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## **Standing Committee on Fisheries and Oceans**

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**EVIDENCE**

**Tuesday, October 16, 2012**

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**Chair**

**Mr. Rodney Weston**



## Standing Committee on Fisheries and Oceans

Tuesday, October 16, 2012

•(0855)

[English]

**The Chair (Mr. Rodney Weston (Saint John, CPC)):** I'll call this meeting to order. I want to welcome our guests back.

Yes, Mr. MacAulay.

**Hon. Lawrence MacAulay (Cardigan, Lib.):** Mr. Chair, I would like to bring my motion on the Experimental Lakes Area to the floor before the meeting gets started. Understanding its importance in providing public policy to the government, I would hope that they would see fit to bring it forward and get it dealt with at this time.

**The Chair:** Mr. MacAulay has provided proper notice of his motion to this committee.

I would ask Mr. MacAulay if he wants to move that motion at this time.

**Hon. Lawrence MacAulay:** Mr. Chair, because the Experimental Lakes Area has been providing public policy-makers in Canada and around the world with exceptional and unique research for over 40 years in areas such as aquaculture and freshwater ecosystems, and given the impending timeline in which the Department of Fisheries and Oceans will decide whether to remediate, shutter, or transfer the ELA to a third party, I move that the Standing Committee on Fisheries and Oceans immediately study the ELA, the research done on site, its impact on public policy, and the potential consequence of closing, remediating, or transferring the ELA to a third party.

**The Chair:** Thank you, Mr. MacAulay.

Go ahead, Mr. Kamp.

**Mr. Randy Kamp (Pitt Meadows—Maple Ridge—Mission, CPC):** Following our usual practice, I think we should move in camera for debate on this motion.

**The Chair:** It has been moved that the committee go in camera to debate.

**Hon. Lawrence MacAulay:** I disagree.

**Mr. Robert Chisholm (Dartmouth—Cole Harbour, NDP):** Mr. Chair, there is a motion on the floor.

**The Chair:** It has been moved by Mr. Kamp that the committee move in camera for committee business for the discussion of the motion by Mr. MacAulay.

It's a tie. My vote is with the governing party, and therefore, we will move in camera.

(Motion agreed to)

[Proceedings continue in camera]

[Public proceedings resume]

•(0915)

**The Chair:** I call this meeting back to order.

I'd like to take this opportunity to welcome our witnesses back to our meeting again. We really do appreciate your taking the time to make a presentation to the committee and to answer the questions that committee members have. I know there were some recent studies released, and certainly we look forward to hearing from you on the findings.

Mr. Burden, Mr. Mandrak, and Ms. Cudmore, I'm not sure who is to lead off.

Mr. Burden, the floor is yours. Perhaps you could introduce your associates who are with you today.

[Translation]

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

Ladies and gentlemen, members of the committee, it is a pleasure to be here to address Fisheries and Oceans Canada's mandate regarding our contribution to protecting the Great Lakes against the Asian carp. My name is David Burden and I am Acting Regional Director General, Central and Arctic Region at the Department of Fisheries and Oceans Canada.

[English]

With me today are Becky Cudmore and Nick Mandrak. They are the knowledge behind the topic we are going to be discussing today. They will provide an overview of the work they've been doing related to Asian carp in the Great Lakes with our colleagues on this side of the border and south of the border.

Before I ask Becky to provide you with an overview of the binational risk assessment work, I would also like to take a few minutes to provide a bit of context and outline some of the other work we are doing which I think will be of interest to this committee and your study. After that, we will be willing to take any of your questions and to answer them as best we can.

Aquatic invasive species such as Asian carp pose a significant threat to Canada's fisheries, putting at risk regional economies and jobs that rely on commercial fisheries, tourism, and recreation. While there are currently no Asian carp in Canadian waters, Asian carp DNA has been found north of the electrical fish barrier on the Chicago Sanitary and Ship Canal. Another risk is that live Asian carp have been found entering Canada via the U.S.-Canada border crossing to serve the live food trade industry.

In 2010 DFO, in cooperation with U.S. agencies, undertook a binational risk assessment on the two highest priority Asian carp species, those being bighead and silver carp. DFO allocated approximately \$415,000 to fund this assessment in order to help guide Canadian and American prevention, monitoring, and control activities throughout the Great Lakes and to identify vulnerable areas.

Back on May 28, 2012, Minister Ashfield, on behalf of the Government of Canada, announced funds totalling \$17.5 million over five years to protect the Great Lakes from Asian carp. These funds are allocated to four key activities: prevention, early warning, rapid response, and management and control.

DFO is also currently developing a regulatory proposal that would address the issue of import of live aquatic invasive species such as Asian carp. In June of this year, DFO was invited to join the Asian carp regional coordinating committee, which is responsible for coordinating activities under the U.S. Asian carp control strategy framework across all levels of U.S. government at the state and federal levels. The committee's aim is to prevent environmental and economic damage to the Great Lakes from these species.

Finally, closer to home, we've been working with our colleagues south of the border as well as from Ontario and the aquatic Invasive Species Centre up in Sault Ste. Marie to develop a Canadian Asian carp forum similar to those that have occurred south of the border. This forum will provide basin-wide activities concerning the prevention of Asian carp introduction and establishment in the Great Lakes. It will be held on November 8 at the Palais Royale in Toronto, and will be attended by agencies from both sides of the border, non-government agencies, and the public.

With that context and update information, I will now turn things over to Becky to walk you through the details of the binational risk assessment.

• (0920)

**Ms. Becky Cudmore (Senior Science Advisor, Central and Arctic Region, Great Lakes Laboratory for Fisheries and Aquatics Sciences, Burlington, Department of Fisheries and Oceans):** Thank you very much.

I do have a deck and if you turn to the second slide, it is a quick overview on risk assessment for aquatic invasive species. The first step is to look at the probability that a species will be introduced, taking into account the likelihood that it will arrive, survive, establish, and spread. The second part of a risk assessment is to determine what the magnitude of the consequences would be if the species was successfully introduced. Combining these two parts gives you the ecological risk of that species to the ecosystem.

Turning to the next slide, the risk assessment for the bighead and silver carp was drafted by experts from DFO, the U.S. Geological Survey, and the Great Lakes Fisheries Commission. This draft was presented at a meeting of invited binational experts and freshwater fish invasive species experts in risk assessment, or experts in invasive species modelling.

The peer review meeting followed a rigorous review process for science advice set by DFO, which follows the science advice for government effectiveness principles. Proceedings and a science advisory report have been completed, which have resulted in strong, transparent, and scientifically defensible products, including an actual risk assessment authored by me, Dr. Mandrak, and our American colleagues.

I will discuss some of the key results for each stage of the risk assessment process.

Two categories of potential entry routes were identified and assessed: physical connections and human-mediated release. The most likely entry point to the Great Lakes is through an existing physical connection with an already invaded water body, specifically the Chicago Area Waterway System, CAWS, into Lake Michigan. I wish to note that the CAWS is a variety of water connections, not just the Chicago Sanitary and Ship Canal. Other physical connections exist but were assessed to be at lower risk. Trade had a greater uncertainty for our assessment, and more information would be required in order to provide an assessment with greater certainty.

We found as a key result for survival that enough food and habitat exists throughout all five of the Great Lakes, especially Lake Erie, for these fish to survive and overwinter. These species are opportunistic feeders. They consume a wide range of food sources, including bottom debris and pseudofeces from zebra mussels in order to survive. Pseudofeces is the biological waste product from zebra mussels.

The key result for establishment is that Asian carp require rivers for spawning, and we found that suitable spawning conditions exist in at least 49 Canadian rivers. Extensive wetlands are available throughout the Great Lakes and these provide an excellent nursery habitat for young Asian carp. We also found that positive population growth would occur in the Great Lakes, and that it would require as few as 10 adult females and a similar number of males to have a greater than 50% chance of annual successful spawning. This requires the fish to be able to find each other in suitable spawning habitats, but because they are drawn to rivers for spawning, we think this would occur.

I will now turn to the key results for spread. Following introduction into a single lake, these species would be expected to spread to the other lakes within 20 years. The spread would be more rapid for lakes Michigan, Huron, and Erie, and potentially Lake Superior. Spread into Lake Ontario would be longer as Lake Erie is extremely suitable and these species would be less inclined to leave that lake.

I will now turn to the key results for consequences. Plankton-eating fish, plankton being the very small plants and animals in the water column, fish such as gizzard shad and buffalos, would be forced to compete for their primary food source. Bighead carp have very specialized adaptations for very effective consumption of plankton. They have a voracious appetite. They consume up to 40% of their body weight daily. This will significantly reduce the number of native fish in the Great Lakes region, and will have an impact on this delicate and important part of the food web. In turn, the reduction of these native fish would reduce the number of predatory fish such as yellow perch and walleye.

Turning to the key results for our overall risk, if no additional action is taken, the overall ecological risk of bighead carp to the Great Lakes is high, especially to the central lakes, those being lakes Huron, Michigan, and Erie. The impacts will increase over time.

•(0925)

The magnitude of impact of bighead carp in the Great Lakes is directly related to their becoming established. Therefore, preventing establishment is critical.

For Canada, where there are no established Asian carp, our focus would be on preventing introduction. This is the main driver of the new Asian carp program that Mr. Burden spoke of.

I would be happy to take any questions.

**The Chair:** Thank you very much.

Leading off today will be Mrs. Davidson.

**Mrs. Patricia Davidson (Sarnia—Lambton, CPC):** Thanks very much, Mr. Chair, and thanks to each of you for coming back again today. We're trying to wrap up this study and we felt we absolutely needed to discuss the risk assessment again before we were able to do that.

Becky, in closing, you talked about the prevention mode. We know that both of you have referred to the \$17.5 million that was announced in May of this year with the prevention, early warning, rapid response, and management and control categories to it. You talked about prevention being extremely important. Where do we go with this prevention? Is prevention the main focus in the \$17.5 million in funding?

**Ms. Becky Cudmore:** The main focus of the Asian carp program will be prevention. That is our most effective and efficient use of funds in dealing with any aquatic invasive species, and especially this one, as we don't have them in Canada at this time. We need to focus on preventing their arrival so that we can avoid the subsequent steps of establishment, spread, and impact.

We will be working with the U.S.A. because that is where the invaded water bodies are located. It was very critical for us to be part of their coordinating group so we can have a voice at their table on

the activities they are doing to prevent arrival through that particular pathway.

It was really important for us to make sure we understood all the existing pathways throughout the Great Lakes so that we weren't so focused on one that we could have missed others.

By identifying all the pathways, we are able to think about which ones we have control over. We do have control over trade and what should be coming across the border. Understanding better the characteristics of live trade will be another focus of the program. It is illegal to bring them into Ontario and possess them live, but we know people do illegal things and so we will be working with the Canada Border Services Agency and the Province of Ontario to work on that particular pathway.

•(0930)

**Mrs. Patricia Davidson:** In talking about prevention, you mentioned that the Chicago Area Waterway System is the biggest physical way they are coming in, and the fact that there are two distinct governments and countries. How do we work with the U.S. A.? How can we best support and encourage them to—perhaps it's a physical separation, or something else—but how do we do it? What do you think the best answer is there?

**Mr. David Burden:** What I have seen in all the time I have been involved in this file is a great deal of cooperation and a very integrated approach. Our participation in the Asian Carp Regional Coordination Committee is a step in that direction. We were always on the periphery of discussions. When John Goss approached us and the minister about having Canadian officials, including officials from Ontario, participate, that was a sign of the degree of cooperation that was needed to go to the next step. The work that Becky and Nick and their colleagues had done on the binational risk assessment went a long way to the Americans saying that there is a lot of good research and work being done up in Canada and that everyone can benefit from that.

The other part of the issue is that there's a lot of discussion about the Chicago Area Waterway System, but we have to be very cognizant of the fact that that's not the only way these invasive species can get in. You can do physical separation, but Chicago in and of itself was built on a very marshy area. There are significant other ways, through floods for example, that these invasive species would get in even if a physical separation is done. The cost of that, coupled with the impacts on transportation and other parts of the economy, would be similar to our saying that maybe we should close down the St. Lawrence Seaway system to stop sea lamprey or something like that. It's already there, so where do we go?

The key to this is what Becky alluded to regarding the prevention: education and outreach. We have to get all the information out. This public forum in November that we spoke about will be an opportunity for us to have a very good discussion about that in Canada with folks who are directly impacted because they live along the Great Lakes.

**Mrs. Patricia Davidson:** When you were here the last time, Dave, you talked about physical separation and the fact that it wouldn't make much difference if we were to have one of these 100-year floods. With the way our weather patterns are going these days, it seems that a 100-year flood might be happening more frequently than that. Can we address that issue in some way? Is that something your group will be talking about?

**Mr. David Burden:** I think all of the work we are doing and the discussions that we've had with our American, provincial, and state colleagues are along the lines of using what we know, using what we're seeing from climate change, to advance the work we have. It's one of these things that is really difficult to address until you start seeing them happen.

From our perspective, that's why we wanted to look at and be able to use the information from the binational risk assessment and couple it with the work the Ontario government has been doing. I think folks from the Ministry of Natural Resources were here to talk about their rapid response, so if we did find live Asian carp in the Great Lakes, we would be able to marshal everybody's resources to address that in a rapid and coordinated effort to eliminate the risk.

• (0935)

**Mrs. Patricia Davidson:** Is detection part of this overall process? Is some of the \$17.5 million being used for detection as well? If so, how is that done?

**Ms. Becky Cudmore:** Yes, absolutely. Early detection is part of prevention as well, because the sooner we can locate a species, the more ability we will have to remove it from the system and basically restart the invasion process. Early detection or early warning surveillance is definitely going to be a part of this prevention-based program.

We'll be using traditional methods as well as new genetic techniques that are emerging and growing. Conducting research on these techniques is going to help feed into that as well.

**Mrs. Patricia Davidson:** Thank you very much, each of you, for the work you're doing on this.

**Ms. Becky Cudmore:** Thank you.

**The Chair:** Thank you, Mrs. Davidson.

Mr. Chisholm.

**Mr. Robert Chisholm:** Thank you very much.

We appreciate having our guests come back to talk to us further. Clearly, this is important work.

This study was based on data up to the end of 2010, right?

**Mr. David Burden:** Yes.

**Mr. Robert Chisholm:** I understand from your previous presentation when you were here a few months ago, and from a few other witnesses, that there has been a fair bit of preventive work

—or a beginning—over the past year or so. I'm wondering how that work informs the assessment you've done.

**Ms. Becky Cudmore:** The work that was done in the last year would not be informing the risk assessment. You do have to draw a time boundary.

**Mr. Robert Chisholm:** Yes, I understand.

**Ms. Becky Cudmore:** However, if we were to keep re-evaluating risk over time, recent research would help inform it and may change some of the answers that we did provide in the risk assessment.

**Mr. Robert Chisholm:** Yes, I understand how that works. I guess that at some point you will have an opportunity to update some of the results. I assume that those actions are being evaluated, that the preventive work being done is being evaluated to see what impact it has on the conclusions you've reached from your assessment.

**Ms. Becky Cudmore:** Yes.

**Mr. Robert Chisholm:** Is that true?

**Ms. Becky Cudmore:** The other thing about risk assessments is that they're living documents in a way, and we are able to look at new work that's being done. As I said before, we did look at trade. We didn't have a lot of information, so we have a lot less certainty associated with our rankings of trade. In continuing to better understand trade and movement, and in looking at enforcement activities, we could then have greater certainty, and we could say more positively what our assessment of that is.

It just depends on whether or not managers wish us to re-evaluate the risk assessment. This was our second one. We did one in 2005. It is something that is a living document and can be looked at over time.

**Mr. Robert Chisholm:** Has this assessment informed the preventive strategies that have been employed over the past 16 months since the study was done?

**Ms. Becky Cudmore:** Yes. In both Canada and the U.S., this risk assessment has provided advice for management activities, such as where to look for species, and what kind of outreach areas we should be moving toward. It's been the foundation for the program here in Canada, but it has also informed American activities.

**Mr. Robert Chisholm:** Are the activities that are intended to be pursued as a result of the \$17.5 million in funding the government announced in the spring tied together with the results of this assessment?

• (0940)

**Ms. Becky Cudmore:** Yes, absolutely.

**Mr. Robert Chisholm:** One of the issues that came up in some of the earlier testimony was the idea of physical barriers. Where does that stand now? There was some evidence that more work was being done by the United States on that issue. Could you inform us on that?

**Mr. Nick Mandrak (Research Scientist, Central and Arctic Region, Great Lakes Laboratory for Fisheries and Aquatics Sciences, Burlington, Department of Fisheries and Oceans):** Yes. The U.S. Army Corps of Engineers is doing a risk assessment of all the physical connections between the Mississippi River and Great Lakes basin. It's a risk assessment that is a little different from what we undertook, because it is specifically looking at the risk of organisms moving through those connections between the basins. It's not looking necessarily at the impact, but simply at whether or not the organisms can move.

Based on their assessment, they will then prioritize actions to minimize that risk. In that assessment, the Chicago Area Waterway System came out as the highest risk. There was another waterway, Eagle Marsh, between the Maumee and Wabash rivers and the Lake Erie basin, where there is this huge wetland at the headwaters that connects the two. They have actually put up a fence to physically separate fish in the two basins to not allow the movement of adult carp.

I think they identified over 30 connections in all. After that one, the risks declined quite dramatically. There are not a lot of other risky connections, physical connections anyway.

The U.S. Army Corps of Engineers has been doing this intensive study of those connections.

**Mr. Robert Chisholm:** When do you expect we'll be getting some conclusions from that study?

**Mr. Nick Mandrak:** The study is being released in phases. I think they've been mandated by the U.S. government to move the deadline forward, so we'd expect that relatively soon.

**Mr. Robert Chisholm:** I want to ask you about the recently signed amendments to the Great Lakes Water Quality Agreement, which includes an annex on invasive species. In terms of this risk assessment, how can the process that's been undertaken for the carp inform how the obligations in the Great Lakes Water Quality Agreement will best be met?

**Mr. David Burden:** We were fortunate as our team was working to support Environment Canada on negotiations for Canada related to the Great Lakes Water Quality Agreement. We're well under way in the process of the binational risk assessment, so we had the key parameters around that. Both sides were of the opinion that having an annex related to invasive species would have been critical to addressing mutual concerns and interests in the Great Lakes.

A lot of the work that Becky and Nick and the team did went into informing and was part of our negotiating position and has seen itself outlined in the new ratified agreement.

**Mr. Nick Mandrak:** There is a call in the annex for binational coordination of risk assessment. What we did with Asian carp fits squarely in that call.

**Mr. Robert Chisholm:** Okay, great. Thanks very much.

**The Chair:** Mr. Sopuck.

**Mr. Robert Sopuck:** In testimony before our committee this spring, Professor Hugh MacIsaac put forward an alternate viewpoint that perhaps the risk of Asian carp is not as serious as many people say.

I tend to be on the side of those who say the issue is very serious. I would assume you would know Professor MacIsaac and his work. Can you comment on his view? Is there some validity to what he is saying?

**Mr. Nick Mandrak:** I really can't comment on his view in the sense that he is entitled to his own view. He is familiar with our documents. He reviewed our documents. Our documents were reviewed by essentially 25 Hugh MacIsacs. I think what he was providing was simply his personal opinion.

What we have provided is an exhaustive peer review of the best available information, and I would argue that it trumps one man's opinion.

**Mr. Robert Sopuck:** That's fine. I certainly accept that.

In terms of the American experience with Asian carp, presumably they have been fighting these species for a number of years now. What lessons can we learn from what they have accomplished or not accomplished?

• (0945)

**Mr. David Burden:** I think probably the biggest lesson—and it gets to what Nick was saying—is that dealing with any invasive species is best done before it gets in and gets established. In Canada we're seeing that with how much it's costing us to address sea lamprey and the impact that it's had on commercial fisheries in the Great Lakes.

If we look into the United States and we see areas where Asian carp have become established, they have pretty much taken over the entire ecosystem. They make up about 90% of the biomass.

The traditional commercial fisheries would be gone and the impacts on the local economy would be devastating.

**Mr. Robert Sopuck:** I certainly accept that prevention makes the most sense. I think it's prudent to plan for the worst. Again, my question relates to what the Americans have done with existing Asian carp populations and what results they have achieved.

This question is in the vein of war-gaming what might happen. That is the essence of my question.

**Mr. Nick Mandrak:** I think they are taking various approaches. I was actually on one of their boats this summer. They were trying to fish down the invasion front. We were setting nets in the Illinois River, right at the upper end of the Illinois where the fish are found. Within an hour we caught two tons of Asian carp in our boat alone. There were five boats out there, so 10 tons of fish were caught that day. They had been doing that for two weeks straight, so they took out 50 tons.

The idea is to remove enough so that you actually change the population growth rate, and move the population into a decline. They are doing an analysis which shows they are doing that.

If we were faced with going beyond prevention and into rapid response, we could get an idea of the type of effort required to carry out that rapid response from what the Americas are doing.

**Mr. Robert Sopuck:** Is there any work being done on the development of new and selective fish toxicants that can target Asian carp? I think it was you or some other scientist last time who talked about rotenone pellets. Has that research advanced over the last little while? Could you expand on that?

**Mr. Nick Mandrak:** The U.S. Geological Survey is continuing to work on those toxicants that would be species specific. Asian carp feed by filter feeding. They're large fish; they can get up to 50 kilograms. They swim through the water column with their mouth open or they sip at the surface and filter microparticles or plankton through their gills. What they want is for them to filter the fish poisons in the same way. From what I understand, they are still in the trial phase and are having some success. They feel optimistic they will be able to come up with a specific piscicide.

The one thing we have to keep in mind is that most piscicides are not species specific. Even though the effect is intended to be on Asian carp, there could be some incidental mortalities as well. We would have to evaluate whether or not we are willing to take that risk once that poison system becomes operational.

**Mr. Robert Sopuck:** In terms of the Mississippi itself, which, it sounds to me, is completely overrun with Asian carp, what kind of trends are we seeing? Usually the trend for an invasive species is a rapid spike and then a decline to some kind of level that's in equilibrium. Is that occurring in the Mississippi or has the system completely changed? Are the native species able to fight back and get part of their niche or have the Asian carp simply overwhelmed the Mississippi?

**Mr. Nick Mandrak:** Because the Mississippi is so long, we've seen this invasion front moving further north for the last 20 years. You see that upward trend because you are constantly at this invasion front.

Further south, they do see some levelling off but still at very high levels of biomass of Asian carp. They are still at very high numbers, preventing commercial fishers from going out and fishing for other species because the fish destroy their nets and they cannot afford to fish for other species.

• (0950)

**Mr. Robert Sopuck:** Being a Manitoban, Lake Winnipeg is of great concern to me. It strikes me that Lake Winnipeg and Lake Erie are similar kinds of habitats. If Asian carp ever got into Lake Winnipeg, which right now has a thriving walleye fishery, would we see similar effects on Lake Winnipeg that we have seen on the Mississippi?

**Mr. Nick Mandrak:** The observation that it is similar to Lake Erie is a good one. I would expect the same effects you saw on one of our slides: that they could readily survive there from a climatic point of view. The bigmouth buffalo, which is more or less an Asian carp analogue, does well in Manitoba. I would be very concerned about Asian carp. The one thing that may limit their distribution potentially is suitable spawning. We have not done a spawning tributary analysis for Manitoba yet.

**Mr. Robert Sopuck:** Thank you very much.

**The Chair:** Thank you, Mr. Sopuck.

Mr. MacAulay, go ahead.

**Hon. Lawrence MacAulay:** Thank you very much, Mr. Chairman.

Welcome to the presenters. Dr. Mandrak, you indicated that the U.S. Army Corps of Engineers is doing an assessment. If I understand it correctly, there are two physical barriers. I would like you to explain what there is in barriers. Also, could you explain the difference between the physical barriers and the electric barriers?

I'll leave it at that for now.

**Mr. Nick Mandrak:** In the Chicago Sanitary and Ship Canal there is no physical barrier. An electrical barrier was originally put in as a pilot barrier about 10 years ago to prevent the spread of round goby into the Mississippi River. It was built too late to do that, but then as the threat of invasive species came the other way, with Asian carp, they realized it had the potential to prevent Asian carp from moving into the Great Lakes.

Because it was only a demonstration barrier, there were concerns that barrier failure might lead to times when the fish could actually get by, so they built a second barrier which is now operational. There are plans to build a third within this area south of Chicago. An electrical barrier has been shown to be highly effective. They've done trials where they've tagged surrogate species, such as common carp, that they know will not go through the barrier. It appears to be quite effective.

I would suggest that no barriers are 100% effective. When you hear about physical barriers, what they're talking about is physical separation. You need to understand that, essentially, they're going to fill in the canal to completely separate the watersheds.

There is also talk about ecological separation, where you prevent the organisms from mixing. That's what this barrier's doing, at least with fish.

**Hon. Lawrence MacAulay:** I believe there would be quite a difference in cost between the electrical barriers and the physical barriers. Could you elaborate?

**Mr. Nick Mandrak:** Absolutely. There is the cost of physically doing the work of building the electrical barrier versus the physical separation. Then there's the cost in trade because it would alter trade patterns and the movement of vessels in the vicinity of Chicago.

**Hon. Lawrence MacAulay:** In your assessment of when the U.S. Army Corps of Engineers is going to do its assessment, you indicated that 30 areas could be potential entry points. How many of these have barriers?

**Mr. Nick Mandrak:** Almost all of them do, not electrical barriers but physical barriers of types. The U.S. Army Corps of Engineers considered that when it was assessing the risk of these different barriers.

**Ms. Becky Cudmore:** If I could clarify too, they were looking at all aquatic invasive species, so that would be viruses as well. There were only two that were for a fish.

**Hon. Lawrence MacAulay:** The Canadian Asian carp forum is coming up, and I would like you to comment on that.

I have asked this question before. There are many threats: floods, coming through the border illegally, and all that. I always think that education is most important. I would suspect that most people along the border would not want to import Asian carp if they knew the devastating effect it would have on the people in the area and the economy of the area. I would like you to comment on that. What do you think should be done, and how should it be done in order to educate the public?

• (0955)

**Mr. David Burden:** The forum is probably the first big event in which we have an opportunity to provide that sort of broad-based outreach to Canadians in a very public way. We're going to have the benefit of having the American experts along with our Canadian experts there.

**Hon. Lawrence MacAulay:** The rapport is excellent, is it?

**Mr. David Burden:** Incredibly. I've been involved in a lot of work internally and externally with our colleagues. I must say this is probably some of the most rewarding work I've been involved with in my public service career, because everybody knows the impacts of this if we don't succeed.

**Hon. Lawrence MacAulay:** You know, but I don't think everybody knows, and that's the problem.

**Mr. David Burden:** You're right, Mr. MacAulay. This is why the education outreach is a key plank in our proposal for Canada. We are working with organizations, such as the conservation authorities, the folks who actually are out there on the water. Groups such as the Ontario Federation of Anglers & Hunters would be very much interested in this kind of stuff.

We'll be bringing those folks together and trying to get that message out. Going back to when we were here in the spring, there are folks who, if there's a dollar to be made, will try to do that. One of the benefits of the new changes to the Fisheries Act is that we can have different levels of fines and penalties for these infractions, and as a result of that the \$50,000 fines that have been levied could be much higher. I think that would be, as well as the education outreach, a deterrent that would help.

**Hon. Lawrence MacAulay:** Has anybody been charged for bringing invasive species into this country? Have there been many? How effective has it been?

**Ms. Becky Cudmore:** Yes, there have been people charged by the province for breaking provincial law by possessing live Asian carp. There have been at least three court cases that have gone through and people have been fined.

**Hon. Lawrence MacAulay:** You mentioned the importance of early detection, Ms. Cudmore. I'd like you to elaborate on that.

**Ms. Becky Cudmore:** Sure.

**Hon. Lawrence MacAulay:** I think it's down the scale a little farther than we want it to be.

**Ms. Becky Cudmore:** We do want to be on the proactive side, not the reactive side, when dealing with aquatic invasive species. In the past, by the time we see them, if we're not actively looking for them, they show up and they've already become well established in the system. It becomes very costly and really ecologically ineffective to deal with those species.

**Hon. Lawrence MacAulay:** Is it possible? Has it ever been successful? Dr. Mandrak talked about fishing and taking tons and tons of them out. What effect does that have?

**Ms. Becky Cudmore:** He was talking about fishing down an established population. If we can detect things early, we don't even have to get there. The idea is to do very targeted surveillance in key areas where we think they are first likely to show up, as well as to use key techniques in order to find them as early as possible. Then we don't have to go down the road of control.

**Hon. Lawrence MacAulay:** You do believe—

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

We'll now move to a five-minute round, and Mr. Toone will lead off.

**Mr. Philip Toone:** Thank you, Mr. Chair.

It was mentioned in your introductions that Asian carp DNA was found in the Great Lakes. I'm not sure what that means. Could you elaborate?

**Mr. David Burden:** There's a scientific answer to it. There seems to be a lot of discussion on this. I think Nick and Becky would tell you that what the research means on this is still very much in its infancy.

Clearly, if something like ballast water is brought into Canada from a vessel that's gone through an area that has Asian carp established in the United States, even when that's treated—essentially it's going through a food processor, is the way I equate it in my simple mind—there's not going to be live fish coming out of that, but there is going to be the DNA evidence that fish were there. That's why we're seeing these positive hits of environmental DNA. Does that mean the fish are there? Not necessarily in a circumstance where we have to go into a rapid response, but clearly it's a marker we want to look at. If you're seeing positive samples, then clearly you want to be able to marshal your efforts, as Becky was saying, and go in there and do some kind of treatment, or some kind of fishing, or something like that to address it.

From a scientific perspective, you could get more detailed analysis of that from my colleagues. I think that's the issue, from my perspective.

• (1000)

**Mr. Philip Toone:** That clarifies it a bit. Thank you.

It seems to me that we recently signed the Great Lakes Water Quality Agreement with the U.S. We had previously announced \$17.5 million to fight the introduction of Asian carp. What are the targets for invasive species? What are you looking at? What kind of financing are you looking for? What staffing levels are going to be required? I'm not sure what the annex to the agreement actually means concretely.

I'm very happy that we announced \$17.5 million to fight Asian carp, but the U.S. has put in \$1 billion over the last three years for the water quality issues of the Great Lakes. To me, \$17.5 million doesn't sound as though it's going to go very far. What are the actual targets the department sees for the next few years? What are you looking to do, exactly?

**Mr. David Burden:** Clearly, all of the research and all of the work we're doing, even the work we're doing on Asian carp, and the \$17.5 million is focused purely on Asian carp, we could use that, and we are using that, for all other aquatic invasive species. The approach we're using, the scientific research, education and outreach on one versus another can be used for one species and then be spread across to others. We are able to leverage a lot of the funding we put in there. While it's earmarked for Asian carp, it would help with every other invasive species.

**Mr. Philip Toone:** All right. Concretely, you said earlier that with the changes to the Fisheries Act there are more fines available in cases of infractions. What is your capacity for enforcement? What's the actual ability to be on the ground seeing where these violations are taking place?

**Mr. David Burden:** I think that's where the coordination and integration is coming home to play. Clearly, in the Great Lakes, the fisheries are managed by the province, so it's the Ontario Ministry of Natural Resources that has the boots on the ground, so to speak, to address that. What we've been doing, and Becky and her team have been instrumental in this, is providing the advice and support, the education. How do you know what an Asian carp is? How do you identify them to the folks at the Canada Border Services Agency? If we're looking at these shipments that have been coming in, we have the education so the customs officer can say that it's something we want to be wary of. They alert OMNR, which has enforcement people there.

That's one example of how that comes together, but I think we could probably come up with a half dozen others very shortly.

**Mr. Philip Toone:** You mentioned that the province has a large role to play, certainly in the commercial fishery. The science, which is what I think we're talking about today, that's DFO.

**Mr. David Burden:** That's right.

**Mr. Philip Toone:** There have been significant cuts to DFO recently. I can't believe that you're able to do what you were able to do last year. There has to have been an impact. I'd like to understand. What is your actual capacity to do the enforcement that the annex to the Great Lakes Water Quality Agreement actually mandates you to do?

**Mr. David Burden:** Let me answer that question in two ways. I've been around government for more of my life than I was out of it; I guess that's the way to put it. I've seen programs come and go. I've seen budget increases and I've seen budget reductions. Every time I looked at our budget, I noticed we had an infusion that exceeded what we lost. Yes, we have to make choices. Everybody has to make choices.

•(1005)

**Mr. Philip Toone:** There's more money than the cuts—

**The Chair:** Mr. Toone, sorry, your time has run out. Thank you.

Mr. Kamp.

**Mr. Randy Kamp:** Thank you, Mr. Chair.

Thank you very much for coming back to us to give us more information, particularly with respect to this risk assessment. It's an interesting study, partly because these appear to be interesting animals.

Let me begin with your presentation. In slide 5, the key results survival page, you say that enough food and habitat exists throughout all five of the Great Lakes, especially Lake Erie, for these fishes to survive and overwinter. I'm wondering if you can tell me what that means. I'm assuming it doesn't mean enough food for 10 females and their partners and maybe the first generation of offspring. Can you tell us what that statement means in terms of number of fish? It goes to Professor MacIsaac's statement as well. Is there enough food for them to be in great abundance? Could you give us more information on that, please?

**Mr. Nick Mandrak:** Yes. That conclusion is based on a bioenergetics model. That is the standard model for determining whether or not there's enough food in an area for a population to become established. We're talking about an established population that would number in the thousands. There's certainly enough food in terms of the plankton and the pseudofeces. The pseudofeces is really an emerging food that we never knew they would use, based on the European literature from where they are native. It's something that's based on recent studies done by our colleagues in the United States, that this is a new food source. There's certainly plenty of food to establish a reproducing population with thousands of individuals.

**Mr. Randy Kamp:** That's what I'm having trouble understanding. Eventually, we'll get to the end of the assessment when the ecological consequences of this will have to be determined. Aren't the consequences significantly tied to your assumptions on the size of the population that could survive? Are you saying it's a massive population that could survive and cause these great ecological consequences, or is it a smaller population? I'm not quite sure I see that connection clearly in your report.

**Mr. Nick Mandrak:** We did not model what the ultimate size would be because there is some uncertainty still around that bioenergetics model. Certainly, the model indicates there is sufficient food for them to survive and establish a reproducing population. What the ultimate size would be, we're not certain. But if you look at the productivity in the western basin of Lake Erie, for example, and compare it with the Upper Mississippi River, where there are millions and millions of individuals, the productivity is similar.

**Ms. Becky Cudmore:** If I may add, you are correct that the size of the population will determine the degree of impact, so a larger population will have a larger impact. That was one of the results.

**Mr. Randy Kamp:** Yes, I think I understand that. I simply don't know how to draw conclusions on what we should think the ecological consequences could be if we're not able to draw some assumptions or estimates on what that surviving established population might be.

I found a couple of things interesting in the report itself. The report says that on the 20-year timeline the ecological consequences for the Great Lakes—all, perhaps, other than Lake Superior—are moderate. Somehow I think it's going to be more than moderate. I know in the 50-year timeline you're saying high, perhaps high. Do you have any further comments on that?

•(1010)

**Mr. Nick Mandrak:** I think that's related to the idea that we expect it will take time for the population to spread and increase in size. They will probably not mature until about five years of age. The generation time is an intermediate length of time compared to Great Lakes fish. We considered spread and the time it would take to increase the population size and felt that they would be closer to their maximum population size 50 years out than 20 years out.

**Mr. Randy Kamp:** Good. Thank you very much.

**The Chair:** Thank you, Mr. Kamp.

Mr. Donnelly.

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

I want to pick up where my colleague left off on the enforcement. You mentioned the Ontario government has the boots on the ground in terms of enforcement. You also mentioned that in your opinion one of the benefits to the Fisheries Act changes was the ability to increase fines. My colleague asked about the seeming disconnect between the two. That's where I'm confused as well. Maybe you could explain how those changes to the Fisheries Act allow DFO to increase fines, but then you talk about the Ontario government being the enforcement agent. I'm not quite clear what that connection is.

**Mr. David Burden:** In Ontario the province has the delegation; they've assumed the role of fisheries resource management. As a result of that they're using the federal Fisheries Act as their vehicle for managing the commercial fisheries on the Great Lakes. If through the amendments to the Fisheries Act the ability to increase the level of fines is up, they would have the benefit of doing that. They can use the federal legislation. They are, as I said, the boots on the ground to enforce that legislation in the province of Ontario.

**Mr. Fin Donnelly:** Do you think the increased fines will act as a greater deterrent?

**Mr. David Burden:** When we look at the number of shipments that have been coming in that we've caught, and the prosecutions, I think I've said it here before that a \$50,000 fine on fish that is \$4 or \$5 a pound in the Toronto fish markets is seen by some to be the cost of doing business. If we can do the education and outreach and we can use the punitive measures to correct that behaviour through the enforcement under the act, then I think it's a two-pronged approach that will give us a higher degree of success.

**Mr. Fin Donnelly:** Could you fill us in on how many charges have been laid in the past on average, in a given year, and what those average fines are?

**Ms. Becky Cudmore:** I think there were three in the last year, and \$20,000 to \$50,000 in fines. It did vary. The higher fine was because it was a second offence.

**Mr. Fin Donnelly:** Do you think the increased capacity of fines will act as a deterrent and the Ontario government can use a bigger hammer to deal with this problem?

**Ms. Becky Cudmore:** Yes.

**Mr. Fin Donnelly:** How does Asian carp relate to other invasive species in terms of the ecological risks? Obviously, this is an important element but there are other invasive species. Where is this on the priority list? Is this our top or mid priority in the Great Lakes, or are zebra mussels or sea lamprey?

**Ms. Becky Cudmore:** I think those are our top three right there. Sea lamprey, Asian carp, zebra mussels have had devastating impacts on the ecological as well as the economic sides of things. Those would be the top three that we are currently dealing with. We also conduct risk assessments looking at potential species to make sure they don't arrive as well.

**Mr. Fin Donnelly:** Thanks.

The \$3.5 million a year is for Asian carp. Is that enough? Are we putting in the same kind of resources to the other two top priority invasive species? How are we dealing with them and the resources needed?

•(1015)

**Mr. David Burden:** I'm happy you came back with that question. I didn't want to leave on the record the thought that we had huge amounts of money.

Clearly, when we were developing the annex and our negotiating position, we were also looking at what we were doing with Asian carp and other aquatic invasive species. The funding we have within the department is sufficient to allow us to meet our obligations under the Great Lakes Water Quality Agreement. The money we have is focused on the four pillars we've talked about. We can do it within that amount of money because we're talking about something that hasn't gotten into Canadian waters yet, so we can go a lot further.

The other reality, and it's to our benefit, is we can leverage significantly off the significant investment the Americans are having to make as a result of these species getting into their waters and not being addressed immediately.

**Mr. Fin Donnelly:** Can you also answer about the amount of resources going toward the other two invasive species? There's \$3.5 million a year targeted for carp. What about the sea lamprey and zebra mussels, and addressing ballast water?

**Mr. David Burden:** Again, I don't have the whole suite of numbers. The program we use for sea lamprey is probably the big ticket. It's an established issue we're dealing with, but again is an issue we're dealing with in partnership with the Americans. The Americans contribute money, as do we, through a formula through the Great Lakes Fishery Commission. The total budget for that would be just under \$30 million in total for the program for sea lamprey. We talked about zebra mussels and the impact they would have on infrastructure, so to speak, water intake, sewers, that kind of stuff. We don't really have, at least in the information I have, a handle on how to eradicate zebra mussels. They're established. Other than a maintenance of cleaning up and trying to reduce the clogging aspect of these things on intakes and that kind of stuff, I'm not quite sure what more we can do. You don't want to be using pesticides on that.

**The Chair:** Thank you, Mr. Donnelly.

Mr. Allen.

**Mr. Mike Allen:** Thank you very much, Mr. Chair. Thank you, folks, for coming back to be with us today.

On slide number 5, where you talk about the habitat matching levels, you have one slide for the bighead carp and the silver carp. I note that the habitat levels are significantly better for the silver carp than for the bighead carp.

Can you talk about the differences between those two species of carp and what allows them to have what seems to be a much greater range all the way into the northern fishery areas? This is very concerning. Can you talk about what those differences are?

**Mr. Nick Mandrak:** Yes. Thank you for the question.

First of all, I should point out that this map is based on matching the climate in North America to the climate in its native range. The silver carp is found much further north in its native range than is the bighead carp. In fact, I was working in Khanka Lake, on the Russian-Chinese border north of Vladivostok. This is a large lake that gets about a metre of ice in the winter, and we were catching silver carp there. This fish is very much a cold tolerant species. The main difference between the silver carp and bighead carp is simply the silver carp is found further north in its native range.

**Mr. Mike Allen:** What is the larger threat? Is it the bighead or silver carp?

**Mr. Nick Mandrak:** The silver carp is the one that tends to eat the phytoplankton, the algae, the smaller plankton. The bighead carp feed on the zooplankton. It's like a one-two punch. The first thing any native fish feeds on after it hatches is phytoplankton, and then it moves on to zooplankton. To me, this is the real impact. It is competing with every other species, not just a select species. It competes with every other species because it's competing for the food that every other species eats at some point in its life.

The issue with these bighead carp is they quickly outgrow the mouth size of any predator, so within the first year of life, this fish will be 30 centimetres long. They quickly outgrow the gape size of a northern pike or a muskellunge, so it will quickly have no predators.

• (1020)

**Mr. Mike Allen:** Concerning your slide 7, when you talk about five years after the introduction to Lake Michigan and 20 years after

introduction, you are assuming, I guess, the management measures that are in place today.

Have you seen over the last few years the evolution of management practices? Are they getting better? Do we sense that in the next few years those management practices, based on the science—and I think Mr. Sopuck asked about pellets and those types of things—are advancing fast enough, as these species are advancing?

**Ms. Becky Cudmore:** Yes. We have a lot of good news stories concerning management activities that help prevent the introduction and spread of aquatic invasive species, ballast water being one of those stories. In terms of Asian carp specifically, the U.S. is having to move very quickly. Even though this is a 20-year invasion on their side, it has reached such dire consequences that they're having to move forward the advance of research, such as that on these poison pellets, as they're called. They're accelerating very quickly in order to deal with the problem at hand.

Luckily, we're in a different spot in the invasion process. Basically, we are at pre-arrival. We can leverage from the work they're doing and use it to our benefit to continue the prevention of the Asian carp species.

**Mr. Mike Allen:** One thing talked about is the ecological risk assessment being focused only on the ecological consequences, with the economic consequences to be assessed separately. We've had all kinds of estimates of the economic consequences of this invasive species getting into the Great Lakes.

Can you tell me who is going to do that assessment and when? I am very interested.

**Mr. David Burden:** The folks doing that are members of our regional departmental team. That study stands at the point that the findings have been brought together, and it is now being peer-reviewed. That will happen over the next month or two. From there, the information will be shared broadly, as was the binational risk assessment. The study will help frame our knowledge and our approach to how we deal with it.

I think the estimated completion is to be in the spring, and I would say we are on target for that.

**Mr. Mike Allen:** Thank you.

**The Chair:** Thank you, Mr. Allen.

Mr. MacAulay.

**Hon. Lawrence MacAulay:** Thank you very much, Mr. Chair.

Ms. Cudmore, if I understood you correctly, you think that fines are more important or would have a bigger impact—and I'm not disputing that—because of the imports of large quantities of illegal fish into the country. Do you think they are more important than the educational factor, or are the two equal?

**Ms. Becky Cudmore:** Thank you. I'm glad we have a chance to clarify that.

I don't think they are more important; in fact, I believe outreach and education would be more important. But I think we need these punitive measures as well, basically making a two-pronged approach to deal with this aspect of entry.

**Hon. Lawrence MacAulay:** As far as the fines are concerned, you are dealing with the criminal element of the country, and it's a criminal act to do it.

Also, the Great Lakes Water Quality Agreement includes a commitment to develop early detection and rapid response. Looking at the \$17.5 million that has been allocated, I'd like you to comment on where we are right now and what needs to be done. If you could look at what the Government of Canada through DFO or Environment Canada, or provincial governments is doing, I'd like you to elaborate on that and where we are.

**Ms. Becky Cudmore:** Absolutely. We have a commitment to establish rapid response planning and a framework to better understand who does what. Luckily, there has been work done that we can build from.

We also have mutual interest with the United States in this species. These are priority species for both countries. We have in place work whereby binationally we can conduct rapid response efforts. Work is already well under way to develop a framework, develop the responsibilities, and move the yardsticks forward. We are also working with the Province of Ontario to put a rapid response framework in place domestically.

We have both ends covered and are moving that forward. We'll be able to meet this deadline under the Great Lakes Water Quality Agreement.

• (1025)

**Hon. Lawrence MacAulay:** Dr. Mandrak, is it inevitable that this is going to happen? None of us can stop floods. Is it inevitable that this species is going to be in the Great Lakes?

**Mr. Nick Mandrak:** I don't think we should treat it as inevitable. I think we should be working toward preventing the inevitable.

**Hon. Lawrence MacAulay:** If it does happen on a small scale and it is detected with the early detection that has been put in place, which I feel is very important, do you think that if we find it in the Great Lakes we will be able to eradicate it? Is that your thought, looking at the results you've had in other places around the world?

**Mr. Nick Mandrak:** Eradication is very difficult to achieve. I think we can be very successful at reducing population sizes and slowing the spread. If they do end up in the Great Lakes, I certainly think that we should not say that the game is over and all is lost. There is much that we can do to minimize the subsequent impact; that would be reducing population and slowing spread.

**Hon. Lawrence MacAulay:** I suppose it's difficult for you to answer this, but it's hard for people to realize the enormous economic effect this invasion would have, if it happened. You may wish to comment.

It's sometimes difficult to get governments in general to allocate the resources or sometimes really understand what a massive destructive effect this will have on the economy of anybody involved in the fishery around the Great Lakes. I don't know how to word it, but without a doubt, as David Burden indicated, you're not overly

flush with money. Is there a lack of funds in Canada and even in the U.S.? Are we spending proportionately or more than our fair share in handling these situations?

Do you wish to comment on that?

**Mr. David Burden:** The reality is that we're expending resources for an issue that, to this point, exists south of the border.

**Hon. Lawrence MacAulay:** Yes.

**Mr. David Burden:** Clearly that goes a long way. The fact that we're leveraging off what the Americans are doing goes a long way as well.

To your point about the economic analysis and the impacts of this, we'll have a Canadian analysis, as I said, in the spring. We can look at what has happened in the United States and the impact it has had not only on the fishery but on tourism and recreation on waterways, and say that this would be catastrophic in any jurisdiction's backyard.

From our perspective, I've used the example in the past of the way we deal with search and rescue: we always want to deal on the prevention and education side, rather than have to deal with the tragedy at the other end of it. This follows the exact same model. If we can marshal our resources, maybe they will get it. We're doing everything we can to ensure that this invasion doesn't happen. But if it happens, we'll know probably where it's going to happen and will have had the relationships and the planning to be able to hit the ground running and deal with it, so that it doesn't end up as it has in the United States and cause damage of that magnitude.

**Hon. Lawrence MacAulay:** I think it's important—

**The Chair:** Thank you, Mr. MacAulay. Your time is up.

Mr. Mai.

[Translation]

**Mr. Hoang Mai (Brossard—La Prairie, NDP):** Thank you, Mr. Chairman.

I thank the witnesses for their presentations.

I generally sit on the Standing Committee on Finance. So I may be asking questions that have already been asked and answered.

I would like a better understanding. With respect to funding or cutbacks in the budget, Mr. Burden, you said that dealing with that is part of your job. Can you explain which cutbacks have had a direct impact on the department or its studies? Has there been an impact?

• (1030)

**Mr. David Burden:** There have been none regarding the Asian carp problem.

**Mr. Hoang Mai:** Very well.

Let's talk funding. I see that you received \$17.5 million for this study. What will happen upon completion of this five-year program? We know we are talking about prevention. Therefore the money is currently being used for prevention, given that there is no other action being taken yet. After five years, once that budget has been spent, will this structure remain? Can you assure us that there will be no negative impact when it comes to the carp problem? Will you have to ask for new funding?

**Mr. David Burden:** We received temporary funding for five years. I am sure that in four years' time, my team will do what is needed to obtain the funds required to continue our work.

**Mr. Hoang Mai:** As the person responsible for directing budget-related activities, you have to say, with respect to a program that has been cut back, that it depends on the funding that will be allocated. However, given the negative impact Asian carp could have in Canada, do you not believe that we would benefit from a fixed, long-term structure? The most important point is prevention. Should we not have a system whereby the bases that you have established and that you will continue to support remain, if we do not want these carps proliferating in Canada?

**Mr. David Burden:** Yes, you are right, but we can also start by creating a program, improving it over the first five years and then forwarding our observations and recommendations to the government for subsequent years.

**Mr. Hoang Mai:** With respect to the \$17.5 million amount, I was wondering how much of that is set aside to create the structure. How much is reserved for studies?

From what I gather, we could also benefit from what is being done in the United States. Prevention costs less. However, approximately what percentage of funds are actually serving to create long-term infrastructure?

**Mr. David Burden:** It is not really possible to respond to your question at this point. We have only just started doing our analysis to see what percentage will go to what component. By the end of this year, we should have a program in place.

**Mr. Hoang Mai:** I believe my colleague would like to ask a question.

[English]

**Mr. Philip Toone:** It might not be completely unrealistic to expect that Asian carp will be introduced to Lake Michigan at some point. We're maybe one power outage away from the species invading Lake Michigan. What are the possibilities of containing it to Lake Michigan? Is it possible?

**Ms. Becky Cudmore:** Is it possible? Because of the nature of the work under way in the Chicago Area Waterway System, there are a lot of boots on the ground. There are miles and miles of nets out there.

It was mentioned before that we haven't been very good worldwide at eradicating species. That's because we're always on the reactive side. We haven't been actively looking for them. They've just shown up, and they've already been well established.

**Mr. Philip Toone:** Is there any funding assigned to this at this point?

• (1035)

**Ms. Becky Cudmore:** Is there funding assigned to what?

**Mr. Philip Toone:** Is there funding for looking at a plan B and stopping them at Lake Michigan?

**Ms. Becky Cudmore:** Yes, there's a lot of research on containment and the ability to corral species to direct them to areas where we could fish them out. We could poison a smaller area. There's a ton of research under way to have a plan B. The idea is that the game is not over and we would be able to slow or prevent the spread and

subsequent consequences. Delaying that process buys us more time for further research and the ability to fish them out and move them into an area where we can eradicate them.

**The Chair:** Thank you very much.

Mr. Weston.

**Mr. John Weston (West Vancouver—Sunshine Coast—Sea to Sky Country, CPC):** Mr. Mandrak, I was very intrigued by your comment that the survival strategy for these carp is to exceed the gape size of any predator. It sounds like a good strategy for a political party, as well.

Are there any predators that could be introduced that could deal with the carp at one size or another?

**Mr. Nick Mandrak:** I think we've had a very unsuccessful history of trying to introduce one organism to control another. It usually leads to unintended consequences. Even if that organism is controlled, it typically moves on to the next organism, which would usually be a native species, so I don't think that's a good idea.

They do have native predators in their native range, but they evolved with those over tens of thousands of years. If we were willing to wait tens of thousands of years in the Great Lakes, we would expect they would reach some sort of equilibrium level. As Mr. Sopuck suggested earlier, we know that invasive species go up, and they go down, and they go up. They would level off, but not in a time scale we would find acceptable, nor would we find acceptable the economic impact until that levelling off.

**Mr. John Weston:** The photo you've provided is a very dramatic one. For the average non-biologist, you would think that Malthusian theory would take over and they would exhaust their supply, but you've said clearly that's not the case, that they just keep expanding.

**Mr. Nick Mandrak:** The thing is they wouldn't exhaust their supply. There would be a point where there was not enough food to maintain a population at a certain level, and that's why you would have those trends that go up and down. They go down because they've run out of food. Then when the numbers lower and there's more food available, they go up again. As our modelling indicates, there's plenty of food in places like the western basin of Lake Erie, Green Bay, and other areas of the Great Lakes for them to achieve those populations.

**Mr. John Weston:** To keep going.

**Mr. Nick Mandrak:** That picture is one of the best forms of outreach. When the public sees this and they see this on YouTube or television, that's what really catches their attention.

[Translation]

**Mr. John Weston:** Mr. Burden, you started answering a question posed by Mr. Toone regarding cutbacks. You said that there are currently more funds being allocated than there are cutbacks.

Had you completed your answer or would there be anything else you wanted to add?

[English]

**Mr. David Burden:** All I wanted to do is connect the dots on it. I had said I've seen things go up and down over my career. With regard to Asian carp and the requirements we have with the Great Lakes Water Quality Agreement, we have the resources and the capacity to deliver on those obligations and will do so.

There are other areas of the department where we've had increases. There are areas where we're having to make choices, and there are reallocations from within. When we have priority core areas, the resources are allocated to them. That's what we're doing in this case.

**Mr. John Weston:** Mr. MacAulay brought up the question of the fines. He said that the fines only deal with the criminal element, but clearly the fines are there to discourage people from bringing in the species. Isn't that right, Ms. Cudmore?

**Ms. Becky Cudmore:** Yes, it's a way to define the fact that this is just not acceptable. We cannot be bringing these species in live. They are intended for sale. They're not intended for release into the environment, but those releases have occurred in the past. Having the fines and the prohibitions sends the message that it is unacceptable behaviour to be bringing in these species live.

•(1040)

**Mr. John Weston:** Those fines came in as changes to the Fisheries Act. Which changes are we specifically talking about?

**Mr. David Burden:** The changes that came in through the budget implementation act 2012 have those provisions within.

**Mr. John Weston:** That was Bill C-38.

**Mr. David Burden:** Yes.

**Mr. John Weston:** Let me switch topics. The International Joint Commission happens to be here this week. I don't know if they have anything to say about the joint cooperation you were talking about. I was pleasantly surprised to hear that you're not finding impediments in the course of dealing with political boundaries or agency separations. It sounds as though there's a lot of cooperation.

Is there anything I should be asking the International Joint Commission this week when we have a chance to meet with them?

**Mr. David Burden:** That's like asking a kid in a candy shop, what would he like?

Clearly, one is continued binational cooperation. Frankly, this is not a political issue. This is an issue of cooperation. We've seen it across various entities. There's the work that's being done by the IJC. There's the work that's being done, as I've indicated, through the Asian Carp Regional Coordinating Committee, and the work we're doing with the Great Lakes Fishery Commission, and other binational organizations.

I guess my call would be for folks just to continue what they're doing, and if there's a way of doing it, increase that kind of cooperation and integration.

**The Chair:** Thank you, Mr. Weston.

**Mr. John Weston:** May I ask a last question?

**The Chair:** No, your time is up, sorry.

Mr. Woodworth, the floor is yours, sir.

**Mr. Stephen Woodworth:** Thank you very much, Mr. Chair, and *bienvenue à tous*. Thank you for coming today. I am the newer member on this committee, so some of the exotic fisheries terminology around pseudofeces and piscicides is still a bit fresh to me. I hope I won't misunderstand the evidence that I've heard.

I want to focus on the question of barriers. I'm going to start with Ms. Cudmore. I'll begin by just making sure that I have it straight that the bighead carp are not in Lake Michigan. Am I right about that?

**Ms. Becky Cudmore:** You're correct.

**Mr. Stephen Woodworth:** I'm looking at what would be slide 4 in the deck. It indicates there are five entry points from the Chicago Area Waterway System, and two of them seem to be not associated with any waterworks or facilities, waterway structures. Those would be Indiana Harbor and Canal and Burns Small Boat Harbor. Am I reading that correctly? Those seem to be direct access points into Lake Michigan.

**Mr. Nick Mandrak:** And Calumet Harbor as well, number 3.

**Ms. Becky Cudmore:** Yes.

**Mr. Stephen Woodworth:** I skipped that one because it seemed there was a waterway structure further upriver.

**Mr. Nick Mandrak:** It's a lock-and-dam structure, and we know that the fish can pass through lock-and-dam structures, as they have throughout the Mississippi.

**Mr. Stephen Woodworth:** There was mention earlier of electrical screens. Could you clarify for me whether those screening mechanisms are in place in all five of those locations?

**Ms. Becky Cudmore:** To maximize the ability to prevent dispersal through those five areas, the electric barrier is actually quite further downstream. It's number 7. The populations are still quite a way downstream from there.

**Mr. Stephen Woodworth:** Very good.

**Ms. Becky Cudmore:** The idea is to prevent them from moving up and then through those areas. It's that bottleneck area, number 7.

**Mr. Stephen Woodworth:** You may have helped me to understand one of the things that I found troublesome, which is on page 9 of your report, which indicated that the management team had proposed the question on how effective the barrier is, and the answer was that a detailed evaluation of the effectiveness of the barrier was not conducted in this risk assessment. From my perspective, that would be the first thing to do. I would want to be sure that the barrier was effective.

You're indicating that the problem hasn't reached point 7 yet. Is there any other way to examine the effectiveness of that barrier, in a theoretical way at least, or give us some assurance about how effective that is?

•(1045)

**Ms. Becky Cudmore:** There is a study under way in the United States to determine the effectiveness of the barrier. To date the work that has been done to monitor the situation of the barrier is showing us that it is working as it's intended to. They do tag other species in the area and they do swim up toward the electrical barrier and get uncomfortable and turn around and head the other way. Although we didn't evaluate the barrier per se, we took into account that it is in place and it is working as intended.

**Mr. Stephen Woodworth:** Forgive me for being cautious, but the phrase "working as intended", can I hear that as equivalent to 100% effective?

**Ms. Becky Cudmore:** No, I don't think anyone would argue that activity such as that would be 100% effective, but it is dealing with the adult species, and with the young as well. They've been doing studies to determine the most effective level of electricity required in order to prevent that movement.

**Mr. Stephen Woodworth:** What would the timeline be on those studies?

**Ms. Becky Cudmore:** I believe the barrier effectiveness is due either later this calendar year or early next calendar year.

**Mr. Stephen Woodworth:** It's very soon.

**Ms. Becky Cudmore:** Yes.

**Mr. Stephen Woodworth:** Very good, thank you.

There is another area I was interested in, and forgive me if I've lost it in the conversation to this point. I'd like to be clear about the jurisdictional responsibilities.

I'm going to address these questions to Mr. Burden. The lead on this file would be with DFO, not with Environment Canada. Is that a correct statement?

**Mr. David Burden:** That would be correct.

**Mr. Stephen Woodworth:** In addition, clearly the Government of Ontario has some significant interest in this, so I'm assuming there is someone or some department of the Government of Ontario that has a similar lead.

Who or what would that be?

**Mr. David Burden:** From the Ontario government side, the majority of our work is done through the Ontario Ministry of Natural Resources. We're looking at it from a fisheries perspective, and they manage the fishery.

To add to that, we've talked about the Great Lakes Water Quality Agreement, which relates to the Canada-U.S. interface. There's an umbrella domestic aspect of that which we're currently negotiating, which is called the Canada-Ontario agreement. That sets up the governance and the mechanisms for how Canada and Ontario will work in partnership to address the aspects of the Great Lakes Water Quality Agreement.

**The Chair:** Thank you, Mr. Woodworth.

**Mr. Stephen Woodworth:** That's actually where I was going, but I'm out of time.

Thank you.

**The Chair:** Thank you very much, Mr. Woodworth.

I'd like to thank our witnesses on behalf of the entire committee. We appreciate your taking the time today to meet with us and answer our many questions.

There being no further business, the committee is adjourned.

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