

THE BIVALVE BULLETIN

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What is CONSUMER RESPONSIBILITY in Aquaculture?

With the national economy still in a slump, the clam aquaculture industry continues to face declining sales values and increasing market competition not only in-state but with other clam-producing states as well. In order to increase market share, the industry must begin looking at national and global trends, address strategic problems that affect both the seafood and aquaculture industries, and start developing new options.

So what is occurring on the national and global levels? Foremost, demand for seafood has only increased from 12.5 pounds per capita (per person) to 14.8 pounds over the past 20 years. This “mature” demand is coupled with expanding supply which is predominately driven by aquaculture. With world fishery landings flat at around 80 to 90 million metric tons, aquaculture production has grown from 10 to 40 million metric tons during 1984 to 1998. Global supply has been the real growth, with China’s aquaculture exports increasing from 4 to 27 million metric tons over the same time period (see the July 2002 issue of the *Shellfish Aquaculture Newsletter* for more information.) Other countries in Southeast Asia, in particular Vietnam, and South America are also dominating the marketplace – just take a look at the advertisements in *SeaFood Business*, a national trade magazine for wholesalers and retailers.

What does all this mean? The bottom line – prices for seafood have fallen. For example, in the past 10 years the price of farm-raised salmon has dropped from \$3.50 to \$1.70 per pound. The same has occurred for farm-raised

catfish, shrimp, and other seafood items. Declining prices indicate that profits must also be down. In some cases, prices are below the U.S. cost of production. So the clam aquaculture industry is NOT alone! Further, this pattern exists across all commodities.

What are the generic options for solution?

The first option, and certainly the easiest, is to become the low cost producer and compete on price. As clam production rose exponentially during the 1990s, this strategy allowed Florida clams to rapidly enter the national marketplace. Another option is to become the most consumer responsive producer/wholesaler and compete on benefits delivered. The third option is to take a non-business action, such as engaging in protectionism or government subsidies. For example, the January 2003 issue of *The Bivalve Bulletin* reviewed the plight of the U.S. catfish industry. At that time, catfish producers were seeking tariffs on imported catfish from Vietnam. By next month, the U.S. Department of Commerce is scheduled to make a decision on an antidumping petition filed by The Catfish Farmers of America. However, many industry observers caution that while trade laws may slow down the competition, the realities of the global marketplace cannot be escaped.

So what is consumer responsive? First, consumer value must be defined as a relationship between the perceived benefits of a product and the product price. To create consumer value, by means other than lowering price, the focus must be on the benefits derived from quality, functionality, form, place, time, or ease of possession. A product is a BUNDLE of benefits! Value is added when benefits are increased through either physical change, perceptual change, or associated service change. Consumer responsive is creating customer value and competing against others based on increasing the bundle of benefits rather than decreasing the price. Some keys to success include



2002-3 Clam Marketing Campaign

An exciting promotional campaign for Florida farm-raised clams is being conducted by the Bureau of Seafood and Aquaculture Marketing in the Department of Agriculture and Consumer Services (DACs). Components of this campaign include trade advertising, point-of-purchase materials, in-store samplings, exhibits at national seafood shows, and much more. Turn to page 2 for campaign highlights!

Consumer Responsibility (continued)

uniqueness of product offering, profits from high margin and premium price, extensive knowledge of the customer, and proper signaling of the added value. Since value-added can also become “commoditized,” continual innovation in the product’s bundle of benefits is necessary.

So what is driving consumer use of seafood and aquaculture products? In terms of percent consumption, seafood falls below poultry and beef, but is above pork. In terms of national consumer attitudes, seafood is generally considered to be healthier than other meat options and more appropriate for a dinner out than something to cook at home. The most common response in consumer surveys is “I would eat more seafood if I knew how to buy or cook it.” The good news strategically for seafood is the perception of good health by consumers, especially with aging “baby boomers.” The image of seafood is of quality and taste, making it an excellent fresh product and “restaurant” food. Also, aquaculture should create stability of price and supply for the consumer, as well as provide for product traceability. The bad news strategically for seafood is that consumers do not know how to use it at home. Traditional frozen, such as “fish sticks,” and fast food products are not perceived as healthy. Also, seafood continues to be perceived as a high price protein alternative. Lastly, supermarkets control the distribution of seafood in the national marketplace.

So what are the consumer responsive options for aquaculture? As marketers step up efforts to make consumers more knowledgeable about cooking seafood and offer more convenient products that take the guesswork out of preparation, it is expected that the market should continue at

its present rate of growth through 2010. Total retail sales are projected to increase from \$17.7 to \$22.2 billion over the next 5 years. That’s an annual growth rate of just over 5%. By segment, annual growth is projected to be highest in frozen/refrigerated products, as opposed to fresh. Negligible growth is foreseen for canned products. Many industry observers only offer cautious optimism about demand. Strategic options for aquaculture certainly include targeting niche markets, for example, ethnic, all-natural, or high-end restaurants. Another option would be to create generic advertising a la pork or beef. (By the way, this is a strategy being considered by the recently established East Coast Shellfish Growers Association as an effective and unifying marketing tactic.) Other options include moving producers into processing, either by individual and group action, or by alliances with others at home and in the world. Finally, become a “preferred” supplier in someone’s supply chain.

In summary, the seafood and aquaculture industries, even clam culture, face the classic commodity problem – “global” supply and price, and “mature” demand at home. Consumer responsive options do exist. These include focus on creating consumer benefits; promoting health, taste, convenience, and safety; and, being the wholesaler or retailer’s “best” supplier.

Sources: “Options for Being Consumer Responsive in Aquaculture,” 2003, Dr. Chris Peterson, Nowlin Chair of Consumer Responsive Agriculture, Michigan State University; *SeaFood Business Magazine*, May 2003.

Clam Marketing Campaign on the Move

Since the industry brainstorming session with the DACS Division of Marketing in Orlando last July, the Bureau of Seafood and Aquaculture Marketing has been busy incorporating and implementing ideas discussed at that meeting. The 2002-3 marketing campaign is a result of funding from last year’s state legislative session to help increase sales of Florida farm-raised clams. A liaison committee, chosen to represent industry from different parts of the state’s growing areas, has directed the Bureau on various campaign initiatives during quarterly teleconference meetings. Following is an update on those initiatives:

Trade Advertising – A full-page advertisement, shared with the alligator industry, was placed in the March issue of the *SeaFood Business Magazine* to coincide with the 21st International Boston Seafood Show. The clam industry participated in the *Fresh From Florida* exhibition booth. Another ad is in this month’s issue of the *Nation’s Restaurant News*. This coincides with the National Restaurant Association’s 84th Annual Show being held during May in Chicago, which attracts over 75,000 attendees. The clam liaison committee confirmed funding a generic booth at this show. Bureau personnel will be staffing the booth and Florida clam supplier lists will be distributed.

Retail Display – New ice picks for farm-raised clams have been designed and 5,000 are being printed. These can be used in seafood retail display cases. An additional 60,000 clam recipe (*Open Up to Florida Farm-Raised Clams*) brochures are being reprinted for point-of-sales information and promotions. The flyer, developed during the 1998-9 clam marketing campaign, will now include the verbiage “Product of USA.”



Clam Marketing (continued)

Handling Flyer – A colorful informational sheet has been developed and is being printed on 5” by 7” waterproof paper. The flyer is to be used by wholesalers to insert into master cartons shipped to the retail customers. The purpose is to aid in the storage and handling of live product and to be a reference guide for personnel in those locations. Distribution of these flyers is via a request form, which was sent to 80 certified shellfish shippers in the state.

In-store Samplings – During March, clams were served at four Publix locations in the Tallahassee area. The demonstration company, Chefs USA, served clam linguine with wine sauce. Gallo featured Redwood Creek Sauvignon Blanc with the clams and offered a ‘hang-tag’ coupon for \$2 off a seafood purchase combined with a wine purchase. Tabasco Brand and Cabot Butter also had coupon offerings. The clam recipe included each of these brand products. Recipes were handed out during the samplings and a ‘streaming’ video showed the preparation of the recipe.

Upcoming Samplings – This month, clam samplings are planned at Sutton Place Gourmet, an upscale food market with 10 locations in Maryland. Their newspaper ad was displayed in the *Washington Post* Food Section with Florida clams a feature item. Additional samplings will occur during June at other major regional grocery chains in New York and Ohio locations.

Other initiatives that have occurred which were not charged to the clam campaign legislative funding include:

- Farm-raised clam brochures were handed out at the *Fresh From Florida* Pavilion at Disney’s Epcot International Food & Wine Festival during November. Over 1.3 million guests were present.
- A booth displaying Florida farm-raised clams was part of the Bureau’s presence at the International Restaurant & Hotel/Motel show in New York during November. Attendees exceeded 60,000. Trade leads generated are available.
- Over 18,000 clam brochures were sent to 75 Florida Chambers of Commerce and Welcome Centers upon their requests.

Questions, comments, or requests for additional information concerning this campaign can be directed to John Easley, with the Bureau of Seafood and Aquaculture Marketing, at (850) 488-0163 or easleyj@doacs.state.fl.us.



Update on Division of Aquaculture Budget



The Florida aquaculture industry received a rude awakening in January when Governor Jeb Bush released his proposed budget for the 2003 state legislative session. In it the governor drastically reduced staff and funding to the Division of Aquaculture within the Department of Agriculture and Consumer Services (DACS). Initially, the Governor's office indicated the state's interest would best be served if the Division's operations were privatized. Later, there was speculation about redistributing core programs and services among several agencies. The only clarification obtained from the Governor's office was that 1) aquaculture would remain agriculture, 2) FDA requirements for the shellfish industry would have to be met, 3) the aquaculture certification program should continue, and 4) the BMP program and inspections should continue. This blow was even more disturbing given the monumental strides and progress the aquaculture industry has achieved over the last decade, as well as support received from the Legislature to create the Division. In part, these efforts were accomplished through the successes of shellfish aquaculture retraining programs, which provided rural economic development and placed hundreds of people into small businesses.

Over the past two months, individual clam growers as well as local growers associations have reacted by joining other segments of the aquaculture industry. Legislators have become reeducated on the importance of this industry and have confirmed their cooperation. Letters of support and resolutions have been obtained from citizens, chambers of commerce, and local governments. Industry members from all parts of the state have given testimony at agriculture appropriation committee meetings in Tallahassee. Further, the industry received a large amount of publicity from the press. The result is that both the House and Senate passed budgets which include full restoration of funding to the Division. Unfortunately, the outcome is now contingent upon results of a special session that runs through May, along with final approval of the 2003-4 fiscal year operating budget by the Governor. Several things have been reinforced through this budgetary crisis. First, growers and associations need to stay active and in touch with their legislators. Second, industry representatives must continue to look after their own interests. It has been quite rewarding to witness the response of the relatively new clam aquaculture industry. Members have risen to the occasion - verifying it sometimes takes a common problem to bring people together.

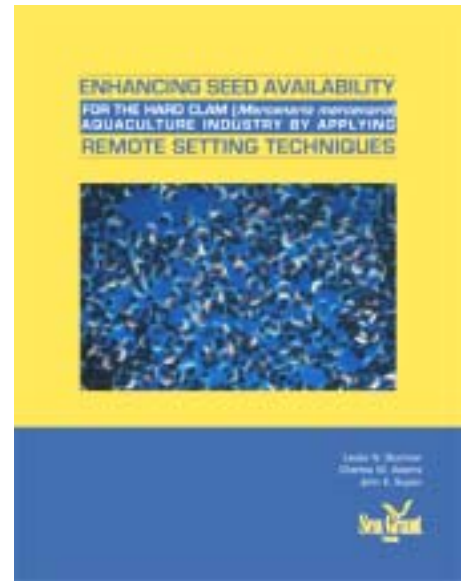
Note on Aquaculture Certificate Renewals — Many funding issues are still being discussed in the legislative special session, including increasing the amount of the annual certification fee. Thus, renewal notices for 2003-4 have not yet been mailed to aquaculture producers. Letters from the Division stating this have recently been mailed to all certificate holders. If you have any further questions, contact Kal Knickerbocker with the Division of Aquaculture at (850) 488-4033 or knicke@doacs.state.fl.us.

RESEARCH UPDATE: Report Available on Remote Setting of Clam Seed

During a 2-year study, funded by Florida Sea Grant, technical procedures were developed and demonstrated to determine the economic feasibility of applying remote setting technology used by the Pacific Northwest shellfish industry to the hard clam culture industry in Florida. Remote setting methods in Washington, for example, involve high volume production of either Pacific oyster or Manila clam larvae in the hatchery. Just prior to setting, the shellfish larvae are then refrigerated and shipped chilled to growers at “remote” locations for settling and nursing. Biological characteristics associated with remote setting of hard clam larvae, as well as results from rearing trials conducted in 2000-1 with participating land-based nursery operations, were summarized in the July 2002 issue of the *Shellfish Aquaculture* Newsletter.

The costs to the nursery operation of producing 1-mm clam seed using remote setting techniques as opposed to purchasing 1-mm seed from a commercial hatchery are compared in this study. The economic analysis provides nursery operators with the basic information to assess the financial merit of adopting remote setting techniques. In the analysis, the financial characteristics of the remote setting facility are described. The initial investment required to construct a pilot-scale system, consisting of one tank, is estimated at \$3,000. The operational costs, such as supplies, variable, and overhead expenses, are also determined.

These costs are then combined into a total cost estimate expressed on a per unit of production basis. The production unit assumed in this analysis is based on 1,000 1-mm seed clams, an industry standard by which post-set seed clams are purchased. The estimated per unit production cost can then be compared to the current unit market price. These



Cost budget for one-tank remote setting system

Item	Units/Run	\$/Unit	Runs per Year	
			One	Two
Larvae	3 million	\$125/million	\$375	\$750
Supplies			\$214	\$428
Labor	104 hours	\$5.15/hr	\$536	\$1,072
Elec. Utilities	403 KwH	\$0.085/KwH	\$34	\$68
Annual depreciation on initial investment			\$938	\$938
TOTAL COST			\$2,097	\$3,256
1-mm seed produced (37% survival used based on rearing trials)			1.11 million	2.22 million
Cost/1000 seed (with labor)			\$1.88	\$1.47
Cost/1000 seed (without labor)			\$1.41	\$0.97

expenses are computed on the basis of one and two runs per year when employed at a modest scale - for example, a one-tank remote setting system stocked with 3 million clam pediveliger larvae per run.

The financial analysis suggests that the remote setting technology generates a seed cost savings compared to purchasing 1-mm seed clams from a commercial hatchery. When operating the system for two runs, the system produces 2.22 million 1-mm seed clams at a cost of \$1.47 per 1,000. This represents a cost savings of \$1.53 per 1,000 seed when compared to a market price of \$3.00 per

1,000 1-mm clam seed. (When this study was conducted, \$3/1,000 represented the current market price.) In addition, the initial cost is recovered from these cost savings during the first year of operation. The survival rate in the remote setting system would have to fall from the assumed level of 37% to below 18% for the system to not be able to provide cost savings. However, a risk does exist in that no commercial source of clam pediveliger larvae is currently available on a consistent basis. The analysis assumes that 1 million pediveliger larvae would be available from a commercial hatchery at a cost of \$125. This price may change if this market were to develop. However, the price per 1 million pediveliger larvae would have to increase to over \$692 for the operator to be indifferent to using the remote setting technology versus buying the 1-mm clam seed. For more info on the economic analysis, contact Chuck Adams with the UF Food and Resource Economics Department at (352) 392-1826 ext. 223.

A final report, published by Florida Sea Grant as Technical Paper 125, is now available to interested hatchery and nursery operators. Although availability of clam seed is more than adequate today with prices at an all-time low, some of the management techniques evaluated in this study may be of benefit in rearing 1-mm seed to a field planting size. For example, mechanical filtration of the incoming water supply may improve seed survival if the saltwater source is high in suspended solids. Further, supplemental feeding with a commercially available algal paste may be a cost-effective method to increase growth when food is limited, particularly during early spring start-up of the land-based nursery system. To acquire a copy of the report, either contact the Shellfish Aquaculture Extension Office or Kim Wagner with Florida Sea Grant at (352) 392-2801.

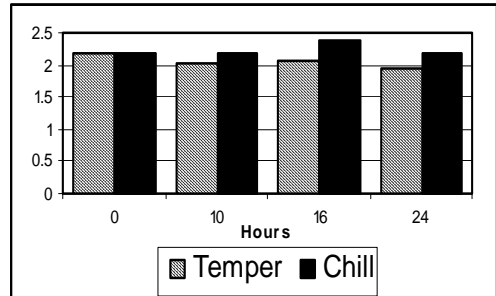
RESEARCH UPDATE: Impact of Tempering on Clams during Summer Harvest

The survival of hard clams in refrigerated temperatures below 45°F decreases significantly as harvest water temperatures increase through the summer months. Detailed acclimation studies conducted during 1996-8 with interim refrigeration temperatures (dry tempering) clearly demonstrated the value of alternative handling methods to maintain clam survival during problematic warm months. Verification studies on the microbial consequences of the dry tempering method were conducted both in the laboratory during 1997 and in commercial processing plants during 2000. In response to continuing requests from the Florida shellfish regulatory authorities as prompted by the regional U.S. Food and Drug Administration (FDA), additional verification trials were conducted last year by Dr. Anita Wright, with the UF Department of Food Sciences and Human Nutrition, to determine the consequences of potential *Vibrio vulnificus* on tempered clams versus non-tempered clams. This project was funded by the U.S. Department of Agriculture (USDA) through a special research grant.

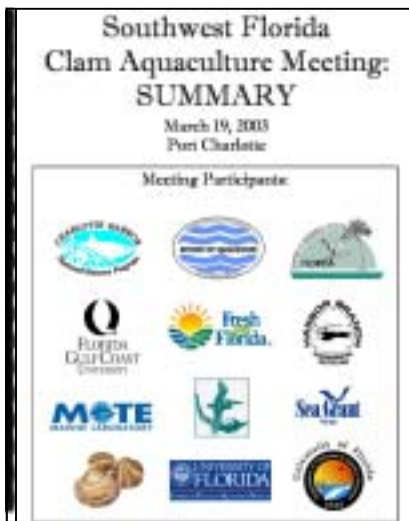
The trials were based on cultured clams harvested from approved waters in Cedar Key during July, August, and September 2002. Clam samples were collected during harvesting, or 0 hours. After 6 hours at ambient conditions, one set of clams was placed in a 68°F environment to temper for 10 hours prior to placement in a cooler at a temperature of 45°F. Another set of clams from the same lot was held for 10 hours at ambient conditions (the maximum allowed under the time/temperature matrix for summer months) prior to direct placement in refrigerated storage. No significant differences in levels of fecal coliform and *Vibrio vulnificus* were detected in clams from these temperature treatments at 0, 10, 16, or 24 hours. Bacterial levels were notably low and a magnitude (100 times) below those typically obtained from oysters.

These results can be used by industry to verify that tempered clam product is as safe as non-tempered product and does not pose a human health risk. A status report, entitled *Utilization of Tempering for Hard Clams*, was compiled by Dr. Steve Otwell with the UF Aquatic Food Products Lab and is available upon request by contacting him at (352) 392-1991 or the Shellfish Aquaculture Extension Office.

Vibrio Content of Clams, Summer 2002



South West Florida Clam Meeting Summary



In March, members of the clam aquaculture industry in Southwest Florida met with representatives of various agencies, institutions, and universities who have interests in or are conducting research and/or monitoring programs within the inshore coastal waters of Charlotte and Lee Counties. The intent of this meeting was to open up a dialogue between these groups, to find out

what information is available to clam growers, and discuss what clam growers may need to assist them in their business operations. A summary of the meeting was recently compiled and distributed to participants of the meeting. Information is provided on whom to contact, what activities are being conducted, and how to access additional information via web sites. It is anticipated that cooperation between clam growers, researchers, and resource managers will continue in an effort to address the clam aquaculture industry's needs in this area. If you would like to receive a copy of the meeting summary, please contact the Shellfish Aquaculture Extension Office.

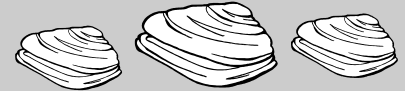
Clam Lease Signs for Franklin County

Clam growers in the Florida Panhandle will soon receive signs that will provide information to boaters about aquaculture leases. Produced by Florida Sea Grant and the Shellfish Aquaculture Extension Office with funding from a USDA special research grant, the 18" by 18", weather-resistant signs will be posted in Franklin County. The "attention-getting" signs are a result of workshops with new growers in this county last year in which growers expressed concerns over the number of recreational boaters who were not aware of the location of leases in Alligator Harbor. In addition, growers use SCUBA gear to work the deeper lease sites. These signs will provide appropriate warnings to the public regarding clam lease activities. This summer, growers will attach signs to pilings marking the corners and boundaries of the aquaculture use area. Sea Grant agents will post signs at marinas and public boat ramps. To acquire the bright red and yellow warning signs, contact Bill Mahan in Franklin County at (850) 653-9337.





UPCOMING MEETINGS



How to Handle and Harvest Clams

Thursday, June 5
3:00 PM and 7:00 PM
FSU Marine Lab at Turkey Point
Carrabelle

New clam growers in Franklin County will be introduced to the "rules of the road" that must be followed in handling and harvesting their product. Information on the aquaculture certification requirements, the shellfish harvesting classification and management plan for Alligator Harbor, boat and vehicle requirements, and other state and federal rules pertaining to molluscan shellfish will be provided. Although this workshop focuses on what a grower needs to harvest, certified shellfish wholesalers in the county are encouraged to attend. Another workshop is planned to address what is required in processing and marketing clams. Contact Bill Mahan, Franklin County Extension at (850) 653-9337 for further information.



Training in C.L.A.M Software

Monday, June 23 7:00 PM
Tuesday, June 24 3:00 PM
Wednesday, June 25 7:00 PM
FWCC Marine Field Station
Cedar Key

These training sessions will introduce clam growers in Levy and Dixie Counties to a user-friendly software program based on Microsoft Excel for IBM-compatible PC systems. The *Computer Logbook And Management* software package was developed as a business tool to enhance record keeping and inventory management of a commercial clam culture operation. A FREE copy of the software program and a companion User's Guide will be provided at these sessions. Additional training sessions are planned this summer for other counties. Participation in these sessions will be LIMITED, so contact Leslie Sturmer, Shellfish Aquaculture Extension Agent, at (352) 543-5057 to sign-up or for more information.

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