

First US offshore mussel farm harvests inaugural batch

By Jeanine Stewart

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📷 Matt Grant, CSR's ranch manager, is a US Coast Guard-certified captain and certified scuba diver.

California-based offshore mussel farmer Catalina Sea Ranch (CSR) harvested its first batch of mussels Monday, plucking them from waters six miles from shore.

The company's 100-acre mussel farm located 10 miles from Huntington Beach, is the first of its kind in US federal waters. The stocking was documented in a [YouTube video](#) chronicling an event over three years in the making. CSR first [received approval to use the site](#) in 2014.

CSR CEO Phil Cruver told *Undercurrent News* that he is watching to see how many mediterranean mussels (*Mytilus galloprovincialis*) it will harvest this year. But he expects to scale up to 2.5 million pounds once the company's initial 100-acre site is fully developed.

The company has raised nearly \$5m in capital, far exceeding the \$3m initially targeted. Additionally, the company has secured \$600,000 in federal contracts for aquaculture related research projects.

The plan is to eventually expand the size of the operation ten-fold, thanks to potentially game-changing research advancements and the Donald Trump administration's goal of reducing the increasing multi-billion dollar seafood deficit, Cruver said.

Perhaps the most influential of the company's federally-funded research efforts is a selective breeding technique that's new to aquaculture—genomics, James West, chief science officer for CSR, told *Undercurrent*.

Genomics is widely used in other food production arenas, such as corn and beef, to enhance growth efficiency, but the aquaculture industry has yet to capitalize on its potential, West said.

"Every plant and animal species we've domesticated has undergone tremendous increases in performance—often tripling or quadrupling the amount of food you get for a given input of resources," explained West.

"Think about the difference in what corn is now, compared to what it was when the Native Americans got here 20,000 years ago," he said, "or the difference in performance in Angus, bred for meat production in Europe for thousands of years, compared to Brahma. You get two or threefold more beef out of the same input in grain or land in Angus compared to Brahma."

Commercial aquaculture species have yet to undergo a similar transition, he added.

"All of our macroalgae and mollusks are pretty much just wild strains," he said. "What that is telling you is that we can get tremendous increases in performance through selective breeding."

Yet because traditional selective breeding can take decades or even centuries in some cases, it is important to use genomic selection to speed up the process.

"I want to stress that there's no genetic engineering involved here —we're just using a detailed knowledge of genetics to do extremely selective breeding, in a way that wouldn't be possible if you didn't know which genes drove which traits," West said. "Also, unlike old-style genetics or selective breeding, we can breed on multiple traits simultaneously. Genomic-guided breeding can give you scallops that have bigger medallions, but *also* better flavor, and *also* better disease resistance..."

The company ultimately aims to contribute to global-scale demand for more protein production with an aquaculture species that is known to have minimal environmental impacts, Cruver said.

Aquaculture is most certainly an important source of nutrition to feed the growing population, as indicated in the UN Food and Agriculture Organization's (FAO) State of World Fisheries and Aquaculture 2016 report, which says aquaculture is a highly valuable means of addressing the looming protein shortage. According to the report, aquaculture is the fastest growing food production system worldwide.

In the US, however, there is significant room for growth, as production levels are comparatively low on a global scale, despite its wealth of marine areas suitable for aquaculture production, the report states.

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