# COASTAL SERVICES

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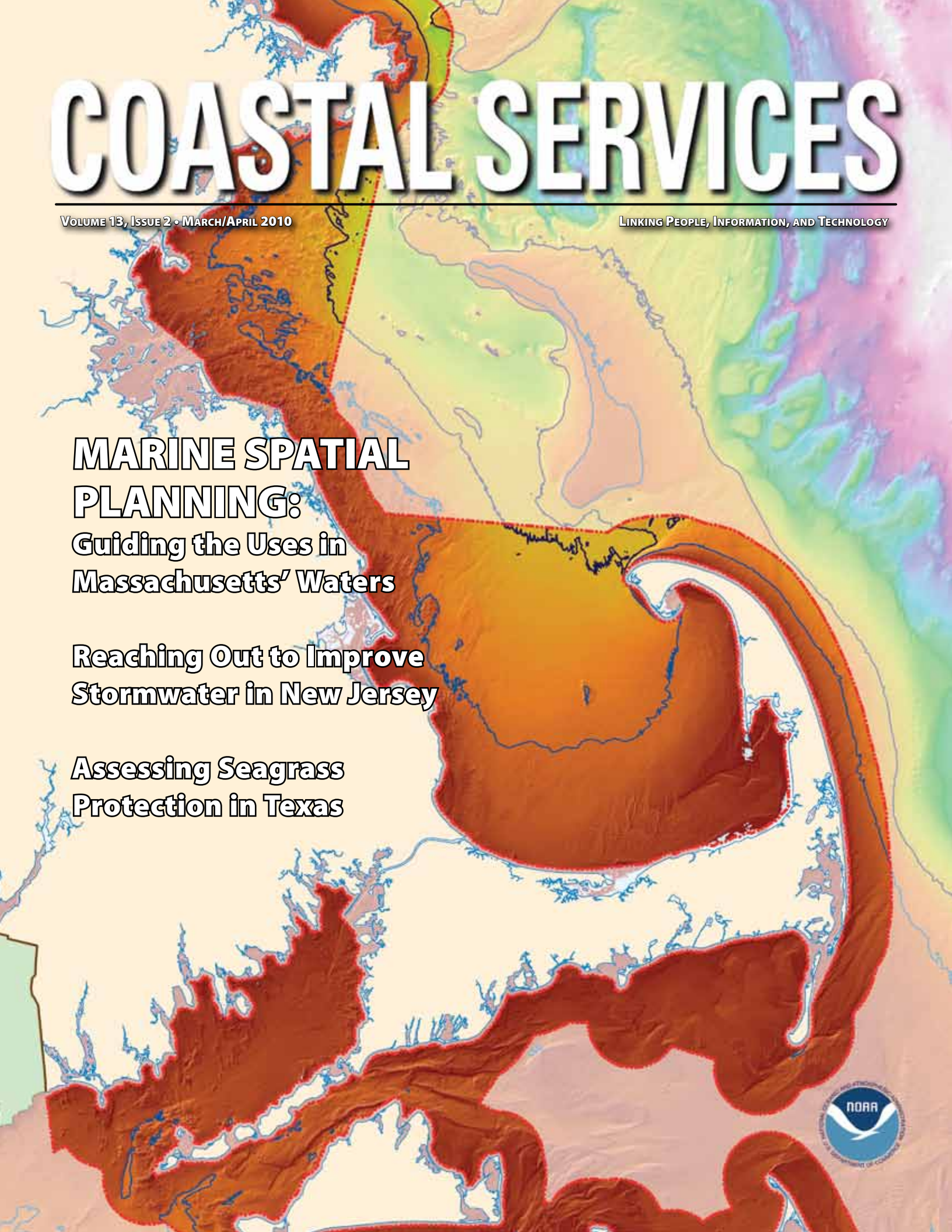
Linking People, Information, and Technology



## MARINE SPATIAL PLANNING:
### Guiding the Uses in Massachusetts' Waters

### Reaching Out to Improve Stormwater in New Jersey

### Assessing Seagrass Protection in Texas

# From the Director

New proposals for offshore energy production and other ocean uses are crossing the desks of coastal resource managers at an accelerating rate. For many managers, it feels as if the rush to take advantage of a growing list of ocean services is happening more quickly than their ability to make decisions about appropriate uses or siting.

In the cover story of this edition of *Coastal Services*, we look at the marine spatial planning process that coastal managers in Massachusetts went through to create the nation's first comprehensive ocean management plan that protects critical marine resources and fosters sustainable uses in a state's waters.

Massachusetts' plan is an important example for other coastal managers on how to conduct marine spatial planning in the U.S. Other examples can be found on the "In Practice" page of NOAA's new Marine Spatial Planning website, *www.msp.noaa.gov*.

Developed by the Coastal Services Center and NOAA partners, the website features six real-world examples of ocean planning, zoning, and management that relate to the principles of marine spatial planning, as well as resources and information.

Also in this edition of *Coastal Services*, we feature an article on regulatory action taken by Texas coastal managers to protect seagrasses. Managers are assessing if this first-ever regulation is effective by incorporating a geographic information system and aerial photography into their monitoring program.

The Center recently released a shallow-water benthic habitat atlas of over 190 miles of Texas coastal bays. Atlas map sheets consist of high-resolution images with an overlay of benthic habitat data and are being used to monitor, preserve, and manage seagrasses and other coastal habitats. To view the Benthic Habitat Atlas, go to *www.csc.noaa.gov/digitalcoast/tools/texasatlas/*.

Another new resource is the NOAA Climate Services portal, *www.climate.gov*, which showcases NOAA's climate data, products, and services. The Center and NOAA partners have contributed coast-specific resources and information to the site, which can be found at *www.climate.gov/serving_society/coastalComm.html*.

As always, the Center and NOAA are working hard to bring relevant tools, technology, and information to the nation's coastal managers. ❖

Margaret A. Davidson

The mission of the NOAA Coastal Services Center is to support the environmental, social, and economic well being of the coast by linking people, information, and technology.

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# News and Notes

## Best Practices for Risk Communication

How do you get people to evacuate before a hurricane strikes? How do you get people to lower their carbon emissions? How do you get people to understand climate change?

The most common approach is to feed the public more information. A more informed citizenry is more likely to react in the "right" way, correct? Social scientists say collective decision-making is much more complicated than that; how people feel about a risk is just as important as how much they know.

Other important factors also influence the decision maker, such the opinions shared by friends and family, issues of mobility and transportation, and the cost and benefit of different options. With these considerations, it is no wonder that human behavior is so difficult to predict.

### Risk Communication

Even though eliciting widespread change is difficult, it can be done. Social scientists compiled the following best management practices for community leaders to consider when trying to use risk-related information to change behavior.

- **Start small** – consider beginning a campaign by initially targeting a very specific behavior displayed by a very specific audience. Small-scale, localized efforts may be more likely to succeed and can be helpful in setting the stage for more comprehensive and far-reaching campaigns.
- **Use social norms to your advantage** – people are profoundly influenced by the behavior of those around them. Begin the campaign by targeting an audience whose behavior may be relatively easy to change, and allow that group's behavior to diffuse throughout the broader community.
- **Know your audience** – do what's necessary to understand audience perceptions, decision-making processes, and social and cultural norms. Work to uncover what prevents and promotes the behavior that is being cultivated. Knowing the audience will aid in designing an effective message and identifying a trusted messenger to deliver that message.
- **Present easy-to-understand and repetitive information** – craft the message to be as brief and as vivid as possible. Recognize that it will need to be delivered repeatedly, through a variety of media and communication channels, in order to change behavior.
- **Use a positive approach** – provide the audience with a specific action to take, and design a message that taps into their existing skills, roles, or desires. Messages suggesting a familiar or easy-to-do action can be more effective at grabbing an audience's attention and promoting action.
- **Evaluate your success** – evaluate the campaign mid-course and make any needed improvements. Also evaluate the campaign when it is over to understand whether campaign goals were met. This information can be used to increase the effectiveness next time. ❖

*For coastal resource management programs that need help with social science-related tasks, the NOAA Coastal Services Center's Human Dimensions program offers technical assistance and many how-to guides. Contact csc.info@noaa.gov to learn more or visit www.csc.noaa.gov/publications/.*

# Reaching Out to Improve Stormwater in New Jersey

When federal regulations compelled smaller municipalities to begin managing stormwater runoff and communicating with the public about their efforts, the state of New Jersey passed legislation making the rules in that state even more stringent. As local governments were scrambling to fulfill requirements, New Jersey coastal resource managers reached out to local officials with training, education, and examples that have resulted in positive on-the-ground changes.

*"We really used the results of that survey to dictate the way in which we offered workshops and hands-on trainings from that point on."*

*Lisa Auermuller, Jacques Cousteau National Estuarine Research Reserve*

"We really felt that it was important to educate right down at the local level," says Lisa Auermuller, watershed coordinator for the Jacques Cousteau National Estuarine Research Reserve. "Evaluation results showed that we were really effective and provided needed information at a time when municipalities were grasping for any help they could get."

The reserve provided outreach to local governments by offering assistance through its Coastal Training Program, developing a model ordinance, piloting an "Adopt-A-Storm Drain" program, publishing a stormwater newsletter, and much more.

"We were held up as a model for other counties in the state for how to implement the new stormwater management rules," Auermuller says.

## Documented Problems

While water quality and quantity are issues being addressed by coastal resource managers around the country, Auermuller says that nonpoint source pollution is of particular concern for managers at the Jacques Cousteau Reserve, which encompasses about 115,000 acres in southeastern New Jersey and includes highly urbanized terrestrial, wetland, and aquatic habitats within the Mullica River-Great Bay ecosystem.

"We definitely have hard data showing multiple effects of eutrophication in the bay," says Auermuller, which she explains is the dissolved nutrients that wash into the estuary in stormwater, stimulating the growth of aquatic plant life. One result is the depletion of dissolved oxygen in the water, which is harmful to aquatic plant and animal life.

For example, she notes that "over 15 years there has been an 85 percent decline of hard clams in an area that used to be known as 'Clam Town.' Over the past 5 years, we have seen a significant decline of seagrass in Barnegat Bay, and an increase in brown tide blooms that exacerbate the seagrass loss by causing shading effects and other problems."

## Perfect Timing

Phase II of the U.S. Environmental Protection Agency's stormwater program requires smaller municipalities, construction sites, and urban areas adjacent to municipalities to develop, implement, and evaluate a stormwater management program, and submit periodic reports.

In 2004, the State of New Jersey made its regulations even more stringent than federal rules when legislators passed the Municipal Stormwater Regulation Program.

"Coincidentally, that was the same year that the [Jacques Cousteau] Coastal Training Program reached full approval," Auermuller says. "Municipalities were really feeling the crunch and didn't know where to start, and we had the science, information, and best management practices to offer them."

She notes that each municipality makes its own decisions about how to implement the state rules. "That means that in just Ocean County, where the reserve does most of its work, there are 33 different sets of regulations in place with boundary lines that don't make sense ecologically."

## Listening First

Before taking on stormwater outreach with the municipalities in Ocean County around Barnegat Bay, Auermuller first created an advisory committee of local, state, and academic experts on stormwater management. She then sent out a survey to determine the municipalities' needs.

"We really used the results of that survey to dictate the way in which we offered workshops and hands-on trainings from that point on," she says. For instance, local officials said they needed help writing stormwater management plans, so the reserve brought in state officials to sit down and show them how to do it.

In the first two years, six different Coastal Training Program workshops and opportunities for technical assistance that were focused on stormwater management were offered to municipal staff members and elected and appointed officials.

## Rechecking the Pulse

In 2005, Auermuller conducted a second survey to "recheck the pulse and see at this point where local officials needed help. We found that people were still in need of the public outreach portion of the stormwater requirements."

The reserve created an information display that municipalities could use for education at local fairs and festivals, and provided education materials for officials to hand out. They also took officials on trips to see sites that demonstrated stormwater best management practices.

"It's one thing to talk about in theory," Auermuller says. "It's another to see them in place on the ground."

Photo courtesy of Jacques Cousteau National Estuarine Research Reserve

A model stormwater ordinance was created and a stormwater newsletter produced. The reserve also helped pilot an Adopt-A-Storm Drain program in three municipalities, where numbered medallions were placed on storm drains and nearby residents could "adopt" them and take responsibility for reporting any problems to city officials.

## Measuring Effectiveness

In 2007, Auermuller conducted a third evaluation to determine how effective the reserve's stormwater outreach efforts had been. The results showed that the outreach had paid off in a number of on-the-ground applications, including a fourth community initiating an Adopt-A-Storm Drain program and communities adopting regular storm-drain maintenance and implementing other best management practices.

One of the results that surprised Auermuller was that local officials appreciated the Coastal Training Program events not only for the information that they received, but also as key opportunities to share lessons learned with other local officials in the area.

"They had never been brought together for any reason before," she says. "Without that evaluation, we would never have known that they considered that face time as one of the most useful aspects."

As a result, specific networking times are now being scheduled in all the reserve's Coastal Training Program activities. Another outcome, Auermuller says, is that the reserve is working with many of the same local officials to address climate change and sea level rise.

She adds, "It's very gratifying to know that outreach efforts with a certain subset really pays off over time. We're helping implement changes that hopefully will pay off in the health of the estuarine system." ❖

*For more information on the Jacques Cousteau National Estuarine Research Reserve's stormwater outreach efforts, go to www.jcnerr.org/education/coastaltraining/ and click Stormwater & Wastewater. You may also contact Lisa Auermuller at (609) 812-0649, ext. 204, or auermull@marine.rutgers.edu.*

# MARINE SPATIAL PLANNING:

## Guiding the Uses in Massachusetts' Waters

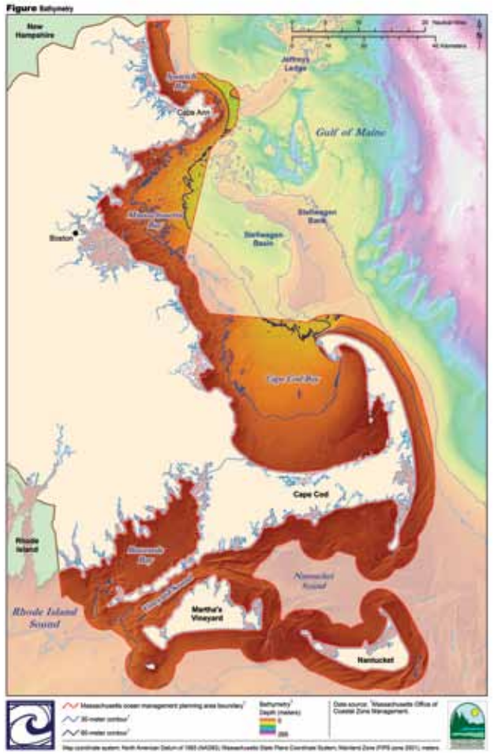
Offshore wind farms, liquefied natural gas pipelines, fiber-optic cables, desalination plants, aquaculture—the world is moving towards the ocean as a provider of services, and coastal resource managers have had few guidelines for making decisions on suitable ocean uses or considering appropriate siting. Coastal managers in Massachusetts recently released the nation's first comprehensive ocean management plan that protects critical marine resources while at the same time fostering sustainable uses in state waters.

"The plan is a first significant step in marine spatial planning in the United States, setting Massachusetts on a path toward comprehensive ecosystem-based ocean management," says Deerin Babb-Brott, assistant secretary for Oceans and Coastal Zone Management in the Massachusetts Executive Office of Energy and Environmental Affairs. "The intent of the ocean plan is to serve as a vital, adaptive, living document that will guide stakeholders and user groups, resource managers, and the public in the protection and balanced use of our marine waters."

The Massachusetts Ocean Management Plan provides new protections for critical environmental resources in nearly two-thirds of the commonwealth's coastal waters, while setting aside approved areas and creating standards for the development of renewable energy facilities and other offshore infrastructure.

"One of the really notable ways the plan breaks ground," says Stephanie Moura, executive director of the private nonprofit Massachusetts Ocean Partnership, "is that it looks at all uses over the entire coastal jurisdiction of Massachusetts' waters, which is a ribbon of water extending out three miles, as opposed to looking at a subset or region."

Moura adds, "A lot of folks were engaged in the plan trying to find a rational way to set aside areas of preservation, while looking at the full suite of ocean uses




*The area covered by the Massachusetts Ocean Management Plan.*

and trying to look at where certain uses were compatible and where they were incompatible."

"It's a model for other states," says Babb-Brott, "in the sense that it follows the principles and practices of marine spatial planning and ecosystem-based management to the extent that we were able given existing information. The particulars of how we arrived at a management regime and the overall structure of the plan are unique to the circumstances of Massachusetts."

### Appropriate Uses

Just as planning and zoning are done for development on land, marine spatial planning is a process to determine appropriate uses of the ocean and its resources—such as fishing, transportation, recreation, wind energy production, oil production, and sand mining—while protecting marine ecosystems.

According to a NOAA website, marine spatial planning has three primary attributes: it seeks to balance multiple objectives, including ecological, social,

> *"A lot of people realized we were basically heading towards a Wild Wild West mentality about using ocean resources."*
>
> *Stephanie Moura, Massachusetts Ocean Partnership*

economic, and governance; it clearly defines and manages ocean areas that are large enough to incorporate relevant ecosystem processes; and it addresses the interrelationships and interdependence of the natural processes, human uses, and appropriate authorities.

At its simplest, marine spatial planning is a method for coordinating a growing number of ocean and coastal activities.

### Essential Driver

Offshore renewable energy was "the essential driver" for marine spatial planning efforts in Massachusetts, says Moura, whose nonprofit organization was created to advance ecosystem-based management of the commonwealth's coastal ocean waters.

"There was a proposal for a large wind farm offshore," Moura explains. "The idea was that if there were going to be large facilities sited offshore, they ought to be done in the context of some rational, comprehensive plan to ensure that we're putting them in the right places."

She adds, "A lot of people realized we were basically heading towards a Wild Wild West mentality about using ocean resources, with the person who stakes their flag in the ground first being able to do what they want."

### Laying the Groundwork

To address these concerns, the Massachusetts Ocean Management Task Force was appointed in June 2003 and charged with investigating ocean use trends and existing governance mechanisms, and drafting legislation.

"That two-year effort laid the groundwork for the ocean management plan," says Babb-Brott. "It brought stakeholders together, some of whom had significantly different perspectives on the best approach. They put together draft legislation in 2005 that started wending its tortuous way to the legislature."

In May 2008, Massachusetts Governor Deval Patrick signed the Oceans Act, which required the Office of Energy and Environmental Affairs to develop a comprehensive ocean management plan, with a draft plan completed by June 30, 2009, and a final plan promulgated by December 31, 2009. The governor also appointed a 17-member Ocean Advisory Commission to serve as a sounding board during the plan's development.

"We had about 18 months to have a final plan. Six months before that, we had to have a draft plan out for public review, so we had just over a year to put this thing together," recalls Babb-Brott.

### Two Tracks

To meet this intense deadline, Babb-Brott established "two tracks" for collecting information and designing an approach.

"The first thing we did was go out into the state and hold a series of public listening sessions," he says. Eighteen public meetings were held throughout the state "asking anybody and everybody what their thoughts were on the act itself, what a plan ought to do, and what the issues were."

Six working groups made up of various stakeholders were also established to look closely at fisheries, habitat, sediment management, marine infrastructure, regulatory, and historical, cultural, and archaeological issues.

"The purpose of the work groups," explains Babb-Brott, "was to collect all the available information and start working with the materials and synthesizing the available data… They gave us the raw materials to work with."

The agency's Ocean Science Advisory Council also provided information and feedback throughout the process.

### Advancing the Ball

To create a frame for the plan, coastal staff members and the working groups turned to the requirements in the Oceans Act itself.

"The act at its core has 15 requirements," Babb-Brott says. "Those things include protecting sensitive and unique environmental resources, effective stewardship, addressing sea level rise and climate change, fostering sustainable use, enhancing public access and economic quality of life—it was a pretty intimidating laundry list. We had to boil all those down."

In the end, they focused on identifying and protecting critical marine resources and identifying appropriate locations and performance standards for facilities and uses. They also worked to

*Continued*



Graphic courtesy of Massachusetts Office of Coastal Zone Management

create an ongoing formal science and management review framework so the planning process would continue, even after the deadline was met.

"What we came up with," Babb-Brott says, "was a workable, meaningful framework. We had a limited amount of time, and we recognized that this would only be a start. Our job was to create a solid structure and foundation for ongoing work that at the same time was real and meaningful and was advancing the ball."

### Soup to Nuts

In June 2009, the draft ocean management plan was published for public review.

"It was a full soup-to-nuts draft plan that both provided 'spatially explicit' maps depicting relative compatibility of specific uses and ecological resources, as well as outlined a regulatory and implementation framework," Moura says.

"In the subsequent five-month period of public review, we received over 300 written comments and hours of testimony in five public hearings and 25 informational meetings," says Babb-Brott. "After a year and a half of intensive policy development, scientific analysis, mapping, public participation, and writing, revision, and comment incorporation, the final ocean management plan was completed" by the December 31, 2009, deadline.

### The Plan

The final plan provides a comprehensive framework for managing, reviewing, and permitting proposed uses of state waters that can be implemented through existing state programs and regulations. It adds new protections for marine life and habitats, identifies areas suitable for renewable energy development, and designates a multi-use area.

"The plan characterizes the environment to the extent the data is able to do so, it characterizes the human uses to the extent we are able to do so, and it provides analysis of the interaction between the two groups. It makes regulations where, more or less, uses are allowed or disallowed based on a comprehensive analysis of uses and resources," Babb-Brott says. "It balances the impacts of human uses and the protection of significant environmental resources."

It also outlines a five-year, $2.5 million science plan the state will pursue in collaboration with the Massachusetts Ocean Partnership that will help characterize marine habitats, identify and respond to the cumulative impacts of human uses and climate change, and monitor the ocean system to track the effectiveness of the management measures.

This spring, relevant state agencies will revise their environmental regulations to incorporate the new protections mandated by the plan.

### Pragmatic Approach

"What you will find in the plan is a lot of common sense," says Babb-Brott. "We focused on being pragmatic. We could have developed a Maserati, but none of us here could drive a Maserati. The utility of the end product is all about people's ability to understand it and work with it constructively."

He adds, "You can't avoid addressing these issues because you don't have the perfect information right now. We grumbled about having an 18-month deadline, but it gave us the ability to charge through this and do it. Yes, it was hard, but we're proud of the results." ❖

*For more information on the Massachusetts Ocean Management Plan, contact Deerin Babb-Brott at (617) 626-1000 or Deerin.Babb-Brott@state.ma.us. You may also contact Stephanie Moura at (617) 287-7542 or smoura@massoceanpartnership.org.*

## For More Information

**Massachusetts Ocean Management Plan,**
*www.mass.gov/?pageID=eoeeatopic&L=3&L0=Home&L1=Ocean+%26+Coastal+Management&L2=Massachusetts+Ocean+Plan&sid=Eoeea*

**Massachusetts Ocean Partnership,**
*www.massoceanpartnership.org*

**Massachusetts Ocean Management Task Force,**
*www.mass.gov/czm/oceanmanagement/taskforce/index.htm*

**NOAA's Marine Spatial Planning resources and information,**
*www.msp.noaa.gov*



# Assessing Seagrass Protection in Texas

When it became evident that seagrass beds in Texas were being severely damaged by the propellers of recreational boats, coastal resource managers took regulatory action. A monitoring program incorporating a geographic information system (GIS) and aerial photography has been able to show that the new protective measures are being effective.

> *"Boaters are held responsible if they damage seagrasses."*
>
> *Faye Grubbs, Texas Parks and Wildlife Department*

"This new regulation has definitely made a difference," says Faye Grubbs, a natural resource specialist with Coastal Fisheries in the Texas Parks and Wildlife Department. "We not only have the aerial imagery showing this, but those results have been supported by visual observations and the physical counting of prop scars."

Grubbs notes that extensive outreach has also contributed significantly to the success of the new rule, which makes it illegal to uproot any of the five species of seagrasses found throughout the Redfish Bay State Scientific Area.

"People are definitely more aware of seagrass, its importance ecologically, and how they can change their behavior to avoid damaging it," she says.

### More Than a Nursery

A seagrass meadow supplies everything that many marine organisms need, including being "the nursery, the roof over their heads, and the grocery store all rolled into one," Grubbs says.

Over time, there has been a general decline in seagrass coverage in Redfish Bay caused by propeller scars—or "prop scars"—where boat propellers cut trenches into the bay floor. Prop scars can take from one to seven years to heal. If currents erode them, they may never recover.

### Voluntary Action

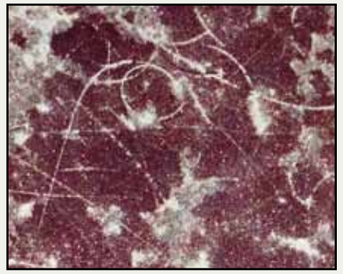
Because of the proliferation of prop scarring, in 2000 the Texas Parks and Wildlife Department designated Redfish Bay as a scientific area. Three voluntary no-prop zones were marked with posts and signs visible to boaters.

In the summer of 2005, analysis found continued prop scarring in those areas. "The voluntary measures were basically ineffective," Grubbs says.

### Getting Serious

A "first of its kind" regulation affecting all Redfish Bay boaters went into effect on May 1, 2006, making it illegal to uproot seagrass with an outboard propeller. "It doesn't include any closed areas, but boaters are held responsible if they damage seagrasses," Grubbs says.

Local game wardens act as both educators and enforcers. Boaters who are caught uprooting seagrasses can receive a fine of up to $500.



*An aerial photo shows prop scarring in seagrass beds.*

Since 2007, after a one-year grace period to help educate boaters about the regulations, 12 boaters have been convicted.

### Making an Impression

Grubbs says extensive outreach by the state and area nonprofits has helped ensure that boaters are aware of the regulations and how to respond when boating near seagrass. Outreach has included public service announcements, brochures, group presentations, and talking with boaters one-on-one.

Department staff members have also been featured in many media articles and programs. "We estimate 10.2 million impressions made through those venues," she says.

### Aerial View

Since the regulation went into effect, monitoring has been conducted to assess how well it's working. A variety of monitoring techniques are being used, including capturing aerial photography in 2007, 2008, and 2009 on 8,000 acres of the bay, and analyzing prop scarring using a GIS.

*Continued on Page 9*

Photo courtesy of Texas Parks and Wildlife Department

# Climate Wizard Granting Coastal Managers' Wishes for Data and Visualizations

When working in coastal areas to develop plans to adapt to climate change, many coastal resource managers wish for a simple way to depict how climate has or is projected to change in a given area. A new Internet tool is helping managers access, analyze, and interpret climate-change information at the state and regional scale.

*"It allows you to visualize and explore climate change information for a specific area and then download that data for further analysis."*

*Evan Girvetz,*
*The Nature Conservancy*

"The idea behind the tool," says Evan Girvetz, a senior scientist with The Nature Conservancy's Global Climate Change Program, "is to take massive databases of climate change information and summarize it in useful and intuitive ways. It allows you to visualize and explore climate change information for a specific area and then download that data for further analysis."

The Climate Wizard tool was launched in January 2009 at *www.climatewizard.org.* Developed by The Nature Conservancy, the University of Washington, and the University of Southern Mississippi, the tool generates color maps of projected temperature and precipitation changes using 16 of the world's most prominent climate-change models.

Climate Wizard allows the user to choose a state or country and to quickly see how climate may change by month, season, or year under different emission scenarios.

"Climate Wizard represents the first time that the full range of climate history and impacts for a landscape have been brought together in a user-friendly format," says Chris Zganjar, climate change ecologist and information specialist for The Nature Conservancy's Global Climate Change Program.

Girvetz notes that managers have already used the tool to consider how habitat shifts will affect endangered species, to understand the potential impacts to a variety of conservation areas, and to evaluate and develop climate-resilient management strategies.

"When you know a specific ecosystem is becoming even drier as a result of climate change, then there are actions that can be implemented on the ground to be more resilient to those changes," says Girvetz, who worked on the Climate Wizard tool during postdoctoral work at the University of Washington's School of Forest Resources.

While Climate Wizard is a significant advancement in viewing

*Users can zoom in to their state to see how climate is changing by month, season, or year.*

climate data, Zganjar stresses that it is currently limited to atmospheric data and doesn't include data on water temperatures or sea levels. He says that coast-relevant data will be added to Climate Wizard as more complete models are developed.

Another limitation is that the tool isn't "able to tell coastal managers how local climate patterns will change. It only shows what the general patterns are in a region," Zganjar says.

Girvetz says the response to the tool has been overwhelming, and efforts are already underway to incorporate the newest climate change models.

He adds, "We want to provide more data and continue to make the site better. It has to stay current and dynamic." ❖

*To view Climate Wizard, go to www.climatewizard.org. For more information, you may contact Evan Girvetz at (206) 343-4344 or egirvetz@tnc.org, or Chris Zganjar at (703) 841-2724 or czganjar@tnc.org.*



Graphic courtesy of The Nature Conservancy

*Continued from Page 7*

Ashley Summers, Coastal Fisheries GIS analyst for Texas Parks and Wildlife, notes that in 2007, "NOAA did a prop scar assessment in Redfish Bay to determine how different aerial cameras work. They quantified the scars using an automated feature extraction tool, where you train a computer program to look at imagery and pull out the features that you are most interested in."

Summers says they started with the idea of using the feature extraction tool to do annual assessments but discovered some systematic problems. Instead, they shifted their efforts to selecting a sample and visually inspecting the aerial photographs for scarring.

Scars on the bay are also assessed by swimming transects and ground truthing.

"It is a huge time commitment for a GIS analyst," acknowledges Summers, "but getting the aerial imagery is worth it. You can assess a lot more of the bay in comparison to the time it takes field crews to go out and manually inspect."

## Changing Behavior

While it's still early, a concurrent study in the same area showed a 45 percent decrease in scarring since 2005. "We feel very confident that the regulation is in fact working," Grubbs says.

She adds, "Ultimately, this regulation is really changing the way people are boating through this area. It's really informed the public about why it's important to protect this resource." ❖

*For more information on Texas efforts to protect seagrasses, go to www.tpwd.state.tx.us/landwater/water/habitats/seagrass/. You may also contact Faye Grubbs at (361) 729-2328 or Faye.Grubbs@tpwd.state.tx.us, or Ashley Summers at (512) 389-8199 or Ashley.Summers@tpwd.state.tx.us.*

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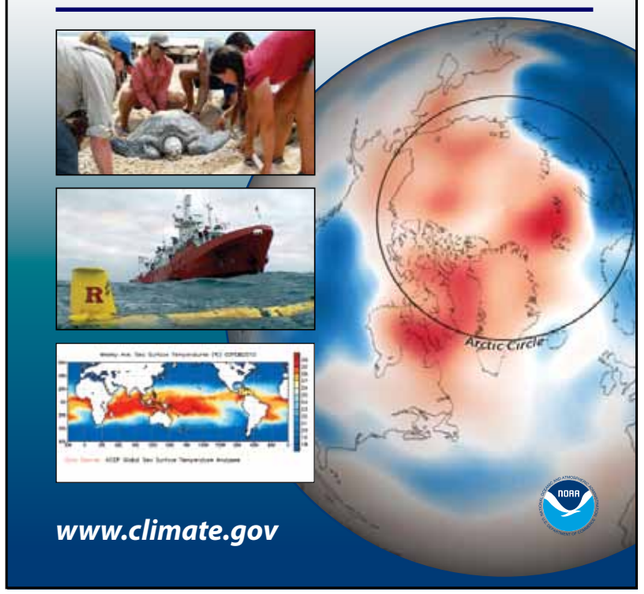


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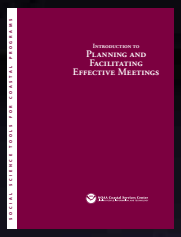


A small amount of instruction can go a long way.
Use this quick guidebook to learn from the pros.

**Introduction to Planning and Facilitating Effective Meetings**
*www.csc.noaa.gov/clearinghouse/*

# N-SPECT TRAINING

**Free Training for New and Potential N-SPECT Users**
**Dates: April 15 and July 22**
**Location: Your desktop**

Investigate potential water quality impacts caused by land use or land cover changes. This hands-on workshop will cover ways the Nonpoint-Source Pollution and Erosion Comparison Tool (N-SPECT) is commonly used, relay helpful tips, and allow participants to ask questions.

**Advance registration is required.**

Visit *www.csc.noaa.gov/NSPECT/* to learn more.

**NOAA Coastal Services Center**
LINKING PEOPLE, INFORMATION, AND TECHNOLOGY

N-SPECT is provided by NOAA's Digital Coast.