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Chair

Mr. Rodney Weston

Standing Committee on Fisheries and Oceans

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● (1535)

[*English*]

The Chair (Mr. Rodney Weston (Saint John, CPC)): I call this meeting to order.

I'd like to take the opportunity to thank two gentlemen for joining us today. We appreciate your taking the time out of your busy schedules to come and have a discussion with our committee. As you've probably been made aware, we're studying closed containment in the aquaculture industry. We look forward to your views and any advice you can offer the committee.

For your information, we generally have some specific timeframes laid out for questions and answers. We try to get as many questions in as we can. If I cut you off or interrupt, I apologize in advance. It's in the spirit of trying to be fair and ensure that all members have a chance to ask their questions and get the answers they're seeking.

Mr. Taylor, I appreciate your coming today. I believe the clerk has probably advised you that there's a timeframe. We try to keep our opening comments to about 10 minutes. Let's turn the floor over to you at this time and let you proceed.

Mr. Bill Taylor (President, Atlantic Salmon Federation): Thank you, Mr. Chairman and committee members.

I want to thank you all for the opportunity to present here today.

My name is Bill Taylor. I am president and chief executive officer of the Atlantic Salmon Federation. With me is my colleague Jonathan Carr. He's director of research and environment for the Atlantic Salmon Federation.

I`ll give you a bit of background. The Atlantic Salmon Federation is an international salmon conservation organization. We're international in scope in that we work throughout the whole North Atlantic wherever you find wild Atlantic salmon, and our mission is to save, conserve, and restore our wild Atlantic salmon runs throughout the North Atlantic in the ecosystems, rivers, and the ocean marine habitats on which the Atlantic wild salmon depend for survival.

The Atlantic Salmon Federation's international headquarters are in Saint Andrews, New Brunswick. We also have field offices, one in Quebec, one in each of the four Atlantic provinces, and the U.S. headquarters in Brunswick, Maine. We are a not-for-profit, a charity. We have to raise all of our money to support our conservation, education, and research programs on our own. We have no government funding.

The way we are structured, we are truly a federation, an umbrella organization with the Atlantic Salmon Federation at the top. Underneath that umbrella you have our five provincial councils, Quebec and the four Atlantic provinces, and also two in the United States. Underneath those provincial and state councils, there are 120 local river associations, such as the Miramichi Salmon Association, the Margaree Salmon Association, and so on, and throughout that membership there are about 25,000 to 30,000 active volunteers working to further our conservation mission.

What is the state of wild Atlantic salmon runs throughout the North Atlantic? They are in decline and have been for the past three decades or so. Speaking specifically about North America, Canada, since the mid-seventies, wild Atlantic salmon runs have declined from about 1.8 million large salmon and one sea winter salmon or grilse coming back to our rivers, and in Canada there are about 1,100 wild Atlantic salmon rivers, again in Quebec and the four Atlantic provinces. We've seen a decline from the 1.8 million in the mid-seventies to just north of 400,000 in 2001. Since then there has been a modest increase in each of the last few years, and this past year actually things were the best they've been in a while. When I say “best”, what you need to do is take the Miramichi north—so the Miramichi, Cape Breton Island, north of that, and you look at northern New Brunswick, Gaspé, the north shore of Quebec, Newfoundland and Labrador—and those areas are all relatively healthy. Everything south of that is in decline and continues to be in decline.

One of the principal threats to wild salmon is aquaculture. That has been well documented. If you also look at where wild salmon runs are in decline, again, it's in the southern Maritimes and in southern Newfoundland. Aquaculture has been pointed out as a principal cause of those salmon declines. And that's not just from the research that we've done. It's well documented by research institutions, universities, and even by our own federal government.

The latest report from the Committee on the Status of Endangered Wildlife in Canada, COSEWIC, which is a non-partisan, unbiased forum of university professors, researchers, and federal and provincial governments, has pointed to three areas where aquaculture is in high concentration in the Maritimes. In the inner and outer Bay of Fundy, aquaculture is pointed out as a primary threat to wild salmon runs, and also in southern Newfoundland. Again, when I said that this year was actually a pretty good year for our wild salmon runs, it's certainly no coincidence that in those areas it was not a very good year, and there continue to be problems.

The Atlantic Salmon Federation also conducts its own research on the Magaguadavic River, for example, which is close to the centre of the aquaculture industry in the Bay of Fundy, just up the road from Saint Andrews. The Atlantic Salmon Federation has been conducting research on the impacts of aquaculture on wild salmon in that river for the last 15 or so years. In fact, DFO has made the Magaguadavic River the index river for the study of the impacts of aquaculture on wild stocks across the country.

What we've found in the Magaguadavic River since we began that research, which Jonathan has actually been leading for the last 15 years, is that wild salmon returns to the Magaguadavic in the mid-1980s hovered around 800 to 1,000 fish, year after year after year. Since then it has been in serious decline, to the point where we're now counting them on our fingers and toes—the wild salmon coming back to the rivers.

We also monitor the aquaculture escapees coming into the Magaguadavic River. In every year but one in the last decade, the number of aquaculture escapees has actually outnumbered the wild salmon coming back to the Magaguadavic River.

I want to put all those concerns out there. These concerns are well documented: pollution, sea lice, disease transfer, escapes, interbreeding with wild salmon. There are all kinds of studies on the offspring of a mating between an aquaculture escapee and a wild salmon. The offspring are not as fit for survival. If it's an aquaculture female, she does not lay as many eggs. The eggs are not as viable, so you don't have as many fry. You don't have as many fish going out to sea, and those fish are not as fit for survival.

As to the concentration of aquaculture sites, whether it's Norway, southern Scotland, or our Bay of Fundy, there is a great number of escapees year after year. There are tens of thousands and, in some years, hundreds of thousands of salmon escaping in the Bay of Fundy alone. You get those interbreeding. As serious as the pollution and sea lice problems are, the genetic issues are much more severe and have more dire consequences.

ASF has made it clear time and time again that we're not against aquaculture. The whole concept of raising fish for food makes good sense and takes pressures off wild stocks. In fact, if you look back at our own history, 25 years ago the Atlantic Salmon Federation was waving the flag for aquaculture. We saw it as an opportunity to take pressure off wild stocks and provide a good food product, which was needed. But we did not foresee—and neither did the scientists—the unintended consequences of aquaculture.

Just to be clear, we're not opposed to the concept of aquaculture. We're in favour of sustainable aquaculture. We see land-based aquaculture as providing an opportunity to move in a positive direction.

We are an advocacy group. We are not a group to constantly complain. We are aware of the jobs related to aquaculture and the important jobs for coastal communities. But when we consider that, we should also consider the valuable wild Atlantic salmon and the recreational fishing industry.

Gardner Pinfold Consulting, a reputable national firm here in Canada, has just released a report on the value of wild Atlantic salmon in eastern Canada. The recreational Atlantic salmon fishery alone was worth $130 million last year and supported the equivalent of 3,300 full-time jobs.

If you think about where those jobs are, it's rural northern New Brunswick, Cape Breton Island, Newfoundland and Labrador, Gaspé, and the north shore of Quebec. In those river communities, if people aren't working along the salmon rivers—whether as guides or in the tackle industry or building canoes or in the outfitting and lodging industries—they're probably not working at all. There aren't that many alternatives. That's just the value of wild salmon with the recreational fishery.

There's also the value to first nations, which is substantial. There is value to all Canadians in knowing that our rivers are healthy enough to support wild salmon and wild Atlantic salmon. This is an indicator of the health of our own rivers and marine environments, and the health of our own world.

When Gardner Pinfold Consulting looked at the total value of wild Atlantic salmon—we're just talking about Quebec and the four Atlantic provinces—it was $255 million annually and it supports the equivalent of 3,800 full-time-equivalent jobs.

Mr. Chairman, this is a recent report, and I'd be happy to make it available to the clerk and to you and the committee if you want to receive it after this meeting.

The Atlantic Salmon Federation is also putting its money where its mouth is. It's easy to say that we're for sustainable aquaculture. What are we going to do about it? We have partnered with the Conservation Fund Freshwater Institute, which is a world-renowned environmental conservation organization in the U.S. The Freshwater Institute in West Virginia has a long history of research and technology development in land-based aquaculture. We are raising, with the Conservation Fund, Atlantic salmon in land-based fully enclosed containment systems, and the salmon will be ready for market in just a few months.

● (1540)

We envision this as a long-term project over the next several years. We invited the industry to be a partner with us. Certainly we'd love to have their financial support, but it was made clear that was not necessary. We don't want to be in the aquaculture business. It's to demonstrate that the technology works and can be cost competitive, and to hopefully transfer the technology to the industry so that as the industry continues to grow, hopefully it embraces this land-based closed containment technology so that you eliminate all possibility of escapes of farm salmon into the wild and you eliminate the negative impacts of chemicals, vaccines, pollution, and sea lice, and on and on.

Often we're talking about the increased costs. I'm certainly aware of the DFO report on the increased costs of land-based versus the current open net pen aquaculture, but none of those studies factor in the environmental costs, which are significant from the current practices, or the costs of the chemicals and vaccines and so on, or the cost to the industry of all the escapes, which are significant year after year. We are confident that when the dollars and cents get crunched and the business model is presented, it'll be cost competitive to raise salmon commercially on land—cost competitive with current practices of the open net pen.

Watching my time here, Mr. Chairman, I'll just summarize by saying that the open net pen industry is implicated globally in the widespread negative environmental impacts. The aquaculture industry says it would be too costly to move the industry to land. Whenever there is a large amount of money to be made, there will always be convenient excuses to stick with the status quo and not to move forward with better and new technologies.

At present, and I'm sure you've heard this from others, there's a bureaucratic maze of ineffective regulation by agencies that both promote and regulate the aquaculture industry. It's time for Fisheries and Oceans Canada and our provincial governments that are home to salmon aquaculture and wild Atlantic salmon runs to implement and enforce a strong regulatory regime to control the negative impacts on the environment. We see land-based aquaculture as the way forward, separating the farm fish from the wild fish, protecting our environment, and protecting the lucrative recreational salmon fishing industry, the first nations fisheries, and traditional commercial fisheries like lobster.

Thank you, Mr. Chairman. I'd be happy to do my best to respond to questions.

● (1545)

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

We'll start off with Mr. Hayes.

Mr. Bryan Hayes (Sault Ste. Marie, CPC): Thank you, Mr. Chair.

I reviewed your briefing notes and I want to talk a little bit about the partnership with the Freshwater Institute in West Virginia. I'm hoping you can elaborate on that a little bit more. You stated that the status is that in a few months the first batch will be ready for market. I want to get a sense of what information has been gathered so far that you can share with us in terms of learnings and conclusions drawn, and what more do you hope to find out with this partnership?

Mr. Bill Taylor: I brought my colleague Jonathan Carr along for good reason, to help me respond to just those sorts of questions.

John.

Mr. Jonathan Carr (Director, Research and Environment, Atlantic Salmon Federation): They want to provide data on the growth rate survival, key metrics in terms of how the fish are grown, any antibiotics, any chemicals being used, things like that. So today what we have to share is that the fish are doing quite well. There's been about a 5% mortality, and the mortality of those fish have been fish that have jumped out of the tank. There hasn't been any sense of disease, parasites, or any other pathogens. No antibiotics, no vaccines have been used. The fish are growing quite well. At the end of August they were about 1.6 kilos and they're on target to be about 4 kilograms by January.

Looking at the graph comparisons between the land-based facility in West Virginia with that of the net pens, these fish would go to market about eight to nine months before the net pen fish become market size. So they grow a lot faster in freshwater as well.

Mr. Bryan Hayes: I'm sure you had parameters and expectations that are being met at this stage of the game?

Mr. Jonathan Carr: All of our expectations are being met at this stage, yes.

Mr. Bryan Hayes: I'm curious as to whether closed containment is the lesser of two evils. You're promoting the closed containment technology, obviously, because of the open net concerns in terms of the environment. Specific to closed containment, are there still some concerns that you have with regard to that if it were to move forward? I think I can probably point specifically to what I'm looking at: recreational salmon fishing. There may still be a concern specific to the fact that closed containment still represents a market for salmon that might take away from recreational fishing. I just want to understand whether you're going to have concerns with closed containment.

● (1550)

Mr. Bill Taylor: That's a good question. Related to the concern from the recreational fishing industry, the answer is no.

Just to clarify, most of our Atlantic Salmon Federation members are obviously recreational salmon anglers, but not all. We represent and speak for the wild fish. There are times when we actually have to take actions that are not always favourably seen by recreational salmon anglers. We support closures when fish are endangered and so on.

That being said, we do not envision any negative implications for wild Atlantic salmon, moving forward. We've actually even looked at greenhouse gas emissions, water recirculation, and so on, because those are all finite resources as well. We do not believe there will be any negative impacts. In fact, our systems are 99.8% or 98% recirculated water. We're using solar energy to a great extent. One of the great things that is not often looked at with land-based aquaculture is that you can put these facilities close to the market, so you eliminate or greatly reduce transportation costs and emissions from transporting the fish great distances as well.

Mr. Bryan Hayes: Do I have time for one more?

The Chair: Yes.

Mr. Bryan Hayes: Your report states that $270 million is ascribed to the worth of the aquaculture industry, but that doesn't take into account the damage by the industry to fish, crustaceans, and the environment generally. Can you speak to that? Is there any way to quantify that at all?

Mr. Bill Taylor: I will try. That number of $270 million is in a Gardner Pinfold study as well, which I understand the industry commissioned. So hopefully we're comparing apples with apples.

I think I mentioned that within Quebec and the four Atlantic provinces there are more than 1,000 rivers that once were home to wild Atlantic salmon runs. In New Brunswick, as an example, there are over 100 wild salmon rivers. Over half of them are closed because there were too few wild fish coming back to those rivers. Actually, the Atlantic Salmon Federation supports those closures. In the big area of the Bay of Fundy, there are 40 rivers on the New Brunswick and Nova Scotia sides of the Bay of Fundy that are all closed. That's where the aquaculture industry is. When rivers like the Saint John, the Tobique, the Nashwaak, and those 40 rivers in Nova Scotia and New Brunswick are closed, you are closing down the recreational fishing industry: lodges, outfitters, guides, and tackle manufacturers. There's a cost to that.

The Atlantic Salmon Federation is very hopeful. While the recreational fishing industry in 2010 was worth $130 million, we believe there's much greater value in a restored fishery. Once we can get those rivers opened again, with healthy salmon runs, and we see.... The Saint John River, in my lifetime, and I'm not that old—I don't feel that old, anyway—was the second most productive Atlantic salmon river in North America, next only to the Miramichi. It's closed.

I hope that answers your question.

Mr. Bryan Hayes: Yes.

Thank you, Mr. Chair.

The Chair: You have about a minute remaining, Mr. Kamp.

Mr. Randy Kamp (Pitt Meadows—Maple Ridge—Mission, CPC): I have a quick question then.

It seems to me that in your briefing document.... You referred to this; I can't find it right at the moment. But in proposing that closed containment is the way to go, you make the suggestion that if it goes on land, it could go anywhere on land. That's not exactly true. We heard other witnesses tell us it's hard to find all the necessary water sources if you're going to have a recirculating thing. So it can't go anywhere.

But if it could go closer to the markets, which I think you say in your document, what's going to stop these industries from moving out of rural New Brunswick, for example, or Newfoundland and Labrador and going to the U.S., Chicago, or somewhere closer to the market? Would you not see that as a negative result of a widespread, a wide-scale shift toward closed containment?

Mr. Bill Taylor: Jonathan, do you want to speak to the water sources first? Then maybe I can handle the second part of that question.

Mr. Jonathan Carr: Certainly.

With respect to the water sources, you are limited to a degree. You have to have enough water, obviously, from springs and wells. The water quality is another thing, too. So it can't go just anywhere, but you would have many more options than you have where the net pens are currently.

● (1555)

Mr. Bill Taylor: I guess the honest answer is probably that nothing would keep industry from setting up close to Chicago, say, or close to Toronto or close to Ottawa, but there would still be, I'm sure, a market in maritime Canada, and I would think a very good market.

The other thing about the product from land-based...certainly what we've seen to date is that it's a much better product than is currently raised in open net pens, and the jobs that are supported by closed containment technology...at least as many jobs and probably at a higher pay scale.

The Chair: Thank you.

Mr. Donnelly.

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

Welcome to our guests. Thank you for being here.

You mentioned in your opening remarks Atlantic salmon being in steep decline or in decline over the past three decades. I believe you said it, but if you could, please reiterate what you think is the primary cause of that decline.

Mr. Bill Taylor: Sure. I can share the information. Atlantic salmon has been in steep decline, certainly throughout the 1970s, until just a decade ago.... There are many threats. I wouldn't want to point one finger and say that there's one cause for the salmon decline and that one cause is aquaculture. There are many causes: habitat loss, poor forestry practices, poor agricultural practices, commercial fishing for too long, and on and on.

But in areas where there is a high concentration of aquaculture, open net pen operations like we have in the Bay of Fundy and like we have in southern Newfoundland, that's where our wild salmon runs are in the steepest decline. Also, that decline began at the same time that the open net pen industry began to expand. There are many, many peer-reviewed scientific studies—they're too numerous to begin to point to—that point the finger at aquaculture as a cause. I did mention that the Committee on the Status of Endangered Wildlife in Canada pointed to aquaculture as a primary cause in both the inner and the outer Bay of Fundy and southern Newfoundland.

Very recently—2001—there were very few wild Atlantic salmon left in the U.S. The only wild salmon left are in the State of Maine. The U.S. government moved to place all those wild Atlantic salmon, the few wild Atlantic salmon left, on the endangered species list. Second to habitat loss because of hydro projects was aquaculture as a primary cause for the decline. So it's an issue that not only the Atlantic Salmon Federation but the scientific community throughout the North Atlantic points to.

Mr. Fin Donnelly: Thanks.

What do you think is the most important thing the federal government could do to address that issue?

Mr. Bill Taylor: To address the...?

Mr. Fin Donnelly: The steep decline.

Mr. Bill Taylor: Our federal government—Fisheries and Oceans—needs to reallocate much greater resources to wild Atlantic salmon conservation, restoration, and management.

We've looked at DFO's budget for wild Atlantic salmon compared to aquaculture. DFO's budget for wild Atlantic salmon management, conservation, enforcement, assessment, research, and so on was about $25 million in the mid-1980s. It was down to only $12 million just a few years ago. If you do a cost of living increase on that, it's a reduction not just of half but of about 75% over that time period.

So at a time when wild salmon numbers are dropping, DFO's budget for trying to take care of and restore those wild salmon runs is also in great decline. That's not to say that DFO does not have some great staff. We work very closely with the enforcement staff and research staff and so on. They're very dedicated people, but their numbers are getting smaller and smaller and their challenges are getting larger and larger.

Mr. Fin Donnelly: If, for instance, the aquaculture industry were to move out.... Say there was a solution and that caused a shift in the industry to go closer to the market. That is essentially building on Mr. Kamp's suggestion that if it were closed containment, if it did move to a land base, and if it did move closer to the market.... What do you think that would do to the wild fishery, for instance? How would that impact the commercial fishers, the tourism, the recreation, and the sport fishers? What would it do if that shift did occur?

● (1600)

Mr. Bill Taylor: That's an excellent question. There is no commercial fishing for Atlantic salmon in Canada today. That was phased out through the 1990s because of great concern over our diminishing wild salmon numbers. In the areas of the southern Maritimes, the Saint John River, the Bay of Fundy, Nova Scotia, and southern Newfoundland, there is great opportunity and every possibility of success of restoring wild salmon numbers and bringing back a very lucrative recreational fishing industry, which, just like aquaculture, supports a lot of jobs in tourism in rural areas, in river communities, and coastal areas. I would see an increased opportunity for employment and increased economic generators because of that.

Mr. Fin Donnelly: How much time do I have?

I'll ask a two-parter about closed containment. Do you think that would help mitigate some of these problems? I believe you alluded to that.

And of more interest, how close do you think a reasonable transition from open pen to closed containment would be for industry in your neck of the woods?

Mr. Bill Taylor: We certainly see closed containment land-based aquaculture as a way forward, and we also realize that a business model that makes sense needs to be built. As I said earlier, we're trying to put our money where our mouth is and actually work with industry, the conservation fund, whoever is interested in trying to build a business case and demonstrate that it works and it can be cost competitive. It will take time.

The first step should be a moratorium on further growth of the industry and anything new, whether it's grandfathered in or whatever term you want to use, until the transition is made. And that's going to take time.

Mr. Fin Donnelly: You don't want to hazard a guess in terms of years?

Mr. Bill Taylor: A decade at least.

Mr. Fin Donnelly: Also, as clarification more than anything, when you say “recreational fishers”, do you include the sport fishers?

Mr. Bill Taylor: The sport fishers, yes.

Mr. Fin Donnelly: On the west coast, we distinguish between the recreational and the sport. The sport are often linked to the lodges, I believe that's fair to say.

So you would lump both of those categories or groups into the recreational fishing.

Mr. Bill Taylor: I would. On the east coast, we look at it—and I think DFO does as well—as having first nations fishers, who have a right to fish for food, social, and ceremonial purposes; the recreational or the sport together; and commercial. So the three fishers.

The Chair: Thank you.

Mr. Sopuck.

Mr. Robert Sopuck (Dauphin—Swan River—Marquette, CPC): Thank you very much, and thank you to our witnesses for being here. I'll admit my bias right up front. I am a proud member of the Atlantic Salmon Federation, and this summer I was also inducted into the Miramichi Salmon Association, having fished there for the first time this year. I'm beginning to have a deep and abiding affinity for wild Atlantic salmon. They're truly a remarkable animal.

Having said that, I also represent a rural area—admittedly in western Canada, but I wear a rural hat—so when I see the number of rural jobs off the coasts based on aquaculture, I find it very compelling. The ASF did some great work in years past to reduce and eventually help eliminate the commercial fishing of wild Atlantic salmon. Would you say that the increased aquaculture production makes the requirement to ever fish wild Atlantic salmon...that it would never happen again, because we produce enough fish through aquaculture?

● (1605)

Mr. Bill Taylor: Yes.

Mr. Robert Sopuck: To me that's a very positive aspect of aquaculture.

You talked about escapes. What is the survival rate of the escapes? For example, we often stock fish. In the Great Lakes the salmon fishery has gone from Atlantic salmon fishery to Pacific salmon fishery based on stocking. So the notion of enhancing wild populations via stocking is a well-established practice in some situations.

Mr. Carr, what's the survival rate of the escapes, and will they eventually merge with the wild fish and become part of a wild run?

Mr. Jonathan Carr: First, the best hatchery is the river system itself, but there are circumstances where hatcheries are needed to try to help restore populations.

Aquaculture fish have been reared and kept domesticated for several generations now. In the early phases of our studies on the Magaguadavic River in the early 1990s, we believed the survival was quite good. When fish escaped they would get into the river system. We saw high numbers of fish getting into the river system, compared to what we thought had been escaping at the time.

Fast forward another 10 to 15 years, and the survival of fish, when they escape from the net pens, is very low. We estimate that maybe 0.1% or 0.2% of those fish that escape from the net pens make it into the wild streams. Going back to what I said earlier about being so domesticated, if those fish were to interbreed with the wild fish in the stream, studies have shown that it can be quite detrimental to the fitness of the offspring.

Some of these streams—we're monitoring the rivers—have as few as six or 10 wild fish going into the rivers, so it only takes one or two escapees into those river systems to spawn with the wild fish to effectively reduce the fitness, meaning that in subsequent generations it will be much harder for the fish to survive in the future.

Mr. Robert Sopuck: I'm a little bit skeptical. If these farmed fish are that unfit, their survival rate would almost be nil. But that's perhaps an argument we can have at another time.

You're making the point that wherever there's aquaculture, wild Atlantic salmon stocks have declined. As you know in science, coincidence is not the same as cause and effect.

What kind of pathology has been done on individual wild Atlantic salmon in rivers near aquaculture pens? What exactly happens to wild fish, in your view? What does the data tell us?

Mr. Jonathan Carr: Do you mean in terms of their interaction or passing by net pens?

Mr. Robert Sopuck: The accusation is always thrown at the aquaculture industry about disease, the chemicals that are used, and so on. The presumption is that that somehow affects the wild fish. What specific pathological analyses have been done on individual wild Atlantic salmon that can come up with a link between the two?

Mr. Jonathan Carr: The closest case we have to a link—again, it's not definitive—is with ISA and wild Atlantic salmon from the Magaguadavic River back in 1999. As Bill mentioned earlier, we've been monitoring this river since 1992. We don't typically take a wild fish out and do disease screening unless it comes up to our trap and is found dead or very injured in the trap.

In 1999, we had some cases of wild fish dying in the trap, and one of those fish tested positive for infectious salmon anemia, which decimated the New Brunswick industry in the mid 1990s. At the same time there were some aquaculture escapees in the trap that tested positive for ISA as well. ISA is very similar to a flu and is very contagious, so if fish come in contact with each other they can contract the disease. That's our closest relation, and we couldn't definitively say that particular fish caught it from the aquaculture escapee.

Mr. Robert Sopuck: It seems to me that a lot more work needs to be done to separate coincidence from cause and effect.

You made the point that there are many reasons for the salmon decline. Do you think seals are part of the issue? A seal reduction program has been talked about. Would you support that as one of the tools in the toolkit?

● (1610)

Mr. Bill Taylor: As one of the tools in a very specific toolkit. Seals and cormorants and mergansers and salmon have coexisted forever, and there is survival of the fittest and a balanced ecosystem and so on.

There have been a number of research efforts made in trying to determine the actual impact that a huge seal population may have on wild salmon. In specific river estuaries, where there's a high concentration of seals on a Pacific salmon run, perhaps a seal cull is the way to go, but a widespread willy-nilly cull may not have any positive effect.

Coming back to the numbers—I guess I didn't make the point well enough, but I certainly tried in my presentation—the negative impacts of aquaculture on wild salmon, again well documented, and talks of disease and ISA and sea lice and pollution, and on and on.... The most critical impact is the genetic impact. While the vast majority of aquaculture escapees likely die shortly after they escape, the sheer number of the escapes.... Less than a year ago, this time last year, there were three big escape events in the Bay of Fundy. The reported escapes from the industry, by the provincial government, were in excess of 200,000 fish. So even if you only have 0.1% of those 200,000 fish, you still have 2,000 escapees, and we see them running up our rivers, like the Magaguadavic, where the aquaculture escapees each year for the last decade have actually outnumbered the wild run. It only takes a couple of meetings and a couple of generations before you begin to lose your wild salmon, your salmon runs.

I absolutely agree that we need clear science and we need definitive science. That's why the Atlantic Salmon Federation is again trying to be part of the solution, and we've been doing this work on the Magaguadavic for the last number of years. I don't want to pretend to know all the answers, but we can share with you what we do know and hopefully learn from past experience, and in many cases not a great experience.

The Chair: Thank you very much.

Mr. Eyking.

Hon. Mark Eyking (Sydney—Victoria, Lib.): Thank you, Chair.

It's good to be on the fisheries committee. Fishing is one of our top moneymakers in Cape Breton.

I'm from Cape Breton, and we used to have at least 10 good salmon rivers once upon a time. I think we're down to one, the Margaree, and it's not that robust. We would hope to see it come back.

A few years ago I went to Norway, and I attended a world aquaculture conference. Canada was present, but also Scotland, Iceland, and Norway, of course. They are also homes to Atlantic salmon and they do a lot of aquaculture. One of the things I saw them doing there was a fish farm that raised halibut. They had these big combs, like aquariums, and they got their water from the fjords, and they raised it to whatever temperature they wanted. That's where they took the level from. But it was interesting how they were raising halibut there. At that time they were thinking that maybe that was the way to go for halibut, and maybe other fish species—with aquaculture. But I know there was also a concern about the wild salmon cohabiting with aquaculture in those regions.

My first question is dealing with those countries, Iceland, Scotland, and Norway, because they have the same fish, Atlantic salmon, and they have the same aquaculture. Do they have different rules and regulations on how they manage what's happening in the different regions and bays than we do? Do they have a different system? How are they doing? How are the Atlantic salmon doing in these countries? Are they ahead of us, behind us, or where is it at?

Mr. Bill Taylor: They're not ahead of us. There are big problems in Norway. There are big problems in southwest Scotland. Scotland has actually taken the action of designating their most valuable, important wild salmon areas as no-aquaculture zones, so they have aquaculture-free zones in Scotland.

There's huge concern in Norway about the impacts of aquaculture on wild salmon runs and threatening a very lucrative recreational fishing industry or sport fishing industry in Norway. Sea lice is a big, big problem. Escapes are a big problem.

Our best experience, or what I know best from a regulatory point of view, is what goes on in eastern Canada compared with what goes on in Maine. In Maine, because the few wild Atlantic salmon left in the State of Maine have been placed on the endangered species list, there are much stricter and more stringent regulatory controls that the industry has to live up to in order to do business—in Cobscook Bay, in Maine, which is not very far across.... I mean, you can see across from the St. Andrews wharf to Maine. The very same players in the industry are working under a much more rigorous regulatory framework in Maine than they are only a few miles away in the Bay of Fundy.

● (1615)

Hon. Mark Eyking: The aquaculture industry in Newfoundland seems to be growing quite fast. I think they're raising cod and other species of fish. Are you alluding that that could be to the detriment of Newfoundland as well as to the Atlantic? It's one of the few places where there are still Atlantic salmon going up the rivers.

Mr. Bill Taylor: That's true. I want to be clear. The research we have, the information and advice we have, and our experience do not raise concerns. I'm not raising concerns today about halibut aquaculture or cod aquaculture. It's Atlantic salmon aquaculture. Again, the disease and sea lice are bad enough, but it's the escapes and the huge number of escapes. The genetic introgressions and genetic impacts are permanent. You could take every wild Atlantic salmon river. The salmon run, the salmon stock in those rivers, has evolved over thousands and thousands of years. People living in Cape Breton can tell a Margaree just by looking at it. People have to spend a lot of time in the salmon business. Salmon anglers can tell a Margaree fish from a West River Sheet Harbour fish by looking at it.

Hon. Mark Eyking: That's good. I don't have much time and I have another question.

My understanding is that most of the Atlantic salmon go to the Greenland Sea when they're smaller, and they eat a lot of shrimp in that area. Is that kind of their holdout area?

Mr. Bill Taylor: The large salmon, salmon that spend more than two winters at sea—multi-sea winter salmon we call them—the large spawners go to Greenland. The grilse, the salmon that spend just one winter at sea, don't have enough time to get to Greenland and back. They go out to Labrador Sea off Newfoundland. The Bay of Fundy fish stick mostly in the Bay of Fundy or the Gulf of Maine, but the large salmon do go to Greenland.

Hon. Mark Eyking: Is there anything happening in that area that could cause a problem with the fish? It was alluded to here that the seals might be causing the problem. Is it the shrimp? How much shrimp is in that area? Or could it even be the water temperatures? Back home we're having a problem with mackerel, and the fishermen are saying just a couple of degrees difference in water temperature is really mixing up our mackerel population around Cape Breton. Is there more here than the bad aquaculture salmon causing the problems? Is it anything that's happening out in the Greenland Sea? Is somebody else catching them in nets out there? Is it water temperature?

Mr. Bill Taylor: Those are all good questions.

There was a huge commercial fishery at Greenland. The Atlantic Salmon Federation and a partner of ours from Iceland, North Atlantic Salmon Fund, actually worked with the Greenland Home Rule Government and the Greenland fishermen to suspend. We have an agreement under which they don't fish commercially, and we're investing in alternative employment opportunities for those fishermen. They had a modest subsistence fishery, which is actually growing, because they see more fish and so on.

There are many causes for the Atlantic salmon's decline; aquaculture is one of them.

There are plenty of areas in eastern Canada where Atlantic salmon runs in the last decade have been on the rise. All those areas are where there are no aquaculture operations. There is continued decline in the Bay of Fundy and southern Newfoundland. The whole province of Newfoundland had a banner year this year except for Bay d'Espoir, Conne River, in southern Newfoundland, which is where the aquaculture operation is.

Hon. Mark Eyking: So Scotland is taking the lead on this by not having salmon aquaculture where they want....

Mr. Bill Taylor: They have an aquaculture-free zone.

● (1620)

The Chair: Thank you very much, Mr. Taylor and Mr. Carr.

On behalf of the committee, I want to thank you very much for coming and appearing before our committee today and taking the time answer our questions. The committee very much appreciates it. Thank you very much.

We'll take a short break while we change our witnesses, and we'll resume very quickly.

● (1620)

(Pause)

● (1625)

The Chair: We will bring the meeting back to order.

I'd like to thank our second round of guests for joining us today. I appreciate your taking the time from your busy schedules to join the committee to share your thoughts on closed containment aquaculture. We look forward to the discussion.

As you probably heard in the first presentation, there are time constraints we try to keep members to so that we can get as many questions and answers in as we possibly can throughout. I'm sure the clerk has advised you that we generally allow around 10 minutes for presentations.

I assume, Mrs. Halse, that you will start. The floor is yours any time you want to proceed.

Ms. Nell Halse (Vice-President, Communications, Cooke Aquaculture Inc.): Good afternoon. Thank you very much for the opportunity to appear before you today.

My name is Nell Halse. I'm a spokesperson for Cooke Aquaculture, which is a family owned salmon farming company in Atlantic Canada.

I work closely with the CEO, Glenn Cooke, and I am very pleased to be here today to represent him, his family, and the 2,500 employees we have who now make a living from aquaculture in Atlantic Canada, in Maine, and now in southern Chile and southern Spain.

I wanted to also mention that my colleague, Alan Craig, who is the vice-president of sales for the company, was able to accompany me here today. He is not going to make opening remarks, but if there are questions that are specifically relevant to the marketplace, he could perhaps help out during the discussion period.

Over the past 25 years, Glenn Cooke, his father, and his brother have built a world-class Canadian company that now enjoys a prominent place as a leader in Canada and that also has taken its place as one of the top five salmon farming companies in the world. Annual sales of half a billion dollars are projected for this year.

We have been named one of Canada's 50 best managed companies, and just last spring, Glenn Cooke was awarded an honorary doctorate of science by the University of New Brunswick. Both Glenn and the company have been presented with numerous business awards in both Canada and the U.S.

Through our sales and marketing team we have built an excellent relationship with both retail and food service customers in Canada and the U.S. So if you were to go and buy fresh Atlantic salmon in your local grocery store, whether it's Loblaws, Sobeys, or Metro, or in a small fish shop, such as the one in the Halifax market, you will probably be buying one of our fresh Atlantic salmon that was swimming on the east coast just a few days earlier.

Our success and our growth has not come at the expense of our communities and our neighbours. We understand the need to earn and also to maintain our social licence to farm. The Cooke family and all of our employees, in fact, live in the communities where we operate. We have deep roots that go back many generations, so we're building on a valuable marine heritage. We rely on the long-term health of the ecosystem. Together with the fishery and conservation communities, we see ourselves as partners in a dynamic and vibrant working waterfront. We have co-existed for the past 25 years.

It's very good news for all of us that the lobster sector continues to see record landings. It's also good news that we are seeing the returns of wild Atlantic salmon improve in many areas as well.

In fact, I was interested in one of the comments in the earlier session about me being a member of the Atlantic Salmon Federation. We, as a company, collaborate with ASF on a number of critical salmon conservation projects, specifically on the south coast of New Brunswick. The company also owns a fishing lodge in Miramichi. We are avid anglers and also lifelong members of the Miramichi Salmon Club. So there are many common connections here.

Our commitment is to a healthy and sustainable seafood sector in Atlantic Canada—not just an aquaculture sector—a sector that respects the rich marine heritage that sustains us all.

Our motto is “refusing to go with the flow”. It's a clear illustration of our strategy as a company. We've built our own road to success, with year over year strong financial performances, in spite of many challenges, the kinds of challenges all farmers have to face. They include hurricanes, floods, abnormally warm water temperatures in the summer, extremely cold temperatures and super chill in the winter, fluctuations in currency and in the marketplace, and losses to disease and parasites.

In spite of these challenges, the Cooke family has successfully recruited a professional management team and in-house scientists to help build a fully integrated company that now manages our operations from egg to plate. That means that we have our own brood stock program, our own hatcheries, our own farms, and our own processing plants. We design, manufacture, and service our own equipment. We produce our own feed. We make our own packaging. We operate our own trucking division. We have our own sales and marketing division as well.

● (1630)

I think this background is really important as we move to your topic today and to the question of whether or not we should or could move the entire Canadian salmon farming sector out of the ocean onto land, into closed containment, into tank farms.

I'm glad you asked us to participate in this review, because we are experts in closed containment and we have a great deal of experience and expertise to bring to this discussion. Too often the debate has been about growing fish on paper and not about growing salmon in the water as a real-life business. So our answer to that question today is no.

Our salmon spend the first half of their lives in closed systems. Our company operates about a dozen hatcheries in Atlantic Canada and Maine. We are just about to open a 38,000-square-foot state-of-the art new hatchery on the south coast of Newfoundland, in St. Alban's. This will have the capacity to grow three million smolts a year and it will reuse 98% of its water.

We welcome hundreds of visitors to our freshwater headquarters in Oak Bay, New Brunswick, every year, and we would certainly welcome this committee if you could find time to come and visit and see a modern, progressive, commercial hatchery in person.

Our broodstock, or carefully selected parent fish, spend their entire life in a disease-free, closed, recirculation contained system. We know how much it costs to grow these fish. The cost is prohibitive and could not be sustained for all phases of our production. We only do this on a small scale to protect these broodstock for future generations. We know the fish health challenges. We know which stocking densities are right for maximum growth and optimal health.

Our production fish are spawned from these broodstock in our hatcheries. The eggs are incubated and hatched there and then they spend the next year or so in fresh water, just as salmon do in the wild, until they become smolts and, just as in the wild, they're ready to move to their natural saltwater habitat for another 18 to 24 months until they're ready for harvest.

We also have a DNA traceability program that's being developed by our freshwater team that tracks the fish right from egg to plate.

One of the important points we'd like to make is that the capital costs that would be required to develop land-based facilities to support Cooke Aquaculture, just our company's production capacity in Atlantic Canada and Maine, is close to $1 billion. This does not include the cost of finding and purchasing the enormous amount of land that would be required, nor does it consider the need for a consistent and abundant water supply. No coastal land is available from Nova Scotia to the Maine border that would accommodate the equivalent of 8,000-plus football field-sized plots that would be required for grow-out facilities.

Even if land were available, however, the increased pumping and heating and cooling costs for water would be cost prohibitive and would also result in a very environmentally unfriendly carbon footprint. It's often said that the industry is worried about costs, but there are so many other issues.

So rather than move our fish from the sea to the land, we believe we have demonstrated with certainty that we can grow Atlantic salmon in a natural environment with minimal impact on wild stocks or on habitat. We have many tools for minimizing the environmental impacts of our ocean farms. These include a government-audited ocean floor sampling program; a performance-based approach to the issuing of government approvals to operate, which we have to have every year before we stock fish; sophisticated feeding management regimes to prevent waste; better science-based diets and feed formulations, just to make sure we get maximum feed conversion; and careful siting of farms in areas of good tidal flow.

Also, for more than 10 years we've been exploring an ecosystem-based approach to farming called IMTA, or integrated multi-trophic aquaculture, and this is because salmon are a fed species. They generate valuable nutrients that can then be used to grow other species, such as mussels and seaweeds. This experimental work that we've had with Dr. Thierry Chopin of the University of New Brunswick and Dr. Shawn Robinson of DFO in St. Andrews has been under way for almost 10 years now. But it has moved from a biological experiment to a commercial scale with a recent partnership we have with Loblaws and their WiseSource salmon program.

Our position is that the provincial, state, and federal regulatory requirements that are already enforced on the east coast of Canada and the United States have established stringent environmental and fish health standards. Our production systems either meet or exceed these standards.

● (1635)

In addition, our company has been certified to the internationally accredited Seafood Trust eco-label. This eco-label, which focuses on continuous improvement, has required us to set standard operating procedures for our hatcheries, our farms, and our plants; to develop an internal auditing system; to submit regularly to external audits; and then to continually set new goals each year.

Atlantic salmon that are raised on our east coast farms are healthy native stocks that swim in their natural environment. They are contained on the farm by a system of nets, cages, and mooring systems that are specifically designed by our in-house team of experts to meet the challenging, high-energy environments of the Bay of Fundy, the Atlantic Ocean, and the Gulf of Maine. Our company's track record on containment has been exemplary in both Canada and the United States.

We know that you've already heard, and you've heard again today, a list of concerns about environmental impact, salmon escapes, and concerns over fish health. I can tell you that we certainly share those concerns. That's why we've continually invested in science partnerships and innovative technologies together with local universities and groups like Genome Atlantic and the Atlantic Veterinary College. Because of that, there is now an extensive body of science in the areas of fish health, fish biology, oceanography, secure cage and net mooring systems, and environmental impacts of salmon farming. The science is all there now because of the aquaculture industry.

So we're not working in the dark. We're no longer a biological experiment. We're a mature, sophisticated, science-driven industry with a huge potential for Canada's coastal and rural communities.

I would like to close my comments by saying that there have been enough studies conducted, enough firestorms generated by the well-financed anti-salmon-farming lobby, into diseases that don't exist, into environmental devastation that did not occur, and into doom and gloom scenarios about the displacement of a fishery that did not happen.

You are sitting here with a healthy entrepreneurial Canadian success story that needs to be encouraged and not stymied by impractical and unnecessary concepts that are not meant to succeed but are deliberately designed to orchestrate the demise of our sector. Our industry represents one of too few bright spots to grow the Canadian economy, a fact that should be regarded as especially important in our current climate, fraught with economic uncertainty.

We are asking our government to consider the facts, to accept the science from its own departments and from colleagues around the world, and to develop and then implement a very clear strategy for the healthy growth of Canada's aquaculture sector. We need federal legislation that is written and designed for aquaculture—legislation to regulate it properly but also to enable it to grow.

If we get that support from the federal government, we will stand behind you. We're a company that's going to invest, continues to invest, and continues to grow, and we will have to invest overseas—but we want to invest in our own backyard. With the right business climate, we will continue to build healthy companies and healthy communities while maintaining a healthy environment that's good for Canada and good for Canadians.

Thank you.

● (1640)

The Chair: Thank you.

Mr. Drost, do you have some opening comments?

Mr. J. Terry Drost (Marketing, Four Links Marketing, Gray Aqua Group Ltd.): Thank you, Mr. Chairman and members, for your invitation to speak to the standing committee regarding closed containment salmon aquaculture. I applaud you for looking into ways to make the Canadian salmon farming industry more sustainable and successful.

My name is Terry Drost and I am speaking to you on behalf of Gray Aqua Farms Ltd., of Northampton, New Brunswick. I am a native of New Brunswick, and I began working in the salmon aquaculture industry after graduation from the University of Guelph in 1987. I have a bachelor's degree in animal science, specializing in livestock production, and until March 1987 I knew very little about salmon farming. However, I grew up in the Saint John River Valley, never more than a few hundred yards from the river. And to this day, I still look out on the river from my house.

Atlantic salmon, the Saint John River strain, in my estimation is the king of fish. The Saint John River is one of the greatest salmon rivers of North America. However, during my lifetime I have watched enormous changes in the salmon population in the Saint John River. Several hydroelectric dams have been built during the last century. The commercial salmon fishery on the Saint John River was closed. Sport fishing was slowly reduced to no fishing, and today there is no longer even a native food fishery on the Saint John River.

DFO, however, in partnership with NB Power, have invested significantly in salmon enhancement, and fortunately have maintained a modest population of the Saint John River strain of Atlantic salmon.

The first feed that I manufactured in 1987 was for a DFO contract for the Mactaquac Fish Culture Station. Preserving the Saint John River strain of Atlantic salmon has been a preoccupation of both the enhancement community and the aquaculture industry during my entire 25-year career.

In those early days of the salmon farming industry in New Brunswick, DFO was the first source of our smolts. The industry worked together with the Atlantic Salmon Federation to protect and preserve the wild stocks, and also to supply genetically compatible stocks to the entire salmon farming industry in New Brunswick. I believe that salmon farming and wild salmon can not only coexist, but can benefit each other significantly.

The salmon enhancement efforts of DFO have helped develop closed containment technology that is in use around the world for salmon restoration and also for salmon farming. We have learned, and we continue to learn, more about the fish: how to feed them and also how to maintain the most natural conditions for husbandry.

Gray Aqua Farms Ltd. operates one of the largest, most technologically advanced closed containment salmon hatcheries in the world, right on the banks of the Saint John River. With 10,000 cubic metres of tank volume and 12,000 gallons per minute of water flow, Gray Aqua Farms can produce over five million smolts annually. This is approximately 500 tonnes of salmon production.

These smolts will be transferred to salt water and will be grown in natural water conditions in cages in the ocean for the next 12 to 18 months of their life cycle. They will produce 10-pound salmon and have a total production of over 20,000 metric tonnes of market-size salmon. This is a forty-fold increase in biomass.

Could the entire production be done in closed containment? Yes, but at a great cost environmentally, economically, and socially.

Gray Aqua Farms' operation in Northampton, New Brunswick, is on 10 acres of land, with several buildings holding various sizes of tanks and 28 large outside tanks. It is a flow-through operation with water treatment on both incoming and outgoing water. Annual power costs for their hatchery are $350,000. Oxygen and other treatment costs are $250,000 per year. Maintenance for the system is over $400,000.

● (1645)

The total operating cost of this hatchery, excluding feed and labour, is over $1 million.

Members of the committee, if we were to take those five million smolts to grow out in a closed containment environment over another year and a half, a quick extrapolation shows a requirement for over 400 acres of land, 480,000 gallons of water, either flow-through or through recirculation technology, and at least $40 million in operating costs, not including feed and labour.

Finally, imagine the cost for the Canadian industry as a whole, with a production of over 120,000 metric tonnes, and ask yourselves where we could find the land with the ability to provide the water and the power and manage the waste to support closed containment systems of this magnitude, and then ask yourselves, how can any Canadian company survive economically with these additional costs?

Certainly it would be impossible to compete with producers from other countries. I believe the government should be asking itself, how can we support our current Canadian industry to make it more sustainable, allow it to grow and be more competitive in the marketplace, and at the same time how can we support those coastal communities that depend on the salmon industry for their economic viability?

Canada, with one of the longest coastlines in the world and a long history of seafood production, is in an ideal position to be a global power in aquaculture production.

I will leave you with one thought by the first ocean conservationist-environmentalist. I believe Jacques Cousteau was ahead of his time when he said, “We must plant the sea and herd its animals using the sea as farmers instead of hunters. That is what civilization is all about - farming replacing hunting.”

Thank you.

● (1650)

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

Mr. Allen.

Mr. Mike Allen (Tobique—Mactaquac, CPC): Thank you very much, Mr. Chair.

I want to welcome our guests, especially Terry, who is from my riding. The same river you overlook overlooks the top of my house, too, as I recall. When we built our house, they closed the same section of that river to salmon fishing that same year, unfortunately, in the Grand Pass just below the Magaguadavic Dam.

I've had the opportunity to be at your facility in Northampton on a number of occasions, and we've had a chance to talk on a number of occasions as well. I have so many questions and so little time.

I'd like to start with some of the challenges we have of not having both witnesses here in the same group. We don't have a chance to have a dialogue back and forth, so we miss an opportunity to do that. But there was a challenge on escapes. Could you just comment, from your standpoint, on the number of escapes that you've had documented, on the accuracy of your escapes?

Can you also talk to the genetic impact on the wild species? I'd just like to understand that from the aquaculture side. Are these fish actually able to mate in the wild environment? Our last witness talked about a 0.02% survival rate and then about the ability of these fish to mate in the environment. Can you talk about those two questions?

Ms. Nell Halse: I'll begin, just because I represent a farming company that has been in southern New Brunswick for 25 years.

We've had a very good record of not having escapes. As Bill said, there were some incidents last year, but they were not with our company, and they were smolts, so I can't really speak to the fate of those fish.

But we did have a sabotage event on our farms in 2005. That's a very long time ago. At that time we got permits from DFO. We would not be allowed to go out fishing for the escaped fish without permits, so we went to a lot of trouble to get all of that in place. But the reality is that most of the fish disappear very quickly and many are eaten by seals.

When we quote numbers and statistics, you have to be careful that you give the whole story. So yes, there may have been more farmed salmon that were found in a river, but we're talking ten farmed salmon. So the percentage is that there are more of the wild salmon. The returns, fortunately, are very low. But the numbers of aquaculture fish that have been found in the rivers in that area have been very small. There have been a few incidents, but they're very infrequent. In the early days that would happen much more often.

A lot of that is just because we've learned how to build the equipment to suit the environment. In terms of Cooke Aquaculture Inc., we have not had an escape. However, we are required under the new regulatory requirements to report an escape. If we think we may have lost 100 fish, we have to report that.

We have had incidents in the last year where we twice had to report that our divers found a hole in the net. We felt we hadn't lost fish, but we reported it anyway. Our company voluntarily reported even before the reporting requirement was there. In fact, in regard to this incident with the sabotage that I referred to earlier, we did contact the ASF people in Maine, everyone, immediately to let them know.

Our experience is that our fish are staying in the cages. That's where we need them to be and we're doing everything we can to keep them there. Unfortunately, there have been some incidents, but they have not been with our company.

Mr. Mike Allen: But assuming they do escape, what are the genetic implications?

Ms. Nell Halse: First of all, they're the same fish. We're farming native stocks, and we are required to do that. In other parts of the world, they're allowed to farm species that are not native to the area.

They are cultivated for farming, so they're several generations away from what was in the wild. It's a bit of a complex debate. You can argue that it's a good thing that they're not fit for survival, so they won't survive, but I think most people are aware that there are many, many more reasons for the decline of wild salmon than aquaculture. It's survival at sea.

NASCO, the North Atlantic Salmon Conservation Organization, in which I have participated for many years, is clear that survival at sea is the major cause of the decline of wild salmon worldwide, and there are many other instances in our area.

Terry, you may have something you want to add.

● (1655)

Mr. Mike Allen: Could you tell us if escaped farmed fish can mate with wild salmon?

Mr. J. Terry Drost: Yes, they can, but I believe it's highly unlikely, almost impossible, that this would happen. I don't believe they would make it up to the spawning pools to mate.

I agree with Nell. It's a requirement. Introductions and transfers are administered through DFO. We are tightly controlled on the strain of fish that we're allowed to farm in our cages. It is very much the same fish. One of my first experiences with salmon farming was with a geneticist from the Atlantic Salmon Federation while I was at the University of Guelph. He did some population genetics. We will try to have genetic improvement in our stocks, but it's going to be a very slow process. Even though we are maybe seven generations removed from wild fish, I don't believe there has been a significant change in genetics.

Mr. Mike Allen: You talked about the stocking densities. I know Gray Aqua has brood stock in one of the tanks I saw recently when I was there. Can you comment on the densities that it would take at a commercial level as opposed to the densities in your open net?

My second question is, given the numbers that you just talked about, a billion dollars and $40 million in annual operating costs, will the market command the price premium that would be dictated by those additional costs?

Mr. J. Terry Drost: The answer to the first question is that in a closed containment system you would be forced to increase your densities over what we would like to maintain in the cages, or over what we do maintain, which is between 15 kilos and 20 kilos per cubic metre. That's at maximum, just before going to market. The entire site would never get to that level, whereas in a closed containment system, I can see you being in the neighbourhood of 50 plus, just to try to make the economics work. That brings with it a whole host of other challenges. How do you maintain water quality? The amount of water that you would have to pump through those fish represents some significant challenges. It's not that we haven't tried closed containment in salmon aquaculture.

One of the earliest closed containment facilities in the world was a company down in Nova Scotia in the early 1970s called Sea Pools. They tried to grow trout and failed. There have been others tried in Cape Breton and the Gaspé peninsula. They've been tried in a variety of areas, all of them ending up with severe challenges as the biomass grew. The first year, when you're on your way to 1.4 kilos, that's the easy part. Going the next two and a half to three kilos, that's where the real challenge starts, in a closed containment system.

So it will be interesting to see how the Atlantic Salmon Federation makes out with their research down at the Freshwater Institute. I know that institute well; they're very good. But we will need to watch that closely.

On the other part of your question, which is marketability, I think there are some real sustainability issues, carbon footprint issues, with closed containment that are not going to play well in the market.

Mr. Mike Allen: Have you done the numbers on the price premium?

Ms. Nell Halse: Alan is our vice-president of marketing and sales. I thought maybe he could answer that one.

Mr. Alan Craig (Vice-President, Sales, True North Salmon, Cooke Aquaculture Inc.): Perhaps I could answer that.

The comment I can make is that we compete globally with our product in the marketplace. Our competition in North America is Norwegian, Scottish, Chilean. It's a rough market today at certain times; the market goes up and down. We would not have the luxury to recover the extra cost involved in closed containment unless the rest of the world went the same way.

● (1700)

The Chair: Thank you.

Mr. Donnelly.

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

Again, welcome to our presenters. Thank you for being here and taking the time.

I want to focus on Cooke Aquaculture. Cooke Aquaculture was recently charged with the discharge of illegal pesticide in the Bay of Fundy. The investigation was launched after lobster fishers discovered dead and dying lobsters from Campobello region, Deer Island, and Grand Manan. Environment Canada launched an investigation and found that the chemical used was cypermethrin. That's banned in Canadian waters and known to be harmful to crustaceans. Environment Canada has found 11 instances where this chemical was discharged, and fishers are concerned about the traditional fishing grounds, obviously for good reason.

Cooke Aquaculture claims that aquaculture and traditional fishers can coexist, but this incident might suggest otherwise. There seems to be growing opposition to aquaculture on the east coast.

Do you believe that the illegal discharge would have been stopped or contained by a closed containment system?

Ms. Nell Halse: Obviously, I can't discuss the nature of these charges, in this case laid by Environment Canada, because that's now before the courts and that's not the topic for today. But the broader question about how we manage fish health on our farms is a very important one, and what products we would use, how we would use them, and how much they are used. I guess the allegations, as you outlined, are referencing some lobster deaths investigated by Environment Canada. There has been no massive lobster kill. Lobster landings continue to be at record levels in the Bay of Fundy in the area right around our farms.

In fact, if you were to fly over our farms—and we just had some photographs taken last week, lobster season having just opened on Grand Manan—the whole farm is peppered with lobster traps all around, around the cages. That's been a practice going on for many years. It's a very good example of how we do coexist. Fishermen and farmers work off the same wharves. They're often the same families. Our kids go to school together. So it's not like two solitudes. If there really were this terrible devastation occurring, you would not continually find fishermen setting their traps—choosing to—right around the farms. We provide a natural habitat for lobster. Those are the facts.

In terms of sea lice management, in recent times in New Brunswick we had a real struggle with managing sea lice because a treatment we had been using in feed was no longer as effective. We had exceptionally warm water temperatures and we had no other options, even though for a whole year before we worked with both levels of government to develop a national fish health program with access to the kinds of treatments available in other countries. We didn't have anything to use. It got out of control, and that has created a lot of fear in the community about what the industry is doing. But I think if the industry were using a whole lot of illegal chemicals, we wouldn't have problem with sea lice. You have to sort of think that through to its natural conclusion.

I don't mean to diminish the concern. It's very important to us that we sit down directly with the fishermen, have a dialogue, and tell them what we're doing. That particular summer, information on all the treatments that occurred on the farms was shared with anyone who wanted it—the fishermen, the conservation groups got that data. There was some confusion about how to understand it, unfortunately. I can tell you that since we had that problem summer, we've invested millions of dollars in well-boat technologies so that we could use a closed containment system for treating sea lice. The fish are pumped out of the farm into the hold of this huge vessel with sea water, a very small amount of an approved treatment is administered under a veterinarian's care, and then the fish are pumped back into the cages.

This past year, we have only used bath treatments with hydrogen peroxide, which is a benign product; the fishermen have supported that. In Grand Manan, for example, we didn't do any bath treatments at all. Last week was our first one. It's a manageable problem with the right tools. We can handle it.

Over and above that, we've been investing in green technologies. We consider well boats and hydrogen peroxide to be one, but also we're exploring something that's being done very well in Norway. Some of you have been to Norway. They've discovered there's a native fish called the wrasse that actually eats sea lice. So you can put them in the cage with the salmon. It's worked so well that they are now actually having hatcheries where they grow these wrasse so that they're not depleting the wrasse from the wild. We can't bring those fish here because they're not native to our area. But we can explore if there is a native fish that would do the same thing. So our company has invested in a project with cunner fish that come from the Bay of Fundy. We've had some trials at the Huntsman Marine Science Centre that worked quite well. We got our first field trial.

There's no silver bullet. We're doing whatever we can to invest in good solutions.

● (1705)

Mr. Fin Donnelly: If the industry were to shift to closed containment for whatever reason over some period of time, what would happen to Cooke or Gray?

Ms. Nell Halse: Well, I think....

Mr. Fin Donnelly: It sounds like the numbers you're talking about would put you out of business.

Ms. Nell Halse: As I said in the beginning, I think it's a question of whether we can do it, and should we do it? There would be challenges, as Terry already said. The stocking density would be a huge one. Where would you find all the land? Which forest would you like to clear-cut? Which farm land would you take away? Do you want tank farms taking up precious freshwater resources that are going to be in high demand? Those are all big philosophical questions that need to be asked as well.

One of the things, it's a type of science, is life cycle analysis. We have some experts in Atlantic Canada. There's been some work done. I'm looking at what the carbon footprint is of doing things a different way. I think if we moved all our farms out of the ocean onto tank farms, that whole life cycle analysis would show a really large environmental footprint that would be negatively perceived I think by the public.

Mr. J. Terry Drost: I would just go to your first question on disease and chemical disease from closed containment. Would it be less or more? I truly believe there would be more disease, and there would be more chemical discharge from closed containment, just from my experience. There are several examples that I spoke about, and there are more just on the east coast of Canada that have shown it becomes a very difficult husbandry issue in getting these fish up to these large biomasses in closed containment systems.

Would we survive? DFO has done a lot of work on studying various technologies. There are emerging technologies. Could there be a paradigm shift? Could something come up that we just haven't thought about? Maybe, but I would say we would very likely not survive if we were required to go to closed containment and based on the fact that our competitors would not be going to closed containment in other parts of the world.

Mr. Fin Donnelly: In terms of the status quo operation or your current operations, do you have any plans for expansion?

Ms. Nell Halse: Yes, we do. Cooke Aquaculture has grown tremendously in the last 25 years. Most of our investment has been in Atlantic Canada and Maine. We did buy a company in southern Chile, and frankly, the Canadian integration model is working very well there. And we just bought a sea bass and sea bream operation in southern Spain. That is our first shift to a completely different species.

Yes, we have plans to grow and invest, but it's not status quo. There is nothing status quo about this industry. It is constantly changing—

Mr. Fin Donnelly: I'm sorry, I just meant about the regulation.

Ms. Nell Halse: Okay. In terms of containment.... I think it is an important point, though, because we're constantly exploring new technologies, new ways of doing things, and investing in innovation, so that's just part of how we do business.

As a company we want to grow. The question is where. We'd like to grow in our own backyard. We have plans for growing in Nova Scotia. We approved two new farms this past year. We have an application in the system for three new farms on the south coast. We are going through that whole process of consultation, environmental assessment work, and public consultation.

You did reference the opposition in Nova Scotia, and there is no question there is a very loud group of people who are very opposed to what we're trying to do there. But there is also a really strong grassroots movement of people who live in coastal communities, who want their kids to stay home and have good jobs. What is really interesting about this group is that they are arm's length from our company. They ask their own questions. They've formed a Facebook site. They're reading the science and they're saying they want the jobs to develop it, but not at any cost. They want to make sure it's done right, so I think that bodes well for that province, in particular.

In Newfoundland we've seen much of the same thing. The government is very engaged there, building really tough regulations.

That was one comment that was made. The regulations in Maine and in eastern Canada are not comparable. There are jurisdictional issues or differences, for sure. It's our company that's doing both, so we have good experience, but because of our eco-label we have standard operating practices and we operate exactly the same way in Maine as we do in New Brunswick, Nova Scotia, and Newfoundland.

● (1710)

Mr. J. Terry Drost: Gray's Aqua Farms has formed another company to farm salmon in the ocean. It's called Gray Aqua Group. They currently have two sites in production in Newfoundland, and that will grow in the years to come. They definitely plan to become a significant producer of Atlantic salmon in Canada. The south coast of Newfoundland as well represented some very interesting environmental challenges.

I echo Nell's point about new technologies. There have been tremendous changes in technologies over the last several years. We've been able to go into places that we couldn't farm 10 years ago, and we are doing it quite successfully, with relatively no escapes. And the growing conditions for these fish have been tremendous.

I think it is an enormous opportunity for the south coast of Newfoundland. It's an enormous opportunity for Atlantic Canada to develop the salmon farming industry.

The Chair: Mr. Leef.

Mr. Ryan Leef (Yukon, CPC): Thank you, Mr. Chairman.

Welcome. I want to quickly go back to an estimate you made on the $40 million projected costs for the closed containment. So that we have a comparison, what would an average cost of operation be right now for the open net?

Mr. J. Terry Drost: Without feed and labour—and feed and labour in the ocean are by far and away the biggest costs—they would represent.... Feed and labour would represent well over 75% of the cost. Then there would be your capital costs and other operating costs, which would be your vessels to service the site, and also insurance and so on.

It would be significantly less. I can't give you the exact number on 20,000 tonnes. Maybe you could without feed and labour, but it would be easily less than 20% of that number. I would say less than $8 million.

Mr. Alan Craig: I was going to say a quarter of the cost of the $40 million. So our estimates are close to the same.

Mr. Ryan Leef: That was a test.

Moving over to the track record, and I don't want to get specifically into your track record for the containment of salmon, we heard a little bit earlier that there were over 200,000 escapes. The first part of the question is, would that be a number that you're aware of or would agree with?

Secondly, as you indicated, your containment and escape prevention program is something you're proud of, and it's low in your testimony. You did touch on your escape strategies or the prevention of escape, and your technologies were pretty good. Do the industries vary tremendously in the strategies employed for escapees? When I heard the number earlier of 200,000, I initially thought you just stop the fish from escaping and figure out a way to put in technology to stop them from escaping.

Could you give me an overview of how the technology in that escape prevention varies or doesn't? What would be the difference between your company and others?

● (1715)

Ms. Nell Halse: One of the things that has happened to the salmon farming sector over the last year is there's been a lot of consolidation, so there are not a lot of players. The people who are in the business now are all family owned companies who have lots of experience and have been there around the same amount of time. I'm specifically referring to New Brunswick, but that's true for.... Other than the Grays, who are fairly new players in the farming side of the business, they're all companies that have been doing this for a very long time.

You would probably find, even though our company has eco-certification, that another company has a quality certification program, so there are some differences there, and of course we like those differences. They help us in the marketplace.

In terms of structure, and we all have to adhere to the same regulations, I can say that having 25 years of not just farming but of developing, designing, and building the equipment, not just the cages and the nets but the mooring structures on the ocean floor that hold everything in place...those are really the main reasons, I would say, why our escape record has dramatically changed. It's good. That isn't to say there couldn't be some devastating event. I think the farm that did lose the fish last Christmas or last fall—they were smolts, very young fish, so they didn't go very far. They just disappeared.

We recognize the importance.... I mean it's our investment. We are not going to want to see those fish leave and go up the rivers either. Also, as I said, we have this same interest in the conservation. We also share the same interest as the ASF.

Then there are the regulations in terms of reporting. We have an insurance sector that we have to answer to. We have a banking sector that we have to answer to. It's not like a hobby farm. It's serious business. We have a lot of checks and balances all throughout. We have divers in the cages all the time who are checking on the fish, but also on the equipment. And that's year round.

Mr. J. Terry Drost: I would add that sometimes the new technology we try doesn't work. In this particular case there was a failure with the new technology. All of the prototype testing that was done for that technology looked good. The salmon farming company obtained insurance and did their due diligence. Everybody did a lot of background work before they put the fish on that site, and it failed fairly early. It was a good thing for the farmer because he hadn't invested a lot in the ocean. I also truly believe those escapes represented absolutely no risk to the wild population.

New technology is not always going to work the way you want it to work. That goes with closed containment. We have had several past experiences with very large-scale closed containment developments. One of the biggest ones in Atlantic Canada was a company in Cape Breton. They really wanted to make a tank-based salmon farming operation go economically, because of the rough environmental conditions there. A lot of government money was put into that project, and a lot of investor money—many millions of dollars. You can go today and probably look at those tanks. That technology did not work.

Mr. Ryan Leef: We heard some conflicting opinions on the availability or accessibility of land-based plots. I think earlier testimony suggested it would be a bit easier to find land-based plots now than open net plots.

Excuse me if I'm not using the right words. I'm from the Yukon.

Would that statement be more accurate for new people getting into the business? If I were trying to get into the business, would it be smarter for me to look for land-based options?

● (1720)

Ms. Nell Halse: One of the things we have to remember is that there are species of fish that work really well in land-based facilities. We're not saying land-based as a technology doesn't work; it's just not great for Atlantic salmon.

Did you say you're from the Yukon?

Mr. Ryan Leef: Yes.

Ms. Nell Halse: They have great Arctic char operations there, and they work well. That's one of the points—for Atlantic salmon it just doesn't work for their whole life cycle.

Mr. Alan Craig: When you compare Arctic char to Atlantic salmon, we're talking about a size difference. Arctic char is sold in the size range of two to three pounds. Our average size is 10 to 12 pounds. So the cubic feet of area required to keep those fish is different. I think that's an important point.

I think we should put the escape in perspective over the last 10 years. The 200,000 fish that escaped last year were smolt, which are very unlikely to survive to spawn. If you go back over the history, you'll find that escapes are very minimal, other than that one situation.

The Chair: Thank you.

Mr. Eyking

Hon. Mark Eyking: Thank you, Chair. Welcome, guests.

I love fishing Atlantic salmon, and my wife and my family love eating salmon. But there's a problem. If I only catch one a year, we have a situation, so we buy a lot of your salmon. I told her to try to switch it up, so now she's buying trout. It's cheap, good food. It's healthy food, and we need to have it. And it's good for the industry. At the end of the day, though, we have to try to make both industries cohabit in some way.

You mentioned, Mr. Craig, that if we're going to compete with the Norways and the Chiles of the world, some of the technologies that have been put forward here are not going to work. You've got to remember that when something becomes an endangered species, other things come into play. We've seen over the years for many industries—like forestry, farming, mining—that the warning signals were there, and they said, "Well, it's only an owl", or something like that. Next thing you know from Environment Canada, their industry is shut down because it's an endangered species.

What I'm concerned about is whether down the road there's a ruling and your industry is not ready for it. Whether it's right or wrong or in between, these things happen. You see it happening in the United States with their Endangered Species Act.

How do we deal with that? It was mentioned by the previous guest that Scotland is being proactive. What they're trying to do is keep them at a distance. I know in Atlantic Canada there are a lot of coves and bays out there, and many of them do not have salmon rivers. I know as a farmer myself, you can't move operations willy-nilly, but to me, a solution would be for your industry, working with their industry, to look at a 10-year or 15-year plan.

Instead of working in tandem, you work on a deal. Some will say if there are new aquaculture operations, maybe they should not be in a wild salmon sensitive area. Maybe there should be some encouragement from governments to help move some of these sites into other areas. To me, this afternoon, I see that's one of the biggest solutions that could be used by the wild salmon people.

Some of the recommendations here that you feel you can't deal with...what about having a 10-year or 15-year plan to say how your industry is going to go? Let's go to Scotland and these places, to see how they've done it ,and start moving some of the operations or even do a trial run; do a trial run and get it out of that wild salmon sensitive area and see if it's working. If not, you could all of a sudden be faced with the Endangered Species Act, and you don't want that happening. They simply shut you down; that's the way it is.

Ms. Nell Halse: It already has. We purchased companies in Maine, where the industry was in a huge downturn because of things like the Atlantic salmon being in danger. There were legal challenges for all kinds of issues. Our company actually bought out the two international companies that decided to heck with it; they got out of there. We had faith in rebuilding the sector, and we did. The year we purchased companies there, there were 300,000 fish in the water, and now we've got close to 3 million. We've opened a processing plant.

Hon. Mark Eyking: Is that 3 million in Maine?

Ms. Nell Halse: In Maine, and we opened a processing plant, the first processing plant to open in Maine for 10 years. So it can be done. We sat down with the regulators and the NGOs. The containment program there was developed collaboratively. This is not new to us. We've done this before—

● (1725)

Hon. Mark Eyking: If I may, though, are your operations in Maine at a distance from the wild salmon sensitive areas?

Ms. Nell Halse: No. In fact, you would probably not have an industry in Atlantic Canada if you had to stay away from all the salmon rivers.

What's happening in Scotland is a bit of a misrepresentation. I'm very familiar with the Scottish industry. We're very collegial around the world. We meet regularly. The environments are different in each country. They have a very big industry in Scotland, much bigger than we do. The regulations that we follow in Maine and the codes of practice that we follow there are very much the same as what we have here.

Hon. Mark Eyking: In Scotland?

Ms. Nell Halse: Here, and in Scotland, too. In fact, there are things that we do here that they don't do in Scotland yet. We do them much better—area management fallowing. Our whole industry is divided that way here, and it isn't in Scotland. I think we have a lot to be proud of in terms of how our industry is run here, but also how it's regulated.

I think moving away from the salmon rivers may sound like a great idea, but you have to first decide why you are doing it. Is it necessary? You talked about the canary in the coal mine. Let's look at what the reality is. What's happening that's different?

The decline of Atlantic salmon in the area where we farm started long before we were there. It's that topic we had earlier. Simply because two things happen near each other doesn't mean one is the cause of the other. Before the federal government asks the industry to do something, it should do the analysis. Is this really required? Is it going to make a difference?

If you moved all the salmon farms off the east coast of Canada, would the wild salmon come back?

Hon. Mark Eyking: I don't know if that's a fair...they might, but I don't think we would want—

Ms. Nell Halse: I think scientists would probably say no.

Hon. Mark Eyking: I don't think we would want the industry to go away. I would hope that both industries would work together on a solution. If not, somebody else is going to make the decision for both of you. That's my sense of it.

Ms. Nell Halse: I agree with you completely. Here's one example. We're working with the Atlantic Salmon Federation on a joint conservation project, which we've done for many years. In the Magaguadavic River the returns are very low. We have a hatchery on that river. We have dedicated a space with a separate facility where together with the Magaguadavic River Salmon Recovery Group, which ASF is a member of, as is DFO and a number of local conservationists, we grow the wild salmon so that they can be released at different stages by the recovery group into the river as part of the restocking. And there's another project in the inner Bay of Fundy that another company has worked on.

So we are trying to find the solutions, not just how to make our industry healthy but also how to restore wild salmon. We have the expertise in-house to do that. We have a lot of people who know more about fish biology and how to raise fish and how to keep them healthy than anybody else.

Mr. J. Terry Drost: I would also like to say that we need to look for what the source of the decline is. I think that on the Saint John River the decline in Atlantic salmon started long before the salmon industry began down in the Charlotte Island region, which by the way is a fair distance away from the mouth of the Saint John River.

I can remember 20 or 25 years ago, maybe even a little longer, acid rain from the United States was one of the primary causes, or blamed to be a cause, of the salmon decline in a lot of the rivers in the southwestern region of Nova Scotia as well as in some of the rivers up in Cape Breton.

Water quality is huge. There are many things that affect water quality. I think the Atlantic Salmon Federation has worked with a number of different stakeholders along these river systems. It's not just about competition with other fish or even seals; it's also about the habitat and what's happened along these rivers over the years.

We're getting a lot better at it. When we build a road now, we do a lot more to maintain the habitat for the wild fish. Anybody in the construction business will tell you that the way they operate today compared with the way they operated 30 years ago is completely different.

● (1730)

Hon. Mark Eyking: This is not the first time we've talked about the problems with salmon—wild salmon and farm-raised salmon. The west coast has major problems with them, and I think there was some talk of having rules and regulations on where the fish farms were going to be. There seems to be a problem on the west coast too.

Going forward, I think your association is going to have to look at different technologies to deal with the lice and many of the problems that are happening everywhere you look.

I think Norway is having the same problem with their wild species of salmon too, aren't they? They're not getting acid rain in Chile, but they say the wild salmon in Chile is having a problem. It's been attributed down there to the farm-raised salmon.

Mr. J. Terry Drost: There have been escapes in Chile over the years and there are starting to be some wild runs of Pacific salmon into some of the rivers and streams in the Chilean region. I haven't heard of this happening anywhere else in South America.

Hon. Mark Eyking: Don't get me wrong. I'm not picking on you.

The Chair: Mr. Eyking, I have to interrupt you here.

Hon. Mark Eyking: I was just getting rolling.

The Chair: Yes, I can see that.

On behalf of the committee, I want to thank you for coming today, answering our questions, and providing us with some information. We really appreciate it. I'm certain that the committee members do as well.

Thank you for taking the time today out of your busy schedules.

That concludes our meeting. The meeting is adjourned.

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