

Open-ocean fish farm proposed off San Diego coast could be first in federal waters

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A prestigious San Diego research institute and a Long Beach social benefit investment group are teaming to create what could be the first fish farm in federal waters.

The proposed farm, Pacific Ocean AquaFarm, would be located about four miles offshore of San Diego and would generate 5,000 metric tons of sushi-grade yellowfish each year—enough for 11 million servings of the popular seafood.

A partnership between Hubbs-SeaWorld Research Institute and Pacific Enterprise, the project also would create a diversity of economic opportunities and provide a local source for a [fish](#) that is now mostly imported.

The institute submitted a federal permit application for the project on Sept. 9. The National Oceanic and Atmospheric Administration will lead the environmental review of the proposal, which will take about 18 to 24 months. Construction would take about a year, and the first set of fish stocked there would be ready for market in another 18 to 22 months, Kent said.

"We're talking about five years before people are enjoying farmed yellowtail off the coast of California," said Don Kent, president and CEO of Hubbs-SeaWorld.

Environmental groups have opposed previous offshore aquaculture operations, arguing that they pose risks to [marine life](#), can foul the water, and undermine wild fisheries. Kent said that the project would be cleaner than aquaculture facilities in other countries, and would be designed and located to avoid impacts to marine animals or fishermen. He said similar projects are already in operation in Mexico, but launching the operation in San Diego could enhance job creation and food security here.

"We would rather have all the economic benefit in this country here, for our people," he said. "Since we're buying the product anyway, we would rather grow it to our standards."

Hubbs-Seaworld already operates a hatchery in Carlsbad, north of San Diego, and there are farms that raise oysters and abalone in Southern California, Kent said.

But there are currently no other aquaculture projects in U.S. [federal waters](#), defined as three to 200 nautical miles offshore. In 2014, the organization proposed opening a different project, Rose Canyon Fisheries, near San Diego, but that project never came to fruition.

Part of the challenge for projects like this is the longer timeline, which can scare off conventional investors, said John Molina, a founder of Pacific6, which has invested in other aquaculture operations, clean energy, affordable housing and historic renovation projects. Pacific Ocean AquaFarms could be a prototype for sustainable and profitable fish production.

"One of our goals is to demonstrate that this can be done in way that investors get a fair return," he said.

The operation would produce sushi-grade yellowtail aimed at domestic markets, officials said. There's some taste variation between wild-caught and farmed yellowtail, but it's really a matter of preference than quality, said Davie Rudie, president of Catalina Offshore Products, a San Diego based seafood distributor. Farmed fish typically has higher fat content, which may be preferable for some dishes, but less desirable for others, he said. Chefs are familiar with those differences, through farmed fish sources from other countries, Rudie said.

"The market already understands the difference in wild and farmed fish," he said. "They're apples and oranges in terms of taste and texture. They're different."

Another change would be the consistent availability of farm-raised fish,

Kent said. Although fish reproduce on seasonal cycles in the wild, the organization would adjust that timing to produce hatchlings year-round.

"The fish start out as eggs that we harvest from a group of adult brood fish, that produce eggs in the spring and summer," he said. "By controlling temperature and daylight, we can have groups of multiple adults producing eggs year round. You stock the farm, and at different times of year, you get a more consistent distribution of size."

Once they reach about 30 grams in size, or 4 to 5 inches long, the fish would be transferred to floating pens, suspended in grids about four nautical miles offshore of Mission Bay, the project's preferred site. In each pen, a 30-meter ring of durable plastic piping would hold a net hanging 14 meters down, along with netting on top to keep the fish in, and predatory birds out, Kent said. The pens would be moored to the bottom, with fish swimming freely within the net-lined pens.

Each pen can grow 250 metric tons of yellowtail, harvested when they reach about 7 to 9 pounds in size. Fourteen such pens would be set within a submerged steel grid, 80 meters per side. And a second, similar grid would be set due west of the first, slightly farther offshore, Kent said. The organization would start with just four pens in order to analyze their process and results before reaching full production capacity.

The project comes amid an expansion of aquaculture activity. The federal government announced the creation of 10 planned aquaculture opportunity areas throughout the country, with the first in Southern California and Baja California, Mexico. The program will be overseen by NOAA, and comes under an executive order signed by President Donald Trump in May.

In addition, Hubbs-Seaworld plans to enhance its hatchery program in Carlsbad. New legislation by Assemblywoman Tasha Boerner Horvath

authorizes the organization to update the program, which currently produces white seabass, to conduct research on all species of marine fish with an economic impact on California.

Environmental groups have expressed reservations about aquaculture projects, including those proposed for open waters, citing concerns about predation, pollution and effects on other marine species such as whales, dolphins and sharks.

The organizations Friends of the Earth, Recirculating Farms Coalition and Northwest Atlantic Marine Alliance complained that Pacific Ocean AquaFarms could release fish waste and other pollution from antibiotics, pesticides and other chemicals into the surrounding waters.

"Industrial aquaculture facilities can disrupt ecosystems, harm coastal economies and threaten the livelihoods of fishing communities," the groups said in a joint statement. "The government needs to stop prioritizing risky, dangerous and outdated methods of fish production at the expense of responsible seafood producers."

Kent said Pacific Oceans AquaFarm would minimize risk to marine life, with thick cables that reduce the risk to animals. He said modeling by NOAA shows that the excess nutrients produced by the fish would be quickly diluted in the deep water, a premise that would have to be tested as the fish farm pursues permits.

The project would need to be vetted by a half-dozen state and federal agencies, including NOAA, the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, California Department of Fish & Wildlife, California Coastal Commission and the U.S. Coast Guard, which would analyze its environmental impacts to ocean water quality, marine mammal migration, ship traffic and other conditions.

Rudie, who sits on an advisory committee to the Pacific Fishery Management Council, which regulates fishing operations, said the project would also have to satisfy fishermen's concerns about disruption to existing wild fisheries.

"Fishermen have concern about competition, and placement of the farm ... so we have to listen to all parties' input," he said.

Kent maintains the greater risk is not pursuing aquaculture in the U.S., where most of the seafood consumed is now imported. The Pacific Ocean AquaFarms project could generate economic opportunities for the area, including about 75 jobs, and other indirect benefits. And it could help boost the U.S. share of world fish production, Kent said.

"The idea of being self-sufficient in our food supply is something that we've always accepted in the U.S.," he said. "Now over 85 to 90% of our seafood is imported."

San Diego is the hub of West Coast swordfish fisheries, and was once the capital of the tuna industry. Local fishermen also harvest various groundfish and migratory tropical species. Many wild fisheries are near their limit, and aquaculture can be a sustainable way to produce protein, officials said.

"We believe that there is a need to diversity how we get our food," said Molina, of Pacific6. "It doesn't mean that we're going to replace cattle. We're not looking to replace hamburgers and steaks, but we do feel that seafood is important, and having seafood that is locally sourced is very, very important."

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