CENTER FOR
TROPICAL AND SUBTROPICAL
AQUACULTURE

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Letter from the Director

Aloha,

Like many of you, I am preparing to travel to San Diego for WAS Aquaculture 2022. The Covid-19 pandemic has altered our way of communication for almost two years. I am really looking forward to safely gathering in person with friends and colleagues to discuss new ideas for aquaculture development across the CTSA region and beyond. Conferences such as this present ideal opportunities to learn about innovative technologies and make critical industry connections. I will be thinking about our upcoming FY22 development process as I attend the various sessions to learn about aquaculture activities taking place across the globe.

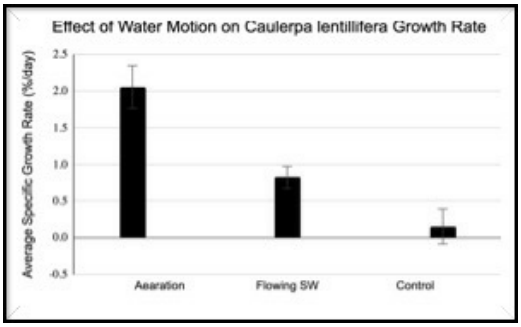
In the meantime, I encourage you to please start thinking about regional funding priorities for the next development cycle. CTSA will release an official request for FY22 funding priorities input next month, but we welcome your feedback at any time. You may email mbrooks@ctsa.org or me with your suggestions on what is important for aquaculture development in our region and why. We will gather and review all input from industry stakeholders to prepare our FY22 Request for Pre-Proposals (to be released in May). As always, we are looking forward to hearing your ideas and suggestions for species, technologies and ideas that can help bring our region into a new and more sustainable era of aquatic food production.

To supplement the annual funding we receive from NIFA, I am constantly seeking additional support to fund and/or leverage projects that have high potential to impact the regional aquaculture industry and reduce dependence on imported goods. NIFA is also hopeful that outputs from the ongoing NAA review will help the RAC program lobby for more congressional support. To this end, the CTSA team has begun preparing the necessary documents for the NAA review. We look forward to meeting with the review team next month to discuss program and project accomplishments. I will keep you all posted about the process as we proceed!

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

CTSA Project Update: 'Grow No-Flow: *Caulerpa lentillifera*'

The following project update article was prepared by Dr. Karla J. McDermid, Principal Investigator of the CTSA project "Cultivation of Caulerpa, Codium, and Asparagopsis: Trying to tame three Hawaiian Macroalgae."



The many common names of *Caulerpa lentillifera,* including or sea grapes, green caviar, *latoor arosep*in the Philippines, *latok*in Malaysia, *umi-budō i*n Japan,*rong nho* or *rong nho biển* in Vietnam,*bada podo* in Korea,and*bulung* in Indonesia, highlight the widespread use of this green marine macroalga in the diets of people throughout the Pacific, East Asia, and Southeast Asia. *Caulerpalentillifera*is grass-green in color with horizontal, prostrate runners (stolons) that give rise to long, erect branches covered in small spherical branchlets that look like little grapes. *Caulerpalentillifera*can be distinguished from its close relative,*C. racemosa*, based on the shape of the stalk at the base of each grape: in*C. lentillifera*, the each grape would have a constriction or pinched point; whereas, the little stalks beneath the grapes of*C. racemosa*are smooth. In addition, the grapes are are distributed more linearly along the branches of *C. lentillifera* instead of more tightly clumped or bunched as in *C. racemosa.* The native distribution of *Caulerpa lentillifera* extends from the coasts of east Africa to islands in the Indian Ocean, to the shores of southwest Asia, southeast Asia, Japan, China, Australia, and many Pacific Islands, including the Hawaiian Islands. *Caulerpa lentillifera is c*ultivated in the Phillipines, Japan, Vietnam, China, and Taiwan. Elsewhere in the Pacific, it is harvested from wild populations. People enjoy the mild taste and the juicy pop of the sea grapes as a healthy addition to meals or snacks.

On the east coast of Hawaii Island, at the Pacific Aquaculture and Coastal Resources Center in Hilo, faculty and students are experimenting with environmental parameters to find the culture conditions for optimal growth rates of *C. lentillifera,*as well as testing methods to extend the shelf-life of fresh sea grapes. One of the first experiments involved water motion because in its natural habitat, this species grows in sheltered areas with calm water. Thalli were grown in 19 L buckets in triplicate under three different treatments: gentle aeration from an air diffuser, or constant seawater flow, or no aeration and no water flow as the control. Thallli cultured with only aeration showed the highest Specific Growth Rate calculated as

SPG as %/day = $[(\text{final weight}/\text{initial weight})^{1/t}-1] \times 100$

where t = time in days

Without the need for constant flowing seawater, *Caulerpa lentilliferai*s an excellent candidate for do-it-yourself backyard aquaculture or school projects. We designed a protocol for "*Limu*-in-a-Bucket" based on our water motion, nutrient, light level, salinity and other culture experiments (included here).

Currently we are culturing the sea grapes in 550 L (150 gal) tanks and experimenting with using effluent seawater from tanks of cultured *Tilapia*fish as the nitrogen source. Our findings will be shared this year in a technical report on "Raising Hawaiian Sea Grapes," which will include taste-tested recipes.

Click here to download the new 'Limu-in-a-Bucket' guide to growing your own sea grapes

SNP Seeks Support for National Seafood Marketing Campaign

The Seafood Nutrition Partnership (SNP), a nonprofit working to inspire a healthier America through partnerships, outreach and awareness about the essential nutritional benefits of eating seafood, is working to galvanize the US seafood to secure $25 million from Congress for a National Seafood Marketing Campaign.

Their campaign is designed to raise awareness of the importance of a seafood promotion program, by using the stories of America's seafood industry. That means using the voices of fishers, farmers, harvesters, importers, processors, retail workers, health influencers, and others up-and-down the supply chain who can talk about how a national seafood marketing campaign will provide a boost to our jobs and the industry. Through meetings with Congressional offices, video testimonials, op-eds, member visits, and more, our voices will be our best asset.

SNP is asking seafood industry stakeholders to officially sign up at seafoodcampaign.org, and to sign on to the SNP letters to Congress. SNP asks that you only sign the letter of the State where you are based by March 15. Click here to sign the letter for Hawaii. Getting these letters signed and presented to key Congressional delegations is a crucial early step in creating momentum for our funding goal. Contact matt@seafoodcampaign.org with any questions or suggestions.

AquaClip: Aquaculture proponents call on Washington for support

The Stronger America Through Seafood (SATS) organization on Feb. 14 sent a letter signed by more than 65 supporters of aquaculture — including leaders in the U.S. seafood harvesting, production, and retail sectors — to Congress, requesting support for aquaculture expansion in the U.S.

The letter to both the U.S. House of Representatives and U.S. Senate calls for passage of the AQUAA Act, or the Advancing the Quality and Understanding of American Aquaculture Act.

The bipartisan AQUAA Act, which was introduced in the U.S. Senate in October 2021, would increase production of sustainable seafood through the raising of fish in federal waters, creating a robust industry in America that would include new jobs. An updated version of the act was introduced in December by U.S. Senators Roger Wicker (R-Mississippi), Brian Schatz (D-Hawaii), and Marco Rubio (R-Florida); and U.S. Representatives Ed Case (D-Hawaii) and Steve Palazzo (R-Mississippi).

"Coastal states and communities, like South Mississippi, enjoy a benefit of knowing where their seafood

comes from when they order at a local restaurant. Many other states throughout our nation aren't so lucky," said Palazzo in reintroducing the bill in December. "To meet demand, restaurants and grocery stores rely on seafood imports which amount to 90% of seafood that is consumed in the U.S. The AQUAA Act provides a pathway to decrease that percentage and sustainably meet this demand. I am proud to introduce the AQUAA Act in the 117th Congress to support job creation along coastal areas, create a new market for agriculture products, and expand seafood processing — measures that can impact every part of the United States."

Source: Supermarket News // 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 2016-38500-25751, 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.