

Patuxent Wildlife Research Center

Sea-Level Rise Effects on Wetlands in Northeast Coastal National Parks



- **The Challenge:** Sea level is rising, and the rate of rise is projected to accelerate during the next century. Given the ecological value of salt marshes and recent documentation that marshes in the mid-Atlantic/northeast region are being lost, it is especially important to understand the processes that are controlling salt marsh vertical development in response to sea-level rise. This will enhance our ability to predict the future status of these estuarine habitats in our coastal national parks. The goal of this project is to develop a long-term database on salt marsh accretion and elevation trends for salt marshes in the Northeast Coastal Barrier Network (NCBN) of the National Park Service (NPS) in order to assess their vulnerability to current and future sea-level rise.



- **The Science:** The processes controlling wetland vertical development in response to sea-level rise vary among the salt marsh geomorphic settings commonly found across the national parks of the northeast region of the US. To assess the ability of salt marshes from this range of settings to build vertically at a pace equal with sea-level rise, we employed a common monitoring method across all parks within the NCBN: the Surface Elevation Table – Marker Horizon (SET – MH) method. Data from this monitoring effort will be used to determine not only the trends in accretion and elevation, but also which of the suite of interacting surface and subsurface processes are controlling marsh vertical development in each park.



- **The Future:** This research project is an ongoing collaboration between USGS and NPS. The trend and process information collected will be used by the parks to improve their current management and restoration strategies for these critical habitats. The data will also be used in numerical models to forecast habitat changes to future sea-level rise, and further refine management and restoration strategies.