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Local biotech banks on new 'chicken of the sea'

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A vision of cobia, a warm-water game fish, becoming a popular choice at restaurants and supermarkets is driving a $30 million aquaculture investment by a local biotech company and its Virginia partner.

MariCal Inc. of Portland is teaming up with Blue Ridge Aquaculture Inc. to launch Virginia Cobia Farms LLC. The joint venture will use **MariCal**'s proprietary technology to raise cobia at a $600,000 pilot plant in Saltville, Va.

Supporters hope the indoor fish-farming technology will help make cobia, a large ocean game fish, the new ''chicken of the sea.'' The work also may help advance Maine's aspirations as a center for marine research.

''This is extremely significant,'' said William Thomas, senior vice president for marketing and sales at **MariCal**. ''Cobia is the next salmon in commercial aquaculture.''

The venture was announced Wednesday in Virginia, which has funneled economic development money to the project. Most of the 60 new jobs linked to the expansion will be in Virginia, although a handful of research positions will be generated on Portland's waterfront.

MariCal declined to break down how the $30 million investment is being split among the companies and investors, but said revenue generated by licensing the technology would flow back to Maine.

MariCal is a 10-year-old, privately held aquatic life science company. It has operations in Alaska, Canada, Chile, Norway and the United Kingdom. The company has 26 full-time employees, 16 in Portland.

MariCal's founders discovered so-called biological thermostats inside fish and other aquatic organisms. The thermostats - proteins called calcium receptors - allow the fish to sense and respond to changes in salinity and nutrients. The company has used the discovery to boost salmon production around the world by licensing their patented biotechnology.

In August, the firm received commitments worth $3.1 million from American and Norwegian investors. That capital will help **MariCal** expand to more than 40 employees in 2009, the company said, with much of the growth in Maine.

The cobia project stems from relationships developed with researchers at Virginia Tech and through the resources of Blue Ridge Aquaculture. Headquartered in Martinsville, Va., Blue Ridge bills itself as the country's largest indoor fish farm for tilapia, a freshwater whitefish native to Africa that's cultivated worldwide.

Global overfishing and changing consumer preferences have challenged the world's aquaculture industry to develop seafood that's affordable, safe and easier on the environment. Coastal salmon farming is a prominent example in eastern Maine and Atlantic Canada, though the enterprises have periodically been set back by disease and controversy over pen siting.

Virginia Cobia Farms seeks to get around some of these problems by raising the fish in a controlled indoor environment. It also plans to capitalize on the salt mineral deposits and lower-cost electricity and natural gas in western Virginia.

Cobia is a good candidate for aquaculture because they grow fast; salmon can take 28 months to reach the size cobia can achieve in 12.

In the past few years, Asian operations have been raising cobia in coastal pens and shipping frozen fish. Virginia Cobia Farms wants to produce cobia close to the central U.S. market by using **MariCal**'s technology to adapt the saltwater fish to a freshwater environment.

''To raise a marine species inland, in a cost-effective way, this presents an opportunity to change the whole way aquaculture is envisioned in the United States,'' Thomas said.

Having a Portland company pioneer that technology, he said, helps raise Maine's profile for marine research.

That view is shared by Don Perkins, president of the Gulf of Maine Research Institute, one of **MariCal**'s neighbors on Commercial Street.

''**MariCal** is an elegant example of the kind of marine science-based company that Maine has the potential to attract and grow here,'' he said.

MariCal, Perkins said, has evolved with support from state technology seed money and private investment to a point where it can attract millions of dollars in venture capital.

''This announcement in Virginia indicates they have a technology that's relevant in a global market,'' he said.

If Virginia Cobia Farms is a commercial success, its experience will interest competing aquaculture companies that see a future in the fish.

Marine Farms ASA of Norway has a cobia hatchery in the Florida Keys. It is building a coastal cobia farm in Belize and hopes to be in the marketplace next year.

''Chicken of the sea: There's a lot of talk like that,'' said John Forster, a consultant for the company.

Cobia farming, he said, is sort of where salmon aquaculture was 20 years ago. Researchers still need to refine the nutritional requirements, avoid disease problems and figure out how to make large-scale cobia farms profitable, he said.

Building a closed system on land sidesteps some of the pitfalls of raising fish in ocean pens, Forster said, but requires operators to maintain a complex system of pumps and staffing around the clock.

''It's like a race car running out flat,'' he said. ''Sooner or later, something goes wrong.''

At **MariCal**, Thomas dismissed those concerns. Recirculating aquaculture systems are an established design, he said, and the cobia-raising process already has been refined in the company's Portland lab.

MariCal will use juvenile cobia as brood stock for the Virginia operation. The biggest challenge Thomas foresees is not a technical one, he said, but a matter of supply and demand. Cobia's expected growth as a new commercial species, combined with **MariCal**'s technology, will create high demand for the eggs and juvenile fish to meet anticipated production.

''This is not a technological obstacle, but an operational obstacle,'' he said.

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Staff photo by Gregory Rec

Ben Baker, an assistant lab manager at **MariCal** in Portland, feeds cobia on Tuesday. **MariCal** is partnering with a Virginia company to raise the warm-water game fish.

Staff photo by Gregory Rec

COBIA (RACHYCENTRON CANADUM)

Also known as: ling, lemonfish, crabeater, cabio, line cod.

Description: The cobia is a large, long, slim-bodied fish with a broad depressed head and a protruding lower jaw. The cobia is overall a dark brown color with a prominent dark lateral stripe that runs from the eye to the tail. Its distinguishing first dorsal fin is composed of seven to nine spines that are not connected by a membrane. Because of their shape and coloration, they are often initially mistaken for sharks, especially the largest ones.

Size: The cobia is a sleek and extremely strong fish. It ranges in size up to about 135 pounds. An average-size fish will weigh 20 to 40 pounds. It reaches lengths of 20 to 47 inches, with a maximum of 79 inches.

Geographical distribution: Cobia are found around the world in tropical and warm temperate waters. They migrate, so their numbers will vary with the seasons. They inhabit the warm tropical waters in the winter and move to more temperate waters in the spring, summer and fall.

Food habits: As voracious eaters, cobia often engulf their prey whole. They are carnivores. A favorite food is crabs, hence, the common name ''crabeater.''

Importance to humans: Cobia are considered an excellent game fish and are highly prized by recreational fishermen. They are usually caught in small quantities due to their solitary existence. It is good for human consumption and is typically marketed fresh, frozen or smoked.

- Compiled by Staff Researcher Beth Murphy

LEARN MORE ONLINE:

For information on cobia:

http://www.tinyurl.com/y8ndvk

Even more information, including a recipe for grilled cobia:

http://www.fish4fun.com/cobia.htm

For more information on **MariCal**:

http://www.**marical**.biz
