



Letter from the Director

Aloha & Happy Earth Month!

As I reflect on the annual celebration of Earth Day/Month, my thoughts center on the delicate relationship between humans and the limited natural resources of our planet. In particular, the worsening drought situation in the Pacific Islands and other regions of the world is calling immediate attention to the future supply of fresh water. Palau, the Federated States of Micronesia, and the Republic of Marshall Islands have all recently declared emergency conditions due to the "disaster" level drought brought on by El Nino. Indeed, this is a problem scientists predict we will only see more often and in more places.

To adapt to these circumstances in the Pacific region, we need to continually develop food production technologies that use less fresh water, such as aquaponics and other cost-effective recirculating culture systems. We also need to consider using alternate resources that are available in abundance, such as salt water. The pristine ocean waters surrounding the islands can be used to produce a variety of desirable seafood products.

Investing in this type of development can help our communities increase resilience in the face of a changing climate. It can also improve food security and decrease our reliance imported seafood, which is especially important considering the recent FDA announcement that approximately one-third of imports of shrimp and prawns from peninsular Malaysia were found to be tainted. Now is the time for the United States to invest in producing safe and sustainable seafood through aquaculture. We look forward to seeing the ideas that researchers will present to carry out this work in our region during the FY16 funding cycle!

Mahalo,
Cheng-Sheng Lee
Executive Director, CTSA

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CTSA FY16 Request for Pre-Proposals - Due June 1, 2016

REQUEST FOR PRE-PROPOSALS
Center for Tropical and Subtropical Aquaculture
Due Friday, May 27 2016

The Center for Tropical and Subtropical Aquaculture (CTSA) requests pre-proposals for applied research and extension that addresses problems and opportunities in the regional aquaculture industry. CTSA stakeholders have identified the below strategic areas and species as the top aquaculture development priorities. Pre-proposals that target these strategic areas and priority species will receive highest preference. However, pre-proposals that do not fall under specific priority areas but address CTSA's mission will be considered in our development process. Our focus is on funding projects that will have immediate, positive impacts on the regional aquaculture industry.

CTSA's mission is to support aquaculture research, development, demonstration, and extension education in order to enhance viable and profitable aquaculture in the United States. CTSA is funded by an annual grant from the U.S. Department of Agriculture's National Institute of Food and Agriculture (NIFA). The CTSA region includes the following areas: American Samoa, Guam, Hawaii, the Commonwealth of the Northern Mariana Islands, the Republic of the Marshall Islands, the Federated States of Micronesia, and Palau. CTSA strongly encourages collaboration between institutions and agencies in the region, as well as shared funding of large priority projects. Cultivating strong regional partnerships will catalyze the greatest changes in our industry.

Please note: Desired outcomes and/or deliverables are included where applicable. They represent industry-identified requests and it is strongly recommended that they be addressed in your pre-proposal.

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FY 2016 Strategic Areas & Priority Species

Tilapia Farming Development

Tilapia has been identified as one of the most desired species for aquaculture farming throughout the CTSA region. Although most farming technology is available, the development and expansion of tilapia farming still faces regional challenges. One of the highest priorities in recent years has been stock improvement, and much work has been done in that area. CTSA encourages studies to continue improving the productivity of tilapia farming, and has identified the following top priorities for FY2016:

- 1) Develop protocols to ensure the quality of the final products.
- 2) Improve regional access to disease-free tilapia with high-quality genetic traits.

Sea Cucumber Farming Technology

With an increased demand for sea cucumber in Asian markets, natural stocks of the species have been over harvested in some Pacific Islands. To mitigate this problem, CTSA recently funded projects to transfer sea cucumber hatchery technology to Pohnpei and Yap. Western Pacific islands communities in particular are interested in continuing the work, and CTSA has identified the following priorities for FY2016:

- 1) Determine how to increase larval yield from 1% to 5%.
- 2) Determine how to increase juvenile yield from 25% to 50%.
- 3) Develop the technology to culture the animals and investigate the correlation of organic makeup of the substrate to the growth and survival of the animal.
- 4) Investigate the economic viability of production of the species that are currently in culture in the region.

Marine Finfish Farming Technology

Farming of marine finfish, such as rabbitfish, moi, Kahala, milkfish, mullet and groupers, is important for the region and has been identified as a commercial aquaculture practice with potential for growth. CTSA has currently and previously supported the development of farming technology for several of the aforementioned species, and will accept proposals to help solve remaining culture issues (primarily pertaining to reliable source of fingerlings, affordable feed and environmental conditions etc.). In addition, CTSA will consider proposals that address marine ornamental aquaculture from the perspectives of both the marine aquarium market and the restoration of coral reefs. The priority CTSA has identified for FY2016 is additional research to commercialize the aforementioned species in our region.

Shellfish

CTSA stakeholders continually express their desire to farm shellfish in Hawaii and the US-affiliated Pacific islands using traditional Hawaiian Fishponds or other aquaculture technologies. CTSA is funding ongoing research to support bivalve aquaculture in the state of Hawaii, and has identified the following priorities for FY2016:

- 1) Develop culture techniques for new species of bivalves in Hawaii and the US-affiliated Pacific Islands.
- 2) Develop SPF shellfish aquaculture.
- 3) Co-culture shellfish with other aquatic species to reduce negative impacts on the environment.
- 4) Assess economic feasibility of shellfish farming in the region.

Mangrove Crab

Mangrove crabs are a highly desired food in the Pacific islands and have thus been heavily harvested throughout the region. CTSA previously funded projects to produce juvenile mangrove crabs and study their feed requirements, but more information is needed to effectively grow them to market size. CTSA has identified the following priorities for FY2016:

- 1) Gather information to understand the behavioral aspects of inter-species competition and cannibalism, and investigate materials and/or protocols to limit aggressiveness (especially when 1-2 inches in size).
- 2) Conduct a disease prevalence survey across the region.

Cost Effective Locally-Made Aquatic Feed

Affordable feed has been identified as one of the major constraints in the regional development of aquaculture. CTSA has identified the following priorities for FY2016:

- 1) Develop cost-effective, environmentally friendly and sustainable local aquaculture feed resources. The major goal should be to create a local feed source that is less expensive than imported feed for species currently being farmed and/or species identified in a CTSA survey as desired species for regional farming. These include but are not limited to tilapia, marine shrimp, moi, Kahala, rabbitfish, and groupers.
- 2) Convert waste to acceptable feed ingredients or use abundant marine products, such as algae and seaweed (including invasive species), to replace traditional ingredients in feed.
- 3) Develop economic analyses or modeling that determines the feasibility, opportunities and challenges for locally-made feed.

[Click here to view the full announcement](#), including submission instructions, on the CTSA website. Please contact mbrooks@ctsa.org with any questions.

Hawaii Aquaculture Researchers Honored at Various Events

You're Invited! Upcoming Banquet to Honor Dr. Clyde Tamaru and Dr. Harry Ako

The Hawaii Aquaculture and Aquaponics Association (HAAA) will host a banquet to honor the work of Dr. Clyde Tamaru and Dr. Harry Ako, two gentlemen who have dedicated their careers to public service in support of the Hawaii Aquaculture and Aquaponic Industry. Both Dr. Tamaru, who served as PI of several CTSA projects, and Dr. Ako, who serves as the Chair of the CTSA Technical Committee, recently retired from the University of Hawaii at Manoa. CTSA congratulates both gentlemen on their retirement; we sincerely appreciate their contribution to the development of aquaculture in Hawaii and the Pacific Islands.



Honorees Dr. Harry Ako and Dr. Clyde Tamaru

The event will be held on Tuesday May 24th 2016 in the Ohelo Building at Kapi'olani Community College. Cocktail hour begins at 5:00 pm, followed by the Formal Program & Buffet Dinner at 6:00 pm. All are welcome - membership in HAAA not required. The cost to attend is \$50.00 (funds benefit KCC School of Culinary Arts). **[Please click here to register by May 9th.](#)**

Dr. Warren Dominy Honored for Contribution to Aquafeed Development

CTSA is pleased to share the following Aquafeed.com article about the recent honor bestowed on Dr. Warren Dominy, renowned aquafeed researcher and CTSA Technical Committee member. We congratulate Dr. Dominy on this well-deserved accolade!



Dr. Warren Dominy (center) is honored by colleagues at the Aquafeed Horizons conference

At a surprise ceremony during Aquafeed Horizons Asia conference in Bangkok at the end of March, leaders from the aquafeed sector came together to recognize the contribution that Dr. Warren Dominy has made to the development of the industry throughout his more than 30-year career.

Speaking on behalf of the group, Dr. Dean Akiyama, aquafeed consultant, Indonesia, told delegates at the packed Aquafeed.com technical conference that they would not be doing what they do today were it not for Dr. Dominy having established a scientific foundation for aquafeed production and nutrition. "He made aquafeed production what it is today", Dr. Akiyama said.

Dr. Dominy, who heads up the technical consulting activities of Aquafeed.com, was the Director Feeds & Nutrition at the Oceanic Institute (OI), Hawaii. During his 30 years at the institute, he became the first person to gain a doctorate in aquafeed processing. His early research work focused on establishing processing parameters and procedures for aquatic feed production, and on shrimp nutrition. He travelled extensively as a consultant for U.S. Wheat, the American Soybean Association and USAid, helping aquafeed companies to optimize their production. Representatives of some of these companies traveled to Bangkok to express their thanks and appreciation for the help they had received.

The recognition ceremony came as a complete surprise to Dr. Dominy, who said he was overwhelmed and humbled by the honor and grateful for the knowledge he had gained in return and for the deep friendships made over the years.

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

Other Announcements

USDA Announces Special Research Grants Program for Aquaculture Research

The purpose of the Aquaculture Research program is to support the development of an environmentally and economically sustainable aquaculture industry in the U.S. and generate new science-based information and innovation to address industry constraints. Over the long term, results of projects supported by this program may help improve the profitability of the U.S. aquaculture industry, reduce the U.S. trade deficit, increase domestic food security, provide markets for U.S.-produced grain products, increase domestic aquaculture business investment opportunities, and provide more jobs for rural and coastal America. The Aquaculture Research program will fund projects that directly address major constraints to the U.S. aquaculture industry and focus on one or more of the following program priorities: (1) Genetics of commercial aquaculture species. (2) Critical disease issues impacting aquaculture species. (3) Design of environmentally and economically sustainable aquaculture production systems. (4) Economic research for increasing aquaculture profitability. The deadline to apply for this grant is May 17. [Click here for more information.](#)

New Aquaculture Videos from the Hawaii Department of Agriculture

HDOA produced two videos to help people interested in commercial aquaponics get started. In addition, a movie about Hawaii agriculture and aquaculture was produced to give people a broader view of the opportunities in aquaculture.

1. [How to Market Aquaponic Products \(6 parts\)](#)
2. [How to Go through the Food Safety Process \(5 parts\)](#)

3. [Hawaii Agriculture: Past, Present and Future](#)

AquaClip ~ 7 cutting-edge offshore aquaculture innovations and designs

by Madelyn Kearns, SeafoodSource.com. April 13, 2016.

As attendees of the sixth Offshore Mariculture Conference can attest, fish farming at sea is about to become more prominent in the food industry as well as the aquaculture sector, especially with the global population expected to exceed eight billion people by 2030.

While they may not be as numerous as land-based operations, offshore fish farms are leading the charge when it comes to advanced aquaculture technology, technique and design. Check out some of the innovations at the forefront of the out-to-sea fish farming movement by clicking through the slideshow on seafoodsource.com.

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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