



UPPER FRASER FISHERIES CONSERVATION ALLIANCE

*Supporting salmon protection and rebuilding, ecosystem health,
and sustainable fisheries for Upper Fraser First Nations*



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MESSAGE FROM THE EXECUTIVE DIRECTOR

Gord Sterritt

I would like to take this opportunity to thank everyone for their patience over the past year and the downturn of UFFCA Technical Forum meetings—a result of the pandemic and the vast suite of ongoing projects in the Upper Fraser, including the Big Bar Landslide response.

Operationally, UFFCA has been in full swing. We're heavily involved in all facets of the Big Bar response, including planning and execution of natal stream brood collection and the telemetry program. I want to thank all organizations and individuals who participated in the technical working groups, as well as those who were unable to participate, but contributed their knowledge to the project when required.

Planning is now wrapping up, and operations have begun at the site. We're testing the trap and transport program, and tagging is underway both at BBS site and in Lillooet. These projects, along with the Upper Fraser telemetry program, will inform the natal brood program and provide additional in-season data to inform slide remediation efforts and also ongoing stock assessment efforts.

The 2021 Chinook fry and Early Stuart fry releases were successful, and we wish to thank all communities and community members who were able to participate, and all who supported these efforts.

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Ongoing projects:

The **Chilako Restoration** project continued operations throughout the winter and spring. A mild winter and relatively normal spring freshet allowed the crews to continue their valuable work on restoration through planting and bank stabilization.

The **Endako Weir** project is a continuation of past work to better understand the limiting factors in Chinook returns to the Endako River, key among them being low water levels and high temperatures during the spawning season. UFFCA and partners CSTC and local First Nations communities such as Ts'il Kaz Koh are currently undertaking public consultations to better understand interests, concerns, and support around the project. We'll conclude these consultations soon, and are hopeful that the public will see the value in constructing the weir to support critical salmon habitat in the Endako.

UFFCA secured funding for the **Water Quality and Quantity Monitoring (WQQ)** program from the Healthy Watersheds Initiative (HWI) in 2021. Following several years of funding through the Fisheries Habitat Restoration Initiative (FHRI), this program has been managed on a shoestring budget. Through the HWI we now have the opportunity to expand the program and address maintenance needs.

A number of Upper Fraser folks continue to participate in the **Pacific Salmon Treaty/Commission (PST/PSC)** process including Marcel Shepert and myself. There are a number of other Indigenous participants from throughout BC and Southern Yukon organizations who also participate in the process at the Commissioner and technical committee levels, and we rely on their expertise and insight to inform the overall process. Stay tuned for an upcoming call for nominations to several PSC Panel seats that are set to expire soon!

We've also had inquiries recently about **UFFCA Board appointments** for seats that are currently vacant or set to expire. In accordance with UFFCA's Constitution and By-Laws, we'll share information about appointments in the fall, and will broadly announce the December UFFCA AGM. Board appointments will be made following our established procedures.

See updates on these projects and more in the following pages.

The past few years have been an especially difficult time for salmon as we deal with factors such as climate change, low ocean productivity, record low returns, and ongoing impacts from the Big Bar Landslide. Upper Fraser First Nations are working hard on conservation and rebuilding initiatives to support our sacred salmon runs and the overall health of the Upper Fraser watershed. We look forward to continued collaboration.

Gord Sterritt
UFFCA Executive Director





Rotary screw trap (RST) capturing live smolts for assessment and sampling as part of the sockeye smolt programs

FIELD WORK UPDATE

Northern Sockeye Smolt Programs: Interior Fraser Sockeye Stock Assessment

In collaboration with the Yinka Dene communities of Nadleh Whut'en and Stellat'en and the Carrier Sekani Tribal Council, the UFFCA and DFO have been involved in two pilot sockeye smolt programs in the Upper Fraser River watershed, assessing smolt numbers from the Nadina and Stellako sockeye populations. Collecting complementary data at these two locations within the same system helps us better understand migration timing, growth dynamics, and stock composition.

The Stellako program includes 2-3 CSTC fisheries staff. The Nadleh program is a collaboration between the Nadleh Whut'en, UFFCA, and DFO, and includes between 2-4 Nadleh Whut'en First Nation fisheries staff.

Live smolts are captured with rotary screw traps (RSTs) between April and June. Because smolts travel at night, most work happens between 8:00pm and 4:00am. Traps are checked hourly with length and weight data being collected as well as scale samples to determine age, and DNA samples for genetic stock identification between the Nadina and Stellako populations.

Analysis of the sockeye stock assessment data from these programs is ongoing and will be shared once close to being finalized.

Fraser River Salmon and Sturgeon Radio Telemetry Project

The UFFCA in partnership with DFO and Lheidli T'enneh First Nation are operating ten radio telemetry stations in the Upper Fraser to monitor salmon migration beyond the Big Bar Slide; this is 6 more stations than were installed in 2020. In addition, we continue to support Lheidli T'enneh as they work to better understand the dynamics of the sturgeon population in the Upper Fraser Watershed through mobile telemetry monitoring. Both projects operate from April to November. Other elements of Lheidli T'enneh's sturgeon project include the installation of egg mats, set lines, and boat telemetry runs.

Upcoming

In the coming months of summer, UFFCA will either be coordinating the aerial chinook counts or participating on those flights, as well as leading and coordinating the Big Bar hatchery enhancement projects.

If you have questions related to any of the projects always feel free to reach out and we will do our best to provide a detailed response.



Radio telemetry station on the Nechako to monitor salmon migration beyond the Big Bar Slide

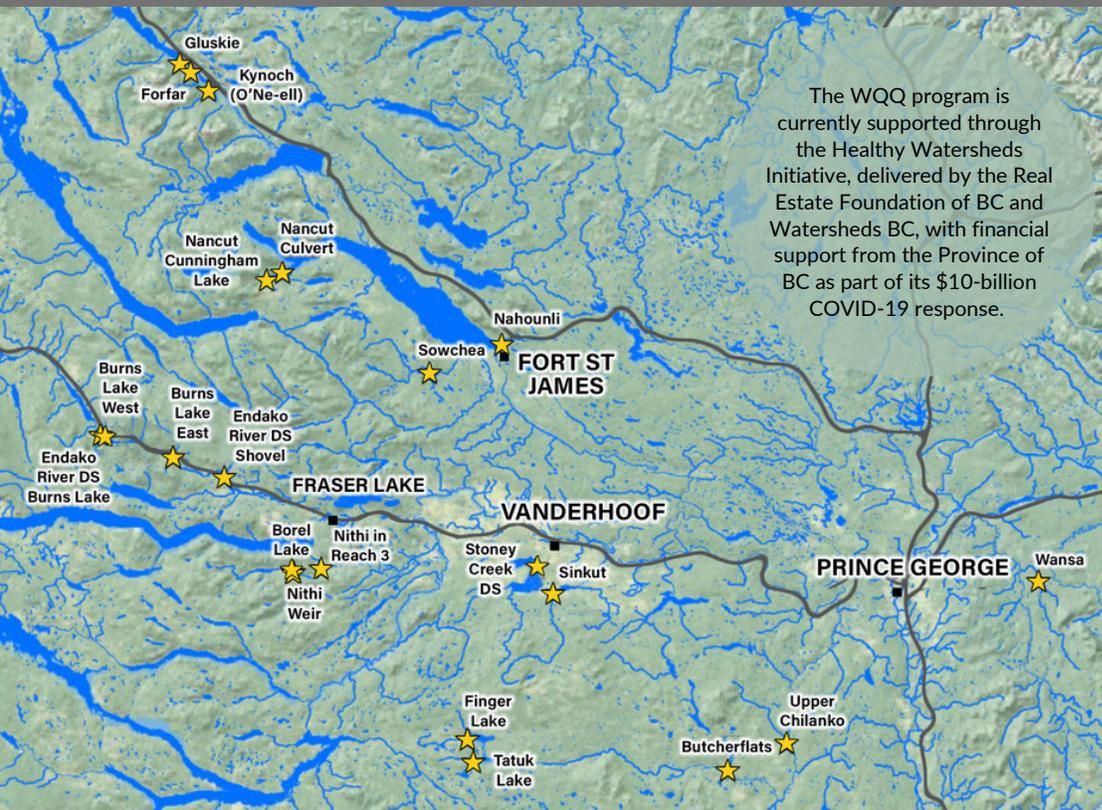
WATER QUALITY AND QUANTITY MONITORING PROGRAM (WQQ)

First Nations have significantly expanded our role in watershed-level fisheries management and water issues over the last several years, and the UFFCA is honored to be part of these endeavors. In 2015 the UFFCA launched the Water Quality and Quantity (WQQ) program, with huge investments in capacity building, training, and tools to support field work, data collection, and sustainable water management. It's now one of the largest Indigenous-led water monitoring programs in BC, contributing to strong Upper Fraser First Nations leadership on watershed health, habitat protection, and fisheries conservation.

UFFCA partnered with Upper Fraser First Nations to identify priority systems and initiate the WQQ program. Since its early days, the program has produced a rich multi-year data series that has already been directly applied in key projects related to water flows, emergency enhancement of endangered fish populations, addressing habitat degradation and climate change, and asserting First Nations standards for watershed health.

Spring and summer WQQ work has been focused on technical upkeep, physical repairs, upgrades, and some replacements for priority stations as identified by communities. We look forward to more engagement in the fall to discuss how best to meet community data needs, and to ensure information is presented in a way that meets those needs.

Photo: UFFCA Project Coordinator Rebecca Broadbent and Monitor Erik Johnny-Martin from Saikuz at the Burns Lake West station. They're surveying a benchmark as part of a very accurate way to measure water stage (how high the water is). Rebecca is downloading the pressure transducer, which takes a measurement every 15 minutes and is correlated with the water stage. This can tell us the water level every 15 minutes in open water seasons.



The WQQ program is currently supported through the Healthy Watersheds Initiative, delivered by the Real Estate Foundation of BC and Watersheds BC, with financial support from the Province of BC as part of its \$10-billion COVID-19 response.

Aquarius Analytics Software:

Years of high-quality data has been collected through the WQQ program, but it's been a challenge to share it with our partner communities in a timely and user-friendly way. Through a Ripple Effect grant from Aquatic Informatics, the UFFCA has received a donated lifetime subscription to Aquarius Analytics data management software. This innovative system for direct data access fills this critical gap, as data will now be more directly accessible by communities to inform water planning and decision making.

ENDAKO RIVER WEIR PROJECT

The Endako River runs between Burns Lake and Fraser Lake, and is home to many fish species, including a unique subpopulation of Chinook that spawns on the gravel reach where Shovel Creek empties into the Endako. The Endako River is also home to spawning kokanee who spend their lives in Burns Lake.

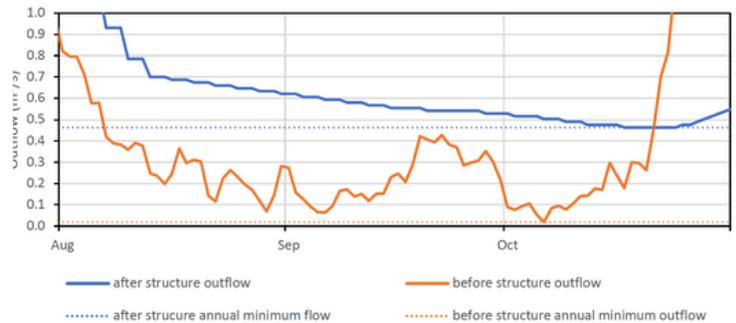
Climate change and reduced forest cover have led to seasonal reductions in water levels and an increase in water temperatures in streams and rivers across BC. This makes for challenging conditions for migrating salmon, and poor conditions for eggs that are incubating in these waterways.

Water flow in the Endako has become erratic through the late summer months, which is a critical time for spawning Chinook. The low flows of the Endako mean that Chinook often can't reach their spawning beds, and are left struggling to swim in a river that has become a trickle of water. The orange line in the graph below shows how the flow of the Endako has become unpredictable during key Chinook spawning months.

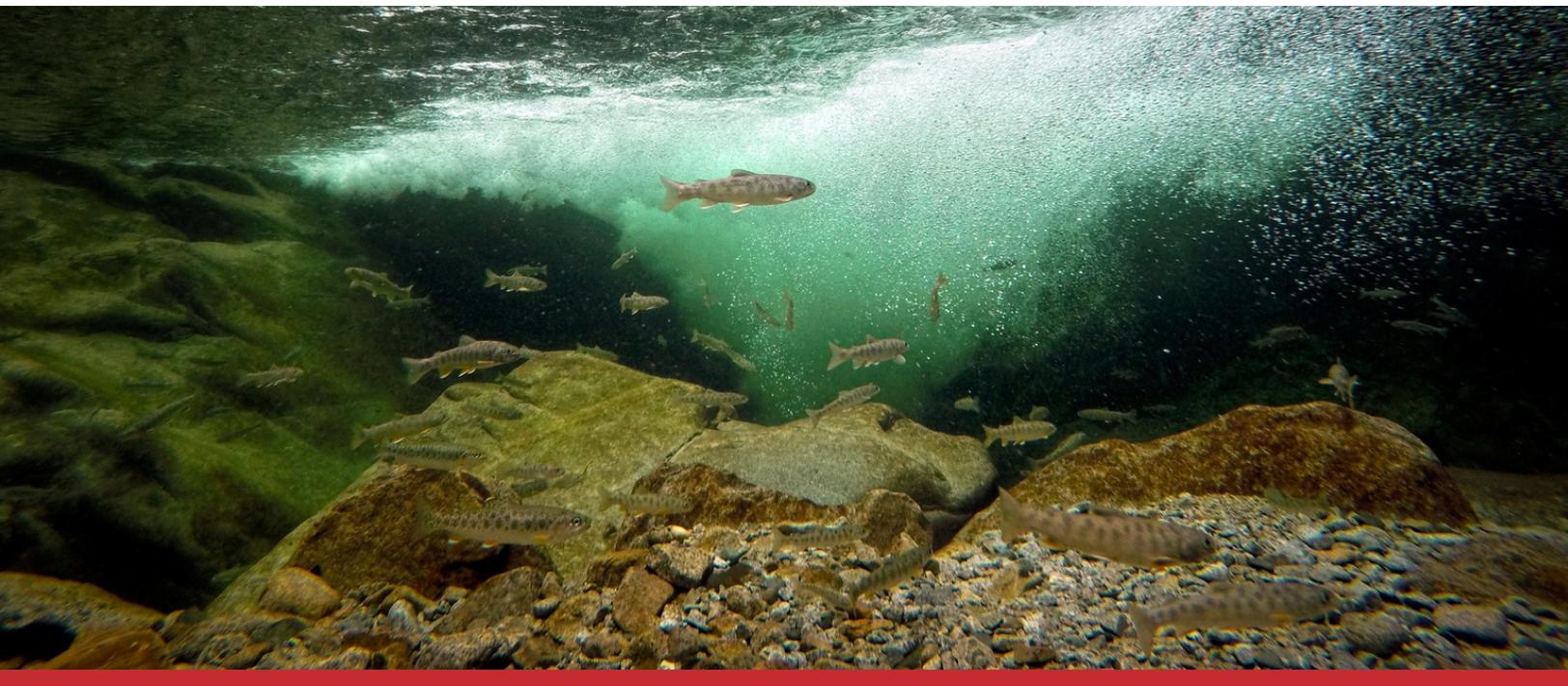
Water Survey Canada and the UFFCA have been monitoring the Endako for over 20 years. The UFFCA has now come to an elegant solution to the issue of lower water flow: build a weir where Burns Lake flows into the Endako River.

UFFCA proposed a similar solution to the problem nearly 20 years ago; however, political issues at the time, as well as issues with a more complex design, killed the project. The proposed Endako Weir is very simple in its design: rocks will be placed across the Endako River where it flows from Burns Lake, with a series of notches and pools that aim to reduce the outflow and act as a fishway.

This will result in slightly more water being stored in Burns Lake during the summer, sustaining higher flows in the Endako during spawning season. These increased flows will improve the spawning and incubation habitat for Endako River Chinook and kokanee, as well as improve habitat for all resident fish that utilize the Endako.



To learn more about the project, please visit www.upperfraser.ca/endako-weir.html



BIG BAR LANDSLIDE

June 2021 marks two years of collaboration between First Nations, the Province of BC, and DFO at the Big Bar Landslide. We wish to honour this extraordinary joint effort and commitment to restoring natural fish passage at Big Bar and supporting at-risk and endangered salmon populations. We continue to build on our 2019 and 2020 experiences as we carry out our 2021 projects and pursue long-term solutions to restoring passage for salmon returning home to spawn.

Monitoring crews are now detecting small numbers of fish arriving at the slide site, marking the beginning of the 2021 Fraser salmon migration past the site. Numbers of fish arriving will increase as the season progresses. It's been confirmed that Chinook are migrating on their own through the nature-like fishway. Summer operations are in full swing, with a focus on preparing for the arrival of Early Stuart sockeye.

A few spring/summer 2021 highlights:

- Trial "trap and transport" to move fish that can't make it through the site on their own;
- Fish detected 40km north of the site, indicating some fish are getting through unassisted;
- To minimize risk to fish health, salmon will be transported by truck only when monitoring data shows they're unable to migrate past the site on their own;
- Migration timing is expected to vary significantly during periods of moderate and high flows;
- Daily counts at, below, and above the site are available from DFO online at <https://bit.ly/3jl6cCX>



Indigenous archaeology team supervising the excavation of the Razorback area at the Big Bar site.



Sturgeon work with Lheildi T'enneh First Nation

PROVINCE OF BC - FRASER RIVER WHITE STURGEON MANAGEMENT PLAN

The Province of BC is engaging with First Nations on the development of a provincial Fraser River White Sturgeon (FRWS) Management Plan. This process is led by First Nations and the Province of BC, and UFFCA is providing support to Upper Fraser First Nations participants. Recognizing the deep importance of sturgeon to Upper Fraser First Nations, communities must be meaningfully engaged in the development of management approaches for these threatened/endangered fish.

UFFCA will help keep member communities informed about the development of the management plan, and will seek input from Leadership, Elders, knowledge holders, and community members about their interests, concerns, and priorities related to FRWS. We will also facilitate capacity/knowledge sharing and collaboration between Upper Fraser First Nations, and keep member communities informed on the progress of technical work and how it could be applied in First Nations governance and decision making.

An initial engagement session for Upper Fraser First Nations was held on Friday, June 25, 2021 to discuss the current state of FRWS knowledge and management in BC, and how to make this engagement process work for Upper Fraser First Nations communities.

CANADIAN SCIENCE ADVISORY SECRETARIAT (CSAS)

Pete Nicklin and Shamus Curtis recently participated in CSAS peer review processes of Recovery Potential Assessment (RPA) papers for Fraser salmon. Pete worked on the Fraser Sockeye RPA, and Shamus worked on the Fraser Chinook RPA. RPAs are triggered when species are designated by COSEWIC as threatened or endangered, which is the case for most Upper Fraser salmon populations. Once RPA papers have gone through the peer review process, participants also participate in the development of a science advisory report document, which provides direction to fisheries managers and decision makers on science advice for threatened or endangered species.

CSAS is a collaborative Tier 3 peer review process that includes First Nations, DFO, academia, and NGOs. Participants are selected based on their scientific expertise on the species being investigated.

FRASER RIVER SOCKEYE SPAWNING INITIATIVE (FRSSI)

The Fraser River Sockeye Spawning Initiative (FRSSI) is both a process and a modeling tool; the FRSSI model allows biologists to look at past sockeye productivity to project future productivity based on various management and conservation scenarios, while the FRSSI process involves updating and making improvements to the model to better predict Fraser sockeye productivity. The model is used to help decision makers understand the implications of management and conservation decisions for Fraser sockeye.

Pete Nicklin is engaged in the FRSSI process on behalf of UFFCA, and brings forward Upper Fraser science and technical information and perspectives to ensure that the model accurately reflects Upper Fraser sockeye. As in past years, Pete will provide a technical presentation on his FRSSI work to UFFCA member communities in the fall.





FNFC SALMON COORDINATING COMMITTEE

The Salmon Coordinating Committee (SCC) is a province-wide process hosted by the First Nations Fisheries Council, with regional delegates from throughout BC. It has both Tier 1 (First Nations only) and Tier 2 (First Nations and DFO) components. Marcel Shepert was appointed by the UFFCA membership to sit as the Upper Fraser delegate to the SCC, with Pete Nicklin as the alternate.

The SCC was initially formed in response to First Nations' concerns with DFO's IHPC and IFMP processes, but has since expanded to deal with a number of salmon-related priority issues including Wild Salmon Policy implementation, Salmon Allocation Policy renewal, the Commercial Salmon Allocation Framework, Section 35(1) priority fisheries, and IHPC/IFMP reform. The joint committee aims to advance First Nations interests and priorities, support effective engagement and collaboration, and convene and share First Nations capacity and expertise.

Upper Fraser First Nations are well situated and have rights and responsibilities to develop and implement recovery strategies to rebuild salmon populations within our Territories. While Upper Fraser groups like the UFFCA are proactively designing and implementing a number of projects and programs to support salmon recovery and rebuilding within the region, addressing broader planning, program, and policy issues for migratory species like Pacific salmon requires not only action at a regional scale, but also collaboration with First Nations and government agencies at the province-wide scale.



FRASER SALMON MANAGEMENT COUNCIL

DFO and First Nations FSMC signatories continue to work toward the implementation of the collaborative agreement, and have agreed to a high-level work plan for 2020-22; however, more cooperation is required to sort out the details on deliverables and associated budgets.

Upper Fraser FSMC Delegate Christina Ciesielski feels that there is hope for an effective collaborative management and decision-making process, noting that First Nations worked very hard to get to this point. She is hopeful that by next year, the parties will be collaborating and effectively making management decisions. In the near-term, we understand that there are plans to bring in Brenda Gaertner to do a workshop with the Main Table and Board to discuss legal aspects of the agreement, barriers to its full implementation, and clarifying roles, responsibilities, and mandates.

The UFFCA is hopeful that progress will be made, sooner than later, in the best interests of the fish.

PSF CLIMATE ADAPTATION FOR SALMON: GENETICS SAMPLING

A new genetics program is underway and is anticipated to inform recovery planning for Fraser salmon populations. The program is funded by the BC Salmon Restoration and Innovation Fund (BCSRIF) through the Pacific Salmon Foundation, and is led by Ruth Withler with support from Richard Bailey, DFO's molecular genetics lab, genetic researchers at the University of Victoria, as well as an advisory group. It's expected that the program will take 2 to 3 years to complete.

Objectives:

1. Update genetic samples to better understand the genetic variation in Fraser Chinook, coho and sockeye populations;
2. Fully sequence some genetic samples to develop new markers to better understand the genetic variation, with particular focus on selective markers;
3. Use this new information to develop conservation strategies for critical genetic components of Fraser salmon populations (e.g., hatcheries, captive brood and gene banking, etc.).

This program will complement UFFCA's existing work on conservation and rebuilding for salmon populations returning to the Upper Fraser watershed. We look forward the results, and how they may inform Upper Fraser First Nations salmon conservation and rebuilding priorities.

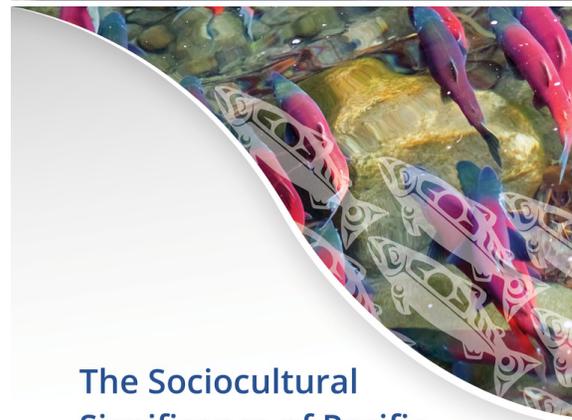
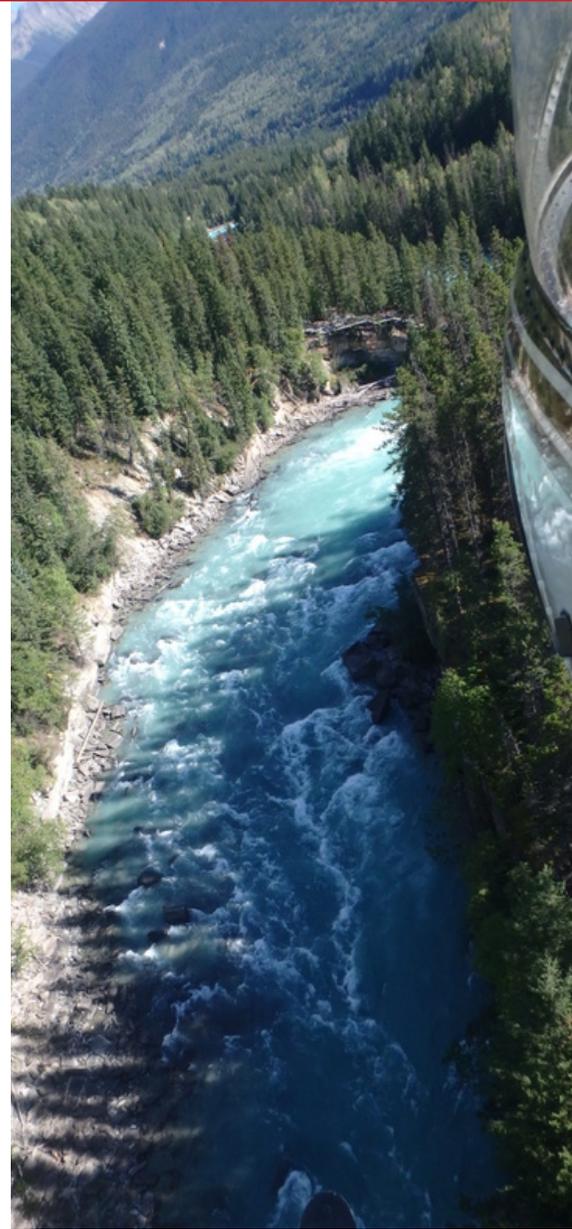
PSC SPECIAL REPORT: THE SOCIOCULTURAL SIGNIFICANCE OF PACIFIC SALMON

The Pacific Salmon Commission (PSC) has released a special report: *The Sociocultural Significance of Pacific Salmon for Tribes and First Nations*. The report explores the scope, nature, and value of Tribes' and First Nations' identities and practices tied to Pacific salmon, and their multifaceted cultural relationships with salmon that are critical to social and ecological health.

The PSC contracted Earth Economics to conduct the study on the importance of salmon to Tribes and First Nations throughout the Pacific region. The project was coordinated by the PSC Tribal and First Nations Caucuses, with advice and review from leading voices on First Nations fisheries in BC including Murray Ned, Russ Jones, Dr. Don Hall, and Gord Sterritt.

A number of key themes and recommendations emerged from the study, which help provide insight on the sociocultural significance of Pacific salmon, the importance of restoring and rebuilding salmon populations and habitat, and recognition of Indigenous rights in management and decision making.

The full report is available to download on the UFFCA website at www.upperfraser.ca/resource.html



The Sociocultural Significance of Pacific Salmon for Tribes and First Nations

Special Report to the Pacific Salmon Commission

The Upper Fraser Fisheries Conservation Alliance promotes accountability in the conservation, protection, and sustainable harvest of Upper Fraser fish populations and the health of ecosystems on which they depend. We help to build technical capacity in salmon management, field science, habitat, and Indigenous Knowledge through cooperation and collaboration.

For more information about the UFFCA, please visit

www.upperfraser.ca

or contact us at **info@upperfraser.ca**



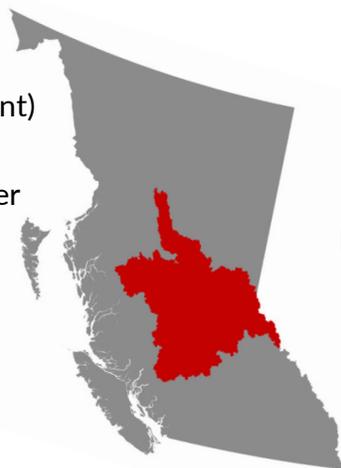


UFFCA Member Communities and Tribal Councils:

Burns Lake First Nation • Carrier-Chilcotin Tribal Council • Carrier-Sekani Tribal Council
 ?Esdilagh (Alexandria First Nation) • Esk'etemc First Nation • Lheidli T'enneh First Nation
 Lhoosk'uz (Kluskus First Nation) • Lhtako (Red Bluff First Nation) • Nak'azdli First Nation
 Ndazkho (Nazko First Nation) • Northern Shuswap Tribal Council • Saik'uz First Nation • Stellat'en First Nation
 Stswecem'c Xgat'tem (Canoe Creek Band) • T'exelc (Williams Lake First Nation) • Takla Lake First Nation
 Tl'azt'en Nation • Tl'etinqox (Anaham First Nation) • Tl'esqox (Toosey Band)
 Tsi Del Del (Alexis Creek First Nation) • Tsilhqot'in National Government • Tsq'escen (Canim Lake Band)
 Ulkatchot'en (Ulkatcho First Nation) • Wet'suwet'en First Nation • Xatsull (Soda Creek Indian Band)
 Xenii Gwet'in (Nemah Band) • Yunesit'in (Stone First Nation)

BOARD OF DIRECTORS

Nechako Stuart – Thomas Alexis (President)
 Nechako Stuart – Christina Ciesielski
 Cottonwood Blackwater – Frank Boucher
 Chilko Chilcotin – Randy Billyboy
 Chilko Chilcotin – Paul Grinder
 Quesnel Horsefly – Vacant
 Quesnel Horsefly – Vacant
 Upper Fraser McGregor – Vacant



TECHNICAL TEAM

Gord Sterritt – Executive Director
 Marcel Shepert – Facilitation Coordinator
 Pete Nicklin – Stock Management Biologist
 Shamus Curtis – Fisheries Biologist
 Michelle Tung – Environmental Projects Manager
 Sharmayne Owen – Communications
 Aimee Arsenault – Communications
 Rebecca Broadbent - Project Coordinator
 Jordan Geoghegan – IT Specialist

with special thanks to the many expert advisors and project partners who work closely with us!