



PORT of
vancouver

Vancouver Fraser
Port Authority

2023 Annual report

Enhancing Cetacean Habitat and
Observation (ECHO) Program



Message from the vice president, environment and external affairs

The Vancouver Fraser Port Authority is mandated to facilitate Canada's trade through the Port of Vancouver while protecting the environment and considering local communities. In keeping with this mandate, the port authority has led the Enhancing Cetacean Habitat and Observation (ECHO) Program since 2014 to better understand and reduce the cumulative impacts of commercial shipping on at-risk whales.

Since its launch nearly a decade ago, the ECHO Program has grown to become a world leader in underwater noise reduction research and mitigation. Today, the program coordinates one of the world's largest and most successful voluntary efforts to reduce the impacts of underwater noise on at-risk whales — in close collaboration with advisors from across government, the marine transportation industry, Indigenous communities, and environmental groups.

The year 2023 was marked by several significant achievements for the ECHO Program, both at home and on the world stage. Off the coast of British Columbia, the ECHO Program coordinated its longest-running season of voluntary threat reduction initiatives, which saw ship operators on nearly 90% of all ship transits slow down or move away while traveling through key areas of southern resident killer whale critical habitat.

Thanks to industry's strong participation in these measures, underwater sound intensity was effectively halved in key areas of importance to southern resident killer whales, and research by the program shows that the program's slowdowns also help reduce ship strike risk by nearly a third and reduce localized air emissions by up to a quarter.

On the world stage, the ECHO Program continued to represent the International Association of Ports and Harbors at the International Maritime Organization (IMO) in London, where the ECHO Program team and Transport Canada helped finalize the IMO's revised *Guidelines for the Reduction of Underwater Radiated Noise from Shipping*.

Additionally, in 2023, the ECHO Program and partners completed a three-year long effort to streamline the 'quiet' ship notations offered by international ship classification societies — publishing guidelines that outline a consistent approach to measuring underwater noise, wherever it is measured in the world.

Looking ahead, the ECHO Program and partners will continue to lead efforts to help create quieter and safer waters for at-risk whales in our region, including by extending the conservation agreement for another five-year term with the Government of Canada and key industry partners.

As we reflect on the achievements made in the past year, it's with gratitude that we thank the program's many advisors, partners, and more than 100 participating marine transportation organizations, for their collective efforts to make a difference for at-risk whales in our region.

Duncan Wilson, vice president, environment and external affairs

Highlights of 2023

- Coordinated the program's **longest-running season** of threat reduction measures
- Encouraged ship operators on **nearly 90% of ship transits** to slow down or stay distanced while traveling through key areas of southern resident killer whale critical habitat
- Quantified the co-benefits of slowing down, showing an up to **~30% reduction in whale strike risk**
- Helped shape the **International Maritime Organization's** revised underwater noise reduction guidelines
- Published international guidelines for the alignment of quiet ship notations



Photo: Lauren Laturnus

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About this report

This report covers activities of the Vancouver Fraser Port Authority-led Enhancing Cetacean Habitat and Observation (ECHO) Program throughout the 2023 calendar year, as well as a brief overview of activities planned for 2024. Further details about the ECHO Program, including project summaries, technical project reports, and past annual reports can be found on our website at portvancouver.com/echo.

About the ECHO Program

The ECHO Program is a world-leading, first-of-its-kind program developed and led by the port authority to better understand and reduce the cumulative effects of commercial shipping on at-risk whales along British Columbia's southern coast, with particular focus on endangered southern resident killer whales (SRKW).

Since 2014, the ECHO Program has brought together Canadian and U.S. advisors and partners from across government, the marine transportation industry, Indigenous communities, and environmental groups to develop and implement threat reduction measures for at-risk whales.



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To date, the ECHO Program's initiatives have encouraged thousands of ship operators to slow down or stay distanced while traveling through key areas of southern resident killer whale critical habitat — helping to quantifiably reduce key threats to at-risk whales identified by Fisheries and Oceans Canada such as underwater noise and ship strike risk.

In addition to leading threat reduction measures, the ECHO Program leads research to broaden understanding of ship-generated underwater noise and inform potential noise reduction solutions. The ECHO Program has been invited to present its findings to international forums including the International Maritime Organization and is recognized as one of the world's most well-known and broadly spanning programs to address underwater noise from ships.

About the Vancouver Fraser Port Authority

The Vancouver Fraser Port Authority is the federal agency responsible for the shared stewardship of the Port of Vancouver. Like all Canada Port Authorities, we are accountable to the federal minister of transport, and operate pursuant to the *Canada Marine Act* with a mandate to enable Canada's trade objectives through the Port of Vancouver, while protecting the environment and considering local communities. The port authority is structured as a non-share corporation, is financially self-sufficient and does not rely on tax dollars for operations. Revenues come from port terminals and tenants who lease port lands, and from port users who pay various fees such as harbour dues. Profits are reinvested in port infrastructure. The port authority oversees the use of port land and water, which includes more than 16,000 hectares of water, over 1,500 hectares of land, and approximately 350 kilometres of shoreline. Located on the southwest coast of British Columbia in Canada, the Port of Vancouver extends from Roberts Bank and the Fraser River up to and including Burrard Inlet, bordering 16 municipalities and intersecting the traditional territories and treaty lands of more than 35 Coast Salish Indigenous groups. The Port of Vancouver is Canada's largest port, and the third largest in North America by tonnes of cargo. Enabling the trade of approximately \$305 billion in goods with between 140 and 170 countries each year, port activities sustain 115,300 jobs, \$7 billion in wages, and \$11.9 billion in GDP across Canada.



Photo: Lauren Latouris

Geographic focus of the ECHO Program's measures

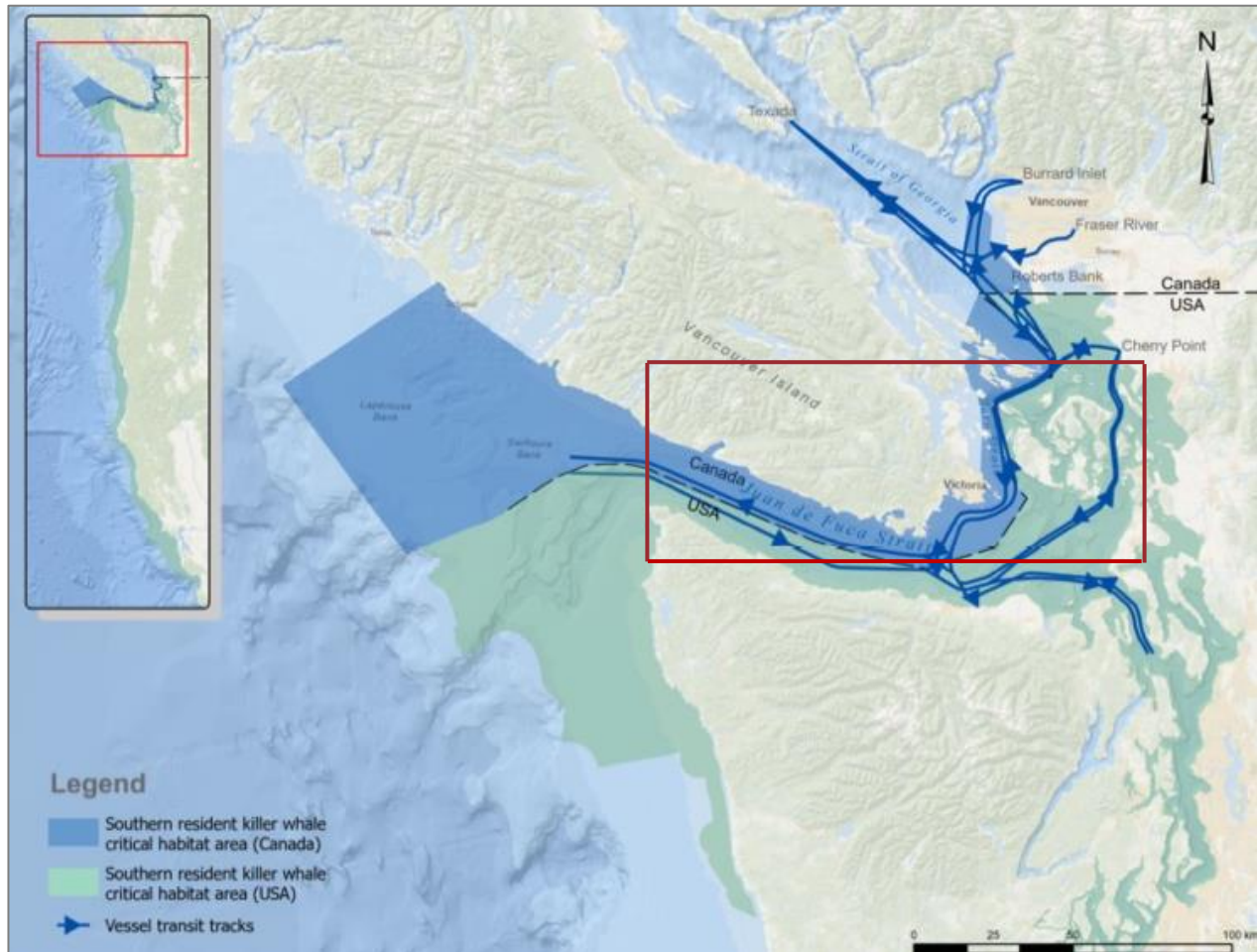


Figure 1: The red box on the above map illustrates the ECHO Program's geographic focus area, off the coasts of British Columbia and Washington State. The green and blue shades indicate areas designated as critical habitat to southern resident killer whales by the U.S. and Canadian governments, while the blue arrows represent international shipping lanes. Critical habitat is defined as "the habitat that is necessary for the survival or recovery of a listed wildlife species" by the Canadian *Species at Risk Act*.



Our approach to collaboration

The ECHO Program is guided by the advice and input of advisors and partners from across government, the marine transportation industry, Indigenous communities, and environmental groups in Canada and the U.S. These advisors and partners provide invaluable assistance to the ECHO Program management team in determining which activities to advance to best meet the program's long-term goal of quantifiably reducing threats to whales from commercial shipping. Meetings of the advisory working group and most technical committee meetings are independently facilitated by the [Fraser Basin Council](#).

Below is an overview of ECHO Program working groups, technical committees, funding partners, and in-kind contributors who supported the success of the ECHO Program in 2023. A full list of partners and advisors can be found on our website at portvancouver.com/echo/partners-advisors.

Working groups and committees

Advisory working group

The ECHO Program advisory working group is made up of over 30 Canadian and U.S. representatives from a broad range of backgrounds and areas of expertise who share a common goal of reducing threats to at-risk whales. The role of the advisory working group is to provide the ECHO Program management team with timely input, advice and recommendations on the development and execution of the program's projects and initiatives. In 2023, the ECHO Program advisory working group met eight times, three of which were in conjunction with the conservation agreement management committee.

Vessel operators committee

The vessel operators committee provides the ECHO Program management team with input and guidance on key considerations relevant to the marine transportation industry, including navigational safety, economic impacts, and other factors that may affect the marine transportation industry's participation in underwater noise reduction initiatives. The vessel operators committee met seven times in 2023.

Acoustic technical committee

The acoustic technical committee provides technical and scientific advice on the development and execution of the ECHO Program's research projects on an as-needed basis. The committee is composed of marine mammal biologists, acousticians, naval architects and engineers, and others with technical expertise in underwater noise. The committee did not meet in 2023.

Conservation agreement management committee

The conservation agreement management committee consists of the nine signatory parties of the [Conservation Agreement to Support the Recovery of the Southern Resident Killer Whale](#), a first-of-its-kind agreement with the Government of Canada that formalizes the role of the ECHO Program and various partners to support the recovery of the southern resident killer whales.

The purpose of the conservation agreement management committee is to oversee the implementation of the conservation agreement and to provide a collaborative forum to discuss and resolve issues regarding the interpretation and implementation of the agreement, as needed.

Throughout 2023, the conservation agreement committee met a total of eight times (three of which were in conjunction with the advisory working group) to review and finalize the [Conservation Agreement Period 4 annual report](#) and to provide input into the development of the renewed five-year agreement.



Participation in government initiatives

The ECHO Program management team works closely with government to provide input on projects of shared interest related to the recovery of at-risk whales. In 2023, the ECHO Program management team participated in various government projects and initiatives, including:

- Providing regular updates on the program's voluntary initiatives to the government-led Indigenous and multi-stakeholder advisory working group (IMAG)
- Collaborating with Transport Canada to provide input to the International Maritime Organization's review of underwater noise guidelines
- Participating in government engagement opportunities, including attending and providing input on the SRKW Multi-Nation Tier II Meeting, and hosting a panel at the Oceans Protection Plan (OPP) Pacific Dialogue Forum
- Participating in Transport Canada's Underwater Vessel Noise Reduction Targets committees and providing advice and data to help advance work items
- Providing Fisheries and Oceans Canada with real-time southern resident killer whale presence data to support the initiation of their seasonal measures, creating alignment with the start of the Haro Strait and Boundary Pass slowdown
- Meeting regularly with, and providing presentations to the Transport Canada-led Cumulative Effects of Marine Shipping Initiative
- Providing training to the Canadian Coast Guard's marine mammal desk employees

Funding partners and in-kind contributors

March 2023 marked the completion of the fourth year of the ECHO Program's five-year funding agreement with Transport Canada through the Marine Research and Development Innovation Centre. As part of the agreement, the ECHO Program provides Transport Canada with quarterly updates and reports on relevant projects and initiatives in progress.

Transport Canada and the Canadian Coast Guard provided in-kind contribution to the ECHO Program including automatic information system (AIS) data and analysis to monitor and report on participation rates in the Strait of Juan de Fuca lateral displacement initiative for tugs, and communications to vessel operators to support the Swiftsure Bank voluntary ship slowdown.



Photo: Lauren Laturnus

Year in review

Threat reduction initiatives

Overview

In 2023, the ECHO Program coordinated three large-scale threat reduction initiatives in three key areas of southern resident killer whale critical habitat: Haro Strait and Boundary Pass, the Strait of Juan de Fuca, and at Swiftsure Bank. In total, these initiatives spanned across nearly 80 nautical miles of southern resident killer whale critical habitat and overlapped with approximately 45% of all southern resident killer whale critical habitat that intersects with international shipping lanes.

The cumulative participation rate, based on the number of individual ship transits, was 87% across all three measures – which translates to more than 6,100 slower or more distanced ship transits within key areas of southern resident killer whale critical habitat. Over 100 marine transportation organizations voluntarily participated in the ECHO Program’s measures to reduce underwater noise in southern resident killer whale critical habitat.

Map of ECHO Program voluntary whale protection initiatives

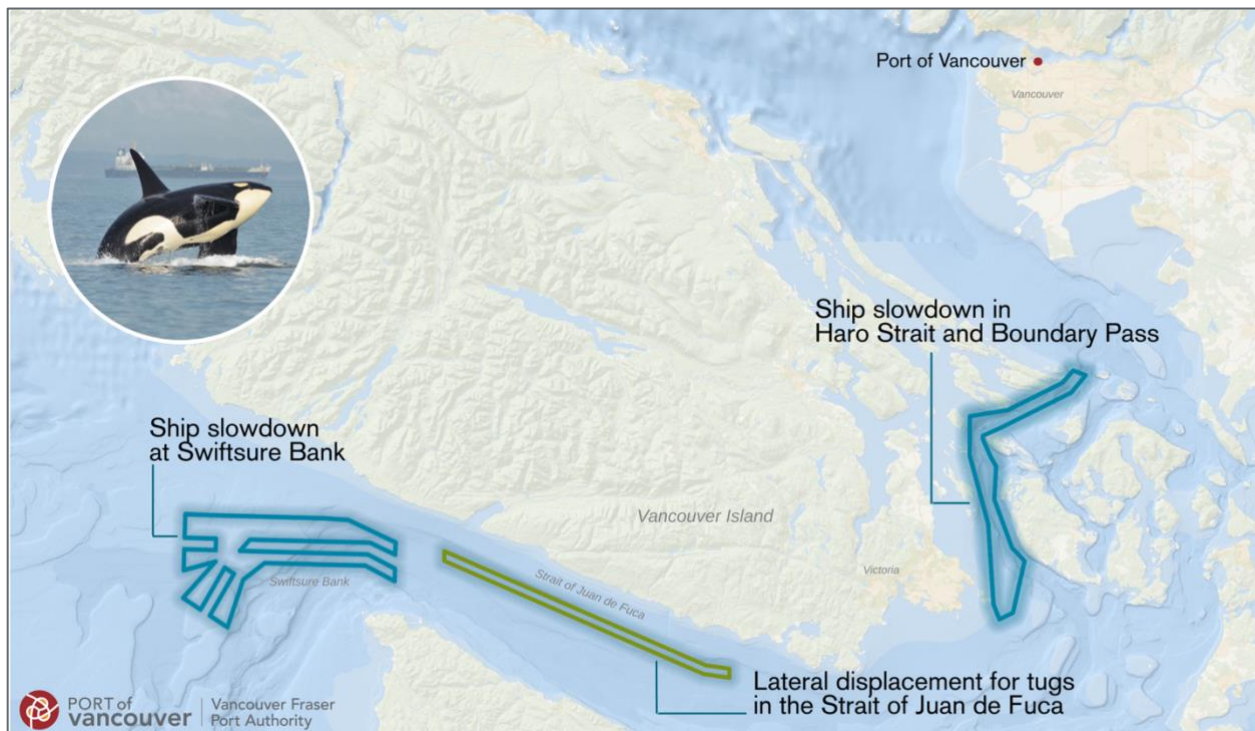


Figure 2: Map of the ECHO Program’s three threat reduction initiatives in key areas of southern resident killer whale critical habitat

1. Haro Strait and Boundary Pass voluntary ship slowdown

Haro Strait and Boundary Pass are known areas of importance within the critical habitat of southern resident killer whales. To reduce the impacts of commercial shipping on at-risk whales in this key area, the ECHO Program coordinated its seventh voluntary ship slowdown in this area, in collaboration with government, the marine transportation industry, environmental groups, and Indigenous communities.

The 2023 Haro Strait and Boundary Pass voluntary slowdown ran from June 1 to November 30, 2023 — the longest running slowdown in the ECHO Program's history. In total, ship operators on 87% (2,442 out of 2,800) of all vessel transits participated in the slowdown, according to the Pacific Pilotage Authority.

During the slowdown period, operators of large commercial ships transiting through Haro Strait and Boundary Pass were asked to voluntarily slow down to the following speeds, if it was safe and operationally feasible to do so:

- 14.5 knots or less through the water for vehicle carriers, passenger vessels and container vessels
- 11 knots or less through the water for bulkers, tankers and government vessels

The Pacific Pilotage Authority provided weekly participation data by asking ship agents and pilots whether they intended to participate on each vessel transit through the slowdown area. As in previous years, the primary reasons for ship operators not participating in the slowdown were related to schedule or tidal window requirements. The BC Coast Pilots also collected data on vessel speeds during the voluntary slowdown, to assist the ECHO Program in evaluating the computer models of water currents used to calculate speed through water.

Throughout the slowdown period, on-land observers and in-water hydrophones placed nearby the slowdown areas were used to monitor southern resident killer whale presence. Southern resident killer whales were observed or acoustically detected on thirty-six (36) days during the slowdown period. This whale presence data was used to inform the start and end dates of the slowdown, which is historically highest between June and September each year.

Preliminary analysis of hydrophone data shows that the 2023 Haro Strait and Boundary Pass slowdown successfully reduced underwater sound intensity by up to 50 percent, or 3 decibels. Detailed reports on the underwater noise reductions achieved during the 2023 slowdown period will be published in spring 2024.



Figure 3: Haro Strait and Boundary Pass voluntary ship slowdown area

2. Strait of Juan de Fuca voluntary inshore lateral displacement

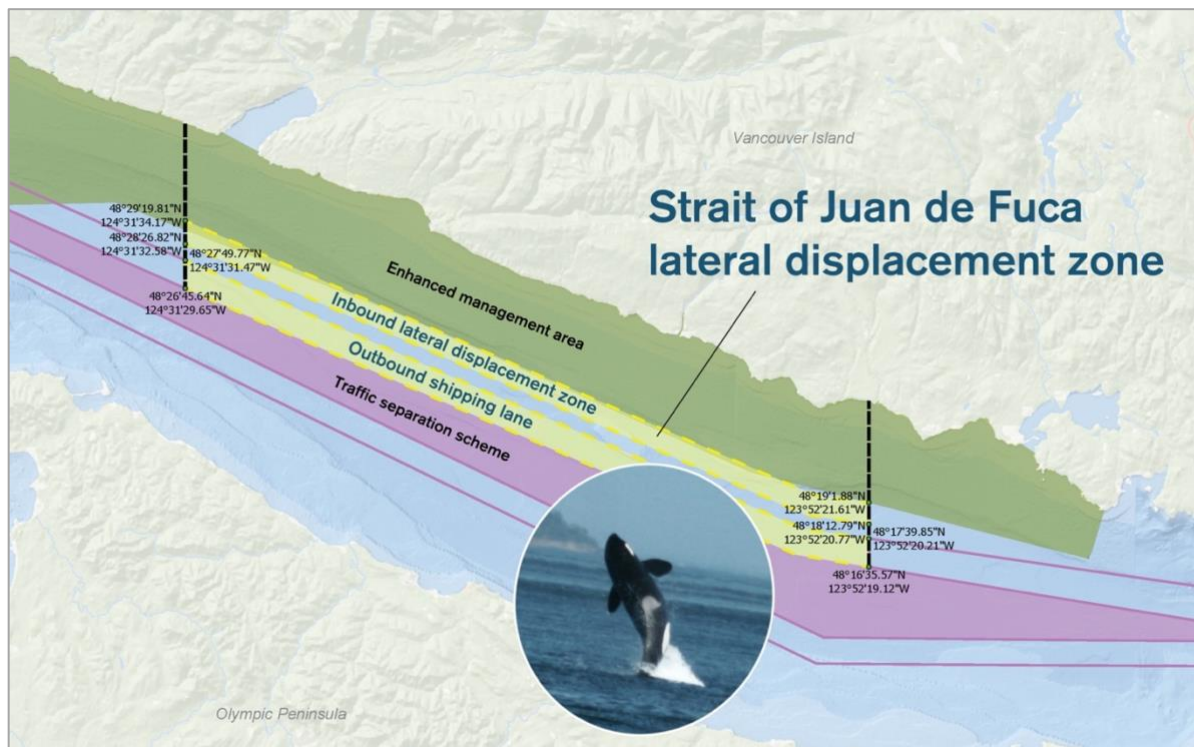


Figure 4: Strait of Juan de Fuca voluntary inshore lateral displacement area

The Strait of Juan de Fuca is a known area of importance within the critical habitat of southern resident killer whales, off the southwest coast of Vancouver Island. In 2023, to reduce the impacts of commercial shipping on at-risk whales in this key area, the ECHO Program coordinated its sixth voluntary lateral displacement for tugs in the Strait of Juan de Fuca, in collaboration with government, Indigenous communities, the marine transportation industry, and environmental groups.

The 2023 Strait of Juan de Fuca lateral displacement ran from June 1 to October 31, 2023. During this period, tug operators on 95% (101 out of 106) of all tug transits participated by moving away—or laterally displacing—away from the known area of importance to southern resident killer whales.

Tug operators were encouraged to navigate either through the outbound shipping lane or in the inshore lateral displacement zone, while maintaining a buffer distance of 1,000 metres from the traffic separation scheme, if it was safe and operationally feasible to do so.

During the lateral displacement period, Pacheedaht First Nation monitored and recorded whale presence at Swiftsure Bank and the western Strait of Juan de Fuca through dedicated surveys within their territorial waters.

Data indicates that a noise reduction of approximately 4 dB to 7 dB can be achieved for each individual tug displacement, which is a 60-80% reduction in sound intensity.

3. Swiftsure Bank voluntary ship slowdown

Swiftsure Bank is a known foraging area within the critical habitat of southern resident killer whales that lies outside of the mouth of the Strait of Juan de Fuca, in both U.S. and Canadian waters. To reduce the impacts of commercial shipping on at-risk whales in this key foraging area, the ECHO Program coordinated its fourth voluntary ship slowdown at Swiftsure Bank, in collaboration with government agencies, Indigenous communities, the marine transportation industry, and environmental groups.

The 2023 Swiftsure Bank voluntary ship slowdown ran from June 1 to October 31, 2023. In total, 86% (3,636 out of 4,214) of both inbound and outbound vessel transits slowed down while traveling through this key foraging area for southern resident killer whales — the highest participation rate to date in the slowdown’s four-year history.

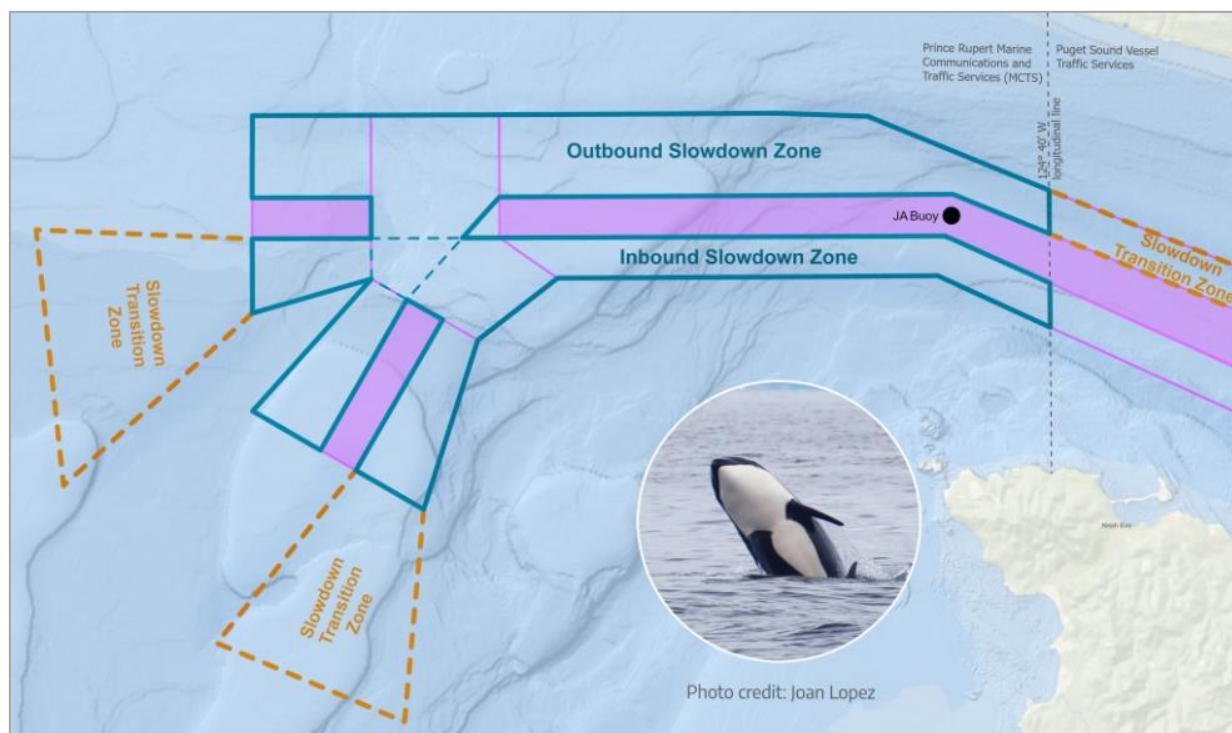


Figure 5: Swiftsure Bank voluntary ship slowdown area

For the second year in a row, the Swiftsure Bank voluntary slowdown covered an expanded area that included both the outbound and inbound shipping lanes, which are both key foraging areas for southern resident killer whales that overlap with commercial shipping lanes used to reach the Port of Vancouver.

The outbound shipping lane overlaps with the maritime territory of the Pacheedaht First Nation, and the inbound shipping lane falls outside of Canadian waters, overlapping with the treaty-protected Usual and Accustomed Fishing Area of the Makah Tribe. The Makah Tribe and the Pacheedaht First Nation are key advisors to the ECHO Program in the development and implementation of safe ship slowdown practices in this important area.

During the slowdown period, operators of large commercial ships transiting through the Swiftsure Bank



area were asked to voluntarily slow down to the following speeds, if it was safe and operationally feasible to do so:

- 14.5 knots or less through the water for vehicle carriers, passenger vessels and container vessels
- 11 knots or less through the water for bulkers, tankers, and government vessels

The Canadian Coast Guard, as well as both the BC Coast Pilots and Puget Sound Pilots, captured data regarding ship operators' intention to participate. Participation rates were verified using AIS data providing speed over ground, followed by a correction for tidal currents to calculate the speed of vessels through the water.

Preliminary modelling indicates that participation in the 2023 Swiftsure Bank slowdown reduced underwater sound intensity by up to 62 percent, or 4.2 decibels, compared to 2019, before slowdowns were introduced. Detailed reports on the underwater noise reductions results achieved during the 2023 slowdown period will be published in spring 2024.

Year in review

Key research and education initiatives

Quantifying the benefits of slowing down

To better understand the potential benefits of the ECHO Program's voluntary ship slowdowns, the ECHO Program commissioned a co-benefits study to estimate how the program's slowdowns affect whale strike risk and localized air emissions. This study was funded by the port authority and Transport Canada and was conducted by Starcrest Consulting Group and Point Blue Conservation Science.

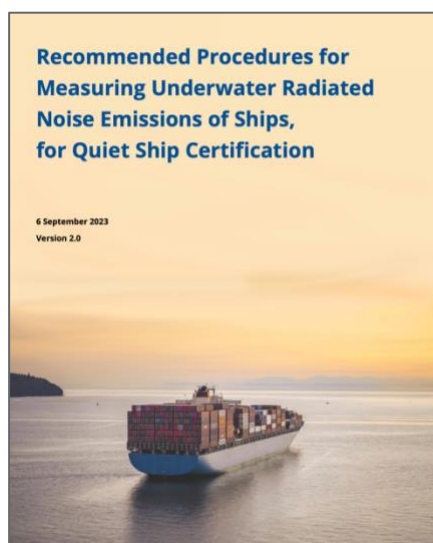
The results of the study show that, in addition to reducing underwater noise, the ECHO Program's slowdowns offer significant benefits for both reducing the risk of whale strikes and localized emissions.

Specifically, the study showed that the program's slowdowns can reduce the proportional risk of whale strikes to humpbacks and fin whales by between 18% to 27%, depending on the slowdown location and the type of whale species being considered.

The study also showed that the program's slowdowns can reduce greenhouse gas and air pollutant emissions (such as carbon dioxide, sulfur and nitrogen oxides, and particulate matter) by between 11% and 25%, depending on location and emission type. In aggregate, across all slowdown areas and ship types, the reduction in air emissions attributable to the slowdowns was 14%.

A full overview of the study, as well the full technical analysis related to air emissions and whale strike risk, is published on our website: [ECHO Program – Slowdown co-benefits study](#).

Aligning international quiet ship notations



In 2023, the ECHO Program completed a three-year long effort to align the measurement and analysis procedures for quiet ship notations from international ship classification societies, in partnership with Transport Canada and JASCO Applied Sciences.

The project, which was initiated in 2020, set out to create more consistency between the varying methodologies used to measure and analyze underwater noise to make it easier for ship owners and operators to compare the different notations and determine which quiet notation may be appropriate for their organization.

To create more alignment between the different notations, the project used research undertaken by the program and others to develop a consistent methodology to measure and analyze underwater noise that would provide the same measurement result for a ship, no matter where it is measured in the world.

With the support of seven international ship classification societies, acoustic experts, and representatives from the International

Organization for Standardization, the ECHO Program and partners published a final set of recommendations for the measurement and analysis of ship-generated underwater noise titled [Recommended Procedures for Measuring Underwater Radiated Noise Emissions of Ships for Quiet Ship](#)



Certification. These recommendations are intended to support quieter oceans by creating a consistent process for measuring and certifying ship underwater noise emissions that encourages more ship owners to seek and qualify for a quiet notation.

Shaping the International Maritime Organization’s revised underwater noise guidelines

Since 2021, the ECHO Program has represented the International Association of Ports & Harbors on the International Maritime Organization’s Sub-Committee working group on Ship Design and Construction, where sub-committee members were tasked with revising the IMO’s *Guidelines for the Reduction of Underwater Noise from Commercial Shipping to Address Adverse Impacts on Marine Life*. These guidelines are intended to provide a comprehensive overview of approaches to reduce underwater radiated noise from ships for ship designers, builders and operators, as well as assist stakeholders in establishing mechanisms and programs to support underwater noise reduction.

Throughout 2023, the ECHO Program and partners at Transport Canada helped review and revise the guidelines to reflect the most current scientific knowledge about underwater noise and to identify standards and recommendations for the measurement of underwater noise. The revised guidelines were also updated to provide templates to help shipowners develop underwater noise management plans. The draft guidelines were approved by the International Maritime Organization’s Marine Environment Protection Committee in July 2023 and published as [*Revised Guidelines for the Reduction of Underwater Noise from Shipping to Address Adverse Impacts on Marine Life*](#) in August 2023.



Pictured above: Krista Trounce, ECHO Program research manager, and colleagues from Transport Canada at the International Maritime Organization’s headquarters in London

In 2024, the sub-committee working group will reconvene to develop a workplan to increase uptake of the new guidelines among the global maritime industry and policymaking community. The work plan envisages, among other things, identifying ways to implement the revised guidelines and increase awareness and uptake; organizing an expert workshop on potential co-benefits and trade-offs that may exist between the reduction of underwater radiated noise from ships and energy efficiency; and developing a plan of action for further work.

Convening stakeholders to develop regional underwater noise targets for the shipping sector

The ECHO Program continues to bring groups together to work towards defining regional underwater noise targets for the commercial shipping sector. The purpose behind setting underwater noise targets is to help manage the impacts of current and future ship traffic on underwater noise levels in the region, to



support the recovery of at-risk whales such as the southern resident killer whales.

In 2023, the ECHO Program convened a task group for regional noise targets, made up of stakeholders from sixteen organizations across Canada, the U.S., and the United Kingdom, including representatives from government, the commercial shipping industry, and environmental organizations.

The ECHO Program convened two workshops with the task group in April and October of 2023, where members defined the purpose statement and desired outcomes of the process, which are included below:

- 1) To manage and effectively reduce regional underwater noise contributions from large commercial vessels;
- 2) To achieve resulting underwater noise levels that support key southern resident killer whale life functions and enable their recovery.

In 2024, the ECHO Program will continue to convene the task group, with a focus on scoping and evaluating the requirements and roles needed to advance the development and implementation of the preferred target setting approach.

Monitoring underwater noise

Since 2015, the ECHO Program has worked with regional partners to monitor and analyze underwater noise levels at various locations within the Salish Sea. Through its underwater noise monitoring efforts, the ECHO Program has collected one of the world's largest vessel noise databases, with more than 20,000 recordings of ship transits. This dataset helps the ECHO Program and researchers across the globe better understand the factors contributing to ship noise and how they can be reduced. In 2023, the ECHO Program published underwater noise monitoring reports for Boundary Pass and Burrard Inlet, covering findings for the previous calendar year.

Boundary Pass underwater listening station

In June 2023, the ECHO Program published its [fourth annual report](#) on underwater noise monitoring at Boundary Pass during the calendar year of 2022. This project analyzes acoustic data acquired by Transport Canada's underwater listening station in Boundary Pass to understand trends in underwater noise levels, marine mammal presence and ship-generated noise. The fourth annual report on underwater noise in Boundary Pass recorded more than 12,000 marine mammal and fish vocalizations, as well as audio measurements of more than 1,800 unique vessels. Other noteworthy findings from the Year 4 report included:

- Killer whales were detected on 75 days of the year, up from 57 days the previous year
- Humpback whales were detected on 18 days, with detections peaking in September

Burrard Inlet underwater noise monitoring

In June 2023, the ECHO Program published its [fourth annual report](#) on underwater noise monitoring at Burrard Inlet during the calendar year of 2022. In partnership with Tsleil-Waututh Nation, this project assesses longer-term trends in total underwater noise and marine mammal presence in Burrard Inlet while also measuring sources of noise from port activities. Underwater noise monitoring is conducted using hydrophones on the western and eastern side of Burrard Inlet, as well as in Indian Arm and English Bay. Noteworthy findings from the Year 4 report on underwater noise in Burrard Inlet included:

- Acoustic detections of killer whales and harbour porpoises continue to rise year-over-year
- Killer whales were detected on 15 days
- Harbour porpoises were detected in English Bay 254 times

Increasing global understanding of underwater noise

Leading educational outreach

In 2023, the ECHO Program continued to advance awareness of underwater noise through educational activities, including webinars, workshops, and educational tools. Notably, in 2023, the ECHO Program continued to expand uptake of the [Whales in our Waters tutorial](#), an online resource designed to teach mariners how to recognize local whales and navigate carefully in their presence when traveling along the Pacific Northwest coast. Specifically, the Whales in our Waters tutorial was incorporated into the training of two new maritime organizations with vessels calling our region. The tutorial continues to be a training tool for BC Ferries, Washington State Ferries and Canadian Coast Guard Marine Mammal Desk employees.

Raising awareness of underwater noise

In 2023, the ECHO Program continued to build local, national and international awareness of underwater noise and its impacts on at-risk whales through a range of presentations and training sessions. In total, the program team delivered over 25 presentations and training sessions to a variety of audiences across regional and international marine industry groups, port authorities, government agencies, environmental organizations, academic institutions, and more.

Of note, the ECHO Program attended and raised awareness about its activities at the [5th International Marine Protected Areas Congress](#), a global forum that brings together ocean conservation professionals and policymakers to share learnings and best practices about marine protected areas.

Noteworthy presentations were also provided to:

- The International Maritime Organization
- The Baltic and International Maritime Council (BIMCO)
- Chamber of Shipping – Shipping 360 Conference
- Major shipping organizations, including CMA CGM, and KOTUG

In addition, the ECHO Program provided a half-day-long training to the Canadian Coast Guard's Marine Mammal Desk staff, discussing marine mammal biology, underwater noise and the ECHO Program's research and noise reduction initiatives.



Figure 8: ECHO Program manager Melanie Knight presenting at the Shipping 360 conference

Collaborating nationally and internationally towards quieter oceans

In 2023, the ECHO Program continued to collaborate with groups nationally and internationally to support the development of underwater noise reduction solutions. Notably, in 2023, the ECHO Program continued to represent the International Association of Ports & Harbors at the International Maritime Organization (IMO)'s sub-committee on ship design and construction, where the committee finalized its revisions to the IMO's underwater noise reduction guidelines.

The ECHO Program team continued to support regional efforts to reduce the impacts of commercial



Photo: Lauren Laturnus

shipping on at-risk whales along the Pacific Northwest Coast, as a member of the leadership committee for the Quiet Sound initiative. [The Quiet Sound initiative](#), which was launched in 2021, is a sister initiative modelled after the ECHO Program that has coordinated a voluntary ship slowdown in southern resident killer whale critical habitat in Washington State since 2022.

Nationally, the ECHO Program continued to partner with Transport Canada to support policymaking decisions around underwater noise reduction, providing input and collaborating with stakeholders and First Nations groups on various external committees such as the Tier 2 Multi-Nation Working Group and the Southern Resident Killer Whale Indigenous and Multi-Stakeholder Advisory Group. In addition, the ECHO Program continued to gather underwater noise data through underwater listening stations owned by Transport Canada.

Incentivizing quieter ships to call the Port of Vancouver

Since 2017, the Vancouver Fraser Port Authority has provided incentives for quieter ships to call the Port of Vancouver through its [EcoAction program](#). These incentives are offered for ships that either have a quiet ship notation, or that use a noise-quieting technology, such as certain types of propeller appendages that reduce cavitation and improve wake flow. The incentives were introduced based on the ECHO Program’s [study of ship-quieting options](#), which identified 30 potential noise-quieting measures that could potentially be incorporated into the EcoAction incentive program.

Increased incentives for quiet ships

In 2023, the port authority increased the financial incentives available to shipping lines that take measures to reduce ships’ underwater noise and air emissions. Under the new incentive structure, shipping lines can receive up to a 75% discount—up from 47%—on their harbour dues for taking measures such as using noise-quieting propellers or acquiring a ‘quiet’ ship notation. In addition, new underwater noise reduction technologies were added to the list of technologies that qualify ships to receive a discount through the EcoAction program.

Participation in the EcoAction program

In 2023, 57 ship calls qualified for an EcoAction program discount for using underwater noise-reducing technologies or having a ‘quiet’ ship notation.

Figure 7: Number of ships that qualified for an underwear noise EcoAction program discount

	2017	2018	2019	2020	2021	2022	2023
Total # of eligible calls	2,575	2,572	2,528	2,451	2,375	2,420	2,502
Total # of calls that qualified for an EcoAction discount	762	866	986	772	650	744	718
Total # of calls that received an EcoAction discount for reduced underwater noise	33	37	39	32	37	63	57



Photo: Lauren Laturus

Looking ahead to 2024

In 2024, the ECHO Program will continue to lead voluntary threat reduction initiatives to protect at-risk whales off the coast British Columbia, while advancing research and education efforts. Highlights of the ECHO Program's 2024 priorities are summarized below:

Extend the conservation agreement for another five-year term

In 2024, the ECHO Program will work with the Government of Canada and key industry partners to sign a renewed, five-year *A Species at Risk Act Section 11 Conservation Agreement to Support the Recovery of the Southern Resident Killer Whale*. This agreement will formalize the continued operation of the ECHO Program and industry participation in its voluntary measures to reduce the impacts of commercial shipping on at-risk whales in the region.

Continue to explore regional noise targets for the shipping sector

In 2024, the ECHO Program will continue to convene workshops of the task group on regional ship noise targets to evaluate the information needs, opportunities, and best approaches, for developing regional ambient noise targets for the shipping sector. The purpose behind setting underwater noise targets is to help manage the impacts of current and future ship traffic on underwater noise levels in the region, to support the recovery of at-risk whales such as the southern resident killer whales.

Helping port customers better understand and reduce underwater noise

In 2024, the ECHO Program will continue to leverage its research on underwater noise to help ship owners and operators that call the Port of Vancouver better understand and reduce their fleets' noise emissions, in accordance with the International Maritime Organization's revised guidelines for the reduction of underwater noise from shipping.



Photo: Lauren Latouris

Thank you

The ECHO Program team thanks its many partners, advisors, and participants for the valuable contributions they have made towards creating quieter oceans for whales in our region. A full list of our advisors, partners, and participants in 2023 is included below.

Advisory working group

BC Coast Pilots	Makah Tribe
BC Ferries	Ocean Wise
Canadian Coast Guard	Pacheedaht First Nation
Chamber of Shipping of British Columbia	Pacific Pilotage Authority
Council of Marine Carriers	Royal Canadian Navy
Cruise Lines International Association – North West & Canada	Shipping Federation of Canada
Fisheries and Oceans Canada	Transport Canada
Indigenous advisors	Vancouver Fraser Port Authority
National Oceanic and Atmospheric Administration (NOAA)	Washington State Ferries
Natural Resources Defense Council, Inc.	Washington Maritime Blue – Quiet Sound
	WWF-Canada



Photo: Lauren Laturnus

Vessel operators committee

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|--------------------------------------------------------------|-----------------------------------------|
| BC Coast Pilots | Pacific Merchant Shipping Association |
| BC Ferries | Pacific Northwest Ship & Cargo Services |
| Canadian Coast Guard | Pacific Pilotage Authority |
| Chamber of Shipping of British Columbia | Royal Canadian Navy |
| Council of Marine Carriers | Shipping Federation of Canada |
| Cruise Lines International Association – North West & Canada | Transport Canada |
| Hapag-Lloyd (Canada) Inc. | U.S. Coast Guard |
| Holland America Group | Vancouver Fraser Port Authority |
| Marine Exchange of Puget Sound | Washington State Ferries |
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Acoustic technical committee

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|-------------------------------------------------|-----------------------------------------------|
| BC Ferries | Royal Canadian Navy |
| Fisheries and Oceans Canada | Robert Allan Naval Architects |
| DHI Group Inc. | Saturna Cetacean Sighting Network |
| DW Ship Consult | Sea Mammal Research Unit (SMRU) |
| JASCO Applied Sciences | Consulting Canada |
| National Oceanic and Atmospheric Administration | Transport Canada |
| NOAA Olympic Coast National Marine Sanctuary | University of British Columbia |
| Oceans Networks Canada | University of St. Andrews |
| Ocean Wise | University of Victoria |
| | Washington State Department of Transportation |
-



Photo: Lauren Laturnus

Other program or project collaborators

American Waterways Operators

BC Coast Pilots

Green Marine

JASCO Applied Sciences

Oceans Networks Canada

Makah Tribe

Pacheedaht First Nation

Puget Sound Pilots

Saturna Island Marine Research and Education Society

Scripps Institute of Oceanography

Sea Mammal Research Unit (SMRU)
Consulting Canada

Simon Fraser University

Tsleil-Waututh Nation

The Whale Museum

Quiet Sound

Ocean Wise

Participating marine transportation organizations in 2023

AAL Shipping

ACGI Shipping Inc.

Alaska Tanker Company, LLC

Amix Group

Armateurs du Saint-Laurent

Ben Lines Agencies / TS Liners

Black Diamond

Blue Water Shipping

Canpotex Shipping Services Ltd.

Norwegian Cruise Line

NYK Bulk & Projects Carriers

NYK Group Americas Inc.

Oak Maritime (Canada) Inc

Group Ocean

Ocean Network Express Inc (ONE)

Oceania Cruises

Oldendorff Carriers

OOCL



Carnival Cruise Line	Oxbow Sulphur Canada
Celebrity Cruises	PACC SHIP MANAGERS PTE LTD.
Champion Tankers AS	Pacific Basin Canada Ltd.
CMA CGM	Pacific Cachalot
Coast Island Marine	Pacific Industrial & Marine Ltd.
COBELFRET PTE LTD	Pacific Northwest Ship & Cargo Services
Colley West Shipping Ltd	Pinnacle Renewable Energy
Compagnie du Ponant	Polar Tankers
ConocoPhillips Company / Polar Tankers, Inc.	Ponant Yacht Cruises & Expeditions
COSCO Shipping Lines (Canada) Inc.	Princess Cruises
Crowley Marine Services Inc	Ravensdown Shipping Services Pty Ltd
CSL Americas	Regent Seven Seas Cruises
Cunard	Robert Reford Shipping Agency
Disney Cruise Line	Royal Caribbean International
DRAX	SAAM Towage Canada
Evergreen Shipping Agency (America) Corporation	Saga Welco AS
Fairmont Shipping (Canada) Ltd	Scenic Luxury Cruises
Fednav International Ltd	Seabourn Cruise Line
FK Warren Limited / Mclean Kennedy Inc	Seaspan
G2 Ocean	Seaward Engineering and Research Ltd.
GAC Shipping	Sentry Marine Towing



General Steamship Corp., Ltd.	Sino Star Management Ltd.
GFY Marine Group Inc.	SM LINE Corporation
Gowlland Towing	SMS International Shore Operations US Inc
Hamburg Sud	Southport Agencies Inc.
Hapag-Lloyd	Sultran Limited
HMM America Shipping Agency, Inc.	Swire Bulk Pte. Ltd.
Holland America Group	Talon Marine Services
Hudson Shipping Lines, Inc.	Tidewater Transportation Canada Inc.
Hurtigruten Expeditions	Tormar Shipping Agency
Hyundai America Shipping Agency, Inc.	TOTE Maritime
Inchcape Shipping Services	Trans Mountain
Intercruises Shoreside and Port Services	Transmarine Navigation Corp
Interport PNW	Trans-Oceanic Shipping Agency Ltd.
Island Tug and Barge Ltd	V.Ships USA LLC (Boston)
ISM Ship Management Pte Ltd	Valles Steamship (Canada) Ltd.
"K" Line America Inc.	Vancouver Island Agencies
Kirby Offshore Marine, LLC	Victoria Tug and Barge
LBH Shipping Canada Inc.	Viking Cruise
Ledcor Resources & Transportation	Waterfront Shipping Ltd
Maersk	West Coast Tug & Barge Ltd
Mason Agency Ltd.	Westward Shipping Ltd.



Photo: Lauren Laturnus

Matson, Inc.

Mediterranean Shipping Company S.A.

MOL Chemical Tankers

Montship Inc.

MUR Shipping BV

Navitrans Shipping Agencies West Inc.

Neptune Bulk Terminals

Nickel Bros Industrial Ltd

Norton Lilly International Inc.

Westwood Shipping Lines Inc

Wheelhouse Shipping Agency Ltd.

Wilhelmsen Port Services, Inc.

Wilhelmsen Ships Service

Windstar Cruises

World Logistics Service (U.S.A.) Inc.

Yang Ming Shipping (Canada) Ltd.

Zim Integrated Shipping Services