

# THE NEWS & OBSERVER

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## Ocean fish, fresh from the farm

Aquaculture of sea creatures has commercial promise in North Carolina

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WRIGHTSVILLE BEACH - Chef John Howell recently listed fresh black sea bass as one of the specials at the Bridge Tender restaurant in Wrightsville Beach. He stuffed it with crab, topped it with salsa.

"We sold out of them in two nights," Howell said. "It was sweet."

But what made the entree really special was that the fish didn't come from the ocean -- it came from a university fish farm.

Someday all the pan-seared black sea bass that chef Howell serves customers at the Bridge Tender may come from a North Carolina bass ranch -- if scientists at the University of North Carolina at Wilmington and N.C. State University are successful. They're researching how to raise ocean fish in tanks to meet growing demand among health-conscious consumers.

Two of the most commercially promising species, southern flounder and black sea bass, swim in above-ground heated and cooled tanks of seawater at a former water desalination plant in Wrightsville Beach,



Black sea bass

which has been turned into a fish farm and laboratory. The fish dine on experimental diets that include fish meal and alternative protein sources such as plankton and soy meal pellets.

Researchers hope their work and that of colleagues at other universities will launch a new marine agriculture industry for coastal North Carolina, help meet the growing appetite for fish and relieve pressure on dwindling wild stocks of fodder fish such as herring and menhaden.

"We're at a stage where we've answered a lot of research questions," said Daniel Baden, director of the Center for Marine Science at UNCW and executive principal of MARBIONC, a university-based economic development incubator that helped fund the



Baden



STAFF PHOTOS | CHUCK LIDDY

James Wilde, a graduate research assistant, above, takes black sea bass, like the one at top, from a holding tank in Wrightsville Beach. UNC-Wilmington and N.C. State scientists are researching how to raise ocean fish in tanks.



Troy Rezek, a research assistant at the UNC-Wilmington 'aquafarm,' checks the flow rates in tanks holding fish larvae. According to the National Oceanic and Atmospheric Administration, aquaculture is the fastest-growing source of food production. The U.S. imports about 70 percent of its fish.

research. "We're starting to bridge academics with industrial interactions."

Aquaculture is the fastest growing source of food production today, the National Oceanic and Atmospheric Administration said. And it has become a national priority in the United States, which imports about 70 percent of the fish Americans consume. Much of that is farm-raised in other countries to supplement wild harvests.

NOAA is leading an initiative to try to make the United States more self-sufficient in seafood and has helped fund aquaculture research at UNCW, NCSU and other universities in Texas, Georgia and New Hampshire.

"What is going on in North Carolina is an important component of this overall puzzle," said Michael Rubino, manager of NOAA's aquaculture

program. "They've come very fast in a very short time. We have the technology, but are trying to prove it on the commercial scale. I wouldn't say it's quite at the commercial success stage."

Federal officials say there is significant potential to increase commercial aquaculture production in the United States. Preliminary estimates by NOAA indicate that domestic aquaculture production of all species could increase from about a half million tons annually to 1.5 million tons a year by 2025.

Raising ocean fish from eggs is more complicated than farming freshwater fish, scientists says, just as keeping a salt water aquarium involves more work than a freshwater aquarium. Ocean fish eggs are smaller and more fragile and difficult to cultivate.

The research in Wilmington indicates the black sea bass are a good candidate for commercial production using sustainable feeds in tank farms. In feeding trials, researchers have successfully replaced up to 70 percent of their diet with soy meal -- which could help reduce pressure on harvesting small feeder fish to grind up into meal.

"We are developing an industry in an era where there is more concern for protecting the environment," said Wade Watanabe, a research professor at UNC-W and the coordinator of the aquaculture center.

Watanabe said researchers needed to demonstrate that the fish can be raised in sufficient numbers in confined spaces and grown quickly enough so prospective farms can predict production.

"I think there is a lot of work to be done in the area of learning how to develop technology for raising these fish in inland systems that don't have access to seawater," Watanabe said.

Ted Davis, a principal in Aquaplantations, a Wilmington company formed to develop farms, wants to transfer the university research into a commercial fish

operation. He said right now the capital costs for launching the farm remain steep -- \$700,000 for a fish farm with a recirculating water system that would produce 100,000 pounds of fish.

In a collaboration with university researchers, Davis has provided some tanks and equipment at the aquaculture center to raise sea bass. He has also acquired an eight-acre site near the airport to eventually locate a farm. He has sold some fish to restaurants and expects to have more marketable fish in about 18 months.

"I would like to be a part of launching an industry for the state," Davis said. "I see marine aquaculture developing much like the swine or poultry industry. Seafood is the last wild product left. You don't go out and kill a turkey or pig. It's grown. In order for us to have seafood, there is going to have to be an agriculture system."



Watanabe



Davis