

# COASTAL SERVICES

VOLUME 10, ISSUE 3 • MAY/JUNE 2007

LINKING PEOPLE, INFORMATION, AND TECHNOLOGY

## **OFFSHORE WIND ENERGY: Texas and Massachusetts Rush to Be First**

**Seeing Clean Water  
as a Home-Buying  
Amenity in Ohio**

**Teaching Environmental  
Stewardship in  
American Samoa**



# FROM THE DIRECTOR

Right now, our country—and the world—are experiencing a heightened awareness and acceptance of the scientific consensus regarding climate change. Two recent reports from the Intergovernmental Panel on Climate Change clearly establish the scientific consensus that climate change is happening, that human activities are influencing climate, and that the consequences could be disastrous.

With the potential for accelerated sea level rise and an increase in the severity of extreme weather events, there is every indication that our nation's coastal areas will be among the most vulnerable to the impacts of climate change. Many of our island territories and coastal states are already feeling the effects of gradual sea level rise and an increase in the frequency of extreme weather events.

This stimulates important questions for coastal resource managers concerning their role and priorities in the nation's climate enterprise.

We at the National Oceanic and Atmospheric Administration's (NOAA) Coastal Services Center are busy creating our climate strategic plan and establishing a climate team to work to bring stakeholders together, translate climate science into coastal management tools, and help advance climate adaptation tools and strategies in the coastal arena.

The Center recently worked with the NOAA Climate Program and other NOAA offices to host a workshop for Sea Grant extension and outreach staff members to explore how the national Sea Grant network can facilitate climate science and use it to inform coastal decision making.

Climate change will be a topic at Coastal Zone 07 in Portland, and the National Estuarine Research Reserves are making climate change the focus of their annual meeting. Many state coastal managers also are wrestling with issues related to climate change.

One of those issues is the push for sustainable alternatives to fossil fuels, which produce atmospheric emissions responsible for ocean acidification and greenhouse gasses. As a result, coastal managers are seeing permit applications for projects they have never seen before, such as wave energy, geothermal energy, and offshore wind energy.

The cover story of this edition of *Coastal Services* looks at the approaches Massachusetts and Texas are taking to address offshore wind energy proposals. As our story illustrates, we have to balance the urgent need for renewable energy with the potential environmental impacts these facilities may cause.



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.



U.S. DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
National Ocean Service  
Coastal Services Center

## National Oceanic and Atmospheric Administration

U.S. Secretary of Commerce  
Carlos M. Gutierrez

Under Secretary of Commerce for  
Oceans and Atmosphere, and  
Administrator, National Oceanic  
and Atmospheric Administration (NOAA)  
Conrad C. Lautenbacher Jr.  
Vice Admiral, U.S. Navy (Ret.)

Assistant Administrator for  
Ocean Services and  
Coastal Zone Management,  
National Ocean Service  
John H. Dunnigan

NOAA Coastal Services Center  
Director: Margaret A. Davidson

Deputy Director: Jeff Payne

Coastal Geospatial Services,  
Branch Chief: Nicholas Schmidt

Coastal Information and Application  
Services, Branch Chief: Tony LaVoi

Management and Budget,  
Branch Chief: Paul Scholz

Regional Services,  
Branch Chief: Bill Thomas

Coastal Management Services,  
Branch Chief: Ginger Hinchcliff

Communications Director:  
Donna McCaskill

Magazine Writer and Editor:  
Hanna Goss

Copy Editor: Gerald Esch

Graphic Designer: Frank Ruopoli

Back issues of *Coastal Services* can be  
viewed at [www.csc.noaa.gov/magazine/](http://www.csc.noaa.gov/magazine/)

To subscribe to *Coastal Services*,  
please direct correspondence to:

Hanna Goss  
NOAA Coastal Services Center  
2234 South Hobson Avenue  
Charleston, SC 29405-2413  
Phone: (843) 740-1332  
Fax: (843) 740-1313  
E-mail: [Hanna.Goss@noaa.gov](mailto:Hanna.Goss@noaa.gov)

For more information about  
the Coastal Services Center, call  
(843) 740-1200 or visit our  
home page on the Internet:  
[www.csc.noaa.gov](http://www.csc.noaa.gov)

NOAA/CSC/20703-PUB

*Coastal Services* is produced bimonthly as a  
trade journal for coastal resource managers.  
Editorial content is unofficial and not  
authority for action. Views and opinions  
expressed may not reflect those of the  
Department of Commerce or NOAA.

# NEWS AND NOTES

## A Simplified Approach to Creating an Outreach Plan

Many organizations spend months writing an outreach plan. Consultants are hired, committees are formed, and numerous parties are involved. This is often the right way to create a comprehensive plan, but for some efforts this approach is overkill. A few afternoons and a document a few pages long might be all that is really needed.

The quick method works best when developing a short-term outreach plan for a specific function or product.

### STEP ONE:

#### Determine your goal.

The key here, and with most of the steps, is to be FOCUSED. "I want people to understand what we have to offer" is too broad. "I want the recreational fishermen within this county to be aware of the start date for the new fishing regulations" is much better.

### STEP TWO:

#### Define your target audience.

Once again, being focused is an asset. Listing all the potential target audiences can be illuminating, but the outreach plan should focus on the top one or two. A target audience that is too broad often results in a message that is too diluted to be effective.

### STEP THREE:

#### Think like your audience.

Writing an audience profile can be helpful. Include ways in which the audience likes to receive information, potential roadblocks for your efforts, and the elements of your product or service the audience will find most interesting. To be successful, the quick method

requires access to someone familiar enough with the target audience to make these assumptions. Including a member or two of the target audience in this process is always a good idea.

A common mistake at this stage is to craft the message from the sponsoring organization's point of view instead of the customer's. Will the fact that all departments are now working together seamlessly move the audience to action? Or would the audience be more likely to take notice if the message underscores specific ways in which the audience will be better served?

### STEP FOUR:

#### Develop a plan of attack.

Brainstorm with co-workers to develop a long list of potential outreach activities, from hiring a skywriter to using an e-mail message. Afterwards decide which activities will provide the biggest return on the investment, taking into consideration available time, money, and expertise. Develop an implementation plan for the pared-down list.

Is this plan perfect? Not by a long shot, but sometimes perfection just isn't an option or even necessary. The shortcut outreach plan provides an orderly, targeted approach that will move organizations from the thinking stage to the doing stage in short order. ❖

For more information, contact Donna McCaskill of the National Oceanic and Atmospheric Administration's Coastal Services Center at (843) 740-1272 or [Donna.McCaskill@noaa.gov](mailto:Donna.McCaskill@noaa.gov).



# Seeing Clean Water as a Home-Buying Amenity in Ohio

When buying a house near the shore, do people pay more for environmental amenities such as water clarity and quality? Residents living around Lake Erie do, according to researchers in Ohio.

The study on the value people place on water clarity and quality is part of the broader research question being pursued by Ohio State University faculty of “How do people interact with the lake?”

“In almost any management area, understanding human behavior and how humans respond to the lake or ecosystem being managed is as important as understanding the ecosystem itself,” says Elena Irwin, associate professor in the Agricultural, Environmental, and Development Economics Department at Ohio State University.

Irwin and fellow university researcher Tim Haab hope the answers to their broad research question will help coastal resource managers better balance environmental economics with ecology.

## Building Boom

There are many different ways that people interact with the coastal environment, Irwin says.

One of the ways, she says, is that Lake Erie and the rest of the nation’s coastline “provide amenities to people, and people value amenities. That can affect people’s behavior in a variety of ways. It influences recreational choices, which can

*They found that both water clarity and quality correlated with increased property values.*



*Increased water clarity by two meters increased average property values by \$4,308.*

lead to economic development, an increase in commercial services, and can impact housing values.”

Like coastal property around most of the country, Irwin points out that the development of and prices paid for homes on Lake Erie’s shoreline have “grown tremendously” in recent years.

“We’ve seen an increase not just in second homes, but an increase in permanent residences and lake recreation, as well.” She notes a small island off the shoreline of Ottawa County that has gone from being “mainly the location of a Civil War graveyard and modest second homes to year-round or second homes for very wealthy people, selling for \$1 to \$1.5 million.”

The conundrum for coastal managers is balancing people’s attraction to the amenities of the coast and the resulting economic growth with the ecosystem impacts that result from that influx of people and development.

“Our question,” Irwin says, “was if people value the lake’s amenities such as water clarity and water quality strongly enough, will it show up in terms of the capital value of homes around the lake?”

## Finding the Answer

With funding from Ohio Sea Grant and the help of graduate student Shihomi Ara, Irwin and Haab worked for two years to answer that question.

Most of the data they used in the study was secondary data, Irwin says. Information on housing values—and the homes themselves—was collected from each coastal county’s tax assessor office. They were able to plug in the housing costs and corresponding information, such as number of bedrooms and bathrooms, size of the house and lot, and location, into a geographic information system (GIS).

They were then able to use the GIS to find out general information, such as how far the homes were from lake access points, major centers of employment, and any polluting activities, and even the home’s school district.

Data on water clarity from secchi disk depth readings and on water quality, including fecal coliform bacteria data, were also plugged into the GIS.

A statistical model was used to compare bacteria and water clarity averages for the beach nearest each house with the sales price and information about the homes. This enabled the researchers to determine how changes in water clarity or quality impacted property values.

## Capital Returns

The researchers found that both water clarity and quality correlated with increased property values, but “water clarity seems to have the biggest bang for the buck in terms of housing price,” Irwin says.

“If you increased the depth of water clarity by two meters, it was found to increase the average housing value by \$4,300,” she explains. This is an increase of between four and

five percent of the average home value in the study region.

“Looking at water quality in terms of bacterial counts, when there were no beach closings, had a slightly positive effect” of increasing the price of an average home by 0.1 percent, or a little more than \$100.

The finding also showed that proximity to the beach and beach access points also increased the value of a home.

## Quantitative Evidence

What the study didn’t pick up, she says, is the amenity value of having waterfront property. Their study also only looked at home value and did not take into account visitors’ use of the lake. The researchers plan to continue their study and hope to tease out additional information on the relationship between Lake Erie’s environment and economy.

“We measured one aspect of that,” Irwin says, “but there are many other ways that improvement

or decline of lake functioning impacts the economy.

“Our numbers are upper-end estimates of what the home value could be, because they assume no market changes, but this does provide quantitative evidence that people value the lake’s amenities and that there is an economic impact from having a healthy lake.”

This information can give policy makers some idea of the magnitude of the impact a functioning coastal ecosystem can have on the economy.

“The take-home message,” Irwin says, “is that improved water clarity is a benefit. Lake managers should have the lake water quality in mind as they prioritize and make decisions and goals related to a healthy ecosystem.” ❖

For more information about this Ohio State University research project, point your browser to [http://ohioseagrant.osu.edu/\\_documents/twineline/v28i4.pdf](http://ohioseagrant.osu.edu/_documents/twineline/v28i4.pdf). You may also contact Elena Irwin at (614) 292-6449 or [irwin.78@osu.edu](mailto:irwin.78@osu.edu).

## Adding Resale Value to Average Homes around Lake Erie

### Lake Amenities

Increased water quality, eliminating beach advisories.....	\$108
Increased proximity of house to nearest beach (per mile) .....	\$750
Improved water clarity to depth of two meters.....	\$4,308

### Traditional Home Amenities

Additional bathroom .....	\$7,270
Additional fireplace .....	\$10,807
Improved school system ranking by 10 percent.....	\$3,764

*Information from Ohio Sea Grant*

# Offshore Wind Energy:

## Texas and Massachusetts Rush to Be First

Offshore farms of energy-producing wind turbines—already a reality in European waters—have yet to be sited off the U.S. coast. But proposals in Texas and Massachusetts appear to be vying to be the first offshore wind project built in American waters in a race fraught with regulatory hurdles, public opposition, and unknown environmental impacts.

With all eyes on the regulatory front-runners, another project—such as one in New York—could move ahead to take the title as state and federal coastal resource managers, along with environmental organizations and other groups, work to understand the issues and define the regulations.

The reward could be a clean, renewable domestic energy source that may help reduce the nation's dependence on imported oil and gas.

"If we make the smart decision to diversify and start adopting nontraditional energy sources, we have to be prudent where and how we site them and address a host of related issues," notes Bruce Carlisle, acting director of the Massachusetts Office of Coastal Zone Management.

### The Contenders

Jerry Patterson, commissioner of the Texas General Land Office, signed an agreement in October 2005 with Galveston-Offshore Wind, LLC, to bring the first offshore wind-energy project in the U.S. to the Texas coast. A second lease was signed with Superior Renewable Energy in May of 2006.

Galveston-Offshore Wind, a division of Louisiana-based Wind Energy Systems Technologies, LLC (W.E.S.T.), has already constructed a meteorological tower to gather data on wind, bird migration patterns, and other information to determine where the project will be developed on an 11,355-acre lease about seven miles off the coast of Galveston Island.

Unlike most states whose territorial waters are generally three nautical miles from shore, the General Land Office controls coastal waters out to 10.3 miles, limiting the number of federal agencies needed to sign off on the proposal. After about a year of research, a permit to construct the 53 turbines W.E.S.T. proposes will have to be sought from the U.S. Army Corps of Engineers. State and federal consistency reviews will be conducted by the Texas General Land Office.

On March 30, Ian Bowles, the secretary of the Massachusetts Executive Office of Environmental Affairs, signed off on the Final Environmental Impact Report of the Massachusetts Environmental Policy Act (MEPA) for the controversial Cape Wind project, a proposal to build the country's first offshore wind farm in a 25-square-mile area in the waters of Cape Cod.

The step marked the completion of a state environmental review process that began when Cape Wind first filed in November 2001.

The project can now advance to the various state agencies from which it will need permits to begin construction. The portion of Cape Wind located in federal waters is currently under federal environmental review led by the U.S. Department of the Interior's Minerals Management Service (MMS).

"Cape Wind was the first project of its kind," notes Carlisle. "Everybody was learning as we went—it involved different jurisdictions and federal authorities that weren't really set up to review this type of project. It eventually resulted in the creation of new authorities and processes to handle alternative energy projects."

### The Power of Wind

While offshore wind energy facilities are still in the planning stages in the U.S., the on-land wind energy business is booming. According to the American Wind Energy Association (AWEA), wind power capacity in the U.S. increased 27 percent in 2006 and is expected to make a similar jump in 2007.

The growth is due in part to advances in technology, making it cheaper to generate energy from wind.

In 2006, Texas became the national leader in wind power development, overtaking California in cumulative installed capacity for the first time since the modern wind industry began in 1981.

While wind energy facilities provide less than one percent of the U.S. electricity supply—powering 2.9 million homes—Denmark and some regions of Spain and Germany now have 10 to 25 percent of their electricity generated from wind power, including several offshore facilities.

### Wind on the Water

The reason to look offshore for siting wind farms, says Susan Williams Sloan, an AWEA communications specialist based in Texas, is that offshore winds tend to be more consistent and to blow at peak demand times, which is important because electricity cannot be stored for later use.

Offshore wind farms also can be located in closer proximity to large cities and existing transmission lines.

Wind energy doesn't produce atmospheric emissions that cause ocean acidification or greenhouse gasses like coal or natural gas.

It also is free of many of the traditional environmental concerns associated with fossil fuels, such as transportation and storage leaks.

### Good Business

It is the economic promise of wind and other sustainable energy sources that is behind the

aggressive campaign by Patterson to grow the industry in Texas and diversify the state's energy portfolio. The proceeds from the first offshore wind lease alone could earn more than \$26.5 million over its 30-year life, which will go into a special fund for Texas schools.

"It's the money plain and simple," says Jim Suydam, Texas General Land Office press secretary. "At no expense, the state will receive data that could spur a new industry for Texas, creating jobs, tax revenue, and a renewable source of income for the state's Permanent School Fund."

Massachusetts Governor Deval Patrick has made development of renewable energy an administration priority.

"Global climate change, sea level rise, dependence on foreign oil, and the health impacts of local and regional air pollution create an urgent need for sustainable alternatives to energy produced from fossil fuels," notes Secretary Bowles in a statement.

Cape Wind also is providing a \$10 million mitigation package that includes natural resource preservation, marine habitat restoration, and coastal recreation enhancement projects, and will pay an estimated \$5.6 million in federal lease payments over 20 years.

### The Unknowns

While there appear to be many benefits from offshore wind power, there are just as many potential impacts to the environment and nearby communities.

Along with jurisdictional and political issues, there were concerns that the 130-turbine Cape Wind

*Continued*

**"We just want them to do their projects very carefully and make wind energy truly a safe, green energy source."**

**Donna Hoffman,  
Lone Star Chapter  
of the Sierra Club**

## For More Information on Wind Power

Danish study on the environmental impacts of wind energy, [www.ens.dk/graphics/Publikationer/Havvindmoeller/havvindmoellebog\\_nov\\_2006\\_skrm.pdf](http://www.ens.dk/graphics/Publikationer/Havvindmoeller/havvindmoellebog_nov_2006_skrm.pdf)

National Oceanic and Atmospheric Administration Office of Ocean and Coastal Resource Management Web site on Energy and Government Facility Siting, [http://coastalmanagement.noaa.gov/ene\\_gov.html](http://coastalmanagement.noaa.gov/ene_gov.html)

Minerals Management Service draft Programmatic EIS for its Alternative Energy and Alternate Use Program, available until May 21 for review and comment, <http://ocsenergy.anl.gov>

*Continued from Page 5*

project would kill birds, mar ocean views, drive tourists away, conflict with fishing and recreation, and industrialize Nantucket Sound.

Other concerns about wind energy raised by environmentalists, regulators, and scientists include bats colliding with wind turbines, habitat fragmentation and loss, and changing the seafloor from soft sand to hard structures, which could attract different marine species.

Issues include the effect of electromagnetic fields on fish, damage to submerged vegetation, threats to navigation and aircraft, change in sediment transport, bottom scouring, and fishing gear or animals becoming entangled with buried undersea cables that transmit the energy from the wind turbines to facilities onshore.

There are also concerns about how wind farms may impact fish migration, protected species, and marine mammals such as dolphins and seals.

Williams Sloan points out that when issues have arisen, such as birds and bats being killed, the wind industry has aggressively worked to solve or greatly reduce the problem through siting and technological developments.

### In the Right Place

The biggest solution seems to be properly siting the facilities in the first place. In addition to looking for sites with strong wind resources, shallow water depths, and relatively low ocean storm wave heights, companies should avoid bird and fish migratory routes and locate farms as far offshore as possible to reduce view impacts.

Ben Rhame, coastal management team leader for the Texas General Land Office's Coastal Resources program area, notes that aesthetics

will probably not be an issue in his state.

"We already have oil and gas structures off our shore, so there's more of a culture of acceptance," Rhame explains.

The issues for Texas, says Winnie Burkett, interim executive director for the Houston Audubon Society, are that the state is both a "major bird migratory corridor" and home to a large bat population.

### Taking Action

By the time the Texas General Land Office signed its second offshore wind lease, "the environmental community had an action plan in place," says Donna Hoffman, communications coordinator for the Lone Star Chapter of the Sierra Club.

As a result, the Land Office's lease with Superior Renewable Energy requires the company to hire an avian specialist to study how wind turbines might affect bird migration during a four-year research and analysis phase, and sets out mitigation strategies if an Environmental Impact Statement is not required by the Army Corps during permitting.

"We just want them to do their projects very carefully and make wind energy truly a safe, green energy source," says Hoffman.

### The Finish Line

It seems only a matter of time before the U.S. will have its first in what is sure to be a growing number of offshore wind farms, but it is difficult to call which state will cross the finish line first.

Construction of the W.E.S.T. project is expected to cost as much as \$300 million and could take as long as five years.

*Continued on Page 9*

## Budget-Conscious Coastal Vegetation Mapping in Washington

Mapping coastal vegetation such as salt marsh or seagrass beds using satellite imagery or aerial photography can be expensive and may require specialized training. Researchers at a Washington State National Estuarine Research Reserve have developed low-budget mapping methodologies that can be used by state and local coastal planners challenged by limited budgets or technology.

*"Our methods are affordable, repeatable, and have the resolution and accuracy standards needed by local coastal managers."*

*Suzanne Shull,  
Padilla Bay National  
Estuarine Research Reserve*

Coastal and submerged aquatic vegetation are "critical and important components of estuarine and coastal ecosystems," notes Suzanne Shull, geographic information system (GIS) specialist at the Padilla Bay Reserve. "Coastal resource managers and their staff increasingly are being called on to protect and enhance these communities and in the process are expected to map their location."

In 2000, Shull and Reserve Research Coordinator Douglas Bulhuis developed and tested a methodology for mapping and monitoring coastal vegetation using aerial photography, desktop computers, and the cheapest ESRI ArcView software available at

the time. In 2004, they updated the methodology to reflect rapidly changing and more affordable technologies.

"We would like to stimulate coastal managers," Shull says. "In 2000, people were not using GIS as prolifically as they are now, and we wanted to show that this can be done, first of all, and second of all, it can be done without a lot of investment in high-end software or training."

The methodologies can be used for restoration projects, invasive species control, land-use planning, and resource management. Interest in the methodologies has come from as far away as South Africa and Britain.

The methodologies were developed, tested, documented, and demonstrated by mapping salt marsh, macroalgae, and two species of eelgrass in the Padilla Bay Reserve. The multi-step methodologies conform to many of the recommendations in the national benthic habitat mapping guide developed by the National Oceanic and Atmospheric Administration's Coastal Services Center.

Padilla Bay's 2000 methodology, which was funded by the Cooperative Institute for Coastal and Estuarine Environmental Technology (CICEET), includes procurement of aerial photography, ground truth sampling, obtaining rectified reference photographs, scanning the photos, georectifying the photos, mosaicking, photointerpretation, on-screen digitizing, and developing vegetative cover GIS polygons.

The 2004 methodology was developed as part of the National



Estuarine Research Reserve System's pilot biomonitoring project. The primary difference in the methods was the purchase of georectified orthophotography. The methodology includes image acquisition, image processing, classification schema and geodatabase construction, ground reference data, on-screen delineation, quality assurance/quality control checking of the data, and change detection between 2000 and 2004.

While technology has evolved, Shull says "elements of the 2000 methodology are still quite useful." The methodology is still being used by managers who "can't afford anything else."

She adds, "Our methods are affordable, repeatable, and have the resolution and accuracy standards needed by local coastal managers." ❖

To access the methodology papers developed by Padilla Bay National Estuarine Research Reserve, point your browser to [www.padillabay.gov/map\\_projects.asp](http://www.padillabay.gov/map_projects.asp). You may also contact Suzanne Shull at (360) 428-1092, or [sshull@padillabay.gov](mailto:sshull@padillabay.gov). For more information on *Guidance for Benthic Habitat Mapping: An Aerial Photographic Approach*, go to [www.csc.noaa.gov/benthic/](http://www.csc.noaa.gov/benthic/).

## Teaching Environmental Stewardship in American Samoa

The goal of almost every environmental education program for students in kindergarten through 12<sup>th</sup> grade is to develop environmental stewardship in its participants. After 13 years, an education program in American Samoa can demonstrate its success in developing student interest in the environment and science.

"You can observe and see that the kids are more environmentally conscious when they leave the program," says Allamanda Amituanai, education specialist for Fagatele Bay National Marine Sanctuary. "We're also seeing participants putting in more science projects at schools and seeing them pick marine science and terrestrial issues to study at the community college," subjects that traditionally have suffered from low student interest.

Children ages eight through twelve participate in EnviroDiscoveries Camps produced every summer by Le Tausagi, a collaboration between educators at the sanctuary and educators working for various agencies in the American Samoan government.

Nearly 90 children participate in three camp sessions, in addition to camp graduates who return as junior counselors. The summer sessions consist of three-day overnight camping trips along

the coast that include activities such as hiking, swimming, snorkeling, and kayaking lessons. Education activities also teach the students to help care for and protect the marine environment.

"Kids see the ocean all the time, but they don't appreciate it until they are out there," Amituanai says. "They get to go out to wetlands and touch the muddy soil, smell and feel the different trees—there are a lot of activities going on during the camps."

The camps teach the students about environmental features, such as different kinds of trees and plants, invasive species, corals, sea turtles, and fish.

The sanctuary staff hosts and organizes the camps, and the other government agencies conduct many of the camp activities and help fund the program, which is free to participants. The Le Tausagi collaborators do everything from fixing the meals for the students to providing alternative activities if it rains.

To alert students about the opportunity to attend the camps, sanctuary staff members make presentations at the schools, advertise in the local paper, and send out press releases to local media. Applications are evaluated and participants accepted on a first-come basis.

Amituanai notes that EnviroDiscoveries has developed

***"Kids see the ocean all the time, but they don't appreciate it until they are out there."***

*Allamanda Amituanai,  
Fagatele Bay National  
Marine Sanctuary*



*Students who have already attended an EnviroDiscoveries Camp are often brought in as junior counselors to assist with activities and program details.*

and changed over the years from a four-hour day camp to the sleepover events. "It's evolving," she says. "We're always exploring ways to improve the program."

She adds, "I think this would work anywhere. I don't think this is just special for us. Kids everywhere don't understand what we have unless you take them out and let them feel and touch." ❖

*For more information on the EnviroDiscoveries Camps, contact Allamanda Amituanai at (684) 633-7354, or Manda.Amituanai@noaa.gov.*

PHOTO COURTESY OF FAGATELE BAY NATIONAL MARINE SANCTUARY

Continued from Page 6

Cape Wind expects to conclude its permitting phase by the middle of 2008 and to be fully built and functioning by the end of 2010, but plenty of potential hurdles remain, including the MMS comprehensive review, and likely challenges by project opponents.

At a minimum, coastal resource managers may be involved in federal consistency reviews of any future projects, and could have a larger role to play in the portion of plans that cross state waters, National Marine Sanctuaries, or National Estuarine Research Reserves.

"One thing that is important to do," notes Rhame, "is to bring the different parties to the table as early as possible. Make sure everyone's concerns are addressed up front so that things don't come up later in the game."

Carlisle says that even before that, "coastal program managers should go back to their approved program plans and make sure they have the various energy facility authorizations on their list of federal actions that undergo a federal consistency review, and include the pending MMS programs."

He adds, "I anticipate that state programs such as ours will be examining and revising our program policies to better address renewable energies, while protecting coastal resources and uses." ❖

*For more information on Texas' offshore wind energy projects, contact Ben Rhame at (512) 936-6447 or ben.rhame@glo.state.tx.us, or Jim Suydam, (512) 463-2716 or jim.suydam@glo.state.tx.us. For more information on Massachusetts' offshore wind projects, contact Bruce Carlisle at (617) 626-1205 or bruce.carlisle@state.ma.us.*

## GEOSPATIAL TECHNOLOGY TRAINING

***Now available at a location near you!***



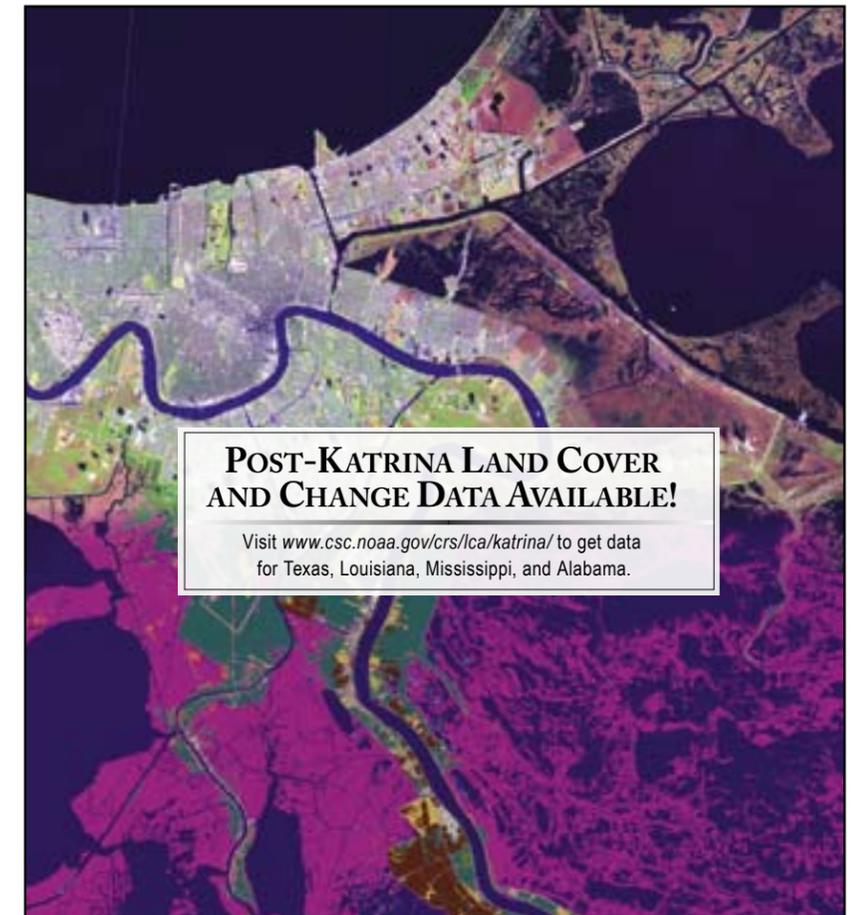
Geospatial technology courses can be brought to the location of your choosing. Contact the NOAA Coastal Services Center for details.

### **Geospatial Technology Training Courses include**

- Introduction to ArcGIS
- Coastal Applications Using ArcGIS
- Conservation Data Documentation



**For a description of these and other courses, visit [www.csc.noaa.gov/training/](http://www.csc.noaa.gov/training/) or call Steve Walker at (843) 740-1288.**



### **POST-KATRINA LAND COVER AND CHANGE DATA AVAILABLE!**

Visit [www.csc.noaa.gov/crs/lca/katrina/](http://www.csc.noaa.gov/crs/lca/katrina/) to get data for Texas, Louisiana, Mississippi, and Alabama.



*The Premier Conference for Coastal Resource Managers*

**EARLY REGISTRATION ENDS MAY 31!**

Don't miss the world's best-known coastal resource management conference.

July 22 to 26, 2007 • Portland, Oregon  
[www.csc.noaa.gov/cz/](http://www.csc.noaa.gov/cz/)

**COASTAL  
ZONE 07**  
*Portland, Oregon*

*Brewing Local Solutions to  
Your Coastal Issues*

NOAA Coastal Services Center  
2234 South Hobson Avenue  
Charleston, SC 29405-2413

PRST STD  
POSTAGE & FEES PAID  
NOAA COASTAL  
SERVICES CENTER  
PERMIT NO. G-19



This paper is made with 100% recycled fiber and contains at least 25% post-consumer waste.