CENTER FOR TROPICAL AND SUBTROPICAL AQUACULTURE

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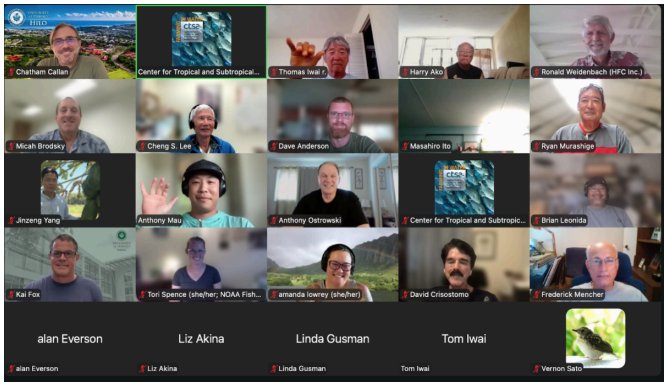
Letter from the Director



Aloha,

The CTSA team would like to extend our heartfelt mahalo to the members of our Industry Advisory Council and Technical Committee who joined us for the annual meeting earlier this month (pictured). Our appreciation also extends to those who could not attend but who took the time to review the pre-proposals and submit their recommendations. As I mentioned in last month's e-Notes, we introduced a change to the meeting process this year: every PI was invited to present their pre-proposal idea directly to the committees. Early feedback suggests the addition has been well received by members and PIs alike, and we appreciate everyone who took the time to prepare and participate.

No process is perfect, and ours remains a work in progress. We will continue to refine it and we welcome further input from our committee members and our PIs. Two considerations are already on our minds. The first is time. Our region spans many time zones, and a format built around live presentations asks a great deal of participants joining from across the Pacific; we will look for ways to accommodate that. The second is scale. If the number of pre-proposals grows in future years, we may need to adjust the format so that the presentations remain useful for everyone involved.

The CTSA team is now processing and calculating member rankings to determine which projects will advance to the full proposal round in August. Our members bring different perspectives to that discussion, but most agree that they want to see projects that improve profitability for existing operations or that help establish new industry as a result of CTSA support. Commercialization remains the shared goal and we want to fund the work that gets us there. We look forward to requesting and receiving full proposals in the coming weeks.

This focus on commercialization is a reminder of the role our region can play as an incubator for aquaculture innovation. We were glad to learn that Ocean Era has secured its final permit to launch a farming demonstration off the coast of Florida. Hawai'i served as the proving ground for that concept. The demonstration will take place elsewhere, but the groundwork laid here helped make this milestone possible. We must continue to work together in this manner to achieve our mutual goals in fish farming; we are stronger together.

We see a similar pattern on the global stage. Rabobank published an analysis this month projecting that Chile could become the leading source of growth in global salmon supply. Favorable water conditions, improvement of biological performance, supportive political momentum, and production expansion are all important factors. Much of the outlook for Chile rests on coho, a species that reaches harvest size in under a year, shows better resistance to sea lice and costs meaningfully less per kilogram to raise. The lesson is worth keeping in view: choosing the right species and investing steadily in lowering production costs pays off over time. That kind of sustained investment does not happen through research alone or through industry alone. It requires public and private support working in the same direction, driving home a point I share often in this newsletter: we all need to work together to achieve our shared goals for aquaculture development.

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

Midyear CTSA Project Updates

CTSA recently completed the semiannual project update conference calls with each project's PI(s) and liaison to touch base and expand on the information in the project's midterm report. The following are some updates from three of the ongoing CTSA projects:

Development of Artificial Intelligence-assisted Mobile Robotic Systems for Hawaiian Aquaculture Assessment
P.I. Tianlu Wang, University of Hawaii Manoa
The goal of this project is to develop a low-cost mobile underwater robotic system that uses artificial intelligence to assess fish in Hawai'i's aquaculture operations with minimal labor. The objectives of this work are to 1) develop a mobile robotic system composed of a commercial underwater robot and imaging-based edge AI devices, 2) design a robust AI algorithm through domain randomization of data for specific fish analytics tasks, such as assessment of fish counts and feeding status, and 3) evaluate the system in three representative sectors and further iterate on both the system and the algorithm. To date, the work group has developed a mobile underwater robotic system pairing a commercial underwater robot with a stereo camera-based imaging unit, and has validated an AI algorithm capable of estimating fish counts and fish size distribution using a group of fish swimming data collected at the Pacific Aquaculture and Coastal Resources Center (PACRC). The system has been tested in two settings so far: coral reefs at the Hawaii Institute of Marine Biology (HIMB) and the onshore aquaculture facility at PACRC. These tests have partially improved the system. Overall system cost is currently a few thousand dollars, which the group expects will make the tool practical for both research and industry use.

Varying challenges have shaped the design. Fish size estimation proved inaccurate with the monocular camera described in the original proposal because it could not supply 3D information, and the group has upgraded to a different camera to address this. Onboard AI-based detection also proved power-demanding and generated considerable heat, so the pipeline was revised to collect data first and analyze it offboard. Stable tracking of an individual fish in a dynamic current remains unresolved, and the group plans to integrate a dynamic tracking algorithm into the processing pipeline. Other outputs to date include fish swimming video datasets from PACRC and HIMB for algorithm training and validation, and two outreach presentations at Bishop Museum to increase public engagement in underwater robotics.

Addressing Biosecurity Risks for Hawai'i's Shellfish Industry
P.I. Maria Haws, University of Hawaii Hilo
The goal of this project is to address biosecurity risks facing Hawai'i's shellfish industry, with a focus on *Polydora* spp., a shell-boring worm that burrows into oyster shells and reduces both growth and marketability, and on early detection of molluscan diseases. The objectives of this work are to 1) determine the minimum non-lethal dosage and tissue retention of Ivermectin to treat *Polydora* infection in oysters, laying the foundation for future approval as an Investigational New Animal Drug (INAD), 2) assess the vulnerability of *Crassostrea gigas* and *C. virginica* spat to initial *Polydora* infestation in the laboratory and on the farm, 3) determine whether prophylactic treatment of hatchery-produced spat reduces re-infestation once spat are stocked on farms, 4) test extracts from Hawaiian macroalgal species with probable vermifuge properties for use against *Polydora spp.*, and 5) pilot an oyster sentinel program to assess the feasibility, logistics, and costs of establishing a longer-term molluscan disease detection program.

To date, the work group has conducted preliminary trials to scope the appropriate range of treatments for further work. A bath treatment of liquid Ivermectin was found to remove *Polydora* worms from adult Hawaiian oysters without causing significant mortality, while young spat proved more sensitive and required a shorter exposure to clear worms without losses. Ivermectin is not currently approved for use in shellfish, and establishing the data needed to pursue that approval is one of the aims of this work. In laboratory infection trials, prophylactic treatment of spat did not appear to reduce the rate of re-infestation after later exposure, though the group cautions that these are early results. Spat held for a month in large seawater tanks known to contain *Polydora* showed no signs of infection, which may reflect the seasonality of the organism's reproduction. Aqueous extracts of two Hawaiian seaweed species were also tested against infected oysters but produced no response, indicating that aqueous extracts may not be effective. These trials will be repeated with larger numbers of animals and under varied conditions; the group plans to try other extraction methods and additional seaweed species, and on-farm testing will take place in the next quarter.

The oyster sentinel pilot is underway at an O'ahu site used for previous research, where Pacific oyster spat were deployed in May as water temperatures began to warm, since the onset of many molluscan diseases is triggered by higher temperatures. Sentinel oysters are placed in the environment as an early warning tool, allowing researchers to check for pathogens before they reach commercial stocks. Exposure will continue until mid-summer, when the spat will be collected and sent to a diagnostic laboratory in Washington for testing, and a second round will follow in order to capture data from the warmer summer months. A second site is planned for the Hilo Aquaculture Pilot Site in Hilo Bay, pending a final right-of-entry permit.

GoFish Hawaiʻi: Developing New Opportunities for Integrated Aquaculture on Hawaiʻi
P.I. Theodore Radovich, University of Hawaii Manoa
The goal of this project is to expand opportunities for integrated agri-aquaculture in Hawaiʻi by training farmers to add aquaculture to existing commercial agricultural operations. The objectives of the two-year project are to 1) increase the number of viable, sustainable commercial integrated agri-aquaculture farmers in Hawaiʻi, 2) provide marketing support for GoFish Hawaiʻi (GFH) alumni through Reelerapp.com, and 3) provide a job placement opportunity for GFH alumni with industry partner Kunia Country Farms. To date, the project has launched and implemented Cohort 4 of the GoFish training program at the UH CTAHR Waimānalo Research Station, combining classroom instruction, hands-on experiential learning, and asynchronous online modules. The Cohort 4 schedule includes five core instructional workshops and four practicum sessions covering introduction to aquaponics, aquaponic system design, fish anatomy and water quality management, planting and nutrient management, and business planning and costs of production; four workshops and three practicum sessions have been completed or are underway.

The work group has directly engaged approximately 15 registered Cohort 4 participants along with an additional 35-40 practicum participants and alumni through recurring hands-on training, field demonstrations, and technical assistance, conservatively reaching 50-55 unique participants during the reporting period. Participants have included beginning farmers, existing agricultural producers, educators, aquaculture practitioners, Native Hawaiian participants, veterans, and GoFarm Hawaiʻi alumni. The group also conducted a special aquaponics field day for growers in February at the CTAHR Waimānalo CARES facility, which focused on decoupled fish-based aquaponic systems and practical approaches for integrating aquaculture and crop production to improve nutrient efficiency, resilience, and on-farm productivity; the event strengthened collaboration between GFH, CTAHR, Western SARE, and TOPP-related programming.

Work on the marketing and job placement objectives remains in the planning and coordination stage. Instruction during Cohort 4 introduced participants to business planning, aquaculture economics, costs of production, and market opportunities as groundwork for future participation in direct-to-consumer platforms, and coordination with industry partners has continued. Expanded direct marketing activity and apprenticeship placements are anticipated during the remainder of the project period. The primary challenge to date has been a series of back-to-back Kona low storm events during the spring training period, which created travel and scheduling difficulties for some participants; because the project emphasizes in-person experiential learning, the work group provided asynchronous materials to those affected and reserved space for them to continue or repeat training in the upcoming Cohort 5.

Regional Aquaculture Announcements

Today is the Last Day to Take HAAA Survey! Together we can grow Hawaiʻi aquaculture
The HAAA is seeking input on a brief targeted survey from the Hawaii aquaculture and aquaponics sector and larger seafood industry to help shaping the future of Hawaiʻi's aquaculture industry. The survey should take approximately 15 minutes. Click here to take the survey.

Hawaii Act 165 Moves Import Permit Administration to Animal Industry Division
Act 165 (SB 177, CD 1), signed June 26 and effective July 1, 2026, directs the Department of Agriculture and Biosecurity's division of animal industry to build a science-based, risk-based framework for authorizing the import and transport of aquatic livestock in Hawaiʻi. The framework categorizes species by the probability and consequence of establishing a feral or invasive population, and requires pre-arrival disease testing, entry-point inspection, and post-arrival monitoring, with mandatory quarantine, remediation, or depopulation of animals found to pose a biological aquatic risk. It also requires the state to develop biocontainment standards setting minimum physical design and operational performance requirements for aquatic livestock facilities. Read more.

AquaClip: US restores commercial fishing access in Pacific marine protected areas

On June 11, U.S. President Donald Trump signed an executive proclamation to open additional commercial fishing grounds in remote areas of the Pacific. The proclamation says restoring access to these areas “will promote economic opportunity.”

The proclamation “Restoring American Commercial Fishing in the Pacific,” comes a year after a similar proclamation in April 2025 that opened up commercial fishing in the Pacific Islands Heritage Marine

National Monument (PIH). Formerly the Pacific Remote Islands Marine National Monument, the PIH covers nearly 1.3 million square kilometers (500,000 square miles) of Pacific Ocean.

The June 2026 proclamation includes portions of three additional marine national monuments — Rose Atoll, Mariana Trench, and Papahānaumokuākea — which together include nearly 1.8 million km2 (690,000 mi2) of coral atolls, deep-sea trenches and remote islands...

Source: Mongabay // Full Article
Read the Proclamation

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 2022-38500-38099, 2023-38500-40707, and 2024-38500-42306. 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.

USDA National Institute of Food and Agriculture
U.S. DEPARTMENT OF AGRICULTURE

UNIVERSITY of HAWAI'I at MĀNOA
COLLEGE OF TROPICAL AGRICULTURE AND HUMAN RESILIENCE

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