



PORT of
vancouver

Reducing underwater noise from shipping at the Port of Vancouver

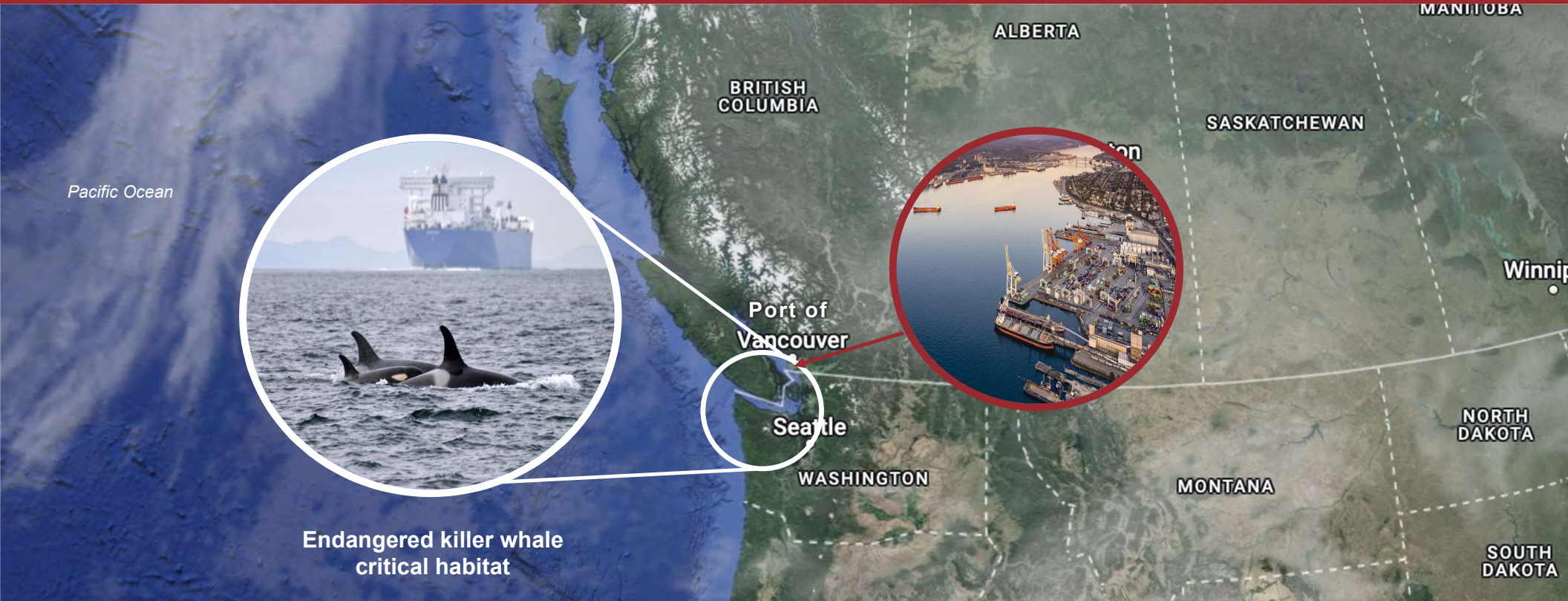
GloNoise Workshop October 16, 2024

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Enhancing Cetacean Habitat and Observation (ECHO) Program

Port of Vancouver



Shared waters: whales and shipping



What is the ECHO Program?

A first-of-its-kind program, developed in 2014, to better understand and reduce the impacts of commercial shipping on at-risk whales, in collaboration with government, the marine transportation industry, Indigenous communities, scientists and environmental groups.

ECHO Program strategic priorities:

- Research and Innovate - how to make vessels quieter
- Plan and Take Action - on-water noise reduction initiatives
- Engage and Educate - develop tools and resources



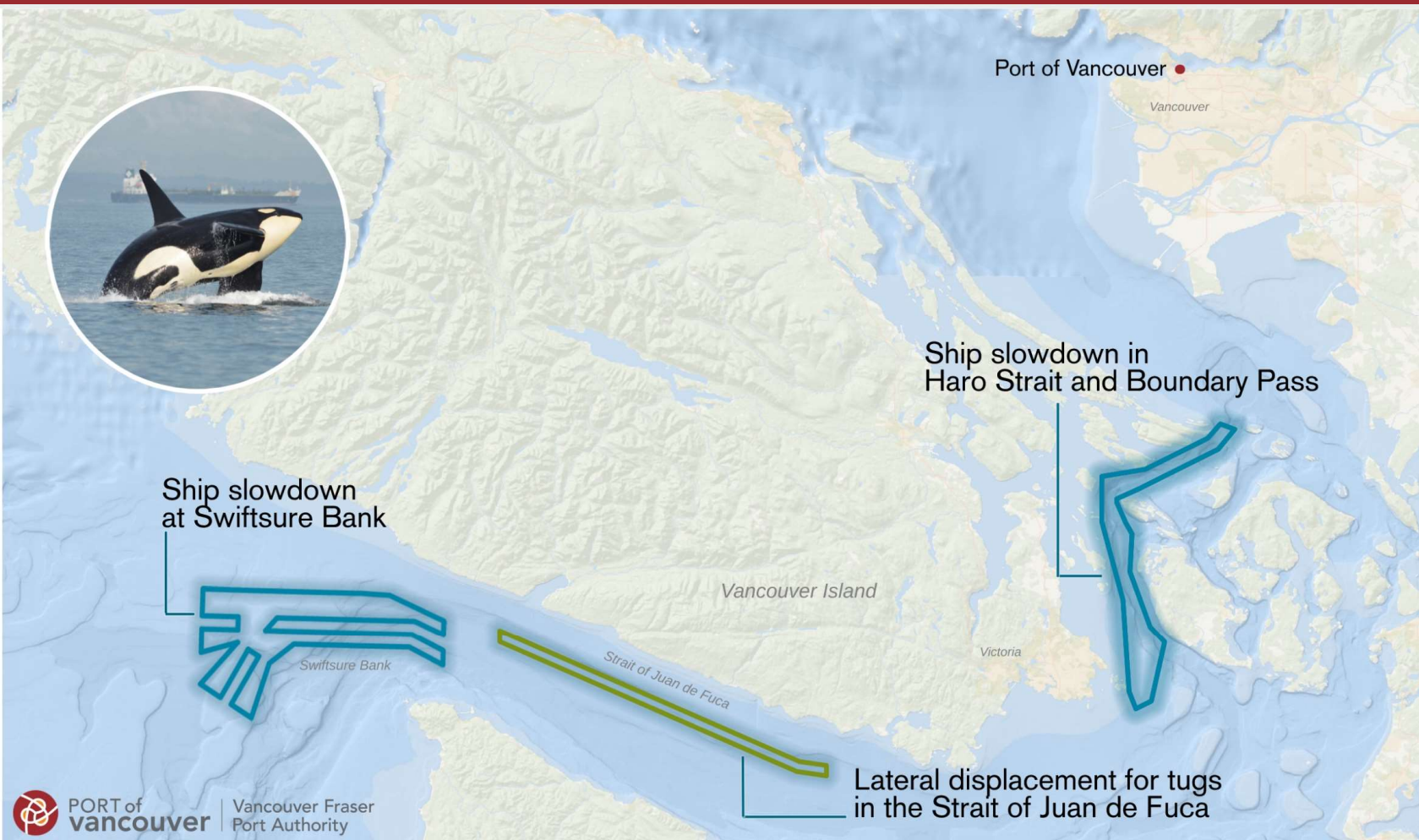
Research and Innovate - What do vessels calling the port sound like?

Speed found to be the most significant factor affecting underwater noise emissions



Photo credit: JASCO

Plan and Take Action- On-water threat reduction initiatives



Underwater noise reduced by up to **~50%**



Local air emissions reduced by up to **~25%**



Whale strike risk reduced by up to **~30%**

Engage and Educate – Resources for mariners

THE EFFECTS OF VESSEL UNDERWATER NOISE ON WHALES AND WHAT MARINERS CAN DO ABOUT IT

SOURCES OF NOISE

While there are plenty of natural sounds in the ocean, a vessel's underwater noise is a man-made sound that can be heard by whales.

WHERE VESSEL NOISE COMES FROM

- PROPELLERS AND UNDERSEA MACHINERY
- HAUL FROM FISH PULL MAINTENANCE
- MANEUVERING DEVICES
- HELICOPTERS
- SONAR

Most underwater noise from large vessels is carried by propeller cavitation.

IMPACTS

Underwater noise can affect the ability of marine animals to find food and communicate.

WHAT YOU CAN DO

In 2014, the International Maritime Organization (IMO) adopted that underwater noise associated with shipping is something that can be mitigated.

Options to reduce ship noise underwater include:

- SLOW DOWN**: Reducing a ship's speed can significantly reduce underwater noise.
- MAINTAIN**: Regular maintenance of the propeller and hull can reduce noise.
- OPTIMIZE**: Optimizing the hull and propeller design can reduce noise.

Mariner's Guide TO WHALES, DOLPHINS, AND PORPOISES OF WESTERN CANADA

WHALES IN OUR WATERS

- START HERE: Introduction
- MODULE 1: Protection of Whales
- MODULE 2: Whale Identification
- MODULE 3: Detection Cues & Whale Behaviour
- MODULE 4: Best Practices & Navigational Strategies
- MODULE 5: Reporting Best Practices

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WELCOME TO WHALEREPORT

COASTAL OCEAN RESEARCH INSTITUTE

WhaleReport Alert System

SUPPORTED BY

PORT OF VANCOUVER | PORT OF FRASER

ocean wise.

Welcome to WhaleReport

The Enhancing Cetacean Habitat and Observation (ECHO) Program

A collaborative effort to create quieter oceans for healthier whales

About the ECHO Program

Launched by the Vancouver Fraser Port Authority in 2014, the Enhancing Cetacean Habitat and Observation (ECHO) Program is a collaborative regional initiative focused on better understanding and reducing the cumulative impacts of commercial shipping on at-risk whales in the coastal waters of British Columbia and Washington State.

How the ECHO Program is making a difference

- Thousands of ships have slowed down or stayed idling within important areas for southern resident killer whales.
- Slowing down reduces several threats to marine mammals:
 - Reduced underwater noise
 - Lowered strike risk and physical disturbance
 - Reduced GHG emissions and air pollutants
- By slowing down, ships can significantly reduce underwater noise, one of the key threats to southern resident killer whales.
- Foraging is easier for whales when the ocean is quieter. Southern resident killer whales are obligate foragers and must find their prey, which is why underwater noise from ships can disrupt their ability to forage.

Partners and advisors

Program collaborates with 100 partners and advisors across the marine industry, government, communities, and other groups.

- Environmental groups
- Government agencies
- Indigenous communities
- Marine transportation industry

Filling the gaps



Researchers

- What does the species need?
- Quantify noise benefits of technologies



Ship owners and builders

- Consider URN in design and build
- Seek a quiet certification



Ports

- Provide incentives for quieter ships



Ship operators

- Optimize for quieter operation
- Transit slowly or alter routes



Government

- Provide funding and tools
- Consider legislation



Shippers of goods

- Choose ships with quiet certification

Incentivizing quieter vessels

EcoAction program

- Since 2007, Port of Vancouver has offered incentives for good environmental practice
- First port in the world to incentives for underwater noise reduction in 2017
- **NEW Platinum** (75%) discount option in 2023 for vessels using cleaner marine fuels or technologies, connecting to shore power, and **obtaining underwater noise notations**
- Carriers with highest participation rates recognized with **Blue Circle Award**



Noise-reducing design, technologies, and notations



Celebrity Eclipse SILENT-E notation from DNV



Propeller technologies reducing cavitation, improving wake flow



Ingredients for success



Photo: Vancouver Fraser Port Authority

Funding

- Seed funding and longer-term commitments

Relationships

- Having the right people in the room
- Trust and shared responsibility

Resources

- Opportunities to collaborate
- Learn from others

Science

- Science-based decision making
- Clear communication of complex ideas

Questions?



Photo credit: Olivia Murphy