HOUSE OF COMMONS
CHAMBRE DES COMMUNES
CANADA

Standing Committee on Fisheries and Oceans

FOPO • NUMBER 017 • 1st SESSION • 41st PARLIAMENT

EVIDENCE

Thursday, November 24, 2011

Chair

Mr. Rodney Weston

Standing Committee on Fisheries and Oceans

Thursday, November 24, 2011

● (1540)

[*English*]

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

I apologize for the late start. We had some technical difficulties, but we're ready to go now.

I'll take this opportunity to welcome our guests here this afternoon. Thank you, on behalf of the committee, for taking the time out of your busy schedules to appear.

Our committee has been studying closed containment salmon aquaculture. We certainly look forward to hearing your thoughts this afternoon and to having the opportunity to ask you some questions.

On that note, I'm sure the clerk has already explained to you that we have certain time constraints to work within. All committee members have timeframes they have to adhere to for questions and answers. We try to stick as closely as possible to these timeframes to allow fair opportunity for all to ask their questions.

I didn't ask who was going to go first with a presentation today. I'll let you decide who wants to proceed first.

You can proceed, Mrs. Aubrey. Thank you once again.

Ms. Maria Aubrey (Senior Vice-President, Operations, Sustainable Development Technology Canada): Thank you, Mr. Chair, for inviting Sustainable Development Technology Canada, SDTC, to appear before this committee.

My name is Maria Aubrey. I'm the senior vice-president of operations at Sustainable Development Technology Canada. Accompanying me is Keith Watson, who is SDTC's screening and evaluation manager focusing on technology solutions for soil and water, including aquaculture.

As you are aware, SDTC is an arm's-length foundation, a not-for-profit foundation created and funded by the federal government. Our mandate is to develop and demonstrate clean technologies that have the potential to provide environmental benefits in clean air, water, land, and/or climate change for Canada.

SDTC's portfolio is currently comprised of over 220 projects. These projects are from all across Canada and have a total portfolio project value of $2 billion. This is comprised of $548 million from the Government of Canada through SDTC, with the balance coming primarily from the private sector.

The selection process we follow is a two-stage, decision-gated process that maximizes the use of public funds for the development of Canadian technologies while minimizing development and demonstration risk. Our selection is based on rigorous due diligence and a merit-based assessment process. This process integrates the reviews and recommendations from SDTC staff, experts—both technical and business—and an independent investment committee and the final decision by the SDTC board.

These reviews take into account a number of key criteria, including technical innovation and market and environmental potential. In addition, of course, the evaluation includes the capacity of the team to deliver on the scope of the project. All projects must be done on a consortium-based approach. This is to ensure validation by the key players in the supply chain.

The projects are structured in a milestone-deliverable base, with a go/no-go decision-based approach that allows adjustments to the technology as actual data and findings become available, thus maximizing the chances of success while mitigating the risk of failure and protecting public investment. A typical project takes about three to five years.

At the stage of technology development when SDTC invests, venture capital and other sources of traditional funding are typically not available. During the project execution, potential technology adopters, future investors, and regulatory bodies are able to follow the results and be better informed while the de-risking is done in a mitigated fashion and It's made ready for market entry, also raising private expansion capital.

SDTC prioritizes its funding based on the needs of industry, in consultation and alignment with government priorities. One of the sectors that industry identified a technology gap in is aquaculture. Salmon farming is an important industry for Canada, with a strong domestic and foreign demand for Canadian product. However, the industry has been engaged in a debate around the ecosystem and environmental implications, such as risks of disease outbreaks, discharge of waste and pollutants into the water supply, escapes of non-indigenous species, and transfer of disease from farmed salmon to wild salmon.

Closed containment has the potential for major environmental benefits in salmon farming by reducing the risk of spread of disease, improving feed conversion rates, and reducing environmental discharges such as solids, nitrogen, and phosphorous, but these technologies are not yet proven at a commercial scale in a real-world application. That's why SDTC has chosen to invest in this area. If successful, closed containment provides the aquaculture industry with alternative means to address this economic potential in an environmentally sustainable fashion.

SDTC has received seven aquaculture salmon-rearing-related applications through the course of the last six years and we have committed funding to two of those: the Middle Bay Sustainable Aquaculture Institute floating closed containment technology in 2007, and the 'Namgis First Nation land-based recirculating system, RAS, in 2011.

● (1545)

Total SDTC committed funding for these two projects is $8.2 million. About another $15 million in investment is being contributed by other sources. The SDTC funding has leveraged industry funding as well as contributions from the Gordon and Betty Moore Foundation, Tides Canada, the Department of Fisheries and Oceans, and Western Economic Diversification.

I'll keep my remarks about each of these projects brief, given that both proponents have presented or will be presenting to the committee. My colleague, Keith Watson, can answer project-specific questions.

The Middle Bay floating solid-wall technology is a significant technical innovation with a novel design. It is a floating solid-wall tank, 25 metres in diameter, that contains 3,000 cubic metres of water. Think of it as a massive fish aquarium floating in water.

This technology is intended to increase isolation of the salmon-rearing process from the aquatic environment beyond what is possible with the commonly used open net-pen salmon grow-out technology. The technology minimizes the potential for disease spread. The waste associated with rearing the salmon is collected. The conditions in the tanks can also be controlled to increase the growth rate of the fish and to reduce the mortality rate, thereby increasing production efficiency.

The proposed technology is a variation on the land-based tank technology, redesigned to float in the ocean. The project started with construction of an initial tank. It was followed by a subsequent tank once the operation of the initial tank was confirmed. The materials used in the construction of the tanks have evolved to meet the aggressive nature of the open ocean sites along the Canadian coast.

The project remains in its early stages, with one tank deployed and a second under construction. The tank was installed in Campbell River and was stocked with smolts in January 2011. The smolts have grown significantly, from 35 grams in January to over 800 grams by the end of September 2011, which has exceeded expectations.

The project partners have also secured an MOU with an industry distributor for purchase of the salmon, which completes the supply chain.

The project of the 'Namgis First Nation, from whom you recently heard, has been approved for funding by SDTC. They will develop and demonstrate a commercial-scale recirculating aquaculture system salmon-rearing module near Port McNeill, on Vancouver Island.

The 'Namgis will build on their expertise operating DFO's Gwa'ni hatchery. The RAS system and technology has been used in raising other fish species, such as tilapia and catfish, and is now, through this project, adapting to the larger, more sensitive salmon. The technology aims to improve isolation during the rearing process by establishing land-based rearing tanks that replace 20% of the water per day.

The environment can be controlled to provide optimum growing conditions for the fish. The benefits of the technology include the elimination of discharge into the aquatic environment and soil benefits from the production of compost. The development of the technology is supported by the Freshwater Institute in West Virginia. Our contracting of this project is currently under way, and pre-project design has commenced.

Both of these projects show great potential for new, innovative salmon-farming techniques.

In conclusion, industry has identified the challenges of current salmon-farming methods and has brought forward closed containment as a potential solution to address this need. While these technologies offer promising environmental and economic returns, this can only be proven through demonstrations in real-life settings.

The reality is that industry and private investors consider these types of early stage investments to be too risky, with uncertain economic returns; however, if the economic viability of these technologies is demonstrated, they are quite willing to invest in the deployment of these technologies. Public funding through SDTC, in partnership with industry, helps to fill this gap and gives Canada a leadership position in closed containment.

● (1550)

Thank you.

The Chair: Thank you, Ms. Aubrey.

Ms. Emrick.

Ms. Catherine Emrick (Senior Associate, Aquaculture Innovation, Salmon Aquaculture Innovation Fund, Tides Canada Foundation): Thank you, Mr. Chairman and honourable members, for this invitation to speak with you today.

My name is Catherine Emrick. I'm the senior associate for aquaculture innovation with Tides Canada. I'm a fellow of the Certified General Accountants Association, a designation that I'm proud to share with Mr. Hayes and Mr. Allen. I hold an M.B.A. and a Bachelor of Laws from the University of Calgary. In addition to my work with Tides Canada, I practise environmental, administrative, and regulatory law, primarily in northern Canada.

Tides Canada creates opportunities to pool ideas and resources to solve complex environmental and social problems.

The salmon aquaculture innovation fund was created to help develop alternative models and technology to traditional open-net aquaculture in B.C. Our goal is to protect B.C.'s wild salmon while building an aquaculture industry that's viable and sustainable. This work involves close collaboration with governments, industry, environmental organizations, and first nations to explore and advance the adoption of closed containment production systems as a means to foster protection of the environment and of wild salmon.

The objective of the innovation fund is to support research into the following aspects of closed containment technology: biological factors affecting fish growth and welfare; technological innovations to optimize growing conditions and minimize costs of production; technology to maximize the value of the waste stream; assessment of the economic feasibility; the environmental performance; and the social impacts.

The concept of the innovation fund came from early work to assess the feasibility of land-based closed containment aquaculture. For many years, a number of reports, studies, and commissions have considered the idea of moving salmon aquaculture to closed containment.

At a workshop hosted in 2010 in conjunction with Simon Fraser University's “Speaking for the Salmon” series, while agreeing that closed containment technology was technically feasible, two different views of the economic potential for closed containment were put forward in presentations by the Department of Fisheries and Oceans and by Dr. Andrew Wright.

At that workshop, there was considerable discussion about the differences in assumptions in these theoretical exercises. It became increasingly clear that there was a need for and value in a full and transparent assessment of the technical, biological, and economic feasibility of closed containment.

Since that time, the innovation fund has raised $4.8 million through the generous support of the Gordon and Betty Moore Foundation and a group of committed Canadian donors. This funding is used to match industry and government funding to projects directly, as well as to provide a broader range of projects with technical advice and to deliver workshops that help to disseminate research and project information to achieve the objective of the innovation fund.

The innovation fund supports projects in different ways. For example, in partnership with several funding programs, including Sustainable Development Technology Canada, the fund provided direct funding for the early feasibility study and detailed design work, and has approved funding for the construction and operation of the 'Namgis First Nation's K'udas pilot project.

The fund supports Marine Harvest Canada's closed containment salmon aquaculture pilot project through the administration and funding of an independent project review board designed to support the planning, development, operation, independent evaluation, and communication of the results of that project, in a manner that ensures the critical components of transparency and credibility.

To help create an industry cluster in B.C., following on Western Economic Diversification's lead, the innovation fund is currently considering an application for support of the University of British Columbia's InSEAS aquatic research facility and a related research program into optimization of production environments for recirculating aquaculture systems.

Our interest in this UBC project comes from first-hand experience with how important the research programs conducted at the U.S. Department of Agriculture-funded Freshwater Institute and the Nofima Centre for Recirculation in Aquaculture in Norway are to developing closed containment capacity, and we think it's important to develop similar research capacity in B.C. and in Canada.

As we learn more from demonstration projects, we are also interested in supporting specific innovations. For example, we know there is significant potential for innovation to reduce energy costs, and we want to encourage research in this area.

● (1555)

There are other ways in which the innovation fund supports the achievement of the fund's objective. In addition to providing direct funding to selected projects, the innovation fund is committed to providing technical fish husbandry and project management training and mentoring support to a range of projects under development in B.C.

Tides Canada has contracted the U.S.-based Conservation Fund's Freshwater Institute, the leading research institution for recirculating aquaculture systems, to extend design and fish husbandry resources to stakeholders such as the 'Namgis First Nation and Marine Harvest Canada and others who are working to implement land-based closed-containment systems for salmon grow-out in B.C.

Our funding agreements require that funded projects share the information gained with a broad range of stakeholders. To support this requirement, in early 2011 the fund's technical advisory committee completed the development of a comprehensive set of performance metrics to gather data about the technical, biological, environmental, economic, and social performance of closed containment salmon aquaculture projects.

We have reported research outcomes from projects supported by Tides Canada, and the adoption by other funding programs of Tides Canada's performance metrics as reporting requirements, in whole or in part, has created consistent, comparable, and streamlined reporting of project outcomes across multiple projects and funders.

These performance metrics will help to inform assumptions in a number of economic models and in the cost-benefit analysis that is being undertaken. To support the dissemination of relevant research and to create a forum to share information about closed containment projects globally, Tides Canada, in partnership with the Freshwater Institute and the Gordon and Betty Moore Foundation, offers semi-annual aquaculture innovation workshops.

The most recent workshop was held in September 2011. We had over 100 participants from countries including Chile, Norway, the U. S., Denmark, and Canada come together in Campbell River, B.C., to discuss the latest developments in closed containment technology for salmon aquaculture.

Through these activities, Tides Canada stands behind the practice of bringing together a broad and diverse range of stakeholders and leading researchers in the field. Workshop agendas and presentations are available through the Tides Canada website.

Going forward, I believe the greatest opportunities for the innovation fund, our funding partners, and projects are in these areas: innovation to further reduce energy costs; research into improved feed formulation for water quality and conversion rates; optimization of water quality; increased reuse of water and the maximization of production density; taking advantage of the value of the waste streams, for example through aquaponics; and supporting commercialization through mechanisms such as branding and market access programs.

I would also like to take this opportunity to talk a little about how I think we can help better support this work. Working with funding partners such as SDTC and the Department of Fisheries and Oceans aquaculture innovation and market access program has been a very positive experience. While we share many common goals, each program also has slightly different objectives and mandates. There is value in this. For example, SDTC's excellent due diligence process assists projects like the 'Namgis one to consider all of the commercial components and potential of the project, as well as to prepare to obtain the venture capital that will be necessary for scale-up.

While these processes are useful, multiple applications, due diligence, and reporting requirements create a burden on project proponents whose expertise is likely not in preparing applications or in grant management. Accordingly, it is important that as funding partners we have flexibility within our programs to work together to minimize the administrative burden on project proponents. We hope the work that Tides Canada has done to create common performance metrics and the willingness of federal funders to adopt these to the extent consistent with their mandates are good steps forward and that there are more opportunities like this to collaborate with our funding partners.

Having worked with the 'Namgis First Nation over the past two years, we know that a commitment to early feasibility and design funding is important to lay the foundation for a successful project going forward. Through the conceptual design and detailed design phases, we have learned a great deal, particularly about on-site requirements, production strategy, and heating options. This information is now being shared with other projects that are under development, and it helps to provide significantly more certainty as the 'Namgis project moves forward into construction and operation.

● (1600)

It is important, therefore, that funding programs provide for this flexibility both in their timelines and in the funding needs in the early stages to support this process. As the demonstration projects provide information that we hope will lay the groundwork for commercialization, we can also help prepare for this next phase. We can do that by clarifying and streamlining environmental assessment and aquaculture licensing processes, by building capacity and incentives to assist projects with accessing expansion capital, by supporting applied research programs, and by building branding programs.

Thank you very much for your time today and for undertaking this important study.

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

We will move to the questions now.

Mr. Sopuck.

Mr. Robert Sopuck (Dauphin—Swan River—Marquette, CPC): Thank you very much.

Thanks to our presenters for being here.

Ms. Aubrey, my first question is for you. In your remarks, you talked about the environmental issues with current salmon-farming methods and the challenges facing current salmon farming—the environmental challenges. Did your evaluators put forward any opinion on the scientific accuracy of the claims of the damage of open-net aquaculture?

Ms. Maria Aubrey: I will pass this over to Mr. Watson for the detailed answer.

Just as an initial comment, the reviewers focus on evaluating the information presented and whether there is substantive documentation and material to be able to get to an analysis of it. Sometimes they are not necessarily able to reach a conclusion. We need to make sure we have sufficient information to be able to start that evaluation.

Mr. Keith Watson (Manager, Screening and Evaluation, Sustainable Development Technology Canada): Our reviewers looked at the technical information provided by the proponents. Each of the reviewers has expertise in their own area. One has a master's degree in aquatic toxicology, and the other has a Ph.D. in aquaculture. Both are very familiar with aquaculture issues. They are familiar with the technical and scientific issues related to that, and they apply these to their analysis.

Their scientific information is based on the information available on various websites and in various technical government documents that are publicly available, and they're also watching with interest, as are the rest of us, the information provided by the Cohen commission. We will see the definitive information come out of a lot of the results of these scientific reviews.

● (1605)

Mr. Robert Sopuck: Thanks.

Again, I think we really need to be careful about statements that automatically assume something, because what flows from an assumption is often a program and contrary to a lot of people.... To me, on any topic, the science is never settled.

Ms. Emrick, do you believe that wild salmon populations are being negatively affected by net-pen aquaculture? Is that the position of Tides Canada?

Ms. Catherine Emrick: The focus of the salmon aquaculture innovation fund is specifically on a transparent assessment of closed containment technology and, underlying that, there is the debate on what are the nature and extent of the impacts of open-net aquaculture on the marine environment.

The turning point, in terms of looking specifically at closed containment, came at the workshop I talked about, and it came from the work that the Department of Fisheries and Oceans did on assessing whether there were potentially alternative technologies and on whether those alternatives should be evaluated. Really, the focus of the work we do is on looking at whether this is a viable alternative.

Mr. Robert Sopuck: I understand that, but again, the assumption behind all of these efforts is that there are environmental issues with net-pen aquaculture, and I think the science on that is clearly not settled.

Let me just point out to you.... I was given a quick e-mail from DFO. They talked about how in 2010 the Fraser River sockeye returns were 30 million, the best return since 1913. In 2011 that return was 4.5 million, which is an average return. They noted that 2011 was a good year in general for all salmon species, with Skeena River sockeye above expectations and Barkley Sound sockeye the same. Salmon Inlet on the central coast had a sockeye fishery for the first time in 15 years. The pink salmon return was doing very well, and 2011 was the best recreational salmon fishery.

I just hope that what we are doing is not a solution in search of a problem. Again, I find that all our witnesses gloss over the central issue, which is: does this affect wild fish and is this effort going to bear fruit?

Ms. Emrick, do you think the goal ultimately should be the complete elimination of net-pen aquaculture and a move strictly toward closed containment?

Ms. Catherine Emrick: We need to see the results of the demonstration projects in terms of understanding what the opportunity is with closed containment.

From the work I have seen to date and from the economic analysis I've seen to date, which has to be verified through these demonstration projects, where could I potentially foresee it going...? I think there are siting and density issues with some of the farms, so there is an opportunity to help better manage those farms through new technology.

A voice: Through new net-pens?

Ms. Catherine Emrick: Yes. I think there is some opportunity to better help manage those farms through technology as it evolves. In an ideal world.... Closed containment offers an opportunity to not just protect the marine environment, but also to farm fish in a better way in terms of giving them the best growing environment possible and creating the kind of growing environment where there are better feed conversion rates so there's a better use of feed.

As we start to explore the technology and look at it, I can foresee that in 10 years' time it becomes the production technology of choice, but we need to take this one step at a time, and the transparent and full assessment of the technology is the step that we need to take.

Mr. Robert Sopuck: One thing that really concerns me is that in terms of coastal communities, current net-pen aquaculture supports 6,000 full-time jobs in remote coastal communities.

The thing about closed containment, which is both good and bad, is that it can be done almost anywhere. Prairie Canada, where I come from, has very inexpensive land, hydro rates are low, and we're fairly close to markets. I can see that if we ever were to move to closed containment aquaculture only, there would be some serious employment impacts on remote coastal communities. Would you care to comment on that?

● (1610)

Ms. Catherine Emrick: I will. In terms of the salmon projects that I've been involved in, it appears that the optimum conditions are going to be slightly saline water. The best locations for those so far, both in terms of Marine Harvest Canada's assessment for their project and also in terms of the 'Namgis project, have been in remote coastal communities.

I know of other first nation communities that are assessing the potential for their communities. One of the witnesses that the committee might to hear from is someone from Coast Opportunity Funds, because I know they have been monitoring and have a significant interest in the potential for the technology.

Mr. Robert Sopuck: I think my time is up.

Thank you very much.

The Chair: Mr. Tremblay.

[*Translation*]

Mr. Jonathan Tremblay (Montmorency—Charlevoix—Haute-Côte-Nord, NDP): Thank you, Mr. Chair.

My thanks to the three of you for coming to help us with our study.

My first question is for the representatives from Sustainable Development Technology Canada. You have recently supported two projects, including one by William Cranmer of the Namgis First Nation.

Can you tell us about the second project, known as Middle Bay? You talked about it a little, but could you please tell us why you were interested in that project?

[*English*]

Ms. Maria Aubrey: Certainly. From a general project prospective, as I indicated earlier, the project was funded in 2007. It was one of the first projects that SDTC approved in this area. At the time, we utilized the information that was available in working with DFO.

One of the other things we also brought to bear was to make sure that the regulatory bodies and the people who were interested in the information were participating in the steering committees, so that we could have as much knowledge going in and understanding of the issues as possible.

That project is a $17-million project. SDTC has invested $5.7 million and, as I indicated before, it has been an evolution. That project is on water—not land—for closed containment.

Maybe I could pass this over to Keith, who can get a little more technical, since I'm definitely not on the technical side of the equation.

Mr. Keith Watson: Thank you.

The closed containment floating system is very unique in that it has a solid-wall system that floats in the ocean and isolates the salmon from the surrounding environment. It takes water in—you'll get this information, as I believe AgriMarine is going to present to you later next week—at depth, which avoids a lot of the potential contaminants, brings it into the tanks, circulates it in the tanks so that it has a current to keep the fish active, and then creates almost a vortex, a mild vortex, if you will, that's like a bathtub. It draws the waste out the bottom, takes the water away, separates out the solids, and recirculates the water back into the ocean.

It keeps the fish contained. It avoids a lot of the potential for contamination and transfer of disease. Of course, it's a multi-tank system, so you can stage the growth of the fish through various tanks. If for some reason or other you happen to come across a problem in one of the tanks, you can simply isolate it and move to another tank. It's an evolution, if you will, from the net-pen process to a solid-wall process, working on a lot of similar theories.

[*Translation*]

Mr. Jonathan Tremblay: If I understood correctly, the mission of your organization is to fund and support the development and demonstration of clean technologies and to act as a kind of catalyst for the establishment of technological infrastructures and sustainable development. You just explained those two aspects.

Can you tell us in more detail why those two projects in particular meet your criteria?

[*English*]

Ms. Maria Aubrey: When we evaluate a project, we look at it from all aspects of sustainability. The first thing it must have is innovation.

Innovation can be that it's new intellectual property being developed, or it can be that you're taking a technology that exists today and redeploying it to address a need. That's the very first thing. If there is no innovation, the SDTC does not fund it.

The second but equally important point is that there has to be a market and a need. Sometimes it's a push; sometimes it's a pull. It is up to the proponent to be able to express that—and also for us to validate that there is indeed a need.

The next one, of course, is that even though there may be a push or a pull, there must be the economics that will make it feasible. So having a business plan and a pro forma of how they're going to arrive at that are the things that need to be demonstrated.

The last one, which is equally important, is that it has to have environmental benefits. If it's just a technology that is good for the economy, we would not address it because of our mandate. It has to be clean water, clean soil, clean air, or reductions in greenhouse gas emissions. Our preference would be that it's a combination of those, because you get more for your investment.

When you take a look at each of those criteria, you can see that both of these projects have met them. The argument is whether there is sufficient requirement for the investment or industry can do it on its own. That's where we evaluate whether the investment is there, the level of risk required, and also whether industry is willing to step up to the table to evaluate it and say that if this is demonstrated they'll adopt it and take it to market.

● (1615)

[*Translation*]

Mr. Jonathan Tremblay: In your opinion, are the funding programs and levels currently available from the Government of Canada sufficient? If not, what should the Government of Canada do to help make things easier?

[*English*]

Ms. Maria Aubrey: Mr. Chair, am I allowed to make a pitch for SDTC at this point?

Voices: Oh, oh!

Ms. Maria Aubrey: We believe there's always a need. One of the things that SDTC does a lot is to push the applicants to demonstrate why they need federal funding. We try to leverage other opportunities, such as partnering with Tides Canada, encouraging investors communally, and so on. There's definitely a continued need for that.

We believe that it's not necessarily about more programs; rather, it's about defining which ones of those are working and providing results. We will continue to fund those, making sure that the results and their performance are accurately measured.

The Chair: Thank you very much.

Thank you, Mr. Tremblay.

Ms. Davidson.

Mrs. Patricia Davidson (Sarnia—Lambton, CPC): Thanks very much, Mr. Chair.

Thanks to our presenters. It's certainly an interesting subject. I think we're hearing a few things that are different from we've heard previously, so that's good too.

I was interested, as was my colleague Mr. Tremblay, in the difference in the two projects. I think this is something we haven't heard a lot about before. You were talking about the one project being on land, which is what we've been hearing quite a bit about, and then the other one being a floating one. Is it a true closed containment system? Is it called a closed containment system?

What happens to the waste? You said that it's a vortex. Is it dispersed into the ocean floor the same as in open-pen? What happens there?

What are the differences between the open-pen system and this? Are there any chances of escape? That was one of the things that we heard was a detriment to the open-pen system: the fact that there could be escapes that could hamper the wild salmon. Could you talk a little bit about that?

Mr. Keith Watson: Sure. The floating closed containment system is completely enclosed except, obviously, for the opening at the top. It's like a bathtub, but when it draws the material out of the bottom, it takes it into a separate area where the water is separated from the solids. The water is then returned to the ocean, but only after the solids have been removed. Of course, the solids include mortalities and things like that.

There's no way for the fish to actually get out of the solid wall. In fact, they have fences around the top and a netting over the top so the fish can't even jump out, if they were inclined to do so. So it will keep the salmon that are in the closed containment system separated from the wild salmon.

● (1620)

Mrs. Patricia Davidson: The solids, then, that you're talking about, the waste, they are treated the same as a closed containment system...?

Mr. Keith Watson: Right: they go to composting.

Mrs. Patricia Davidson: They're disposed of? Okay.

Maria, how do you protect the public funds? I know you go through a rigorous process, but how do you make sure the public funds are protected when you're doing this? When does your funding come into play? You talked about some partnerships and you talked about industry. Could you elaborate on that, please?

Ms. Maria Aubrey: Absolutely: thank you.

SDTC goes through a gated process of approval. One of the things we're very conscious of is of course the sensitivity to how much money small companies have. Over 93% of our applicants are small and medium-sized enterprises, with the emphasis on the "s"; therefore, we take them through a process where they can demonstrate their ability and provide information. Not asking them more or less than to take them to that next step is very important.

We often get referred to as a rigorous process. Companies do complain about it. The question always comes down to this: you are getting taxpayers' money and we're accountable for that. We need to make sure that the money is needed, that you are getting it, and that there are deliverables for it and so on.

Once we are satisfied that the project is needed, the components are always there, and the approval is done, we then have a second phase of due diligence, which is actually to sign a contract. At that time, we need to make sure the management is in place, the rest of the funding is in place, and all of the pieces in the project plan and the milestones have been defined.

At that time, a contribution agreement is signed, and SDTC, subject to the need for cashflow, can advance the first installment. If the company is in a good cashflow position, and they have demonstrated why they still need the SDTC money, then we may not advance them the money; we'll do it on a repayment. But as I said, 93% of the applicants are small companies, and therefore cashflow is king.

We advance them the first step. Once they've delivered that first milestone and they've demonstrated they've done what they needed to do, they've delivered.... Now obviously there's risk in a technology, so sometimes performance does not happen, needs to be restated, or taken in a slightly different direction. That's not necessarily a failure; it's just that we need the reporting and we need to make sure the expenses are there. At that time, we will advance them the second one.

Our team evaluates those expenditures. We do spot checks, but we also do audits. We have just finished our third compliance audit in five years. That doesn't include the Auditor General's audit or two interim evaluations. I'm extremely pleased to say that SDTC has received a recognition for all processes being in place, meeting the contribution agreement requirements, and determining that our process is rigorous but appropriate for the use of public funds.

Mrs. Patricia Davidson: Is there any difference between the SMEs that you referred to, which you said were 93%—and I guess you would call those commercial enterprises, if they're SMEs—and a first nation group? Is that the other 7%?

Ms. Maria Aubrey: The other 7% is actually large corporations. That's a challenging one: why does a large corporation that has a lot of money need to be funded by government funds? We sometimes get accused of putting them through a little more rigour, if you like, but the reality is they need to explain why they cannot fund those projects. Sometimes there's a return-on-investment target that their boards will not allow them to go ahead with. Sometimes there are other drivers.

Mrs. Patricia Davidson: One project that you're funding is a first nation group. It's treated the same as an SME, isn't it?

Ms. Maria Aubrey: Yes.

Mrs. Patricia Davidson: Thank you.

The Chair: Thank you very much.

Please go ahead, Mr. MacAulay.

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

Welcome to the committee.

What you're using is venture capital. You've been in business since 2001. You must have had some failures too?

● (1625)

Ms. Maria Aubrey: Of course.

Hon. Lawrence MacAulay: Yes, because if everything is successful in venture capital, it's not much of a venture capital.

Ms. Maria Aubrey: Absolutely.

Hon. Lawrence MacAulay: Also, Ms. Emrick, the $4.8 million currently, that's your total funding up to now, right? Was there more funding in the past?

Ms. Catherine Emrick: For the industry?

Hon. Lawrence MacAulay: In other projects, and this type of thing, for closed containment.

Ms. Catherine Emrick: Not through the salmon aquaculture innovation fund: the projects that I've discussed with you here today are the projects that have been funded.

Actually, I should clarify that. We have given small amounts on early design and planning feasibility funding. We did fund one other first nations project that they ended up deciding not to go ahead with. It was a small amount for feasibility funding.

Hon. Lawrence MacAulay: I'd like you to elaborate on whether you think there should be more regulations both on closed containment and on the open net. There are a lot of different opinions around this table, but we have seen examples of what lice have done. Perhaps it's right...but we've seen the fish. I'd like you to elaborate on what you think needs to be done in this area.

Also, I'd like an answer on something. My understanding was that it was more feasible to have the closed containment on land than on the water. Am I wrong? Also, when the solids are taken out, the water is released back into the sea, and they are distributed on land or whatever for fertilizer, correct?

A voice: Composting.

Hon. Lawrence MacAulay: Yes.

Could you elaborate on the regulations, please?

Ms. Catherine Emrick: Certainly. Thank you.

In terms of the regulation of open net-pen aquaculture, I think with the change in jurisdiction to the Department of Fisheries and Oceans and the work they've been undertaking in the last year, what we're seeing is the start of increased transparency and increased reporting.

I think if we can couple that with increased monitoring, particularly on the marine environment and wild fish—expanding the focus from monitoring of farmed fish to outside the farm—there is some potential to provide information that's useful and valuable to the public debate that's going on. I see that Fisheries and Oceans, in their licence, terms, and conditions, and in their regulation, are taking steps. It is early yet, as they introduce the new regulatory regime, but I think it is hopeful.

Hon. Lawrence MacAulay: Ms. Aubrey, you indicated, if I heard correctly, that you're funding two projects. You indicated that it was $15 million. Was that from the private sector? Or did I hear you properly? I'd like you to elaborate on what you're doing on these two projects.

Ms. Maria Aubrey: With the Middle Bay project, SDTC has contributed or has committed $5.7 million on a $17 million project. Primarily, the money has come from two sources: a company called AgriMarine, which is the one that has the intellectual property on the project and the one responsible for marketing it; and the Gordon and Betty Moore Foundation, which is interested in ensuring that the information coming out of the project can be made public and that people can learn from it. Then there were smaller contributions from the provincial government as well.

On the 'Namgis project, an $11-million project, there's $2.4 million from SDTC. The balance is coming from several sources. There are contributions from Tides Canada, some from DFO, and a little bit from Western Economic Diversification and Northern Affairs. Then there's the in-kind contributions from the first nation itself.

We have parameters around what we can or cannot fund. SDTC can contribute up to 50% of any project. Overall on the portfolio of 220 projects, we have to keep it under 33%, so if somebody gets 50%, somebody else is going to get an awful lot less. We try to make sure that the ones that are capable of doing it take some of the burden.

When you take SDTC plus any other government funding, be it federal, provincial, or municipal, it cannot exceed 75%. There has to be a minimum of 25% coming from industry.

● (1630)

Hon. Lawrence MacAulay: Did I understand correctly? Did you say that you had an MOU for the purchase of the salmon?

Ms. Maria Aubrey: Yes.

Hon. Lawrence MacAulay: I know there has to be a higher price for the salmon that comes out of the closed containment. Is it going to be profitable with the MOU or what? That's an interest.

Ms. Maria Aubrey: Middle Bay is the one that has the MOU. Middle Bay is a not-for-profit organization. The project was structured that way because it was the only way that the Gordon and Betty Moore Foundation could put in the money. They want to make sure that the information gets disseminated to the public.

The actual industry commitment is from AgriMarine. Their driver is to make money, otherwise they wouldn't be involved. Their board of directors and their shareholders would not otherwise be interested in this. They have raised capital from the market. They have gone public and raised money.

Hon. Lawrence MacAulay: Private sector money?

Ms. Maria Aubrey: Yes, and they have established an MOU with a large supplier, a well-known distributor. We have not received permission to disclose the name and there's a competitive side to this.

Hon. Lawrence MacAulay: The value: that's what we're interested in.

Ms. Maria Aubrey: On the value side, the key thing is that this distributor has given them targets of the price they will pay for the salmon. The closed containment will be able to meet those numbers.

The Chair: Mr. MacAulay, your time is up.

On behalf of the committee, I'd like to take this opportunity to thank you for taking the time out of your schedules to be here today. It has been very informative. We appreciate the information you've shared with the committee today and we look forward to discussing it further with you.

We'll take a short break while we set up for our next guest.

● (1630)

(Pause)

● (1635)

The Chair: I'll ask committee members to take their seats so we can resume our meeting. We're ready to begin.

Mr. Holder, I'd like to thank you for taking the time to appear before the committee to make a presentation and answer any questions the committee members might have.

John Holder, president of JLH Consulting, is with us, committee members.

Mr. Holder, if you want to proceed, please go right ahead.

Mr. John Holder (President, JLH Consulting Inc.): Thank you very much for having me here today.

What I want to talk about today basically is land-based salmon farming here and all over the world. It's a recirculation system. I'm more familiar with coho than Atlantic salmon in this aspect.

I did send a powerpoint presentation that's far longer than 10 minutes. Have you had a chance to look at that?

The Chair: Yes, Mr. Holder. It has been circulated to all committee members.

Mr. John Holder: Okay. I just want to highlight a few things.

First of all, I'd like to tell you that there has not been an Atlantic salmon farm in North America, but there are three operating coho farms in the States and one in British Columbia.

Of the three in the States, one has been going for a number of years and the two others are in Montana. They'll have their first crop of coho salmon in December. Their technologies are the ones that I have developed.

The one in British Columbia is at Agassiz. It's owned by the Aquilini family. They're also in the process of building a 1,000-tonne farm here in B.C., in Pitt Meadows.

So it's here: land-based salmon farming is here. Not necessarily for Atlantics, which I'd like to explain as I go along, but for coho freshwater, definitely.

I'll go to my presentation on coho. For coho, we can get a 3-kilo fish—from first feeding to 3 kilos—in 12 months, and all in fresh water. You can also do it in brackish waters, if you wish.

The reason we can do this is the biology of the animal. It adapts very well to fresh water and, through photoperiod manipulation, not the use of any hormones or drugs or anything like that, we can get four entries per year. That is what makes it feasible. Through photoperiod of the brood and the chilling of the eggs, every 13 weeks we can supply a crop of eggs.

Also, the growth curve on coho is very dynamic, as you see on one of my slides: basically, it goes from 0.1 gram to 3 kilograms in one year.

Now, the problem with the Atlantics—if there is one—is that we cannot get four supplies of smolts per year from most hatcheries. If they were set up to do it, you probably could. You could get at least three, but getting four would be hard to do. Also, getting disease-free Atlantic salmon is very hard to do. The coho we have here in British Columbia is certified by DFO as disease-free, which makes it more feasible.

Also, the average harvest weight is 5 kilograms for Atlantic salmon, not 3 kilos. We can get a 5-kilogram fish in less than one year from a 100-gram smolt, but to get a 100-gram smolt for Atlantic salmon takes seven or eight months. So for Atlantic salmon, you're looking at a 20-month period instead of 12 months. Mind you, you have the extra 2 kilograms of weight per fish.

The growth curve for Atlantic salmon is very similar to that of coho; on one of my slides, you'll see that it basically goes from 100 grams to 3 kilograms in 42 weeks. This has been documented by the Freshwater Institute. These types of growth rates can be achieved, but still, it's under ideal conditions.

This is not fiction. This is actually happening. In my powerpoint presentation, I sent some renderings of the different equipment. It's not rocket science. It's straight RAS .You have your solid removal. You have your nitrification from ammonia to nitrate. You have your CO_2 stripping, and you have your oxygen addition and temperature control.

I also threw in the different stages. You have first-feeding smolt, and the cost for those, roughly, came out to about 77¢. But what I really want to get into is the next stage—when we take them from 30 grams to about 3 kilograms—and the cost there. I didn't show you the layouts of the different stages, but I want to get into the cost of production. In the cost of production, you have your separate hatchery, which takes them to 30-gram smolt, and then you move them over into your smolt stage, your juvenile stage, and your grow-out stage.

All of this has been calculated. It has been backed up by the farms in Montana and the farm in Agassiz. The cost of production is roughly $1.97 per pound for coho. Coho right now is selling for $3.50 to $4 a pound, ungutted, so we see that the margin there is quite good.

● (1640)

Now you might say, okay, it's a niche market, and there's not a huge demand for coho. But each farm is capable of doing 1,000 metric tonnes. With respect to the market, Overwaitea—that's Save-On-Foods—alone has said they'll take 5,000 kilos tomorrow if we can produce them, and that's just here in B.C. The market is growing. There's interest in British Columbia and the United States. I've designed two farms for Ontario, which are going to start construction in the spring. Like I said, it is happening.

You can look at the pie graph here. The big thing about any farming operation is feed costs, which should be roughly 50% of your total cost. On that graph of coho cost of production, for three kilos it's slightly under 50%, but it's close. I believe it came in at 42%. We could probably improve on that a little bit.

The big thing about our technology is the ability to get the power requirements down. In the past for most systems, for a pound of production, say, the kilowatts per hour would be three to four. We're down to 1.1 or 1.2, or in that range, and that doesn't include your heating and cooling.

For heating and cooling, if you look at my table here, it's roughly 13%, and it works out to be about 30¢ per pound. We're working with Andy Wright—I think you've already interviewed him—on capturing that heat, and theoretically we can shave that off by 70%. If we're successful with that, the cost of production would not be $1.97, but $1.76, so we're very well positioned to compete in the marketplace.

Unfortunately, with Atlantic salmon, it's a commodity. Coho salmon is not a commodity as yet. It's still a niche market. With the Atlantic salmon, you're looking at $2.50 at the lowest, up to well over $4 a pound, but you have to base everything, I believe, on the lower price. If the coho ever got down to $2.50 to $2.75 a pound and if we had our costs down to $1.70, we'd still be well positioned in the marketplace to make money.

Now, for electrical use, as I said, we're down to just a little over a kilowatt per pound. In B.C., we're very fortunate to have relatively inexpensive power. But that's all relative. There are areas of New York State where power is even cheaper than B.C. In Ontario, it's the same basic cost per kilowatt hour, so we're very well positioned to compete in that market.

Everybody's talking about the 100-mile diet. If you use fresh water, these farms can be put in urban areas, not necessarily rural ones. They do not have to be near a body of water. With our technology, we can get down to 5% replacement per day. We're also looking at pairing our RAS systems with aquaponics, so that water would be used in the growing of herbs, vegetables, lettuces and so on—basically, anything green.

We're also looking at sequestering the carbon dioxide and using it to grow algae for fish meal replacements, pharmaceuticals, and biodiesels. I'm really excited about the future this has.

In summary, the total energy is, as I said, 40¢ a pound, and 30¢ of that is heating and cooling. This varies where you are in the country. On the west coast here, it's very economical. We can grow these fish in inexpensive structures, like a strong greenhouse or any type of greenhouse. If we move inland, we'd have to put them into a steel building like they did down in Montana, but then their energy is quite inexpensive for heating and cooling because of the insulated building.

The big thing, of course, is capital. In the past, these ventures were quite expensive. You're looking at $12 or $13 per kilo of production. Now we're down to $8.50. If you do the financials on that, your return on investment is over 30% with a 5% depreciation. You can do even better than that with other cost-saving devices that we're still in the research stage on. Still, $8.5 million is a lot of money, and it's not for people who do not have that type of ability to raise that capital.

● (1645)

To sum up, because I know we're on a tight schedule, with closed containment, we can exchange 5% to 20% of the volume per day. We have minimal energy expenditure, in my opinion, with the technology we have today. Capital is roughly $8.50 per kilogram produced. With coho salmon, we're very fortunate to have a disease-free stock. They're also indigenous to B.C. They're also in the Great Lakes, of course, in Ontario.

With coho, first feeding to 3 kilos in 12 months makes your return on cash very quickly. With Atlantic salmon, it's 100 grams to 5 kilos in 42 weeks, but then you have to add 18 weeks on to that for your smolt. One thing about closed containment,and the different averages per year is that we have product available throughout the year, which makes it even more viable.

I went through there pretty quickly, so I hope....

The Chair: I appreciate that, Mr. Holder. Thank you very much.

If you don't mind, maybe we can move right into questions now. Members can ask you some questions about some of the details you provided.

We'll start with Mr. Kamp.

● (1650)

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

Thank you, Mr. Holder, for appearing before us.

Can I begin by asking for a very brief summary of your education and past experience and what you bring to this industry?

Mr. John Holder: Sure: University of Guelph, 1973, in marine biology, fisheries, and wildlife. I went into the aquaculture business in July of that year, so I have 38 years in the business.

For the last 11 years I've been a consultant. Prior to that I worked for large multinational companies, such as Pan Fish, for example, and International Aqua Foods. Before that, I started in the industry in Newfoundland, down in Bay d'Espoir. Prior to that, I was a trout farmer in Ontario. I also have clients on six continents.

Mr. Randy Kamp: That's impressive. Is most of your experience in closed containment or were you in open net-pen aquaculture as well?

Mr. John Holder: I was never in open-pen aquaculture. It has always been land-based.

Mr. Randy Kamp: Now, if it's all land-based, then is the water source a big challenge or...?

Mr. John Holder: Well, for example, in a 1,000-tonne farm, if you exchange 20% of the water per day, you're looking at 250 gallons a minute of well water. That's still substantial, but in a lot of areas in this country that's available. If we do a 5% exchange, we're cutting that down by three-quarters, so we're only looking at 50 gallons, 60 gallons, or 70 gallons a minute for 1,000 tonnes of production.

Mr. Randy Kamp: In your presentation, one of your points was this one: “Purge harvest sized fish 5-7 days before slaughter”. Can you explain to me what that means?

Mr. John Holder: With recirculation systems, because we're using the water over and over, there are two compounds—geosmin and MIB—which give the fish an off flavour, like a muddy taste, so we have to purge the fish in fresh water for at least five to seven days before we sell them.

For example, we're bringing 250 gallons of water into the 1,000-tonne farm. That would go to the purge system first and then on to the rest of the fish. That takes the geosmin and MIB out of the fish.

Mr. Randy Kamp: Thank you for that. I was unaware of that being necessary, so I appreciate it.

Did you develop the technology for the farm at Agassiz and will you also be doing the one that's going to be built in Pitt Meadows?

Mr. John Holder: That's correct.

Mr. Randy Kamp: For the one at Pitt Meadows—which of course is in my riding, so I have some interest in that—is that going to be on the Aquilinis' current agricultural property, as far as you know?

Mr. John Holder: Yes, we hope so.

Mr. Randy Kamp: Okay. Maybe the costing is in your presentation here. I'm not sure if it was included in your depreciation line, but how does the return on investment look if you don't own the property and you have to buy it somewhere? For 1,000 tonnes, what's the footprint size of the one in Pitt Meadows?

Mr. John Holder: It is 75,000 square feet, so it's roughly two acres.

Mr. Randy Kamp: Have you run the numbers or are you simply on the technology side in terms of costing in the purchase of land in order to build a fish farm?

Mr. John Holder: No, we haven't done the purchasing of the land, because it's so variable. What we have done with the return on investment is your cost of borrowing the full amount of money, your capital to operate, and your selling price at $4 a pound in the round, so then we have to take 10% off that for head-on, gutted.

Mr. Randy Kamp: Right.

Now, we may need to ask somebody else this, but if you have it on land in a place like Pitt Polder in Pitt Meadows, for example, the land use authority would then be the City of Pitt Meadows and the actual operation would be regulated, I assume, by the Department of Fisheries and Oceans. But would the land use decisions then be made by the city? Also, does this trigger any kind of environmental assessment at all, like it would if it were a floating one, for example?

● (1655)

Mr. John Holder: Yes, the Department of Fisheries and Oceans is the lead agency. The land is already designated as agricultural, so aquaculture comes under that.

But because we're extracting and discharging water, we have to go through the Ministry of Environment and also the Ministry of Agriculture and the Ministry of Fisheries. They still have to do their assessment.

To get the permit, we have to do a management plan and it has to be given to the various government agencies, so it's not a rubber stamp.

Mr. Randy Kamp: Does that trigger an environmental assessment under the federal environmental assessment? No...?

Mr. John Holder: No, it hasn't in the past. Now, I'm not sure if that's going to change with DFO being the lead agency, but it hasn't in the past.

Mr. Randy Kamp: Okay.

What are the densities in these tanks with coho salmon as compared to Atlantic salmon?

Mr. John Holder: The final density is 65 kilos per cubic metre. With Atlantic salmon, it's roughly the same.

Mr. Randy Kamp: So can you make a profit at 65 kilos?

Mr. John Holder: Yes.

Mr. Randy Kamp: We've had other witnesses say they could push it up maybe 50% above that. Have you had experience with greater than 65 kilos?

Mr. John Holder: Yes. We design it for 65 kilos, but we have a 20% buffer, so if you add another 13 kilos you're looking at 78 kilos to 80 kilos.

But the problem with that is that as soon as you start pushing things like that.... The fish are disease free, but you also have to give them an environment that is low in stress. Disease-free means that the pathogens are probably still there, but as long as the fish are there in low numbers and as long as you keep the densities and stress low, the fish will not express that disease.

We design it so that at 65 kilos the fish are not stressed and everybody is happy, but yes, you can go up to 80 kilos.

Mr. Randy Kamp: Maybe we'll see you in Pitt Meadows some time. Thank you very much.

Mr. John Holder: I'm looking forward to that.

The Chair: Thank you, Mr. Kamp.

Mr. Toone and Mr. Cleary, I believe you're going to share your time.

[*Translation*]

Mr. Philip Toone (Gaspésie—Îles-de-la-Madeleine, NDP): Thank you, Mr. Holder. Your presentation was really very interesting.

I am especially interested in the opportunities for small and medium-sized businesses. They are growing rapidly. But, just like my colleague Mr. Kamp was wondering about production density, I am concerned about the barriers that might be encountered by small and medium-sized businesses trying to get into the market. I believe that it is interesting to consider this as a generator of jobs. Your statistics on employment are very interesting. The market seems to be nicely open for jobs. It is also clear that it could result in benefits for our coastal communities, since it would relieve the pressure on the wild stocks in the world's oceans.

But I still think that there are obstacles in creating new companies, especially small ones, as opposed to medium-sized ones. You briefly mentioned access to capital. To what extent are government and financial institutions, like banks, for example, receptive to this industry? To what extent do those businesses need federal government support? And finally, on the subject of small businesses, what kind of specific support do they need to start up in the aquaculture industry?

[*English*]

Mr. John Holder: That's a very good question and a very good point.

On the 1,000 tonnes, that's what the Aquilinis want to do, because they're big players. They have the dollars. They don't have to go to the banks.

I just designed a 100-tonne farm. The price of capital for the equipment came in at $620,000. The operating cost is slightly more than that $1.97, but getting the banks to lend private individuals money is next to impossible. Also, the process of applying for grants is onerous and the success rate is not that high.

For us to expand this business to the mom-and-pop shops—that's a name I give it—they need provincial or federal help—loan guarantees or whatever—because the banks do not lend money for aquaculture ventures. Community Futures has lent money in the past, but when they start paying it back it ends up that the interest rates are very onerous. It's tough for the small entrepreneur to get into this market.

The 1,000 tonnes is not a requirement. The farms in Montana are 160 tonnes and are still profitable. That came in at about a million dollars in capital. Still, a million dollars is a lot of money. That employs I think five people. The 100-tonne farm would employ four people as well. They're not huge employers, but still they're profitable, and they will take pressure off the wild fishery.

● (1700)

The Chair: Thank you, Mr. Holder.

Mr. Cleary.

Mr. Ryan Cleary (St. John's South—Mount Pearl, NDP): Thank you again, Mr. Chair.

Mr. Holder, you mentioned that you began your career in Bay d'Espoir, which is my neck of the woods in Newfoundland, and you've always worked in closed containment aquaculture. I heard you say that, right?

Mr. John Holder: I did start my career there. I had already been in the business for 12 years. I went there in 1985. I was the manager of the hatchery. I designed it and ran it for three years. But I haven't worked in the net-pen field.

Mr. Ryan Cleary: Here's my question. For an area like Bay d'Espoir, which has an open-pen industry that employs a fair number of people in Bay d'Espoir, what kinds of opportunities are there for your technology and for this closed containment aquaculture? What kind of opportunities are there for a rural area like Bay d'Espoir, which already has an open-pen industry?

Mr. John Holder: Well, unfortunately, with Bay d'Espoir, they're doing Atlantic salmon, and the margins aren't as high on Atlantic salmon as they are with coho. The one advantage I can see for Bay d'Espoir is that we would have a controlled environment. I've designed closed containment farms for Bay d'Espoir for farmers in the past, but they just couldn't get the capital to do it, and the difference in market price wasn't warranted.

Mr. Ryan Cleary: I have one quick question. You mentioned a 100-mile diet. I'm sorry, but I haven't heard that before. Can you expand. What does that mean?

Mr. John Holder: Maybe that's a B.C. thing. People now are starting to say that we have to eat things that are produced within 100 miles of ourselves to cut down our carbon footprint. It's a movement. I'm not sure if it started in B.C., but it gets a lot of press where I am.

For these rural farms, transport and energy are going to be big things in the future. If we can have our food produced within 100 miles of a major city, you're going to save a lot of money in freight and of course the freshness of the product.

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

Mr. Allen.

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

Mr. Holder, thank you very much for being here.

I have a few clarification questions. On the technology that you've actually developed for coho, can you give us a brief comparison? How does that compare to the 'Namgis facility? Are you aware of that facility and the technology they're using? How does yours compare with that?

Mr. John Holder: Yes. Actually, I was the first consultant who designed the 'Namgis facility. I designed three different biofilter systems: the fluidized sand bed, the moving bed bioreactor, and the microbead filter.

The cheapest was the microbead filter. But unfortunately with the 'Namgis, politics got into it, and Tides Canada and Save Our Salmon and whatever are funded by fairly large organizations like the Gordon and Betty Moore Foundation, and Tides Canada has gone into partnership with the Freshwater Institute so they decided to use their technology.

The difference is that they were going to use the fluidized sand bed and now they're going to do the microbead biofilter. Their project is going to produce a little over 300 tonnes a year for $7 million. I'm going to produce 1,000 tonnes for $8.5 million. I'm going to use half the power. So I just have to shake my head.

● (1705)

Mr. Mike Allen: Thank you.

Mr. John Holder: When politics gets into it, it's bad.

Mr. Mike Allen: I guess that's why we don't want to get government money in it, too.

I have a question on the Montana facility. You told Mr. Kamp you had a two-acre facility in Montana, a covered facility of 160 tonnes. How large a building do you have to cover that? How big is that footprint?

Mr. John Holder: It's 100 feet wide and 250 feet long. Fifty feet of that is the processing plant, so basically the plant went into a hundred by two hundred feet—half an acre.

Mr. Mike Allen: Would that be scalable up to larger sizes or would you have to build on new modules?

Mr. John Holder: Every farm is different. That was designed for 160 tonnes. So to scale it up, they could build another facility right beside it or from scratch and they could do 500 tonnes or 1,000 tonnes. We would have a slightly different layout, but it's totally scalable. I can do 10 tonnes, 50 tonnes, or 10,000 tonnes.

Mr. Mike Allen: Can you quickly go back...? You mentioned the differences between the coho and the Atlantic salmon, with the Atlantic salmon being a commodity product and also having a higher cost. You indicated $1.97 a pound for the coho, and I can see this on one of your slides. What did you say the Atlantic salmon was? You didn't see a situation where you could get it under $2.50 a pound...is that what you were saying?

Mr. John Holder: No. It sells for around $2.50 a pound at the lowest market value. I think the cost was around $2.17 a pound, so it's pretty close. There are specialty markets where you may get a premium price for the Atlantics, but right now it would be hard to do, I think, because a dollar is a dollar and most people will not spend that premium. But for the coho market, for Whole Foods, Wild Oats, whatever, that type of grocer will spend the extra money for the coho.

Mr. Mike Allen: Okay. You've taken me to the competitive market, then. That's one of the things I've always wondered about. If we were to bring the Atlantic salmon into closed pen and look at that cost factor, it appears to me that for a lot of the other countries we're competing against, if they don't do the same thing, we're going to be out of that commodity market.... Does coho have a special market niche so that you don't see that competition from other countries?

Mr. John Holder: Chile does coho, but they're thousands of miles away from the market.

Go back to the 100-mile diet. We can set up close to the markets, which is going to cut down our transport cost. We're not producing 100,000 tonnes. In B.C., we're only producing possibly 10,000 tonnes. In Japan, there's interest in building 10,000-tonne farms. In China, three or four people are interested in doing 10,000-tonne farms.

In B.C. we do 80,000 tonnes, so we're not trying to out-compete the Atlantic market. We're trying to find another market for coho, which is a very good fish.

Mr. Mike Allen: Do you see—

Mr. John Holder: So yes, it's going to be hard if we legislate our net pens on land.

Mr. Mike Allen: Do you see any issues with moving this into less rural areas and closer to populations? Do you see a situation where...? Are there going to be extra waste water treatment loads with the facility when you do that or do you see that as being a problem?

Mr. John Holder: No, I don't see it as a problem, because the technology is there now such that we can handle that waste. Waste is money as well. There are different streams we can use: fertilizers, composting, and constructed wetlands.

Now, that 75,000 square feet or two acres did not include the hydroponic section or constructive wetland. The constructive wetland would be another half acre. But all that water would go back to ground, so we don't need sewage treatment plants or landfill facilities to take the waste. The feces can be composted and used as garden fertilizers or in silviculture. The guts, the offal, can be rendered down for pet foods and for mink food. There is also money in waste. The CO_2 from the fish can be sequestered into the hydroponics—algae growth.

And we can control all this. This is the nice thing about it. With net pens, you can't control it.

● (1710)

Mr. Mike Allen: Thank you, Mr. Holder.

The Chair: Thank you very much.

Mr. MacAulay.

Hon. Lawrence MacAulay: Thank you very much, Mr. Holder. It sounds like you have a reasonably successful operation.

Mr. John Holder: I'm doing okay.

Voices: Oh, oh!

Hon. Lawrence MacAulay: I think so. It's quite a thing for politicians to hear that somebody is making money—and a good bit of it—but it's good.

Mr. John Holder: Yes, but here not in Canada—

Hon. Lawrence MacAulay: Are there proper regulations in place? Do we need more regulations in place or is it regulated properly? Are you concerned about disease?

Also, did I understand you correctly? Did you say that from the water that you take out of the ground you take the sediment out and you use that for fertilizer and then the water goes back into the ground again? Is that correct?

Mr. John Holder: Yes, it can go through what we call a constructed wetland, so it's a marsh. It goes back into a marsh, basically, and then it percolates back into the ground table.

Hon. Lawrence MacAulay: Also, do you see eco-certification becoming an issue here in order to make your product worth even more money? It's certainly something that's here. You are dealing with disease-free fish. Do you see eco-certification coming into play in order to make self-containment even more valuable?

Mr. John Holder: Right now there are a lot of NGOs and organizations that offer this certification. For example, at Sweet-Spring Salmon in the State of Washington—I designed their farm—they have the first double green certification from the Monterey Bay Aquarium, so they're fully certified under that program. But there are other programs, so yes, the answer to your question is a very big yes.

Hon. Lawrence MacAulay: It will mean that your product will be worth more money, and if it does not receive the certification.... It's something like what happens in the agricultural sector: people pay more. You talk about how a dollar is a dollar, but people pay more for organically grown vegetables than vegetables that are not grown that way. Do you see that coming into play some way in your industry?

Mr. John Holder: Very much so.

Hon. Lawrence MacAulay: In my opinion, for what it's worth, this eco-certification is going to decide what's sold and what's not sold and for how much.

Mr. John Holder: I agree—and also public opinion. Unfortunately, net-pen farms have lost the public's confidence.

Hon. Lawrence MacAulay: You're telling me, too, that your farm can be set up anywhere. If you want to set up outside of Chicago, if you have two acres, you can do it.

Mr. John Holder: Basically yes, as long as the land price is not exorbitant.

Hon. Lawrence MacAulay: Anyhow, technology can take over jobs. It has done it and it looks like it could be on the way in your industry, too.

Thank you very much.

Mr. John Holder: I agree. You're welcome.

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

Mr. Holder, I want to take this time to thank you on behalf of the committee. We really appreciate you taking the time out of your busy schedule to appear before us and provide us with an abundance of knowledge and information. I really do appreciate that. Thank you once again on behalf of the entire committee.

Mr. John Holder: You're very welcome. Thanks for having me.

The Chair: Thank you.

We have one more item of business before we adjourn. I've been given notice of motion. I'll ask Mr. Toone to read that motion.

Mr. Philip Toone: It is regarding the supplementary estimates (B):

> That the Standing Committee on Fisheries and Oceans consider the Supplementary Estimates (B) on or before December 6, 2011, pursuant to Standing Order 81 (5), and that the Minister be requested to testify.

The Chair: Thank you, Mr. Toone. Notice has been given. I've asked the clerk to set aside the second hour on Tuesday for us to consider this motion.

The other item I might have discussed with some of you in regard to bringing it forward today is the budget for travel for the committee. We'll discuss that on Tuesday in the second hour as well.

There being no further business, I would consider this meeting adjourned.

Published under the authority of the Speaker of the House of Commons

SPEAKER'S PERMISSION

Additional copies may be obtained from: Publishing and Depository Services
Public Works and Government Services Canada
Ottawa, Ontario K1A 0S5
Telephone: 613-941-5995 or 1-800-635-7943
Fax: 613-954-5779 or 1-800-565-7757
publications@tpsgc-pwgsc.gc.ca
http://publications.gc.ca

Also available on the Parliament of Canada Web Site at the following address: http://www.parl.gc.ca

Publié en conformité de l'autorité du Président de la Chambre des communes

PERMISSION DU PRÉSIDENT

On peut obtenir des copies supplémentaires en écrivant à : Les Éditions et Services de dépôt
Travaux publics et Services gouvernementaux Canada
Ottawa (Ontario) K1A 0S5
Téléphone : 613-941-5995 ou 1-800-635-7943
Télécopieur : 613-954-5779 ou 1-800-565-7757
publications@tpsgc-pwgsc.gc.ca
http://publications.gc.ca

Aussi disponible sur le site Web du Parlement du Canada à l'adresse suivante : http://www.parl.gc.ca