

COASTAL SERVICES

VOLUME 10, ISSUE 1 • JANUARY/FEBRUARY 2007

LINKING PEOPLE, INFORMATION, AND TECHNOLOGY



SCENIC AND AESTHETIC IMPACTS: Knowing It When You See It in Maine

Planning for a Tsunami in Oregon

Helping Oyster Harvesters While Collecting Data in Mississippi



FROM THE DIRECTOR

Does building a road through a wetland mar its beauty? Does a house that can be seen from a public trail add or detract from the view? Does one dock change the aesthetics of a cove? How about five? While we might feel strongly about the answers to these questions, someone else may argue just as strongly a differing opinion.

Many coastal resource managers have the regulatory authority to protect scenic and aesthetic values, but they often find themselves being challenged in court because visual impacts are difficult to define, and decisions can seem subjective.

In this edition of *Coastal Services*, we look at a regulatory rule coastal managers in Maine have developed for assessing and mitigating impacts to scenic and aesthetic resources.

The broadly applicable rule, which helps managers make objective decisions, may be a useful model for other states whose regulations address visual impacts.

We here at the National Oceanic and Atmospheric Administration's (NOAA) Coastal Services Center also are developing tools that may help coastal managers address the visual and aesthetic impacts of proposed projects.

One tool that can help build consensus on these difficult

decisions is visualization. The Center recently released the "Visualizing Dock Growth" Web site, which is available at www.csc.noaa.gov/dock_growth. This site helps managers visualize growing numbers of docks and piers in waterways—a major issue in many coastal areas.

Soon, the Center will offer Web-based resources and guidance for visualizing additional issues and decisions.

One issue that most of us probably don't need help visualizing is the impact Hurricane Katrina had on the Gulf Coast. In this edition of the magazine, we will also learn how Mississippi coastal managers used NOAA funding after the storm to develop a program that provided financial assistance to oyster harvesters and collected valuable data.

We will also learn about an Oregon city's Tsunami Awareness Program, which could possibly serve as a model community outreach effort, not only for tsunamis, but also for other coastal hazards.

These are just a couple of examples of how we can make our coastal communities more resilient to coastal hazards. ❖



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/

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

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

NOAA/CSC/20701-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 Geospatial Technology Training



The National Oceanic and Atmospheric Administration (NOAA) Coastal Services Center offers training for state and local coastal programs. Students include professionals from research reserves, regulatory programs, emergency preparedness offices, Sea Grant programs, and other agencies.

For these courses, trainers from the Center can come to your site, or your group can travel to the Center's Charleston, South Carolina, facility. The cost is minimal for participants and host organizations, and courses generally have to be booked six or more months in advance. To learn more, visit the Center's Web site. The following is a sample of the organization's technology curriculum.

Assessing GIS for Your Organization

This workshop is not for the technologist—it is for people curious about what a geographic information system (GIS) is and how this technology can be useful to their organizations. Participants will learn about software, hardware, data, and applied uses. Small group discussions and hands-on learning are part of this course. There is a 90-minute version and a four-hour version.

GIS for Managers

This four-hour course provides coastal resource managers with an opportunity to understand GIS basics through hands-on computer training. Participants will understand key capabilities and limitations and will be exposed to the use of GIS in familiar coastal scenarios.

Coastal Inundation Mapping

A course currently being developed will help participants learn about coastal inundation issues and gain an overall knowledge of spatial techniques for mapping inundation. The intended audience for this course is certified floodplain managers; county, state, and municipal officials; and National Weather Service personnel. Class participants should have basic GIS skills (six months to one year).

Introduction to ArcGIS I

This two-day Environmental Systems Research Institute (ESRI)-certified training course covers the basics of ArcGIS software. A more advanced course, *Coastal Applications Using ArcGIS*, is often offered directly following this course so that students can take both during the same week.

Coastal Applications Using ArcGIS

This two- to three-day course provides students with opportunities to address a variety of coastal issues using ArcView 9.1 technology. The course format includes lectures, demonstrations, small group discussions, and hands-on problem-solving exercises. For classes held at the Center, an additional day of training will be devoted to learning the basics of planning, collecting, and integrating Global Positioning System (GPS) data into ArcView 9.1 and will include a field component.

For additional information about these courses, contact Steve.Walker@noaa.gov. For information about the NOAA Coastal Services Center's training curriculum, visit www.csc.noaa.gov/training/.

“I think more and more planners are beginning to realize that this is the most important community planning you can do.”

**Kevin Cupples,
City of Seaside**

Planning for a Tsunami in Oregon

During the evening of March 28, 1964, a magnitude 8.4 earthquake—the largest ever recorded in North America—struck the area of Prince William Sound, Alaska. This generated a tsunami that struck the Oregon coast at 11:30 p.m. Waves as high as 10 feet hit the state’s coastline, swamping houses and destroying bridges and seawalls. Four children camping on Beverly Beach with their family were washed out to sea and killed.

Forty years later, the city of Seaside partnered with the Oregon Department of Geology and Mineral Industries and Oregon Emergency Management to develop a Tsunami Awareness Program that possibly could serve as a model community outreach effort, not only for tsunamis, but also for other coastal hazards.

“Doing this type of planning will save lives,” says Kevin Cupples, Seaside’s planning director. “I think more and more planners are beginning to realize that this is the most important community planning you can do.”

Seaside’s Tsunami Awareness Program ran for nine months and utilized volunteer-driven outreach efforts. Surveys were taken before and after the program to gauge how much the outreach efforts influenced the public’s tsunami preparedness.

Vulnerability

Seaside is considered Oregon’s most tsunami-vulnerable community, notes Cupples. The city’s residential population of 6,000 can swell to 40,000 with summer tourists, and most of Seaside is located in a tsunami inundation zone.

In the event of a local tsunami, notes Darci Connor, the former tsunami outreach coordinator for Seaside, “people would have to cross one or more bridges and travel up to a mile within 30 minutes to get beyond the inundation zone.”

While the city has evacuation signage and emergency sirens, “more needed to be done” to alert the public to the dangers, Cupples says.

Wake-Up Call

The city began its awareness program in September 2004, after hiring Connor with funding from the National Tsunami Hazard Mitigation Program.

A survey was first sent out to get a baseline of people’s awareness of tsunami hazards. Then the Indian Ocean tsunami of December 2004 struck. A second survey was done to document the impact of the event on Seaside residents so the influence of the outreach events could still be gauged.

The survey found that the Indian Ocean tsunami raised people’s understanding of a tsunami, but “the thing that didn’t change was people’s understanding of what they had to do” in the event of one, Connor says.

Target Audiences

Connor assembled a working group to help develop the program. They identified key community groups to target, including businesses, neighborhoods, schools, community organizations, the municipal staff, churches, governmental agencies, and the media.

In addition to mailing evacuation brochures to all the city’s water customers and getting articles published in the newspaper, the strategy they developed was to reach these different groups through a series of outreach events. Outreach information also was provided in Spanish.

Aside from Connor’s nine-month contract, the program had a budget of about \$50 per month. Almost the entire program was run by volunteers.

Door-to-Door

The first—and most time-intensive—outreach effort was the Neighborhood Educator Project, which was designed to reach every Seaside household.

Eighty-nine volunteer neighborhood educators ranging in age from 17 to 89 selected city blocks that they would oversee. After attending a training class, the volunteers then went door-to-door sharing information and handing out educational materials.

“This is the effort that people weren’t sure would work,” notes Connor, “but I consider it the most successful component of the total project. . . It really built a sense of community.”

Down to Business

A business outreach workshop targeted the local business community and helped business owners think about “what kind of planning they need to do and what information their employees should be providing to customers,” Connor says.

“Reaching businesses was key,” she explains, “because they potentially have the first and only contact with visitors to the coast.”

Preparing children for a tsunami event was done through the school outreach program. Events were held in the middle school and two elementary schools. The information was geared for children and looked at the differences between local and distant events, evacuation routes, and family emergency plans.

A public workshop was held for individuals and families, who were given the opportunity to ask experts questions and participate in small discussion groups.

One of the main successes that came out of this workshop, says Cupples, was people realizing they weren’t prepared if they just had an evacuation route planned from their homes.

“When you’re at Safeway, where do you go? When you are at the mall, what’s your evacuation route? Being ready all the time—that’s something people really weren’t keyed into,” Cupples says.

Just a Test

After all the outreach events were completed, a tsunami evacuation drill was held on a Saturday in April. When tsunami sirens were sounded, residents, business owners and employees, and visitors practiced what they would do in the event of a real emergency.

Of the 436 people who practiced their evacuation routes, all but two participants made it to safety in the designated 30 minutes.

“What that told us,” says Connor, “was that the existing evacuation routes provided enough time for people to get to safety. It was a great educational experience.”

Final Assessment

A final survey was conducted to gauge how the outreach strategies influenced the public’s awareness of tsunami preparedness.

Connor points out that before “anything,” people’s awareness of where to go in the event of a tsunami was low. This awareness increased “slightly” after the Indian Ocean tsunami and increased “significantly” after the awareness program.

Although the pilot program is over, Seaside is continuing its tsunami awareness efforts.

The month of April is Tsunami Awareness Month in Seaside. The community sends out a newsletter, and the newspaper runs articles on the topic. In addition, the city hosts a Web site with tsunami information, and tsunami awareness maps are posted in businesses and in every city building.

“I think the awareness program was an example of what could be done, of what should be done,” says Cupples. “Given the time and amount of money that went into it, I think we did a really good job.” ❖

To view the city of Seaside’s tsunami education Web site, point your browser to www.cityofseaside.us/tsunamiinfo/. For more information on Seaside’s Tsunami Awareness Program, go to www.oregongeology.com/sub/earthquakes/Coastal/TsunamiIntro.htm, or contact Kevin Cupples, at (503) 738-7100, or kcupples@cityofseaside.us. You may also contact Darci Connor at (503) 440-4737, or darci_connor@yahoo.com.

SCENIC AND AESTHETIC IMPACTS:

Knowing It When You See It in Maine

When admiring a wetlands view, one person may find that a dock mars the aesthetic value, while another may feel the dock does not detract from and in fact enhances the landscape. Scenarios like this are faced by many coastal resource managers whose regulatory authority includes protecting scenic and aesthetic values, but whose decisions can end up being challenged in court because visual impacts are so hard to define.

Coastal managers in Maine have developed a regulatory rule for assessing and mitigating impacts to scenic and aesthetic resources.

“People hear ‘visual impact’ and they think you can’t be specific in describing how you’re going to analyze them,” says Peggy Bensinger, Maine assistant attorney general. “The lesson we have learned is that it is possible to set forth with some specificity the factors that you consider in determining visual impacts.”

“This rule is really helping us know a scenic and aesthetic impact when we see it,” says Judy Gates, assistant director for the Environmental Office of the Maine Department of Transportation. “We can now assess what the degree of impact is, and do it in a way that is defensible and will hold up in court.” So far, she notes, none of the decisions made under the rule have been challenged.

The rule defines visual impacts, provides tools and a consistent process for the program staff to evaluate the visual impacts of proposed projects, and determines when an assessment should be done. Assessments can

often identify how impacts can be avoided, mitigated, or offset.

The rule has wide application to coastal, as well as inland, water bodies and may be transferable to other states whose regulations address visual impacts.

Upholding the Law

Since 1988, Maine’s Natural Resources Protection Act has required that activities not “unreasonably interfere with existing scenic, aesthetic, recreational, or navigational uses.”

“We had this standard for protecting scenic and aesthetic uses, but nothing further was said about what that meant,” says Gates, who helped develop the rule while working as the licensing coordinator for the Division of Land Resource Regulation in Maine’s Department of Environmental Protection (DEP). An effort was initiated in the early 90s to try to create more specific standards, but it wasn’t successful at clarifying the rule.

“There were no set guidelines to help us make decisions,” notes Dawn Hallowell, project manager for the Southern Regional Office of the Maine DEP’s Division of Land Resource Regulation. “The entire coast of Maine is beautiful. What do you do with that?”

A number of cases where permits for docks and piers were denied

because of their scenic and aesthetic impacts were contested by the applicants and ended up in court.

Bensinger notes, “We were challenged in a number of ways. One component of the challenges was that the statute was unconstitutionally vague.”

Rule Making

In 2000, Gates developed a plan to clarify the scenic and aesthetic rule. She examined the public process that had been tried in the 90s and looked to other states for examples. What she found were other states struggling with many of the same issues.

“I was looking for what’s missing,” Gates says. “What was the argument that keeps getting these decisions flipped?”

In her research, she discovered a U.S. Forest Service evaluation process that contained a matrix that “really laid out the visual criteria for landscape compatibility,” Gates says. After contacting the publication’s author, Gates was given advice and approval to use the matrix.

Gates also pulled together a working group that consisted of two landscape architects who are visual impact professionals, as well as a visual assessment consultant, marine resources staff members, planning officials, and other stakeholders.

“I didn’t want an extended stakeholder process,” Gates explains. “The rule we were creating didn’t appear to warrant it. I really just wanted to get the input of the people in the business of doing this.”

The group, she says, “really came to consensus, even though we were not working in a consensus-based process.” Another benefit of the working group is that she was able to anticipate objections that were raised during public hearings.

With few changes, the state Board of Environmental Protection unanimously approved the rule, which went into effect in June 2003.

Avoiding Impacts

The rule calls for avoiding impacts to existing scenic and aesthetic uses by relying on “visual compatibility with surroundings” using planning, siting, design, and offsets, explains Gates.

The department’s determination of impact is based on the visual elements of the landscape, such as landscape compatibility, scale contrast, and spatial dominance.

Landscape compatibility includes color, form, line, and texture. Compatibility is determined by whether the proposed activity differs significantly from its existing surroundings.

Scale contrast is the size and scope of the project, and spatial

Continued

The entire coast of Maine is beautiful.

What do you do with that?”

*Dawn Hallowell,
Maine’s Department of Environmental Protection*



Continued from Page 5

dominance is the degree to which a proposed project would dominate the landscape.

The rule applies to any structure in, on, or over a protected natural resource, or adjacent to resources of significance. These could range, Gates says, from a national landmark to a wildlife refuge to a trail to a site on the National Register of Historic Places. It can include rivers, streams, great ponds, freshwater and coastal wetlands, sand dune systems, significant wildlife habitat, and fragile mountain areas.

An issue that had to be decided was whose view the state was protecting. "Our decision from reading the law was that we were protecting the public's view," Gates notes.

Making It Objective

Steps spelled out in the rule guide staff members and applicants through the process for assessing the visual impact of a proposed project.

A permit applicant must fill out a one-page initial assessment form and provide photos of the project site and surrounding areas. If a scenic resource is determined to be present, an assessment matrix and decision matrix are completed by staff members.

The assessment matrix provides a number scale for assessing landscape compatibility. The resulting numeric score is the impact rating, which can be severe, strong, moderate, weak, or negligible. The number is then plugged into the decision matrix, which quickly shows if the project is unacceptable, acceptable with major mitigation, acceptable with minor mitigation, or whether it has little or no impact.

The procedure "takes a subjective judgment and measures it objectively," says Gates. The numbers fall within a

range so that numerous people filling out the matrix will come up with similar scores.

Seeing for Yourself

If it appears that there will be significant adverse impacts, staff members can request that the applicant provide a visual impact assessment, which is similar to a "photo simulation where they can visually impose the project on the site so we can see what it may look like to help us determine the impact," explains Dawn Hollowell.

The criteria also give staff members the ability to suggest design adjustments that would enable a proposed project to move from an unacceptable impact category to a project that could be approved.

Elimination Round

Gates says that most projects are determined not to have a visual impact with the applicant's self-assessment. "Unless it's something that is going to be viewed by the public, it's not going to be looked at. Most projects get eliminated pretty quickly."

Linda Kokemuller, licensing coordinator for the Southern Regional Office of the Maine DEP's Division of Land Resource Regulation, notes that staff members do make "a lot more visits to project sites" to assess scenic impacts for themselves, and "discuss among themselves how to implement the rule and what the different aspects of the rule mean on the ground."

"One thing I know staff still struggles with," acknowledges Gates, "is whether they are doing the evaluations correctly. If I could go back and do it again, I would make sure to bring someone in to provide them with training to give them a sense of confidence. From where I

Continued on Page 9

HELPING OYSTER HARVESTERS WHILE COLLECTING DATA IN MISSISSIPPI

Oyster harvesting season in Mississippi was to begin a week after Hurricane Katrina devastated the Gulf Coast region. In addition to the destruction of boats, marinas, harbor facilities, and processing plants, the storm severely damaged and changed the resources. In response, the state's coastal resource managers developed a program that provided financial assistance to oyster harvesters and collected valuable data.

"Ninety to ninety-five percent of the market-size oysters were gone."

Bradley Randall,
Mississippi Department of
Marine Resources

After Hurricane Katrina struck on August 29, 2005, "there were oysters out on Highway 90," recalls Eddie Rhodes, a Mississippi commercial fisherman. "We got 25 feet of water through here. It was like a set of rapids."

"Ninety to ninety-five percent of the market-size oysters were gone," says Bradley Randall, biological program coordinator for the Mississippi Department of Marine Resources (DMR) Shellfish Bureau. "There was no way to have a season," which was to run September to April.

It was two weeks after the storm before Randall and other Shellfish

Bureau staff members could borrow a boat and find the gasoline to even do a preliminary assessment of the resources. "Everything had changed. There were reefs that had been very productive that were just no longer there," he says.

With 10,000 acres of resources to assess and fishermen whose livelihoods—and often homes and belongings—had been lost, DMR created a program to pay Mississippi oyster harvesters to assist with mapping and assessing the oyster reefs.

For 25 days beginning in October 2005, 75 boats with 150 captains and deckhands who heard about the program by word of mouth used cane poles to assess the bottom type of each reef as a live oyster bottom (thick), scattered live oysters, shells/shell hash, firm mud, buried shells/oysters, sand, or too deep/unknown.

"Each day, they were assigned six one-nautical-mile transects that they had to complete," Randall explains. "Each data point was 120 feet. They would go out with a GPS [Global Positioning System] and go in a straight line to predetermined latitude and longitude marks and take the cane pole and feel the bottom."

The Shellfish Bureau is still processing the data, but the information gathered helped determine sites for a follow-up project in November and December 2006, where commercial oyster



Fishermen helped map and assess oyster reefs in Mississippi after Hurricane Katrina devastated the area.

harvesters helped relay oysters to replace reef material lost during the hurricane from Biloxi Bay and Graveline Bayou to oyster reefs in the western Mississippi Sound.

In addition to the Shellfish Bureau collecting valuable data and oyster harvesters getting put to work, Randall says the program also improved communication between the regulators and fishermen.

"I would stress that this also gave the fishermen an idea of how much damage was done," he says. "Otherwise, it just would have been our word. This way they got to get out and see what damage was done to the reefs with their own eyes."

He adds, "This has brought fishermen and the state together on the same page. We're working together to solve the problems we have." ❖

For more information on Mississippi's oyster mapping and assessment project, contact Bradley Randall at (228) 523-4085, or Bradley.Randall@dmr.ms.gov.

Researchers Make a SPLASH in the North Pacific Studying Humpback Whales

For scientists trying to understand, manage, and protect humpback whales, the animal's ability to use an entire ocean basin as its home may seem an insurmountable challenge in using an ecosystem-based management approach. But this obstacle has turned to opportunity over the past three years as over 300 researchers from around the North Pacific Ocean have joined together to undertake the largest whale study ever attempted.

"The biggest surprise was our level of success in collecting the data."

*David Mattila,
Hawaiian Islands
Humpback Whale National
Marine Sanctuary*

The resulting SPLASH Project—Structure of Populations, Levels of Abundance, and Status of Humpbacks—will help researchers and resource managers from the U.S., Mexico, Central America, Canada, Asia, and Russia better understand the structure, status, and trends of the humpback whale population, as well as potential human impacts.

"People wonder why we're talking about this as an ecosystem study when we're only looking at one species," says David Mattila, science and rescue coordinator for the Hawaiian Islands Humpback Whale National Marine Sanctuary.

"What we're doing is basically looking at one species across an entire ecosystem."

Mattila is one of a group of researchers who conceived of the idea of the international cooperative research effort and then helped bring the researchers and resources together. He notes that researchers throughout the North Pacific were already conducting an "admirable amount of work, but it wasn't coordinated."

The SPLASH effort consisted of creating a 15-member steering committee and assigning regional coordinators to organize teams of researchers and volunteers. He notes that Hawaii had eight different research teams.

SPLASH was started in 2004 and was designed to be conducted over three winters and two summers, ending in winter 2006. The teams of researchers used consistent sampling methods, such as photo identification and biopsy tissue samples, in humpback whale feeding and wintering areas across the North Pacific.

While it will probably take a decade for the analysis of SPLASH data to be complete, Mattila says, among other initiatives, the information collected will be used as part of an upcoming humpback whale health assessment workshop and will lead to continued collaboration and cooperation among international researchers.

"The biggest surprise," says Mattila, "was our level of success



in collecting the data. We have acquired more photos and bio-tissue samples than we even suspected we might be able to."

The results of SPLASH will help fisheries managers assess the recovery of humpback whales, which are currently listed as an endangered species, even helping to identify segments of the whale population where recovery is better or worse. Resource managers also will be able to better manage and protect whale habitat, and coordinate management efforts along migration routes.

"I'm a whale guy, but I have to believe that any ocean migratory species could benefit from this type of international collaboration," Mattila says. "I don't claim to know about turtles, tuna, and seabirds, but there's a role for this kind of approach for most migratory species." ❖

For more information on SPLASH, point your browser to <http://hawaiihumpbackwhale.noaa.gov/research/research.html>. You may also contact David Mattila at (808) 879-2818 or David.Mattila@noaa.gov.

Continued from Page 6

sat, I could see that all the decisions were very consistent, but one person making decisions a few projects at a time may not be so sure."

Transferable

While the rule was written to address a Maine statute, Hallowell believes the process they set out would be "quite transferable" to other coastal states.

"There is nothing in the rule that is specific to Maine," Hallowell says. "It's very generic. That wasn't done intentionally, but that's part of what demonstrates its strength. It works well in different settings."

Gates is now working with the State Planning Office to develop a model ordinance that would give municipalities the tools to do the same set of assessments at the local level.

"This is the way good policy is supposed to happen," Gates says. "We had public input, we got input from the people who would be using it, and we considered the history and the existing policy."

Gates adds, "I would love to see it used as much as possible or improved upon. If someone else could put their stamp on it to make it clearer or more defensible, then I think that would be great." ❖

For more information on Maine's regulatory rule for assessing and mitigating impacts to scenic and aesthetic resources, contact Judy Gates at (207) 624-3097 or judy.gates@maine.gov. You may also contact Linda Kokemuller at (207) 822-6329 or linda.k.kokemuller@maine.gov. For legal questions regarding this rule, contact Peggy Bensinger at (207) 626-8578 or peggy.bensinger@maine.gov.



LOOKING FOR A FEW GOOD CANDIDATES ...

Coastal Management Fellowship

Candidate applications sent to Sea Grant: January 29, 2007

Sea Grant nominations sent to the NOAA Coastal Services Center: February 26, 2007

Visit www.csc.noaa.gov/cms/fellows.html for details.

Understanding the human side of coastal management

Social science tools you can use

www.csc.noaa.gov/mpass/



HABs

Harmful Algal Bloom Forecast System

Your On-Line Access to Harmful Algal Bloom Forecasts and Information for Florida and Texas.



www.csc.noaa.gov/crs/habf/

TECHNOLOGY HELP CLINIC

You can do it. We can help.

OPEN DAILY

Bring your technology questions to the GeoTools conference and get one-on-one assistance with issues related to remote sensing, GIS, GPS, software, code, etc.

GeoTools

March 5 to 8, 2007

Early registration until January 8.

www.csc.noaa.gov/GeoTools/



COASTAL
GEOTOOLS

*The Best Technology Conference
for Coastal Professionals.*

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.