



HOUSE OF COMMONS
CHAMBRE DES COMMUNES
CANADA

Standing Committee on Fisheries and Oceans

FOPO • NUMBER 143 • 1st SESSION • 42nd PARLIAMENT

EVIDENCE

Monday, May 6, 2019

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Chair

Mr. Ken McDonald

Standing Committee on Fisheries and Oceans

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• (1525)

[English]

The Chair (Mr. Ken McDonald (Avalon, Lib.)): Good afternoon, everyone. Welcome to our regularly scheduled FOPO committee meeting.

Mr. Donnelly.

Mr. Fin Donnelly (Port Moody—Coquitlam, NDP): Thank you, Mr. Chair.

I'd like to issue a notice of motion, and I'll read that into the minutes:

That the Committee hold a meeting for the clause by clause review of Bill S-238 as soon as possible.

The Chair: Before we get started with our witnesses, I want to recognize Mrs. Kelly Block the member from Carlton Trail—Eagle Creek, who is here today as a Conservative member. Welcome to the committee, it's good to see you.

Pursuant to Standing Order 108(2), we are studying aquatic invasive species.

Today, we have a number of witnesses for an extended meeting. From 3:30 to 5:00 p.m., we have the Alberta Irrigation Districts Association and Margo Jarvis Redelback by video conference. From the Canadian Council on Invasive Species, we have Bob McLean, strategic partnerships. From the Ontario Federation of Anglers and Hunters, we have Matt DeMille, manager of fish and wildlife services, and Sophie Monfette, coordinator, invading species awareness program. From the Saskatchewan Association of Rural Municipalities, we have Raymond Orb, president, by video conference. From the Shuswap Watershed Council, we have Paul Demenok, chair, and Erin Vieira, program manager.

Welcome to all our witnesses.

We'll start off with our presentations, which will be seven minutes or less. We'll start off with the video conference people and Margo Jarvis Redelback.

Ms. Margo Jarvis Redelback (Executive Director, Alberta Irrigation Districts Association): Good afternoon, and thank you for inviting me to speak to the committee today. My name is Margo Jarvis Redelback. I am the executive director of the Alberta Irrigation Districts Association. The association has represented the interests of Alberta's 13 irrigation districts since 1946.

My presentation today will focus on the threat and impact of aquatic invasive species to irrigated agriculture, specifically focusing on invasive mussel species. The Alberta irrigation industry has been involved in AIS prevention, eradication efforts and treatment option research for many years. Though these efforts have achieved some positive results, the risk of AIS to the irrigated region in Alberta is still great.

Municipal development and economic growth of this region are closely tied to the presence of the irrigation infrastructure. That infrastructure delivers water to about 1.4 million acres of agricultural land for food production. This is approximately 72% of Canada's irrigated land base. The infrastructure also conveys water to support the needs of 50 rural communities; industries, including value-added processing facilities; water-based recreation; wetlands; and wildlife habitat in this dry area of Alberta. The infrastructure is essentially critical infrastructure to this region.

The industry annually contributes \$3.6 billion to Alberta's GDP and generates \$1.26 billion in annual revenue to the governments of Canada and Alberta. It creates 56,000 full-time equivalent job positions across the entire province of Alberta. This is possible because of almost 8,000 kilometres of conveyance canals and buried water pipelines that, in combination with 57 storage reservoirs, reliably distribute water throughout the region.

To support increased water use efficiencies and to reduce water loss, 53% of this distribution system has been converted from above ground canals to underground pipelines, and 73% of the irrigated land base is now being irrigated by low-pressure drop tube pivot systems on the farm. This infrastructure is particularly vulnerable to invasive zebra and quagga mussels. Should mussels become established in the irrigation infrastructure, we expect disruption of water conveyance through our pipelines as well as significant ecological degradation of our irrigation reservoirs.

Currently, our industry has no approved chemical treatment options for invasive mussels. Potash appears to be the best candidate for chemical treatment, and the product is currently undergoing the lengthy approval process. We hope it will be approved but understand this could still be 12 to 18 months from occurring. It is our hope we will have this product available for use as a potential management option in case zebra and quagga mussels establish in our infrastructure. However, the product does not come without expense. Annual treatment costs of treating all irrigation district pipeline infrastructure with potash is estimated to be about \$1.1 million. This value does not include the potential costs to treat irrigation reservoirs.

The most significant pathway of invasive mussel introduction into irrigation infrastructure is the transportation of contaminated watercraft across international and provincial borders into Alberta water bodies. Alberta irrigation has been collaborating with numerous organizations on AIS initiatives, including education and outreach campaigns, inspection and enforcement, monitoring activities and investigation of potential treatment options.

To date, the Alberta Irrigation Districts Association has contributed financial and in-kind resources of more than \$250,000 toward AIS initiatives. Individual irrigation districts have also contributed significant financial and in-kind resources to AIS prevention activities over and above that delivered through the association. No federal funds have been received to support AIS prevention work in the irrigated region of Alberta. This is concerning as greater and more strategic activities are required to limit the spread of aquatic invasive species into and across Canada.

• (1530)

Suggestions on additional AIS efforts include more stringent and coordinated inspection and enforcement of trailered watercraft at the international boundary with inspection and decontamination activities conducted on site; mandatory decontamination of watercraft leaving Canadian water bodies infested with invasive mussels; additional funding programs and opportunities to maintain and grow current monitoring activities by assisting organizations in carrying out the field portion of monitoring; additional funding sources lending assistance to organizations to examine, develop and implement AIS management strategies; and, of course, streamlining the registration process for chemical treatment options to ensure more products are available if this type of treatment is necessary.

The ongoing efforts of the irrigation industry in Alberta and its collaborating partners have achieved some positive results here. Recognizing the risk of AIS establishment to its industry, particularly the establishment of invasive mussel species, the Alberta irrigation industry has taken a lead in prevention efforts. However, our province and our region require additional partnerships, most notably with the Government of Canada, to continue to strengthen attempts to prevent AIS establishment.

Thank you.

• (1535)

The Chair: Thank you for that.

We'll now go to the Saskatchewan Association of Rural Municipalities.

Mr. Orb, you have seven minutes or less, please.

Mr. Raymond Orb (President, Saskatchewan Association of Rural Municipalities): I'd like to thank the Standing Committee on Fisheries and Oceans for this opportunity to comment on the committee's study of aquatic invasive species.

My name is Ray Orb. I am president of the Saskatchewan Association of Rural Municipalities—known as SARM. Incorporated in 1905, SARM has been the voice of rural Saskatchewan for over 100 years. We represent all 296 rural municipalities and our RMs cover 53% of the province's land mass.

SARM has long been concerned about the threat of aquatic invasive species. We participate on a provincial aquatic invasive species task force and maintain contact with Saskatchewan's Ministry of Environment on the file.

SARM members are particularly concerned with invasive mussels, which attach themselves to hard surfaces such as boats, docks, motors, anchors, intake pipes and irrigation systems. Once invasive mussels are introduced to a water body, they are virtually impossible to eradicate. Prevention is the best defence against aquatic invasive species, but unfortunately invasive zebra and quagga mussels have been found in Ontario, Manitoba and in several neighbouring states in the United States. Saskatchewan is at serious risk of aquatic invasive species due to the natural connectivity of water systems with neighbouring provinces and states, not to mention the influx of out-of-province boats that we see each summer as tourists, anglers, water skiers and wakeboarders flock to the pristine lakes in Saskatchewan.

Last year, the provincial Ministry of Environment conducted inspections on 2,922 watercraft entering or already travelling in the province. Fifty of these boats required decontamination and five had visible adult mussels on them. Without immediate action, it's only a matter of time before invasive mussels are established in Saskatchewan.

Not only do invasive mussels disrupt ecosystems, they also have a significant economic impact. Sandy beaches can be overtaken by sharp mussel shells and drinking water and hydro power infrastructure can become clogged as mussels attach and breed on any hard surface. Fisheries, aquaculture and tourism can all be damaged by the spread of AIS.

SaskPower has identified seven power generation facilities that are at high risk of damage from the introduction of AIS. These facilities account for 64% of SaskPower's generation capacity, which means that the introduction of invasive mussels would impact a significant portion of Saskatchewan residents and businesses. The cost implication is in the millions of dollars.

A special concern is the Lake Diefenbaker system and the Gardiner Dam power generation plant. The Lake Diefenbaker system provides clean drinking water to approximately 60% of the province's municipalities, currently provides water for 100,000 acres of irrigation that produces food crops, and generates enough electricity to power at least 100,000 homes. AIS in Lake Diefenbaker would be devastating and more needs to be done to prevent this from happening.

In Ontario, dealing with invasive mussels costs almost \$100 million annually. Recognizing the implications of AIS, SARM members adopted two resolutions in calling on the provincial and federal government to lead the fight to prevent the spread of invasive mussels throughout our provincial water bodies by establishing checkpoints at all border crossings and decontaminating infested boats. This spring, the commissioner of the environment and sustainable development released a report on aquatic invasive species. The commissioner reported that it costs far less to prevent an AIS from entering an area than to control it afterwards. SARM wholeheartedly agrees.

We also understand that Fisheries and Oceans Canada leads the aquatic invasive species science program and aquatic invasive species national core program. These programs are intended to prevent the introduction of AIS, respond rapidly when they are detected, manage the spread of established species and work with other jurisdictions to ensure national consistency and collaboration on the issues related to managing AIS.

The commissioner's report found that both the DFO and the Canada Border Services Agency have not taken the appropriate steps required to prevent the spread of AIS, including zebra and quagga mussels. In addition, DFO has yet to determine which species and pathways pose the greatest threats or determine which species are the most important to regulate.

• (1540)

SARM believes that the federal government can do more to uphold its commitments under these programs. Too many Canadians remain unaware of the risks and of how they may be inadvertently contributing to the spread of AIS.

We are also concerned to hear that the aquatic invasive species regulations are not adequately enforced. More needs to be done to ensure that both DFO and CBSA officials are properly equipped to prevent AIS from entering Canada. It's also critical that these government agencies clearly understand their responsibilities as they pertain to AIS.

We understand that environmental protection and sustainability is an important priority for the federal government and we believe that protecting Canada's pristine water bodies against the threat of AIS needs to be considered an important piece of that puzzle. The

environmental, social and economic impact of aquatic invasive species can be in the range of billions of dollars.

All levels of government have a role to play, but leadership from the federal government is of the utmost importance. It is imperative that we work together to prevent aquatic invasive species from entering our water systems.

On behalf of SARM, we thank the standing committee for the opportunity to lend our voice to this important conversation.

Thank you.

The Chair: Thank you for that.

We'll now go to the Shuswap Watershed Council.

I don't know whether you're both speaking or just one of you, but you have seven minutes or less, please, when you're ready.

Mr. Paul Demenok (Chair, Shuswap Watershed Council): Thank you, Mr. Chair.

Thank you to the standing committee.

My name is Paul Demenok. I'm chair of the Shuswap Watershed Council, and with me is Erin Vieira, who is our program manager.

Thank you for the opportunity to provide our input to this program. We have some very significant concerns about potential new introductions of aquatic invasive species. Our concern is with two species in particular, namely zebra and quagga mussels.

Since our formation as a watershed council in 2014, we've been concerned about the threat that these mussels pose and the risks to our aquatic ecosystems and our regional economy. Preventing an invasion of these mussels in our area is of the utmost importance.

Zebra and quagga mussels have not been detected in British Columbia, but our waters are at great risk because of our proximity to infested waterways, the high volume of boat traffic and recreational tourism in and out of our watershed, and our water-quality conditions, which are ideal for zebra and quagga mussels to establish and thrive.

There is very much at stake. The Shuswap watershed has been described as the most socially, economically and ecologically important large-lake aquatic ecosystem in British Columbia. It is the drinking water source for tens of thousands of people. It's the centre of a thriving tourism community and an expanding residential and commercial property market, and it provides migration, spawning and juvenile rearing habitat for four species of Pacific salmon, including the world famous Adams River sockeye salmon. The Shuswap watershed is a tributary to the Fraser, a watershed that is also well known and of great significance.

The zebra mussel, in particular, is thought to be the most destructive aquatic invasive species ever to have invaded North American fresh water, and its impacts are well known. Costs associated with the maintenance requirements that would be imposed by an invasion in British Columbia are estimated to be \$43 million per year. Additionally, the impacts suffered by Pacific salmon in the Shuswap watershed, and potentially downstream in the Fraser watershed, are not well understood or as yet estimated in these totals.

We are very gravely concerned about the risk of an invasion of these mussels to the Shuswap and to all of British Columbia, and are very dissatisfied by the measures taken to date to prevent new invasions in Canada. In light of our concern, last year our council spent \$43,000 on invasive mussel prevention in the Shuswap watershed, derived from local tax revenues. This year, we will spend close to \$46,000.

In 2017, DFO budgeted \$43.8 million over five years to prevent and manage aquatic invasive species. Of that, 86% is allocated to just two species in Ontario, neither of which are invasive mussels. In August 2018, Minister Jonathan Wilkinson announced an additional \$400,000, spread out over three years, for zebra and quagga mussel research, education and outreach. We believe that these are grossly disproportionate funding allocations, both geographically and by priority.

We feel very strongly that the department should invest much more to prevent further spread of invasive mussels. Federal funding ought to go toward collaboratively supporting the following three prevention strategies in British Columbia.

First is a contribution to the province's watercraft inspection program to enable the establishment of more inspection stations around B.C.'s perimeter and longer operating seasons and hours for the stations. B.C.'s borders ought to be better guarded from potentially contaminated incoming watercraft from both the United States and the rest of Canada.

We also need more robust measures to ensure that aircraft, such as float planes, coming into B.C. aren't contaminated with invasive mussels. To our knowledge, so far nothing has been done in this regard at all.

A contribution to the early detection monitoring programs to enable more water bodies to be regularly tested for invasive mussels is a third step.

In addition to supporting a stronger partnership with the Province of B.C. in preventing an invasion, the federal Department of Fisheries and Oceans needs to take more action on containing mussel infestations and to fully enact the aquatic invasive species

regulations of the federal Fisheries Act. One such measure ought to be that all watercraft leaving invasive mussel-infested jurisdictions be inspected and decontaminated as necessary, thereby closing primary pathways for new invasions.

A recently released audit report on AIS, from the commissioner of the environment and sustainable development, is consistent with our concerns about the lack of urgency and intervention by DFO. The audit found that DFO lacked a strategic approach to prevent AIS from entering and spreading within Canada. It was also found that DFO and the Canada Border Services Agency did not adequately enforce the AIS regulations. It also found that DFO did not respond rapidly to known threats.

● (1545)

Our belief that the investment and actions by the federal government on invasive mussels have been inadequate and disproportionate, combined with recent findings of the audit report, leads us to conclude that the national aquatic invasive species program is not effective in protecting ecosystems in B.C., nor is it serving the socio-economic interests and values of British Columbians.

British Columbia, the home province of lake ecosystems of significant ecological and economic importance, is at risk of being invaded by the most impactful and devastating aquatic invasive species. When one considers all that is at risk in the Shuswap watershed and the rest of B.C., and the current likelihood of an invasion due to gaps in the preventative measures, one wonders why more is not being done. Prevention is a more sensible and responsible, and less costly, approach than trying to control it afterward. The old expression is an ounce of prevention is worth a pound of cure.

We are asking today that a larger proportion of federal investment and effort be directed to protect British Columbia from zebra and quagga mussels immediately.

Thank you very much for your consideration of our input. We hope that your committee can determine a more effective and prioritized method of distributing federal funds in an effort to prevent and manage aquatic invasive species.

Thank you.

The Chair: Thank you for that.

We'll now go to the Canadian Council on Invasive Species with Mr. McLean for seven minutes or less please.

Mr. Bob McLean (Strategic Partnerships, Canadian Council on Invasive Species): Thank you, Chair, and thank you, committee, for the opportunity to be with you this afternoon as you study the issue of aquatic invasive species.

The Canadian Council on Invasive Species is a nationally registered non-governmental organization that works collaboratively across jurisdictional boundaries to share information and support actions to prevent the introduction of invasive species and to help reduce the threats and impacts from them. Our work is guided by a four-chamber board of directors whose members come from federal, provincial and territorial governments, indigenous organizations, and industry and invasive species organizations. We collaborate closely with the seven invasive species chapters across Canada. These are the provincial and territorial non-profit organizations that have a similar core mandate to the council's of helping to reduce the spread and impacts of invasive species.

The council's key focus is on prevention and, therefore, on closing the pathways that introduce and spread invasive species. We work to bridge government, industry and not-for-profit organizations, indigenous organizations and invasive species councils to take actions that address invasive species, both terrestrial and aquatic, actions such as the development and implementation of national campaigns that aim to change behaviour so as to prevent the spread of invasive species.

We would very much like to thank the standing committee for your study on aquatic invasive species. Your study is timely, as others have noted, in light of the commissioner of the environment and sustainable development's April 2 report on aquatic invasive species. In this regard, the council is pleased to see DFO's commitment to implement the commissioner's recommendations. It is important to recognize that there are many demands and potentially competing priorities with respect to aquatic invasive species, and the continued leadership of DFO is needed if we are to successfully address this issue in Canada.

I would also commend DFO on its work to date, such as its response to the threat of Asian carp introduction into the Great Lakes and on its efforts to work in partnership on aquatic invasive species initiatives, as success will not be achieved by any one organization acting alone.

You've already heard from a number of witnesses and there's much information with respect to the risk aquatic invasive species pose to our environment, our economy and social and cultural concerns. I won't provide additional information in that regard. Rather, I'll move directly to recommendations that the council has for your consideration.

First, we encourage collaborative Canada-wide prioritization and planning based on sound risk assessment and risk management strategies. This strategic planning is needed to ensure that all of Canada's waters are protected. DFO needs to—is encouraged to—implement a partnership-based approach to planning to identify the high-priority pathways and the most appropriate prevention tools.

As we have heard, preventing the introduction into Canada is going to be achieved by closing the pathways of introduction. Most success is going to be achieved by focusing on those pathways. We encourage DFO to complete a risk-based analysis of current and new high-risk pathways that provide entry of aquatic invasives into Canada. We believe this can be done quickly as we already know many if not most of those pathways. We believe a focus on high-risk pathways is a faster and potentially less costly approach to preventing arrivals into the country than a species-by-species assessment approach. We believe that the priority pathways approach needs to include risk management strategies and measures needed to close those pathways.

The third area of recommendations relates to early detection and rapid response. Recognizing and reporting invasive species when they first arrive and before they are established is the key to prevent establishment. Some witnesses have already spoken in this regard. Early detection depends on monitoring and detection systems, and it's important to recognize the role and contribution that citizen science can play.

● (1550)

Canadians watch. They're in nature. They can see and report on newly arrived species. Monitoring and citizen science programs need to be complemented by a common data platform, the means for Canadians to actually report on new invasive species or even current ones. We encourage DFO and others to address the issue and the need for a common data platform.

Part of early detection and rapid response needs to include those response strategies and the capacities needed to respond quickly. Those strategies need to outline the roles and responsibilities of different organizations whether they're federal, provincial and perhaps even non-government organizations.

The fourth area is with respect to containing and stopping the spread of established aquatic invasive species, and we've already heard many interventions, even this afternoon, with respect to the need to address the issue of invasive zebra and quagga mussels. Canadians care, and we believe it will help to prevent introduction if they're provided with the appropriate tools and resources. There is a need to increase education and awareness campaigns to change the behaviour of those target audiences, those folks who may actually move invasive species into new areas of the country.

The Canadian council is working with the Department of Fisheries and Oceans on a pilot program, "Clean Drain Dry", based in British Columbia. This campaign focuses on changing behaviours and social marketing to influence those involved in boating and angling to take steps to clean their equipment to prevent spread.

The council is active in a number of similar other programs and is working with partners and industry involved in other key pathways. We're working with the pet industry and the Canadian Horticultural Council, for example.

The fifth area relates to strengthened collaboration. As I mentioned already, DFO alone cannot prevent the introduction and spread of invasive species. Those best placed to act need to act. It is critical that DFO work with its federal partners, particularly the Canada Border Services Agency and the Canadian Food Inspection Agency, to close those ports of entry in the country. We also encourage DFO to work with Environment and Climate Change Canada on initiatives such as data platforms. Clearly, we are encouraging DFO to work with provincial and territorial governments and indigenous governments and organizations with respect to clear roles and responsibilities and priorities.

Finally, there is a need to increase collaboration with industry and other non-governmental organizations to bring more support for increased awareness and local action. An advantage of strengthened collaboration is that it not only builds the implementation partnership that's needed if we're going to effectively address aquatic invasive species, it can also help build what I would characterize as the funding partnership to ensure that the needed resources are in place to take those actions.

This leads to my sixth and final point. It relates to strategic investments. Addressing the challenge of aquatic invasive species will require not just ongoing, dedicated DFO resourcing but increased investment and collaboration. The magnitude of the challenge is great, and increased and strategic investments are what is needed. Shifting current resources among programs is likely to simply shift the problems and risks from one part of the country to another.

In closing, the council encourages continued, strong federal and national leadership on the part of the Department of Fisheries and Oceans, if we are to protect our waters from aquatic invasive species. We encourage DFO to continue to build closer collaboration amongst government and non-government organizations on priorities, roles and responsibilities, and coordinated actions. The Canadian Council on Invasive Species, as a national voice on invasive species with a strong track record of building partnerships, is keen to support and partner with DFO and others to address aquatic invasive species.

Thank you again for the opportunity to contribute to your study.

• (1555)

The Chair: Thank you.

Now we'll go to the Ontario Federation of Anglers and Hunters.

Matt, you're going to speak for seven minutes or less, please.

Mr. Matt DeMille (Manager, Fish and Wildlife Services, Ontario Federation of Anglers and Hunters): Thank you. Good afternoon, Mr. Chair and members of the committee.

Thank you for the invitation to participate in this very important discussion. We are pleased to be here today to highlight the threats that aquatic invasive species, or AIS, continue to pose to Canada's environment, economy and society, as well as to recommend ways to better address this threat.

The Ontario Federation of Anglers and Hunters is the largest conservation-based organization in Ontario, representing 100,000 members, subscribers and supporters, and 740 affiliated conservation clubs. Our members enjoy various outdoor pursuits but share a common, passionate interest in sustaining our natural resources and the quality of life that healthy resources make possible.

Recognizing the impacts of invasive species and the role of outdoor enthusiasts in their introduction and spread, the OFAH initiated the invading species awareness program, or ISAP, in partnership with the Ontario Ministry of Natural Resources and Forestry. After 27 years, ISAP has grown into a large-scale, multi-faceted program with hundreds of partnerships, reaching 88 million people a year.

For over a decade, we have also worked in partnership with Fisheries and Oceans Canada to increase knowledge and awareness of AIS. Our current partnership with DFO is focused on supporting two of the four pillars of their Asian carp program. That is prevention via education and outreach and early warning via our provincial reporting tools: the invading species hotline, and the early detection and distribution mapping system, or EDDMapS Ontario.

This committee is studying whether DFO has the resources required to be effective in preventing and eliminating AIS, and whether resources are equitably and consistently distributed across Canada. These two issues are interconnected. The answer to the first question is no. Canada is not investing enough into the AIS program. Budget 2017 allocated \$43.8 million over five years to prevent the introduction and spread of AIS, which was significantly less than DFO's identified needs.

The answer to the second question is sort of. DFO is attempting to target high-priority AIS with the limited budget they have. By necessity, DFO has been forced into making risk-based decisions regarding resource allocations, resulting in unequal distribution. While allocations may be unequal across the country, the investments could be considered equitable because they focus the limited available funding on Asian carp and sea lamprey, programs that require investment due to the significant level of risk these species pose to our environment, economy and society.

Even with more funding, Ontario and the Great Lakes must continue to be a focus of DFO's AIS program. Generally, Ontario has a higher risk of new invasive species entering and becoming established, compared with other regions in Canada. For example, Ontario is home to the most non-native freshwater fish, with 26 known species. This is 50% to 100% more than other provinces. Once established in Ontario, AIS pose a threat to the rest of Canada.

Even without being fully funded, the Asian carp program is an excellent example of how we can invest in prevention to mitigate risk and impacts. To date, we seem to be getting this one right. And I say "we" because DFO has facilitated a significant amount of collaboration with stakeholders like the OFAH to leverage the resources, decades of experience and considerable networks we have available to deliver the Asian carp program. Even modest investments can go a lot further when using these types of partnerships.

Preventing harmful introductions before they occur is the most effective means to avoid or minimize risk, and strong investment in education and outreach is required. Should prevention fail, early detection is recognized as a critical pillar of Canada's strategy to prevent the spread and establishment of AIS in our waters.

The timing of detection is vital to the overall cost and success of any efforts to control or eradicate a new introduction. This is why reporting and real-time tracking tools are so important. The independent auditor's report recommended DFO develop or coordinate a national database or platform that would allow DFO and stakeholders to track and share information about species detections and spread. There is currently no coordinated national effort for this.

However, there is existing capacity in Ontario that can be used to help deliver on this recommendation. Right now, Ontario has the capacity for early detection and rapid response through the delivery of the invading species hotline and EDDMapS Ontario, and it works very well. For example, a grass carp was reported through the invading species hotline in 2016, resulting in DFO staff capturing 10 grass carp in Lake Gibson. That was the largest capture of any of the Asian carps in Canadian waters to date.

There is no need to create something new. We recommend that efforts be focused on expanding this existing capacity, as it will be the most timely and cost-effective way to achieve positive outcomes.

●(1600)

Invasive species know no boundaries. They are a complex issue, affecting every province and territory and crossing international boundaries. Each jurisdiction will have different perspectives and priorities for response, but there is consensus that AIS will continue

to impact Canada's environment, economy and society in such a dramatic way that there is an immediate need to build Canada's capacity to respond.

What is missing is investment, investment on a scale that will make a difference for national AIS priorities, investment on a scale that enables partners to translate national leadership from DFO into effective provincial and territorial programs, and investment on a scale that does not compromise existing and successful programs like the Asian carp program.

There will always be finite resources to fight invasive species, so we need to ensure that our efforts are coordinated to minimize duplication and inefficiencies. Stakeholders like the OFAH and its members have a key role in the prevention, detection and management of invasive species, and we can leverage significant amounts of knowledge, experience and resources to help address national AIS priorities.

To summarize, we have four specific recommendations for the committee.

Additional funding is needed for DFO to be effective in preventing and eliminating AIS and to increase DFO's capacity to deliver on the recommendations made in the independent auditor's report.

Federal AIS programs must remain targeted on species, pathways and jurisdictions with the greatest risk, and allocation of new resources should be determined based on risk, not to meet regional equability targets. They can't be arbitrary.

With national leadership and investment from DFO, there is an opportunity for existing provincial or territorial programs to grow and connect to meet the needs of Canada as a whole.

Finally, stakeholders such as the OFAH with our unique connections, including fishing and hunting federations in each province and territory, and an audience of boaters, trail users, anglers and hunters, are partners committed to working with the Government of Canada to combat AIS.

Thank you for your time today. Sophie Monfette, the coordinator for the invading species awareness program, has joined me today. We are happy to answer any questions you may have about AIS, or how the OFAH is involved in the fight against invasive species.

●(1605)

The Chair: Thank you for that.

We'll now get into our rounds of questioning. I will remind members that if it's somebody on video conference to identify who you want the question to go to or the answer to come from.

To the people by video conference, if a question is asked and you want to add something to it, put up your hand or wave, and hopefully the person asking the question will see it and give you time to respond as well.

First is Mr. Rogers, for seven minutes or less, please.

Mr. Churence Rogers (Bonavista—Burin—Trinity, Lib.): Thank you, Mr. Chair.

Welcome to all of our witnesses on video and here in the room today. That was quite a presentation from a lot of people. There are a number of questions I can ask each of you, but feel free to jump in if there's a question you want to comment on.

I'm going to start with Ms. Redelback. You talked about a number of things, but in particular, you talked about some of the partnerships and some of the things that are going on in terms of trying to deal with the major concerns you have to prevent the spread of the invasive mussels and the obstructions and problems it might cause for the irrigation group you represent.

Specifically, you talked about maybe having more support from the federal side, from the Government of Canada. Can you tell me specifically what needs to be addressed from the federal side to deal with the issue of invasive mussels in your region?

Ms. Margo Jarvis Redelback: The biggest threat to us is the transportation of mussels via trailered watercraft. More specifically, our international border is not really tight enough to those trailered watercraft that are coming in from states in the south that are infested with zebra and quagga mussels. Though the Government of Alberta has worked with Canadian border services to try to identify high-risk trailered watercraft crossing the border, the onus is still on the Government of Alberta to try to track down and hopefully see one of those high-risk trailered watercraft show up at a provincial inspection station.

We'd really like to see support from the Government of Canada and the Canada Border Services Agency with regard to trailered watercraft crossing that international boundary so that inspection and decontamination, if necessary, happen right on site, and so that those boats that are high risk are not slipping through the cracks and then entering into Canada's water bodies.

Mr. Churence Rogers: Thank you very much.

Mr. Orb, you talked as well about the collaboration and co-operation of different levels of government, but the federal government could be doing more. From your perspective, what specifically would you like the federal government to do?

Mr. Raymond Orb: Thanks for the question, Mr. Rogers.

Of course, we believe an enhancement with the Canadian Border Services Agency would be a good start. We also believe that the federal government could perhaps be part of our more provincial aquatic invasive species task force. We could probably have some input from DFO on that committee. We have a committee right now where SARM is working with our provincial counterparts in the Saskatchewan Urban Municipalities Association and with the Ministry of Environment as well. I think we could take more input from the federal government.

We have many checkpoints set up on border crossings on either side of our province. I think just the education side of it would be appreciated as far as providing more funding into education and awareness.

• (1610)

Mr. Churence Rogers: Thank you.

Mr. Demenok, you talked about disproportionate distribution of funds across the country and you said there should be more prioritization in terms of funding and where it should be spent. You also referenced DFO lacking a strategic approach. Do you have anything specific that you want to talk about in terms of what the federal government should be doing?

Mr. Paul Demenok: Thank you for that. I think that's a very good question.

I certainly would echo the comments of my colleague regarding the need for additional funding to support the border services. The primary method of transport is going to be through trailered boats. We need 24-7, 365-day coverage by Canada Border Services Agency to prevent boats from coming into B.C. from the United States. We know there are infestations in Montana and other western states. A number of boats are purchased there and imported into British Columbia. We should ensure that the Canada Border Services Agency is picking them up.

We also think the federal DFO could take more action with respect to boats that are being transported out of currently infested areas. The regulations should be such that if you're going to take a boat out of Ontario and into another province, it must be decontaminated before it leaves Ontario. I think that would solve a lot of problems. It would stop the problem where it originates, rather than trying to pick it up at all the points of entry all the way along. You might be much more effective on a dollar basis per expenditure by focusing on those areas where the infestations have already occurred.

Last, I think the other issue is float planes. We don't know how big that problem is. We have float planes regularly coming into B.C., as you know. We have a lot of access points. Zebra and quagga mussels can be carried and transmitted in those float planes as easily as anything. I don't believe there are any actions being required of pilots or of companies operating aircraft coming into British Columbia, to ensure they're not contaminated.

Mr. Churence Rogers: Thank you.

Mr. DeMille, you talked as well of the uneven distribution of funds and resources to deal with this issue. Does your organization make submissions to DFO for funding or on funding issues, and do they pay attention to your requests?

Mr. Matt DeMille: Yes. We've had existing partnerships with DFO for a decade, for a number of different programs. We work with DFO to figure out how we can work within their priorities to help them partner to actually achieve some of their goals. We mostly focus on the initial steps, more on the prevention side—so education and outreach—but we're also looking at detection and monitoring through reporting, which can then be used in rapid response.

Right now we're working with them on Asian carp. We have a good working relationship with them on strategic priorities related to Asian carp.

Mr. Churence Rogers: Thank you.

The Chair: Mr. Rogers, your time is up for that round of questioning.

We'll now go to Mr. Arnold for seven minutes or less, please.

Mr. Mel Arnold (North Okanagan—Shuswap, CPC): Thank you, Mr. Chair. I want to thank all of the witnesses today. We've heard a lot of testimony and time goes really quickly during this. Paul and Erin, it's good to see you positioned well in front of the Shuswap watershed map. It's right behind you on the wall and it shows how important the area is. It's good to see you.

Mr. McLean, you work with your organization in the area of strategic partnerships. Where is the council's head office located?

Mr. Bob McLean: The head office for the council is located in Williams Lake, British Columbia. It's a small national organization.

Mr. Mel Arnold: Thank you.

Last August, the Government of Canada announced \$400,000 over three years—about \$133,000 per year—to the Canadian Council on Invasive Species for educational outreach purposes. This was intended to complement the efforts deployed by the Province of B.C. and other partners within the Okanagan basin. Are you familiar with that funding announcement?

• (1615)

Mr. Bob McLean: I wasn't personally involved directly with that funding, but I'm aware of that project, yes.

Mr. Mel Arnold: Okay. Are you able to tell me how the funding announced last year has been or will be utilized in the Okanagan basin?

Mr. Bob McLean: Yes, in part. We're developing information products, including, for example, videos, to communicate what people need to do with respect to the "Clean Drain Drive" program.

Mr. Mel Arnold: Is there anything more than the video program?

Mr. Bob McLean: There are other products. I'm not the individual in the organization who's working directly on that initiative.

Mr. Mel Arnold: Okay. Could we possibly get that information sent to the committee so that we can see how the funding has been used? It was quite a targeted announcement for the Okanagan basin, so I want to make sure that the funding came to that area and that the benefits are felt there.

This issue is obviously nationwide.

Mr. Demenok, I believe it was you who pointed out that over 80% of the funding is in the Great Lakes area, and you've pointed out that

we have no measures that I'm aware of at this point to control float planes coming in and out of possibly infested areas anywhere in Canada. Luckily we have MP Kelly Block, who sits on the transport committee, subbing here today. She may have some information on this.

How important is it, in your mind, that we take preventative steps? I've talked with you a few times on the potential impacts. Maybe you can elaborate a little on the potential impacts to salmon species and the rest of the lake system.

Mr. Paul Demenok: Thanks, Mel.

This is a critically important concern for the Shuswap Watershed Council and the residents of this area. This is one of the last pristine interior lake aquatic systems in the country. It's known as a sensitive receiving environment. If we ever were to receive an infestation of AIS of any sort, the invaders would just overwhelm our salmon hatchery here. That's certainly a major concern from the standpoint of a number of parameters. Because of the world-famous Adams River salmon run that occurs here, millions and millions of salmon are reared in our lakes.

This is a primary concern, but it's not just that. It's also the fact that tens of thousands of people draw their drinking water from this watershed. It's a primary economic driver for our area. We're well known as a primary recreational area, as a very attractive place to enjoy vacations.

The consequences here just can't be overstated. They could be devastating.

Mr. Mel Arnold: Do you have any information on what could possibly be done for treatments? We hear that they can clog intake pipes for municipal water systems, but what about small domestic systems? Are there a number of those around as well?

Mr. Paul Demenok: We have tens of thousands of them on Shuswap Lake alone, from which people are drawing and treating their own water from the lake. I'm not aware of an effective decontamination process at this point, other than replacing water intake valves and screens and so on.

I was interested in the comment made earlier about using potash as a primary treatment method, but I have not come across its being used with any success as yet. I guess that's still in the research phase, if I understood you correctly.

Mr. Mel Arnold: Thank you.

Mr. McLean, you noted that in order to protect waterways, a partnership approach is needed—I believe you said with jurisdictional co-operation and with other organizations. Can you elaborate on how you might see that unfolding?

Mr. Bob McLean: I think the first step is to identify the actions that are needed to close the pathway and, if you're referring to transport from one area of Canada to another, identifying the appropriate role for the federal government and also the provincial governments.

Non-governmental organizations, as we've heard already, can play a role at some of the points where people are leaving lakes that are already contaminated with invasive species by working with lake associations, for example, and building awareness, so that behaviours are changing. If people are aware of the consequences of moving invasive species, then that kind of peer pressure or assertion of social norms, such as the importance of cleaning your boat, is the way that associations such as lake associations and community associations that are near lakes that have invasive species can make a contribution.

• (1620)

Mr. Mel Arnold: Thank you.

This is for Mr. Orb and I guess Mr. Demenok and Erin Vieira.

Mr. Orb, you quoted that AIS regulations are not fully enforced. Can you elaborate a little further on how you see they're not enforced?

Mr. Demenok or Erin, give a quick response on that. I know my time is running short.

Mr. Raymond Orb: We believe, through the task force we have, that we don't see the regulations being fully enforced. We believe all we've been doing so far in our province is educating people. We're asking our province to contribute funding towards it, and our province is looking, obviously, to the federal government for some help on this.

To be clear, the province of Saskatchewan has over 100,000 lakes. We have more lakes, I believe, than most other provinces maybe have combined. We have some man-made lakes. I spoke of Lake Diefenbaker. That's only one large lake that's used primarily for drinking water provision and irrigation, but we have a lot of places. We have a big province, and we have borders. We have northern borders and southern borders, one with Alberta and one with Manitoba, and we have a lot of work to do. We just don't see the federal government contributing as much as we'd like to. That's why we'd like to get that message across.

The Chair: Okay, your time is well up.

Now we go to Mr. Donnelly for seven minutes or less, please.

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

Thank you to all our witnesses for providing your testimony on this topic today.

I'll start with Mr. McLean and Mr. DeMille just picking up on that last conversation about the increased investment that's needed. You've provided testimony that this is important, so how much are we talking about? How much of an investment is needed by the federal government?

This is for either of you.

Mr. Matt DeMille: As much as you're willing to give us.

Mr. Fin Donnelly: I would suggest that you be as specific as you can. Identify the need, what it would take to do, the amount annually with the country working in tandem with the provinces and territories, first nations and other partners, and then you go from there.

I haven't heard a number, so that's why I'm curious about what the needed investment is.

Mr. Matt DeMille: I think that's because coming up with the number is really hard. We're starting—and I say "we" as the royal we—with limited funding and, with something like fighting invasive species, particularly on a national scale, you're talking about a large dollar figure to do it right, the way that we'd like to see it done.

What it really comes down to is investing, no matter what, in the risk assessments to know what you need to tackle first, and then that will give an indication of how much money you need to spend.

Mr. Bob McLean: In addition, I think it's very important to go through that prioritization and planning process. What are the priorities that we wish to tackle as a country? Once we've identified those priorities, what are the actions needed to effectively act on that priority? From there, it's identifying within those priorities what I mentioned earlier about who's best placed to act. There will be activities where the federal government is well placed to act, perhaps through regulation and enforcement, the provinces similarly, and non-governmental organizations.

I think having that partnership-based work to identify the needed actions provides that opportunity for funding partnership. It's not just the federal government and it's not just the provincial governments, but contributions from others. We've heard hydroelectric utilities are at risk of invasive species. Is there an opportunity for industry such as that to make a contribution to implementing programs that could and hopefully would stop the introduction of a harmful species like mussels into aquatic ecosystems where they're not found now? That's what I meant by the importance of planning: who can participate and then what they can contribute in kind through the activities of their members or perhaps a financial contribution. It won't be done by the federal government alone.

Like my colleague, I'd be hesitant to put a number on it. It depends on how much we want to do.

• (1625)

Mr. Fin Donnelly: I guess I would add maybe that's role the council could play in taking a leadership role across the country, working with partners to find out and identify the costs per province and per territory. I heard \$100 million mentioned earlier. I believe Mr. Orb mentioned that for his province.

Moving on, Mr. McLean, you mentioned six recommendations that you identified clearly. It was very helpful to the committee. Picking up on one of them, citizen science, you suggested that there is a need for a common data platform. Can you elaborate a little bit on that or give an example of another country that has a working common data system that Canada could look to?

Mr. Bob McLean: The quick answer is no, but I will attempt to respond to your question.

There are models in other areas. For example, there's something called the Avian Knowledge Network. It's people who keep information on birds. There are many different systems that are keeping that information.

I think that it would be a mistake to strive toward one consolidated database of information. It's more about recognizing that these systems exist. They're being created for perfectly valid reasons, and they're serving the interests of the organizations that have created the databases.

It's about, then, how we actually create a system that can access that information wherever it's found, whether it's EDDMapS, whether it's iNaturalist. There are a number of systems even in Canada that have that information. It requires an approach that is more along the lines of what I characterize as a knowledge network: these different data holders' developing their systems such that the information can be accessed and rolled up to enable, for example, improved risk assessments. This is something that we're not really able to do in Canada because we can't access information and know where all the species are. We have it, but there's some information here, some there and some in other locations.

Mr. Fin Donnelly: That's very helpful because we often hear that the last thing the provinces want is the feds trying to create a common platform. However, in other instances or examples, that's what's needed so that kind of information is very helpful.

I want to follow up on a colleague's earlier questions on education and awareness. You talked a bit about the Clean Drain Dry program. I'm wondering if you could elaborate a little more about the need for effectiveness and about putting funding into those sorts of programs because often governments are hesitant to do that kind of thing. I think that almost every person or organization that presented today talked about the importance of prevention. That's what this is.

Could you talk or elaborate a little bit...?

I have half a minute. There you go.

Mr. Bob McLean: The idea behind those educational awareness programs actually goes a bit further. It's not just providing information, but also causing that changed behaviour. It's the things that people are doing that are causing species to be introduced into new ecosystems. Can those behaviours be changed? That's the intent of those programs, whether it's Clean Drain Dry, PlayCleanGo or PlantWise. There are a number of these programs that are really trying to help people understand how their activities can change.

These are really important initiatives. Changing people's behaviour is, I think, going to produce better results than a kind of heavy-handed, regulatory and enforcement approach. I'm not disagreeing with people who commented on the importance of that border presence and the importance of enforcement. However, we don't

have the resources in the country to have an enforcement program that protects all the lakes.

We need some strategic compliance and enforcement effort on the part of governments, federal and provincial. Then we need to complement that with these campaigns that are designed not only to help Canadians be aware, but also to help them understand how they can change their activities to produce the results that we want.

• (1630)

The Chair: Thank you, Mr. Donnelly.

Now we'll go to Mr. Fraser for seven minutes or less.

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

Thanks to all the witnesses for joining us today.

Mr. DeMille, I'd like to start with you. One of the things that I've learned as we've undertaken this study is the fact that there is limited funding, obviously, for AIS in Canada, so we're thinking strategically about how that would look going forward in order to improve prevention. I think that it's pretty obvious that prevention is better than dealing with an issue once it actually presents itself regarding an invasive species.

It seems to me that a number of the witnesses are saying that the Asian carp situation, which you described as being handled pretty well and which actually has been fairly effective, is disproportionately taking away funding from other AIS priorities, including ensuring that there is prevention for, for example, zebra mussels' finding their way out west.

It just seems to me that if we're using a lot of the budget or a disproportionate amount of the budget for AIS to deal with an urgent issue that comes up because it wasn't prevented—in the case of Asian carp finding their way into the Great Lakes—maybe there's a different way that these things should be funded, where you have a budget prioritized for ongoing, long-term preventative measures and then a different pot that should be available for dealing with one-off situations when they do present themselves, like Asian carp.

Would you agree with that assessment of the way that this has found its way into the budget items?

Mr. Matt DeMille: I think it's important to note that the Asian carp program does have a very important prevention component. It is not necessarily what you would refer to as a fully reactionary program. It does have investments all the way along, from prevention and keeping them out of the Great Lakes and out of Canadian waters right through to being prepared for detection and rapid response. That's more on that management side, that reactionary thing that you're talking about.

In short, yes, there's a need for both. I think it goes back to what my colleague said about needing to prioritize our actions. I think we need to figure out what it is we want to do. I would definitely agree with you that prevention is the way to go. We have a number of prevention programs. We are largely an education and outreach organization. Through our invading species awareness program, that's what we work on: prevention and education and outreach. I think when we're talking about Asian carp and the success of that, part of that is related to that education and outreach work we do, that preventative work, and how it feeds in so that we can have that rapid response.

Mr. Colin Fraser: In terms of dealing with the Asian carp situation, is that likely to continue to require the same level of resources well into the future, or is it something you can actually deal with and manage and then eventually take those resources and put them into other priorities?

Mr. Matt DeMille: I'll let Sophie maybe take a stab at answering that.

Ms. Sophie Monfette (Coordinator, Invading Species Awareness Program, Ontario Federation of Anglers and Hunters): Certainly.

I think where we're at with the Asian carp program right now is that we are still in the prevention phase. We have no established populations of Asian carp in the Canadian Great Lakes. The efforts are there to keep that in place. I think DFO certainly will be allocating funding to that, but there is also a lot of work being done to look at alternative solutions on how we can keep invasive carps out of the Great Lakes. This would apply to other species as well.

Mr. Colin Fraser: So maybe I've misunderstood, then. Forgive me for not knowing, but I thought there was a population of Asian carp in the Great Lakes that was causing a problem.

Ms. Sophie Monfette: There have been captures, but there is no established population of Asian carp in the Canadian Great Lakes.

Mr. Colin Fraser: Okay.

Ms. Sophie Monfette: We are still in the prevention phase, for sure.

Mr. Colin Fraser: Thanks for that clarification.

• (1635)

Ms. Sophie Monfette: My pleasure.

Mr. Colin Fraser: Mr. McLean, you talked a little bit about some of the work that's undertaken in order to collaborate between the federal government and other organizations and the province. Is there something we could recommend to the federal government in order to better collaborate between the different levels of government in terms of how to share information and how to work together? Is there, for example, a working group on AIS between the federal and provincial governments where they meet regularly to discuss what more can be done?

Mr. Bob McLean: Yes, there is such a committee. It's the national aquatic invasive species committee, which DFO and all the provinces and territories participate in. We would definitely view that committee as a key mechanism, or as "the" key mechanism, for the federal, provincial and territorial collaboration I mentioned, and also with respect to the identification of priorities. Once that has been accomplished by the top two tiers of government in the country,

then I think that provides an opportunity for organizations like ours, or the others who are witnesses here today, to participate.

I think it's important that the national committee consults on priorities, though, and does not simply meet as 14 jurisdictions in a room deciding on priorities. I mentioned in my remarks the importance of collaboration to identify priorities and identify the actions that are needed to act on those priorities.

Mr. Colin Fraser: Okay. Thanks.

Ms. Redelback, you mentioned that the invasive mussels would obviously be a major concern for the distribution of water if they showed up in your area. That would obviously impact on your organization quite onerously. I'm wondering if you could explain exactly how it would affect the distribution of water to have an invasive mussel species in your area.

Ms. Margo Jarvis Redelback: As I mentioned, about 53% of our irrigation distribution system is now in underground pipelines. That has been ongoing for many years. The reason for doing it is to increase water efficiencies and ensure that we're making the best use of the water. In terms of mussels getting established in our irrigation reservoirs, our pipelines in effect draw off of those irrigation reservoirs that store that water and distribute it.

We are anticipating that due to the pipelines being in the ground, typically below frost in a lot of cases, there is the possibility that those mussels could get established over a winter and continue to reproduce in the pipelines, especially where there are areas of ponding over winter. Pipelines are normally drained over the winter season. However, there are ponds in places, in coupling joints and things like that. We are concerned that the mussels could get in there, establish and continue to reproduce.

Mr. Colin Fraser: Can I just briefly ask—

The Chair: Sorry, Mr. Fraser. You're way over time.

We'll go now to Mr. Calkins for five minutes or less, please.

Mr. Blaine Calkins (Red Deer—Lacombe, CPC): My goodness, where do I start? As an Albertan, I guess I'll go with Ms. Jarvis Redelback.

Can you give us any indication of what the value of those assets would be in today's dollars, if we were to sum up the cost of building all of the reservoirs, all of the irrigation channels and all of the physical assets that have been put in place to enable the irrigation system to work?

Ms. Margo Jarvis Redelback: We're probably at about \$3.6 billion, when considering canals, pipelines and all the control structures in those canals.

Mr. Blaine Calkins: That's the value of the infrastructure that's at risk if zebra and quagga mussels get in there.

Can you give this committee any indication of how exactly the potash chemical treatment process would work, and where it would need to be applied in order to be effective?

Ms. Margo Jarvis Redelback: There has been some initial research, which was done in collaboration with Alberta Agriculture and Forestry, using potash to treat irrigation pipelines. That would entail ensuring that the potash was mixed with the water in the appropriate concentration, injecting that mixture into the pipeline and holding that concentration for a minimum period of time to ensure that there would be appropriate killing of the mussels that may be in that pipeline.

We do not have any invasive mussel species present in our infrastructure yet, so when that research was conducted, it was a lot of theoretical work, but we do feel confident that it is a potential treatment option for our pipelines. However, it would be extremely costly. We anticipate that given the length of the infrastructure in place, we would not be able to treat all of the infrastructure in one season. As well, we have to coordinate with the irrigation demand of our agricultural producers. It's not simply an easy treatment option at all.

• (1640)

Mr. Blaine Calkins: Fair enough. Who do you think would be liable for the potash costs, or the implementation of a potash program should these mussels get into the irrigation system?

Ms. Margo Jarvis Redelback: Most of that irrigation infrastructure is owned and operated by the irrigation districts, so we anticipate that the irrigation districts would be bearing the cost of treatment on that infrastructure.

Mr. Blaine Calkins: I understand that you're not getting any help right now from the Department of Fisheries and Oceans.

Ms. Margo Jarvis Redelback: That's correct.

Mr. Blaine Calkins: Are you getting zero funding?

Ms. Margo Jarvis Redelback: Yes, we get zero funding. Everything that we have—

Mr. Blaine Calkins: I need to move on because I'm running out of time.

For the Saskatchewan Association of Rural Municipalities, are you getting any funding from the...?

Mr. Raymond Orb: Not that I know of at this time, but we do have potash available in this province.

Voices: Oh, oh!

Mr. Blaine Calkins: That's very well understood. Scott Moe and Brad Wall have made that abundantly clear.

Shuswap Watershed Council, are you getting any funding from the Department of Fisheries and Oceans?

Ms. Erin Vieira (Program Manager, Shuswap Watershed Council): We have zero funding from the department.

Mr. Blaine Calkins: I'll move on to the Ontario Federation of Anglers and Hunters.

Mr. DeMille, can you give us any indication of what the risks are for natural vectors, such as migratory birds, pelicans or anything like that? Has there been any assessment done of whether or not they, as natural vectors, could be a problem with moving things around?

Mr. Matt DeMille: Do you mean for a particular species, or just in general?

Mr. Blaine Calkins: I mean in general.

Mr. Matt DeMille: Sophie, do you have anything?

Ms. Sophie Monfette: There is nothing I could speak to. I'm not certain at this time.

Mr. Blaine Calkins: Okay. Does anybody believe that Transport Canada, as the registrar of boating or watercraft, bears any responsibility in helping assist with the aquatic invasive program? Has anybody given any thought to that?

Go ahead, SARM.

Mr. Raymond Orb: I think we would have some interest in that. We think Transport Canada should have responsibility. It was mentioned earlier on that float planes are under the jurisdiction of Transport Canada as well. There should be some responsibility. We have a lot of fly-in fishing camps. The implications for AIS on the tourism aspect of the angling industry is a very high impact.

Mr. Blaine Calkins: I also have Mr. McLean and Ms. Jarvis Redelback who want to discuss this.

Mr. McLean.

Mr. Bob McLean: I think Transport Canada could play a role with respect to awareness. When people are getting a licence, they could indicate that there is a risk and indicate where to go to get information to manage that risk. I think there is a role.

Ms. Margo Jarvis Redelback: I would just add that there may be an opportunity to generate funds through the licensing system of watercraft through Transport Canada as well, in order to assist with funding the various programs associated with aquatic invasive species in the future.

Mr. Blaine Calkins: Mr. Chair, I know I'm out of time, but just for the edification of the committee members, not every watercraft in Canada needs to be registered with Transport Canada. It requires a certain horsepower of motor in order for it to be. There's an opportunity there but it's not a fulsome opportunity, and I think it's something the committee should explore.

The Chair: Thank you, Mr. Calkins.

Now we will go to Mr. Morrissey, for five minutes or less, please.

Mr. Robert Morrissey (Egmont, Lib.): I would like to follow up on the questioning to the watershed groups in relation to funding from DFO. Did you ever get funding from DFO?

Ms. Erin Vieira: No.

Mr. Robert Morrissey: In the past 10 years, you never got funding to assist you in the work you're doing?

Ms. Erin Vieira: The Shuswap Watershed Council was formed in 2014 and it is fully funded by local government.

Mr. Robert Morrissey: You started in 2014 and you've had no funding since then.

Ms. Erin Vieira: That's correct.

Mr. Robert Morrissey: Could the others comment as well on the same question that was posed, the two groups, Saskatchewan as well, the municipal ones, the irrigation systems?

Mr. Raymond Orb: To my knowledge, no funding was provided.

Mr. Robert Morrissey: You never had funding. I just want to be clear on that. It's not a case where you were receiving funding and then lost it.

More from a curiosity factor, because there have been a number of suggestions where float planes could be a significant problem in transferring invasive species and I can see that, how would you put in place a treatment regime?

I can understand it from vessels, where they come out of the water and you have the opportunity to disinfect. This is a practice that is carried on in the agricultural industry to prevent the transport. However, in float planes, how would you envision a treatment regime for dealing with invasive species?

•(1645)

Ms. Erin Vieira: One possibility that could be looked into is the use of canines. Here in B.C., in our provincial watercraft inspection program run by the Conservation Officer Service, they have two canines that are trained to smell larvae. My understanding is that they can smell the adult form as well as the larval form.

Mr. Robert Morrissey: The aircraft would have already landed in a water system and, therefore, would contaminate by the time you would know. Would I be correct in assuming that?

Ms. Erin Vieira: An inspection would need to take place prior to departure. If it's leaving an infested area, that would be inspected.

Mr. Robert Morrissey: That's interesting.

I want to go to Ms. Monfette and follow up on my colleague's question. You stated that there is no established population of Asian carp in the Great Lakes, and again, I was under the impression that there was.

What's your definition of an "established" population?

Ms. Sophie Monfette: My understanding is that it would be a fish that was born in the Great Lakes and then reproduced in the Great Lakes.

Mr. Robert Morrissey: Are Asian carp reproducing in the Great Lakes?

Ms. Sophie Monfette: There are tributaries on the U.S. side that they are dealing with, but in Canadian waters we have no established population in the Great Lakes.

Mr. Robert Morrissey: However, Asian carp are in Canadian waters.

Ms. Sophie Monfette: There have been adult fish found in Canadian waters. These are adult fish. Their source is unknown.

Mr. Bob McLean: I would just add to my colleague's comment.

Asian carp are well established in systems in the United States, and perhaps that's what people might be thinking of. The effort is to ensure that those Asian carp that are well established in the United States do not get into the Great Lakes.

Mr. Robert Morrissey: Mr. DeMille, is the current regime that is in place by DFO effective in achieving that goal?

Mr. Matt DeMille: Until there's a reproducing population established, or an established population in the Great Lakes, we have to think what we're doing is successful. Because for the established populations are on the U.S. side, the biggest thing is about keeping them out.

A lot of that right now is happening in the Chicago-area waterway system, which is outside our jurisdiction. Although there are binational conversations, a lot of that conversation is happening on the U.S. side. We're just involved in those conversations, rather than being the major players and decision-makers on what happens. That's talking about physical barriers and things that would disrupt shipping and other industries, and that's why the conversations continue to go on.

Mr. Robert Morrissey: Has the effort by DFO been consistent over...?

Is my time up?

The Chair: Your time is up, sir. I'm sorry about that.

Now we go to Mr. Arnold for five minutes or less, please.

Mr. Mel Arnold: Thank you, Mr. Chair, and thank you to all the witnesses.

Mr. Chair, we've heard a number of times reference to the commissioner of the environment and sustainable development's spring report on aquatic invasive species. I'd ask that we have that report entered as evidence or information for this study. I think it's very relevant to what we're doing. I don't know whether you need a formal motion for this or whether the clerks can simply take that suggestion so that it's on the record that we have it included there. Thank you.

The threat seems to get bigger everywhere we go. Prevention seems to be the biggest challenge—I think that's very clear. I haven't heard too much about rapid response systems.

Mr. McLean, Mr. DeMille, or anyone from the western provinces as well, have you seen anything being developed as far as rapid response programs are concerned?

•(1650)

Mr. Matt DeMille: Do you want to talk a little about the rapid response related to Asian carp? It's probably the most relevant.

Ms. Sophie Monfette: Certainly.

Through DFO and even binational collaboration, there are efforts in place to respond to detection. I can speak specifically to the system we have in place in partnership with DFO. It is that through our reporting tools we facilitate early detection. If a suspect report comes in to our staff, we inform DFO. It quickly moves through the protocol. If it is confirmed as a fish, then DFO responds in order to ensure that this fish is captured, if it is in that water body. I think Matt made reference to some successes that we have had as a result.

These reports can come in through anyone on the ground, and DFO is ready to respond.

Mr. Mel Arnold: These are reports of adult or mature fish, not of something as small as microscopic, such as the larvae from zebra and quagga mussels. Has anyone heard anything of a response plan for that type of invasion?

Ms. Redelback.

Ms. Margo Jarvis Redelback: I can just comment that Alberta's Ministry of Environment and Parks is currently working on some rapid response plans for invasive mussel species in Alberta water bodies. That is in process right now.

Mr. Mel Arnold: Does anyone else...?

Ms. Erin Vieira: I'm also aware that the Province of B.C. has a rapid response plan as well. I am not familiar with the details of it, but they have a protocol in place that should there be a detection of zebra or quagga mussels in one water body in B.C., there are protocols in place to try to prevent further spread across the province.

Mr. Mel Arnold: Okay.

That, however, is a provincial program as far as you know.

Ms. Erin Vieira: That's correct.

Mr. Mel Arnold: When dealing with federal waters under federal jurisdiction, if they're salmon-bearing streams...?

Ms. Erin Vieira: That I'm not familiar with.

Mr. Mel Arnold: Okay. Thank you.

So much information has come in on this...even though I've been following it for a number of years and that's why I put this study forward.

We have four different provinces represented here. What sort of interaction is there from province to province? Do you know whether there is a sharing of information of risks, of the vectors for the transport of these aquatic invasives back and forth?

Ms. Erin Vieira: We're not a provincial organization, but we work closely with provincial staff at the B.C. Ministry of the Environment and Climate Change Strategy. I know that they work with the Canada Border Services Agency and have received notification of watercraft coming from infested jurisdictions.

I know that the Province of B.C. is also working with the Province of Alberta on something called a passport program, whereby watercraft owners who travel back and forth frequently proceed through the inspection process in a more streamlined method. In order to receive a passport, they also need to have been quite well educated on the topics, specifically of zebra and quagga mussels and what the risks are.

Mr. Mel Arnold: Thank you.

I guess I'm out of time.

The Chair: Yes, and that concludes this portion of our committee meeting for this afternoon.

I want to say a big thank you to our guests, who have appeared both by video conference and in person.

I'll suspend now for a couple of minutes just to change out witnesses and get ready for the next portion of the meeting.

Thank you, everyone.

•(1650)

(Pause)

•(1700)

The Chair: We'll get started again on the next portion of our session for today.

We have witnesses in person, we have witnesses by video conference and a witness by teleconference.

We have here in person, from the Canadian Electricity Association, Mr. David Stanley, senior environmental specialist, Ontario Power Generation, as well as Michael Powell, director of government relations. Welcome. From the Miramichi Salmon Association Incorporated, we have Mr. Mark Hambrook, president. It's good to see you again, sir.

By video conference, from New Brunswick Invasive Species Council, we have Paula Noel, volunteer member. From the Rural Municipalities of Alberta, we have Al Kemmere, president. By teleconference, from the Central Kootenay Invasive Species Society, we have Erin Bates, executive director.

We'll start off with Ms. Bates.

In case we get a problem with the connection, we'll at least try to get to hear your testimony. When you're ready, you have seven minutes or less, please.

Ms. Erin Bates (Executive Director, Central Kootenay Invasive Species Society): Thank you so much for having me today.

The Central Kootenay Invasive Species Society is a regional invasive species organization in the interior of British Columbia. We have a mission to protect ecosystems and communities by preventing and reducing the harmful impacts of invasive species. We work in the Central Kootenay region where we collaborate with many different landowners and stakeholders to deliver outreach, prevention and management programs.

Since 2012, CKISS—which is our acronym, and I'm going to use it instead of our full name—has taken a strong regional role in coordinated AIS programs, including coordinating the Canadian Columbia basin regional aquatic invasive species program and participating on the 100th Meridian Initiative Columbia River basin team.

Aquatic invasive species—or AIS, as I'm going to call them—such as zebra and quagga mussels cause a wide range of economic, environmental and social harm, and this has been well documented. The potential economic impact of zebra and quagga mussels—or ZQM as we tend to refer to them—to hydro power, agricultural irrigation, municipal water supplies and recreational boating in B.C. has been estimated at \$43 million per year.

Aquatic invasive species such as ZQM have been implicated in vast reductions or outright extinction of indigenous fish populations where they have become established. ZQM infestations are apparently permanent and irreversible, and no method, technology or natural predator exists to remove the invasive mussels once they've been established in a water body.

Unfortunately, zebra and quagga mussels are steadily spreading westward from their original introduction in eastern North America with the most recent infestation found in Montana in 2016. The Government of Montana estimates that direct mitigation costs and revenue lost to affected stakeholders will be \$234 million per year, and that includes agriculture, hydro power, drinking water, recreation and property values.

The risk of AIS introductions, especially ZQM, to British Columbian waters is escalating rapidly, primarily due to human-caused factors that include water-based recreation and travel. Invasive mussel-fouled watercraft—watercraft that have been found to have veligers, basically zebra or quagga mussel eggs on them—have been found destined for B.C. waters since 2011. Between 2015 and 2018, the B.C. invasive mussel defence program's watercraft inspection stations intercepted 82 watercraft that were fouled with invasive mussels. It only takes one watercraft transporting live mussels to cause permanent, biological pollution in a water body, so the fact that any contaminated watercraft has been destined to launch within B.C. emphasizes the importance of an extensive and comprehensive zebra and quagga mussel prevention program.

The threat of ZQM establishment in Central Kootenay is very great, as all the water bodies in the Columbia basin have been assigned a high to very high risk status for the survival and subsequent invasion of zebra and quagga mussels. We believe that invasive mussels are the number one threat to our region and to B.C., and not enough is being done to protect our resources. As far as we know, there isn't a lot of action currently by the Canadian government.

This is an emergency situation. Provincial governments in western Canada, including B.C., Alberta, Saskatchewan and the Yukon, have begun to take a coordinated approach. They've developed the invasive mussel prevention framework for western Canada. While this has led to increased monitoring and inspections, without involvement from the federal government, it's most likely still a matter of when, and not if, we might get invasive mussels in B.C. We really need federal support and action on the ground along with effectively enforced regulations to keep invasive mussels out of our province.

We would like to see more action by the federal government as follows.

We strongly feel that the Canada Border Services Agency should be inspecting all watercraft entering Canada from the United States at ground entry ports with best current practices. The agency should also be conducting full decontamination of any invasive mussel-fouled watercraft before they're permitted to enter into Canada.

We would love to see more active participation on and support in international and interprovincial working groups and programs, including the 100th Meridian Initiative.

● (1705)

We would also love to see long-term, sustainable federal funding to support prevention, monitoring, education and outreach efforts.

On behalf of the CKISS, we thank you very much for this opportunity to provide input and for your time.

The Chair: Thank you, Ms. Bates, for that.

We'll now go to Paula Noel from New Brunswick Invasive Species Council. When you are ready, you have seven minutes or less, please.

Ms. Paula Noel (Volunteer Member, New Brunswick Invasive Species Council): First of all, thank you to the honourable members for this opportunity.

As you say, I'm representing the New Brunswick Invasive Species Council today. We are a volunteer-run group that formed in 2009, with support from the invasive alien species partnership program. This was a federal program that built capacity in the province to address invasive species.

Since the end of this program in 2012, there hasn't been funding available for coordinating activities on invasive species in New Brunswick. We do have aquatic invasive species already present in the province, and there are many poised to invade from nearby jurisdictions.

In New Brunswick, we have been lucky that there hasn't yet been a big disaster associated with invasive species in our freshwater systems. We do know that this is just a matter of time. With the recent introduction of the invasive aquatic plant, Eurasian water milfoil, we believe we are on the precipice of a dramatic ecosystem impact in the Saint John River system.

Eurasian water milfoil, which can grow so quickly it's called the zombie plant, can completely fill water bodies, to the point where no other plants or fish can use the habitat, and boats are unable to pass through the mat of plants. However, since Eurasian water milfoil was found in the watershed in 2017, there has been virtually no response to this introduction. There have been no attempts to contain, eradicate or even educate boaters using these waterways on how they can help to prevent spreading this species faster within the Saint John River watershed, or to other waterways in the province, by cleaning plant material off boats and trailers.

Introductions can be prevented by engaging citizens and giving them the equipment and tools they need to clean, drain and dry their boats and equipment. The New Brunswick Invasive Species Council, in partnership with the Canadian Council on Invasive Species, has applied for funding to roll out a program to do just that. We hope to be able to start filling that gap. We were happy to see that recent granting programs announced under the Canada Nature Fund recognized invasive species as a priority threat to address. However, the primary focus of these funds is to work on species at risk.

This puts government staff in the challenging position of evaluating proposals to work directly on species at risk against proposals to prevent invasive species that may not have been found yet. Understandably, the species-at-risk work typically wins out. It is just human nature to care more about something that's right in front of us than something that might be in the future.

We believe that unless there is separate, dedicated funding to prevent and respond rapidly to invasive species, we are going to continue to see this pattern that we have now, virtually throughout the country, of responding after an invasion has happened and been let go long enough that it's having serious ecological and economic impacts.

The recent Auditor General report confirmed the importance of restricting and closing high-risk pathways. We believe governments can't do this alone. We need to work with people in communities and give them the knowledge and tools they need to prevent spread. Many of these species are unintentionally moved around on boats and equipment by people who don't understand the potential damage they are doing.

We would like to see leadership from DFO. We need clarity on roles and responsibilities between federal government departments, and between DFO and the province.

In the case of the containment of smallmouth bass to Miramichi Lake, which has been ongoing for 10 years now, local salmon groups and indigenous groups have had to step into a leadership role and invest tens of thousands of dollars into research, to make a case for eradication of this species.

If zebra and quagga mussels were to be discovered in New Brunswick tomorrow, I am not confident that there would be any plan in place to respond, despite what we know about the serious impacts these species have and how important it is to act quickly if we want to have a chance of eradicating them before they spread.

Aquatic invasive species regulations that were reduced in 2015 prohibit unauthorized introduction of aquatic species where they are non-indigenous. What is lacking in those regulations, however, is the ability of conservation officers to lay charges when naturalized invasive species are moved around within a province. If someone were to take smallmouth bass from the Saint John River watershed and move that fish into the Miramichi basin, there is currently nothing that conservation officers could do about that.

Finally, enforcement is not just about compliance with laws and regulations, but also about educating and engaging Canadians. Invasions are usually spotted first by informed and alert citizens.

●(1710)

It's far cheaper to prevent than to manage invasive species after they've been introduced. We need to protect New Brunswick's aquatic habitat.

We can never be aware of all risks. Even with the best science there will always be the unexpected. Focusing on pathways to prevent introductions is the best investment in engaging Canadians and restricting pathways, and engaging Canadians in spotting new invasives. When invasives that we know have had major impacts in other regions of the country are spotted, we need to have rapid response plans in place with funding to execute them. We need local groups to be able to engage Canadians in their communities.

Invasive species councils across the country like the one in New Brunswick need to be supported to implement proven tools like the national pathways programs that the Canadian Council on Invasive Species is developing. We need a national database where Canadians can report invasive species when they find them.

Education and outreach will be the best investment and will save the high cost of dealing with invasions after the fact.

I thank you all for looking into this important issue.

The Chair: Thank you, Ms. Noel.

We'll go now to the Rural Municipalities of Alberta with Mr. Kemmere for seven minutes or less, please.

Mr. Al Kemmere (President, Rural Municipalities of Alberta): Thank you and good afternoon, everybody. It's great to see you gathering together to try to get a good understanding of our perspective on this.

I am Al Kemmere. I'm a councillor in Mountain View County and president of the Rural Municipalities of Alberta. For those of you who don't know Alberta very well, Mountain View County is dead centre in the middle of the province. RMA or Rural Municipalities of Alberta covers the whole province—north to south, east to west, touching the Northwest Territories and down to the American border. Under the jurisdiction of our members, we cover about 85% of the provincial land mass. That includes 75% of Alberta's roads and 60% of Alberta's bridges.

I think we're all gathered here to talk about the situation of the aquatic invasive species and the different types that it covers. Aquatic invasive species is an issue that impacts communities throughout Canada. Though we recognize the impact of the problem, the species of concern are diverse and vary right across the various regions of the province. In Alberta, a number of species are of considerable concern, including fish, invertebrates, plants and diseases.

We are hearing from our members and from the Government of Alberta that the species of greatest concern are the two types of mussels: the quagga and the zebra mussels. These mussels are of significant concern for our municipalities. First, they can harm municipally owned and operated assets that serve a community interest. These mussels can attach themselves to infrastructure such as water pipes, irrigation pipes and other underwater structures. They will virtually choke them down to the point of non-productive value.

Anecdotally, we have heard from other municipalities in Canada that have had to spend millions of dollars on their water plants to combat these species. We want to do what we can to avoid those costs. For most municipalities in Alberta, this would be an unbearable cost and it would cause severe harm to their ongoing sustainability. The maintenance cost alone is projected to be \$75 million per year to protect or replace the infrastructure that is threatened by the species.

A second point of concern in rural municipalities is that many of our municipalities are home to irrigation. I do have to pat the irrigation sector on the back. They're doing tremendous work to try to mitigate the amount of seepage and evaporation that takes place in their systems by putting pipelines in the ground to transmit their water. However, if we do not do something, these infrastructure pieces that they've put in will be choked down similarly and it will limit the access of irrigation water. It will also limit the access of municipalities to the water that is coming through that system.

The second concern for municipalities regards the impact to the natural ecosystem. While I'm not a scientist, the information brought to me is that these can have significant impacts on the health of the water bodies. These species will go through and eliminate the plankton and all the nutrients in lakes. It would result in algae blooms, which would impact the viability of the fish population within them. These impacts change how people in our communities use their water bodies for both recreation and tourism.

In Alberta, there are 52 prohibited species of plants, fish and diseases listed in the Fisheries Act, including the black, brown and yellow bullhead catfish, goldfish, whirling disease and the Asian tapeworm, to name a few. Other plants, like the flowering rush, are gradually taking over a lot of our lowlands and wetlands as they progress.

In Alberta, in part due to the advocacy of municipalities, our provincial government has established an aquatic invasive species program. To their credit, the government of Alberta program and the public information campaign have been well received—much better than we initially thought. Although it could always be bolstered with additional resources and capacity, there has been a strong response to the complex problem. The Alberta provincial program to combat aquatic invasive species focuses on all aquatic invasive plants, fish and invertebrates.

Given the potential economic impact of the spread of aquatic invasive species in Canada and Alberta, we must make sure that the response is at a national level, as this is such a significant task and we're all linked together. We must do what we can to protect all our water bodies.

• (1715)

This will require a national strategy. It's a strategy that should include prevention, eradication, cross-boundary collaboration and coordination so that we work on this together, province to province, countrywide and also with our neighbours to the south.

In regard to prevention, RMA has passed a resolution advocating a zero-tolerance policy on aquatic invasive species. This starts with a public awareness campaign that is targeted to commercial, industrial and recreational water users as well as being broadly presented to members of the public.

Mandatory inspection sites are also important. They must be strategically located at key points of entry and must make it impossible, or at the very least, very difficult, to bypass the stations. While we have had those stations in my province, they are not based in the most ideal places. This means drivers are going around these stations and avoiding the inspections.

We must also have a plan for the distribution, or guidelines for the allowing, of dumping of aquarium-type fish within our systems. This often seems to be at the root of some of our problems. Outside fish ponds need to be regulated so that we do not expose our drainage systems or our water systems to invasion by these species.

Without a good eradication, in cases where species have been identified, there must be a rapid response that focuses on eradication of that species in the water body and ongoing monitoring to ensure it doesn't emerge. I am not an expert on the tools for that, so I will leave it to you to understand that allowing any tolerances is not acceptable when it comes to identifying these species

Last, it is important that all provinces, territories and the federal government work together in a coordinated approach. Provincial programs, such as those in Alberta, are proving to be effective but they would be greatly aided by a coordinated response with other provincial and nationwide programs.

We recently submitted a letter to this committee regarding this cause. There is more detail provided in that letter. I thank you for allowing us to do that.

I want to thank the committee for putting its time and energy into this issue. It is not a small issue. It does take a good forward-looking approach to make sure we can do something to limit the invasion and to protect our water bodies. Thank you for that.

• (1720)

The Chair: Thank you, Mr. Kemmere.

We'll go now to the Canadian Electricity Association. I don't know if one person is speaking or if you're sharing your time, but go ahead, Michael, when you're ready. You have seven minutes or less.

Mr. Michael Powell (Director, Government Relations, Canadian Electricity Association): Thank you, Mr. Chair.

I am Mike Powell. We are sharing our time today. Dave Stanley is joining me. He's a fisheries scientist with Ontario Power Generation.

Sustainability is a central focus of Canada's electricity sector. We think about it broadly, from emissions to watershed management and beyond.

Canada benefits from a natural clean power advantage. The Canadian electricity sector has reduced its GHG emissions by over 30% since 2005. Already, more than 80% of electricity in Canada is produced in non-emitting ways. Sixty per cent of this comes from hydroelectric power.

Hydro power produces virtually no greenhouse gases and its abundance in Canada makes our electricity system one of the cleanest and most renewable in the world. It's also exceptionally reliable and easily dispatched. It can and must play a central role in continuing to achieve Canada's climate change targets and to decarbonize other sectors.

Electrification of other sectors is necessary for moving toward a low-carbon economy. To have the electricity we will need to do this, expansion of hydro power and other clean energy sources will be essential. Therefore, we must make sure that our current and future systems are not jeopardized by external threats, such as aquatic invasive species. I'll also be saying "AIS" to solve the mouthful.

There are more than 400 hydro power-generating facilities in Canada. Most facilities were built decades ago without protection mechanisms in mind that would help limit the spread of invasive species, like zebra and quagga mussels. Invasive species also present maintenance challenges to other types of facilities as well, including nuclear and gas plants, and as we've heard, really any facility that has pipes in water.

I'll turn things over now to Dave, who can provide an operator's perspective on these matters.

Mr. David Stanley (Senior Environmental Specialist, Ontario Power Generation, Canadian Electricity Association): Hello, Mr. Chair and committee members. Thank you for having me today.

My name is Dave Stanley. I'm a senior environmental scientist with Ontario Power Generation.

OPG has a fleet of 66 hydro stations that can generate almost 7,500 megawatts of electricity. Further, not only are OPG's hydro power facilities impacted by AIS, but the challenges extend to other facilities such as our nuclear stations. As Mike alluded to, all water operators in the Great Lakes are highly impacted by the spread of AIS such as sea lamprey, round goby, the Asian carp and most famously, dreissenids like the zebra and quagga mussels.

This impact affects power generators like OPG and other utilities, municipal water intakes and industrial users. These invasive species add significant maintenance costs to OPG's operations and pose a safety issue for maintenance workers who are responsible for their removal and for retrofitting control measures on facilities. If left unchecked, AIS also pose significant risks to safety systems such as those for fire control.

No hydroelectric facilities currently in operation were built to handle the clogging of dreissenid mussels. Clogging typically occurs

in the secondary water systems such as turbine cooling systems or fire water systems. OPG spends millions of dollars annually to manage this issue at six hydro stations and two nuclear stations, and management is the key word here. OPG is currently not holding out any hope that the spread of these species will be completely reversed. Instead, we look to control these species, to minimize their harm to the environment and our operations.

Control measures for dreissenids typically include the release of deleterious substances such as sodium hypochlorite into the waters to kill the invasive species. Unfortunately, despite industry's best efforts to reduce the use of biocides and limit their harm, they can damage aquatic environments and native species. That's why funding for further studies that explore safer and more environmentally friendly control alternatives is essential.

OPG has been a leader in using alternative control measures for dreissenids, but as they spread further across Canada, DFO needs to not only fund preventative measures but invest in alternative controls. Until cost-effective alternative measures are developed, DFO needs to allow for the use of biocides to control these species. As per DFO's interpretation of deleterious substances for the control of AIS in 2016, the use of chlorine is permitted by provincial and federal agencies to control these species, and this has to be continued.

Now on a good note, hydro plants can also help control AIS. Our industry also plays a role because occasionally hydro power producers must dewater the intakes or other water courses for repairs. In this process the operator drains the water course, relocates native species to alternative locations and disposes of the AIS humanely. The practice can significantly reduce the number of invasive species in local areas.

Hydro dams and water control structures also passively control AIS. Many AIS species such as lamprey, round goby and dreissenids cannot jump or are weak swimmers. If they can't migrate upstream of hydro facilities or water control dams, the facilities have an ancillary benefit of controlling the spread of AIS at no additional cost.

Further, where AIS are present downstream of a hydro dam, fish passage should not be required to further help prevent the upstream movement of AIS.

I'll turn it back over to Michael.

● (1725)

Mr. Michael Powell: Thanks, Dave.

As the committee considers this matter, we're offering a number of recommendations. There is a role for the federal government to play.

First, the government should lead studies on how to stop the spread or manage existing populations of aquatic invasive species in the least environmentally damaging way.

Secondly, government should provide equitable funding for all regions of Canada as invasive species have no boundaries, and the best control measure is to preclude their spread. Given that many AIS have yet to make their way into western provinces, funding should be allocated in these regions to help limit the potential spread, and monitoring programs should be funded so that they may be caught early should it arise. Facility retrofits can be part of this solution.

Thirdly, governments should maintain the ability to utilize biocides to reduce the spread of invasive species and ensure that all federal and provincial regulations are aligned and consistent in this matter.

Lastly, governments should strengthen awareness, enforcement and monitoring of threat factors such as shipping, personal watercraft and others to reduce the likelihood of new aquatic invasive species arriving or spreading in Canadian waters.

Thank you. We look forward to whatever questions you might have.

The Chair: Thank you.

Now for the last presentation we have Mr. Hambrook, for seven minutes or less, please.

Mr. Mark Hambrook (President, Miramichi Salmon Association Inc.): Thanks for inviting me here again.

I'd like to talk about a specific example of invasive species, small mouth bass in Miramichi Lake in the province of New Brunswick. We've been working on this file for 10 years.

I should say, first of all, that the Miramichi historically has the highest run of Atlantic salmon in North America. Over the years it has been assaulted by low sea survival, other predators—striped bass being one—and the growing seal population along our coast, to the point that whereas there used to be a 10% survival of young salmon going to the ocean who would come back as adults, now we're down to 2% or so. It's really affecting our communities, our rivers—and not only in the Miramichi but in all of eastern Canada.

Ten years ago, when we discovered smallmouth bass as an invasive species in our watershed, we all panicked. What can we do? We responded right away, put a barricade in at the mouth of Miramichi Lake and started searching for an action plan.

We consulted with the North American expert, a chap in California who basically gave us a blueprint of what to do. It involved applying rotenone, which is a compound derived from a root in South America. It will kill fish but not other species. When we went to DFO, they said no, sorry, this is illegal, and we said this can't be true because they're doing it every year in Quebec and in British Columbia and Alberta. Everywhere uses rotenone. Unfortunately the Maritimes had never signed an agreement with Ottawa for

a shared jurisdiction and, therefore, it was illegal for use in our province. Regulations were therefore changed.

In the meantime, we were lobbying pretty hard for the rotenone application, and DFO came up with a plan. They said we will eradicate in three years by electrofishing. We'll put barricades in, we'll gillnet, we'll use spike nets—we'll use everything at our disposal to eradicate. Three years, it will take.

It's 10 years later and we still have juveniles, adults, and there is evidence now that maybe the fish are getting out of Miramichi Lake. It's from eDNA, which I don't know too much about and am not sure is very reliable. There seems to be an indication, however, that there may be some trickling out of this lake.

It has been 10 years, and now the legislation is passed and DFO has the authority to issue a licence for rotenone. We, therefore, went to DFO—and by the way, we commissioned the study at the Canadian Rivers Institute by this now retired expert from California, and we have a clear, legal, sound plan to eradicate smallmouth bass.

We presented it to DFO, who said, no, it can't be a proponent. It will be the regulator but someone else will have to take the lead. Our group thus formed, and we have our North Shore Micmac District Council as the leader of this now.

We've put an application in. It will be reviewed. It will probably take a year or so to look at it. There's no funding, by the way, for this. It will cost about a million dollars to eradicate, but the salmon sport fishing industry on the Miramichi is a \$20 million a year industry, and it's going to be in jeopardy because once the invaders get into the system, they're just going to keep multiplying.

The irony is that this was an illegal introduction. If I run a bulldozer down the stream, I'm going to jail. They can enforce that, but put an invasive species in a waterway, which will change it forever, and we can't even lay a charge.

• (1730)

That, then is a difficulty. We need enforcement and we need a champion instead of a regulator. We need regulators too, but we also need to have a few champions. That's where DFO has to come to the forefront and say, yes, we have a problem here, and we're going to help you address it.

They don't have to do it. We'll be a proponent but we need help, not hindrance. That's the case in Miramichi Lake.

Thank you.

The Chair: Thank you, sir.

We'll go to the questioning now.

First off is Mr. Finnigan for seven minutes or less, please.

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

Thank you to all the panel for being here on this very important study.

I'll start with you, of course, Mr. Hambrook. We've known each other for a while, and we're living in the same region of Miramichi. Of course, as you have seen in the last couple of weeks, the striped bass seem to be in a very healthy state at this time. We see all the boats there. They're catching a bunch of striped bass. Although they're not an invasive species, the problem is that the population has kind of exploded, and they do affect the salmon.

I'd like to go back to the smallmouth bass, which is an invasive species. They're not directly in the river, as we know, although there is some evidence, as you say, Mr. Hambrook, that they might be. What kind of damage would an escape and an establishment in the river do? You've been on the river a long time. To your mind, how much damage could that cause?

• (1735)

Mr. Mark Hambrook: I don't have to speculate because there are lots of examples of where smallmouth bass move into salmon rivers. Once they're there, they never leave. They do impact. As they get bigger, they will predate on young salmon, but they will also take the habitat that young salmon require to grow. In a watershed like the Miramichi, where we have some very cold water and high streams, maybe they'll not go there, but the main trunk of the rivers will be infested with smallmouth bass.

Mr. Pat Finnigan: As you said, DFO has been looking at this for the past 10 years or however long it's been a problem there. They've been trying mechanical ways, I guess, to eradicate the bass in the lake and contain them. I remember how some 20 years ago in my backyard, in Despres Lake, which is also a tributary to the Miramichi Lake, they used rotenone to eradicate another invasive species that was brought in from another region. It was the pickerel, I think.

Mr. Mark Hambrook: The chain pickerel, yes.

Mr. Pat Finnigan: It worked beautifully, I think. It totally eradicated what was in that lake. It did work. Some of the concerns they've been bringing up involve the use of rotenone, which is usually in what they call "kettle" lakes, where there's not much flow outside. They're concerned that eventually rotenone will drain. Maybe it won't be effective anymore, but it will drain in the river. I've heard that concern, and also about the other species that might be there that are also part of the whole ecosystem. What would you answer to that?

Mr. Mark Hambrook: About the other species in the lake, before an application of rotenone is implemented, you capture all the native species and hold native species off site while the application is administered, which takes a day. It will be effective for about a week or so afterwards. After that, the level drops and those species can be put back in. This doesn't affect any of the insects or the aquatic life in the lake—just the fish.

In the outflow, rotenone can be neutralized with potassium permanganate. You would treat the outflow water to make sure that none could get to the Miramichi River.

Mr. Pat Finnigan: Maybe to Ms. Noel, and to the comment by Mr. Hambrook also, I was really surprised and shocked to know that it is not illegal to take a species from one body of water and bring it into another one. Is that so?

Ms. Paula Noel: Yes. I've been informed of that by provincial staff here. That's a concern within the province. You couldn't take something that's not currently in the province and introduce it legally, but the conservation officers are not able to press charges if somebody is moving a species within the province. That's what I've been told.

Mr. Pat Finnigan: Would that be a provincial regulation, or would that be federal?

Ms. Paula Noel: The reference they made was to the 2015 federal regulations that had improved the situation, but apparently this was still a loophole that was of concern to conservation officers here.

Mr. Pat Finnigan: Probably the best way to make sure we don't have invasive species would be to educate people, because I'm sure a lot of people don't know that. They think, "Well, if I bring this fish here, instead of going to Grand Lake, I can fish it right here in Miramichi". You've referred to it, but how much are we spending on the education aspect of that?

Also for the associations, how much are we investing in campaigns to educate people that this is very dangerous and it could affect the livelihood of other species?

This is to both of you, if you want to answer.

Ms. Paula Noel: There has been some in New Brunswick, but the problem has been that there's been no consistent funding. There's no group. We've heard from some other provinces that there are multiple groups working on this issue. Here it's really been a side-of-the-desk issue for other groups like the salmon groups. Other conservation organizations are working, like I am, on a volunteer basis on the invasive species file, but it's been really difficult to get any funding specifically to address coordination, education and outreach on invasive species.

It has been shown that these education programs to explain to people what the damage is and how they can prevent spreading invasive species do work, but you need to be out in the communities. You need to go to the fishing derbies and to the boat shows and be where the people are to explain this to them. You also need the equipment in place for people to be able to do what you're telling them to do in order to clean and properly inspect their boats and equipment.

• (1740)

Mr. Pat Finnigan: Have you ever heard about—I think it was mentioned here—ED... It's kind of a new science—

Ms. Paula Noel: Is that eDNA?

Mr. Pat Finnigan: Yes, eDNA is a new science into maybe controlling that, which would be less invasive and adapted to a particular species. Has there been any research that you know of in dealing with invasive species on that front? Anyone can answer that, whoever wants to take a jab at it.

Maybe it's just something that I've seen in a movie somewhere, but if that's real science, it would be interesting.

Ms. Erin Bates: I can speak to that a little bit. This is Erin from CKISS.

We've done some eDNA work here in British Columbia on invasive bullfrogs. At this point, eDNA is mostly a monitoring tool. It's used to measure the residual DNA that's left in the environment when a specific species inhabits that environment. You can take water samples and measure specific DNA patterns and assess it for the presence or absence of a species, but there's no known technique for treatment using that.

The Chair: Thank you, Mr. Finnigan. You've gone over time.

Now we'll go to Mr. Arnold for seven minutes or less, please.

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

Thank you to all of the witnesses, even the ones we can't see on the video conference. It's always a challenge, I'm sure, listening in and not being able to see what's taking place.

Mr. Hambrook, I certainly appreciate your frustrations. The invasive species bug bit me about 20 years ago when our local fish and game club identified that someone had planted perch into our small trout lakes. They put the perch in there to feed smallmouth bass, but the perch multiplied to such an extent that they basically wiped out the insect life and the bird life on this small lake that was about 90 hectares, I think. The people in the community noted that. It was a disaster, but we persevered. After seven years of letter writing and meetings and pushing, we got that lake and nine others in the Shuswap area treated with rotenone. One of the treatments was half a million dollars just to treat one area.

Don't give up on it, because the perch multiplied to a point where they would only reach three and a half inches long, but they were fully sexually mature and reproduced. We held derbies—not derbies but family fishing days—to educate people.

We thought we were covering all the bases, and the day after one of our family ice fishing days, someone spotted perch in another trophy trout lake in a channel between two lakes. It turns out that one family took another family's kids on this fishing day and sent them home with some perch. The parents didn't know what to do with it, so they took the perch and dumped the bag of them into the other lake because they didn't want to kill them.

Education, education, education and prevention are huge parts of this. That's why I put this motion forward to do this study.

I'm going to quickly switch to Mr. Kemmere for some questions now.

What would the estimated loss be to agricultural production in some of the agricultural lands that are irrigated through these systems if there was a loss of the irrigation?

Mr. Al Kemmere: To put a full number on it would be speculative at best. I just need to point out that more than half of the irrigation is now supplied through piping systems versus open canal, with all the best intentions in mind. If these systems are going to be compromised, the largest and the highest producing part of agriculture within our province would be affected, whether it's the

feedlots or the specialty crops in southern Alberta, all those various aspects down there.

We have to remember, too, that in the irrigation sector as an example, it would additionally affect the viability of those towns that rely on that water also to sustain their communities.

For me to put an exact impact number on it would not be fair, but I think you can understand that the general impact of that from the economics of production alone would be substantial.

●(1745)

Mr. Mel Arnold: Basically, it's an ecological and economic disaster waiting to happen if not prevented.

Mr. Al Kemmere: Yes, exactly.

Mr. Mel Arnold: Okay. Thank you.

Moving on to the electrical producers, the hydro associations, in B.C. there's about \$4.5 million being spent on avoiding aquatic invasive species. That's funding from the Government of British Columbia, BC Hydro, Columbia Power, FortisBC and Columbia Basin Trust, but very little from the federal government.

What are you seeing in Ontario or in other areas of the country as far as federal funding is concerned, in comparison to what we're seeing in B.C.?

Mr. Michael Powell: I'll let Dave answer the question about what we're seeing federally in Ontario and elsewhere. He'd have a better sense.

You listed a few of our members, BC Hydro and FortisBC, that are actively involved. It extends across the country as well, where zebra and quagga mussels are a more immediate threat because they're slowly moving west. It represents real dollars for ongoing maintenance costs once they come, and it's likely never going to go away. Therefore, investments up front make good sense.

As we've seen and what our members are telling us is that they're hoping to see similar programs nationally for the prevention of the spread of aquatic invasive species. As you're seeing for programs in Ontario for species beyond the ones that affect our facilities, such as Asian carp and others, the hope is that there is some geographical equity for these types of measures.

Dave.

Mr. David Stanley: OPG gets no support from the DFO regarding control of invasives. We use chlorine to kill the mussels in our plants. We also use UV systems and some novel methods, such as a dead bacteria, called Zequanox, that is toxic only to dreissenid mussels. We don't get any help.

I saw some colleagues earlier from the Ontario Federation of Anglers and Hunters. OPG does fund that group and I know they reach out to fishers and anglers, and such, to help control invasives, but we don't get any help.

Mr. Mel Arnold: Okay.

Switching over to Erin Bates, what do you see in the Kootenay region? I know you have a number of hydro generating stations in the Kootenays on the Columbia River. It's probably the most dammed river in North America for hydro generation and flood control.

What do you see for funding coming in there to control aquatic invasives?

Ms. Erin Bates: You actually mentioned quite a few of the funders that are providing funds in our area specifically for monitoring. We conduct a very extensive monitoring program. We sample every water body in our region, basically every two weeks, all season, and those samples are tested by the province for zebra and quagga mussel veligers.

That program is decently well funded. There isn't any federal input to that. There is a bit of provincial money, and then mostly Columbia Power is the primary funder of that at this point, and there is a bit from CBT, the Columbia Basin Trust, as well.

I feel that a big gap for funding in our region is really around the education and outreach piece, and also just the prevention at the borders—really reinforcing the messaging around what people can do to prevent this issue and just plain preventing infested boats from getting into the province.

Mr. Mel Arnold: Thank you. I'm starting to see a trend here.

The Chair: Thank you, Mr. Arnold.

Now we'll go to Mr. Donnelly, for seven minutes or less, please.

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

Again, thank you to all the witnesses for providing your testimony on this topic.

Ms. Bates, I want to continue with you. You talked about the potential impact of ZQM being about \$43 million a year to deal with in B.C. Is that what you quoted?

• (1750)

Ms. Erin Bates: Yes, that's a 2013 study that we have tracked down, which was estimating the cost in British Columbia.

Mr. Fin Donnelly: Could you talk a little about how that was calculated and maybe explain to the committee about some of the impacts of that?

Ms. Erin Bates: I did not do the study, so I can't speak at this moment to how that was calculated, but I can certainly speak to some of the impacts and where those costs come from. A few of the other witnesses have mentioned the impacts to hydro power. One of the impacts of zebra and quagga mussels is called biofouling, where they basically cover hard surfaces within the water body that they're infesting. They seem to really gravitate towards nice pipes and hydro power-type facilities.

The cost associated with the management of that is basically trying to keep your facility cleared enough to function while these veligers and quagga mussels are trying to establish on a continuous basis. There are large costs there. I'm certain that the Ontario hydro people could speak to that in more detail.

For agricultural irrigation, it comes from having your piping systems compromised. The maintenance involved with having to clear out your whole piping system on an annual basis adds up extremely quickly, especially when you have expensive agriculture systems in place.

For municipal water supplies, it's the same across the board for all of these sorts of economic human costs. You know you're going to get zebra and quagga mussels on your municipal water intake and treatment systems, and the cost for the municipalities to maintain those systems is going to increase exponentially once we get infestations.

The cost for recreational boating is mainly tourism dollars. Once the lake becomes infested, it's certainly pretty well known that it becomes less of a target destination for tourism. People tend to not come to those lakes as much. Tourism is certainly a large segment of the economy in our region, and for good reason. These lakes are gorgeous.

Mr. Fin Donnelly: Thank you. That was great.

How did your organization come to the conclusion that this is the number one threat in the province?

Ms. Erin Bates: It was primarily because of the combination of ecological and economic costs that are so well documented from the eastern regions of North America where the infestation has been going on for decades. It's very well known what those impacts are. It's also well known that infestation is moving in our direction quite steadily. It's not fast, but it's happening. The risk is high and the actual costs are also known to be extremely high. The combination of those factors just makes it a top priority for us.

Mr. Fin Donnelly: Great, thank you.

Speaking of big disasters, Ms. Noel, you mentioned big disasters in your presentation and the implications to ecosystems and industries—like the fishery, I'm assuming. Could you give us an example of one big disaster that illustrates what you're talking about? Ms. Bates outlined how \$43 million and just one aquatic invasive species is causing a problem in one province of the country.

Do you want to expand on how a big disaster in this country could be prevented, or can you illuminate what the costs and impacts are to the ecosystem and industry?

Ms. Paula Noel: The evidence is certainly there and there's a reason there has been a lot of effort and attention placed on Ontario and on the Great Lakes. It's because there have been numerous disasters.

The point I was trying to make there is that when something happens, we need to respond. We need to react and we need to address it. That's good and that's important to do, but it's harder for people in general. It's always harder to be proactive. Despite the fact that we've seen this happen over and over again and we have a lot of science on invasive species—we know how they work and we know how invasions happen—it still seems to be not possible to get ahead of it and to put as much focus as there needs to be on the prevention, on the education, and really importantly, on the rapid response when we do see something. We know. It's been proven time and time again.

There's no question that you try first to prevent it. When something comes in, as soon as you see it identified you have to immediately respond to that threat and try your best to eradicate it. The only time you have a chance of eradicating an invasive species is when it's first been discovered, yet over and over again we see that does not happen.

It's a huge issue. It's a big country. I understand all of those things, but my hope is that we can do a little better on that front and be more prepared in all parts of the country.

• (1755)

Mr. Fin Donnelly: What would your number one recommendation be to this committee that the government do to combat AIS?

Ms. Paula Noel: I think my number one, because it's probably the lowest hanging fruit, is to fund groups more equitably across the country to do education and outreach. As I mentioned, there are the funding sources that we try to get in New Brunswick, which we have not been successful at getting because they're not for invasive species, so we literally cannot even get out there and do basic education because we don't have the funding to do that. That would definitely be the lowest cost. Then my second-biggest thing would be plans for rapid response.

Mr. Fin Donnelly: In terms of number one, do you have an amount in mind? Has there been any study or work done on what is needed in terms of a budget or dollars the government would have to put to this problem, even if it were to tackle it maybe not on the order of magnitude you're talking about but at least as a positive step?

Ms. Paula Noel: Off the top of my head, I'm not sure I'm going to try to guess a number, but that program that was introduced in the late-2000s, the invasive alien species partnership program, was a tremendous program. It only lasted five years but it got work going. It got groups like ours going and established a baseline of people who were willing to do the education, do the on-the-ground outreach. Whatever the funding was of that program, if we could re-establish something at that level even, that would be enough to get local groups engaged in doing the outreach. Then they will probably leverage that money as well through provincial funding sources and other private funders, as NGOs are very adept at doing.

The Chair: Thank you, Mr. Donnelly.

Now to Mr. Fraser for seven minutes or less.

Mr. Colin Fraser: Thank you, Mr. Chair.

Thank you to the witnesses for being with us.

I'd like to ask a question to Mr. Stanley and Mr. Powell.

In your presentation you gave us some recommendations and I thank you for that. One of them was for there to be a better alignment between the federal and provincial regulatory schemes dealing with AIS. I'm wondering if you can explain why that's an issue right now.

Mr. David Stanley: It was a major concern with the use of “deleterious substances”, in DFO language. Chlorine is toxic to the aquatic environment, so that's a deleterious substance. OPG had been treating for zebra mussels into the nineties. We had provincial permits to use chlorine to maintain our stations, as did municipal water intakes and other industrial users. There was a lack of alignment between the federal government and the province about the use of a biocide to control these species. In 2016, we got sign-off from DFO that it would be allowed. We want to make sure that isn't lost. We don't want to use chlorine in the environment—

Mr. Colin Fraser: No, I understand.

Mr. David Stanley: —but there are some cases where you have to. Then when we discharge it to the natural environment, it's at a very low level but it's a chronic impact.

Mr. Colin Fraser: Is there one province that has a better regulatory scheme to deal with these sorts of things than maybe the others?

Mr. David Stanley: That I can't answer.

Mr. Colin Fraser: Okay.

Earlier in our meeting today in the first panel—because you talked about alternate control methods—somebody had brought up potash as a possible way to deal with zebra mussels. Maybe there was some research on that. Do you have any comment on the utility of potash?

Mr. David Stanley: I know Manitoba Hydro is using it now or is exploring it. I don't know how efficient it is. OPG has used a dead bacteria called Zequanox that's only toxic to dreissenid mussels. They eat it and then die. That's one good way to do it. We also use UV systems as well in our piping, but that's a broad-scale biocide. That kills everything that goes through it.

• (1800)

Mr. Colin Fraser: A UV system like lighting or...?

Mr. David Stanley: Yes, like in your rural water supplies.

Mr. Colin Fraser: All right, thanks for that.

Ms. Noel, I want to ask you a follow-up question to your presentation where you talked about the importance of a national database in order for people to have an understanding of what invasive species there may be right across the country, and when one is spotted then it is brought to the attention of all the organizations, all the governments and the like.

Can you just expand a bit more about how that database would work and whether there is such a database in existence maybe in some other country that we could look at as a model?

Ms. Paula Noel: I can tell you what I would like to see and what a lot of other folks who are in the invasive species councils across the country would like to see, and that is one database for all invasive aquatic and terrestrial species—one that is accessible, in that private citizens and groups who are working on this issue can find data on it and access it and look at it. Also, it would be made such that people can report directly into it, so that citizens can be on the ground and we can make use of an educated citizenry, once we get them educated, being the many eyes out there looking for these things.

As for available examples, there is a variety of systems being used across Canada currently. This use has been undertaken province by province. In Atlantic Canada I'm not aware of any individual database that's being maintained on invasive species. That's why, from my point of view on this side of the country, it would be great to see a national system that everyone would be using.

There are some programs publicly available—one by naturalists, for instance—that are very easy for the public to use. It's actually a maintained system that people could report into and government could put data into and also pull data from for public reporting. It could be a combination of government databases as well as a public reporting system type of database.

Mr. Colin Fraser: Thank you very much for that.

Mr. Hambrook, thanks for being here. I note you talked about the lack of enforcement, or the difficulty when there is more focus on regulation and the regulator than on follow-up enforcement when somebody is not following the rules.

What in your view would be a recommendation this committee could make in order to see the rules better enforced?

Mr. Mark Hambrook: Many illegal introductions are not done intentionally. We just heard from Mr. Arnold that a family may take some perch home or whatever and release them, and then all of a sudden we have a problem.

There are, however, people who are doing it deliberately and doing it with impunity. There have to be some consequences for changing a whole ecosystem. I think we have to have fines increased. There has to be a discretion, however, and that's why we employ judges: to exercise that judgment call. Right now people are doing it blatantly.

Mr. Colin Fraser: That's right, and there's not the requisite deterrence to ensure that these people are held accountable.

Mr. Mark Hambrook: Yes.

Mr. Colin Fraser: Thanks very much. That's my time.

The Chair: Thank you, Mr. Fraser.

Now we go back to the Conservative side, to Mr. Calkins for five minutes or less, please.

Mr. Blaine Calkins: Thank you, Chair.

Thank you to the witnesses.

Al, I wanted to check in with you on whether or not RMA, through its process or through the Federation of Canadian Municipalities or any of the organizations you've worked with within these confines, has ever had any resolutions pass at any of its assemblies requesting something from the government—the federal government in particular—in regard to aquatic invasive species?

Mr. Al Kemmere: We have, from an RMA point of view, focused on our provincial basis, and that's our direct point to our government. We've had resolutions expressing the importance of zero tolerance, expressing the importance of funding to do some of the preventative operations, much like the inspection sites. We've seen some results in that with even the canine process that has been used within Alberta.

Through the Federation of Canadian Municipalities this subject has not been as much on the radar as it should be. I think we need to deal with it at that level. I'll share that responsibility, because I sit on the board of the Federation of Canadian Municipalities. This is an item that has been chatted about at the environmental committee somewhat, but has not, as I can recall, seen us take as much initiative as we could. I am aware of that and will try to move it forward that way.

● (1805)

Mr. Blaine Calkins: I wasn't trying to make you feel guilty or responsible for anything, Al, but I think this is an issue, as I think most members of this committee would agree, for which we need all hands on deck and all organizations working constructively to that end. That was the impetus for my question.

Do you think Alberta environmental protection and Alberta Fish and Wildlife and such organizations as Alberta Parks or whatever the case might be...?

We heard from Alberta Irrigation Districts Association, the irrigation folks, here. We heard from Margo, whom I'm sure you know. Several billion dollars' worth of assets are vulnerable.

My colleague Mel Arnold asked you what the difference in the productivity of the land would be if they lost the ability to irrigate. I don't even know whether we have the ability to quantify that, but is the Alberta government actually doing enough with their mandatory boat inspections, in your opinion, to deal with or prevent or at least stave off in particular the zebra and quagga mussel issue in Alberta waterways?

Mr. Al Kemmere: At the risk of being critical, no, the Alberta government is not doing enough. To me, it's lacking a bit more of a strategy that way. I'll use an example. I am a property owner in the interior of B.C., so I get to travel back and forth numerous times, and the inspection site we have is just west of Calgary. When I count, coming through, there are five points where people can divert to get around that and they do that typically on the long weekends when things are busy.

I think the resources need to be enhanced and they need to be put at a more strategic location, that being at the Alberta-B.C. border or the Saskatchewan-Alberta border, wherever they are, to avoid allowing people to divert or skip around the sites. This would probably be even more needed on the federal border, because there are opportunities for people to skip around that way too.

Mr. Blaine Calkins: Okay. Thank you for that.

I'll now move on to Mr. Stanley, if I can. I know you talked about biocides. I know you talked about the things we know about. Mr. Hambrook knows very well about rotenone and how effective that is as a fish-killing agent, as natural as it is. Through any of your research or any of the work you do in your role as a fisheries guy, if I can say it that way, other than just using general things like chlorine, which kills everything, is there anything that is specific to these bivalves in the way that rotenone is for fish?

Mr. David Stanley: There is. I mentioned it earlier. It's called Zequanox. It was developed in the U.S. It's a dead bacteria. You have a pipe. You seal both ends and inject this Zequanox in for a period of time. The zebra mussels eat it. They die.

It's only for dreissenids, for quagga and zebra mussels. It doesn't kill native mussels.

Mr. Blaine Calkins: It's even better than just rotenone, which kills every fish in the lake.

Mr. David Stanley: Yes, but it's expensive and we haven't found it to be as successful as chlorine.

Mr. Blaine Calkins: Okay, but it sounds to me like it's not something that you can deploy like rotenone, which you can deploy in an entire lake or an entire aquatic environment. This is a highly localized application. Is there anything else, other than Zequanox, that might be able to do what rotenone does to fish?

Mr. David Stanley: No, not that I know of to date.

You have to understand that, in our systems, in the turbines themselves where the main water flows, the zebra mussels aren't an issue. There's too much flow. They can't attach there. It's in these backwater systems—our fire water systems, our cooling systems, big radiators, essentially—where those are the issue. But they're still critical to the operation of the plant and none of these plants were designed with this clogging mechanism in mind.

• (1810)

Mr. Blaine Calkins: These things weren't an issue until the ballast water release, we presume, that happened in the introduction.

The Chair: Thank you, Mr. Calkins. That's about six minutes.

Mr. Blaine Calkins: Thank you, Mr. Chair.

It's been great talking with you.

The Chair: We will now go to Mr. Hardie for five minutes or less, please.

Mr. Ken Hardie (Fleetwood—Port Kells, Lib.): Thank you, Mr. Chair. Thank you all for being here.

Possessing a firm grasp of the obvious, I want to delve back to 2012. Back in those days, we saw some pretty significant cuts. CBSA was cut, I think, by about \$143 million, including over 600

border inspectors, and about a third of DFO's habitat staff was cut to save \$100 million.

Given what we've heard so far today, where everybody would like the federal government to have a bigger hand, can we all agree that it would not be such a good idea to do those cuts again?

You can say yes.

Ms. Erin Bates: Yes, I agree.

Mr. Ken Hardie: Thank you, Erin.

I also wanted to touch base on the issue of conservation officers, because on a provincial basis we do rely on that kind of enforcement. I know, in British Columbia, at least, there are not many conservation officers left, are there? Ms. Bates, you can confirm this

Ms. Erin Bates: That's true. They are fairly sparse.

Mr. Ken Hardie: Ms. Noel, is it the same in New Brunswick? Have you maintained a fairly decent staff of conservation officers to go out and do inspections?

Ms. Paula Noel: Mark may actually know better than I that there has been a reduction over the years. The trend is going down, for sure.

Mr. Ken Hardie: All of these things do fall under the pressure of governments trying to save money along the way. That's how it works.

Mr. Stanley, a quick study of the habits of zebra mussels and the others suggests that they don't very much like nickel-copper alloys. Is that an option for retrofitting parts of the system that would otherwise get clogged with these creatures?

Mr. David Stanley: It may be. Copper alloys are slightly toxic, which is why they don't attach.

I don't know. We would have to talk to one of our engineering staff to do that. We haven't used it, and we haven't retrofitted our stations with those alloys.

Mr. Ken Hardie: Based on what we've heard so far, I think the consensus seems to be that the most effective thing that the federal government could do is to adequately fund an education campaign to get boaters to make sure that they do the right things with their crafts, especially if they are coming from one water system to the next. Another thing, of course, is to help out with some of the cleanup when these things do get established.

It would be really useful, I think, if you could all collaborate somehow and come up with a number that you think would either work specifically in your province, or something that you would recommend for across the country. That is something we could wave at the fisheries minister and say that he should do this.

Mr. Kemmere, are the border crossings with Montana staffed and operated with inspectors 24 hours a day?

Mr. Al Kemmere: I don't believe all of them would be because not all of the border crossings are open 24 hours a day. I think that would be one of the limiting factors.

As to the ones that are open 24 hours a day, I am not 100% certain as to the adequacy of staffing personnel. I don't have that information to provide to you.

Mr. Ken Hardie: I think there would be a similar concern in southern British Columbia and coming up into the Kootenays. That would be information that I think we can actually look for, just to get a better lay of the land.

I think that's all I need, Mr. Chair.

The Chair: Thank you, Mr. Hardie.

Now we will go to Mr. Arnold for five minutes or less, please. I understand you may share your time.

Mr. Mel Arnold: I may share some time with Mr. Calkins beside me.

There was some discussion over the record on DFO and aquatic invasive species. The previous provincial government actually ratified commitments under the Aichi biodiversity targets in 2010 for the 23 targets, to prevent, control and eradicate invasive species.

We also introduced a rapid response plan framework for aquatic invasive species in 2011 and the aquatic invasive species regulations in 2015. In contrast, the current government has largely been silent on Canada's AIS commitments within the Aichi and UN frameworks, while the CESD found that the 2015 aquatic invasive species regulations were not adequately enforced. In examining the 2011 rapid response framework, the CESD found that DFO was not ready to act in any timely manner when new aquatic invasive species were detected.

I think this became really evident when the infestation was discovered in Lake Winnipeg. I believe it took well over six months for any sort of response plan to be developed.

To each of the witnesses, do you see that as a major threat—that we do not have rapid response plans in place?

• (1815)

Mr. Mark Hambrook: That's exactly as mentioned earlier. The best time to combat an invasive species is when you first detect it, so you have to have a rapid response. Without that, the game is lost.

Mr. Mel Arnold: Mr. Stanley or Mr. Powell...?

Mr. Michael Powell: We've talked a lot about costs. What this speaks to is that there are real costs to our sector for aquatic invasive species to the point where our members invest in prevention. As Dave was saying, once it's there it can't be undone.

Our sector has a really good working relationship with the folks at DFO on a scientist-to-scientist basis. Because we have responsibilities for monitoring the environment in which we operate, there is room for collaboration. This is also outside the scope of what our primary job is, which is to make electricity for people. These costs have a real impact on consumers.

Dave, do you want to add anything to that?

Mr. David Stanley: As a fisheries scientist, I would say that a rapid response may not be effective for all species. It might be good for fishes such as Asian carp and goby, but I think it would be less effective for zebra mussels. After working with mussels for years

and seeing what they do.... It's really difficult to get them under control.

Mr. Mel Arnold: Prevention is really our only option.

The Chair: Bells are ringing. We'll continue on and I'll cut it off when I think we're getting close.

Mr. Mel Arnold: Thank you.

I believe, Mr. Stanley, that you mentioned the risks to fire systems. Water is often left standing in fire hydrants, fire suppression lines, sprinkler lines and so on. Are any of those at risk from this, or would they be downstream of water treatment plants?

Mr. David Stanley: All users.... The smaller the pipe, the bigger the risk of clogging. We close off our smaller piping system for a period of time, treat it with Zequanox or chlorine, and then flush it through to make sure there are no live zebra mussels in the system. We do that annually. We have six stations where we have to do that, as well as the nuclear stations.

Mr. Mel Arnold: Do they actually detach and float out of the system once they're treated with chlorine?

Mr. David Stanley: Yes.

Mr. Mel Arnold: Mr. Kemmere, what about the municipal infrastructure? Do you know if the zebra and quagga mussels would survive through municipal water treatment plants into downstream systems, or would they be captured within the water treatment system?

Mr. Al Kemmere: The primary knowledge I've been given is that the intakes are our biggest concerns. It's no longer raw water through the water treatment plants. Those plants, if designed properly, should be able to limit or completely control the transmission in through the distribution systems.

That information has been shared with me, but I'm not an expert. I'm here to voice concerns about the long-term impacts.

• (1820)

Mr. Mel Arnold: Thank you.

The Chair: Thank you.

You've used up your full five minutes, including the minute-long interruption I gave you.

I'll say thank you to our witnesses, both by teleconference and video, and those here in person. Unfortunately, we have to rush away —

Mr. Blaine Calkins: Chair, last time I asked for the extra hour today, and it would be unreasonable for me to ask for more time, but I'm wondering if we can ask our staff here at the committee to maybe reach out.... There's one more element of this that I think we need to think through.

Some fisheries-enhancement hatcheries across Canada will rely on groundwater for their source to run their hatcheries, but many actually depend on natural water sources. If you take a look at the intricacies of hatcheries, and all the things they do, from germination to the rearing ponds, and so on, if they were to actually have to deal with quagga mussels.... Many are community-based hatcheries and wouldn't have the wherewithal or resources to even continue.

This would be a direct threat to salmonid enhancement and other fisheries enhancement. Could we reach out to some of these hatcheries, hatchery organizations or even the department, to talk about what DFO's plans are in its hatcheries, as well as DFO-funded,

sponsored or partnership hatcheries, to see the effect of quagga or zebra mussels, or any other aquatic invasive species that might infiltrate the hatchery program? We have millions of dollars of infrastructure set up in hatcheries and we produce millions of fish every year, and this could also be at risk.

I don't think the committee has adequately heard from these organizations as to what the impact might be.

The Chair: The clerk has made a note, and we'll see what we can do in that regard.

Thank you, everyone. The meeting is adjourned.

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