CENTER FOR TROPICAL AND SUBTROPICAL AQUACULTURE

Regional e-Notes ~ May 2023 ~ Volume 15, Issue 5

Letter from the Director

Aloha,

Hawaii's 2023 legislative session came to a close this month and sadly, none of the proposed aquaculture bills were enacted into law. Earlier this year, I participated in the "Brown Bag Lunch" meeting to discuss aquaculture development needs with State of Hawaii legislators. I left the event feeling hopeful for more aquaculture support at the State level, including much needed funding for the UH Aquaculture Disease Lab. It is so disappointing to learn that none of the legislative ideas drafted from that meeting were passed, and there remains little funding for the lab in the State budget.

In recent decades, CTSA has been the primary financial supporter of the UH Disease Lab, the only one of its kind and capacity in the region. While health surveillance is not part of the CTSA mission, our organization stepped up to respond to overwhelming industry requests to meet this critical need. It is my hope that moving forward, the State will work together with CTSA and other agencies to provide tangible support to the local aquaculture industry in the form of financial resources, not only for the health lab but also for other critical aquaculture development efforts including workforce training. The future of our regional industry depends on this collaboration.

Workforce development has always been an important component of CTSA projects --especially training programs in the Western Pacific (pictured)-- and I am happy to report that it is coming into strong focus in the national aquaculture lens. Several funding agencies are now offering grant programs to support this critical development. I would like to take this opportunity to congratulate Oceanic Institute on the workforce training grant they received. We are excited to participate in these efforts and look forward to other opportunities to grow our regional aquaculture workforce. After decades of experience in the US affiliated Pacific Islands, CTSA strongly believes that we must identify and provide training opportunities to the individuals from each island who are committed to local food production. I would like to see these dedicated individuals become the first “seeds” in regional train-the-trainer workforce programs to increase self reliance across the islands. I extend my gratitude to forward-thinking commercial operators such as Biota in Palau for already supporting these training programs for island residents.

With this in mind, our team at CTSA is excited to see the thoughtful ideas that are submitted for FY23 funding consideration -- as a reminder, projects that incorporate workforce development are listed as a top priority for funding this year. Be sure to submit your Pre-Proposal forms to CTSA by the June 5th deadline!

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

Reminder: CTSA FY23 Pre-Proposals due June 5!

In last month's issue of e-Notes, CTSA released the **FY2023 Request for Pre-Proposals**. The Request lists the top priority areas and species as identified by industry stakeholders in Hawaii and the U.S. Affiliated Pacific Islands, as well as instructions for submitting a pre-proposal by the deadline of **5pm HST on Monday, June 5**. CTSA uses a standard form for all pre-proposal submissions. Pre-proposal forms can be downloaded on the **CTSA website** or via request to mbrooks@ctsa.org.

Pre-proposals received by the deadline will be reviewed by CTSA's Industry Advisory Council (IAC) and Technical Committee (TC). Pre- proposals that receive a majority of votes will move forward with requests for a full proposal.

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. Our main focus is on funding projects that will have immediate, positive impacts on the regional aquaculture industry. FY 2023 Strategic Areas & Priority Species include Innovations in Aquaculture Technology, Finfish Farming Technology, Macroalgae/ Microalgae, Aquatic Animal Health, Hawaiian Fishponds, Aquatic Feed Development, and others.

FY 2023 Request for Pre-Proposals

Regional Research, Demonstration and Extension Projects

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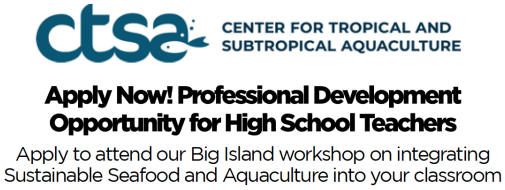
USDA NIFA
United States Department of Agriculture
National Institute of Food and Agriculture

Attention Hawai'i HS Teachers: Join CTSA's Professional Development Workshop on Hawai'i Island

As part of our ongoing education project, CTSA is offering High School teachers a unique opportunity to participate in an all-expenses paid 3 day/2 night professional development workshop on Hawai'i Island in July. The purpose of the workshop is to help teachers integrate sustainable seafood and aquaculture curricula into Hawai'i classrooms.



Participating teachers will be provided with airfare, accommodations, meals, and transportation to and from the following activities: Day 1: Visit aquaculture facilities / farms at NELHA. Day 2: Seminar and group workshop on integrating Sustainable Seafood and Aquaculture into HS classrooms including A.Q.U.A. curriculum review. Day 3: Visit more Big Island aquaculture facilities / farms.

Participants must be current HS teachers in the State of Hawai'i. The deadline to apply is June 15, 2023. Space is limited - **click here to learn more and download the application.**

USDA ARS and NIFA hosting June listening sessions

The U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS) Aquaculture National Program 106 and the National Institute of Food and Agriculture (NIFA) are hosting a series of listening sessions to inform priority setting and program planning actions for the next 5-years (2025-2029). These sessions will solicit stakeholder input regarding current commercial aquaculture research and extension challenges. This information will provide the framework for developing the next ARS National Program Action Plan and will assist NIFA in programming and administering research and extension support. Information describing these programs can be found at these links for ARS and NIFA.

The following dates and times are scheduled for June online sessions for different species, all stakeholders are welcome to participate in any or all the sessions. General overviews of ARS and NIFA's missions, goals, and programs will be followed by open time for stakeholders to provide input on current and future challenges, needs, and opportunities for commercial aquaculture.

June 6, 2023, 1 pm - 3 pm (EDT): Warmwater Marine Finfish
June 7, 2023, 1 pm - 3 pm (EDT): Aquaponics
June 12, 2023, 1 pm - 3 pm (EDT): Research and Extension in support of Tribal Aquaculture

If you are interested in providing feedback in one or more of the webinar sessions, please register by clicking on: https://forms.office.com/g/Nt0yhUEuDccontacting.

Written input can be sent via email toAquaculture.Input@usda.gov thru June 30, 2023.

AquaClip: Are Sea Cucumbers a Cleanup Solution to Fish Farm Pollution?

Off the coast of the Hawaiian Island of Kauai, an underwater metropolis bustles. Sea turtles glide lazily through the surf while schools of fluorescent yellow butterflyfish weave between basketball-size sea urchins and sharp corals.

But Dave Anderson isn't distracted by the otherworldly charm of the coral reef — he's here on a mission. Around 70 feet below the surface, he finds his prize: a red sea cucumber.

Anderson plucks the spiky creature from the sea floor and, after a brief boat ride, delivers it to a glistening 18-acre pond at the Kauai Sea Farm, on the island's southwest coast. Anderson is the production manager of this small commercial operation, which raises mullet, barracuda, tilapia, and other seafood for sale to local restaurants. But the sea cucumber in Anderson's hands isn't for eating — at least, not yet. Instead, this bottom-dwelling echinoderm is the newest member of the fish farm's cleaning crew.

In the wild, sea cucumbers roam the sea floor, hoovering up sand and digesting the fish waste, algae, and other organic matter it contains. Sand they excrete is cleaner than sand they consume, which is why sea cucumbers are often called "the true vacuums of the sea floor," says Arnold Rakaj, a marine biologist at the University of Rome.

Now, Anderson is letting these slimy organisms perform the same service at Kauai Sea Farm.

Aquaculture, or fish farming, now supplies more than half of the seafood consumed by humans globally, and the industry is projected to continue increasing to help feed growing populations. However, land-based and offshore fish farms face a big problem. With hundreds and sometimes thousands of fish swimming in the same net, pond, or tank, uneaten food, fish waste, and the bacteria it contains can build up to harmful levels, fueling outbreaks of bacterial diseases — such as fin rot, mycobacteriosis, and bacterial gill disease — that kill millions of farmed fish each year.

The uneaten feed and waste contain nutrients like phosphorous and nitrogen that can accumulate and sink to the bottom, where they can fuel algal blooms or feed bacteria that suck oxygen from the water, creating "hypoxic" conditions that suffocate captive fish and kill native organisms that surround offshore farms. Recirculating systems that filter water and remove waste can be installed, but these structures require a lot of energy and maintenance, and they can cost upward of $200,000 on a large commercial aquaculture farm.

As an alternative, fish farms can culture sea cucumbers along with their finfish and shellfish to improve water quality and increase overall productivity, a wide body of research suggests. Now, a modest but growing number of seafood farmers across Europe, North America, and elsewhere are raising sea cucumbers to act as living Roombas in tanks, cages, and ponds. Once aquaculturists build up enough stock, they can sell a portion of their sea cucumbers for human consumption, providing another source of revenue for their farms. Such efforts, say experts, could help reduce demand for wild sea cucumbers, which are being fished to the point of extinction in some places, including in India and in Mexico.

These initiatives are part of a broader movement — called "Integrated Multi-Trophic Aquaculture" (IMTA) — to redesign fish farms so they work more like biologically diverse natural ecosystems than like highly polluting monocultures. Instead of raising just one marine species, like salmon or tilapia, farmers practicing IMTA reduce waste by cultivating multiple species from different levels of the food chain — from sea cucumbers to mussels to kelp.

"You're trying to mimic a natural environment," says Chris Pearce, a marine researcher from Canada's Department of Fisheries and Oceans. "So marine species are just doing what they do naturally out in the wild. But when you combine them with other species, what they're doing is creating a service for the ecosystem." ...

Source: Yale Environment360 // 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 2018-38500-28886, and 2020-38500-32559. 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 University of Hawaii and the Oceanic Institute of Hawaii Pacific University.

Center for Tropical and Subtropical Aquaculture
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