

A scenic photograph of a winter wetland. In the foreground, a calm river reflects the surrounding landscape. The banks are covered in snow and frost, with some reeds and grasses poking through the water. The background is a dense forest of trees, many of which are bare and covered in a thick layer of snow or frost. The sky is a clear, bright blue. The overall atmosphere is peaceful and serene.

Delaware Wetlands

CIB STAC
February 7, 2025

Alison Rogerson – Environmental Scientist V



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NATURAL RESOURCES AND
ENVIRONMENTAL CONTROL

About Me



B.S. Wildlife Management
Minor Water Resources
Management



Texas
New Zealand
Hawaii

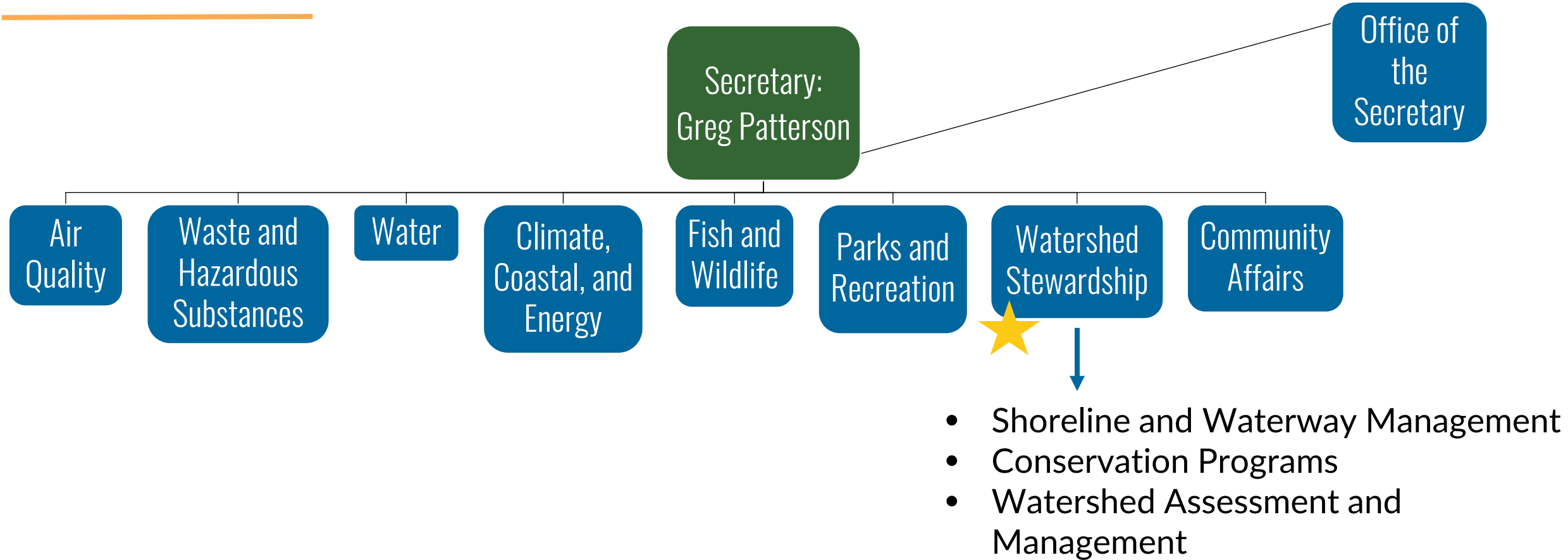


M.S. Wildlife Ecology
Research Thesis: Impact of long
piers on tidal marsh birds in
Worcester County, MD



Wetland Monitoring
& Assessment
Program

Who Is DNREC?



Wetland Monitoring and Assessment Program

- Track health and acreage of wetlands across Delaware
- Research wetland restoration, conservation, and management techniques
- Collaborate with other government agencies, businesses, non-profits and universities
- Education and Outreach – host trainings, workshops, and public events for professionals and public
- Support regulatory programs as able

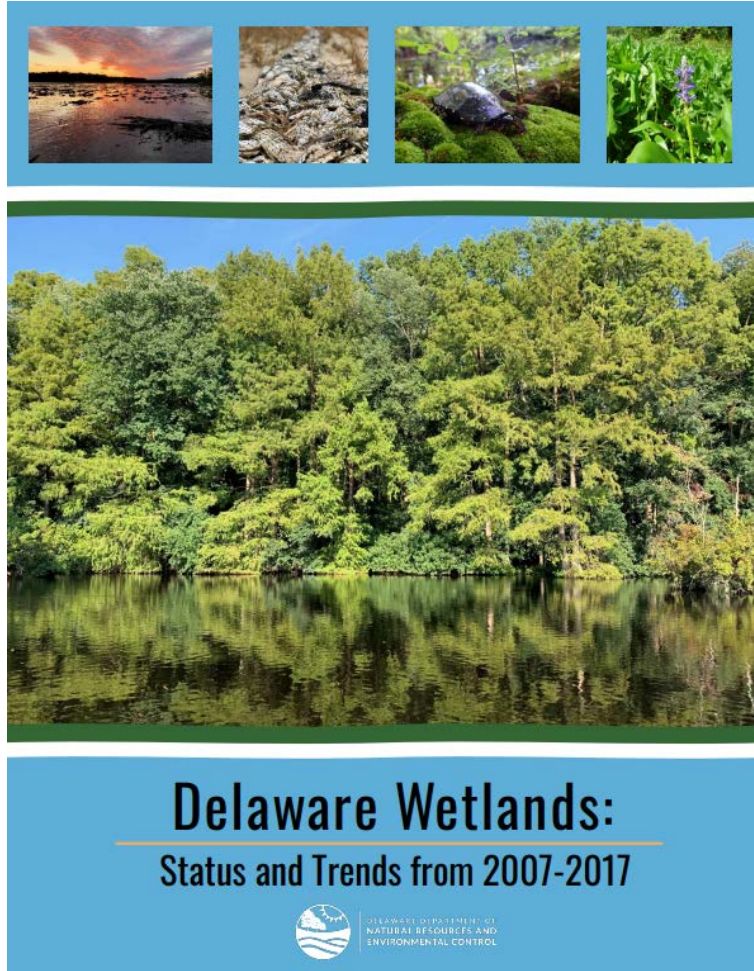


Wetland Monitoring and Assessment Program

- Delaware Living Shorelines Committee
- Delaware Restoration Work Group
- Dredge & Beneficial Use Coordination Group
- DE SAV Work Group
- Chesapeake Bay Wetland WG
- CIB STAC & DE Estuary STAC



Current Status



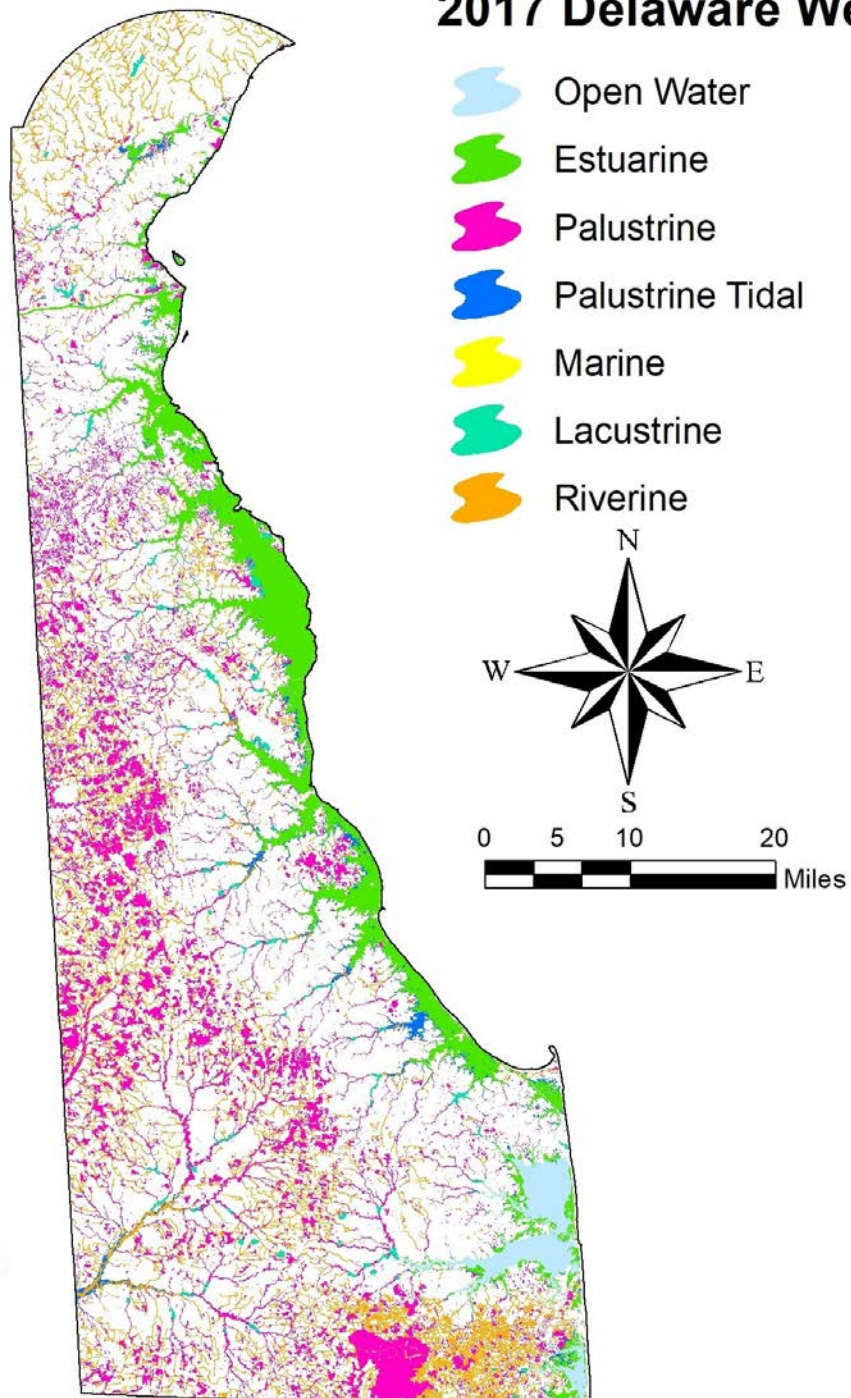
Statewide Wetland Mapping Project

- Maps publicly available on Delaware FirstMap

What do we do with these maps?

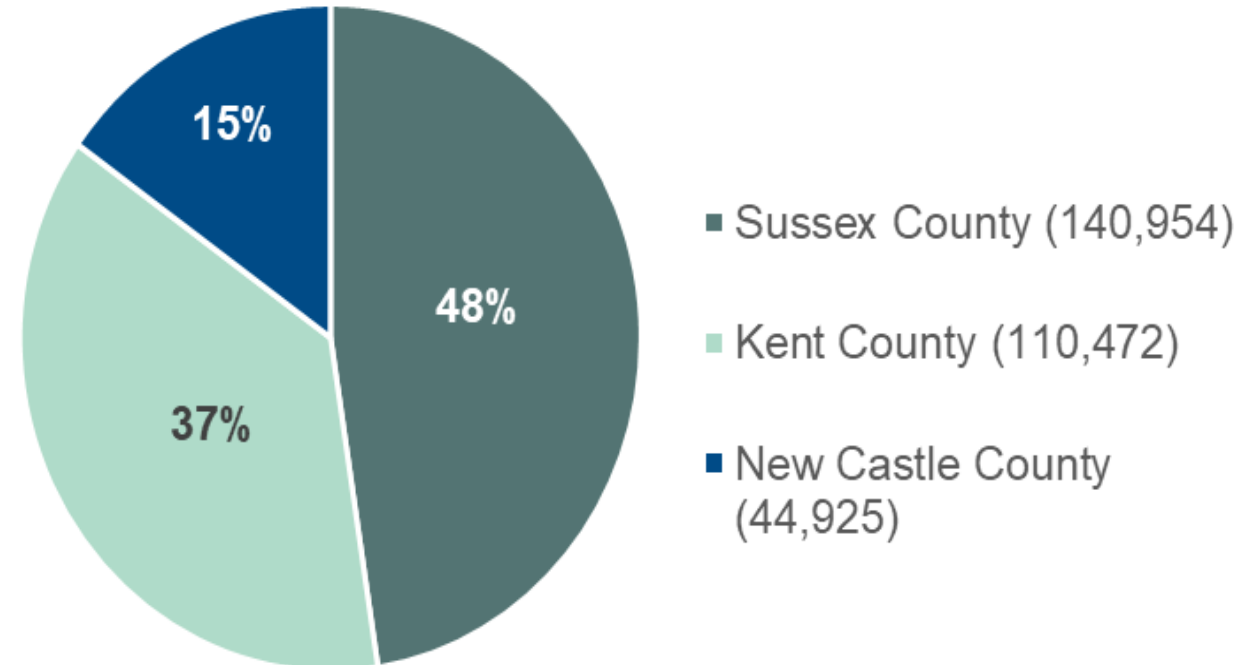
- Estimate statewide acreage (2017)
- Compare to last mapping (2007)
- Investigate how/where wetlands were lost/gained/changed
- Report out all findings

2017 Delaware Wetlands



Statewide

296,351 acres
as of 2017



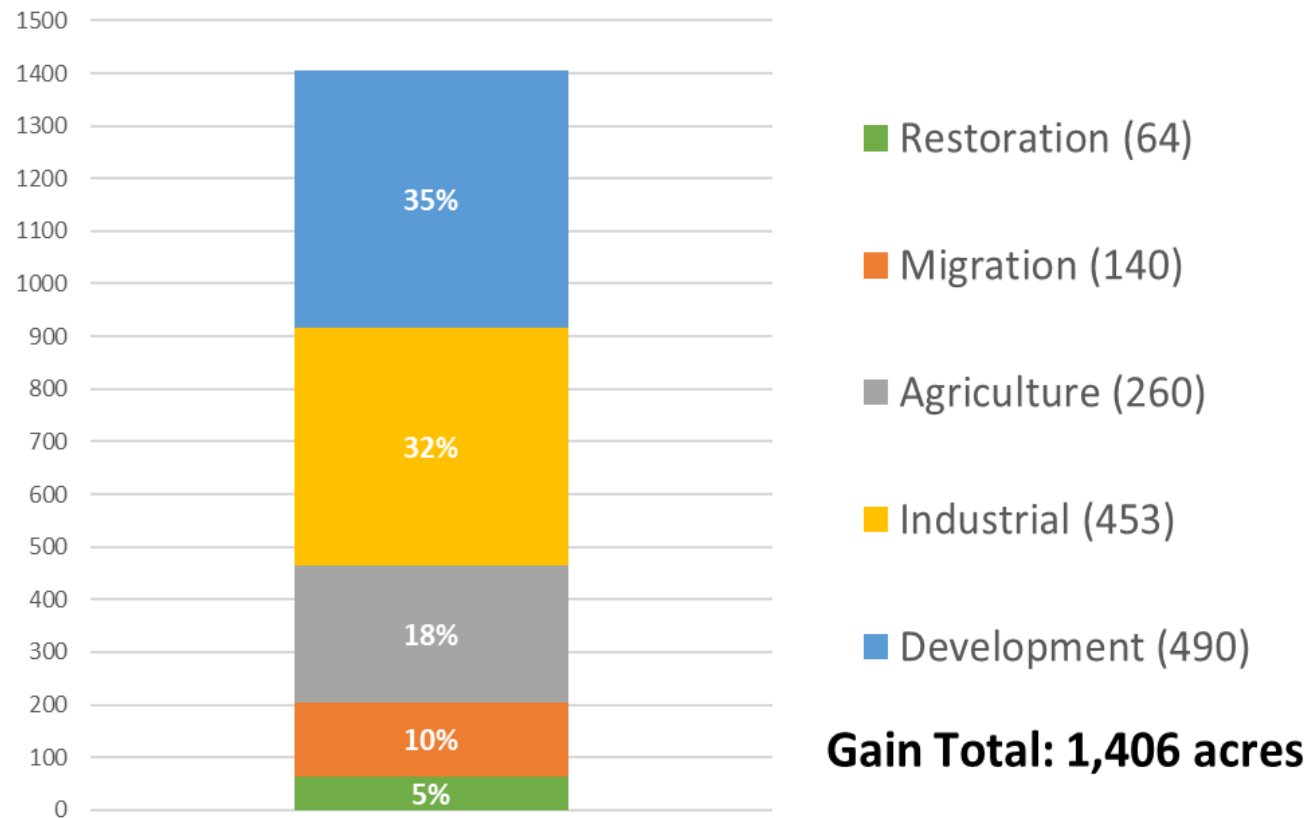
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Where Do Wetlands Stand?

Gains 2007-2017

- 1,406 acres

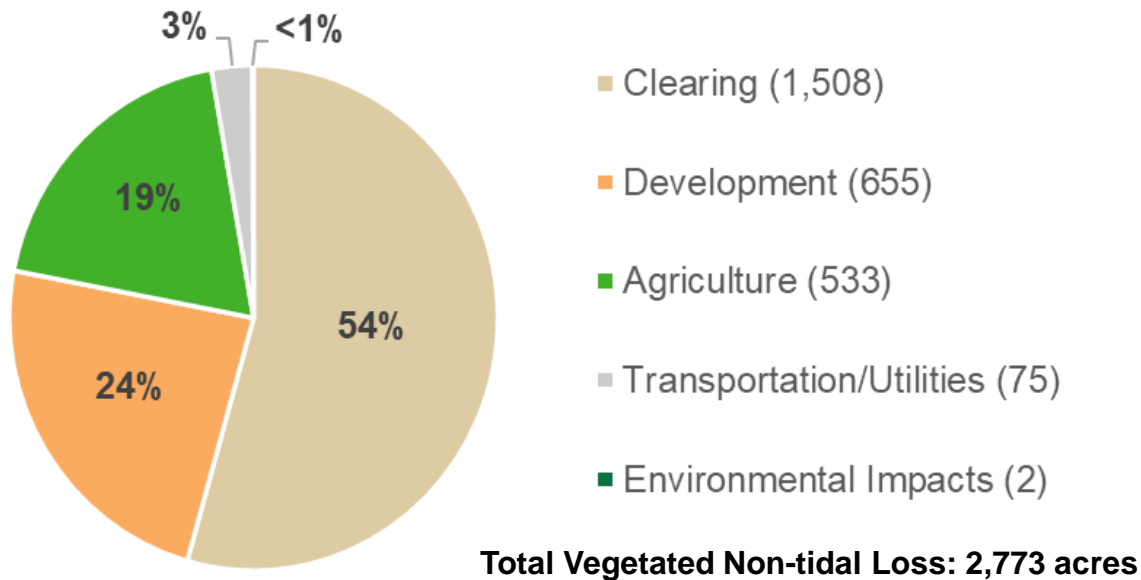
Sources of Gains



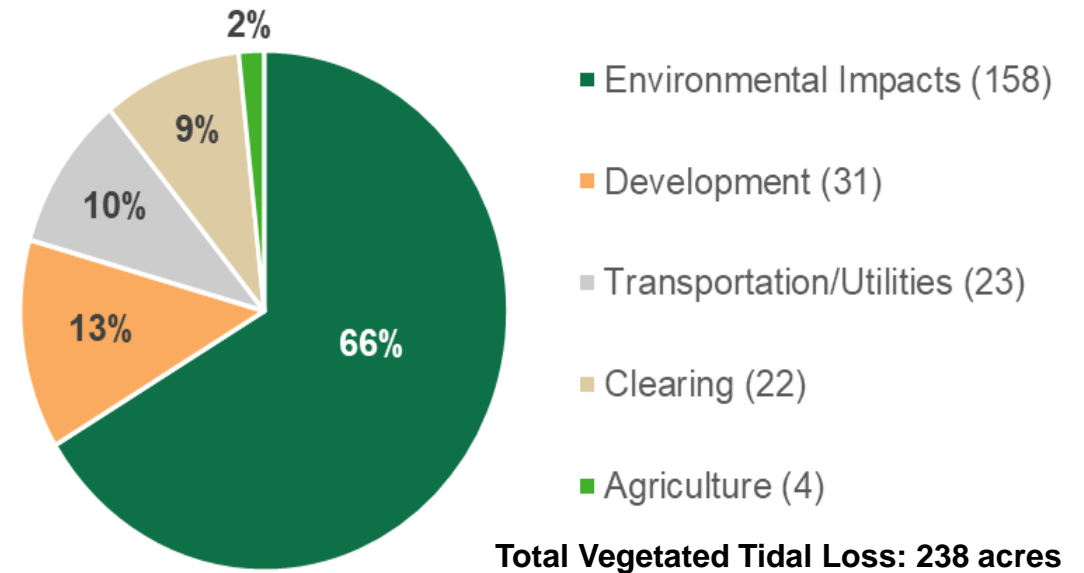
Where Do Wetlands Stand?

Losses 2007-2017

Causes for non-tidal wetland losses



Causes for tidal wetland losses



What is at Play?



Gains and
Losses

Development

Climate change

A variety of
industries impact
both



Policy and
Regulation

Poorly planned
practices

Increase in population

Changing
administrations at all
levels



Learning
Nature

Education and
knowledge sharing

Appreciation/value

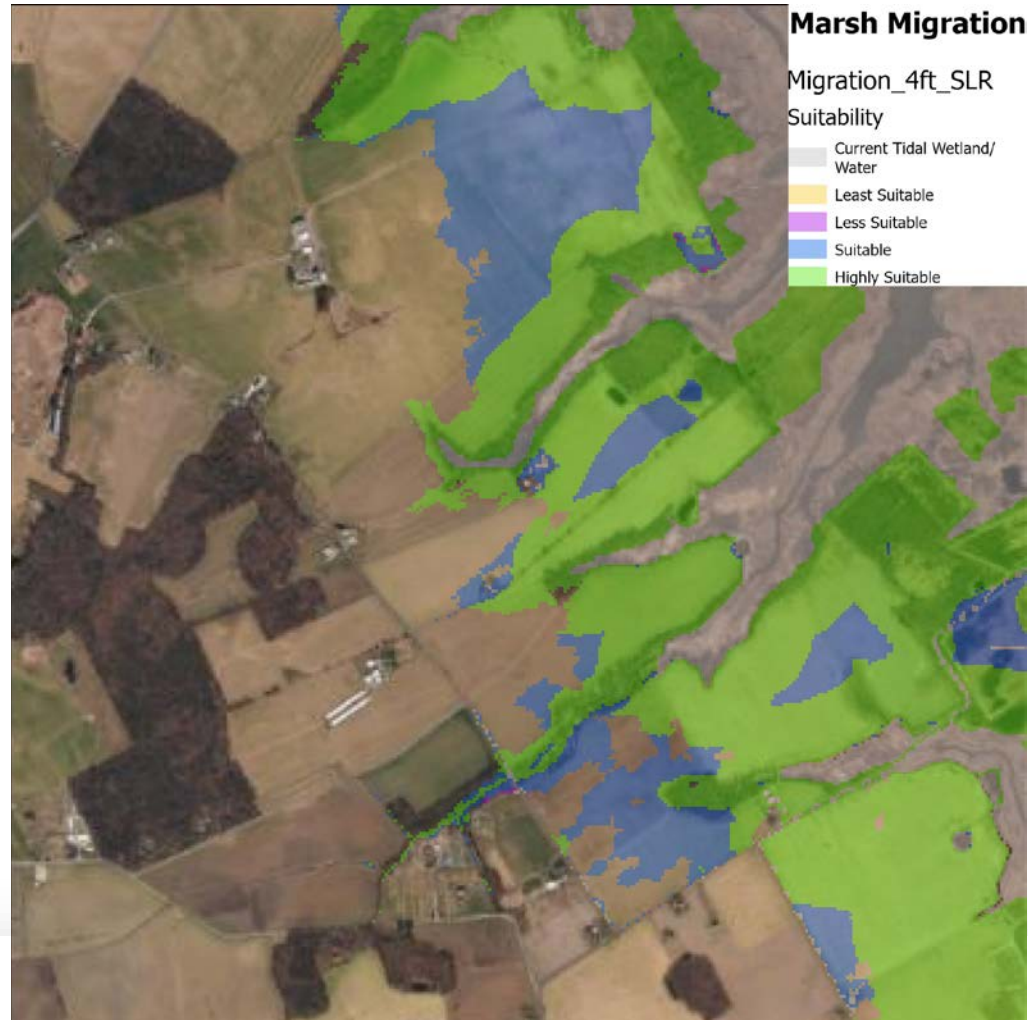
Conservation
incentives



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Marsh Migration Model

Wetland Monitoring & Assessment Program & Delaware Coastal Management Program Update of 2017 model

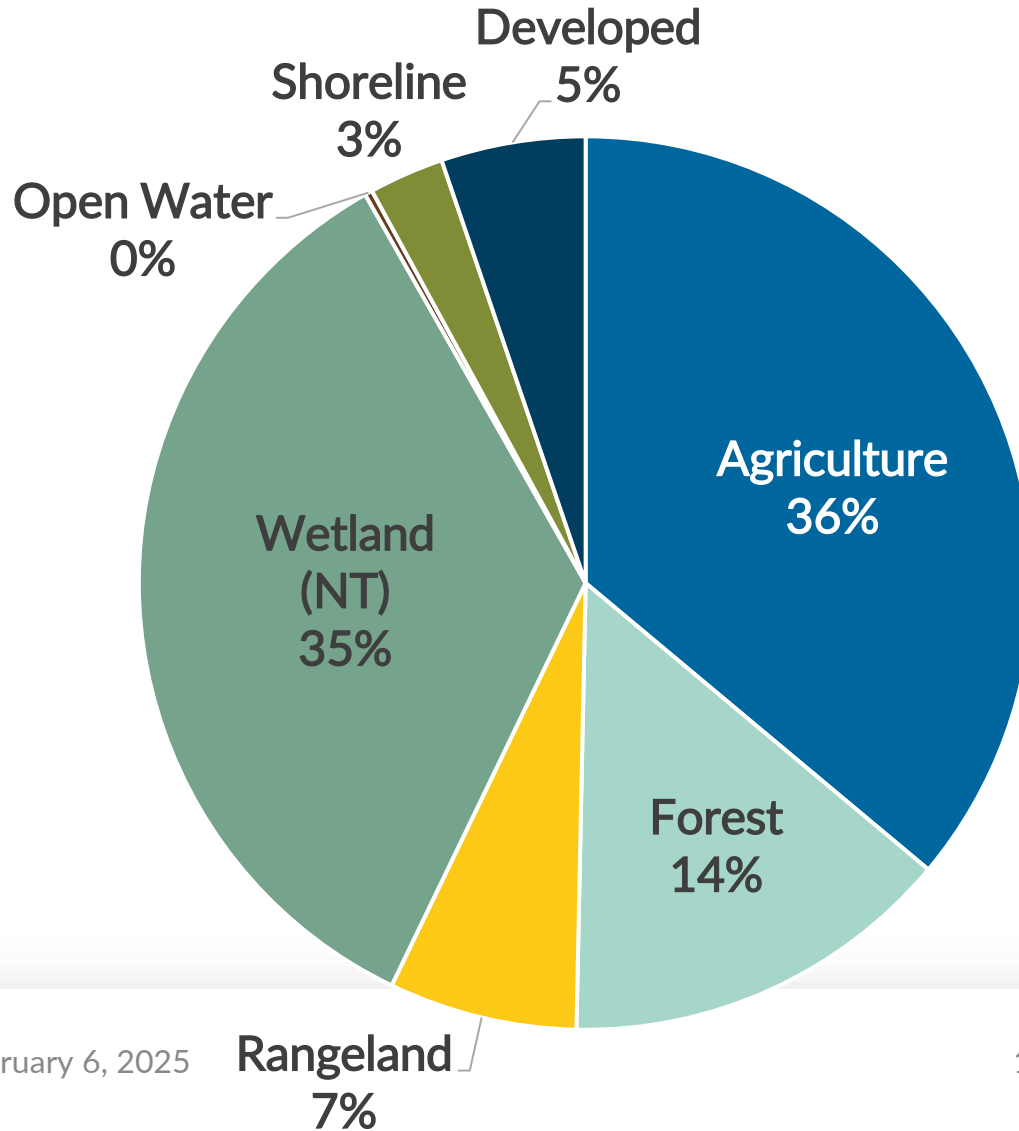


1. Statewide wetland maps 2017
2. Impervious Surface 2017
3. Soils 2023
4. Land Use Land Cover 2022
5. Slope 2017
6. DEM (LiDAR) 2017
7. Delaware SLR Scenarios 4ft 2016
8. Statewide aerial imagery 2022*

* Aerial imagery used in background, not in model

Marsh Migration Model

21,449 acres statewide scoring as 'highly suitable'



72% of highly suitable areas are located on private property

Privately owned ag lands make up 32% of all highly suitable areas.

Privately owned wetlands make up 22%.

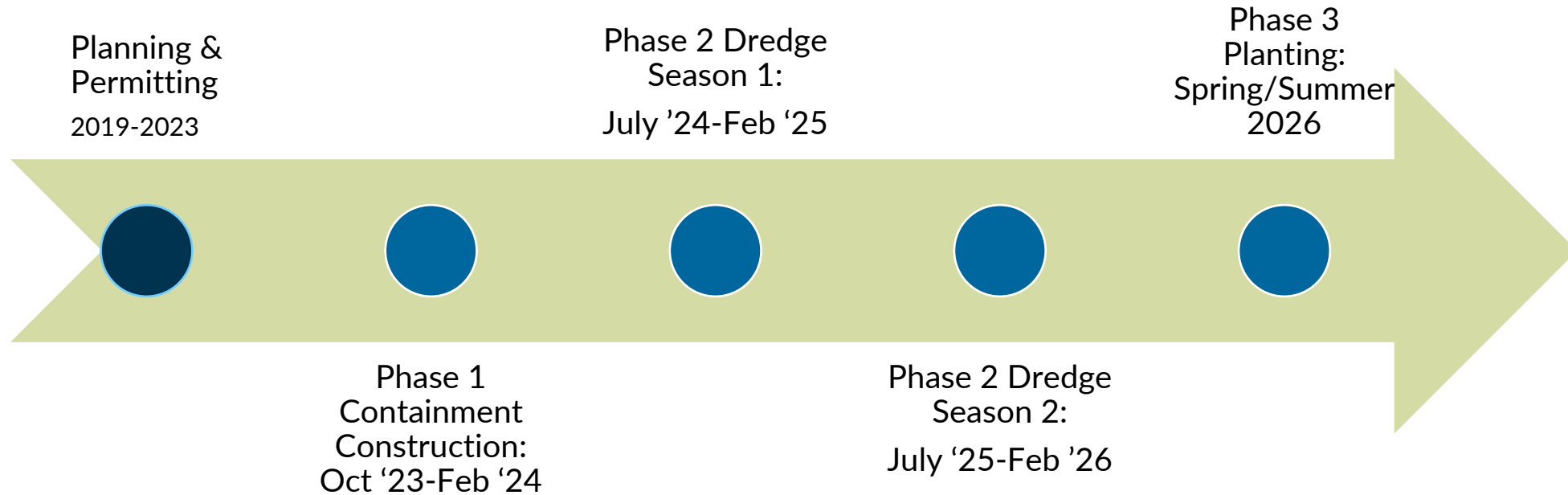
Millsboro Wetland Restoration

Combined high marsh Phragmites restoration & low marsh recreation beneficial use



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Millsboro Anticipated Project Timeline



Millsboro High marsh plant community restoration

Phragmites -> *Spartina*, *Pluchea*, *Amaranthus*, *Schoenoplectus*, *Hibiscus*



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Millsboro Low Marsh Recreation

Dredged 1,500ft of channel, delivered ~14,000yd³

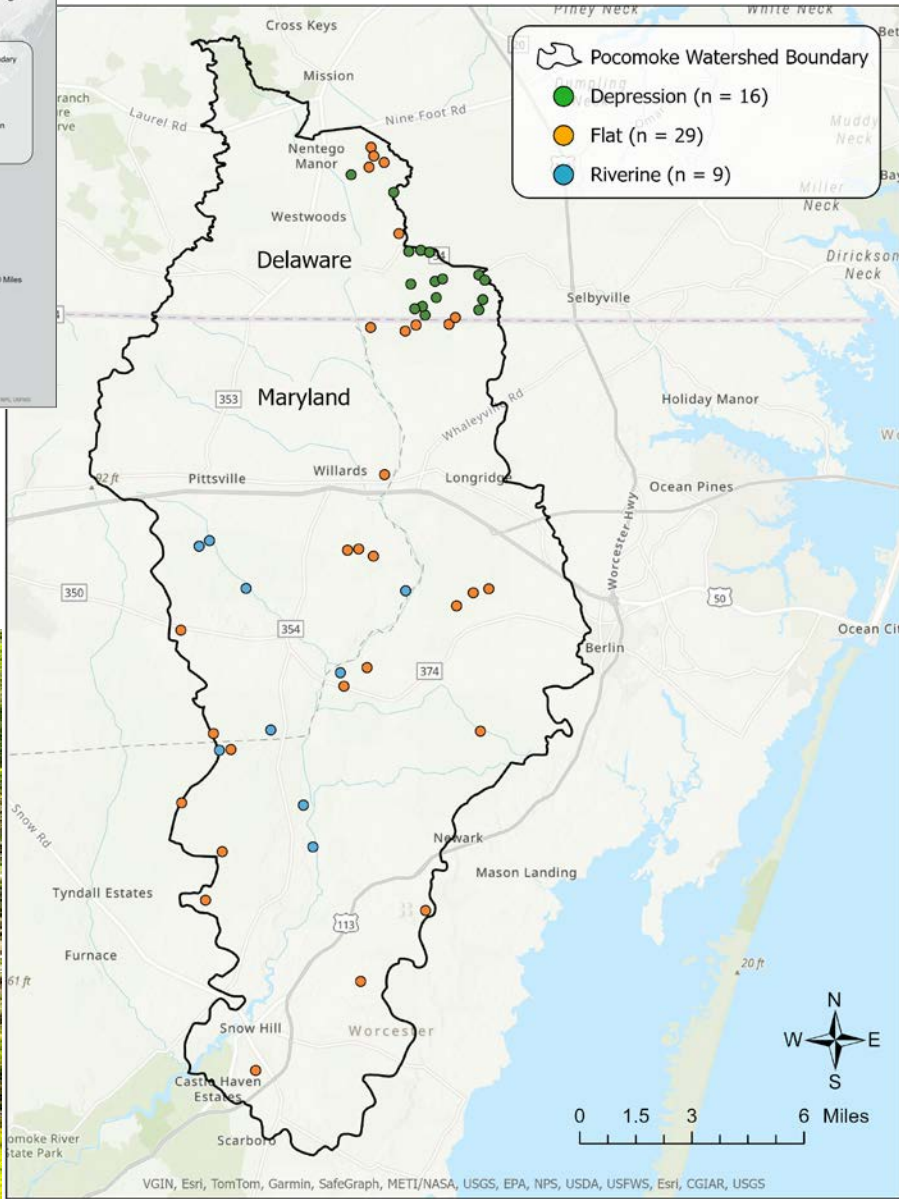
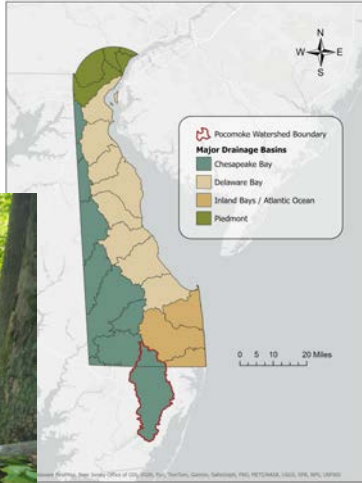
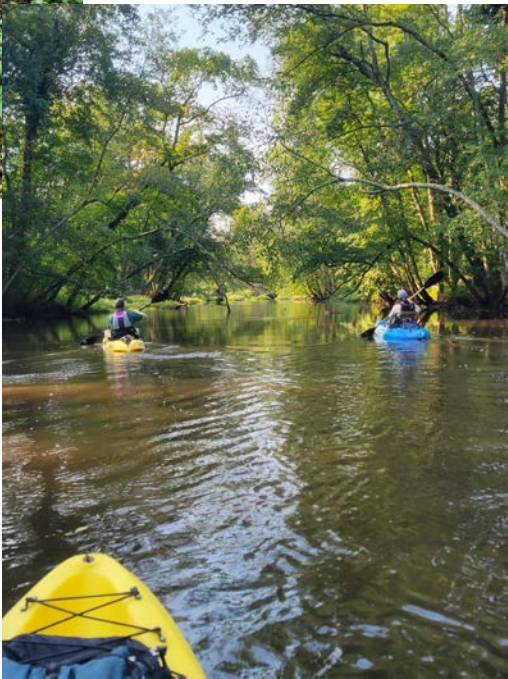


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Millsboro Monitoring

Metric	Method	Frequency
Vegetation percent cover	1x1m quadrats along transects	Once per year (summer)
Vegetation species composition	1x1m quadrats along transects	Once per year (summer)
Vegetation thickness	Horizontal veg obstruction board along transects	Once per year (summer)
Nekton	Seine and minnow traps	3 times per summer
Biomass	Cores at specific points	Before and after (summer)
Bird surveys	Sunrise point count surveys	3 times per summer
Bearing capacity	Slide hammer along transects	Once per year (summer)
Marsh elevation	RTK along transects	Once per year (summer or winter)
Photo points	Photos from fixed markers	4 times per year
Turbidity	Handheld turbidimeter	4x/day during dredging*

Pocomoke Watershed Report



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Pocomoke Watershed Report

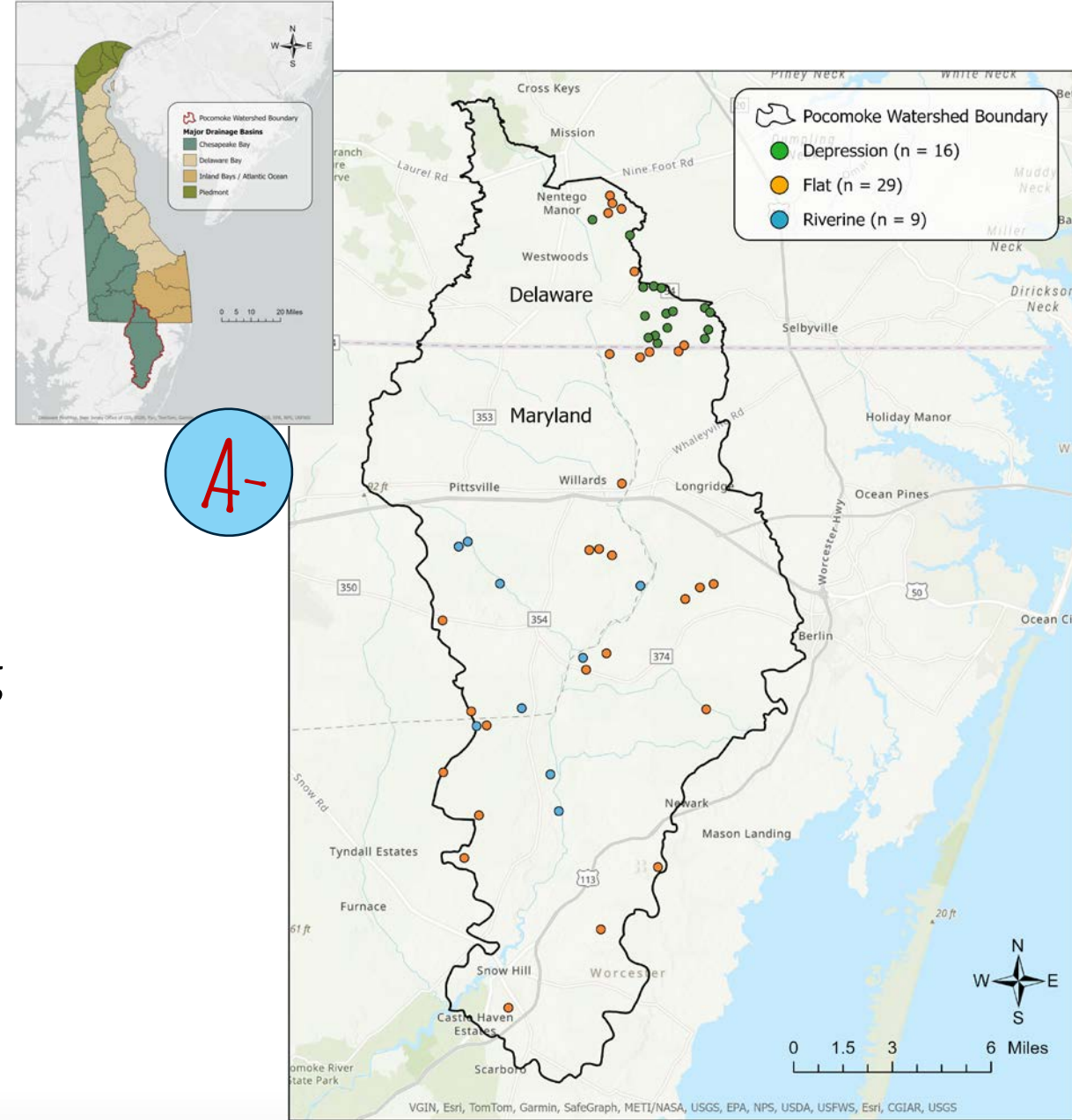
Surveyed in 2022

Overall healthy condition

Wetlands heavily privately owned

Acreage: Conversion of FO and SS to ag and pine plantations

Health: Stream channelization and ditching, buffer disturbances & forestry impacts



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Education & Outreach

The Delaware Wetland Plant Field Guide



Compiled by DNREC's
Wetland Monitoring &
Assessment Program

2nd edition

Introduction to Living Shorelines Training



March 25 and 26, 2025

Understanding the process and components of living shorelines in Delaware.

Location: DNREC Lewes Field Office
901 Pilottown Road Lewes, DE, 19958



February 2026



About the Watershed

The Pocomoke watershed is located in Sussex County, Delaware and extends further south into Maryland where it encompasses 130,125 acres (216 square miles) of land total in both states. Tucked in between the Nantuxet watershed to the west and the Inland Bays watershed to the east, 16% of the Pocomoke falls within Delaware, with the remaining 84% of the watershed continuing south into Maryland. It is composed of 5 sub-watersheds, and much of the Pocomoke is a mix between agricultural land and forested areas.

Based on 2017 and 2018 wetland maps, the Pocomoke watershed 50,650 acres of wetlands. However, this represents less than half of the historic wetland acreage, which has been destroyed mostly as a result of conversion to agricultural land. The watershed also contained some Category One wetlands, which are rare, unique freshwater wetland types in Delaware. Wetland acreage and health is directly related to the potential natural services the people of Delaware can benefit from.

Overall, the Pocomoke watershed's wetlands received a **A-** for their health score. Common wetland stressors were tree harvesting, invasive plants, channelized streams or ditching, and mowing.

Water Family Fest & Native Plant Sale

2025

A Day in Nature: Connect, Learn, Protect—Together.

FREE Family-Friendly Event



Saturday May 3

10 am to 2 pm

James Farm Ecological Preserve
Ocean View, DE



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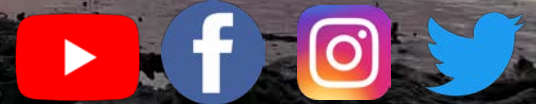
DELAWARE
CENTER FOR THE
INLAND BAYS
preserve • protect • restore



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Thank You!

Follow us!



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alison.rogerson@delaware.gov



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