

## NEWS

# Aquaculture's future growth hinges on diversification

## Other species could play a key role amidst decline in finfish production, says expert

BY RUBY GONZALEZ

**P**roduction of farmed finfish in Atlantic Canada has been falling since 2012, a trend that could stifle the growth of the aquaculture industry, an expert suggests.

Atlantic salmon and trout aquaculture production in Atlantic Canada peaked in 2012 to 53,206 tons, only to plummet by 44 percent to 29,988 tons in 2014, the lowest since 1999, according to a recent study citing DFO statistics. During the same period, shellfish production increased by 40 percent to 28,981 tons.

The drop in salmon and trout production has been traced to stagnant aquaculture sites, diseases, social resistance, expensive operating costs and lack of investment from global players, said Thierry Chopin, Scientific Director of the Canadian Integrated Multi-Trophic Aquaculture Network (CIMTAN).

He believes the growth of the aquaculture industry hinges on diversification of production to other species.

"It is important to look at the numbers and understand what trends are signaling for the future...I do not see a reversal of the trend. We just need to evolve," Chopin told the audience at Aquaculture Canada and Cold Harvest 2016 in September.

At the conference, he presented his paper: "*Faced with decreasing salmon production and pending climate changes, the only hope for aquaculture development in Atlantic Canada is diversification within an integrated coastal area management strategy*," which he co-authored with Adrian Hamer, CIMTAN network manager.

He said aquaculture production in Atlantic Canada has historically centered on finfish, mostly salmon and trout. Not only is their production declining, associated employment has also been decreasing in recent years, Chopin told *Aquaculture North America (ANA)*. "We know that monoculture in agriculture is risky, much like investing in only one stock on the stock exchange. The same applies to aquaculture: putting all your eggs in the same salmon basket is also risky. We just need to diversify," Chopin said.



Credit: Adrian Hamer

Cultivating kelp with scallops at Magellan Aqua Farms Inc in the Bay of Fundy, Canada. From left to right: Caroline Longtin (postdoctoral fellow), Kasper Brandt (summer student), Steven Backman (owner of Magellan Aqua Farms Inc.) and Thierry Chopin (Scientific Director of the Canadian Integrated Multi-Trophic Aquaculture Network)

### SEAWEED AND INVERTEBRATES

He said diversifying production to include seaweed and invertebrates such as scallops and clam, and cultivation of sea cucumbers, sea urchins, sea worms, lobsters and beneficial bacteria shows potential. Farming of other species of fish have been tried, but with not much success, he noted.

Farmers have been steadily increasing production of mussels to make up for stagnant prices. And, with the potential problems of carrying capacity in some bays, Chopin said that diversification into other shellfish stocks is important.

He acknowledged that shellfish aquaculture has its challenges, such as diseases, biofouling and stagnant prices. But there is room for expansion, he said, especially for mussel, which is better perceived by the public.

"Amazingly, mussels need to be specified as 'cultured' to be purchased without hesitation by consumers, while 'farmed salmon' is not always appreciated," he said.

Seaweed is also a good candidate, he said. "We (CIMTAN) are presently growing two species of kelp and working on the cultivation of dulse, but we need to look at the cultivation of other seaweeds as well. This group of organisms is completely underestimated in Canada and the western world generally."

Globally, seaweeds comprise nearly half of the biomass produced through mariculture, with 96 percent coming from six Asian countries, he said.

The benefits from seaweed are far-reaching. "Beyond the value for their biomass, seaweed provides key ecosystem services, such as nutrient bioremediation, oxygen provision, carbon sequestration, reduction of coastal acidification. The value of the ecosystem services provided by these extractive species, and others such as shellfish and a number of other invertebrates, should be recognized, accounted for and used as financial and regulatory incentive tools such as nutrient trading credits," he said.

### INTEGRATED STRATEGY

Key in diversification is an integrated coastal area management (ICAM) strategy that would leverage on the ecosystem services provided by the extractive species, said Chopin.

"We have to stop kidding ourselves. A major rethinking is needed regarding the functioning of an 'aquaculture farm.' It does not work only within the limits of a few buoys of a finfish site on the water, or a few GPS coordinates on a map. It should be managed using an ICAM strategy, based on different spatial and temporal recapturing strategies to recover the different nutrients.

"Large particulate organic nutrients can be managed within the site. Small particulate organic nutrients can be managed within the site or around its immediate vicinity. Dissolved inorganic nutrients should be managed at the ICAM scale either when produced directly or after re-mineralization of the organic matter," he said, adding that diseases and parasites are already being managed this way.



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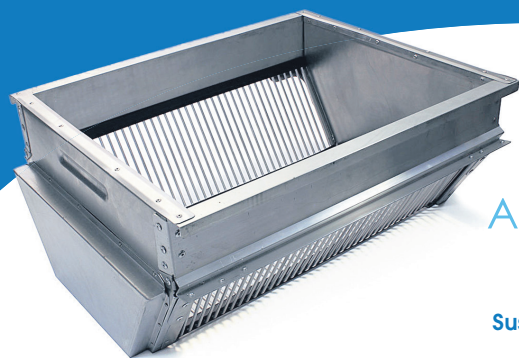
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