

# National Capital Region Network Climate Change Brief

National Park Service  
U.S. Department of the Interior

Inventory & Monitoring



NPS

NPS uses surface elevation tables (SET) to monitor marsh elevation.

## Climate Change and Tidal Marshes of the Potomac and Anacostia Rivers

The influence of ocean tides in the Chesapeake Bay reaches the Potomac and Anacostia Rivers in Washington, DC, where the rise and fall of freshwater in wetlands creates unique tidal marshes. Tidal marshes are an important natural resource in the highly urbanized and developed watersheds of the National Capital Region (NCR). However, the few that remain are vulnerable to change due to sea

level rise. Global sea levels are rising due to ocean warming and the addition of glacial meltwater. The area's subtle geologic lowering also contributes to potentially higher water levels. The resulting accelerated relative sea level rise could cause changes in plant and animal communities and could affect cultural resources associated with the region's tidal marshes.

### Monitoring Marsh Elevations

- To determine how natural marsh sediment accumulation (accretion) rates compare to the combination of land sinking (subsidence), compaction, erosion, and rising tidal levels, NCR's Inventory & Monitoring (I&M) network monitors marsh elevations in partnership with the U.S. Geological Survey.
- Elevations have been monitored on the Potomac River at Dyke Marsh Wildlife Preserve (George Washington Memorial Parkway) for three years and on the Anacostia River at Anacostia Park (National Capital Parks – East) for eight years.
- Elevations at both marshes

are monitored using surface elevation tables (SET). Sediment accretion is monitored using the feldspar marker technique.

- At Dyke Marsh, additional data and digital elevation models created using LIDAR (a high-resolution remote sensing technique) will be analyzed along with SET and feldspar marker data to evaluate elevation changes.
- Discussions are underway with other I&M Networks, to expand monitoring of tidal marshes to include more sites of the Chesapeake Bay and Atlantic coast.

### Possible Impacts

- **Vegetation changes.** Rising water levels could increase flooding frequency and inundation. Changes in marsh vegetation may create more low marsh and less high marsh. Increases in low marsh could improve spawning and populations of fish.
- **Less sediment trapping.** Marsh vegetation changes could reduce the trapping and build up (accretion) of sediment and adversely impact water quality.
- **Habitat change.** If sea level rise causes vegetation changes, habitat could shift to favor new species. Species that could be affected include birds, reptiles, amphibians, and fish.



Beetham

NPS monitors elevation at Kenilworth Marsh, a tidal marsh on the Anacostia River that is part of National Capital Parks - East.