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Chair: Mr. Peter Schiefke



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• (1535)

[*Translation*]

The Chair (Mr. Peter Schiefke (Vaudreuil—Soulanges, Lib.)): I call this meeting to order.

Welcome to meeting No. 38 of the Standing Committee on Transport, Infrastructure and Communities.

Pursuant to Standing Order 108(2) and the motion adopted by the committee on Thursday, February 3, 2022, the committee is meeting to study the impact of commercial shipping on shoreline erosion.

Today's meeting is taking place in a hybrid format, pursuant to the House order of November 25, 2021. Members are attending in person in the room and remotely using the Zoom application.

Members of the committee, I'm going to introduce the witnesses we are receiving today.

First of all, we have Roy Grégoire, a resident of Saint-Ignace-de-Loyola, who is appearing as an individual.

We also have representatives of the Comité pour la protection des berges du Saint-Laurent: Micheline Lagarde, chair, and Carine Durocher, vice-chair.

Then from the Great Lakes and St. Lawrence Cities Initiative, we have Maud Allaire, mayor of the City of Contrecoeur and member of the initiative, and Phillippe Murphy-Rhéaume, director of Canadian policy.

We also have with us Jean-Luc Barthe, mayor of the Municipality of Saint-Ignace-de-Loyola.

[*English*]

Mr. Chris Lewis (Essex, CPC): Mr. Chair, I have a point of order.

[*Translation*]

The Chair: I'm being told there is no interpretation, so we will wait.

I will continue since it seems to be back.

Lastly, from the Université Laval, we have Patrick Lajeunesse, professor, and Jean-François Bernier, research assistant.

We will begin by hearing the opening remarks of the representatives of the Comité pour la protection des berges du Saint-Laurent.

Ms. Lagarde, you have the floor for five minutes.

Ms. Micheline Lagarde (Chair, Comité pour la protection des berges du Saint-Laurent): Good afternoon, members of the Standing Committee on Transport, Infrastructure and Communities.

My name is Micheline Lagarde, and I am the chair of the Comité pour la protection des berges du Saint-Laurent. Carine Durocher is our vice-chair. Our committee is made up of volunteer members.

We are here today to inform you about the disaster we are currently witnessing. Commercial shipping is everywhere in the municipalities of Varennes, Verchères and Contrecoeur. More than 2,000 ships a year pass through this river corridor, which extends, approximately 600 metres or less from the shoreline, over nearly 25 kilometres.

Shoreline erosion has been causing damage for a long time, particularly in this area, and is largely the result of ongoing construction and dredging of the shipping channel, year-round shipping traffic and wave action caused by ships and boats. Many studies clearly point the finger at wave action. References to those studies are provided in the brief we have submitted to you.

The government at first clearly understood the need to protect the shorelines and built protective works, but, in 1997, as part of its effort to fight the deficit, it terminated the assistance it had been providing, leaving citizens without the necessary resources. Erosion has only worsened over time and resulted in dangerous situations, including overhanging walls, collapsing works and eroded land, leaving steep slopes that are deteriorating at an increasing pace.

I am speaking here about our experience, about what we are observing locally, what we can see with our own eyes. On the islands in the area, we also see much more serious erosion on the banks exposed to commercial shipping.

We acknowledge that commercial shipping is a very important economic lever and that there is a general wish to expand that economy and make it more competitive internationally. However, as it grows by making billions of dollars in profits, citizens are left to their own devices and must suffer the economic and environmental consequences of this industry, which include the loss of their life savings and the psychological and financial stress that undermines the health of citizens who are facing a very real threat.

The government has a responsibility to protect its citizens and must allocate some of those profits to protect the shorelines. It is inconceivable that citizens should be responsible for ensuring that the shorelines of the St. Lawrence River survive without the government's full support.

Marine transport must go green as soon as possible. We acknowledge that the lower voluntary speed limit that has gone into effect is a positive factor, but that doesn't prevent the wakes and waves from relentlessly continuing to destroy the shorelines. The government is responsible for transport and its impact and must address both.

Since shipping is definitely causing erosion, at a time when water is an increasingly critical issue and the climate is warming, there is an urgent need for action.

By caring for the shorelines, we also preserve the river. However, if the government feels that this is a complex issue and that it has neither the money nor any programs to offer, and if it shirks its responsibility and refuses to act, how can citizens possibly solve these problems?

The shorelines aren't a quilt that can be pieced back together. They form a whole. If the river is a jewel, then the shorelines are its jewel box, and we must take care of them.

The artificialization of the shorelines is a challenge for the ecology of our landscape. The shorelines are losing their ability to function as a biological corridor; they can no longer support exchanges between land and water and thus are becoming inhospitable to human beings.

We ask that the Standing Committee on Transport, Infrastructure and Communities immediately recommend that a federal program be introduced to protect the shorelines affected by marine transport on the St. Lawrence River. That program is essential to the harmonious coexistence of marine transport, wildlife habitat and riparian communities.

This kind of program is essential for the Varennes, Verchères and Contrecoeur region, which is particularly hard hit by the impact of shoreline erosion as a result of the narrowness of the corridor in that section of the river.

Innovative and sustainable solutions are beyond the reach of ordinary citizens and absolutely require the assistance of experts.

At a time when urgent action is needed to address the impact of shipping on the environment, shorelines, the river and biodiversity, our committee believes that consideration should be given to an intergovernmental and interdepartmental solution.

In closing, we want to thank the members of the Standing Committee on Transport, Infrastructure and Communities for this opportunity to express our views. We hope that solutions to protect the shorelines will be introduced very soon because erosion is accelerating at an alarming rate. We would also like to be involved in selecting solutions.

Thank you for your attention.

● (1540)

The Chair: Thank you very much, Ms. Lagarde.

We will now hear from the Great Lakes and St. Lawrence Cities Initiative.

You have five minutes for your presentation.

Mr. Phillippe Murphy-Rhéaume (Director of Canadian Policy, Great Lakes and St. Lawrence Cities Initiative): Thank you, Mr. Chair.

[*English*]

We would first like to thank the members of the standing committee for receiving us today on this important study.

For our opening statement, I will be sharing my time with the mayor of Contrecoeur, Ms. Maud Allaire.

To begin, for those of you who are not familiar with the Great Lakes and St. Lawrence Cities Initiative, we are a binational coalition of more than 170 mayors across Ontario, Quebec and the eight Great Lakes states. We work to advance the socio-economic and environmental health of cities across the Great Lakes and St. Lawrence River basin.

If there's one issue that unites our members from Leamington to Quebec City, it is the concern around shoreline resilience, particularly when it comes to erosion. We hope that commitments by the federal government, like a strengthened \$1-billion freshwater action plan and a well-funded national adaptation strategy, will lead to decisive action to counter shoreline erosion across the Canadian Great Lakes and St. Lawrence River basin.

We're pleased to work with members like the City of Contrecoeur to raise the profile of this issue and advocate for federal action.

I'll now pass it on to my colleague, Mayor Maud Allaire, to complete our opening statement.

[*Translation*]

The floor is yours, Madam Mayor.

Ms. Maud Allaire (Mayor, City of Contrecoeur, Member, Cities Initiative, Great Lakes and St. Lawrence Cities Initiative): Good afternoon.

First of all, my colleague and I would also like to thank the members of the committee for this invitation to appear before you. And, naturally, greetings as well to the vice-chair, who is the member for the riding that is home to the City of Contrecoeur, of which I am the mayor.

Erosion has many consequences for our municipalities, including deterioration of our citizens' living environment, compromised public infrastructure and the loss of natural ecosystems essential to our communities' resilience to climate change.

In view of this problem, the municipalities have a responsibility to mobilize in the interest of their citizens. This is simultaneously a public safety, environmental and quality-of-life issue, and, despite the fact that we have limited resources with which to address erosion, the burden of deciding what measures should be taken to solve the problem falls to the municipalities.

In the case of Contrecoeur, Varennes and Verchères, that burden represents, in real terms, investments of at least \$35 million just to stabilize our shorelines. And the situation is the same all along the St. Lawrence. I'm thinking, for example, of Varennes, which loses one metre of land in Parc de la Commune every year and had to resort to emergency works a few weeks ago to avoid losing a bicycle path.

As regards causes, erosion is above all a natural phenomenon greatly amplified by climate change and an increase in the number of extreme weather events, all of which puts significant pressure on our shorelines. I'm thinking, for example, of freeze-thaw cycles, storms and heavy rains.

In addition, the erosion protection infrastructure that the federal government built from the 1950s to the 1970s is deteriorating at an alarming rate. At this stage, that infrastructure no longer protects the shorelines, a fact that has left the communities along the river increasingly vulnerable.

As for the wake of effects of commercial ships and their impact on erosion, we wish to note that we are not opposed to commercial shipping. On the contrary, our relations with that economic sector are very good. Furthermore, it has acknowledged the problem, which explains why it has already taken action to limit the speed of cargo ships along the St. Lawrence Seaway. We are pleased to be working with this partner, which is making a contribution.

However, I think the government should explore the possibility of regulating the speed of pleasure craft on the river.

That being said, this problem mainly affects the resilience of our shorelines and their ability to adapt to climate change. Consequently, we need to invest in solutions that will help limit the impact of erosion on the communities living along the shorelines rather than attack any specific sector.

In the circumstances, we find it hard to understand why the federal shoreline protection program was terminated in 1997. The situation has deteriorated since then and the municipalities are paying the price.

As agreed in a resolution passed by the City of Contrecoeur and unanimously adopted by the members of the Great Lakes and St. Lawrence Cities Initiative, increased federal support for initiatives designed to enhance the resilience of shorelines in the Great Lakes and St. Lawrence River basin must therefore become a priority.

Every dollar invested upstream on this issue will help reduce the emergency expenses that will have to be incurred in the event of a disaster.

Lastly, we ask that the federal government cooperate with the provincial governments, communities and stakeholders concerned in studying the phenomenon of eroding shorelines along the St. Lawrence River.

In conclusion, I would repeat that our cities are directly affected by climate change and that, as the government closest to those cities, we are also a major lever for facilitating the adaptation and resilience of our communities. To do so, however, we will need the support of all levels of government.

Thank you.

• (1545)

The Chair: Thank you very much, Ms. Allaire.

I have just been advised that the witness from the Municipalité de Saint-Ignace-de-Loyola is not connected. So we will go to the witnesses from the Université Laval.

You have the floor for a total of five minutes.

Mr. Jean-François Bernier (Research Assistant, Université Laval): Good afternoon.

Thank you, Mr. Chair.

We have been invited here to present our research work as objective witnesses.

The members of our team are trained in geomorphology. Since 2017, we have been conducting research projects on the St. Lawrence River together with Quebec's Ministry of the Environment, the Fight against Climate Change, Wildlife and Parks.

Our studies are mainly based on an approach combining remote sensing tools, particularly LiDAR, aerial imaging and drones. We then enter that data in geographic information systems.

We also make direct observations on the ground and have met with the local communities on numerous occasions.

I'm going to let Patrick Lajeunesse present the projects we have recently conducted with Quebec's Ministry of the Environment, the Fight against Climate Change, Wildlife and Parks.

Mr. Patrick Lajeunesse (Professor, Université Laval): Thank you, Mr. Bernier.

Thank you, Mr. Chair.

In 2017, we began studying the St. Lawrence shoreline system, more specifically the fluvial section from Cornwall to Quebec City. This is a project we're conducting with Quebec's Ministry of the Environment, the Fight against Climate Change, Wildlife and Parks.

As Mr. Bernier just said, our approach is based mainly on remote sensing, the observation of aerial images and the development of follow-up tools to determine how the shoreline reacts to erosion and sediment transport over the seasons and years.

We have carried out two projects. The first was done with the ministry to characterize the shorelines. We characterized the shorelines over more than 3,000 kilometers between Cornwall and Quebec City. That tool is now available to the community and all the cities. Everyone can observe the current status of the St. Lawrence's shorelines.

That project ended in 2020. Since then, we have been working on another project, the purpose of which is to monitor changes to the shorelines in the short, medium and long terms. Once again, the idea is to see how the shorelines react over time to climate, anthropic and natural factors. We don't understand everything, but our goal is to improve our knowledge of shoreline erosion along the St. Lawrence River.

Today we are here as witnesses, as Mr. Bernier said, and we will answer committee members' questions to the best of our ability.

Thank you.

• (1550)

The Chair: Thank you very much.

[*English*]

We're going to begin our first round of questioning with Mr. Lewis.

The floor is yours. You have six minutes.

Mr. Chris Lewis: Thank you so much, Mr. Chair.

Thank you to all the witnesses for their testimony this afternoon. It's an important conversation. I suppose whether it affects your ridings or not depends on where you live in the country, but I will tell you, Mr. Chair, that it certainly affects my riding.

I live in Essex. I represent Essex, right next to Windsor. We have Lake St. Clair at the top, then Lake Erie and the Detroit River. I've had the opportunity, Mr. Chair, to visit the likes of ADM, which carries our grain. It is produced primarily in southwestern Ontario and shipped over to the United States. We then have all the aggregate, so the aggregate that comes from Manitoulin Island, as an example, and the steel that's carried to produce our vehicles is the same steel that's produced in Sault Ste. Marie.

This is a very important conversation, so I'm honoured to be here on this.

I would also add very quickly, Mr. Chair, that the Detroit River current runs at about 11 kilometres per hour, and it has been for as long as its history, in the research that I've done, in the history of what I know, and I don't think that's going to change any time soon.

I thought it was pretty good testimony from Madame Lagarde. She mentioned that shipping must go green. Ironically, when I was in Taiwan, I began to see what real green shipping looks like.

Ms. Lagarde, you also spoke about protecting the shorelines. Let me preface this by saying there is no question that with the very high levels of water in the Great Lakes, which are certainly receding, and receded about three feet over the last year.... I'm not sure what that means for the St. Lawrence Seaway.

Madame Lagarde, what, specifically, are your solutions? You mentioned solutions. I'm curious what your solutions would be.

[*Translation*]

Ms. Micheline Lagarde: We're witnessing a deterioration of the shorelines, of course. Certain properties are sloped. Piecemeal solutions are being left in the hands of citizens.

However, we need coastal engineering experts to find innovative and sustainable solutions. Various types of solutions are available. We need hybrid solutions. We think that—

The Chair: Pardon me, Ms. Lagarde, but I must interrupt you because we have no interpretation.

Ms. Micheline Lagarde: Can you hear me now?

• (1555)

The Chair: Yes, thank you, Ms. Lagarde.

I would ask you to answer the question that was asked, and I will give you the time you need to do so.

[*English*]

I'll make sure I give you the time as well, Mr. Lewis. That won't come off your time.

[*Translation*]

Ms. Micheline Lagarde: Thank you.

I just want to say that the shorelines are really in a dreadful state. We can't leave it to citizens to come up with solutions because the costs are astronomical and we need coastal engineering experts to find an innovative and sustainable solution. We need to restore citizens' rights to vegetation and nature. There has to be an exchange between land and water to maintain good biodiversity. We can't just truck in piles of rocks; that creates heat islands and improves nothing. So that's not a solution, but citizens might well adopt it—

[*English*]

Mr. Chris Lewis: Thank you very much. I'm sorry to cut you off. I just have a couple more questions here.

Through you, Chair, I have a question for Mr. Murphy-Rh eume.

Thank you, sir, for mentioning Leamington. Ironically, I live in Kingsville, which is right next door. Then we could talk about Essex and LaSalle and Amherstburg and all the way up there. I've visited many of these homes right on the river. I understand about putting in all these breakwalls. It's something that is probably tougher for them to do through all the red tape.

However, my question, Mr. Murphy-Rh eume, is this: Has the International Joint Commission been consulted on the St. Lawrence River and/or on the Detroit River on this conversation? If so, what is their stand? What is their response? Do we have a willing partner, with the United States, to this?

Mr. Phillippe Murphy-Rh eume: Thank you, Mr. Chair, and thank you to the member for Essex for that question.

I'm pleased to say that with the cities initiative last year we put together a mayors advisory commission on coastal resilience. We had the pleasure of having the member from Essex bring a local perspective on the case of erosion and flooding in the region. That commission has been put in place by bringing together mayors and external experts to provide recommendations and different perspectives on this issue of coastal resilience, whether that be erosion or flooding.

With respect to the International Joint Commission, we do have a good relationship with the organization. We haven't consulted them directly, to my knowledge, on this coastal resilience piece, but I do know that they're quite active with respect to those questions. I wouldn't want to speak for them on their perspective with respect to coastal resilience—

Mr. Chris Lewis: Thank you, sir.

Is Mayor Dilkens one of the 150-some mayors who are on that board you spoke of?

Mr. Phillipe Murphy-Rhéaume: Yes, that's right. The mayor of Windsor is one of our members.

Mr. Chris Lewis: Okay. That's fantastic.

Whom do we need to speak to, then, with the IJC? I think this is a much larger conversation than just the Detroit River, the Saint Clair River and the St. Lawrence Seaway. This is a much larger conversation, because we need to get everybody at the table for this study.

I would be blown away if the IJC weren't at least invited to be witnesses here today. I think they're the major players, and they need to be around the table. Do you agree with me on that, sir?

• (1600)

Mr. Phillipe Murphy-Rhéaume: Well, certainly the IJC has a part to play in terms of a conversation around the Great Lakes water levels and the St. Lawrence levels, given their responsibility for managing those water levels.

Again, I don't want to speak for the IJC or whether they should or should not be invited, but they're certainly a very important stakeholder with respect to Great Lakes management on both sides of the border and are an important partner who has a role to play, along with the federal government, in terms of managing this important resource.

Mr. Chris Lewis: Thank you very much, sir.

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

Next we have Mr. Badawey.

Mr. Badawey, the floor is yours. You have six minutes.

Mr. Vance Badawey (Niagara Centre, Lib.): Thank you, Mr. Chair.

I'm going to take off from where Mr. Lewis left off, because I think he's in the right state of mind in terms of his questioning. Mr. Lewis, thank you for that.

Also, Mr. Barsalou-Duval, thank you for bringing this study forward, because it is relevant.

This, Mr. Chairman, is quite frankly something that we've been working on for quite some time through the formation of the Great Lakes-St. Lawrence task force, a group, I might add, that many of you who have an interest in the Great Lakes and the St. Lawrence may want to be a part of moving on well into the future, because these are the very issues that we're dealing with.

This is a bipartisan, bicameral and binational group and, to Mr. Lewis's comments, does include partners such as some of the folks we see on the screen here today, as well as the International Joint Commission, the IJC, to deal with these very issues.

Mr. Chair, I have put forward to this group that I'm speaking about and to the government a report of recommendations. That establishes the Great Lakes restoration initiative, an initiative that is comparable to what the U.S. has moved forward with in the last

few years. Those recommendations within the report are aligned with the "Action Plan to Protect the Great Lakes and St. Lawrence 2020-2030: Implementing Innovations in Science and in Governance". I might add that most of the members on this call, including the Great Lakes and St. Lawrence Cities Initiative, have been a part of authoring and populating that report.

With that, if I can, I'll get a bit more granular. Page 10 of the report, at paragraph 2.1, "Building climate change resiliency in shoreline communities", identifies a lot of recommendations and/or the next steps that can be taken with all the partners to actually deal with this issue.

Once again, Mr. Chairman, that's exactly what this task force is doing and, once again, I encourage a lot of the members who are here and interested in this topic to become part of that task force, because we're moving forward and bringing the ball down the field to ensure that some of these recommendations are moved forward with.

The government has in fact responded of late by putting in place the Canada water agency, which will establish a freshwater strategy and a blue economy strategy, taking into consideration some of these challenges that we're speaking about.

This will be, members of the committee, a whole-of-government approach to satisfy a Great Lakes restoration initiative.

With that, I'm going to get into my questioning, primarily for the Great Lakes and St. Lawrence Cities Initiative. The first question is, what kind of work has the cities initiative done to study the impacts of erosion on its members?

Mr. Phillipe Murphy-Rhéaume: Thank you, Mr. Chair.

Thanks to the member for Niagara Centre for the question and for his leadership around Great Lakes issues. Most people around the table would probably recognize that he is one of our Great Lakes champions, and I want to thank him for his work.

As the member alluded to, the Great Lakes and St. Lawrence Cities Initiative contributed to the development of the action plan 2020-30, along with the Great Lakes Fishery Commission, Stratégies Saint-Laurent in Quebec, the Council of the Great Lakes Region, and Freshwater Future.

The action plan identified a series of recommendations around erosion, including the need to study this issue in a concerted and coordinated manner among the different levels of government, different stakeholders, indigenous communities and partners, as well as focusing on five shoreline priority zones: central west Lake Erie, central Lake Huron, central Lake Ontario, north central Lake Superior and southeastern Georgian Bay. It also identified priority zones in Quebec, including Montreal, Quebec City and the corridor that a lot of our interveners talked about today.

We continue to advocate around those recommendations in the action plan in order to hopefully see it funded, especially as a Canada water agency comes in line and as we hope to see the funding commitment of \$1 billion in that freshwater action plan enacted, as well as further details around the national adaptation strategy.

I also just want to mention very quickly the recommendations of the mayors' commission on coastal resilience, which touched largely on the need for greater federal leadership and collaboration with the provinces around this issue to work in tandem with local communities that are impacted by this issue in order to identify the different impacts and causes of this, as well as identify different solutions that could be enacted.

We have a bias as an organization for nature-based and hybrid solutions, but we also recognize that, at the local level and with private landowners, we need to increase our knowledge and awareness around these solutions. We can't always have recourse to traditional hard and grey infrastructure solutions. What we need, again, is a centre of excellence or a series of technical guidance that municipalities can rely on in order to understand best solutions with respect to whether natural infrastructure, traditional infrastructure or a hybrid solution could be implemented in their given circumstances.

We also need to work together to identify and remedy local information and data gaps that exist. A lot of what we were hearing was the fact that there's a lot of information out there, but it's not being coordinated in a centralized manner, and that's something that we certainly see as a role for the Canada water agency, for example.

Finally, we need to work with municipalities to identify the knowledge gaps as we broaden this conversation around coastal resilience to include green infrastructure that takes socio-economic and equity considerations into mind.

I would also like to highlight the fact that we issued a survey last year where we identified, out of the 45 Ontario communities that responded to the survey, that they will be investing at least \$275 million over the next five years to address coastal damage to the region. That's on top of the \$82 million that has been spent by those 45 communities in the two previous years.

Even though we didn't get as much of a response on the Quebec side, unfortunately, we still identified \$56 million that local communities in Quebec are planning to invest over the next five years.

I will stop there so I don't take up all of your time.

• (1605)

Mr. Vance Badawey: That was well done. He actually answered all of the questions that I was going to ask, so it was perfect.

The Chair: Thank you, Mr. Murphy-Rhéaume.

[*Translation*]

Mr. Barsalou-Duval, you now have the floor for six minutes.

Mr. Xavier Barsalou-Duval (Pierre-Boucher—Les Patriotes—Verchères, BQ): Thank you, Mr. Chair.

Thanks to all the witnesses for agreeing to appear.

I'd also like to take this opportunity to thank my colleagues for their support—

The Chair: Pardon me for interrupting, Mr. Barsalou-Duval, but two witnesses have just joined the meeting. They have to do a sound check before you can ask them questions.

[*English*]

I'm going to suspend for one minute to allow for that sound test to take place. We'll resume in one minute.

• (1605)

(Pause)

• (1610)

[*Translation*]

The Chair: You have the floor for six minutes, Mr. Barsalou-Duval.

Mr. Jean-Luc Barthe (Mayor, Municipalité de Saint-Ignace-de-Loyola): Thank you, Mr. Chair.

I'm going to make an introduction, since I'm yielding to Mr. Grégoire, because—

Mr. Xavier Barsalou-Duval: Mr. Chair, I would like to take back my time. I believe the witnesses who've just joined us don't know how to proceed because it was at the start that they had they had an opportunity—

The Chair: All right.

Then we will—

Mr. Xavier Barsalou-Duval: You can also give them the floor now.

The Chair: As you wish. It's up to the committee to decide. Do we want to allow them five minutes for their opening statements?

There appears to be no objection to that.

Mr. Barthe and Mr. Grégoire, you have five minutes for your opening remarks.

Mr. Jean-Luc Barthe: Thank you very much.

The federal government came here in the 1990s to install riprap over a large stretch of the river to protect Île de Saint-Ignace-de-Loyola from waves generated by ships and boats, in particular. The problem is that it terminated the program in 1997 when roughly one kilometer of riprap remained to be installed to the west of the island and two kilometers to the east. At the time, local citizens couldn't afford to complete the riprap works the federal government had started. They therefore tried to protect their shorelines as best they could, but if you come and look at their properties today, you'll see that some of them have been shortened by 25 or 30 feet since the 1990s, or even much earlier than that. The water has come closer and closer to the houses over time.

Furthermore, when ice forms on the west side, it strikes the riprap section that the federal government completed and, at the same time, the shorelines and all the properties of the local citizens. Let me tell you that, when those big pieces of ice hit the properties, they really scour out the soil. So that's what I wanted to tell you a little about.

We ask that the federal government reinstitute the shoreline protection program because we know that shoreline erosion doesn't just affect Saint-Ignace-de-Loyola. Thanks to information from the Ouranos Consortium, I know there's a lot of erosion from Montreal to Varennes, Contrecoeur, Sainte-Anne-de-Sorel and in our region as far as Lake Saint Pierre.

In addition, these days, approximately 4,500 ships navigate the river, and I don't think they always obey the speed limit, especially at night, probably because no one can see them.

Thank you for listening. I'm going to yield the floor to Mr. Grégoire.

Mr. Roy Grégoire (Resident of Saint-Ignace-de-Loyola, As an Individual): Good afternoon.

My name is Roy Grégoire, and I'm a resident of Île de Saint-Ignace-de-Loyola and live on the bank of the river. When the ice breaks up back home in the spring, the segment of riprap that the federal government completed retains it, creating a kind of dam. As a result, the ice flowing down river stops there and the water level rises nearly 20 feet. I know that because my land is normally about 20 feet above the water level.

We know there are many erosion factors, but I think the biggest cause is the federal government's incomplete riprap works. Shipping has something to do with it, of course, because as Mr. Barthe said, 4,500 ships navigate the river every year.

Climate change is also involved. Studies show beyond a shadow of doubt that the waves generated by ships are more powerful than those caused by wind. According to one report, shipping alone is responsible for 70% of water level fluctuations in the St. Lawrence River. Those changes have a significant impact on shoreline erosion near the channel. The waves associated with shipping on the river are responsible for 60% of shoreline erosion.

The situation is starting to be disturbing. Personally, I've started seeing signs of major impending erosion. I had an engineer come to my house and I'm waiting for his report.

That's all I have to say for the moment. I'll try to answer any questions you may have.

Thank you.

• (1615)

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

Mr. Barsalou-Duval, you finally have the floor for six minutes.

Mr. Xavier Barsalou-Duval: As I said earlier, I want to thank the witnesses for being here and the members of the committee for agreeing to conduct a study on this very important topic for the people in my riding and, I'm sure, for those in other ridings.

Some properties in Saint-Ignace-de-Loyola, on the other side of the river, are affected by erosion. I'm convinced that's also true of other lands on the St. Lawrence and in the Great Lakes.

Many witnesses so far have said that shoreline protection works were built after the seaway was built. In the 1950s and subsequent years, the seaway was dredged to allow larger ships to pass through. Walls were erected and riprap was installed to offset the damage.

Ms. Lagarde, in what condition are the works in your area?

Ms. Micheline Lagarde: Personally, I own a property that has no protection, and the waves are just eating away at the land.

The walls on the very large property of a 100-year-old woman in my neighbourhood are leaning over, which is very dangerous. Her property is actually starting to collapse.

What we're asking is that specific measures be taken soon.

Mr. Xavier Barsalou-Duval: Thank you very much, Ms. Lagarde.

As I understand it, the protective works erected at the time are gradually disappearing throughout the area. Is that correct?

Ms. Micheline Lagarde: Many properties no longer have any protection at all.

Mr. Xavier Barsalou-Duval: No protective works were ever built on the properties in other areas. I think that's the case of Ms. Durocher's property.

What's the situation in your area, Ms. Durocher?

Ms. Carine Durocher (Vice-Chair, Comité pour la protection des berges du Saint-Laurent): We lose two metres of land to erosion every year on our property on Île Sainte-Thérèse, which is opposite Varennes. There are no works protecting the shorelines near the seaway. We lose about a metre of land in the years when the water level is low and two or three in the years when it's high. It's quite a catastrophic situation; it's especially unbelievable to see that nothing has been done to help us.

Mr. Xavier Barsalou-Duval: My next question is for Ms. Lagarde or Ms. Durocher.

If citizens decided to invest money to stabilize the shoreline along the front of their property, how much would it cost for an average property?

Ms. Micheline Lagarde: It costs about \$5,000 or \$6,000 per metre. In other words, it can cost approximately \$200,000. People can't afford to do it.

The work has to be done by experts, if you want it to be innovative and sustainable and not disrupt biodiversity. You also have to consider water quality and heating.

You shouldn't just use riprap, since it accomplishes absolutely nothing and is inhospitable for wildlife, plant life and people.

Mr. Xavier Barsalou-Duval: As I understand it, you're concerned about the environmental aspect. You don't think using riprap everywhere is an optimal solution since it destroys biodiversity.

You mentioned that the federal government installed riprap and subsequently denied responsibility for it.

How did the federal government respond when you asked it to maintain or restore those walls?

Ms. Micheline Lagarde: Government officials actually told us there was no program for that and that it wasn't their department's responsibility.

I personally wrote to a number of federal and provincial departments, including Fisheries and Oceans Canada and Transport Canada. I think we need a joint solution. Pilot projects, for example, need to be quickly introduced. All involved stakeholders can be part of the solution. However, citizens can't be responsible for the solution since they have neither the skills nor the necessary financial resources to protect the shorelines.

• (1620)

Mr. Xavier Barsalou-Duval: You say there could be a natural impact. Many witnesses have discussed that so far. People have also said that commercial shipping, the subject of our study today, could also have an impact. Do you know whether there's any scientific basis for such a statement.

Ms. Micheline Lagarde: I'll let Ms. Durocher answer that question.

Ms. Carine Durocher: Many studies have been conducted on the link between commercial shipping and erosion. There was Diane Dauphin's study in the 2000s. Those studies showed that commercial shipping had a major impact, accounting for more than 50% of the total impact in places where the channel was close to the shoreline, that is 600 metres from the navigable channel. Speed reduction measures were introduced as a result of those studies, and now recent studies show that, despite the lower speed limit, erosion is still a problem—

The Chair: Thank you very much, Ms. Durocher. There is unfortunately no more time.

[English]

Next we have Mr. Bachrach.

Mr. Bachrach, the floor is yours. You have six minutes.

Mr. Taylor Bachrach (Skeena—Bulkley Valley, NDP): Thank you very much, Mr. Chair.

Thank you to all of our witnesses and to my colleague Mr. Barsalou-Duval for bringing forward this study.

Perhaps I'll start with Madame Lagarde. I was reading in a Canadian Press article about your committee's work. The article mentioned that you had tried to get a meeting with the Minister of Transport and were unsuccessful. This was the former Minister of Transport. I wonder whether you've approached the current Minister of Transport and whether you've had any success in gaining an audience with the federal government to discuss your concerns.

[Translation]

Ms. Micheline Lagarde: I didn't have any success. The answer I got was that he would be happy to meet with me, but that was during a transition period, and then the COVID-19 pandemic came along. I've since approached him again but, so far, haven't been able to get a meeting.

[English]

Mr. Taylor Bachrach: Thank you, Madame Lagarde.

This issue of course is a long way away from the riding I represent in northwest British Columbia, but it seems like a very important one. I've listened to the testimony so far and it seems that there is some very important research being done on a wide range of solutions. At the same time, there's some infrastructure already in place that isn't being maintained.

I wonder if your committee.... Looking at this bigger work, which is much more long-term, and then looking at structures that are rusting and falling apart on your doorstep, do you feel that the best option is simply to repair and maintain the existing infrastructure?

[Translation]

Ms. Micheline Lagarde: In some cases, there's no more existing infrastructure at all, although some structures are holding up and may be worth maintaining. But once water gets into a crack, the ice quickly goes to work and the wall completely falls apart.

We should consider developing green structures in places where no structures are left, but the structures still standing have to be maintained. It may be a question of cost, but something has to be done. Tangible measures must be taken soon. This affects water and biodiversity and has a major impact on citizens who, in some instances, are in dangerous situations. Entire houses are in danger, as Ms. Durocher said.

• (1625)

[English]

Mr. Taylor Bachrach: Madame Lagarde, you indicated previously that you felt as though the responsibility for this issue was being passed back and forth between different jurisdictions, different levels of government. I noted that in that Canadian Press article Transport Canada was drawing people's attention to the fact that the province and the municipalities also have a responsibility. Does it feel as though there's a lack of leadership in this situation?

[Translation]

Ms. Micheline Lagarde: A lot of departments and agencies may be sharing various responsibilities, and perhaps one of the departments should take charge of the matter as part of a cooperative effort. The problem has to be addressed; someone has to accept responsibility and take appropriate action. But it's like this was no one's fault and no one was responsible. A lot of research is being done, which is all well and good, but, at some point, we have to get results.

A department has to take charge of this matter and introduce environmental, climate change or transport measures. It's possible to work in a collegial manner, not in isolation.

[English]

Mr. Taylor Bachrach: Thank you, Madame Lagarde.

I'm going to move on to Mr. Lajeunesse.

It's very interesting to hear about your research. We heard about various causes of this erosion that's occurring.

I wonder if your research has given any indication of the relative contribution of each of those causes, whether they are shipping-related or climate-related factors.

[Translation]

Mr. Patrick Lajeunesse: We're seeing human and anthropic rather than natural phenomena.

From a geographic point of view, we're seeing more erosion on the natural shorelines than on the anthropized shorelines where infrastructure has been built, for example, on Île Marie, near Verchères. There's a lot more erosion along the south bank of the seaway than on the north bank, which has suffered virtually no erosion and still has well-developed wetlands. There has clearly been quite a significant anthropic effect.

The big problem for us is knowing how the natural phenomena and human phenomena, which include shipping, impact the shorelines that have been anthropized and where riprap has been installed. It's not always easy for us to understand that. They have impacts, as the documentation confirms, but how do they affect the shorelines where riprap has been installed?

The Chair: Thank you very much, Mr. Lajeunesse. There is no more time.

I'd like to inform you that there's no more interpretation.

[English]

Mr. Taylor Bachrach: I have a point of order, Mr. Chair.

The Chair: Yes, Mr. Bachrach.

Mr. Taylor Bachrach: Maybe we can clear this up.

It sounds like a microphone was on. I believe it was mine, but I'm also under the impression that I don't control my microphone. Should I be pushing the button to turn it off?

The Chair: The audio department will take care of your microphone.

Mr. Taylor Bachrach: Fabulous.

The Chair: So there was no translation for the last part.

[Translation]

Mr. Lajeunesse, could you repeat the last 30 seconds of your answer?

Mr. Patrick Lajeunesse: Yes, Mr. Chair. Let me see where I was.

We're seeing the impacts of shipping on the natural shorelines along the seaway, which are eroded more than the shorelines not along the seaway. Those impacts are quite hard to assess where in-

frastructure has been built. There isn't a lot of scientific literature on how the shorelines where infrastructure has been built react to erosion.

The Chair: Thank you, Mr. Lajeunesse.

[English]

Thank you, Mr. Bachrach.

Next, we have Mr. Muys.

The floor is yours. You have five minutes.

Mr. Dan Muys (Flamborough—Glanbrook, CPC): Thank you, again, Mr. Chair, and thanks to all the witnesses for their testimony here.

Let me pick up on the questioning from Mr. Bachrach of the representatives from Université Laval, who are bringing to us a research perspective. It's important that we have that, as a committee, and that we reflect on research as we consider the study, which is, I will remind everyone, about commercial shipping and its impact on shoreline erosion.

I know there were only 30 seconds in the last question. Is there anything further you want to elaborate on about your research or anything that you didn't have a chance to speak to in your testimony?

• (1630)

[Translation]

Mr. Patrick Lajeunesse: Of course.

[English]

There is one point I would like to address.

[Translation]

We know about erosion, and we recognize the impact of wave action, but those effects are nevertheless hard to assess based on the data we currently have.

The effects on protective infrastructure, which we've been discussing for the past few minutes, are hard to assess, partly because they aren't in perfect condition. They're coming to the end of their useful life and can't really meet present needs. This infrastructure is 50 years old in some cases. It's far from new.

[English]

Mr. Dan Muys: In consideration of your research, did you look at what other jurisdictions are looking into? Was that factored into the design of what you were studying, if I understand, with the Ministry of the Environment in Quebec? Is there anything that might provide some insight to this committee of what other jurisdictions are doing?

[Translation]

M. Patrick Lajeunesse: Mr. Chair, I'll let Jean-François Bernier say a few words about that.

Mr. Jean-François Bernier: If I understand correctly, the question is about research on established structures. Is that correct? Is it about recommendations for building green structures?

[English]

Mr. Dan Muys: Just in consideration of your research and the design of your research, and from your expertise in this area, are you aware of what other jurisdictions are doing to address this particular issue and how that might inform the committee?

[Translation]

Mr. Jean-François Bernier: I believe Ms. Lagarde or Ms. Durocher mentioned that. They mentioned the study that Diane Dauphin and Denis Lehoux conducted in the 2000s. They did an excellent study on erosion of the seaway shorelines. We can say that we're the ones continuing that work.

They had been talking about lower ship speeds since 2000, but their work stopped a few years later, in 2002. They didn't mention whether that reduced the effects of erosion. It was hard to see clearly whether erosion or the trend continued or not.

In the follow-up studies we're now conducting on Île Marie and Île des Barques in the Archipelago of Lake Saint Pierre, we can see that erosion is continuing in the various archipelagos in the fluvial section of the St. Lawrence.

Based on our studies, we feel that priority at the regional level, on which we're working, should be given to the areas experiencing the most erosion. Those are mainly the natural shorelines because they respond most quickly to ship and boat wake and other processes of the St. Lawrence. We can accurately target the sections most exposed to waves caused by ship and boat wake and can see that those natural environments continue to erode. There has been a 50% reduction. Certain islands can lose an average of one to two metres of land per year, as the Comité pour la protection des berges du Saint-Laurent mentioned earlier.

That's all I can say for the moment.

[English]

Mr. Dan Muys: Perhaps I could ask a question of the Great Lakes and St. Lawrence Cities Initiative. There's been discussion of the different levels of government, municipalities, citizens, property owners and the IJC all having a stake in this and a collaborative approach. In an ideal world, who would do what, and what might that look like? What should each level of government be looking at?

Mr. Philippe Murphy-Rhéaume: Thank you for the question.

I'll go back to the action plan for 2020-30. Our recommendation is for the federal government to take a leadership position on this file and work with the provinces and other stakeholders, like cities and individual landowners, to come up with regional or local plans to address issues, or the phenomena, in a localized manner.

One thing we are noticing—and I think everyone at the table would agree—is that you can't have a one-size-fits-all approach for the entire Great Lakes and St. Lawrence, or the entire country for that matter. The action plan identified priority zones where those investments could take place.

Of course, municipalities, as the local governments or the governments that are closest to their citizens, have a role to play, but their resources are quite limited. We are talking about a fiscal framework that doesn't really favour municipalities to take those on

as a responsibility, even though they have a growing set of responsibilities, in fact.

Something else we're hearing is that a lot of the programming that's available—

• (1635)

The Chair: Mr. Murphy-Rhéaume, we have no time left for that round of questioning. We've gone over the time already.

Thank you very much, Mr. Muys.

Next we have Ms. Koutrakis.

Ms. Koutrakis, the floor is yours and you have five minutes.

[Translation]

Ms. Annie Koutrakis (Vimy, Lib.): Thank you, Mr. Chair.

Thanks to all the witnesses for being with us this afternoon.

My first question is for Mayor Allaire or Mr. Murphy-Rhéaume.

What kind of consultations have you conducted with your communities on the changes they would like to see made to the regulations?

Mr. Philippe Murphy-Rhéaume: That's a very good question.

I admit we haven't yet begun consultations with our members on regulatory issues affecting their ability to introduce coastal resilience solutions. That's an issue that comes up increasingly frequently.

We also noticed that one of our members, the City of Varennes, had to do some urgent work because the provincial Ministry of the Environment was too slow in taking action. That forced the city to start the work without getting the necessary approvals, which put it at risk.

We want to continue our discussions on the subject with our members next year. We also want to get a clearer understanding of how we can establish a new regulatory framework to facilitate matters for the municipalities and citizens in taking measures to protect their shorelines. The environmental assessment takes a lot of time and is a costly process. We could see if there are any ways to expedite the process, especially when it comes to improving infrastructure naturally.

Ms. Annie Koutrakis: It seems to me that, before adopting any regulatory changes, the federal government must assess a number of factors such as the social and environmental repercussions of potential economic effects.

Is that your understanding?

Does that seem reasonable to you, Mr. Murphy-Rhéaume?

Mr. Philippe Murphy-Rhéaume: It seems absolutely reasonable to me.

We're ultimately an environmental organization and therefore can't overlook the environmental impact. One of our organization's basic pillars is water equity, so socioeconomic issues are very important for us.

I can't discuss the exact details of the regulatory issues, but we see that our municipalities are subjected to significant delays when they need to implement solutions. We're talking about properties that are losing at least one metre of shoreline a year. These delays are a serious problem when we're trying to protect public lands and private property.

• (1640)

Ms. Annie Koutrakis: Any witness may answer my final question.

Do you know whether the federal or provincial governments have implemented any programs to protect shorelines from erosion?

Have you contacted Environment Canada to see whether such programs exist?

Ms. Lagarde, I don't know if you'd like to answer my question.

Ms. Carine Durocher: I can answer that question.

In marine areas in Quebec, such as the Gulf of St. Lawrence estuary, shoreline protection programs and initiatives are under way, mainly in connection with climate change.

Ms. Annie Koutrakis: Have you contacted Environment Canada or just the provincial level?

Ms. Carine Durocher: We've contacted Environment Canada. We submitted requests, to Minister Guilbeault, in particular, but we haven't officially met with him yet.

The programs that have been implemented are mainly funded by the provincial government, as far as I know. To my knowledge, Environment Canada doesn't offer any programs. Perhaps one of you may have more information on the subject.

The Chair: Thank you very much, Ms. Koutrakis and Ms. Durocher.

I now give the floor to Mr. Barsalou-Duval for two and a half minutes.

Mr. Xavier Barsalou-Duval: Thank you, Mr. Chair.

My next questions will be for Mr. Bernier and Mr. Lajeunesse.

You are experts in the field of erosion of the St. Lawrence shorelines because you study the situation extensively. Citizens have previously taken action and requested that a program be introduced to protect the shorelines. They were told that the matter wasn't their responsibility, that it concerned climate change and that Transport Canada therefore had nothing to do with it.

In comparing various situations, such as those of the Magdalen Islands and Est du Québec, it's apparent that erosion is due, in particular, to the tides. We know that wind and melting ice have an impact, as does shipping.

How can we isolate each of those factors and determine whether anthropic forces or commercial shipping has an impact? I'm talking

here about the specific case of the municipalities of Varennes, Verchères and Contrecoeur and the section from Montreal to Lake Saint Pierre, from which I hear more complaints.

I'd like to hear your comments on the subject and to know where the situation stands from a scientific point of view.

Mr. Jean-François Bernier: The events that have an impact on water levels and climate change are definitely not the same in the Magdalen Islands, which are exposed to storms, as they are in the section of the St. Lawrence including Contrecoeur and the archipelagos. Consequently, it's very hard to attribute clear consequences in that respect. Water levels in the river are very much controlled by the various dams in the St. Lawrence system. Furthermore, since the channel is narrow, winds and storms necessarily play a less important role there than you might see in the lower estuary. The gigantic waves of two or three metres that can be observed in the Magdalen Islands don't break in the fluvial section of the St. Lawrence.

Ship and boat wake thus creates waves in a system where waves otherwise are few. It's important to understand that, and some of our data shows that wake is of quite significant importance. In the spring, for example, floating ice combined with waves created by boat wake also cause considerable abrasion. That's all we can explain now regarding ship and boat wake based on the data we have.

Natural processes have a role to play, but the presence of the sea-way adds to the river's natural perturbation regime and also tends to leave certain shorelines more vulnerable. Now, with lower speed limits, many factors are changing because human behaviour is hard to predict.

That's all I can explain for the moment.

Mr. Xavier Barsalou-Duval: Does—

The Chair: Thank you very much, Mr. Bernier and Mr. Barsalou-Duval.

[English]

Next we have Mr. Bachrach.

Mr. Bachrach, the floor is yours. You have two and a half minutes.

• (1645)

Mr. Taylor Bachrach: Thank you, Mr. Chair.

My question is for Mr. Lajeunesse or Mr. Bernier. It relates to the infrastructure that's already in existence along the St. Lawrence.

I know that in other river environments when you harden part of the bank, it can result in unintended consequences downstream; it can transfer the energy of the river and cause bigger problems somewhere else.

Has your research shown that that's occurring in this situation with this old infrastructure that was built in the 1960s and 1970s? Has it had unintended consequences elsewhere along the river corridor?

[*Translation*]

Mr. Patrick Lajeunesse: Mr. Chair, I'll begin, and Mr. Bernier can supplement what I say, should there be any further information to add.

Yes, we're observing those kinds of changes. Earlier Ms. Lagarde mentioned an earth-water continuum, but there also has to be a continuum along the shorelines. There has to be sediment transport along the shorelines. Infrastructure sometimes prevents sediment from being transported that way, which, in some instances, causes erosion downstream from those structures. The phenomenon is known and documented.

Furthermore, I can say that infrastructure is sometimes damaged in spots, which also triggers other geomorphological processes that cause erosion. For example, you can see those processes at work undermining structures. In some instances, when water levels are high, erosion occurs under the infrastructure, combined with ice. A host of phenomena occur and can interfere.

[*English*]

Mr. Taylor Bachrach: Okay.

Maybe picking up on that.... It seems like there's a bit of a debate around the relative merits of hard, grey infrastructure—like what was built in the 1960s and 1970s, the old “army corps of engineers” style of armouring the banks of rivers—and this newer way of thinking around natural infrastructure and how to use ecosystems.

Could you talk about the relative merits? Maybe you could start on that topic, and then we can pick it up next round, given that we only have 10 more seconds.

M. Patrick Lajeunesse: Jean-François, you can start. You have better knowledge on this than I do.

[*Translation*]

Mr. Jean-François Bernier: One of the negative effects of hard, grey infrastructure, as you said, is increased current speed and less friction than in the case of infrastructure that includes vegetation. This type of infrastructure makes it possible to develop habitats and to retain sediments in order to create ecosystems, such as wetlands, which are conducive to fish habitat. Green infrastructure has shown that it offers many benefits.

In some cases, impermeable infrastructure, such as walls, increase the energy of waves, which is a much more perverse effect for the environment and is even more pronounced where a sawtooth surface is involved.

Various types of infrastructure have been built at various times and this type of infrastructure obviously has more harmful consequences.

The Chair: Thank you Mr. Bernier.

[*English*]

Thank you very much, Mr. Bachrach.

Next we have Dr. Lewis.

Dr. Lewis, the floor is yours. You have five minutes.

Ms. Leslyn Lewis (Haldimand—Norfolk, CPC): Thank you, Mr. Chair.

I'd like to thank the witnesses for their evidence today.

My first question is for the two mayors, Mayor Allaire and Mayor Barthe.

I am curious. What is the composition of the shoreline with respect to private ownership versus commercial ownership versus government ownership of the shorelines that we're talking about within your vicinity?

[*Translation*]

Ms. Maud Allaire: We have 22 kilometers of shoreline in the city of Contreccœur, including approximately 8 kilometers in an industrial zone, another 8 in a denser residential zone and 6 kilometers in a more recreational-tourism zone including agricultural land.

The shorelines in Contreccœur are higher at certain places than at others, and don't forget the Îles de Contreccœur archipelago, which is a national wildlife reserve.

Since I'm a kayak and photography enthusiast, I've seen ecosystems erode year after year. Water levels are higher or lower depending on freezes and thaws. When infrastructure can no longer trap water, heavy rains can result in overflow.

There's also the constant presence of boats and other pleasure craft, because we have two marinas and a waterfront on some islands.

I think that various programs need to be established. We mentioned green infrastructure. I think that's a long-term solution. All too often, local residents have cleared their land as though it was a golf course. As a result, there are no root systems to support their properties, which are subsiding or subject to landslides.

I think very strict regulations should be imposed to prohibit the clearing of land to create golf-course-like properties or greens. Citizens must also be assisted through grants in replanting—

● (1650)

[*English*]

Ms. Leslyn Lewis: Mayor, if I may interrupt for a moment, I'd like to ask you something about private ownership and the logical justification that you would present for why the government should pay to restore the shoreline for private owners.

[*Translation*]

Ms. Maud Allaire: I think you're talking about residents.

The shoreline protection program was terminated in 1997. People bought their properties at another time, when they talked even less about climate change and rising temperatures that can kill off biodiversity and certain ecosystems. Temperature increases also kill certain varieties of trees. Citizens therefore need technical advice on how to improve retention of their shorelines, in particular by using aquatic grasses and planting certain types of trees. We should also focus, together with civil engineers, on other options that could be combined with a little grey infrastructure, while ensuring that most of the infrastructure is green.

These people who bought their properties at another time can no longer afford to invest in rebuilding their protective walls. As a result, it's becoming dangerous for them to sell, not to mention the financial loss they would incur. We all want to retain our built heritage and, one day, to be able to retire and live longer in an institution or place where we'll be sheltered and have health care. So I think that all Canadian citizens have a right to assistance when their long-term security is at risk.

We also need to adopt a longer-term vision. Perhaps the decision will be made one day to buy back the properties of those people to ensure that adequate perennial vegetation is planted to offset temperature increases that also threaten the entire ecosystem of the St. Lawrence River.

Lastly, the Îles de Contrecoeur would greatly benefit from a tree planting grants program because the trees there have been uprooted throughout the islands.

[English]

Ms. Leslyn Lewis: May I ask how many homes are in imminent danger of perhaps collapsing into the waterways?

[Translation]

Ms. Maud Allaire: According to the studies, the situation is worse in Varennes and Verchères. Our shorelines are slightly higher in Contrecoeur. The places most affected are the ones that have no direct protection from an archipelago.

There are also a lot of pleasure boats on the water here and near the shorelines. I therefore ask that the federal government regulate pleasure boat speeds and the distance from the shorelines—

The Chair: Thank you very much, Madam Mayor.

Unfortunately, there is no more time.

[English]

Next we have Mr. Badawey.

Mr. Badawey, the floor is yours. You have five minutes.

Mr. Vance Badawey: Thank you, Mr. Chairman. I appreciate that.

I'm going to go back to the Great Lakes and St. Lawrence Cities Initiative, because I was, in my former life, part of that group of people for 14 years and I know the great work they do within their communities, especially listening to the folks we have on today's call within those communities.

I have two questions, and then I'm going to let you go, as you did last time.

First, do you agree that the Canada water agency can, in fact, be the lead, I guess the one-stop shop, for what I call the triple bottom line, which is the recognition of economic, environmental and social investments attached to the Great Lakes and St. Lawrence based on the recommendations contained within, for example, the action plan for 2020-30?

I want to get a bit more granular. In the recommendations contained within the action plan, there is—on page 10, at paragraph 2.1, to be exact—“Building climate change resiliency in shoreline communities”. If you go into the report—and I'm just looking at it here—on page 28, for example, it speaks about the economic benefits of dealing with these very problems. If you go on to pages 30 and 31, it talks about the costs of doing the work, but more importantly, the costs of doing nothing.

I want to remind you that your testimony is needed, to be included within this report, so I'm doing this deliberately to get on the record a lot of the recommendations that are contained within that action plan 2020-30, so that this committee can actually also recommend, based on your testimony, a lot of the recommendations that are contained within that report.

With that, I'll pass the question on to Mr. Murphy-Rhéaume.

• (1655)

Mr. Phillippe Murphy-Rhéaume: Thank you, Mr. Chair.

I want to thank the member for Niagara Centre again for the question.

I would also be remiss if I didn't thank the member from Vimy. I forgot to thank her for participating in our mid-year meeting. I believe it was in January when she had just taken on the portfolio of parliamentary secretary for transport. We appreciated her participation at that meeting and entertaining our board members' questions.

With respect to the Canada water agency, absolutely, an agency that looks at freshwater questions and interior water questions from a triple bottom line approach will ensure its success. Getting buy-in from not only the environmental community, but also the business community would build what I would call a multi-partisan endorsement or support for such an agency.

Understanding that there's also a national adaptation strategy under development by the federal government, there's certainly an important role for the Canada water agency to play with respect to climate adaptation, especially when we look at shoreline resilience. We would hope to see that as part of the mandate.

Given the importance of the Great Lakes and the St. Lawrence River, not only to our economy.... If it were to be considered its own country, it would be the third-largest economy in the world, with around \$7 trillion in economic activity every year. It's also the source of 20% of the world's surface fresh water. It's a source of drinking water for 40 million Canadians and Americans. It's also a shared resource with our neighbours to the south. That's why we're proud to be a binational organization.

Absolutely, having that approach will ensure that we're making the right investments that will yield environmental benefits and also socio-economic benefits.

We're seeing that in the U.S. with their Great Lakes Restoration Initiative, or the GLRI program, which we would like to see adopted and adapted up here in Canada with also a significant level of investment. For every dollar invested in the GLRI, we're seeing approximately a three-dollar payback for those coastal communities that are seeing those GLRI investments.

We're seeing that sound environmental investments targeted towards the right actions—whether that's remediating our waterways or our shorelines, which do have a water quality impact, a quality of life impact and an impact on municipal infrastructure—will yield very large economic results.

I hope that answers the question.

Mr. Vance Badawey: If I could just reinforce.... I don't want to put words in your mouth, but you mentioned your support for the GLRI. That's comparable to what they are doing in the States.

As a last question, do you find that the big part of the GLRI would in fact be the Great Lakes action plan 2020-30 and, in particular, the recommendations contained therein?

Mr. Philippe Murphy-Rhéaume: Absolutely. The recommendations in the action plan are science-based. They are community-based. We had a series of consultations done in the development of this action plan. It was an 18-month process.

This is coming from a series of experts who helped lead consultations with communities, with first nations communities and with partners from both an environmental and an economic space. I think the government has a perfect template for creating a GLRI-like program up here in Canada based on those recommendations in the action plan.

• (1700)

Mr. Vance Badawey: Great.

Thank you, Mr. Chairman.

The Chair: Thank you very much.

Next we have Mr. Strahl.

The floor is yours. You have five minutes.

Mr. Mark Strahl (Chilliwack—Hope, CPC): Thank you very much, Mr. Chair.

Like Mr. Bachrach, I am also familiar with erosion issues, etc. Mine are on the Fraser River, not the St. Lawrence or the Great Lakes.

I did want to ask Mr. Murphy-Rhéaume or the Université Laval witnesses if they are aware of how many kilometres of under-protected shoreline we are talking about here. Obviously, the different municipalities know. We heard testimony about certain sections of the waterways that are impacted in their communities.

Do we have an idea of the total number of kilometres that are impacted by erosion and by shipping in the waterways that we're talking about today?

Mr. Philippe Murphy-Rhéaume: I would defer that question to Université Laval. We don't have studies that pertain particularly to the transport industry or its impact on erosion.

As I mentioned earlier, we did do a survey with Ontario and Quebec communities that identified over 300 million dollars' worth of investments over the next five years to address those issues. That was only for around 52 communities covering more than 9,000 kilometres of shoreline in the Great Lakes and the St. Lawrence basin.

I would defer to Université Laval on your specific question.

Mr. Mark Strahl: All right.

Is it 9,000 kilometres or so?

Mr. Patrick Lajeunesse: Thank you, Mr. Chair.

Jean-François, do you have the numbers with you?

[*Translation*]

Mr. Jean-François Bernier: I don't have the exact number, but it would be easy to get it from the data we published on the Données Québec website following our last study.

At first glance, I'd say that at least 300 kilometers of shorelines in the fluvial section show signs of erosion as a result of the sea-way. I'm sorry, but I can't give you the exact number for the moment.

[*English*]

Mr. Mark Strahl: If we just want to concentrate on those 300 kilometres—Mr. Murphy-Rhéaume had a figure of \$300 million, but let's stick with the 300 kilometres that we're talking about—what is the estimated cost to government? What would the cost be to fully protect those areas or restore those areas to a satisfactory level to prevent this type of erosion from occurring in the future? Do we have a ballpark figure? In an ideal world, where cost is not a concern, how much is it costing to address this issue?

[Translation]

Mr. Jean-François Bernier: Earlier someone mentioned the figures \$5,000 to \$6,000 per metre. I won't do the calculation, but that amounts to some serious money. I think the valuation would be based on that.

We also have to consider the need to take action on erosion. Lowering the speed limit for boats helped reduce erosion by 50%. If the speed limit for ships were reassessed, perhaps that would be a way to reduce erosion further and to ensure that certain sites are less affected by ship and boat wake. In the long term, certain segments would probably no longer be affected by wake, or else its impact would be minimal. That's a potential intervention strategy instead of establishing structures that would be quite costly, as we've seen.

[English]

Mr. Mark Strahl: My final question is for either of the mayors.

Have you been able to access any of the disaster mitigation and adaptation funds that the Government of Canada has set aside? It's generally to reduce the risk of flooding, but I'm wondering if you've accessed any of those funds and if they have had an impact on erosion almost as a by-product of protecting your communities from flooding.

Go ahead, Mayor Allaire.

• (1705)

[Translation]

Ms. Maud Allaire: We haven't received any grants to reduce the impact of erosion on shorelines in Contrecoeur.

The Chair: Thank you very much, Madam Mayor.

[English]

Mr. Rogers, the floor is yours. You have five minutes.

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

Thank you to the witnesses for being here today and enlightening this committee and the members on some of the challenges you face in the region where you live with regard to shoreline erosion. It's certainly not something I'm familiar with. In Newfoundland and Labrador, we're surrounded by water, but it's a very rocky coastline, so when we have shoreline erosion, it's primarily from storms and the climate change issues that we're talking about.

I have a couple of questions for the Université Laval representatives today.

First of all, you mentioned a couple of projects. You've been documenting the natural effects on the shorelines of the Great Lakes since 2007. I'm wondering if you can elaborate on how you think climate change has probably been a major part of that erosion and whether or not you've documented, through videos or pictures of any kind, some of the shoreline damages that have been caused.

[Translation]

Mr. Patrick Lajeunesse: Unlike what other teams conducting research in the estuary and Gulf of St. Lawrence have documented,

what I'm documenting are other processes and causes that are particular to this section of the river.

The impact of climate change on the St. Lawrence River will especially be seen in water level variations, whether high or low. That's one of the factors associated with climate change that will have a significant impact on changes in the shorelines.

[English]

Mr. Churence Rogers: We know, of course, that shorelines are different. From what I heard today, different sections of the shorelines are different in the Great Lakes. Which ones are especially affected by the operations of commercial vessels, and how so?

[Translation]

Mr. Jean-François Bernier: You actually have to go way back in time. What explains erosion and the fact that the situation is critical in the fluvial section is that most of the shorelines consist of the same type of surface deposit, a slightly more loamy clay that reacts strongly to wake phases, causing alternating humidity and dryness, as a result of which it falls apart in sheets. In scientific terms, this is called the desiccation of clay soils. Nearly all the shorelines in the fluvial section are formed from this type of deposit.

Land use planning can have consequences. Sometimes these zones consist mainly of cohesionless material, a much more vulnerable deposit.

These two types of deposits are found in the fluvial section covering the zone where ship and boat wake occurs, between Lake Saint Pierre and Montreal.

[English]

Mr. Churence Rogers: Some of the witnesses today made reference to some of the green alternatives.

I'm not sure who, but one of the witnesses said that the shoreline in front of some people's properties is like a golf course. I guess they've cut all the trees and planted grass of some kind and turned it into a very green area, which obviously impacts the protection you get from the natural elements.

In addition to changing the speed limits that you talked about, what are some of the other ways we can prevent shoreline erosion? Is it planting more trees and doing more things that make the landscape more resilient to this kind of coastal erosion?

• (1710)

[Translation]

Mr. Patrick Lajeunesse: In some cases, you have to let nature recover, in particular by using vegetation.

As Mr. Bernier said earlier, that would help reduce wave friction on certain types of infrastructure. It would also enable the capture of sediments, that is mud or sand, along the shoreline. That will also help reduce friction.

To improve the situation, we should promote natural revegetation. In other words, we should let trees grow rather than cut them down.

[English]

Mr. Churence Rogers: Building man-made water breaks would not necessarily be a good solution, as some of you have referenced. I'm assuming, then, that the green option would be much preferred by the residents who live along the coastline.

[Translation]

Mr. Patrick Lajeunesse: Mr. Chair, I have to say that we aren't infrastructure experts or engineers. We can observe the impacts of climate change or anthropic phenomena on infrastructure, but we can't determine what the best solution would be.

However, going back to the idea that sediments must be allowed to be transported along the shoreline so they can travel, as Ms. Lagarde said, you have to permit exchanges between land and water. Sediments have to be constantly transported along the shoreline; this will help reduce friction along established infrastructure.

I think that's a fairly important element that could be implemented by various means.

The Chair: Thank you, Mr. Lajeunesse.

[English]

Thank you very much, Mr. Rogers, for your line of questioning.

[Translation]

Mr. Barsalou-Duval, you have the floor for two and a half minutes.

Mr. Xavier Barsalou-Duval: Thank you, Mr. Chair.

I'll go once again to Mr. Lajeunesse and Mr. Bernier.

The St. Lawrence and the Great Lakes are respectively the most densely populated areas in Quebec and Canada. I imagine that has artificially changed many shorelines over the years and had a major anthropic effect, along with shipping, on shorelines and occupied lands. Ultimately, this also means there has been a significant impact on the ecological environment over the years, since now there is necessarily less vegetation and biodiversity and fewer animals on the shorelines.

You also mentioned that shoreline erosion seemed to be greater in places where there were no protective works and where more features had been left in their natural state. How do you reconcile the two? There appears to be less erosion in places that have artificial protection, and thus where the shoreline has been artificially altered, but at the same time, from an ecological standpoint, it would be preferable to leave them more in their natural state.

We talked about a shoreline protection program. Are you in favour of that?

What form should it take?

What would happen if we decided not to introduce such a program?

Mr. Patrick Lajeunesse: First, you have to look at the present infrastructure situation. If the infrastructure is obsolete, that may already be part of the answer. Perhaps we should examine the situation and improve it to make the shorelines more resilient.

On the other hand, we're seeing receding natural shorelines that aren't protected. However, they nevertheless meet certain ecosystem objectives, contributing, in particular, to sediment transport along the shoreline. That prevents a certain upstream deficit.

So the response isn't perfect, but our knowledge of the situation isn't perfect either.

Mr. Xavier Barsalou-Duval: Ms. Allaire, it was you who put a resolution on this subject before the Great Lakes and St. Lawrence Cities Initiative. Perhaps you could conclude by telling us about your reasons for introducing such a request.

• (1715)

Ms. Maud Allaire: Of course.

I've met with Ms. Lagarde for years now; she comes to see me with one of my fellow citizens, and I direct them to the representatives of the various orders of government so they can contact and meet with them.

I don't think I've ever denied that climate change is the challenge of the future. Many scientists have conducted many studies on the subject, and I will always fight for us to do more for the residents, communities, wildlife reserves and all the islands in the St. Lawrence Seaway. We must reforest them because, with global warming, temperatures will rise many degrees and many species of trees will perish. Some of our islands will ultimately have only aquatic plants and hay. However, we know that those islands harbour many bird species and that they are islands where fish, northern map turtles and sand martins, in particular, reproduce.

Consequently, long-term investments must be made in this part of the seaway to ensure the survival of our ecosystems and all the species living in them.

The Chair: Thank you very much, Ms. Allaire.

[English]

Mr. Bachrach, the floor is yours. You have two and a half minutes.

Mr. Taylor Bachrach: Thank you, Mr. Chair.

We heard earlier in this meeting about the voluntary speed reduction that was suggested—I won't say “imposed”—by the federal government. I'm wondering if any of the witnesses have a sense of whether there has been substantial compliance monitoring to see whether the shipping companies are obeying or following the voluntary speed reductions, and then effectiveness monitoring to see whether the reduction of speed limits is having any impact on reducing the amount of shoreline erosion that's been seen.

Mr. Grégoire, I think you most recently referenced the speed limit reduction, so perhaps we can start with you.

I'm not sure if any other witnesses would like to jump in with their thoughts, but that would be appreciated.

Mr. Roy Grégoire: Yes, the speed limits are mostly respected, but in some cases, it's been observed that at certain times, at nighttime, some of the ships are going faster than they should be.

You know, there's a lot of traffic, so it's hard to.... It's been observed by certain sites where you can see the ships and the speeds they're going. I know that recently there were at least two ships, maybe a week or two ago, that were going much faster than they should have been. We can't stay up all night to watch for that, so it's hard to say how many ships are not respecting the speed limits. However, it has an impact.

Mr. Taylor Bachrach: It sounds like anecdotal evidence that some ships aren't respecting the speed limits.

Is anyone aware of any systematic, quantitative approach to compliance monitoring? I guess if it's voluntary there's no punishment if they don't follow it.

[Translation]

Ms. Carine Durocher: The Corporation des pilotes du Saint-Laurent central, which represents the pilots that guide the ships in our region, previously conducted an analysis of this and came to the conclusion that 95% of ships were complying with the recommended voluntary lower speed limit.

In my area, that speed limit is helping to reduce shoreline recession rates but hasn't stopped the erosion. Instead of losing two metres a year, we may lose just one where a speed limit is in effect. The limit applies on only certain sections of the river. It's a commendable measure but, on its own, won't be enough to protect riparian habitats.

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

We will conclude with Mr. Badawey.

[English]

Mr. Badawey, the floor is yours. You have five minutes.

Mr. Vance Badawey: Thank you, Mr. Chairman.

I have a question for both Mr. Murphy-Rhéaume and Mayor Allaire with respect to their work on the Great Lakes and St. Lawrence Cities Initiative.

For those who don't know, that initiative is a binational organization that has involvement from the federal, provincial, and primarily the municipal levels of government to work on Great Lakes and St. Lawrence issues. With that said, the U.S. has invested in and embarked on an extremely aggressive Great Lakes agenda, primarily with the Great Lakes Restoration Initiative.

The first question for Mr. Murphy-Rhéaume is this: Can you elaborate, with your experience and work with your U.S. partners, on established partnerships? Second, can you elaborate on the achievements and benefits to date of this initiative that the U.S. has embarked on so aggressively, including, of course, what we're discussing today, shoreline preservation?

• (1720)

Mr. Phillippe Murphy-Rhéaume: In terms of partnerships, part of our GLRI formation was through a coalition of concerned organizations in the Great Lakes on the U.S. side that came together and put pressure on the federal government to bring funding along that would help address a multitude of issues, whether addressing water pollution or the attenuation of impacts from climate change on our waterways and the shoreline.

The GLRI came out as a bipartisan effort. It has bipartisan support across the Great Lakes region. In fact, when the previous U.S. president threatened to pull GLRI funding, the community at large, but also the members of both parties pushed back and ensured that the funding was not only maintained, but also enhanced. Then, with the recent passage of the Infrastructure Investment and Jobs Act in the U.S., we're seeing an even larger top-up of the GLRI funding on the U.S. side.

We do have some catching up to do, I would say, on the Canadian side now that our federal neighbours are investing so heavily into the Great Lakes. They may have different priorities, but that being said, whether it's through the GLRI or other programming through that Infrastructure Investment and Jobs Act, we're seeing a lot of funding going towards shoreline resilience in the Great Lakes. In fact, through a partnership with the U.S. Army Corps of Engineers and the eight Great Lakes states, and funding through U.S. Congress, they are going to be undertaking a large Great Lakes resiliency study that will determine what the different hazards are across the region and what types of solutions could be implemented. They will work towards that implementation.

It's certainly a model that we would like to see here, and I think we saw this talk of a regional approach reflected in the action plan 2020-30 as well. I think some of those themes have come up on multiple occasions tonight through different members' questioning. We need to look at this issue collectively, to work across entire regions and littoral cells, because whatever measures one community or one individual landowner takes to attenuate the impacts, whether of climate change or of wave activity from passing ships or pleasure boats or craft, whatever measures they may take at that individual level will have impacts downstream or on their neighbours. We need to come together collectively to address those issues.

Mr. Vance Badawey: Thank you, Mr. Murphy-Rhéaume.

I'll go over to Mayor Allaire.

I would like to hear your comments on the same question, Mayor.

[Translation]

Ms. Maud Allaire: It's hard to define the programs. We would always like to do more for our fellow citizens and really get to know them. We would also like the federal government to ask us at times if we're aware we can apply to such and such a program.

Does the government take care of federal wildlife reserves? Does it conduct audits? Is it doing its job as a manager? Is it making sure it's providing enough funding to restore these ecosystems in order to ensure they survive for future generations? I must say I very much doubt it.

I'm absolutely prepared to work with the federal and provincial governments, but I have to be aware of the grant programs. I must also call upon the government, as I am doing now, to provide support to all these citizens and cities that are forced to invest increasing amounts of money in their water supply and infrastructure to subsidize their costs and guarantee long-term shoreline development for future generations and for the animals on those shorelines.

I call on everyone to work together. Beyond merely conducting research, we need to act. We know the statistics. We discuss them and discuss them again, but we need to be on the ground and to act.

Over the next few years, we will be working hard to establish the Contrecoeur terminal, which will add to the infrastructure of the Port of Montreal.

Over the next few years, there will be successes thanks to the investments that have been made to establish walls with nesting boxes—

• (1725)

[*English*]

Mr. Vance Badawey: Thank you, Madame Allaire.

[*Translation*]

The Chair: Thank you very much, Madam Mayor.

[*English*]

Thank you very much, Mr. Badawey.

[*Translation*]

Thanks to the witnesses for their time and for providing us with their expertise and feedback.

[*English*]

With that, colleagues, we're going to adjourn.

Before I do that, I believe the clerk has had discussions with all of you about the need to approve the budget for the next two studies.

Do I see any objection to that?

Yes, Mr. Strahl.

Mr. Mark Strahl: The funds that are allocated for witnesses, those are just placeholder amounts. Is that right?

Excellent. Thank you.

The Chair: Are there any objections, colleagues?

(Motion agreed to)

The Chair: With that, this meeting is adjourned.

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