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Ministry of Environment
1011 4th Ave
Prince George, BC V2L 3H9

Re: Fish Permit Application

This permit application can also be viewed online [at this link](#). A summary of sites to be potentially assessed is included as Table [1](#), details of fish species potentially encountered is presented in Table [2](#) 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](#)

Rationale for sampling is to inform fish presence/absence and species composition/density as part of habitat confirmations to prioritize fish passage restoration at barrier culverts as per the [Fish Passage Technical Working Group Phase 2 protocol](#). Presence/absence of fish, species composition/density and distribution limits can be useful for prioritizing which crossings are a best fit for fish passage restoration and help inform follow up monitoring.

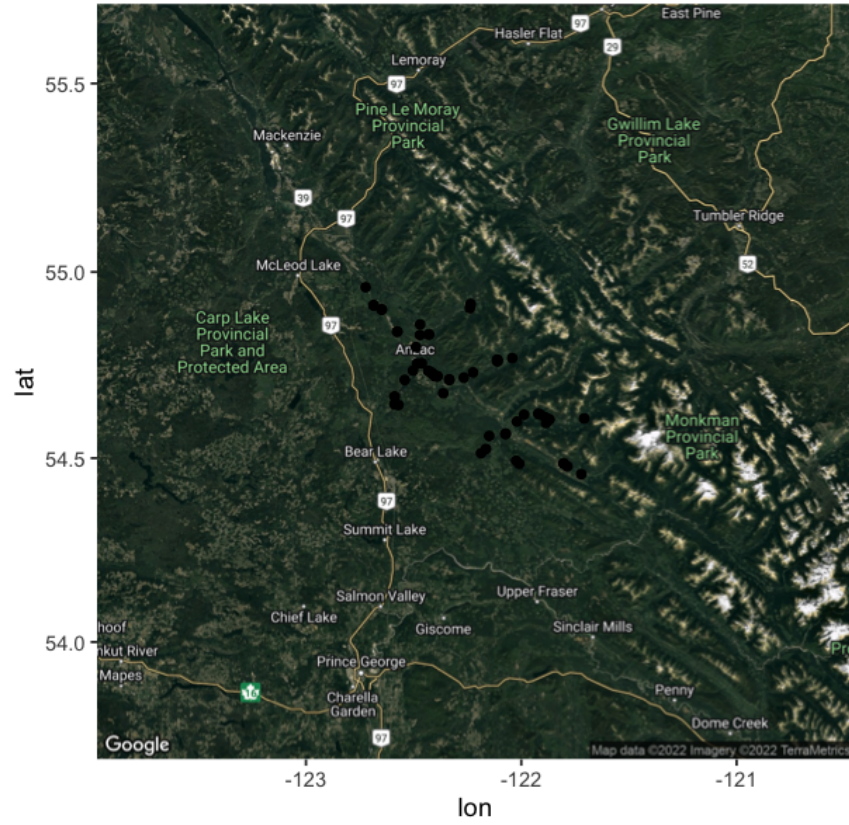
Sampling is proposed at 2 or 3 sites included in Table [1](#) where we will be performing habitat confirmations this summer. Sample locations may occur well upstream or downstream of the crossing locations. The current list of candidate streams will be narrowed down through the results of field assessments, modeling, ongoing communications with McLeod Lake, Lands and Natural ResourceOperation, Ministry of Environment and other stakeholders. Sampling methodologies will be dependent on the site, fish species suspected, type of habitat encountered, risks to aquatic organisms potentially present and ongoing communications. Sampling methods may include minnowtrapping, electrofishing, and dipnetting upstream and downstream of barrier culvert locations.

Please note that the sampling will be completed before October 31 however the period is listed as Dec 31 on the application to allow time outside of the busy field season for the data to be processed, QA'd and organized so that required reporting can be as informative as possible when submitted. An example of how we have been presenting results and methodologies from past assessments can be referenced [here at this link](#).

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



All Irvine, R.P.Bio



id	stream_name	wsc_code	lat	long	sp_upstr	pscis_assessment_comment
6731	UNN trib of Anzac R.	236-313100-	54.79899	-122.4894	-	Failed - drop is too high - Beaver blockage in culvert - water flowing over the road
		05300-00000-				
		0000-0000-000-				
		000-000-000-				
		000-000				
6745	UNN trib of Anzac R.	236-313100-	54.83146	-122.4708	-	Fails due to slope, embedment, however width is okay, don't think this is a high priority for fixing --- downstream too bushy to photograph, lots of overhanging osier. Upstream has high banks (60cm to water surface). Culvert has scattered rocks and some silt in it.
		13400-00000-				
		0000-0000-000-				
		000-000-000-				
		000-000				
6746	UNN trib of Anzac R.	236-313100-	54.83307	-122.4291	-	Failed - on constriction - baffled culvert - Fish at culvert - inlet pool depth 8cm - some introduced materials downstream natural weir
		22400-22700-				
		0000-0000-000-				
		000-000-000-				
		000-000				
6824	-	236-313100-	54.83289	-122.4292	-	Fail due to stream constriction, slope, embedment --- downstream has lots of blockages (trees down) upstream very thick/ deep silt/muck
		22400-22700-				
		0000-0000-000-				
		000-000-000-				
		000-000				
6828	Crocker Creek	236-313100-	54.90334	-122.2388	{BT,CAS,RB,SP}	Fail, SCW --- think these culverts are only here to prevent the road from washing out when river is high, appears to be a side channel from the river. Completely dry at the moment but looks like high flows come through. Is it really necessary to establish fish passage here?? 20 m upstream creek comes in and flows opposite direction back to river.
		42700-00000-				
		0000-0000-000-				
		000-000-000-				
		000-000				
57606	Tributary to Parsnip River	-	54.91086	-122.6857	-	Road slumping at inlet, and outlet is a barrier
57620	Tributary to					

id	stream_name	wsc_code	lat	long	sp_upstr	pscis_assessment_comment
		236-352800-				
		58200-00000-				
Tacheeda		0000-0000-	54.64568	-122.5887		Fry observed upstream, may be resident population. Fish sampling recommended to confirm barrier status
Lake		000-000-000-				
		000-000-000				
		236-352800-00000-00000-0000-				
57621	Creek from Fishhook Lake to Tacheeda Lakes	0000-000-000-000-000	54.66643	-122.5884	{DV,LNC,LSU,LW,MW,NSC,RB,RSC,SP,SU,WF}	3 culverts.
		236-349500-00000-00000-				
57681	tributary to Parsnip River	0000-000-000-000-000	54.75466	-122.4837	{BB,CC,LKC,MW,RB,RSC,SU}	Drains Goose Lake. Surveyed upstream for 550 m. Culvert is continous under the CN railway (PSCIS crossing 57681) and Anzac FSR (PSCIS crossing 125353) and empties into margins of Parsnip River. No downstream site recorded. Numerous unidentified salmonids present upstream. Small woody debris and undercut banks abundant. Overhanging vegetation. Minnowtrapping conducted upsteam and downstream. Rainbow trout captured upstream and burbot and rainbow trout captured downstream.
57687	tributary to Parsnip River	236-238900-00000-00000-0000-				

id	stream_name	wsc_code	lat	long	sp_upstr	pscis_assessment_comment
000-						Good habitat. Surveyed
000-						upstream for 680 m. Culvert
000-						is under CN railway but
000-						Chuchinka-Colbourne FSR
000-						located 10 m downstream
000-	54.89958	-122.6480	–			also has barrier crossing
000-						(PSCIS 125345). Abundant
000						gravels throughout with deep
						pools suitable for
						overwintering. No barriers.
						Small beaver dam located
						180 m upstream of crossing.
57689	Tributary to main creek in 13045 watershed	236- 615600- 24700- 57200- 0000- 0000-000- 000-000- 000-000- 000	54.51347	-122.1868	–	–

id	stream_name	wsc_code	lat	long	sp_upstr	pscis_assessment_comment
(based on google earth review). Downstream surveyed to Wichcika Creek.						
57695	tributary to Wichcika Creek	236- 615600- 59500- 00000- 0000-0000- 000-000- 000-000- 000-000	54.49289	-122.0235	–	Moderate priority for rehabilitation. Surveyed upstream for 920 m. Larger stream wth pockets of gravels, some shallow pools and some widely spaced large woody devris. No barriers observed besides debris jams of 50 - 100cm. These obstructions are non-permanent and likley navigateable at different flows and by large fish. Surveyed downstream for 520 m to beyond historic observation of bull trout.
57696	Unnamed tributary to Wichcika Creek	236- 615600- 61000- 00000- 0000-0000- 000-000- 000-000- 000-000	54.48505	-122.0095	–	Moderate priority for rehabilitation. Some occasional pools. Frequent steps 30 - 50 cm due to large woody debris jams. Mature spreuce forest. Cascade at top end of site not passable by any species or life stage. Good sized stream with som intermittent small paches of gravel suitable forspawning. Overall nice stream but unlikely overly important to adfluvial bull trout populations due to limited spawning habitat. Too steep for rainbow access due to rock drop below the crossing.

id	stream_name	wsc_code	lat	long	sp_upstr	pscis_assessment_comment
57701	Tributary to Parsnip River	236-	54.56553	-122.0728	—	Channel is mainly fines, with lots of pools and debris for shelter
		625100-				
		00000-				
		00000-				
		0000-				
		0000-000-				
		000-000-				
		000-000-				
		000				
57718	Tacheeda Creek	236-	54.73583	-122.5027	{CAS,DV,KO,LNC,LSU,LT,LW,MW,NSC,OS,PCC,PW,RB,RSC,SP,SU,WF,WSU}	Wide creek upstream and downstream. Fry spotted at outlet. Beaved damn inside left pipe should be removed. Backwatering and/or baffle placement recommended.
		352800-				
		00000-				
		00000-				
		0000-				
		0000-000-				
		000-000-				
		000-000-				
		000				
57746	Tributary to Parsnip River	236-	54.84049	-122.5760	—	Culvert is damaged, and should be replaced with OBS
		283700-				
		38400-				
		00000-				
		0000-				
		0000-000-				
		000-000-				
		000-000-				
		000				
57751	Tributary to 13013 Creek	236-	54.67491	-122.3624	—	Embed culvert if proven a barrier and fish present
		402500-				
		21700-				
		17900-				
		0000-				
		0000-000-				
		000-000-				
		000-000-				
		000				
124954	Tributary to Destilida Creek	—	54.85970	-122.4695	—	Beaver guards. Photos 79-83.

id	stream_name	wsc_code	lat	long	sp_upstr	pscis_assessment_comment
124963	Tributary to Parsnip River	236- 625100- 00000- 00000- 0000- 0000-000- 000-000- 000-000- 000	54.56540	-122.0730	—	—
124998	Tributary to Parsnip River	236- 738000- 00000- 00000- 0000- 0000-000- 000-000- 000-000- 000	54.48586	-121.8037	—	Two culverts.
125000	tributary to Parsnip River	236- 738000- 00000- 00000- 0000- 0000-000- 000-000- 000-000- 000	54.48563	-121.8031	—	High priority candidate for restoration. Good habitat. Surveyed upstream continuously for 350 m to beaver influenced wetland area where walking became difficult. Then stream was visited again upstream at 1.6 km upstream from crossing then again at approximately 2.5 km upstream of crossing. Undercut banks provide areas of deep cover ad Large woody debris is scattered througout. Overhanging vegetationalso provides cover througout. Pools observed were somewhat shallow but were preseetevery 20 - 30 m or so. Minnowtrapping conducted upstream and downstream of crossing. Electrofishing conducted downstream of the crossing. No fish captured upstream of the culvert. First beaver dam located approximately 330m upstream of the culvert.
125098	tributary to Parsnip River	—	54.45661	-121.7212	{RB}	Small stream with low flows. Fish records indicate fish observed upstream.
125128	tributary to Missinka River	236- 614900- 53900- 00000- 0000- 0000-000-				

id	stream_name	wsc_code	lat	long	sp_upstr	pscis_assessment_comment
000-000-000-000-000						Beaver influenced extensive wetland area located upstream for as far as visible from 50 m upstream of culvert. 5 m high cascade (10 m long at 50% gradient) is located approximately 5 m below the culvert. Below this is a rock chute for 12 m (30%). Culvert is potentially accessible only to adult adfluvial bull trout however it is unlikely that they would utilize this stream due to the wetland type habitat present upstream of the culvert.
125149	Tributary to the Missinka River	236-614900-28800-00000-0000-0000-0000-000	54.59510	-121.8849	{BT,RB}	–
125170	Tributary to the Missinka River	–	54.60471	-121.8685	–	Km Markers are from split to the South Missinka as no road markers present. Fry observed in outlet pool. Twin culverts.

id	stream_name	wsc_code	lat	long	sp_upstr	pscis_assessment_comment
the crossing due to lack of large woody debris and deep pools.						
125179	Unnamed tributary to Missinka River	236-614900-20900-03300-0000-0000-0000-000	54.61806	-121.9112	{BT,RB}	High priority candidate for restoration with habitat for rearing and overwintering upstream. Surveyed upstream for 520 m with no barriers to fish passage present. Bull trout and rainbow recorded upstream. Some deep pools for overwintering and rearing. Large woody debris and undercut banks throughout. Sections of gravel suitable for spawning. Good flow. Surveyed downstream for 360 m. No barriers observed and none likely downstream of surveyed section due to gradients. Abundant large woody debris and gravels suitable for spawning.
125180	tributary to Missinka River	236-614900-20900-00000-0000-0000-0000-000	54.62006	-121.9211	{RB}	High priority candidate for restoration. Good habitat. Surveyed upstream of PSCIS crossing 125186 for a distance of 515 m. Good flow and abundant cover. Large woody debris and pools throughout. Frequent pockets of gravel suitable for spawning. Good candidate.
125186	tributary to Missinka River	236-614900-10700-00000-0000-0000-0000-000	54.61730	-121.9868	{RB}	High priority candidate for restoration. Good habitat. Surveyed upstream of PSCIS crossing 125186 for a distance of 515 m. Good flow and abundant cover. Large woody debris and pools throughout. Frequent pockets of gravel suitable for spawning. Good candidate.
125194	Tributary to the Missinka River	236-614900-05300-				

id	stream_name	wsc_code	lat	long	sp_upstr	pscis_assessment_comment
00000-						
0000-				High		
0000-000-				rearing		
000-000-	54.59871	-122.0203		habitat,		
000-000-				moderate		
000-000-				spawning.		
000						
125196	Tributary to Table River	236-450800-43100-00000-0000-0000-000-000-000	54.76940	-122.0420	–	Dry Bed. 2 Culverts
125206	Tributary to Table River	–	54.76051	-122.1105	–	Dry bed.
125207	Tributary to Table River	–	54.76461	-122.1135	{LKC}	–
125208	Tributary to Table River	–	54.76480	-122.1099	–	2 culverts w/ one flowing.
125231	tributary to Table River	236-450800-15400-00000-0000-0000-000-000-000	54.73106	-122.2241	{RB}	High priority candidate for restoration. Good habitat. Surveyed for 600m to new bridge (modelled crossing 16603641). Some deep pools and boulders, undercut banks, gravels throughout. Abundant large wody debris throughout. Some debris steps from 30 - 70 cms high. No barriers. Rainbow trout known upstream (FIDQ 2020). Good candidate for rehabilitation.
125243	Tributary to Table River	236-450800-07200-00000-0000-0000-000-000-000	54.71689	-122.2667	{RB}	–
125247	tributary to					

id	stream_name	wsc_code	lat	long	sp_upstr	pscis_assessment_comment
					High priority candidate for restoration.	
					Surveyed to 700 m upstream. Good	
					habitat to where beaver dammed area	
					begins at 700m. Abundant undercut	
					banks, overhanging vegetation, large	
					woody debris and gravels. Gradients	
					decreasing at top end of the site due to	
					historic beaver dam. Railway culvert	
					(modelled crossing 16603287) is located	
					approximately 200 m upstream and is	
					barrier (very long, unembedded and 3%).	
125251	Tributary to Parsnip River	236- 393300- 00000- 00000- 0000- 0000-000- 000-000- 000-000- 000	54.72040	-122.3899	—	Culvert completely blocked and submerged.
125252	Tributary to Parsnip River	236- 393300- 00000- 00000- 0000- 0000-000- 000-000- 000-000- 000	54.72060	-122.4025 {NSC}		Dry bed. Erosion above culvert.
125253	tributary to Parsnip River	236- 380900- 00000- 00000- 0000- 0000-000- 000-000- 000-000- 000	54.72843	-122.4140 {RB}		High priority for restoration. Surveyed upstream for 800 m. Stable channel with large woody debris throughout. Railway crossing culvert (modelled ID 16603267) is located 60 m downstream of the crossing and is a barrier. Overhanging vegetation and

id	stream_name	wsc_code	lat	long	sp_upstr	pscis_assessment_comment
undercut banks						
present for cover.						
Historic beaver						
impounded area at						
top of site.						
125254	Tributary to Parsnip River	236-379700- 00000-00000- 0000-0000- 000-000-000- 000-000-000	54.73225	-122.4219	{WSU}	Culvert completely submerged.
125257	Tributary to Parsnip River	236-375200- 00000-00000- 0000-0000- 000-000-000- 000-000-000	54.73503	-122.4328	–	Dry bed.
125261	Fern Creek	236-358400- 00000-00000- 0000-0000- 000-000-000- 000-000-000	54.75598	-122.4624	{BB,C,CBC,DC,DV,LSU,RB,RSC,SU}	Two additional culverts at 0.9m diameter.
125284	Tributary to Anzac River	–	54.91445	-122.2349	–	Dry bed.
125341	Tributary to Parsnip River	236-283700- 38400-00000- 0000-0000- 000-000-000- 000-000-000	54.84041	-122.5762	–	Outlet and inlet damaged.

id	stream_name	wsc_code	lat	long	sp_upstr	pscis_assessment_comment
beaver dam located 180 m upstream of crossing.						
125353	Tributary to Parsnip River	236-349500- 00000-00000- 0000-0000- 000-000-000- 000-000-000	54.75481	-122.4835	{BB,CC,LKC,MW,RB,RSC,SU}	2 culverts.
125403	tributary to Parsnip River	—	54.91081	-122.6859	—	Low priority for rehabilitation. Surveyed upstream for approximately 350 m. Beaver influenced wetland for first 50 m then small stream with deep polls and undercut banks, overhanging vegetation. Large wetland upstream of beaver dam located at approx. 200m from crossing. Fixing culvert provides access to plateau wetland areas and not a priority.
125428	Tributary to Wichcika Creek	236-615600- 24700-00000- 0000-0000- 000-000-000- 000-000-000	54.52474	-122.1642	{CC,RB}	NCD.
125431	Tributary to Fishhook Lake	236-352800- 00000-00000- 0000-0000- 000-000-000- 000-000-000	54.64341	-122.5709	—	—
197482	Unnamed tributary to Parsnip River	236-426000- 00000-00000- 0000-0000- 000-000-000- 000-000-000	54.71233	-122.3345	—	Good habitat. Surveyed downstream for 250 m to beaver dammed area on floodplain of Parsnip River.
197486	Tributary to Parsnip River	—	54.95935	-122.7229	—	Small stream. A few gravels present. Abundant small woody debris and overhanging vegetation for cover. Frog in outlet pool.
197492	Tributary to					

id	stream_name	wsc_code	lat	long	sp_upstr	pscis_assessment_comment
197496	Parsnip River	236-380900-	54.72817	-122.4147	{RB}	Habitat confirmation completed for upstream PSCIS crossing 125253. See https://newgraphenvironment.github.io/Parsnip_Fish_Passage/03_Parsnip_report_125253.html
		00000-00000-				
		0000-0000-000-				
		000-000-000-				
		000-000				
197496	Tributary to Parsnip River	236-393300-	54.72085	-122.3898	—	Fully backwatered due to beaver dam located downstream of the FSR. Wetland located upstream.
		00000-00000-				
		0000-0000-000-				
		000-000-000-				
		000-000				
197497	Trib to Tacheeda Lk	236-352800-	54.71089	-122.5414	—	Dry stream with no visible channel.
		27400-00000-				
		0000-0000-000-				
		000-000-000-				
		000-000				
197500	Tributary to Parsnip River	236-738000-	54.47783	-121.7858	—	Shallow stagnant water. Fine substrate. Length of culvert estimated.
		49900-00000-				
		0000-0000-000-				
		000-000-000-				
		000-000				

Table 2: Fish species recorded in the Parsnip River watershed group.

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	—	—	—
Coregonus clupeaformis	Lake Whitefish	LW	Yellow	—	—	—
Cottus aleuticus	Coastrange Sculpin (formerly Aleutian Sculpin)	CAL	Yellow	—	—	—
Cottus asper	Prickly Sculpin	CAS	Yellow	—	—	—
Cottus cognatus	Slimy Sculpin	CCG	Yellow	—	—	—

Scientific Name	Species Name	Species Code	BC List	Provincial FRPA	COSEWIC	SARA
<i>Lota lota</i>	Burbot	BB	Yellow	–	–	–
<i>Mylocheilus caurinus</i>	Peamouth Chub	PCC	Yellow	–	–	–
<i>Oncorhynchus mykiss</i>	Rainbow Trout	RB	Yellow	–	–	–
<i>Oncorhynchus nerka</i>	Kokanee	KO	Yellow	–	–	–
<i>Osmerus dentex</i>	Rainbow Smelt	RSM	Unknown	–	–	–
<i>Prosopium coulterii</i>	Pygmy Whitefish	PW	Yellow	–	NAR (Nov 2016)	–
<i>Prosopium cylindraceum</i>	Round Whitefish	RW	Yellow	–	–	–
<i>Prosopium williamsoni</i>	Mountain Whitefish	MW	Yellow	–	–	–
<i>Ptychocheilus oregonensis</i>	Northern Pikeminnow	NSC	Yellow	–	–	–
<i>Rhinichthys cataractae</i>	Longnose Dace	LNC	Yellow	–	–	–
<i>Richardsonius balteatus</i>	Redside Shiner	RSC	Yellow	–	–	–
<i>Salvelinus confluentus</i>	Bull Trout	BT	Blue	Y (Jun 2006)	SC (Nov 2012)	–
<i>Salvelinus fontinalis</i>	Brook Trout	EB	Exotic	–	–	–
<i>Salvelinus malma</i>	Dolly Varden	DV	Yellow	–	–	–
<i>Salvelinus namaycush</i>	Lake Trout	LT	Yellow	–	–	–
<i>Thymallus arcticus</i>	Arctic Grayling	GR	Yellow	–	–	–