

The Tidal Flat

Winter 2010

Museum and Reserve Partner for Summer Camps

By Lori Davis, Education Specialist

This past summer, the Rachel Carson Component of the North Carolina National Estuarine Research Reserve hosted educational programs for students of all ages. All classes were hands-on, field-based estuarine studies. This program was made possible through a partnership with the North Carolina Maritime Museum. The Museum assisted with advertising, registration and fee collection. The Reserve took the lead on Preschool Storytime, Seashore Life 1 and Saltwater Science. We also assisted with the Museum's Coastal Adventure Camp. The Reserve reached approximately 100 children through this program. With the money that was collected from our programs, the Museum purchased lifejackets for us to use for future camps and school groups. Reserve education staff will be planning for next summer soon. Please check our website www.nccostalreserve.net for more information regarding upcoming programs.



Happy campers from our Preschool Storytime

Volunteer Interpreters Lead Trips for Visitors

By Lori Davis, Education Specialist

The Rachel Carson Component of the North Carolina National Estuarine Research Reserve also offered nature hikes on and boat/boardwalk trips to the Rachel Carson Reserve this summer. Trips were offered on Tuesdays and Thursdays from 8:30-10:30 a.m. This summer we had 240 participants. Many thanks to our volunteer interpreters- Jeannie Kraus, Pat and Bob Rapaport, Ann and Al Goellner, Carolyn Brooks, and Bruce McCutcheon- who make this program possible. Reserve education staff will be planning for next year's summer public field trips soon. Want to join our volunteer team? Training is provided so don't be shy. Please check our website www.nccoastalreserve.net for more information.



Carolyn "Brooks" leads one of our boat/boardwalk trips

Coastal Training Program Update

By Whitney Jenkins, Coastal Training Program Coordinator

Coastal Training Program Hosts Low Impact Development Basics for Water Quality Protection Workshops

This fall the Reserve's Coastal Training Program hosted three workshops on Low Impact Development (LID) at the NOAA-NERR auditorium on Pivers Island. The goal of these workshops was to introduce participants to the interconnectedness between land use choices and water quality. Participants learned about the major pollutants that degrade water quality; sources of these pollutants; and methods to prevent this degradation, including stormwater management practices and LID.

LID is a site planning, design, implementation, and maintenance program aimed at promoting environmental integrity with development and growth. Low Impact Development integrates stormwater practices into site design using a customized layout for each project. Some of the most commonly used stormwater management practices include: permeable pavement, cisterns, grassed swales, bioretention, rain gardens, and level spreaders.

Dwane Jones from the N.C. LID Group was on hand to speak in-depth about LID concepts as well as make participants aware of the N.C. LID Certification Program. This program is a rigorous training program comprised of technical and policy-oriented courses pertaining to LID. The certification indicates that the individual has demonstrated the knowledge, expertise, and skills necessary to properly design, plan, implement, and maintain LID projects in N.C. For more information about the N.C. LID Certification Program, visit www.bae.ncsu.edu/topic/lid/index.html.

Rainwater Harvesting Workshop Offered to Local Government Officials

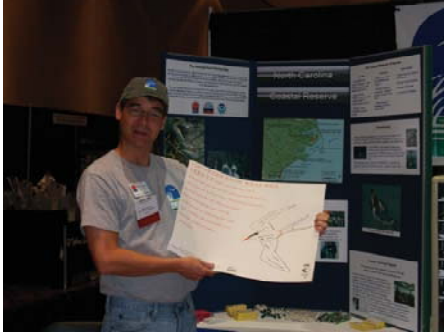
On October 27, the Coastal Training Program, N.C. Sea Grant, Eastern Carolina Council of Governments, and N.C. Cooperative Extension hosted *Rainwater Harvesting Workshop— Moving our Communities toward More Sustainable Water Use*.

Coastal communities are starting to think today about where tomorrow's water will come from. Will there be enough water to meet the demands of a growing population? How will a changing climate affect water availability? Can we afford the cost of treating water used for non-potable uses? There are many uses of water that do not require pristine drinking water, such as irrigation, vehicle washing, and toilet flushing. There are many non-traditional sources of water that can meet these needs, including harvested rainwater.

The goal of this workshop was to promote rainwater harvesting as a means of meeting future water demands. The workshop: explained why alternative sources of water are needed; provided examples of rainwater harvesting at the local scale; and solicited feedback from participants on what kind of assistance they need to make rainwater harvesting a reality at their public buildings and/or in their communities. This feedback will help design future training and technical assistance for local governments. To see archived presentations from this workshop, visit: www.nccoastaltraining.net/Past-Events/147.aspx.

For more information on either event, visit www.nccoastaltraining.net or contact Whitney Jenkins at 252-838-0882 or whitney.jenkins@ncdenr.gov.

Welcome New Employees



Scott Kucera recently joined the Reserve Staff as Reserve Education Coordinator. Scott has been in North Carolina for most of his life, growing up in Winston-Salem, attending college at East Carolina University and graduate school at UNC-Chapel Hill. While studying and working at the Institute of Marine Sciences in Morehead City he decided the coast is a great place to be. He took up surfing and open water sea kayaking while working at the N.C. Maritime Museum as Natural Science Curator and Aquarist. Scott stayed in the museum education field at Exploris in Raleigh while his wife Laura got a degree in veterinary medicine from N.C. State University. They managed

to stay connected to the beach by visiting family and taking adventure surf trips to Baja California and Puerto Rico. They spent the past five years living in Ocean Isle Beach, N.C. During his work as executive director of the Museum of Coastal Carolina and Ingram Planetarium, Scott oversaw fundraising, installation of a new sea turtle exhibit, updates to exhibit galleries and acquiring the world's third Sci-Dome HD digital projection system. He is happy to return to Carteret County and educate people about the coastal environment. And he looks forward to spending free time on the coastal waters with his children Elie (14), Ben (4) and Sam (1). Scott can be found in the Beaufort Office or reached at 252-838-0881 or scott.kucera@ncdenr.gov.

Jason Dail recently joined the Reserve Staff as Stewardship and Education Specialist in our Wilmington Office. Jason received an undergraduate degree from UNC Wilmington (UNCW) in 1998 and began working for the Division of Coastal Management in 2002. He served as a field representative with the Division for approximately two years and as the CAMA Express Permit coordinator for approximately six years. Jason considers Wilmington home, after spending more than 18 years of his life there. Jason and his wife Donna have two children, Olivia (5) and Luke (2). Jason can be reached at 910-796-7302 or Jason.Dail@ncdenr.gov



Cecelia Sherrill recently joined the Reserve Staff as a Coastal Reserve Research Associate. She originally started out as a seasonal intern this past summer after graduating from UNCW with a B.S. in Marine Biology and a minor in Psychology. As an intern, Cecelia led field trips to the Rachel Carson Reserve and assisted the summer camps by teaching about plankton. She also did an independent study on the invasive Tamarisk Tree (*Tamarix ramosissima*) or Salt Cedar. Cecelia will be with the Reserve until September 2011. While she is here, she will manage the YSI water quality data loggers for the Reserve and continue to assist with the research and education programs.

Research on Diamondback Terrapins at the Masonboro Island Component

By Heather Wells, Research Technician

Named for the diamond-shaped growth rings on its shell, the diamondback terrapin (*Malaclemys terrapin*) resides in brackish and estuarine waters. In North Carolina, this turtle is considered a species of special concern due to declining population size and/or home range (N.C. Natural Heritage Program). April Alford, a graduate student at UNCW, is researching the diamondback terrapin population within the Masonboro Island component of the North Carolina National Estuarine Research Reserve.



Malaclemys terrapin

During the first year of her study, April used a variety of methods to estimate where higher densities of terrapins were found within the back bay areas of the Masonboro Island Reserve. Now in the second year of research, April is utilizing modified crab pots to determine the population size as well as assess how frequently terrapins may be caught in traditional fishing gear. These modified crab pots stand six feet tall and are anchored to the substrate, leaving some of the pot exposed above the water line at all tidal phases. This ensures that any terrapins caught inside are able to surface to breathe, and results in zero mortality. Though these modified tall pots may not be practical for commercial and recreational fisheries, the information gained from this project will help to guide future management plans and provide valuable information to the North Carolina Division of Marine Fisheries.

April is collecting a suite of data on each diamondback terrapin captured including photographs, shell measurements, head width, weight, gender, and age estimate, as well as identifying each turtle with a unique marking on the marginal scutes of the shell. Recaptures will be easily documented and data from the mark/recapture portion of the project may be analyzed to establish the health of the population.

For more information about this project, please contact Heather Wells at wellsh@uncw.edu or 910-962-2335.



Emergent Marsh Biomonitoring in Zeke's Basin and Masonboro Sound

By Byron Toothman, Research Technician

In August and September of 2010 marsh transects were installed and initial data collected for emergent marsh biomonitoring in the Zeke's Basin and Masonboro Island components of the North Carolina National Estuarine Research Reserve. The establishment of marsh monitoring transects in these two locations will provide more insight into the overall health of the salt marsh and how important stressors (sea level rise, tidal energy, storm events, coastal development etc.) will affect salt marshes of differing locations. Sediment Elevation Tables will be installed at these locations and will be useful for monitoring changes in the marsh habitat due to sediment accretion or erosion as a response to stressors.

These sites were monitored this summer during the height of the growing season to estimate peak biomass production. Data is collected from quadrants along each transect at regular intervals with particular emphasis on the near shore areas. Stem heights, estimation of species coverage, counts of live and dead stems, as well as information on possible grazing snails was collected. The same data will be collected from these sites across several growing seasons for comparison over time. This information will help to determine overall marsh health and how the shoreline may be changing due to various stressors. The results of this research will provide some predictive value in determining the stability of salt marshes and whether erosion or accretion is happening. For more information, please contact Byron Toothman at 910-962-2334 or Toothmanb@uncw.edu.



Zeke's Island monitoring location (green oval). The enlarged view depicts transects (black lines).



Masonboro Island monitoring location (green oval). The enlarged view depicts transects (black lines).

New North Carolina Coastal Reserve – North Carolina Sea Grant partnership funds Coastal Research Fellowship Program

The North Carolina Coastal Reserve & National Estuarine Research Reserve and North Carolina Sea Grant (NCSG) have initiated a new collaborative effort to fund graduate student work on Reserve properties. The fellowship is designed to foster research within the boundaries of the ten components that make up the North Carolina Coastal Reserve & National Estuarine Research Reserve and address coastal management issues in the following focus areas: changing populations in coastal areas and coastal land use, estuarine ecology and eutrophication, invasive species, storm impacts, and sea level rise. The first fellowship of this new program was awarded in July 2010 to Kristen Hall a University of North Carolina Wilmington student working under the direction of Dr. Lynn Leonard to examine the geomorphologic evolution of Masonboro Island, NC (1857-Present). The second fellowship was awarded in November 2010 to Michelle Brodeur a University of North Carolina at Chapel Hill – Institute of Marine Sciences student working under the direction of Dr. F. Joel Fodrie to examine how marcoalgal cover affects oyster reef dynamics in Middle Marsh. Please contact Dr. John Fear, 252-838-0884 if you have any questions regarding these studies or the fellowship in general.

Alligatorweed at Buckridge

By Woody Webster, Buckridge Site Manager

Buckridge Site manager Woody Webster joined Rob Emens of the NC Aquatic Weed Control Program to assist in the control of invasive alligatorweed (*Alternanthera philoxeroides*) at the Emily and Richardson Preyer Buckridge Coastal Reserve. To control this weed, an aquatic-safe herbicide was sprayed from an airboat along the northwest fork of the Alligator River.



Alligatorweed (*Alternanthera philoxeroides*)

Alligatorweed is an invasive plant from South America that can cause a number of problems in North Carolina. When allowed to spread unchecked, it can cause flooding and erosion, and can even grow across an entire waterway, becoming a navigation hazard. Infestations also depreciate aesthetic value, impede recreational use, and pose a health problem by harboring mosquitoes. Alligatorweed can grow on land as well as in floating mats and can outcompete most native plants. In an area with standing water, like the swamp forests at Buckridge, it can spread to carpet the entire understory, eliminating native plant communities and hampering restoration and forest regeneration projects.

As with any invasive species, control becomes more difficult and expensive if the problem is ignored. Early attention to the developing problem of alligatorweed in the area has led to very successful controls.

Currently, alligatorweed in the vicinity of Buckridge can be controlled with about one-fifth of the original effort. Maintenance spraying, like that recently performed by staff, remains important. If maintenance is not continued, alligatorweed quickly rebounds and becomes a much larger problem. Maintenance spraying reduces both the damage caused by weeds and the cost of controlling them.

For more information about this effort or the Buckridge Coastal Reserve, please contact Woody Webster at 252-796-3709 or woody.webster@ncdenr.gov.



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The North Carolina Coastal Reserve protects representative coastal habitats for research, stewardship, and education purposes and is comprised of ten sites. Four of these sites comprise the North Carolina National Estuarine Research Reserve (NCNERR). The NCNERR is part of the National Estuarine Research Reserve System and is funded through a state-federal partnership program between the N.C. Division of Coastal Management and the National Oceanic and Atmospheric Administration. Financial support for this publication was provided by a grant under the Coastal Zone Management Act administered by the Office of Ocean and Coastal Resource Management, National Oceanic and Atmospheric Administration.



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