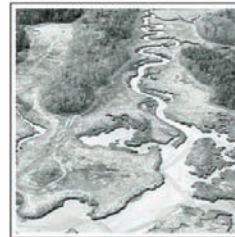
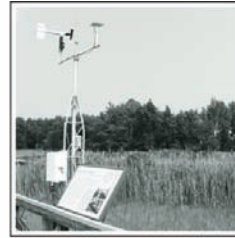


# National Estuarine Research Reserve System



# 2006

*Accomplishments Report*





Director, Ocean and Coastal Resource Management: David Kennedy  
Acting Deputy Director, Ocean and Coastal Resource Management: Laurie McGilvray  
Acting Chief, Estuarine Reserves Division: Kate Barba

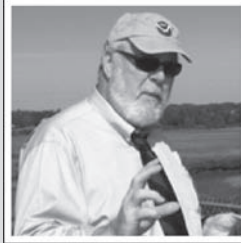
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## Table of Contents

<b>1</b>	Greeting
<b>2</b>	Budget Allocations – 2005-2006
<b>3</b>	NERRS Adopts New Five-Year Plan
<b>5</b>	Mission-Aransas NERR Officially Designated
<b>6</b>	NERRS Is Part of Coastal Seamless Network
<b>7</b>	News from the Sectors
<b>7</b>	<i>Education</i>
<b>9</b>	<i>Research/Monitoring</i>
<b>11</b>	<i>Coastal Training Program</i>
<b>12</b>	<i>Stewardship</i>
<b>13</b>	<i>CICEET</i>
<b>14</b>	<i>ERD Activities</i>
<b>16</b>	Around the Reserves
<b>22</b>	NERRS Map





DAVID KENNEDY



LAURIE MCGILVRAY



KATE BARBA

## Greetings

It is our pleasure to report to our many supporters and constituents on the accomplishments of the National Estuarine Research Reserve System during Fiscal Year 2006. It has been an exciting and productive year for this landmark federal-state partnership, as exciting for the future it foretells as for the achievements gained.

Over the course of the year, we endured a hurricane that postponed but did not cancel our annual meeting; we welcomed the 27th reserve into the system with the designation of the Mission-Aransas NERR in Texas; we completed and adopted a fresh strategic plan and a detailed research and monitoring plan to guide us in the next half decade and beyond; we installed the infrastructure to connect our System-Wide Monitoring Program with the growing Integrated Ocean Observing System; and we adopted performance measures that will ensure full accountability for all our activities.

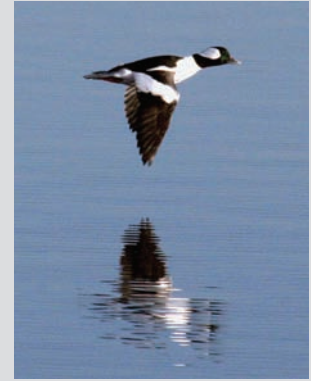
As always, the real work of the National Estuarine Research Reserve System has been taking place in the reserves themselves. Our site-based and regional research, education, stewardship and training programs have continued to grow and to serve the states, the public and our vital coastal and estuarine resources. The last five pages of this report are devoted to a sample of activities at each of the reserves. The reported activities are the mere tip of an iceberg. The bulk of the activity is much greater. All of it is filled with the extraor-

dinary energy and dedication of the reserve staff members themselves.

At NOAA headquarters in Silver Spring, the staff of the Estuarine Reserves Division is equally dedicated to providing the support needed in the reserves, from programmatic guidance to grants management.

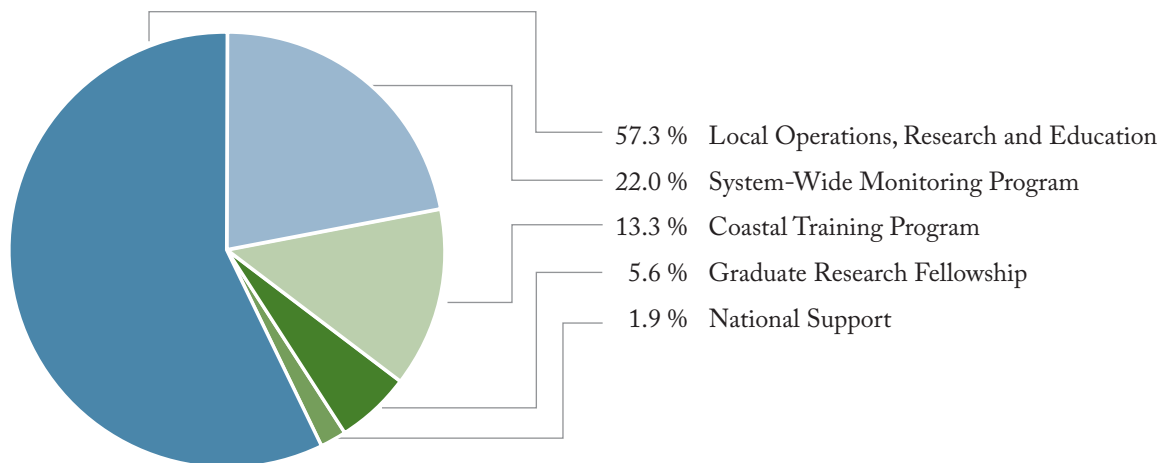
This past spring, David Kennedy, former director of NOAA's Office of Response and Restoration, was named to replace the retiring Eldon Hout as director of the Office of Ocean and Coastal Resource Management. David in turn asked Estuarine Reserves Division Chief Laurie McGilvray to serve a four-month detail as acting deputy director of OCRM, and Deputy Chief Kate Barba assumed the role of acting chief. Under David's direction, and in close collaboration with NOAA's National Ocean Service, we are now in the process of developing a new vision for management of the nation's coasts and oceans.

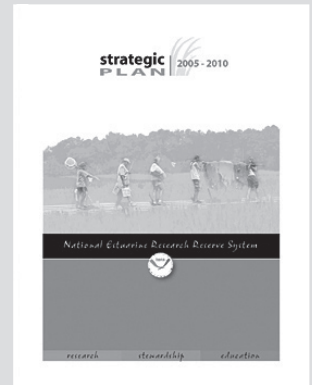
This is a critical time for all our marine resources. Two ocean commissions have outlined the challenges and needs we face, and the Administration's Ocean Action Plan is a first step toward addressing the issues. The National Estuarine Research Reserve System will play an increasingly important role not only in developing our knowledge and understanding of estuarine habitats but also in helping to find solutions for their management. We look forward to continuing to work together with our state partners to achieve the visions we have created for ourselves.



## Budget Allocations – 2005-2006

Funding allocations for FY 2005 and 2006 reflect the national priorities outlined in the reserve system's strategic plan and in its Congressional mandates. NOAA provides 70 percent of reserve system funding, and the states are required to match 30 percent. Monies for land acquisition require a 50:50 federal-state match. In FY 2006, the reserve system expended \$21.1 million in federal funding. The Reserve System was allocated \$4.93 million in federal construction and land acquisition funds. The chart below represents the allocation of the remaining \$16.17 million in federal program implementation funds for FY 2006.





## NERRS Adopts New Five-Year Strategic Plan

<b>Vision:</b>	Healthy estuaries and watersheds where coastal communities and ecosystems thrive.
<b>Mission:</b>	To practice and promote coastal and estuarine stewardship through innovative research and education, using a system of protected areas.
<b>Goals:</b>	<ol style="list-style-type: none"> <li>1. Strengthen the protection and management of representative estuarine ecosystems to advance estuarine conservation, research and education.</li> <li>2. Increase the use of reserve science and sites to address priority coastal management issues.</li> <li>3. Enhance peoples' ability and willingness to make informed decisions and take responsible actions that affect coastal communities and ecosystems.</li> </ol>

McGilvray praised the Strategic Committee for the painstaking process they followed to develop the new plan, and for the thoroughness of the resulting document.

Led by ERD Program Specialist **Cory Riley**, ERD staff members and members of the Strategic Committee completed a comprehensive literature review that included commission reports, science to management surveys, agency reports and NOAA strategic documents. From

The National Estuarine Research Reserve System began following a new roadmap this year with the adoption of the revised 2005-2010 Strategic Plan, which articulates how the system will apply its capacity in stewardship, research, education and training to pressing coastal management challenges.

“The new strategic plan is more results oriented and more specific than previous plans. It is a focused and relevant blue print for reserve system activity for the next five years,” said **Laurie McGilvray**, acting deputy director of NOAA’s Office of Ocean and Coastal Resource Management.

the literature review the group wrote a summary of pressing research, education, training, and coastal management challenges, opportunities, and needs. Each of the reserve system sectors (education, training, research and stewardship) reviewed the summary at winter meetings in 2006 to do a “reality check” on the literature review and to generate ideas about which topics were well suited for the reserve system to tackle.

The Strategic Committee considered the results of the literature review, sector feedback, and reserve system regulations and strengths to revise the mission and vision; brainstorm key concepts

for the goals and objectives; and to refine the key coastal management issues that the system should address over the next five years.

Out of the wide range of topics reserves work on, and will continue to work on, four topics rose to the top as deserving of adequate and strategic investment for the national system:

- land use and population growth;
- water quality degradation;
- habitat loss and alteration; and
- changes in biological communities.

ERD staff then worked with the Strategic Committee to develop an outline and draft plan for review. The draft plan was circulated to reserve staff for comments, and ERD encouraged reserves to distribute the plan to state partners for input. The content was finalized and the document was printed and posted to the Web ([http://www.nerrs.noaa.gov/Background\\_StrategicPlan.html](http://www.nerrs.noaa.gov/Background_StrategicPlan.html)) in spring 2006. The NERRS Action Plan is now being developed to help staff focus efforts strategically to help the system achieve the Strategic Plan's objectives.

The four high priority topics identify science and training needs for coastal managers. Reserve scientists, educators and land managers have identified these topics as locally and nationally important as well as being appropriate to the mission of the system. Knowing more about these topics will improve the system's ability to protect and restore coastal watersheds and estuaries and empower individuals to make informed decisions.

The nation's coasts and estuaries need to be managed, understood and appreciated at multiple scales. Through its network of locally oriented programs around the country, the reserve system provides insight into common information and management needs and provides data for use by local, regional and federal scientists and decision makers. Working at the site level and as a national system, reserves have a larger impact than could be achieved through community efforts alone.

The goals, objectives and strategies outlined in the Strategic Plan will guide and support the National Estuarine Research Reserve System in its nation-wide efforts to improve coastal management, advance estuarine research, and educate current and future generations of coastal stewards.



## Mission-Aransas NERR Officially Designated



The National Estuarine Research Reserve System added a new reserve for the first time in three years when **Vice Admiral Conrad C. Lautenbacher** (USN-Ret.), NOAA administrator, signed official designation papers for the Mission-Aransas National Estuarine Research Reserve in Texas on May 3, 2001. Three days later, Lautenbacher participated in ceremonies in Port Aransas, Tex., celebrating the designation along with **John H. Dunnigan**, assistant administrator for NOAA's National Ocean Service, **William C. Powers**, president of the University of Texas, **Sen. Kay Bailey Hutchison** (R-TX) and other state and local dignitaries.

Mission-Aransas is the 27th reserve, and it is the third largest in the system, with more than 185,000 acres. It is managed by the University of Texas at Austin Marine Science Institute, in cooperation with the Texas General Land Office, the U.S. Fish and Wildlife Service, the Texas Parks and Wildlife Department, the Coastal Bend Land Trust and the private Fennessy Ranch, a working cattle ranch, all of which are property owners within the Reserve, as well as local municipalities and non-governmental organizations.

Named for the two major rivers that flow into the estuary, Mission-Aransas supports a wide variety of natural systems, including upland fresh water streams and riparian habitats, coastal prairie, seagrass meadows, mangroves, oyster reefs, open bays and beaches. Resident wildlife includes alligators, ospreys, egrets and the endangered whooping crane, as well as oysters, crabs and many species of fish.

Mission-Aransas also supports a wide variety of human activities, including cattle ranching, oil and gas exploration, commercial and recreational fishing and shellfishing, hunting, camping and birdwatching. Under the reserve's management plan, all of these activities continue.



## NERRS Is Part of Coastal Seamless Network

NOAA and the Department of the Interior signed a Memorandum of Agreement in August to increase the coordination of parks, sanctuaries, reserves, including National Estuarine Research Reserves, and refuges in their efforts to develop a seamless network to protect and conserve the nation's ocean and coastal refuges, reserves, parks and sanctuaries.

The National Estuarine Research Reserve System is a vital part of the network of coastal protected areas and was well represented in an August summit of senior leaders from NOAA and the Department of the Interior to discuss existing collaborations and future opportunities. **Laurie McGilvray** attended the conference on behalf of the reserve system. Other agencies included NOAA's National Marine Sanctuary Program, and the Department of Interior's U.S. Fish and Wildlife Service and National Park Service.

Tim Keeney, Deputy Assistant Secretary of NOAA, called the agreement "an important step

in implementing the President's U.S. Ocean Action Plan. Our increased coordination will mean better management and protection of some very special marine and coastal areas both in the immediate future and for generations to come."

The President's U.S. Ocean Action Plan charged the programs to better manage special marine and coastal areas. When implemented, the Seamless Network agreement will facilitate and enhance scientific understanding and conservation of coastal and marine resources, and increase coordination with state, public, and private partners.

Although they were created under separate authorities, these programs share similar resource management concerns. The result of this agreement will be greater operational and administrative efficiencies. It will include expanded partnerships among parks, refuges, sanctuaries, and reserves where they overlap or adjoin each other, and where they address similar issues of conservation and management.



## News from the Sectors

*The National Estuarine Research Reserve System was created by the Coastal Zone Management Act of 1972 to promote scientific research, education and stewardship in estuarine habitats. At the reserves, these activities are carried out by coordinators who also work together in formal networks with their counterparts at other reserves around the country and with the national coordinators at ERD in Silver Spring. These “sectors” provide much of the programmatic innovation and future direction for the research reserve system.*

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### ***Education***

#### **IOOS/SWMP K-12 Teacher Needs Assessment is finalized**

The reserve system Education sector has completed a thorough K-12 Teacher Needs Assessment to determine how much of a gap exists between reserve system monitoring data and the needs and abilities of students and teachers to use those data. The assessment report will recommend data visualization and presentation methods as well as educational products and services to bridge the gap. The K-12 education community has expressed great expectations for the assessment results because of the rigorous approach taken to understand the issues. **Janice McDonnell** from the Jacques Cousteau reserve worked with Word Craft Inc. to implement the assessment project, which included an extensive literature review, stakeholder survey and regional focus group sessions. The assessment is one step in a strategic process in the development of elements of the K-12 Estuarine Education Program.

#### **KEEP Progress**

The K-12 Estuarine Education Program (KEEP) got a shot in the arm with the announcement of a \$100,000 Mini Grant from NOAA’s Office of Education for another important teacher needs assessment. The grant for “Bridging the Gap: Assessing the Needs of Teachers to Enhance NOAA’s Earth Systems Science Education” will help the reserve system education sector clearly define K-12 teacher needs and preferences in bringing NOAA and NERRS content into their classrooms. It also will address obstacles and opportunities in teaching about estuaries.

The assessment will help spur the development of KEEP, which will offer teacher training and web-based programs about estuaries. The assessment will be developed in collaboration with other NOAA offices, including National Weather Service; Climate Program Office; Coastal Services Center; Fisheries, Habitat Protection Division; and the Center for Operational Oceanographic Products and Services.

## Estuaries.gov Web Site Wins Recognition

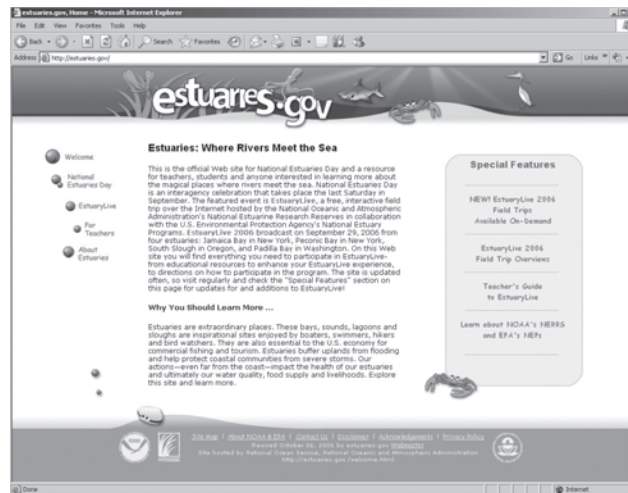
The Web site for the EstuaryLive interactive field trip event, <http://www.estuaries.gov>, was selected by the Bridge Website as the June “TROLL Top Pick” (Teacher Reviewer of On-Line Learning), <http://www.marine-ed.org/bridge>. The teacher who reviewed [estuaries.gov](http://www.estuaries.gov) wrote: “Are you land locked? Would you like to take your students to the coast? You too can help celebrate National Estuary Day (9/30/06) with a virtual interactive field trip. Site includes lesson plans.” The Bridge is a growing collection of the best marine education resources available on-line. It provides educators with a source for useful information on global, national, and regional marine science topics, and gives researchers a contact point for educational outreach.

## Educators Make Impact at NMEA Conference

Nearly a dozen Education Coordinators and ERD staff made presentations and led sessions at the 2006 conference of the National Marine Educators Association in Brooklyn, N.Y., this year. Most of the NERRS-led sessions focused on integrating reserve research projects into educational programs. Reserve educators attending the conference represented **Grand Bay reserve** in Mississippi, **North Inlet-Winyah Bay reserve** in South Carolina, **Waquoit Bay reserve** in Massachusetts, **Narragansett Bay reserve** in Rhode Island; **Hudson River reserve** in New York, **Jacques Cousteau reserve** in New Jersey and the **North Carolina NERR**. ERD staff members Atziri Ibañez and Amy Clark also made presentations. More than 300 teachers and other educators from throughout the country attended the NMEA meeting.

## E-Live Activities

The 2006 edition of EstuaryLive featured live virtual field trips to two reserves, **South Slough** and **Padilla Bay**, during the one-day annual event. The partnership with the Environmental Protection Agency’s National Estuary Program offered a total of four Internet broadcasts that also included three of the EPA sites. South Slough teamed up



with Tillamook Bay NEP for its segment. The programs were scheduled to provide equal convenience to schools on both the East and West Coasts. The five-year old EstuaryLive program will probably have a different look in 2007 and 2008, with a single national broadcast in the fall and a series of regional broadcasts in the spring.

The popular program reaches an estimated 30,000 students in its live segments and as many as a million total viewers who watch on cable stations and at institutions like aquaria.

## Education Calendar on Line

The NERRS Web site ([www.nerrs.noaa.gov](http://www.nerrs.noaa.gov)) now includes a calendar of educational activities and events throughout the reserve system. Education coordinators can enter their activities through the NERRS Intranet site, and visitors can search the calendar by date, reserve and category of event. Past calendar entries are archived. The new calendar is designed to increase awareness of the breadth of educational activities offered at all of the reserves.

## Awards for Educators

The Delaware Department of Natural Resources and Environmental Control, partner agency with the reserve system in Delaware, took first place in the curriculum category of the National Association for Interpretation’s awards for “Green Eggs and Sand: The Horseshoe Crab/Shorebird Education Project.” The award was presented to the Green Eggs and

Sand project team, including **Katy O'Connell**, education coordinator at Delaware NERR. The program, initiated in 2000, is a scientifically and educationally sound, innovative and flexible resource for educators teaching about horseshoe crabs, migratory shorebirds and human interactions with both, as well as natural resource management.



*Angie Golubovich*

Guana Tolomato Matanzas NERR's Environmental Educator **Angie Golubovich** won the John Beakley Marine Science Educator of the Year award, presented by the Florida Marine Science Educators

Association to recognize educators who demonstrate a dedication to promoting and developing marine science programs in Florida.

**Weeks Bay reserve** in Alabama took third place in the Youth/Education category of EPA's Gulf Guardian Awards for its "Grasses in Classes Program," which will facilitate the establishment and maintenance of nurseries by Baldwin County school students to grow native plants for submerged, wetland and dune restoration projects. By raising the plants to maturity and keeping half of the plants for future propagation, the nurseries will provide a continual inexpensive source of plants to be used in many federal, state and local habitat restoration projects in the Baldwin County area.

The Baldwin County "Grasses in Classes" program, organized by **Margaret Sedlecky**, education coordinator at Weeks Bay, will also provide a volunteer base for implementation of restoration projects and will promote student involvement in community-based restoration activities. With guidance from teachers and experts, the students will maintain and monitor the nursery at their school. Students will also assist local scientists with monitoring the restoration sites during the school year.

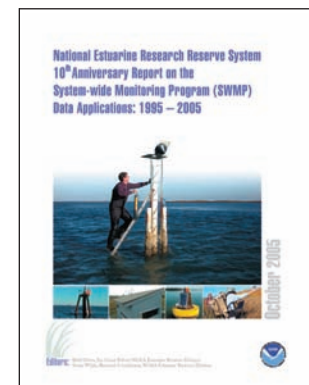
**Grand Bay reserve** in Mississippi also took a third place in the Gulf Guardian awards in the Partnership category for its "Grand Bay Bioblitz Program," a 24-hour marathon inventory of flora and fauna in the 18,400-acre reserve conducted every spring. The program is organized by a variety of partner agencies and organizations and relies on volunteers from the local public. Bioblitz brings together scientists, educators and the community to survey and increase awareness of the reserve's natural resources. The program is directed by **Jennifer Buchanan**, education coordinator at Grand Bay. The Gulf of Mexico Program developed the Gulf Guardian awards as a method of recognizing and honoring the businesses, community groups, individuals, and agencies that are taking positive steps to keep the Gulf healthy, beautiful and productive. Awards are given each year in six categories - individual, business, youth and education, nonprofit organizations, government and partnership efforts. The Gulf of Mexico Program began in 1988 to protect, restore, and maintain the health and productivity of the Gulf of Mexico ecosystem in economically sustainable ways.

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## *Research/Monitoring*

### **SWMP Report**

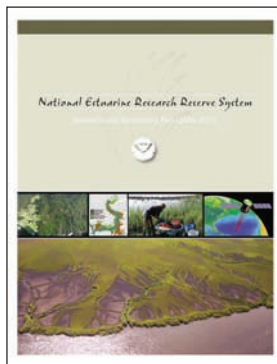
The Estuarine Reserves Division celebrated 10 years of the System-Wide Monitoring Program with the publication in March of the "10th Anniversary Report on the System-Wide Monitoring Program (SWMP) Data Applications: 1995-2005. SWMP began recording and reporting water quality and weather data from the reserves around the country in 1995. The new report highlights 10 years of SWMP data use in coastal management, stewardship and education. The report chronicles the history and growth of the program, and previews the future as SWMP adds bio-monitoring



capabilities and establishes protocols for watershed and land use classification. The established SWMP network is also beginning to provide real-time data for the burgeoning Integrated Ocean Observing System. The full report is on line at <http://www.nerrs.noaa.gov/Monitoring/report.html>.

### Research Plan

ERD has published the NERRS “Research and Monitoring Plan (2006-2011)” to guide system-wide research efforts for the next five years. The plan describes the current state of reserve system research and monitoring activities, identifies five research priority areas, and outlines strategies for achieving the system’s research goals. The research priorities are

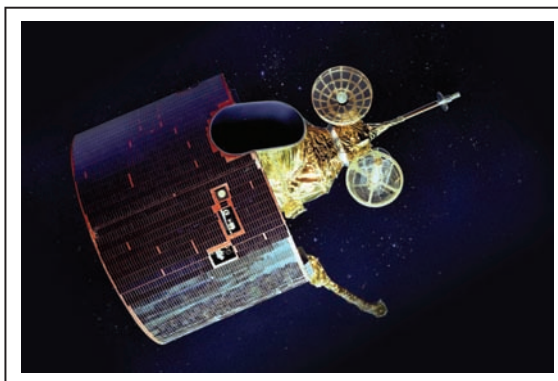


- Habitat and Ecosystem Coastal Processes
- Anthropogenic Influences on Estuaries
- Habitat Conservation and Restoration
- Species Management
- Social Science and Economics

The plan is on line at [http://nerrs.noaa.gov/pdf/Research\\_Monitoring.pdf](http://nerrs.noaa.gov/pdf/Research_Monitoring.pdf).

### IOOS and Telemetry

The System-Wide Monitoring Program joined the space age in 2006 as each of the reserves received telemetering equipment and began sending weather data to satellites for distribution to weather forecasters and other users in near-real time. The telemetering project has taken place in phases through 2006, with the first instruments being delivered to reserves in the Southeast and Gulf Coast states in time for hurricane season. Weather data are uploaded to the Geostationary Operational Environmental Satellites System and transmitted to the National Weather Service’s Hydrometeorological Automated Data System. Using state-of-the-art technology, data are collected every 15 minutes, transmitted hourly through satellites to direct and local readout ground stations, and can be viewed online within minutes of transmission. The addition of estuarine weather data to the growing mix of available information will greatly enhance the accuracy of weather and flooding forecasts. By the end of 2006, all reserves are scheduled to have the capability of telemetering both water quality and weather data. Near real-time data can be viewed on line at <http://cdmo.baruch.sc.edu/QueryPages/RTSmap.cfm>.



### NERRS Data Sites On Google Earth

The exact locations of all of the water quality dataloggers and weather stations in the National Estuarine Research Reserve System are now mapped on the popular interactive Google Earth mapping system, thanks to **Jay Poucher** at the Baruch Institute at the University of South Carolina. Poucher was working on the real-time data project for the NERRS System Wide Monitoring Program and needed to track precise locations for the telemetry project that provides real-time data to the NESDIS Geostationary Operational Environmental Satellites (GOES) system, for decoding by the National Weather Service’s Hydrometeorological Automated Data System (HADS). Google Earth is a free program available at

<http://earth.google.com/>. It runs on the desktop and allows users to customize maps for their use or view and edit maps made by others. The reserve file can be downloaded from <http://jellyfish.geol.sc.edu/NERRS-Reserves/reserves.kmz> and then viewed on Google Earth.

### **EPA Monitoring Series**

Susan White, national research coordinator for the reserve system, led an eight-month series of telephone call-in lunch conversations about monitoring, research and environmental indicators with staff members of the Environmental Protection Agency's National Estuarine Programs (NEP). EPA and NOAA are seeking to improve connections between the reserve system and the NEP and saw the summer series as a good place to start. Topics included historical ecology, biological monitoring, community-based restoration science, emergency response studies and social sciences and adaptive management in coastal environments. A number of reserve staff members made presentations and participated in the conversations.

### **Technical Series**

A new report in the Estuarine Reserves Division on-line Technical Series identifies wakes from boats traveling in the Intracoastal Waterway as a significant cause of erosion in the Guana Tolomato Matanzas reserve in St. Johns and Flagler Counties in Florida. Franklin D. Price analyzed

nearly 64 km of channel margin along the Waterway where it traverses the NERR. The analysis revealed that about 170 acres of channel margin had been eroded from 1970-71 to 2002, in some cases degrading salt marsh and oyster bars to sand flats. Price's analysis found that exposure to boat wakes was the "causal factor most strongly correlated" with the rate of erosion. Price conducted the analysis as part of his master's thesis in Urban and Regional Planning at Florida State University. Read the report at [http://nerrs.noaa.gov/TechnicalReport/channel\\_erosion.html](http://nerrs.noaa.gov/TechnicalReport/channel_erosion.html) to learn more about the project.

### **Graduate Research Fellows**

The Estuarine Reserves Division named 23 new Graduate Research Fellows (GRFs) to study a wide range of topics at National Estuarine Research Reserves for one to three years. The new fellows, who will receive NOAA grants of \$20,000 per year for their studies, will conduct their research in 16 of the 27 reserves in the system. Another 25 GRFs continue their research on existing grants during the coming year. The new fellows are taking on such issues as mercury transport in diamondback terrapins; estuarine nutrient loads; invasive species; fish habitat identification using GIS and many others. The GRF program has provided a living laboratory for developing scientists for 10 years. Research findings support education programs for students and training programs for coastal decision makers.

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## ***Coastal Training Programs***

### **CTP on the Web**

The Coastal Training Programs section of the NERRS Web site ([www.nerrs.noaa.gov](http://www.nerrs.noaa.gov)) got several enhancements this year to help with program awareness. First, a collaborative slide show that was created for the 2005 annual meeting was converted to a PDF document for printing and a Web site to showcase representative highlights of CTP events from throughout the system. The report, which will be updated annually, includes descriptions of key programs at 20 of the reserves.

The Web site is searchable by reserve and by training topic.

The training section of the Web site also now includes a calendar of CTP activities from throughout the system, and CTP coordinators now have the ability to enter their events on-line themselves. The calendar gives contact information and links to background for each event, and by aggregating the events it demonstrates the breadth of CTP activities and topics covered around the country.

## On-line Courses

**Jacques Cousteau reserve** in New Jersey offered the first-ever on-line Coastal Training Program class twice during the spring. The five-week class for municipal staff members throughout New Jersey was designed to address the state's land use permitting process and regulations, which many municipal staff find confusing and frustrating. The course provide participants with background information on the resources that land use regulations are protecting and how various permitting programs are structured. Participants can log on at any time of the day or evening during the five weeks of the course. The seminar was divided into five modules, each composed of a lecture, interactive discussion board, and interactive quiz. Each module took one hour to complete. A final quiz evaluated student s ' mastery of the subject. Participants who completed all modules received continuing education credits. The seminar was offered in March and again in May.

## Four NERRs Present Workshop on Wetlands Restoration

Four West Coast National Estuarine Research Reserves collaborated to present a day-long workshop on "Adaptive Restoration of the West Coast's Tidal Wetlands" in January. **San Francisco Bay, Elkhorn Slough, and Tijuana River reserves** in California and South Slough in Oregon all partnered on the program.

The recognition of the value of tidal wetlands has led to an unprecedented national focus on their restoration. In spite of several decades of tidal wetlands restoration experience, but there has been little long-term monitoring of the projects, little

sharing of available data, and only rare comparisons across sites. The workshop defined principles of adaptive management to achieve consistent success in restoring tidal wetlands. These principles entail designing projects to answer questions challenging the success of tidal wetland restoration, collecting and sharing data on relevant geographical and time scales, and adapting future restoration methodologies to respond to past trends.

## Cross Border Watershed Management Plan a Success



The City of Tijuana, Mexico, working with the Tijuana River reserve in California, adopted a master plan for Los Laureles Canyon. This plan will guide local development of this important sub-basin of the Tijuana River which flows into the reserve. Utilizing a watershed-based planning approach, the plan works to ensure that cross-border environmental concerns are addressed as Los Laureles Canyon improves the social and economic health of local inhabitants. The plan is the result of three years of CTP efforts to educate decision-makers at all levels about the importance of using an integrated watershed approach for environmentally sensitive areas in the Tijuana watershed.

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## Stewardship

### Habitat Classification Scheme and Draft Habitat Mapping and Change Plan

The Habitat Mapping and Change Technical Committee completed the development of the

reserve system's habitat classification scheme. Nearly all reserves have either implemented or agreed to implement the scheme in FY2006 for the first system-wide pilot of the scheme. The Habitat Mapping and Change Committee has been working on an outline for a system-wide Habitat Mapping and Change Plan.



### Restoration Science Initiative

The Restoration Science Workgroup was charged with fostering greater partnerships with other NOAA programs to support restoration science in the reserve system. As part of that effort, the NOAA Habitat Science Roundtable was formed to provide an opportunity for NOAA science programs to more easily seek partnership opportunities across NOAA and with NOAA stakeholders. The roundtable has met to develop its first-year priorities, which include holding regular meetings; developing information tools to identify funding opportunities across NOAA; NOAA capabilities by programs; and FY2007 priorities.

The Restoration Science Workgroup is also working with the Restoration Center and the SWMP biomonitoring workgroup to identify submerged aquatic vegetation monitoring strategies for reference sites in reserves and partnership opportunities to fund monitoring and training efforts.

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### CICEET

*The Cooperative Institute for Coastal and Estuarine Environmental Technology (CICEET) is a partnership between NOAA's Estuarine Reserves Division and the University of New Hampshire to support research and development of technologies that address coastal environmental issues. CICEET uses the capabilities of UNH, the private sector, academic and public research institutions throughout the U.S., as well as the 27 National Estuarine Research Reserves (NERRS), to develop and apply new environmental technologies and techniques.*

### Maturing Technology

CICEET has invested in more than 150 coastal technology development and application projects since its inception in 1997. Each year, several of these technologies mature into usable tools for coastal resources managers. In 2006, new tools included an autonomous, multi-purpose water quality sampler; a data communications system that provides real-time communication between the field and the lab; sustainable bi-directional tide gates for salt marsh restoration; a permeable reactive barrier to treat contaminated sediment; and an innovative denitrification process for septic systems. Learn more by searching CICEET's Project Explorer: <http://ciceet.unh.edu>

Mississippi, Maryland, Virginia, New Hampshire, Maine, Massachusetts, Rhode Island, and New York. Projects range from tools to detect harmful algal blooms and restore sea grass to innovative approaches to remediate sediment and manage nutrient pollution.

Information on CICEET's current Request for Proposals is available at <http://ciceet.unh.edu>. This RFP contains a pilot land use tools focus area that benefits from CICEET's new approach to needs assessment—working with colleagues nationwide to clarify the technical, social, political, and regulatory context of specific coastal management problems before funding projects.

### \$3.6 million for New Coastal Technology Projects:

CICEET awarded \$3,650,337 for 15 new coastal technology projects that began in fall 2006. The projects are taking place in Alabama, North Carolina, South Carolina, Texas, California, Oregon, Missis-

### CICEET Partners in Regional System-Wide Monitoring Program Synthesis

In response to a request from the reserve system, CICEET solicited proposals for projects to summarize and interpret System-Wide Monitoring

Program (SWMP) data, relevant ancillary research, and monitoring datasets at two levels: the individual reserves within a bioregion and the scale of the entire bioregion. Each regional data synthesis includes data collected from other regional programs and demonstrates the benefits of coupling SWMP data with other regional research and monitoring datasets.

### **New from the CICEET Library**

#### UNH Stormwater Center 2005 Data Report

The CICEET-sponsored University of New Hampshire Stormwater Center published its first data report. The report—available free to managers nationwide—summarizes the results of a year of stormwater treatment evaluation and testing. The report is on line at [http://ciceet.unh.edu/news/releases/stormwater\\_report\\_05/](http://ciceet.unh.edu/news/releases/stormwater_report_05/)

### **Putting beach water quality testing to the test**

Every year, thousands of beaches are closed due to fecal contamination. Current bacterial indicator testing methods can take days to show results.

Consequently, contaminated beaches often remain open when they should be closed, and clean beaches are often closed after the threat has washed away. With support from CICEET, the Southern California Coastal Water Research Project (SCCWRP) compared new microbial testing methods with the potential to make same-day health risk warnings possible. The results were published in a report, now available online: <http://ciceet.unh.edu/news/releases/sccwrpReport/sccwrpReport.html>

### **Now you see it, now you don't:**

Coastal development can intensify erosion and lead to the loss of ecosystems and natural features that are the foundation of local economies. CICEET partnered with the Ocean Studies Board of the National Academies of Science to conduct a study of the impacts of shoreline management on sheltered coastal environments. A new report, based on the study, provides a framework for different levels of government, conservation groups, and property owners to decide how best to protect the shoreline.

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## ***ERD Activities***

*The staff of the Estuarine Reserves Division in Silver Spring, Md., and Durham, N.H., help to coordinate the reserve system's national programs, serve as liaisons with reserve sites and staff, and manage the federal grants that help to fund reserve operations. Many staff also participate in professional activities and partnerships with other agencies and non-profits to enhance the effectiveness and raise the visibility of national programs and activities. Here are some examples.*

- The Estuarine Reserves Division exhibited the integration of System-Wide Monitoring Program data into the Hydrological Automated Data System (HADS) at the two-day National Weather Service Open House at the forecast station in Sterling, Va., in April. The display spotlighted the telemetering of real-time coastal weather information to weather forecast offices. Several hundred people visited the open house over the weekend.
- **Dr. Dwight Trueblood**, NOAA co-director of the Cooperative Institute for Coastal and Estuarine Environmental Technol-

ogy (CICEET), hosted an exhibit at the 2006 National Monitoring Conference in San Jose, Calif., in May. **Dr. Susan White**, national research coordinator for the Estuarine Reserves Division, made a presentation on the System-Wide Monitoring Program at the same conference. Sponsored by the National Water Quality Monitoring Council and co-sponsors including the Environmental Protection Agency and the U.S. Geological Survey, the conference brought together professionals from community-based, state, tribal, national, and international water

quality monitoring programs. The CICEET exhibit highlighted sponsored technologies and programs designed to enhance monitoring capacity and prevent the future impacts of pollution on water quality.

- **Trueblood** also exhibited at the Ocean Sciences meeting held in Hawaii. Sponsored by the American Geophysical Union, the American Society of Limnology and Oceanography, and the Oceanographic Society, the conference brought together researchers, students, and consultants to review the latest issues and studies on ocean sciences and related areas. Trueblood's exhibit focused on coastal environmental technologies and programs developed through CICEET sponsorship. These included habitat restoration tools such as a salt marsh restoration planning model; a visual interface for real-time water quality monitoring; and the University of New Hampshire Stormwater Center, the only one of its kind to compare stormwater treatment systems in a side-by-side setting.
- **Susan White** and Program Specialist **Cory Riley** presented a paper on the System-Wide Monitoring Program at the Coastal Society's Biennial Conference in Florida. White and Riley presented case studies of innovative ways that reserves use technology to improve monitoring (CICEET remote sensing techniques at North Inlet-Winyah Bay Reserve and water quality mapping in Virginia), to bring relevant science and monitoring data to management (restoration at the Wells

Reserve and oyster management at the Apalachicola Reserve), and to bolster education and training activities (EstuariesLive and educators' use of real time monitoring data and nutrient modeling workshops with the coastal training program).

- ERD Project Manager **Erica Seiden** joined environmental representatives from the five Gulf of Mexico states at the Rookery Bay reserve for the first Gulf of Mexico Alliance Education and Outreach Network meeting. The three-day event provided an opportunity for members of marine research centers, aquaria and education facilities, and other environmental organizations to explore activities, roles and outcomes related to the two goals outlined in the Gulf of Mexico Governors Action Plan for Healthy and Resilient Coasts. The plan outlines the network's goals to increase awareness and stewardship of Gulf coastal resources, and associated actions to meet those goals.
- A number of ERD and reserve system staff, as well as Graduate Research Fellows and non-affiliated researchers using reserve system data, presented papers on submerged aquatic vegetation, benthic mapping and other topics at the Estuarine Research Federation Conference in Norfolk in fall 2005. Other NOAA presentations highlighted research and methods for science transfer to the management audience along with other work being done through the Coastal Training Program.

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## *Around the Reserves*

*As always, the 27 National Estuarine Research Reserves have been busy throughout the past year. This section describes some of the highlights from each reserve to provide a sample of what reserve staff members have been doing.*



**Rep. Tom Allen** (D-ME) and **Timothy R.E. Keeney**, deputy assistant secretary of Commerce for Oceans and Atmosphere, were among the national, state and local officials celebrating the opening of Alheim Commons, the new 20-bed lodging facility for visiting scientists, educators and students, at **Wells reserve** in June. The ceremony also celebrated the recent acquisition of a 2.5-acre land parcel that preserves the view of the reserve and coast from the reserve headquarters on the Laudholm Farm.

**VADM Conrad C. Lautenbacher** (USN-Ret.), NOAA administrator, joined **Sen. Judd Gregg** (R-NH) and other state and local officials and volunteers to celebrate the dedication of the Hugh Gregg Coastal Conservation Center at the **Great Bay reserve** in June. More than 100 guests, including members of the Great Bay Stewards volunteer group, OCRM Director **David Kennedy** and other NOAA officials, were on hand for the celebration.

**Brendan Annett**, long time stewardship coordinator at **Waquoit Bay reserve**, was named manager in August, replacing Christine Gault, who retired in January ... The Waquoit Bay reserve completed two important land acquisitions protecting 11.6

additional acres along the Quashnet River, the bay's largest tributary. The acquisitions were funded with a grant from NOAA to WBNERR's state partner, the Massachusetts Department of Conservation and Recreation and a contribution from The 300 Committee, a local land trust. These parcels have been an acquisition priority for many years because of their proximity to the river, the high threat of development and continuity with other Reserve land.

The Narragansett Bay Watershed Coastal Training Program, operated by the **Narragansett Bay reserve**, partnered with the Rhode Island Department of Environmental Management to help organizations apply for grants for restoration projects in the area. The result was 14 grant applications, of which eight will be funded, with grants totaling \$153,000 ... NBWCTP also partnered with the state to present a day-long conference on Rhode Island's new Smart Growth land-use plans.

**Hudson River reserve** published a comprehensive "Ecological Profile of the Hudson River National Estuarine Research Reserve" to provide an overview of the reserve for scientists, resource managers, college students and the interested public. The profile synthesizes more than 20 years of research and monitoring in the multi-component reserve.

It includes descriptions of aquatic habitats, biotic communities, and reserve programs, as well as maps and lists of plants, fish, reptiles, amphibians, birds and mammals.

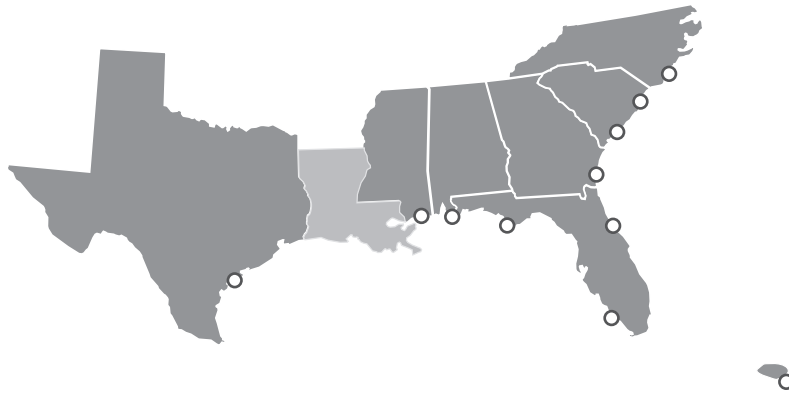
The **Jacques Cousteau reserve** joined more than a dozen conservation organizations to honor New Jersey Congressman **Jim Saxton** as “one of the nation’s most courageous environmental leaders” in a May 22nd ceremony at the Franklin Parker Preserve.

**Katy O’Connell**, long time education coordinator at **Delaware NERR**, has been named manager of the reserve. O’Connell replaces **Bob Scarborough**, research coordinator, who had been acting manager since **Mark Del Vecchio** left in February for a long-term military assignment.

**Robert H. Finton**, former education coordinator for the **Chesapeake Bay Maryland NERR**, was named one of 10 NOAA Environmental Heroes on Earth Day, April 22. Finton passed away after a short illness March 8. The nomination from the Estuarine Reserves Division credited Finton with “outstanding achievements in environmental education.”... The **Jug Bay Wetland Sanctuary**, a partner of the Jug Bay component of the Chesapeake Bay Maryland Reserve celebrated “30 years of excellence in wetland science and education” with an October 2005 ceremony attended by local, state and NOAA officials.

The **Chesapeake Bay Virginia reserve** wrote a curriculum for teacher training that uses water quality data collected through SWMP. Using the data visualization tools created by the reserve system’s Centralized Data Management Office, the curriculum shows teachers how to use the CDMO website (<http://cdmo.baruch.sc.edu/>) to obtain water quality and weather data for any given day. The curriculum also walks through computer based lessons for middle school and high school students who use pre-selected data to demonstrate the impact of heavy rains on water quality parameters. The lessons increase students’ ability to use technology, understand data, graph and identify data trends, and use the data to come to conclusions about which parameters are impacted by seasonal differences in temperature and rainfall. Coastal managers can also use these monitoring data to make informed decisions on local and regional coastal zone issues, such as public health concerns, point and nonpoint source pollution policies, and the success of restoration projects.

**Old Woman Creek reserve** in Ohio hosted one of the first Hollings Scholars in the summer of 2006. **Dan Antibus** of Kent State University studied bacterial breakdown on organic carbon. The Hollings Scholarship Program awards up to \$8,000 in academic assistance to college juniors, as well as providing the 10-week paid summer internship at NOAA or a NOAA partner facility.



Sea turtle nesting was reinstated at the Masonboro Island component of the **North Carolina reserve** after a five-year hiatus. Masonboro Island is a 13-km barrier island that is bordered by fully developed islands to the north and south and has historically served as one of the most important sea turtle nesting areas in the greater Wilmington area ... A CTP needs assessment of the eleven town planning boards in Carteret County, North Carolina was completed in 2006. Planning board members were targeted because they are volunteers, some of whom have little prior training in the planning profession and thus may have a greater need for training than other coastal decision-makers.

NOAA awarded the **North Inlet-Winyah Bay reserve** a construction grant of approximately \$2.9 million to expand education facilities at the front entrance of the Hobcaw Barony property where the reserve is located. The new center will include exhibit, classroom and audiovisual space and provide offices for reserve, Baruch Foundation and Centralized Data Management staff. ... North Inlet-Winyah Bay's CTP also facilitated the installation of a demonstration pervious concrete parking lot at the new Georgetown Chamber of Commerce building. CTP Coordinator **Jeff Pollack** also took the lead on outreach by designing signage and coordinating a Q & A session and demonstration during the actual installation of the lot.

CTP coordinators Jeff Pollack and Becky Walker of the **North Inlet-Winyah Bay and ACE Basin NERRs** distributed about 1,300 needs assessment surveys to elected, appointed, and staff municipal and county government officials and about 200 to private sector professional decision makers (engi-

neers, architects, developers) across the 6 coastal counties in South Carolina ...

In January 2006 the **ACE Basin CTP** organized a program titled 'Dune Restoration: Helping the Dunes Help You,' at the request of the Town of Edisto Beach. The program was designed to inform beach communities throughout the ACE Basin region on the dynamics behind beach erosion and techniques to deal with erosion, specifically dune restoration. The program included presentations by state and federal experts on beach erosion, as well as a hands-on training on planting dune grass. As a result of the meeting, the Town of Edisto Beach has implemented a city wide planting in conjunction with the Property Owners Association, and the ACE Basin stewardship program will lead the effort to inform homeowners with information gained at the CTP seminar. A second seminar was requested by the Town of Hilton Head Island to reach more people in the southern region of the ACE Basin.

**Sapelo Island reserve**, the second oldest site in the reserve system, celebrated its 30th anniversary throughout the year with a series of events that included lectures, field experiences, art shows, a concert and a film festival. Events took place on Sapelo Island, in nearby Darien and Brunswick, and in Savannah. The first event, held in May, was a program on the history of the reserve and of Sapelo Island presented by Reserve Manager **Buddy Sullivan** in the Brunswick-Glynn County Library. Several events were held in conjunction with the nearby Grays Reef National Marine Sanctuary, which celebrated its 25th anniversary ... SINERR Stewardship Coordinator Aimee Gaddis and staff have successfully completed the

preparation of a comprehensive GIS laboratory, in association with the University of Georgia Marine Institute. A number of special projects are now under way, including the preparation of a series of special maps and images for inclusion in the forthcoming SINERR Revised Management Plan.

An Australian Spotted Jellyfish turned up in Florida's Guana Lake, part of the **Guana Tolomato Matanzas reserve**, in July. It is believed to be the northernmost sighting of the invasive cnidarian on Florida's Atlantic coast. Education staff found the five-inch jellyfish during a seining demonstration along the shoreline of Guana Lake.

**Jobs Bay reserve** completed acquisition of all land identified as high priority in its management plan with the purchase of the Cayos de Barca. The Cayos fringe the Jobs Bay reserve and support dense mangrove and offshore coral habitats.

**Rookery Bay reserve** endured a direct hit from Hurricane Wilma in October 2005 and sustained some damage to facilities and to the natural resource. Facility damage was estimated at less than \$70,000. Resource impacts included dead birds, defoliation of mangroves, grounded vessels and debris. Recovery efforts have been smooth, and the reserve was able in December to host the NERRS/NERRA annual meeting that was to have started the same day Wilma struck.

**Apalachicola reserve** celebrated Sea Grass Awareness Day Wednesday, March 22, with displays, demonstrations and kids' activities to raise awareness of the role and fragility of coastal sea grasses. The

day was part of the statewide Sea Grass Awareness Month. Exhibits included a live sea grass tank and an exhibit on non-damaging boating practices.

**Rep. Jo Bonner** (R-Ala.) helped staff and friends celebrate 20 years of estuarine research, education, outreach and stewardship at **Weeks Bay reserve** during a full day of celebration, including a ceremony and exhibits featuring raptors, reptiles and amphibians.

**Weeks Bay** also teamed with **Grand Bay reserve** in Mississippi and the Mississippi Department of Marine Resources and Dauphin Island Sea Lab to transplant black needlerush (*Juncus roemerianus*) in a restoration experiment to test the ability of *Juncus* marsh to purify water and protect the shoreline. Adult volunteers harvested the needlerush from sites adjacent to Bayou Heron and replanted it along the shoreline of Bayou Heron and adjacent to a fishing pier.

NOAA's Air Resources Laboratory (ARL) has announced it will establish a long term atmospheric mercury monitoring site at the **Grand Bay reserve** in Moss Point, Miss., to study the emission, transport, and atmospheric deposition of mercury compounds in coastal waters.

**Mission-Aransas reserve** signed an agreement with the Fennessey Ranch authorizing a conservation easement to protect the 3,256-acre ranch from development and fragmentation. The working cattle ranch is part of the 185,000 acre reserve and includes natural lakes, meadows, prairie, freshwater wetlands and the banks along a section of the Mission River.



**Tijuana River reserve** co-sponsored a “Wetlands Avenger” event in April that drew about 1,500 volunteers on both sides of the U.S.-Mexican border to pick up litter, remove invasive plants and plant native species. The event resulted in restoration of 2.5 acres of coastal sage scrub and maritime succulent scrub habitat and 300 feet of stream corridor; 5,700 native plants planted between Border Field and Cañon de los Sauces; 80 cubic yards of invasive plant material and 40 cubic yards of trash removed.

**Elkhorn Slough reserve**, the Elkhorn Slough Foundation, California State University Monterey Bay and the Monterey Bay Aquarium Research Institute have received a three-year \$1.2 million grant from the David and Lucille Packard Foundation and the Resources Legacy Fund Foundation to support ecosystem-based management. The grant will allow a tidal wetland planning process launched by the reserve in 2004 to continue and expand. ... The [Elkhorn Slough Tidal Wetland Project](http://www.elkhornslough.org/tidalwetlandplan.htm) (<http://www.elkhornslough.org/tidalwetlandplan.htm>), spearheaded by the Elkhorn Slough NERR, got a boost when the U.S. Environmental Protection Agency awarded \$200,000 to the California Coastal Conservancy to help restore part of Elkhorn Slough’s coastal marshes. Elkhorn Slough has lost 50 percent of its salt marsh in the past seventy years. The EPA funds will be used to develop restoration plans for Parsons Slough, a 415-acre wetland area in the southeastern section of Elkhorn Slough, which empties into Monterey Bay. The restoration plan will be part of a larger, a collaborative planning effort led by the Elkhorn Slough reserve.

The **San Francisco Bay reserve**, in partnership with the Coastal Training Programs from Elkhorn

Slough, Tijuana River, and South Slough reserves, hosted a workshop on adaptive restoration of tidal wetlands. The workshop helped kick-start the new Coastal Training Program in San Francisco Bay ... In partnership with the Solano Land Trust, the San Francisco Bay reserve has begun creating interpretive exhibits at the Rush Ranch site. The four trailside signs created this year will eventually be accompanied by a small nature center and classroom funded jointly by the reserve system and the California Coastal Conservancy ... **Drew Talley**, research coordinator at the San Francisco Bay reserve, served on the staff of the Bahia Program, a five-week field experience for 16 students at San Francisco’s Herbert Hoover High School. The program brings the students to a unique ecological preserve in Baja California, where they make meaningful contributions to real-world, conservation-focused scientific research. The program encourages traditionally underserved youth to explore career opportunities in science and technology fields, while preparing to attend college and building their knowledge of the sciences.

**South Slough reserve** will be the site for a NOAA-funded community-based project to restore native Olympia oysters on the West Coast. The project will gather information about the genetic signature of existing oyster populations to identify



potential broodstock sources and conduct experiments to assess oyster survivorship, growth, and reproduction ... **Steve Rumrill**, research coordinator at South Slough, represented the reserve system at the annual meeting of the Communication Partnership for Science and the Sea. Rumrill presented on the implementation of ecosystem-based management in the reserve system, describing how the system's mission has subtly changed over the past decade to think about and manage estuaries as ecosystems.

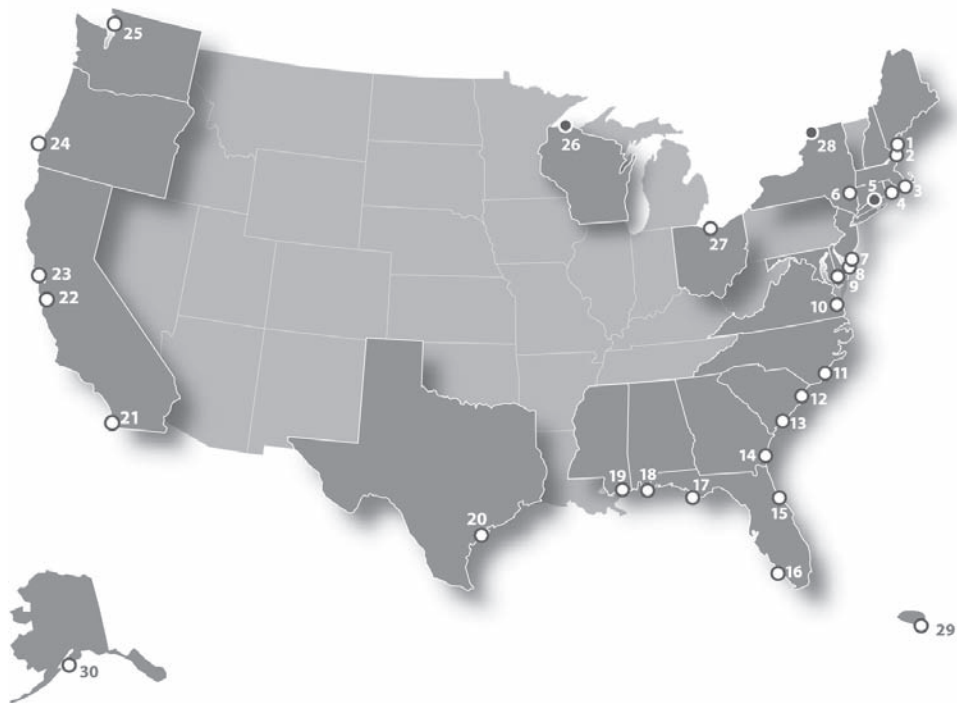
**Padilla Bay reserve** co-sponsored "Storming the Sound," a regional gathering of environmental educators to share ideas, issues and opportunities facing environmental education in the north Puget Sound region in January ... Padilla Bay is partnering in a pilot project to make real-time water quality data available to shellfish growers in Oregon, Washington, and Alaska. The project is a partnership between the reserve system and the Integrated Ocean Observing System.

**Kachemak Bay– Jennifer Brewer** took the reins as manager of the Kachemak Bay National Estuarine Research Reserve (KBNERR), on June 26, replacing **Judy Haner**, who resigned in January ... The Kachemak Bay reserve offices were closed for several days in January due to ash fall from the eruptions of Mt. Augustine. Mt. Augustine is an active volcanic island directly across Cook Inlet about 73 miles from Kachemak Bay ... **Terry Thompson**, supervisor of the education staff at Kachemak Bay won the Director's Achievement Award for Supervision and Leadership from the Sport Fish Division of the Alaska Department of Fish and Game.



*Jennifer Brewer*

## National Estuarine Research Reserves — *A network of 27 protected areas*



- |  |                                    |
|--|------------------------------------|
| 1. Wells, Maine                            | 16. Rookery Bay, Florida           |
| 2. Great Bay, New Hampshire                | 17. Apalachicola, Florida          |
| 3. Waquoit Bay, Massachusetts              | 18. Weeks Bay, Alabama             |
| 4. Narragansett Bay, Rhode Island          | 19. Grand Bay, Mississippi         |
| 5. Connecticut *                           | 20. Mission-Aransas, Texas         |
| 6. Hudson River, New York                  | 21. Tijuana River, California      |
| 7. Jacques Cousteau, New Jersey            | 22. Elkhorn Slough, California     |
| 8. Delaware                                | 23. San Francisco Bay, California  |
| 9. Chesapeake Bay, Maryland                | 24. South Slough, Oregon           |
| 10. Chesapeake Bay, Virginia               | 25. Padilla Bay, Washington        |
| 11. North Carolina                         | 26. Wisconsin *                    |
| 12. North Inlet-Winyah Bay, South Carolina | 27. Old Woman Creek, Ohio          |
| 13. ACE Basin, South Carolina              | 28. St. Lawrence River, New York * |
| 14. Sapelo Island, Georgia                 | 29. Jobos Bay, Puerto Rico         |
| 15. Guana Tolomato Matanzas, Florida       | 30. Kachemak Bay, Alaska           |

\* *Proposed Reserve*





*National Estuarine Research Reserve System*

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