

Regional Notes

ISSN: 1053-590X Vol. 9 No. 2 Winter 1998

The Oceanic Institute and the University of Hawaii,
41-202 Kalaniana'ole Highway, Waimanalo, HI 96795

CTSA launches home page ... see page 3

Board okays 10 proposals for CTSA's eleventh year

Ten proposals got a green light for the Center for Tropical and Subtropical Aquaculture's eleventh year program from the Board of Directors.

The Board met January 27, 1998, to review and approve the Center's Eleventh Annual Plan of Work. The ten proposals approved for that program are:

1. Library Aquaculture Workstation (*Pacific Regional Aquaculture Information Service for Education*) — Year 11;
2. Extension and Training Support for the U.S.-Affiliated Pacific Islands — Year 10;
3. Disease Management for Hawaiian Aquaculture — Year Six;
4. Development of Threadfin and Milkfish Growout and Technology Transfer — Year Three;
5. Expansion and Diversification of Freshwater Tropical Fish Culture and Ornamental Plants — Year Three;
6. National Coordinator for Aquaculture New Animal Drug Applications — Year Three;
7. Development of Best Management Practices for Hawaiian Aquaculture — *new project*;
8. Growout of the Commercially Valuable Opakapaka, *Pristipomoides filamentosus* — *new project*;



9. Culture and Conservation of Marine Ornamental Fish — *new project*;

10. Publications—Year Nine.

The Plan of Work was then submitted to the U.S. Department of Agriculture Cooperative State Research, Education and Extension Service for review and final approval. Projects are slated to start, pending USDA approval, on April 1, 1998.

The members of the CTSA Board of Directors represent educational and research institutions throughout the Center's region. They are Dr. Dean Smith, University of Hawaii, who serves as Board chairman; Dr. Jeff

Barcinas, University of Guam College of Agriculture and Life Sciences; Mr. John Corbin, Hawaii State Aquaculture Development Program; Dr. Michael Harrington, Hawaii Institute of Tropical Agriculture and Human Resources; Dr. Charles Helsley, University of Hawaii Sea Grant College Program; Dr. Gary Pruder, The Oceanic Institute; Dr. Singeru Singeo, College of Micronesia.

Dr. Rick Spencer, chairman of the CTSA Industry Advisory Council, and Dr. Harry Ako, chairman of the CTSA Technical Committee, are *ex officio* members of the Board.

CTSA opens Worldwide Web site

The Center for Tropical and Subtropical Aquaculture (CTSA) is now in cyberspace. CTSA launched its new home page on the Worldwide Web. The CTSA home page is another value-added information service of the CTSA-funded project titled *Pacific Regional Aquaculture Information Service for Education*, better known as PRAISE.

The Center's entrance onto the information super-highway is being provided by the University of Hawaii, which co-administers CTSA with The Oceanic Institute. The address, or URL, is <http://library.kcc.hawaii.edu/CTSA/>.

CTSA's site on the information highway is still under construction. At present, it contains

- several back issues of *Regional Notes*,
- a Center calendar of events,
- a list of the Center's publications,
- a number of Center publications that can be downloaded in Adobe Acrobat format (Adobe Acrobat Reader is available free from the Adobe Web site at <http://www.adobe.com>),
- the 1997 Annual Accomplishment Report
- the Center's newly revised procedures manual,
- profiles of the members of the Board of Directors,
- contact phone and fax numbers and addresses, including email addresses, for the CTSA staff,
- a profile of the CTSA director, Cheng-Sheng Lee, Ph. D.

• and a link to The Oceanic Institute's home page.

Plans call for the Web site to carry all of the Center's publications, which are being added to the site as time allows and links to the home pages of the other four Regional Aquaculture Centers, and the University of Hawaii. Plans also call for the site to carry the Pacific aquaculture vendors page, which is currently carried on the PRAISE web site.

CTSA wants its Web page to serve its readers, so they are welcome to send their suggestions for what they would like to see there to:

74736.223@compuserve.com.

Materials are prepared for the CTSA home page

by Patti Killelea-Almonte. The Web site is maintained by Bin Zhang, of Kapiolani Community College library, who also maintains the PRAISE web site at: <http://library.kcc.hawaii.edu/praise/>.

CTSA *Regional Notes*

Regional Notes is published four times per year by the Center for Tropical and Subtropical Aquaculture under a grant from the Cooperative State Research, Education and Extension Service, U.S. Department of Agriculture. *Regional Notes* is printed on recycled paper.

Editor: Patti Killelea-Almonte
email:

74763.2237@compuserve.com

**Center for Tropical
and
Subtropical Aquaculture**
The Oceanic Institute
41-202 Kalaniana'ole Highway
Waimanalo, Hawaii 96795
Phone: (808) 259-7951
Fax: (808) 259-8395



Cultured sponges make a splash with London company

Benefits from Center for Tropical and Subtropical Aquaculture projects keep going and going, like the Energizer Bunny, even as funding phases out.

Ten year of CTSA funding for sponge aquaculture projects draws to a close at the end of April, when the five-year *Differential Growth Rate Studies in Cultured Commercial Sponges* ends. But, as a result of connections made through the project, sponge farmers in Micronesia have a guaranteed market for their product through the millennium.

Dick Croft was the principal investigator on both the five-year *Sponge Aquaculture Demonstration Project* and the five-year *Differential Growth Rate Studies in Cultured Commercial Sponges*. Under the first project, he trained five Pohnpei natives in sponge aquaculture techniques and assisted them with starting their own sponge farms. Croft, who developed the sponge culture techniques employed in the projects and by the local farmers, also owns Pohnpei Natural Products, a sponge culture and marketing company.

Under the second project, Croft collaborated with Dr. Michelle Kelly-Borges, a sponge systematist and ecologist with the

Natural History Museum in London, UK, to increase the efficiency of sponge farming. Kelly-Borges designed several of the experiments that are being concluded now.

She proved a strong supporter of the project. She initiated talks with a London-



based company about it, convincing the company that sponge farming was the wave of the future. Sea sponges traditionally were harvested in the Mediterranean Sea and in waters off Florida and the Caribbean islands, but over-harvesting led to closure of many harvest grounds, and disease devastated others. In an article for the summer 1995 issue of *Regional Notes*, she called sponge farming “an environmentally friendly, ecologically sound alternative to harvesting wild sponges. She put the company in touch with Dick Croft.

As a result, the company entered an exclusive contract with Croft to buy up to 70,000 cultured sponges per year through Pohnpei Natural Products. “The company

wanted an exclusive agreement because they didn’t want to do all the marketing and then have some other company step in and take advantage of that,” Croft said.

“We’re not producing that many sponges right now. But all of our activities here are focused on expanding the sponge farms and starting new ones as fast as we can” to reach that production level, he added.

Those activities are going full tilt. The four remaining original farmers have been expanding their farms, and a new farm was started in Kitti, a municipality of Pohnpei. Early this year, Croft conducted a two-week, hands-on sponge culture workshop in Chuuk, FSM, sponsored by the United Nations Food and Agriculture Organization.

The outlook is good, Croft feels. Chuuk has good stocks of wild sponges that can be used to start farms, he said, so sponge farming is “definitely” expanding past Pohnpei. With the popularity of natural products and increased awareness of environmental concerns, cultured sponges are sure to make a big splash on the international scene.



Federal government enacts new seafood safety regulations

Aquaculturists who raise food plants or animals may face another set of regulations, depending on how they process their products. December 18, 1997, when the seafood industry initiated a new system of controls designed to enhance seafood safety. This system, which is called Hazard Analysis and Critical Control Point (HACCP), applies to both foreign and domestic seafood processors marketing products in interstate commerce within the United States. The U.S. Department of Health and Human Services said HACCP results from “two years of close cooperation among the Food and Drug Administration, the seafood industry and state health officials.”

Recalling the old adage that “an ounce of prevention is worth a pound of cure,” Vice President Al Gore touted HACCP as taking “the best science and the best preventive controls to make our food supply the world’s safest.”

“The new seafood HACCP program enhances the safety of America’s seafood supply — both from domestic and foreign sources,” said

Health and Human Services Secretary Donna E. Shalala.

“Improving food safety is a high priority for this

Administration, and adoption of

HACCP for seafood is a major step. It also serves

as a working model for future food industry and

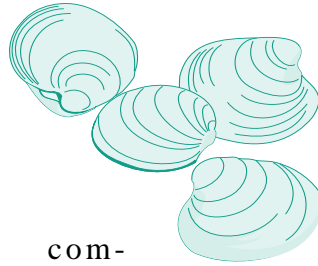
government cooperative ventures to

more effectively

safeguard the food supply.”

safeguard the food supply.”

HACCP safeguards apply to both foreign and domestic seafood processors marketing products in interstate commerce within the United States.



com-
sels and

The program does not directly apply to fishing vessels or transporters, but it does charge seafood processors with responsibility for the safe condition of incoming fish obtained from vessel-transporters.

For example, if the supplier does not provide satisfactory information about the area where the fish were caught or handled, HACCP rules strengthen the processor’s position in refusing to accept the shipment. “Consumers expect safe and wholesome seafood. Thanks to the extraordinary level of cooperation and

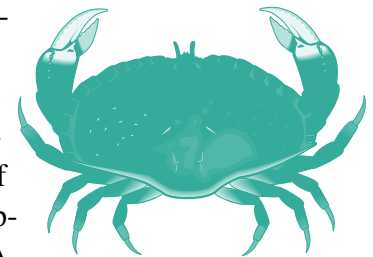
mitment of both government and industry,

an important milestone has been taken in optimizing the safety of

America’s seafood supply,” said Michael A.

Friedman, M.D., Lead Deputy

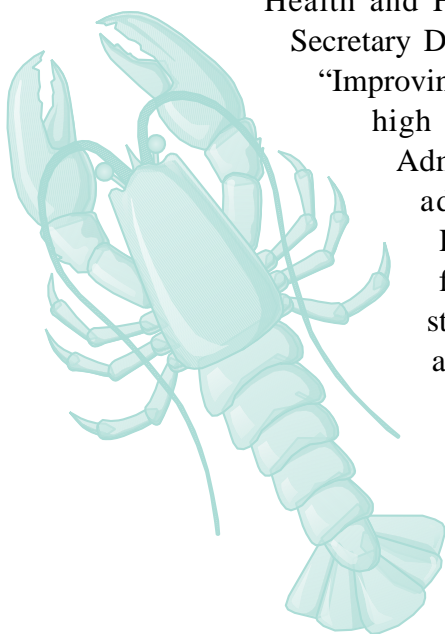
FDA Commissioner.



c o m -

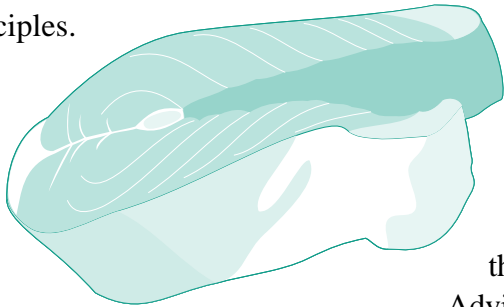
Although another set of regulations may sound daunting, this offers aquaculturists a great opportunity to stress the purity of their farm-raised fish products.

The Pillsbury Company pioneered HACCP while creating food for the U.S. space program in the 1960s. Pillsbury concluded that existing quality control techniques were inadequate and that the only way to ensure safety would be to develop a preventive system that kept hazards from occurring in the first place, without resorting to expensive and de-



structive end-product testing. In the succeeding years, the Pillsbury-devised system has been recognized worldwide as the state-of-the-art system for food safety. The system does not guarantee against any risk, but it is designed to reduce the risk of occurrence of food safety hazards to a minimum.

HACCP is based on seven principles. These principles were developed by the National Advisory Committee for Microbiological Criteria for Foods (NACMCF), a committee established by the U.S. Department of Agriculture in conjunction with FDA at the recommendation of the National Academy of Sciences.



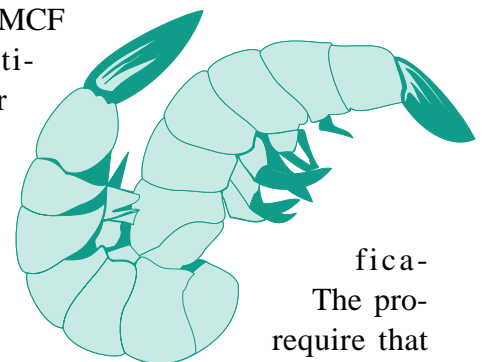
1. **Hazard Analysis** involves identifying the hazards a product could be likely to present to consumers. Such hazards include microbiological contamination, natural toxins, toxins formed by decomposition, chemical contamination, drug residues, and the presence of injurious physical objects.
2. **Critical Control Points** involves identifying production process “critical control points,” failure of which could cause, allow or contribute to the occurrence of a hazard. The processor can eliminate or reduce existing hazards or prevent or minimize their occurrence at critical control points.
3. **Critical Limits** involves establishing “critical limits” for preventive measures associated with each identified critical control point. A critical limit measures whether a critical control point is operating properly.
4. **Monitoring** involves a planned sequence of monitoring the critical control points. For example, processing a cooked, ready-to-eat product requires achieving (1) the proper operating temperature (2) for the proper

length of time.

5. **Corrective Action** involves establishing what action will be taken to correct any deviation from an established critical limit. For example, if a cooler containing refrigerated product reaches a temperature higher than its critical limit, the processor will be expected to hold the contents of the cooler and determine whether the safety of the product has been impaired.
6. **Record-keeping** involves instituting effective procedures to document the HACCP system. HACCP record-keeping means essentially two things. First, the processor must create an “HACCP plan.” The plan should identify the hazards the system will control, list the critical control points, the critical limits for each critical control point, procedures to monitor performance of the critical control points and record the results of monitoring. Second the processor must record the results of the monitoring of critical control points.

7. **Verification** involves establishing procedures to verify that the HACCP system is working properly.

The NACMCF has identified four “processes” for verification.



The processes require that processors review critical limits to verify that they are adequate to control the hazards that are likely to occur, check that the facility’s HACCP plan is functioning effectively, revalidate the HACCP plan on a regular basis or whenever significant product, process, or packaging changes call for modifications of the HACCP plan, and provide for government oversight.



AQUATIPS

This Aquatips article was provided courtesy of Dr. Gary Jensen, National Program Leader-Aquaculture, USDA/Cooperative State Research, Education, and Extension Service.

On December 18, 1997, the Food and Drug Administration's mandatory Hazard Analysis Critical Control Point, or HACCP, seafood inspection regulations took effect. Because the regulations are complex, Dr. Jensen asked for clarification on several issues specific to aquaculture producers who are involved in "custom processing" on a small scale directly to end-users (customer-consumers) and to live fish haulers. The following is excerpted from two August 1997 letters to Dr. Jensen from Kim R. Young of the Program & Enforcement Branch, Office of Seafood, Center for Food Safety and Applied Nutrition. Young's responses are based on the premise that interstate commerce can be documented at the producer, causing them to be subject to all rules and regulations enforced by the FDA. The information provided does not elaborate on the additional requirements that apply to molluscan shellfish.

Readers can obtain a faxed copy of this letter with official FDA letterhead, by emailing a request with their name and fax number to: gjensen@reeusda.gov

1. Scenario: Fish producers not only raise fish but also "custom process" the fish for their customers when the fish are purchased on the farm. The fish may be skinned, eviscerated and/or headed or any combination of the three, based on the desire of the buyer. These customers are the end-users of these products, which are not resold; that is, the customers are the consumers. Fish may be taken to some location in the same state or may be taken to another state for consumption.

When a producer "custom processes" fish directly for the consumer, that part of the operation would be considered a retail establishment and therefore exempt from the seafood HACCP regulations. However, the producer must abide by the state and local laws governing retail establishments. It should be noted that some states have adopted the FDA's "Food Code." The Food Code requires that food be obtained from sources that comply with all applicable local, state, and federal statutes, regulations, and ordinances. Therefore, the states may require the producer who "custom processes" to meet food safety standards that are established in law for animal drugs,

pesticides, and other chemical hazards.

The "custom processed" product from the above response is exempt from the seafood HACCP regulations even if it is transported across a state line by the customer, a delivery service offered by the producer or a delivery service that is provided by common carriers.

The retail establishment exemption from the seafood HACCP regulations is not contingent on how the customer pays for the services. Whether the customer purchases the fish first, then requests custom processing and pays for the processing as a separate service, or makes one payment for the combined cost of the raw fish and the custom processing charge makes no difference to the exemption status for a retail establishment.

2. Scenario: Pay-lake or fee-fishing operations purchase live fish and stock them into private ponds for others to catch. These operations do not necessarily or normally raise the fish themselves. To earn extra money, some of these operations custom process fish that have been caught by their

customers. These customers are the end-users of these products, which are not resold.

As with a producer, the pay-lake operation that “custom processes” fish directly for the consumer is considered a retail establishment and is therefore exempt from the seafood HACCP regulations. Again, the pay-lake operator must abide by the state and local laws governing retail establishments.

3. Scenario: Businesses buy live fish from producers and transport them, often through interstate commerce, alive to markets. These fish then are sold live to retail establishments that directly market these live fish to their customers.

The live fish haulers are exempt under the seafood HACCP regulations since they are transporting fish without otherwise engaging in processing. However, under the FDA Food Code, the state and local regulators may require retail establishments that receive the live fish to address any safety hazards that could occur.

4. Scenario: Several cultured fish species are sold whole and packed on ice by the aquaculture producer for sales to seafood wholesalers or retailers. The producers do not process the whole fish in any way other than handling by boxing on ice, and possibly transporting.

Ia. Aquaculture producers who harvest their fish and box them whole, on ice, for immediate transportation to a wholesaler or retailer would not be subject to the seafood HACCP regulations. Boxing and icing is, in many cases, a necessary component of delivering the aquaculture product to market. Therefore, this procedure need not constitute “processing” as defined in the regulations. However, if the producers “hold” the product after harvesting and prior to distribution, that operation would be subject to the regulations. Holding is deemed processing as defined in the HACCP regulation.

Ib. The producers in the above scenario would not be subject to the seafood HACCP regulation whether they transported the fish to a wholesaler within the state or outside the state (interstate commerce).

II. It would not matter who transports the fish. The producers in the above scenario would not be subject to the seafood HACCP regulation whether they sell their boxed, whole, cultured fish to a wholesaler at the farm site and the wholesaler transports the fish off the farm and to a retail market or if the producer does the transportation.

IIIa. There are circumstances involved in the harvest, boxing, icing, transporting and/or marketing of whole, culture fish whereby the producer engaged in any of these activities can be considered a processor and subject to seafood processor inspections regulations.

IIIb. As stated in scenario 4:Ia, if the producer, after harvesting, holds the fish before shipping it to market, he or she would be subject to the HACCP regulations. Holding is processing as defined in the HACCP regulations.

In addition, if the producer performs any of the other activities defined in the regulations as processing, he or she would be subject to the regulations. Such activities include, but are not limited to, heading, eviscerating, shucking, and freezing.

5. Scenario: There is a considerable market for live food fish in the U.S. and Canada. These fish are transported live from production farms to wholesale and retail markets. Some fish are transported by producers to either or both marketing levels, and some fish are sold by producers to “live fish haulers” who transport and deliver fish to either or both markets. Fish may be transported and sold within state, out-of-state or in another country (Canada). The fish are not processed per se other than the handling involved with harvest, transport and delivery of live fish to market outlets.

I. As outlined in Ia, above, the aquaculture producer who harvests his cultured fish, boxes them on ice, and transports them immediately to either in state or out-of-state markets, would not be subject to the seafood HACCP regulations.

II. Situations whereby the producer would be subject to the HACCP regulations are described in scenario 4:IIIb.

Center for Tropical and Subtropical Aquaculture

The Center for Tropical and Subtropical Aquaculture (CTSA) is one of five regional aquaculture centers in the United States. Established by the U.S. Department of Agriculture, the 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. The CTSA offices and staff are located at The Oceanic Institute's Makapu'u Point site on windward Oahu. A Board of Directors is responsible for overseeing the programmatic functions of CTSA.

The mission of CTSA is to support aquaculture research, development, demonstration and extension education to enhance viable and profitable U.S. aquaculture. Unlike the other centers, which work within a defined geographical region, the CTSA "region" encompasses tropical and subtropical species wherever they are cultured. Research projects span the American Insular Pacific, using its extensive resource base to meet the needs and concerns of the tropical aquaculture industry.

Each year's program is developed by CTSA's Industry Advisory Council and Technical Committee, reflecting the Center's mix of commercial and scientific expertise. Council members represent financial institutions, aquaculture and agriculture enterprises, government agencies and other business concerns. The Technical Committee includes researchers, extension agents and fisheries officers. Both committees include representatives from American Samoa, the Commonwealth of the Northern Mariana Islands, the Federated States of Micronesia, Guam, Hawaii, the Republic of Belau and the Republic of the Marshall Islands. Further information on the CTSA program can be obtained by contacting Dr. Cheng-Sheng Lee, Director, by telephone at **(808)259-7951**, by fax at **(808)259-8395** or by email at **75467.3240@compuserve.com**.

**CENTER
FOR
TROPICAL
AND
SUBTROPICAL
AQUACULTURE**

Bulk Rate
U. S. Postage
PAID
Honolulu, HI
Permit No. 1252

**The Oceanic Institute and the University of Hawaii
41-202 Kalaniana'ole Highway, Waimanalo, HI 96795**

