

State of the Salt Marshes in the MD Coastal Bays

MD Coastal Bays Sediment Management Plan Meeting

Rich Mason- US Fish and Wildlife Service

October 23, 2023





South



Mid Chincoteague Bay-Public Landing Boat Ramp

West





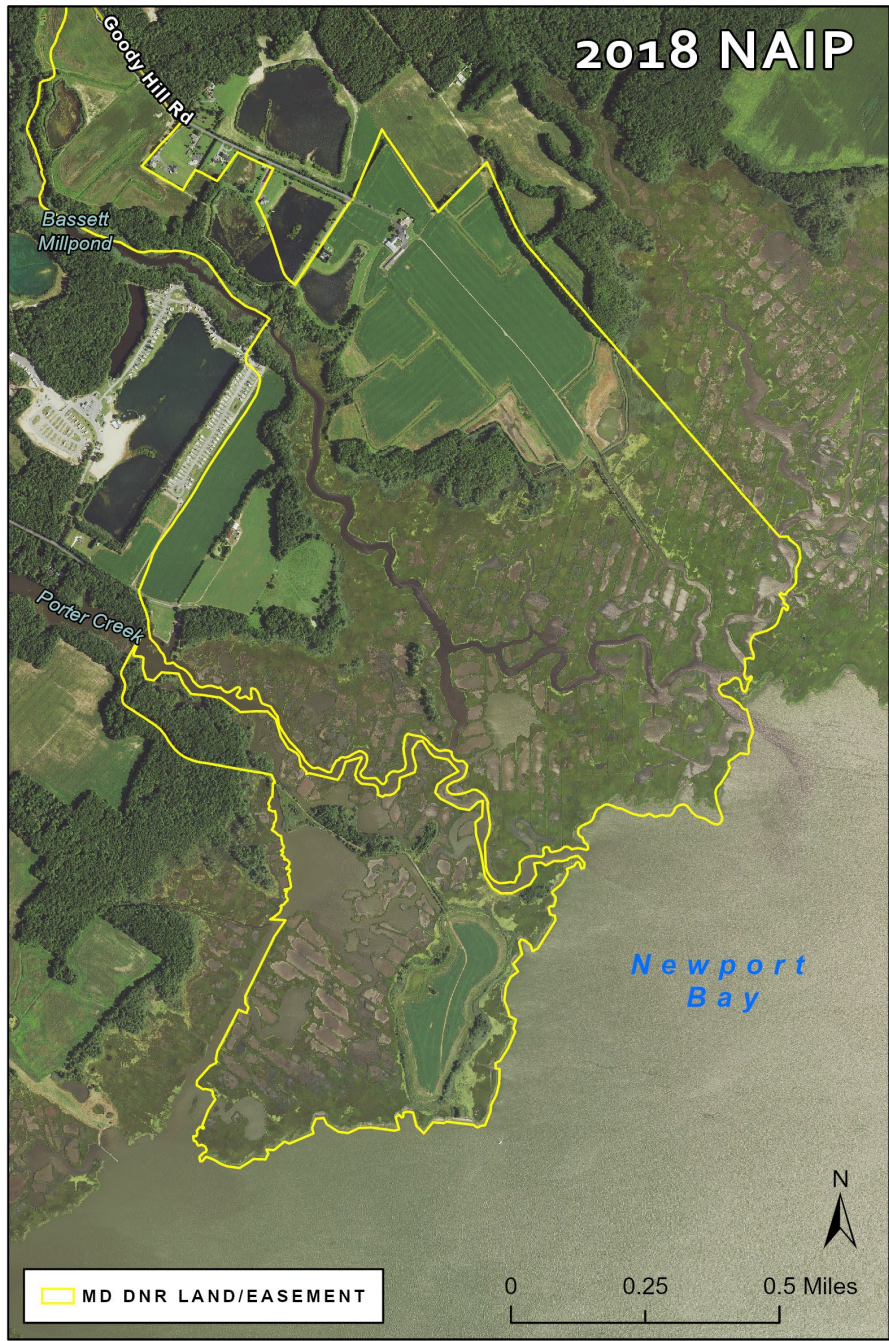
Northeast



Headwaters of Newport Bay-Trappe Creek

Southeast





Summary of Internal Marsh Loss- Maryland Coastal Bays

UVVR Analysis-USGS

	Estimated Percent loss UVVR-0.15	Estimated Acres lost UVVR-0.15	
Assawoman Bay	1%	21	
Isle of Wight	6%	44	
St. Martin River	8%	50	
Sinepuxent	22%	390	
Newport	24%	838	
Robins Cr. - Chincoteague	19%	728	
Calfpen - Chincoteague	20%	1083	
Swan's Gut Creek - Chincoteague	7%	106	
Summary of internal marsh loss		3,260	Acres

Hydrologic Unit Code (HUC) 12 digit watersheds

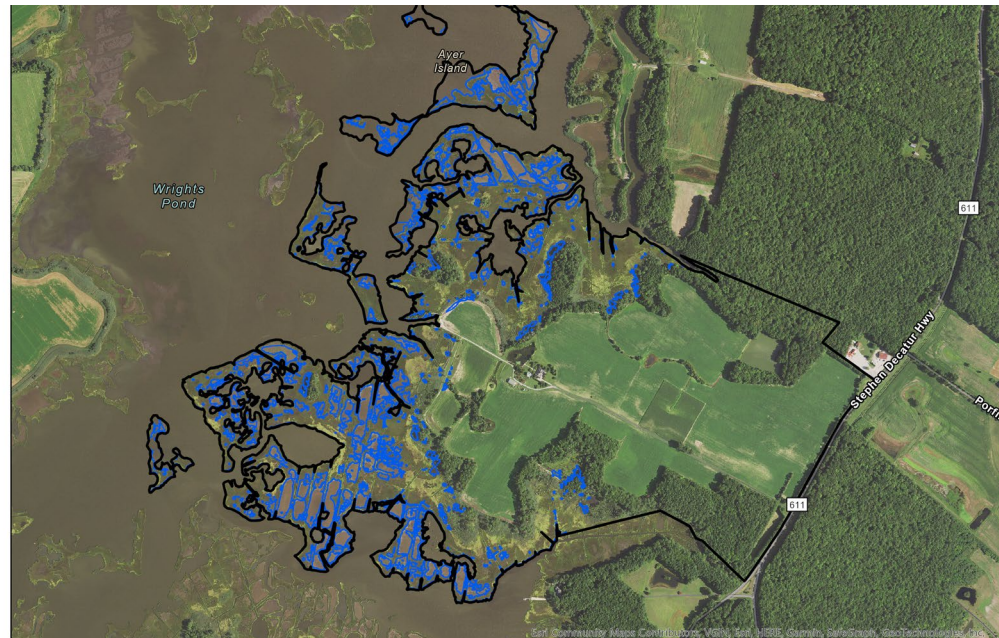
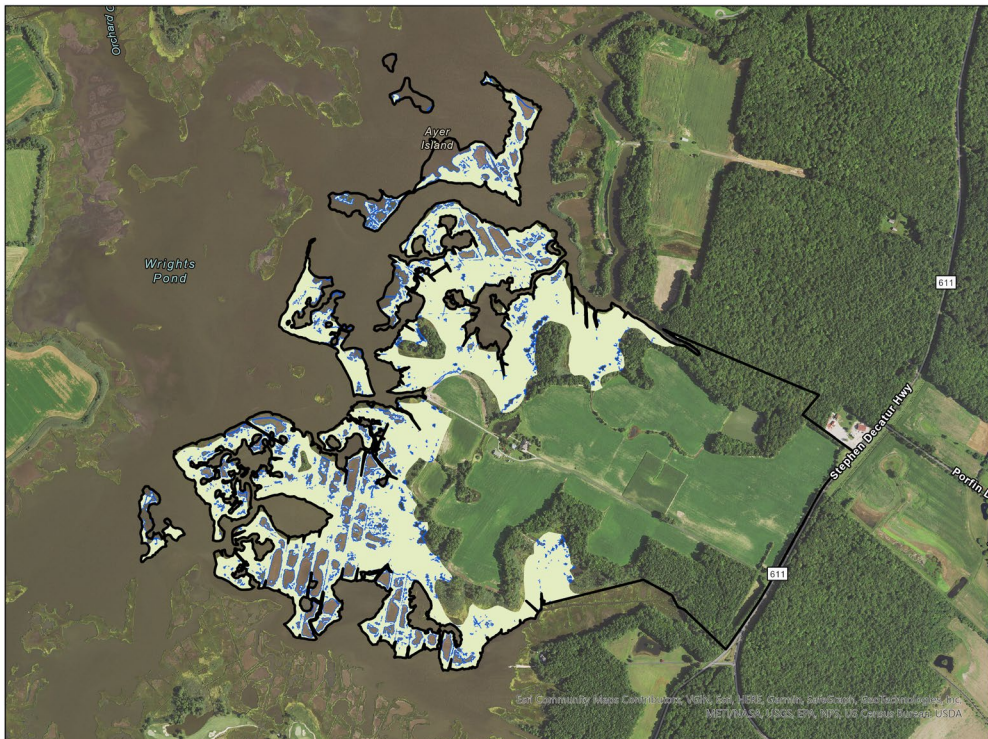
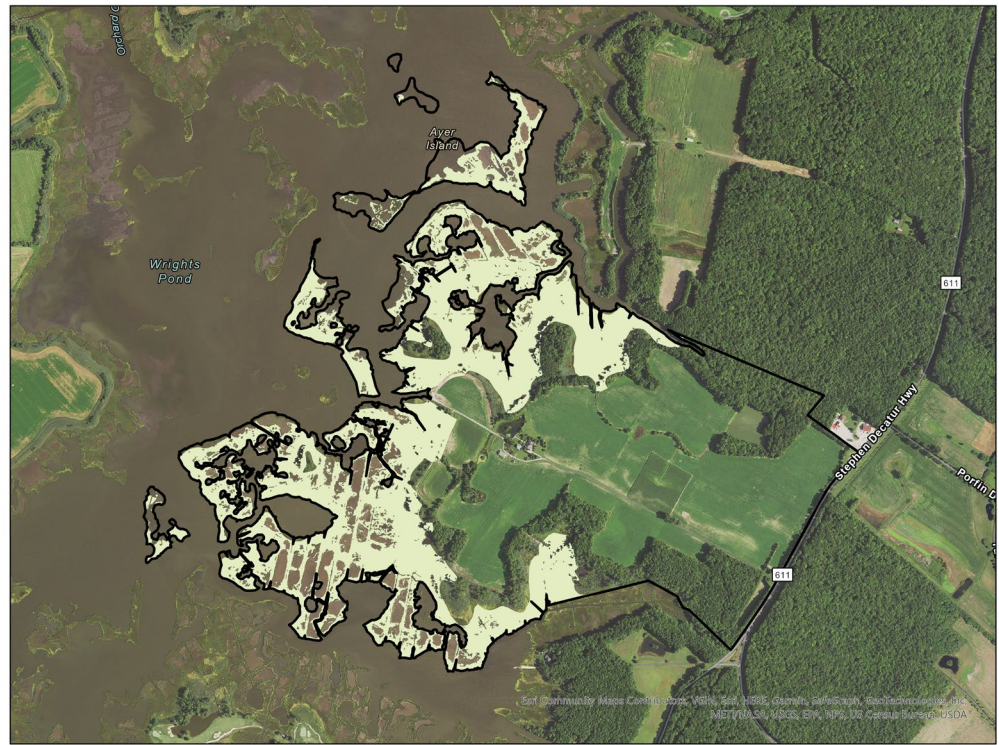




2018 NAIP



UVVR for Horner Farm
is 0.38 or
28% unvegetated and
72% vegetated

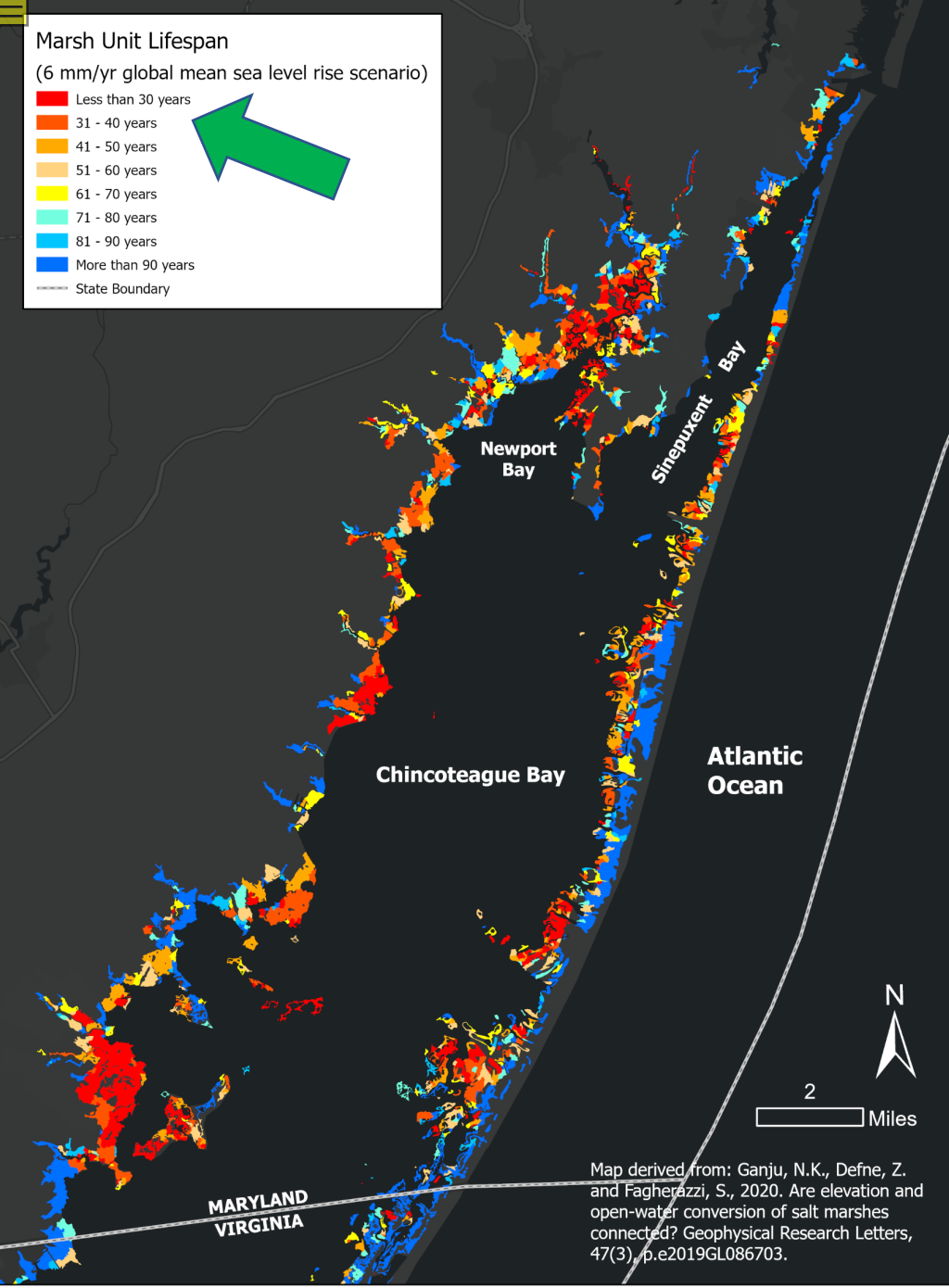
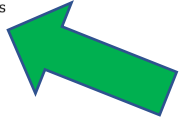


Marsh Unit Lifespan

(6 mm/yr global mean sea level rise scenario)

- Less than 30 years
- 31 - 40 years
- 41 - 50 years
- 51 - 60 years
- 61 - 70 years
- 71 - 80 years
- 81 - 90 years
- More than 90 years

State Boundary



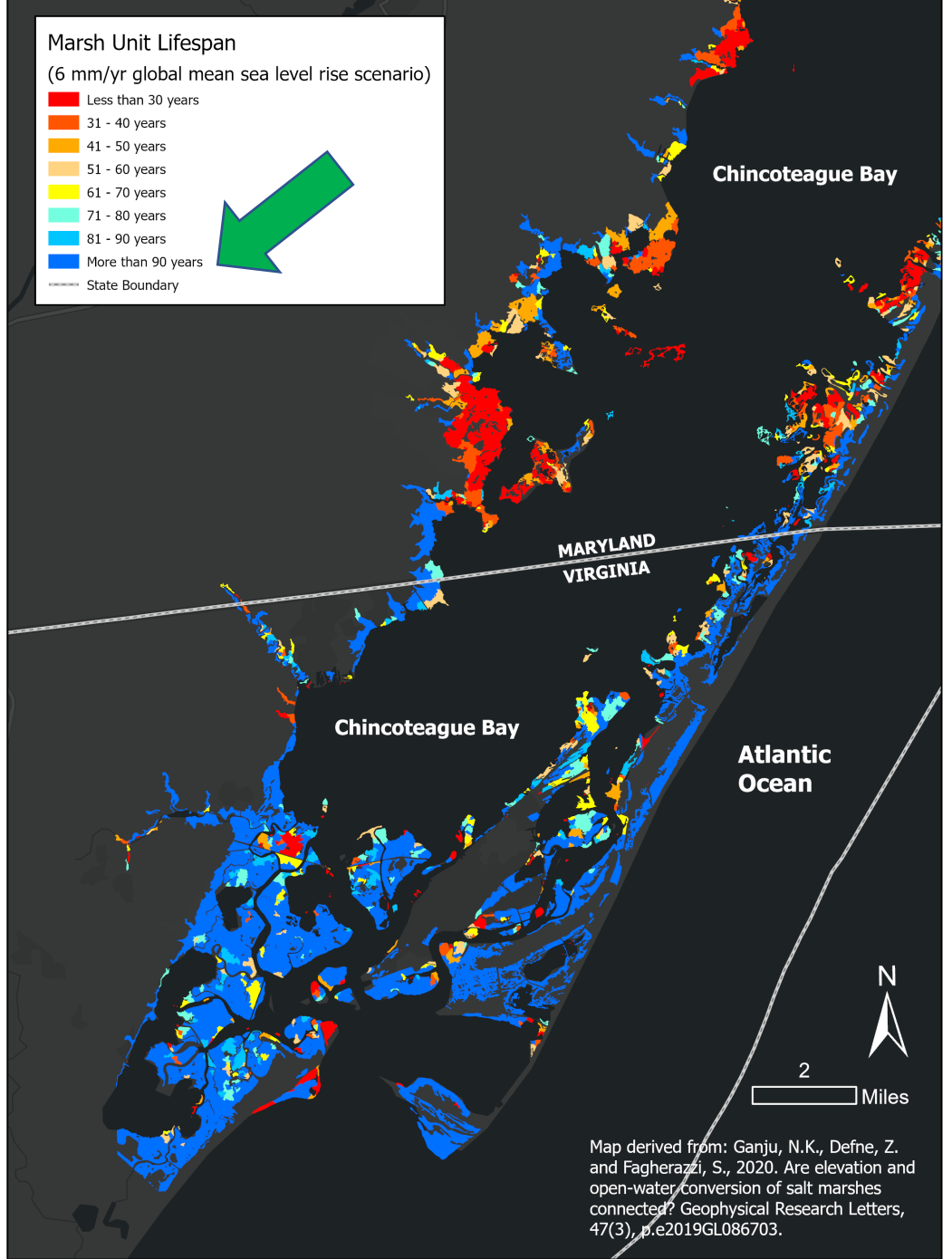
Map derived from: Ganju, N.K., Defne, Z. and Fagherazzi, S., 2020. Are elevation and open-water conversion of salt marshes connected? Geophysical Research Letters, 47(3), p.e2019GL086703.

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Natural Marsh Channels- Coastal Virginia

Natural meandering channels provide habitat complexity for fish, shellfish, birds, and other wildlife

Extensive ponding and marsh die off is far less evident in Virginia marshes compared to ditched marshes in Maryland



South Point

Google Earth

Gargathy Beach Point
2000 ft



History of Marsh Management

- 90% of the marshes along the Atlantic Coast were ditched in the 1930's for mosquito control and in some places to drain the marsh for hay production and grazing.
- Some ditches were re-dug using mechanical means in the 1960's and 1970's.
- We now understand that ditching has several negative effects and set in motion significant and widespread marsh decline.

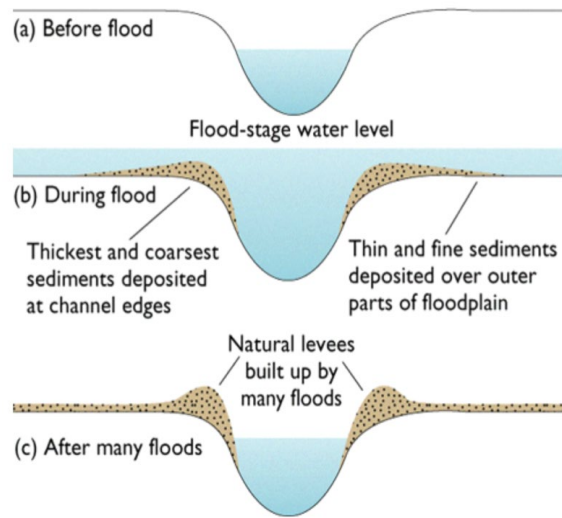


Ditching Effects

- Initially, ditching dried out the marshes and the composition of marsh plant species shifted
- Drying of the marsh soils accelerated the decomposition of peat leading to less accretion of peat and a loss of elevation.
- Small levees form along the ditch banks causing ponded water in the marsh and marsh grass die-off.



Ditching Effects



- Small levees form along ditches trapping water in the marsh and killing marsh grasses.

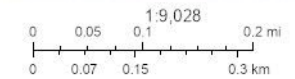


Langmaid Rd.



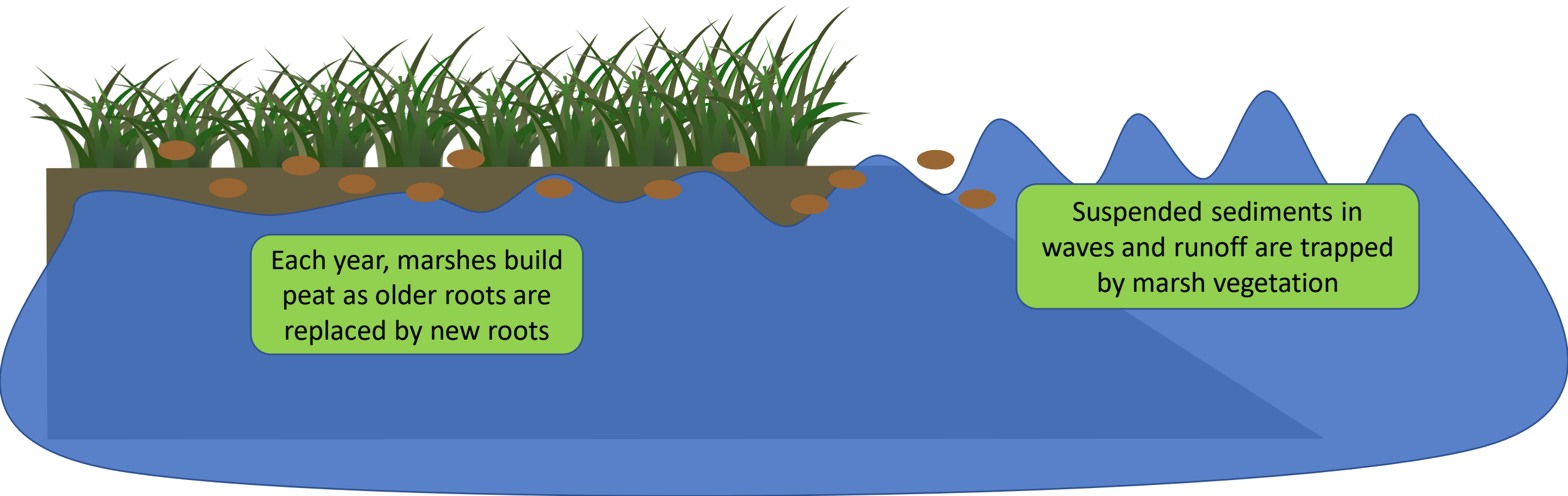
Widespread ponding and marsh die-off caused by ditch bank levees

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How marshes keep up with rising seas

- Marshes build elevation in three ways:
 - Accumulation of peat in the root zone
 - Accumulation of detritus from previous years leaves on the marsh surface
 - By trapping suspended sediment from tides, coastal storms, and upland runoff

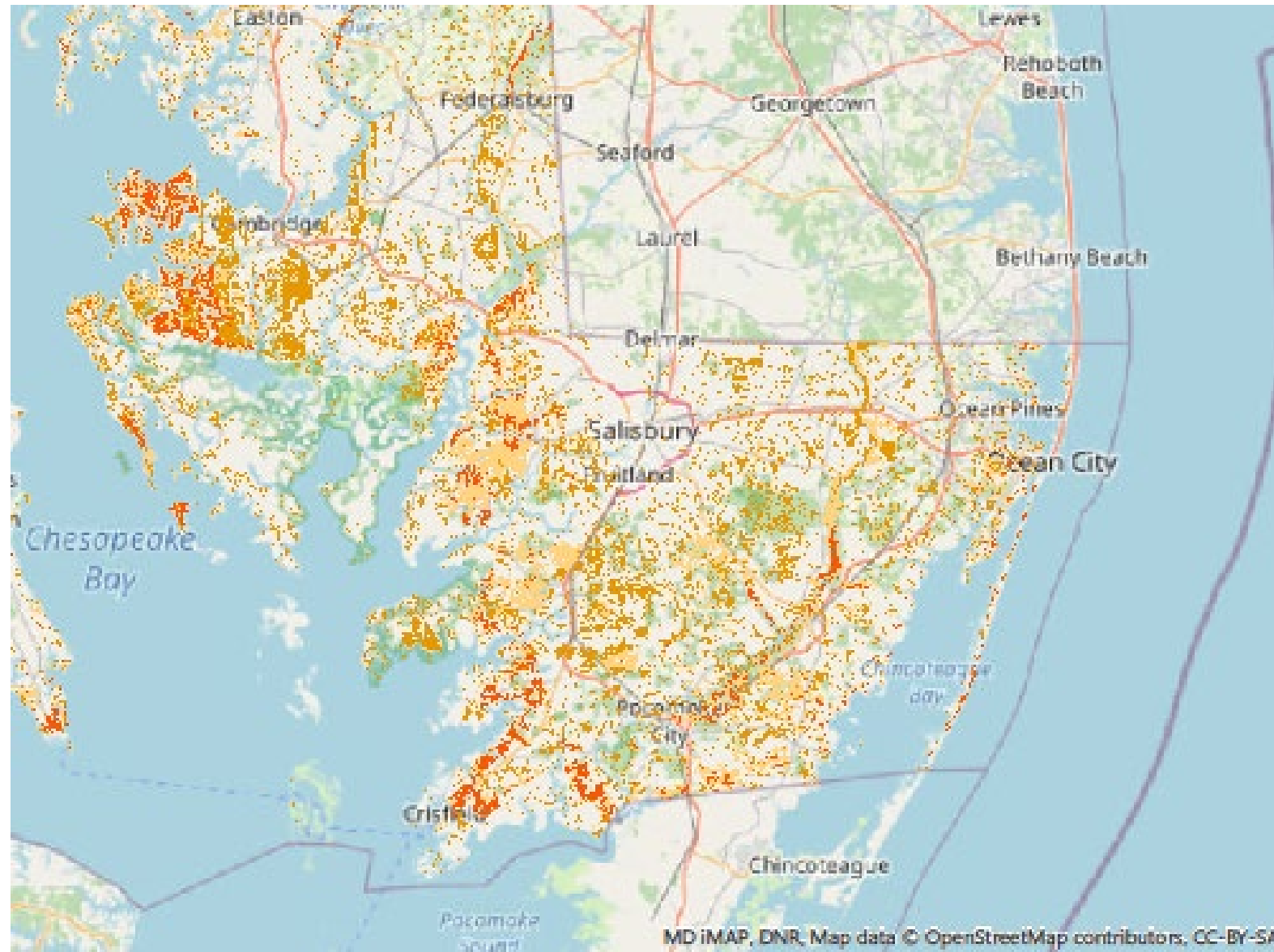




Marsh Adaptation Strategies

- **Marsh Migration:**
- **Runnels:**
- **Full Scale Restoration:** filling ditches and nourishing low areas with sediment, recreating natural marsh channels, planting marsh grasses, building small hummocks for marsh bird nesting

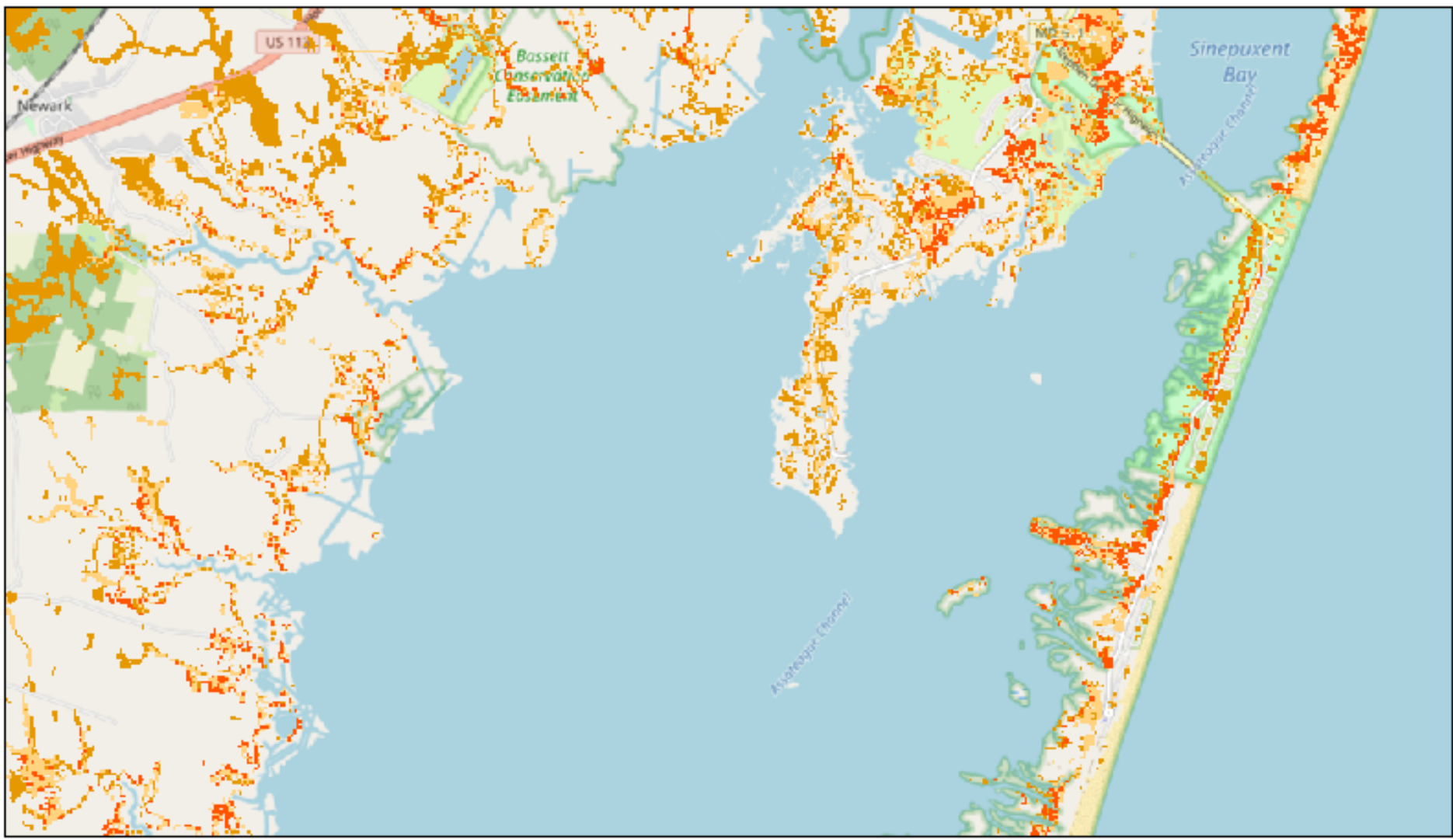
Sea Level Rise Wetland Adaptation Areas (Maryland Coastal Atlas)



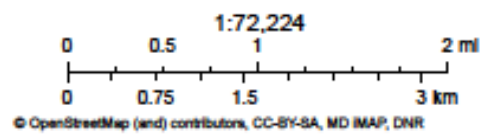
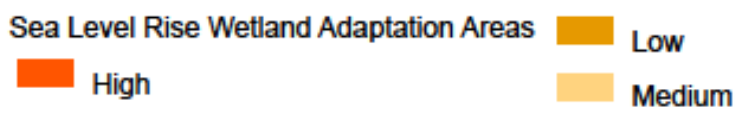


Marsh Migration Areas

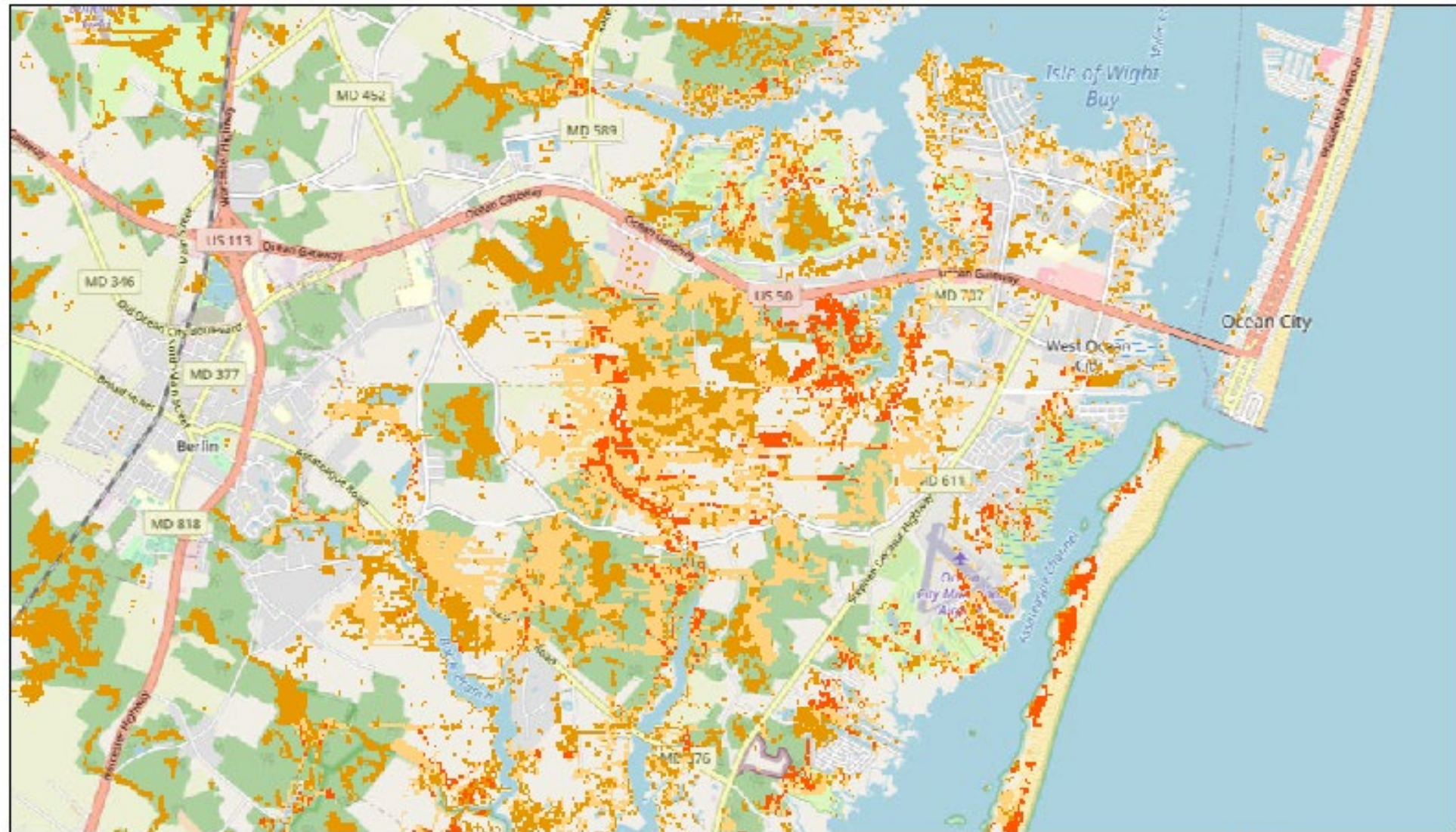
North Chincoteague Bay: Sea level Rise Wetland Adaptation Areas



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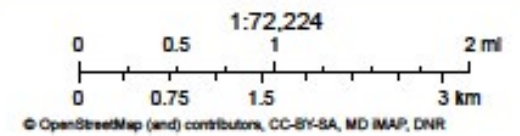
West Ocean City/Berlin: Sea level Rise Wetland Adaptation Areas



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Sea Level Rise Wetland Adaptation Areas

	High		Low
	Medium		Medium



Runnels

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

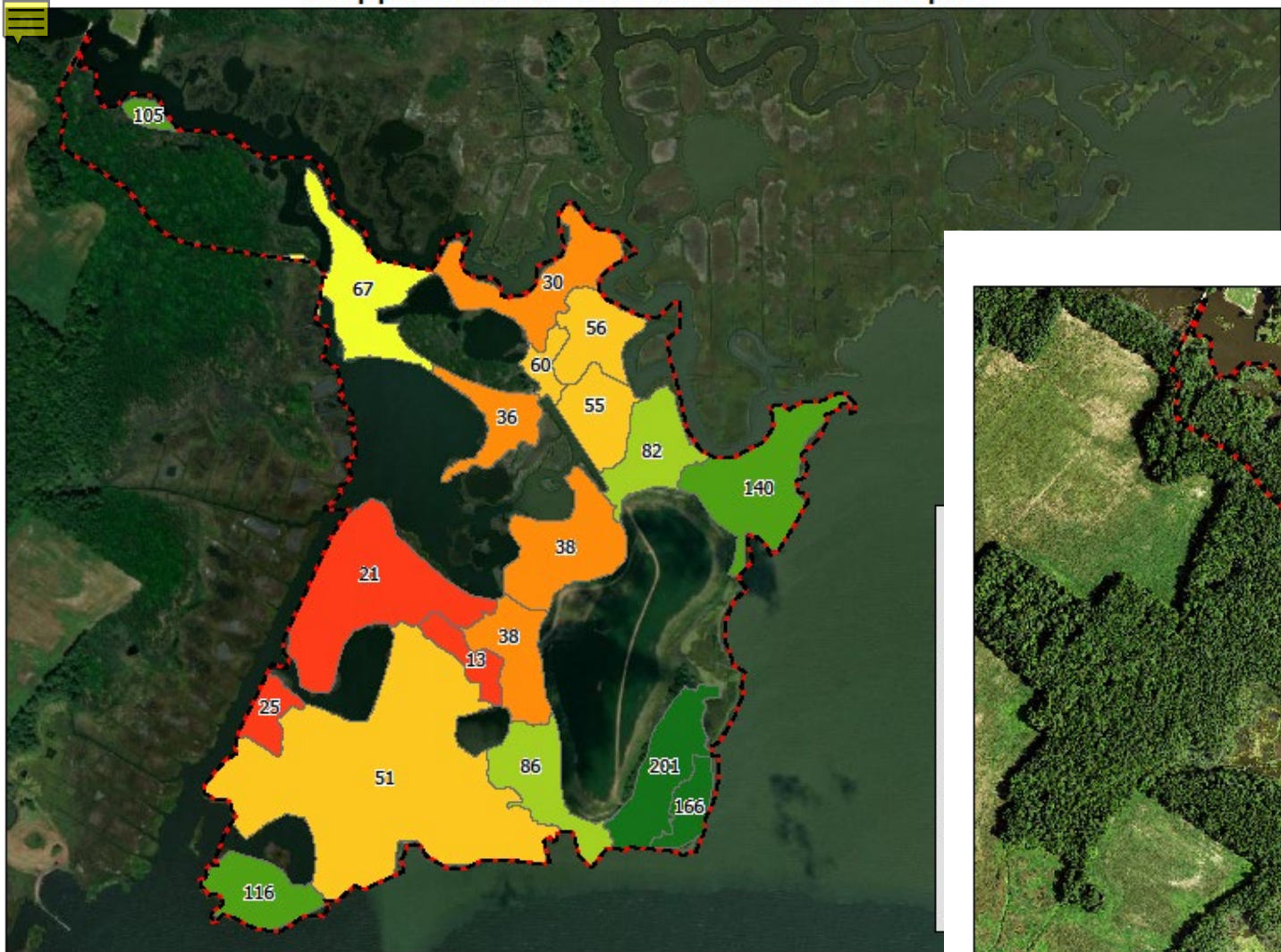


Runnels

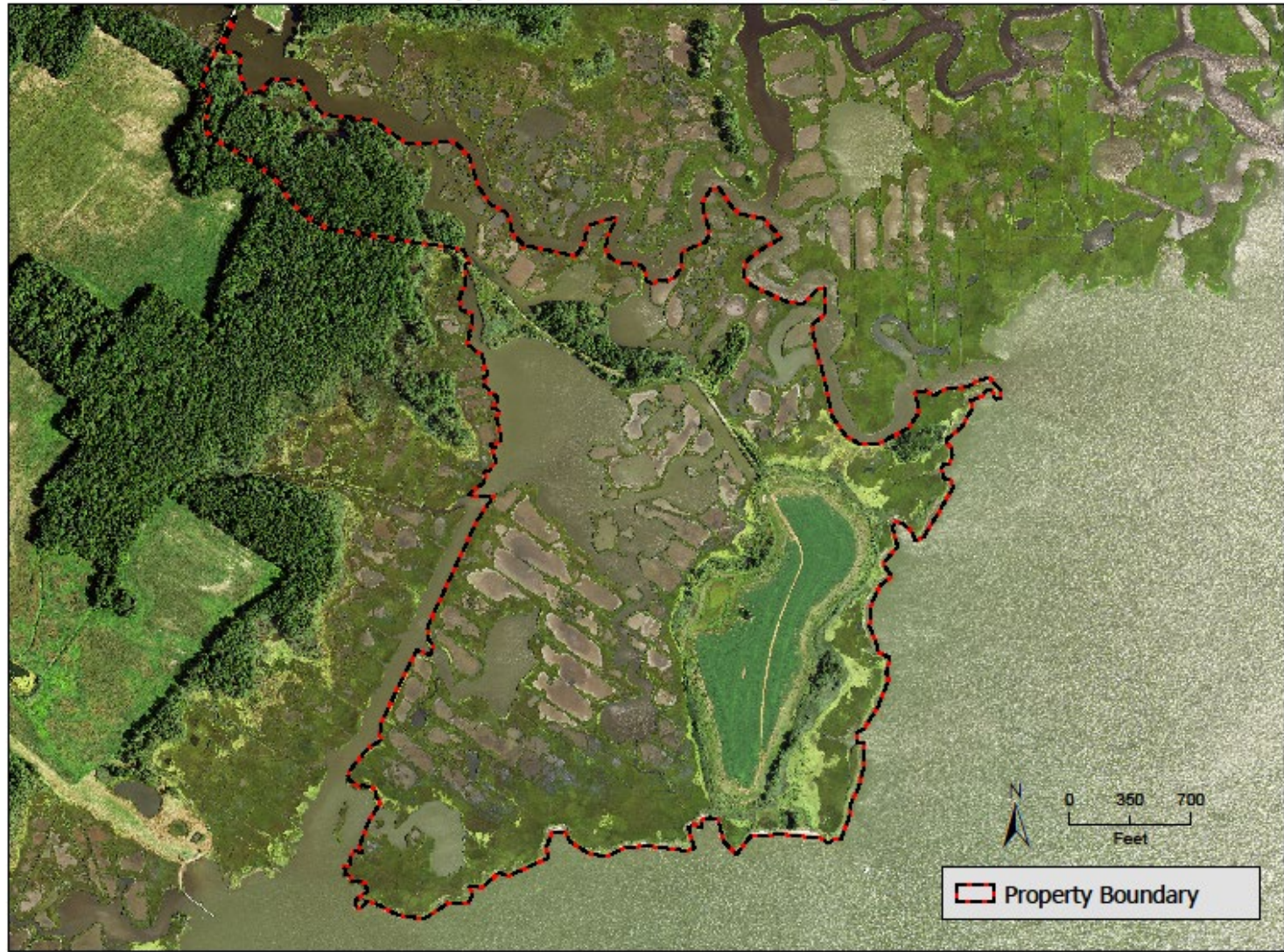
Runnels in upper marsh had greater recolonization than lower elevation areas







Croppers Island 2018 Imagery





**Thank You
Questions?**

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Email: rich_mason@fws.gov



Recommendations and Needs

Messaging and Outreach: We need to develop sound bites that are scientifically accurate much like they did in the Mississippi Delta: “One football field of marsh loss/day.” Or “Bird populations reduced by 3 billion since 1970.”

Grow the Coastal Bays Marsh Initiative: A sustained and coordinated effort to restore and protect coastal marshes. Additional support from federal, state, and local leadership, and NGO’s is needed.

Funding- A sustained and significant source of funding is needed to make a difference at scale. Can we develop a congressional appropriation much like the nutria funding?

Staffing: Additional dedicated staff to work on marsh migration, restoration, and protection.

Permitting: The Joint Permit Application process is too long. Develop a Regional Letter of Authorization (RLOA) for low-tech work like runnelling. Extend permit life to 7 years to allow for dredge material projects.

Sediment: Coordinate sediment needs for marsh thin layer application projects. Refer to sand strategy

Design and Innovation Team: A collaborative team of individuals with diverse expertise (engineers, dredging, social science, ecologists, and more) to develop and test new, cost effective, restoration methods. Creativity and problem solving should be at the heart of this.

Data Collection: Team of research scientists that track marsh trends, document, and inform restoration team on physical and biological outcomes of restoration projects. University of Maryland Center for Environmental Science wants to be involved. University of Maryland Center for Environmental Science wants to be involved.