

A large cargo ship is sailing on the ocean. The ship is dark-colored with a red hull. It has several masts and cranes. In the foreground, a whale's tail is visible, breaching the water. The sky is clear and blue.

A Species at Risk Act Section 11
Conservation Agreement to support the
recovery of the southern resident killer
whale

Annual report

Period 2: May 2020 – May 2021

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Purpose of this report

The purpose of this annual report is to summarize progress and findings related to recovery measures undertaken during Period 2 (May 2020 to May 2021) of the five-year [Species at Risk Act Section 11 Conservation Agreement to Support the Recovery of the Southern Resident Killer Whale](#) (the “Conservation Agreement” or “agreement”).

As outlined in section 7.4 of the agreement, each year (period) the parties to the agreement will evaluate the completed actions and propose additional commitments to increase the likelihood of achieving reductions to acoustic and physical disturbance from large commercial vessels to support the recovery of southern resident killer whales.

The Vancouver Fraser Port Authority is the lead author of this report with review and input provided by the Enhancing Cetacean Habitat and Observation (ECHO) Program’s advisory working group and Conservation Agreement management committee.

Acknowledgements

The ECHO Program and the parties to the Conservation Agreement would like to recognize the members of the ECHO Program’s advisory working group, vessel operators committee, acoustic technical committee and all other partners for their support in the planning and implementation of the commitments and recovery measures of the agreement. For a full list of advisors and partners, please see the ECHO Program [website](#).

Parties to the Conservation Agreement



Fisheries and Oceans
Canada
Pêches et Océans
Canada



Background

Context

The Enhancing Cetacean Habitat and Observation (ECHO) Program is a collaborative regional initiative led by the Vancouver Fraser Port Authority and guided by the input and advice of government agencies, the marine transportation industry, Indigenous advisors and environmental organizations. The ECHO Program was launched in 2014 to better understand the cumulative impacts of shipping activities on at-risk whales throughout the southern coast of British Columbia, with the long-term goal of quantifiably reducing threats to whales as a result of shipping activities. More information about the ECHO Program, including annual reports which describe the key annual activities of the program, are available at portvancouver.com/echo.

The ECHO Program's advisory working group, vessel operators committee, and acoustic technical committee assist the ECHO Program team in identifying research, educational, and threat reduction initiatives that best meet the program's goals and objectives, while taking a wide range of cultural, economic, and environmental factors into account.

With the support of the ECHO Program's many partners and advisors, the program has facilitated the design and implementation of numerous voluntary underwater noise reduction measures, focused primarily on reducing acoustic disturbances caused by large commercial vessels within key foraging areas of southern resident killer whales (SRKW) critical habitat.



References to the actions of the ECHO Program in this document generally refer to efforts led by the ECHO Program team, with support and inputs from relevant program advisors.

Conservation Agreement

On May 10, 2019, the Minister of Fisheries, Oceans and the Canadian Coast Guard entered into a five-year agreement entitled [*A Species at Risk Act Section 11 Conservation Agreement to Support the Recovery of the Southern Resident Killer Whale*](#), along with eight other parties.

The agreement formalizes the participation of all parties in the ECHO Program, towards the shared goal of reducing acoustic and physical disturbance resulting from large commercial vessels operating in southern resident killer whale critical habitat in the Pacific Canadian waters. The agreement outlines each party's commitment to the continuation of existing efforts and measures and the development of new voluntary threat reduction and research measures, to be implemented and applied in both the short and longer term. These measures are described in detail in Appendix A of the agreement.

The agreement also formalizes the port authority's commitment to continue managing the ECHO Program and working collaboratively with its program advisors and partners over a five-year term.

The nine parties to the agreement ('the parties') are:

1. Chamber of Shipping
2. Council of Marine Carriers
3. Cruise Lines International Association – North West & Canada
4. Fisheries and Oceans Canada
5. International Ship-Owners Alliance of Canada
6. Pacific Pilotage Authority
7. Shipping Federation of Canada
8. Transport Canada
9. Vancouver Fraser Port Authority

Appendix A of the Conservation Agreement highlights five key focus areas which support southern resident killer whale recovery:

- A. Regional engagement and collaborative efforts
- B. International engagement and collaborative efforts
- C. Data collection and research
- D. Initiatives to reduce underwater noise from large commercial vessels
- E. Initiatives to reduce physical disturbance from large commercial vessels

Under these five key focus areas, Appendix A outlines 26 measures. Some of the measures are further broken down into sub-measures in Period 2 of the agreement, resulting in a total of 29 measures and sub-measures listed in Appendix 1 of this report. As one measure required no action in Period 2, 28 measures are discussed in this report. Period 2 of the agreement refers to the timeframe between May 2020 and May 2021.

Conservation Agreement management committee

In accordance with Section 6.1 of the agreement, the parties established a committee (Conservation Agreement management committee) to oversee the implementation and effectiveness of the agreement and to provide a collaborative forum to discuss and resolve any issues that may arise over the term of the agreement.

The inaugural meeting of the committee was convened in September 2019 to discuss the terms of reference for the committee. Committee members met again in July 2020 to formalize the commitments for Period 2 of the agreement and approve the Period 1 Annual Report, which can be found online [here](#).

The role of the port authority and ECHO Program advisory working group

As outlined in section 5.2.1 of the agreement, the Vancouver Fraser Port Authority has committed to continuing to manage the ECHO Program. This includes supporting the engagement of the Conservation Agreement parties and other ECHO Program participants.

In particular, the ECHO Program's advisory working group plays a key role in supporting the development and implementation of annual work plans to meet the goals of the agreement. In Period 2, the ECHO Program met with the advisory working group six times to share updates on annual measures, track progress on key performance indicators and seek input on measures requiring attention.

Monitoring and reporting

As described in Section 7 of the agreement, as part of the ECHO Program’s annual planning process, a monitoring and assessment framework was developed and implemented to facilitate measurement of progress on measures identified in Appendix A of the Conservation Agreement.

Clear targets, metrics, and timelines were assigned to each measure, as well as designated lead parties and associated contacts responsible for reporting on the progress of measures. Key performance indicators (KPIs) and associated targets were developed for evaluating the effectiveness of the Conservation Agreement as a whole over the duration of the agreement.

The status of the implementation of the agreement’s Period 2 measures and commitments, as well as key performance indicators are summarized in the following sections and Appendix 1 of this report.

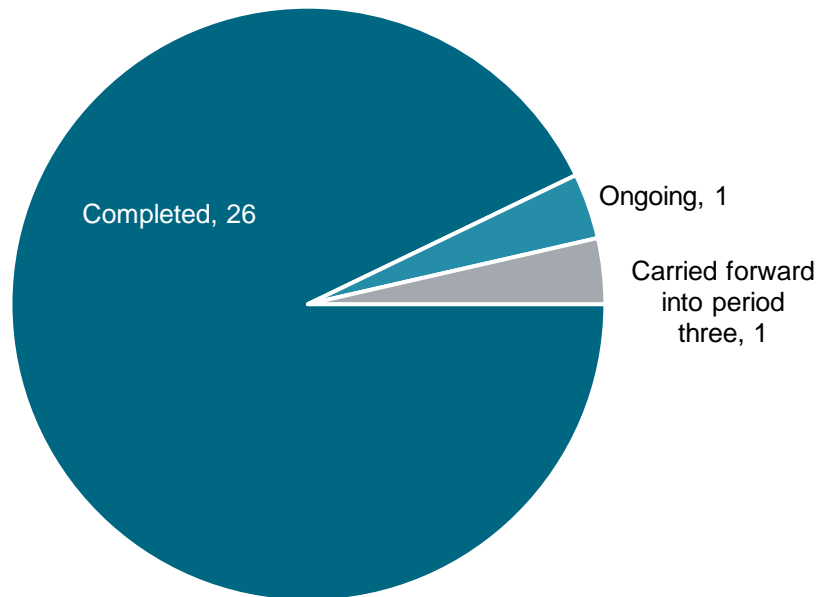
Period 2 highlights

Measure implementation status

The 26 measures included in Appendix A of the Conservation Agreement, and three addition sub-measures further broken down by the ECHO Program are described in Appendix 1 of this report. The Period 2 measures and sub-measures are grouped into one of the five key focus areas (Area A to E) identified as supporting southern resident killer whale recovery.

Of the 28 measures and sub-measures that required action in Period 2, 26 measures (93%) are complete, one measure (3.6%) is ongoing and one measure (3.6%) will be carried forward into period 3 of the agreement. Figure 1 shows the status of Period 2 measures.

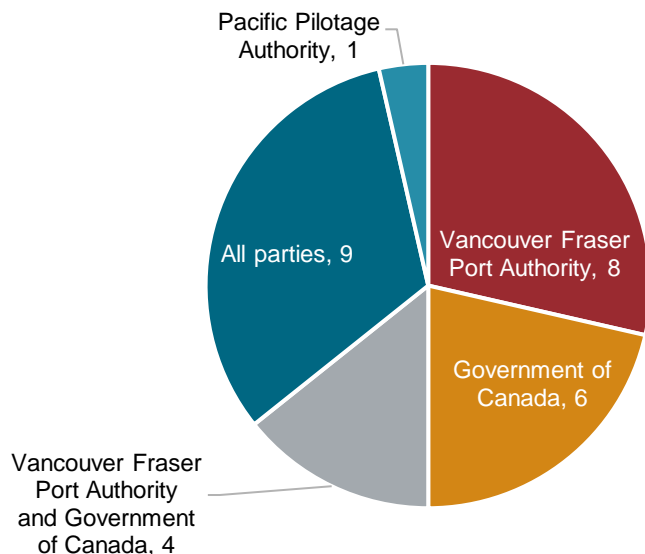
Figure 1: Conservation Agreement Appendix A measures: Summary of Period 2 status



Parties leading Period 2 measures

All 28 measures applicable in Period 2 were assigned to a lead party responsible for implementation. Figure 2 shows the breakdown of the parties leading Period 2 measures.

Figure 2: Conservation Agreement Appendix A measures: Parties leading Period 2 measures



Measuring overall Conservation Agreement effectiveness

In 2019, the ECHO Program team, advisory working group, and Conservation Agreement management committee identified the need to develop key performance indicators (KPIs) to evaluate the effectiveness of the Conservation Agreement as a whole over the duration of the agreement, focusing on its effectiveness at supporting the recovery of the southern resident killer whale.

The Conservation Agreement recognizes the need for an adaptive approach to guide and adjust conservation measures developed and implemented pursuant to the agreement. Accordingly, and through the lens of adaptive management, continuous improvement, maximizing conservation benefit, safety, operational and commercial feasibility, KPI targets associated with these measures are set annually based on the best available information at the time. These targets will be refined as appropriate through a process of continuous evaluation and reflection on whether a target was met, along with a clear explanation and justification for why any targets were modified or adapted on the basis of what has been learned.

The targets set for each of the KPIs in Period 2 are described in Table 1. Each KPI falls into one of the three categories of desired outcomes, which are closely aligned with the purpose and goals of the Conservation Agreement:

Conservation Agreement Desired Outcome 1 (KPI 1.1 - 1.3)

ECHO Program AWG members and other regional interests continue to remain engaged, informed and working together to implement measures which quantifiably reduce threats to SRKW from large commercial vessels through integrated consideration of biological, cultural, economic and safety impacts and benefits.

Conservation Agreement Desired Outcome 2 (KPI 2.1 - 2.3)

Quantifiable reduction in threats from large commercial vessels are measured and/or modelled in key areas of SRKW critical habitat as a result of threat reduction initiatives implemented through the Conservation Agreement.

Conservation Agreement Desired Outcome 3 (KPI 3.1 - 3.2)

National and international awareness about the need to reduce underwater noise from vessels is growing, and the number of ports with quiet vessel incentive programs, as well as vessels with quiet design, technologies and/or notations is increasing.

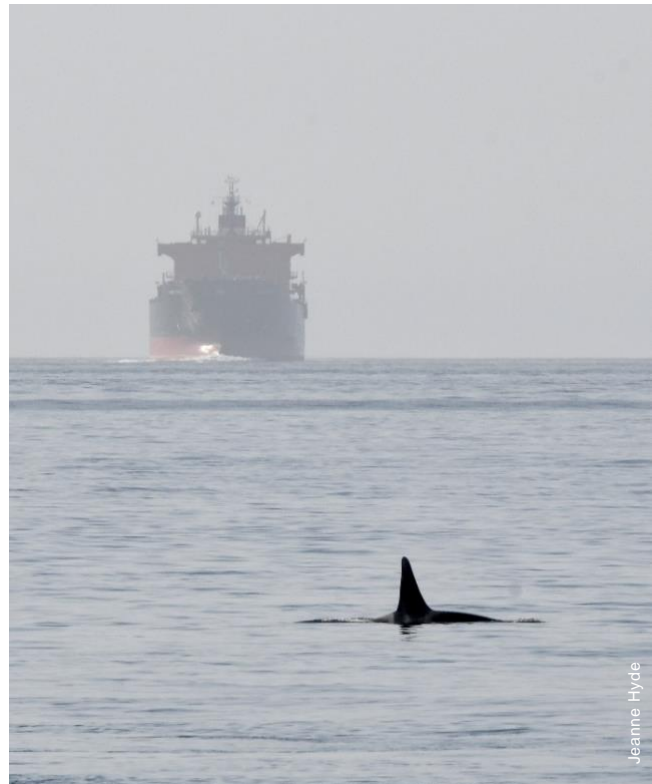
Period 2 KPI performance

Seven and a half of the eight KPIs where targets were set were achieved or exceeded in Period 2, as outlined in Table 1.

KPI 2.1 set a goal for reducing ambient underwater noise levels in key SRKW foraging areas including both Haro Strait, as a representative area of the Haro Strait and Boundary Pass slowdown, and the Strait of Juan de Fuca lateral displacement initiative. While the lateral displacement initiative exceeded its target reduction of 4dB, the level of ambient noise reduction achieved in Haro Strait (2.6 dB) was just slightly below the target of 3dB.

The overwhelming achievement of KPI targets provides a very positive indication of the overall effectiveness of the agreement in Period 2, especially while all parties adapted to the global COVID-19 pandemic.

For additional information on the ECHO Program's activities, please see the [2020 ECHO Program Annual Report](#) and specific project reports which can be found on the [ECHO Program website](#).



Jeanne Hyde

Table 1: Conservation Agreement key performance indicators (KPI) for Period 2

KPI	KPI description	Period 2 goals		Period 2 achieved
1.1	Maintain effective engagement of advisory working group (AWG) members: 75% of AWG members (or alternates) attend ECHO Program AWG meetings and AWG meeting evaluations score a minimum average 4 out of 5 ranking, reflecting a high level of satisfaction with respect to the meeting quality.	75% attendance		✓ 87%
		Average 4 out of 5 score on meeting evaluation forms		4.4 out of 5
1.2	Maintain or improve commercial vessel participation rates: Vessel participation rates meet or exceed the participation goals for threat reduction initiatives (such as slowdowns and lateral displacement initiatives) set by the ECHO Program AWG each period.	Meet or exceed vessel participation goal		✓ H/B: 91%
		Haro-Boundary (H/B) slowdown: 85%	SJDF lateral displacement (SJDF): 80%	✓ SJDF: 82%
1.3	Regional commercial mariners actively use whale awareness and educational tools: The ECHO Program undertakes at least 4 promotional activities per period to actively communicate with regional commercial mariners to encourage their ongoing use of available whale awareness and educational tools.	Four promotional activities		✓ 5+ out of 4
2.1	Maintain or improve ambient noise reduction levels: Underwater noise reduction initiatives in SRKW critical habitat (such as slowdowns and lateral displacement initiatives) meet or exceed the ambient noise reduction goals set by the ECHO Program AWG each period.	Reduce ambient underwater noise levels in key SRKW foraging areas		⚠ H/B: 2.6 dB
		Haro-Boundary (H/B) slowdown: 3.0 dB	SJDF lateral displacement (SJDF): 4.0 dB	✓ SJDF: 5dB
2.2	Decrease affected SRKW foraging time: For threat reduction initiatives (such as slowdowns and lateral displacement trials) in areas where behavioral response modelling exists, decrease the amount of time SRKW foraging may be affected by vessel noise, to meet or exceed the goals set by the ECHO Program AWG each period.	Reduce affected foraging time in Haro Strait by 20%		✓ 20%
2.3	Explore new threat reduction measures: The ECHO Program advances at least one new research project each period intended to reduce underwater noise or physical disturbance threats from large commercial vessels in SRKW critical habitat.	One new research project each period		✓ Swiftsure Bank slowdown
3.1	Encourage application of quiet vessel design and technology: The Government of Canada, supported by the ECHO Program, convenes and/or participates in at least five meetings/initiatives per period with IMO member states, ship classification societies, ship owners, technical experts and industry experts to encourage consistency in, and uptake of, quiet vessel notations and application of quiet vessel design and technology internationally.	Five meetings / initiatives with international stakeholders		✓ 5+ out of 5
3.2	Increase uptake of quiet vessel incentive programs: The Government of Canada, supported by the ECHO Program, engages with at least four Canadian port authorities and/or international ports per period to advise on the implementation of quiet vessel incentive programs, with a view to catalyzing an increase in the total number of ports that offer quiet vessel incentive programs each period.	Engage four+ ports		✓ 4+ out of 4

⚠ Indicates the achieved rate fell below the goal. ✓ indicates the achieved rate met or exceeded the goal.

Challenges and lessons learned

Despite the many unexpected challenges posed by the COVID-19 pandemic, Period 2 of the Conservation Agreement resulted in many successful outcomes. As outlined in the [ECHO Program's 2020 Annual Report](#), the program spearheaded numerous research and education activities throughout the period, in addition to reaching record-high participation rates for two of its voluntary underwater noise reduction initiatives.

Like all organizations in 2020, the ECHO Program adjusted its approach to collaboration with its many advisors and partners in order to comply with public safety guidelines while still effectively progressing towards key goals and objectives.

For the Swiftsure Bank slowdown trial, for example, the trial start date was delayed by two months in order to accommodate the challenges facing industry due to the COVID-19 pandemic. Recognizing that participation rates would be affected by the pandemic, no participation goal was set but rather operators were encouraged to participate if it was safe and operationally feasible to do so

Exceeding all expectations, 82% (861 of 1,044) of outbound vessels participated in the Swiftsure Bank slowdown by reducing their speeds to within one knot of the target speed - demonstrating the benefits of taking a flexible, adaptive approach to the design and implementation of threat reduction initiatives.

During Period 2 of the Conservation Agreement it was also agreed that additional early planning would take place in Period 3 to evaluate the feasibility of including inbound traffic and adopting different speed targets for the 2022 slowdown in Swiftsure Bank.

Although record participation rates were reported in the Haro Strait and Boundary Pass slowdown, the ambient noise reduction goal (KPI 2.1) was not achieved in Period 2. Understanding the relationships between reported participation, speed through water target achievement rates and ambient noise reduction level remains a key focus area for the ECHO Program. Working in close collaboration with the BC Coast Pilots, during Period 2 the ECHO Program has placed particular emphasis on adapting existing procedures to try and improve the speed through water target achievement rates during the Period 3 slowdown in Haro Strait and Boundary Pass.

Looking forward

With seven-and-a-half of the eight KPI targets achieved or exceeded in Period 2, the ECHO Program is tracking positively towards its goal of quantifiably reducing threats posed by acoustic and physical disturbances from large commercial vessels on at-risk whales.

In the period ahead, the ECHO Program team, with the ongoing support of the advisory working group and various committees, will continue to provide leadership and coordination support in the implementation, tracking and progress reporting of the Conservation Agreement, continually building on previous work and lessons learned.

Twenty-eight measures are under consideration in Period 3, including five new measures and twenty-three measures, which will either continue on from Period 2 or are ongoing across all years of the Conservation Agreement.

Through the lens of adaptive management, continuous improvement, maximizing conservation benefit and safety, operational and commercial feasibility, the ECHO Program will continue to work with the advisory working group and the Conservation Agreement management committee to further refine and enhance the measures in Appendix A as necessary, to reduce the acoustic and physical disturbance from large commercial vessels.

The ECHO Program would like to thank the parties to the Conservation Agreement, as well as the program's many advisors and partners for their ongoing support of and participation in these important Conservation Agreement measures to support the recovery of the southern resident killer whales.

Appendix 1: Period 2 Conservation Agreement measures tracking document

Measure	Party leading activity	Activity (per description in CA Appendix A)	Objective over the term of the Agreement (per description in CA Appendix A)	Period 2 = 2 years from Agreement signing (per description in CA Appendix A)	CA Period 2 metric	Status	Summary
A1	VFPA	Maintain management of ECHO Program	Maintain framework for ongoing engagement and collaboration; advancing research; coordinating, development, implementation, evaluation and reporting of voluntary Southern Resident Killer Whale (SRKW) threat reduction measures; and, promoting and raising awareness of research and threat reduction measures.	Convene 3-4 ECHO Program Advisory Working Group meetings per period to seek input and guidance. Convene ECHO Program Conservation Agreement and Technical Committee (Vessel Operator Committee and Acoustic Technical Committee) meetings on an as needed basis throughout the period to seek input and advice. Rely on input and advice to adaptively manage program.	1 CAM meeting	Complete	Conservation Agreement Management Committee (CAM) meeting took place in July 2020.
A1	VFPA	Maintain management of ECHO Program	Maintain framework for ongoing engagement and collaboration; advancing research; coordinating, development, implementation, evaluation and reporting of voluntary Southern Resident Killer Whale (SRKW) threat reduction measures; and, promoting and raising awareness of research and threat reduction measures.	Convene 3-4 ECHO Program Advisory Working Group meetings per period to seek input and guidance. Convene ECHO Program Conservation Agreement and Technical Committee (Vessel Operator Committee and Acoustic Technical Committee) meetings on an as needed basis throughout the period to seek input and advice. Rely on input and advice to adaptively manage program.	3+AWG meetings	Complete	Four Advisory Working Group (AWG) meetings were held in period 2 (2020: June, October, December. 2021: March)
A1	VFPA	Maintain management of ECHO Program	Maintain framework for ongoing engagement and collaboration; advancing research; coordinating, development, implementation, evaluation and reporting of voluntary Southern Resident Killer Whale (SRKW) threat reduction measures; and, promoting and raising awareness of research and threat reduction measures.	Convene 3-4 ECHO Program Advisory Working Group meetings per period to seek input and guidance. Convene ECHO Program Conservation Agreement and Technical Committee (Vessel Operator Committee and Acoustic Technical Committee) meetings on an as needed basis throughout the period to seek input and advice. Rely on input and advice to adaptively manage program.	6+ VOC meetings	Complete	6 Vessel Operator Committee meetings were held in period 2 (2020: July, August, September, November. 2021: February, April.)
A2	GoC	The GoC will consult with potentially affected Indigenous groups should vessel-related threat reduction measures being considered by the ECHO Program be assessed as potentially impacting section 35 rights.	Where vessel-related threat-reduction measures contemplated under this agreement have the potential to impact section 35 rights, GoC will consult on these measures with Indigenous groups in meetings specific to these measures or as part of its annual consultations on SRKW-related initiatives.	Where vessel-related threat reduction measures contemplated under this agreement have the potential to impact section 35 rights, GoC will consult on these measures with Indigenous groups in meetings specific to these measures or as part of its annual consultations on SRKW-related initiatives.	Consultation on new threat reduction measures contemplated under this agreement held where the potential for impact on s35 rights have been assessed	Completed for period 2 and ongoing	Consultation took place. Proposed rewording of Measure A2 in agreement is under discussion with AWG indigenous advisors.
A3	All	Provide relevant input to broader initiatives around the development of underwater noise targets	Contribute to ongoing discussions on the development of underwater noise reduction targets.	Participate in initiatives to advance the development of underwater noise targets. If available, apply draft target to ECHO Program voluntary initiatives.	Convene ATC to discuss UWN targets	Carry forward to period 3	Transport Canada hosted the first national meeting of the Underwater Vessel Noise Reduction Targets (UVNRT) Working Group and Technical Sub-Group on February 10. Various ECHO Program team and advisory members are participating. ECHO Program Acoustic Technical Committee (ATC) meeting planned for April, the outcomes of which will support the work of the UVNRT technical sub-group.

Measure	Party leading activity	Activity (per description in CA Appendix A)	Objective over the term of the Agreement (per description in CA Appendix A)	Period 2 = 2 years from Agreement signing (per description in CA Appendix A)	CA Period 2 metric	Status	Summary
B1	GoC	Engage US authorities, on vessel related threats to SRKW and implementation of threat reduction measures	Establish commitments on recovery measures from US authorities in shared waterways in SRKW critical habitat.	Advance agreement/partnership on joint US-Canadian actions toward SRKW recovery in shared waterways, using where possible the ECHO Program as a consultative forum for matters relating to large commercial vessels	Participate in / convene 4 Canada-US coordination or collaboration meetings relating to SRKW actions involving large commercial vessels	Complete	Joint Coordinating Group meeting is being planned for June. Transport Canada and US Coast Guard have met in engagement sessions as well as bilaterally regarding TSS feasibility study. TC, USCG, CCG and Department of Ecology continue to meet monthly with a focus on marine safety, but include discussion about SRKW recovery and associated work. The ECHO Program continues to be the venue to discuss large commercial vessel measures in shared waters. Continued participation in Washington Department of Fish and Wildlife intergovernmental working group on whale watch licensing. TC has been participating in the DOE model development for AIS encounters and accidents in shared waters to support SRKW protection from the risk of oil spills.
B2	GoC	Encourage dialogue and technical discussions on reducing ship generated noise through the IMO and other international fora	Propose a new work output that may result in updates to IMO MEPC.1/Circ.833 (April 2014) guidelines for the reduction of underwater noise from commercial shipping.	Identify and test recommendations on ship design and technology and operating practices. Work with international partners to include a new work output on the IMO work plan on underwater noise.	Bring forward work output request for MEPC consideration.	Complete	International Maritime Organization (IMO) Marine Environment Protection Committee (MEPC) consideration of new work outputs has been delayed until MEPC 76 (Spring 2021). Canada is working to engage internationally prior to the June 2021 meeting, including a presentation at a Webinar hosted by the Government of Belgium in March 2021 with approximately 200 attendees.
B3	VFPA & GoC	Encourage Canadian and other relevant international ports to consider implementing incentives for quiet vessels	Increase the number of vessels with quiet vessel design, technologies and/or notations.	Continue engagement at both national and international level, as appropriate, to develop network of port incentive programs.	Engage 4 ports on incentive program	Complete	1) Presented at International Association of Ports and Harbours & International Collaboration on Ship Emission Reduction Initiatives meeting, Jan 2021 (11 port authorities present) 2) Completed initial discussions regarding establishment of an ECHO like program and ECHO like incentives with: a) NOAA re: the Gulf of New Mexico b) Oceans North re: Port of Churchill, Hudson Bay
B4	VFPA & GoC	Convene vessel classification societies and technical experts to develop and align category-specific quiet vessel notations	Establish consistent measurement and analysis procedures, and quiet vessel notations between ship classification societies such that incentives offered at Port of Vancouver and elsewhere are also consistent.	Prepare draft proposed approach for class society measurement and analysis methods. Host and report on international workshop with class societies to discuss and refine methodology.	Host online workshops with vessel class societies and prepare progress report	Complete	International workshops took place online October 14, 15 & 20, 2020. Workshop summary received by Transport Canada. ECHO Program distributed the report.
C1	GoC	Support the development and maintenance of an underwater hydrophone network in SRKW critical habitat	Measure ambient underwater noise levels throughout SRKW critical habitat, assess contributions of Large Commercial Vessels, support whale detection activities, and monitor the effectiveness of implemented mitigation measures for Large Commercial Vessels.	Develop and maintain continuous underwater acoustic monitoring relevant to ambient and anthropogenic noise assessment in SRKW critical habitat for 2020-2021. PERIOD 1 CARRYOVERS: Finalize identification and mapping of existing hydrophones and linkages available on the west coast and investigate opportunities for data sharing. Engage with regional partners with existing/planned hydrophone capacity to explore opportunities for resource/information sharing.	Summary of existing GoC hydrophones in SRKW critical habitat	Complete	An update of DFO's programs with regards to this measure will be shared with ECHO Program advisors in June 2021.

Measure	Party leading activity	Activity (per description in CA Appendix A)	Objective over the term of the Agreement (per description in CA Appendix A)	Period 2 = 2 years from Agreement signing (per description in CA Appendix A)	CA Period 2 metric	Status	Summary
C1	GoC	Support the development and maintenance of an underwater hydrophone network in SRKW critical habitat	Measure ambient underwater noise levels throughout SRKW critical habitat, assess contributions of Large Commercial Vessels, support whale detection activities, and monitor the effectiveness of implemented mitigation measures for Large Commercial Vessels.	Develop and maintain continuous underwater acoustic monitoring relevant to ambient and anthropogenic noise assessment in SRKW critical habitat for 2020-2021. PERIOD 1 CARRYOVERS: Finalize identification and mapping of existing hydrophones and linkages available on the west coast, including format, calibration, temporal and spatial distribution, and investigate opportunities for data sharing. Engage with regional partners with existing/planned hydrophone capacity to explore opportunities for resource/information sharing.	Identification of non-GoC hydrophones within SRKW critical habitat to identify opportunities for resource/information sharing with regional partners	Complete	A list of non-Government of Canada hydrophone operators within SRKW Critical Habitat has been drafted.
C1	GoC	Support the development and maintenance of an underwater hydrophone network in SRKW critical habitat	Measure ambient underwater noise levels throughout SRKW critical habitat, assess contributions of Large Commercial Vessels, support whale detection activities, and monitor the effectiveness of implemented mitigation measures for Large Commercial Vessels.	Develop and maintain continuous underwater acoustic monitoring relevant to ambient and anthropogenic noise assessment in SRKW critical habitat for 2020-2021. PERIOD 1 CARRYOVERS: Finalize identification and mapping of existing hydrophones and linkages available on the west coast and investigate opportunities for data sharing. Engage with regional partners with existing/planned hydrophone capacity to explore opportunities for resource/information sharing.	Update summary for 2020 of existing GoC hydrophones in SRKW critical habitat	Complete	An update for relevant DFO activities with regards to this measure will be shared with ECHO Program advisors in June 2021.
C2	VFPA	Evaluate ECHO regional ambient noise data which was collected in 2016-2017	Establish what factors are contributing to existing ambient noise levels within SRKW critical habitat and determine ongoing monitoring needs for evaluating changes and trends into the future	Share study findings with relevant regional hydrophone operators and support any efforts to standardize monitoring and data collection approaches in the region.	Publish ambient noise monitoring and data collection best practices document	Complete	Final guidance document is complete. Mapping out publication strategy.
C3	VFPA & GoC	Establish underwater listening station in SRKW critical habitat	Implement listening station infrastructure to allow vessel operators to measure the individual noise profiles of their vessels; facilitate research testing of vessel quietening technologies/operations; and, allow the ECHO Program to continue gathering and analyzing vessel noise data for research purposes and to evaluate the potential for offering new port incentives	Monitor vessel source levels in real time. Make data available to vessel owners upon request. Advance testing of vessel quietening options.	Analyze data from Boundary Pass ULS and prepare quarterly progress reports. Evaluate vessel quietening options on ≥1 vessel(s).	Complete	Study conducted with regional stakeholder to evaluate potential benefit of hull coating to underwater noise reduction. Quarterly reporting were provided throughout period 2.
C4	VFPA	Evaluate existing ECHO Program database of vessel source level measurements	Evaluate how different vessel design characteristics may be driving the noise profile of vessels. Identify key characteristics/commonalities of quietest and loudest vessels	Share study findings and conclusions. Integrate additional vessel source level data obtained through Boundary Pass hydrophone deployments, to prove or revise conclusions.	Update noise correlation report with additional data and findings	Complete	Phase II is complete. Published to the ECHO Program website spring 2021. Beginning scoping of phase III.

Measure	Party leading activity	Activity (per description in CA Appendix A)	Objective over the term of the Agreement (per description in CA Appendix A)	Period 2 = 2 years from Agreement signing (per description in CA Appendix A)	CA Period 2 metric	Status	Summary
C5	All	Advance research studies to explore new underwater noise reduction measures for Large Commercial Vessels* (To be updated annually based on agreement of new/emerging potential measures)	Test/trial new design, technologies and/or operational measures that may reduce underwater noise from vessels, particularly in SRKW critical habitat and within key SRKW foraging areas	Engage with a volunteer ship owner/operator to utilize the underwater listening station (C3) for detailed/high precision localization of ship noise from a particular vessel or vessels, to identify the contribution of various sources (hull-radiated noise, engine noise, cavitation) to the total noise generated by a vessel which should assist in targeting certain noise sources for reduction.	Evaluate different methodologies for high precision noise localization, by analyzing ≥1 vessel at Boundary Pass ULS	Complete	Completion of feasibility study on localization methodologies. Report is complete.
D1 - Vessel Slow downs	All	Establish voluntary seasonal slowdown of Large Commercial Vessels in Haro Strait*	Participation rates, ambient underwater noise levels and affected southern resident killer whale foraging time in Haro Strait meet or exceed the participation, ambient noise reduction and affected southern resident killer whale foraging time goals agreed to annually by the ECHO Advisory Working Group, or comply with underwater noise reduction targets when they are developed.	Review noise reduction levels achieved during previous slowdown year and revisit voluntary maximum speed targets and slowdown duration as needed for implementation in future year.	Publish 2019 slowdown report and implement 2020 slowdown in Haro-Boundary	Complete	2019 Haro/Boundary slowdown report posted online in August. 2020 slowdown concluded on October 31, 2020.
D1 - Vessel Slow downs	All	Establish voluntary seasonal slowdown of Large Commercial Vessels in Haro Strait*	Participation rates, ambient underwater noise levels and affected southern resident killer whale foraging time in Haro Strait meet or exceed the participation, ambient noise reduction and affected southern resident killer whale foraging time goals agreed to annually by the ECHO Advisory Working Group, or comply with underwater noise reduction targets when they are developed.	Review noise reduction levels achieved during previous slowdown year and revisit voluntary maximum speed targets and slowdown duration as needed for implementation in future year.	Revisit slowdown parameters for 2021 based on learnings from 2020	Complete	2021 parameters for the voluntary vessel slowdowns were confirmed in March 2021.
D2 - Vessel Slow downs	All	Based on SRKW usage and subject to navigational safety and operational considerations, identify other possible candidate areas within SRKW critical habitat to implement voluntary seasonal slowdowns of Large Commercial Vessels	Participation rates and ambient underwater noise levels in other key southern resident killer whale foraging areas meet or exceed the participation and ambient noise reduction goal agreed to annually by the ECHO Advisory Working Group, or comply with underwater noise reduction targets when they are developed. In other key southern resident killer whale foraging areas where behavioral response modelling exists, decrease the amount of time southern resident killer whale foraging may be affected by vessel noise, to meet or exceed the goals set by the ECHO Program AWG each year.	Evaluate implementation of slowdown in potential new candidate area. Review noise reduction levels achieved during previous slowdown year and evaluate voluntary maximum speed targets and slowdown duration applicable for new candidate area.	Set relevant slowdown parameters and trial slowdown in Swiftsure Bank	Complete	2020 Swiftsure Bank slowdown concluded on October 31, 2020.
D3 - Vessel Slow downs	All	Address commercial and operational constraints to expanding the area and/or duration of vessel slowdowns*	Eliminate barriers to full participation and/or compensate those that are negatively affected economically such that they can fully participate.	Assess progress made on a yearly basis and re-adjust actions needed to eliminate barriers to implementation going forward (including framework for compensation as required)	Continue Transport Canada reimbursement program for additional pilotage costs in Haro-Boundary slowdown	Complete	All 2020 reimbursement payments have been issued.
D4 - Vessel Slow downs	All	Improve direct effect of vessel speed reductions by implementing real-time tracking and notification of SRKW locations year round	Provide SRKW presence notification tools to professional mariners, to potentially reduce speed and associated noise impacts to SRKW in real time and year round.	Develop, test and/or refine tools (e.g. Whale Tracking Network, further support to refine Whale Report Alert System) to assess feasibility of implementing real time SRKW and vessel tracking and to determine effectiveness of dynamic management.	Summary of known tools for real-time SRKW detection and status (e.g. under development, being tested)	Complete	An update on relevant activities related to real-time detection tools led by DFO, specifically with regards to the Whale Detection and Collision Avoidance Program (WDCAP) and Whale Tracking Network will be shared with ECHO Program advisors in June 2021.

Measure	Party leading activity	Activity (per description in CA Appendix A)	Objective over the term of the Agreement (per description in CA Appendix A)	Period 2 = 2 years from Agreement signing (per description in CA Appendix A)	CA Period 2 metric	Status	Summary
D5 - Lateral displacement	All	Evaluate effect of lateral displacement outbound in Strait of Juan de Fuca based on 2018 trial results	If participation rates and ambient underwater noise levels meet or exceed the participation and ambient noise reduction goals agreed to annually by the ECHO Program advisory working group, or comply with underwater noise reduction targets when they are developed and if agreement with Indigenous groups and transboundary partners are reached, continue implementation of voluntary lateral displacement.	Where results continue to be positive and agreement with Indigenous groups and transboundary partners are reached, continue implementation of voluntary lateral displacement.	Publish 2019 lateral displacement report and implement 2020 lateral displacement in Strait of Juan de Fuca	Complete	Published 2019 report to the ECHO Program webpage in June 2020. 2020 inshore lateral displacement concluded on October 31, 2020.
D6 - Lateral displacement	All	Based on the effectiveness of the 2018 Strait of Juan de Fuca trial results, SRKW usage and subject to navigational safety and operational considerations, identify other candidate areas within SRKW critical habitat to implement Large Commercial Vessel lateral displacement measures	Reduce underwater noise from Large Commercial Vessels in other key SRKW foraging areas comparable to that achieved in Haro Strait in 2017 or in line with underwater noise reduction targets when they are developed.	If results of lateral displacement demonstrate positive outcomes, consider other areas where a lateral displacement may be implemented, subject to assessment of safety considerations.	Consider lateral displacement at Swiftsure Bank	Complete	Lateral displacement was considered for large commercial vessels within the outbound shipping at Swiftsure Bank but was deemed not suitable based on whale presence and safety.
D7 - Incentives	VFPA	Continue to offer and potentially expand available VFPA EcoAction incentives for those who have taken action to reduce underwater noise from their vessel	Continue to promote the availability of EcoAction incentives to vessels calling Port of Vancouver with the goal of reducing underwater noise from Large Commercial Vessels in SRKW critical habitat.	Work with partners, including class societies and Green Marine, to promote availability of EcoAction incentives.	5+ promotional communications about EcoAction program (5/5 complete)	Complete	1) Presented at International Association of Ports and Harbours with over 11 port authorities in attendance, Jan 2021 2) Social media posts promoting new EcoAction criteria, Jan 2021 3) Email to all EcoAction applicants, Jan 2021 4) Email to all ECHO Program advisors and associations, Jan 2021 5) Email to all EcoAction product manufacturers and service providers encouraging them to promote EcoAction to their customers. Jan 2021 6) Inclusion in Trade Development presentations to VFPA customer lines
D8 - Incentives	VFPA	Evaluate the potential for offering 'quiet vessels' an option to opt out of voluntary noise reduction operational mitigations such as slowdowns	Evaluate appropriate source level thresholds for 'quiet vessels', encourage and drive innovation towards application of quiet vessel technology and design.	Assess threshold of what would be considered a "quiet vessel" that could be considered for the opt out, including mechanism for evaluating and endorsing the opt out.	Prepare memo on the possible technical and logistical approaches to "opt out", identifying knowledge gaps and linkages/ dependencies on other projects	Complete	Transport Canada launched the Underwater Vessel Noise Reduction Targets (UVNRT) Working Group, the timing proposed for the ECHO Program to assess thresholds in Period 2 no longer makes sense. A memo was developed to capture possible technical and logistical approaches to "opt out", knowledge gaps, linkages and dependencies to other projects and initiatives. Memo has been shared with UVNRT and ECHO Program advisors.
D9 - Other	All	Work to better understand and seek opportunities to test the optimization of vessel sailing times within existing shipping regime.	Subject to assessing benefits of such an approach, optimize existing sailing schedules to create longer windows where commercial vessels are not present in key SRKW foraging areas, when whales are present.	No work planned until Period 3.		No action in period 2	
E1	VFPA & GoC	Test a real-time whale notification system for professional mariners called WhaleReport Alert System (WRAS) and evaluate its utility, benefits and effectiveness	Provide a notification tool to professional mariners which provides real time information on the location of whales with the goal of reducing threats from commercial vessels in SRKW critical habitat.	Based on user feedback, make enhancement modifications and build on existing tool to continue making a whale notification tool available to professional mariners.	Launch WRAS desktop enhancements and increase total users to 350+	Complete	WhaleReport Alert System (WRAS) desktop enhancements launched in August 2020. As of March 1, there are 352 users from 47 organizations.
E2	VFPA	Develop online training module for professional mariners to help them identify whales, reduce vessel related threats and safely navigate in their presence. ⁵	Make online training tutorial available to all mariners on ECHO Program website and encourage regional vessel operators to build the tutorial into their corporate training programs.	Promote and monitor uptake of online tutorial.	Capture 20 user surveys and increase total registrants to 500+	Complete	Surveys will be conducted January 2021 onward. 1.) WIOV promoted at PACMAR-HSC meeting Dec 2020. 2) Whale desk staff trained up on WIOV in Oct and Dec 2020. 3) World Whale Day promotion on LinkedIn, Facebook and Twitter 4) Included in the TC virtual book at the Vancouver Boat Show Total registrants: 2,550 as of May 2021. Total surveys completed: 26 as of May 1 2021.

Measure	Party leading activity	Activity (per description in CA Appendix A)	Objective over the term of the Agreement (per description in CA Appendix A)	Period 2 = 2 years from Agreement signing (per description in CA Appendix A)	CA Period 2 metric	Status	Summary
Section 5.2.2 E	PPA	Explore opportunities to improve efficiencies to the pilotage system to reduce barriers to participation in the voluntary initiatives.	Improve efficiencies to the pilotage system to reduce barriers to participation in the voluntary initiatives.	Continue to identify and test potential ways to improve efficiencies to the pilotage system so that barriers to participation in the voluntary initiatives are reduced.	Undertake targeted engagement with terminals. Analyze pilotage data from Haro-Boundary slowdown, share findings with industry to make recommendations for 2021 season	Complete	Transport Canada continuing to offer reimbursement program in 2021 to reduce barrier to participating in the Haro/Boundary slowdown. In addition, Pacific Pilotage Authority and Transport Canada continue to explore other ways to improve efficiencies in the system, including improving pilot deployment, engaging longshoremen. Some challenges and delays advancing this due to COVID.