

## Sea ranches make waves

by Terry Rodgers

Predictions of a "blue revolution" where fish farms off the U.S. become a major food source have remained fanciful speculation.

But change is on the horizon.

In California, entrepreneurs can now pursue sea ranching - raising certain types of fin fish in offshore pens - thanks to passage last year of the Sustainable Oceans Act. The law established a permit process and environmental standards for aquaculture within three miles of the shoreline, the extent of the state's jurisdiction.

In Washington, D.C., Rep. Nick Rahall recently introduced the National Offshore Aquaculture Act to create a permit system for fish farming in U.S. waters from three to 200 miles offshore. Rahall, D-W.Va., is chairman of the House Natural Resources Committee.

In San Diego, the Hubbs-SeaWorld Research Institute is pushing to become a leader in U.S. aquaculture research. Yesterday, the institute's officials outlined their case for expanding marine fish farming to the California Fish & Game Commission.

Don Kent, the director of Hubbs, said decades of advancing the science behind aquaculture has left him bullish about the U.S. industry's vast untapped potential.

"If we're going to keep the ocean abundant, we have to start farming the sea the way we farm the land," he said.

China dominates the global aquaculture market, accounting for 70 percent of its \$70 billion in annual output. The rest of Asia accounts for 22 percent. The United States is a minor player with roughly \$1 billion in yearly revenue.

FISHFARM - Highly marketable yellowtail swam in large aquaculture tanks at the Hubbs-SeaWorld Research Institute in Mission Bay, which is pushing to become a leader in aquaculture research. Photo by Laura Embry.

FISHFARM - California Fish and Game commissioners heard research biologists Jeff Smiley (left) and Mark Drawbridge (right) explain a hyperbaric chamber used to catch fish for breeding. Photo by Laura Embry.

The U.S. focus is shifting from freshwater aquaculture, which dominates domestic production with species like catfish, to raising high-value fish, such as cobia and yellowtail, in the open ocean.

Marine aquaculture has become a national priority because 81 percent of the seafood consumed in the country is imported. About 60 percent of these imports are wild fish caught in the ocean; the remainder are farm-raised.

The United States' seafood trade deficit of \$8 billion last year was second only to the one for oil imports.

"We're at a crossroads in terms of our seafood supply," said Michael Rubino, manager of aquaculture for the National Oceanic and Atmospheric Administration.

The agency, which oversees 96,000 miles of shoreline and 3.4 million square miles of open waters, is leading the Bush administration's campaign to more than triple domestic aquaculture production by 2025.

Before the boom can begin, the nation needs to establish a regulatory framework to separate competing users, focus growth in the most productive areas and safeguard the environment, Rubino said.

If Congress can do its part by passing the Aquaculture Act, he said, completing a nationwide environmental study and finalizing related regulations would take about two years.

Sea ranching might ease the pressure on over-exploited fish stocks in the wild and satisfy a growing consumer demand for seafood, which is widely touted for its nutritional and health benefits. It also could increase the variety of seafood while lowering retail prices - as it has for shrimp.

In addition, marine aquaculture could help revitalize many of the nation's working waterfronts and ports that have suffered due to the decline of commercial fishing.

"People at the local level need to want to do this, or it won't happen," Rubino said.

At its worst, aquaculture can contaminate coastal ecosystems and spread disease and inferior genes to stocks of wild fish. On the business front, independent fishermen worry that big corporations will dominate

the aquaculture industry and leave them to compete for scraps.

California is poised to become a national leader in marine aquaculture, Hubbs senior researcher Mark Drawbridge told the state Fish & Game Commission yesterday during its meeting at the institute.

He said California has many native marine species that are highly marketable, including halibut, white sea bass and yellowtail. It's also home to Hubbs-SeaWorld Research Institute and other aquaculture research sites. The state has plenty of investment capital and a favorable coastal climate, especially in Southern California.

"We have a great opportunity," said Drawbridge, who is also president of the California Aquaculture Association.

Meanwhile, environmentalists are urging Congress to copy the strict regulatory framework that California adopted last year for marine aquaculture.

Sea ranching poses a host of dangers to the environment. Drugs used to control sea lice, disease and waste from the fish can pollute the surrounding waters. Fish that escape their pens can infiltrate the wild population, spreading disease and contaminating the gene pool. The increasing demand for fish meal to feed farm-raised fish could deplete the stocks of sardines and anchovies.

"We have the chance to do it the right way instead of suffering the impacts of doing it the wrong way," said Tim Eichenberg, Pacific region director for The Ocean Conservancy.

Kate Wing of the Natural Resources Defense Council recommended restraint and caution in expanding marine aquaculture. "We are looking to oceans to meet so many of our needs, from new sources of energy to farming," Wing said. "We need someone to take the long view so we don't have a train wreck in the oceans."

To bolster their lobbying efforts on aquaculture, environmentalists have forged an alliance with groups that are usually their adversaries: commercial fishing interests.

People who harvest fish from the wild, especially salmon fishers, are concerned that sea ranching will flood the market with cheaper fish and drive them out of business.

"The fishing industry in the U.S. is very leery of this," Eichenberg said.

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