
Florida Sea Grant was the lead sponsor and organizer of the international conference on marine ornamental species, *Marine Ornamentals 2001: Collection, Culture & Conservation*. Building on the first conference organized by Hawaii Sea Grant, 19 sponsors including nine Sea Grant programs, joined to create a program that attracted 336 participants from 23 countries. Program evaluations showed that 67% of the attendees would attend a subsequent conference and 91% indicated that the conference should be continued as is or expanded. Iowa State Press has been contracted to publish a book containing the scientific papers from the conference, expected to be released for distribution in May 2003.



FLORIDA MARINE AQUACULTURE

This page briefly highlights some of the Florida Sea Grant investments in marine aquaculture research and extension, results and impacts of this investment, and current research. The program's goal has been to develop the food and hobby aspects of Florida's marine aquaculture to be both economically and environmentally sustainable. Priorities have focused mainly on marine ornamentals and shellfish, and to a lesser degree, finfish.

- In Florida, marine aquarium species are primarily collected from the wild (about \$4 million annually) while farm-level sales of freshwater ornamental fish and aquatic plants was \$64 million in 2001. A Sea Grant goal is to increase the culture of marine ornamentals in order to generate economic activity in Florida while protecting the wild-caught stocks. Market information, the acceptability of various marine ornamental attributes, and the overall demand for marine ornamentals has been determined as a way to measure the potential of this culture industry.
- Florida Sea Grant has cooperated with a number of partners and the industry in providing business management training, nursery technology and seafood safety techniques to create a hard clam industry that did not exist a decade ago. Florida's hard clam industry now annually generates nearly \$34 million in output, \$9 million in labor income and \$12 million in value added.
- Florida Sea Grant aquaculture specialists were instrumental in obtaining sanctions to allow hard clam growers to qualify for USDA crop insurance — the first eligibility of its kind for marine aquaculture in the United States.
- A Florida Sea Grant project has demonstrated that Dermo-free (void of *Perkinsus marinus*) oysters can be produced in Florida. The ability to produce these oysters in Florida with only slight modifications to existing hatchery technology has tremendous implications for the shellfish industry.
- Hatchery and grow-out technology for fingerling mutton snapper and greater amberjack has been developed through Florida Sea Grant research in cooperation with an industry partner, the Aquaculture Center of the Florida Keys. Results are now being applied in a full-scale cobia grow-out project in Puerto Rico, funded by a National Sea Grant strategic research initiative.
- Adequate seed availability has been a major hindrance to the development of the hard clam culture industry in the southeastern U.S. particularly when critical shortages have occurred. Florida Sea Grant researchers have developed hard clam remote setting technology, adapting from the Pacific Northwest molluscan shellfish industry experience to suit Florida clam farmers. Remote setting will allow southeast nursery operators and growers to become less dependent upon traditional seed sources.



- The fishery for naturally occurring hard clams is of major cultural and economic importance to many eastern U.S. states. Landings from the traditional stock have declined in the past due to over harvesting and removal of spawning stock. Stock enhancement in natural settings is an alternative to increasing stock size. The feasibility of introducing hatchery-sponsored larvae directly to the water column as a cost-effective means of stock enhancement for hard clams is being tested in the Indian River Lagoon.
- The production feasibility of two marine bivalve species is being investigated to determine their potential to diversify the hard clam aquaculture industry. Limited stocks of Blood Ark (*Anadara oralis*) and Ponderous Ark (*Noetia ponderosa*) have prevented the development of major fisheries, but aquaculture could provide a source of seed for both. Efforts focus on spawning and larval rearing technologies.
- Certain marine algal species make up an important part of the natural diet of Atlantic surgeonfish, which have economic importance in Florida, and are traded globally for the aquarium trade. An experimental diet that approximates the natural diet of these fish is being developed and tested. The goal is to develop diets that can be used to improve the health and management of Atlantic surgeonfish and to enhance efforts for captive propagation.
- Suitable food for early life stages of cultured fish is a bottleneck for raising them for the ornamental fish hobby-based market. Florida Sea Grant research is underway to scale-up production of copepod species as food for rearing tropical ornamentals.
- High mortality rates that occur during the first stage of hatchery-reared fish have been problematic to aquaculturists and to the marine ornamental industry. Florida Sea Grant scientists are engaged in the development of feeding kinematics and performance in marine fish larvae as a novel approach to understanding the food requirements of marine ornamentals and food fish.



The Florida Sea Grant College Program is committed to enhancing the practical use and conservation of coastal and marine resources to create a sustainable economy and environment. Florida Sea Grant is the only statewide university-based coastal research, education, extension/outreach and communications program in Florida. One of 31 Sea Grant programs nationally, it is a partnership program among the National Oceanic and Atmospheric Administration, Florida universities and Florida's citizens, businesses and governments.

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