BC Hydro
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Fisheries and Aquatic Habitat Monitoring and Follow-up Program Annual Report: Jan 1, 2020 to Dec 31, 2020

Site C Clean Energy Project

February 26, 2021

Table of Contents

Acronyms

EAC	Environmental Assessment Certificate
EAO	BC Environmental Assessment Office
EIS	Environmental Impact Statement
FAHMFP	Fisheries and Aquatic Habitat Monitoring and Follow-up Program
FLNRO	BC Ministry of Forests, Lands and Natural Resource Operations
MOE	BC Ministry of Environment

1.0 Introduction

1.1 Background

The Fisheries and Aquatic Habitat Monitoring and Follow-up Program (FAHMFP) monitors potential changes in physical habitat, lower trophic levels, fish abundance, and community composition during the construction and operation of the Site C Clean Energy Project (the Project), as required by Condition 7 of the Project's Environmental Assessment Certificate (EAC), Schedule B. Baseline studies conducted for the environmental assessment of the Project were developed with future monitoring in mind such that the sample sites and methodologies could be repeated to monitor potential changes to fish and fish habitat. The FAHMFP includes 18 monitoring programs and one follow-up program that are spatially and logistically distinct. Each program's monitoring plan includes a series of fisheries management questions and hypotheses that reflect uncertainties in predictions of the potential changes as a result of the Project, as described in the Project's Environmental Impact Statement. Each program includes a number of specific monitoring tasks.

A final version of the FAHMFP was submitted on December 22, 2015, and is available on the Project's website[1]. All references to the FAHMFP in this report refer to this version of the FAHMFP.

1.2 Summary

This report is being submitted in compliance with Condition 7 of the EAC, Schedule B. This annual report documents that all components of the FAHMFP that were scheduled to be implemented in 2020 were implemented (see Tables 1 to 3), in accordance with the implementation schedules in the FAHMFP.

2020 marked the sixth year of construction of the Project. In September 2020 the Project diverted the Peace River through two diversion tunnels on the left bank of the dam site. Annual implementation of key monitoring programs and tasks continued, while others began with the onset of river diversion and operation of the temporary upstream fish passage facility (hereafter temporary facility). Annual reporting will continue to document the implementation of the FAHMFP.

2.0 Fisheries and Aquatic Habitat Monitoring and Follow up Program

2.1 Background

The Conditions in the EAC contemplate three plans and programs that relate to fish and fish habitat. These are summarized below to provide context for the FAHMFP.

1) **Fisheries and Aquatic Habitat Management Plan:** Fisheries and Aquatic Habitat Management Plan (submitted to the Canadian Environmental Assessment Agency [CEAA] and the BC Environmental Assessment Office [EAO] in June 2015) in accordance with EAC Condition 4 and Federal Decision Statement Condition 8 includes standard mitigation measures (e.g., erosion and sediment control measures) described in the Project's Construction Environmental Management Plan[2] and project-specific mitigation measures (e.g. reservoir shoreline habitat enhancement works and capping of dam site material relocation site with fish habitat features).

[1] Available at: https://www.sitecproject.com/document-library/environmental-management-plans-and-reports
[2] Available at: https://www.sitecproject.com/document-library/environmental-management-plans-and-reports

2) **Fisheries and Aquatic Habitat Monitoring and Follow-up Program:** The FAHMFP is a requirement of Condition 7 of the EAC, Schedule B. Condition 7 requires the development and implementation of a FAHMFP that provides for: a) monitoring fish and fish habitat during the construction and operation of the Project, and b) an outline for a procedure to evaluate and implement future mitigation and compensation options during operation of the Project.

3) **Fish Passage Management Plan:** The Fish Passage Management Plan included in the EIS (Volume 2 Appendix Q) describes the approach to manage fish passage at the Project. Following Condition 6 of the EAC, Schedule B, a Fish Passage Management Plan, which will include updates since submission of the EIS, will be prepared by Qualified Environmental Professionals and submitted prior to Project activities that may affect upstream fish passage. The EIS (Volume 2 Section 12) identified the river diversion phase of construction as the first construction activity that is expected to affect upstream fish passage. BC Hydro prepared an updated revision to the Fish Passage Management Plan in 2020[3], which was reviewed by the regulatory agencies and Indigenous groups. The planned monitoring for fish movement and fish passage is described in the FAHMFP.

2.2 Overview of Fisheries and Aquatic Habitat Monitoring and Follow-up Program

The FAHMFP consists of 18 monitoring programs and one follow-up program.

The 18 monitoring programs are organized in space and time such that the section of Peace River that transitions to the Site C Reservoir is monitored under the programs titled 'Peace River' prior to reservoir filling, and programs titled 'Site C Reservoir' following reservoir filling. Table 1 summarizes these monitoring programs.

Table 1. Summary of Monitoring Programs

Monitoring Program ID	Monitoring Program Name and Description
Mon-1a	**Site C Reservoir Fish Community Monitoring Program** Monitor the effects of river to reservoir transformation on the fish community in Site C Reservoir and associated tributaries.
Mon-1b	**Site C Reservoir Tributaries Fish Community and Spawning Monitoring Program** Monitor fish populations in Peace River and Site C reservoir that migrate to tributaries to determine effects of the Project and the effectiveness of mitigation measures for fish and fish habitat.
Mon-2	**Peace River Fish Community Monitoring Program** Monitor fish populations in the Peace River to determine effects of the Project and the effectiveness of mitigation measures for fish and fish habitat.
Mon-3	**Peace River Physical Habitat Monitoring Program** Monitor the effects of the Project on physical habitat.
Mon-4	**Site C Reservoir Riparian Vegetation Monitoring Program** Monitor the effectiveness of planned riparian planting adjacent to Site C Reservoir.

[3] Available at: http://sitecproject.com/sites/default/files/Fish%20Passage%20Management%20Plan.pdf

Monitoring Program ID	Monitoring Program Name and Description
Mon-5	**Peace River Riparian Vegetation Monitoring Program** Monitor how the construction and operation of the Project affects the quality and quantity (species composition, biological productivity, spatial area) of riparian vegetation along the Peace River downstream of Site C.
Mon-6	**Site C Reservoir Fish Food Organisms Monitoring Program** Monitor the effects of Site C Reservoir formation on the production of fish food organisms.
Mon-7	**Peace River Fish Food Organisms Monitoring Program** Monitor the effects of Project construction and operations on the biomass of invertebrates and the availability of fish food organisms downstream of Site C.
Mon-8	**Site C Reservoir Water and Sediment Quality Monitoring Program** Monitor the effects of reservoir formation on water and sediment quality.
Mon-9	**Peace River Water and Sediment Quality Monitoring Program** Monitor the effects of the Project on water and sediment quality downstream of Site C.
Mon-10	**Site C Fish Entrainment Monitoring Program** Monitor entrainment rates and survival rates of entrained fish during the operation of Site C.
Mon-11	**Site C TDG Monitoring Program** Monitor Total Dissolved Gas (TDG) supersaturation and potential effects to downstream fish populations resulting from Gas Bubble Disease (GBD) during Site C Project construction and operation.
Mon-12	**Site C Fish Stranding Monitoring Program** Monitor Project construction and operation effects associated with flow fluctuations and fish stranding on the Peace River fish community.
Mon-13	**Site C Fishway Effectiveness Monitoring Program** Monitor the performance of the temporary and permanent fishways at the Project.
Mon-14	**Site C Trap and Haul Fish Release Location Monitoring Program** Monitor the movements following release of fish collected at Site C fishways and transported and released several upstream release locations.
Mon-15	**Site C Small Fish Species Translocation Monitoring Program** Monitor small fish species populations in the Peace River to determine effects of the project on genetic structure, movement, and genetic exchange.
Mon-16	**Site C Reservoir Constructed Shallow Water Habitat Areas Sediment and Vegetation Monitoring Program** Monitor the suitability of benthic substrates in constructed shallow water habitats of Site C Reservoir for aquatic plants and monitor the natural colonization of aquatic plants in these habitats.
Mon-17	**Peace River Water Level Fluctuations Monitoring Program** Investigate the effects of water level fluctuations on the catchability of Peace River fish and the biomass and production of periphyton, downstream of Site C.

There is one follow-up program in the FAHMFP, the Tributary Mitigation Opportunities Evaluation Program.

2.3 Development of the Plan and Reporting Requirements

Construction of the Project began on July 27, 2015. The final FAHMFP was submitted to the EAO on December 22, 2015 in accordance with:

- EAC Schedule B, Condition 7: "The EAC Holder must file the final Fisheries and Aquatic Habitat Monitoring and Follow-up Program with EAO, FLNR, MOE and Aboriginal Groups within 150 days following the commencement of the construction and operations phases."

BC Hydro committed to providing reports on the implementation of the FAHMFP to the EAO annually by March 1 of the year following data collection. This reporting timing is consistent with conditions for reporting under the *Fisheries Act* authorizations for the Project[4]. This report is being submitted by March 1, 2021, to fulfill the reporting requirements for the calendar year 2020.

Note that the FAHMFP refers to calendar 'Construction Years' that correspond to Construction Year 1 (2015), Construction Year 2 (2016) etc. (see Fig. 5 of the FAHMFP). The FAHMFP describes that monitoring under the FAHMFP begins in Construction Year 2 (2016; see Fig. 5 of the FAHMFP).

3.0 Summary of Implementation Status: Monitoring Follow-up Programs

All monitoring programs scheduled to take place in 2020 were implemented, except for the following tasks: Peace River Creel Survey (Mon-2, Task 2c) and the Peace River Tributaries Walleye Spawning and Rearing Use Survey (Mon-2, Task 2e). These tasks were deferred for technical reasons and given concerns due to COVID-19. The Creel Survey of angling effort was deferred for the following reasons: a) the creel survey is scheduled to occur every five years in coordination with the Department of Fisheries and Oceans' Survey of Recreational Fishing in Canada and this national survey was deferred in 2020 due to COVID-19, b) there were concerns that 2020 may not be a representative year to monitor angling effort in the Peace River due to COVID-19 travel restrictions, and c) there were risks to worker safety to undertake interviews with anglers during COVID-19. The Peace River Tributaries Walleye Spawning and Rearing Use Survey was deferred by one year to allow for more Walleye to be radio tagged in the Peace River in 2020, thereby increasing the number of tagged Walleye available to be tracked during the tributary survey. Table 2 summarizes the implementation.

Table 2. Monitoring tasks implemented in 2020, as per the schedule in the Fisheries and Aquatic Habitat Monitoring and Follow-up Program

Monitoring Program ID	Description	Data Collection Tasks Implemented	Status of Analysis and Reporting [a]
Mon-1a: Site C Reservoir Fish Community Monitoring Program	Monitor the effects of river to reservoir transformation on the fish community in Site C Reservoir and associated tributaries.	N/A (Monitoring begins during Project operations)	N/A (Monitoring begins during Project operations)

[4] Available at: https://www.sitecproject.com/document-library/permits-and-authorizations

Monitoring Program ID	Description	Data Collection Tasks Implemented	Status of Analysis and Reporting [a]
Mon-1b: Site C Reservoir Tributaries Fish Community and Spawning Monitoring Program	Monitor fish populations in Peace River and Site C Reservoir that migrate to tributaries to determine effects of the Project and the effectiveness of mitigation measures for fish and fish habitat.	2a – Peace River Arctic Grayling and Bull Trout Movement Assessment	Ongoing
		2b – Peace River Bull Trout Spawning Assessment	Ongoing
		2c – Site C Reservoir Tributaries Fish Population Indexing Survey	Ongoing
		2d – Site C Fish Movement Assessment	Ongoing
Mon-2 Peace River Fish Community Monitoring Program	Monitor fish populations in the Peace River to determine effects of the Project and the effectiveness of mitigation measures for fish and fish habitat.	2a – Peace River Large Fish Indexing Survey	Ongoing
		2b – Peace River Fish Composition and Abundance Survey	Ongoing
		2c – Peace River Creel Survey	Deferred due to COVID-19
		2d – Offset Effectiveness Monitoring	Ongoing
		2e – Peace River Tributaries Walleye Spawning and Rearing Use Survey	Deferred due to COVID-19
		2f – Beatton River Arctic Grayling Status Assessment	Ongoing
Mon-3 Peace River Physical Habitat Monitoring Program	Monitor the effects of the Project on physical habitat.	2c – Offset Effectiveness Monitoring	Ongoing
Mon-4 Site C Reservoir Riparian Vegetation Monitoring Program	Monitor the effectiveness of planned riparian planting adjacent to Site C Reservoir.	N/A (Monitoring occurs in subsequent years)	N/A (Monitoring occurs in subsequent years)

Monitoring Program ID	Description	Data Collection Tasks Implemented	Status of Analysis and Reporting [a]
Mon-5 Peace River Riparian Vegetation Monitoring Program	Monitor how the construction and operation of the Project affects the quality and quantity (species composition, biological productivity, spatial area) of riparian vegetation along the Peace River downstream of Site C.	N/A (Monitoring occurs in subsequent years)	N/A (Monitoring occurs in subsequent years)
Mon-6 Site C Reservoir Fish Food Organisms Monitoring Program	Monitor the effects of Site C Reservoir formation on the production of fish food organisms.	2a – Biomass and Production of Fish Food Organisms	N/A (Monitoring occurs in subsequent years)
		2b – Ecosystem Attributes	
Mon-7 Peace River Fish Food Organisms Monitoring Program	Monitor the effects of Project construction and operations on the biomass of invertebrates and the availability of fish food organisms downstream of Site C.	2a – Biomass and Production of Fish Food Organisms	N/A (Monitoring occurs in subsequent years)
		2b – Ecosystem Attributes	
Mon-8 Site C Reservoir Water and Sediment Quality Monitoring Program	Monitor the effects of reservoir formation on water and sediment quality.	2a – General Water and Sediment Quality Monitoring	N/A (Monitoring occurs in subsequent years)
		2b – Temperature Monitoring	Ongoing
		2c – Turbidity Monitoring	Ongoing
Mon-9 Peace River Water and Sediment Quality Monitoring Program	Monitor the effects of the Project on water and sediment quality downstream of Site C.	2a – General Water and Sediment Quality Monitoring	N/A (Monitoring occurs in subsequent years)
		2b – Temperature Monitoring	Ongoing
		2c – Turbidity Monitoring	Ongoing
Mon-10 Site C Fish Entrainment Monitoring Program	Monitor entrainment rates and survival rates of entrained fish during the operation of Site C.	N/A (Monitoring occurs in subsequent years)	N/A (Monitoring occurs in subsequent years)

Monitoring Program ID	Description	Data Collection Tasks Implemented	Status of Analysis and Reporting [a]
Mon-11 Site C TDG Monitoring Program	Monitor Total Dissolved Gas (TDG) supersaturation and potential effects to downstream fish populations resulting from Gas Bubble Disease (GBD) during Site C Project construction and operation.	N/A (Monitoring occurs in subsequent years)	N/A (Monitoring occurs in subsequent years)
Mon-12 Site C Fish Stranding Monitoring Program	Monitor Project construction and operation effects associated with flow fluctuations and fish stranding on the Peace River fish community.	Task 2a – Identification of Monitoring Sites	N/A (Monitoring occurs in subsequent years)
		Task 2b – Monitoring Stranding Sites	
Mon-13 Site C Fishway Effectiveness Monitoring Program	Monitor the performance of the temporary and permanent fishways at the Project.	Task 2a – Site C Tailrace and Fishway Telemetry System	Ongoing
		Task 2b – Attraction Efficiency and Entrance Accessibility Assessment	Ongoing
Mon-14 Site C Trap and Haul Fish Release Location Monitoring Program	Monitor the movements following release of fish collected at Site C fishways and transported and released several upstream release locations.	N/A (Monitoring occurs in subsequent years)	N/A (Monitoring occurs in subsequent years)
Mon-15 Site C Small Fish Species Translocation Monitoring Program	Monitor small fish species populations in the Peace River to determine effects of the project on genetic structure, movement, and genetic exchange.	N/A (Monitoring occurs in subsequent years)	N/A (Monitoring occurs in subsequent years)
Mon-16 Site C Reservoir Constructed Shallow Water Habitat Areas Sediment and Vegetation Monitoring Program	Monitor the suitability of benthic substrates in constructed shallow water habitats of Site C Reservoir for aquatic plants and monitor the natural colonization of aquatic plants in these habitats.	N/A (Monitoring occurs in subsequent years)	N/A (Monitoring occurs in subsequent years)
Mon-17 Peace River Water Level	Investigate the effects of water level fluctuations on	3a – Catchability	N/A (Monitoring

Monitoring Program ID	Description	Data Collection Tasks Implemented	Status of Analysis and Reporting [a]
Fluctuations Monitoring Program	the catchability of Peace River fish and the biomass and production of periphyton, downstream of Site C.	3b – Benthos and Periphyton	occurs in subsequent years)
		3c – Daily Growth	
		3d – Fish Community Composition	
		3e – Fish Recruitment	

[a] Status of Analysis and Reporting: As of February 15, 2021, 'Ongoing' refers to analysis and reporting of 2020 data collection that continues or is in draft form.

Table 3. Follow-up tasks implemented in 2020, as per the schedule in the Fisheries and Aquatic Habitat Monitoring and Follow-up Program.

Follow-up Program	Description	Data Collection Tasks Implemented	Status of Analysis and Reporting
Site C Tributary Mitigation Opportunities Evaluation Program	Identify enhancement opportunities for stream dependent indicator species described in the EIS including Arctic Grayling, Bull Trout, Burbot, Goldeye, Mountain Whitefish, Rainbow Trout, and Walleye.	2a – Initial Mitigation Project Identification	N/A (Monitoring occurs in subsequent years)
		2b – WSEP Tier 1 Assessments	
		2c – Identification of Additional Candidate Watersheds	

The following sections summarize the 2020 data collection for the monitoring programs and tasks that were implemented (Table 2).

3.1 Mon-1b Site C Reservoir Tributaries Fish Community and Spawning Monitoring Program

Task 2a: Peace River Arctic Grayling and Bull Trout Movement Assessment

The purpose of the Peace River Arctic Grayling and Bull Trout Movement Assessment is to determine the magnitude, direction and seasonality of Arctic Grayling and Bull Trout movements within the Peace River, Site C Reservoir and tributaries to help determine the effect the Project may have on these metrics, and to inform various monitoring programs.

Nineteen Arctic Grayling and 68 Bull Trout were radio tagged in the Peace River and its tributaries in 2020. Radio tagged fish were monitored by the fixed radio telemetry array deployed under the Site C Fish Movement Assessment (Mon-1b, Task 2d) as well as mobile surveys throughout the region using helicopter and fixed-wing aircraft.

Analysis and reporting of the data collected in 2020 are ongoing.

Task 2b: Peace River Bull Trout Spawning Assessment

In 2020, the Peace River Bull Trout Spawning Assessment occurred in the upper portion of the Halfway Watershed. Trained observers conducted aerial and ground surveys over a four-week period to visually enumerate Bull Trout redds (i.e., a nest in the gravel that is excavated during spawning) in six spawning tributaries: the Chowade River, Cypress Creek, Fiddes Creek, Turnoff Creek, Needham Creek, and the upper Halfway River. Data were collected for estimating observer efficiency and survey life of redds by marking and re-sighting redds during aerial and ground surveys.

To supplement the aerial and ground survey approach, electronic counters paired with video validation equipment, and PIT arrays were operated in the Chowade River and Cypress Creek from mid-August to early October. Equipment was remotely powered by solar panels and battery banks, and sites were visited weekly throughout the monitoring period to conduct

detailed testing and calibration of the equipment. Data will be used to estimate the population abundance, migration timing, spawning duration and behaviour of Bull Trout in the Chowade River and Cypress Creek, and detect Bull Trout and Rainbow Trout PIT-tagged under other monitoring programs (Mon-1b, Task 2c and Mon-2, Task 2a).

Analysis and reporting of the data collected in 2020 are ongoing.

Task 2c: Site C Reservoir Tributaries Fish Population Indexing Survey

The Site C Reservoir Tributaries Fish Population Indexing Survey monitors the abundance of Arctic Grayling in the Moberly River, Bull Trout in the Chowade River and Cypress and Fiddes creeks, and Rainbow Trout in Colt, Farrell, Kobes, and Maurice creeks. As part of a multi-year study, the results from 2020 intend to provide additional baseline data prior to subsequent phases of construction and operation.

For streams where sampling targeted Bull Trout, backpack electrofishing effort was focused on upstream reaches and locations that contained high quality rearing habitat for this species. Captured Bull Trout were implanted with passive integrated transponder (PIT) tags to monitor their movements through PIT arrays installed in the Chowade River and Cypress Creek as part of the Peace River Bull Trout Spawning Assessment (Mon-1b, Task 2b). These tagged fish may also be recaptured under other monitoring programs in the FAHMFP. Young of the Year (YOY) and immature Bull Trout (i.e., fish less than 250 mm FL that were not YOY) were recorded in all three systems. In 2020, 565 PIT tags were deployed into Bull Trout in these three systems.

For streams where sampling targeted Rainbow Trout, backpack electrofishing effort occurred at previously established sites in Colt, Farrell, and Kobes creeks allowing for changes to the Rainbow Trout population to be monitored over time. In 2020, sampling targeting Rainbow Trout was also conducted in Maurice Creek, which had not been previously sampled under the FAHMFP. Sample locations included eight sites on Colt Creek, six sites on Farrell Creek, eight sites on Kobes Creek, and eight sites on Maurice Creek. Immature Rainbow Trout were recorded in all four systems. In 2020, 301 PIT tags were deployed into Rainbow Trout in these four systems.

The entire length of the Moberly River between Moberly Lake and the river's confluence with the Peace River was accessed by inflatable boat. Sample effort in 2020 included 55 backpack electrofishing sites, 53 small boat electroshocking sites, and 80 angling sites. Arctic Grayling were encountered during small boat electroshocking (n = 27), backpack electrofishing (n = 45) and angling (n = 62) surveys. YOY, immature, and adult Arctic Grayling were recorded and 82 of the 134 captured Arctic Graying were implanted with PIT tags.

Analysis and reporting of the data collected in 2020 are ongoing.

Task 2d: Site C Fish Movement Assessment

The purpose of the Site C Fish Movement Assessment is to determine the magnitude, direction and seasonality of fish movements in the Peace River and its tributaries during the construction and operation phases of the Project. Movement data will be shared among monitoring programs to address specific fisheries management questions.

In 2020, thirty fixed radio telemetry stations were deployed throughout the Peace Region to monitor the movements of radio tagged fish. Stations were deployed in the Peace River from

Peace Canyon Dam to the Many Islands area in Alberta, and at the confluences of all major tributaries (Maurice Creek, Lynx Creek, Farrell Creek, Halfway River, Cache Creek, Wilder Creek, Moberly River, Pine River, Beatton River, Kiskatinaw River, Pouce Coupe River).

Two hundred and seventy-eight fish were radio tagged in 2020 under Mon-1b, Task 2c and Mon-2, Task 2a:

- 19 Arctic Grayling;
- 68 Bull Trout;
- 91 Rainbow Trout;
- 28 Mountain Whitefish;
- 7 Burbot; and
- 65 Walleye.

Analysis and reporting of the data collected in 2020 are ongoing.

3.2 Mon-2 Peace River Fish Community Monitoring Program

Task 2a: Peace River Large Fish Indexing Survey

Sampling under Mon-2, Task 2a was conducted in six different sections of the Peace River mainstem located between Peace Canyon Dam and the Many Islands area in Alberta. All large-bodied fish were monitored; however, the program focused on seven indicator species including Arctic Grayling, Bull Trout, Burbot, Goldeye, Mountain Whitefish, Rainbow Trout, and Walleye. Sampling occurred during the late summer to early fall period. Additional surveys were conducted in 2020 at select locations in the late spring to early summer period to target Goldeye and Walleye prior to these species' downstream migrations out of the study area. For both surveys, fish were sampled by boat electroshocking within nearshore habitats (less than 2.0 m depth). Length, weight, and ageing structures were collected from all captured indicator species. Depending of fish size and sample session, captured indicator species were marked with PIT tags.

Analysis and reporting of the data collected in 2020 are ongoing.

Task 2b: Peace River Fish Composition and Abundance Survey

Sampling under Mon-2, Task 2b was conducted in three different sections of the Peace River downstream of the Project. Small-bodied fish and younger age-classes of large-bodied fish were targeted in 2020 to provide more specific information on recruitment and conditions for early rearing. Small boat electrofishing, backpack electrofishing, gill netting, and beach seining were used to capture fish in late September and early October. Length, weight, and ageing structures were collected from all captured indicator species. Depending of fish size, captured indicator species were marked with PIT tags.

Analysis and reporting of the data collected in 2020 are ongoing.

Task 2d: Offset Effectiveness Monitoring

In 2020, effectiveness monitoring of habitat offset areas (Site 108R) focused on two components: physical habitat (Mon-3, Task 2c) and general fish use.

Channel morphology and substrate characteristics within constructed offsets were monitored using an Acoustic Doppler Profiler (ADP) and substrate measurements. Fish use of Site 108R was assessed by conducting small boat electrofishing, backpack electrofishing, minnow trapping, gill netting, and beach seining between mid-August and mid-October 2020.

Analysis and reporting of the data collected in 2020 are ongoing.

3.3 Mon-8 Site C Reservoir Water and Sediment Quality Monitoring Program and Mon-9 Peace River Water and Sediment Quality Monitoring Program

Mon-8 and 9 monitor the same parameters but in different locations: the area of the future Site C Reservoir, and the Peace River downstream of the Site C dam site, respectively. For simplicity, the following section summarizes implementation for both programs in 2020. These programs collect information and parameters focused on fish and fish habitat.

Task 2b: Temperature Monitoring

Continuous measurements of water temperature were recorded at Peace River sites between Williston Reservoir and the Pouce Coupe River in Alberta. Temperature loggers were checked for calibration, set to record temperature at hourly intervals and secured to the river bank or anchored to the river bed. Data loggers were downloaded approximately every three months.

Analysis and reporting of the data collected in 2020 are ongoing.

Task 2c: Turbidity Monitoring

Continuous Peace River turbidity monitoring occurred at four monitoring sites in the Peace River in 2020. Two turbidity monitoring stations, Peace above Pine - Left Bank (PAP-LB) and Peace above Pine – Right Bank (PAP-RB), are located in the Downstream Reach between the Project and the Pine River. The two upstream monitoring stations, Peace above Moberly – Left Bank (PAM-LB) and Peace above Moberly – Right Bank (PAM-RB), are located on opposite banks of the Peace River immediately upstream of the Project and the Moberly River.

Analysis and reporting of the data collected in 2020 are ongoing.

3.4 Mon-13 Site C Fishway Effectiveness Monitoring Program

Mon-13 aims to monitor the biological effectiveness of the temporary facility. In 2020, an array of fixed radio telemetry stations and PIT antennas were deployed in and around the temporary facility to detect the movements of tagged fish as they approached, entered and passed the facility. Tagged fish were monitored during the commissioning and operation of the temporary facility in September and October, respectively. More than 350 Arctic Grayling, Bull Trout, Burbot, Lake Whitefish, Largescale Sucker, Longnose Sucker, Mountain Whitefish, Rainbow Trout and Walleye tagged under other monitoring programs (Mon-1b, Task 2c and Mon-2, Task 2a) were detected in and around the temporary facility during this time period.

Analysis and reporting of the data collected in 2020 are ongoing.

4.0 Qualified Professionals

This report was prepared by the following Qualified Individuals:

Qualified Individual	Expertise
Brent Mossop, MRM, RPBio	Fisheries
Nich Burnett, MSc, RPBio	Fisheries