COASTAL SERVICES

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Linking People, Information, and Technology

STUDYING THE ENVIRONMENT TO PREPARE FOR OFFSHORE WIND FARMS IN NEW JERSEY

Helping Managers Communicate Climate Change in Oregon

Using Video to Encourage Water Conservation in Louisiana

From the Director

Investment in alternative energy sources that do not emit carbon dioxide, which aggravates global warming, is a cornerstone of the Obama administration's economic and energy policies. One of the best places to look for renewable energy may be offshore, where wind, waves, and currents have the potential to produce strong, consistent, clean energy.

While offshore energy sources have great potential, there are still questions about possible environmental impacts and best sites for alternative energy facilities. Coastal resource managers can be working now to help answer these questions.

The cover story of this edition of *Coastal Services* examines an environmental baseline study that New Jersey coastal managers have undertaken to help guide wind farm development off that state's coastline.

In the story, the lead federal agency with authority over offshore renewable energy projects—the Minerals Management Service (MMS)—encourages states with the potential for offshore renewable energy development to conduct their own assessments focusing on environmental, social, and economic issues.

Another lesson that New Jersey managers pass on, which is echoed by MMS officials, is to partner early with the federal agencies involved in permitting offshore energy facilities.

Also in this edition is an article on audio podcasts and publications produced by Oregon Sea Grant that may help coastal managers navigate the challenges of communicating with the public about climate change by incorporating social science.

Understanding more about how social science relates to climate science is shedding light on how coastal management communications and outreach efforts can more effectively influence behavior.

The current economic conditions, plus mounting scientific evidence and public concern, have lent a new urgency to the need for our coastal communities to adapt to the impacts of climate change and sustainably use and protect the nation's ocean and coastal resources.

The National Oceanic and Atmospheric Administration (NOAA) Coastal Services Center is working hard to support our coastal management partners by providing the necessary tools, data, and information to meet their needs. ❖

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

Hanna Goss
NOAA Coastal Services Center
2234 South Hobson Avenue
Charleston, SC 29405-2413
Phone: (828) 246-0958
Fax: (843) 740-1313
E-mail: *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*

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News and Notes

Conference Call Etiquette

According to AccuConference, a communications blog, twice as many companies are communicating via audio- and videoconferencing than was the case five years ago. Between 2000 and 2006, the sales of conferencing equipment increased from $2.84 billion to $4.33 billion.

The use of conference calls by the coastal resource management community is following this trend. Coastal organizations want to expand their partnership efforts, yet travel budgets continue to shrink. What's an organization to do?

Nothing can replace face-to-face interactions, but a conference call has become the next best thing. With a conference call, many of the standard meeting mores are the same—provide an agenda several days in advance, designate a facilitator to keep things on track, give everyone the opportunity to participate—but there are special nuances that both the people on the phone and the group in the conference room should be aware of.

When You Are the Caller

- **Mute it.** A visitor to your office, sirens in the background, a ringing cell phone—every unintended sound can disrupt the meeting and make the caller look (sound) less than professional. Just remember to undo the mute when you want to speak.
- **Stay focused.** Callers can answer e-mail while "participating" in the conference call, right? Wrong. Refrain from electronic grazing. For a meeting to be successful, everyone needs to participate, and that includes you, the caller.
- **Speak up.** Even though participating via the phone can be less than elegant, the meeting organizers asked you to participate for a reason, so don't be shy about contributing to the discussion.

When You Are the Host

- **Ask everyone to state their names.** A roll call at the beginning of the meeting is a good idea. Writing down the names of the people on the phone will help the leader remember to call on them when appropriate. Asking everyone to state their names when they talk is also a good practice.
- **Stick to the agenda.** This rule is especially important for a conference call. Sidebar conversations, conversations that veer off course, and private jokes don't help callers. Value their time.
- **Encourage group participation.** Call on those who are on the phone. Ask them to summarize what they are getting out of the meeting. If there is a moment or two of silence, or a lot of head nodding going on, tell the person on the phone what is happening.
- **Don't rustle papers or allow other distracting noises to be made.**
- **Provide all visuals in advance.**
- **Send the conference call-in number in advance.** Have the participants' phone numbers available so you can call them if there is a problem.
- **Keep the call as short as possible.** Conference calls can be very effective, but there is a limit to everyone's endurance. Many professionals say 90 minutes should be the maximum.

With the proliferation of conference calls, good and bad meeting practices are becoming more obvious. Start paying attention to what works and what doesn't, and vow to become the Emily Post of conference calling. ❖

HELPING MANAGERS COMMUNICATE CLIMATE CHANGE IN OREGON

*I*t is a common belief that if coastal resource managers and other communicators could just provide the public with information, people would take appropriate actions. But social scientists conducting research for the past 50 years have found this assumption riddled with misconceptions and are shedding light on how communications and outreach can more effectively influence behavior.

> ***"Understanding more about how social science relates to climate science will help us all do our work better and help communities prepare."***
>
> *Joe Cone, Oregon Sea Grant*

A new audio podcast and publications produced by Oregon Sea Grant are geared toward helping coastal managers navigate the challenges of communicating complex scientific concepts—such as climate change and variability—to the public.

"These are intended to help provide insights from social science to those who are on the front lines communicating with the public about climate," says Joe Cone, assistant director and communications leader of Oregon Sea Grant. "Understanding more about how social science relates to climate science will help us all do our work better and help communities prepare."

The Communicating Climate Change podcast is a series of recorded interviews with prominent social scientists on the question of how to communicate about climate change to a broad audience.

Two publications written by Cone, "Expand Your View: Insights for Public Communicators from Behavioral Research" and "Hold That Thought! Questioning Five Common Assumptions about Communicating with the Public," help distill communications and related social science research and concepts.

Broader Definition

While the podcasts and publications are geared toward meteorologists, science journalists, government agency personnel, university outreach specialists, and members of nongovernmental organizations, Cone says they focus on a broad definition of communicator.

"Regardless of your business title, if you communicate with a nonspecialist audience about science, you are a science communicator," Cone says. "An agency administrator, for example, is as much a communicator as a public information officer, and the leader is likely to know less about communications."

"There is value," he says, "for all communicators to become more familiar with contemporary research in the social sciences."

Making the Connection

The social sciences are probing the practices, processes, and effects that influence attitude, decision-making, and behavior change. This body of research, Cone says, is related to communicating climate change.

Cone made this connection in 2006 after receiving a grant from the National Oceanic and Atmospheric Administration (NOAA) Climate Program Office to help coastal communities in Oregon and Maine become more resilient to climate change.

"I realized very clearly after talking to various specialists that we have the opportunity to connect climate science and climate engagement with communities much more closely," Cone says.

Tuning In to the Experts

To help coastal managers and others assimilate this social science information, Cone began producing the podcasts in January 2008. The occasional series has included interviews—often broken up into two parts—with eight social science leaders. Each podcast typically lasts about 20 minutes, and transcripts of the broadcasts are provided.

The interviews—all accessible by computer—are oriented toward preparing for or adapting to climate change, rather than mitigating actions to reduce greenhouse gas emissions.

Interviewees include *Anthony Leiserowitz*, director of the Yale Project on Climate Change and a research scientist who specializes in risk perception and decision-making, *Susanne Moser*, a natural scientist, social scientist, and communicator formerly with the National Center for Atmospheric Research, and *Caron Chess*, a human ecologist at Rutgers University who studies public participation in government decision-making.

Additional interviews include *Baruch Fischhoff*, a prominent national expert on risk analysis and communication at Carnegie Mellon University, *Ed Maibach*, a professor in the Department of Communication at George Mason University and also the director of the Center of Excellence in Climate Change Communication Research, and *Gary Braasch*, a climate communication practitioner, author, and photojournalist.

Interviews conducted in 2009 include *Jesse Ribot*, who leads a new initiative in the Social Dimensions of Environmental Policy at the University of Illinois' School of Earth, Society, and Environment, and *Elinor Ostrom*, the Arthur F. Bentley Professor of Political Science at Indiana University, and co-director of the Workshop in Political Theory and Policy Analysis.

"The podcasts have been very occasional partly because I have been very selective and focused about the individuals that are there," Cone says. "There's a lot of substance there."

Other interviews will be added in the future, he says, and listeners can subscribe to receive notice when the next interview is posted.

Empirical Evidence

Coastal managers may need to incorporate more social science-based communications strategies because communications and outreach efforts are often based on commonly held assumptions that limit their effectiveness.

For instance, one of the most common of these beliefs is that others would do something different if only they had the information.

"This is something described as 'spraying the fire hose of science' onto unsuspecting people," Cone says.

This "information-deficit assumption" has been critiqued in recent social science literature, calling into question common assumptions about audience—for example, researchers have found that there is no such group as the general public—and people's information needs and decision-making processes.

"There's no question that the right information can affect behavior," Cone says, "but it needs to be appropriate to address the specific concerns and decisions that the audiences have to make. . . You have to empirically find out what they know and what they don't know and how to lower their resistance to being able to use the information."

He adds, "We tend to focus most of our attention and resources on understanding the environment and much less attention and resources on understanding and being effective with society. In modest ways, our podcast and publications are . . . trying to improve that effectiveness." ❖

For more information on the Communicating Climate Change podcasts or Oregon Sea Grant's social science publications, contact Joe Cone at (541) 737-0756, or joe.cone@oregonstate.edu.

FOR ADDITIONAL INFORMATION

Communicating Climate Change podcasts
http://blogs.oregonstate.edu/communicatingclimatechange/

"Expand Your View: Insights for Public Communicators from Behavioral Research"
http://seagrant.oregonstate.edu/sgpubs/onlinepubs/h08006.pdf

"Hold That Thought! Questioning Five Common Assumptions about Communicating with the Public"
http://seagrant.oregonstate.edu/sgpubs/onlinepubs/h08005.pdf

Background photo by Joe Cone and courtesy of Oregon Sea Grant

Studying the Environment to Prepare for Offshore Wind Farms in New Jersey

As offshore wind farms in the U.S. move closer to becoming a reality, there are still questions about the potential environmental impacts and best sites for in-the-water wind turbines. Coastal resource managers in New Jersey are getting in front of this burgeoning business by conducting an environmental baseline study that will help guide wind farm development off that state's coastline.

> *"I think it's a good thing that states are doing this type of study."*
>
> *Maureen Bornholdt, Minerals Management Service*

"We are the first in the country to go out and do a comprehensive survey of a large area to get a better idea of where wind farms should go," says Gary Buchanan, manager of the Office of Science at the New Jersey Department of Environmental Protection. "I believe our information will help inform wind farm developers about the potential locations that they're thinking about and help inform the whole offshore lease process."

The $7 million study is documenting the number and locations of birds, marine mammals, and sea turtles found in New Jersey's waters, as well as looking at the ocean environment. The study was expected to be complete in 18 months but has been extended because more information was needed, Buchanan says.

"I think it's a good thing that states are doing this type of study," says Maureen Bornholdt, program manager for the Office of Renewable Energy Programs at the Minerals Management Service (MMS).

MMS has authority over renewable energy projects on the outer continental shelf, including offshore wind energy. In April, MMS released its final rules governing the development of renewable energy projects.

Bornholdt encourages other states that have the potential for offshore renewable energy development—whether it is wind, wave, or current—to conduct their own assessments focusing on their unique environmental, social, and economic issues, and to partner early with MMS and other federal agencies involved in the permitting process.

"From the get-go," she says, "there was a partnership formed between MMS and New Jersey."

Surging Interest

The U.S has experienced a surge in investment in wind power over the past four years, more than tripling its ability to turn wind into electricity, according to the American Wind Energy Association. But construction has been entirely on land.

While eight countries already have wind turbines sitting offshore, U.S. facilities are still in the planning stages. In June, MMS offered its first exploratory leases for offshore wind development to three companies that plan to place turbines off the coasts of New Jersey and Delaware.

The leases allow the companies to build meteorological towers in federal waters to gather data on wind resources, conduct environmental impact studies, and determine the viability of building three wind farms.

Looking Offshore

The reason to look offshore for siting wind farms, says the American Wind Energy Association, is that offshore wind speeds are generally higher and steadier than onshore. Offshore wind farms also can be located closer to large cities and existing transmission lines.

Wind energy also doesn't produce atmospheric emissions that cause ocean acidification or greenhouse gasses that result in climate change.

Some states—particularly in the Northeast—have strong offshore wind resources and very limited opportunities to develop energy facilities on land.

"Some of the best wind resources are offshore in New Jersey," says Buchanan.

Power Potential

New Jersey also has an aggressive mandate to incorporate renewable sources into the state's energy portfolio to help address climate change impacts. The state's goal is to derive 30 percent of its energy from alternative energy—such as wind, solar, and biomass—by 2020.

Output from offshore wind farms could help meet that mandate.

Ruth Ehinger, manager of the New Jersey Coastal Management Office, says the state's goal is to include 1,000 megawatts of offshore wind by 2012, and 3,000 megawatts by 2020.

"We're right out of the starting gate," Bornholdt says, "but I see something generating clean energy in the next five to seven years."

Look Before Leaping

Before embracing offshore wind farm construction, New Jersey wanted to identify and weigh the costs and benefits, and determine if building such facilities would be appropriate off the state's shoreline.

"A big concern was that there isn't that much data the further you go offshore, as far as natural resources," says Ehinger. "It's important to have that information."

In December 2004, the Blue Ribbon Panel on Development of Wind Turbine Facilities in Coastal Waters was appointed to look at both the economic and environmental costs and benefits, and provide policy recommendations.

In its April 2006 final report, the blue ribbon panel found a lack of comprehensive information on potential impacts of offshore wind turbine development. However, it also found that "these facilities show promise as part of New Jersey's long-term energy solution."

Among the panel's recommendations was that a scientific baseline study be conducted.

Fundamental Questions

To meet the directive, Buchanan, working closely with the coastal management office, is leading a technical review committee that includes representatives from MMS and other federal agencies involved in regulating offshore wind farms, and state agencies.

The overall goal of the study, says Buchanan, is to answer fundamental questions regarding which species use what areas and to what degree. The study area is roughly 1,300 square nautical miles off New Jersey's shore that would be potentially viable for energy development.

Using methods that have been employed successfully in European studies of offshore wind power, a contractor has been collecting baseline data on the distribution, abundance, and migratory patterns of avian species, fish, marine mammals, and turtles.

Data have been gathered by physical counts from boats and airplanes, remote sensing by radar and acoustic applications, and literature and historical record reviews.

The data will be used in state-of-the-art predictive modeling, mapping, and environmental assessments to determine what portions of the study area are more or less suitable for wind and alternative energy power facilities based on the potential ecological and environmental impacts.

Continued on Page 9

FOR ADDITIONAL INFORMATION

New Jersey's ecological baseline study reports
www.nj.gov/dep/dsr/

Final report of the Blue Ribbon Panel on Development of Wind Turbine Facilities in Coastal Waters
www.state.nj.us/njwindpanel/

National Oceanic and Atmospheric Administration Office of Ocean and Coastal Resource Management website on Energy and Government Facility Siting
http://coastalmanagement.noaa.gov/ene_gov.html

Minerals Management Service Office of Renewable Energy Programs website
www.mms.gov/offshore/AlternativeEnergy/

Dolphin photo courtesy of the New Jersey Department of Environmental Protection.
Project activities were conducted pursuant to NOAA Permit No. 10014-02.

Keeping Pigs as Part of the Culture in American Samoa

The raising of pigs is a culturally significant practice for American Samoans. But as the islands' human population has grown, so have the number of pigs being raised, and a once-sustainable practice has become a source of pollution and disease as pig waste has ended up in streams and coastal waters.

"A piggery located next to a stream can be responsible for massive nutrient loading."

Brian Rippy, American Samoa Soil and Water Conservation District

To help preserve the pig-raising tradition, American Samoa's coastal resource managers have augmented regulations and implemented educational campaigns with demonstration projects and workshops to help island residents more cost-effectively change their farming practices.

"If people involved didn't have the money to relocate their piggery away from streams or pay an engineer for designs, all the piggeries would die and pigs would die out of Samoan culture. We didn't want to see that happen," says Larry Hirata, a horticulturist with the American Samoa Community College's Community and Natural Resources Division.

Hirata adds, "While the regulations were the stick, the demonstration projects have been the carrot, and farmers are showing up and seeing the benefits of these operations."

Part of the Feast

A large percentage of families in American Samoa raise pigs for, among other things, use during family and village celebrations where pigs are roasted and served as the central part of the feast.

"At cultural ceremonies, funerals, weddings, births—the pig plays an important part in the occasion," explains Brian Rippy, a civil engineer for the American Samoa Soil and Water Conservation District.

Many pigs are raised in a family's backyard. According to the U.S. Environmental Protection Agency, most pig farms on the islands are small-scale operations raising fewer than 20 pigs.

An island-wide piggery inventory conducted in 2006 by the American Samoa Environmental Protection Agency found that there were over 1,000 piggeries in the territory.

Pollution and Disease

The pigs are commonly raised in makeshift open-sided buildings with concrete slab or packed-earth floors. Twice a day, farmers may clean their piggery by flushing the floor with pressurized water, which then runs into a cesspool or directly into streams or wetlands.

"What brought this issue to the fore," says Hirata, "was that from 2000 to 2007 there were six or seven deaths attributed to leptospirosis," a bacterial disease usually caused by exposure to water contaminated with the waste of infected animals.

"A piggery located next to a stream can be responsible for massive nutrient loading," says Rippy. "An adult pig produces three times as much waste as a person. When you consider that the islands' population is 65,000 people and we have upwards of 10,000 pigs—that's a massive amount of waste going into our streams, groundwater, and into the reefs."

Reducing Risk

The territorial legislature directed the American Samoa Environmental Protection Agency to improve the environmental and health conditions of the islands' piggeries by conducting regular stream water monitoring, inspecting facilities, enforcing environmental and public health regulations, and providing public education and outreach.

To meet the environmental compliance measures, farmers may have to redesign pig-holding buildings, move piggeries 50 feet away from streams, and incorporate pig-waste composting measures.

In 2007, the American Samoa Soil and Water Conservation District received an Administration for Native Americans grant to create examples of inexpensive piggery designs and composting systems, and provide free blueprints to farmers who may be struggling to meet the regulatory requirements.

The American Samoa Coral Reef Advisory Group and American Samoa Environmental Protection Agency helped provide funding for a demonstration project. Rippy was hired to design the regulation-compliant piggeries.

Looking for Examples

"What we needed to look at were designs that were locally sustainable," Rippy says.

Cost was a primary concern because everything that comes to the islands has the added expense of having to be shipped.

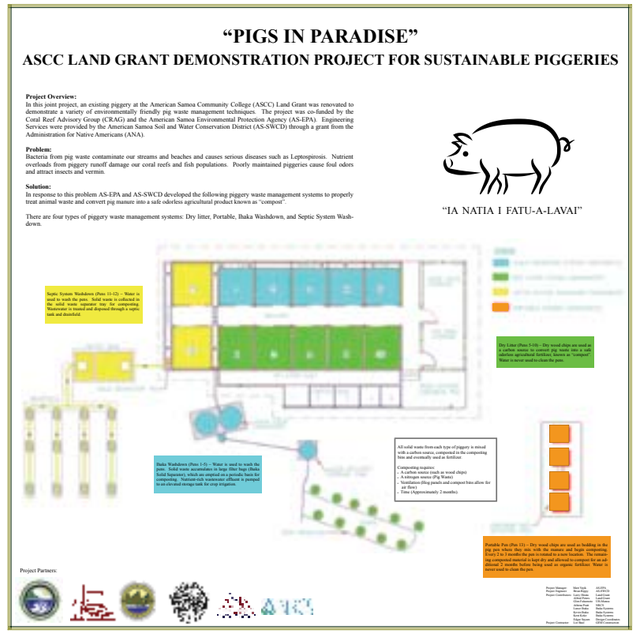
"We looked at piggery operations in the states" he says, "but they tended to be multi-million dollar facilities, and they didn't provide any feasible options for us here."

A piggery in Hawaii that was no longer operational had used a dry litter technique and composting, and provided the best example of a system that might work in American Samoa.

Demonstrating Options

The partners ultimately approved three options for local farmers—a portable pigpen, a dry litter system, and two wash-down systems for farmers who can renovate their existing piggeries. In all these systems, the pig manure is composted using a readily available source of carbon, such as wood chips from road maintenance crews.

"These three piggery options eliminate the problem of waste polluting groundwater and streams, and there is no odor if it is properly managed," Rippy says.



A sign for the sustainable piggeries demonstration project.

Demonstration piggeries opened in May to allow farmers to view the design options, and workshops for farmers are being held by conservation district staff members. Hirata notes that the designs "can be used for small-scale farmers with one to three pigs all the way up to someone with a commercial operation."

All the systems have the added value of providing farmers with composted pig manure that can be used as fertilizer.

"All fertilizer on the island is imported, and the cost keeps going up," Rippy says. "Now we're aiding the agriculture sector on the islands as well."

At least 30 farmers have already begun building piggeries using project blueprints, and 11 farmers have qualified for funding from the U.S. Department of Agriculture. Inquiries about the program have been received from many other islands, where piggeries are also a problem, Hirata says.

"Basically, not only do the designs promote good environmental habits and deal with the health aspect of it, but they also teach good animal husbandry," he says. "This is taking a holistic approach, which is something that has been lost here through the ages." ❖

To view the piggery designs, go to www.asepa.gov. For more information on American Samoa's piggery program, contact Larry Hirata at (684) 699-1575, or lhirata@rocketmail.com, or Brian Rippy at (684) 633-2304, ext. 239, or brianrippy@gmail.com.

Graphic courtesy of American Samoa Soil and Water Conservation District

Using Video to Encourage Water Conservation in Louisiana

With about 50 percent of Louisiana's drinking water coming from groundwater, it is a concern to the whole state when one aquifer begins to show signs of depletion. But how do you communicate the problem and get people to change their behavior to begin conserving water?

> *"People are starting to realize it's time to start taking some action."*
>
> *Tony Duplechin, Louisiana Department of Natural Resources' Office of Conservation*

One of the most effective communications tools in Louisiana has been a video, "Our Lives...Our Water," aimed at increasing awareness of the need for water conservation and encouraging conservation actions.

"Everyone in Louisiana should be educated on where water comes from, how we use it, and why water resources and aquifers are so important," says James Welsh, commissioner of the state's Office of Conservation in the Department of Natural Resources.

The award-winning video was produced by the Department of Natural Resources as part of a broader water-conservation communications effort.

Formatted as a 10-minute DVD, the video portrays an exchange between a grandfather and grandson about the importance of aquifers and caring for them, and then shows how the boy gets various members of his family to conserve water.

The video was created in response to dropping water levels in the Sparta Aquifer, which covers southern Arkansas and northern Louisiana and dips into the central portion of the state, notes Tony Duplechin, public education and outreach coordinator for the Office of Conservation's Ground Water Resources Program.

For the past 50 years, water from the aquifer has been piped to 16 Louisiana parishes at a rate faster than can be replenished by rain. The Sparta can provide up to 56 million gallons per day, but current use is about 70 million gallons per day.

An additional concern is the potential for salt water to intrude into an aquifer—something that could be an issue for overused aquifers in coastal areas in many parts of the U.S.

"People are starting to realize it's time to start taking some action," says Duplechin.

The agency took the outreach idea from an existing video focused on the Sparta Aquifer that was produced in northern Louisiana. To take the conservation message statewide, a new script was written. The agency saved money by hiring the same actors and using much of the original video footage.

Newcomer, Morris, and Young Productions, Inc., of Monroe produced the video, which received a Silver Addy in March from the American Advertising Federation.

The water conservation DVD is shown in a Louisiana classroom.

"We've done other videos, but this one seems to have the right blend of magic," says Welsh.

About 15,000 copies of the DVD have been distributed free to community groups, environmental groups, student groups, and teachers. It is also on the Department of Natural Resources' website, says Phyllis Darensbourg, the department's public information director and the writer of the DVD's script.

Darensbourg adds, "This is one of the department's best products for education. Video makes a lasting impression." ❖

To view the "Our Lives...Our Water" video, go to http://dnr.louisiana.gov/sec/execdiv/pubinfo/newsr/2008/0813con-gwater-video.ssi. For more information on the video's production, contact Phyllis Darensbourg at (225) 342-8955, or phyllisd@dnr.state.la.us.

Photo courtesy of Louisiana Department of Natural Resources

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Waiting for Answers

While a preliminary report was issued in February, Buchanan says the study has been extended an additional six months to collect more comprehensive data. Decision-making based on the study will have to wait until the study is complete.

Even when complete, Buchanan notes that the baseline data "are not designed to answer site-specific, project-specific questions. They are documenting what natural resources are present, which will help in the siting and construction of renewable energy facilities in an environmentally sound manner. . . It will be a road map for the developers to help guide them."

"It's really smart foundational information to have when MMS is evaluating a project on the outer continental shelf," Bornholdt says. "The key messages are understanding what the marine environment is like and the implications of having offshore energy facilities, and partnering with the federal agencies that will be eventually authorizing them."

She adds, "Each state knows what they are faced with, particularly the environmental, social, and economic issues. Each state should customize their data-gathering information to get at those specific issues." ❖

For more information on New Jersey's baseline study, contact Gary Buchanan at (609) 984-6070, or Gary.Buchanan@dep.state.nj.us. For more information on the coastal program's role in siting offshore wind farms, contact Ruth Ehinger at (609) 633-2201, or Ruth.Ehinger@dep.state.nj.us. For more information on MMS guidelines or partnerships, contact Maureen A. Bornholdt at (703) 787-1300, or Maureen.Bornholdt@mms.gov.

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