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Chair

Mr. Rodney Weston

Standing Committee on Fisheries and Oceans

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● (1705)

[*Translation*]

The Vice-Chair (Mr. Raynald Blais (Gaspésie—Îles-de-la-Madeleine, BQ)): Good afternoon. You are going to have to use your little earphones, because I will be speaking to you in French.

I thank you for your welcome and especially for your patience, as we are late because of all the snags we had to deal with during the past few hours. However, the important thing is that we are here, and so are you.

To begin the hearing, I am going to give the representatives of each of the groups—there are eight people but seven different groups—a maximum of four minutes each. I know that you had been told you would have five minutes. However, I am saying four because I know that people sometimes go beyond the allotted time. And so I am asking you to keep to four minutes, but do not be disappointed, because this gives the members more time to ask you questions. Please be assured that if I am asking you to be quite disciplined with regard to your allotted time, I will be asking my colleagues to do the same thing. I know for a fact that I have their cooperation to allow you to answer questions or to go on with the discussion. If at the end of the meeting, you still have some important points you would like to raise, please let me know and perhaps we can arrange something.

Moreover I would like to let you know that you will also have the opportunity, if you wish, to send us other written comments following today's hearing. If there are pieces of information or files you would like to send us so that we have more information when we study this topic, do not hesitate. The members of committee will be happy to hear from you if after today's hearing you want to send us your comments or touch on issues you did not have time to raise today. So feel free to communicate with us.

And now I am going to arbitrarily give the floor to the person whose name is first on my list , and that is Ms. Sonja Saksida.

Good afternoon. Please go ahead.

[*English*]

Ms. Sonja Saksida (Executive Director, BC Centre for Aquatic Health Sciences): Bonjour, and thank you for this opportunity to address your committee and to provide you with information from my organization, the B.C. Centre for Aquatic Health Sciences, BC CAHS, and to give you an overview of the knowledge that is essential, based on my research and experience, to your understanding of aquaculture specifically.

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): I am going to give you a little bit of advice in passing. When people read a written presentation, they generally have a tendency to go quickly. I would ask you not to go too quickly if you are reading a document, because the person I hear in my earphones may have problems, and then I will as well. So I would invite you to take the time you need to read your presentation, in the four minutes allotted to you. Thank you.

[*English*]

Ms. Sonja Saksida: Okay, I'll slow down.

The centre is a small not-for-profit organization located here in Campbell River, with a mandate for conducting research and providing services that contribute to the health of aquatic animals in the environment. BC CAHS started operation in 2005. It is unique, in that it's the only independent non-profit fish and aquatic health facility of its kind in Canada. The centre is very fortunate to have highly qualified researchers and technicians, as well as a well-equipped laboratory facility. Our strength lies in our ability to maintain a non-partisan approach that brings interested parties together to build scientific understanding and seek solutions that benefit all.

We have a board of directors, and its members represent the interests of various stakeholders, including academic institutions, environmental and conservation organizations, salmon aquaculture, shellfish aquaculture, and the fish health product industry. We believe that aquaculture provides good opportunities for coastal B. C., and its impacts can and should be recognized and mitigated to ensure healthy aquatic environments.

Our partners include government, the aquaculture industry, first nations, and environmental and conservation organizations. We feel that our role fills a critical gap between academic-based research, government agencies, and the industry and coastal community needs.

I have a BSc. in marine biology, a doctor of veterinary medicine degree, and a master of science degree in epidemiology. Epidemiology is the study of disease in populations. I have worked in association with the B.C. aquaculture industry since 1995, when I started as a veterinarian for a feed company. Since 2000 I have maintained a private aquaculture veterinary practice. I have been a researcher at CAHS since its inception in 2005, and in October 2009 took over the role of executive director.

Throughout my career I've worked with a variety of cultured species, including Pacific salmon, Atlantic salmon, rainbow trout, tilapia, sturgeon, black cod, and cobia; and a wide range of production facilities, including open-net pens, closed-containment systems on land and in water, and novel systems such as integrated multi-trophic systems. My interest is in ensuring that all current and future aquaculture development has a primary focus on fish health and welfare, as I believe the health of the environment and the fish are very much connected and interdependent.

Through my research, my knowledge of aquaculture in B.C. and globally, my connections with researchers, and access to results from BC CAHS projects and services, I have been fortunate to become uniquely positioned to discuss fish health and sea lice infection issues in farmed salmon, and the implications on wild populations.

Through my research and observations I can confidently state that fish health is well managed by veterinarians and fish health professionals in B.C. farmed salmon. Compared to other agriculture and aquaculture industries, there is considerable sharing of fish health data between industry and government, as well as very good oversight and auditing programs of both fish health and sea lice issues on farms. The audit program in British Columbia does an excellent job of verifying that infectious diseases indeed are very low in farmed salmon.

Even so, diseases from farmed salmon have been implicated as a potential source of the collapse of the Fraser River stock in 2009. Specifically, a virus named IHN has been implicated. This virus is natural to the coast of B.C. and has been found in wild Pacific salmon. However, IHN has not been detected in farmed salmon since 2003. Therefore it really can't be a factor in the collapse—at least the transmission of the disease from farmed salmon to wild. Unlike other jurisdictions, B.C. doesn't seem to see the same issues with sea lice on the farmed fish.

Why is this important? There has been a lot of interesting research in British Columbia, and it has shown that the species of louse here, lepeophtheirus almonis, is far less aggressive, and is actually a different species.

That's it.

● (1710)

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): Thank you, Ms. Saksida.

Mr. Atleo, you now have the floor.

[*English*]

Mr. Keith Atleo (Lead Negotiator, Ahousaht First Nation): Thank you, Mr. Chair.

I want to start off by thanking the first nations territory we're in today, and thank them for having us here to do this business today. It's the custom for our people to acknowledge that.

My cultural name is Kiista and my English name is Keith Atleo.

We are here representing the community of Ahousaht. We are part of the Nuu-chah-nulth Tribal Council.

We're here to speak about the policies and the regulations of DFO. As you're aware, we won a court case with DFO, and in the ruling the judge said that DFO's policies and management have failed the first nations. In our submission, which we have presented, we want to point out some of these things that have been brought out by the Supreme Court of B.C. with the fisheries litigation.

We also want to talk about the sockeye run in 2010. In 2010 the largest run of the Fraser River in history passed through our waters. The area G hook-and-line fishermen were always allocated the smallest share. In fact, most recent sockeye runs during this last decade have been poor. For conservation reasons we have fished only three of the largest runs. DFO normally builds a plan that allows a short opening at the first increase when the run is large.

We also traditionally access the Somass River sockeye by hook and line. Traditionally our people have used our oral history of our culture to know how large the runs were and the teachings that come from the nature side of our people over science. And it's been a proven fact. We've proven DFO wrong many times.

In 2010 DFO, in its varied run size, estimated and realized that there was a possibility of the largest run arriving. It was readily apparent in August. A huge test set in the Johnstone Strait began to indicate that the run would be large enough for the area G fishery on the west coast of Vancouver Island.

Our requests for the modest fisheries in the past DFO practice of treating all southern groups were simply ignored in 2010. The reason given for this was that it made biological sense.

DFO assigned personal and new demonstration fisheries inland and in development areas but did not assign any managers to build a contingency to allow for even a small fishery in our region. West coast troll management was available all season, but DFO ignored our areas, and designated priorities to areas and groups that favoured department privatization policies.

With regard to that, we do have some recommendations that are pointed out in our submission.

We are also here because we're a small community. Our people's livelihood is sea resources. You need to understand that we were put on a reservation by the Government of Canada, and our reserve is very small because we were told by the Indian agent that our access and our food source were that big ocean. But today we're being denied that access because of DFO policies and guidelines.

So we're hoping that this submission will help you look at some of the issues that our first nations and the communities on the west coast are going through.

● (1715)

Thank you.

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): Thank you very much.

Mr. Brown, it is now your turn.

[*English*]

Mr. Dave Brown (Vice-Chair, Squamish to Lillooet Sportfish Advisory Committee): My name is Dave Brown. I'm the vice-chair of the Squamish to Lillooet Sportfish Advisory Committee. I'm here today because of a fisheries working group that was formed with our local MP, John Weston. Our sportfish advisory committee wrote to John, expressing our concerns over the collapse of the Fraser River sockeye run in 2009 and the potential links to aquaculture. After receiving our letter, John suggested we form a fisheries working group.

Our group, which I represent here today, is made up of various members of our community who care for salmon. We have sport fishermen participating in our group, fishing guides, Squamish and West Vancouver Streamkeepers, Squamish first nations, North Vancouver Outdoor School, and concerned citizens. We have met several times with John, and he has carried our concerns forward to Ottawa.

In small part, our group led to Prime Minister Harper's decision to call for a federal inquiry into the collapse. I would like to thank and commend the committee for undertaking the efforts to learn more about the impact salmon farming is having on our wild salmon. You have a serious task before you, and we trust you will look closely into all measures that can be undertaken to prevent the spread of disease and sea lice to wild salmon.

We put forward a submission. We asked that the federal government look into funding for closed containment salmon farming to reduce impacts on wild salmon. We asked that the federal government make a substantial contribution to the establishment of a closed containment fund to foster innovation and advancement of new economically viable technologies and pilot projects. This would be a significant federal contribution from the 2010 fiscal year, combined with allocations from the 2011 budget. A contribution such as this would leverage contributions from non-governmental philanthropic sources and could conceiveably trigger a sizeable contribution for the province of B.C.

There are contentious problems with open salmon farming. The farmed salmon is B.C.'s single largest agricultural export product. The industry generates about $338 million per year in revenue and employs 2,100 people, primarily in coastal communities. In contrast, the commercial and sport fishing industries together employ about 9,700 people, with a total revenue of $1.2 billion. The problem lies with the salmon farming industry and its use of open-net cages. This technology clearly has negative impacts on wild salmon and other resources. This is a result of current farming practices. Current farming practices are one of the province's most politically divisive and contentious issues, an ongoing topic of heated citizen debate and voter angst.

The Squamish fisheries group is concerned about wild salmon and their economic value and the importance to local first nations. We wish to encourage our federal representatives to facilitate a win-win solution to this quagmire, one that sustains an improved industry and protects wild salmon and ocean health, creates new technologies, jobs, exports and opportunities, and positions Canada as a global leader in economically viable solutions.

As the marketplace increasingly adapts to sustainable seafood policies and consumer awareness bills, ecologically appropriate and economically viable production methods will only gain in importance. Future market access for Canadian farmed salmon will depend on the sector's commitment to innovation and improved environmental performance. The Government of Canada can play a critical role in ensuring this country's aquaculture products meet standards emerging from the increasingly rigorous international sustainability assessments and processes.

An overwhelming amount of published research indicates that open-net caged salmon farming poses a serious threat to marine ecosystems, wild salmon survival, and wild fish populations. Harm to wild salmon translates into harm to local first nations that depend on wild salmon, local constituents who enjoy fishing pursuits, and local businesses that depend on economic boosts from salmon-associated tourism.

Healthy businesses in B.C. coastal communities are linked to ecosystems in more than one way. In addition to relying upon the ecosystem to supply raw materials for the primary resource sector, the proceeds of these jobs trickle down to the support of numerous service industries. Wilderness tourism and recreational and commercial fishing combined employ thousands of British Columbians and generate over a billion dollars in annual economic activity. Wild-salmon-dependent industries are a vital component of the B.C. economy and our business sector that demands solutions to the threat posed by industry.

● (1720)

The Pacific Salmon Foundation, a government-mandated body formed by former fisheries minister John Fraser, conducted a multi-year $5 million research examination project, which included top-tier academics and government scientists, to examine fisheries management in B.C. as it related particularly to aquaculture. In May of 2000, a key final recommendation made to the government by the Pacific Salmon Foundation was to design and implement a commercial-scale trial of closed-containment systems for farmed-raised salmon.

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): Mr. Davis, you have the floor.

[*English*]

Mr. Martin Davis (Councillor, Village of Tahsis): My name is Martin Davis. I'm a councillor with the Village of Tahsis, and I wrote this letter on behalf of the mayor and council and the people of Tahsis.

Tahsis is a tourism-dependent community situated on the west coast of Vancouver Island in Nootka Sound. In the summer, large numbers of anglers come to Tahsis for the sport fishery here. There is also a small commercial fishing fleet that works out of the nearby community of Zeballos.

Most of our current economic activity revolves around the sport fishery. This fishery is enhanced by our volunteer-run fish hatchery.

Since the turn of this century, nine salmon fish farms have been established or enlarged in Nootka Sound. All are situated along major salmon migration routes. In November 2009 there was a significant outbreak of sea lice at two of the farms in our area. In one the contamination averaged 24 lice per fish, and at the other it rose to 41. These data, produced under contract to a fish farm company, were made available to the Tahsis council.

This outbreak was at levels unseen in wild fish and led to the removal of the farmed fish before maturity. Video and plankton net collection by an independent researcher clearly show enormous numbers of sea lice in the water surrounding the farm and attached to a boat. Farm workers have anonymously stated that the lice were resistant to the systemic pesticide Slice, which is used normally to kill them.

Fish farming in this area has had problems before, including high mortalities from summer anoxic conditions combined with plankton blooms. In 2004 mortality was 100%; the dead fish were taken offshore and dumped at sea, creating a 15-kilometre-long slick of rotting fish.

Salmon have apparently evolved their fall river spawning behaviour as a survival strategy to avoid contaminating their fry with sea lice when they hatch and leave the rivers in the spring, as sea lice are intolerant of fresh water. The presence of fish farms short-circuits this strategy by providing captive dense host populations of adult salmon that, when infected by lice, produce millions of lice larvae that attack the smolts as they migrate past the farms on their way to the open sea. While the fish farms here have recently responded to this outbreak by moving to a model in which the farms are harvested before the passage of smolts, this could only potentially work every other year, as the average grow-out period for farmed salmon is 22 months.

Tahsis council is extremely concerned with the impacts of these activities on wild salmon, which have been in decline for years in our region. Fish farms negatively affect our economy, which derives no employment or other benefits from them, despite their presence in our waters. The fish are also not processed in our region. They work at cross-purposes to our village fish hatchery by contaminating hatchery smolts when released into the wild. While smolts released from our hatcheries can be delayed until they grow to a more resilient size, the same cannot be said for wild smolts.

In conclusion, Tahsis needs to protect not just the wild salmon, but its own economic interests. After the closure of our sawmill and the subsequent downsizing of our local logging industry, we need to look after what we have left for our economic survival. With that in mind, we ask that the federal government phase out open-containment fish farms in Nootka Sound. While this may negatively impact the local fish farm industry, we propose that they relocate to Tahsis and build land-based closed-containment facilities there.

We know that this technology exists and is proven, and all it will take to move this forward is political will. We're willing to work with the seafood companies to find a solution that is mutually beneficial to all.

Thanks.

● (1725)

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): Thank you very much, Mr. Davis.

Mr. Novales Flamarique, will you be giving your presentation in French or in English?

Prof. Iñigo Novales Flamarique (Professor, Biological Sciences, Simon Fraser University, As an Individual): In French or in English, as you wish. Would you like me to give it in French?

The Vice-Chair (Mr. Raynald Blais): The choice is yours, it is entirely up to you.

Prof. Iñigo Novales Flamarique: I'm going to give it in English, because there are more English-speaking people here.

Or I'll use both languages; that's it.

[*English*]

I'm here as an independent person. I would like to thank the committee for having invited me.

I'm a professor at Simon Fraser University. I've been studying sea lice biology and salmon biology for ten years or more. I've done this in Norway and also in various institutions here in North America.

[*Translation*]

I think that I am sufficiently competent to answer any question regarding biology and the impact these types of salmon aquaculture may have on the wild salmon populations.

[*English*]

Given my understanding of the literature and the studies that I have conducted, I could potentially make a good contribution on the impact that salmon farms could have on wild salmon populations, as well as answer any other questions about sea lice biology or salmonid biology.

Thank you.

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): Well done.

Ms. Cannon now has the floor.

[*English*]

Ms. Barbara Cannon (Biology Manager, Creative Salmon Company Ltd.): Bonjour. Good afternoon. My name is Barb Cannon, and I'm the biology manager for Creative Salmon.

I'll start by telling you a little bit about myself. I have a marine biology degree from Dalhousie University in Halifax. Although I'm originally from Ontario, following graduation I moved west to Ucluelet and started out whale watching and guiding sport fishing charters. Once I was settled and decided I'd like to stay on the west coast, I set out to find a career job, something I thought I could see myself doing for years, making a decent wage and giving me the opportunity to grow and challenge myself as a biologist. I've now been working with Creative Salmon for eight years, two and a half in my current role as biology manager.

A lot has changed in my life in these eight years, and I credit this to having a secure, well-paying job that I enjoy. I'm now married, the mother of two young boys, and I hope I can raise my family in an area that I've come to love.

Now I'll give you a brief overview of Creative Salmon. Our home base is Tofino, but our farms are located in Clayoquot Sound, a designated UNESCO biosphere reserve, and we operate within the territory of Tla-o-qui-aht First Nation. Creative Salmon is a Canadian-owned company, and we've been in business since 1990. This is our 20-year anniversary.

Currently we are North America's only major producer of chinook salmon and are fully integrated from egg to plate. That is to say, we raise our own brood stock, rear our own smolts, and harvest and process our own fish. Since our inception, our focus has been on quality, not quantity. We are a small player in the B.C. aquaculture industry, producing on average 1,400 metric tonnes per year, but take great pride in the product we produce.

Although we have six site locations, we operate only four farms at any one time. This gives us the flexibility to change locations and leave sites fallow for extended periods of time. Although we are not yet certified organic, it is our hope to soon become one of Canada's first organic salmon farming companies. Creative Salmon is a founding member of the Pacific Organic Seafood Association, and our current focus has been in the development of the national standards.

We feel that as stewards of the environment, it is our responsibility to farm sustainably. Despite substantial additional cost, we are committed to growing our fish as naturally as possible with the least possible impact on the environment. As I mentioned earlier, we grow only chinook and have committed to grow them in low densities without antibiotics in untreated nets and feed them a natural diet. In order to do this, we have strict fish health management and bio-security protocols, as well as stringent environmental monitoring practices.

Creative Salmon has a team of three biologists who keep close tabs on aspects of fish husbandry practices and environmental monitoring. We are proud to say that we have not had to treat our production fish with antibiotics since 2001. We also take a natural approach to our nets. They're untreated, and we clean them in situ, using net cleaners or with sunlight and salt water.

Chinook salmon do not respond well to stress, so our goal is to promote fish health and welfare, while at the same time minimizing any stress. We do this by limiting handling, ensuring proper diet, feeding techniques, and humane harvesting, and we make every effort to reduce predator interactions.

This issue of predator interaction is something we have focused a great deal of attention on in the past few years. Learning from our own experiences and consulting with marine mammal experts has given us a good understanding of sea lion behaviour, and we have modified our predator systems accordingly. We feel we've taken the necessary steps that have made significant improvements to our predator system, and with these improvements we've virtually eliminated predator interaction.

Sea lice are another issue, or should I say non-issue, which I would like to elaborate on. Chinook salmon are naturally tolerant to sea lice, and although we do monitor our fish for evidence of sea lice, we have never been required to treat them. Since 2003 we've been involved in a collaborative working group called the Clayoquot Sound Sea Lice Working Group, a collaboration of Tla-o-qui-aht, Creative Salmon, Ahousaht, and Mainstream Canada. This has been a very successful and rewarding experience and we hope this will continue.

I'm done? Okay.

● (1730)

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): Thank you very much.

Ms. Dane, you have the floor.

[*English*]

Ms. Colleen Dane (Communications Manager, B.C. Salmon Farmers Association): Thank you.

Good afternoon. My name is Colleen Dane, and I'm the communications manager with the B.C. Salmon Farmers Association, based here in Campbell River.

I know that you've already had in-depth presentations from some of our member companies, government regulators, and national aquaculture representatives during your hearings in Ottawa, so I thought that since you are here in the west coast home of the industry, I would talk a little bit about what salmon farming brings to British Columbians.

You've likely heard the number 6,000 when it comes to employment, direct and indirect, by the industry. Here in the north island, salmon farming is the area's largest private employer. With 2,800 direct jobs, we are providing steady, year-round employment in communities that have been hard hit by the downturn in other resource economies. Mayors of towns like Port Hardy, Port McNeill, and Campbell River here openly recognize that these jobs are key in their communities.

The B.C. Salmon Farmers Association represents five salmon producers and over 35 supply and service companies. Along with growing salmon, our members produce the feed, process the harvest, provide the packaging, transport supplies, and build the facilities. Around 3,000 companies, though, provide services and supplies to the industry. Nearly 400 of those are considered large suppliers, working with three or more of our member companies. It's a close, collaborative and innovative community and one that is really a pleasure to be a part of.

It's quite the ripple effect, too, that salmon farming is creating. Cluster developments like these are considered healthy effective strategies for rural diversification. It's strengthening best practices, building concentrations of expertise, deepening labour pools, and strengthening regional growth. Each related activity spurs on more economic strength, so that everything from non-profit organizations to scientists to specialty product suppliers can succeed.

B.C.'s farmed salmon is B.C.'s largest agricultural export. The 2008 wholesale value of the year's harvest was $495.2 million. Federally, it's second only to east coast lobster for our seafood export values. Exports of nearly 50,000 tonnes were estimated to be worth $330.9 million in 2009.

It's a successful product, though, because it's a good product. B. C.'s farmed salmon is a valuable source of important nutrients and is a healthy protein that's consistent, reliable and fresh. We have the lowest level of antibiotic use of any livestock and the most efficient feed conversion rates. Our fish are well cared for and very healthy and our farms are excellently managed.

All of this is being done under the most stringent regulatory environment in the world for aquaculture. While the upcoming regulatory transfer to the federal government means change, we only expect that high standard to remain and in fact increase as we work together to achieve the most sustainable industry possible.

We know that it's important to reach the highest standards. We recognize that public attention has helped to create this industry in making it as strong and accountable as it is today. As technology advances and the business environmental settings continue to adapt, so will we. For example, our technical committee at the association brings together staff from each company to improve things like biosecurity and fish health management plans, and we are actively engaged as a group at the Cohen commission that has opened in Vancouver.

The goal of the B.C. Salmon Farmers Association is to continue educating the public about all that we've done and continue to do. Our extensive public outreach, with programs like our public tours, which run every summer, and our regular food shows, has shown us that while people may have questions about the industry, the feeling of a vast opposition is really very localized. More and more, people are talking about the reality of global food security, sustainable energy supplies, and protection of freshwater resources, and in all of those lights, our ocean-powered net pen farms are a bright example of how we can feed people into the future.

The United Nations Food and Agriculture Organization has said that 75% of the world's wild capture fisheries are at or near their maximum harvest rate. Yet by 2030, demand for fish is estimated to increase by 70%. Aquaculture is the way of the future. We believe that B.C. has a great opportunity to be a part of that worldwide solution. Places like Port Hardy and Campbell River here are helping to lead the way, so we appreciate you guys coming to meet us and talk today.

● (1735)

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): Thank you very much. I'd like to congratulate you not only for your discipline but also for your excellent cooperation. I know that I can expect no less from my colleagues.

We are going to start our question period. I'll explain how things work. The representatives of each political party present here, that is the Liberal Party, the Bloc Québécois, the NDP, and the Conservative Party, will put their questions in turn. They have a specific period of time to do so.

We will begin with the Liberal Party, with Ms. Joyce Murray.

Ms. Joyce Murray (Vancouver Quadra, Lib.): Thank you, Mr. Vice-Chair.

[*English*]

Professor Flamarique, you suggested that you could answer questions from your background of studying sea lice in salmon. What's your view in terms of the aquaculture industry, sea lice, and the impact on wild salmon?

● (1740)

Prof. Iñigo Novales Flamarique: I'm going to speak based on the results of the literature, which is completely independent and carried out by scientists without any kind of leaning toward any side.

The studies that stand out are those carried out by a group from the University of Alberta, led by Krkosek. What these mathematical studies show is that sea lice from farms can indeed have a great impact on the abundance of wild salmon populations.

There was another study carried out by one of his collaborators named Alexandra Morton that showed that if you put sufficient sea lice—and by this we mean in the order of four or five on a very small fish—this could lead to an over 60% chance of mortality, compared with fish that are not infected or are infected at a very low level, like maybe with one sea louse.

Now the question is whether this factor of sea lice, which obviously in laboratory situations has a major impact on salmonid mortality, translates into being the major factor in the field to the mortality. There are several other factors that I think could be involved in the high mortalities or the decline of wild salmon populations, one of them being global warming, as well as potentially other diseases.

However, this is where the studies of Krkosek—several studies have come out—are important, and it's important to understand the mathematics behind them. The mathematics basically show that for a linear system, which considers most of the factors, including one part that takes into account the remaining factors, sea lice loads on the small juvenile salmon can only be attributed in the majority of cases to the farms, not to any other thing.

Ms. Joyce Murray: Professor, we've had testimony by the good scientist that you've mentioned. I'm wondering whether you've done independent research yourself on the...?

Prof. Iñigo Novales Flamarique: I've not done the mathematics, but I've followed them. I can follow them. I have a degree in physics. And I know that they're correct, for what it is. I know that his sampling, because I visited the Broughton Archipelago, was also good.

What I can tell you from my own experience is that we have loaded chinook salmon, approximately 30 grams in weight, with about ten sea lice, for the purpose of testing a live trap. We wanted to see whether the live trap would delouse the salmon. What I can tell you is that within about two hours, healthy chinook salmon, about 30 grams with a load of ten sea lice, looked moribund. They were not swimming very well in the tank. Obviously we carried controls in which we manipulated salmon in the same way, but without loading the sea lice, so it can only be the sea lice that are inducing this.

Ms. Joyce Murray: Thank you.

Ms. Saksida, your organization is of the view that the sea lice are not an issue. Is that correct?

Ms. Sonja Saksida: Yes.

Ms. Joyce Murray: And do you have some research that would suggest why the trend of the downward abundance of salmon has taken place over decades?

Ms. Sonja Saksida: I don't know why there's the downward trend of salmon over decades. We do know that salmon farming has been around since the 1990s but has evolved. The research I have been involved with has been with some of the DFO collaborators. I believe you've already talked to Simon Jones, who did laboratory studies looking at the resistance of sea lice developed in pink salmon when they're still quite small.

The work I have been involved in is looking at the health of pink salmon in the environment. My big concern is that a lot of the research that has been going on has concentrated on sea lice and not on the holistic salmon and always equating infection with disease. We all know that an infection doesn't necessarily mean disease.

Over a couple of years we did a study where we looked at pink salmon in the Broughton Archipelago and we evaluated them for health and tried to associate that with the sea lice infestations. We're preparing a manuscript that's being submitted now. In general, our findings were that during the two years we looked at, the prevalence of sea lice was not high enough to affect any population levels. Certainly some factors were seen histologically to indicate that there might be some kind of nutritional or toxic exposure to these animals that might affect their ability to survive.

The interesting finding we had—

● (1745)

Ms. Joyce Murray: Could I interrupt for a second?

Are you familiar with Dr. Reynolds' research with the host system? My understanding is that his analysis shows a significant reduction in numbers after they go through a certain area of Georgia Strait with the salmon farms, and I'm wondering if you have an alternative explanation for why the—

Ms. Sonja Saksida: The work wasn't done by Dr. John Reynolds. It was by another researcher. From my understanding of his research—and I know some of the publications have gone to the media—he did correct what was said.

Ms. Joyce Murray: He explained that at an event I was at.

Ms. Sonja Saksida: He was saying the numbers of salmon significantly decline once they enter the Queen Charlottes area, but it is again in association. It may be relative to size. It may be relative to the sea lice. But the problem is when you only concentrate on one factor, you ignore all the other possibilities. I think based on the research that's being done by Simon Jones to show that pink salmon are quite resistant to sea lice once they're over a gram, and our research, which shows very little disease related to the infestation, we may need to look a little beyond sea lice.

Ms. Joyce Murray: So it hasn't been proven it is sea lice, but there's still a concern that something is affecting the salmon.

Ms. Sonja Saksida: Of course, yes.

Ms. Joyce Murray: Then I was wondering with Mr. Davis whether Tahsis has independent scientists, or are you drawing on the conclusions of some of the scientists who have been mentioned tonight?

Mr. Martin Davis: Yes, I would have to agree with that. We're not doing our own research. We're just the village. But we have been reading the research out there and looking at any evidence we can find. I've certainly talked with researchers. I've talked with representatives of the fish farms and part of the Nootka Sound Watershed Society, of which one of the fish farms is a member. I've seen their presentations, and we've drawn our own conclusions based on all that information. In my submission I did list several research papers, which seem to draw the conclusion that sea lice seem to be the main issue with the wild fish decline in these areas.

Ms. Joyce Murray: Ms. Cannon, you mentioned that there's not been evidence of sea lice on the chinook salmon, and I wasn't clear whether you were saying that's a species-specific issue, or do you have scientists associated with Creative Salmon who have some conclusions as to why there are no sea lice?

Ms. Barbara Cannon: I would add to that by saying that back in I believe it was 2003, when the provincial government initiated their monitoring and reporting program for sea lice on farmed salmon, Pacific salmon were a part of that program. I believe the Pacific salmon were involved for possibly two years. At the conclusion, the provincial government determined that sea lice were not an issue on Pacific salmon and we would not be part of the stringent monitoring and reporting program that the Atlantic farmers were.

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): Thank you very much.

I will now ask a few questions myself before giving the floor to Mr. Donnelly.

I have a question for Mr. Sidney Sam.

You seem like a wise man, and I would like to hear your opinion on today's topic, in light of what we have heard up till now.

Do you have any particular concerns? Are there things that are worrisome to you? Do you think that the situation may improve since the Department of Fisheries and Oceans will be entirely responsible for the aquaculture file? I would like to hear your comments, Mr. Sidney Sam.

● (1750)

[*English*]

Mr. Sidney Sam Sr. (Ahousaht First Nation): Thank you.

We do have an agreement between Mainstream Canada and the Ahousaht. Since we've had an agreement, things have changed for the better. If we close down the fish farms right now, we would lose a lot of working people. If we close down fish farms, give us a job, because we won't have one. We don't have that employment in Hahoulthee.

Since the agreement, like I said, there are a lot of changes being made in improving the way they do fish farming. We've been doing a little bit of research on it. I think that on the west coast it's a little different from the east coast. We talk about the Fraser River sockeye, but we don't seem to have that kind of sea lice effect that the east coast has. I believe the sockeye on the east coast goes right through the farms, but on the west coast it's not like that. We're not affected by the sea lice as much as the east coast. That's my opinion.

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): Thank you very much.

Yes, Mr. Brown?

[*English*]

Mr. Dave Brown: The sockeye that you fish, are they from the Somass River run?

Mr. Sidney Sam Sr.: Some of them are, yes. Sockeye come through there all the time.

Mr. Dave Brown: One interesting commentary on that is there are no fish farms in Barkley Sound or Alberni Inlet leading up to that river on the west coast.

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): I have a question for Mr. Davis. Mr. Brown may reply as well, but first I am putting it to Mr. Davis. You both talked about closed containment systems.

I would like to know why you are in favour of closed containment. What is the big difference you see with that? How do you view this? Can you give us more details?

[*English*]

Mr. Martin Davis: I like to live by the precautionary principle, for one thing. It seems that with closed containment you can eliminate the sea lice issue because it's closed containment. Certainly on land it's not an issue. Closed containment in the water may still be an issue, depending on the type of filtration they use. But I just feel you will be eliminating these potential problems with sea lice by going to that. Obviously it will cost more for the fish farm industry to do that, and that's why they're resisting it at this point. In the long run, it's for the benefit of everybody, and particularly to the wild salmon.

We have a slightly different situation up in Tahsis and Clayoquot Sound. We have Nootka Island and we have inland inlets behind that. That's where these fish farms are located, and the fish are compelled to swim quite close to them. This is where we're having issues. It's a thoroughly different situation from what's happening farther down the coast.

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): Thank you very much.

I will now give the floor to Mr. Donnelly.

[*English*]

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

I would like to acknowledge that we're on the traditional territory of the first nation people, and I'd like to thank all of our presenters for coming out and sharing your testimony this afternoon and evening.

I am going to start with Iñigo.

You had mentioned Martin Krkosek's work. We've had Dr. Martin Krkosek come to present testimony. So you've answered a question that I had. He seemed to provide the committee with very objective information, but his conclusion seemed to be that sea lice, from some of the farms he looked at anyway, was a problem over the years they did the study.

Perhaps I could turn to Sonja.

You mentioned IHN in your presentation, but you didn't mention ISA. I'm wondering if you could comment about the presence of ISA, or IHN, and how you're able to draw a conclusion that it doesn't exist on the coast and isn't in any operations on the west coast.

● (1755)

Ms. Sonja Saksida: Let's talk about ISA. That's probably the easiest one.

It's basically an exotic disease. Generally, since 2001 there has been an audit system in place where provincial government technicians go out and audit the farms. So the farms are required to report any fish health events to a database, which goes to the province. But there are also auditors who go from the provincial government to check the health status of fish, and nowhere has there ever been any ISA detected, either by the auditors or farmers.

ISA has been devastating to Chile. It's basically almost caused a collapse of the industry. It's had huge impacts in Norway. It's been very bad on the east coast in the past as well.

So we're very fortunate not to have ISA. And there's been enough evidence, through the diligent work of the fish health researchers or the veterinarians, as well as the auditors, to indicate that's not a problem.

IHN, infectious—

Mr. Fin Donnelly: Sorry, you mentioned Chile, Norway, and the east coast of Canada, and I think specifically you're mentioning New Brunswick. How is it that they were infected with ISA but that on the west coast either we haven't been or won't be infected?

Ms. Sonja Saksida: Basically, I think it has to do with how you import the genetic material, and I believe ISA is endemic to the Atlantic Ocean. So it's there in the wild reservoirs. We don't know what. So the disease is present.

What I believe happened in Chile is that it was brought there with the introduction of smolts, or as fry or infected eggs.

What B.C. has been doing for a number of years is that for the most part they had their own brood stock. They imported eggs a long time ago, basically in the late eighties, before ISA even really appeared, and they have had their own genetics. Any importation of eggs, probably since the mid nineties, has been under strict quarantine and only from facilities deemed to be disease-free, which to date have just been in Iceland. They are the only source from whom eggs are allowed to be imported into British Columbia.

Mr. Fin Donnelly: Sorry, did you want to continue on IHN?

Ms. Sonja Saksida: IHN is also a virus. We call it the sockeye disease because sockeye salmon tend to become infected. It can be devastating to that population. Other Pacific salmon have some tolerance of it, depending on which species we talk about. Atlantic salmon are incredibly susceptible to this disease.

I did the outbreak investigation and actually published a report on the last outbreak of IHN in British Columbia, which happened in 2000 to 2003 among farmed salmon. Basically, you can easily get mortalities of up to 80% and almost 100%. Farms have to be culled because of this disease. It's not a disease you can hide. Once a population becomes infected, you can definitely see it throughout.

So it's not a disease you can hide, and we basically haven't seen it since 2003.

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): Thank you very much.

It is now Mr. Weston's turn.

Mr. John Weston (West Vancouver—Sunshine Coast—Sea to Sky Country, CPC): Thank you very much, Mr. Chairman.

[*English*]

I'm going to ask you what we shall then do. I'm going to preface it with six comments we've heard this afternoon.

First, thank you all for coming. Many of you are volunteering your time to be here out of your interest in sustaining this wonderful resource. So we all thank you.

Sonja, you said that veterinarians and professionals manage fish health well in farmed salmon, and B.C. does not see the same incidence of sea lice here.

Dave, you mentioned that there's increasing evidence of harm to wild salmon from open-net cultivation.

We heard, Martin, that there was 100% mortality in a fish-farmed area. There was a 15-kilometre line of rotting fish, which is a very powerful visual image for all of us.

Colleen, you mentioned 6,000 direct and indirect jobs and revenues of $495 million.

What you have done this afternoon is basically summarize the polarized kind of evidence we've been hearing since we embarked upon this strategy. I can't speak for my colleagues, but I can tell you that I'm ill-equipped to make a decision that involves biology and economics and other things on which you all have expertise.

So my question to you is this: Given that each member of Parliament here is committed to the same things you're committed to, namely, long-term sustainable resources, what would you have your parliamentarians, your government, do in terms of process? How do we draw these disparate conclusions together and then come to some sort of process?

Dave, I'm going to start with you, because I think you have some experience in giving directions to your MP.

● (1800)

Mr. Dave Brown: I understand that the committee is actually visiting some closed containment farms in Washington State. As I mentioned when I spoke, there is the opportunity to be, I think for Canada's sake, a world leader in this and still have salmon farming and grow the business and at the same time have an opportunity to protect our wild salmon.

An interesting comment I didn't get a chance to make in my presentation was that the managing director of British Columbia's largest salmon farming company, Marine Harvest Canada, Vincent Erenst, said in an interview published by the *Courier-Islander* on December 24, 2009, that the company was working towards closed containment pilot studies but so far had not been able to convince either the feds or the provincial government to support that.

What I would say, which takes me back here, is that there is an opportunity to grow the salmon farming industry and make it environmentally sustainable and continue to have the benefit of the jobs that are created and at the same time protect our wild salmon and be a world leader. The technology is out there. It just doesn't seem that there's the will to do this. I think moving forward, if you as parliamentarians would carry that message back to Ottawa, we have an opportunity to have a win-win situation.

Mr. John Weston: Sonja and Colleen, could you comment on that? What do we then do?

Ms. Sonja Saksida: It's a matter of communication and understanding the issues. My biggest frustration with the whole process is when you keep hearing the same things: farmed fish are full of diseases; they're full of antibiotics; there's resistance. Yet you know that there are government agencies that have the information to say that yes that's the case or no that's not the case. But you never hear them speaking out. It's not necessarily the federal agencies. In many cases, it was the provincial agencies that had the information, but there was nothing being communicated.

For me, being somebody who knows quite a bit about the health of this population, it's frustrating, because it's good news, but all you ever hear in the media is bad news. A good-news story just never gets out. So I bring it back to you, because I don't know how to fix that, and I find that part really frustrating. There are issues in aquaculture, I'm sure, but the ones that seem to be getting the highlights, the media, are not the issues.

Mr. John Weston: Colleen.

Ms. Colleen Dane: I think there's a real opportunity coming up with the regulatory transfer in December. I think making sure that the comments and the concerns you have heard and are hearing through these hearings become addressed and get the proper attention within those regulations would be a good thing. I also think making sure that DFO has the resources they need to be able to look at wild populations and the ecosystem as a whole would be key.

As well, regarding innovation, I agree with Dave Brown that it's good to always be supporting research and collaborative projects. Closed containment is one of them, but there is other innovation that can be done within our net-pen farm operations as well. That research can only further improve operations as they are.

● (1805)

Mr. John Weston: Is there anybody else?

Prof. Iñigo Novales Flamarique: I'd just like to say that, in my opinion, at present there are no scientists at DFO who understand the mathematics behind the models that are in the literature, and this is a major flaw.

One of the arguments always put out by the industry or DFO is that there could be many other variables. However, these mathematical models clearly show that only one factor can determine these higher sea lice levels. Now, I'm not speaking about whether that translates into full mortality or not, but the problem is not so much whether or not DFO will do research but whether you have the people necessary to do the models that will actually isolate the variables that are important and that drive the system. They are presently not available at DFO.

Mr. John Weston: So what's the process for getting the right scientists in the room so that the non-scientists like us can make the decisions? Where do we go?

Prof. Iñigo Novales Flamarique: You could certainly have a symposium, and it would be attended by academics from all over the world. If you look at the situation in Norway, for example, there's basically no more wild Atlantic salmon. It's not only a problem with the sea lice but also a problem with eutrophication and many other things. If you fly over Norway, there are huge areas of green that are completely anoxic that come from the detritus of farms. This could be solved, for example, by having closed containment systems.

I think it's a vital question of having the people who can do the modelling to isolate which ecological factor plays the primary role in the mortality results that you're seeing. This can be done through mathematical modelling, but it is not presently one of the options for DFO or the Ministry of the Environment or any other....

Mr. John Weston: So your conclusion is that someone, whoever's in human resources or personnel or whoever does the hiring, is making wrong decisions about who's on the team that's doing the analysis. You might like to be on the team.

Prof. Iñigo Novales Flamarique: If you really want to answer the question, the answer is yes: the right people are not being given the positions.

Mr. John Weston: I'm going to share what time I have left—less than two minutes—with my colleague.

Mr. Randy Kamp (Pitt Meadows—Maple Ridge—Mission, CPC): Thank you.

I'm not sure quite where to start. I can't get past your initial comment, Professor Flamarique, when you said you were going to start by referring to scientists who had no leanings on this issue—who were objective, I guess, is what you meant. We've heard from Dr. Krkosek, and he does good work. Then you mentioned Alexandra Morton, who clearly has leanings on this issue.

Prof. Iñigo Novales Flamarique: On that, yes, she does.

Mr. Randy Kamp: Dr. Krkosek's work originally predicted the demise of pink salmon by now, so when he was before us he did his best to correct the record because things had changed and so on. Things are a little different.

I think your point is well taken that we need to look at it from every point of view, including mathematics. As my colleague has said, you illustrate the challenge we have before us. This panel illustrates the challenge we have, and it's a difficult task for us to sort out what is true and what isn't.

● (1810)

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): Thank you very much for your comment.

Mr. Atleo, do you have something to add on this?

[*English*]

Mr. Keith Atleo: Thank you, Mr. Chair.

You asked a question on how we can help with the aquaculture, and it's important to hear both sides of the story. As you're aware, some of the first nations in B.C. are opposing fish farms and there are very few that are working together with fish farms.

My uncle is saying yes, we have an agreement with the fish farm. But the fish farm company understands that as first nations our priority is the environment and how we look after the environment. It has always been our number one thing.

And I know for you to get those answers is to go to those communities that are affected. Thank you for having us here, but you will get more answers from the communities and the people who know what's going on, because you can have a scientist who will come to our community for three days out of a month and get all these numbers and that, but we live in it. We live there; we know what's going on. We're not scientists, but we know how nature is working around us.

And yes, we understand that sea lice is an issue. It's been here for thousands of years. When I was out trolling, when I was out seining, you'd pick up a salmon and there were millions of sea lice on our boats, and it's been there. And I'm hoping this can be resolved for the communities, because, as my uncle has stated, it's a livelihood. We used to have a livelihood in fisheries but that is slowly disappearing.

Thank you.

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): Thank you very much.

Mr. Cuzner, you have the floor.

[*English*]

Mr. Rodger Cuzner (Cape Breton—Canso, Lib.): Thank you very much, Mr. Chairman. And let me make the comment that you're doing an absolutely adequate job here in your job.

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): Thank you.

[*English*]

Mr. Rodger Cuzner: Thank you all for your testimony.

I have just a comment and then I have a couple of questions. On the conversation that John and Sonja had, I think that part of that broad spectrum on this whole issue is because of the provincial government, in the past, being both the regulator and the promoter of aquaculture. And I think it has nurtured a mistrust within the broader community, as if the dog was in charge of the meat. So I don't think they felt that maybe that role as regulator was being compromised. So this shift to DFO may be a step in the right direction as far as earning the confidence and gaining the confidence with the regulator is concerned. That's just a comment.

I want to ask Keith if you can give us some kind of overview of the impact on your community. How many people are in your community, what would the unemployment rate be, and about how many people would be working in the industry?

Mr. Keith Atleo: We have about 900 people who live in our community. We have about 100 people who work out on the farms, but we also have members who live in Port Alberni who are from Ahousaht, and we have community members in Ahousaht who work in the processing plant in Tofino. So it fluctuates during the year. It depends on when they're harvesting, so that number goes up and down. I think it's about 175 jobs, roughly.

Mr. Rodger Cuzner: Okay, and some are part-time, some are full-time.

And the answer to finding out what was going on with the Fraser run this year and the big spike, of course.... The elected people wanted to bring in 25 lawyers to find out what the problem was. When you have a problem with fish, you bring in lawyers. It's natural.

What is the traditional wisdom on the spike? And let me say this. If anybody wants to comment on the fish farms being detrimental and adding to the downfall of the stocks of late, square that with the big spike this year with the run on the Fraser. What is the traditional sense on what took place there this year?

● (1815)

Mr. Keith Atleo: I would have to ask my uncle....

Mr. Rodger Cuzner: If you're comfortable in rendering an opinion on that.

Mr. Sidney Sam Sr.: I'm no scientist, by any means; I'm not a biologist. No, sir.

Mr. Rodger Cuzner: But there would be traditional—

Mr. Sidney Sam Sr.: I was talking to an elder prior to coming here, and he tells me that sockeye stayed in one place, in the warm water, and there was a lot of feed there, so they didn't migrate like they normally do for four years and then come back. But that one year they didn't, and he said “They're back here”.

Mr. Rodger Cuzner: It's the warmer water temperature.

Mr. Sidney Sam Sr.: Yes. The temperature of the water makes a lot of difference.

Mr. Rodger Cuzner: I'm sure we'll get the skinny from the Cohen commission.

A voice: From all those lawyers.

Mr. Rodger Cuzner: Barb or Colleen, could you give us some kind of indication as to what you feel? I'm sure that closed containment has been something your industry has talked about for a while, and the economics of that, so are you guys able to share with us how you feel closed containment would impact on the price per pound or whatever?

Ms. Colleen Dane: I don't have numbers on price per pound or what that would mean. Right now, the technology isn't there to be able to transition the industry, at the size that it is, onto land. The technology is being used in our hatcheries, obviously, so some farmers are actually leading the way on closed containment recirculation facilities. But there is a lot of work that still needs to be done before that technology could be available for the industry as it is.

Then there are other questions, I think, that also need to be answered about whether or not it's then a viable option. Economics is certainly one of them, but there are other ones about the other environmental impacts that it would be introducing and about energy usage and the kind of footprint that a facility like that would be requiring. It's estimated that 7,500 football fields would have to be cleared to make room for the industry as it is now.

Also, there's fish health. The veterinarians on our staff raised concerns about what that would mean, especially if consumers are paying more and more attention to the treatment of their animals. Those fish would obviously have to be kept in higher densities and constantly in recirculation facilities, so they wouldn't be able to have that natural rest period that the tide offers them.

So there is a lot of work still to be done, but the industry is definitely there and looking at it and being a part of it, while also trying to balance that with making sure that our industry as it is now is being run to the highest standard.

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): Thank you very much.

Thank you, Mr. Cuzner. Thank you also for the compliment, that is always appreciated.

Mr. Donnelly, it is your turn.

[*English*]

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

I just wanted to go back to Randy's comment for a second, the comment about the prediction, the Krkosek prediction of pinks: that they would be extinct by now. I think the last part of the sentence that needs to be included in that is “given the current practices at the time, left unchanged”.

What happened was that it was a trigger, and I believe the industry started to use a pesticide, Slice. I know that I don't have a lot of time, and that's where I would like to go. I was going to ask Sonja to comment on that. If we have time, we'll come back to it, but we're also restrained and have the same frustration with the lack of time here.

The question I did want to ask, which Mr. Cuzner raised, is just building off Mr. Davis's comments about moving to closed containment and having the political will to move to closed containment. If there were a recommendation to move to a closed containment system—and this is to Colleen—I'm wondering if your association would support such a recommendation.

I'd just like to add as well that I have visited one of Marine Harvest's farms. I've taken a tour and listened to the presentations. I have heard and seen I think first-hand some of the improvements in the management that I've heard about over the years. It certainly seems like there have been many improvements, so this may or may not be a further iteration of improvements down the road.

I guess one last comment to add is that we're going to be visiting a U.S. farmer in Washington State in a day or two. There's an operation that has moved to closed containment. Is there any worry that the U.S. market may be getting out ahead of the Canadian market?

● (1820)

Ms. Colleen Dane: I'll start with the last question.

That facility produces a very, very small amount of salmon compared to the B.C. industry or other salmon-farming producing areas around the world. It's a good project to be out there. We're definitely paying attention and keeping an eye on whether it can work and expand, but we're not feeling a market threat at this point about that particular project.

There was a question about whether or not....

Mr. Fin Donnelly: I am sorry, I think I attributed it to Mr. Davis, and I meant Mr. Brown. I think, Mr. Brown, you were giving us the challenge. If that challenge were to come forward in the form of a recommendation from the committee after its work, is that something the association would support?

Ms. Colleen Dane: We'd support encouragement toward cooperative work and research toward that, but a recommendation that demands the time or forces the industry that way, without the support behind it to direct that innovation, wouldn't be supported by the association.

Mr. Fin Donnelly: I have a follow-up question. I think there were 16 recommendations that came out of the Pacific Salmon Forum. A number of years ago one of those was to move to closed containment, so I'm assuming that you didn't agree with those recommendations back then either.

Ms. Colleen Dane: I can't talk to you of those recommendations. I'm still fairly new with the industry. There has been research work and work that's been done to develop relationships as we move toward innovation and research in closed containment technology, so I wouldn't say that recommendations have been ignored. But these things take time and development and work to build relationships as we move forward.

Mr. Fin Donnelly: Given that I haven't heard the bell yet, Sonja, do you want to comment on Slice and the use of Slice? I think from the remarks earlier, you were wanting to comment.

Ms. Sonja Saksida: Your comment was that when you corrected Randy Kamp, I guess it was, on the comment about the demise of the pink salmon run.... Actually, I did the original work on Slice and the use of Slice in the industry. I've been tracking that since 2003, which is when the provincial government set up the treatment triggers, and they haven't changed. What we're seeing in the lice and pink salmon and on the farm may be how they use Slice, but the frequency of use hasn't changed.

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): Thank you very much, Mr. Cuzner.

Before giving the floor to Mr. Kamp, I would like to provide a bit of information. You alluded to one of the forum's recommendations. I am simply going to read it: design and test a commercial-scale closed containment salmon farming experimental system. The recommendation specifies that, while suggesting the immediate creation of an independent technical committee entrusted with recommending specifications for a close containment, commercial salmon farming demonstration project. They also suggest that as soon as the technical parameters have been agreed upon, the provincial government, in cooperation with other interested parties, publish a request for proposals for waste recovery by the demonstration project, so as to reduce the risk of contaminating the natural environment or the fish, and thus reduce the risk of disease. And that is it.

Mr. Kamp, you have the floor.

[*English*]

Mr. Randy Kamp: Thank you, Mr. Chair. I appreciate you pointing that out. I was going to do that too. The forum's recommendation wasn't sort of a large scale, it's all moved toward closed containment. It was about trying to figure out whether a project could be put in place to prove whether it was viable and so on.

I have one question—maybe Mr. Cannan has one or two as well—and it's for Dave Brown. We've spoken before, and I appreciate the work that you and your group do and all of the similar sport fish advisory groups and others. I know you have strong feelings about the saving of wild fish, and we do appreciate that. You have some strong feelings about the impact of aquaculture on that. Do you work as passionately on other things that will definitely have negative impacts on wild fish, things like forestry and agriculture, water-use plans, industrial development, and so on? There probably is consensus that those kinds of things have serious negative impacts on aquatic ecosystems if not regulated carefully. Are you involved in that kind of thing as well?

● (1825)

Mr. Dave Brown: Yes. Actually, it's interesting that you bring it up. By no means am I standing here today saying that the link to salmon farming is the sole answer to the decline of salmon on the west coast and the impacts that might have; there certainly are other issues. I myself was personally on the Cheakamus Water Use Planning Committee, but I'd rather talk about our group and the group that we formed with John. Through John's encouragement and time, we started meeting initially discussing the collapse of the Fraser sockeye and potential links to aquaculture. Further to that, our group started looking at improving habitat.

Specifically in our area we're looking at the Squamish River watershed. Through funding that was made available through the federal government we've been able to accomplish some projects in our area. We've carried forward some additional habitat proposals that we believe will increase salmon returns to the Squamish River watershed, which actually is made up of five rivers.

We had a meeting of our group about ten days ago. We went out and looked at one of our projects, which was a salmon spawning side-channel. At that time, there was a viewing platform that had been set up. The day that we went there, we observed people coming down to view the wild salmon, which were spawning chum salmon. It was quite a spectacular thing. There were young children; there were adults—that type of thing.

I think education and habitat improvement constitute one of the key factors for improving our salmon numbers. Certainly that's something that shouldn't be overlooked by this committee. We don't want to just focus on one issue, but I believe that if we can take tiny steps along the way and all work together as a group, we can achieve big things. That's what our small group started out doing, and we've achieved some things that are, I think, quite substantial—little steps that can be built on to make substantial steps.

But I feel it's important that we look at minimizing impacts on wild salmon, and that's why our committee felt that it was a good partnership to bring forward, to try to encourage the two sides to work together and look for closed containment as one option.

The Vice-Chair (Mr. Raynald Blais): Ron.

Mr. Ron Cannan (Kelowna—Lake Country, CPC): Thank you, Mr. Chair, and thanks to our guests this evening. This is very informative. As my colleague Mr. Weston said, the challenge is in trying to separate the wheat from the chaff—as they say on the prairies.

I'm new to the committee, coming from the Okanagan Valley. We enjoy consuming the fish from the ocean—we fish more the Kokanee—and a lot of sport fishermen from my riding like going to the coast. But I have also had concerns expressed to me by constituents about the fish farms.

I want to go back a little to the whole issue of closed containment. As I read about it, it's basically a system of fish production that creates a controlled interface between the cultured fish and the natural environment.

My question would be to maybe Ms. Dane or Mrs. Cannon—no relation; we just met this evening. We may have to do our family tree, with the vowel change somewhere along the immigration process from Scotland. I appreciate your answers this evening, and maybe you could elaborate a little bit more from the industry perspective.

I had a chance today with the committee to go first-hand to West Coast Fish Culture and meet with Ward Griffioen, who seems to be a real leader and visionary in the industry. The number he gave for the footprint in going to closed containment could be up to 800 times more costly in its impact on our ecology and in energy consumption.

I'm wondering whether your industry has done any sort of analysis of the impact of closed containment. That seems to be the answer from the public's perspective, even from the sports fishermen's, but is it a realistic option?

● (1830)

Ms. Colleen Dane: There's a lot more work that needs to be done before even that decision can be made. The technology has to be there, first of all, and then the other questions—about environmental impacts, and as you mentioned, the energy one—obviously also need to be addressed, and the economic impact of it is also an important piece.

The association itself hasn't done any direct cost analysis, but there have been some draw-outs that, based on some of the numbers we've seen for smaller projects, have indicated that right now it wouldn't be economically feasible. But as I said, we're interested in continuing to look at the technology as it develops. Our companies are there and are part of that innovation, and we'll have to see as we work together into the future what the options are and what options become available.

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): Thank you, Mr. Cannan.

Ladies and gentlemen, thank you very much for having taken this time to explain to us what you have been doing.

I am now going to adjourn the meeting for our light lunch, which will allow us to keep our waistlines, and we will resume the meeting at 7:10 p.m. Thank you.

● (1830)

(Pause)

● (1920)

The Vice-Chair (Mr. Raynald Blais): We will now resume our meeting. I would like to thank the people who will be speaking in a few moments for their patience. I am asking you to be disciplined, just as I did the previous witnesses, who proved to be very disciplined and cooperative. This allowed for a better exchange between them and the members of the committee. And so I am going to ask each group to make a five-minute presentation. Today we have five groups with us.

The idea is that the members who will ask you questions following your presentations will be able to raise topics you have just discussed quite easily. This will give us an opportunity for a more in-depth discussion. If other comments or information come to mind that you would like the members of the committee to be made aware of, do not hesitate to let us know. Everything is not over when your testimony is over. We could say, in fact, that everything begins with your testimony. Also, you may send us additional comments in written form later if you wish to do that. I thank you for your anticipated cooperation.

Without further ado I am going the give the floor to Ms. Catherine Stewart.

[*English*]

Ms. Catherine Stewart (Manager, Salmon Farming Campaign, Living Oceans Society): Thank you very much.

I'm the campaign manager for the Living Oceans Society. Our group is a member of the Coastal Alliance for Aquaculture Reform. I would like to thank the committee for coming to B.C. and thank the first nations for this meeting on their traditional territories.

As the name of our coalition suggests, we are not opposed to aquaculture. We are working for aquaculture reform. We believe that aquaculture has an important role to play in meeting market demand for seafood, which is increasingly scarce at a global level. We also believe that jobs in coastal communities are very important.

I would like to raise a question about the job numbers, however. The special legislative committee on aquaculture provincially commissioned an independent report that concluded that the industry in B.C. generates a total of 2,900 jobs, direct, indirect, and induced. The British Columbia Salmon Farmers Association repeatedly cites a PricewaterhouseCoopers report concluding that there are 6,000 jobs. We would invite them to share that report with interested parties. To date there has been no transparency, and it's difficult to know how those numbers arose. Nonetheless, however many jobs there are, we recognize their importance.

But while we believe that aquaculture has a place in B.C., there is abundant evidence that the current practices are not sustainable and that the industry needs to change. CAAR has been trying for ten years to bring about that change, and for the last five years we've been working quite diligently with the largest salmon-farming producer in the world, Marine Harvest, and their Canadian division in a collaborative and constructive relationship to try to find mutually beneficial solutions.

I would like to point out that this work has already led to some modification of practices that relate directly to the issues surrounding Dr. Krkosek's predictions of extinction within a generation. Changes were made in the Broughton Archipelago as a direct result of CAAR's collaboration with Marine Harvest. Farms were fallowed or emptied into alternating channels during the juvenile wild salmon out-migration, and Marine Harvest began proactive treatment of lice during the out-migration period whenever counts were trending upwards to the trigger level. The industry likes to critique Dr. Krkosek's work, but we have to recognize that the status quo did change.

As the committee listens to the scientific debate around the evidence concerning sea lice, for instance, I think it's also important to recognize DFO's position not only at a domestic level but internationally. For instance, in a report produced in January 2010 for the North Atlantic Salmon Conservation Organization, or NASCO, the department stated: “Aquaculture information is mainly provided as it relates to marine-based activity, as it is widely accepted that this component of salmon farming comprises the primary risks to wild salmon.” So while at a domestic level DFO may challenge and counter the evidence, at an international level they're clearly accepting it.

We've been encouraging a transition to closed containment for ten years. Living Oceans and the member groups of CAAR have strongly encouraged this committee to recommend a significant federal investment in closed containment pilot projects to test the technology, to analyze the cost implications, but also to begin addressing the market shifts that are taking place.

Our primary market for farmed salmon in B.C. is in the U.S.; 85% or more of the salmon we produce goes to U.S. markets. Those markets are changing. Target Stores nationally in the United States have dropped farmed salmon, and within hours of making that announcement their share value went up by 4%. Safeway has written to the federal government of Canada encouraging investment in closed containment. We've provided copies to Travis of the letter from Safeway. I hope that's been made available to you. If it hasn't been translated yet, I'm sure you'll receive it shortly.

Overwaitea Food Group, I know you have heard, are selling closed containment salmon in their western Canada stores already. Federated Co-Ops, Compass Canada—a major supplier—the City of Ottawa, the University of Ottawa, institutions, hospitals are no longer carrying open-net-cage, farm-reared salmon because of the concerns around sustainability.

The impact is not just on wild fish, but on ocean ecosystems. We believe there are many concerns out there that are not necessarily valid. We've been working with Marine Harvest on their proposed closed containment pilot project. While there are rumours that the industry would move off the north island and away from B.C., Marine Harvest is actively seeking a site for their project on Vancouver Island, particularly on the north island.

● (1925)

Closed containment requires reasonably priced land and abundant fresh cold water, which are not readily available in Los Angeles.

Stores are seeking additional supply. I think it's important to note that Overwaitea is not charging a premium for the closed containment salmon they are selling. They have told us there's sufficient profit margin for both the producer and the retailer without a price premium.

We think that B.C. has tremendous advantages—its experience in fish husbandry, and its established markets, land, fresh water, and non-fossil-fuel sources of energy—and we strongly encourage a full investigation of closed containment.

Thank you.

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): Thank you very much.

Ms. Young now has the floor.

[*English*]

Ms. Michelle Young (Salmon Aquaculture Campaigner, Georgia Strait Alliance): Thank you for this opportunity.

My name is Michelle Young and I work with the Georgia Strait Alliance as a salmon aquaculture campaigner. GSA works on a wide range of issues affecting the marine environment in this region, but I'll be talking about fish farms.

A good part of my job is spent researching what is actually happening on the salmon farms, watching for issues of concern, such as the levels of lice on farms when stock are treated and fish are harvested, stocking levels, escapes of fish, disease outbreaks, and so on. Through my experience, I've seen a lack of transparency in this industry.

In recent years the two major fish farm companies in B.C. began publishing their sea lice data on their websites. Marine Harvest has been doing so the longest and has the most comprehensive data. Mainstream Canada began publishing their data this year. However, these data are so minimal that they provide little useful information and can sometimes be misleading. They only report adult and pre-adult stages of lice, and only for one of the two species of lice commonly found on salmon farms. To my knowledge, no one has researched the impact of that second species of lice, a general species known as caligus, and what effect it has on herring and other fish in relation to the presence of those fish farms.

Under the precautionary principle, should we allow those farms to continue to be there if we haven't even asked those questions yet?

Just last week I was researching lice levels in farms in the Discovery Islands area, and the Mainstream Brent Island farm actually showed zero lice in October in their data. But it's more likely that they didn't do a count, because they are harvesting and they don't have to count when they go below three pens of fish. I went out there, and they still have three pens of untreated fish, and we don't know how many lice are on that farm, which is very concerning.

The Mainstream farm just across Okisollo Channel at Venture Point treated those fish in September, but their chart doesn't show how high the lice levels peaked, and what dates they counted and treated those fish, or what levels the lice are at now and how long they took to come down after they had treated the fish. Grieg Seafood also has a farm in Okisollo Channel, but they don't report any sea lice data to the public.

The reason I'm concerned about these particular farms is that they are very close to the Marine Harvest farm in Okisollo Channel, which has just reported 22 motile Lepeophtheirus per fish in September. These high levels are occurring in the Wild Salmon Narrows, where we are asking to have five farms removed as an emergency measure. This is a critical migration route for wild juvenile salmon, including Fraser River sockeye, and yet it's virtually impossible for us to know what's going on at these farms.

There are at least four other farms in the Discovery Islands area right now that have exceeded three motile lice, with two others trending up and not showing any count for October.

While we hear a lot about the industry's ability to control sea lice during the juvenile salmon out-migration, sea lice levels still spike, and there are still juvenile salmon in the area right now. There is currently no evidence that anyone has sampled juvenile salmon in the Discovery Islands for sea lice at this time of year.

These elevated levels are occurring just as a new study was published last week on lice levels in this very same area, showing there are higher levels of sea lice in areas with net-cage salmon farms in B.C. They were highest in the Discovery Islands, where salmon farming is most intense.

Last year a think tank of scientists convened at SFU regarding the declining Fraser River sockeye and released a report on what they concluded should be done for these fish. Among the recommendations was the precautionary removal of salmon farms along sockeye migration routes, which is consistent with our request to move these five farms in the Wild Salmon Narrows.

Summarized regional disease data in B.C.'s annual fish health reports are also touted as a fish farm version of transparency. We need to see all of the data to be able to assess the potential impacts. We must know as a minimum which diseases occurred on which farms, how long the diseased fish are in the water, and what is done in the way of prevention treatments and quarantine of these diseases. While new federal regulations are being developed, the veil of secrecy over these fish farm diseases needs to be lifted. We need detailed and timely farm-by-farm disease and sea lice data, but also bycatch stocking and escape data, as well as advance notice of drug and chemical use for people harvesting seafood in those areas at the same time.

To achieve greater transparency, DFO must impose greater scrutiny over this industry and end its promotion of current practices, such as the information that is on their web page, “Myths and Realities about Salmon Farming”, which I encourage you take a look at if you haven't done so.

● (1930)

DFO should not promote an agenda of expanding fish farms with so many unanswered questions, especially while the Cohen inquiry is going on and while federal regulations are being drafted. DFO needs to protect our marine resources with emergency removal of net cages from wild salmon migration routes, including the Wild Salmon Narrows, and immediately begin the transition of this industry into closed containment while providing both regulatory and financial support.

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): Thank you very much.

Mr. Sewid, it is your turn.

[*English*]

Mr. Tom Sewid (Executive Director, British Columbia Branch, Aboriginal Adventures Canada): [*Witness speaks in Kwakiutl language*]

I'd like to thank the hereditary chiefs and their people of the N'Quatqua First Nations, as well as the Homalco First Nation.

My name is Tom Sewid. I am past chair of Aboriginal Tourism British Columbia, and I am the past executive director of Aboriginal Tourism Team Canada. Back in 1991, when I was the vice-president of the Kwakiutl Territorial Fisheries Commission, not one kilometre down the road I spoke at a hotel in a chamber like this to someone who came from Ottawa with some people on a panel. I believe it was either Mifflin or Fraser, I can't remember at this time. But it was concerning the salmon in the Fraser River system. And when I spoke there I stated that we have to really look at AFS, the aboriginal fisheries strategy.

Right now it's an understatement to say, as the head of Aboriginal Adventures Canada, that if we don't have a salmon resource, we don't have a tourism industry, because it directly impacts the regional draws of grizzly bears, orcas, dolphins, eagles, and everything else. And the scientists will say it makes the forests grow. I believe them.

So in order to keep this resource sustainable and keep them coming to our river systems, we have to look at all the factors that are making them disappear from time to time. I had faith in 1991 when I was relieved of my duty as a captain for Canadian Fishing Company, Jimmy Pattison, on a seine boat. I said that a day would come when those sockeye will return, gangbusters. In 2010 it happened. Thankfully I was on the deck of a seine boat and I reaped the rewards of that salmon season.

Last year I never had one jar canned of salmon in my cupboards, as well as the year before. What happened? Well, I let everyone talk about their reasons. It's all there. But maybe we should look at other things as well, such as why are there drift net floats washing up on the shores of Haida Gwaii right now, as my friends tell me? When I lived there two years ago I saw it. Why is it that the bargain stores now have canned salmon sold cheaply, canned in places like Thailand and from across the Pacific Ocean, where they don't have salmon in their rivers?

Why is it that we're starting to see salmon on the decks of these fish boats this year that have scars in them that are not derived from daggertooth, which was a deepwater fish that was really hammering our salmon populations back in the 1990s? Now they have marks on them that are seal, sea lion, and that's normal. But they also have three slashes: Humboldt squid. I have pictures of Humboldt squid washing up on the shores of Haida Gwaii. It's now a sports fishery on the west coast of Vancouver Island and off the coast of Washington State. So we need to look at all the compounding factors of why the sockeye and other salmon don't show up from time to time.

But when listening to everyone you guys are going to hear, one of the things you need to understand is that as first nations, having a status card makes us more Canadian than Canadians. And with the Supreme Court of Canada and its decisions, we get the rights even more than average Canadians. We now have the right to go in and work with companies to put run-of-the-river projects in our river systems in our traditional territories.

We're able to work with the wind farm operations. We hear from everyone that it's not viable, feasible to go on land with closed containment for fish farming. Well, if aboriginal people have cheap electricity that is produced in their traditional territories, then it makes it feasible to put containment on land.

But it's up to you, as the leaders at the federal government level, to change policies so that we, as aboriginals, have more revenue and equity-sharing with the fish-farming industry. And that is crucial, because once we do, then we can look at working with the federal government to change an obsolete fisheries policy of not allowing ocean ranching that's making those rivers very productive.

Aboriginals were doing that since the dawn of creation. Go to the museum and you'll see a box that was designed to move fertilized eggs from one river system to one that wasn't productive. Yet with DFO policy we can't do that. We have spawning channels, serpentine channels in Phillips Arm in their river system and up in my river, Kakweiken River in the Broughton Archipelago, in the middle of it. Yet due to DFO policy and cutbacks in funding, there is no money to go in there and take the sediment out and the logjams. Well, if we all work together, we're going to put the hand of man on the catch in rivers, however we do it. And you'd better have the budgets to keep those rivers going.

One of the biggest holdbacks right now is this obsolete policy of this genetic uniqueness of salmon in a certain river system. Come on now, the Everglades have 20-plus percent introduced species growing in that rainforest and those swamps because of ships coming from Europe and other places. Everything in life is a constant change. We have to work with it. And one of the best ways we can see salmon being strong on this coast is to work with the first nations, and that's to give us more rights to our traditional territories.

● (1935)

Halla Kas La.

Go in peace.

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): Thank you very much, Mr. Sewid.

Mr. Kingwell, you have the floor.

[*English*]

Mr. Hugh Kingwell (President, Powell River Salmon Society): Thank you, Mr. Chairman.

You probably don't have to set the timer for me. I don't intend to speak at great length.

At this particular meeting, I represent the Powell River Salmon Society, out of Powell River of course. We're a small CEDP hatchery, a community economic development program hatchery, funded under the overall salmon enhancement program. Our function in the community is a little bit different from that of the larger production facilities. Our focus is not just on fish production, although we do produce a fair number of fish. We also work around community education, habitat restoration, and conservation practices and education throughout our community and throughout the streams we work in and with.

We do have paid people. We have three paid staff who work with our salmon program, but the rest of the ten directors and I are volunteers who maintain the society. We provide part-time employment on a seasonal basis as well, so we think we have a fairly good economic penetration in a relatively small community.

On the question of aquaculture, which I believe is what we were asked to come here to discuss today, we don't participate directly in the ongoing debate on aquaculture with regard to the pros and cons. That is not in fact the business we work in. But we are subjected to all of the discussions that have been ongoing for a number of years, and they do raise a lot of questions for us. In general we support the aquaculture industry in our area. We have people, neighbours, who work in the industry. It provides economic drivers, both direct and indirect, in our communities.

We have various kinds of fish farms. We have shellfish farms. We have salmon farms. We have net-pen farms in freshwater lakes as well as in salt water. We don't in fact have any that are in our direct waterfront, but we do have them within our regional area.

Notwithstanding our support in general for aquaculture as an industry and for the jobs and economic drivers it provides, we do have questions, and we do have concerns around aquaculture in a general sense. One of the biggest concerns we have—and it's expressed to me locally—is the ongoing lack of ownership of the industry as it is transitioned from the province to the Department of Fisheries and Oceans federally. It seems, in our opinion at least, that a vacuum of ownership has been created as this transition has gone forward.

We have concerns around the province being in a position to administer licences to farms even after the transition is done, whereas the Department of Fisheries and Oceans will be the group responsible for regulating the farms. We're concerned that we'll get into a situation much like the one we have with fresh-water streams for which permits are issued that far exceed the ability and capacity of the area they're issued for. We see that in water licences all the time.

We have concerns when we as sort of the public sitting on the sidelines listen to the debate around conflicting science reports. As the general public, we sit here and we hear everything from people saying our oceans will be dead in three to four years, and there will be no salmon, to people saying there's no impact at all. So we have these two points of view that we're trying to make sense of. We don't believe either of them to be true, quite frankly. We on the sidelines are not as stupid as we're sometimes made out to be, but we are concerned that the Department of Fisheries and Oceans has not stepped into the debate. They have not stood up and dealt with the questions at hand and provided us some balancing views on the science that's there. We don't really want to be listening to hired guns on either side of the coin.

As a non-profit society that produces fish, we are, of course, concerned that we're putting fish in the same environments where these fish farms exist. If in fact they are having a negative effect, we'd like to know what that is, and we'd like that to be managed, because it's counterproductive to our interests. We're producing fish, and we really want them to survive, at least to return.

I already mentioned the issue of licences. We are concerned about the fact that now we have a split jurisdiction in which licences are issued provincially and regulation and control are federal responsibilities under the Department of Fisheries and Oceans.

That's what I came to say.

Thank you.

● (1940)

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): Thank you very much.

I now give the floor to Mr. Connors.

[*English*]

Mr. Brendan Connors (PhD Candidate, Department of Biology, Simon Fraser University, As an Individual): Thank you, Chair. Good evening.

Thanks very much for the invitation to speak to you this evening, albeit briefly.

My name is Brendan Connors. I'm a PhD candidate at Simon Fraser University in the department of biological sciences. I've been there for the past almost five years and I've conducted a bunch of research on various aspects of interactions between farmed salmon and wild salmon. My work combines intensive field observations and controlled experiments with the synthesis of existing data sets on salmon and sea lice populations. I work with scientists from other academic institutions, non-governmental organizations, and the Department of Fisheries and Oceans to ask questions about interactions between farmed and wild fish. I've published seven peer-reviewed publications to date with these other scientists.

I've also been involved in work in the Broughton Archipelago since the spring of 2003. I believe you've heard a considerable amount of previous testimony with regard to pink salmon and sea lice in the Broughton Archipelago, and you're also probably all very acutely aware of concerns with regard to Fraser River sockeye and farmed salmon interactions, particularly here in the Discovery Islands.

I think the work I've done most directly speaks to some of the things you're interested in hearing about this evening. It involves research that looks at some of the broader ecosystem consequences of sea lice transmission from farmed fish to wild fish. Specifically, what I've worked on for the past number of years is understanding how sea lice influence early marine interactions between pink salmon and the salmonic predators that track them during early marine life, particularly coho salmon smolts.

Unlike pink salmon, coho salmon spend, on average, about one year in fresh water before they enter the marine environment. When they do enter the ocean, particularly in areas like the Broughton Archipelago, where there are odd- and even-year cycles of pink salmon, they feed aggressively on pink salmon for the first couple of months of marine life. This predation can be really intensive; it can account for up to about 70% of early marine mortality in pink salmon. This is during the period of time when, in areas where there isn't intensive salmon aquaculture, there aren't usually very many sea lice. What I've been interested in is what the addition of sea lice means for this natural predator-prey dynamic.

Very briefly, in a nutshell, what we've shown is that infected pink salmon are selectively predated upon by coho. That's not surprising, since an infected pink is easier to capture than an uninfected one, but what is surprising is that this comes at a cost to the coho that are feeding on them. Sea lice are incredibly adept at escaping the demise of the pink salmon that they're on and transferring to the coho as the coho feed on those pink salmon. This actually results in the accumulation and intensification of lice on those coho salmon when they're feeding on infected pink salmon. We've estimated that this increases infection twofold to threefold on those coho salmon in areas where they are reared and then interact with infected pink salmon prey.

Most salmon die one way or another during early marine life. Often that's the real bottleneck. A critical question that arose from this research is what consequences, if any, this accumulation of sea lice on coho has on their population level. On the one hand, you can imagine that increased ability to capture and feed on pink salmon may be a net positive for coho salmon population, because there's an increased access to early marine resources. On the other hand, one might hypothesize that as a result of the accumulation of lice impacts on early marine growth, there may be negative consequences.

In an effort to tease apart these different possibilities and ask that question, we've compiled about 35 years of data from Fisheries and Oceans Canada on the number of adult coho salmon that return to both the Broughton Archipelago and to the populations to the west and to the north. They share a very common coastal marine environment, except for some populations that rear and interact around salmon farms and infected pink salmon prey.

What we're able to do is tease apart or control for the confounding influence of climate and fishing pressure and ask if there are any obvious differences between these groups of coho salmon before and during these recurrent infestations that you've heard about in the mid-2000s in the Broughton Archipelago.

The results of the analysis support the hypothesis that sea lice from infected pink salmon from salmon farms are negatively impacting coho salmon populations. In fact, those populations that we looked at were depressed about sevenfold, concurrent with sea lice infestations adjacent to salmon aquaculture.

● (1945)

It's important to note that during that time this was preceding the coordinated changes that have gone on in the Broughton, so analysis of an updated data set is ongoing.

Two really quick key points I want to make before I wrap up is that this research highlights that it may not just be pink salmon that are impacted by sea lice from aquaculture. That's an important point to keep in mind here. There's a potential for disease to propagate through lice. It also highlights that monitoring and rigorous assessment of the health of wild salmon, both at the individual and population level, is imperative to making informed decisions about the viability and long-term sustainability of aquaculture in areas adjacent to wild fish.

Thank you.

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): Thank you very much.

Thank you, ladies and gentlemen, for your discipline and your excellent cooperation.

We will now begin the members' question period. The formula we use is the following. There is a predetermined time allotted to each of the political parties. We have with us the Liberal Party, the Bloc Québécois which I represent, and members of the NDP and of the Conservative Party. According to our procedure, the parties each have a block of time.

We will begin with Ms. Joyce Murray of the Liberal Party.

Ms. Joyce Murray: Thank you, Mr. Chair.

[*English*]

Thanks for taking the time to come and give your view and help us understand the complexities of this important public policy issue. I appreciate hearing how the different groups are working together—and, Ms. Stewart, how your organization is working with one of the major fish farms to find solutions.

I have a question around the Pacific Salmon Forum's report. I notice that the first 11 out of 16 recommendations are really centred around ecosystem-based management. I'm familiar with the long and complex process of determining ecosystem-based management for the central coast land use plan. So what exactly is it? And how exactly does it impact decisions being made by industry? What are the criteria and the parameters, and who decides? How can it be applied so it is putting the ecosystem first?

Clearly, the wild salmon have to come first. These recommendations apply an ecosystem-based approach to managing the resources and the watershed, a governance system to ensure wild and farm salmon are managed according to ecosystem-based principles, and then an ecosystem-based approach to addressing impacts and potential impacts from salmon aquaculture. In your view, is this happening? And if not, what's in the way of it happening? Talk to me about what you see DFO's role is and whether it's possible to apply this similarly to how we applied it in the central coast in British Columbia with our harvest industry.

● (1950)

Ms. Catherine Stewart: Is that question to me or all of us?

Ms. Joyce Murray: To anybody who has some thoughts on that... and yes, please start.

Ms. Catherine Stewart: Thanks. I appreciate the question, a huge question, for sure.

I would have to start by saying that, personally, I worked as a lead negotiator for the conservation community on the Great Bear Rainforest agreement, pushing for the implementation of ecosystem-based management in terrestrial management, and I think we're a long way from that on the ocean side. What can DFO and the federal government do?

My organization, Living Oceans, and many others have been working for a long time to try to move the PNCIMA process forward, the integrated management plan, and I think part of that multi-stakeholder process, which would be very similar to the LRMP processes on the terrestrial side, would be to discuss how ecosystem-based management can be applied to the marine ecosystems under federal and sometimes provincial responsibility.

Fundamentally, I think that we need to start looking at how to define the marine ecosystems, how to define functioning ecosystems and place boundaries in order to enable area management, how to gather baseline data that tells you what the healthy ecosystem looks like and how it has been degraded by current activities. It is critical to look at cumulative impacts, and I think that's another area where the federal government could make changes in the CEAA process, because CEAA tends to look at things in isolation rather than looking at the carrying capacity of an ecosystem, the baseline health of that ecosystem, and what the cumulative impacts already are. When we talk about a salmon farm going into a new area, we shouldn't only be looking at whether there are other salmon farms, but whether there's a pulp mill, or log dumps, what other human activities are affecting the health of that ecosystem and how would a potential farm interact with those as well as what the ecosystem can sustain and still provide us with healthy and abundant wild salmon populations and other marine resources.

Ms. Joyce Murray: Are there other comments on whether that model of the central coast LRMP and EBM is perhaps a model to apply?

Mr. Tom Sewid: My band, Mamalilikulla-Qwe'Qwa'Sot'Em, holds the western gateway to the Broughton Archipelago and the mouth of Knight Inlet.

I think you'll have to be really careful with that, because now that the central coast has been in effect for quite some time and we first nations are hearing through our cousins and relatives, “Wow, we sure got pooched with that one”, we can't do anything now because of this management plan that we helped participate in. I was a part of that back in 1991. And, God rest his soul, Chief Pat Alfred, my great uncle, who is no longer with us, brought us young men into the back room and said, “Be careful what's going on in there. This is going to affect your grandchildren.” We're now starting to see it. On the central coast, we know the Heiltsuk are dead against fish farming. The Kitasoo are booming with that industry and the spin-offs on that. They have a very strong tourism industry based on their regional draw, the spirit bear, and their river systems are in good shape.

When you come down and all of a sudden you come to the Mamalilikulla-Qwe'Qwa'Sot'Em people, sure, half my people might be against fish farming, but those are the ones who don't work. They're not assimilated into modern society, as the government has been trying since the first iron anchor hit an unnamed mud bay back in the east, in Canada. I'm speaking for the guys on the gale warning right now out on the central coast, on those fish farm boats delivering smolts and picking up farmed fish. They don't have time to go to the parliamentary lawns, to Norway in their regalia with their drums and pound them and say “Down with the industry”. They're too busy working, being assimilated as Canadian citizens living off-reserve and paying taxes, the majority of them, and that's what we have to look at with this land thing up on the central coast.

When it comes down to the government coming to a lot of the first nations down here, speaking for the Kwakwaka'wakw, some of the ones who are participating in this industry, they say “We want you guys to work with us to stop this industry's expansion”. Well, I think you're going to get a lot of our people and our leaders saying no, they're going to be working with the industry to see expansion of the fish farm industry, because when you had strong commercial fishing, you had a strong Kwakwaka'wakw culture. Our potlatches were booming. Our social problems within the confines of our communities and families weren't that bad. All of a sudden, since 1994, the salmon dropped. An 11-year cycle, maybe. Maybe it's caused by fish farming. Who knows? We're going to figure that out, though. But I know one thing: the negative issues to our families increased drastically, because we were flat broke. But now that we're working with the fish farm industry that supports us and keeps our seine boats tied to our communities' docks, so that when those salmon do return we can cut the lines and go fish, this is a happy community, Campbell River. Go to Walmart. Watch how many flat screens are being bought.

● (1955)

Ms. Joyce Murray: Do you have any other comments about ecosystem-based management as an approach?

Mr. Brendan Connors: I'm not super familiar with the process on the mid-coast, but you did bring up the recommendations made as part of the EBM from the Pacific Salmon Forum. I think they really hit the nail on the head, that if we're talking specifically about farmed fish and wild fish interactions, we need to have rigorous, comprehensive monitoring on the ground wherever there is aquaculture. That's a prerequisite to making informed decisions about the potential consequences—if there are any—of interactions in the first place.

In the Broughton there have been intense conversations, discussions, and research that have ultimately resulted in a coordinated type of approach, but this has been many years in the process. While a spotlight is shown there, other parts of the province have had aquaculture expand outside of the spotlight without a lot of that baseline information. That leads to the uncertainty we are presented with today.

Ms. Joyce Murray: A key to the EBM negotiations is to have a science secretariat, a timeframe for this land use plan agreement, and everybody at the table. As imperfect as Mr. Sewid would say the outcome was, things can be learned from those processes as we move forward to the next one if there is a science secretariat, and the baseline science is critical to that.

Are there comments on that?

Ms. Michelle Young: I'm concerned about the length of time that's going to take.

There's apparently a debate going on, although I don't think there's a debate over pink and chum salmon. We don't know if sockeye are affected. There's not a lot of research happening there.

We can't continue to expand this industry when we don't know what it's doing to our salmon. While we're thinking about maybe implementing EBM in seven to nine years, what's going to happen in the meantime while we carry on with business as usual? That's my concern.

Ms. Joyce Murray: So that timeframe is the key concern, and the need to have some immediate action.

● (2000)

Ms. Michelle Young: Relief—yes.

Ms. Catherine Stewart: On the coordinated approach in the Broughton Archipelago, I want to note that only one company is taking the approach of fallowing farms during the out-migration and treating the fish proactively. We've had a monitoring plan in place this past year that involves the other two companies and DFO, as well as the Coastal Alliance for Aquaculture Reform and Marine Harvest.

So there's some coordinated monitoring going on, but there certainly isn't an area-based coordinated management approach. One company is taking some voluntary measures on an interim basis.

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): Thank you very much, Ms. Murray.

Just before giving the floor to Mr. Donnelly I might have a few questions to put myself, first of all to Ms. Michelle Young.

You will let me know if I am mistaken or not. I feel from your comments that confidence in the aquacultural industry in general has declined, that there is a difference in perspective. Everything is not black and white. One may consider that there are grey areas as well.

Personally, I feel a certain confidence in small businesses. I wonder if they make you feel more secure. Do you see that as a positive approach? When the aquacultural industry gets bigger, the risks grow as well. There are smaller businesses like the one we visited this morning, where these 25 people work, and conditions may be completely different from one business to the next. Would you be more inclined to see a much more human-scale industry in a positive light, as opposed to a much more broad-scale industry?

[*English*]

Ms. Michelle Young: I guess my concern is with transparency and the availability of data to the general public, and especially to the researchers. They need to have that information as quickly as possible so they can compare the scientific data from farms to what's happening to the wild fish. I'm not particularly concerned about who owns the companies if they're operating responsibly, but if smaller scale means fewer farms in the water, that would be better than having more farms.

Did that answer your question?

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): So that is your answer. I cannot qualify it. I asked you if you felt more secure when the aquacultural industry was made up for the most part of small businesses rather than large ones.

That is my viewpoint.

[*English*]

Ms. Michelle Young: I'm not sure I can answer that. It would depend on the individual companies and their personal operations, and how they conducted their business.

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): Thank you.

I have a question for Mr. Sewid.

You will tell me if I am mistaken. We were talking about confidence earlier. You referred among other things to a possible reduction in the Department of Fisheries and Oceans' budget, and in its work properly speaking. We know what is coming in the area of aquaculture here: this department will be taking up the reins and managing this whole sector.

Are you uncomfortable with that, very worried, or do you think that in the final analysis it will be possible to do good work with the Department of Fisheries and Oceans?

[*English*]

Mr. Tom Sewid: I'm very comfortable with DFO taking over and looking after the aquaculture industry. My father is a retired DFO biological technician. I grew up in a household where we lived and breathed DFO policy, and the pros and cons of it. It's going to be good that DFO is going to be taking over. They're definitely going to need an increase in their budget, as well as policy changes from Ottawa.

Back in 1990 to 1993, when I was the vice-president of Kwakiutl Territorial Fisheries Commission, we worked diligently with DFO to get the AFS together for the Kwakwaka'wakw nation. At that time, it was made up of 18 recognized bands. We wanted our guardians to get training to be certified and recognized as enforcement officers. They got their pistol training, but they weren't allowed to bear arms and they weren't allowed to carry them. Still to this day, native guardians in Canada are not allowed to be recognized custodians of the fish—protecting that resource. That's one of the biggest things holding us back, as far as first nations, as well as looking after this resource. That needs to be changed and addressed. I've been following AFS steadily—trust me.

I was asked as a commercial captain on the seine boat...and this really affected me when the salmon stocks went down. I asked them, in 1991, at that last commission, whether the Stó:lo, the Tsawwassen, the Musqueum, and the Yale do like other aboriginals, at least like the Kwakwaka'wakw, and go to the rivers we rely upon in our traditional territories to enhance those spawning grounds, the nurseries. Do those people from the mouth of the Fraser River look after the rivers, the spawning grounds on the Horsefly, Quesnel, the Adams? Someone from one of the bands got up and said no, we don't; it's not our traditional territory.

Yet you guys want to get access to commercial selling food fish, which is against federal law. We as Kwakwaka'wakw can't do it, but we have heavy investment in commercial fisheries, gill netting, seining, and trolling. We've spent millions to be participants in this industry, yet you guys want to go out with little aluminum duck punts with 300-foot nets and be commercial fishermen. If you want to be a commercial fisherman, invest in the industry as we have. AFS came, and we have to accept it.

Where are all the boats at the docks in Campbell River, Powell River, Prince Rupert, Bella Bella, Klemtu? I know all those ports by heart because of the downsizing in the industry. We downsized it: let's accept it. But we still have the majority of the fishers as aboriginals.

We hear stories about people in the oil patch—Fort McMurray and elsewhere—paying up to $60 for a sockeye sold out of the back of a truck. I flew over the Fraser River six years ago, and like the Indian on the commercial back in the 1970s who had a tear coming down his cheek, that's what I felt when I saw the number of gill nets in the Fraser River. And yet it was a day that wasn't open for food fishing.

The main thing is enforcement. The government has to give DFO a big budget so it can work properly. One of the best ways DFO can work properly is enforcement, and that's enforcement spinning down to the aboriginal guardians.

● (2005)

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): Thank you very much.

I am now going to yield the floor to Fin.

[*English*]

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

Mr. Connors, you mentioned sea lice transfers. You talked about sea lice transfers from pinks to coho, I believe, and you used the term "intensification". I'm just wondering if this is a localized problem or if this is a significant problem to the population. Could you put it into perspective for me?

Also, I'm wondering if you've shared these results with DFO, with industry, and what the reaction has been to those results or that sharing.

Mr. Brendan Connors: Okay. I'll start with the first part, which is whether or not it's a localized phenomenon.

To be clear, this work has been done in the Broughton and very much pertains to when one salmonid species feeds on another. So I would say that anywhere coho or another salmonid species is feeding on another—pink or chum or anything else that's infected by lice—this is very likely to occur. For example, in the Strait of Georgia, where we have only odd-year lineages of pinks, we may not expect this phenomenon to occur during those years when pinks don't make up a large prey base for those coho. But it's certainly not something that I would say is just localized to a small part of the Broughton Archipelago.

When it comes to the second question, which was whether or not this information has been shared with the Department of Fisheries and Oceans and the public in general, it was just recently published. There were two manuscripts published. One was in collaboration with two DFO employees. That looked at the accumulation of lice on coho in the Broughton, and then the population level consequences were also done with some other academics as well as a DFO employee on the east coast. All that's been published and just released online earlier last month. We didn't go out of our way to create a media situation about it. We felt that the best way to proceed was to allow this work to work its way through the system and to help it inform decisions down the road.

● (2010)

Mr. Fin Donnelly: Okay. Have you had any reaction?

Mr. Brendan Connors: Yes, the usual, what you'd expect. On the far left, all the way on one side, people say this is evidence that all coho salmon are doomed everywhere where there are salmon farms. And on the other side, they say it's completely flawed methodology and it's junk science. We've had a little of everything in between.

Mr. Fin Donnelly: Okay, thank you.

Mr. Sewid, my understanding, and you can correct me if I'm wrong, is that there currently is a moratorium on fish farm expansion. In other words, you can't get new licences in this province and it's basically either for environmental problems or perceived environmental problems. And I'm wondering if you could see a day, if that changed, if for instance there was a shift to closed containment, when the industry could in fact expand.

Mr. Tom Sewid: Expand it. I'm not a believer in the sea lice epidemic. I believe, as Hitler found out, if you get a good propaganda minister to jump loud enough and for a long enough time, they'll believe anything.

I lived in the Broughton Archipelago for 16 years, in Meem Quam Leese, and I harvested my clams, my halibut, my sole, my crab, and my shrimp all around fish farms. As you can see by my waistline, ain't nothing wrong with this boy. I'm healthy. I challenged Alexandra Morton to come and take some blood tests from me and see what kinds of antibiotics and other toxins are in my blood system, but she hasn't taken the challenge on yet.

We need an expansion, socio-economic strength for the first nations. I worked in the Englewood fish plant in 1997. I drove a friend there for a job interview. The guy who was running it happened to be the manager from the seine fishing plant up in Prince Rupert. “Tommy, come run my forklifts”. So I dragged my butt over there and I started running forklifts. I was tasked to go to Alert Bay to get first nations into the fish plant. I told my cousins, “There ain't going to be a fishing industry, get over there and work”. They came. All of a sudden this propaganda machine started about a sea lice epidemic from Alexandra Morton and I heard about the kids getting beat up in school because their daddy worked for the fish farm industry. And that's still taking place.

I watched people used as token Indians walk down the highway to Parliament and paint graffiti on one of our most sacred aboriginal symbols in this community, Big Rock. How dare they go paint their salmon logo on there, or anyone paint anything on there?

Well, I heard last week that Kingcome's up in arms. They're mad. Who's going to pay the $15,000 for housing and feeding all their band members who went on this migration walk? Propaganda. Token Indians.

I see the unemployment. I see my cousins who are prospering because they work in the fish farm industry. I see them also having the ability to be commercial fishermen, because they retained their vessels. Three-quarters of the boats in this harbour down here that are seine boats, that are owned by aboriginals, were retained because of the fish farm industry. So expansion—expand it. Come talk to the chiefs, the real chiefs, not your token little Indians. Bobby Chamberlain—Chamberlain ain't even a Kwakwaka'wakw last name. I think that comes from Germany. Talk to the true Kwakwaka'wakw chiefs, the ones who are true leaders and controllers of what happens within their traditional territories, and I think you're going to find that the consensus is “Yes, I would like to work with government to expand these farms. I need to see my people working.”

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): Thank you very much.

I will now give the floor to Randy.

[*English*]

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

Thank you, ladies and gentlemen, for coming. I appreciate your input on this important issue.

Let me begin with Mr. Kingwell, if I may. First of all, let me say that I appreciate the work of the Powell River Salmon Society. It does good work and makes a big contribution to the health and sustainability of salmon.

I do have a question for you, but you seem concerned about the continued split jurisdiction, I think you called it. I don't know that's a problem we can solve, because the sea floor is still under provincial jurisdiction. So the siting, anything that attaches to the sea floor, as the net cages do, will fall under provincial jurisdiction. However, in order to get a licence, they still have to go through DFO authorizations, and that triggers environmental assessments as well as, usually, a navigable waters permit, which is another hoop they have to jump through. But I think there's certainly going to be more coordination with the federal government actually managing the aquaculture industry, so it will be interesting to see on December 19 how all that works.

You made a comment earlier about DFO's lack of ownership. I wasn't quite sure what you were referring to there, and I wonder if you could expand on that.

● (2015)

Mr. Hugh Kingwell: From my perspective and from the different forums I've been involved in, when aquaculture blew up to be a very politically sensitive issue, it very clearly seemed advantageous for the Department of Fisheries and Oceans to acknowledge that it was a provincial issue.

Then we got to a point in time when it was clear that ownership of aquaculture was going to shift back to the jurisdictional control of the Department of Fisheries and Oceans. Throughout that window of time and even through the window of transition that we're going through now, when the department was asked for formal advice or positions on aquaculture, it was initially deferred to the province.

I appreciate that the department is doing a lot of work and investing a lot of resources in trying to set up the regulatory process and all the administrative measures necessary to administer aquaculture really from scratch. Still, the sense we've been getting is one of "We'll talk to you when we're done", so we're still not getting a lot of information on the issues that are pertinent to the day.

In December, when that is up and running, hopefully that process will change and they'll be a little more transparent in the information flow, and I'm hoping that things such as better-balanced reviews of current science and past science, which tend to get bandied around and used and misused, will get a little better forum.

Mr. Randy Kamp: Were you involved at all in the consultation process as DFO was working at producing these new regulations that we'll see shortly? I know there were large public meetings; perhaps some others were involved in them, but were you personally involved in any of them?

Mr. Hugh Kingwell: I didn't have an opportunity. Powell River is a difficult place to get from, so I didn't personally have an opportunity. Other people I know who are involved in other associations did have a chance to get involved, but we've yet to see what the final product will look like relative to the input that was given.

Mr. Randy Kamp: Yes, that's a good comment.

Mr. Connors, I'm interested in the methodology you used when you tested the coho, but I don't have time to go there, because I want to leave some time for my colleague.

As a biologist, what's your best guess at the good sockeye returns this year?

Mr. Brendan Connors: I'm definitely not qualified to answer that question, but since you asked for my opinion, I'll give you my opinion.

There are a suite of survival filters for any salmonid. I'm sure you've probably taken a look at the document that was done for the Pacific Salmon Commission this past summer, the summary of the weight of evidence for the mostly downward trend in productivity in the Fraser stocks. I think they identified a number of very likely survival filters, including disease, either natural or from anthropogenic activities; competition in the open ocean; competition in the watershed; and, very much, the marine environment.

While we had a perfect storm in 2009, I think everything hit "all systems go" in 2010.

● (2020)

Mr. Randy Kamp: Good. Thank you for that.

Before I pass it over to Mr. Weston, I'm surprised that our vice-chair hasn't mentioned this item on that theme. In April of this year, the headline on an article by Mark Hume in *The Globe and Mail* is, "Seals, sea lions devastating west coast salmon runs". Maybe that's another factor in this whole thing.

I'll pass it over to Mr. Weston.

Mr. John Weston: Preston Manning wrote an interesting article that was published about six weeks ago and he said that in politics, Canadians are getting increasingly disconcerted because it's a polarized world and the credibility of each side of a discussion withers and there's nobody left to believe.

In this debate, most of us are way less qualified than you to form an opinion on these things, because we're not scientists as you are. Yet we're hearing things like Sonja Saksida, executive director for the B.C. Centre for Aquatic Health Sciences, who said just a couple of hours ago, "veterinarians and professionals manage fish health well in farmed salmon, and B.C. does not see the same incidence of sea lice here". Brendan, you would say something very different, and certainly Michelle and Catherine would have a different perspective. Then from Tom we hear something radically different.

If I put you into a room, Brendan or Catherine, and argued the other side of the story, that really we don't have a problem, or, Tom, if I had to get you to understand the sincere passion that Catherine is exuding here, how would you answer, and how can we get to a stage where we have some sort of common ground we can move forward from? From our hearings we're going to have to make some recommendations, and I hope someone listens and maybe we can move forward and become the best producer of wild salmon and farmed salmon in the world. That's got to be the goal. How do we get you to hear one another so there's credibility on both sides and we can move forward? I don't know if you can answer that.

Catherine, go for it.

Ms. Catherine Stewart: I'd like to take a stab at that, because I think that's exactly what CAAR has been working on for the last four or five years, meeting with Marine Harvest to try to hear each other. When you say I would disagree with Sonja, I don't disagree with Sonja. I believe that the industry is doing its best to manage the health of the fish on their farms. That's not my concern. My concern is the impact of their fish and their practices on the marine ecosystem and on wild fish and the way that global evidence tells us that wherever you locate open-net cage farms, you do have an effect on wild salmon and wild sea trout. Studies done by Ransom Myers and Jennifer Ford out of Dalhousie looked at that issue globally, and said wherever there are farms, there are impacts.

So the question then becomes how can we acknowledge the efforts the industry is making, how can they acknowledge the validity of the concerns on the other side, and then how can we work toward solutions? It's very difficult to achieve solutions to a problem if you can't admit you have a problem. I think that's part of the rut we're stuck in here: science is telling us there is a problem and the industry, to my mind, is very entrenched in claiming there isn't.

I think part of the problem with management as well is that the Department of Fisheries and Oceans has a conflicted mandate. On the one hand, representatives of the aquaculture management branch are flying around and talking to retailers, the same retailers we're talking to, and telling them it's the best-managed salmon farming industry in the world, with the toughest regulations, and it's eminently sustainable. They are promoting the growth of the industry and promoting the product at the same time that now they're supposed to be regulating and managing the industry and its impact on wild fish, which is their primary constitutional mandate, the protection of the wild fish.

● (2025)

Mr. John Weston: Brendan, can we hear from you before we're done?

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): Please be brief.

[*English*]

Mr. Brendan Connors: I completely agree with what she said. I would point out that I also don't disagree with the statement you made on behalf of what Sonja said earlier. Nobody is arguing that they're not doing their best job on the farms, but one has to just simply take an evidence-based approach and ask, given evidence.... I'm not saying that all the evidence is there. You make informed decisions based on that. Then you can spin out of control very quickly when vested interests argue on either side. That's exactly what results in what you alluded to, to start with.

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): Thank you very much.

Mr. Sewid, may I ask you also to reply briefly, please. You have 30 seconds.

[*English*]

Mr. Tom Sewid: Give us aboriginal revenue and equities sharing with the expansion of farms, and then if you give us the rights to ocean ramps and traditional rivers, if our ocean rivers are being ramped and the farms are going to hurt the wild fish, we're going to do something about it and work with both sides of all tables. Give us some land claims. Just speed it up.

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): Thank you very much.

Rodger, you have the floor.

[*English*]

Mr. Rodger Cuzner: Thanks, Mr. Chair.

I'll throw this out to Michelle, because she made the point a couple of times in her comments with regard to the science, but if anybody else wants to jump in on it, no problem.

Obviously there's frustration around the science as it pertains to the farms. Is it a lack of science, is it a lack of protocols, does it fall down because of lack of legislation and regulation around the science? Whether it was implied or not, I got a sense that maybe you're saying the farms aren't really forthcoming. Maybe they have information and they simply don't share that information. Is the science being done that has to be done? I guess I want to know, where does your frustration lie with the science?

Ms. Michelle Young: There's a lot of science on pink and chum salmon that's available from both sides, if you want to consider this a debate. There are lots of gaps in knowledge when it comes to other species of salmon, especially sockeye. We don't know what happened to those sockeye or what percentage of a role fish farming may have played in the 2009 collapse. What I'd like to see is that the data from the farms, on a farm-by-farm basis, is available in a very speedy manner so that researchers like Mr. Connors can have that data to do the research they want and to ask the questions they want to ask.

Mr. Rodger Cuzner: Do you think the protocols that are there are adequate?

Ms. Catherine Stewart: We don't know because we don't get to see the information.

Mr. Rodger Cuzner: Is that your sense as well, Brendan?

Mr. Brendan Connors: I can't speak to the protocols, but I can speak to the absolute necessity of full disclosure. I can understand and respect proprietary information and the need to be sensitive to that. I'm certainly not very familiar with that. Purely from a scientific perspective, you need full disclosure of all available information to make informed decisions. There's enough of a knowledge gap as is. If we want to move forward and make informed decisions, we need full disclosure of all the available data that is there.

Ms. Catherine Stewart: May I add a very brief comment to that?

I have two examples. One of our coalition members filed an access to information request in 2004, I believe, or 2005, for data about disease and lice levels on farms, and the industry fought it for five years. They fought tooth and nail against the release of that information.

Another example is that a scientist, Dr. John Volpe out of the University of Victoria, wanted to do a study on the impacts of Slice, the lice treatment, on prawns adjacent to the farms. He asked the farms if they would simply notify him when they were going to treat, so that his researchers could take samples in the field to further our scientific understanding. They refused. They would not give him that information. He was forced to take his team out into the field and do random sampling based on rumours about what the lice levels might be, or when treatment might be taking place.

Mr. Rodger Cuzner: Okay. I'm going to try to get two more questions in.

It was mentioned today about the fish fry, when they're passing the farms they tend to stop and meander. It was suggested that maybe it was at nighttime and it happened because of the lights. Would you like to share your opinion on that?

So we can get it in, I'd like your comments, Tom, because I think there was some excitement and anticipation around the aboriginal guardian program. It hasn't happened, so perhaps you could finish with that.

I'll throw the other one out about the lights, then I'll finish.

● (2030)

Mr. Brendan Connors: I was involved in some work with an undergraduate from Simon Fraser University that looked at the influence of continuous illumination at night, the distribution and abundance of juvenile salmon, as well as all other critters in the water. Not surprisingly, given mountains of scientific work throughout the years, light attracts a lot of marine organisms. This is an area that is ripe for further exploration. One doesn't want to go out willy-nilly and say that it's having an impact or it isn't, but it's an area that certainly needs to be investigated.

Mr. Rodger Cuzner: Thank you.

Ms. Stewart.

Ms. Catherine Stewart: Sure, there is evidence of predation of farm fish on wild stocks, on herring, on juvenile salmon that are attracted to the pens, whether for the feed pellets or the activity, or the lights, and it definitely requires further assessment.

Mr. Tom Sewid: As a fisherman, take a seine boat back in the sixties, put a generator on board and a bunch of Christmas lights that are clear, let it sit there for an hour after dark, go set your seine around it, the second boat, and you'll catch nothing but herring and small salmon. That was during the reduction in herring seasons back in the sixties and seventies. We never had any herring fisheries in the early seventies, and then all of a sudden roe herring started in the late seventies, and it's still operating right now.

Turn the lights off. When I leave here, I'll be condemned and praised by the fish farm industry, but turn those lights off.

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): Thank you very much.

Thank you, Rodger. In any case, I expect we will have an opportunity to go and have a nice little drink of water or something else together, and pursue this discussion a little further.

Mr. Donnelly, you have the floor.

[*English*]

Mr. Fin Donnelly: Thanks, Mr. Chair.

I just have one question. Ms. Stewart, you mentioned about the pilot project with CAAR, and I wanted to just give you an opportunity to elaborate a little bit more about the trials and tribulations and where that's at, and what the positives have been coming from that.

Ms. Catherine Stewart: Thanks very much.

We have been working with Marine Harvest for several years. We set out five science priorities to do collaborative work on to try to resolve some of the science conflict. And it has been challenging, but we are getting there and we hope that some of the analysis that will come out of the monitoring program and the data-sharing agreements that have now been signed by all parties will help to contribute to everyone's depth of knowledge on this.

The other big piece of it was the closed-containment pilot. Marine Harvest Canada has put in their budget for next year a request for $4 million to $6 million approval from their head office in Oslo to construct a closed-containment pilot. They have hired an engineering company, and they are actively seeking appropriate sites right now on Vancouver Island, particularly the north island. We are working with them on how the analysis will be undertaken, and we've also embarked on a joint benefit-cost analysis of closed containment.

There are a lot of issues out there, but the economics is a big one. One of the things we're looking at is the externalized costs. If you're going to say that closed containment is prohibitive cost-wise for the industry, you have to look at where they're getting a free ride. Currently they don't have to pay anything for waste disposal because it goes into the ocean and the cost is borne by our children, our ocean ecosystem, the health of our wild populations. So we want to see if we can place a value on those externalized costs to get a fairer comparison.

The Canadian Science Advisory Secretariat, the CSAS study, did conclude that closed containment would be economically viable, but that there would be a lower profit margin for the industry. We believe that this is definitely worth the government's consideration, given the impacts the industry is having on other sectors of the economy, including people like Mr. Sewid, who's talked about the importance of wild salmon for grizzly viewing and orca whale watching and the integral role they play in the health of our ecosystem. We believe that if the federal government could make a significant commitment to invest in closed containment in British Columbia and get pilot projects off the ground, and there are several of them on the books and in the works, this in turn will trigger an investment from the philanthropic community.

I was very successful in raising several million dollars from philanthropic foundations who are interested in fostering closed-containment development, but it requires an investment from the federal government as well. Marine Harvest has been very clear with us that if there were a federal government commitment, and that in turn leveraged the philanthropic investment, that would definitely make things much more likely to go through in terms of Oslo investing in the pilot project here. The international corporation is definitely interested in this. We have met with their sustainability committee, which includes representatives from their operations in Norway and Chile and Canada, everywhere that they're operating, and they are looking quite strongly at the potential of expansion and the potential of investment. So we hope that the government support will be the missing piece that will really trigger a very strong movement forward in that direction.

And honestly, we're open to however that investment comes. It could come through a budget allocation to the AMAP program, to existing federal infrastructure, so the pieces are in place to manage the investment. It could be a direct grant to the aquaculture innovation fund at Tides. We'd just like to see our government make the commitment to say this is the way forward, and this is the way we can start to resolve some of the problems and allow the industry to grow and secure marketplace in a more sustainable way.

● (2035)

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): Thank you very much, Fin.

Mr. Cannan, you have the floor.

[*English*]

Mr. Ron Cannan: Mr. Chair, I'd like to pick up where Catherine left off. It's something we've talked about and heard from other organizations. We had a chance. The economics is a big thing, and we understand that somebody has to lead the way. If we can do so with a collaborative model such as you suggested, I think that's a great initiative and a goal.

I spent nine years in local government and on regional boards. I know the LRMP process. Getting everybody in the room takes time, but through consultation and collaboration you can come up with some innovative solutions.

You mentioned a significant investment. Have you, in your discussions with your philanthropic partners, come up with a dollar value that would be required to make this initiative a reality?

Ms. Catherine Stewart: We have been asking for $5 million to $10 million from the federal government. We were asking that from the provincial government. We have successfully raised $5 million, which has been sitting on the books for some time, from the philanthropic community.

At this point, I would hesitate to say that the entire $5 million will be available for British Columbia. Certainly the market demand for closed-containment salmon is rising. Overwaitea Food Group has told us quite frankly that they would sell whatever they can get their hands on. Everyone is looking to the U.S. now, because if Canada is not prepared to move, there's every likelihood that U.S. entrepreneurs will.

I think an investment in the upcoming budget of $5 million or more would certainly help to start moving this forward and set us on the path of being the innovator. We already have the fish husbandry expertise, we have the land, we have the water, we have the potential for green power sources. We have the marketplace secured, if we can provide the product that the marketplace wants. But I think that if we don't act to start steering the boat, then we're going to be waving at it from the dock as it leaves.

Mr. Ron Cannan: Before I go to Tom, I have just one more question concerning your organization's involvement in the Cohen commission. Have you had an opportunity to testify yet?

Ms. Catherine Stewart: I have not. I'm leaving that to the scientific experts. I'm more a politician.

But CAAR does have standing as part of the conservation coalition at the Cohen commission, and several of our member groups, including the science experts in those member groups, have been monitoring it very closely and will be offering evidence.

Mr. Ron Cannan: Thank you.

Tom.

Mr. Tom Sewid: If DFO recommends that in some of the expansion of the fish farm industry there be revenue and equity sharing for first nations within our traditional territory, those first nations can already go to Western Economic Diversification for up to $2.7 million, as long as they have 51% or more of that business.

Now, speaking to our vice-chair's question earlier about small business, every aboriginal—and as a consultant I teach them this—has, on the back side of their status card, three panels. I help them scratch out the three windows to get access to the $75,000 they have available as a grant, which they don't have to repay as long as they're responsible in running their business properly, through Aboriginal Business Canada. Given that 51%-or-more access for first nations, by virtue of DFO stating that expansion of some of the farms within the coast has to be under those guidelines, you open the door to small business expansion; you open the business to bands participating.

We as aboriginals and consultants like me, you can bet dimes and dollars, will be pursuing every one of those companies she named that don't serve farmed fish right now in their grocery stores, for corporate donation for the band level and the individual level, to get their businesses up and going. I do it right now with the run-of-the-river projects.

All the pieces of this puzzle for success, for all of us to get some good industry going while we're looking after our salmon resource as a number one priority, are in place; we just have to have some policy change from Ottawa.

● (2040)

Ms. Catherine Stewart: And some money.

Mr. Tom Sewid: And some money. That helps.

Mr. Ron Cannan: Here is one last question, Mr. Kingwell. I want to compliment you and your colleagues for your volunteering. We drove by your hatchery today and heard some very good comments about your stewardship. We appreciate your dedication.

You mentioned that you produce quite a few salmon a year. Approximately how many does the hatchery produce per year?

Mr. Hugh Kingwell: We produce in the neighbourhood of 1.4 million chinook salmon, in the neighbourhood of 375,000 coho, and around 800,000 to a million chum. In some years we will produce pink salmon. Historically we have produced some freshwater fish—brook trout, cutthroat trout—for the freshwater fishery.

Mr. Ron Cannan: How many years has this hatchery been in operation?

Mr. Hugh Kingwell: Since 1981.

Mr. Ron Cannan: Thank you very much.

[*Translation*]

The Vice-Chair (Mr. Raynald Blais): Thank you very much, Mr. Cannan, Ms. Stewart, Ms. Young, Mr. Sewid, Mr. Kingwell and Mr. Connors.

We thank you very much for having taken the time to come and meet with us.

May I remind you— and I also remind the other witnesses who were here for the first part of the hearing—that if by happenstance, good will or generosity you have other comments in the hours or days following the meeting that you would like to share with us, do not hesitate to send them to us in writing. We will take the time to read them and this will allow us to do better work.

Thank you very much for your cooperation.

I also thank the members of the committee for their cooperation. Well done.

[*English*]

In conclusion, I will say thank you so much.

The meeting is adjourned.

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