Fisheries and Oceans Canada | Pêches et Océans Canada

Licence Number: XR 422 2023
Valid From: 22-Aug-2023
Expiry Date: 31-Dec-2023

This licence and/or permit is issued under the authority of SECTION 52 OF THE FISHERY (GENERAL) REGULATIONS.

This licence and/or permit authorizes the person(s) listed below, subject to the following terms and conditions, to collect the species and quantity of fish identified below for: Scientific purposes. Non-compliance with any condition of this licence and/or permit may result in the cancellation of this licence and/or permit.

Licence/Permit Activity Description:
This work is a multi-year collaboration of many groups and an initiative of the Society for Ecosystem Restoration Northern BC. It includes planning, implementation and monitoring of fish passage and other aquatic habitat restoration.

Rationale for sampling is to inform fish presence/absence, species composition/density, abundance estimates, movement, growth, and survival as part of habitat confirmations and effectiveness monitoring related to fish passage restoration at barrier culverts. Although methods are evolving they are based on those in the Fish Passage Technical Working Group Phase 2 protocol. Presence/absence of fish, species composition/abundance, distribution limits, fish health and fish movement can be useful for prioritizing which crossings are a best fit for fish passage restoration and inform effectiveness monitoring.

NON RETENTION ONLY

Licence Holder:
FIN: 149478 NEW GRAPH ENVIRONMENT LTD
6 REGENT ST.
NELSON BC V1L 2W4 Contact Number: 250-777-1518
Contact Party:
FIN: 149479 IRVINE, ALLAN Contact Number: 250-777-1518

Species, Quantity of Fish, Area(s) and Gear:

Species:	CHINOOK SALMON (Oncorhynchus tshawytscha); CHUM SALMON (Oncorhynchus keta); COHO SALMON (Oncorhynchus kisutch); PINK SALMON (Oncorhynchus gorbuscha); SOCKEYE SALMON (Oncorhynchus nerka); Additional species that may be encountered in Appendix 1 - Table 3 ;
Gear:	Dip Net Electroshocker Trap, Gee/Minnow
Licence Area:	Bulkley, Morice, Zymoetz and Kispiox Watersheds; Additional detailed sampling locations listed in attached Appendix 1 - Table 1
To be Retained:	0

Reporting Requirements:

XHAB 411 2023 **Due Date** 31-Jan-24
Final report due to the North Coast inbox at - DFO.NCSP-PSCN.MPO@dfo-mpo.gc.ca

Additional Information:

Sampling is proposed at streams included in Tables 1 and 2 in attached Appendix 1, where we will be performing habitatconfi rmations and follow up site visits related to past habitat confi rmations/fi sh passageremediations. Sampling methodologies will be dependent on the site, fi sh species suspected, type of habitatencountered, risks to aquatic organisms potentially present and ongoing communications. Samplingmethods may include minnowtrapping, electrofi shing, and dipnetting upstream and downstream ofbarrier culvert locations.
As part of this permit application we are proposing tagging. Our study plan is (when time allows andPIT tagging is expected to increase our state of knowledge about the subject system) to electrofi shsmall sites both upstream and downstream of priority culvert “barrier” sites and insert biomarkAPT12 PIT tags into the body cavity of all fi sh captured over 60mm. Fish location (UTM), length andweight will also be collected. In addition to providing information on abundance upstream anddownstream of potential culvert restoration sites, the study will also provide baseline information formonitoring programs to document fi sh movement, growth and survival at these sites over multi-yeartimeframes and evaluate if
1. fsh are moving into restored areas,
2. through sites where stream crossing structures (culverts) likely causing connectivity issuesbefore any remediation is conducted and to
3. evaluate if productivity of the systems are increasing following bridge installation and/or if fi share moving upstream/downstream of where replaced/removed structures are located).

It should be noted that we are not necessarily tagging all fi sh we capture - however there are sitesin which this may be helpful for baseline and ongoing monitoring. In these situations as we wish totag all species of interest (stream dependent) over 60mm in each site sampled we would like toapply for a permit allowing a maximum of 720 fi sh with a maximum of 120 fi sh/stream. Although weare requesting a maximum of 120 fi sh/stream, we have listed 120fi sh of each species per streambecause we will not know the species composition of the sites until the sampling occurs. It shouldbe noted however that we will not tag more than 60 fi sh of one species within each stream (30upstream and 30 downstream of road/stream crossings).
Please note that the sampling will be completed before October 31 (end of August till mid-September) however the end-date of the sampling period is listed as Dec 31 on the application toallow time outside of the busy fi eld season for the data to be processed, QA’d and organized so thatrequired reporting can be as informative as possible when submitted

Terms and Conditions:

This licence authorizes collections to be made by the licensee and employees, volunteers and students of the licensee provided that all persons, other than minors who are engaged in activities under the authority of this licence, are carrying suitable photo identification to be produced upon request of any Fishery Officer or Fishery Guardian.

Contact Local Fisheries Office

Max McDonald – Email - Maxwell.mcdonald@dfo-mpo.gc.ca - 250-626-3316 - A/ Detachment Commander- Masset Field Office- Areas 1 and 101.

Adam Jackson – Email - Adam.jackson@dfo-mpo.gc.ca - 250-559-4411 - Field Supervisor, Queen Charlotte Field Office Areas 2, 102, 130 and 142.

Darla Farrington – Email - Darla.Farrington@dfo-mpo.gc.ca - For PFMA 3,4,5 including all streams and tributaries that entering marine waters. From Stewart BC (Marine Waters) down to the end of Grenville Channel, and halfway (midpoint of Hecate Strait) to Haida Gwaii.

Jason Davey – Email - Jason.Davey@dfo-mpo.gc.ca - 250-615-7054 - For Terrace to Kitimat and all of PFMA Area 6 to the south, to the Khyex River to the west and to Stikine river to the North including Stewart, and for all freshwater

areas in the Nass watershed.

Carey Ma – Email - Carey.ma@dfo-mpo.gc.ca - 250-877-2707 - For Skeena River from confluence with Legate creek and all upstream Skeena tribs (Kitwanga, Kispiox, Sustut, Babine, Bulkley – including the Morice) and all of Babine Lake and it's tribs.

Brian Gyorfi – Email - Brian.Gyorfi@dfo-mpo.gc.ca – 250-615-5359 – For central coast PFMA 7-10 and all freshwater bodies flowing into PFMA 7-10.

Notification shall occur by telephone during normal business hours. If you are unable to notify the local office on evenings or weekends, advise the DFO Radio Room at 1-800-465-4336 prior to sampling.

- Name on the licence and names of samplers
- Licence number
- Dates and times when sampling will occur
- Specific location where sampling will occur
- Locations of any unattended gear and how long that gear will remain there

It is the responsibility of the licence holder to ensure that samplers are experienced and competent in the fish collection methods authorized in this licence.

All specimens must be released unharmed into the water body or course from which they originated and as near as possible to the location from which they were captured. Fish must be released in a manner that causes the least possible harm.

Any mortalities must be recorded and submitted in the report to DFO.

All gear left unattended must be clearly labelled with the Licence Number and must not interfere with the public right of navigation.

Electrofishing is not permitted in the vicinity of spawning salmon or redds. Electrofishing can be severely damaging to eggs and alevins and must be avoided where eggs and alevins may be present. A trained and certified electrofisher operator must be a part of the electrofishing crew. Electroshocking will be avoided in water with a temperature below 5 degrees Celsius. All other methods of fish capture will be used prior to electroshocking.

All fish must be released into the water body or course from which they originated and as near as possible to the location from which they were captured.

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This licence requires submission of a final report to be sent electronically to DFO.NCSP-PSCN.MPO@dfo-mpo.gc.ca.

Refer to the reporting requirements on this licence for due date.

Please refer to the scientific licence number when submitting report.

This licence may be amended or revoked by the Department prior to the expiry date if deemed necessary.

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Section 32 (1) of the federal Species at Risk Act prohibits killing, harming, harassing, capturing or taking an individual of a wildlife species which is listed on Schedule 1 as an extirpated species, an endangered species or a threatened species. Refer to the SARA Public Registry at http://www.sararegistry.gc.ca to determine if species at risk may be in your research area and to apply for a permit if required.

Non-Salmon Species: Contact the *BC Ministry of Forests, Lands, Natural Resources,and Rural Development* for a scientific licence to collect non-salmon species including Steelhead, Rainbow trout and Cutthroat trout.

Licence Issued: 18 August 2023

Licence Printed: 18 August 2023
Licence Issued By: LEANNA VAZEOS, Fisheries and Oceans Canada

new graph environment
Research & Consulting

Al Irvine
New Graph Environment Ltd.
al@newgraphenvironment
250-777-1518
Date: 2023-08-02

Ministry of Environment
and Fisheries and Oceans Canada

Re: Fish Permit Application

A summary of sites to be potentially assessed is included as Tables 1 - 2, details of fish species potentially encountered is presented in Table 3 and an overview map displaying potential sample locations is included as Figure 1. A kml file of the sites is included as an attachment to the application and can also be downloaded from here at this link. Please note that there is an extensive amount of information contained in the kml file (accessed by clicking on sites) including brief summaries of background reporting data (when available).

This work is a multi-year collaboration of many groups and an initiative of the Society for Ecosystem Restoration Northern BC. It includes planning, implementation and monitoring of fish passage and other aquatic habitat restoration.

Funding for the project is through the Habitat Trust Conservation Foundation, Ministry of Transportation and Infrastructure and the Provincial Fish Passage Technical Working Group. Al Irvine, R.P.Bio and Mateo Winterschiedt from New Graph Environment Ltd. are leading the fieldwork with field and office collaboration with teams from the Office of Wet'suwet'en (contact Mike Ridsdale - mike.ridsdale@wetsuweten.com or Dave Dewit - david.dewit@wetsuweten.com), Gitskan Watershed Authorities (contact Alicia Fernando - afernando@gitksanwatershed.com) and Gitsxan Environmental Services (contact Chaz Ware - chaz.ware@gitxsanbusiness.com). Past reports are below:

- https://newgraphenvironment.github.io/fish_passage_bulkley_2020_reporting/
- https://newgraphenvironment.github.io/fish_passage_skeena_2021_reporting/

- https://newgraphenvironment.github.io/fish_passage_bulkley_2022_reporting/
- https://newgraphenvironment.github.io/fish_passage_skeena_2022_reporting/
- https://newgraphenvironment.github.io/fish_passage_moti_2022_reporting/

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Please do not hesitate to contact me if you need more information or have any questions or concerns.

Al Irvine, R.P.Bio

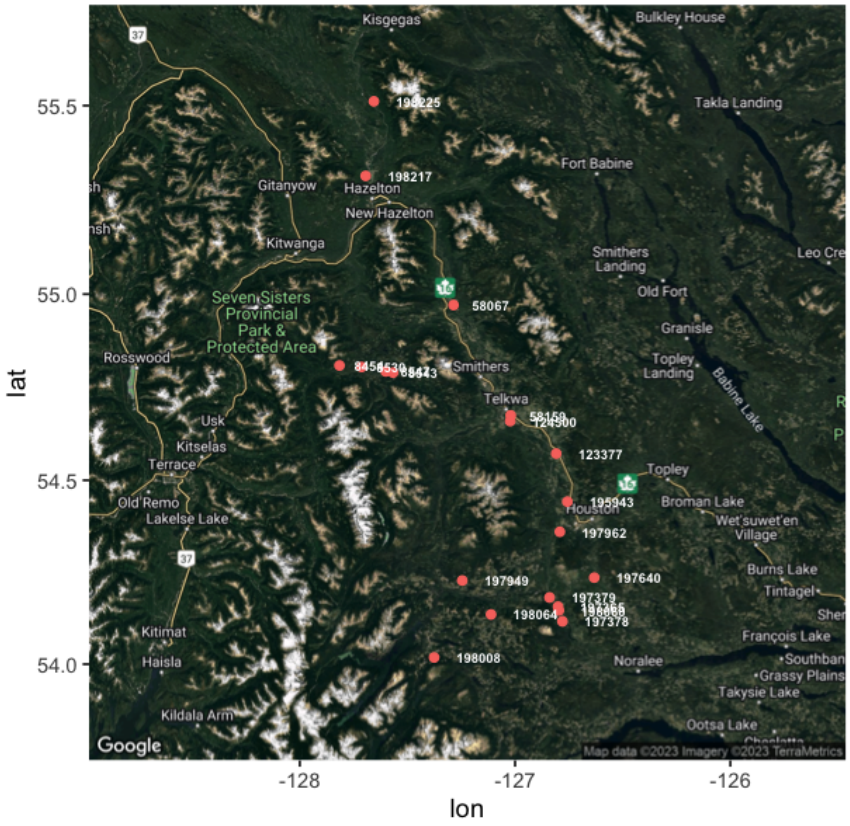


Figure 1: Location of potential sample sites.

”

Table 1: Potential sampling locations.

id	stream_name	wsc_code	lat	long	watershed_group_code
123377	Thompson Creek	460-517700-00000-00000-0000-0000-000-000-000-000-000	54.57223	-126.8090	BULK
124500	Helps Creek	460-437000-00000-00000-0000-0000-000-000-000-000-000	54.65954	-127.0228	BULK
195943	Stock Creek	460-589500-00000-00000-0000-0000-000-000-000-000-000	54.44226	-126.7571	BULK
197365	Tributary to Owen Creek	460-600600-23900-32500-0000-0000-000-000-000-000-000	54.15719	-126.8005	MORR
197378	Tributary to Owen Creek	460-600600-23900-59400-0000-0000-000-000-000-000-000	54.11705	-126.7802	MORR
197379	Tributary to Owen Creek	460-600600-23900-13000-0000-0000-000-000-000-000-000	54.18203	-126.8400	MORR
197640	Tributary to Buck Creek	460-636000-36664-00000-0000-0000-000-000-000-000-000	54.23614	-126.6322	BULK
197949	Tributary to Tagit Creek	460-600600-44500-38900-0000-0000-000-000-000-000-000	54.22832	-127.2452	MORR
197962	Peacock Creek	460-600600-07100-00000-0000-0000-000-000-000-000-000	54.36060	-126.7921	MORR
198008	Tributary to Nanika River	460-600600-64400-11700-5110-0000-000-000-000-000-000	54.01832	-127.3761	MORR
198060	Tributary to Owen Creek	460-600600-23900-39300-0000-0000-000-000-000-000-000	54.14676	-126.7967	MORR
198064	Tributary to Lamprey Creek	460-600600-36400-26300-0000-0000-000-000-000-000-000	54.13584	-127.1117	MORR
198217	Tributary to Skeena River	400.444583	55.31427	-127.6942	KISP
198225	Sterritt creek	400-490000-00000-00000-0000-0000-000-000-000-000-000	55.51122	-127.6556	KISP
58067	Tributary to Gramophone Creek	460-223800-00000-00000-0000-0000-000-000-000-000-000	54.97087	-127.2858	BULK
58159	McDowell Creek	460-435300-00000-00000-0000-0000-000-000-000-000-000	54.67521	-127.0204	BULK
8454	Tributary to Zymoetz River	400.221484.662358.258775.251976	54.80904	-127.8155	ZYMO
8530	Tributary to Zymoetz River	440-767000-07400-00000-0000-0000-000-000-000-000-000	54.80512	-127.7128	ZYMO
8543	Tributary to Zymoetz River	440-854000-00000-00000-0000-0000-000-000-000-000-000	54.78990	-127.5667	ZYMO
8547	Tributary to Zymoetz River	440-847000-00000-00000-0000-0000-000-000-000-000-000	54.79305	-127.6005	ZYMO

Table 2: Potential sample site details.

id	stream_name	sp_upstr	fish_tags
123377	Thompson Creek	{CT,DV,RB}	120
124500	Helps Creek	{CT,DV,LNC,LSU,RB}	120
195943	Stock Creek	–	120
197365	Tributary to Owen Creek	–	120
197378	Tributary to Owen Creek	{DV,LNC,MW,RB}	120

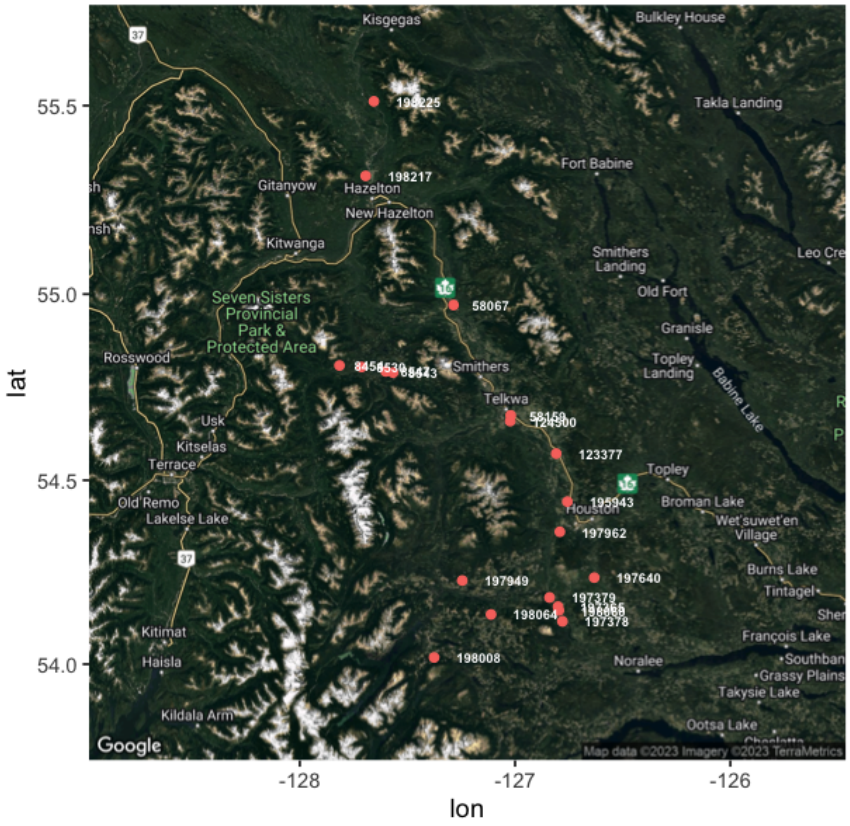
id	stream_name	sp_upstr	fish_tags
197640	Tributary to Buck Creek	{RB}	120
197949	Tributary to Tagit Creek	{CT}	120
197962	Peacock Creek	–	120
198008	Tributary to Nanika River	–	120
198060	Tributary to Owen Creek	{DV,RB}	120
198064	Tributary to Lamprey Creek	{DV}	120
198217	Tributary to Skeena River	–	120
198225	Sterritt creek	–	120
58067	Tributary to Gramophone Creek	{RB,ST}	120
58159	McDowell Creek	{CO,RB}	120
8454	Tributary to Zymoetz River	–	120
8530	Tributary to Zymoetz River	–	120
8543	Tributary to Zymoetz River	{DV,RB}	120
8547	Tributary to Zymoetz River	–	120

”

Table 3: Fish species recorded in the region.

Scientific Name	Species Name	Species Code	BC List	Provincial FRPA	COSEWIC	SARA
Catostomus catostomus	Longnose Sucker	LSU	Yellow	–	–	–
Catostomus commersonii	White Sucker	WSU	Yellow	–	–	–
Catostomus macrocheilus	Largescale Sucker	CSU	Yellow	–	–	–
Chrosomus eos	Northern Redbelly Dace	RDC	Yellow	–	–	–
Coregonus clupeaformis	Lake Whitefish	LW	Yellow	–	–	–
Cottus aleuticus	Coastrange Sculpin (formerly Aleutian Sculpin)	CAL	Yellow	–	–	–
Cottus asper	Prickly Sculpin	CAS	Yellow	–	–	–
Couesius plumbeus	Lake Chub	LKC	Yellow	–	DD	–
Entosphenus tridentatus	Pacific Lamprey	PL	Yellow	–	–	–
Hybognathus hankinsoni	Brassy Minnow	BMC	No Status	–	–	–
Lota lota	Burbot	BB	Yellow	–	–	–
Mylocheilus caurinus	Peamouth Chub	PCC	Yellow	–	–	–
Oncorhynchus clarkii	Cutthroat Trout	CT	No Status	–	–	–
Oncorhynchus clarkii	Cutthroat Trout (Anadromous)	ACT	No Status	–	–	–
Oncorhynchus clarkii clarkii	Coastal Cutthroat Trout	CCT	Blue	–	–	–
Oncorhynchus gorbuscha	Pink Salmon	PK	Yellow	–	–	–
Oncorhynchus keta	Chum Salmon	CM	Yellow	–	–	–
Oncorhynchus kisutch	Coho Salmon	CO	Yellow	–	–	–
Oncorhynchus mykiss	Rainbow Trout	RB	Yellow	–	–	–
Oncorhynchus mykiss	Steelhead	ST	Yellow	–	–	–
Oncorhynchus mykiss	Steelhead (Summer-run)	SST	Yellow	–	–	–
Oncorhynchus nerka	Kokanee	KO	Yellow	–	–	–
Oncorhynchus nerka	Sockeye Salmon	SK	Yellow	–	–	–
Oncorhynchus tshawytscha	Chinook Salmon	CH	Yellow	–	–	–
Prosopium coulterii	Pygmy Whitefish	PW	Yellow	–	NAR (Nov 2016)	–
Prosopium coulterii pop. 3	Giant Pygmy Whitefish	GPW	Yellow	–	–	–
Prosopium williamsoni	Mountain Whitefish	MW	Yellow	–	–	–
Ptychocheilus oregonensis	Northern Pikeminnow	NSC	Yellow	–	–	–
Pungitius pungitius	Ninespine Stickleback	NSB	Unknown	–	–	–
Rhinichthys cataractae	Longnose Dace	LNC	Yellow	–	–	–

Scientific Name	Species Name	Species Code	BC List	Provincial FRPA	COSEWIC	SARA
Richardsonius balteatus	Redside Shiner	RSC	Yellow	–	–	–
Salvelinus confluentus pop. 26	Bull Trout	BT	Blue	–	–	–
Salvelinus fontinalis	Brook Trout	EB	Exotic	–	–	–
Salvelinus malma	Dolly Varden	DV	Yellow	–	–	–
Salvelinus namaycush	Lake Trout	LT	Yellow	–	–	–
–	Arctic Char	AC	–	–	–	–
–	Cutthroat/Rainbow cross	CRS	–	–	–	–
–	Dace (General)	DC	–	–	–	–
–	Lamprey (General)	L	–	–	–	–
–	Minnow (General)	C	–	–	–	–
–	Salmon (General)	SA	–	–	–	–
–	Sculpin (General)	CC	–	–	–	–
–	Sucker (General)	SU	–	–	–	–
–	Whitefish (General)	WF	–	–	–	–



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