

Designing the Salt Marshes of 2100: Climate Adaptation in the Chesapeake Bay

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In partnership with US Fish and Wildlife Service (USFWS), US Army Corps of Engineers (USACE) and other key partners, The Conservation Fund (Fund) and Audubon Maryland-DC are creating an adaptation strategy to address the forecast impacts of sea level rise on the tidal marshes of Blackwater NWR and adjacent areas of Dorchester County, MD. The objective will be the creation of a decision-tool and mapping identifying high priority, currently upland areas suitable for salt marsh migration and re-establishment. The strategy will also identify areas for increased protection and restoration of current marshes to slow the rate of loss to open water.

The Chesapeake is one of the Nation's most vulnerable areas to the impact of climate change. Not only do studies forecast its sea level to rise steadily in the coming decades, but the Chesapeake's land areas are subsiding due to rebound from the last glacial age, a natural phenomenon that amplifies relative sea level rise on top of climate change and accompanying storm surge. With 11,684 miles of coastline along the main stem and tidal tributaries, the entire Chesapeake Bay region has a significant amount of highly productive wetland ecosystems at increased risk. The region's salt marsh birds include the globally vulnerable Saltmarsh Sparrow, which breeds only in the high marsh zone of salt marshes and consequently, may be the bird species most at-risk of extinction due to climate change in the United States.

The Blackwater NWR and the surrounding area have already lost thousands of acres of land during the past 50 years. These losses result from sea level rise, land subsidence, erosion, ditching for mosquito control, hydrologic changes from development, and invasive species such as nutria. The relative sea level at the Refuge has risen approximately one foot in the last century, nearly twice the global average. The Scientific and Technical Workgroup of the Maryland Commission on Climate Change indicates that sea level could rise from 0.6 to 1.3 feet by the middle of this century, but accelerated melting could produce a relative sea level rise at the end of the century of between 2.7 feet and 3.4 feet. Low-lying areas such as the Blackwater NWR will be dominated by open water by 2050

The project partnership led by the Fund is developing spatially explicit strategies to guide land protection that will allow wetland migration and restoration of existing wetlands to increase resilience to sea level rise. The project has the following four components:

- 1) A strategic assessment of the current condition and predicted sea level rise impacts in existing marshes and adjacent uplands that are potential marsh migration corridors.
- 2) A comprehensive strategy for Refuge restoration and sea level rise adaptation
- 3) A communication strategy to build support for implementation actions among partners and the public.
- 4) Pursue implementation projects consistent with the plan.

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