

A photograph of a marshland landscape. In the foreground, there are tall, green grasses growing in shallow water. In the background, there is a dense forest of tall, thin trees. The text is overlaid on the image.

# **Chesapeake Marshlands**

## **Blackwater National Wildlife Refuge & Fishing Bay Wildlife Refuge**

### **Sea Level Response Strategy**

**Steven Kopecky  
US Army Corps of Engineers  
Baltimore District**

# Significance

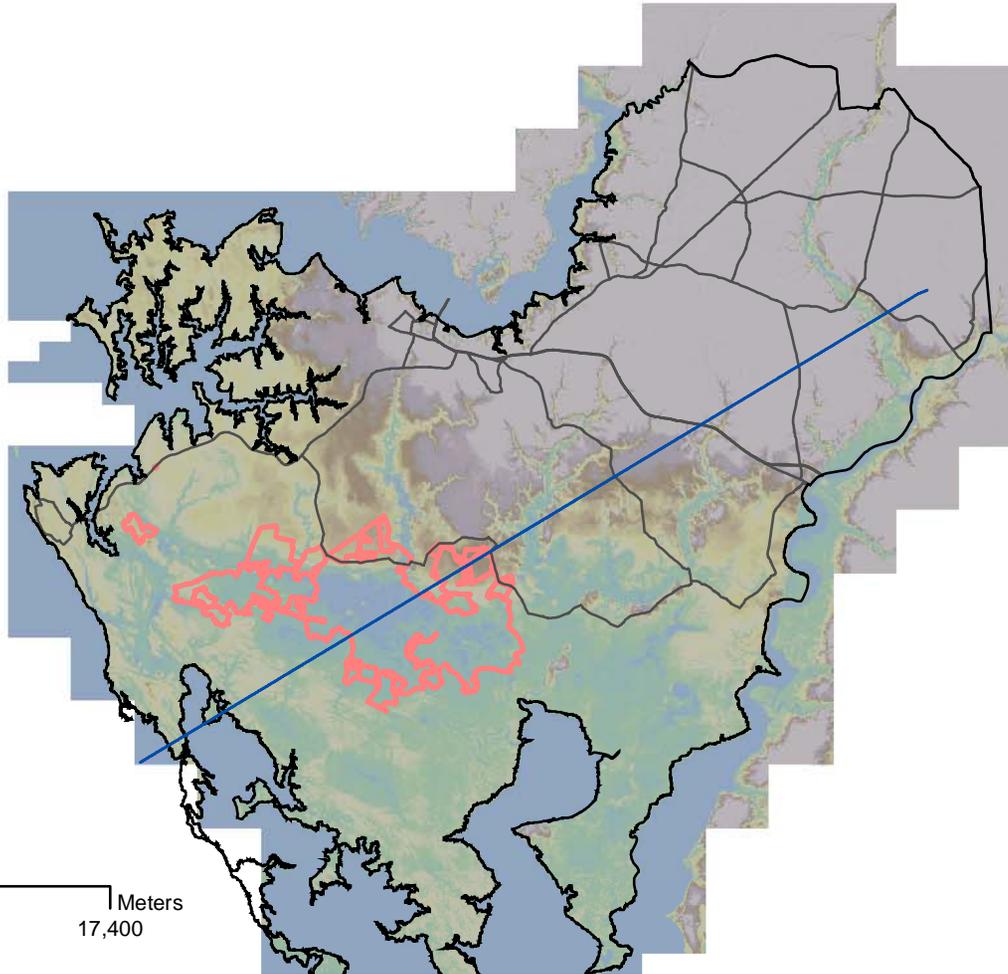
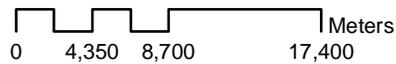
- Lower Dorchester County has the largest contiguous marsh system in the Chesapeake Bay
  - Critical habitat for migratory birds, fish, as well as nursery area for striped bass and blue crab
- Recognized wetland of international concern, Ramsar Conference on Wetlands
- ‘Refuge in Crisis’ by National Audubon Society
- Highly threatened by sea level rise, altered hydrology, and other

# Why Restore Blackwater?

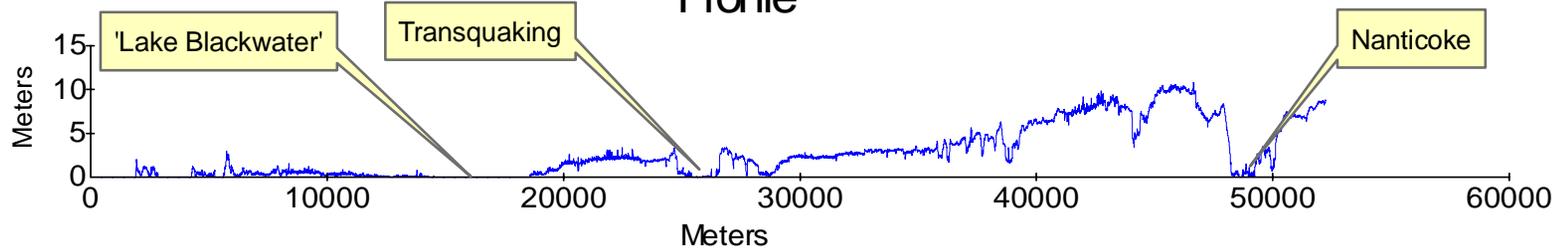
- The ecological significance
- Human influence on the marsh loss
  - Marsh loss is not completely natural
- Blackwater marshes cannot be restored without intervention
  - Management actions are required
  - Engineering solutions are possible
- The Terraced landscape of Dorchester County prevents uphill migration
  - 2-4 ft change in landscape terraces
  - The large-scale marsh will be lost for 100s of years

# Dorchester County Profile

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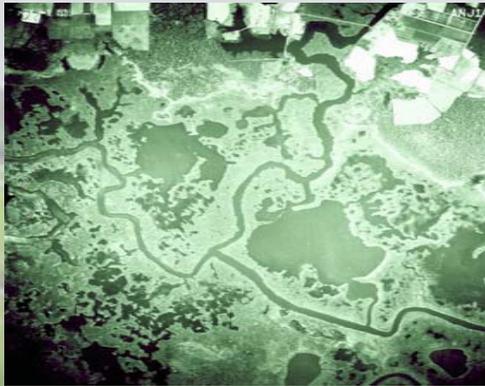


Profile



# The Disappearing Marsh

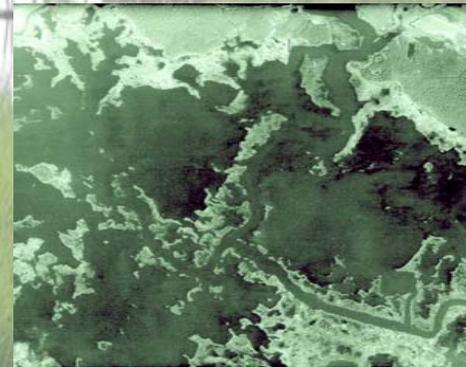
The Confluence of the Blackwater and Little Blackwater Rivers show the steady erosion of the marsh. The marsh breached and eroded from the inside out, slowly connecting the natural ponds into a massive lake. Today, the former marsh is barely recognizable.



1938--with discrete ponds and channels within the marsh system



1989--discrete features have disappeared and several marsh ponds are evident.

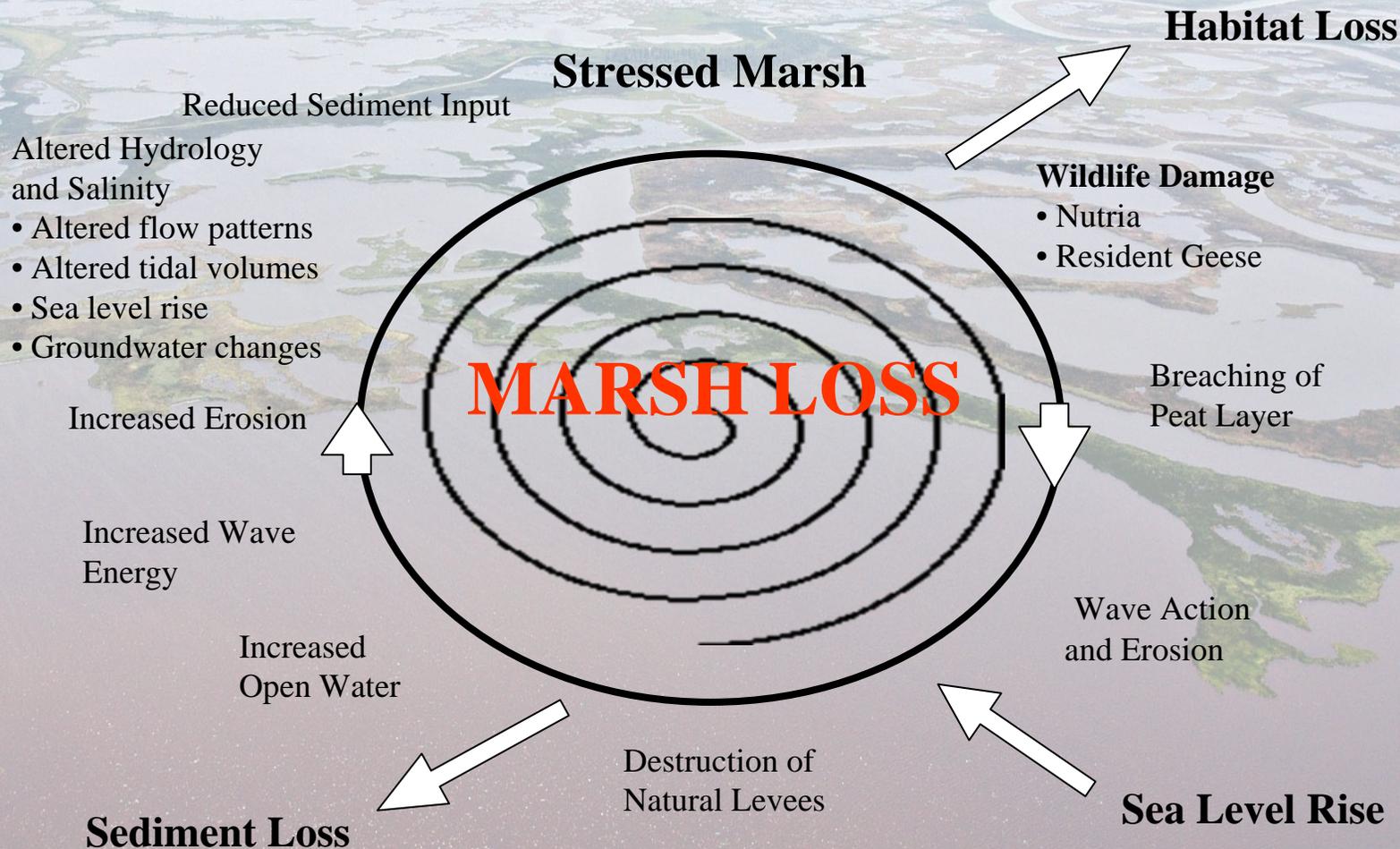


1974--breached ponds, integrity of the channels have been compromised and significant marsh loss is evident.



**Total Loss: Approximately 8000 acres**  
**Loss Per Year: Approximately 130 acres**  
**Erosion Per Year: ~14 ft. year**

# Causes of Marsh Loss



# Investment To Date

- USFWS: \$3,000,000
- US Army Corps of Engineers: \$1,550,000
  - 8 acre demonstration: \$550,000
  - International conference: \$200,000
  - Tidal monitoring: \$100,000
- Nutria Partnership: \$7,000,000
- USGS: \$1,450,000
- National Aquarium in Baltimore: \$750,000
- University of MD : \$2,175,000
- NOAA: \$2,250,000
  - Geodetic Program: \$2,000,000
- Maryland Department of Environment: \$275,000
- Maryland Department of Natural Resources: \$50,000
- Friends of Blackwater: \$500,000

**TOTAL INVESTMENT TO DATE: \$17,575,000**

# STRATEGIC GOALS

- **GOAL 1: Maintain Existing Marsh**
  - Prevent additional marsh loss
  - Protect remaining marsh
  - Reduce threats
- **GOAL 2: Large-Scale Restoration**
  - The marsh systems require intervention
  - The marsh system cannot fully migrate and marsh surfaces will be lost
  - Potential use of dredged material

# GOAL 1 INITIATIVES

- **Maintain Existing Marsh**

1. **Maintain Nutria Eradication Program**

- Nutria nearly eradicated from Blackwater, but not Delmarva Peninsula

2. **Barbados Island Marsh Erosion Protection Project**

- Most at risk area
- Protection of 3900 ft. of marsh shoreline
- Restoration of 100 acres

3. **Wildlife Management Review**

- Review Marsh management practices such as marsh burning, farming practices, etc...

# GOAL 2 INITIATIVES

## • Large-Scale Restoration

### 1. Dredged Material Marsh Development Project

- Use Material from Port of Baltimore Approach Channels to test its utility
- Restoration of 10 acres within Blackwater NWR

### 2. Chesapeake Marshlands Feasibility Study

- Restoration of up to 12,000 acres of marsh
- Examine the use of Port of Baltimore dredged material for large-scale restoration
- Recommend a sustainable plan

# Barbados Island Blackwater National Wildlife Refuge Marsh Protection Project

Dike A:  
1800 ft. High Marsh Berm

Potential Dike  
Borrow Areas

Barbados  
Island

BLACKWATER RIVER

Potential Source of  
Organic Material

Marsh Cell 1  
30 Acres

Marsh Cell 2  
18 Acres

Marsh Cell 3  
10 Acres

Marsh Cell 4  
32 Acres

Marsh Cell 5  
18 Acres

BARBADOS POND

Potential Mineral Clay  
Borrow Area

Dike B:  
1200 ft. High Marsh Berm

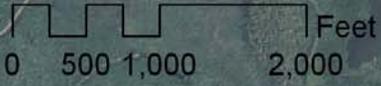
Equipment Access  
Route/Staging Area

Dike C:  
700 ft. High Marsh Berm

## Project Features

### Features

- High Marsh Berm
- Marsh Cell
- Potential Borrow Area



# POTENTIAL CORPS PROJECT COSTS

## 1. Dredged Material Marsh Development Project

- Cost: \$3,200,000 for 10 acre restoration

## 2. Barbadoes Island Marsh Erosion Project

- Cost: \$3,600,000 for 100 acres

## 3. Chesapeake Marshlands Feasibility Study

- Cost: \$10.5 Million for 4 year study

***FUNDING PLAN IS STILL BEING  
DEVELOPED***

***Can only be accomplished with tremendous  
public and political support***

# CONTACT INFORMATION

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