Enhancing Cetacean Habitat and Observation (ECHO) Program

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American Association of Port Authorities (AAPA)
Energy & Environment Seminar

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BC cetacean ID and species at-risk status

- Harbour Porpoise (Special Concern)
- Humpback (Threatened)
- Fin (Threatened)
- Sei (Endangered)
- Blue (Endangered)
- North Pacific Right whale (Endangered)
- Biggs (transient) killer whale (Threatened)
- Resident killer whale (Endangered)
BACKGROUND CONTEXT: ENDANGERED WHALES IN OUR WATERS

Source: Orcalab
REGULATORY CONTEXT FOR THE ECHO PROGRAM

- DFO Species at Risk Act (SARA)
- NOAA Endangered Species Act (ESA)
- Designated Canadian and US Critical Habitat
- Legal protection to species and habitat
- *Canada Marine Act* mandate
REGULATORY CONTEXT FOR THE ECHO PROGRAM

- DFO Southern Resident Killer Whale Recovery Strategy & Action Plan
  - 94 Measures
- NOAA Southern Resident Killer Whale 5-year action plan:
  - “Protect killer whales from harmful vessel impact through enforcement, education and evaluation”
- IMO Guidelines on reduction of underwater noise from commercial shipping to address adverse impacts to marine life

Southern resident killer whale critical habitat in US and Canadian waters overlap international shipping lanes
**ECHO: **Enhancing Cetacean Habitat and Observation

**What?** A collaboration with marine transportation industries, conservation and environmental groups, First Nations, governments and scientists

**Why?** To better understand and reduce the cumulative impacts of commercial vessel activities on at-risk whales throughout the southern coast of British Columbia

*Cetacean: order of whales, dolphins and porpoises*
ECHO PROGRAM STRUCTURE

ECHO Program
(led by Vancouver Fraser Port Authority)

Advisory groups

- Federal Government Advisory Committee
  (bi-annual)
- Advisory Working Group
  (tri-annual meetings)
- Technical Committee(s)
  (when needed)

Members

- Fisheries and Oceans Canada, Environment Canada, Transport Canada
- Marine transportation industries, conservation and environmental groups, First Nations, governments and scientists
- Academia, consultants, government, international collaborative organizations

Program funded by VFPA, and industry and government partners
ECHO PROGRAM SCOPE

- Regional issue
- Beyond port jurisdiction
- Cross-boundary engagement
Advancing research projects and initiatives focusing on the key threats to whales in this region with a view to informing mitigation solutions

- Acoustic Disturbance
- Physical Disturbance
- Environmental Contaminants
PROJECT HIGHLIGHT
UNDERWATER LISTENING STATION

• First of its kind in North America (non-Military)
• Four hydrophone array
• Connected to ONC’s cabled Venus Observatory
• Inbound shipping lane
• Measuring ambient noise, marine mammal detections, and vessel source levels
Vessel source level - underwater radiated noise
UTILITY OF THE DATA

- Informs potential incentive programs
- Trialing mitigation measures
- Aggregated data set correlating: vessel type, speed, design, age, propeller configuration
- Informs modelling
- Helps vessel owner/operators understand noise contribution and identify mechanical issues
- Ambient noise over time and location
- Presence of marine mammals
VFPA Actions
INFOGRAPHIC 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 naturally occurring sounds in the ocean, an increase in commercial vessel traffic is the main reason for increased underwater noise.

In the North Pacific Ocean, underwater noise has been doubling in intensity every decade for the past 60 years.

WHERE VESSEL NOISE COMES FROM

- Engine and onboard machinery
- Drag from poor hull maintenance
- Bow/stern thrusters
- Propeller
- Cavitation

Noise increases with speed.

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

Sound travels 4.5 times faster in water than in air.

PORT of vancouver
MARINER’S GUIDE

• Species identification and abundance maps
• Marine mammal reporting
• Collaboration with PRPA, and Vancouver Aquarium
• Due for release Oct 2016
PROPOSED UNDERWATER NOISE CRITERIA FOR VFPA ECOACTION 2017

Quiet vessel notations
- Bureau Veritas – Underwater radiated noise (URN)
- DNV-GL - SILENT E
- RINA - DOLPHIN

Vessel technologies (modifications to reduce cavitation and improve wake flow)
- Schneekluth duct
- Becker Mewis duct
- Propeller boss cap fins

Marine carriers with the highest participation rates in our EcoAction Program are recognized with a Blue Circle Award, recognizing environmental stewardship.
**ECHO PROGRAM NEXT STEPS**

**2014-2017:** Plan and execute research projects to inform threat reduction

**2016-2018:** Develop and trial potential incentive and threat reduction measures and set targets

**2017-onwards:** Implement, monitor and report on voluntary measures
GLOBAL APPLICATIONS

- Collaborative approach, bringing stakeholders together for a common solution
- Research and technology to support science-based decision making
- Increasing mariner awareness and providing opportunities for involvement
RAISE YOUR HAND. Q&A.

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