

*Oceans for a Sustainable
Economy and Environment Through
Research and Education*

FLORIDA SEA GRANT COLLEGE PROGRAM
M/PM-12

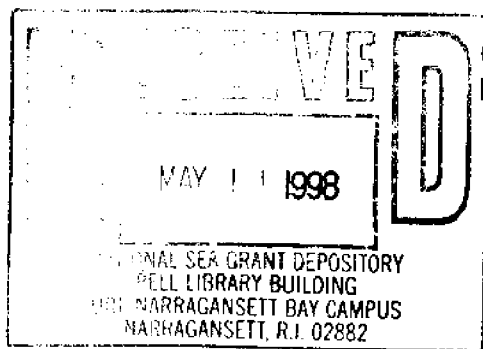
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**Florida Sea Grant
College Program
Strategic Plan
1998-2001**

*Creating a Sustainable Coastal Economy and
Environment Through Research and Education*

Florida Sea Grant College Program

Strategic Plan 1998-2001



*A partnership program among the State University System of Florida
University of Florida*

*Oceanic and Atmospheric Research
National Oceanic and Atmospheric Administration*

Florida's citizens, industries and governments

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Technical Paper-90

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April 1998



UNIVERSITY OF
FLORIDA

Florida Sea Grant College is supported by award of the Office of Sea Grant, National Oceanic and Atmospheric Administration, U.S. Department of Commerce, grant number NA 76RG-0120, under provisions of the National Sea Grant College and Programs Act of 1966. This publication is funded by a grant from The National Oceanic and Atmospheric Administration. The views expressed herein are those of the author(s) and do not necessarily reflect the views of NOAA or any of its sub-agencies. This information is published by the Sea Grant Extension Program which functions as a component of the Florida Cooperative Extension Service, Christine Waddill, Dean, in conducting Cooperative Extension work in Agriculture, Home Economics, and Marine Sciences, State of Florida, U.S. Department of Agriculture, U.S. Department of Commerce, and Boards of County Commissioners, cooperating. Printed and distributed in furtherance of the Acts of Congress of May 8 and June 14, 1914. The Florida Sea Grant College is an Equal Opportunity-Affirmative Action employer authorized to provide research, educational information and other services only to individuals and institutions that function without regard to race, color, sex, age, handicap or national origin. The information in this publication is available in alternate formats. Information about alternate formats is available from Educational Media and Services, University of Florida, PO Box 110810, Gainesville, FL 32611-0810.

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Introduction

The Florida Sea Grant College Program is committed to enhancing the practical use and conservation of coastal and marine resources for a sustainable economy and environment in a state whose coastline stretches for over 1,300 miles. Now in its 27th year (1998) in Florida, Sea Grant operates through a statewide university-based research, education and extension partnership of state and federal agencies, businesses and citizens. This partnership involving university faculty and the public was created nationally in 1966 with the passage of federal legislation that created the National Sea Grant College Program. Today, 29 Sea Grant programs, based within the academic structures of their states, together form the national program.

Using research, education and technology transfer to address societal needs requires a strategic approach along with tailored tools and techniques designed to solve specific problems. One problem may require a substantial research effort. Another may need the transfer of existing information. The solution to a third problem may depend on an intensive educational effort to develop a new source of human capital. Solving other problems may require substantial extension networking with agencies, industries or communities to bring people together in a common activity. Of course, the successful solution to some problems will require all these elements. Florida Sea Grant has a demonstrated record of success in designing the best possible approach to solving the problems resulting from human interaction with the state's coastal environment.

This plan defines Florida Sea Grant's strategic issues within the context of the National Sea Grant Network Plan, *Coastal and Marine Resources for a Sustainable Economy and Environment 1995-2005*, which in turn defines overall Sea Grant issues at the national level within the context of *NOAA's Strategic Plan: A Vision for 2005*. Florida's strategic issues are important both nationally and in Florida, and reflect the final product resulting from the input of hundreds of Floridians representing academia, government, industry and citizens.

Every Florida Sea Grant activity must satisfy three simple but tough criteria; be based on a strong rationale; demonstrate scientific or educational merit; and produce results that are clearly useful and applicable in industry, management or science. Following these criteria allows the achievement of Florida Sea Grant's programmatic goal:

To enhance the practical use and conservation of coastal and marine resources in Florida to create a sustainable economy and environment.

This is achieved by:

- Enhancing Florida's economic leadership in marine industries and products through marine aquaculture, marine biotechnology and coastal environmental technology and practices....to meet the rapidly growing demand for food and sport fisheries and the broader goals of industry and community growth consistent with high environmental quality and enhancement.
- Creating scientifically-sound, cost-effective, sustainable use and conservation of marine and coastal resources, property, and environments....to balance competing needs of a growing population of diverse user interests.
- Making Florida's citizenry, industry and government preeminent in marine affairs by establishing a cadre of technicians and professionals skilled in marine sciences, law, policy, and trades, as well as informing citizens of all ages about the marine environment and its resources....to ensure that future generations are well-trained and capable of making informed decisions about both their own future and the coastal environment that surrounds them.

Florida's Coastal Wealth

For Florida's 14 million residents and 43 million annual visitors, the coast and its resources are a major attraction and an important part of their environment. Nowhere else in the United States are so many people so close to such an extensive and economically valuable coastline.

A visit to Florida's shore reveals a set of resources of incomparable natural beauty for which intense competition exists. Sport and commercial fisheries, recreational beach activities, boating, marinas, unique ecologies, productive wetlands, scenic views, urban and rural development, heavy and intense industrial use, and the amenity-based economic and social lives of our coastal communities have all combined to place Florida's development and management in a fragile balance.

Working together, all Floridians must find a socially acceptable way to satisfy the demand for these resources while protecting their ecological integrities. The economic value of just a few of Florida's coastal resources is startling. Remarkably, it is only as a result of Florida Sea Grant research that an economic database exists for some of these resources.

FLORIDA'S COASTLINE IN PERSPECTIVE



Florida's coast would stretch from the Georgia-Florida border to the middle of the Maine coast. Eighty percent of Florida's population lives in the 35 coastal counties.

Coastal Wealth Facts

- Recreational fishing activity creates 100,000 Florida jobs. The seafood industry creates 40,000 jobs. Together, fishing annually contributes between \$4-5 billion to the Florida economy, more than any other state.
- Seventy-five percent of Florida tourists have a coastal county as a primary destination. Beach related activities create 143,000 jobs. Tourists contribute nineteen percent of the state sales tax collection in coastal counties.
- Eighty-five to ninety-five percent of sport and commercially harvested shellfish and finfish species in Florida depend on estuaries (where freshwater from the land meets saltwater from the sea).
- Sixteen of Florida's twenty-one metropolitan areas are built around an estuary, or lie at the mouth of a river where it flows into the sea.
- Florida has more artificial reefs than any other state.
- Boat registrations in Florida have approximately doubled in fifteen years, a rate three times greater than the population increase. Florida's 735,000 boats represent one for every eighteen residents or one for every eight Florida families.

- Florida's aquaculture industry is small with \$79 million in 1995 sales. Tropical fish represent sixty-seven percent of the total.
- Florida's economy relies on agriculture, tourism and retirement. Technology, international trade and export-oriented manufacturing need stimulation. Marine biotechnology is a viable candidate for the investment of intellectual and financial capital as a way to develop exportable products.
- Hurricane Andrew, the most costly natural disaster in U.S. history, cost insurance companies \$15.5 billion, mostly in Florida. Some homeowners are now paying 200 percent more for insurance.
- Miami lies closer to the capitals of 16 Latin American and Caribbean countries than it does to Washington, D.C. Florida is the main U.S. port of entry to thirty countries. Many of today's international problems are becoming tomorrow's Florida problems.
- Environmental concern in Florida is at a high level, with the debate on the complete "replumbing" of the Everglades in the planning and funding phase. The Florida Keys National Marine Sanctuary was recently established. Both are true national assets and directly relate to the future of Florida Bay, which lies at the southern tip of Florida, between the Everglades and the Florida Keys.

The Need for Research and Education

The pressures, wants, needs, and dollars represented by the huge numbers of people who “use” Florida’s coastal resources all combine to make understanding and managing one of the most fragile environments on earth a difficult and often controversial undertaking. Florida Sea Grant has a vital role to fill in this complex endeavor. Through Sea Grant research efforts, the transfer of information via the Sea Grant Extension Program, and the outreach provided by Sea Grant educational efforts, Floridians and tourists can begin to better understand the state’s unique environment. They learn how we use our coastal resources and they gain a better appreciation of their impact on the quality of the environment. This understanding is essential for Floridians to rationally manage continued growth in the coastal zone, as well as to equitably resolve the ever increasing competition for coastal resources. Florida Sea Grant has assumed a leadership role in the creation of a better informed and more responsible populace—one that recognizes the need for Sea Grant programs and uses Sea Grant findings to make Florida a better place to live. Florida Sea Grant will focus its investments in three strategic areas:

- (1) **Economic Leadership** — To enhance marine industries and products with marine species aquaculture, marine biotechnology, and environmental technology.
- (2) **Coastal Ecosystem Health and Public Safety** — To provide a scientifically-sound, cost-effective, and sustainable use of Florida’s coastal environments and reduce the loss of coastal lives and property.
- (3) **Education and Human Resources** — To establish Florida technicians and professionals skilled in marine sciences, law, policy, and trades as well as informing citizens of all ages about the marine environment and its resources.



Strategic Issues

Florida Sea Grant's Strategic Plan is organized around three major areas: (1) Economic Leadership, (2) Coastal Ecosystem Health and Public Safety and (3) Education and Human Resources. Each of these major areas contains from two to five goals. Specific objectives are then defined for each goal as a way to guide faculty and program partners over the next four years to strategically invest capital and labor in the most effective way and focused on the most critical problems.

Economic Leadership

- ✦ Create products and processes from Florida coastal resources using marine biotechnology.
- ✦ Determine production and management techniques which make Florida's fisheries sustainable and competitive.
- ✦ Develop the food and hobby segments of the Florida marine aquaculture industry.
- ✦ Improve the product quality and safety of Florida's seafood products.
- ✦ Increase the economic competitiveness and sustainability of coastal water- dependent businesses.

Coastal Ecosystem Health and Public Safety

- ✦ Protect and enhance coastal water quality and safety.
- ✦ Protect, restore and enhance coastal ecosystem habitats.
- ✦ Prepare for and respond to coastal storms.

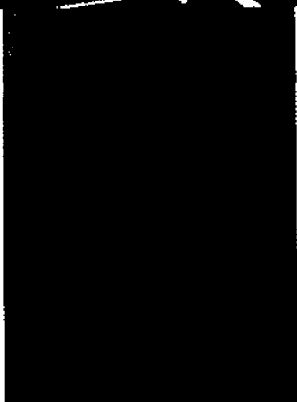
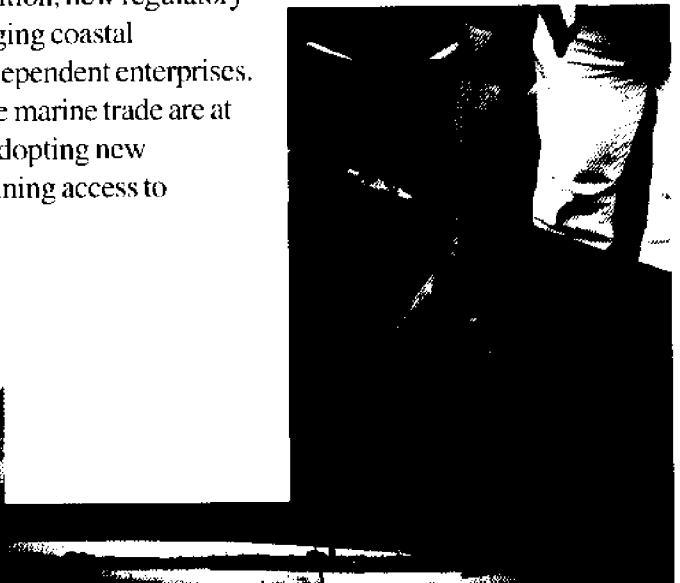
Education and Human Resources

- ✦ Produce a highly trained workforce
- ✦ Create scientifically and environmentally informed citizens.

These strategic areas and goals represent a subset of those pursued nationally by the National Sea Grant College Program. They are the ones most critical to Florida, as determined by Florida's faculty, its government agencies, its industries, and its citizens. Specific objectives under each goal are outlined in the following sections of this strategic plan.

Economic Leadership

Marine biotechnology in Florida represents an opportunity for both university scientists and biotechnology-based companies to have an impact on the growth and duration of this field. Using natural products from the sea to create pharmaceutical compounds of commercial importance is just one example. Florida leads the nation in terms of the economic value from all uses of its marine fish and shellfish. However, Florida's fisheries are affected by multiple use conflicts, global trade, overfishing and coastline development which contributes to habitat loss. Worldwide, aquaculture provides almost 30 percent of the fish and shellfish consumed by people. In Florida, aquaculture provides only a small amount of the state's total. The largest segment of the industry is freshwater tropical fish for the hobby aquarium trade. Growth potential exists for the food and hobby marine aquaculture industry. Florida has 5,000 processing plants and retail seafood firms. They range from the nation's largest firms to many small independent firms. All are attempting to respond to seafood safety issues, increasing demand, shifts in seafood supply, increasing international trade and competition, new regulatory inspection mandates and environmental concerns. Managing coastal development is a critical challenge facing Florida water-dependent enterprises. Traditionally, small businesses engaged in tourism and the marine trade are at risk and need to increase productivity and efficiency by adopting new technologies, adapting to regulatory changes, and maintaining access to coastal waters.



Goal 1: Use Marine Biotechnology to Create Products and Processes from Florida's Coastal Resources

A. Natural Products

1. Isolate and identify compounds derived from marine organisms, focusing on those with applications in medicine, non-toxic control of biofouling/corrosion and other commercial/industrial applications.
2. Determine the mode of action of these marine-derived agents.
3. Develop biological routes to synthesize compounds of commercial importance.
4. Define the chemical, physical and biological properties of marine materials such as biopolymers in terms of their applications as industrial chemicals.
5. Define the biosynthetic pathways for the substances discovered with a focus on marine toxins that constitute a health hazard in tropical/subtropical coastal communities.

B. Bioprocessing, Bioreaction, Cell and Tissue Culture

1. Develop technology to culture cells of marine organisms with desirable properties to produce useful biochemicals such as enzymes, pharmaceuticals and agrochemicals, including development of efficient product separation methods and technology for purification of culture-based substances and development of biochemical engineering technology for use of saline organisms in bioreactors and photoreactors.
2. Isolate, identify and determine the function of enzymes controlling processes of potential commercial benefit.
3. Exploit unique biological processes to develop new types of molecular biosensors including indicator systems for detecting low-level toxicity.

C. Molecular Genetics

1. Develop genetically-engineered species such as lower invertebrates, macroalgae, bacteria, and cyanobacteria, which under controlled conditions can be used to produce chemical products or used in industrial processing.
2. Develop disease and pathogen-resistant marine organisms.

Goal 2: Determine Production and Management Techniques Which Make Florida's Fisheries Sustainable and Competitive

A. Models for Improved Management and Fishery Forecasts

1. Determine critical processes (such as recruitment mechanisms, predator-prey relationships, reproductive dynamics, and habitat dynamics) that control the abundance, distribution and replenishment of fishery resources.
2. Determine and model multi-species and multi-gear interactions and how these interactions (such as changes in fishing behavior and their impact on stock dynamics, and bioenergetic linkages in the ecosystem) for use in management strategies.
3. Define population-level responses to anthropogenic stress (including intense fishing) and how these responses vary with environmental conditions.

B. Social and Economic Impacts of Fishery Management Strategies

1. Determine the impacts of regulation and policy.
2. Define methods for implementing adaptive management strategies.
3. Create innovative economic/social management strategies (such as individual transferable quotas).
4. Determine the preferences and acceptability by individuals, industry groups, and communities of various regulatory techniques.
5. Measure changes in economic values resulting from alternative uses of fisheries resources.
6. Determine the effects of new management strategies on fishing behavior (for example, among multiple user groups, high-grading, redistribution of effort among species).
7. Demonstrate empirical techniques useful in measuring the value of fish stocks allocated to alternative uses.
8. Develop coupled regional growth and fishery utilization models that consider environmental quality, technological change and regulatory policy in order to predict the structure, conduct and performance of fisheries utilization over the next decade.

C. Minimize Bycatch

1. Identify and evaluate fishing behaviors that will reduce bycatch and bycatch mortality, including mortality from catch and release fisheries.
2. Determine the impact of bycatch on stock-recruitment (e.g. assessing shrimp bycatch effects on recruitment; the impact on recruitment of undersized catch in hook and line fisheries; and similar impacts on ornamental and other fish species in trap fisheries).

D. Enhance Wild Stocks

1. Provide evaluations necessary to maximize successful releases into the wild considering optimal release tactics (i.e., size-at-release, release habitat, timing of releases, release magnitude), effects of releases on catches, ecological and genetic effects of cultured organisms on wild stocks, and effects and contributions of released stocks on stock biomass and spawning potential.
2. Develop or improve techniques and methods to estimate survival rates and distribution of released cohorts.

Goal 3: Develop the Food and Hobby Segments of Florida's Marine Aquaculture Industry

1. Develop culture techniques for ornamental invertebrates and/or fish species of reasonably demonstrated economic viability as aquarium commodities.
2. Improve production practices ranging from life history manipulation to product quality on molluscan shellfish (bivalves), especially hard clams.
3. Determine the financial feasibility and market characteristics for species of greatest technical potential.
4. Develop intensive recirculating systems for species of greatest technical potential.
5. Develop micro-encapsulated diets where diet/nutrition is a limiting factor for species of greatest potential.
6. Educate the Florida marine aquaculture industry in investment, production and expansion decisions.

Goal 4: Improve the Product Quality and Safety of Florida's Seafood Products

A. Product Quality and Safety

1. Improve manufacturing methods to reduce and/or control microbial pathogens in seafood.
2. Develop methods to better and more conveniently and rapidly assess and monitor seafood safety concerns that can be induced or controlled during production and processing.
3. Create processing innovations to enhance and prolong product quality and/or add value to current and evolving seafood products.
4. Design and deliver seafood safety programs based on the Hazard Analysis and Critical Control Point (HACCP) concepts.
5. Utilize the new University of Florida Aquatic Food Products Lab as a center of education and technical support.

B. Processing Technology and Practices

1. Upgrade technology for storage and transporting seafoods in order to maintain better quality and assure food safety.
2. Improve energy, water and processing efficiency in the production of fresh, frozen and further processed seafoods.

C. Waste Management and Byproduct Discovery

1. Develop technology for water conservation and effluent control to improve waste management practices and recover byproducts such as enzymes, hormones, and aquaculture feeds.

Goal 5: Increase the Economic Competitiveness and Environmental Sustainability of Coastal Water-dependent Businesses

A. Economically and Environmentally Sustainable Business Growth

1. Evaluate the social and economic benefits derived from the optimal use of waterfronts, examine the causes of decline or growth in working commercial and recreational waterfronts, and propose or analyze incentives that focus on retention of water-dependent and water-related facilities that serve public needs.
2. Analyze which economic strategies such as free trade zones, restrictive trading options on coastal environmental quality, or tax incentives, might affect or encourage the construction of future public facilities and maintain public access to the water.
3. Develop new technologies and products which meet emerging business opportunities, ranging, for example, from concepts that improve charts for recreational boaters, to developing equipment modifications for jet-powered vessels that reduce or eliminate scouring of sensitive bay habitats.

B. Improvements in Decision-Making Information and Planning Models

1. Determine the relationship between humans and their changing environments and how this relationship affects those ecosystems under stress, such as Florida's waterways.

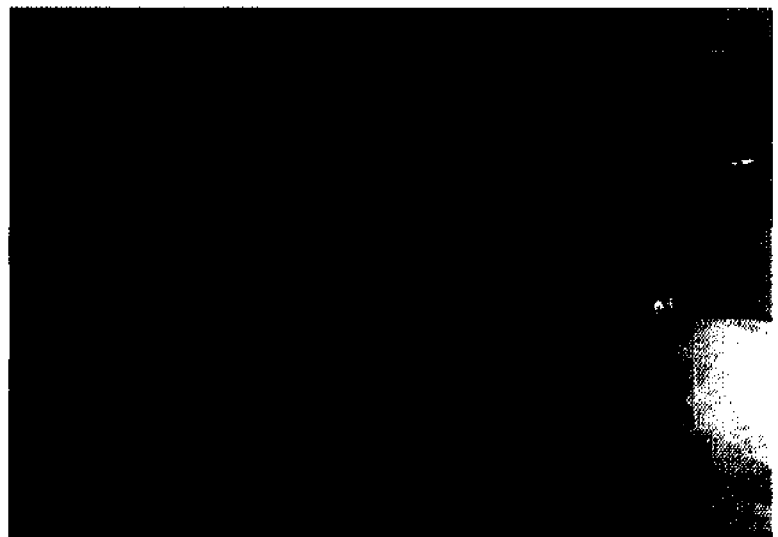
2. Determine the bio-physical effects of boating activity on bay waters and adjacent habitats, as well as on marine environmental education strategies which may affect boating behavior and boater awareness and values.
 3. Link new decision concepts, such as place-based management, with the application of geographic information systems (GIS) in order to plan for optimal waterside infrastructure and use.
 4. Use GIS for establishing or validating “virtual reality” systems for decision-making.
- C. Framework for Sustainable Community Development and Business Growth**
1. Develop a legal research agenda on the most common issues that create coastal and marine conflicts.
 2. Evaluate the effectiveness of alternative dispute resolution mechanisms.

Coastal Ecosystem Health and Public Safety

Florida estuaries, where freshwater from the land meets saltwater from the sea, are characterized by enormous ecological, social and economic diversity. Florida Sea Grant's role is to complement existing state and federal agency programs, and create greater faculty interest in management-oriented research. In this area, Florida Sea Grant will build upon its academic strengths and emphasize long-term research, testing of hypotheses, innovative analysis of datasets, multi-disciplinary approaches and training of students.

Two general principles guide Florida Sea Grant activities to sustain the functional integrity of Florida's estuaries. First, the functions of all estuaries are intimately associated with the hydrological system. Second, much of the important variability in the system is cyclical in nature. To be successful in this area, Florida Sea Grant uses specific criteria to guide its work. They are: (1) research must be at the site of existing management-based research being conducted by a partnering agency, (2) non-point source contamination must be the focus, (3) the way that the scientific results will be utilized must be specified, and (4) work must be multi-disciplinary.

The Florida coastline is at risk from a variety of natural hazards, most notably the winds, waves and floods generated by tropical storms. Risks to life and property from these recurring hazards will increase with the anticipated growth of coastal populations over the next several decades. There needs to be a dedicated effort to reduce the economic and social costs of natural hazards. All stakeholders share an interest in pursuing loss (or cost) control which is a proven risk management technique.



Goal 1: Protect and Enhance Coastal Water Quality and Safety

1. Determine the effectiveness of specific horticultural practices at reducing runoff and nutrient and pesticide contamination in estuaries.
2. Identify source and control of atmospheric contamination.
3. Determine methods to reduce contamination in watersheds.
4. Determine the function of coastal wetlands as non-point source buffer zones.
5. Identify non-point source contamination in the occurrence of nuisance blooms or trophic dysfunction and ameliorative approaches.
6. Educate coastal citizens, professionals and agencies concerning coastal water quality.

Goal 2: Protect, Restore, and Enhance Coastal Ecosystem Habitats

1. Educate coastal citizens, professionals and agencies concerning coastal habitat structure and function.
2. Guide the creation of artificial habitat (reefs) based on sound scientific principles.

Goal 3: Prepare for and Respond to Coastal Storms

A. Mitigation Techniques and Products

1. Determine the potential for loss prevention including who pays and who benefits among the homeowner, insurance companies and public agencies.
2. Design retrofitting techniques for homes using a “systems” approach which incorporates a reasonable time-frame for retrofitting older homes.
3. Design coastal construction and design practices for both shorelines and buildings related to erosion.
4. Determine the role of the shorelines in reducing wave and flood damage.

B. Risk Sharing, Pricing and Financing Programs

1. Assess the current housing stock for risk prediction.
2. Develop public loss or risk vulnerability models or indices for coastal hazards that are useful to the financial markets.
3. Determine ways to set appropriate standards to rate dwellings in risk areas.
4. Design market incentives that will create demand for retrofitting and mitigation.
5. Determine ways to use co-payments and deductibles to reduce risk and control losses, with emphasis on secondary market constraints.
6. Design techniques to separate hurricane insurance with decreased coverage while maintaining full coverage for other risks.
7. Determine which mitigation factors should get priority.
8. Design tax and legal incentives which lead to mitigation.
9. Develop risk-based pricing that considers community rates (lowering individual responsibility), multi-year policies in exchange for mitigation investment, and other creative techniques.

C. Public Policy

1. Determine public clean-up costs, public infrastructure damage and replacement costs, business failure and job/loss interruption costs.
2. Create ways to involve and advise decision makers at all levels of government to develop public policy that reduces social and economic costs.
3. Design incentive and policy alternatives that encourage mitigation at all levels of government.

Education and Human Resources

Investment in the future of Florida's coastal resources requires both capital and labor. It is critical that the labor force be highly trained and skilled. Florida Sea Grant, a university-based, and issue-based research and education program, will draw upon its partnership of people, universities, government and businesses to ensure that Florida has a technically trained work force and scientifically and environmentally informed citizens.

Through the support of undergraduate and graduate education and through skill-based training, Florida Sea Grant will produce highly trained scientists, social scientists, engineers and other professionals that in the future will increase Florida's economic competitiveness both nationally and internationally, and who will create and lead creative management concepts to keep Florida's coastal environment sustainable for future generations. Florida Sea Grant will also design and implement education programs that utilize local concepts in youth education and, through its Sea Grant Extension and Communication Programs, create changes in the informal education system as it interprets and delivers information for 14 million residents and 43 million tourists.



Goal 1: Produce a Highly Trained Workforce

1. Florida Sea Grant will compete in the annual John A. Knauss Marine Policy Fellowship national competition.
2. Florida Sea Grant will compete in the annual Sea Grant Industrial Fellowship competition at the national level.
3. Research projects that involve graduate students will receive priority consideration among successful peer-reviewed projects.
4. Florida Sea Grant will solicit and use funds from private, state and federal sources to support graduate students to supplement federal Sea Grant funds.
5. Florida's position of leadership in coastal and ocean subject areas will be developed to promote the flow of information and expand the funding base to build a responsive marine academic resource capability.
6. Disciplines ranging from the social sciences to the natural sciences will be involved in Sea Grant, so that multi-disciplinary approaches to problem solving are maintained.
7. Faculty development will be enhanced by funding an annual statewide seminar series.

Goal 2: Create Scientifically and Environmentally Informed Citizens

1. Increase the use of the Internet as an educational tool to connect people, projects and information around the nation and globe.
2. Research needs will be identified that can ultimately be incorporated into extension and communication programs that increase the public understanding of marine and aquatic systems. Florida Sea Grant research and extension priority areas will be aligned and made complementary to increase the effectiveness of both.
3. New marine and coastal communication products using existing media and emerging technologies will be developed.
4. Support for citizen-based education programs will allow the public to become involved with coastal environmental and economic issues.
5. Both national and international audiences will utilize relevant communications products and outreach programs created by Florida Sea Grant.
6. The rate of information transfer of marine research conducted by NOAA and other agencies with marine and aquatic interests will be increased.
7. High-quality publications that effectively communicate the results of Florida Sea Grant activities to both general and specialized audiences will be used.

Implementation Process

Scientific discovery alone cannot insure a viable economy for Florida or the conservation of the state's coastal environment. Discovery must be accompanied by a speedy transfer of scientific results to the private and public sectors in a format they can use. Making the discovery and accomplishing this transfer of information is what the Florida Sea Grant College Program is all about. Only through being part of a national network, having a statewide vision, being multi-institutional and multi-disciplinary and having cooperative funding with a research, education and extension focus can Sea Grant be successful.

Research and education priorities are set by widespread public input from research, extension and communications faculty, professionals in local, state and federal agencies, industry and individuals. In effect, this strategic plan results from that input. Over 250 people participated in its development from all across Florida. To implement the strategic plan, research projects are chosen through a stiff biennial peer review competition. Extension major program educational areas are planned on a four-year basis, with annual adjustments. Research and extension priorities then drive the communications process, along with communications priorities derived on the basis of continuing input from the media sector. Not all the strategic planning objectives are implemented at one time. Only those research projects and extension program plans that make it through the review and program planning process are selected for implementation. They are then continuously monitored for results.

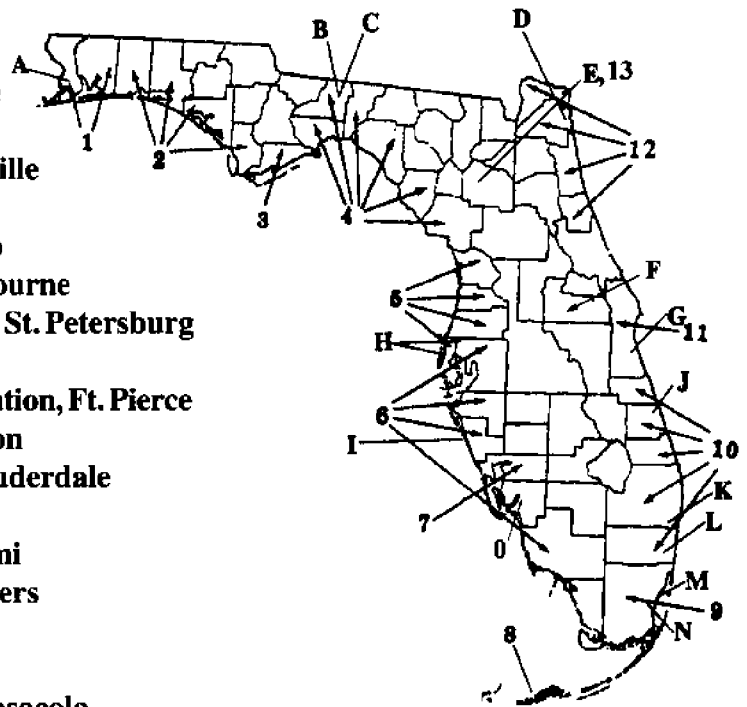
Results can only be achieved through the work of dedicated professionals and the support of the Florida academic institutions who participate as partners with Florida Sea Grant.

The Implementation Phase of this Strategic Plan is available in a companion document.

Florida's Academic Community for Sea Grant Research, Education and Extension

Research and Education Faculty

- A - University of West Florida, Pensacola
- B - Florida A&M University, Tallahassee
- C - Florida State University, Tallahassee
- D - University of North Florida, Jacksonville
- E - University of Florida, Gainesville
- F - University of Central Florida, Orlando
- G - Florida Institute of Technology, Melbourne
- H - University of South Florida, Tampa & St. Petersburg
- I - Mote Marine Laboratory, Sarasota
- J - Harbor Branch Oceanographic Institution, Ft. Pierce
- K - Florida Atlantic University, Boca Raton
- L - Nova Southeastern University, Ft. Lauderdale
- M - University of Miami, Miami
- N - Florida International University, Miami
- O - Florida Gulf Coast University, Ft. Myers



Sea Grant Extension Faculty

- 1 - Escambia & Santa Rosa counties, Pensacola
- 2 - Okaloosa, Walton, Bay, & Gulf counties, Panama City (vacant)
- 3 - Franklin County, Apalachicola
- 4 - Wakulla, Taylor, Leon, Dixie, Levy & Jefferson counties, Tallahassee (vacant)
- 5 - Citrus, Hernando, Pasco, & Pinellas counties, St. Petersburg
- 6 - Manatee, Sarasota, Hillsborough & Collier counties, Palmetto
- 7 - Charlotte County, Punta Gorda
- 8 - Monroe County, Key West, Tavernier
- 9 - Dade County, Miami
- 10 - Indian River, Martin, Palm Beach & Broward counties, West Palm Beach
- 11 - Brevard County, West Melbourne
- 12 - Nassau, Duval, St. Johns, Putnam, Clay & Flagler counties, St. Augustine
- 13 - Statewide Specialists, Gainesville

Florida Sea Grant is the only statewide, university-based program of coastal research, education, extension/outreach and communications in Florida, drawing from all these institutions.

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