

*Regional
e-Notes*

Letter from the Director

Aloha!

I would like to thank those of you who joined us at CTSA's "Progress Report to the Public," held May 28 at the Oceanic Institute. With an attendance of about 30 farmers, researchers, and industry representatives, the second annual event was a successful means for CTSA sponsored researchers to present their findings.

CTSA's Industry Advisory Council Chairman Ron Weidenbach had the following to say after the meeting: "The progress report presents a good opportunity for people across the industry to hear about research being done. This format allows stakeholders to ask questions, and gives them access to relevant information at a quicker rate than waiting for publications to come out."

At CTSA, we believe that sharing research findings with local farmers is crucial to the success of our industry, and we look forward to holding more events like this in the future.

Please enjoy this issue of *Regional e-Notes* and, as always, if you have any suggestions, concerns, or comments, please do not hesitate to let us know.

Mahalo,

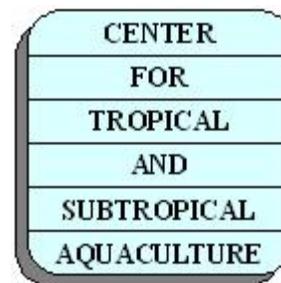
Cheng-Sheng Lee
Executive Director, CTSA

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Kapiolani Farmers' Market: Addition of Sunday Seafood Market?

Calling all interested Oahu farmers...The Kapiolani Farmers' Market is offering local fish farmers the opportunity to sell their products at Honolulu's most popular weekly farmers' market, and its directors are considering adding an additional day just for seafood!

The market, which is sponsored by The Hawaii Farm Bureau Federation and The Culinary Institute of the Pacific at Kapiolani Community College (KCC), has an average weekly attendance of about 7,000 and is the only farmers' market on the island featuring all Hawaii grown and produced foods.



At the market, considered to be a one-stop-shop, shoppers can find a wide variety of items. The majority of vendors are Oahu farms selling produce, meat, coffee, nuts, and more. Other vendors

sell chocolates, unique snack items, specialty seasonings, and baked goods, among other items. Most market stands are run by the farmer's themselves, giving them an opportunity to inform consumers of their production practices and offer preparation advice. This venue offers the consumer interaction with food producers that most people don't have, and is a great way to boost community support of buying locally grown products.

The market is currently held on Saturday's only, but KCC is considering adding a Sunday Seafood Market to the weekly schedule, depending on industry interest in participating. CTSA is eager to work with farmers and the KCC to utilize this opportunity to showcase local aquaculture; please contact Meredith Brooks at mbrooks@oceanicinstitute.org for more information or to express your interest.

The Kapiolani Farmers' Market is held every Saturday from 7:30-11:00 am in Parking Lot C of Kapiolani Community College.

Culturing the Hawaiian Pink Snapper: Year 1 Project Highlights

"Update on the hatchery production of the opakapaka, *Pritipomoides filamentosus*"
Clyde S. Tamaru, James Jackson and Petra Lenz

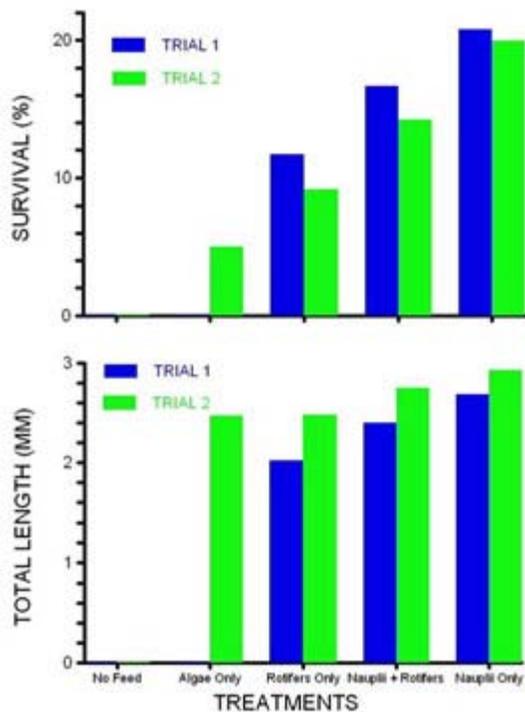
Department of Molecular Biosciences/Hawaii Institute of Marine Biology, Department of Zoology and Pacific Biomedical Research Center.

In May of 2005, the Secretary of Commerce notified the Western Pacific Regional Fishery Management Council of the "over fishing" status of the bottomfish fishery in the Main Hawaiian Islands. Under federal mandate (Magnunson Stevenson Act), the council needed to develop a fishery management plan to reduce the overfishing taking place. In 2007, the unprecedented closure of the bottomfish fishery was another reminder that our fisheries in general are under tremendous pressure, and will require all of our concerted efforts if we are to reverse negative trends. The closure of the bottomfish fishery focused on protecting the big seven (e.g., ehu, hapuupu, kalekale, lehi, opakapaka, gindai and onaga), which account for over 60% of the entire bottomfish fishery.

The Center for Tropical and Subtropical Aquaculture has been doing their part to support the bottomfish restoration efforts by providing funding for the development of hatchery technologies that targets the artificial propagation of one of the big seven species, the opakapaka. This effort is part of a larger collaborative effort between the University of Hawaii at Manoa and Hawaii's Department of Land and Natural Resources' Division of Aquatic Resources (DAR) that has focused on assessing the stocks of that particular fishery, as well as the development of "tools" for its evaluation, monitoring and improving its management. One of these "tools" is the ability to produce large numbers of juvenile bottom fish in culture. Cultured outputs would provide opportunities (e.g., stock enhancement, open ocean culture) that might be applicable to the other deepwater species as well. Success in establishing captive bloodstock and spawning of millions of eggs of the opakapaka marks a significant milestone in attaining the desired outcome of large numbers of hatchery produced opakapaka. However, hatchery outputs (e.g., hundreds of individuals) still fall far short of being useful as a meaningful tool for stock enhancement or open ocean culture purposes. Clearly, establishing a process by which hatchery outputs of opakapaka juveniles can reach the tens or hundreds of thousands would present a method of mitigation currently unavailable to fishery managers, as well as an opportunity to expand and diversify Hawaii's newly formed open ocean aquaculture enterprises.

Under the auspices of CTSA supported projects and under the guidance of Petra Lenz, James Jackson, a graduate student with the UH Department of Zoology, has been conducting laboratory-scale trials that examine various first feeding regimens being employed to culture opakapaka larvae. His initial work (shown in the Figure below) examined growth and survival of first feeding opakapaka larvae when presented a variety of live food items (phytoplankton, rotifers, copepod nauplii) either alone or in combination. Apparently, the opakapaka larvae, when presented with rotifers alone, can feed on them but resulting survival and growth are not optimal. Even when copepod nauplii are mixed together with rotifers, the resulting growth and survival rates are still significantly lower than when the copepods nauplii are presented as the initial live food item.

One additional piece of information that could be



obtained from these laboratory-scale trials was the impact of the feeding treatments on the gape size of the larvae. In this instance it is clear that the copepod nauplii feeding regimen is the superior treatment and there is apparently no advantage in providing the rotifer either alone or in combination with copepod nauplii at first feeding. Rotifers were being cultured on *Isochrysis galbana*, which should have resulted in a food item that met the larval nutritional requirements. The results to date have confirmed that the appropriate first feed for opakapaka larvae is the copepod nauplii, and pilot-scale trials will need to have culture requirements that will be able to meet the quantitative demand of this particular food item by the opakapaka larvae.

Additional work being done by the graduate student focused on another critical element in the determination of a feeding regimen: defining when the first effects of starvation begin to appear. Larvae were stocked into 100-L plexiglass tanks and

stocked at 50 larvae per Liter. One tank was also stocked with copepod nauplii 24 hours after hatching, at a density of 5-10 nauplii/ml. Beginning from hatching, ten larvae were sampled from each tank and their total length measured using an ocular micrometer on a dissecting microscope. Sampling took place every six hours, and the entire exercise was terminated at 120 hours post-hatching. The first significant difference in body size is detected 84 hours post-hatch, or when the larvae are 3.5 days old. As the decrease in total length is an indication of starvation, the impacts have begun prior to this time period, indicating food must be available to the larvae a minimum of 72 hours post-hatching. This would indicate that the strategy currently being employed for amplifying the copepod nauplii in the rearing tank by stocking copepod adults at the same time eggs are stocked is an appropriate one and contributing to the high survival during the first two weeks of the rearing period.

The results being obtained are very encouraging, as they are consistent with the high initial larval survival (80% or greater) during the first two weeks of the rearing trials that are taking place in 3,000-L tanks. The results clearly indicate that having suitable amounts of the copepod nauplii are going to be required when rearing trials are scaled up in size, and appropriate production requirements will need to be in place to support the opakapaka first feeding larvae. It is also clear that the transition between the initial live feeds (e.g., copepod nauplii) to the next is the subsequent limiting factor in the development of an effective rearing protocol. The challenge is that the use of rotifers does not appear to be sufficient to obtain the level of survival that is to be expected for use in commercial-scale operations, and this has now become the next obstacle to be addressed.

Pacific Island Spotlight: Developing CNMI Aquaculture

Source: *Saipan Tribune*. Thursday May 13, 2010

Over 120 people attended the recently held public planning sessions sponsored by the Northern Marianas College on Saipan, Tinian, and Rota for the development of the CNMI's aquaculture industry.

These sessions resulted from the CNMI Aquaculture Act, which mandates NMC's Cooperative Research Extension and Education Service to produce 5-Year Aquaculture Development Plan.

The Saipan session was held on April 26, the Tinian session on April 27, and the Rota session on April 28.

The 5-year plan that was proposed at the sessions is expected to identify species (commodities) to focus resources on, strategies to overcome challenges, and the facilities and resources needed to operate efficiently.

Of the viable species discussed, the six chosen that would best start off the development in the CNMI include shrimp, tilapia, marine finfish, giant clam, milkfish, and sea urchins, and cucumbers.

"We are pleased with the turnout and really appreciate the community's involvement in our efforts to ensure that the 5-Year Plan covers all their concerns," said NMC-CREES aquaculture specialist Michael Ogo, who is spearheading the drafting of the plan.

To help facilitate the planning sessions, representatives from the Secretariat of the Pacific Community, the region's leading scientific authority, and consultants from New Caledonia and Pohnpei were present. The visitors gave overviews on the present and future marketability of farming different marine animals and plants.

"We would also like to thank the SPC for offering to assist in the development of the plan," added Ogo.

Discussions included a thorough analysis of the CNMI aquaculture industry's advantages and disadvantages. Some the advantages discussed include the CNMI's clean environment, disease-free status, close proximity to high-value markets in Asia, and large tourism market. Its disadvantages are the high costs of energy, feed, and equipment and the tiresome process of obtaining all the necessary clearance to farm certain species.

To further analyze the disadvantages in the CNMI, participants formed discussion groups, where they reflected on solutions to the disadvantages, transpiring ideas that could be implemented, within two years, and by the end of the 5-year plan. For example, to resolve the issue of expensive feed, groups concluded that purchasing feed from the Philippines, instead of the U.S. mainland, would cut feed costs by 30 percent immediately. Within two years, aqua farmers in the CNMI would be able to manufacture their own feed, at least for one commodity. By the end of the 5-year plan, the CNMI would be able to manufacture a majority of its feeds.

"I commend the efforts of CREES in garnering the community's participation in the planning of a significant aspect of the CNMI's future economy," said NMC interim president Lorraine T. Cabrera. "I am confident in their ability and insight to come up with an effective plan for the CNMI."

NMC-CREES will be working alongside Simon Ellis of the Micronesian Environmental Research Institute, who has been assigned by SPC to aid CREES in drafting the plan. The plan is expected to be presented to the CNMI public in about six months. (NMC)

USDA Special Bulletin About Farm Loans

Source: Aquacontacts Mail, May 18, 2010

The Farm Credit Administration is proposing to amend its rules on loan policies and operations. The amended rule would permit Farm Credit System (System) institutions with direct lending authority to purchase from the Federal Deposit Insurance Corporation (FDIC) loans to farmers, ranchers, producers or harvesters of aquatic products and cooperatives that meet eligibility and scope of financing requirements. This action would allow the System to provide liquidity and a stable

source of funding and credit for borrowers in rural areas affected by the failure of their lending institution. You may send comments on or before July 19, 2010.

We offer a variety of methods for you to submit your comments. For accuracy and efficiency reasons, commenters are encouraged to submit comments by e-mail or through the FCA's Web site. As facsimiles (fax) are difficult for us to process and achieve compliance with section 508 of the Rehabilitation Act, we are no longer accepting comments submitted by fax. Regardless of the method you use, please do not submit your comment multiple times via different methods. FCA requests that comments to the proposed amendment include the reference RIN 3052-AC62. You may submit comments by any of the following methods:

E-mail: Send us an e-mail at reg-comm@fca.gov .

FCA Web site: www.fca.gov. Select "Public Commenters," then "Public Comments," and follow

the directions for "Submitting a Comment."

Federal eRulemaking Portal: <http://www.regulations.gov>. Follow the instructions for submitting comments.

Mail: Gary K. Van Meter, Deputy Director, Office of Regulatory Policy, Farm Credit Administration, 1501 Farm Credit Drive, McLean, VA 22102-5090.

You may review copies of all comments we receive at our office in McLean, Virginia, or from our Web site at www.fca.gov. Once you are in the Web site, select "Public Commenters," then "Public

Comments," and follow the directions for "Reading Submitted Public Comments." We will show your comments as submitted but, for technical reasons, we may omit items such as logos and special characters. Identifying information you provide, such as phone numbers and addresses, will be publicly available. However, we will attempt to remove e-mail addresses to help reduce Internet spam.

For further information, contact:

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June AquaClips - Sea Sponges Used in New Cancer Treatment

by Maggie Fox, REUTERS. June 6, 2010. Source: msnbc.com

An experimental breast cancer drug made from sea sponges added months to the lives of breast cancer patients whose cancer had come back despite several rounds of chemotherapy, doctors reported on Sunday.

Eisai's eribulin added an average of two and a half months to the lives of patients dying of breast cancer, which is a big improvement in such seriously ill cancer patients, the international team of researchers said.

The results of the Phase III trial, presented to a meeting of the American Society of Clinical Oncology in Chicago, have been anticipated after Eisai was given priority review June 1 for U.S. Food and Drug Administration approval of the drug.

"This is potentially practice-changing," ASCO president Dr. Douglas Blayney said in a telephone interview.

Dr. Christopher Twelves of St. James Hospital in Leeds in Britain and an international team studied 762 breast cancer patients with different types of tumor.

[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 2005-38500-15720, 2006-38500-16901, 2007-38500-18471, and 2008-38500-19435. 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.

