

# Improving Decisions Affecting Our Coasts Through Training & Assistance

NERRS Coastal Training Program



NATIONAL  
ESTUARINE  
RESEARCH  
RESERVE  
SYSTEM





The National Estuarine Research Reserve System is a network of protected areas established for long-term research, education and stewardship. This partnership program between NOAA and the coastal states protects more than one million acres of estuarine land and water, which provides essential habitat for wildlife; offers educational opportunities for students, teachers and the public; and serves as living laboratories for scientists.

**[www.nerrs.noaa.gov](http://www.nerrs.noaa.gov)**

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## National Estuarine Research Reserve System



# INTRODUCTION



The National Estuarine Research Reserve System's (NERRS) Coastal Training Program (CTP) was formally initiated in 2001 to provide up-to-date scientific information and skill-building opportunities to the people who are responsible for making decisions affecting coastal lands and waters of the United States. The program aims to provide coastal decision-makers with the knowledge and tools they need to address critical resource management issues.

Decisions made by coastal communities can have profound, long-term consequences for estuarine and coastal environments. Land use planners, regulators, developers, coastal managers and elected officials, to name a few, often do not have access to relevant science-based information, training, and tools that can support informed decisions affecting the coast. Considering the wide range of impacts to coastal areas from human and environmental factors, these decision makers need sound information on which to base decisions. The NERRS, through its CTP, is uniquely positioned within coastal communities across the nation to engage these decision-makers and provide the scientific basis for informed decisions affecting the coast.

## About the Program

Beginning in 1988, educators at the Rookery Bay National Estuarine Research Reserve in Florida initiated a series of bimonthly training workshops to assist coastal managers and other decision makers participating in planning and regulation of Florida's coastal communities. In cooperation with the Florida Coastal Management Program, these training workshops were expanded to provide similar services throughout the state.

Encouraged by Florida's early success, in 1993 NOAA adopted the Rookery Bay Reserve model as the blueprint for a new adult training initiative for the Reserve System. The initiative began with the delivery of coastal management training workshops at 11 reserves. Participating reserves collaborated with state coastal zone management programs to develop training workshops that were responsive to the needs of specific audiences, needs that would often vary depending on the location and period in time.

The repeated success of these workshops encouraged the NERRS to incorporate these training workshops into the basic operations of each reserve beginning in 1998. Known as Coastal Decision-Maker (CDM) workshops, they are an integral part of each reserve's annual programming. Additionally, audience feedback from the CDMs indicated a strong need for science-based training on important coastal management issues. These workshops, coupled with valuable experience the NERRS gained in developing and conducting technical training and creating networks and dialogue with local decision-makers, led to the Coastal Training Program being formally created in 2001.

As a national program for the NERRS, CTP is currently active at 25 of the 27 Reserves nationwide. The longest running CTPs are North Carolina and Waquoit Bay, both of which have been operating since October 2002. The most recently approved program is at the San Francisco Bay Reserve.

### **What it means to be a Coastal Training Program**

As place-based providers of science-based information, the reserves are uniquely positioned to assume a lead role in delivery of pertinent information to local and regional decision-makers. As part of the national system of reserves, each CTP broadly addresses several priority coastal management issues including:

- Land use and population growth
- Habitat loss and alteration
- Water quality degradation
- Changes in biological communities.

All Coastal Training programs follow a similar path. All Reserves are required to meet specific conditions to have an approved CTP.

- First, the program must have an advisory committee to assist in developing and providing direction for the program. Each advisory committee must have representation from the state's Coastal Zone Management Program and Sea Grant Program.
- Second, the reserve must complete an analysis of the training provider market at a local and regional scale. This analysis will also help the reserve identify potential decision-maker audiences to target through the program.

- Third, the reserve must assess the training needs of any potential target audiences the CTP will address.
- Fourth, the CTP needs to develop a strategy to guide the program’s activities over a three-year timeframe.
- Finally, the program must develop a marketing plan outlining actions that will promote CTP to its audiences.

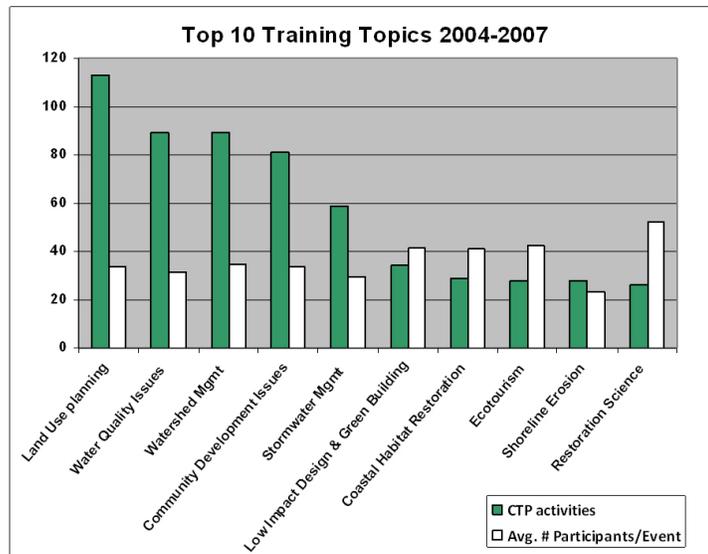
These criteria were established as a foundation for the long-term success of the program and are unique compared to other adult training efforts at NOAA.

All reserve CTPs must follow these guidelines. Additionally, reserve each will define more specifically what coastal resource issues will be addressed by their CTP, through periodic audience assessment, planning and strategy development. As place-based protected areas, the Reserves can also provide locally relevant field sites for CTP training workshops or events.

### Our Audience:

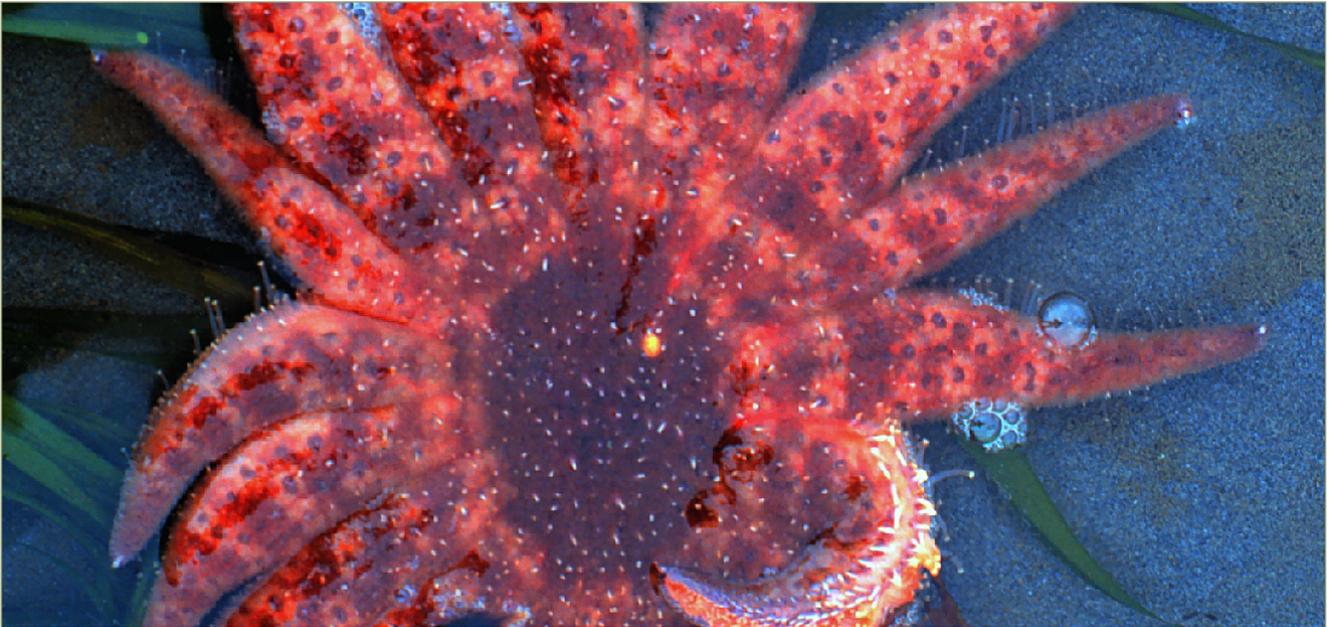
Coastal decision makers are defined as individuals whose duties include making decisions that affect the coast and its resources. The target decision-maker groups vary according to reserve priorities, but generally include groups such as local elected or appointed officials, managers of both public and private lands, natural and cultural resource managers, coastal and community planners, and business owners and operators. They may also include farmers or ranchers; soil and water conservation districts, watershed councils and professional associations; recreation enthusiasts, researchers and technicians, and even private citizens.

Since 2006, these reserve-based programs have delivered more than 400 evaluated training events reaching at least 13,000 decision-makers in the coastal zone. As the program expands to new reserves and matures, the reach and impact of the program will increase substantially in the years ahead.



# PADILLA BAY

Washington



For planners in Washington State, determining the ordinary high water mark to guide developers has long been a challenge. State regulations specify a number of development restrictions based on the high water mark, including where certain activities can occur and how far back to set structures. Particularly on small parcels, these regulations can have a major impact on development plans.

The problem is that different agencies have different definitions for the ordinary high water mark, and developers are unsure whether to base their determinations on the Corps of Engineers, Department of Fish and Wildlife or the Department of Ecology parameters.

The result is that planners often submit inaccurate permit applications to the state, resulting in delays in the permitting process. Sometimes buildings are placed too close to the water because of inaccuracies, which results in flooding or property loss through landslides.

“A general sense of frustration abounds,” says Cathy Angell, coastal training coordinator at Padilla Bay National Estuarine Research Reserve in Mt. Vernon, Washington.

Planners are under a lot of pressure from developers and homeowners whose investments could be affected by the location of the ordinary high water mark, and determinations can be contentious and controversial.

That explains why one of the most popular offerings of the Coastal Training Program at the Padilla Bay Reserve is a two-day workshop on how to determine the ordinary high water mark following the correct protocol. The correct protocol is the Department of Ecology’s method. Since the Padilla Bay Reserve is managed by the Washington State Department of Ecology, it was an easy matter to partner with the department’s staff to offer training for shoreline planners, consultants and state regulatory staff.

The training, originally a one-day workshop later expanded to two days, is aimed at helping planners, and consultants make more accurate and consistent recommendations about placing structures near the shoreline. Instructors are typically three wetland specialists and one hydrogeologist.

The two-day class starts in the classroom where participants learn lake, river and marine environments. On the second day, they go into the field to learn how to use hydrologic, vegetative, soil and geomorphic indicators to determine the high water mark. Then they get practical experience making their own determinations, using what they have learned.

“The main challenge in setting up the course has been to find locations with good marine, riverine and fresh water field sites nearby,” Angell says. “Olympia, Bellevue and Mt. Vernon have proven to be the most effective locations.”

Regardless of challenges, the program has proven both popular and successful. In surveys, planners report that the training has provided them with a common language and has improved relations with the state regulatory authorities. They also report that their permit applications are more accurate, and that they are more likely to document their findings properly, which helps if findings are challenged in court.

“As the only planner in a small jurisdiction I need to be able to explain to developers and the City Council and Planning Commission the difference between the river level that they see every day throughout the summer and the ordinary high water mark,” said one participant. “This class gave me the confidence to discuss the situation with landowners and the information as to when to call the Department of Ecology for aid.”

Another client reported, “I wrote an article using information from the class and distributed it to several thousand people. We are trying to encourage our clients and interested parties to hire a trained biologist to do this work rather than a land surveyor. We think there will be better protection of resources by having a trained biologist delineate the high water marks.”

The ordinary high water mark training is but one of a suite of professional trainings offered by the Padilla Bay Reserve’s CTP to address ongoing demand for information to improve the knowledge and skills of professional and decision maker audiences with Puget Sound and along the Washington Coast. All have been developed in partnership with the Department of Ecology and are offered on-demand through the CTP website.

## REFLECTIONS FROM DECISION MAKERS



Apalachicola CTP Docks and Piers Workshop participant wrote: “We are doing revisions to our Land Development Regulations. Information from the workshop is being used to evaluate & revise language on small commercial docks. This information has given staff a better background in evaluating what changes need to be made. The small docks workshop was wonderful. It contained information we use routinely when determining when to allow a variance to our dock rules and with what conditions to grant the variance.”

Apalachicola CTP technical assistance recipient commented: “This program is a valuable resource to us. By fostering the dissemination of information from a wide range of sources the Coastal Training Program makes it possible for us to participate in learning opportunities of which we would not normally be aware.”

Rookery Bay CTP participant in the Ecotour Operators Workshop Series wrote “Excellent job in new and innovative ways to present information” and “Fun, informative, learning experience...I found the sharing of ideas very worthwhile and loved the activities, I would very much like to use them in my position.”

# WEEKS BAY

Alabama



All coastal areas are subject to the potentially damaging effects of stormwater runoff, particularly in developed areas where large amounts of impermeable surface channel water directly into streams, carrying with it all the pollutants available on the surface. Unmanaged stormwater from impervious surfaces like asphalt harms water quality, accelerates erosion and damages natural and human habitats alike.

The National Estuarine Research Reserve System has always placed a high priority on helping local and regional communities address stormwater issues. Weeks Bay Reserve in Alabama is no exception.

What started in the early 1990s as a series of annual workshops on water pollution for classroom teachers in Alabama has become the force behind landmark legislation to create a regional stormwater management authority in Baldwin County, which forms the eastern shore of Mobile Bay and is home to the Weeks Bay National Estuarine Research Reserve.

The Reserve started hosting a stormwater and nonpoint source pollution workshop for teachers in Alabama's Baldwin County years before the Coastal Training Program became a national system activity. By the

time CTP was a priority for most of the reserves, the Weeks Bay stormwater workshop was a well-established annual event for stormwater managers from throughout Alabama, and its subsequent success led to passage in 2008 of the Baldwin County Stormwater Bill.

The evolution of stormwater management in the area is a study in the value of partnerships for developing environmental policies and legislation. The first workshops were co-sponsored by the Alabama Department of Environmental Management, the Baldwin County Soil and Water Conservation District and the Weeks Bay Watershed Project.

The Watershed Project, funded by the Environmental Protection Agency, was designed to address pollution problems in Weeks Bay by taking a watershed-wide approach. In 2003, with the implementation of the national Coastal Training Program, the Watershed Project was incorporated into the reserve's mission, ensuring that stormwater issues would remain a priority topic for the reserve's programs.

"Clearly there was a desire for more effective protection of waterways from runoff and erosion and of property from high water damage," says Mike Shelton, the

reserve's Coastal Training Program coordinator.

Over the years, and especially with the implementation of the Coastal Training Program, the stormwater workshops grew in scope to appeal to new and more influential audiences. Workshop topics and trainers have become more specialized to meet the needs of those audiences. The program brought in experts with widening perspectives on stormwater issues, including civil engineers, non-profit organizations, and Environmental Protection Agency officials.

In 2005, for example, the University of Alabama Civil Engineering Department presented a stormwater permitting and compliance workshop for transportation managers and engineers, attracting engineers from private companies and local governments. The same year, the Reserve teamed with the Alabama Coastal Foundation and the Mobile Bay National Estuary Program to present a stormwater workshop aimed at community leaders, including planners, municipal officials and engineers from Baldwin County.

In addition to providing stormwater information, the workshops also served as a place for officials from various organizations to interact and realize their common interests, says Shelton, who is a member of many of the groups. Groups like the City of Fairhope Environmental Advisory Board, Fairhope Blue Water Committee, Alabama Coastal Foundation and others came together to contact the Mobile Bay National Estuary Program. From that meeting arose the Baldwin County Stormwater Consortium with a goal of establishing a regional stormwater management entity with a role similar to a public service or utility authority.

The consortium contracted with AMEC, Earth and Environmental of Nashville, Tenn., to conduct a series of four workshops in summer of 2006 to educate consortium members and other municipal and county leaders on the value of stormwater management and options for creating a stormwater authority. The 66 people who attended the workshops included several prominent developers and members of the Alabama House of Representatives.

Once the four workshops were completed, the consortium held a final informational session for 40

state, local and county leaders to explain the workshops and discuss future actions. The most prominent of those future actions was to draft enabling legislation to establish a stormwater authority if voters of Baldwin County approved a referendum.

The legislation gathered widespread support from city councils, chambers of commerce, the county Economic Development Alliance and the county commission. With that support in hand the director of the Mobile Bay National Estuary Program worked hard with the Baldwin County Legislative Delegation to craft a bill that would serve the county's needs for stormwater management.

The bill failed to pass in 2007, and the political and economic landscape of the county shifted before the 2008 legislative session due to the real estate market downturn, dramatically higher homeowner's insurance premiums and property taxes. Sensing that any legislation that would increase fees would face an uphill battle, Consortium members amended the proposal to create a framework for a stormwater authority, but without a final revenue-generating mechanism.

A special session of the Alabama legislature finally passed this version in a special session in June 2008. While the bill did not include a provision to fund the authority, supporters celebrated the passage as a good start and significant progress since the first attempt to pass legislation two years earlier. Consortium members quickly got to work developing strategies for making the case for the authority to the voters of Baldwin County, who will have to approve any funding mechanism.

"Now the real work begins in crafting an instrument that will conform to the bill and accomplish the tasks that our county, municipal and business leaders set out for the authority and educate Baldwin County citizens on why this is a good and necessary step," said David Yeager, director of the Mobile Bay National Estuary Program.

Meanwhile, the Weeks Bay Reserve Coastal Training Program continues to present workshops to an ever-growing list of people who can make a difference in the way stormwater is treated before it reaches sensitive streams, rivers and estuaries.

# GTM

## Florida



Tourism is one of Florida’s biggest industries, attracting an estimated 83.6 million people in 2005. In support of the tourism industry, Florida also has a very large lodging sector, which traditionally means a lot of impervious surface, heavy energy and water consumption, high use of cleaning products and other activities that can have a negative impact on the local environment.

The Florida Department of Environmental Protection (DEP), host agency of the GTM Reserve and Florida Coastal Program, established a Green Lodging Program in 2004 to encourage the lodging industry to adopt “green” practices to help conserve and protect the state’s natural resources. The program includes education on best practices as well as the opportunity for facilities to earn designation as “green lodging.”

The Guana Tolomato Matanzas National Estuarine Research Reserve (GTM), located in St. Johns County, straddles the city of St. Augustine, one of the state’s most popular tourist destinations. St. Augustine attracts more than 4 million visitors a year, and the county has 24 hotels, 59 motels and 32 bed and breakfast facilities. But until the GTM Coastal Training Program teamed up with DEP, none of these facilities had received any training in green practices for the lodging industry, nor were there any certified Green

Lodges in this region of the state. With the multitude of visitors to the area, introducing “green” management to the local lodging industry could have a significant and positive impact on Florida’s natural resources, as well as the Reserve’s watersheds.

So in 2006 GTM’s Coastal Training Program teamed up with DEP to introduce the Green Lodging Program to local hotels, motels and other lodging facilities. The reserve sponsored a series of workshops with experts from state agencies and the private sector to present best management practices for their respective fields, including energy and water conservation, green cleaning products, and air quality.

The Green Lodging program covers an all-inclusive list of environmental initiatives that can be adopted by the lodging industry and are specific to protecting and preserving Florida’s natural environment. Each of the practices presented can be developed without impacting the quality of the visitor’s experience.

The first workshop in 2006 was attended by approximately 20 professionals but resulted in only one hotel, the Casa Del Mar, becoming a Certified Green Lodge. The Casa Del Mar (now the Hampton Inn and Suites) is in close proximity to

the GTM Reserve and is a long time partner of the reserve. Interest improved in 2007, when about 80 professionals from the local lodging industry attended a day-long Green Lodging workshop. Renewed interest in “green” practices was directly attributed to a Governor’s Executive Order requiring state agencies and departments to hold meetings and conferences at hotels participating in DEP’s Green Lodging Program whenever possible.

Since the initial effort, GTM Reserve’s Coastal Training Program brought in additional partners such as the St. Augustine and Ponte Vedra Visitor and Convention Bureau; Jacksonville and the Beaches Convention and Visitors Bureau; Jacksonville Hotel and Motel Association; to support the delivery of Green Lodging workshops. Armed with a new executive order, the reserve and the Florida DEP Green Lodging Program presented topics at the workshops such as certification requirements and the proper disposal of spent florescent lights. One partner, the University of Florida’s Institute for Food and Agricultural Sciences (IFAS), introduced the concept of Florida Friendly landscaping through the workshop. This was the first time landscaping best management practices were introduced to the Green Lodging Program.

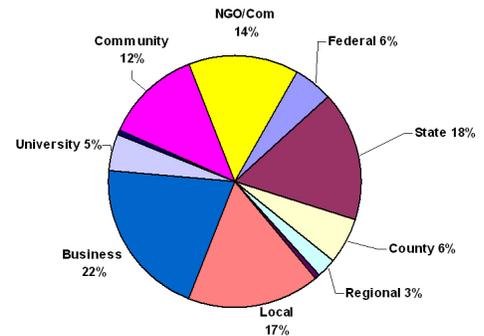
Another partner, the St. Johns River Water Management District presented the Water Star program, which encourages promotes products to assist with water conservation. Other partners, such as St. Johns County, presented on recycling programs. All workshop presenters were experts in their field and were from government, universities and industrial sectors.

Participants were impressed with the workshop. Scott Fogg from the Lodge & Club at Ponte Vedra Beach commented “Outstanding program! Excellent seminar format...the course design allowed for technical information exchanges. The presenters appeared motivated and willing to assist. Well done and thanks for the important information.”

The Hampton Inn and Suites, the first in the county to receive a Green Lodge Certification, offered a site visit for participants to see firsthand the “green” changes they had implemented and to ask questions on the certification process. The workshops seem to have caught on with the local lodging industry. As of July 1, 2008, in St. Johns County alone, 15 hotels that participated in the workshop have received their Green Lodging Certification, and two more properties are awaiting certification.

## REACHING OUR AUDIENCES

**Broad Organizational Representation at CTP Events 2004-2007**



### *Decision Maker Audiences Served by CTP*

Since 2005, the NERRS Coastal Training Program has reached more than 27,000 coastal decision-makers from a wide variety of organizations. Most participants come from Local or State governments and businesses however, there is broad representation from other types of organizations as shown in the pie chart.





## Eco-tour Operator Workshop Series

### *- Rookery Bay NERR*

June 2007 marked the fifth annual Ecotour Operator Series delivered by the Coastal Training Program at Rookery Bay NERR in Naples, Florida. Workshops held monthly targeting audiences included individuals or staff who led the public in activities that combine walking, hiking, boating, fishing or driving with viewing or interaction with the environment. Attendees included naturalists and interpreters from government parks and refuges and also private sector business owners and staff who conduct tours for profit. This year's theme focused on sustainability.



The Wells NERR CTP "Protecting Our Children's Water" project designed to build collaboration across municipal boundaries in order to facilitate the implementation of watershed management plan, conservation plan and comprehensive plan goals for clean water and reduction of nonpoint source pollution. Strong partnerships have developed among the 10 municipalities, Maine NEMO, Maine Source Water Program, water districts, Southern Maine Regional Planning, and Wells NERR. One watershed town has since received funding to develop a conservation plan during 2008-2009.



## Oil Spill Response in Freshwater Marshes and Streams Workshop Series

– *Old Woman Creek NERR*

The Ohio CTP's workshop series focused on spill response in freshwater marsh and stream environments. Designed to train local and state natural resource managers about spill impacts and response options in freshwater marshes and streams, the first workshop sought to communicate agency roles in spill response and to promote the development of resource inventories and response plans among local and regional resource agencies. A second workshop culminated in a virtual response drill in which teams evaluated response options to a hypothetical spill in their watershed. Presenters for the workshop included spill response experts from NOAA, Ohio EPA, U.S. EPA, local Emergency Management Agency, an Ohio State University wildlife biologist, and a wildlife rehabilitator.

The Tijuana River CTP has worked actively through workshops, meetings, tours, and other trainings with decision-makers from all levels in Tijuana to educate them on the importance of an integrated approach to watershed-based planning. The Los Laureles Canyon Partial Plan of Development: 2007- 2015 was recently completed and unanimously adopted by the Tijuana City Council. This document is the first of its kind, as Los Laureles Canyon is the only area in Tijuana to adopt this model of master planning. Utilizing a watershed-based approach, the goal of this document is to plan and work toward socially, environmentally and economically healthy development within the sub-basin, and as a way of addressing cross-border environmental and infrastructure concerns, benefiting all that have a stake in it.



# GREAT BAY

New Hampshire



The National Estuarine Research Reserve System's Coastal Training Program relies on bringing in the best experts available to share scientific and technical information with the program's clients. Sometimes those experts come from far away. But at the Great Bay Reserve, some of the nation's foremost experts on stormwater management technology are right in the back yard. Or at least in the parking lot.

The Great Bay Reserve is in New Hampshire, the coastal state with the smallest coastline (18 miles) in the nation. Interest in coastal issues is as strong as in any state, with a long list of organizations managing or providing resources to manage coastal resources in New Hampshire.

One of those organizations, just on the other side of Great Bay from the reserve's headquarters in Greenland, is the University of New Hampshire, which has a number of partnerships with NOAA, including the Cooperative Institute for Coastal and Estuarine Environmental Technology (CICEET).

CICEET provides competitive grant funding to scientists and engineers to test and develop technologies to address coastal environmental issues, including sediment contamination, invasive species, bacterial contamination and stormwater runoff. Much of the research is conducted at National Estuarine Research Reserves, but one ongoing project has been under way since 2004 in a nine-acre university parking lot.

At the UNH Stormwater Center, sunny days are idle days and rainy days spur the staff into action as they compare a dozen different technologies for treating stormwater runoff to remove contaminants before they get into streams, rivers and bays. The program has already demonstrated that some low-cost technologies are actually more effective than some higher priced solutions at ensuring the water that flows over streets, parking lots and building roofs is clean before it enters local waterways.

Meanwhile, Great Bay Reserve's Coastal Training Program was assessing the needs of local coastal decision makers for information and training. The

*“I have found the presentations you have sponsored very informative and constructive toward implementing and promoting protection of the NH seacoast environment. Your outreach efforts are outstanding and from my own watershed protection outreach work in Seabrook, I do know how much effort this takes.”*

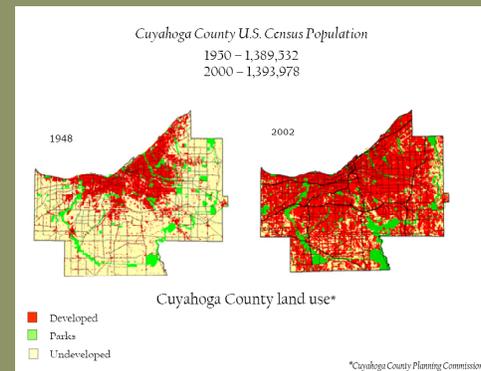
*-Professional Engineer*

results indicated that the Great Bay area has been and will continue to be affected heavily by development pressure, so the Coastal Training Program decided to focus its efforts on issues related to land use change, increase in impervious cover, nutrient pollution from sewage, stormwater management, water resource conservation, and, more recently, climate change.

“Training programs at Great Bay are designed to promote land conservation, planning based on natural resources, decision-making based on science in all the focus areas, and implementation of Low Impact Development in the region,” says Steve Miller, CTP coordinator at Great Bay Reserve.



## TRENDS ANALYSIS OF COASTAL TRAINING PROGRAMS OF THE NATIONAL ESTUARINE RESEARCH RESERVE SYSTEM, 2004



*Prepared by: The Great Lakes Environmental Finance Center (GLEFC)*

Although spanning geographically diverse regions, the NERRS have effectively initiated this system-wide effort to identify the market and the capacity within each Reserve to provide coastal training activities to coastal policy- and decision-makers. CTP planning activities resulted in the development of planning documents outlining priority coastal issues to be addressed under the coastal training umbrella, the audiences to be targeted over a three- to five-year period, potential partnerships for the design and delivery of training venues, and methods to monitor and evaluate the impact of the training programs.



All the issues are critical, but stormwater management stands out as one that the reserve can address with a full toolkit, Miller says. It is also of urgent interest to local governments and developers, because the Clean Water Act requires communities to address non-point source pollution. That's the technical term for the stew of pesticides, fertilizers, sediment, oil, trash, microbes and other pollutants that get picked up by rain and carried over the landscape to streams, rivers and estuaries, degrading water quality and threatening human health.

The University of New Hampshire's Stormwater Center was established specifically to help coastal managers protect water quality by developing stormwater management programs. Under the direction of Dr. Robert Roseen, the center evaluates three different

classes of stormwater treatment: manufactured devices, traditional structural designs and Low Impact Development designs. Every time it rains or snows, the runoff from the impervious parking lot is channeled equally to each system, and researchers test the effluent for quality and quantity.

This side-by-side evaluation of different systems provides the scientific basis for technology demonstrations and workshops for stormwater managers and other decision-makers, which was exactly what the Great Bay Coastal Training Program wanted to offer.

In 2004, the reserve sponsored a group of municipal land use board members, including one engineer, to attend a Stormwater Center workshop. After the

*“I see your CTP program as an incredibly valuable program that provides local decision makers with cutting-edge information.”*

*-NHDES Coastal Watershed Supervisor*



workshop, Miller met with the engineer, who was impressed with the session and helped him develop a list of other engineers who might be interested in the workshops. The following year, Miller invited those engineers to another workshop, and a tradition was born.

The day-long workshops begin with a tour of the field-testing site, and the instructors – engineers, education staff and graduate students – explain the design and how each system works. They explain what the data tells them about the performance of each unit, including field examination and a demonstration of porous concrete and asphalt in one part of the parking lot. The workshop continues indoors over a working lunch and more presentations, followed by questions and general discussions.

“One of the challenges was to get all the people who need it comfortable with the data the Stormwater Center is generating,” Miller says. The solution was peer-to-peer interactions between the Stormwater Center engineers and the coastal development engineers. “That was fun to watch, and you could see the energy that was fueling the dialogue and learning,” Miller says.

For the past two years, the reserve has continued to sponsor development engineers to attend Stormwater Center workshops in an effort to “connect all the dots,” Miller says.

The Stormwater Center is not the only resource available

to the reserve’s training program. Miller also works with the Natural Resources Outreach Coalition (NROC) to provide stormwater management expertise and tools in all the communities where NROC has worked. The NROC partners also have collaborated on a series of workshops to promote better buffers throughout the watershed, and the reserve has independently presented programs on other tools for stormwater management, including seminars on porous concrete and pollution loading analysis, as well as workshops on New Hampshire’s shoreland protection act.

The Stormwater Center training has blossomed into additional workshops on related topics like the future effects of climate change on stormwater management, wetland buffers, state regulations and Low Impact Development.

While it is too soon to expect to see investment in new solutions to replace existing systems, Miller says he is encouraged that there is “an increased comfort level with using the Stormwater Center technologies that perform well in the New Hampshire climate. Managers are trying to encourage the use of the new technologies in their communities.

“I believe that having the Stormwater Center and being able to utilize their workshops have greatly advanced stormwater management here in New Hampshire,” Miller says.

# WELLS

Maine



Resource managers have long recognized that multiple barriers stand in the way of connecting science to management. These barriers can be based on factors ranging from differing institutional or corporate values, professional disciplines (i.e., meteorologists and hospital administrators) and individual perceptions based upon personal experiences. Cultural differences are never easy to bridge in trying to solve environmental problems. The Wells Reserve Coastal Training Program is working to bridge these cultural differences to improve water quality within the coastal watersheds of southern Maine.

Dr. Christine Feurt, adjunct faculty member for the Environmental Studies Program at the University of New England and the coastal training program coordinator for the Wells Reserve in Maine, applied groundbreaking research on collaborative learning to try to bridge these barriers between municipal, state, and federal water program managers in southern Maine. One goal of this effort has been to improve the ability of these groups to work together to address water quality issues on the Maine coast. The application of social science research to bridging barriers formed the foundation of this training program.

The effort was conceived as a project called Protecting Our Children's Water and is designed to bridge cultural barriers by building consensus across political boundaries. The common ground is a desire to plan and implement actions that will improve water quality and reduce nonpoint source pollution in coastal watersheds over a 25-year timeframe. By pursuing a long term approach and using cultural models, the Wells CTP hoped to create watershed councils as a way for municipal and community coastal managers to move beyond their cultural differences and work together to address water quality issues.

Maintaining the watershed councils requires constant attention to the needs of municipalities and a commitment to honoring the practical realities of the work environments of the people represented on them. The Wells CTP also recognizes that membership on the councils is voluntary and that individuals who participate balance conflicting priorities to manage land use and protect water resources.

Council members include representatives from local governments, as well as associations and non-profit

*“I was really impressed at the caliber of this workshop especially the level of interest of both participants and instructors ...thank you for putting this together it is a big benefit to our community.”*

*-Workshop Participant*



organizations. The members are in effect “trainers” for each other as they “learn by doing” Dr. Feurt says, through workshops, meetings and field trips.

The Protecting Our Children’s Water project values the differences between groups and uses them as a resource for collaborative learning to tackle important coastal resource issues and make progress towards achieving shared goals.

Since its inception, the project has resulted in the creation of two Watershed Councils in southern Maine. The York River Watershed Council represents the towns of York, Kittery, South Berwick and Eliot. The Little River Watershed covers the towns of Kennebunk, Wells and Sanford. These councils represent the collaborative watershed approach encouraged by the Wells CTP. Despite being new, the councils are actively improving what members know about their watersheds and are working to implement actions to solve common problems.

Elected officials from each participating township are regularly briefed on council activities and must vote to continue participating in them. Officials from all the participating townships have praised the efforts of the Wells CTP to support the councils through workshops and other training activities. One participant remarked “I was really impressed at the caliber of this workshop especially the level of interest of both participants and instructors...thank you for putting this together, it is a big benefit to our community.”

Participant evaluations and elected official support are one litmus test used to track progress. Environmental outcomes, detectable over a longer time period, are the next step in evaluating this effort. One outcome resulting from this collaborative effort is a project to develop a conservation plan in one watershed town during 2008-2009. Another outcome of membership in these councils has been the creation of strong working partnerships among the 10 municipalities, Maine Nonpoint Education for Municipal Officials program, Maine Source Water Program, water districts, Southern Maine Regional Planning, and Wells Reserve.

The social science research supporting the development and implementation of the Protecting Our Children’s Water project was supported by two grants from the Cooperative Institute of Coastal and Estuarine Environmental Technology (CICEET), a NOAA/ UNH partnership supporting research based within the NERRS. The continued support of these partners for the project has expanded the training capacity within the Wells NERR CTP to engage with municipalities and coastal management professionals using collaborative learning techniques.



## Coastal Processes and Shoreline Stabilization Measures Workshop – *Padilla Bay NERR*

Padilla Bay NERR annually offers a two-day class designed to give shoreline planners a working knowledge of the physical processes that shape marine shorelines and how these shorelines can be impacted by development. The first day of the training covers basic coastal information, natural shoreline processes, bluff processes, and issues of human modifications. The second day focuses on applications, including approaches to site evaluation, avoiding natural hazards, shoreline stabilization, and alternative methods of erosion control. Taught by coastal geologists from private industry and the state's Department of Ecology, the state partner for Padilla Bay NERR, the class format allows the instructors to show students a wider variety of shorelines, as well as examples of effective and ineffective shoreline stabilization efforts. This class is part of the reserve's core curriculum, and it is offered every spring in either South Sound or North Sound. The class has a strong reputation, and it fills every time the reserve offers it. Its instructors are considered to be top experts in the state of Washington and have superb reputations in their field.

## CTP Coordinators in the NERRS, 2008

Last Name	First Name	Reserve	State
Angell	Cathy	Padilla Bay	WA
Auermuller	Lisa	Jacques Cousteau	NJ
Bragg	John	South Slough	OR
Elmer	Heather	Old Woman Creek	OH
Erdle	Sandra	Chesapeake Bay Virginia	VA
Feurt	Christine	Wells	ME
Hanisko	Marian	Grand Bay	MS
Hauser	Emilie	Hudson River	NY
Hayes	Grey	Elkhorn Slough	CA
Healey	Martin	Guana Tolomato Matanzas	FL
Jenkins	Whitney	North Carolina	NC
Kilcollins	Rosalyn	Apalachicola	FL
Land	Sasha	Chesapeake Bay Maryland	MD
Leister	Chad	Mission-Aransas	TX
Miller	Steve	Great Bay	NH
Psaros	Marina	San Francisco Bay	CA
Ramirez	Lillian	Jobos Bay	PR
Rogers	Tonna-Marie	Waquoit Bay	MA
Romo	Oscar	Tijuana River	CA
Saladin	Nicole	North Inlet-Winyah Bay	SC
Shelton	Mike	Weeks Bay	AL
Stadler	Tabitha	Rookery Bay	FL
Szivak	Rebekah	ACE Basin	SC
Thompson	Terry	Kachemak Bay	AK
VanParreren	Suzanne	Sapelo Island	GA
West	Jennifer	Narragansett Bay	RI



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