

Aquaculture News and Information from Around the World
SeaWeb Aquaculture Clearinghouse
February 25, 2004

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1. Farmed Salmon Even Enviros Can Swallow (BC)

TheTye.ca
www.thetye.ca/News/current/Farmed+Salmon.htm
Feb. 23, 2004
By Jared Ferrie

For anyone familiar with the fierce debate over B.C.'s salmon farming industry, it's hard to imagine the two sides agreeing on anything. But the rhetoric is sometimes misleading. And new technology could offer a way out of the impasse.

"I think if some people insist upon a fresh product 365 days a year then there is a place for a salmon farming industry," says Otto Langer.

The sentiment is not overly controversial in most circles, but considering the source it's surprising: Langer is resident aquaculture guru at the David Suzuki Foundation, the organization that has led the attack on B.C. salmon farming industry over the past decade.

Salmon farmers struck back in an often pitched battle of words. And propaganda from both sides has left many consumers confused.

Langer says the Suzuki Foundation has been misrepresented. He acknowledges the role of salmon farms in providing a seasonal product year-round. What he and other environmentalists object to is the way the farms are currently run. But there are methods of salmon farming that the foundation could live with.

Fish farms might save us

In fact, aquaculture, which includes farming herbivorous fish and other seafood sources like oysters, could be part of the solution to the global fisheries crisis—a point that at least some in the environmental, government and industry camps can agree on.

The world's fisheries have reached their maximum potential according to the United Nations Food and Agricultural Organization (FAO). At the same time, global seafood consumption is on the rise. The oceans' fish are now being depleted at an alarming rate and many species are in danger of extinction, according to Daniel Pauly, a scientist at the UBC Fisheries Centre and one of the world's leading fisheries experts. He says we need to act now if we want to save the world's fisheries.

With wild stocks dwindling and consumption rising, fish farms seem almost natural. But it's not so simple when it comes to farming salmon.

Salmon are carnivorous—"wolves of the sea" as Pauly calls them—and are fed fishmeal. It takes about three or four pounds of fish to make one pound of fishmeal, the upshot being that we end up using more to produce less. Pauly likens this to feeding deer to lions in order to produce lion meat for human consumption.

But Pauly and other critics of the industry say that salmon farming could be ecologically viable if it were done responsibly.

What would a sustainable fish farming industry look like?

Small, for one thing, argues Pauly. He thinks that we have to accept salmon as a luxury item, like caviar, rather than a staple in our diets. "I can imagine a tightly regulated, narrow industry producing for a specific market a high-quality product that would be very expensive."

There are many risks to overcome. Escapes are common and introduce Atlantic salmon into the Pacific environment, diseases can be transferred between farmed and wild stocks, the areas around farms become polluted with drugs, pesticides and feces and, most controversially, open-net farming contributes to sea lice outbreaks.

But many believe new technology can mitigate those risks. They say the first thing we need to do is get salmon out of net cages and into enclosed environments.

Containing the problem

Farmed salmon are usually held in nets suspended in the shallow waters and sheltered coves of the West Coast. Theresa Rothenbush, an aquaculture specialist with the Raincoast Conservation Society, says using closed-containment technology can alleviate many of the dangers to the environment. And she hopes to see a move toward closed containment within the next three to five years.

One company in B.C. is leading the way for the industry. "We are environmentalists in a sense, it's not our focus though~we're business people. We're salmon farmers who feel very strongly that we have to take on this responsibility to protect the environment," says Agrimarine's Rob Walker.

During the NDP-imposed moratorium on salmon farming, the company secured a licence and some government funding to start a pilot project using a land-based closed containment system near Nanaimo. With the project nearing the end of its final year, Agrimarine is preparing to make a leap into the market with its "eco-salmon." The fish, now farmed in a closed-containment facility in Campbell River, should be in grocery stores within a year.

Walker is optimistic about the venture, but he acknowledges the higher costs involved. "Pumping costs are a killer in land-based farms," he says. Closed containment means that oxygen must be pumped into the tanks and water must be constantly circulated.

That's not the only challenge. "There are only certain locations where this technology may be applicable simply because of the existing power grids and availability," says Bud Graham, assistant deputy minister with the provincial Ministry of Agriculture, Food and Fisheries. "If you wanted to move into the central coast, you would have to put a diesel plant in beside your fish farm." That would contribute to yet another environmental problem.

Fortunately, there are creative solutions. Rothenbush points to floating container systems, which would cut down on energy used to pump new water into the tanks.

Langer suggests building small hydro plants along fast-flowing streams to supply power to farms that are off the grid. But he says fish farming operations are unlikely to switch to new technologies without economic incentives. He maintains that it falls to government to drive change.

Fishy economics

Langer acknowledges the difficulty in competing in a global market with countries that have lower costs of production and environmental standards. "It would be nice to be able to bite the bullet and say, 'I'm going to do the right thing.' But then how do you compete with Chile?"

But both he and Pauly say that the B.C. salmon farming industry is highly subsidized anyway. For example, the government pays for research and development and charges low lease rates for farm sites.

Pauly points out that net-cage operations use ocean currents to flush out pollutants and circulate water. The ocean, a public resource, provides the service to salmon farmers for free. He thinks that, given the damage farms cause in the marine environment, industry should have to pay for the service.

Langer thinks redirecting subsidies to sustainable salmon-farming projects would push the industry in the right direction. "If you get two or three working, and if people can make a profit, people will start following them."

Rothenbush suggests that if industry were to account for the true costs of open-net farming, they would be more inclined to pursue closed containment. Her group's research shows the costs of producing salmon in closed containment can be anywhere from on par with open-net farming to 30 percent more.

But she believes the 30 percent figure is misleading because it doesn't consider for the money saved by avoiding open-net farming problems. Yet nobody has done a comparative analysis that includes these costs.

Can consumers change tastes?

The Raincoast Conservation Society is working on a full economic analysis right now, she says. She believes industry will be more inclined to move toward closed containment once they see financial benefits.

If industry had to pay the full cost of its impact on the environment, it would be forced to change, Pauly says. "They could not pollute and produce a cheap product. They would have to produce an expensive product; they would have to go to a niche market."

Rothenbush says such an industry could bring much-needed jobs to coastal towns that have suffered with the decline of the fishing industry.

The provincial government's Graham is cautious but optimistic: "The fish farming industry is not the panacea to solve the employment problems of coastal B.C., but we are promoting modest growth of our aquaculture industry simply because it's part of the puzzle that will help coastal communities develop sustainable long-term jobs."

However, Langer points to a troubling irony: the salmon farming industry is partly responsible for the falling prices that put many fishermen out of work in the first place. "We've put such a glut of Atlantic salmon on the world market that we've forced down the price [of both farmed and wild salmon]," he says. Over the past 10 years the wholesale price of wild salmon has fallen about \$2 per pound.

While knowledgeable consumers prefer wild salmon to farmed~"its firmer, it's tastier, it's less polluted," says Langer~the differences seem to be lost on the general public.

Rothenbush says a massive public education campaign is in order. She hopes that once people have a better understanding of the differences between wild and farmed salmon, and between open-net and closed-containment techniques, they will adjust their buying habits accordingly. She says the results of such efforts south of the border are having an effect.

Drive for 'organic' labelling

Walker is confident that changes in consumer preferences will mean success for Agrimarine's salmon, and the pilot project has shown that consumers will pay a small premium. "Our goal is to be competitive," he says. "We feel that if we can compete on price, then the fact that it comes from an environmentally responsible situation will give us a market edge."

Rothenbush and Langer point to the importance of labelling the product while educating the public. "We're really encouraging the Certified Organic Associations of British Columbia to certify closed-containment salmon," says Rothenbush.

Vegetarian salmon?

Much of the education lately has been of the negative kind. A study published in Science (January 9, 2004 issue) claims contaminant levels in farmed salmon are so high that consumers should consider eating it only twice a month. Closed containment systems don't address this.

The Science study found much higher rates of contaminants such as PCBs in farmed salmon than in wild salmon. This is because the farmed salmon eat fishmeal made from already contaminated fish, and the contaminants concentrate as they move up the food chain.

Some claim the diet of farmed fish must change, to reduce contaminants and cut down on overfishing of other species to feed salmon.

Pauly is concerned about overfishing to make fishmeal, but he remains sceptical. "If you feed a salmon tofu, it's going to taste like tofu."

Rothenbush is more optimistic. She points to an American company, Freedom Feeds, that has started manufacturing a high protein, grain-based feed. One idea, she says, is to feed salmon a vegetarian diet but give them a finishing diet high in fish oil.

'Salmon farmers as environmentalists'

In an industry that has been accused of putting profit ahead of human health and the environment, it's encouraging to find voices concerned about all the costs. "We're in kind of a funny position because we're salmon farmers, we're environmentalists, we're in the middle of the two antagonistic groups," says Walker.

This is one of the most polarized conflicts I've seen in terms of environmental issues," Langer says. He wishes Agrimarine's "progressive thinkers" well, but he also wishes government would provide incentives and do research that would help make such alternatives viable.

Rothenbush also stresses the need for government to take an active role in promoting sustainable salmon farming. "Show me any industry in British Columbia that changes without being kicked in the butt, and I'll eat a farmed salmon," she says.

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2. Lawmakers to consider aquaculture's future (Maine)

Bangor Daily News

www.bangornews.com/editorialnews/articles/417544_021904lawmakerstoconsider_medgecomb.cfm

February 19, 2004

By Misty Edgecomb

Legislators are considering a bill to formalize many of the recommendations of a task force that hoped to "create a welcoming atmosphere" and secure the future of Maine's aquaculture industry.

"The fears about over-proliferation of aquaculture, while understandable, are generally unfounded," said Paul Anderson, director of the Maine Sea Grant and

chairman of the 11-member Task Force on the Planning and Development of Marine Aquaculture.

"It's an important part of our coastal economy," he said. To that end, many of the recommendations seek to make aquaculture regulation simpler and more efficient. Some recommendations, however, have been criticized as liberalizing the state's rules at the expense of local communities and the environment, or unfairly burdening the struggling industry.

More than 40 people attended a public hearing Wednesday in the Augusta Civic Center on a broad bill, LD 1857, which seeks to make dozens of changes to the state's aquaculture management rules. Among the most controversial proposals Wednesday was a change that would double the maximum acreage of leases that can be held by a single fish or shellfish farm, from 250 to 500 acres. While the size of leases will not change, farms would be allowed to hold more of them.

The fishing community worried that an increased aquaculture footprint could cut into fishing grounds.

"True fisheries is a balance," said Robert Ray, a lobsterman and clam digger from the Deer Isle-Stonington area who said he feared for his job security with the growth of aquaculture. "Make sure everyone has a right to earn a living."

Roger Fleming of the Conservation Law Foundation agreed, testifying that such a policy favors multinational aquaculture corporations over local fishermen. But the task force, the industry and the Department of Marine Resources all argued that fish farms need to increase their lease sites in order to perform the pen rotation and fallow periods that have been required by a federal judge, and now appear in the state policy.

"In order for a firm to stay in business, they need to have some flexibility," Anderson said. Proposals that the Department of Marine Resources consider the number and density of local aquaculture sites, as well as the presence of conservation lands within 1,000 feet of a lease site before granting a lease, also raised concerns. The bill defines conservation lands as those owned by federal, state or municipal governments, or land and easements purchased through the Land for Maine's Future fund. State agencies couldn't criticize the second item fast enough, with representatives from both Land for Maine's Future and the Department of Marine Resources testifying against the idea. Tim Glidden, who heads Land for Maine's Future for the State Planning Office, worried that the

program could suffer "unintended consequences," and lose the chance to preserve valuable properties.

"There could be unnecessary opposition arising if you started to see concern about the possible negative impacts to the economic potential of coastal waters," Glidden said, adding that he supports an amendment proposed by the Department of Marine Resources that would keep consideration of aquaculture's impact on conservation lands but remove the mention of Land for Maine's Future.

Industry spokesman Sebastian Belle was less willing to compromise, saying that the conservation lands policy could create "dead zones" that drastically reduce the area available for new aquaculture development. The state has not even mapped those waters that would fall within 1,000 feet of conservation land, he said.

"To make such a sweeping policy change without understanding how much of Maine's waters will be affected is stunningly bad policy," said Belle, who serves as executive director of the Maine Aquaculture Association in Hallowell.

Claire Grindal of the Downeast Lobstermen's Association worried about a precedent being set that could someday drive other marine industries out of areas of the coast that are within sight of conserved lands.

Conservationists, such as Richard Knox of the Maine Coast Heritage Trust, argued that the bill only asks that impacts be considered - the Department of Marine Resources commissioner would have every right to approve these leases, he said.

The Marine Resources Committee has scheduled four work sessions to discuss LD 1857 and the task force report: Monday, Feb. 23; Wednesday, Feb. 25; Monday, March 1 and Wednesday, March 3. All will be held in Room 437 of the State House.

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3. Aquaculture put to test by regulators (US)

News-press.com

www.news-press.com/news/local_state/040223gulffishfarms.html

February 23, 2004
By Byron Stout

Ocean fish farms could help reduce the \$7 billion deficit this country runs up each year in seafood imports.

NOAA Fisheries, an agency of the U.S. Department of Commerce, likes that idea.

But concerns about environmental risks and fish farmers encroaching on those who already make their living on those waters, wild fish populations have given pause to a wholehearted endorsement by the feds.

In fact, in September, NOAA Fisheries denied a permit application for an experimental fish farm in the Gulf of Mexico after it was opposed by 340 individuals, a commercial shrimping operation, six environmental organizations and the Florida Department of Environmental Protection.

Only the Florida Department of Agriculture thought the proposed project to farm-raise red snapper, pompano, mahi-mahi and some other fishes was a good idea.

Thursday, Florida residents, environmentalists and commercial fishermen will have a chance to voice their opinions on open-ocean aquaculture in the Gulf during a meeting in Madeira Beach, near St. Petersburg Beach.

The fish farms under consideration in the Gulf range in scale from relatively small cages to pens encompassing 15,000 cubic meters ~ a box roughly as long as the width of a football field, with a width and depth of 20 yards each.

Phil Steele, a NOAA Fisheries administrator for the Gulf of Mexico, said the potential of the farms now being used worldwide to grow salmon and shrimp is too great to ignore.

„If we can do this right, why should we keep giving jobs to foreign countries, instead of doing it ourselves?“ Steele asked. „The key thing is doing it right.“

Foreign countries, however, do not have the Clean Water Act, which was used by environmentalists to successfully sue a Maine salmon farming operation in June 2002. A U.S. magistrate found the fish farmers guilty of polluting the

ocean with fish excrement, fish food, chemicals used as fish food additives and medication, chemicals used to protect the fish pens against marine fouling and escaped salmon.

Fish that inevitably escape from ocean pens are especially worrisome if they are genetically altered to breed in captivity, or to grow faster than wild fish, said Marianne Cufone. She will attend the Madeira meeting as an attorney and fisheries biologist for the Ocean Conservancy, which claims 900,000 members and volunteer environmental activists.

„One concern is the genetically altered fish will mate with wild fish and produce Frankenfish, that could take over the wilds.

„It's hard to predict what might happen,“ said Cufone, who will urge in-depth studies of foreign fish farming operations before any aquaculture projects are begun in the Gulf.

For now, open-ocean fish farming is illegal without a permit for exemptions from laws that control fishing in U.S. waters out to 200 miles. Most commercially valuable finfish, for instance, already are regulated by laws that would put would-be farmers in violation of minimum size limits at the outset.

The first Gulf permit for an aquaculture exemption to a fishery management plan was granted in 1997 to a company that successfully raised redfish to marketable size in one year, in pens next to offshore oil platforms in Texas.

Since then, however, NOAA Fisheries has decided only scientific experiments ~ not commercial ventures ~ should be granted aquaculture exemptions to current regulations for wild fish.

So now federal fishery managers are considering a blanket amendment that would regulate aquaculture under fishery management plans not only for redfish, but also for corals, shrimp, spiny lobsters, stone crabs, coastal migratory fish such as the mackerels, and reef fish including snappers and groupers.

AQUACULTURE ISSUES

Ray Pringle, 62, is a third-generation commercial fisherman who says his family started fishing for mullet on the Gulf Coast in the mid-1800s. He is president of

the Florida Fishermen,s Federation, which he said has 11 chapters of mom-and-pop commercial operations, including 175 members on Pine Island.

Pringle raises lots of issues with aquaculture, including the escape of altered fish ~ „I don,t know how you can control a hurricane%o ~ and pens that could displace fishermen from their traditional grounds.

In the last year calculated, 2002, Florida,s commercial fishing fleet landed \$114 million worth of shrimp, lobster, crabs and finfish.

„If all of a sudden you say we,re going to replace you guys with pens out here ~ uh uh, I don,t go along with that at all,%o Pringle said. He said he has been to the coast of China, where there was nothing in the water but pen buoys, as far as the eye could see.

But Pringle is a pragmatist who also sees opportunity in aquaculture, if not necessarily in open-ocean farming.

„If it,s going to work, there,s a lot of people eating seafood and it,s got to come from somewhere,%o Pringle said.

„I,m not going to say ŒNo dadgum, I don,t want it,, because I don,t know that much about it. I know what I,ve seen in other countries, and I don,t want to see that.%o

Pringle said he favors small-scale experimentation before the government makes any commitment to aquaculture.

One application might be under offshore oil platforms that now dot the northern and western Gulf.

The big rigs could be fenced in to farm not only fish, but sponges that produce medical chemicals, and coral-covered „live rocks%o for the aquarium trade.

THE CURRENT SITUATION

The first phase of federal „scoping%o process was the creation of an 81-page scoping document that strives to address every known aspect of open-ocean aquaculture.

Several meetings in cities around the Gulf have preceded the Madeira Beach public hearing, which will be followed by the last chance for public comment in Key West on March 1. Those who would comment in writing have until March 5.

At that time public input will be evaluated, although the timetable thereafter is inexact.

Wayne Swingle, director of the Gulf of Mexico Fishery Management Council, noted that establishing guidelines for open-ocean aquaculture is part of a five-year strategic plan for NOAA Fisheries that first was drafted in 2001, with no notable progress since.

The Gulf Council volunteered to move forward on aquaculture issues because of emerging interest in the business.

Given the complexity of U.S. laws, partners in the regulatory process also will include states, the Environmental Protection Agency, the U.S. Army Corps of Engineers, the Food and Drug Administration, the Department of Agriculture and possibly others.

„Hopefully,‰ Steele said, „the issues surrounding open-ocean aquaculture can be resolved.‰

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4. This isolated fish farm no threat to Gulf ecosystem (US)

News-press.com

www.news-press.com/news/local_state/040223gulfside.html

February 23, 2004

By Byron Stout

One place marine aquaculture doesn,t represent a threat to the Gulf of Mexico is nestled behind live oak trees, 17 miles inland at Mote Aquaculture Facility in Sarasota.

„There,s no environmental impact at all. It,s a closed system. There,s no discharge off this farm,‰ said Kevan Main, Mote,s aquaculture director.

Main already has completed the first round of testing Florida pompano as a candidate for fish-farming in recirculating water systems, with results that lead her to believe the technology for commercial production may be complete in two years. At that point she hopes Mote will have discovered how to spawn and grow multiple generations of pompano to a market weight of 1.5 pounds in 1.5 years.

Across the state at Fort Pierce, Megan Davis is even more optimistic about farming pompano, which she notes are bringing about \$15 per pound retail, when they're available at all.

So far, Davis, work as director of aquaculture at Harbor Branch Oceanographic Institute, in collaboration with the U.S. Department of Agriculture Research Service, indicates they may be able to grow pompano to 1.5 pounds in 10 to 12 months. And that, she notes emphatically, is without the use of growth hormones.

Other high-dollar saltwater fish that researchers see as filled with potential for raising in indoor greenhouses include Southern flounder, black seabass, red snapper and grouper.

At some points in their lives, which ideally will be full-cycle within the farm system, some fish don't even need salt water. They do well on the hard water that can be pumped right out of the ground in many parts of Florida.

Aquaculture research can be expensive and time consuming. The Mote investment stands at about \$2 million for its full-scale demonstration facility, and the bottom line on raising sturgeon for meat and caviar still is years away.

But the goals at Mote, Harbor Branch and research facilities in Coral Gables, Louisiana and North Carolina all are the same ~ to develop recirculating marine aquaculture technology so fish farmers can bring their products to market at a profit.

Not all fish are created equal, so Main doesn't anticipate recirculating systems ~ replete with air-conditioned buildings, oxygenating equipment, refrigeration, filters and computerized monitoring equipment ~ will ever replace pond culture for low-cost fish such as catfish. Nor is it the way to go when raising big marine species that need the elbow room provided by ocean pens.

„But it,s something we,ve got to do because of the cost of coastal land, and of the environmental concerns about siting on the coast, especially in Florida where you,re tourism-based. Aquaculture farms present a lot of opportunities in those areas,% Main said.

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5. Fish farms still ravage the sea

Nature.com

www.nature.com/nsu/040216/040216-10.html

17 February 2004

Peter Aldhous

Fish farms are in danger of losing any ground they may have gained over the past few years to becoming a sustainable industry, according to Rebecca Goldberg, a senior scientist with Environmental Defense in New York.

While aquaculture is proving less wasteful now than in the late 1990s, it is using up more resources than ever before. And recent US policies could be set to make things worse.

Environmental Defense is concerned about the sustainability of aquaculture primarily because farmed fish are frequently fed on meal made from wild-caught fish. In 2000, Goldberg co-authored a paper revealing that 1.9 kilograms of wild fish were on average required to produce every 1 kg of fish farmed in 1997.

Goldberg has now recalculated these figures with more recent data, and has come up with some good news. In 2001, each kilo of farmed fish consumed only 1.36 kg of wild-caught fish.

This increase in efficiency is due in large part to an expansion of freshwater aquaculture in China, says Goldberg. Fish farmers there tend to raise carp or tilapia, which are vegetarians, and so don't consume any wild fish stocks.

Efforts are also being made to coax carnivorous fish, such as salmon, into eating feed based on vegetable protein. "They're going to have to figure out how to use less fishmeal in the long run," says Claude Boyd, an expert on aquaculture at Auburn University in Alabama.

But it's not all good news. The expansion of aquaculture has meant that the total catch going towards fish food has continued to increase, from 10 million tonnes in 1997 to 12 million tonnes in 2001. As aquaculture continues to boom, it will exact a growing toll on species such as sardines and herring, Goldberg says.

The situation could be made worse by a new policy from the US National Oceanic and Atmospheric Administration (NOAA), which aims to promote offshore farming of species such as red snapper and cod. By growing these fish in cages held almost 5 kilometres off the coast, NOAA wants to expand the worth of the US aquaculture industry from \$1 billion to \$5 billion per year.

The problem is that these fish are carnivores, which could reverse the trend to use feed containing a lower proportion of fishmeal. "An explosion in growing carnivorous fish can easily override these efficiency gains," says Goldberg.

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6. B.C. forgives fish farms for more than \$1.7 million in fines

SFGate.com

[www.sfgate.com/cgi-](http://www.sfgate.com/cgi-bin/article.cgi?f=/news/archive/2004/02/06/state0918EST0041.DTL)

[bin/article.cgi?f=/news/archive/2004/02/06/state0918EST0041.DTL](http://www.sfgate.com/cgi-bin/article.cgi?f=/news/archive/2004/02/06/state0918EST0041.DTL)

February 6, 2004

Documents show the British Columbia government refunded hundreds of thousands of dollars in fines to fish farmers and forgave other fines shortly after the Liberal party took office in May 2001.

The Sierra Legal Defense Fund said Thursday it obtained documents showing the fish farming industry had been let off the hook for as much as \$2.3 million (US\$1.74 million) in fines.

"We don't know the full fiscal impact, because we don't have the full story," said Tim Howard, a Sierra Legal lawyer.

Provincial Auditor General Wayne Strelloff said he would take a closer look at government financial statements concerning surrounding the industry, although he approved them earlier.

"When you do sign off on a set of financial statements, you don't look at every transaction," Strelieff said, "so I'm not sure what due diligence we did on that particular transaction and what the facts are, and that's why I've asked to be briefed on it."

Strelieff said he expects to know more by next week.

"We're concerned that these documents indicate that one of the first things the Liberals did when getting into office was hand out a favor to the aquaculture industry, the same industry that donated to their election campaigns," Howard said.

Premier Gordon Campbell said fish farmers deserved a break because their license and tenure renewals and applications had gotten snarled in a lengthy government-generated backlog.

He and George Abbott, sustainable resource management minister, blamed the mess on the New Democratic party government that preceded the Liberals in Victoria.

"Those comments from Sierra Legal are a gratuitous and unwarranted insult to the dedicated public servants in this government," Abbott said.

Salmon farmers were fined for illegally expanding operations on government lands. They argued that they were trying to comply but found their paperwork was being tied up.

Howard said the disputed fines apparently were forgiven without ministerial or cabinet approval, adding that the government should give a clear and public explanation why some were refunded and others forgiven.

Campbell said the decision was made when the provincial agency Land and Water British Columbia decided to clear up a pile of about 3,000 various applications and documents involving the aquaculture industry.

"As you know, there was a large backlog and we've said quite clearly to people that our job is to serve the public and when the government is at fault, as Land and Water B.C. felt they were ... they didn't feel it was fair to penalize people because they weren't getting their job done," he said. The agency "has the

authority to act in that regard and they did what they thought was the best for the public."

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7. Fish escape and chemical residues in scallops call effectiveness of salmon farm regulation into question (Maine)

Press Release from NELC
February 13, 2004

Escape Of 2,000 Fish Comes One Day After Salmon Farm Passes Inspection

A Chemical Used To Control Sea Lice Is Found In Nearby Scallops

New information, obtained under the terms of a court-approved settlement of a federal Clean Water Act lawsuit, raises more questions about the environmental and public health impacts of Maine's salmon farming industry and the efforts of state regulators to minimize those impacts.

In a letter sent to the Maine Department of Environmental Protection (DEP) and Department of Marine Resources (DMR) today, four environmental groups — Environment Maine, National Environmental Law Center (NELC), Conservation Law Foundation, and U.S. Public Interest Research Group — are calling on the agencies to re-examine their oversight of salmon farms and to share more information with the public.

The environmental groups' letter was prompted by two new developments. On November 6, 2003, approximately 2,000 hatchery-bred Atlantic salmon escaped from Heritage Salmon, Inc.'s Birch Point salmon farm, located in Cobscook Bay, near the town of Perry. Heritage reported the escape to DMR immediately, as required by the terms of its settlement agreement with U.S. PIRG. But DMR failed to inform the public or salmon conservation groups of the escape, even though it participates with environmental organizations in a fish containment working group.

„Heritage actually did what we had asked the company to do: review and formalize its fish containment system, hire a third party to conduct regular audits, and report any escapes,“ said NELC senior attorney Josh Kratka, who represented U.S. PIRG in the lawsuit. „But state regulators have since dropped

the ball: even though the fish escape occurred less than 24 hours after an inspector gave the farm in question a passing grade, neither DEP nor DMR appears to have taken steps to ensure that Heritage, other companies, and outside inspectors avoid repeating the mistakes that allowed this disaster to happen.‰

The escape was reportedly caused by a piece of mooring equipment that became entangled in a fish containment net under rough water conditions and ripped a large hole in the net, through which the fish escaped. Escaping farm fish have been identified as a serious threat to the survival of Maine,s endangered wild salmon.

„One saving grace is that, thanks to U.S. PIRG,s settlement agreement with Heritage, the fish that escaped had already been marked with a distinctive fin clip and had been genetically tested to ensure that they are from North American stock,‰ Kratka added.

In a second disturbing development, drug residue tests performed by Heritage last November on wild scallops found near the company,s Birch Point salmon farm revealed the presence of emamectin benzoate. Emamectin benzoate is the active ingredient in a chemical called „Slice,‰ which is mixed into salmon feed to control infestations of sea lice, and is also an active ingredient in some land-based insecticides.

Heritage,s drug residue test, mandated by the U.S. PIRG settlement agreement, found that emamectin was present at a concentration of 6.7 parts per billion ^ over three times higher than the safety standard of 2 parts per billion set by the U.S. Environmental Protection Agency for emamectin residues in beef, pork and milk. (The safety standard is found in the Code of Federal Regulations, Part 40, section 180.505.) Similar tests performed by Heritage at other sites last fall showed no detectable levels of emamectin in scallops, lobster, or pollack.

Commercial and recreational harvesting of scallops, as well as of lobster and fish such as pollack, occur near the Birch Point facility and other Maine salmon farms. Salmon farms are not allowed to harvest and sell salmon that have ingested Slice until 60 days after the treatment has ended, so that residues are not ingested by consumers.

„It is imperative that the state Department of Environmental Protection, the U.S. EPA, and the U.S. Food and Drug Administration take steps to ensure that

drug residues from salmon farms are not being consumed by the public in seafood that is harvested by recreational or commercial fishermen,% said Kratka.

Slice was approved for use at Maine salmon farms after receiving a temporary authorization under the U.S. Food and Drug Administration,s Investigative New Animal Drug program. In a recent scientific study, however, laboratory tests showed that emamectin can affect the endocrine system of lobsters and induce premature molting.

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8. A commercial fish farm could be a use for Venoco Inc.'s decommissioned Platform Grace some eight miles offshore (California)

The Mercury News

www.mercurynews.com/mld/mercurynews/news/local/7948692.htm

Feb. 13, 2004

The nonprofit Hubbs-SeaWorld Research Institute in San Diego wants to use Platform Grace to build an experimental operation that could produce up to 300 tons of fish annually.

The five-year plan would allow Hubbs to grow and sell California yellowtail, bluefin tuna and striped bass raised in four underwater cages, and use deck space on the platform to raise cod, halibut and abalone that would be released to increase fish populations.

Hubbs officials said fish eggs would be hatched into larvae at the institute's Carlsbad facility and raised to a certain size before being shipped to the offshore platform.

Although market prices vary, one ton of fish raised in the operation could fetch \$7,000 or more, making 300 tons worth more than \$2 million annually. Profits would be used for marine research, Hubbs officials said.

Critics charged such offshore operations would open the door to privatizing parts of the ocean.

"I just don't think we need offshore aquaculture in our oceans. It has ominous implications," said Mike Skladany, director of Minneapolis-based Institute for Agriculture and Trade Policy. The organization supports small, onshore hatcheries, particularly family-owned farms in rural communities.

Hubbs project president Don Kent said offshore farming was a responsible way to increase fish stocks and that such commercialization was no different from any entity obtaining a legal license to fish for commercial or recreational purposes.

"We are either going to learn how to do this with these experimental programs or we're going to pass this off to other countries and say, `You grow it for us and get it to our tables,'" Kent said.

The Hubbs facility would be the first for fin fish in federal waters on the West Coast.

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9. Scientists find safer way to keep farmed fish virus-free (Japan)

JustFood.com

16 Feb 2004

By Michael Fitzpatrick

Japanese researchers claim they have perfected a technique that will keep farmed fish and shellfish virus-free without the use of controversial anti-bacterial drugs or chemicals.

Microscopically small bubbles that carry ozone were successful in killing the Norovirus when circulated in seawater in experiments by scientists at the National Institute of Advanced Industrial Science and Technology in Tsukuba.

Norovirus is responsible for many cases of food poisoning in winter months, particularly from infected oysters. The success trials have led to team to start using the technique to suppress legionella bacteria and viruses that commonly effect livestock in fish farms.

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10. Sealord Greenshell Mussels have been certified organic (NZ)

Port Focus

www.portfocus.co.nz/news.php?cat_name=nz&s=735

February 17, 2004

Sealord Greenshell Mussels have been certified organic after the company created a world benchmark for organic mussel farming.

Nelson-based Sealord is the largest processor and marketer of New Zealand Greenshell Mussels. Its comprehensive mussel farm monitoring programme, along with standards and codes of practice that were developed in partnership with New Zealand certifying agency Bio-Gro, is a world first.

Sealord's programme involves detailed analysis of factors that affect the waters surrounding a mussel farm, a new code of practice for mussel health and welfare, a 20 page checklist for quarterly audits, and systems to continue improving its farming practices and monitoring.

„It's a great achievement by the team and an excellent example of years of commitment to healthy sustainable seafood and sound environmental practices paying off for us,“ said Sealord Chief Executive Doug McKay.

„All New Zealand Greenshell Mussels are naturally grown and the farms are monitored to ensure they meet stringent food safety standards, that's a given.

„For the past eight years our shellfish research and production teams have been going the extra mile. They've been running full environmental farm monitoring and water quality programmes, gathering data to better understand and manage the sustainability and husbandry of mussels.

„The data, and the systems we'd evolved, played a vital role in achieving organic certification,“ Mr McKay said.

„We have also supported a North American based initiative to help develop organics standards for aquaculture through the University of Minnesota-based Institute for Social, Economic and Ecological Sustainability (ISEES). This Institute has been collaborating with the USDA National Organics Programme to define organic standards for aquaculture and helped us focus on what was possible.“

Mr McKay said buyers in the United Kingdom and North America were already showing interest in the product and negotiations with a major United Kingdom retail chain were well advanced.

BioGro Technical Director Seager Mason said it was generally accepted that open sea aquaculture is a unique food production sector and one for which it is challenging to define standards for organic certification. „It is neither fully land-based, with a closed system of inputs and outputs, but nor is it an open sea wild fishery with ungovernable inputs and outputs.

"Sealord's world-first initiative has set some of the cornerstones for certification - namely the need for good long-term data on mussel farming areas and for production area-specific programmes. It will have a significant impact on the positive perception of New Zealand in a world market that is becoming increasingly concerned about food integrity and food safety issues."

Mr Mason said BioGro will build on its experiences with Sealord and their Greenshell Mussel` organic certification programme to continue to work with the International Federation of Organic Agriculture Movements (IFOAM) on their aquaculture standards.

"IFOAM is regarded as the international authority on organic certification and hopefully in 2004/05 will be ratifying a set of standards for aquaculture. We see the model Sealord has developed as a benchmark for those standards."

„Sealord's wonderful and positive initiative could have a significant impact on how world organic aquaculture standards develop," says Dr Anne Kapuscinski, Director of ISEES and Professor of Fisheries, Wildlife and Conservation Biology, University of Minnesota.

"The world will increasingly look to aquaculture to provide quality seafood as wild fisheries are depleted. And, in turn, consumers will look to companies and brands for seafood and shellfish that has been grown according to organic principles that promote environmentally responsible farming.

"Sealord has shown that it is possible to practice the organic ethic in open sea mussel farming and that's a significant step forward for both world aquaculture and organics," Dr Kapuscinski said.

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11. Jellyfish project potential: Minister (Malaysia)

Daily Express

www.dailyexpress.com.my/news.cfm?NewsID=24820

February 16, 2004

Agriculture Development and Food Industry Assistant Minister Datuk Dr Patawari Haji Patawe said the aquaculture industry will play a vital part in food production, in line with the development of the fisheries and agriculture industries.

In this respect, he said that the latest in the aquaculture industry would be the jellyfish breeding activities, which had a ready market in China and Japan.

Patawari said this while releasing some 100 jellyfish fries into the Merotai river, in Tawau, on Sunday.

The jellyfish project is a joint venture between Syarikat M-Square Sdn Bhd and China-based Dalian Glory Technology Ltd which has 15 years, experience in aquaculture activities with a market chain in Japan, Hong Kong, Taiwan, the Philippines, Australia and the Middle East.

The project is divided into three stages - nursery, breeding and processing.

M-Square Sdn Bhd is collaborating with the Fisheries Department in setting up the jellyfish nursery at Tanjung Badak, in Tuaran, while the joint venture has proposed to set up a similar nursery at Sungai Imam in Tawau.

Both centres are expected to churn out 100 million jellyfish fries of the *Rhopilema Esculenta* species which has a high commercial value in China, Japan and Korea.

Jellyfish could greatly increase in size within 10 days, and weighing up to five kilogrammes in three to four months.

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