

Hawai'i Aquaculture News

VOLUME 1 NUMBER 2

DECEMBER 2007



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HAA, PACRC, EXTENSION PROGRAM pages

STATEWIDE AQUACULTURE PRODUCTION ANALYZED

RFP: Sea Grant, Farm Bureau

INLAND SHRIMP RESEARCH

Job Opportunities - Shrimp Breeding

MOANA Technologies LLC, producer of genetically improved and disease free Black Tiger Shrimp, is looking for fulltime aquaculture workers for its Nucleus Breeding Center in Kailua-Kona, Big Island of Hawaii.

Main duty will be shrimp care. No experience needed, training will be provided. Flexible work schedules are available.

If you are motivated, willing to work hard and learn on the job, we are looking for you! We offer competitive salaries, benefits and a fun working environment.

Please send your resume to s.horemans@moanatech.com or fax at 808/331.2457

Big Island Workshop: Getting Started in Aquaculture

On Saturday, January 19, 2008, a free workshop titled "Getting Started in Aquaculture" will be presented in Hilo, in the first floor conference room at Hale Aloha on the Hawaii CC campus. No preregistration is necessary.

This session is for people who are looking for information about aquaculture for the first time, as well as those who have gathered some information and would now like to learn what can be grown in Hawaii and how to get started. The major products of Hawaii will be reviewed, as well as the major considerations for starting to grow products for home use or commercial purposes.

The workshop will begin promptly at 9:00 A.M., and finish near noon. Sign in and refreshments will be available beginning at 8:30. For further information or questions, contact Jim Szyper at 981-5199, or email jszyper@hawaii.edu.

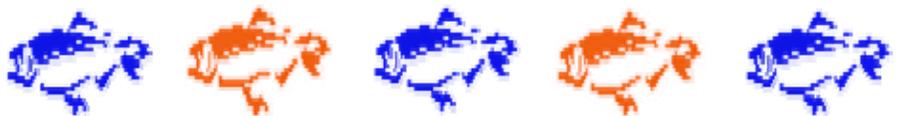
Wholesale Tilapia on the Big Island

Aurea, Inc. in Hamakua on the Big Island is looking to arrange collaborating distributors and reduce its current stock of food-size tilapia (1-2 lb). Effective immediately, the farm will be open on Saturdays for recreational fish-out of tilapia from a pond, as well as for purchase of 100-lb-minimum lots of live-at-the-farm tilapia. Purchasers need to arrive at the farm prepared to live-haul, ice, or handle the fish as they wish. Call Carrie Forbes at 808 895-1340, or email AureaInc@aol.com, for prices and directions to the farm.

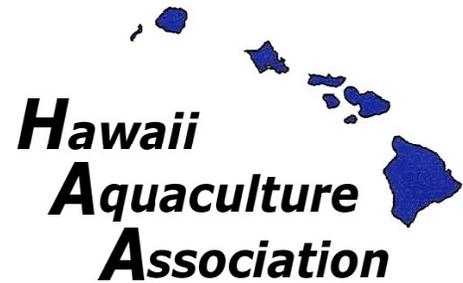
Hawaii Aquaculture News is published as a cooperative effort of the *Hawaii Aquaculture Extension Program* (sponsored by the University of Hawaii Sea Grant College Program and the Aquaculture Development Program of the Hawaii Department of Agriculture) and the *Hawaii Aquaculture Association*.

Readers' contributions are invited with aloha, and much appreciated. They should be emailed to the editor at jszyper@hawaii.edu, or discussed by telephone for other means of transmittal.

Editor: Jim Szyper
875 Komohana St.
Hilo, HI 96720-2757
phone: 808 938-4872



The **Hawaii Aquaculture Association** is the statewide producers' organization. Its mission is to foster the development of commercial aquaculture production in Hawaii. HAA provides a unified industry voice for legislative issues, opportunities for networking and fellowship with other aquaculturists, and numerous other benefits to members.



President's Message

Dear HAA members,

The 2008 legislature will soon be upon us, the second year of the biennium session. There are a number of important aquaculture-related bills still alive from the last legislative session that we need to have heard and passed in the upcoming session. To do so will take broad industry support by HAA members from all Counties. I hope each of you will assist in this effort by providing letters of support and making follow-up phone calls and emails when alerted to do so. Together we can make this a successful legislature for Hawaii's aquaculture industry and help overcome some of the obstacles that have contributed to the recent 25% decline in our aquaculture industry revenues.

Specifically we need to have the following bills from last session heard and passed:

- **HB935 HD1 Relating to Agriculture; Statewide Technical Extension for Aquaculture** (appropriates funds (\$100k) to ADP to pay for increased costs of statewide technical assistance provided to the aquaculture industry through the UH Sea Grant Extension Service), needs to be heard by the House Finance Committee
- **HB1615 HD1SD1 Relating to the Development of a Shellfish Aquaculture Industry & Opihi Restoration** (appropriates funds (\$75k) to UHH for feasibility study of developing shellfish industry in Hawaii, amended to include opihi restoration program), needs to be heard by the Senate Ways and Means Committee
- **HB1616 Relating to Aquaculture** (appropriates funds (\$75k) to ADP for a primary aquatic quarantine feasibility study), needs to be heard by House Finance Committee
- **HB1923 hd2sd1 Relating to State Enterprise Zones for Agriculture** (amends the State Enterprise Zone (EZ) qualification standards for agriculture, including aquaculture), needs to be heard by Senate Ways and Means Committee
- **HB1219 Relating to Department of Agriculture Loans** (increases DOA emergency agriculture/aquaculture loan limits from \$25K to \$75K with Chair approval), needs to be heard by Senate Ways and Means Committee
- **HB1222 hd2sd1 Relating to Loans For Agricultural and Aquacultural Purposes** (makes changes to DOA aquaculture loan program to make it equal to DOA agriculture loan program), needs to be heard by Senate Ways and Means Committee
- **HB200 Relating to the Natural Energy Laboratory of Hawaii Authority** (directs the auditor to conduct a financial and management audit of NELHA's deep sea water pumping system and establish a reasonable water rate structure), needs to be heard by Senate Ways and Means Committee

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HAA Annual Meeting: Strategic Initiatives and Action Plan

Figure and Photo by Clyde Tamaru



Meeting participants.

On December 7, the HAA annual meeting took a departure from its tradition of holding a purely recreational event to go with its annual business meeting. The afternoon at Kapiolani Community College opened with a facilitated session aimed at developing an action plan for pursuit of strategic initiatives to benefit the industry. The workshop was organized by HAA's conference and workshop committee consisting of Joe Tabrah and Dr. Clyde Tamaru. Clyde, Joe, and Kathleen McGovern-Hopkins facilitated and recorded the outcome of the session. The 22 participants reflected the diverse interests of HAA

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Hawaii Aquaculture Association, *continued*

Aquaculture Down 25% From 2005 to 2006, What Happened *by John Corbin*

When the latest Agriculture statistics came out, the aquaculture industry was greatly surprised by the large 25% drop in production value between 2005 and 2006 from \$28.3M to \$21.3M. For Hawaii's nationally and internationally prominent aqua farming community, this was only the second decline since 1979 when statistics started, and that decline was a few percent. The industry had previously enjoyed steady growth since 1979, among the highest sectors in the State's diversified ag portfolio, placing it 6th or 7th in crop value in recent years and snagging several Governor's Exporter of the Year awards. So what happened?

Checking out the State Department of Agriculture (DOA) web site provides several graphics and tables developed by the National Agricultural Statistics Service, Hawaii Field Office (NASS/HFO), that allow us to review what's going on [<http://www.nass.usda.gov/hi/speccrop/aqua.pdf>].

Farms Numbers of farms from year to year bounce around from 70 to 100, probably due to inherent volatility and difficulty in tracking down the many small farmers that compose our industry. However, statisticians go to great length to capture the "lions share" of yearly volume and value (e.g., larger farms), so let's focus on those stats. Importantly, data are summarized for the whole state, but also by County and by five species groups. Sorting is difficult because some of our major aquatic crops are sold by the piece not the pound.

Volume of Production Lets look at production volume for the whole state by the species group categories Shellfish (i.e., food shrimp, abalone, prawns and crayfish) and Finfish (i.e., freshwater and salt water food species). There are no data for 2005 because, according to NASS/HDO, information had to be aggregated to avoid legally mandated privacy concerns. However, if we take 2004 information and compare it to 2006 assuming roughly the same number of large farms, we see a huge drop from 956,000 to 180,000 pounds in shellfish. For finfish, however, there is only a slight decline from 484,000 pounds to 426,000 pounds.

Looking at the individual County production volumes for shellfish, the Big Island in 04 to 06 dropped from 450,000 pounds to 103,000 pounds. Hawaii County production is almost exclusively from farms at the Natural Energy Laboratory of Hawaii Authority (NELHA), so issues with abalone and limited shrimp production at NELHA are probably responsible. Honolulu, Kauai and Maui Counties statistics are aggregated, but went from 506,000 in 04 to 77,000 pounds in 06. Major food shrimp production areas have consistently been Kahuku, Oahu and Kekaha, Kauai, so farms in these areas are a cause, e.g., reportedly CEATech, a large shrimp farm on Kauai, closed and farms in Kahuku had production reduced due to disease.

Value of Production The Statewide production value breakdown follows these volume trends, with shellfish going from \$8,326,000 in 04 to \$2,235,000 in 06 and this is the major reason for the drop in value. The Big island or NELHA is the largest contributor and went from \$5,593,000 in 04 to \$1,834,000 in 06. The Honolulu, Kauai and Maui figure went from \$2,733,000 to \$517,000 and is also a significant, but smaller contributor to the drop in value.

Looking at Finfish more closely, while production was down slightly, total value actually went up from \$1,975,000 in 04 to \$2,388,000 in 06. County breakout figures are not available due to aggregation, but what can be said about these stats is we know the freshwater fish producers reported being hit hard by 40 days of rain in 06. However, we also know the majority of the finfish value represented is from saltwater finfish species. During the 04-06 timeframe, Cates International cages were under stocked due to publicized problems getting enough moi fingerlings and Kona Blue came on stream with Kona Kampachi production, which probably roughly balanced each other out. Offshore aquaculture is a sector where Hawaii leads the nation in commercial application of technologies.

Additional Categories In the breakdown of industry value there are categories for Algae (micro algae and seaweed, Ornamental (salt and fresh water), and Other (sellers of SPF shrimp broodstock and seed and oysters and clam seed by the piece). As for the Algae category, there is a large drop in value from \$14,637,000 to \$11,914,000. Cyanotech, a publicly held company and majority contributor to the category, reported 3% less revenues for their 06 production or from \$11,445,000 in 05 to \$11,131,000. So, they are not the main cause of the drop. Likewise, Mera Pharmaceuticals, a publicly held microalgae company at NELHA, did not contribute to the decline as they report revenues in 05 of \$289,000 and 06 revenues \$286,000. Therefore, the major factor in the algae drop was loss of ogo production on Oahu and Molokai due in large part to the rains. Further, the small reduction in Cyanotech's open pond production indicates that the weather had little to do with the decline in NELHA value and production - NELHA also produces a great deal of ogo.

The ornamentals category, which includes salt and fresh water species, dropped from \$520,000 in 04 to \$345,000 in 06. Weather would have affected freshwater fish producers accounting for some of the loss and at least one freshwater fish farm stopped pro-

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Hawaii Aquaculture Extension Program




The Hawaii Aquaculture Extension Program is your state-wide extension service. We support the development and sustainability of aquaculture business in Hawaii by providing information, education, and technical assistance to existing businesses, potential entrepreneurs and the general public. The Program is sponsored by the UH Sea Grant College Program, the Aquaculture Development Program of the Hawaii Dept. of Agriculture, and the UH College of Tropical Agriculture and Human Resources.

Extension Research: Shrimp Nearly Anywhere?

There are many ways to produce penaeid shrimp, with a wide range of systems and levels of technology used around the world. Shrimp are a major item in the U.S.' import trade deficit in seafood, for good reasons including the costs of producing them in this country. And of course, shrimp are an important component of our Hawaii industry.

The Hawaii Aquaculture Extension program has been working toward a trial of a low cost small-scale shrimp production system here. The Hawaii County Dept. of Research and Development funded Jim Szyper for several years' work on "cheap-and-easy" technology demonstrations. These ideas are brought together in the design of a water-recirculating raceway tank in which shrimp could be grown in low-salinity artificial seawater. The system's elements include recirculating biofiltration, directed water flow driven by airlift aerators, a low cost artificial seawater formula, and a pipe frame to support shade cloth or other covers to isolate the tank from invaders. The system can be operated "off the grid," that is, in rural areas beyond electric power distribution, with the solar photovoltaic and wind power systems that Clyde Tamaru contributed under his USDA-supported project. In addition to extending the opportunity for shrimp production, this system could be used as an inexpensive individual-farm quarantine facility for newly received animals - shrimp or many others.

The completed projects developed the design and constructed most of the system. What remains is a practical trial of shrimp growout. We have just learned that our proposal for this purpose to the state Dept. of Agriculture has been accepted; we hope to begin work in early 2008. We have had the generous collaboration of folks in our business and research communities (thanks again); we will need more. We'll provide updates when the work gets going.

Sea Grant College Program Requests Preliminary Proposals

Preliminary proposals are requested for University of Hawaii Sea Grant College Program (UH Sea Grant) funding in 2009-2011. Sea Grant supports an integrated program of applied research, outreach, and education addressing marine and coastal issues of public concern.

Faculty from universities and colleges in Hawaii, Guam, American Samoa, and the U.S.-affiliated insular Pacific region are invited to submit proposals. Proposals are especially encouraged from the physical, social, and design sciences. The 2009-2011 Program will address the four National Sea Grant

Focus Areas: *Sustainable Coastal Development, Coastal Hazard Resiliency, Healthy Coastal Ecosystems, and Sustainable Safe Seafood Supply.*

To receive consideration, preliminary proposals are due electronically via the UH Sea Grant proposal submission website, eProjects (www.soest.hawaii.edu/eProjects/logn/logn_login.php) no later than 5:00 pm (Hawaii Standard Time), Wednesday, February 13, 2008. eProjects will begin accepting preliminary proposals on December 12, 2007.

The complete rfp can be seen at www.soest.hawaii.edu/eProjects/inst/RFP-2009-2011.pdf.





PACIFIC AQUACULTURE & COASTAL RESOURCES CENTER

200 West Kawili Street, Hilo, Hawaii 96720 (808) 933-0706

PACRC Develops and Launches New Web Page

A new addition to the PACRC site is the Traditional Hawaiian Agriculture page shown here. It can be found at pacrc.uhh.hawaii.edu/traditional/index/php. Director Kevin Hopkins says that this is an early version of the site; comments and suggestions are invited.

PACRC began this work with a project to develop materials on Hawaiian fish ponds; a USDA grant made it possible to expand the concept to the current title. As the site says, they hope that it “will provide a valuable information resource for policymakers, scientists, farmers, concerned citizens, and native Hawaiians on traditional agricultural knowledge and how it might be used to accelerate the development and emergence of more sustainable ‘agroecosystems’ throughout the main Hawaiian Islands.” This approach is needed because “New models of sustainable agriculture, which combine traditional knowledge with modern technology, may be required to meet the state’s nutritional and developmental needs for the 21st Century.”

In a related development, the Oceanic Institute recently announced the on-line availability of its new publication, “Keeper of Moli’i Pond - An Informal Account of George Uyemura and His Amazing Hawaiian Fishpond,” by Vernon Sato and Cheng-sheng Lee. Get it at www.oceanicinstitute.org/images/Keeper_Molii_Pond.pdf.

Welcome
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Aloha, E Komo Mai!

A Website for the Exploration of Traditional Hawaiian Agriculture and Aquaculture

Aloha, and welcome to our Traditional Hawaiian Agriculture website! This online resource, funded by the *USDA Alaska Native-Serving and Native Hawaiian-Serving Institutions Education Grants Program*, is the result of a Hawaiian fishpond project that was initiated in early 2005 by the Pacific Aquaculture &

News & Updates
Grant broadens website to include Traditional Hawaiian Agriculture...
more news...

Featured Links:
Bernice Pauahi Bishop Museum Library - Hawaiian Ethnobotany Online Database
University of Hawai'i Sea Grant College Program Hawaiian Fishponds Website

Hawaii Aquaculture Association, *continued*

(What Happened, from page 3)

ducing in 2006 due to lease issues described below.

The Other category includes Specific Pathogen Free (SPF) shrimp broodstock and seed stock producers around the state, as well as clam and oyster seed producers at NELHA. Hawaii is a global leader in SPF shrimp broodstock production. This category dropped only slightly from \$4,677,000 to \$4,259,000 from 04 to 06, so these farms are not strongly implicated in the loss.

Conclusions The large one-year drop in aquaculture's total value in 2006 is cause for great concern for the Hawaii Aquaculture Association and aquaculture interests around the state. The major contributors to this decline over the 04 to 06 timeframe are Shellfish (\$5,975,000) and Algae (\$2,723,000) and some additional much smaller reductions from the Ornamentals (\$175,000) and Other categories (\$418,000). The one bright spot was the increase in value of Finfish (\$413,000) probably from offshore producers.

NELHA based shellfish farms were the major cause (\$3,759,000) and since food shrimp is a minor product there, the drop must be largely due to abalone production. The next largest contributor was food shrimp producers in Kahuku, Oahu (\$2,216,000); realizing Kauai based CEATech ceased production in mid 2004 and little food shrimp farming occurs outside Kahuku.

Major root causes for these declines are difficult to decipher, but based on the stats and our common knowledge of the industry, several conclusions are possible. The 40 days of rain impacted freshwater producers and ogo seaweed growers on Oahu and Molokai. Likewise, disease issues with larger shrimp farms on Kauai and especially at Kahuku drastically affected food shrimp leading to reduced production on some farms; CEATech and the Kahuku Shrimp Company going out of business. Another important negative affecting Kahuku farms was the uncertainty over land tenure and use from the proposed lease cancellations of several farms by Campbell Estate, so land could be sold to the U.S. Fish and Wildlife Service to expand their wildlife refuge. Kahuku farmers indicated these uncertainties affected daily management and investment decisions, which negatively affected production.

The largest decline in Shellfish value was probably due to shortfalls in abalone production at NELHA. While technical issues can't be discounted, NELHA aquaculture tenants indicate a major negative impact on aquaculture has occurred by the shift in management policy by the NELHA Board in mid 2003 from an economic diversification and development bias to a bias towards total self sufficiency and utilizing no State funds to operate. This 2003 policy shift has resulted in rapid increases in land and seawater rates, which have gone up 20% for land and almost 300% for seawater, respectively. Again, tenants report the uncertainties and financial stresses created by the escalating rates directly affect daily farm management (e.g., water usage) and investment decisions, which in turn negatively affected production.

Clearly, farms in the important aquaculture areas of Kahuku and NELHA are largely responsible for the downturn in aquaculture growth. Weather and disease issues were big contributors, but Kahuku land tenure issues and NELHA management policies also significantly contributed to the result according to farmers. The good news is farmers are very resilient and can recover from weather and disease events and businesses that go bankrupt can be acquired and restarted given strong markets. The bad news is farmers will have great difficulty adjusting to the complex, long-term land use trends in Kahuku and the NELHA Board policies of ongoing rate increases and self-sufficiency. The next round of statistics should tell us more, but meanwhile HAA will work with affected farmers to try to address these constraints to industry growth.

HAA Officers and Contact Information

President	<i>Ron Weidenbach, Hawaii Fish Company Phone: 429-3147 / Fax: 637-0494 / Email: hawaiiifish@gmail.com</i>
Vice-President	<i>Paul Bienfang, University of Hawaii Phone: 358-0414 / Fax: 956-7402 / Email: pfang@hawaii.rr.com</i>
Treasurer	<i>Leonard Young, Aquaculture Development Program Phone: 587-0030 / Fax: 587-0033 / Email: lyoung@hawaiiiaquaculture.org</i>
Secretary (through Dec 07)	<i>Dean Toda, Aquaculture Development Program Phone: 587-0030 / Fax: 587-0033 / Email: dtoda@hawaiiiaquaculture.org</i>
Office	<i>1177 Alakea St. Room 400 Honolulu, HI 96813 Phone: 587-0030 / Fax: 587-0033 / Email: info@hawaiiiaquaculture.org Web Site: www.hiaqua.net</i>

Hawaii Aquaculture Association, *continued*

(President's Message, from page 2)

- SB1308 sd1 **Relating to Aquaculture Loans**, (similar to HB 1222 hd2sd1), needs to be heard by House Finance Committee
- SB1793 sd1 **Relating to the Natural Energy Laboratory of Hawaii Authority** (Expands the natural energy laboratory of Hawaii authority board of directors from eleven members to thirteen members by adding two additional members from among the tenants of the research and technology park), needs to be heard by House Finance Committee

I thank you in advance for your support of these important bills and for others that may arise.

With warm regards,
Ron Weidenbach, HAA President

(HAA meeting,, from page 2)

members and industry stakeholders (Figure 1), with approximately 60% identifying themselves as members of the private sector; 30% characterized themselves as producers. The work was followed by a reception and dinner, with family members welcomed, catered by the KCC culinary program.

The work product is a draft list of action items that is currently under review and comment by the HAA board and membership until December 17, 2007. After this time the agreed upon items will be used to focus HAA's efforts during 2008 and beyond in order to continue the growth and expansion of the aquaculture industry. The list is broken down into three categories: commercial sector, government, and research. The top 3-4 items to be addressed were identified for each category. A copy of the list can be obtained by contacting Clyde Tamaru, Aquaculture Specialist, UH Sea Grant College Program at

Composition of Workshop Participants

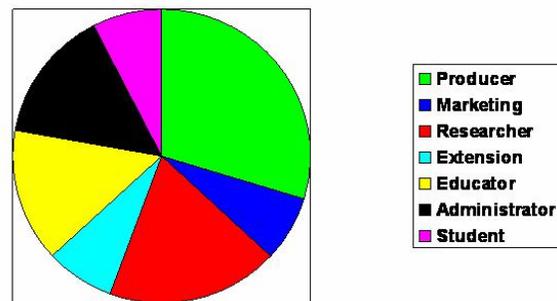


Figure 1. Participants' affiliations.

'Quick Stats'on U.S. and Global Aquaculture

A one-page list of quantitative facts, from the NOAA Aquaculture Program by way of Aquaculture Magazine, can be found at: aquaculturemag.com/articles/2007/11/us-aquaculture-quick-stats.php. It contains updates of the usual big-picture facts such as world and China production figures. The materials distributed at the recent HAA meeting (see page 2) included some of this information.

A few derived facts may be of interest. Freshwater products are still big - 80% of U.S. production. "U.S. seafood supply," presumably captured plus cultured, has a value of more than \$13 billion, more than ten times total U.S. aquaculture production value. The latter grew by 11.7 percent during the last 7 years. About 1/3 of U.S. seafood consumption is farmed and imported. The preponderance of Asian aquaculture production in the world total, dominated by China's contribution, is well-known. But the Western Hemisphere's figure is about equal to the total remaining for Europe-plus-Africa, at 3.6 and 4.4%, respectively. The materials at hand do not say how Australia, usually considered a continent, was counted for this purpose. No offense or neglect is intended to our friends from that region.

Hawaii Farm Bureau Issues Request for Proposals

This year's RFP for the Hawaii Farm Bureau Federation's Agriculture Research and Marketing Development Program is now available at: www.ctahr.hawaii.edu/vincent/FY2008_Farm_Bureau_RFP.pdf. The program announcement is addressed to "Agriculture Trade Associations and Presidents and Directors of Agriculture Research Institutions." In addition to such organizations, "individuals or private organizations with a proven track record and strong support from the agriculture industry" are also eligible to propose. "Priority will be provided to projects that support local agricultural products with immediate impact to the industry."

Types of projects may include "demonstration projects, educational outreach programs, risk management projects, yield improvement or introduction of new varieties of crops, management of agricultural pests and diseases, and market research and development." The deadline for applications is December 31, 2007.

[Editor's note: You can read elsewhere that our winter holidays and the greetings that go with them have evolved quite a bit during recent years. Thanks to our friends at California Sea Grant for this greeting, with all its diverse imagery. And enjoy all your celebrations. Aloha!]

