

North Coast Cetacean Research Initiative

A program of the Ocean Wise Research Institute

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2019 – 2020 Report Prepared for:

The **North Coast Cetacean Research Initiative** is an Ocean Wise program supported by the Prince Rupert Port Authority, DP World, and Fisheries and Oceans Canada - Coastline Environmental Baseline Program.

The **WhaleReport Alert System** is an Ocean Wise project supported by Port of Vancouver, Prince Rupert Port Authority , Fisheries and Oceans Canada - Ocean and Freshwater Science Contribution Program, Fisheries and Oceans Canada - Habitat Stewardship Program for Species at Risk, Fisheries and Oceans Canada - Canada Nature Fund for Aquatic Species at Risk, Transport Canada's Program to Address Disturbances from Vessel Traffic.

Summary

The North Coast Cetacean Research Initiative (NCCRI) is a program of the Marine Mammal Conservation Research Team at the Ocean Wise Research Institute (OWRI). The NCCRI fills a critical knowledge gap by hosting a community-based cetacean program in Northern British Columbia, an area previously understudied but biologically important for cetaceans. Established in 2014, the NCCRI monitors cetacean populations in the region through field research and citizen science, conducts applied research projects to learn more about locally-important species, develops tools to affect conservation, and engages targeted groups and the community in learning about the marine environment and marine mammals specifically.

In 2019, the NCCRI highlights include:

- The printing and distribution of the first edition of “Humpbacks of the North Coast”, an identification guide of individual humpback whales of Chatham Sound
- The second year of conducting nearshore transects to better understand the distribution and relative abundance of cetacean species in Chatham Sound
- The launch of the WhaleReport Alert System (WRAS) on the North Coast
- Presenting at the World Marine Mammal Congress in Barcelona Spain
- 1,387 sightings collected by citizen scientists in the North
- 2,933 people engaged through 37 training, education and outreach events

Through these activities, the NCCRI has developed important relationships with industry, government, First Nations, educational institutions, and members of the general public. The relationships built and the information gathered would not be possible without a permanent presence and local face. Supporting this program has allowed for vital biological data to be gathered on local cetacean population dynamics and migration patterns for temporal baseline monitoring. In turn, this information is disseminated to northern communities and to coast-wide initiatives. This program also empowers the public to actively participate in marine research and conservation by encouraging participation in important citizen science projects and taking action to reduce their impact.

In 2019, the NCCRI continued to be housed in the Prince Rupert campus of the Coast Mountain College. Two full-time staff were employed, as well as one seasonal summer student, several short-term contractors and multiple volunteers.

The North Coast Cetacean Research Initiative was funded in 2019 by the Port of Prince Rupert, DP World, and Fisheries and Oceans Canada - Coastline Environmental Baseline Program. This funding supports the continued presence and growth of this important conservation work in the North Coast.

This report outlines the work completed from January 2019 to December 2019.



Research

This reporting period marked the first full year that the North Coast office had use of the research vessel (*R.V. Tsitika*) to assist with regular field work. In 2019, more than 40 days were logged on the water collecting local cetacean sightings data for temporal baseline monitoring. The research was conducted in waters around Prince Rupert, primarily in Chatham Sound, but extending into Northern Dixon Entrance and Eastern Hecate Strait.

Humpback Whales of the North Coast

This was the 6th consecutive year of collecting local data on humpback whales in Chatham Sound. This work has led to the development of the long-awaited Catalogue for the region entitled, “Humpback Whales of the North Coast – Chatham Sound & Surrounding Areas”. The Catalogue includes individual humpback whales identified up until the end of 2018, totalling 162 whales along with details such as when they were first encountered, sex, and seasonal presence. The catalogue is available for free download on wildwhales.org.

During this season, a total of 80 individual humpback whales were identified during the summer field season, of which 44 had been captured or identified within the study site in subsequent years and 38 were newly recorded individuals. There were also two mother-calf pairs recorded during the months of June and September. As of the end of 2019, the NCCRI database includes over 220 individual whales and the publicly available catalogue will be updated during 2020. These data will support the understanding of inter-annual aggregations of humpback whales in this region including difference in habitat use, site fidelity, distribution, demography, and feeding ecology.

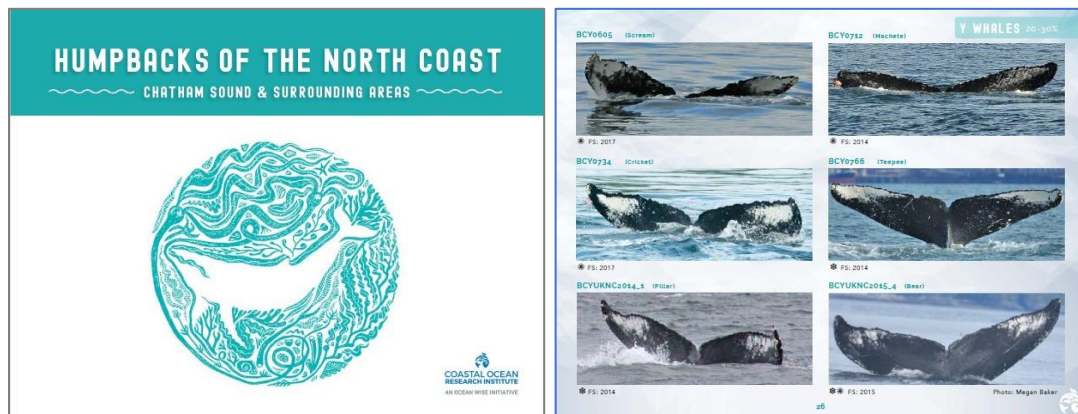


Figure 1. Cover of the *Humpbacks of the North Coast Catalogue*

The North Cost catalogue is not only an important tool for our research and those working locally but is also contributing to several larger projects. The North Coast Research Initiative has been involved in a coast-wide collaboration to provide an updated documentation of humpback whale numbers in BC, an effort that has been fragmented since DFO suspended their cataloguing process in 2013. This project was established in 2018 and involves inter-matching among regional humpback ID catalogues created by local NGOs in order to understand distribution and movement of these animals in B.C. In turn, project participants are also collaborating on an international research project, which is contributing to the understanding of movements and non-calf survivorship in the greater North Pacific and the overall health and status of humpback whales.

Nearshore Marine Mammal Transects

The second year of nearshore marine mammal transects were conducted in the winter of 2019 and summer of 2019. Seven transects were conducted during winter months (February, March), and nine transects were collected during July and August of 2019. Species observed included humpback whales, harbour porpoise, Dall's porpoise, Steller sea lions and harbour seals.



Figure 2. Summer research assistant Olga Mosca (left), Ocean Wise team and Megan Baker of the Khutzymateen Wilderness Lodge (right)

Citizen Science

BC Cetacean Sightings Network

Established in 2000, the British Columbia Cetacean Sightings Network (BCCSN) is an Ocean Wise initiative that harnesses the conservation value of citizen science to collect detailed, relevant and up-to-date information on the abundance and distribution of at-risk cetacean and sea turtle species. Through educational presentations and other forms of public engagement that raise awareness about anthropogenic threats to at-risk marine mammal species, the BCCSN recruits and trains coastal citizens and mariners to act as volunteer cetacean observers. These volunteer observers then report their cetacean sightings to the BCCSN in support of local-area cetacean conservation. In 2018/19, the BCCSN influenced 5,680 mariners and coastal citizens through its outreach efforts and communicated with another 2,950,000 people through printed publications, news stories, newsletters, blogs and website content.

The BCCSN maintains a database of approximately 128,400 verified sighting reports from nearly 7,300 observers and shares this valuable information with government organizations, ENGOs, the maritime industry, and researchers. In 2019, the BCCSN contributed sightings data to 19 external conservation research projects. These sighting reports are an important means of identifying and protecting critical habitat, highlighting areas of high risk, and organizing outreach and mitigation efforts that reduce anthropogenic threats to at-risk species.

One recent example of the BCCSN's cetacean conservation projects is the WhaleReport Alert System (WRAS), a tool that broadcasts real-time whale location information (as reported to the BCCSN by

mariners and coastal citizens via Ocean Wise's WhaleReport app) to masters of large commercial vessels so that they can take immediate action to reduce their risk of disturbing or striking whales (see below for further details on the WRAS).

The North Coast Cetacean Research Initiative helps run, support and promote the BCCSN on the North Coast. In 2019 1,387 sightings were recorded on the North Coast.

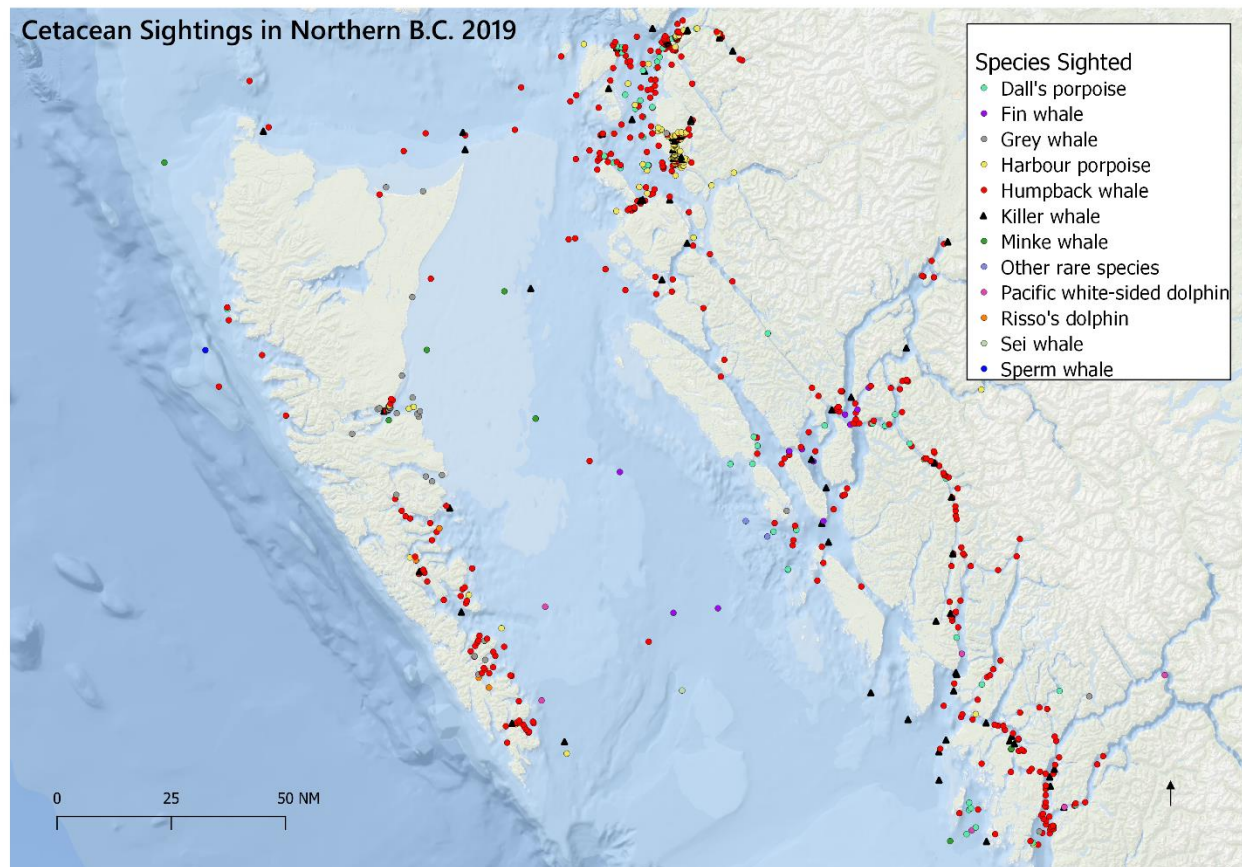


Figure 3. Map of all cetacean sightings in North Coast of B.C. during 2019 totalling 1,387 (this map has not been corrected for effort)

New App

In September 2019, the BC Cetacean Sightings Network released an updated and revised version of our reporting app, WhaleReport. This upgraded app, available for free for Apple and Android devices, features a more modern interface, clearer data entry fields, the ability to upload multiple photos, a new species ID guide, and the ability to edit sightings. The NCCRI team participated in this app development.

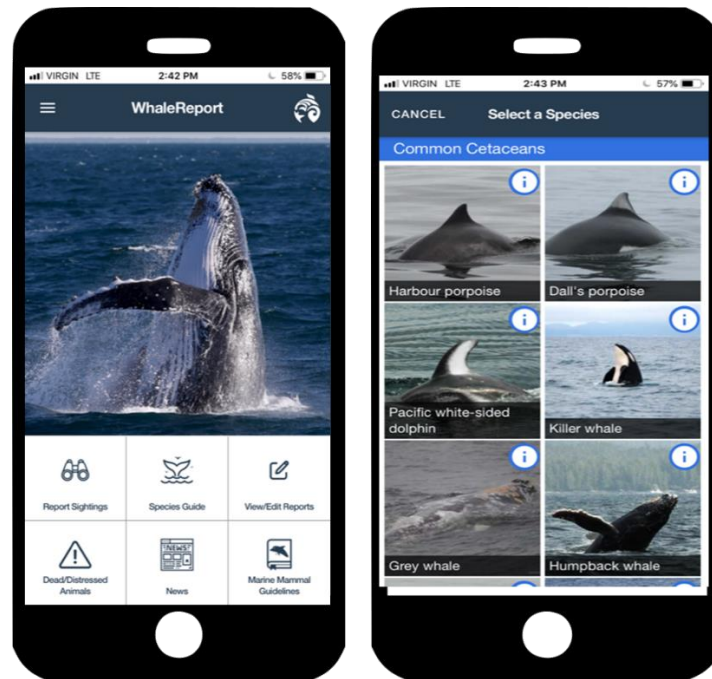


Figure 4. A modern interface and new features, such as an expanded ID guide, are part of the upgraded WhaleReport app released in 2019.

WhaleReport Alert System

Starting in 2018, our team began development of a functioning mobile smartphone and web application that increases marine situational awareness for professional mariners by alerting them to the presence of whales in their vicinity. A WRAS Working Group was established to advise the project and was made up of marine industry professionals, marine mammal specialists, and government officials. The WhaleReport Alert System (WRAS) broadcasts pertinent details of cetacean (whale, dolphin, and porpoise) presence to large commercial vessels throughout the coast of British Columbia (B.C). Information on cetacean presence is obtained from real-time sightings reported to the B.C. Cetacean Sightings Network (BCCSN) via the WhaleReport smartphone application. These reports create alerts to inform shipmasters and pilots with the goal of making commercial mariners more aware of cetacean presence and better enable them to undertake adaptive mitigation measures, such as slowing down or altering their vessel's course in the presence of cetaceans, to reduce the incidence of vessel-related threats including disturbance and collision.

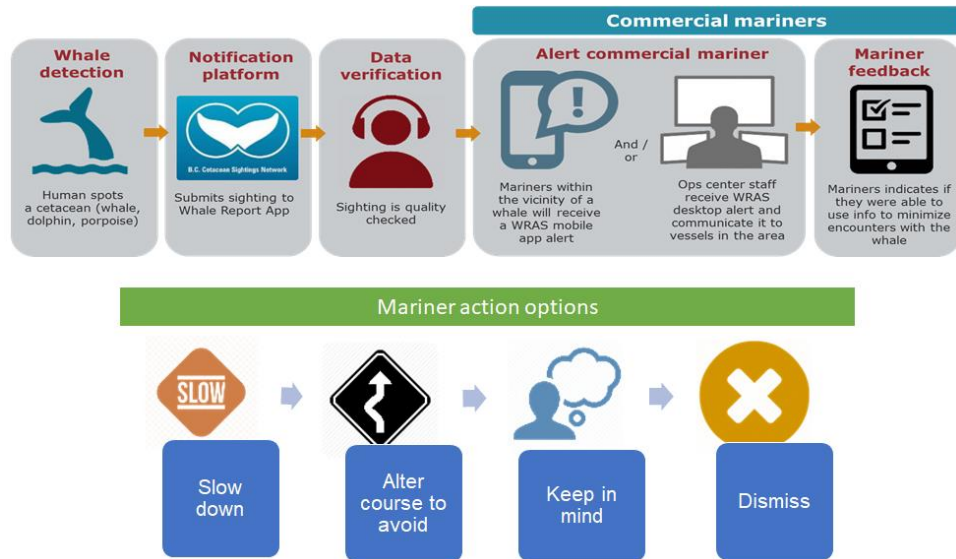


Figure 5. Flow diagram of how the WhaleReport app functions from start to finish

Since the implementation of the WRAS in October of 2018, mariners from 28 organizations have received a total of 2,676 alerts, potentially reducing disturbance and strike risk for approximately 2,621 individual whales. Alerts were generated for five at-risk cetacean populations, including grey whales, humpback whales, Bigg's killer whales, southern resident killer whales, and northern resident killer whales. The importance of reducing vessel-associated impacts is highlighted in the SARA Recovery Strategies and Management Plans for all five of these listed populations.

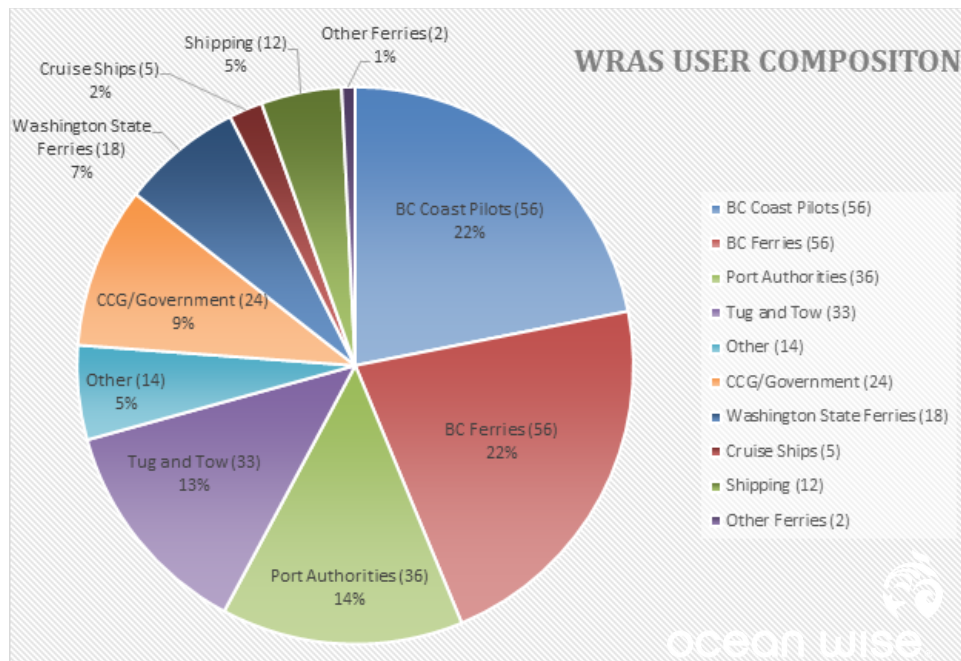


Figure 6. Breakdown of the WhaleReport user composition in British Columbia

In November 2019, the BCCSN sent an online survey to mariners to garner more information on WRAS utility. 72% of respondents indicated they have received WRAS alerts while working on the water. Of the users who

have received alerts, 68% indicated they had taken some sort of mitigating measure due to an alert. The most common action taken in response to a received WRAS alert was to heighten vigilance. Mariners also slowed their vessels, diverted course, turned off sounders, or took another course of action such as alerting other fleet vessels in the area. In the cases where no action was taken in response to alert, most survey respondents indicated that the alert was no longer relevant (either the animals were at a considerable distance, not detected, or already behind the vessel).

Phase II of the WRAS project will be led by our greater team and will occur from January 2020 to July 2020. With the guidance of the WRAS Working Group, the BCCSN will continue to enhance the WRAS mobile app to ensure optimal functionality and utility. A notification system will be built into the Desktop Interface that will alert operations staff and other desktop users to the presence of new WRAS alerts within their specified zones of interest. Users will have the ability to choose an auditory, visual, and/or email notification method. With the advice of the Canadian Coast Guard and Transport Canada, the BCCSN will continue to explore options for pushing out alerts to mariners via their Automatic Information System (AIS) in the future. Furthermore, the BCCSN will continue to explore options for integration of other cetacean detection technologies (e.g. acoustic and infrared detection) as they become available.

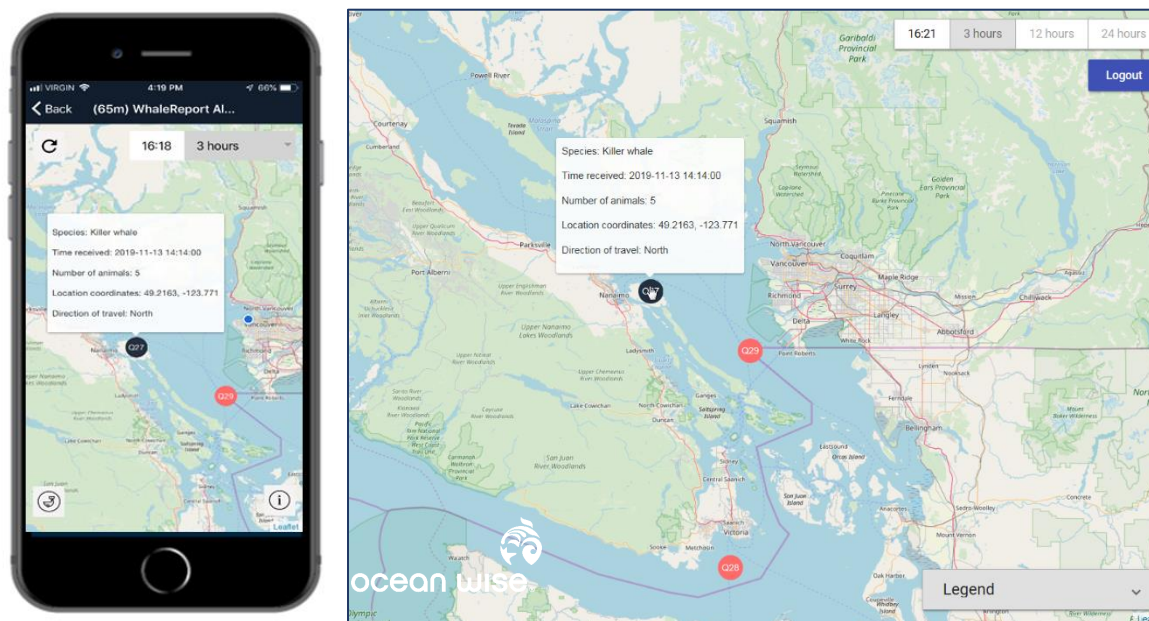


Figure 7. WRAS users can obtain information about cetacean sightings near their area of operation via mobile app or desktop application.

North Coast Engagement:

While many organizations involved in the WRAS Working Group work on the North Coast, an additional North Coast Advisory Group was established in 2019 to ensure the tool was optimized for this region. The first meeting was held on May 1, 2019 and involved representatives from Western Canada Marine Response Corporation (WCMRC), Prince Rupert Port Authority, Canadian Coast Guard - MCTS, Metlakatla Nation, Nisga'a Nation, BC Coast Pilots, Parks Canada, Council of Haida Nation, Haisla Nation, Transport Canada, Chamber of Shipping, and DFO-SARA. Issues highlighted in the meeting included reduced cell phone connectivity in the region, the need for greater alert radius (25 nm instead of 10), and inability to maneuver in tight channels (e.g. Grenville).

Further, North Coast-specific WRAS presentations were made at:

- Chamber of Shipping of British Columbia- Northern Committee (May 23, 2019)
- Western Canada Marine Response Corporation- Prince Rupert Office (May 29, 2019)
- Port Environmental Stewardship Committee- Marine Mammal Working Group (Sept 25, 2019)

Further, our southern based team members have presented to key marine organizations that would also use the North Coast as part of their operations including: Canadian Coast Guard, Canadian Department of National Defense, Transport Canada, Alaska State Ferries, Archipelago Marine Research, BC Coast Pilots, BC Ferries and Seaspan, among others.



Education and Outreach

Second North Coast Whale Festival

The second North Coast Whale Festival took place May 6th- 12th and over 2,500 people were engaged in the festivities around Prince Rupert, Terrace and Kitimat. The NCCRI staff were key organizers of this event. This year's highlight was a touring killer whale skeleton, part of Strawberry Isle Marine Research Society's Build A Whale Program. Other activities included #WhalesofRupert scavenger hunt, colouring contests, guest speaker presentations, and a free, family-friendly humpback whale documentary screened at the local cinema. The main community event took place May 11th with the theme of "Elevate, Educate, Explore". The activities packed day showcased information about whales, local research, children's activities stations, crafts, face painting, games, and prizes. Exhibitors included the Port of Prince Rupert, Fisheries and Oceans Canada, the Oldfield Salmon Hatchery, the North Coast Ecology Centre Society, Coast Mountain College, Strawberry Isle Marine Research Society, and of course Ocean Wise. The evening fundraiser featured an Ocean Wise scallop chowder, a "Killer Wit" beer by the local brewery, music and dancing.

#whalesofrupert Scavenger Hunt



Educate, Elevate and Explore

Sonic Sea Movie Screening and Expert Panel

On September 25th, 2019, the NCCRI along with the Port of Prince Rupert co-hosted a documentary screening of “Sonic Seas”, a movie about ocean noise. In the afternoon, the screening was attended by 475 students from Prince Rupert Middle School, Charles Hayes Secondary, and the Pacific Coast Academy. In the evening, a public screening was held with approximately 150 people in the audience. Following the movie, an expert panel presented and took questions from the audience. The expert panel included: Michael Jasny (Film Producer and Senior Policy Analyst at NRDC), Dr. Lance Barrett-Lennard (Director of Marine Mammal Research – Ocean Wise), Leslie James (Manager of Environment Sustainability- BC Ferries), Jason Scherr (Manager of Environmental Sustainability- Prince Rupert Port Authority), and Robert Lewis-Manning (President-Chamber of Shipping).

North Coast Marine Speaker Series

In Fall 2019 the NCCRI resurrected the North Coast Marine Speaker Series, a public lecture series on marine science topics held at the Coast Mountain College. On November 26th, we hosted Kirk Hart to speak on his upcoming research on the Rhinoceros Auklets of nearby Lucy Island. Lucy Island, located in Chatham Sound near Prince Rupert, is a nationally important nesting area for these sea birds. Thirty people attended this lecture.



Figure 8. Posters for events hosted by NCCRI in 2019

Targeted Boater Outreach

In the summer of 2019, our outreach focused predominantly on recreational boaters. This goal of this outreach was to create awareness of the cetacean diversity around the North Coast and educate boaters on how to boat safely around whales, how to reduce physical and acoustic disturbance of the animals, and how people can contribute to citizen science through the BC Cetacean Sightings Network.

This outreach campaign was multi-faceted:

Dock Talk Events

Over the course of the busy summer months, we conducted seven Dock Talk Events at marinas in Prince Rupert, Kitimat and Haida Gwaii. These events include setting up a small display at a marina or boat launch and engaging recreational boaters on the Be Whale Wise guidelines, marine mammal regulations and the BC Cetacean Sightings Network. Pamphlets and other resources are distributed. Marinas visited included:

- Rushbrook Marina (Prince Rupert) x2
- MK Marina (Kitimat) x 2
- Cow Bay Marina (Prince Rupert)
- Masset Harbour
- Queen Charlotte Marina

125 boaters were engaged through these Dock Talks.



Figure 9. Dock Talk set up at Rushbrook Marina in the summer of 2019.

Whale 101 Event for Boaters

Partnering with the Port Interpretive Centre in Prince Rupert, we hosted an evening open house for boaters to come learn about whales and how to boat safely in our waters. The evening included a short slide show and booth-type set ups by the NCCRI, Fisheries and Oceans Canada, and PRPA Environment Department. While the event did not have high attendance (10 boaters were engaged), it did result in significant local media coverage (see: <https://www.thenorthernview.com/community/best-boating-practices-how-to-avoid-whales-when-out-on-the-water/>).

Signage at Work Channel

Work Channel is a busy area where significant sport fishing activity overlaps with high humpback whale densities. Recreational boaters, many of whom are from out-of-province, launch their vessels at the end of the Work Channel Road, outside of Prince Rupert. To reach this audience we partnered with Fisheries and Oceans Canada to erect a large interpretive sign that highlights local species, with special emphasis of humpback whales and their behaviour in the area. The sign also covers important information on how boaters can reduce their impact on these animals, stay safe, and comply with federal guidelines for marine mammals.



Figure 10. The new Whale Trail BC Sign uncovered at the head of Work Channel, North of Prince Rupert.

Sport Fishing Lodge Visits

In May 2019, NCCRI collaborated with local DFO fisheries enforcement in Prince Rupert and Haida Gwaii to educate sports fishing lodges regarding the updated marine mammal regulations. Locally, four lodge visits were conducted, and educational materials were distributed highlighting the importance of sports fishermen keeping their distance from all marine mammals (100m minimum, increased to 200 m minimum for killer whales) to avoid vessel-strikes and disturbance. In addition to site visits, 10 lodge packages were compiled and sent and distributed to enforcement officers and lodges in Haida Gwaii.

Festivals and Public Events

To further engage the community, we participated in three community festivals/public events in 2019. These included NCCRI-specific displays and activities at: Seafest (Prince Rupert), Skidegate Days (Skidegate, Haida Gwaii), and the AquaVan Community Day at Coast Mount College (Prince Rupert). 500 members of the public were engaged through these events.



Figure 10. Community engagement at Seafest (r) and Aquavan Community Day (l)

School Programs and Student Engagement

The NCCRI regularly is approached by teachers instructing at various levels to come speak to their class about cetaceans and marine mammal science. We try to accommodate all requests. In 2019, we conducted eight school programs or lectures that reached 190 students. Students ranged from Kindergarten-College.

Training & Conferences

Marine Mammal Training: Metlakatla Coastal Guardians

In the fall of 2019, NCCRI staff collaborated with Metlakala Stewardship Society (MSS) to conduct in-house marine mammal training with Metlakatla Coastal Guardians. This training included relevant cetacean identification for the region, overview of cetacean threats as well as reporting procedure to Fisheries and Oceans Canada. This training also covered reporting for the BC Cetacean Sightings Network and the Whale Report Alert System. In spring of 2020, a field-based component of this training module will be conducted to solidify cetacean ID in situ.

World Marine Mammal Conference 2019

This year NCCRI staff attended the biannual WMMC19 conference in Barcelona and participated in the following workshops:

- Using smart acoustic technology to detect, classify, localize and track marine species
- Distance sampling surveys of marine mammal density and abundance
- Incentivizing consistent data collection and transparent reporting of marine mammal bycatch
- Acoustic monitoring of Odontocete population trends: Discussion of current issues, and introduction to the F-POD.

NCCRI staff along with members of the Ocean Wise Research Institute team delivered in five oral presentations and one poster presentation. Talk titles included:

- “Saving Whales, one smartphone at a time: The development of the WhaleReport Alert System” Caitlin Birdsall
- “The answer for resident killer whales: Mating is by female choice. What was the question?” Dr. Lance Barrett-Lennard
- “Mom, can you hear me? Impact of underwater noise on mother-calf contact calls in endangered belugas (*Delphinapterus leucas*)” Valeria Vergara
- A study of Beluga (*Delphinapterus leucas*) vocal ontogeny Valeria Vergara
- “My enemies’ relatives are my friends: An unlikely relationship between killer whales, dolphin, and porpoises.” Brittany Visona



Hazwhopper 24-HR Training

In March 2019, the NCCRI staff participated in a three-day training course offered by Focus Wildlife. The Hazwhopper 24-Hr course was geared specifically for Ocean Wise marine mammal response personnel and veterinary staff. This three-day training will cover components of HAZWOPER safety, incorporate elements specific to oiled wildlife response, discuss working conditions during a spill in BC or a transboundary spill.

Committees and Collaboration

Building and maintaining strong collaborative partnerships on the North Coast is important to further the work of the NCCRI and the greater Ocean Wise Conservation Association and contribute to the conservation of marine species and resources in this region. As recognized professionals in the marine conservation and research field in this region, NCCRI staff are active members of the following committees on an on-going basis:

- Port Environmental Stewardship Committee
- Marine Planning Partnership (MaPP)- North Coast Implementation Marine Plan Advisory Committee
- Marine Protected Area Network (Northern Shelf Bioregion) North Coast Ocean Advisory Committee
- The North Coast Ecology Centre Society

In 2019 specifically, NCCRI contributed to the Underwater Noise Management Plan Stakeholder Consultation held by Transport Canada and attended the Risk Assessment for Ship-Source Oil Spills in Northern BC Workshop held by Transport Canada under the Oceans Protection Plan.

NCCRI continues to maintain strong working relationships with the BC Marine Mammal Response Network, Fisheries and Oceans Canada Conservation and Protection - North Coast staff, Fisheries and Oceans Canada Coastal Environmental Baseline Program, BC Parks, Parks Canada (Gwaii Haanas National Parks Reserve), the Prince Rupert Port Authority, Metlakatla Stewardship Society, Lax Kw'alaams Fisheries, Marine Education and Research Society, and Coast Mountain Community College.

Upcoming Work

Beginning in January 2020, the winter field season will aim to determine how Chatham Sound is used by humpback whales by continuing to assess site-fidelity for winter humpback whale aggregations. Additionally, we hope to determine sex ratios for winter humpback whales and which potential prey species are present and sufficiently abundant in the area through the collection of eDNA and fecal

samples. Summer fieldwork will commence in July and two summer students will be hired to assist with both research and outreach.



Contact Information

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Appendix:Media

Date	Activity
07-Feb	Northern View Article - Winter Humpback Visits Ridley Island
03-Mar	Ocean Protection Plan Facebook Video – Highlighting Ocean Wise Research
04-Apr	Northern View Article online – Lone Killer Whale Explores Prince Rupert Harbour
08-Apr	Northern View Article Harbour Porpoise Activity off Prince Rupert Coast
11-May	Northern View Article Killer whale bones make debut at Prince Rupert Whale Festival
24-Jul	CBC Daybreak North – Interview with Caitlin Birdsall – Why northern resident killer whales are succeeding while southern residents are at risk
27-Jul	Northern View Article/video – Best boating practices, how to avoid whales when out on the water
28-Sep-19	Northern View Article – Ocean Wise Aquavan makes landing in Prince Rupert

Social media: <https://www.instagram.com/oceanwiseresearch/>

Ocean Wise Research: <https://research.ocean.org/research/cori>