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Farmed Salmon Even Enviros Can Swallow

Agrimarine's cutting edge aquaculture may offer the way past B.C.'s 'War in the Waters'

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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.

Jared Ferrie last wrote for Tye about global nannies.

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