COAST-WIDE LISTENING TO WHALES

A network of digital underwater hydrophones will provide vital data to First Nations and others to help reduce the impact of ship noise on the daily lives of whales of the BC coast.

"You can hear so far with these hydrophones," enthuses whale researcher Janie Wray, CEO of the non-profit North Coast Cetacean Society.

"You can hear if a pebble falls, if a fish grunts, if a shrimp clicks or chirps."

"And when a whale makes a sound, it’s almost as if you’re in the water experiencing the whale yourself. That’s how good these hydrophones are."

The BC Coast-Wide Hydrophone Network plans to span the BC coast from Prince Rupert to the Gulf Islands by 2023. Work to design a first phase of the network began last year through a grant from Fisheries and Oceans Canada (DFO).

> read more inside
“The purpose of the grant was to standardize existing hydrophone equipment from Saturna Island to Johnson Strait to the Inside Passage,” says Wray, who operates the Fin Island Research Station in Gitga’at territory. “This means researchers can actually compare noise levels across the coast because Network members share the same standardized equipment to do that.”

The digital hydrophones are calibrated to take precise digital measurements of the underwater sounds of marine life and human or “anthropogenic” activity, such as ship noise.

“The data we’re collecting is beyond anything we’ve ever collected,” Wray explains. “It can be used by First Nations, by government, by anybody who wants to understand the potential impact of anthropogenic noise levels in coastal BC.”

New hydrophones have been installed at the Saturna Island Marine & Research and Education Station (SIMRES), OrcaLab near Alert Bay, and at Bella Bella, Klemtu and Fin Island on the Central Coast. Hydrophones in Heiltsuk and Kitasoo-Xai’xais waters will not broadcast locally, Wray says, but will record data for collection and analysis by a central Network lab.

The Network will be reaching out to more First Nations communities to participate in the coming year. “As stewards of their own territory, the more First Nations know, the better they’re able to act and protect the marine mammals that are within their territory,” she says.

It’s information that can help fill in the blanks for First Nations stewardship offices. “When we’ve spoken to a couple of communities, they’ve wanted to know, what is the impact of vessel traffic going through their territory at all levels and how is that changing from year to year.”

Data that shows where and when whales congregate can support First Nations in requesting guidelines to protect them – such as rerouting ships or slowing ship speed in certain areas or times of year when whales are present.

Sports fishing boats, ferries, tugboats, cargo ships and tankers all contribute to underwater noise levels along the north and central coast. According to Wray, cruise ships that frequent the waters in front of OrcaLab are known to be one of the biggest offenders.

Underwater vessel noise is a huge interference in the daily lives of whales on the BC coast. For toothed whales such as non-resident orca, ship noise can mask their ability to locate prey. For humpbacks, fin whales and resident orca, it can interfere with their ability to socialize and communicate with one another.

“It breaks your heart,” says Wray. “When you’re in the middle of a beautiful recording and this humpback is singing, and then all of a sudden it stops and you hear the “tug-tug-tug”, grinding sounds of a vessel - I can’t even describe it.”

“We’re able to turn down the volume in the lab when this occurs, unfortunately whales don’t have that option.”

Wray believes researchers are getting closer than ever to understanding the impact of anthropogenic noise on cetaceans. “But we really are just beginning,” she cautions. “It’s a huge question that needs to be answered properly worldwide.”

“It’s about figuring out underwater noise thresholds for each species of marine mammals and fish before it becomes a crisis.”
ANCIENT TECHNOLOGY AND INDIGENOUS GOVERNANCE OFFER LESSONS FOR SALMON RESILIENCY

A growing resurgence in ancient Indigenous fishing methods promises to transform salmon governance and the ways that salmon are caught and managed.

Gitga’at scholar Spencer Greening – one of 20 co-authors of a new paper published in BioScience and featured in the January issue of Stories from the Coast – contributed his knowledge of the role of Indigenous governance in maintaining healthy salmon populations.

“One of the most beneficial ways we can tangibly make change is to continue to empower our hereditary systems of governance so they can carry out the stewardship that we’ve done for millennia,” says Greening. “As we empower those voices, we get a better grasp of what fish management should look like.”

From trap fisheries on the lower Columbia and Skeena Rivers, to selective reef net fisheries in the Salish Sea, and a fish weir in Haitzaqv territory, the authors say traditional governance and fishing methods offer lessons in resilient fisheries – despite a colonial history of discriminatory laws.

A proposed fish trap project by Lax Kw’alaams Nation will address drastic salmon declines in the lower Skeena River. Colonial laws prohibited Indigenous nations from using fish traps in the late 1870s but allowed Europeans to use the technology in widespread and destructive ways.

Reef nets – invented by Straits Salish nations – are also undergoing a renaissance. Reef nets were outlawed in Canada in the early 1900s and their sites appropriated in Washington State to make way for commercial fish traps.

A traditional fish weir in Haitzaqv territory has been built and adapted for science research and monitoring to create a sockeye management model for the region.

William Housty, study co-author and Board Chair of the Heiltsuk Integrated Resource Management Department (HIRMD) says through weirs, traps and other technologies, a local and values-based Haitzaqv governance system kept salmon creeks healthy for millennia.

“Before we amalgamated into Bella Bella, families were living in different parts of the territory where they were responsible for the management of their salmon systems,” he explains. “If you descended from a place, it was your responsibility to make sure the salmon that were coming back there were healthy, that the ecosystem was healthy.”

Greening says the fact that traditional Indigenous salmon fisheries persisted for thousands of years speaks to the interconnectedness of a resilient people and species.

“I don’t think non-Indigenous people really grasp the concept of how deeply-rooted in fish we are as Indigenous people. Your whole societal structure is so focused around this way of life – you have a deep understanding of it and how it works and your place in it.”

He says traditional fishing technologies supported salmon because they were rooted in Indigenous laws and traditions.

“Indigenous people saw the necessity of keeping those salmon populations striving because it was linked to Indigenous people thriving,” he explains. “It became a priority for anyone who stewarded a territory or a river to ensure the species is harvested and honoured in a sustainable way because that is directly connected to our own health and resilience.”

Housty says the ancient weir technology has opened new doors for HIRMD to manage both its salmon population and the local area fishery. “The methods we’re using are tried, tested and true by our ancestors,” he affirms.

HIRMD now plays a more central role in modern stewardship but traditional values remain the same. “We’re still doing it for the same reason and using the same techniques the previous generation used to ensure these salmon creeks are healthy for the next generation.”

Photo by Bryant DeRoy
A new Haida Gwaii Food Strategy is one of many food independence initiatives underway by Haida government, organizations and communities to ensure local food sustainability for all.

When COVID-19 lockdowns began last March, the tenuous nature of an island food supply – dependent on air and water shipping – was heightened. The need for a future food strategy became even more urgent, says Missy McDonald, Skidegate band councillor and board director of the local food bank.

It’s not enough to respond to threats to food security when an extreme crisis like COVID-19 strikes, McDonald believes. “Our long-term goals are that we need to be sustainable. What do we need to do that? If the ferries go down next week, and flights can’t get in, what do we have to have in place to survive?”

A webinar series was organized to bring residents together online at a time when they could not gather. The webinars seek input from a wide range of food users and producers to help the Council of the Haida Nation (CHN) understand the gaps in sustainability of local food supply.

“We’re doing these to extract information from all different classes of people about what is needed for a Haida Gwaii food strategy,” explains McDonald. “We’re accumulating information from each webinar to help turn it into a plan for the whole island.”

According to McDonald, even before COVID-19 struck, Haida villages and organizations were working to address food self-sufficiency.

The Council of the Haida Nation (CHN), Old Massett Village Council and Skidegate Band Council have been part of a household garden initiative – providing soil, gardening boxes, composting buckets, fruit trees and berry bushes to support self-sufficiency. Community health centres grow their own vegetable gardens to supply elders’ meal programs. A Local Foods to School program gives students access to traditional and locally grown fruits and vegetables.

McDonald says it was important for agencies and local governments to focus on a mentoring model instead of an enabling model that would not help people.

“We realized, “If you give a family food, they will eat for a couple of days. But if you teach a family how to grow and gather food, they will eat for life.’”

The webinar series aims to mentor and invite conversation. Presentations – available on the CHN Facebook page – include “Youth Food Ignited” with youth who share their traditional harvesting experiences, and “Food as Medicine” with elders. In “Nourish and Flourish”, representatives from all island communities explore economic development opportunities with food security. Island farmers and food processors discuss challenges they face in “Farm to Table”. A final webinar “Water and Life” is planned for World Water Day on March 22.

McDonald emphasizes that it takes an entire community to build food independence. A local Haida youth centre brings together elders with young people to pass on knowledge of traditional food gathering and processing. Haida Child & Family Services Society offers mentorships for family members to learn how to grow food gardens.

“I can’t believe how many gardens were created last year. I had so many kids phoning and saying, “you have to come over and see my tomatoes,” McDonald says. “I’m really proud of the fact that they’re already talking about buying seeds for the spring.”

“It’s people doing it for themselves.”