

Outreach, Education *and* Human Resources

SNAPSHOT

WHOI Sea Grant's investment in Outreach, Education, and Human Resources has resulted in the development and implementation of educational materials and programs designed to encourage users of our marine and coastal resources to explore, understand, and appreciate the value of these resources.

BACKGROUND

Since the establishment of a marine assistance program in 1979—the precursor to the program's marine advisory service (1990) and the marine extension service (1998)—and a formal communications program in 1990, WHOI Sea Grant has been regarded as an important source of marine-related information. Locally, nationally, and internationally, WHOI Sea Grant provides information about the marine environment to students, educators, coastal residents and tourists, coastal decision-makers and elected officials, individuals whose livelihood is derived from the sea, and the public at large. In so doing, our outreach staff, often in partnership with other coastal organizations, serve as conduits, gathering the information and research needs of these groups and bringing it back to the program management team, advisory board, and to funding sources so that these needs can be met. Establishing these lines of communication has helped the program develop its focus areas and best serve its constituencies.

At WHOI Sea Grant, outreach and education activities figure prominently in the program's management. By reaching out to audiences in an attempt to answer questions, increase environmental awareness, improve science literacy, and bridge the gap between marine research and an informed and knowledgeable public, the Sea Grant outreach effort is making significant contributions to citizens and organizations within the region and, in many cases, throughout the nation.

OBJECTIVES

WHOI Sea Grant's theme in Outreach, Education, and Human Resources provides a mechanism by which research results and the excitement of scientific discovery can be shared with diverse audiences. Within the framework of the *NOAA Sea Grant Strategic Plan, 1995-2005*, WHOI Sea Grant efforts are focused on three major portfolios: Economic Leadership, Coastal Ecosystem Health and Public Safety, and Education and Human Resources. Within these portfolios there are major strategic initiatives in advanced technology for commercial products, seafood production, coastal economic development, coastal ecosystem processes, public safety, technology transfer, and public outreach. To fulfill our objectives and mandate within the strategic plan, WHOI Sea Grant's theme in Outreach, Education, and Human Resources has focused on:

- ❖ Identifying and implementing effective outreach tools to target specific audiences. Such tools include workshops, publications, public exhibits and posters, lectures, media contacts, special events, radio programming, materials for educators, and the Internet.
- ❖ Building successful partnerships with organizations whose mission or objectives are similar to those of WHOI Sea Grant or whose activities impact the marine and/or coastal environment. These partnerships are designed to enhance our ability to create an informed and knowledgeable public.
- ❖ Creation of a marine outreach guidance group (MOGG), comprised of representatives of the region's public, private, and governmental organizations involved in coastal and marine issues, to advise the staff on its outreach activities and, to some degree, its research program.

SEA GRANT INVOLVEMENT

Since 1990 the WHOI Sea Grant program has worked to disseminate the latest oceanographic and coastal marine scientific discoveries to a variety of audiences. Our efforts are focused on delivering the

most up-to-date and relevant information available to our audiences, based on their needs and interest areas.

Recognizing the importance of the Internet as a communications tool, we have invested considerable time and resources to maintaining a timely, informative, and easy-to-navigate web presence, www.whoi.edu/seagrant. Publications also remain an important and effective communications tool. For the most part, we limit our publications to concise descriptions of current research, written for a lay audience, and publish these descriptions in the following formats: newsletter (*Two if by Sea*, three times per year, jointly published with MIT Sea Grant), fact sheets (*Focal Points*, targeted at legislators and coastal decision-makers, and *Marine Extension Bulletins*, aimed at a technically trained audience), news releases, and program guides (published biennially, coincident with our funding cycle). More descriptive publications are generally reserved for our technical and/or special interest audiences, and include technical reports and workshop proceedings.

Clearly, outreach is very effective through direct contact, so WHOI Sea Grant staff members maintain memberships on various boards, committees, and organizations, and spend as much time in the field and interacting with our user groups as possible.

Equally as important as disseminating information is staying current on the latest technologies and methodologies that relate to staff areas of expertise. This is accomplished through professional development opportunities and training sessions for all staff members.

PRODUCING SIGNIFICANT RESULTS

Education

A sampling of our accomplishments, 1990–2000:

- Sponsorship of staff training and development workshops for formal (pre-K–grade 12) and informal educators on various topics
- Creation and dissemination of the WHOI Teacher Packet
- Sponsorship of a teacher fellow as part of WHOI's 1998–99 Summer Teacher Fellow Program.
- Sponsorship of summer outreach interns, as available
- Active membership in the Woods Hole Science and Technology Education Partnership (WHSTEP), a partnership between local science and technology-related businesses, schools, and the scientific institutions in the Upper Cape region.
- Involvement with the WHOI–Turnstone Publishing venture to offer supplemental

curriculum materials on oceanography for classroom use. Two series of four books each are now available through Steck-Vaughn publishers: *Ocean Pilot*, geared for grades 4–6 and *Ocean Explorer*, for grades 6–8.

- Sponsorship of annual summer “Sea Urchins” program for children ages 5–7, to introduce young students to the wonder and value of seashore life.
- Participation (annually since 1990) in the conferences of the Massachusetts Marine Educators, the 1996, 1998, 1999, 2000 annual conferences of the National Marine Educators Association, and the 1999 National Science Teachers Association conference.
- Co-investigator (with New Hampshire Sea Grant) for national Sea Grant marine science careers-related projects: *Marine Science Careers: A Sea Grant Guide to Ocean Opportunities* (first published in 1996, revised edition in 2000), and a related web site <http://www.marinecareers.net>, which debuted in late June 1999.

Public Outreach

A sampling of our accomplishments, 1990–2000:

- Sponsorship of annual Coastweeks events
- Dissemination of publications, videotapes, audiocassettes, or other printed materials as published in refereed publications and grey literature
- “Oceans Alive” annual public lecture series
- Sponsorship of the summer “Sea Urchins” program for children ages 5–7
- Maintenance of a WHOI Sea Grant exhibit at the WHOI Visitor Center, which includes current research and outreach projects. Annual attendance at the center is 30,000.
- Participation in the 1998 Year of the Ocean celebration, Sea Grant's 30th Anniversary celebration, and annual participation in the National Ocean Science Bowl
- Sponsorship of an open house for policy-makers, regulators, legislators, and other local officials (1995 and 1998)
- “SoundWaves” Low Power Radio Project, a cooperative project between WHOI Sea Grant, Cape and Islands Community Public Radio (CICPR), and the Woods Hole–Martha's Vineyard Steamship Authority. The 33-minute repeating loop broadcasts on 1620 AM and provides information about Woods Hole for ferry passengers with auto reservations—representing a potential audience of well over one million each year.
- Publications, including *Two if by Sea* newsletter, *Nor'easter* magazine, the WHOI Sea Grant

web site (<http://www.whoi.edu/seagrant>), and the Northeast Regional Sea Grant web site

Extension Support

WHOI Sea Grant *Focal Points*, fact sheets for legislators and coastal decision-makers:

- *Research Update: Contaminants in the Marine Environment and Their Effects on Marine Mammals*
- *The Massachusetts Bay Outfall*
- *Endocrine Disruption in Wildlife Populations*
- *Harmful Algal Blooms (HABs) in the United States*
- *New Tools for Assessing Water Quality: Stable Isotope Analysis of Nutrients*
- *Shellfish Diseases and their Controls in Local Waters*
- *Shellfish Aquaculture in Massachusetts*
- *Shellfish Resource Management in Massachusetts*

WHOI Sea Grant *Marine Extension Bulletins*, technical fact sheets for regional industry, agencies, and professional organizations:

- *Federal Crop Insurance for Massachusetts Quahog Farmers*
- *Clam Tents: A New Approach to Soft-shell Clam Culture and Management*
- *Perigean Spring Tides (Predicting Potential Disasters: How Tidal Information May Save You from a Coastal Crisis)*

WHOI Technical Reports:

- *Coastal Landform Management in Massachusetts: Proceedings of a Workshop held at the Woods Hole Oceanographic Institution, Woods Hole, MA, USA, October 9–10, 1997*
- *Coastal Landform Sustainability Project: An Analysis of Activities Permitted on Coastal Landforms on Cape Cod, Massachusetts in 1999*

Directory of Cape and Islands Coastal Outreach Organizations (published 1992–present, web format only beginning in 1999, <http://www.whoi.edu/seagrant/Resources/DirCapeI/Index.html>)

CONTRIBUTIONS TO THE MARINE EDUCATION AND MARINE OUTREACH COMMUNITY

Communications, education, and extension projects supported between 1990–2000 have yielded significant contributions to the marine education and outreach community. A few highlights include:

- “Oceans Alive,” a lecture series held annually since 1990, presents current research and marine-related programming for general audiences. These lectures are a mainstay in the community and are well attended by educators, students, locals, and scientists interested in current discoveries made by Woods Hole researchers.

- *Nor'easter* magazine, a joint publication of the six northeast Sea Grant programs, was published from 1989–1999, to keep its readers up to date on Sea Grant sponsored research. (A regional web site, web.mit.edu/seagrant/northeast/index.html, replaced the publication in 1999.)
- *Two if by Sea*, a joint newsletter of the WHOI and MIT Sea Grant programs, is published three times each year (since 1997) and features articles about current research, outreach, and educational efforts, as well as noteworthy web sites, calendar items, researcher profile, and other interesting sections.
- Annual events to commemorate Coastweeks, the international, three-week celebration of the coasts, are organized each year. WHOI Sea Grant events have included public lectures, guided walks and kayak tours, poetry readings with an ocean theme, art contests, and public exhibits.
- Publication of a national Sea Grant careers booklet, *Marine Science Careers: A Sea Grant Guide to Ocean Opportunities*, first in 1995 and revised in 2000. A companion website debuted in 1999, www.marinecareers.net. The guide and the website are in use worldwide and, in addition to Sea Grant channels, are distributed by government agencies, public and private aquaria, museums, parks, and science centers. During the academic year, the site received nearly 70,000 hits per month and this figure is expected to rise.
- Support for educators, ranging from resource materials and bibliographies, lending libraries, and classroom presentations, has always been a high priority area for WHOI Sea Grant, and all staff members actively participate in classroom and informal education opportunities.

INVESTMENT IN EDUCATION

	<u>Students</u>	<u>Months</u>
Graduate Student Support*	75	308.95
Undergraduate Student Support*	15	29.25
Dean John A. Knauss Fellows: 1996 (2), 1998 (1), 1999 (1)	4	48
Other Fellowships Sea Grant/National Marine Fisheries Service, 2000 (1) Coastal Management Fellowship, 1997 (1)	2	36

* The graduate student and undergraduate totals represent students whose research was supported on Sea Grant-supported research projects in each of our program's thematic areas.

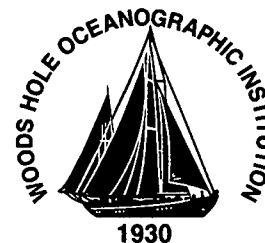
Teacher Training Workshops on:

- Spineless Science: An Introduction to Classification Using Marine Invertebrates (2000)
- Fish Printing in the Classroom (1999–present)
- Massachusetts Aquaculture in the Classroom (1998–99)
- Integrating Science and the Arts (1998)
- Aquaculture (1998)
- Shellfish Biology (1999)
- Introduction to the Internet (1995)
- Marine Science Careers (1995–present)
- Coastal Geology (1990–present)

WHAT IT COST

	<u>Sea Grant</u>	<u>Matching</u>
Communications Support (1990–2000)	\$753,338	\$437,938
Marine Education Support* (1990–2000)	\$135,567	\$286,177
Extension Support (1990–2000)	\$928,065	\$309,917
TOTAL	\$2,851,002	

* Funds earmarked for educational projects, other than those incorporated within the overall communications budget.



WOODS HOLE OCEANOGRAPHIC INSTITUTION SEA GRANT PROGRAM

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