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Chair

Mr. Rodney Weston

Standing Committee on Fisheries and Oceans

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● (1530)

[*English*]

The Chair (Mr. Rodney Weston (Saint John, CPC)): I call this meeting to order.

I'd like to thank our guests for joining us here today. We appreciate your taking the time out of your busy schedules to meet with the committee to share some of your thoughts.

Mr. Gillis, I believe you have a presentation you're going to make. I believe committee members all have a copy. Mr. Gillis, I'd ask that you introduce your associates who are with you and then begin your presentation. Whenever you want to begin, the floor is yours.

Mr. David Gillis (Director General, Ecosystems and Oceans Science Sector, Department of Fisheries and Oceans): Absolutely, thank you.

Thank you very much, Chair and committee. We're very pleased to be here today.

You'll see that there are three of us, and there's a reason each of us is here. With me is Dr. Michelle Wheatley, regional director of science in the department's central and Arctic region, which includes the Great Lakes basin. We know that's a focus of your questions today. From the science perspective, Michelle will be able to cover those points.

Also with me today is David Burden, who is the regional director general for the central and Arctic region, and as such, he has overall general responsibility for the department's programs in that region.

My name, of course, is Dave Gillis, and I'm the director general for ecosystems science. I have overall national responsibility for the science program related to aquatic invasive species. We are pleased to be here.

Aquatic invasive species is an important element for us. The protection, prevention, and, if necessary, management of these species is an important element of a healthy ecosystem, so it is an important part of the puzzle for us.

As you mentioned, we have a presentation. We've organized it to go from a broad picture to a picture that will focus on the Great Lakes, which I believe would suit your purpose. Along the journey, we're going to start by making clear some definitions and what it is we're talking about when we're talking about aquatic invasive species, what they are, and how they get to us.

I'll give a little bit of the history of the program in the Department of Fisheries and Oceans related to AIS and a quick overview of the current elements of our program. With that as background, we'll then focus on the Great Lakes and speak more specifically about AIS in the Great Lakes context.

I'll move along fairly quickly, Mr. Chair, and then we can have the most time for dialogue.

We're introducing a couple of terms: aquatic invasive species, or AIS; and non-indigenous species, or NIS. We will be talking a little about both.

Non-indigenous species and AIS are similar in that they are species that are not native to the area you find them in. But they are different in the sense that AIS, aquatic invasive species, are those we consider to be causing harm and disruption to the ecosystem. A non-indigenous species may simply exist in the ecosystem—it could be an ornamental species, for instance—that doesn't cause particular harm to the ecosystem, either ecologically or economically.

Having said that, it's not black and white. It's actually a spectrum. It's a matter of risk evaluation, which we will talk quite a bit about in the AIS context today in terms of whether something is non-indigenous or is considered invasive.

I have a few visuals of some of the species we will mention today. We have tunicate species, smallmouth bass, green crab, round goby, zebra mussels, and sea lamprey. These are just a selection of the species we consider to be invasive.

The ecological impact of these varies and is very much dependent on the biology of the animal and how it interacts with its ecosystem and with some of the other uses of the ecosystem, which can cause it to have a negative impact.

Invasive species can come to be an issue for us in a number of ways. They reach us in different ways. Shipping can be a large one, especially, obviously, for the aquatics, which is where our department focuses its efforts. These are regulated by Transport Canada. We'll talk a little further about that in a second.

Obviously, ballast water and attachment to the ships themselves through biofouling are several ways this vector can bring invasive species to us. Similarly, with recreational commercial boating, just moving a recreational boat from one lake to another or from one part of the country to another can accidentally introduce a species where it hadn't been before.

Live trade is another interesting vector, and it can be expressed in several ways. Fishermen use live bait. They may want to move it from one area to another, and then when they're done, they release the bait, maybe without thinking that it could be an invasive species in that ecosystem.

● (1535)

There's also the aquarium trade, the water garden trade, where live plants and animals are brought in for ornamental purposes, and live food fish in markets in our major cities, in particular. This is maybe not one that immediately comes to mind, but there's the biological supply for educational purposes. There are companies that provide animals, some of them live or viable, and if this is not watched, it can be a vector as well.

Of course, we sometimes have wilful, unauthorized introductions of fish into a lake or waterway. Certainly, we see this in smallmouth bass that we'll be mentioning again. Changes in water courses, the establishment of canals and water diversions, cause water to flow where it wouldn't normally. This is obviously an important vector, or it can be for aquatic species as well.

I mentioned shipping and Transport Canada. Our role is to provide advice to Transport Canada on how they can better manage and use shipping regulations to reduce the likelihood that there is going to be an introduction as a result of things like ballast water. Our work with them has been quite successful. We've recently done studies to show that improved regulations have reduced the risk of ballast-water-mediated introductions of species into the Great Lakes. So I think it's a case in point where advice and follow-up management can make a difference.

Turning to the next slide, we're talking a little about the history of the aquatic invasive species program at the Department of Fisheries and Oceans. I'm starting with 2002, but our activities in AIS go further back than that. The sea lamprey program, which I know is of interest to the committee, started in 1955, and activities of various types have been going on. More recently, in 2002, the Canadian Council of Fisheries and Aquaculture Ministers developed an AIS task group. Under their auspices, a Canadian action plan to address the risk of aquatic invasive species was developed. It was approved by the council in 2004 and serves as the basis to guide discussions and program aid at all levels in relation to AIS.

DFO was provided with funding to establish a general AIS program in 2005. That funding was B-based initially; it was renewed, and has been on an ongoing basis since 2010. That particular funding brought us an additional $2 million a year to augment the funding that we had earlier for the sea lamprey program, which was $6 million. That gives us $8 million, or just a little more than that, for the sea lamprey program. It's a fairly large program. We also have $2 million a year for all other AIS issues. So those are our resource levels for our national AIS program.

The Canadian Council of Fisheries and Aquaculture Ministers created a more formal committee, the National Aquatic Invasive Species Committee, in 2007. It still goes on today and is a major tool for dialogue between levels of government. All of us have issues and all of us can contribute to dealing with AIS species in the country.

I have several slides now that together will give you a broad overview of what the department's AIS program looks like. I'm dealing with it in pieces. Certainly, each of these pieces, as you wish, might be the topic of further questions and investigations that could carry us beyond today, and we would obviously be able to arrange for folks to come in and elaborate in some of these areas in the future.

The first element is scientific research and advice. These are activities, obviously, that we design with the intent to better understand species that are here, yes, but also species that could come here and be invasive in our ecosystems in Canada. It's to understand their biology, whether or not they would be able to establish here or be likely to, and if they did, then what the consequences of that might be.

● (1540)

This work is highly leveraged. We work with other science functions. In particular, we have a partnership with an NSERC network, an academic network that is funded by the Natural Sciences and Engineering Research Council of Canada, to do research specifically on aquatic invasive species. It's the Canadian Aquatic Invasive Species Network. We put some money to assist and augment the NSERC funding there, so it's a powerful leveraging tool. We're actually able to bring a lot of resources that way to these questions.

Another important area for us is risk assessment. Based on our understandings, both that we've collected ourselves and those that we can harvest from general knowledge that's available in science, we look at species for their potential to come to Canada and establish in our ecosystems, and then the consequences of what would happen if they did.

We look at this from an ecological point of view, but in the department we also have capacity and work under way to look at the socio-economic dimension of this as well. These two things together provide a good basis. We've done 23 species to date, and we're now working on new tools to bring a more rapid screening approach that we can use to more quickly augment the picture we have of what might be a threat of an invasive species to Canada.

More elements of our department are early detection and monitoring. We have a component of our program to fund activities in the regions for key species, understanding their pathways, monitoring their locations, determining the spread, or not, of an invasive species in an ecosystem so that we can know where they are, know what the future might look like, and therefore better inform management decisions that might need to be made.

More recently, we've been doing work on legislative and policy development to develop a regulatory package that will augment the tools that are available now for the management, control, and prevention of aquatic invasive species.

Some provinces obviously have an interest in these issues as well, and some have provincial legislation, but what we're looking at is a federal package of legislation that would augment and bring more effect and power to the various provincial jurisdictions in managing issues related to AIS.

The last couple of current departmental activities are, obviously, prevention and mitigation/control/management. Maybe prevention should be the first one because, from a cost-benefit point of view, we can all appreciate that not having an invasive species in the first place is almost certainly the most cost-effective way to deal with it. Our national risk assessments are a key tool for us to identify those threats that are outside our borders but could come toward us, and then inform how we can provide surveillance, watch for these, and design our prevention activities to be most effective.

We do have invasive species, and there are cases where we have been involved in mitigation, control, and management. The sea lamprey program, on which we'll elaborate in a few minutes, is the only one of those that's managed on an ongoing basis, and it has been a funded activity in Canada since the 1950s.

There are also some activities we have under way to develop mitigation techniques in some circumstances. We are now in a three-year program to eradicate the spread of smallmouth bass in Miramichi Lake. That is another example. We have led in the past, and are leading now, some others in relation to green crabs or tunicates in terms of mitigation, control, and management.

● (1545)

With that as a bit of an overview of our national program, we're going to begin to focus in on the Great Lakes. Obviously the Great Lakes are a very large freshwater inland sea shared with our neighbours to the south, the United States. It's a very large system; 22% of the earth's fresh water exists in the lakes. The smallest of the five of them is the 14th largest lake in the world. These are large bodies of water. There are 42 million people from both countries who live in the Great Lakes basin; 30% of Canadians are there, and 98% of Ontarians live there.

The commercial and recreational fishing sectors have a very large value: $7 billion. These sectors include the commercial sector and a recreational fishery for personal use, but also a very important subsector of the recreational fishery, which are the charter boat operators. They generate a lot of revenue as well.

This is a shared jurisdiction, as I've already said, between Canada and the United States. It's Ontario and eight states within the United States that share jurisdiction.

With regard to aquatic invasive species in the Great Lakes, you'll recall that I defined non-indigenous species. We've counted, and this would be variable, approximately 182 non-indigenous species that have been introduced into the Great Lakes since the 1800s. Some of them are well known and have caused significant impact in the lakes. The sea lamprey I've mentioned already, and zebra mussels. Round goby is another small fish species that is now present in the lakes.

We also have species that we spend a lot of time on these days because they're not yet in the Great Lakes. We would prefer that they not be there, so we are doing quite a bit of work to understand the risks the species could pose to our ecosystems if we had them. There are several species of the Asian carp and the northern snakehead that we're keeping a very close watch on at the moment.

There are a couple of slides on some of these species and what's under way with regard to them. The sea lamprey control program, as I mentioned, is the only one that's funded on a sustained basis at the moment. These are animals that are native to the Atlantic ocean and ancillary seas, but they have become adapted in the Great Lakes.

When the seaway was established, probably in the 1920s, they had, and they can have, a significant impact on commercial fishery species in the lake. Canada and the U.S. have a joint management program for sea lamprey. Canada's contribution to that, as I mentioned earlier, is about $8.1 million a year. With the contribution of our American partners in this program we're able to sustain a 90% reduction in sea lamprey populations in the Great Lakes, to the benefit of commercial and recreational activities there. This works through a variety of means. There are lampricides, poisons that are very targeted on this species, and then physical barriers and trapping are also used collectively to manage this population.

There are several other species on the next slide. We have had several species of mussels come in, in ballast water we expect. They have several impacts. They're very efficient filter feeders. They remove a lot of material from the water, which has a range of impacts, some of which are negative for species and some of which may be positive for species that do better in more clear water.

They also have other aspects to them. They outcompete native species that may do the same thing, and we have lost several species of native mussels as a result. They can blanket the bottom and suffocate other native species. And of course there's the well-known problem of them multiplying and filling pipes and other infrastructure that's put in the water, creating a cost for industries that depend on those infrastructures. They have to manage that impact.

● (1550)

The round goby is a small fish species that was again introduced, we think, through ballast water related to international shipping. It's also spread through bait use; it's a small fish that's used for that purpose as well. They compete with native fish, but then they're also food for some other native fish. So it's a complicated equation with this one, and again it illustrates the complexity of dealing with a species sometimes. Once it has come in to your ecosystem, it can have a range of effects.

There are several more, and these are the ones that are not currently in the Great Lakes system, and we would prefer to keep it that way. There are several species of Asian carp we're watching for, but we're focused really on two. These obviously have spread through the U.S. midwestern states and have approached the U.S. shoreline in the Great Lakes system quite closely in recent years. These are very rapidly growing species. They can grow to quite a large size. They consume a lot of material in the lower trophic levels, and they each have their own specific food items that they focus on, but collectively they can take out a lot of the food biomass. They compete very effectively with native species for space, for food, and for reproductive potential in freshwater systems. One of them you may have seen on the news or on YouTube has the unusual habit of jumping clear of the water when it's disturbed by something going by, like a boat, and it can actually be a quite significant physical hazard for those who are moving around in small boats. That's obviously a feature of that species.

Northern snakehead is another fish species that I believe is from eastern Asia—I'm not sure. It is present now in the U.S. eastern states. It's a very voracious predator. It can be a fairly large fish as well. It's a predator of other fish species and is very tough. The small juvenile-sized animals can migrate over land from one wet area that may be drying to another one and can live for an extended period of time. They have an unusual breathing apparatus that allows them to get by for quite a time—it could be days—out of the water by making use of the air. Again, it's a very persistent migrator, and obviously well-equipped to spread from one area to another, but it's not yet in Canadian waters.

Mr. Chairman, that is our quick overview. I hope it has provided a broad perspective on the department's program. We haven't delved into other areas. We tried to focus in on the Great Lakes because we saw that was the focus of your questions. We are certainly prepared to entertain questions and comments as you wish.

● (1555)

The Chair: Thank you very much, Mr. Gillis.

We'll start off with Ms. Davidson.

Mrs. Patricia Davidson (Sarnia—Lambton, CPC): Thank you very much, Mr. Chair.

Thank you to our presenters here this afternoon.

Certainly this is a study that's of prime interest to me, coming from the Sarnia area. We have heard a lot in the community over the last couple of years about the concerns with Asian carp, and before that of course we dealt with issues of zebra mussels and round gobies. I recall from when I was chair of the water treatment plant, which supplies the drinking water to most of our county, the concerns we had when the zebra mussels started, with the clogging of the intake pipes and all of the extra work that had to be done to make sure the intakes were open and able to bring in the water, the Great Lakes water, to be treated for drinking.

So it's not anything new in our area to be dealing with invasive species. But I think the Asian carp threat is one that has really raised awareness in the population. I think one of the things that puts the most fear in people is the carp's jumping ability, the leaping ability, and the reports and the stories about them jumping right into small boats.

As well as a thriving sport and commercial fishery, we also have a thriving tourism industry, so we're not only looking at the problems with sport fishing and commercial fishing, but we're also looking at the many people who come to enjoy our waterways, with skiing, jet skiing, pleasure boating, and so on. So the Asian carp issue is certainly stressful for people in my area of the Great Lakes.

I know we've been doing some work back and forth with the American government, trying to put things in place to make sure the Asian carp does not get into the Great Lakes. I have a specific question on the report that was released. The Great Lakes Commission and the Great Lakes and St. Lawrence cities initiative had commissioned the study that focused on the physical separation of the Great Lakes from the Mississippi River watershed to prevent the movement in either direction of the Asian carp. There were three possible options that were put forward in the report, but there was no preferred option recommended in the report.

Do you have any comments on the apparent need for the physical separation of the watersheds in question or any comments on what work has been done with the American and Canadian governments at this point?

Mr. David Gillis: I'll defer to my colleague from the region.

Mr. David Burden (Acting Regional Director General, Central and Arctic Region, Department of Fisheries and Oceans): Thank you for your question.

A lot of the work we're doing currently is all about partnerships. There is a very good partnership between the state and federal levels across all the states, as well as here at home with the Province of Ontario. The study you're referring to by the Great Lakes cities and St. Lawrence Seaway mayors is a study that was to support work that the Army Corps of Engineers is doing for the United States government, looking at that physical separation.

It is an American product. We have been briefed on it through some of our binational committee meetings. I'm not certain physical separation is the end-all for these problems of invasive species, because as David mentioned in his remarks, there are other vectors where these critters can get into Canada, live trade being one way that gives us cause for concern. But there is an awful lot of work being done on the American side on that. I can't say with certainty, but I think there are another couple of years of work left on that study.

A number of different approaches are being looked at, but I think the most important element of this is that at this point, while we may be finding eDNA above the barriers, the physical barriers that are in place do seem to be working, and we have not had any Asian carp getting into the upper waters coming into Canada.

● (1600)

Mrs. Patricia Davidson: Thank you.

One of the things I came across when we were doing some research on this invasive species was in a paper released by the American *Conservation Letters* journal. Biologists with the University of Notre Dame and the Nature Conservancy claim that there's DNA evidence to support the notion that the invasive Asian carp have gotten past the electric barrier.

Do you have any comments on or knowledge about that?

Mr. David Burden: Back in 2003, some live carp were found in Lake Erie. That precipitated our study in 2005. Those carp that were found were actually brought in. When we did the genetics on them, it was proven that they were sterile, so they weren't breeding stock. That was the good news. It helped frame our initial study on Asian carp. The other element is that there haven't been any new findings since back in 2003.

Mrs. Patricia Davidson: Does the Great Lakes Water Quality Agreement contain commitments on aquatic invasive species?

Mr. David Burden: The Great Lakes Water Quality Agreement is up for renewal, as you may be aware. We've gone through the four plenary sessions. The two federal governments are in the final stages of reviewing the agreement. The drafts and the mandate we had in negotiating the agreement did, in fact, have an annex related to aquatic invasive species. It is the expectation that there will, in fact, be language and protocol within the agreement to deal with the prevention of Asian carp and the management of those type of species through the agreement.

Mrs. Patricia Davidson: I have a quick question on the northern snakehead. I find from the information about it that it is scarier, I think, than the Asian carp. It's not something we're hearing a lot about locally. I think it's because the word isn't out there yet. People aren't aware of it.

Can you tell me a little bit more about it? Where is it now? What is the possibility of it expanding its reach?

Mr. David Gillis: The northern snakehead is native to east Asia but has been brought in as a live food-trade fish. It may have been brought in as well for the aquarium trade. The smaller animals are attractive there.

They are currently established in areas of the midwestern United States and in various spots otherwise. We have reports from places such as Pennsylvania, Maryland, and New York State. The issue there may be that they are independent releases of fish rather than a spread. However, there does seem to be an area now, in the centre of the midwestern United States, where there have been escapes, and they have become established and are breeding in an area.

We have a risk assessment that has been completed on the northern snakehead. I think we have some sense of how they may move. I believe that the most visible threat would be the live trade—the live food and movement vector. That is what we would be most worried about in the case of the snakehead.

Michelle, did you have anything to add to that?

● (1605)

The Chair: Thank you very much.

We'll go to Ms. Doré Lefebvre.

[*Translation*]

Ms. Rosane Doré Lefebvre (Alfred-Pellan, NDP): Thank you, Mr. Chair.

Thank you for coming here to contribute to our study on invasive species in the Great Lakes.

I would like to quickly go back to what you just said about the snakehead. Do you know whether this population is expanding quickly in the Great Lakes?

[*English*]

Mr. David Gillis: There is no snakehead known to be in the Great Lakes. It's not present in the Great Lakes now. It is one of the key species we are concerned about as a threat that could come to the Great Lakes, but there are no snakehead at the present time.

[*Translation*]

Ms. Rosane Doré Lefebvre: All right, I misunderstood: I thought that the species was present in the Great Lakes.

You said that most of your funding in the department is allocated to shipping. Is that correct?

[*English*]

Mr. David Gillis: Not most. The current funding we have is divided across the various program elements that I mentioned in my presentation.

We have a component for research, for monitoring, and for the biological risk assessment. All those are within the area of science, but several other elements of the program go to the development of the regulatory package, which is under way now, and for the development of socio-economic analysis and tools to help us understand AIS in that context. So I would say our program is divided across a variety of elements; it's not just focused on shipping.

[*Translation*]

Ms. Rosane Doré Lefebvre: All right.

You said that the biological risk assessments for 23 species have been completed. Do you know how many of them are salt water species and how many are fresh water species?

[*English*]

Mr. David Gillis: I have a list, which I'll refer to.

About one-third of what looks like about seven or eight are in fresh water, and the rest that we have done our risk assessments on are marine species.

[*Translation*]

Ms. Rosane Doré Lefebvre: Are these seven species found mostly in the Great Lakes?

[*English*]

Mr. David Gillis: Many of them are, but not all. Some would be freshwater species that are either in B.C. or Atlantic Canada.

[*Translation*]

Ms. Rosane Doré Lefebvre: All right.

I see that you have a smallmouth bass eradication program as well. I do not really know how that eradication program works. How does it work?

I saw that you have a program where you are looking at different nets, traps or physical barriers. Is that the same program that you are using for smallmouth bass?

[*English*]

Mr. David Gillis: Yes, it's similar in that case.

Smallmouth bass is a native species in parts of Canada, but it's moving and has been moved to places where it is not native. It is a sports fish as well, in its own range, and has sometimes been moved into other systems for that purpose.

The problem can arise, and it has arisen in this one case, when it is introduced into a system where there may be other fisheries, which are equally or even much more prized as a sports or commercial fish, as is the case in New Brunswick. There is a lake there, Miramichi Lake, that is part of the Miramichi system, which is obviously a very large Atlantic salmon system.

Smallmouth bass have been introduced into Miramichi Lake, causing quite a bit of concern. The department has been working with the Province of New Brunswick and with the recreational fishermen's associations in that area to eradicate the smallmouth bass invasion in Miramichi Lake. It's a three-year program, and two years have been completed. This will be the third season right ahead of us. It's using a range of physical removal techniques, so different types of fishing—electro-fishing, using electricity to attract and capture fish—as well as physical barriers, disruption of nests...these are fish that build a nest in the spring, I believe, in shallow water. Knowing that, we can disrupt those nests and interrupt the reproductive cycle.

To date, it looks as if those kinds of efforts have been fairly successful. We've reduced the population to what seems to be a very low level. A lot of fish have been caught, and the catch rate is now very low.

The third year is coming up, and we will see during the year how successful the first two years of physical eradication have been.

● (1610)

[*Translation*]

Ms. Rosane Doré Lefebvre: You referred to lampricide, which is used to eradicate one of the invasive species. What is that exactly?

[*English*]

Mr. David Gillis: I'm not sure if I can give you a very deep answer to that question. Certainly lampricide, generally, would be a chemical or a poison that would work specifically on the lamprey.

[*Translation*]

Ms. Rosane Doré Lefebvre: Does that not have an impact on other species? Have any studies been done to see whether or not this is the case?

Mr. David Gillis: It is not a problem for other species.

Ms. Rosane Doré Lefebvre: Very good.

[*English*]

Ms. Michelle Wheatley (Regional Director, Science, Central and Arctic Region, Department of Fisheries and Oceans): If I can add to that, we have done some studies, and the Great Lakes Fishery Commission, with whom we work, doing the sea lamprey program... they have funding for research on some of these things to look at impacts on other species. The studies to date have shown very limited impacts. There are certain times of the year when some species might be more susceptible. When we're planning the activities, we'll try not to be doing the lampricide treatments at a time when a species might be sensitive, when a species is spawning. So we make every effort to make sure it isn't a time when they're sensitive. Also during the work, it's very carefully done, tracking what the concentration of lampricide is in the waterway to make sure it only gets to the level that's needed to eradicate the lamprey and doesn't get higher, where it might be a risk for other species.

[*Translation*]

Ms. Rosane Doré Lefebvre: Thank you very much.

[*English*]

The Chair: Thank you.

Go ahead, Mr. Hayes.

Mr. Bryan Hayes (Sault Ste. Marie, CPC): Thank you, Mr. Chair.

I'd like to thank my colleague, Pat Davidson, for bringing this motion forward. It's incredible that we're studying this and having us step into the Great Lakes. I'm so pleased that the committee is going to actually have an opportunity to have a look at the Great Lakes. It's very close to me, being from Sault Ste. Marie.

A quote from Great Lakes United states that if the Asian carp, which can grow to three feet and a hundred pounds, enters the Great Lakes, "...they could devastate the region's $7 billion fishing industry and permanently alter how recreational boaters, anglers and tourists use and enjoy the lakes...."

I don't have any question on that; I just want folks on the committee to understand that it could devastate the $7 billion fishing industry in the Great Lakes. So let's just be clear on that.

But I want to turn back to the sea lamprey. What we haven't discussed today is the implications. What is the damage caused by the sea lamprey to native fish?

Ms. Michelle Wheatley: The sea lamprey have a complex life cycle. They spend the first four to five years of their life in streams, living in the substrate of streams as they slowly grow. Then they reach a stage called transformers, which is that they transform and become a parasitic form, and that's when they move out to the lakes. At this point they're still fairly small, but then they attach onto the side of a fish—the third slide had a picture of the sea lamprey and a hole in the side of the fish—and basically drill through the side of the fish and start to consume the fish from the outside, sucking out the juices. It can kill the fish, depending on the size of it, but for the commercial fishery it causes damage to the fish. Even if the lamprey drops off after it's been attached for some time, it can leave damage. Therefore, if that fish is caught by the commercial fishermen, people don't want to fillet a fish with a hole in the side of it from a sea lamprey.

● (1615)

Mr. Bryan Hayes: I've read reports that state that an adult sea lamprey can kill up to 40 pounds' worth of fish, and I believe those fish generally in the Great Lakes are the lake trout. Is that a correct statement?

Ms. Michelle Wheatley: That's correct.

Before the sea lamprey control program started in 1955, the lake trout had been decimated; they had taken over and decimated that population. That had been the effect. The lake trout have come back as a result of the sea lamprey program.

Mr. Bryan Hayes: I did some research. This was a bit of a tough one to swallow. There's a group called the Upper Midwest Environmental Sciences Center. I don't know if you're familiar with them. They have a website. Apparently, they do a lot of research. What they state is that the adult sea lamprey in the St. Marys River is still at the same level it was 40 years ago. The St. Marys River is the connecting river between Lake Superior and Lake Huron. It goes right by my door in Sault Ste. Marie.

They say that the St. Marys River is the hot spot for sea lamprey. I can believe that. That's why the Sea Lamprey Control Centre is housed in Sault Ste. Marie, I suppose. That would indicate that current measures aren't working.

Are you familiar with that? Can you comment on the sea lamprey in the St. Marys River in terms of quantity now versus quantity 40 years ago? Is there any truth to the statement?

Ms. Michelle Wheatley: I don't have the numbers in front of me, so I wouldn't want to comment right now. But certainly the St. Marys River is a major area, and as you say, it's a major hot spot for the sea lamprey. It's an area where a lot of the work is done.

Mr. Bryan Hayes: I'm now going to ask a carp question.

Mr. David Burden: I was just going to add to what Michelle said.

Clearly, as David said in his remarks, we're about 90% effective in our treatment for sea lamprey. As we see the resident fish populations grow, we're also seeing areas along the St. Marys River course, in some instances, where when we slow down treatments, there's a resurgence of sea lamprey. What we're trying to do now is go back to some water courses and do one year and then the next year. We're basically nuking any sea lamprey larvae in the areas. We're seeing much better results from that kind of approach. You're seeing that some places will get hotter with the number of sea lamprey. As we do our analysis and look at what the performance of the program has been, we'll modify our approach in that area specifically. Again, I'm not familiar with that specific report, but our similar findings would necessitate going back and doing these kinds of approaches. As I've said, it's a double treatment kind of approach.

Mr. Bryan Hayes: I have one quick question. I think my colleague alluded to this, but I'm not sure.

The binational ecological risk assessment for bighead carp in the Great Lakes is being led by DFO's Centre of Expertise for Aquatic Risk Assessment, in Burlington, Ontario. And it is being coordinated by the binational Great Lakes Fishery Commission. That report was to be available, apparently, on January 12, 2012, and the socio-economic impact assessment was to be competed by March 12, 2012. Both of those dates have passed. I'm wondering what the status of those reports is.

● (1620)

Mr. David Burden: On the first one, the binational risk assessment, I guess probably the safest answer for me to give on this is that when you have a bunch of scientists who have to come to some kind of consensus agreement, and these things are peer reviewed, it takes some time to finalize reports. That report is in the final stages of editing. It would be available shortly. I guess that is a way to look at it.

The next part of your question, related to a second phase of that work, is with regard to the socio-economic impact. The work Canada is doing is ongoing. Your information says March. That is what we were originally looking at. We've had some challenges getting appropriate information and data to verify what the real economic impact would be. We're now looking at that report. We had some meetings just last week with the Great Lakes Fisheries Commission, and we expect to have the final report for the Canadian work probably around October. It will be the fall of this year for sure.

The Chair: Thank you very much.

Mr. MacAulay.

Hon. Lawrence MacAulay (Cardigan, Lib.): Thank you very much, Mr. Chairman.

And welcome.

Just on what Mr. Hayes was talking about, the U.S. and Canada have a joint agreement on the sea lamprey program, if I understand it correctly, and we put in $8.1 million. What do the Americans contribute to this?

Mr. David Burden: The spread for the Great Lakes Fishery Commission is 69 American and 31 Canadian, so they put in approximately $22 million a year to our $8.1 million.

That's for the eradication and measures related to the sea lamprey. There is also an administrative component and a scientific research component, and that's cost shared on a 50-50 basis between Canada and the United States.

Hon. Lawrence MacAulay: Thank you very much.

Will the budget cuts have any affect on your research or what you're doing on eradication?

Mr. David Burden: We're still studying the budget, and we're not in a position to comment on what is actually in or out of the budget at this point in time. This is an area where we have ongoing commitments with the Great Lakes Fishery Commission, and it would be my hope and expectation that we will be continuing to do this work.

Hon. Lawrence MacAulay: Again, on the back of what Mr. Hayes had to say, if the sea lamprey expands its presence, it's a major cost to the Canadian economy, from what I'm hearing here.

Mr. David Burden: That would be correct. As I said, we don't know what's in or what's out from a budget perspective.

It would be speculation on my part, Mr. Chairman, so I think I should probably decline.

Hon. Lawrence MacAulay: It's not good, not good. But anyhow, thank you very much.

I'd like you to elaborate on the Canadian Aquatic Invasive Species Network. What is involved and who is involved? How much money do we allocate to that?

Mr. David Gillis: As I said, it's an academic network. It's centred in the University of Windsor, and it may involve other universities as well. It's funded by the Natural Sciences and Engineering Research Council. There are quite a few of these kinds of networks in different areas of science and engineering.

The core funding from NSERC is a total of $5 million over five years, so it's essentially $1 million a year that they put in. This money goes to research programs in universities that are student-based, but obviously with expert academia backing them. It is focused on research questions that are related to aquatic and invasive species.

The department augments the NSERC contribution to the tune of $200,000 a year, so a million dollars over five years. As I was saying earlier, we feel this is very good leveraging for the department, and for Canadians, to be linking the government research program to the academic network. It allows us a voice to help make sure the research program that the network undertakes is relevant and tied to our sense of priority that we develop from the tools I mentioned earlier.

Hon. Lawrence MacAulay: Thank you very much.

I would suspect that you deal with universities and work with them right across the country.

Mr. David Gillis: Yes.

● (1625)

Mr. David Gillis: It's a package that's under development right now, so we can't speak about it as if it's done, certainly. As I mentioned, the Canadian Council of Fisheries and Aquaculture Ministers committee is a key venue for us to talk to the other jurisdictions about this. As you point out, both provincial—and/or territorial when the time comes—and federal legislation could work together to make a more effective package.

Here is an example of the way it could work. You are quite right in saying, obviously, that the provinces have been devolved responsibility for the management of fisheries for quite some time. They can use that as a basis for provincial legislation that would help to deal with aquatic invasive fishery species.

That would leave, for instance, some gaps. There would be the gap at the international border. There would also be the matter of interprovincial trade. Generally speaking, this is one area where we could see that application of federal powers could help to bring those parts of the puzzle and actually work hand in glove with the provincial legislation to make a package that provides for management authority at both levels.

Hon. Lawrence MacAulay: Thank you very much.

Of course, being from P.E.I. where the blue mussel industry is, I am well aware of what invasive species can do. I think you indicated there were 182 invasive species that had entered the Great Lakes system. Am I correct?

Mr. David Gillis: That is in the Great Lakes, yes.

Hon. Lawrence MacAulay: I'd just like you to elaborate on—of course, some of them are not causing great harm. In fact, some of them have been an asset in certain areas. Do we still have 182? How are we doing with what we are spending in this area?

Mr. David Gillis: We have 182. I should again stress that's non-indigenous species. Not all of them would be in the high-risk invasive category, by any means.

I think that's a current number, actually, Mr. Chair. That's how many we would estimate we currently have.

Whether we have been able to actually eliminate...I think we're able to claim that we are bringing a fair measure of control to sea lamprey, which is obviously a well-established and potentially very hazardous or harmful invasive species. I'm not sure we can claim we have been able to eliminate an invasive species. It can be very difficult to do. As I mentioned earlier, maybe our best approach would be to avoid having them in the first place, through risk assessment and prevention.

The Chair: Thank you, Mr. MacAulay. Your time has expired.

We will now move to a five-minute round. We will begin with Mr. Donnelly.

Mr. Fin Donnelly (New Westminster—Coquitlam, NDP): Thank you, Mr. Chair.

Thank you to our guests for appearing before the committee.

I just want to get an overall sense of what level of priority this AIS has in the department. Would you say it's high, very high, moderate, or low? How would you categorize the priority?

Mr. David Gillis: I'm not sure it's easy to separate it out on that basis. As I mentioned in my opening remarks, when we think about ecosystem integrity—the science and management approach increasingly is on looking at the ecosystems as a whole—we can parse it out into a number of elements. Aquatic invasive species, or invasive species generally, is one of those areas that we certainly consider to be something that needs to be recognized and managed to the point that is necessary to ensure we have a healthy ecosystem.

The levels of funding are maybe a rough estimate of how much work is actually under way. But I think we need to look at the collectivity of the ecosystem to understand how each component of ecosystem health contributes to the whole in order to answer your question properly.

The other thing I would say about this program is that, aside from the sea lamprey program, it's relatively new. We're still feeling our way into some elements of it. The focus in the early years, since 2002, has been on science programming. More and more in the department we're developing the other aspects of a full-blown program.

The other element, just in closing on this point, is that this is an area where it's possible to have a lot of partnership and to leverage a lot of our funds. There are other jurisdictions that can and do play a role in everything from prevention all the way through to management and mitigation. This is a highly integrated and collaborative program we have in the department with the resources we have available.

● (1630)

Mr. Fin Donnelly: I was looking for how high this is compared to other issues on both coasts, the coast guard or other priorities, but fair enough in terms of your comments.

How much in the way of total funding is being allocated to aquatic and invasive species?

Mr. David Gillis: Around $10 million. Of that, a little over $8 million is dedicated to the sea lamprey program in the Great Lakes. The other $2 million, which we've had since 2005, is for the general aquatic and invasive species program across the country.

Mr. Fin Donnelly: Thank you.

In terms of resources, what resources do you think you need in addition to that, or is that adequate to address this problem fully?

Mr. David Gillis: I think you can always use more resources. That may be a trite answer.

Mr. Fin Donnelly: How much more?

Mr. David Gillis: With the resources we have, we have been able to put in place all of the components of a full-blown program, everything from the understanding of the science all the way through to the mitigation and monitoring programs, and more recently the regulatory package.

I really think we have been able to use the funds we have available to bring in a full program. We do a lot of prioritization to make sure we are allocating the resources—and we're developing tools to help us—we do have to the most effective activities for managing AIS.

Mr. Fin Donnelly: So I could take it that $10 million is enough, although you could always use more.

Mr. David Gillis: Well, we're getting the results we're getting with the resource levels we have.

Mr. Fin Donnelly: That's almost a political answer. Thank you.

In terms of the causes for the spread of aquatic invasive species, you listed them here, but can you give me a better idea in terms of the percentage of the problems? Is 50% of it shipping? Is 50% because of recreation or live trade? Do you have a sense of the high priority areas?

Mr. David Burden: I don't think I can give you a percentage breakdown. Clearly we're trying to address it at all levels. But I can give you one rationale on why we feel the regulations work that is going on is so important.

The buying and selling of live Asian carp is worth about $5 million a year in the Toronto markets. When you're looking at fish potentially coming across the border and fines being in the order of $20,000 or $50,000, based on the seizures we have made over the last number of years, clearly it becomes almost a cost of doing business for some of these folks if you are talking about a market of $5 million.

It is an issue. As David mentioned, while the fish have a higher market when they're brought in live, when the physiology of the fish is that you can dewater them and then put them on ice and rewater them and they continue to thrive, that is a concern.

Part of the problem with any invasive species is related to the education and outreach. We've done a considerable amount of work, and we've used the Ontario Federation of Anglers and Hunters with great success to outreach to their members.

You know, my kids go to school, and at the end of the school year you've got the aquarium that's been in the class all year and nobody is willing to take the fish home. During the class picnic at the end of the year, we take them out to the watershed and we introduce these.... We have to educate Canadians that some of these things we're flushing down the toilet or dumping into the water course...it is maybe not the way to go.

● (1635)

The Chair: Thank you.

We will move on to Mr. Kamp.

Mr. Randy Kamp (Pitt Meadows—Maple Ridge—Mission, CPC): Thank you, Mr. Chair.

Thank you, gentlemen and Dr. Wheatley, for being here. This is an important issue and we need to understand it a little bit better. We have made some progress today, I think, so thank you for that.

Let me raise two issues. I want to follow up on the last one in a moment, but before that, my understanding is that the Great Lakes Commission, which is kind of a binational organization between the states and the provinces—Ontario and Quebec in this case—an organization that cares about these issues, and the Great Lakes and St. Lawrence cities initiative got together in 2010, got some money from funders, and started working on this issue, among others. Earlier this year they produced and released a report and they called it “Restoring the Natural Divide”. I think the report is pretty clear where they're going with this.

The report is somewhat pessimistic, I would say, about the effectiveness of the electric barrier that currently we largely depend on for the Asian carp, for example, to be kept out of the Great Lakes. For example, they say the barrier is incomplete, costly to maintain, and vulnerable to failure. It's their opinion, in the report, that eventually it will fail and eventually we will be working on mitigation rather than prevention. The report, in substance, makes the recommendation that there needs to be a physical barrier between the Mississippi River basin and the Great Lakes. So the report is about engineering possibilities and how much it might cost, but it also talks about what the cost would be if you don't build this and eventually you're engaging in mitigation.

I'm not sure it's a fair question to ask, whether you have any opinion about this. You've probably been monitoring to some degree the electric barrier and its effectiveness, although already we've found DNA on the other side of the barrier, so that might be a hint about where that's going. But do you have any comment on this report, if you've had a chance to read it yet, and whether you think that at the end of the day the solution has to be a physical separation between the Great Lakes and the basin?

Mr. David Burden: There are a number of questions within that question, I think, which would probably be my first response.

On the physical barrier, there have been a number of studies. As you may be aware, there is litigation in the United States relative to whether that waterway should still be allowed to be there.

I think what we have to look at is that there is an economic driver for having that waterway go the way it does, and Canada is not without having waterways that have introduced invasive species. So really it gets down to the issue of the partnership. The Army Corps of Engineers has a number of options it is looking at. We have been briefed on them.

I think the important thing is that there isn't a barrier; there are three separate physical structures that work in tandem, and they do work in sequence. If one is taken out or if one has a failure, the other two come on. They've been playing with the approach of using those barriers over the last year to improve performance.

There is also considerable sampling and fishing to remove Asian carp below the barrier.

As for the point of finding fish above the barrier, again, I take it that was back in 2003. That was before a lot of the measures that are in place today were in effect.

The last point I'd make on your question relates to it not being just the physical issues of the barrier. There are a number of other vectors. We've talked about live trade, we've talked about bait fish, and we've talked about the food sector as well. Closing down the physical separation wouldn't necessarily resolve that. It also wouldn't necessarily solve the problem of when you have a 100-year flood or something like that, which would be beyond the barrier.

So it's a tough question to address, and clearly we're quite comfortable that the Americans are having to deal with that one rather than our having to today.

● (1640)

Mr. Randy Kamp: Very well. Thank you for that.

I think the last points you made were good ones. But let's assume that we deal with those other factors, particularly trade.

I'm done.

The Chair: Your time is up.

Mr. Randy Kamp: I was just getting going.

The Chair: I noticed that. I was trying to catch you before you did.

Thank you, Mr. Kamp.

Mr. Cleary.

Mr. Ryan Cleary (St. John's South—Mount Pearl, NDP): Thank you, Mr. Chair.

Thank you to our witnesses.

I'm still trying to get my head around this study and the big-picture Canadian perspective on non-invasive species and non-indigenous species.

Mr. Donnelly asked a question earlier about the total amount of Government of Canada funding spent. Did I hear correctly when you said that $8 million is spent on the sea lamprey program and $2 million is for the rest of Canada?

On green crab, for example, we have had a problem in waters off Newfoundland and Labrador. You talked about transformers and these types of words. As a matter of fact, the local newspapers have put green crabs on the front of the local papers, for example, and it's almost as if we have an alien species attacking earth. They make it out to be a little bit more sensational than it should be.

How many species are exclusively attacking the Great Lakes as opposed to any other water bodies on or off Canada's shores?

Mr. David Gillis: I'm not sure. We've talked about 182 non-indigenous species in the Great Lakes. Some of those would occur outside the Great Lakes. Maybe some of them are unique, at least within the North American context, in the Great Lakes. But I'm not sure if we have that resolution of data available today. We could maybe follow up.

Mr. Ryan Cleary: Is it possible that most of these species in the Great Lakes could be problem species on the west coast, the east coast, and everywhere?

Mr. David Gillis: It's possible. Some of the species we have in the Great Lakes, the freshwater species, are invasive in other fresh waters around the world and are causing problems there as well. Zebra mussels are, for sure.

Mr. Ryan Cleary: Again, I'm trying to get my head around an estimate of the dollar value and how much damage they're causing. Has the department done any kind of analysis on that? I think the question was asked before, but I'm still not clear on it.

Mr. David Gillis: We did mention that we're starting to do some socio-economic work, in addition to the work on ecological risks and damage, to bring a picture of what the socio-economic risks and damage would be. I'm not aware that we're in a position right now to talk about damage across all aquatic invasive species in Canada.

To bring it back to the Great Lakes, David elaborated earlier on the Asian carp. There is a specific piece of work currently under way that will give us a socio-economic risk evaluation associated with Asian carp, which would be in the general direction of your question. But there would need to be further work done on a much more global basis within Canada to talk about the collective impact of all invasive species.

● (1645)

Mr. Ryan Cleary: Did I hear you say that there were some studies being done right now or that were going to be done?

Mr. David Gillis: They are under way now. They are on the socio-economic consequences of Asian carp were it to become established in the Great Lakes system.

Mr. Ryan Cleary: Who is carrying that out? What is the completion date?

Mr. David Gillis: It's scheduled to be completed in the fall, and both we and our American partners are doing some work in this area. It's our work that will be completed in the fall. I'm not sure what the schedule is for the American side. It's the companion piece to the ecological risk assessment we were speaking about earlier. The ecological work was done jointly with the Americans. The socio-economic work has been done through a compatible approach, but separately.

Mr. Ryan Cleary: Would you say that the results of the study released in the fall would be key to the study this committee is doing right now?

Mr. David Gillis: I would expect that they would be of interest.

Mr. Ryan Cleary: Maybe, whenever this wraps up, our conclusion should wait until this report is released.

Mr. David Gillis: I wouldn't comment on your process.

Mr. Ryan Cleary: Would that be your advice, though? I heard you get a little political earlier.

Mr. David Gillis: We'll keep you as apprised as we can as to what our deadline is on the socio-economic component of the study.

Mr. Ryan Cleary: I was surprised about the $2 million figure for all of Canada for invasive species. I know you were asked earlier about whether or not that's low or if that's enough to carry out all the work that needs to be done.

But it does seem like peanuts. Look at that statement as a question.

Mr. David Gillis: Well, I'm not sure what else I could add to what I said earlier. As I say, we have $2 million for the general program for AIS and it's broken up into a number of components. We're able to have all of those components of a national program.

Obviously any program can use more money to make it a bit bigger, but with these resources—setting aside the sea lamprey as a bit of a special case, a long-established management program—we have been able to do the key pieces of work that have been necessary, even in the case of Asian carp, to do the binational risk assessment.

The quality of that work is very, very high, and our partners are very pleased with what we've been able to do. I think we have a program that is making best use of the dollars we have available for it.

The Chair: Thank you, Mr. Cleary.

Mr. Sopuck.

Mr. Robert Sopuck (Dauphin—Swan River—Marquette, CPC): Thank you.

I'm interested in returning to the sea lamprey. What is the mortality rate of fish that have been attacked by sea lamprey, and is there a difference between the salmonids versus a thicker-skinned fish like a walleye?

Mr. David Gillis: I'm not sure I have that knowledge. In fact, I'm sure I don't.

Ms. Michelle Wheatley: I think a lot depends on the size of the sea lamprey and the size of the fish that's attacked. I think once it gets through the skin, it doesn't matter how thick is it. Once it's through, it's through. But I don't have the rates.

Mr. Robert Sopuck: I was interested in the comment where you said that when you relaxed the sea lamprey control, the numbers of sea lampreys went up. Do you see an associate increase in scarring in fish and then a decrease once you get back on track with the lamprey control?

Ms. Michelle Wheatley: The wounding rates, especially on the lake trout, are used as one of the measures of success. That's monitored, and those come from the commercial fishermen reporting the wounding rates they're seeing.

In general, if you look back on the historical data, there has been a decrease in the wounding rates. Some of the numbers are up a bit at the moment. We're working on some of that to figure out why the numbers of sea lamprey are down but the wounding rate is up. That may also depend on the numbers of fish that are there and the opportunities that are there.

● (1650)

Mr. Robert Sopuck: Okay. What is the cycle of aquatic invasive species in terms of an initial population explosion versus later populations? Do they level out on their own?

Mr. David Gillis: I'm generalizing, but they probably could. I know of other instances, though, where a species has become established in a localized area and can exist for quite some time but then go through a period of breakout once the animal gets fully adapted to its new ecosystem.

This is the pattern we saw on green crab. They have been on the east coast of North America for several hundred years but confined to several bays down around Chesapeake and the Potomac area. In the last 50 to 70 years, since the Second World War, they have broken out and are migrating up the coast in a fairly aggressive fashion.

Mr. David Burden: If I could add to what David was saying, it really is species-dependent. If we look at the Asian carp and what we're seeing in the United States and the Mississippi watershed, there is a lot of sound science telling us that basically anywhere between 80% and 90% of the biomass is Asian carp.

Some things can get in and get established, and it's about the degree of impact. You can have a lot of them, but it doesn't really impact the native ecosystem. If you get something like Asian carp and you see what's happening in the Mississippi delta, that's a different story.

Mr. Robert Sopuck: My line of questioning relates to focusing our work on exactly what the problem is. To carry on with that theme, there are invasive species, and the green crab was really interesting. That's a native species that all of a sudden is expanding its range.

We have a couple of other species, for example, the smelt in Lake Winnipeg and the alewife in the Great Lakes, and they have become very important forage fish for very important economic fisheries. The system has kind of adapted to those species being there, and they probably wouldn't be a target of these efforts, right?

Mr. David Gillis: Not at the present time, no. That may to some extent be the difference in this case between something that's more on the non-endemic side, as opposed to invasive, with a lot of ecological and economic consequences that are negative.

I should clarify something that maybe you heard me say earlier. I didn't indicate the green crab were native. They are invasive. They have come from the Mediterranean, but it was several hundred years ago. For a long time they did not greatly expand their range, and then they broke out. As was David's point—I think it was a very strong one—it's going to depend quite a bit on the species and how they interact with their new ecosystem.

Mr. Robert Sopuck: The Pacific salmon in the Great Lakes have become extremely important, from an economic standpoint, for those fisheries, and they've been deliberately introduced by people and seem to be what we could call a success story. That would be an invasive species deliberately released that you would not consider a "problem", would you?

Mr. David Gillis: It's not endemic.

Mr. Robert Sopuck: Okay.

That's good.

The Chair: Thank you, Mr. Sopuck.

Go ahead, Mr. MacAulay.

Hon. Lawrence MacAulay: Thank you, Mr. Chairman.

Would that be included then in the 182 species?

Mr. David Gillis: Yes, the 182 are non-native species or non-endemic species. But they're not all problem cases.

Hon. Lawrence MacAulay: Mr. Burden, you certainly support the three-barrier system, obviously.

Mr. David Burden: From what we've seen and where we are, it seems to be working.

Hon. Lawrence MacAulay: Also, is there a certain area in the Great Lakes that's more of a problem than others? If so, why? Is it just the problem of keeping the species out totally, would you say?

Ms. Michelle Wheatley: I think, as David said before, prevention is the first option, the first thing we would be looking to. When we do a risk assessment, part of what we're looking at is if it arrived—when you're talking about an invasive species, you're talking about the arrival, survival, then establishment, and then spread. So what we would do, looking at the Great Lakes, is say the characteristics we know about that species—what do they need for breeding habitat, what do they need for food, what do they need to survive and to become established. That would help guide us as to where in the Great Lakes might be the areas of concern or the areas where they might most likely become established. So that's one of the reasons we do the risk assessment, to tell where those areas would be.

● (1655)

Hon. Lawrence MacAulay: Universities help you with this, too, right?

Ms. Michelle Wheatley: We work with universities, both on the Canadian side and the U.S. side. We're working very closely with some universities on the U.S. side because they can hold live Asian carp. Of course, with the restrictions on possession of live Asian carp in Ontario, our researchers who are in Ontario have said they are not going to go and get special permission to have live Asian carp. It's easier to go and work with their colleagues at the universities in the States.

Hon. Lawrence MacAulay: The biggest involvement I had with invasive species was with the blue mussel. It was a major problem.

What would you consider would be one of your biggest successes? Is it in eradication, or is it in your research, or what you found out in order to prevent...? I'd just like you to elaborate on that. What would you consider your biggest success? Possibly with that, you must have some problems, unless you've got everything you need.

Mr. David Gillis: We've talked a lot about sea lamprey, and I think that is an example. It's a very high-profile one. Obviously, we're not able to prevent it from getting established in the Great Lakes. But it being here...I think the program we've been describing, with the investment we have in relation to the protection it affords for the commercial and recreational fishery and the success rate we've been able to maintain at around 90%...given that you have a problem, that seems to me to be fairly effectively coping with the problem. It's not an eradication, but it is a management program.

Hon. Lawrence MacAulay: Have you eradicated...?

Go ahead.

Ms. Michelle Wheatley: In addition to the sea lamprey, I would add the work we've done on ballast water, the research we've done. One of our research scientists actually worked with the Canadian Aquatic Invasive Species Network in Windsor and with Transport Canada, and that has led to major changes in regulations both in Canada and the U.S., and now potentially globally. To our knowledge, there's been no introduction of an invasive species from ballast water since 2008.

Hon. Lawrence MacAulay: I'm aware that can be a big problem, but how do you...? Is there enough of a surveillance to know? You know, people will do things they should not do, and this causes major problems—

Mr. David Gillis: In this case, Transport Canada is the manager. We provide advice, and my understanding is it has.... Part of its regulatory program is a monitoring and surveillance system that verifies that ships have done the ballast water exchange they are required to do, depending on where they're coming from.

Hon. Lawrence MacAulay: Thank you very much.

The Chair: Thank you, Mr. MacAulay.

Go ahead, Mr. Donnelly.

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

You mentioned that prevention is probably one of the best ways we can deal with aquatic invasive species possibly entering Canadian waters. I'm wondering if you could expand on what some of the best ways are. We've heard some. Do you have other specifics in terms of prevention? Your presentation here talks about risk assessment, but I'm looking for some specific steps.

I'm thinking also specifically in relation to your comments about your work with Transport Canada. You mentioned you work cooperatively with the department, but does that mean it takes the lead and its mandate dominates, or does DFO have the ability to, for instance, say that you have to deal with ballast water, and that's an issue, and you need to go beyond...? Whose mandate trumps?

Mr. David Gillis: I'll take on the first one, and then maybe we'll have a joint answer on the second question, if you don't mind.

We talked a bit about prevention. There are really three layers to this, or three elements. Risk assessment is the first one. Sorry, I should say that understanding is the first one—understanding the species that might be a threat and what causes it to be a threat, and then using that information to put in a structured risk evaluation process that allows us to look, as Michelle mentioned earlier, at the likelihood of that animal becoming an invasive species in Canada and the consequence if it did. The likelihood covers a range of things —the arrival, the survival, the establishment, and the spread.

Really, knowledge is our key tool here, and then once we have that knowledge of what the relative level of risk is, we can undertake our prevention activities. Our experience with this, again, is that we take a highly leveraged approach. Often, if you have a series of community groups or an industry association you can work with, that's a very powerful way to get out a message about the risk to the constituency that needs to have that information.

It's a very case-specific thing. It's hard to generalize. If the vector you're worried about is maybe moving boats from one area to another, as it might be for something that Mr. MacAulay referred to —tunicates—then working with fishermen's associations and recreational boating groups is money well spent, especially if you can be very specific with them on when, where, and how they could modify their behaviour to prevent the organism from spreading.

I think it really starts with the understanding of the animal that might be a threat, and then having a good clear assessment of the risks and what it would mean, and that information then fuelling prevention measures. It's a sequence of activities that can really go to prevention.

On the second question, David, do you want to....?

● (1700)

Mr. David Burden: Sure.

On the role between Transport Canada and Fisheries and Oceans, it's not about one trumping the other. There's a specific role that Transport has, and it is the regulatory agency, but we have the role, the mandate, to provide it with the appropriate scientific advice to support its regulatory role. It is very much about partnerships, and there is a very good working relationship.

Michelle's science team supports Transport Canada and all our dealings with either the International Maritime Organization or, in our discussions on ballast water—the example that was used—with the marine advisory boards and that kind of stuff that would be talking to industry about this.

Mr. Fin Donnelly: Okay.

In the short time remaining, I probably have time for one question on the impact of Asian carp. How does that impact other aquatic species? Are we talking about how it outcompetes for food or what...? Is that essentially the main—

Mr. David Gillis: These are species that collectively feed at the bottom of the trophic chain. They're feeding on plant material and small biota in the water, so they're going to be very aggressive in the way they compete for those food items. They obviously will have, then, a corresponding impact on other native fish populations around them. They compete for food. They compete for space as well. They're quite a large species.

Between those two things, it's a very.... As David said, where they have become established, they have effectively taken over a lot of the biomass in those systems.

Mr. Fin Donnelly: Thank you.

The Chair: Thank you very much, Mr. Donnelly.

Mr. Allen.

Mr. Mike Allen (Tobique—Mactaquac, CPC): Thank you very much, Mr. Chair.

Thank you, folks, for being here.

I was interested in your comment on the flood. A small community in my riding was flooded about 10 days ago due to an ice jam, and they found a fish in the gymnasium of the school. I hope you don't declare that habitat or anything like that—

Voices: Oh, oh!

Mr. Mike Allen: But it's easy to see how an invasive species could actually get a foothold based on that kind of situation as well.

I want to ask you about Miramichi Lake in a bigger context. You're going into the third year of your three-year plan. I guess what I'd like to do is understand what your maintenance plan is after this year when that's over. Also, is there a maintenance plan where you would go back to see if your smallmouth bass had been reduced to a certain level?

In that context, I guess, it's the same thing with the sea lamprey in a way: where do you define success? I mean, you go down to 90% reduction, but is there a time when you define success in those measures and have a monitoring program after that?

● (1705)

Mr. David Gillis: With regard to the smallmouth bass, thinking positively, we have a three-year program, and we'd like to think that we would be able to effectively take that species out of that lake. Do you need to monitor afterwards, obviously, to see whether you've been able to achieve that? Of course.

Depending on what you would see, then, you would have decisions to make at that time as to whether you wanted to do it again or whether other measures might be taken. I'm sure there's some sort of high-level thinking that has been done in that regard, but the focus right now is on implementing the third year of the three-year program. We're quite encouraged by what we've been able to achieve there up to now by using those largely physical means for removal.

Mr. Mike Allen: Okay, and is it the same type of thing with the lamprey? You would monitor...?

Mr. David Gillis: With the lamprey, I'm not sure if there is still an expectation that we're going to eradicate. Probably not, actually, so I think it's a case of ongoing maintenance in that regard, but maybe David or Michelle could elaborate.

Mr. David Burden: I think the issue with any invasive species—and we've talked about all of the invasive species—is that once it's here, it's almost impossible to eradicate. That's sort of what we're up against.

I grew up in the coast guard, so I take the analogy of what we do from a boater education perspective. Whatever dollars we invest in educating people, it helps in the prevention. If we don't have to go down that eradication road, it's pennies for dollars or hundreds of thousands of dollars in the comparative. If you can ensure that it doesn't get here and ensure that people are aware of the impacts of it getting here, then you're a long way there.

But once it gets here, as we've seen with the sea lamprey.... You know, 90% is incredible compared to where we were back in the 1960s and 1970s on this, but as we've seen, when we slow down or stop treating in a watercourse for one year, we see significantly increased spikes in the number of sea lamprey. So I don't think that once you have an establishment there's really a way of going back to where it was before.

Mr. Mike Allen: Okay. Thank you.

I have a two-part question on the next one. You talked about how the round goby is a predator, but it has predators as well within the existing system. What are some of those predators? Also, do the Asian carp and the northern snakehead—that northern snakehead is a nasty piece of work—have predators that we know of, or is it too soon in the cycle for us to understand that?

The second part of the question is that we see a lot of them in the river systems, so do we know if they have the ability to survive in lake systems as well as river systems?

Mr. David Gillis: There are several questions there.

With regard to the round goby, it is a complicated tale, let's just say. It's a fairly small fish, four to eight inches long, and it is food, obviously, for any of the piscivorous fish in the lakes that would encounter and feed on fish that small.

That would include northern snakehead, if we had them. They are known to be very predatory fish, so I expect that if we did have them, you would have several invasive species interacting at that level as well. I expect that northern snakehead would be food for other fish where they occur, especially when they're small, but they're a fair-sized freshwater fish. They can be up to 15 pounds, at least, so they may not have all that many predators, certainly when they're in their adult stage.

I think the point of all this is that we're bringing a species from another area and putting it into an ecosystem that has had hundreds of thousands of years of stability, where everything has come into a natural equilibrium. It's not easy to always predict exactly how a new species in that ecosystem will find its niche and the extent to which it would be predator and/or prey. I think that's one of the elements we try to focus on when we're doing a risk assessment, especially if we're trying to determine if it can successfully establish.

There is always the element of the unknown there, because you're introducing something that may not have a lot of natural predators, in some cases, which would contribute to their invasiveness or their ability to colonize a new ecosystem.

● (1710)

The Chair: Thank you, Mr. Allen.

Mr. Leef.

Mr. Ryan Leef (Yukon, CPC): Mr. Gillis, you mentioned a little bit about the program being highly collaborative in terms of management. I'm not sure if you were specifically talking just about the sea lamprey or if you were talking about aquatic invasive species in general. Perhaps you could expand a bit on the role, on how significant the role is in terms of human and financial resources, and on what level of intergovernmental cooperation there is.

From my experience, when zebra mussels kind of hit greater public consciousness in Ontario, it seemed like the Ministry of Natural Resources in Ontario was great on the education front there.

What role does Environment Canada, or MNR in Ontario, and DFO have with this program?

Mr. David Gillis: As I mentioned several times, and you've just mentioned, the program is highly collaborative. We have a lot of leveraging of our activities within it across the country.

We were talking in the context of Asian carp, where there are a lot of organizations that we can and should be working with in regard to prevention. One that I'll mention, and maybe Dave can elaborate on, is the work we do with the Ontario Federation of Anglers and Hunters. A relatively small amount of resource that goes from our program into awareness and outreach gets us access to a very well-organized and motivated community to help them understand what to look for and what to do if they were to see something. It's a very powerful tool.

You asked about intergovernmental cooperation. That is very much a hallmark, I would say, of this program. A specific committee has formed as an adjunct to the Canadian council of fisheries ministers, which is the federal-provincial-territorial ministers council, and they have all kinds of substructure underneath that.

There is a very active discussion going on there now with regard to the development of a legislative regulatory package for the very reason that all those jurisdictions can and will play a role in bringing a more effective regulatory approach to all the aspects—prevention, mitigation, and management.

So I think in general terms it's collaborative and highly leveraged across the whole national program, including the Asian carp component of it.

Mr. Ryan Leef: Who would take the lead in terms of an enforcement perspective? It seems to me that if something gets through the CBSA and then gets onto the 401, at that point it would get logistically difficult to start that inter-agency cooperation to figure out who is going to take the lead in Ontario.

Is there somebody tasked with that? How does that work in terms of intergovernmental enforcement application?

Mr. David Burden: That's a good question. It is one that we have been working at with our American partners, as well as with the Ontario Ministry of Natural Resources, in that we have done some tabletop exercises in looking at exactly what we would do if a truck was going down the 402 or whatever and dumped a load.

One of the scenarios we worked on was a scenario in which a truck rolled over and a load of Asian carp got into the Thames River, and where it could go from there. At that point, if it's a fisheries management issue, that's controlled by the province in the inland waters. But it doesn't mean that DFO doesn't have a role to play. It doesn't mean that CFIA doesn't have a role to play. It doesn't mean that all of the other agencies.... As Dave was answering your question, I started going, “Okay, who are my contacts?” I have 20 provincial and federal agencies—not counting the state agencies—that we're very much involved in. That's why, when we talk about the amount of money we're investing, it's leveraged across all of these other jurisdictions.

Mr. Ryan Leef: Do I have time...?

● (1715)

The Chair: You still have a couple of minutes left.

Mr. Ryan Leef: Lawrence, you always get cut off. I always seem to get extra time.

Voices: Oh, oh!

Mr. Ryan Leef: You talked a bit about the international border crossing and the legislation around that. Would the interprovincial transport of live Asian carp be covered under sections of the Fisheries Act, then?

Mr. David Gillis: It could be. I think that was one of our examples for how the development of federal regulation could play a role in complementing the provincial legislation and the regulations that are in place.

In Ontario, for instance—Dave was covering some of this a second ago—where there are provincial regulations against the possession of Asian carp, it's an interesting situation. If the carp are coming live across the border, it's a federal CBSA person who maybe would observe, but then they have to call in OMNR as the enforcer to deal with it. Federal legislation might bring other options that could be brought into play at that point.

Similarly, where we would have movement of carp or any other listed species from one provincial jurisdiction to another, that's another area where federal powers might augment the tool kit in terms of management and enforcement.

Mr. Ryan Leef: You're saying “might”. Right now where you certainly do or—

Mr. David Gillis: Well, we're working on that—

Mr. Ryan Leef: Okay.

WAPPRIITA doesn't cover anything to do with fisheries, right? It just covers wild animal and plant protection.

Mr. David Gillis: I'm sorry. I didn't hear the question.

Mr. Ryan Leef: That WAPPRIITA legislation—the Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act—doesn't cover it?

Mr. David Gillis: I'm not familiar with that. It's not my field directly, so....

The Chair: Thank you—

Mr. Ryan Leef: What? Am I done now? Come on.

The Chair: You're done now.

Voices: Oh, oh!

The Chair: I would like to take this opportunity to thank you very much for taking the time to come and meet with our committee today. We really appreciate the information that you've been able to share with the committee. I'm sure the committee will have further questions as we proceed further within our study.

Thank you very much once again for taking the time.

A witness: Thank you.

The Chair: Committee members, there being no further business, this meeting is adjourned.

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