



http://www.bclocalnews.com/bc_north/thenorthernview/news/39692464.html

Aquaculture ruling a double-edged sword, says MP

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The recent ruling that fish farming is actually under federal jurisdiction, and not the province's, is a double edged sword, according to Skeena-Bulkely Valley MP Nathan Cullen.

On the one hand, the benefit of the ruling means that just one authority is in charge of cleaning up any fish farm mess and provides a "more clear target" where Cullen and others can focus their work.

Yet on the other hand Cullen said the Department of Fisheries and Oceans (DFO) does not have a great track record protecting wild salmon stocks.

On February 9 the B.C. supreme court ruled that it is the federal government, not the B.C. Government, that has the jurisdiction to regulate salmon farms. The fish inside a farm are now considered a fishery, as opposed to agriculture. The ruling has been suspended for 12 months, time for the Federal Government can bring in proper

legislation.

"They seem to be completely blind sided by this in Ottawa," said Cullen.

"They pretend that they just didn't know that this was coming or was a possibility and have no plans as to what to do with fish farms on the west coast."

He said the DFO now finds itself in a conflict of interest in that they are both promoting fish farms and are now the rule makers of it as well.

"The minister seemed to indicate that they would have some sort of ability in the next year to pass responsibility back to the province," Cullen added.

"I'm not sure that she's read the court ruling because that's the opposite of what it says."

Taking fish farms out of the province's hands is a good thing as Cullen thinks that there were too many political, and financial, connections between Campbell's cabinet and the fish farm industry.

What Cullen sees happening now is that the Department of Agriculture in Ottawa will take up the pollution aspect of fish farms in particular.

Cullen has seen a lot of evidence from that department, from rulings on hog farms, that the department will have to come down equally as hard on the fish farm industry if they are polluting the

water.

The news is even positive considering the ruling takes fish farms out of the jurisdiction of any future provincial government after the May 12 election, including the

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NDP.

“Whether it’s a Carole James government or a Gordon Campbell government, my argument has always been that we need to clean up this mess and get these farms contained on the land or closed down,” said Cullen.

“This is, I think, one step towards it.”

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Court rules province not to regulate fish farms



The B.C. Supreme Court has ruled that regulation of highly-controversial salmon farms off B.C.’s West Coast will now be conducted solely by the federal government.

Photo courtesy of the B.C. Salmon Farmers Association

The B.C. Supreme Court has removed the provincial government’s shared power to regulate salmon aquaculture and handed it solely over to the federal government, in a decision that has environmental activists declaring victory.

The Court made its ruling on Feb. 9, giving the B.C. government a year to comply. In a press release issued by the Western Canada Wilderness Committee, research director Geoff Senichenko called the decision a “huge victory for wild salmon and the marine environment,” as a single authority could enforce environmental regulations more efficiently.

Paula Galloway, head of member and community relations for the B.C. Salmon Farmers Association, said her organization is studying the ruling carefully, but that they will comply with any new regulations.

She said she is not worried about the impact of the decision.

“I think in the long run, it doesn’t matter so much who is regulating it.”

In Ottawa, Skeena-Bulkley Valley MP Nathan Cullen was not pleased with the Court’s decision, saying it would create a “conflict of interest.”

“They are promoting fish farms and also planning to be the regulators,” he told The Interior News.

Cullen said the ruling would be “a benefit for us in one sense and a real danger in another.”

The benefit, he explained, would be one authority would oversee fish stock, but “the downside is that DFO has not had a good track record of protecting wild salmon stocks.”

“The Department of Fisheries doesn’t have a sterling record with us in the Northwest,” he added. But the province was no better, Cullen said, describing the provincial government as “ethically polluted by the fish farming debate.”

“Removing it out of Gordon Campbell’s government is not a bad thing at all.”

“I would say it’s probably quite a touchy subject for a lot of people right now,” Dr. Brian Harvey, a prominent fish biologist, said.

"I haven't really talked to anyone. I don't really want to talk to anyone about it," he said.

Harvey acts as a consultant on aquaculture for the federal government, having previously run an NGO for 10 years called Word Fisheries Trust. He has recently authored a book, *The End of the River*, which deals with the impact political decisions can have on fish stocks around the world, including in British Columbia.

Governments have grappled with the problem of how to regulate aquaculture for many years, he said.

"A lot of it depends on whether you consider salmon farming a fishery."

"I see the regulation of salmon farming in my mind, and this is my gut feeling about it, it's a different process from regulating a fishery. So I'm not sure how those two will dovetail."

Recently, the Department of Fisheries and Oceans has operated pilot projects that may create an environmentally-sound option for salmon farmers.

The department is testing multi-trophic aquaculture, in which several species are grown in the same pen.

In the Bay of Fundy, for example, DFO has successfully grown mussels and kelp together with salmon. A similar, but smaller-scale project is taking place off Vancouver Island. The mussels and kelp absorb waste, such as leftover food pellets, making the farm less polluting. Industry profits as well since they can market all three products.

Cullen said that in general, he would like to see the aquaculture industry pollute less. "

"We're encouraging the industry to clean up it's act." But he added that the very idea of "dumping a bunch of Atlantic salmon into the Pacific" troubled him.

"We have that net as the only barrier [from] potential disaster."

http://weblogs.baltimoresun.com/news/local/bay_environment/blog/2009/02/oysters_get_a_partial_airing_i.html



A way forward on oysters, or walking away?



Lawmakers in Annapolis got an earful about oysters yesterday, but still missed a few voices.

Maryland has been trying without much success for the past two decades to rebuild oyster populations in the Chesapeake Bay after they became infested by a pair of diseases in the late 1980s. The head of a blue-ribbon task force studying the issue told legislators that the state needs to ramp up its efforts and redirect them if it wants to help the bay and watermen at the same time.

William Eichbaum, head of the 21-member [Oyster Advisory Commission](#), told members of the Senate Education, Health and Environmental Affairs Committee that the state needs to separate its efforts to help the bay's oysters from its attempts to aid the similarly faltering oyster industry.

The best chance for bringing oysters back from the diseases that have devastated them is to establish "large-scale" sanctuaries, he said, where reefs could be rebuilt and planted with oysters that would be protected long-term from commercial harvest. Entire creeks or rivers ought to be put off-limits, he said, to enhance the chances of oysters to survive the diseases and thwart poaching, which Eichbaum said was a serious problem.

Meanwhile, he said, the state should provide training, start-up grants, loan guarantees and maybe even insurance to watermen so they can "transition" from taking wild oysters from the public bay bottom and become oyster farmers, raising shellfish on leased plots of bay bottom or in floats on or near the water's surface.

Eichbaum made clear he was not advocating eliminating the public oyster fishery that has existed for centuries in Maryland. But he urged that it be regulated more tightly in the future, limiting catches to what the wild population could sustain without annual replenishments of state-funded, hatchery-reared baby oysters.

Committee members asked few questions, though Sen. Richard F. Colburn, an Eastern Shore Republican, urged the state to move ahead with plans to dredge up fossil oyster shells from the bay bottom at a spot known as Man-o-War Shoal. The state has applied for a permit to dredge the shells, which it says will help rebuild oyster reefs buried amid mud on the bottom. But the dredging is opposed by recreational fishermen, who say they fear it will harm a favorite fishing spot.

The panel then heard a related O'Malley administration bill seeking to overhaul the state's ancient laws governing leasing of the bay bottom, which officials described as a major hindrance to the growth of shellfish aquaculture in Maryland.

The laws date back to 1830, pointed out Natural Resources Secretary John R. Griffin. He said the state was poised to help watermen get into oyster aquaculture, earmarking up to \$2 million of about \$13 million in state and federal funds approved to help watermen affected by crabbing woes.

Donald Webster, head of the [Maryland Aquaculture Coordinating Council](#), said the leasing law reform proposal grew out of a "recognition if we don't do something soon, we're not going to have much left." Oyster harvests in recent years have been less than 1 percent of what they were historically.

Larry Simns, president of the [Maryland Watermen's Association](#), said his group supports the leasing changes because the prospects for a public oyster fishery look dim right now. But he warned that aquaculture won't restore the lost oyster abundance of the bay, since the oysters planted by growers will be removed for sale.

Simns also warned that the advisory commission's vision of restoring the bay's lost oyster abundance also may falter if the state doesn't spend at least \$40 million a year over the next decade on rebuilding reefs and reseeding them with baby oysters. But such money is unlikely in the current budget crisis, speakers pointed out.

Finally, Simns said he believes the real impediment to reviving the bay's oysters and oyster industry are the diseases [MSX](#) and [Dermo](#), which kill the shellfish as they reach maturity. Virginia and Maryland watermen and seafood processors have urged the introduction of Asian oysters, which resist the diseases and grow rapidly. But scientists and environmentalists oppose bringing an alien species into the bay, warning it could cause ecological havoc.

While introducing a non-native Asian oyster to the bay may have its risks, Simns said, he'd rather take that chance than gamble on what he termed long-shot prospects of restoring native oysters.

Not invited to testify, though, were leaders of the [Maryland Oystermen Association](#), whose members still ply the bay harvesting oysters. Jim Mullins, one of the group's board members who sat in the audience, said later that the plans outlined at the hearing amount to "an agenda to extinguish the public fishery, or let it dangle on the vine."



The oystermen contend that the state's longstanding practice of rebuilding public oysters reefs with old shells and seeding them with state hatchery reared oysters was working - that it helped repopulate the bay's oyster stocks while also helping them make a living. They contend that neighboring Delaware and New Jersey have continued repletion programs similar to the one Maryland is now abandoning, and that the oyster populations in those states have bounced back while supporting some level of commercial harvesting.

(Photos show watermen Alvin Richardson and Bunky Chance working on Broad Creek near St. Michaels back in 2006. By Doug Kapustin of *The Baltimore Sun*)

<http://www.pacificfreepress.com/news/1/3730-minister-time-for-wild-fish-councils-on-the-qfarmsq.html>

Minister: Time for Wild Fish Councils on the "Farms"

Written by [Press Release](#)

Wednesday, 18 February 2009 17:40



Local Salmon Management: How it Could Work

by Alexandra Morton



Dear Honourable Minister Shea: I am hoping the Fisheries and Oceans Canada will embrace the concept of the aquaculture industry as a fishery and take concrete steps to bring it in line with other Canadian fisheries.

[image](#)

According to Judge Hinkson net-pen salmon rearing is not legally "farming" but rather a fishery, because these artificial salmon populations occupy space otherwise utilized by wild fish and the ocean passes through the facilities. Thus wild fish enter the pens and waste leaves the pens. As such this fishery must be regulated similar to the other fisheries where issues such as by-catch are addressed.

Science can be an awkward tool, but even if you do not accept some of the sea lice science and its prediction of decline of wild salmon that migrate through the aquaculture fisheries, you could look at your department's own enumeration numbers and the global response to marine aquaculture. I think that it is only reasonable to say there are serious problems that need concrete solutions. The time for splitting hairs is long past. We are in crisis here.

The DNA our salmon need to survive is running out.

In 2002, when we saw the drastic decline of the 1st louse-infested generation of Broughton pink salmon, senior ex-DFO scientist Dr. Brian Riddell recommended removal of all salmon farms from the area to allow the stock to rebound (www.fish.bc.ca). His second option was the extensive fallow of the major juvenile salmon migration route and this was enacted. I co-published a paper on the very significant decline in sea lice during this treatment and senior DFO scientist Dr. Beamish co-published that this cohort of wild salmon survived better than any generation of salmon ever recorded.

Both the federal and provincial governments should have recognized that Riddell's recommendation illuminated a path to a viable solution for both the wild and the farm salmon, separate them. But the ensuing politics took us away from this moment of clarity and into the mess we are in now. Not a single aquaculture facility has been removed from this migration route. Today nearly every wild salmon migration route of the B.C. South coast is supporting aquaculture fisheries and the wild fisheries are failing. Some people would like to blame the commercial fishermen for this, but they have scarcely fished in the past few years.

The reason I went to court is because Marine Harvest is in the process of making a deal wherein they would be allowed to increase the number of fish they are allowed per site. This deal called CAMP, is not supported by local First Nations and calls for large application of a drug not approved for use in the water, as well as, expansion of the very sites that I and others have published extensively on. Following every other year makes no biological sense to wild salmon which inarguably must go to sea every year. When people casually say the science is conflicting, they are not exactly stating the truth. No one is publishing that young wild salmon outside salmon "farms" are not infected with sea lice and no one is saying that wild salmon populations running through aquaculture fisheries are doing well relative to the rest of the eastern Pacific.

Scientists in Norway and Scotland ask me if we can read over here and are in disbelief that we in Canada are stuck one square one of the issue of sea lice.

I read your recent statement that salmon "farms" are important to coastal economies. As someone living in two of these communities, I think you should confirm this before acting as if it were true. Even if you do not accept that wild fisheries bring in more dollars to BC through the 1.6 billion dollar wilderness tourism industry alone, I think one could say the aquaculture fisheries alone are not enough for coastal communities to survive on.

Minster Shea I don't believe wild salmon are doomed. We have had some spectacular successes in recent years – when the culture fisheries were not present. As well in the Broughton, humpback whales, pilchard, Pacific white-sided dolphins and sand lance have all made comebacks. Euphausiid blooms are increasing annually. This is not a dying eco-system, it is damaged, but shows every sign of capability to be restored.

Judge Hinkson ruled that the large populations of Atlantic salmon being held in BC waters constitute a fishery. Whether or not the province appeals this decision you now have the authority to place observers at the aquaculture facilities as they offload their harvested fish and on the pens at night where lights are used to examine the by-catch issue. I receive many reports of black cod in the pens and I have seen herring and capelin in the pens. Minister Shea, you now have sole authority to allow DFO officers to board the aquaculture facilities and monitor the herring spawn.

I think the way forward is to treat these facilities for what they are, just another fishery. Indeed, the judge did not seem certain who actually owns these salmon when they are in the ocean. We have ample evidence of impact of aquaculture fisheries on wild salmon and now herring. When other fisheries are even suspected of causing decline of wild salmon populations they must be reduced or even closed. No one asked the lodges in my area if they could live with the Coho closure they were simply told they could not catch Coho. In the case of the aquaculture fishery, they should similarly be closed until wild populations rebound and then a balance struck between the two fisheries.

This is the only way the industry will mature into a responsible ocean user. Provincial Minister Cantelon has stated that farm fish have a right to be in the ocean. I don't think that is legally accurate.

Minister Shea, you have an army ready to work for the restoration of wild salmon. The Streamkeepers throughout the province of BC are people who are very knowledgeable about their local rivers and salmon stocks. I think we could restore BC wild salmon by a simple plan wherein we use the best available science to follow the fish and simply give them access to the sea and to spawning areas. Large expensive hatcheries are not the answer, we now know we will not have wild salmon unless we adhered to their own biological laws and allow them to choose their own mates. Salmon need the diversity of BC's myriad of freshwater courses, not a handful of indicator streams, to survive climate changes.

Salmon have demonstrated they can survive the presence of humanity and they stimulate abundant economic activity wherever they occur. I know many say wild salmon are no longer viable and we need "farms." However I see it the other way. These "farms" are heavily fishing stocks that will fail. The "farms" require enormous amounts of energy and plant protein in addition to the wild fish to make fewer fish. These "farms" rob the natural systems

that make wild fish of many species, with enormous and unregulated by-catch. Marine Harvest and Mainstream are failing on the world market, plagued by disease they appear to be spreading and it would not be socially responsible of you to ask Canadians to accept irrevocable losses to benefit foreign shareholders of an unstable industry.

You could encourage people to form local councils made up of residents with DFO as an advisor to each group. The public has already proven their willingness to work for the restoration of one the world's most valuable fisheries all they need is your encouragement. Please see an outline as to how this could work. The key to sustainable wild fisheries worldwide is local management. These councils would have to be made up only of residents. Residents benefit from all the economic activity in their area and as such are the best positioned to make truly sustainable decisions.

Wishing you vision and strength,

Alexandra Morton R.P. Bio.
Echo Bay, Sointula

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Local Salmon management- how it could work

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Guiding principles:

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1 -Wild salmon use and benefit from a chain of habitats, any broken link undermines the entire effort

2 -We let the salmon do the work

This document is a work in progress and the result of a meeting held at Salmon Coast Field Station fall 2007 of many people who depend directly on wild salmon of the Broughton Archipelago area as well as several biologists. For the purposes of this document the word "salmon," is defined as wild salmon. By this I mean salmon that reproduce naturally in rivers and would be self-sustaining if this project stopped, as opposed to hatchery salmon or spawning channel runs. While I would like to use existing spawning channels to boost numbers, this plan would use the smaller creeks of B.C. to give the fish their essential diversity to survive climate change. The backbone of this plan would see every wild salmon pair as a valuable unit. We would make every effort to receive each returning wild adult salmon with habitat that would perpetuate these, the most successful fish. They are our key to restoring salmon runs

I. Local Fishery Governance

A.) Form local eco-region councils. The best fish stewardship models appear to be the ones that are local, because the locals not only need the fish, they also benefit from the other industries. In this way differences may be hammered out rationally. Clearly it does not work when out of town environmentalists are pitted against out of town corporate and government interests. We have all sat through endless government processes with all stakeholders at the same table and have seen no progress. The key here is: "local" and dependant on the fish.

1.) Council membership would be exclusively residents who depend on and work

with wild salmon and would remain open to all these residents i.e. no fixed membership

2.) Local First Nations would be the only government on the Council

3.) Council must be volunteer except for the administrators working fulltime to keep the funds for the fish work

4.) The council would have two outer rings:

a.) biologists that could be called on for advice

b.) the interests inhibited by wild salmon

5.) DFO scientists and others would be available to the Council for consultation, and permits

II. Get teams on scene – Nothing replaces just getting out there and seeing it!

A.) Do inventory on all salmon bearing watercourses historic and current

1.) Form small effective teams to visit streams on continuous rotation to assess:

a.) condition, production and capacity

b.) do fry out-migration surveys

c.) do adult salmon enumeration

2.) These teams would ideally have 1 -2 fulltime paid staff, graduate students and interested First Nation and other local volunteers – this would not be a make work program.

B.) Information would be organized in databases that can be easily accessed and shared within and between Councils of various watersheds/archipelagos

C.) Use above information to:

1.) write a prescription on each creek for small efficient works with the goal to give every wild salmon access to spawning grounds and rearing habitat no matter how small the system

Use low impact techniques ie boulder/gravel/woody debris placement historic logging dam removal, etc

a.) monitor spawning activity so that areas wild

salmon are attracted to remain undisturbed and are benefited

2.) identify what is broken and what is working with each system

D.) Place fishery boundaries where and when they are effective. If low water

traps fish, throw the signs up immediately and keep a presence with the small roving team. Every spawning pair of salmon must be seen as extremely valuable

a.) Develop distinctive signage

b.) Produce brochure to explain why and how these unexpected closures benefit the people

c.) visit the summer social events to make the summer visitors aware

E.) Pick up the herring enumeration that DFO is dropping

1.) Initially hire the ex-DFO enumerators to train the local teams for seamless data stream

2.) Explore potential for reinstating historically spawned areas

F.) Place watchmen in small cabins at the mouth of the biggest rivers, with First Nation permission, to monitor runs and to educate people about not stepping on redds, guard against poaching, respond to calamity etc.

G.) Work with the heli-fishers and others to keep track of where salmon are moving through the systems, to reduce cost

III. Regarding existing salmon projects:

A.) Work with everyone with river restoration projects already underway

B.) Use Spawning Channels only to restock neighboring rivers; see them as a tool not an endpoint because they degrade genetic diversity

1.) these channels could be used to propel fish through the local areas in hopes that some percent will stray into the streams near the channels and thus reinstate high diversity

C.) Repair ladders giving access to additional habitat

D.) I would close most hatcheries, as hatcheries have not been shown to produce self-sustaining salmon populations which is the goal of this proposal

Use the manpower, infrastructure and funds to work with the wild salmon to ensure maximum yield from the natural ability of these fish to choose mates to the best advantage of their offspring.

V. Research

A.) Use research to engage in Adaptive Management

1.) a common fatal management error is failure to calculate trends

a.) can result in wasted decades of unsuccessful strategies

B.) Work with universities to design the monitoring program to produce a

database available to students for analysis, thus we get it going and run

volunteer university students through it as a research and educational tool

a.) track dispersal of the enhanced stocks (spawning channels) through the system

b.) measure wild fish response to habitat work

c.) chart enumeration of each area against coastwide numbers to determine local vs eastern Pacific issues

d.) measure evolutionary response of wild salmon to climate change

C.) if management and research were closely coupled we cannot predict what projects would come up and we could review and host them under varying relationships to the benefit of both.

D.) Unlock the records held in BC hatcheries and use this information to understand disease patterns and challenges

E.) These Councils would have access to all fish records on aquaculture projects to understand the dynamic between all the fisheries

VI. Follow, do not simply shelve, the recommendations of these Councils

A.) Instead of treating the process as the result, actually follow the

recommendations of the Councils and allow these Councils to run the

programs. Keep everything locally managed. This could lead to problems, but

we already have problems so this would not be new. IF everyone on the

Council benefits from wild salmon AND lives in the community where the

other economic activity exists we would see self-regulation, benefit to local

communities, and economic activity to the benefit to BC and Canada. If instead

all stakeholders sit at the inner ring of these councils, it will be more of the same

stalemates and economic decline of communities

<http://www.abc.net.au/news/stories/2009/02/19/2495830.htm>

Two-headed fish probe finds no pesticide in water

Posted Thu Feb 19, 2009 12:31pm AEDT

Updated Thu Feb 19, 2009 12:30pm AEDT

- [Map: Maroochydore 4558](#)

Queensland's chief biosecurity officer says the Environmental Protection Agency (EPA) is doing studies on a Sunshine Coast fish hatchery where two-headed fish larvae were found.

A State Government task force was established last month to investigate whether farm chemicals are to blame for the abnormalities.

But initial testing of 12 water samples from tanks on three properties in the area has failed to find any trace of pesticides, including endosulfan and carbendazim.

Queensland's chief biosecurity officer and task force member, Ron Glanville, says further sampling will be conducted, but it is too early to draw any conclusions from the ongoing investigation.

"We're still investigating the fish kill that happened back in December and the results or the final results on that investigation won't be available probably until sometime in March," he said.

"There's some other sampling that's also going on in relation to the fish hatchery and the EPA are doing environmental studies as well."

http://www.eurekalert.org/pub_releases/2009-02/su-wff021109.php

Public release date: 15-Feb-2009

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When fish farms are built along the coast, where does the waste go?

Stanford researchers help predict where the 'icky' stuff -- fish urine, fecal matter and uneaten feed -- will end up; Research is finding that the wastes are carried greater distances that previously assumed

If you are a fish eater, it's likely that the salmon you had for dinner was not caught in the wild, but was instead grown in a mesh cage submerged in the open water of oceans or bays. Fish farming, a relatively inexpensive way to provide cheap protein to a growing world population, now supplies, by some estimates, 30 percent of the fish consumed by humans.

Two hundred and twenty species of finfish and shellfish are now grown in farms.

Intuitively, it seems a good idea—the more fish grown in pens, the fewer need be taken from wild stocks in the sea. But marine aquaculture can have some nasty side effects, especially when the pens are set near sensitive coastal environments. All those fish penned up together consume massive amounts of commercial feed, some of which drifts off uneaten in the currents. And the crowded fish, naturally, defecate and urinate by the tens of thousands, creating yet another unpleasant waste stream.

The wastes can carry disease, causing damage directly. Or the phosphate and nitrates in the mix may feed an algae bloom that sucks the oxygen from the water, leaving it uninhabitable, a phenomenon long associated with fertilizer runoff.

It has been widely assumed that the effluent from pens would be benignly diluted by the sea if the pens were kept a reasonable distance from shore, said Jeffrey Koseff, a professor of civil and environmental engineering and co-director of Stanford's Woods Institute for the Environment. But early results from a new Stanford computer simulation based on sophisticated fluid dynamics show that the icky stuff from the pens will travel farther, and in higher concentrations, than had been generally assumed, Koseff said.

"What we've basically debunked is the old adage that 'The solution to pollution is dilution,' " he said. "It's a lot more complicated."

The computer modeling (with new Stanford software that goes by the acronym SUNTANS) was conducted by Oliver Fringer, an assistant professor of civil and environmental engineering. He created a virtual coastal marine area resembling California's Monterey Bay.

Previous software, he said, has not been up to the task of accurately predicting where the unhealthy effluent from fish pens will end up, and should probably not be used by state or federal regulators when they approve locations for fish farms.

Existing software is typically derived from models that attempt to describe the drift of effluent from sewage outfall pipes, even though the substances and situations are different from fish farms. (Sewage outflow, for example, is often warmer than the ocean water.)

The fine details of modeling the flow of dissolved fish poop from a submerged cage are not as simple as they may seem. The design of the cage itself can affect the outcome. How much of the current flows through the cage, and how much goes around? Does the moving water swirl into eddies at the edges of the pen? Even the effects of the rotation of the earth on the waste plume comes into play.

The fish farmer would prefer that currents flush out his pens frequently, but as those currents take out the garbage they might unfortunately deliver it to a mangrove ecosystem or a public beach. On the other hand, insufficient flow through the pen can create a "dead zone" on the ocean floor as the fecal matter and uneaten food pile up beneath the fish.

Fringer is designing his software so that it can be used to assess any site—Puget Sound, perhaps—where sufficient digital mapping of the area already exists. SUNTANS comes just in time, said Stanford oceans expert Rosamond Naylor, as federal and local officials begin spelling the details of new health and environmental regulations for fish pens.

Also participating in the research was former postdoctoral researcher Subhas Karan Venayagamoorthy, now at Colorado State University.

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Stanford scientist Oliver Fringer will talk about what happens to the dangerous wastes produced by fish farms in the ocean at the AAAS Annual Meeting in Chicago.

The presentation, "Characteristics of Waste Plumes from Aquaculture Pens in the Marine Environment," is part of the session, "Aquaculture Impacts, Standards, and Sustainability."

Sunday, Feb. 15, 2009, 1:30 PM - 4:30 PM

Hyatt Regency Chicago, Grand Ballroom B

-- By Dan Stober

<http://www.loe.org/shows/segments.htm?programID=09-P13-00007&segmentID=4>

Fish Farming and First Nations



The Broughton Archipelago lies roughly 250 miles north of Vancouver. (Photo: Alexandra Morton)

British Columbia has the fourth largest aquaculture industry in the world. But some First Nations people in the region say the farms are killing off the wild salmon that form the foundation of a two billion dollar tourism and commercial fishing industry – and they're taking their complaints to court. Host Bruce Gellerman speaks with Chief

Bob Chamberlin, who is representing over 4,000 native peoples in a class action lawsuit, and Alexandra Morton, a scientist who has been studying the salmon stocks in the region for years.



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TRANSCRIPT

GELLERMAN: More than 40 percent of the world's seafood is farm-raised and one of the largest centers for farming salmon is British Columbia, Canada. In the Broughton Archipelago alone, along Vancouver Island there are 29 fish farms.

But a lawsuit, just filed by First Nation tribes, claims that farmed salmon raised in open nets at sea are threatening wild salmon, and aquaculture is undermining a billion dollar economic food chain and a way of life. Chief Bob Chamberlin speaks on behalf of the First Nations in the lawsuit.

CHAMBERLIN: Well when you come into the territory of our people, it was once incredibly bountiful with every type of marine species you could imagine. And right now there's a serious and sharp decline in pink salmon stocks, chum stocks, the various species of clam, herring, bouligan. There's not one species that's doing well. The only thing new in our territory is the fish farms.

GELLERMAN: So how are farm-raised fish hurting the wild fish?

CHAMBERLIN: Well, the farm-raised fish or the open net caged farm fish systems - are just ideal to capture the sea lice from the wild salmon that come back to spawn and it allows for a perfect environment for them to proliferate throughout the year.

GELLERMAN: Sea lice?

CHAMBERLIN: Sea lice, that's correct.

GELLERMAN: What do the sea lice do to your fish?

CHAMBERLIN: Well, the small salmon smolts that leave the river do not have their scales developed, so they're not able to fend off a parasite such as this. So it takes very little in terms of numbers of sea lice to kill the smolts when they leave the river.



Young pink salmon smolt infected with sea lice. The open net pens are fertile habitat for sea lice, as well as farmed salmon. (Photo: Alexandra Morton)

GELLERMAN: So you're saying the fish farms and the sea lice are what's causing the collapse of these wild fisheries.



Broughton inlet. (Photo: Alexandra Morton)

CHAMBERLIN: Well I think it's more than just the sea lice, and that's the thing that I want people to understand is when we talk about the impacts on wild salmon, that is one impact from this industry. Though it's a very significant impact, there are other impacts in the region which are not being accounted for or researched and documented.

GELLERMAN: Well Chief Bob Chamberlain, hang on, because I want to bring into the conversation now Alexandra Morton. Ms. Morton,

MORTON: Hi

GELLERMAN: You're a marine biologist who's lived up there for what – decades I guess, right?

MORTON: Yes, since 1984.

GELLERMAN: And you've studied the effects of farm raised salmon on the wild fish.

MORTON: Yes, originally I was studying the killer whales in the area, but – and I thought the fish farms were a good idea, but as they moved in and got bigger, the impacts just grew. And that was the problem, because initially the farms only had a 125,000 fish per farm. And then they grew to the point where – at points we had 1.3 million fish per farm. Now what happens with the farm is when a fish becomes sick, it spreads to the other fish, and it brews the disease, whatever it is, to the point where the pathogens are pouring out at a level that the wild fish just can't bear. It's the difference between standing a football field away from a guy with the flu to being stuck in an elevator with six guys with the flu, you know. Under one condition you won't get it and the other, you probably will. And that's where the balance gets upset.



GELLERMAN: You know I just noticed before I *Chief Bob Chamberlin.* gave you a call that the premier of B.C., Gordon Campbell, came out with a new report that was four years in the making. It's from the B.C. Pacific Salmon Forum and they say that wild and farm fish can coexist.

CHAMBERLIN: There would have to be some pretty stringent criteria set around the operation of these farms for us to agree to that.

GELLERMAN: What would you like to see?

CHAMBERLIN: I would like to see the fish farms not located on migratory routes of wild salmon smolt.

GELLERMAN: That way they wouldn't pick up these lice.

CHAMBERLIN: That's correct. I think we all can agree that nature is perfect in everyway, so when wild salmon would come to the river to spawn, they would indeed have sea lice on them. But when they would die after they had reproduced in the rivers, the sea lice would eventually die in the region as well.

GELLERMAN: Ms. Morton, they use open nets right now. And they put them into these waterways. Why don't they just enclose them?

MORTON: Oh. Because they're the only farmers in the world that don't shovel their manure. And they're putting in tons of food. And one of my studies right now is on the mountains of sediment that are sitting on the sea floor in Chamberlin's territory. They don't want to deal with that stuff. No one does. So right now they are getting a free flush.



A deep sea bluff in British Columbia. (Photo: Alexandra Morton)

GELLERMAN: Well what are the conditions of the wild salmon right now? How many more runs of wild salmon can make it around these fish farms in the archipelago and out to the ocean with the present conditions?

MORTON: None of them. They're all doing very poorly. The littlest salmon we have, the pink and the chum, they are dying outright. And then the larger ones, the spring salmon, Chinook or king as they're called, and the Coho, they eat these infected little pink and

chum fry and then the lice get on them. And the wild salmon are like a power cord to British Columbia. They go out to the ocean and they pick up all the energy out there from the sun hitting the water, creating plankton blooms and all that goes on there. And they package it into a delicious package and then they come back to us on a schedule. This is incredibly valuable. This is why the Broughton Archipelago supported over 10,000 First Nations people. They are funding a huge wilderness tourism industry. They are feeding the trees that are pulling the carbon out of the atmosphere. They're one of those animals designed to feed the masses and make systems work. And so if you cut them, the whole province is gonna dim.

GELLERMAN: Chief Chamberlin, sounds like really what you're saying is that, no, the fish farms can't co-exist with the wild fish.

CHAMBERLIN: What I'm saying is it's the obligation and the right of every First Nation

to have meaningful input into the activities that go on within their traditional territory. And there are First Nations on this coast that are very supportive of aquaculture industry. But I want them to be able to have the opportunity to make that decision for an activity in their territory. But by saying that, I also want our First Nation's view on this and the decision to not have it in our territory also respected.

GELLERMAN: Well it seems the implications of what happens on the Broughton Archipelago could be vast, because farm fishing is enormous, and it's going to only get bigger. And this could have an effect upon fish farms worldwide.



Alexandra Morton hauls in a net. (Photo: Nik West)

MORTON: Yeah, well there's all kinds of fish farming. The problem with salmon farming from just a completely objective point of view is they're farming carnivores. So there are fishing stocks and then they're feeding those fish to the farm salmon. And then they're taking out less fish. So it'd be like farming wolves by feeding them chickens. But farming a fish that eats vegetable matter and then you take the waste of the fish to grow your vegetable crops, well now you're into a closed system that can prosper. Farming salmon – I don't think it's gonna last. They're running out of wild fish, they have huge disease problems worldwide. Their shareholders are taking a beating. And as soon as the U.S. decides they can't afford the product, they're out of here, and we're left with their mountains of waste on the sea floor.

GELLERMAN: Chief Chamberlin, what happens to the First Nations on the Archipelago if the salmon don't come back, the wild salmon are gone?

CHAMBERLIN: That is – would be such a catastrophe. You have to appreciate that wild salmon are an integral piece to our way of life and our culture. I'll use the most recent example. Last weekend I was at a naming feast for a small child, and when I attended that feast I knew exactly what I would be eating and it would be all the seafood that's from our territories. Within our culture we have various dances and, you know, there's a salmon dance. It's something that our twins of our families dance. You know how special twins are to any given family of any culture, and those are the ones that do the salmon dance for our territories or for our people.

GELLERMAN: Well Chief Chamberlin and Ms. Morton, thank you very much. Really appreciate it.

CHAMBERLIN: Thank you – appreciate your interest.

MORTON: Thank you so much.

GELLERMAN: Biologist Alexandra Morton and Chief Bob Chamberlin spoke to us from the Broughton Archipelago.

And we have this response from one of the largest fish farming companies in the region, Marine Harvest, quote: "the industry is committed to stringent standards and sustainability on the British Columbia coast."

<http://www.ad-hoc-news.de/disease-problems-on-the-atlantic-salmon-grown-in-chile-led--/de/Unternehmensnachrichten/20045601>

Disease problems on the Atlantic salmon grown in Chile led to a negative result for Cermaq in Q4 2008

Cermaq's operating revenues were NOK 3 053.9 for the quarter (Q4 2007: NOK 2 221.9 million). The increase in revenues is mainly due to higher volumes and sales prices in EWOS. Revenues from Denofa, not consolidated in 2007, and higher prices in Mainstream also contributed to the higher revenue.

(Oslo 13.02.2009) Cermaq reports a fourth quarter EBIT pre fair value loss of NOK 35 million. The result is negatively impacted by exceptional costs of NOK 158 million related to ISA in the Chilean farming operation, and a negative EBIT impact of NOK 24 million in the Finnmark region in Norway related to diseased fish. The feed business improved the underlying margin, and the farming operations in Canada and the Nordland Region in Norway performed according to expectations.

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- The disease situation for the Atlantic salmon in Chile became worse than expected in Q4 2008, and has incurred heavy losses on Mainstream Chile. The losses will continue in Q1 this year, and we expect a negative result for Mainstream Chile also in 2009. New regulations and improved methods and routines will lead to better sanitary conditions in Chilean salmon farming going forward, but it will take a long time to rebuild the production. We will be cautious and not increase the volumes of Atlantic salmon until we can be more certain of the sanitary environment, says CEO Geir Isaksen.

The Mainstream Group reported a fourth quarter EBIT pre fair value loss of NOK 135.7 million compared to a profit of NOK 11.0 million in the fourth quarter 2007. Volumes were down 13.2 percent due to lower sales volumes of all species in Chile, whereas the other farming regions performed better than Q4 2007. The result in Mainstream Chile was heavily impacted by ISA costs, including write downs of NOK 111 million on live stocks and NOK 47 million on frozen stocks.

Prices on Chilean Atlantic salmon have been under pressure as U.S market is flooded with high volumes of Chilean low size fish due to the ISA situation. Canada, which has performed with good profitability, is well positioned to take advantage of Chilean industry supply decrease in 2009. In Norway the Nordland performance in Q4 and in 2008 was very good, whereas Finnmark has had major challenges from Pancreas Disease (PD) in 2nd Half 2008. Scottish operations were stable.

Cermaq's biggest challenge remains in the farming operations in Chile. In Q4 79 new ISA cases were reported of which 11 affected Mainstream. Mainstream Chile has had no transferred Atlantic smolt since November, and planned transfer in 2009 has been reduced to 5 million smolt, compared to 8.4 million in 2008 and 15.7 million in 2007. The transfer may be further reduced dependent on the sanitary situation. New sanitary regulations are about to be implemented in Chile, and with the pending approval of the proposed area management scheme we expect a sound basis for future production.

The EWOS group achieved an EBIT pre fair value of NOK 70.1 million in the Q4 2008, compared to NOK 106.8 million in Q4 2007. Volumes increased more than 4 percent in the quarter, mainly due to market share increase and higher feed consumption in Norway. Margin reduced compared to Q4 2007 following increased raw material costs, mainly due to significant unfavourable movements in exchange rates, not passed on to customers. The result also included a NOK 21.0 million provision for receivables in Chile.

- EWOS margins have improved throughout 2008, but are still behind historical levels. With lower raw material prices going into 2009, we have a more solid base to see further enhancement during this year, says Geir Isaksen

Net interest bearing debt increased by NOK 717 million in the quarter. Much of the increase was anticipated due to large [investments](#) in the feed factory in Florø, Norway and from growing the Norwegian farming operations, which will build future business. In addition the frozen stocks in Mainstream Chile and the increase in receivables in EWOS Chile have added to the debt of the Group. Total net interest bearing debt was NOK 3 128 million by the end of 2008, an increase of NOK 1 871 million from 2007.

- Although the debt has risen more than expected in 2008, we know that there will be a reduction in the first half 2009. Despite the higher debt, liquidity in Cermaq is good, and we have the required funding to maintain good financial flexibility says Geir Isaksen

NOK million Q4 08 Q4 07 FY 2008 FY 2007 Operating revenues 3 053.9 2 221.9 9 831.8 7 721.2 EBIT pre fair value -35.3 114.6 87.0 746.9 EBIT pre fair value % -1.2% 5.2% 0.9% 9.7 % Unrealised fair value -27.3 -53.7 90.1 -253.9 adjustments -194.6 60.5 -31.1 480.8 Profit/loss before tax -152.4 64.6 -59.1 497.5 and minorities Profit/loss after tax and minorities -1.6 0.7 -0.6 5.4 -1.6 0.7 -0.6 5.4 Earnings per share (NOK): -1.5 1.2 -1.4 7.5 Basic -1.5 1.2 -1.4 7.5 Diluted Adjusted basic Adjusted diluted

Cermaq's key earnings measure under IFRS is EBIT pre fair value (Operating result before unrealised fair value adjustments). Unrealised fair value adjustments are made in Cermaq's accounts to arrive at EBIT (Operating result). The adjustments for fair value relate to valuing live biomass inventory at a [market value](#) equivalent rather than cost. Cermaq reports EBIT pre fair value to clearly identify earnings on sales during the period.

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About Cermaq

Cermaq is an international group of companies with activities in fish farming, production of salmonid feed and research in aquaculture. Cermaq has operations in Norway, Scotland, Canada and Chile, the main geographic regions for salmon and trout farming. Through its EWOS subsidiary, Cermaq ranks as the world's second largest fish feed producer. The Mainstream subsidiary is the second biggest farmer of salmon and trout in the world. The Group had sales of over NOK 9.8 billion in 2008. Per 30.12.2008 the Group employs around 4 000 people.

Cermaq is listed on the Oslo stock exchange with ticker code CEQ.

www.cermaq.com

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http://www.baltimoresun.com/news/local/bay_environment/bal-oysters0213,0,203931.story

Watermen should raise own oysters, Md. panel says

Task force recommends state stop paying for 'managed reserves'

By Timothy B. Wheeler | tim.wheeler@baltsun.com

2:02 PM EST, February 13, 2009

A state task force is recommending that Maryland stop spending millions on oyster planting only to let watermen harvest them within a few years.

The 21-member Oyster Advisory Commission says the state should stop paying for "managed reserves" over the next several years and instead help watermen learn how to raise oysters at their own expense for sale to restaurants and seafood businesses.

"I just don't think the public is going to be willing to pay very much longer for a couple hundred guys to make some of their income harvesting oysters," said William Eichbaum, chairman of the advisory commission and a vice president of the World Wildlife Fund.

The commission's report, to be presented in Annapolis next week, calls for Maryland to expand its efforts to rebuild the [Chesapeake Bay's](#) disease-ravaged oyster populations for their ecological value and to stop trying to prop up the commercial seafood industry at the same time.

Oysters filter nutrients and sediment from the water – the pollutants most responsible for the bay's degraded condition. But the bay's once-abundant stock of oysters has been decimated over the past century by disease, habitat loss and overfishing.

The commission, after more than a year's study, calls for focusing public funds on rebuilding and reseeding lost oyster reefs and halting commercial harvest of the shellfish from much, if not most of, the bay. It recommends closing entire rivers to harvesting, while encouraging aquaculture by overhauling the state's laws for leasing the bay and strengthening enforcement against poaching of private and public oyster stocks.

If carried out, the panel's recommendations would effectively end decades' worth of government subsidies for the oyster industry, in which millions in state and federal funds were spent to replenish oyster reefs while allowing watermen to reap the benefits.

The Baltimore Sun has reported that a government-financed nonprofit, the Oyster Recovery Partnership, has spent more than \$10 million in public funds between 2000 and 2007.

The group planted more than 1.6 billion oysters to date on 1,100 acres of once-healthy and productive oyster reefs. But most were put in so-called "managed reserves," where watermen were allowed to harvest them after several years.

"That patchwork system has not brought back large populations and doesn't look likely to," Eichbaum said.

Scientists have said the planted oysters need to be left alone to improve their ecological value for the bay and to give them a better chance of developing resistance to the diseases afflicting them.

At least some watermen and their supporters are likely to oppose the shift. But state Natural Resources Secretary John R. Griffin said the panel's report "presents a great framework ... to direct a new course for oyster restoration."

The O'Malley administration is proposing revisions to state laws governing leasing of the bay and its bottom to encourage more oyster aquaculture. It also is planning to spend several million dollars to help watermen transition into aquaculture, rather than roaming the bay to gather oysters left in the wild.

<http://www.radionz.co.nz/news/stories/2009/02/12/12459df52da5>

Record aquaculture export earnings

Updated at 3:22pm on 12 February 2009

Export earnings in the aquaculture sector grew by 17% last year to more than \$265 million despite a smaller harvest of some farmed fish species.

Aquaculture New Zealand chief executive Mike Burrell said the 2008 earnings were the highest ever.

He says King salmon earnings rose 22% up on the previous year. Export weights for greenshell mussels and oysters harvest were down slightly.

Mr Burrell says while the worldwide recession will inevitably hit the seafood industry along with every other sector, the long term outlook is very strong.

He says demand for seafood is growing and fish farming is meeting an increasing amount of that demand.

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<http://www.marketwire.com/press-release/Bc-Pacific-Salmon-Forum-946327.html>

BC Pacific Salmon Forum



Feb 05, 2009 13:00 ET

Salmon Forum Finds Management of BC Waters Must Be Shifted to an Ecosystem Basis to Sustain Both Wild and Farmed Salmon

VANCOUVER, BRITISH COLUMBIA--(Marketwire - Feb. 5, 2009) - Following four years of research and dialogue, the BC Pacific Salmon Forum today released its Final Report and Recommendations on what needs to be done to improve understanding of the economic, social and environmental sustainability of BC wild salmon stocks and salmon aquaculture on the coast. The Forum found wild salmon face unprecedented threats to both ocean and freshwater habitats due to climate change and watershed impacts as a result of human activity.

The Forum's report acknowledges concerns expressed about the impacts of salmon farming on wild salmon. The Forum believes that salmon farming and wild salmon can coexist only if farms are rigorously managed in accordance with its recommended ecosystem thresholds.

The 95-page report includes 16 recommendations for the provincial government over the next four years to help achieve the Premier's goal of having 'the best managed fisheries bar none'.

Forum Chair John Fraser said, "Although we recognize that the current economic downturn may require some flexibility in this timeframe, we are looking to the Government of British Columbia to enact the appropriate legislative and regulatory measures to ensure implementation of our recommendations."

Fraser noted that some initial steps have already been announced by the Province, such as Living Water Smart BC, the government's plan that identifies actions to help to keep the watersheds healthy.

The Forum's report says the current system of watershed governance is inadequate to address the complexity of today's resource decisions and changes in climate over the coming decades. It recommends that watersheds and marine environments be managed holistically as ecosystems supported by indicators to gauge their health and ensure that water

and land decisions are made within ecosystem capacities.

The BC Pacific Salmon Forum is an initiative of the Government of BC announced by Premier Campbell in December 2004, with the mandate of providing the direction required to enable the Province to realize the vision to sustain viable wild and farmed salmon sectors.

Under the leadership of the Chair, Honourable John Fraser, the Forum members include six appointed members from a variety of backgrounds who are well informed about fisheries issues. The Forum was assisted by the guidance of an independent multi-disciplinary Science Advisory Committee.

For more information on the Final Report and Recommendations see the attached backgrounder and to view the final report visit www.pacificsalmonforum.ca.

SUMMARY OF BC PACIFIC SALMON FORUM FINAL RECOMMENDATIONS:

An ecosystem-based approach will require a change in governance including:

- A restructuring of Provincial management of coastal waters and watersheds beginning with creation of a single Water and Land Agency to oversee all development and resource industry decisions in BC watersheds to safeguard ecological health
- Creation of a new Regulatory Oversight Authority to audit the province's regulatory processes to provide public confidence that decisions that affect watersheds are being made in accordance with ecosystem-based indicators and report its findings to the public
- Creation of a Science Secretariat to manage future research required to support salmon sustainability
- Increased collaboration between all levels of government - federal, provincial, First Nations, and local - in the governance of watershed.

Key recommendations in managing salmon farming:

- Establishment of sea lice levels on wild fish based on natural background conditions to ensure wild salmon populations are not impacted by fish farms
- An annual limit of 18,500 tonnes of total farmed salmon production in the Broughton. Archipelago as a precautionary approach with similar limits on annual production in all other salmon farming areas while the Province works with industry to implement an ecosystem-based approach to management of aquaculture. These precautionary limits could be adjusted if it is demonstrated that ecosystem-based environmental thresholds are being met.
- Encouragement of technical innovation in salmon farming to reduce its ecological impact, including polyculture (growing of finfish, shellfish and marine plants together) and a commercial-scale pilot project to test closed containment salmon farming
- The Forum and its Science Advisory Committee are also supporting a proposal, endorsed by the companies operating fish farms in the Broughton, to implement and evaluate a coordinated area management plan (CAMP) to test the effectiveness of annually providing a migratory route free of farm-generated lice for out-migrating wild salmon smolts.

http://www.nytimes.com/2009/02/05/world/americas/05salmon.html?_r=1&ref=world

Chile Takes Steps to Rehabilitate Its Lucrative Salmon Industry

By [ALEXEI BARRIONUEVO](#)

Published: February 4, 2009

SANTIAGO, [Chile](#) — When a devastating virus swept through Chile's farmed [salmon](#) stocks last year, some of the industry's biggest players laid off thousands of workers, packed up operations and moved to unspoiled waters farther south along the Chilean coast. But the virus went with them.

[Enlarge This Image](#)



Joao Pina for The New York Times

A 30-pound salmon on sale in the port city of Puerto Montt, Chile. Producers expect output to drop by about 30 percent.

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The New York Times

Chile is the world's second largest exporter of salmon.

Last month, the Chilean government began hashing out tougher measures to improve the sanitary and environmental conditions of the troubled industry. But producers expect still deeper losses this year, as the virus continues to kill millions of fish slated for export to the United States and other countries.

Government and industry officials say they have already taken important steps to improve the ways salmon are farmed. But the persistent problems, critics say, reveal that neither the industry nor the government has fully grasped the need for the far-reaching changes required to protect not only consumers and the environment, but also one of Chile's most important industries from itself.

They are not the only ones concerned. In the midst of the virus crisis, Chile has continued to raise salmon for export with chemicals and medications not approved for use in the United States and Europe, according to documents from regulators.

While the United States [Food and Drug Administration](#) says Chile made some progress in tackling its problems, it will keep Chilean imports of farmed fish under special scrutiny for the time being.

Chilean government officials and industry officials say the troubles are part of the growing pains of a \$2 billion industry that in less than two decades built itself into the world's second largest exporter and the biggest supplier of salmon to the United States.

The virus afflicting the fish, infectious salmon anemia, or ISA, is not harmful to humans, they note. But after The New York Times reported on Chile's dying farmed fish last year, some buyers, like the supermarket giant Safeway, restricted imports from Chile.

The troubles spurred the Chilean government to step up its controls. Last year Sernapesca, Chile's national fishing service, tripled its inspections of farmed fish, said Felix Inostroza, the agency's director.

Among other things, the measures now being weighed by the Chilean Congress, which are expected to be passed before April, would thin the density of salmon pens, where overcrowding has contributed to the virus's spread, and reduce the use of antibiotics.

The authorities also plan to organize aquaculture permits into "neighborhoods," where salmon companies will be required build in rest periods between production cycles, to give the marine environment time to recover, said Rodrigo Infante, general manager of SalmonChile, the industry association.

But environmental groups say they will continue to lobby for tougher changes. "It is not enough for the industry to voluntarily police itself," said Andrea Kavanagh, manager of the Salmon Aquaculture Reform Campaign for the Pew Environment Group in Washington.

"For too long, the government has ceded to industry convenience," she added, "permitting chemicals known to harm its environment as well as consumers."

Her group obtained F.D.A. inspection reports last year in an open records request showing that Chilean producers had used three chemicals that are effectively banned in the United States.

Industry and Chilean government officials say the chemicals are not harmful to consumers when used the right way. “Just because a substance is not allowed for use does not necessarily mean it poses a risk to human health,” said Alicia Gallardo, the head of the Aquaculture unit of Sernapesca.

But Chilean companies have struggled to comply with the regulations of other countries, particularly as they cope with a parasitic bacteria, rickettsia, carried by sea lice, which causes infection-prone lesions.

The industry is using antiparasitic treatments like emamectin benzoate, a pesticide fed to the fish, to treat the lice infestations, and antibiotics to control the resulting infections.

F.D.A. officials said that emamectin could be used in limited cases in the United States, but that it was one of the three prohibited chemicals that were highlighted in F.D.A. inspection documents last April.

The others were oxolinic acid and the antibiotic flumequine, according to the F.D.A. inspection reports recovered by the Pew Environmental Group.

Copies of the documents were shared with The New York Times and their authenticity verified by F.D.A. officials, including Donald Kraemer, the F.D.A.’s deputy director in the office for [food safety](#).

In response to the findings last year, he said, the F.D.A. put three firms — Cultivadores de Salmones Linao Ltda., Empresas Aquachile and Alimentos Cuisine Solutions — on an “import alert,” which required that they prove shipments were drug-free.

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Times Topics: [Salmon](#)

The F.D.A. lifted the alert after the companies put in added controls, Mr. Kraemer said. From May to July, the F.D.A. also increased the number of fish samples it tested from Chile, he said. None of the F.D.A. tests came up positive for any banned drugs. But, Mr. Kraemer said, the F.D.A. does not have a reliable way to test for emamectin.

Empresas Aquachile declined to comment on the F.D.A. inspections.

Alex Miquel, the chief executive of Alimentos Cuisine Solutions, said that since being notified of its violations in October the company began testing each batch of salmon that it purchased from other companies.

In e-mailed responses, Álvaro Jiménez, managing director of Chile operations for Marine Harvest, which controls Cultivadores, noted that the F.D.A. alert was not based on detection of drug residues in the fish, but rather on documents detailing the company's drug control procedures at the plant. "We are now in line with the requirements," he said.

The Chilean firms did not stop using the drugs, said Mr. Kraemer of the F.D.A. Rather, they increased the "withdrawal period" for the fish — the length of time they hold the fish after they are treated with the drugs, he said.

Still not fully satisfied, the F.D.A. has scheduled a "system review" for this March in Chile, where it will work with its counterpart in Chile, Sernapesca, to address how the country will deal with its fish diseases.

"We need to be able to know if they can control it on their side of the ocean, so we don't have to do it on our side," Mr. Kraemer said.

Chilean government officials, concerned about job losses in the south, say they are determined to reform the industry. "But this has to be done with incentives," said Hugo Lavados, Chile's economy minister.

In November, the government announced that it would provide \$120 million in loan guarantees to help producers meet the new regulations quickly. But this year, producers still expect salmon output to drop by about 30 percent, said César Barros, president of SalmonChile.

<http://www2.canada.com/vancouver/news/westcoastnews/story.html?id=357518d8-6d67-466c-9c9e-147bf3e2c9e0>

First nations sue over salmon

Class action cites damage caused by aquaculture to wild fish stocks

Larry Pynn, Vancouver Sun

Published: Thursday, February 05, 2009

Aboriginal people in the Broughton archipelago off northeastern Vancouver Island launched a class-action lawsuit Wednesday against the B.C. Government for damages caused by salmon farming to wild stocks.

"We are focusing on the health of the wild salmon," Chief Bob Chamberlain of the Kwikwaka'wakw Ah-Kwa-Mish First Nation said in an interview. "We have an obligation to look after our resources."

Chamberlain said the B.C. Supreme Court class-action suit involves a total of eight first nations in the area concerned about the detrimental impact of open-net salmon farming on wild stocks.

He said the class action is a last resort based on years of frustration over the province not addressing aboriginal concerns about salmon farms, 29 of which are authorized in the area.

"The province's approach can be characterized by three words -- delay, deny, distract," he said.

The salmon-farming industry has been the subject of long-standing concerns related to issues such as transmission of sea lice and disease to wild stocks, as well as pollution, and the escape of non-native Atlantic salmon into the wild.

The class action is seeking:

- A declaration that the way the province has authorized and regulated salmon farms has contributed to a significant decline in the wild salmon stocks and infringed on natives' constitutional fishing rights.
- An injunction prohibiting the issuing of salmon aquaculture permits in the Broughton Archipelago pending adequate consultation and accommodation with natives.
- A declaration that the province must remediate the impact of salmon farms on wild salmon.

B.C. Wilderness Tourism Association president Brian Gunn applauded the class-action suit, saying senior governments "refuse to accept that salmon farms, as they currently operate, are causing irreparable damage to our wild salmon stocks."

Gunn said association members have observed grizzly bears seeking to bulk up for hibernation unable to find enough salmon to eat. "The B.C. tourism industry relies on healthy wild salmon populations to sustain their businesses, whether they are fishing lodges or wildlife viewing operations."

The class-action lawsuit precedes the release today of a report by the Pacific Salmon Forum, a body appointed by the provincial government, on the fate of wild salmon stocks, including the impact of aquaculture and sea lice.

Release of the forum's report had been delayed out of respect for the Jan. 20 death of Stan Hagen, the minister of agriculture and lands, who had responsibility for aquaculture.

Hagen's replacement, Ron Cantelon, MLA for Nanaimo-Parksville, said he found the timing of the class action curious -- one day before the forum report -- and said he would prefer negotiation over lawsuits.

Mary Ellen Walling, executive director of the B.C. Salmon Farmers Association, could not be reached for comment.

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<http://www.iht.com/articles/2009/02/05/america/chile.1-423359.php>

INTERNATIONAL
Herald Tribune
THE GLOBAL EDITION OF THE NEW YORK TIMES



Boxes of fish that died from a virus, infectious salmon anemia, in the port of Castro, Chile. (Joao Pina for The New York Times)

Chile struggles to improve health of fish industry

By Alexei Barrionuevo

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SANTIAGO: When a devastating virus swept through Chile's farmed salmon stocks last year, some of the industry's biggest players laid off thousands of workers, packed up operations and moved to unspoiled waters farther south along the Chilean coast. But the virus went with them.

Last month, the Chilean government began hashing out tougher measures to improve the sanitary and environmental conditions of the troubled industry. But producers expect still deeper losses this year, as the virus continues to kill millions of fish slated for export to the United States and other countries.

Government and industry officials say they have already taken important steps to improve the ways salmon are farmed. But the persistent problems, critics say, reveal that neither the industry nor the government has fully grasped the need for the far-reaching changes required not only to protect consumers and the environment, but also one of Chile's most important industries from itself.

They are not the only ones concerned. In the midst of the virus crisis, Chile has continued to raise salmon for export with chemicals and medications not approved for use in the United States and Europe, according to documents from regulators.

While the U.S. Food and Drug Administration says Chile made some progress in tackling its problems, it will keep Chilean imports of farmed fish under special scrutiny for the time being.

Chilean government officials and industry officials say the troubles are part of the growing pains of a \$2 billion industry that in less than two decades built itself into the world's second largest exporter and the biggest supplier of salmon to the United States.

The virus afflicting the fish, infectious salmon anemia, is not harmful to humans, they note. But after The New York Times reported on Chile's dying farmed fish last year, some buyers, like the supermarket giant Safeway, restricted imports from Chile.

The troubles spurred the Chilean government to step up its controls. Last year Sernapesca, Chile's national fisheries agency, tripled its inspections of farmed fish, said Felix Inostroza, the agency's director.

Among other things, the measures now being weighed by the Chilean Congress, which are expected to be passed before April, would thin the density of salmon pens, where overcrowding has contributed to the virus's spread, and reduce the use of antibiotics.

The authorities also plan to organize aquaculture permits into "neighborhoods," where salmon companies will be required build in rest periods between production cycles, to give the marine environment time to recover, said Rodrigo Infante, general manager of SalmonChile, the industry association.

But environmental groups say they will continue to lobby for tougher changes. "It is not enough for the industry to voluntarily police itself," said Andrea Kavanagh, manager of the Salmon Aquaculture Reform Campaign for the Pew Environment Group in Washington.

"For too long, the government has ceded to industry convenience," she added, "permitting chemicals known to harm its environment as well as consumers."

Her group obtained Food and Drug Administration inspection reports last year in an open-records request showing that Chilean producers had used three chemicals that are effectively banned in the United States.

Industry and Chilean government officials say the chemicals are not harmful to consumers when used in the right ways. "Just because a substance is not allowed for use does not necessarily mean it poses a risk to human health," said Alicia Gallardo, the head of the aquaculture unit of Sernapesca.

But Chilean companies have struggled to comply with the regulations of other countries, particularly as they cope with a parasitic bacteria, rickettsia, carried by sea lice, which causes infection-prone lesions.

The industry is using anti-parasitic treatments like emamectin benzoate, a pesticide fed to the fish, to treat the lice infestations, and antibiotics to control the resulting infections.

FDA officials said that emamectin could be used in limited cases in the United States but that it was one of the three prohibited chemicals that were highlighted in FDA inspection documents last April.

The others were oxolinic acid and the antibiotic flumequine, according to the FDA inspection reports recovered by the Pew Environmental Group.

Copies of the documents were shared with The New York Times, and their authenticity was verified by Food and Drug Administration officials, including Donald Kraemer, the agency's deputy director in the office for food safety.

In response to the findings last year, he said, the FDA put three firms - Cultivadores de Salmones Linao Ltda., Empresas Aquachile and Alimentos Cuisine Solutions - on an "import alert," which required that they prove shipments were drug-free.

The Food and Drug Administration lifted the alert after the companies put in added controls, Kraemer said. From May to July, the agency also increased the number of fish samples it tested from Chile, he said. None of the agency tests came up positive for any banned drugs. But, Kraemer said, the agency does not have a reliable way to test for emamectin.

Empresas Aquachile declined to comment on the Food and Drug Administration inspections.

Alex Miquel, the chief executive of Alimentos Cuisine Solutions, said that since being notified of its violations in October, the company began testing each batch of salmon that it purchased from other companies.

In e-mailed responses, Alvaro Jimenez, managing director of Chile operations for Marine Harvest, which controls Cultivadora, noted that the Food and Drug Administration alert was not based on detection of drug residues in the fish,

but rather on documents detailing the company's drug control procedures at the plant. "We are now in line with the requirements," he said.

The Chilean firms did not stop using the drugs, said Kraemer, the Food and Drug Administration official. Rather, they increased the "withdrawal period" for the fish - the length of time they hold the fish after they are treated with the drugs, he said.

Still not fully satisfied, the agency has scheduled a "system review" for this March in Chile, in which it will work with its counterpart in Chile, Sernapesca, to address how the country will deal with its fish diseases.

"We need to be able to know if they can control it on their side of the ocean, so we don't have to do it on our side," Kraemer said.

Chilean government officials, concerned about job losses in the south, say they are determined to reform the industry. "But this has to be done with incentives," said Hugo Lavados, Chile's economy minister.

In November, the government announced that it would provide \$120 million in loan guarantees to help producers meet the new regulations quickly. But this year, producers still expect salmon output to drop by about 30 percent, said Cesar Barros, president of SalmonChile.

Pascale Bonnefoy contributed reporting from Santiago.

<http://www.azocleantech.com/Details.asp?newsID=4558>



Sustainable Management of Canada's Ocean Resources The Goal of New Network

Already considered among the world's top oceans research institutions, Dalhousie University is celebrating the recent launch of the NSERC Canadian Healthy Oceans Network (CHONe). CHONe will bring together Canada's marine science capacities and provide a baseline of information against which future changes in the oceans can be monitored and understood. The network addresses a pressing need for scientific data to ensure proper conservation and the sustainable use of Canada's ocean resources.

CHONe is a large, interdisciplinary research network which includes Fisheries and Oceans Canada and seven other government laboratories, and is aimed at ensuring sustainable management of the country's ocean biodiversity resources. The network involves 65 researchers from 15 universities, including ten from Dalhousie. The research effort is led by Paul Snelgrove at Memorial University, and a group of 6 theme leaders, one of which is based at Dalhousie (Anna Metaxas, Oceanography). Much of the research to be conducted will be focused on improved management of living marine resources including key commercial species, such as lobster and cod, and on developing tools to enhance sustainable development of the oceans by marine industries such as oil and gas, as well as fishing.

There are 3 main research themes in CHONe:

Marine Biodiversity aims to characterize biodiversity at multiple scales and mainly in frontier areas, such as the Arctic and the deep sea. Paul Bentzen (Biology, with postdoc Ian Bradbury) leads a project to document the colonization history through the Arctic of marine organisms that are currently present both in the

Atlantic and Pacific oceans. Anna Metaxas is involved in a project that measures biodiversity on the ocean floor of the deep sea (including areas of deep-water corals) off Nova Scotia.

Ecosystem Function will attempt to link processes that occur at the ecosystem level to biodiversity. Jon Grant (Oceanography, with Mike Dowd, Maths & Stats) contributes to a project that will measure and model nutrient cycling in benthic communities in the Arctic, while Metaxas will work with a team to measure natural variability in benthic systems using cabled observatories, such as VENUS and NEPTUNE, on the west coast. Bob Scheibling (Biology, with Sara Iverson and Don Bowen) will examine the effects of changes in the kelp ecosystems in the shallow subtidal habitats of Nova Scotia on functions such as food production and nutrient cycling, as well as on biodiversity.

Population connectivity examines the role of dispersal of early life stages on patterns of diversity and population resilience to disturbances. Metaxas is one of the Theme leaders and also involved in a collaborative project with Chris Taggart and Barry Ruddick (both Oceanography) that will evaluate the relative performance of different indices of dispersal and connectivity using contrasting species, such as lobsters, mussels and crabs.

NSERC is providing \$5 million in funding over five years to CHONe, with Fisheries and Oceans Canada adding \$1.9 million in in-kind contributions. The Government of Newfoundland and Labrador, through the Department of Innovation, Trade and Rural Development is also supporting the network with a contribution of more than \$1 million from its Industrial Research and Innovation Fund. An additional \$700,000 in cash and in-kind contributions has been secured from Memorial University, with other government and private sector partners contributing another \$600,000 in in-kind support.