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Chair

Mr. Ken McDonald

Standing Committee on Fisheries and Oceans

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• (1105)

[English]

The Chair (Mr. Ken McDonald (Avalon, Lib.)): I call the meeting to order.

Good morning, everyone. Pursuant to the order of reference of Wednesday, June 6, 2018, we are studying the situation of endangered whales, or as we know it, Motion No. 154.

Go ahead, Mr. Doherty.

Mr. Todd Doherty (Cariboo—Prince George, CPC): I want to ask for an update. Over the weekend, there was a terrible fire in your neck of the woods, at Hickey & Sons Fisheries at O'Donnell's on St. Mary's Bay. The fish plant burnt down, potentially stranding about a hundred jobs. Could you provide an update to the committee? Also, your Conservative colleagues want to send, through you, our wishes to those who are impacted.

The Chair: Thanks for that, Mr. Doherty.

I have been speaking to the owner of the fish plant, Mr. John Hickey, several times. Up to midday Sunday, there was still some smouldering and whatnot going on at the site. It's totally destroyed. The insurance people and fire inspectors have been up to look at it. He's waiting to get the report back from them.

It's a business operated by himself and his three sons. They have been in business for just over 31 years. Last year they bought a new piece of equipment that cost \$1 million. It was for scallops, something new for them in the fish plant. Normally, it was just a ground-fish facility.

They're devastated by it. They are weighing out the options. Hopefully, they are going to rebuild and start up again. As I said, they have been on the go for 31 years, and they are the only major employer in that area, supporting probably six or seven really small communities. I've told him we'll do anything we can and that everybody is on side to help him out in any way. We look forward to hearing him tell us what is taking place, and hopefully the reconstruction will begin as soon as possible.

Thank you for the question and the concern. I know you phoned me early Friday morning to express your support. I appreciated that very much.

Getting on with the business of today, we're doing our study of Motion No. 154.

We have five witnesses. Four are by video conference and one is by teleconference.

We have Christianne Wilhelmson from the Georgia Strait Alliance; David Bain, chief scientist with Orca Conservancy; Moira Brown, senior scientist with the Canadian Whale Institute; Robert Michaud, scientific director, Group for Research and Education on Marine Mammals; and Lance Barrett-Lennard, director, marine mammal research program at the Coastal Ocean Research Institute.

We'll begin with our witnesses giving their statements. Christianne Wilhelmson, you have seven minutes, please.

Ms. Christianne Wilhelmson (Executive Director, Georgia Strait Alliance): Thank you very much, Mr. Chair and members of the committee.

My name is Christianne Wilhelmson, and it's my privilege to be speaking to you today from the unceded traditional territories of the Coast Salish people, in particular the Musqueam, Squamish and Tsleil-Waututh nations.

I am the executive director of the Georgia Strait Alliance. We are a marine conservation organization in southern British Columbia that for nearly 30 years has been the voice of coastal communities and an advocate for the sustainability of the Georgia Strait and its adjoining waters and communities.

Since the early 2000s, we have been active in advocating for the protection of the endangered southern resident killer whale population and asking for immediate action to protect the species. Personally, I've been an advocate for this species for over 16 years, building on my education. I have a bachelor of arts in English history and political science, a bachelor of science in biology and environmental and resource sciences, and a master's degree in ecology.

I want to acknowledge that Motion No. 154 was drafted some time ago, and the situation for orcas has deteriorated since then and become much more urgent. Simply put, we do not need more information to identify immediate actions to mitigate current threats to the whales. Working with leading scientists, in January 2018 we presented a short list of immediate actions that the government needed to take to reduce threats to southern resident orcas. I'll speak to the status of those requests in a few moments.

The key point of my presentation is simple. We have a species in crisis, and immediate and bold action needs to be taken to save it.

Southern resident orcas, as I'm sure you know by now and you've heard from people, are genetically unique populations of salmon-eating whales. They eat primarily chinook salmon, and they spend their summer months in the Salish Sea area, which includes the Georgia Strait. These are the waters between Vancouver and Vancouver Island.

In 2003, the population was listed as endangered under Canada's new Species at Risk Act, with three threats identified: toxic contamination, noise and disturbance, and availability of prey. These threats were exacerbated by a unique experience to this population, which occurred between 1962 and 1974, namely live captures. Some 47 orcas were taken from this population during that period, which was a hit to a population greater than any other in this region.

In May 2018, the current government concluded that these whales were under imminent threat, and that since the threats have not abated and were likely increasing since they were declared endangered in 2003, intervention was necessary for the survival and recovery of the species. I should note that since 2003, the population has declined from 83 to 74.

Our concern for the species isn't just based on numbers. That's an oversimplification. There have been no births resulting in surviving calves in nearly three years. There is currently a 69% failed pregnancy rate. There are only 23 reproductive females, and most pregnancies are the results of mating with only one male in the population.

Another noted behavioural change for the species is frequency of visits to the Salish Sea. In 2017, southern residents were seen a total of 27 days, when their normal seasonal average is 150 days. In May 2018, they were not seen in this region for the first time in the period that we have recorded their presence.

Changes in population number, composition and behaviour are the telltale signs that we have an urgent situation requiring bold action.

I have a few more pieces of information. This past season, whales were showing signs of nutritional stress, and that's science-speak for starvation. Based on the limited information we have about this year's chinook run, it has been far below historic averages.

What have we done to change things for the whales? The answer, simply, is not nearly enough. As mentioned, in January several conservation organizations, including GSA, provided the government with a list of urgent actions. I should note that though toxic contamination is one of the threats to the whales, I won't be speaking to that, because in our request in January we did not list anything because pollution issues require a lot more long-term planning around stormwater, wastewater and management of chemicals.

Since January, what measures have been implemented? We now have a 200-metre distance that vessels need to stay away from the whales, and we've had a partial commercial and recreational fishery closure.

• (1110)

I want to give you a partial list of the things the government could be doing but hasn't done since we gave them this information in January: implementation of rebuilding plans for the chinook, prohibition of commercial and private whale-watching in feeding refuges, measures to limit vessel time in proximity to whales, designation of enforcement officers to patrol critical habitat, establishment of a licensing system for commercial whale-watchers, mandate no net increase in overall noise levels relative to 2016 levels, and begin developing noise reduction targets.

One other action we requested of the government in January, which I think really highlights the fact that we're losing time here, is around the addition of critical habitat for orca protection. The area under consideration to be added is on the west coast of Vancouver Island. It was identified in early 2017. With an emergency order, which is the tool we have told government it can use to speed things up, you could declare this additional area as critical habitat today. Instead, we now find ourselves in another consultation period. Nearly two years after the critical habitat was identified, nothing has changed for the orcas. This area is still no further protected than it was two years ago.

Since 2017, the population has declined from 77 to 74 whales. You can see that as we do less or do nothing at all, we're losing the whales. Today we are left knowing that without immediate actions as laid out before the government 10 months ago, the waters of the Salish Sea will not be any quieter in May when the whales return. The whales will continue to experience disturbance. The whales' access to food will continue to be limited without more extensive fishery closures, including Juan de Fuca areas 20-1 and 121-1, if not a full closure. If a full closure of chinook is considered, we also have to commit to supporting coastal communities that will be impacted by this decision. They should not bear the brunt of decades of ineffective management of our salmon in British Columbia rivers and oceans.

As a scientist and an advocate for these waters where three million British Columbians live, work and play, I can state unequivocally that the loss of this species will have ramifications for everyone. It will impact the region economically, with the loss of industries reliant on the orca. It will have social and cultural impacts on coastal communities and first nations. It will have ecological impacts that none of us can imagine. The loss of an apex predator is a house of cards that we don't want to experience.

The science is clear. As I have just explained, the path to saving these whales is laid out; we simply have to decide to act today. Thank you for your time.

The Chair: Thank you, Ms. Wilhelmson.

Now we'll go to Mr. David Bain from the Orca Conservancy. Witnesses, when we get close to the end, maybe to the two-minute mark, I'll hold up two fingers to give an indication that you have about two minutes left. Thank you.

Go ahead when you're ready.

Mr. David Bain (Chief Scientist, Orca Conservancy): Thank you.

Southern residents have been separate from other killer whales since the ice age. They're genetically and culturally distinct. They share their diet with other residents, the northern residents, but they differ in diet from the transients and offshore killer whales with which they share their habitat.

They once numbered between 1,000 and 2,000 individuals, but only 74 remain, and there has only been successful reproduction in two of the last seven years.

While they range from southeast Alaska to central California, they are most often observed in the Salish Sea. There are many causes of the decline. Prey availability is one of them. Chinook are their primary prey, but they also rely heavily on chum salmon and on coho. They use bottom fish when salmon are not available.

To help with the prey problem, we need to address habitat. Re-pairing habitat is important to spawning and rearing juvenile salmon. The vegetation around streams and how we manage water flows in streams are important to salmon survival.

Near-shore habitats are also important to juvenile salmon, and protecting them from construction and development—docks and things like that—is also quite important.

Invasive species pose a risk. They can restructure ecosystems, reducing their productivity and reducing the food available to the whales.

Barriers to migration are another significant problem. Dams, culverts and in some cases thickets of invasive plants can block migration. They can also make salmon more vulnerable to predation as they try to navigate blockages in their migration routes.

Hatcheries are a double-edged sword for killer whales. Ideally, they would serve as lifeboats where depleted runs could be supported, and then the hatchery could be phased out once wild runs were restored. However, they have become long-term sources of fish for humans, and as a result, the focus has been on numbers rather than body size. We've seen a significant decline in the size of chinook salmon as a result of increasing reliance on hatcheries.

While eliminating harvest would help, it would be inadequate to recover the species. What we can do is move the locations where we do harvest by harvesting after the fish have passed through the whales. We would reduce competition with them, and it would also eliminate disturbances that make the few remaining fish harder to find.

Aquaculture has been identified as a source of disease that affects wild salmon. Some aquaculture facilities have used loud sounds as acoustic deterrents, and this has had a negative impact on killer whales.

Killer whales face competition from other predators such as seals and sea lions. This was not a problem in the distant past; however, human modification of the habitat and timing of runs has enabled pinnipeds to be more effective predators than they used to be. Also, the decline of transient killer whales that feed on pinnipeds has made a population boom in pinnipeds possible. While transients are catching up and will eventually put the ecosystem back in balance, it's an issue we need to pay attention to.

We also have upcoming problems. Climate change is going to be a problem. Warming is not good for salmon. The University of Washington anticipates a 40% decline in salmon populations due to warming.

Ocean acidification is another problem we can anticipate. It's likely to wipe out a link in the food chain, and that will also be a problem in the future.

Disturbances from fishing boats, whale-watching boats, shipping, marine energy production, coastal development and military exercises all make it harder for killer whales to find the limited prey that remains.

● (1115)

Toxins are also a problem. Some are chronic, like PCBs. We have hazardous waste sites that need to be cleaned up, we have ongoing problems with toxins in stormwater and wastewater, and we have concerns with agricultural runoff as well. Transportation is the major source of toxins in stormwater.

We also have to worry about acute toxins. Oil spills pose a major threat. We may have lost a few killer whales from the grounding of the *New Carissa* in Oregon several years ago. We're also all familiar with the *Exxon Valdez* spill that killed at least 13 killer whales in Prince William Sound and may have been responsible for the deaths of over 30. As we ship other chemicals by sea, we run the risk of spilling those and causing problems as well.

Disease is another problem we need to worry about. The small population that's been in a bottleneck for generations faces loss of resistance to disease with the loss of genetic diversity.

We also need to be concerned about emerging diseases. For example, we had a porpoise die-off in the Salish Sea that was traced to eucalyptus trees introduced from Australia. We also lost quite a few killer whales at the same time, but none of the bodies were recovered. We don't know whether there's actually a link there.

Another concern is a lack of barrier between the human and marine environment. We know that the bacteria in fungi growing in killer whales have developed antibiotic resistance. We found a dozen species of potential pathogens resistant to a total of about a dozen different antibiotics. This lack of barrier between humans or pets and agricultural animals is a concern for the spread of disease from inshore populations to the whales.

Another thing we need to be aware of is incidental takes. It's been a minor problem for killer whales in the past. If someone proposes to introduce a new fishing technology, we need to be careful it will not result in killer whale mortality.

Finally, I'd like to comment on critical habitat.

At present, the whole range of the southern resident killer whale population is inadequate to support the viable population in its current condition. Therefore, the entire range should really be considered critical habitat. We can identify core areas that are more important than others, but a strategy of maintaining ecological function and the quality of critical habitat throughout the range is important. Enhancing the habitat's quality in core areas would be the other step to take.

Thank you.

• (1120)

The Chair: Thank you.

Next we'll have Moira Brown, a senior scientist with the Canadian Whale Institute.

Dr. Moira Brown (Senior Scientist, Canadian Whale Institute): Thank you, Mr. Chairman.

Good afternoon, and thank you for the invitation to present before this committee.

My name is Dr. Moira Brown. I'm with the Canadian Whale Institute, and I am speaking to you today on behalf of North Atlantic right whales, which have been studied for almost 40 years, and on behalf of the Campobello Whale Rescue Team that responds to entanglements of whales in the Maritimes.

North Atlantic right whales are a transboundary species ranging from the southeast coast of Florida to the Gulf of St. Lawrence. They can be individually identified from photographs of their unique markings, and an identification catalogue is maintained at the New England Aquarium in Boston, Massachusetts. The catalogue data allows researchers to document distributions and movements, as well as population status and trends, reproduction, mortality, behaviour, right whale health and human-caused scarring.

Although the population grew at about 2.5% for 20 years, since 2010 the North Atlantic right whale has been in decline. Fewer than 450 remain. The two human-related causes of right whale mortality and serious injury throughout their range are vessel strikes and entanglement in fixed fishing gear.

Starting in 2010, researchers documented a species-wide shift in the spring, summer and autumn distribution away from the protected habitats in the Bay of Fundy and south of Nova Scotia. Survey effort was expanded, and in 2015 researchers found that many right whales were aggregating to feed and socialize in a large unprotected and high-risk region in the southern Gulf of St. Lawrence, an area that had not previously been studied. It is not new for right whales to be seen in the gulf, but prior sightings were confined to coastal areas. What is new since 2015 is the number of right whales seen in the offshore waters in the southern gulf and their residency for eight months, from early May through December.

In addition to the habitat shift, there are several indicators to show that the right whale population is in decline. There are fewer calves being born. On average there were 24 calves a year born in the 2000s. The calving rate decreased by 44% between 2012 and 2017, and there were no calves seen in 2018. The time between calves for adult females is increasing, in particular for those females that have been injured in an entanglement.

Since 2010, there has been a substantial increase in the number, severity and mortality of right whales from entanglements. Entanglement now accounts for 85% of right whale mortality throughout their range.

In 2017, there was a mortality crisis in the Gulf of St. Lawrence, with 12 right whales found dead. Four to five deaths were as a result of a vessel strike, and two were from entanglement. In addition, there were five live entanglements found in the Gulf of St. Lawrence, of which two were disentangled. Canada took immediate crisis management actions.

With respect to vessel strikes, Canadian researchers have worked with representatives of the shipping industry since 2000, and mortalities and serious injury from vessel strikes have been reduced because of vessel routing changes in the Bay of Fundy in 2003 and in Roseway Basin south of Nova Scotia in 2008. These measures were sanctioned by the International Maritime Organization and implemented by Canada, and there have been no subsequent reports of vessel strike mortalities in these two areas.

Following the mortalities from vessel strikes in 2017, the shipping industry quickly initiated a working group that included Canadian right whale scientists. Vessel routing and speed measures were designed specifically to address the situation in the Gulf of St. Lawrence. The measures appear to be effective. There were no observed vessel strike mortalities in the gulf in 2018. I would like to emphasize that the shipping industry has clearly demonstrated that they are willing and able to change their operations to reduce the risk of vessel strikes, and vessel captains in compliance with the mitigation measures deserve the credit for protecting right whales.

On entanglement and fixed fishing gear, rope from all parts of the fixed fishing gear industry have been removed from right whales during disentanglement efforts or necropsies, including in-shore and offshore gear, small- and large-diameter ropes, trap/pot and gillnet gear, vertical and ground lines, floating and sinking line, and Canadian and U.S. gear. In Canada, there was little overlap in seasonal fisheries with right whales before the whales shifted their distribution into the Gulf of St. Lawrence.

The Canadian fishing industry has accepted responsibility for entanglement of whales in fishing gear. Following the gear entanglement mortalities in 2017, broad sweeping closures and gear modifications were put in place in the gulf. The industry is to be commended for their compliance.

• (1125)

The measures have been somewhat effective in that there were no entanglement mortalities observed. There were, however, three or possibly four new live right whale entanglements, and one whale with severe entanglement injuries was seen in the gulf.

All of these whales were seen in the gulf free of gear and injury earlier in the 2018 season. One right whale shed the gear on its own, one was disentangled in the Bay of Fundy, and the other two are at large.

It was a group of fishermen who formed the Campobello Whale Rescue Team in 2002. There are only two whale rescue teams in Atlantic Canada—one in Newfoundland led by a fisherman, and ours in New Brunswick—that have the expertise to disentangle large whales. Fishery officers provide an important supporting role to the third party teams, but there are large gaps in rapid response capacity, and it will take years to find responders, to train them, and to build the experience necessary to fill these gaps. I will also add that the disentanglement teams would like to be put out of business through the prevention of entanglements.

Fishermen have and continue to have a key role in reporting entangled whales, despite their fear of how it could affect their industry. I would like to emphasize that we will only be able to solve the entanglement problem through partnership with the fishing industry. The fishermen must know their gear, and the testing of any gear modifications is essential for the sustainability of the industry and the safety of fishermen and whales.

In summary, for right whales to make a comeback, there is no magic bullet. We will need to continue, and expand on, the collaborative partnerships so far developed to identify and implement area-specific mitigation measures that will protect right whales and be sustainable, effective and safe for industry. We will need a philoso-

phy that is flexible and nimble, with a steady flow of near-real-time data, to be responsive to changes in right whale distribution and to monitor and adjust mitigation measures so that they are in place when and where they are needed.

Thank you for your attention.

The Chair: Thank you, Ms. Brown.

Next we'll go to Robert Michaud, scientific director, Research and Education Group on Marine Mammals.

Go ahead when you're ready, sir.

• (1130)

[*Translation*]

Mr. Robert Michaud (Scientific Director, Research and Education group on Marine Mammals): Thank you, Mr. Chair. I will be speaking French. It is a rare privilege for me to be able do so today.

I want to thank the committee members for the invitation.

My name is Robert Michaud and I am the scientific director of a small research group on the shores of the St. Lawrence for the past 35 years. We do research and education, in close cooperation with many colleagues from Fisheries and Oceans Canada and Parks Canada. I have had the privilege of watching the changes in the beluga population in the St. Lawrence for the past 35 years. When we began studying the species, it had just been added to the list of species at risk. The population was considered reduced and isolated, and we still did not understand why it had not recovered even though hunting had stopped.

Thirty-five years later, belugas are still on the species at risk list and a number of threats have been identified. Recently, we have observed that the population has declined by about 1.5% per year, with a spectacular rise in mortality among newborns and perinatal females. We still don't know the reason for this very worrisome trend, despite many years of research collaboration with a still growing number of partners.

I will use these few minutes to issue a reminder. Research and conservation take a lot of time. The federal government's recent heightened interest in three species of cetaceans at risk—killer whales, rights whales and belugas in the St. Lawrence—and its massive injection of funding for these three species was necessary and of course long awaited. Unfortunately, like the invitation to appear before you this morning, this heightened interest and the massive injection of funds have been somewhat rushed. We might even wonder if it has been a bit improvised.

Let me give you a few quick examples. The Oceans Protection Plan provides an unprecedented injection of funding in cetacean research in Canada. We can only applaud it and hope that it will lead to tangible results. On the other hand, this massive cash investment seems to be related to the current government's obvious interest in the increased production and export of hydrocarbons, in part by sea, and its desire to make all this as palatable as possible and to mitigate the potential consequences.

This investment was made quickly, and the funding could have been directed to other things if there had been more long-term planning.

The government recently asked for a scientific review of the effectiveness of measures for the recovery of the three species we are discussing today. This was done very well, quickly, and without much consultation. The speed of the review gave rise to problems, however, especially when the results were to be presented to the stakeholders in the maritime industry, in Quebec at least, because it interrupted the discussions that had been ongoing for five years.

The same can be said of the “Let's Talk Whales” program, an unprecedented initiative to consult Canadians, the recent announcement of a \$3-million initiative called “Whale Science for Tomorrow”, and the invitation for scientists to make submissions, which came at the last minute right in the middle of the summer. These are all exceptional opportunities, but they are rushed.

One of the urgent measures needed to help the three species—belugas, killer whales and right whales—would be to create mixed recovery teams, like those of the Committee on the Status of Endangered Wildlife in Canada, COSEWIC, that would bring together academics, government researchers and members of NGOs. These people would work together to very closely monitor the implementation of the measures already identified in recovery plans and would provide for greater harmonization of these various efforts.

There are initiatives designed to include the other industry stakeholders that might either compromise the recovery of the whales or come to terms with the measures we are implementing. Those people should be consulted regularly and invited to participate in these initiatives, along the lines of a group in Quebec, the Working Group on Marine Mammal Protection and Shipping in the St. Lawrence Estuary, or G2T3M, which is an exceptional model that has proven effective.

• (1135)

I will use my few remaining minutes to talk about some avenues that should be pursued without delay.

Let me begin with the environmental assessment process. In Quebec, there are several ongoing maritime development projects that could affect the beluga population. These projects are reviewed one by one. If they were all carried out, they would significantly alter the beluga habitat in the St. Lawrence.

Further, the scope of the Species at Risk Act should be clarified, specifically the provisions pertaining to the protection of the essential habitat, which could be a useful and very powerful tool. We must also accelerate the creation of marine protected areas by focusing on those that are still intact and where we could make major gains for the protection of whales and belugas, in the St. Lawrence in particular.

The contaminant monitoring programs that were abolished close to ten years ago should also be reinstated. Tasking academics with monitoring and surveillance is problematic, since their role is to create real science, to publish quickly, and to inspire graduate students to continue working with them. Yet we have a duty to monitor these contaminants, many of which have been in the belugas' environment for 50 or 60 years and continue to harm them.

Finally—and this is a bit out of my area of expertise—I would like to talk about the dance around contaminants that has been going on for 35 years. Before, it was PCBs, which were banned, but are still present. They were replaced by PBDEs, which were also banned, but are still present. Those in turn were replaced by a series of new contaminants. It is like a cat chasing its tail. The regulations on the production and use of these toxic products need to be modernized, because it is a never-ending story.

In closing, a tremendous amount of work, a lot of research and many measures are still needed, and it is important for us to work together effectively.

Thank you.

[English]

The Chair: Thank you, Mr. Michaud.

Last, we'll go to Lance Barrett-Lennard, who is joining us by teleconference from the Coastal Ocean Research Institute.

Dr. Lance Barrett-Lennard (Director, Marine Mammal Research Program, Coastal Ocean Research Institute): Good morning, Mr. Chair.

I'm a senior research scientist and director of the marine mammal research program at the Coastal Ocean Research Institute, which is part of the Ocean Wise Conservation Association, which also includes the Vancouver Aquarium.

My responsibilities here include leading a 10-person team that conducts studies of marine mammals in the wild. We conduct some pure research projects, particularly in population genetics, but most of our projects have direct conservation implications, and some are essentially research-informed conservation projects.

I myself have conducted 29 seasons of field studies on killer whales in the Pacific, Atlantic and Indian Oceans. I co-chaired the team that drafted the resident killer whale recovery strategy and I served on the team that drafted the action plan for the same species. I also assisted with the drafting of five other marine mammal recovery strategies or management plans.

My team works alongside the institute's ocean pollution research team, which conducts cutting-edge research on persistent organic pollutants in marine mammals and other species, and on microplastics in the marine environment.

I'll confine my comments for the rest of this talk to conservation challenges facing the so-called southern resident killer whale population, a population of whales now very much in the public eye, along with the St. Lawrence belugas and North Atlantic right whales.

In 2014, I teamed up with two colleagues working in the United States for NOAA at the Southwest Fisheries Science Center, Dr. John Durban and Dr. Holly Fearnbach, on a project to assess the nutritional status of northern and southern resident killer whales. This study was motivated by compelling evidence published by Dr. John Ford in 2000 and 2009 that in years of low chinook salmon abundance, the annual mortality of both northern and southern resident killer whales increased substantially. In other words, the whales were up against a food ceiling or, to use a technical term, the carrying capacity of their environment in those poor years.

Since 2015, my team has used a small boat-launched unmanned drone to photograph the southern and northern resident killer whales from the air. This allows us to measure their fatness and shape very accurately, and also to determine whether they're pregnant at a very early stage. Most importantly, the photos allow us to look at changes in the condition of the whales' bodies from year to year and from season to season to assess their physiological responses in relation to fluctuations in their food supply. Their food supply is principally chinook salmon, and it fluctuates substantially from year to year for both natural reasons and anthropogenic reasons.

Our key findings from the photogrammetry study thus far are as follows.

The growth rates of southern resident calves and juveniles are far slower than those of the northern resident killer whales. The southern residents are leaner, on average, than their northern resident counterparts. Bigg's killer whales, which eat marine mammals, are much more robust than the resident killer whales from either population.

Most pregnancies in the southern resident killer whale population do not produce surviving calves. We can see pregnant females very often in the fall. They usually give birth in the winter or early spring, and we've been seeing them show up the following year not pregnant and with no calves.

We've learned that the leanest members of both the southern and the northern resident killer whale populations, on average, are lactating females. It's hard being a mother. Winters are hard. Southern resident killer whales tend to gain weight during the summer

months, even in lean salmon years. In other words, the summer season is the most important time of year for the whales.

We haven't done seasonal comparisons of northern resident killer whales, just the southern ones.

All of these findings are consistent with nutritional stress. The southern resident killer whales simply aren't finding enough prey to stay in good condition.

I'll relate some of our other findings. We often see killer whales swinging their heads as they swim in a manner consistent with scanning below using echolocation. This is consistent with other studies. Periodically they dive deep and chase salmon to the surface. They use that surface as a kind of wall, restricting the fishes' escape options until they can catch them. Chases to the surface may take several minutes, and boats coming into proximity during a chase can interrupt it and allow the fish to escape.

Also consistent with other studies, we found that southern resident killer whales have well-defined, preferred foraging hot spots, and they tend to transit between those hot spots fairly quickly. In the northern residents, we found that injuries from vessel interactions, particularly propeller strikes, are more frequent than photos taken from boats would suggest. In other words, the whales are hit by boats more often than we had previously realized.

• (1140)

Our findings would suggest the following relatively simple management actions.

We think that efforts should be redoubled to increase the availability of chinook salmon to southern resident killer whales in the short term, as well as the long term, by closing sport fishing on the whales' foraging hot spots, as was started this year, 2018.

The effect of this is to preserve for the whales the adult fish that have made it through a gauntlet of perils as they approach their spawning rivers and move into the whales' key foraging areas. It's important to understand that the benefit to the whales of fishing restrictions increases with proximity to the whales' foraging areas. A fish that's spared nets 500 kilometres away has a substantial chance of dying before it gets to a place where the southern residents can prey on it; a fish spared off of Victoria is immediately available.

We think that underwater noise, which interferes with the whales' ability to find prey, needs to be reduced. This can be done by promoting quieter ship design and operation. Noise reduction is particularly important in lean salmon years, when the whales must search large volumes of water to find their sparsely distributed prey.

We think we need to increase efforts to reduce the risk of ship strikes. The new marine mammal regulations will help to reduce this risk by sport and whale-watching vessels, but initiatives to support systems to alert operators of large vessels about whales in their vicinity should be supported. In full disclosure, I have to say that my research group at Ocean Wise is in the process of establishing such a system.

Finally, I think it's very clear that we need to redouble efforts to rebuild the chinook salmon stocks in the long term—as well as the short term, of course—through restoration and protection of spawning areas, protection of riparian habitats, and maintaining and protecting the quality and complexity of estuarine and nearshore habitat areas in the salt water. These areas are important for the survival of chinook smolts.

We need to preserve these salmon stocks in the long term also, through the continued careful management of commercial and sport fisheries. It's my belief that the department has made considerable progress in this area in recent years as well.

Thank you very much.

The Chair: Thank you, Mr. Barrett-Lennard.

Before we get into the questions, I will remind everyone, if you're asking a question to a specific presenter, to please identify who you're asking it to.

To the presenters on video conference, if the question is not directed to you per se and you have a comment you'd like to make, just wave or put up your hand. We'll make sure that the questioner sees you want to comment on it. They can refer it to you.

To Mr. Barrett-Lennard on teleconference, I'll remind everyone that if you're asking a question to him, please indicate it. He's not here by video conference, but by telephone.

Sir, if you want to wade in on an answer or question at any time, please interrupt at your convenience.

We'll start off now, for seven minutes, with the government side. Go ahead, Mr. Finnigan.

• (1145)

Mr. Pat Finnigan (Miramichi—Grand Lake, Lib.): Thank you, Mr. Chair.

Thank you to all of the witnesses for being here today on this important subject.

I'm from the New Brunswick part of the country. My riding is along the eastern side of the province, in the Gulf of St. Lawrence and the Northumberland Strait.

Of course, the topic of whales has been very much talked about in the last couple of years. On that subject, 2017 was very disastrous for the whale population. Our goal, and I guess the goal of ev-

erybody, should be to protect that species and other species that are at risk. We saw over 15 whales perish during that summer.

On October 25, 2017, we heard a comment from Kristen Monsell, from the Center for Biological Diversity in the United States, who said that a provision of the U.S. Fishermen's Protection Act allows the White House to ban imports of fish or seafood from a country if that catch is affecting conservation efforts of an endangered species.

As we know, three-quarters of the snow crabs caught in New Brunswick and on the east coast are destined for U.S. markets. With that in mind, our minister decided to take measures. These were not half measures; there really had to be zero tolerance for any more deaths of whales.

Would you say that these measures were appropriate, or overreaching?

I would like comments from Ms. Brown.

[*Translation*]

Mr. Michaud, feel free to comment as well on the measures that the minister took in 2018.

[*English*]

Dr. Moira Brown: Thank you, Mr. Finnigan, for your comments.

The measures that were put in place have not yet eliminated entanglement in the Gulf of St. Lawrence. This year a few entanglements of three—possibly four—right whales that had been seen earlier in the season. There were three injury-free whales that were seen later in the season or in the Bay of Fundy with gear.

I know that the fishermen are working hard on trying to develop some alternative technologies to having ropes in the water and are also taking into consideration the possibility of using ropes that break at a weaker strength to give the whales a chance to break free from the gear and swim away without entangling lines. That work is ongoing. It's not going to be solved overnight, but we certainly have made good progress in developing partnerships and projects to start developing alternative gear or alternative ways of fishing to reduce the entanglement. We are in a much better place than we were last year.

Mr. Pat Finnigan: With that, would you say that there is something that we've learned for measures for the 2019 season? For instance, on the territory for the whales, could we shrink that area? With the knowledge that we've been able to acquire, is there anything we could change and modify for the coming season, in your opinion?

Dr. Moira Brown: The size of the static closure for the snow crab fishery is quite large. The timing of the start of it was actually very close to the first acoustic detection of a right whale on April 28, 2018. The timing of it is consistent with the initial arrival of right whales. I do appreciate that the size is quite large, and I think we were quite successful last summer with aerial surveys that identified the location of the whales and closing grids around where right whales were located.

The distribution in 2018 was different from previous years in that it was much narrower east to west. It was a similar north-south distribution, but it was much narrower, and I can understand that there were some grids in that static closure where no right whales were seen this year.

As we develop more confidence in our acoustic and visual detection and as we learn more about right whales in the gulf, I think it would make sense to work with the industry to be a little more nimble and flexible in figuring out where to close the area where and when it's needed, rather than the huge broad closure. I think we will soon be approaching an ability to do that, but we also have to realize that if the whales do show up, the fishermen will have to move the gear.

• (1150)

Mr. Pat Finnigan: There have been some reports—or people are saying—that the right whales don't usually go into waters shallower than 120 feet, I believe. Would you say that those areas could be off the territories that are not accessible to fishers?

Dr. Moira Brown: That is a question that's going to be addressed at the Canadian Science Advisory Secretariat at the end of November. We have data in our identification catalogue of right whales in the gulf and also in other areas, and we can compare that to depths, so we can actually attempt to try to answer that question before next season.

Mr. Pat Finnigan: Quickly, how do we compare with the Americans as far as protection measures go?

Dr. Moira Brown: Well, we've come a heck of a long way. We took the lead, actually, in vessel strike mitigation 15 years ago.

With respect to entanglements, this is not just a right whale problem; it is a global problem for many species. I think the commitment of the fishermen in the gulf is really going to help solve this problem. Rope in the water is a problem, and it's a problem throughout the range of the right whale in Canada and the U.S. For example, in the Bay of Fundy, the lobster fishery doesn't start until the second week in November and the fishermen are limited to about 300 pots, whereas their colleagues in Maine can fish all year and have 800 pots.

It's a little like comparing apples and oranges, but I think we compare quite well.

Mr. Pat Finnigan: Thank you very much.

The Chair: Thank you, Mr. Finnigan.

Now we'll go the Conservative side and Mr. Arnold for seven minutes.

Mr. Mel Arnold (North Okanagan—Shuswap, CPC): Thank you, Mr. Chair, and thank you, witnesses, for making yourselves available for the committee today.

I'd like to start my comments and questions with you, Mr. Bain. You made the statement that aquatic invasive species pose a threat to whale health. Could you expand a little further on that, please?

Mr. David Bain: So far they haven't been a direct threat to killer whales, but they do modify habitat. There are predatory fish that are introduced into aquatic systems that prey on juvenile salmon. That of course reduces in-river survivorship. We have a problem

with green crabs in the state of Washington now that are modifying the near-shore environment, which is critical habitat for salmon.

A lot of these invasive species come through ballast water. They can be attached to hulls of ships. Then there are deliberate introductions because somebody wants an ornamental plant or exotic pet or something like that. Those can carry diseases. Because killer whales have high levels of PCBs, their immune systems are impaired. Because southern residents have been in a genetic bottleneck for a long time, they're losing the genetic diversity that allows the population to survive an introduced disease.

Mr. Mel Arnold: Thank you.

Aquatic invasive species have been a long-time concern for me, particularly in our interior water systems, especially those that are so important to our salmon stocks. These typically those inland rivers and water systems that sustain our sockeye, the big chinook, and our coho. Those are of course feed species for southern resident killer whales.

As such, Mr. Chair, I'd like to introduce a motion:

That, whereas indigenous recreational and commercial fisheries are highly valued in Canada and whereas invasive species pose a significant threat to native aquatic species, such as salmon, whales, and the habitats that sustain them, and whereas invasive species pose a significant threat to ecosystems, the environment, and economies, I move that the Committee undertake a study to examine the aquatic invasive species component of the Department of Fisheries and Oceans oceans protection program and the objectives of examining the AIS resources and mandate to assess: a) DFO's resources dedicated to preventing and eliminating aquatic invasive species and b) whether such resources are distributed across Canada in an equitable and consistent manner and whether the AIS program has the resources required to be effective in its mandate.

• (1155)

The Chair: Thank you, Mr. Arnold.

Are there any questions?

Mr. Pat Finnigan: Will we have a vote on that motion?

The Chair: Yes. I'm asking if there's any debate.

Mr. Pat Finnigan: Can we have a copy of that motion?

The Chair: I think we circulated it.

Mr. Pat Finnigan: Mr. Chair, I have a point of order. I think every time a motion is presented in this room—I've said it before—it should be done in both official languages, with respect to our government and the way we do things. I ask that in the future, out of respect, we would distribute these motions in both official languages. Thank you.

The Chair: We noticed.

Is there any other discussion on the motion?

All those in favour—

Mr. Fin Donnelly (Port Moody—Coquitlam, NDP): Mr. Chair, you were asking for input or questions.

The Chair: I was, but nobody had their hand up.

Mr. Fin Donnelly: You weren't looking over here.

The Chair: I didn't look your way. I apologize, Mr. Donnelly.

Mr. Fin Donnelly: No worries. Thanks, Mr. Chair.

I don't have any problem with the content; the question is just on the process.

Maybe, Mr. Arnold, you could speak to how long you think the study should be and when you think this should happen. Is there any priority there, or is it just for the committee to determine date and length?

Mr. Mel Arnold: I think because of the urgency that is developing around aquatic invasive species that this should be a priority for the committee. The subcommittee could have a meeting to decide on when to proceed with this study.

We see it with threats to the whales and their feed species and so on. I don't think it's something that should be delayed and put off. Whatever the urgency, the subcommittee could come back to the main committee with a recommendation.

The Chair: Is everyone ready to vote?

(Motion agreed to)

The Chair: That is carried unanimously. Thank you.

On Mr. Finnigan's comment, I would ask that when introducing a motion in the future, people be respectful to have it in both official languages for the members of the committee. Even though I know it's not required, it would be appreciated if everyone could do that.

Go ahead.

Mr. Mel Arnold: Thank you, Mr. Chair.

With respect to the committee, I apologize for not having it in both official languages today. I didn't expect the opportunity to present it today.

The Chair: We'll continue on with your questioning. You have just over four minutes.

Mr. Mel Arnold: I will pass the remaining minutes of my time to Mr. Doherty.

[*Translation*]

Mr. Todd Doherty: Mr. Michaud, I will speak in English.

[*English*]

You mentioned that there is research or collaboration or consultation going on now with the government that includes research, academia and NGOs. In your comments, you didn't mention industry or stakeholders. Are they not being involved in this consultation?

• (1200)

Mr. Robert Michaud: Indeed they are. I mentioned the existence of a group that we call G2T3M, which was set in place about five years ago to explore solutions to reduce the risk of collision, and this has been an amazingly efficient working group. In my comments I stated the existence of that group as an example of how conservation could be conducted.

Mr. Todd Doherty: Okay. I'm sorry. I missed that.

Mr. Robert Michaud: I was saying that on that committee for following the research and conservation issues, academia and NGOs and DFO scientists, or governmental scientists, should join in a purely research and conservation working table to examine and follow up on the priorities, as it is done under COSEWIC, or COSEPAC in French.

Mr. Todd Doherty: Great. Thank you.

Mr. Barrett-Lennard, I have a question for you and others, if they want to quickly add their comments.

Are you aware of any assessments of the impacts or potential impacts of underwater sonar systems operations on southern resident killer whales?

Dr. Lance Barrett-Lennard: No, not specifically on the southern resident killer whale.

Fortunately, in the inner water of their critical habitat as recognized both in the U.S. and Canadian waters, there are no seismic operations, which, like sonar, have a potential impact on the animals. There's no exploration for hydrocarbons in those particular areas. We're more concerned about what the animals may face when they're out off the west coast of Vancouver Island and the west coast of Washington and extending up into Alaska. Certainly in those areas they have potential to encounter military sonar and sounds from seismic operations, and those are of concern but not actively being investigated as impacts on that population.

Mr. Todd Doherty: Thank you.

Mr. Chair, I'd like to see if we can get consensus around the table for the CFB Esquimalt personnel to provide a written response to questions from our committee before our November 1 meeting, where we'll issue drafting instructions for M-154. We submitted our witnesses, including CFB Esquimalt, on October 5. Unfortunately, on October 29 we were called and told that because of the short notice, the CFB Esquimalt folks couldn't appear.

I believe it's important to have representatives from all sources on that point and I think that our CFB Esquimalt forces would have good comments on it, so I'd like to ask if we can draft a letter to them—obviously, from the committee—and seek a response from them before our November 1 meeting.

The Chair: We can certainly try.

Mr. Todd Doherty: I think I have 30 seconds, probably.

The Chair: You have 17.

Mr. Todd Doherty: All right, well, there you go.

Ms. Brown, I have a question regarding the disentanglement teams.

I met with the Newfoundland and Labrador whale release group last week in my office, and I was amazed by the bravery and the commitment involved from groups such as yours and that group, grassroots organizations who are working with industry and going out there to do whatever you can to free the whales. I just want to say thank you for that, as I said to the others. I think it's something that a government, whether it's this government or the future government in 2019, needs to look at investing in so that you can have consistent operations.

That's it.

The Chair: We're now on to Mr. Donnelly for seven minutes or less, please.

Mr. Fin Donnelly: Thank you, Mr. Chair.

I'd like to also thank all five of our witnesses for participating in the study today. I appreciate your testimony.

I want to read out one element of the motion that I want to shape my questions around. It is the first bullet, which is to identify steps that could be taken to better protect and help the recovery of right, beluga, and killer whales.

That's one element. There are other elements that were passed in the motion.

I want to turn my questions initially to the Georgia Strait Alliance. It's great work that GSA has done over the decades.

Ms. Wilhelmson, you mentioned that GSA feels that immediate and bold actions are needed. I want to add that I think we've known about the threats to southern resident killer whales for almost 20 years. They have intensified now to the point that your organization joined with a group of others in January of 2018—which you talked to us about—to really put pressure on the government to take bold and immediate action.

I just want to confirm that the number one issue is for the government to issue an emergency order.

• (1205)

Ms. Christianne Wilhelmson: You've really alluded to the challenge. Since the species was declared “endangered”, we've known exactly what the problems are. The challenge has been the loss of time and the inability of government processes to move quickly, whether it's legal...policies, consultations or bureaucratic processes, which can serve the public, but in this case have not served the whales.

A year ago, my coalition partners and I started talking about the fact that things were getting worse for these animals. I've alluded to the numbers and the decline in this population, which is an incredibly small number of animals. We've reached a point where we needed action right away. An emergency order is a tool under the Species at Risk Act that allows government, when it knows clearly what needs to be done and when the scientists are agreeing on the path forward, to cut through the bureaucratic delays and actually make changes today.

If the government had decided in February of this year, after looking at our letter, it could have done a series of things—which I already mentioned—immediately. We could have had new critical habitat. We could have decreased noise in the Salish Sea. We could have slowed down...all sorts of things.

Yes, the emergency order is the tool by which so much can be done. That is what we put before the government in January of this year. The difference is that there have been many announcements of what the government has wanted to do, and, as a scientist, I think investing in research and monitoring is critical. I'm not opposed to that. However, today it makes no difference for the whales.

In essence, in 2003 the species was declared endangered, and the health of their habitat has only declined in that time. Nothing has changed for the good of these animals in 15 years, and we are running out of time. The emergency order is a powerful tool.

Mr. Fin Donnelly: Thank you for that.

You gave us seven actions. Were they in order of priority? If they weren't, could you submit to the committee the order of priority of those actions, i.e., one through seven? That would be helpful. That's just a directive or a suggestion.

Also, one of the things you talked about was a noisier ocean. The government is also looking at increasing tanker traffic in the Salish Sea. If the Trans Mountain project goes through, we would see an increase of oil tanker traffic in that area.

The government is also looking at marine protected areas. The final report for the national advisory panel on marine protected area standards came out in September. One of the protections they talk about is prohibiting industrial activities such as “oil and gas exploration and exploitation, mining, dumping, and bottom trawling”. That's in this report. I'm not sure if you have had a chance to read that one.

My question is really more about MPAs and whale habitat. It seems that three specific suggestions have been made about food, noise and pollutants. What about critical whale habitat in MPAs? Is there a role they can play?

Ms. Christianne Wilhelmson: There are different tools under marine planning initiatives, and absolutely, there is the ability, if it's a national marine conservation area or another tool, to put in management recommendations and management rules to limit activities that will cause harm to critical habitats.

In the Strait of Georgia, which in Canada includes the critical habitat of the orca, no comprehensive marine planning is occurring. It's the only place in coastal British Columbia that has no comprehensive marine planning. I think it's a real gap in the way we're going about managing critical habitat, because it has the ability in a more holistic way to put in place a variety of different actions that could make the habitat more protected. National marine conservation in particular could be very powerful, because it brings together indigenous leadership as well as our government's leadership and management tools.

I want to make one point clear. For those who don't live in this part of the country, the Salish Sea is one of the noisiest parts of coastal British Columbia. The port of Vancouver is Canada's largest port. All the actions I mentioned have to do with threats that exist currently. Never mind projects that, as you mentioned, are being proposed that will make the Salish Sea noisier and will put at risk more possibilities of pollutants if an oil spill should occur; right now we're not even handling the threats to the orcas from the current commercial activities in the region. I think marine planning, among others, is a powerful tool, but we have to get ahead of the game and start taking some immediate actions.

To your point about the list, my list was not in order of importance, and I will follow up with that order afterwards.

• (1210)

Mr. Fin Donnelly: I think I'm out of time. Thank you very much.

I did have one last question for Dr. Barrett-Lennard on rebuilding chinook stocks, but if there is another round I'll ask at that point.

The Chair: Thank you, Mr. Donnelly.

We'll move back to the government side. Mr. Hardie, you have seven minutes or less, please.

Mr. Ken Hardie (Fleetwood—Port Kells, Lib.): Let's let Mr. Barrett-Lennard speak to his thoughts on rebuilding chinook stocks.

Dr. Lance Barrett-Lennard: As I said in my introduction, I feel that we have to look at both short-term and longer-term solutions. In talking about rebuilding stocks, we're talking about those longer-term solutions.

As Christianne mentioned, we have huge issues right now that create a great sense of urgency—

Mr. Ken Hardie: I'll ask you to be relatively brief, because I do have a number of other questions.

Dr. Lance Barrett-Lennard: I think both governments have put a great deal of effort and money into rebuilding chinook stocks. It's clear it's a very slow, long-term process. Early life history survival of chinook, once they get out of the rivers and into the ocean, is a critical period. Maintaining the quality and the complexity of near-shore and estuarine habitats is one way that's not being sufficiently addressed so far to help those stocks rebuild.

Mr. Ken Hardie: I noticed a couple of online videos lately, one of orcas surf-riding behind a boat, and another of an orca apparently playing with a boat in Tofino Harbour. Are there dangers involved? Are these whales becoming habituated to humans at their own peril?

Dr. Lance Barrett-Lennard: Yes. This certainly happens. The whales are smart animals and humans are smart animals who do lots of things—particularly young humans who imperil themselves—and approaching boats, or coming into proximity of boats, is certainly a risk. As I mentioned, we're seeing substantial evidence of propeller strike wounds on whales, particularly in the northern resident community.

This is another reason, I think, that enforcement of new government regulations on marine mammal regs on approach distances to boats is so important. Keeping the boats well back from the whales so they don't become acclimated and don't learn to play with them is key.

Mr. Ken Hardie: Mr. Bain, do we have any research that shows the impact of what has been described as an exploding population of sea lions and seals? I think you referenced that yourself. Do they compete directly with the southern residents for the chinook and chum?

Mr. David Bain: Yes, they do compete directly, but they also prey on predators of those salmon. They'll eat hake and they'll also eat salmon, so it's not clear what the overall balance would be.

We do have places like the Ballard Locks in Seattle where the pinnipeds find the salmon a lot faster than the salmon find the fish ladder, and they were able to decimate the run there. There are seals that will park at river mouths and eat smolts that are going out to sea. That's encouraged to some degree by humans, because we'll do hatchery releases that bring large numbers of smolts into a small area at the same time. We've also channelized rivers so there's a single opening instead of a wide delta.

• (1215)

Mr. Ken Hardie: I guess the question then becomes whether the time has come for us to consider managing the population of sea lions and seals, or as you suggested earlier, let the transients take care of it in due course.

Mr. David Bain: I think we can let the transients take care of it. I guess the problem from the residents' perspective is that the seal populations were able to grow about 10% a year once they were protected, and killer whale populations only grow about 3% a year, so the seal populations exploded and the transients are slowly catching up.

The nature of transient behaviour is to look for concentrations of pinnipeds, so if the pinnipeds are trying to take advantage of fish coming out of a river mouth, that'll draw transients, which will disperse the seals and eliminate the problem.

Seals are also important for vertical nutrient cycling; they'll take nutrients in depth and bring them up to the surface where they can go back into primary productivity.

Mr. Ken Hardie: Okay, sir. I appreciate that. Thank you.

Ms. Wilhelmson, there was a wonderful story a while back about the impact of reintroducing wolves into Yellowstone Park. From your comments, I take it we may be looking at that wonderful story in reverse. What happens if we lose the southern resident killer whales?

Ms. Christianne Wilhelmson: To be honest, it's hard to imagine. You take the species that has all sorts of impact and you just look at what happens if all its interactions with other species....

I just want to allude a little bit to the previous question, in the sense that we don't know. It's like a ball of yarn. You actually don't know all the interactions of a species or its impacts on an ecosystem sometimes until you try playing around with it, whether by having a species go extinct or by actively removing a marine mammal through culling. It's not something that we support, because you absolutely have no idea how it's going to impact the ecosystem. You could put a dozen scientists in a room who would come up with different scenarios for the impacts of removing an apex predator, but the reality is that it would change the ecosystem completely.

What species would come in to replace the southern resident killer whale if it weren't there? At the end of the day, it's not something we want to imagine. It's not something we want to spend a lot of time talking about. We want to spend more time talking about the immediate actions we need to take today to ensure that we don't have to tell our grandchildren what southern resident killer whales used to do and how they looked.

Mr. Ken Hardie: Thank you.

The Chair: Thank you, Mr. Hardie.

We'll now go back to the Conservative side and Mr. Calkins. You have five minutes.

Mr. Blaine Calkins (Red Deer—Lacombe, CPC): Thank you, Chair.

Mr. Bain, you alluded in your comments to chum and coho also being species of interest to the southern resident killer whales. Is that correct?

Mr. David Bain: Yes.

Mr. Blaine Calkins: Proportionally, their preference will be a chinook salmon, but they'll settle for chum and coho if they can't find the chinook. Would that be a correct statement?

Mr. David Bain: It seems to be a seasonal thing. Most of the year they rely on chinook, but there are times that chinook densities are quite low. It seems that they eat a lot of coho in the Salish Sea in September, and then in October and November they take advantage of the chum run and eat a lot of chum, and then they go back to chinook for the rest of the year.

Mr. Blaine Calkins: Okay.

I'm going to use your first names because some of the last names are a little bit long.

Lance, I'm sure you're aware, and Mr. Bain, I'm sure you're aware as well, of the concept of ocean ranching. In Japan and other countries that have used ocean ranching, some of it's been successful and some of it hasn't been. I'm wondering, as part of the long-term solution, if an ocean ranching approach to dealing with chinook salmon stocks might actually be part of the solution here, by making sure that there's enough food for all the competing interests. Would that help the southern resident killer whales in the long term, should they be able to survive that long?

• (1220)

Mr. David Bain: I don't think ocean ranching's going to be a good solution. Chinook don't do very well in crowded conditions. Also, we've seen from the Atlantic salmon farming that there are a lot of environmental consequences to concentrating fish. Perhaps luring them inland would help meet human needs for fish, but I don't think ranching would be a good idea.

Mr. Blaine Calkins: Are you saying that the southern resident killer whales differentiate between a hatchery coho and a wild coho?

Mr. David Bain: Well, they'll eat what's available. With chinook, it's size that's the big difference. Historically we had chinook that were 150 pounds or 90 pounds, and a lot of the wild chinook now are down to around 30 pounds, with a lot of the hatchery fish returning at only five pounds. A five-pound fish is very different, ecologically, from what a 30-pound or 90-pound fish would be.

Mr. Blaine Calkins: Nevertheless, the same genetics are used in the hatcheries from the rivers where they're reared. We don't take salmon from a different river and hatch them into a different system, do we?

Mr. David Bain: Well, we select on them differently. The first fish back are the ones that get to reproduce. A hatchery chinook does not need to travel hundreds of miles up a river and does not need to defend a redd, so it can put a lot more into egg production and less into commuting. That means it can be a smaller fish that comes back early. It doesn't face the risk of predation that it would if it remained at sea for a couple more years. Chinook happen to be very plastic, and they change with changing conditions. The rules for surviving the hatchery life cycle are different from those of the wild-run cycle.

Mr. Blaine Calkins: Okay. Thank you.

Mr. Barrett-Lennard, we've heard that the population of pinnipeds has exploded tenfold on the Pacific coast. When did that explosion actually occur? What would the historical, typical numbers of pinnipeds on the Pacific coast be?

Dr. Lance Barrett-Lennard: According to the Fisheries and Oceans marine mammal group on Vancouver Island, who are the keepers of this kind of information and have been doing wonderful studies on pinnipeds over the years, the harbour seal populations have rebounded now to something like historic levels throughout the province. After a long series of culls, harbour seal populations have levelled off, and in fact have come down slightly, so the recent news about exploding seal populations is simply wrong. That explosion has taken place; it's over now. Sea lion populations are still increasing at a slow rate.

Mr. Blaine Calkins: Thank you all for coming, and thank you for your passion on this issue.

The Chair: Thank you, Mr. Calkins.

We'll now return to the government side and Mr. Fraser.

Mr. Colin Fraser (West Nova, Lib.): Thanks, Mr. Chair.

[*Translation*]

Thank you all for being here with us today. Your testimony has been very interesting.

I have a few questions for you.

[*English*]

I'll start with you, Dr. Brown.

[*Translation*]

Mr. Michaud, you may answer my question if you wish.

[*English*]

The question is regarding fishing gear in the water being a problem. I'm from western Nova Scotia, so I'm familiar with the issue off southwestern Nova Scotia and in the Bay of Fundy. I'm wondering if you can expand a little bit on your comments about fishing gear being a problem and allude to whether that's "ghost gear" or current fishing gear being left in the water. What is the principal cause of the gear being in the water?

• (1225)

Dr. Moira Brown: Most of the gear we take off entangled whales we find to be actively fishing gear when we are able to trace it back to the fishery that set that gear. Sometimes all we find is just a length of rope, in which case we can't trace it, but there are efforts to recover the gear and find out where it was deployed and if it was actively fished or not. Actively fishing gear is definitely a problem.

Ghost gear is as well. In the case of one whale that was entangled in the Gulf of St. Lawrence this year, the fisherman captaining the boat we were on said that the kind of gear found on the whale hadn't been used for a couple of decades. It is part of the problem, but actively fishing gear is the primary part of the problem.

Mr. Colin Fraser: I see.

[*Translation*]

Mr. Michaud, do you have any comments on that?

[*English*]

Mr. Robert Michaud: One of the challenges we have is the small proportion of the entanglements that are effectively reported.

The current state of the situation with fishermen and entangled whales is likely to push some of the fishermen to under-report those cases. We're facing a very challenging situation in which we need the fishermen to report and to learn more, they need us to develop strategies, and we need enforcement to find solutions, so it's kind of a can of worms. We cannot stress enough that consultation and close collaboration with fishermen are probably the only ways we will ever get a clear portrait of the situation.

The work that Dr. Brown has been doing with her colleagues over the past years is very important. I would just remind people that she is working with a group of actual fishermen. Getting closer to the fishermen is probably getting us closer to a solution.

Mr. Colin Fraser: I agree. Thank you very much for those comments.

Mr. Barrett-Lennard, I'd like to ask you a question. You talked about propeller strikes by boats. I wonder if you could help us understand which boats are the principal cause of boat strikes on whales on the Pacific Coast.

Dr. Lance Barrett-Lennard: Yes, certainly. The propeller wounds that we see on northern resident killer whales, as I mentioned, are consistent with medium-sized vessels. These could be vessels potentially engaged in whale-watching. They could be utility vessels. There's a lot of boat traffic in that area associated with commercial fishing and fish farming.

I didn't mention this, but we also see evidence of blunt force trauma. These are the kinds of injuries that a whale sustains when it's hit by a larger ship. There have certainly been several southern resident killer whales that have died from blunt force trauma, which, we believe, has been associated with ship strikes, and some northerns have as well. Humpback whales and fin whales are also affected, so ship strikes are a bigger problem, I think. This is the take-home message that we realized some years ago.

Mr. Colin Fraser: Thank you for that.

Mr. Bain, you mentioned that ocean warming in that area of the Pacific is a particular concern. I'd like you to expand on how that impacts on the chinook or the whale populations and what we're actually seeing with the temperatures in the water in that area.

Mr. David Bain: I think what happens is that the chinook have parasites and pathogens that they co-evolve with. It's like how if you leave your fish in the refrigerator, it will stay fresh until you're ready to eat it, but if you leave it out where it's warm, then those pathogens start growing faster than the chinook are prepared for and they can debilitate the chinook or kill them before they get back to the spawning grounds. If they kill them at sea, that means they're not available for whales to eat.

We've seen what's known as the blob. It's a very large patch of warm water off the Pacific coast of the U.S. and Canada. In the years when that's been present, salmon survivorship at sea has been very low. That's something we weren't aware was happening in previous years. It's something that may become a lot more common.

We've also had a lot of natural cycles like El Niño and Pacific decadal oscillation, which are known to have impacts on salmon survival. We can go back to tree rings from hundreds of years ago to detect whether salmon returned to the streams near those trees. They suggest salmon populations have fluctuated naturally by, say, a factor of two just due to natural conditions.

What we need to be careful about is that people are going to start seeing a lot more bad years relative to the number of good years than we have in the past.

• (1230)

The Chair: Thank you, Mr. Bain.

Thank you, Mr. Fraser. We went a bit over time on that one.

Now we go to the Conservative Party. Mr. Sopuck, go ahead, please, for five minutes.

Mr. Robert Sopuck (Dauphin—Swan River—Neepawa, CPC): Thanks.

My main concern is the seal issue. I think what I'm seeing here is kind of an orgy of political correctness and an unwillingness to... That's not just to our visitors and guests; it's fairly ubiquitous.

It seems to me that's the elephant in the room, and I didn't mean the elephant seal in the room. I'm going to quote a study that was done in British Columbia by Peter Olesiuk.

He talked about the Puntledge River on Vancouver Island, where three dozen seals—that's 36 seals—killed 10,000 adult chum salmon in the fall spawning run. He was quoted as saying, "They take 60 to 70 chum fry per minute, per seal."

Twenty or 25 years ago, the harbour seal population off the west coast was some 10,000 individuals when there was an active cull going on. Now it's at 105,000. As a biologist myself, I know we always want to say we need more data and we need more information, but at some point, given how critical the status of the chinook salmon is in some of the salmon runs and given some of the southern killer whale populations, this at least needs to be tried. I'm a big fan of adaptive management. You try something, and if it doesn't work, chances are the situation will revert to the original condition.

The seals have exploded both on the east coast and the west coast to levels we've never seen before. It's not just a coincidence that the Atlantic salmon haven't recovered and the cod haven't recovered, and now we're seeing these issues on the west coast.

Mr. Bain, I'd like you to comment on the seal issue and why we're not tackling it head-on.

Mr. David Bain: There are two aspects to the seal issue. The kinds of seals you're talking about are targeting specific runs and taking a high proportion. That's actually a small percentage of the seal population. If you addressed those seals, you would protect those runs, but it would not make a huge difference to overall abundance. A lot of the other seals are eating different things, including predatory fish that eat salmon. It's unclear how those seals do. We could go back to culling and knock the seal population back down, but then we'd be back here talking about the endangered transient population.

If we want to get an ecosystem back in balance, I would recommend harassment of seals that are taking advantage of artificial conditions such as the one you just cited, and allow the transients to increase in number and reduce the pen-fed population in the long term.

Mr. Robert Sopuck: I like the use of your term "balance". When one talks about predator control in any situation, basically it's humans intervening to restore a balance. For example—and I'm going to use a totally different example—in prairie Canada, the landscape has changed so much that waterfowl nesting success is down dramatically, but it has been shown conclusively that removal of nest predators increases nest success from 10% to 80%. We have the issue of the Yellowstone wolves. They were removed, and the elk exploded. As Mr. Hardie pointed out, the reintroduction of the wolves was a good thing. We have study after study that shows how working to restore the balance can work in many situations.

Having said that, one thing I'm not hearing—and I'm sorry I wasn't here for the first part—is what human beings actually want. I think there is such a desire among humans on the west coast for chinook salmon, and all the salmon species, that we should take into account what people actually want in terms of the ecosystem out there.

In the same article I'm looking at, in Scotland, for example, they took three seals out of one river and fishing success went from 1% to 17%.

We have these data points that I think are painting a fairly compelling picture that we need to do something out there, and some active seal management is probably the right thing to do. I don't mean harass them; I mean remove them—not all of them, but reduce them to a number that at least gives salmon a chance.

Could you comment on that, Mr. Bain?

• (1235)

Mr. David Bain: I think harassing is adequate to protect those fish runs.

Mr. Robert Sopuck: Do you have any data to back that up?

Mr. David Bain: Going back to the Ballard Locks, we installed acoustic barriers that kept seals and sea lions away from the fish ladder, and that allowed the fish to successfully enter Lake Washington and spawn in the Sammamish River system.

I think that if we want to have enough fish for everybody, what we really need to do is repairs and restoration.

Mr. Robert Sopuck: Thank you very much.

The Chair: Thank you for that, Mr. Sopuck and Mr. Bain.

Going back now to the government side, we have Mr. Rogers for five minutes.

Mr. Churence Rogers (Bonavista—Burin—Trinity, Lib.): I want to get back to the seal question. I know we're talking about endangered whales and we're talking about the issues on the Pacific coast at this point, but in eastern Canada we have a major problem with seals.

As you are probably well aware, since the early 1990s, I guess, we've been waiting for the return of northern cod stocks in eastern Canada, particularly in Newfoundland and Labrador. Many people in the province believe that seals are the major contributing factor as to why it's been such a long time for these cod stocks to return. I'm just curious about that, because Mr. Sopuck talked about specific numbers in the hundreds of thousands. We're talking about millions of seals. We're talking numbers projected at nine million seals.

I'm just curious, Mr. Bain, if you have any knowledge of that particular part of the country and if you might have some suggestions for eastern Canadians and for DFO on how we deal with that problem.

Mr. David Bain: My knowledge is not as good for that part of the country.

I think we need to keep in mind that there was a long period of sealing and whaling in the Atlantic, and predators on those whales would have had their population severely depleted. If we had been having this discussion a century ago, it would have been the mammal-eating killer whales that we'd be worried about, and to deal with the seals we might have knocked them down too far and would have needed to look for other means in eastern Canada. Sharks are another seal predator, and they'll need time to recover to be efficient in dealing with seals.

Mr. Churence Rogers: The other question I was going to ask was for Moira, and the question was asked earlier.

Some of the fishing organizations and people in eastern Canada also talk about whales. You hear from lobster fishermen and other people about whales not interacting with fishermen in less than 120 feet of water. Some of the groups we've listened to and some of the unions suggest that unless there are whales sighted inside those limits, they shouldn't be interfering with the lobster fishery. What are your thoughts on that again?

Dr. Moira Brown: Those data are going to be looked at. We have data looked at, so we have sighting data for right whales correlated with depth for all over eastern Canada for all of our sightings of right whales. That question came up this summer, and it is going to be looked at in the last week of November during the science advice meeting.

• (1240)

Mr. Churence Rogers: All right. Thank you very much.

Again, on the entanglement piece, Mr. Morrissey mentioned the ghost gear question, of course, and asked that question.

If you listen to some people back in eastern Canada, Ocean Quest and some others talk about a major problem with ghost gear. I realize you said that the majority of the entanglement seems to be the currently active fishing gear, but is there something we should do about that ghost gear problem if that's also a major factor or a factor in causing problems for whales? What should we do?

Dr. Moira Brown: Absolutely. Ghost gear removal is good for whales and it's also good for the fishery, because there aren't pots down there collecting lobsters or other target species that are not going to be brought to the surface, so absolutely, ghost gear removal is a good idea. It has been done in the Bay of Fundy over the last few years over on the western side, and fishermen now notice that they lose less of their gear because there is less ghost gear on the bottom to tangle them up.

Mr. Churence Rogers: Finally, I guess in terms of...

How much time do I have, Mr. Chair?

The Chair: You have 20 seconds.

Mr. Churence Rogers: Concerning vessel strikes, I know there were some complaints from private operators about the speeds for vessels and so on, because it impacted their crossings from central Canada to ports like St. John's, but I guess the success of the past year or so suggests that there might be a future plan for the long term. Would that be correct?

Dr. Moira Brown: Yes. I think the working group came up with a good plan. There were corridors that were identified where vessels could go at normal operational speeds. They were surveyed and they were slowed down about 25% of the time, not due to sightings of whales but actually because two aerial surveys couldn't be completed in a single week.

There is a large static slowdown in the Gulf of St. Lawrence that we can look at and where we can perhaps adjust some of the corners a little bit. We drew a big box, and the corners can be adjusted to allow for ships to be fully operational in those areas while slowing down where the whales are.

I think we have a good solution, and it could be adjusted as we go forward and learn more about right whale distributions.

The Chair: Thank you, Ms. Brown.

Now we go to Mr. Donnelly for three minutes, please.

Mr. Fin Donnelly: Thank you, Mr. Chair.

Dr. Barrett-Lennard, I was finishing my last round of questions about the food ceiling. I think you talked about four main solutions or actions the government could take. One of those related to the food ceiling, and you were talking about chinook and the closure of the sport fishery. Could you talk a little bit more because, obviously that seems like a drastic move, but as Ms. Wilhelmson said, we've not really seen the action the government needs to take for 15 years, at least since the time when the southern resident killer whale was declared endangered. Could you comment a bit more about that?

Also, what solutions does the government need to address? You talked more about the medium to longer term. Is there anything in the immediate term that the government could do to address that issue?

Dr. Lance Barrett-Lennard: Thank you, Mr. Donnelly. Those two questions go together, to my mind.

As far as the sport fishery is concerned, the recommendation last year by scientists in British Columbia was that there be a closing of sport fishing in very specific, well-defined areas in southern British Columbia that are known to be—through very good scientific evidence—prime foraging areas for the southern residents. It wasn't a general fishing closure. It was a seasonal area, a very area-specific closure, and that actually was implemented this summer—not in all of those areas, but in some of them. That was a good first step, I think, in terms of immediate actions that could be taken. It was crazy to be out there and see a hundred sport boats fishing in an area with killer whales moving through it, with the boats trying to fish around the edges.

Our government is pouring millions of dollars into trying to restore this killer whale population, and we're not doing the obvious. We've got to get those fishing boats stopped as direct competition in the immediate term, and I'm glad to see that's been done.

Also, DFO has slot limits on some of the chinook fishery further west in Puget Sound. Sport fishermen can still catch fish, but they have to let the bigger ones go. Those are the ones that are most valuable to the whales. That, I think, is a very good move as well. I'd like to see more coverage in closures of the sport fishery on those southern resident killer whale foraging hot spots. It's the first thing we should be doing. Before we get into arguments about chinook and before we get into arguments about anything else, we should do the thing that's right in front of us and perfectly obvious, as anybody can see, which is to eliminate boats and whales competing for food.

• (1245)

Mr. Fin Donnelly: Thank you.

I think I have a little bit of time. I have a quick question.

Dr. Michaud, you talked about a massive—

The Chair: Your time is up.

That concludes two rounds of questioning. I think we have time to do one three-minute round for each party, if that would be acceptable.

We'll go to the Liberal side. Who's going to go for the first three minutes? Don't take too long to decide, please.

Mr. Morrissey, you have three minutes.

Mr. Robert Morrissey (Egmont, Lib.): Thank you, Chair.

I missed the presentations given by the witnesses, but my question is to whichever of you would choose to answer. As to the whales in the Gulf of St. Lawrence that were killed, those that were identified as ship strikes versus entanglement in gear, was there any analysis done on which occurred first in some situations? Was the entanglement in the gear a result of the animal being harmed by a ship strike?

Dr. Moira Brown: No. There was a necropsy report that was published by the lead veterinarian from the University of Prince Edward Island. There were no whales that were found to have injuries from different human encounters. The two that were entangled did not have any sign of broken bones, and the ones that were struck by ships did not have evidence of entanglement.

Mr. Robert Morrissey: That was conclusive?

Dr. Moira Brown: Yes. Of the 12 dead whales, they were able to do necropsies on seven of them. One was sampled at sea, so it was not conclusive, but they did bring all those carcasses, seven carcasses, ashore—

Mr. Robert Morrissey: Yes, they did an extensive—

Dr. Moira Brown: Yes, and they were able to.... The details, the diagnosis for each whale, are all available in the necropsy report.

Mr. Robert Morrissey: Has there been any documentation done on those animals that died as a result of gear entanglement? I believe you spoke to it earlier, but I wanted to focus on identifying, especially in the Bay of Fundy, whether it is clear whether the entanglement occurred within Canadian waters or U.S. waters. Did it occur in gear off the United States coast versus in the Bay of Fundy?

Dr. Moira Brown: If the entangling lines are recovered from the whale when it's either disentangled or during the necropsy on the beach, if there are sufficient identifying characteristics on the gear... The gear is measured, and the diameter of the rope, and if there are any buoys present and there are any licence numbers on the buoys, every effort is taken to try to track that gear back to the fishery, certainly not for blame but to try to figure out the problem.

In some cases, it's just a length of rope and it's not possible, but the rope that has been collected has been both of Canadian and U.S. origin from a number of different fisheries.

The Chair: Thank you, Mr. Morrissey.

Now we'll go to the Conservative side and Mr. Doherty.

Mr. Todd Doherty: Thank you, Mr. Chair, and thank you to our guests.

Is it safe to say—this is a broad question to our panel—that none of our witnesses are in favour of a predatory, a.k.a. seal, management plan?

Ms. Christianne Wilhelmson: We do not support a seal cull.

Mr. Todd Doherty: Okay—seal management, seal cull.

Do any of the guests on...? That's okay. Fair enough.

Mr. David Bain: I would support harassment of seals to prevent them from taking advantage of human-created bottlenecks, but not lethal removal.

Mr. Todd Doherty: A number of groups, including first nations, are calling on our federal government to allow the harvest of sea lions and our coastal seals. I think our witnesses in some sense are being a little bit disingenuous in terms of their testimony today.

I'm going to move on to something else, because I think we are also missing the point in terms of the pollution issue that has been brought up.

Ms. Wilhelmson, you brought it up earlier on, but you've also said that there wasn't a lot of study that had been done to this point.

Even as recently as July, there were over 340 million litres of raw sewage approved to be dumped into the Ottawa River. We see that time and time again. We know that since 2017, about 215 billion litres of raw sewage has been spilled or leaked. It is the elephant in the room as well, too. I think something has to be done.

What is the issue in terms of studying this? Is it the dilution rate, or is there just an unwillingness from government to take action?

• (1250)

Ms. Christianne Wilhelmson: The issue isn't study. It's something that is studied a great deal. Certainly here in British Columbia at the Coastal Ocean Research Institute, there's a great deal of study that's done on the impact of microplastics and other contaminants on whales.

The reason I didn't focus on it is just because this is not something we can do tomorrow. We can't implement tomorrow action plans on stormwater, wastewater, agricultural runoff and the variety of other sources we know are a problem. That was my only comment.

I do think that here in the west coast we have to complete the upgrade of our wastewater treatment plants to advanced secondary, at the very minimum, faster than planned. I think this is a problem across the country, because our 2012 regulations on wastewater management allowed some communities to wait 30 years before they have to upgrade, and I think that's something we have to look at advancing and investing in. We know what some of the problems are. I do think it's a very complex conversation, and I think we could spend this whole two hours just talking about pollution.

The Chair: Thank you, Mr. Doherty.

Go ahead, Mr. Donnelly, for three minutes.

Mr. Fin Donnelly: Thank you, Mr. Chair, and I'd like to thank all the witnesses for their testimony.

I encourage each of you to look at the motion again, if you haven't already. If you have already submitted your written suggestions to the committee regarding what steps the government could take in terms of responding to this motion, that is great. If you've thought of anything today in this committee meeting, please provide that to us in writing. It would be helpful.

In my final minute and a half, I'd like to ask Mr. Michaud a question.

You talked about the need for a massive injection of funds. Could you elaborate a little bit about what amount you think is necessary? Could you summarize the top three actions that injection of funds could be put toward in dealing with the whales?

Mr. Robert Michaud: I did refer to a massive investment of funds that has been made over the last two years to the OPP, the oceans protection plan. I was not calling for a new massive investment. I was looking at that critically, wondering whether the investments were made in the best places. I was calling for the formation of committees on which would sit academics, DFO scientists and NGOs to direct these massive investments to their best possible use.

Mr. Fin Donnelly: Sorry, Mr. Michaud, could I just clarify something? When you say massive, can you quantify that? Are we talking about hundreds of millions, a billion? You've seen that injection of funds. How effective has that been to change the result for whales on both coasts?

Mr. Robert Michaud: There were two recent massive injections of new funds. One, in the last budget, was \$167 million for the three species, and about a year and a half before that, although I don't remember the numbers, it was much more for the OPP. A lot of that money has been injected very rapidly, with some improvisation on how it would be best spent.

Recently, this summer, there was a \$3-million call for proposals for scientists in university, which was to be spent in the next five years. The call for proposals was done in the middle of the summer, with a delay of about a month.

My comment on the massive investment was that this should not be improvised. We have been waiting for years for such an investment, and unfortunately, this has been done in a precipitate way and with some improvisation. If we have good committees overseeing these investments, we could make much wiser investments.

• (1255)

The Chair: Thank you.

I want to once again thank our witnesses today for appearing by both video conference and teleconference. That's the first time we've had a committee meeting with witnesses where nobody was actually in the room other than committee members.

Thank you for your input and patience. Don't forget that you can submit anything in writing to the committee to be included in the report. Thank you to the committee members.

The meeting is adjourned.

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