Open Nets, Closed Lives

Open-net finfish farming in Atlantic Canada is expanding, but at great costs to the marine environment and communities

Over 30 years ago, open-net salmon farming operations were introduced into the Atlantic Canada marine environment. At that time, these were small, locally operated fish farms (stocked with around 5,000 fish) that benefited the local communities. These operations, owned by locals, who bought supplies from other local businesses were, however, soon replaced with large farms owned by a few multinational companies; and with that, benefits to the communities dwindled and impacts on the marine environment increased significantly.

With the size and intensity of these 'new' larger operations came disease, sea lice infestations, and significant degradation to the marine environment. Initially, in Atlantic Canada these open-net finfish operations were largely concentrated in New Brunswick, but companies have expanded to Newfoundland and Nova Scotia. And they are expanding in a big way—proposing and being licensed for farms that do not contain 200,000 or 300,000 fish, but commonly 1 mn fish per site. Such operations (and consequently our coastal waters) will be wrought with problems since companies are using essentially the same technology (open-net) as was used for a lone 5,000-fish farm, and regulations are lax and unenforced. These spell problems and costs to the marine ecosystem, the traditional fisheries and fishermen, and inevitably lead to disease and sea lice infestations.

Sites with larger numbers of fish make existing problems worse, namely, (i) the probability of disease and sea lice outbreaks increases, as does the use of pesticides and chemicals to treat them; (ii) the potential number of farmed fish that will escape and further the decline of already endangered Atlantic salmon populations increases; and (iii) the faecal matter and waste feed pollutants that are released into the marine environment are also increased, degrading the sea bottom and habitat, and changing the ecosystem.

The coastal waters of SW New Brunswick, where these operations have dominated, are prime sites for these problems. They have struggled with disease—infectious salmon anaemia (ISA) outbreak in 1996—and sea lice infestations. In response, the industry has used more lethal pesticides as prior treatment regimes fail due to resistance. The marine environment has been polluted by the release of these chemicals (which are lethal to other non-target species, such as lobster) into the waters. The waters are also routinely polluted by waste, the vast amounts of fish faeces and waste feed that are generated by these operations.

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Production cycle

A conservative estimate of the amount of fish faeces and feed waste that is released into the waters by 1 mn fish, in every production cycle, is 1,000 tonnes. And that is just for one site. Many sites have been approved or proposed for the coastal waters of

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A fisherman in the north of Fraser beach. An independent fisherman can make a much better income than a wage employee of an aquaculture operation

Nova Scotia and Newfoundland. The effect is to degrade the marine environment and fish habitat. The ocean bottom beneath the cages is smothered by the vast amount of nutrients being deposited, and significant species loss occurs here (even, in some cases, to the point of the creation of 'dead zones'). The movement of the water can disperse these pollutants, so that the effects of the environmental impacts can also be far away from the cage sites and can co-mingle with the impacts from other sites in the area, accumulating the negative effects. Scientists of Canada's Department of Fisheries and Oceans (DFO) studying the impacts in New Brunswick have stated that "substantial changes to the functioning of the ecosystem have occurred due to the presence of salmon farms". This cannot be ignored as our traditional fisheries and the rural communities that depend upon a healthy marine environment for their livelihoods have been put at unacceptable risk. Their traditional fishing grounds are being taken away and the marine environment is being degraded. And yet, these problems are being ignored. In its rush to promote the industry, the government's primary responsibility—to regulate it—has been overridden. There is a conflict of interest, and the government's preferred role of promoter is not in the best interest of the public.

What, however, are the benefits of this industry to the Canadian public? Do the benefits that we can expect outweigh these problems/impacts? The government and industry indicate that the communities will greatly benefit by the jobs that are produced, which is the main rationale for promoting the industry. Many jobs have been promised.

But what is actually happening, and what kinds of jobs are created? Are these part-time or full-time, temporary or permanent? The government does not make this clear. However, if we look at the aquaculture employment statistics for Nova Scotia for 1998-2009, we note that although the production increased, the number of people employed decreased. In 2009, aquaculture in Nova Scotia employed just 125 full-time (and 92 part-time) persons, and reported Can$47.6 mn in revenue. The traditional fisheries yield much more employment per mn Can$ generated. In 2009, the lobster fishery alone employed 10,000, to generate Can$400 mn in revenues. Even if a processing plant would be established in Nova Scotia, aquaculture still falls short in the employment that it can generate compared to the traditional fisheries.

Aquaculture jobs are minimal in both pay and number. An independent fisherman can make a much better income than a wage employee of an aquaculture operation. And if open-net aquaculture negatively impacts the traditional fisheries, as is proving to be the case, these traditional fishery jobs could be lost. It appears then that, in the longer term, what actually could occur is a significant net job loss rather than any job benefits to the community, if this industry is permitted to continue to operate as it does.

Tax benefits

Currently, the communities get no tax benefits from these operations, and few job benefits, but have to bear the environmental and economic costs; the operations are a net loss to these rural communities.

It was reported in January 2011 that in New Brunswick over 100 have been hired from overseas to work in aquaculture operations.

The open-net finfish aquaculture industry has been operating for 30 years with essentially the same technology, but it has grown from 5000 fish per site to 1 mn or more fish per site. It has expanded and intensified but is still using the same method: open-net systems, with automation and some 'improved' feed formulations. With the intensification of the industrial operations, the problems too have intensified. What can be done? Aquaculture is here to stay, but the way that it currently operates is not sustainable. It must change to become more sustainable and operate in a manner that does not harm the traditional fisheries and the environment.

In order to do this, the industry must innovate. It must convert to closed containment systems that have become available. This will spare the marine environment from degradation, avoid putting at risk existing fisheries and endangered wild Atlantic salmon, produce a healthier product (as disease and sea lice can be controlled in a closed environment), and will probably allow shorter production cycles for the farmed product, all of which will help meet the government's objectives of developing aquaculture and creating jobs.

To date, the industry has been lamenting that the costs to do all this are too high. The flip side is, the costs for them not to do this are too high for our environments and economies—both from a marine and community perspective. Above 50 per cent return on investment has been reported for open-net operations. The industry can well afford to convert to closed containment systems. Unfortunately, the only 'bottom' this industry seems to be concerned with is their bottom line, not the ocean bottom. The extraordinarily high returns on investment are accomplished by not having to invest in disposal systems for their operational wastes. This cost has, instead, been shifted to the environment and the communities in which they operate. It is past time that the industry accounts for all their costs, makes a more reasonable return, and spares the marine environment.

Open-net aquaculture is depleting our assets. We are in an era of having to deal with scarcity. We can ill afford industry to exploit our resources any longer. It is our government that must recall its regulatory role and force industry to abide by strict standards. Industries and governments must combine economic growth with an obligation to conserve and protect the environment. This obligation has not been met thus far. We are running out of time—the problems get worse and at an increasing rate every year. The industry must change its thinking, strategies and actions, and pursue the development of technological innovations that will allow growth while preserving and protecting our natural resources. For aquaculture, this can be accomplished by closed containment systems, and governments must establish a mandatory time frame in which this conversion must occur.

This is a larger global issue that must be addressed as open-net aquaculture is proliferating in British Columbia, Chile, Scotland, Norway and in several other places around the world. In most cases, the same 'best' industry practices are used, with the same dire consequences to our marine environment, traditional fisheries and communities.

Aquaculture is here to stay, but the way that it currently operates is not sustainable.

For more

www.livingoceans.org/initiatives/salmon-farming
Living Oceans

www.farmedanddangerous.org/salmon-farming-problems/what-is-salmon-farming/
Farmed and Dangerous

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coastalcura.ca/documents/FinalLEK04292011.pdf
Study on Impact of Open-net Salmon Farms on SW Brunswick Fishermen