Marsh Loss in the Maryland Coastal Bays And Restoration Efforts to Reverse the Loss

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Chesapeake Bay Program, Wetland Workgroup

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Maryland Coastal Bays

- 71,000 acres of water
- 248 miles of shoreline
- 35,000 ac of wetlands (tidal and nontidal)
- 360 species of birds
- 108 species of rare, threatened, or endangered wildlife species.

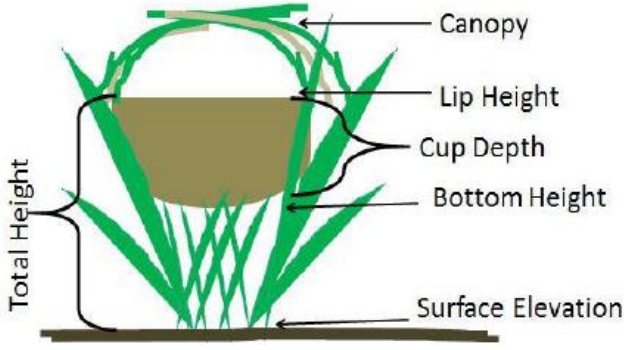
Tidal salt marshes cover about 17,000 acres in the Coastal Bays.

- Provide a nursery for fish and shellfish
- Provide habitat for many species of marsh birds and other wildlife
- Store large amounts of blue carbon
- Provide a buffer against coastal storms
- Provide recreation and are a defining feature of our coastal areas.

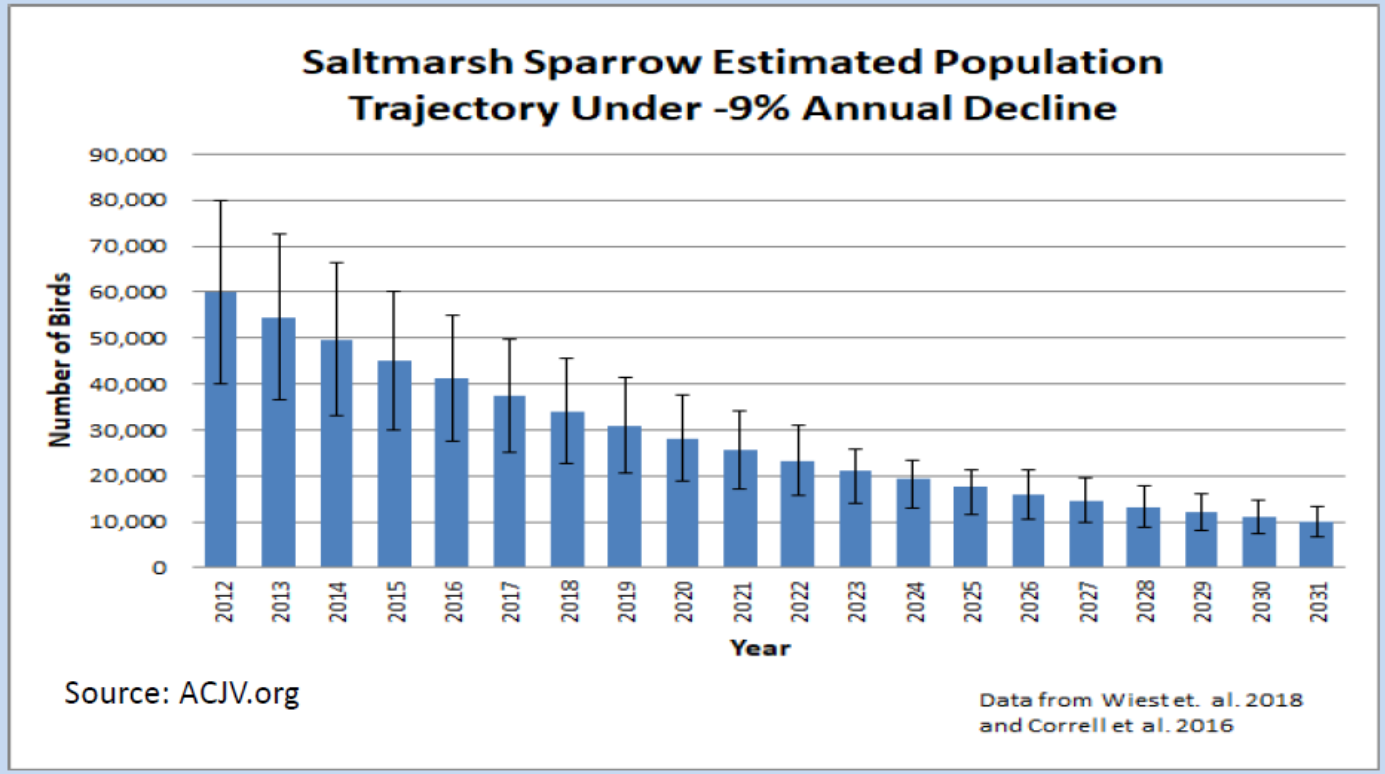
Obligate salt marsh bird

Nests in *Spartina patens*, *Juncus*, etc, which are located in areas of marsh that flood the least frequently (should be once/month)

Salt Marsh Sparrow



Population Trend



Documented 9% annual rate of decline range-wide (1998-2012)
Projecting that decline through 2018, we would estimate 84% population decline since 1998
Extinction predicted as early as 2032 and as late as 2064 based on population viability analyses

Causes of Decline

- Low reproductive success
- 57% of nests failed to produce a single fledgling from 2011-2015
- Reproductive failure is caused by:
  - Flooding of nests
  - Predation of nests (in the south)
  - Tidal restrictions associated with negative population growth rates

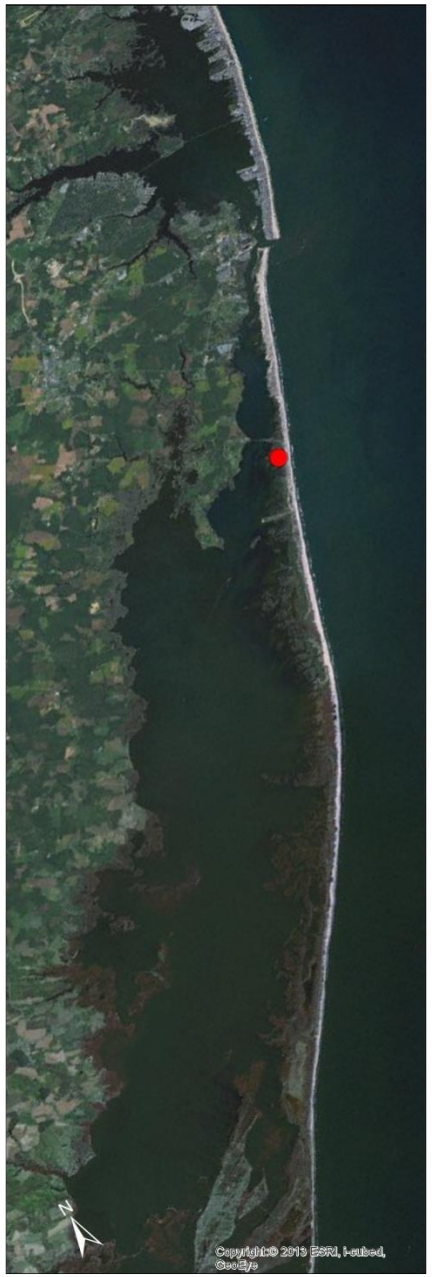
Jenna Mielcarek

Black Rail

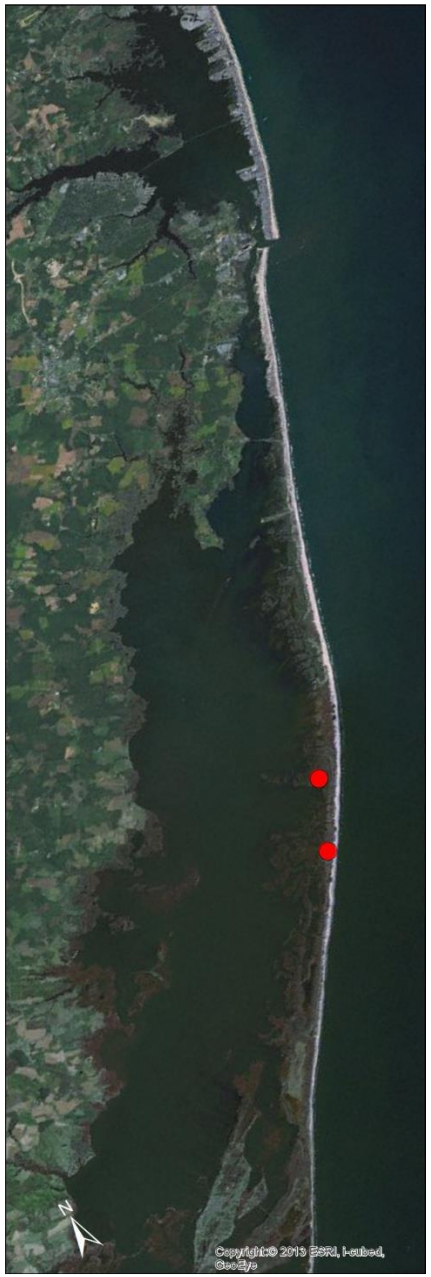
MD DNR Marsh Bird Surveys- Black Rail detections. Brinker et al

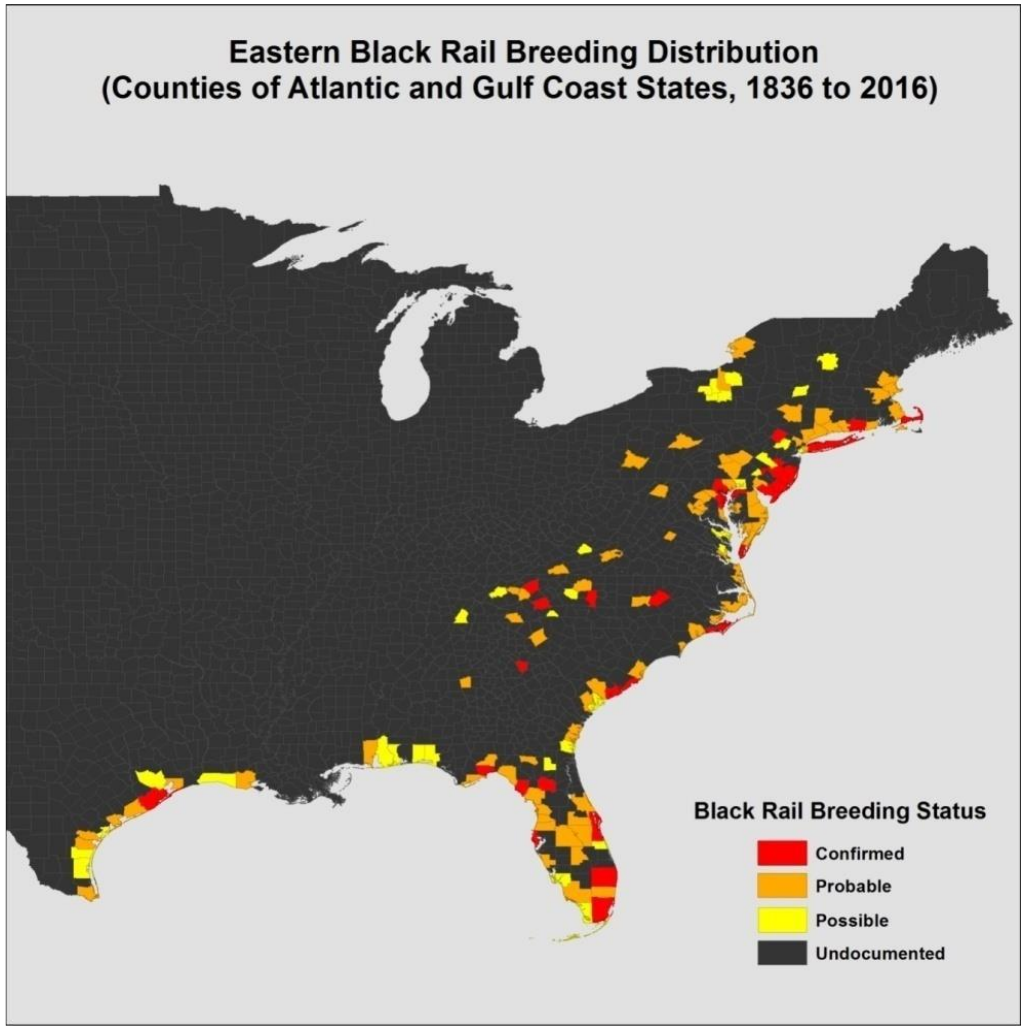
1990

2007

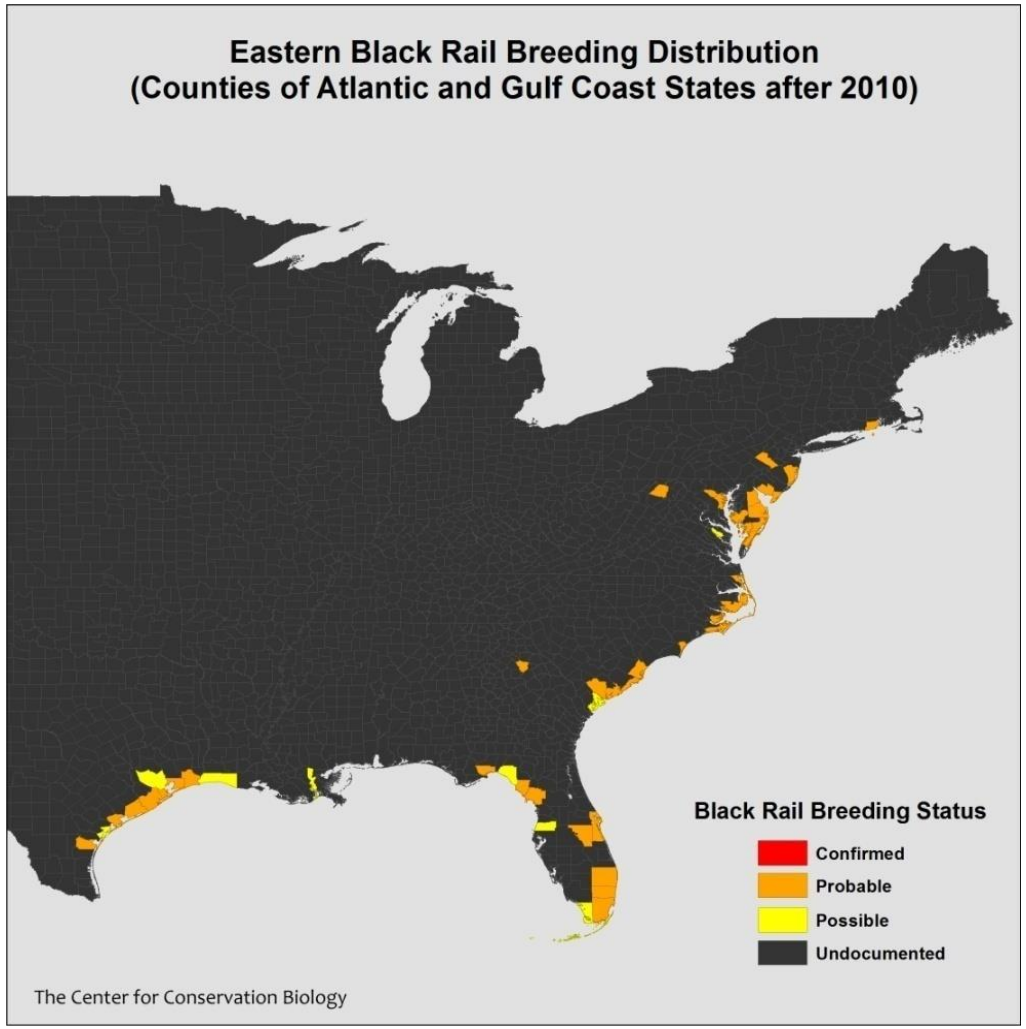


2014



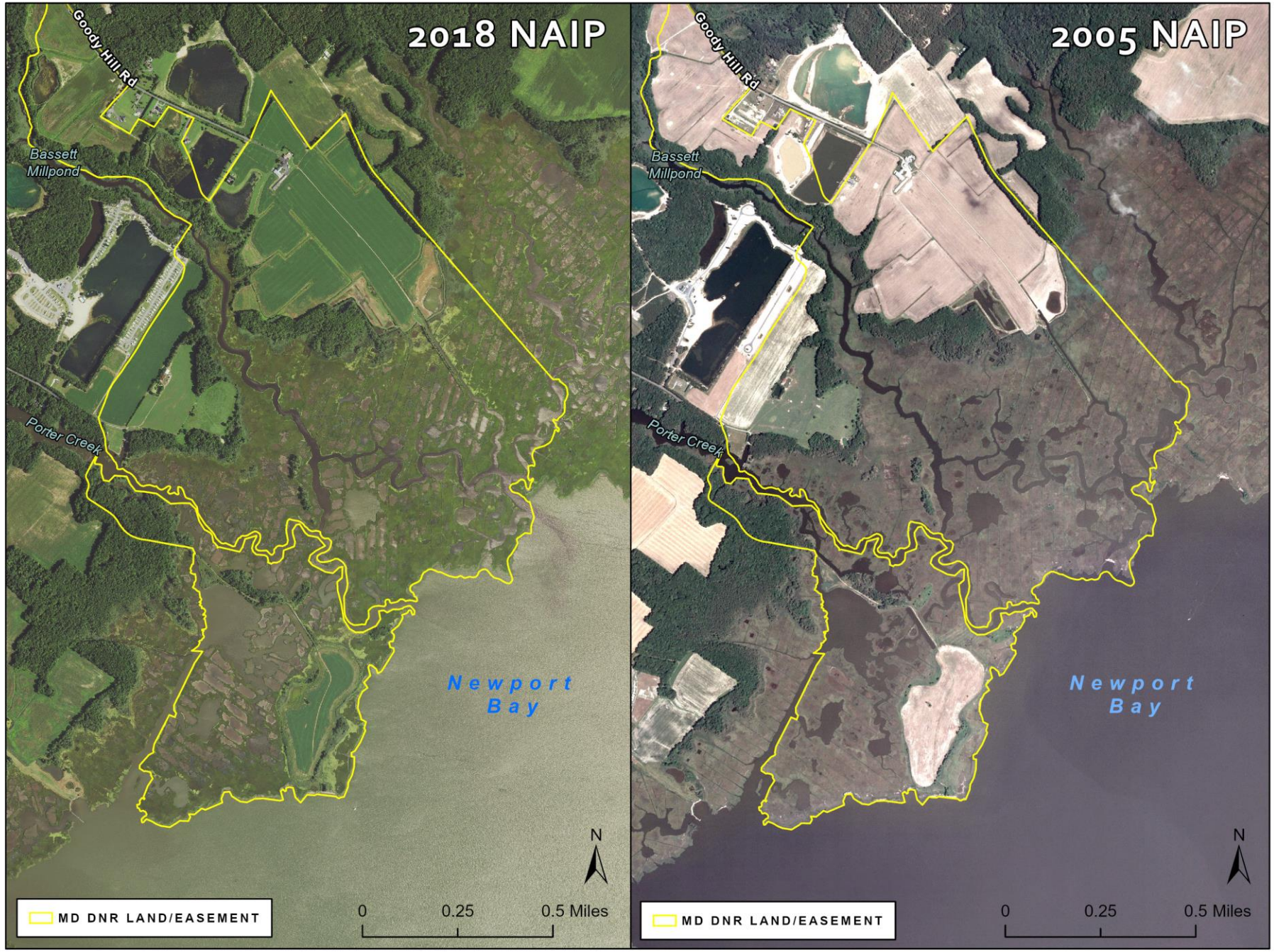


174 Counties



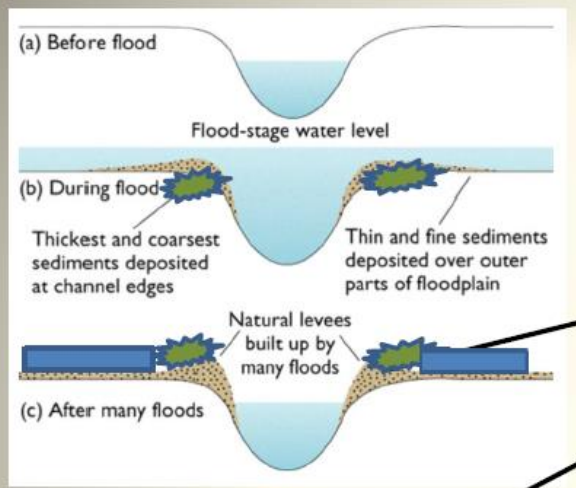
49 Counties

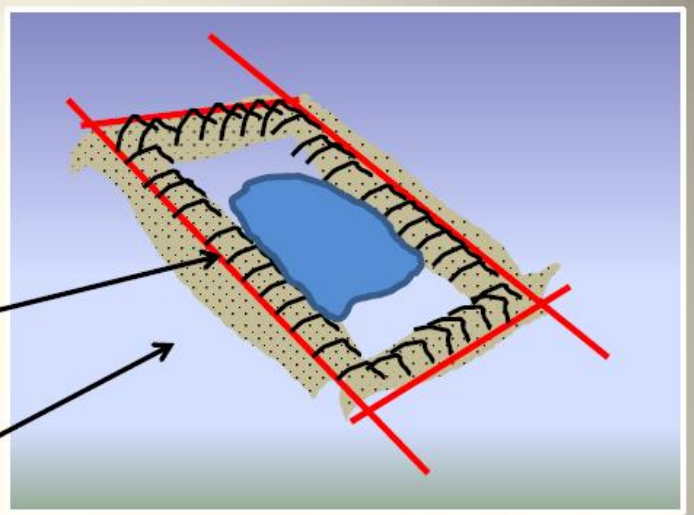

Coastal Marsh in Virgina
Natural Drainage Patterns
Legend
NATIONAL WILDLIFE REFUGE
Natural Marsh drainage
Google Earth
Image USDA Farm Service Agency
Image NOAA
N
1000 ft


2018 NAIP
Goody Hill Rd
Bassett Millpond
Porter Creek
Newport Bay
N
MD DNR LAND/EASEMENT
0
0.25
0.5 Miles
2005 NAIP
Goody Hill Rd
Bassett Millpond
Porter Creek
Newport Bay
N
MD DNR LAND/EASEMENT
0
0.25
0.5 Miles

EA Vaughn Wildlife Management Area- Scarborough Marsh

Ditched Marsh Panne Formation





Problem – Marshes have mosquito ditches that are linear and often grid ditched, no meanders; SLR and sediment issues allow pannes Marsh turns into a 'waffle'

Marsh Adaptation Strategies

In Marsh

- Drainage enhancement of expanding impounded water areas through excavation of runnels/shallow channels
- Sediment placement/marsh elevation enhancement

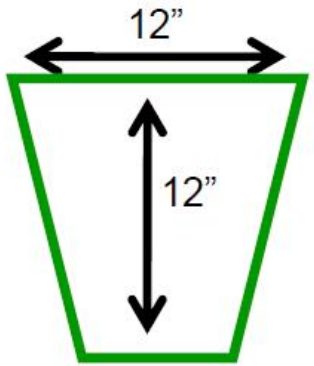
Marsh Migration area

- Remove of physical barriers to marsh migration i.e. walls/dams/roads
- Land conservation

Runnel range of profiles

small runnels
6-8”

large runnels



Ditch blockage opened by hand

Potters Pond, South Kingstown

Conduct project in phases; shallow drainage can prevent loss of sediment and reduce loss of elevation

Runnel excavation by hand in summer of 2018

Creek excavation in fall of 2018 with low ground pressure excavator

Slide by Wenley Ferguson

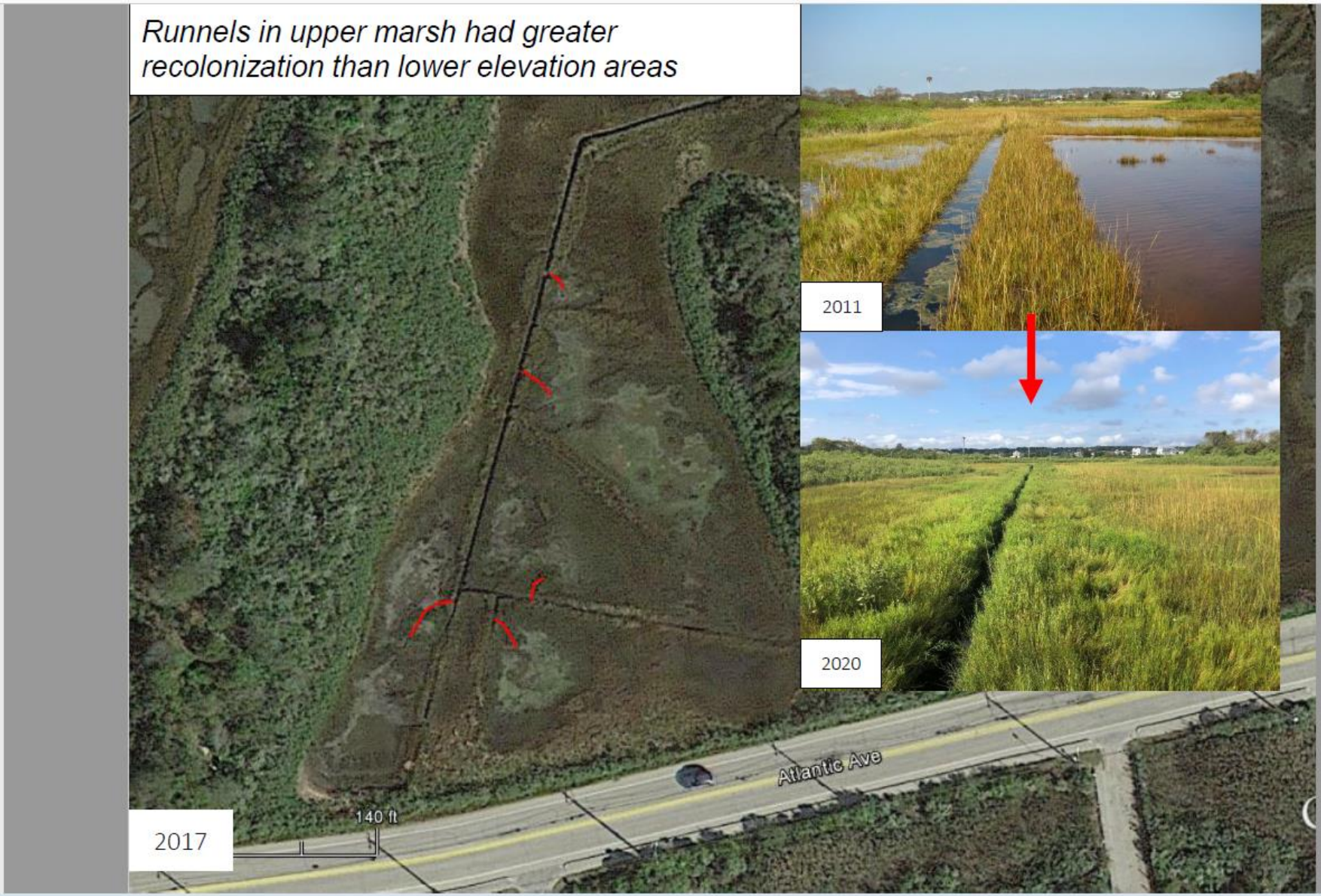
Narrow River runnels:

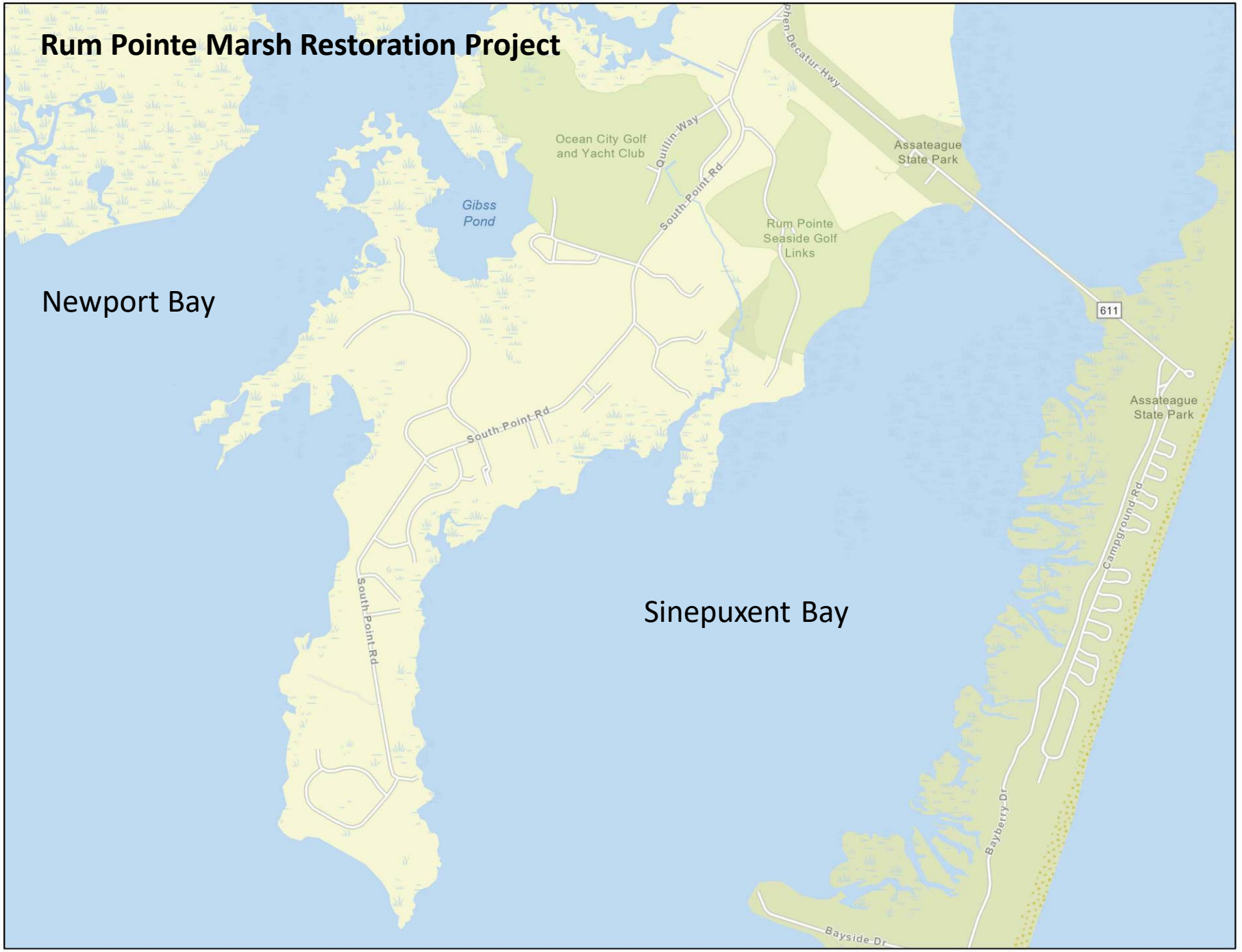
Use excavated peat to create microtopography

Spring 2015

Fall 2019

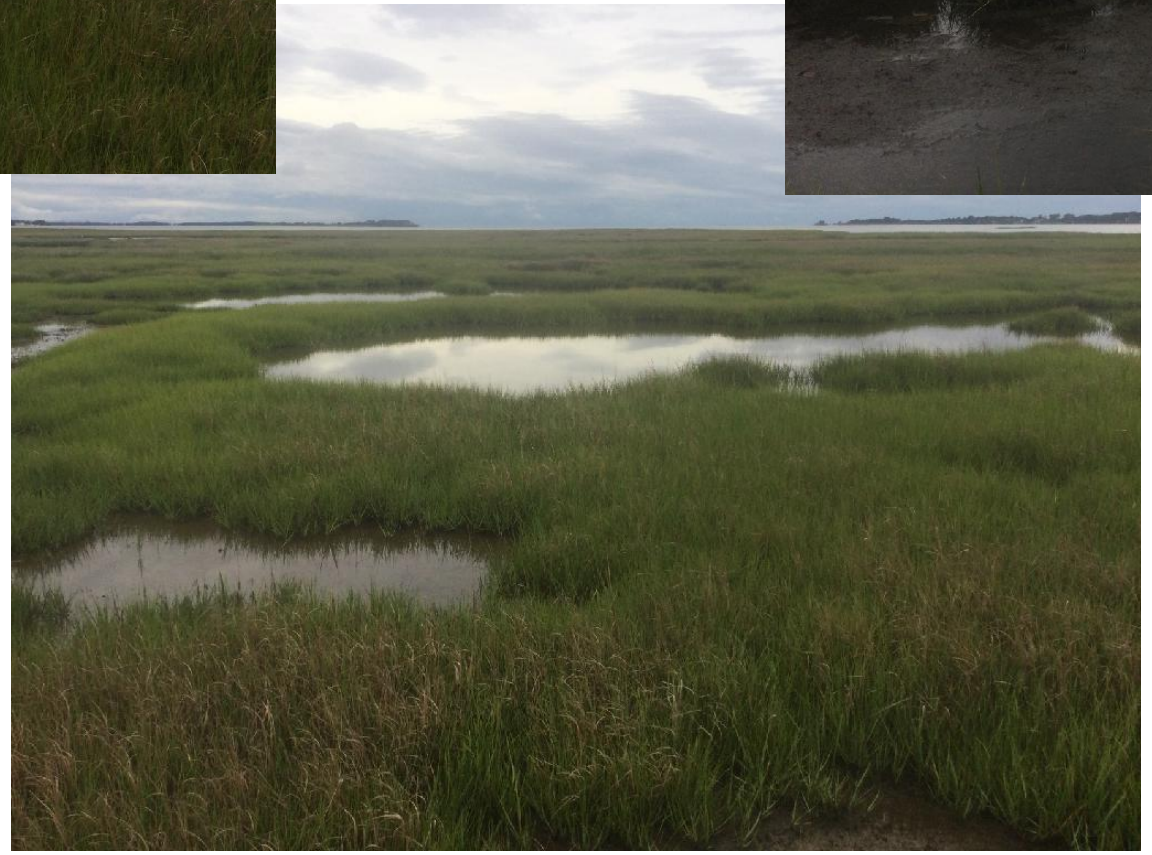
Runnels in upper marsh had greater recolonization than lower elevation areas




Rum Pointe Marsh Restoration Project
Newport Bay
Sinepuxent Bay
Ocean City Golf and Yacht Club
Quillin Way
South Point Rd
Gibss Pond
Rum Pointe Seaside Golf Links
Assateague State Park
611
Assateague State Park
Campground Rd
Bayberry Dr
Bayside Dr
South Point Rd
South Point Rd

Rum Pointe Marsh Restoration Project

11/20/2020 MAX_0005.DNG



Rum Pointe Proposed Runnels Map

07/30/2021


Deal Island WMA
Grid Ditching
Legend
Deal Island State Wildlife Management Area
Google Earth
Image USDA Farm Service Agency
N
1000 ft

Thank You
Questions?