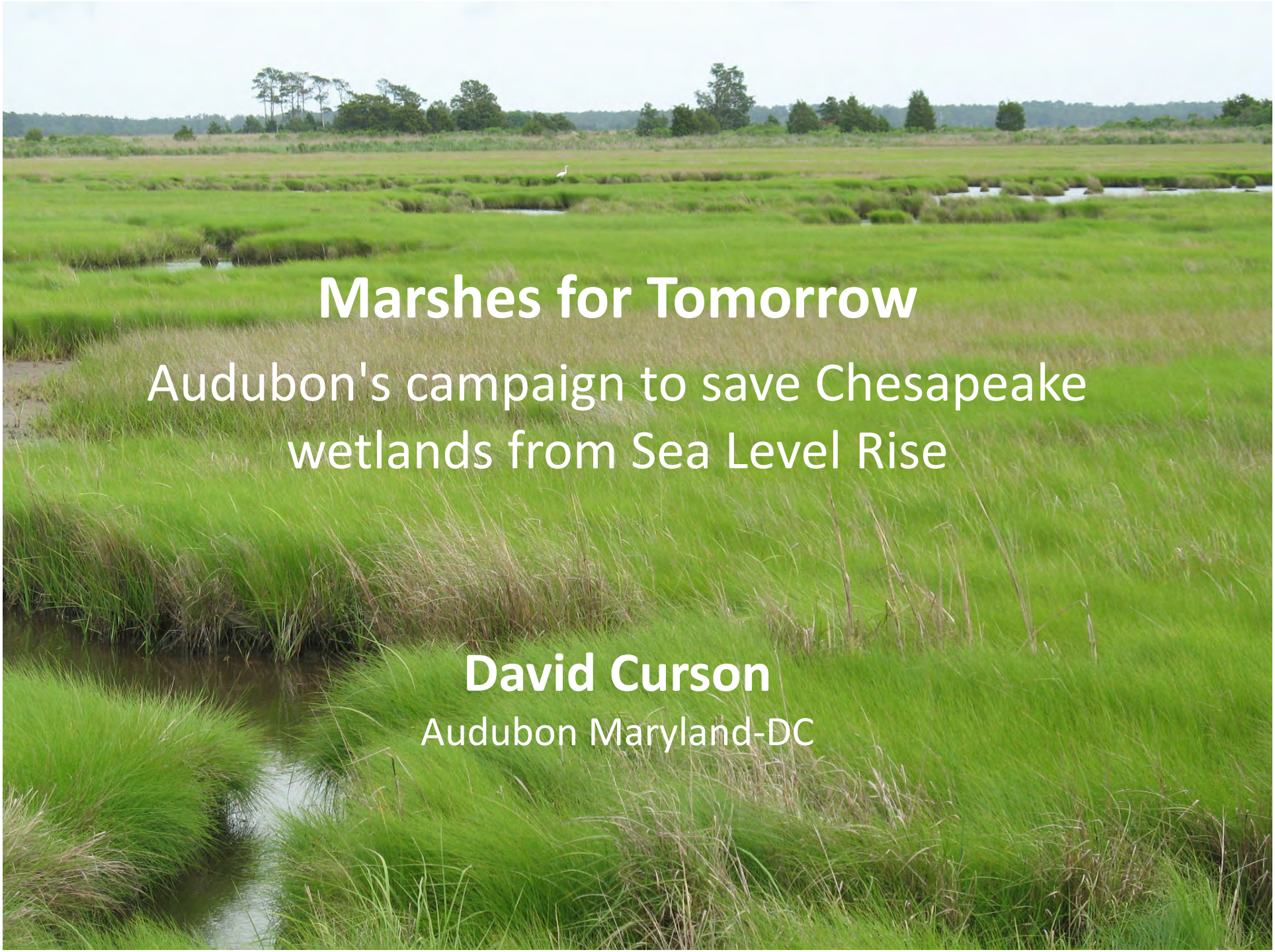


Marshes for Tomorrow

Audubon's campaign to save Chesapeake wetlands from Sea Level Rise

David Curson

Audubon Maryland-DC

Audubon

Saltmarsh Sparrow

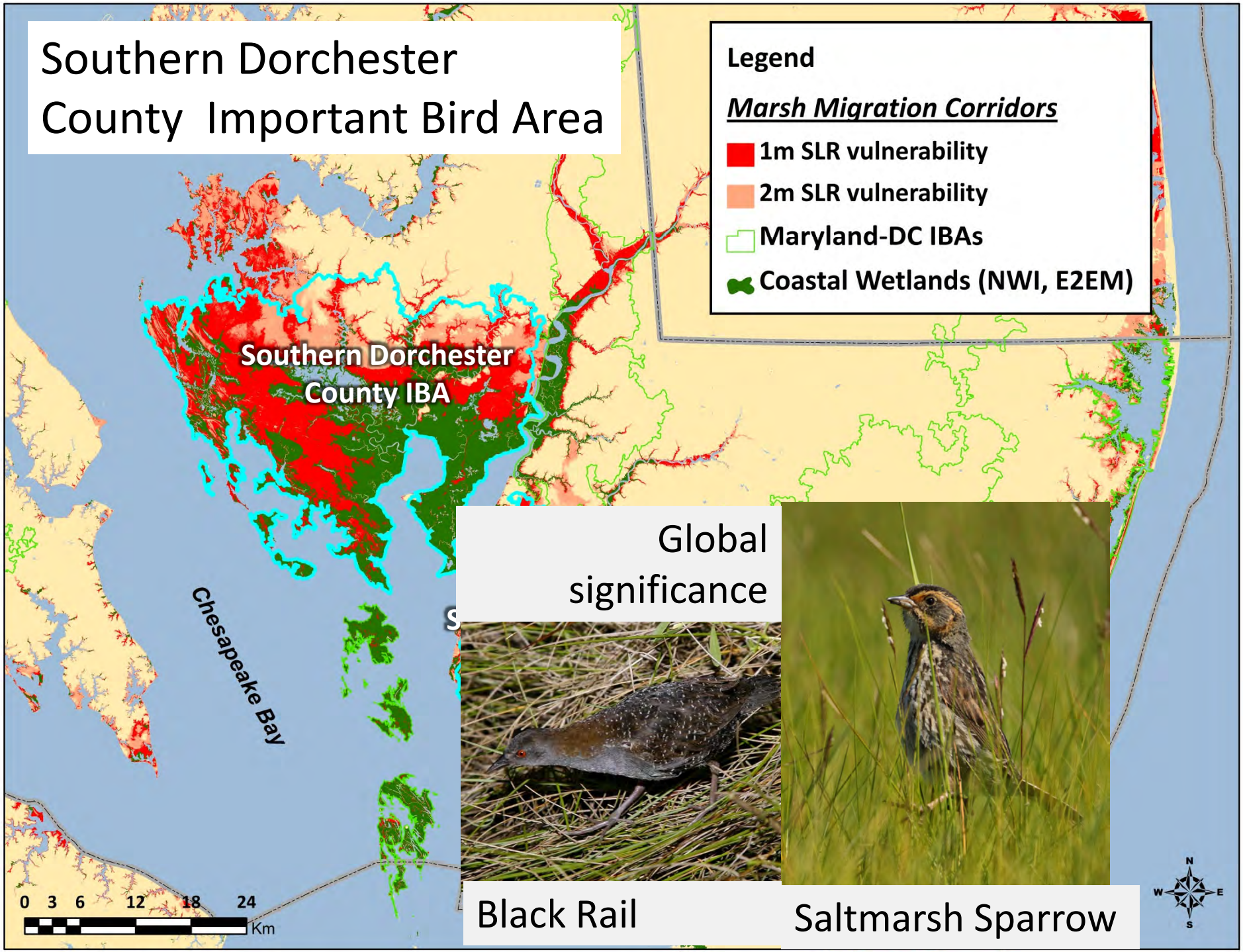
Neil Pearson

Audubon

Chesapeake Bay vulnerable to sea level rise

- Relative sea level rise (3.44mm/yr) is twice the global average (1.8mm/yr)
  - Land subsidence from isostatic rebound
- MCCC predicts SLR of 1.03m by 2100.

Southern Dorchester County Important Bird Area



Global significance

Black Rail

Saltmarsh Sparrow

Audubon

Blackwater 2100

THE CONSERVATION FUND

U.S. FISH & WILDLIFE SERVICE

Audubon MARYLAND-DC

Project goal:

Ensure the long term persistence of tidal marsh habitat in Dorchester County, Maryland, together with its full assemblage of associated bird species and other wildlife.

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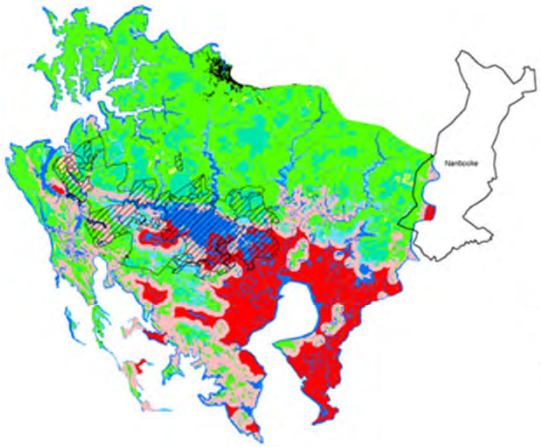
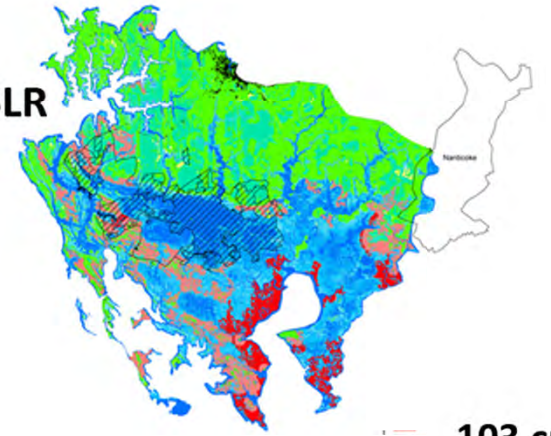
Climate Impact Assessment

Mapping marsh loss and migration

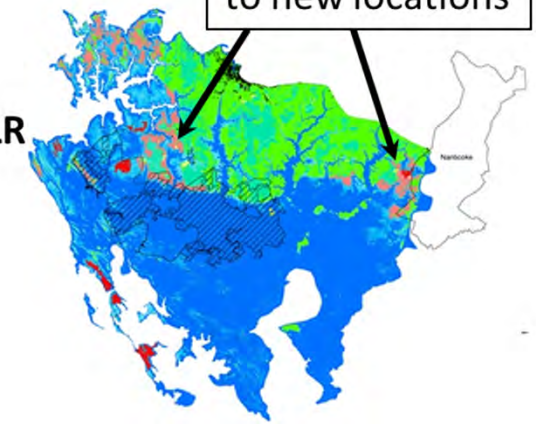
Current condition



42 cm SLR (2050)



103 cm SLR (2100)



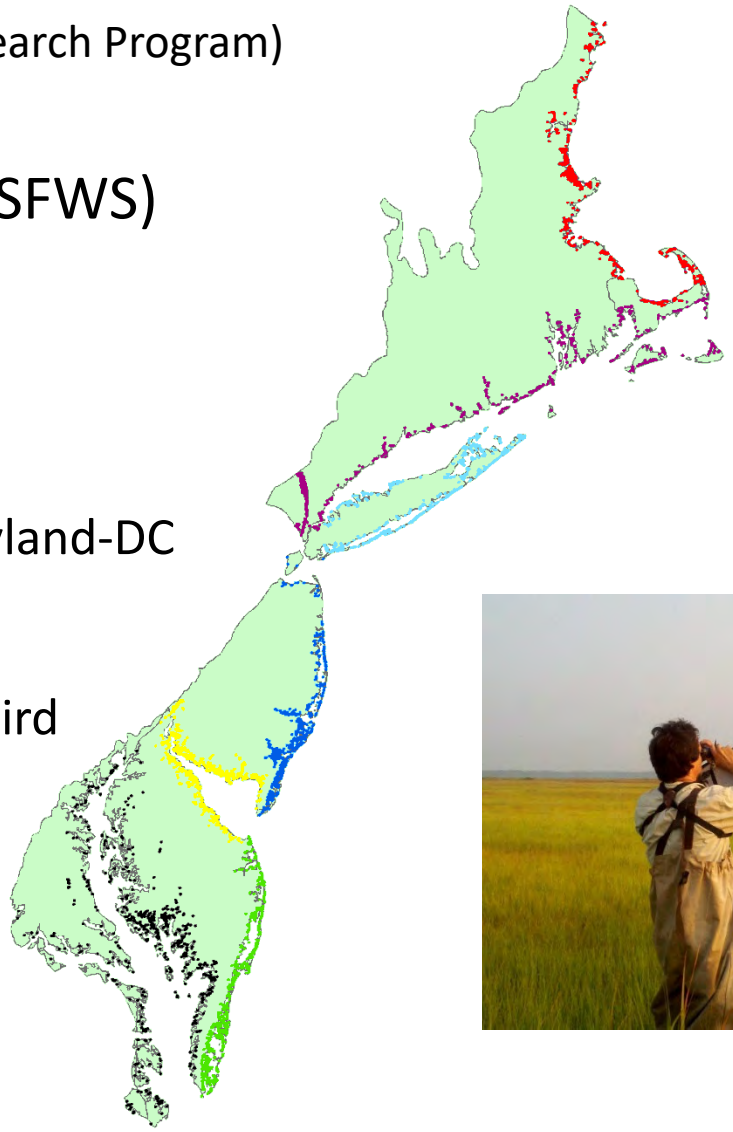
Audubon

SHARP salt marsh bird survey, 2011-2012

(SHARP - Salt marsh Habitat and Avian Research Program)

National State Wildlife Grant (USFWS) to:

- University of Maine
- University of Connecticut
- University of Delaware
- Maryland DNR & Audubon Maryland-DC



Field Methods

- Standardized N. American Marsh Bird Monitoring Protocol
- Randomly selected points

Audubon

Blackwater 2100 Adaptation Strategies

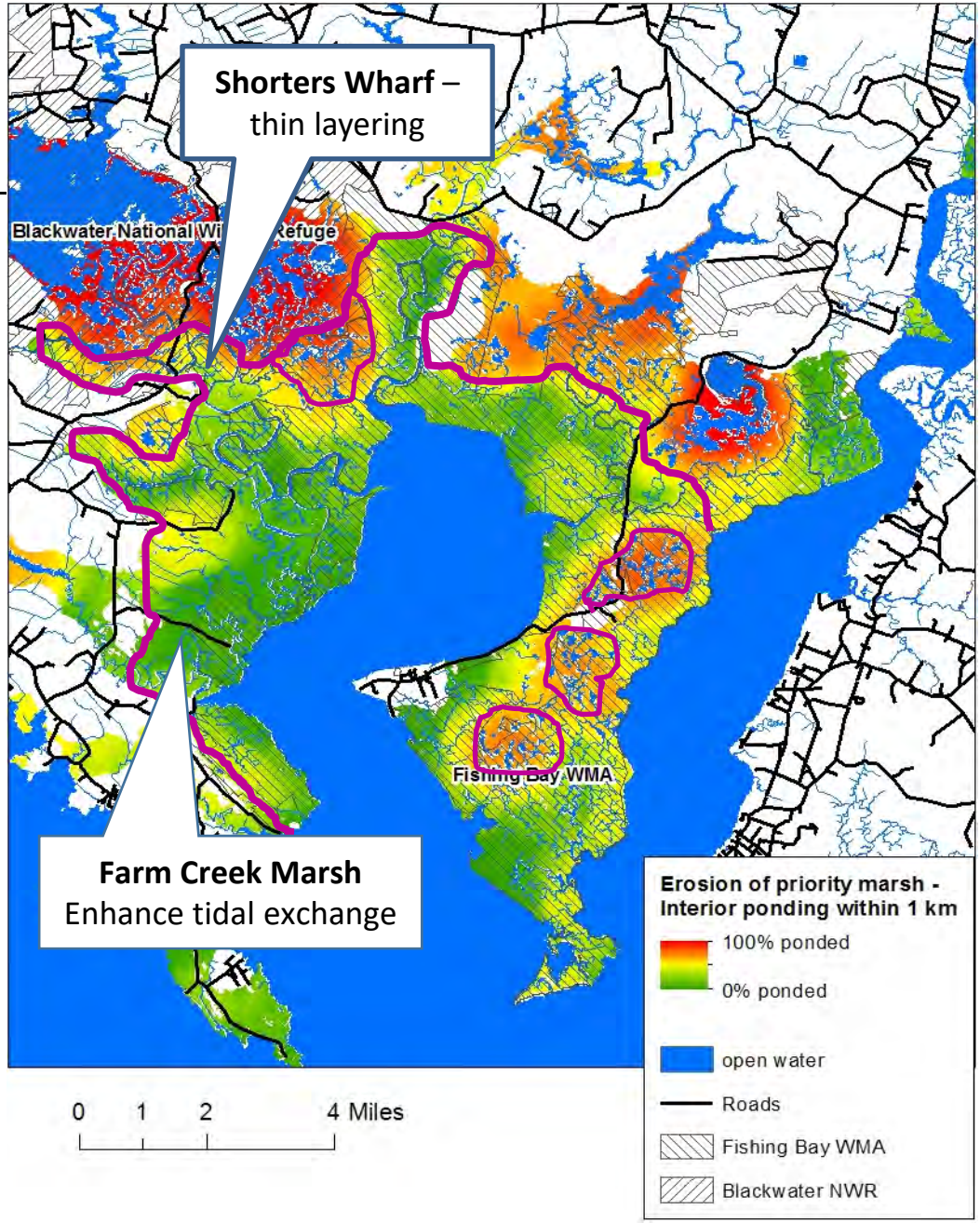
1. Protect land in priority marsh migration corridors
2. Facilitate marsh migration
3. Increase resilience of highest priority wetlands (in Marsh Conservation Zone)

Audubon

Increasing marsh resilience

Marsh Conservation Zone

- Highest value for salt marsh birds.
- Highest feasibility for restoration / retention.
- Single contiguous marsh patch (30,000 acres).
- Public (& private) land.



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Pre-treatment condition of Shorter's Wharf marsh, Blackwater NWR

- Submerging, fragmenting high marsh
- *Low marsh vegetation* dominant
- Seaside Sparrow at high density
- Black rail, Saltmarsh Sparrow absent.

Audubon

Audubon

December 2016

26,000 cubic yards of material spread over approximately 40 acres

Photos courtesy of Middleton Evans

Audubon

Natural re-colonization encouraged

Audubon

.. And where needed, live native marsh grass plugs planted or seeded

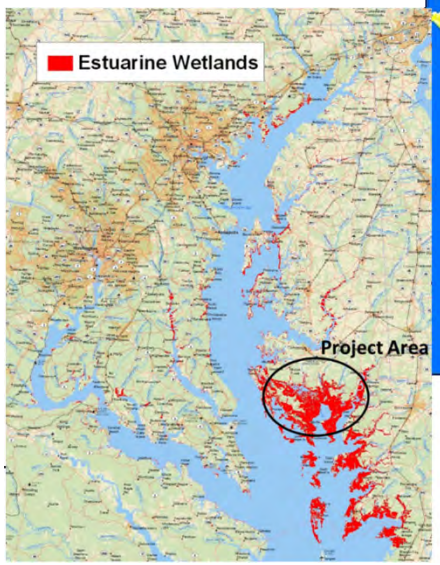
© Erik J. Meyers

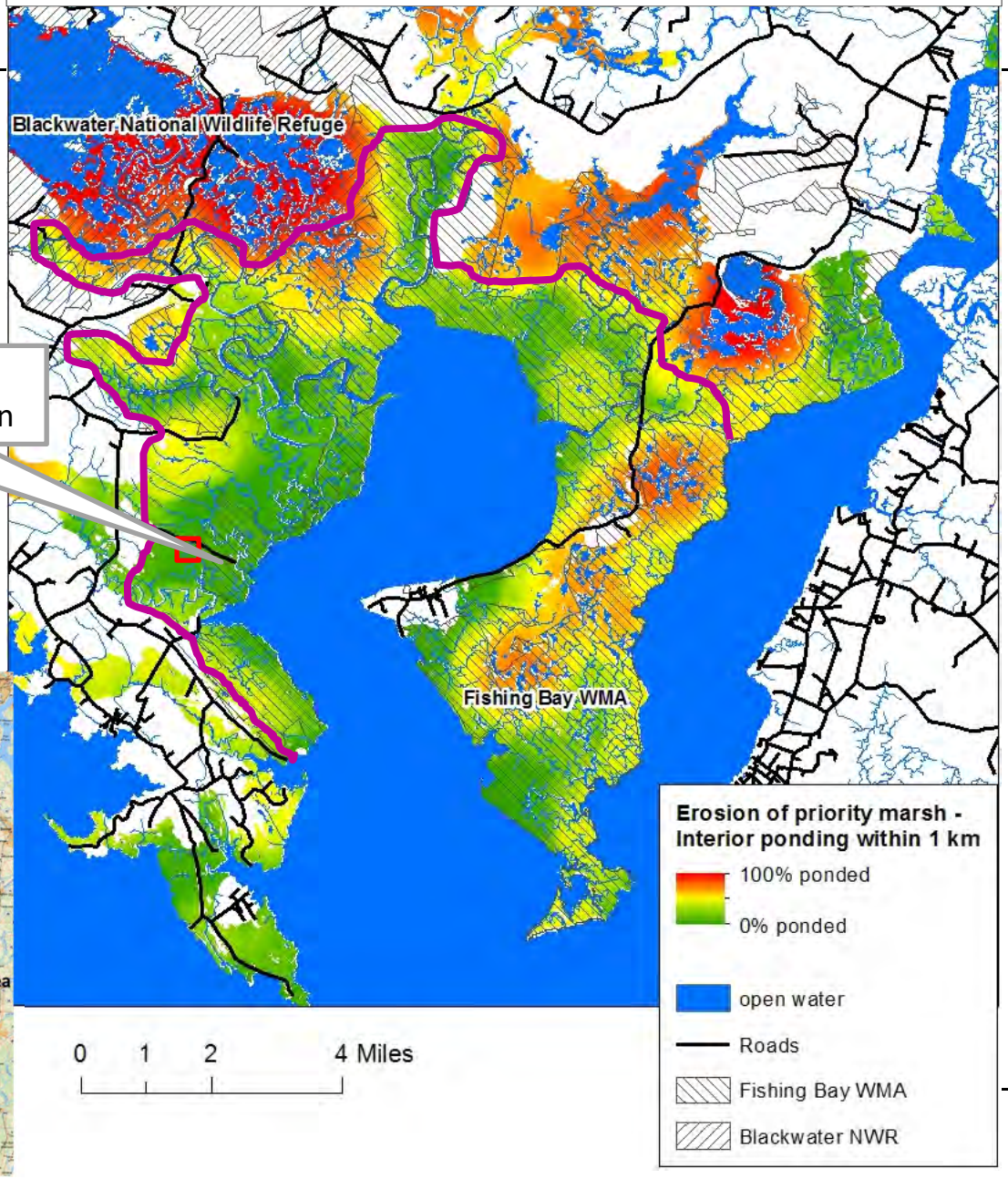

©Hugh Simmons Photography

Audubon

Hurricane Sandy Coastal Resilience projects in Blackwater-Fishing Bay Marsh Conservation Zone

Farm Creek Marsh – hydrological manipulation





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Farm Creek Marsh

- 700-acre property owned by Chesapeake Audubon Society.
- Straddles transition zone; forest → tidal marsh.
- Problem – new high marsh severely waterlogged, despite elevation above MHT.

Audubon

Farm Creek Marsh – site condition

Audubon

Enhancing tidal exchange at Farm Creek Marsh

Partners

US Geological Survey

Md Department of Natural Resources

The Conservation Fund

Sustainable Science LLC

Chesapeake Audubon Society (landowner)

Audubon

Site study, 2014-2016

Supported by a generous grant from the

National Fish and Wildlife Foundation

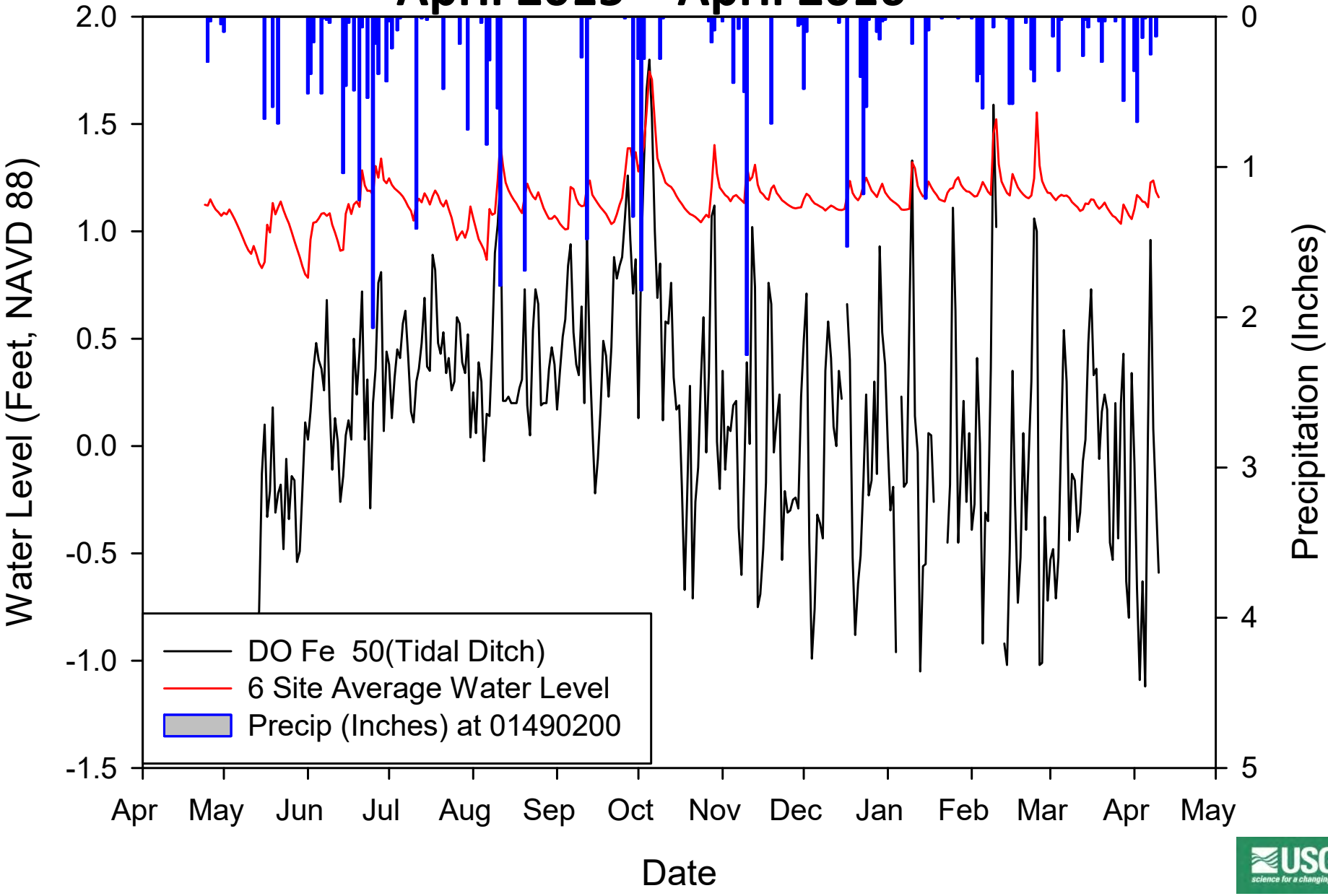
Hurricane Sandy Coastal Resiliency Competitive Grants Program

Grant #42942

1. Determine the extent and duration of inundation.
2. Determine the cause of inundation.
3. Provide data for engineering design.
4. Baseline data on vegetation cover and birds.

Results: Cause of Inundation

April 2015 – April 2016



USGS science for a changing world

Audubon

Implementing a remedy, 2017-2019

Supported by:

Wildlife Conservation Society (Climate Adaptation Fund)

National Fish and Wildlife Foundation (Chesapeake Bay Stewardship Fund) Grant #57631

France-Merrick Foundation

Bancroft Foundation

CSX

Chesapeake Audubon Society

Audubon

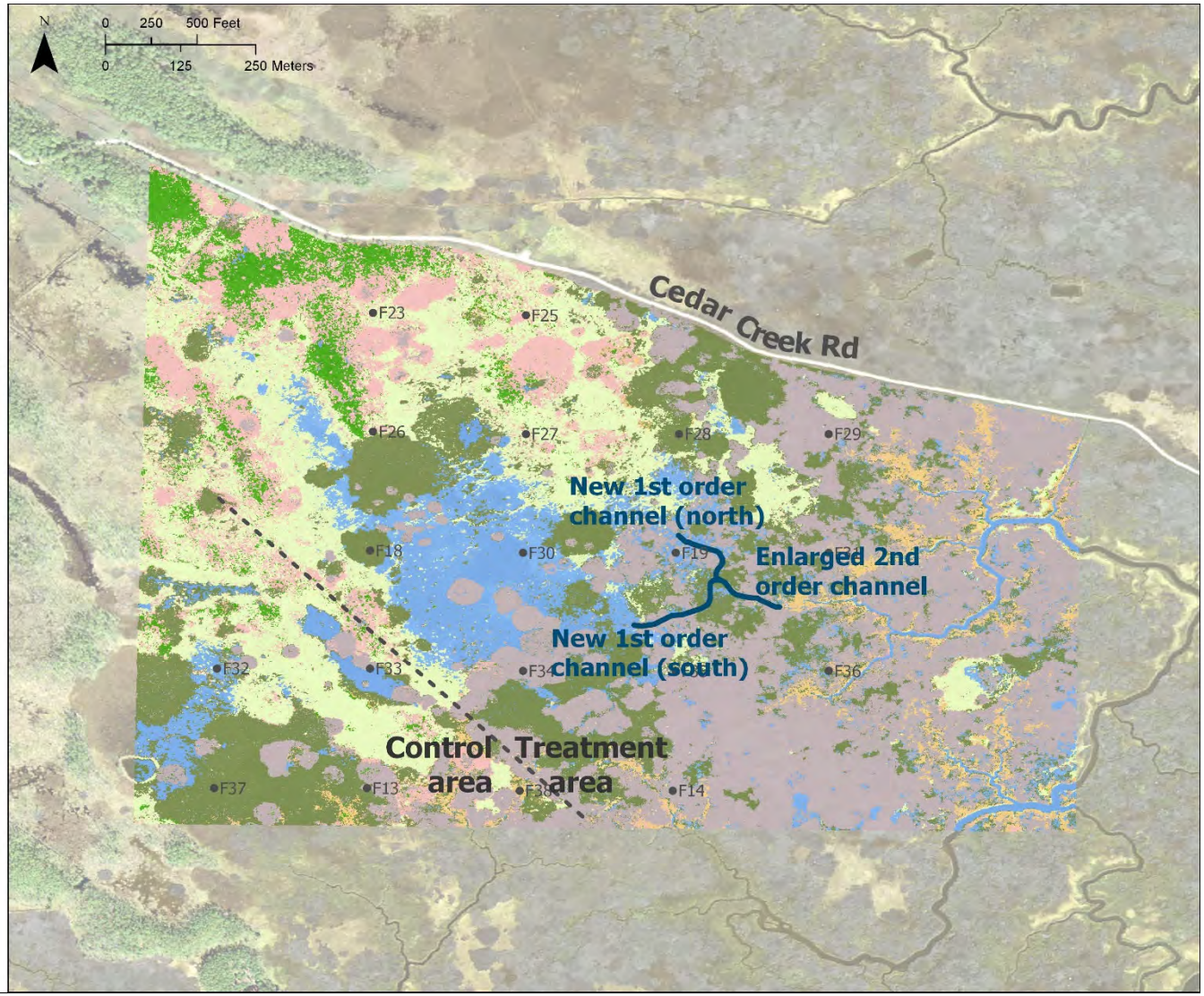
Farm Creek Marsh Restoration Project

Project design

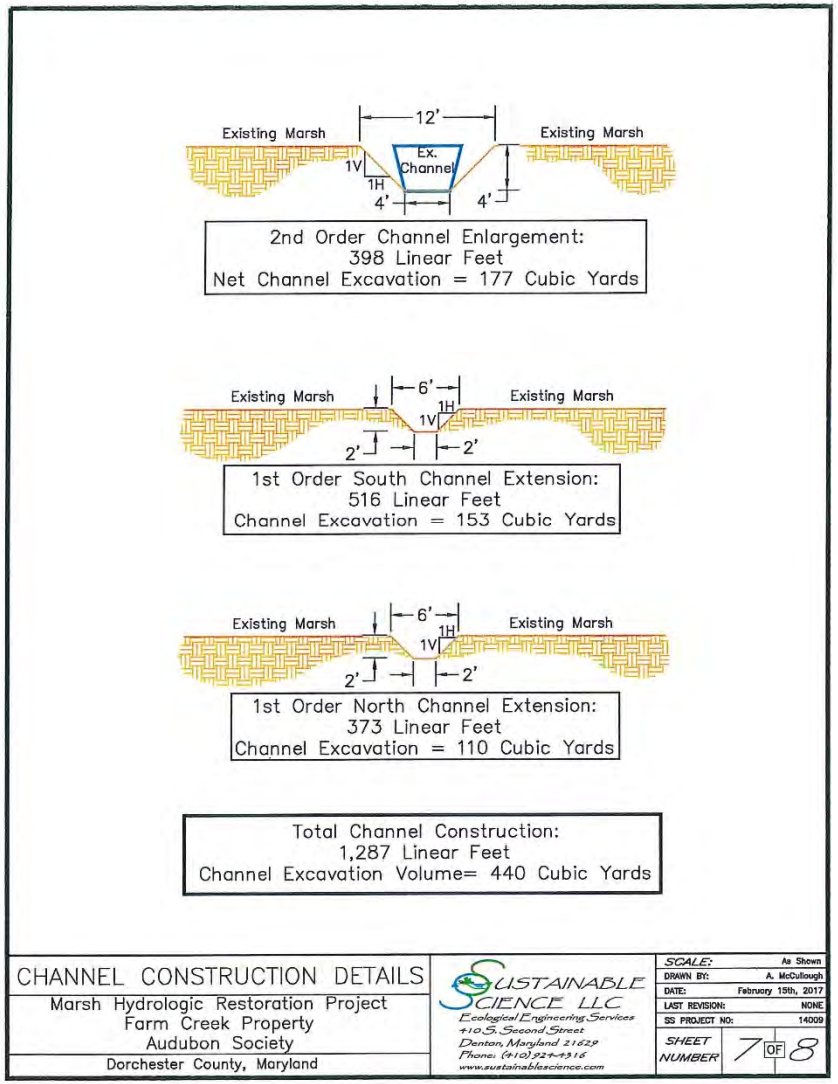
- Bird survey point

Vegetation type

- Water
- Black Needlerush
- Phragmites
- Big Cordgrass
- Saltmeadow Cordgrass/ Salt Grass
- Olney Threesquare
- Loblolly Pine



Audubon



Tidal channel design

- Sinuosity mimics natural nearby channels (1st order channels average = 1.2)
- New 1st order channel depth = 2 feet (0.6 m)
- Enlarged 2nd order channel depth = 4 feet (1.2 m)

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Channel construction

- Completed by Md DNR October 2018.
- Low ground pressure pontoon excavator.
- Total length 1,287 ft (392 m) excavated in 3 days.

Audubon

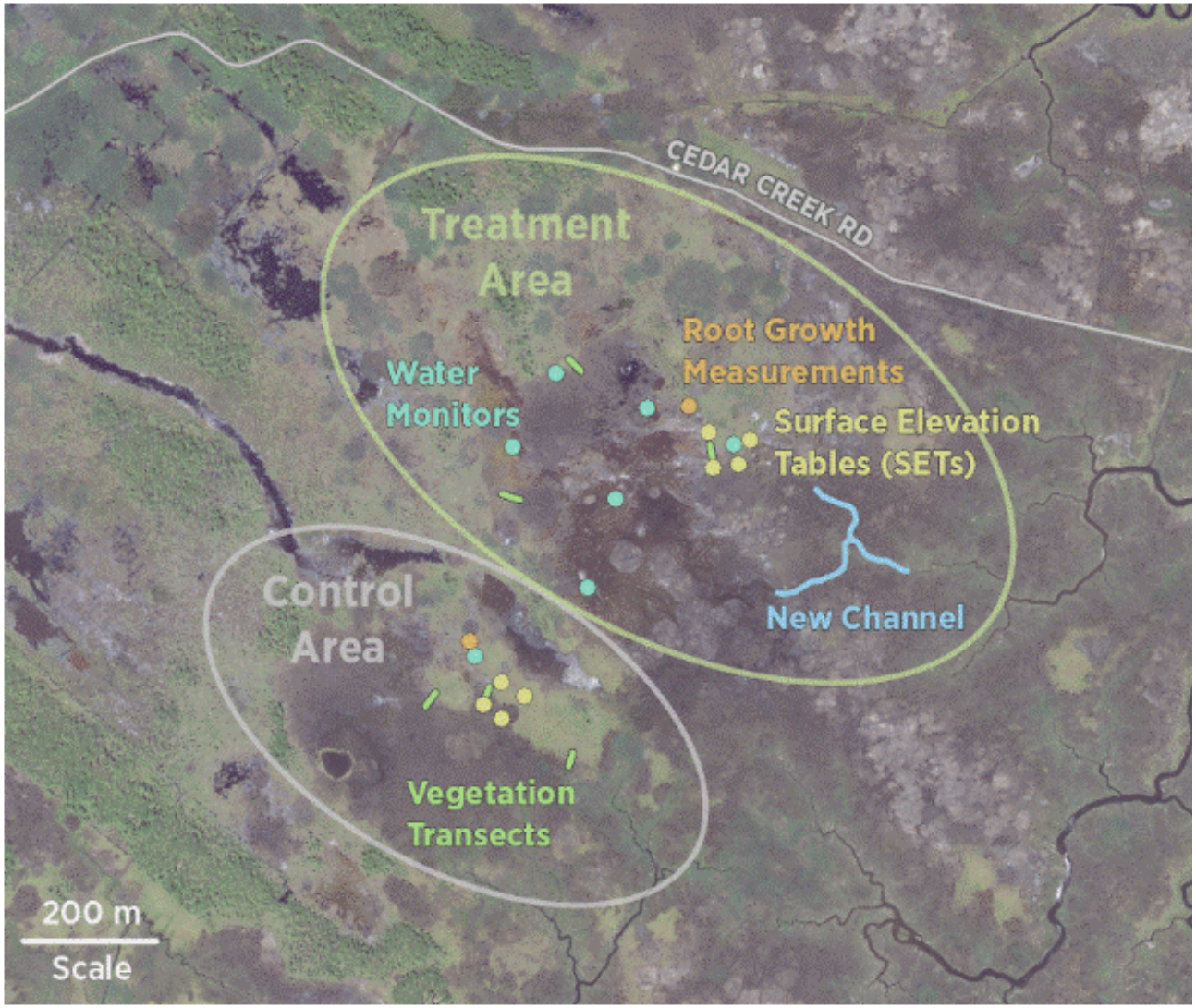
Audubon

Audubon

Farm Creek Marsh Restoration Project

<u>Environmental monitoring</u>

- Surface water level.
- Marsh elevation.
- Root growth *(S. patens/D. spicata)*
- Vegetation dynamics
- Vegetation cover.
- Birds



Audubon

"I Bird, I Vote" Bird Conservation Summit

March 2nd, 2019: Patuxent Wildlife Visitor Center