



Regional e-Notes ~ November 2018 ~ Volume 10, Issue 11

Letter from the Director

Aloha!

We here at CTSA hope you and your family had a joyous Thanksgiving holiday! In addition to being thankful for our loved ones, we are particularly thankful this year to see that one of the islands in our region is once again making bold strides in the global advancement towards a more sustainable world.



As you may have heard, Palau recently banned many types of sunscreen in a move to protect its coral reefs and other marine life. Last year when our CTSA team was visiting the island, its famous jellyfish lake was closed due to an alarming die-off of jellyfish. Resource managers concluded that sunscreen was partially to blame, and took action to close the lake until the jellyfish population was restored. This year, legislators took further action to ban harmful sunscreens and impose fines of up to \$1,000 per violation. Palau was also the first country to ban commercial fishing in its EEZ, and established the world's first shark sanctuary. In addition, the island nation's 'Climate Change Policy' was the first of its kind in our region to address risks from and adapt to the expected widespread impacts of climate change.

Adaptation to climate change is something all Pacific Islands should be addressing now. According to the Fourth National Climate Assessment, Volume II -- recently published by the U.S. Global Change Research Program -- "fisheries, coral reefs and the livelihoods they support are threatened by higher ocean temperatures and ocean acidification." This Key Message from "Chapter 27 - Hawai'i and U.S.-Affiliated Pacific Islands" highlights the importance of taking strong action to save our reefs and the fisheries they support. Coral reefs are a significant contributor to most Pacific Island economies; in Hawai'i alone, reefs contribute an estimated \$477 million to the local economy every year. It is our hope that all of the islands in our region will take a proactive approach to ensure their safeguarding, just as Palau continues to do... [Read More](#)

CTSA Project Update: Producing Local Feed for Tilapia and Moi at the Hilo Feed Mill

Commercial aquaculture farmers in Hawaii and the U.S.-affiliated Pacific islands are dependent on imported feeds to sustain their businesses, as there are currently no commercial feed mills in the region. This situation has created a huge financial burden to the farmers and has significantly limited the expansion of local agriculture and aquaculture to enhance food

security and island sustainability. In an effort to address this issue, CTSA is supporting two ongoing projects to develop local feeds for tilapia and moi at the Oceanic Institute of Hawai'i Pacific University (OI) Feeds Research and Pilot Production Facility in Hilo, Hawaii.

The project "Development of Cost-Effective Aquatic Feeds Using Locally Sourced Ingredients" is aiming to produce practical extruded tilapia feeds at the newly-built feed mill in Hilo. The first steps of the project were to collect and analyze new local feed ingredients such as tuna fishmeal from American Samoa, defatted haematococcus, spirulina, corn, and coconut meal, and to procure low priced commercial feed ingredients such as soy bean meal and wheat flour. Researchers at University of Hawai'i at Hilo PACRC then utilized feed



formulation software to formulate tilapia feeds based on the following criteria: 1) nutrient requirement of the target species; 2) nutritional quality of local ingredients; 3) unit price of protein and carbohydrate ingredients; and 4) requirements for practical feed processing.

Two tilapia feeds, Feed-1 and Feed-2 were formulated and prepared in Hilo (Table 3). Tilapia Feed-2 was formulated with high lipid content (~10%) since local tilapia farms like to increase fat content in their tilapia products. However, the lipid contents in processed tilapia diets were lower than formulated lipid contents, probably due to the coating process that did not bind all added oil to feed pellets. Half of the two feeds (one ton) were transported to OI for testing in the Makapu'u laboratory, where they are currently being compared to a commercial feed that is sold in local markets. Each of the three diets has been assigned three replicated tanks (2000L), and each tank has been stocked with 55 juvenile tilapia (~20g/each). The trial is not complete, but researchers have observed higher active eating among the tilapia in the local feed groups versus the commercial feed group. The remainder of the two feeds was sent to four farms (2 farms on the Big Island and 2 farms on Oahu) for comparison testing. The trials will be completed by the beginning of 2019; initial reports from the farmers are that tilapia like to eat the local diets very much, and farmers are interested in purchasing the products if the prices are... [Read More](#)

AquaClip: Experts propose new carrying capacity protocols in marine aquaculture

The MIMECCA project, led by CTAQUA, the University of Cadiz and the University of Alicante, has set forth protocols for estimating the specific carrying capacity applicable to inland semi-intensive aquaculture and floating cage marine aquaculture.

Through the activity carried out within the MIMECCA project, specific protocols, suitable for semi-intensive marine aquaculture in earthen ponds (South-Atlantic littoral) and marine aquaculture in floating cages (Mediterranean littoral) have been developed, addressing technical and production-related, environmental, and socio-economic aspects. The implementation of these protocols helps to reduce the activity's impact on the environment and improve social context and local economy, aiming to achieve long-term sustainability.

The MIMECCA team drafted two calculation protocols, one for each production scheme included in the project.

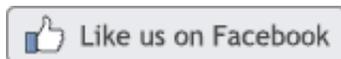
For the predictive model of aquaculture in floating cages, a model was developed consisting of a minimum production of 50 mT/ha; three technical and production-related factors - space arrangement, food conversion, and distance between farms; three environmental factors - distance to habitats, depth, and current; one social factor -acceptance; and an economic factor - investment in R&D.

For inland semi-intensive aquaculture, a model has been developed made up by six factors, in addition to a minimum production of 14 mT/ha. Out of these, two are technical and production-related factors -food conversion and decantation area; one is an environmental factor -nitrogen per hectare; two are social factors - employment quality and acceptance; and one is economic - profitability of production.

CTAQUA considers it important to utilize the approach initiated within the MIMECCA project, as predictive models are valuable tools for planning in the sector, helping to establish the carrying capacity for a sustainable sector through generic factors that administrations and producers may easily apply.

Source: Aquafeed.com / [Read Article](#)

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, 2014-38500-22241, and 2016-38500-25751. 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 of Hawaii Pacific University and the University of Hawaii.

Center for Tropical and Subtropical Aquaculture, 41-
202 Kalaniana'ole Highway, Waimanalo, HI 96795

[SafeUnsubscribe™ {recipient's email}](#)

[Forward this email](#) | [Update Profile](#) | [About our service provider](#)

Sent by mbrooks@ctsa.org in collaboration with

Constant Contact 

Try it free today