Success Story

AquaFish CRSP: Sustainable Aquaculture and Fisheries for a Secure Future

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A Native Fish Moves Towards Aquaculture

Farmed Snook Promises a New Livelihood for Mexican Fishers

"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."

— Kevin Fitzsimmons, AquaFish CRSP researcher

Ramón Dominguez Sánchez has fished for 40 years. With declining fish stocks, he is ready to start an aquaculture business to raise and sell snook.

Along the shores of the Gulf of Mexico, declining fish stocks are causing the incomes of Mexican fishermen to plummet. One of these native fish is snook, a popular sport fish and lucrative catch for commercial fishermen. These days local fishermen are lucky if they net any. Ramón Dominguez Sánchez, president of a local fishing cooperative in Jalapita, Mexico would like to see this change. He and the coooperative are ready to become fish farmers just as soon as AquaFish CRSP researchers at the Autonomous Juarez University of Tabasco bring snooks into aquaculture.

Known as *robalo* in Spanish, snooks include several species found in coastal waters from Florida to Brazil. As the most expensive food fish sold in Mexico, snook rank as the country's eighth most important aquatic product in dollar value. Thus, the economic incentive for keeping a healthy fishery is strong. "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 lead AquaFish CRSP researcher at the University of Arizona.

CRSP researchers plan to boost wild populations by breeding snook in captivity. To replenish wild stocks, the university in Tabasco plans to sell fingerlings to the government for release into coastal lagoons and rivers. To help impoverished fishermen, it also aims to supply fingerlings to fishermen-turned-fish farmers whose entry into aquaculture will reduce pressures on the threatened fishery while promising them a more stable income source.

Getting snook to breed and survive in captivity has involved several major hurdles. With the cooperation of local fishermen, the CRSP team first obtained healthy wild adult fish for hormone testing to find the right dosage to induce them to spawn. Despite the stresses of being in captive surroundings and handled for hormone treatment,

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Reduced catches of wild snook are threatening the livelihood of this fisherman. In the poor, isolated fishing communities along the Southeastern coast of Mexico, the artisanal snook fishery is a primary income source.

CRSP researchers keep breeding stocks of snook in open-air pools at a coastal facility in Jalapita, Mexico. Members of the local fishermen's cooperative helped initiate UJAT's project to bring snook into aquaculture.

some of the fish settled into their natural breeding behavior and spawned. But, getting the tiny larvae to survive presented additional challenges. Each experimental hatch died within eight days. Autopsies revealed empty stomachs. The explanation proved simple: researchers had been feeding the larvae food that was too big for their mouths.

The annual catch of snook reached 8,000 metric tons in 2008, earning more than $25 million for Mexican fishermen. At market, snooks bring in one of the highest prices for fish vendors.

Again, local fishermen played a key role in finding a solution. They collected water samples and snook larvae from nearby spawning grounds. Using these samples, researchers were able to identify the natural, small-enough sized plankton that tiny snook would normally eat in the wild. With this information, the CRSP team is now on its way to developing a customized diet to nourish young fish produced in captivity until they are large enough to feed on more conventional fish feeds.

"It's a challenge," says Wilfrido Contreras-Sánchez, the lead Mexican investigator conducting the research. "Not much is known about snooks. There are still many questions." But the time is getting closer for Dominguez Sánchez and other fishermen who are depending on CRSP scientists to open new income opportunities with snook aquaculture and a way to rebuild the wild fishery.

To view an AquaFish CRSP video on the snook breeding project at UJAT, see www.aquafishcrsp.oregonstate.edu/video/index.php?video=2

Photos by Tiffany Woods, Oregon State University

For more information, contact the US and Mexico project partners:

US Partner
Dr. Kevin Fitzsimmons
Environmental Research Laboratory
The University of Arizona
PO Box 210038
Tucson, Arizona 85721
Tel: 1-520-626-3324
Email: kevfitz@ag.arizona.edu

Mexico Partner
Dr. Wilfrido Contreras-Sánchez
Universidad Juarez Autónoma de Tasbasco
Carretera Villahermosa-Cardenas Km 0.5
Entronque a Bosques de Saloya
Villahermosa, Tabasco 86039
Mexico
Tel: 52-993-358-1579
Email: contrerw@hotmail.com

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