

2017-2018 Funded Projects



This table summarizes approved 2017-2018 funding allocations for technical committee projects.

Supporting Committee: Large Lakes

of Projects: 16

Status	Project Title	Delivery Region	Allocated \$
Completed	Cutthroat Trout Life History Investigations in Comox Lake	1- West Coast	26,858
Completed	Kootenay Lake Piscivore Recovery Monitoring	4 - Kootenay	57,300
Ongoing	Lardeau and Duncan River Juvenile Rainbow Assessment	4 - Kootenay	14,209
Ongoing	Kootenay Lake Kokanee Recovery Initiative	4 - Kootenay	180,000
Completed	Central Lakes Exploitation High Reward Tag Program	5 - Cariboo	990
Ongoing	Chilko Bull Trout Assessment	5 - Cariboo	3,000
Ongoing	Quesnel Lake Exploitation Study – High Reward Tags	5 - Cariboo	5,500
Ongoing	Meziadin Lake Bull Trout Management	6 - Skeena	10,000
Completed	Okanagan River Kokanee Assessment & Genetic Analysis	8 - Okanagan	7,500
Completed	Kokanee Shore Spawner Assessments	8 - Okanagan	10,583
Completed	Middle Vernon Creek Access Improvements	8 - Okanagan	16,621
Ongoing	Middle Vernon Creek Kokanee Enumeration	8 - Okanagan	9,704
Ongoing	Penticton Creek Restoration Initiative	8 - Okanagan	50,000
Ongoing	Mission Creek Restoration Initiative	8 - Okanagan	35,000
Completed	Moberly Lake Lake Trout Recovery Monitoring	7b - Peace	22,500
Ongoing	Provincial Ageing Laboratory Support	Provincial	25,000
			474,765



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

Kootenay Lake Kokanee Recovery Initiative

Status: Ongoing

Kokanee populations in Kootenay Lake have collapsed in the past four years. Kokanee escapement has historically ranged from 250,000 to nearly 2.2 million. In 2017, kokanee spawner escapement was ~18,000 spawners (<1% of historic highs) and predictions for spawner returns over the next 2 years suggest they may also be nearly as low. In response to this collapse, the Ministry formed an advisory team in March 2015 (Kootenay Lake Advisory Team [KLAT]) which includes Provincial stock assessment and Regional biologists, Freshwater Fisheries Society of BC, Fish and Wildlife Compensation Program biologists, First Nations, and BC Wildlife Federation. With the help of a consultant, this team produced an Action Plan (Kootenay Lake Action Plan; Redfish Consulting 2016) that lays out actions and triggers for implementation for both kokanee and predator populations. The objective of this project (year 3 of 5) was to speed recovery of Kootenay Lake kokanee stocks, and also decrease declines in large Gerrard and bull trout abundance through delivery of the triggered action of kokanee supplementation as outlined in the Kootenay Lake Action Plan (stock 5-7 million eyed kokanee eggs).

Kokanee egg collection activities in 2017 occurred at four general sites, including tributaries to Whatshan, Kinbasket, and Arrow Lakes Reservoirs, as well as kokanee brood stock lakes in the Interior (Deka, Bridge and Sulphorous Lake). A total of ~10 million green eggs were collected in Fall of 2017 and incubated at FFSBC hatchery locations in Clearwater and Cranbrook, as well as incubated at the Meadow Creek spawning channel. Once eggs reached the “eyed stage” in development, any dead eggs were individually picked out, and then these eggs were transported to the Meadow Creek spawning channel. A total of ~8.6 million eyed eggs were transported and ultimately planted in the gravel at Meadow Creek.

Part of this project's intent in 2017 was to index survival of eggs planted in Fall of 2016, through directed sampling in Spring of 2017 of fry leaving egg plant locations. Of the total 6.8 million eggs planted, a total of 3.8 million fry were estimated leaving egg plant locations (56% egg-fry survival). At the time of reporting, eggs planted in Fall of 2017 have hatched and are currently incubating in the gravel as alevin. These fry will ultimately migrate to Kootenay Lake between April and June, 2018. Although the ultimate measure of egg survival will occur when fry are enumerated leaving the channel, a cursory check of incubation success (measure of dead eggs that remain in incubation tubes) was completed on March 7, 2018, and suggested that >70% of planted eggs had survived to hatch.

To increase future supply of kokanee eggs from a genetic source most similar to Kootenay Lake, we initiated requests to stock interior kokanee brood lakes (Deka, Bridge and Sulphorous Lake) with a significant portion of all female kokanee from Kootenay genetic sources. Females for this stocking were taken from Whatshan Reservoir (Kootenay Lake genetic match), but XX males required for this project were to come from kokanee broodstock held at the FFSBC Clearwater hatchery. Because the genetic structure of these individual fish were not clear, we examined individual fish genetics through UBC Okanagan (FFSBC data on file) to evaluate the suitability of these individuals for this purpose. Genetic study was completed, and production of all female kokanee is now close to complete for 2018 stocking and 2020 egg supply (if required).

Biological data collected at brood stations at the time of reporting had yet to be compiled, and age structures collected have also not yet been analyzed.

Tracking No. L1604

Year 3 of 5

Total Spent to Date \$377,232

Central Lakes Exploitation High Reward Tag Program

Status: Completed

Introduction:

This funding request fulfills a component of a multi-year HCTF/FLNRO funded exploitation/ movement study on Horse Lake in the Cariboo Region. Funding is being requested 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 is provided by HCTF and FLNRO, the FFSBC has been successfully funding rewards for reported recaptures for two other similar projects in the region (i.e., \$110). Information collected through this study is being used directly to inform development of sustainable angling regulations and habitat protection measures.

Project Objectives:

- Specific to this funding request: administer rewards for high reward tagged trout
- Estimate exploitation and mortality rates LT in Horse Lake
- Inform management decisions – catch quotas, area closures, etc.
- Increased level of angler participation and satisfaction

Methods:

Issue payment to anglers who captured tagged lake trout from Horse Lake.

Results:

Anglers reported capturing five tagged lake trout in Horse Lake. FFSBC issued.

Recreational benefits achieved as an outcome of this project:

Sustained recreational benefits for fisheries, supported by wild stocks, are dependent upon healthy fish populations. This project provides information that is fundamental for sustainable management of the fisheries in the central lakes area. Specifically, this project provides data required for development of science based angling regulations.

Tracking No.	L1811	Year 1 of 1	Total Spent to Date	\$440
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Kokanee Shore Spawner Assessments

Status: Completed

See L1801 - Combined with L1810

Tracking No. L1810 Year 1 of 1 Total Spent to Date \$10,583

Penticton Creek Restoration Initiative

Status: Ongoing

Project Objectives:

- 1) Restore stream habitat
- 2) Increase Rainbow Trout and Kokanee production from Penticton Creek
- 3) Capture and rear Kokanee for release into Penticton and Ellis Creeks.

Results:

1) 2017-18 was scheduled as a restoration year, but due to unforeseen issues with property owners adjacent to the proposed site and inability of City staff to dedicate time to confidential negotiations due to severe spring flooding issues, the project was not able to proceed. The restoration committee attempted to make a rapid change in restoration site (to avoid property owner issues), however, after engineer analysis of feasibility the alternate project (within budget constraints) was deemed to be too high a flood risk to proceed. At this time all of the required agreements with property owners have been signed and the original project is just awaiting government approval to go to tender for completion in the summer of 2018 (delay of one year). However, some minor restoration was completed, by adding spawning gravel to previously restored sections, and this gravel was used for spawning in fall of 2017.

2) Increased fish production is being measured through before and after electrofishing of the restoration section as well as annual Kokanee enumeration. In 2016, dozens of salmonids were captured in the 83 m restoration section from 2015 (previously devoid of fish). Kokanee monitoring shows that the distribution of Kokanee throughout the stream length remains similar to pre-restoration, but we will not see population level results until 2019 for habitat, and fall 2018 for stocking.

3) In 2017 a Kokanee fence trap was installed on Penticton Creek and just under 4000 Kokanee returned to spawn. An estimated 140,000 eggs were collected from 331 females. This was the largest take to date, and will be the last take, likely for several years depending on MFLNRO direction.

Tracking No. L1609 Year 3 of 5 Total Spent to Date \$60,460

Middle Vernon Creek Kokanee Enumeration

Status: Ongoing

The kokanee population in Wood Lake has experienced dramatic fluctuations as a result of poor in-lake survival and a lack of access to spawning habitat in Middle Vernon Creek (due water shortages). When kokanee returns are high, Wood Lake is an important wild stock kokanee fishery in the Okanagan, and supports over 10,000 angler days per year.

In Year 1, this project provided key spawner enumeration data required to support changes to angling regulations. Operating the fish fence at Middle Vernon Creek verified the relationship between the standard visual survey count and the census count at the fence. The data collected from this project suggest that there are approximately 2.5 times more fish present than are observed in the visual survey. This information was used in conjunction with the estimate of shore spawners and angler effort and harvest data to support a change in regulations from the current 2 fish per day limit to 5 fish per day. The Okanagan Fisheries Section is planning to implement this change in the next version of the synopsis and the effectiveness of this regulation change will be monitored in years 3-5 of the project.

Tracking No.	L1801	Year 1 of 5	Total Spent to Date	\$9,704
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Mission Creek Restoration Initiative

Status: Ongoing

The Mission Creek Restoration Initiative (MCRI) was formed in 2002 to address declining kokanee stock and habitat degradation concerns in Mission Creek. Mission Creek is considered Okanagan Lake's most important kokanee producing stream; recovery of the kokanee stream spawning population, via the Okanagan Lake Action Plan (OLAP) has been considered a top priority for the Region 8 Fisheries Program for more than a decade.

Sections of Mission Creek were channelized and diked in the 1950s resulting in the loss of more than 60% of the creeks length, 80% of the spawning and rearing habitat and 75% of its wetland and riparian areas. Current spawner escapement estimates indicate Mission Creek kokanee stocks are continuing to decline and are less than half of what they were a decade ago (FLNRO, 1971-2015). Furthermore, antidotal evidence suggests a more recent decline in the Okanagan Lake rainbow trout stocks; who's adults spawn & juvenile rear in Mission Creek and support a quality fishery (>20lbs).

A large scale restoration project, intended to help recover Okanagan Lake kokanee stocks and improve the quality and economic value of the recreational fishery, was completed in 2016. Work consisted of setback of 540 m of dike, establishment of 24,000 m² riparian & 18,000 m² of floodplain habitat, reconnection of a historic side-channel to provide access to 600m² of off-channel/rearing habitat for juvenile salmonids, creation of four deep-water holding pools/thermal refugia (750 m²) along the Mission Creek mainstem for adult rainbow and kokanee during late summer months; and placement of 300m² of LWD cover (56 tree/root plates).

Monitoring and assessment of fish stocks, habitat and restoration works are critical in order to evaluate whether habitat restoration projects are an effective tool to recover regional fish stocks and ultimately improve the quality of the recreational fishery. This FFSBC project involved monitoring of fish distribution, use & habitat; the structural integrity and functionality of restoration works; and implementing any required structural repairs/adjustments, as required, to ensure the restoration works are achieving the specified objectives.

MCRI activities in 2017/18 not funded by FFSBC included exploration of future restoration opportunities through a Committee-based prioritization of individual properties within lower Mission Creek according to current biological values, potential restoration benefits and securement opportunity. The MCRI Committee is hoping this will lead to securement of one or more properties in the near future in order to proceed with a similar restoration project as delivered in 2016.

Project funding was secured from the Freshwater Fisheries Society (FFSBC), Habitat Conservation Trust Fund (HCTF), the Mission Creek Compensation Bank (MCCB), Okanagan Basin Water Board (OBWB), Recreational Fisheries Conservation Partnership Program (RFCPP) totaling \$86,000 to complete monitoring, design, construction, and coordination and project administration in 2017/18.

Tracking No.	L1802	Year	1 of 1	Total Spent to Date	\$34,711
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