



Future fishes

sturgeon is among the possibilities

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The Hawaii Aquaculture Conference held last week offered a chance to gaze into a water-filled crystal ball. The gathering at Windward Community College was a show-and-tell session for aquaculturalists, those entrepreneurs and researchers whose aim is to corral waterborne creatures and farm them the way ranchers farm cattle.

These are the same people who a few years back promised us that moi -- that fish of ancient kings and modern chefs -- would soon become the fish of grocery stores. They were right about that, so we probably ought to believe them about these new fishes.

So, what's new?

Two fish being grown mostly on the Big Island have particular sex appeal: Kahala, which produces sashimi of a quality that rivals the exalted hamachi; and sturgeon, from which the world gets caviar.

Imagine that -- made-in-Hawaii caviar. Hold that thought and come gaze into the crystal ball ...

PACIFIC AQUACULTURE AND COASTAL RESOURCES CENTER
Vida Yaps holds a sturgeon pulled from a pond at a Hilo fish farm.

Surgin' sturgeon

Eight years ago, Russian researchers provided the first sturgeon eggs, which were hatched and placed in freshwater ponds on the Big Island's Hamakua Coast.

The Russians believed the conditions, including a water temperature of 68 to 70 degrees, would suit the fish. Their aim is to protect the sturgeon gene pool by fostering populations of various species in places safe from the deteriorating conditions of the Caspian Sea.

The half-dozen Hawaii fish farmers participating in the project have no hope of short-term gain. Those first sturgeon are only now reaching maturity and producing eggs.

But that was a major victory.

"We did not know whether these fish would mature under Hawaii conditions," says Kevin Hopkins, a professor of aquaculture at the University of Hawaii-Hilo and interim director of the Pacific Aquaculture and Coastal Resources Center.

"Everyone told us they need a cold spell to mature. No, they don't need that cold spell."

Some fish were rounded up and anesthetized, then a small cut was made in each to check the gonads and see how the eggs were doing. They were then sewn up and released.

This, by the way, is the normal method for checking egg readiness in farm-raised sturgeon. Wild sturgeon are simply caught when they head upstream

to spawn.

"We have very limited goals now," Hopkins says. "If we can make caviar next month and eat it, we'll be happy."

Full production -- still several years off -- means keeping the fish happily growing for two or three years, at which time the males can be identified and "culled," or sold for meat. They don't make eggs, after all. (Sturgeon meat is often smoked, although it can be prepared many other ways.)

At age 8 and about 75 pounds, the females mature and are harvested. About 10 percent of the female ends up as eggs when everything's timed right, Hopkins says.

Now, do the math: 7-1/2 pounds of eggs per female at the going wholesale rate of \$200 per pound -- that's a healthy \$1,500 per fish, before you even get to the meat.

You can see the attraction, but for now, it's mostly theoretical.

Some of the farmers are in it for the science. Others have turned over a small part of their operations in hopes of some day cashing in on sturgeon's promise.

Ron Weidenbach of Hawaii Fish Co. has 100 sturgeon in tanks that he plans to introduce to the depths of a 200-foot-deep lake on his Mokuleia farm. He grows tilapia in cages closer to the surface.

The sturgeon are just a year old, Weidenbach says. "Once we put them in the lake we won't see them for five years."

Already, though, the fish are demonstrating their potential: They're growing at two or three times the rate of Russian sturgeon because of the warmer water here.

Hopkins says people do question the wisdom of the project. "It has an enormous amount going against it," he admits.

So, why? "Maybe ... the challenge?"

King kahala

The latest fish swimming circles in Kona tanks is the amberjack, called kahala in Hawaii and kampachi in Japan. The meat, often compared to hamachi (yellowtail jack), is coveted in Japan for sushi and sashimi.

"In my opinion, this is going to walk all over hamachi," says Dale Sarver,

president of Kona Blue Water Farms, one of two Kona companies working on bringing kahala to market. "It's a spectacular fish for sashimi."

In the wild, amberjack is among tropical species most prone to the ciguatera toxin. For years most fishermen have tossed the fish back, rather than risk severe food poisoning. This collision of nature and disease has made farming of kahala a valuable proposition.

Pacific Harvest starting growing the fish last June, hatchery manager Syd Kraul says. "They haven't stopped spawning. They spawn every day, every two days."

The fish reach market weight of 12 to 16 ounces in four months. "It's a fast-growing fish, very, very hardy," Kraul says. "You drop them on the ground and they survive."

That size fish is quite small -- Kraul describes it as "a plate-size fish for people who eat it whole" -- which limits potential sales.

Kahala will grow much larger -- Pacific Harvest's Web site shows a proud angler with a 145-pound fish caught at sea. Consistent production of 4- to 5-pound fish would open up the market, allowing for the fillets and sashimi that are more popular with consumers.

But for now, it's not economical for Pacific Harvest to hold the fish until they grow larger. Instead, the company is developing a following for pan-sized kahala at fishmarkets, KTA stores and a few restaurants in the Kona area.

In about a month, the company should have enough of these small kahala to offer fish wholesalers on Maui and Oahu. The fish sell for about \$6 a pound retail and are valued for their well-balanced fattiness, soft flesh and flavor.

Kona Blue Water also sold some small fish, but marketing plans changed after Sarver took a 2-1/2 pound fish home and tried it raw. "I was just amazed. I was flabbergasted by how good it was."

He has several thousand fish at about 3 pounds and aims to grow them until he runs out of space on his 2.5-acre site in Keahole. "I'm building tanks as fast as I can." Once he has kahala at 4 to 5 pounds, Sarver believes he can reel in high-end sushi bars across the state. "That's going to be the market for this fish."

The real future for kahala, though, is in offshore cage farming, the same technique that made moi so readily available. Sarver is working on an offshore lease at Keahole and plans to move his kahala into cages next year.

Pacific Harvest, meanwhile, is growing thousands of kahala fingerlings, which it hopes to sell for cage-growing in Hawaii or to overseas markets such as Mexico.

Sarver says the potential of kahala is great.

Kona Blue Water began experimenting with kahala while doing research for the federal government on several types of fish larvae. But with the success of kahala he has given up previous plans to focus on a diverse selection of fish. "We're so impressed with the fish it's just changed our whole company plan."