

OVERVIEW

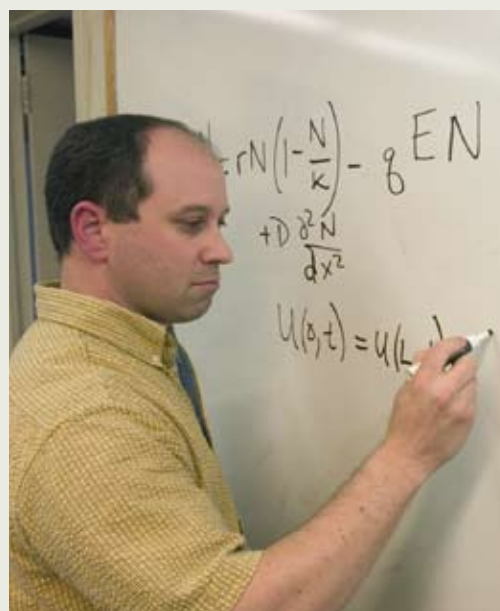
Outreach and Education



Woods Hole Sea Grant's investment in Outreach and Education has resulted in the development and implementation of outreach materials and educational programs designed to encourage users of our marine and coastal resources to explore, understand, and appreciate the value of these resources. The Outreach and Education Program is designed to fit the needs of our target audiences—citizens, coastal decision-makers, educators and students, and ocean science researchers, **to provide these groups with the tools and skills they need to make connections between ocean science information and ocean issues.** In addition, the program facilitates application of that knowledge to science-based decision-making at the local, regional, and state levels.

Why Education and Outreach?

The Woods Hole Sea Grant marine assistance program was established in 1979 (the precursor to the program's marine advisory service) and restructured as the marine extension program in 1998. In 1990, the communications program was initiated. Consistently, Woods Hole Sea Grant is regarded as an important source of marine-related information, providing information about the marine environment to a wide range of audiences. The Outreach and Education Program—often in partnership with other coastal organizations—serves as a conduit, 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, form effective partnerships, broker information needs and resources, target its products and efforts, and, ultimately, serve its constituencies effectively.



Tom Kleindinst, WHOI

Woods Hole Sea Grant's Outreach and Education Program goals are aligned with those of the National Sea Grant College Program, its parent agency, NOAA, and national priorities as outlined in several recent reports, including the U.S. Commission on Ocean Policy's *An Ocean Blueprint for the 21st Century* (2004), the Pew Oceans Commission's *America's Living Oceans: Charting a Course for Sea Change* (2003). Likewise, results of national polls and surveys on science literacy, including a series conducted by Gallup for Bayer Corporation's *Facts of Science Education*, point to an increasing awareness of the gap between our nation's appreciation for the role of science and technology in society and the actual understanding and performance of America's students and teachers, and the voting public, when it comes to scientific issues.

Collectively, these reports contain common themes or findings:

- coastal population is increasing at an unprecedented and unsustainable rate; marine life, coastal habitats, and ocean resources are straining—and in many cases failing—to survive the intense pressure
- [attaining] science literacy in general, and ocean science literacy specifically, is critical to understanding and dealing with the complex issues facing our society now and in the future
- to achieve scientific literacy, managers, decision makers, and the public will demand more accessible and relevant scientific information that they can use to make more informed decisions—a challenge voiced throughout the U.S. Commission on Ocean Policy’s public hearings process
- science education (at all levels)—and the value of effective science education—are critical components that will lead to better understanding of the connections between environmental issues and our economy
- organizations and agencies whose missions are related to ocean science should work together to address current and future needs with respect to research, education, and outreach

Locally, Woods Hole Sea Grant’s marine outreach advisory group, known as MOGG, is comprised of members representative of Sea Grant’s user community—individuals from organizations involved in marine research, outreach, education, coastal decision-making, and technology transfer. A total of 18 members serve on MOGG: six representing organizations with permanent slots, the remaining slots are 3-year terms. The charge to MOGG members is “to provide input and suggestions...that make Woods Hole Sea Grant’s outreach efforts the best and most effective they can be.” In June 2005, MOGG members were asked to identify the top two issues of environmental concern for their respective organizations. The top three concerns are listed here:

1. coastal change/erosion due to storms and sea level rise
2. global climate change—atmosphere and ocean aspects
3. dredging issues

Additional concerns included: environmental effects of chemicals and pollution; coastal watershed nutrient loading and eutrophication; uncontrolled growth and development in coastal communities; introduced species (the impacts on communities and ecosystems); water quality; lack of a regionalized public supply of shellfish seed for municipal propagation; loss of natural ecosystems; effectiveness of coastal mitigation measures; nutrient management in estuaries and embayments; protecting wetlands and drinking water supplies; and solid waste management and recycling.

The challenges have been issued; a plan of action has been put in place. Woods Hole Sea Grant’s Outreach and Education Program is poised to make a difference: one citizen, one coastal decision-maker, one researcher, one educator, one student at a time.



Woods Hole Sea Grant Involvement

Woods Hole Sea Grant's Outreach and Education Program focuses on the initiation of programs, partnerships, and products that are designed to address the needs of its primary audiences: citizens, coastal decision-makers, educators and students, and ocean science researchers, so that they may be better prepared to make connections between ocean science information and coastal and ocean issues. The program's vision—that citizens within Massachusetts will have an understanding of the role the oceans play in their lives and apply that knowledge to science-based decision-making—guides the development of programmatic activities.

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 Woods Hole Sea Grant's Outreach and Education Program is making significant contributions to citizens and organizations within the Commonwealth of Massachusetts as well as the northeast region and the nation. Specifically, program elements include:

- Seeking innovative ways of providing access to current ocean science information applicable to the interests and needs of citizens of southeastern Massachusetts;
- Developing outreach projects and forums that convey current ocean science research of interest to Massachusetts coastal decision makers, to improve their ability to design and implement environmentally sound policies
- Creating opportunities for educators to learn about current ocean science research so that they are likely to use ocean science examples to convey basic scientific concepts to their students
- Creating opportunities for ocean science researchers to disseminate their work to coastal decision makers, educators, students, and citizens

INVESTMENT

Woods Hole Sea Grant's Investment, 2000–2006

Education and Outreach Support, 2000–2006

Sea Grant Funds		Matching Funds	
\$714,326	Core	\$342,295	Core
\$200,000	CTP	\$507,716	CTP
\$914,326	TOTAL	\$ 70,000	Private Foundations
		\$920,011	TOTAL

Outreach and Education Projects

Project Title	Primary Audience(s)
"Oceans Alive" Public Lecture Series	citizens, researchers, educators
Two if By Sea, joint Woods Hole/MIT Sea Grant newsletter	citizens, researchers, educators
Topics in Oceanography workshops for teachers	middle- and high school teachers
Massachusetts Coastal Training Program (CTP)	coastal decision makers
Marine Science Careers website, www.marinecareers.net	middle- and high school students, educators, parents, guidance professionals
Sea Grant website, www.whoi.edu/seagrants	citizens, researchers, educators, students, coastal decision makers
Beachcomber's Companion® cards, website www.beachcomberscompanion.net	citizens, educators, students
Focal Points and Marine Extension Bulletins	coastal decision makers, educators
SEMCO list-serv	coastal decision makers, educators
COSEE New England	researchers, educators
Marine Extension Program support	coastal decision makers, citizens

Student Support, 2000–2006

Graduate Student Support:	25 Students	163 Months' Student Support
Undergraduate Student Support:	12 Students	24 Months' Student Support

Fellowships:

Rachel J. Wisniewski, Knauss Class of 2006
Ph.D. candidate, MIT/WHOI Joint Program

Andrea Hsu, Sea Grant Industry Fellowship Program, 2002-2003
Boston University Marine Program
Project: "A Scanning Electron Microscopy Study of Epidemic Shell Disease of the American Lobster, *Homarus americanus*"
Advisor: Roxanna Smolowitz, Marine Biological Laboratory (MBL)

Christopher S. Grogan, Sea Grant/NMFS Joint Graduate Fellowship Program in Population Dynamics 2000-2002
University of Massachusetts, Amherst
Advisors: Michael Fogarty, Northeast Fisheries Science Center; Francis Juanes, University of Massachusetts Amherst

Internships/Volunteers:

Fred Pratt, retired engineer, 1992–present
Projects: database management, mailings, low power radio project management

Jennifer Boyce, MIT Science Writing Program, 2005
Project: write and edit short impact stories

Tony DiSpezio, Falmouth High School, 2005
Project: edit video footage and create Flash animation for Sea Grant's *Beachcomber's Companion*® website,
www.beachcomberscompanion.net
Now: entering his freshman year at Savannah College of Art and Design

Jason Talley, N.C. State, video production (2003)
Project: shoot, edit, and produce the DVD *Beach and Dune Profiling: Training in the Use of the Emory and O'Emory Rod Methods*
Now: owner of Blue Bear Productions (www.bluebearproductions.com), Jason has worked on two additional projects for Woods Hole Sea Grant (aquaculture DVD, and filming of video clips for www.beachcomberscompanion.net, a virtual beachcombing experience)

Bonnie Scott, University of Ottawa (2002)
Project: research and write short stories for Sea Grant website
Now: graduate student, The University of Chicago's Molecular Biosciences Department

Amanda Chase, Carnegie Mellon University (2001 and 2002)
Project: research, fact check, and write answers to "Frequently Asked Questions" received by the Sea Grant, Information, and Academic Programs offices
Now: medical editor/science writer, Sinai Hospital of Baltimore

IMPACTS

Outreach and Education Dividends, 2000–2006

Program Highlights

Outreach and Education projects supported in 2000-2006 have yielded numerous contributions. A few highlights include:

- Sea Grant's Marine Science Careers website, **www.marinecareers.net**, created by Woods Hole and New Hampshire Sea Grant programs, followed the highly successful publication, *Marine Science Careers: A Sea Grant Guide to Ocean Opportunities* (over 25,000 copies printed and distributed). This website, initially supported with NSI funds, has been maintained by Woods Hole Sea Grant since 2000. The website has been the subject, and source for, numerous articles and links to websites related to marine and science careers. Recent site visitation statistics, for the 12-month period August 1, 2004–July 31, 2005, are as follows:
 - ❖ Average number of hits per month: 208,275
 - ❖ "Top 10" pages:
 - 1 - Main/Welcome Page (www.marinecareers.net)
 - 2 - Career Fields and Profiles/Overview
 - 3 - Career Fields and Profiles/Marine Biology
 - 4 - Salaries
 - 5 - Salaries/Salaries by Occupation
 - 6 - Career Fields and Profiles/Career Outlook
 - 7 - Frequently Asked Questions
 - 8 - Career Spotlights
 - 9 - Career Fields and Profiles/Oceanography
 - 10 - Resources/Internships, Fellowships, Volunteer Opportunities



Tom Kleindinst, WHOI

What are visitors saying about www.marinecareers.net?

Identity & Location	Learned of Site	Comments
middle school student from Arizona	<i>Teen People</i> Magazine	Like: the advice and straight-forwardness of it. I learned about this site through <i>Teen People</i> Magazine and I think it is great that I can get ideas and information on my future career options. I love the fact that I can start planning now for my future; even if I don't end up in this field, I have been exposed to it through your site. Thank you.
student from Portugal	search engine	I really enjoyed this web site because it gave me information about marine courses that I couldn't find anywhere, like experts' opinions and related links. In my opinion it is very well constructed and has information that can be useful either to an undecided (my case) or also to a graduate.
returning student from California	search engine	This site has been very helpful in giving me a lot of information about marine biology. I bookmarked it the first time I came and return often.
business owner looking into schools for marine science from South Carolina	not specified	This is by far the best site I've seen related to careers in marine sciences. This site should get an award for its comprehensive detail and thorough scope [for] all aspects of the different professions...this site is unequaled!
college student from North Carolina	web site link	It was helpful to read about real marine scientists and what they did to where they are today. I feel that a lot of the advice will help me in pursuit of my career.
high school student from Massachusetts	educational event	It gave a lot of different options about a lot of different fields. It helps to see what else you can get into besides just marine biologist.
veterinarian from Croatia	web site link	Like: detailed explanations and advice, emphasis on the integration of different disciplines, the look of the site. I wish I could have visited your site when I was 19!
parent of high school student from California	web site link	I found your website to be very informative for my son's report on marine biology. Thank you for a wonderful website with so much information on marine biology.
high school student	word of mouth	I like how you put everything at my fingertips and it's really easy to get to everything. It's also really easy to understand the information.

Usability Testing for www.marinecareers.net

The primary audience for Sea Grant's marine science careers website is high school students. Secondary targets include middle school students, parents, undergraduate students, guidance counselors, and professionals interested in a career change.

In the spring of 2005, website usability testing was conducted at local high schools. Ten students (grades 9-12) participated: 6 male, 4 female. Of the students, six were interviewed from Falmouth Academy (private), four from Falmouth High School (public). All students were interviewed at school, after classes had ended for the day.



- Our participants:
 - ❖ had experience with the web
 - ❖ spend an average of 1-2 hours a day online
 - ❖ had not visited the site before
- Participants were asked the same set of questions and to perform 14 tasks, most related to site navigation.
- Participants were asked to provide feedback on:
 - ❖ what they thought the site was about: 9 out of 10 understood that the site was about marine sciences, including careers and general information (1 said it was about Sea Grant)
 - ❖ what part of the site did you like the most: 7 out of 10 felt that the site was easy to use and that content was easy to find; 3 liked the profiles most
 - ❖ what part of the site was most confusing: the students were split between knowing what the slide shows were and looking for more descriptive navigation buttons
 - ❖ how they would rate the overall performance of the site (scale 1 (worst) to 10 (best):
 - 4 of 10 rated the site 9; 5 gave it an 8; and 1 gave it a 7
 - ❖ what they would change about the site if they could: 4 of 10 suggested more descriptive navigation buttons. Students also suggested adding additional links to the other sections on existing pages to improve access to information

Results of the usability testing will be used—along with input received from the site's feedback form—to guide the site's updating and re-design later this year.

Why Usability Testing?

You have questions about your web site. Can visitors use it? Will they return? Do they recommend it to others? What are you doing that really turns them off?

Your web site is built and people are visiting it. Are they leaving too quickly? Did they make a purchase or signup for your newsletter? Do you know if your web site will achieve all your objectives? How do you find out? Is your message getting across?

—from Kimberly Krause Berg,
www.usabilityeffect.com



- Woods Hole Sea Grant's newest publication, ***Beachcomber's Companion*®**, is a fun twist on a field guide featuring 50 common Atlantic coast marine invertebrates. The publication quickly found its way into bookstores, science centers and aquaria, and training courses along the east coast. A companion website, **www.beachcomberscompanion.net**, features web-only E-postcards, virtual beachcombing, and information on classification and habitats.

"Thank you for the sea creature cards. I bring them to the beach. I found a lot of them already!"

—Craig Medeiros, age 8, Acushnet, MA

"This fall, Lauren Mullineaux [Senior Scientist, WHOI Biology Department] and I will teach Marine Invertebrates of Cape Cod, a 10-week course for graduate students in the WHOI/MIT Joint Program in Oceanography and Ocean Engineering. This is our second time offering this hands-on introduction to local marine invertebrates. We will combine lectures, field collections, and laboratory observation to familiarize students with the diversity of invertebrates in the local region and explore selected aspects of their function, ecology, and evolution. Field studies will include trips to marsh, estuarine, and rocky intertidal habitats, and a cruise to subtidal environments. We intend to use the *Beachcomber's Companion*® cards as a handy guide on our field trips. We expect the students to be familiar with all the animals in the *Beachcomber's Companion*®, and will test this in a lab practicum at the end of the course.

On a field trip earlier this year for the graduate Biological Oceanography course, a student encountered an interesting tube, which I proclaimed to be created by a certain species of polychaete worm. Upon flipping through the *Beachcomber's Companion*®, I was pleasantly surprised to find out that I was wrong about the species, [and showed] the students the card for *Diopatra cuprea*.

—Stace Beaulieu, Research Specialist, WHOI Biology Department



Stace Beaulieu (left)



PROFILE – Michael Dispezio: Science Educator

Describing Michael Dispezio as a science educator is like describing a tornado as “windy.” Actually, describing Dispezio as a tornado would be more accurate. “Working with Michael is refreshing,” says one collaborator. “It’s like, hold onto your seats, here we go!”

A self-proclaimed renaissance educator,” Dispezio has been involved in all aspects of science education. He has taught, written and developed curriculum, and produced books and videos. Most recently, Dispezio co-authored Sea Grant’s popular *Beachcomber’s Companion*© cards and is providing content for the companion website, www.beachcomberscompanion.net. For that, he is working with his son Tony, a website developer specializing in Flash animation.

It takes only a brief introduction to Dispezio to realize that his energy and enthusiasm are contagious. Perhaps it’s the rapid-fire manner in which he speaks, or his animated descriptions. Or maybe it’s his appearance: part Einstein (the hair), part New Yorker (the black clothes), and part Bohemian (the convertible, the suntan, the Birkenstocks year-round).

Before he entered the world of science education consulting, Dispezio paid his dues in the scientific community. After earning his master’s in biology from Boston University, he spent six summers as research assistant to Nobel laureate Albert Szent-Gyorgyi at the Marine Biological Laboratory in Woods Hole.

Currently, Dispezio travels across the country and beyond, delivering keynote talks at science education meetings. This spring, he was the on-air talent for the 2004 JASON Expedition: “Disappearing Wetlands.”

“For the past several years I have had the privilege and pleasure of working with the Woods Hole Sea Grant Program. Throughout this association, I have remained impressed with their continual dedication to educate the public on matters of marine interest. Unlike my commercial clients, Sea Grant pursues this noble endeavor in the most altruistic of ways, sponsoring education for the sake of education. There is no “hidden agenda,” nor profit margin that compromises their mission of public education.”

—Michael Dispezio, science education consultant

- Woods Hole Oceanographic Institution’s **“Topics in Oceanography”** professional development workshops, geared for middle- and high school teachers, are jointly sponsored by the WHOI Academic Programs and Communications offices, as well as Woods Hole Sea Grant. Designed to be a window into the rapidly changing world of ocean research and engineering, the workshops provide content knowledge for classroom and science center educators by providing them with an opportunity to informally interact with the scientists who do this work. Since 2001, there have been nine workshops, involving 22 scientists and 300 teachers (some repeat participants).

What are teachers saying about “Topics in Oceanography” workshops?

(Comments excerpted from pre- and post-workshop survey questionnaires)

“I just wanted to let you know how much I appreciated the workshop. Fiamma Straneo was excellent. Her topic is so timely for us as we are asked many times by our students about the effects of global warming. We now have a wonderful example of new information that we can present to our students. It will be interesting to find out the results of her first years research.”

The materials in our notebooks is awesome as usual, another example of excellence that is the hall-mark of your programs. All your help in making us more informed teachers is so valuable to us, it is not only passed on to our students, but to their family’s as well. I know that happens: at Parent Conference Nights some parents ask me about the information that I have gained at your workshops.”

—Forest Henderson, teacher, Bellingham High School

Q: What interested you in this workshop?

“I did not grow up in Massachusetts and I always find it helpful in my teaching to learn about the area I live in.”

“[I’ve] always wanted to visit WHOI”

“WHOI has the best workshops. You provide the latest science; I will do the rest!”

Q: In what ways would you like to include more ocean science in your classroom teaching?

“As a way of making each student realize how precious and fragile our coastlines/oceans are, and that they can each make a difference.”

Q: Have you added anything to your lessons (or will you) as a result of the workshop or workshop resources?

“I intend to do a baseline beach profile and continue to return each year. The CD Jim gave us [Sea Grant’s Beach and Dune Profiling] is just perfect!! Thank you. I, also, learned so much about the effects of seawalls and saw some of those effects first-hand: very dramatic! And so it is for students when they see it first-hand. I teach near the north shore, so I’ll have to scout out examples of this myself. But, I believe the field trip is worth it for the students to become informed on this important environmental concern.”

“I am always looking for interesting lessons that integrate math and science. Although I teach in inner city Worcester, I will be able to adapt the information I learned to areas in and near the school’s landscape. I like that it is hands-on learning. Students have to collect data, document it, and work as a team.”

“My 6th grade learns about the six kingdoms of life and having more background information on extreme life forms is great. They go for the bizzare.”



- Since 1992, Woods Hole Sea Grant has published the annual **Directory of Cape Cod and Islands Coastal Outreach Organizations**, as a way for community organizations, nonprofits, schools, and local, regional, and state agencies to stay connected. The Directory has been published on the Sea Grant website since 1998. In 1999, Woods Hole Sea Grant established a list-serv comprised of Directory members, called SEMCO (SouthEastern Massachusetts Coastal Organizations). Today, the list-serv is considered an important distribution vehicle for events, opportunities, and job postings throughout the region. SEMCO has 413 subscribers. An average of 14 messages are sent each month (by subscribers).

Woods Hole Sea Grant has sponsored a summer program for children ages 5–7 since 1994, taking over a program initiated by the American Littoral Society. Led by a local teacher, the “Sea Urchins” program encourages “hands-on, get-wet-and-muddy” experiences for participants. Sea Grant has seen 292 budding scientists graduate from the program, having sailed, hiked, biked, and explored their way around local shores and woods, guided by naturalists, farmers, entomologists, scientists, and engineers who have, in many cases, donated their time to the program.



“I would like to thank the Sea Urchin staff and volunteers for such a wonderful experience this summer! This was Michael’s first year participating in the Sea Urchin program; he very much enjoyed meeting his new friend’s everyday for a new adventure and learning experience! Michael was very excited to tell me all about the new things he saw, made and learned about each day.

A definite benefit to the program was the teacher, Pam Goguen, as well as all of the parents who volunteered to help each day.

Sea Urchins was a fun and educational experience for me and for my son, and I would like to thank the staff, teacher, and volunteers for all their efforts.

I will certainly recommend the program to others. Thanks again!”

—Dena Richard



Mark Hahn (left)

“Over the years, Sea Grant support has been incredibly valuable to my research group. It has allowed us to explore important questions that were not easily supported by other sources of federal or private funding because the topics fell in between the various “missions” of other agencies. For example, our Sea Grant-funded research on the aryl hydrocarbon receptor in beluga whales and in common terns has provided a better understanding of mechanisms underlying differential sensitivity to contaminants and allowed us to establish an approach for making inferences about the susceptibility of other protected species. Such research would not have been supported by NIH (which is concerned with mechanisms but only in terms of human

health), or by EPA (which looks for results with immediate application to environmental regulation).

In supporting our research, Sea Grant has facilitated the recruitment and training of several students (Connie Hart, Brenda Jensen, Joy Lapseritis, Kristen Whalen), some of whom have gone on to obtain good positions in government (Hart) or academia (Jensen).

Sea Grant provides additional contributions to education through its sponsorship of teacher workshops. Not only do these workshops expose teachers to cutting edge science, they provide an opportunity for scientists to interact with the educators who are actually “in the trenches” in the effort to educate students in grades K-12.

One of the most valuable aspects of the Woods Hole Sea Grant program has been having access to a talented communicator such as Tracey Crago, who has helped translate our research into a form that is available to and understandable by a much wider audience. For example, when people ask about our research, I still send out copies of an excellent article Tracey wrote four years ago about our beluga project (“The Link between Environmental Contaminants and Animal Susceptibility”).

The strong public education and outreach functions available through Woods Hole Sea Grant distinguishes Sea Grant from most other sources of research funding.”

—Mark Hahn, Senior Scientist, WHOI Biology Department



Joy Lapseritis

Tom Kleindinst, WHOI

- Sea Grant provides researchers with an opportunity to share their work with a variety of audiences through its outreach programs, including, since 1989, its **public lecture series**, “Oceans Alive,” and *Two if by Sea*, **a joint newsletter with MIT Sea Grant**. Additionally, **requests from the media** provide opportunities to get the word out about Sea Grant’s investment in research and extension. Such requests are handled collaboratively, between the WHOI News Office and Sea Grant staff. Popular topics, according to Shelley Dawicki, Director of Public and Community Relations, include erosion and storm damage, aquaculture, red tide, contaminants, and shellfish disease. Additionally, media requests for information on marine science careers are handled by Sea Grant staff directly. Recent examples include gURL.com, a website for teenage girls by the creators of iVillage.com, the number one women’s community online; Seventeen magazine, and the online edition of *USA Today*.

- Through Sea Grant's Coastal Community Development Program, Woods Hole Sea Grant participates in the **Massachusetts Coastal Training Program (CTP), a unique, federal-state partnership to provide science-to-management training opportunities that address the challenges being faced by our coastal communities.** CTP is a nationwide effort of NOAA's National Estuarine Research Reserve System; the Massachusetts CTP was the first program in the nation to get approved. A partnership of the Waquoit Bay National Estuarine Research Reserve (WBNERR), Massachusetts Coastal Zone Management (MCZM), and Woods Hole Sea Grant, CTP provides support, training, and technical information to communities, organizations, and agencies so they can better manage the coastal resources so vital to their economies and way of life.

To date, a market analysis of training providers in Massachusetts and a series of audience needs assessments have been conducted (all by professional contractors): local municipal officials, nonprofits and NGOs, and licensed shellfish growers. The information collected by those assessments has guided program development and strategic planning.

Notably, the CTP has leveraged Sea Grant's funding of \$50,000 per year (\$200,000 to date) with support from WBNERR (\$446,716) and MCZM (\$61,000).

"I have been impressed by the commitment of Woods Hole Sea Grant and its partners in the Massachusetts Coastal Training Program to systematically identify the specific training needs of audiences such as local government officials in coastal communities and staff of non-governmental organizations that address coastal issues, and to design training events and materials that address those needs. As needs assessment contractor to Massachusetts CTP, I have engaged in numerous conversations with Woods Hole Sea Grant staff directed toward understanding the true nature of those training needs and the optimal ways to address them. I have also been impressed by how often Woods Hole Sea Grant is mentioned as a source of top-quality, on-target training opportunities by those audiences."

—Duane Dale, Ed.D., needs assessment contractor

- Woods Hole Sea Grant's web site, www.whoi.edu/seagrant, is a busy place! Recent site visitation statistics, for the 12-month period January 1, 2004–December 31, 2004, are as follows:
 - ❖ Average number of hits per month: 8,100
 - ❖ "Top 10" pages:
 - 1- Main/Welcome
 - 2- Education
 - 3- What's New
 - 4- Research
 - 5- Education/Marine Extension Bulletins