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Salish Sea Ecosystem Conference

2022 Salish Sea Ecosystem Conference  
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Apr 28th, 8:30 AM - 10:00 AM

## Government of Canada: Reducing Vessel Noise and Disturbance

Sara German

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German, Sara, "Government of Canada: Reducing Vessel Noise and Disturbance" (2022). *Salish Sea Ecosystem Conference*. 68.

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# Canada's Efforts to Reduce Underwater Vessel Noise

Environmental Policy, Transport Canada



Transport  
Canada

Transports  
Canada

Canada 

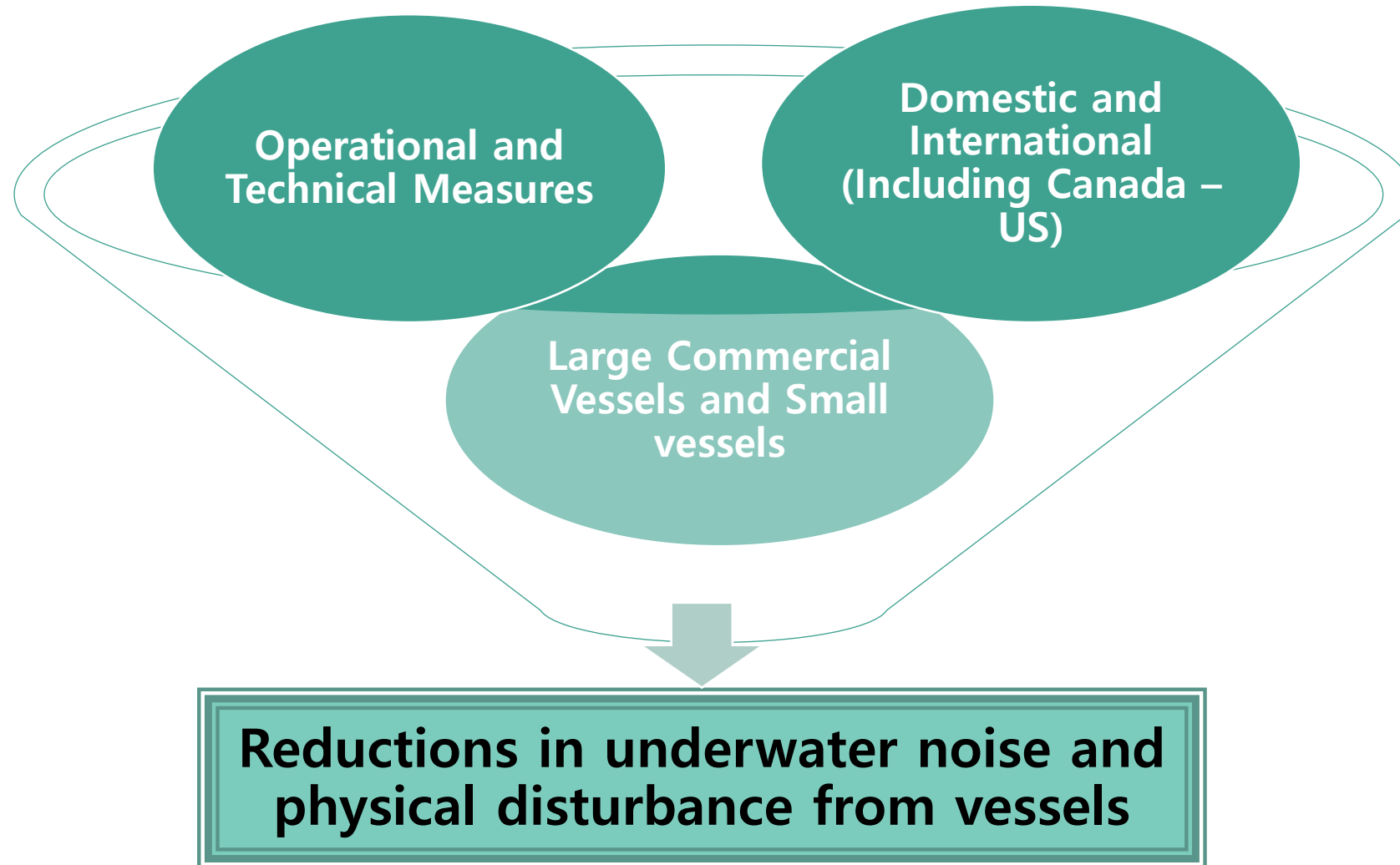
# Outline

1. Canada's Approach
2. Vessel Underwater Radiated Noise
3. Domestic Efforts
4. International Collaboration



Credit: Valerie Shore/Shorelines Photography

# Canada's Approach



# Vessel Underwater Radiated Noise

In Canada, underwater noise is identified as a high-risk anthropogenic threat in recovery plans for species protected under the Species at Risk Act (SARA):

- E.g., Southern Resident killer whale (SRKW) and St. Lawrence Estuary beluga

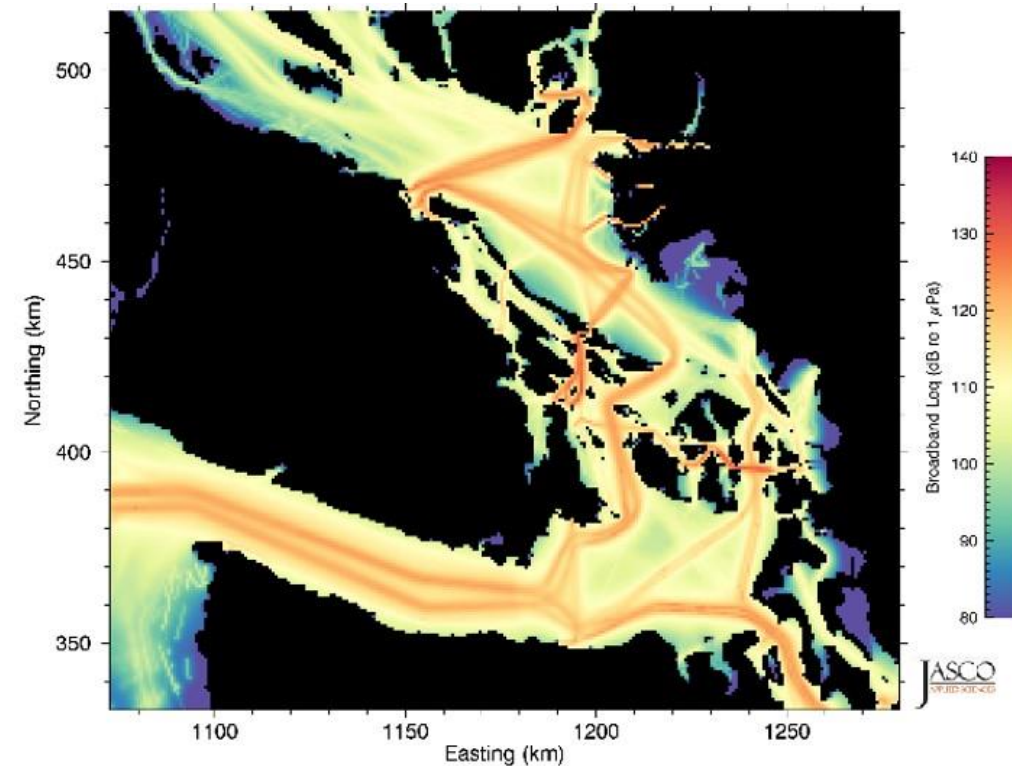
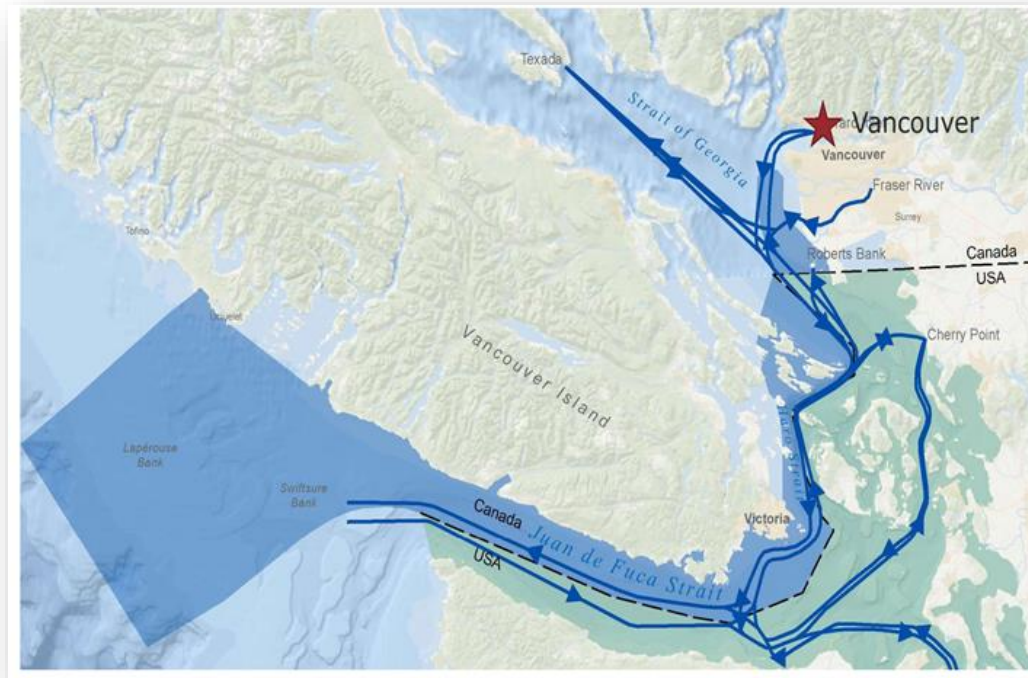
## SRKW

- Endangered species that uses sound extensively for communicating and foraging
  - Population: ~72 (+ 1 new calf)
- Spend significant time in Canadian waters in summer and fall when they feed on Chinook salmon in the southern Salish Sea



# Shipping and the Endangered SRKW

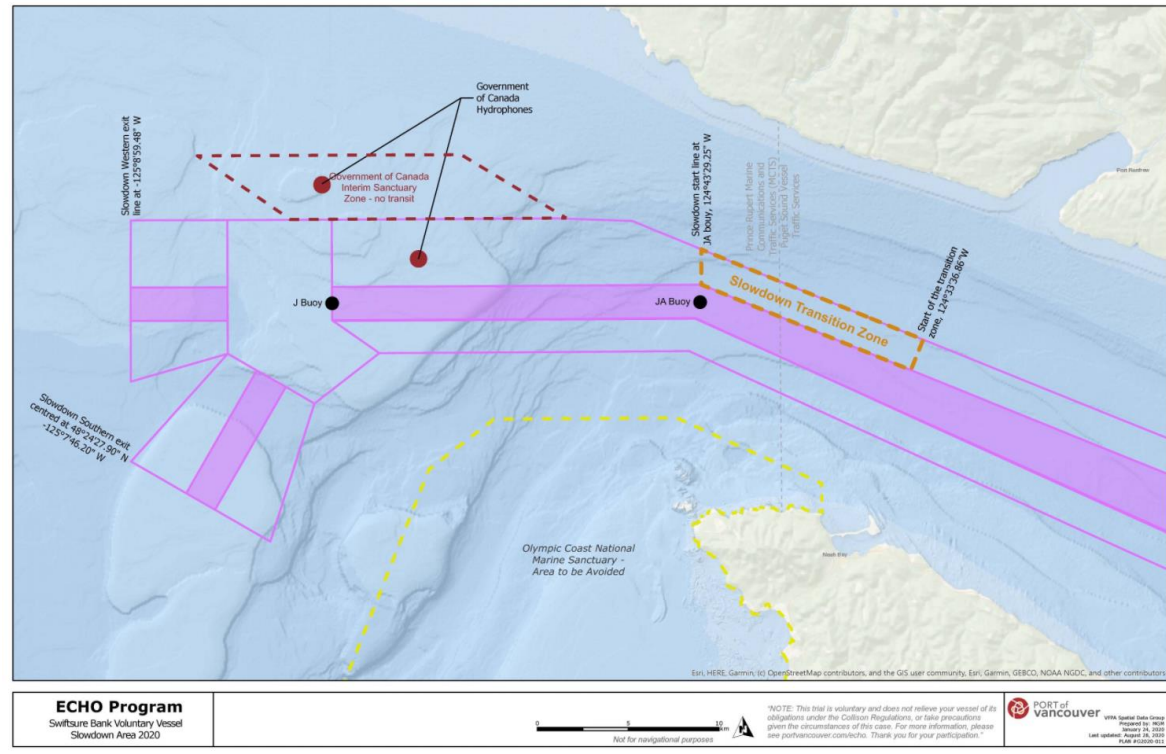
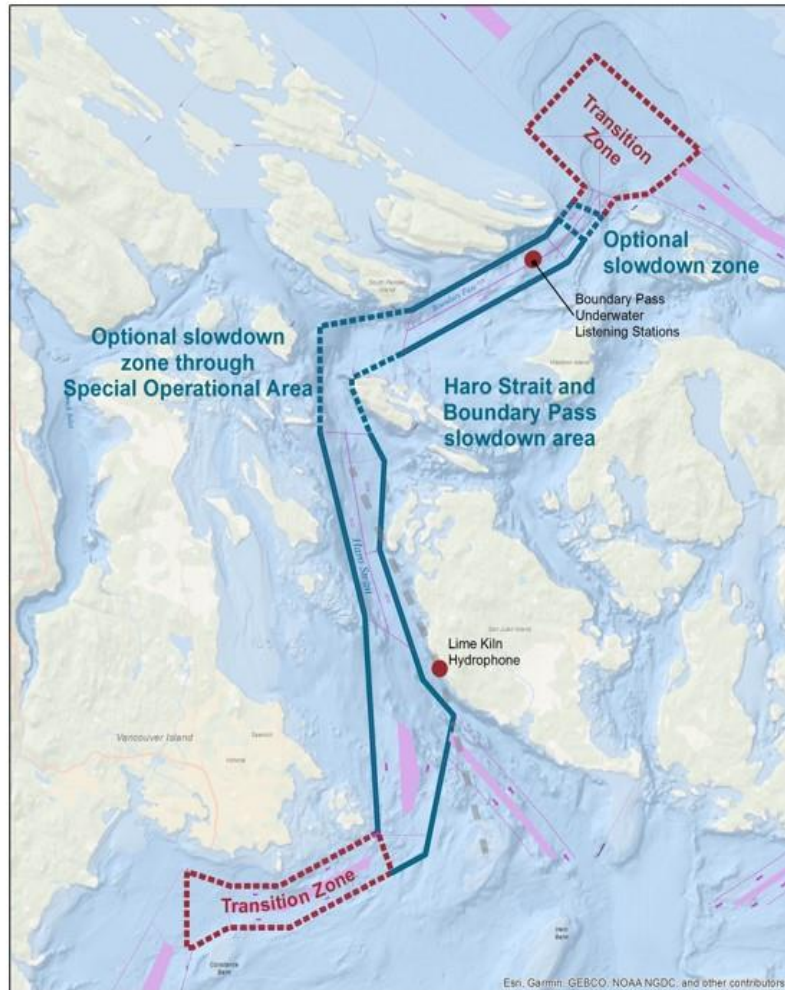
Critical habitat of the SRKW overlaps with international shipping lanes to the Port of Vancouver in Canada, and the Ports of Seattle and Tacoma in the US



Vessel noise map, averaged over month of July 2015

# Operational Measures – Large Commercial Vessels

In partnership with VFPA's ECHO Program and in collaboration with US partners.



Vessel slowdowns in Haro Strait and Swiftsure Bank

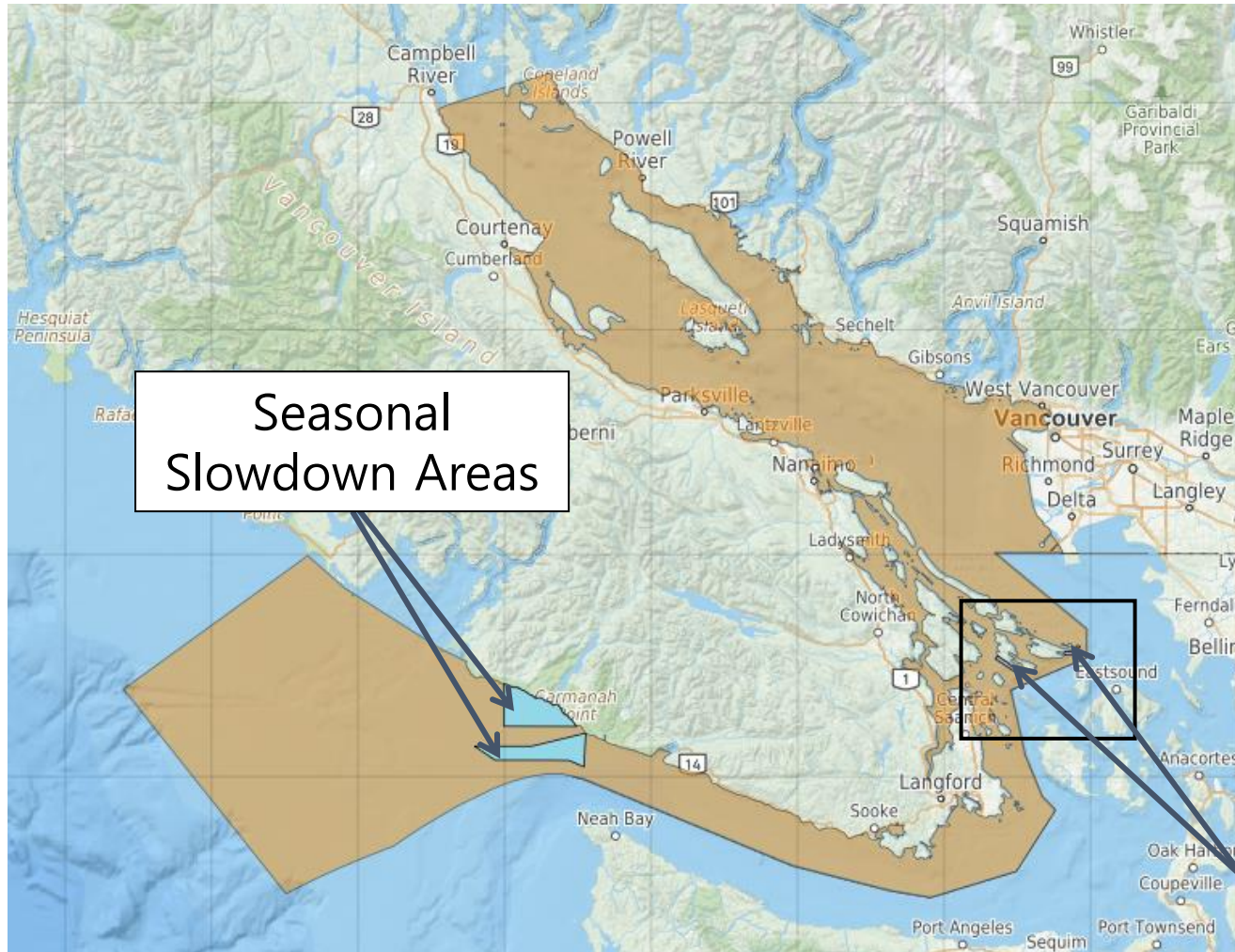
# Operational Measures – *General Vessels*

- Interim Order issued under the *Canada Shipping Act* (2019-2021) to address vessel related impacts on killer whales
- **Mandatory Measures:**
  - 400 m approach distance
  - Interim Sanctuary Zones
  - Seasonal Slowdown Areas (*proposed 2022* measure)
- **Voluntary Measures:**
  - Reduce speed to less than 7 knots when within 1,000m of the nearest marine mammal
  - When safe to do so, turn off fish finders and echosounders
  - Place engine in neutral and allow animals to pass if you find yourself within 400 m of a killer whale





# Proposed 2022 General Vessel Measures



<b>400 m Approach Distance</b>	<ul style="list-style-type: none"> <li>• Continue 400 m approach distance between Campbell River and Ucluelet, year-round.</li> <li>• Increase education &amp; outreach around Campbell River.</li> </ul>
<b>Interim Sanctuary Zones</b>	<ul style="list-style-type: none"> <li>• Pender &amp; Saturna Island ISZs - June 1-Nov 30</li> </ul>
<b>Seasonal Slowdown Areas</b>	<ul style="list-style-type: none"> <li>• Two proposed Seasonal Slowdown Areas at Swiftsure Bank - June 1-Nov 30</li> </ul>
<b>Voluntary Measures</b>	<ul style="list-style-type: none"> <li>• Continue to encourage voluntary measures in alignment with Be Whale Wise</li> </ul>
<b>Sustainable Whale Watching Agreement</b>	<ul style="list-style-type: none"> <li>• Whale watcher authorizations to view non-SRKW at 200 m</li> <li>• Reviewing policies &amp; procedures on denial / revocation of authorization</li> </ul>



# Source Noise Reduction Targets

- Engaged stakeholders on **Underwater Vessel Noise Management Plans** in 2019
- Feedback from consultation:
  - More info still needed (e.g. what is the target for noise reduction?)
  - Create a dedicated working group to **explore underwater vessel noise reduction targets**
- National Working Group on **Underwater Vessel Noise Source Reduction Targets** launched February 2021:
  - Canadian and international technical experts, industry and ENGO representatives
  - Will provide advice on **effective and practical noise source reduction targets** for vessels (by fall 2022)



# Advancing longer term actions

Seasonal measures are part of the story, but more structural solutions to address impacts are also needed.

All partners also play a role in advancing longer term actions



# Quiet Vessel Initiative

- Testing safe, environmentally-responsible and effective quiet vessel technologies, retrofits, designs and operational practices to reduce underwater vessel noise in the Salish Sea.
- Recent funding opportunities:
  - On May 5, 2021, QVI issued a targeted Call for Proposals to industry, academia, and non-governmental organizations. Recipients selected for funding will be announced imminently.
  - On November 8, 2021, QVI issued a targeted Call for Proposals to the 29 eligible Indigenous communities along the TMX marine shipping route. Proposals received are currently in the review and approval process.
- Upcoming funding opportunities:
  - QVI is planning to launch a competitive request for proposals seeking project proposals from Canadian industry, academia and Indigenous groups to support the development of propulsion improving devices, specifically aimed at reducing underwater noise generated by propellers. The request will be accessible on <https://canadabuys.canada.ca/> once posted.
- Past funded projects include:
  - Queen of Oak Bay Trials - to quantify the benefits of low friction hull coatings on greenhouse gas (GHG) and underwater radiated noise (URN) emissions on a BC Ferries operated ferry.
  - Parametric Propeller Noise Study - to evaluate the effect of varying propeller design parameters and operational conditions on URN and efficiency

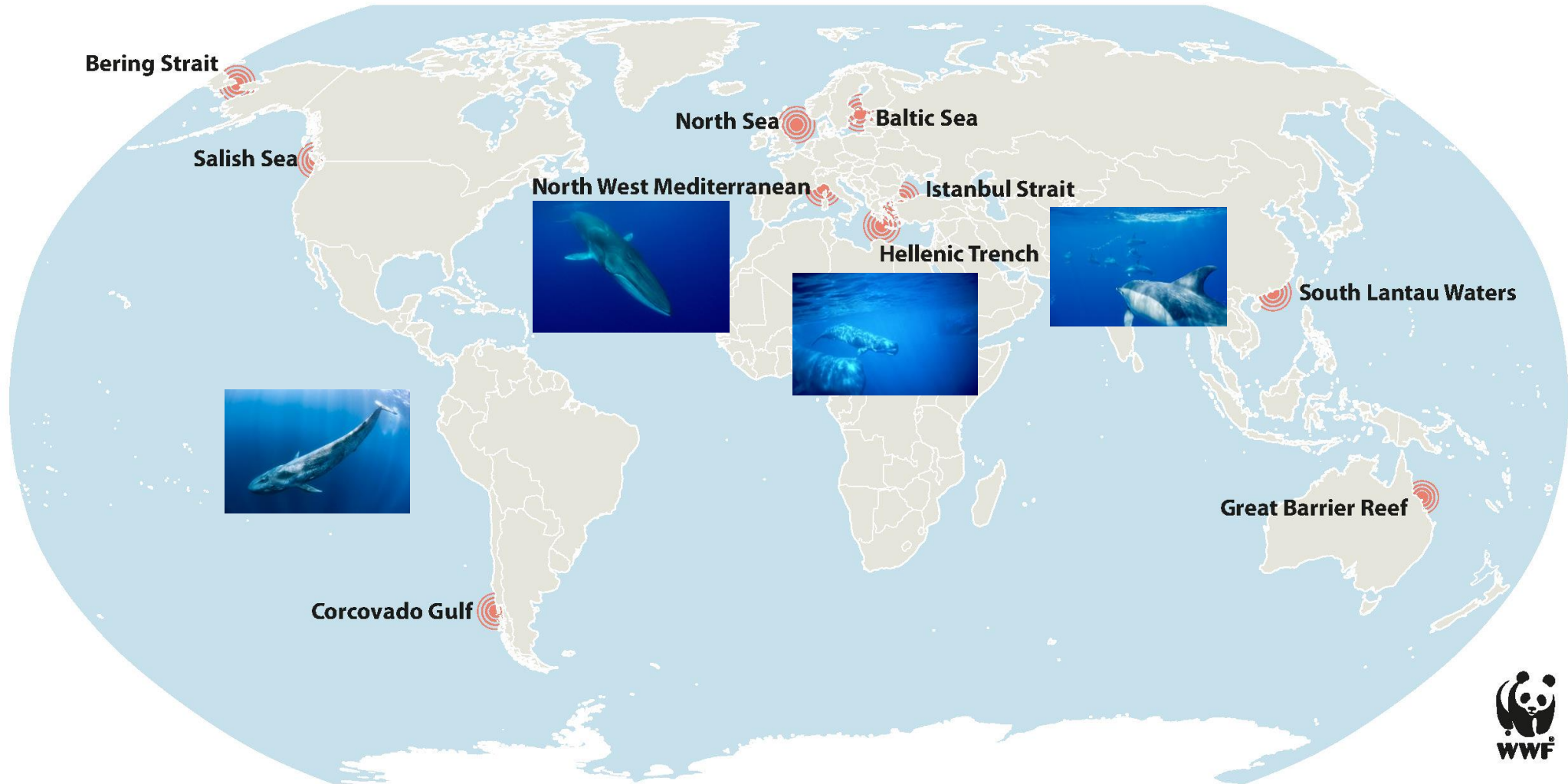


# QVI Research Projects Funded in 2020-2021

					
	<b>Propeller Cavitation Monitoring</b>	<b>Underwater Radiated Noise and Greenhouse Gas Reduction Program for Canada's Inshore Fishing Craft</b>	<b>Supporting ISO Vessel Source Level Measurement Standards for Shallow Water</b>	<b>Feasibility of Real-Time Shipboard Cavitation Monitoring and Management</b>	<b>Impact of Underwater Radiated Noise Reduction on Compliance with Energy Efficiency Design Index Criteria</b>
<b>Objective(s)</b> 	To develop a cost effective and commercially available propeller cavitation monitoring system.	To test whether GHG and noise are reduced if a fishing vessel hull is painted with a new graphene-based coating	To provide data to inform the development of an ISO standard for the measurement of vessel source levels in shallow water.	To evaluate the operational feasibility and underwater noise emissions should the Master take measures to minimize cavitation when navigating.	To understand the impacts of implementing technologies to reduce underwater vessel noise on energy efficiency requirements (i.e. Energy Efficiency Design Index).
<b>Timeline</b> 	May 2020 – August 2021	June 2020 – March 2022	May 2020 – March 2022	May 2020 – March 2022	May 2020 – November 2020
<b>Project Partners</b> 	<ul style="list-style-type: none"> <li>Allsalt Maritime</li> <li>T'Sou-ke Nation</li> </ul>	<ul style="list-style-type: none"> <li>Graphite Innovation &amp; Technologies</li> <li>Lloyd's Register Advanced Technology Group</li> </ul>	<ul style="list-style-type: none"> <li>JASCO Applied Sciences</li> <li>DW Ship Consult</li> <li>BC Ferries</li> </ul>	<ul style="list-style-type: none"> <li>JASCO Applied Sciences</li> <li>DW Ship Consult</li> <li>Canada Steamship Lines</li> </ul>	<ul style="list-style-type: none"> <li>JASCO Applied Sciences</li> <li>DW Ship Consult</li> </ul>
					

# Underwater Noise is a Global Issue

## Global case studies of marine life and underwater noise from shipping



# International Collaboration

- Advancing discussions at the IMO Marine Environment Protection Committee (MEPC) since 2017
- International survey, supported by Canada, to identify barriers that exist in implementation of the *2014 IMO Guidelines* through World Maritime University (WMU)
- In 2018/2019, co-hosted/hosted two Technical Workshops on quiet vessel design and retrofits (Halifax, Canada and London, UK) and a policy workshop in Vancouver, Canada
- The ECHO Program (led by the Vancouver Fraser Port Authority), supported by Transport Canada, initiated a project focused on improved alignment of classification society quiet ship notations

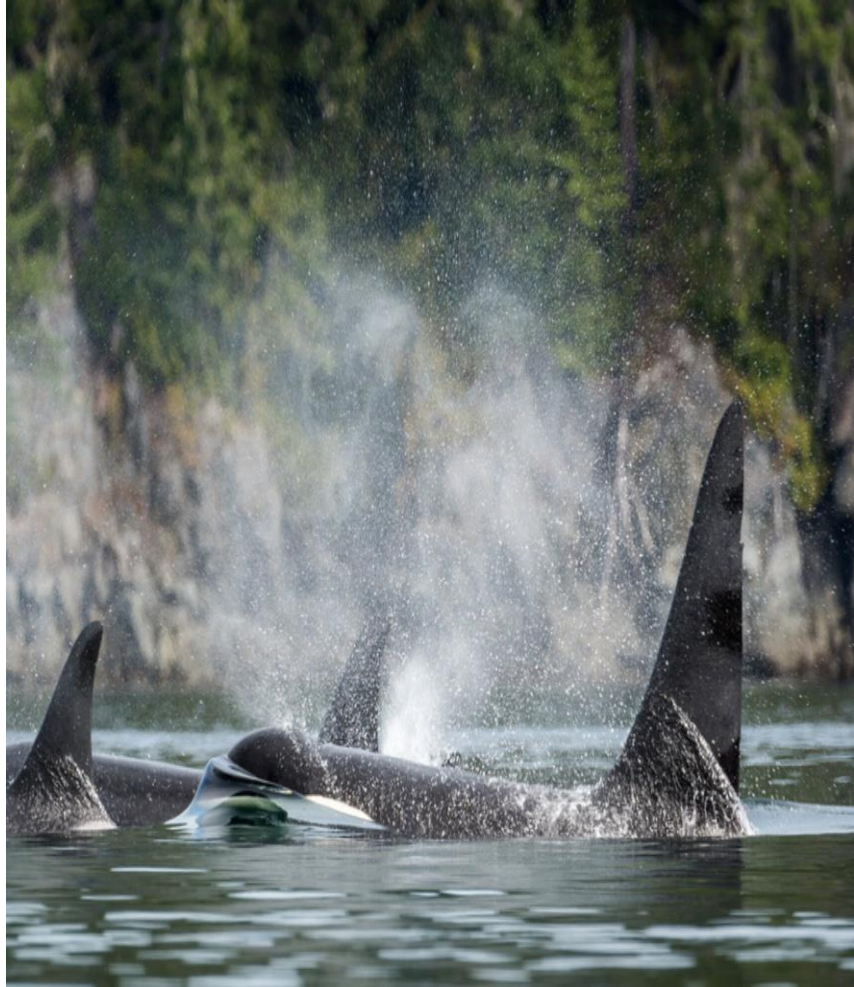


# Review the 2014 IMO Guidelines

- **June 2021:** New work output on underwater noise approved at MEPC 76
  - Review of 2014 IMO Guidelines and determination of next steps
- **January 2022:** Work referred to the Ship Design and Construction (SDC) Sub-committee for action
  - Working Group (WG) established at SDC; WG developed a workplan to achieve the key deliverables
  - Agreed to establish a Correspondence Group (CG), to be chaired by Canada, to progress workplan
- **March 2022:** Round 1 out of 3 for CG work began – will report CG outcomes to next SDC meeting in January 2023
- Expectation is for final report with recommended next steps to be tabled at **MEPC 80 (2023)**



# Key Lessons Learned



- Different solutions are required for different vessel types given the complexity of the issue
- Feasibility of measures must be assessed from a variety of angles
- Testing of new measures allows for real-time learning and the implementation of an adaptive approach
- Industry, governments, ports, NGOs and Indigenous communities have played an important role in identifying, analyzing and testing potential solutions
- Collaboration is key – including by working with those presenting and participating in workshops such as this

Thank you

