

Hospital Creek Bank Restoration and Protection: Fish Salvage

TYBO Contracting Limited project no: 22-698



**Prepared for:
TYBO Contracting Ltd.**



**JRC ENVIRONMENTAL
CONSULTING**

**Prepared by:
JRC Environmental Consulting Ltd.**

*JRC Project Number: 2022-007
August 2022*

Fish Salvage Summary

Introduction

The proponent for this project, TYBO Contracting Ltd. (TYBO), was awarded the contract to complete Hospital Creek Bank Restoration and Protection Project at Hospital Creek within the Golden Mobile Home Court in the town of Golden, BC. TYBO has engaged JRC Environmental Consulting Ltd. (JRC) to provide environmental managing during the project.

The Ministry of Forests, Lands, Natural Resource Operations, and Rural Development (MFLNRORD) requires the protection of fish and fish habitat during instream works. JRC and Grassroots Environmental Services (Grassroots) completed a fish salvage as per the Ministry's guidelines as the Qualified Environmental Professional. In accordance with Provincial regulatory requirements, JRC obtained proper authorization prior to conducting fish sampling. The Fish Collection Permit [CB22-744270] is included as **Appendix A**.

On August 22, 2022, Donald Norosky, Jubilee Cacaci and Scott Wilson performed a fish rescue for the instream works at Hospital Creek. A total of 5 fish were captured and identified during the salvage, including: Rainbow trout (*Oncorhynchus mykiss*; unranked) and Brook trout (*Salvelinus fontinalis*; exotic). Supplementary fish salvage results can be found in **Appendix B**.

Methods

This salvage was undertaken to meet the requirements and terms contained within the Permit. As such, the data collected, and methods used relate directly to those suggested in that document. Sampling began at the downstream end of the construction limits above the downstream stop net and continued up to the upstream stop net and construction limits. Fishing took place in an upstream direction and was deemed complete after two consecutive zero-catch passes. Any fish captured were processed and safely released downstream without delay.

Materials

Electrical measuring and sampling devices used during this project included:
Electrofishing was performed using a Smith-Root LR24 backpack fisher

August 21, 2022

This salvage was undertaken to meet the terms contained within the Permit. The salvage methodology thus reflects Provincial requirements, and is briefly outlined below:

A combination of exclusion seine netting and electrofishing techniques were utilized. The day prior to the commencement of work (August 21, 2022), seine netting was installed in two areas: one net set approximately 20.0 meters (m) upstream of the instream work area; one net set approximately 10.0 m downstream of the instream work area, strung across Hospital creek. Prior to deploying the downstream nets, a seine net was pulled through the stream flush fish downstream see Figure 1 as **Appendix C**.

On the morning of August 21, 2022, prior to instream work commencing, a Smith-Root LR24 Backpack

Electrofishing was used to salvage the remaining fish within the exclusion area (i.e., isolation barriers were installed up and downstream of the instream work area). Water quality parameters (i.e., conductivity and temperature) were recorded, and the electrofisher calibrated the settings based on water conditions and for expected fish species and size (Appendix B, Table 1). The entire exclusion area had a minimum of two passes, with a total effort of 1560 seconds of 'electrofishing on-time', concluding after two consecutive passes with no fish captured. A total of 5 fish were captured during electrofishing effort, including 4 Rainbow trout and 1 Brook trout.

During instream work on August 22 - 26, several salmonid parr were observed within the exclusion area by the JRC on-site environmental monitor. JRC staff attempted to remove the fish first with seine nets and dip nets used to herd fish downstream to the bottom stop net within the exclusion area outside of the isolated work area, where fish were attempted to be caught. A total of 4 fish over four days were captured with dip nets, including 1 Rainbow trout and 3 Brook trout. The Brook trout were adult fish, and it is thought they had jumped into the downstream stop net into the isolated area overnight. All fish were observed as work started in the morning; work was halted during the capture of the fish.

Fish handling, holding, and release for all captured fish was in accordance with the Fish Collection Methods and Standards set out by the Resources Inventory Committee (1997) as well as the Recommended Fish Exclusion, Capture, Handling, and Electroshocking Protocols and Standards set out by the U.S. Fish and Wildlife Service (2012). Fish were handled as little as possible and with clean hands to avoid disturbing the mucous layer on the skin. Fish were kept in sterilized buckets sufficient in size to avoid crowding, and fish were separated when there was risk of predation (i.e., fish were kept separate if there was a large size discrepancy). Holding buckets were outfitted with cover such as woody debris and cobbles. The buckets were kept in shaded areas, and the water was refreshed regularly to avoid temperature stress. Fish were held in the buckets for no longer than 10 minutes. Fish were relocated to Hospital Creek, downstream to similar water characteristics and sufficient cover, approximately 10 m downstream of the capture site. Both site characteristics and fish species were considered when selecting this release location.

Stream Parameters

Water quality measurements including pH (8.6), temperature (12.9°Celsius (C)), conductivity (380 µS/cm), and turbidity (1.26 NTU's) were collected from Hospital Creek at 9:35 on August 21, 2022. These parameters are within the range of CCME's Water Quality Guidelines for the Protection of Aquatic Life². There are records of rainbow trout (*Oncorhynchus mykiss*) in the watershed³.

Fishing Effort

Electrofishing was conducted using a Smith-Root LR-24 backpack type and a dip net, on August 21, 2022. During a total of three runs, the area was fished for 1,560 seconds of 'electrofishing on-time'. The electrofisher was operating with a standard pulse waveform at 30 Hz, 12% duty cycle (4 ms pulse width), and 355 V of peak power during the first run. The power output had to be reduced to 150 V for the second run and 50 V for the third run. A total of 5 fish were captured during this salvage: 4 Rainbow trout and 1 Brook trout. Zero fish were captured or observed in the 2nd and 3rd electrofishing runs. Table 1, below, summarizes fishing effort and results at the site. Most of the trout captured were in the parr fry life stage. A summary of

photographs of the salvage are included in **Appendix D**.

Table 1: Electrofishing Effort at Hospital Creek; August 22, 2022

EF Sampling Run	Amount of Effort	# Fish Captured
Run 1	613 sec	5
Run 2	474 sec	0
Run 3	473 sec	0
TOTAL	1,560 sec	0

All captured fish were included in the provincial data return.

Closure

This Fish Salvage Summary has been completed by JRC Environmental Consulting Ltd. for TYBO Contracting Ltd. JRC has completed these reporting requirements to the best of its ability, using the current information available as of publication. Should you have any concerns or questions concerning the contents of this document, please contact the undersigned at your convenience.



Jubilee Cacaci, M.Sc., EP, P.Ag.

Appendices

- Appendix A: Fish Collection Permit **CB22-744270**
- Appendix B: Raw Fish Capture Data
- Appendix C: Figure 1 – Map of Site
- Appendix D: Photographs

² Canadian Council of Ministers of the Environment (CCME). (2007). *Canadian Water Quality Guidelines for the Protection of Aquatic Life: Summary Table*. In: *Canadian Environmental Quality Guidelines, 1999*. Canadian Council of Ministers of the Environment. Winnipeg, MB.

³ Government of British Columbia. (2020, August 10). *Habitat Wizard*. Available at <https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/ecosystems/habitatwizard>

Appendix A: Fish Collection Permit CB22-744270Ministry of
Forests**FISH COLLECTION PERMIT**
Fish Salvage

File: 34770-20

Permit No.: CB22- 744270

Permit Holder: JRC Environmental Consulting Ltd- Jubilee Cacaci
810 13th Street
Box 987
Golden BC V0A 1H0

Authorized Persons: Donald Norosky, Natalie Ebsworth

Pursuant to section 18 of the Angling and Scientific Collection Regulation, B.C. Reg. 125/90, the above-named persons are authorized to collect fish for scientific purposes (from non-tidal waters) subject to the terms set forth in this Permit:

Permitted Sampling Period: July 16, 2022 to August 31, 2022**Permitted Waterbodies:**

Kootenay-Boundary Region- (00000KHOR 300-910100)

Permitted Sampling Techniques: EF, SN (subject to permit terms)**Potential Species:** RB, BT, EB (subject to permit terms)**Permitted Lethal Sampling, Tagging or Marking:** (subject to permit terms)**Provincial Terms:** (Permit holder and authorized persons must be aware of all terms):

See Appendix A.

Region Specific Terms:

See Appendix A.

Authorized by:

A handwritten signature in black ink, appearing to read "Albert Chirico".

Albert Chirico, Regional Information Specialist/Fisheries
As authorized by the Regional Manager
Recreational Fisheries & Wildlife Programs
Kootenay-Boundary Region

Date: June 30, 2022

Permit Fee \$25

Ministry of Forests

Fish and Wildlife Branch
PO Box 9363 Stn Prov Gov
Victoria BC V8W 9M3

Last Updated: 07-Apr-2022

Page 1 of 11

Permit No.: CB22-744270



Permit No.: CB22-744270

Appendix A: Fish Collection Permit Terms

Any Variation of the following terms will require explicit authorization by the appropriate regional Fish & Wildlife Section Head.

Provincial Terms

1. This collecting permit is **only** valid for species listed as threatened, endangered or extirpated under the *Species at Risk Act* (SARA) **in conjunction with a permit issued under Section 73 of SARA from Fisheries and Oceans Canada.**

NOTE: Contact the Department of Fisheries and Oceans for fish collecting permits for salmon, eulachon or SARA listed species (see Appendix B).

2. Any specimen's surplus to scientific requirements and any species not authorized for collection in this permit must be immediately and carefully released at the point of capture.
3. Fish collected under authority of this permit must not be used for food or any purpose other than the objectives set out in this permit. Dead fish must be disposed of in a manner that will not constitute a health hazard, nuisance or a threat to wildlife.
4. No fish collected under authority of this permit must be transplanted unless separately authorized by the Federal/Provincial Introductions and Transfers Committee.
5. The permit holder must, within 90 days (120 days for the Kootenay/Boundary region and Peace region) of the expiry of this permit, submit a report of fish collection activities. Interim reports may also be required and must be submitted as required by the permit issuer. All submissions must be filed electronically to: <https://www2.gov.bc.ca/fish-data-submission-process>.

Reporting specifications, information and templates are available from this website and outline the mandatory information requirements. Prior notification of submission or questions regarding data report standards can be made to: fishdatasub@gov.bc.ca
6. The permit holder must comply with all Workers' Compensation Board requirements and other regulatory requirements. The permit holder is responsible for ensuring authorized persons listed on the permit are properly certified for specific sampling methods or activities (e.g. electroshocking).
7. Any workers not listed on the permit must be supervised by the permit holder or one of the authorized persons named on the permit.
8. All sampling equipment that has been previously used outside of B.C. must be cleaned of mud and dirt and disinfected with 100mg/L chlorine bleach before using in any water course to prevent the spread of fish pathogens (e.g. whirling disease) and/or invasive plant species. Any washed off dirt or mud must be disposed of in a manner such that it cannot enter a watercourse untreated.
9. No electrofishing is to take place in waters having a temperature less than five degrees C.
10. No sampling of fish in waters having a temperature greater than twenty degrees C.
11. Electrofishing must not be conducted in the vicinity of spawning gravel, redds, or spawning fish, or around gravels which are capable of supporting eggs or developing embryos of any species of salmonid at a time of year when such eggs or embryos may be present.

Permit No.: CB22-744270

Provincial Terms continued

When work requires de-watering or isolation of the worksite in the stream, a permit for the salvage of fish and wildlife (Scientific Fish Collection permit) must be obtained prior to commencing work. All required salvage permits must be obtained from FrontCounter BC: <http://www.frontcounterbc.gov.bc.ca/>

Any fish or wildlife salvage must be carried out by a qualified environmental professional registered with a professional association (such as an R.P.Bio.). The qualified professional conducting salvage work must adhere to the conditions below in addition to those required in the Scientific Fish Collection permit.

- Salvage activities must be conducted to the Provincial Resource Information Standards Committee (RISC) standards for capture, data collection, handling and release:

STREAM ISOLATION

- The QP must follow the standards and practices outlined in the Work Area Isolation Appendix found in the Standards and Best Practices for Instream Works.
<http://www.env.gov.bc.ca/wld/documents/bmp/iswstdsbpsmarch2004.pdf>
- A QP must ensure that the worksite has been substantively isolated to prevent any fishes from entering the work area and efforts must be made to exclude fish from entrapment during installation of isolation works. (See section 14.2 of the Standards and Best Practices for Instream Works (MWLAP 2004).
- Dewatering must not result in HADD to fish habitat or the death of fish unless authorized by Fisheries and Oceans Canada.
- While dewatering the work site and dewatering during fish capture, all pump intakes are required to meet the federal COP for fish intake screening guidelines <https://www.dfo-mpo.gc.ca/pnw-ppe/codes/screen-ecran-eng.html>.

FISH CAPTURE

- Qualified professionals must determine appropriate sampling methods from the RISC standards based on water body type and habitat conditions <https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/nr-laws-policy/risc/fishml04.pdf>.
- Qualified professionals must use a risk hierarchy of passive to active and low risk to higher risk in collection methods (e.g., minnow traps, fyke nets, beach pole seines, electroshocking, angling).
- Qualified professional must conduct a **minimum of three** non-lethal collection methods in all fish salvages.
- For active collection methods a minimum of two consecutive passes of each method that produces a zero catch must be completed as per total population removal methodology (at a minimum 95% fish removal must be achieved). (<https://www.wildsalmoncenter.org/resources/field-protocols-best-monitoring-practices/>).
- Where work site isolation cannot be fully achieved (e.g., fast flowing streams, imperfect seal due to substrate) additional efforts are needed to prevent harm to fish. At the end of each workday, a passive form of fish capture (e.g., baited minnow traps) are to be placed in the isolation site. If fish are captured overnight, you must restart isolation procedures at the start of the workday.
- If species at risk are captured, work must stop until proper permits are obtained.

DATA COLLECTION

- Sampling/data collection is a requirement of the Scientific Collection Permit. Sample size requirements are listed in the table below.
- Scientific Fish Collection Permits require a Fish Data Submission Template to be completed. Step 4 (Stream Site Data) of the Fish Data Submission Template must be filled out for the location where fish are salvaged from. <https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/fish/fish-and-fish-habitat-data-information/fish-data-submission/submit-fish-data>

FISH RELEASE

- Fish must be released following RISC standards.
- All species are to be released in the same watercourse downstream of the work areas or a sufficient distance upstream (5 channel widths to a maximum of 100 meters) into waters of equivalent baseline quality and habitat type (pool, riffle, run).

Permit No.: CB22-744270

Minimum Standards During Salvage for Fish Collection Sampling Effort*

Fish Species	Age Class	Size range	Minimum Sampling Size for lengths	Sample column required (from Individual Fish Data form)	Notes
Salmonids, including RB, CT(CCT), DV, BT, GR, LT, KO	fry	20 to 80 mm	up to 30 after 30 count	J (if possible), K	
	juvenile	81 mm-250 mm	Measure all fish caught	J, K, L	
	adult	greater than 250 mm	Measure all fish caught	J, K, L, M, N	
Coarse Fish (cyprinids, stickleback, dace, shiner, carp, pikeminnow)		under 200 mm	up to 30 after 30 count	J, K	
	Adult	over 200 mm	All	J, K, L, M	
Sport other (bass, perch, sunfish, walleye, northern pike)		all	up to 30 after 30 count	J, K, L	
Sculpin sp.		0-150mm (total length)	up to 30 after 30 count	J, K	
		Over 150mm	All	J, K, L	
Burbot, Lamprey		0-150 mm (total length)	All	J, K, L, N	
Listed Species (salish sucker, sturgeon, etc.)		All	All		Refer to SAR permit for conditions
All fishes not listed above		All	minimum 10 of each then count only	J, K, L	

Abbreviations for salmonids

RB-Rainbow
 CT(CCT)-Cutthroat
 DV-Dolly Varden
 BT- Bull Trout
 GR- Arctic Grayling
 LT- Lake Trout
 KO- Kokanee

Permit No.: CB22-744270

Region Specific Terms

West Coast Region

- Within the boundaries of Management Units 1-1 through 1-13, there is no electrofishing in: (1) streams above 630 meters elevation, (2) in anadromous rivers from January 1 to June 30, (3) or any lake tributaries from January 1 to June 30.
- All sampling gear follow Association of Professional Biologists' advisory practice bulletin #5. Practice Advisory – Dydimio, see:
<http://a100.gov.bc.ca/pub/eirs/viewDocumentDetail.do?fromStatic=true&repository=BDP&documentId=9469>
- The permit holder must advise the West Coast Region of sampling activities 24 hrs. prior to field operations. Please complete the following notification form:
http://www.env.gov.bc.ca/pasb/reports/fish/permit_notify1.html

South Coast Region

- The permit holder must notify Fish and Aquatic Habitat Branch of the Ministry of Forests, Lands, Natural Resource Operations and Rural Development at SCFishandAquaticWildlife@gov.bc.ca with the following information at least 24 hours prior to undertaking work:
 - approved SFC permit number
 - company
 - contact
 - address
 - phone
 - water body
 - purpose of collection
 - start date
 - end date
- All streams sampled, for which a watershed code does not presently exist, will require a map showing the location of the stream and sampling location with the map scale identified at time of reporting.
- Electrofishing and minnow trapping can harm or kill non-target species of management concern such as the endangered Coastal Giant Salamander (within the Chilliwack River drainage system), Oregon Spotted Frog, and Pacific Water Shrew (within the lower Fraser River Valley). Any incidental captures (alive or dead) of any red-listed or blue-listed wildlife species must be reported to the Ministry of Forest, Lands, Natural Resources and Rural Development, South Coast Region. For further information on these species or to report incidental captures, please contact the Fish and Aquatic Habitat Branch by e-mail at SCFishandAquaticWildlife@gov.bc.ca.
- All non-native fish species captured under this permit are to be humanely euthanized and disposed of appropriately. Within 48 hours of capture, a record of the species, capture location, date, waterbody, number, size range (mm) and digital imagery must be submitted to the Fish and Aquatic Habitat Branch by email at SCFishandAquaticWildlife@gov.bc.ca. Non-native fish species include but are not limited to: American Shad; Black Catfish; Black Crappie; Brown Catfish; Carp; Goldfish; Largemouth or Smallmouth Bass; Pumpkinseed Sunfish; and Weather-fish.
- Please refer to the following website for the least risk in-stream work windows:
<https://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-licensing-rights/working-around-water/regional-terms-conditions-timing-windows>. Where possible, collection should be conducted during the least risk work windows identified. The exception is seasonal or ephemeral streams where sampling may not be possible during the prescribed window due to flow conditions.
- The permit holder must refer to the following when sampling Salish Sucker, Nooksack Dace and Stickleback species.

Salish sucker sampling guidelines - <http://www.frontcounterbc.gov.bc.ca/pdf/SalishSuckerCollectionGuidelines2015.pdf>

Nooksack dace sampling guidelines – <http://www.frontcounterbc.gov.bc.ca/pdf/NooksackDaceCollectionGuidelines2015.pdf>

Stickleback species pairs sampling guidelines - <http://www.dfo-mpo.gc.ca/species-especes/publications/sara-lep/stickleback-epinoches/index-eng.html>

Last Updated: 07-Apr-2022

Page 6 of 11

Permit No.: CB22-744270

Thompson/Okanagan Region

- Please refer to information at: <https://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-licensing-rights/working-around-water/regional-terms-conditions-timing-windows> for the appropriate in stream work windows.

Kootenay/Boundary Region

- No electrofishing is permitted between September 15 and June 15 in streams containing bull trout.
- The permit holder must contact the local zone Conservation Officer Service prior to initiating the field collections.
- All burbot traps must have a section in the top or sidewall that has been secured by a length of untreated, 100% cotton twine no greater than No. 30 (e.g. 30 thread count) or 3 mm diameter. When twine deteriorates, this must produce a square opening with a minimum size of 20 cm x 20 cm. This is intended to ensure that if the trap is lost, the section secured by the twine will rot, allowing captive fish to escape, and preventing the trap from continuing to fish.
- All sampling gear follow Association of Professional Biologist's advisory practice bulletin #5. Practice Advisory Dydimio, see: <http://a100.gov.bc.ca/pub/eirs/viewDocumentDetail.do?fromStatic=true&repository=BDP&documentId=9469>
- All fishing gear (e.g. gill nets, minnow traps, etc.) that are left unattended must have the permit holders contact information (name and phone number).
- Within 120 days of expiry of this permit, the permit holder must submit a report that summarizes all field and any laboratory analysis data related to the sampling program (typically location of catch, species, individual fish tissue metals analysis, moisture content, fish length and weight, etc., and as applicable) and all associated raw laboratory data.

The digital final written report (e.g. report, summary, memo, letter) is required and shall be submitted along with the standard format Excel data submission template.

Cariboo Region

- Cariboo Region requires seven days (7) written notice, complete with waterbody and watershed codes for the proposed areas prior to sampling in the Cariboo Region. Please submit written email notice to: Lee.Williston@gov.bc.ca or fax to 250 398 4214.
- Until such time as the permit holder has discussed specific activities with the Regional Manager and obtains written permission, fish collection, fish sampling or fish salvage may not be undertaken within the boundaries of Management Units 5-04 or 5-05.

Skeena Region

- For information related to Fish Collection Permit Activities in the Skeena Region, please contact Kristin Charleton at 250-876-7131 or Kristin.Charleton@gov.bc.ca.
- Accidental fish mortalities and/or injuries that occur during salvage activities, related to this permit, must be reported to the Skeena Regional office within 48 hrs. Contact Troy Larden at Troy.Larden@gov.bc.ca or Kristin Charleton at Kristin.Charleton@gov.bc.ca to report.

Omineca Region

- The permit holder must advise Region 7A (Omineca) of sampling activities 48 hrs. prior to field operations by completion of the following form: http://www.env.gov.bc.ca/pasb/reports/fish/permit_notify7a.html
- No electrofishing is permitted between September 15 and June 15 in streams containing bull trout.
- Voucher specimens for all regionally significant red and blue-listed species (3 per species), with exception to SARA-listed white sturgeon (*Acipenser transmontanus*), must be submitted to the Regional Fish Information Specialist as per RISC standards.
- All sampling gear follow Association of Professional Biologist's advisory practice bulletin #5. Practice Advisory Dydimio, see: <http://a100.gov.bc.ca/pub/eirs/viewDocumentDetail.do?fromStatic=true&repository=BDP&documentId=9469>. When lethal sampling has occurred for the purposes of environmental effects monitoring or impact

Last Updated: 07-Apr-2022

Page 7 of 11

Permit No.: CB22-744270

assessment, the permit holder must, within 90 days of the expiry of this permit, submit a report that summarizes all raw data related to the lethal program. This would typically include location of catch, species, fish tissue metals analysis, fish tissue moisture content, fish length and fish weight, at minimum. Interim reports may also be required and must be submitted as required by the permit issuer. All fish tissue analysis data related to the lethal program must be submitted ALONG with the standard sampling effort data submission template to <https://www2.gov.bc.ca/fish-data-submission-process>. Questions regarding submission requirements for lethal sampling may be directed to Susanne.Weber@gov.bc.ca.

Peace Region

- No electrofishing is permitted between September 15 and June 15 in streams containing bull trout.
- All sampling gear follow Association of Professional Biologists' advisory practice bulletin #5. Practice Advisory – Dydimo, see: <http://a100.gov.bc.ca/pub/eirs/viewDocumentDetail.do?fromStatic=true&repository=BDP&documentId=9469>
- All fishing gear (e.g. gill nets, minnow traps, etc.) that are left unattended must have the permit holders contact information (name and phone number).
- Within 120 days of expiry of this permit, the permit holder must submit a report that summarizes all field and any laboratory analysis data related to the sampling program (typically location of catch, species, individual fish tissue metals analysis, moisture content, fish length and weight, etc., and as applicable) and all associated raw laboratory data.

The digital final written report (e.g. report, summary, memo, letter) is required and shall be submitted along with the standard format Excel data submission template.



BRITISH
COLUMBIA

Permit No.: CB22-744270

Appendix B: Table 1 - Species at Risk

The following are species at risk that have been listed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as either endangered, threatened or a species of special concern. Species also listed under the Species at Risk Act (SARA) are identified with an asterisk and are subject to additional permitting requirements through the Federal Department of Fisheries and Oceans (DFO).

Common Name	Scientific Name
Benthic Paxton Lake Stickleback	* <i>Gasterosteus sp.</i>
Benthic Vananda Creek Stickleback	* <i>Gasterosteus sp.</i>
Limnetic Paxton Lake Stickleback	* <i>Gasterosteus sp.</i>
Limnetic Vananda Creek Stickleback	* <i>Gasterosteus sp.</i>
Nooksack Dace	* <i>Rhinichthys sp.</i>
Morrison Creek Lamprey	* <i>Lampetra richardsoni</i>
Vancouver Lamprey (Cowichan Lake Lamprey)	* <i>Lampetra macrostoma</i>
Cultus Pygmy Sculpin	* <i>Cottus sp.</i>
Shorthead Sculpin	* <i>Cottus confusus</i>
Hotwater Physa	* <i>Physella wrighti</i>
Limnetic Enos Lake Stickleback	<i>Gasterosteus sp.</i>
Benthic Enos Lake Stickleback	<i>Gasterosteus sp.</i>
Salish Sucker	<i>Catostomus sp.</i>
Speckled Dace	<i>Rhinichthys osculus</i>
Charlotte Unarmoured Stickleback	<i>Gasterosteus aculeatus</i>
Columbia Mottled Sculpin	<i>Cottus bairdi hubbsi</i>
Giant Stickleback	<i>Gasterosteus sp.</i>
Green Sturgeon	<i>Acipenser medirostris</i>
Umatilla Dace	<i>Rhinichthys umatilla</i>
West Slope Cutthroat Trout	* <i>Oncorhynchus clarki lewisi</i>
White Sturgeon	<i>Acipenser transmontanus</i>

Applications for permits to specifically collect and retain listed species must be reviewed by the appropriate provincial expert, who will screen permits to ensure that any impacts on listed species are acceptable. For white sturgeon the contact is Steve McAdam (steve.mcadam@gov.bc.ca). For listed non-game freshwater fish the contact is Jordan Rosenfeld (jordan.rosenfeld@gov.bc.ca).

Appendix C: Advisory

GENERAL

- It is the permit holder's responsibility to be aware of all applicable laws and the limits of this permit. For example,
 - This permit **does not** authorize the collection of fish in national or provincial parks.
 - This permit does not authorize the collection of fish in tidal waters.
 - This permit does not authorize the collection of eulachon or for salmon, other than kokanee.
 - This permit is NOT authority to angle for fish without a valid angling licence.
- It is the responsibility of the permit holder to obtain proper authorization.
- The Province is not liable for any illness contracted through fish handling. It is the responsibility of the permit holder to inform themselves of possible health hazards, and to ensure that all reasonably necessary safety measures are undertaken.
- If applicable, the permit holder is responsible for renewing his or her own permit. The issuer is not obliged to send a reminder notice.

LEGISLATION

Below is a non-exhaustive list of provisions under the *Wildlife Act* and regulations that are relevant to this permit. It is the permit holder's responsibility to be aware of any provisions under the Act or regulations that may apply to this permit.

Wildlife Act

Suspension and cancellation of permits

- 25 (1) A regional manager, for any cause he or she considers sufficient, and after providing an opportunity for the person to be heard, may suspend or cancel a permit held by a person, may order that the person is ineligible to obtain or renew a permit for a period and, if he or she does make an order, must inform the person of the period of ineligibility.
- (2) An officer may, without the necessity of holding a hearing, exercise the powers of a regional manager under this section to suspend a permit and, if a permit is suspended by an officer, the matter must be referred to the regional manager, who may confirm, reduce, extend or terminate the suspension.

Documents not transferable

- 81 Except as authorized by regulation or as otherwise provided under this Act, a licence, permit or limited entry hunting authorization is not transferable, and a person commits an offence if the person
- (a) allows his or her licence, permit or limited entry hunting authorization to be used by another person, or
 - (b) uses another person's licence, permit or limited entry hunting authorization.

Failure to pay fine

- 85 (1) This section applies if a person
- (a) fails to pay, within the time required by law, a fine imposed as a result of the person's conviction for an offence under this Act or the *Firearm Act*, and
 - (b) has been served with notice of this section.
- (2) In the circumstances referred to in subsection (1),
- (a) the person's right to apply for or obtain a licence, permit or limited entry hunting authorization under this Act is suspended immediately and automatically on the failure to pay the fine,
 - (b) all licences, permits and limited entry hunting authorizations issued to that person under this Act are cancelled immediately and automatically on the failure to pay the fine,
 - (b.1) the person must not apply for employment as an assistant guide,
 - (b.2) the person must not guide as an assistant guide, and
 - (c) the person commits an offence if, before that fine is paid, the person
 - (i) applies for, or in any way obtains, a licence, permit or limited entry hunting authorization under this Act,
 - (ii) does anything for which a licence, permit or limited entry hunting authorization under this Act is required,
 - (iii) applies for employment as an assistant guide, or
 - (iv) guides as an assistant guide.

Proof of identity and authorization

97 (1) In this section, “authorization” means a licence, permit or limited entry hunting authorization issued under this Act.

- (2) Subject to subsection (5), a person who is required to hold an authorization must, on the request of an officer,
 - (a) state the person’s name and address,
 - (b) produce prescribed photo identification, and
 - (c) demonstrate in accordance with subsection (3) that the person holds the authorization.
- (3) A person may demonstrate that the person holds an authorization by
 - (a) producing the authorization, or
 - (b) unless the regulations require that the original authorization be produced,
 - (i) producing a legible copy of the authorization, or
 - (ii) if authorized by the regulations, stating a number assigned to the person by the director as an identification number for the person.
- (4) Subject to subsection (5), a person who would be required to hold a licence or permit issued under this Act were the person not exempt under section 11 (9) or 12 (b) must, on the request of an officer,
 - (a) state the person’s name and address, and
 - (b) produce prescribed photo identification.
- (5) Subsections (2) (b) and (4) (b) do not apply to a person in a prescribed class of persons.
- (6) A person who contravenes subsection (2) or (4) commits an offence.

Wildlife Act General Regulation**Proof of identity**

21.01 (1) For the purposes of section 97 (2)(b) and (4)(b) of the Act, the following photo identification is prescribed:

- (a) valid photo identification issued to a person by any of the following:
 - (i) the government of Canada;
 - (ii) the government of a province or territory, or an agent of the government of a province or territory, in which the person has a current address;
 - (iii) the Nisga’a Nation, if the person is a Nisga’a citizen;
 - (iv) a treaty first nation, if the person is a treaty first nation member of the treaty first nation;
- (b) in the case of a person who is a non-resident alien,
 - (i) valid photo identification in the form of
 - (A) a passport, or
 - (B) a driver’s licence issued to the person by a foreign jurisdiction in which the person has a current address, or
 - (ii) a copy of a photo identification referred to in subparagraph (i) that has been certified as a true copy by
 - (A) a lawyer, or
 - (B) a notary who is a member in good standing under the *Notaries Act*
 - (c) in any case, a valid NEXUS card.
- (2) For the purposes of section 97 (5) of the Act, persons under 16 years of age are prescribed as exempt from the requirement to produce photo identification.

Freshwater Fish Regulation**Offences**

- 2 A person commits an offence where the person
- (a) has in possession,
 - (b) transports, or
 - (c) traffics in
- live fish unless authorized by a permit or a licence.

Appendix B: Raw Fish Capture Data

Table 1. Water quality parameters and Smith-Root LR-24 Backpack Electrofisher settings used during the Hospital Creek fish salvage occurring August 21, 2022. Voltage was reduced on the machine due to power output issues.
Hospital Creek Bank Restoration and Protection – Fish Salvage.

PARAMETER	AUGUST 21, 2022
Water Temperature (°C)	12.9
Water Conductivity (µS / cm)	380
Electrofisher Voltage (V)	50 – 450
Electrofisher Frequency (Hz)	30 - 60

Table 2. Results from the fish salvage that occurred in Hospital Creek in Golden, B.C. on August 21-26, 2022 by JRC Environmental Consultants Limited. A total of 9 fish were captured and released.
Hospital Creek Bank Restoration and Protection – Fish Salvage.

DATE & METHOD	NUMBER OF FISH CAPTURED		AMOUNT OF EFFORT:
	Rainbow Trout (<i>Oncorhynchus mykiss</i>)	Brook Trout (<i>Salvelinus fontinalis</i>)	
August 21, 2021 – EF	4	1	1560 seconds
August 22, 2021 – SN/ DN	1		50 minutes
August 23, 2021 – SN/ DN		1	1 hour
August 25, 2021 – SN/ DN		1	50 minutes
August 26, 2021 – SN/ DN		1	10 minutes
TOTAL:			3 hr; 16 min;

EF = Continuous electrofishing effort throughout the exclusion area; SN = Seine net pulled through the exclusion area outside of the isolated construction work area, to flush fish downstream, DN = Dip net pulled through the exclusion area outside of the isolated construction work area, to flush fish downstream or catch fish (used in combination with SN).

Table 3. Individual fish data from the fish salvage that occurred in Hospital Creek in Golden, B.C. on August 21-26, 2022 by JRC Environmental Consulting Ltd. A total of 9 fish were captured and released. Hospital Creek Bank Restoration and Protection – Fish Salvage.			
COMMON NAME	SCIENTIFIC NAME	PROVINCIAL STATUS	MAXIMUM STANDARD LENGTH (mm)
August 21, 2022 – Electrofishing			
Rainbow trout	<i>Oncorhynchus mykiss</i>	Unranked	100.0
Rainbow trout	<i>Oncorhynchus mykiss</i>	Unranked	80.0
Rainbow trout	<i>Oncorhynchus mykiss</i>	Unranked	175.0
Rainbow trout	<i>Oncorhynchus mykiss</i>	Unranked	40.0
Brook trout	<i>Salvelinus fontinalis</i>	Exotic	230.0
August 22, 2022 – Seine / Dip Net			
Rainbow trout	<i>Oncorhynchus mykiss</i>	Unranked	120.0
August 23, 2022 – Seine / Dip Net			
Brook trout	<i>Salvelinus fontinalis</i>	Exotic	230.0
August 25, 2022 – Seine / Dip Net			
Brook trout	<i>Salvelinus fontinalis</i>	Exotic	250.0
August 26, 2022 – Seine / Dip Net			
Brook trout	<i>Salvelinus fontinalis</i>	Exotic	200.0

Appendix C: Site Map



Figure 1. Map of the area where fish were salvaged (in red) and released (green point) on Hospital Creek prior to instream works between August 21, 2022. Hospital Creek Bank Restoration and Protection – Fish Salvage

Appendix D: Site Photographs



Photograph 1. View looking upstream at Hospital Creek prior to instream works. August 15, 2022. Hospital Creek Bank Restoration and Protection – Fish Salvage.



Photograph 2. View downstream at Hospital Creek prior to instream works. August 15, 2022. Hospital Creek Bank Restoration and Protection – Fish Salvage.



Photograph 3. View downstream, upstream exclusion stop net at Hospital Creek prior to instream works. August 21, 2022. Hospital Creek Bank Restoration and Protection – Fish Salvage.



Photograph 4. View upstream, downstream exclusion stop net at Hospital Creek prior to instream works August 21, 2022. Hospital Creek Bank Restoration and Protection – Fish Salvage.



Photograph 5. View downstream, downstream exclusion stop net, second exclusion net added, wrong work limits initially provided, Hospital Creek, August 22, 2022. Hospital Creek Bank Restoration and Protection – Fish Salvage.



**Photograph 6. View upstream, electrofishing within exclusion area, prior to instream works August 21, 2022.
Hospital Creek Bank Restoration and Protection – Fish Salvage.**



Photograph 7. A Rainbow trout (*Oncorhynchus mykiss*) captured via electrofishing in Hospital Creek, measured with a maximum standard length of 100.0 mm. August 21, 2022. Hospital Creek Bank Restoration and Protection – Fish Salvage.



Photograph 8. A Brook trout (*Salvelinus fontinalis*) captured via electrofishing in Hospital Creek, measured with a maximum standard length of 230.0 mm. August 21, 2022. Hospital Creek Bank Restoration and Protection – Fish Salvage.



Photograph 9. Removal of upstream exclusion stop nets in Hospital Creek. August 27, 2022.



Photograph 10. Removal of downstream exclusion stop nets in Hospital Creek. August 27, 2022.