



*Regional
e-Notes*

Letter from the Director

Aloha!

As we gather with family and friends to give thanks for the blessings we have in our lives during this special time of year, let us also give thanks to those who tirelessly strive to improve our industry.

My team and I would like to express a warm Mahalo to the CTSA Technical Committee, Industry Advisory Council, and Board of Directors. These hardworking men and women dedicate their time to ensuring that the Center carries out its mission and sponsors research that is relevant and important to our local industry. We appreciate their participation in the many processes of CTSA administration, and look forward to another year of working together.

I hope you enjoy this issue and, as always, if you have any suggestions, concerns, or comments, please do not hesitate to let us know.

Mahalo,

Cheng-Sheng Lee
Executive Director, CTSA

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Developing a Commercial Bivalve Industry for Hawaii

by Robert Howerton and Maria Haws



Hawaii is a natural locale for a vigorous bivalve culture industry, but the grow-out of edible bivalves is absent from the aquaculture landscape. Ironically, Hawaii is a major supplier of bivalve seed for export even though none of this seed is used for the production of edible product within Hawaii. The absence of bivalve culture for food products represents a substantial lost opportunity for the State. Hawai'i has long been the only coastal state in the nation lacking a commercial bivalve culture industry. There are a number of factors contributing to this situation, the most important being the need of an FDA certified laboratory for the testing of *E. coli* and the

requirement for the classification of shellfish growing grounds. The State of Hawaii Department of

Health is now in the process of addressing these issues, thus opening the door to a new commercial shellfish industry.

Another major challenge of the project is to demonstrate the feasibility of growing bivalves in coastal regions throughout Hawaii. There are many unknowns about the suitability of grow out areas. Within the islands are numerous traditional Hawaiian fishponds that appear to be ideal locations to grow bivalves. Residents of Moloka`i spoke of there being clams and oysters found in these ponds over the decades but it appears that the abundance and distribution of all bivalves on Moloka`i have decreased significantly over the past generation to the point where very few can be found today.

In collaboration with industry cooperators on both Oahu and Moloka`i including Paepae `O He`eia (He`eia fishpond), The Hawaiian Learning Center (Keawanui fishpond), Keawanui Shrimp Farm, Kualoa Ranch (Moli`i fishpond), clams and oyster spat were stocked for growth trials.

The ponds were stocked with Pacific Oyster (*Crassostrea gigas*) and Manila clam (*Tapes philippinarum*) spat provided by Taylor Shellfish Hatchery on the big island. Initial growth out trials had variable results. The Manila clams grew very slowly at all sites and there were mortalities of oysters at a number of the sites. These mortalities appeared to be from predation from crabs that entered the grow-out containers. A second growth trial is currently under way in these Hawaiian fishponds utilizing new grow out containers. Stocking densities have also been lowered in the second growth trial.

Although there were variable growth rates from the first trial there were some very encouraging results. Oysters can take from twelve months to two years to reach market size on the mainland but in the warmer temperatures found in Hawaii the Pacific, oyster reached market size in four months.

Another objective of the project is to investigate indigenous shellfish species for commercial development. The Hawaiian oyster, *Dendroostrea sandwichensis* has been successfully spawned at the Pacific Aquaculture & Coastal Resources Center (PACRC) bivalve hatchery in Hilo.

Despite the generally small size of the Hawaiian oyster, which grows up to 2.5 inches, its taste is excellent and its smaller size is not a barrier. It could be developed as a substitute for the Kumamoto oyster, which is the most popular and highest priced half shell oyster species in the Northwestern United States. Hawaiian oyster spat were raised at PACRC and have been distributed to ponds and farms for grow-out trials.

Other indigenous bivalves including two pen shell species (*Pinna bicolor* and *Streptopinna saccata*) have been collected and are now being conditioned for spawning trials.

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This article was written under the auspices of the CTSA funded project "Developing Bivalve Culture to Diversify and Position Hawaii as a Supplier of Safe, Premium, Edible Shellfish Products." A full progress report of this project is contained in the forthcoming 2010 Annual Accomplishment Report, available on the CTSA website in December.



Taking initial measurements and stocking bivalves at He`eia fishpond on Oahu

Opportunity to Comment on Alternative Aquaculture Feeds Report

The National Oceanic and Atmospheric Administration's Aquaculture Program and the U.S. Department of Agriculture's Agricultural Research Service and National Institute of Food and

Agriculture recently opened a 60-day public comment period on their new report, *The Future of Aquafeeds*. The agencies will be taking comments online through January 18, 2011. [Click here](#) to view or download a copy of the report and for instructions on how to submit comments.

The report was prepared as part of the ongoing [NOAA-USDA Alternative Feeds Initiative](#). *The Future of Aquafeeds* provides a comprehensive view on the current state of knowledge and the challenges and opportunities associated with development of various alternative aquaculture feeds. The findings, recommendations, and research priorities contained in the report will help identify and prioritize new and ongoing research to be conducted and funded by NOAA, USDA, and other partners under the Initiative. The purpose of the joint NOAA-USDA Initiative is to accelerate the development of alternative dietary ingredients that will reduce the amount of fishmeal and fish oil in aquaculture feeds while maintaining the important human health benefits of farmed seafood.

Pacific Island Spotlight: Tinian Observing, Considering Shrimp Farming

By Richard Hofschneider, taken from the Saipan Tribune. November 12, 2010.



Patrick A. Manglona, chairman of the 13th Tinian Municipal Council, is currently in Honolulu, Hawaii, to look into the feasibility and viability of the Kahuku shrimp farming industry.

Shrimp production is one of the means being eyed to help augment the demands of the local tourism and casino industry and to prepare the island for the pending military realignment in the western Pacific Islands.

With the anticipated high demand and regional need for "organic" products, Manglona's trip aims to help local farmers find ways in which aquaculture and

agricultural crop production can be re-invigorated to support the local and regional economies.

Upon his return, Manglona will be entertaining in the next municipal council session a resolution requesting the Department of Public Lands to designate 80 hectares of agricultural land on Tinian that will be used exclusively for aquaculture farming and commercial agriculture crop production.

The resolution is co-sponsored by Council secretary Joseph S.N. Cruz and supported by vice chair Steven P. Cabrera.

The Council will also seek the assistance and guidance of the Northern Marianas College in this sustainable industry.

"The lands that will be reserved has a two-pronged approach: it will help keep production competitive for entrepreneurs and will reserve lands for Chamorro agricultural crop farmers," said Manglona.

Cruz and Cabrera were unable to join Manglona on this trip due to a budget shortfall. However, they both gave their full support to the Council's mission to look for ways to stimulate the local economy, in collaboration with the Mayor of Tinian and the Tinian Legislative Delegation.

AquaClip: Culturing Tuna on the Big Island

King Ahi: Just Another Fish Tale?

By Cynthia Sweeney, Big Island Weekly. Wednesday, November 10, 2010

If you eat seafood, chances are good it came from a fish farm somewhere in the world. According to the National Oceanic and Atmospheric Association, the U.S. imports about 84 percent of the seafood we consume, and half of that is a foreign aquaculture, or fish farm product.

"The global demand for seafood cannot be met by wild-caught fisheries. In the future, this will be

the only way to feed the world," said Hawaii Ocean Technology Inc.'s CEO Bill Spencer.

Spencer was in Kohala recently to present details to the community, of Hawaii Ocean Technology Inc's (HOTI) proposal for a 247 acre Ahi aquaculture farm located 7.5 miles north of Kawaihae harbor, which would raise sashimi-grade Ahi called King Ahi. Spencer's company claims to offer a new phase of ocean aquaculture as the solution to our increasingly over-harvested oceans, and plans to provide quality seafood in mass quantities. Some local residents, those tarnished by previous encounters with GMO-altered food products, those in the fishing industry, environmentalists, and outside watchdog groups, however, have raised objections.

Is this revolutionary aquatic farm the solution to the "impending global crisis" of depleted ocean fish, or is it a prototype for disaster that will create a mess of genetically altered "Frankenfish" and contaminate our waters?

The answer lies less dramatically somewhere in between.

Technologically, (HOTI) fish farm differs from traditional aqua-farms in several significant ways. In lieu of pens and cages, fish will be maintained in gigantic "pods" which are suspended, untethered to the ocean floor, 65 feet below the ocean's surface. The "ocean-spheres," of which there will eventually be 12, measure half a football field long each and are self-sustaining. The Ocean-spheres are powered by a conversion system that does not depend on fossil fuels, and a carefully controlled food supply avoids the kind of contaminant absorption found in the wild, while also dispersing waste before it reaches outside waters.

"Our goal is to come up with a better, more environmentally responsible supply for seafood," Spencer said. "This is designed to produce a lot of seafood while leaving a small footprint."

According to their website, HOTI is devoted to ocean stewardship and refers to Hawaii as the "Silicon Valley" of aquaculture. Spencer stressed the advantages this aquaculture project will offer the Big Island including jobs, about 20, lease payments (still in negotiation), tax revenue and a consistent supply of Ahi. He also encouraged Hawaii entrepreneurs to embrace the idea of growing fish food in brackish water, to turn into Ahi fish food.

HOTI's environmental impact statement has already been accepted by the State, and Spencer expects to obtain all necessary permits by next year, and begin construction in 2012.

Despite Spencer's optimism, however, the project is not a done deal. Although a 35 year lease has been secured from the DLNR, the needed permits are still pending.

About 75 residents attended the November 4 meeting in Kohala, and directed questions at Spencer concerning pollution and effluence from the ocean-spheres, the use of antibiotics, possible GMO contamination, hazard lights that will shine off the buoys at night, what and how the fish will be fed, the threat of endangerment to dolphins and whales, and the direct competition with local fishermen.

"We don't want to hurt the livelihood of local fishermen," Spencer said in response.

HOTI's projected production is up to 6,000 tons of Big Eye and Yellow Fin tuna annually, with most of that fish being sold to Japan and the West Coast U.S.

[Click here to read the rest of this article.](#)

The Center for Tropical and Subtropical Aquaculture (CTSA) is one of five regional aquaculture centers in the United States established and funded by the U.S. Department of Agriculture's National Institute of Food and Agriculture (NIFA) under grants 2005-38500-15720, 2006-38500-16901, 2007-38500-18471, and 2008-38500-19435. The regional aquaculture centers integrate individual and institutional expertise and resources in support of commercial aquaculture development. CTSA was established in 1986 and is jointly administered by the Oceanic Institute and the University of Hawaii.

