

# Researchers seek better ways to farm popular Pacific fish

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In this photo taken March 28, 2017, Bill Fairgrieve, a fisheries research biologist with the National Oceanic and Atmospheric Administration, holds a sablefish at a research facility in Manchester, Wash. Scientists are studying sablefish genetics and investigating ways to make it easier and more efficient to commercially grow and farm the fish as part of a larger effort by NOAA to support marine aquaculture as a possible solution to feed a growing demand worldwide for seafood. (AP Photo/Ted S. Warren)

The dark gray fish prized for its buttery flavor live deep in the ocean, so

researchers keep their lab cold and dark to simulate ideal conditions for sablefish larvae.

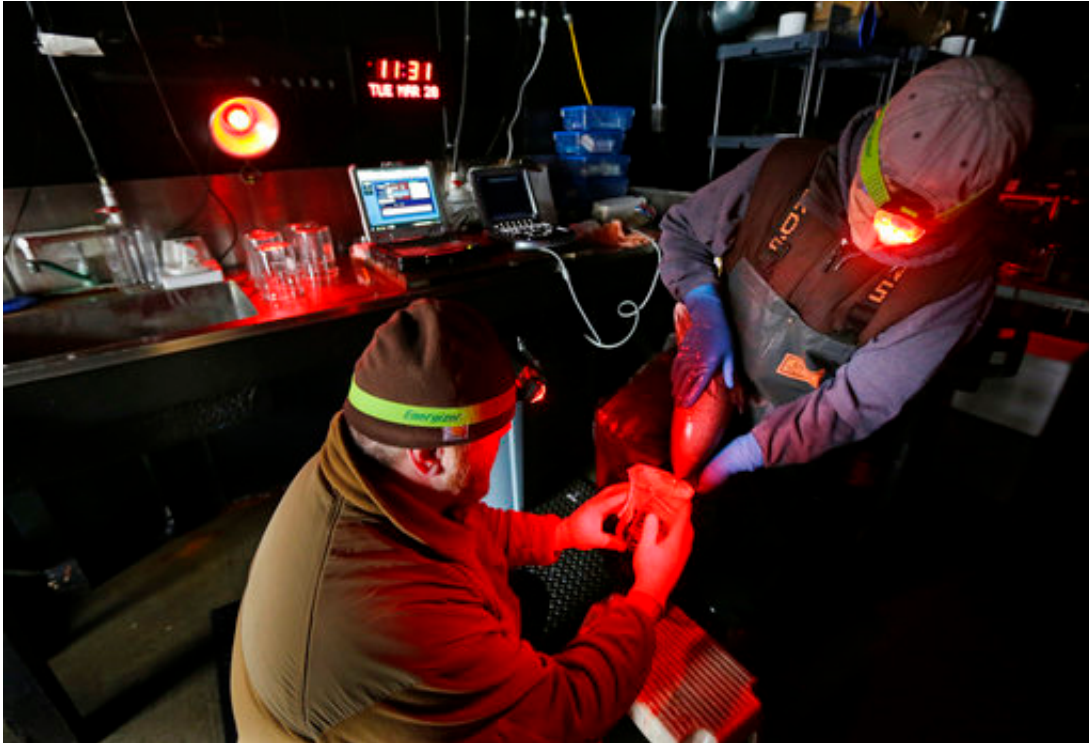
A biologist shines his dim red headlamp and uses an ultrasound to scan the belly of an anesthetized sablefish about the length of his forearm to tell if it's female and has eggs to collect. He gently squeezes out hundreds of tiny, translucent eggs into a glass beaker.

After the eggs are fertilized externally, they'll grow in large indoor tanks and some in floating net pens in Washington state's Puget Sound to be used for research.

At this federal marine [research station](#) near Seattle, scientists are studying sablefish genetics and investigating ways to make it easier and more efficient to commercially grow the fish.

It is part of a larger effort by the National Oceanic and Atmospheric Administration to support marine aquaculture as a solution to feed a growing demand worldwide for seafood.

People are consuming more fish than in previous decades, with average worldwide per capita consumption hitting 43 pounds (20 kilograms) a year, according to the Food and Agriculture Organization of the United Nations. Fish consumption is expected to grow even more in coming years.



In this photo taken March 28, 2017, Ken Masee, right, and Cort Jensen, left, biologists with the National Oceanic and Atmospheric Administration, collect eggs from a sablefish at a research facility in Manchester, Wash. The silvery-black fish prized for their buttery flavor live deep in the ocean, so researchers keep their labs cold and dark to simulate ideal conditions for sablefish larvae. Scientists are studying sablefish genetics and investigating ways to make it easier and more efficient to commercially grow and farm the fish. (AP Photo/Ted S. Warren)

NOAA says aquaculture can relieve pressure on fishing populations and promote economic growth.

Fishermen along the U.S. West Coast, mostly in Alaska, catch millions of pounds of wild sablefish each year but no commercial sablefish net-pen farming exists in the U.S.

Sablefish, also known as black cod or butterfish, are long-lived species

that is native to the northeast Pacific Ocean and highly valued in Asia for its beneficial nutrients and delicate flavor. The fish are grilled, smoked, poached, roasted or served as sushi.

Michael Rubino, who directs the NOAA aquaculture program, noted that practices for farming fish in the U.S. meet very strict environmental regulations.



In this photo taken March 28, 2017, Rick Goetz, a program manager with the National Oceanic and Atmospheric Administration, checks on sablefish larvae growing in tanks where they feed on green algae at a research facility in Manchester, Wash. Scientists are studying sablefish genetics and investigating ways to make it easier and more efficient to commercially grow and farm the fish. (AP Photo/Ted S. Warren)

But some critics worry large-scale farms could harm wild fish stocks and

ocean health, and some commercial fishermen worry about potential competition.

"This would be a big threat for us," said Robert Alverson, executive director of the Fishing Vessel Owners' Association, a Seattle-based group that represents about 95 commercial fishermen in Alaska, Oregon, Washington and California.

In 2015, fisherman harvested about 35 million pounds (16 million kilograms) of sablefish worth \$113 million in the United States, all along the U.S. West Coast.

Of that, nearly two-thirds, or about 23 million pounds (10 million kilograms), were caught in Alaska, with smaller amounts in Oregon, Washington and California. Nearly half of the sablefish caught in the United States is exported, with a majority going to Japan.



In this photo taken March 28, 2017, tiny sablefish larvae swim in a tank where they feed on green algae at a research facility in Manchester, Wash. Scientists are studying sablefish genetics and investigating ways to make it easier and more efficient to commercially grow and farm the fish. (AP Photo/Ted S. Warren)

"Our fear is that science isn't going to stay in the U.S., and it will be exported to a Third World country where people work for a few bucks a day," Alverson said. "They'll raise it with low-valued labor and use our science to undercut our commercial fishery and coastal communities."



Alaska law prohibits finfish farming.

Rubino and others say wild harvests and aquaculture can complement each other, particularly during months when there are lower catch limits for wild sablefish.

"You always have this yin-yang problem between fisheries and aquaculture," Rick Goetz, who leads the marine fish and shellfish biology program at the Manchester Research Station, across Puget Sound from Seattle. "The big problem is allaying the fears of people that you can have both. You can have both of those things working, particularly because this fish is such a high-value product."



In this photo taken March 28, 2017, Bill Fairgrieve, a fisheries research biologist with the National Oceanic and Atmospheric Administration, checks on a tank housing sablefish at a research facility in Manchester, Wash. Scientists are studying sablefish genetics and investigating ways to make it easier and more

efficient to commercially grow and farm the fish as part of a larger effort by NOAA to support marine aquaculture as a possible solution to feed a growing demand worldwide for seafood. (AP Photo/Ted S. Warren)

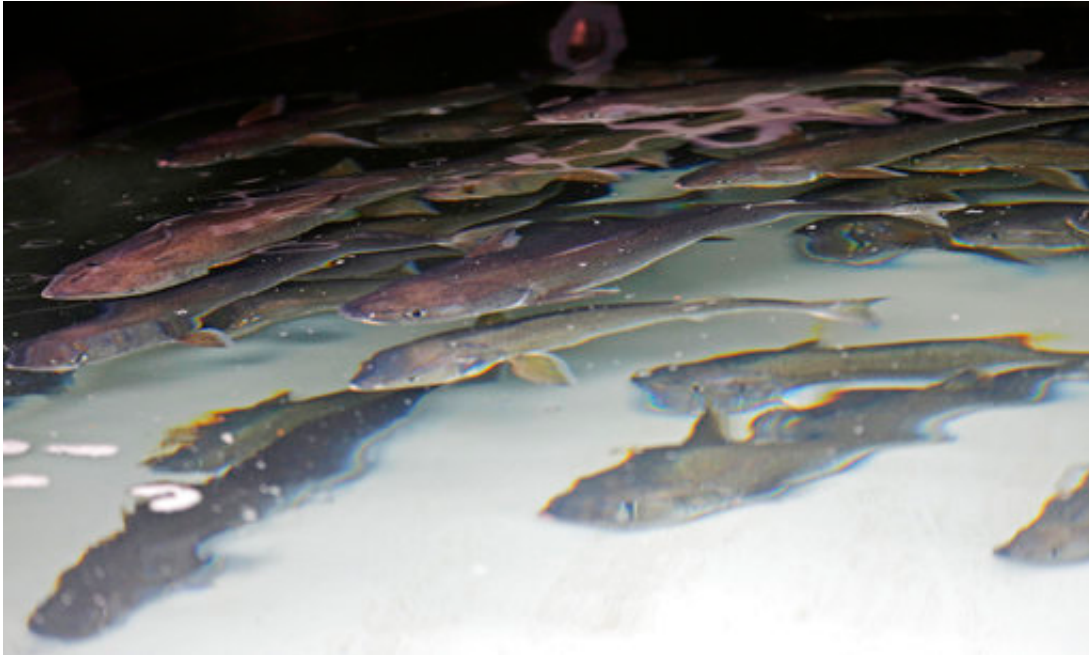
In recent years, NOAA Fisheries scientists have worked to reduce potential barriers to sablefish aquaculture. They have developed techniques to produce all-female stocks of sablefish that grow faster and much bigger than males in about 24 months. Ideal market size is roughly 5 ½ pounds (2 ½ kilograms).

They've also studied different ways to reduce the costs of feeding juvenile fish, increase larvae survival rates and decrease deformities.

One research project is replacing more expensive algae with clay that is used to help sablefish larvae better find their prey. Another looked at finding the optimal temperature to increase larval growth.

Wild fish are caught off the Washington coast and used to develop captive brood stocks, or mature fish that are used for breeding.





In this photo taken March 28, 2017, sablefish swim in a tank at a National Oceanic and Atmospheric Administration research facility in Manchester, Wash. Scientists are studying sablefish genetics and investigating ways to make it easier and more efficient to commercially grow and farm the fish. (AP Photo/Ted S. Warren)

At the facility, the fertilized eggs grow in silos in dark, cold rooms before being moved to other indoor tanks where they're fed a steady diet of brined shrimp and other food. Large circular tanks hold fish in different growth stages.

The facility produces about 10,000 all-female fingerlings, or juveniles about an inch (25 millimeters) long, each year.

It has sent some fish to a Texas company that uses land-based recirculation tanks to grow fish, as well as others interested in sablefish aquaculture.

NOAA Fisheries also is working with a Native American tribe in Washington state to get a pilot project to grow sablefish in net pens outside the research facility at Manchester. The tribe and others have applied for a federal grant.



This photo taken March 28, 2017 shows outdoor fish pens used to house sablefish at a National Oceanic and Atmospheric Administration research facility in Manchester, Wash. Scientists are studying sablefish genetics and investigating ways to make it easier and more efficient to commercially grow and farm the fish. (AP Photo/Ted S. Warren)

Kurt Grinnell, aquaculture manager for the Jamestown S'Kallam Tribe, said the tribe is very interested in sablefish aquaculture for many reasons.

"It's a native fish to our area. It's a very robust [fish](#). It's very sought-after. It's got great market value," he said. "Over time, our country and other countries will have to get their protein source somewhere, and we

believe this is one way to meet that demand."



In this photo taken March 28, 2017, Rick Goetz, a program manager with the National Oceanic and Atmospheric Administration, explains the life cycle of a sablefish using a poster at a research facility in Manchester, Wash. Scientists are studying sablefish genetics and investigating ways to make it easier and more efficient to commercially grow and farm the fish. (AP Photo/Ted S. Warren)



In this photo taken March 28, 2017, Ken Masee, right, a biologist with the National Oceanic and Atmospheric Administration, uses an ultrasound device to scan the belly of an anesthetized sablefish to tell if it's female and has eggs to collect at a research facility in Manchester, Wash. The silvery-black fish prized for their buttery flavor live deep in the ocean, so researchers keep their labs cold and dark to simulate ideal conditions for sablefish larvae. (AP Photo/Ted S. Warren)

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