CENTER FOR TROPICAL AND SUBTROPICAL AQUACULTURE

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Letter from the Director

Aloha!

We hope you are enjoying a pleasant and productive summer! CTSA has been busy with several ongoing projects including our FY24 development process. As I often discuss in this monthly letter, the USDA regional aquaculture centers are industry-driven; each of the funding priorities for our annual development process are selected through direct stakeholder input. At their annual meeting last month, the Industry Advisory Council and Technical Committee voted on the projects that they feel best meet the FY24 regional industry priorities. Based on their voting, the administrative center requested full proposals from the five pre-proposals that received at least 50% member funding recommendation. At the same time, we requested additional information from six pre-proposals that received fair comments but were short of the 50% threshold. We are now preparing for the next phase of the development cycle, which is external peer review of the full proposals.

Here again, I would like to encourage the pre-proposals that were not selected to persevere and think of the ways that you can restructure your concept to meet industry needs and/or present your ideas in a different way. In particular, we want to see more growth in the U.S. affiliated Pacific Islands region. Several previous CTSA funded projects have made good progress, but have yet to achieve commercial application by local farmers. We would like to see all CTSA projects bring positive impacts to our regional farms and enhance their production. Meanwhile, I am excited to see that the government of Guam and University of Guam have increased their investment in aquaculture; CTSA is looking forward to working with them.

Earlier this week, we held a follow-up seminar from last month's feed mill feasibility workshop. The seminar was part of the Sea Grant 'Brown Bag Lunch' series. I was impressed to see a large number of participants, demonstrating that we are all looking for ways to reduce the cost of feeds to support our industry. After working closely with potential investors and feed experts, we were able to input realistic data into the feed production model (developed by the project) to estimate the cost of producing feed in Hawaii. While the data shows that it is unlikely we will be able to significantly reduce feed costs for farmers, there is opportunity to use fresh local ingredients and convert island fish waste into valuable final products. We are very excited to continue this important work with all parties to secure the production of some local aquaculture feed. If you would like to be involved in the process, please reach out to our team and we will include you in future communications. Nothing is impossible if we are determined to work together to resolve issues.

Mahalo,
Dr. Cheng-Sheng Lee
Executive Director, CTSA

USDA Approves CTSA FY23 Project on Nenue

In June, CTSA reported on USDA approval of three of the new projects that were included in the CTSA FY23 Plan of Work. The fourth and final new FY23 project was recently approved and will begin shortly:

Commercializing kyphosids - refining juvenile and grow-out feeds for nenue *(Kyphosus vaigiensis*) to optimize economic viability
PI: Armando Garcia-Ortega, UH Hilo

Nenue (*Kyphosus vaigiensis)* has tremendous potential as a commercial aquaculture species. One of the characteristics making them attractive for commercial culture is that standard marine finfish larval rearing techniques have successfully yielded high survival from egg to fingerling, However, there is need to reduce the cost of diets for juvenile and later grow-out fish, and to reduce the reliance on imported feed ingredients. Therefore, the overarching goal of the proposed work is to make nenue aquaculture commercially-viable throughout the Pacific Islands, and to make it attainable to as many groups as possible by reducing uncertainty through identifying appropriate diets. Specifically, the work will reduce reliance on imported feeds for juvenile and grow-out diets, and at the same time, create a market for locally-produced plant or macroalgae (seaweed) products. The objectives are to identify cost-effective diets for nenue growth and survival through early juvenile and later grow-out.

Dietary effects on the survival and quality metrics of cultured finfish are a cornerstone parameter in any animal farming venture. Observations and preliminary data collected by Ocean Era, Inc. indicate that – as an herbivorous fish - nenue can thrive on a wide range of diets. There is therefore a potential now to identify inexpensive diets for commercial culture of nenue, and to strive to incorporate a range of alternative feedstuffs that might be included in nenue diets that could further reduce these costs and increase the availability of locally-produced feeds throughout more remote islands of the Pacific. This work will be completed by researchers at UH Hilo in conjunction with Ocean Era, which has been conducting research towards commercialization of Nenue since 2016. Initial feed studies were conducted using wild caught fingerlings. Later, broodstock began spawning before the company's hatchery was completed, so eggs were given to a collaborator for initial larval rearing work. By 2020 the hatchery was complete, and broodstock were spawning regularly. Since then, the group has performed three hatchery "runs", two cohorts in December 2020 and one in July 2022 (funded by CTSA).

USDA Expands Shellfish Insurance Program

The U.S. Department of Agriculture (USDA) is expanding the Shellfish insurance program beginning with the 2025 crop year. USDA's Risk Management Agency (RMA) is expanding coverage to an additional 27 counties in Delaware, Florida, Louisiana, Maryland, New Hampshire, New Jersey, and North Carolina. Additionally, RMA is modifying the program to allow insurance on seeds initially purchased smaller than 4 mm once they reach the minimum insurable size of 4 mm, allowing producers to use existing records for coverage in adjacent program counties, and allowing alternative yield procedures. RMA worked with stakeholders on these program enhancements.

The Shellfish insurance program is an actual production history-price component (APH-PC) coverage policy for container-grown oysters commercially cultivated for the fresh half shell market. RMA first implemented the program for the 2024 crop year in select counties in Alabama, California, Florida, Maine, Maryland, Massachusetts, Mississippi, New York, North Carolina, Rhode Island, South Carolina, and Virginia.

This Shellfish APH-PC coverage policy insures producers against yield losses due to hurricane, nor'easters, excessive heat during a low tide event, freeze during a low tide event, and low salinity due to excessive rainfall. Learn more.

Sea Grant Seeking Input on 10-Year Aquaculture Roadmap

Sea Grant is seeking additional input to shape theSea Grant 10-Year Aquaculture Roadmap. We are seeking feedback on a straw proposal containing proposed high-level content for the draft Roadmap. The straw proposal is based on analysis, synthesis, and prioritization of all of the input provided so far through literature review of existing plans, meetings, listening sessions, online input forms, and steering committee discussions. Feedback on the straw proposal will shape the draft Roadmap and will be the last opportunity to provide input on the overall priorities to be included in the Roadmap.

For these sessions, Sea Grant is particularly interested in gathering input from**aquaculture farmers** to make sure that the Sea Grant priorities and investments address relevant current and future needs, and to refine priorities based on on-the-ground perspectives. You are invited to participate in a**2-hour virtual straw proposal feedback session** to review and provide feedback on the Roadmap straw proposal. The meeting is for farmers and other members of the aquaculture community. Please use the links below to register for ONE feedback session that best fits your schedule. Once you sign up, you will receive an email confirming your registration and a Zoom calendar invitation.

1. **Monday, September 9th** - 6:00 pm EST/ 12:00 pm HST

2. **Wednesday, September 11th** - 3:00 pm EST/9:00 am HST
3. **Thursday, September 19th** - 4:00 pm EST/ 10 am HST

Participate in NAA's U.S. Aquaculture Communication Priorities Survey

The National Aquaculture Association is pleased to launch aU.S. Aquaculture Communication Priorities Survey. This survey aims to refine key topics for upcoming U.S. aquaculture communication campaigns through traditional and social media.

A key component to the success of current farms and the future growth of U.S. aquaculture is public education and support. Your valuable insight will directly impact how NAA's messaging is developed and conveyed across different media channels and stakeholder groups, and will benefit the U.S. aquaculture community as well as society at large.

Please take a few minutes to complete this brief survey and help guide the National Aquaculture Association's future U.S. aquaculture outreach strategies and messaging. The survey closes on September 13, 2024.

Northeastern Regional Aquaculture Center (NRAC) Debuts New Website

The NRAC is pleased to unveil its new website. As directed by its Board of Directors, the NRAC contracted with Erica Mirich of Pivot Creative and Consulting to work with its office in the development of the new web site. Check it out at www.nrac.org.

AquaClip: Is it time to look beyond traditional biofilters in RAS?

In a typical recirculating aquaculture system (RAS) a series of treatment processes are used to maintain the level of water quality needed to sustain the cultured species, while simultaneously maintaining a very low water exchange rate. A key aspect of the treatment process is biofiltration.

Biofilters use nitrifying bacteria to convert ammonia into nitrate and to further break down dissolved and leftover particulate matter. Biofilter activity is influenced by many factors, including substrate type and water quality. Fortunately, most contemporary systems are automated to keep these key factors at the correct predetermined levels and prevent any rapid changes.

Biological filtration has been widely used in recent decades because of its relatively simple maintenance and effectiveness in removing nitrogenous pollutants from the process water in aquaculture. The technique has been adapted from wastewater treatment plants, where a flocculent culture of microorganisms called activated sludge is used to process the water. In aquaculture, instead of activated sludge, artificial biomedia are commonly used as the bacterial carriers. Biomedia come in many forms and sizes and are usually made from food grade polyethylene or polypropylene. Shape and opening sizes in the biomedia are dictated by the organic loading rate and type of biofilter that it is used in.

The two most common forms of biomedia biofilters used in RAS are moving bed bioreactors (MBBRs) and fixed bed bioreactors (FBBRs). FBBRs boast lower energy use and higher phosphorous and denitrification rates, while MBBRs have higher volumetric loading rates and lower solids buildup (Choi, Lee, & Lee, 2012). Other types of biological filtrations have been used in aquaculture such asbiofloc, wetlands, integrated multi-trophic aquaculture, fluidised sand beds and ion exchange membrane bioreactors. However, none has made it into successful industrial aquaculture operations so far, mainly because they tend to raise operations costs and bring higher risks of failure. One of the main obstacles in biomedia biofilters is that their efficacy changes with substrate type, and depends on the levels of dissolved oxygen...read more

Source: The Fish Site // Read Full Article

This newsletter is written and prepared by the CTSA Information Specialist Meredith Brooks.
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 active grants 2020-38500-32559 and 2022-38500-38099. The regional aquaculture centers integrate individual and institutional expertise and resources in support of commercial aquaculture development.
CTSA was established in 1986 and is administered by the University of Hawaii.

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