



**American
Aquafarms
Project in
Frenchman Bay:
What's at Risk?**

**Maine's Fishing
Communities and
Lobster Industry**

A report by
TBD Economics, LLC 

Frenchman Bay, located in Hancock County Maine, is home to several fishing communities that play an essential role in the state's overall economic success. Many coastal economies across the northeastern United States and Canada rely heavily on the American lobster, one of the most valuable wild seafood species in the world. Lobster consumption dates back to the Native Americans and European settlers in early Colonial times, but the industry really took off in the early 1820s with the invention of the lobster smack, allowing the transport of live lobsters along the East Coast.

In 2016, an economic impact study determined that Maine's lobster supply chain contributed \$967.7 million to Maine's economy and supported more than 5,500 jobs within the state.¹ In 2018, there were 6,224 commercial lobster licenses in the State of Maine.² In 2019, lobster fishermen in Maine contributed 101.9 million pounds to American lobster landings.³ Maine lobstermen also earned 491.6 million for their catch in 2019.⁴ The immense economic success in the industry is driven by the informal rules of territoriality, frequent and informative communication about the fishery, and conservation strategies to preserve mutual economic well-being in the self-governed system.

Even with the strong system in place, a combination of environmental and political factors threaten the future of these fishing communities making them more fragile

than ever. With entire towns relying on the lobster industry to support their economies, policymakers need to make decisions that will ensure the stability of the industry.

A company backed by Norwegian investors, called American Aquafarms, has applied for a permit to build the largest ocean-based aquaculture farm in North America. This aquaculture would raise 66 million pounds of salmon annually in thirty 150' diameter pens at two different 60-acre lease sites in Frenchman Bay. These sites are located in the same areas that lobstermen regularly fish and further threaten the lobster industry.


At risk is Maine's coastal fishing heritage, the livelihoods of Maine's lobstermen, and a \$500 million dollar industry. These risks potentially include lost social resilience, increasing environmental impacts, and increasing regulation all of which would negatively impact the fishery and its success.

Maine's Coastal Fishing Heritage

Maine's lobster fishery holds high historical and community value in the towns surrounding Frenchman Bay. Many multigenerational families live in these coastal villages on inherited land and rely on fishing as their main source of income. For generations, Maine fishermen have been collaborating with each other to work in a sustainable manner that will preserve the fishery which has shaped these communities. Community based conservation has proven to be one

1 Acheson and Acheson, 2020; Donihue 2018.
2 State of Maine, Department of Marine Resources, 2018.
3 NOAA, 2019.
4 Ibid.

of the most important tools leading to the fisheries' success. Newcomers are often prevented from joining the industry due to long licensing waitlists unless they have strong local ties. This ensures that the local traditions of the fishery are maintained.

 *Deep cultural roots define this industry and distinguish it as an iconic socio-cultural treasure of the State of Maine*

Maine lobstermen operate in a co-management system where resource decision-making is shared between government and resource users. Maine fishing communities share a common dependency on lobster supply, thus driving communal conservation efforts and cooperation with the informal rules of territoriality.

Lobstermen create and follow lobstering restriction rules enforced through local custom to preserve the lobster population. Legal rules are also in place to maintain reproductive capacity and ensure protection for egg-bearing females. While lobstermen do compete with each other, they also must cooperate with each other to ensure the health of the fishery is preserved and a maximum sustainable yield is maintained.

Since the lobster industry is one of Maine's largest industries, it is essential to not only protect it but also ensure that it will be resilient enough to adapt to any unforeseen stressors. A 2015 study evaluated the level of social resilience in the Maine lobster fishery by looking at the industry's response to threats, and its ability to respond to future



Corea Harbor, Gouldsboro, ME

Photo Credit: Ted O'Meara

threats.⁵ The study considered the fleet's response to past strained economic conditions, the aging of the fleet, barriers to entry, and lack of diversification of target species. These factors all revealed high vulnerability and unpredictable social resilience for the future. Many of the fleet's "coping" mechanisms were only useful in the short term, meaning resilience to future market threats may be out of the fisheries control.

With local fishermen losing more and more bottom fishing space to large aquaculture projects, fishing communities are taking losses they cannot afford. Adding more stress on an already vulnerable system will threaten the future of Maine's lobstering industry, potentially harming local fishing communities and negatively impacting one of the state's most economically important assets.

5 Henry and Johnson 2015

Aquaculture in Frenchman Bay will add to the risks to already facing the Lobster Industry

Even though the Maine lobster fishery is one of the world's most successful fisheries, increasing environmental problems have and will continue to threaten the future of the fishery. Climate change is one major concern that the State of Maine is addressing in an attempt to preserve the natural resources of the state.

Maine's four-year climate action plan, "Maine Won't Wait", attempts to:

- Reduce Maine's Greenhouse Gas Emissions
- Avoid the Impacts and Costs of Inaction
- Foster Economic Opportunity and Prosperity
- Advance Equity through Maine's Climate Response⁶

“ *Epizootic shell disease decimated the Rhode Island lobster fleet by 30% in Rhode Island, and Maine is currently demonstrating a small (6-7%) incidence in egg-bearing females”*

- Acheson and Acheson, 2020

The American Aquafarms DMR application disclosed that the project would burn 80,000 gallons of diesel fuel every 7-10 days to run ten 500kw generators 24 hours a day. This fuel volume does not include the amount of fuel

needed for the ships and estimated 11,000 trucks moving goods to and from the Gouldsboro shore facility annually. This project's emissions will make it much more difficult to achieve Maine's climate action plan.

Climate change has resulted in the Gulf of Maine experiencing rapid warming of its waters. This has caused lobsters to move north as they are seeking colder and more habitable waters, leaving Maine with less lobster to harvest. As water temperatures continue to rise, this problem will only get worse as more and more lobsters continue to migrate north. Climate change has also been linked to increased disease, bringing concern to fishermen who fear spreading disease that will impact the Maine lobster fleet. In addition, there are new regulatory threats to the industry and aquaculture will increase risks from exposure to chemicals and pollutants.

Regulatory Threats to the Industry

Another major problem adding immense stress to the lobster industry is the concern with the North Atlantic right whale that is on the verge of extinction. With almost 500 years of heavy harvest pressure on the right



Lobsterman pulling traps.

6 Maine Climate Council, 2020

whale, even a ninety-year-old ban on harvesting still has not been enough to save the species from severe risk of extinction. These whales today are threatened by many human activities including ship traffic, pollution, habitat loss, noise, and fishing gear entanglements.

Due to these threats, among many others, the federal government has mandated regulations on various aspects of the Maine American Lobster trap fishery to reduce injury to the right whales. One of these regulations involves strength limits of vertical lobster lines to ensure that whales cannot get trapped. "The most recent Atlantic Large Whale Take Reduction Plan (ALWTRP) includes a mix of seasonally-closed areas to fishing and a vertical line strength threshold of 1700 pound feet, which can be achieved through a variety of novel options, from manufactured plastic links to specially designed weak rope"

New management regulations have been put in place to protect whales, leaving many fishermen forced to pay high prices to modify or replace their equipment. Some fishermen have even lost their fishing grounds to protect the North Atlantic right whale. The attempt to save the endangered species has come at a high cost to Maine's fishing heritage and traditions.

Lobstermen in Maine also share a concern about potential offshore wind development as a new clean energy source for the coastal community. While offshore wind development does have positive outcomes, additional stress would be added to the lobster-

ing industry by further restricting fishing grounds. This would lead to reduced catch and lost jobs in the industry, thus negatively impacting the entire state's economy.

While the proposed aquaculture project would increase job opportunities, many of these jobs will be undesirable for locals, meaning these positions will be difficult to fill. Many of the higher paying jobs and unfilled jobs will likely go to imported workers. This could potentially create a housing shortage in the area.

Lobsters at risk from chemicals and pesticides

Both lobster landings and net pen finfish aquaculture operate best in sheltered areas of coastal zones because these areas provide protection from high seas and provide stable water temperatures. This results in both operations occurring in close proximity to each other. As lobster landings and open net pen finfish aquaculture have increased simultaneously in previous years, conflicts have repeatedly arisen. Within two years of fish farms being established on lobster fishing grounds, fishermen have found that



Risks to lobsters in the water also means risks to lobsters on the tables.

female lobsters avoid the area.⁷ Lobster, crab, and shrimp mortalities have also occurred from salmon farms using legal and illegal pesticides to treat sea lice. American Aquafarms' DEP and DMR applications included permission to use these pesticides and veterinary pharmaceuticals.

“ A case study of the environmental interactions between American Lobster and marine finfish aquaculture in this region, revealed that chemical use in aquaculture has negative impacts on the lobster population, and that the myriad of potential other threats such as net pens, waste discharges, disease, noise, lights, and odors, lack sufficient data to determine the extent and severity of impact”

- Milewski et al. 2021

These environmental concerns have resulted in stricter regulations being put in place in other regions around the world, including Norway, which is the largest producer of Atlantic salmon. In Norway, “new farming permissions are restricted for traditional sites as long as key issues with negative environmental impacts are not solved or better managed.”⁸ Argentina has recently been the first country to ban salmon farming in both marine and lake waters due to environmental impact concerns.⁹ Even in the United States, the State of Washington passed a bill to phase out nonnative finfish aquaculture in Washington's marine waters.¹⁰

Maine does not yet have strict regulations, that limit industrial-scale fish farming and assess cumulative impacts from multiple lease sites. Finfish aquaculture adds more risk and uncertainty to the already fragile lobster industry that thousands of people depend upon.

Maine's coastal fishing heritage, the livelihoods of Maine's lobstermen, and a 500-million-dollar industry are all already at risk of being negatively impacted by environmental concerns, increased regulation, and loss of bottom fishing space. By building the largest ocean-based aquaculture farm in Maine, the list of risks the lobster industry is facing will only grow. Lobsters in the area will be at risk of exposure to additional nutrient loads, diesel fuel, vet-



Lobsterman sorting fresh caught lobsters.

7 Wiber et al., 2012

8 Hvas et al. 2021

9 Sinergia Animal

10 Washington State Legislature, 2018

erinary chemicals and pesticides, all likely to harm populations and the habitats that support the fishery. Fishermen will be at risk of stricter regulations, reduced fishing grounds, and smaller lobster populations, impacting how they will be able to do their jobs. These risks combined will leave

Maine's lobster industry and fishing heritage more vulnerable than ever, which will not only impact the local fishing communities but may impact the entire state's economy. Threatening Maine's fishing communities would also threaten one of the state's greatest cultural treasures.

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