



## Identifying Critical Processes and Management Practices for Enhancing Sustainability of Chesapeake Bay Wetlands

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**Collaborators:** Fish and Wildlife Service

**Statement of Problem:** There is a critical need to acquire information that will enable scientists and managers to better predict the vulnerability of coastal wetlands to submergence caused by sea-level rise and to evaluate the effect of current management practices on wetland elevation change and submergence. For coastal wetlands to survive, surface elevation must increase at rates equal to or greater than long-term rates of sea-level rise. There is evidence that wetlands in the Chesapeake Bay region have lost considerable amounts of area over the last 70 years. If current rates of sea-level rise further increase over the next century, significant wetland loss is predicted.

**Objectives:** This work addresses two USGS Chesapeake Bay Science Program Goals: (1) understanding the impact of sediment and (2) assessing the factors affecting the health of fish and water birds. We will better understand the impact of sediment dynamics on wetland habitats in the Bay and the potential for habitat loss that will affect wildlife populations. There is also a critical need for information that will enable managers to better respond to the rapid rates of sea level rise along the east coast. The projected rates of sea level rise are thought to exceed the capacity of these coastal wetlands to respond to increasing water depth and salinity.

**Approach:** Establish a series of surface elevation and sediment accretion monitoring sites in different geomorphic settings at Blackwater National Wildlife Refuge. These data will be monitored quarterly to assess the behavior of the marsh surface and to better understand the processes driving marsh surface elevation change.

### Selected Reports and Other Products:

Presentations, Delivered: 2003 Estuarine Research Federation Meeting.

Presentations, Delivered: 2003, 17th Biennial Conference of the Estuarine Research Federation (Invited Paper).

Presentations, Delivered: Blackwater National Wildlife Refuge and Fishing Bay Wildlife Management Area fire management program review, Nov 13-14, 2003.

Presentations, Delivered: USGS Chesapeake Bay Science Meeting, Nov 20-21, 2003.

**Relevance and Benefits:** This project relates to the following USGS Chesapeake Bay Science Program Goals: (1) understanding the impact of sediment and (2) assessing the factors affecting the health of fish and water birds. It also addresses goal 4 of Status and Trends of Biological Resources: Monitor and assess environmental status and trends.