

THE STANDING SENATE COMMITTEE ON FISHERIES AND OCEANS

EVIDENCE

OTTAWA, Thursday, March 30, 2017

At this hearing, the [Canadian] Standing Senate Committee on Fisheries and Oceans considered Bill S-203, which included a provision to end the captivity of whales and dolphins. The following is a transcript of the proceedings (lightly edited to correct inaccuracies and remove procedural exchanges).

The Deputy Chair: Good morning. My name is Elizabeth Hubley, a senator from Prince Edward Island, and I am pleased to chair this morning's meeting. Before I give the floor to the witnesses, I would like to invite the members of the committee to introduce themselves, starting to my right.

Senator Enverga: Tobias Enverga, senator from Ontario.

Senator Plett: Senator Don Plett from Manitoba.

Senator Christmas: Good morning. Dan Christmas, Nova Scotia.

Le sénateur Forest : Bon matin. Éric Forest, de la région du Golfe au Québec.

Senator McInnis: Tom McInnis, Nova Scotia.

The Deputy Chair: The committee is continuing its examination of Bill S-203, An Act to amend the Criminal Code and other Acts (ending the captivity of whales and dolphins). We are pleased to welcome Lori Marino, President, The Whale Sanctuary Project; and Hal Whitehead, Professor, Department of Biology, Dalhousie University.

Lori Marino, President, The Whale Sanctuary Project: Good morning, everyone, and thank you for having me here. It's an honour. I have been a marine mammal researcher and an educator for over 25 years. I have studied the educational impact of zoos and aquariums on conservation.

I've been asked to talk to you today about research conducted in facilities in Canada holding captive dolphins and whales. If you indulge me, I would also like to very briefly discuss the educational claims made by these facilities, as both of those are tied in together.

First, the research. I have conducted an extensive analysis of original peer-reviewed research with captive dolphins and whales at both the Vancouver Aquarium and Marineland. I found that there are only five studies done at the Vancouver Aquarium using captive cetaceans that have even a potentially minimal impact on conservation for wild dolphins and whales.

My analysis was conducted using standard search engines and methods used in the scientific community. I also conducted a citation analysis of each paper. A citation analysis is a standard way to measure the impact of a scientific paper. It counts how many other independent authors cite that paper and whether the paper is important to the scientific community.

Here are my results: The number of in-house studies of captive dolphins and whales conducted by the Vancouver Aquarium over a 30-year history is 13. That means that they have published, on average, one paper every 2.3 years. As for the impact of those papers that were published, only five of the 13 were cited more than four times by independent authors. Of those five, the most times any given paper was cited was four.

In other words, over 30 years, the Vancouver Aquarium has conducted only 13 published studies using captive dolphins and whales. Only five of those have been cited more than a few times by the rest of the scientific community. Of those, the citation rate is low.

As for Marineland, which to be fair doesn't tout itself as a research facility, only six research papers were conducted using their captive dolphins and whales over 10 years. Only three have been cited by independent authors, and of those, only one had any relevance to wild cetaceans.

In summary, there is little to no evidence for the claim that either the Vancouver Aquarium or Marineland are conducting research with captive dolphins and whales that has any relevance to the conservation of wild cetaceans. Therefore, if captive cetacean research were to be terminated in Canada tomorrow, the impact on conservation would be negligible at best.

As for education, I have researched and published peer-reviewed papers on the issue of whether seeing these animals in concrete tanks has any educational value. I even provided oral and written testimony on the issue to the U.S. Congress in 2010. I conducted an analysis of several published surveys of professional organizations where the Association of Zoos and Aquariums (AZA) and the Alliance of Marine Mammal Parks and Aquariums, the United States version of CAZA (The Canadian Association of Zoos and Aquariums, if you will, were claiming evidence for learning and attitude change after visits to marine parks. I found that the studies were flawed in methodology, and to date, there is no compelling evidence to support the educational value of marine mammal displays claimed by aquariums and marine parks. Moreover, there is published peer-reviewed research evidence demonstrating that seeing animals on display, along with humans, actually decreases conservation concerns.

In summary, a review of the research output of the Vancouver Aquarium and Marineland does not support the claim that keeping dolphins and whales in captivity is necessary for research and conservation. The Vancouver Aquarium has had 30 years to demonstrate the utility of captive research with these animals and has failed to do that. Moreover, they offer much more potentially substantive experiences through their outreach activities, such as the Great Canadian Shoreline Cleanup, than they ever can do through keeping dolphins and whales in concrete tanks.

Thank you.

The Deputy Chair: Thank you. Mr. Whitehead, please.

Hal Whitehead, Professor, Department of Biology, Dalhousie University, as an individual:

Thank you for inviting me. In addition to being a professor at Dalhousie University, I'm co-chair for marine mammals of COSEWIC, the Committee on the Status of Endangered Wildlife in Canada. I've been studying whales and dolphins in the wild since 1974, with a particular focus on their social structure, culture, populations and conservation.

Fundamentally, we scientists study whales and dolphins to understand their biology as well as to promote conservation. Much of this research is done at sea, often with technologies such as hydrophones, which are underwater microphones; tags; and drones. Usually this research is observational.

There is also research on whales and dolphins in captivity. Much more of the captive research uses manipulative experiments.

Experimental studies tend to be more definitive than observations, but set against this is the unnatural setting of captivity that often makes interpretation of results problematic. This is particularly the case for whales and dolphins as the captive environment is especially unnatural.

As a few examples, captive whales and dolphins live in a space that is less than a millionth – and, in the case of killer whales, less than a billionth – of the area of their natural home ranges. Rather than facing a wide range of living prey, they are typically fed dead fish. These are extremely acoustic animals. That is how they sense their world and communicate. Concrete tanks are debilitating echo chambers.

Whales and dolphins are also extremely social, by some measures more social than we are, and the captive social environment is utterly different from their social life in the wild. These and other factors make much of the research on captive whales and dolphins problematic and have led most scientists not connected to the captivity industry, some philosophers and much of the Canadian public to consider the captivity industry unethical.

Research in captivity has given us lots of interesting insights into the nature of animals, perhaps especially their physiologies and their cognition, although there is continuing uncertainty about how these results refer to animals in the wild. Most important, captive results come from dedicated research facilities, especially those of the U.S. Navy and the University of Hawaii, not from display facilities. Ethical standards for scientific research are tightening, and research that was standard is now no longer considered ethical.

From the perspective of conservation, studies of animals in captivity tend to ask the wrong questions about the wrong species. I looked at reports on the status of three emblematic Canadian

whale species, members of two of which are held in captivity. In the 2015 COSEWIC status report on the endangered St. Lawrence Beluga, about 1.4 percent of the main text of the report refers to captive animals. In the 2011 COSEWIC status report on the endangered Scotian Shelf Bottlenose Whale, there is no mention at all of animals in captivity. In the 2008 COSEWIC status report on the killer whale, including the endangered sudden resident population, about two percent of the main text refers to captive animals. None of these small parts of the reports referring to captivity are vital or even, in my opinion, important when assessing the conservation of these species. Thus, while studies of whales in captivity have given interesting and sometimes academically useful information, their contribution to the conservation of Canadian species has been virtually zero.

Past research on captive animals is being replaced by new techniques in the wild, including experiments. For instance, controlled-exposure experiments on wild animals have given major advances in how we understand the effects of underwater noise on whales. If this bill passes, some animals will still be in captivity for rehabilitation, and there may be rescued animals in semi-captive sanctuaries, both opportunities for gaining knowledge. In addition, computer modelling is replacing some captive animal studies.

So, in summary, if captive displays of whales and dolphins end, our ability to conserve the animals in the wild will be virtually unaffected. Although studies of captive whales and dolphins have informed us about aspects of their biology, much of this information stream can be replaced.

The Deputy Chair: Thank you very much. We'll now move to questions, and our first question is from Senator McInnis.

Senator McInnis: Thank you very much for coming. Mr. Whitehead, how would the computer modeling, which is replacing some of the studies and so on, work? How does it work?

Mr. Whitehead: It works by taking information that we do know and using that to make inferences about the things that we don't know. Because biological systems are typically complex and long linear, this usually cannot be done without a fairly complex model. Computer modelling also can give us an idea of how robust those results are. So, modern computer modelling allows us to take, say, information we have about physiology, about feeding, and gives us inferences about the energetics of the animals that may be important, for instance, in trying to assess the effects of disturbance on them.

Senator McInnis: In your remarks, you stated: "Whales and dolphins are also extremely social, by some measures more social than we are, and the captive social environment is utterly different from their social life in the wild. These and other factors make much of the research on captive whales and dolphins problematic and have led most scientists not connected to the captivity industry, some philosophers and much of the Canadian public to consider the captivity industry unethical."

Further, you said: “Ethical standards for scientific research are tightening, and research that was standard is now no longer considered ethical.” Those are pretty strong statements. How do you feel about mammals that are injured in captivity? Is that unethical?

Mr. Whitehead: Bringing animals that have been injured in the wild into captivity and trying to rehabilitate them I don’t think is unethical, and I think most of the sources that you quoted from me wouldn’t think that is unethical. I would support the continuation of organizations such as the Vancouver Aquarium to help animals that have been injured in the wild.

Senator McInnis: Who sets the standard as to whether it’s ethical or not?

Mr. Whitehead: For research, the standards done at universities are set by the Canadian Council on Animal Care. So, they would govern any research done through a Canadian university. I think those standards are also generally applied to non-university environments. As far as non-research standards, I think Lori can answer that more directly.

Ms. Marino: I think CAZA should, if they don’t, have some say in what is done in captivity, but it really does depend upon whether or not that research is initiated at a university, with a principle investigator who is a faculty member at a university, or someone who is employed by an aquarium or marine park to do the research.

Senator McInnis: I’ll come back on the second round. I was just going to say, Ms. Marino, that you didn’t talk about the Whale Sanctuary Project, which I’m interested in. I’ll come around in the second round.

The Deputy Chair: Senator Plett?

Senator Plett: Thank you. I have a number of questions, so please cut me off at the appropriate time and then I’ll go to the next round. The majority of my questions are for Ms. Marino. First of all, you said you were an educator. What qualifications do you have? Do you have a veterinarian or medicine education?

Ms. Marino: I have a PhD in neuroscience and animal behavior. I have taught at a major research university, Emory University in Atlanta, for 20 years.

Senator Plett: You have not passed any necessary qualifying examines to practice veterinary medicine or marine mammal medicine, you are not a member of that recognized marine mammal organization, and you have never medically treated a marine mammal?

Ms. Marino: I’m not making a claim that I’m medically treating animals. I’m making a claim as an educator, and I have been a professional educator for over 25 years.

Senator Plett: I have an article in front of me, Ms. Marino, from 2016. It shows the results of an investigation that an LA-based organization called Last Chance for Animals. They made a series of false allegations against Marineland based on -- this is according to their organization -- your expert testimony as well as a video that many people believe has been manipulated. The OSPCA, of course, investigated, and they found that these allegations were unfounded after a thorough investigation. The video depicted an emaciated baby beluga calf named Gia separated from her mother and left alone in an isolation pool. People were horrified. I have seen the video.

When the OSPCA followed up on this, they of course found that Gia was a very healthy young whale, swimming around in the pool at Marineland.

I visited Marineland and I saw it. You are listed as the expert opinion for LCA. Are you qualified to treat or diagnose marine animals or mammals?

Ms. Marino: I'm not qualified to diagnose and treat as a veterinarian, but I'm qualified enough to know that an animal is emaciated. I'm qualified to understand when an animal is exhibiting behaviours that are indicative of chronic stress and abnormality as those belugas whales were exhibiting at Marineland. I have studied these animals for 25 years. I am qualified to understand and note what behaviour is healthy and what behaviour is not healthy. The animals in Marineland that I saw, in person, and in those videotapes, were exhibiting unhealthy behaviour.

Senator Plett: So you have visited Marineland?

Ms. Marino: Yes, I have.

Senator Plett: Mr. Whitehead stated that whales are very social. You go beyond that and state that there is abundant, unquestionable evidence for personhood for animals. You also stated that human is the biological term that describes us as a species. Person though is about the kind of beings we are, sentient and conscious. That applies to most animals too. They are persons or should be legally. Is it your belief that most animals should be afforded rights as persons under Canadian law?

Ms. Marino: I'm not here to discuss whether or not any particular species is to be considered a person under Canadian law. However, to answer your question, personhood is not a biological term. It's a term that refers to any organism that has autonomy, self-awareness, emotions, and a life to lead. That certainly describes cetaceans; dolphins and whales. Yes, I do believe that dolphins and whales are persons under that definition.

Senator Plett: First of all, I don't want to get into a battle with you. You are here to discuss the questions that we ask.

Ms. Marino: Yes.

Senator Plett: So when you say you're not here to discuss something that is incorrect.

Ms. Marino: I'm sorry, I just answered you.

Senator Plett: Fair enough. Presently animals are considered property under the Canadian laws and their maintenance and care is the responsibility of their owner. Persons who: "cannot understand relevant information or cannot appreciate what may happen as a result of decisions they make or do not make about their finances, health or personal care, are considered mentally incapacitated by the Province of Ontario. People considered mentally incapacitated have public guardians appointed for them, if they have not previously signed a power of attorney." Ontario is the home to more than 350 whales that you consider to be persons. Would you consider whales to be able to make the decisions about their finances, their health and their personal care? If not, would the cost of providing such care fall on the Province of Ontario if personhood was granted to the whales in the province like you are suggesting?

Ms. Marino: Thank you for your question. Obviously, the idea of finances and matters of that nature aren't relevant to non-human species. However, if all the captive cetaceans in Canada were considered persons and they were represented legally by guardians, then I think that those guardians would have the best interest of the animals at heart.

The idea that a beluga whale cannot understand his or her situation, I think, is an extreme statement, because we have a lot of scientific evidence to tell us that these animals don't thrive in concrete tanks. So, they may not be able to tell us in words that they are not doing well or that they are unhealthy, but they do it with the scientific evidence for their abnormal behaviour, their levels of chronic stress, their unhealthy dispositions and their short lives.

Senator Plett: I find another issue that I read about a little disturbing. That is that the Last Chance for Animals group stated that they had an undercover investigator monitoring the alleged abuse at Marineland in 2015. So they were monitoring this in 2015. They have found, according to them, abuses. The park closed in September of 2015, and nothing was done. They only opened up in the following spring. Nothing was done about this alleged abuse until January 2016. Ironically, that is precisely with the timing of the second reading for this bill in the Senate. So the timeline shows that it would have been a minimum of four to five months after the fact, after they found horrible abuses at Marineland. Do you know why LCA would have chosen not to act immediately if they were concerned about the abuse depicted in the questionable video?

Ms. Marino: Senator Plett, I don't know. I'm not responsible for LCA. Let me just briefly explain what happened. LCA asked me to review some videotapes of the beluga whales at Marineland. They sent me a bunch of videotapes that went from one date to the next. They said just tell us what you see in this videotape. I was not privy to any of the decisions they made as an organization or exactly what was going on in-house in their organization. I was just brought in as an independent observer to tell them what I saw in those videotapes.

What I saw in those videotapes were beluga whales crammed together in tanks much too small for them. I saw beluga whales who were exhibiting abnormal behaviours, stereotypies. I observed female beluga whales with blood coming out of their breasts, which is a sign of infection. This is what I told LCA. That was the extent of my involvement in what they did with that information. So I'm not privy to that information. I don't know the answer. You should ask them.

Senator Plett: Well, if they attend, I most certainly will.

Senator Enverga: Thank you for the presentation. I have a question for both of you relating to research stating that there is no compelling evidence to support the educational value of marine mammals. You mentioned that. I'm wondering what you will tell all those kids, all those people who watch them, watch the magnificence and the beauty of these animals? What are you going to tell them? Don't you think when they watch them that people are sometimes educated visually? That's how they see these animals are so great, such smart animals.

However, don't you think it helps them at least to appreciate our nature more deeply when they see these animals in person?

Ms. Marino: I wish that were true, I really do. However, as an educator, if I have a class of students and I teach them for a whole semester and then ask them, "Did you have a good time or did you learn anything?" and they all raise their hand and I give them all As and they go away, I probably would be fired, and that's exactly what these captive facilities are doing. They are claiming education without any actual substantive evidence.

Sure, people have a good time seeing lots of interesting things and doing novel things. That doesn't make it education. When you actually look at the data or the lack of data for this claim that's continually being made, it just isn't there.

Senator Enverga: Don't you think you could be asking the wrong question there, "Have you had a good time?" What if we asked them "What do you think of these animals? Are they happy or are they in good condition? Do they look good? Do you think we should protect them in the wild?" What if you ask them those questions? What will happen?

Ms. Marino: Those surveys have been done mainly by people in the captivity industry. Generally they take an entrance poll and then an exit poll, so they ask people right after they've seen a show or a display: Do you think that it's important to conserve dolphins and whales? Do you think these animals are happy?

They have just been to a show where they have been told this is important for conservation and these animals are happy, so they parrot that back. But there's absolutely no evidence, no evidence, that that's long-term learning, that that's real attitude change and that it translates into anything that resembles conservation behaviour. So, these types of exit polls are out there, but they have

methodological flaws that make them very dubious as a basis for the educational value claim of these facilities. I wish you were right; I really do. The evidence is just not there.

Senator Enverga: But there's really no concrete evidence to say these people feel bad about this, the students don't appreciate what's being done. Is there any concrete evidence, other than a small portion of maybe a small population?

Ms. Marino: Do you mean people feeling bad about seeing the animals in a concrete tank?

Senator Enverga: No, people thinking it's not good for the animals, that they don't have any educational value.

Ms. Marino: Again, the claim is being made by the captivity industry, not the scientists, like me, who are evaluating that claim. They are making the claim that there's educational value to seeing the dolphin or whale in a concrete tank or in a show, and I am simply saying show me the data. Show me the evidence and I'll go away, but the evidence isn't there.

Senator Enverga: I have personal evidence with my kid who is watching the show.

Ms. Marino: Yes.

Senator Enverga: That's personal evidence. It's concrete evidence.

Ms. Marino: Sure.

Senator Enverga: And they really liked it and they are now curious on how they live in the wild. By the way, my kid is developmentally delayed, but the thing is these kids love the animals there, and I don't think they would even have a chance to see them in the wild if not for this.

Ms. Marino: The question is whether or not that's education or just having a good time. I'm glad that your kids have a good time. I really am, and I hope that they learn something, but singular examples like this don't make evidence.

The fact of the matter is that if you were to take your child to a school and the idea was for your child to learn and that school didn't have any way of evaluating whether or not your child actually learned, you would pull that child out of school immediately, and rightfully so.

I'm saying if you want to make a claim that people have a good time and are excited about seeing the animals, that's one thing. If you want to make a claim that you are actually educating people and that that education is important for the conservation of wild animals, you're making a claim that's in search of evidence.

Senator Enverga: The point is I'm pretty sure my daughters really enjoyed it and they learned a lot. I can see other kids too. Anyway, I will not argue with that too much except that I think it's a plot in some ways.

I have a question for Mr. Whitehead. You told us that concrete tanks are debilitating echo chambers. Is that one of the major reasons why you think whales should not be in captivity?

Mr. Whitehead: The captive environment is completely different to the environment in which I study them at sea and they live their lives at sea. That is one respect, yes.

These animals, the three species I mentioned, the killer whale, the beluga whale, the bowhead whale are extremely vocal animals. In the wild they are making sounds a large part of the time, and that is their primary sense. That is how they see their world.

It isn't a perfect analogy, but for me it would be if I had to live in about half of this room and all the walls were covered with mirrors. That's something of an analogy for what it's like for an acoustic animal to be in a concrete tank where every sound it makes or anything else makes echoes all around.

Senator Enverga: Would you say that if they echo-proofed the walls it would make it better?

Mr. Whitehead: It probably would, yes.

Senator Enverga: You believe that it's the right way to do it, right?

Mr. Whitehead: Well, that is one thing. The other factors are just the size of the tank. That is not going to be changed. You can double its size, but it's still a millionth of what they would normally live. The social life isn't changed. The social environment they're in in that tank is completely different to their social life in the wild, and that social life is vital for those animals.

There are other elements; the feeding too is totally different.

Senator Enverga: But the oceans are changing, right? So it could change any time. Do you think the changes will help them at least? There will always be changes in the ocean and pollution, all types of commercial activities in the ocean. Don't you think it really changes the ecology of the whole place where the whales live? What do you think about that?

Mr. Whitehead: Certainly the ecology of the ocean changes. It changes naturally in very dramatic ways, especially over large time scales. In both the North Atlantic and the North Pacific there have been regime shifts where the whole ocean has switched, and the distribution of species has switched, and the animals out there, including and perhaps especially upper-level predators, like the whales and dolphins, have through evolutionary time developed ways of dealing with this.

Part of that is they have very diverse ways of making a living, which allow them to switch, depending on what's going on.

This provides them a bit of resilience for the changes that we are making in the ocean. So perhaps compared with some other parts of the natural world, they are a little bit more resilient. But the changes that we are now making to the ocean, especially in the medium term, through climate change and in the shorter term through increasing levels of ocean noise, are very concerning to me and to a lot of us who study the animals out there.

Senator Enverga: One last question, please, quickly. I know that it's changing, but you see there is climate change and too much commercial activities around there. Don't you think when a kid looks at this and says, "Look at the whales in Marineland" or something else, don't you think that they say, "These are the animals we want to protect and we want to make sure that we protect our environment for this"? Don't you think it's one of the things that everybody will learn and say, "I love this animal"? I can see that. They're fun and good. They are a great one. "What could I do to protect them in the wild?" They look like they represent all the animals that are roaming in the wild. Don't you think it's something like that? There's some use to it.

Mr. Whitehead: Unlike Dr. Marino, I haven't looked at the research on this. I'd like to say that two alternatives to that educational experience, which I do have familiarity with, are the whale-watching industry, and wildlife films, TV and radio programs. Those have enormous effects on people, and the experiences these are giving people are improving all the time.

A lot of my students are taking classes in this because they were turned on. They went out on a boat – and you can go out on a boat to see whales in the majority of Canadian provinces. Or they saw a CBC or BBC program that got them really interested in this.

Senator Christmas: I'm very impressed with the research you have done on cetaceans.

Dr. Marino, I noticed in your bio that after you did your 2001 study, you decided against undertaking any further research with captive animals. Can you share with us what caused you to make that decision and how your perspective on that applies to the study of this bill and its provisions?

Ms. Marino: For quite a while as a younger scientific professional, I did work with dolphins and whales in captive facilities; that is, in concrete tanks. I studied things like their cognitive development. I was most interested in self-awareness, which is the capacity to know that you exist and that you are you. The paradigm I was using was the mirror self-recognition study, which has been used with great apes, elephants and humans to probe whether a creature recognizes itself in a mirror. If they do, that means "I have a sense of me. There's a me there." That's a cognitive level of self-awareness you're bringing to that table, if you will.

I was working with Gordon Gallup, who was my PhD adviser at the time, who had done the seminal work on mirror self-recognition in primates -- in chimpanzees. It showed they recognize themselves in mirrors. I was interested in seeing whether that could be replicated with bottlenose dolphins, who are also very intelligent, big-brained and highly social, just like chimpanzees.

I conducted a number of studies with Dr. Diana Reiss. The study we did at the New York Aquarium back in the very late 1990s was a study that took two years to do. We were able to replicate the paradigm that is used to probe whether an animal can recognize itself in the mirror. We found definitive evidence that these animals were recognizing themselves in mirrors. We would put spots on them and they would look in the mirror and turn in one direction. I call it the "zit response," because when you wake up in the morning and there's a big pimple on your head, you spend a lot of time in the mirror looking at it, touching it.

We replicated that response in a highly controlled way. We found that these two bottlenose dolphins recognized themselves in mirrors.

At the time, I actually was bombarded with email from animal activists saying, "Now that you know this, what are you going to do about it?" et cetera. I didn't do anything for a while, because I wanted to let the scientific evidence speak for itself. But a couple of years later, I started to really think about what life would be like in a small, concrete tank, going around and around, if you were a self-aware being. I didn't feel very good about what that felt like.

But then what happened is those two young dolphins were transferred to another facility, and they died. They died at young ages. That was just emblematic of what happens to dolphins and whales in captivity: They live short lives, generally.

That hit me hard, and I really began to look into the captivity industry and what happens to dolphins and whales in these facilities. It was not a pretty picture. That led me to make the decision professionally that I didn't want to promote or contribute to the keeping of these animals in these abusive situations by continuing to do research with them. And even though I had the ability to continue to do that work, I decided against it, because I just didn't think it was ethical.

Senator Christmas: In your testimony, you mentioned the lack of scientific value of doing research on captive cetaceans. I'm curious, in contrast to that, the value of scientific work with cetaceans in the wild. I haven't heard much of that work. Is there work going on in Canada and North America about cetaceans in the wild?

Ms. Marino: I will answer very briefly, and then I'll turn it over to somebody who's been doing that work. There's an abundance of work on wild dolphins and whales. In captivity, you can probe what animals can do under certain circumstances. When you do research with wild populations, you learn what they actually do, and that's very different. I'll turn that over to Hal.

Mr. Whitehead: Thank you. Yes, there's a considerable amount of research on cetaceans in the wild around the world and here in Canada. Some of it is looking at what we might call fairly basic things, like numbers. There are surveys done primarily by the Department of Fisheries and Oceans but also by other organizations to count whales and look at their distributions to get an idea of whether they are increasing or decreasing, and how they may interact with our activities in the ocean.

There are also studies that work closely with Aboriginal peoples and Inuit, and especially with the Inuit because they depend quite heavily on some whales and dolphins. In particular the Department of Fisheries and Oceans works with them to assess the populations they are using and a major part of their environment.

Then there are studies that are done with aboriginal and Inuit people, especially the Inuit, because they depend quite heavily on some whales and dolphins. In particular, the Department of Fisheries and Oceans works with them to assess the populations they are using and a major part of their environment.

Then there are studies which, to put it in somewhat grand terms, try and look at the nature of the whale. Of those studies, I would particularly like to emphasize the work done on the killer whales, or orcas, of British Columbia. The studies there are quite remarkable by the studies of any animals anywhere. Through the research of scientists at the Department of Fisheries and Oceans, at the universities in B.C. and elsewhere, at the Vancouver Aquarium and private, small non-governmental research organizations, we have come to know those whales better than almost any other wild animals, and what we have learned is truly remarkable.

These animals lead extraordinary lives. Just to give you a couple of examples, this is one of the two or three examples of true menopause outside of humans, and we're beginning to understand what's going on there, that the older females are, especially in times when resources are poor, taking an increased leadership role. They are really important to the lives of the other killer whales. They found that, if an older female dies, then her son, in his prime breeding age – so take a 30-year-old son – has a roughly doubled rate of dying himself if his mother, who would be in her 50s or 60s, dies. So, we have learned those kinds of things from research in the wild, from people who have spent an enormous amount of time watching the animals, listening to them and getting to know them as individuals living in their natural habitats.

Sorry, I went on a little long, but that's something I really feel pretty strongly about.

Senator Christmas: Thank you. I was curious about the nature of the research on wild animals.

I also want to go back to Senator Enverga's question. I have a 6-year-old daughter as well, who is extremely curious and loves animals. What opportunities or what experiences can I offer my little 6-year-old to enjoy wild cetaceans?

Mr. Whitehead: Well, in Nova Scotia, we have two excellent whale-watching opportunities. They are on opposite ends of the province, so, on the southwest side of Brier Island, Long Island, Digby Neck area, there are substantial whale watching opportunities, with great opportunities to see quite a number of species in their natural environment, with lots of other wonderful wildlife around. So I'd recommend that.

The other is at the other end of Nova Scotia, off of the northern part of Cape Breton, where there's whale watching mainly for pilot whales, and these are really fun whales to watch. I have students working with the whale watching industry there, and that's a really successful, small-scale industry. It has provided, I think, some wonderful experiences for a lot of Nova Scotian youngsters, older people and people from around the world.

Senator Christmas: I'm familiar with those opportunities, and one of the wonderful things I see is that it not only provides a real-life experience but also a source of income for individuals who are in rural areas, who allow ecotourism opportunities to grow and flourish. The economic benefits of ecotourism are huge in rural areas, and to see the emphasis now on allowing visitors and people who are curious about these animals in the wild to go out and actually see them, experience them, is incredible.

I wanted to get that on the record, that there's also a great opportunity to experience these animals in the wild, and ecotourism benefits enormously rural areas.

Senator Sinclair: I arrived a little late, so I didn't have a chance to introduce myself. I'm Senator Murray Sinclair from Manitoba.

I want to thank you, Ms. Marino, for the research paper that you have done and the presentation you gave. All of us on this committee, I think, have been bombarded by emails organized by a campaign from the Vancouver Aquarium in which they allege that they have been doing some very significant research. Now I have a response to all of those emails, and I thank you for that.

I wanted to ask you, though: The paper that you presented and the presentation you gave us talking about the impact of research conducted at Vancouver and Marineland Aquariums was pretty focused on those two, but, generally, I wonder if you could talk about captivity research around the world. Is captivity research around the world a matter of some significance that we should also consider?

Ms. Marino: Thank you for your question. The question about the generalizability of my findings with the Marineland and Vancouver Aquariums is that there really isn't a lot of research being done with captive animals that gets into the scientific literature and that, therefore, has an impact upon our understanding of these animals. Certainly, I wanted to make sort of a clarification that, in my view, the Vancouver Aquarium is doing fabulous research with wild animals.

The work that they are doing with wild animals is excellent. It's substantive. It gets into the peer-reviewed literature. There's a lot of it and so forth. This is not necessarily about an indictment of the entire research effort at Vancouver Aquarium. It is a simple statement of fact about the fact that, in terms of their captive population, their scientific contribution is virtually nil.

Most certainly, I think a recent report – and I'm sorry I can't remember exactly; oh, I think it was done by someone in the AZA, the American version of CAZA, showing that a small percentage of research done with dolphins and whales is done with captive animals anyway. So we're really talking about a tiny, tiny proportion of what's done anywhere in the world. That's a long-winded answer to say that, yes, there's not a whole lot of captive work being done that actually makes a difference.

Senator Sinclair: It seems to me that one can't discount totally the benefit of research on captive animals, though, because you yourself talked about the research that you did, which is obviously an enlightening piece of work.

But, in addition to that, it appears to me that, at the very least, research on wild animals in captivity, who are otherwise healthy, has certainly shown that putting them into captivity makes them unhealthy.

Ms. Marino: Yes.

Senator Sinclair: And I wanted to know if you had any comment about research that shows the negative impact of taking a healthy wild animal into captivity, such as cetaceans.

Ms. Marino: Sure. It is absolutely the case that we have learned quite a bit about cognition, intelligence, self-awareness in dolphins and whales from studies in captivity. A lot of the work was done in Hawaii by the late Dr. Lou Herman. So, yes, we do know something about the cognition and the intelligence level and the self-awareness level of these animals from experiments.

What we have learned is that they are the type of animal that cannot thrive in a concrete tank. We have learned that, and, if we want to respond to that, then the idea is not to continue to keep them in concrete tanks but to do better by them. The evidence is building that animals, wild animals like dolphins and whales, who are kept in displays, exhibit all kinds of abnormal behaviours, like stereotypies, repetitive behaviours, going back and forth with the head, etc. It's something you see in humans all the time when they are emotionally disturbed and chronically stressed. We see this in dolphins and whales in concrete tanks all the time. We see them dying of infections that indicate or suggest that their immune systems are going down due to the chronic stress of living for years in a concrete tank.

It is interesting that it is not just the individuals who have been taken from the wild and put into a captive environment. It's individuals who were born in captivity. Even those dolphins and whales

who were born in concrete tanks suffer the same problems as those who were taken from the wild. To me what that says is the very nature of this animal is not compatible with living in a concrete tank.

Senator Sinclair: From the letter-writing campaign that's been going on, it's obvious to me that members of the public have been led to believe that this proposed bill bans all research, and bans even the taking of animals that are in distress or injured into captivity and it doesn't do that at all.

Ms. Marino: No.

Senator Sinclair: You're aware of that?

Ms. Marino: Yes.

Senator Sinclair: I have to admit that I don't know the research in this area. If an animal has been injured and taken into captivity because of the injury and is able to be rehabilitated, is it conceivable they can be released back into the wild, or do they have to stay in captivity?

Ms. Marino: No, it has to be taken on a case-by-case basis. There is no blanket statement to say that when an animal is injured in the wild or sick in the wild, taken into captivity, rehabilitated, that they cannot then go back out and be re-released. It depends on the animal's age, what the problem was to begin with, whether you can find the natal group. There have been many reintroductions to the wild that have been successful. It really depends upon the individual circumstances, yes.

Le sénateur Forest : Je vous remercie beaucoup de votre présentation.

Je viens de Rimouski qui est un milieu où beaucoup de vos collègues font des études sur le béluga où il y a l'Institut des sciences de la mer.

Il est clair que, dans un monde idéal, il ne devrait pas y avoir d'individus dans des hôpitaux, il ne devrait pas y avoir des animaux en captivité et l'on devrait vivre dans un monde non pollué où l'homme ne détruirait pas l'habitat naturel des animaux; c'est ce qu'on souhaiterait tous. Maintenant, on ne vit malheureusement pas dans un monde idéal. Lorsque des centres comme Marineland ou l'aquarium de Vancouver prétendent éduquer les gens; il faut faire la différence entre éducation et sensibilisation. Se connaître, c'est d'apprendre à s'approprier à se respecter à ses propos. C'est avec l'éducation que de jeunes enfants peuvent découvrir certaines espèces d'animaux; cela amène une forme d'admiration, mais aussi de respect, donc cela augmente le niveau de respect de l'individu dans certains cas, cela n'a aucun impact, bien sûr, mais dans d'autres cas, cela peut être quand même un avantage positif. Un des éléments que je retiens, et votre argumentation en fait part, c'est le fait que les cétacés compte tenu de leur sens aigu acoustique souffrent particulièrement des conditions actuelles de captivité. Il y a deux cas; la question que je me pose, y a-t-il une forme de compromis, parce que nous avons entendu plusieurs témoins, dont l'association des zoos et des aquariums AZAC qui inspecte ses membres. D'après vous, y aurait-il des

compromis qui pourraient être faits pour amoindrir les inconvénients de certains individus, comme les cétaqués, les dauphins ou autres, qui pour certaines raisons sont maintenus en captivité; ils auraient été recueillis parce qu'ils auraient été blessés ou pour une autre raison. Pourrions-nous, compte tenu de vos connaissances et de votre expertise, arriver à trouver des conditions et des normes qui permettraient à ces individus d'avoir des conditions de captivité acceptables, pas idéales, mais acceptables, un peu comme on a des individus, des êtres humains, qui sont placés dans des centres pour gens ayant une maladie chronique et qui y passent leur vie. Pourrions-nous améliorer l'acoustique des bassins de béton? Pourrions-nous examiner les normes; avez-vous fait une analyse par exemple. Je suis préoccupé par l'AZAC qui inspecte ses propres membres; est-ce que vous avez fait l'analyse des normes qui sont exigées par cette organisation? Est-ce que ces normes vous apparaissent pertinentes ou trop permissives?

Ms. Marino: I didn't hear the whole part of the last part.

Mr. Whitehead: You are the one who should answer this. The question was about the standards that CAZA has for its self-inspections of the facilities. Are they too loose? The earlier part of the question was is there some intermediate we can use? I think again, Ms. Marino is the person to answer that.

Ms. Marino: So I think that the scientific evidence is there that dolphins and whales don't thrive in facilities where they are kept in concrete tanks. As a body of professional accreditation, CAZA has a responsibility to look at the science and to see what the science says about the animals that they are regulating or caring for, so yes.

In response to the issue of whether there is an intermediate, there most definitely is. The intermediate is to create sea-side sanctuaries for those animals and to move them into natural water, where they can experience the natural rhythms of the ocean, the diversity of an ocean environment, where they have orders of magnitude more space, more depth, and can live out their lives in the best way that they can, given that they probably cannot be just dumped back into the ocean, as it were. So with a sea-side sanctuary, what you have is the best of both worlds. You have the ability to care for the animals with the same level of veterinary expertise that you would have at any facility; Vancouver Aquarium, et cetera, but you are doing your best for the animals. You're providing a life that gives them back a little bit of what was taken when they were put into a concrete tank.

It provides an educational experience for people who can see the animals in the ocean and can understand why they are in a sanctuary, why they are not in concrete tanks, and why they can't go back out to the wild, what their histories have been. To me, that is the clear response to the issues that we're talking about here today. It has been done with elephants and great apes and big cats and so forth. It can be done with dolphins and whales. The answer is really sea-side sanctuaries, which can provide all of the kinds of visitor experiences that you would like to have.

Le sénateur Forest : Il est clair que dans mon coin de pays, dans l'estuaire du Saint-Laurent, il y a beaucoup d'observation des bélugas. Cependant, où il y a de l'homme, il y a de « l'hommerie ». Des normes sont nécessaires parce qu'on s'est aperçu que certains bateaux passaient pratiquement sur le dos des grandes baleines et des bélugas, surtout à l'embouchure du Saguenay, d'où la nécessité de s'assurer que les normes régissant l'activité correspondent au mieux-être des animaux concernés.

Vous avez démontré avec pertinence que même si les recherches effectuées étaient bien documentées, elles étaient très peu utilisées sur le plan de la recherche sur les cétacés, quant aux individus en captivité.

Est-ce que d'autres types de recherche ont été effectués sur des groupes de cétacés en captivité et qui ont servi à des fins scientifiques autres qu'à la recherche visant l'analyse du comportement ou de l'état des cétacés en captivité? Est-ce que, par le biais d'autres avenues scientifiques, des recherches sur ces animaux auraient servi à d'autres fins?

Ms. Marino: I did not hear any of that through this. I'm sorry.

Mr. Whitehead: I think I can answer. There has been research on a number of areas of biology focused on whales in captivity. In addition to the cognitive aspects that Lori mentioned, there has been quite a lot of work on physiology, and the facilities run by the U.S. Navy particularly in San Diego have been pretty productive in that area.

You mentioned behaviour. There have been studies of behaviour in the wild, but behaviour is what I specialize in. In general, I find it not very useful in interpreting what is going on in the wild because the setting is so very different.

For instance, there have been studies showing patterns of dominance among the whales in a tank, but when we look at animals in the wild we don't see those. That may be because if you put animals in a tank it really changes the nature of the social relationships.

Given that there have been studies on behaviour in tanks, which have greatly intrigued me, and obviously this study Lori did on self-awareness was a particularly important example, but I have long been intrigued with descriptions of studies of dolphins in tanks imitating vacuum cleaners. I'm interested in social learning and how the animals learn and some of these observations of captive animals have been pretty intriguing. But how they relate to the animals in the wild, I'm not sure.

Le sénateur Forest : On sait que le domaine des cétacés en captivité est très spécifique, mais quelles sont les meilleures pratiques dans le monde? Je pense à des centres comme l'Ocean Centre à Monterey. Concernant toute la pratique liée aux cétacés en captivité, est-ce qu'il y a des endroits qui sont cités en exemple? Au-delà de l'hypothèse d'avoir des sanctuaires, est-ce qu'il existe des modèles desquels on devrait s'inspirer?

Ms. Marino: The question gets to the heart of the matter.

Senator Forest: You understand?

Ms. Marino: Yes, I do. The question has to do with are there any facilities that hold captive dolphins and whales currently that are doing it right and that should be held up as a gold standard?

The answer is that, one, there is a great deal of variability across the world, obviously; two, that the answer presupposes that there is a way to do it right, by keeping these animals in concrete tanks.

We are talking about good intentions here; we're talking about these aquariums and the veterinarians who work with them and the trainers who work with them wanting to do the best by the animals. That doesn't mean they can. The reason is because there is a fundamental incompatibility between who dolphins and whales are and what they are afforded in a concrete tank. You cannot make a concrete tank deep enough or big enough, in any reasonable sense, to meet their needs. You cannot provide the kinds of social interactions that they would normally have in the wild to meet their needs. You cannot give them the challenges that they would normally have in a diverse, wild environment to meet their needs. You're feeding them dead fish, in many cases you're forcing them to do behaviours that they have to do, just to get reinforced.

So the answer is no. The answer is that there are just some animals that can't thrive in these kinds of environments. We should just acknowledge that. We know this is the case for elephants as well for very similar reasons.

It's not a matter of not wanting to do the best thing; it's just a question of whether you can fit a square peg in a round hole. It just doesn't work.

Senator Raine: Thank you very much. It has been very interesting. My question is for Dr. Marino. Your bio says you are with the Whale Sanctuary Project. We still haven't heard exactly what the Whale Sanctuary Project is. If you could expand on that, I would appreciate it.

Ms. Marino: I'm the President and co-founder of the Whale Sanctuary Project. This is a project that was started last year. It's a non-profit organization. Our mission is simply to create a seaside sanctuary for dolphins and whales that are now in concrete tanks.

We have over 45 professional advisers on our team, including Dr. Whitehead. We have veterinarians, marine mammal scientists, engineers, and what I would consider to be a gold standard team around the world coming together to create something that doesn't exist right now, and that is a seaside sanctuary for dolphins and whales who can then live out their lives in an environment that is as close as possible to what they should have been living in in the first place.

We are well on our way to finding a site for that sanctuary somewhere on either the west or east coast of North America, including Canada. We hope to have the first sanctuary built by 2019.

Senator McInnis: It's right on the sanctuary. Who will fund this? How are they corralled? Have you visited Nova Scotia?

Ms. Marino: I've been to Nova Scotia twice.

Senator McInnis: The waters are cold.

Ms. Marino: I love Nova Scotia. It's beautiful. I've been up and down the eastern and southern coast. I have seen many sites there. There are six sites that we are now considering in Nova Scotia. We have met with First Nations people there. We have met with members of DFO. They have all been very enthusiastic, encouraging and supportive of siting the sanctuary there, particularly because a sanctuary will bring a lot of revenue to a community, wherever that community is, a local community. So it's just a win-win for everyone.

We're also looking on the B.C. coast and in Washington State. And again, everywhere we go, people want this in their province or in their state. What we are doing is looking at all of the data, all of the scientific data on the environmental impact, all of the regulations, just doing our homework on that to come up with a site that is the best site, not only for the animals but for the community and the province.

So, yes, I've been to Nova Scotia. I've been very fortunate. Beautiful coast.

Senator McInnis: How will it be funded?

Ms. Marino: Oh, I'm sorry. The funding will come mainly from private funders. We have a major donor right now in addition to other donors. Our major donor is Munchkin Corporation. They are a baby products company in California. The CEO, Steven Dunn, says that he went to see orcas in concrete tanks one time. Then he had an MRI in a magnetic resonance imaging scanner. He went into the scanner and he came out, and he was driving home and he thought, "Oh, my gosh; this is how these animals must feel in a concrete tank." He wants to see them have a better life. He has devoted a lot of his time to doing this. He has given us money to continue to develop our project. He has pledged over a million dollars. He will be helping us for the fundraising.

Senator Plett: I will try to be brief with my few comments and questions. First, I think we should clarify that these animals are not in tanks. They are in possibly concrete pools, but they are outside; they are not in a room like this. They have the ability to swim outside and look at the open skies, both at Marineland and Vancouver Aquarium. The reference to concrete tank is not correct, and I think that should be on the record. You may be right that maybe you can't go deep enough and big enough. I can't argue that with you because I'm not a professional there, but they do have open skies to look at. That isn't my question.

Ms. Marino, you mentioned that nobody has given you evidence. Well, Dr. Michael Noonan is a professor of animal behaviour and an independent academic who has studied beluga whales at Marineland for over 20 years. He will be coming here so we will ask him questions, but I would like you to comment on this. He is not employed by Marineland, but he says that “of all the animals in captivity, cetaceans fare among the best.” He also told me personally when I asked him the question that there is no evidence he sees that these whales, the belugas and dolphins, are not happy. He says he can’t talk to them. Contrary to you, he does not believe they are people that he can communicate with on a personal basis.

Ms. Marino: Excuse me; I don’t believe they are people either.

Senator Plett: Let me finish, please. The chair asked me to finish and then you can answer all of my questions and comments. In light of time, I want to do that.

Ms. Marino: Sure.

Senator Plett: Second to that, Dr. Michael Kinzel, a zoo pathologist and program director at the University of Illinois said, when asked about freeing marine mammals from human care:

I don’t know that those individual animals in the wild would be any better served by us being ignorant of their condition or their medicine and their diseases and things that we are gaining from keeping these animals in captivity that are applicable to animals in the wild. Should we ever wish to, for example, intervene in a disease outbreak in one of these free-ranging species without any knowledge of how to treat what the expression of the disease is, what the efficacy of the treatment would be, these are all things that come from our experiences. In the wild, you would be entering into a situation where you are trying to intervene with complete ignorance behind you instead of a toolbox full of experience that affords a cogent way forward.

Lastly, very quickly, the fact that you believe in the personhood of these animals, what is your opinion of the killing of whales in the Arctic when the local people do that there for their livelihood?

Ms. Marino: Thank you. My personal opinion about subsistence whaling is very different from what it is in terms of keeping these animals in concrete tanks for entertainment. People have to make a living, they have to eat, they have to feed their families, and it’s not for me to say whether subsistence whaling is right or wrong. That is a completely separate issue.

I’m going to turn to the disease issue. The question seems to imply that somehow, if we don’t do research on captive animals, if there is a disease outbreak in the wild, we’re going to be caught off guard. But I just want to remind you of the fact that there is hardly any evidence being done anyway on captive animals and disease processes, let alone the movement of those data into the

conservation realm. The data are just not there. They are just not doing it. Vancouver Aquarium has had over 30 years to do this kind of research and they are not doing it.

Now, if you want to study disease in a wild population, I agree, that's really important, so study it in the wild population. Do what you need to do. But the evidence suggests that there is no reason to have animals in concrete tanks in order to respond to these kinds of wild population issues.

Dr. Noonan is a colleague of mine, and of course he would say that these animals are doing well because he makes his living on doing research with these animals. I'm going to ...

Senator Plett: You make yours on the opposite.

Ms. Marino: No, I don't. I don't make my living on it. I stopped doing that research. Dr. Noonan has done a lot of research with the animals at Marineland. Most of it is unpublished. His students do research in that area, so yes, I would hardly consider him an unbiased opinion about whether or not those animals should be kept in tanks.

And finally, they are concrete tanks; let's face it. I mean, whether they are made of concrete or some other substance, what matters to a dolphin and a whale is not available in these display facilities. What matters to them is the ability to travel long distances; they can't do that. What matters to them is the ability to dive deep; can't do that.

So yes, they may be able to look at the sky, I can see that, but that is far from what makes life worth living for an animal that dives in the wild sometimes for minutes at a time and can travel 100 miles a day. So yes, I can see that, but the two most important parts of what makes life worth living are not there.

Senator Plett: Don't misrepresent it, though, and say they are tanks. They are not tanks.

Ms. Marino: What are they?

Senator Plett: I'm a contractor; I know what a tank is. A tank is closed all the way around. This is not, so don't misrepresent what --

Ms. Marino: Okay, they are concrete pools that do not allow them to dive or travel.

The Deputy Chair: Thank you, Senator Plett. Senator Enverga, please.

Ms. Marino: The same holds for concrete pools.

Senator Enverga: Thank you, chair. We can call it a concrete habitat.

Ms. Marino: Concrete, I wouldn't even say habitat, but that's okay.

Senator Enverga: My question is with regard to the seaside sanctuary. I expect you are going to be putting iron bars or cables around it. If that's the case, don't you think it will ruin the ecosystem of the whole area where you're going to be putting the sanctuary? What's going to be happening is that in the natural world, whales go in and out of the system; but now this time, with the seaside sanctuary, they will be there forever. Don't you think it will affect the ecosystem of wherever you're going to put it?

At the same time, it's going to be like any other fish pens or aquaculture. It's going to be like that. Don't you think we will create more problems with our environment by putting in a seaside sanctuary?

Ms. Marino: Thanks for your questions. Sanctuary, in our view, would be created by putting nets across land masses or constructing a barrier from nets. This has been done before, many times, on a temporary basis, and this would be done on a permanent basis.

The amount of space and the depth of space that any resident of that sanctuary would be afforded would be orders of magnitude greater than what any captive animal is currently afforded. We're looking at at least 65 square acres, we're looking at at least 15 metres deep, and we're looking at providing the diversity that comes with being in a natural environment; fish can swim in and out, they have rocks on the bottom, and so forth.

Is it ideal? No. These animals should be living where they evolved, in the natural environment; but they are not, and what we are trying to do is the best for them. The best for them at this point, given that they cannot just be dumped back into the ocean, is to provide more of what they need to thrive.

In terms of aquaculture, yes, we are very concerned about that. We are working with local communities, stakeholders, First Nations people and so forth to make sure that whatever we do and wherever we do it, we're not having a negative impact on aquaculture. Again, as I said, we have a team of 45 professionals who are hard at work at this, looking at the various criteria and making sure that the kinds of concerns that you bring up, which are good concerns, are addressed.

Again, as I mentioned, we are not only addressing the possible risks but also the positive aspects that this brings to a local community. We will need people to build this, to work there, to be involved, and we hope this is a place that people can take pride in, wherever it ends up.

Senator Sinclair: The amendment to the Criminal Code that's proposed by this legislation is under the animal cruelty provisions of the Criminal Code. So I wanted to ask if you have an opinion or wished to share with us your thoughts with regard to the question of whether you think that taking whales, dolphins and other cetaceans from the wild, who are otherwise healthy, and placing them into overly small pens and holding facilities, subjecting them to ineffective research, or solely

for international trade or display or captive breeding programs, amounts to cruelty or not. Without expressing an opinion on law, just generally, what do you think of that?

Ms. Marino: The scientific evidence is clear. My opinion is not really relevant. The scientific evidence tells us that it is cruelty because these animals suffer from, again, abnormalities in behaviour and physiology that are indicative of chronic stress, immune system dysfunction, and they generally live shorter lives in these facilities. So the evidence is pretty clear.

Mr. Whitehead: One thing that I haven't mentioned is that a lot of my recent research has been on the importance of culture for whales and dolphins, and I published a book a couple of years ago on this.

I believe that the evidence is showing that these are not only very social animals but also very cultural animals. So what they learn from the other members of their societies is vital for how they live their lives and how they make their living and for what they are.

When we place these animals in whatever you call them, we are depriving them of that society. We are depriving them of that cultural milieu which is how they live their lives, and I think that perhaps that gives us a link to your recent great work.

Senator Sinclair: Thank you.

The Deputy Chair: On behalf of the members of the Standing Senate Committee on Fisheries and Oceans, I'd like to thank both of you for being here today and for sharing your perspective on this very important subject. Thank you.

Ms. Marino: Thank you very much.

The Deputy Chair: The meeting is adjourned.

(The committee adjourned.)