



What is the Aquaculture Industry?

Aquaculture is the breeding, rearing and harvesting of fish, shellfish, plants, algae and other organisms in all types of water environments. There are two main types of aquaculture: marine and freshwater.



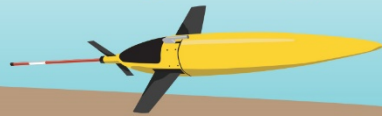
As the demand for seafood has increased, technology has made it possible to grow food in coast marine waters and the open ocean. Aquaculture is a method used to produce food and other commercial products, restore habitat and replenish wild stocks and rebuild populations of threatened and endangered species. Fifty per cent of seafood consumed is derived from aquaculture. We produce mussels, oysters, and salmon in Nova Scotia that is consumed in our province and exported.

Coastal aquaculture, when regulated and carried out responsibly, will not negatively affect fisheries and marine life. When conducted responsibly, it has been shown that fish farming and wild fisheries can co-exist. In some cases, Aquaculture operators are also active fishermen. Aquaculture is an industry that can have a positive impact on the economic development in rural areas. Aquaculture is a positive contributor to the sustainability of the fisheries sector through contributions to shared infrastructure and diversified markets stemming from rural Nova Scotia.

Aquaculture in Nova Scotia is an established and growing industry that is becoming an increasingly important economic contributor to rural regions in the province. As expansion continues, there are important socioeconomic impacts for residents, businesses and communities. In some regions where an aquaculture industry is present, there have been significant impacts such as individuals moving into – or back to – rural communities, new housing starts and new business activity.

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The aquaculture industry was worth more than \$60 million in 2014 and directly employed 606 men and women in full- and part-time positions. At present, there are 44 companies actively farming fish at more than 270 sites in Nova Scotia.

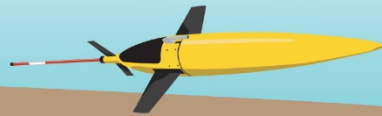
Aquaculture offers employment opportunities on ocean farms, freshwater hatcheries, processing plants, offices, labs, feed mills, net and cage building and maintenance as well as supply and service areas. The aquaculture workforce is young – many workers are under 40.



<https://www.canada.ca/en/atlantic-canada-opportunities/services/aquaculture-in-atlantic-canada.html>

In the marine environment water temperatures may drop below zero because of the water's high salt content. Fish, although their blood contains salt, may freeze when seawater temperatures get extremely cold.

Fish do not normally freeze in the winter. Some fish like flounder possess antifreeze proteins that allow them to survive extremely low temperatures. Other fish migrate from colder temperatures. On occasion, fish may get trapped in extremely cold marine water and die. This



may happen in the wild, such as the loss of mackerel in the Bras d'Or Lakes in 2015 or in cultured fish. In Atlantic Canada, fish are farmed in areas that may experience low temperatures. If extreme temperature events arise losses of fish may occur.

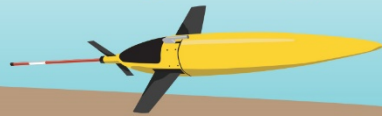


Cyr Couturier, MUN Marine Institute. ACOA. <https://www.canada.ca/en/atlantic-canada-opportunities/services/aquaculture-in-atlantic-canada.html>

The pesticides used in the aquaculture industry are approved by Health Canada under the Pest Control Products Act. Any new products must go through a risk assessment including environmental impacts, prior to being approved. The proposed Aquaculture Activities Regulation will further regulate the use of treatment products and will not result in the use of new pesticides or chemicals by the aquaculture industry.

There are 44 companies operating more than 270 marine aquaculture sites along the coast of Nova Scotia. The use of commercial scale, land based facilities to produce certain finfish species, is considered to be in early developmental stages. The industry and scientific communities continue to work on various types of systems and designs to produce a high-quality product that will expand fish to be farmed in closed containment systems¹.

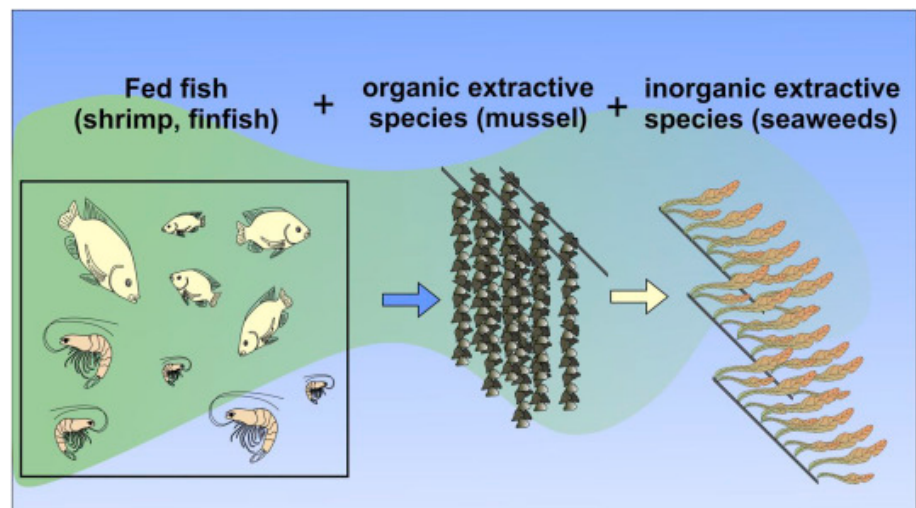
¹ Nova Scotia Department of Fisheries and Aquaculture.



Land-based aquaculture site in BC. BC Aquafarms Inc.

Many advocates for aquaculture are looking to land-based sites using recirculating aquaculture systems (RAS) that can be more easily monitored and regulated. In these systems biofiltration is used to remove effluent (especially ammonia) from the water, and to maintain a healthy habitat for the fish.

Others advocate for integrated multi-trophic aquaculture (IMTA), which endeavors to mimic a natural ecosystem containing multiple complementary plant and animal species from different levels of the food chain. An example of this would be to raise finfish, mussels



and seaweed together. The mussels would naturally filter the water of the uneaten fish food and faeces, the plants extract nitrogen and phosphorous from the water and help regulate those levels. Essentially, the extractive species (mussels and seaweed) act as living filters, which can also be harvested and sold.

Discussion

1. Using the information above, and an internet search, break into groups and present an aspect of aquaculture that affects you, your environment or your community? Share some of the opposing arguments in favor for/against the expansion of aquaculture in our region.