

FWCP - Coastal Region 2014 Project Summaries

FWCP Projects Funded in Ash River Watershed – 2014-2015

Ash River Genetic assessment of summer and winter-run steelhead salmon in the Ash River

Hupacasath First Nation

\$53,790

The project will provide a statistical comparison of genetic variation in tissue samples from summer-run and winter-run wild historical samples from wild steelhead prior to the influence of hatchery enhancement and barrier modifications. This will provide information that will contribute to the ongoing discussion of potential impacts to current populations in the Ash River resulting from fish enhancement strategies.

FWCP Projects Funded in Bridge and Seton River Watersheds – 2014-2015

Bridge-Seton Bat Management Project

Hemmera Envirochem, Inc.

\$63,285

The project will use acoustic, capture, and radio-telemetry to build upon baseline bat diversity data (including distribution, abundance and trends) and bat ecology (with a focus on spatial habitat use patterns) in the Bridge-Seton Watershed. The focus will be on two key identified species (pallid bat and spotted bat) and will also collect information on all related bat species within the project area.

Important over-wintering habitats will be identified to establish baseline winter activity levels prior to the arrival of White Nose Syndrome (WNS), a fungal disease devastating bat populations in eastern North America. The project will facilitate future long-term monitoring of trends in bat species diversity and population abundance in this area, including citizen science and/or NABat, by training local volunteers on deployment of acoustic detectors.

Mule Deer Buck Migrations and Habitat Use in the Bridge River, British Columbia, Year 4

Ministry of Forests, Lands & Natural Resource Operations

\$20,750

Mule deer populations in this area remain suppressed relative to other deer populations in the region so this project seeks to build and expand on an earlier data-set assessing female migration ecology and seasonal habitat use by examining mule deer buck migration patterns and habitat use to inform population and habitat management activities. The primary benefit will be informed mule deer harvest and habitat management, which ultimately serves to assist with ensuring that mule deer populations remain healthy and productive. This is the last year of a four-year project, during which time all the data collected will be analysed and the final report completed.

Wolverine Inventory and Conservation in the Southern Coast Mountains

B.C. Ministry of Environment

\$62,402

This large-scale collaborative inventory project will provide information on the distribution, abundance, and composition of wolverines across the southern Coast Mountains – data needed to begin to effectively address threats and know where best to implement conservation actions for this important population of wolverines.

The work will help estimate population size and distribution of wolverines within the Bridge-Seton and Cheakamus watersheds, and contribute to the development of a South Chilcotin-Coast Mountain Conservation Plan for Wolverines.

Fisher Artificial Reproductive Den Box Study**Davis Environmental Ltd****\$47,631**

The goals of this project are to determine if artificial den boxes will be used by reproductive fishers (or other wildlife), the extent to which these devices will mitigate losses of natural denning habitat, and to provide a science-based mitigation technique to address the loss of fisher habitat. This is the second year of a proposed three year project (future FWCP funding to be confirmed) and, to-date, 25 artificial den boxes have been constructed and installed. This year will include monitoring the use of the den boxes.

Gates Creek Salmon Project**Lillooet Tribal Council****\$100,000**

The Gates Creek project will assess the production of Sockeye and Coho in the watershed, including the specific contribution of the spawning channel. The work will involve N'Quat'qua fisheries technicians with a goal of continued rebuilding and management of the Gates Creek Coho and Sockeye stocks. The results will include improved information to inform restoration, enhancement and fishery management decisions in the Gates/Seton watershed. This is the third year of a proposed four-year project (future FWCP funding to be confirmed), and previous work has improved fish access to Gates Creek, and produced juvenile and adult Sockeye population estimates.

Seton River Corridor Conservation and Restoration Project–Phase Three**Cayoose Creek Indian Band****\$40,000**

The goal of this project is to engage various stakeholders within the project footprint to facilitate the development and implementation of a Seton River Corridor Conservation and Restoration Plan. The aim will be to enhance and improve fish and wildlife habitat, with a focus on wildlife species-at-risk.

This year's project will build on work completed during the last four years including habitat mapping and vegetation surveys of the Seton River Corridor; habitat assessment work at two spawning channels; restoration work at the Lower and Upper Spawning Channel to mitigate water temperature fluctuations and provide habitat and shelter for fish and aquatic invertebrates; and, finally, restoration work in the Lower Corridor riparian and upland areas to reduce the invasive weed population and create a sustainable riparian management area that will benefit wildlife and the St'at'imc community.

Whitebark Pine Restoration**Randy Moody****\$14,333**

Whitebark Pine is an endangered keystone species of high-elevation ecosystems, and an important food source for many species of wildlife, including Clark's Nutcracker and Grizzly Bears. The most effective means of saving Whitebark Pine is through the planting of blister rust-resistant seedlings; unfortunately such seedlings are not readily available and, therefore, seeds must be collected from seemingly resistant individuals to produce and plant seedlings. This project is year-one of a proposed multi-year project (future FWCP funding to be confirmed) to complete these stages from seed to planted seedling. The goal of year-one is to fill a void in available seed from potentially rust-resistant trees throughout the St'at'imc Traditional Territory.

Powerhouse Foreshore Restoration Project–Maintenance**Splitrock Environmental****\$20,000**

The maintenance program at the Powerhouse Foreshore Restoration Project site, which was previously funded by FWCP, will remove weedy plant species that threaten to impact the successful restoration work taken place to-date, and ensure native plant species thrive and strong ecological communities are encouraged.

Monitoring and adaptive management will sustain and promote restoration treatments in the future. The focus will be on weed removal, thinning sage brush and re-vegetating with bunch grass, and collecting data on plant species, composition, and health of native plants stocked.

FWCP Projects Funded in Campbell River Watersheds – 2014-2015

Grilse Creek Large Woody Debris Rehabilitation

British Columbia Conservation Foundation

\$70,783

This project will repair, maintain and build new fish habitat upstream of the Salmon River Diversion to provide rearing and holding habitat for Steelhead, Coho and resident trout of all life stages. A minimum of eighteen main-stem large woody debris (LWD) sites will be built or repaired in the lower portions of Grilse Creek. Benefits will include increased habitat complexity in the restored reach to help boost production capacity of this area for Steelhead and Coho.

Assessment of Distribution of 2014 Brood Coho Adult Migration Below and Above the Salmon River Diversion Dam **Campbell River Salmon Foundation**

\$36,132

Fish passage improvements for the Salmon River Diversion Dam are scheduled to be completed by 2015. This project will monitor Coho Salmon abundance and distribution in the Salmon River for a minimum of two years prior to the planned fishway upgrade/replacement project being completed. This will ensure adequate preconstruction data is available to compare to post-construction assessments on habitat utilization and fish passage at Diversion Dam. Unimpeded access to the upper watershed is critical to the long-term adaptability and sustainability of salmon populations in the watershed.

Salmon River Estuary Acquisition

The Nature Trust of British Columbia

\$170,000

The Salmon River Estuary is the only significant area of coastal wetland habitat located on a relatively steep and rugged 250km stretch of coastline from Campbell River to the network of estuaries on the Quatsino lowlands of Vancouver Island. The goal of this project is to purchase the remaining 67ha of private land in the Salmon River Estuary and lower Salmon River to complement the existing 104ha already secured by The Nature Trust, Ducks Unlimited Canada and their conservation partners, including FWCP. The acquisition includes several intertidal areas of the Salmon River Estuary, which provide critical foraging, rearing and roosting habitat for Great Blue Heron, Northern Pygmy Owl, Cutthroat Trout and Dolly Varden.

Vancouver Island Marmot – Buttle Lake Supplementation

Marmot Recovery Foundation

\$84,832

This is the final year of a three-year project. During 2012 and 2013, more than 30 captive-bred, and 20 wild-born marmots were translocated to eight sites in the Buttle Lake area. At least four sites now have fledgling colonies with multiple marmots remaining on-site for two years or more; and successful reproduction has occurred at three of those sites.

The goal of this year's project is to evaluate the effectiveness of new release techniques for the Vancouver Island Marmot. The objective of releases and translocations to the Buttle Lake area is to re-establish two functioning populations of Vancouver Island Marmots at historic sites around Buttle Lake.

FWCP Project Funded in Clayton Falls Watershed – 2014-2015

Bat and Goshawk Surveys of the Clayton Falls Watershed

Artemis Wildlife

\$36,183

Several high-priority wildlife species likely occur in the Clayton Falls watershed, south west of Bella Coola, where human activity and industrial development has occurred. Very little is known about several species within the watershed including bats and Northern Goshawks so it is difficult to develop effective conservation plans. The goal of this project is to determine which bat species are present, identify any species that may benefit from management, identify landscape features that warrant further investigation, and determine if Northern Goshawks are nesting in the watershed. This work will help identify priority sites for conservation actions for the future.

FWCP Funded Project in Clowhom Lake Watershed – 2014-2015

Surveys of Species-at-Risk and their Associated Habitats in the Clowhom Lake Watershed

Halcyon Professional Services

\$75,000

This is the second year of a proposed four-year project (future FWCP funding to be confirmed) to assess and map wetlands, and undertake comprehensive surveys of species-at-risk and their habitats within the Clowhom Lake watershed. Comprehensive, multi-species habitat restoration and enhancement plans will be developed and implemented that will mitigate direct threats to populations, increase and improve habitat for species, and contribute to the development of best management practices for species-at-risk throughout the region.

Specifically, for 2014, surveys will be carried out on owls (including Western Screech Owls), amphibians, Northern Goshawks, and bats. In addition, identification, assessment, and mapping of wetlands will take place.

FWCP Coastal Projects Jordan River Watershed – 2014-2015

Development of a Restoration Plan for Fish and Fish Habitat within Anadromous Reaches of the Jordan River

D. Burt and Associates

\$34,631

The lower Jordan River now has the capacity to support salmonids during their various freshwater life history stages and a strategic plan is necessary to help guide the recovery of salmonid stocks that once occurred in abundance in this system. The objectives of the Jordan River Fish and Fish Habitat Restoration Plan is to develop a suite of habitat restoration and enhancement options that are science-based and address factors that are currently limiting fish production in the lower Jordan River.

The goal is to involve local land owners, stakeholders, First Nations, and agencies to support project objectives and encourage participation in future restoration initiatives. The longer-term intent is to establish a small roundtable of the groups and use the restoration plan as a guide for future restoration efforts in the lower Jordan River.

Black Bear Den Enhancement and Creation in the Jordan River

Helen Davis (Artemis Wildlife)

\$27,723

Forest harvesting in the Jordan River Watershed has removed many large trees that are used by Black Bear as dens. These large structures are not replaced during forest rotations because the new crop of trees is not allowed to grow to sufficient size for replacement dens to develop. Additionally, flooding of forested land for hydro-electric development removes large trees from the potential den supply. This is the first year of a proposed two-year project (future FWCP funding to be confirmed) that will create Black Bear dens in existing forest structures, and evaluate opportunities for artificial den creation.

FWCP Projects Funded in Lower Mainland Watersheds – 2014-2015

Alouette River Watershed

\$164,273

Mud Creek Sediment Pond Reactivation

Alouette River Management Society

\$29,882

This project will address the Mud Creek Sediment Pond, which collects debris from Mud Creek, connected to the South Alouette River. The project will involve excavating approximately 1500m³ of fill from the Mud Creek sediment pond; removing the spoils to an approved designated site; replacing/refurbishing the wooden weir at the base of the sediment pond; and repairing the rock gabion and/or deflection structures within the Mud Creek sediment pond. The project will benefit all salmonids and other fish species in the South Alouette River and their spawning grounds and habitat below, and in the vicinity of, Mud Creek.

Alouette River Bull Trout Spawner Enumeration and Life History Investigation
MoFLNRO, South Coast Fish and Wildlife
\$27,416

The project will evaluate Alouette Reservoir Bull Trout stocks and life history parameters. These are initial steps towards developing a Bull Trout restoration plan for the reservoir, as well as developing an efficient method for long-term abundance trend monitoring. The main benefit is a better understanding of the status and biology of this isolated char population. This will help direct future management actions with a long-term goal of a healthy, sustainable, wild population and high quality recreational fishery.

Experimental Release of Hatchery-reared Sea-run Kokanee into Alouette Reservoir to Evaluate the Feasibility of Re-establishing Sockeye Salmon
Alouette River Management Society
\$40,260

The purpose of this project is to determine whether the extirpated Sockeye Salmon run can be re-established from the non-anadromous (Kokanee) population that has persisted within the Alouette Reservoir.

This experiment can indicate the relative and absolute survival of fry from sea-run spawners propagated in the hatchery compared to sea-run spawners transferred to spawn naturally in the reservoir and resident Kokanee spawners. It will also provide information regarding the suspected failure of natural sea-run spawning and confirm (or refute) the hypothesis that the progeny of sea-run Kokanee have a statistically greater propensity to emigrate to sea than progeny of lake-resident Kokanee (which if true would greatly increase the feasibility of re-establishing the anadromous Sockeye run).

Identify, Conserve and Restore Populations of Priority Species-at-Risk and their Associated Habitats within the Alouette River Watershed
British Columbia Conservation Foundation
\$66,715

This is year four of a proposed five-year project (future FWCP funding to be confirmed) to identify and prioritize locations, and potential future actions for conservation, restoration and creation of wetland and riparian habitat. Several species-at-risk have been identified in the watershed, and restoration has occurred at several priority sites.

Coquitlam River Watershed
\$123,398

Oxbow Spawning Supplementation and Fish Passage Improvement
North Fraser Salmon Assistance Society
\$80,598

During the last two decades more than 18,000 square metres of rearing habitat and 4,300 square metres of spawning habitat have been created at Oxbow Side Channel, benefiting a number of salmonids. The habitat now produces 8-10,000 Coho smolts, and 500,000 Chum fry each year. This year, new rearing habitat will be constructed associated with beaver-resistant culverts; spawning gravel will be added to riffles within Coquitlam River Park; and fish access to more than 2,000 square metres of side channel habitat will be improved.

Establishment of a Coquitlam Fish Passage Plan for Establishing Sustainable Salmon Runs in Coquitlam Lake
Watershed Watch Salmon Society
\$42,800

The objective of this project is to develop a comprehensive plan for the stock establishment phase of the Coquitlam Fish Passage Project, with the long-term goal of establishing sustainable salmon runs to Coquitlam Lake. It seeks to answer a number of key questions including:

- What key characteristics of a fish passage program are required to successfully re-establish Sockeye and other highly-valued salmon species to the reservoir?
- What are the smolt production options that have the most feasibility and greatest likelihood of success?
- What operational or physical measures will show the greatest likelihood of success for attracting out-migrating smolts?

- What are the key factors affecting smolt survival through the reservoir, dam and river corridors during out-migration?

The key deliverable of the project will be a comprehensive plan for the Establishment Phase of the Kwikwetlem Fish Passage Plan.

Stave River Watershed

\$120,380

Stave River Tidal Channel Restoration

Fraser Valley Watersheds Coalition

\$120,380

This project will increase the availability of off-channel rearing and overwintering habitat for Chum, Coho, Sockeye and Chinook Salmon through the excavation and restoration of tidal floodplain channels and deep refuge ponds and habitat complexing. The identified priority areas include the restoration and habitat complexing of existing tidal floodplain channels and creation of new habitat on the left bank of Stave River, Silvermere Island; as well as the restoration and habitat complexing of tidal floodplains south of Lougheed Highway, left bank of Stave River.

Cheakamus River Watershed

\$100,827

Cheakamus River Floodplain Restoration – Evans Creek

Squamish River Watershed Society

\$100,827

This project will create spawning and rearing habitats to be utilized by Coho, Chinook, Pink and Chum Salmon, as well as Cutthroat and Steelhead Trout. The proposed restoration site is located on the historic active floodplain of the Cheakamus River that is now largely isolated from direct river flow by the bridge and dyke on the south bank of the Cheakamus River.

A couple of key limiting factors have been identified as contributing to the decline in fish stocks over the years: the loss of riverine side channel habitat providing important spawning areas, and the loss of nutrients due to the effects of Daisy Lake Reservoir and diversion of nutrients out of the basin through the power tunnel to the Squamish River. This project will both increase and improve spawning and rearing habitat, but also increase the biomass of salmon produced by the lower Cheakamus River, and thereby increase the amount of marine-derived nutrients that enter the ecosystem each year.

FWCP Projects Funded in the Puntledge River Watershed – 2014-2015

DNA Analysis of Puntledge Summer Chinook – Assessment of Run Timing Inheritance and BKD (Bacterial Kidney Disease) Resistance

K'ómoks First Nation

\$29,678

The Department of Fisheries and Oceans Canada (DFO) considers the Puntledge summer Chinook Salmon, which is distinct from fall Chinook, a population of high conservation concern. While both runs have different migration timings, they both spawn at the same time – from early October to early November. One contributing factor to recent observed declining trend in escapements is the prevalence of Bacterial Kidney Disease (BKD) in the population.

The goal of this project is to support the long-term viability of the summer Chinook population by helping to reduce the future occurrence of BKD; and providing a thorough understanding of the genetics controlling run-timing in Puntledge summer Chinook. These results will enable modification of hatchery practices to maintain productivity, sustainability and the adaptability of summer Chinook.

Assessment of the Homing Behaviour of Three- and Four-Year-Old Puntledge Summer Chinook Adult Returns from Lake- and River-imprinted Juveniles

Comox Valley Project Watershed Society

\$30,767

This is year four in a proposed five-year project (future FWCP funding to be confirmed) that will evaluate whether juvenile summer Chinook that are imprinted in Comox Lake will migrate to the lake as adults, in greater abundance than adults that were reared and released as juveniles in the river below the diversion dam.

DFO's new hatchery production strategy focuses on replicating historic behaviour and life-cycle of summer Chinook; by releasing summer Chinook hatchery smolts in Comox Lake, DFO anticipates that juveniles will imprint on the lake and thus will migrate back to the lake where they will have the greatest chance of survival.

DNA Scat Analyses of Puntledge Estuary Seals to Determine Whether Harbour Seals in Comox Preferentially Prey Upon Female Chinook Salmon

K'ómoks First Nation

\$13,031

The overall health of Puntledge River Chinook stocks (in fall and summer) is of great importance to K'ómoks First Nation, and Harbour Seal predation has been identified as an important mortality factor. Harbor Seal predation may also have additional demographic effects by preferentially preying on adult female Chinook Salmon and may, at least, partially be responsible for sometimes extremely male-biased sex ratios in the Puntledge.

This project will determine quantities of male and female Chinook DNA in the scats of Harbour Seals collected in the region. During the last two years, hundreds of scats have been collected from nearby Harbour Seal haul-outs and these are being analyzed to determine their diet composition.

FWCP Projects Funded in Shuswap River Watershed – 2014-2015

Feasibility for Assessing Fish Entrainment at Wilsey Dam

Whitevalley Community Resource Centre Society – on Behalf of the Wilsey Dam Fish Passage Committee

\$58,568

A feasibility study will be conducted to determine if hydro-acoustic technologies are suitable for measuring entrainment of juvenile salmon through Wilsey Dam. Pending results of this work, a detailed entrainment study is anticipated to be completed the following year. The goal will be to see if acoustic technologies can obtain data on proportional passage (i.e. spillway vs. turbines), and to provide information to support fish passage feasibility evaluation at this dam.

The project will contribute information toward the feasibility of providing fish passage at Wilsey Dam and also seeks to maintain or improve opportunities for sustainable use. Increased salmonid production from the river would increase access to the resource by First Nations Food, Social and Ceremonial (FSC) fisheries that is currently confined to the Middle Shuswap River below the dam.

Habitat Complexing (Pool Creation) and Side Channel Protection for the Middle Shuswap River

Whitevalley Community Resource

\$155,961

This project will address current erosion that is placing the Maltman side channel system at risk on the Middle Shuswap River. Habitat restoration will take place on 720 metres of riparian corridor and river bank along the river, and build on previous work supported by FWCP, DFO and the Maltman family in constructing 900 metres of complex side channel habitat. The work to be completed this year will protect those side channels and intake infrastructure, and also provide flows that maintain the Lang Channel side channel system located downstream during low flow periods. It will increase deep pooling or holding areas for spawning salmon, increase riparian health, and improve spawning habitat and cover.

Bobolink Habitat in the Middle Shuswap
Cooper Beauchesne and Associates Ltd.
\$31,985

This project aims to benefit Bobolinks by improving their productivity in the Middle Shuswap area. The goals will be to identify important breeding habitats, protect existing breeding colonies from destruction during haying, and work with partners to promote long-term protection. Work will include habitat protection, inventory, and providing Bobolink-friendly haying advice to landowners.

The FWCP is a partnership of:

