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Shifting from Atlantic salmon aquaculture to Arctic Char closed-loop farming

Executive Summary

Current farmed fishing in British Columbia is primarily done through open net aquaculture using Atlantic salmon. These farms, located in the pristine waters along the Pacific coast pose a threat to wild populations of economically important Pacific salmon, and can be polluting to the natural marine ecosystem. Closed-loop farming of Arctic Char represents an economically effective and delicious alternative that poses minimal threats to wild ecosystems.

Image source: planet.vectorworks.net

Did you know?

- *In 2008, over 100,000 non-native Atlantic salmon escaped from open-net farms in B.C.[3]*
- *A European salmonid virus was introduced to wild Pacific stocks in 2007 through Atlantic fish farming[3]*
- *Every year seals and sea lions are shot when they come too close to open-net Atlantic salmon farms[3]*

What's the problem with our current system of Atlantic salmon farming in British Columbia?

Atlantic salmon farming is primarily done using open-net pet systems along the British Columbia coast. Most farms are located from the Strait of Georgia and the Johnstone Strait, between Vancouver Island and the mainland. Currently, over 80 farms are active in the area at any given time, with the industry planning to expand current operations by 43% over the next six years.[3] Atlantic salmon are typically farmed because they can grow faster than their Pacific counterparts in captivity.[2] Atlantic salmon farms in British Columbia are open to the natural ecosystem, and are located along major migratory routes for wild Pacific salmon. Research has shown that Atlantic Salmon farms on the B.C. coast can be a source of pollution due to fish waste, escapees of non-native Atlantic fish, and harbour pathogens and parasites that may be transmitted to already vulnerable wild Pacific salmon populations.[3]

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Image: omnilexica.com

Arctic Char is a delicious alternative to Atlantic salmon, and is served as a delicacy in restaurants around the world.

Image: spencerhgray.com

Arctic Char farming as an alternative

Arctic char is primarily farmed using closed-loop aquaculture systems.[1] These systems can be set up essentially anywhere on land, and therefore pose minimal threats to marine habitats. Through these systems, there is little or no possibility of disease transmission to wild fish, risk of pollution to the marine ecosystem or fish escapees.[1] Canada is already one of the largest producers of Arctic char,[1] showing that this type of aquaculture is an economically feasible endeavour. In fact, Arctic char taste similar and are typically are sold for more money than Atlantic salmon[1], showing Char can be increasingly valuable to both the domestic economy as well as an important international export.

Unlike Atlantic Salmon, Arctic Char tolerate high densities, and actually show increased growth rates,[5] meaning that much more fish can be farmed at one facility compared to our current Atlantic salmon farms in British Columbia. Char take approximately the same ratio of food input to growth rates as Atlantic salmon[4], showing that Arctic Char will not put an increased strain on fish feed resources.

Shifting from open-pen aquaculture of Atlantic salmon to closed-loop terrestrial Arctic Char farming will be essential to minimize the negative impacts to our marine environments and wild stocks of Pacific salmon, all while maintaining a delicious alternative for both domestic and international markets.

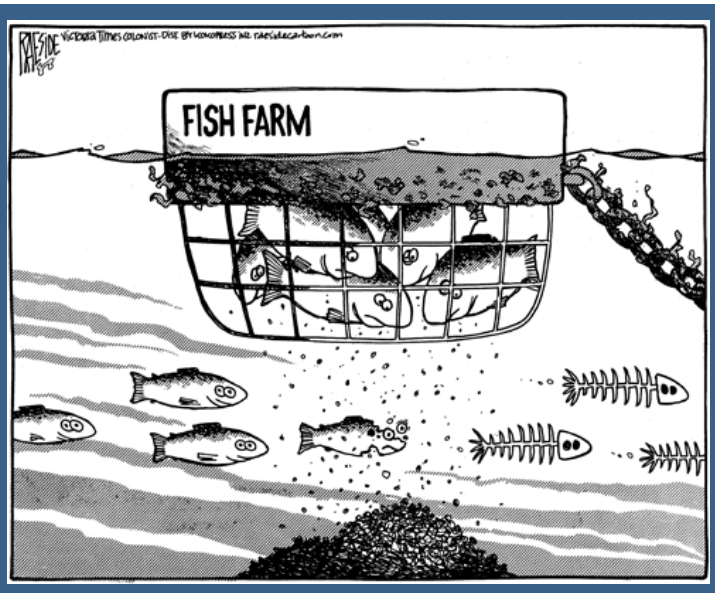
Conclusions and Recommendations

1. No more open-net fish farm licenses should be approved on the British Columbia coast

2. Slowly phase out open-net farms, encourage current farmers to move to closed-loop systems on land

3. Encourage consumption of Arctic Char as an alternative to farmed Atlantic salmon

4. Educate the public as to the benefits of choosing Arctic Char as an alternative



Avoid pollution and negative effects from current salmon farms!

Image: raesidecartoon.com

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[2]Marine Harvest Canada (2014). The Atlantic Salmon. Retrieved from http://www.marineharvestcanada.com/farming_atlantic_salmon.php

[3]Marsh, J. (2006). Farmed Arctic Char (*Salvelinus alpinuss*). *Seafood Watch Arctic Char Report.* 24 pages.

[4]Summerfelt, S.T., Wilton, G., Roberts, D., Rimmer, T., Fonkalsrud, K. (2004). Developmentsin recirculating systems for Arctic char culture in North America. *Aquacultural Engineering* **30**:31-71

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