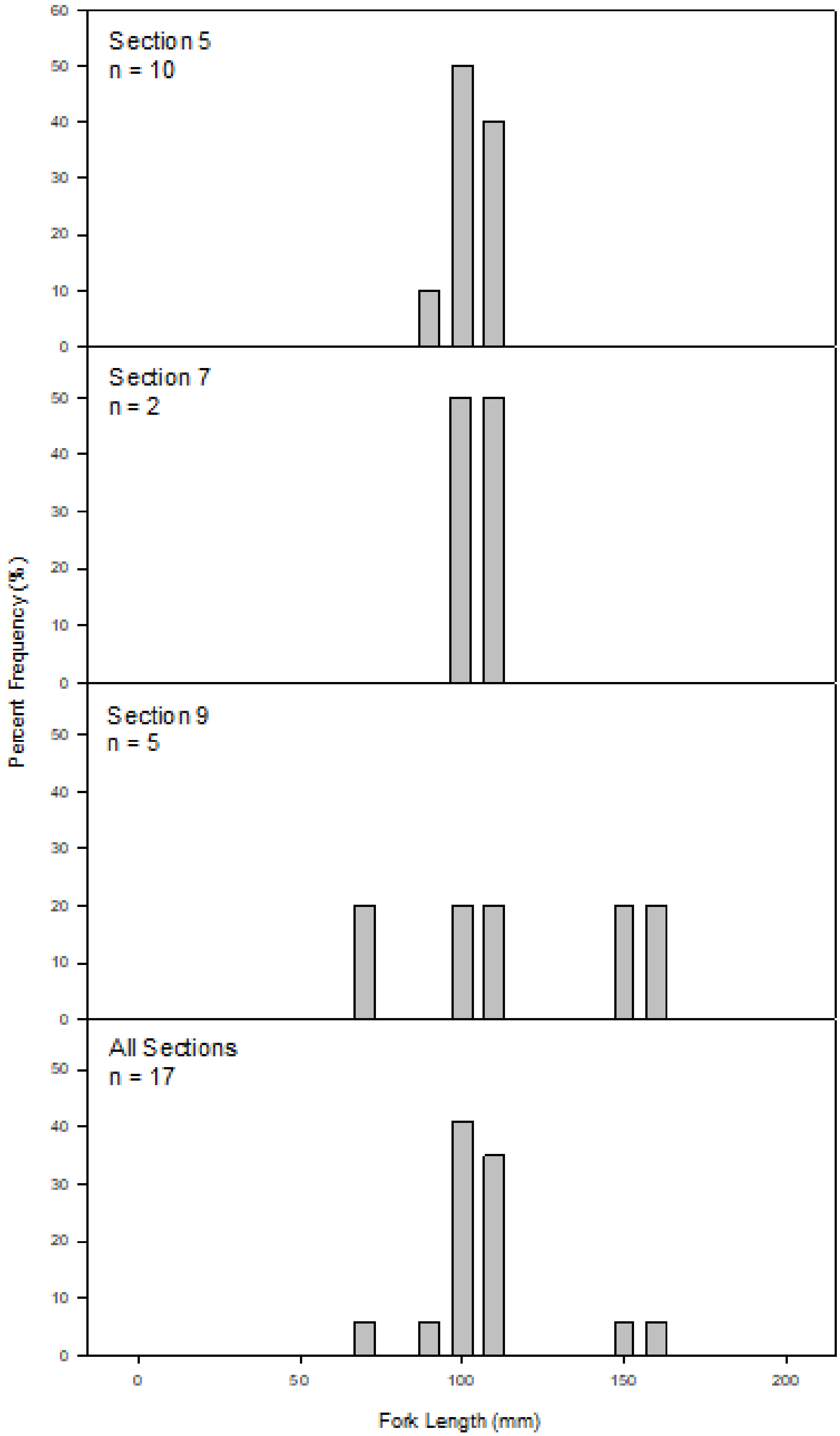


Figure 16. Length-frequency distributions for Arctic Grayling captured by boat electrofishing in 2020.

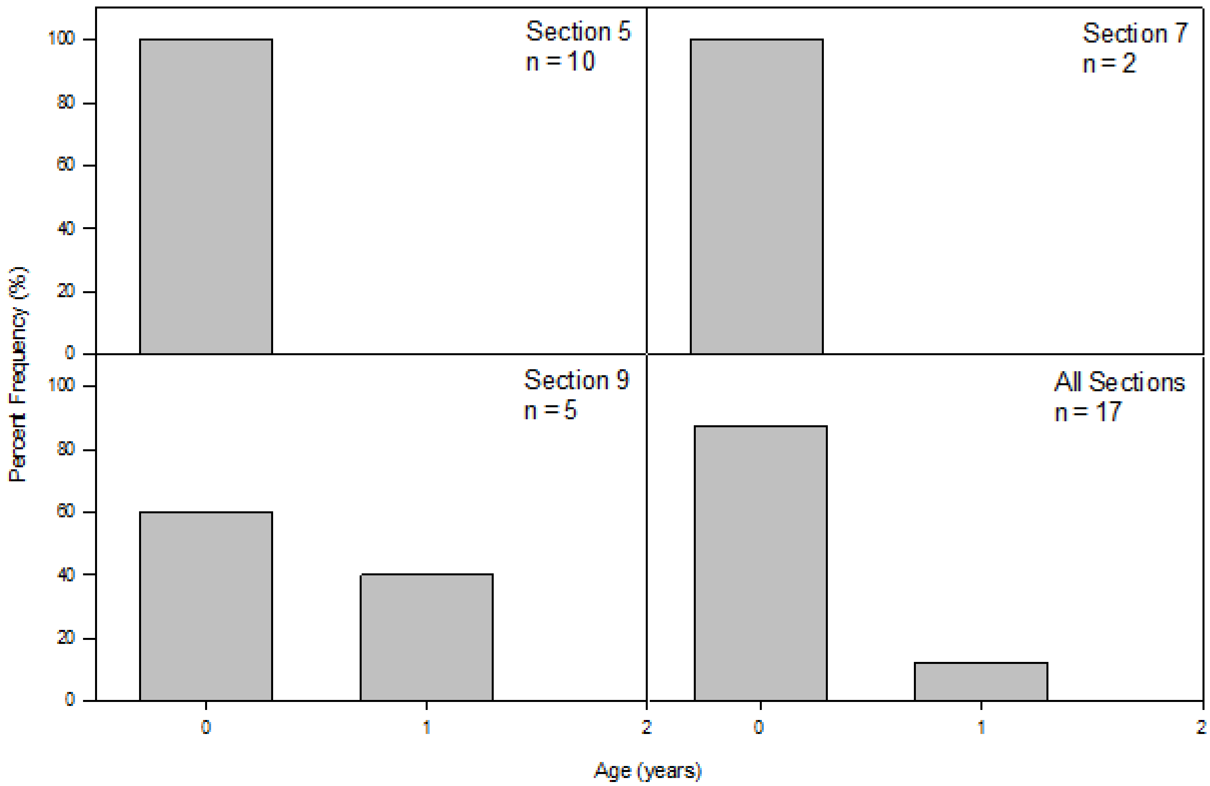


Figure 17. Age-frequency distributions for Arctic Grayling captured by boat electrofishing in 2020.

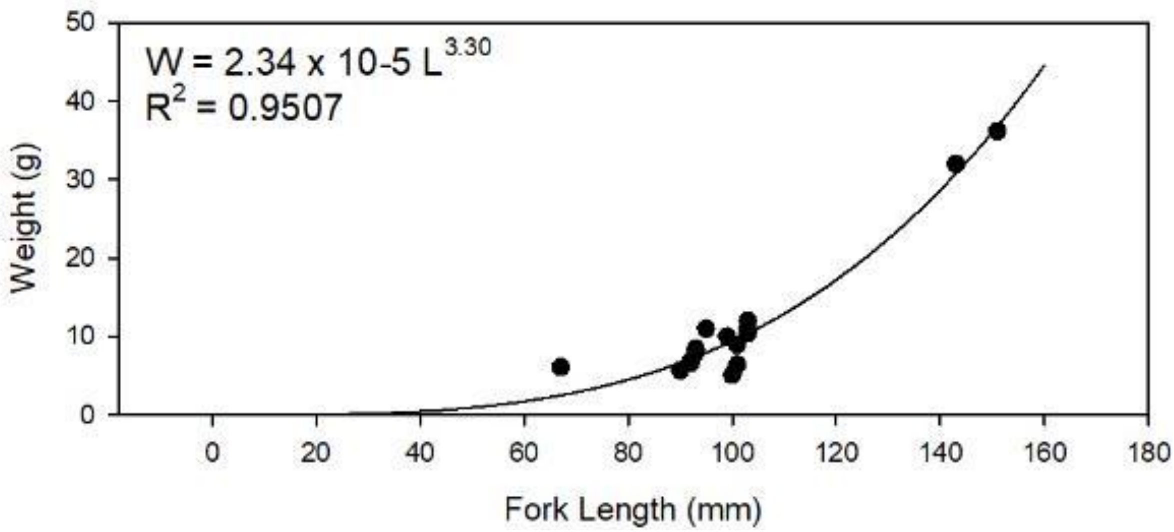


Figure 18. Length-weight regression for Arctic Grayling captured by boat electrofishing in 2020.

3.5.2 Bull Trout

3.5.2.1 Catch Rate

All five Bull Trout encountered in 2020 were captured using the boat electrofishing sampling method. Bull Trout catch rates were highly variable, with 0 in both Sections 5 and 9, and 2.8 fish/km/hr in Section 7 (Figure 19, Appendix 4). Four Bull Trout were captured in main channel habitat and one in side channel habitat.

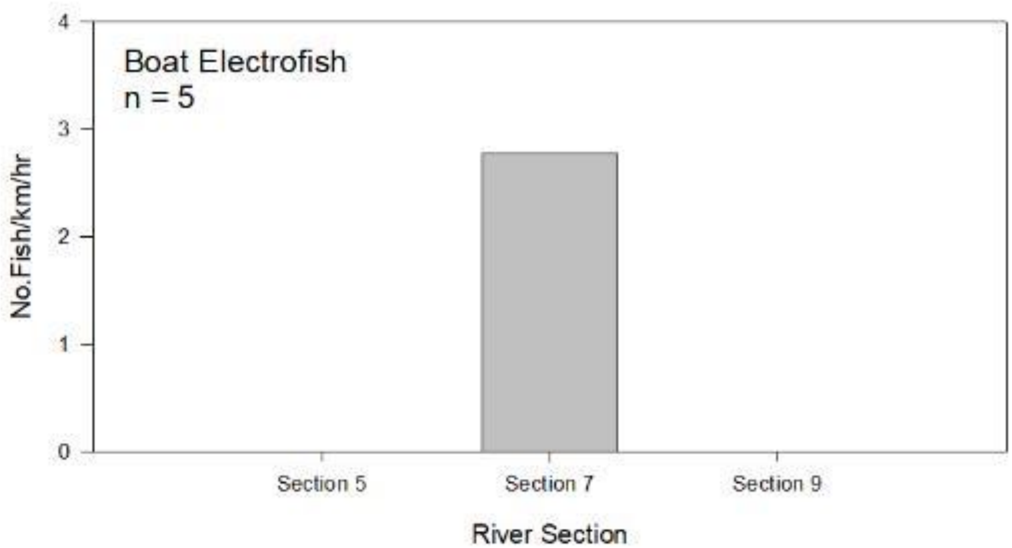


Figure 19. Average boat electrofishing catch rate by river section for Bull Trout captured in 2020.

3.5.2.2 Biological Characteristics

Fin ray samples were collected from all five of the Bull Trout captured in 2020, however an age could not be assigned to one of the samples. Captured Bull Trout comprised two age classes: age-2 and age-3 (Table 11). Fish ranged in length from 204 mm to 255 mm, ranged in weight from 89 g to 173 g, and ranged in body condition from 1.02 to 1.23. Bull Trout weights were more variable than fork length or body condition, with higher standard deviations.

Table 11. Average fork length, weight, and body condition along with standard deviation and sample range by fish age, for Bull Trout captured by boat electrofishing in 2020.

Age	*Fork Length (mm)*			*Weight (g)*			*Body Condition (K)*		
	n	Average ± SD	Range	*n*	Average ± SD	Range	*n*	Average ± SD	Range
2	2	205 ± 1	204 - 206	2	97 ± 8	89 - 104	2	1.12 ± 0.10	1.02 - 1.23
3	2	245 ± 3	235 - 255	2	156 ± 18	138 -173	2	1.05 ± 0.01	1.04 - 1.06

Interpretation of length-frequency and age-frequency distributions were limited due to low sample numbers (Figure 20). The length-at-age would represent the juvenile age class which typically rears in tributaries before entering the mainstem Peace River (Golder and Gazey 2018). The Bull Trout length-weight regression displayed a strong relationship and suggested a negative allometric growth rate (Figure 21).

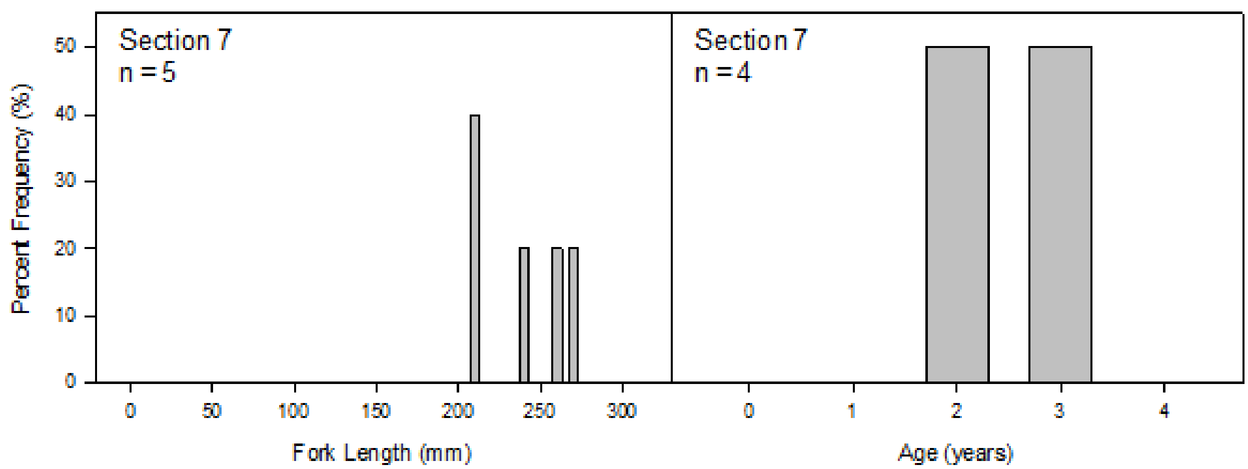


Figure 20. Length-frequency and age-frequency distribution for Bull Trout caught by boat electrofishing in 2020. No Bull Trout were caught in Sections 5 or 9 in 2020.

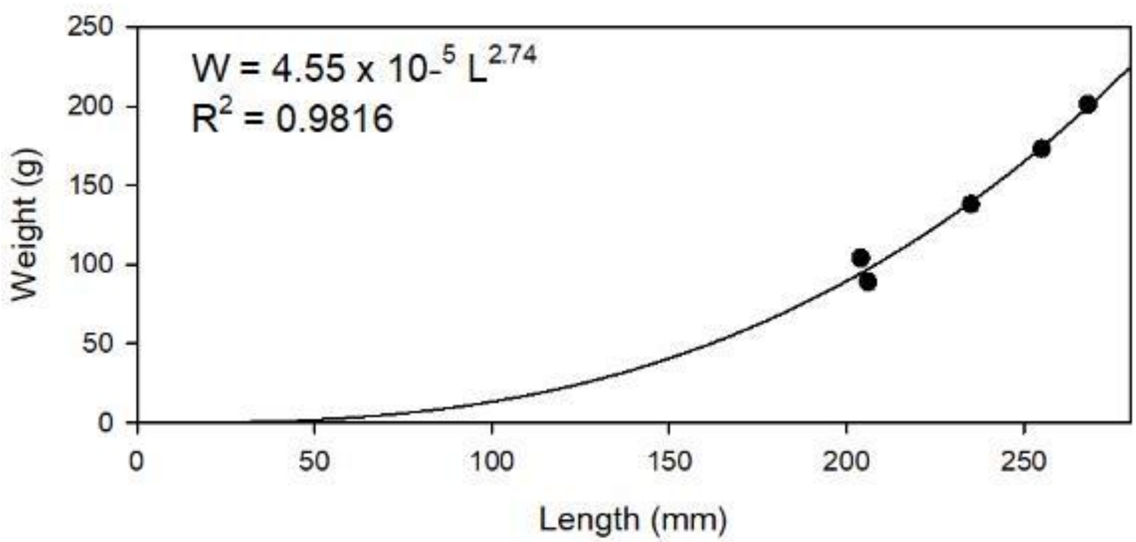


Figure 21. Length-weight regression for Bull Trout caught by boat electrofishing in 2020.

3.5.3 Kokanee

3.5.3.1 Catch Rate

Of the 17 Kokanee captured in 2020, 16 were caught using the boat electrofisher and 1 with a beach seine. Catch rates for Kokanee were highest for the boat electrofisher sampling method with a mean CPUE of 4.4 fish/km/hr in Section 9, followed by 3.4 fish/km/hr in Section 5 and 3.3 fish/km/hr in Section 7 (Figure 22, Appendix 4). Mean beach seine CPUE was extremely low with 0.001 fish/m². Nine Kokanee were caught in side channel habitat, 7 Kokanee in main channel habitat and one at a tributary confluence. One young-of-the-year (age-0) Kokanee was caught within the 108R offset channels of Section 5.

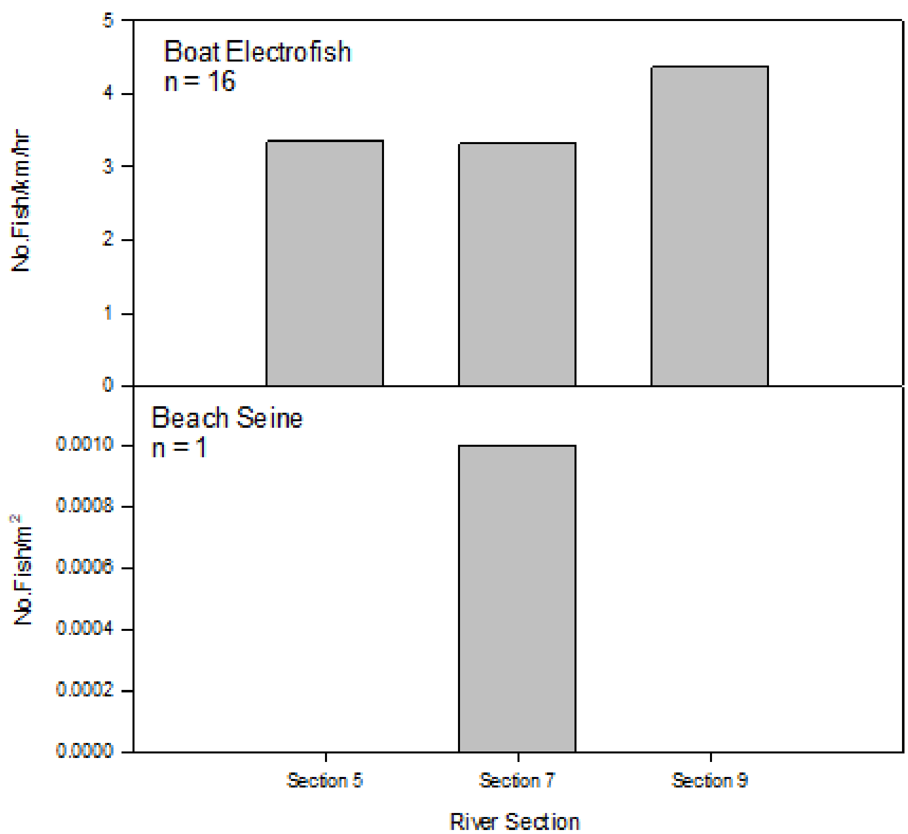


Figure 22. Average boat electrofishing and beach seine catch rate by river section for Kokanee captured in 2020.

3.5.3.2 Biological Characteristics

Fifteen out of the 17 scale samples collected from Kokanee in 2020 were assigned ages and used to describe the biological characteristics. Three age classes of Kokanee were captured: age-0, age-1, and age-2 (Table 12). Fish ranged in length from 60 mm to 184 mm, ranged in weight from 1 g to 58 g, and ranged in body condition from 0.57 to

1.17. On average body condition for all fish assessed was considered poor (K < 1) (Barnham and Baxter 1998).

Table 12. Average fork length, weight, and body condition along with standard deviation and sample range by fish age for Kokanee captured by boat electrofishing and beach seine in 2020.

Age	Fork Length (mm)			Weight (g)			Body Condition (K)		
	n	Average ± SD	Range	*n*	Average ± SD	Range	*n*	Average ± SD	Range
0	6	64 ± 2	60 - 68	6	2 ± 0	1 - 3	6	0.75 ± 0.22	0.57 - 1.17
1	7	135 ± 6	125 - 141	7	24 ± 4	17 - 29	7	0.98 ± 0.10	0.87 - 1.13
2	2	157 ± 27	130 - 184	2	40 ± 18	22 - 58	2	0.97 ± 0.04	0.93 - 1.00

Due to low sample numbers, interpretation of length-frequency and age-frequency distributions were limited (Figure 23, 24). Catch was higher for young-of-the-year age-0 Kokanee in Sections 5 and 7 combined (n = 5) compared to Section 9 (n = 1). Kokanee length-weight data were expressed using the power function, and displayed negative allometric growth (Figure 25).

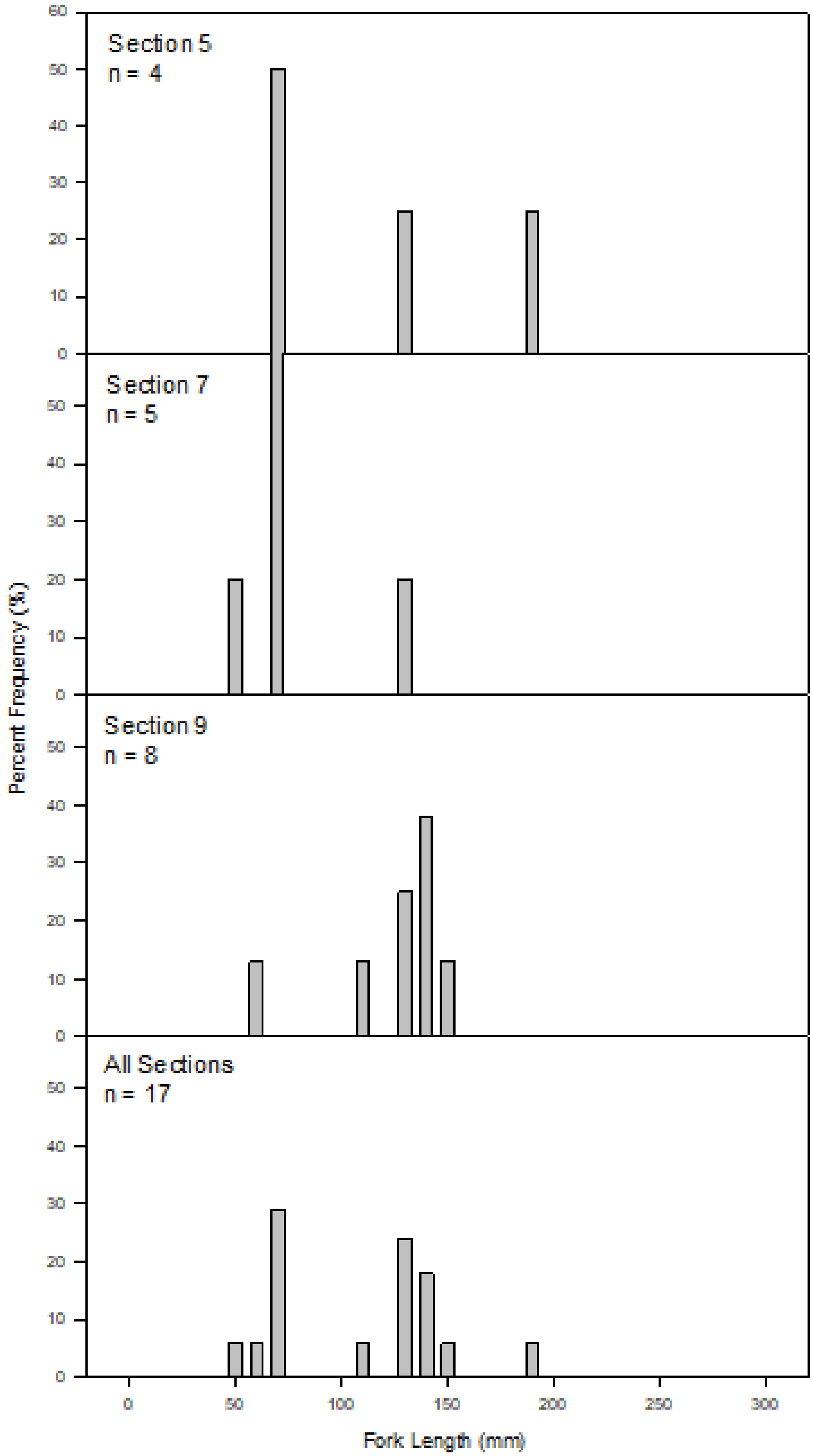


Figure 23. Length-frequency distribution for Kokanee captured by boat electrofishing and beach seine in 2020.

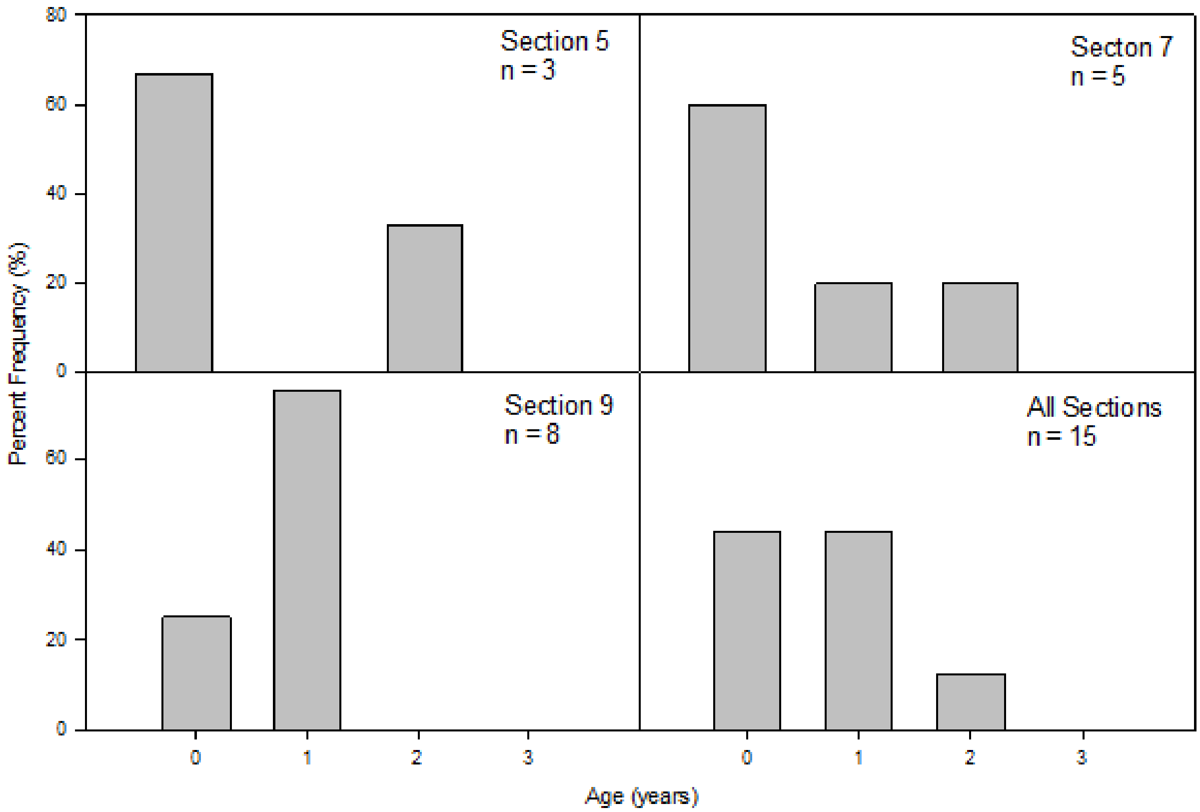


Figure 24. Age-frequency distribution for Kokanee captured by boat electrofishing and beach seine in 2020.

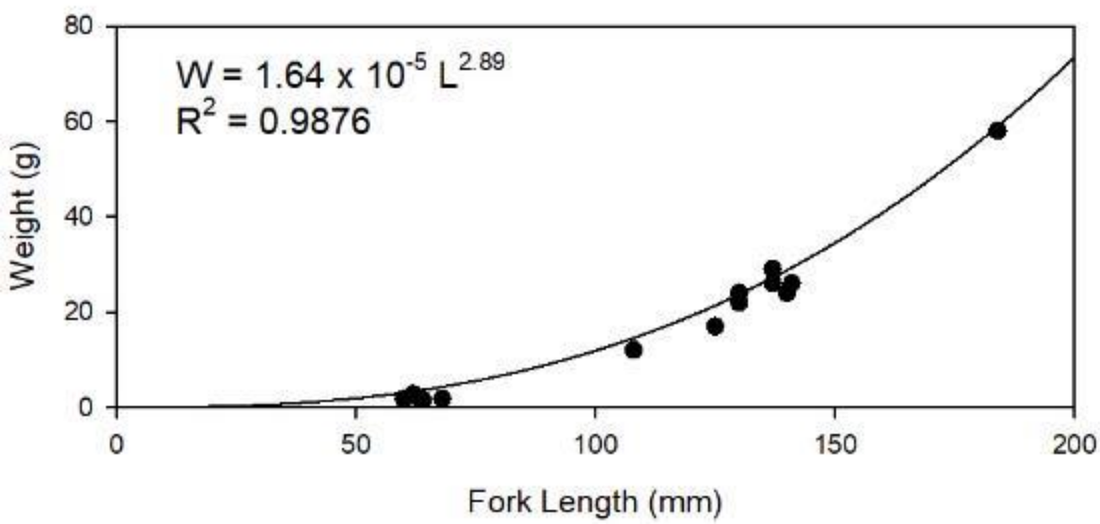


Figure 25. Length-weight regression for Kokanee captured by boat electrofishing and beach seine in 2020.

3.5.4 Lake Whitefish

3.5.4.1 Catch Rate

The single Lake Whitefish captured in 2020 was caught using the boat electrofisher sampling method. The Lake Whitefish was captured in Section 5 within the 108R offset channel habitat and had a catch rate of 0.71 fish/km/hr (Figure 26, Appendix 4).

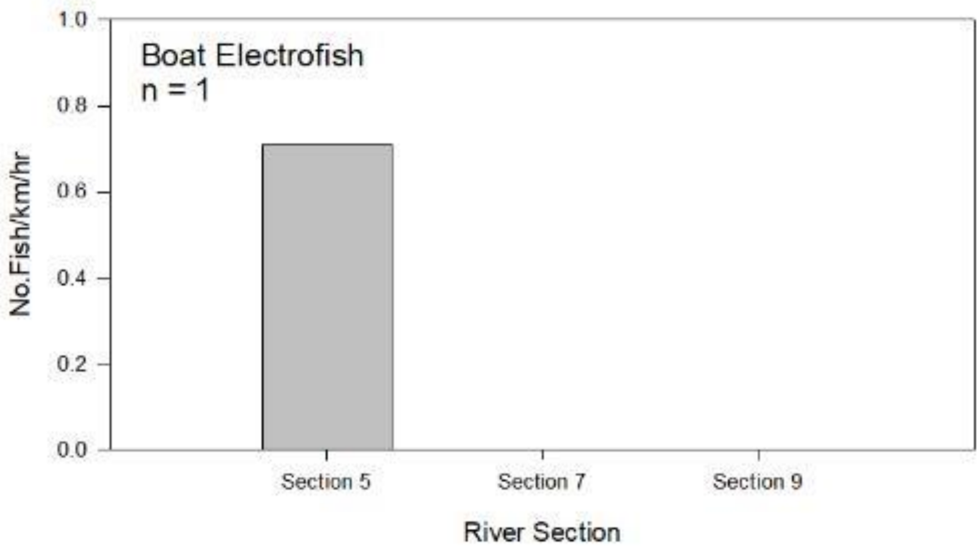


Figure 26. Average boat electrofishing catch rate by river section for Lake Whitefish caught in 2020.

3.5.4.2 Biological Characteristics

The single Lake Whitefish had a length of 424 mm, weighed 834 g, and had a body condition of 1.09. No age analysis occurred for the Lake Whitefish captured, however it would be considered an adult with fair body condition (Barnham and Baxter 1998).

3.5.5 Mountain Whitefish

3.5.5.1 Catch Rate

Of the 256 Mountain Whitefish captured in 2020, the vast majority (n = 254) were caught using the boat electrofisher, with only 2 being caught by the backpack electrofisher. Boat electrofisher catch rates declined steadily from a high of 80.1 fish/km/hr in Section 5, 50.2 fish/km/hr in Section 7, to 28.2 fish/km/hr in Section 9 (Figure 27, Appendix 4). Catch rates using the backpack electrofisher were 20.9 fish/km/hr in Section 9 and 0 for both Sections 5 and 7. By habitat, a total of 198 Mountain Whitefish were caught in main channel habitat compared to 56 in side channel habitats and 2 at tributary confluences. No Mountain Whitefish were captured within the 108R offset channel habitat of Section 5.

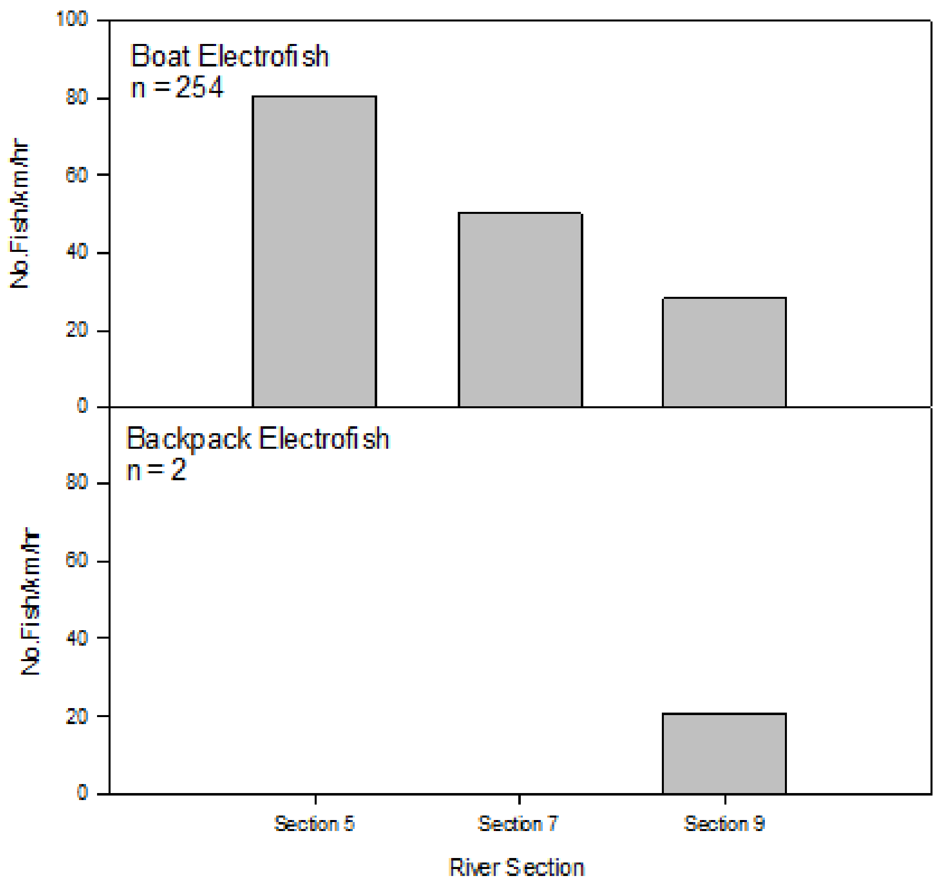


Figure 27. Average catch rate for boat and backpack electrofishing by river section for Mountain Whitefish caught in 2020.

3.5.5.2 Biological Characteristics

In total, 254 Mountain Whitefish were used to describe length-frequency and length-weight with 111 being used for the ageing analysis. A total of 10 age classes of

Mountain Whitefish were captured in 2020, ranging from age-0 up to age-10 (Table 13). Sampled fish ranged in length from 59 mm to 403 mm, ranged in weight from 1 g to 502 g, and ranged in body condition from 0.49 to 1.89. Overall, Mountain Whitefish length and weight became more variable with age, likely upon maturity and between sexes. Mean body conditions reflected overall poor to fair body condition in Mountain Whitefish with K values generally less than 1 (Barnham and Baxter 1998).

Table 13. Average fork length, weight, and body condition along with standard deviation and sample range by fish age for Mountain Whitefish caught boat electrofishing in 2020.

Age	*Fork Length (mm)*			*Weight (g)*			*Body Condition (K)*		
	n	Average ± SD	Range	*n*	Average ± SD	Range	*n*	Average ± SD	Range
0	24	79 ± 8	59 - 91	24	4 ± 1	1 - 7	24	0.88 ± 0.33	0.49 - 1.89
1	16	132 ± 6	121 - 143	16	23 ± 4	17 - 31	16	0.99 ± 0.11	0.80 - 1.26
2	16	165 ± 20	129 - 198	16	48 ± 16	23 - 71	16	1.03 ± 0.09	0.90 - 1.22
3	5	211 ± 15	191 - 236	5	97 ± 24	66 - 135	5	1.02 ± 0.06	0.95 - 1.10
4	8	264 ± 41	204 - 315	8	205 ± 100	96 - 367	8	1.03 ± 0.09	0.87 - 1.17
5	15	273 ± 18	243 - 303	15	222 ± 42	153 - 284	15	1.08 ± 0.10	0.85 - 1.24
6	8	285 ± 20	257 - 328	8	239 ± 40	189 - 318	8	1.03 ± 0.08	0.90 - 1.11
7	7	319 ± 28	263 - 360	7	330 ± 78	182 - 434	7	1.00 ± 0.11	0.86 - 1.18
8	7	338 ± 36	292 - 403	7	363 ± 98	259 - 502	7	0.93 ± 0.14	0.76 - 1.13
9	1	352 ± 0	352	1	339 ± 0	339	1	0.78 ± 0	0.78
10	4	351 ± 21	328 - 380	4	387 ± 65	315 - 490	4	0.89 ± 0.08	0.81 - 1.01

Length-frequency distributions were skewed toward the younger target age classes, however a number of adult fish were caught (Figure 28). This trend was also pronounced in Mountain Whitefish age frequency distributions, with Sections 5 and 7 having varied age distributions and Section 9 having an abundance of fish less than 2 years of age (Figure 29).

Mountain Whitefish length-weight data indicated negative allometric growth (Figure 30) and sufficient data were available to apply the von Bertalanffy equation (Figure 31), which indicated the maximum possible size was calculated to be 405 mm with a growth rate of 0.18. Historically, Mountain Whitefish have had similar growth rates of between 0.13 to 0.20 (Mainstream 2010, 2011, 2013). Fork length and age followed a logarithmic relationship, with growth being fastest in the first four years of life and slowing upon maturity until the maximum size was reached. The model did not predict young age 1-5 fish growth as accurately as older fish, suggesting the calculated growth rate may be slightly biased to older fish.

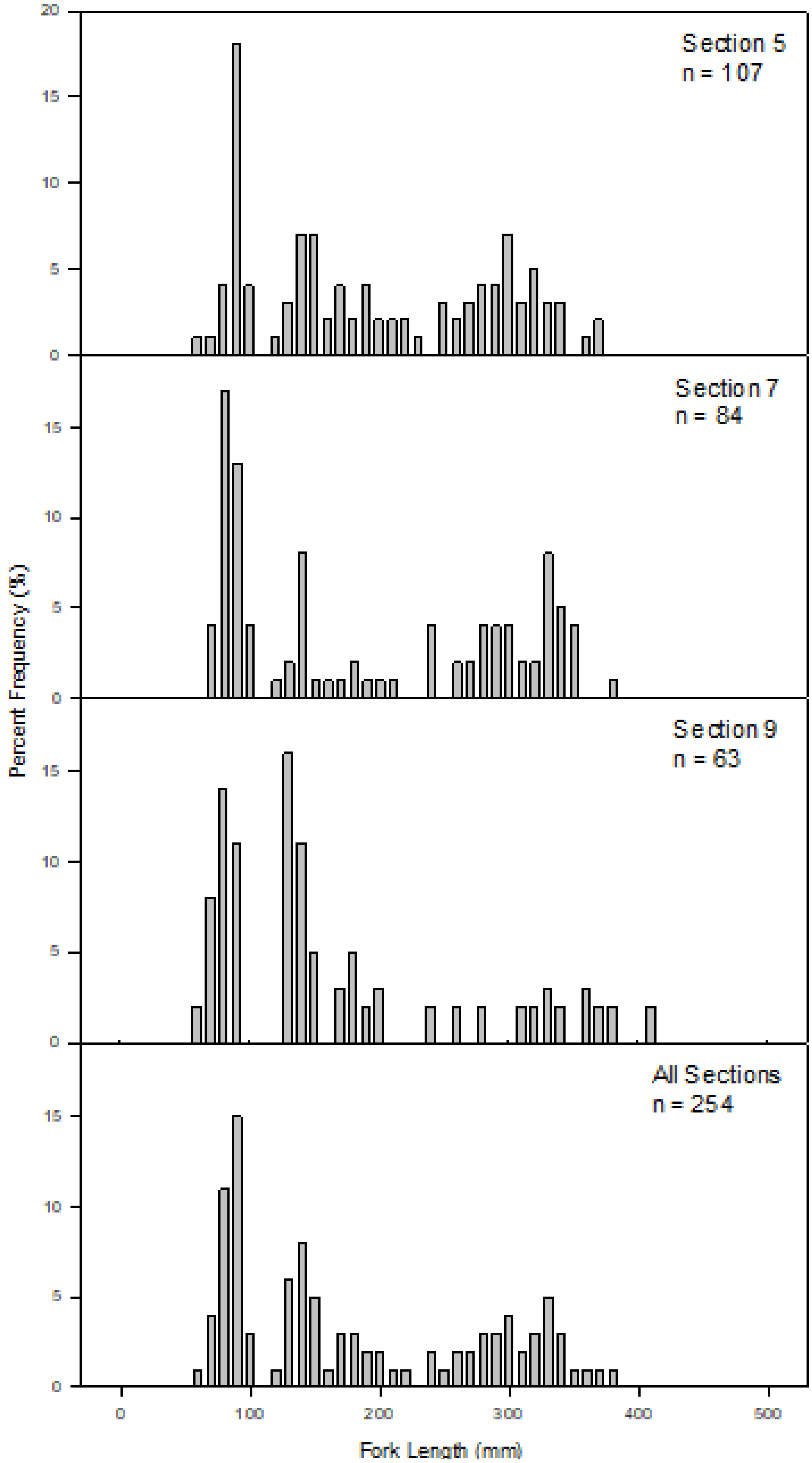


Figure 28. Length-frequency distribution by river section for Mountain Whitefish caught by boat electrofishing in 2020.

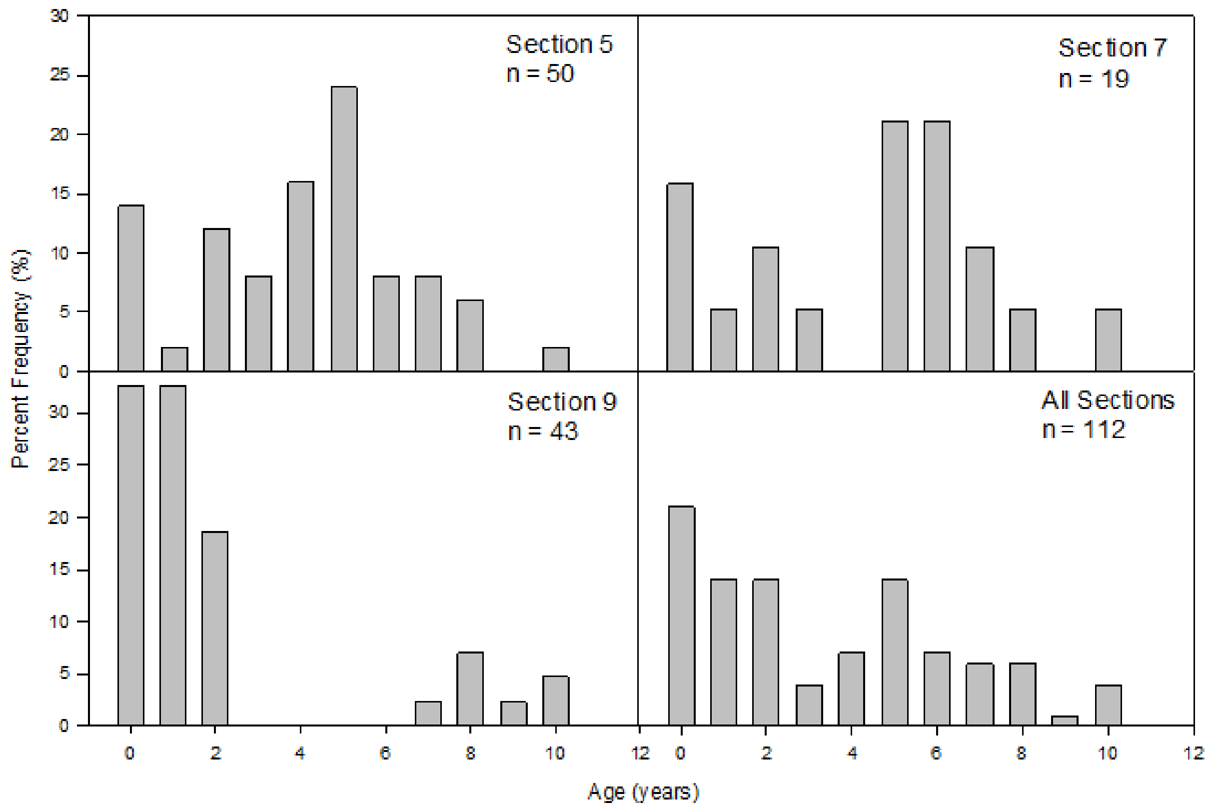


Figure 30. Age-frequency distribution by river section for Mountain Whitefish caught by boat electrofishing in 2020.

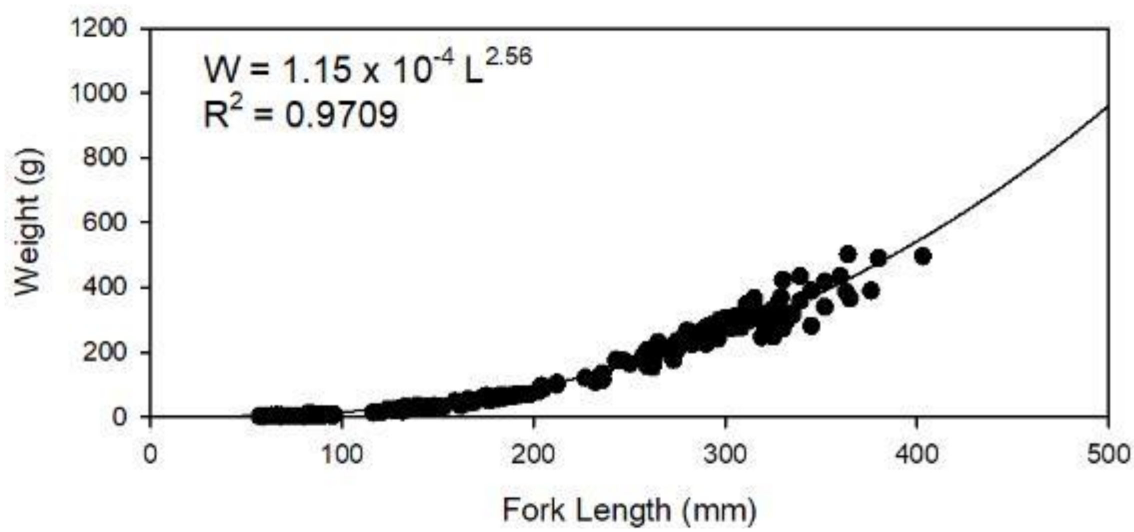


Figure 29. Length-weight regression for Mountain Whitefish caught by boat electrofishing in 2020.

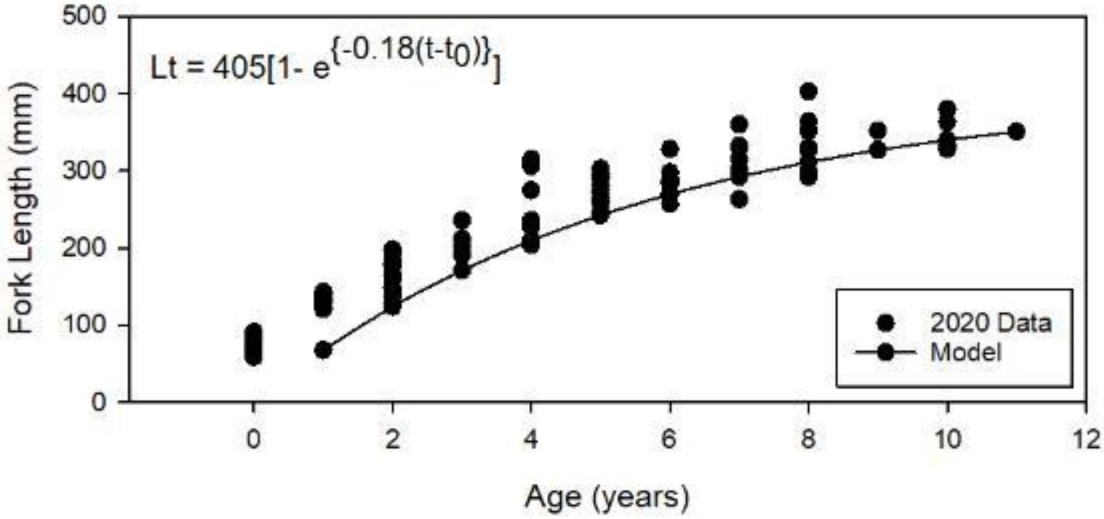


Figure 31. Mountain Whitefish growth model using the von Bertalanffy growth equation.

3.5.6 Rainbow Trout

3.5.6.1 Catch Rate

A total of two Rainbow Trout were captured in 2020. One was caught using the boat electrofisher sampling method, while the other was caught using a backpack electrofisher. Rainbow Trout catch rates were highest using the backpack electrofisher with a mean catch rate of 11.4 fish/km/hr compared to 0.25 fish/km/hr for boat electrofisher (Figure 32, Appendix 4). By habitat, one Rainbow Trout was caught in main channel habitat and the other in side channel habitat. No Rainbow Trout were captured within the 108R offset channels of Section 5.

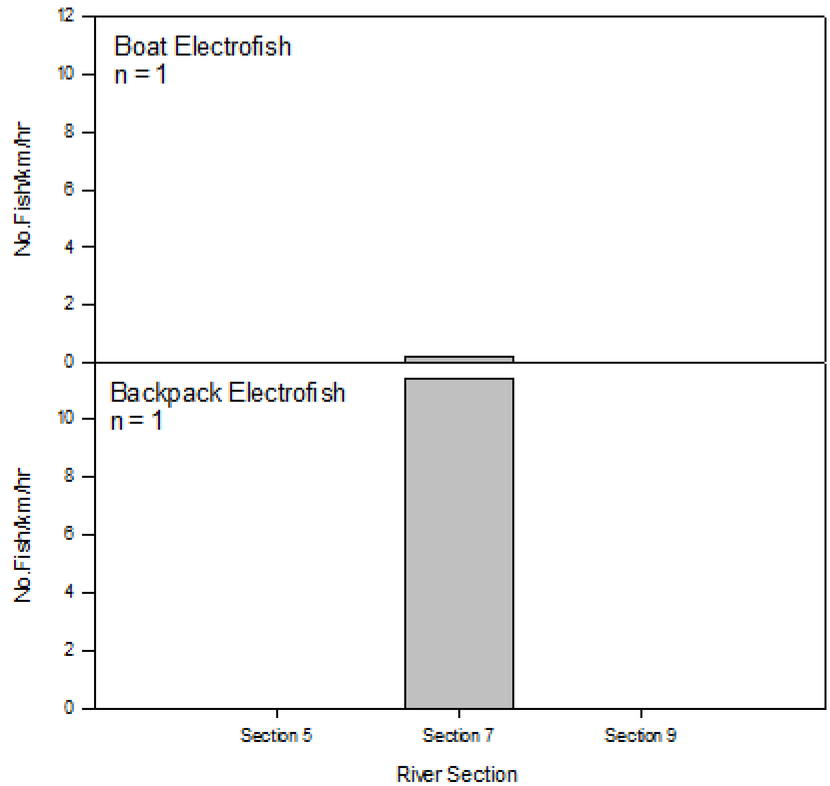


Figure 32. Average catch rate for boat and backpack electrofisher by river section for Rainbow Trout caught in 2020.

3.5.6.2 Biological Characteristics

Scale ages were assigned to both of the Rainbow Trout captured in 2020 with one being assessed age-0 and the other age-1 (Table 14).

Table 14. Average fork length, weight, and body condition along with standard deviation and sample range by fish age for Rainbow Trout caught by boat and backpack electrofisher in 2020.

Age	*Fork Length (mm)*			*Weight (g)*			*Body Condition (K)*		
	n	Average ± SD	Length	*n*	Average ± SD	Weight	*n*	Average ± SD	K
0	1	55 ± 0	55	1	2 ± 0	2	1	1.08 ± 0	1.08
1	1	139 ± 0	139	1	27 ± 0	27	1	1.01 ± 0	1.01

Due to the extremely small sample size, length-frequency, age-frequency, and length-weight inferences could not be made for Rainbow Trout (Figure 33).

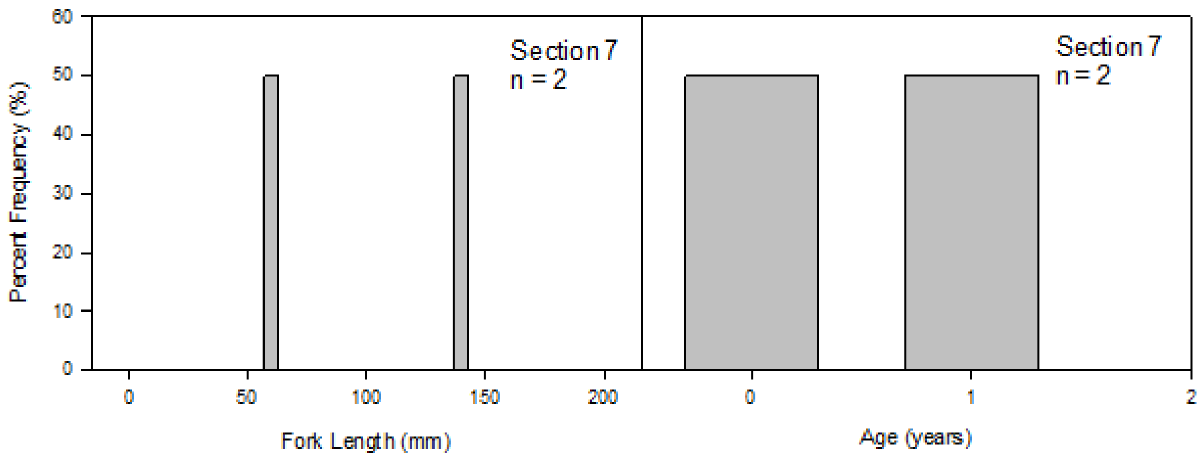


Figure 33. Length-frequency and age-frequency distributions of the Rainbow Trout caught in Section 7 by boat and backpack electrofisher in 2020.

3.6 *Coolwater Fish Abundance*

Overall, coolwater fish was the least abundant fish group encountered in 2020, accounting for 2% of the total fish caught across all sample sections and fish groups. The 2020 data made up a similar percentage of between 1% to 2% of the total fish caught similar to historic baseline studies (Mainstream 2010, 2011, 2013).

Four species of fish in the coolwater fish group were recorded during field sampling of the Peace River in 2020, with Northern Pike found to be the most abundant (Table 15). Walleye comprised around a third of the coolwater fish catch with the remaining two species each comprising 10% or less. The abundance of coolwater fish was highest in river Section 7 followed by Section 5 and Section 9.

Table 15. Number of coolwater fish species caught and their frequency of occurrence in sampled sections, 2020.

Species	*Section 5*	*Section 7*	*Section 9*	*Total*	*% of Coolwater fish Group*
Burbot	2	1	0	**3**	**10**
Northern Pike	6	9	0	**15**	**52**
Walleye	1	4	4	**9**	**31**
Yellow Perch	1	1	0	**2**	**7**
Subtotal	**10**	**15**	**4**	**29**	**100**

Burbot were captured in two of the river sections on the Peace River, making them the third most abundant coolwater fish encountered in 2020 and accounting for 0.2% of the total fish caught. Two of the Burbot were captured in Section 5 with the third captured in

Section 7. Historically, no Burbot were captured by Mainstream in 2009 and 2010, however in 2011, two Burbot were captured in Section 5 (Mainstream 2010, 2011, 2013). Since only three Burbot were captured in 2020, spatial trends in distribution could not be determined.

Fifteen Northern Pike were captured in the two upstream most river sections of the Peace River in 2020, accounting for 1.0% of the total fish caught in 2020. This was consistent with historical studies which also found the majority of Northern Pike in upstream sections with 7 to 14 being caught in Section 5 (2009, 2010, 2011) and 1 being caught in Section 7 (2009) and Section 9 respectively (2011; Mainstream 2010, 2011, 2013).

Walleye were captured in all three river sections that were sampled in 2020 and accounted for 0.6% of the total fish caught. Walleye were the second most abundant coolwater fish encountered in 2020. Walleye abundance increased from upstream to downstream with one being caught in Section 5, and four being caught in both Section 7 and 9. Historically, Walleye were only caught in Section 7 with three caught in 2009, four in 2010, and none caught in 2011 (Mainstream 2010, 2011, 2013).

Yellow Perch were captured in the two upstream most river sections of the Peace River in 2020, accounting for 0.1% of the total fish caught. Historically, 1 to 3 Yellow Perch have been caught in Section 5 (2009, 2010, 2011), with none being caught in Section 7, and three being caught in Section 9 in 2011 only (Mainstream 2010, 2011, 2013). Since only two Yellow Perch were captured in 2020, spatial trends in distribution could not be determined.

3.6.1 Burbot

3.6.1.1 Catch Rate

One of the Burbot captured in 2020 was caught using the backpack electrofisher sampling method, while the other two were caught using the boat electrofisher. Burbot catch rates were highest for the backpack electrofisher with a mean catch rate of 11.4 fish/km/hr, compared to 1.6 fish/km/hr for boat electroshocking (Figure 34, Appendix 4). By habitat, two of the Burbot were caught in main channel habitat and the other in side channel habitat. No Burbot were captured within the 108R offset channels of Section 5.

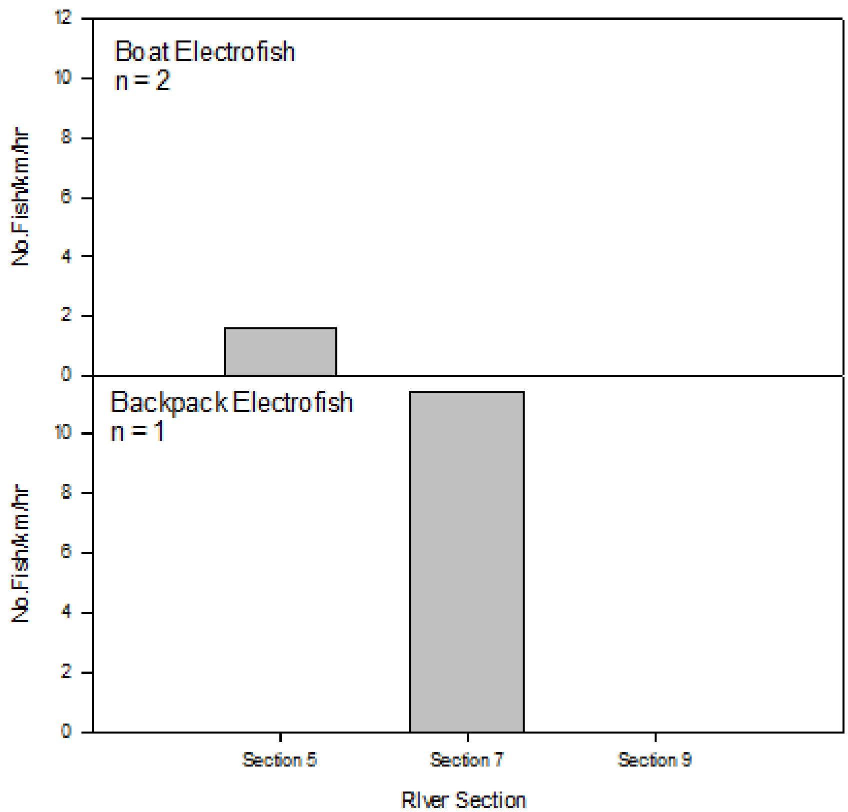


Figure 34. Average catch rate for boat and backpack electrofisher by river section for Burbot caught in 2020.

3.6.1.2 Biological Characteristics

Aging structures were not collected from Burbot captured in 2020 as it requires lethal sampling to extract the otolith, however the length-frequency distribution suggests that two age classes were potentially captured (Figure 35). The smallest Burbot had a total length of 97 mm, weighed 5 g, and had a body condition of 0.56, while the largest Burbot had a total length of 234 mm, weighed 65 g, and had a body condition of 0.51. The third Burbot had a total length of 103 mm, weighed 6 g, a had and body condition of 0.55. Due to their thin anguilliform body style, the Fulton condition index appears not to accurately reflect healthy body condition (K>1) for Burbot. Comparisons using this index are still possible within the species and suggest the three fish were of similar health.

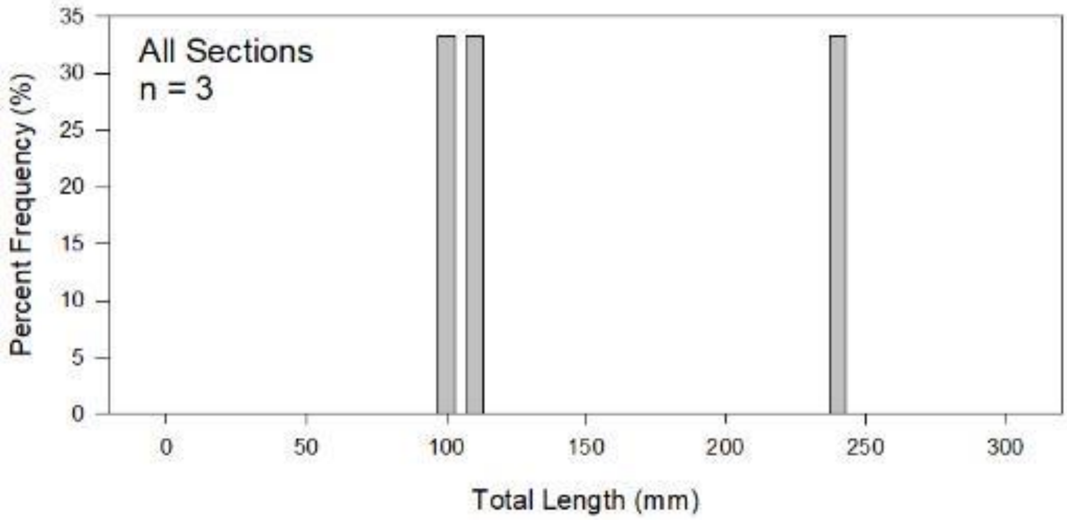


Figure 35. Length-frequency distribution for Burbot caught in 2020.

3.6.2 Northern Pike

3.6.2.1 Catch Rate

All 15 of the Northern Pike captured in 2020 were caught using the boat electrofisher sampling method. Catch rates for Northern Pike were highest in Section 7 with a mean catch rate of 5.1 fish/km/hr, while the mean catch rate in Section 5 was 4.7 fish/km/hr (Figure 36, Appendix 4). By habitat, 10 of the Northern Pike were captured in main channel habitat while the remaining 5 were captured in side-channel habitat. Two Northern Pike were captured within the 108R offset channels of Section 5. Habitat sampled by the boat electrofisher was usually main channel and not typical Northern Pike habitat.

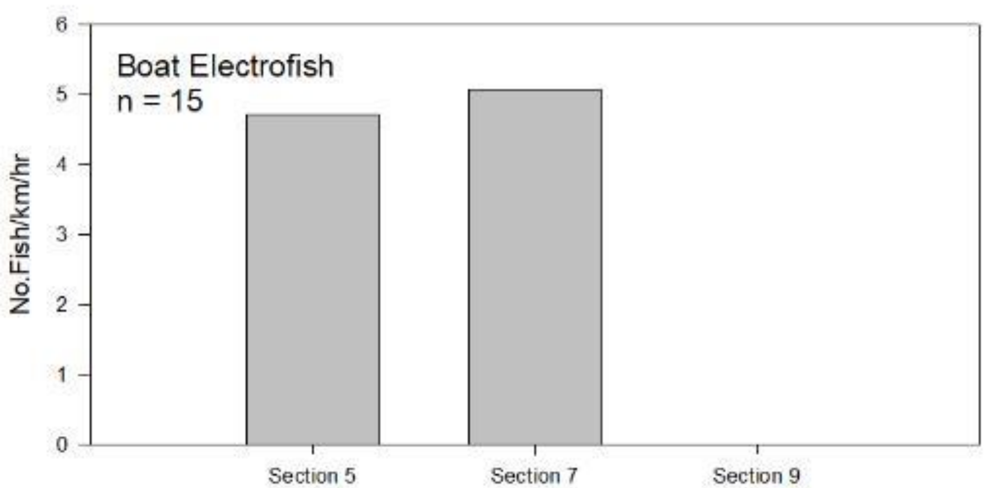


Figure 36. Average catch rate by river section for Northern Pike caught by boat electrofishing in 2020.

3.6.2.2 Biological Characteristics

Based on the fin rays collected, a total of three age classes of Northern Pike were captured in 2020: age-1, age-2, and age-3 (Table 16). Fish ranged in length from 159 mm to 304 mm, ranged in weight from 25 g to 186 g, and ranged in body condition from 0.61 to 0.72. No distinct trends for Northern Pike length and weight could be determined with such a small sample size, however body condition values were smaller than other fish species of similar size, suggesting the Fulton condition index may not be a representative index for long slender fish such as Northern Pike. Body condition values were similar for all seven Northern Pike, suggesting the fish were all of similar health.

Table 16. Average fork length, weight, and body condition along with standard deviation and sample range by fish age for Northern Pike caught by boat electrofishing in 2020.

Age	*Fork Length (mm)*			*Weight (g)*			*Body Condition (K)*		
	n	Average ± SD	Range	*n*	Average ± SD	Range	*n*	Average ± SD	Range
1	2	165 ± 6	159 - 170	2	28 ± 3	25 - 30	2	0.62 ± 0.01	0.61 - 0.62
2	3	232 ± 19	205 - 248	3	88 ± 19	61 - 105	3	0.69 ± 0.03	0.64 - 0.72
3	2	297 ± 7	290 - 304	2	179 ± 7	172 - 186	2	0.68 ± 0.02	0.66 - 0.71

Sample numbers for the length-frequency and age-frequency data are low they did correspond to the younger age cohorts targeted (Figures 37, 38). Low numbers preclude accurate inferences, however growth with the power equation improved clarity suggesting allometric growth (Figure 39).

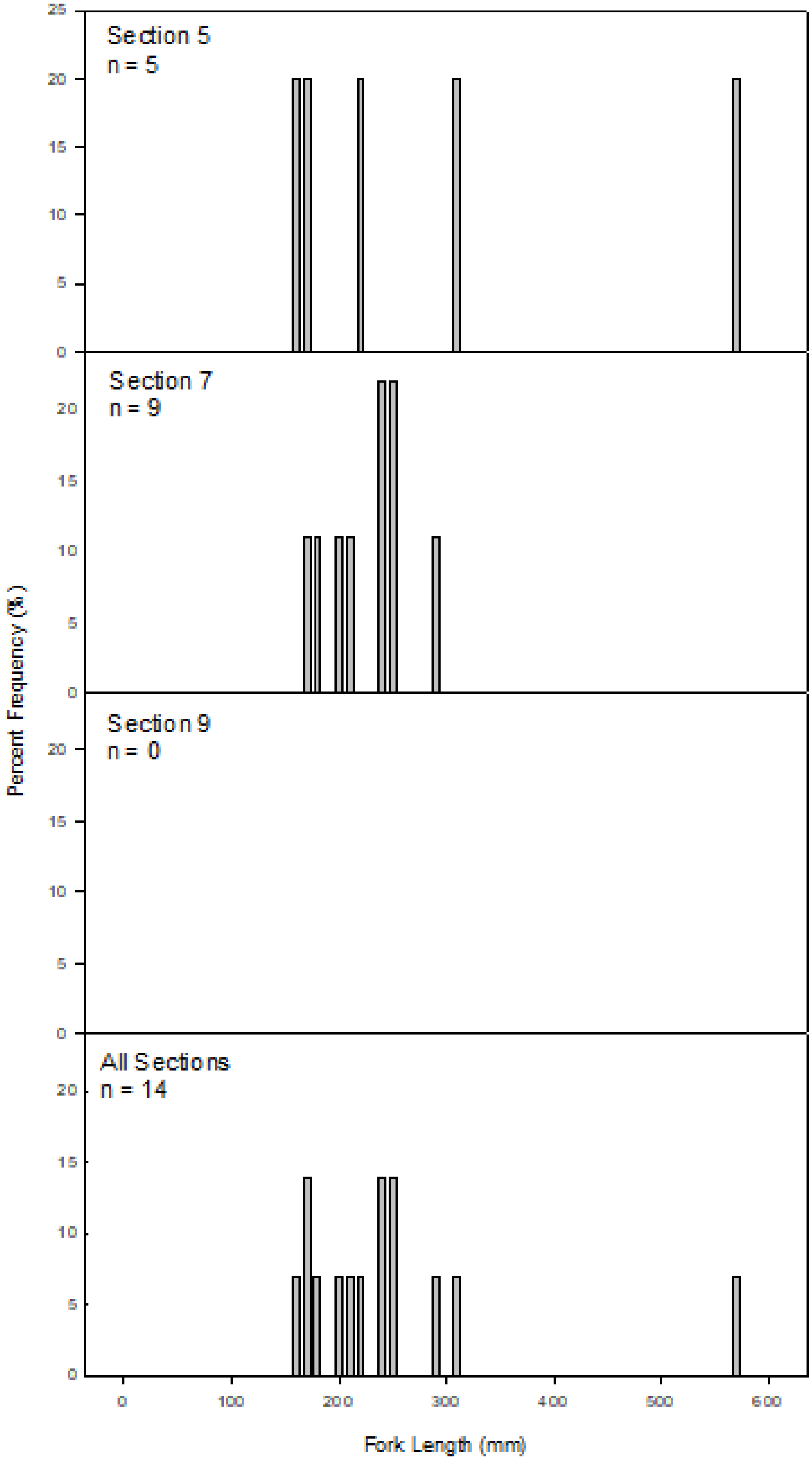


Figure 37. Length-frequency distribution by river section for Northern Pike caught by boat electrofishing in 2020.

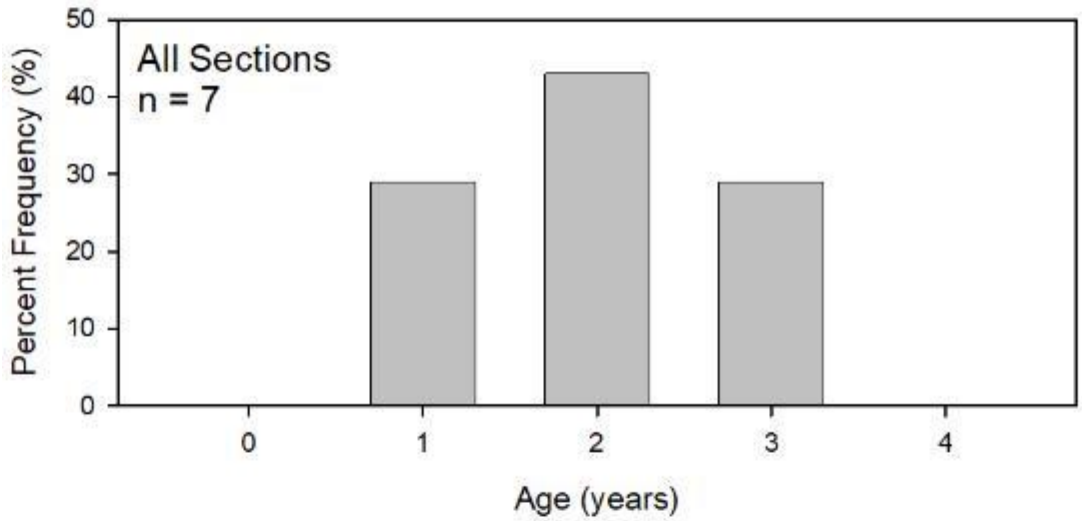


Figure 38. Age-frequency distribution for Northern Pike caught by boat electrofishing in 2020.

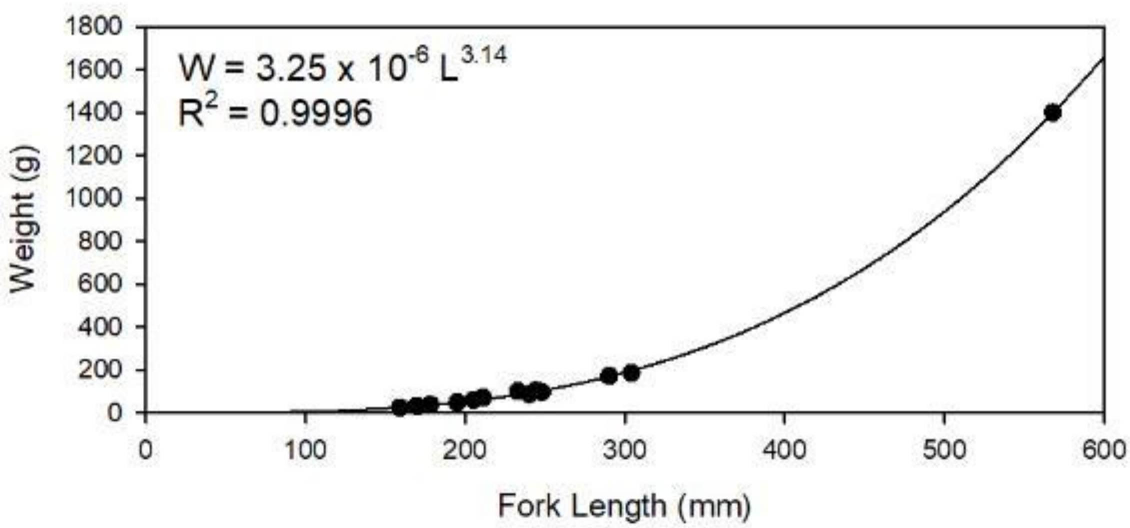


Figure 39. Length-weight regression for Northern Pike caught by boat electrofishing in 2020.

3.6.3 Walleye

3.6.3.1 Catch Rate

All nine Walleye captured in 2020 were caught using the boat electrofisher sampling method. Catch rates by section and species were highest in Section 9 with 2.3 fish/km/hr, followed by Section 7 with 1.5 fish/km/hr, and Section 5 with 0.8 fish/km/hr (Figure 40, Appendix 4). By habitat, all nine Walleye were caught in main channels with none being caught in side channel or tributary confluence habitat. No Walleye were captured within the 108R offset channels of Section 5.

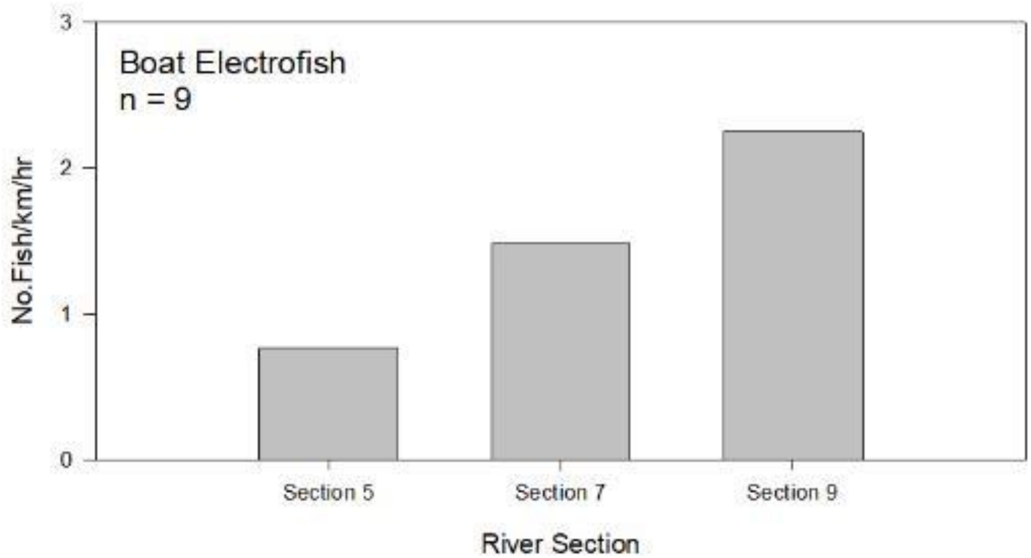


Figure 40. Average catch rate by river section for Walleye caught by boat electrofishing in 2020.

3.6.3.2 Biological Characteristics

The fin rays of six Walleye analysed indicated four age classes of Walleye were captured in 2020: age-2, age-3, age-4, and age-5 (Table 17). Fish had a fork length that ranged from 263 mm to 373 mm, weighed ranged from 185 g to 474 g, and body condition ranged from 0.72 to 1.08. Interestingly, the age-2 fish on average had a longer length and higher weight than the age-3, 4, and 5 Walleye. This could be due to missed annuli during the fin ray removal, errors during the ageing process, or possibly growth abnormalities.

Table 17. Average fork length, weight, and body condition along with standard deviation and sample range by fish age for Walleye caught by boat electrofishing in 2020.

Age	Fork Length (mm)			Weight (g)			Body Condition (K)		
	n	Average ± SD	Range	*n*	Average ± SD	Range	*n*	Average ± SD	Range
2	1	362 ± 0	362	1	459 ± 0	459	1	0.97 ± 0	0.97
3	1	340 ± 0	340	1	424 ± 0	424	1	1.08 ± 0	1.08
4	1	263 ± 0	263	1	185 ± 0	185	1	1.02 ± 0	1.02
5	3	360 ± 10	349 - 373	3	428 ± 41	375 - 474	3	0.92 ± 0.14	0.72 - 1.03

Given the low sample numbers, length-frequency and age-frequency provide no discernable trends, and ages should be viewed with caution (Figures 41, 42). The Walleye length-weight relationship visually appears to show strong allometric growth, although sampled numbers were low (Figure 43).

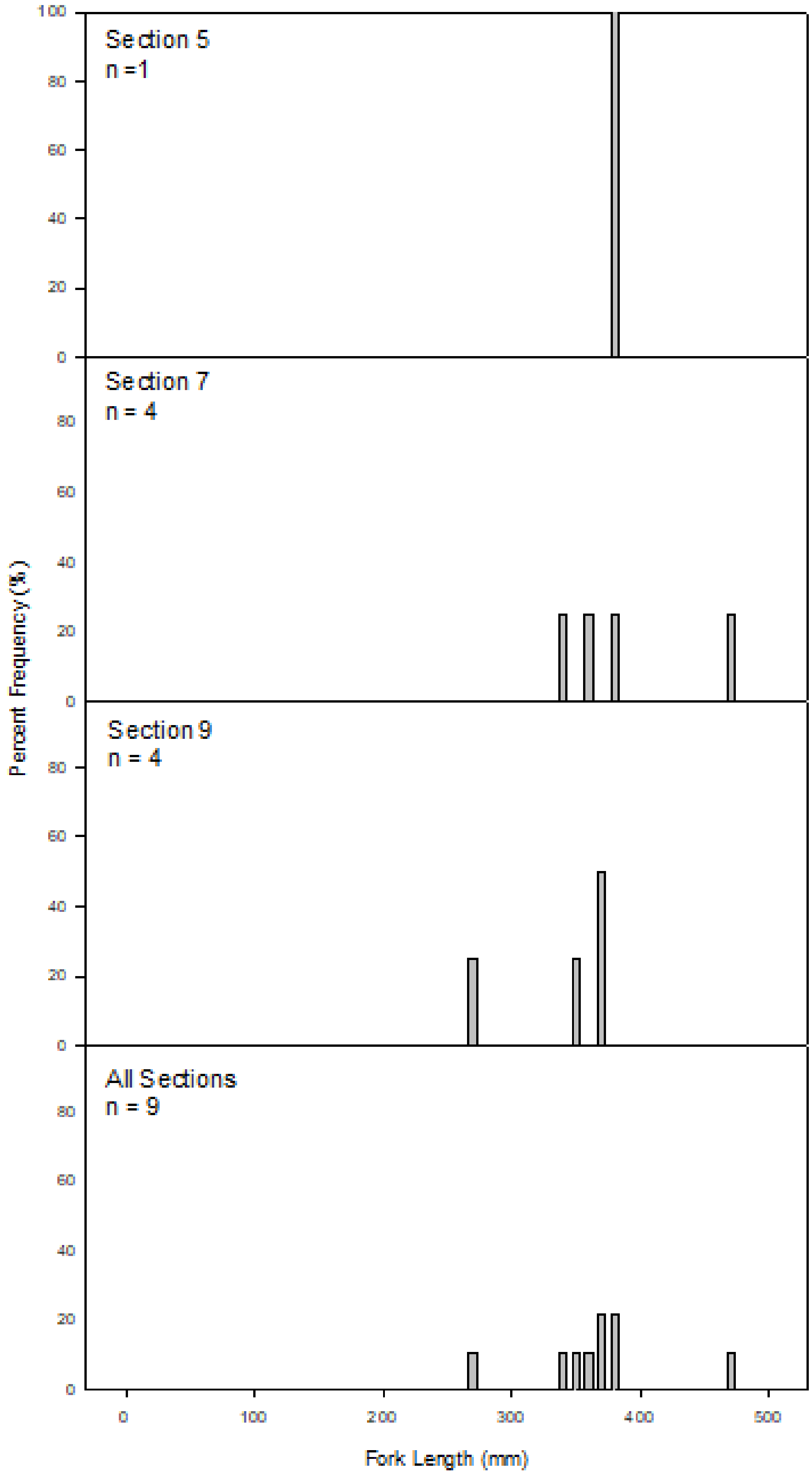


Figure 41. Length-frequency distribution by river section for Walleye caught by boat electrofishing in 2020.

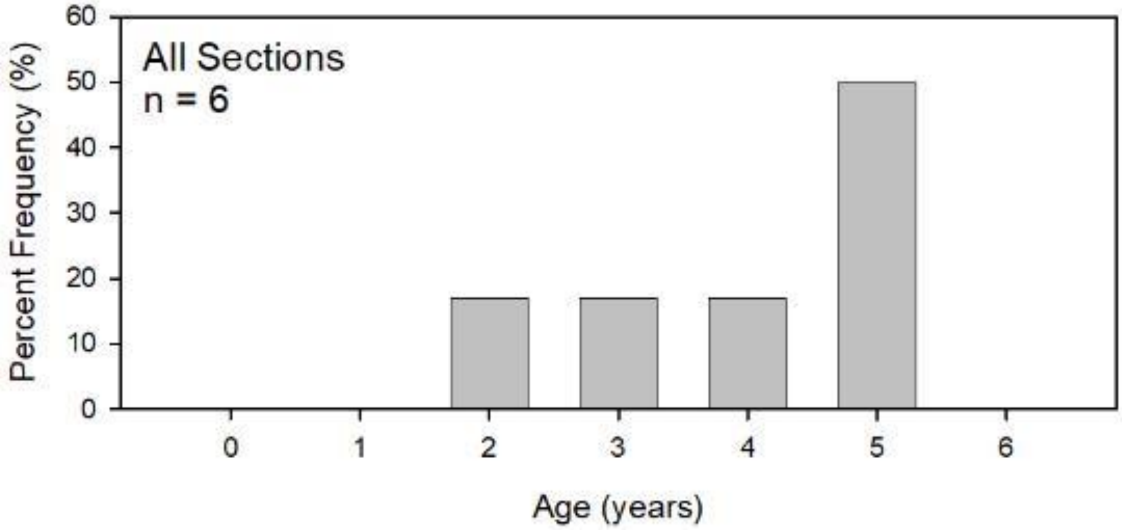


Figure 42. Age-frequency distribution for Walleye caught by boat electrofishing in 2020.

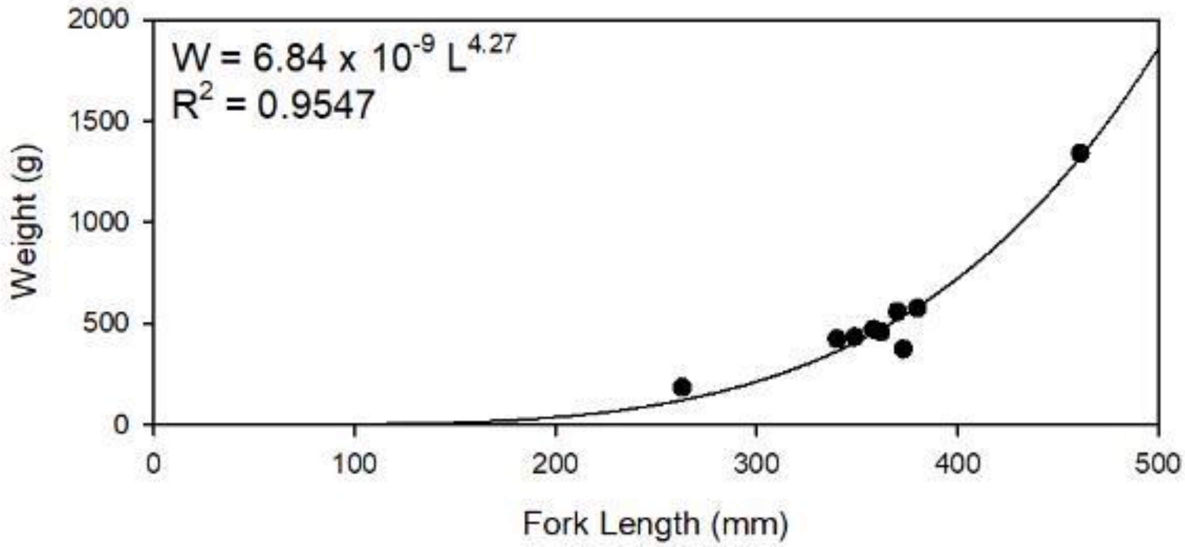


Figure 43. Length-weight regression for Walleye caught by boat electrofishing in 2020.

3.6.4 Yellow Perch

3.6.4.1 Catch Rate

One of the Yellow Perch captured in 2020 was caught using the backpack electrofisher sampling method, while the other was caught using the boat electrofisher. Catch rates for Yellow Perch were highest for the backpack electrofisher, with a mean catch rate of 9.9 fish/km/hr compared to 0.8 fish/km/hr boat electrofishing (Figure 44, Appendix 4). By habitat, one of the Yellow Perch was caught at a tributary confluence while the other was caught in main channel habitat. Neither of the Yellow Perch were caught in the 108R offset channels of Section 5.

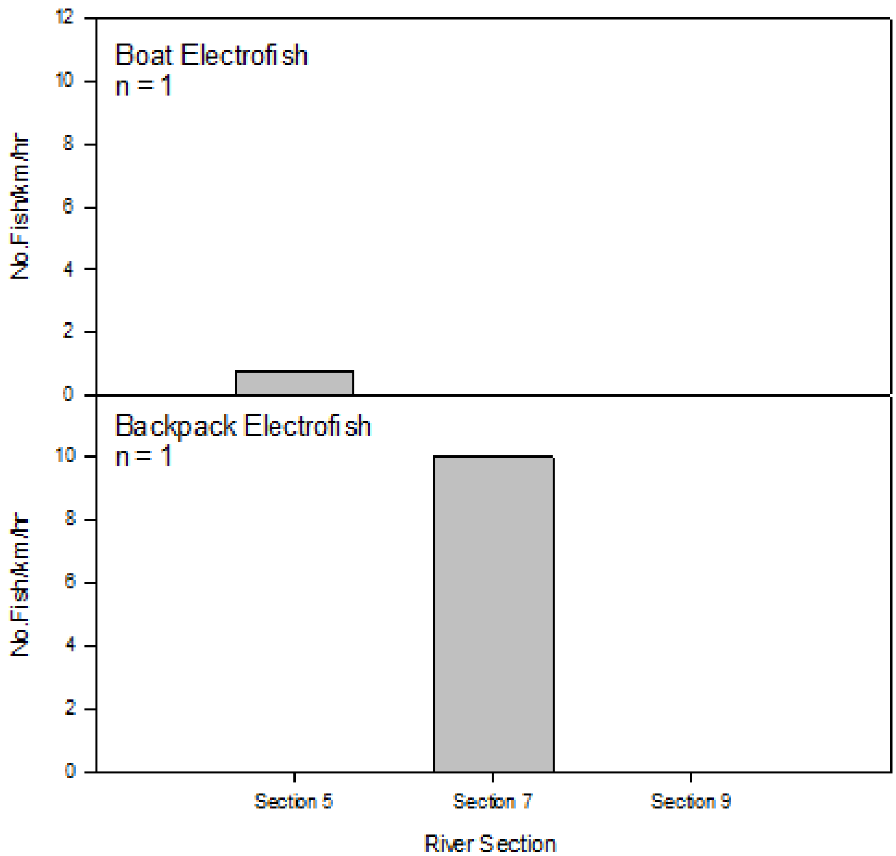


Figure 44. Average catch rate for boat and backpack electrofisher by river section for Yellow Perch caught in 2020.

3.6.4.2 Biological Characteristics

The smallest of the two Yellow Perch had a fork length of 63 mm, weighed 4 g, and had a body condition of 1.52, while the largest Yellow Perch had a fork length of 111 mm, weighed 15 g, and had a body condition of 1.10. No age analysis occurred for either of the Yellow Perch captured, however the length-frequency distribution suggests the two fish were from different age classes (Figure 45).

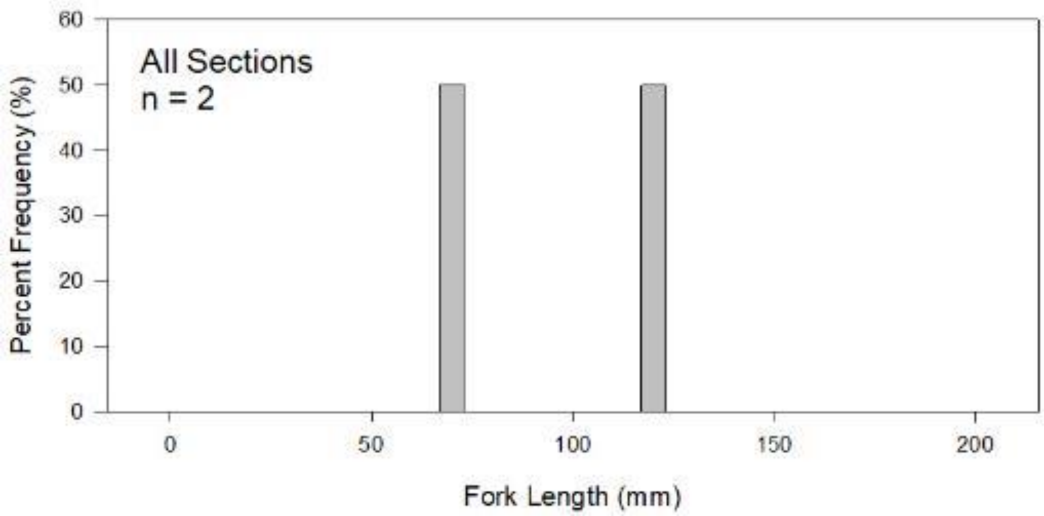


Figure 45. Length-frequency distribution for Yellow Perch caught in 2020.

3.7 Sucker Population

Overall, suckers were the fourth most abundant fish group encountered in 2020, accounting for 12% of the total fish caught. The 2020 data falls just short of the 13% to 25% proportional range for the sucker group documented by historical baseline studies (Mainstream 2010, 2011, 2013).

Three species of suckers were recorded during field sampling of the Peace River in 2020 (Table 18). Longnose Sucker was the most abundant species, accounting for over two thirds of the total suckers caught, with White Sucker and Largescale Sucker comprising the remaining one third. The relative abundance of suckers increased from upstream to downstream.

Table 18. Number of sucker species caught and their frequency of occurrence in sampled sections, 2020.

Species	*Section 5*	*Section 7*	*Section 9*	*Total*	*% of Sucker Catch*
Longnose Sucker	22	31	72	125	70
Largescale Sucker	10	9	3	22	12
White Sucker	9	7	15	31	18
Subtotal	**41**	**47**	**90**	**178**	**100**

Largescale Suckers were captured in all three of the sampled sections of the Peace River, accounting for 1.5% of the total fish caught in 2020. Similar proportions of between 2% to 3% have been documented by historical studies (Mainstream 2010, 2011, 2013). Largescale Sucker were the least abundant of the sucker species recorded in 2020 and appear to be more prevalent in upstream river sections, though the small sample size makes interpretation of spatial trends difficult. Mainstream also documented more Largescale Suckers in the upstream sections with 10 to 23 being caught in Section 5 (2009, 2010, 2011), 1 to 11 being caught in Section 7 (2009, 2010, 2011) and 2 being caught in Section 9 in 2011 only (Mainstream 2010, 2011, 2013).

A total of 125 Longnose Suckers were captured in the three sampled sections of the Peace River, accounting for 8.7% of the total fish caught in 2020. Historically, similar proportions have been documented for Longnose Suckers (6% - 9%) with between 28 to 32 in Section 5 (2009, 2010, 2001), 18 to 45 in Section 7 (2009, 2010, 2011), and 81 in Section 9 in 2011 only (Mainstream 2010, 2011, 2013). The abundance of Longnose Suckers was highest in downstream river sections, a trend similar to previous study years (Mainstream 2010, 2011, 2013).

White Suckers were captured in the three sampled sections of the Peace River and accounted for 2.1% of the total fish caught in 2020. In past years, White Suckers have made up between 1% to 6% of the total fish caught, with the number of White Suckers caught per river section ranging from 7 to 68 in Section 5 (2009, 2010), 1 to 8 in Section 7

(2009, 2010), and no White Suckers being caught in Section 9 in 2011 (Mainstream 2010, 2011, 2013).

3.7.1 Sucker Catch Rate and Distribution

Of the 178 total suckers captured in 2020, 139 were caught using the boat electrofisher, 24 were caught using a backpack electrofisher, 13 were caught using a beach seine, and 2 were caught with a gill net. The backpack electrofisher yielded the highest average catch rates by section, between 25.1 and 148.9 suckers/km/hr, followed next by boat electrofisher between 18.6 and 31.8 suckers/km/hr (Figure 46, Appendix 4). Beach seine average catch rates were 0.003 suckers/m^2, and for gill net average catch rates were 0.006 suckers/m^2/hr. Catch rates for all methods were typically highest in Section 9 where the majority (n = 90) of the 178 suckers were caught. By habitat, 117 of the suckers were caught in main channels, 60 were caught in side channel habitat and one sucker was caught at a tributary confluence. A total of 10 suckers were captured within the 108R offset channels in Section 5.

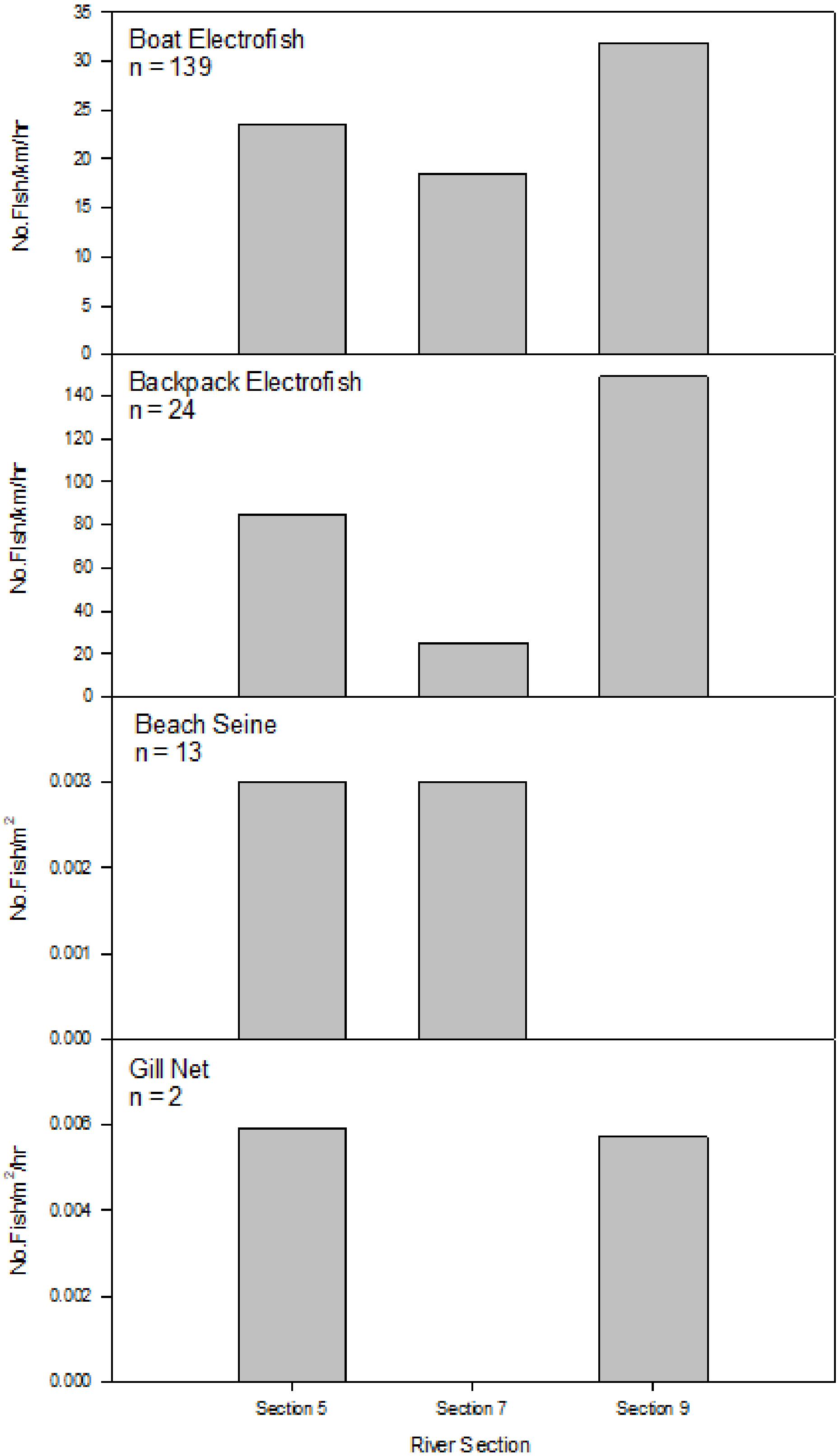


Figure 46. Average catch rate for suckers by sample method and section in 2020.

3.7.2 Largescale Sucker

3.7.2.1 Biological Characteristics

Overall, Largescale Suckers ranged in length from 35 mm to 551 mm, ranged in weight from 1 g to 1,800 g, and ranged in body condition from 0.83 to 1.44 (Table 19). Average body condition (K > 1) and low standard deviation suggest the 20 fish analyzed were healthy and in good condition.

Table 19. Average fork length, weight, and body condition for Largescale Suckers caught in 2020.

Fork Length (mm)			***Weight (g)***			***Body Condition (K)***		
n	**Average ± SD**	**Range**	***n***	**Average ± SD**	**Range**	***n***	**Average ± SD**	**Range**
20	100 ± 129	35 - 551	20	305 ± 433	1 - 1,800	20	1.15 ± 0.15	0.83 - 1.44

Length-frequency data for Largescale Sucker suggest several age classes in Sections 5 and 7 with low numbers, and one age class in Section 9 (n = 3; Figure 47). Largescale Sucker length-weight is typical of the sucker group, with slower and slightly negative allometric growth (Figure 48). Largescale Sucker growth appears slow until a length of approximately 300 mm is reached.

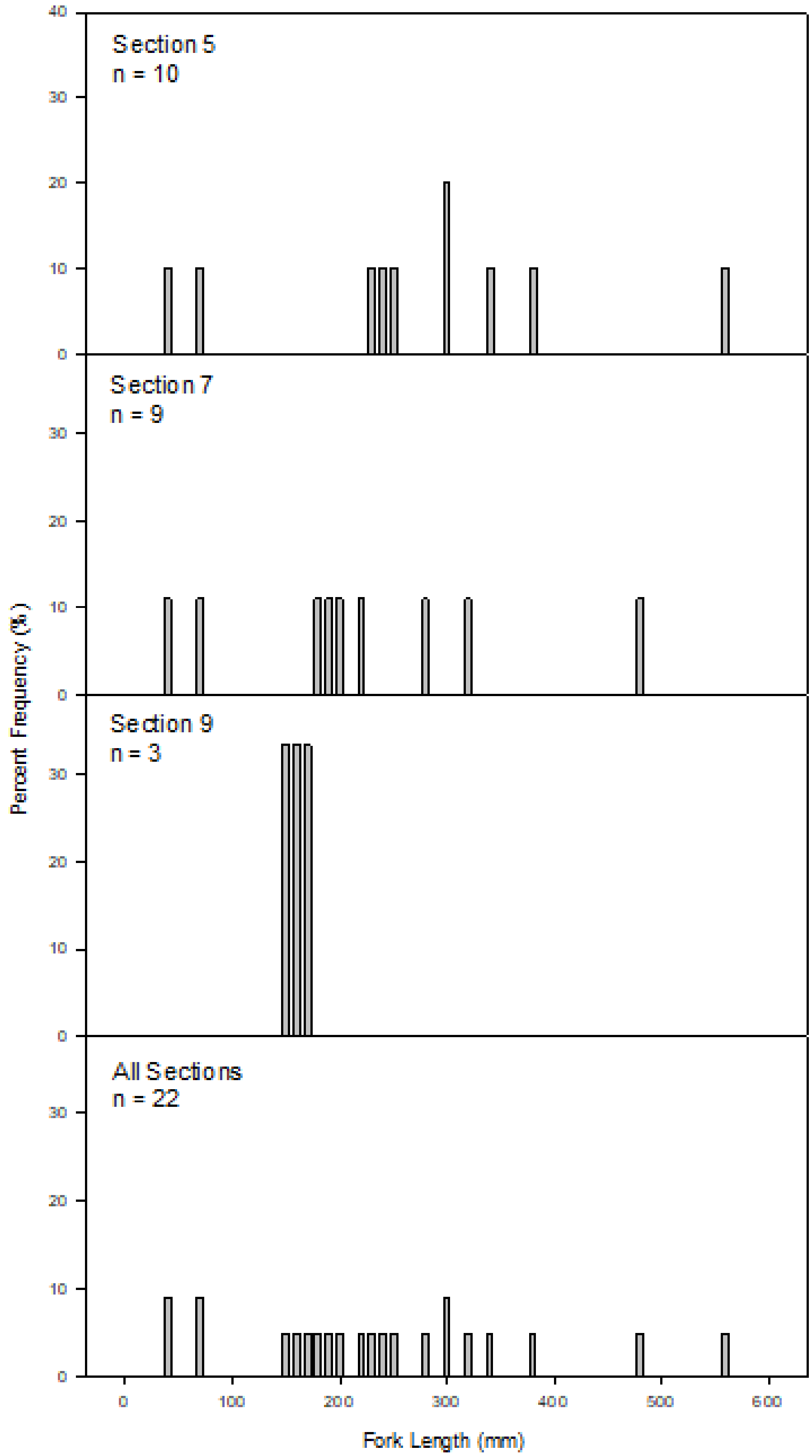


Figure 47. Length-frequency distribution by river section for Largescale Suckers caught in 2020.

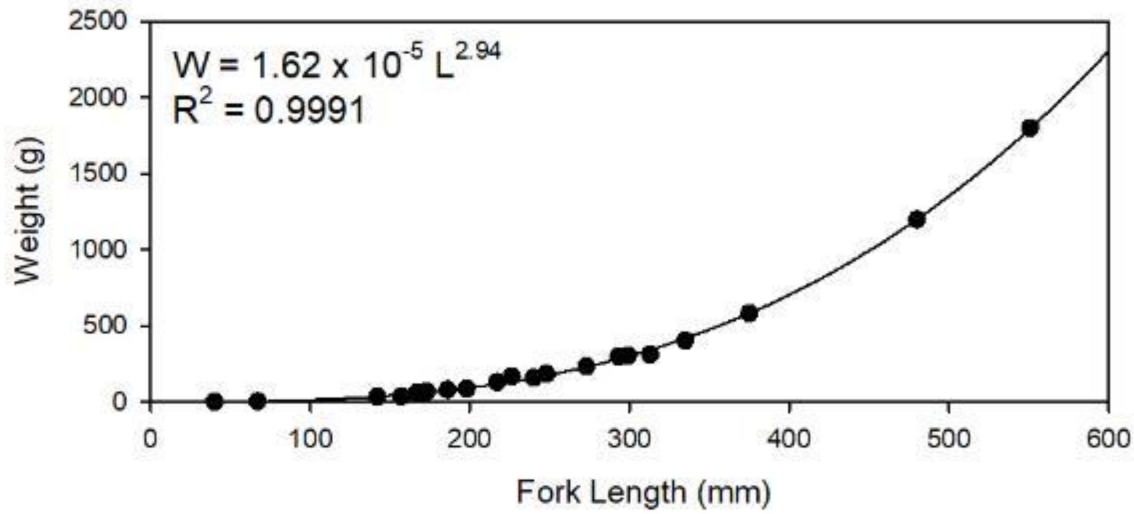


Figure 48. Length-weight regression for Largescale Suckers caught in 2020.

3.7.3 Longnose Sucker

3.7.3.1 Biological Characteristics

Of the 125 Longnose Suckers caught, 121 were used to describe the biological characteristics. Overall, Longnose Suckers ranged in length from 42 mm to 458 mm, ranged in weight from 2 g to 1,156 g, and ranged in body condition from 0.58 to 2.01 (Table 20). Average body condition (K > 1) and low standard deviation suggest the 121 fish analyzed were healthy and in good condition.

Table 20. Average fork length, weight, and body condition for Longnose Suckers caught in 2020.

Fork Length (mm)			*Weight (g)*			*Body Condition (K)*		
n	Average ± SD	Range	*n*	Average ± SD	Range	*n*	Average ± SD	Range
121	192 ± 110	42 - 458	121	175 ± 266	2 - 1,156	121	1.18 ± 0.17	0.58 - 2.01

Length-frequency distribution shows multimodal size distributions suggesting age-0 to adult fish in all sections (Figure 49). The length-weight relationship represented by the power function appears to show nearly isometric growth, suggesting an increase in weight is almost directly proportional to an increase in length (Figure 50).

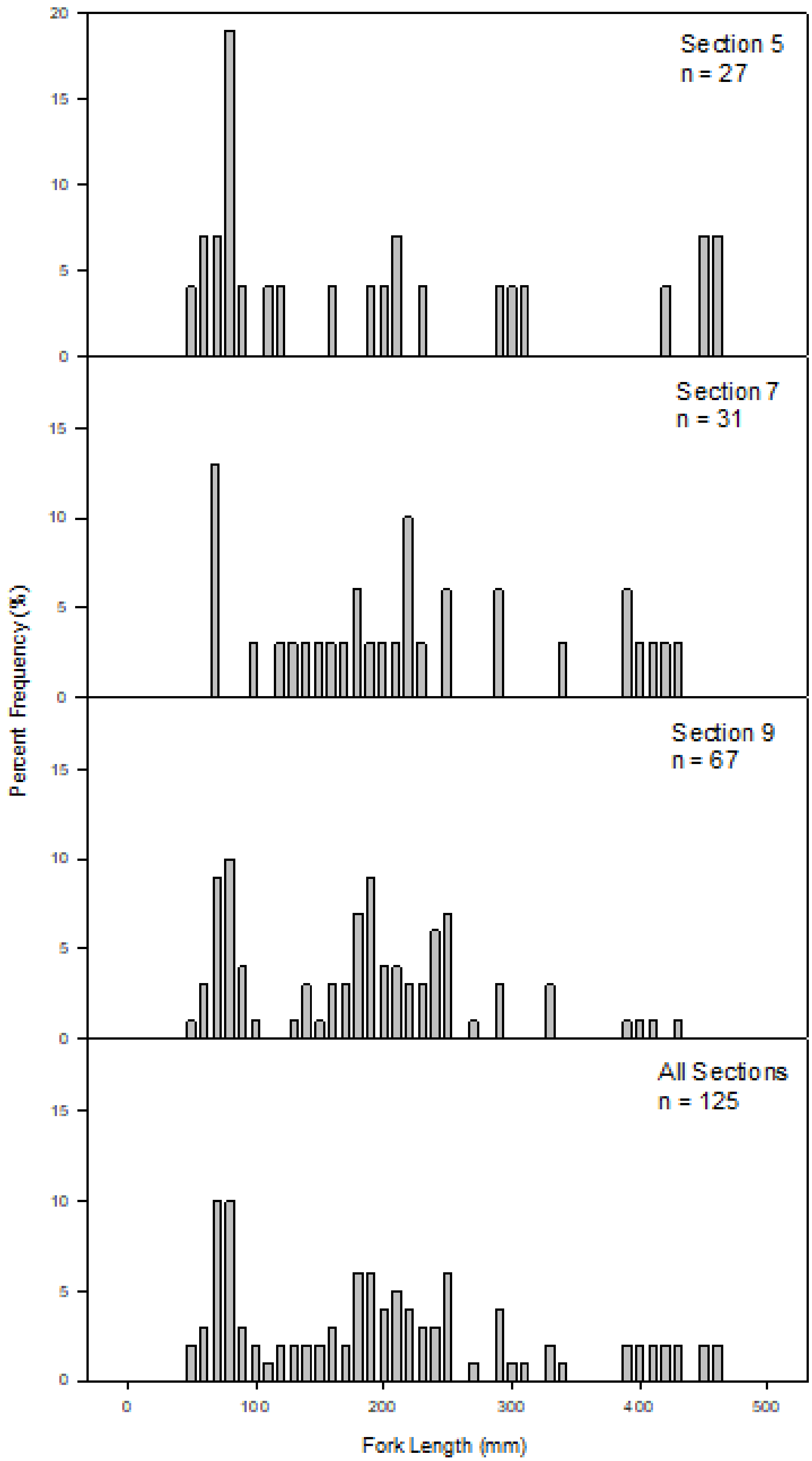


Figure 49. Length-frequency distribution by river section for Longnose Suckers caught in 2020.

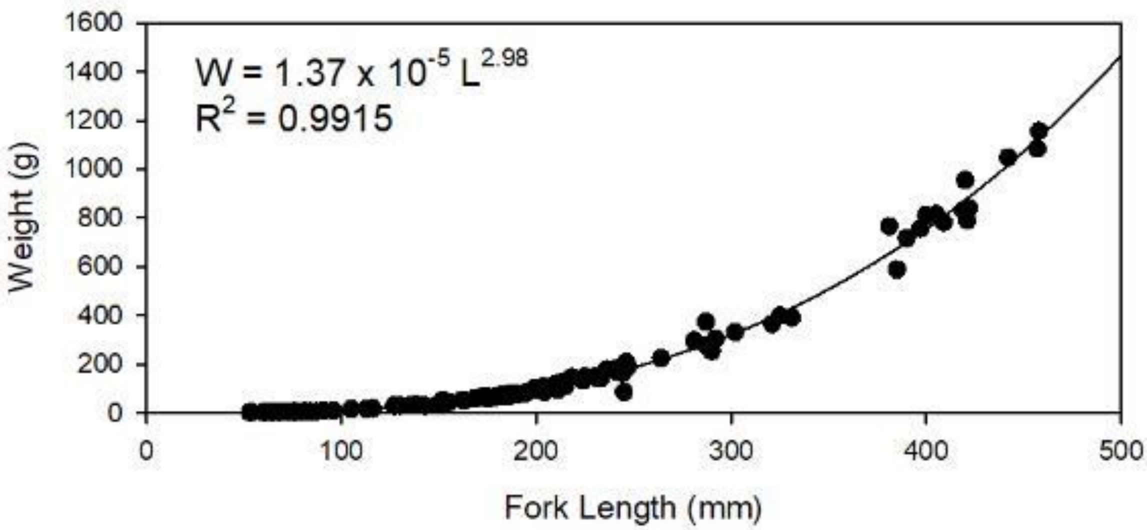


Figure 50. Length-weight regression for Longnose Suckers caught in 2020.

3.7.4 White Sucker

3.7.4.1 Biological Characteristics

Overall, the 23 White Suckers analyzed ranged in length from 21 mm to 451 mm, ranged in weight from 0.4 g to 1,334 g, and ranged in body condition from 0.16 to 2.28 (Table 21).

Table 21. Average weight, fork length, and body condition for White Suckers caught in 2020.

Fork Length (mm)			*Weight (g)*			*Body Condition (K)*		
n	**Average ± SD**	**Range**	***n***	**Average ± SD**	**Range**	***n***	**Average ± SD**	**Range**
23	66 ± 73	21 - 451	31	62 ± 271	0.4 - 1,334	23	1.26 ± 0.46	0.16 - 2.28

Length-frequency data indicated the population across all river sections was predominantly young (age-0 or age-1) with few sub-adult or adult fish (Figure 51). White Sucker length-weight relationship was expressed using the power function to improve clarity, suggesting allometric growth for this fish species (Figure 52).

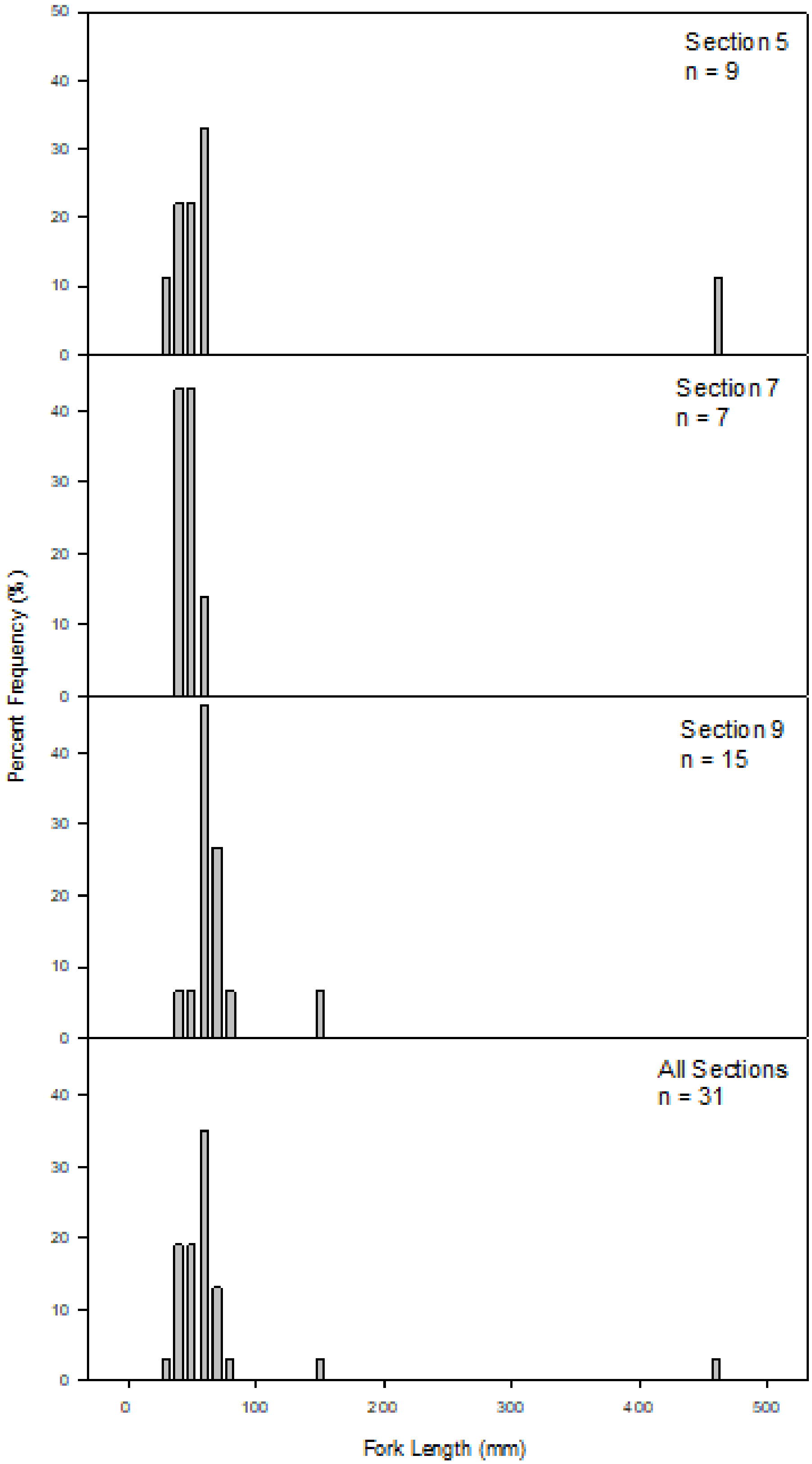


Figure 51. Length-frequency distribution by river section for White Suckers caught in 2020.

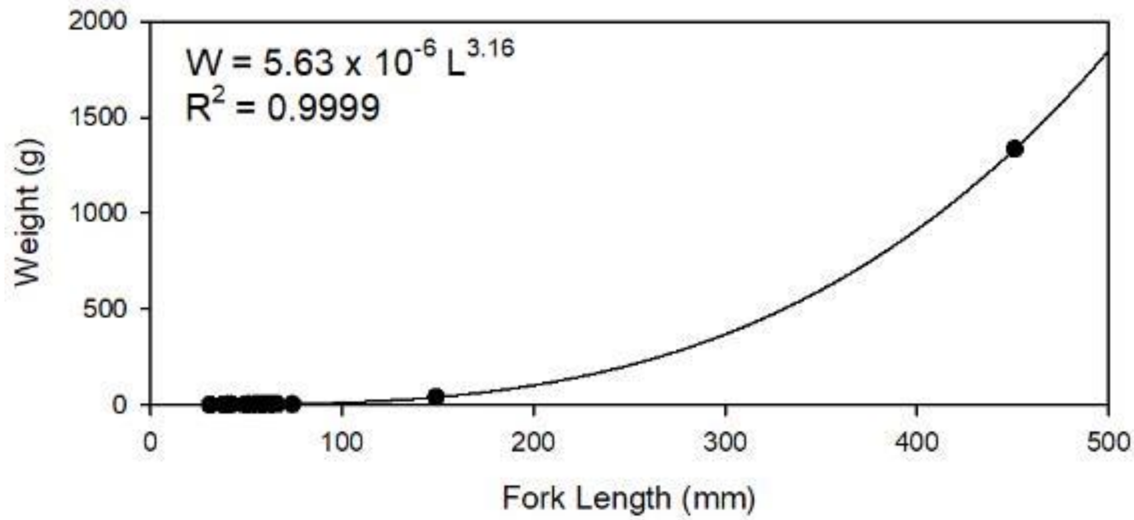


Figure 52. Length-weight regression for White Suckers caught in 2020.

3.8 Sculpin Population

Overall, sculpins were the most abundant fish group encountered in 2020, accounting for 37% of the total fish caught. The number of sculpins captured in 2020 was 66% to 77% greater than historical studies which captured between 127 to 188 total sculpins (Mainstream 2010, 2011, 2013).

Three species of sculpins were recorded during field sampling of the Peace River in 2020 (Table 22). Slimy Sculpin was by far the most prevalent species recorded (92%), followed by Spoonhead Sculpin, and Prickly Sculpin combining for less than 10%. The abundance of sculpins decreased from upstream to downstream. Spoonhead Sculpins were captured more frequently in downstream sections while both Prickly Sculpin and Slimy Sculpin were more prevalent in upstream sections.

Table 22. Number of sculpin species caught and their frequency of occurrence in sampled sections, 2020.

Species	*Section 5*	*Section 7*	*Section 9*	*Total*	*% of Sculpin Catch*
Prickly Sculpin	12	1	1	14	3
Slimy Sculpin	226	188	90	504	92
Spoonhead Sculpin	2	8	17	27	5
Subtotal	**240**	**197**	**108**	**545**	**100**

3.8.1 Sculpin Catch Rate and Distribution

Of the total 545 total sculpins captured in 2020, 307 were captured by boat electrofisher, 190 were captured by backpack electrofisher, and 48 were captured by beach seine. The backpack electrofisher yielded the highest average catch rates of 658 to 968 sculpins/km/hr sampled, followed next by the boat electrofisher with an average catch rate of 21 to 113 sculpins/km/hr (Figure 53, Appendix 4). Beach seine catch rates for sculpin were lowest of the sample methods, averaging 0.002 to 0.020 sculpins/m^2 sampled, with no sculpins being captured by gill net. Sculpin catch rates were highest with the boat electrofisher and beach seine methods in Section 5, while the highest catch rate using the backpack electrofisher was in Section 7. The boat electrofisher catch rates declined steadily from upstream to downstream. By habitat, 312 sculpins were captured in main channels, 229 were captured in side channels, and 4 were captured at a tributary

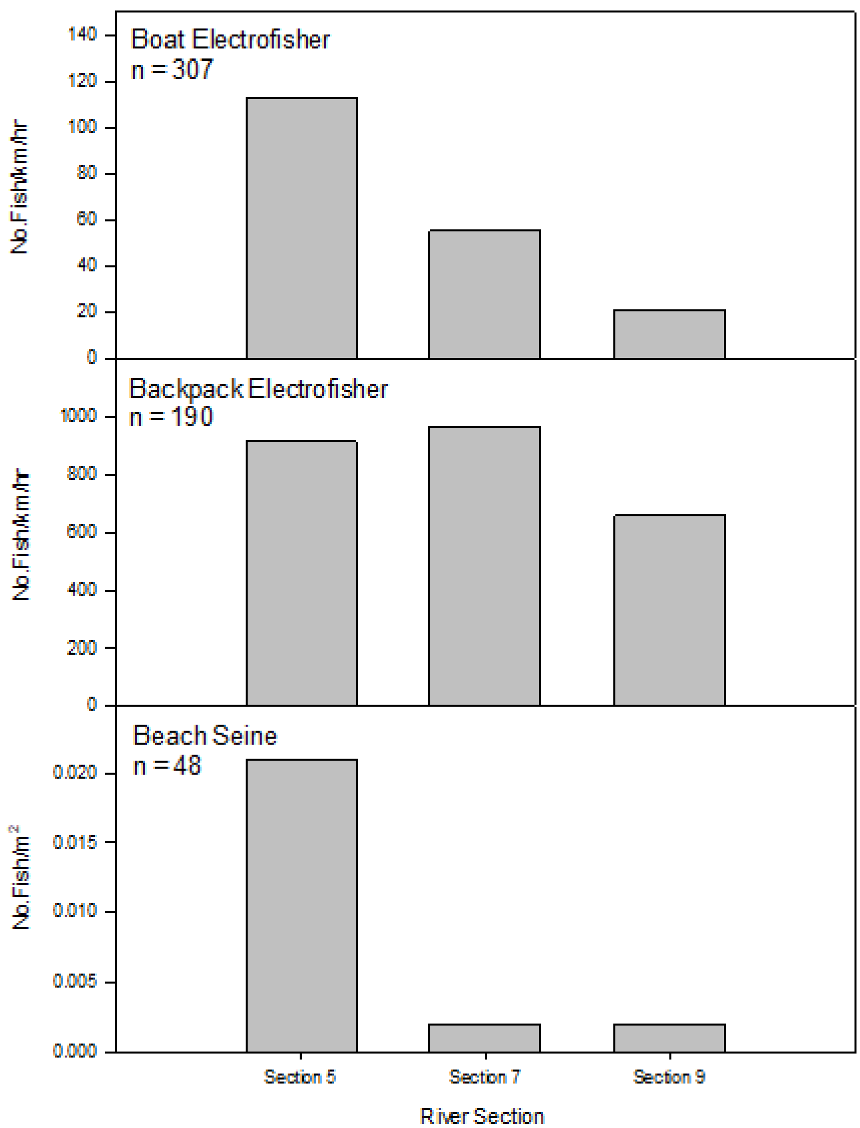


Figure 53. Average catch rate for sculpins by sample method and section in 2020.

confluence. A total of 55 sculpins were captured within the 108R offset channels of Section 5.

3.8.2 Prickly Sculpin

Overall 9 of the 14 Prickly Sculpins were analysed with length ranging from 23 mm to 133 mm, weight ranging from 0.1 g to 36 g, and body condition ranging from 0.28 to 2.47 (Table 23). One exceptionally large Prickly Sculpin was caught that weighted 36 g and was 133 mm in length, raising the overall average and standard deviation for the species.

Table 23. Average length, weight, and body condition for Prickly Sculpins caught in 2020.

Length (mm)			*Weight (g)*			*Body Condition (K)*		
n	Average ± SD	Range	*n*	Average ± SD	Range	*n*	Average ± SD	Range
9	58 ± 29	23 - 133	9	5.3 ± 11	0.1 - 36	9	1.18 ± 0.64	0.28 - 2.47

The length-frequency distribution for Prickly Sculpin showed an abundance of small 20 mm to 60 mm fish with few larger fish (Figure 54). Prickly Sculpin length-weight data were examined using the power function suggesting allometric growth (Figure 55).

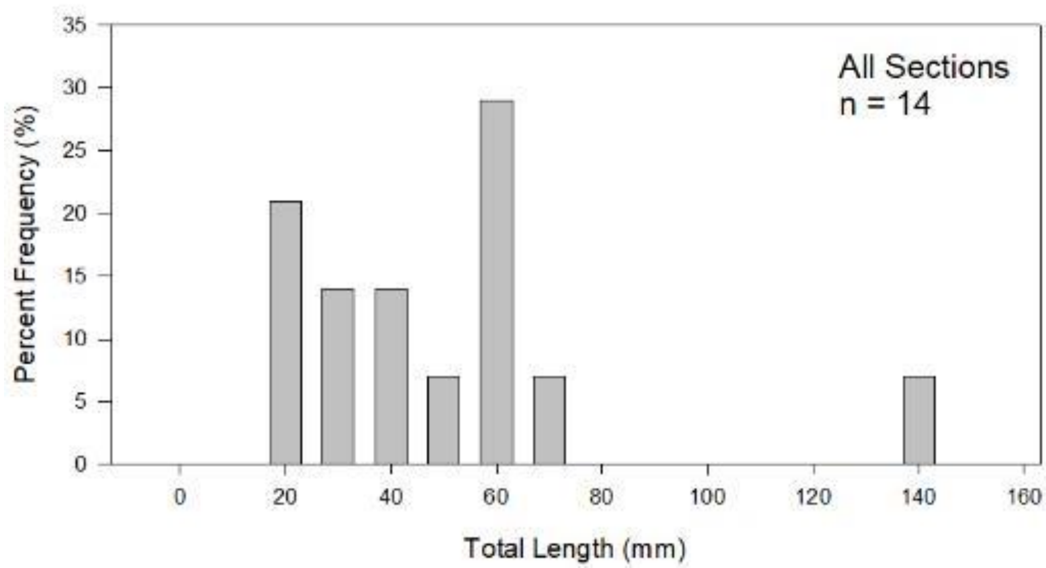


Figure 54. Length-frequency distribution for Prickly Sculpins caught in 2020.

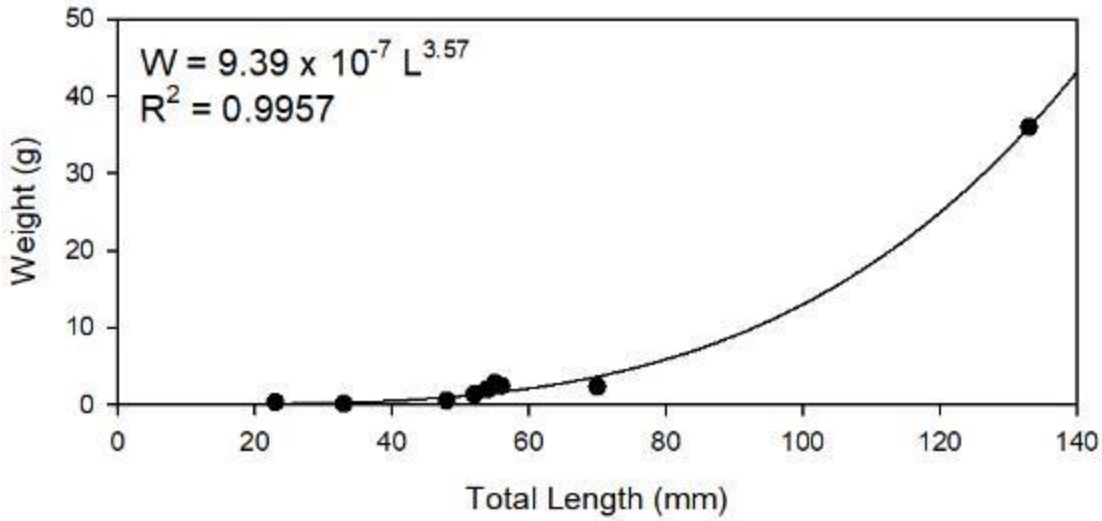


Figure 55. Length-weight regression for Prickly Sculpins caught in 2020.

3.8.3 Slimy Sculpin

Of the 504 Slimy Sculpins caught, length and weight were obtained from 275 specimens. Overall, Slimy Sculpins ranged in length from 21 mm to 90 mm, ranged in weight from 0.1 g to 9.1 g, and ranged in body condition from 0.21 to 1.96 (Table 24).

Table 24. Average length, weight, and body condition for Slimy Sculpins caught in 2020.

Length (mm)			***Weight (g)***			***Body Condition (K)***		
n	**Average ± SD**	**Range**	***n***	**Average ± SD**	**Range**	***n***	**Average ± SD**	**Range**
275	56 ± 12	21 - 90	275	1.9 ± 1.5	0.1 - 9.1	275	0.90 ± 0.33	0.21 - 1.96

The length-frequency distribution for Slimy Sculpin showed a range of lengths and presumably various ages of this small-bodied fish, with the majority in the 50 mm to 70 mm range (Figure 56). Slimy Sculpin length-weight data were examined using the power equation, suggesting strong allometric growth (Figure 57). Slimy Sculpin growth appears slow until fish reach a length of approximately 60 mm.

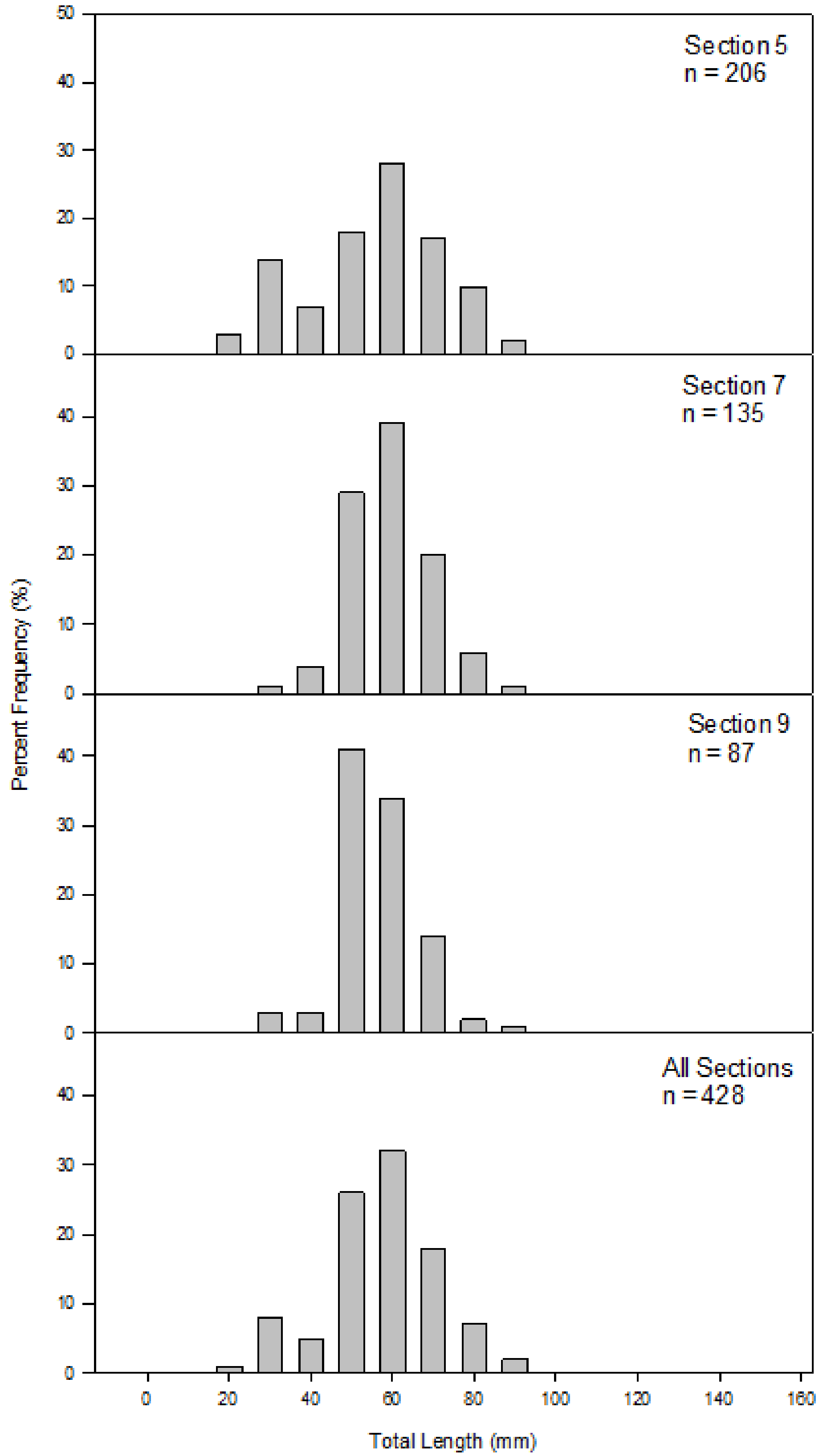


Figure 56. Length-frequency distribution by river section for Slimy Sculpins caught in 2020.

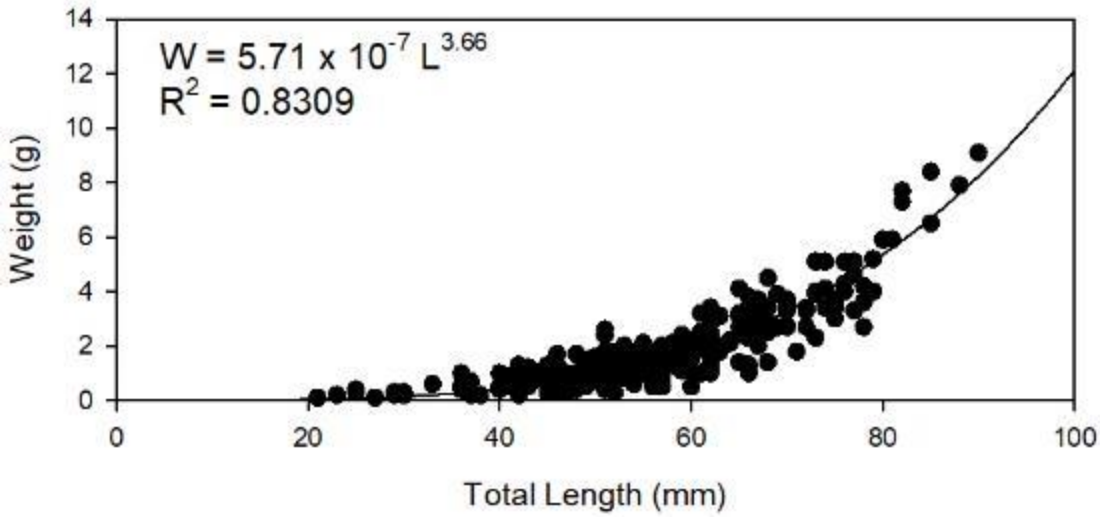


Figure 57. Length-weight regression for Slimy Sculpins caught in 2020.

3.8.4 Spoonhead Sculpin

Overall, Spoonhead Sculpins ranged in length from 35 mm to 74 mm, ranged in weight from 0.2 g to 3.6 g, and ranged in body condition from 0.47 to 1.76 (Table 25).

Table 25. Average length, weight, and body condition for Spoonhead Sculpins caught in 2020.

Length (mm)			***Weight (g)***			***Body Condition (K)***		
n	**Average ± SD**	**Range**	***n***	**Average ± SD**	**Range**	***n***	**Average ± SD**	**Range**
18	57 ± 12	35 - 74	18	2.1 ± 1.0	0.2 - 3.6	18	1.02 ± 0.31	0.47 - 1.76

Body condition (K > 1.0) and the length-frequency distribution having several age classes would be considered a healthy population for this small-bodied fish (Figure 58). For visual clarity, the power function was applied to the length-weight relationship and suggested negative allometric growth (Figure 59). This relationship however was quite poor ($R^2 = 0.78$) given the small sample size and low accuracy of the weigh scales for small values.

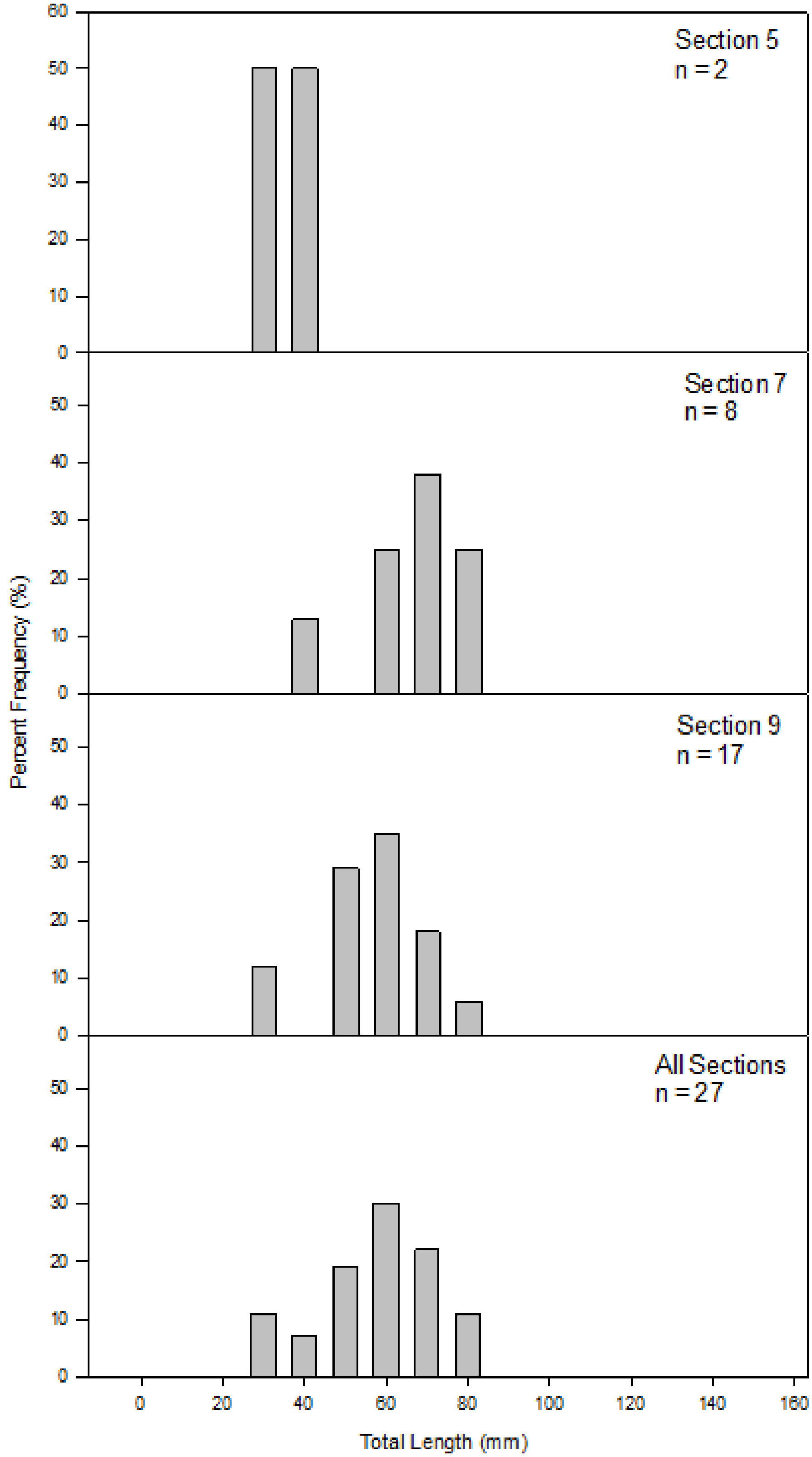


Figure 58. Length-frequency distribution by river section for Spoonhead Sculpins caught in 2020.

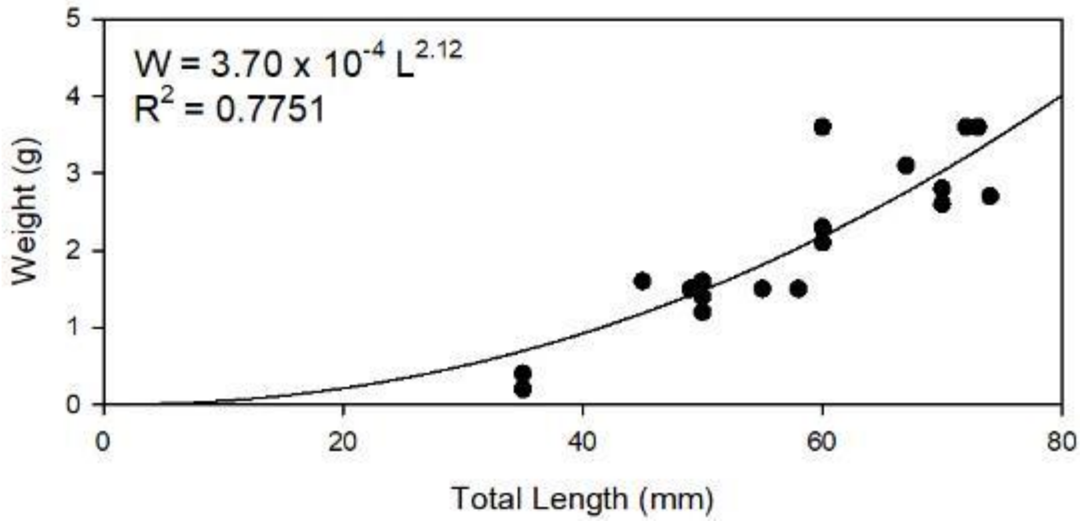


Figure 59. Length-weight regression for Spoonhead Sculpins caught in 2020.

3.9 *Minnow Populations*

Overall, the minnow group was the second most abundant fish group recorded in 2020, accounting for 29% of the total fish caught. Historically, the minnow group has made up a similar percentage, between 26% to 42% of the total fish caught with a maximum of 416 and minimum of 268 (Mainstream 2010, 2011, 2013).

Nine species of minnows were recorded during field sampling of the Peace River in 2020 (Table 26), which was slightly higher than the six to seven species recorded by historic studies (Mainstream 2010, 2011, 2013). Lake Chub was the most prevalent species captured in 2020, comprising of nearly half of all minnows caught. Longnose Dace were the second most prevalent minnow, accounting for around one quarter of the minnows. The remaining seven species in the minnow group each comprised 8% or less of the total minnows caught. The numbers of minnows caught increased from upstream to downstream, with Section 9 having the greatest numbers of minnows caught. Spottail Shiners in contrast were slightly more numerous in upstream sections, while species such as Lake Chub were substantially more numerous in downstream river sections.

Table 26. Number of minnow species caught and their frequency of occurrence in sampled sections, 2020.

*Species **	*Section 5*	*Section 7*	*Section 9*	*Total*	*% of Minnows Caught*
Flathead Chub	0	12	10	22	7
Finescale Dace	0	1	0	1	0
Lake Chub	8	24	107	139	44
Longnose Dace	16	51	13	80	26

Species *	Section 5	Section 7	Section 9	Total	% of Minnows Caught
Northern Pikeminnow	1	0	1	2	1
Northern Redbelly Dace	0	0	1	1	0
Redside Shiner	8	11	2	21	7
Spottail Shiner	12	7	4	23	7
Trout-perch	4	13	7	24	8
Subtotal	**49**	**119**	**145**	**313**	**100**

*Note that the Minnow group includes true minnows of the family Cyprinidae and Trout-perch of the family Percopsidae.

3.9.1 Minnow Catch Rate and Distribution

Of the 313 minnows captured in 2020, 151 were caught using the backpack electrofisher, 115 using the boat electrofisher, and 47 using a beach seine. The backpack electrofisher yielded the highest catch rate of between 83 to 787 minnows/km/hr sampled (Figure 60, Appendix 4). Boat electrofishing had a catch rate between 8.9 and 26.7 minnows/km/hr. Beach seining yielded the lowest catch rate between 0.004 and 0.016 minnows/m^2 sampled. Catch rates varied between sections and methods: Section 7 was highest for the backpack electrofisher, while the boat electrofisher had the highest catch rates in Section 9, and beach seine had the highest catch rates in Section 5 (Figure 60). Boat electrofisher catch rates increased steadily from upstream to downstream. By habitat, 166 minnows were captured in main channel habitat, 75 were captured in side channel habitat, and 72 were captured at tributary confluences. A total of 26 minnows were captured in the 108R offset channels of Section 5, including 10 Longnose Dace, 8 Lake Chub, 7 Spottail Shiner, and 1 Redside Shiner.

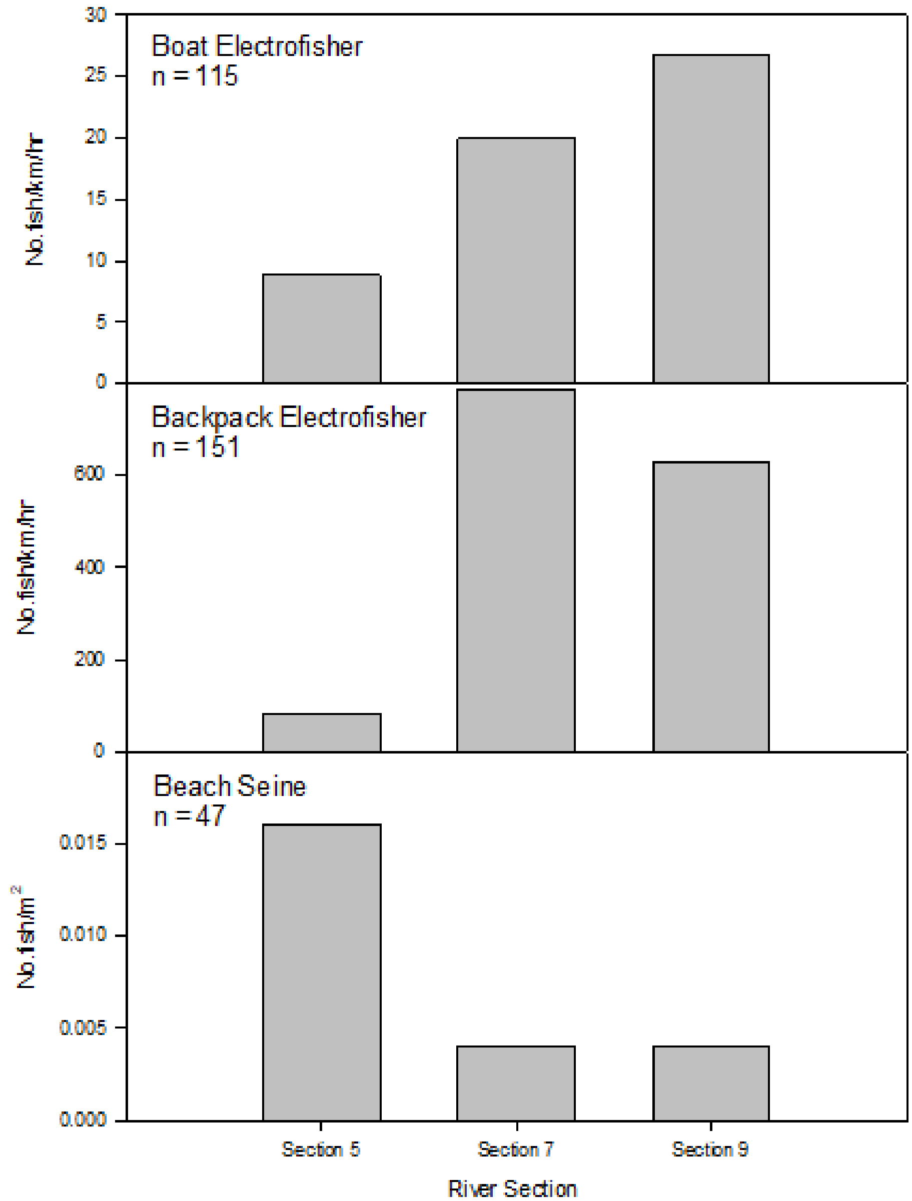


Figure 60. Average catch rate for minnows by sampling method and section in 2020.

3.9.2 Biological Characteristics

Capture numbers, fork length, weight, and body condition, along with averages and standard deviation for the nine minnow species captured, is summarized in Table 27.

Table 27. Average fork length, weight, and body condition along with standard deviation and range for the nine minnow species caught in 2020.

Species	Fork Length (mm)			Weight (g)			Body Condition (K)		
	n	Average ± SD	Range	*n*	Average ± SD	Range	*n*	Average ± SD	Range
Flathead Chub	22	99 ± 54	22 - 255	22	24 ± 53	0.1 - 192	22	0.93 ± 0.2	0.44 - 1.30
Finescale Dace	-	60 ± 0	60	1	-	-	-	-	-
Lake Chub	77	62 ± 12	30 - 88	77	2.7 ± 2	0.3 - 10.1	77	1.02 ± 0.3	1.02 - 1.76
Longnose Dace	11	46 ± 17	22 - 75	11	1.1 ± 1	0.1 - 4.1	11	0.81 ± 0.3	0.31 - 1.25
Northern Pikeminnow	2	250 ± 98	152 - 347	2	248 ± 218	30 - 466	2	0.98 ± 0.1	0.85 - 1.12
Northern Redbelly Dace	1	37 ± 0	37	1	0.9 ± 0	0.9	1	1.78 ± 0	1.78
Redside Shiner	11	59 ± 26	19 - 106	11	3.6 ± 4	0.1 - 15	11	1.04 ± 0.2	0.56 - 1.46
Spottail Shiner	12	37 ± 16	19 - 67	12	0.7 ± 1	0.1 - 3.6	12	0.99 ± 0.5	0.2 - 2.20
Trout-perch	16	59 ± 12	31 - 84	16	2.8 ± 2	0.6 - 10.1	16	1.20 ± 0.4	0.68 - 2.01

The length-frequency distribution for Flathead Chub was variable, with one definitive adult based on length greater than 250 mm caught in Section 9 (Figure 61).

Only one Finescale Dace was caught in 2020; its length was measured to be 60 mm with no weight measured.

The length-frequency distribution for Lake Chub had smaller (<30 mm), presumably age-0, fish caught in Section 5 only (Figure 62).

A number of Longnose Dace lengths were measured without weights as their small size (i.e., less than 40 mm) precluded accurate weight measurements of the weigh scale (Figure 63). The larger Longnose Dace greater than 40 mm were typically caught in Section 7, with more represented in Section 9.

Two Northern Pikeminnow were caught in 2020, one in Section 5 and one in Section 9. The two fish were 152 mm and 347 mm long, weighed 30 g and 466 g respectively, and had body conditions of 0.85 and 1.12. Due to the size difference between the two specimens, the standard deviations were quite large for Northern Pikeminnow length and weight. The two specimens presented in the length-frequency distribution (Figure 64) were likely one juvenile and one adult.

Only one Northern Redbelly Dace was caught in 2020; it had a length of 37 mm, weight of 0.9 g, and a body condition of 1.78.

The length-frequency distribution for Redside Shiners showed larger (i.e., greater than 60 mm) Redside Shiners were only caught in Section 5 (Figure 65).

The length-frequency distribution tended to have higher numbers of smaller fish in upstream sections, suggesting potential recruitment areas (Figure 66).

The length-frequency distribution for the 16 Trout-perch did not form any discernable pattern, as numbers and lengths varied throughout the sampled sections (Figure 67).

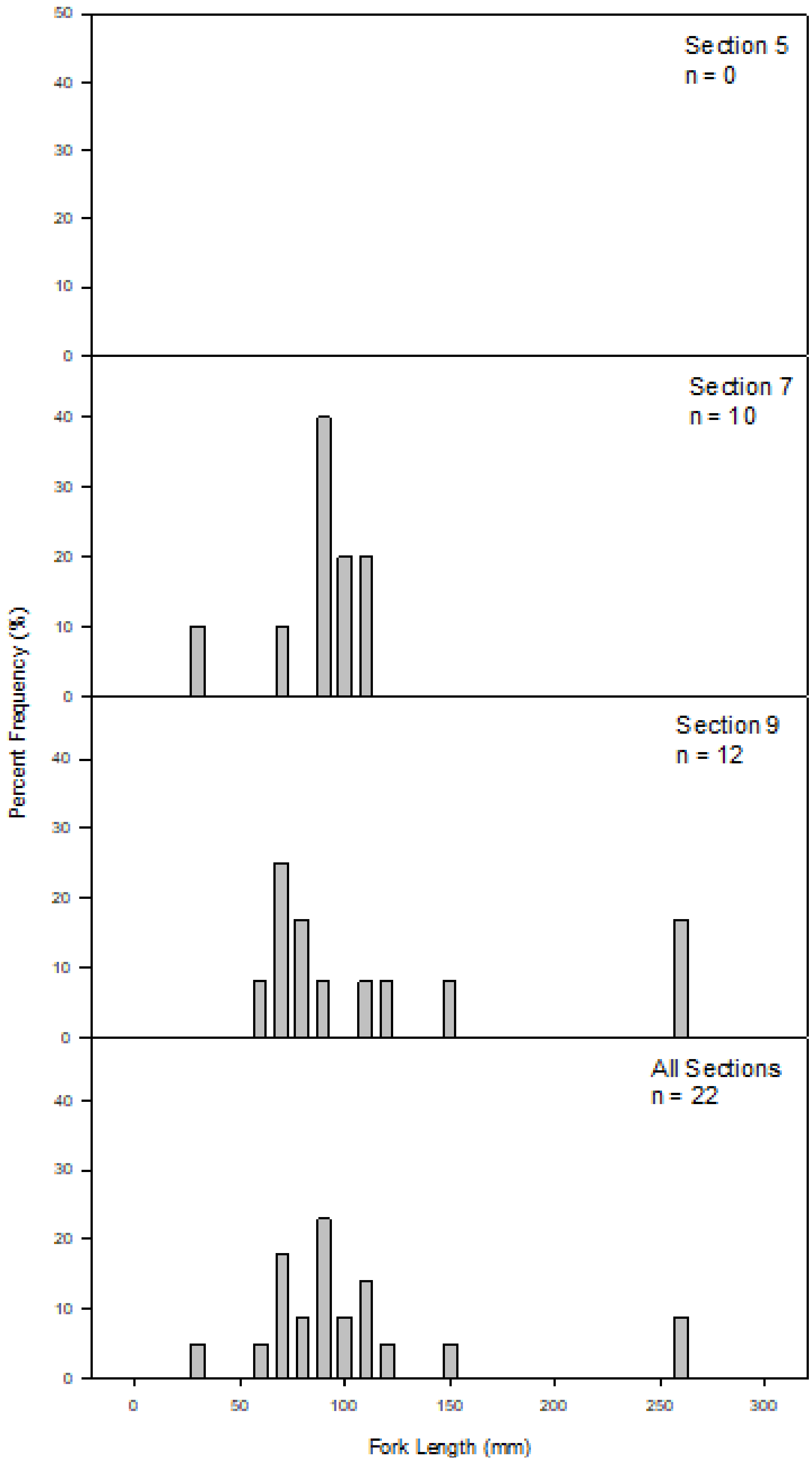


Figure 61. Length-frequency distribution by river section for Flathead Chub caught in 2020.

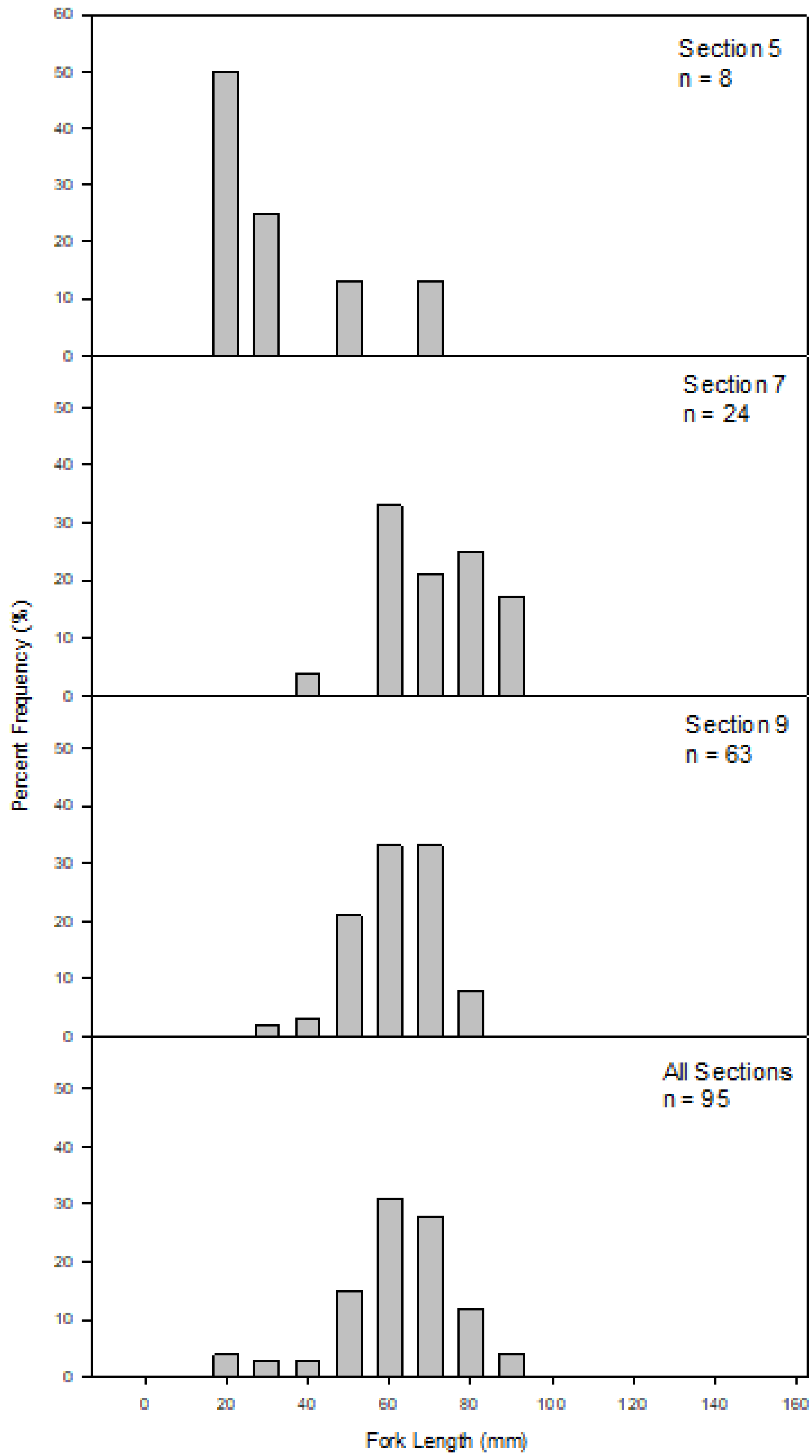


Figure 62. Length-frequency distribution by river section for Lake Chub caught in 2020.

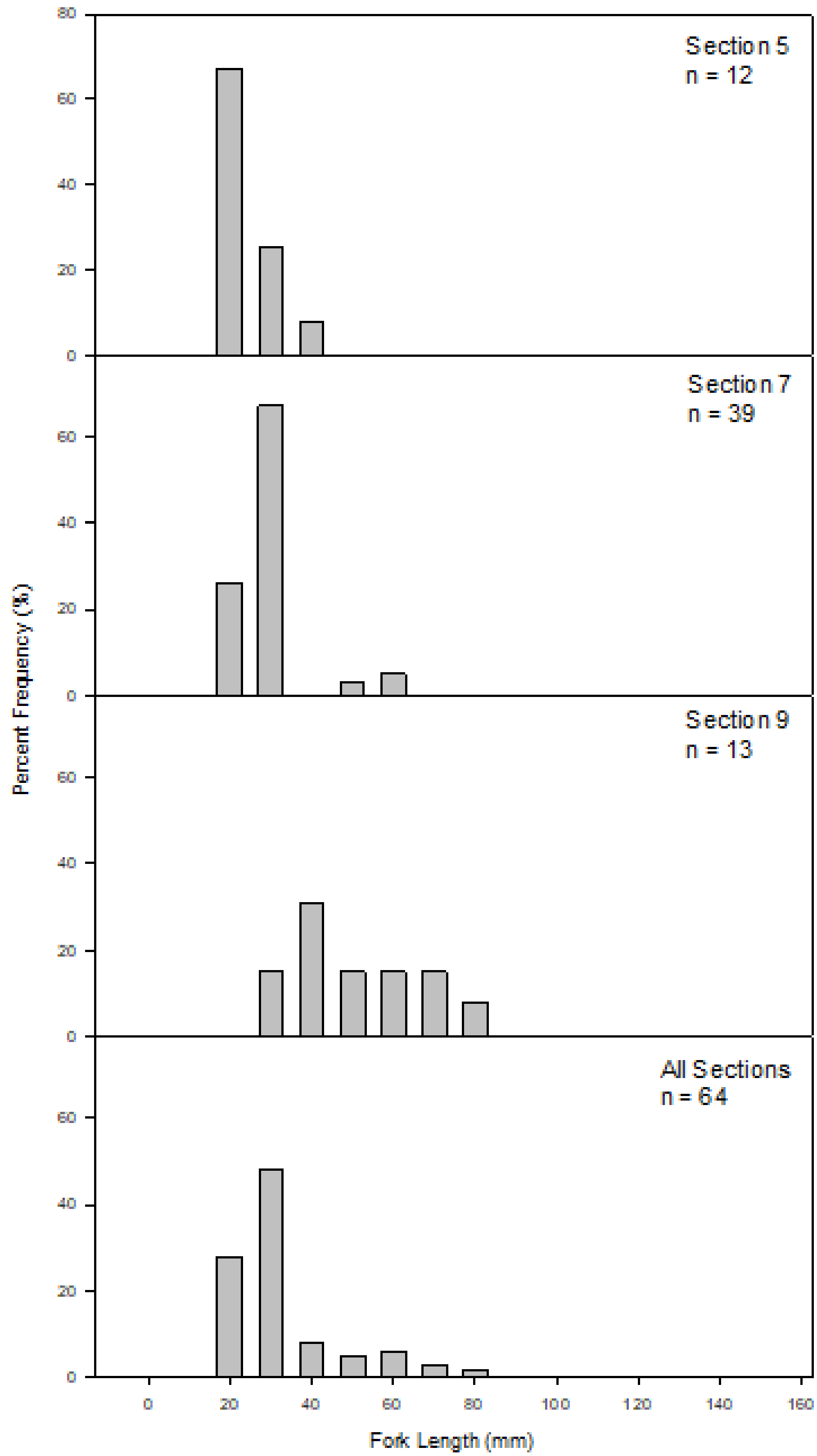


Figure 63. Length-frequency distribution by river section for Longnose Dace caught in 2020.

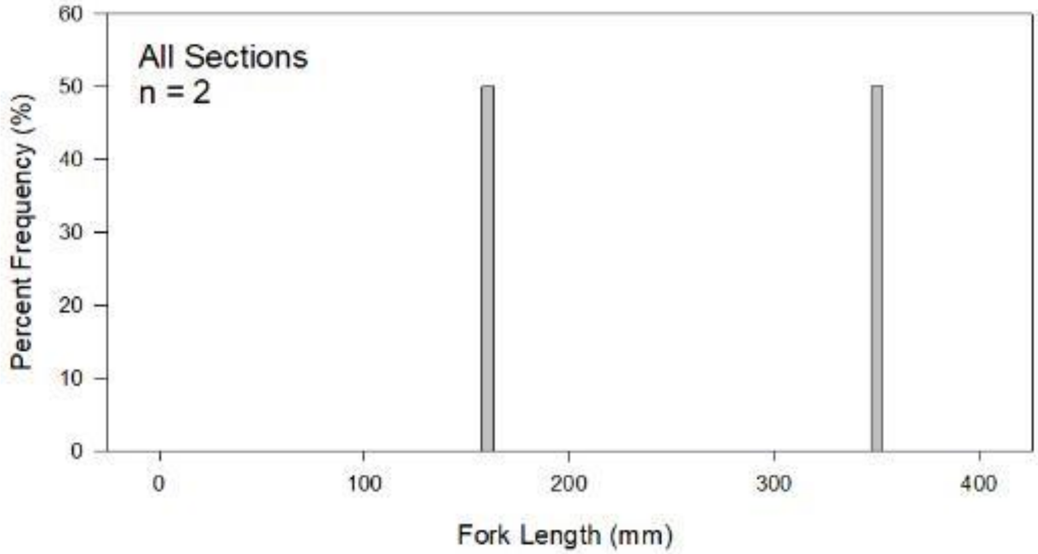


Figure 64. Length-frequency distribution for Northern Pikeminnows caught in 2020.

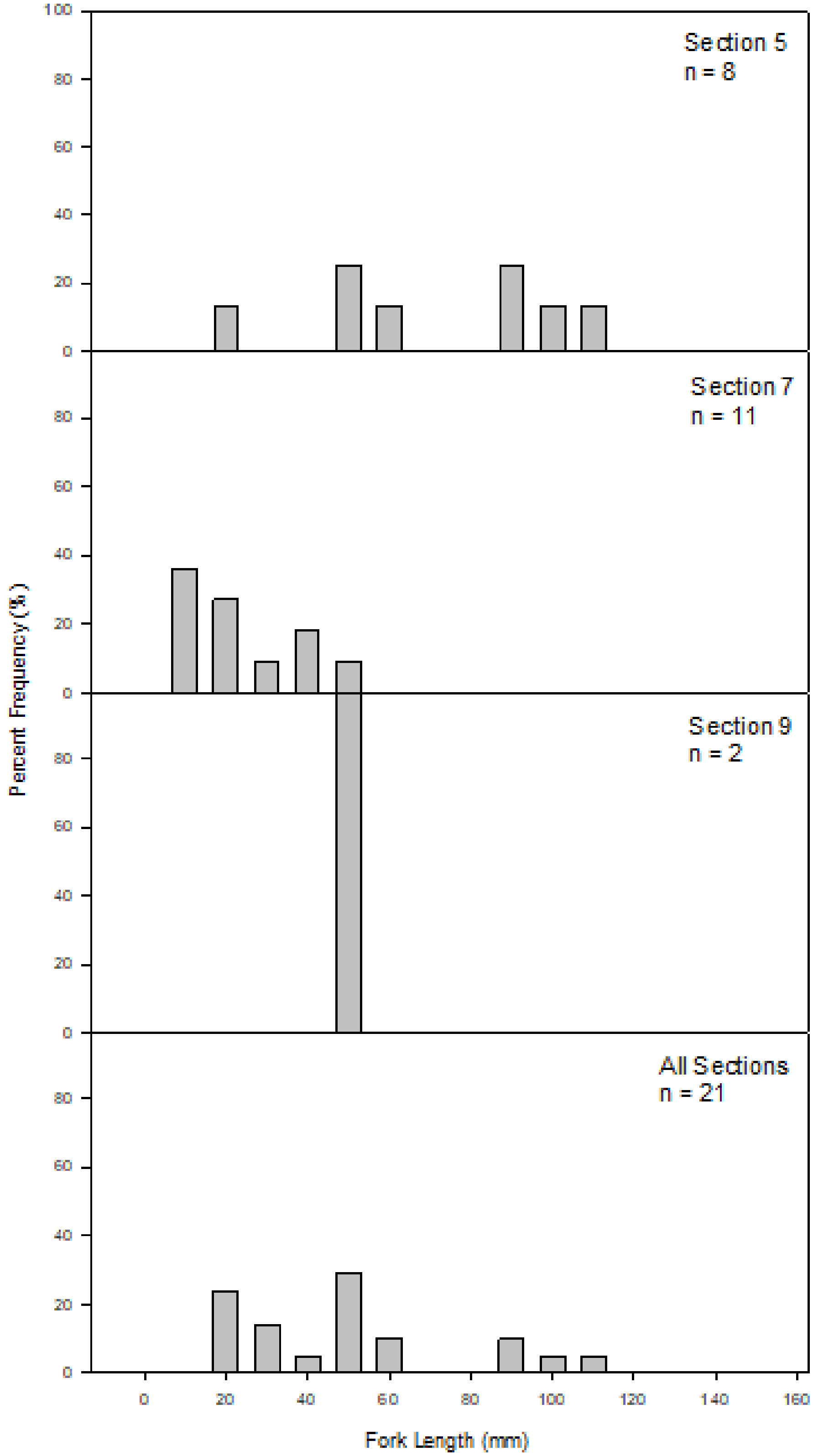


Figure 65. Length-frequency distribution by river section for Redside Shiners caught in 2020.

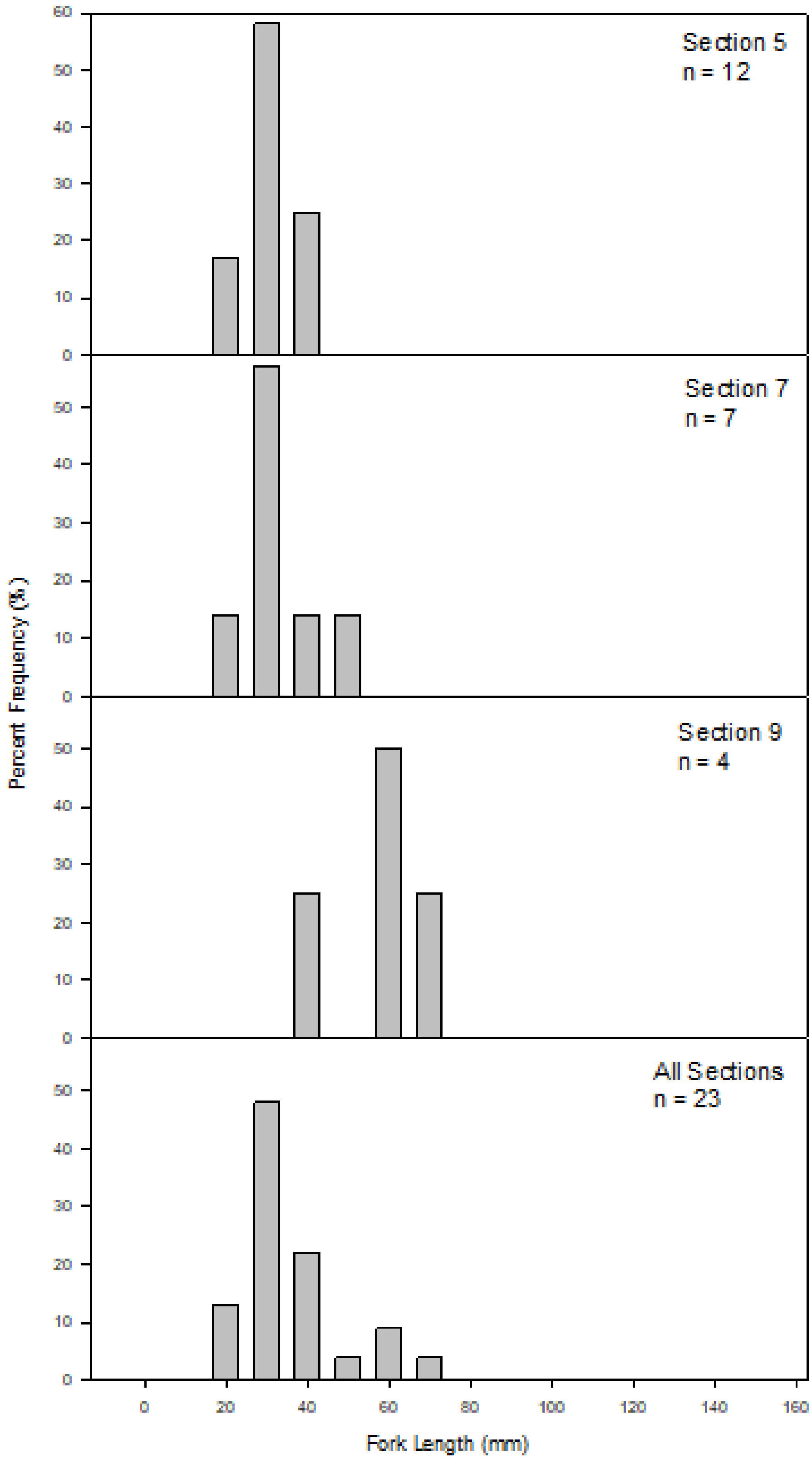


Figure 66. Length-frequency distribution by river section for Spottail Shiners caught in 2020.

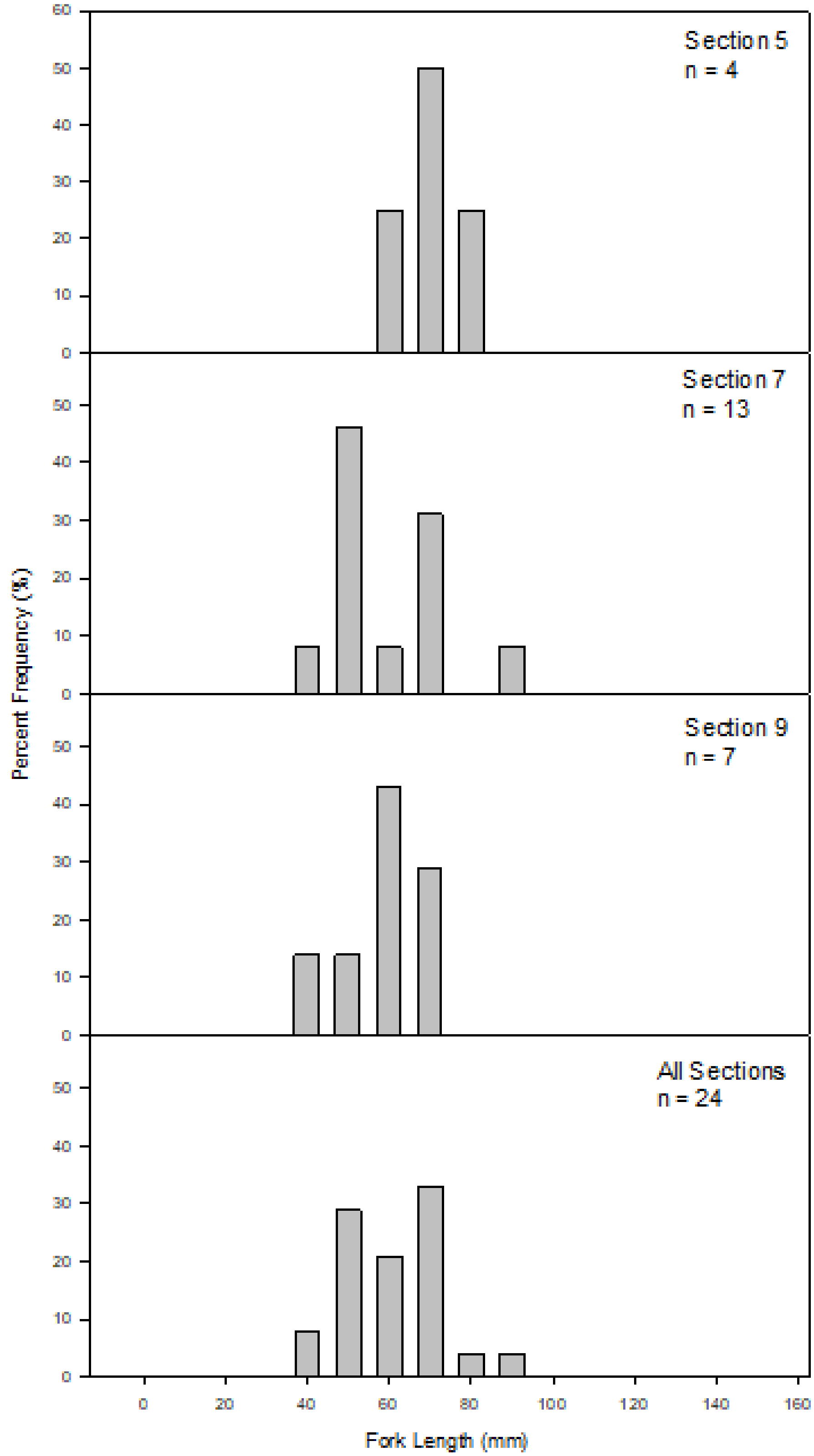


Figure 67. Length-frequency distribution by river section for Trout-perch caught in 2020.

4.0 Discussion

The purpose of this study was to collect information on small-bodied fish and younger age classes of large-bodied fish to provide information on recruitment and early rearing. The data from the 2020 study will provide a linkage to other monitoring programs related to the Project and assist BC hydro with testing and answering the primary management question.

The 2020 study was successful in gathering data on small-bodied fish and younger age classes of large-bodied fish. This study documented higher numbers of captured fish, a greater number of total fish species, and similar catch rates compared to previous fall small fish sampling programs (Mainstream 2010, 2011, 2013). In total, 1,505 fish were captured over 8 days of sampling on the Peace River, representing 25 species of fish. Species composition characterized from catch data were slightly different from historic years with almost twice the number of sculpins and around half the number of coldwater fish caught. The assemblage of coldwater fish species and sculpins were found to decrease from upstream to downstream, while species such as minnows and suckers became more numerous in downstream river sections. Overall, the majority of fish captured were less than three years of age, supporting the sampling design and sampling locations used by this study which were adopted from Mainstream to target the desired fish sizes.

4.1 Environmental Conditions

Sampling was conducted from September 26 to October 3, 2020 which was chosen to replicate the timing of Mainstream's fall small fish sampling program in 2009, 2010, and 2011 (Mainstream 2010, 2011, 2013). The environmental conditions (i.e., water temperature, clarity, and conductivity) varied slightly among years but were generally consistent. Discharge, however, was the exception, where flows were reduced to support river diversion. On September 28 and 29, the Peace River dropped from 733 m^3/s to 591 m^3/s in Section 5 to facilitate opening of the diversion tunnel gates which occurred on September 30. Finally, on October 3, full encroachment of the Peace River occurred at Site C. These events all culminated during field sampling in 2020, which explains the difference in discharge from previous fall sampling programs.

Mean discharge on the Peace River in September is usually 1,000 m^3/s in Section 5 and 1,239 m^3/s in Section 7, however during field sampling in 2020, mean discharge in September was 647 m^3/s in Section 5 and 875 m^3/s in Section 7. This resulted in flows being 65% and 76% of normal discharge respectively for the average month of September in these river sections. The difference in mean discharge was more pronounced in Section 5, where river diversion occurred, and during field sampling in October where Peace River discharge was 36% and 51% of its historic mean. With the river flowing up to half the discharge rate compared to historic years, field crews had to relocate most of the historic sampling sites that were completely dry or were near the Project (Appendix 1; Tables A1-1, A1-2, A1-3). Several sites were also moved into the 108R offset channels to determine their effectiveness. In summary, site locations associated with the 2020 program relative to their historic location were as follows:

- 12 sites moved ≤25 m
- 24 sites moved >25 m to ≤50 m
- 16 sites moved >50 m to ≤100 m
- 12 sites moved >100 m to ≤200 m
- 6 sites moved >200 m

Discharge also affected water depths, velocity and habitat complexity at the sampling sites, which in turn may have affected fish distribution and catch rates based on species-specific habitat preferences. For example, woody debris and/or the banks along the ordinary high water mark form eddy lines, scouring holes and forming small pools. However, at lower discharge these habitats may not be wetted thereby impacting fish presence. While crews attempted to start each site as close to the historical waypoints as possible and sample at the specific gear method depth, there were scenarios where the shoreline was greater than 50 m from the historic start and end point, resulting in different morphology and habitat characteristics than the Mainstream studies. In these situations, the crews made every effort to replicate the historic sampling to the extent possible.

4.2 Fish Community Structure

4.2.1 Species Composition

In total, 25 species of fish were captured in the Peace River during sampling in 2020. This number is slightly higher than previous small fish sampling efforts in the fall. Previous small fish programs caught between 17 (2011) and 21 (2009) species of fish (Mainstream 2010, 2011, 2013). Historically, a total of 31 species of fish have been recorded during similar studies on the Peace River, however these studies sampled with other methods, for longer periods, over multiple seasons, and in other sections of the Peace River (Golder and Gazey 2018, Mainstream 2010, 2011, 2013). In 2020, the species composition included six coldwater species, four coolwater species, three suckers, three sculpins, and nine minnow species. Numerically, sculpins were the most abundant fish, followed by minnows, coldwater fish, suckers, and lastly coolwater fish. Overall, Slimy Sculpin was the numerically dominant species recorded in 2020, which was different than historic sampling in 2009, 2010, and 2011 (Mainstream 2010, 2011, 2013). In 2009 and 2010 Mountain Whitefish were found to have the highest species composition while Longnose Suckers had the highest composition in 2011. Several species were numerically scarce in 2020, including: Lake Whitefish, Rainbow Trout, Yellow Perch, Burbot, Finescale Dace, Northern Redbelly Dace, and Northern Pikeminnow. These species made up less than 1% of the total catch overall and were caught sporadically throughout.

Species composition in 2020 was similar to previous sampling years with the exception of coldwater fish and sculpins. On average half as many coldwater fish were caught in 2020 compared to 2009 and 2010, while the number of sculpins recorded in 2020 was more than double that of 2009, 2010, and 2011. While these differences in species composition could reflect population shifts over the last nine years, it is possible that discharge and water levels at the time of sampling or the slight differences in the number of sample sites and sampling approach could account for this. For instance, sculpins as a group are small benthic fish that lack a swim bladder and reside between the interstitial spaces of rocks. This makes sculpins typically more challenging to catch compared to coldwater fish, which are generally not bottom dwellers, are of larger size, and possess a swim bladder. These key differences highlight how catch rates between species groups can be exacerbated by boat operator, netter experience, or types of electrofishing equipment. In addition, the dropping water levels could have displaced and concentrated sculpins towards shallower water potentially increased capture efficiency of this group (ESSA Technologies Ltd. et al. 2019).

4.2.2 Fish Assemblage

Fish assemblage in 2020 varied across the sampled river sections but followed a similar trend to species composition. Overall, the assemblage of coldwater fish species and sculpins decreased from upstream to downstream, while minnows and suckers were more numerous downstream compared to upstream. These findings are not surprising and similar to previous sampling years, as the transition from coldwater to coolwater begins around the upstream extent of Section 5 (Mainstream 2010, 2011, 2013). Sculpin assemblage in 2020 was double historic values in all river sections.

The trends in fish assemblage by habitat type generally aligned with the habitat preferences for each species group. Coldwater and coolwater fish typically resided in cooler deeper main channels, sculpins dominated the composition in side channels, minnows were heavily documented at tributary confluences and suckers were found to vary throughout all three habitats. Notwithstanding coldwater fish, species groups by habitat varied from year to year likely based on their relative abundance or environmental conditions. Several species such as suckers are generalists and likely show no affinity for specific habitats.

4.2.3 Species Diversity

The long-term trend that has been observed by Golder and Gazey (2020) is that diversity is greater in downstream sections of the Peace River (i.e., sections 6, 7 and 9) than in upstream sections (i.e., sections 1, 3 and 5). This trend has not been clearly evident in association with the Mon-2, Task 2b program or the predecessor programs completed by Mainstream (2010, 2011 and 2013), and in most years the opposite trend has been observed whereby Section 5 has greater diversity than the downstream areas.

Two main factors, targeted habitat and available data points, likely account for the difference in diversity trends observed between the programs. The Mon-2, Task 2b program targets small fish in shallow main channel margin habitat, side channels and back channels, whereas the Mon-2, Task 2a program targets larger fish along deeper main channel margins. It is also possible that limited data points associated with Mon-2, Task 2b (and predecessor programs) relative to Mon-2, Task 2a (and predecessor programs) is contributing to the differing diversity trends observed to date, and that over time the trend for the former program will start to look more similar to the trend observed in the latter program. Mon-2, Task 2b (and predecessor programs) only have four years of data for sections 5 and 7, and two years of data for Section 9, while >15 years of data exists for Mon-2, Task 2a (and predecessor programs). At this time it is not possible to determine the extent to which each of the two factors account for observed differences in diversity profile trends between the programs.

4.2.4 Species Occurrence

Fish species occurrence was found to be highly variable among river sections in 2020. Slimy Sculpins and Mountain Whitefish were the most prevalent species to occur in upstream sections, while species such as Lake Chub, Flathead Chub, Spoonhead Sculpin, and Longnose Sucker occurred more frequently downstream. Occurrences were higher in sections with known recruitment sources such as the Moberly River near the upstream extent of Section 5 for Arctic Grayling and Burbot (Golder 2017), and the Beatton River at the upstream extent of Section 7 for Walleye (Mainstream 2011, 2013). Arctic Grayling have also been known to recruit as far downstream as the Beatton River, accounting for the varied presence observed (Mainstream 2013), however the Beatton River Arctic Grayling appear to be residents (Golder 2019, Golder 2020). Species that were rare tended to have sporadic distribution such as Bull Trout, Northern Pikeminnow, Rainbow Trout, or Yellow Perch. Species occurrence generally aligned with the habitat requirements or recruitment sources, which is a similar trend to those expressed for fish assemblage and species composition.

Slimy Sculpin, Mountain Whitefish, and Lake Chub were the three species found to occur the most often in main channel habitat. Slimy Sculpin and Mountain Whitefish were also the top two species to occur in side channels, followed by Longnose Sucker. The three most prevalent species to occur at tributary confluence sites were Longnose Dace, Lake Chub, and Flathead Chub.

4.3 Catch Rate

Catch rates varied greatly by sample method and river section in 2020. Backpack electrofishing was the most successful sample method with the highest mean CPUE, followed by boat electrofishing, beach seining, and then gill netting, a trend similar to Mainstream (2010, 2011, 2013). Catch rates were highest for backpack electrofishing, likely because the nature of that method results in a more intense sampling effort compared to boat electrofishing and passive methods such as gill netting. For example, the average sampling rate with the boat electrofisher was 0.78 m/s, which was approximately five times faster than the backpack electrofisher at 0.14 m/s, resulting in almost nine times more fish being caught per distance over time with the backpack electrofisher. Backpack electrofishing catch rates in 2020 were lower compared to historic sample years (2009, 2010), yet higher than 2011. Catch rates, however, are a challenging fisheries index to compare across sample methods and years, since different operators, netter experience, and environmental conditions can occur.

Beach seine methods and calculations replicated 2009, 2010, and 2011, with 2020 having slightly lower catch rates (Mainstream 2010, 2011, 2013). Overall, beach seine effectiveness in 2020 was considered poor at times and could explain the slightly lower catch rates. Conditions in 2020 were challenging due to the low water levels which exposed fine substrates and woody debris, making wading difficult. This was especially evident in the 108R offset channels of Section 5 where the substrate combined with swifter flows in some sites contributed to low beach seine effectiveness. Given this, some beach seine sites within the 108R offset channels might be sampled more effectively by boat or backpack electrofisher.

All methods, with the exception of gill netting, continue to be effective methods for sampling small fish in the Peace River during the fall season. Gill net catch rates in 2020 were lower than previous sample years, with only two fish caught. This might be because gill net set times were kept less than 2 hours in 2020 while in 2010 and 2011 set times varied from a low of 2.78 hours up to 4.25 hours. Additionally, due to the low water levels in 2020, field crews struggled in all sections to find water deep enough and for long enough distances to set a gill net.

Capture data associated with the backpack electrofisher and beach seine methods suggested the highest density of fish within the target size range were present in side channel habitat, followed by main channel and tributary habitats respectively. Boat electrofishing and gill netting methods did not have a sufficient number of sites located in the various habitat types to draw any inferences.

4.4 Fish Health

Approximately 1% of the fish sampled in 2020 were found to exhibit evidence of impairment to health. These included six species of fish, with the majority of the DELT codes being found in Mountain Whitefish. This is not surprising given that Mountain Whitefish make up a large percentage of the overall fish population and they are a sensitive fish species. Two of the four Kokanee captured in Section 5, exhibited signs of varying cut severity. While this could be an anomaly due to an extremely small sample size and natural causes, another possible explanation for this observation could be injury by entrainment through the Peace Canyon Dam. Another notable observation was that tumours were only found on suckers and not other fish species; this again only occurred in two fish and is likely an anomaly rather than a general species or population trend. Slightly more fish were found with DELT codes in Section 5 compared to Sections 7 and 9. Fewer fish have historically been captured with DELT codes during the small fish program in the fall, with four fish or 0.32% in 2009, two fish or 0.23% in 2010, and one fish or 0.1% in 2011. This could suggest fish injury and health issues may be increasing, however given the small sample size (n = 17) and few records of DELT index values relative to capture numbers, fish in the Peace River appear healthy.

4.5 Population Characteristics

4.5.1 Coldwater

Coldwater fish populations were described using length-frequency, age-frequency, length-weight, and body condition where possible. In general, coldwater fish populations were highest in upstream river sections, similar to historical findings (Golder and Gazey 2018, Mainstream 2010, 2011, 2013). Predominantly young fish were found for most coldwater species caught, with healthy body condition and growth rates. Catch of coldwater fish species was lower than previous study years (2009, 2010) accounting for 20% or approximately half of their usual percentage (37%, 45%). This was not the case in 2011 when coldwater fish made up only 12% of the total fish caught.

Overall, Mountain Whitefish comprised the majority of the coldwater fish population as found in previous studies (Mon-2, Task 2a, Mon-2, Task 2b) on the Peace River using large and small fish sampling methods, Mountain Whitefish have made up between 40 and 50 percent of the total fish caught (Mainstream 2010, 2011, 2013, Golder and Gazey 2018). The Mountain Whitefish population inferred from boat electrofishing catch rates, declined steadily from a high of 80 fish/km/hr in Section 5, to 43 fish/km/hr in Section 7 and 28 fish/km/hr in Section 9. Mountain Whitefish data tended to display a multimodal distribution in all sections except Section 9 where an abundance of fish less than two years of age was caught. This could be attributed to the decreasing river discharge levels concentrating young fish towards shore or reduced habitat preferences for juveniles and adults of this species (ESSA Technologies Ltd. et al. 2019).

Kokanee were rare in 2020 with a total of 17 fish, all of which were two years of age or less. More young-of-the-year age-0 Kokanee were caught in upstream Sections 5 and 7 (n = 5) compared to Section 9 (n = 2), suggesting a recruitment source upstream. It has been speculated in previous studies that numbers of Kokanee or other fish may be bolstered via entrainment through the Peace Canyon Dam (Mainstream 2013, Golder and Gazey 2018). Slightly more Kokanee were caught in side channel habitat while the remainder of the coldwater fish were caught more frequently in main channel habitats.

All five of the Bull Trout captured in 2020 were caught in section 7. Bull Trout have been shown to move from the Pine River into the Peace River for feeding or overwintering (AMEC and LGL 2009) which could be the source of the Section 7 fish, assuming downstream movement was occurring. Length-at-age data for 2020 represented the juvenile age class which typically rears in tributaries before entering the mainstem Peace River (Golder and Gazey 2018).

While the purpose of this study was to characterize small bodied and young age classes of large-bodied fishes, coldwater fish ranged in age from 0 to 10 years in 2020. Considering this finding, the majority of all coldwater fish caught were less than three years of age, which supports the sampling design and sampling locations selected for this study adopted from Mainstream to target young fish.

4.5.2 Coolwater

Coolwater fish populations were scarce throughout the sample sections of the Peace River in 2020. More coolwater fish were caught in Section 7 compared to Sections 5 and 9. In general, characterization of the coolwater fish populations was difficult due to the small numbers of fish caught. Northern Pike comprised the majority (52%) of the coolwater fish abundance, followed next by Walleye (31%), Burbot (10%), and Yellow Perch (7%). Coolwater fish made up similar percentages of the total fish caught as in historic sampling years, suggesting little change in the populations.

Since these species were caught sporadically throughout the study, population inferences could not be made with any certainty. Generally, the coolwater fish caught were young (<5 years), small in body size, and had healthy body conditions. The Fulton condition index is not believed to reflect healthy body condition for long slender species such as Burbot and Northern Pike where weight does not increase proportional to fish length. By habitat, Northern Pike showed some use of side channel habitats while Walleye were found entirely in main channel habitats. This is not surprising considering side channels are more typical habitat for lie-in-wait ambush predators such as Northern Pike (i.e., slower backwaters, abundant cover) and Walleye typically reside in slower, deeper water found in main channels. One young-of-the-year and/or age-1 Burbot was caught in Section 5 with one juvenile caught in Section 7. Immature Burbot are likely recruiting from the Moberly River as they have been caught in this tributary in the past (Mainstream 2010, Golder 2017). Only two Yellow Perch were caught during this sampling program and therefore no inferences for that species could be made.

4.5.3 Suckers

The sucker fish group were fairly numerous throughout all river sections during sampling of the Peace River in 2020. Sucker abundance was found to decrease from upstream to downstream as the river transitions from cold water to cool turbid water. The majority of Largescale Suckers were caught in upstream sections with few in Section 9, which may have to do with their spawning or recruitment areas. Length-frequency distributions for Longnose and Largescale suckers showed a range in lengths, suggesting potential healthy populations. White Suckers, on the other hand, comprised predominantly young fish with few juveniles or adults. This may be indicative of the sampling design and target efficiency of this species, however relatively few (n = 31) White Suckers were caught in 2020.

Approximately one third of the suckers captured in 2020 were found in side channels, while the remaining two thirds were captured in main channel habitats. The offset channels created in Section 5 contained a total of 10 suckers or approximately 10% of the total (n = 102) fish caught within the 108R offset channels. Historically, catches of suckers have been higher in side channels and tributary confluences, however much of this data is during the spring and summer when suckers are spawning (Mainstream 2010, 2011, 2013; McPhail 2007).

4.5.4 Sculpins

Sculpins were the most abundant fish group encountered during sampling of the Peace River in 2020. Coldwater fish have historically been the most abundant fish group recorded during the small fish sampling programs in the fall (2009, 2010) except for 2011 when suckers were the most abundant fish (Mainstream 2010, 2011, 2013). Sculpins followed a similar distribution as coldwater fish, where abundance was highest in upstream sections. The exception was Spoonhead Sculpin, the majority of which were found in downstream sections. Previous studies have not documented this spatial trend in Spoonhead Sculpin abundance, though Spoonhead Sculpins are rarely caught in great numbers during sampling on the Peace River (Mainstream 2010, 2011, 2013).

Slimy Sculpin was the most numerous of the sculpin species, followed by Spoonhead Sculpin and Prickly Sculpin. The Slimy Sculpin population appears to be the most diverse of the sculpin species, with a population distribution represented by many size classes. This could be a product of the high numbers of Slimy Sculpins captured in 2020 compared to the other sculpin species. Length-frequency distributions showed the majority of Slimy Sculpins and Spoonhead Sculpins to be in the 50 mm to 70 mm range which could be considered adults, with Slimy Sculpin exhibiting a slow growth rate until a size of approximately 60 mm. This could be a result of several unknown factors which were not a part of this study's scope, however competition for food resources, higher survival or catchability of larger adult size classes could all potentially be factors. Prickly Sculpins on the other hand were predominantly small (<60 mm) fish with the exception of one large individual.

More sculpins were captured in main channel habitats compared to side channel habitats, with few fish being captured at tributary confluences. This perceived preference for main channel habitats was also found in previous sampling years (Mainstream 2010, 2011, 2013). The majority (n = 56, 55%) of the fish captured within the 108R offset channels of Section 5 in 2020 were sculpins, suggesting strong utilization and relatively fast colonization of constructed habitats. Sampling sites located within the offset channels were fairly diverse and supportive to sculpins with some sites having shallow riffles, fast flows and comprised of gravels, while others had slower flows, were backwatered and comprised of mainly fine substrates.

4.5.5 Minnows

Overall, minnows were the second most common fish group encountered in 2020, a trend which was consistent with sampling in 2009 and 2010; however, minnows were the numerically dominant fish captured in 2011 (Mainstream 2010, 2011, 2013). The abundance of minnows increased from upstream to downstream, similar to the distribution observed for suckers. The minnow group was also the most diverse of the fish groups sampled, with a total of nine different species recorded. Historically, between six and seven different minnow species were caught during small fish sampling in the fall (Mainstream 2010, 2011, 2013). Several of these minnow species were numerically scarce in 2020 (Finescale Dace, Northern Pikeminnow, Northern Redbelly Dace), while others such as Lake Chub and Longnose Dace were common and dominated the overall minnow catch.

Population inferences for the minnow group were challenging due to the small sample sizes and lack of age analysis, however several minnow species such as Lake Chub, Redside Shiner, and Trout-perch displayed normal population distributions. Longnose Dace and Spottail Shiner catch data in contrast were skewed and largely comprised small (≤30 mm) fish, suggesting either high capture efficiency of this size or possible spawning areas in the vicinity of the sampled sites.

The majority of minnows appear to reside in main channel habitat followed by side channel and lastly tributary confluences. This potential trend in habitat preference is similar to previous fall sampling findings on the Peace River (Mainstream 2010, 2011, 2013). Minnows were the second most prevalent group captured within the 108R offset channels in Section 5 (n = 28, 27%) which suggests strong colonization and use of these areas by the minnow group.

Given that emphasis is generally placed on fish of economic or social value, the research and study of fish such as minnows generally fails to be undertaken. Considering the importance of the minnow group as forage fish and the base of much of the aquatic food web, population changes within the minnow, sculpin and sucker group could potentially better predict or reflect overall fish population status in the Peace River compared to many managed game fish species (BC Hydro 2015, Mainstream 2012).

4.6 Sampling Consistency

Due to the low water levels in 2020, as a result of river diversion, over 80% of the sample sites either had to be moved further from shore or relocated greater than 25 m from their historical locations (Appendix 2). While the purpose of this study was to replicate the design and sampling approach of Mainstream (2010, 2011, 2013) this was not feasible for all sites and river sections. When a sample site was relocated, crews made every effort to find a new site in similar habitat close by. In Section 5, sites moved a median distance of 42 m from their historic location (range: 12 m to 913 m). In Section 7, the median distance moved was 48 m (range: 9 m to 284 m), while median distance moved in Section 9 was highest at 75 m (range: 9 m to 825 m). Relocation distance became more pronounced in downstream river sections and for beach and backpack electrofisher sites, which predominantly sampled in side channels as opposed to main channel habitat. Considering sampling of the historic sites has not occurred since 2011 (9 years) some of the changes to historic sites might also be due to fluvial processes and not the Project. Notwithstanding this, evidence of the dropping water levels, as a result of river diversion, was readily apparent throughout all river sections (Appendix 7) including in main channel sites. Flows in future sampling years might either return to historical levels (in which case historic sample sites can be used) or flows might remain below historic levels (in which case the 2020 sites should be used). Following this protocol should help with replication in future sampling programs and years.

5.0 Conclusion

Fish index sampling of the Peace River has been conducted since 2001, providing a long-term, baseline dataset that can be used to examine fish community structure, catch rates, population characteristics, and fish health. The data collected during this small fish program is another component for the dataset that will be used to test management hypotheses that relate to the effects of the construction and operation of the Project. The management hypotheses are currently planned to be tested in the post-Project condition for the Peace River (i.e., after completion of river diversion in 2020).

The 2020 program was successful in documenting the population characteristics, fish community structure, catch rates, and health of small-bodied fish. The Peace River supports a diverse fish community that includes coldwater and coolwater fish, suckers, minnows and sculpins. The fish community in 2020 gradually shifted from a coldwater community dominated by Slimy Sculpin and Mountain Whitefish to a more diverse coolwater community downstream. The fish community structure was slightly different from previous fall small fish programs, with sculpins accounting for approximately double their historic percentage and with coldwater fish representing approximately half their historic percentage of the total fish caught.

Environmental conditions were generally found to be similar to previous fall sampling programs except for discharge. Flows were reduced to support river diversion which occurred during field sampling. Lower flows and water levels resulted in the relocation of sampling sites which may have influenced capture efficiency (i.e., sub-sampling error rate that differed from past years) or may have resulted in a difference in fish distribution due to differing habitat conditions in the sampled sections (i.e., process error). It was not possible to determine the relative contribution that potential variation in capture efficiency or fish distribution may have had on results associated with the 2020 program compared to other years.

The 2020 program documented higher numbers of fish, a higher number of species, and similar catch rates compared to the previous fall small fish sampling programs. Several species, particularly sculpins and minnows, were found using the offset habitat channels (108R), however none of the expected fish species (Arctic Grayling, Mountain Whitefish, Rainbow Trout [Table 2]; (BC Hydro 2015b, 2015c)) were captured within the offset channels by Mon-2, Task 2b. The majority of fish were found residing in main channel habitats followed by side channel and then tributary confluences.

For several fish species, small sample sizes limited the population inferences that could be made. Several fish species were numerically scarce (Finescale Dace, Northern Pikeminnow, Northern Redbelly Dace) and will likely not be caught in large enough numbers during the small fish program to inform management decisions. Many species, particularly Slimy Sculpin and Mountain Whitefish, had large enough sample sizes that should allow population trends to be identified over time. Fish species such as Kokanee, Spottail Shiner, and Lake Chub appear to spawn or to have recruitment within Section 5 or upstream of the Project.

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APPENDIX 1

Site Locations

Table A1-1. Location of sampled sites for Section 5 in 2020.

Sampling Type (# Sites Sampled)	Site ID	Historical Sampling			UTM Coordinates in Section 5				Distance[1] (m)
					Upper Extent		Lower Extent		
		2009	2010	2011	Easting	Northing	Easting	Northing	
Small Boat Electrofisher (12)	SF0503	X	X	X	632335	6229356	633126	6229481	43
	SF0508	X	X	X	633275	6229594	633909	6229558	30
	SF0509	X	X	X	636206	6230181	636658	6229929	50
	SF0510	X	X	X	636725	6229894	636969	6229103	39
	SF0511	X	X	X	637001	6229020	637252	6228469	39
	SF0512	X	X	X	637338	6228288	637610	6227831	13
	SF0513	X	X	X	637650	6227805	638034	6227389	36
	SF0514	X	X	X	638298	6227327	638654	6226942	-
	SF0519	-	X	X	631289	6229339	631782	6229315	27
	SF0520	-	X	X	634769	6229950	635222	6230222	27
	SB07	-	-	-	631704	6228449	632218	6228503	-
	SB08	-	-	-	631595	6229564	632123	6229578	-
Backpack Electrofisher (4)	EF0506	-	X	X	634357	6230427	634435	6230481	78
	EF0507	-	X	-	636960	6229110	637001	6229030	47
	BP01	-	-	-	631997	6229100	632070	6229043	144
	BP03	-	-	-	632961	6229300	633016	6229237	141
Beach Seine (8)	BS0503	X	X	X	633479	6229114	633534	6229136	82
	BS0504	X	X	X	632319	6228560	632362	6228557	32
	BS0507	X	X	X	637624	6227218	637675	6227172	40
	BS0508	X	X	X	637538	6227281	637607	6227230	18
	BS0510	-	-	X	637817	6227326	637850	6227264	12
	BS01	-	-	-	632202	6228765	632151	6228718	82
	BS02	-	-	-	632383	6228805	632427	6228773	64
	BS03	-	-	-	633909	6229375	633959	6229410	913
Gill Net (1)	GN0501		X	X	633560	6229182	633599	6229176	369

[1] Distance measured from historic site UTMs (±10m) caused by low water levels in 2020.

Table A1-2. Location of sampled sites for Section 7 in 2020.

Sampling Type (# Sites Sampled)	Site ID	Historical Sampling			UTM Coordinates in Section 7				Distance[1] (m)
					Upper Extent		Lower Extent		
		2009	2010	2011	Easting	Northing	Easting	Northing	
Small Boat Electrofisher (12)	SF0703	X	X	X	665872	6220477	666245	6220527	29
	SF0704	X	X	X	667064	6220770	668119	6220748	53
	SF0705	X	X	X	668104	6220743	668801	6220731	9
	SF0706	X	X	X	669699	6220709	670678	6220938	40
	SF0707	X	X	X	672143	6221239	672780	6220401	17
	SF0708	X	X	X	667202	6220985	667909	6221035	77
	SF0709	X	X	X	668141	6221096	668883	6221080	33
	SF0710	X	X	X	669977	6221325	670509	6221319	69
	SF0713	X	X	X	673400	6220104	673947	6220005	48
	SF0714	X	X	X	673939	6220013	674987	6219940	13
	SF0715	-	X	X	663000	6219850	663521	6219873	15
	SB09	-	-	-	663913	6220167	664373	6220329	-
Backpack Electrofisher (4)	EF0705		-	X	663111	6220185	663188	6220128	179
	EF0706		-	X	666354	6219807	666454	6219810	105
	EF0708		-	X	676416	6219815	676487	6219901	24
	EF0709	-	-	-	669637	6220635	669746	6220574	-
Beach Seine (8)	BS0703	X	X	X	664468	6219533	664507	6219469	36
	BS0704	X	X	X	665193	6220208	665257	6220237	36
	BS0707	X	X	X	672319	6220243	672379	6220226	284
	BS0708	X	X	X	676494	6219889	676555	6219951	46
	BS0709	X	X	X	676167	6220556	676248	6220572	149
	BS0710	X	X	X	674460	6220927	674523	6220891	91
	BS0712	-	-	X	665869	6220396	665950	6220417	75
	BS0714	-	-	X	662863	6220174	662938	6220162	105
Gill Net (1)	GN0701	-	-	X	676449	6220744	676469	6220702	125

[1] Distance measured from historic site UTMs (±10m) caused by low water levels in 2020

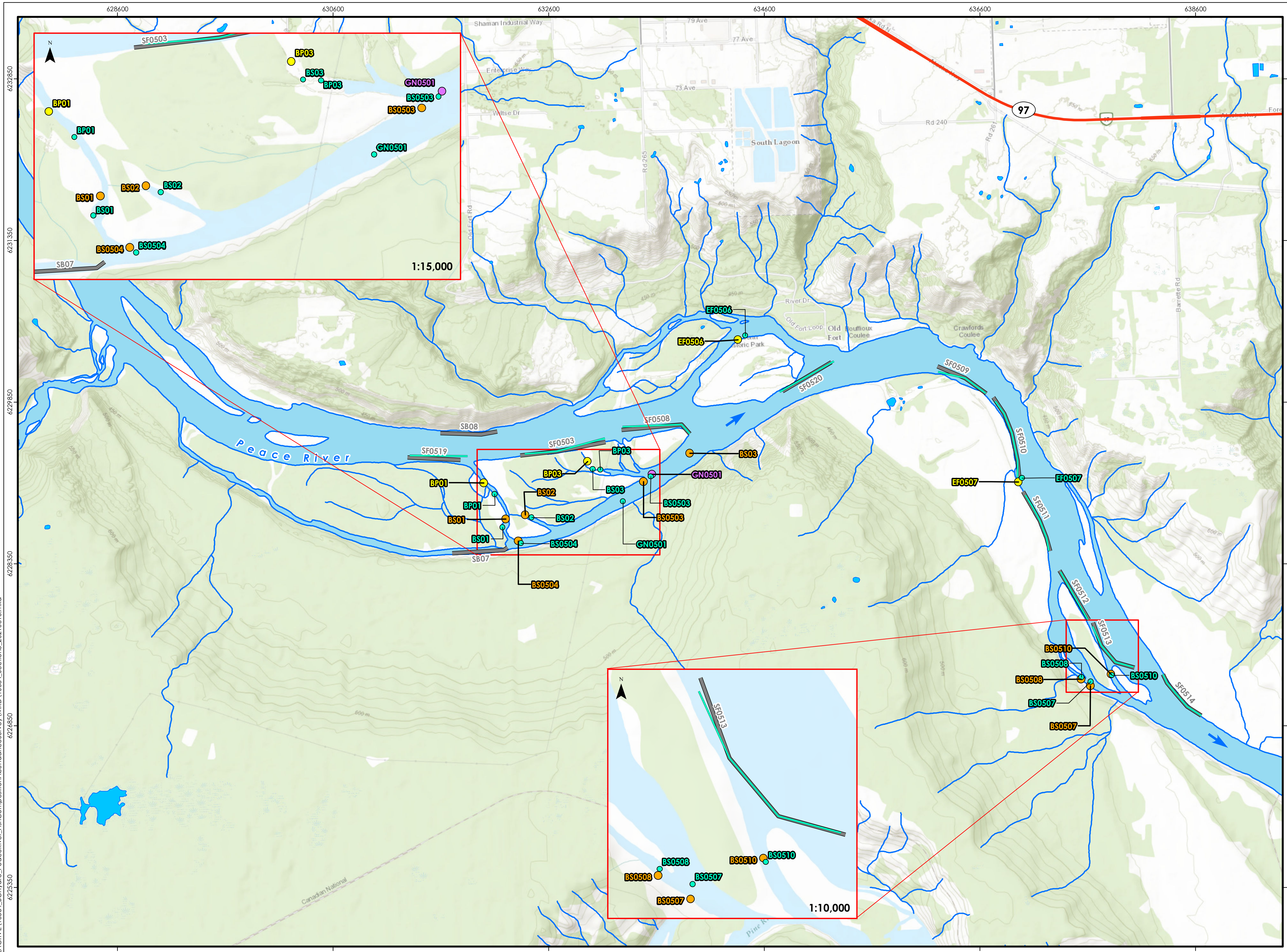
Table A1-3. Location of sampled sites for Section 9 in 2020.

Sampling Type (# Sites Sampled)	*Site ID*	*Historical Sampling*			*UTM Coordinates in Section 9*				*Distance[1] (m)*
					Upper		Lower		
		2009	2010	2011	Easting	Northing	Easting	Northing	
Small Boat Electrofisher (12)	SF0901	-	-	X	358318	6239289	358789	6239882	77
	SF0902	-	-	X	358799	6239886	359449	6240087	9
	SF0903	-	-	X	360293	6240378	361000	6240523	189
	SF0904	-	-	X	361061	6240469	361752	6240530	25
	SF0905	-	-	X	362589	6240640	363215	6241033	37
	SF0906	-	-	X	364179	6241647	364718	6242544	74
	SF0907	-	-	X	364918	6242866	365468	6243363	37
	SF0908	-	-	X	365808	6243490	366465	6243461	49
	SF0909	-	-	X	366517	6243446	367107	6243058	29
	SF0910	-	-	X	367111	6243061	367472	6242705	58
	SF0911	-	-	X	367793	6242323	367761	6241715	93
	SF0912	-	-	X	367749	6241632	368139	6240914	825
Backpack Electrofisher (4)	EF0901	-	-	X	357796	6238444	357856	6238537	89
	EF0902	-	-	X	366355	6242607	366448	6242685	155
	EF0903	-	-	X	357734	6238350	357789	6238441	32
	EF0904	-	-	-	366947	6242437	366942	6242365	-
Beach Seine (9)	BS0901	-	-	x	358336	6239241	358361	6239324	127
	BS0902	-	-	X	357914	6238564	357941	6238632	41
	BS0903	-	-	X	356259	6238110	356321	6238138	59
	BS0904	-	-	X	360177	6240113	360255	6240142	18
	BS0905	-	-	X	360911	6240064	360982	6240085	105
	BS0907	-	-	X	366614	6243720	366695	6243705	114
	BS0908	-	-	X	367829	6242708	367888	6242656	279
	BS0909	-	-	X	367133	6242275	367198	6242231	223
	BS0910	-	-	X	366822	6242550	366873	6242485	86
Gill Net (1)	GN0901	-	-	-	367731	6241101	367738	6241056	-

[1] Distance measured from historic site UTMs (±10m) caused by low water levels in 2020

APPENDIX 2

Site Maps



BC Hydro Peace River Fish Composition and Abundance Survey

Figure A2-1

Section 5 Survey Sites

Legend

- Flow Direction
- Highway
- Watercourse
- River
- Waterbody

2020 Survey Sites

- Backpack Electrofisher
- Beach Seine
- Gill Net
- Boat Electroshocking Site

Historical Survey Location

- Survey Site
- Boat Electroshocking Site

Sources and Disclaimer

1. Base Map Source: ESRI World Topographic Map, ESRI World Hillshade
2. Base Map Data: DataBC Data Catalogue
3. Disclaimer: This map is a visual aid only to be used together with the accompanying report, including and incorporating any disclaimer contained therein. This map has been prepared to illustrate the results of our work, and is **not intended to be used for navigational purposes**. Information displayed on this map is based, in whole or in part, on geographic information that may have been provided by third parties, including government data. Triton Environmental Consultants Ltd. disclaims (without limiting the generality of the foregoing) all responsibility for the accuracy of any such third party information, regardless of the source.

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UTM Zone 10 (NAD 1983)

Date: March 19, 2021 | **Project Number:** 10584

Meters

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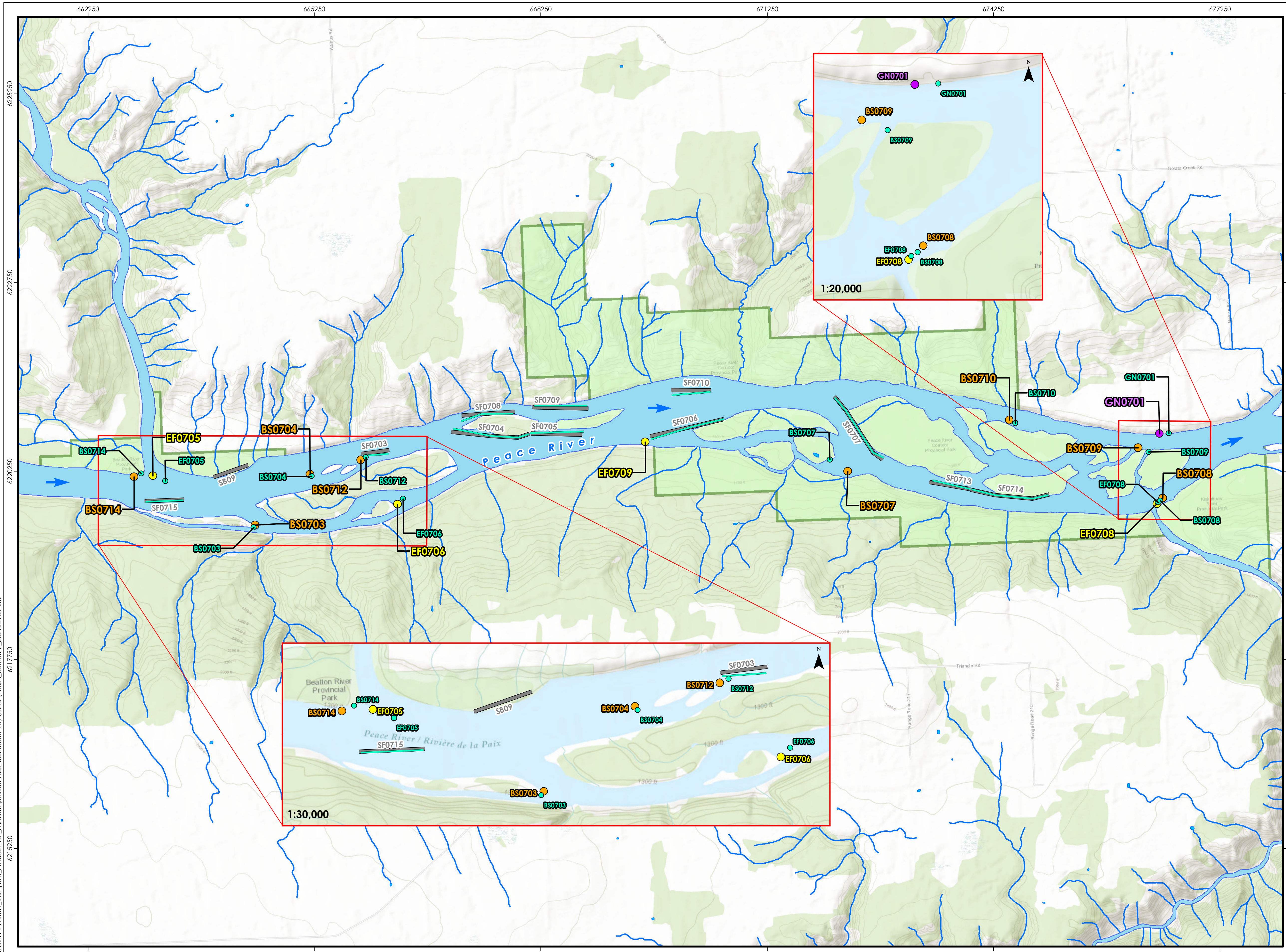

BC Hydro Peace River Fish Composition and Abundance Survey

Figure A2-2

Section 7 Survey Sites

Legend

- Flow Direction
- Watercourse
- Park
- River
- Waterbody

2020 Survey Sites

- Backpack Electrofisher
- Beach Seine
- Gill Net
- Boat Electroshocking Site

Historical Survey Location

- Survey Site
- Boat Electroshocking Site

Sources and Disclaimer

1. Base Map Source: ESRI World Topographic Map
2. Base Map Data: DataBC Data Catalogue
3. Disclaimer: This map is a visual aid only to be used together with the accompanying report, including and incorporating any disclaimer contained therein. This map has been prepared to illustrate the results of our work, and is **not intended to be used for navigational purposes**. Information displayed on this map is based, in whole or in part, on geographic information that may have been provided by third parties, including government data. Triton Environmental Consultants Ltd. disclaims (without limiting the generality of the foregoing) all responsibility for the accuracy of any such third party information, regardless of the source.

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UTM Zone 10 (NAD 1983)

Date: March 19, 2021 | **Project Number:** 10584

Meters

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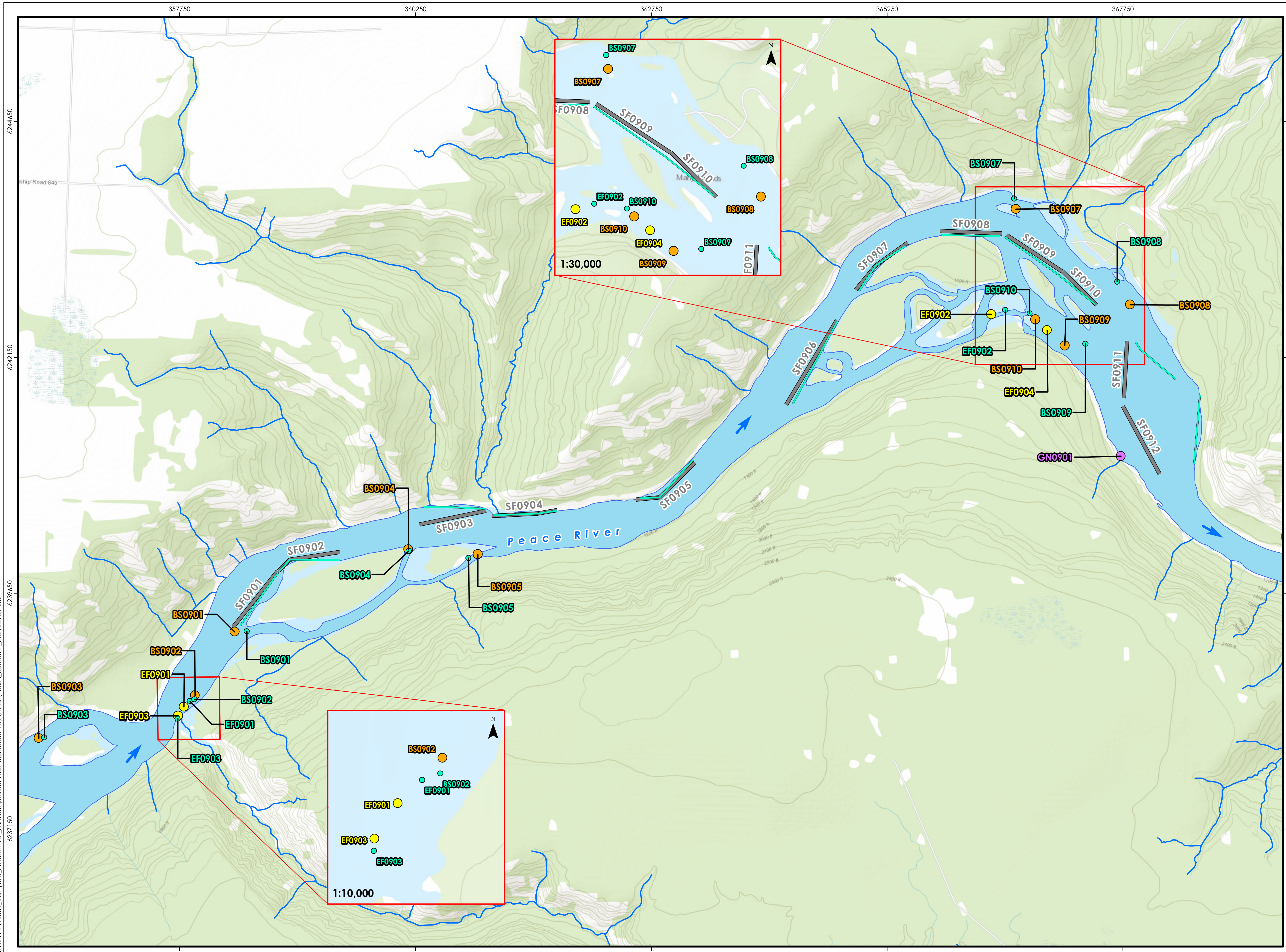

BC Hydro Peace River Fish Composition and Abundance Survey

Figure A2-3

Section 9 Survey Sites

Legend

- Flow Direction
- Watercourse
- River

2020 Survey Sites

- Backpack Electrofisher
- Beach Seine
- Gill Net
- Boat Electroshocking Site

Historical Survey Location

- Survey Site
- Boat Electroshocking Site

Sources and Disclaimer

1. Base Map Source: ESRI World Topographic Map
2. Base Map Data: DataBC Data Catalogue
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UTM Zone 11 (NAD 1983)

Date: March 19, 2021 | **Project Number:** 10584

Meters

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Appendix 3

Historic Peace River Discharge

Table A3-1. Maximum, minimum, and mean discharge values by month and river section. Data for section 5 from station 07FA004, data for section 7 from 07FD010 data range from 2000 to 2020 (Gov Canada 2020).

Month		*Jan*	*Feb*	*Mar*	*Apr*	*May*	*June*	*July*	*Aug*	*Sept*	*Oct*	*Nov*	*Dec*	*Grand Total*
Section 5	**Max**	1,970	2,120	1,860	2,020	1,870	3,270	3,520	2,000	2,010	1,650	1,980	2,020	3,520
	Min	412	402	465	362	402	418	389	369	376	356	372	843	356
	Mean	1,509	1,510	1,375	1,186	992	969	1,154	1,003	1,000	1,100	1,337	1,585	1,226
Section 7	**Max**	2,140	2,190	1,900	2,560	5,900	6,140	5,770	2,240	3,700	2,670	3,060	2,020	6,140
	Min	393	422	692	541	731	684	500	380	372	468	486	849	372
	Mean	1,615	1,594	1,456	1,454	1,843	1,790	1,508	1,175	1,239	1,297	1,456	1,643	1,505

Appendix 4

Catch Rates

Table A4-1. Coldwater and coolwater fish boat electrofisher catch rate (no. fish/km/hr)

Section	Site	Date	Time Sampled (s)	Length Sampled (km)	Arctic Grayling		Bull Trout		Burbot		Kokanee		Lake Whitefish		Mountain Whitefish		Northern Pike		Rainbow Trout		Walleye		Yellow Perch		All Species	
					No.	CPUE	No.	CPUE	No.	CPUE	No.	CPUE	No.	CPUE	No.	CPUE	No.	CPUE	No.	CPUE	No.	CPUE	No.	CPUE	No.	CPUE
5	SB07	27-Sep-20	849	0.50	0	0.00	0	0.00	0	0.00	1	8.48	1	8.48	0	0.00	2	16.96	0	0.00	0	0.00	0	0.00	4	33.92
	SB08	27-Sep-20	723	0.50	0	0.00	0	0.00	1	9.96	0	0.00	0	0.00	1	9.96	0	0.00	0	0.00	0	0.00	0	0.00	2	19.92
	SF0503	27-Sep-20	676	0.75	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	10	71.01	0	0.00	0	0.00	0	0.00	0	0.00	10	71.01
	SF0508	28-Sep-20	762	0.50	0	0.00	0	0.00	1	9.45	0	0.00	0	0.00	2	18.90	0	0.00	0	0.00	0	0.00	0	0.00	3	28.35
	SF0509	28-Sep-20	781	0.50	1	9.22	0	0.00	0	0.00	0	0.00	0	0.00	20	184.38	0	0.00	0	0.00	0	0.00	0	0.00	21	193.60
	SF0510	28-Sep-20	968	0.75	1	4.96	0	0.00	0	0.00	0	0.00	0	0.00	7	34.71	0	0.00	0	0.00	0	0.00	0	0.00	8	39.67
	SF0511	28-Sep-20	739	0.56	3	26.00	0	0.00	0	0.00	0	0.00	0	0.00	17	147.36	1	8.67	0	0.00	0	0.00	0	0.00	21	182.03
	SF0512	28-Sep-20	756	0.50	0	0.00	0	0.00	0	0.00	1	9.52	0	0.00	12	114.29	1	9.52	0	0.00	0	0.00	0	0.00	14	133.33
	SF0513	28-Sep-20	716	0.57	1	8.82	0	0.00	0	0.00	0	0.00	0	0.00	12	105.85	1	8.82	0	0.00	0	0.00	0	0.00	14	123.49
	SF0514	26-Sep-20	756	0.50	2	19.05	0	0.00	0	0.00	1	9.52	0	0.00	12	114.29	0	0.00	0	0.00	0	0.00	1	9.52	16	152.38
	SF0519	27-Sep-20	565	0.50	0	0.00	0	0.00	0	0.00	1	12.74	0	0.00	5	63.72	1	12.74	0	0.00	0	0.00	0	0.00	7	89.20
	SF0520	28-Sep-20	653	0.60	2	18.38	0	0.00	0	0.00	0	0.00	0	0.00	11	101.07	0	0.00	0	0.00	1	9.19	0	0.00	14	128.64
Section 5 Summary			**8,944**	**6.73**	**10**	**0.60**	**0**	**0.00**	**2**	**0.12**	**4**	**0.24**	**1**	**0.06**	**109**	**6.52**	**6**	**0.36**	**0**	**0.00**	**1**	**0.06**	**1**	**0.06**	**134**	**1,195.54**
Section 5 Average			**745.33**	**0.56**	**0.83**	**7.20**	**0.00**	**0.00**	**0.17**	**1.62**	**0.33**	**3.36**	**0.08**	**0.71**	**9.08**	**80.46**	**0.50**	**4.73**	**0.00**	**0.00**	**0.08**	**0.77**	**0.08**	**0.79**	**11.17**	**183.93**
Section 5 Standard Error					**0.28**	**2.56**	**0.00**	**0.00**	**0.11**	**1.04**	**0.14**	**1.40**	**0.08**	**0.68**	**1.73**	**15.88**	**0.19**	**1.72**	**0.00**	**0.00**	**0.08**	**0.73**	**0.08**	**0.76**	**1.81**	**16.92**
7	SB09	30-Sep-20	436	0.50	0	0.00	0	0.00	0	0.00	1	16.51	0	0.00	2	33.03	0	0.00	0	0.00	0	0.00	0	0.00	3	49.54
	SF0703	30-Sep-20	455	0.375	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	6	126.59	0	0.00	0	0.00	0	0.00	0	0.00	6	126.59
	SF0704	29-Sep-20	1,182	1.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	8	24.37	0	0.00	0	0.00	0	0.00	0	0.00	8	24.37
	SF0705	29-Sep-20	612	0.70	0	0.00	2	16.81	0	0.00	0	0.00	0	0.00	6	50.42	0	0.00	0	0.00	0	0.00	0	0.00	8	67.23
	SF0706	29-Sep-20	1,218	1.00	0	0.00	0	0.00	0	0.00	1	2.96	0	0.00	6	17.73	0	0.00	1	2.96	1	2.96	0	0.00	9	26.60
	SF0707	29-Sep-20	1,034	1.00	0	0.00	1	3.48	0	0.00	0	0.00	0	0.00	10	34.82	1	3.48	0	0.00	2	6.96	0	0.00	14	48.74
	SF0708	30-Sep-20	980	0.72	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	4	20.41	1	5.10	0	0.00	0	0.00	0	0.00	5	25.51
	SF0709	30-Sep-20	1,006	0.70	0	0.00	1	5.11	0	0.00	0	0.00	0	0.00	11	56.23	2	10.22	0	0.00	0	0.00	0	0.00	14	71.57
	SF0710	30-Sep-20	575	0.50	0	0.00	0	0.00	0	0.00	1	12.52	0	0.00	4	50.09	0	0.00	0	0.00	0	0.00	0	0.00	5	62.61
	SF0713	29-Sep-20	695	0.53	1	9.77	0	0.00	0	0.00	0	0.00	0	0.00	7	68.41	4	39.09	0	0.00	0	0.00	0	0.00	12	117.28
	SF0714	29-Sep-20	1,166	1.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	8	24.70	1	3.09	0	0.00	0	0.00	0	0.00	9	27.79
	SF0715	30-Sep-20	904	0.50	1	7.96	1	7.96	0	0.00	1	7.96	0	0.00	12	95.58	0	0.00	0	0.00	1	7.96	0	0.00	16	127.43
Section 7 Summary			**10,263**	**8.53**	**2**	**0.08**	**5**	**0.21**	**0**	**0.00**	**4**	**0.16**	**0**	**0.00**	**84**	**3.46**	**9**	**0.37**	**1**	**0.04**	**4**	**0.16**	**0**	**0.00**	**109**	**775.26**
Section 7 Average			**855.25**	**0.71**	**0.17**	**1.48**	**0.00**	**2.78**	**0.00**	**0.00**	**0.33**	**3.33**	**0.00**	**0.00**	**7.00**	**50.20**	**0.75**	**5.08**	**0.00**	**0.25**	**0.33**	**1.49**	**0.00**	**0.00**	**9.08**	**119.27**
Section 7 Standard Error					**0.11**	**0.96**	**0.18**	**1.42**	**0.00**	**0.00**	**0.14**	**1.60**	**0.00**	**0.00**	**0.82**	**9.15**	**0.34**	**3.09**	**0.08**	**0.24**	**0.18**	**0.81**	**0.00**	**0.00**	**1.14**	**10.88**
9	SF0901	01-Oct-20	864	0.80	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	3	15.63	0	0.00	0	0.00	0	0.00	0	0.00	3	15.63
	SF0902	01-Oct-20	835	0.70	1	6.16	0	0.00	0	0.00	1	6.16	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	2	12.32
	SF0903	01-Oct-20	1,231	0.70	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	2	8.36	0	0.00	0	0.00	0	0.00	0	0.00	2	8.36
	SF0904	01-Oct-20	956	0.70	0	0.00	0	0.00	0	0.00	1	5.38	0	0.00	2	10.76	0	0.00	0	0.00	0	0.00	0	0.00	3	16.14
	SF0905	01-Oct-20	1,148	0.75	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	4.18	0	0.00	0	0.00	0	0.00	0	0.00	1	4.18
	SF0906	01-Oct-20	1,170	1.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	14	43.08	0	0.00	0	0.00	0	0.00	0	0.00	14	43.08
	SF0907	01-Oct-20	974	0.70	1	5.28	0	0.00	0	0.00	0	0.00	0	0.00	3	15.84	0	0.00	0	0.00	0	0.00	0	0.00	4	21.12
	SF0908	02-Oct-20	816	0.68	0	0.00	0	0.00	0	0.00	3	19.46	0	0.00	9	58.39	0	0.00	0	0.00	0	0.00	0	0.00	12	77.85
	SF0909	02-Oct-20	921	0.70	2	11.17	0	0.00	0	0.00	2	11.17	0	0.00	7	39.09	0	0.00	0	0.00	0	0.00	0	0.00	11	61.42
	SF0910	02-Oct-20	702	0.50	0	0.00	0	0.00	0	0.00	1	10.26	0	0.00	5	51.28	0	0.00	0	0.00	0	0.00	0	0.00	6	61.54
	SF0911	02-Oct-20	809	0.60	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	8	59.33	0	0.00	0	0.00	3	22.25	0	0.00	11	81.58
	SF0912	02-Oct-20	1,051	0.73	1	4.69	0	0.00	0	0.00	0	0.00	0	0.00	7	32.85	0	0.00	0	0.00	1	4.69	0	0.00	9	42.23
Section 9 Summary			**11,477**	**8.56**	**5**	**0.18**	**0**	**0.00**	**0**	**0.00**	**8**	**0.29**	**0**	**0.00**	**61**	**2.24**	**0**	**0.00**	**0**	**0.00**	**4**	**0.15**	**0**	**0.00**	**78**	**445.45**
Section 9 Average			**956.42**	**0.71**	**0.42**	**2.27**	**0.00**	**0.00**	**0.00**	**0.00**	**0.67**	**4.37**	**0.00**	**0.00**	**5.08**	**28.23**	**0.00**	**0.00**	**0.00**	**0.00**	**0.33**	**2.25**	**0.00**	**0.00**	**6.50**	**37.12**
Section 9 Standard Error					**0.18**	**1.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.27**	**1.76**	**0.00**	**0.00**	**1.12**	**5.98**	**0.00**	**0.00**	**0.00**	**0.00**	**0.25**	**1.78**	**0.00**	**0.00**	**1.28**	**7.71**
Grand Total			**30,684**	**23.82**	**17**	**0.08**	**5**	**0.02**	**2**	**0.01**	**16**	**0.08**	**1**	**0.00**	**254**	**1.25**	**15**	**0.07**	**1**	**0.00**	**9**	**0.04**	**1**	**0.00**	**321**	**1.58**
All Sections Average			**10,228.00**	**7.94**	**5.67**	**0.29**	**1.67**	**0.07**	**0.67**	**0.04**	**5.33**	**0.23**	**0.33**	**0.02**	**84.67**	**4.07**	**5.00**	**0.24**	**0.33**	**0.01**	**3.00**	**0.12**	**0.33**	**0.02**	**107.00**	**805.41**
All Sections Standard Error					**0.13**	**1.06**	**0.07**	**0.52**	**0.04**	**0.37**	**0.11**	**0.92**	**0.03**	**0.23**	**0.79**	**7.35**	**0.14**	**1.24**	**0.03**	**0.08**	**0.11**	**0.70**	**0.03**	**0.26**	**0.89**	**8.35**

Table A4-2. Sucker boat electrofisher catch rate (no. fish/km/hr)

Section	Site	Date	Time Sampled (s)	Length Sampled (km)	Longnose Sucker		Largescale Sucker		White Sucker		All Suckers	
					No.	CPUE	No.	CPUE	No.	CPUE	No.	CPUE
5	SB07	27-Sep-20	849	0.5	0	0.00	0	0.00	1	8.48	1	8.48
	SB08	27-Sep-20	723	0.5	1	9.96	0	0.00	0	0.00	1	9.96
	SF0503	27-Sep-20	676	0.75	0	0.00	0	0.00	0	0.00	0	0.00
	SF0508	28-Sep-20	762	0.5	0	0.00	0	0.00	0	0.00	0	0.00
	SF0509	28-Sep-20	781	0.5	2	18.44	0	0.00	0	0.00	2	18.44
	SF0510	28-Sep-20	968	0.75	1	4.96	0	0.00	1	4.96	2	9.92
	SF0511	28-Sep-20	739	0.562	0	0.00	1	8.67	0	0.00	1	8.67
	SF0512	28-Sep-20	756	0.5	1	9.52	1	9.52	0	0.00	2	19.05
	SF0513	28-Sep-20	716	0.57	1	8.82	0	0.00	1	8.82	2	17.64
	SF0514	26-Sep-20	756	0.5	4	38.10	0	0.00	0	0.00	4	38.10
	SF0519	27-Sep-20	565	0.5	6	76.46	6	76.46	0	0.00	12	152.92
	SF0520	28-Sep-20	653	0.6	0	0.00	0	0.00	0	0.00	0	0.00
Section 5 Summary			**8,944**	**6.732**	**16**	**0.96**	**8**	**0.48**	**3**	**0.18**	**27**	**283.17**
Section 5 Average			**745.33**	**0.56**	**1.33**	**13.85**	**0.67**	**7.89**	**0.25**	**1.86**	**2.25**	**23.60**
Section 5 Standard Error					**0.52**	**6.25**	**0.48**	**6.05**	**0.13**	**0.96**	**0.91**	**11.64**
7	SB09	30-Sep-20	436	0.5	0	0.00	0	0.00	0	0.00	0	0.00
	SF0704	29-Sep-20	1,182	1	5	15.23	1	3.05	0	0.00	6	18.27
	SF0705	29-Sep-20	612	0.7	3	25.21	0	0.00	0	0.00	3	25.21
	SF0706	29-Sep-20	1,218	1	1	2.96	0	0.00	0	0.00	1	2.96
	SF0707	29-Sep-20	1,034	1	3	10.44	2	6.96	0	0.00	5	17.41
	SF0708	30-Sep-20	980	0.72	10	51.02	2	10.20	0	0.00	12	61.22
	SF0709	30-Sep-20	1,006	0.7	6	30.67	2	10.22	0	0.00	8	40.90
	SF0710	30-Sep-20	575	0.5	0	0.00	1	12.52	0	0.00	1	12.52
	SF0713	29-Sep-20	695	0.53	1	9.77	0	0.00	0	0.00	1	9.77
	SF0714	29-Sep-20	1,166	1	0	0.00	0	0.00	0	0.00	0	0.00
	SF0715	30-Sep-20	904	0.5	2	15.93	0	0.00	0	0.00	2	15.93
Section 7 Summary			**9,863**	**8.53**	**31**	**1.33**	**8**	**0.34**	**0**	**0.00**	**39**	**204.19**
Section 7 Average			**891.64**	**0.74**	**2.82**	**14.66**	**0.73**	**3.91**	**0.00**	**0.00**	**3.55**	**18.56**
Section 7 Standard Error					**0.90**	**4.56**	**0.26**	**1.45**	**0.00**	**0.00**	**1.10**	**5.31**
9	SF0902	01-Oct-20	835	0.7	1	6.16	0	0.00	0	0.00	1	6.16
	SF0903	01-Oct-20	1,231	0.7	13	54.31	0	0.00	2	8.36	15	62.67
	SF0904	01-Oct-20	956	0.7	7	37.66	1	5.38	0	0.00	8	43.04
	SF0905	01-Oct-20	1,148	0.75	2	8.36	1	4.18	0	0.00	3	12.54
	SF0906	01-Oct-20	1,170	1	3	9.23	0	0.00	0	0.00	3	9.23
	SF0907	01-Oct-20	974	0.7	1	5.28	0	0.00	0	0.00	1	5.28
	SF0908	02-Oct-20	816	0.68	6	38.93	0	0.00	0	0.00	6	38.93
	SF0909	02-Oct-20	921	0.7	4	22.34	0	0.00	0	0.00	4	22.34
	SF0910	02-Oct-20	702	0.5	0	0.00	0	0.00	0	0.00	0	0.00
	SF0911	02-Oct-20	809	0.6	9	66.75	0	0.00	0	0.00	9	66.75
	SF0912	02-Oct-20	1,051	0.73	8	37.54	0	0.00	1	4.69	9	42.23
Section 9 Summary			**11,477**	**8.56**	**67**	**2.46**	**3**	**0.11**	**3**	**0.11**	**73**	**382.08**
Section 9 Average			**956.42**	**0.71**	**5.58**	**29.52**	**0.25**	**1.23**	**0.25**	**1.09**	**6.08**	**31.84**
Section 9 Standard Error					**1.25**	**6.77**	**0.13**	**0.62**	**0.17**	**0.73**	**1.38**	**7.21**
Grand Total			**30,284**	**23.82**	**114**	**0.57**	**19**	**0.09**	**6**	**0.03**	**139.00**	**0.69**
All Sections Average			**864.46**	**0.67**	**3.24**	**19.34**	**0.55**	**4.34**	**0.17**	**0.98**	**3.96**	**24.67**
All Sections Standard Error					**0.62**	**3.68**	**0.19**	**2.18**	**0.08**	**0.43**	**0.72**	**5.07**

Table A4-3. Sculpin boat electrofisher catch rate (no. fish/km/hr)

Section	Site	Date	Time Sampled (s)	Length Sampled (km)	Prickly Sculpin		Slimy Sculpin		Spoonhead Sculpin		All Sculpins	
					No.	CPUE	No.	CPUE	No.	CPUE	No.	CPUE
5	SB07	27-Sep-20	849	0.5	0	0.00	0	0.00	0	0.00	0	0.00
	SB08	27-Sep-20	723	0.5	0	0.00	1	9.96	0	0.00	1	9.96
	SF0503	27-Sep-20	676	0.75	0	0.00	7	49.70	0	0.00	7	49.70
	SF0508	28-Sep-20	762	0.5	0	0.00	32	302.36	0	0.00	32	302.36
	SF0509	28-Sep-20	781	0.5	1	9.22	13	119.85	0	0.00	14	129.07
	SF0510	28-Sep-20	968	0.75	1	4.96	7	34.71	0	0.00	8	39.67
	SF0511	28-Sep-20	739	0.562	0	0.00	17	147.36	0	0.00	17	147.36
	SF0512	28-Sep-20	756	0.5	0	0.00	23	219.05	0	0.00	23	219.05
	SF0513	28-Sep-20	716	0.57	0	0.00	16	141.13	0	0.00	16	141.13
	SF0514	26-Sep-20	756	0.5	1	9.52	6	57.14	0	0.00	7	66.67
	SF0519	27-Sep-20	565	0.5	2	25.49	10	127.43	0	0.00	12	152.92
	SF0520	28-Sep-20	653	0.6	1	9.19	10	91.88	0	0.00	11	101.07
Section 5 Summary			**8,944**	**6.732**	**6**	**0.36**	**142**	**8.49**	**0**	**0.00**	**148**	**1,358.96**
Section 5 Average			**745.33**	**0.56**	**0.50**	**4.86**	**11.83**	**108.38**	**0.00**	**0.00**	**12.33**	**113.25**
Section 5 Standard Error					**0.19**	**2.13**	**2.53**	**24.46**	**0.00**	**0.00**	**2.50**	**24.44**
7	SB09	30-Sep-20	436	0.5	0	0.00	1	16.51	0	0.00	1	16.51
	SF0703	30-Sep-20	455	0.375	0	0.00	9	189.89	1	21.10	10	210.99
	SF0704	29-Sep-20	1,182	1	0	0.00	20	60.91	0	0.00	20	60.91
	SF0705	29-Sep-20	612	0.7	0	0.00	0	0.00	0	0.00	0	0.00
	SF0706	29-Sep-20	1,218	1	0	0.00	23	67.98	1	2.96	24	70.94
	SF0707	29-Sep-20	1,034	1	0	0.00	28	97.49	4	13.93	32	111.41
	SF0708	30-Sep-20	980	0.72	0	0.00	6	30.61	0	0.00	6	30.61
	SF0709	30-Sep-20	1,006	0.7	1	5.11	2	10.22	0	0.00	3	15.34
	SF0710	30-Sep-20	575	0.5	0	0.00	0	0.00	0	0.00	0	0.00
	SF0713	29-Sep-20	695	0.53	0	0.00	2	19.55	0	0.00	2	19.55
	SF0714	29-Sep-20	1,166	1	0	0.00	8	24.70	0	0.00	8	24.70
	SF0715	30-Sep-20	904	0.5	0	0.00	13	103.54	0	0.00	13	103.54
Section 7 Summary			**9,863**	**8.53**	**1**	**0.04**	**112**	**4.80**	**6**	**0.26**	**119**	**664.50**
Section 7 Average			**855.25**	**0.71**	**0.09**	**0.46**	**9.33**	**51.78**	**0.50**	**3.17**	**9.92**	**55.37**
Section 7 Standard Error					**0.09**	**0.44**	**2.67**	**15.53**	**0.32**	**1.91**	**2.89**	**17.08**
9	SF0901	01-Oct-20	864	0.8	0	0.00	1	5.21	1	5.21	2	10.42
	SF0902	01-Oct-20	835	0.7	0	0.00	0	0.00	0	0.00	0	0.00
	SF0903	01-Oct-20	1,231	0.7	0	0.00	1	4.18	0	0.00	1	4.18
	SF0904	01-Oct-20	956	0.7	0	0.00	0	0.00	1	5.38	1	5.38
	SF0905	01-Oct-20	1,148	0.75	0	0.00	0	0.00	0	0.00	0	0.00
	SF0906	01-Oct-20	1,170	1	0	0.00	2	6.15	0	0.00	2	6.15
	SF0907	01-Oct-20	974	0.7	0	0.00	15	79.20	1	5.28	16	84.48
	SF0908	02-Oct-20	816	0.68	0	0.00	4	25.95	0	0.00	4	25.95
	SF0909	02-Oct-20	921	0.7	0	0.00	5	27.92	0	0.00	5	27.92
	SF0910	02-Oct-20	702	0.5	0	0.00	4	41.03	2	20.51	6	61.54
	SF0911	02-Oct-20	809	0.6	0	0.00	3	22.25	0	0.00	3	22.25
	SF0912	02-Oct-20	1,051	0.73	0	0.00	0	0.00	0	0.00	0	0.00
Section 9 Summary			**11,477**	**8.56**	**0**	**0.00**	**35**	**1.28**	**5**	**0.18**	**40**	**248.27**
Section 9 Average			**956.42**	**0.71**	**0.00**	**0.00**	**2.92**	**17.66**	**0.42**	**3.03**	**3.33**	**20.69**
Section 9 Standard Error					**0.00**	**0.00**	**1.16**	**6.59**	**0.18**	**1.66**	**1.23**	**7.42**
Grand Total			**30,284**	**23.82**	**7**	**0.03**	**289**	**1.40**	**11**	**0.05**	**307**	**1.53**
All Sections Average			**852.33**	**0.66**	**0.20**	**1.78**	**7.80**	**54.35**	**0.29**	**1.52**	**8.53**	**63.10**
All Sections Standard Error					**0.08**	**0.83**	**1.43**	**11.44**	**0.13**	**0.72**	**1.48**	**12.06**

Table A4-4. Minnow boat electrofisher catch rate (no. fish/km/hr)

Section	Site	Date	Time Sampled (s)	Length Sampled (km)	Flathead Chub		Lake Chub		Longnose Dace		Northern Pikeminnow		Redside Shiner		Spottail Shiner		Trout-perch		All Minnows	
					No.	CPUE	No.	CPUE	No.	CPUE	No.	CPUE	No.	CPUE	No.	CPUE	No.	CPUE	No.	CPUE
5	SB07	27-Sep-20	849	0.50	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	SB08	27-Sep-20	723	0.50	0	0.00	0	0.00	0	0.00	0	0.00	1	9.96	0	0.00	0	0.00	1	9.96
	SF0503	27-Sep-20	676	0.75	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	SF0508	28-Sep-20	762	0.50	0	0.00	0	0.00	0	0.00	1	9.45	0	0.00	0	0.00	0	0.00	1	9.45
	SF0509	28-Sep-20	781	0.50	0	0.00	0	0.00	0	0.00	0	0.00	2	18.44	0	0.00	1	9.22	3	27.66
	SF0510	28-Sep-20	968	0.75	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	4.96	1	4.96
	SF0511	28-Sep-20	739	0.56	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	8.67	1	8.67
	SF0512	28-Sep-20	756	0.50	0	0.00	0	0.00	0	0.00	0	0.00	1	9.52	0	0.00	0	0.00	1	9.52
	SF0513	28-Sep-20	716	0.57	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	2	17.64	0	0.00	2	17.64
	SF0514	26-Sep-20	756	0.50	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	SF0519	27-Sep-20	565	0.50	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	SF0520	28-Sep-20	653	0.60	0	0.00	0	0.00	0	0.00	0	0.00	1	9.19	0	0.00	1	9.19	2	18.38
Section 5 Summary			**8,944**	**6.732**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**1**	**0.06**	**5**	**0.30**	**2**	**0.12**	**4**	**0.24**	**12**	**106.23**
Section 5 Average			**745.33**	**0.56**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.08**	**0.79**	**0.42**	**3.93**	**0.17**	**1.47**	**0.33**	**2.67**	**1.00**	**8.85**
Section 5 Standard Error					**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.08**	**0.75**	**0.18**	**1.73**	**0.16**	**1.41**	**0.14**	**1.13**	**0.26**	**2.43**
7	SB09	30-Sep-20	436	0.5	2	33.03	1	16.51	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	3	49.54
	SF0704	29-Sep-20	1,182	1	1	3.05	4	12.18	0	0.00	0	0.00	2	6.09	0	0.00	1	3.05	8	24.37
	SF0705	29-Sep-20	612	0.7	0	0.00	0	0.00	1	8.40	0	0.00	0	0.00	0	0.00	0	0.00	1	8.40
	SF0706	29-Sep-20	1,218	1	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	SF0707	29-Sep-20	1,034	1	1	3.48	1	3.48	2	6.96	0	0.00	0	0.00	0	0.00	2	6.96	6	20.89
	SF0708	30-Sep-20	980	0.72	0	0.00	4	20.41	0	0.00	0	0.00	1	5.10	0	0.00	3	15.31	8	40.82
	SF0709	30-Sep-20	1,006	0.7	0	0.00	1	5.11	0	0.00	0	0.00	0	0.00	0	0.00	1	5.11	2	10.22
	SF0710	30-Sep-20	575	0.5	0	0.00	1	12.52	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	12.52
	SF0713	29-Sep-20	695	0.53	0	0.00	1	9.77	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	9.77
	SF0714	29-Sep-20	1,166	1	1	3.09	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	3.09
	SF0715	30-Sep-20	904	0.5	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	5	39.82	5	39.82
Section 7 Summary			**9,863**	**8.53**	**5**	**0.21**	**13**	**0.56**	**3**	**0.13**	**0**	**0.00**	**3**	**0.13**	**0**	**0.00**	**12**	**0.51**	**36**	**219.45**
Section 7 Average			**891.64**	**0.74**	**0.45**	**3.88**	**1.18**	**7.27**	**0.27**	**1.40**	**0.00**	**0.00**	**0.27**	**1.02**	**0.00**	**0.00**	**1.09**	**6.39**	**3.27**	**19.95**
Section 7 Standard Error					**0.20**	**2.81**	**0.42**	**2.13**	**0.19**	**0.90**	**0.00**	**0.00**	**0.19**	**0.65**	**0.00**	**0.00**	**0.47**	**3.47**	**0.85**	**4.81**
9	SF0901	01-Oct-20	864	0.8	0	0.00	0	0.00	1	5.21	0	0.00	0	0.00	1	5.21	0	0.00	2	10.42
	SF0902	01-Oct-20	835	0.7	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	SF0903	01-Oct-20	1,231	0.7	0	0.00	20	83.56	1	4.18	0	0.00	0	0.00	1	4.18	2	8.36	24	100.27
	SF0904	01-Oct-20	956	0.7	0	0.00	2	10.76	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	2	10.76
	SF0905	01-Oct-20	1,148	0.75	7	29.27	1	4.18	0	0.00	1	4.18	0	0.00	2	8.36	0	0.00	11	45.99
	SF0906	01-Oct-20	1,170	1	0	0.00	2	6.15	0	0.00	0	0.00	0	0.00	0	0.00	1	3.08	3	9.23
	SF0907	01-Oct-20	974	0.7	1	5.28	4	21.12	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	5	26.40
	SF0908	02-Oct-20	816	0.68	0	0.00	2	12.98	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	2	12.98
	SF0909	02-Oct-20	921	0.7	0	0.00	1	5.58	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	5.58
	SF0910	02-Oct-20	702	0.5	0	0.00	2	20.51	0	0.00	0	0.00	1	10.26	0	0.00	0	0.00	3	30.77
	SF0911	02-Oct-20	809	0.6	0	0.00	1	7.42	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	7.42
	SF0912	02-Oct-20	1,051	0.73	0	0.00	6	28.15	4	18.77	0	0.00	0	0.00	0	0.00	3	14.08	13	61.00
Section 9 Summary			**11,477**	**8.56**	**8**	**0.29**	**41**	**1.50**	**6**	**0.22**	**1**	**0.04**	**1**	**0.04**	**4**	**0.15**	**6**	**0.22**	**67**	**320.81**
Section 9 Average			**956.42**	**0.71**	**0.67**	**2.88**	**3.42**	**16.70**	**0.50**	**2.35**	**0.08**	**0.35**	**0.08**	**0.85**	**0.33**	**1.48**	**0.50**	**2.13**	**5.58**	**26.73**
Section 9 Standard Error					**0.56**	**2.33**	**1.52**	**6.30**	**0.32**	**1.52**	**0.08**	**0.33**	**0.08**	**0.82**	**0.18**	**0.78**	**0.28**	**1.25**	**1.95**	**8.13**
Grand Total			**30,284**	**23.82**	**13**	**0.06**	**54**	**0.27**	**9**	**0.04**	**2**	**0.01**	**9**	**0.04**	**6**	**0.03**	**22**	**0.11**	**115**	**0.57**
All Sections Average			**864.46**	**0.67**	**0.37**	**2.25**	**1.53**	**7.99**	**0.26**	**1.25**	**0.06**	**0.38**	**0.26**	**1.93**	**0.17**	**0.98**	**0.64**	**3.73**	**3.29**	**18.51**
All Sections Standard Error					**0.21**	**1.22**	**0.59**	**2.55**	**0.13**	**0.61**	**0.04**	**0.29**	**0.09**	**0.73**	**0.09**	**0.56**	**0.19**	**1.27**	**0.79**	**3.51**

Table A4-5. Coldwater and coolwater fish backpack electrofisher catch rate (no. fish/km/hr)

Section	Site	Date	Time Sampled (s)	Length Sampled (km)	Burbot		Mountain Whitefish		Rainbow Trout		Yellow Perch		All Species	
					No.	CPUE	No.	CPUE	No.	CPUE	No.	CPUE	No	CPUE
5	BP01	27 Sept 2020	668	0.10	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	BP03	27 Sept 2020	449	0.10	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	EF0506	28 Sept 2020	626	0.10	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	EF0507	28 Sept 2020	419	0.10	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Section 5 Summary			**2162**	**0.40**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**
Section 5 Average			**540.5**	**0.10**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Section 5 Standard Error					**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
7	EF0705	30 Sept 2020	901	0.10	0	0.00	0	0.00	0	0.00	1	39.96	1	39.96
	EF0706	30 Sept 2020	791	0.10	1	45.51	0	0.00	1	45.51	0	0.00	2	91.02
	EF0708	29 Sept 2020	899	0.10	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	EF0709	29 Sept 2020	597	0.10	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Section 7 Summary			**3,188**	**0.40**	**1**	**2.82**	**0**	**0.00**	**1**	**2.82**	**1**	**2.82**	**3**	**8.47**
Section 7 Average			**797**	**0.10**	**0.25**	**11.38**	**0.00**	**0.00**	**0.25**	**11.38**	**0.25**	**9.99**	**0.75**	**32.74**
Section 7 Standard Error					**0.22**	**9.85**	**0.00**	**0.00**	**0.22**	**9.85**	**0.22**	**8.65**	**0.41**	**18.70**
9	EF0901	2 Oct 2020	1,049	0.10	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	EF0902	3 Oct 2020	863	0.10	0	0.00	2	83.43	0	0.00	0	0.00	2	83.43
	EF0903	2 Oct 2020	1,001	0.10	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	EF0904	3 Oct 2020	821	0.10	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Section 9 Summary			**3,734**	**0.40**	**0**	**0.00**	**2**	**4.82**	**0**	**0.00**	**0**	**0.00**	**2**	**4.82**
Section 9 Average			**933.5**	**0.10**	**0.00**	**0.00**	**0.50**	**20.86**	**0.00**	**0.00**	**0.00**	**0.00**	**0.50**	**20.86**
Section 9 Standard Error					**0.00**	**0.00**	**0.43**	**18.06**	**0.00**	**0.00**	**0.00**	**0.00**	**0.43**	**18.06**
Grand Total			**9,084**	**1.20**	**1**	**2.82**	**2**	**4.82**	**1**	**2.82**	**1**	**2.82**	**5**	**1.65**
All Sections Average			**757**	**0.10**	**0.08**	**3.79**	**0.17**	**6.95**	**0.08**	**3.79**	**0.08**	**3.33**	**0.42**	**17.87**
All Sections Standard Error					**0.08**	**3.63**	**0.16**	**6.66**	**0.08**	**3.63**	**0.08**	**3.19**	**0.22**	**9.51**

Table A4-6. Sucker backpack electrofisher catch rate (no. fish/km/hr)

Section	Site	Date	Time Sampled (s)	Length Sampled (km)	Longnose Sucker		Largescale Sucker		White Sucker		All Suckers	
					No.	CPUE	No.	CPUE	No.	CPUE	No.	CPUE
5	BP01	27 Sept 2020	668	0.10	2	107.78	0	0.00	0	0.00	2	107.78
	BP03	27 Sept 2020	449	0.10	0	0.00	0	0.00	0	0.00	0	0.00
	EF0506	28 Sept 2020	626	0.10	3	172.52	1	57.51	0	0.00	4	230.03
	EF0507	28 Sept 2020	419	0.10	0	0.00	0	0.00	0	0.00	0	0.00
Section 5 Summary			**2162**	**0.40**	**5**	**280.31**	**1**	**57.51**	**0**	**0.00**	**6**	**24.98**
Section 5 Average			**540.5**	**0.10**	**1.25**	**70.08**	**0.25**	**14.38**	**0.00**	**0.00**	**1.50**	**84.45**
Section 5 Standard Error					**0.65**	**36.86**	**0.22**	**12.45**	**0.00**	**0.00**	**0.83**	**47.44**
7	EF0705	30 Sept 2020	901	0.10	0	0.00	0	0.00	0	0.00	0	0.00
	EF0706	30 Sept 2020	791	0.10	0	0.00	0	0.00	0	0.00	0	0.00
	EF0708	29 Sept 2020	899	0.10	0	0.00	1	40.04	0	0.00	1	40.04
	EF0709	29 Sept 2020	597	0.10	0	0.00	0	0.00	1	60.30	1	60.30
Section 7 Summary			**3,188**	**0.40**	**0**	**0.00**	**1**	**40.04**	**1**	**60.30**	**2**	**5.65**
Section 7 Average			**797**	**0.10**	**0.00**	**0.00**	**0.25**	**10.01**	**0.25**	**15.08**	**0.50**	**25.09**
Section 7 Standard Error					**0.00**	**0.00**	**0.22**	**8.67**	**0.22**	**13.06**	**0.25**	**13.04**
9	EF0901	2 Oct 2020	1,049	0.10	0	0.00	0	0.00	7	240.23	7	240.23
	EF0902	3 Oct 2020	863	0.10	0	0.00	0	0.00	0	0.00	0	0.00
	EF0903	2 Oct 2020	1,001	0.10	0	0.00	0	0.00	5	179.82	5	179.82
	EF0904	3 Oct 2020	821	0.10	4	175.40	0	0.00	0	0.00	4	175.40
Section 9 Summary			**3,734**	**0.40**	**4**	**175.40**	**0**	**0.00**	**12**	**420.05**	**16**	**38.56**
Section 9 Average			**933.5**	**0.10**	**1.00**	**43.85**	**0.00**	**0.00**	**3.00**	**105.01**	**4.00**	**148.86**
Section 9 Standard Error					**0.87**	**37.97**	**0.00**	**0.00**	**1.54**	**53.58**	**1.27**	**44.84**
Grand Total			**9,084**	**1.20**	**9**	**455.70**	**2**	**97.55**	**13**	**480.35**	**24**	**7.93**
All Sections Average			**757**	**0.10**	**0.75**	**37.98**	**0.17**	**8.13**	**1.08**	**40.03**	**2.00**	**86.13**
All Sections Standard Error					**0.39**	**19.51**	**0.11**	**5.35**	**0.65**	**22.74**	**0.67**	**26.56**

Table A4-7. Sculpin backpack electrofisher catch rate (no. fish/km/hr)

Section	Site	Date	Time Sampled (s)	Length Sampled (km)	Prickly Sculpin		Slimy Sculpin		Spoonhead Sculpin		All Sculpins	
					No.	CPUE	No.	CPUE	No.	CPUE	No.	CPUE
5	BP01	27 Sept 2020	668	0.10	0	0.00	19	1,023.95	0	0.00	19	1,023.95
	BP03	27 Sept 2020	449	0.10	0	0.00	20	1,603.56	0	0.00	20	1,603.56
	EF0506	28 Sept 2020	626	0.10	0	0.00	0	0.00	0	0.00	0	0.00
	EF0507	28 Sept 2020	419	0.10	1	85.92	11	945.11	0	0.00	12	1,031.03
Section 5 Summary			**2,162**	**0.40**	**1**	**85.92**	**50**	**3,572.62**	**0**	**0.00**	**51**	**212.30**
Section 5 Average			**540.5**	**0.10**	**0.25**	**21.48**	**12.5**	**893.16**	**0.00**	**0.00**	**12.75**	**914.64**
Section 5 Standard Error					**0.22**	**18.60**	**4.01**	**287.47**	**0.00**	**0.00**	**3.99**	**289.04**
7	EF0705	30 Sept 2020	901	0.10	0	0.00	2	79.91	0	0.00	2	79.91
	EF0706	30 Sept 2020	791	0.10	0	0.00	39	1,774.97	1	45.51	40	1,820.48
	EF0708	29 Sept 2020	899	0.10	0	0.00	1	40.04	0	0.00	1	40.04
	EF0709	29 Sept 2020	597	0.10	0	0.00	32	1,929.65	0	0.00	32	1,929.65
Section 7 Summary			**3,188**	**0.40**	**0**	**0.00**	**74**	**3,824.57**	**1**	**45.51**	**75**	**211.73**
Section 7 Average			**797**	**0.10**	**0.00**	**0.00**	**18.5**	**956.14**	**0.25**	**11.38**	**18.75**	**967.52**
Section 7 Standard Error					**0.00**	**0.00**	**8.59**	**448.97**	**0.22**	**9.85**	**8.74**	**454.24**
9	EF0901	2 Oct 2020	1,049	0.10	0	0.00	9	308.87	0	0.00	9	308.87
	EF0902	3 Oct 2020	863	0.10	0	0.00	18	750.87	1	41.71	19	792.58
	EF0903	2 Oct 2020	1,001	0.10	0	0.00	5	179.82	1	35.96	6	215.78
	EF0904	3 Oct 2020	821	0.10	0	0.00	22	964.68	8	350.79	30	1,315.47
Section 9 Summary			**3,734**	**0.40**	**0**	**0.00**	**54**	**2,204.23**	**10**	**428.47**	**64**	**154.26**
Section 9 Average			**933.5**	**0.10**	**0.00**	**0.00**	**13.5**	**551.06**	**2.5**	**107.12**	**16.00**	**658.18**
Section 9 Standard Error					**0.00**	**0.00**	**3.40**	**159.59**	**1.60**	**70.80**	**4.70**	**219.06**
Grand Total			**9,084**	**1.20**	**1**	**85.92**	**178**	**9,601.43**	**11**	**473.98**	**190**	**62.75**
All Sections Average			**757**	**0.10**	**0.08**	**7.16**	**14.83**	**800.12**	**0.92**	**39.50**	**15.83**	**846.78**
All Sections Standard Error					**0.08**	**6.86**	**3.44**	**192.48**	**0.63**	**27.57**	**3.64**	**197.64**

Table A4-8. Minnow backpack electrofisher catch rate (no. fish/km/hr)

Section	Site	Date	Time Sampled (s)	Length Sampled (km)	Flathead Chub		Finescale Dace		Lake Chub		Longnose Dace		Northern Redside Dace		Redside Shiner		Spottail Shiner		Trout-perch		All Minnows	
					No.	CPUE	No.	CPUE	No.	CPUE	No.	CPUE	No.	CPUE	No.	CPUE	No.	CPUE	No.	CPUE	No.	CPUE
5	BP01	27 Sept 2020	668	0.10	0	0.00	0	0.00	2	107.78	1	53.89	0	0.00	0	0.00	0	0.00	0	0.00	3	161.68
	BP03	27 Sept 2020	449	0.10	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	EF0506	28 Sept 2020	626	0.10	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	EF0507	28 Sept 2020	419	0.10	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	85.92	1	85.92	0	0.00	2	171.84
Section 5 Summary			**2,162**	**0.40**	**0**	**0.00**	**0**	**0.00**	**2**	**107.78**	**1**	**53.89**	**0**	**0.00**	**1**	**85.92**	**1**	**85.92**	**0**	**0.00**	**5**	**20.81**
Section 5 Average			**540.5**	**0.10**	**0.00**	**0.00**	**0.00**	**0.00**	**0.5**	**26.95**	**0.25**	**13.47**	**0.00**	**0.00**	**0.25**	**21.48**	**0.25**	**21.48**	**0.00**	**0.00**	**1.25**	**83.38**
Section 5 Standard Error					**0.00**	**0.00**	**0.00**	**0.00**	**0.43**	**23.34**	**0.22**	**11.67**	**0.00**	**0.00**	**0.22**	**18.60**	**0.22**	**18.60**	**0.00**	**0.00**	**0.65**	**41.73**
7	EF0705	30 Sept 2020	901	0.10	7	279.69	0	0.00	10	399.56	25	998.89	0	0.00	4	159.82	1	39.96	1	39.96	48	1,917.87
	EF0706	30 Sept 2020	791	0.10	0	0.00	0	0.00	0	0.00	1	45.51	0	0.00	0	0.00	0	0.00	0	0.00	1	45.51
	EF0708	29 Sept 2020	899	0.10	0	0.00	0	0.00	1	40.04	16	640.71	0	0.00	2	80.09	0	0.00	0	0.00	19	760.85
	EF0709	29 Sept 2020	597	0.10	0	0.00	1	60.30	0	0.00	5	301.51	0	0.00	0	0.00	1	60.30	0	0.00	7	422.11
Section 7 Summary			**3,188**	**0.40**	**7**	**279.69**	**1**	**60.30**	**11**	**439.60**	**47**	**1,986.62**	**0**	**0.00**	**6**	**239.91**	**2**	**100.26**	**1**	**39.96**	**75**	**3,146.34**
Section 7 Average			**797**	**0.10**	**1.75**	**69.92**	**0.25**	**15.08**	**2.75**	**109.90**	**11.75**	**496.66**	**0.00**	**0.00**	**1.5**	**59.98**	**0.5**	**25.06**	**0.25**	**9.99**	**18.75**	**786.58**
Section 7 Standard Error					**1.52**	**60.55**	**0.22**	**13.06**	**2.10**	**84.02**	**4.71**	**179.34**	**0.00**	**0.00**	**0.83**	**33.14**	**0.25**	**13.04**	**0.22**	**8.65**	**9.04**	**350.22**
9	EF0901	2 Oct 2020	1,049	0.10	0	0.00	0	0.00	55	1,887.51	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	55	1,887.51
	EF0902	3 Oct 2020	863	0.10	1	41.71	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	41.71
	EF0903	2 Oct 2020	1,001	0.10	0	0.00	0	0.00	9	323.68	0	0.00	1	35.96	0	0.00	0	0.00	0	0.00	10	359.64
	EF0904	3 Oct 2020	821	0.10	1	43.85	0	0.00	2	87.70	2	87.70	0	0.00	0	0.00	0	0.00	0	0.00	5	219.24
Section 9 Summary			**3,734**	**0.40**	**2**	**85.56**	**0**	**0.00**	**66**	**2,298.89**	**2**	**87.70**	**1**	**35.96**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**71**	**2,508.11**
Section 9 Average			**933.5**	**0.10**	**0.5**	**21.39**	**0.00**	**0.00**	**16.5**	**574.72**	**0.5**	**21.92**	**0.25**	**8.99**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**17.75**	**627.03**
Section 9 Standard Error					**0.25**	**10.70**	**0.00**	**0.00**	**11.24**	**383.56**	**0.43**	**18.99**	**0.22**	**7.79**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**10.87**	**368.20**
Grand Total			**9,084**	**1.20**	**9**	**365.25**	**1**	**60.30**	**79**	**2,846.27**	**50**	**2,128.21**	**1**	**35.96**	**7**	**325.83**	**3**	**186.18**	**1**	**39.96**	**151**	**49.87**
All Sections Average			**757**	**0.10**	**0.75**	**30.44**	**0.08**	**5.03**	**6.58**	**237.19**	**4.17**	**177.35**	**0.08**	**3.00**	**0.58**	**27.15**	**0.25**	**15.51**	**0.08**	**3.33**	**12.58**	**499.00**
All Sections Standard Error					**0.55**	**22.17**	**0.08**	**4.81**	**4.33**	**148.44**	**2.21**	**88.76**	**0.08**	**2.87**	**0.34**	**14.55**	**0.13**	**8.22**	**0.08**	**3.19**	**5.26**	**190.88**

Table A4-9. Coldwater and coolwater fish beach seine catch rate (no. fish/m²)

Section	Site	Date	Area Sampled (m²)	Kokanee		All Species	
				No.	CPUE	No.	CPUE
5	BS01	27 Sep 20	225.00	0	0.00	0	0.00
	BS02	27 Sep 20	265.00	0	0.00	0	0.00
	BS03	28 Sep 20	225.00	0	0.00	0	0.00
	BS0504	27 Sep 20	300.00	0	0.00	0	0.00
	BS0507	28 Sep 20	280.00	0	0.00	0	0.00
	BS0508	28 Sep 20	270.00	0	0.00	0	0.00
	BS0510	28 Sep 20	225.00	0	0.00	0	0.00
	BS503	28 Sep 20	300.00	0	0.00	0	0.00
Section 5 Total			**2,090.00**	**0**	**0.00**	**0**	**0.00**
Section 5 Average			**261.25**	**0.00**	**0.00**	**0.00**	**0.00**
Section 5 Standard Error				**0.00**	**0.00**	**0.00**	**0.00**
7	BS0703	30 Sep 20	225.00	0	0.00	0	0.00
	BS0704	30 Sep 20	225.00	0	0.00	0	0.00
	BS0707	29 Sep 20	225.00	0	0.00	0	0.00
	BS0708	29 Sep 20	225.00	0	0.00	0	0.00
	BS0709	29 Sep 20	225.00	0	0.00	0	0.00
	BS0710	29 Sep 20	225.00	0	0.00	0	0.00
	BS0712	30 Sep 20	225.00	1	0.00	1	0.00
	BS0714	30 Sep 20	225.00	0	0.00	0	0.00
Section 7 Total			**1,800.00**	**1**	**0.00**	**1**	**0.00**
Section 7 Average			**225.00**	**0.13**	**0.00**	**0.13**	**0.00**
Section 7 Standard Error				**0.12**	**0.00**	**0.12**	**0.00**
9	BS0901	2 Oct 2020	235.00	0	0.00	0	0.00
	BS0902	2 Oct 2020	225.00	0	0.00	0	0.00
	BS0903	2 Oct 2020	225.00	0	0.00	0	0.00
	BS0904	2 Oct 2020	175.00	0	0.00	0	0.00
	BS0905	2 Oct 2020	225.00	0	0.00	0	0.00
	BS0907	2 Oct 2020	225.00	0	0.00	0	0.00
	BS0908	2 Oct 2020	300.00	0	0.00	0	0.00
	BS0909	2 Oct 2020	300.00	0	0.00	0	0.00
	BS0910	2 Oct 2020	225.00	0	0.00	0	0.00
Section 9 Total			**2,135.00**	**0**	**0.00**	**0**	**0.00**
Section 9 Average			**237.22**	**0.00**	**0.00**	**0.00**	**0.00**
Section 9 Standard Error				**0.00**	**0.00**	**0.00**	**0.00**
Grand Total			**6,025.00**	**1**	**0.00**	**1**	**0.00**
All Sections Average			**241.16**	**0.04**	**0.00**	**0.04**	**0.00**
All Sections Standard Error				**0.04**	**0.00**	**0.04**	**0.00**

Table A4-10. Sucker beach seine catch rate (no. fish/m²)

Section	Site	Date	Area Sampled (m^2)	Largescale Sucker		White Sucker		All Suckers	
				No.	CPUE	No.	CPUE	No.	CPUE
5	BS01	27 Sep 20	225.00	0	0.00	0	0.00	0	0.00
	BS02	27 Sep 20	265.00	1	0.00	0	0.00	1	0.00
	BS03	28 Sep 20	225.00	0	0.00	3	0.01	3	0.01
	BS0504	27 Sep 20	300.00	0	0.00	0	0.00	0	0.00
	BS0507	28 Sep 20	280.00	0	0.00	0	0.00	0	0.00
	BS0508	28 Sep 20	270.00	0	0.00	1	0.00	1	0.00
	BS0510	28 Sep 20	225.00	0	0.00	0	0.00	0	0.00
	BS503	28 Sep 20	300.00	0	0.00	2	0.01	2	0.01
Section 5 Total			**2,090.00**	**1**	**0.00**	**6**	**0.00**	**7**	**0.00**
Section 5 Average			**261.25**	**0.13**	**0.00**	**0.75**	**0.00**	**0.88**	**0.00**
Section 5 Standard Error				**0.12**	**0.00**	**0.39**	**0.00**	**0.37**	**0.00**
7	BS0703	30 Sep 20	225.00	0	0.00	0	0.00	0	0.00
	BS0704	30 Sep 20	225.00	0	0.00	0	0.00	0	0.00
	BS0707	29 Sep 20	225.00	0	0.00	5	0.02	5	0.02
	BS0708	29 Sep 20	225.00	0	0.00	0	0.00	0	0.00
	BS0709	29 Sep 20	225.00	0	0.00	0	0.00	0	0.00
	BS0710	29 Sep 20	225.00	0	0.00	0	0.00	0	0.00
	BS0712	30 Sep 20	225.00	0	0.00	1	0.00	1	0.00
	BS0714	30 Sep 20	225.00	0	0.00	0	0.00	0	0.00
Section 7 Total			**1,800.00**	**0**	**0.00**	**6**	**0.00**	**6**	**0.00**
Section 7 Average			**225.00**	**0.00**	**0.00**	**0.75**	**0.00**	**0.75**	**0.00**
Section 7 Standard Error				**0.00**	**0.00**	**0.58**	**0.00**	**0.58**	**0.00**
9	BS0901	2 Oct 2020	235.00	0	0.00	0	0.00	0	0.00
	BS0902	2 Oct 2020	225.00	0	0.00	0	0.00	0	0.00
	BS0903	2 Oct 2020	225.00	0	0.00	0	0.00	0	0.00
	BS0904	2 Oct 2020	175.00	0	0.00	0	0.00	0	0.00
	BS0905	2 Oct 2020	225.00	0	0.00	0	0.00	0	0.00
	BS0907	2 Oct 2020	225.00	0	0.00	0	0.00	0	0.00
	BS0908	2 Oct 2020	300.00	0	0.00	0	0.00	0	0.00
	BS0909	2 Oct 2020	300.00	0	0.00	0	0.00	0	0.00
	BS0910	2 Oct 2020	225.00	0	0.00	0	0.00	0	0.00
Section 9 Total			**2,135.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**
Section 9 Average			**237.22**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Section 9 Standard Error				**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Grand Total			**6,025.00**	**1**	**0.00**	**12**	**0.01**	**13**	**0.00**
All Sections Average			**241.16**	**0.04**	**0.00**	**0.50**	**0.00**	**0.54**	**0.00**
All Sections Standard Error				**0.04**	**0.00**	**0.23**	**0.00**	**0.23**	**0.00**

Table A4-11. Sculpin beach seine catch rate (no. fish/m²)

Section	Site	Date	Area Sampled (m²)	Prickly Sculpin		Slimy Sculpin		Spoonhead Sculpin		All Sculpins	
				No.	CPUE	No.	CPUE	No.	CPUE	No.	CPUE
5	BS01	27 Sep 20	225.00	0	0.00	0	0.00	0	0.00	0	0.00
	BS02	27 Sep 20	265.00	0	0.00	1	0.00	0	0.00	1	0.00
	BS03	28 Sep 20	225.00	1	0.00	11	0.05	0	0.00	12	0.05
	BS0504	27 Sep 20	300.00	0	0.00	0	0.00	0	0.00	0	0.00
	BS0507	28 Sep 20	280.00	0	0.00	1	0.00	0	0.00	1	0.00
	BS0508	28 Sep 20	270.00	1	0.00	0	0.00	0	0.00	1	0.00
	BS0510	28 Sep 20	225.00	1	0.00	12	0.05	0	0.00	13	0.06
	BS503	28 Sep 20	300.00	2	0.01	9	0.03	2	0.01	13	0.04
Section 5 Total			**2,090.00**	**5**	**0.00**	**34**	**0.02**	**2**	**0.00**	**41**	**0.02**
Section 5 Average			**261.25**	**0.63**	**0.00**	**4.25**	**0.02**	**0.25**	**0.00**	**5.13**	**0.02**
Section 5 Standard Error				**0.25**	**0.00**	**1.78**	**0.01**	**0.23**	**0.00**	**2.07**	**0.01**
7	BS0703	30 Sep 20	225.00	**0**	0.00	**0**	0.00	**0**	0.00	0	0.00
	BS0704	30 Sep 20	225.00	**0**	0.00	0	0.00	**0**	0.00	0	0.00
	BS0707	29 Sep 20	225.00	**0**	0.00	0	0.00	1	0.00	1	0.00
	BS0708	29 Sep 20	225.00	**0**	0.00	0	0.00	0	0.00	0	0.00
	BS0709	29 Sep 20	225.00	**0**	0.00	1	0.00	0	0.00	1	0.00
	BS0710	29 Sep 20	225.00	**0**	0.00	0	0.00	0	0.00	0	0.00
	BS0712	30 Sep 20	225.00	**0**	0.00	0	0.00	0	0.00	0	0.00
	BS0714	30 Sep 20	225.00	**0**	0.00	1	0.00	0	0.00	1	0.00
Section 7 Total			**1,800.00**	**0**	**0.00**	**2**	**0.00**	**1**	**0.00**	**3**	**0.00**
Section 7 Average			**225.00**	**0.00**	**0.00**	**0.25**	**0.00**	**0.13**	**0.00**	**0.38**	**0.00**
Section 7 Standard Error				**0.00**	**0.00**	**0.15**	**0.00**	**0.12**	**0.00**	**0.17**	**0.00**
9	BS0901	2 Oct 2020	235.00	**0**	0.00	**0**	0.00	**0**	0.00	0	0.00
	BS0902	2 Oct 2020	225.00	**0**	0.00	**0**	0.00	0	0.00	0	0.00
	BS0903	2 Oct 2020	225.00	0	0.00	**0**	0.00	0	0.00	0	0.00
	BS0904	2 Oct 2020	175.00	0	0.00	1	0.01	2	0.01	3	0.02
	BS0905	2 Oct 2020	225.00	0	0.00	**0**	0.00	0	0.00	0	0.00
	BS0907	2 Oct 2020	225.00	0	0.00	**0**	0.00	0	0.00	0	0.00
	BS0908	2 Oct 2020	300.00	1	0.00	**0**	0.00	0	0.00	1	0.00
	BS0909	2 Oct 2020	300.00	0	0.00	**0**	0.00	0	0.00	0	0.00
	BS0910	2 Oct 2020	225.00	0	0.00	**0**	0.00	0	0.00	0	0.00
Section 9 Total			**2,135.00**	**1**	**0.00**	**1**	**0.00**	**2**	**0.00**	**4**	**0.00**
Section 9 Average			**237.22**	**0.11**	**0.00**	**0.11**	**0.00**	**0.22**	**0.00**	**0.44**	**0.00**
Section 9 Standard Error				**0.10**	**0.00**	**0.10**	**0.00**	**0.21**	**0.00**	**0.32**	**0.00**
Grand Total			**6,025.00**	**6**	**0.00**	**37**	**0.02**	**5**	**0.00**	**48**	**0.01**
All Sections Average			**241.16**	**0.25**	**0.00**	**1.54**	**0.01**	**0.20**	**0.00**	**1.98**	**0.01**
All Sections Standard Error				**0.10**	**0.00**	**0.69**	**0.00**	**0.11**	**0.00**	**0.81**	**0.00**

Table A4-12. Minnow beach seine catch rate (no. fish/m²)

Section	Site	Date	Area Sampled (m^2)	Lake Chub		Longnose Dace		Redside Shiner		Spottail Shiner		Trout-perch		All Minnows	
				No.	CPUE	No.	CPUE	No.	CPUE	No.	CPUE	No.	CPUE	No.	CPUE
5	BS01	27 Sep 20	225.00	0	0.00	0	0.00	1	0.00	0	0.00	0	0.00	1	0.00
	BS02	27 Sep 20	265.00	0	0.00	0	0.00	0	0.00	2	0.01	0	0.00	2	0.01
	BS03	28 Sep 20	225.00	0	0.00	11	0.05	0	0.00	0	0.00	0	0.00	11	0.05
	BS0504	27 Sep 20	300.00	0	0.00	0	0.00	0	0.00	2	0.01	0	0.00	2	0.01
	BS0507	28 Sep 20	280.00	0	0.00	0	0.00	1	0.00	0	0.00	0	0.00	1	0.00
	BS0508	28 Sep 20	270.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	BS0510	28 Sep 20	225.00	0	0.00	3	0.01	0	0.00	2	0.01	0	0.00	5	0.02
	BS503	28 Sep 20	300.00	6	0.02	1	0.00	0	0.00	3	0.01	0	0.00	10	0.03
Section 5 Total			**2,090.00**	**6**	**0.00**	**15**	**0.01**	**2**	**0.00**	**9**	**0.00**	**0**	**0.00**	**32**	**0.02**
Section 5 Average			**261.25**	**0.75**	**0.00**	**1.88**	**0.01**	**0.25**	**0.00**	**1.13**	**0.00**	**0.00**	**0.00**	**4.00**	**0.02**
Section 5 Standard Error				**0.70**	**0.00**	**1.27**	**0.01**	**0.15**	**0.00**	**0.41**	**0.00**	**0.00**	**0.00**	**1.41**	**0.01**
7	BS0703	30 Sep 20	225.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	BS0704	30 Sep 20	225.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	BS0707	29 Sep 20	225.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	BS0708	29 Sep 20	225.00	0	0.00	1	0.00	1	0.00	0	0.00	0	0.00	2	0.01
	BS0709	29 Sep 20	225.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	BS0710	29 Sep 20	225.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	BS0712	30 Sep 20	225.00	0	0.00	0	0.00	0	0.00	5	0.02	0	0.00	5	0.02
	BS0714	30 Sep 20	225.00	0	0.00	0	0.00	1	0.00	0	0.00	0	0.00	1	0.00
Section 7 Total			**1,800.00**	**0**	**0.00**	**1**	**0.00**	**2**	**0.00**	**5**	**0.00**	**0**	**0.00**	**8**	**0.00**
Section 7 Average			**225.00**	**0.00**	**0.00**	**0.13**	**0.00**	**0.25**	**0.00**	**0.63**	**0.00**	**0.00**	**0.00**	**1.00**	**0.00**
Section 7 Standard Error				**0.00**	**0.00**	**0.12**	**0.00**	**0.15**	**0.00**	**0.58**	**0.00**	**0.00**	**0.00**	**0.59**	**0.00**
9	BS0901	2 Oct 2020	235.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	BS0902	2 Oct 2020	225.00	0	0.00	1	0.00	0	0.00	0	0.00	1	0.00	2	0.01
	BS0903	2 Oct 2020	225.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	BS0904	2 Oct 2020	175.00	0	0.00	3	0.02	1	0.01	0	0.00	0	0.00	4	0.02
	BS0905	2 Oct 2020	225.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	BS0907	2 Oct 2020	225.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	BS0908	2 Oct 2020	300.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	BS0909	2 Oct 2020	300.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	BS0910	2 Oct 2020	225.00	0	0.00	1	0.00	0	0.00	0	0.00	0	0.00	1	0.00
Section 9 Total			**2,135.00**	**0**	**0.00**	**5**	**0.00**	**1**	**0.00**	**0**	**0.00**	**1**	**0.00**	7	0.00
Section 9 Average			**237.22**	**0.00**	**0.00**	**0.56**	**0.00**	**0.11**	**0.00**	**0.00**	**0.00**	**0.11**	**0.00**	**0.78**	**0.00**
Section 9 Standard Error				**0.00**	**0.00**	**0.32**	**0.00**	**0.10**	**0.00**	**0.00**	**0.00**	**0.10**	**0.00**	**0.44**	**0.00**
Grand Total			**6,025.00**	**6**	**0.00**	**21**	**0.01**	**5**	**0.00**	**14**	**0.01**	**1**	**0.00**	**47**	**0.01**
All Sections Average			**241.16**	**0.25**	**0.00**	**0.85**	**0.00**	**0.20**	**0.00**	**0.58**	**0.00**	**0.04**	**0.00**	**1.93**	**0.01**
All Sections Standard Error				**0.24**	**0.00**	**0.45**	**0.00**	**0.08**	**0.00**	**0.25**	**0.00**	**0.04**	**0.00**	**0.59**	**0.00**

Table A4-13. All species gill net catch rate (no. fish/m²/hr)

Section	Site	Date	Soak Time (hr)	Area Sampled (m^2)	Longnose Sucker		All Species	
					No	CPUE	No	CPUE
5	GN0501	28 Sept 2020	1.55	109.44	1	0.01	1	0.01
Section 5 Total			**1.55**	**109.44**	**1**	**0.01**	**1**	**0.01**
Section 5 Average			**1.55**	**109.44**	**1.00**	**0.01**	**1.00**	**0.01**
Section 5 Standard Error					**0.00**	**0.00**	**0.00**	**0.00**
7	GN0701	29 Sept 2020	1.52	109.44	0	0.00	0	0.00
Section 7 Total			**1.52**	**109.44**	**0**	**0.00**	**0**	**0.00**
Section 7 Average			**1.52**	**109.44**	**0.00**	**0.00**	**0.00**	**0.00**
Section 7 Standard Error					**0.00**	**0.00**	**0.00**	**0.00**
9	GN0901	2 Oct 2020	1.60	109.44	1	0.01	1	0.01
Section 9 Total			**1.60**	**109.44**	**1**	**0.01**	**1**	**0.01**
Section 9 Average			**1.60**	**109.44**	**1.00**	**0.01**	**1.00**	**0.01**
Section 9 Standard Error					**0.00**	**0.00**	**0.00**	**0.00**
Grand Total			**4.67**	**328.32**	**2**	**0.02**	**2**	**0.02**
All Sections Average			**1.56**	**109.44**	**0.67**	**0.00**	**0.67**	**0.00**
All Sections Standard Error					**0.47**	**0.00**	**0.47**	**0.00**

Appendix 5

Biological Characteristics

Table A5-1. Biological characteristics of the 1,505 fish captured in 2020

Study Unit Number	Site Label	Sample Date	Count	Species*	Fish ID	Fork Length (mm)	Weight (g)	Age Structure(s) Collected	PIT Tag Code	PIT Tag?	DELT	Genetics	Methylmercury	Stable Isotope	Microchemistry
5	SF0514	26-Sep-20	1	LNSC	SF0514-2	420	955		982126057511875	New					
5	SF0514	26-Sep-20	1	LNSC	SF0514-3	458	1156		982126057511866	New					
5	SF0514	26-Sep-20	1	MNWH	SF0514-4	281	227	Scales	982126057458297	New					
5	SF0514	26-Sep-20	1	LNSC	SF0514-5	457	1083.4		981098104939798	Existing					
5	SF0514	26-Sep-20	1	MNWH	SF0514-6	315	350								
5	SF0514	26-Sep-20	1	MNWH	SF0514-7	312	295.9	Scales		No					
5	SF0514	26-Sep-20	1	MNWH	SF0514-8	306	312	Scales	900230000210325	Existing	LL				
5	SF0514	26-Sep-20	1	MNWH	SF0514-9	315	367	Scales	982126057511890	New					
5	SF0514	26-Sep-20	1	MNWH	SF0514-10	269	215	Scales	982126057458351	New					
5	SF0514	26-Sep-20	1	ARGR	SF0514-11	103	11	Scales		No					
5	SF0514	26-Sep-20	1	MNWH	SF0514-12	265	230	Scales	982126057458338	New					
5	SF0514	26-Sep-20	1	MNWH	SF0514-13	185	68	Scales	982091062634948	New					
5	SF0514	26-Sep-20	1	MNWH	SF0514-14	227	121	Scales	982126057458343	New					
5	SF0514	26-Sep-20	1	ARGR	SF0514-15	95	11	Scales		No					
5	SF0514	26-Sep-20	1	MNWH	SF0514-16	90	5.5	Scales		No					
5	SF0514	26-Sep-20	1	MNWH	SF0514-17	82	5	Scales		No					
5	SF0514	26-Sep-20	1	KOKA	SF0514-18	63	2	Scales		No					
5	SF0514	26-Sep-20	1	MNWH	SF0514-19	80	4	Scales		No					
5	SF0514	26-Sep-20	1	LNSC	SF0514-20	44				No					
5	SF0514	26-Sep-20	1	SLSC	SF0514-21	75	3					Yes			
5	SF0514	26-Sep-20	1	SLSC	SF0514-22	79	4			No		Yes			
5	SF0514	26-Sep-20	1	SLSC	SF0514-23	73	4			No		Yes			
5	SF0514	26-Sep-20	1	PRSC	SF0514-24	54	2			No		Yes			
5	SF0514	26-Sep-20	1	SLSC	SF0514-25	53	2			No		Yes			
5	SF0514	26-Sep-20	1	YLPR	SF0514-26	111	15			No					
5	SF0514	26-Sep-20	1	SLSC	SF0514-27	57	2			No		Yes			
5	SF0514	26-Sep-20	1	SLSC	SF0514-28	61	1			No					
5	BP01	27-Sep-20	1	SLSC	BP01-7	85	8.4			No		Yes			
5	BP01	27-Sep-20	1	SLSC	BP01-8	59	2.2			No		Yes			
5	BP01	27-Sep-20	1	SLSC	BP01-9	67	3.3			No		Yes			
5	BP01	27-Sep-20	1	SLSC	BP01-10	66	2.4			No		Yes			
5	BP01	27-Sep-20	1	SLSC	BP01-11	46	0.7			No		Yes			
5	BP01	27-Sep-20	1	SLSC	BP01-12	49	1.5			No		Yes			
5	BP01	27-Sep-20	1	SLSC	BP01-13	52	1.6			No		Yes			
5	BP01	27-Sep-20	1	LNSC	BP01-14	60	2			No					
5	BP01	27-Sep-20	1	LNDC	BP01-15	35	0.5			No		Yes			
5	BP01	27-Sep-20	1	LNSC	BP01-16	84	6.9			No					
5	BP01	27-Sep-20	1	SLSC	BP01-17	50	1.3			No		Yes			
5	BP01	27-Sep-20	1	SLSC	BP01-18	41	0.5			No					
5	BP01	27-Sep-20	1	SLSC	BP01-19	37	0.7			No					
5	BP01	27-Sep-20	1	SLSC	BP01-20	62	1.2			No					

Study Unit Number	Site Label	Sample Date	Count	Species*	Fish ID	Fork Length (mm)	Weight (g)	Age Structure(s) Collected	PIT Tag Code	PIT Tag?	DELT	Genetics	Methylmercury	Stable Isotope	Microchemistry
5	BP01	27-Sep-20	1	LKCH	BP01-21	64	1.3			No					
5	BP01	27-Sep-20	1	SLSC	BP01-22	46	1.3			No					
5	BP01	27-Sep-20	1	SLSC	BP01-23	46	1.1			No					
5	BP01	27-Sep-20	1	SLSC	BP01-24	36	0.4			No					
5	BP01	27-Sep-20	1	SLSC	BP01-25	40	0.5			No					
5	BP01	27-Sep-20	1	SLSC	BP01-26	21	0.1			No					
5	BP01	27-Sep-20	1	SLSC	BP01-27	55	1.5			No		Yes			
5	BP01	27-Sep-20	1	SLSC	BP01-28	25									
5	BP01	27-Sep-20	1	SLSC	BP01-29	37	0.2								
5	BP01	27-Sep-20	1	LKCH	BP01-30	49	1.3								
5	BP03	27-Sep-20	1	SLSC	BP03-39	25	0.3								
5	BP03	27-Sep-20	1	SLSC	BP03-40	30	0.2								
5	BP03	27-Sep-20	1	SLSC	BP03-41	42	0.4								
5	BP03	27-Sep-20	1	SLSC	BP03-42	53	1.8			No		Yes			
5	BP03	27-Sep-20	1	SLSC	BP03-43	61	1.9					Yes			
5	BP03	27-Sep-20	1	SLSC	BP03-44	29	0.2								
5	BP03	27-Sep-20	1	SCUL	BP03-45	31	0.4								
5	BP03	27-Sep-20	1	SLSC	BP03-46	33	0.6								
5	BP03	27-Sep-20	1	SLSC	BP03-47	51	1.4								
5	BP03	27-Sep-20	1	SLSC	BP03-48	29	0.3								
5	BP03	27-Sep-20	1	SLSC	BP03-49	36	0.5								
5	BP03	27-Sep-20	1	SLSC	BP03-50	23	0.2								
5	BP03	27-Sep-20	9	SLSC											
5	BS01	27-Sep-20	1	RDSH	BS01-31	49	1.3					Yes	Yes	Yes	
5	BS01	27-Sep-20	0	NFC											
5	BS01	27-Sep-20	0	NFC											
5	BS02	27-Sep-20	1	LSSC	BS02-34	40	0.9								
5	BS02	27-Sep-20	1	SLSC	BS02-35	37	0.4								
5	BS02	27-Sep-20	1	SPSH	BS02-36	31	0.4								
5	BS02	27-Sep-20	1	SPSH	BS02-37	30	0.3								
5	BS02	27-Sep-20	0	NFC											
5	BS0504	27-Sep-20	1	SPSH	BS0504-3	21	0.1			No					
5	BS0504	27-Sep-20	1	SPSH	BS0504-6	23	0.1								
5	BS0504	27-Sep-20	0	NFC											
5	SB07	27-Sep-20	1	NRPK	SB07-64										
5	SB07	27-Sep-20	1	LKWH	SB07-65	424	834	Scales							
5	SB07	27-Sep-20	1	WHSC	SB07-66	451	1334								
5	SB07	27-Sep-20	1	NRPK	SB07-67	170	30	Fin Rays							
5	SB07	27-Sep-20	1	KOKA	SB07-68	130	22	Scales			CL				
5	SB08	27-Sep-20	1	MNWH	SB08-101	319	246		982091062634930	New					
5	SB08	27-Sep-20	1	LNSC	SB08-102	210	119		982091062634960	New					
5	SB08	27-Sep-20	1	BURB	SB08-103	234	65		982091062634912	New					

Study Unit Number	Site Label	Sample Date	Count	Species*	Fish ID	Fork Length (mm)	Weight (g)	Age Structure(s) Collected	PIT Tag Code	PIT Tag?	DELT	Genetics	Methylmercury	Stable Isotope	Microchemistry
5	SB08	27-Sep-20	1	SLSC	SB08-104	68	2.8					Yes			
5	SB08	27-Sep-20	1	RDSH	SB08-105	106	15					Yes	Yes	Yes	
5	SF0503	27-Sep-20	1	MNWH	SF0503-106	311	317		982091062634877	New					
5	SF0503	27-Sep-20	1	MNWH	SF0503-107	280	231		982091062634922	New					
5	SF0503	27-Sep-20	1	MNWH	SF0503-108	287	263		982091062634878	New					
5	SF0503	27-Sep-20	1	MNWH	SF0503-109	293	284		982091062634902	New					
5	SF0503	27-Sep-20	1	MNWH	SF0503-110	250	164		900228000368549	Existing					
5	SF0503	27-Sep-20	1	MNWH	SF0503-111	184	59		982091062634940	New					
5	SF0503	27-Sep-20	1	MNWH	SF0503-112	190	67		982091062634957	New					
5	SF0503	27-Sep-20	1	MNWH	SF0503-113	82	5.1								
5	SF0503	27-Sep-20	1	MNWH	SF0503-114	88	5.9								
5	SF0503	27-Sep-20	1	SLSC	SF0503-115	77	4.6								
5	SF0503	27-Sep-20	1	SLSC	SF0503-116	66	2.8								
5	SF0503	27-Sep-20	1	SLSC	SF0503-117	59	2.4								
5	SF0503	27-Sep-20	1	SLSC	SF0503-118	42	1.3								
5	SF0503	27-Sep-20	1	MNWH	SF0503-119	83	4.4								
5	SF0503	27-Sep-20	1	SLSC	SF0503-120	56	1.2								
5	SF0503	27-Sep-20	1	SLSC	SF0503-121	60	1.1								
5	SF0503	27-Sep-20	1	SLSC	SF0503-122	46	1								
5	SF0508	27-Sep-20	1	MNWH	SF0508-29	303	284	Scales	982126057458347	New					
5	SF0508	27-Sep-20	1	MNWH	SF0508-30	191	66	Scales	982091062634963	New					
5	SF0508	27-Sep-20	1	BURB	SF0508-31	103	6								
5	SF0508	27-Sep-20	1	NPMN	SF0508-32	152	30								
5	SF0508	27-Sep-20	1	SLSC	SF0508-33	45	0.8					Yes			
5	SF0508	27-Sep-20	1	SLSC	SF0508-34	45	1.1					Yes			
5	SF0508	27-Sep-20	1	SLSC	SF0508-35	55	1					Yes			
5	SF0508	27-Sep-20	1	SLSC	SF0508-36	45	1					Yes			
5	SF0508	27-Sep-20	1	SLSC	SF0508-37	79	5.2					Yes			
5	SF0508	27-Sep-20	1	SLSC	SF0508-38	56	1.5				I	Yes			
5	SF0508	27-Sep-20	1	SLSC	SF0508-39	63	1.8					Yes			
5	SF0508	27-Sep-20	1	SLSC	SF0508-40	43	1					Yes			
5	SF0508	27-Sep-20	1	SLSC	SF0508-41	67	2.6					Yes			
5	SF0508	27-Sep-20	1	SLSC	SF0508-42	49	1					Yes			
5	SF0508	27-Sep-20	1	SLSC	SF0508-43	62	2.4					Yes			
5	SF0508	27-Sep-20	1	SLSC	SF0508-44	33									
5	SF0508	27-Sep-20	1	SLSC	SF0508-45	57	2					Yes			
5	SF0508	27-Sep-20	1	SLSC	SF0508-46	53	1					Yes			
5	SF0508	27-Sep-20	1	SLSC	SF0508-47	52	1.2					Yes			
5	SF0508	27-Sep-20	1	SLSC	SF0508-48	65	3.1					Yes			
5	SF0508	27-Sep-20	1	SLSC	SF0508-49	43	1.2					Yes			
5	SF0508	27-Sep-20	1	SLSC	SF0508-50	54	1.4					Yes			
5	SF0508	27-Sep-20	1	SLSC	SF0508-51	43	1					Yes			

Study Unit Number	Site Label	Sample Date	Count	Species*	Fish ID	Fork Length (mm)	Weight (g)	Age Structure(s) Collected	PIT Tag Code	PIT Tag?	DELT	Genetics	Methylmercury	Stable Isotope	Microchemistry
5	SF0508	27-Sep-20	1	SLSC	SF0508-52	66	2.3					Yes			
5	SF0508	27-Sep-20	1	SLSC	SF0508-53	64	2.2					Yes			
5	SF0508	27-Sep-20	1	SLSC	SF0508-54	43	1					Yes			
5	SF0508	27-Sep-20	1	SLSC	SF0508-55	72	3.4					Yes			
5	SF0508	27-Sep-20	1	SLSC	SF0508-56	51	1					Yes			
5	SF0508	27-Sep-20	1	SLSC	SF0508-57	58	2.1					Yes			
5	SF0508	27-Sep-20	1	SLSC	SF0508-58	47	1					Yes			
5	SF0508	27-Sep-20	1	SLSC	SF0508-59	67	2.2					Yes			
5	SF0508	27-Sep-20	1	SLSC	SF0508-60	60	1.5					Yes			
5	SF0508	27-Sep-20	1	SLSC	SF0508-61	58	1.7					Yes			
5	SF0508	27-Sep-20	1	SLSC	SF0508-62	46	1					Yes			
5	SF0508	27-Sep-20	1	SLSC	SF0508-63	45	1					Yes			
5	SF0508	27-Sep-20	1	SLSC	SF0508-69	57	1.2					Yes			
5	SF0519	27-Sep-20	1	SLSC	SF0519-70	48	1					Yes			
5	SF0519	27-Sep-20	1	SLSC	SF0519-71	40	1					Yes			
5	SF0519	27-Sep-20	1	MNWH	SF0519-72	247	173	Scales							
5	SF0519	27-Sep-20	1	MNWH	SF0519-73	300	305	Scales	982126057458339	New					
5	SF0519	27-Sep-20	1	LSSC	SF0519-74	293	294		982126057458303	New	CL				
5	SF0519	27-Sep-20	1	LSSC	SF0519-75	375	580		982126057458394	New					
5	SF0519	27-Sep-20	1	LSSC	SF0519-76	335	401		982126057458371	New					
5	SF0519	27-Sep-20	1	LSSC	SF0519-77	240	157		982091062634969	New					
5	SF0519	27-Sep-20	1	LNSC	SF0519-78	204	86		982091062634959	New					
5	SF0519	27-Sep-20	1	LSSC	SF0519-79	248	182		982091062634949	New					
5	SF0519	27-Sep-20	1	LNSC	SF0519-80	292	303		982091062634953	New					
5	SF0519	27-Sep-20	1	LSSC	SF0519-81	226	166			No					
5	SF0519	27-Sep-20	1	NRPK	SF0519-82	159	25	Fin Rays							
5	SF0519	27-Sep-20	1	KOKA	SF0519-83	68	1.8	Scales							
5	SF0519	27-Sep-20	1	LNSC	SF0519-84	154	41								
5	SF0519	27-Sep-20	1	MNWH	SF0519-85	135	25	Scales							
5	SF0519	27-Sep-20	1	MNWH	SF0519-86	68	2.2	Scales							
5	SF0519	27-Sep-20	1	LNSC	SF0519-87	190	72								
5	SF0519	27-Sep-20	1	LNSC	SF0519-88	195	82								
5	SF0519	27-Sep-20	1	MNWH	SF0519-89	145	32								
5	SF0519	27-Sep-20	1	LNSC	SF0519-90	116	19								
5	SF0519	27-Sep-20	1	SLSC	SF0519-91	57	1.2					Yes			
5	SF0519	27-Sep-20	1	SLSC	SF0519-92	80						Yes			
5	SF0519	27-Sep-20	1	PRSC	SF0519-93	70	2.3					Yes			
5	SF0519	27-Sep-20	1	SLSC	SF0519-94	72	3.4					Yes			
5	SF0519	27-Sep-20	1	PRSC	SF0519-95	27									
5	SF0519	27-Sep-20	1	SLSC	SF0519-96	60	1					Yes			
5	SF0519	27-Sep-20	1	SLSC	SF0519-97	51	2.4								
5	SF0519	27-Sep-20	1	SLSC	SF0519-98	54	1					Yes			

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5	SF0519	27-Sep-20	1	SLSC	SF0519-99	44	1					Yes			Yes
5	SF0519	27-Sep-20	1	SLSC	SF0519-100	53	1					Yes			
5	BS03	28-Sep-20	1	LNDC	BS03-78	20				No					
5	BS03	28-Sep-20	1	LNDC	BS03-79	20									
5	BS03	28-Sep-20	1	LNDC	BS03-80	19									
5	BS03	28-Sep-20	1	LNDC	BS03-81	20									
5	BS03	28-Sep-20	1	SLSC	BS03-82	27									
5	BS03	28-Sep-20	1	LNDC	BS03-83	25									
5	BS03	28-Sep-20	1	SLSC	BS03-84	27									
5	BS03	28-Sep-20	1	SLSC	BS03-85	22									
5	BS03	28-Sep-20	1	LNDC	BS03-86	23									
5	BS03	28-Sep-20	4	LNDC											
5	BS03	28-Sep-20	3	SLSC											
5	BS03	28-Sep-20	1	WHSC	BS03-90	56	4								
5	BS03	28-Sep-20	1	LNDC	BS03-91	15									
5	BS03	28-Sep-20	1	SLSC	BS03-92	21									
5	BS03	28-Sep-20	1	SLSC	BS03-93	20									
5	BS03	28-Sep-20	1	MINN	BS03-94	16									
5	BS03	28-Sep-20	1	SLSC	BS03-95	22									
5	BS03	28-Sep-20	1	MINN	BS03-96	17									
5	BS03	28-Sep-20	1	WHSC	BS03-97	35									
5	BS03	28-Sep-20	1	PRSC	BS03-98	20									
5	BS03	28-Sep-20	1	SLSC	BS03-99	22									
5	BS03	28-Sep-20	1	SLSC	BS03-100	24									
5	BS03	28-Sep-20	1	WHSC	BS03-101	31									
5	BS0507	28-Sep-20	14	MINN											
5	BS0507	28-Sep-20	1	RDSH	BS0507-142	20									
5	BS0507	28-Sep-20	0	NFC											
5	BS0507	28-Sep-20	31	MINN											
5	BS0507	28-Sep-20	1	SLSC	BS0507-140										
5	BS0508	28-Sep-20	1	WHSC	BS0508-143	57									
5	BS0508	28-Sep-20	0	NFC											
5	BS0508	28-Sep-20	1	PRSC	BS0508-145	31									
5	BS0510	28-Sep-20	1	LNDC	BS0510-132	14									
5	BS0510	28-Sep-20	1	SPSH	BS0510-133	26									
5	BS0510	28-Sep-20	1	MINN	BS0510-134	20									
5	BS0510	28-Sep-20	5	MINN											
5	BS0510	28-Sep-20	1	LNDC	BS0510-136	18									
5	BS0510	28-Sep-20	1	PRSC	BS0510-137	20									
5	BS0510	28-Sep-20	1	SLSC	BS0510-121	24									
5	BS0510	28-Sep-20	1	SLSC	BS0510-122	20									
5	BS0510	28-Sep-20	1	SLSC	BS0510-123	31									

Study Unit Number	Site Label	Sample Date	Count	Species*	Fish ID	Fork Length (mm)	Weight (g)	Age Structure(s) Collected	PIT Tag Code	PIT Tag?	DELT	Genetics	Methylmercury	Stable Isotope	Microchemistry
5	BS0510	28-Sep-20	1	SPSH	BS0510-124	17									
5	BS0510	28-Sep-20	1	LNDC	BS0510-125	16									
5	BS0510	28-Sep-20	1	MINN	BS0510-126	11									
5	BS0510	28-Sep-20	7	MINN											
5	BS0510	28-Sep-20	1	SLSC	BS0510-128	25									
5	BS0510	28-Sep-20	1	SLSC	BS0510-129	28									
5	BS0510	28-Sep-20	7	SLSC											
5	BS503	28-Sep-20	1	WHSC	BS503-53	41	0.4								
5	BS503	28-Sep-20	1	LKCH	BS503-54	30	0.3								
5	BS503	28-Sep-20	1	SPSH	BS503-55	19	0.1								
5	BS503	28-Sep-20	1	SLSC	BS503-56	22									
5	BS503	28-Sep-20	1	LKCH	BS503-57	20									
5	BS503	28-Sep-20	1	PRSC	BS503-58	23	0.3					Yes			
5	BS503	28-Sep-20	1	SPSH	BS503-59	21	0.2								
5	BS503	28-Sep-20	1	SPSC	BS503-60	35	0.4								
5	BS503	28-Sep-20	1	SPSC	BS503-61	25									
5	BS503	28-Sep-20	1	SLSC	BS503-62	25									
5	BS503	28-Sep-20	1	SLSC	BS503-63	23									
5	BS503	28-Sep-20	1	SLSC	BS503-64	31									
5	BS503	28-Sep-20	1	PRSC	BS503-65	20									
5	BS503	28-Sep-20	1	SLSC	BS503-66	20									
5	BS503	28-Sep-20	1	SLSC	BS503-67	22									
5	BS503	28-Sep-20	1	WHSC	BS503-68	21									
5	BS503	28-Sep-20	1	SLSC	BS503-69	22									
5	BS503	28-Sep-20	1	LKCH	BS503-70	18									
5	BS503	28-Sep-20	1	LKCH	BS503-71	23									
5	BS503	28-Sep-20	1	LNDC	BS503-72	23									
5	BS503	28-Sep-20	1	LKCH	BS503-73	18									
5	BS503	28-Sep-20	1	SPSH	BS503-74	29									
5	BS503	28-Sep-20	1	LKCH	BS503-75	17									
5	BS503	28-Sep-20	1	SLSC	BS503-76	30	0.3								
5	BS503	28-Sep-20	1	SLSC	BS503-77	23									
5	EF0506	28-Sep-20	1	LNSC	EF0506-102	76	4.1								
5	EF0506	28-Sep-20	1	LNSC	EF0506-103	62	3.2								
5	EF0506	28-Sep-20	1	LSSC	EF0506-104	67	2.5								
5	EF0506	28-Sep-20	1	LNSC	EF0506-105	105	15.2				TL				
5	EF0507	28-Sep-20	1	RDSH	EF0507-106	46	1.1					Yes	Yes	Yes	
5	EF0507	28-Sep-20	1	SPSH	EF0507-107	21									
5	EF0507	28-Sep-20	1	SLSC	EF0507-109	66									
5	EF0507	28-Sep-20	1	SLSC	EF0507-110	25									
5	EF0507	28-Sep-20	1	PRSC	EF0507-111	55	2.8					Yes			
5	EF0507	28-Sep-20	1	SLSC	EF0507-112	78	4.2			No					

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5	EF0507	28-Sep-20	1	SLSC	EF0507-113	20									
5	EF0507	28-Sep-20	1	SLSC	EF0507-114	31									
5	EF0507	28-Sep-20	1	SLSC	EF0507-115	30									
5	EF0507	28-Sep-20	1	SLSC	EF0507-116	20									
5	EF0507	28-Sep-20	1	SLSC	EF0507-117	22									
5	EF0507	28-Sep-20	1	SLSC	EF0507-118	21									
5	EF0507	28-Sep-20	1	SLSC	EF0507-119	17									
5	EF0507	28-Sep-20	1	SLSC	EF0507-120	23									
5	GN0501	28-Sep-20	1	LNSC	GN0501-146	445			982126057511854	New					
5	SF0509	28-Sep-20	1	MNWH	SF0509-151	330	423	Scales							
5	SF0509	28-Sep-20	1	MNWH	SF0509-152	363	386	Scales	982126057458326	New					
5	SF0509	28-Sep-20	1	MNWH	SF0509-153	339	434				LH				
5	SF0509	28-Sep-20	1	MNWH	SF0509-154	292	259	Scales		New					
5	SF0509	28-Sep-20	1	MNWH	SF0509-155	212	105	Scales	982091062634936	New					
5	SF0509	28-Sep-20	1	MNWH	SF0509-156	258	179	Scales	982091062634941	New					
5	SF0509	28-Sep-20	1	MNWH	SF0509-157	148	30	Scales							
5	SF0509	28-Sep-20	1	MNWH	SF0509-158	137	25	Scales							
5	SF0509	28-Sep-20	1	LNSC	SF0509-159	79	3.8								
5	SF0509	28-Sep-20	1	MNWH	SF0509-160	169	49								
5	SF0509	28-Sep-20	1	MNWH	SF0509-161	74	2.4	Scales							
5	SF0509	28-Sep-20	1	MNWH	SF0509-162	140	29								
5	SF0509	28-Sep-20	1	MNWH	SF0509-163	137	23								
5	SF0509	28-Sep-20	1	MNWH	SF0509-164	153	32								
5	SF0509	28-Sep-20	1	MNWH	SF0509-165	82	3.1								
5	SF0509	28-Sep-20	1	MNWH	SF0509-166	82	3.2								
5	SF0509	28-Sep-20	1	ARGR	SF0509-167	101	9	Scales							
5	SF0509	28-Sep-20	1	MNWH	SF0509-168	202	79	Scales	982091062634925	New					
5	SF0509	28-Sep-20	1	MNWH	SF0509-169	146	285								
5	SF0509	28-Sep-20	1	MNWH	SF0509-170	143	28								
5	SF0509	28-Sep-20	1	MNWH	SF0509-171	90	4.6								
5	SF0509	28-Sep-20	1	TRPR	SF0509-172	62	2.2								
5	SF0509	28-Sep-20	1	SLSC	SF0509-173	77	5.1								
5	SF0509	28-Sep-20	1	MNWH	SF0509-174	141	28								
5	SF0509	28-Sep-20	1	SLSC	SF0509-175	53	1.8								
5	SF0509	28-Sep-20	1	SLSC	SF0509-176	81	5.9								
5	SF0509	28-Sep-20	1	SLSC	SF0509-177	60	1.5								
5	SF0509	28-Sep-20	1	SLSC	SF0509-178	43	0.6								
5	SF0509	28-Sep-20	1	SLSC	SF0509-179	67	3.7								
5	SF0509	28-Sep-20	1	SLSC	SF0509-180	63	1.9								
5	SF0509	28-Sep-20	1	SLSC	SF0509-181	59	1.1								
5	SF0509	28-Sep-20	1	LNSC	SF0509-182	73	2.8								
5	SF0509	28-Sep-20	1	SLSC	SF0509-183	61	1.9								

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5	SF0509	28-Sep-20	1	SLSC	SF0509-184	62	1.4								
5	SF0509	28-Sep-20	1	SLSC	SF0509-185	48	0.5								
5	SF0509	28-Sep-20	1	SLSC	SF0509-186	59	1.5								
5	SF0509	28-Sep-20	1	SLSC	SF0509-187	53	0.8								
5	SF0509	28-Sep-20	1	PRSC	SF0509-188	48	0.5					Yes			
5	SF0509	28-Sep-20	1	RDSH	SF0509-189	81	5.1					Yes	Yes	Yes	
5	SF0509	28-Sep-20	1	RDSH	SF0509-190	82	5.2					Yes	Yes	Yes	
5	SF0510	28-Sep-20	1	MNWH	SF0510-191	360	434	Scales	982126057458391	New					
5	SF0510	28-Sep-20	1	MNWH	SF0510-192	364	502	Scales	982126057458378	New					
5	SF0510	28-Sep-20	1	MNWH	SF0510-193	332	315	Scales	982091062634966	New					
5	SF0510	28-Sep-20	1	MNWH	SF0510-194	165	47	Scales		No					
5	SF0510	28-Sep-20	1	MNWH	SF0510-195	162	35								
5	SF0510	28-Sep-20	1	LNSC	SF0510-196	224	132								
5	SF0510	28-Sep-20	1	MNWH	SF0510-197	175	65								
5	SF0510	28-Sep-20	1	MNWH	SF0510-198	127	19								
5	SF0510	28-Sep-20	1	SLSC	SF0510-199	70	2.7								
5	SF0510	28-Sep-20	1	TRPR	SF0510-200	63	1.7								
5	SF0510	28-Sep-20	1	ARGR	SF0510-201	90	5.7	Scales							
5	SF0510	28-Sep-20	1	SLSC	SF0510-202	59	1.1								
5	SF0510	28-Sep-20	1	SLSC	SF0510-203	57	0.8								
5	SF0510	28-Sep-20	1	SLSC	SF0510-204	57	0.5								
5	SF0510	28-Sep-20	1	PRSC	SF0510-205	56	2.4					Yes			
5	SF0510	28-Sep-20	1	SLSC	SF0510-206	66	3.4								
5	SF0510	28-Sep-20	1	SLSC	SF0510-207	59	2.4								
5	SF0510	28-Sep-20	1	SLSC	SF0510-208	40	0.4								
5	SF0510	28-Sep-20	1	WHSC	SF0510-209	60	2.1								
5	SF0511	28-Sep-20	1	MNWH	SF0511-210	335	315		982091062634956	New					
5	SF0511	28-Sep-20	1	MNWH	SF0511-211	291	281	Scales		No					
5	SF0511	28-Sep-20	1	MNWH	SF0511-212	328	318	Scales	982091062634947	New					
5	SF0511	28-Sep-20	1	LSSC	SF0511-213	299	302		982126057458299	New					
5	SF0511	28-Sep-20	1	NRPK	SF0511-214	304	186	Fin Rays	982091062634924	New					
5	SF0511	28-Sep-20	1	SLSC	SF0511-215	45	0.7								
5	SF0511	28-Sep-20	1	MNWH	SF0511-216	271	215	Scales	982091062634907	New					
5	SF0511	28-Sep-20	1	ARGR	SF0511-217	92	6.6	Scales							
5	SF0511	28-Sep-20	1	MNWH	SF0511-218	162	46								
5	SF0511	28-Sep-20	1	MNWH	SF0511-219	132	23								
5	SF0511	28-Sep-20	1	MNWH	SF0511-220	95	8.6								
5	SF0511	28-Sep-20	1	MNWH	SF0511-221	84	4.7								
5	SF0511	28-Sep-20	1	SLSC	SF0511-222	49	1.2								
5	SF0511	28-Sep-20	1	MNWH	SF0511-223	243	176	Scales	982091062634915	New					
5	SF0511	28-Sep-20	1	MNWH	SF0511-224	150	30								
5	SF0511	28-Sep-20	1	ARGR	SF0511-225	92	6.8	Scales							

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5	SF0511	28-Sep-20	1	MNWH	SF0511-226	85	5.9								
5	SF0511	28-Sep-20	1	MNWH	SF0511-227	88	4.9								
5	SF0511	28-Sep-20	1	MNWH	SF0511-228	83	4.3								
5	SF0511	28-Sep-20	1	MNWH	SF0511-229	81	3.3								
5	SF0511	28-Sep-20	1	ARGR	SF0511-230	101	6.4	Scales		No					
5	SF0511	28-Sep-20	1	MNWH	SF0511-231	59	1.3	Scales		No					
5	SF0511	28-Sep-20	1	MNWH	SF0511-232	152	32								
5	SF0511	28-Sep-20	1	MNWH	SF0511-233	94	5.6								
5	SF0511	28-Sep-20	1	SLSC	SF0511-234	72	3.3								
5	SF0511	28-Sep-20	1	SLSC	SF0511-235	50	1								
5	SF0511	28-Sep-20	1	TRPR	SF0511-236	55	1.3								
5	SF0511	28-Sep-20	1	SLSC	SF0511-237	46	0.7								
5	SF0511	28-Sep-20	1	SLSC	SF0511-238	55	1.4								
5	SF0511	28-Sep-20	1	SLSC	SF0511-239	56	0.6								
5	SF0511	28-Sep-20	1	SLSC	SF0511-240	54	1.2								
5	SF0511	28-Sep-20	1	SLSC	SF0511-241	57	1.9								
5	SF0511	28-Sep-20	1	SLSC	SF0511-242	54	0.8								
5	SF0511	28-Sep-20	1	SLSC	SF0511-243	57	1.3								
5	SF0511	28-Sep-20	1	SLSC	SF0511-244	58	1.6								
5	SF0511	28-Sep-20	1	SLSC	SF0511-245	38	0.2								
5	SF0511	28-Sep-20	1	SLSC	SF0511-246	55	1								
5	SF0511	28-Sep-20	1	SLSC	SF0511-247	52	0.6								
5	SF0511	28-Sep-20	1	SLSC	SF0511-248	45	0.5								
5	SF0511	28-Sep-20	1	SLSC	SF0511-249	60	2.2								
5	SF0512	28-Sep-20	1	LSSC	SF0512-250	551	1800		982126057511834	New	TL				
5	SF0512	28-Sep-20	1	LNSC	SF0512-251	442	1048		982126057511806	New					
5	SF0512	28-Sep-20	1	MNWH	SF0512-252	324	328		900230000204458	Existing					
5	SF0512	28-Sep-20	1	MNWH	SF0512-253	270	206		900228000591438	Existing					
5	SF0512	28-Sep-20	1	NRPK	SF0512-254	211	71								
5	SF0512	28-Sep-20	1	KOKA	SF0512-255	184	58	Scales			CH				
5	SF0512	28-Sep-20	1	MNWH	SF0512-257	86	2.8								
5	SF0512	28-Sep-20	1	MNWH	SF0512-258	146	27								
5	SF0512	28-Sep-20	1	MNWH	SF0512-259	88	2.5								
5	SF0512	28-Sep-20	1	MNWH	SF0512-260	132	18								
5	SF0512	28-Sep-20	1	MNWH	SF0512-261	95	4								
5	SF0512	28-Sep-20	1	SLSC	SF0512-262	66	3.8								
5	SF0512	28-Sep-20	1	MNWH	SF0512-263	85	4								
5	SF0512	28-Sep-20	1	MNWH	SF0512-264	148	34								
5	SF0512	28-Sep-20	1	SLSC	SF0512-265	76	4								
5	SF0512	28-Sep-20	1	SLSC	SF0512-266	61	2.5								
5	SF0512	28-Sep-20	1	SLSC	SF0512-267	68	4.5								
5	SF0512	28-Sep-20	1	SLSC	SF0512-268	82	7.3								

Study Unit Number	Site Label	Sample Date	Count	Species*	Fish ID	Fork Length (mm)	Weight (g)	Age Structure(s) Collected	PIT Tag Code	PIT Tag?	DELT	Genetics	Methylmercury	Stable Isotope	Microchemistry
5	SF0512	28-Sep-20	1	SLSC	SF0512-269	51	1.7								
5	SF0512	28-Sep-20	1	SLSC	SF0512-270	57	1.4								
5	SF0512	28-Sep-20	1	SLSC	SF0512-271	70	3.7								
5	SF0512	28-Sep-20	1	SLSC	SF0512-272	73	5.1								
5	SF0512	28-Sep-20	1	SLSC	SF0512-273	67	3								
5	SF0512	28-Sep-20	1	SLSC	SF0512-274	47	0.5								
5	SF0512	28-Sep-20	1	SLSC	SF0512-275	43	0.5								
5	SF0512	28-Sep-20	1	SLSC	SF0512-277	55	1								
5	SF0512	28-Sep-20	1	MNWH	SF0512-278	120	16								
5	SF0512	28-Sep-20	1	SLSC	SF0512-279	90	9.1								
5	SF0512	28-Sep-20	1	SLSC	SF0512-280	62	2.2								
5	SF0512	28-Sep-20	1	SLSC	SF0512-281	59	1.9								
5	SF0512	28-Sep-20	1	MNWH	SF0512-282	88	6.6								
5	SF0512	28-Sep-20	1	SLSC	SF0512-283	36									
5	SF0512	28-Sep-20	1	SLSC	SF0512-284	85	6.5								
5	SF0512	28-Sep-20	1	MNWH	SF0512-285	77	2.4								
5	SF0512	28-Sep-20	1	SLSC	SF0512-286	77									
5	SF0512	28-Sep-20	1	SLSC	SF0512-287	67	2								
5	SF0512	28-Sep-20	1	SLSC	SF0512-288	50	1								
5	SF0512	28-Sep-20	1	SLSC	SF0512-289	65	2.7								
5	SF0512	28-Sep-20	1	SLSC	SF0512-290	59	1.4								
5	SF0512	28-Sep-20	1	RDSH	SF0512-291	51	0.4					Yes	Yes	Yes	
5	SF0513	28-Sep-20	1	NRPK	SF0513-292	568	1400		900230000078106	Existing					
5	SF0513	28-Sep-20	1	MNWH	SF0513-293	280	267								
5	SF0513	28-Sep-20	1	MNWH	SF0513-294	293	283	Scales	982126057458387	New					
5	SF0513	28-Sep-20	1	MNWH	SF0513-295	259	205	Scales	982126057458316	New					
5	SF0513	28-Sep-20	1	MNWH	SF0513-296	298	287	Scales	982126057458301	New					
5	SF0513	28-Sep-20	1	MNWH	SF0513-297	301	305	Scales	982126057458344	New					
5	SF0513	28-Sep-20	1	MNWH	SF0513-298	286	243	Scales	982126057458360	New					
5	SF0513	28-Sep-20	1	MNWH	SF0513-299	204	96	Scales	982091062634971	New					
5	SF0513	28-Sep-20	1	MNWH	SF0513-300	181	56								
5	SF0513	28-Sep-20	1	MNWH	SF0513-301	173	58								
5	SF0513	28-Sep-20	1	MNWH	SF0513-302	130	22								
5	SF0513	28-Sep-20	1	SPSH	SF0513-303	36	0.1								
5	SF0513	28-Sep-20	1	SPSH	SF0513-304	37	0.1								
5	SF0513	28-Sep-20	1	LNSC	SF0513-305	287	373		982126057458370	New					
5	SF0513	28-Sep-20	1	MNWH	SF0513-306	194	71								
5	SF0513	28-Sep-20	1	MNWH	SF0513-307	91	7.7								
5	SF0513	28-Sep-20	1	ARGR	SF0513-308	103	12	Scales							
5	SF0513	28-Sep-20	1	WHSC	SF0513-309	50	0.2								
5	SF0513	28-Sep-20	1	SLSC	SF0513-310	77	3.3								
5	SF0513	28-Sep-20	1	SLSC	SF0513-311	62	1								

Study Unit Number	Site Label	Sample Date	Count	Species*	Fish ID	Fork Length (mm)	Weight (g)	Age Structure(s) Collected	PIT Tag Code	PIT Tag?	DELT	Genetics	Methylmercury	Stable Isotope	Microchemistry
5	SF0513	28-Sep-20	1	SLSC	SF0513-312	54	0.6								
5	SF0513	28-Sep-20	1	SLSC	SF0513-313	60	0.5								
5	SF0513	28-Sep-20	1	SLSC	SF0513-314	52	0.3								
5	SF0513	28-Sep-20	1	SLSC	SF0513-315	68	2.5								
5	SF0513	28-Sep-20	1	SLSC	SF0513-316	74	4.1								
5	SF0513	28-Sep-20	1	SLSC	SF0513-317	61	3.2								
5	SF0513	28-Sep-20	1	SLSC	SF0513-318	73									
5	SF0513	28-Sep-20	1	SLSC	SF0513-319	55	1								
5	SF0513	28-Sep-20	1	SLSC	SF0513-320	49	0.5								
5	SF0513	28-Sep-20	1	SLSC	SF0513-321	78									
5	SF0513	28-Sep-20	1	SLSC	SF0513-322	68	1.4								
5	SF0513	28-Sep-20	1	SUCK	SF0513-323	50									
5	SF0513	28-Sep-20	1	SLSC	SF0513-324	50									
5	SF0513	28-Sep-20	1	SLSC	SF0513-325	49									
5	SF0513	28-Sep-20	1	SLSC	SF0513-326	71	1.8								
5	SF0520	28-Sep-20	1	WALL	SF0520-124	380	576		900230000204414	Existing					
5	SF0520	28-Sep-20	1	MNWH	SF0520-125	183	67	Scales							
5	SF0520	28-Sep-20	1	MNWH	SF0520-126	275	214	Scales	982091062634929	New					
5	SF0520	28-Sep-20	1	MNWH	SF0520-127	293		Scales	982091062634894	New					
5	SF0520	28-Sep-20	1	MNWH	SF0520-128	290	276	Scales	982091062634973	New					
5	SF0520	28-Sep-20	1	MNWH	SF0520-129	212	100	Scales	982091062634939	New					
5	SF0520	28-Sep-20	1	ARGR	SF0520-130	93	8	Scales							
5	SF0520	28-Sep-20	1	MNWH	SF0520-131	129	23	Scales							
5	SF0520	28-Sep-20	1	MNWH	SF0520-132	149	31	Scales							
5	SF0520	28-Sep-20	1	MNWH	SF0520-133	82	2.7	Scales							
5	SF0520	28-Sep-20	1	ARGR	SF0520-134	100	5.1	Scales							
5	SF0520	28-Sep-20	1	RDSH	SF0520-135	91	8.1					Yes	Yes	Yes	
5	SF0520	28-Sep-20	1	MNWH	SF0520-136	76	3.5								
5	SF0520	28-Sep-20	1	MNWH	SF0520-137	133	22								
5	SF0520	28-Sep-20	1	MNWH	SF0520-138	82	3.1								
5	SF0520	28-Sep-20	1	TRPR	SF0520-139	73	4								
5	SF0520	28-Sep-20	1	SLSC	SF0520-140	74	3.4					Yes			
5	SF0520	28-Sep-20	1	PRSC	SF0520-141	52	1.3					Yes			
5	SF0520	28-Sep-20	1	SLSC	SF0520-142	78	3.6					Yes			
5	SF0520	28-Sep-20	1	SLSC	SF0520-143	55	1.5					Yes			
5	SF0520	28-Sep-20	1	SLSC	SF0520-144	60	1.6								
5	SF0520	28-Sep-20	1	SLSC	SF0520-145	67	3								
5	SF0520	28-Sep-20	1	SLSC	SF0520-146	50	1								
5	SF0520	28-Sep-20	1	SLSC	SF0520-147	70	3.4								
5	SF0520	28-Sep-20	1	SLSC	SF0520-148	50	1.6								
5	SF0520	28-Sep-20	1	SLSC	SF0520-149	67	2.4								
5	SF0520	28-Sep-20	1	SLSC	SF0520-150	52	1.1								

Study Unit Number	Site Label	Sample Date	Count	Species*	Fish ID	Fork Length (mm)	Weight (g)	Age Structure(s) Collected	PIT Tag Code	PIT Tag?	DELT	Genetics	Methylmercury	Stable Isotope	Microchemistry
7	BS0707	29-Sep-20	1	SCUL	BS0707-181	20									
7	BS0707	29-Sep-20	1	SPSC	BS0707-182	35	0.2								
7	BS0707	29-Sep-20	1	WHSC	BS0707-183	43									
7	BS0707	29-Sep-20	1	WHSC	BS0707-184	31	0.4								
7	BS0707	29-Sep-20	1	MINN	BS0707-185	22									
7	BS0707	29-Sep-20	1	MINN	BS0707-186	29									
7	BS0707	29-Sep-20	1	MINN	BS0707-187	19									
7	BS0707	29-Sep-20	1	WHSC	BS0707-188	38	0.9								
7	BS0707	29-Sep-20	1	WHSC	BS0707-189	42	1.4								
7	BS0707	29-Sep-20	1	WHSC	BS0707-190	42									
7	BS0707	29-Sep-20	1	SCUL	BS0707-191	22									
7	BS0707	29-Sep-20	1	SCUL	BS0707-192	25									
7	BS0708	29-Sep-20	1	SUCK	BS0708-147										
7	BS0708	29-Sep-20	1	LNDC	BS0708-149	24	0.1								
7	BS0708	29-Sep-20	1	RDSH	BS0708-150	19	0.1								
7	BS0708	29-Sep-20	0	NFC											
7	BS0709	29-Sep-20	0	NFC											
7	BS0709	29-Sep-20	0	NFC											
7	BS0709	29-Sep-20	1	SLSC	BS0709-176	60	1.8					Yes			
7	BS0710	29-Sep-20	0	NFC											
7	BS0710	29-Sep-20	0	NFC											
7	BS0710	29-Sep-20	0	NFC											
7	EF0708	29-Sep-20	8	MINN											
7	EF0708	29-Sep-20	1	LNDC	EF0708-152	22	0.1					Yes			
7	EF0708	29-Sep-20	1	LNDC	EF0708-153	30	0.2					Yes			
7	EF0708	29-Sep-20	1	LSSC	EF0708-154	35									
7	EF0708	29-Sep-20	1	LNDC	EF0708-155	21									
7	EF0708	29-Sep-20	1	LNDC	EF0708-156	25									
7	EF0708	29-Sep-20	1	SUCK	EF0708-157	25									
7	EF0708	29-Sep-20	1	LKCH	EF0708-158	36									
7	EF0708	29-Sep-20	1	LNDC	EF0708-159	25									
7	EF0708	29-Sep-20	1	LNDC	EF0708-160	25						Yes			
7	EF0708	29-Sep-20	1	RDSH	EF0708-161	23									
7	EF0708	29-Sep-20	1	LNDC	EF0708-162	29									
7	EF0708	29-Sep-20	1	LNDC	EF0708-163	25									
7	EF0708	29-Sep-20	1	RDSH	EF0708-164	25									
7	EF0708	29-Sep-20	1	LNDC	EF0708-165	28									
7	EF0708	29-Sep-20	1	SLSC	EF0708-166	29									
7	EF0708	29-Sep-20	1	LNDC	EF0708-167	20									
7	EF0708	29-Sep-20	1	LNDC	EF0708-168	24									
7	EF0708	29-Sep-20	1	LNDC	EF0708-169	25									
7	EF0708	29-Sep-20	1	LNDC	EF0708-170	23									

Study Unit Number	Site Label	Sample Date	Count	Species*	Fish ID	Fork Length (mm)	Weight (g)	Age Structure(s) Collected	PIT Tag Code	PIT Tag?	DELT	Genetics	Methylmercury	Stable Isotope	Microchemistry
7	EF0708	29-Sep-20	1	LNDC	EF0708-171	26									
7	EF0708	29-Sep-20	1	LNDC	EF0708-172	20									
7	EF0708	29-Sep-20	1	LNDC	EF0708-173	28									
7	GN0701	29-Sep-20	0	NFC											
7	SF0706	29-Sep-20	1	MNWH	SF0706-419	329	281				CH				
7	SF0706	29-Sep-20	1	MNWH	SF0706-420	335	322								
7	SF0706	29-Sep-20	1	WALL	SF0706-421	358	474	Fin Rays	982126057458298	New					
7	SF0706	29-Sep-20	1	MNWH	SF0706-422	260	201	Scales	982091062634895	New					
7	SF0706	29-Sep-20	1	RNTR	SF0706-423	139	27	Scales				Yes			
7	SF0706	29-Sep-20	1	KOKA	SF0706-424	64	1.5	Scales							
7	SF0706	29-Sep-20	1	MNWH	SF0706-425	62	4.4								
7	SF0706	29-Sep-20	1	MNWH	SF0706-426	73	3.9								
7	SF0706	29-Sep-20	1	SLSC	SF0706-427	62	2.4								
7	SF0706	29-Sep-20	1	SLSC	SF0706-429	67									
7	SF0706	29-Sep-20	1	LNSC	SF0706-430	62	4.8								
7	SF0706	29-Sep-20	1	SLSC	SF0706-431	40									
7	SF0706	29-Sep-20	1	SLSC	SF0706-433	52									
7	SF0706	29-Sep-20	1	SLSC	SF0706-434	58									
7	SF0706	29-Sep-20	1	SLSC	SF0706-435	37									
7	SF0706	29-Sep-20	1	SLSC	SF0706-436	73	3.9								
7	SF0706	29-Sep-20	1	SLSC	SF0706-437	72	2.7								
7	SF0706	29-Sep-20	1	SLSC	SF0706-438	54									
7	SF0706	29-Sep-20	1	SLSC	SF0706-439	47									
7	SF0706	29-Sep-20	1	SLSC	SF0706-440	49									
7	SF0706	29-Sep-20	1	SLSC	SF0706-441	42									
7	SF0706	29-Sep-20	1	SLSC	SF0706-442	48									
7	SF0706	29-Sep-20	1	SLSC	SF0706-443	41									
7	SF0706	29-Sep-20	1	MNWH	SF0706-444	78	4.1								
7	SF0706	29-Sep-20	1	SLSC	SF0706-445	50									
7	SF0706	29-Sep-20	1	SLSC	SF0706-446	54									
7	SF0706	29-Sep-20	1	SLSC	SF0706-447	52									
7	SF0706	29-Sep-20	1	SLSC	SF0706-448	50									
7	SF0706	29-Sep-20	1	SLSC	SF0706-449	60									
7	SF0706	29-Sep-20	1	SPSC	SF0706-450	55	1.5								
7	SF0706	29-Sep-20	1	SLSC	SF0706-451	33									
7	SF0706	29-Sep-20	1	SLSC	SF0706-452	45									
7	SF0706	29-Sep-20	1	SLSC	SF706-453	44									
7	SF0706	29-Sep-20	1	SLSC	SF0706-454	52									
7	SF0704	29-Sep-20	1	LSSC	SF0704-455	480	1196		982126057511873	New					
7	SF0704	29-Sep-20	1	LNSC	SF0704-456	385	589		982126057511904	New					
7	SF0704	29-Sep-20	1	MNWH	SF0704-457	339	358		982091062634923	New					
7	SF0704	29-Sep-20	1	MNWH	SF0704-458	283	225	Scales	982126057511881	New					

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7	SF0704	29-Sep-20	1	MNWH	SF0704-459	332	296	Scales	982126057458376	New					
7	SF0704	29-Sep-20	1	MNWH	SF0704-460	236	135	Scales	982091062634927	New					
7	SF0704	29-Sep-20	1	LKCH	SF0704-461	79	5.1								
7	SF0704	29-Sep-20	1	MNWH	SF0704-462	315	327	Scales	982126057511891	New					
7	SF0704	29-Sep-20	1	LNSC	SF0704-463	289	262		982126057458372	New					
7	SF0704	29-Sep-20	1	MNWH	SF0704-464	135	27								
7	SF0704	29-Sep-20	1	MNWH	SF0704-465	130	27								
7	SF0704	29-Sep-20	1	LNSC	SF0704-466	127	29								
7	SF0704	29-Sep-20	1	LNSC	SF0704-467	245	173		982091062634938	New					
7	SF0704	29-Sep-20	1	LKCH	SF0704-468	54	1.8								
7	SF0704	29-Sep-20	1	SLSC	SF0704-469	54									
7	SF0704	29-Sep-20	1	SLSC	SF0704-470	53									
7	SF0704	29-Sep-20	1	SLSC	SF0704-471	48									
7	SF0704	29-Sep-20	1	SLSC	SF0704-472	63									
7	SF0704	29-Sep-20	1	LNSC	SF0704-473	62									
7	SF0704	29-Sep-20	1	SLSC	SF0704-474	54									
7	SF0704	29-Sep-20	1	SLSC	SF0704-475	70									
7	SF0704	29-Sep-20	1	FLCH	SF0704-476	85	5.1								
7	SF0704	29-Sep-20	1	LKCH	SF0704-477	63									
7	SF0704	29-Sep-20	1	SLSC	SF0704-478	62									
7	SF0704	29-Sep-20	1	MNWH	SF0704-479	134	28								
7	SF0704	29-Sep-20	1	SLSC	SF0704-480	52									
7	SF0704	29-Sep-20	1	SLSC	SF0704-481	44									
7	SF0704	29-Sep-20	1	SLSC	SF0704-482	50									
7	SF0704	29-Sep-20	1	TRPR	SF0704-483	68	3.1								
7	SF0704	29-Sep-20	9	SLSC											
7	SF0704	29-Sep-20	1	SLSC	SF0704-486	40									
7	SF0704	29-Sep-20	1	LKCH	SF0704-487	61									
7	SF0704	29-Sep-20	1	RDSH	SF0704-488	53						Yes	Yes	Yes	
7	SF0704	29-Sep-20	1	RDSH	SF0704-489	43						Yes	Yes	Yes	
7	SF0705	29-Sep-20	1	BLTR	SF0705-491	268	201		982126057458381	New					
7	SF0705	29-Sep-20	1	BLTR	SF0705-492	204	104	Fin Rays	982091062634897	New					
7	SF0705	29-Sep-20	1	MNWH	SF0705-493	327	288	Scales	982126057458388	New					
7	SF0705	29-Sep-20	1	LNSC	SF0705-494	230	148		982091062634962	New					
7	SF0705	29-Sep-20	1	MNWH	SF0705-495	345	281								
7	SF0705	29-Sep-20	1	LNSC	SF0705-496	182	69				CH				
7	SF0705	29-Sep-20	1	LNSC	SF0705-497	290	253		982091062634914	New					
7	SF0705	29-Sep-20	1	MNWH	SF0705-498	138	29								
7	SF0705	29-Sep-20	1	MNWH	SF0705-499	88	7.4								
7	SF0705	29-Sep-20	1	LNDC	SF0705-500	58									
7	SF0705	29-Sep-20	1	MNWH	SF0705-501	168	50								
7	SF0705	29-Sep-20	1	MNWH	SF0705-502	86	7.3								

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7	SF0707	29-Sep-20	1	WALL	SF0707-361	461	1342		981098106071345	Existing					
7	SF0707	29-Sep-20	1	WALL	SF0707-362	373	375	Fin Rays	982126057511814	New					
7	SF0707	29-Sep-20	1	LNSC	SF0707-363	421	790		982126057511820	New					
7	SF0707	29-Sep-20	1	MNWH	SF0707-364	325	279								
7	SF0707	29-Sep-20	1	MNWH	SF0707-365	233	118	Scales	982091062634911	New					
7	SF0707	29-Sep-20	1	MNWH	SF0707-366	263	182	Scales	982091062634879	New					
7	SF0707	29-Sep-20	1	MNWH	SF0707-367	236	115	Scales	982091062634892	New					
7	SF0707	29-Sep-20	1	FLCH	SF0707-368	95	10.6								
7	SF0707	29-Sep-20	1	MNWH	SF0707-369	283	236		900230000076771	Existing					
7	SF0707	29-Sep-20	1	NRPK	SF0707-370	248	98	Fin Rays	982091062634904	New					
7	SF0707	29-Sep-20	1	MNWH	SF0707-371	189	63								
7	SF0707	29-Sep-20	1	MNWH	SF0707-372	173	54								
7	SF0707	29-Sep-20	1	LSSC	SF0707-373	198	85								
7	SF0707	29-Sep-20	1	LNSC	SF0707-374	212	102		982091062634958	New					
7	SF0707	29-Sep-20	1	BLTR	SF0707-375	206	89	Fin Rays	982091062634906	New					
7	SF0707	29-Sep-20	1	MNWH	SF0707-376	133	26								
7	SF0707	29-Sep-20	1	MNWH	SF0707-377	77	3.4								
7	SF0707	29-Sep-20	1	LNSC	SF0707-378	113	16								
7	SF0707	29-Sep-20	1	SLSC	SF0707-379	66	1					Yes			
7	SF0707	29-Sep-20	1	SLSC	SF0707-380	45	0.3					Yes			
7	SF0707	29-Sep-20	1	LKCH	SF0707-381	56	0.25								
7	SF0707	29-Sep-20	1	SLSC	SF0707-382	27	0.1								
7	SF0707	29-Sep-20	1	TRPR	SF0707-383	67	5								
7	SF0707	29-Sep-20	1	MNWH	SF0707-384	83	7.7								
7	SF0707	29-Sep-20	1	SLSC	SF0707-385	69	3.9								
7	SF0707	29-Sep-20	1	SLSC	SF0707-386	51						Yes			
7	SF0707	29-Sep-20	1	SLSC	SF0707-387	62	1.2					Yes			
7	SF0707	29-Sep-20	1	SLSC	SF0707-388	49	0.8					Yes			
7	SF0707	29-Sep-20	1	SLSC	SF0707-389	65	1.4					Yes			
7	SF0707	29-Sep-20	1	SPSC	SF0707-390	74	2.7								
7	SF0707	29-Sep-20	1	SLSC	SF0707-391	51	0.4					Yes			
7	SF0707	29-Sep-20	1	SLSC	SF0707-392	47	0.3					Yes			
7	SF0707	29-Sep-20	1	SLSC	SF0707-393	57	0.7					Yes			
7	SF0707	29-Sep-20	1	SLSC	SF0707-394	42	0.5					Yes			
7	SF0707	29-Sep-20	1	SLSC	SF0707-395	46	0.4					Yes			
7	SF0707	29-Sep-20	1	SLSC	SF0707-396	75	3.4					Yes			
7	SF0707	29-Sep-20	1	SLSC	SF0707-397	78	2.7								
7	SF0707	29-Sep-20	1	SPSC	SF0707-398	60	2.1								
7	SF0707	29-Sep-20	1	SLSC	SF0707-399	62									
7	SF0707	29-Sep-20	1	SLSC	SF0707-400	52									
7	SF0707	29-Sep-20	1	SLSC	SF0707-401	47									
7	SF0707	29-Sep-20	1	SLSC	SF0707-402	51									

Study Unit Number	Site Label	Sample Date	Count	Species*	Fish ID	Fork Length (mm)	Weight (g)	Age Structure(s) Collected	PIT Tag Code	PIT Tag?	DELT	Genetics	Methylmercury	Stable Isotope	Microchemistry
7	SF0707	29-Sep-20	1	SLSC	SF0707-403	45									
7	SF0707	29-Sep-20	1	SLSC	SF0707-404	50									
7	SF0707	29-Sep-20	1	SLSC	SF0707-405	50									
7	SF0707	29-Sep-20	1	LNDC	SF0707-406	57									
7	SF0707	29-Sep-20	1	SLSC	SF0707-407	65									
7	SF0707	29-Sep-20	1	SLSC	SF0707-408	60									
7	SF0707	29-Sep-20	1	SLSC	SF0707-409	47									
7	SF0707	29-Sep-20	1	LSSC	SF0707-410	63									
7	SF0707	29-Sep-20	1	LNDC	SF0707-411	42									
7	SF0707	29-Sep-20	1	SPSC	SF0707-412	62									
7	SF0707	29-Sep-20	1	TRPR	SF0707-413	59									
7	SF0707	29-Sep-20	1	SPSC	SF0707-414	70									
7	SF0707	29-Sep-20	1	SLSC	SF0707-415	60									
7	SF0707	29-Sep-20	1	SLSC	SF0707-416	53									
7	SF0707	29-Sep-20	1	SLSC	SF0707-417	53									
7	SF0713	29-Sep-20	1	MNWH	SF0713-345	290	226	Scales	982126057511836	New					
7	SF0713	29-Sep-20	1	NRPK	SF0713-346	195	48	Fin Rays							
7	SF0713	29-Sep-20	1	NRPK	SF0713-347	178	39	Fin Rays							
7	SF0713	29-Sep-20	1	LKCH	SF0713-348	55	2.2								
7	SF0713	29-Sep-20	1	MNWH	SF0713-349	130	20	Scales							
7	SF0713	29-Sep-20	1	MNWH	SF0713-350	91	6.5	Scales							
7	SF0713	29-Sep-20	1	MNWH	SF0713-351	75	3	Scales							
7	SF0713	29-Sep-20	1	NRPK	SF0713-352	240	87		982091062634975	New					
7	SF0713	29-Sep-20	1	NRPK	SF0713-353	244	105	Fin Rays	982091062634916	New					
7	SF0713	29-Sep-20	1	LNSC	SF0713-354	206	107		900228000464019	Existing					
7	SF0713	29-Sep-20	1	ARGR	SF0713-355	103	10.8	Scales				Yes			
7	SF0713	29-Sep-20	1	MNWH	SF0713-356	85	4	Scales							
7	SF0713	29-Sep-20	1	MNWH	SF0713-357	116	14								
7	SF0713	29-Sep-20	1	MNWH	SF0713-358	77	2.8								
7	SF0713	29-Sep-20	1	SLSC	SF0713-359	48	0.4					Yes			
7	SF0713	29-Sep-20	1	SLSC	SF0713-360	42	0.2								
7	SF0714	29-Sep-20	1	MNWH	SF0714-327	294	243								
7	SF0714	29-Sep-20	1	MNWH	SF0714-328	376	390		900230000126568	Existing					
7	SF0714	29-Sep-20	1	NRPK	SF0714-329	205	61	Fin Rays	982091062634890	New					
7	SF0714	29-Sep-20	1	MNWH	SF0714-330	328	356	Scales	982126057458308	New					
7	SF0714	29-Sep-20	1	MNWH	SF0714-331	296	240	Scales	982126057458314	New					
7	SF0714	29-Sep-20	1	MNWH	SF0714-332	178	53	Scales							
7	SF0714	29-Sep-20	1	FLCH	SF0714-333	90	5.7								
7	SF0714	29-Sep-20	1	MNWH	SF0714-334	159	49	Scales							
7	SF0714	29-Sep-20	1	SLSC	SF0714-335	46	1					Yes			
7	SF0714	29-Sep-20	1	MNWH	SF0714-336	275	208	Scales	982126057458346	New					
7	SF0714	29-Sep-20	1	MNWH	SF0714-337	257	189	Scales	982126057458382	New					

Study Unit Number	Site Label	Sample Date	Count	Species*	Fish ID	Fork Length (mm)	Weight (g)	Age Structure(s) Collected	PIT Tag Code	PIT Tag?	DELT	Genetics	Methylmercury	Stable Isotope	Microchemistry
7	SF0714	29-Sep-20	1	SLSC	SF0714-338	51	0.5					Yes			
7	SF0714	29-Sep-20	1	SLSC	SF0714-339	45	0.3					Yes			
7	SF0714	29-Sep-20	1	SLSC	SF0714-340	48	0.4					Yes			
7	SF0714	29-Sep-20	1	SLSC	SF0714-341	66	1.3					Yes			
7	SF0714	29-Sep-20	1	SLSC	SF0714-342	51	0.4					Yes			
7	SF0714	29-Sep-20	1	SLSC	SF0714-343	56	0.5					Yes			
7	SF0714	29-Sep-20	1	SLSC	SF0714-344	46	0.3					Yes			
7	BS0703	30-Sep-20	0	NFC											
7	BS0703	30-Sep-20	0	NFC											
7	BS0703	30-Sep-20	1	MINN	BS0703-253	17									
7	BS0704	30-Sep-20	0	NFC											
7	BS0704	30-Sep-20	0	NFC											
7	BS0704	30-Sep-20	1	MINN	BS0704-257	14									
7	BS0712	30-Sep-20	1	WHSC	BS0712-263	32									
7	BS0712	30-Sep-20	1	KOKA	BS0712-264	64	1.5	Scales							
7	BS0712	30-Sep-20	1	SPSH	BS0712-261	20									
7	BS0712	30-Sep-20	1	SPSH	BS0712-262	23									
7	BS0712	30-Sep-20	1	SPSH	BS0712-258	23									
7	BS0712	30-Sep-20	1	SPSH	BS0712-259	23									
7	BS0712	30-Sep-20	1	SPSH	BS0712-260	24									
7	BS0714	30-Sep-20	1	MINN	BS0714-194	18	0								
7	BS0714	30-Sep-20	1	RDSH	BS0714-195	17									
7	BS0714	30-Sep-20	1	SLSC	BS0714-196	52	1.8					Yes			
7	BS0714	30-Sep-20	0	NFC											
7	EF0705	30-Sep-20	1	YLPR	EF0705-197	63	3.8								
7	EF0705	30-Sep-20	1	RDSH	EF0705-198	25									
7	EF0705	30-Sep-20	1	RDSH	EF0705-199	19									
7	EF0705	30-Sep-20	1	MINN	EF0705-200	17									
7	EF0705	30-Sep-20	1	LKCH	EF0705-201	51	1.1								
7	EF0705	30-Sep-20	1	LNDC	EF0705-202	17									
7	EF0705	30-Sep-20	1	LNDC	EF0705-203	29									
7	EF0705	30-Sep-20	1	MINN	EF0705-204	25									
7	EF0705	30-Sep-20	1	MINN	EF0705-205	18									
7	EF0705	30-Sep-20	1	LNDC	EF0705-206	22									
7	EF0705	30-Sep-20	1	LNDC	EF0705-207	20									
7	EF0705	30-Sep-20	1	LNDC	EF0705-208	13									
7	EF0705	30-Sep-20	1	LNDC	EF0705-209	24									
7	EF0705	30-Sep-20	1	LKCH	EF0705-210	85	9.4								
7	EF0705	30-Sep-20	5	MINN											
7	EF0705	30-Sep-20	1	LKCH	EF0705-213	75	4.4								
7	EF0705	30-Sep-20	1	LNDC	EF0705-214	21									
7	EF0705	30-Sep-20	3	MINN											

Study Unit Number	Site Label	Sample Date	Count	Species*	Fish ID	Fork Length (mm)	Weight (g)	Age Structure(s) Collected	PIT Tag Code	PIT Tag?	DELT	Genetics	Methylmercury	Stable Isotope	Microchemistry
7	EF0705	30-Sep-20	1	FLCH	EF0705-217	103	11.6								
7	EF0705	30-Sep-20	1	FLCH	EF0705-218	95	9.2								
7	EF0705	30-Sep-20	1	FLCH	EF0705-219	108	16.4								
7	EF0705	30-Sep-20	6	MINN											
7	EF0705	30-Sep-20	9	LNDC											
7	EF0705	30-Sep-20	1	LKCH	EF0705-223	80	6								
7	EF0705	30-Sep-20	1	LKCH	EF0705-224	56									
7	EF0705	30-Sep-20	1	MINN	EF0705-225	20									
7	EF0705	30-Sep-20	1	LNDC	EF0705-226	15									
7	EF0705	30-Sep-20	1	RDSH	EF0705-227	18									
7	EF0705	30-Sep-20	1	TRPR	EF0705-228	31	0.6								
7	EF0705	30-Sep-20	1	FLCH	EF0705-229	62	1.6								
7	EF0705	30-Sep-20	1	SPSH	EF0705-230	32									
7	EF0705	30-Sep-20	1	LKCH	EF0705-231	60									
7	EF0705	30-Sep-20	1	LKCH	EF0705-232	79	4.2								
7	EF0705	30-Sep-20	1	FLCH	EF0705-233	86	6.6								
7	EF0705	30-Sep-20	1	LKCH	EF0705-234	87	7.6								
7	EF0705	30-Sep-20	1	FLCH	EF0705-235	90	6.2								
7	EF0705	30-Sep-20	1	SUCK	EF0705-236	29									
7	EF0705	30-Sep-20	1	LNDC	EF0705-237	20									
7	EF0705	30-Sep-20	1	MINN	EF0705-238										
7	EF0705	30-Sep-20	3	LNDC											
7	EF0705	30-Sep-20	1	FLCH	EF0705-240	22	0.1								
7	EF0705	30-Sep-20	1	SLSC	EF0705-241	55	1.2					Yes			
7	EF0705	30-Sep-20	1	SLSC	EF0705-242	54	0.9					Yes			
7	EF0705	30-Sep-20	1	RDSH	EF0705-243	50	1.3					Yes	Yes	Yes	
7	EF0705	30-Sep-20	1	LNDC	EF0705-244	22									
7	EF0705	30-Sep-20	1	LNDC	EF0705-245	18									
7	EF0705	30-Sep-20	1	LNDC	EF0705-246	18						Yes			
7	EF0705	30-Sep-20	1	LKCH	EF0705-247	86	6.5								
7	EF0705	30-Sep-20	1	LKCH	EF0705-248	76	5.9								
7	EF0705	30-Sep-20	1	MINN	EF0705-249	17									
7	EF0705	30-Sep-20	1	LNDC	EF0705-250	28						Yes			
7	EF0706	30-Sep-20	1	SLSC	EF0706-265	65	3.1					Yes			
7	EF0706	30-Sep-20	1	SLSC	EF0706-266	55	2.1					Yes			
7	EF0706	30-Sep-20	1	SLSC	EF0706-267	64	2.1					Yes			
7	EF0706	30-Sep-20	1	SLSC	EF0706-268	46	1.7					Yes			
7	EF0706	30-Sep-20	1	SLSC	EF0706-269	56	1.8					Yes			
7	EF0706	30-Sep-20	1	SLSC	EF0706-270	70	3.6					Yes			
7	EF0706	30-Sep-20	1	LNDC	EF0706-271	28						Yes			
7	EF0706	30-Sep-20	1	SLSC	EF0706-272	80	5.9					Yes			
7	EF0706	30-Sep-20	1	BURB	EF0706-273	97	5.1								

Study Unit Number	Site Label	Sample Date	Count	Species*	Fish ID	Fork Length (mm)	Weight (g)	Age Structure(s) Collected	PIT Tag Code	PIT Tag?	DELT	Genetics	Methylmercury	Stable Isotope	Microchemistry
7	EF0706	30-Sep-20	1	SLSC	EF0706-274	82	7.7					Yes			
7	EF0706	30-Sep-20	1	SLSC	EF0706-275	41	0.9					Yes			
7	EF0706	30-Sep-20	1	SPSC	EF0706-276	72	3.6								
7	EF0706	30-Sep-20	1	SLSC	EF0706-277	52	1.5					Yes			
7	EF0706	30-Sep-20	1	SLSC	EF0706-278	60	2.2					Yes			
7	EF0706	30-Sep-20	1	SLSC	EF0706-279	55	1.2					Yes			
7	EF0706	30-Sep-20	1	SLSC	EF0706-280	60	2.1					Yes			
7	EF0706	30-Sep-20	1	SLSC	EF0706-281	59	2.2					Yes			
7	EF0706	30-Sep-20	1	SLSC	EF0706-282	48						Yes			
7	EF0706	30-Sep-20	1	SLSC	EF0706-283	55	2					Yes			
7	EF0706	30-Sep-20	1	SLSC	EF0706-284	62						Yes			
7	EF0706	30-Sep-20	1	SLSC	EF0706-285	45									
7	EF0706	30-Sep-20	1	SLSC	EF0706-286	66						Yes			
7	EF0706	30-Sep-20	1	SLSC	EF0706-287	48									
7	EF0706	30-Sep-20	1	SLSC	EF0706-288	54						Yes			
7	EF0706	30-Sep-20	7	SLSC											
7	EF0706	30-Sep-20	1	RNTR	EF0706-290	55	1.8	Scales		No		Yes			
7	EF0706	30-Sep-20	10	SLSC											
7	EF0706	30-Sep-20	1	SLSC	EF0706-292	42						Yes			
7	EF0709	30-Sep-20	1	SLSC	EF0709-293	68						Yes			
7	EF0709	30-Sep-20	1	SLSC	EF0709-294	62						Yes			
7	EF0709	30-Sep-20	1	SLSC	EF0709-295	69						Yes			
7	EF0709	30-Sep-20	1	SLSC	EF0709-296	60						Yes			
7	EF0709	30-Sep-20	1	FNDC	EF0709-297	60									
7	EF0709	30-Sep-20	13	SLSC											
7	EF0709	30-Sep-20	13	SLSC											
7	EF0709	30-Sep-20	1	LNDC	EF0709-300	27						Yes			
7	EF0709	30-Sep-20	1	SPSH	EF0709-301	45									
7	EF0709	30-Sep-20	1	WHSC	EF0709-302	54									
7	EF0709	30-Sep-20	1	SLSC	EF0709-303	35									
7	EF0709	30-Sep-20	1	LNDC	EF0709-304	29									
7	EF0709	30-Sep-20	1	LNDC	EF0709-305	19									
7	EF0709	30-Sep-20	1	LNDC	EF0709-306	21									
7	EF0709	30-Sep-20	1	SUCK	EF0709-307	24									
7	EF0709	30-Sep-20	1	SUCK	EF0709-308	20									
7	EF0709	30-Sep-20	1	MINN	EF0709-309	25									
7	EF0709	30-Sep-20	1	SCUL	EF0709-310	24									
7	EF0709	30-Sep-20	1	SUCK	EF0709-311	26									
7	EF0709	30-Sep-20	1	LNDC	EF0709-312	21						Yes			
7	EF0709	30-Sep-20	1	SLSC	EF0709-313	45						Yes			
7	SB09	30-Sep-20	1	MNWH	SB09-541	344			900230000204772	Existing					
7	SB09	30-Sep-20	1	MNWH	SB09-542	327	295		900230000080731	Existing					

Study Unit Number	Site Label	Sample Date	Count	Species*	Fish ID	Fork Length (mm)	Weight (g)	Age Structure(s) Collected	PIT Tag Code	PIT Tag?	DELT	Genetics	Methylmercury	Stable Isotope	Microchemistry
7	SB09	30-Sep-20	1	KOKA	SB09-543	50		Scales							
7	SB09	30-Sep-20	1	FLCH	SB09-544	112	14								
7	SB09	30-Sep-20	1	FLCH	SB09-545	104	12								
7	SB09	30-Sep-20	1	SLSC	SB09-546	63	3.1					Yes			
7	SB09	30-Sep-20	1	LKCH	SB09-547	73									
7	SF0703	30-Sep-20	1	MNWH	SF0703-549	193	69								
7	SF0703	30-Sep-20	1	MNWH	SF0703-550	95	6.5								
7	SF0703	30-Sep-20	1	MNWH	SF0703-551	133	22								
7	SF0703	30-Sep-20	1	MNWH	SF0703-552	142	25								
7	SF0703	30-Sep-20	1	MNWH	SF0703-553	73	3.4								
7	SF0703	30-Sep-20	1	MNWH	SF0703-554	133	23								
7	SF0703	30-Sep-20	1	SLSC	SF0703-555	65	3.2					Yes			
7	SF0703	30-Sep-20	1	SLSC	SF0703-556	76	4.3					Yes			
7	SF0703	30-Sep-20	1	SLSC	SF0703-557	58						Yes			
7	SF0703	30-Sep-20	1	SLSC	SF0703-558	56						Yes			
7	SF0703	30-Sep-20	1	SLSC	SF0703-559	59						Yes			
7	SF0703	30-Sep-20	1	SLSC	SF0703-560	55						Yes			
7	SF0703	30-Sep-20	1	SPSC	SF0703-561	70									
7	SF0703	30-Sep-20	1	SLSC	SF0703-562	62						Yes			
7	SF0703	30-Sep-20	1	SLSC	SF0703-563	51						Yes			
7	SF0703	30-Sep-20	1	SLSC	SF0703-564	47						Yes			
7	SF0708	30-Sep-20	1	LSSC	SF0708-565	313	309		982126057458328	New					
7	SF0708	30-Sep-20	1	NRPK	SF0708-566	233	100	Fin Rays	982091062634893	New					
7	SF0708	30-Sep-20	1	LNSC	SF0708-567	241	171		982091062634967	New					
7	SF0708	30-Sep-20	1	LNSC	SF0708-568	215	111		982126057458304	New					
7	SF0708	30-Sep-20	1	LNSC	SF0708-569	199	97								
7	SF0708	30-Sep-20	1	LNSC	SF0708-570	211	95		982091062634954	New					
7	SF0708	30-Sep-20	1	LNSC	SF0708-571	178	63								
7	SF0708	30-Sep-20	1	LNSC	SF0708-572	155	43								
7	SF0708	30-Sep-20	1	LNSC	SF0708-573	91	9.2								
7	SF0708	30-Sep-20	1	LSSC	SF0708-574	173	66								
7	SF0708	30-Sep-20	1	LNSC	SF0708-575	162	52								
7	SF0708	30-Sep-20	1	LNSC	SF0708-576	136	32								
7	SF0708	30-Sep-20	1	MNWH	SF0708-577	71	3.4								
7	SF0708	30-Sep-20	1	LKCH	SF0708-578	55									
7	SF0708	30-Sep-20	1	MNWH	SF0708-579	82	5.6								
7	SF0708	30-Sep-20	1	LKCH	SF0708-580	56	1.7								
7	SF0708	30-Sep-20	1	MNWH	SF0708-581	78	4.4								
7	SF0708	30-Sep-20	1	LKCH	SF0708-582	66	2.2								
7	SF0708	30-Sep-20	1	LKCH	SF0708-583	70	3.1								
7	SF0708	30-Sep-20	1	MNWH	SF0708-584	83	5.1								
7	SF0708	30-Sep-20	1	LNSC	SF0708-585	70	3.5								

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7	SF0708	30-Sep-20	1	TRPR	SF0708-586	47									
7	SF0708	30-Sep-20	1	TRPR	SF0708-587	62	3.3								
7	SF0708	30-Sep-20	1	SLSC	SF0708-588	57						Yes			
7	SF0708	30-Sep-20	1	SLSC	SF0708-589	48						Yes			
7	SF0708	30-Sep-20	1	SLSC	SF0708-590	59						Yes			
7	SF0708	30-Sep-20	1	SLSC	SF0708-591	63						Yes			
7	SF0708	30-Sep-20	1	SLSC	SF0708-592	57						Yes			
7	SF0708	30-Sep-20	1	SLSC	SF0708-593	51						Yes			
7	SF0708	30-Sep-20	1	TRPR	SF0708-594	48	0.9								
7	SF0708	30-Sep-20	1	RDSH	SF0708-595	33	0.2					Yes	Yes	Yes	
7	SF0709	30-Sep-20	1	LNSC	SF0709-596	419	830								
7	SF0709	30-Sep-20	1	MNWH	SF0709-597	297	300								
7	SF0709	30-Sep-20	1	MNWH	SF0709-598	303	306								
7	SF0709	30-Sep-20	1	LNSC	SF0709-599	390	717								
7	SF0709	30-Sep-20	1	MNWH	SF0709-600	308	276								
7	SF0709	30-Sep-20	1	MNWH	SF0709-601	332	299								
7	SF0709	30-Sep-20	1	MNWH	SF0709-602	345	390				CL				
7	SF0709	30-Sep-20	1	MNWH	SF0709-603	205	87								
7	SF0709	30-Sep-20	1	NRPK	SF0709-604	290	172	Fin Rays	982126057458335	New					
7	SF0709	30-Sep-20	1	NRPK	SF0709-605	169	32	Fin Rays							
7	SF0709	30-Sep-20	1	TRPR	SF0709-606	45									
7	SF0709	30-Sep-20	1	MNWH	SF0709-607	320	292		900026000054808	Existing					
7	SF0709	30-Sep-20	1	LNSC	SF0709-608	400	811								
7	SF0709	30-Sep-20	1	LNSC	SF0709-609	331	391								
7	SF0709	30-Sep-20	1	LNSC	SF0709-610	405	815								
7	SF0709	30-Sep-20	1	MNWH	SF0709-611	329	369		981098104941851	Existing					
7	SF0709	30-Sep-20	1	LSSC	SF0709-612	186	79								
7	SF0709	30-Sep-20	1	LSSC	SF0709-613	217	127								
7	SF0709	30-Sep-20	1	PRSC	SF0709-614	133	36					Yes			
7	SF0709	30-Sep-20	1	MNWH	SF0709-615	325	248								
7	SF0709	30-Sep-20	1	MNWH	SF0709-616	275	235								
7	SF0709	30-Sep-20	1	LNSC	SF0709-617	175	58								
7	SF0709	30-Sep-20	1	BLTR	SF0709-618	255	173	Fin Rays	982091062634942	New		Yes			
7	SF0709	30-Sep-20	1	MNWH	SF0709-619	133	32								
7	SF0709	30-Sep-20	1	LKCH	SF0709-620	88	10.1								
7	SF0709	30-Sep-20	1	SLSC	SF0709-621	76	5.1					Yes			
7	SF0709	30-Sep-20	1	SLSC	SF0709-622	48						Yes			
7	SF0710	30-Sep-20	1	MNWH	SF0710-623	271	211	Scales	982091062634884	New					
7	SF0710	30-Sep-20	1	MNWH	SF0710-624	71	3.4								
7	SF0710	30-Sep-20	1	MNWH	SF0710-625	61	3.5								
7	SF0710	30-Sep-20	1	LKCH	SF0710-626	63	4.2								
7	SF0710	30-Sep-20	1	MNWH	SF0710-627	68	5.2								

Study Unit Number	Site Label	Sample Date	Count	Species*	Fish ID	Fork Length (mm)	Weight (g)	Age Structure(s) Collected	PIT Tag Code	PIT Tag?	DELT	Genetics	Methylmercury	Stable Isotope	Microchemistry
7	SF0710	30-Sep-20	1	KOKA	SF0710-628	62	2.8	Scales		No					
7	SF0710	30-Sep-20	1	LSSC	SF0710-629	273	232		982091062634943	New					
7	SF0715	30-Sep-20	1	WALL	SF0715-503	340	424	Fin Rays	982126057458386	New					
7	SF0715	30-Sep-20	1	BLTR	SF0715-505	235	138	Fin Rays	982091062634970	New		Yes			
7	SF0715	30-Sep-20	1	MNWH	SF0715-506	262	153	Scales	982126057458361	New					
7	SF0715	30-Sep-20	1	LNSC	SF0715-507	143	28								
7	SF0715	30-Sep-20	1	MNWH	SF0715-508	80	2								
7	SF0715	30-Sep-20	1	KOKA	SF0715-509	130		Scales							
7	SF0715	30-Sep-20	1	MNWH	SF0715-510	83	11								
7	SF0715	30-Sep-20	1	MNWH	SF0715-511	96	7								
7	SF0715	30-Sep-20	1	MNWH	SF0715-512	80	3.6								
7	SF0715	30-Sep-20	1	MNWH	SF0715-513	85	3.8								
7	SF0715	30-Sep-20	1	TRPR	SF0715-514	84	10.1								
7	SF0715	30-Sep-20	1	SLSC	SF0715-515	62	3.4					Yes			
7	SF0715	30-Sep-20	1	SLSC	SF0715-516	56	1.5					Yes			
7	SF0715	30-Sep-20	1	MNWH	SF0715-517	80	4								
7	SF0715	30-Sep-20	1	MNWH	SF0715-518	78	3.7								
7	SF0715	30-Sep-20	1	MNWH	SF0715-519	85	6								
7	SF0715	30-Sep-20	1	MNWH	SF0715-520	83	6.4								
7	SF0715	30-Sep-20	1	ARGR	SF0715-521	99	10	Scales				Yes			
7	SF0715	30-Sep-20	1	LNSC	SF0715-522	68	2.9								
7	SF0715	30-Sep-20	1	TRPR	SF0715-523	63	3								
7	SF0715	30-Sep-20	1	TRPR	SF0715-524	43									
7	SF0715	30-Sep-20	1	TRPR	SF0715-525	41									
7	SF0715	30-Sep-20	1	MNWH	SF0715-527	73									
7	SF0715	30-Sep-20	1	MNWH	SF0715-528	86	7.1								
7	SF0715	30-Sep-20	1	SLSC	SF0715-529	87	3.7					Yes			
7	SF0715	30-Sep-20	1	SLSC	SF0715-530	55	1.8					Yes			
7	SF0715	30-Sep-20	1	SLSC	SF0715-531	75	3.7					Yes			
7	SF0715	30-Sep-20	1	SLSC	SF0715-532	53	1.2					Yes			
7	SF0715	30-Sep-20	1	SLSC	SF0715-533	57	1.8					Yes			
7	SF0715	30-Sep-20	1	SLSC	SF0715-534	62	1.8					Yes			
7	SF0715	30-Sep-20	1	SLSC	SF0715-535	53	1.2					Yes			
7	SF0715	30-Sep-20	1	SLSC	SF0715-536	65	2.4					Yes			
7	SF0715	30-Sep-20	1	SLSC	SF0715-537	50	1					Yes			
7	SF0715	30-Sep-20	1	SLSC	SF0715-538	42	0.6					Yes			
7	SF0715	30-Sep-20	1	TRPR	SF0715-539	47									
7	SF0715	30-Sep-20	1	SLSC	SF0715-540	54	0.9					Yes			
9	SF0901	01-Oct-20	1	LNSC	SF0901-630	397	756		900228000587184	Existing	EH				
9	SF0901	01-Oct-20	1	MNWH	SF0901-631	365	366		981098106068450	Existing					
9	SF0901	01-Oct-20	1	LNSC	SF0901-632	236	178		982126057458327	New					
9	SF0901	01-Oct-20	1	LNSC	SF0901-633	172	65								

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9	SF0901	01-Oct-20	1	LNSC	SF0901-634	231	142		982091062634972	New					
9	SF0901	01-Oct-20	1	SPSH	SF0901-635	67	3.6								
9	SF0901	01-Oct-20	1	LNSC	SF0901-636	246	207		982126057458357	New					
9	SF0901	01-Oct-20	1	LNSC	SF0901-637	152	52								
9	SF0901	01-Oct-20	1	MNWH	SF0901-638	134	23	Scales							
9	SF0901	01-Oct-20	1	MNWH	SF0901-639	124	24	Scales							
9	SF0901	01-Oct-20	1	SPSC	SF0901-640	73	3.6								
9	SF0901	01-Oct-20	1	LNSC	SF0901-641	231	144		982091062634917	New					
9	SF0901	01-Oct-20	1	LNSC	SF0901-642	204	109		982091062634887	New					
9	SF0901	01-Oct-20	1	LNSC	SF0901-643	172	66								
9	SF0901	01-Oct-20	1	LSSC	SF0901-644	167	60								
9	SF0901	01-Oct-20	1	LNSC	SF0901-645	218	146		982091062634918	New					
9	SF0901	01-Oct-20	1	LNSC	SF0901-646	199	100								
9	SF0901	01-Oct-20	1	LNSC	SF0901-647	174	68								
9	SF0901	01-Oct-20	1	LNSC	SF0901-648	225	148		982091062634944	New					
9	SF0901	01-Oct-20	1	SLSC	SF0901-649	46									
9	SF0901	01-Oct-20	1	LNDC	SF0901-650	60	1.7								
9	SF0902	01-Oct-20	1	ARGR	SF0902-651	93	8.4	Scales							
9	SF0902	01-Oct-20	1	KOKA	SF0902-652	137	29	Scales							
9	SF0902	01-Oct-20	1	LNSC	SF0902-653	153	42								
9	SF0903	01-Oct-20	1	LKCH	SF0903-654	58	1.7								
9	SF0903	01-Oct-20	1	LNSC	SF0903-655	76	3.1								
9	SF0903	01-Oct-20	1	LNSC	SF0903-656	84	6.5				CL				
9	SF0903	01-Oct-20	1	WHSC	SF0903-657	74	3.7								
9	SF0903	01-Oct-20	1	MNWH	SF0903-658	57	1.9								
9	SF0903	01-Oct-20	1	LKCH	SF0903-659	75	4.4								
9	SF0903	01-Oct-20	1	LNSC	SF0903-660	72	3.5								
9	SF0903	01-Oct-20	1	SPSH	SF0903-661	57	1.1								
9	SF0903	01-Oct-20	1	LNSC	SF0903-662	64	3.1								
9	SF0903	01-Oct-20	1	LKCH	SF0903-663	58	1.7								
9	SF0903	01-Oct-20	1	LKCH	SF0903-664	72	2.8								
9	SF0903	01-Oct-20	1	LKCH	SF0903-665	65	2.8								
9	SF0903	01-Oct-20	1	LNSC	SF0903-666	76	5								
9	SF0903	01-Oct-20	1	LKCH	SF0903-667	57	1.8								
9	SF0903	01-Oct-20	1	LKCH	SF0903-668	68	3.1								
9	SF0903	01-Oct-20	1	WHSC	SF0903-669	63	2.8								
9	SF0903	01-Oct-20	1	TRPR	SF0903-670	53	2								
9	SF0903	01-Oct-20	1	LKCH	SF0903-671	63	1.7								
9	SF0903	01-Oct-20	1	LNDC	SF0903-672	38									
9	SF0903	01-Oct-20	1	MNWH	SF0903-673	80	5.2	Scales							
9	SF0903	01-Oct-20	1	LNSC	SF0903-674	168	56								
9	SF0903	01-Oct-20	1	LKCH	SF0903-675	61	1.6								

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9	SF0903	01-Oct-20	1	SLSC	SF0903-676	47	0.4								
9	SF0903	01-Oct-20	1	LKCH	SF0903-677	28									
9	SF0903	01-Oct-20	1	LKCH	SF0903-678	63	3.1								
9	SF0903	01-Oct-20	1	LNSC	SF0903-679	76	6.1								
9	SF0903	01-Oct-20	1	LNSC	SF0903-680	130	29								
9	SF0903	01-Oct-20	1	LKCH	SF0903-681	68	3.8								
9	SF0903	01-Oct-20	1	LKCH	SF0903-682	60	2.3								
9	SF0903	01-Oct-20	1	LKCH	SF0903-683	47	1.2								
9	SF0903	01-Oct-20	1	LNSC	SF0903-684	81	6.8								
9	SF0903	01-Oct-20	1	TRPR	SF0903-685	60	3.1								
9	SF0903	01-Oct-20	1	LNSC	SF0903-686	60	3.1								
9	SF0903	01-Oct-20	1	LKCH	SF0903-687	31									
9	SF0903	01-Oct-20	1	LNSC	SF0903-688	96	9								
9	SF0903	01-Oct-20	1	LKCH	SF0903-689	45									
9	SF0903	01-Oct-20	1	LNSC	SF0903-690	68	4.2								
9	SF0903	01-Oct-20	1	LNSC	SF0903-691	77	5.8								
9	SF0903	01-Oct-20	1	LKCH	SF0903-692	62	2.4								
9	SF0903	01-Oct-20	1	LKCH	SF0903-693	60	2.4								
9	SF0903	01-Oct-20	1	LKCH	SF0903-694	47	1.1								
9	SF0903	01-Oct-20	1	LKCH	SF0903-695	43	0.6								
9	SF0904	01-Oct-20	1	LNSC	SF0904-696	381	765		982126057511882	New					
9	SF0904	01-Oct-20	1	LNSC	SF0904-697	325	398		982126057511817	New					
9	SF0904	01-Oct-20	1	MNWH	SF0904-698	352	339	Scales	982126057511838	New					
9	SF0904	01-Oct-20	1	LNSC	SF0904-699	422	840		900230000209099	Existing					
9	SF0904	01-Oct-20	1	LSSC	SF0904-700	157	33								
9	SF0904	01-Oct-20	1	MNWH	SF0904-701	191	71	Scales			CL				
9	SF0904	01-Oct-20	1	LNSC	SF0904-702	208	104		982091062634964	New					
9	SF0904	01-Oct-20	1	KOKA	SF0904-703	130	24	Scales							
9	SF0904	01-Oct-20	1	LKCH	SF0904-704	55	2.2								
9	SF0904	01-Oct-20	1	SUCK	SF0904-705	44									
9	SF0904	01-Oct-20	1	LKCH	SF0904-706	50	1.4								
9	SF0904	01-Oct-20	1	LNSC	SF0904-707	65	3.8								
9	SF0904	01-Oct-20	1	LNSC	SF0904-708	42									
9	SF0904	01-Oct-20	1	SPSC	SF0904-709	57									
9	SF0904	01-Oct-20	1	LNSC	SF0904-710	61	2								
9	SF0905	01-Oct-20	1	FLCH	SF0905-712	251	190								
9	SF0905	01-Oct-20	1	NPMN	SF0905-713	347	466								
9	SF0905	01-Oct-20	1	LNSC	SF0905-714	245	86		982091062634882	New					
9	SF0905	01-Oct-20	1	FLCH	SF0905-715	144	21								
9	SF0905	01-Oct-20	1	LSSC	SF0905-716	142	33								
9	SF0905	01-Oct-20	1	FLCH	SF0905-717	73	1.7								
9	SF0905	01-Oct-20	1	FLCH	SF0905-718	88	4.8								

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9	SF0905	01-Oct-20	1	FLCH	SF0905-719	65	2.2								
9	SF0905	01-Oct-20	1	FLCH	SF0905-720	68	2.7								
9	SF0905	01-Oct-20	1	LKCH	SF0905-721	77	3.5								
9	SF0905	01-Oct-20	1	SPSH	SF0905-722	37	0.4								
9	SF0905	01-Oct-20	1	FLCH	SF0905-723	71	2.9								
9	SF0905	01-Oct-20	1	LNSC	SF0905-724	87	6.3								
9	SF0905	01-Oct-20	1	MNWH	SF0905-725	68	2.9								
9	SF0905	01-Oct-20	1	SPSH	SF0905-726	59	2								
9	SF0906	01-Oct-20	1	MNWH	SF0906-728	352	417	Scales	982126057511905	New					
9	SF0906	01-Oct-20	1	MNWH	SF0906-729	330	321	Scales	982126057458383	New					
9	SF0906	01-Oct-20	1	MNWH	SF0906-730	259	158	Scales	900228000460528	Existing					
9	SF0906	01-Oct-20	1	MNWH	SF0906-731	180	61	Scales			CL				
9	SF0906	01-Oct-20	1	MNWH	SF0906-732	166	54	Scales							
9	SF0906	01-Oct-20	1	MNWH	SF0906-733	134	23	Scales							
9	SF0906	01-Oct-20	1	MNWH	SF0906-734	142	31	Scales							
9	SF0906	01-Oct-20	1	MNWH	SF0906-735	65	5.2	Scales							
9	SF0906	01-Oct-20	1	LNSC	SF0906-736	409	782		982126057458309	New					
9	SF0906	01-Oct-20	1	MNWH	SF0906-737	380	490	Scales	982126057458305	New					
9	SF0906	01-Oct-20	1	LNSC	SF0906-738	321	365		982126057458377	New					
9	SF0906	01-Oct-20	1	LNSC	SF0906-739	214	128		982091062634955	New					
9	SF0906	01-Oct-20	1	MNWH	SF0906-740	176	51	Scales							
9	SF0906	01-Oct-20	1	MNWH	SF0906-741	69	3.8	Scales							
9	SF0906	01-Oct-20	1	LKCH	SF0906-742	61	1.8								
9	SF0906	01-Oct-20	1	MNWH	SF0906-743	232	108				CH				
9	SF0906	01-Oct-20	1	MNWH	SF0906-744	177	61	Scales							
9	SF0906	01-Oct-20	1	LKCH	SF0906-745	68	3.2								
9	SF0906	01-Oct-20	1	MNWH	SF0906-746	76	4	Scales							
9	SF0906	01-Oct-20	1	TRPR	SF0906-747	62	2.5								
9	SF0906	01-Oct-20	1	SLSC	SF0906-748	56	1.4								
9	SF0906	01-Oct-20	1	SLSC	SF0906-749	56	0.9								
9	SF0907	01-Oct-20	1	FLCH	SF0907-750	255	192								
9	SF0907	01-Oct-20	1	LNSC	SF0907-751	189	78								
9	SF0907	01-Oct-20	1	LKCH	SF0907-752	34									
9	SF0907	01-Oct-20	1	MNWH	SF0907-753	128	19	Scales							
9	SF0907	01-Oct-20	1	MNWH	SF0907-754	140	28	Scales							
9	SF0907	01-Oct-20	1	ARGR	SF0907-755	103	10.4	Scales				Yes			
9	SF0907	01-Oct-20	1	MNWH	SF0907-756	130	22								
9	SF0907	01-Oct-20	1	SLSC	SF0907-757	51									
9	SF0907	01-Oct-20	1	LKCH	SF0907-758	65	3								
9	SF0907	01-Oct-20	1	LKCH	SF0907-759	51	1.8								
9	SF0907	01-Oct-20	1	LKCH	SF0907-760	53	1.5								
9	SF0907	01-Oct-20	1	SLSC	SF0907-761	42									

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9	SF0907	01-Oct-20	1	SLSC	SF0907-762	55	1.9								
9	SF0907	01-Oct-20	1	SLSC	SF0907-763	47									
9	SF0907	01-Oct-20	1	SLSC	SF0907-764	53	1.4								
9	SF0907	01-Oct-20	1	SPSC	SF0907-765	58									
9	SF0907	01-Oct-20	1	SLSC	SF0907-766	58									
9	SF0907	01-Oct-20	1	SLSC	SF0907-767	44									
9	SF0907	01-Oct-20	1	SLSC	SF0907-768	49									
9	SF0907	01-Oct-20	1	SLSC	SF0907-769	65									
9	SF0907	01-Oct-20	1	SLSC	SF0907-770	62									
9	SF0907	01-Oct-20	1	SLSC	SF0907-771	49									
9	SF0907	01-Oct-20	1	SLSC	SF0907-772	41									
9	SF0907	01-Oct-20	1	SLSC	SF0907-773	49									
9	SF0907	01-Oct-20	1	SLSC	SF0907-774	46									
9	SF0907	01-Oct-20	1	SLSC	SF0907-775	46									
9	BS0901	02-Oct-20	0	NFC											
9	BS0901	02-Oct-20	1	MINN	BS0901-391	23									
9	BS0901	02-Oct-20	1	MINN	BS0901-392	26									
9	BS0902	02-Oct-20	1	MINN	BS0902-387	31									
9	BS0902	02-Oct-20	1	MINN	BS0902-388	19									
9	BS0902	02-Oct-20	1	MINN	BS0902-389	19									
9	BS0902	02-Oct-20	1	MINN	BS0902-368	29									
9	BS0902	02-Oct-20	1	MINN	BS0902-369	18									
9	BS0902	02-Oct-20	1	MINN	BS0902-370	16									
9	BS0902	02-Oct-20	1	MINN	BS0902-371	22									
9	BS0902	02-Oct-20	1	LNDC	BS0902-372	31									
9	BS0902	02-Oct-20	1	MINN	BS0902-373	29									
9	BS0902	02-Oct-20	1	MINN	BS0902-374	20									
9	BS0902	02-Oct-20	1	MINN	BS0902-375	24									
9	BS0902	02-Oct-20	1	MINN	BS0902-376	32					LL				
9	BS0902	02-Oct-20	1	MINN	BS0902-377	26									
9	BS0902	02-Oct-20	1	MINN	BS0902-378	19									
9	BS0902	02-Oct-20	1	MINN	BS0902-379	22									
9	BS0902	02-Oct-20	1	TRPR	BS0902-380	64									
9	BS0902	02-Oct-20	1	MINN	BS0902-381	15									
9	BS0902	02-Oct-20	1	MINN	BS0902-382	34									
9	BS0902	02-Oct-20	1	MINN	BS0902-383	16									
9	BS0902	02-Oct-20	1	MINN	BS0902-384	27									
9	BS0902	02-Oct-20	1	MINN	BS0902-385	26									
9	BS0902	02-Oct-20	1	MINN	BS0902-386	27									
9	BS0903	02-Oct-20	0	NFC											
9	BS0903	02-Oct-20	0	NFC											
9	BS0903	02-Oct-20	1	MINN	BS0903-316	23									

Study Unit Number	Site Label	Sample Date	Count	Species*	Fish ID	Fork Length (mm)	Weight (g)	Age Structure(s) Collected	PIT Tag Code	PIT Tag?	DELT	Genetics	Methylmercury	Stable Isotope	Microchemistry
9	BS0904	02-Oct-20	1	LNDC	BS0904-393	32									
9	BS0904	02-Oct-20	1	LNDC	BS0904-394	28									
9	BS0904	02-Oct-20	1	LNDC	BS0904-395	28									
9	BS0904	02-Oct-20	1	SLSC	BS0904-396	30									
9	BS0904	02-Oct-20	1	SPSC	BS0904-397	29									
9	BS0904	02-Oct-20	1	RDSH	BS0904-398	47									
9	BS0904	02-Oct-20	1	SPSC	BS0904-399	30									
9	BS0905	02-Oct-20	5	MINN											
9	BS0905	02-Oct-20	0	NFC											
9	BS0905	02-Oct-20	0	NFC											
9	BS0907	02-Oct-20	0	NFC											
9	BS0907	02-Oct-20	0	NFC											
9	BS0907	02-Oct-20	0	NFC											
9	BS0908	02-Oct-20	1	PRSC	BS0908-892	33	0.1								
9	BS0909	02-Oct-20	0	NFC											
9	EF0901	02-Oct-20	3	SLSC											
9	EF0901	02-Oct-20	6	LKCH											
9	EF0901	02-Oct-20	1	SLSC	EF0901-341	74	5.1								
9	EF0901	02-Oct-20	1	SLSC	EF0901-342	65	3.1								
9	EF0901	02-Oct-20	1	LKCH	EF0901-343	59	2.6								
9	EF0901	02-Oct-20	1	LKCH	EF0901-344	49	1.4								
9	EF0901	02-Oct-20	1	WHSC	EF0901-345	58	2.9								
9	EF0901	02-Oct-20	1	WHSC	EF0901-346	66	4.2								
9	EF0901	02-Oct-20	1	LKCH	EF0901-347	56	1.6								
9	EF0901	02-Oct-20	1	LKCH	EF0901-348	61	1.8								
9	EF0901	02-Oct-20	1	LKCH	EF0901-349	50	0.8								
9	EF0901	02-Oct-20	1	LKCH	EF0901-350	64	3.2								
9	EF0901	02-Oct-20	1	WHSC	EF0901-351	63	3.7								
9	EF0901	02-Oct-20	1	LKCH	EF0901-352	54	1.5								
9	EF0901	02-Oct-20	1	WHSC	EF0901-353	60	2.4								
9	EF0901	02-Oct-20	1	LKCH	EF0901-354	52	1.1								
9	EF0901	02-Oct-20	1	LKCH	EF0901-355	61	2.5								
9	EF0901	02-Oct-20	1	LKCH	EF0901-356	47	1								
9	EF0901	02-Oct-20	16	LKCH											
9	EF0901	02-Oct-20	1	SLSC	EF0901-358	70	3.3								
9	EF0901	02-Oct-20	1	WHSC	EF0901-359	54	1								
9	EF0901	02-Oct-20	15	LKCH											
9	EF0901	02-Oct-20	1	SLSC	EF0901-361	62	2.5								
9	EF0901	02-Oct-20	1	SLSC	EF0901-362	54	1.8								
9	EF0901	02-Oct-20	7	LKCH											
9	EF0901	02-Oct-20	1	WHSC	EF0901-364	57	2.6								
9	EF0901	02-Oct-20	1	SLSC	EF0901-365	51	1.5								

Study Unit Number	Site Label	Sample Date	Count	Species*	Fish ID	Fork Length (mm)	Weight (g)	Age Structure(s) Collected	PIT Tag Code	PIT Tag?	DELT	Genetics	Methylmercury	Stable Isotope	Microchemistry
9	EF0901	02-Oct-20	1	LKCH	EF0901-366	43	1.4								
9	EF0901	02-Oct-20	1	WHSC	EF0901-367	59	2.3								
9	EF0903	02-Oct-20	1	SLSC	EF0903-317	56	1.6								
9	EF0903	02-Oct-20	1	LKCH	EF0903-318	55									
9	EF0903	02-Oct-20	1	LKCH	EF0903-319	63	2.8								
9	EF0903	02-Oct-20	1	WHSC	EF0903-320	64	3.2								
9	EF0903	02-Oct-20	1	LKCH	EF0903-321	73	3.9								
9	EF0903	02-Oct-20	1	WHSC	EF0903-322	51	2.3								
9	EF0903	02-Oct-20	1	LKCH	EF0903-323	60	2.4								
9	EF0903	02-Oct-20	1	LKCH	EF0903-324	57									
9	EF0903	02-Oct-20	1	SLSC	EF0903-325	65	4.1								
9	EF0903	02-Oct-20	1	NRDC	EF0903-326	37	0.9								
9	EF0903	02-Oct-20	1	WHSC	EF0903-327	54	1.7								
9	EF0903	02-Oct-20	1	SLSC	EF0903-328	88	7.9								
9	EF0903	02-Oct-20	1	SLSC	EF0903-329	62	2.8								
9	EF0903	02-Oct-20	1	LKCH	EF0903-330	63	2								
9	EF0903	02-Oct-20	1	SPSC	EF0903-331	70	2.6								
9	EF0903	02-Oct-20	1	LKCH	EF0903-332	61	2.3								
9	EF0903	02-Oct-20	1	LKCH	EF0903-333	65	2.9								
9	EF0903	02-Oct-20	1	WHSC	EF0903-334	40	1.2								
9	EF0903	02-Oct-20	1	WHSC	EF0903-335	49	1								
9	EF0903	02-Oct-20	1	SLSC	EF0903-336	51	2.6								
9	EF0903	02-Oct-20	1	LKCH	EF0903-337	47									
9	GN0901	02-Oct-20	1	LNSC	GN0901-893	302	331		982091062634933	New					
9	SF0908	02-Oct-20	1	MNWH	SF0908-776	330	273	Scales	982126057511828	New					
9	SF0908	02-Oct-20	1	LNSC	SF0908-777	244	162		982091062634919	New					
9	SF0908	02-Oct-20	1	MNWH	SF0908-778	303	273		900228000348960	Existing					
9	SF0908	02-Oct-20	1	LNSC	SF0908-779	203	94		982091062634900	New					
9	SF0908	02-Oct-20	1	LNSC	SF0908-780	233	142		900228000439813	Existing					
9	SF0908	02-Oct-20	1	LNSC	SF0908-781	225	142		982091062634898	New					
9	SF0908	02-Oct-20	1	LNSC	SF0908-782	186	68								
9	SF0908	02-Oct-20	1	KOKA	SF0908-783	140	24	Scales							
9	SF0908	02-Oct-20	1	MNWH	SF0908-784	128	18.5	Scales							
9	SF0908	02-Oct-20	1	LNSC	SF0908-785	64	2.8								
9	SF0908	02-Oct-20	1	MNWH	SF0908-786	121	17	Scales							
9	SF0908	02-Oct-20	1	MNWH	SF0908-787	76	2.5	Scales							
9	SF0908	02-Oct-20	1	MNWH	SF0908-788	143	3	Scales							
9	SF0908	02-Oct-20	1	KOKA	SF0908-789	137	26	Scales							
9	SF0908	02-Oct-20	1	MNWH	SF0908-790	130	21	Scales							
9	SF0908	02-Oct-20	1	MNWH	SF0908-791	87	6.1	Scales							
9	SF0908	02-Oct-20	1	MNWH	SF0908-792	126	21								
9	SF0908	02-Oct-20	1	LKCH	SF0908-793	59	1.9								

Study Unit Number	Site Label	Sample Date	Count	Species*	Fish ID	Fork Length (mm)	Weight (g)	Age Structure(s) Collected	PIT Tag Code	PIT Tag?	DELT	Genetics	Methylmercury	Stable Isotope	Microchemistry
9	SF0908	02-Oct-20	1	LKCH	SF0908-794	56	1.5								
9	SF0908	02-Oct-20	1	KOKA	SF0908-795	108	12								
9	SF0908	02-Oct-20	1	SLSC	SF0908-796	59	2.2								
9	SF0908	02-Oct-20	1	SLSC	SF0908-797	68	2.5								
9	SF0908	02-Oct-20	1	SLSC	SF0908-798	58	1.3								
9	SF0908	02-Oct-20	1	SLSC	SF0908-799	52	1.1								
9	SF0909	02-Oct-20	1	MNWH	SF0909-800	403	496	Scales	982126057511821	New					
9	SF0909	02-Oct-20	1	MNWH	SF0909-801	273	176		900228000369274	Existing					
9	SF0909	02-Oct-20	1	ARGR	SF0909-802	151	36.2	Scales	982091062634935	New		Yes			
9	SF0909	02-Oct-20	1	KOKA	SF0909-803	125	17	Scales							
9	SF0909	02-Oct-20	1	LNSC	SF0909-804	150	36								
9	SF0909	02-Oct-20	1	LNSC	SF0909-805	53	2								
9	SF0909	02-Oct-20	1	SLSC	SF0909-806	51	1.1								
9	SF0909	02-Oct-20	1	LNSC	SF0909-807	65	2.8								
9	SF0909	02-Oct-20	1	LKCH	SF0909-808	50	1.3								
9	SF0909	02-Oct-20	1	MNWH	SF0909-809	334	315	Scales	982126057458318	New					
9	SF0909	02-Oct-20	1	ARGR	SF0909-810	143	32	Scales				Yes			
9	SF0909	02-Oct-20	1	LNSC	SF0909-811	194	83								
9	SF0909	02-Oct-20	1	MNWH	SF0909-812	130	22	Scales							
9	SF0909	02-Oct-20	1	MNWH	SF0909-813	87	3.5	Scales							
9	SF0909	02-Oct-20	1	MNWH	SF0909-814	131	18	Scales							
9	SF0909	02-Oct-20	1	MNWH	SF0909-815	143	27.5	Scales							
9	SF0909	02-Oct-20	1	KOKA	SF0909-816	60	1.7	Scales							
9	SF0909	02-Oct-20	1	SLSC	SF0909-817	42									
9	SF0909	02-Oct-20	1	SLSC	SF0909-818	54	1.8								
9	SF0909	02-Oct-20	1	SLSC	SF0909-819	48	1								
9	SF0909	02-Oct-20	1	SLSC	SF0909-820	48	0.9								
9	SF0910	02-Oct-20	1	KOKA	SF0910-821	141	26	Scales							
9	SF0910	02-Oct-20	1	MNWH	SF0910-822	66	5.1	Scales							
9	SF0910	02-Oct-20	1	MNWH	SF0910-823	82	4.5	Scales							
9	SF0910	02-Oct-20	1	MNWH	SF0910-824	139	36	Scales							
9	SF0910	02-Oct-20	1	MNWH	SF0910-825	83	5.5	Scales							
9	SF0910	02-Oct-20	1	SLSC	SF0910-826	69	2.7								
9	SF0910	02-Oct-20	1	SPSC	SF0910-827	70	2.8								
9	SF0910	02-Oct-20	1	SLSC	SF0910-828	42	0.6								
9	SF0910	02-Oct-20	1	MNWH	SF0910-829	88	5.9	Scales							
9	SF0910	02-Oct-20	1	RDSH	SF0910-830	42	0.6								
9	SF0910	02-Oct-20	1	SPSC	SF0910-831	58	1.5								
9	SF0910	02-Oct-20	1	SLSC	SF0910-832	47	1								
9	SF0910	02-Oct-20	1	LKCH	SF0910-833	49	1.1								
9	SF0910	02-Oct-20	1	LKCH	SF0910-834	47	1.1								
9	SF0910	02-Oct-20	1	SLSC	SF0910-835	44	0.8								

Study Unit Number	Site Label	Sample Date	Count	Species*	Fish ID	Fork Length (mm)	Weight (g)	Age Structure(s) Collected	PIT Tag Code	PIT Tag?	DELT	Genetics	Methylmercury	Stable Isotope	Microchemistry
9	SF0911	02-Oct-20	1	WALL	SF0911-836	349	435	Fin Rays	982126057458334	New					
9	SF0911	02-Oct-20	1	WALL	SF0911-837	362	459	Fin Rays	982091062634934	New					
9	SF0911	02-Oct-20	1	WALL	SF0911-838	370	559		900230000077755	Existing					
9	SF0911	02-Oct-20	1	LNSC	SF0911-839	185	74								
9	SF0911	02-Oct-20	1	LNSC	SF0911-840	140	30								
9	SF0911	02-Oct-20	1	LNSC	SF0911-841	182	74								
9	SF0911	02-Oct-20	1	LNSC	SF0911-842	138	35								
9	SF0911	02-Oct-20	1	LNSC	SF0911-843	79	5.2								
9	SF0911	02-Oct-20	1	LNSC	SF0911-844	178	65								
9	SF0911	02-Oct-20	1	LNSC	SF0911-845	187	79								
9	SF0911	02-Oct-20	1	LNSC	SF0911-846	163	52								
9	SF0911	02-Oct-20	1	MNWH	SF0911-847	129	24	Scales							
9	SF0911	02-Oct-20	1	MNWH	SF0911-848	198	70	Scales							
9	SF0911	02-Oct-20	1	MNWH	SF0911-849	75	3.1	Scales							
9	SF0911	02-Oct-20	1	MNWH	SF0911-850	168	43		900226001622538	Existing					
9	SF0911	02-Oct-20	1	MNWH	SF0911-851	129	24	Scales							
9	SF0911	02-Oct-20	1	MNWH	SF0911-852	79	4.3								
9	SF0911	02-Oct-20	1	MNWH	SF0911-853	187	65								
9	SF0911	02-Oct-20	1	MNWH	SF0911-854	132	23								
9	SF0911	02-Oct-20	1	SLSC	SF0911-855	58	2								
9	SF0911	02-Oct-20	1	LKCH	SF0911-856	66	2.8								
9	SF0911	02-Oct-20	1	LNSC	SF0911-857	73	4.1								
9	SF0911	02-Oct-20	1	SLSC	SF0911-858	54	1.6								
9	SF0911	02-Oct-20	1	SLSC	SF0911-859	59	2								
9	SF0912	02-Oct-20	1	MNWH	SF0912-860	311	348		900230000207225	Existing					
9	SF0912	02-Oct-20	1	WALL	SF0912-861	263	185	Fin Rays	982091062634899	New					
9	SF0912	02-Oct-20	1	LNSC	SF0912-862	264	225		982091062634885	New					
9	SF0912	02-Oct-20	1	LNSC	SF0912-863	187	80								
9	SF0912	02-Oct-20	1	LNDC	SF0912-864	46	0.3								
9	SF0912	02-Oct-20	1	MNWH	SF0912-865	71	2.9								
9	SF0912	02-Oct-20	1	MNWH	SF0912-866	76	4.5								
9	SF0912	02-Oct-20	1	LNSC	SF0912-867	287	277		982091062634976	New					
9	SF0912	02-Oct-20	1	LNSC	SF0912-868	241	183			No					
9	SF0912	02-Oct-20	1	LNSC	SF0912-869	173	67								
9	SF0912	02-Oct-20	1	WHSC	SF0912-870	149	40								
9	SF0912	02-Oct-20	1	LNSC	SF0912-871	281	296		982126057458323	New					
9	SF0912	02-Oct-20	1	LNSC	SF0912-872	247	190		982091062634891	New					
9	SF0912	02-Oct-20	1	MNWH	SF0912-873	79	3.8								
9	SF0912	02-Oct-20	1	LKCH	SF0912-874	64									
9	SF0912	02-Oct-20	1	LKCH	SF0912-875	66	3.8								
9	SF0912	02-Oct-20	1	LKCH	SF0912-876	79	6.3								
9	SF0912	02-Oct-20	1	TRPR	SF0912-877	38									

Study Unit Number	Site Label	Sample Date	Count	Species*	Fish ID	Fork Length (mm)	Weight (g)	Age Structure(s) Collected	PIT Tag Code	PIT Tag?	DELT	Genetics	Methylmercury	Stable Isotope	Microchemistry
9	SF0912	02-Oct-20	1	MNWH	SF0912-878	136	24								
9	SF0912	02-Oct-20	1	ARGR	SF0912-879	67	6.1	Scales				Yes			
9	SF0912	02-Oct-20	1	MNWH	SF0912-880	63	4.8								
9	SF0912	02-Oct-20	1	MNWH	SF0912-881	82	5.9								
9	SF0912	02-Oct-20	1	LKCH	SF0912-882	57	1.6								
9	SF0912	02-Oct-20	1	LKCH	SF0912-883	66	2.5								
9	SF0912	02-Oct-20	1	TRPR	SF0912-884	52	1.5								
9	SF0912	02-Oct-20	1	LNSC	SF0912-885	199	96								
9	SF0912	02-Oct-20	1	LNDC	SF0912-886	46	0.3								
9	SF0912	02-Oct-20	1	LNDC	SF0912-887	63	2.1								
9	SF0912	02-Oct-20	1	LNDC	SF0912-888	64	2.2								
9	SF0912	02-Oct-20	1	TRPR	SF0912-889	46	1.1								
9	SF0912	02-Oct-20	1	LKCH	SF0912-890	59	2.3								
9	BS0910	03-Oct-20	1	MINN	BS0910-406	28									
9	BS0910	03-Oct-20	1	MINN	BS0910-407	31									
9	BS0910	03-Oct-20	1	LNDC	BS0910-408	59									
9	BS0910	03-Oct-20	0	NFC											
9	EF0902	03-Oct-20	1	SLSC	EF0902-410	58	1.5								
9	EF0902	03-Oct-20	1	MINN	EF0902-411	18									
9	EF0902	03-Oct-20	1	SLSC	EF0902-412	73	2.3								
9	EF0902	03-Oct-20	1	SLSC	EF0902-413	57	1.6								
9	EF0902	03-Oct-20	1	SLSC	EF0902-414	49									
9	EF0902	03-Oct-20	1	SLSC	EF0902-415	52									
9	EF0902	03-Oct-20	1	SLSC	EF0902-416	56									
9	EF0902	03-Oct-20	1	SLSC	EF0902-417	62									
9	EF0902	03-Oct-20	1	SLSC	EF0902-418	56									
9	EF0902	03-Oct-20	1	SLSC	EF0902-419	59									
9	EF0902	03-Oct-20	1	SLSC	EF0902-420	62									
9	EF0902	03-Oct-20	1	SPSC	EF0902-421	52									
9	EF0902	03-Oct-20	1	SLSC	EF0902-422	56									
9	EF0902	03-Oct-20	1	SLSC	EF0902-423	57									
9	EF0902	03-Oct-20	1	SLSC	EF0902-424	43									
9	EF0902	03-Oct-20	1	SLSC	EF0902-425	21									
9	EF0902	03-Oct-20	1	MINN	EF0902-426	26									
9	EF0902	03-Oct-20	1	SLSC	EF0902-427	44									
9	EF0902	03-Oct-20	1	SLSC	EF0902-428	42									
9	EF0902	03-Oct-20	1	SLSC	EF0902-429	22									
9	EF0902	03-Oct-20	1	SLSC	EF0902-430	47									
9	EF0902	03-Oct-20	1	SCUL	EF0902-431	54									
9	EF0902	03-Oct-20	1	FLCH	EF0902-432	61	2.2								
9	EF0902	03-Oct-20	1	MNWH	EF0902-433	89	6.6	Scales							
9	EF0902	03-Oct-20	1	MNWH	EF0902-434	79	4.2	Scales							

Study Unit Number	Site Label	Sample Date	Count	Species*	Fish ID	Fork Length (mm)	Weight (g)	Age Structure(s) Collected	PIT Tag Code	PIT Tag?	DELT	Genetics	Methylmercury	Stable Isotope	Microchemistry
9	EF0904	03-Oct-20	1	LKCH	EF0904-435	60	1.9								
9	EF0904	03-Oct-20	1	SPSC	EF0904-436	67	3.1								
9	EF0904	03-Oct-20	1	LNSC	EF0904-437	75	5.1								
9	EF0904	03-Oct-20	1	SPSC	EF0904-438	60	3.6								
9	EF0904	03-Oct-20	1	SLSC	EF0904-439	44	0.8								
9	EF0904	03-Oct-20	1	LNSC	EF0904-440	74	4.2								
9	EF0904	03-Oct-20	1	SLSC	EF0904-441	50	0.7								
9	EF0904	03-Oct-20	1	LNSC	EF0904-442	67	4.8								
9	EF0904	03-Oct-20	1	SLSC	EF0904-443	48	1.7								
9	EF0904	03-Oct-20	1	SLSC	EF0904-444	46									
9	EF0904	03-Oct-20	1	FLCH	EF0904-445	59	1.9								
9	EF0904	03-Oct-20	1	SLSC	EF0904-446	55	2								
9	EF0904	03-Oct-20	1	LNDC	EF0904-447	75	4.1								
9	EF0904	03-Oct-20	1	SPSC	EF0904-448	60	2.3								
9	EF0904	03-Oct-20	1	SPSC	EF0904-449	50	1.4								
9	EF0904	03-Oct-20	1	SLSC	EF0904-450	51	1.8								
9	EF0904	03-Oct-20	1	SLSC	EF0904-451	68	3.4								
9	EF0904	03-Oct-20	1	LNSC	EF0904-452	54	2								
9	EF0904	03-Oct-20	1	SLSC	EF0904-453	49	1.5								
9	EF0904	03-Oct-20	1	SLSC	EF0904-454	51	1.8								
9	EF0904	03-Oct-20	1	SLSC	EF0904-455	45	1.3								
9	EF0904	03-Oct-20	1	SLSC	EF0904-456	52									
9	EF0904	03-Oct-20	1	SLSC	EF0904-457	45									
9	EF0904	03-Oct-20	1	SPSC	EF0904-458	49	1.5								
9	EF0904	03-Oct-20	1	SLSC	EF0904-459	44									
9	EF0904	03-Oct-20	1	SLSC	EF0904-460	49									
9	EF0904	03-Oct-20	1	SLSC	EF0904-461	47									
9	EF0904	03-Oct-20	1	SPSC	EF0904-462	50	1.2								
9	EF0904	03-Oct-20	1	SPSC	EF0904-463	50	1.6								
9	EF0904	03-Oct-20	1	LKCH	EF0904-464	54	2.5								
9	EF0904	03-Oct-20	1	SPSC	EF0904-465	45	1.6								
9	EF0904	03-Oct-20	1	SLSC	EF0904-466	41	0.8								
9	EF0904	03-Oct-20	1	SLSC	EF0904-467	45	0.9								
9	EF0904	03-Oct-20	1	SLSC	EF0904-468	42									
9	EF0904	03-Oct-20	1	SLSC	EF0904-469	48									
9	EF0904	03-Oct-20	1	SLSC	EF0904-470	34									
9	EF0904	03-Oct-20	1	SLSC	EF0904-471	39									
9	EF0904	03-Oct-20	1	SLSC	EF0904-472	37									
9	EF0904	03-Oct-20	1	LNDC	EF0904-473	40	0.8								

*Species codes from Government of Alberta 2017. Fisheries and Wildlife Management Information System (FWMIS) Data Submission Guide.

Appendix 6

Sample Effort and Conditions

Table A6-1. Sampling effort and environmental conditions for the 76 sites sampled in 2020

Study Unit Number	Site Label	Sample Gear	Sample Date	Sampling Start Time	Sampling End Time	Water Temperature	Conductivity	pH	Water Surface Visibility	Secchi Depth (m)	Estimated Flow Category	Channel Type Sampled	Electrofishing - Effort (seconds)	Electrofishing - Length Sampled (m)	Beach Seine Distance Sampled (m)	Beach Seine Total Area Sample (m²)	Gillnet Panel Height (m)	Gillnet Panel Length (m)
5	BP01	Backpack Electrofisher	27-Sep-20	13:03	13:27	10.1	218	7.98	Medium (small ripples)	1.1	Low	Side Channel	668	100				
5	BP03	Backpack Electrofisher	27-Sep-20	16:49	17:03	9.8	225	7.99	High (flat surface)	1	Transitional	Side Channel	449	100				
5	EF0507	Backpack Electrofisher	28-Sep-20	14:13	14:25	10.1	229	8.1	Medium (small ripples)	1.3	Transitional	Main Channel	419	100				
5	EF0506	Backpack Electrofisher	28-Sep-20	12:36	12:57	9.9	224	8.13	Medium (small ripples)	1.2	Low	Side Channel	626	100				
5	BS0510	Beach Seine	28-Sep-20	15:40	15:43	10.4	434	7.59	High (flat surface)	0.8	Low	Side Channel			25	75		
5	BS0507	Beach Seine	28-Sep-20	16:20	16:22	10.1	423	7.76	Medium (small ripples)	0.5	Low	Side Channel			25	90		
5	BS0507	Beach Seine	28-Sep-20	16:28	16:29	10.1	423	7.76	Medium (small ripples)	0.5	Low	Side Channel			25	90		
5	BS0507	Beach Seine	28-Sep-20	16:30	16:31	10.1	423	7.76	Medium (small ripples)	0.5	Low	Side Channel			25	100		
5	BS0508	Beach Seine	28-Sep-20	16:49	16:51	10.1	423	7.76	High (flat surface)	0.5	Transitional	Side Channel			25	90		
5	BS0508	Beach Seine	28-Sep-20	16:52	16:54	10.1	423	7.76	High (flat surface)	0.5	Transitional	Side Channel			25	90		
5	BS0508	Beach Seine	28-Sep-20	16:57	16:58	10.1	423	7.76	High (flat surface)	0.5	Transitional	Side Channel			25	90		
5	BS03	Beach Seine	28-Sep-20	11:50	11:53	9.8	223	7.8	Low (waves)	1.2	Low	Side Channel			25	75		
5	BS0510	Beach Seine	28-Sep-20	15:41	15:44	10.4	434	7.59	High (flat surface)	0.8	Low	Side Channel			25	75		
5	BS03	Beach Seine	28-Sep-20	11:41	11:43	9.8	223	7.8	Low (waves)	1.2	Low	Side Channel			25	75		
5	BS503	Beach Seine	28-Sep-20	10:02	10:04	9.8	223	7.8	Medium (small ripples)	1.2	Low	Side Channel			25	100		
5	BS503	Beach Seine	28-Sep-20	10:06	10:08	9.8	223	7.8	Medium (small ripples)	1.2	Low	Side Channel			25	100		
5	BS503	Beach Seine	28-Sep-20	10:11	10:13	9.8	223	7.8	Medium (small ripples)	1.2	Low	Side Channel			25	100		
5	BS0510	Beach Seine	28-Sep-20	15:31	15:33	10.4	434	7.59	High (flat surface)	0.8	Low	Side Channel			25	75		
5	BS0504	Beach Seine	27-Sep-20	12:05	12:07	10.1	219	8.02	Medium (small ripples)	1.07	Low	Side Channel			25	100		
5	BS01	Beach Seine	27-Sep-20	14:38	14:43	10.1	218	7.98	Medium (small ripples)	1.07	Transitional	Side Channel			25	100		
5	BS01	Beach Seine	27-Sep-20	15:01	15:04	10.1	218	7.98	Medium (small ripples)	1.07	Transitional	Side Channel			25	100		
5	BS01	Beach Seine	27-Sep-20	15:07	15:08	10.1	218	7.98	Medium (small ripples)	1.07	Transitional	Side Channel			10	25		
5	BS02	Beach Seine	27-Sep-20	15:55	15:59	10.1	218	7.98	Medium (small ripples)	1.1	Low	Side Channel			75	150		
5	BS02	Beach Seine	27-Sep-20	16:00	16:02	10.1	218	7.98	Medium (small ripples)	1.1	Low	Side Channel			25	65		

Study Unit Number	Site Label	Sample Gear	Sample Date	Sampling Start Time	Sampling End Time	Water Temperature	Conductivity	pH	Water Surface Visibility	Secchi Depth (m)	Estimated Flow Category	Channel Type Sampled	Electrofishing - Effort (seconds)	Electrofishing - Length Sampled (m)	Beach Seine Distance Sampled (m)	Beach Seine Total Area Sample (m²)	Gillnet Panel Height (m)	Gillnet Panel Length (m)
5	BS02	Beach Seine	27-Sep-20	16:03	16:04	10.1	218	7.98	Medium (small ripples)	1.1	Low	Side Channel			25	50		
5	BS0504	Beach Seine	27-Sep-20	12:03	12:05	10.1	219	8.02	Medium (small ripples)	1.07	Low	Side Channel			25	100		
5	BS03	Beach Seine	28-Sep-20	11:45	11:47	9.8	223	7.8	Low (waves)	1.2	Low	Side Channel			25	75		
5	BS0504	Beach Seine	27-Sep-20	11:46	11:49	10.1	219	8.02	Medium (small ripples)	1.07	Low	Side Channel			25	100		
5	GN0501	Gill Net	28-Sep-20	9:24	10:57	9.8	223	7.8	Medium (small ripples)	1.2	Low	Side Channel					2.4	45.6
5	SF0509	Small Fish Boat Electrofisher	28-Sep-20	10:29	10:47	9.8	205	8.25	Low (waves)	0.87	Low	Main Channel	781	500				
5	SF0511	Small Fish Boat Electrofisher	28-Sep-20	12:39	12:55	9.8	205	8.25	Low (waves)	0.8	Low	Main Channel	739	562				
5	SF0514	Small Fish Boat Electrofisher	26-Sep-20	16:28	16:43	10.6	232	9	Low (waves)	0.75		Main Channel	756	500				
5	SF0520	Small Fish Boat Electrofisher	28-Sep-20	9:04	9:32	9.8	205	8.25	Medium (small ripples)	0.87	Low	Main Channel	653	600				
5	SF0513	Small Fish Boat Electrofisher	28-Sep-20	14:55	15:12	9.8	205	8.25	Low (waves)	0.8	Low	Main Channel	716	570				
5	SF0512	Small Fish Boat Electrofisher	28-Sep-20	13:54	14:11	9.8	205	8.25	Low (waves)	0.8	Low	Main Channel	756	500				
5	SB07	Small Fish Boat Electrofisher	27-Sep-20	12:28	12:53	9.5	909	7.6	Medium (small ripples)	0.48	Low	Side Channel	849	500				
5	SF0510	Small Fish Boat Electrofisher	28-Sep-20	11:41	12:01	9.8	205	8.25	Low (waves)	0.8	Low	Main Channel	968	750				
5	SF0519	Small Fish Boat Electrofisher	27-Sep-20	13:31	13:53	10.8	209	8.5	Medium (small ripples)	0.65	Low	Main Channel	565	500				
5	SF0508	Small Fish Boat Electrofisher	27-Sep-20	10:13	10:46	10	198	8.29	Medium (small ripples)	1.07	Low	Main Channel	762	500				
5	SF0503	Small Fish Boat Electrofisher	27-Sep-20	15:59	16:17	10.8	209	8.5	Medium (small ripples)	0.75	Low	Main Channel	676	750				
5	SB08	Small Fish Boat Electrofisher	27-Sep-20	15:08	15:26	10.8	209	8.5	Low (waves)	0.75	Low	Main Channel	723	500				
7	EF0705	Backpack Electrofisher	30-Sep-20	11:42	12:10	8.9	379	7.9	Medium (small ripples)	1	Low	Tributary Confluence	901	100				
7	EF0706	Backpack Electrofisher	30-Sep-20	15:53	16:25	11.5	343	7.79	High (flat surface)	1.2	Low	Side Channel	791	100				
7	EF0709	Backpack Electrofisher	30-Sep-20	17:30	17:45	11.5	343	7.79	Medium (small ripples)	0.8	Low	Side Channel	597	100				
7	EF0708	Backpack Electrofisher	29-Sep-20	10:53	11:15	9.3	286	7.97	Medium (small ripples)	1.3	Low	Tributary Confluence	899	100				
7	BS0714	Beach Seine	30-Sep-20	11:03	11:05	8.9	379	7.9	Medium (small ripples)	1	Low	Main Channel			25	75		
7	BS0709	Beach Seine	29-Sep-20	13:14	13:16	9.3	286	7.97	Medium (small ripples)	0.9	Low	Main Channel			25	75		
7	BS0704	Beach Seine	30-Sep-20	14:28	14:29	9.6	263	8.16	Medium (small ripples)	0.7	Low	Main Channel			25	75		
7	BS0710	Beach Seine	29-Sep-20	14:28	14:31	11.4	247	8.1	High (flat surface)	1.3	Low	Side Channel			25	75		

Study Unit Number	Site Label	Sample Gear	Sample Date	Sampling Start Time	Sampling End Time	Water Temperature	Conductivity	pH	Water Surface Visibility	Secchi Depth (m)	Estimated Flow Category	Channel Type Sampled	Electrofishing - Effort (seconds)	Electrofishing - Length Sampled (m)	Beach Seine Distance Sampled (m)	Beach Seine Total Area Sample (m^2)	Gillnet Panel Height (m)	Gillnet Panel Length (m)
7	BS0710	Beach Seine	29-Sep-20	14:32	14:34	11.4	247	8.1	High (flat surface)	1.3	Low	Side Channel			25	75		
7	BS0709	Beach Seine	29-Sep-20	13:02	13:04	9.3	286	7.97	Medium (small ripples)	0.9	Low	Main Channel			25	75		
7	BS0708	Beach Seine	29-Sep-20	10:32	10:34	9.3	286	7.97	High (flat surface)	1.3	Low	Main Channel			25	75		
7	BS0703	Beach Seine	30-Sep-20	13:36	13:39	9.6	263	8.16	High (flat surface)	1	Low	Side Channel			2	75		
7	BS0703	Beach Seine	30-Sep-20	13:40	13:42	9.6	263	8.16	High (flat surface)	1	Low	Side Channel			25	75		
7	BS0704	Beach Seine	30-Sep-20	14:23	14:24	9.6	263	8.16	Medium (small ripples)	0.7	Low	Main Channel			25	75		
7	BS0709	Beach Seine	29-Sep-20	13:08	13:10	9.3	286	7.97	Medium (small ripples)	0.9	Low	Main Channel			25	75		
7	BS0704	Beach Seine	30-Sep-20	14:35	14:37	9.6	263	8.16	Medium (small ripples)	0.7	Low	Main Channel			25	75		
7	BS0712	Beach Seine	30-Sep-20	15:09	15:11	10.4	270	8.03	Medium (small ripples)	1.2	Low	Side Channel			25	75		
7	BS0712	Beach Seine	30-Sep-20	15:17	15:19	10.4	270	8.03	Medium (small ripples)	1.2	Low	Side Channel			25	75		
7	BS0703	Beach Seine	30-Sep-20	13:33	13:35	9.6	263	8.16	High (flat surface)	1	Low	Side Channel			25	75		
7	BS0714	Beach Seine	30-Sep-20	11:07	11:09	8.9	379	7.9	Medium (small ripples)	1	Low	Main Channel			25	75		
7	BS0714	Beach Seine	30-Sep-20	11:11	11:13	8.9	379	7.9	Medium (small ripples)	1	Low	Main Channel			25	75		
7	BS0708	Beach Seine	29-Sep-20	10:26	10:28	9.3	286	7.97	High (flat surface)	1.3	Low	Tributary Confluence			25	75		
7	BS0708	Beach Seine	29-Sep-20	10:22	10:24	9.3	286	7.97	High (flat surface)	1.3	Low	Tributary Confluence			25	75		
7	BS0707	Beach Seine	29-Sep-20	15:59	16:02	10	241	8.1	High (flat surface)	1.2	Low	Side Channel			25	75		
7	BS0707	Beach Seine	29-Sep-20	15:53	15:56	10	241	8.1	High (flat surface)	1.2	Low	Side Channel			25	75		
7	BS0707	Beach Seine	29-Sep-20	15:50	15:52	10	241	8.1	High (flat surface)	1.2	Low	Side Channel			25	75		
7	BS0710	Beach Seine	29-Sep-20	14:35	14:38	11.4	247	8.1	High (flat surface)	1.3	Low	Side Channel			25	75		
7	BS0712	Beach Seine	30-Sep-20	15:13	15:15	10.4	270	8.03	Medium (small ripples)	1.2	Low	Side Channel			25	75		
7	GN0701	Gill Net	29-Sep-20	12:27	13:58	9.3	286	7.97	Medium (small ripples)	1.3	Low	Main Channel					2.4	45.6
7	SF0709	Small Fish Boat Electrofisher	30-Sep-20	14:43	15:07	9.3	236	8.3	Low (waves)	0.51	Low	Main Channel	1006	700				
7	SF0706	Small Fish Boat Electrofisher	29-Sep-20	14:10	14:36	9.7	210	8.3	Medium (small ripples)	0.7	Low	Main Channel	1218	1,000				
7	SF0713	Small Fish Boat Electrofisher	29-Sep-20	11:18	11:33	9.7	210	8.3	High (flat surface)	0.86	Low	Main Channel	695	530				
7	SF0710	Small Fish Boat Electrofisher	30-Sep-20	15:40	15:53	9.3	236	8.3	Low (waves)	0.51	Low	Main Channel	575	500				

Study Unit Number	Site Label	Sample Gear	Sample Date	Sampling Start Time	Sampling End Time	Water Temperature	Conductivity	pH	Water Surface Visibility	Secchi Depth (m)	Estimated Flow Category	Channel Type Sampled	Electrofishing - Effort (seconds)	Electrofishing - Length Sampled (m)	Beach Seine Distance Sampled (m)	Beach Seine Total Area Sample (m²)	Gillnet Panel Height (m)	Gillnet Panel Length (m)
7	SF0708	Small Fish Boat Electrofisher	30-Sep-20	13:45	14:08	9.3	236	8.3	Low (waves)	0.51	Low	Main Channel	980	720				
7	SF0703	Small Fish Boat Electrofisher	30-Sep-20	12:59	13:15	9.3	236	8.3	Low (waves)	0.51	Low	Main Channel	55	375				
7	SB09	Small Fish Boat Electrofisher	30-Sep-20	12:12	12:27	8.4	232	8.1	Low (waves)	0.29	Low	Tributary Confluence	436	500				
7	SF0714	Small Fish Boat Electrofisher	29-Sep-20	10:06	10:34	9.7	210	8.3	High (flat surface)	0.86	Low	Main Channel	1,166	1,000				
7	SF0707	Small Fish Boat Electrofisher	29-Sep-20	12:33	12:57	9.7	210	8.3	Medium (small ripples)	0.86	Low	Main Channel	1,034	1,000				
7	SF0705	Small Fish Boat Electrofisher	29-Sep-20	16:31	16:48	9.7	210	8.3	Low (waves)	0.72	Low	Main Channel	612	700				
7	SF0704	Small Fish Boat Electrofisher	29-Sep-20	15:32	15:57	9.7	210	8.3	Medium (small ripples)	0.87	Low	Main Channel	1,182	1,000				
7	SF0715	Small Fish Boat Electrofisher	30-Sep-20	10:59	11:21	9.3	236	8.36	Low (waves)	0.51	Low	Main Channel	904	500				
9	EF0904	Backpack Electrofisher	03-Oct-20	11:10	11:33	9	238	8.3	High (flat surface)	0.6	Low	Side Channel	821	100				
9	EF0902	Backpack Electrofisher	03-Oct-20	9:58	10:19	9	238	8.3	High (flat surface)	0.6	Low	Side Channel	863	100				
9	EF0903	Backpack Electrofisher	02-Oct-20	10:59	11:23	9.1	263	8.13	Medium (small ripples)	0.8	Low	Main Channel	1,001	100				
9	EF0901	Backpack Electrofisher	02-Oct-20	12:08	12:41	9.1	263	8.13	Medium (small ripples)	0.7	Low	Main Channel	1,049	100				
9	BS0910	Beach Seine	03-Oct-20	9:38	9:40	9	238	8.3	High (flat surface)	0.6	Low	Side Channel			25	75		
9	BS0907	Beach Seine	02-Oct-20	16:36	16:38	13	253	8.19	High (flat surface)	0.8	Low	Side Channel			25	75		
9	BS0905	Beach Seine	02-Oct-20	15:40	15:42	9.1	263	8.13	High (flat surface)	1	Low	Side Channel			25	75		
9	BS0905	Beach Seine	02-Oct-20	15:44	15:46	9.1	263	8.13	High (flat surface)	1	Low	Side Channel			25	75		
9	BS0905	Beach Seine	02-Oct-20	15:50	15:52	9.1	263	8.13	High (flat surface)	1	Low	Side Channel			25	75		
9	BS0907	Beach Seine	02-Oct-20	16:40	16:42	13	253	8.19	High (flat surface)	0.8	Low	Side Channel			25	75		
9	BS0907	Beach Seine	02-Oct-20	16:44	16:46	13	253	8.19	High (flat surface)	0.8	Low	Side Channel			25	75		
9	BS0908	Beach Seine	02-Oct-20	16:10	16:21	9.4	241	8.25	Low (waves)	0.41	Low	Main Channel			75	300		
9	BS0909	Beach Seine	02-Oct-20	15:36	15:47	9.4	241	8.25	Low (waves)	0.41	Low	Side Channel			75	300		
9	BS0904	Beach Seine	02-Oct-20	15:05	15:07	9.1	263	8.13	Medium (small ripples)	0.7	Low	Main Channel			25	25		
9	BS0910	Beach Seine	03-Oct-20	9:34	9:36	9	238	8.3	High (flat surface)	0.6	Low	Side Channel			25	75		
9	BS0903	Beach Seine	02-Oct-20	10:19	10:20	9.1	263	8.13	High (flat surface)	0.8	Low	Side Channel			25	75		
9	BS0910	Beach Seine	03-Oct-20	9:31	9:33	9	238	8.3	High (flat surface)	0.6	Low	Side Channel			25	75		

Study Unit Number	Site Label	Sample Gear	Sample Date	Sampling Start Time	Sampling End Time	Water Temperature	Conductivity	pH	Water Surface Visibility	Secchi Depth (m)	Estimated Flow Category	Channel Type Sampled	Electrofishing - Effort (seconds)	Electrofishing - Length Sampled (m)	Beach Seine Distance Sampled (m)	Beach Seine Total Area Sample (m²)	Gillnet Panel Height (m)	Gillnet Panel Length (m)
9	BS0901	Beach Seine	02-Oct-20	14:23	14:25	9.1	263	8.13	High (flat surface)	0.7	Low	Main Channel			25	75		
9	BS0903	Beach Seine	02-Oct-20	10:24	10:26	9.1	263	8.13	High (flat surface)	0.8	Low	Side Channel			25	75		
9	BS0904	Beach Seine	02-Oct-20	15:00	15:02	9.1	263	8.13	Medium (small ripples)	0.7	Low	Main Channel			25	75		
9	BS0901	Beach Seine	02-Oct-20	14:19	14:21	9.1	263	8.13	High (flat surface)	0.7	Low	Main Channel			25	85		
9	BS0901	Beach Seine	02-Oct-20	14:28	14:30	9.1	263	8.13	High (flat surface)	0.7	Low	Main Channel			25	75		
9	BS0902	Beach Seine	02-Oct-20	13:16	13:19	9.1	263	8.13	High (flat surface)	0.6	Low	Main Channel			25	75		
9	BS0902	Beach Seine	02-Oct-20	13:21	13:23	9.1	263	8.13	High (flat surface)	0.6	Low	Main Channel			25	75		
9	BS0902	Beach Seine	02-Oct-20	13:26	13:28	9.1	263	8.13	High (flat surface)	0.6	Low	Main Channel			25	75		
9	BS0903	Beach Seine	02-Oct-20	10:21	10:23	9.1	263	8.13	High (flat surface)	0.8	Low	Side Channel			25	75		
9	BS0904	Beach Seine	02-Oct-20	14:56	14:58	9.1	263	8.13	Medium (small ripples)	0.7	Low	Main Channel			25	75		
9	GN0901	Gill Net	02-Oct-20	15:10	16:46	9.4	241	8.25	Low (waves)	0.41	Low	Main Channel					2.4	45.6
9	SF0912	Small Fish Boat Electrofisher	02-Oct-20	13:21	13:51	9.4	241	8.25	Medium (small ripples)	0.41	Low	Main Channel	1,051	730				
9	SF0902	Small Fish Boat Electrofisher	01-Oct-20	10:46	11:05	8.4	236	8.37	Low (waves)	0.41	Low	Main Channel	835	700				
9	SF0903	Small Fish Boat Electrofisher	01-Oct-20	11:20	11:44	8.4	236	8.37	Low (waves)	0.41	Low	Main Channel	1,231	700				
9	SF0904	Small Fish Boat Electrofisher	01-Oct-20	12:45	13:05	8.4	236	8.37	Low (waves)	0.41	Low	Main Channel	956	700				
9	SF0901	Small Fish Boat Electrofisher	01-Oct-20	9:51	10:16	8.4	236	8.37	Low (waves)	0.41	Low	Main Channel	864	800				
9	SF0911	Small Fish Boat Electrofisher	02-Oct-20	12:33	12:53	9.4	241	8.25	Medium (small ripples)	0.41	Low	Main Channel	809	600				
9	SF0910	Small Fish Boat Electrofisher	02-Oct-20	11:29	11:48	9.4	241	8.25	Low (waves)	0.41	Low	Main Channel	702	500				
9	SF0909	Small Fish Boat Electrofisher	02-Oct-20	10:34	10:54	9.4	241	8.25	Low (waves)	0.41	Low	Main Channel	921	700				
9	SF0908	Small Fish Boat Electrofisher	02-Oct-20	9:30	9:55	9.4	241	8.25	Low (waves)	0.44	Low	Main Channel	816	680				
9	SF0906	Small Fish Boat Electrofisher	01-Oct-20	14:26	14:58	10.1	235	8.3	Low (waves)	0.45	Low	Main Channel	1,170	1,000				
9	SF0907	Small Fish Boat Electrofisher	01-Oct-20	15:47	16:05	10.1	235	8.3	Low (waves)	0.45	Low	Main Channel	974	700				
9	SF0905	Small Fish Boat Electrofisher	01-Oct-20	13:32	14:06	10.1	235	8.3	Low (waves)	0.45	Low	Main Channel	1,148	750				

Appendix 7

Photo Plates

Photo A7-1. View upstream from site SB08 toward Site C construction. The wet rocks on the right-hand side of the photo show the water level had dropped approximately 1.5 m

Photo A7-2. View downstream of site BS02 in the offset channels of Section 5 with water levels several metres below the high water mark

Photo A7-3. View upstream of the low water levels at the Kiskatinaw River confluence with the Peace River near site BS0708

Photo A7-4. View downstream from site EF0706 of several exposed gravel bars and side channels in Section 7

Photo A7-5. View upstream of recently exposed wet rocks and dry side channel due to dropping water levels in Section 9 at site EF0901

Photo A7-6. View upstream of extremely low water levels in Section 9 at site SF0911