



Letter from the Director

Aloha,

June has been a month of first's for CTSA! From June 3-7, we conducted our first-ever "Project Update Conference Calls" with the Principle Investigator(s) and Industry Liaison of each ongoing CTSA-funded project. The conference calls coincided with our standard bi-annual reporting, and served as an extension of the written midterm reports we received at the end of May. To our delight, this activity facilitated in-depth conversations about project activities, challenges, outputs, and (potential) impacts, and resulted in various calls to action.

The Federal Government and industry stakeholders have expressed an increasing desire to support work that has significant impacts on regional aquaculture. Therefore, CTSA is consistently looking for ways to improve our process and ensure that each project we fund reaches its full potential. The conference calls are an efficient and valuable way to do so, as determined by a follow-up survey with the Principle Investigators and Industry Liaisons. We are looking forward to making them a fixture in project management, and I thank our dedicated PIs and liaisons for taking the time and energy to participate.

In addition, we also held our first Webinar on June 4 to explain the CTSA FY13 development process and pre-proposal format. If you were unable to participate in the webinar, we still welcome and encourage you to submit a pre-proposal to mbrooks@ctsa.org by June 28, 2013. [Click here for full details.](#)

On a sad note, I would like to express my deepest sympathy for the family of Tony Pellegrino, an esteemed industry colleague and personal friend of mine who passed away earlier this month. An article in his memory is featured in this issue.

Mahalo,

Cheng-Sheng Lee

Executive Director, CTSA

Remembering Saipan Aquaculture Pioneer Tony Pellegrino



Tony Pellegrino, owner of 'Saipan Aquaculture' and several other well-known businesses in the region, passed away on June 7 at the age of 82.

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passed away on June 7 at the age of 62.

Tony was a vivacious entrepreneur and pioneer of aquaculture development in the CNMI. He started 'Saipan Aquaculture,' the first major shrimp farm in the island chain, in 2005. Thanks to Tony's insight and dedication, the company quickly rose to become the 4th largest shrimp producer in the United States.

In addition to running multiple successful companies, Tony also served on several boards and committees throughout the Western Pacific. From 2009-2011, he was a member of the CTSA Industry Advisory Council. Most

recently, Tony developed (and served on the Board of) the Northern Marianas Trades Institute, a facility for local students to receive various vocational training for private sector jobs.

"Tony was a very important fixture in aquaculture in the Western Pacific," stated CTSA Executive Director Dr. Cheng-Sheng Lee. "He is the reason for the success of shrimp aquaculture in Saipan, and his absence will be felt for a long time."

For more information on Tony Pellegrino and his life's work, [please click here to read an article in the Marianas Variety.](#)

CTSA Project Update: Remarkable Affect of Diets on Abalone Meat Nutrient Composition and Shell Pigmentation

Zhi Yong Ju, Dong-Fang Deng & Warren Dominy, Aquatic Feeds and Nutrition Dept., Oceanic Institute, Waimanalo, HI
Cecilia Viljoen, Nursery & R/D Director, Big Island Abalone, Kailua-Kona, HI
Peter Hutchinson, Abalone Feed Extrusion Specialist, Director EN Hutchinson Ltd. New Zealand

Summary: Red and brown seaweeds are natural foods for *Haliotis discus hannai*, an abalone species with dark-brown shells that is also known as Ezo. This preliminary study investigated the effect of seaweed on the color and quality of the meat and shells of this abalone. Results showed that a formulated test diet and an established commercial feed individually resulted in lower growth rates and meat protein contents of abalone than a control seaweed (*Palmaria mollis*) diet. The two artificial diets also led to abalone with yellow or orange colored shells, which were different from dark-brown shells of abalone fed the seaweed. However, the combination of feeding the seaweed with either of the artificial diets remarkably improved the growth performance, product composition and shell appearance.

Abalone is a delicious and highly prized seafood. There is a great demand for development of artificial abalone feed in order to support the sustainable production of abalone. Commercial feeds for various species have been produced in several countries, however there is still no commercial abalone feed produced in the US. Abalone production in Hawaii mainly depends on imported feeds. Ezo is the major species of abalone cultured in Hawaii. Wild Ezo or Ezo fed with red or brown seaweeds have dark-brown or black shells (Fig. 1. Left). Ezo fed with commercial feeds have yellow, green or light red color shells, which are not well accepted in the international seafood market, especially in Japan (Fig. 1. right). However, culturing seaweed such as *Palmaria mollis* is expensive and difficult for mass production. The objective of this research was to develop an abalone diet, which can be used to partially replace *Palmaria mollis* seaweed and to evaluate the dietary effects on growth performance, product composition and shell color appearance of Ezo. Commercial feed served as a reference diet in this test.

[Click here to read the full article on the CTSA website.](#)





Figure 1: Normal (left) and abnormal (right) colored-shells of Ezo abalone.

[Full article on www.ctsa.org](http://www.ctsa.org)

Pacific Islands Spotlight: CTSA Bivalve Project in the News!!

The ongoing CTSA Bivalves project, led by Dr. Maria Haws, has been working diligently for several years to determine appropriate species for culture, and to obtain approval to grow those species in Hawaii's coastal waters. The project has experienced several breakthroughs (as previously reported in e-notes), and the Shellfish Working Group is now in its final stages of helping producers obtain the necessary permits. Two Oahu fishponds - Moli and He'eia - are participating in the CTSA project, and were recently featured in a Hawaii News Now broadcast and article.

Health Department approves first local shellfish farm permit in 26 years

By Ben Gutierrez, Hawaii News Now, May 22, 2013

KEKAHA, KAUAI and KANEOHE, OAHU (HawaiiNewsNow) - For the first time in decades, the state Department of Health has approved the growing waters and sale of shellfish by a local grower. Health officials approved the permit for Sunrise Capital, doing business under the name Kauai Clams. The company is located in Kekaha. It's the first such approval in 26 years.

"We are excited about the future of our new product Kauai Clams, and soon will introduce locally-growing oysters into our product line," said Mike Turner of Kauai Clams.

Paepae O He'eia has also applied for a permit to grow oysters in the He'eia Fishpond in Windward Oahu. "We always wanted to grow more oysters so it can help with the organization to sell and help fund the restoration project" for the fishpond, said Peleke Flores of Paepae O He'eia.

Molii Ponds in Kaaawa, owned by Kualoa Ranch Inc., has also applied for a permit.

The last shellfish operation in the state, Hawaiian Seafood Gardens, closed in 1997 because of financial reasons, and the DOH allowed its federal laboratory certification to lapse in 2000. But local interest in shellfish production revived in recent years, prompting the state to bring the shellfish permit program back to life.

The permitting process is very strict. "We're talking about clams and oysters, which are filter feeders, and they tend to accumulate whatever is in the water where they're growing," said Gary Gill, deputy health director for environmental health. "So it's very important that the water be pristine and clean. It requires under federal law that the growing waters be tested, and that the state have a certified lab, certified by the federal government."

According to Gill, Kauai Clams has enclosed ponds, where it already has been growing shrimp. Those waters have passed those tests. But clean water is more of a challenge on Oahu due to urbanization.

"All the bad that we're getting nowadays is from all this new development and all the runoffs and

"All the bad that we're getting nowadays is from all this new development and all the runoffs and everything that goes in the stream and directly into the pond and the reef system," said Flores about He'eia Fishpond.

Even so, the state and Paepae O He'eia are confident that approval will be given soon. "We're waiting on our water sampling, making sure we pass our water quality tests," said Flores. "But it should be a few more months, and we should get our permit to be able to sell."

[Click here to watch the video and read the original article.](#)

AquaClip ~ Study: Farmed Fish Will Rule the Plate

By SeafoodSource.com staff, June 14, 2013

New research from the Earth Policy Institute shows that public consumption of seafood is building on a trend started in 2011, and projects that in 2013 people will eat more farm-raised fish than wild.

The trend of increased fish farming grew obvious in 2011, when according to the institute farmed fish production in raw tonnage worldwide surpassed beef. By 2012, fish farming was recorded at 66 million tons, compared with 63 million tons of beef.

With the world's population and worldwide demand for animal protein growing exponentially, the institute said farmed seafood may well be playing a more significant role in food supply in the coming years, more so than beef and more so than wild seafood.

"The bottom line is that getting much more food from natural systems may not be possible," the institute wrote. "Much of the world's grassland is stocked at or beyond capacity, and most of the world's fisheries are fished to their limits or already crashing."

Part of the reason for the increase fish farming focus is efficiency, according to the institute.

"Cattle consume 7 pounds of grain or more to produce an additional pound of beef," the institute wrote. "This is twice as high as the grain rations for pigs, and over three times those of poultry. Fish are far more efficient, typically taking less than 2 pounds of feed to add another pound of weight."

[Click here to read the original 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 2007-38500-18471, 2008-38500-19435, and 2010-38500-20948. 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.

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