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Maine, once poised to lead in RAS developments, has land-based aquaculture ventures still trying to gain a foothold

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By Clarke Canfield

Despite millions in investments, Maine's land-based aquaculture ambitions are yet unrealized



Maine has proven to be a challenging environment for large land-based aquaculture projects, but smaller ventures and inland efforts show promise. Photo courtesy of The Kingfish Co.

It was only a few years ago that Maine was considered a hotbed for land-based aquaculture, with three sizeable projects proposed along the iconic rocky coastline, two of them planning to produce fresh Atlantic salmon for major East Coast metropolitan markets.

None of the farms has materialized – one waits in legal limbo despite widespread support, another lies dormant with expired permits and the third was finally abandoned earlier this year after a series of courtroom battles against community opposition.

When first announced in 2018 and 2019, the three proposals together called for investments of more than \$850 million with promises of harvesting more than 100 million pounds of fish annually once they were up and running.

The prospect of that sizzle, however, has fizzled. Nordic Aquafarms announced in January that it was abandoning plans for a \$500 million recirculating aquaculture system (RAS) salmon farm in Belfast due to multiple legal challenges since it launched its proposal. In nearby Bucksport, Whole Oceans' proposed \$250 million RAS salmon farm has ground to a halt and key permits have expired. In Jonesport, Kingfish Maine's \$110 million RAS facility to grow sashimi-grade yellowtail is on hold as it awaits a final court ruling on a legal challenge.

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'It only takes one person'

Between local opposition and other barriers, it's not easy to build and operate a large land-based aquaculture facility, said Sebastian Belle, executive director of the Maine Aquaculture Association.

"Land-based RAS continues to prove challenging from both a technical perspective and from an investment fundraising point of view," Belle said. "There are projects like this proposed all over the world – Maine isn't different in that regard – but if you actually look for profitable land-based RAS systems, those are few and far between."

Despite the uphill climb, there is yet another land-based RAS salmon farm moving forward, with plans to begin construction next spring and harvest its first fish in 2029. This one, however, is in Millinocket, a 90-minute drive from the ocean, the gateway to Maine's North Woods and Mount Katahdin, the northern terminus of the Appalachian Trail.



Maine residents show their support for a land-based fish farm in Maine. Photo courtesy of The Kingfish Co.

Marianne Naess, CEO of Great Northern Salmon, said the facility will be located on the site of a former paper mill and produce about 20 million pounds of whole fish (or 16.5 million pounds of headed and gutted product) annually. The Millinocket area has embraced the \$250 million project, which will call for 60 to 70 full-time employees, she said.

It's increasingly difficult to locate a land-based plant along the Maine coast for salmon or trout, particularly for large-scale production, she said. The coast has more people than inland areas, more seasonal residents, fewer available locations to choose from and more competing uses alongside marinas, recreational boaters and other users.

"It's been challenging to work on the coast in Maine," said Naess, who at one time worked on the Nordic Aquafarms project in Belfast. "I think for aquaculture, especially salmon and trout, freshwater is a good solution away from the coast."

When Kingfish Maine proposed its RAS yellowtail plant in Jonesport in 2019, operations manager Tom Sorby thought it would take 18 months to get through the approval process. Kingfish Maine's parent company, The Kingfish Co., has operated a land-based yellowtail facility since 2015 in the Netherlands, where it is based.

Despite gaining **widespread support** (<https://www.globalseafood.org/advocate/kingfish-maine-wins-crucial-vote-as-town-rejects-aquaculture-moratorium/>) among most town residents and town officials, the Jonesport project has faced multiple legal challenges, all of which have failed so far, but have succeeded in causing delays. The Maine Supreme Judicial Court still needs to issue a decision on what is likely a final appeal.

The latest challenge before Maine's highest court comes from a group called Protect Downeast, which claims the project will endanger the environment, the local economy and the character of Downeast Maine. Sorby disputes all those claims, saying Kingfish Maine is committed to keeping the water clean, providing good local jobs and having its facility blend into the landscape.

"Even though we have the support of the town, and that's been proven through the years, it really doesn't take much for people to appeal a permit and therefore, it doesn't matter what permits you hold, it doesn't matter what your history is, you're never going to make everybody happy," Sorby said. "It only takes one person to be upset or not like the project for whatever rhyme or reason, then take it to court and that's it. Once you're in the court system you have to go through the process."



Maine could remain attractive for land-based aquaculture ventures because of its proximity to major metropolitan markets. Photo

courtesy of The Kingfish Co.

'A sad day'

Following years of legal challenges from environmental groups, Nordic Aquafarms announced in January it would drop its plans to build what would have been one of the world's largest land-based salmon farms in Belfast.

"This is a sad day for Maine's economy and outlook for aquaculture or any significant investment in the state," CEO Brenda Chandler said in a statement. "While a few may view this as a victory, we argue that this is a significant loss overall – not just for Nordic Aquafarms but for the community."

Ocean Farms' Bucksport project appears to have come to a standstill. There's not much to see at the proposed site of the RAS facility, as permits for the plan have expired.

Mark Rooney, a consultant and spokesman for Whole Oceans, said the project is in the development stage and the company is exploring "numerous options" within aquaculture. Whole Oceans, he said, has applied with the state to renew its water discharge license.

"We hope to have additional comments in the near future," Rooney said in an email.



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Pockets of success

Just because some projects have been dropped or paused doesn't mean that land-based aquaculture doesn't have a place in Maine or elsewhere.

Support for aquaculture is strong in Maine, according to a **public opinion survey** (<https://maineaqua.org/poll-shows-mainers-support-locally-produced-seafood-from-aquaculture/>), of 602 residents. The poll, conducted last fall by Digital Research Inc. in Portland, showed that eight in 10 respondents who were familiar with aquaculture said they support its growth, believing it strengthens Maine's economy and helps sustain the state's coastal heritage.

While not as high profile as the larger proposals, other smaller land-based aquaculture businesses already exist in Maine.

In the coastal town of Waldoboro, **American Unagi** (<https://www.globalseafood.org/advocate/american-unagi-opens-the-united-states-first-permanent-land-based-eel-farm/>) has a land-based facility to raise baby eels, or elvers, that are harvested in Maine to market size in indoor tanks – an alternative to selling them to Asian buyers to be grown out to market size on the other side of the globe. It's the United States' first commercial eel aquaculture company.

In the inland town of Lisbon, Springworks Farm grows tilapia in addition to its lettuce products at its aquaponic greenhouses. The company takes the nutrient-rich water from raising tilapia and uses it to feed the lettuce, which in turn cleans the water and returns it to the fish. The company recently expanded and increased its annual production to more than 5 million heads of lettuce and 350,000 pounds of tilapia. Most of the tilapia is used to help grow the lettuce, but a small amount is sold at a retail fish market in Portland.

Nationally, there are plenty of other places also using land-based aquaculture, whether it be tilapia in Virginia, barramundi in Massachusetts, or salmon in Florida. Sorby and his wife, Megan, also started a company that aims to build an RAS facility known as **Pine Island Redfish** (<https://www.globalseafood.org/advocate/synergies-between-land-and-ocean-regenerative-farming-accelerator-eyes-a-faster-growing-blue-economy/>) on the west coast of Florida, where it would grow red drum.

The **U.S. lags behind other countries** (<https://www.globalseafood.org/advocate/great-lakes-aquaculture-tale-two-countries/>) when it comes to aquaculture, whether it be on land or in the ocean, Sorby said. But he thinks it will grow in the years ahead.

As for large salmon RAS projects, Belle said investors worldwide are more interested in putting their money into facilities that can produce smolt or broodstock, rather than those that grow fish to market size.

Still, Maine could be an attractive place for land-based aquaculture projects in the future. The state, he said, is a good location because it's within a 24-hour drive of 130 million people and carries the Maine brand, which can command premium prices.

"It will happen," Sorby said. "It just takes time to develop these industries."

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Clarke Canfield is a writer, editor and author who has worked for various newspapers, magazines and The Associated Press for more than 40 years. He has focused on commercial fisheries and marine-related issues for much of his career, and was once executive editor of National Fisherman and SeaFood Business magazines. He is also the author of a book about the New York Yankees. He lives in South Portland, Maine, with his wife.

