

HOOKING UP SNOOKS: RESEARCH ATTEMPTS TO BOLSTER STOCKS OF LUCRATIVE SNOOKS, NO EASY TASK

By Tiffany Woods



A fisherman casts out a net in hopes of catching snooks off the gulf coast near Jalapita, Mexico (Photo by Tiffany Woods).

JALAPITA, Mexico—The facility is part fertility clinic, part singles bar. It's tucked away on the beach in the sleepy village of Jalapita on Mexico's gulf coast amid coconut trees that stretch for miles. Under a blue sky, swimming pools bubble like hot tubs as palm fronds rustle in the warm breeze and tropical birds chatter. In one pool, four glistening, slender bodies eye each other across the water, their libidos artificially primed to put them in the mood.

This is where snooks come to hook up.

The fish are part of an experiment that aims to boost their population. Scientists at the Autonomous Juarez University of Tabasco in Mexico are trying to use these wild fish as a broodstock to crank out juveniles in captivity. The university aims to sell fingerlings to fishermen-turned-fish farmers as a way to relieve fishing pressure on wild stocks. It also hopes to sell them to the government to release into coastal lagoons and rivers.

"We need to increase the population in the wild. They're overfished. There has also been a lot of habitat degradation from cutting down mangroves and from oil refineries and wells," says Kevin Fitzsimmons, a professor at the University of Arizona and former president of the World

Aquaculture Society.

He's one of the participants in the snook project, which also involves Texas Tech University. The work is partially funded by the U.S. Agency for International Development through its AquaFish Collaborative Research Support Program, which is headquartered at Oregon State University.

This funny-named fish, known as *robalo* in Spanish, is the most expensive fish sold in Mexico City, according to the country's National Commission on Aquaculture and Fishing. Fishermen in Mexico earned more than \$25 million for landing about 8,000 metric tons of snooks in 2008, making it the country's eighth most important aquatic product in terms of value, the commission reported.

Various species of snooks inhabit coastal waters, estuaries and lagoons from Florida to Brazil. A widespread one is the aptly named common snook, a silvery, streamlined, snouted carnivore with a dark lateral pinstripe and a bulldoggish underbite. These acrobatic fighters, which can reach 4 feet and 50 pounds, are highly prized by sport anglers. Fishermen in Florida and Texas used to catch snooks until those states banned commercial captures in 1957 and 1987, respectively, to protect the population.

"In Texas there's anecdotal evidence that they're making a comeback. Sport fishermen are finding them more often and in places where they didn't find them before," says Reynaldo Patino, the leader of the Texas Cooperative Fish and Wildlife Research Unit at Texas Tech University and one of the researchers involved in the project.

Efforts to influence what snooks do when no one is looking is complicated by their sexual plasticity. They're protandric hermaphrodites, meaning they can change from males into females. So far, researchers have had some success in getting them to breed in captivity, but getting their kids to eat has been a real head-scratcher.

"It's a challenge," says Wilfrido Contreras-Sánchez, the lead investigator and the director of biological sciences at the university in Tabasco that's conducting the research. "Not much is known about snooks. There are still many questions."

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To help answer those questions, he began contracting fishermen in Jalapita in 2006 to catch two species of snooks: fat and common. Researchers later injected some and implanted others with different doses of a hormone to induce spawning. They wanted to know which treatment and which dosage produced the most mature eggs and resulted in the highest rates of fertilization, hatching and larval survival. None of the injected fish released its eggs, and only some of the fish with the implanted hormonal pellets did.

Maria de Jesus Contreras Garcia, a graduate student helping conduct the research, suspects that stress, which can adversely affect reproduction, may be to blame. Human contact may have frazzled the fish because researchers injected the hormone into each of them on three different occasions, she says. They handled the fish with implants only once.

On one occasion, Contreras Garcia wanted to know how much time would pass

between implantation and spawning so she and a colleague chaperoned three fish for 24 hours. They slept in a hammock and sofa bed in a makeshift house on the beach and set an alarm to sound every hour so they could alternate shifts. With flashlight in hand, she'd groggily lumber to the holding tank and scan the water for eggs. No luck.

Other snooks did spawn though. Almost all of the eggs hatched. But the tiny fish, still in their larval stage, lived for just eight days and were only about as long as the thickness of three stacked dimes. Autopsies revealed empty bellies. The food they were given, although microscopic, was too big for their small mouths, Contreras-Sánchez says.

He thinks they might survive if fed the same diet that recently hatched wild snooks around Jalapita feast on. He plans to hire local fishermen to collect microscopic animal and plant plankton as well

as snook larvae from nearby spawning grounds. Researchers will dissect their wee stomachs to see if the grub inside is the same as the collected plankton. They then hope to customize a recipe for a locavore diet that they can duplicate in mass quantities in the lab.

They'll also inspect snooks' stomachs, intestines and pancreases to identify enzymes that help digest their food. Certain enzymes break down certain substances, so if they can indentify the enzymes, they'll know what to feed the fish, Contreras Sanchez said. Additionally, they're continuing to refine their work with hormonal injections and implants to see if they get better results. And they've added a third species to their research, the Mexican snook.



Snooks for sale at the market in Villahermosa, Mexico (Photo by Tiffany Woods).

About a mile up the road from the research facility, fisherman Ramon Dominguez Sanchez is eager for results. He's eating a mango from a tree in his dirt yard as two women scrub clothes by hand. A few feet away, one of his sons sits under the hood of a truck and replaces the fuel filter. It smells of gas.

The broad-shouldered, thick-necked, flip-flop-wearing Dominguez is the president of a fishing cooperative in Jalapita that would like to buy young snooks from the university, rear them and sell them. The sooner the co-op can do this the better because harvests, at least for him, are declining, says Dominguez, 54, who has been hauling in nets for 40 years. During the previous week he pulled in about \$10 worth of fish but there wasn't a snook in the bunch, he says. So Dominguez wants to see the research succeed.

Perhaps it's this pressure to perform that's causing some of the snooks not to cooperate. Back at the beachside research station, the two couples that were checking each other out in the pool have lost interest. Apparently, they're just not that into each other. Researchers vow to keep trying though. Sometimes love just needs time.

