<< Back to Article

# Abalone Farming on a Boat

Stewart Taggart

01.25.02 | 2:00 AM

SYDNEY, Australia -- Repurposing a crusty cargo ship that once ferried bulk items from scrap metal to logs, South Australia's Peter Wahlqvist is betting on a new commodity: high-value green lip abalone.

Using the ship's cargo holds as massive water tanks, Wahlqvist has created what may well be the world's first offshore floating seafood farm. If the venture succeeds, it will mark a step toward moving some of the burgeoning global aquaculture industry out to sea.

"Are we sailors, fishermen or farmers?" asked Wahlqvist, a principal in Destiny Abalone Pty. "I figure we're fishermen, but fishermen developing a new set of skills."

Green lip abalone is suited to this kind of ocean-grown culture -- at least on paper. Green lip abalone is a shelled marine snail with a large edible "foot" that attaches by suction to reefs. Under ideal circumstances, the animal does little but eat and grow.

Green lip abalone is a delicacy in Asia and one of the pricier seafoods on the market, selling for $50 per kilo or more.

For the last decade, Destiny has grown green lip abalone on a land-based aquaculture operation near the South Australian town of Port Lincoln. There, fresh seawater is pumped several hundred meters inland from shallow coastal waters to a five-hectare aquaculture farm, where the abalone takes three to four years to mature in a maze of tanks.

Given that the land-based operation takes its seawater from a shallow coastal zone of seasonally varying water temperature, the company faces high energy bills and engineering costs in assuring a constant supply of seawater at the right temperature.

That's because if any seawater that's much above 20 degrees centigrade is fed through the system -- even for a few hours -- killer pathogens can breed, which can decimate the farm-raised abalone. Conversely, if seawater below 18 degrees centigrade is pumped through the system, the farm-raised abalone will go into a kind of suspended animation and stop growing.

By moving offshore, however, the abalone-raising operation can exploit the year-round stable ocean water temperatures in South Australia's Spencer Gulf. Ultimately, Wahlqvist believes this may cut maturation time by two-thirds and save the company many of the pesky pumping, heating and cooling costs it faces on land.

Independent experts agree that moving abalone production offshore makes sense, at least theoretically.

"Culturing abalone on a ship solves two major problems: how to get fast growth rates without killing the animals and how to get the best growth rate throughout the year," said Kirk Hahn, a California-based abalone aquaculture expert.

"The ultimate test of this operation will be to see if the costs of operating the ship will be less than an on-land facility," Hahn said.

Wahlqvist is confident that his floating ship, with its three generators to provide doubly redundant power and a virtually free oceanic resource of stable water temperature, will prove cheaper.

Aboard the ship, 1,000 individual growing tanks have been fitted in a maze formation in the ship's 5,500 cubic-meter cargo hold.

Seawater drawn in one side of the ship passes through the entire maze before being treated and discharged into the sea off the other side.

The ship will have a 22-person crew, roughly equally split between sailors and aquaculture specialists. Earlier this month, Wahlqvist and others finished loading about 400,000 abalone of various maturities onto the ship and weighed anchor to sea. The most mature of the abalone should be ready for harvesting by April.

Aquaculture is a burgeoning global industry. The Rome-based Food and Agriculture Organization now believes that with wild fish catches under severe pressure from overfishing, aquaculture is likely to satisfy most of the increase in global seafood consumption in coming years.

Some estimates predict that aquaculture could surpass cattle ranching as a source of protein for the world's populace as soon as 2010. But the industry has not been without its problems. In the late 1970s and early 1980s, high-volume, industrial aquaculture really started taking off -- focusing on high-value species such as salmon and shrimp.

Overcrowding, disease, pollution, escapes, genetic pollution of native stocks and other problems gave the salmon and shrimp industry a black eye in places such as Canada, Scotland, Norway and Thailand.

However, herbivorous, non-swimming and generally low-excrement animals such as abalone are believed to avoid many of the problems that have bedeviled the higher-profile farmed salmon and shrimp industries.