



## Letter from the Director

Aloha!

The CTSA development cycle is once again in full swing! On June 30, our Industry Advisory Council and Technical Committee held their annual meeting to discuss the 13 Pre-Proposals CTSA received in response to our FY16 Request. I would like to thank our members for sharing their time and expertise during this essential part of our development. I would also like to extend my appreciation to the CTSA Board of Directors for their input during this phase of the process.

While reviewing the Pre-Proposals that our committee voted to move forward, I noticed a trend that has been occurring over the last several years. Aside from supporting work to improve the sustainability of aquaculture in the region, many recent CTSA projects have emphasized local food security and preservation of biodiversity and cultural heritage. Just as one example, CTSA has been supporting an ongoing Opihi project for several years in an effort to grow this culturally important species that has been over harvested in Hawaii.

Farming practices throughout the Pacific Islands are unique in comparison with what is being done on the U.S. mainland and elsewhere. Unlike most other RAC's, our program must adapt to a variety of cultures, traditions, and goals. We try to do so in the best and most respectful way possible. Just this month, my staff members traveled to Moloka'i to participate in rebuilding the wall of a traditional Hawaiian fishpond; an article below highlights the experience. CTSA is happy to partake in these types of grassroots activities to show our appreciation and respect for our host culture.

I look forward to future opportunities to expand aquaculture across our region, and as always welcome your questions and suggestions.

Mahalo,  
*Cheng-Sheng Lee*  
Executive Director, CTSA

## Upcoming CTSA Aquaculture and Fisheries workshop in RMI

On August 15 and 16, CTSA together with Aquaculture Technologies Marshall Islands (ATMI) and Oceanic Institute will conduct a workshop at the College of Marshall Islands on the island of Majuro. The title of the workshop is "The Future of Fisheries and Aquaculture in the Republic of the Marshall Islands."



**Workshop: The Future of Fisheries and Aquaculture in the Republic of the Marshall Islands**

The primary purpose of the workshop is to disseminate the results of two ongoing CTSA projects, and also discuss the current status and

## In This Issue

Letter from the Director  
Upcoming CTSA Aquaculture and Fisheries Workshop in RMI  
Highlights from Recent CTSA Community Outreach Activities  
July AquaClip

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future opportunities for aquaculture and fisheries in the RMI. The project "Development of Practical Local Feeds to Support Sustainable Aquaculture in Hawaii and Other Pacific Islands" has completed analysis of various feed ingredients available locally in Hawaii and the Pacific region. The project PI will present the results of this work with a focus on the high quality of the ingredients available locally in the RMI. Results from the ongoing project "Development of Marine Finfish Aquaculture, Aquatic Feeds, and Training in the Republic of Marshall Islands (RMI) for Sustainability and Food Security" will also be discussed, and the Co-PI will open the ATMI facilities for workshop attendees to tour.

The following are the tentative workshop presentations:

- "Why Aquaculture?" Dr. Cheng-Sheng Lee, CTSA
- "Aquaculture in the Marshall Islands: A Personal History," Ramsey Reimers of Majuro
- "Local Aquatic Feed Ingredients Available in the Pacific Islands," Dr. Zhi Yong Ju, Oceanic Institute
- "Marine Finfish Aquaculture and Local Feed Processing in RMI," Ryan Murashige, ATMI
- "Overall Situation of Coastal Fisheries in RMI," Glenn Joseph
- "CTSA Outreach and Education," Meredith Brooks, CTSA

In addition to a morning of presentations, workshop participants will view a feed making demonstration and tour the ATMI hatchery, nursery, and cage culture site in Majuro. If you are interested in attending this workshop, please contact Meredith Brooks at [mbrooks@ctsa.org](mailto:mbrooks@ctsa.org).

### Highlights from Recent CTSA Community Outreach Activities

Community understanding and support for aquaculture is a critical factor in the expansion of farming in Hawaii and beyond. To this end, CTSA has supported several years of education and outreach efforts, including participation in community and grassroots efforts to expand aquaculture in the Pacific region.



*One Ali'i Fishpond in Kaunakakai, Moloka'i*

At the beginning of this month, CTSA's Maggie Ma and Meredith Brooks travelled to the island of Moloka'i to participate in a [Kua'aina Ulu 'Auamo \(KUA\)](#) Ho'okua community work event. Through an organized network managed by KUA, fishpond operators share their community work forces to help each other repair damage to loko i'a. CTSA has participated in a few of the KUA events in the past, and each one has provided a great opportunity to learn and share with a group of dedicated and passionate community members. On this particular trip, we worked

to repair damage to the kuapā (wall) at the One Ali'i fishpond in Kaunakakai, Moloka'i. Our gracious hosts from Ka Honua Momona and One Ali'i provided a beautiful experience filled with the Aloha spirit, and a hard day's work moving pohaku (rocks) gave us a new appreciation and respect for the work they do on a daily basis to restore these cultural treasures.

Loko i'a date back centuries to when Hawaiians raised a variety of fish and shellfish. These efficient coastal ponds are an incredible resource for the remote Hawaiian islands, and can be a critical part of reviving local food security and reducing dependency on imported goods. However, they have been largely under-utilized for many decades. In an effort to get the ponds actively producing again, KUA and partner organizations have banded together to provide the necessary resources to restore the physical pond structures. On our end, CTSA has supported research throughout the state to restore the biological knowledge for cultivating in fishponds. The primary focus has been on bivalves, though other targeted species for aquaculture production in fishponds have included



*Working to rebuild the wall of the loko i'*

seaweed, live rocks, feather duster, mullet, milkfish and moi. Although CTSA is not able to provide direct funding support for the KUA community gatherings and fishpond wall restoration, our program sees that this work is critical to the success of aquaculture in the fishponds. Even though operators may not desire to produce fish or shellfish on a commercial scale, they can still feed their communities, and CTSA looks forward to assisting these efforts in any way possible.



*CTSA booth activities were fun for all ages!*

Another recent opportunity for CTSA to interact with the local community was at the 53rd annual Hawaii State Farm Fair "Farm Family Fun!", which took place July 11-12 at Kualoa Ranch. As we have in past years, CTSA hosted an aquaculture outreach and education booth. To give kids an idea of what it is like to work on an aquaculture farm, the CTSA booth conducted a water quality testing activity. Children were able to extract a sample from bottles containing water from either a tilapia pond or municipal tap and test it for a variety of parameters important in aquaculture farming. The keiki were enthralled with this activity, and several returned multiple times to test different samples. Our booth also featured a craft where kids were able to shape aquaculture animals out of play-doh. Between the two activities and the myriad of information available at our booth, the Farm Fair provided a fantastic opportunity for CTSA to share our mission with Hawaii's youth and their families.

CTSA is looking forward to continuing our participation in the annual event, as well as any other opportunities for us to connect with the community and share our technological expertise. If you are participating in or conducting aquaculture outreach in your area and you would like assistance planning activities and/or to use CTSA informational material, please email [mbrooks@ctsa.org](mailto:mbrooks@ctsa.org).

### **AquaClip ~ UW professor is digitizing every fish species in the world**

*by Aquafeed.com staff. July 27, 2016.*

Nearly 25,000 species of fish live on our planet, and a University of Washington professor wants to scan and digitize them all.

That means each species will soon have a high-resolution, 3-D visual replica online, available to all and downloadable for free. "These scans are transforming the way we think about 3-D data and accessibility," said Adam Summers, a UW professor of biology and aquatic and fishery sciences who is spearheading the project.

Summers, who is based at the UW's Friday Harbor Laboratories, uses a small computerized tomography (CT) scanner that works like a standard CT scanner used in hospitals: A series of X-ray images is taken from different angles, then combined using computer processing to create three-dimensional images of the skeleton.

The goal is to make it possible for scientists to examine the morphology of a particular species, or try to understand why a group of fish all have similar physical characteristics such as bony head "armor" or the ability to burrow into the sand.

[Read full 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 2012-38500-19566 and 2014-38500-22241. 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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