

Letter from the Director

Aloha,

As we transition from March --a month dedicated to celebrating the history and influence of women-- into April, a month dedicated to honoring 'mother' Earth, I am reflecting on the Mahatma Gandhi quote pictured here, and the numerous integral roles that women play in society and the natural world.

Women are indeed incredibly influential, including those who serve as leaders in our regional aquaculture community. Three of the ongoing CTSA projects are led by women researchers. Dr. Jenee Odani and her team of mostly women from UH and HDOA have established and are providing critical disease surveillance services for aquaculture producers in our region. Dr. Maria Haws has led decades of important work on hatchery production and farming of bivalves, and has created a critical supply chain for local and mainland producers. Dr. Karla McDermid is leading innovative research on macroalgae production in Hawaii, which has the potential to increase food supplies and decrease carbon footprint. All three research teams are working hard to transfer their knowledge and technologies to the next generation of researchers and producers, providing a great benefit to CTSA and the aquaculture community at large.

In addition, CTSA benefits greatly from the dedication and input of the women who serve on our Industry Advisory Council and Technical Committee. Their voices are essential to our program development, and I thank them for their participation. I also encourage you to join me in reflecting on and celebrating the wonderful accomplishments of the women we know.

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



To call woman the weaker sex is a libel; it is man's injustice to woman. If by strength is meant brute strength, then, indeed, is woman less brute than man. If by strength is meant moral power, then woman is immeasurably man's superior. Has she not greater intuition, is she not more self-sacrificing, has she not greater powers of endurance, has she not greater courage? Without her, man could not be. If nonviolence is the law of our being, the future is with woman. Who can make a more effective appeal to the heart than woman?

Mahatma Gandhi

CTSA Needs Your Input: FY22 Funding Priority Areas

In an effort to get the most complete picture of the needs and priorities of our regional aquaculture industry, we are calling for your assistance and input.

Each year, CTSA releases a Priority Species and Areas survey to help us determine the priorities that will comprise the annual development cycle. This survey typically lists the priority areas included in the previous year's 'Request for Pre-Proposals,' and requests that participants indicate whether or not each area remains a priority for regional aquaculture development and funding support.

This year, CTSA would like to ask our stakeholders to please share additional priority areas and species that you think should be included in the survey, **ahead of the survey**. While the CTSA survey always leaves an open space to add in 'other' priority areas, it is more likely that a priority area will receive consideration from all of the stakeholders who participate in the survey if it is identified as a survey question.

**Help CTSA
Determine FY22
Funding Priorities!**

Email suggestions to
mbrooks@ctsa.org

For reference, the [FY21 Request for Pre-Proposals](#) is available on the CTSA website. You are welcome to suggest any new focus areas that CTSA should address under each priority area, or entirely new priority areas and species. **Please email Meredith Brooks at mbrooks@ctsa.org with suggestions by April 10** CTSA will release the FY22 Priorities Survey on April 15.

NEW CTSA Publication: Grow Your Own 'Limu-in-a-Bucket'

The CTSA project "Cultivation of *Caulerpa*, *Codium*, and *Asparagopsis*: Trying to tame three Hawaiian Macroalga," led by Dr. Karla J. McDermid, has released a short and easy-to-follow publication on how to grow seaweed (*limu* in Hawaiian) in a 5-gallon bucket. This activity is perfect for teachers, students, or anyone interested in growing their own food in a small space.

The limu used in this activity is *Caulerpa lentillifera*, commonly known as sea grapes, green caviar, *latoor arosepin* in the Philippines, *latokin* in Malaysia, *umi-budō* in Japan, *rong nho* or *rong nho biển* in Vietnam, *bada podo* in Korea, and *bulung* in Indonesia. Without the need for constant flowing seawater, *Caulerpa lentillifera* is an excellent candidate for do-it-yourself backyard aquaculture or school projects. The research team designed a protocol for "Limu-in-a-Bucket" based on water motion, nutrient, light level, salinity and other culture experiments.

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 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 cultivated in the Philippines, 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.



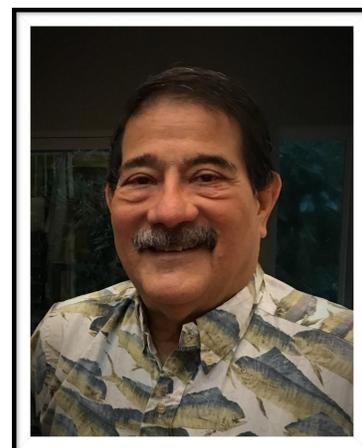
[Click here to download the new 'Limu-in-a-Bucket' guide to growing your own sea grapes!](#)

'Celebration of Life' for Warren Dominy on April 30

The Celebration of Life for Dr. Warren Dominy is scheduled for April 30, and the Dominy family is inviting Warren's friends and colleagues to attend and share their remembrances. The following are the details for Warren's Celebration of Life:

Date and time: Saturday April 30, starting at 11am
Location: Diamond Head Mortuary

Dr. Dominy was a true visionary, who laid the foundation for much of what we know today about shrimp nutrition and aquafeed processing technology. He was a research scientist, nutritionist, feed formulator and feed processing specialist at Oceanic Institute (OI), Hawai'i for 30 years, retiring as Director, Aquatic Feeds and Nutrition Department in 2013. During this period, he conducted feed, feed ingredient and feed manufacturing research trials with species of shrimp, fish, abalone, sea urchin, and even swine, poultry and cattle. His focus in the last decade was on potential feed ingredients of products and co-products from agriculture, algae and yeast, and co-products from biofuels, food processing, fisheries waste and by-catch.



Several friends and colleagues have shared words of remembrance [here](#), including some who served together with Warren on CTSA committees:

"The characterization of his openness in sharing his extensive knowledge and his wonderful enthusiasm for the science, certainly reflects the person I knew, respected and admired. He will be missed." ~ John Corbin

"He was a world expert on aquatic animal feeds and a friend in the truest meaning of the word" ~ Harry and Joan Ako

Aquaculture Announcements

Call for Papers for 2022 National Aquaculture Extension Conference in Maine

The Call for Papers for the 2022 Extension Conference in Portland Maine is now open. Details for submissions are as follows:

Presentations: oral or poster presentation. Plan for oral presentations of 15 minutes total; inclusive of time for questions and discussion. Poster submissions must be in PDF format. Please use World Aquaculture Society Formatting guidelines for abstract submissions found at [Aquaculture Canada and WAS North America 2022 | Abstract Submission | World Aquaculture Society Meetings](#)

Priority areas for presentations at the event include:

- Bringing together Land Grant and Sea Grant extension
- Keeping up with digital resources: lists, web resources, and social media, etc.
- Aquaculture Literacy, including Social License
- Mentoring Aquaculture Extension and Outreach personnel
- Best practices during a pandemic: How to work remotely, effectively, and conducting better virtual presentations
- Academic advancement for aquaculture education, Extension and outreach personnel
- HUB reports and National collaborative projects: such as the Great and Recirculation Aquaculture Salmon Collaborative

Deadline for abstract submission is April 15th, 2022, at 5pm EST. Please submit abstracts to: Dana Morse, Maine Sea Grant: dana.morse@maine.edu. Funding and support from: USDA - Regional Aquaculture Centers USDA - National Institute of Food and Agriculture (NIFA), NOAA, National Sea Grant College Program, Maine Sea Grant, Kentucky State University, University of Maine Cooperative Extension.

News from AADAP

The United States Fish and Wildlife Service (USFWS) launched its new website this month. You are invited to take a look at the AADAP Program's new landing page, in addition to the new INAD program landing page. AADAP landing page: <https://www.fws.gov/fws.gov/program/aquatic-animal-health/aquatic-animal-drug-approval-partnership>

INAD landing page: <https://fws.gov/service/investigational-new-animal-drugs-inads>

Also, AADAP will not be charging INAD enrollment fees for the use of any of its INADs. INAD participants will still need to enroll, as per usual, for the INAD use to be considered legal, and so AADAP can continue to collect the INAD use data.

HATCH Aquaculture Innovation Studio Hawaii

HATCH, a global accelerator and investor in early-stage aquaculture companies with a mission to catalyze sustainable innovation in this sector, is organizing the [Aquaculture Innovation Studio Hawai](#)i from Apr 18 - May 13, 2022, for the second year in a row in partnership with the Natural Energy Laboratory of Hawaii Authority (NELHA). This program offers unique aquaculture industry mentorship for aquaculture innovators to develop their company's commercial scalability, technological readiness, and product-market fit.

Researchers, entrepreneurs, projects and companies from Oceania, Hawaii, and North & South America at different stages of development are all encouraged to apply. Visit this website to learn more: <https://www.hatch.blue/hawaii-innovation-studios>

AquaClip: Fish traits can be influenced by feeds

Researchers from the Norwegian Institute of Marine Research investigated whether the phenotypes of fish are influenced epigenetically by the feed through a series of trials.

Initially, researchers used zebrafish to test whether the feed had an impact on their offspring. [In one trial](#), broodstock were fed with low vitamin B feed content, whereas the offspring received sufficient vitamin B. This

group was compared with a control group where both the parents and offspring received sufficient vitamin B.

Researchers found that the experimental group had lighter-colored livers than the control group with liver cells with more fat, which is associated with poor health. Moreover, genes involved in fat regulation were used differently by the two groups. Thousands of tags on the offspring's DNA had been changed by the quantity of vitamin B in the broodstock feed.

This was the first result to verify that fish feed can affect the health through epigenetics of fish offspring, either through changes in inherited tags on DNA or through the nutrients allocated in the yolk sac. They indicate that it's possible to epigenetically control the phenotype of fish, ensuring the parents' feed doesn't become an old habit that dies hard in their offspring.

Source: Aquafeed.com // [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.

Center for Tropical and Subtropical Aquaculture
www.ctsa.org

