

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.

Visit www.usmsfp.org for the latest in Headline News, industry events and more!

Growing a healthy marketing identity with Alabama shrimp

By Paula Bender,
Industry Briefs Editor

About 150 miles from Alabama's Gulf Coast is Green Prairie Aquafarm, where an underground aquifer provides brackish water for 16 earthen ponds and where *L. vannamei* are raised for market.

It's the only farm in Alabama dedicated solely to raising of shrimp. Other aquaculture farmers in Alabama raise catfish, some with a couple of shrimp ponds. At Green Prairie Aquafarm there's room to almost double the ponds to nearly 100 acres.

This is a farm owned by academics H.R. "Rud" Schmittou and David "TC" Teichert-Coddington, who were employed by Auburn University and worked in its Department of Fisheries and Allied Aquaculture and the International Center for Aquaculture and Aquatic Environments. Schmittou is Professor Emeritus and continues to consult on domestic and international programs at Auburn. Teichert-Coddington manages the farm where he lives with his family.

"Our vision is to develop a commercial shrimp business that produces an all-natural, superior quality shrimp, that demonstrates good stewardship of our environment, is a good neighbor, and that serves as a catalyst for developing a new aquaculture industry in west Alabama," said Teichert-Coddington. "We have determined that our produce will have to be superior and different in every way possible in order to compete in a commodity market."

The pair made a pact to achieve this goal: No herbicides. No pesticides. No antibiotics in the ponds. And the processed product will contain no preservatives or water-enhancing additives like tripolyphosphate. The ponds are fortified with potassium to assure shrimp survival.

For four to five months, the shrimp grow in the Alabama summer. The farmers feed them and monitor water quality. Mechanized aerators assure healthy oxygenation and reduce the occurrence of



Green Prairie Aquafarm in west central Alabama is the only farm in the state raising *L. vannamei*.



David "TC" Teichert-Coddington of Green Prairie Aquafarms holds up some fine Alabama farm-raised *L. vannamei*.



IN THIS ISSUE

- GREEN PRAIRIE AQUAFARM P1**
- MARCHING ORDERS P2**
- DOMESTIC CHALLENGES P3**
- ORGANIZING ORGANICS P5**
- BROODSTOCK PERSPECTIVE P6**
- ADVANCED BIO NUTRITION P7**
- WHITE PAPER, BAY CITY'S FIRST AQUACULTURE AWARD P8**



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

- Oceanic Institute**
Waimanalo, HI
- Gulf Coast Research Laboratory**
University of Southern Mississippi
Ocean Springs, MS
- Tufts University**
School of Veterinary Medicine
North Grafton, MA
- Waddell Mariculture Center**
Department of Natural Resources
Bluffton, SC
- Texas Agricultural Experiment Station**
Texas A&M University
- University of Arizona**
Department of Veterinary Science
Tucson, AZ
- Nicholls State University**
Department of Biological Science
Thibodaux, LA

INDUSTRY BRIEFS

U.S. Marine Shrimp Farming Program
41-202 Kalaniana'ole Hwy
Waimanalo, HI 96795
Phone: (808) 259-3141
Fax: (808) 259-3121

[HTTP://www.usmsfp.org](http://www.usmsfp.org)

Editor: Paula Bender



Anthony C. Ostrowski,
Ph.D. USMSFP
Consortium Director

Marching orders

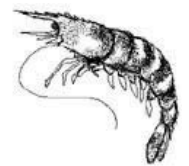
"Improvise, adapt, and overcome" is a familiar credo of the U.S. Marine Corps, and now marching orders for the U.S. marine shrimp farming industry. As the last few years have emphasized, the world of shrimp farming is changing rapidly, presenting new challenges and opportunities for our domestic industry. From producers battling new thresholds in shrimp prices to broodstock suppliers taking advantage of trends in *L. vannamei* farming worldwide, how we face those challenges will determine our future.

We are beginning to adapt, moving forward and adding dimension to our industry. Intensive, indoor production technology is allowing the emergence of farms as far north as Kentucky, North Carolina and even Michigan and closer to inland markets. The worldwide demand for SPF shrimp is growing by leaps and bounds, expanding opportunities for domestic broodstock suppliers, and making this the most rapidly growing segment of our industry.

Through adversity comes change, opportunity and character building. Americans are known for adapting to tough situations and getting the job done when the chips are down. Our domestic shrimp farmers are no different. Like the Marine Corps, our shrimp farming industry is appearing to improvise, adapt and overcome, and find its appropriate niche in the marketplace.

In this issue of Industry Briefs we examine some of the changes occurring across our domestic industry and take a look inward at where the industry thinks its headed. Special thanks to David "TC" Teichert-Coddington, who co-owns Green Prairie Aquafarm with colleague H.R. Rud Shmittou. TC's story was delayed because the crew had to weather the winds of Hurricane Dennis. We appreciate that the power was up and he could take a moment to hit the send button. As we go to press, Hurricane Emily churned in the Caribbean Sea. We hope for the best.

Fritz Janeike of Harlingen Farms emphasizes how U.S. shrimp farmers need parity when it comes to costs and marketing as compared to overseas producers. Also from Texas is Bart Reid of Permian Sea Shrimp Co., who wants to share the news about the newly formed not-for-profit Organic Aquaculture Institute. We have also include stories from SyAqua and Advanced BioNutrition, a notice about the National Organic Aquaculture Working Group's White Paper, and Kudos to Texas shrimp farmer Harold Brower, awarded the first Aquaculture Producer of the Year by the Bay City Chamber of Commerce. We hope you enjoy this issue of Industry Briefs. Let us know what you think. And share with us your ideas for future issues.



Texas Shrimp Farming Short Course
September 28-October 5, 2005
University of Texas Marine Science Institute Auditorium and Port Aransas
Contact:
Lynne Propes (979) 845-7524 or Granvil Treece (979) 845-7527
PDF Course Registration Download:
<http://texas-sea-grant.tamu.edu/news.php>

U.S. shrimp farmers face greater costs, marketing challenges, than their overseas colleagues

**By Fritz Janeike
Harlingen Farms**

Shrimp farming in the United States has been a challenging business from its inception in the late 1970s. The evolution of U.S. shrimp farming has occurred in a time period much different than that of other agricultural crop and livestock-rearing businesses and has been closely watched by environmental conservation groups resulting in increased regulatory scrutiny.

The costs of regulatory compliance in terms of facility upgrades and farm management are substantial and not realized by farmers of most other nations. In addition, the costs of U.S. labor, insurance and taxes must be incorporated into production costs. As a result, it is very hard to compete with the prices of farmed shrimp that are imported from countries with lower production costs.

The challenge for U.S. shrimp farmers is to differentiate our product as unique from shrimp farmed overseas without disparaging farmed shrimp in general. There are consumers who will choose products which are grown in the United States and the recently enacted Country Of Origin Labeling (COOL) requirements for retailers will help consumers identify U.S. produced shrimp.

The U.S. laws regarding chemicals and additives approved for use in the growing process are very strict, very clear and well enforced. Few countries have the infrastructure to provide regulatory oversight and mandate compliance, which in essence certifies our production as acceptable to U.S. standards.

Consumers who are concerned about what occurs during the growing process can feel confident that U.S. farmed shrimp are produced according to transparent standards. In fact, in part due to regulatory oversight and clear laws relating to environmental standards, U.S. farmed shrimp is now being classified as a "Best Eco-Choice" by some environmental conservation groups. There are consumers who will choose U.S. farmed shrimp based on such an eco-endorsement and these niche markets should be targeted.



Fritz Janeike is the production manager of Harlingen Shrimp Farms in Bayview, Texas, where on 450 acres more than 100 million "high health" *L. vannamei* are hatched each month.

The USDA is currently in the process of establishing standards for the production of organically grown seafood. When these standards are established, U.S. growers will be able to consider niche markets in this area. Until then, buyers of organic produce should realize that credible USDA organic standards are not yet established for shrimp production and to be cautious of starting programs with imports bearing "organic" labels.

One of the few advantages U.S. farmers have is our proximity to a large consumer base, which facilitates distribution through direct retail outlets, local distributors or at least through fewer middlemen than most overseas producers. The business of farming shrimp in the U.S. must be integrated with the business of selling shrimp. Farmed shrimp, in particular farmed *L. vannamei*, has become a world commodity with very good availability and low prices. The days of being a producer who sells to the highest bidder on the commodity market are behind us.

Finally, the U.S. trawling industry has been able to garner support from the U.S. government for programs to promote and market their wild caught shrimp. The domestic shrimp farmers don't benefit from such programs that focus only on wild shrimp. Marketing initiatives to support our industry as well are badly needed. Our government must realize that devoting funding to support the domestic production of farmed shrimp, without supporting a substantial marketing effort, is quite likely not going to achieve the goal of reducing the huge U.S. trade deficit on shrimp.

from page 1: Green Prairie Aquafarm

noxious algal bloom. A sinking pellet formulated specifically for shrimp is used for feed. It has a 12-percent fish meal content.

"We participate in research that seeks to decrease the quantity of fish meal by substituting plant protein," Teichert-Coddington said. "No mammalian by-products are used in our feed. Shrimp are sampled for growth every week and feed allotments are adjusted accordingly."

If all goes as planned, harvest begins in September and lasts through early November. Farmers transfer most of the pond water to another pond to conserve the water and to minimize environmental impact by the discharge. The water is drained through a cage fitted with a pump that transfers the shrimp in water to a dewatering tower located on the pond dike. In the tower, the shrimp are removed from the water by a gate and fall into a tote where they are covered immediately with ice. From there they are quickly packed for fresh market or shipped to a processing plant for flash-freeze processing.

That's a best-case scenario. For Schmittou and Teichert-Coddington, the first harvest in 2001 was no doubt a textbook worst-case scenario.

"We harvested our first pond in 2001 the day after the September 11 terrorist attacks on our nation," Teichert-Coddington said. "Shrimp prices plummeted and have continued to fall ever since."

That first year, the Green Prairie team also suffered a low-survival rate. The academics got to work. With very little literature available regarding the ionic composition of the water with respect to shrimp growth and survival, Schmittou and Teichert-Coddington had nothing to compare with their situation.

"We collected all the water chemistry data we could get our hands on from farms around the United States and internationally and compared it with ours," said Teichert-Coddington. "Our water was very low with respect to potassium, magnesium and sulfur. Of the three ions, potassium seemed to be the most important, and fortunately, was by far the cheapest to do something about."

Ponds still containing shrimp were amended with a couple of different concentrations of potassium using muriate of potash. A number of on-farm studies since indicated that magnesium may also be important, but survival at Green Prairie is unquestionably dependant on amendments with potassium.

"We were extremely gratified to discover that daily mortalities literally ceased overnight," he said.

Teichert-Coddington says that he thinks there continues to be problems with ion concentrations and proportions in low-salinity waters. Green Prairie continues to have unexplained low-grade mortalities that seem to be related to water chemistry. Some ionic deficiencies may be eliminated with feeds, but these possibilities can only be investigated under well-controlled circumstances.

"There are two general problems that I would like to see investigated," he said. "Accurately knowing the density of shrimp in ponds and refining nutritional components."

Teichert-Coddington said that farmers usually overfeed because they are not certain of shrimp densities and they do not want to decrease growth in a limited culture period like that in the US. However, he said, overfeeding greatly reduces potential profits. Feed is wasted, and the demands for improving water quality increase.

"Research on refining nutritional components of feed may be irrelevant as long as the farmer is overfeeding," he said. "Novel methods like passive sonar ... should be investigated. We already know that passive sonar works, but the methodology has to be developed for use with hand-held devices. Development of such techniques will require aquaculturalists to get out of their boxes and enlist the assistance of engineers and other professionals who have the necessary expertise."



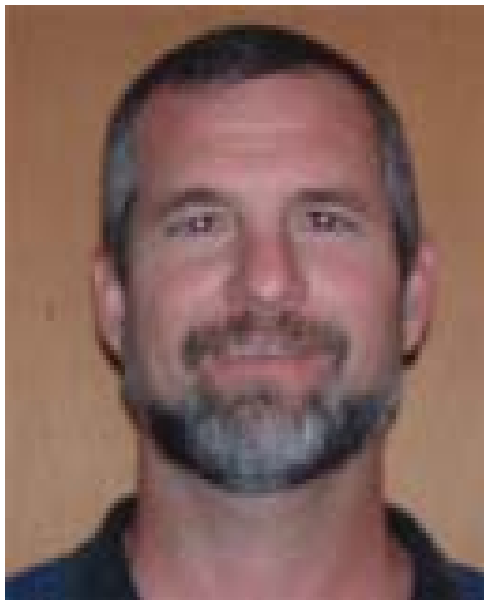
Green Prairie Aquafarm's H.R. "Rud" Schmittou is Professor Emeritus at Auburn University.



A dewatering tower separates the shrimp from the water at harvest.

Organizing organics: Permian Sea's Reid busy with establishing standards that could pay off for farmers

A new not-for-profit research company, the Organic Aquaculture Institute, was recently founded to conduct research and extension on organic aquaculture, specifically on a certified organic farm.



Permian Sea Shrimp Company's Bart Reid helped establish the Organic Culture Institute.

"We want to develop the art and science of organic aquaculture in shrimp and fish," said Bart Reid, a shrimp farmer who owns and operates Permian Sea Shrimp Co. in Imperial, Texas. "There is no one in research or academia that is doing this and we need it. And, it has to be done on an organic facility so the results are applicable to the real world."

The board of directors of the OAI include Steve Craig, Michael Schwarz, and Ewen McLean of Virginia Tech, Joan Holt of the University of Texas-Marine Science Institute, Gary LaFleur of Nichols State University, and Reid, who is also a marine biologist.

"What we really need is for these rules to be implemented so that seafood that is not really up to par will stop being sold as organic or all natural," Reid said. "The organic label needs to have teeth. We are working on that. I really believe that organic fish and shrimp farming can be the savior of U.S. aquaculture."

Aside from tending to his busy farm that yields more than 200,000 pounds of *L. vannamei* annually, Reid was recently appointed as a member of the National Organic Program Task Force that will develop the final rules regarding aquaculture.

"As a member of the [National Organic Aquaculture Working Group], I have seen its White Paper. Overall, I think we have a good start with what NOAWG has put forth," Reid said. "There will still be some changes and discussions, I am sure, especially concerning fish meal. It should be interesting."

Reid is a true believer in organic shrimp and asserts that the customer will ultimately decide if such a classification is added value. At Permian Sea Shrimp on the east side of Imperial, Texas, Reid's ponds are fed by the underground Permian Sea. No oil slicks, no garbage, no disease problems. The result is clean, sweet-tasting shrimp. But Permian shrimp, as do other domestically grown shrimp, has to compete with imports that are subsidized, and that are not held to the environmental, social or health standards that state-side produced shrimp are.

"We can produce a better, more clean and safe product that consumers can trust to give them good seafood without the 'extras,'" Reid said. "It is a challenge as there is virtually no one making organic feeds or set up to process organic seafood. But in that there is opportunity. Time will tell. I can tell you that so far, consumers like the idea."

"In 2004, shrimp consumption in the US hit an all-time high of four pounds per capita, surpassing tuna as the number one seafood consumed in this country. This is directly the result of technological advances made in shrimp aquaculture and lays a solid foundation for the future of the shrimp business."

"Still, there's work to be done. It will be challenging for the U.S. industry to compete, based on current technology, with many foreign producers of shrimp who have land, labor and construction costs much lower than that in the US. The U.S. shrimp farming industry will need to compete based on advanced technology to allow it to overcome some of these costs. It can also differentiate itself in quality and freshness. This means that systems to grow shrimp year round, which offer rapid delivery of fresh, never frozen shrimp, are key to the future of this business."

*—Bill Herzig, Vice President, Darden Restaurants
Letter of support for the U.S. Marine Shrimp Farming Program*

The future of U.S. shrimp farming – a breeding company's viewpoint

Dr. Hein van der Steen and John Rocha
SyAqua & Sygen International

It is well known and established that there is a clear opportunity to boost domestic shrimp production in the United States. There are contributions that can be made to such an objective through the development and industry application of both traditional and innovative sound quantitative genetic and DNA-marker technologies.

Although the opportunity for U.S. shrimp production exists, several developments have the potential to have a big impact on how fast a truly competitive U.S. shrimp production industry can develop.

Firstly, in order to be competitive and reduce production costs, this industry will certainly have to rely on the establishment of intensive and super-intensive models characterized by high and very high stocking densities. Secondly, the analysis of past trends verified for other animal and even crop industries that have followed similar paths toward intensification of the production systems, namely dairy cattle, pigs, poultry and corn, shows us that effective disease control, sustainable high production levels, and the opportunity to be supported by a well-oiled and efficient breeding and genetics machinery, are all inter-related features essential for success.

The simultaneous attainment of these three attributes, history shows us, has demanded, required, even forced a strict standardization and environmental control of the production system. It is likely that similar developments will have to take place if a truly competitive and vigorous U.S. shrimp industry is to emerge and become highly successful. This translates in the development and use of carefully standardized low water-exchange raceway systems that are land-based and bio-secure. Other important considerations concern product quality, food and homeland safety, and traceability. The US industry has a potential advantage in delivering this to the U.S. customer.

The breeding industry can contribute in three major ways. Firstly, by assuring year-round availability of a high quality SPF product deriving from the establishment of a high health Genetic Nucleus (GN) and hatchery structure. Secondly, through the development of genetic lines (pre-dominantly *L. vannamei*) that are specifically bred

to meet the unique conditions anticipated for the future U.S. production systems. This involves shrimp that are robust and suitable for high stocking densities and low salinity production systems. Traits such as fast and efficient growth, general and specific disease resistance, and product quality will be important. The third contribution involves the delivery of DNA-based traceability systems and related marker technologies.

SyAqua (and its parent, Sygen) is leading the way in all these three areas. A high health, state of the art GN and coupled commercial hatchery structure are now under construction in biosecure, sea-locked Kentucky, and are expected to be completed and in operation next year. Classical quantitative genetics research conducted in partnership with the Oceanic Institute and other partners has enabled us to precisely quantify levels of genotype by environment (GxE) interaction that are present for the different shrimp production traits and with varying levels of the relevant environmental factors such as stocking density, salinity, temperature, diet, water quality and stress levels.

Without knowledge of relevant GxE interactions, it is not possible to develop an efficient breeding strategy that will deliver the range of products differentiation for niche markets, nor effective breeding systems. All this knowledge has now been gathered.

Finally, SyAqua has used its expertise in animal genetics and biotechnology, its high throughput bioinformatics tools and modern molecular technologies, to initiate a marker discovery program in *L. vannamei* which to date has identified over 1,300 genetic markers predicted to be dispersed throughout the genome. Also, SyAqua has developed four shrimp breeding programs with ~1000 families tested every year. This facilitates marker association analyses with traits of economic importance through access to diverse populations of shrimp, i.e. phenotype production data and corresponding DNA samples. The interest and focus of SyAqua will ensure rapid uptake and implementation of results by the U.S. shrimp industry.

All these efforts are expected to lead to the development of genetic markers that can be used for marker-assisted selection, design of mating schemes ensuring effective management of genetic diversity, and enable sustainable improvement in the traits important to U.S. shrimp production, besides assuring reliable traceability platforms. These are valuable complements to support and magnify the core quantitative genetics and high health value of the differentiated commercial products.




Developing clean and green feeds for shrimp farmers

Advanced BioNutrition Corp.'s sustainable seafood initiative is a direct outgrowth of its corporate mission to improve the health, wellness and performance of animals through the delivery of functional feeds ingredients.

Researchers at ABN realized early on that its algal-sourced omega-3 DHA ingredient (docosahexaenoic acid) is the key that enables shrimp feeds that are toxin-free and environmentally sustainable.

"Our DHA allows for the complete substitution of fish oil in shrimp diets, and this in turn enables the production of shrimp feed with no products of marine origin," said Robert Bullis, ABN's director of Animal Health and Regulatory Affairs. "This results in a cleaner end product for consumers, with equivalent or greater nutritional value than shrimp raised on feeds containing fishmeal and fish oil. We believe that ABN's solution also offers a market advantage to shrimp farmers, who can promote their 'clean and green' shrimp."

Using this approach, ABN has developed and is testing a shrimp feed premix for *P. vannamei* that has already shown great results relating to profitable growth. USMSFP partners at Texas A&M University and South Carolina Department of Natural Resources have been critical to the success of this research. Bullis said that ABN expects the premix will be commercially available for the 2006 growth season.

In a parallel effort, ABN is working to make this shrimp premix available in an organic option, using both animal-protein and totally vegetarian approaches. It is anticipated that the shrimp raised on these diets can eventually be certified as organic.

"Market research indicates that consumers would expect to pay a premium for shrimp that is organically certified," Bullis said. "Some of this 'value add' would return to shrimp farmers, especially if they sell direct to the food service industry or retailer. Our clean and sustainable approach will enable farmers to differentiate their product, and will also offer consumers a better-quality seafood. Also, our premix should have little or no effect on feed costs."

ABN is also working to transfer these technologies to feeds for other species. In support of this effort they hired Emilie Laurin to take over the quality management of its products and to assist in adapting its technologies to salmon and other finfish.



Bob Bullis, director of Animal Health and Regulatory Affairs, works closely with food scientist Emilie Laurin of ABN's sustainable aquaculture program.

Bob Bullis on his recent NOP Aquatic Working Group Appointment:

"The Aquatic Working Group is just getting started, and I'm looking forward to contributing. The group intends to submit a defensible plan to the National Organic Standards Board as soon as possible. The members of the Aquatic Working Group are committed to making that process speedy and transparent, with input from all stakeholders."

Bob Bullis on the NOAWG White Paper:

"The NOAWG White Paper is the culmination of several years' efforts by dedicated professionals who are in favor of enabling organic aquaculture products. This document will form the initial basis of discussion and is expected to contribute significantly to the deliberations of the NOP-AWG."

NOAWG White Paper

A PDF file of the National Organic Working Group's White Paper proposal to the USDA is online via a link from <http://www.usmsfp.org> directly to the 81-page document that is hosted at aquafeed.com.

The USDA is considering standards for organic labeling and will consider those presented in the NOAWG document.

Questions about issues brought up by the White Paper can be directed to George Lockwood (GSLockCVCA@aol.com) or Richard Nelson (ecotruchas@hotmail.com), co-chairs. They can be reached by telephone at 831-659-4145 and 801-209-3567.

Watch for our Fall 2005 Industry Briefs

Rodney Williams of the University of Arizona is conducting an important survey for an Environmental Assessment for FDA approval of Oxytetracycline for use by U.S. shrimp farmers. Williams will discuss his survey so farmers can get an idea of what information is required.

Texas shrimp farmer Harold Bowers was recognized as Aquaculture Producer of the Year by the Bay City Chamber of Commerce. It's the first award of its kind in Matagorda County. Bowers was chosen by a new aquaculture committee that considered recommendations from the Texas Aquaculture Association and the Texas Cooperative Extension. Bowers' plan this year was to farm 855 acres of shrimp, 325 acres of catfish with the help of some 200 employees. We congratulate Mr. Bowers!

***INDUSTRY BRIEFS***

The US Marine Shrimp Farming Program

Oceanic Institute
41-202 Kalaniana'ole Hwy.
Waimanalo, HI 96795

Non-profit
U.S. Postage
PAID
Honolulu, HI
Permit No. 1252



