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BC Fish Passage Program Annual Report 2019-2020

Partnership between

**BC Ministry of Forests, Lands, Natural Resource Operations
and Rural Development
Land Based Investment Strategy (LBIS)**

Inter-Agency Fish Passage Technical Working Group



Acknowledgements

Inter-Agency Technical Working Group:

Ministry of Forests, Lands, Natural Resource Operations & Rural Development (FLNR)

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- Drew Alway, Engineering Branch
- Brian Chow, Engineering Branch
- Dave Hamilton, BC Timber Sales
- Graham MacGregor, Thompson Okanagan Region
- Lisa Nordin, Resource Planning and Assessment Branch
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- Dave Hamilton, BC Timber Sales – Strait of Georgia, FLNR
- Phil MacDonald, BC Timber Sales – Kootenays, FLNR
- Gary Molyneux, Thompson Rivers Natural Resource District, FLNR
- Brian J. Moore, Cascades Natural Resource District, FLNR
- Richard Garner and Jeffrey Hunter BC Timber Sales – Okanagan-Columbia, FLNR

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Background

Why restore fish passage?

The ability for fish and other aquatic organisms inhabiting streams to move freely (upstream and downstream) throughout their natural environment is an important component of healthy resilient natural aquatic ecosystems. Different fish species and life stages require a variety of habitats at different times of the year. Human-caused barriers such as road-stream crossings that block or delay fish movement can result in changes to fish communities and lost productive capacity. Healthy, resilient fish populations are necessary to maintain BC's fish species diversity and productivity that in turn supports our recreational, commercial, and indigenous food fisheries. In addition to the importance to our fisheries, maintaining access to a full range of habitats is necessary to ensure fish populations and other aquatic species have the best chance to adapt to changing aquatic conditions resulting from climate change.

Fish passage program

In 2007, the Assistant Deputy Ministers of the then BC Ministry of Forests and Range, and Ministry of Environment – in cooperation with federal Department of Fisheries and Oceans (DFO) and the Forest Industry (Council of Forest Industries) – formed the Fish Passage Program. The inter-agency Fish Passage Technical Working Group (FPTWG) was established and then developed the four-phase 'Fish Passage Strategic Approach' that guides delivery of the program by prioritizing problem road-stream crossings for remediation. The four phases are:

1. *Assessments* undertaken for all road crossings in watersheds that are strategically identified as a high priority for fish;
2. *Habitat confirmations* undertaken at crossings assessed to be the best candidates for remediation to determine actual habitat values to be gained;
3. *Site plans and designs* to determine the most effective structure to remediate priority crossings identified through the habitat confirmation phase;
4. *Remediation* projects that most often involve either (i) the purchasing and installation of new fish-friendly structures (e.g. culverts and bridges) or (ii) road crossing deactivations (e.g. for non-status roads) that restore fish passage.

Data and reports from each of the four-phases are to be uploaded in the Provincial Stream Crossing Information System (PSCIS).

BC's Land Based Investment Strategy (LBIS) funded the Fish Passage Program in 2018/19. FPTWG has been working with BC Timber Sales (BCTS) and Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNR) Natural Resource District staff to prioritize and remediate problem road-stream crossings. Between 2008 and 2019 the Fish Passage Program has remediated 177 road stream crossings resulting in fully restored access to 804.5 kilometers of fish habitat.

The actual delivery of projects on-the-ground is primarily accomplished through agreement with BCTS; however, district and regional staff may also lead delivery for some projects. For more information about the LBIS Fish Passage and the FPTWG: <http://www2.gov.bc.ca/gov/content/environment/natural-resource-stewardship/land-based-investment/investment-categories/fish-passage>

2019-2020 Budget

The Fish Passage Program budget totaled \$1.0 million from the Land Based Investment Strategy (LBIS).

2019-2020 Accomplishments

Assessments

156 fish passage assessments in the Thompson Rivers Natural Resource District.

Habitat confirmations

No habitat confirmations this fiscal year as focus was on remediation projects.

Site plans and designs

5 site plans and 1 deactivation prescription for the Coldwater area in the Cascades Natural Resource District

Structure Purchases

4 structure purchases: 1 for Saunier North in the Okanagan-Columbia BCTS Business Area; 1 for Gollen Creek in the Thompson Rivers Natural Resource District; and 2 for Pass Creek in the Kootenay BCTS Business Area

Remediations

6 remediations: 1 new bridge installed on Iron River Main and 2 deactivations on Mary Lake road within the Strait of Georgia BCTS Business Area; 1 new bridge installation on Saunier Creek in the Okanagan-Columbia BCTS Business Area; and 2 new bridge installations in the Kootenay BCTS Business Area

Other Projects

Burman remediation plan and Loveland Bay restoration plan in the Strait of Georgia BCTS Business Area; a deactivation prescription in the Coldwater in the Cascades Natural Resource District.

Table 1: 2008-2019 Accomplishment Highlights

Fiscal Year	Expenditure (millions)	Crossing Assessments	Installed Culverts	Installed Bridges	Deactivations	Total crossings remediated	Km fish habitat recovered
2008/09	\$6.1*	4 683	28	17	-	44	158
2009/10	\$3.6*	4 594	23	11	-	34	184
2010/11	\$2.4	8 171	-	-	-	17	305
2011/12	\$0.8	1 987	-	-	-	2	25
2012/13	\$2.0	3 000	-	-	11	18	27
2013/14	\$0.5	1 954	2	2	2	6	18
2014/15	\$1.0**	1 416	1	4	20	25	11.6
2015/16	\$1.4**	16	6	4	0	11#	22.3
2016/17	\$1.2**	276	0	1	3	4	6.3
2017/18	\$1.2**	156	3	2	1	7#	26.4
2018/19	\$1.0	62	1	2	0	3	12.0
2019/20	\$1.0	156	0	4	2	6	8.9
Total	\$21.0	26 315 ##	64	47	39	177	804.5

* denotes FIA funding **includes RFCPP funding # includes removal of one small dam

includes some assessments completed on non-fish bearing streams

Note: From 2002/03 to 2007/08, further \$18.5 MM was expended from Forest Investment Account (FIA)

Table 2: 2019-2020 Projects and Costs¹**Completed Remediation Projects** (see attached for before and after pictures and further information)

Project	Location	2019/20 Costs	Remediation	Habitat Gain	Fish
1. Mary Lake	Vancouver Island	\$46,306	2 deactivations	625 m	Coho Salmon, Cutthroat Trout
2. Iron River FSR Main	Vancouver Island	\$254,615	Bridge installed	1500 m	Coho Salmon and Coastal Cutthroat Trout
3. Saunier Creek	Okanagan Columbia	\$65,452	Large open bottom culvert installed that replaces 3 undersized culverts	Up to 3300 m	Rainbow Trout High value rearing habitat
4. Freeman Creek (also called Hawkins (Yahk))	Kootenays	\$83,797	2 bridge installations	3500 m Moderate Value	Westslope Cutthroat Trout (blue-listed); possibly also Bull Trout and Rainbow Trout. Rearing habitat
Sub-Total		\$450,170	6 remediations	8,925 m	

In-Progress Remediation Projects (completion expected in 2020/2021 depending on available funding)

Project	Location	2019/20 Costs	Activities	Habitat Gain when completed	Fish
5. Gollen Creek (Drains into North Adams River)	Thompson Rivers District	\$165,983	Structure purchase and site preparations with install it 20/21	6000 m {370 m+ are High Value spawning and rearing habitat}	Sockeye Salmon, Chinook Salmon, Coho Salmon, Pink Salmon, Steelhead, Bull Trout, Rainbow Trout
6. Pass Creek	Kootenays	\$17,257	2 structure purchases		
Sub-Total		\$183,240			

Other Field Projects

7. Berman	Vancouver Island	\$128,143	Remediation plan		
8. Loveland Bay	Vancouver Island	\$	Restoration plan with MoTI		
9. Kamloops	Thompson River District	\$33,555	Fish passage assessments		

10. Coldwater	Cascades District	\$28,555	5 site plans and 1 deactivation prescription		
11. Haida Gwaii		9,251	Remediation plan		
Sub-Total		\$199,504			
Total (All remediation work)		\$832,914			
Fish passage program support		\$76,441			Includes program support, GIS mapping, fish habitat modeling, and knowledge management
Total		\$909,352			

Total spent for fish passage remediation, related field work and program management = \$909,352.

1. Mary Lake Fish Passage Remediation Project



Project Objectives
To deactivate structures at two stream crossings: (i) a bridge and (ii) two corrugated metal pipes (CMPs) that impeded fish passage. This was enabled by constructing a by-pass road with no stream crossings last fiscal year. The deactivations provide 625 m of habitat gain for Coho Salmon and Cutthroat Trout.
Project Costs 18/19
\$41,552
Project Results
Project delivery thanks to Dave Hamilton – BC Timber Sales – Strait of Georgia for managing the project.

2. Iron River FSR Main Fish Passage Remediation Project



Inlet



Project complete

Project Objectives
To remove two corrugated metal pipes (CMPs) that are barriers to fish passage with a 90 foot composite bridge that provides 1500 m of habitat gain for Coho Salmon and Cutthroat Trout.
Project Costs 18/19
\$249,892
Project Results
Project delivery thanks to Dave Hamilton – BC Timber Sales – Strait of Georgia for managing the project.

3. Saunier Creek Fish Passage Remediation Project



Photograph 1. View of two culverts downstream of the crossing location with limited flow due to blockage. (May 23 , 2018).



Project Objectives
To replace 3 undersized culverts that are barriers to fish passage with a large open bottom culvert on Saunier Creek located about 20 km east of Penticton. The project provides up to 3300 m of high value rearing habitat for Rainbow trout.
Project Costs 18/19
\$65,452
Project Results
Project delivery thanks to Richard Garner and Jeffrey Hunter – BC Timber Sales – Okanagan-Columbia for managing the project.

4. Freeman Creek Fish Passage Remediation Project



Outlet photos for two crossings: PSCIS #415 and #417 (from left to right)

NEED TO ADD AFTER PICTURE WHEN AVAILABLE

Project Objectives
To remove two culverts that are impeding fish passage with two fish friendly bridges on Freeman Creek that drains into West Yahk River near Yahk, BC. The project provides 3500 m of moderate value rearing habitat for Westslope Cutthroat Trout (blue-listed); and possibly also Bull Trout and Rainbow Trout
Project Costs 2018/19
\$106,000 for installation of 2 concrete slab bridges.
Project Delivery
Project delivery thanks to Phil MacDonald BC Timber Sales - Kootenay for managing the project.

5. Gollen Creek – in progress (completion expected 20/21)



Project Objectives
<p>In 2020/21, to remove the above pictured culvert that is a barrier to fish passage with a concrete slab bridge that will restore approximately 3,000m's of habitat supporting sockeye, coho and chinook and migratory resident species such as bull trout, rainbow trout and kokanee. Gollen Creek has historical presence of all species found in the Adams but the lower reach is prone to late summer/early fall de-watering limiting fish access (Silvatech, 2002). Barriers are not documented in literature found.</p> <p>Habitat confirmation, site plan, and initial site preparations were completed in 2018/19. The bridge structure was purchased in 2019/20. The site has been prepared so that the culvert can be removed, and the bridge installed in 2021/20.</p>
Project Costs 2018/19
\$211,000
Project Delivery