

ENVIRONMENTAL EDUCATION



REVIEW OF ACTIVITIES OF THE FLORIDA SEA GRANT COLLEGE PROGRAM

Purpose

This is one of a series of papers that review the accomplishments and efforts of Florida Sea Grant in a major subject area. Each paper is intended to serve one or more important sectors of Florida's population concerned with coastal and ocean issues.

By highlighting Sea Grant research achievements or identifying its information sources such as publications, videotapes or faculty members of Florida's academic institutions, for example, each Review facilitates exchange of facts and ideas. In addition, relevant efforts of allied organizations may be described. To further enhance the network of interests in the field, a brief overview of the subject area in general is provided.

Role of Sea Grant

Briefly, Florida Sea Grant is a cooperative program of the state's universities. It is the only statewide, university-based effort in coastal research, extension and education. Sea Grant programs are conducted in all coastal and Great Lakes states in the U.S., and utilize a combination of federal, state and private funding sources.

The goal of Sea Grant, "enhanced marine productivity," means that faculty are working with natural and human systems such as fisheries, beaches, aquaculture, waterfront conservation and development and others to improve benefits and sustain a long-term balance for natural resources of the sea. The practical aspect of this is that a corps of scientists conduct research and a team of extension experts located in key coastal locations work to serve Florida in its use and conservation of marine resources and systems. Education is a key result of Sea Grant activity.



The boy with the starfish...the wonder of the Sea...and learning about it...

Environmental Education in Florida

Until recently, there was a widening gap between the environmental awareness of Florida's citizens and tourists and the ability of its various educational entities to provide information and heighten awareness. However, 1989 was a landmark year in which the capabilities of state agencies and other interests were strengthened to begin closing the gap. Legislation that addressed recommendations of the Florida Council on Comprehensive Environmental Education (which served from 1986 to 1989) was passed.

According to a recent survey, only about 60 percent of Florida's public school districts conduct formal environmental education programs and even fewer community college and university programs exist in this field. Meanwhile, a host of public education programs are conducted mostly at the local level by private and non-profit groups, and several state and federal agencies provide educational offerings and have developed materials for programs. In the last few years, the Interagency Coordinating Committee for Environmental Education has provided an umbrella for statewide public tax-supported organizations to work with each other.

Florida's rapid population growth will continue to provide new audiences, while there is a backlog of educational needs with established audiences also. A survey of public knowledge in one area of the state revealed that only one person in three queried could correctly identify the term "mangrove." This coastal wetland tree is crucial in the habitat of Florida's marine fishes. Also, 1/4 of science classes in Florida's schools are taught by out-of-field teachers. Thus, in Florida there are numerous opportunities for teacher training (in-service, pre-service), development of district plans for environmental education and a variety of public information efforts. The new Florida Advisory Council on Environmental Education, in addition to agencies such as the Florida Department of Education and the Department of Natural Resources, as well as the Governor's Office are taking active roles. Florida Sea Grant involvement is highlighted on the following pages.

Florida Sea Grant College Environmental Education

Since 1972, Florida Sea Grant has conducted a coordinated series of projects in coastal and ocean education. Four principal audiences are served:

- Youth
- Collegiate
- Technical
- Public

While significant accomplishments in each have been achieved, in this brief paper only the efforts directly related to environmental education are covered. Examples of efforts in other realms of education include the establishment of such college courses as economics for oceanography majors, and technical training programs in marine engine mechanics and commercial diving.

The emphasis of this paper is to provide information that educators can apply. Therefore, only brief backgrounds are provided while the emphasis is on providing contacts and ordering information.

Numerous subjects of Florida Sea Grant education include wetlands, beaches, barrier islands, saltwater intrusion, fisheries, habitat and, of course, urbanization and its upland-coastal-ocean linkages. The efforts of Sea Grant extend coast-to-coast and across the peninsula, and include publications, videos, workshops, lectures and demonstrations. Major examples include:

Youth Marine Environment Program:

Florida Sea Grant support enabled the Florida 4-H Marine Program to establish itself. It quickly grew to be the largest such endeavor in the nation. Over 10,000 youth (ages 8-18) participate every year in projects, clubs, camps and competitions where they learn about marine science, the shore and human interactions with the environment. Six popular publications listed on the back page of this Review assist this process. In addition, the new "Marine Ecology Program Notebook" has become a model for leader and student training. Hundreds of adult leaders and school teachers are involved.

Public Coastal Awareness:

An illustrated booklet, "Man Meets Coast," and a game accompanied by a slide show of the same name, have challenged youth and adults alike to get a first-hand feel for the complexities of tackling coastal zone management. The material has been so effective that the Florida Department of Environmental Regulation adapted and reprinted the booklet for additional audiences. Also, at a regional level Florida Sea Grant Extension faculty developed a summer curriculum for youth in this subject area.

Community Knowledge and Decisions:

By initiating and co-sponsoring major symposia and conferences on the status of scientific knowledge of most of Florida's major estuaries, Sea Grant in Florida has addressed growth management and long-term planning needs of direct concern to over 50 percent of Florida residents (e.g., north-east Florida, Tampa Bay area, Indian River Lagoon, Apalachicola Bay, Biscayne Bay). In general, these programs represent the first regional efforts to consolidate the available

environmental information for individual estuaries. Various citizen-industry-government follow-up actions that typically have resulted include vigorous habitat restoration actions, creation of management/advisory bodies, nomination of National Estuaries and active public awareness through major newspaper editorials. In addition, a recent Sea Grant research project assessed not only where Floridians get their environmental information, but also how much trust they place in various sources.

Individual Well-Being:

A wide array of Florida Sea Grant publications and an increasing number of videotapes, principally produced and distributed through its Extension Program, benefit citizens on a wide variety of subjects ranging from sport fishing quality to safety of pregnant SCUBA divers, and from boating safety to coastal habitation. For specific examples of the usefulness of this information, see the list provided at the back of this Review.

Interest Group Capabilities:

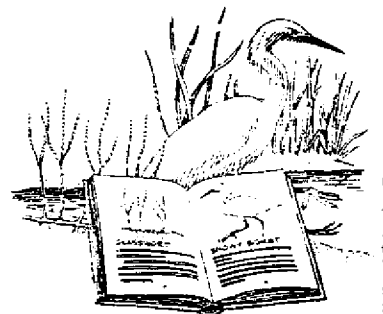
Annually, Florida Sea Grant Extension staff organize and conduct over 150 programs for diverse audience groups around Florida, including demonstrations, tours and workshops for fishing interests, coastal homeowners, the public and others.

Technical Information:

While much of the research reported from literally hundreds of Florida Sea Grant projects is in the highly technical literature of the "R&D" community, Florida Sea Grant also seeks to make it available, in intelligible formats, to various applied and managerial audiences. Samples of publications that are of immediate use in understanding the economic and other values of Florida's environmental resources are listed on the back page of this Review. They aid key decision makers who in effect are translating environmental education into public policy.

Creativity in Non-traditional Areas:

Whether it is training divers in scientific methods while teaching them in the confines of an oceanarium's mammoth "fish tank," or in convening artists, philosophers or clergy in workshops related to art or ethics of environmental systems, Florida Sea Grant has developed a number of unique approaches to education outside of the traditional areas of this field. As a result, new audiences are receiving timely information about the environment. The appearances of "fish" and "shrimp" (in human-size costumes) at adult receptions or a children's hospital ward have demonstrated new ways of educating people about Florida's environments.



National Estuarine Reserve artwork.

Environmental Education Planning:

At the state level, Florida Sea Grant staff members have served on the Florida Interagency Committee on Environmental Education and the Florida Comprehensive Council on Environmental Education, and regularly work with groups such as the League of Environmental Educators of Florida to facilitate improvements in content and process of learning. As a result of Florida Sea Grant's initiative, a national committee of educators collaborated with EPCOT Living Seas staff to develop cooperative publications and projects. Florida Sea Grant is now involved with the first university-level Environmental Education Center in Florida.

Facilities:

The Florida Sea Grant Extension Program opportunistically acquired the Marine Education Center at Marineland, a facility that has provided an ideal coastal site for teacher training, youth programs and various learning opportunities for technical and lay audiences. Except for coral reefs, every major Florida coastal ecological community is immediately accessible at Marineland. It was the site of the Coastal Awareness Program, a successful prototype for summer enrichment studies for youth in area schools of northeast Florida.



Selected Educational Publications Especially for Educators Sponsored by Florida Sea Grant

MAP-11: "Man Meets Coast"-- Illustrated Booklet (Free)

MAP-26: "Man Meets Coast"-- Coastal Game (\$3.00)

"Man Meets Coast"-- slide/tape presentation (Available for loan)

MAP-17: "Marine Education K-12" (\$.20)

SGEB-5: "Florida Sea Grant Publications List" (Free)

SGEB-1: "Florida Sea Grant Directory" (Free)

SGEB-3: "Marine Education and Research Organizations In Florida" (Free)

SGEB-14: "Student Guide to Marine Degree Programs in Florida Universities" (Free)

SGR-51: "Florida Marine Education Resources Bibliography" (\$3.00)

See back page for ordering Florida Sea Grant Publications

"Marine Education: A Bibliography of Educational Materials Available From the Nation's Sea Grant College Programs" available from Marine Information Service, Texas Sea Grant College Program, Texas A & M University, College Station, Texas 77843

New Activities

Florida Sea Grant is developing new means of more broadly communicating with the growing audiences of tourists and residents in Florida. Of particular emphasis is the public audience with its large appetite for environmental education. New activities include:

Statewide Marine Magazine

The newly established quarterly magazine "FATHOM" provides valuable articles on various marine-related and environmental issues. To subscribe simply make a check payable to "University of Florida" for \$5.00 and mail to: Florida Sea Grant Extension Program, GO22 McCarty Hall, University of Florida, Gainesville, FL 32611 (Please include a note stating that the check is specifically for the FATHOM annual subscription).

Video News Releases

These releases will be used to better communicate information about the marine environment possibly in the classroom and to the general public. Four pilot tapes on such topics as lightning, wetlands, seafood and plastics pollution have already been prepared.

Satellite Down-link on Pollution

In cooperation with the Louisiana Sea Grant program and other Gulf Coast states, Florida Sea Grant is planning a 90-minute educational tele-video conference focused on marine pollution.

Beach Pollution Awareness

Florida Sea Grant assumed a leading support role in the 1989 Beach Clean-up program (the largest statewide clean-up in U.S. history). Florida Sea Grant is also developing other public campaigns that will continue these clean-up efforts such as Adopt-a-Mile of Beach.

Selected Florida Sea Grant Materials for the Public at Large

- MAP-19: "The Beach-- A Natural Protection From the Sea" (Free)
SGR-28: "Salt-Tolerant Plants for Florida Landscapes" (\$2.00)
SGEF-1: "Hurricane Survival: Family Action Guidelines" (Free)
MAFS-24: "Hurricane and Severe Weather Checklist for Boaters" (Free)
MAFS-10: "Shark and Man: A Perspective" (Free)
SGEB-11: "Fisheries Biology For Everyone" (\$3.00)
SGEF-8: "Backyard Aquaculture: Is it For Me?" (Free)
MAFS-7: "Diving and Smoking" (Free)
MAFS-11: "Recreational Scuba Diving" (Free)
MAFS-30: "Diving and Pregnancy" (Free)
SGEB-7: "Boating-- Lightning Protection" (Free)
MAFS-34: "The Gulf Stream" (Free)
SGEF-14: "Welcome to Florida... and its Environment" (Free)
"The Tangle-Free Tournament Video Series" (5 tapes -- \$50.00)-- (Descriptive flyer also available)
"A Sea Symphony" (1 1/2 hr. video -- \$15.00)

Selected Florida Sea Grant Publications For Understanding the Importance of Coastal Resources

- SGR-78: "Guidelines for Beach Restoration Projects" (\$2.00)
SGR-72: "Florida Seafood Regulations and Regulators" (\$3.00)
SGR-68: "Evaluation of Existing and Potential Hurricane Shelters" (\$3.00)
SGR-62: "Contaminants of Florida's Coastal Zone" (\$4.00)
SGR-54: "The Economic Impact of Marine Recreational Boating on the Florida Economy" (Free)
SGEB-9: "Aquaculture in Florida: General Economic Conditions" (\$1.00)
(Numerous other documents are listed in the Publications List -- available for free)

To order any of the above Florida Sea Grant Publications please mail to:

**Florida Sea Grant Extension Program
G022 McCarty Hall
University of Florida
Gainesville, FL 32611**

4-H Marine Publications

- "Sea Survival"
"Starting and Maintaining a Marine Aquarium"
"World of the Sea"
"Wetlands: A 4-H Marine Project"
"Fins and Scales"
"Intertidal Zone Project"
"Marine Ecology Notebook"

When ordering 4-H educational publications mail to:

**Bldg. 664
University of Florida
Gainesville, FL 32611
Attn: Mr. Chic Hinton**

For general information on the 4-H education program contact Dr. Tom Greenawalt, Extension 4-H Youth Program, University of Florida, Gainesville, FL 32611

ENVIRONMENTAL EDUCATION REVIEW FEBRUARY 1990

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