Regional e-Notes ~ July 2012 Vol 4, Issue 7

CENTER FOR TROPICAL AND SUBTROPICAL AQUACULTURE

Letter from the Director

Aloha,

As I shared with you in last month's letter, I believe that aquaculture has the potential to significantly impact food security in the Pacific Islands. A critical aspect of realizing this potential is ensuring that aquaculture products remain nutritious and safe for people to eat.

Food safety is an issue that affects everyone. Our citizens rely on us, the food production and processing industries, to provide food that is free from contaminants. While the U.S. benefits from strict guidelines on food safety, every person that handles food (from farm hands to processors) has an individual responsibility to adhere to protocols. Just one broken link in the chain can have catastrophic results. Recently, over 250 people across 20 U.S. states were affected by a salmonella outbreak linked to tuna originating from an unsanitary processing facility in India. Although the fish was likely healthy when it was harvested, it left the facility contaminated. Click here to read the full article.

The U.S. aquaculture industry remains committed to minimizing the risks of food borne illnesses in its products, and regularly works with farmers and food processors to help them understand and enforce guidelines from the FDA and food safety advocates. I encourage our constituents in the Pacific region to keep abreast of the latest practices, and recommend visiting the following sites for more information:

FDA Food Safety
CTAHR Food Safety & Technology Publications
Food Safety News

Mahalo,

Cheng-Sheng Lee
Executive Director, CTSA

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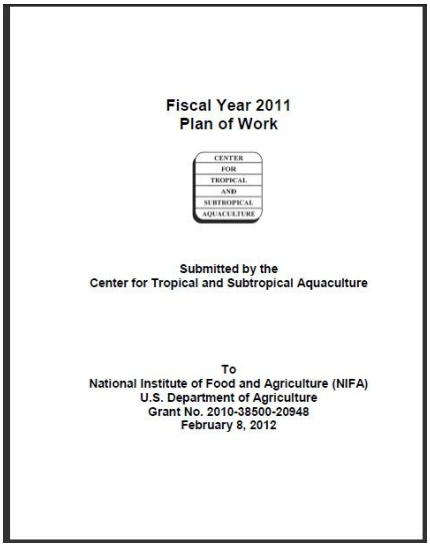
USDA Approves CTSA FY11 Plan of Work, Six New Projects Begin


Fiscal Year 2011
Plan of Work

CENTER FOR TROPICAL AND SUBTROPICAL AQUACULTURE

Submitted by the
Center for Tropical and Subtropical Aquaculture

To
National Institute of Food and Agriculture (NIFA)
U.S. Department of Agriculture
Grant No. 2010-38500-20948
February 8, 2012

The USDA has recently approved the CTSA FY11 Plan of Work. Under this plan, six new projects will be funded, and Year Two funding for three continuing projects will be released. The new projects are as follows:

Developing diets for Hawaii cultured abalone with normal shell color and high growth performance using local algae and their co-products

This two year project, led by Dr. Ju of the Oceanic Institute, has the overall goals to develop specific formulations for enhancing growth performance of Ezo abalone, identify shell pigments for Ezo shell color accepted by consumers, and help Hawaii's abalone industry become independent of imported feeds.

The high demand for abalone meat, as well as the overfishing of wild abalone, has resulted in an increase in commercial abalone production, which has also stimulated the development of artificial diets for several species. However there is no commercial feed specific for *H. discus hannai,* or Ezo, a traditionally dark-red or dark-brown shell color species prized for its taste. Imported feeds previously tested at Big Island Abalone Corporation have been found to produce off-color Ezo that are green, blue or light red colors (if the abalone was not fed in combination with red seaweed), which has affected the marketing of the product. Therefore, this project is targeting the development of a feed that can produce a normal shell color that will result in good growth performance of abalone.

Mitigating the Diseases of Freshwater Cultured Fish Species in Hawaii and the Pacific Region

The overall goal of this project, led by Dr. Clyde Tamaru of CTAHR (University of Hawaii), is the continued expansion and diversification of the aquaculture industry in Hawaii and the region. The project seeks to achieve that goal by conducting an initial epidemiology study of a Francisella-like bacteria (FLB) that would provide details of incidence and distribution of the pathogen in Hawaii and the region. Information obtained would form the basis for future research and extension efforts that would lead to the control of this disease.

Previous CTSA-sponsored research has led to the determination that Francisella infections in fish are serious and more widely distributed than previously thought. The increasing diagnoses is in part due to the development and widespread availability of molecular detection techniques such as the PCR technology that the project work group has access to. The results of this project have the potential for an even broader application than just the region covered by CTSA.

Pacific Aquaculture Development and Extension Support in the U.S. Affiliated Pacific Islands

Led by CTSA Extension Agent & College of Micronesia faculty member Masahiro Ito, this project will continue to strengthen CTSA's aquaculture extension work in technology transfer among Micronesian communities. The objectives of the project are 1) Technology transfer of the hatchery-based aquaculture between the Micronesians to strengthen capacity building; 2) Extension support and technical assistance for Pohnpei and Yap; and 3) Information dissemination.

This project will utilize trained Micronesian technicians, who are readily available at the College of Micronesia, as a main vehicle for technology transfer and capacity building from Pohnpei to Yap. The project will focus on the implementation of business models and marketing development through the use of displays and sales of pearls and pearl-related products in domestic and overseas markets. The project will also focus on the development of small-scale sea cucumber farms.

Economic Analyses of Aquaponic Systems in Hawaii and Guam

The overall goal of this project led by Dr. PingSun Leung of the University of Hawaii is to provide

essential economic information as the basis for establishing and advancing commercial aquaponic enterprises throughout the CTSA region. Economic assessments will be conducted for both small and large scale systems as well as different operating systems presently in use in Hawaii and Guam. A generalized, user-friendly spreadsheet module will also be developed so as to allow existing and potential aquaponic operators to readily assess the economics of aquaponic production systems in the CTSA region.

Aquaponics, the symbiotic integration of aquaculture and hydroponics, has been touted as a potential industry in moving Hawaii as well as the Pacific region towards food self-sufficiency with a sustainable farming technology that has a minimal environmental impact. However, existing literature and reports do not reflect a consistent view concerning the economic viability of commercial aquaponic enterprises. Thus, it is imperative to assess the economics and financial viability of this relatively new industry immediately so as to guide current and potential investors to make further investments.

Establishing Bivalve Farming in Hawai`i

Dr. Maria Haws of the University of Hawaii at Hilo is leading this project to improve or develop culture methods for bivalve species with demonstrated potential for aquaculture in Hawai`i. Specifically, the expected outcomes of this project will: 1) determine whether certain Pacific Oyster (Crassostrea gigas) strains perform better under semi-tropical conditions to allow for year-round harvesting of high quality product; 2) determine whether different triploid oyster crosses perform better in Hawai`i hatcheries and on farms; 3) develop a high-quality raw half-shell product for Hawai`i using the indigenous oyster (Dendrostrea sandvichensis) and Kumamoto oysters (Crassostrea sikamea); and 4) continue development of two native bivalve species that have previously shown aquaculture potential. This research may also have applications for the wider U.S. shellfish industry.

This project will provide key information required to start a viable shellfish industry in Hawai`i, building on previous CTSA-supported work. As legal impediments to Hawai`i's shellfish sanitation issues are resolved by the Department of Health this year (2011) as it begins work to classify shellfish growing areas, it is more critical than ever to lay the scientific basis for optimizing shellfish production before significant investment is made in stocking farms.

Aquaculture Information Service for the Pacific Region

This project is a continuation of services provided by both CTSA and the University of Hawaii for over two decades. The overall goal of this project, led by CTSA's Information Specialist Meredith Brooks, is to supply relevant information from CTSA and other aquaculture entities to interested parties in Hawaii and the U.S.-affiliated Pacific Islands using the Internet (including social media), traditional print formats, and other media. The project will accomplish this with the production of CTSA publications, as well as the establishment of an in-house document delivery service to assist stakeholders in the procurement of relevant scientific research information and presentations (similar to the functions of the previously funded PRAISE project, which will be dissolved this year).

CTSA has identified lack of information as a major constraint for aquaculture development in Hawaii and the U.S.-affiliated Pacific Islands. Accessing and distributing information is a challenge, since those individuals who need it reside in places throughout a wide geographical area that covers several time zones. Aquaculture information is readily available to anyone with Internet access, but much of this available information is of minimal use because it centers on species or techniques not suited for tropical waters. To overcome this obstacle, CTSA must not only disseminate information to interested and affected parties throughout its region in a timely manner, but also ensure that that information relates specifically to those species cultured in tropical and subtropical areas. CTSA shall also circulate information about new technologies developed under its own funded projects.

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Each project will begin by the end of the calendar year. If you have any questions about these or any other CTSA funded projects, please do not hesitate to let us know.

UJNR Panel on Aquaculture: Symposium in HNL Oct. 22-23, 2012

The US-Japan Natural Resources Panel on Aquaculture is hosting its 40th annual Scientific Symposium on October 22nd and 23rd, 2012, at the University of Hawaii at Manoa in Honolulu, Hawaii. The topic this year is **Hatchery Technology for High Quality Juvenile Production**.

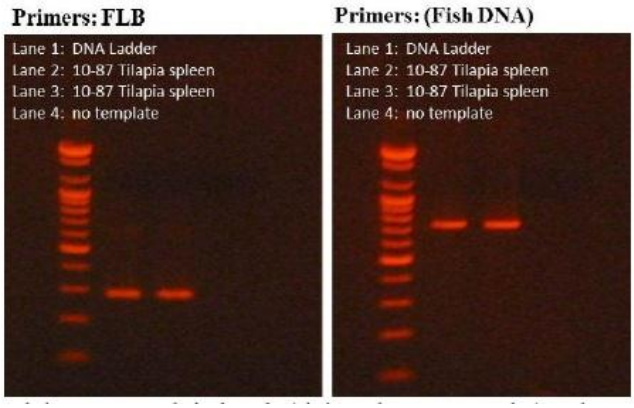
Presentations should be related to science and technical issues associated with spawning and larval rearing to the juvenile (seedling) stage. Topics include, but are not limited to:

- Broodstock selection, nutrition, and spawning
- Larval culture systems and management
- Larval health management
- Larval nutrition

For more information contact April Bagwill at NMFS.Aquaculture.Science@noaa.gov

Announcements: PCR Testing Now Available in Hawaii for KHV and FLB in Tilapia, Updated Guide to Drugs, Biologics, & Chemicals

PCR Testing Available for Koi Herpes Virus (KHV) and Francisella-like bacteria (FLB) in Tilapia



One of the major outcomes of the Center for Tropical and Subtropical Aquaculture (CTSA) supported project entitled, "Operational Biosecurity and Diagnostic Surveillance" was a local diagnostic laboratory capable of employing polymerase chain reaction (PCR) techniques for the detection of selected aquatic pathogens. Through a private-public partnership between Moana Technologies Inc., and the College of Tropical Agriculture and Human Resources (CTAHR) Aquaculture/Aquaponic Extension Program, the capacity to conduct PCR assays have been developed and validated, and the service is currently being used for the detection of two fish pathogens: 1) Koi Herpes Virus (KHV) and 2) Francisella-like bacteria (FLB). As the project winds down, it becomes important that this capacity remain available to Hawaii's aquaculture/aquaponic stakeholders. Moana Technologies LLC is offering PCR testing services for both KHV and FLB. The tests and associated costs are:

1) PCR Test for KHV + Quality Control
2) PCR Test for FLB + Quality Control

Costs: $75.00/sample for the target pathogen (e.g. FLB) + quality control test. $45.00/sample for target pathogen only. Click here for the full announcement from CTAHR.

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Updated Version of the Guide to Drugs, Biologics, & Chemicals for Aquaculture
All aquaculture operations have occasional demand for drugs, biologics, and other chemicals, collectively referred to as "regulated products". It is critical that culturists have access to regulated products that are safe and effective and apply them in a manner that is consistent with their intended use, best management practices, and relevant rules and regulations.

The Guide was developed by the American Fisheries Society Fish Culture Section Working Group on Aquaculture Drugs, Chemicals, and Biologics as a comprehensive introduction to the use of regulated products in aquaculture and a resource for fish culturists. The Guide was recently updated to reflect new approvals for Aquaflor and a couple of new biologics. Click here or copy and paste the link below to download the new version of the Guide today!

https://sites.google.com/site/fishculturesection/resources/guide-to-using-drugs-biologics-and-other-chemicals-in-aquaculture

While you are there, check our the rest of the Fish Culture Section website. It is a great resource for aquaculturists: https://sites.google.com/site/fishculturesection/home

Pacific Island Spotlight: Palau's Rock Island Lagoon Chosen as New UNESCO World Heritage Site

Island Times, July 2, 2012.

Palau made history Friday when it became the first Small Island Developing State to have a property inscribed to the United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage List. Dwight Alexander shared that the Rock Island Southern Lagoon was initially requested by the Koror State Traditional Leaders to be inscribed to the World Heritage list back in 2006. Inscription in the World Heritage list means Palau will be eligible for technical support and assistance and will be a more enticing destination.

Milky Way Cove, Rock Island Lagoon, Palau
Photo courtesy of Steve L. Martin

An International Union for Conservation of Nature article states that the vast marine site of Rock Islands Southern Lagoon is recognized for its exceptional ecological diversity, coral reefs, lagoon and limestone islands and marine lakes. As a result of their isolation from each other, all 52 marine lakes are a diversity of different marine ecosystems. Alexander said that the IUCN was further impressed by the way the people of Koror State and the Palau National Government had provided support to the protection of the islands through the legal frameworks which ensured protection of the property.

AquaClip: Aquaculture Production to Grow 33%

By Steven Hedlund, www.seafoodsource.com. July 9, 2012.

Global seafood production is projected to reach about 172 million metric tons in 2021, which would be up 15 percent from the 2009-11 average, according to a new report from the United Nation's Food and Agriculture Organization (FAO).

The increase in global seafood production is expected to come mainly from aquaculture production, which is projected to grow 33 percent to 79 million metric tons by 2021; wild fisheries production is projected to grow only 3 percent between 2012 and 2021.

However, the rate of aquaculture production is forecasted to slow, from an average annual rate of 5.8 percent in the previous decade to 2.4 percent between 2012 and 2021. The decline is attributed mainly to water constraints, limited availability of optimal production locations and the rising costs of fishmeal and fish oil. But aquaculture will remain one of the fastest-growing animal food-producing sectors.

Released on Monday, The State of World Fisheries and Aquaculture 2012 also revealed that global seafood production for human consumption hit a record 128.3 million metric tons, or an average of 18.4 kilograms per person, in 2010. That's up from 123.6 million metric tons in 2009, 119.7 million metric tons in 2008 and 117.3 million metric tons in 2007. Asia accounted for two-thirds of total seafood consumption, at 85.4 million metric tons, or 20.7 kilograms per capita.

Click here to read the full article.

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 2007-38500-18471, 2008-38500-19435, and 2010-38500-20948. 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 and the University of Hawaii.