



Second Session, 38th Parliament

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REPORT OF PROCEEDINGS  
(HANSARD)

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SPECIAL COMMITTEE ON  
SUSTAINABLE AQUACULTURE

**Sointula**

**Tuesday, June 27, 2006**

**Issue No. 17**

ROBIN AUSTIN, MLA, CHAIR

ISSN 1718-1054



**SPECIAL COMMITTEE ON  
SUSTAINABLE AQUACULTURE**

Sointula

Tuesday, June 27, 2006

*Chair:*

\* Robin Austin (Skeena NDP)

*Deputy Chair:*

\* Ron Cantelon (Nanaimo-Parksville L)

*Members:*

Gordon Hogg (Surrey-White Rock L)  
\* Daniel Jarvis (North Vancouver-Seymour L)  
\* John Yap (Richmond-Steveston L)  
\* Gary Coons (North Coast NDP)  
\* Scott Fraser (Alberni-Qualicum NDP)  
\* Gregor Robertson (Vancouver-Fairview NDP)  
\* Shane Simpson (Vancouver-Hastings NDP)  
\* Claire Trevena (North Island NDP)

*\*denotes member present*

*Clerk:*

Craig James

*Committee Staff:*

Brant Felker (Committee Research Analyst)

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*Witnesses:*

Lynne Belfry  
Kate Brauer  
Carmen Burrows  
Robert Field  
Sue Hamilton  
Susie Jirik (Broughton Archipelago Stewardship Society)  
Jeff Jones  
Jennifer Lash (Executive Director, Living Oceans Society)  
Nick Orton (Coast Select Smokehouse Ltd.)  
Alexandra Morton (Raincoast Research Services)  
David Parker  
Kate Pinsonneault (Broughton Archipelago Stewardship Society)  
Teresa Tynjala



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D. Parker	
A. Morton	
C. Burrows	



MINUTES

# SPECIAL COMMITTEE ON SUSTAINABLE AQUACULTURE



Tuesday, June 27, 2006  
9:30 a.m.  
Upper Recreation Hall  
285 First Street, Sointula

**Present:** Robin Austin, MLA (Chair); Ron Cantelon, MLA (Deputy Chair); Gary Coons, MLA; Scott Fraser, MLA; Daniel Jarvis, MLA; Gregor Robertson, MLA; Shane Simpson, MLA; Claire Trevena, MLA; John Yap, MLA

**Unavoidably Absent:** Gordon Hogg, MLA

**Others Present:** Brant Felker, Committee Research Analyst

1. The Chair called the committee to order at 9:44 a.m.
2. Opening statement by the Chair, Robin Austin, MLA
3. The following witnesses appeared before the Committee and answered questions:

- |  |  |
|--|--|
| 1) Living Oceans Society                     | Jennifer Lash                                  |
| 2) Jeff Jones                                |  |
| 3) Robert Field                              |  |
| 4) Kate Brauer                               |  |
| 5) Sue Hamilton                              |  |
| 6) Lynne Belfry                              |  |
| 7) Broughton Archipelago Stewardship Society | Susie Jirik<br>Kate Pinsonneault<br>Nick Orton |
| 8) Coast Select Smokehouse                   |  |
| 9) Teresa Tynjala                            |  |
| 10) David Parker                             |  |
| 11) Raincoast Research                       | Alexandra Morton                               |
| 12) Carmen Burrows                           |  |

4. The Committee adjourned to the call of the Chair at 3:01 p.m.

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Robin Austin, MLA  
Chair

Craig James  
Clerk Assistant and  
Clerk of Committees



TUESDAY, JUNE 27, 2006

The committee met at 9:44 a.m.

[R. Austin in the chair.]

**R. Austin (Chair):** Good morning. I'd like to call this meeting to order. My name is Robin Austin, and I'm Chair of the Special Committee on Sustainable Aquaculture. I would like to take this opportunity to welcome you to the Aquaculture Committee's public hearings here in Sointula. I would also like to acknowledge that we are in traditional Kwakiutl territory.

It's a pleasure for us to be in your community and to hear directly from you on this important topic. For your information, today's meeting is a public meeting which is recorded and transcribed by Hansard Services. A copy of this transcript, along with the minutes of this meeting, will be printed and will be made available on the committees website at [www.leg.bc.ca/cmt/aquaculture](http://www.leg.bc.ca/cmt/aquaculture).

[0945]

In addition to the meeting transcript, a live audio web-cast of this meeting is also produced and is available on the committees website to enable interested listeners to hear the proceedings as they occur. An archived copy of the audio broadcast will also be retained on the committees website.

For the benefit of the presenters, let me also read out the mandate that this committee has. The Special Committee on Sustainable Aquaculture was reissued the following terms of reference by the Legislative Assembly on February 20, 2006: that the committee be empowered to examine, inquire into and make recommendations with respect to sustainable aquaculture in British Columbia and in particular, without limiting the generality of the foregoing, to consider the economic and environmental impacts of the aquaculture industry in B.C.; the economic impact of aquaculture on B.C.'s coastal and isolated communities; sustainable options for aquaculture in B.C. that balance economic goals with environmental imperatives, focusing on the interaction between aquaculture, wild fish and the marine environment. As well, we are to look into the regulatory regime as it compares to other jurisdictions.

The committee is to report to the House no later than May 31, 2007.

Today we have a number of people working with us. Adam Wang and Wendy Collisson are here from Hansard Services. They record what is being said during the hearing and then, as I have mentioned, produce a transcript on the Internet. From the Office of the Clerk of Committees we also have Craig James, the Clerk of Committees, as well as Brant Felker at the information table at the front of the room.

I would now like to invite the members of the committee to introduce themselves, starting on my right.

**J. Yap:** Good morning. I'm John Yap from Richmond-Steveston.

**D. Jarvis:** Good morning. I'm Daniel Jarvis, and I'm from the North Vancouver-Seymour area.

**R. Cantelon (Deputy Chair):** Good morning. I'm Ron Cantelon from Nanaimo-Parksville.

**C. Trevena:** I'm Claire Trevena, very proud to represent North Island.

**S. Simpson:** Shane Simpson, Vancouver-Hastings.

**G. Coons:** Good morning. Gary Coons, North Coast. I am from Prince Rupert.

**G. Robertson:** Gregor Robertson from Vancouver-Fairview.

**S. Fraser:** Good morning. I'm Scott Fraser, the MLA for Alberni-Qualicum.

**R. Austin (Chair):** Thank you, members.

Before asking the first witness to begin her presentation, I would just like to make it known again that we have extended the deadline for written submissions to the committee to October 31 now. The original deadline was July 1, and we had a lot of communication from people who said that it was not possible for them to produce something at a busy time of the year. Either tourism was getting in the way or fisheries or whatever, so we have extended that deadline until October 31.

I'd like to begin by inviting Jennifer Lash to make the first presentation.

### Presentations

**J. Lash:** My name is Jennifer Lash. I'm with an organization called Living Oceans Society, which was actually founded and is based here in Sointula, although we do work provincewide on a variety of different issues. I'd like to thank you for coming all the way to Sointula. I often describe us as the really big island behind Alert Bay that nobody knows about, so to have you here is really quite nice.

I'd like to start by saying that although it's great to have you here, the timing is a little bit off. This is a fishing community. The fishermen have been a very important part of this debate for 20 years — long before I got involved in it — and most of them are away fishing right now. We feel that they are a very important voice that needs to be heard, so I hope you will find a way to ensure that they can be heard at a later date, when they're able to be here.

Living Oceans Society started working in 1998. A lot of the people involved with the organization were involved in this issue from a long time before that, but I'm just going to talk about some of the work we've done over the last little while and our rationale for needing to completely change this industry.

As you're fully aware and can see from this map here, there are salmon farms around Vancouver Island. There are not very many on the north coast yet. I know that you heard quite a bit about that when you were up on the north coast.

I'm going to talk a little bit about some of the impacts we've felt here in the Broughton, but I don't want

you to think that this happens only in the Broughton. I'd like to say that we know about the stuff in the Broughton because we've got people who are acting as our eyes and ears out there constantly and watching it.

In areas where those eyes and ears aren't there, we don't know what's going on. To say that because there haven't been reports of different things in the Strait of Georgia or in Clayoquot Sound does not mean we can assume that it doesn't happen.

This is a map of the Broughton Archipelago. You can just see Sointula right here, where you are. Up there is Echo Bay, where I believe the committee went yesterday on a boat tour.

This is a remarkable part of the world. It's this cluster of islands. There are all five species of salmon. There are killer whales, humpback whales. I've been diving in a lot of areas throughout here. It has spectacular marine life. This whole area up here is considered one of the best temperate dive sites in the world.

[0950]

We've been dealing with problems from fish farms for a long, long time. You have to remember that we've been told constantly not to be worried. We've been patted on the head and told that it's fine. You've heard from some of the other presenters at other meetings about the salmon aquaculture review and the SAIAC and the ways that environmental groups have participated in the process around this.

We keep being told that it's okay, that everything can be controlled through regulations. I'm just going to demonstrate to you some of the experiences we've had here that prove that it can't be controlled through regulations.

This is a site. There used to be a farm right where this arrow's pointing there, the Eden Island farm. It's since been moved. In 1999 there were 30,000 Atlantic salmon that escaped from there.

Quite often we don't know about these escapes. They're not reported. I will admit that since 1999 industry has improved. They're reporting to some degree. But we don't know for sure, and their track record says that they don't like to. For example, when these escapes happened, they were found out when there was a commercial fishery opening and everyone was catching Atlantic salmon. Then all of a sudden the industry came forward and said, "Oh, we seem to have lost 30,000 Atlantic salmon," and we put two and two together. That sort of secrecy and that sort of impact is a real concern to us.

This arrow is pointing.... Just below there on the screen is where the Tsitika River is. Dr. John Volpe has done some research and has found the Atlantic salmon to be successfully reproducing in this river.

Again, people like to say that they haven't really taken hold, so it's not going to happen. Well, they told us they couldn't escape, and they did. They told us they wouldn't survive in the wild, and they did. We were told they wouldn't make it up the streams, and they did. We were told they wouldn't reproduce, and now we have evidence that they're reproducing.

The monitoring of these streams is very poor, so do we know how well the Atlantics are establishing them-

selves on the coast? No, I would say we don't know, and so to assume that they're not there is incorrect.

In 2001 there was a new farm placed in this area here — it's called Doctor Islets — right beside a seal haulout. One of the siting criteria is not to place a farm where you may get an increased amount of predators. They put a farm right beside a seal haulout, despite us continually raising our concerns that that shouldn't happen.

This is the area of the sea lice outbreak. This is where it started. Right around the yellow farm in the centre of the circle there is the Burdwood farm, owned at that time by Heritage and now by Mainstream.

The sea lice outbreak — we first discovered it in 2001 and worked endlessly to raise the awareness of the Liberal government about this, and the federal government as well. We were constantly told that there wasn't a problem, despite the fact that the evidence from around the world says that there is a problem. When you have fish farms, you have sea lice, and the sea lice cause a decline in wild salmon.

Interestingly enough, although in Norway they were constantly saying that there's a problem, here our governments chose not to pay attention to that, even though we have more wild salmon here than they do in any other part of the world where there is salmon farming. In Chile there are no wild salmon. In Norway there are much lower stocks. Here we have an abundance that, although sometimes struggling, is still quite incredible. So we should really be taking more caution, not less caution, in terms of this issue.

I know Alexandra will be presenting this afternoon and giving more details on the issue of sea lice, so I won't go into the science around that. She's far better qualified than I am.

It was in 2003 when we finally started to get some action out of the government on the sea lice issue. There were 11 farms fallowed. Industry only had to empty one farm to make those 11. It just happened to be a year when they had a lot of farms that happened to be empty on this migratory route. In particular, they had to empty one farm.

Shortly after they announced that they were going to fallow these farms to save the wild salmon, they put in a new farm at Humphrey Rock, which is right in the middle of the migratory route of the wild salmon. So we didn't feel that there was a commitment to conservation there and that the science was being taken seriously. In our eyes, it was very much a PR spin. It was an attempt to say that they were doing something while also giving industry what they wanted, which was a new farm. And they got it. Then the following year we had more fish in the water than ever before and greater pressure on the wild salmon than ever before.

[0955]

Finally, in 2002 up at this farm here, which is the Cliff Bay site, there was an outbreak of IHN, which is a disease. It does exist in the wild, but when you start to get a farm that's sick with one of these diseases, the concentration is very, very high.

The interesting thing about IHN is that it's extremely contagious. When a farm breaks out with IHN,

they go into special procedures. You have to wash your feet. A boat can't go from one farm to another farm for fear they're going to take that virus with them and contaminate another farm. They go into these emergency procedures that are necessary to protect their stock, basically to protect their investment.

There is absolutely nothing done to protect the wild salmon and herring that are swimming past that farm. It's impossible. You can't ask those fish to move. You can't change the migratory route of the wild salmon. The only thing we can change is where the farm is located.

This is a real problem. Quite often when we bring this up, we're told that it's okay because the salmon farming companies have procedures to put in place when they have these disease outbreaks. But they are only procedures to protect their investment. We really feel it's necessary that procedures are put in place to protect the wild fish, because that's very important to our ecosystem and an important part of our community here.

One of the things I'd like to emphasize here is that we can tweak the regulations of the open-net-cage system all we want. We'll be sitting here at special committee meetings and standing committee meetings, and there'll be demonstrations and protests for generations to come, because every time you try and tweak it and improve those regulations, something comes to make things go backwards, or more information becomes available of another problem.

This is a map that was created as a result of the salmon aquaculture review. In 2001 the provincial Liberal government said that they supported the recommendations of the *Salmon Aquaculture Review*. There were 49 recommendations. About 13 of those were siting criteria. They also lifted the moratorium and said that they wanted to see ten new farms every year for ten years, which would more than double the number of active farms on this coast.

At Living Oceans Society we had some data that the provincial government used in order to assess new applications. We took that data and mapped it against the siting criteria to see what areas actually were approved or suitable for salmon farming in the Broughton Archipelago. From this map you can see the areas that are darker red are extremely poor. You would have to go to white or the light blue, showing the water, to show where you could put one.

Of the 28 farms in this area, 27 contravene the siting criteria that were supported by the government. So we thought we had a very good argument to go to them and say: "We've got to change the way things are being done here." And they did. They changed the siting criteria. They compromised the health of the ocean in order to let industry have more farms. It was after we had shown them this that they approved Humphrey Rock and Bennett Point. They have also considered other applications that have been stopped due to public opposition, not because the government found any environmental reasons to oppose them.

My experience is that unless we actually make major changes to this industry, my children, who are going to be six next month, are going to be fighting this

campaign as well. I would rather not see that. I'd rather leave them a better gift, and that is the gift of a sustainable region. I'd like to see solutions that we can put in place that support everybody.

Salmon farming is an important part of some coastal communities' economics, and I, having lived in a coastal community for nine years now, a community this small.... Every job counts. It's important to keep our schools going, and it's important to keep our community going. So we have to find a way to ensure that there is employment.

The only way we can see salmon farming existing in a way that doesn't compromise the health of this community and does enable the health of communities that choose to have salmon farming is to meet these criteria. Basically, we need to develop technology that eliminates the risk of disease and parasite transfer to wild fish and the escapes of farmed salmon into the wild. We can't afford to go there. We have to stop these things from happening.

We need to guarantee that fish farm waste is not released into the ocean. We need to label all farmed fish so that consumers can make informed choices. Interestingly enough, that has started to happen on its own. Wild salmon producers know they have a better product, and they're labelling their product.

We need to develop fish feed that does not deplete global fish stocks. I know that's not necessarily an immediate environmental impact here in B.C., but we have to think of what our footprint is on the planet in order to make sure that we're managing this industry sustainably.

We need to ensure that wildlife is not harmed as a result of fish farming. We need to prohibit the use of genetically modified fish. We need to eliminate the use of antibiotics and biocides — which is another term; we would commonly call them pesticides — such as SLICE, which they use to treat the sea lice, and any other harmful chemicals that are used in fish farming. We need to respect the views of coastal residents by not locating salmon farms where first nations and other communities object.

[1000]

We think if these criteria can be met, then maybe salmon farming is sustainable. By setting that as a target, as a goal to get to, then we're starting to think creatively of not which side do we have to back.... It's not an either-or. It's not jobs versus the environment. It's about how we make sure our communities are healthy and our environment is healthy. We think that by meeting these criteria, we can get there.

Right now the only way we see of starting to meet these criteria is by going to closed containment. This picture here is of the SARGO system. It's the only photo I had on file. It's not necessarily the one and only solution. There are a lot of different alternative technology initiatives underway both in B.C. and around the world that we need to look at.

Farming in closed containment systems is not a new idea. It's actually happening in other parts of the world. It hasn't happened a lot with salmon. It's something that we need to test, but we feel this is the only

way to truly protect the wild fish and ensure there are jobs in coastal communities.

What we would like to see is the government seriously look at investigating the economic feasibility of closed containment and then going one step further. It's not just about seeing the economic feasibility. It's about identifying any economic obstacles and finding ways to overcome those obstacles. If there's a true vision from this government, we believe that we can actually get to a system that will protect the wild fish, but it needs that leadership.

One of the ways that we can start is by getting some commercial-scale closed containment initiatives up and off the ground. This is going to require help. But we think that — with the way this issue is polarized on this coast, working on a collaborative initiative where we've got conservation groups and industry working together with government to try and get some of these examples up and going — that we can actually get to a new place.

That's all I have to present. Thank you.

**R. Austin (Chair):** Thanks, Jennifer. We'll take questions from members.

**S. Fraser:** Thanks, Jennifer. You mentioned the salmon aquaculture review and siting criteria that were changed subsequent to your review of how effective they were. When was that done?

**J. Lash:** Now you're calling on my memory here. If I remember correctly, it's been a slow change of the criteria. It wasn't just one day they came out with revised criteria, but there have been a couple of different things.

First of all, the main one is things like habitat of rare and endangered species. Well, the killer whales up here are listed. They live all over here, so they've chosen to ignore that one. Really, it would mean that you can't put a farm anywhere up here because this is all habitat for killer whales.

Other ones are: how do you define critical fish habitat? You can change the definition of it. There have been some slow erosions of it over time. I think the other thing that's important to note on the siting criteria is that when we're asked to comment on a new application, we're asked to comment on the actual footprint and size of that application.

We can't talk about the fact there are three farms altogether and what the cumulative impact is on the region. We can't talk about the fact there are different species migrating past that farm that may be affected by it. All we can talk about is whether it is one kilometre away from the mouth of a stream, three kilometres away from a first nations reserve and those specific criteria.

**S. Fraser:** Thank you. We've heard lots about the far-field effects not being covered in the siting criteria. As you know, the Bennett Point tenure was approved during the early days of this committee. Have you ana-

lyzed that for how it rates according to the siting criteria — the earlier or later siting criteria?

**J. Lash:** I didn't actually handle that file specifically. A woman, Karen Sommer, from our office did, so she could probably give you more specifically. I'll make sure that we send in, in writing, specifically how that rated up against the siting criteria.

I know one of the critical problems with that was the issue of economic dislocation. One of the things is that you're not supposed to cause any economic hardship on a pre-existing industry. That area is one of the important areas for the shrimp trawlers from this community and from the north Island. They sent in their concerns, and I know — and I believe you may hear from some today — that they felt that their concerns were basically ignored. That's an example where the salmon farming industry's needs were put ahead of the needs of local people.

[1005]

**S. Fraser:** We saw that first hand yesterday on our field trip. There were shrimpers trying to get around that site. Thank you very much.

**C. Trevena:** Thanks, Jen. I've got a couple of questions. One is the issue of fallowing. Last night, when we were in Alert Bay, we heard people who are very concerned about the idea of fallowing, saying it really isn't going to help, because you're still going to have the salmon going through somewhere. It just doesn't work in the Broughton.

From what you've been looking at, do you think that this is one way of relieving the pressure on the system?

**J. Lash:** We've been advocating for fallowing as a band-aid. We think that to get to closed containment is going to take a lot of people working really hard together. It's going to take some really hard analysis and looking at the different kinds of technology.

In the meantime we need to take the pressure off the wild stock, and the only way we can relieve some of that pressure is by looking at some fallowing. It's not a solution unto itself, but it would be a band-aid, a way of taking some precaution and ensuring that our wild fish get out to sea safely.

**C. Trevena:** On closed containment, and we've seen... Obviously, there's the project that's going on down in Campbell River. That's one aspect, and we've heard about different ones. Has Living Oceans looked at any specific closed containment, or are you just talking about the concept of in-water closed containment? Is there any area there?

**J. Lash:** We work within a coalition called the Coastal Alliance for Aquaculture Reform. Some of our partner groups are the lead at looking at different technology, and I believe the David Suzuki Foundation presented on the Agrimarine initiative.

We've looked at the SARGO system. We've looked at the Agrimarine initiative. What we do is take our criteria that I read out to you earlier and measure the different ones that come available against these criteria. We've looked at the Cedar land farm and basically, depending... We're still unclear how they're going to treat the water that comes out of the farm and whether they can filter out bacteria and treat for viruses in the wastewater that's put back into the ocean. It's a bit vague, but I would say they address about 90 to 95 percent of our concerns, in theory, so we're very excited about them. But I'm not an engineer.

I think we need to get one up and going and actually be able to look at it and critique it, both in terms of its ecological effectiveness and its economic effectiveness.

**G. Robertson:** Thank you, Jen, for your presentation. A question on your recommendation around labelling. In my riding in Vancouver I hear a lot of confusion around farmed versus wild and about consumers in the city feeling like they have the right to know, and that there should be clear labelling of farmed fish rather than the assumption that it could be either.

I'm curious here, with local fishers, if there is a direct impact felt by that confusion — whether it's more difficult to market farmed product, get a better price, because of confusion in the marketplace between wild and farmed.

**J. Lash:** I would let the fishermen answer that more directly, because they would know better about marketing their product. But I do know in talking with consumers, which we do quite a bit of, that they're very confused. One of the reasons is that quite often it just says Atlantic salmon.

Most people don't know that there is no commercial Atlantic salmon fishery in the world. I gather there's one very small one in Iceland or something — not that the product would ever reach Canada. When people are buying fresh Atlantic salmon, they quite often think they're getting wild salmon, particularly in Ontario and on the east coast.

I think that honesty is important, and I think we need to label so that consumers are aware. I think that labelling would also give a potential opportunity for the wild fishermen, but again, they market their product better than I do — although I'm a pretty good spokesperson for wild salmon. I like to eat it.

**R. Cantelon (Deputy Chair):** We've been doing these visits, as you know, for a while now, and we haven't found anybody yet either who has mastered the science of closed containment. You mentioned that it's done in theory. I presume that you... Was it a SARGO system you had there? That wasn't one that was usable for salmon yet either — was it?

[1010]

**J. Lash:** Yup. It was designed for salmon. The SARGO system was designed in Washington State.

They had a prototype set up. Years ago, during the salmon aquaculture review, the salmon farming industry said: "We can't do closed containment." They have stuck to that. They have not looked at the examples, so they, in many ways, stopped the investment in some of this new technology.

If just one of those companies actually seriously sat down and said, "Let's check this out," then we could possibly start moving somewhere with it. But there's been pretty much a wall. The SARGO system has never had a commercial scale set up, but it was designed for salmon. The Agrimarine is trying to get a system set up now.

**R. Cantelon (Deputy Chair):** Yes, we visited with the Agrimarine people, and we understand that they're trying to make some progress in that. That was one that the Suzuki Foundation, of course, endorsed. However, it does have some limitations, as you know. That system, too, doesn't filter water in or filter water out, so any diseases can come in and can't go out, for example, and probably lice and other concerns.

There are theories, but no one's got one operational yet. But I presume, then, the end that you'd like to see would be removal of all the fish farms in the Broughton. Is that right?

**J. Lash:** What I would like to see is that the salmon farms go to closed containment, and I would like to see them located in areas where... For example, right now the farms are concentrated in the Broughton because the processing facility is over in Beaver Cove. So if we can locate closed containment systems near Beaver Cove and still keep that facility going for the processing, that's fine.

I just want to follow up on another point. I thought you made a very quick assessment there of the disease and the parasite issue with closed containment, and I think there's been a little bit more progress made on it than that. For example, when you pump the water into a closed containment system, you're pumping from depth, and you don't have the wild fish which have lice or, potentially, disease on them swimming right next to the farm fish, and so the chance of disease getting into the tank is much less.

If you look at the Cedar farm that Agrimarine runs, they've had very, very low, if no, outbreaks of disease, haven't had to really use antibiotics and haven't had sea lice problems. I agree that there are some things that we need to investigate in terms of the water in and out, but already the evidence is showing that there is far less chance of it.

**R. Cantelon (Deputy Chair):** Well, they haven't got their tank running yet, but that's the theory — that it would...

**J. Lash:** Right. But in the Cedar farm they pump water in. It's the same tank. It's just on land, not in the water. For years now they've been running one where they pump water in from depth. They raise the fish in

it, and then they pump the water out again. Those fish have been healthy. So there is some evidence.

**R. Cantelon (Deputy Chair):** Okay. Well, I don't want to digress too far into theories of filtration or not because I'm not a scientist either.

Of course, as you mention it, the logical thing then would be to move the tanks next to production. Then the next step, I would venture to suggest, would be that you move the production next to the market, which is not here. It's primarily in the United States.

How would you feel about the impact that might have on jobs? It would be logical then. There's lot of Seattle coastline or United States coastline. We would export technology, if indeed we developed it. Would you see that as a viable option or a useful thing or a trend?

**J. Lash:** What I would like to see is healthy communities and good economic development. Does it mean that salmon farming has to be a part of that? No. If it works here, then let's do it — if it works, and if the wild fish are protected, and if the marine environment is also protected.

I would also say that the salmon farming industry in B.C.... They are the same companies all around the world. It's Marine Harvest. It's Pan Fish. They've just gone through a really hard past five years, and they've been threatening to leave. They keep saying: "If it's any harder, we're going to leave. We're going to leave." They're still here.

The top three costs in producing farmed salmon are feed, transportation and labour. The labour costs in B.C. are very high. In Chile the labour costs are very low. But the transportation here is low, and the transportation costs in Chile are high. That's their advantage. There are many reasons why they could have tried to leave before, and they haven't. They're here. So I think that there's actually an opportunity.

Right now the Living Oceans Society and our coalition, the Coastal Alliance for Aquaculture Reform, are partnering with Marine Harvest. We have an agreement to investigate the economic feasibility of closed containment, and we're currently developing those terms of reference. They're willingly doing that with us. I would say that some leaders in industry are willing to go down that road, and we should take advantage of that and support that type of work.

**R. Cantelon (Deputy Chair):** Thank you.

**G. Coons:** Thank you, Jennifer. I just want to comment on your presentation on escapes. Before Atlantics came onto our coast, DFO indicated that, basically, they were not able to spawn and there shouldn't be any concern.

[1015]

The salmon aquaculture committee basically said that the chances are very limited and not to worry about it. But the Pacific Fisheries Resource Conservation Council, which is an independent body that advises public and governments, said in 2003 that the

extent that they can colonize, as you said.... The future is highly uncertain due to data limitations.

Just two questions. Do you know if there are any research projects going on looking at Atlantic salmon and spawning? And what is your opinion on the role of DFO with aquaculture and our wild stocks?

**J. Lash:** I could go on for awhile on that one. First of all, within DFO, I think they're operating in conflict. They've got a mandate to expand aquaculture in B.C. and a mandate to look after the wild fish. That to me is a conflict, and they should either be looking after the wild fish or trying to advance this industry, but not doing both.

Because of that conflict, I think that they're not investing in the research that they should be investigating in, such as: what is the impact of escapes, and what is happening with sea lice? I think that is a real problem.

There's not a lot of research going on, on escapes right now. The little bit of evidence that is there was done by a scientist, Dr. John Volpe. When his science was released, he was pretty much.... People tried to get him blacklisted from doing work. His funding was cut off. I'm sure he can speak better to his experiences than I can.

Because DFO is trying to do both — both manage the wild fish and promote aquaculture — they try and dismiss as quickly as possible any science that comes forth that's controversial, and they try to avoid facing that science. That's basically what they've done with the escapes issue.

**G. Coons:** One last comment. Jennifer, you started off by mentioning the commercial fishers and the concern about our meeting and that people were out trying to make a living. Our committee was invited to a meeting in Prince Rupert last Saturday of the commercial fishing fleet that's up there, and I attended. There were about 50 commercial fishermen up there. They asked me to bring forth loud and clear their concerns, especially their concerns about the wild stocks. So their voice was well heard.

Heather Orr actually asked me to bring forth a few words about her concerns in a letter that she has presented to our committee.

**J. Lash:** Great.

**D. Jarvis:** Thank you, Ms. Lash, for your report.

I was going to ask a question about escapement. You've mentioned that large one, back approximately seven years ago. On this tour we've had little or no mention of escapement. Is it safe to say that the problem has been rectified, or...? The salmon farmers are aware of it. They have 24 hours now, I guess, and they have to report or rectify the situation.

**J. Lash:** If they're reporting everything that's going on, there's no doubt that the number of escapes has gone down. That was not done willingly. Those precautions that they're putting in place were done be-

cause commercial fishermen, environmentalists and people from communities such as Sointula were raising the alarm bell on it. I think it's very important to note that industry didn't willingly improve their practices.

The other thing that's important is that even if the large escapes of 30,000 have gone down, there's this thing we're very concerned about that's very hard to track, which is what we just call leakage — that is, fish that just get out. You know, fish that are undersized can get out through the net at different stages. We don't know what that leakage is.

The way they tell that there's an escape on a farm.... I don't know if you're aware of this. It's very interesting. They put the fish in a tank, and they feed them. If the amount of feed that's consumed goes down, they assume there's probably an escape.

It's a very weak way of actually determining whether your fish are getting out, because unless your feed goes down enough that that registers, you can't necessarily tell if there are any getting out. Maybe there are 500 getting out. Maybe there are 100 getting out. Maybe it's continual leakage. So I would say that the monitoring is not very good.

We asked them to have increased numbers of times for the dives when they go in and check around the nets, monitoring. I think they're doing it once every six weeks now or once a month. We've asked for it every week, because sometimes there can be small holes in the net that they don't track, that they don't see right away.

The large escapes seem to have gone down, but that doesn't mean that the Atlantics aren't getting out.

**D. Jarvis:** Well, it's not the enforcement. The enforcement is working to a certain degree. You've got to admit to that aspect.

[1020]

**J. Lash:** Yep. As I just said, the number of large escapes has gone down.

**D. Jarvis:** But I was of the understanding that they were required even if they were, as you say, a small escapement of, say, 500. They have to report every situation if that didn't happen to rectify it — do they not?

**J. Lash:** My point is: when they know about it. They can have a small tear in the net, and if it's a month before their next dive-check, for a month there could be a small hole in there. Then they do — I mean, particularly Marine Harvest, who we've been working with the most recently — report it, but that could be a month of having a hole in there.

Also, this general leakage that has just happened isn't reported because they don't even know. The way you tell whether you've had an escape is the change in the food consumption. Well, if it's a slow leakage of fish getting out, you're not going to have that dramatic change in the consumption so that you can actually identify it as being an escape.

**S. Simpson:** Thank you very much for your presentation. A couple of questions.

First, we've been hearing — and we've heard some mixed messages — from folks around the issue of ocean ranching. Does Living Oceans have any position about ocean ranching, or have you looked at it as an option for a form of aquaculture?

**J. Lash:** Not a lot. I would say I'm not an expert on this, but in general this has been our position on it. I mean, ocean ranching is like large-scale hatcheries — huge, huge hatcheries. We're very worried, when you take that approach, about things like diluting the genetic variability within a salmon run. We've always sort of taken the approach that the small-scale hatcheries that look at enhancement — where they're looking at trying to maintain that genetic variability within the various streams — has a real role in enhancement. But looking at these very large ocean ranching initiatives could potentially be a problem because it's almost like a monoculture of wild salmon.

Having said that, I'm not an expert, and I would defer to people who have spent more time researching that issue.

**S. Simpson:** Second point. The discussion around escapes is interesting, because one of the things that we saw.... I think it was when ministry officials presented to us in Vancouver that we saw the escapes list. The number goes from in the low thousands — there were a couple of big years — and then 1,000 and 1,500. All of a sudden, in the last year, it just disappeared. It went down to ten, nine, eight, 20 fish.

At that point I know the question was asked: what's the explanation for this? Ministry staff didn't have an explanation for why those numbers had dropped so much — just in terms of saying maybe these are new practices that are great — and if they figured out why this has been so dramatic. One of the things that I know we are looking to find out is: how come those numbers have changed so dramatically?

I wanted to ask a question around this issue of closed containment. As Ron pointed out and as we all know — and, I think, as you pointed out — if we're going to look seriously at closed containment, there's an awful lot of work to be done around the issue. We need to go out and support some demonstration projects, whether it's an Agrimarine or somebody else and put it in the water or whatever, run it, test it, make sure that it's meeting environmental objectives and habitat objectives and that it works economically and then say: "Okay. Is this commercially doable?" Then how do we transition if, let's say, we find a successful model?

That's a couple of years at least to, first of all, see if it works, do the assessment and, if we're fortunate that we find a system that works, then to start looking at how you do the transitioning and what that means. What do you suggest we do in the interim two or three years while we're looking to find — if closed containment is where we decided to go — and do the due diligence on closed containment to make sure that we're

heading in the right direction? What do we do in those couple of years?

**J. Lash:** Well, we definitely don't approve of any new farms. Without a doubt, the more farms that the salmon farm companies have in the water, the greater their investment in open-net-cage infrastructure, the more challenges to transitioning to closed containment infrastructure.

That's going to be one of the big hurdles when they've invested in all that equipment. To have them invest in new equipment is something that we need to figure out how to do. We want to cap where that investment is at right now.

I think the other thing is that we need to look at following routes. We need to look at putting a cap not only on the number of farms but on the production. During the moratorium in the '90s, while there was a cap on the number of farms, production more than doubled. You're still putting way more fish in the water, so we need a cap on that. I think we need to be diligent with our regulations and be constantly trying to improve them and respond to any problems.

[1025]

What I don't want to see is millions and millions of dollars invested in tweaking the management of the open-net-cage system, because that's going to just drain money. Instead, we should be looking at trying to put that investment in the closed containment technology, where we get to real, viable solutions.

I think that if we have to invest millions and millions of dollars in studying sea lice, escapes and all these things and then put in all the regulations that are required to manage it, that's very, very expensive. It may be that the best, most fiscally responsible route is to look at a solution such as closed containment, where we don't have to do all that stuff any more, because we'll have fixed the problem.

**J. Yap:** Thank you, Ms. Lash, for your presentation.

In your presentation you had the 30,000 Atlantic salmon escapes in 1999 and the virus outbreak. In the course of your presentation, you talked about the difficulty of getting information. I think you referred to it as secrecy on the part of participants in the industry.

To some extent I can appreciate that from the industry's side there's proprietary information, but on our tours we got the impression that the companies are certainly aware they're under tremendous scrutiny from the public and organizations like yours. I think we saw that the level of disclosure is increasing. In fact, one company is publishing on its website some of its routine sea lice-count data, for example.

Would it be fair to say that encouraging or requiring salmon farming companies to increase their disclosure and to be more forthcoming would be one tool for improving the situation?

**J. Lash:** There has been a lot of secrecy. You're right. Has there been more communication? Well, as a result of a lot of the work that we've been doing, we are

in discussions with Marine Harvest, which has increased the communication with that particular company. It's been quite interesting, but talk is cheap. We can talk a lot about what's happening but unless we actually find a way to solve the problems, all the dialogue in the world isn't getting us anywhere.

I would love to be in a situation where we're in a much more transparent situation with industry, where we're really tackling some of the issues together. We're recognizing their economic needs; they're recognizing the conservation and the community concerns. But just saying that there's increased transparency doesn't assure you're going to that next step of actually addressing the issues.

For example, it's great that Marine Harvest is actually putting their sea lice numbers on the webpage, but they haven't done anything to stop that problem. They're just letting people know that they have sea lice and they're treating them.

It's the whole issue of monitoring — right? I always give the example that I'm a mother. If I monitor my children but don't take any action when they have bad behaviour, I'm not a good mother. If we just monitor the salmon farming industry but don't do anything when there are problems, we're not good managers.

It has to be more than just monitoring the industry. It has to actually be changing the industry. But improved communications would go a long way towards getting us there.

**J. Yap:** Okay. In terms of major incidents, you had on your slide the 1999 escapes and the virus outbreak in 2002. I think, if memory serves, that was the last major incident. So 2003, 2004, 2005.... You had not listed any others. Were there other major incidents that you tracked?

**J. Lash:** There have been outbreaks of sea lice every single year; 2001 was the year that we actually discovered or found it to be happening. There's been decline in wild fish in the Broughton every year since then.

In terms of disease outbreak.... Again, that's the one we know about. How did we find out about it? Because there's traffic on the marine radios that people pick up. There could be other things happening that we just don't know about.

**J. Yap:** When was the last disease outbreak?

[1030]

**J. Lash:** In the Broughton here? I would say that it was around the IHN time, but Alexandra could probably answer that better than I can, so I would leave that.

**J. Yap:** That was the one following 2002.

**J. Lash:** Yeah. That one was actually spread by the fish farm boat that was delivering the smolt. They went past a farm that had an IHN outbreak, and then the disease basically travelled up the coast as they went to deliver the smolts.

**J. Yap:** What was the response to that?

**J. Lash:** We took a tour of people out to Sir Edmund Bay because the disease spread to another farm called Sir Edmund Bay. On board that boat was an ADM from, at the time, MAFF. It was a farm of rotting, dead fish. There were bits of dead fish floating in the water, and wild herring were eating these infected fish.

He chose to look out the window of the boat that didn't look at the farm and not to look at it — and didn't do anything, basically pretending there wasn't a problem. Industry put all the precautions in place that they could to protect their investment. There was zero research invested in how it was going to affect the wild fish.

**J. Yap:** So a number of fish in that farm perished or were destroyed?

**J. Lash:** Oh, they all did. IHN is a terrible disease. They all just died. They were just being taken out in bucketloads. It smelled like a compost pit out there.

**R. Austin (Chair):** Thank you, Jennifer, for your presentation.

I would now like to call Jeff Jones to the witness table to make his presentation.

**J. Jones:** My name is Jeff Jones. I grew up on Vancouver Island in Campbell River. I went away to school and returned to the north Island in 1983. I'm a lawyer. I have a busy practice, and we operate in Port McNeill, Port Hardy and Alert Bay. I live in Sointula. I raised my family here.

During the last 20-some-odd years until two years ago, I was also the federal Crown counsel appointed to conduct fisheries prosecutions under the Fisheries Act in the north Island. During those 20 years I became very aware of industry issues and their impact on wild salmon, and many, many north Island individuals and small businesses were prosecuted when they ran afoul of the Fisheries Act.

I have become very interested in the wild fishery on the north Island from a number of different perspectives, and I have a number of comments I'd like the committee to consider. I'm glad the primary purposes of the committee were referred to today, because obviously that's what's guiding the committee.

Perhaps this has been mentioned before in other communities, but I want to particularly remind the committee that you're not the first to go down this road. It's important, and I'm asking the committee to perhaps consider putting this in your report. Prior to this process, we had the Pacific Fisheries Resource Conservation Council in Canada do a lot of very important work in relation to the wild salmon fishery and aquaculture.

As you probably know — and if not, I will be submitting copies of these documents in a written form — the PFRCC was created on September 18, 1998, in conjunction with the federal and provincial governments.

Its objective was to be an independent body that would provide strategic advice to ministers and the public on the conservation and long-term, sustainable

use of Pacific salmon stocks in their freshwater and ocean habitats in British Columbia. They would provide strategic advice regarding stock conservation and enhancement; habitat restoration, protection and improvement; and fisheries conservation objectives.

[1035]

We had the PFRCC created by federal and provincial mandate to provide scientific expertise to government about the issue of aquaculture, fish farms and wild salmon. In doing their job, as I'm assuming you may know.... I think it's important that the committee refers to the communiqué that the PFRCC produced in November 2002 directly to the Hon. John van Dongen as well as to the Minister of Fisheries.

They referred to the Broughton Archipelago fish farms and to the outbreak of sea lice in those fish farms. They said:

While scientific certainty is not absolute, European research does indicate that sea lice abundance can be associated with salmon farming. Given this evidence, combined with the presence of sea lice on Broughton Archipelago pink salmon smolts and the fact the decline in numbers was limited to Broughton Archipelago fish, the council believes that sea lice were associated with the decline observed in the Broughton Archipelago.

They then say:

Where there is a risk of serious or irreversible harm, the precautionary approach calls for action based on the best evidence available. In this Broughton Archipelago case, the absence of any evidence of some other cause than sea lice justifies action.

They concluded that the PFRCC considers the decreased numbers of pink salmon spawners to be a crisis. "Accordingly, we advise that all measures necessary to assist smolts' passage to the Broughton Archipelago without enduring sea lice infestation should be taken."

Government created PFRCC with independent biologists and scientists who looked at that data and said, "We have a problem," and a fallow route followed that. Now, if there was any doubt about whether or not the fallowing was correlated with the issue of sea lice, obviously there's a really easy way to conclude that. It would be to fallow them the following year, but industry and government refused to do so.

The cycle of pinks that went through that fallowing year rebounded. Obviously, a prima facie case suggested that was the issue, and it was solved by the fallow route. But to this day industry and the provincial Crown have refused to verify that hypothesis. There'd be a very simple way to do it. We probably wouldn't be here today.

The PFRCC has been ignored on this issue ever since, so the PFRCC is no longer influencing these decisions. Instead of the problem going away, however, the problem got worse, and this current government decided to deal with it. On December 14, 2004, Premier Gordon Campbell gave a speech and created the Pacific Salmon Forum.

He said:

The commercial fishery in British Columbia has been part of our province, certainly, since Europeans came. Actually, if you go back generation after generation, first

nations have made the fishery an important part of the life and culture along this coast for thousands of years. One of our critical goals and objectives in the present is to ensure that we have a long-term wild salmon fishery that supports not just our social infrastructure but our economic infrastructure as well.

[1040]

He said a number of other things, importantly — and I'll give you a copy of the document — about wild salmon. Then, with a \$5 million budget, he created the Pacific Salmon Forum. Its job was to provide independent, objective evidence to government and industry with respect to wild salmon and the aquaculture industry. They appointed John Fraser, ex-Minister of Fisheries, to be the chair of the Pacific Salmon Forum, and they hit the ground running.

In March of last year I attended a tour of the Broughton with Mr. Fraser. Members of the Department of Fisheries and Oceans were present; the province of B.C. and industry members were present. Mr. Fraser clearly stated that he had a concern that wild salmon were being impacted by fish farms in the Broughton. He had a great concern, based on the scientific evidence that he had been receiving. As you may know, since shortly thereafter, we have not heard anything further from the Pacific Salmon Forum.

I would ask this committee to inquire, if it hasn't already, of both the PFRCC and Mr. Fraser of the Pacific Salmon Forum, about their evidence that they would bring to this committee.

Now, on the one hand, it is heartening to see that we have the provincial and federal Crown taking a very keen interest in the welfare of an industry, the fish farming industry. They've created a government body to recommend how to improve and make this industry sustainable. They're offering Crown tenures to this industry to operate fish farms.

I can't help but recall, however.... Where were these policy-makers when the commercial salmon fleet in Sointula was broken up and destroyed? Where were these policy-makers when the Sointula fishermen had to sell their boats and licences and now no longer fish? Where was the concern for B.C.'s coastal communities and isolated areas?

I would ask this committee to consider if that is part of their mandate — to look at coastal communities and isolated areas, which is clearly the mandate. You can look at the role of wild salmon. What role did it play — and does it play to this day — in the impact of the economics in small, isolated communities? It has a very big impact, but there was absolutely no interest that we could see in the north Island when the wild salmon fishery was being dismantled. There was no interest by government to assist that sector, but there's a great interest in this other sector.

As a self-employed businessman working in the north Island for almost 25 years, I have noticed a very significant economic impact from the commercial salmon fishery in Port Hardy, Port McNeill, Alert Bay and Sointula. That has been a very significant economic generator for the north Island. Port Hardy's famous Filomi Days — fishing, logging and mining.... A third

of their activity was commercial salmon fishing and wild salmon fishery. Those wild salmon are still there, and if they're preserved, they are an incredible opportunity for financial activities — from commercial fishing to sport fishing to tourism.

[1045]

I would observe that the economic impact that I have seen in my communities from fish farming is very little. Unlike our forest industry and other industries in the communities I practise in, there is no fish farm company branch office. There is no head office. You don't see them involved in the charities, and you don't see them sponsoring baseball teams. They really don't have a presence. They certainly don't have a presence in Sointula.

It appears that the aquaculture industry is a newcomer to the B.C. coast. It is foreign-operated, and it is a big business. On the other hand, we can develop our existing assets, like our wild fishery, tourism, the first nations economy and activities. Those are all things that we can do. Or we can focus on basically being a branch plant to big industry. We can subsidize big industry and derive some form of economy from that.

One sometimes gets the sense that there are politicians in Victoria who think that we're maybe too stupid to run our own economy up here, that we need big business to step in and do it for us. I think they're wrong. I think we have the know-how, the energy and our own smarts to develop and use our own economy, and with that is to use our wild fishery and the other assets that we have. That would be my choice. Thank you.

**R. Austin (Chair):** Thank you, Jeff.

**C. Trevena:** Thanks very much for your presentation, Jeff. When we were asking Jen questions after her presentation and talking about regulatory regime and whether enough regulations, she made the analogy that a mother who monitored her child but didn't, then, take any action was a bad parent. Are we being bad parents?

A twofold question. Do you think that the regulations...? Are there enough of them, and are they enforced strongly enough? Or should we be looking into a different approach?

**J. Jones:** The Fisheries Act, which has normally been enforced to a T in the north Island.... Based on the evidence I've seen in the last two years — and I do hope you get a chance to talk to DFO — it appears that the Minister of Fisheries has, essentially, completely abdicated enforcement of the Fisheries Act when it comes to aquaculture.

I would submit that there appears to have been an agreement reached between the federal and provincial Crown to assign and abdicate the Fisheries Act enforcement to the province in exchange for promotion of aquaculture. That is going to be an inherent problem for both levels of government, because the federal minister cannot delegate its authority under the Fisheries Act to the provincial Crown. It can try to, but it is con-

trary to the constitution, and it's going to continually create a problem for them, as it is now.

It's my understanding that DFO has no idea what's going on, on these farms. They have not been tasked to investigate; they have, in fact, been told not to. There has been an arrangement reached, and DFO has delegated and abdicated its responsibility under the Fisheries Act. They've handed it over to the provincial government, which has decided to back this horse at all costs, and it has been a disaster because there has been no enforcement.

[1050]

If DFO was doing its job, the situation wouldn't be like it is today. They would've noted, for example, that each farm produces at least 50 million sea lice a month that escape — 50 million a month. That's a minimum, and that's been calculated by a professor in biology.

DFO would never let that happen if they had not abdicated their governance under the Fisheries Act. I submit that this committee has every right to inquire about that. If in fact it proves to be the case, then that is a very, very important finding and a very disturbing finding. Of course, if the federal Crown wish to do it, they can do it in open parliament. You take the political heat for making those decisions, and that's what we do in a parliamentary democracy. But you don't do it behind closed doors. It's wrong. If they wish to do it, then they would have that debate in parliament, and it may or may not result in that decision occurring. But in fact it's been done behind closed doors, the evidence appears to disclose.

DFO says they do not know what's going on, on these farms. When I think of the cases where we charged resorts that weren't counting fish, fishermen who were 25 feet over a line, that is astounding and very disturbing, and it's one of the reasons why I became very concerned about this. I did not think that DFO could permit this kind of activity until it became apparent that they no longer have jurisdiction.

Jurisdiction has been ceded over to the provincial government, which essentially is promoting aquaculture, so there's no interest in enforcement. They don't see that, obviously, as their goal, and that is incorrect.

**C. Trevena:** One very quick follow-up. Do you know of any prosecutions of industry at any level for infringements of regulations?

**J. Jones:** To my knowledge, DFO has no mandate to investigate any violation of the Fisheries Act by fish farms. The enforcement branch is not welcome, and they have no authority or permission to investigate any possible offences under the Fisheries Act. This committee can determine if that's the case. Has there been an MOU, a memorandum of understanding — which, apparently, there has — and has there been abdication by the Minister of Fisheries?

This committee can ask those questions and answer them as much as possible. If that's what has happened, that would be a very grave concern for the public, because it's circumventing parliamentary democracy. It's also endangering our wild fishery.

**R. Cantelon (Deputy Chair):** Thank you, Jeff, for presenting your concerns. I'd like to ask a question about the jurisdictional issue you raise. You say evidence appears to disclose. You're saying that there is something that has happened that hasn't been disclosed, wherein the authority has been transferred to the provincial jurisdiction for enforcement on fish farms. Is that what you're saying?

**J. Jones:** Well, that's what it appears to be.

**R. Cantelon (Deputy Chair):** That's what it appears to be.

**J. Jones:** That's what it appears to be. You would have resources, and you have a budget, so I'm hoping that this committee will inquire into that. But it appears that the federal Department of Fisheries and Oceans is not charged with monitoring fish farm sites for the possible violation of the Fisheries Act. Instead, there has been some arrangement.

I think it's fairly common knowledge that the province was to have created a regulatory regime, and it would then supervise and manage the fish farm sites and supervise and manage compliance. But that compliance is from a provincial viewpoint, not from the Fisheries Act viewpoint, and the compliance has become significantly developed by industry working directly with the province.

[1055]

They do meet in secret. I mean, they meet privately, and none of their evidence is disclosed to the public. That is a fact. No one's going to suggest otherwise.

**R. Cantelon (Deputy Chair):** If I may continue. So your knowledge of this would be coming from the fact that you used to be, or perhaps still are, a Crown prosecutor on behalf of the federal government. Do I understand that correctly? You no longer are doing prosecutions because I gather that you see the authority has been ceded to the provincial government. Is that how you come to that conclusion?

**J. Jones:** No, no. Well, I'm no longer a Crown because of completely different reasons. A couple of years ago I changed some of my business practices, and it had nothing to do with this matter at all. I enjoyed doing fisheries work for 20 years, and I enjoyed doing enforcement work. We essentially declined to continue doing that particular work for various other reasons and nothing to do with this at all. This matter came up afterwards.

In my work and investigations in this matter, it does appear that there has been.... The Ministry of Fisheries, federally, has abdicated its responsibility of the Fisheries Act with respect to fish farms, and I'm inviting the committee to investigate that. Of course, if that's not true, well, so be it. But I think you will find, if you review the matter with DFO, that they are not permitted on these sites, and it is not their business to investigate.

**R. Cantelon (Deputy Chair):** If I may just comment rather than question, we have become aware that it is an area of joint jurisdiction, and there certainly seem to be overlaps, but I gather from your voluntary disengagement from the prosecution end that you may not be aware that there is a significant regulatory regime, starting in 2002, that's been put in place by the provincial government.

The comments we have from the industry and from other people are that the regulations are, by international standards and by comparative standards to what they were, very strict and stringent. But perhaps you haven't become aware, and there are now, of course, provincial enforcement officers and a provincial enforcement branch which do indeed inspect and enforce regulations on fish farms that are provincial regulations. Have you heard of those?

**J. Jones:** Yes, I'm aware of what you're referring to. I would simply say this. When Alexandra Morton's research became public that there was the kind of problem we saw in the Broughton, I was astounded at the lack of curiosity by DFO.

To this day DFO consistently takes the view that there must be some other explanation. This is a very surprising reaction from an enforcement regime that has the ability to get a search warrant and appear on premises within 24 hours and do so on a regular basis in other industries. It's very, very surprising — the lack of curiosity by DFO.

**R. Cantelon (Deputy Chair):** Thank you.

**G. Coons:** Thank you, Jeff. It's interesting that you brought up that PFRCC. The first time I came across it was in the book *Salmon Farming: The Whole Story* by Peter Robson, and I mentioned it earlier with Jennifer Lash in the PFRCC's response to escapes. But following their concerns about the Broughton, they made recommendations back then that the entire Broughton industry should take a combination of following and monitoring. The government did, in late 2002, get the sea lice action plan, where there was mandatory monitoring and certain trigger levels for SLICE treatments.

One of our concerns here is how our regulatory regime compares with others such as Norway, etc. I'm just wondering if you have any opinions on the government sea lice action plan for the Broughton and how it compares, or what your thoughts are on that.

[1100]

**J. Jones:** Well, to the extent that the province of B.C. has come out as an advocate supporting fish farming, obviously they have an inherent conflict of interest. The more that they're advocating a particular industry — and might I say, at the expense of the wild salmon fishery — the more difficult it is going to be for standards to be enforced and to walk through that inherent conflict they have. On the one hand, they're supporting, yet ostensibly they're also supposed to be regulating.

That's why we have the Fisheries Act. That's why the minister can't delegate it to a province. Notwithstanding their attempts to do so, we have the Fisheries Act. It is the policeman of the resource, and never the twain should meet. That's how we have most other industries, whether it's a commercial salmon fisherman or it's a resort. There are lots of provincial incentives and regulations that encourage commercial salmon fishermen and resorts to conduct their business, and the Fisheries Act is separate. If you violate it, you're prosecuted.

Really, it should be no different with fish farms. B.C.'s regulatory regime, by definition, is probably always going to be inadequate because of that conflict of interest. It's why we don't do it anywhere else. Ultimately, it's why this delegation by the minister may be found to be unconstitutional. This committee has every right and should be addressing that issue, because this is a legislative committee about whether or not things are being done properly in Canadian law.

**G. Coons:** Thank you for presenting and taking time out of your busy day.

**J. Yap:** You made reference to, I think I heard you say, 50 million sea lice from each farm — that there was a study done by a biology professor. I wonder if that's a study you can refer to us. It's not one we're familiar with. If you could give us that reference, that would be helpful. I'm not sure if you have it right now with you.

**J. Jones:** I don't have it with me, but Alexandra Morton certainly is aware of the study. If she can't provide it, I can get a copy. I have seen a copy of it, and I have spoken with the scientist who conducted the study.

**J. Yap:** Who was the scientist, just for our information?

**J. Jones:** I don't have that right in front of me, but I did speak with him.

**J. Yap:** If we do need a copy of it and if you could provide it to our Clerk, that would be tremendous.

**S. Fraser:** Protecting the wild stock is certainly — I think I can speak for all of us — near and dear and important to all of us. You asked a somewhat rhetorical question in your presentation about where the policy-makers were when the fleet was being decimated or when the wild fishery was in trouble. It has been suggested that the policy-makers were at the helm of that. Just a comment.

You raised an issue about the forum — John Fraser, of course — and that you were involved with a field trip up the Broughton with John Fraser during that. They're still at it, by the way. They have not completed yet, and we have been in contact with them. We're actually trying to fill in some gaps so that we don't reinvent the wheel here. We are in contact with them, just for clarification.

In what capacity, Jeff, were you involved in the work with John Fraser? You said you were with him and you spoke with him here in the Broughton.

**J. Jones:** A number of north Island people were invited to attend that trip, and I was one of them. I was on the vessel, but I was not in any other capacity with Mr. Fraser except to the same extent everybody else was. He was there, and I heard him speak. Members of the Department of Fisheries and Oceans and the Ministry of Agriculture and Fish were there, as well as industry members.

That's why I'm simply reciting the fact that this government created yet another forum, and it appeared to me that when they didn't like the message, we no longer heard from that forum.

[1105]

I would be curious as to whether or not Mr. Fraser had any concerns about the reception he received from this government when he started expressing his concerns about wild salmon. That's what my point was.

**S. Fraser:** Thank you very much.

**R. Austin (Chair):** Shane has a final question.

**S. Simpson:** Yep, one last question.

Thanks very much for the presentation. This question refers back to, I think, the core point of your presentation, when you were talking about responsibilities and whether DFO, in fact, is fulfilling its responsibilities and what agreements may have been made between DFO and, I guess, what's now Agriculture and Lands.

You spoke about a memorandum of understanding that was there. I'm just looking for any additional information in relation to that. If we're going to go looking for this memorandum of understanding.... I'd be very interested to see it if it's there. I'd be very interested in any other comments you have around this memorandum of understanding which may have encouraged the province to play the role it's been playing in the last few years at the diminishment of the role of Fisheries and Oceans — around their responsibilities around enforcement.

**J. Jones:** Yes. I believe there had to be some form of agreement between the federal and provincial Crowns. It is the only explanation that explains the behaviour of DFO, because normally they're very interested in any enterprise that involves fish. For them to, essentially, have a hands-off attitude is not something that any particular enforcement officer would choose to do on their own. They work in a line of command. There's a chain of command.

I don't think this is particularly a complete secret, but I suspect that there were political discussions between the federal government and the province of B.C. about aquaculture and its role and whether the province was going to pursue and back aquaculture as an economic engine. They attempted to reach an understanding with the Crown, and then they acted on it. I

think it's very clear — by the behaviour, for example, of the provincial Crown — that they've taken the responsibility to answer anything that comes up about aquaculture.

They don't say: "We don't do enforcement." They don't say: "How would we know that? Go ask DFO." They will attempt to answer every matter that arises, because they've assumed jurisdiction of it. Now, whether or not it's a written MOU, I don't know. But I'm suggesting that it is the only hypothesis that explains the evidence.

**R. Austin (Chair):** Thank you very much for your presentation, Jeff.

We now have a period here of time slots set up for an open mike to enable community members to come up and express their opinions. I would ask that people please limit their presentations to a few minutes to enable as many people who would like to speak as possible. If you could give your names to Brant there at the front of the room, then that would help us along.

The first person who'd like to come up to the open mike is Robert Field. I'd welcome Robert up to the witness table here.

**R. Field:** My name is Robert Field, and I'm not used to doing this sort of thing. I'm an artist. I grew up in Vancouver, but I've lived for the last 30 years on Malcolm Island.

I just want to briefly talk about salmon and culture, and it's a very personal view. I might speed-read. In British Columbia all is right with the world as long as the salmon return each year to their rivers to spawn. I was six years old when I caught my first big salmon.

[1110]

I was asleep in the stern of a little clinker-built boat that my father had rented from Smitty in Gibsons Landing. My arms were wrapped around a small steel rod and a reel that held 15 feet of heavy Cuttyhunk line. Tied to the end of the line, bouncing around in the prop wash, was a six-inch brass diamond spoon which had never caught anything. That's when the 12-pound coho struck and came shooting out of the water, but I held on for dear life. My father, sensing that I was about to be yanked overboard, grabbed the line and hand over hand hauled the surprised fish into the boat.

A couple of years later, after a day spent trolling off Point Grey, my father stopped at a library on the way home. He got me my first library card. Then he searched through the stacks and pulled out a book. "You'll like this," he said. It was *Return to the River* by Roderick Haig-Brown. He described in that book how our fast-flowing mountain rivers and streams aren't as nutrient-rich as slower streams in other parts of the world.

It is the return of the salmon each fall and their deaths that provide the nutrients essential for the life of the stream and for the next generation of salmon. As I grew up fishing in the ocean and along rivers, watching the salmon spawn and die, I became aware of the other animals who shared that world with me. There were eagles and bears, coyotes, mink, raccoons, otters, water ouzels, kingfishers, cormorants, mergansers,

caddis flies, Dolly Varden, cutthroat trout and many more. I was part of a very complex community who all depended on the salmon.

One hot August day as we drove through the Fraser Canyon, my father stopped near Lytton to talk to some native people. The wind was scorching hot. They were netting sockeye salmon in a back eddy of the river. As I watched, they cleaned and then split the fish open, scored the flesh and hung them on high racks until the air dried them tough as jerky. When I was going to high school, a friend and I would catch the PGE Railway north and hop off at the Cheakamus River, where we would set up camp on a sandbar.

In the fall the bright shallow riffles were always full of spawning dog salmon, while in the larger pools big springs would swim slowly around. Cutthroat trout and Dollies waited downstream for salmon eggs to come floating past.

Another summer I got a job on a seine boat. It was the Adams River year. We first met the bright silver greenback sockeye off Pulteney Point, just here. For the next few weeks we followed the schools down Johnstone Strait and into the gulf. I jumped ship and followed the salmon upstream, hidden in the murky Fraser River until they reached the clear Adams. It always amazes me when the salmon first appear in a river. Like a trumpet blast, suddenly there is life.

That was the year they opened the Roderick Haig-Brown Conservation Area. I watched the schools as the fish spread over the bottom. They had transformed themselves. They were no longer silver. They had green heads with long white and black jaws, and crimson bodies, but they were still full of life, and they fought to spawn. Within weeks all the thousands of fish would be dead, as the cycle continued and renewed itself.

Then I went to art school for a year. One winter day the school's custodians were on strike, so I decided to drive up past Squamish to the Cheakamus River again. When I arrived, the river had dropped, and the trees were hung with salmon carcasses in their branches. All along the riverbank in dry back eddies, schools of hollow-eyed salmon lay covered in a thin layer of silt with just a sprinkling of snow. They were like a vast sculpture. They spoke to me.

The next week I went back with a bag of plaster of Paris, and I began making moulds of spawned-out salmon. When I cast them in latex, they became perfect replicas of the original fish. Usually within four years the latex itself rotted away, so they were following the life cycle of the original salmon.

A year later Alvin Balkind, who is curator of modern art at the Art Gallery of Ontario, arrived on my doorstep. He wanted to see what I was doing. When he saw the fish, he immediately offered me a show at the AGO, and I said no. I said: "Why would you want to show my fish?" He said: "Because they express something universal — the struggle for life and then procreation, the struggle to live, procreate and die."

I thought about it for a few days, and then I accepted his invitation. "How will you display them?" he said. Well, by hanging them on a rack. So they were

reborn to relive their drama in the rooms of the Art Gallery of Ontario next to the huge Henry Moore collection.

[1115]

The Vancouver Art Gallery offered me their main room for a show. I decided to re-create the spawning bed that I had seen after the river dropped. I filled a space with sand and gravel and leaves, and then arranged on it big spring salmon, chums, coho, sockeye and pinks in varying stages of decay. I made moulds of the whole thing, cast it in latex and hung it as a huge bas-relief on the gallery wall.

Luke Rombout, who is the founder of the Canada Council Art Bank, came to me, lamenting the fact that I'd cast it in an impermanent material. It would be one of the two most important sculptures in the collection of the art bank, he said — not bad for a washed-up school of salmon from the banks of the Cheakamus River. There is so much they can teach us and all the more reason to be outraged that one human miscalculation — one boxcar in a river — can wipe out the struggle of thousands of generations of salmon.

The French government invited me to display my sculptures, mostly salmon, at the Biennale in Paris. People were fascinated by the spectacle of a salmon run. The curator of one of Norway's largest galleries came to me and said: "We have salmon in Norway, but they do not seem to be part of our culture." I gave him a big spring salmon to take back to Norway with him.

His point was reinforced a while later, when I met a Norwegian who had just come to B.C.'s fledgling aquaculture industry. When I asked if he had ever caught a wild Atlantic salmon, he replied: "Once, in a river on a rod and line, and then we dynamited the pool."

Fourteen years ago Trout Unlimited in the United States was extremely worried about 214 native populations of wild west coast salmon that were threatened with extinction. They asked if I would illustrate a scientific article for their magazine *Trout* showing the life cycle of the salmon and some of the creatures that impact them. If I were redoing those illustrations today, I would definitely show a net pen, along with a young salmon carrying sea lice.

When I leave here today I'm going to paint in a small boatyard down near the breakwater. Since 1917, 600 boats have been built in that boatyard — some small skiffs, trollers and gill-netters, all the way to a 64-foot packer whose construction employed 19 men for a year. The ways are still working today as the fishing fleet prepares for another season.

Everyone is anticipating the return of the salmon. We depend on the wild Pacific salmon returning to their home rivers each year to spawn. They are part of our psyche, our economy and our culture. We must protect them, or we will lose much more than salmon.

**R. Austin (Chair):** Thank you, Robert.  
The next person is Kate Brauer.

**K. Brauer:** My name is Kate Brauer. I've lived in Sointula off and on for about 35 years. I've been a

commercial fisher-person. I wasn't going to speak today. I waffled back and forth for weeks and weeks when I heard about this meeting here today.

When I did call, the speaking time was filled. I thought: well, great; others can get to the mike and say all the stuff, and I don't have to say anything. Then I heard there were five-minute spots. I thought: well, five minutes; that's good, because that's about all it takes. But again, I got disheartened, and I thought: oh, jumping jiminy.

Here I am now. I left the room earlier for a minute. I drove through town, saying: "You know, no one has signed up for the open mike. Some speakers that are on the speakers list may not make it. How about it, people? Do you want to come up and say something to the panel or something like that? Here's sort of the gist of my drive through town. The whole thing was: what's the point?"

There have so many commissions — you've heard this before — so many chances to speak. So much input has been given. So many recommendations have been made and not acted on. People are really so disheartened, disgusted. You name it. They're just: "You know, I'm not going up there. I'm not doing that. I'm not interested."

It's clear that when they speak about the balance of economics and the environment and so on, that scale is way tipped. That train's left the station. It's clearly tipped so heavily towards these fish farms, as we saw in Jennifer Lash's presentation, that I'm sorry to say that a lot of the community is just....

[1120]

I'm sorry that you're the questioners, or we would be asking you: why do you think this committee is so different? What do you think you can accomplish that no one else did? More power to you, because I'm here and I'm speaking. I'm not here to discredit. I'm pleased that somebody is trying, somebody is caring, but I want you to hear the message that there's not a lot of faith. Faith is just not there.

I know there are some people in the hall today who were here years and years ago. I burned the files years ago. I think it was 15-some years ago; I'm not sure. Quite a few of the salmon farming companies of the day were here, B.C. Packers among them. There were four or five of them. They sat where you're sitting now, and the hall was filled. This was when the fishermen had been catching these escapees. That panel said: "Well, you must be mistaken." Four generations of Pacific salmon fishermen were mistaken, they didn't realize.... They were catching Atlantic salmon, and they knew it. So they were being dismissed even then.

At that point, at the end of the meeting, I remember standing up and asking, particularly the B.C. Packers guys: "What is your interest in fish farms? What percentage of B.C. Packers is invested in fish farms?" He was quite smug in saying: "We're a private company. We don't have to disclose that." There's no transparency. This thing has been going on for quite some time.

I didn't prepare a speech. I think I may have covered it there. Action is the key word for me here. What is the action? It's not about putting new words on the

paper or something like that. It's about getting some action going, getting some alternatives going. Yes, as the Liberals were pointing out, maybe they should move somewhere else. But either way, we need to get on it and get some action.

**R. Austin (Chair):** Thank you, Kate.

I'd now like to ask Sue Hamilton to come up to the mike.

**S. Hamilton:** Good morning. This is totally off the cuff. I just learned about this 20 minutes ago, I would say. Someone was driving by and told me about this. It wasn't Kate, but I would agree with Kate in the respect that there is incredible apathy towards this at this stage of the game.

I have somewhat followed it over the last 20 years. I started commercial fishing in 1973 out of this town. I worked my own gillnet boat at one period of time and then also worked a seine boat. As I've watched what's happened to the industry in the last ten years, it's broken my heart and actually broken the backbone of this town. That certainly is not all due to fish farming, but it has had its effects.

The reason I say that is.... When I started fishing, there were conservation efforts being made in the mainland on fishing humpies, pink salmon and that, where we did not fish them. I sat on committees where we discussed things with Fisheries about setting up different — you know, if you don't fish this point, we don't catch this species.... There was a real camaraderie that went with Fisheries to try to do conservation efforts. At that point it seemed like a real working team. Those stocks were rebuilding, and at one point we actually got a fishery back in there.

Then fish farming came along. Before it came along, several fishermen out of this town, out of their own pocket, organized and went over to Norway and talked to scientists there. They came back with a lot of scientists' points of view about disease and the problem with having aquaculture on this coast. This town had campaigned at that point against aquaculture, and I believe it certainly still stands. Some of the things that the fishermen were warning about have come about. Now, obviously, the sea lice problem over in the mainland is quite large and has affected the fish. Those stocks are again in serious trouble.

[1125]

A short little story here. At one time I was over in Russia. They were farming sturgeons, and their fish farming was done in causeways. They'd pump water in and did this whole thing. Why we don't have that kind of standard for fish farming on this coast I don't quite get. Yes, it's more expensive to do, but....

You know, there's a guy here in town who has a piece of property that he is changing into a campsite. He's an old fisherman. He's changing it into a little campsite now in order for him to have seven spots. He might hope to have maybe 100 visitors a year. In order for him to do that, he has to put at least a \$40,000 investment into a septic system just to have seven spots for tourists to come and visit. The amount of pollution

out of seven spots — and that's his investment — I somehow don't think would even have the same environmental impact as one fish farm. Yet the little guy here has to put that out.

There are inequities. If there's talk about more fish farms going in on this coast — I'm not totally up on what's been going on in the last few years — I would say there is no question that this town stands against it.

I'm sorry that the few fishermen that are still here in this town, surviving at this point, are up in Rupert trying to eke out a living and couldn't attend this meeting, because they're into the season now. Anyway, that's what I'd like to say.

**R. Austin (Chair):** Thank you, Sue.

I would now like to call Lynne Belfry to the witness table, please.

**L. Belfry:** Good morning. In March of this year I witnessed a number of people from all walks of life and from numerous countries of origin become Canadian citizens. Judge Brown officiated, and in her remarks she spoke glowingly of the number of opportunities that would now be available to these new Canadians. As we sang *O Canada*, yes, I got choked up, because with the words, "True North strong and free," it stirred up in me concerns around the salmon aquaculture's influence on west coast living.

I moved to this west coast community two years ago. I'm over 50 years old, and I have chosen a radically different life for myself. I lived in Calgary for 13 years before moving here, and before that I lived and worked in rural Ontario. I was part of a farming family. The motivation to take such a risk at this point in my life was to live in a place with milder winters; an intimate community; the environment of ocean, wildlife, bush and rock; and, strange as it may seem, the history of this community.

The roots of this community include the value of meaningful work being more important than monetary wealth. This core value speaks to me of the essence of building a country and community where there still thrives a true north strong and free. It is a value I choose to live by and support. I am dismayed then, when it appears as though the Legislative Assembly wishes to build a sustainable aquaculture by sacrificing this lifestyle, the vocation and the freedom to choose fishing wild salmon. I have observed that the salmon farms are being built closer and closer to known salmon-spawning streams.

[1130]

Having been part of land and livestock farming in Ontario, I've already seen the demise of the family farm. I know that when one is farming plants or livestock, disease happens. The environment is impacted; it's a reality. To farm thousands of Atlantic salmon in contained space is not that much different than a feedlot for cattle. The pigs are farmed that way, and they're kept contained. You've heard about what happens when there's disease, and everybody has to wear special clothes to go in. That's the same with farming pigs in a contained area.

When disease happens — and as I said, it's bound to — it spreads quickly. We only have to look at SARS and the bird flu to see how quickly disease spreads globally. Antibiotics in the human and animal realm may help the population they are fed to, yet they can easily become destructive to the greater environment. This is only common sense. I'm speaking as Josephine Blow on the sidewalk. Antibiotics can kill the bacteria in human beings if we've got disease, but they also kill the helpful bacteria in our gut that helps us nourish ourselves.

I'm reading research that indicates sea lice have increased along with the number of aquaculture setups. The sea lice are affecting the wild salmon. This is one of those inevitable diseases that is bound to happen when so many salmon are being penned in a confined area in the ocean. The task at hand, in my view anyway, is no longer where the blame lies, but what are salmon aquaculture, DFO and the wild fishing industry going to do about the parasites?

The escaped Atlantic salmon are bound to impact the ecological balance of the Pacific coast. Replacing the sea otter on the west coast of Vancouver Island after a century of eliminating it through hunting has impacted the fishing industry as it's been replenished for the people in the Kyuquot area. They've become the enemy to the fishermen.

Everything is interconnected. Introduce one new life form, and it changes the balance of everything. History shows us that to introduce plants and animals into new environments frequently has detrimental effects — the rabbits in Australia, the broom tree here in British Columbia. Escaped Atlantic salmon will bring environmental changes. Maybe we're just not familiar with them yet. History has taught us that much surely.

The only option I am aware of that will guarantee that no Atlantic salmon escape the aquaculture pens is to create and use land-based pens.

I've had the great privilege and thrill to be on the west coast as the humpback whale has been seen. It was thought they'd been eliminated, hunted right out. How long can the humpbacks find feed that nourishes them before the fish farm antibiotics and growth hormones impact the west coast environment? What will happen to the orca, which feed on wild salmon, if the wild salmon are wiped out? Each species carries with it its own proportion of nutrients. Pacific salmon and the west coast orca are a fit. It is unknown, to me anyway, how long it would take for the orca to adapt to a new source, if possible, should the wild salmon cease to exist.

As a smaller independent fishing industry fails due to unrealistic and burdensome regulation, many north Islanders and some Malcolm Islanders, as Sue just mentioned, have been turning to ecotourism and tourism to make a living. The salmon farms in these waters affect everything, from cedar growth to grizzly bear feed to the orcas. I'm afraid that by focusing on the sustainability of salmon aquaculture, we will inadvertently abandon what resources we already have. I am afraid that we as Canadians are contributing to the

extinction of the Pacific salmon and thus other salmon-dependent species.

[1135]

What is the Legislative Assembly doing to create the sustainability of the ocean on the west coast? Restrictive regulations continue to impede family fishing industries from being able to make a living. Trolling, the most conserving mode of fishing, from what I understand, is getting the least fishing time. They're having to pay this year for fish that are caught out of season instead of releasing it into the wild.

Now if one wanted to develop a conspiracy theory, one needs to compare the growing restrictions on the wild fisheries with the lessening of restrictions on salmon aquaculture and the large fishing conglomerates. In my mind, it is time that the Legislative Assembly appears like it is dealing fairly with all fish-related industries if conspiracy theories are to stop.

Along with loggers, independent fishing people have been the core of this particular community of Sointula for almost a century. To choose to fish for a living, whether it be trolling or by trawler, gill-netter or seining — notice the newcomer knows the terms — has been part of the west coast version of contributing to a true north, strong and free.

Families have been fed and sustained by the various species of salmon and whitefish. Fishing families have risked their lives as well as their finances in choosing this vocation. You're welcome to visit our memorial on the wharf.

Fishing is a proud heritage for a community to have, and it is not for the overcautious or the weak of heart. Those who choose fishing need to get to know the ocean, the weather and the fish they hunt if they are to be successful at feeding their families as well as earning a living. There is a connection to the planet that occurs when one lives off the land and the ocean that can be attained in no other way. Having lived in the city and now here, I can vouch for that. It is an honour to be able to choose to live among those who make that kind of choice.

Socially, this community of Sointula is facing the challenge of being a harmonious, working-together community as well as maintaining one's own sense of independence and individual truth. We all believe the right way is our way. With the coming of the salmon farms the opportunity to choose fishing as a vocation and lifestyle is being eliminated quickly.

The Gillnetters Association produced an educational video 15 years ago called *Such a Full Sea*. In it they describe their participation in Pacific salmon hatcheries, the cleanup of known salmon spawning streams and, consequently, taking the ecological balance of this area personally.

It is a full sea no longer. Focusing on the increase of salmon farms has put at risk the life forms of this ocean.

I want and ask our Legislative Assembly to invest as much labour, time, research and public relations in keeping our wild fishing industry sustainable as it is investing in the salmon aquaculture. To keep the fishing industry sustainable is to keep the oceans healthy. It means that policies are needed to foster a healthy

balance between the wild and the domestic fish industries for food sources and economics.

I ask the Legislative Assembly not to betray the heritage of the family and independent wild fishing industry and to take the legislative steps to make the land and ocean that we call home a priority. Without the health of our land and ocean, British Columbia's economics will disintegrate because we're resource-based. Our social structure as we know it will become obsolete, part of history, extinct with the dinosaur.

I'm asking you, as the ears of the Legislative Assembly, to consider the factors that make a strong British Columbia — realities such as a healthy ocean and an economic system that has room for the wild fisheries and aquaculture.

[1140]

I ask for a clear set of just and fair legislative policies that enhance and recognize the contributions of all fish industries. One is interrelated to the other, and there are ways to encourage everyone to succeed.

I still maintain a spirit of hope. I ask that the Legislative Assembly cultivate the possibilities and choices required to live out the freedom that we sing in a national anthem. Sustaining wild fisheries and aquaculture fairly, responsibly and with attention to the environmental details is the only way to live the reality of a true north, strong and free.

**R. Austin (Chair):** Thank you, Lynne, for your presentation. I think your words spoke for themselves. There are no questions. Thanks a lot.

I'd like to invite Susie Jirik and Kate Pinsonneault.

**K. Pinsonneault:** I'm Kate. This is Susie. We're both involved with a group called the Broughton Archipelago Stewardship Society.

Both of us have lived out in the Broughton Archipelago for decades now — Susie for about 30 years and me for just over 20. Like many residents, we've witnessed some huge changes over those years that have negatively impacted our coastal life, our environment and our economy and have left communities grieving and families struggling.

Through it all, there have been numerous studies, public and scientific forums, government inquiries, stakeholder meetings and so on, which many of the people in this room will have participated in. These have resulted in identifying problems facing the aquaculture industry and in making some sound recommendations to governments.

We know that the industrial farming of Atlantic salmon in Pacific inshore waters has been plagued with problems. Many agree on what needs to be done, but one main barrier we face but have not effectively addressed is the fact that we have a federal government that is strongly committed to expanding salmon aquaculture on this coast and is moving forward — despite the advice of their own scientific advisers and regardless of the environmental impacts, the consequences to our fisheries and tourism sector, and the effects on coastal families.

I know you're here today to hear people speak on sustainable aquaculture, but I've come with a view that this is really a myth. How can Atlantic salmon farming be considered sustainable when we have a government working diligently to expand aquaculture at an industrial scale using high-density, open-net cages in order to compete in a failing global market?

We already know that industrial aquaculture is not, and cannot be, sustainable. So what is meant by sustainability? Our government of Canada accepted the definition outlined by the World Commission on Environment and Development. It states that when development is sustainable, it "meets the needs of the present without compromising the ability of future generations to meet their own needs." The Webster dictionary defines sustainable as "capable of being maintained." When I asked my computer's thesaurus for synonyms, it gives "continue, carry on, uphold, maintain, preserve, keep, retain."

[1145]

When something is sustainable, it is able to be kept in balance. It is maintained at a level where it can continue without causing harm. A sustainable endeavour is stable yet able to adapt to business or environmental fluctuations without changing its basic structure and practices or compromising safe practices.

If governments were truly considering salmon aquaculture as a sustainable industry, it would not be planning wide-scale expansion and enabling industrial growth and development with the goal of being "a world leader in aquaculture production." It would be using the precautionary principle, following the recommendations of the PFRCC, supporting independent scientists and field researchers and working to limit the negative socio-economic and environmental impacts of this industry.

Our DFO is not interested in maintaining sustainable practices. It is committed to working with industry and provincial governments to enable the widespread growth of the aquaculture industry. To illustrate the federal objectives concerning aquaculture, here are a few quotes I've taken from DFO documents.

DFO will support aquaculture development.

To help position the Canadian aquaculture sector to achieve its full developmental potential, DFO, as the lead federal agency for aquaculture development, must be willing and able to assume an enabling role. This role demands that DFO be creative, solution-oriented and focused on understanding the needs of, and building strong relationship with, representatives of the aquaculture sector.

This policy framework explicitly affirms DFO's recognition of the aquaculture industry as a valued DFO client group.

Canada is striving to create conditions necessary to realize the full potential of aquaculture. Creating enabling conditions for aquaculture development is the responsibility of all DFO sectors and regions. DFO has committed itself to being both an enabler and a regulator of aquaculture development.

The federal aquaculture development strategies were the product of extensive consultation with aquaculture stakeholders —

nobody else, mind you

— and provided a roadmap to help government facilitate the development of the aquaculture industry. As lead federal agency for aquaculture development, DFO is committed to helping increase the global competitiveness of the Canadian aquaculture sector. Although industry is responsible for its commercial success, DFO does have an important role to play in addressing key impediments to the aquaculture sector.

This one is my favourite.

DFO's role is to facilitate the attainment of industry's goals. Achieving DFO's vision of aquaculture development will require a continued reorientation of departmental values within DFO's existing mandate and a firm commitment by all DFO's employees to enable aquaculture development. This is of fundamental importance in achieving DFO's vision for aquaculture development.

DFO will encourage provincial and territorial governments and stakeholders to begin working together to identify regional aquaculture growth objectives and areas for aquaculture development. Canada is striving to create the conditions necessary to realize the full potential of aquaculture.

DFO will enable the development of the sector, stimulate aquaculture growth and development, make strategic investments in aquaculture, support the future development of the aquaculture sector, play an important role in aquaculture development and strive to create an enabling regulatory framework for aquaculture development. DFO will develop management approaches and invest in initiatives designed to improve DFO's ability to support aquaculture development.

The list goes on. Those were some of the highlights.

[1150]

It is clear that the decision has been made that we as Canadians will enable industrial aquaculture, support multinational corporations in meeting their growth objectives, invest in aquaculture and will expand and develop this industry. Obviously, our government's interest and commitments are not in sustainable fish farming.

We had sustainable aquaculture back in the '80s. These were small-scale, locally owned and operated farms. A large salmon farm had 30,000 to 50,000 fish. But independent farmers were soon driven out of business and replaced with industrial practices. With salmon farms ranging in size from a few hundred thousand to a million fish and more, product prices plummeted, and disease and parasite problems continued to plague the large, densely packed fish farm operations.

With the encouragement and support of our government, salmon aquaculture has now grown into an agribusiness industry that is trying to compete on a global scale with low-wage, sparsely regulated operations in Chile and gigantic European producers in Norway and the U.K. The industry's troubles are the hallmark of all industrial-scale agriculture operations that sell into a world market.

Rather than supporting sustainable aquaculture on a regional or national level, our federal government made the decision that Canada would compete on a global scale, but this structure requires significant expansion of the industry. Not only has this corporate expansion left companies and governments facing a brutal economic reality imposed by a commodity mar-

ket, industrial production of finfish, like that of any other densely packed feedlots, brings with it serious environmental and food-quality issues.

As these farms grew in size and density, local residents became witness to the impacts. I have watched as fish farmers have culled the fish infected with IHN virus. I helped remove diseased Atlantics infected with furunculosis from the creek in Scott Cove. I've watched schools of out-migrating juvenile salmon dying from sea lice infestations while the birds feasted on their emaciated bodies, and I've counted up to 63 sea lice on a juvenile pink smaller than my little finger.

I have listened to gunshots while bored farmers killed otters, herons and seals for something to do. I was there when the orcas could no longer follow the fish into the Broughton because the acoustic harassment devices were so loud and painful they could not bear it. I've seen methane bubbles percolating from the waste below the farm in Sir Edmund Bay. I've seen clam beds that are black and smell of decay and death. I've worried about the increased algae blooms.

While governments are well aware of the negative impacts of industrial-scale aquaculture, they continue to work to enable the unsustainable growth of this industry, but continued expansion has become a major challenge. A problem now arises with where to locate these huge floating feedlots. Ideally, farmed fish need sites with strong tidal flush, high oxygen levels, cool temperatures and no naturally occurring algae blooms. The companies also want the farms to be protected from storms.

The problem is that there are not many ideal sites for such large operations, and finding appropriate locations has become a major challenge for both government and industry. One of the major problems with siting large open-net-pen farms is that all the waste from the industrial operations is discharged directly, untreated and undiminished, into the marine environment.

This waste is made up primarily of fish feces, urine and waste feed. For every tonne of salmon raised, 200 kilograms of solid waste is produced, most of which is feces. The liquid waste is completely unaccounted for, and this is substantial. A small fish farm producing perhaps 500 tonnes of salmon a year discharges about the same amount of nutrients as a town of 5,000 to 7,500 people, according to *State of the Environment Norway*.

As with most human activities, Mother Nature can absorb and recycle waste products at a certain scale. However, on a large scale the recycling becomes difficult if not impossible. Eventually nature's caring capacity is overloaded, and the environment becomes degraded. Habitat is lost, and biodiversity and productivity follow.

[1155]

The organic matter that settles on the bottom builds up, forming bacterial mats that deplete oxygen and kill the little critters that live on and in the bottom sediments. They are the base of the marine food chain. These bacteria create the conditions under which hydrogen sulphide gas forms and is released into the water column. It is toxic to fish.

Both the solid and liquid waste from fish farms contain high levels of nitrogen compounds. Like phosphorous in fresh water, nitrogen fertilizes a marine environment, creating algae blooms in the water. When these blooms die, the decomposition process uses up oxygen, robbing it from marine species that need it to live. This is called eutrophication.

DFO research has revealed that where salmon aquaculture sites are most dense, the area is eutrophied and has suffered a measurable loss of biodiversity. Other signs of eutrophication in fish farming areas include the loss of seaweed and seagrasses and the presence of nitrogen-fed, fast-growing algae.

A recently published study demonstrated that under eutrophic conditions, elemental mercury, which is relatively inert, changes to methyl mercury, which is quickly absorbed by animals, creating mercury accumulation in the marine food chain.

This is exactly what is now happening in the Broughton Archipelago. A local study published April 19 in *Environmental Science and Technology* revealed elevated levels of mercury in rockfish living near salmon farms. Rockfish were sampled near salmon farms in the territories of three first nations, and research data showed elevated mercury levels in rockfish only near farms. Levels were up threefold at some of the study sites.

Elevated mercury levels were attributed to food-web changes near salmon farms. The small fish and invertebrates eaten by rockfish contained mercury levels via waste feed and fish feces and through the action of bacteria, which transforms the elementary mercury to methyl mercury.

Scientists have also found that only 10 percent of all solid waste under the fish farm actually remains within the farmsite. The vast majority drifts off-site. Monitoring programs that measure oxygen and sulphide gas levels under the cage sites routinely find levels at which 60 to 90 percent of the different species found in the sediment are wiped out.

Corporate fish farmers are interested in producing as much fish as possible at the lowest possible cost. Salmon aquaculture is only viable economically as long as our government continues to allow companies to discharge untreated waste directly into the ocean.

While the U.S. and European countries have put regulations in place to restrict or prevent fish farm sewage from entering the marine environment, the Canadian government, with its enabling policies, continued to allow the salmon farm industry to discharge untreated waste, resulting in polluted waters, loss of marine biodiversity, coastal dead zones and a contaminated marine food chain.

Our governments have acknowledged that these farms are operating beyond the capacity of their sites, but rather than reduce the size to ensure that the impacts are lessened, they have instead bowed to the wishes of the industry and issued more sites so that the farms can move when bottom conditions get dangerous for the farm fish.

Now farmers are travelling from site to site, creating more and more dead zones. This is what has been

happening in the Broughton. Essentially, this pristine wild area has been saturated with industrial aquaculture operations. We now have the highest density of fish farms in B.C. and as a result, are now in year six of the biggest sea lice epidemic to ever hit the west coast.

Our salmon runs are in crisis, with some runs now on the brink of extinction. There are numerous dead zones and increased algae blooms. Disease outbreaks still occur, with unknown consequences to the wild fish. Through all this the governments have done nothing to protect our wild stocks. Not one remedial action has been taken. Not one recommendation has been followed.

[1200]

As I said earlier, our biggest problem is our governments' commitment to aquaculture expansion. Just when we thought that things could not get any worse, our enabling governments recently decided to allow another multinational corporation to farm the waters of the Broughton Archipelago. With no more appropriate sites available, they allowed a new farm to be situated in an area well known as sensitive wildlife habitat. It is a location where no responsible farmer would consider placing a finfish operation.

Like many residents, I was so very disheartened to hear that the province and DFO allowed another foreign-owned company to operate an industrial-scaled, open-net Atlantic salmon farm in an area with such rich biodiversity and which is so blatantly inappropriate for salmon farming.

With all the opposition expressed by conservationists, first nations, tourism operators, fishers, biologists and local residents, no one believed that this very unique and environmentally sensitive area would ever be granted government approval for aquaculture. But politics being what they are, approval was given to allow Grieg fish farm to operate at Bennett Point.

With the wild salmon of the Broughton now at risk, largely due to impacts from Atlantic salmon farms, it was irresponsible to approve another Atlantic fish farm at this time, especially while the special committee was conducting its review. For many this was considered a political move based solely on industrial objectives.

Considering the site use and biological conditions, this recent decision does not make sense. This site is inappropriate. When selecting a location, responsible companies have looked for sites where water is cool, fast-moving with high dissolved oxygen levels. They also want to make sure that there is an absence of phytoplankton blooms and that the site location does not interfere with local activities and values. This site has none of those characteristics.

Grieg's site is located near Bennett Point across from Bones Bay in Clio Channel. This area has not been considered for large-scale aquaculture because the location is inappropriate for a number of reasons — low tidal flush, for one. The tide runs so slowly here that the entire channel is a mud bottom. There's not enough current to move even the smallest of particles down the channel. According to the company's finding, the average current at this proposed site was only 0.08 knots.

No other company would consider placing a large-scale farmsite where there's not sufficient current to deal with the thousands of tonnes of waste per year the farm will create. It will settle on the bottom, creating a dead zone, while the current will slowly move the pollution through this rich wildlife area.

This area is characterized by warm ocean temperatures as well, which is, in part, why there is such rich biodiversity all through Clio Channel. But warm temperatures for a fish farm means more bacteria growth, less oxygen and more toxic algae blooms. Warm, slow-moving water leads to lower dissolved oxygen levels, and plankton blooms occur naturally at this site. The addition of a fish farm will increase the frequency and duration of these blooms, which will not only cause problems for the farm fish but, in turn, will further reduce the dissolved oxygen levels affecting all sea life. Increasing the nitrogen levels will also likely produce toxic algae blooms.

This siting also does not adhere to the information and recommendations provided in the North Island straits coastal plan. This is an important document that identifies ecological values, activities and uses and provides parameters for development. The plan is broken into geographical units for specific areas along the coast. Clio Channel is unit 9.

[1205]

The coastal plan states that finfish aquaculture applications in Clio Channel should not be accepted. Under the heading of "Acceptable Uses and Activities, Finfish Aquaculture," it reads: "This use is considered inappropriate. Applications for tenure of this use should not be considered accepted for processing and evaluation." But this farmsite borders on unit 9 and is located up current in unit 8 called Minstrel. Although the anchors are on the boundary, the net pens and all the waste that comes from the farm will be moving with the tide into Clio Channel.

The site naturally has low oxygen levels, recorded by Grieg at only 4.9 at 15 metres last September. The slow-moving, warm waters combined with nitrogen waste create several problems, including a smothered bottom, the formation of hydrogen sulphide gas, toxic algae blooms.

The North Island straits coastal plan describes this new farm location as characterized by a low exposure; low current; and deep, warm marine environment supporting diverse biological values. It states that phytoplankton blooms may limit finfish aquaculture opportunities. The plan gives unit 8 the following attributes: kelp beds throughout the unit, eelgrass throughout, moderate to high invertebrate values, intertidal clam beds, seven beaches at 11 hectares, humpback whale resident area, provincial blue-listed area, salmon migration route, smolt holding area, good off-bottom scallop capability the entire area.

The plan is clear that this site has many attributes and supports a variety of commercially important and rare species in this unique and sensitive area. The tide is very slow-moving. The dark, mud bottom and slow-moving water temperatures create a rich, diverse

channel that supports crabs, prawns, shrimp, scallops and clams, etc. There are numerous eelgrass beds which provide habitat for 80 percent of our commercial fish and 268 hectares of kelp beds providing a rich, underwater forest that supports species at risk. There are 43 known herring-spawning sites in this channel, and it is also recognized as an important waterfowl area and is a CWS area of interest. Humpbacks, orcas, porpoise, sea lion and otter come here to feed and rest.

Under "Management Provisions," the plan states: "This unit should be managed to maintain recreation and conservation values." It is one of the richest and most popular tourist and sports fishing areas in the Broughton. It is also utilized by a variety of species at risk, including marbled murrelet, humpback whales and sea otters. It is clear that Clio Channel is an area where the current is slow, water temperatures are warm and the biological values are high.

It is subject to plankton blooms, which are problematic for fish farms and will intensify with nutrient pollution from the farms and deplete the biologically rich area of dissolved oxygen. Any disease or parasite outbreaks at Grieg's farm will move down Clio Channel with the tide through rich fish habitat with dire consequences. Operating a high-density, open-net fish farm will add tonnes of nutrient pollution and, very likely, sea lice and disease into the rich marine ecosystem valued for its biodiversity.

I'm going to skip ahead because I'm just going to keep rambling here on this point.

**R. Austin (Chair):** I was going to ask: do you have a lot more in your presentation to read to us?

**K. Pinsonneault:** Yeah. I'm just going to go down to the bottom here, because I do want to wrap up. I'm realizing this is going on too long.

I did want to mention my concerns about the use of SLICE. As you know, there's been a sea lice epidemic in the Broughton for six consecutive years. Scientific studies have now provided important evidence that salmon farms are the major contributing factor. Aquaculture companies are now depending on treating farms with SLICE in an attempt to reduce lice loads on fish farms.

[1210]

SLICE is not approved for use in Canada but has been made available to aquaculture companies as a veterinary drug for emergency use only — and for good reason. The regular use of emamectin benzoate, the active ingredient in SLICE, is a very real concern. Although SLICE is available only through a special application for emergencies, it is the only sea lice treatment currently in use, so it is being administered on a regular basis to treat infected Atlantic salmon. Over 170 billion salmon were treated with SLICE from 1999 to 2004, and this has increased in recent years.

SLICE is being used on a regular basis because sea lice have become a chronic problem requiring regular treatments. It is no longer being issued for rare emergencies. There is clear evidence that with regular use sea lice will build a resistance to emamectin benzoate,

the active ingredient. Establishing a new fish farm in an area plagued by sea lice — to be treated with a chemical which may soon be ineffective — is not reassuring.

Sea lice build up a resistance to SLICE with regular use. Schering-Plough Animal Health, the makers of SLICE, issued a bulletin in September 2000 entitled "Sea Lice-Resistant Management." It states: "The question is not if resistance will occur; the question is when resistance will occur."

To postpone the onset of resistance, the makers of SLICE recommend the strategic rotation of chemotherapeutics with different modes of action. Ivermectins — ivermectin and now emamectin benzoate — have been used consistently for over a decade in the Broughton. With consistent use it is only a matter of time before sea lice are resistant to SLICE. Schering-Plough has issued the warning that ivermectin has been widely used worldwide for control of sea lice on salmon for at least ten years; therefore, the possibility exists for sea lice to develop resistance to ivermectins, with side resistance to avermectins, particularly emamectin benzoate.

The toxicity of SLICE on crustaceans — such as krill, prawn, shrimp and crab — is established. The fish farm location is well known as a productive area for prawns and shrimp. These crustaceans are scavengers and will feed near and under fish farms. The active ingredient in SLICE is a neurotoxin listed by the U.S. Environmental Protection Agency as highly toxic. It is very effective as a pesticide because it disrupts nervous system function, effectively killing invertebrates.

**R. Austin (Chair):** Kate, as you've now been reading to us for about 35 minutes, I'm going to ask you to wrap up your presentation so that members can ask a question here.

**K. Pinsonneault:** Okay. I just want to point out that it does state that emamectin is very toxic to aquatic organisms and that it will kill rainbow trout at 174 parts per billion. Now, if you think about... The amount allowed by Health Canada's residue after the required 25-day period between the last treatment and processing of the farmed fish is at 50 parts per billion, about a third of the amount required to effectively kill rainbow trout in a very short time. This suggests that farmed salmon are consuming very large quantities of SLICE.

In concluding here, I'm going to just read to you a very short — it's only a paragraph long — story from a woman named Rosamond Naylor. She's a specialist in international sustainable aquaculture. Here's a short story from her:

Aquaculture companies from the big cities had come to rural villages, torn out the mangrove trees and installed shrimp ponds. They made money, but in doing so, they destroyed the nurseries for young wild shrimp. When disease spread through the shrimp ponds and killed everything, the businessmen left. Those were the critical habitats for wild shrimp. I thought: here is something so unsustainable — the bigger the production, the more the harm. Sure enough, the whole industry there ended up

crashing. The already poor locals ended up with no farmed shrimp, no wild shrimp and no economy.

[1215]

This is our greatest fear, and we are watching this happen. High-density, open-net farms are being established in fish habitat and particularly in nursery areas and rearing areas for wild Pacific salmon. Diseases and parasites are taking their toll. We are witnessing the destruction of our pristine marine environment as dead zones and algae blooms grow.

Will we, too, be left with no farmed salmon, no wild salmon and no economy? It looks like we're rapidly heading that way, led by governments with a vision that has little to do with our local or national sustainability.

I had way too much stuff here. It goes on and on.

**R. Austin (Chair):** Well, at that point I'm going to.... Yeah, you can submit it, of course, as a written submission to us, but I believe we probably heard the bulk of it, I would imagine.

Claire actually has a question, if you don't mind. Otherwise, we would be here for the rest of the evening and miss our hearings in....

**K. Pinsonneault:** Well, yeah. You don't want to do that.

**R. Austin (Chair):** No. Claire has a question for you.

**C. Trevena:** However, I don't think we should be totally dismissive of this. I think that what Kate has said has been very interesting.

I thank you very much for that, Kate. I look forward to seeing the written submission.

I have a couple of questions. One is on the information you're giving about Bennett Point, what Grieg has said, and the findings they've got about the oxygen levels and speed of the currents and so on. I just wondered where this material is, because this is quite useful.

**K. Pinsonneault:** It's all in a report that Grieg put out. They had to submit the information they found in order to get this site approved. Just look in there. It's all there. Living Oceans has a copy. You can borrow that one too, I'm sure. It's quite startling to see the facts that they presented and that the site was approved based on that. It's shocking. It truly is shocking.

**C. Trevena:** I mean, obviously, as the Broughton Archipelago Stewardship Society, apart from being people who live and work in the Broughton and have done for many years, I wonder what you can do on sort of a monitoring level. What is it that you are doing as a stewardship society?

**K. Pinsonneault:** One of the things that we're actively involved with is the provincial eelgrass mapping program, partly because eelgrass is really a very important species because of all of the diversity. So many creatures do depend on eelgrass beds for their survival;

80 percent of our commercial species do. So monitoring these areas has been really important, because we are losing them all up and down this coast to mostly industrial occupations that are going on.

We've been involved with a number of different projects: community forests, looking at habitat for endangered species or species at risk. There have been a few things we've been doing.

**C. Trevena:** Are you as a group working toward monitoring what is happening in the Broughton with fish farms — for instance, watching what will develop with Bennett Point — or is this beyond your scope?

**K. Pinsonneault:** Actually, that's one of the areas that we would really like to do. We have talked with a few people from both DFO and the provincial eelgrass project on that, but it is a matter of manpower, training and funding, basically, to allow that to happen. But we are very concerned with what's going to happen with Bennett Point. It's a very.... That whole Clio Channel is unique to the whole area, and it just supports so much in terms of the diversity of species and the species at risk that stay there. It would be such a shame to watch that deteriorate.

**G. Coons:** Thank you, Kate. Just in response to Bennett Point and the approval of applications while the committee is meeting, we as a committee have that concern, also, and made recommendations to the minister that they defer or table any new applications until we come up with a recommendation. But again, it's up to the minister to make this decision.

[1220]

Going back to the Bennett Point one, in the application letter it says there's an e-mail from Grieg received July 25, 2005, advising of tenure boundary adjustment to "ensure the whole application is within planning unit 8 of the North Island straits coastal plan" and "to minimize the size of the tenure to mitigate any potential impact to shrimp trawl activity."

I've requested the whole application process with all the tabs and all the information and all of the e-mails. I think I asked for that yesterday in Alert Bay from your committee. I would also like to get the North Island straits coastal plan, if you could get that submitted to our committee so that we could see what the plan looks like.

**K. Pinsonneault:** Sure. Actually, I think it's available on the Web, but I will find that out for you, if you want. I'm pretty sure it is.

One of the problems with a floating pen is that even though on the map you'll see.... So here's the boundary, and undoubtedly, that's where they've got their anchors. They're up current. Even though their anchors are on the boundary, the current is going to be pushing them and everything else over that boundary line. It's just the nature of being on the water. It can't be helped.

Even though on the map it looks like they are over the boundary, everything that comes off that farm is going on the other side. It will all go into unit 8, into

Clio Channel. It can't go anywhere but. It has to go that way.

**R. Austin (Chair):** Thank you very much for your presentation.

**K. Pinsonneault:** You're welcome.

Do you have anything more to add, Sue? I kind of rambled on.

**S. Jirik:** I can just give my letter, I suppose.

**R. Austin (Chair):** You actually have a letter? Okay, you can just submit that, and that will become part of presentations.

**S. Jirik:** Yeah. You can read my letter, but my last question, I guess, is: if the primary role of the Broughton provincial park is to contribute to protection of marine ecosystems and, furthermore, provide important habitat for endangered and threatened species, why was the expansion of the aquaculture industry allowed inside the park boundaries?

It's awesome what they put up here for the Broughton park, but they're really not....

**K. Pinsonneault:** But it's our enabling policies again, Susie. That's what it is. They just make exceptions for the industry.

**S. Jirik:** Yeah. I just went through some of the stuff that I heard at the '97 aquaculture review in Fort Rupert, and some of the comments.... Like the Seattle scientist and salmon expert who said: "No, no. The Atlantic salmon" — at that point there were a million escapes — "would never go up the rivers." In the '30s, I guess, nostalgic east coasters wanted to put Atlantics into the rivers in Washington, and that didn't work.

Then you have these escapes, where the escapes follow the salmon up into the rivers. They don't know where to go. They're just like chickens on the run or something. Hopefully, the escapes have dropped, because I know the fish farmers don't want to lose their precious fish, but that's where I figure those containment....

Let's use tidal power to run the pumps. They said: "Oh well, we have to use much more fossil fuel in order to have land-based fish farms and stuff like that." But maybe there are alternative ways to deal with that as well. We could have a really sustainable, organic, you name it — a fishery or....

**K. Pinsonneault:** Well, we can't do it on an industrial scale, but....

**R. Austin (Chair):** Okay. Well, thank you very much. We'll accept that.

We are going to recess for half an hour and then come back with Nick Orton.

The committee recessed from 12:25 p.m. to 12:50 p.m.

[R. Austin in the chair.]

**R. Austin (Chair):** Good afternoon. I would like to call the meeting back to order and invite Nick Orton to the witness table to make his presentation.

We are now running about an hour behind schedule, so I'm going to ask the presenters to make sure that they keep their presentations to within 20 minutes. At the 15-minute mark I will mention that they've got five minutes left, so they can wrap up their presentation.

Obviously, if all presenters take their entire 20 minutes, it makes it difficult for us members to ask questions, so if you can, try and keep it within the 20 minutes. It gives us an opportunity to ask questions, which is where we get a lot of very useful information.

Nick, over to you.

**N. Orton:** Thank you, and thank you for being here.

I run Coast Select Smokehouse. It's a small, provincially licensed processing and smokehouse activity here. It is, in fact, the last processing operation going in Sointula, where previously, of course, there had been a lot. Its potential is perhaps to hire five permanent employees when it's running at its full potential. It's not at that yet.

Personally I've been here for three years. The smokehouse has been going for ten years. I took it over three years ago. My work history is in the natural and organic food industry. I spent 25, 30 years there, primarily focused on the organic industry. I played a role — when I think of it, a fairly significant role — in the development of that industry's regulatory system and its system of controls, locally, nationally and internationally. I have a history of being involved in the food industry, and I would like to bring that to this committee.

I'd like to touch on a few areas that seem to be of major concern around this — these are employment, marketing and disease — and how they affect me and my small business. I should tell you that I believe flat out that we make political and economic decisions as a society, and I believe flat out that the decision to allow open-net fish aquaculture was a terrible mistake. I think we should accept that mistake, perhaps somewhat analogous to the fast cat decision. We should just get rid of them and cut and run. You should know where I come from on that.

With all due respect to other previous presenters, closed containment systems could be the solution. I don't know. But I see no place for open-net-pen fishing. I think that that decision ignored the culture of this coast. It ignored all aspects of the culture of this coast. I won't get into it. You've heard this before. What are we doing introducing Atlantic salmon? Why are we ignoring the wild fishery? Why are we ignoring the native people and their concerns? That's where I sit.

In terms of employment, this is a resource-based industry that we're involved in. We have those in this province. We have mining, logging, fishing. We've heard very, very strongly in the cases being made by the aquaculture industry that they are providing jobs here, and that's critical and vital. Jobs are, but in

resource-based industries, it's the history of this province that those jobs come and go.

There is no right to a job in a resource-based industry, particularly a right to a job that impacts the capacity of the resource to be able to continue. It's not right to come in and destroy the capacity of a neighbour to make his living by how you're making your living and to say: "But we're providing jobs."

Twenty years ago there were probably 75 to 80 jobs in Sointula in processing. Those are gone. We've heard a little bit about the conspiracy theory, but strangely enough, that evolution happened when the fish farms came in. Now, I'm not blaming fish farms. There's a rationalization that has happened in all resource-based industries. That happens. We centralize, we automate, and so jobs are lost.

I would suggest that it's incumbent upon this committee to have a look at that, and perhaps the unions could assist in this. I don't know anything about it, to be honest. But I suspect there has been a serious net loss of jobs.

What I'm particularly impressed with is the processing industry that has come along with the farmed fish industry. They have produced state-of-the-art processing capacity. They have developed skilled workers. They handle fish in ways that had never been done before. I'm very proud of that, and I'm proud of them doing that. I just don't think that that should be applied to aquaculture. I think that should be applied to the wild fish industry, the centralization notwithstanding.

[1255]

There's absolutely no reason that that plant over there in Port Hardy can't be producing wild fish year-round. The only missing ingredient is freezer infrastructure. Everything else is there. There's no reason that those jobs have to go away because there's no aquaculture. Now, I believe that. It's how you look at it. How do you set it up? How do you create the infrastructure? I just don't think that it's fair that a wild industry should suffer because of another industry.

This is a really hard thing for me to deal with. Atlantic salmon farmed fish command a pretty good price in the marketplace. It's admirable. They've done a good marketing job. At the same time the values of the wild fish have diminished. I have to ask myself questions. Why are fishermen only being paid a nickel or a dime a pound for pink salmon? Where are they going? What's happening to that fish? What's happening to the fact that...? I mean, I don't know this for sure, but I wonder: are those pink salmon being ground up to feed the farmed fish?

I know that there's a krill fishery that should not exist in the Gulf of Georgia. That's ridiculous. That's the bottom of the food chain. I think it has a lot to do with the diminishment of the coho stocks in the gulf, and I believe that. We know where the krill fishery is going; it's going to feed farmed salmon. I really have to question the values that are being placed on fish.

I can tell you that you can take a dime-a-pound pink salmon, and if you do what I do to it and you smoke it, you can sell it out there for a reasonable price, really, in the marketplace, but a price that will bring a

good return. There's absolutely no reason why those fish have to be devalued. The commodification of our salmon stocks has caused a tremendous problem with the marketplace, and I think that that has to end. I think that the idea that salmon is just a commodity has to end. I think it was pointed out that we've got probably the last wild salmon stocks in the world of any import. It seems to me that that's an extremely valuable commodity.

I know what happened when I first got involved in the organic trade. We were laughed at. You know: "This is a marginal industry. You people are all a bunch of crazy idiots. You don't know what you're talking about. No one's going to pay extra money for this." Well, look what's happened now. That's an industry that's sustained growth of 25 percent a year for 15, 20 years now. It's in huge demand. They can't meet that demand.

Why is that philosophy not being applied to our wild Pacific salmon worldwide? Why are we commodifying it? Why are we cheapening it? The problem with that is that we're cheapening it so that our primary producers, fishers, are being slowly eroded. They're being slowly pushed out of it, so that a controlled system of fish is replacing them. This is crazy. This is old-school thinking. We need to change the philosophy of marketing. We need to be able to say that we have one of the most valuable food resources in the world in our wild salmon, and we need to exploit that economically. There's nothing wrong with that concept.

I really want to emphasize this idea of labelling. The battle to have farmed salmon labelled was lost some years ago in Ottawa. That was fought in Ottawa some years ago and lost. That needs to be revisited. We found in the organic industry that if you label properly and if you put in a system where the consumer feels confident if they're being told, "This is what I'm getting, and this is what's behind it," they will make that choice.

The organic industry is consumer-driven. It is not industry-driven. It was never driven by multinationals that have created a market based on advertising. I mean, it's ludicrous to me that I see ads saying "naturally B.C. salmon," and this is farmed salmon. It's ludicrous.

I think that what needs to happen is if you can't win the battle in Ottawa, then we at least need to win the battle here in B.C. and demand and legislate that farmed salmon is labelled as such. Let the consumers decide.

[1300]

Science. I don't trust science, especially where it relates to food. Science told us in the '50s that DDT was going to green the world, and it was going to feed the world. Hmm. Science told barren women: "You want children? Take thalidomide." Well, it produced children.

I'm sorry. I'm very skeptical of it. I'm not saying there isn't great value in the knowledge and information. Of course there is. But the consuming public needs to be given the facts, needs to be given the information, and they will make the choices. I think this is very, very important.

I'm trying to cut this down a little bit, as much as I can. I'm not a scientist. I'm just a worker. I believe that

you've had presentations here, and you will continue to get presentations from people who are very knowledgeable. They have the information, and you must believe it.

I can only speak to you from the basis of a person who's trying to struggle to rebuild a processing industry to create products. That will happen. I'm trying to pay fishermen a fair price so they can actually continue to fish. I'm trying to give to the consumer the best, highest-quality product, and I'm asking them to pay a lot of money for it so that it can prove out that there's absolutely no reason why we should accept this intrusion into a history of producing wonderful food — a history of producing wonderful communities and generations of people who really do care about the environment, who care about the wild fish.

I mean, the idea that you can have a job seven days a week, 365 days a year processing fish is nonsensical. It's never been that way. It never should be that way. It's an aberration. Some years are good; some years are bad. Some runs are good; some runs are bad. It's accepted as the pulse and the tide of how it is to work with the natural environment. We must try to revive that.

In my own business, too — you've heard about disease; and lice, of course, is the big thing here, and you'll hear more about it — I'm encountering something that affects me economically.

If I could take a minute, I'll just pass these out. I just have four of them.

There's another disease that's systemic to wild salmon. It exists in wild salmon, as do lice and so on. It's *Kudoa*. What's happened to me in the last three years of running this plant is that.... This is a parasite. It's a single-celled parasite. It depends on a worm. The worm proliferates, as it turns out. I'm sure you'll hear more information about this from people who really know. I'm no expert, as I said. It proliferates beneath fish farms, and that worm then infects the fish.

I buy fish from areas 8 and 6, which are up north where there are no fish farms. I also, of course, buy fish from here when we do get our few openings. In the fish from up north, I see one fish in a hundred will be infected with this — certainly, not to the degree that you see here. I might see two or three little white spots, and we can work around that.

The Johnstone Strait chums are what I concentrate on. The bulk of my business is chum salmon. When I first started here, I was finding three to five fish in the first year that were infected — and not too heavily. I could cut around it. I lost a bit but not too much. In the second year the average was five to ten fish per 100 that were infected. The infection was higher, as you see in the picture. This year it's ten to 15 fish. Well, it's last year's fish. It was my third year.

The infection is getting ten to 15 fish now, and it's so severe that I have to throw that out. I cannot process it. It's costing me 5 percent to 7 percent. I can't see that when I buy the fish. As you see from the pictures, you can't tell. You can't even tell, really, when you fillet it. It's because I produce jerky, so I skin the fish, and that's

where that predominates. It predominates up against the skin. But it infects. I've tried smoking it, just to see what happens, and it's horrible. It just turns the fish to mush.

[1305]

I have no firsthand knowledge of this. I have only secondhand knowledge that this is a problem that's faced the farmed fish industry. Perhaps you can find this out from them. I doubt very much that you could.

I know that they've changed their marketing and their processing mechanisms, because they were shipping out whole fish. Lo and behold, customers were cutting into them, and that's what they were finding. So they were sending it back. Now they fillet the fish and cut them, so they can cull this out — just like I have to do.

I have no idea the extent of this. All I know is that it's affecting my fish and affecting my business. I think that what you've heard from people who know better than I.... When you concentrate any disease, it's going to affect on a scale way beyond what happens naturally. I can accept one fish in 100 having that. That's not a problem. That's part of the way it works. I cannot accept it getting up to ten or 15 fish, and I'm fearful that it's going to get worse. Why is it Johnstone Strait fish? Why am I not seeing it from the fish up north? I'm very concerned about that.

I think it's very important that the knowledge of what's happening come forth. It's all very well for scientists to make decisions that can tell us that certain things will or won't hurt us, and so on. But it's very important to allow the consumer to decide in the end.

Consumers make decisions based on all kinds of things. They make decisions based on nutritional information. They make decisions based on science. But more than anything, they make decisions based on their own intuition — how they feel when they eat something, how it makes them feel. They make correct decisions if they're given information. They don't understand why they're sick when they're eating certain kinds of foods, but they can understand when they feel well.

I think I've made my case in how I feel. I've made my case that I don't believe in open-net-pen fishing. I believe that it's affecting my business economically, and I believe that it's time to bite the bullet, pay them what it costs to get rid of them and get rid of them.

**S. Fraser:** Thanks, Nick, and don't apologize for not being a scientist. That's okay.

First of all, I applaud you on your work at value-added. I think that's wise, and it's certainly in the interests of the wild fisheries and the people working in the industry, who see higher value for that product.

You mentioned you work specifically with chum and pink. Is that correct?

**N. Orton:** No. I work with all species, but chum is the bulk of my business. Probably 75 percent of the fish we process are chum.

**S. Fraser:** Do you ever do farmed?

**N. Orton:** Never. I think I'd get run off the island if I did that.

**R. Cantelon (Deputy Chair):** Have you reported this to DFO? If so, what response have you got from them?

**N. Orton:** I didn't report it to DFO. I phoned the biological station in Nanaimo when I first saw it and said: "Well, what is this? What am I finding here?" They said: "It could be one of two things. It could be *Henneguya*, or it could be *Kudoa*."

My wife and I went looking on the Internet, saying that this looks like *Kudoa* to us. I said to him: "What is this thing?" He said: "It's a single-cell parasite. All you have to do is freeze the fish, and it won't hurt humans." At the smokehouse we freeze all our fish anyway, so that's part of it. It was not harmful to humans.

I said: "Well, that's fine, but it's affecting me economically." He said: "Yes, that's the complaint. Interestingly enough, we have the same problem in the sockeye in the Barkley Sound area." There are concentrations of fish farms out there too. That's as much as I've done about it.

**G. Robertson:** Thank you, Nick, for your presentation. Just a question on your business — what scale; how many people you employ; what, roughly, your size is; how much fish you're going through; and what your potential for growth is.

[1310]

**N. Orton:** Right now we're going through about ten or 11 — maybe 12 — tonnes of fish. Our potential is to do three times that. It's difficult, because I use only certified organic ingredients in my production capacity — the salt, the sugar, the maple syrup, herbs and so on. We only use certified organic ingredients in it.

It's extraordinarily difficult to market from Sointula — extraordinarily difficult. I can't tell you. We're off the mainstream. But the potential is to do approximately 30 tonnes of fish a year in the plant as it is. It's expandable in its present location for actually not too large an investment — to double that. But that would be it. In its present location it couldn't more than double that. Its full potential is probably about seven or eight jobs.

**G. Robertson:** Just a follow-up question. You mentioned, and I had asked Jennifer Lash this earlier, about labelling. What is your opinion on whether it's more effective for B.C. to be marketing wild salmon and pushing the labelling of wild salmon versus labelling farmed salmon and that all farmed salmon has to be labelled "farmed salmon?"

**N. Orton:** That's an interesting question. I'm always a proactivist, so I am pushing hard for the wild labelling. It's been picked up on. As a matter of fact, my predecessor in this business.... That was the premise. The first product says smoked.... "Wild" is the biggest part of the label, and we've continued that.

I think that he was farsighted in that. I see now that more and more that is happening in the marketplace, and there is a response to it. However, I still think there is mass confusion in the marketplace. People see B.C. salmon, and there is a lot of assumption that it's wild. I think that if you labelled it "farmed," the farmed-salmon guys would be quite shocked at how much their product is rejected.

**R. Cantelon (Deputy Chair):** Just to follow up on the value-added, I'm intrigued at why you chose chum as the primary salmon that you process. Is it amenable to the treatment better?

**N. Orton:** Yeah. Our main product is salmon jerky, and chum are the most reliable in the processing activity. They love being smoked, and they produce great jerky. They just do, and it's consistent. I find with other species that the fat contents make them somewhat inconsistent, sockeye notwithstanding. Sockeye is easy to deal with. Pinks make lousy jerky, but they make wonderful hot-smoked. The springs are always variable because of the fat content. You never know. Springs can have wide, thin....

It's interesting to see the farmed fish. Because of their feeding patterns, they are able to produce exact lines. It's wonderful, actually. It's kind of neat to see it. But real springs don't act that way. To be brutally honest, in terms of springs, and we produce jerky with springs.... We find that the terminal springs, when the hatcheries have decided there is enough escapement and they'll let the guys take the fish, they don't look that great on the outside, but the flesh is brilliant for jerky production. It's consistent. It's tasty. The fat has been burned off, so there is no inconsistency. It's a lot less fat in the product.

**R. Cantelon (Deputy Chair):** You kind of grudgingly admit that the farmed springs are more consistent. I hope you're not going to be too maligned in the community for that.

**N. Orton:** They are.

**R. Cantelon (Deputy Chair):** With respect to chum, what sort of value-added dimension do you get through the process? What do you take it for?

**N. Orton:** It's quite a bit. For instance, in the market right now the fishermen are being paid 40 cents to 50 cents a pound. I demand, of course, that the fish be bled and properly treated and get to me within a short period of time. It's not that there is anything wrong with it; it's just that that is what I want, so I pay \$1.25 to \$1.40 a pound. I then value-add that. We wholesale chums. In terms of jerky, my God, we wholesale a 36-gram pack for \$3. You can see the extrapolation here.

[1315]

The same holds true with all the other species. Of course, we have some right to that because of the in-

redients we use, which are much higher-priced ingredients too. But there's no reason not to do it.

**J. Yap:** In terms of your marketing effort, you said it was very challenging to market from Sointula. Where do you market your product to? Is it domestic or export?

**N. Orton:** No, it's domestic.

Before I took the plant over, it was originally a federally licensed plant. When I took the plant over and reapplied, I was denied the licence because of a change. This has to do with our method of cutting the fish. We cut by hand, so we have no machine method of guaranteeing that the....

This is for the jerky product. Jerky has to be shelf-stable, so have to guarantee that each piece is down below a certain water activity. Cutting it by hand is no longer acceptable to CFIA.

**J. Yap:** So you sell it domestically.

**N. Orton:** Domestically — only in B.C.

We can sell direct to consumers anywhere in the world, and we do a little bit of mail order that way. The difficulty is with the other products — the frozen products — and getting them into a market from here.

The difficulty also is just going to open markets here. It costs us \$500 just to go to Vancouver for a couple of days. You've got to sell a lot of boxes of jerky.

**J. Yap:** Can you sell pretty much whatever you produce?

**N. Orton:** No, not at all. My plant is running at about 35 percent of its capacity. That's all. It's heart-breaking.

**J. Yap:** Because of the marketing challenge.

**N. Orton:** Because of the marketing challenge, yes.

**J. Yap:** I heard you say that organic is growing, so it sounds like there's potential there for you.

**N. Orton:** There's potential, but it's a life's work for me.

**J. Yap:** Along the lines of marketing, I and others have heard from the salmon farmers that everything they produce, they sell. Whatever they can produce, they sell, and it's primarily export-driven.

Getting back to your comments about the consumer, consumers make buying decisions based on different criteria, intuition being a strong one. What would you say to that? Because it sounds like there's a pretty insatiable appetite for farmed salmon.

**N. Orton:** Well, you know, it's being sold something as well as buying something. Big multinationals can sell just about anything for a short period of time. When that doesn't work, then they just change the

packaging or the presentation. They can buy millions of dollars' worth of advertising on TV. They can affect that.

Remember, this is a very mature industry — the fish industry. The guys that handle the wild fish are also invested in the farmed fish. They have the marketing channels. I can tell you stories. It's an old network. You have to be part of the club to get in it. I'm clearly not part of the club.

**R. Austin (Chair):** Thank you very much, Nick, for your presentation. Members are requesting if you brought any samples with you when you came today.

**N. Orton:** Yes, they're around. Would you like some?

**R. Austin (Chair):** Okay. Maybe we'll see you later.

**N. Orton:** We'll have some here for you when this is over.

**R. Austin (Chair):** Thank you very much again. I'd like to call Teresa Tynjala.

**T. Tynjala:** Can I ask you guys a question first? What is this review actually going to do?

**R. Austin (Chair):** We're going to give a report back to the Legislature next May, once we've listened to what people have to say. Then it'll be up to the government to decide what they will do with that report.

Please make your presentation.

[1320]

**T. Tynjala:** Sointula and all the small communities up and down the B.C. coast were supported by the B.C. fishing industry. Salmon fishing was a large part of that economy. Sointula was known for the highliner fishermen who lived here. My father was one of them. My uncles, grandfathers and great-grandfathers were also. My brothers and son are still in the industry today.

I was in the commercial fishing industry since I can remember. I can remember being a baby, unable to speak the adult language. It was frustrating and salmon farming reviews, economic or environmental, are equally as frustrating.

Language is a funny thing, as are statistics. You can make them do whatever you want. Can you get your idea across? I sat at the table during the salmon aquaculture review process. It was in '95. I'm sure you guys have read it, I hope. If you haven't, I've got a copy right here — the summary. It was an environmental review, not economic, but my last comment to them was to remember that.

Here we are at another review. I don't know how the statistics are juggled for what the fish farming industry brings to our economy. I do know that the commercial salmon fishermen were not given a fair shake in DFO's stats. They did not include the net companies who flourished on the moneys spent by salmon fishermen, nor the electronic companies, hard-

ware stores, clothing and gear stores, to name some. Then there are the grocery stores, including our own co-op store, who thrive on the grub shopping of the fishermen every opening.

When the copper mine in Port Hardy closed down, the economy of Port Hardy barely noticed. But when the fishermen quit coming, it was devastating to many merchants in town. Grocery store profits plummeted. Then there are the hotels, restaurants and cab companies. Oh yes, fishermen spent there too, but those stats went to the tourism sector anyway.

Here we are in an economic review. As the environmental review could not help but bring into the picture economics, so this economic review cannot help but bring into the picture the environment.

When a farm has disease and chronic leakage is a factor, the environment is affected. Fact: the Nimpkish River was infected with furunculosis the first year a salmon farm was introduced to the Broughton area. I'd never seen a Pacific salmon with that disease before, not until Atlantics came to B.C. Our Pacific salmon are the tastiest salmon in the world. Why are we jeopardizing them?

Sea lice are killing our salmon. Why? Because there are too many Atlantics in the Broughton area. Think about it. Chickens are killed by the thousands when the disease breaks out. Epidemic cries out. But a fish farm — who cares? The ocean will swallow it up — right?

Our fish and our environment cannot be mentioned without bringing to the forefront our government. Look at the railroad, the Davis plan, the Mifflin plan or *Vision 2000* — revised, actually.... I read it when I was 17 years old. Maybe you guys should look through the archives and see if you could find it. DFO doesn't like giving up any information, though. That was a leaked document.

Then there's the Broughton Archipelago report. That was put out before all the farms were put into the Broughton. There was a report. Billy Proctor, actually, showed them where not to put fish farms. I was on the regional district board at the time.

Every red area on that report where you're not supposed to go was applied for before the report was released. No applications for fish farms were affected before the report was in. So they put the report in. Every farm applied for was allowed, because the report was done after the application was put in. They're not subject to the report.

[1325]

The guy who wrote the report was at the CORE process. Remember the CORE process, anybody? He told me it took him two weeks to do the report, and he took the information from Billy Proctor, but he also leaked the report to the freakin' fish farmers before they freakin' put it out. He laughed in my face about it too.

Out of the court process we got the aquaculture environmental review supposedly. It was restricted to written documents — ones that were submitted. We eventually got anecdotal information allowed, but it took halfway through the process to get that done. They had to go through the documents, because they

wanted to know whether the methodology was proper. One document stated that Atlantic salmon cannot survive in B.C. waters. This is dated sometime in the '30s — the only document that they allowed because it was the only one done.

When England put Atlantic fry into our B.C. rivers so they could go fly-fishing, because they liked the Atlantics being able to.... They didn't survive according to the only report on record at the time. Good methodology? Maybe, apparently, but absolutely nothing to do with the fact that in the 1990s Atlantic salmon were found in our rivers. That wasn't England. It was our government allowing it in the most pristine waters in the world, and interfering with the last wild salmon stocks in the world.

When I asked the head honcho of aquaculture, federally — Ginette something or other — why she was allowing this, she said: "Because in the last Angus Reid poll 72 percent of Canadians wanted aquaculture to be promoted in Canada." From coast to coast — the Angus Reid poll.

What was the question? It certainly wasn't: do you as a Canadian want to kill all Pacific salmon? I know it wasn't that. "No, aquaculture in general," she said. I think she might have gotten a lesser percent if she had asked that question. Maybe you guys should ask Angus Reid to ask that question. That's the stupidest reason to bring aquaculture and Atlantic salmon to the Pacific coast — because 72 percent of Canadians, of whom probably half haven't even eaten a fish, said: "Yeah, go for it."

When I was on the environmental aquaculture review for British Columbia, I asked a veterinarian who was speaking on behalf of the salmon farmers for a written copy of what drugs were being administered to farmed salmon and what reason they were being administered. I was told by the veterinarian that he couldn't tell me because of doctor-client privilege, whatever that is. I don't know. Can fish talk? It's on tape at Simon Fraser University if you guys want to check it out. The whole proceedings of that aquaculture review are on tape, so talk to Simon Fraser University if you guys are interested.

Later I was talking to the same guy and discussing this issue. I asked him who this Canadian veterinarian association that he belonged to was, and he said it's an association of vets across Canada from coast to coast and all of the members have a doctor-client relationship. Later I was told there were four members: one in New Brunswick, a couple in Eastern Canada and one here.

[1330]

Why I'm telling you this story is because on pages 16 and 17 of the *Watershed Watch*, which I have right here if you want to have a boo, it talks about a chemical called SLICE, which was not approved at the time of publication by the Canadian Food Inspection Agency or licensed by the Bureau of Veterinary Drugs or permitted for use through the Pesticide Control Act.

How come they were using it? Because they gained the go-ahead through the emergency drug release program, which approves the use of non-approved drugs when recommended by veterinarians for emergency situations.

If sea lice in the Broughton Archipelago aren't a problem, what was the emergency? Oh, I forgot. Doctor-client privilege. Guess we'll never know.

Do you want my opinion on the logging industry against fish? They devastated this area too, but the fish farming industry supported it. Clayoquot Sound controversy — remember that? You support us; we'll support you. Think about it. Sea soil.

I've cleaned a lot of salmon in my life, both for commercial and for food, on the boat and on land, at home and at work. I don't recall ever having a putrid odour coming out of any fish when I slit the belly to clean it, except when I worked at a plant here in Sointula.

There was an escapement of Atlantic salmon in the Broughton area at the same time as a commercial fishery opening. I was the belly-slitting person on the line, cleaning fish. Fishermen were catching thousands of Atlantics, and our company bought them from the boats. I slit every belly of every Atlantic salmon they bought that day.

Every single fish slit was like opening the lid off a septic tank or driving by the seven-mile pit in the morning after a midnight run and morts have been dumped. Everyone who drives by there knows that smell. Maybe you guys should drive by there one day. Even a squished humpy left in the bilge for a week doesn't smell like that when you clean it. What I'm getting at is: how many reviews do we need to tell you that there's something wrong with the picture?

It was four years before the government even admitted that Atlantics escaped, even though fishermen have been catching them since the first farms were introduced to the Broughton. In fact, even the Alaskans are catching them, and they don't allow fish farms. I guess they swam over from Norway, because they can't survive in B.C. — right?

When I was at the CORE process, I asked the same questions as when I was at the salmon aquaculture review. I'm still asking them today. I still haven't got the answers. Four meetings in a row I was asked by the members of the salmon farm association why I hate them so much. My answer was always the same: "I don't hate you. I hate your lies." At least today the lies are becoming unveiled.

I don't know. I've got lots of notes here. Fish farms — what a controversy in B.C., isn't it? It started in Norway. That's where they came from. Scotland — that's where they killed the entire river when parasites were found because of salmon farming. They killed the entire river. Have you guys ever gone to the east coast? It was hush-hush, but they killed an entire river there too. They're supposed to be over there. They're not supposed to be over here.

[1335]

When you have a clam bed or a shrimp area and you put a farm down, it's not the same as having a chicken farm, where you've got a fence around it. When a chicken gets out, you can see it. You can go and catch it and put it back in its pen. You can't do that with farmed salmon. You don't even know where the Pacific salmon go when they leave the river. How can

you find an Atlantic salmon when it leaves the river? How can you find it when it leaves the pen?

Chronic leakage. I was on a salmon farm review. You know what? They got — I don't know — 60,000. Chronic leakage is half of that again. You know what the original one said? A million. I don't know where they got this from. I don't know where you guys listen. Who listens? We told you.

Billy Proctor thought it was going to be a good idea originally. He's from the mainland. He said there was enough room on the Broughton Archipelago for five farms if they don't have disease and they don't escape. How many are on the Broughton Archipelago, you guys? You tell me. You guys are doing the review.

Do you know how the regional district was involved with getting fish farms on the Broughton Archipelago? Bill Shephard — God bless him; he's gone at this time — told me that I never had a say. I was on the regional board. He told me I didn't have a say in what goes on in fish farm situations. Do you know why? Because fish farms are under Agriculture, and the regional district doesn't have an agriculture policy. And I'm the planner, so I'm the one who says: "What's going on?" It took me two years and six motions to get a copy of those applications, and I was, like you, elected. I don't know what to say, actually.

Here we go. Here's another note. Canada has 2 percent to 4 percent of the world market in farmed salmon. Why compete with that when we have 100 percent of the world market on wild salmon?

As a fisherman all my grown-up years, I asked the Minister of Fisheries of the day — Agriculture, Fisheries and Food, I should say, which is your jurisdiction — why they're doing this. He said: "You know what? You can move a farm, but you can't move a river." Oil was in the picture.

**R. Austin (Chair):** Thank you, Teresa. Thank you very much for your presentation.

**T. Tynjala:** No questions?

[1340]

**R. Austin (Chair):** You obviously spoke so well that people simply understood everything you said.

**T. Tynjala:** Well, I'm amazed. I didn't have to be nervous about your questions after all.

**R. Austin (Chair):** You didn't.

I'd like to call David Parker up to the witness table, please.

**D. Parker:** I'd like to apologize first for my appearance. I had to come from the mouth of Kingcome to get here in an open sport-fishing boat, and it was rough and ugly. I got really wet. I ate a lot of salt water.

Unfortunately, I had to drive by six fish farms, and I believe that all six of those fish farms are illegal. You guys should check to make sure if I'm right or not. On

the application form for a fish farm, one of the first questions....

I was at the socioeconomic environmental review that Teresa was talking about in Port Hardy, and they wouldn't let me speak. After that meeting there was such an uproar that in Campbell River real people were allowed to speak too, not just people who had an interest or some connection. I've worked on two fish farms, and I thought I had something to say. I do have something to say today.

You check to see if every fish farm in the Broughton isn't illegal. On the application form for fish farms, it asks: is this site within 0.8 of a kilometre of the migratory routes of wild salmon? B.C. waters are the migratory routes of wild salmon. Someone is lying.

You guys in government have recently allowed another farm into the Broughton. Recently another farm was opened up. Why? It's illegal. You're ignoring the questions on your own forms. The provincial government is allowing this atrocity to go on.

"Super, natural British Columbia." I'm a proud B.C.'er. I was born in Nova Scotia, but I was raised here, and I'm a proud B.C.'er.

What is natural about Atlantic salmon in the Pacific Ocean? Why are we such an arrogant primate as to think we know better than Mother Nature? Why doesn't common sense come into play?

I've worked on two fish farms. On the first one, at least they were trying to grow Pacific fish. Total failure. They got BKD. Three-quarter-grown spring salmon were dying by the thousands. Fitz Lee, the manager of the farm — it was backed by McMillan's — hired me to do some dock work, build some docks and decks for him.

The two Filipino guys that he had working for him — I can't quite remember their names right now — took a week to dig a 4-foot by 4-foot by 8-foot hole to bury the morts that had died previous to when I started there. So he got me to dig a hole 12-feet across, chest-deep. He's Chinese, so I was hoping it would be his chest, but he said my chest. I had to dig a deeper hole.

On my time off, after I'd finished digging the hole, I was back to working on the deck. After a great long time of not diving the pens — they were supposed to be dived on regularly, but they weren't — they started diving the last day I worked of that shift. They filled every single mort container. Back then they used 50-pound sacks for feed, and they had to take hundreds of those sacks and fill them with dying spring salmon — in Chancellor Channel.

Chancellor Channel is one side of West Thurlow Island, and Johnstone Strait is the other side. The tide that flows through Chancellor Channel is strong. Right up the way from there are Current Passage and Race Passage, and they're named that because of the tide movement.

They filled up hundreds of these bags with dying fish because we're so arrogant that we think we can grow fish better than Mother Nature can. We cannot, and it's been proven worldwide. For us to be sitting here, still arguing over it and pretending to be con-

cerned is ridiculous. If we really cared, we'd get it right. You guys should be held accountable for getting it right, and I hope you care enough to.

[1345]

When I came back from my days off I ran up the hill to see how full the hole was. There was not one fish in there. I talked to the Filipino guys. They did a channel run after dark, and they dumped every one of those BKD-ridden spring salmon carcasses into Chancellor Channel this time of the year. The wild salmon are swimming by this time of the year, and they swim by every single one of the farms in the Broughton — every single one of them.

Two days ago I was trolling in Wells Passage. There are two farms in Wells Passage. It's a narrow channel. Drury Inlet goes up off the entrance of Wells Passage — Mackenzie Sound. Fish that go up Kingcome have to go up Wells Passage. It is on the migratory routes of wild fish, but you know what? If they stay there, it won't be, because our government will be responsible for wiping out the fish that have to swim past them.

When I worked at the Carrie Bay site — a different farm I worked on — I saw the wild fry swim right into the pens. The Carrie Bay site was on the migratory routes of wild fish, just like every other farm in the Broughton. They finally got rid of the Carrie Bay site because the natives in Gilford village right across from Carrie Bay continued to complain so badly about the clam beds that they were also affecting. They affect more than what we see on the top of the surface. They affect everything in the ocean around them. They affect the shrimp, the prawns, the crabs.

I've worked on prawn boats, and we used to go into Sir Edmund Bay, another site that has a fish farm in it. When the farm first went in there it was a huge bumper crop of prawns that we got off of there, but we, on the boat, would never eat any of them. They were slightly paler than all the other prawns we caught — a slightly paler colour. We thought, "Ugh, what is wrong with these prawns?" but we were getting thousands of them, so we sold them to the Japanese because we were making big money.

Now, is that right? It must be right. If big money wasn't right, you guys would never allow fish farming to continue because it is destroying what is super, natural about B.C.

If we care about what is natural in B.C., why do we have Atlantic fish in the Pacific? Doesn't that seem unnatural to you? It seems bloody unnatural to me. I was born in the Bay of Fundy in Nova Scotia, the Atlantic Ocean — the only place for Atlantic fish, as far as I can see, especially if we're going to talk about super, natural. There's something wrong when we can't see what is just common sense.

If we don't care, then why are we doing this? And if we care, why don't we look at it honestly and come up with the right conclusions? We know what the right conclusions are — everybody does. Anyone with half a brain can read what has happened in the other countries that have tried fish farming. Scotland's trout are gone. Ireland's trout are gone — sea-run trout. Ours will be too. Why? For money.

We are an arrogant primate to think that we know better than Mother Nature. There's something really, really wrong with that. We should have our heads examined if we let it continue. Obviously, we don't care. I'm sorry that I might come across as too passionate, but it's something I care about.

Two days ago I was trolling in Wells Passage, and we caught a spring salmon in between the two fish farms. By the time we netted the spring salmon, we were about a hundred yards from one of the farms. They were starting to yell at us to get away from their anchors. We didn't want to be anywhere near their anchors. I bet you that spring salmon didn't either, but he was. Why was he? Because you guys ignore the application form that you drew up: is it within 0.8 of a kilometre of the migratory routes of wild salmon? Every single one is.

[1350]

There's something wrong with that. It's just common sense. If you care, do what's right.

I'm glad that you're here. I hope I don't bother you with how much I care about this, but I think you should think about how many of you are here and how many are NDP and how many are Liberal. If the government planned to listen to your committee, would they allow so many NDP on it?

I believe that they intend to totally disregard your findings. You're in the government. You sit in the Legislature. You have the right to speak up. If you care about what people care about, speak up on this issue. It does matter.

The forests are fertilized by the wild salmon, not by the farmed salmon, although I'm sure the farm fishermen would love to be able to dump their dead fish in the forest. When I worked at the Carrie base, we treated those fish with antibiotics. Do you want to put antibiotics into the forests?

I'm sure that the bears or the eagles don't want to eat antibiotics. All of those things need the wild fish. If we continue to pretend we care and do what we know is unnatural, we're going to affect the bears, the eagles, the forest, ourselves, the ocean.

They allow krill fishing in Georgia Strait. Why do that? Do you eat krill? I don't eat krill. Whales would like to eat krill, but if they farm it all out to make feed, the whales won't get to eat the krill they naturally eat.

I hope you guys can find it within yourselves to care enough about this issue to read what else is out there. Find out what happened in other countries. Is it beneficial, or isn't it? If we wipe out our wild fish, how many jobs will be lost? Not just fishermen but sport fishermen, lodges, people who come to see bears. Where's the best place to see bears? Where the salmon are going up the rivers.

This is a commonsense issue, and we all have some common sense. I hope you find all of yours and tackle this issue honestly. It does matter. It matters to us. It matters to everything.

When are we going to stop shitting in the nest? People individually are awesome. People collectively suck. We destroy everything. We shit in the nest worse

than any other species on this planet, and we don't care. We don't give a damn. We allow another farm to be opened in the Broughton. We allow Atlantic salmon in "super, natural B.C." There is nothing natural about it.

Sorry to be passionate. I'm done.

**R. Austin (Chair):** Thank you, David, for your presentation. You have spoken so clearly that there are no questions.

I would now like to call Alexandra Morton up to the witness table, please.

[1355]

**A. Morton:** I came to this coast as a whale biologist, and when I first ran into the salmon farming problem it was through the commercial fishermen that I often questioned about whales. Whales are salmon predators that don't speak, but fishermen are salmon predators that do speak, so they became a source of information for me.

As the problems began to look more and more real to me, I went to the Department of Fisheries and Oceans, and I listed all of these complaints. They said they would not listen to me until my work was published. So that's what I've passed around. The past six years I've spent publishing the various problems that are within my ability to study.

As a biologist looking at the issue of salmon farming, this is the question that I feel is the most obvious: are these farms simply too big for this ecosystem? As far as the person-to-person reality of salmon farming, the reason these guys are in the predicament of costing the province and the federal government millions of dollars in research and repeated reviews is because the salmon farmers have been uncompromising. As a mom, I look at them as bullies. They do not want to listen to what all of us have been saying to them. Nobody in this area has actually said get out until recently.

The Ahnuhati complex, which is basically the eastern part of the Broughton Archipelago, was written up recently in a B.C. environment document in 2006. They said it has the highest fish and wildlife value as an ecosystem on the mainland coast of British Columbia. The translation of that is that the wild Broughton offers huge economic opportunity just the way it is. The highest fish and wildlife value — that's an incredibly high rating.

Again, looking at this issue as a person living on this planet and as a mom, looking at all the food experiments going wrong around us — mad cow disease, all sorts of diseases that are jumping across the planet and potentially affecting us in a huge way — it's my impression that any place on Earth that still makes clean air, clean water and clean food should be coveted.

The only reason the salmon farm impact is allowed is that it occurs underwater and out of sight. Imagine a beef feedlot with excrement and parasites seeping out, one pattern with one westerly wind, another pattern with a southeast wind, and infecting deer, birds and rodents. What would we do? We would build a better fence to prevent a plague, and that is exactly what's required here.

Sea lice have become my specialty. It's a long way from killer whales, but they're very easy to study compared to killer whales, actually. The burning question for a lot of people initially was: how do we know that the B.C. sea lice epidemics are caused by the salmon feedlots?

The first thing I did.... A neighbour of mine came to me with one little pink salmon and one little chum salmon. Each had about 16 lice on it. I built myself a net, and I just went all over the Broughton, scooping up fish and looking at how many lice they had. I called scientists in Alaska, and I called scientists in Norway. I asked the scientists in Alaska: "Do pink salmon normally have these lice?" They said: "No, absolutely not; never been recorded." In Norway they said: "Do you have salmon farms?" That was their first question.

Sea lice infestations on juvenile pink and chum salmon were never reported in British Columbia prior to the salmon farms. The other thing I found out in that very first study was that the number of lice on these little fish depended on what was going on inside the farm. If there was no farm, there were few lice. If there were smolts in their farm — so they're holding these young fish — there were a few more lice. If there were adult fish in the farms, there were three times more lice. That meant the farms themselves were a significant variable in this whole question.

This is a chum salmon so riddled with lice that it's actually hard to tell that it is a chum. For sure, this is an extreme example of the infections I'm seeing out there, but sea lice are designed to be sparsely distributed on adult salmon. Adult salmon are armoured in scales. The sea lice attach to the scale, and they live quite happily, munching on the salmon mucus, not affecting the fish. They're considered a benign parasite.

[1400]

These young pink and chum salmon don't have scales, so the sea lice are attached directly to the skin. You can see in the dark patches that they've eaten holes. They leave tracks, particularly the gravid female lice — the ones with the tails. They have to hang on so hard that they actually puncture the fish.

The first year was kind of a from-the-hip study. In the second year I got a little bit more organized and got a bunch of co-authors. We spread out over the coast. We begged and borrowed other people's fish samples, so we ended up being able to look at fish from the Skeena River, the Prince Rupert area, Bella Bella, Rivers Inlet, Smith Inlet and in the Broughton. Very clearly, we found that sea lice were only infesting young wild salmon near the feedlots. This was another huge factor.

Then I did another study. In 2003 this large migration route within the Broughton was followed. I got to study what the little fish look like outside the farms when there are farm fish in the farms and what the little wild fish look like when you take the farm fish out. It was a perfect study design.

This is a graph showing how many lice are on the little fish outside of a farm that has salmon in it. The reason I have different colours in this graph is that the lice do this really neat thing where they change their

body shape every few days for the first month, so you know how old that louse is. But just look at the numbers in general. You're looking at about 12, down to just over four lice per fish. That's with the farm fish in the farms. When you take the farm fish out of the farms, this is what happened — very, very few lice. Very few fish had more than one. When you put the farmed salmon back, the lice infestation returns — very, very clear.

Studying killer whales is difficult, but studying lice is obvious. You hardly even need statistics to analyze this type of data. It's so significant, and it responds so rapidly to what is going on in the farms, whether you're near a farm or take the farm fish out. One of the things DFO offered up was, "Well, maybe the Broughton just has lots of lice," which, if you know the biology of the lice, is impossible. But this fallow experiment proved that not to be true.

The other really important point on this is that it's not just my work. This is not just happening in the Broughton. This is happening absolutely everywhere there are salmon farms. In Norway the guys say that if you line a long, narrow channel with salmon farms, you're going to lose 98 percent of your fish. That's happened to us as well.

Some people in DFO now believe that sea lice do come from the farms, but the next big question was: "Is this a problem?" We did a paper on this. I forget which one of you was asking about Fulton's condition factor, but DFO came out and said that, actually, Fulton's condition factor on these salmon did not change, no matter how many lice they had.

Fulton's condition factor just takes how long the fish is by how heavy the fish is and puts it through a formula. If you get a value of one, your fish is okey-dokey. If you get a lower value, it's not good at all. The reason DFO found that the condition factor stayed the same was that they just scooped up fish, weighed them, measured them and threw them out. But what I did was picked up those fish, and kept them alive and looked at what happened.

These fish were remarkable. They fought those lice valiantly. I was feeding them in their barrels with hatchery food, and the little guys with lice.... When I put the feed in, they were just boiling at the surface like piranha. They were starving. They did everything they could to maintain their weight against those lice. The other fish ate the food, but they were leisurely coming through and grabbing it as the food sank.

At some point they lost the battle, and they became emaciated. They would just float on the surface. Their skin colour darkened, and within days they were dead. But when you're in the wild and you start floating on the surface, there are a lot of things that are going to eat you, like kingfishers and mergansers and various coho and chinook salmon. So that group of fish was under-represented in DFO's sample. They just never caught them because the predators got them first.

[1405]

You don't even really need to debate this too far. You get a little fish like this. He's got four lice on him.

These lice have poked him full of holes, so he can no longer keep the salt out of his body. It's the equivalent of a racoon hanging off your ribs. For Fisheries and Oceans Canada scientists to say that this doesn't look like a damaged fish, that this fish is probably fine .... It's very hard to find a fish pathologist anywhere else in the world who would agree with that. This fish is not fine; this fish died.

In fact, we found that on these pink salmon that are weighing a quarter of a gram — and that's how big they are when they first go by the farms — it only takes one louse to kill them. The smaller the fish are, the fewer lice it takes to kill them. This is an essential fact to remember. If your farms are someplace where your salmon are big when they go by them, they are not going to be affected by lice. If they're near the rivers and the fish is this big — just about three centimetres — one louse that makes it to maturity absolutely will kill the fish. They studied 3,000 fish to get this data.

The next question is: well, what did they do in Norway? They've had this problem much longer than us. They're very open about it there. Can the solution they found work here?

Unfortunately, the answer is no. It's a numbers game. If you have an incredibly low infection on the farm of just, say, one louse per farm salmon and you have 1.3 million fish in your farm — which some of the farms in the Broughton have had — and you have 27 farms in the area of the Broughton and each female louse is producing hundreds of babies every few weeks, very quickly you have billions of larvae escaping into wild salmon habitat, and they're all seeking a host.

They are perfectly designed to find salmon. When you place these lice factories right on the migration route of these little fish, this is what happens. Note the name on this slide. This is not the Broughton. This is Quadra Island. It's happening in places other than the Broughton.

Here's why the Norwegian solution can't work. The top fish is approximately the size of an Atlantic salmon or a sea trout when it comes into salt water in Europe. Our pink and chum salmon are in fact the only salmon in the world that don't spend a year or more in fresh water, so they're coming out at a quarter of a gram.

In Norway they use what they call a mosaic of drugs, because they know that their fish are going to become resistant to SLICE. They use baths and neurotoxins and poisons that prevent the shell from forming — whole different families of drugs to keep the lice down so that when their wild smolts go by, they have exactly ten lice or less. But ten lice or less or any on our little pinks and chums is not low enough.

This is something that's going on in the Broughton right now. The salmon farmers have significantly reduced their lice, but if it's not low enough for these pinks and chums to survive, it's a futile exercise. It's the collision between the massive feedlot populations and the young wild salmon, which is simply breaking natural laws. This is happening to some of B.C.'s most valuable salmon stocks.

This is a study that we just did another year of data on, and then it will go back to the journal. It's showing the Quadra Island area. We clumped the study area into rings. The inner rings had the most salmon farms, the next ring had fewer, and then the next one didn't have any.

It was exactly the same situation as the Broughton. The more farms and the closer you are to the farms, the more lice. The alarming thing was that it wasn't just pinks and chums. It was Fraser River sockeye, it was chinook salmon, and it was Georgia Strait herring that were infected.

In the wild it's a beautiful system. The adult fish come in. They carry the lice into the stream. The lice die of fresh water. The adult salmon die. The young little babies can go out with no scales on them because there are no lice. They separate the two. The natural system separates the two, and that's what we need to do. We have to separate them. Otherwise, it's not going to work out.

You have people like me, who live there. You have people like the village of Sointula, Alert Bay and other people, who all have very strong feelings about what is happening with sea lice and salmon farms. But what about the guys we actually pay to figure out what is going on?

[1410]

This is back to the Pacific Fisheries Resource Conservation Council. They did a presentation after the collapse — I predicted an enormous collapse — of fish in 2002, so that was the run that went out in 2001. My data said they should collapse by 98 percent, and they did collapse by 98 percent.

That triggered this review. They concluded that to minimize the risk to the safe passage of fish via the threat of sea lice, there should be a fallowing of all salmon farms in the Broughton Archipelago. Even the Coastal Alliance for Aquaculture Reform doesn't ask anything that daring. We always ask for a moving over, a fallow route, but this analysis was done by Dr. Blair Holtby, overseen by Dr. Brian Riddell and, furthermore, by John Fraser. This was option one.

DFO has published zero papers on the impact of sea lice on juvenile salmon, and the Europeans I'm talking to are laughing at us. They're saying: "Can't you guys read?" Another guy emailed me and goes: "A five-year-old could figure this out. What's wrong with you guys? How come you're yelling at the salmon farmers? How come you've gotten into this conflict?"

I get back to them and say that I honestly don't know how we've gotten into this conflict. I don't think anyone was yelling initially, and even if we were, it's no reason to ignore the very same rules that they obey in Norway. They know sea lice are a problem in Norway. They come here, and they are pretending that they don't know this.

It goes on: flatfish. A few years ago the Sointula fleet here — I'm calling them the Broughton shrimp fleet, but most of them tie up here in Sointula — radioed me and said they had extraterrestrials stuck to the eyeballs of the fish they were catching as bycatch in

the Broughton. So I couldn't pass that up, and I went down.

It's a parasite called *PhrEXOcephalus cincinnatus*, and it's got the same kind of egg strings off the back end as the sea lice. It's absolutely proliferating in turbot or arrowtooth sole around the salmon farms. I did a paper on this with a researcher in Mississippi. Nobody has ever heard of this kind of abundance of this parasite in fish.

As I was going through their catch, looking at the eyeball parasites, I began to notice these other things, and this remain unidentified. I've sent samples off to many, many labs. I actually can't get samples tested in Canada — no disease lab will accept samples from me anymore — but this is something that I will track down. It concerns me because I've been handling these fish. A lot of these people here have been handling these fish. This again proliferates around the salmon farms, along with this one.

There's one tow the guys do that I call the nightmare tow. It's very deep, and I think the fish that get in there are just.... The farm waste is heaping onto them. Interestingly enough, as soon as you get away from the farms, the fish clean up beautifully, and they are just absolutely gorgeous throughout the rest of the Broughton.

Herring: very essential to the B.C. coast economy. Despite a ban on the commercial harvest of herring in the Broughton, they refuse to make a comeback. Could salmon farms be a factor? No one knows, because no one's looking.

In 1988 a young DFO biologist made an alarming observation. He said that in another instance — and he's listing a whole list of problems with salmon farms here — a traditionally spawned section of coastline between two salmon net-pen facilities has not been spawned since the farms became operational. Herring continue to spawn the foreshore on either side of the salmon farms but avoid the approximately one-nautical-mile section of the beach in between. Did DFO follow up on this? I doubt it, but it would be really worth looking into, because we have herring problems in our area.

Whales. I moved to the Broughton Archipelago to study killer whales in 1984. I actually followed a pod of whales in there and found a community and whales, and it was perfect. We dropped anchor and moved there, but I would not do that today. I got there in 1984. The salmon farms came in about 1987, and for a while everything went okay.

Then in 1993 they decided that to keep seals out, they were going to play underwater sounds. They were called acoustic harassment devices, and they were at 198 decibels, which is the loudness of a jet at takeoff, right at the jet engine. Killer whale families came in one by one, took one listen and never came back.

[1415]

The top graph is what the whales are doing in Johnstone Strait, and the bottom graph is what they're doing in the adjacent waters of the Broughton. Displacing whales is a direct violation of the Fisheries Act. I reported this to Fisheries. They did another study. They came in and studied the impact of the devices on

harbour porpoise and got exactly the same results, but nothing was done.

Sadly, today key matriarchs have died, and today the knowledge of how to fish the Broughton is lost to the whales. Those whales were very precise. They came in for certain runs, from the chinook in the spring to the chums in the fall.

Algae blooms. This is *Noctiluca*. It's a beautiful little spherical organism, but when it gets into great densities, it flashes this very, very brilliant orange colour. When you look up *Noctiluca* on the Internet, it's called a coastal eutrophic indicator species. The translation is too much blankety-blank in the water.

It flashes around large cities. It flashes in places where fertilizer from farms has been draining into the ocean. The Broughton Archipelago has very, very few people living in it. The only change that has occurred in terms of how much waste is going into the water that I can detect is the salmon farms. This is a neon sign, warning: "Overload, overload." It began in the Broughton in 1997. It's now annual.

We're also having toxic algae blooms. *Heterosigma* has become a big problem for the salmon farmers in there. There was another bloom this spring, and I and all the researchers there broke out in rashes. We still don't know what that was.

At first, my community welcomed salmon farms. We actually called the north Island's salmon aquaculture committee — I forget what they were called at the time — and offered to speak to the women that wanted to move there, talk up our school and tell them how to get groceries. We thought it was a great idea, but today we feel differently.

In 1987 the province came to us and asked: "Where don't you want salmon farms?" And they created red zones. Several other people have touched on this subject. The fishermen in my community did not want to tell these guys where not to put the farms, because they were going to have to tell them where the wild salmon are, where the prawns are, where the rockfish are.

They were very hesitant, and I got very angry at them. I said: "You guys, they're coming to you. They're asking you: 'Where don't you want farms?' We've got to do it." I remember riding into Alert Bay on a fishboat in a big storm. It was like the Broughton was saying: "Don't do this." We went in and showed them the maps. I just did whales, but the important information was from the fisherman.

The province said there would be no salmon farms in the red zones. In fact, they said the definition of a red zone was that they would not accept an application for a salmon farm. And then? They put more farms in the red zones than anywhere else. You can see these little blocked squares sitting on red zones.

I went to the province, and I said: "How could you guys have done this?" The first thing they said was: "We contacted all the interest groups, and they changed their minds." Fortunately, they had listed all those interest groups — and I was one of them — on the reports, so I contacted them. Nobody had even been asked.

Then they said: "Well, we painted the red zones with such a broad brush that we could put one little farm in there and it wasn't going to make a difference." But in the one up Knight Inlet there, you can't even see the red zone. It's so small that the farm covered it. It's the same with the one in Carrie Bay. I should have that block up there. It's so small that the farm actually extended past the red zone.

This was a betrayal of the public trust. This is where we all started to lose confidence. It placed the farms on Broughton's vital organs, making the greatest ecological impact a certainty. The final answer they gave me, which is what Teresa said, is that all existing applications have been grandfathered in. I can only hope that they didn't actually use the fishermen's information to site these farms. They certainly didn't use the fishermen's information to keep the farms out.

When this was going on, our newspapers every week had four or five applications. There were dots all over the map. Somehow the fish farmers made a selection from those hundreds of dots and ended up with the farms in the red zones. Broughton's fate had been sealed before the process began.

[1420]

My community's economy depends on wild fish. We're fishing lodges, fishermen, artists — people who one way or another are closely connected with how well the fish are doing. I hear all the time that salmon farming is essential to this coast. For sure, some communities may be benefiting, but the salmon feedlots in the Broughton, which has the most dense salmon farming industry of anywhere on this coast....

They do not put children in our school. We're threatened with closure every six months. They don't buy gas, except when they have toxic algae blooms and have to put the diapers on their farms. They have these generators. They don't use our post office. They don't bring residents to our community. They do not employ us. Nobody in my community works on a fish farm. And they don't respond to our requests. They're not allowed to fraternize with us.

We have fewer mail-days a week since the salmon farms arrived. We have fewer children in our school, fewer people in our community, fewer lodges, fewer wild salmon. All the losses are factored in. I really would like to know: are coastal communities actually benefiting? This town has lost its processing plants, many deckhanding jobs, boat repairs. All sorts of things have gone by the wayside.

Our chiefs have repeatedly and peacefully requested that they leave, and this is something that doesn't get mentioned very often. I know that first nations have been very passionate in talking to all of you, but all the time salmon farmers leave equipment lying around our place, lying around the Broughton.

They have a whole farm sitting at Glacier Falls — thousands and thousands of dollars of equipment. Nothing has ever been vandalized. There has been no act of violence. The fish farmers have been given the benefit of the doubt and have been treated well, but they ignore the first nations as if they don't matter.

This slide is actually very interesting when you look at it just for a second. This is at the farm in Sismoom Sound. You can see there are algae blooms occurring in a number of the pens, which have coloured the water red. I really wonder what that is, but of course I'm not allowed to take samples out of the pens.

Politics. *Hansard*. This is in 1990. This is Jon Lilletun from the Norwegian parliamentary committee on environment. He says: "We have a concession law. One has to have a concession to be a fish farmer. We are very strict about the quality and the environment questions. Therefore, some of the fish farmers went to Canada." They said: "We want bigger fish farms. We can do as we like." That is a very hot subject, I think.

He goes on to say:

Fish farming has had very good times in Norway. It was a flourishing industry, and the need came up to import small fry from Scotland. At the time the representatives from the fishing industry itself said that they needed this in order to maintain the viability of the industry. Scientists said no, that it was dangerous. We knew there were problems with the small fry from Scotland, and we should not do it. In the end, the politicians gave in, and the import occurred against the advice of the best-informed scientists in the country.

Did we listen?

Here's a letter from the Western Trout Farmers Association. "In the past three to four years there have been instances of diseased eggs and fish introduced from the U.S., even though the stocks were presumed disease-free according to the Canadian health protection regulations."

We became aware of this in 1991 when our coho came back to the hatchery, and we lost 25 percent of the brood stock to furunculosis. We'd never heard of it. The IBEC farms just outside of the hatchery — it turns out they were infected with furunculosis. They had put those fish in infected. Dale Blackburn of Stolt told us after his company bought the company, because they wanted to clean up the disease problem. But nobody looked at the wild coho.

Norway already knew that salmon farms were the leading cause of furunculosis in wild enhancement hatcheries, but no one warned us. The salmon farmers actually requested permission to further import furunculosis-infected stocks to B.C.

Here's a letter from Ted Needham with B.C. Packers. "As we have no other disease-free source available anywhere in the world, I'm requesting that you reconsider your position, particularly in light of the expected change in the DFO regulations."

This is all in regards to *aeromonas salmonicida*, which is the causative agent for furunculosis. Ted Needham saying he has no other disease-free stocks anywhere in the world. That means that we've got diseased stocks. The scientists said no, that it was dangerous. We were warned.

[1425]

Here's Dave Narver from the B.C. Environment talking to Pat Chamut, director-general: "Pat, hatcheries which are currently raising Atlantics do not comply with their licences, and escapes are happening now."

For sure, there will be some fish homing back to some of our stream systems. It remains debatable how many. Our client groups are going to be livid." He was right.

Here is a memo from Gary Hoskins. I won't read the whole thing out, but he says: "In view of the contents of this letter, I plan to increase surveillance of..." Everything is deleted. Something happened here. A shipment of something came in. Was it eggs? Was it fry? There was a problem. This man went on to write a memo detailing how risky it was to import even eggs under the Canadian health protection regulations.

Salmon farmers came to Canada looking to shed restrictive measures. Instead of doing the science, instead of learning from Europe, taking the precautionary principle, DFO adopted a shoot-the-messenger approach. That first year that I picked up those fry with lice, they asked me for samples. Then they sent an officer threatening me with a jail term.

The DFO is split on this issue. Those in the field — people who are actually out there getting wet, looking at the fish — have a different sense of this issue than the people in management. But still, DFO has not published anything refuting the lethal impact of farm-origin sea lice. All they offer is unproven, unpublished theories.

I opened my home to other researchers because I could see they were becoming immune to me. If it was just me chirping about sea lice, this wasn't going to work. So I now have students from labs in Dalhousie University, Simon Fraser University, University of Victoria and University of Alberta. I really hope that this committee can meet with the supervisors of all those projects from those major universities. Meet with them, along with the DFO scientists like Dick Beamish, Brent Hargreaves, and then have the people from these universities, and have them duke it out in front of you.

This year I'm actually partnered with a DFO team, so all the media about Morton saying this and DFO saying that was just because they were picking my data from one year and comparing it with another year of DFO. There was no conflict in our data. One of the DFO teams came to me this spring and said: "Let's put an end to that. Why don't you work with us?" So I'm partnered with them this year.

The farms can come and go, but the food chain is the stuff of life. This is not just about bears and a few fish. This is threatening a world-class food resource.

East coast cod stocks were a world-class food resource too, and DFO actually presided over their demise. I know some of the researchers who tried to save those cod stocks. While the cod were going down, DFO allowed feedlots on that coast. As soon as the fishermen were gone, they approved oil wells on the Grand Banks. I cannot help but wonder if that's what this is all about.

Any place on earth today that can still make clean air, water and food must be coveted if we are to survive as a species. This is a quote from Ransom Myers. He's one of the DFO researchers who spoke up for the cod. He said this on CBC radio a few months ago: "They wanted to censor my work. I quit five minutes later." That man is a hero.

This is absolutely our responsibility to our children. They're not going to believe we let this go down. Farmed and wild salmon will be separated. It's happening.

Dave is talking about fishing in Wells Passage. Wells Passage had no fry this year. The Embley River had no spawners in it. DFO sent crews in there seven times last fall. They wanted to find if there was even one, and they didn't find any. So the problem has been solved in Wells Passage; there are no sea lice on salmon fry. The only question is whether we're going to take control of the end result.

If we respect wild salmon biology, we can have both. Why would we choose not to?

Thanks.

[1430]

**R. Austin (Chair):** Thank you, Alexandra. I'd just like to comment on the time. We are running a little late, so before I open the floor to questions from members, I just want to let them know that and also point out that I believe we will be meeting with you again during this process.

**A. Morton:** Oh great.

**G. Coons:** Thank you very much, Alexandra.

I did have a question about Fulton's condition. When I read your study on that, it was January 5. I'm just wondering. Since then, and in your partnering with DFO, are they changing their research methodology? And what are they changing to? Is that part of the research you are working on?

**A. Morton:** No. We decided to stay with our methodology, because what Brent Hargreaves has done is... The way he fishes those fish, we can actually tell if their numbers have gone down or not. We're going to be doing a different type of analysis, looking more at how the fish are surviving rather than at the number of sea lice.

I also get to look right into their databases and work more closely with them. So far we've just done the fieldwork.

**G. Coons:** One last thing. Some of the fact sheets we got in our package prior to beginning our search out here on this question... DFO has put out there that there is no evidence that supports the notion that juvenile salmon travel through "migration corridors" in the Broughton on their way to the ocean and that this does not support allegations that emptying certain salmon farms along a certain path will reduce sea lice infections to young salmon. I'm just wondering about your thoughts on migration routes and that statement from DFO.

**A. Morton:** We know they're not going over land, so that leaves them very limited options in the Broughton. We know they're going down Tribune Channel into Knight Inlet. There's just no question, so I don't really know what they're getting at with that.

I've heard that before, and I say, "Look, there's no other physical way for them to go," and they say: "That's your opinion." Yeah, it is my opinion, but until they can show me a migration over land, it remains.

**R. Cantelon (Deputy Chair):** I want to thank you for having us to your facility.

A question about that. I think you mentioned that it's now becoming a more expanded research facility. Can you comment on that? I think you've mentioned it to me. I don't know if you want to talk about all the details, but you're now sort of operating it there as a tenant. Maybe you can tell us about the future plans.

**A. Morton:** Yes. Due to marital problems, we put it up for sale. A woman swooped down out of the blue and bought it and has asked me to run it as a research station and do with it as I see fit.

A lot of the mistrust around science is because of who's funding it. I've been housing students there for the last three or four years — students that could not afford to go into the Broughton and do this kind of work. What I want to continue doing is give scientists who aren't getting corporate funding, as it turns out to be, a foothold to come in and do some of the ecological research that we all need to answer these problems. Hopefully, we'll get past salmon farming and can just study the magnificence of these fish — incredible animals.

That's what I hope to do: run a research station there.

**R. Cantelon (Deputy Chair):** I look forward, in the future, to duking it out, as I think you put it. We hope to have a forum where we can learn more about science, because I don't think I have the expertise to ask you the right questions. I was down to see your facility, and we were down at DFO, where they have even bigger tanks with even more fish in them. So it'll be interesting.

I have a question on the research. I know that the Pacific Salmon Foundation is funding almost half a million dollars worth of studies now on sea lice. I think it was ten or 15 studies that are being done, which have started this year and will continue to next year. Is your research part of that group of studies that is being done?

**A. Morton:** No. I'm cautious about allowing my work to be funded by any one group or another. So my funding, actually, is really multibased. It's basically from fishermen, whether they're sport or commercial.

The DFO project that I'm partnered on is funded through the Pacific Salmon Forum, but I did four other projects on my own this spring. I really like to keep them independent, because it's a lot of work to follow those fish around. Whatever results I get in the end, I would like to be free to use them, so that's the system I use.

**R. Cantelon (Deputy Chair):** Okay. But it is one of those ones that is that group. I'm just trying to get it sorted out in mind. The one you're partnering on with Hargreaves is one of those. I believe there are about 15 studies — aren't there? — being done.

**A. Morton:** His studies have been going on since 2003, and they basically just brought me onside with that one.

**R. Cantelon (Deputy Chair):** Right. Thank you very much.

[1435]

**S. Simpson:** We appreciate that presentation. As Robin and Ron have said, I think it is our hope to bring exactly that kind of group of scientists together, who have varying views, and spend some time and let them duke it out. We're hopeful that you'll be a participant in that process.

**A. Morton:** You bet.

**S. Simpson:** The question I have is around the relationship, because we went to DFO and we met at the Nanaimo station. They toured us around, and we looked at some of the fish that they have there in the second year of a current piece of research around sea lice and trying to determine impact. One of the things that they told us is: "Yes, there are lice. There's no question about that." But the lice.... They're not finding the negative impact. They're saying they're not causing the harm to the fish that you've spoken about. What would they be doing?

**A. Morton:** Well, I'm going to go and visit this next week, because I'm very curious, too, about how that could be true. But I did see that they published a little blurb in *Northern Aquaculture*, which is really a very unusual place to release results before there's any published paper. But in any case, they did that, and in that they mentioned that the size of their fish ranged from 1.5 grams to 30 grams.

The fish I'm dealing with are 0.25 of a gram. They're a quarter of a gram, and that makes all the difference. So I don't know. Did they have a thousand fish at 1.5 grams, or did they look at six fish? They said that their sample size was from five to ten, I think — a very small sample size. In any case, their smallest size was three times bigger than mine, and their largest fish was 30 grams.

I'm not looking at fish that size. They're looking at a whole different age class, so they have a whole different result. The fish I was looking at were fish that were infected, got themselves infected right beside the farms, and were weighing less than half a gram. I think the problem there, or the difference, is the size of the fish, but I'm going to go review the project next week.

**S. Simpson:** One other question. We've been hearing an awful lot in the last little while from people who are concerned about fish farms, about the response that's now going on in Norway, about the eight fjords that have been closed to any fish farming and a review of a number of others that's going on about impact on wild stocks and that. I think we're hoping to get more information about what exactly is going on in Norway

and what the thinking at the moment is around this, because I guess they probably have a longer experience there than anybody else.

Could you just elaborate a little bit about what their determinations are around the sea lice, because also, as you say, we're being told: "There is no question about sea lice and the impacts on fish. They just have different fish." Talk a little bit more about what they've learned in Norway.

**A. Morton:** Well, in Norway they've learned that the sea lice come from the fish farms. It's the same process as happens here. The wild fish come in. They infect the farm fish. The wild fish go into the rivers. The lice die, but the lice on the farms proliferate over the winter. You put lights on the farm, and you cause more proliferation. In the spring the water temperature heats up, and then they really start breeding.

They use, like I told you, a mosaic of drugs — whole different families of drugs. And when I asked them, "What about your adjacent fisheries?" they said they didn't have any. They don't have a shrimp fishery, a prawn fishery, a crab fishery. They don't even have wild fish fisheries. I believe their herring fishery is further offshore. So they weren't concerned about the impact of those drugs on any fish around them.

It's a very different situation. But in terms of sea lice, they say they've solved it because they're keeping the number of lice on the wild fish outside the pens to ten or less. That seems to be the magic number for it. They keep their lice down. They're able to do that.

That's not going to work for us. First of all, because the drug SLICE.... Not only does it potentially kill shrimp, but it kills the very things in the plankton layer that the pink salmon eat. So it's pretty insidious. It doesn't seem a good idea to be knocking out the food chain at that level, at the plankton level.

There are also prawn fishermen fishing right around the salmon farms, and I don't know if that drug is passing through the feces into the prawns and then getting into the human diet. I don't think they have those conflicts in Norway. I think it's much cleaner in terms of a break. And they keep the size of their farms smaller, so I think they have less of a lice problem.

[1440]

**C. Trevena:** Thanks very much. I won't be too long, because you are going to be coming back. I just had a couple of questions. You say that you're starting now to do research further south as well, into the northern Gulf Islands. I wondered how you were doing that — you're also working with fishermen — and whether you're seeing a replication of what is happening in the Broughton, or if it's a lesser incidence.

**A. Morton:** No. I started the project last year from some commercial fishermen who asked if they could help. They really have helped. They've been phenomenal out there collecting samples. I've had some crew members out with them, so they're doing the correct protocol.

We found enormous sea lice levels down there. Like I said, it was also on the other species. We don't get so many sockeye in the Broughton. The sockeye were infected. Then these tiny little translucent herring got in the bags by mistake. I started looking at them. They too had sea lice.

We redid the study this year. A lot of the farms that had fish in them last year don't this year. We have to go up to the farms with binoculars and actually try to figure out if there are fish in the pens. It's that primitive, because the farmers won't even tell us that. In any case, you can look in the pens and see. The farms that don't have fish in them now.... There are no lice outside the pens on the wild fish.

I'm finding exactly the same as the Broughton. Broughton is really cleaned up. These guys are using a lot of drugs. They've got their lice levels down. Like I said, it's still impacting the fish. But clearly they weren't expecting us in the Quadra area, because the lice loads there were up in the tens. You'd get fish with 50 or 60 lice on them.

I would love to expand this all up and down the coast, but I haven't found the right fishermen in the other places yet.

**C. Trevena:** You say it's also affecting herring as well as salmon.

**A. Morton:** There are lice on herring. There are two species of lice. One is a real generalist species. It doesn't specifically infect salmon. It can infect salmon and others, and that one, in particular, is jumping on the herring.

I don't know enough about herring to know if it's affecting them. But when you've got a fish that's this big — he is completely see-through, has no scales — and you get a louse on him, I suspect it's a similar situation as with the salmon. More work should definitely be done on that.

The thing about the ongoing work is that it's time to actually do something. When they followed the Broughton in 2003 I didn't think it was going to work. I was actually pretty negative about it. But then when I started to look at the fish outside the pens the lice just vanished.

They took them off this one corridor, and the following fall the difference between the parental generation and the returning generation was a bigger difference than we've ever measured — ever — in any species of salmon anywhere. Those pink salmon rebounded. They were amazing. We give them half a chance, and they will fill the spawning beds once again. They're really a miraculous animal.

That worked. Some people, even within DFO, have said.... I mean, one of the arguments is: "Well, Alex, how do you know it was the fish farm? It could have been another variable." They're right. You can't have one day to point and say: "That's a trend." A lot of us have been saying: "Let's do that again." If we get the same result again.... Well, we're a little bit closer.

The problem is that it is like one of those hour metres — you know, with the sand running through — for these fish. If you knock a generation of fish down by 98 percent and then you hit the guys who come back by

80 percent, and then you hit them again and hit them again.... First of all, what you've got left is not nearly as resilient. Any natural calamity, and those fish are gone.

The tragedy of what I've observed this spring.... I did a habitat study where I was looking at all five channels that go through the Broughton and looking at the fish. I've been waiting since March for the migration. I was telling my co-author that I feel like I'm taking the pulse of the dying. They never did show up. It's just been raggelyley-tagglely little groups of fish. Now the coho are so abundant. They're lurking under these last little schools of pinks, gobbling them up. It's just a system that's tilting out of balance, and we'll be very lucky to get it back.

Fortunately, the Glendale, or the spawning channel, still has lots of.... Not lots, but it has fish. That river should have a million; it had 189,000. That looks like lots, but it's not the full capacity. It has fish still, and pink salmon are known to stray, so maybe we'll get them back.

Nobody ever knows where the point of extinction is. Even the best scientist is not going to know where that is. We're really playing with fire. We're so close to it now. We could be over it.

[1445]

**D. Jarvis:** Ms. Morton, can you tell me where the smolts from up in your area, coming out of the Broughton Archipelago...? Are they going straight out into the straits and then out to sea?

**A. Morton:** You know, one of the things that was shocking me when I started this is that we don't really.... Nobody's really followed the juveniles around. But if you look at a chart, first of all, they're not in a rush to get out of the Broughton. They're still there, and some of them are going to be there till October.

After they pass the Broughton, there's a whole belt of salmon farms out in front of Port Hardy, starting right in the bay, in every little island across and then right to the mainland. They have a whole other gamut to go through.

**D. Jarvis:** What I was trying to get at was: after they get by that last barrier, theoretically, they go straight out to sea, do they? Or do they go...? They don't go down the Johnstone?

**A. Morton:** No, they follow the coast.

**D. Jarvis:** All the way up?

**A. Morton:** They follow the coast. Then, I believe, they go up into the Pacific gyre. I don't know exactly where they go, and I don't think anyone does. But no, they don't go straight out. Whenever I see maps like where they map Fraser fish coming and going, they always turn at Cape Caution and head up through the islands there.

**D. Jarvis:** Would they mingle with the smolts coming down in the Skeena and the Nass, follow that route?

**A. Morton:** Oh yeah. They're all going to mingle out there, feeding in the Pacific gyre. As these little guys go out, they're going to start meeting, pretty quick, the big guys coming in.

You asked the question — Jennifer Lash's slide: when was the last disease epidemic? This is another issue. When a fish goes by a farm and gets marked by lice, he's basically been tagged. That fish has been by the farm. So we know they've been by a farm, but do they have BKD? Do they have IHN? Do they have any other disease?

I was on the Doctor Islets farm last year, and they were treating for BKD last year. So I don't think the disease epidemics are over either. You've got these guys. Okay, they've made it out of the Broughton, and they've got a few holes in them. But they're going to sea, and then they go by Port Hardy. Who knows what they get hit with there? But they're going to be much more susceptible to pathogens with damaged skin surfaces and lack of scales and things like that.

**D. Jarvis:** As a scientist, I imagine that you can appreciate that there's a lot of misinformation out there, both sides of the equation on this.

**A. Morton:** You know, there's really not. In terms of what's been published, it all says the same thing.

**D. Jarvis:** Well, what I was wondering about, then.... Earlier this week we were up in the Skeena, and they were talking about how their runs were falling down. But there are no fish farms near them.

At the same time, you look at the commercial fishery in Alaska. It's something around \$34 million or \$36 million, and the commercial fishery for the Skeena is only down around \$14 million or \$16 million. There are other predators out there, whether they be man or fish.

**A. Morton:** That's definitely true. These guys support the whole ecosystem, but....

**D. Jarvis:** Yeah. So can you put any factor in this, to where the sea lice problem would be in relationship to the rest of the predators out in the sea?

**A. Morton:** Well, they say, just in terms of coho.... The only way the pink salmon survive coho predation is by growing fast. They have a very narrow escape margin. So nature puts out her little pinks in March, gives them two months head start, and then she sends out the coho. Whoever hasn't grown above six centimetres is going to get gobbled up. A large percentage of them are taken by those coho, but then, that becomes coho. You get enough pink to go to sea to come back in huge numbers, but you also get the coho.

I've heard this argument a lot. "Oh, there are lots of things knocking back the pinks, so why don't we add sea lice too?" It's an argument that I don't understand. If you have something that's supporting the whole ecosystem by being fed on, you don't want to knock it down, because the whole thing is going to tumble.

**D. Jarvis:** I think it was yesterday — I get confused sometimes — when we were at your premises up at Echo Bay. I more or less interpreted that you said that to some degree fish farms can coexist in this industry, providing that, I think you said, they took most of the farms away from the mouths of the spawning rivers and move them down towards the sea, further.

**A. Morton:** If you had fewer farms and you get them away from where the fish weigh less than one or two grams, then there's some potential.

[1450]

Nobody's tried that. If you end up with a disease like infectious salmon anemia, which has struck every single salmon farming nation except this coastline, then we're back to square zero. But in terms of sea lice, yes. If you can get those farms away from where the fish are bigger than a couple of grams, you're going to have much better survival in your wild fish. The 2003 fallow proved that in spades.

The IHN epidemic that took down five farms in the Broughton in 2002 and 2003.... We don't know what that did to anything because nobody is studying it. So there are lots of other unknown variables. It is a matter of separating the two though.

**D. Jarvis:** Getting the viability of those fish farms that close to the open sea is the big problem, I guess.

**A. Morton:** It's hard to find a place for the farms, I agree, because this is such a fishy coast. But this logic is difficult for me to accept, because somewhere inherent in this whole argument is that we have to have the farms; we have to find them a place. As someone was remarking: what happened with all the commercial guys whose licences were bought back? What happened to everybody who lost their jobs in this town for the plant?

I don't mean to be argumentative, but this inherent thread that's gone all the way through this argument — I've been in this since 1987 — is that they have to be here. I don't understand that. Maybe they do, but I don't understand where that came from.

**D. Jarvis:** Last night a gentleman mentioned when questioned when the last herring run was made in this area.... He said that it was prior to 1975. In 1975 there was a roe fishery. That's about all there was. After that it has gone downhill completely. Maybe I was being a devil's advocate, but I said: "There were no farms here prior to '75 when the herring run was down." So I was just wondering if you would comment on that.

**A. Morton:** Well, the people who have done studies on the growth rings of trees have shown enormous cycles of salmon going up and down. So we know that's natural. But the salmon industry has not been going down since '75. I was a deckhand in 1990. I did fantastically well.

**D. Jarvis:** No. The herring. The last herring catch was pre-1975, the last big fisheries of herring.

**A. Morton:** I'm not working on herring, so I can't comment on that. For sure, lots of things have happened to fish, but it's no reason to cause a known impact to happen again. We're at a point right now where we really have a choice. If you put your tanks on land, maybe you could have fresh salmon in the winter, if people really want that. But, also, make sure that the wild fishery thrives.

We have helicopter fishing in my area. The value per wild salmon when you take somebody up in a helicopter to go fishing for him is enormous. This is a man who actually lives in Port McNeill. It is part of our coastal economy here.

I don't think salmon farming is the only answer. I think it could be part of it, but it really needs to listen to everybody and become accountable for its impact and take its place and let the rest of us continue.

This coast is so incredibly wealthy. What the Europeans would give to have this many salmon, I don't know. They feel very regretful that they've lost them.

**D. Jarvis:** Well, unfortunately salmon are cyclical. I've lived here for seven decades, and I know that it is cyclical. It goes up and down. Hopefully, it'll come back again.

Thank you very much for your answers, as I say.

**G. Robertson:** Thank you, Alexandra, for your presentation. We've heard a lot about lessons learned from Europe — from Norway, Scotland. There has been lots of talk amongst the committee members that we need to know what the best lessons learned are, what the best science is. There's a desire to tap into that, so any guidance you can provide of what that is, and who we should be talking to or connecting with in some way, will be something we're looking for in the months ahead.

**A. Morton:** Great. I'd love to do that.

**G. Robertson:** I specifically have a question. We've heard concerns about the use of copper antifouling paint on the nets as now being pervasive, at least with the Pan Fish farms. I'm not sure about what's happening in the Broughton. This was in Campbell River meetings. Have you looked into this at all? Are you aware of those concerns and what's happening in Broughton?

[1455]

**A. Morton:** I haven't looked into it myself. I know there was a small study done that did find copper contamination in clam beds near the salmon farms. I went so far as to get a label off of the paint can. Quite frankly, I'm confused because there's a skull and crossbones on it, and it says: "Do not allow flakes into the aquatic environment as it's toxic to fish." So I'm unsure how they can be raising a fish that's going to be eaten by humans in a net that's painted with a toxic paint. We know that the paint flakes off because they have to pull the nets out and recoat it.

I think it's an issue of how their own fish are affected, but also it is definitely getting into the clams. There was a small study done. Actually, it was supervised by a local fellow, Bruce Burrows. I don't know if they went forward with that or not.

**G. Robertson:** Do you know which farms? We've heard that Marine Harvest is committed to washing their nets and not using antifouling paint, but I don't think we have confirmation of what the other companies are doing. Do you have any knowledge of that?

**A. Morton:** The Marine Harvest pens right now are just as orange as everybody else's, so maybe this is a policy that hasn't taken.... They did just buy out Stolt.

All the net pens, when they first go in the water, are brilliant orange, and that's the paint. I don't know any more than that.

**G. Robertson:** Thank you.

**R. Austin (Chair):** Thank you very much for your presentation.

I would now like to call Carmen Burrows.

**C. Burrows:** Hi. My presentation is very brief. I know we're running into overtime here. Thanks for coming to our community. My presentation, being at the end, will be repeating a lot of the excellent points that have already been made, but it is my hope — and I know I'm not alone — that if the serious concerns with the salmon aquaculture industry are brought up again and again, then perhaps these serious concerns will not only be given the consideration they deserve but action to address these huge concern will follow.

You've already heard that the timing of these hearings, unfortunately, hasn't worked out for the fishermen who are directly affected by this, especially when we're hearing of communities where the hearings were happening, like in Campbell River, where a lot of aquaculture employees could get the time off work to attend.

I am from a fishing family. I moved here as a teenager in 1980, and as a teenager, I fished for years. My father started fishing here. My husband is a halibut and salmon fisherman. Although one of my concerns has to do with the impact of the fish farm industry on wild

fishery jobs, my number-one biggest concern is for the health of the entire connected chain of marine life. Salmon aquaculture has already impacted some wild species, and studies have confirmed this. These impacts have interfered with that connected chain of marine life.

I know you've heard this over and over again, but where there are fish farms, among other things, there are sea lice. It has already knocked some wild pink salmon runs down to dangerously low levels. That's just the things that we know of.

I keep hearing and seeing ads in the paper about how important fish farm jobs are, but are those jobs more important than wild fishery jobs? No, of course they're not, but that is what is being implied by the fish farm industry's comments and their inaction toward becoming a responsible industry — that, as well as the government's continual accommodation of an industry that is leaving too much fecal pollution behind. They self-regulate, release toxic substances into the marine environment, physically obstruct wild and recreational fisheries, deplete wild fish stocks for fish food.

[1500]

I mean, if the salmon aquaculture industry played in the NHL, they'd never make it out of the penalty box. Actually, they'd probably never be allowed to play. Anyway, my closing remark is that the technology is available for this industry to become a responsible industry, and I think they have a moral obligation to use it.

Thank you.

**R. Austin (Chair):** Nobody has any questions of you. Thank you very much for your presentation.

**C. Burrows:** All right. Thank you.

**R. Austin (Chair):** I would like to thank everybody for coming here today, both all of you who have made presentations and taken the time and trouble to do that as well as those of you who have come to observe these important deliberations. Thank you for being good citizens.

I'd like a motion to adjourn.

Thank you. These hearings are now adjourned.

The committee adjourned at 3:01 p.m.



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Published by British Columbia Hansard Services, and printed under the authority of the Speaker by the Queen's Printer, Victoria. Rates: single issue, \$2.85; per calendar year, mailed daily, \$298. GST extra. Agent: Crown Publications Inc., 521 Fort St., Victoria, B.C. V8W 1E7. Telephone: (250) 386-4636. Fax: 386-0221.

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