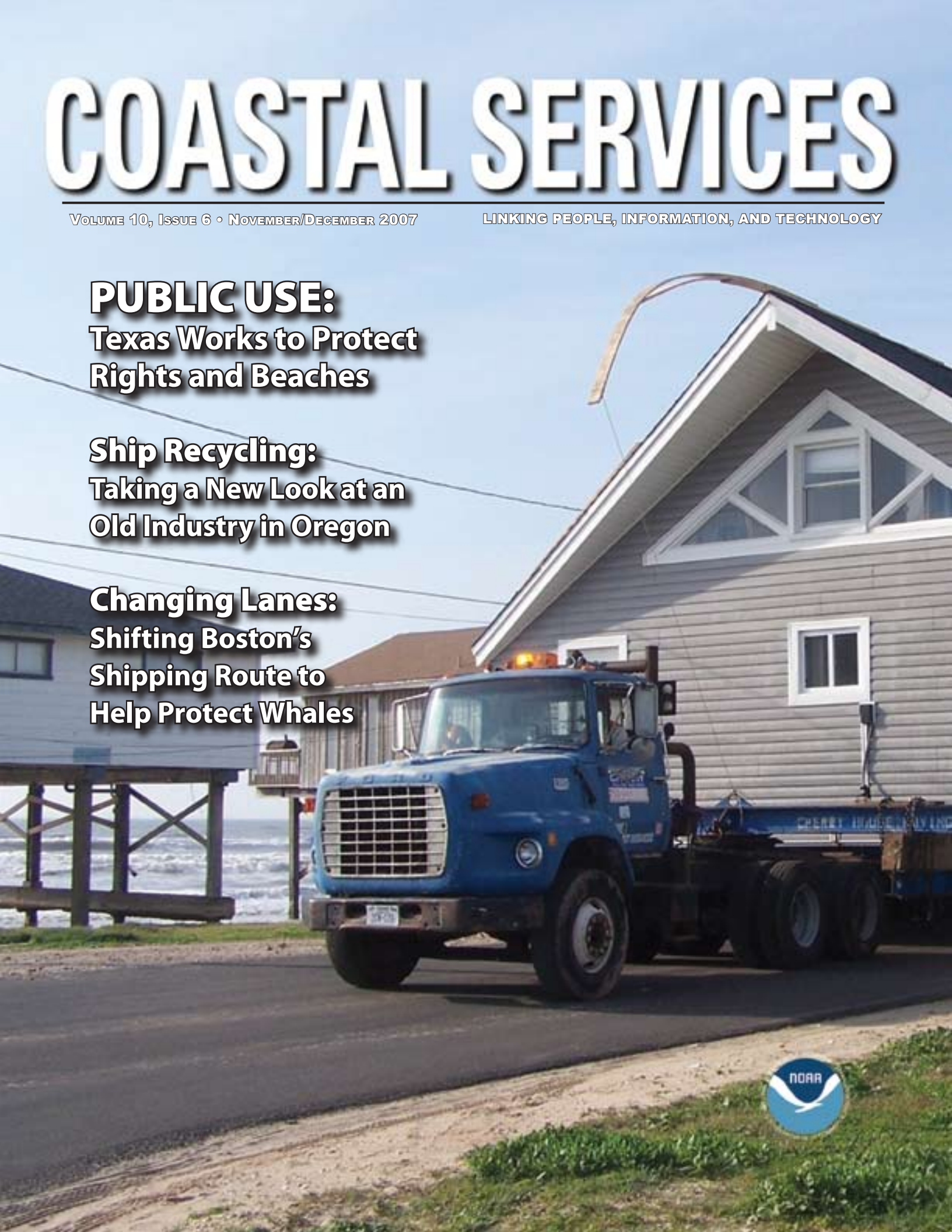
COASTAL SERVICES

Volume 10, Issue 6 • November/December 2007

LINKING PEOPLE, INFORMATION, AND TECHNOLOGY



PUBLIC USE:
Texas Works to Protect Rights and Beaches

Ship Recycling:
Taking a New Look at an Old Industry in Oregon

Changing Lanes:
Shifting Boston's Shipping Route to Help Protect Whales

From the Director

Mother Nature doesn't respect property lines. Winds, waves, tides, storms, and hurricanes can all change a state's coastline, which is often in constant flux either accreting or eroding.

In Texas, where many beaches are losing five to ten feet of sand each year, when erosion puts a house between the lowest waterline and the line where plants naturally take root, that house may interfere with the right of all Texans to access the beach.

In this edition of *Coastal Services*, we examine the Texas Open Beaches Act relocation expense reimbursement program, which tries to protect public use while being fair to private property owners who find themselves in this situation.

The questions Texas managers are working to address may be relevant to more and more states as our coastlines experience sea level rise and other impacts resulting from climate change.

Also featured in this edition are articles on Oregon's efforts to review and regulate the dismantling of retired military vessels to address community and environmental concerns, and the successful multiagency effort to move the shipping lanes running through Stellwagen Bank National Marine Sanctuary in Massachusetts to help protect endangered whales—an effort that required international approval.

We also look at an award-winning website in Minnesota that is helping homeowners understand that what comes off their lawns impacts coastal waters, and suggests simple things people can do to help improve water quality. One of the things that makes this website stand out is its use of real-time stream monitoring data in almost every part of its message.

We hope that you find all these articles interesting and perhaps one or two of them a little intriguing. We are always open to your feedback and suggestions, so let us know what you like and don't like about this edition or the publication in general. We would also like to hear your thoughts and ideas for future articles.

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

Clarification: The cover photograph of the September/October 2007 edition of *Coastal Services* illustrating the article, "Coral Bleaching: The Impact of Rising Sea Temperatures on Florida Keys' Reefs," was a close-up of diseased elliptical star coral in the Florida Keys. Both coral bleaching and disease can result from rising sea temperatures.

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/20706-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

Habitat Priority Planner

"When you are sitting in a room with people who have a lot of ideas and need to look at a wide range of possibilities, nothing beats the Habitat Priority Planner."

Robert McGuinn, NOAA Coastal Services Center

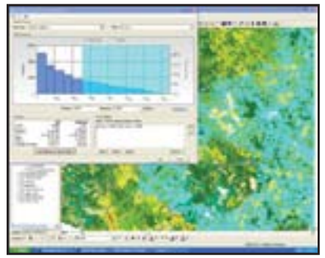
It's a hard truth in the coastal resource management business: you can't do it all. When it comes to conservation and restoration, choices have to be made. And those choices are almost always difficult ones, since there are so many things to consider.

The Habitat Priority Planner was developed to make this process a little easier by helping participants understand and prioritize their options. Users can map important landscape features in an area and consider various scenarios, allowing them to better visualize potential impacts. Sample uses include considering where to place conservation boundaries, where to place a road to minimize the impact on natural resources, and where to conserve or restore habitat to provide the greatest benefit for an endangered species. The idea for the tool came from coastal resource managers who were making decisions like these.

"While the tool was developed for habitat restoration projects, we've now found this concept too limiting," says Robert McGuinn of the National Oceanic and Atmospheric Administration (NOAA) Coastal Services Center, a member of the team that developed the Habitat Priority Planner. "In fact, one of the first groups to use the tool used it to determine what lands they should focus on in their efforts to preserve farmland."

McGuinn says those who have used the tool so far have given it high marks, particularly the following features:

- **Ease of use.** Someone with basic geographic information system (GIS) skills can quickly master the program.
- **The tool isn't data hungry.** Land cover from the NOAA Coastal Services Center's Coastal Change Analysis Program (C-CAP) is the base data set needed. (These data sets are available free of charge for most coastal areas in the country.) All other data are optional and are dependent on the requirements of the task at hand.
- **The interactive nature of the tool.** All conservation efforts are collaborative in nature. This tool is used to generate various graphs, reports, and "what if" scenarios on the fly, which is very important when working on an issue through a group or public process.



"There are more complicated tools out there," says McGuinn, "and these are fine when a complicated analysis is required. But when you are sitting in a room with people who have a lot of ideas and need to look at a wide range of possibilities, nothing beats the Habitat Priority Planner." ❖

The Habitat Priority Planner is a new tool from the NOAA Coastal Services Center. As such, the organization is looking for state or local coastal programs interested in working with the tool and the Center to make improvements in the 2009 version. If you are interested in participating, contact Danielle. Bamford@noaa.gov. The tool is available at www.csc.noaa.gov/hpp/.

Ship Recycling:

Taking a New Look at an Old Industry in Oregon

As long as there has been shipbuilding there has been ship dismantling, but only six companies currently dismantle oceangoing ships in the U.S., and none of them is on the West Coast. When industry officials began eyeing Oregon coastal communities for potential sites to dismantle old military vessels, the community's responses varied from "no way" to "let's learn more."

> *"None of us really knew much about shipbreaking before we heard the term."*
>
> *John Bragg, South Slough National Estuarine Research Reserve*

In answer to the call for information, staff members from South Slough National Estuarine Research Reserve in Charleston, Oregon, and many partnering agencies and organizations, hosted a series of public seminars, provided technical information to the governor's office, and participated in a white paper review of how the industry would fit into the state's existing regulatory framework, identifying potential gaps.

A strong community response led the state legislature to pass a bill making Oregon the first in the nation to require companies to break up ships only in a dry dock, which prevents coastal waters from being contaminated with invasive species and toxic materials that can come from dismantling old ships. An emergency clause made it law when the governor signed it on May 25.

Where Ships Go to Die

"None of us really knew much about shipbreaking before we heard the term," says John Bragg, South Slough's coastal training coordinator.

Shipbreaking is the process of dismantling ships and selling their parts—primarily the steel—for scrap. Historically, the process has been dangerous for both the environment and workers. Because of labor costs, most of the world's shipbreaking is now done in Asian countries, where there are few regulations.

U.S. government policy, however, dictates that dismantling of U.S. Maritime Administration and U.S. Navy vessels be done in America.

Today, there are more than 130 obsolete ships—often called the "Ghost Fleet"—awaiting disposal in Newport News, Virginia, Beaumont, Texas, and Suisun Bay, California.

Caught Off Guard

In December 2005, a Virginia shipbreaking company created a public outcry when it announced plans to open the only West Coast facility to dismantle military vessels at Oregon's Port of Newport.

"It caught the people in Newport by surprise," says Bragg. "They reacted very quickly and were not interested in having that type of business in their town."

Industry attention then turned to Coos Bay near the reserve.

"The port is an economic development organization," says Martin Callery, director of communications and freight mobility for the Port of Coos Bay. "Part of our scope of work is to give every proposal a fair hearing. We knew there were going to be a lot of controversial aspects of shipbreaking, but we also felt like we needed to bring it forward and explore what it was all about. It's not our job to say 'No' until we know more about it."

The port approached South Slough and the Oregon Institute of Marine Biology at the University of Oregon to develop a strategy to inform decision makers and Coos Bay residents of the industry's potential hazards and benefits.

Recycling on a Bigger Scale

As South Slough Reserve learned more about the ship dismantling process, Mike Graybill, reserve manager, adopted the term "ship recycling."

"The U.S. government has an obligation to dispose of U.S. flag vessels. What is the most environmentally responsible way to do that?" Graybill asks. "Recycling is a good idea and is the environmentally responsible thing to do."

He adds, "When you frame the issue in this way, there is a need—a responsibility—for us to consider recycling ships, and to consider the risks of doing that."

Getting Out the Information

In the first of three planned public information seminars, James T. Carlton, director of the marine ecology program at Williams College and Mystic Seaport in Connecticut and a world authority on the unintentional transportation of marine invasive species, discussed the potential for aquatic invasive species being spread by towing the derelict ships from California to Oregon.

"Ships that are mothballed don't have routine maintenance. Some of these ships have been sitting there for decades," explains Graybill. "They are in effect floating reefs and have tons and tons of organisms clinging to their hulls."

Water in ships' ballast tanks can also carry invasive pests that can wreak havoc if turned loose in a new environment.

A second moderated public forum focused on other environmental issues. For instance, old ships may be loaded with asbestos-insulated steam pipes, cancer-causing PCB fire retardants, and lead- or chrome-based paints. The state's existing environmental regulatory structure and worker and workplace safety regulations were also discussed.

When legislation was proposed to address ship recycling issues, a third seminar on social and economic issues was scrapped. "There was a growing awareness that Oregon was unlikely to allow shipbreaking to occur without strict controls," Bragg says.

Reserve staff members provided technical information on shipbreaking to the governor's natural resource policy advisor and participated in an interagency committee led by the Oregon Department of Agriculture to analyze gaps in state environmental regulations related to the industry.

"This was the first time," Graybill says, "that state agencies looked at their own policies related to a specific activity and came back with, 'Here's what we should do to prepare our state and set standards for this industry.'"

Making Law

In January, a bill was introduced by State Senator Joanne Verger, who represents the areas of Newport and Coos Bay. The legislation requires ship dismantling operations in the state to use a closed dry dock or a graving dock, where the ship sits high and dry so anything that spills out of it can be contained and cleaned up.

The bill passed with only one dissenting vote.

"We take very seriously the economic impacts of any kind of legislation, as well as environmental impacts," notes Verger. "Companies will have to bite the bullet if they intend to break up these ships on the West Coast so that all of our estuaries, waterways, and natural resources are protected."

"Quite frankly, we were very pleased with the process," says Callery. "We heard from a lot of folks, and we heard their concerns. . . We have a small staff, so partnering is the only way we get things done."

Graybill agrees, "We were pleased with the process and wouldn't hesitate to do it again." ❖

For more information on ship recycling, contact John Bragg at (541) 888-5558, ext. 29, or john.bragg@state.or.us, or Mike Graybill at (541) 888-5558, ext. 24, or mike.graybill@state.or.us.

Additional Information

- Oregon's shipbreaking legislation, *http://landru.leg.state.or.us/07reg/measures/sb0400.dir/sb0432.en.html*
- The U.S. Maritime Administration's policy paper on ship disposal, *www.marad.dot.gov/Policy%20Papers/Ship%20Disposal.pdf*
- The U.S. Environmental Protection Agency's ship scrapping guide, *www.marad.dot.gov/Ship%20Disposal/PA%20Scrapping%20Guide.pdf*

Public Use:

Texas Works to Protect Rights and Beaches

When erosion eats away the sand in front of a house to the point that it is on state-owned land and is uninhabitable, making the public's use of the beach difficult and dangerous, whose rights are more important—those of the public to use the beach or those of the property owner whose land has been lost? Texas coastal resource managers have developed a compromise to try to protect both public use and private property rights.

"Texas beaches belong to Texans—all Texans," says Jerry Patterson, commissioner of the Texas General Land Office. "We are working to ensure a fair deal for the property owners and keep Texas beaches open to the public."

The compromise is the Texas Open Beaches Act relocation expense reimbursement program, which offers the owners of homes now on state-owned lands $50,000 to help with the cost of moving the structures to a new location. Of the 116 structures on public beaches, the program has focused on 37 houses on Surfside Beach.

"These are the most egregious examples," says Thomas Durnin, a planner for the Texas Coastal Erosion Planning and Response Act, which implements the relocation program. "They all have water under them at least part of the time. Many are a threat to public health because of their condition, which is physically deteriorating. Decks and stairs are starting to come off, and they impede the public's access to move around on the beach."

Twenty-two of these houses and related debris were removed from the beach this summer by the state and the Village of Surfside Beach, which received Federal Emergency Management Agency (FEMA) mitigation funds to purchase and demolish the worst of the structures.

Village and state officials say removing the houses is a critical step in acquiring state and federal funding to do beach renourishment that will protect 450 homes in the community, as well as a road and other infrastructure.

A house relocated from Surfside Beach is placed on its new foundation.

Access a Right

In Texas, access to the beach is a right founded in state common law, Patterson says.

In 1959, the Texas Legislature formalized this with the creation of the Texas Open Beaches Act, which ensures the right of all Texans to access the beach. Beaches can be privately owned, but owners must allow the public free and unrestricted access to and use of the beach, which is defined as extending from the lowest waterline inwards to the line where plants naturally take root, or the natural line of vegetation.

This creates a rolling easement, as the line of vegetation moves because of winds, waves, tides, storms, and hurricanes.

Under this rolling easement, property may become the state's if beaches erode, "but the reverse could be true, too," Durnin says. "The beaches can accrete, and people can gain property. That does happen in some places."

Losing Ground

Since 1983, much of the Texas coastline has had one of the highest erosion rates in the nation, losing five to ten feet of beach each year.

"Our erosion rate has accelerated to 11 to 13 feet a year in the last four years, says Kelly Hamby, city secretary for the Village of Surfside Beach. "Just in the last three days, we've lost another 6 to 8 inches of elevation."

"With that kind of erosion rate, it's not too difficult to see how structures that have been there for 30 years that were once way back from the beach landward of the dunes are now in front of the vegetation on the public beach," explains Durnin. "The state is not taking that land; it's the forces of Mother Nature at work."

In Surfside, the line of vegetation has moved back to Beach Drive, which is the primary access road along the beach, says James Bedward, mayor of the Village of Surfside Beach. Beach Drive is often damaged during extreme high tides or storms.

"There is not a place to locate another road to provide service to the next row of 85 houses," Bedward says. "Our Beach Drive is the line in the sand."

Changing Course

For decades, the Texas General Land Office struggled with the problem of houses on state-owned beaches, Durnin says. In the past, officials tried litigation to force owners to remove their houses, but that was time-consuming, expensive, and not terribly effective, with only one house ever being removed.

> *"Our Beach Drive is the line in the sand."*
>
> *James Bedward, Village of Surfside Beach*

With the number of appeals these cases go through, he says, it's estimated to cost the state $500,000 per case.

In 2004, after Hurricanes Katrina and Rita did severe damage to Texas' beaches, Patterson imposed a two-year moratorium on enforcement of the Open Beaches Act for the 116 houses determined to be located on public beaches. This allowed the natural vegetation line to grow back and gave Land Office staff members time to study the problem.

On Hold

The damage to the beach at Surfside was so bad after Rita, Bedward says, that it was unsafe for the village to reconnect the 37 houses—mostly rental properties—to sewer or water utilities, and the properties were ordered evacuated.

A $3 million beach renourishment project that had been approved for Surfside before Rita was lost because the houses were in the way and the beach had changed so dramatically.

A New Plan

When the moratorium was up, Patterson presented his "Plan for Texas Open Beaches," which included eight proposals—some needing legislative approval—to strengthen and clarify the Texas Open Beaches Act.

While litigation was maintained as a tool for removing structures on state-owned beaches, Patterson offered to help property owners remove their structures from the public beach, making $1.3 million in state money immediately available. The initial offer from the state was $40,000 per house, which was raised to $50,000 after the first offer received a small number of applicants, Durnin says.

The money can be used by property owners to help defray the cost of tearing down or moving the structure to another location, including removing underground utilities and completing final site grading. It, however, cannot be used to cover the cost of a new piece of land.

"It's not completely a free ride, but it does help defray a lot of the expenses," Durnin says.

Because two lawsuits were pending, Patterson says the offer allows property owners to retain their right to sue the state.

Moving Forward

Patterson held a public hearing in Surfside to explain the program and its requirements to residents.

So far, the state has approved and funded 13 relocations off Surfside Beach, as well as one relocation project in Galveston and a demolition at Treasure Island near Surfside.

Simultaneous to the state's offer of assistance, the village received a FEMA Hazard Mitigation Grant to pay volunteer homeowners full market value for some of the homes that were in the worst condition.

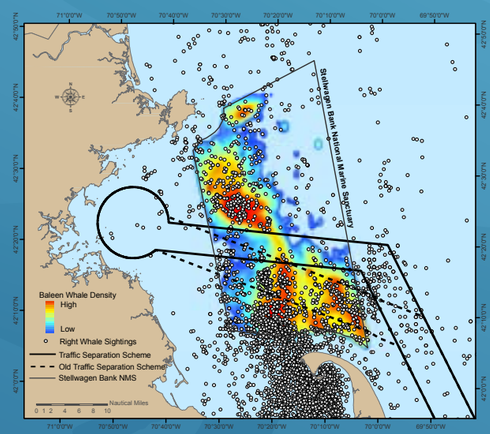
Before closing out their FEMA grant in October, the village paid $103 a square foot for nine homes and paid for their destruction and removal. An owner of four houses that were eligible for the buyout did not take the offer.

Continued on Page 9

This and cover photo courtesy of Texas General Land Office

Changing Lanes:

Shifting Boston's Shipping Route to Help Protect Whales



This graphic shows whale sightings in Stellwagen Bank National Marine Sanctuary and the old and new Boston shipping lane. Moving the lane 12 degrees northward should drastically reduce whale strikes.

When researchers at Stellwagen Bank National Marine Sanctuary first suggested that a slight shift in Boston's shipping lanes might better protect feeding whales, more than a few people told them it couldn't be done. This was because any change to official shipping lanes that are used for international commerce must receive approval from the U.S. government and the International Maritime Organization (IMO), a part of the United Nations.

"The key is not to allow people to tell you that you can't do it," says David Wiley, research coordinator at Stellwagen Bank. "We knew it was a massive task, and we just took it one step at a time."

On July 1, a minor northward shift in the Boston shipping lanes went into effect that should significantly reduce the threat of whale–ship collisions in the sanctuary, while having only nominal impact on the shipping industry.

The success of the multiagency effort to change the shipping lanes—known as a traffic separation scheme—was due in part to the extensive whale research conducted by scientists at the National Oceanic and Atmospheric Administration's (NOAA) Stellwagen Bank Sanctuary and National Marine Fisheries Service.

"It's really important to have data that you can sell all the way through this process," says Richard Merrick, chief of the Northeast Fisheries Science Center's Protected Species Branch. "The data is going to receive intense scrutiny, so the more data you have, the better off you are."

Collision Course

Collisions with ships are a major problem for several species of whales, notes Greg Silber, coordinator for recovery activities for endangered large whale species for NOAA Fisheries.

"Ten or fifteen years ago, I didn't think it was a problem for whales to share the ocean with vessels," says Silber. "I thought that because whales were so acoustically aware, and as a fairly agile marine species, they could avoid large ships. In the last five to eight years, it has become clear that shipping traffic is a major threat to a number of endangered species, including North Atlantic right whales," whose population has dwindled to about 350.

With focused governmental efforts underway to reduce threats to right whales, researchers are looking closely at related data.

"When we looked at where ship strikes were occurring along the eastern U.S., a lot were occurring in or around the sanctuary," says Wiley. "Being a hot spot for where ships hit endangered whales is not the best thing for a national marine sanctuary to be known for."

Big Picture

In 2001, sanctuary researchers began analyzing 20 years' of whale sightings from various sources to get a long-term picture of where whales are typically concentrated within the sanctuary.

"When the maps were drawn, the data showed that the Boston traffic separation scheme, which had been in effect since 1973, passed right through an area in the sanctuary with a high abundance of humpback, fin, minke, and northern right whales," says Wiley.

> *"We knew it was a massive task, and we just took it one step at a time."*
>
> *David Wiley, Stellwagen Bank National Marine Sanctuary*

The data also revealed a gap in the sanctuary where whale sightings were not as dense.

Further analysis revealed ecological reasons for the sightings gap, Wiley explains. The fish that humpback and fin whales eat prefer sandy sediments, such as those found in the areas with historically high whale sightings. The sediments in the area with fewer sightings have much less sand.

Currents also push small planktonic crustaceans—the favored food of right whales—into the area where the shipping lanes were located.

"We realized," Wiley says, "that if that gap was real, we could move the shipping lanes and achieve substantial risk reduction."

Analysis of the Analysis

NOAA Fisheries personnel were "enthusiastic supporters" of the idea to move the shipping lanes, Wiley says, but they knew the road to success meant selling the idea to the different government agencies that would be involved in a review, including the U.S. Coast Guard, Department of the Interior, and U.S. Navy, as well as the shipping community and the IMO.

Making sure the data were accurate was imperative to the process.

Merrick and NOAA Fisheries researchers did a separate analysis using different databases than those used by the sanctuary. Their findings backed the sanctuary's work.

All Aboard

To ensure that the industry would be on board, Wiley took his analysis to the shipping community.

"I spent six months working with those guys. They would have questions, and I would go back and rework the data to find out the answers. We wanted them on board."

When presented with scenarios of how the traffic separation scheme could be changed, "they all came in pretty close agreement that the best track was the one proposed by the sanctuary and National Marine Fisheries Service," says Wiley.

This proposal added only a few minutes to vessel transit times but drastically reduced the potential of a whale strike—81 percent for all whales and 58 percent for right whales.

Translating Science to Policy

The U.S. reviewing agencies provided their support, and NOAA worked with the Coast Guard to develop the U.S. government note that proposed the shift and asked for IMO's approval.

"This process is not difficult, but it is very time-consuming," says George H. Detweiler, Coast Guard marine transportation specialist.

Lindy Johnson, an attorney advisor for the General Counsel for International Law in the NOAA General Counsel's office, helped shepherd the proposal through the IMO process and made the presentation at an IMO meeting in November 2006, where it won overwhelming support.

Six months later, the new route was implemented, with NOAA and the Coast Guard providing notice to mariners and updating nautical charts.

Environmental Needs

"I absolutely wouldn't have gone through this if I wasn't totally sure it would be worth it," Wiley says.

If other coastal resource managers are struggling with environmental issues that may involve the international shipping community, Johnson advises them to "call me."

"There are ways to deal with these things," she says. "Involve us early so we know what questions to ask, and we can help you understand and get through the process." ❖

For more information, go to www.nmfs.noaa.gov/pr/shipstrike/. You may also contact David Wiley at (781) 545-8026, ext. 211, or David.Wiley@noaa.gov. Greg Silber can be reached at (301) 713-2322, ext. 152, or Greg.Silber@noaa.gov, Richard Merrick at (508) 495-2291, or Richard.Merrick@noaa.gov, and Lindy Johnson at (202) 482-5887, or Lindy.S.Johnson@noaa.gov.

Graphic courtesy of Stellwagen Bank National Marine Sanctuary

Website Uses Data to Paint Picture of Lake Superior's Watershed

Getting homeowners to understand that what comes off their lawns impacts coastal waters, and inspiring them to do simple things that will improve water quality, are goals of many coastal resource managers. An award-winning website that uses real-time stream monitoring data to paint a picture of what's happening in the Lake Superior watershed is helping Minnesota managers address these goals.

> ***"Our message is, protecting our waters requires individual responsibility and understanding."***
>
> *Richard Axler, Natural Resources Research Institute*

"Everybody is nuts about fishing and the outdoors up here," says Richard Axler, senior research associate for the Natural Resources Research Institute (NRRI) at the University of Minnesota at Duluth. While people enjoy the resources, "overwhelmingly, they don't know what a watershed is or that they live in a watershed, and many don't understand that if they blow their leaves and winter sand into the street, it goes right into the creeks" and ultimately Lake Superior.

Axler adds, "Our message is, protecting our waters requires individual responsibility and understanding."

The interactive website, *www.lakesuperiorstreams.org*, provides real-time water quality data from regional streams and incorporates the data into community information, classroom curricula, and case studies. A site design toolkit for reducing stormwater impacts is geared toward a broad audience that includes contractors, developers, and local government decision makers.

The website doesn't just present the data, notes Jesse Schomberg, coastal communities extension educator with the Minnesota Sea Grant College Program. "We're explaining the data and why it matters."

The data come from sensors that monitor streams for water flow, temperature, conductivity, and turbidity and transmit the information to the website. A data viewer allows users to "play" with the real-time data, creating interactive graphs and animations.

Animated data examples show users what happens to streams under different scenarios, such as the changes to water temperatures after it rains and stormwater runs over hot asphalt.

Planning for the website was begun in 2002 when Minnesota Sea Grant, NRRI, the City of Duluth, and others partnered to help the community address U.S. Environmental Protection Agency Phase II stormwater pollution issues. The site came on-line in 2003 as *www.duluthstreams.org*.

A Regional Stormwater Protection Team of 25 agencies and organizations collaborates on content development.

The project expanded to cover broader western Lake Superior watersheds in Minnesota and Wisconsin in 2005, and the name changed to *www.lakesuperiorstreams.org*.

The website averages about 400,000 hits a month and has gotten as many as 500,000 hits a month, says Axler.

The site, which has received six awards since 2004 from state, regional, and national organizations, would be "very transferable," says Pat Collins, program manager of Minnesota's Lake Superior Coastal Program, which provided funding for the project.

Collins adds, "It's something that's been useful to a wide variety of audiences here." ❖

To view the website, point your browser to www.lakesuperiorstreams.org. For more information, contact Richard Axler at (218) 720-4316, ext. 4279, or raxler@nrri.umn.edu. You may also contact Jesse Schomberg at (218) 726-6182, or jschombe@d.umn.edu.

Graphic courtesy of Natural Resources Research Institute

Continued from Page 5

The property that was bought with the grant will become a village park, notes Bedward.

Rulings in both of the lawsuits against the state came down this summer on the side of the Texas Open Beaches Act. The remaining houses were ordered to be removed, but an appeal in at least one of the cases could still be filed.

Working Together

Patterson is reluctant to call the relocation program a success until all the houses are removed from Surfside Beach.

"Our objective is to get these houses off the beach so we can renourish the beach and save the next row of houses and infrastructure," Patterson says.

Durnin and Hamby both say that Patterson has provided an innovative solution to a problem that has stymied his predecessors for decades, and that the first phase has been a success.

"I don't think we are there yet," Patterson says, "We're moving in the right direction, and we're doing it in a fair manner, but there's still a lot of work to do." ❖

For more information on the Texas Open Beaches Act relocation expense reimbursement program, visit www.glo.state.tx.us/coastal/beachdune/openbeaches.html. You may contact Jerry Patterson, c/o Jim Suydam at (512) 463-2716, or Jim.Suydam@GLO.STATE.TX.US. Contact Thomas Durnin at (512) 463-1192, or Thomas.Durnin@GLO.STATE.TX.US. For more information on the FEMA Hazard Mitigation Grant Program, go to www.fema.gov/government/grant/hmgp/.

HABITAT RESTORATION INFORMATION

The NOAA Coastal Storms Program's first pilot study for the Pacific Northwest is now available.

Ecological Impacts of Coastal Storms
- Case Study
- Articles
- Emerging research

Stormwater Impact Information for the Habitat Restoration Community
http://coastalstorms.noaa.gov/stormwater/

GRANT OPPORTUNITY FOR THE GULF OF MEXICO

Posted on *Grants.gov* in December. First deadline: January 10, 2008

The resulting cooperative agreements will promote the Gulf of Mexico Alliance's Governors' Action Plan, an effort to restore and protect the coastal environment of this region. The announcement will be posted on the website as funding opportunity number NOS-CSC-2008-2001253.

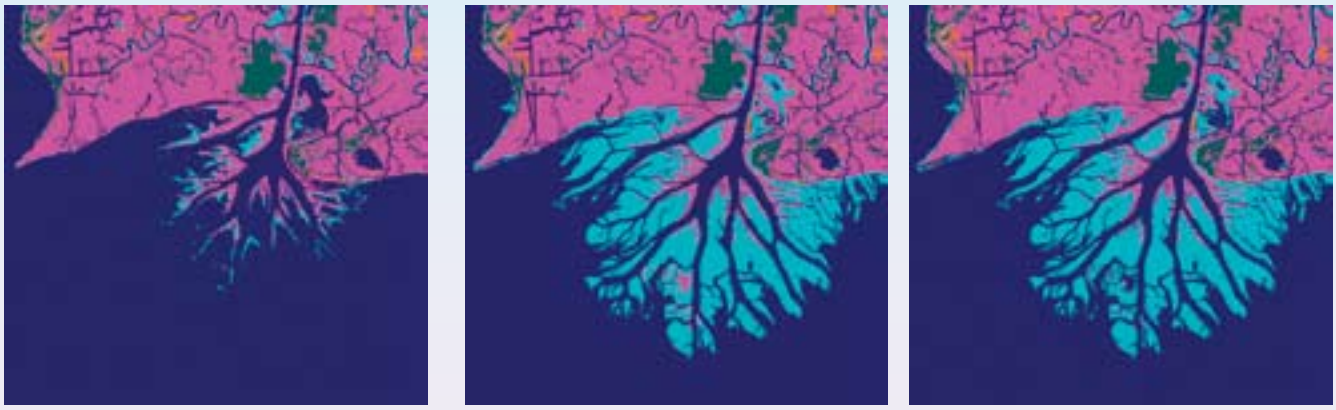
Does the idea of marine boundary development leave you feeling lost?

Let this publication help you find your way.

Marine Managed Areas: Best Practices for Boundary Making

To get a free copy, visit *www.csc.noaa.gov/products/mb_handbook/*.

Land Cover Data
Available for Your Region!



Compare maps from various years to document how a region is changing.

How much of your region is covered by forests? wetlands? development?
How have these areas changed over time? Download data for your state now.

www.csc.noaa.gov/landcover/

NOAA Coastal Services Center
LINKING PEOPLE, INFORMATION, AND TECHNOLOGY

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.