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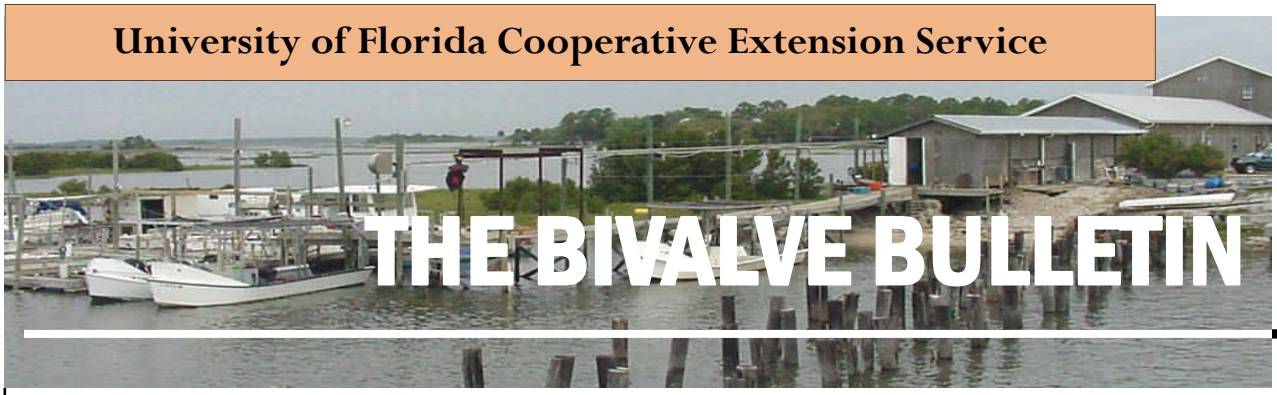


THE BIVALVE BULLETIN

July 2004
Vol. VIII No.2

INSIDE THIS ISSUE:

2003 Florida Aquaculture Survey: Clam Sales Value Down

Results from the statewide aquaculture survey conducted by the Florida Agricultural Statistics Service (FASS) over the past few months have been released. The following summary of the 2003 production year may be of interest to the clam aquaculture industry.

- Total Florida aquaculture sales were valued at over $95 million with tropical fish and aquatic plants leading sales.
- Clams ranked third in the state for aquaculture sales (dockside or farm gate) with $12.1 million reported, compared to $15.0 million in 2001 (a 19% decrease).
- At an average reported price of 9 cents per market size clam, an estimated 134 million clams were produced and sold last year, down by 13% from 2001.
- 200 growers reported selling clams in 2003, out of 244 interviewed.
- Survival rate to harvest was reported to average 54% the same as in 2001 and 1999.
- Planting in 2004 was uncertain with preliminary intentions estimated at around 392 million, compared to 350 million in 2003 and 290 million in 2002.
- An additional $871,000 was associated with clam seed sales.

Sixteen years of clam culture

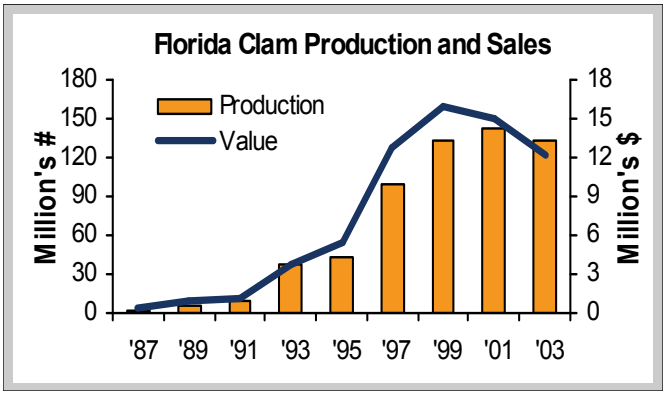
The FASS aquaculture survey has been sponsored by the Department of Agriculture and Consumer Services (DACS) since 1987. In that year, 13 growers reported 2.4 million clams produced in the Indian River with a sales value of $0.4 million. Average price per clam was 18.3 cents. Clam farming began to take off in 1993 with the number of growers increasing to around 170. Many were recent graduates of job retraining programs. The average price per clam dropped to a low of 9.6 cents that year. Since then, clam farming has expanded to many other counties. During 1995 through 1999, number of growers, sales, and production continued to rise significantly; whereas, average annual dockside prices ranged from 11.4 to 12.8 cents per clam sold.

The results of the 2003 survey reflect the tough times this industry has experienced since 2001. Based on growers responses, many did not sell clams last year. Of the 465 growers certified through the DACS Division of Aquaculture during 2003, less than half reported sales. Demand for luxury seafood items, such as clams, has been negatively affected by the nation's economic recession. Further, clam production has increased in other states along the East Coast adding to overall product supply. On a regional basis, environmental problems in southwest Florida limited harvests last year; whereas, new clam farmers in Franklin County have begun harvesting small amounts.

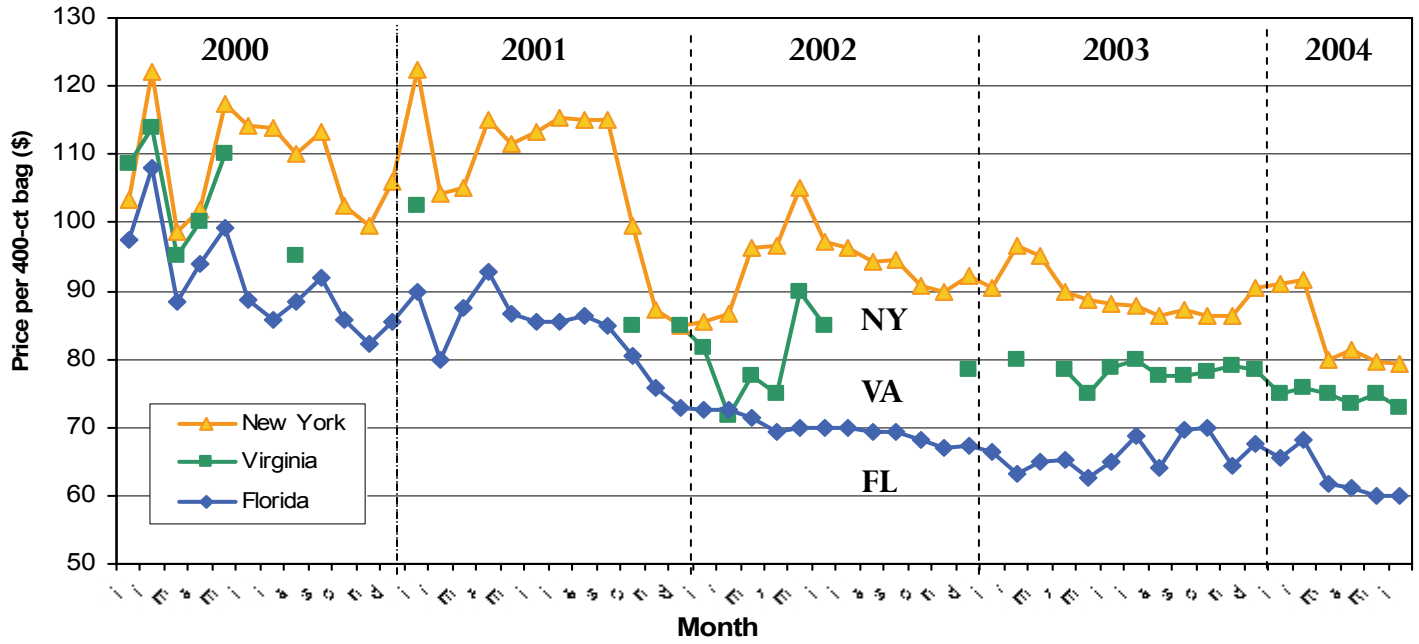
The complete 2003 Aquaculture Report is available by contacting FASS at (800) 344-6277 or by accessing *www.nass.usda.gov/fl.*

Fulton Fish Market: Wholesale Prices for Clams

The wholesale selling prices listed by the New York Fulton Fish Market are another indication of the condition of sales for seafood. On Page 2 of this newsletter is a graph of clam prices from Florida, Virginia and New York over a 5-year period (2000-2004). Note these prices are for a 400-count bag. The average wholesale price for a Florida clam has dropped from 22.8 to 15.7 cents in that time frame, a 31% decrease. Respective prices for Virginia and New York clams have decreased by 28 and 23%.



Fulton Fish Market Wholesale Clam Prices (per 400-count bag) from 2000-2004



Source: U.S. Dept. of Commerce, NOAA, National Marine Fisheries Service, Market News Reports, http://***www.st.nmfs.gov/st1/market_news/***

Farmed Shellfish Makes It Onto Seafood "Best Choices" Lists

A few years ago, seafood-buying decisions were based on price, quality and availability. Today, a growing list of environmental groups demands that consumers consider issues such as adverse environmental impacts of the harvest gear, whether the fishery is sustainably managed, what country the fish come from, whether endangered species are being impacted or if by-catch levels are high.

Several groups have developed seafood guides and wallet cards to help buyers avoid overfished species and steer them toward seafood that meet a certain criteria. These groups, including Seafood Choices Alliance and the Audubon Society, which publishes "*The Seafood Lover's Almanac*," hope that consumer demand will force fisheries and aquaculturists to change their ways. While these and other groups may have good intentions, most oversimplify matters and often end up harming the seafood industry by condensing exceedingly complex issues with sweeping generalizations. Worse yet, some guides are poorly researched or are biased.

One group, Monterey Bay Aquarium's *Seafood Watch Program*, (*www.mbayaq.org/cr/seafoodwatch.asp*), has gone to great efforts to ensure it does not fall victim to the above pitfalls. It has a staff of scientists reviewing current science and management policies and employs a group of advisors from the fishing and aquaculture industries to help guide its decisions. Their staff visited Florida last year and met with industry representatives at the Mote Marine Laboratory. The Aquarium is now producing regional pocket guides for the entire United States. While Monterey Bay condenses complex issues into wallet-sized cards, it backs up recommendations with data that concerned seafood purchasers can access on the Web. This group is having a big impact. For example, their guide reached over two million people on Earth Day this past April.

Another group is the Smithsonian Institution whose marine biologists have recently published a *Sustainable Seafood Cookbook*. Recipes of "right choice" seafood products are featured. A seafood buyers quiz from this cookbook can be found in the June issue of *National Geographic* Magazine. Also for an extensive listing of magazine articles on this topic, check out their Seafood Web Site (*www.mnh.si.edu/seafood/*).

Farm-raised clams are identified as a "Best Choice" seafood product in all of these guides and cookbooks. Molluscan shellfish are a prime example of politically correct seafood. Why? First of all, they feed by filtering algae from the water, enhancing water quality by removing silt and nitrogen from land-based runoff. Further, shellfish are nutritious, low in saturated fats and high in the beneficial omega-3 fatty acids, low in calories and high in essential minerals. Most importantly, shellfish farmers are good environmental stewards because they must sustain good water quality in order to produce a wholesome product. When purchasing from domestic shellfish producers, the consumer knows exactly where the product came from because of the accountability trails enforced through the U.S. Food and Drug Administration's National Shellfish Sanitation Program. And because the farmers' reputation lives or dies with their trademarked name, it is in their best interests to ensure the consumer gets a safe, wholesome product.

So a new marketing angle for the shellfish aquaculture industry may be that their products are not only nutritious and taste good, but they are also the politically correct choice!

Sources of Information: Bob Robinson, *Seafood Business* Magazine, September 2003; *National Geographic* Magazine, June 2004; *Shellfish Notes*, East Coast Shellfish Growers Association, April 2004.

ANNOUNCING: http://shellfish.ifas.ufl.edu

Florida Shellfish Aquaculture Extension

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IFAS EXTENSION

Sea Grant Florida

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- **Pubs and Tools**
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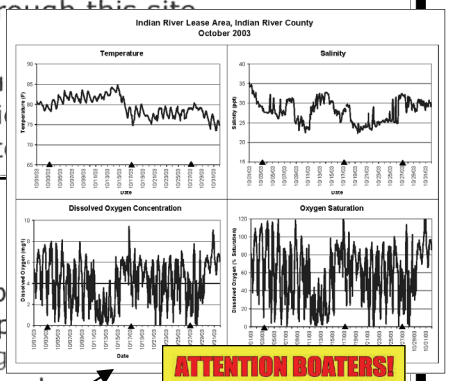
CLICK!

Welcome

Welcome to the Florida Shellfish Aquaculture Extension web site. From this site you can access many of the services we provide. Here you will find information about clam farming, updates on research and extension projects, current supplier lists and a variety of other materials. Numerous national publications addressing shellfish aquaculture, including a Shellfish Aquaculture Extension Program's quarterly newsletter *ve Bulletin*, are directly accessible through this site.

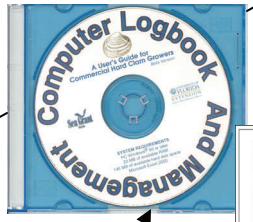
The University of Florida (UF) Shellfish Aquacu
provi ducational, technical, and organizati
farmin ndustry. In 1995 a position was creat

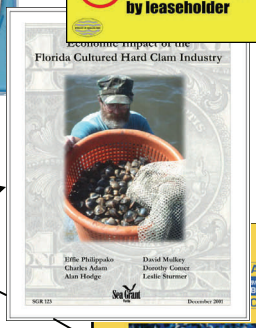


Pubs and Tools

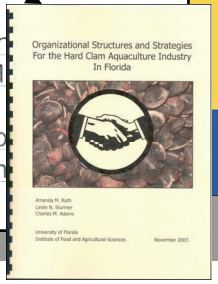
Then 'click' on titles for publications.

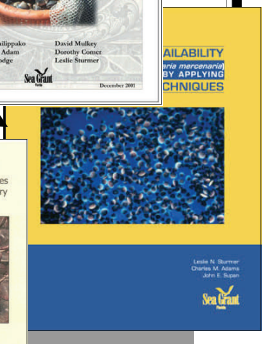
The following state and national publications include extension-typ
sheets compiled by the Shellfish Aquaculture Extension Program, p
technical reports, and pertinent documents from the Southern Reg
Aquaculture Center. A variety of topics addressing clam farming can be found here. In addition, you can link to several useful clam farming business tools including a spreadsheet program designed for record keeping and inventory management and archived water quality information from aquaculture lease sites in Florida.





- Archived CLAMMRS Water Quality Data
- Basics of Harvesting and Handling Clams, The
- Bottom Bag Technology for Clam Culture
- Clam Farming Components
- Clam Handling and Harvesting Standards
- Clam Lease Informational Signs
- Clam Seed Buying, Transporting, and Handling Tips
- Computer Logbook and Management (C.L.A.M.) Software
- Economic Impact of the Florida Cultured Hard Clam Industry
- Enhancing Seed Availability Through Remote Setting Techniques
- Organizational Structures and Strategies for the Hard Clam Aquaculture Industry in Florida
- Preliminary Financial Feasibility Analysis for a Two-Acre Hard Clam Culture Operation
- Short-term Effects of Salinity Declines on Juvenile Hard Clar
- Southwest Florida Clam Aquaculture Meeting: Summary (M 2003)
- Toxic Sulfide Concentrations in the Sediments and Water Co the Suwannee River Estuary and Its Influence on Hard Clam
- Water Quality and Its Role on Hard Clam Production





http://shellfish.ifas.ufl.edu continued

Florida Shellfish Aquaculture Extension

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Projects

The following summaries provide information on current or recen
completed research and extension projects on shellfish aquacultu
conducted by UF Institute of Food and Agricultural Sciences facul
variety of projects addressing the needs of the clam farming indu
addition, you can link to the final reports for completed projects.

- Clam Lease Assessment, Management, and Modeling Using Remote Sensing (CLAMMRS)
- Diversification for the Hard Clam Aquaculture Industry
- Investigation of Blood Ark and Ponderous Ark Culture a
- Marketability
- EADIN: Expert Assistance and Distance Identification
- Enhancing Stress Resistance of Cultured Hard Clams in
- Triploidy
- Genetic Analysis of Hard Clam Performance in Commercial Culture
- Genetic Issues in Hard Clam Aquaculture
- Impact of Temperature Acclimation on *Vibrio vulnifi*
- Florida Farm-Raised Clams During Summer Harvest
- Organizational Structures and Strategies for the Ha
- Aquaculture Industry in Florida
- Preliminary Health Assessment of Cultured Clams in

Newsletters

Following are recent copies of the quarterly newsletter for the Florida shellfish aquaculture extension program, *The Bivalve Bulletin* (formerly *Shellfish Aquaculture*). Each issue is in PDF format.

Suppliers

These listings are provided as a service of IFAS, do not sponsor or endorse any of these supplier lists have been compiled as informational hando

Suppliers Lists:

- 2004 Clam Bag and Fabric/Thread Suppliers
- 2004 Clam Bag Identification Tags (PDF)
- 2004 Hard Clam Seed Suppliers (PDF)
- 2003 Clam Harvesting and Processing Equipment Supplier

Sea Grant Florida

RESEARCH UPDATE: Sulfide Levels in Bottom Sediments and its Influence on Clam Survival

Background: The hard clam is typically found and grown to market size in nutrient-rich estuarine environments. Hydrogen sulfide is a natural metabolic poison known to decrease the survival and growth of many bivalve species. It is often produced as a byproduct of organic matter decomposition in marine soft sediments, particularly in estuaries prone to high nutrient inputs, or periodic eutrophication.

Objectives: This study combined field surveys and laboratory experiments to determine whether hydrogen sulfide is present in bottom sediments at aquaculture lease areas in the Suwannee River estuary and whether sulfide levels decrease the survivorship of two clam sizes used in aquaculture.

Results: Sulfide was found in sediment pore water near and within lease areas at concentrations averaging 0.079 mM and as high as 0.567 mM. Hydrogen sulfide is responsible for giving off a "rotten egg" odor when bottom sediments are disturbed. The Derricks, Gulf Jackson and Horseshoe Beach lease areas were found to have significantly higher sediment pore water sulfide concentrations than the Pine Island and Pelican Reef leases. These lease areas are located in Levy and Dixie Counties. Unexpectedly, sulfide concentrations did not tend to vary predictably with sediment organic matter content, sediment grain size or most water quality parameters. Sulfide did vary predictability with salinity at some leases. Sulfide levels peaked during late August and early September and remained relatively low and constant during the remainder of the sampling period. This coincides with the annual water temperature peak when episodes of benthic hypoxia (no or limited oxygen) are most prevalent in estuarine environments.

The survivorship of clam nursery seed (4-6 mm) and growout seed (12-15 mm) was reduced over normal conditions when exposed to levels of 0.10 to 0.35 mM hydrogen sulfide in the laboratory experiments. Addition of the antibiotic chloramphenicol tended to increase clam survivorship, suggesting that sulfide indirectly affects clam survival by facilitating bacterial proliferation. The reduced survival of clams in the lab suggests sulfide could play an important role in hard clam mortality during the field aquaculture process.

Conclusions: It was concluded in this study that hydrogen sulfide is present in bottom sediments of clam aquaculture areas at concentrations capable of reducing clam survival. Hydrogen sulfide was found to vary substantially between different leases and between different times of the year. However, predicting which lease areas are at risk and when they are most at risk for sulfide toxicity would require sampling of sediment pore water at specific planting locations and planting times.

For a complete summary of this project's findings, contact either Dr. Derk Bergquist, UF Dept. of Fisheries and Aquatic Sciences, at 352-392-9617, ext. 234 or the Shellfish Aquaculture Extension Office. The project report is also available at the web site: *http://shellfish.ifas.ufl.edu*. This research was conducted in 2003 with funding from the Florida Sea Grant College Program.

Sediment core sample from a lease. The black area is the anoxic sediment where hydrogen sulfide can be found.

COOL Legislation: What's it about?

The 2003 Farm Bill passed by the U.S. Congress contained a mandatory country of origin labeling (COOL) provision that will apply to all perishable ag commodities, including beef, lamb, pork, fish and shellfish, sold at retail outlets starting in September 2004. This public law will require retailers to label, stamp, mark, placard or use other visible signs on the commodity, package or display unit. The law will not apply to food service establishments, such as restaurants. The law will also require the labeling of all retail fish and shellfish as "farm-raised" or "wild". Farm-raised is defined as that having been harvested from controlled environments. Finally, the law will require a verifiable record-keeping audit trail.

The shellfish aquaculture industry should accept this legislation. Further, shellfish wholesale firms should not be burdened by the audit trail since this is already required through the FDA's National Shellfish Sanitation Program. The complete text of the law can be found at *http://www.ams.usda.gov/cool/*.

EU Decisions Affect Mollusk Imports

The European Union (EU) has recently approved revisions that will allow for the importation of mollusks for human consumption without an animal health certificate. EU member states, of which there are 25 including France, Italy, Portugal, Spain and the United Kingdom, have been advised they may begin accepting product from the U.S. without penalty using a revised certificate. Prior to any export, the importer must contact the authority of the importing member state for approval. Also, the exporter must still obtain a certificate indicating product suitability for human consumption from the FDA or NOAA, and comply with EU rules pertaining to labeling and packaging.

Prior to this, the opportunity to export to the EU was basically "nil" as the inspection process, conducted by the USDA Animal and Plant Health Inspection Service (APHIS), was limited to those firms that had an ongoing certification program for at least two years. For more info, contact Jill Rolland with USDA APHIS at (301) 734-7727 or the EU's web site at *http://europa.eu.int/eur-lex/en*.

UPCOMING EVENTS

CLAMERICA Celebration

Sunday, 4th of July, 11AM-5 PM
City Park, Cedar Key

The Cedar Key Aquaculture Association announces its first ever festival to be held in conjunction with the City's evening fireworks. The Celebration will feature live music, farm-raised clams prepared in many ways, and Clamania events which include a Cultured Clam Cook-off, a clam hunt, shucking demonstrations, clam bag races and more.

Clam Culture Workshop

Thursday, August 19 6:30 PM
FSU Marine Lab, Carrabelle

This workshop will allow new growers in Franklin County to review their lease contracts and obligations with the DACS Division of Aquaculture. It also provides an opportunity for discussion on production, water quality, marketing and other matters. Contact Bill Mahan, Franklin County Extension, at (850) 653-9337.

3rd Annual Clambake Festival

September 10-12, 2004
Riverview Park, Sebastian

This popular 3-day event will be hosted again this year by the City of Sebastian. The Clambake focuses attention on the Indian River Lagoon and its importance to life in the area. As the festival name suggests, there are plenty of clams to be eaten, and an extensive schedule of events located in the Riverview Park. Proceeds go to a local charitable project. Contact Rich Stringer with the City at (772) 388-8201 for details.

Florida Aquaculture Association's Annual Conference

November 5-6, 2004
Hillsborough Community College, Ybor City

Industry and research leaders will share the latest information on statewide activities, commodities, production systems, equipment and technology. Conference registration is $75. Contact David Boozer with FAA at (863) 294-8307 or visit their website *www.flaa.org* for more information.

Check out our new web site: *http://shellfish.ifas.ufl.edu*

Bivalve Bulletin
July 2004
This newsletter is published through the University of Florida Cooperative Extension Service. For more information, contact

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