

2019-2020 Funded Projects



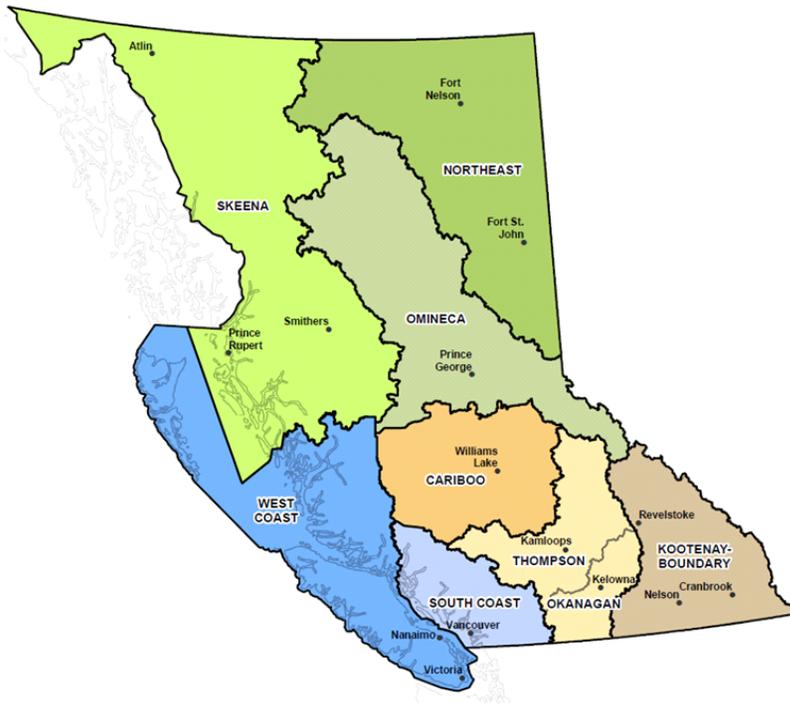
This table summarizes approved 2019-2020 funding allocations for technical committee projects.

Supporting Committee: Small Lakes

of Projects: 22

Status	Project Title #	Delivery Region	Allocated \$
Completed	S2006 West Coast Small Lakes Assessments	1- West Coast	14,800
Ongoing	S1713 West Coast Region Small Lake Fertilization Program	1- West Coast	20,430
Completed	S2004 Thompson Small Lakes Assessments	3 - Thompson	20,000
Ongoing	S2012 Paul Lake Shiner Reduction Project	3 - Thompson	3,000
Completed	S2010 Whiteswan/Alces Lakes Creel, Effort and Population Monitoring	4 - Kootenay	20,000
Completed	S1804 SLIM - Columbia Flightline	4 - Kootenay	16,000
Completed	S2007 Kootenay Region 2019 Small Lake Assessments	4 - Kootenay	20,000
Completed	S1908 Sheridan Lake Creel Survey	5 - Cariboo	33,206
Completed	S2011 Cariboo Region Small Lakes Assessments	5 - Cariboo	17,020
Ongoing	S1907 Horse Lake Tag Rewards	5 - Cariboo	3,300
Completed	S1910 Region 7A Camera Based Effort Assessment	7a - Omineca	10,000
Completed	S1720 Region 7A Kokanee Creel Survey	7a - Omineca	19,927
Completed	S1911 Omineca Small Lakes Management Plan Evaluations	7a - Omineca	17,500
Completed	S1803 SLIM - Omineca Flightline - PG	7a - Omineca	38,690
Completed	S2008 Region 7A Small Lakes Stock Assessments	7a - Omineca	12,485
Completed	S1802 SLIM - Okanagan NE Flightline	8 - Okanagan	20,000
Completed	S2005 Okanagan Small Lakes Stock Assessment	8 - Okanagan	20,000
Completed	S2009 Northeast Small Lakes Stock Assessments	7b - Peace	9,013
Ongoing	S2003 Northeast Angler Effort	7b - Peace	4,000
Completed	S2002 Value of Information Used to Make Management Decisions	Provincial	30,000
Completed	S1618 Development of a Fish Aging Laboratory to Support Provincial Objectives	Provincial	27,114
Ongoing	S2001 Interior Plateau Supply-Demand Analysis	Provincial	20,000
			396,485

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	\$165,123
Aquatic Invasive Species	\$3,000
Data Standards, Tools & Management	\$47,114
Management Plans	\$17,500
Research & Development	\$30,000
Stock Assessment	\$113,318
Stock Recovery & Enhancement	\$20,430
	\$396,485

2019 - 2020 Project Summaries

The following section provides a summary of activities of each project delivered in 2019-2020. In addition, the total expenditure to date is provided for all years of project delivery.

West Coast Small Lakes Assessments

Status: Completed

This project assessed 8 small lakes in the West Coast Region in 2019-20, where the priority for assessment was determined as high. Lake assessments were completed following standardized RISC assessment techniques for small lake stock assessments. Lake assessments provide important information to allow management changes to be made, to better optimize recreational opportunities (i.e., stocked lakes), and to ensure conservation concerns are being addressed, such as in wild stock lakes. Collected information allows for the determination of important metrics such as population structure/status, growth and survival rates, strain performance, etc. The information collected will allow for refinements to the stocking program, so that lake classification targets can be achieved. The information will also provide justification for regulation changes to protect populations at risk, or to liberalize regulations where additional opportunities exist. Results from these assessments will also be used as baseline performance indicators for future reference, should changes occur to the fish stocking program, such as stocking density changes or species/strain replacement. Lakes assessed in 2019 included: Frost, Malaspina, Stowell, Cushion, Spectacle, Somenos, Drum and Star lakes. This list represents lakes that are currently stocked (i.e., Frost, Malaspina, Stowell, Cushion, Spectacle, Somenos, and Star lakes), where the objective is optimization of the stocking program. In addition, Drum Lake was assessed to determine if cancelling the stocking program in 2006 was the correct decision. This assessment could be considered an evaluation of the performance of the wild stock in this lake.

Only basic results and tentative management outcomes for this project are available at this time as fish aging structures are still pending analysis. Once the aging data has been received, results and management actions will be more formally determined.

Tracking No.	S2006	Year 1 of 1	Total Spent to Date	\$12,738
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Thompson Small Lakes Assessments

Status: Completed

The goal of small lake stock assessment is to maintain or enhance the attraction of each lake to the angling public. Yearly surveys allow provincial managers to determine if current stocking rates and strains are producing an acceptable fishery, achieving the specific management goals set for the lake.

The 2019 small lakes stock assessment involved surveying approximately 20 individual lakes to provide high quality data on fish size and condition, density, natural recruitment, 3-gram fry performance monitoring and diploid to triploid ratios.

Tracking No.	S2004	Year 1 of 1	Total Spent to Date	\$19,379
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Whiteswan/Alces Lakes Creel, Effort and Population Monitoring

Status: Completed

We successfully completed the 2019-2020 spawner counts at Outlet Creek and spring and winter creel surveys at Whiteswan and Alces Lakes. During the spring fishery at Whiteswan, we conducted 1,149 creel interviews between May 2nd, 2019 and June 14th, 2019. The average catch per unit effort (CPUE) was 0.93 with an average RB harvest rate of 20%. During the winter fishery, we conducted a total of 174 angler interviews between Dec 05, 2019, and March 14, 2020. The average CPUE was 0.66 fish / hr with an average harvest rate of 50%. When possible, we recorded lengths, weights and fin clip observations from harvested RB. Fin clipped observations were of stocked triploid RB with clipped adipose fins from brood year 2014, 2015, or 2016.

Average Fulton's Condition Factor (K) of RB measured during the winter fishery at Whiteswan Lake was 0.90, indicating concern for the quality of the fishery. Average K did increase throughout the winter, increasing from .88 in early December to 1.0 by the end of February. This trend of increasing fish quality coincided with positive angler feedback, where anglers expressed noticeable improvement in fish quality over the last year.

The Alces Lake winter creel survey totalled 35 angler interviews between December 05, 2019 and March 14, 2020. The average CPUE was 0.34 fish / hr, with a 31% harvest rate. The average K of RB in Alces Lake was 1.3.

The creel data we collect informs stocking prescriptions and is directly related to angler use and satisfaction. It is recommended to keep in place the recent changes in regulation (catch limit of 5/ day, single barbless hook), and to keep monitoring fish health until K values rise to 1.1 or higher.

Rainbow spawner counts in Outlet Creek have been conducted since 1989 and are an index of the population at Whiteswan Lake. Six counts were conducted between May 7 and June 4, 2019. The peak count of 2,760 spawners occurred on May 28 and represents one of the lowest counts in the past 10 years. High CPUE observed in the creel, low condition of harvested fish and high spawner counts in 2018 suggested Whiteswan Lake was overpopulated. It is hoped that the low 2019 spawner count will assist in population reduction that the quality of the fishery (increased fish condition and size) will trend upwards in upcoming years.

Tracking No.	S2010	Year 1 of 1	Total Spent to Date	\$8,805
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Sheridan Lake Creel Survey

Status: Completed

A creel survey was conducted on Sheridan Lake during the open water months of 2018 and 2019. Boat counts, biological fish sampling, and angler interviews were conducted three days per week. Data has been submitted to the Provincial Small Lakes Database and preliminary estimates have been conducted for effort, catch, harvest, angler satisfaction, angler preferences; as well as rainbow trout size, growth, mortality, and strain. Age estimates have been completed for 2018 samples and age estimates from 2019 samples are expected in summer/fall 2020. Fish parasite samples have been submitted to Dr. Joe Carney, and confirmation of species identification is expected in summer 2020. Tissue samples have been organized for submission to UBC for strain determination (Blackwater vs Pennask). Genetic analyses completed for 2018 samples, and awaiting results for 2019 samples (Expected in spring 2020). Preliminary analyses suggests lake is understocked (low catch rates, high fish growth rates) and both Pennask and Blackwater strain rainbow perform well in Sheridan Lake. Options are being evaluated for increasing rainbow trout stocking rates in Sheridan Lake, with the goal of increasing angler catch rates as well as the proportion of quality/trophy sized fish in the catch in hopes of increasing angler effort to historic highs (SLIM index of 30,000 angler days). A final report will be drafted documenting findings from this study as well as final management actions and future assessment recommendations.

Tracking No. S1908 Year 2 of 2 Total Spent to Date \$48,155

Cariboo Region Small Lakes Assessments

Status: Completed

Nine stocked lakes in the Cariboo Region were assessed in 2019. Additional staff time was spent on Rimrock, Elk, and Greenlee to collect adequate sample sizes to evaluate performance of Horsefly strain rainbow trout. Twelve days total were spent on these lakes instead of the typical four days which explains the discrepancy in the number of lakes planned to be assessed and the actual number of lakes assessed. If standard two-day assessments were done on Elk, Rimrock and Greenlee, than the additional 6 lakes could have been assessed as planned. Data has been submitted for entry into the Small Lakes Database. Preliminary analysis has been completed, however final results and a report will be drafted once age estimates have been returned to ministry biologists from BCPAL.

Tracking No. S2011 Year 1 of 1 Total Spent to Date \$16,730

Horse Lake Tag Rewards

Status: Ongoing

This funding request fulfills a component of a multi-year HCTF/FLNRO funded exploitation/ movement study on Horse Lake in the Cariboo Region. Funding has been used for the payment of high reward tags returned by anglers. Reliable reporting of angler captured tagged fish is a critical component of the study. High reward tags are used as an incentive to ensure anglers report the capture of tagged fish. While the majority of funding for this project is provided by HCTF and FLNRO for tagging and index netting, the FFSCB has been successfully funding rewards for reported recaptures for two other similar projects in the region. Information collected through this study is being used directly to inform development of sustainable angling regulations and habitat protection measures.

Tracking No. S1907 Year 3 of 4 Total Spent to Date \$5,710

Region 7A Camera Based Effort Assessment

Status: Completed

To properly manage the continued expansion of stocked kokanee (KO) fisheries in the Omineca Region (7A), angler use data is necessary. Flightlines are a primary and method allowing managers to track angler effort in terms of angler days during the openwater period using an established provincial boat count methodology. Angler effort monitoring using strategically placed remote cameras set on hourly time-lapse mode is a complimentary method endorsed by the small lakes committee for lakes of regional importance. In the case of this project, using camera data collected from four lakes in Region 7A, we quantify and estimate year-round angling effort on four lakes, Eena, Purden, Nadsilnich (West), Verdant. The recently completed Omineca flight line (flown from 2017 to 2019) provides open water angler day estimates, which serve as a cross-reference for summer effort estimates from our camera-derived effort estimates. In this report we provide the first wholesome estimates of ice fishing activity for these lakes through hourly image analysis and combine with summer estimates to generate year-round angler effort estimates on the focal lakes.

Tracking No. S1910 Year 2 of 2 Total Spent to Date \$18,972

Omineca Small Lakes Management Plan Evaluations

Status: Completed

This project and related funds support a UNBC Graduate student (full stipend). The student is conducting his research project with guidance provided by FLNRORD biologist Dr. Nikolaus Gantner and UNBC Faculty Dr. Eduardo Martins via co-supervision. The student started his degree in September 2018, current expected theses defence date is Dec 2020.

Objectives:

1. Support the implementation of the Omineca Small Lakes Monitoring Plan.
2. Address knowledge gaps related to achieving current and future management goals in our small lake fisheries.
3. Add value to the ongoing stock assessment work by analyzing historic trends and utilizing sacrificed fish tissues for value added research.

Tracking No. S1911 Year 2 of 2 Total Spent to Date \$35,000

Region 7A Small Lakes Stock Assessments

Status: Completed

Ten Omineca Region lakes received RISC standard stock assessments in the fall of 2019. With funding secured through the Provincial small lakes committee, FLNRORD acquired the services of Dan Larson (UNBC grad student), Xena King and Kai Breithaupt (FLNRORD resource assistants) to complete fieldwork from September 17th to October 16th, 2019. Regionally important lakes with >10 years since prior assessments were targeted, including three wild lakes which are no longer stocked (Nadsilnich (West), Morfee and LaSalle East) and seven stocked lakes (Eena Lake, LaSalle West, Lintz Lake, Hart Lake, Hobson Lake, Tureen Lake and Ness Lake). These assessments provide current stock information and support regional small lakes management planning (Region 7a SLMP in progress).

Tracking No. S2008 Year 1 of 1 Total Spent to Date \$640

Northeast Angler Effort

Status: Ongoing

Angling effort data is essential for making informed fisheries management decisions, directing fisheries program efforts, and maintaining a satisfied angling community. There is a scarcity of angling effort data available for most Northeast waterbodies, and any effort data that is available is dated. The cost and efficiency of flight lines in the Northeast was previously determined to be unfeasible due to the geographic expanse of the region and spread of candidate waterbodies. Similarly, formal creel surveys have rarely been conducted due to similar logistical constraints that increase the cost of such surveys. The camera-plus-instantaneous count methodology for estimating angler effort is a relatively low-cost alternative for collecting effort data for many Northeast waterbodies. A priority for the regional small lakes operations is to begin collecting annual angling effort data for several waterbodies that represent different angling experiences/opportunities as a pilot project for how a longer-term indexing program might inform angling trends within and between waterbodies over time. Additionally, several more waterbodies that are excellent candidates for camera-based angler effort surveys are proposed, which can take advantage of collaborative opportunities (BC Parks/Rec and Trails staff, etc.).

In 2019/2020 we planned to put out cameras on Big Lake, Stony Lake (both Northern Pike lakes), One Island Lake, Inga Lake and Stewart Lake, in addition to the camera already up at Borrow Pit #1. We put out most cameras in unobtrusive places in July and August, except on Stony Lake since we could not find an accessible location on shore that had a good view of the lake. However, due to some staffing issues, not as many instantaneous counts were conducted as planned and relationships with partners were not established. Though cameras were left up, many of them had programming issues and were not recording pictures from Aug.-Jan./Feb. The camera at Big Lake appears to have been stolen and had to be replaced. The inability to deliver this project as expected is reflected in the budget, as $\frac{3}{4}$ of it is being returned to FFSBC. Going forward in year 2, a fisheries co-op student will be tasked with this project during the summer months and further dedicated staffing will be organized for the fall/winter season.

Tracking No.	S2003	Year 1 of 3	Total Spent to Date	\$838
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