



Government
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Southern Resident Killer Whale
Symposium
October 10-12, 2017
Vancouver, British Columbia

What We Heard Report



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EXECUTIVE SUMMARY

The Southern Resident Killer Whale (SRKW) is an endangered population under Canada's *Species at Risk Act*. It is considered to be at risk because of its small population size (now at 76 individuals), low reproductive rate, and a variety of threats caused by human activity that have the potential to prevent recovery or to cause further declines. Principal among these threats are reductions in the availability or quality of prey, physical and acoustic disturbance and environmental contaminants.

The Government of Canada is committed to the protection and recovery of the SRKW, which is an iconic species of Canada's West Coast, and one that holds significant cultural value for Indigenous peoples.

In November 2016, the Government of Canada announced the \$1.5 billion [Oceans Protection Plan](#), which includes a commitment to address threats to at-risk marine mammal populations, including the SRKW. Through face-to-face and online engagement, the Government of Canada has been working with key stakeholders and Indigenous groups over the past several months to advance the understanding of threats to the SRKW population. To further this commitment, the Government of Canada will build on the extensive work already done to date and develop a strategy to address these threats in support of the species' recovery.

The SRKW Symposium on October 11-12, 2017, in Vancouver, British Columbia, was a key milestone in contributing to the collective understanding of the threats facing the SRKW and the actions needed for their protection and recovery. The symposium was supported by technical sessions on the primary threats to the SRKW, held on October 10, 2017.

The symposium objectives were to:

1. Ensure that all interested parties have a full understanding of the most recent science on the SRKW and understand the short, medium and long-term challenges with potential solutions that address the threats to this population;
2. Promote further dialogue to improve our shared understanding of the complex issues and collective responsibilities among stakeholders with respect to the protection and recovery of the SRKW; and,
3. Identify the relationships, partnerships and governance elements required to protect and recover the SRKW by taking into account the prospective roles and responsibilities, and cooperative research opportunities.

The symposium drew in 329 registered delegates from all levels of Canadian government, U.S. state and federal governments, academia, non-governmental organizations, industry, and Indigenous communities.

This report provides a summary of “What We Heard” from delegates and speakers at the symposium, so that all interested parties have the context needed to contribute to solutions going forward.

Discussions resulted in a number of concrete suggestions that the Government of Canada can undertake with the help of its partners to move beyond mitigation towards population stabilization and rebuilding. Delegates presented many and varied views over the course of the symposium, with a strong consensus established on the following:

- We must continue to seek the inclusion of traditional knowledge and expertise of Indigenous peoples as we work in partnership to address the challenges facing the SRKW.
- In all key areas relating to the survival, protection, and rebuilding of this iconic species, it is necessary that innovative, short-term solutions are developed and acted on in the areas of noise mitigation, prey availability and contaminants.
- We must consider additional protection measures for the SRKW habitat and its prey.
- We must continue to work closely with domestic and international partners to explore options to address all threats to the SRKW.
- We must improve monitoring of the location, movement and abundance of the SRKW.

As part of our commitment to the SRKW, we will work with all stakeholders and Indigenous groups to develop a path forward with key actions for the immediate and longer-term protection of this important and iconic species.

SYMPOSIUM OPENING ADDRESS

The Honourable Dominic LeBlanc, Minister of Fisheries, Oceans and the Canadian Coast Guard

Key Messages

Minister LeBlanc acknowledged the Coast Salish people, on whose traditional territory the symposium was taking place, and outlined that the objective of the symposium was to create an environment for collaborative dialogue and develop collective responsibility for the SRKW's protection and recovery.

The agenda allowed all key stakeholders and Indigenous communities to comment on the protection and recovery needs for the SRKW. The Government of Canada is already taking action to enable long-term recovery of the SRKW, including:

- The new [\\$75 million Coastal Restoration Fund](#) that was created with a focus on rehabilitating coastal ecosystems, including [\\$1.2 million](#) to help restore salmon-bearing watersheds in British Columbia.
- The new \$50 million [Coastal Environmental Baseline Program](#), which will collect comprehensive data on the current state of marine ecosystems.
- The [Wild Salmon Policy](#), which once implemented, will help address declining food resources for the SRKW.
- Collaborating with global experts to provide scientific advice through a national peer-reviewed [Canadian Science Advisory Secretariat process and report](#) on how to reduce shipping-related underwater noise.
- Working on acoustic modelling with JASCO Applied Sciences to see which mitigation scenarios might best reduce shipping noise in the SRKW habitat.
- Providing [\\$7.2 million to Ocean Networks Canada](#) to improve our understanding of the ocean, including the effects of underwater noise on marine mammals.
- Partnering with Dalhousie University on the East Coast to develop and test a [Whale Alert System](#) to help reduce whale and ship collisions on all three coasts.
- Funding a [Coastal Ocean Research Institute workshop and report](#) in May 2017 on the kinds of noise that most impact the SRKW.

“Individually, each of us has the capacity to effect change in our own small way. However, if we want to see lasting and meaningful change on a grander scale, we need to collectively invest in the health of our oceans and manage our marine ecosystems more thoughtfully. By doing that we can not only reduce the stressors associated with human activities, we can increase the resilience of ocean species like the Southern Resident Killer Whale.”

— The Honourable Dominic LeBlanc, Minister of Fisheries, Oceans and the Canadian Coast Guard

SETTING THE STAGE FOR THE SYMPOSIUM: GOVERNMENT OF CANADA OVERVIEW

Natasha Rascanin, Assistant Deputy Minister, Transport Canada

Key Messages

Within the federal family, Fisheries and Oceans Canada (DFO), Transport Canada (TC) and Environment and Climate Change Canada (ECCC) all have important roles to play in the protection and recovery of the SRKW.

Fisheries and Oceans Canada (DFO) is responsible for:

- Integrated oceans management
- SRKW protection and recovery
- Science relating to marine mammals and their prey (salmon), including forage fish
- Ecosystem-based management of marine fisheries
- Protection of fish and fish habitat in marine and freshwater ecosystems
- Marine mammal management, protection and regulation

Transport Canada (TC) is responsible for:

- Maritime transportation-related issues (noise/disturbances and strikes)
- Supporting on prey availability as it relates to underwater vessel noise and vessel presence

Environment and Climate Change Canada (ECCC) is responsible for:

- Management and mitigation of contaminants
- Supporting on prey availability as it relates to contaminants

As part of the Oceans Protection Plan, DFO was asked to conduct a science-based review of the effectiveness of the current management and recovery actions for three endangered whales including the [North Atlantic Right Whale](#), [St. Lawrence Estuary Beluga](#) and [Southern Resident Killer Whale](#). DFO shared the results of this review and consulted with governments at all levels, Indigenous groups, stakeholders and the public on priority actions, from June to September 2017. A “What We Heard” report from these engagement sessions will be published in the near future.

Finding solutions to the challenges is not something that one group or one level of government can tackle on its own, and the Government of Canada recognizes that multiple stakeholders and Indigenous Peoples have already been playing an important role in identifying, analyzing and testing potential solutions. Important work has already been started with domestic, U.S. and international partners, and we need to continue to work together to identify opportunities for action and cooperation.

FIRST NATIONS REVIEW OF LINKAGES BETWEEN THREATS

Dr. Teresa Ryan, Tsimshian Nation; Tim Kulchyski, Cowichan Tribes; Carleen Thomas, Tsleil-Waututh Nation; Ray Harris, Stz'uminus First Nation

Key Messages

Killer whales are very important to First Nations, and are showcased in many stories. For example:

- Killer whales represent a specific clan in Tsms'yen – Gibutsada.
- For Tualip nation, the killer whale is extremely important and is featured in many early stories.
- Nuu Chah Nulth has stories of Luna the killer whale.

It is easy to say killer whales are important and iconic, but to First Nations it's hard to relate how important they really are, and difficult to give context, because there are many stories, images and carvings of the killer whale.

- First Nations stories are interconnected. For example, there are stories that showcase how wolves and killer whales are related.
- To First Nations the teachings and context of stories is what matters.
- One of the most pertinent stories is about how killer whales and people connect.
- In First Nations teachings, animal forms are all equal.
- Killer whales are not simply a resource to First Nations, they are important in cultural traditions and teachings. They are part of their family.
- These stories are the root of First Nations language and history.
- Teachings describe how people could transform. Transformation holds a lot of significance for First Nations because it also forces you to struggle to understand things that are not always evident.

In order to protect the killer whale, we have to understand the ecosystem, and take care of everything in the cycle, in balance.

- The medicine wheel represents balance.
- The copper shield is the highest symbol of wealth. Carrying the copper shield represents the heavy burden of stewardship, and demonstrates that the lineage is doing what is necessary to maintain resources and wealth.
- The T-shape represents balance and stewardship between seven generations.
- Generosity and sustainable use of resources are necessary for abundance.
- Feast system represents social reproduction, laws and history.

Aboriginal Ecological Knowledge is complex. The Aboriginal perspective is holistic, whereas the science perspective is linear. These systems can complement each other, for example:

- Local people were monitoring herds of Porcupine Caribou in the Arctic Borderlands. This resulted in collaboration between ECCC and hunters to monitor caribou.

- The West Kitikmeot Slave Study – Ecological monitoring five-year research program.
- Hawaii – Marine National Monument involved Hawaiian elders.

Species at risk are a critical concern to First Nations. The *Species at-Risk Act* is convoluted and difficult for First Nations to engage in. There are opportunities to look at broad scale issues, including impacts to killer whales and the state of watershed environments. Support is needed in protecting connections and taking care of obligations to future generations by providing diverse perspectives.

This year, smoke house drying racks will be empty for the first time in our lifetime. If our freezers and drying racks are empty, we know that the killer whale will be hungry just like us. Recommendations to the symposium include:

- To the Minister of Fisheries, Oceans and the Canadian Coast Guard, the Minister of Environment and Climate Change and to the Government of Canada: that's looking after our food – get your act together.
- DFO has decided that there are only a few indicator streams worth looking after. Some streams that offer important food sources for the SRKW are neglected. DFO needs to take its obligations seriously and look after those streams, as it would more than double the amount of salmon on the West Coast.
- There is not enough fish in the Fraser River and DFO is responsible for fish.
- The Minister of Environment and Climate Change has a big responsibility to assist in taking care of the SRKW, its habitat, and its food source.

The return of the salmon and the recovery of the killer whale is possible if the Government of Canada leverages First Nations knowledge. First Nations heard some wonderful words from the government earlier in the symposium. We have the words, now the hard part is to make the music, so we end up with a song that we can all sing. We want to sing a song with everyone about how the salmon are abundant, the whales are happy and the clams are clean.

CALL TO ACTION

The Honourable Marc Garneau, Minister of Transport

Key Messages

The purpose of this symposium is to bring people together, to discuss the complex issues, options for action, and shared responsibilities associated with supporting the protection and recovery of the SRKW.

As part of Canada's Oceans Protection Plan, the Government of Canada is investing close to [\\$20 million](#) over the next five years to chart high-traffic ports and nearshore areas in British Columbia. This new investment will contribute to safer navigation of British Columbia's nearshore areas and will help protect the marine environment for the SRKW.

Along with DFO, TC is involved in several initiatives to better understand the impact of underwater vessel noise, and implement strategies to reduce its impact on the SRKW. We have identified potential solutions and some are being tested, such as speed reductions and cleaning hulls.

TC is working with the U.S. National Oceanic and Atmospheric Administration (NOAA), the State of Washington, and the International Maritime Organization, to share research and best practices, and identify opportunities for collaborative action. Meetings also take place regularly between TC and Canadian marine stakeholders, non-governmental organizations, industry, as well as with American partners, to identify opportunities for joint action and research. There are also many examples of research and actions that are already underway.

"Today's conversations must focus on where we go from here. I ask you to be innovative; I ask you to be bold; I ask you to be constructive; be pragmatic; be honest. We need a collective plan that will be adaptive, integrating new data and information as it becomes available. We need our plan to be collaborative – no one can do this alone. We need our plan to be focused on the here and now, but also on the longer term."

— The Honourable Marc Garneau, Minister of Transport

Jonathan Wilkinson, Parliamentary Secretary to the Minister of Environment and Climate Change

Key Messages

The Minister of Environment and Climate Change and the entire Government of Canada take the protection of endangered species seriously. We believe strongly that positive progress on the protection of Canada's species at risk can be achieved through collaborative efforts, including multi-stakeholder approaches with partners and stakeholders.

Contaminants can originate from a number of sources, such as industrial releases, contaminated sites, or through wastewater effluent. Some of these contaminants can also travel long distances and it is therefore important that international action be taken. To address these contaminants, the Government of Canada participates actively in international venues to encourage global reduction and use. Through the Government of Canada's [Chemicals Management Plan](#), Canada is assessing thousands of substances and putting in place controls to protect human health and the environment.

Given that wastewater effluents contain contaminants, the Government of Canada is providing [\\$400,000](#) in 2017 to the Canadian Water Network for a technical review of contaminants in wastewater and technologies to address them. Furthermore, the Government of Canada is contributing up to \$170 million towards upgrading the Capital Regional District (Victoria) wastewater treatment plant and \$212 million to improve the Lions Gate (Vancouver) wastewater treatment plant.

"To be successful, what we all require is a focus on science-based, thoughtful, innovative, creative paths forward - paths forward that will generate the biodiversity outcomes we desire while concurrently being sensitive to the legitimate concerns of all key stakeholders."

– Jonathan Wilkinson, Parliamentary Secretary to the Minister of Environment and Climate Change

KEY SYMPOSIUM OUTCOMES: WHAT WE HEARD FROM PANELISTS AND DELEGATES

1. Prey Availability

Issue: The SRKW feed exclusively on fish. They forage selectively on Chinook salmon in the summer, while chum salmon are present in their diet from September to November. We do not yet understand their winter diet. Within Chinook salmon populations, abundance is declining as well as fish size and quality. Mortality of the SRKW is strongly linked to Chinook salmon abundance.

Overarching recommendation:

- Need to increase prey availability through improved productivity, increased accessibility, and reduced disturbance.

Specific recommendations:

- Fraser River is a primary source of Chinook salmon during the summer season. A critical element for Chinook salmon production is the protection and restoration of freshwater habitats, principally the lower Fraser River, wetlands, and estuary. [Joint research efforts](#) between the NOAA and DFO concluded that increased natural production of Chinook salmon and its habitat is key. Prime forage locations for the SRKW overlap with recreational fishing of Chinook salmon. Consider implementing closures at specific fishing locations and time-periods to minimize disturbance during feeding, yet still allow for fishing opportunities elsewhere.
- Explicitly account for the needs of the SRKW in fisheries management decisions, particularly at lower survival rates (years of poor Chinook salmon abundance). A zero fishery harvest is possible, but it requires transparency and extensive consultation.
- Invest in increased research on the feeding effectiveness of the SRKW (e.g. the harvest rate of the SRKW at different Chinook salmon abundance levels and with different feeding conditions).
- Invest in increased research on the winter diet of the SRKW.
- Invest in increased research on the impact of competition for Chinook salmon with other marine mammals (e.g. Harbour seals, Steller sea lions).
- Engage First Nations in stewardship and the annual Chinook salmon assessment.

2. Contaminants and the Food Web

Issue: Contaminants can affect the SRKW through acute or chronic exposure, or they may affect their prey.

Overarching recommendations:

- Consider long-lived, top of the food chain species in chemical and waste-management decisions.
- Consider the SRKW, their food web, and their large habitat needs, using a watershed approach within the Salish Sea.

Specific recommendations:

- Improve regional and national Environmental Quality Guidelines and site-specific objectives. Existing guidelines fail to protect high trophic level species.
- Strengthen the chemical screening process using the precautionary approach. The current process for looking at new chemicals entering the Canadian market does not adequately consider long-term effects on species.
- Establish two multi-organizational working groups to:
 - Research and information sharing in the Salish Sea; and
 - Harmonize regulatory frameworks across jurisdictions.
- Establish a transparent registry for all high-production/high-potency chemicals. We do not know what is out there and we are often behind the chemical release. We need to know what is being used and in what quantities (e.g. pesticides).
- Establish a fund to support priority research and mitigation actions to protect the SRKW, their prey and their habitat.
- Implement proven remediation options to reduce the release of priority pollutants. Many novel technologies can reduce the release and impact of pollutants.
- Improve the enforcement of existing legislation.

3. Noise and Physical Disturbance

Issue: The SRKW vocalize to communicate and socialize with each other, find food and navigate. Noise generated by human activities, whether chronic (e.g. shipping noise, ferry operations, whale-watching etc.) or acute (e.g. pile driving, blasting, seismic surveys, military sonar etc.), can interfere with the ability of the SRKW to conduct these essential life processes. It is estimated that ambient (background) underwater noise levels have increased an average of 15 dB in the past 50 years throughout the world's oceans (a 3dB increase represents a doubling of noise levels).

Overarching recommendations:

- We have enough information to act now to reduce the impacts of noise and disturbance on the SRKW.

Specific recommendations:

- Physical disturbance from small boats, recreational fishers and whale watching boats plays a larger role in conjunction with underwater noise than originally thought. A combination of disturbance regulations (or minimum standoff regulations) with education and enforcement is required.
- Continue to test, monitor and adapt options to mitigate the impacts of underwater noise, taking into consideration the shifting patterns of whale movement, changes in salmon and foraging fish abundance, as well as changing ocean conditions.
- Implement metrics and milestones to measure success. The recent work to establish metrics for how underwater noise is characterized has been recognized and it will be important to quantify and monitor the impact of reduced noise on the SRKW recovery.
- It is important to address echo-location masking noise in areas known to be important for foraging, such as the Strait of Juan de Fuca and the Western shore of San Juan Island.

4. Integrative Action on Threats

Issue: To date, threats to the SRKW have been discussed and managed in silos. The symposium was convened to help break down those silos and identify opportunities to address multiple threats simultaneously.

Existing gaps and potential solutions:

- Collaboration and coordination amongst all stakeholders, particularly between the U.S. and Canada, on all threats to the SRKW is essential to recovery. An entity similar to the Pacific Salmon Treaty or a working group should be considered. Local governments could also be very useful. Governance needs to be clear to tackle harmonizing regulations and solutions to limit interception fisheries.
- Assess threats along the entire food web (e.g. noise impacts on prey, not only on the SRKW).
- Conduct research to understand the winter prey of the SRKW and the relative importance of Chinook salmon to their winter diet.
- Understand the percentage of impact for different types of effects (noise, pollution, prey availability, etc.) in order to focus efforts appropriately. Access to prey is the key, and noise, disturbance and contamination exacerbate this challenge (noise/disturbance makes already scarce prey harder to find; less food means more reliance on blubber that includes bioaccumulated toxins).

- We need to coordinate monitoring activities by making efficient use of opportunities to collect data (e.g. simultaneously collecting information on prey, noise and contaminants).
- We need to harmonize measures for vessel management, retrofits, guidelines etc. across all vessels (commercial/shipping, fishing, whale watching, etc.).
- Municipalities could be leaders for integrating solutions (e.g. wastewater management, whale watching, education and awareness, etc.).
- We need to clearly state measures or metrics of success to implement effective management actions.
- It is critical to implement early actions even as scientific understanding evolves, and use adaptive management to adjust actions as more is learned. It is also important to focus on longer-term strategies.

CLOSING REMARKS

Terry Beech, Parliamentary Secretary to the Minister of Fisheries, Oceans and the Canadian Coast Guard

Trevor Swerdfager, Senior Assistant Deputy Minister, Fisheries and Oceans Canada

Key Messages

The Government of Canada is firmly committed to recovering and protecting the SRKW and all whales. The spirit of the symposium and the clear desire to work together to solve the issues is very much appreciated. Senior leadership in the Government of Canada has taken note and we are ready to work together. We must find ways to continue to coordinate, collaborate, and share so that we can restore the SRKW population. We want to create a marine environment that we are proud of and that our great, great grandchildren will enjoy.

“As the current environmental stewards of our oceans, we need to collectively do more to protect these iconic marine mammals and stop their dangerous decline before it’s too late and cannot be reversed. The good news is that we are addressing this issue in an era that is defined by major investments in oceans science, an influx of marine technologies and a genuine spirit of collaboration. Regardless of what sector you work in, the people in this room represent some of the brightest minds in our oceans community. You also demonstrate a willingness to help this endangered species overcome the challenges they face so people *and* whales can once again live in harmony. I hope you agree that it has been a valuable opportunity to learn from one another, share our expertise and influence public policy. I look forward to working together in the months and years ahead and seeing what can be achieved when like-minded individuals join forces for a greater good.”

— Terry Beech, Parliamentary Secretary to the Minister of Fisheries, Oceans and the Canadian Coast Guard

ANNEX: SYMPOSIUM AGENDA

Oct 10, 2017	Technical Session 1: Contaminants and the Food Web Chair: Dr. Peter Ross, Vancouver Aquarium
	Technical Session 2: Noise and Disturbance Chair: Dr. Kate Moran, Ocean Networks Canada
	Technical Session 3: Prey Availability Chair: Dr. Brian Riddell, Pacific Salmon Foundation
	Technical Session 4: Integrative Dialogue Session Chair: Christianne Wilhelmson, Georgia Strait Alliance
Oct 11, 2017	Welcome and Opening Coast Salish Remarks
	Welcome from the Province of British Columbia The Honourable Lana Popham, Minister of Agriculture
	Symposium Address The Honourable Dominic LeBlanc, Minister of Fisheries, Oceans and the Canadian Coast Guard
	Setting The Stage For The Symposium: Government of Canada Overview Natasha Rascenin, Assistant Deputy Minister, Transport Canada
	Lessons Learned While Addressing The Three Key Threats Panelist: Lynne Barre, SRKW Recovery Coordinator, United States National Oceanographic Administration (NOAA) Panelist: Orla Robinson, Program Manager, Enhancing Cetacean Habitat and Observation (ECHO) Program, Port of Vancouver Panelist: Dr. Andjela Knezevic-Stevanovic, Metro Vancouver
	Keynote Address: SRKW Ecology Dr. John Ford, University of British Columbia
	First Nations Review of Linkages Between Threats Panelist: Dr. Teresa Ryan, Tsimshian Nation Panelist: Tim Kulchyski, Cowichan Tribes Panelist: Carleen Thomas, Tsleil-Waututh Nation Panelist: Ray Harris, Stz'uminus First Nation
Oct 12, 2017	Call to Action The Honourable Marc Garneau, Minister of Transport Jonathan Wilkinson, Parliamentary Secretary to the Minister of Environment and Climate Change

Review Outcomes of Technical Sessions
Path Forward Panelist: Serge Buy, Canadian Ferry Association Panelist: Christina Burridge, BC Seafood Alliance Panelist: Robert Lewis-Manning, BC Chamber of Shipping Panelist: Dr. John Ford, University of British Columbia Panelist: Dr. Lance Barrett-Lennard, Vancouver Aquarium Panelist: Dr. Andrew Trites, University of British Columbia Panelist: Dan Kukat, Pacific Whale Watch Association Panelist: Dr. Teresa Ryan, Tsimshian Nation
Symposium Summary and Thank You Terry Beech, Parliamentary Secretary, Fisheries, Oceans and the Canadian Coast Guard Trevor Swerdfager, Senior ADM, Fisheries and Oceans Canada
Closing Coast Salish Remarks