

2020-2021 Funded Projects



This table summarizes approved 2020-2021 funding allocations for technical committee projects.

Supporting Committee: Rivers

of Projects: 13

Status	Project #	Title	Delivery Region	Allocated \$
Ongoing	R2001	West Coast Steelhead Index Stream Monitoring	1- West Coast	33,710
Ongoing	R1903	Chilliwack Adult Winter Steelhead Stock Assessment	2 - South Coast	18,000
Ongoing	R1902	Chilliwack River Guardians	2 - South Coast	16,200
Ongoing	R2003	Upper Pitt River Bull Trout Assessment	2 - South Coast	3,300
Completed	R2108	Summer 2020 Kootenay quatics Coop Student Support	4 - Kootenay	13,000
Completed	R2102	Kootenay River Guardian Progam (non-classified waters)	4 - Kootenay	50,000
Completed	R2106	Cariboo Region Bull Trout Acoustic Assessments	5 - Cariboo	6,000
Ongoing	R2103	Horsefly River juvenile assessment	5 - Cariboo	10,000
Ongoing	R2105	Kitwanga Reward Tags	6 - Skeena	5,000
Ongoing	R2104	Nass River Char Exploitation Assessment - REWARD tags	6 - Skeena	5,000
Completed	R2107	Parsnip Arctic Grayling Abundance and Critical Habitats	7a - Omineca	37,868
Completed	R1907	Okanagan River Guardian Program	8 - Okanagan	15,000
Ongoing	L2008	Provincial Stock Assessment Database (SAD)	Provincial	7,500
				220,578

Delivery Region Locations



1. Region 1 West Coast
2. Region 2 South Coast
3. Region 3 Thompson
4. Region 4 Kootenay Boundary
5. Region 5 Cariboo
6. Region 6 Skeena
7. Region 7a Omineca
8. Region 7b North East (Peace)
9. Region 8 Okanagan

image credit: frontcounterbc.com

Project Categories	Allocated \$
Angler Effort, Catch & Satisfaction	\$13,300
Data Standards, Tools & Management	\$7,500
Guardian Programs	\$81,200
Stock Assessment	\$105,578
Other	\$13,000
	\$220,578

2020 - 2021 Project Summaries

The following section provides a summary of activities of each project delivered in 2020-2021. In addition, the total expenditure to date is provided for all years of project delivery.

Chilliwack River Guardians

Status: Ongoing

carry over - expect delay

Tracking No.	R1902	Year 3 of 3	Total Spent to Date	\$60,475
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Chilliwack Adult Winter Steelhead Stock Assessment

Status: Ongoing

carry over expect delay

Tracking No.	R1903	Year 3 of 3	Total Spent to Date	\$34,169
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Upper Pitt River Bull Trout Assessment

Status: Ongoing

Bull Trout in the lower Fraser River provide a unique recreational angling opportunity on fishery originate from the upper Pitt River. The Pitt River appears to be a stronghold for the species with important cold waters inputs buffered by Coastal Mountain Range icefield and/or glaciers. The river represents another popular large river angling opportunity that is proximal to Greater Vancouver and the Lower Mainland that and meets a host of angler satisfaction criteria (i.e. success, aesthetics).

The tagging program captured 180 Bull trout in 2020 based on 45 guided angling days. From this total, 42 Bull Trout were uniquely tagged with high rewards (\$100 +\$10). Captured and tagged fish ranged from 48-72 cm in size, with median size of 55 cm. Tags were evenly distributed throughout the study area between 47 rkm and 70 rkm on the Upper Pitt River. A total of 8 tags were returned to date, indicating a tag-return rate of 17% in 2020, up from 2019 (~11%). Most Bull trout were intercepted (May-August) as they migrated into the Upper Pitt River prior to spawning in October.

A total of 2,979 rod hours (SE \pm 3,347) were directed on Upper Pitt River from mid-May to September in 2021. Monthly effort indicated a general pattern of declining effort from spring to summer. A reversal of this pattern occurs as effort increases in the fall. June had the highest effort at 831 rod hours (SE \pm 2,627) compared to all other months. August had the lowest effort at 440 rod hours (SE \pm 563). Based on the average trip length of 4.13 per day, a total of 715 angler days (AD) are estimated on the Upper Pitt River from mid-May to September 2021. Standard errors were not derived for day-type stratum in September due to limited sampling.

Direct assessment of current angling use in combination with tag-return information provides a simple but effective review of the current fishery on the Upper Pitt River. Information obtained from the fishery indicated relatively low effort overall for a medium to large river over the defined fishing season from mid-May to September. Current information on the fishery on the Upper Pitt River suggests the fishery is operating in a sustainable range for this species based on low overall effort and exploitation rates.

Tracking No.	R2003	Year	2 of 5	Total Spent to Date	\$5,874
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Kootenay River Guardian Program (non-classified waters)

Status: Completed

This report summarizes the 2020 survey year of the non-classified waters Kootenay River Guardian Program (KRGP) and includes angler survey, angler compliance and population/inventory data summary components. This project was an extension of the classified waters KRGP, funded in Kootenay Region through HCTF classified waters licence surcharges since 2002. In 2020, through FFSBC funding, the KRGP was extended to six priority non-classified systems in Kootenay Region to address specific management concerns on these fisheries. The six systems included in this project were: Duncan River, Flathead River, Lussier River, Salmo River, Wildhorse River and upper Kootenay River (non-classified).

The non-classified KRGP operated annually from March through November over the five-year study period. During this period, River Guardians interviewed 210 anglers through spring, summer and fall non-classified fisheries. A total of 242 fish were caught, 26% westslope cutthroat trout, 52% bull trout, 14% mountain whitefish, 7% rainbow trout, 0.4% northern pikeminnow and 0.4% lake trout. The overall catch per unit effort (CPUE) for the 2020 season was 0.32 fish per rod hour. The majority of anglers during the 2020 season targeted bull trout during their angling trips (77%) with the remaining 23% targeting either westslope cutthroat trout, rainbow trout, mountain whitefish or no specific species.

Of the total 210 anglers checked, 24 anglers were non-compliant with regulations (11% non-compliance rate), adding to a total of 30 violations (14% violation rate). The system with the highest violation rate was the Kootenay River (14% violation rate).

A total of 35 anglers were guided (16.5%). The average completed trip length for all anglers was 5.0 hours. There were more fly anglers (66%) than gear anglers (30%) and anglers using both fly and gear methods (4%).

Given the 2020 global Covid-19 pandemic restricting transboundary travel 100 percent of anglers were Canadian. The majority of Canadian anglers were from British Columbia and Alberta (60.5% and 39% of all anglers, respectively).

Anglers' responses indicated that they had a somewhat enjoyable angling experience in 2020 with 60% of responses classifying the quality of their angling experience as good-excellent. The main contributing positive factors to the quality of angling experience were surrounding scenery, water conditions and quality of fish caught.

Crowding did not seem to be an issue for anglers during 2020, as 89% of anglers indicated they saw 5 or fewer anglers during their trip and 98% of anglers indicated that they were not at all - slightly crowded, while only 2% of anglers felt they were moderately - extremely crowded.

River Guardians also conducted population/inventory work for bull trout and westslope cutthroat trout on Findlay Creek, Lussier River and Wildhorse River during this study.

Tracking No.	R2102	Year	1 of 1	Total Spent to Date	\$47,616
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Summer 2020 Kootenay quatics Coop Student Support

Status: Completed

Lynden Sandy was successfully hired to fulfill the position of Coop Student Support within the Kootenay Boundary Region Aquatics Department for a short term beginning on July 6th 2020, and ending on September 4th 2020. Hired for technical assistance needed to safely accomplish several Kootenay aquatic projects, the bulk of Lynden's time was spent on the following: Small Lakes Management, Fussee Lake Bass Eradication, and Whiteswan/Alces Lakes Angler Use Monitoring.

Several objectives were accomplished throughout the Coop Student Project. One such objective was that safer working environments were achieved for a variety of works through providing a field partner to staff that were otherwise working alone. Another successful objective was to increase thorough data collection productivity for a variety of works. Also, heavily loaded staff were enabled to increase their focus on a variety of tasks through an increase in teamwork and assistance.

Kootenay aquatic projects supported by Coop Student works both increase and generate several recreational fisheries benefits. Small Lakes Management works increase angler satisfaction, maintain participation base, improve fishing opportunity and diversity, and improve/enhance fish stocks. Invasive species works, like the Fussee Lake Bass Eradication Project, ensure that both wild and stocked fish populations will remain intact for the enjoyment of current and future generations. Whiteswan and Alces Lakes Management Project works have directly increased winter angler use and improved RB health and size.

Overall, the Kootenay Summer Coop Student project was a success. However, the term was shortened in length due to early Covid 19 uncertainties, leaving only two months for the aquatics team to benefit from the extra support. It is recommended to utilize future Coop Student time to a fuller extent.

Tracking No.	R2108	Year	1 of 1	Total Spent to Date	\$9,652
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Cariboo Region Bull Trout Acoustic Assessments

Status: Completed

Bull trout (*Salvelinus confluentus*) are an endemic species of char widely distributed within BC. "Conservation and management of bull trout in BC has been hindered by the lack of a systematic, province-wide assessment of distribution, abundance, trends in abundance, and threats to the species' long-term persistence" (Hagen and Decker 2011). Obtaining information on the distribution and abundance of bull trout has become a provincial priority, critical to the conservation and management of the species. Following the listing of the species in 1994 by the provincial government, a strategic plan for conservation and management of char in BC was developed (BC Environment 1994). More recently, a provincial plan was developed to assess the status and health and identify data gaps for Bull Trout throughout BC (Hagen and Decker 2011).

In 2017, a Middle and Upper Fraser Bull Trout Management Plan was completed that identified priority systems within the Upper Fraser and Cariboo Region. The plan identified key watersheds within the Cariboo core area that could improve our understanding of the status and health of Bull trout. Moreover, the Cariboo core area ranked as some of the most at-risk populations in the Middle Fraser EDU (Hagen et al. 2017). Key watersheds including the Horsefly, Quesnel and Cariboo rivers were identified as most impacted by road density from linear development, associated impacts related to climate change (flow & temperature; Porter and Nelitz 2009) and overexploitation related mainly to non-compliance concerns (Hagen et al. 2017).

The proposal seeks to address data gaps for the conservation and management of Bull Trout within BC, especially within the core area of Middle Fraser Ecological Drainage Unit (EDU). The purpose is to achieve desired outcomes that support increased sustainable opportunity (angling) and long-term stock conservation. Consistent with the Provincial Bull Trout Management Plan (MFLNRO 2016), habitat degradation, climate changes and over-exploitation were identified as some of the highest threats to Bull Trout in BC. Unfortunately, information on Bull Trout abundance trends in abundance and distribution in the Middle Fraser EDU is limited.

This project will develop a coordinated population monitoring plan within the Cariboo core area which is severely lacking. Obtaining a better understanding of which tributaries are utilized by these fish, their relative abundance and their general distribution is a priority for the Cariboo watershed as identified in Middle and Upper Fraser Bull Trout Management Plan (2017). The Objectives of the program are to 1) develop a better understanding of the distribution of cariboo core area bull trout, 2) develop population indices and 3) assess the metapopulation structure. 21 bull trout were tagged in 2020 and initial movement data will be retrieved from receivers in the spring of 2021.

Tracking No.	R2106	Year	1	of	5	Total Spent to Date	\$5,980
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Horsefly River juvenile assessment

Status: Ongoing

Quesnel Lake supports the highest use wild stock fishery in the Cariboo Region. The primary sport fish species targeted by anglers are unique, late maturing rainbow trout, which reach sizes of up to 20 pounds. In addition to the lake fishery, these rainbow trout also support high value river fisheries (e.g., Horsefly, Mitchell, Quesnel rivers) where they are targeted while migrating to feed.

Acoustic telemetry has shown nearly all production of late maturing, Quesnel Lake rainbow trout comes from the Horsefly River. Thus, an opportunity exists to develop a cost-effective index of abundance via juvenile assessment in the Horsefly. Preliminary juvenile assessment, via electrofishing, was completed in 2019. eight electrofishing sites have been identified for assessment. In addition to juvenile assessment, a multi-year mark recapture assessment is underway that utilizes acoustic telemetry and adult capture within the Horsefly to obtain accurate estimates of adult escapement.

Juvenile assessment combined with adult mark-recapture (being completed via partnership funding) allows for development of an informative, cost-effective long-term index to support management decisions for the Quesnel Lake and Horsefly River recreational fisheries. This work fills a significant gap in management of the Quesnel Lake sport fishery as there is currently no method available to detect changes in population status. Results of this work will be used directly to inform management decisions in both the short and long term.

Eight multi-pass closed site electrofishing assessments were successfully completed and weighted fry per unit area was calculated in year one of this 5 year project. Adult Mark-recapture data analysis is pending which will be utilized to develop an index of abundance through juvenile assessments.

Tracking No.	R2103	Year 1 of 5	Total Spent to Date	\$983
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Nass River Char Exploitation Assessment - REWARD tags

Status: Ongoing

This project seeks to determine the spatial, temporal and quantitative exposure of fluvial char (BT & DV) to multiple and varied fisheries in the lower Nass watershed. A Precautionary Management Strategy for Trout and Char in Streams of the Skeena Region – Risk Assessment and Recommended Management Framework (Hagen et al 2017) outlines a recommended approach for research, monitoring and management of chars in the Skeena Region. A key missing link specific to fluvial chars is baseline distribution and exploitation information for high-use fisheries. This project seeks to address these data gaps by partnering with the Nisga'a Fisheries Program to floy tag, genetically and biologically sample all char enumerated at the Nass River fishwheels and Zolzap Creek Smolt Fence. A subset of these fish will be high-reward tagged and recaptured by anglers in several fisheries throughout the Nass watershed. In addition to determining exploitation rates, preliminary work suggests multiple avenues of study which may evolve as the project progresses (abundance, size or age-at maturity, genetic species and/or stock discrimination). All these possible avenues will help inform future assessments of risk to populations of fluvial char in the Skeena Region and help ensure that fluvial char provide their maximum benefit to recreational anglers in the Skeena region.

This project was successfully completed in 2020 and will continue. The total number of fish tagged in 2020 was lower than expected, in part due to decreased fish abundance in comparison to years past, but also due to reduced field staff capacity due to reductions in on-site personnel required as a result of Covid-19. In total, 238 Dolly Varden were bio-sampled at the Zolzap Creek smolt fence, 84 of which were >150mm and tagged. 20 fish were sacrificed for age analysis and the remainder were released un-tagged as they did not meet the minimum size (150mm) for tagging. 138 Dolly Varden were bio-sampled at the Nass River fishwheels, with 51 being tagged with high-reward tags. To date, no tags have been reported recaptured. This is due to Nisga'a Lisims Government travel advisories and protocols in place to restrict public access to the Nass Valley due to the ongoing Covid-19 pandemic.

Tracking No.	R2104	Year	1 of 5	Total Spent to Date	\$0
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Kitwanga Reward Tags

Status: Ongoing

This project seeks to determine the spatial, temporal and quantitative exposure of fluvial char (BT & DV) to multiple and varied fisheries in the Skeena watershed, specifically in middle Skeena near Kitwanga. A Precautionary Management Strategy for Trout and Char in Streams of the Skeena Region – Risk Assessment and Recommended Management Framework (Hagen et al 2017) outlines a recommended approach for research, monitoring and management of chars in the Skeena Region. A key missing link specific to fluvial chars is baseline distribution and exploitation information for high-use fisheries. This project seeks to address these data gaps by partnering with the Gitanyow Fisheries Authority to floy tag, genetically and biologically sample all char enumerated at the Kitwanga Smolt Fence (2008-2019 avg n = 411, range 124-615). A subset of these fish will be high-reward tagged and recaptured by anglers in several fisheries throughout the Skeena watershed. In addition to determining exploitation rates, preliminary work suggests multiple avenues of study which may evolve as the project progresses (abundance, size or age-at maturity, genetic species and/or stock discrimination). All these possible avenues will help inform future assessments of risk to populations of fluvial char in the Skeena Region and help ensure that fluvial char provide their maximum benefit to recreational anglers in the Skeena region.

This project was successfully completed in 2020 and will continue. The total number of fish tagged in 2020 was lower than expected due to decreased fish abundance in comparison to years past. In total, 123 Bull Trout were bio-sampled at the Kitwanga smolt fence, 91 of which were >300mm and tagged. The remainder were released un-tagged as they did not meet the minimum size (300mm) for tagging. To date, sixteen tags have been reported recaptured, none of which were outside the Kitwanga watershed. The low number of recaptures outside the watershed to date is attributable to decreased angling effort as a result of the Covid-19 pandemic and resulting travel restrictions, as well as the unusually cold and wet summer which resulted in the Skeena River and most tributaries being significantly higher in flow than normal, which resulted in decreased angling effort and efficacy during Skeena mainstem salmon fisheries.

Tracking No.	R2105	Year	1 of 5	Total Spent to Date	\$1,600
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Provincial Stock Assessment Database (SAD)

Status: Ongoing

Objectives: Organize and standardize regional stock assessment data into a provincially managed database, useable by all provincial government fisheries employees, public, NGOs and First Nations. Create a useable stock assessment database (Microsoft Access) with custom data entry interfaces and custom reporting based on staff needs and priorities. Making data easily retrievable and viewed in a standardized database (amount and type of data entered will depend on priority and funding available). In addition, this should help regional staff organize their data and develop standardize codes and fields provincially.

Progress to date includes: modification to the MS Access database to house additional stock assessment data. Working with regional biologist in finding suitable data for entry into the database. Data entered in the database include: continue entering Meadow Creek data and correcting errors, Age and biological data from Meadow and Hill Creek, Gerrard Rainbow data, Bull trout data from Upper Kootenay River tribs, Kootenay Lake tribs, and Williston tribs.

Tracking No.	L2008	Year	2 of 3	Total Spent to Date	\$15,000
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