CENTER FOR TROPICAL AND SUBTROPICAL AQUACULTURE

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Letter from the Director

CENTER FOR TROPICAL AND SUBTROPICAL AQUACULTURE

Aloha,

As you know, a common theme of my monthly messages and a focus of the work coming out of our Center is the reduction of waste. Upon reading through the recently released SOFIA report from the FAO, I was pleasantly surprised to see that the global seafood supply chain is working together to simultaneously increase supply and reduce waste.

According to the report, we now have more seafood available for consumers than in previous years. The majority of the increase is due to a bump in aquaculture production, but a significant portion is due to a decrease in waste. The category of non-food uses of total available seafood from both aquaculture and capture fisheries has decreased from 15.6% in 2011 to 11.5% in 2016. In addition, the commercial fishing industry has taken measures to reduce by-catch while the aquaculture industry has increased opportunities to utilize by-catch. For example, the CTSA-funded project working to establish marine finfish production in the Marshall Islands has developed a feed that includes by-catch as a primary source of protein.

As the global seafood industry continues to grow and change, we may want to broaden our definition of aquaculture to include reducing harvest waste from both aquaculture and fisheries. I believe if and when we do this, the picture will become clear that aquaculture can... **Read More**

CTSA Sea Cucumber and Pearl Oyster Hatchery Seminar

Earlier today, CTSA welcomed sea cucumber and pearl oyster expert Masahiro Ito to a special seminar the Oceanic Institute (OI) of Hawaii Pacific University in Waimanalo.

At the seminar, participants learned about Ito-san's experiences working to establish sea cucumber and blacklip pearl oyster aquaculture in the Federated States of Micronesia. Under his guidance, the College of Micronesia hatchery began producing and providing seedstock for local pearl and sea cucumber farms, including three community-run farms he helped to establish. He has also led extensive training for more than fifty Micronesian technicians in hatchery technology, and husbandry, as well as pearl grafting and accessory making. The training continues tomorrow with a closed workshop on sea cucumber spawning at OI to establish hatchery production as part of

the CTSA IMTA project.

If you were unable to attend today's seminar, the event was live streamed and is available for viewing in its entirety on the **CTSA Facebook page**. As a follow up, CTSA will release a detailed sea cucumber hatchery manual in next month's issue of e-Notes. If you are interested in learning more about Ito-san's work with pearl oyster aquaculture in the FSM, **click here** to watch a short video CTSA produced in 2011.

Midyear Updates on CTSA Rabbitfish and Fungal Feed Projects

Each year, CTSA-funded projects are required to submit a midterm report and an annual progress report on the status of their work. In addition to and coinciding with these reports, CTSA staff holds bi-annual conference calls with each PI and the corresponding project industry liaison. This combination of reports and conference calls twice per year help us gain a more thorough understanding of the status, opportunities and challenges of each project. The following are updates on three of our ongoing projects, compiled using data from both the midterm reports and conference calls:

At Palau Community College, researchers continue to improve their larval rearing of rabbitfish under the project "**Improving Rabbitfish Seed Production Capacity in Palau**." During the most recent reporting period, PCC developed an easier way of collecting eggs and established more effective intubation of eggs. They have also improved survival by establishing a better protocol for rotifer larval feeding, and now feed with rotifers up to 21 days...

In the Marshall Islands, the project "**Development of Marine Finfish Aquaculture, Aquatic Feeds, and Training in the Republic of Marshall Islands (RMI) for Sustainability and Food Security,**" now in its third year, is also focusing on aquaculture of rabbitfish. The lead researcher is continuing his efforts to achieve a successful hatchery trial on Rabbitfish, and is currently collecting and conditioning additional broodstock for this purpose. At the time of the project conference call, the group was expecting a new batch of eggs and the ability to restock the cages for a grow out trial. To date, two farmers have agreed to be in charge of the production cages, and the project is still looking for two additional farmers to assist. The farmers are responsible for all maintenance of the 15x15x10 cages, while Ryan provides them with the fish and feed...

A joint project between the University of Hawaii and Oceanic Institute of HPU continues to investigate the "**Utilization of local agri-processing by-products to produce fungal protein for aquatic feed production**." The UH research team has successfully scaled up production of the fungal biomass to 20L bioreactor scale, and is currently designing a total-capacity 50L bioreactor utilizing 5 different 10L vessels simultaneously. At the onset of the project, researchers were focused on using molasses as a substrate. However, the closure of Hawaiian Commercial & Sugar Co. has forced the research group to investigate other local agriculture byproducts that could be used. The UH lab is now looking into using waste from tofu production, and advised during the project conference call that they have begun testing fungal production with soya whey. The yield has been an average of 29 g/L vs. the 10 g/L yield with molasses... **Read More**

Request to Participate in NAA Survey for U.S. Fish Farmers on Unmet Medication and Vaccine

Needs

The National Aquaculture Association (NAA), as a member of the Aquatic Drug Approval Coalition, would like to survey and assess the current and future unmet medication and vaccine needs for U.S. fish farmers.

Although several new medications have been added to the aquaculture "medicine chest" over the past 10 years, the number of U.S. Food and Drug Administration (FDA) approved fish medications is still very limited. As certain priority medications have been approved for specific claims, collaborative research efforts have shifted to reflect new priorities - including generating data to support new approvals, identifying emerging disease issues for which treatment options are currently limited or non-existent, and seeking approval for non-therapeutics such as those used for skeletal marking, spawning, sex reversal, and fish sedation/anesthesia.

Results from this survey will be used to 1) establish medication and vaccine priorities and direction of effort; 2) engage with current sponsors or find new medication or vaccine sponsors as needed; and 3) generate data to support new approvals or new (expanded) claims for medications that are currently approved. Survey answers will be strictly confidential, and no personal, farm, or organization information will be divulged. A survey summary... **Read More**

Upcoming 'Grower Training' and 'Aquaponics' Courses

The Washington State University and University of Idaho School of Food Science will host two courses this fall. "Produce Safety Alliance Grower Training Course" will be on September 24, and the "Aquaponics and Intensive Containerized Hydroponics: Regulatory and Technical Considerations" course will be September 25-26.
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AquaClip: FAO SOFIA 2018 report credits aquaculture for 'impressive growth' in global seafood supply

FAO has released its latest official world fishery and aquaculture statistics report, the State of World Fisheries and Aquaculture (SOFIA) 2018.

According to the report, with capture fishery production relatively static since the late 1980s, aquaculture has been responsible for the continuing impressive growth in the supply of fish for human consumption.

Global fish production peaked at about 171 million tonnes in 2016, with aquaculture representing 47 percent of the total and 53 percent, if non-food uses (including reduction to fishmeal and fish oil) are excluded.

The contribution of aquaculture to the global production of capture fisheries and aquaculture combined has risen continuously, reaching 46.8 percent in 2016, up from 25.7 percent in 2000. With 5.8 percent annual growth rate during the period 2001-2016, aquaculture continues to grow faster than other major food production sectors.

The report also revealed that the growth of farming of fed aquatic animal species has outpaced the farming of unfed species in world aquaculture. The share of unfed species in total aquatic animal production decreased gradually from 2000 to 2016, shrinking by 10 percentage points to 30.5 percent.

Source: Aquafeed.com / **Read Article**

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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 grants 2012-38500-19566, 2014-38500-22241, and 2016-38500-25751. 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 Oceanic Institute of Hawaii Pacific University and the University of Hawaii.

Center for Tropical and Subtropical Aquaculture, 41-202 Kalaniana'ole Highway, Waimanalo, HI 96795

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