

Learning about Adaptation Planning

To better understand how to develop climate adaptation plans, we participated in two workshop series in February and March 2021. Pilot community representatives from Klahoose and Tseshaht First Nations attended a four-part workshop series, *Community Climate Preparedness*, hosted by Fraser Basin Council and led by Shift Collaborative, IndigenEYEZ and Red Pier Consulting. Metlakatla First Nation's WATCH representative attended a three-part *Climate Adaptation* workshop series hosted by Fraser Basin Council and Coastal First Nations.

Learning about Dietary and Harvest Research

In February, the Project Team met with Island Health Indigenous Health dieticians, FNHA's Food Sovereignty Group, Robyn Robinson from Gitga'at Nation's *We Monitor by Living Here* project, and Karen Fediuk of The Firelight Group to explore how we might research and monitor dietary and harvest concerns and changes as they relate to seafood safety and security. The Firelight Group then prepared a toolkit to help us conduct our ethics review and research.

What is the "We monitor by living here" project?

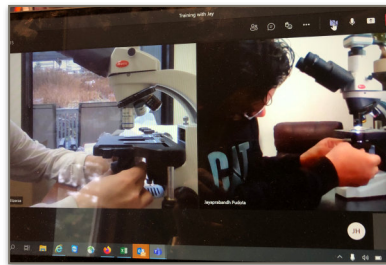
A community-based monitoring project based in the observations and experiences of harvesters and knowledge holders, which documents information in order for the Gitga'at Nation to:

- Track changes to inform stewardship
- Inform health and wellness programming
- Assert Rights and Title
- Encourage youth to learn about the territory and traditional foods



Learning about Harmful Algae

Phytoplankton Monitoring - Training

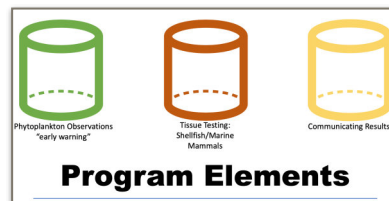


In February and March, marine plankton and water quality specialist Jay Pudota (Samudra Environmental Consulting) began training members of our WATCH pilot community to sample, identify and count harmful phytoplankton. Pilot communities were provided with microscopes, vertical and tow sampling equipment, and counting supplies.

Meeting with U.S. Seafood Monitoring Specialists

Those who first proposed the WATCH Project imagined that it would be modelled after successful biotoxin monitoring programs in Washington State and Alaska. In March, 44 people gathered on Zoom to learn from the amazing scientists who created those programs. Chris Whitehead (Environmental Marine Scientist, Ocean & Earth Environmental Services; Environmental Program Manager, Sitka Tribe of Alaska); Steve Morton (Research Oceanographer, NOAA Harmful Algal Bloom Monitoring and Reference Branch; Principal Investigator, Phytoplankton Monitoring Network); Jerry Borchert (Marine Biotoxin lead, Washington State Department of Health), Kari Lanphier (Environmental Lab Manager, Sitka Tribe of Alaska), and Neil Harrington (Environmental Biologist, Jamestown S'Klallam Tribe) shared how they designed and grew their programs.

Key program elements included an early warning system with phytoplankton observations, capacity to test shellfish tissue (i.e., new lab capacity), and sharing results with communities, health departments and clinics, etc. using databases, interactive maps, beachside hubs, social media, and other tools.



Why do we plan?

In developing risk management and climate adaptation plans, First Nation communities can avoid the pitfalls of not planning, as well as the risks and uncertainties associated with leaving the planning to others who may not share their vision and values. By focusing on seafood safety, security, and sovereignty, planning with the WATCH Project is different from other plans. As far as we know, only a handful of climate plans (in the U.S.) encompass strategies that focus on seafood and include biotoxin monitoring.

"Planning for the future will allow the tribes to benefit from emerging opportunities, protect against undesired impacts, and ensure that they continue to achieve their missions"
 Central Council of the Tlingit & Haida Indian Tribes of Alaska



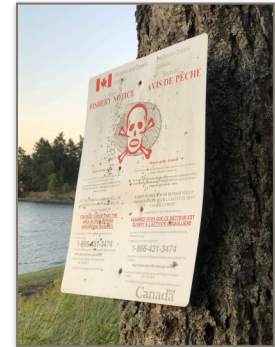
"Our ancestors had generations to adapt to changes that we are responding to in a single generation" (J. Qataliña Schaeffer)



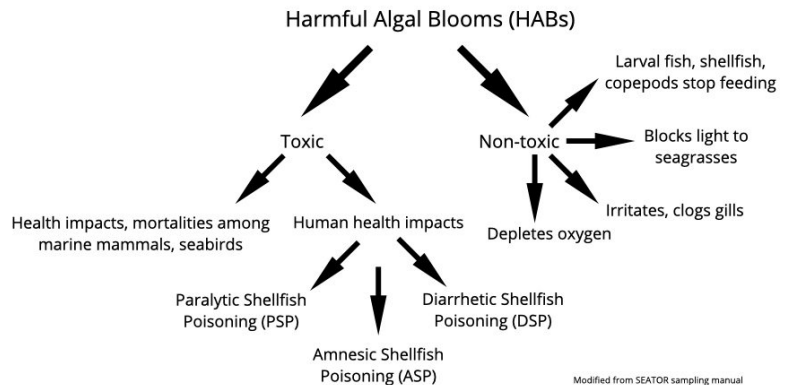
Pektayinata = We are Resilient
 Oscarville Tribal Climate Adaptation Plan
 Oscarville Traditional Village, Oscarville, Alaska

Why do we monitor?

Some marine phytoplankton (tiny algae) can produce biotoxins that accumulate in shellfish and other seafoods, harming marine life and causing Paralytic, Amnesic or Diarrhetic Shellfish Poisoning in humans. When blooms of these phytoplankton occur, toxins are more likely to be in the water and in seafoods at levels that could make people and animals sick.



There are other harmful phytoplankton that don't produce toxins, but can cause respiratory problems when you are near the water (currently not found in BC), or mechanically damage the gills of fish and other species. And expansive blooms of *any* phytoplankton can deplete oxygen in the water or prevent light from reaching the bottom, causing large-scale die-offs of affected marine species.



HABs are expected to increase in frequency, duration, and intensity with climate change. Unfortunately, they are not always visible to the naked eye. One of the first tasks of the WATCH Project is to create community-based phytoplankton monitoring programs to help shellfish harvesters know when harmful plankton are present in numbers that may be dangerous.



Chain of *Pseudo-nitzschia* spp. collected at Campbell River. This phytoplankton can produce domoic acid, the toxin responsible for Amnesic Shellfish Poisoning (ASP)

Planning 2021-22

This spring, the WATCH Project Team will share learning and climate workshop resources, determine the types of plans we would like to develop, and kickstart our planning processes. Through the summer, we hope to:

- Host “Issues” workshops in pilot communities and with Advisory Teams to find out what people are already experiencing and their concerns for the future.
- Explore regulations, policies, programs, plans and gaps, internally and with Advisory Teams
- Examine baseline and changing conditions with climate data, seafood studies, Local Environmental Observer (LEO) discoveries, and WATCH Project monitoring data
- Examine exposure and sensitivity to changing conditions, and adaptive capacity to further evaluate risks. This will include conducting dietary and harvest research.
- Prioritize risks by how likely they are to occur and how consequential their impacts might be.

These will inform “Strategies” workshops in pilot communities and with Advisory Teams in fall 2021 to design action plans that will set priorities, and identify and assign tasks to reduce risks. [These will include next steps for WATCH community-based monitoring programs.](#)

By March 2022, we will complete plans and communication materials that can provide a template for other coastal First Nations.

Our Partners

- Health Canada
- Public Health Agency of Canada
- FNHA EPHS Vancouver Island, Northern Regions
- BC Centre for Disease Control

Monitoring 2021-22

Phytoplankton + Environmental parameters

When environmental conditions are routinely sampled at the same time as phytoplankton samples are collected, we get an increasingly complete picture of how phytoplankton composition and numbers change in response to different conditions. We may also be alerted to other issues such as sewage contamination.

This spring/summer, WATCH pilot communities will select harvest areas and sample sites, and regularly collect plankton samples and environmental data. WATCH community representatives will be trained to use YSI ProDSS meters and sensors to measure temperature, salinity, dissolved oxygen and algae in the water column. They will use photometers to sample important nutrients (e.g., N, P). With the help of Indigenous and western scientists in the Advisory Teams and Monitoring Community of Practice, they will interpret their results and explore trends.

We have harmful plankton. Now what?

If phytoplankton monitoring is to be part of an early warning system, we must build the rest of the system. This involves identifying thresholds that trigger further action, expanding current shellfish testing, and establishing a communication network that connects harvesters, health care providers, resource managers and others.

Building capacity with ICHAP, ECP and LEO

The WATCH Project is part of FNHA’s Environmental Public Health Services (EPHS) (<https://www.fnha.ca/what-we-do/environmental-health>). EPHS includes the Environmental Contaminants Program, Indigenous Climate Health Action Program, and LEO Network. Pilot communities are encouraged to participate in these programs and the LEO Network.

Developmental Evaluation

In February and March, we created *SOAR Reflections* (Strengths, Opportunities, Aspirations, Results) to summarize and share learning from key meetings.

Contact us

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