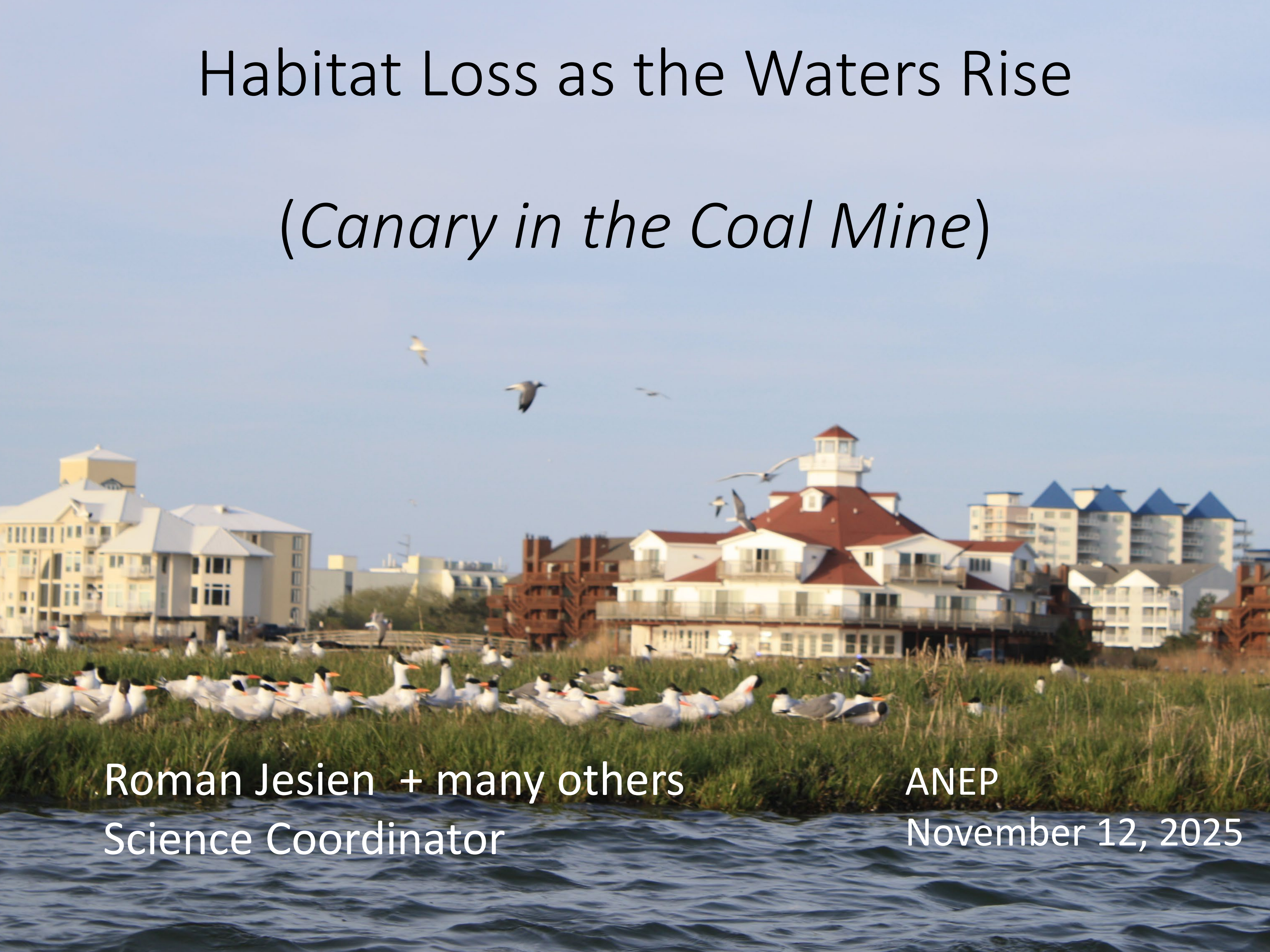
Habitat Loss as the Waters Rise

(*Canary in the Coal Mine*)



Roman Jesien + many others
Science Coordinator

ANEP
November 12, 2025

Maryland Coastal Bays

MARYLAND COASTAL BAYS PROGRAM

Dramatic Population Declines of Iconic Marsh and Island Dependent Birds

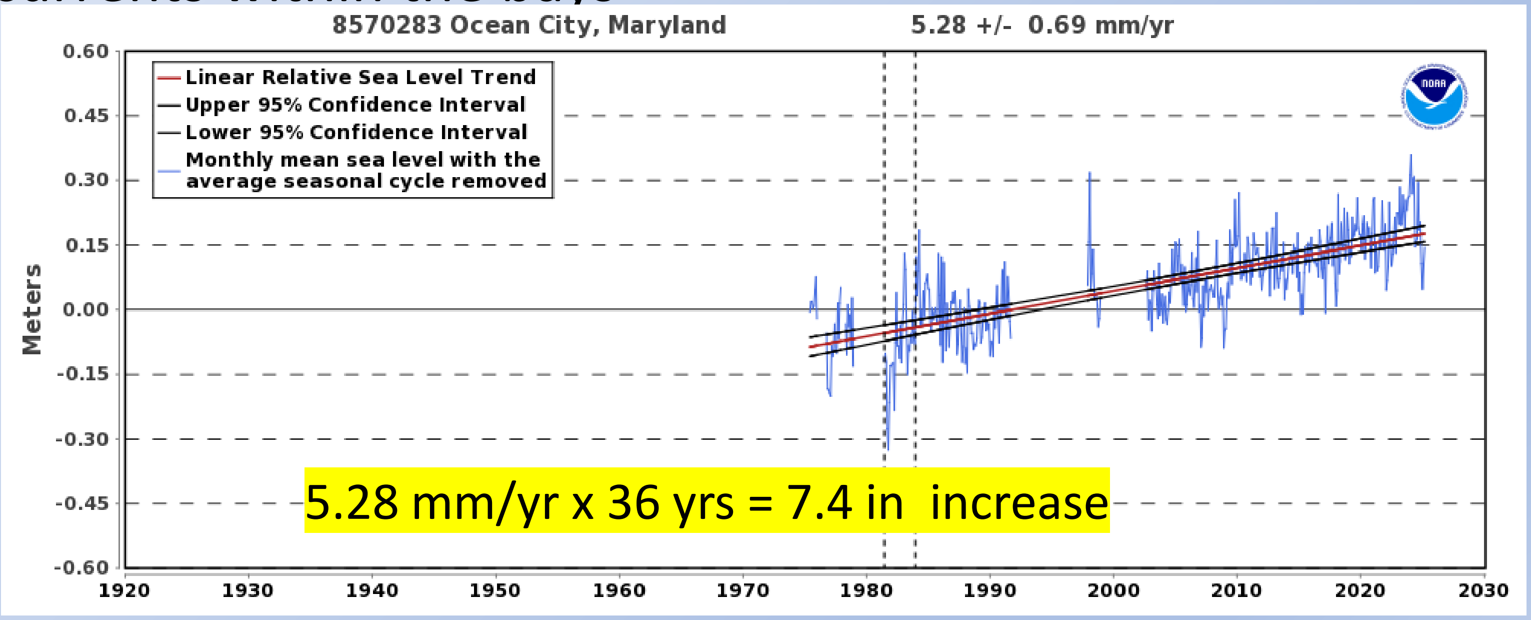
Species	State Status	Federal Status	% Population loss 1990's
Salt marsh dependent			
Saltmarsh sparrow	Rare		75
Black rail	Endangered	Threatened	90
Island dependent			
Black Skimmer	Endangered		99
Royal Tern	Endangered		68
Common Tern	Endangered		82

Dramatic Decline in Habitats

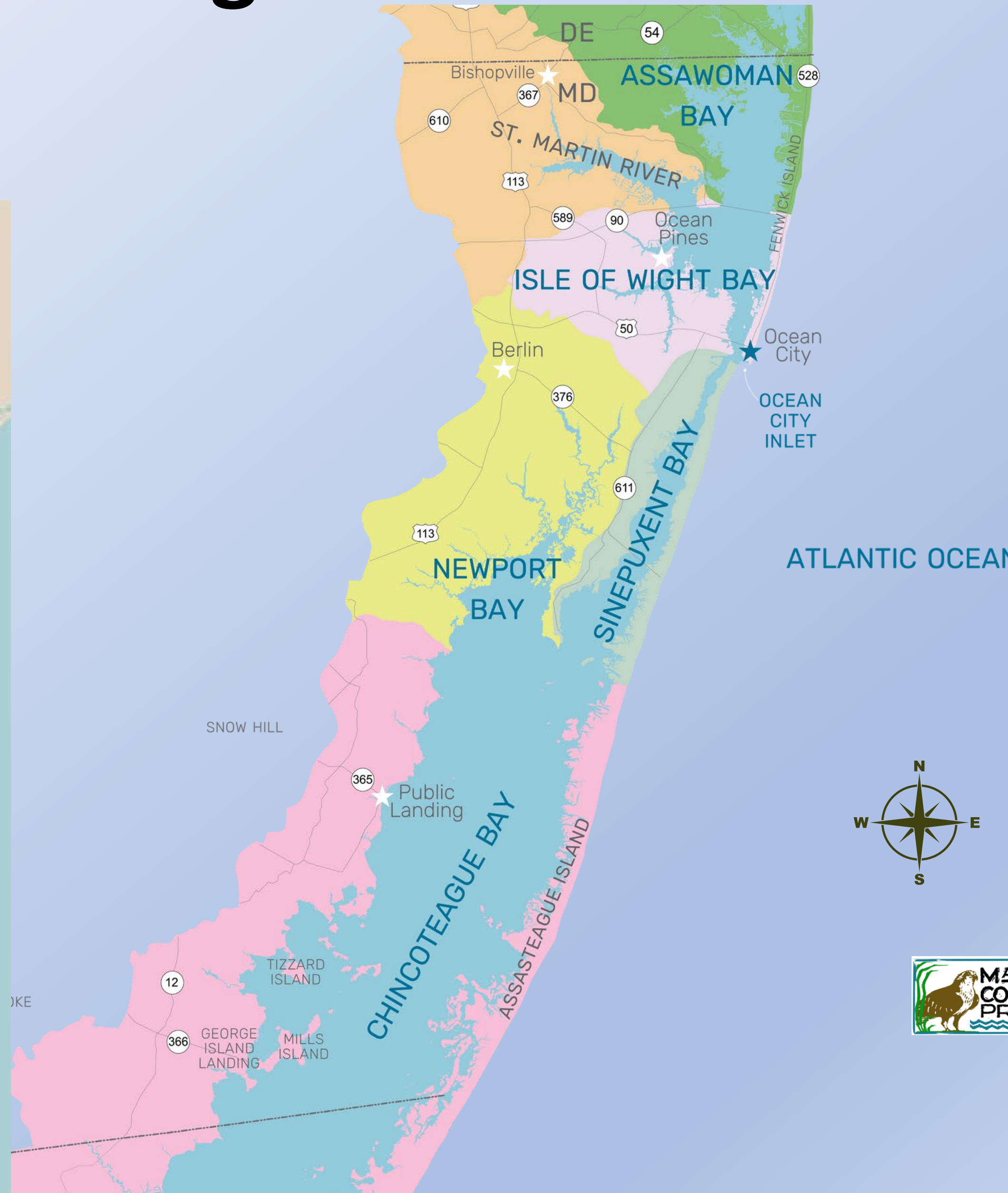
- Bird Island loss - 1989 – 2019 54% loss in area

- Tidal Marsh loss – shoreline loss, and interior fragmentation (mosquito ditching) – working on numbers but preliminary estimates ~25 -50% loss in area since 1960's

-Caused by climate change - Sea level rise (climate cycles + anthropogenic), increased storminess, development, changing currents within the bays



Coastal Engineering



MARYLAND COASTAL BAYS PROGRAM

Federal Management Punctuated by Storms

- Federal Navigation Channel dredging provided material to build islands after major storm events

  <1933 10 inlets formed and disappeared 1700's
- 1933 Inlet stabilized, start of sediment management ~ 20 spoil islands created
- 1962 Some spoil islands restored
  - 2002 Start of sand bypass to Assateague National Park

  2003 Isle of Wight shoreline restoration
- 2014- After Hurricane Sandy 4 islands (gone by 2022)
- Annual dredging of OC inlet authorized for placement only on Assateague
- Long wait time between placements
- Lot$ for beach replenishment and inlet stabilization, bird islands only after severe storms

Planning

- Meetings
  - Core Plan Development Team (MCBP, DNR, Audubon-Mid ATL) TNTC
  - Oct 23. 2023 General Meeting (DNR, MCBP, COE, MDE, EPA, Worcester Co, FWS)
  - Feb 8, 2024 Workshop Permitting Issues
  - Feb 21, 2024 Workshop Island Design
  - Feb 23, 2024 Workshop Dredging Logistics

Sand required for current and planned projects

Island restoration	CYDS Sand
Reedy I (IOW) (Design grant Resilience through Restoration Grant)	16,000
Tizzard (Chinco) (Coastal Resiliency Grant) MD)	7,000
Shoreline restoration	
Selsy – beneficial use (IOW) (Coastal Resiliency Grant)	*~5,000*
Jenkins Pt (IOW) (Coastal Resiliency Program Design Grant)	12,000
Marsh Restoration	
9 sites throughout bays (FWS design)	500,000
Loss of bird islands since 1989	
~ 500 ac lost, est. 1 ft of elevation lost < MHW =	**806,667**
TOTAL	**1,341,667**
By Comparison (COE) Annual budget	
OC Beach replenishment	**450,000**
Inlet By-pass (erosion rate)	**190,000**
Actual by-pass	**~80,000**

Other Navigation Projects - Non Federal Channels

- DNR Waterways Improvement can help but need county request for assistance

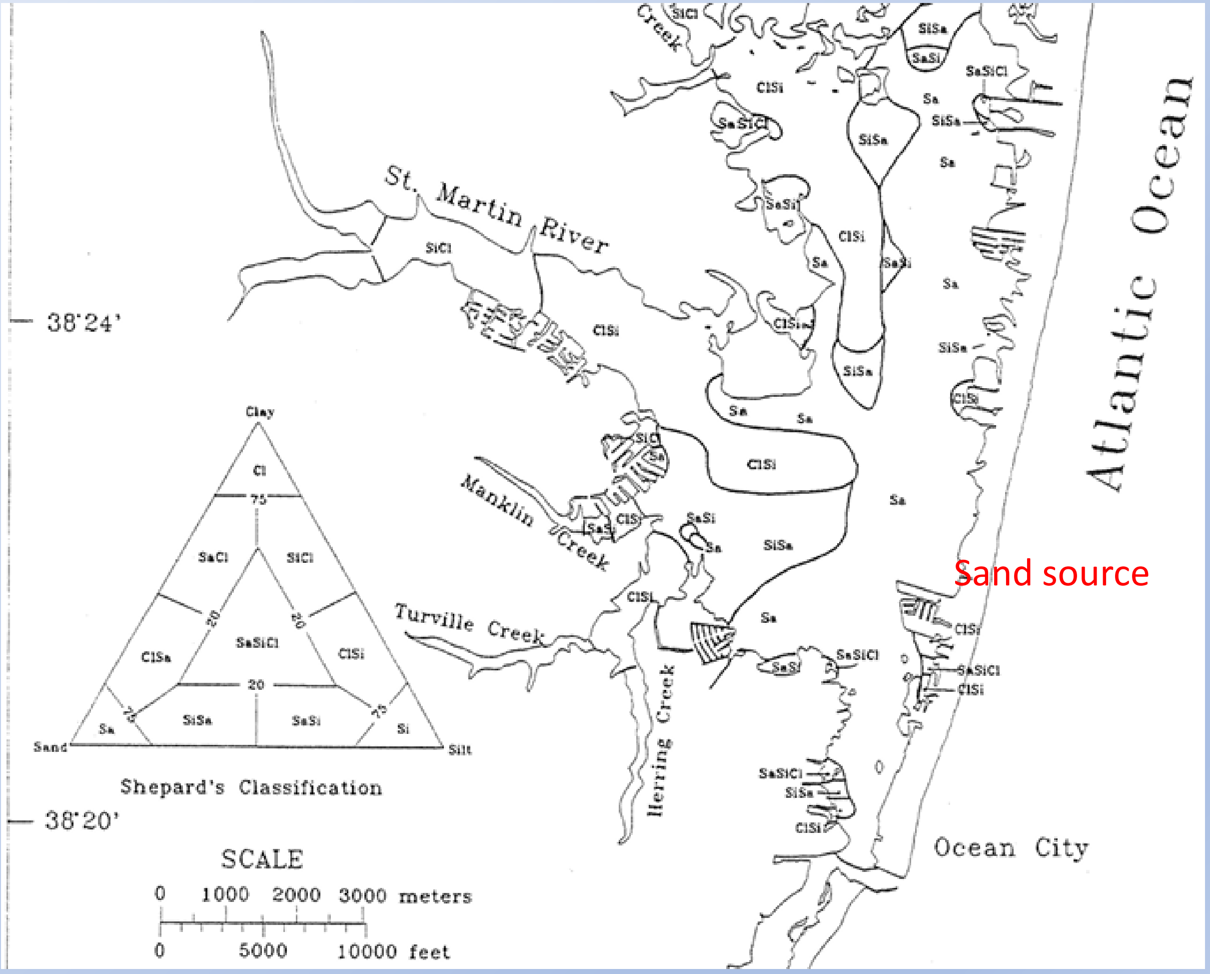
- Marsh Harbor – West O
- Captains Hill - IOW
- Rumgate Rd   - IOW

Planning & Implementation

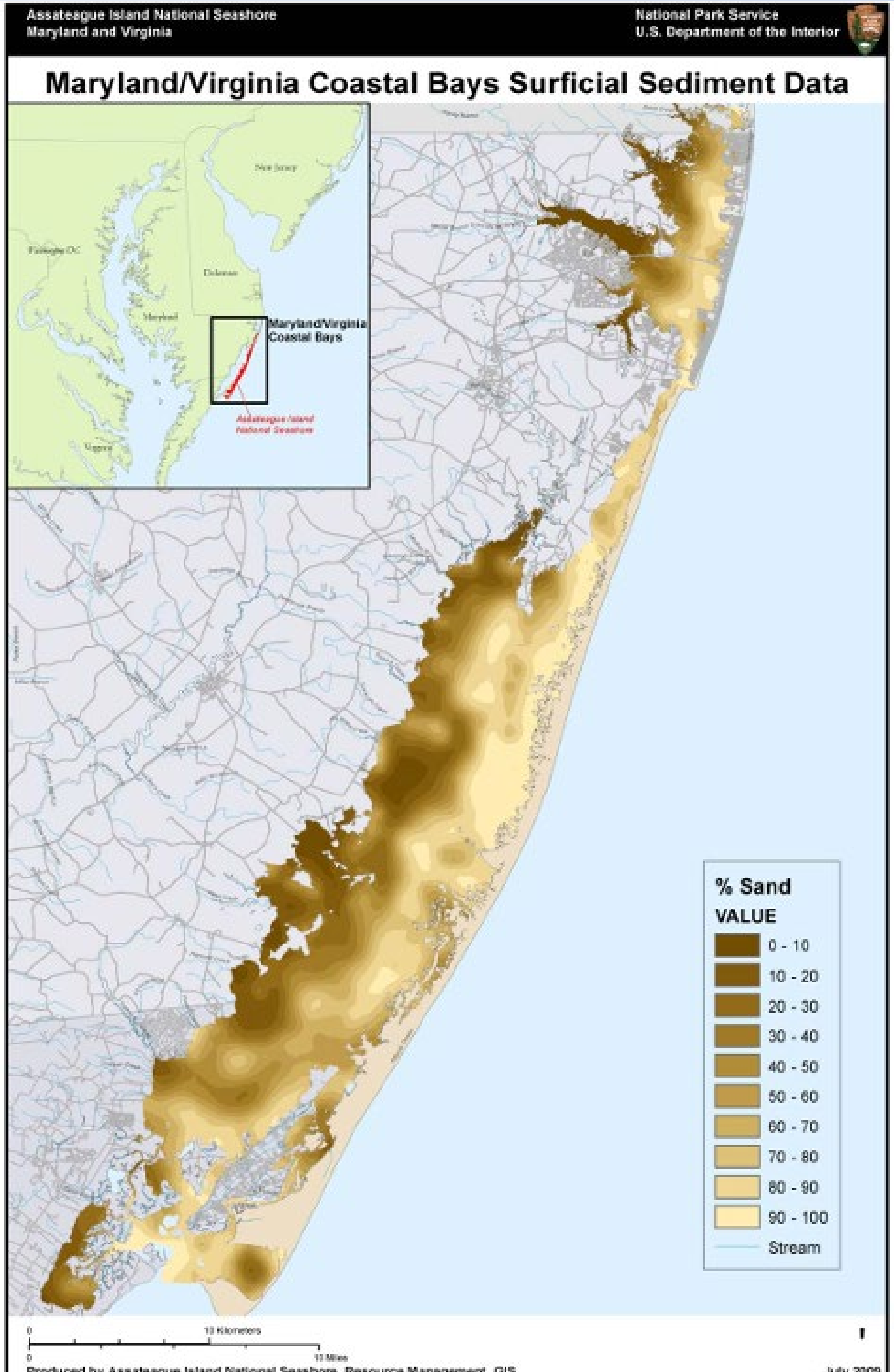
1. Marsh and Island Nourishment
2. Beneficial use - Nature Based Solutions
3. Navigation Dredging
   Federal & nonfederal channels
4. Dredging for Restoration

Sand Management for Restoration

- Islands and marshes need sand replenishment
- Sand source
  - Isle of Wight
  - Dredging for navigation
  - Dredging for restoration
- Funding
  - State of MD
  - Federal- USFWS
  - Audubon
  - COE
  - others



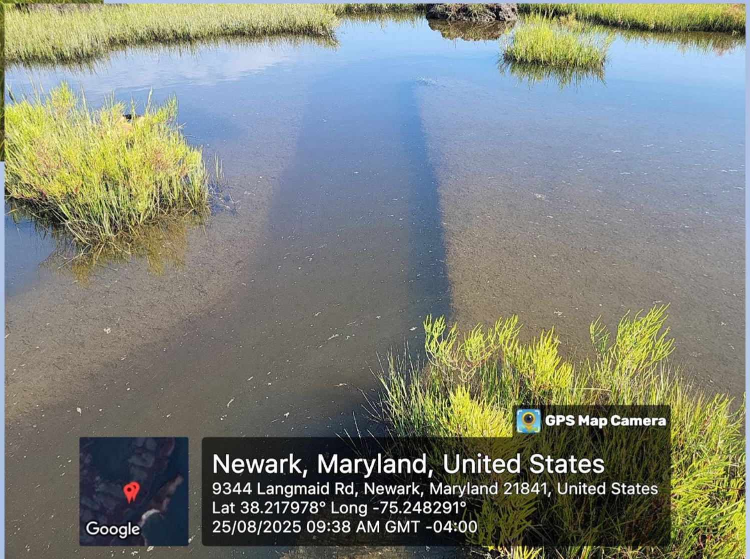
From MGS 1994 survey


Assateague Island National Seashore
Maryland and Virginia
National Park Service
U.S. Department of the Interior
Maryland/Virginia Coastal Bays Surficial Sediment Data
Maryland/Virginia
Coastal Bays
% Sand
VALUE
0 - 10
10 - 20
20 - 30
30 - 40
40 - 50
50 - 60
60 - 70
70 - 80
80 - 90
90 - 100
Stream
Produced by Assateague Island National Seashore, Resource Management, GIS
July 2009

1. Shoreline Priorities
    1. Sinepuxent South
    2. Jenkins Point
    3. Marsh Harbor
    4. Captains Hill

2. Potential Marsh Priorities (FWS)
    2 Runnel projects completed
    4 Runnel projects in design

Runnels shallow drainage structures



Island Loss in Recent Years

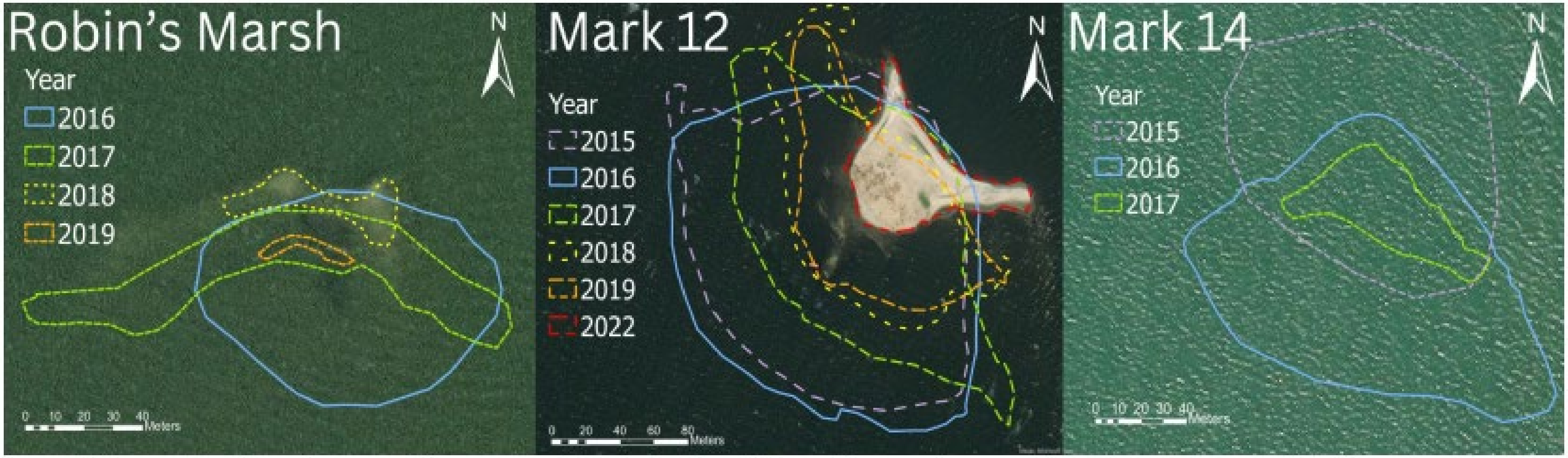


Figure 5. Shoreline positions were hand-digitized from time-series satellite imagery provided by the National Agricultural Imagery Program (NAIP) and MD iMAP: Maryland Six Inch Imagery. Imagery was accessed through ArcGIS online.

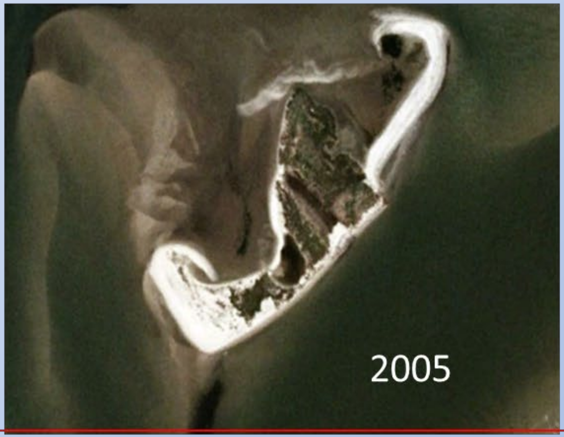
CORPS practice of minimal stabilization works if nourishment continuous

Federal Navigation Channels

Responsibility of the non federal sponsor (DNR) to designate placement sites for dredging the federal navigation channels.

Development of Prioritized List of 6 Island Nourishment Needs

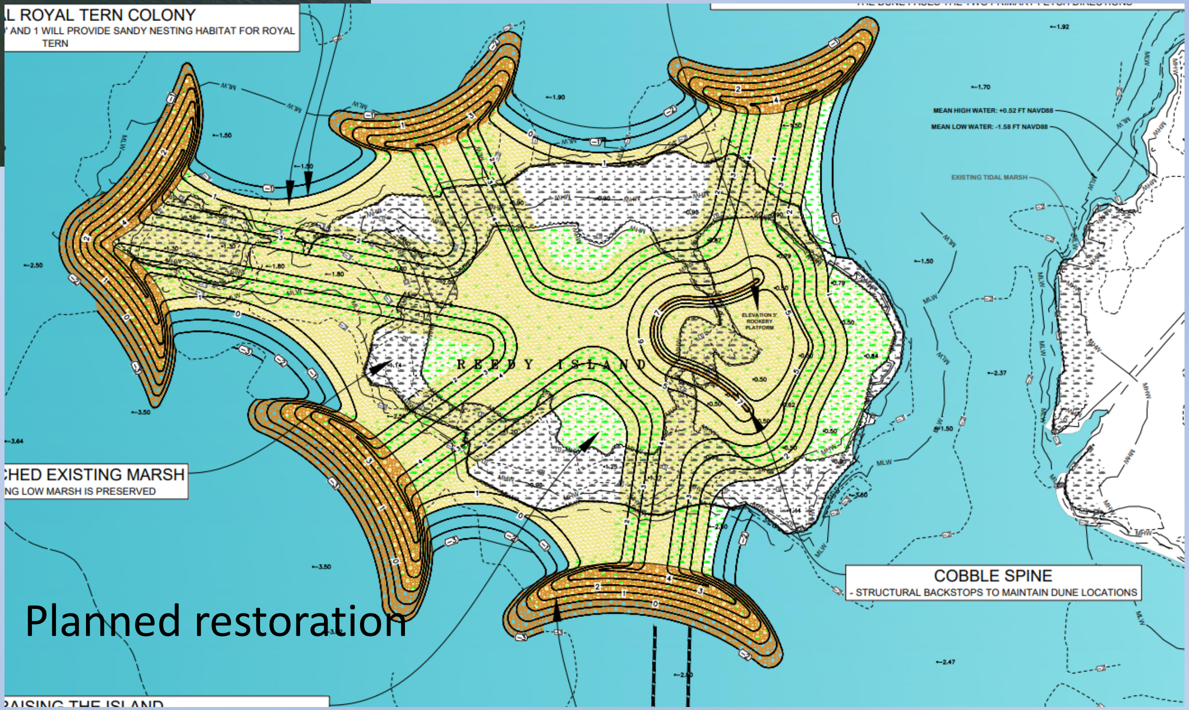
Skimmer Island, Sinepuxent Bay,, desperately needs restoration.



1995 over 500 nests were counted at Skimmer; 2021 **no nests**

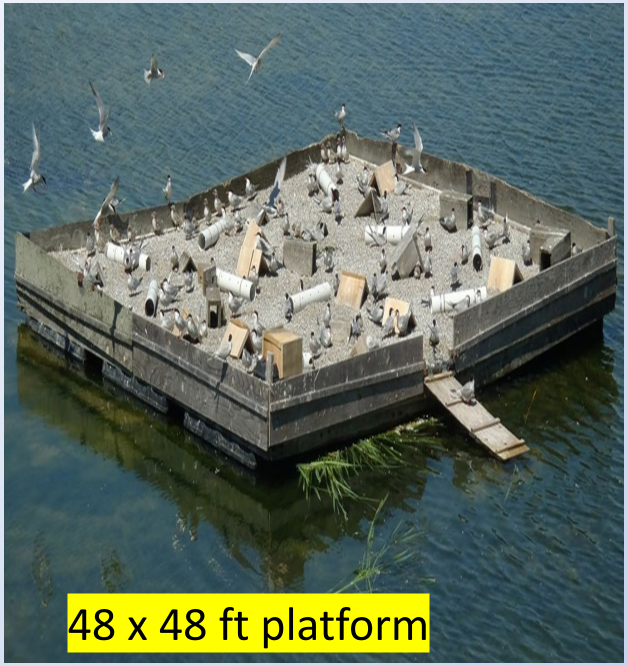
Island Restoration - Need Some Complexity

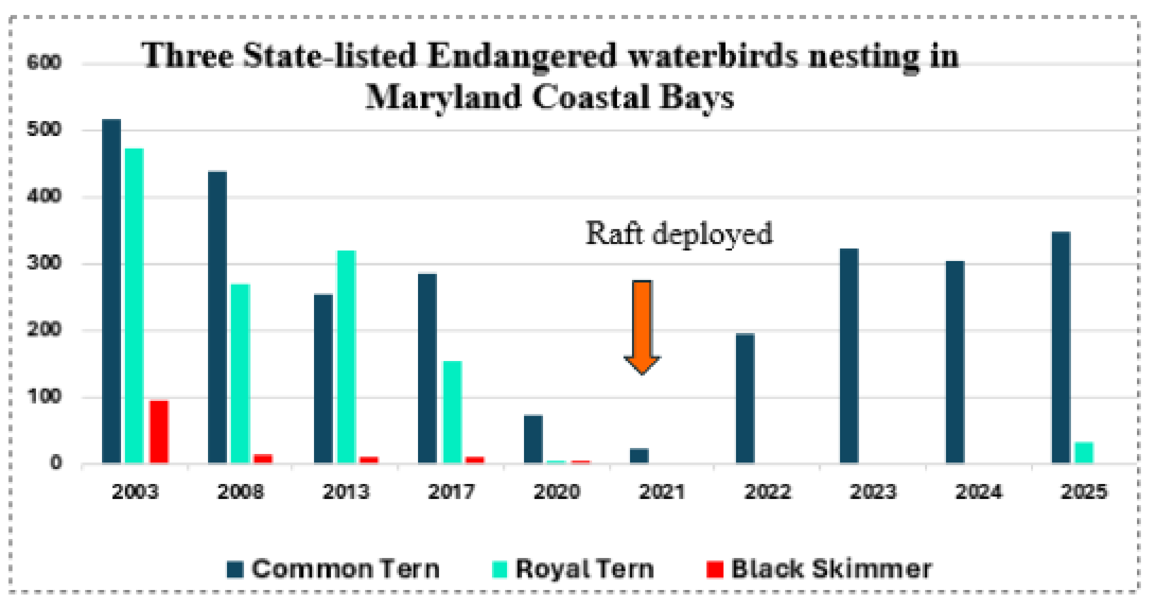
BUT…..Mitigation of converted habitat (low marsh to hi marsh; hi marsh to upland)



Also, potential conflicts with EFH and SAV

Artificial Island - Short term "fix"





						% Recov		
yr tagged	no tagged	n nests	n fledged	2021	2022	2023	2024	2025
2021	19	23	22		0.79	0.89	0.84	0.53
2022	92	155	148			0.76	0.74	0.65
2023	122	321	170				0.75	0.60
2024	43	303	410					0.74
2025	25	349	350					

Questions

Roman Jesien
rjesien@mdcoastalbays.org