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INDUSTRY BRIEFS

THE U.S. MARINE SHRIMP FARMING PROGRAM

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The U.S. Marine Shrimp Farming Program is a congressional initiative administered by the USDA / CSREES. It is an integral part of their aquaculture development effort executed by the US Marine Shrimp Farming Consortium.

Kona Bay Marine Resources eyes expansion and focuses on the global market

By Paula Bender,
Industry Briefs Editor

KAILUA-KONA, Hawaii—Kona Bay Marine Resources exports shrimp broodstock in a really big way.

So big that the company was recognized as Hawaii's most successful exporter in 2004. The firm also produces bivalve seed for customers on both U.S. coastlines and Europe.

Kona Bay's shrimp broodstock is shipped to Indonesia, Vietnam, Thailand, Taiwan, China, the Philippines and Malaysia. It's a huge market for Kona Bay and other exporters of healthy, disease-free shrimp broodstock. Between Thailand, Vietnam, Indonesia and India 40 percent of the world's 1.1-metric tons of shrimp is grown annually, and mostly with U.S. shrimp broodstocks. For this reason, U.S. companies, the leading producers of SPF *L. vanamei* broodstock in the world, have the potential to take advantage of overseas markets.

Brian Goldstein, chief executive officer of Kona Bay Marine Resources said the company plans to double its broodstock production over the next year.

"We are growing over 35 percent per year and if we could expand production faster, our sales would increase

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KONA BAY
Marine Resources

American Shrimp LLC

Setiferus among us

By Paula Bender,
Industry Briefs Editor

PANACEA, Florida—Demand for *Litopenaeus setiferus* has inspired four partners to raise the Gulf White Shrimp within an enclosed facility on five acres in this little town some 32 miles south of Tallahassee.

Continued on PAGE 4

Cultivating flavorful shrimp

At the Oceanic Institute product innovation lab, shrimp, moi, kahala and other fish are prepared for professional chefs, buyers and community groups to allow them to experience the flavorful advantages of the aquaculture industry.

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The U.S. Marine Shrimp Farming Program is a congressional initiative administered by the USDA/CSREES and is an integral part of its agricultural development effort executed by members of the U.S. Marine Shrimp farming Consortium:

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University of Southern Mississippi
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Down, but not out

Continued low shrimp prices resulted in a reduction of estimated 2005 U.S. shrimp farm production for a second year in a row (Figure 1). Many farmers have been forced to stock fewer acres and switch production to other species in hopes of weathering the storm or finding new ways to better compete in the marketplace.

For instance, although the number of shrimp farms in Texas stayed about the same from 2003 to 2005 and average production efficiency increased 22 percent from 2,950 to 3,584 lbs/acre, dedicated shrimp production fell over 37 percent from 3,045 to 1,906 acres over the same period. Low prices, hurricanes, and, in some cases, disease have caused a reduction of acreage stocked and forced closures of farms across the country.

The situation is no better for the wild catch industry. In its Jan. 17, 2006, New Hampshire newspaper The Union Leader reported that while shrimp populations in the Gulf of Maine are stronger than ever, fishermen are unable to sell their catch, and some have stopped fishing since the beginning of January. Like the punch drunk boxer, the entire U.S. shrimp industry has taken quite a few body blows recently.

But, despite reeling from the onslaught, change is coming and farmers are adapting to new market conditions and addressing new ideas to better compete. The next generation, super-intensive farms, are gaining investment interest across the country and are slowly emerging in states like Florida, Michigan, Kentucky and Delaware.

Shrimp farmers prompted the USDA's National Organics Program to convene a task force to develop standards for U.S. farm-raised shrimp, and their recommendations are coming out shortly. U.S. shrimp are already considered "eco-best" choices and recommended on seafood watch lists of the Environmental Defense Fund, Monterey Bay Aquarium, and Blue Ocean Institute.

A bright spot has also emerged for the U.S. broodstock industry taking advantage of the world-wide trends toward production of taking *L. vannamei* through domesticated SPF broodstock. It can be estimated that 40 percent of the total 1.1 million metric tons of shrimp produced in 2005 in Thailand, Vietnam, Indonesia, and India was *L. vannamei*, up from only 8 percent in 2001. The stage is set for a "Rocky"-style comeback.

SEE NEXT PAGE

The USMSFP has been there in your corner, anticipating trends, developing the needs for the future, and assisting the U.S. shrimp farming industry through the entire bout with new technologies, products, and services to better compete. From supplying U.S. farmers with SPF stocks in the early 1990s to increase production survival, to rebuilding the industry with TSV-resistant stocks in 1995, to generating the biosecurity, low-salinity, and low-water flow methods to enable industry growth from 1998 – 2003, we continue our commitment to this recent downturn in the domestic production sector.

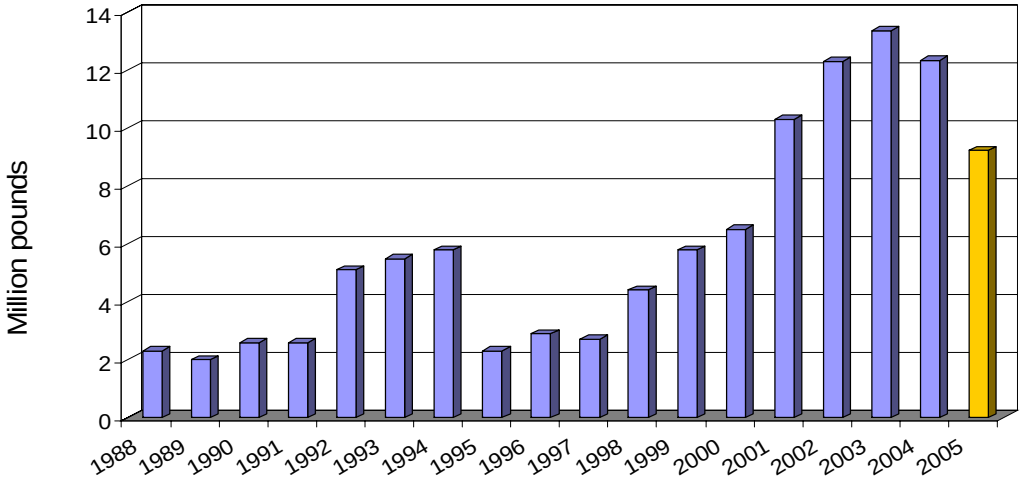
We are developing selectively bred lines for combined disease resistance and rapid growth, disease diagnostic and prevention methods for emerging diseases that could threaten farmed or native shrimp stocks from imports, testing organic feeds with industry partners, and transferring super-intensive farming technologies and new partial harvest management styles to generate a unique U.S. farming technology. Wait till the next round!

Our series of Industry Briefs articles last year focused on identifying new opportunities to help our U.S. shrimp farming industry better compete. We will continue that theme in 2006, focusing on recent research, trends, and issues, while pointing to how new technologies and ideas are being applied commercially to add further dimension to this industry.

U.S. farmed-raised shrimp is an eco-best choice recommended by the Environmental Defense Fund, the Monterey Bay Aquarium and Blue Ocean Institute.

In this issue of *Industry Briefs*, **Brian Goldstein** of **Kona Bay Marine Resources, Inc**. and winner of the 2004 Hawaii Exporter of the Year Award, explains his recipe for success and potential for the US broodstock industry. Florida's **Ralph Torres** explains his bait-shrimp venture at **American Shrimp LLC.**, and **Dr. Leonard Obaldo** takes you on a tour of the **Oceanic Institute**'s newly constructed Product Development Lab, where new, value-added concepts are tested to enhance consumer appeal of shrimp and other aquacultured products.

Figure 1. U.S. shrimp farm production. The current estimate for 2005 is 9.22 million pounds, down 31% from peak production in 2003.



FROM PAGE 1

Florida hatchery develops n

Ralph Torres and his three partners are raising bait shrimp in Florida.

According to co-owner Ralph Torres of American Shrimp, LLC, the facility is housed in a building that's just more than 11,000 square feet.

"The hatchery is operating as a closed system utilizing the same saltwater in over 44 cycles of production," Torres said. "We only add a small amount of water to the system due to evaporation. Our current production capacity is 144 million PLs annually."

Torres said that American Shrimp sells 21-gram postlarvae that have been checked for disease and have been fed with a specific diet that will enhance survivability and growth rate, a process that supersedes industry standards. Torres said it should be noted that *setiferus* is practically immune to TSV but that it has been shown that it can develop WSSV.

"We grow the white shrimp from the Gulf of Mexico because it is a native species of the United States," Torres said. "Also, it adapts well to adverse conditions like the ones used in inland farming. In the past this species was quickly discredited due to some initial growth tests that depicted them as a species that could not grow past a certain size in captivity."

***Litopenaeus setiferus*, otherwise known as White Gulf Shrimp, is being raised within an enclosed system by American Shrimp LLC in Florida.**

Torres and his three partners, Manuel Espejo, Belarmino Enriquez and Raul Martinez, reviewed the research and determined the *setiferus* to be not only a good grower, but also a very hardy species under environmental conditions and growout densities.

"The University of Mexico, UNAM, has been studying and performing a multiple variety of tests on this species for the past 15 years," Torres said. "As a result, they have identified many of its positive features. In fact, they refer to it as Saint *Setiferus*."

iche market for bait shrimp

The partners all hail from Cuba. Between them is more than 75 years experience in the maturation, spawning and growout of white shrimp. Torres said they've been welcomed by the industry and have been provided invaluable assistance from experts. Their biggest client is the bait industry. Sales for 2006 are expected to be strong and the firm plans to produce more than 100 million PL-21s for clients, expand the facility and develop its marketing plan. American Shrimp provides its year-round product with consistency; and its enclosed system is appealing to a growing list of clients.

"We have also garnered the interest of many in-land farmers due to the ability of *L. setiferus* to grow in very low salinity water," Torres said. "Also, many government agencies within the US and Mexico, have shown a lot of interest in the development of this species."

The biggest challenge American Shrimp faces is the stabilization of water quality within the facility to assure a consistent and healthy supply of broodstock. Torres says that American Shrimp would like to see research focused on the development of SPF broodstock of *L. setiferus*.

There's an underlying current at American Shrimp that indicates its desire to raise a product within a system that has little or no effect on the environment.

"The potential ecological devastation that can be caused by allowing non-native species to get into our waters, the inconsistent supply of bait shrimp to the marketplace and the biological strength we observed in the *setiferus* were pivotal in inspiring us to take on the challenge of developing this species," Torres said.

Within the 11,000-square-foot building that houses the hatchery, American Shrimp LLC produces more than 144 million *Litopenaeus setiferus* PL-21s annually.

FROM PAGE 1 PHOTO

Developing feeds that result in healthy and tasty shrimp

WAIMANALO, HI—The aquaculture industry is continually changing and evolving as producers, processors, distributors and retailers adjust to meet the needs of seafood consumers, who are progressively demanding a cheaper and wider variety of higher quality products.

Leonard G. Obaldo, Ph.D., is the research scientist primarily involved in Aquatic Food research and development at the Oceanic Institute. This program employs the principles of food science to generate knowledge that will help feed manufacturers, aquaculture farmers and seafood processors tailor feed inputs, production systems and processing methods to meet consumer demands for quality seafood, together with increased convenience, availability, and safety.

Aquatic feeds scientist Leonard Obaldo, Ph.D., of Oceanic Institute, explains to members of the Honolulu Rotary Club about the preparations involved in a taste test of aquaculture products.

Obaldo's efforts have included catalyzing the creation of the OI product innovation laboratory, which provides a nucleus for examining product quality such as color, flavor and texture resulting from the impact of new feed formulations and culture systems. Examples would include low-cost shrimp feeds utilizing agriculture and fishery by-products; and environmentally friendly culture systems such as the shrimp zero-exchange system.

The lab is divided into five sections. The first is the primary processing section for washing, cleaning, gutting, filleting, peeling, skinning and proportioning. The second section is for grinding, smoking, retorting and dehydration. The third is a preservation and storage section consisting of an ice machine, liquid nitrogen for IQF processing, large capacity refrigeration, and freezing units for holding and storing samples.

The food preparation section has an island that features a stove, storage and ample counter space. The fifth area is our sensory evaluation room for product quality testing using both consumer and trained panels; and features both a texture analyzer and color meter. The lab can also be used for collaborative work with industry and other institutions to help expand their operations and meet their needs, including the development and testing of novel value-added seafood products. These could be shrimp burgers or nuggets, smoked retort pouch shrimp or a variety of shelf stable shrimp products.

Current research efforts on shrimp include the determination of processing yield, shelf life, nutritional composition and sensory quality of market size shrimp reared under zero-exchange system and fed formulated diets containing ingredients from Hawaii agricultural by-products; the assessment of product quality of market size shrimp reared on diets containing protein meals and oils made from by-products of the Alaska seafood processing industry; and enhancing omega-3 while reducing cholesterol in market size shrimp and evaluation of its impact on taste and texture.

Overall, the aquatic food research at OI provides a unique capability to explore how we can best make an impact in the U.S. shrimp farming industry. One of the major challenges will involve the creation of designer low-cost diets for environmentally friendly culture systems that could make shrimp tastier and healthier.

Shrimp lumpia goes well with a sweet and spicy dip served in a fresh pineapple bowl.

FROM PAGE 1

Goldstein sees expansion for Kona Bay's broodstock

probably 100 percent per year," Goldstein said.

U.S. shrimp farmers might feel overwhelmed when confronted with the global figures of shrimp production. But Goldstein recommends a change in tactic.

"U.S. shrimp farmers need to focus on producing the highest quality shrimp possible," Goldstein said. "There is no way that U.S.-produced shrimp can compete with imports based on price. The focus must be on quality, service, and brand positioning."

Goldstein knows a lot about changing focus and redirecting losses into profits. A former Silicon Valley high-technology and software business leader, Goldstein spent nearly 15 years cofounding several companies with successful appeals to venture capitalist firms and private investors. He chucked it all for love, moved to Hawaii to live where his wife grew up, and let word out that he was available. He got a call from venture capital firm HMS Hawaii to take on Kona Bay Marine Resources which was facing "challenges."

"I didn't know anything about aquaculture and shrimp other than that I liked to eat them," Goldstein said. "We had little cash, few sales and no customers. But we had good production, good people and good investors. I developed a business plan, put the fundamentals in place, and went about marketing products and building customers."

Brian Goldstein, CEO of Kona Bay Marine Resources

Over the next 24 months, Kona Bay Marine Resources expanded, became profitable and raised additional capital.

"Brian has brought great passion for building a business in Hawaii and had the marketing experience to bring the company to a new level," said Kona Bay Marine Resources Chairman William Richardson. "The potential for success of the aquaculture industry in Hawaii is on the shoulders of managers, like Brian, who can combine a global perspective with patience and experience to build quality operations."

An additional four acres has just been cleared for the Big Island company's expansion plans. Underway is an expansion of the firm's bivalve hatchery where production has quadrupled.

"We are also in the process of implementing a genetic breeding program for shrimp we acquire from Oceanic Institute—the top performing families from our Taura-resistant program, and have retained the services of a world-class geneticist, Roger Doyle," Goldstein said.

According to Goldstein, Kona Bay Marine Resources is Oceanic Institute's largest business customer of its shrimp post larvae.

"We're the only company in the United States that purchases mature broodstock and distinct family [post larvae]," Goldstein said. "We're a big fan of the breeding program at OI and look forward to building that relationship as we expand our production on other islands."

Do you Wiki?

An “All Things Considered” segment that ran on National Public Radio on December 15, 2005, reported that a survey by the science journal “Nature” found that science entries in the volunteer-driven online encyclopedia “Wikipedia” are “not markedly less accurate than those found in “Encyclopedia Britannica.”

We bring this up because an extensive entry about shrimp farming is included—complete with various links written by several within our industry. It’s a great resource to direct would-be shrimp farmers. Because Wikipedia is a dynamic website that allows for virtual edits by virtually anyone, its entries are constantly being updated. We’re certain you’ll recognize some of the authors.

Find it at: http://en.wikipedia.org/wiki/Shrimp_farming

For more information about stories in this issue, check out the following websites:

Blue Ocean Institute at www.blueoceaninstitute.org
Environmental Defense Fund at www.edf.org
Kona Bay Marine Resources at www.konabaymarine.com
Monterey Bay Aquarium at www.mbayaq.org
National Public Radio at www.npr.org
Oceanic Institute at www.oceanicinstitute.org/nav.php
The Union Leader at www.unionleader.com

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