

North Carolina Coastal Reserve & National Estuarine Research Reserve



“To promote informed management and stewardship of North Carolina’s estuarine and coastal habitats through research, education, and example.”

2013 Accomplishments

Research

- The Reserve issued seven permits for new research projects conducted at reserve sites. These permits enable scientific inquiry focused on topics that are important for understanding coastal processes, including endangered species ecology, groundwater hydrology, invasive species impacts, and the importance of animal and human sounds in estuarine habitats.
- The National Estuarine Research Reserve’s [System-Wide Monitoring Program](#) (SWMP) is conducted at the Currituck Banks, Rachel Carson, Masonboro Island, and Zeke’s Island sites. The purpose of the program is to measure long and short-term changes in water quality, biological systems, and land-cover characteristics in estuarine ecosystems. Several SWMP projects provided data and enhanced monitoring efforts at the Reserve this year:
 - In-situ Chlorophyll *a* monitoring enhanced SWMP water quality data collection at the Masonboro Island and Zeke’s Island sites. This data contributes to national data collection efforts and is also useful to state water quality managers responsible for determining water quality impairment based on Chlorophyll *a* concentrations.
 - SWMP water quality data was instrumental in identifying the cause of a large- scale fish kill at Masonboro Island in January 2013. Reserve data was cited by numerous media outlets and was presented at the February 2013 Coastal Resources Commission meeting.
 - The SWMP habitat mapping update was completed in Fall 2013. The habitat mapping process provides valuable data to researchers, educators, and coastal managers about long-term trends in coastal habitat distribution.
- In support of the National Estuarine Research Reserve System’s [Sentinel Site initiative](#), the Reserve installed a local elevation monitoring network at the Currituck Banks, Rachel Carson, Masonboro Island, and Zeke’s Island sites. This system monitors the Reserves’ elevation relative to water levels and land subsidence, and is useful for tracking changing coastal conditions.
- The Reserve and N.C. Sea Grant offered the fourth North [Carolina Coastal Research Fellowship](#) for 2014. The Fellowship is awarded to graduate students who conduct original research at Reserve sites that focus on priority issues and processes identified by coastal managers. Applications for the 2014 Fellowship increased by 30% over the previous year, and attracted quality applications from North Carolina State University, the University of North Carolina Chapel Hill, Duke University, East Carolina University, and the University of North Carolina Wilmington.

Education

- Field trips for 568 K-College students and 229 special groups to the Rachel Carson Reserve provided a firsthand connection to estuarine environments. The field trips focused on concepts such as coastal habitats, food webs, plant and animal identification, and island morphology.

- Summer public field trips fostered connections to the natural history and ecology of the Rachel Carson Reserve for 160 North Carolina residents and visitors, and provided a unique interpretative opportunity for the dedicated volunteers who guided the excursions.
- The Reserve trained 103 teachers through professional presentations and workshops, including [pre-service teachers](#) from the University of North Carolina Greensboro and teachers participating in the “Teachers on the Estuary” program held on the Outer Banks. Teachers learned classroom and field techniques for describing estuary functions, conveying the importance of estuaries, and illustrating how humans can impact estuary health.
- The Summer Science School camp program, administered in partnership with the N.C. Maritime Museum, hosted 111 children for camp sessions including squid dissections, [coastal explorations](#) at the Rachel Carson Reserve, and a [Coastal Conservation Fellows](#) program for advanced students focusing on species interactions between the rare Crystal Skipper Butterfly and their estuarine host plant.
- Reserve outreach events engaged approximately 1,744 members of the public with educational materials and experiences designed to promote the importance of estuaries. Events such as [National Estuaries Day celebrations](#), a shellfish hatchery tour, kayak tours of Masonboro Island, and [homeschool student days](#) at local aquariums provided opportunities for learning about estuarine processes and inhabitants.

Coastal Training Program

- Seven Coastal Training Program workshops trained 215 coastal professionals on topics including wetlands regulations, project design and evaluation, managing visitor use, and [Low Impact Development](#).

Stewardship

- A dedicated volunteer corps of 238 community members contributed 1892 hours equating to approximately \$36,000 in volunteer service. Volunteers assisted with monitoring efforts for sea turtles, visitor use, wild horses, and protected bird species, as well as led public field trips, [participated in coastal cleanups](#), and maintained Reserve property. (Volunteer rates per hour from [Independent Sector](#))
- The final report for the Clean Water Management Trust Fund hydrologic restoration project at the Emily and Richardson Preyer Buckridge Reserve was published in April 2013. The report traces a decade-long effort to restore rare Atlantic white cedar habitat, and includes valuable lessons learned and next steps to enhance future collaborative restoration projects.

Communications and Engagement

- The Tidal Flat Quarterly Newsletter was re-established to provide timely and news-worthy information to Reserve stakeholders, with the first issue reaching 420+ individuals throughout North Carolina.
- The [Reserve website](#) transitioned to the N.C. Department of Environment and Natural Resources’ portal hosting service. The new website will enhance the Reserve’s image, establish a formal branding relationship with partner agencies, and provide current information about Reserve projects and programs.