



## Letter from the Director

Aloha,

March 22 is World Water Day, a day to reflect on the importance of using our water resources wisely. As the world's population grows, so does the need for sustainable food production. Water is an essential component to all methods of farming, particularly the production of animal protein for human consumption. Considering that aquaculture is arguably the most efficient way to use water to produce animal protein, my reflection is that our government should do more to support the sustainable development of the U.S. aquaculture industry.



In celebration of another observance day earlier this month, International Women's Day, CTSA accepted an invitation from the Asian Fisheries Society to participate in their new Gender in Aquaculture and Fisheries Section (GAFS)...

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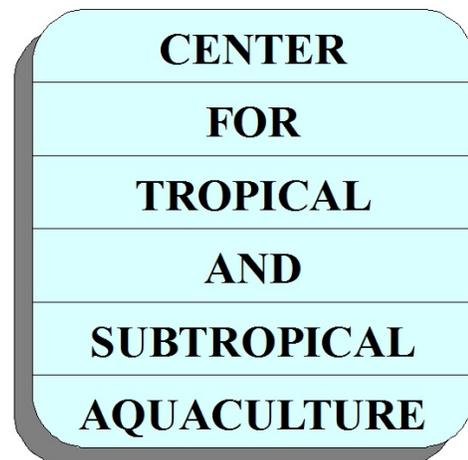
## CTSA Priority Development: Request for Stakeholder Input

CTSA is beginning preparations for the FY17 development cycle. A hallmark of the Regional Aquaculture Center program is that we are industry driven; accordingly, we are requesting stakeholder input on priority areas to include in our next Call for Pre-Proposals. What species and/or technologies could benefit from additional regional research and/or extension efforts? Please share your thoughts with us by emailing [mbrooks@ctsa.org](mailto:mbrooks@ctsa.org).

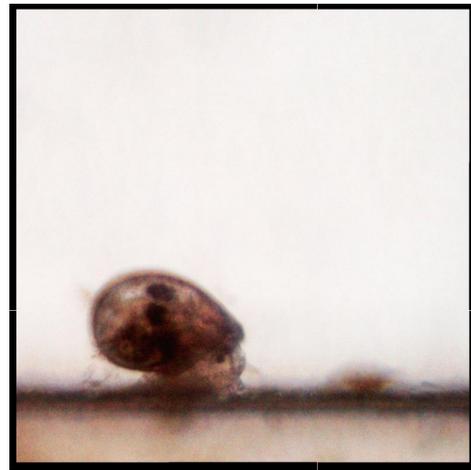
Last year's FY16 'Request for Pre-Proposals' is available for review on our website. CTSA will release the 'FY17 Request for Pre-Proposals' on....

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## CTSA Project Update: Aquaculture of 'Opihi



There has never been a more exciting time for the aquaculture of 'opihi 'alinalina (*Cellana sandwicensis*), which is currently underway at the Oceanic Institute. There is major demand for 'opihi by the local seafood retailers in Hawaii, especially on Oahu, where scarcity has become a real issue. Irrespective of this project's commercial significance, there is also a serious implication for Native Hawaiians to use 'opihi aquaculture for stock enhancement.



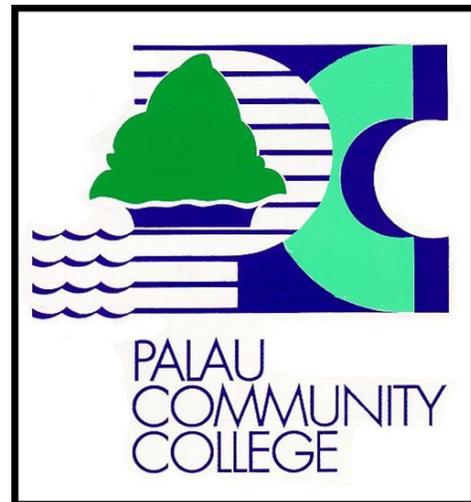
Under a previous CTSA-funded project, Dr. Harry Ako and Dr. Nahn Hua were successful in developing the first grow-out and maturation diet for 'opihi, and determining a spawning method that could be replicated. These accomplishments set-up the current project with a good understanding of dietary requirements and spawning procedures.

During the current project's first year, UH graduate researcher Anthony Mau has focused on growing the highest quality broodstock, which has enabled him to maintain healthy animals for spawning and larval rearing trials. He has achieved good settlement (up to 66.7%) and metamorphosis (up to 13.3%) to post-larval 'opihi, which are currently feeding on algae. Read Anthony's project update...

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## Upcoming Workshop: Marine Aquaculture in Palau

Together with Palau Community College and the Oceanic Institute of HPU, the CTSA team will take part in an upcoming workshop to share the results of our ongoing marine aquaculture projects in Palau. The workshop will be held Wednesday, April 12 and Thursday, April 13 2017 at Palau Community College Hatchery in Ngermetengel, Ngeremlengui State, and will include a tour of the hatchery and hands-on technology demonstration.



Participants will learn about live feed production (including an opportunity to count rotifers under microscope), larval and fingerling care and maintenance, water quality management, and feeding.

If you are interested in attending this free workshop, please contact [mbrooks@ctsa.org](mailto:mbrooks@ctsa.org).

## 11th Asia Pacific Marine Biotechnology Conference in Honolulu

The 11th Asia Pacific Marine Biotechnology Conference (APMBC 2017) has lined up six plenary speakers for its meeting in Honolulu, Hawaii on May 21-24, 2017. The meetings will be held at the Hawaii IMINInternational Conference Center at



Jefferson Hall on the campus of the University of Hawaii at Manoa.

The Asia-Pacific Marine Biotechnology Conference (APMBC) was organized as a forum for the Asia Pacific Society of Marine Biotechnology (APSMB). Its basic purpose has been to provide a meeting place for the exchange of information, ideas, and technologies in marine biotechnology.

[Click here to learn more and register](#)

## Registration Open for National Aquaculture Extension Conference

Registration is now open for the National Aquaculture Extension Conference, June 5-9, 2017 in Boise ID. Abstracts are due April 15, 2017.

Held approximately every five years since 1992, this unique conference provides a forum for all levels of experience in aquaculture extension education. The conference is relevant to not just extension professionals but may also be of value to other industry stakeholders...

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## AquaClip: Genetic key to salt-tolerance discovered in tilapia

Researchers at the University of California, Davis have identified short DNA segments in tilapia that influence the expression of the genes that regulate the fish's internal body chemistry in response to salinity stress. Additionally, the researchers developed an assay to identify similar regulatory DNA segments in the genomes of other fish species.

"This work represents a critical milestone in our efforts to understand how highly stress-tolerant fish convert environmental signals and cues into very beneficial biochemical and physiological outcomes that enable them to adapt to an extremely wide salinity range that is deadly for most species," said evolutionary biochemist and senior author Dietmar Kueltz. "If we know these mechanisms, then we can target them in situations when fish would benefit from enhanced stress tolerance, such as in aquaculture and for conservation purposes."

In the newly published study, the researchers studied cells from the Mozambique tilapia, one of four tilapia species that readily interbreed, producing hybrids that are used worldwide in aquaculture operations. Growing rapidly, these tilapia hybrids are easy to raise and have a high tolerance for salinity stress.

Source: [Aquafeed](#) / [Read Full Story](#)

[www.ctsa.org](http://www.ctsa.org)



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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