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## Standing Committee on Fisheries and Oceans

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**Tuesday, March 4, 2008**

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**Chair**

**Mr. Fabian Manning**

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Tuesday, March 4, 2008

• (0905)

[English]

**The Chair (Mr. Fabian Manning (Avalon, CPC)):** I'd like to call the meeting to order, please.

I would like to welcome our guests. We would like you to take the opportunity to introduce yourselves, starting with Mr. Pachano, I guess.

**Chief Roderick Pachano (Cree Nation of Chisasibi):** Good morning, and thank you. My name is Roderick Pachano. I am the chief of the Cree Nation of Chisasibi.

**Mr. George Lameboy (Cree Nation of Chisasibi):** My name is George Lameboy. I am from Chisasibi also.

**Mr. Robbie Tapiatic (Cree Nation of Chisasibi):** My name is Robbie Tapiatic. I'm also from Chisasibi.

**Mr. Robert Kanatewat (Cree Nation of Chisasibi):** My name is Robert Kanatewat, and I am also from Chisasibi.

**Mr. Alan Penn (Science Advisor, Grand Council of the Crees):** My name is Alan Penn. I'm an adviser to the Cree Regional Authority and, in this case, to Chisasibi as well. Thank you.

**The Chair:** Thank you.

I understand that Mr. Pachano will make the opening remarks. The floor is yours, sir.

**Chief Roderick Pachano:** I'd like to thank you for this opportunity to appear before this committee. Our main purpose today is to outline the problem of eelgrass decline along the eastern coast of James Bay and its impact on our community. We will also provide you with some brief explanatory background.

We represent about one-third of the Cree population on the eastern coast of James Bay and Hudson Bay. Our area is the part of James Bay that has the most eelgrass.

From different perspectives—public health, nutrition, and our desire to protect our own culture and traditions—we consider the coastal ecosystem to be something that will play a key role in our survival as communities and as a people. This is our major motivation for appearing before you today.

Within the last 30 years, the freshwater flow of Chisasibi, meaning “the great river” in English, *la grande rivière* in French, has doubled in size as a result of diversions for hydroelectric development. It will increase again by nearly 20% when the Rupert River diversion is completed three years from now. Much of this fresh water is being added during the winter period when fresh water forms a length a few metres thick under the coastal ice shelf.

Now, when you consider all this, this is a major diversion, one of the most significant and important in North America, and we think it has received far less attention than it deserves.

As we see it, there are good reasons to be concerned about the long-term survival of our coastal waterfowl hunt and fisheries, because of the impact of a change of this magnitude in the flow of rivers, in the winter particularly. The managed flows in the winter from the hydroelectric project can multiply the discharge by a factor of roughly 10, which is bound to affect fish habitat and the coastal ecosystem generally.

The eastern James Bay coast is home to extensive marine grasslands. These eelgrass beds, as they are known, grow in a fully marine environment in water depths of one to two metres, which is accessible to waterfowl. The eelgrass is also sometimes referred to as seagrass. It is not a weed; it is an essential part of the marine environment. The eelgrass flowers, pollinates, and sets seedlings in sea water. Growth is related to salinity as well as to other factors that affect the penetration of light into the sea water.

These beds are a key element in a coastal ecosystem. They serve as feeding grounds and nurseries for coastal fish species—whitefish, cisco, and trout—and shellfish. And they are grazed by brant, Canada geese, and ducks.

We believe that eelgrass beds are sufficiently distinctive in this region that they should be considered by Canada as part of its international commitment to the protection of biodiversity. These beds have undergone a major decline along the coast since the river diversions for the La Grande hydroelectric project and the operation of the powerhouses, which concentrate the river flow during the winter period.

The community has seen sharp declines in waterfowl numbers along the coast in recent years and a corresponding decline in hunting success. There are also concerns about fish stocks and the rest of the food chain along the coast because of the changed flows and the loss of the eelgrass beds and the fish habitat they provide.

We have been working with specialist Dr. Frederick Short from the University of New Hampshire to try to understand what is happening. With his help, we have been conducting our own environmental surveys.

Hydro-Québec has also been carrying out surveys but does not believe that the declines are related to the hydroelectric project. However, when the changes to the project were planned in the 1980s, the possible effects on the eelgrass beds were considered in a document submitted to the Quebec government, and a dieback was predicted at that time.

• (0910)

Hydro-Québec thinks that a wasting disease, the result of an organism known as *labyrinthula zosterae*—excuse my Latin—is affecting the eelgrass beds. We have looked into this, and with the help of Dr. Short, we have come to understand that the wasting disease is not the cause of the eelgrass decline. Instead, we believe that the changes in the seagrasses are well explained by the measurements of low salinities resulting from the river diversions and the managed flow regimes during the active eelgrass growing seasons. We also understand that there are other factors involved, such as turbidity resulting from erosion and landslides along the La Grande River after the development.

We have been handicapped, though, because we have not been provided with the information by Hydro-Québec on the year-by-year monthly flows, which we need to investigate this matter further and more closely. As we understand it, the only way to mitigate this effect of freshwater flow is to reassess and redirect the seasonal distribution of flows.

Because we believe the federal government has a direct interest in and responsibility for these matters, we are pleased to have this opportunity to explain our concerns. We will provide the standing committee with maps and photographs to explain the distribution of the eelgrass beds and why we are so concerned.

We therefore propose to the standing committee that there is a need for a fresh federal perspective on the impacts of development on James Bay and Hudson Bay. In making this statement, we are echoing a recommendation made by a federal panel that in 2006 studied the diversion of the Rupert River towards the La Grande River and Chisasibi.

We enclose at the end of this written presentation a recommendation that deals directly with the subject of federal involvement and the need for a concerted effort to deal with the gaps in scientific knowledge of the James Bay and Hudson Bay region during this time of environmental change, which includes climate change.

There are several related issues. The coastal and offshore environment of Chisasibi is now included in the Nunavik Inuit Land Claims Agreement, which has recently received royal assent with the passage of Bill C-11. It includes an overlap agreement between the Cree and the Inuit, which incorporates much of the area of declining eelgrass beds.

We note that there are efforts being made by the first nation and Inuit communities around Hudson Bay and James Bay to use the International Polar Year as a framework and as a stimulus to develop local capacity for monitoring environmental change in this region.

It is important that both Fisheries and Oceans and Environment Canada understand and appreciate why these steps are being taken. We would like to see the federal government pay much closer attention to the effects of environmental change in the James Bay

and Hudson Bay region, including the effects of hydroelectric development.

We found that the federal government largely ended its involvement in the study of fish and waterfowl, including the eelgrass beds, when the James Bay and Northern Quebec Agreement was concluded in 1975. This certainly was not what we expected or intended when the agreement was signed. This has left a great gap in the knowledge of many aspects of James Bay and Hudson Bay.

Chisasibi certainly does not consider that it is responsible for this situation, but it is interested in participating in monitoring aimed at a better understanding of environmental change and, where possible, at remedial action. However, this can be undertaken only if Fisheries and Oceans Canada and Environment Canada both show a much greater commitment to investment in relevant research in the James Bay and Hudson Bay region.

We encourage the standing committee to recommend to both government departments that they act on the issues raised in this brief, and in particular on recommendation 34 in the Eastmain-1-A Rupert River review. We also propose that the standing committee remind both Fisheries and Oceans and Environment Canada about the importance of the implementation of the wildlife management regime in section 24 of the James Bay and Northern Quebec Agreement, including in particular the principle of the guaranteed level of harvest.

I would like to thank you very much.

**The Chair:** Thank you, Chief Pachano.

Our first questions will be from Mr. Simms.

**Mr. Scott Simms (Bonavista—Gander—Grand Falls—Windsor, Lib.):** Thank you, Chief Pachano.

I want to start by asking you a pretty broad question. Perhaps this is for the benefit of all. When you harvest eelgrass, what do you use it for? That's a pretty broad question for you.

• (0915)

**Chief Roderick Pachano:** To answer your question directly, it is not harvested by man. It is used as feed by the animals, particular migratory birds, the brant and the Canada geese in particular. And it is also home to several species of fish and shellfish. It grows in depths of anywhere from 1 to 90 feet.

**Mr. Scott Simms:** Okay.

When did you notice the disappearance? When did you first notice that there was going to be a significant disappearance of the eelgrass?

**Chief Roderick Pachano:** I'll let my colleague Mr. Lameboy answer that one.

**Mr. George Lameboy:** Thank you.

Mr. Chair, in the early part of the project—this is the 1970s—when the hydroelectric project was in commission, the eelgrass was calculated back then by Environment Canada, the Canadian Wildlife Service, at 250 square kilometres. It has been our knowledge that it will fluctuate. It will come and go—it will disappear, let's say, for a year, and it will come back again the following year—but it will never disappear for a period of 10 or 20 years. This is what we are experiencing now.

In 1995 we had an upshoot, an increase in density of eelgrass, and since then it has been on the decline. You see, since the commissioning of the La Grande complex, the eelgrass disappeared and then came back in 1995, I believe. Okay, let's say from 1978—

**Mr. Scott Simms:** But did it come back to what it was before?

**Mr. George Lameboy:** Yes, prior to the project.

As I said, Canadian Wildlife Service did the survey, flew over the section, and estimated about 250 square kilometres of eelgrass on the east coast of James Bay.

Now, if we were to go back, there is no eelgrass to write home about. There are eelgrass shoots. Yes, there is maybe a shoot every square metre, which is nothing compared to the density that existed prior to the project, when you would have a field of green, green grass like you would have on your front lawn. This is what existed prior to the project.

**Mr. Scott Simms:** Can you illustrate for me how the hydroelectric project affects the eelgrass?

**Mr. George Lameboy:** It's salinity, the increase of fresh water on the James Bay coastline.

**Mr. Scott Simms:** Okay.

Now, when the hydroelectric project first started, when did you first notice a major difference in the ecosystem?

**Mr. George Lameboy:** In the mid-eighties.

**Mr. Scott Simms:** Since then, the recovery has not been sufficient at all.

**Mr. George Lameboy:** The biggest recovery we've had was in 1995, I believe.

**Mr. Scott Simms:** Right. But in the general scheme of things, this has been devastating for the whole area?

**Mr. George Lameboy:** Yes.

**Mr. Scott Simms:** You talked about declining salinity, increased currents, and rising water temperatures as well.

**Chief Roderick Pachano:** Well, I guess, to a certain extent, because the first dam or powerhouse is located about 20 miles, 30 kilometres, from the mouth of the river. What you have in the front of our community, which is located maybe about 20 kilometres downstream from that, is that the river freezes and opens up depending on the conditions. What you have is super-cooled water, which instantly freezes if it touches metal. The water is so fast now compared to the size of the river. As I said, it's double now what it was naturally. Especially in the wintertime too, it's more than 10 times in the wintertime, because the water used to flow less. The water more or less is a constant temperature. After it comes out from the turbines, it's not the temperature it used to be before the project. So the water just basically stays the same way.

In some cases, we've had other areas where it has affected the sturgeon...not maybe in our area, but I've seen reports where the sturgeon have spawned in the wrong part of the season because of the water temperature. Instead of spawning in the spring, they would spawn maybe in the fall or late....

● (0920)

**Mr. Scott Simms:** The mortality rate would be higher, I assume.

**Chief Roderick Pachano:** I don't know.

**Mr. Scott Simms:** It recommended that Hydro-Québec perform, in consultation with the Cree, long-term monitoring of the eelgrass beds on the east coast of James Bay for better assessment. The monitoring should include stations located outside of the potential influence areas of in-stream flow modulations from the La Grande complex to establish if this is a factor. In its response, the Government of Canada indicated that Environment Canada would take part in the monitoring with the project's proponent, as well as with provincial and Cree authorities.

How is that going?

**Chief Roderick Pachano:** When the review committee originally came to our community, we suggested that the monitoring be more than what they ordinarily provide. The purpose of monitoring, in our view, is to do something if it is discovered that something is not right or can potentially be negative in the future. The other party's view on monitoring is to monitor what happens without doing anything—basically to monitor the disappearance, and that's it. I don't think they agree they have an obligation to do something about it if they discover something is....

**Mr. Scott Simms:** Is it the committee itself you're talking about?

**Chief Roderick Pachano:** No. I'm talking about the developer, in this case Hydro-Québec.

**Mr. Scott Simms:** Do you feel you have an active role in that?

**Chief Roderick Pachano:** We have not had one to date. We have a monitoring committee that basically deals with all kinds of other issues. But this is not one of the issues that have been identified as being important, as opposed to the exact location where the project is going to be.

**Mr. Scott Simms:** How would you describe your relationship with Hydro-Québec?

**Chief Roderick Pachano:** Right now my relationship with Hydro-Quebec isn't that good because of the difference of opinion and approach on what I understand monitoring is supposed to achieve in this case and what they understand monitoring is supposed to achieve. It's my perception that they only want to do the minimum—basically live up to the letter of the directive and not the spirit or intent of it.

**Mr. Scott Simms:** Have you made attempts to engage them in this study and bring them in more? Do you feel they have ignored you, or is that too harsh a word to use?

**Chief Roderick Pachano:** I wouldn't say it's too harsh a word, but I guess it depends upon your perspective.

Mr. Tapiatic is part of that monitoring committee involved in direct discussions with Hydro-Québec, as well as the other communities. Maybe he can answer exactly what that committee does.

**Mr. Robbie Tapiatic:** The committee I sit on is called the monitoring committee for the Eastmain-1-A-Sarcelle-Rupert diversion project. Our major role is to report to the chief and council and bring out the concerns of the community.

There are many studies, and not all of them concern our community. I have heard from our people that one of their major concerns is the eelgrass. It affects our livelihood with our migratory geese. There are many concerns, such as increased flow and land erosion that cause the water to not be clear anymore.

Our major role is to disseminate information from Hydro-Québec and vice versa. Whatever concerns the community has I take to the table. I work with five other communities: Mistissini, Nemaska, Waskaganish, Eastmain and Wemindji. We work with Hydro-Québec. SEBJ and the CRA representatives are also on that committee.

• (0925)

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

Mr. Blais.

[Translation]

**Mr. Raynald Blais (Gaspésie—Îles-de-la-Madeleine, BQ):** I will be very brief. First of all, I would like to welcome you and thank you for being here with us today. Given that it is because of my colleague Yvon that you are here today, I will leave it to him to ask questions.

**Mr. Yvon Lévesque (Abitibi—Baie-James—Nunavik—Eeyou, BQ):** Good morning to you all. I am pleased to welcome you here and I do hope that we can be of some use to you. Are you getting the interpretation? Roderick, this is the first time I speak to you in French.

I would like you to talk to us about your home prior to the work at James Bay. I am referring to Fort George, and your move to Chisasibi, as well as to how the entrance to the current river compares to your former location. It is said that there were 250 kilometres of eelgrass in the flow of the river. How far from the coast did the eelgrass reach? Robbie, I think it was you who said that hunting and fishing were part of your culture. Clearly, the Cree are not ones to miss the *Goose Break*.

I would like you to explain that to participants so that they understand the context.

[English]

**Mr. Robbie Tapiatic:** I'll ask Robert Kanatewat to answer that question.

**Chief Roderick Pachano:** Robert Kanatewat is a former chief. He was chief when the relocation took place and before that. He's also one of the signatories of the James Bay and Northern Quebec Agreement. I'll let him answer part of that question, and I'll finish it for him.

**Mr. Robert Kanatewat:** Thank you.

First of all, I would like to go back a little before I respond to your question.

There is one thing that seems to be forgotten. On the river we're talking about, on the natural flow, during the mid-winter—like right now—the velocity of the flow was very minimal in the sense that it hardly flowed. Since the diversion of the rivers and the damming of the river there is a constant flow that passes the village all year round. That causes the disturbance of the waterbed and the mucky waterbed that flows into James Bay.

Before all this happened we used to see an abundance of waterfowl in the fall and even in the spring. Even though they weren't feeding on the eelgrass in the spring, they were feeding on other substances, off the growth of the shoreline. With that, right now, as I have experienced over the years, the mammals that grow under the seabed are declining also, not just the eelgrass; it's everything else. We used to have mussels in that area too, and they're no more, they're all gone. We only see the old shells on the shorelines that have been washed into the shore. Other species, other specks of material that used to grow in the saltwater bed, are declining also, and some of them have completely disappeared. You even see these air pockets, air ducts that are covered with mud. They used to be clear, and nowadays they're covered because of the disturbance of the water flow.

We used to have all sorts of other migratory birds. They're talking about the brant, they're talking about waveys, they're talking about Canada geese and various other species of birds. We used to have these in abundance. Our area had the most abundance along the coast. It went as far as between Eastmain and Wemindji, where the geese used to feed before they migrated south. They went as far as the cape up north. These are the feeding areas where the geese were in abundance in those days, in those years.

• (0930)

For me, without even doing any testing, I've noticed that what causes it is the constant flow of the river. As I said, nowadays it's a constant flow. Before, the velocity of the water would decline a little during the mid-winter. There was hardly any water flow. This didn't disturb the river waterbed, but now it's constantly disturbing it and creating a lot of muck from underneath, where it would go out into the sea and most likely kill every little living thing that was there before. Pretty well nothing really grows on the shores of James Bay, and more or less it's the same thing, I think, in Hudson Bay. In particular it's James Bay that we're concerned about, and partially Hudson Bay.

This is what we miss today, we don't see any waterfowl landing anywhere. This is true, what we have experienced so far.

**Chief Roderick Pachano:** With regard to the rest of the answer, I believe that in 1975, between the Cree and the Inuit, the amount of waterfowl or migratory birds that were taken was something in the order of 120,000 birds. As far as the Cree are concerned, I think we are nowhere near that today, particularly in the fall.

We were recently reminded by the elders before we left that one of the main staples of feasts and celebrations was geese, and we don't do that anymore. There are no more geese being shared in the communities, in community feasts and at community events, even with the elderly and those who cannot hunt for themselves.

I think at one point back in the mid- or early 1970s we had an abundance of geese, so much so that I think we even supplied geese from Chisasibi to a dinner here in Ottawa when the Queen came. I think that was when Mr. Trudeau was the Prime Minister. That's how many geese we had; we were able to share with the rest of Canada, even the Europeans, and nowadays we don't have that many anymore.

• (0935)

**The Chair:** Thank you, Chief.

Mr. Stoffer.

**Mr. Peter Stoffer (Sackville—Eastern Shore, NDP):** I'll pass on the time and listen to more of the questions, thank you.

**The Chair:** Okay. I just wanted to show you that you had the opportunity.

Mr. Keddy.

**Mr. Gerald Keddy (South Shore—St. Margaret's, CPC):** Welcome to our witnesses.

I have a couple of questions.

I don't know if you folks supplied these maps, but I don't see the river. Is that at the top of the map? I'm assuming the top is north. The Chisasibi River?

**Mr. Robert Kanatewat:** We don't necessarily supply it in that sense, because we're not talking only about the river, we're mainly talking about the coast.

**Mr. Gerald Keddy:** I understand that. My question was leading up to that. Wherever the river comes in, if it's north or south of the area you're showing, I'm not clear about where your settlement is, I'm not clear about where the river is, and I'm not clear about where the tidal action is, and if it's going south.

**Mr. Alan Penn:** I think I can help.

This is a sample of the coastline, and it's about 30 to 40 kilometres north of the mouth of the La Grande River. The images were chosen to illustrate the complex topography of the coast, and it's within—

**Mr. Gerald Keddy:** Has the La Grande River capacity increased?

**Mr. Alan Penn:** The area chosen for these images is within the general reach of the freshwater flume of the La Grande River, and the images were chosen to illustrate the topography and some of the issues involved in trying to map the distribution of eelgrass beds.

**Mr. Gerald Keddy:** I have a couple of questions, and if someone else has some, they can ask them.

I'm not questioning the fact there has been a change in the coastal area and the eelgrass is dying out. I'm not quite certain what can be done about it. You have a group that works with the board of Hydro-Québec; obviously they're not going to stop their hydro flow, and it's been there for some time. There is increased fresh water, there's increased turbidity, and there is muddy water, if you will, going into the bay. It makes perfect sense to me that the geese and the brant are going somewhere else if there's no eelgrass there for them to feed on.

I don't know, beyond working with Hydro-Québec, if any changes can be made that would decrease the flow in the wintertime, because I have no reason to question what you're saying. The water

temperature will be changing, there is more fresh water, and the eelgrass beds are dying out. Is there a way to mitigate that? Probably not.

I'm not trying to sound negative, but that's a quick summary.

What are you looking for out of this meeting?

• (0940)

**Chief Roderick Pachano:** First of all, we've been focusing on the impacts of the hydroelectric development. When we started out, we wanted to see if we could re-establish the eelgrass beds. Our adviser told us that in order to be able to do that we had to find out why the eelgrass disappeared, because we'd be just throwing the seeds into the wind, if you will, without knowing what the cause was.

So that's how we started out. To this point we've looked at wasting disease, the salinity, and we're starting to look at turbidity. We haven't looked at any combination of these, so we really don't know. One of the things we'd like to ask from this committee is that it direct the resources that it has to helping us find the cause of this. Why is it happening? And then once we find out what the cause is, we'll determine whether it's feasible to regrow this or not.

**Mr. Gerald Keddy:** That's a reasonable ask, I would think, for DFO to look at, and I appreciate the way you put that. Everything you look at on the ground tells you there was eelgrass there. The big change has been in the river itself, and now there's less eelgrass, so most of us would come to the conclusion that there's a problem. But you're still saying we really need the scientific answer to that.

Have you looked at eelgrass in other locations, for example in silted water, in other areas? Along the coast of Nova Scotia there's a lot of eelgrass in areas, and in some of those areas—and I'm not a biologist—I would think there's a fair number of geese whose migratory route crosses the Bay of Fundy. There are places in the Bay of Fundy where the geese land. Now, whether they're eating eelgrass.... They do on the southwest shore of the province, and that eelgrass would be growing in brown, muddy water.

**Chief Roderick Pachano:** I'll let Mr. Lameboy respond to that.

**Mr. George Lameboy:** I have personally made contact with the Maritimes people, who have said that the eelgrass is disappearing, but due to a number of reasons. It could be—

**Mr. Gerald Keddy:** It gets over-foraged sometimes. It gets overgrazed sometimes, the eelgrass. The geese eat it down to nothing.

**Mr. George Lameboy:** Yes, we've had that experience, and it was demonstrated that the eelgrass would grow again the following year.

I went also to New Hampshire to check on the program they have that deals with the restoration of eelgrass beds. They do restoration programs, but in the case of James Bay, whether or not that is feasible I don't know. Studies need to be conducted to have a better understanding of whether that project would be able to take place in Chisasibi.

**Mr. Gerald Keddy:** Thank you.

Those are all the questions I had, Mr. Chair.

**The Chair:** There are still two and a half minutes.

Mr. Kamp.

**Mr. Randy Kamp (Pitt Meadows—Maple Ridge—Mission, CPC):** Can you clarify for me, in what year did the hydroelectric facility go in? Also, did I not understand you to say that following that, there was a decline in eelgrass, but it came back and has now declined again? If that's the case, what's the scientific explanation for why it would have come back, if it was the effect of the increased flows, which would have been there, I assume, since the beginning of the La Grande hydroelectric facility?

You've worked with a scientist, you said, who has ruled out some of the other explanations for the decline, but do you know of other scientists besides this individual who have come up with some explanation for the decline, maybe a different explanation from what the person you're working with has? Are there scientists out there who have some explanations for why the eelgrass has declined?

**Chief Roderick Pachano:** I'll let Mr. Penn answer the first part of that question.

**Mr. Alan Penn:** I think the first point to make is that this is a very large hydroelectric system with several river diversions. The commissioning process took place between 1979 and 1984. In the first phase of the project there was a gradual increase in flow; it was not done by episodes, when reservoirs were being filled and additional rivers were coming in. It was not really until 1985 that you began to see the full effects of the river diversion, and it took a number of years for this to play out.

Hydro-Québec then proceeded with phases two and three of the La Grande project. Basically the studies they carried out were not about the original diversion itself but the effects of the additional flow from additional powerhouses and the Rupert River diversion. Hydro-Québec has always seen its obligation to study this phenomenon as being limited to the incremental effects of flow rather than the core consequences of the river diversions themselves. That has really been a big constraint on the scope of the studies conducted so far.

The other point I would like to make is that when the La Grande project was designed and conceived, Hydro-Québec was committed to a policy of building power plants to meet domestic electricity demand. The pattern of flows that Chief Pachano described was a function of domestic demand. In the last 10 years or so, Hydro-Québec has very much become part of the northeast North American power pool, so the distribution of flow is very different from what it was at the time of the original planning of the project. The overall effect of that has resulted in a series of pulses that are more difficult to predict because they are responses to market demand and also the pattern of energy used in the United States in the summertime for air

conditioning. There's more emphasis now on production in the summertime than in the winter.

All these modifications are treated as commercial issues by Hydro-Québec. The difficulty in obtaining information on flows is partly for that reason.

There are environmental implications to the seasonal and shorter-term patterns of flow. One of the issues for understanding the ecology of James Bay is understanding the relationship between the changing environment on the coast and the changing policies for turbinating water and producing energy. That's an evolving concept; it's not fixed in time.

That may help.

• (0945)

**Chief Roderick Pachano:** To answer your second question, the approach we've taken is to systematically eliminate some of these reasons or potential causes for why the eelgrass is disappearing.

We have studied some literature by other people as well, not just this individual we're using. We wanted to take somebody who was totally independent from the developer to see if we could come up with the information. I believe that some of the people who work for the developers, in this case Hydro-Québec, have a tendency not to bite the hand that feeds them. The outcomes of some of the studies in the case of the developer are basically self-serving. Dr. Short was the only individual we found who has been totally independent from Hydro-Québec. There are not too many experts in this field.

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

**The Chair:** Thank you, Chief.

We will allow a quick question from Mr. MacAulay.

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

Welcome, Chief, and everybody else.

It's certainly a major issue for your people. In following the conversation, I'd like to know, is it the water flow? I'd also like you to comment on the process of elimination of the problems. Is it the water flow or emissions from the plant, or is it the project increasing all the time with more emissions? You talk about eliminating problems and the lack of experts, but I expect you're probably developing experts in that area.

I want to know whether you have any fine point on what the problem is. Is it water flow? Is it emissions? If not, what should be done?



• (0950)

**Chief Roderick Pachano:** I don't know where to begin.

Hydro-Québec I guess has done the most studies, so we have started with their reports. The outcome of some of these reports has been different from year to year. Sometimes they say it's the wave action that has caused the decline. Another time they say it's the ice action that has caused the decline. Another time they say it's the wasting disease that's caused the decline. When we have conflicting views like that by the entity that has done the most study, we'd like to find out for ourselves as well. So that's one of the things we have been doing.

We have determined that it is not the wave action, because the same wave action has been happening for thousands and thousands of years. We have determined it's not ice action, because it's basically the same action. Ice has been there since time immemorial. Our expert has basically concluded that it isn't the wasting disease—

**Hon. Lawrence MacAulay:** It isn't the waste from the plant.

**Chief Roderick Pachano:** No. The wasting disease is a little micro-organism that's part of the natural environment. If you have too many of those, then the eelgrass dies. If you don't have too many, it's part of the natural system. It doesn't affect it.

So by a process of elimination, those three, basically we have said, are not the cause. In our view it's either the salinity—how much fresh water is there—or the turbidity, because everything needs sunlight to grow, and the water is not as clear, as the former chief has said, as it used to be. Most of that, we believe, comes from the landslides along the river, that go out into the river, particularly in the wintertime. I guess it's hardest at that point, because it never used to happen before. Now we see that. Upstream from our community there are literally trees and bushes standing in the ice from the landslides, so it's created a lot of turbidity in the water.

So what is that combination? That's what we're asking ourselves. We don't know yet and we'd like somebody's help to determine what that is. Maybe it's not Hydro-Québec's fault. Maybe it's...I don't know what. But once we find out what the reason is, then we'd like to be able to ask, well, can the eelgrass be restored?

**Hon. Lawrence MacAulay:** Thank you very much.

**The Chair:** Thank you, Chief.

We have about five minutes left. If you want to make some closing comments, this is your opportunity to do so.

**Chief Roderick Pachano:** First of all, I'd like to thank the committee for its patience. I believe we have a hard time explaining what the issue is, especially in layman's terms, to people who may not know or may not have the wherewithal as well, as is naturally expected.

For the people, I think it's very important to us. What we're basically talking about is restoration of the eelgrass to its natural environment, or close to its natural environment or the way it was before. Restoring the area would bring back the migratory birds and also restore the ecosystem, as well as bringing back all the animals and the fish and the marine wildlife that were there.

We would like to have the governments honour their commitments. One of the commitments that were made in the James Bay

and Northern Quebec Agreement was that, subject to the principle of conservation, the Cree were guaranteed certain levels of harvest prior to the signing of the James Bay and Northern Quebec Agreement. We consider that agreement as our treaty with the governments, and those are protected by section 35 of the Canadian Constitution.

We would like to see the government and all the parties to that agreement honour that commitment. Maybe we can share some more geese with you once we have reached our guaranteed levels again.

I'd like to thank you very much.

• (0955)

**The Chair:** Thank you again for your presentation. It was very interesting. I'm sure the members of the committee have gained some knowledge of the concerns that you have raised, and we'll go forward from here.

We are about to hear from officials from the Department of Fisheries and Oceans and the Department of Environment on this particular issue, but we're going to take a five-minute recess now to clear the table and allow the next presenters to get ready.

Thank you.

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\_\_\_\_\_ (Pause) \_\_\_\_\_

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• (1000)

**The Chair:** We'll reconvene the meeting now.

I certainly want to welcome our presenters for our second hour.

Once again, I would ask that you take the time to introduce yourselves. My understanding is that Mr. Elliot will be giving some opening remarks, but before we do that, would you introduce yourselves in your capacity here, please.

**Mr. Richard Elliot (Director of Wildlife Research, Science and Technology, Department of the Environment):** I am Richard Elliot, the director of wildlife research from the science and technology branch of Environment Canada.

**Dr. Austin Reed (Scientist emeritus, Department of the Environment):** My name is Austin Reed. I'm a retired research scientist from the Canadian Wildlife Service, based in Quebec City.

[Translation]

**Madam Lizon Provencher (Biologist, Department of Fisheries and Oceans):** Good morning. My name is Lizon Provencher. I am a biologist at the Maurice-Lamontagne Institute, in Mont-Joli.

**Mr. Patrice Leblanc (Director, Habitat Protection and Sustainable Development, Department of Fisheries and Oceans):** Good morning. I am Patrice Leblanc, Director, Habitat Protection and Sustainable Development, here in Ottawa.

[English]

**The Chair:** Thank you once again for your presence here. Welcome.

As I said before, I understand Mr. Elliot will have some opening remarks.

The floor is yours, sir.

**Mr. Richard Elliot:** Thank you, Mr. Chair.

First of all, I'd like to emphasize that Dr. Reed is here with me today. Dr. Reed is a scientist emeritus with Environment Canada, and he is an expert on goose populations in northern Quebec and elsewhere in North America and their relationship with eelgrass.

Dr. Reed has provided much of the information on the technical side of things that are involved in my introduction, and he's going to be able to respond to technical questions relating to waterfowl and their linkages with eelgrass.

I'll be summarizing Environment Canada's information on eelgrass in eastern James Bay and its importance as a food supply for waterfowl. Much of this is a repeat of what you heard from the Cree presenters earlier on.

Eelgrass is an aquatic plant that occurs in large beds in shallow, relatively warm, sheltered coastal waters of James Bay, particularly in the areas of fine sediments, low tidal range, and moderate to high salinity. These eelgrass beds, as you've already heard, are very important in the coastal ecosystems of the bay. They provide shelter for the many small fish and invertebrates, food for many animals, and from our point of view they're important as food sources for ducks, Canada geese, and in particular brant geese.

Steve Curtis, who is a biologist with Environment Canada's Canadian Wildlife Service, was one of the first to survey the very productive eelgrass beds along the coast of James Bay in the early 1970s. The importance was identified before hydroelectric development took place on the rivers that flow into the bay. Later on, Hydro-Québec took responsibility for conducting quantitative surveys of eelgrass abundance in James Bay, and they used six permanent stations that were mostly close to the mouth of the La Grande River. This monitoring was undertaken initially in 1988 and was repeated most years until 1995. So it was the period after the first dams were put in place on the La Grande. These surveys identified that these coastal eelgrass beds were among the most productive in North America.

The monitoring undertaken by Hydro-Québec was repeated in 1999 and 2000. During this period they detected a severe decline in the amount of eelgrass present. Since then, a largely qualitative survey, as opposed to the earlier quantitative ones, was undertaken in 2004, and this indicated that eelgrass was still at low levels.

The causes of decline in eelgrass, from our point of view, in James Bay are not clearly understood. In addition to being vulnerable to changes in water levels, water temperatures, and salinity, as well as to the effects of human disturbance on sediments, eelgrass is susceptible to this wasting disease that Chief Pachano referred to earlier, caused by the slime mould *labyrinthula*. It's well known that outbreaks of this disease have caused eelgrass to decline significantly in other areas. Particularly, up to 90% of eelgrass was lost to

this disease on the Atlantic coasts of North America and Europe during the 1930s. However, to our knowledge, no link has been confirmed between this wasting disease and declines of eelgrass in the James Bay area.

Environment Canada has collaborated in publishing the characteristics of the eelgrass meadows and habitat use by waterfowl in 1990 and 1991, and Dr. Reed was one of the authors of these reports.

We're not aware of more recent quantitative information as a result of studies on eelgrass meadows, but there may have been some that we haven't been aware of, particularly in areas farther south than those being described by the Cree representatives in the earlier sessions.

I want to emphasize that our interest as Environment Canada focuses particularly on waterfowl use. James Bay is recognized as one of the most important stopover areas in North America for migrating geese and ducks. They pause here for several weeks in their spring migration from southerly wintering areas to their breeding grounds in the far north and again on their southbound fall migrations. While they're in James Bay, water fowl feed intensively in these rich coastal habitats to replenish energy reserves that allow them to continue their flights to the next stage of their annual cycle.

Eelgrass beds provide important food for several species of waterfowl, most particularly for Atlantic brant geese. Atlantic brant are small geese that are very closely associated with marine waters. They breed in low-lying coastal areas on the islands in Fox Basin, which is in Canada's central Arctic, and they overwinter in coastal New England, mostly from Massachusetts to North Carolina. They migrate through Canada, stopping at staging areas on the Quebec and Ontario coasts of James Bay, both in the spring and the fall, for up to a month at a time. Throughout their migration and their overwintering periods, Atlantic brant rely very heavily on eelgrass for food, although they do eat a range of other salt marsh grasses and sedges while they're on their Arctic breeding grounds.

•(1005)

Research undertaken by Environment Canada's Canadian Wildlife Service in collaboration with Hydro-Québec and members of the Cree community, mostly in the early 1990s, documented that almost all feeding by brant in the James Bay area occurred in eelgrass beds, and that almost all the food they consumed was leaves of eelgrass. Canada geese and black ducks—which you've heard mentioned already—also fed on eelgrass beds to some extent, but they weren't confined to those areas. And several sea duck species also fed on numerous small organisms harboured by the eelgrass ecosystem. Again, these observations have been published in reports that are available and have been co-authored by Dr. Reed.

There haven't been sufficient recent surveys to assess whether the number of waterfowl moving through James Bay has declined overall. Nevertheless, there is good information that large numbers of waterfowl species still do occur in the bay while migrating; and recent studies by Environment Canada and its U.S. partners indicate that the entire population of Atlantic brant moves through James Bay—although it seems that a higher proportion of migrating brant may now actually be staging, or spending their time in migration, on the western side of James Bay, in Ontario, as opposed to the eastern coast of James Bay, which would have been the area of concern discussed by the Cree representatives in the earlier session.

In closing, I want to refer to Environment Canada's role in understanding the situation. Through the Migratory Birds Convention Act, Environment Canada has the responsibility for the conservation of migratory birds, including waterfowl. In most of its research and monitoring activities, Environment Canada takes a partnership role with other organizations; we rarely do things on our own. We understand the importance of working in partnership. That involves the collection, interpretation, and the response to the ecological information. Environment Canada has followed this approach with respect to understanding the relationships between waterfowl and eelgrass and larger changes within the James Bay coastal ecosystem.

Although we have responsibility for the conservation of migratory birds, including waterfowl, the protection of most wildlife habitats falls under provincial jurisdiction. Our friends from DFO, the Department of Fisheries and Oceans, will be describing their role as a follow-up to my presentation. What this emphasizes to our department is the need for cooperative approaches to research, monitoring, and management of all components of the coastal systems of the bay.

In closing, I'd like to acknowledge the partnerships that my department, Environment Canada, has relied on with the Cree community, Hydro-Québec, the Government of Quebec, Fisheries and Oceans Canada, and several private consulting organizations, who together have been instrumental in understanding the ecosystem of James Bay, and eelgrass and waterfowl in particular.

Thank you, Mr. Chairman.

● (1010)

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

Do we have a presentation from Mr. Leblanc?

[*Translation*]

**Mr. Patrice Leblanc:** Good morning.

The eelgrass problem is a complex one and involves a number of groups, including Environment Canada, the Department of Fisheries and Oceans, the community, industry and the province. The Province of Quebec has a responsibility in this issue. Currently, there is very little scientific information on the eelgrass in the region, in terms of the fisheries and the impact on fish and fish habitat.

DFO does not have a research program on the eelgrass in James Bay. We are assessing various options to better understand the problem, including a study on the body of knowledge on eelgrass and Hydro-Quebec's monitoring program.

With me today is Lizon Provencher. She represents the science sector and can answer the more scientific questions. I represent the Fish Habitat Management Program at the Department of Fisheries and Oceans. We administer the provisions of the Fisheries Act that cover the impact of human activity on fish and their habitat.

We also administer and apply the Canadian Environmental Assessment Act prior to decisions being made regarding the Fisheries Act. We also participated in the Federal Review Panel for the Eastmain-1-A and Rupert Diversion Project. I think you all have copies of the response that we provided to the recommendations of the panel on Eastmain-1-A and the Rupert Diversion Project. That was done by our department.

Regional representatives could not attend this meeting, but if you have questions I cannot answer, I will make sure to obtain the information.

Thank you.

[*English*]

**The Chair:** Thank you, Mr. Leblanc, and thank you, Mr. Elliott.

Mr. Matthews.

**Mr. Bill Matthews (Random—Burin—St. George's, Lib.):** Mr. Chairman, I want to welcome our witnesses and thank them for coming.

Mr. Elliot, I've listened to your presentation, and of course Chief Pachano and his group's presentation, and I think a big concern in the chief's presentation was that Hydro-Québec was resisting providing the year-by-year monthly flows to enable them to investigate the matter further. Would Environment Canada have access to or be provided with the flows from Hydro-Québec, or have you found, as the chief has, that they're not really forthcoming on that issue? To me, it seems that is critical to identifying if indeed it is a contributor to the problem.

● (1015)

**Mr. Richard Elliot:** I understand your question.

My area of work within Environment Canada relates primarily to waterfowl and migratory bird conservation, so I'm not aware of whether other parts of my department might have been involved in trying to secure that information. I'm sorry, I really can't add to it right now, but we could track that down.

**Mr. Bill Matthews:** I probably should have asked the chief, because I'd like to know why Hydro-Québec is so resistant to providing the water flow information regularly. We know somewhat about the wasting disease, and the chief, by process of elimination, went through it pretty well for us. It just seems that someone should be able to access that flow information from Hydro-Québec. As an innocent bystander and a member of this committee, I don't doubt what I've been told. It would seem to me there's some reason they don't want to provide the flow information.

To you, Mr. Leblanc, from Fisheries and Oceans, you talked about your concern with fish habitat and protection of fish. Would DFO have any information from Hydro-Québec or be concerned about not getting regular flow reports from Hydro-Québec?

**Mr. Patrice Leblanc:** I'm not aware of any information that's provided from Hydro-Québec. Unfortunately, the representative from our Quebec region was unable to attend; he had two other commitments. I will find out whether we are receiving—I would assume we are—the flow regime or the flow discharges from the hydro development, given the fact that a section of the act enables us to assign minimum flow for fish.

I will check and get back to the committee on what we have obtained and if there are any conditions in terms of releasing that information.

**Mr. Bill Matthews:** I appreciate that.

Mr. Elliot, would you please give the committee the same undertaking from your department as Mr. Leblanc has given from DFO? If there's any information around or if there's been any problem from an Environment Canada point of view, would you be so kind as to advise the committee as well?

**Mr. Richard Elliot:** Yes, I will certainly look into that. What we might find is that Mr. Leblanc would report on behalf of both departments.

**Mr. Bill Matthews:** Well, whatever, that would be quite satisfactory.

Thank you very much.

**The Chair:** Mr. Simms is next.

**Mr. Scott Simms:** Just to add to that, who facilitates the relationship between Hydro-Québec and the Cree in this particular area? Are you directly involved in their consultations, in the process they go through to deal with each other?

**Mr. Patrice Leblanc:** With respect to the environmental assessment, the Eastmain-1-A environmental assessment, we would have been required to ensure that there was aboriginal consultation prior to our regulatory decisions under the Fisheries Act. But I gather you wanted a broader sort of answer, in terms of whether we are a go-between for Hydro-Québec and the aboriginals. I'll have to get back to you on that. I apologize, but I don't have a direct answer right now.

**Mr. Scott Simms:** No, that's okay. I thought you may know offhand.

Let me go to the issue of wasting disease.

Mr. Elliot, did you say that 90% of the eelgrass was lost? And was that in the 1930s? Did I get that right?

**Mr. Richard Elliot:** Yes, this was a major decline in eelgrass on both sides of the Atlantic Ocean in the 1930s, and it was directly attributable to wasting disease.

I think the Cree representatives mentioned earlier that wasting disease is always there at very low levels, but under certain circumstances it seems to take hold and have a severe impact on eelgrass populations.

**Mr. Scott Simms:** What circumstances would that be?

**Mr. Richard Elliot:** I'm going to have to defer to Dr. Reed at this point, but I think he may be able to respond to that.

**Dr. Austin Reed:** Yes.

I don't think it's well understood, the major decline in eelgrass that occurred in the 1930s, which, by the way, didn't affect the James Bay eelgrass beds; it was just the ones on the Atlantic coast. But there were studies done on it maybe 10 or 15 years after specialists on both continents examined the question. I don't think they've come up with a clear indication of just what single factor might have triggered the virulence of that disease during that period. But it would include all of the things we've been talking about here, such as changes in salinity, changes in sedimentation, and various ecological factors such as that. I don't think they've been able to single out any one, or a combination of two or three, factors that would have been responsible for that.

• (1020)

**Mr. Scott Simms:** So really, you say the wasting disease has been at a low level around James Bay, and that's always been the case, even in the 1930s. You're just talking about the devastation on the Atlantic coast.

**Dr. Austin Reed:** I think the disease wasn't well known before this major episode occurred in the 1930s. It was after this that they identified the cause of the decline at that time as being wasting disease. Since then, the plant has recovered partially over most of its range on the Atlantic coast and continues to fluctuate at various levels.

If the plant is tested in the laboratory, they find that the disease is still there, but at very low levels, so the potential for additional declines are there, when the conditions might present themselves again.

**Mr. Scott Simms:** So you don't see that as a major threat in the near future, obviously.

**Mr. Richard Elliot:** I think it's a consistent threat.

**Mr. Scott Simms:** Right.

Okay, I'm just trying to get a handle on it. So the wasting disease situation around James Bay is not all that crucial to them in the near term. Would I be safe in saying that?

**Dr. Austin Reed:** Well, I think our concern is for the well-being of the migratory bird populations that go through there. If the grass declines because of hydroelectric development or because of a wasting disease, it's essentially the same thing for us. We would be as concerned in one case as we would be in the other.

**Mr. Scott Simms:** Mr. Leblanc, do you have anything to add?

Then let me go back to the hydroelectric development. That's obviously the major concern right now. Back when the development started, what do you think was the biggest impediment to the eelgrass or the waterfowl populations?

**Dr. Austin Reed:** Prior to the setting up of the dams and the changes in water flow, the impression of specialists at the time was that those eelgrass beds were in very good health and continued to fluctuate at fairly good levels. According to the Hydro-Québec data, which is the only quantitative information we have, the eelgrass showed a decline only after a few years, after the final change in flow or the change in the structures of the dam occurred. As Mr. Penn has described, there has been a continued variation in the amount of water pumped into James Bay from those systems over the past several years.

I guess that was the information that the Cree felt they didn't have. But the major changes caused by putting in the two dams didn't have an immediate effect on the eelgrass, according to the quantitative data that Hydro-Québec gathered on eelgrass. It was only after a few years that a decline was noted.

**Mr. Scott Simms:** What was the major factor in the decline?

**Dr. Austin Reed:** I can't give you an answer. It could be one cause or another. The clearcut picture is that there was a severe decline, similar to the overall decline that occurred in the 1930s. You see this when you look at Hydro-Québec's data for their six stations near the mouth of the La Grande River.

There's another source of information on eelgrass, which comes from qualitative evaluations. Some have been done by the Cree people themselves, and others have been done by Hydro-Québec, which covers a larger part of the James Bay coast. But there are no quantitative data to confirm any changes that the qualitative evaluations would have provided. The only hard data we have pertain to the mouth of the La Grande River.

•(1025)

**Mr. Scott Simms:** Okay.

**The Chair:** Mr. Lévesque.

[*Translation*]

**Mr. Yvon Lévesque:** Everyone understands French. In Mont-Joli, you have to understand French. People in northeastern New Brunswick also understand it. Mr. Reed, you also speak French. For those who had doubts, it is reassuring to see that two departments can work together so easily and diligently, and that pleases me. It must also please the Cree.

I appreciate your expertise and training. Some people have lived in that area all their lives. They often mix with the Indian activists on both the east and west coasts. They get along quite well. Apparently, there is no eelgrass on the west coast of James Bay. It seems there is only sand and mud. According to them, eelgrass could be found mainly on the east coast of James Bay.

You all know that whitefish, which they can eat every day, can be found near those eelgrass beds. As is the case with white fish, the number of geese of different species is declining. Climate change also has to be taken into account. I went to meet them for the first time on June 23, 2004 and I had to wear a winter coat. They made fun of me. I returned in May 2006, with only a light summer jacket, which was quite comfortable. If I am not mistaken, the ice had already become detached from the shore, on May 20, 2006.

You have the scientific means to conduct studies, and that is what they are looking for. They want to have more information so they

can bring forward solutions and restore the natural environment to the state it was in prior to the James Bay development.

Given the number of recommendations that were made regarding the impact assessments of the James Bay development, did Hydro-Québec reject any of those recommendations before developing the project? If not, could you suggest measures to reduce, for example, the water flow that enters the bay and can disturb the river bed, destroy the eelgrass and, at the same time, renders the water murky, thus preventing the eelgrass from developing?

Did you make any recommendations? Could the two departments present Hydro-Québec with recommendations in that regard?

**Mr. Patrice Leblanc:** The panel made two recommendations on that issue. The first one recommends that Environment Canada, Hydro-Québec and the Cree establish an eelgrass monitoring program. I am not sure that there has been progress on that front. You would have to ask Environment Canada whether such a program was established. Environment Canada and the Department of Fisheries and Oceans should come together to consider a proposal for such a monitoring program.

As part of the authorization process under the Fisheries Act, we asked Hydro-Québec to conduct follow-up monitoring. That is to be done at the hydro-electric station, not in James Bay. The monitoring focuses on water flow and its impact on fish habitat. Hydro-Québec will have to submit a monitoring plan for the purposes of the assessment by the Department of Fisheries and Oceans.

•(1030)

**Mr. Yvon Lévesque:** Would you like to comment on the environment per se? Would you be in a position to make proposals if, for example, you find that the water flow is too strong, disturbs the underwater beds and reduces the light intensity, thus preventing the growth of eelgrass? Can the federal Department of the Environment present Hydro-Québec with recommendations to reduce the impact of the water flow?

[*English*]

**Mr. Richard Elliot:** My understanding is that I'm here to talk primarily about migratory bird populations, and that's really the extent of my personal scientific knowledge, and the same with Dr. Reed.

Our department is responsible for the Migratory Birds Convention Act, and that's really our primary area of interest, the conservation of the waterfowl that depend on these habitats. While we understand the importance of these habitats, we don't have the responsibility directly to respond to the need to manage those habitats. We can identify the importance of doing that and work with our partners in the Cree Nation and within the provincial government, because in most cases, the habitats that our birds depend on fall under the responsibility of the provincial governments.

We would be glad to partner with these agencies, but we're not in a position to take a lead role.

[Translation]

**Mr. Yvon Lévesque:** Ms. Provencher, you work at the Maurice-Lamontagne Institute where there are all kinds of modern instruments. Could you simulate the intensity of light in the water in James Bay to study its effects on the eelgrass?

**Ms. Lizon Provencher:** I certainly could not. That is something physicists do, but I am a biologist. Physicists could surely do that. I also think that there is a lack of data to explain the phenomenon. Among other things, we know the different factors that can affect eelgrass. They have basically all been named: turbidity, ice action, currents and salinity of less than five parts per thousand, which is insufficient for eelgrass. Temperature can also be a factor. All of those factors are important and must be monitored. We have no data on eelgrass salinity and temperature. We are considering a problem where the freshwater is at unusually high levels and contains many irregularities.

I think that those elements have not been measured. We spoke about wasting disease. This pathogen cannot survive in low levels of salinity. We do not even know the levels of salinity in the eelgrass beds. If those levels are regularly under 10 parts per thousand, then that pathogen is not present. It cannot survive in such a low level of salinity.

Therefore, a lot of data still needs to be gathered to link the possible causes and understand the physical aspect of the phenomenon, i.e., the various flow rates and turbidity levels. I would suggest you start with that.

**Mr. Yvon Lévesque:** I will now give the floor to my colleague, who is Ms. Provencher's MP.

**Mr. Jean-Yves Roy (Haute-Gaspésie—La Mitis—Matane—Matapédia, BQ):** I do not belong to her.

[English]

**The Chair:** There's time for one quick question.

[Translation]

**Mr. Jean-Yves Roy:** My question is a follow-up to that of Mr. Lévesque. From what I've gathered, the Department of Fisheries and Oceans does not currently have a program to study what you spoke about. Is that correct?

**Mr. Patrice Leblanc:** Yes.

**Mr. Jean-Yves Roy:** Could the Department of Fisheries and Oceans, at some point, propose that a program be created to study all the assumptions concerning eelgrass?

• (1035)

**Mr. Patrice Leblanc:** I would have to put that question to the scientists in another division at the department. I could obtain an answer from the science sector and forward it to you.

**Mr. Jean-Yves Roy:** The solution lies in increasing the body of knowledge.

[English]

**The Chair:** Thank you.

Mr. Calkins.

**Mr. Blaine Calkins (Wetaskiwin, CPC):** Thank you, Mr. Chair.

I certainly appreciate what I've heard here today. I'm going to ask a few scientific questions.

I'm curious about the eelgrass. It's a rhizome, is that correct? At the nodes on the rhizome stem, are there tubers or anything like that on this particular species of eelgrass or whatever is there?

[Translation]

**Ms. Lizon Provencher:** Indeed, eelgrass grows and extends through rhizomes, and for each rhizome, the stems grow out of the sediment. This is also a mode of propagation. Stems can grow by way of seeds and through the so-called vegetative propagation process, where the rhizomes extend within the sediment and expand the eelgrass surfaces. That is the most common form. It can also propagate by way of seeds, but the most common form is through vegetative propagation, i.e., through the spread of rhizomes.

Does that answer your question?

[English]

**Mr. Blaine Calkins:** It does. If you don't have the stems or the flowers coming up, you're not going to have the seed production. Therefore, if the eelgrass is going to come back, we could assume it is going to have to come back from the rhizomes that are dormant in the silt or in the soil underneath the water, the benthic part of the shallow water. I'm wondering, do we know how long these rhizomes can remain dormant and come back?

[Translation]

**Ms. Lizon Provencher:** That depends on the intensity of the disaster, if you will. For example, there was a major decline in the 1930s. The rhizomes were torn out or destroyed, and died out. It took about 30 years before they grew back. As well, we are talking about a very large area. There were no beds in the vicinity and no great likelihood that new seeds could be reintroduced into the area.

I really have no idea what is currently happening in James Bay. We do not know what the situation really is. Are there rhizomes dormant in the sediment? That seems possible because I heard that there were still some stems to be found. There probably still are rhizomes living in the sediment. If that is the case, it will take time to reconstitute the larger beds. The smaller the rhizomes, the more sensitive they are to the hydrodynamics. If there are strong currents or waves, then the eelgrass is located in areas with a very high flow characterization. Small rhizomes have a harder time settling and growing in areas where there is a lot of current. Once they have settled and gained strength, the process accelerates.

[English]

**Mr. Blaine Calkins:** Now I have a question dealing with migratory birds.

Mr. Elliot, you indicated that the brant and some of the migratory birds have moved to the west side of James Bay in search of forage. Do we have any information on this? Obviously this is putting some stress on the migratory birds as their typical migration routes are changed somewhat on their path to their nesting grounds and on their return to their wintering grounds. Do we have any information on whether or not this has affected the overall population?

**Mr. Richard Elliot:** We know that even geese like brant geese, which are tied to eelgrass, have some flexibility. As a result of that change in the 1930s, we know their overall migration pattern has changed significantly and has caused them to funnel more through the James Bay area. We know they are able to adapt and modify their migration habits.

We've looked into your question a little bit, and I will ask Dr. Reed what he and his counterparts, who have looked at the situation on the Ontario side, think may be happening.

● (1040)

**Dr. Austin Reed:** I think from time immemorial, the brant have used both sides of the James Bay coast. The information we do have going back, perhaps, to the 1930s or 1940s, or the kinds of anecdotal information available from then, suggests that the favoured areas were along the east coast of James Bay, where there are dense eelgrass beds. There is some eelgrass on the Ontario side, but we don't have good information on it; all we know is that it's far less abundant, or at least was far less abundant, on the Ontario coast. But there are other habitats.

Perhaps one of the big advantages of James Bay as a migratory stop-off area for geese is that there is a variety of habitats. Amongst the habitats available in James Bay, in addition to the eelgrass beds, is another habitat we call salt marsh meadows or salt marshes. There are patches of it along the Quebec coast, small pockets of it, and there are also huge pockets along the Ontario coast. The food the brant can get out of that habitat is the same food as they can get on their breeding grounds.

When they're on their breeding grounds, they are beyond the northern limit of eelgrass, so they don't have any access to eelgrass when they are breeding in the Canadian Arctic, but they do have access to the same plant that is growing on the upper levels of the tidal area near the eelgrass beds. So there is potentially an alternative source of food for them in these marshes. That could explain what we feel has occurred in the last decade or so, when the birds have tended to use the west side of James Bay more frequently than in the past, at the expense of using the Quebec coast of James Bay.

**Mr. Blaine Calkins:** Thank you.

My last question is a DFO-related question.

Obviously Hydro-Québec would have gone through all of the necessary permitting with the Department of Fisheries and Oceans for the river alterations, and everything else, from the hydroelectric projects. I'm assuming that during part of that consultation, or part of that process, there would have been pre-level biophysical inventories taken of fish species, their quantities, where they are present, and so on. Right now there should be some post-biophysical inventories of fish species populations, and so on, with the baseline data and the aftermath data.

I'm wondering who has that information. I think we alluded to it a little bit earlier, but is that information available through DFO, or who owns that information?

**Mr. Patrice Leblanc:** The baseline information collected for the environmental impact assessment or environmental impact statement under the EA process that we participated in would be found in the EIA, the document itself, and would be available to both Fisheries, Environment, and all members of the community. I assume it was provided during the panel review process. So the baseline information is one aspect of it.

Any conditions for monitoring would be within the confines of the authorization under subsection 35(2) of the Fisheries Act. We would have the plans that are supposed to be submitted by Hydro-Québec to DFO. They would undertake any follow-up monitoring required to assess the accuracy of the prediction, as well as the effect on any mitigation or compensation measures that we put into the approval process.

**Mr. Blaine Calkins:** My last question, quickly, is whether you had a chance to see this map that was presented to us in the first part of the briefing. It shows the status for eelgrass diminution and augmentation for 1987 to 1995. There were a few questions asked in the previous round of questions for our previous witnesses as to where this was in proximity to the river, and so on. I believe the answer we got was that this was about a 40-kilometre stretch of the east coast of James Bay.

My question to you is whether this is representative of the entire eelgrass situation along the east coast. Is there anybody here who can answer whether or not this is an actual representative sample of the eelgrass beds along the east coast of James Bay?

● (1045)

**Dr. Austin Reed:** My understanding is that this map covers the general area to the north and to the south of the entry of the La Grande River into James Bay. Is that correct?

I guess, as Mr. Penn said, it covers the area Hydro-Québec had projected the flume of fresh water flow would cover. In that sense it covers the area that might be affected by changes in flow out of La Grande River, but isn't necessarily representative of what might be happening further south along the coast, all the way down to Rupert Bay.

**Mr. Blaine Calkins:** Thank you.

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

Thank you to our guests. If either of our guests would like to make a closing comment, you have the opportunity to do so now.

**Mr. Patrice Leblanc:** No.

**Mr. Richard Elliot:** No. Thank you very much.

**The Chair:** Thank you once again. It's been an interesting discussion.

We'll take a two-minute break and then we'll come back to take care of a bit of committee business before we close.

Thank you very much.

[*Proceedings continue in camera*]











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