# COASTAL SERVICES

LINKING PEOPLE, INFORMATION, AND TECHNOLOGY

## PORTS:
## Balancing the Economic and Environmental Impacts

## Taking Managers to the Source in Virginia

## Measuring Puerto Rico's Success

# From the Director

Items such as imported foods, clothes, and electronics often seem to just appear on our store shelves. Most consumers make purchases without ever contemplating how their favorite South American coffee, French wine, or Italian shoes got from there to here.

The answer is that the majority of goods imported into the U.S. move through one of the 185 commercial seaports found along the Atlantic, Pacific, Gulf, and Great Lakes coasts, as well as in Alaska, Hawaii, Puerto Rico, Guam, and the U.S. Virgin Islands.

Oceangoing vessels move over 95 percent of U.S. overseas trade by weight and 75 percent by value. U.S. ports and waterways handle more than two billion tons of domestic and import/export cargo annually, and the amount of cargo shipped by water is expected to triple by the year 2020.

While ports bring huge economic benefits to our country, they also can be the source of significant amounts of pollution.

What role can or should coastal resource managers play in ensuring that we have the waterfronts to accommodate rapidly growing marine trade while mitigating the environmental impacts of ports?

This is the question we explore in the cover story of this edition of *Coastal Services.*

Also in this edition, we look at a recent research study in Virginia that has given that state's coastal managers a better tool for identifying the source of contamination in marine waters that is responsible for closing shellfish beds and beaches.

Other articles cover the self-evaluation of Puerto Rico's coastal program, a virtual workshop on aquatic nuisance species, and information on how New York coastal managers are providing cross-border travel tips to boaters and motorists.

As this edition reaches your desk, our writers are already beginning work on the September/October issue of *Coastal Services* magazine. Please let us know if there are topics you would like to see covered, or if you have successful programs to share with other coastal managers.

Margaret A. Davidson

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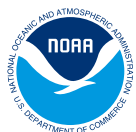
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National Oceanic and Atmospheric Administration
National Ocean Service
Coastal Services Center

# News and Notes:

## Smart Growth Techniques –
## Discovering What Works for Your Community

Smart growth is on the minds of most community leaders, for a smart growth community is one that considers the social, environmental, and economic consequences of each development action. While the smart growth concept contains laudable goals, it isn't easy. The uniqueness of each community and each site means the path to developing smartly isn't clear cut. Furthermore, the task of keeping the big picture in mind while considering the hundreds of details is a big challenge.

A new product developed by the National Oceanic and Atmospheric Administration (NOAA) Coastal Services Center can assist with this effort. The Web-based tool allows interested parties to explore three hypothetical development options to compare costs, environmental ramifications, and other impacts to the neighborhood. To make it even more realistic, the tool uses 3-D visualization technology, which lets users "see" how the various options might look and "fly through" the proposed neighborhood before the first bulldozer is even cranked up.

Alternatives for Coastal Development: One Site, Three Scenarios uses the Web to showcase three different development scenarios that illustrate a number of conventional, environmental, and new urbanist concepts. The land involved is a real tract in coastal Georgia. The 1,100-acre site is typical for the southeastern coast, as it contains wetlands, marshlands, big oak trees, and spectacular views. The Web site includes a tremendous amount of information about smart growth concepts, links to information and resources, and illustrations of how the smart growth concepts work for this Georgia property.

During a visit to the Web site, for instance, interested parties can explore the impacts of green space on water runoff, property values, and the quality of life for residents. Or they can explore the economic costs associated with paving roads or bike paths and using impervious materials for walking trails. The Web technology gives users access to a copious amount of information in an engaging format that makes it easy to compare and contrast the different development options presented.

The coastal management program in Georgia was a partner in this effort and is taking a lead role in the distribution of this product. The program has a traveling bus, the Coastal Ark, which staff members use to educate the public about coastal resource management issues. The Web site will play a prominent role in this traveling classroom. Georgia officials and the Georgia Conservancy, another project partner, will use the information and visualization from this product as they work with communities that are struggling with growth issues.

Even though the site focuses on Georgia, the issues and options are not unique. All coastal states can use the information in much the same way Georgia is. ❖

*To use this Web site, please visit www.csc.noaa.gov/alternatives/. For additional information, please contact the project lead at Nancy.Cofer-Shabica@noaa.gov.*

## One Site, Three Scenarios

Conventional



Conservationist



New Urbanist

As these three maps illustrate, deciding which development concepts to incorporate greatly influences the end result. This Web site will help communities decide which design components make the most sense for specific sites.

# VIRGINIA RESEARCH PROJECT TAKES MANAGERS TO THE SOURCE

Is the pollution that can close shellfish beds coming from humans or animals? This question is important for coastal resource managers because in order to fix the problem, you must know the source, and if the source is a septic system, there may be additional bacteria or viruses that could make people sick.

A recent research study in Virginia has given the state's coastal managers a better tool for identifying the source of contamination in marine waters.

The study, "The Impact of Onsite Wastewater Systems on Water Quality in Coastal Regions," evaluated the use of a fluorometer in detecting human waste in an estuarine environment.

"We wanted two things" from the study, says Mark Slauter, coastal nonpoint coordinator for the Virginia Department of Conservation and Recreation. "We wanted a better way to identify impacts from septic systems, if there are any, and a more cost-effective and time-efficient manner in which to do it."

As a result of the research, coastal managers have modified the state's Shellfish Sanitation Program, and the state has been able to move forward on implementing its 6217 nonpoint source pollution program.

Managers say they believe the tool will also be useful in addressing the source of bacteria that can lead to beach closures, and in testing water coming out of storm drains to ensure there are no illegal sewer hookups.

## The Glow of Success

While fluorometers have been used in freshwater environments in attempts to identify impacts from septic systems and to test drinking water, it was unknown if using the device in an estuarine system was feasible, or if it would be effective at detecting human sources of nonpoint pollution.

Charles Hagedorn, professor of environmental microbiology at Virginia Polytechnic Institute and State University at Blacksburg, explains that a fluorometer detects compounds that fluoresce under ultraviolet light, such as whitening agents in laundry detergents.

"If you walk under a black light," Hagedorn notes, it is these optical brighteners that "make your clothes glow in the dark."

Human sources of pollution, such as residues of fecal sterols, detergent surfactants, and optical brighteners in laundry and dish detergents, all can be detected by a fluorometer.

There are at least two major potential sources of contamination that could contain optical brighteners, Hagedorn says. These are leachates from improperly functioning septic systems and leaking pipes from community wastewater treatment systems.

## System Failure?

Faulty septic systems may result when homeowners fail to maintain their system. "If you go knocking on doors and ask homeowners about the condition of their septic systems," Hagedorn says, "you will find too often that owners don't know where it is, don't know what type of system they have, or even if they have a septic system."

Many homeowners don't realize their system has a problem until leachate is visible in their yards. Hagedorn says that many septic systems, particularly in the Mid-Atlantic region, may have "subsurface failure," which is not easily detected because "many types of soils are so well drained it never perks to the surface."

The potential of septic systems leaching into areas with shellfish beds is a concern because of the possibility that harmful pathogens could be passed on to shellfish eaters.
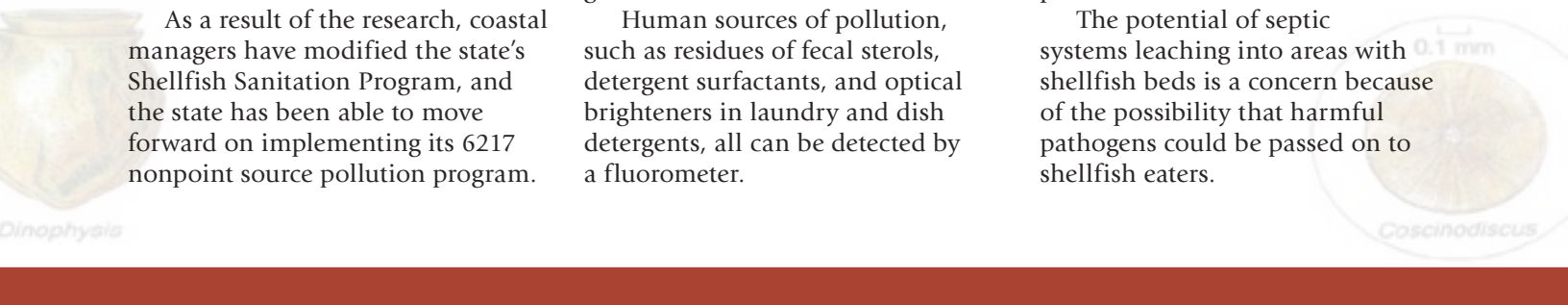
> **"There was 100 percent agreement between using the fluorometer and using microbial source tracking methods to determine if the source was human in origin or not."**
>
> **Charles Hagedorn,
> Virginia Tech**

Bob Croonenberghs, director of the Virginia Department of Health's Division of Shellfish Sanitation, says, "The problem with the shellfish program always has been trying to figure out the source of fecal coliform in shellfish-growing waters."

The division collects water samples and conducts bacterial source tracking, but this technology has its limitations.

"You are restricted in the number of samples you can take," Croonenberghs says, because the samples have to be taken to a lab for analysis, which is expensive, and getting the results can take days and even weeks. Also, using standard source tracking techniques, it is impossible to trace bacteria pollution back to a specific source.

"The beauty of the fluorometer," says Croonenberghs, "is that you get an instantaneous and continuous readout."

## Testing, Testing

The dilemma for Virginia coastal managers was that "we didn't have a good handle on septic systems," says Mark Slauter. "We didn't know if there was a problem and, if so, what the extent of it was."

To find out its usefulness in helping to identify human sources of nonpoint source pollution, the fluorometer was tested in both the field and in the laboratory by Hagedorn and other researchers at Virginia Tech in partnership with the state Departments of Conservation and Recreation, Environmental Quality, and Health.

In all tests, the equipment correctly detected a human waste signature, Hagedorn says. "There was 100 percent agreement between using the fluorometer and using microbial source tracking methods to determine if the source was human in origin or not."

For control purposes, the field tests were conducted in areas already identified by bacterial source tracking techniques as having a human source. The fluorometer could detect high and low bacteria concentrations, and researchers were able to map sewage plumes in the water, which could be used to locate a specific source of contamination.

## Confirmation

"I think what Dr. Hagedorn has shown us is that there is the potential for more of an impact [from septic systems] than we had really realized there may be," Croonenberghs says.

"The bottom line in all this is that the fluorometer is more efficient," Slauter says. "We are going to be able to more quickly determine areas where there are problems with septic tanks or sewer lines, and the Health Department can take samples then and there."

Since the study's completion last year, the state's Shellfish Sanitation Program has purchased two fluorometers for its field offices, which they plan to use to help detect small plumes of discharge from failing septic systems in shellfish-growing areas. They will use it to guide where they should take samples for routine monitoring, Croonenberghs says.

## The Research Continues

Although the results so far "demonstrate that the fluorometric technique could be an inexpensive, fast, field methodology for detecting human-derived sources of bacteria pollution," Hagedorn believes more research is needed to confirm the initial findings and to study how algal blooms and oil-based products may affect the readings.

Still, coastal managers say they are pleased with the research so far. "It's not often we get to answer a true research question that could have a drastic impact on how we address water quality issues," notes Slauter. ❖

*To read "The Impact of Onsite Wastewater Systems on Water Quality in Coastal Regions" final report, point your browser to www.dcr.state.va.us/ sw/docs/czmfnlrep03.pdf. For more information, contact Mark Slauter at (804) 692-0839, or mslauter@dcr. state.va.us. You also may contact Charles Hagedorn at (540) 231-4895, or chagedor@vt.edu, or Bob Croonenberghs at (804) 864-7477, or bob.croonenberghs@vdh.virginia.gov.*





The fluorometer is helping Virginia managers decide where routine water samples should be taken.

# *PORTS:*

# BALANCING THE ECONOMIC AND ENVIRONMENTAL IMPACTS

**T**he American economy is driven by consumers, and the majority of products that are purchased from abroad—everything from cars to clothes to coffee—arrive in this country through one of our coastal ports. The often unseen price tag, however, is that ports can be the source of significant amounts of pollution, which can impact not only local, but also regional resources.

Just as every state's coastal resource management program is different, so is the role each program plays in addressing the environmental impacts of ports. Coastal programs in states such as California and Massachusetts can be important players in locating and regulating ports, while others play either a minor role or none at all.

Even if coastal programs have no legislatively mandated role in managing ports, many argue they could play a role in facilitating dialogue between port, environmental, and community players, educating ports on best management practices, and helping ports find grant monies to implement those practices.

"I'm increasingly convinced that the way to achieve our objectives is not by passing laws, but in sitting down and talking and really collaborating," says Will Travis, executive director of the San Francisco Bay Conservation and Development Commission.

A good example of a port using a collaborative approach to improve its environmental impact, he says, is the Port of Oakland, which recently received the highest score in the Natural Resources Defense Council's (NRDC) environmental report card for the 10 largest U.S. ports

## Shopping from A to Z

Many Americans may not be aware of how dependent they are on the activities of the 185 commercial seaports found along the Atlantic, Pacific, Gulf, and Great Lakes coasts, as well as in Alaska, Hawaii, Puerto Rico, Guam, and the U.S. Virgin Islands.

According to the American Association of Port Authorities, electronics from Japan, bananas and coffee from Central America, and shoes from Italy all make their way to U.S. consumers on cargo ships that arrive at ports.

Almost 16 million Americans work in port-related jobs, which equal $515 billion in annual income and $210 billion in federal, state, and local taxes.

U.S. ports and waterways handle more than two billion tons of

> ## "If you don't know what ports are doing, how can you even have a conversation?"
> **James Fawcett, University of Southern California Sea Grant Program**

domestic and import/export cargo annually, and the amount of cargo shipped by water is expected to triple by the year 2020.

## The Environmental Cost

"Port operations are essential," agrees NRDC scientist Diane Bailey, but she believes more could be done to mitigate the "considerable environmental impacts."

"We talk about harbors in terms of trade, but they are really estuaries," Bailey says. "There is a lot of marine life there. The deeper the ports go into an estuary, the more damage you're going to find."

The environmental impacts of ports include air and water pollution, dredging, aquatic nuisance species, loss of wildlife habitat and public access to coastal resources, and land use issues.

"Communities surrounding these facilities are seeing significant impacts from those operations," Bailey says.

## Taking Responsibility

"Ports want to do the environmentally correct thing," says Tom Chase, director of environmental affairs for the American Association of Port Authorities, and many ports are "doing a lot of good things."

"The tension," he says, "is with paying the bills."

One of the reasons the Port of Oakland has been able to successfully implement environmental mitigation initiatives, says Jim McGrath, the port's environmental planning manager, is that "we brought into it the fact that it had to be affordable."

"The port started to realize that it is essential to make sure the costs of those measures are reflected in the decision to pursue mitigation projects or not," he explains. By doing this, the port was able to "minimize cost implications in some cases" by thinking about environmental measures early enough in the planning process.

By pursuing environmental solutions in this manner, "it often was no more expensive and sometimes was even cheaper," McGrath says."

## Providing an Example

In its environmental report card for the 10 largest U.S. ports, the NRDC writes that while there is still room for improvement for the Port of Oakland in several areas, "other ports can look to Oakland as an example for positive programs to mitigate environmental impacts."

McGrath says the port made a decision to go beyond legally mandated pollution control requirements and aggressively pursue an Air Quality Mitigation Program after settling a lawsuit filed by area residents concerned about the impacts of the port's planned expansion.

The port's air quality program has included helping six marine terminal operators replace 150 older diesel engines with new, cleaner engines, installing emission controls on 310 pieces of equipment, and switching to cleaner, ultra-low sulfur fuel.

Of particular note is that the port does not own or operate any of this equipment.

In addition, the Port of Oakland has conducted several restoration projects in an attempt to mitigate damage to tidal wetlands in San Francisco Bay. One significant restoration project involved the collaboration of citizens, environmentalists, and government agencies to reuse dredge materials from a channel-deepening project to create a tidal wetland surrounded by a public park.

McGrath notes that the collaboration resulted in the project passing through the regulatory process in record time, and that the cost was "not too much greater than deep-ocean dumping."

In fact, the project was so innovative, says Will Travis, it resulted in his program "refining" its policies.

The port has been a leader in helping prevent invasive aquatic species from entering San Francisco Bay through ships' ballast water, and is working to implement water quality measures.

### GO HERE FOR MORE INFORMATION ON PORTS

- Port of Oakland, *www.portofoakland.com/environm/*
- Portfields, a National Oceanic and Atmospheric Administration (NOAA)–led interagency effort focusing on redeveloping brownfields in port and harbor areas, with an emphasis on developing environmentally sound port facilities, *http://brownfields.noaa.gov/htmls/portfields/portfields.html*
- Urban Coasts, a NOAA Sea Grant project that identifies and prioritizes pressing research needs and ways to address them, *www.nsgo.seagrant.org/SG_Themes/urbancoasts.pdf*
- Urban Harbors Institute report on "Green Ports: Environmental Management and Technology at U.S. Ports," *www.uhi.umb.edu/pdf_files/greenports.pdf*
- American Association of Port Authorities, *www.aapa-ports.org*
- National Resources Defense Council's environmental report card for 10 U.S. ports, *www.nrdc.org/air/pollution/ports/ports.pdf*
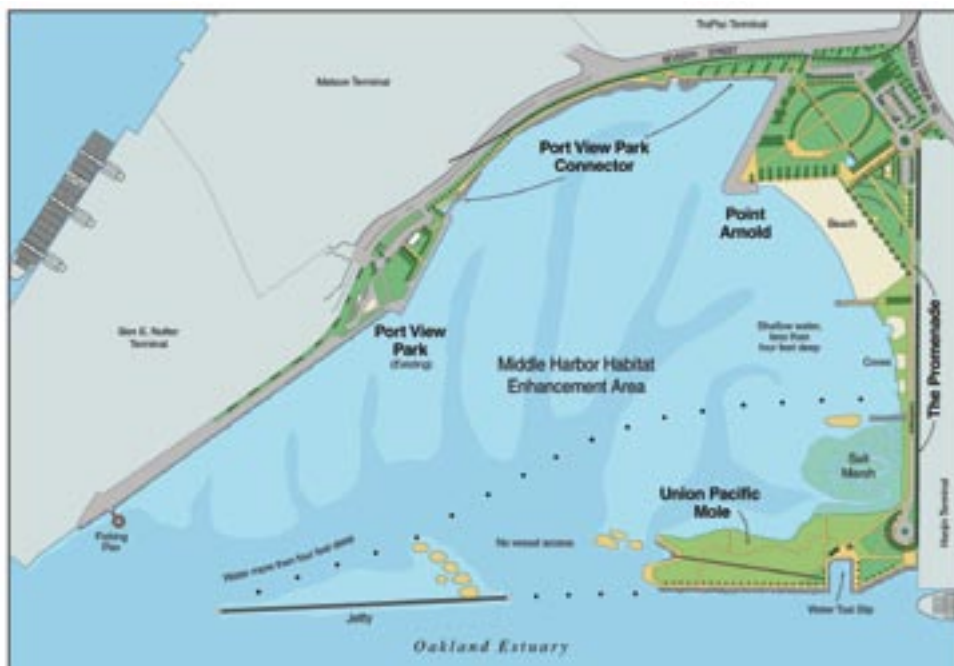


By considering environmental measures early in the planning process, the Port of Oakland minimized the cost of using dredge material to create a tidal wetland surrounded by a public park.

# Puerto Rico Finds a Measure of Success

**M**ost people have heard the saying that you have to know where you have been to know where you are going. Coastal resource managers in Puerto Rico have taken this to heart and are doing a full program evaluation as a way to help celebrate the coastal program's 25th anniversary, and to chart a course for the next 25 years.

A survey of stakeholders has been completed, and the information collected has been used to update the program's guiding document.

"We used this survey as a self-administered performance evaluation," says Ernesto Diaz, director of the Puerto Rico Coastal Zone Management Program. "We wanted to have a better picture of where we are, where we want to go, and how we are going to get there."

Seven public meetings will be held island-wide beginning in July to get public feedback on the updated document. Once public feedback is incorporated, the document will need approval from the National Oceanic and Atmospheric Administration.

Diaz says they began the multiphase evaluation by surveying people who work with the program, such as staff members from federal, commonwealth,





*Images courtesy of Puerto Rico Coastal Zone Management Program*

The extensive program evaluation included information on the condition of Puerto Rico's natural resources.

and local agencies and university researchers, to determine how effective the coastal program has been at achieving its goals and objectives, and the issues that should be addressed by the program in the future.

The results of the survey, Diaz says, were surprising. "We thought we were doing a little bit better. What we learned is that we have to do a better job of communicating our results, services, what we do, and how we network with other agencies and organizations."

In response to the survey, a Web page has been developed where coastal program research and products are posted. The site is *www.coralpr.net*. In addition, the program is digitizing much of its information so that it can easily be made available to the public.

Updating the program's guiding document was



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>
> **Ernesto Diaz,**
> **Puerto Rico Coastal Zone**
> **Management Program**

completed in June. Over the next several months, the draft documents will be presented to the communities for comments, which will be incorporated into the program's defining guidelines.

Diaz says the final document will improve the program's use of its limited resources, "both in terms of funding and human resources. This is an opportunity to improve our overall performance in delivering our message of sustainable use of coastal areas and resources."

The survey results and public comments will be considered a baseline for future evaluations, Diaz notes. The coastal program will continue the process every other year by evaluating the status of its coastal resources, updating land use and demographic statistics, and conducting additional surveys of stakeholders.

"We did learn a lot," Diaz says. "If we haven't been doing a good enough job of reaching our key people, if we are not effectively reaching other agencies and universities, then probably the public at large is even more lost as to what the coastal zone management program is all about." ❖

*For more information on Puerto Rico's evaluation process, contact Ernesto Diaz at (787) 721-7593, or eldiaz@caribe.net.*

# Keeping Travelers on Schedule in New York

**B**oaters and motorists who once crossed the border between New York and Canada with ease now may expect to be questioned and inspected by U.S. and Canadian Customs and Immigration authorities. To help smooth the journey, New York Sea Grant and the Seaway Trail have teamed up to provide cross-border travel tips.

"Up until 9/11 [2001], the border was open, friendly, and easy to cross," says Dave White, New York Sea Grant's Great Lakes program coordinator. In spring of 2002, "we realized our primary clientele—anglers, cruisers, sailboaters—and other members of the traveling public needed to be made aware of the changes they were going to encounter."

After canvassing both U.S. and Canadian officials, an on-line, print-on-demand "Cross-Border Travel Tips" brochure was produced. Because travel requirements can change quickly, White says the easy-to-update format was mandatory.

"Our biggest fear was that we'd produce 100,000 brochures today, and they'd be wrong tomorrow. The use of technology really helped with this project," White says.

Now in its third year, the Web brochure is updated frequently to ensure accuracy, says Kara Dunn, New York Sea Grant press writer. Security officials on both sides of the border review the material before it is posted.

While updating the information is now a matter of "a phone call to the proper officials," Dunn notes that the process wasn't always so easy.

What was difficult the first year, she says, was coordinating the information during a time when security requirements on both sides of the border were undergoing significant changes. "I would say, however, that both the American and Canadian officials were very easy to work with and understood the need to share information with the traveling public."

Much of the information in the brochure comes from U.S. Homeland Security and Canada Customs and Border Protection officials.

New York Sea Grant and Seaway Trail, Inc., a nonprofit tourism promotion organization, provide the information for day visitors and frequent travelers along Seaway Trail, a 454-mile scenic route paralleling Lake Erie, the Niagara River, Lake Ontario, and the St. Lawrence River.

The information is important to the area, White notes, because tourism helps support the economies of 86 shoreline communities.

To ensure that travelers know about the brochure, press releases are sent out,

> **What was difficult the first year was coordinating the information during a time when security requirements on both sides of the border were undergoing significant changes.**

and information on the site is distributed by state agencies, local chambers of commerce, and businesses on both sides of the border.

White says they know the information is reaching people because the brochure is the most accessed file on the New York Sea Grant Extension Web site. He notes that more than 10,000 copies of the brochure were downloaded in 2003.

"Flexibility and preparedness are key to smoother crossings," White says. "We're helping people understand that they must carry the proper documents, call ahead to check when and where customs agents will be available, and bring a good book or crossword puzzle and games for the kids to ease any waiting on the busier days."

White adds, "These changes are not part of our normal psyche as travelers. The better prepared you are, the more relaxed you will be going through it." ❖

*To view the "Cross-Border Travel Tips" brochure, go to www.seawaytrail. com. You also may contact Dave White at (315) 312-3042, or dgw9@cornell.edu. You may contact Kara Dunn at (315) 465-7578, or karalynn@gisco.net.*

Photos courtesy of Seaway Trail, Inc.

Security concerns can make it harder for boaters to quickly cross between New York and Canada.

# Virtual Workshops:
## The Next Best Thing to Being There

**A**t a recent workshop for educators on aquatic nuisance species, leading scientific experts not only presented keynote addresses but also sat and talked with the 282 participants one-on-one. The workshop was free, and while the attendees came from around the world, none of them had to pay for their travel, food, or lodging.

This huge cost savings was because the workshop was part of a virtual series presented by the College of Exploration, a Virginia nonprofit that works with a range of partners to present educational and research programs on leadership, the environment, and technology.

**"You are able to see the presentations in exactly the same way you would if you were sitting in a lecture theatre or classroom."**

**Peter Tuddenham,
College of Exploration**

"Travel and accommodation gets to be an expensive proposition for teachers and educators these days," says Peter Tuddenham, the College of Exploration's executive director. With on-line courses, "you just turn on your browser and interact."

The partners that helped bring the three-week workshop to the Internet last March include the National Oceanic and Atmospheric Administration's (NOAA) Sea Grant Office, Mississippi-Alabama Sea Grant Consortium, Dauphin Island



The on-line workshop included lectures, PowerPoint presentations, networking, and a resource library.

Sea Lab in Alabama, and the J.L. Scott Marine Education Center and Aquarium at the University of Southern Mississippi at Biloxi.

The aquatic nuisance species workshop and other programs offered by the College of Exploration are successful, Tuddenham says, because of these types of collaboration.

It also helps that the College of Exploration staff has developed an approach for delivering on-line programs that replicate face-to-face workshops. These elements include speaker segments, a place to discuss classroom implementation, a "café" for informal chat and networking, a Web library with a resource center, and a participant directory.

"You are able to see the presentations in exactly the same way you would if you were sitting in a lecture theatre or classroom," Tuddenham says. "We offer multiple paths to the content to meet the needs of different learning styles and different technical capabilities."

While presentations can be accessed via video and PowerPoint presentations, the main medium used is text-based, asynchronous conferencing where someone starts a conversation by posting

(in writing) and then everyone that arrives after the posting can respond. Posts are made in order of time posted, so the result is much like a real dialogue.

All materials gathered and posted during the workshop remain accessible throughout the entire series. Features are scheduled over a period of time such as days or a week, instead of hours, to allow participants from all over the globe time to respond.

In addition to the Aquatic Nuisance Species Workshop, the College of Exploration's virtual series has included a Coral Reef On-line Workshop for Teachers, as well as a nine-month series on Ocean Exploration, which helped identify how ocean content can enhance learning in the classroom.

The on-line workshops "help get more people involved in understanding our oceans and taking action," Tuddenham says. Participants often include grade-school teachers, professors, naturalists, marine educators, and other environmental educators.

He adds, "With the right kind of support, we can make a significant contribution by providing a multidisciplinary forum on topics of concern to us all in regards to the ocean and immediate coastline. That's ultimately what we want at the end of the day." ❖

*To learn more about the College of Exploration and the Aquatic Nuisance Species On-line Workshop, point your browser to www.coexploration.org. You may also contact Peter Tuddenham at (703) 433-5760, or peter@coexploration.net.*

### Coastal Zone Concerns

Many coastal zone management programs "don't require ports to play in the CZM system," says James Fawcett, director of the marine science and policy outreach program at the University of Southern California Sea Grant Program. "If you don't know what ports are doing, how can you even have a conversation?"

Those interviewed for this story suggest that even without a legal mandate, coastal managers could, and probably should, be involved in port issues. Suggested roles include helping to broker agreements between port stakeholders, such as shipping lines, environmental groups, and area residents, assisting ports in determining their environmental impacts, advising ports on mitigation options, and identifying grant or other funding for mitigation projects.

For programs that are involved in regulating ports, those interviewed suggest simplifying the permitting process, providing incentives for ports to incorporate mitigation early in port planning, and determining ways to measure the success of port mitigation programs.

The participation of coastal managers is particularly important when a port is planning to expand, says Jim Kruse, National Ports and Harbors Specialist for the Sea Grant Program.

"Everything takes time and money," Kruse says. "Coastal managers need to work with ports to find the money and determine a reasonable time frame to creatively manage these issues." ❖

*For more information on the environmental efforts of the Port of Oakland, contact Jim McGrath at (510) 627-1175, or jmcgrath@portoakland.com. To get the coastal management perspective on the port, contact Will Travis at (415) 352-3653, or travis@bcdc.ca.gov, James Fawcett at (213) 740-4477, or Fawcett@usc.edu, or Jim Kruse at j-kruse@ttimail.tamu.edu. You also may contact Diane Bailey at (415) 777-0220 or Tom Chase at (703) 684-5700.*
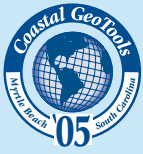
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| | MARCH 7 | MARCH 8 | MARCH 9 | MARCH 10 | | |
| | | **GeoTools**<br>**March 7–10, 2005 • Myrtle Beach, South Carolina**<br>A conference devoted to helping state coastal resource managers effectively use technology. | | | | |
| JULY 17 | JULY 18 | JULY 19 | JULY 20 | JULY 21 | | |
| | | **Coastal Zone 05**<br>**July 17–21, 2005 • New Orleans, Louisiana**<br>The nation's largest international conference for the coastal resource management community. | | | | |
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