



# INDIGENOUS STEWARDSHIP OF SALMON WATERSHEDS WEBINAR SERIES

## Webinar 1: Sharing Stories on Climate Change and Cumulative Effects

Wednesday, June 30, 2021

### OBJECTIVES

The overall purpose of the webinar series is to explore Indigenous perspectives on potential improvements in the management of cumulative effects for salmon watersheds.

The objective of this first webinar is to share information on the observed cumulative impacts in salmon bearing watersheds that are related to climate change, and the steps taken by communities and groups to tackle those impacts effectively.

### SCOPE & FORMAT

The June 2021 webinar is intended as an opportunity for the sharing of information among Indigenous technical staff, who have first-hand experience of the changes linked to climate change in their own watersheds and whose perspective is informed by those who have lived in place for countless generations.

The design of the webinar series reflects an appreciation for the value of person-to-person sharing of experience and dialogue among individuals ('virtual visiting'). The approach adopted for these events also reflects an understanding of the complexity of cumulative effects, a belief in the wisdom of communities and the first-hand experience of those 'on the ground,' and a direct challenge to the assumption that climate change is overwhelming, disempowering and that often seems impossible for communities to tackle.

This webinar is **not** intended as a forum for:

- An examination of the science of climate change or the modelling of impacts in BC;
- Detailed, quantitative assessment of cumulative effects in any one salmon watershed or across BC's entire salmon ecosystem;
- A systematic evaluation of current strategies for managing impacts to salmon watersheds; or
- Discussion of funding opportunities for community-based efforts to tackle cumulative effects;



## WEBINAR AGENDA

TIME	TOPIC
9:30 am	<b>Orientation (15 mins)</b> With opening remarks from Webinar Chair Bob ('Galagame') Chamberlin, Chairman, First Nation Wild Salmon Alliance. Bob will be joined by Co-Chairs Andrea Reid, Assistant Professor at the University of British Columbia and Stu Barnes, Chair of the Skeena Fisheries Commission.
9:45 am	<b>Background: Why Are We Here? (15 mins)</b>
10:00 am	<b>Case Studies: Sharing Stories on Climate Change and Cumulative Effects (40 mins)</b> <ul style="list-style-type: none"><li>• William Housty—Heiltsuk Integrated Resource Management Department</li><li>• Nicole (Cole) Morven—Nisga'a Fisheries &amp; Wildlife Department</li><li>• Michelle Walsh— Secwepemc Fisheries Commission</li></ul>
10:40 am	<b>Panel Discussion (20 mins)</b>
11:00 am	<b>Break (15 mins)</b>
11:15 am	<b>Small Group Discussions (55 mins)</b> <ul style="list-style-type: none"><li>• <i>Sharing our experience:</i> What changes are we observing in salmon-bearing watersheds that can be attributed to climate change? How might the changes we are observing be interconnected?</li><li>• <i>Gaps:</i> What impacts are overlooked by current, siloed approaches to planning and management?</li><li>• <i>Learning from each other:</i> How have Indigenous communities and nations been successful in addressing the negative impacts of climate change and addressing cumulative effects?</li></ul>
12:10 pm	<b>Summary and Reflections (10 mins)</b> With closing remarks from K_ii'iljuus (Barbara) Wilson—Council of the Haida Nation
12:20 pm	<b>Summary &amp; Wrap Up (10 mins)</b>
12:30 pm	<b>Close</b>



# DÚQVÁÍSLA WILLIAM HOUSTY

## Board of Directors (Chair)—Heiltsuk Integrated Resource Management Department (HIRMD)

*William is a leader in values-based management and an advocate for proper recognition of Aboriginal title and rights.*

William comes from the Haítzaqv (Heiltsuk) First Nation and was born and raised in Bella Bella, where he now lives with his wife and 4 children. Following the completion of his Bachelor's degree in Natural Resource Management in 2007, William returned home and has been working for the HIRMD since. William also works closely with the Heiltsuk Hereditary Chiefs table and serves as a liaison between them and the elected tribal council. William is a strong advocate for Heiltsuk culture and values and has dedicated his life to working with Heiltsuk families in the areas of Potlatches, language and culture.

## Climate Change and Cumulative Effects in Heiltsuk Territory

Heiltsuk Territory, covers an area 35,000 km<sup>2</sup>, which is dotted with more than 100 relatively small rivers, streams and creeks across diverse terrain. Historically, each of these systems and the salmon runs they supported would have been stewarded by a Heiltsuk family. Ancient stone fish traps at stream mouths give evidence of this practice. Nowadays though, these streams are but one small part of the much larger DFO Management Area 7, impossible to observe as closely as in the past.

To fill this massive gap in monitoring capacity, in 2010 the hereditary and elected chiefs delegated authority for managing natural resources within Heiltsuk Territory to the Heiltsuk Integrate Resource Management Department (HIRMD). HIRMD employs eight full-time Technicians to study and observe changes occurring in the watersheds of Heiltsuk Territory, alongside collaborators from DFO and academic institutions. Although the Territory has little influence from land use activities such as logging (save for a handful of sites logged in the past) nonetheless, HIRMD and the Heiltsuk community have borne witness to some massive changes over the past few decades.

In this case study, William will share examples of climate change-driven extreme weather patterns and their impacts on two significant salmon watersheds:

### Koeye River

The most significant sockeye salmon run in Heiltsuk Territory, of 5,000 - 15,000 annual returns is a near-pristine lake-fed system located around 60 km southeast of Bella Bella.

### Tinke River

Located close to town, just 10 km north of Bella Bella, in the past the Tinkey River was a significant source of sockeye salmon for the Heiltsuk Nation. From tens of thousands of returning spawners as recently as the 1970s and 80s that would have provided food for the whole community, sockeye runs in the Tinkey system have decreased into their hundreds. A hatchery program has done little to increase annual returns.



Photo credit: Olivia Nowak.



Bella Bella, Haítzaqv (Heiltsuk) First Nation

Photo credit: Grant Callegari.



# COLE MORVEN

## Harvest Monitoring Coordinator—Nisga'a Fisheries & Wildlife Department

*Nicole is the eyes and ears of the Nass River, coordinating monitoring of fisher catches and advocating for sustainable management informed by traditional knowledge.*

Nicole (Cole) comes from the Nisga'a First Nation and grew up in Gitwinksihlkw in the Nass River valley where she lives with her husband and daughter. She has been a Monitoring Coordinator on Nisga'a land and water for the past 13 years. On the water, Nicole she coordinates harvest monitoring along the Nass River, interviewing fishers across four communities about their catches, which often include Chinook and sockeye salmon and oolichan. Nicole is a strong believer in the importance of using traditional knowledge and first-hand experiences of change to inform sustainable management of natural resources. She has been troubled by the recent changes she's witness on the water; with warming temperatures indicating a sign of things to come and a call to action for the Nisga'a and other Nations. Cole has a [YouTube channel](#) where she shares videos of her work.

## Nisga'a Fishers—Eyes and Ears of the Nass River—Witnesses to Change

Nisga'a Territory centers on K'alii Aksim Lisims (the Nass River). Some 380 km long, the Nass River flows from glacier-free headwaters lined with dense forests, in which logging occurs, and empties into the Pacific just south of the Alaskan boarder. Many tributaries ranging from estuaries near the mouth (influenced by the sea) to rivers and creeks further upriver spring from the Nass mainstem. Together, these waters cover an area nearly 27,000 km .

The Nass River supports four communities: Gingolx and Laxgalts'ap near the coast are home to tidal fishers, while further upstream the villages of Gitlaxt'aamiks and Gitwinksihlkw raise freshwater fishers. These communities rely on the bounty of the land and the river. From the water, oolichan, sockeye and Chinook (called spring) are prized and make up a majority of catches; coho, pink and non-salmoids to a lesser extent. In the summer, sockeye and spring are smoked and vacuum sealed in jars for the cooler months ahead.

Since 1992, fish wheels have operated on the Nass River. These six wheels help the Nisga'a Fisheries & Wildlife Department (NFWD) to count, mark (by tagging) and recapture (thanks to Nisga'a fishers returning tagged fish) a portion of the ~1.7 million salmon that have returned to the Nass each year, on average, since 2000, when the treaty (the Nisga'a Final Agreement) was signed. The Nisga'a Nation was the first in BC to gain formal recognition from the Crown of their sovereignty and right to govern their lands and resources, including salmon.

In this case study, Cole will share both her own observations of change and those of the fishers she collects catch data from. She'll share stories of changes to the condition of the Nass River and its salmon, as well as the ways the NFWD is having to adjust their management strategies in the face of oncoming climate change.



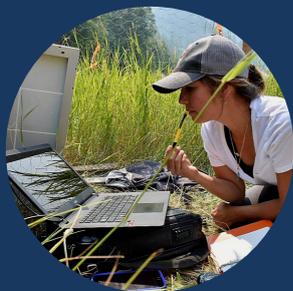


Photo credit: Amanda Celesta.

# MICHELLE WALSH

## Tribal Fisheries Biologist—Secwepemc Fisheries Commission

*Michelle is investigating how to conserve Chinook populations threatened by warming waters in BC's southern interior, in collaboration with First Nations communities.*

Michelle comes from the Nadleh Whut'en First Nation, Lhtseh yoo (Frog) Clan, of the Dakelh Nation. Michelle is passionate about working with First Nations towards achieving self governance of their natural resources, which the culture is so intimately tied to. She has worked as a Fisheries Biologist for the Secwepemc Fisheries Commission, a department of the Shuswap Nation Tribal Council, in Kamloops for the past 15 years, supporting the Secwepemc communities in their fisheries endeavors such as: conducting salmon stock assessments and habitat use studies, habitat restoration and mapping, and developing fisheries management plans in collaboration with communities. She is currently undertaking a Masters of Environmental Science at Thompson Rivers University. In her thesis, Michelle is investigating how stream-type Chinook salmon of conservation concern in the Thompson River watershed use groundwater upwellings, potential thermal refuges amid warming stream temperatures.

## Tipping Point in the 'Heart of the Fraser'?

This case study centres on key Thompson-Shuswap salmon tributaries within Secwepemc Territory near Kamloops. Often called the 'heart of the Fraser', this region is the largest tributary to the Fraser watershed covering 44,000 km<sup>2</sup>, or approximately 20% of the entire Fraser watershed. Although the Thompson-Shuswap region is best known for its famous Lower Adams River sockeye run, most regional salmon populations are in crisis from numerous climate change-related impacts occurring in freshwater and marine environments.

The region contains diverse and unique biogeographic zones, ranging from rainforests to open grasslands. Warming climates have propelled the explosion of insect pests throughout the watershed, stressing forest uplands. These pests, along with poor forestry practices, have spurred significant clear-cut logging, road building, and frequent, out-of-control forest fires in the uplands. Tree removals and reduced snow storage have caused extreme channel instability and an increase in flash flooding.

Valley bottom areas are also being severely impacted. Poor agricultural practices in many areas have left very little

stream-side vegetation. Earlier spring freshets and more intensive flooding often lead to smothering salmon redds with sediment and drought conditions later in the summer and fall coinciding with water withdrawals for irrigation.

Lack of abundance and distribution of Secwepemc salmon threatens our culture, practices, language, well-being and food security. Salmon are being challenged by extremes in stream flows and timing of flows that can hinder their migration, rearing and spawning. Some salmon have become smaller in size, spawning fewer eggs, and their flesh quality for consuming has degraded. Lesions and sores are a more common occurrence being reported by fishers. Many fishers often have to travel further away from their traditional fishing locations, or spend more time fishing, to harvest any salmon at all. Communal fisheries and a switch to using less selective gear has been needed to secure salmon.

In this case study, Michelle will highlight some local observations of freshwater detrimental factors that undoubtedly contribute to the long list of cumulative impacts and threats to Pacific salmon survival and productivity.



Photo credit: Kathy Meixner.



# WHAT ARE CUMULATIVE EFFECTS?

## CLIMATE CHANGE

Climate change causes warmer air temperatures, as well as many different effects that range from changing the timing of ice-off, decreases in glacier volume, and altered seasonal patterns of rainfall and river flows.



Climate change overlays other impacts and can add to, and exacerbate, their negative impacts. Under climate change, any impact could be seen as a cumulative effect.

## ACTIVITIES → STRESSORS → IMPACTS

Land use activities (e.g., logging) involve different stressors (e.g., excessive inputs of sediments) that can change or harm salmon watersheds, potentially decreasing the survival of salmon (the impact).



## IMPACTS

Stream temperatures are increasing due to land use activities like forestry removing riparian (stream-side) vegetation that shades rivers, and climate-change driven changes to the timing, and volume, of cold glacial snowmelt entering rivers.



The relationships among animals in salmon ecosystems are changing. For example, hungry bears now eat the whole fish as salmon populations decrease, with flow-on impacts for the rest of the ecosystem.

The timing of fish migrations and holding patterns are changing too, perhaps due to warming stream temperatures. This then influences the timing and location of salmon fisheries.



## # 'DEATH BY A THOUSAND CUTS'

The combined impacts of multiple human land use activities that alter the health of an ecosystem add up over time, and space, to potentially large consequences for salmon and their habitats.



## WITNESSING CHANGE

Indigenous Peoples across BC have borne witness to this 'death by a thousand cuts,' watching as, over generations, these small (and not so small) cuts added up to profoundly alter salmon ecosystems and peoples' relationships with salmon.



## A PATH FORWARD

There is hope. Indigenous communities are asserting their agency and acting to mitigate cumulative impacts, e.g., demanding better regulation of forestry practices. The UNDRIP, Declaration Act, and collaborative projects like the [Watershed Futures Initiative](#) present further opportunities for communities.