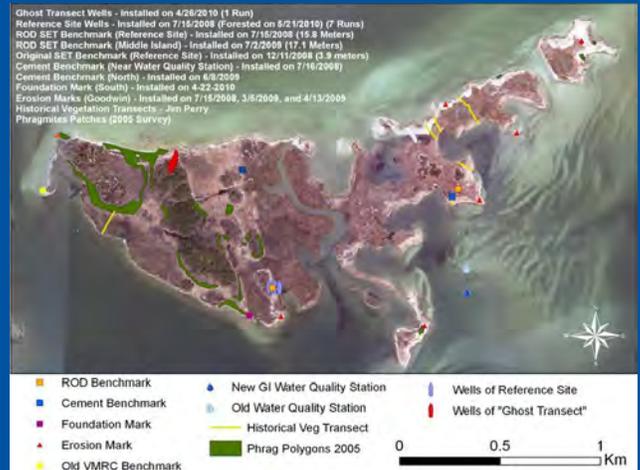


## Living Laboratories Support Coastal Resource Management

The National Estuarine Research Reserves (NERRs) serve as living laboratories for long-term research and monitoring, as reference sites for comparative studies and as sentinel sites to better understand the effects of specific habitat stressors. Comparative studies support local, regional and national needs and encompass various issues such as habitat restoration success status, non-point source pollution impacts, species management (including control of invasive species), and understanding the role of social science in coastal resource management.

Because of their operational capacity for intensive study and sustained observations to detect and understand physical and biological changes in the ecosystems they represent, reserves also serve as sentinel sites. The initial focus of the NERR system Sentinel Sites Program is on monitoring and assessing the impacts of changing water levels and inundation on key coastal habitats. In order to effectively address sea level rise impacts on targeted ecosystems, reserves have developed observational infrastructure (including vegetation monitoring transects, surface elevation tables, groundwater monitoring wells, water quality and weather monitoring stations) tied to a vertical datum and data analysis capacity.

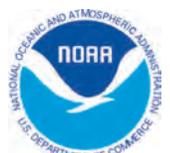
Vulnerable habitats of special interest to the Chesapeake Bay NERR include underwater grasses, emergent marshes and marsh-forest ecotones. Given that these habitats are representative of regional ecosystem types and can serve as test sites for adaptive management approaches, information gained from Reserve-related studies will be utilized by a broad range of Bay and mid-Atlantic coastal managers and stakeholders.



*Installed infrastructure at Goodwin Island Reserve in support of sea level rise impact studies.*



Chesapeake Bay  
 National Estuarine  
 Research Reserve  
 in Virginia



## CBNERR Sentinel Site Monitoring Results

- Supported multi-reserve level study that developed a Restoration Performance Index to compare the status of wetland restoration projects, funded under the Estuarine Restoration Act, against reference marsh sites.
- Developed the critical observational infrastructure and data analysis capacity to address short-term episodic impacts and longer-term trends in targeted habitats including submerged aquatic vegetation, emergent tidal marshes, and the marsh-forest ecotone.
- Specific Reserve components have been approved as NERRS Sea Level Sentinel Sites and will serve as important resources for the broader NOAA initiated Sentinel Site Program which currently includes the Chesapeake Bay, North Carolina, Northern Gulf of Mexico, Hawaii and San Francisco Bay regions.
- Supported NOAA's National Geodetic Survey in the development and associated training of standards and guidelines for coastal habitat management areas to establish the geospatial, tidal, and wetland infrastructure required for monitoring habitat changes to sea level rise and inundation.
- Initiated studies to identify recruitment and survival success of key plant species in targeted habitats and thresholds to key stressors including water temperature and clarity, inundation and salt intrusion, and storm impacts.



For more information about CBNERR Sentinel Site Monitoring:

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*All photos courtesy of CBNERR*