



State of the Sassafras

March 16, 2024

Capt. Zack Kelleher, *USCG Master 25 Ton Inland*
Sassafras Riverkeeper, ShoreRivers

IMAGE BY: SAM SHOGE



Mission



*ShoreRivers protects and restores Eastern Shore waterways through **science-based** advocacy, restoration, and education.*



Riverkeepers



BEN FORD
MILES-WYE RIVERKEEPER



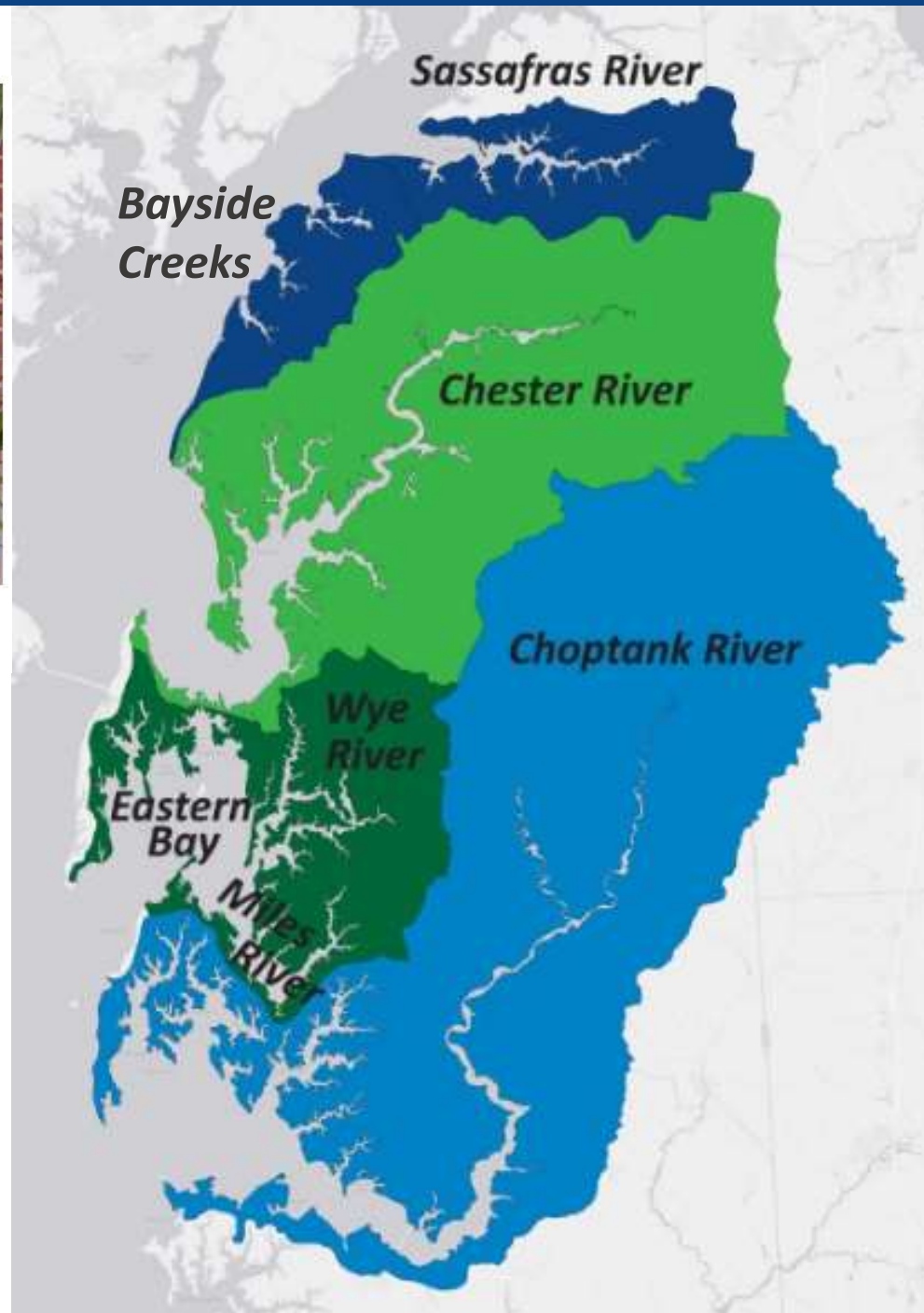
ZACK KELLEHER
SASSAFRAS RIVERKEEPER



MATT PLUTA
CHOPTANK RIVERKEEPER



ANNIE RICHARDS
CHESTER RIVERKEEPER





ShoreRivers Staff





Local Partners

- Cecil Watershed Stewards Academy
- Cecil Conservation Partners
- Cecilton Elementary School
- Town of Galena
- Galena Elementary School
- Town of Betterton
- Chestertown Environmental Committee
- Sultana Education Foundation
- Shorewood Estates Civic Association
- Kentmore Park
- Corsica River Conservancy
- Local Soil Conservation Districts
- University of Maryland Cooperative Extension
- Schumann Foundation
- LaMotte
- Chestertown RiverArts
- Kent School
- Kent County Government
- Maryland Clean Agriculture Coalition
- Chesapeake Bay Environmental Center
- Choose Clean Water Coalition
- Washington College
- University of Maryland Horn Point Lab
- Queen Anne's County Government
- Mount Harmon
- Oyster Advisory Commission
- Kent County High School
- Corsica River Implementers Committee
- Citizen's Campaign for the Environment
- Master Gardeners
- Maryland Department of the Environment
- Heron Point
- Friends of Rosin Creek



Water Quality Pollution - Sources

1. **Agricultural Runoff** – about 60% of the watershed is farmland
2. **Wastewater** – sewers, septic systems, municipal and industrial
3. **Urban/Residential Runoff** – increasing pollution load and water temperature as development pressure increases
4. **Climate Change** – sea level rise, more frequent and intense storms, hotter temperatures





Water Quality Pollution - Impacts

1. **Excess Nutrients** – Algal blooms and low oxygen levels
2. **Sediment** – Poor water clarity and light penetration, habitat destruction
3. **Bacteria** – Swimming and shellfish harvesting restrictions
4. **Sea Level Rise** – shoreline erosion; structures and wastewater systems jeopardized
5. **Increased Precipitation** – more nutrient runoff and erosion



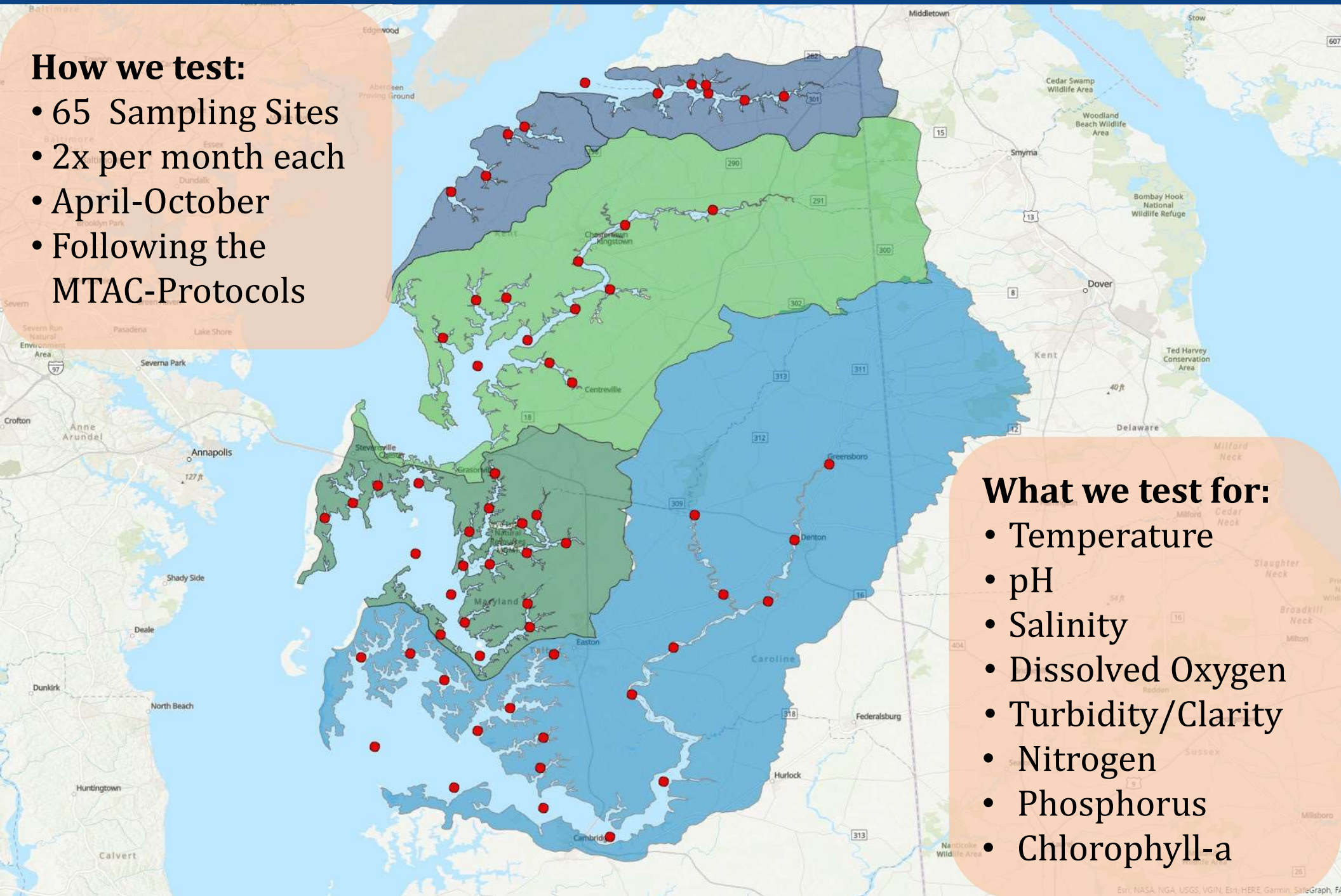
Water Quality Pollution - Tidal Monitoring

How we test:

- 65 Sampling Sites
- 2x per month each
- April-October
- Following the MTAC-Protocols

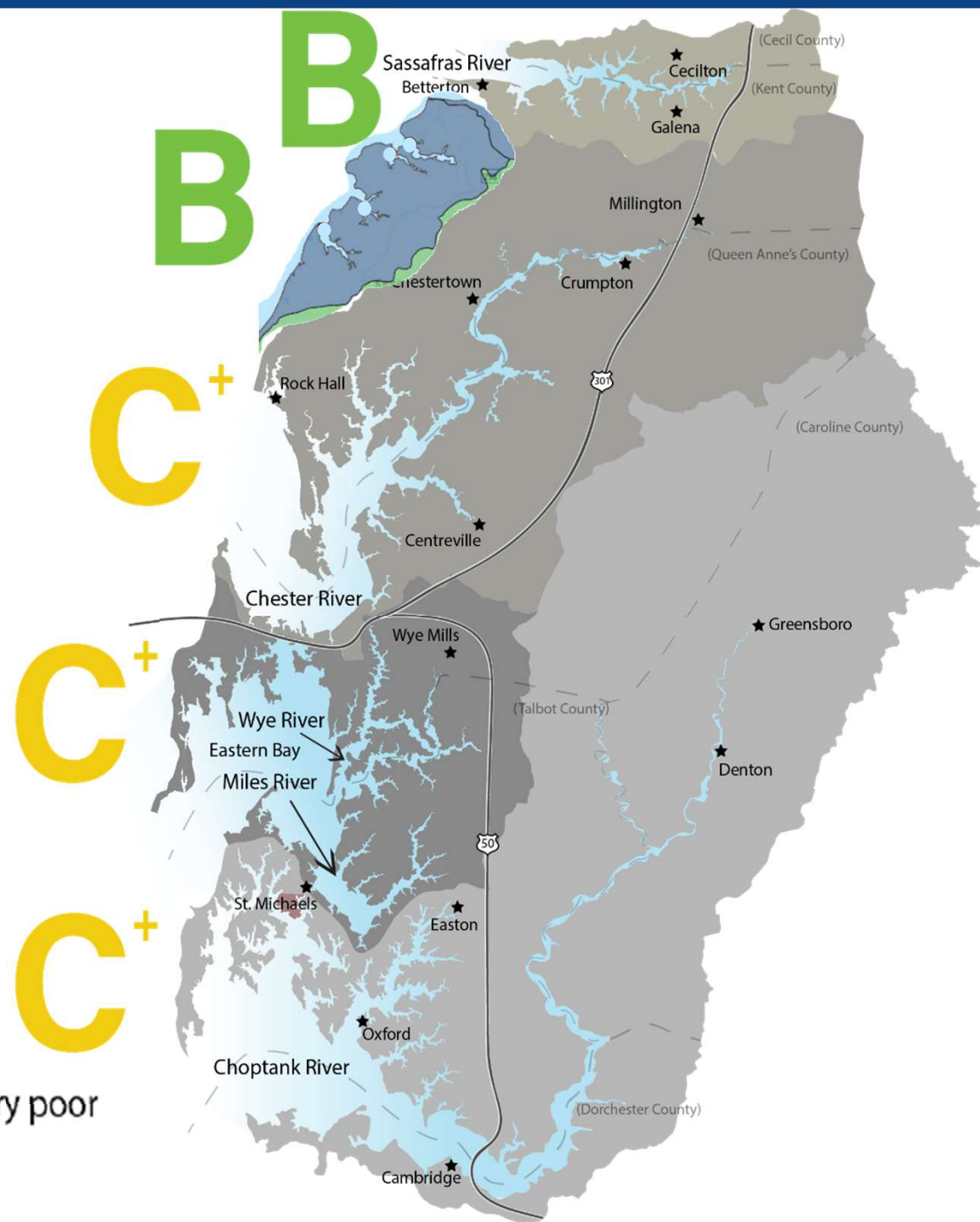
What we test for:

- Temperature
- pH
- Salinity
- Dissolved Oxygen
- Turbidity/Clarity
- Nitrogen
- Phosphorus
- Chlorophyll-a



Grading Explained

- Overall Grade
- Individual Parameter Grade
- Cross-watershed comparison
- Trends



BAY HEALTH SCALE



Water Quality Conditions

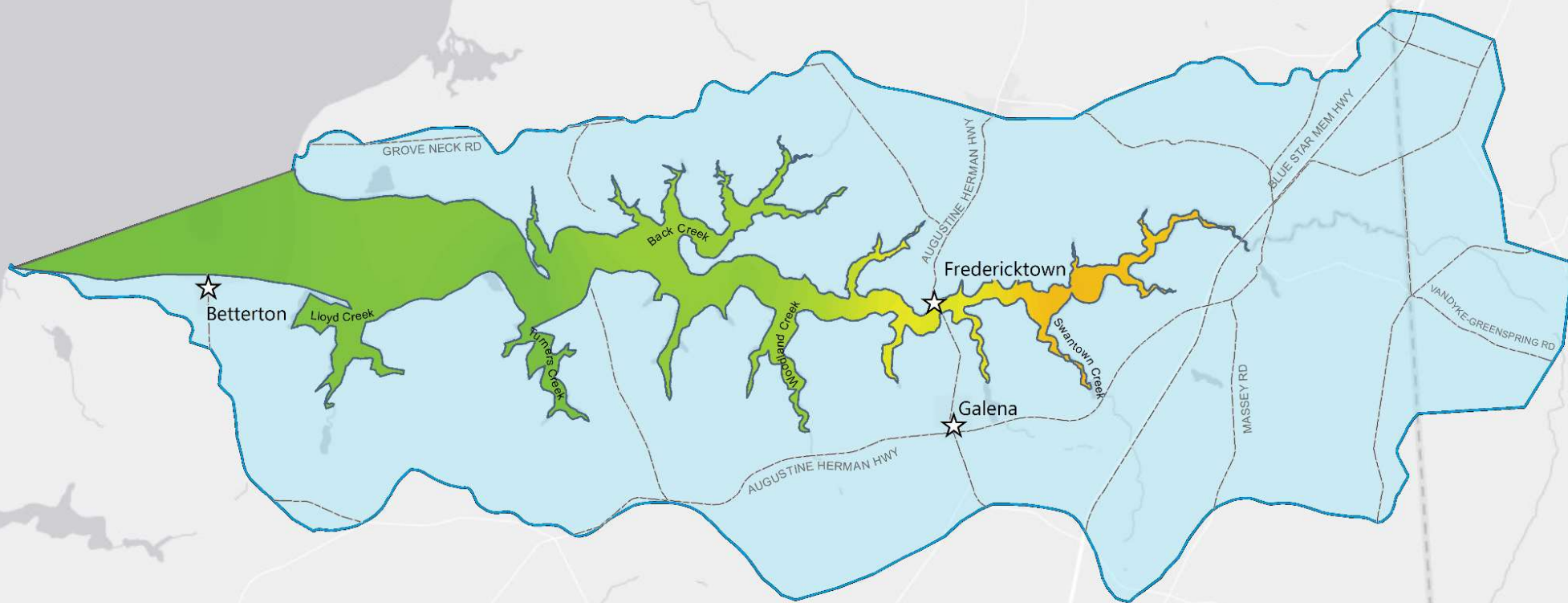
BAY HEALTH SCALE



Site Name	Oxygen	Nitrogen	Phosphorus	Clarity	Chl A	Overall	Grade
<i>Sassafras</i>							
WK02	80%	42%	32%	18%	57%	46%	C
WK03	81%	51%	46%	33%	74%	57%	C+
WK04	100%	66%	65%	37%	74%	68%	B
WK05	100%	75%	72%	40%	74%	72%	B
WK06	100%	74%	78%	47%	74%	75%	B
WK07	100%	63%	89%	52%	86%	78%	B+
WK08	100%	52%	83%	52%	86%	75%	B
<i>Bayside Creeks</i>							
SP02	100%	52%	77%	42%	80%	70%	B
CC02	100%	48%	80%	43%	70%	68%	B
WC02	100%	56%	67%	40%	77%	68%	B
FC02	100%	55%	77%	44%	73%	70%	B
Overall Sassafras	94%	61%	67%	40%	75%	67%	B
Overall Bayside Creeks	100%	53%	75%	42%	75%	69%	B

Sassafras Water Quality

Sassafras River Watershed



Water Quality Index Score

BAY HEALTH SCALE



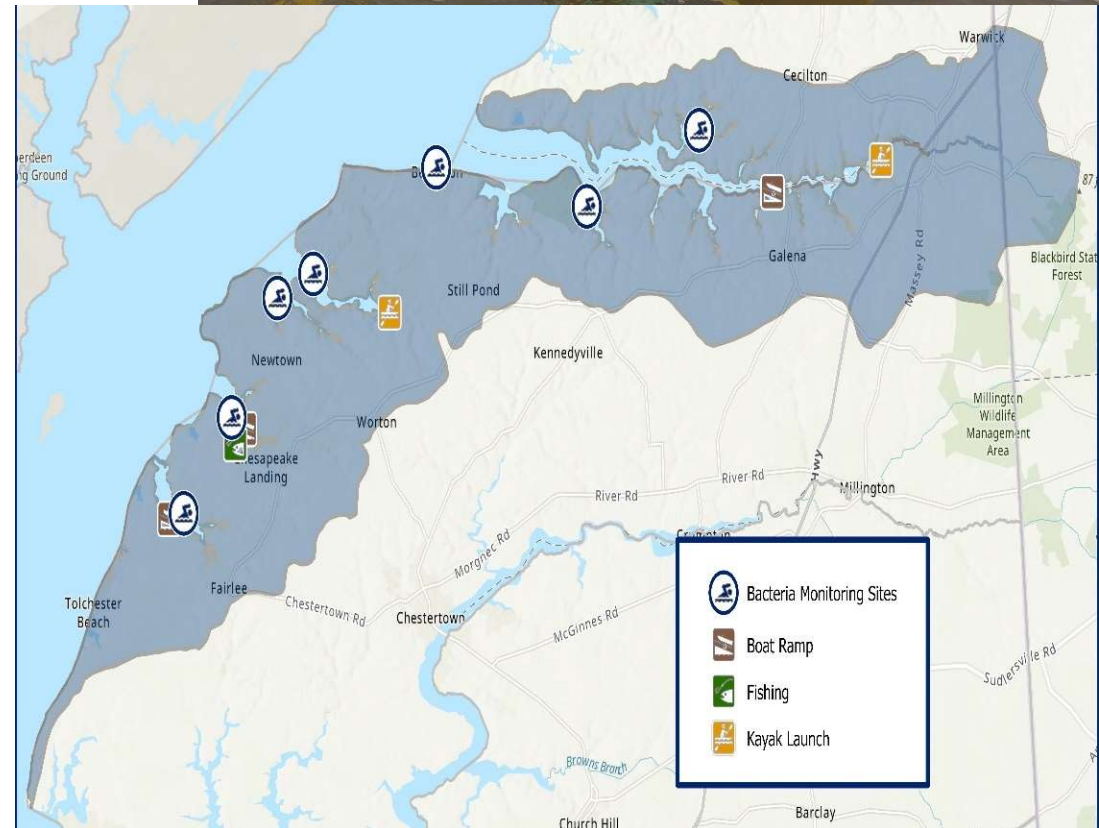
Swimmable Shore Rivers: Public Access

- Over 120 miles of shoreline on Sassafas & Bayside Creeks
- 8 public access points
- Most are boat ramps
- ~14.9 miles between access points –greatest distance of our rivers
- Sites are difficult to reach, require permits



You cannot protect what you don't love.

You cannot love what you don't know.



Water Quality Pollution - Bacteria Monitoring

What we test for:

- *Enterococci*

How we test:

- Following MD/EPA-Protocols
- 10 sampling Locations
- 1x per week
- Memorial Day- Labor Day

-
- | | |
|---|-----------------|
| ● | <60% Passed |
| ● | 60 - 94% Passed |
| ● | ≥ 95% Passed |

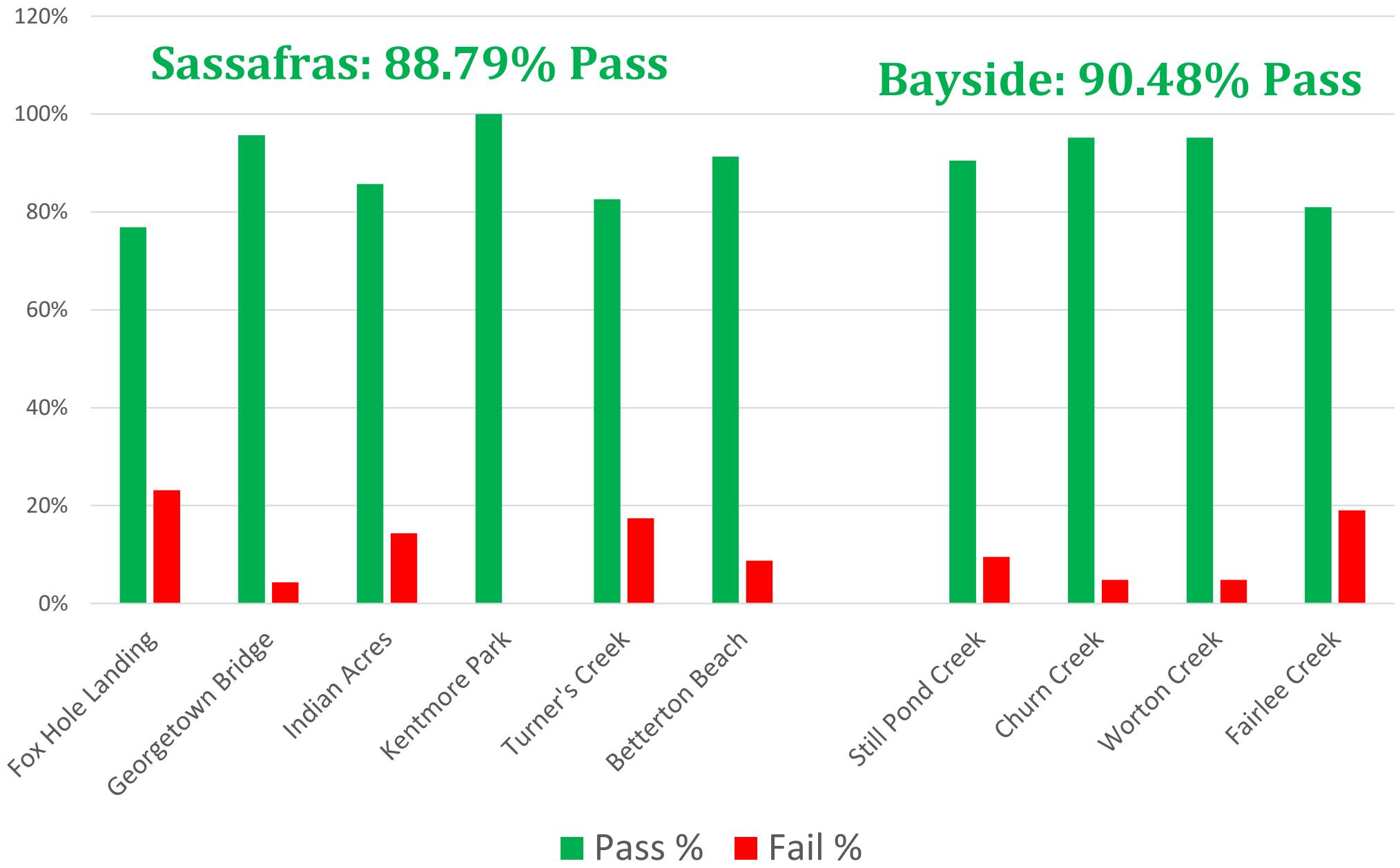


Water Quality Pollution - Bacteria Monitoring

Bacteria Pass/Fail 2020-2021

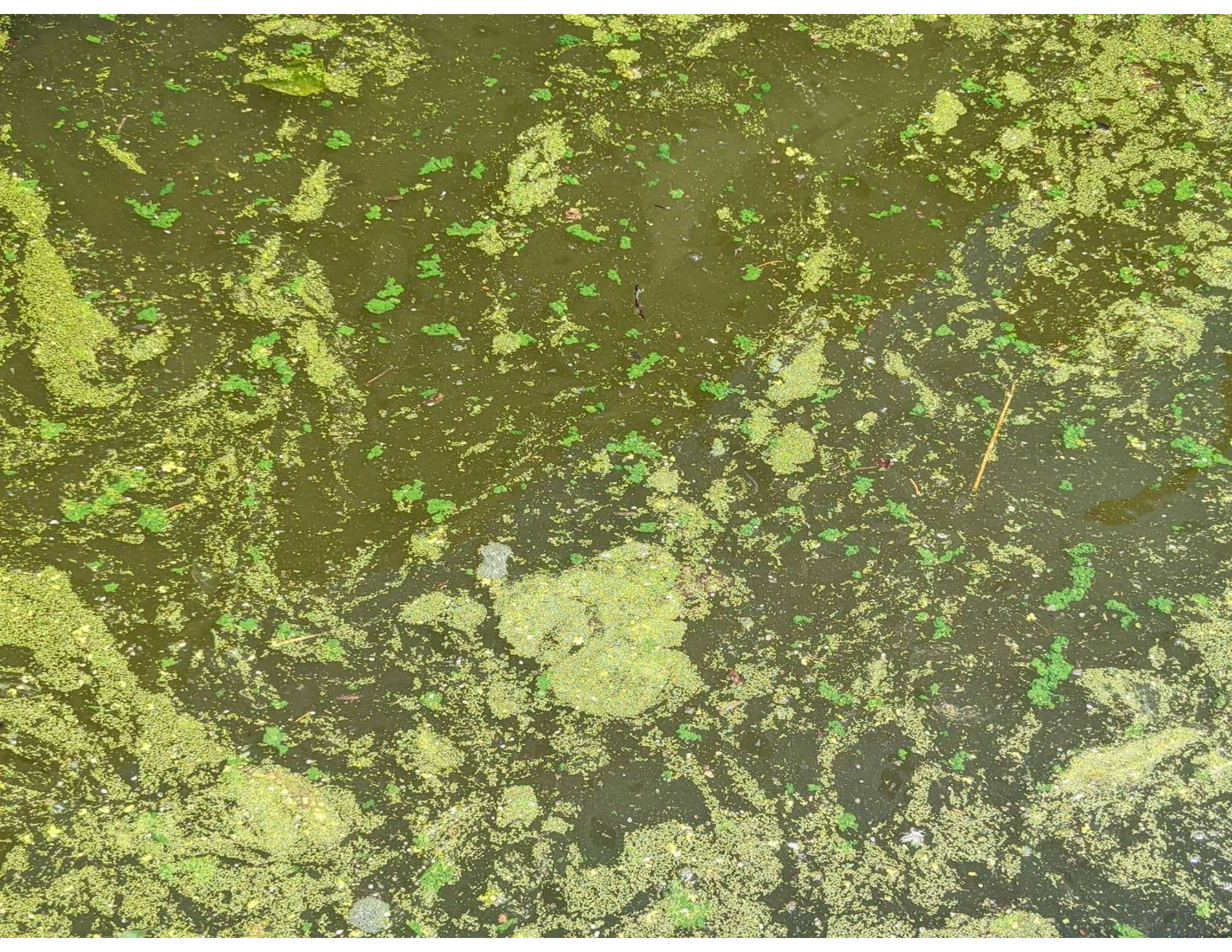
Sassafras: 88.79% Pass

Bayside: 90.48% Pass





SHORERIVERS



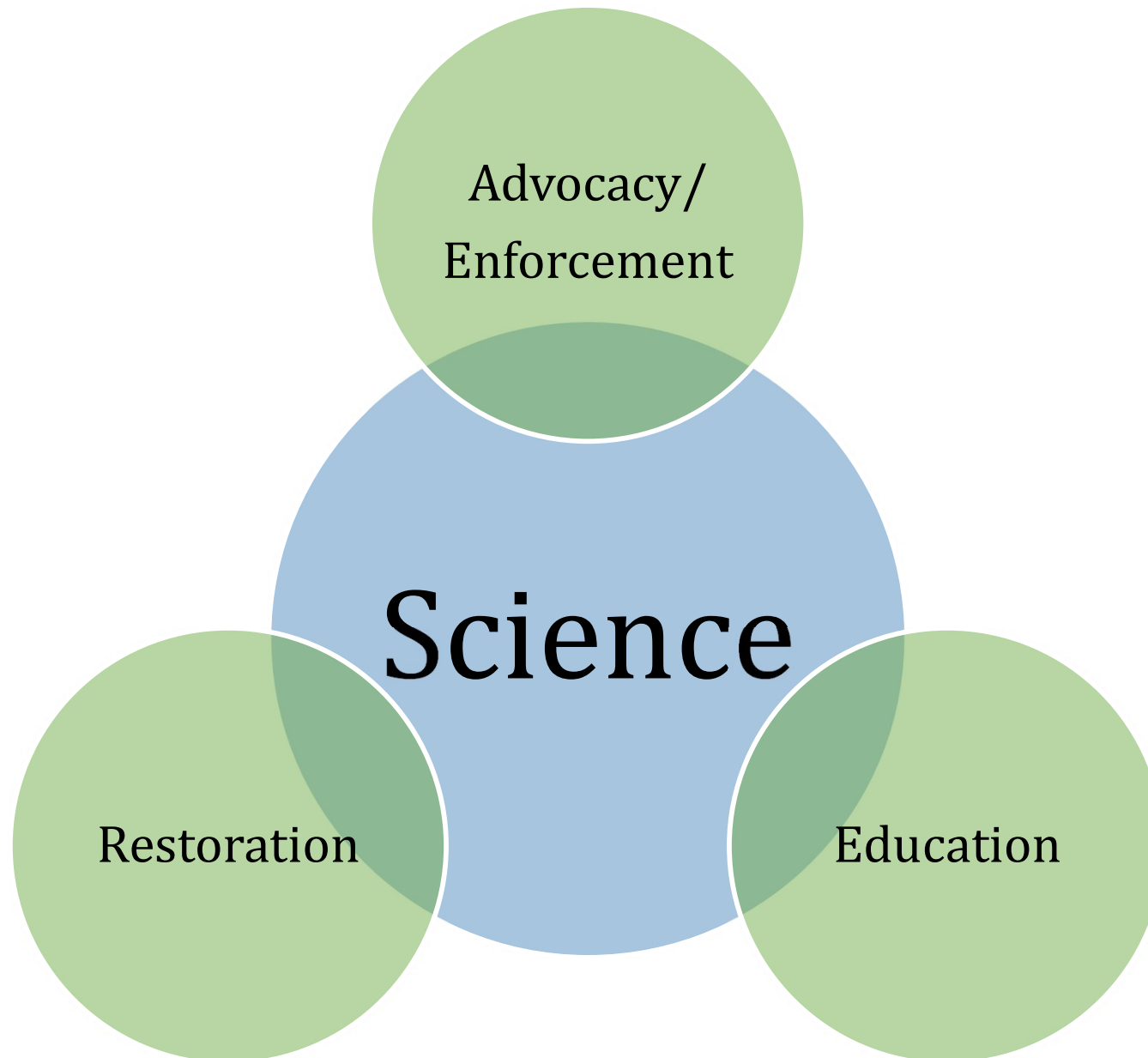




Important!

- 1. Pollution is damaging our rivers.**
- 2. Most of the pollution in our rivers comes from within our watershed.**
- 3. Climate change is impacting water quality**
- 4. Restoration works!**





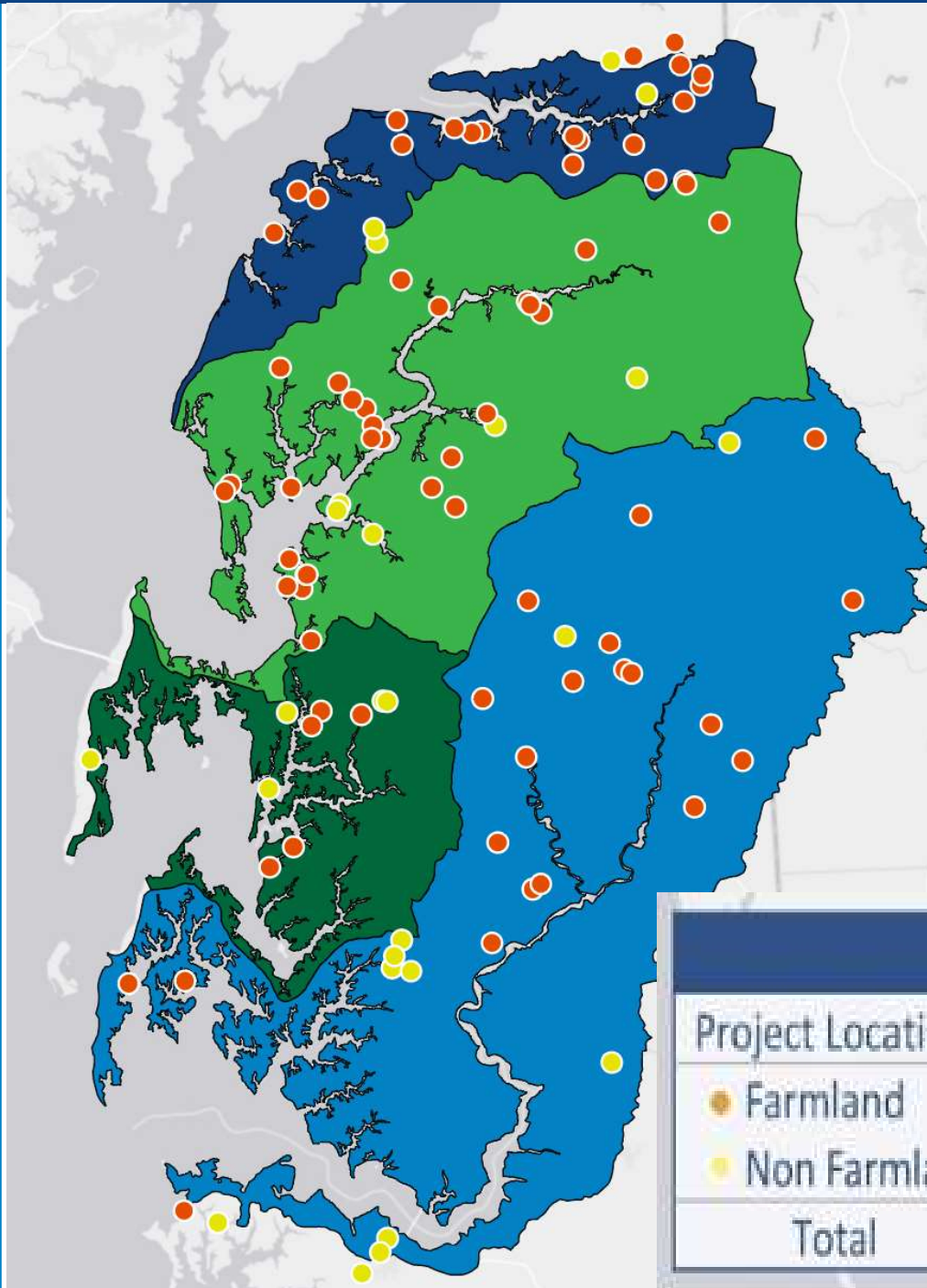
Submerged Aquatic Vegetation





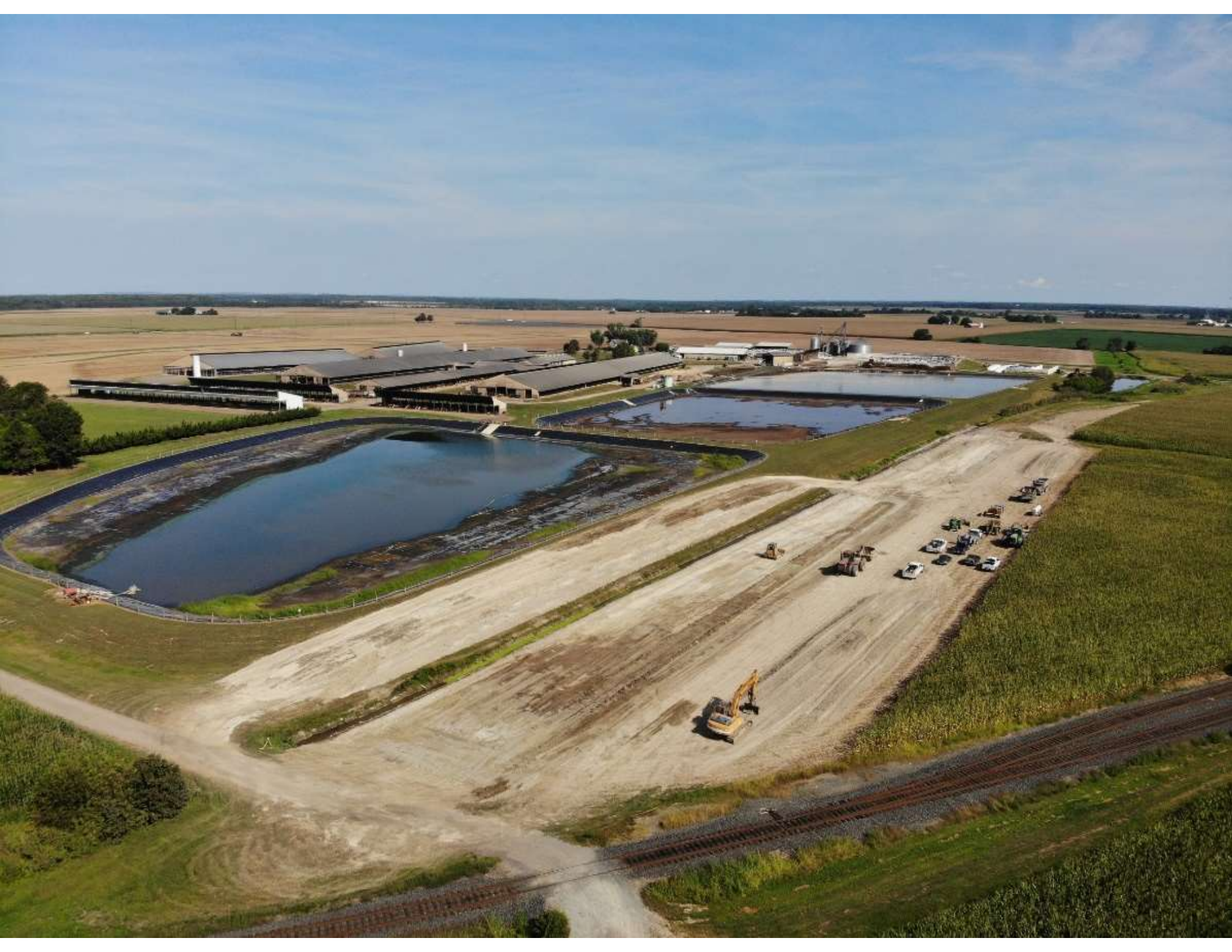


Restoration



Pollution Reduced Every Year

Project Location	No. of Projects	Nitrogen	Phosphorus	Sediment
● Farmland	198	157,631 lbs	17,387 lbs	5,265 tons
● Non Farmland	89	18,229 lbs	1,331 lbs	541 tons
Total	287	175,860 lbs	18,718 lbs	5,806 tons







Advocacy



- Conowingo Dam
- Agriculture
- Oysters and Fisheries Management
- SAV Protection
- Environmental Enforcement
- Septic Systems





River-Friendly Yards





Get Involved with ShoreRivers!





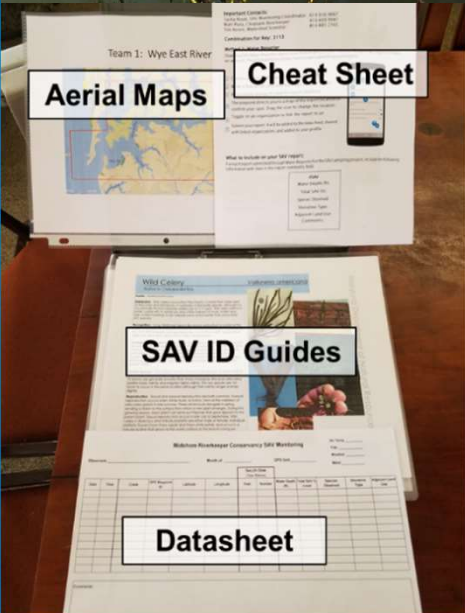
Get Involved

Project Clean Stream –kicks off in April, year-round

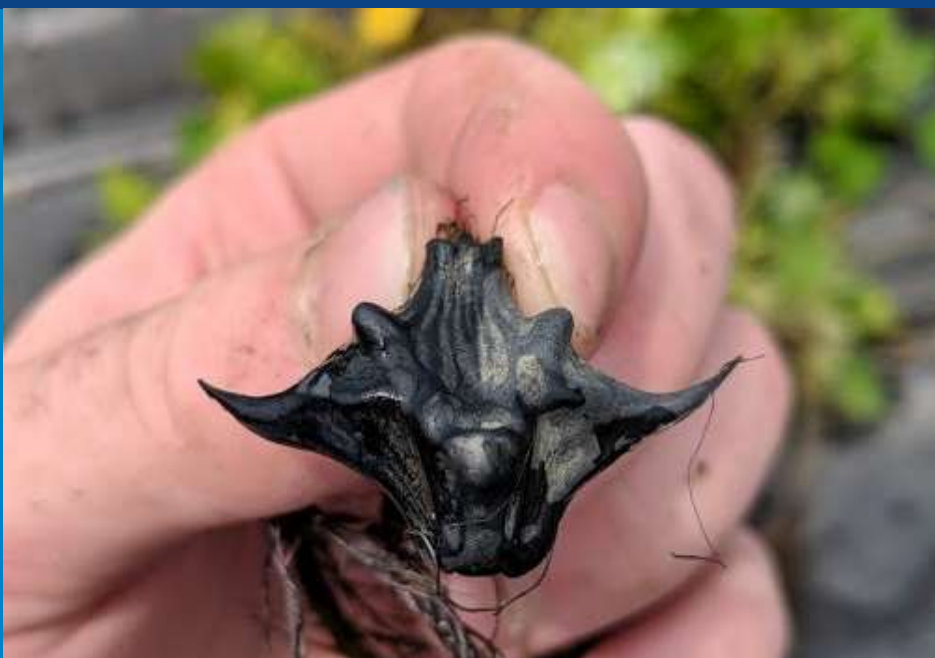




SAV Watchers

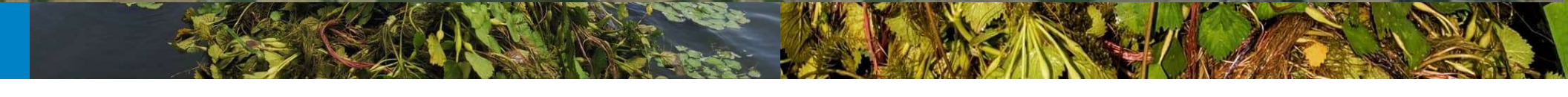
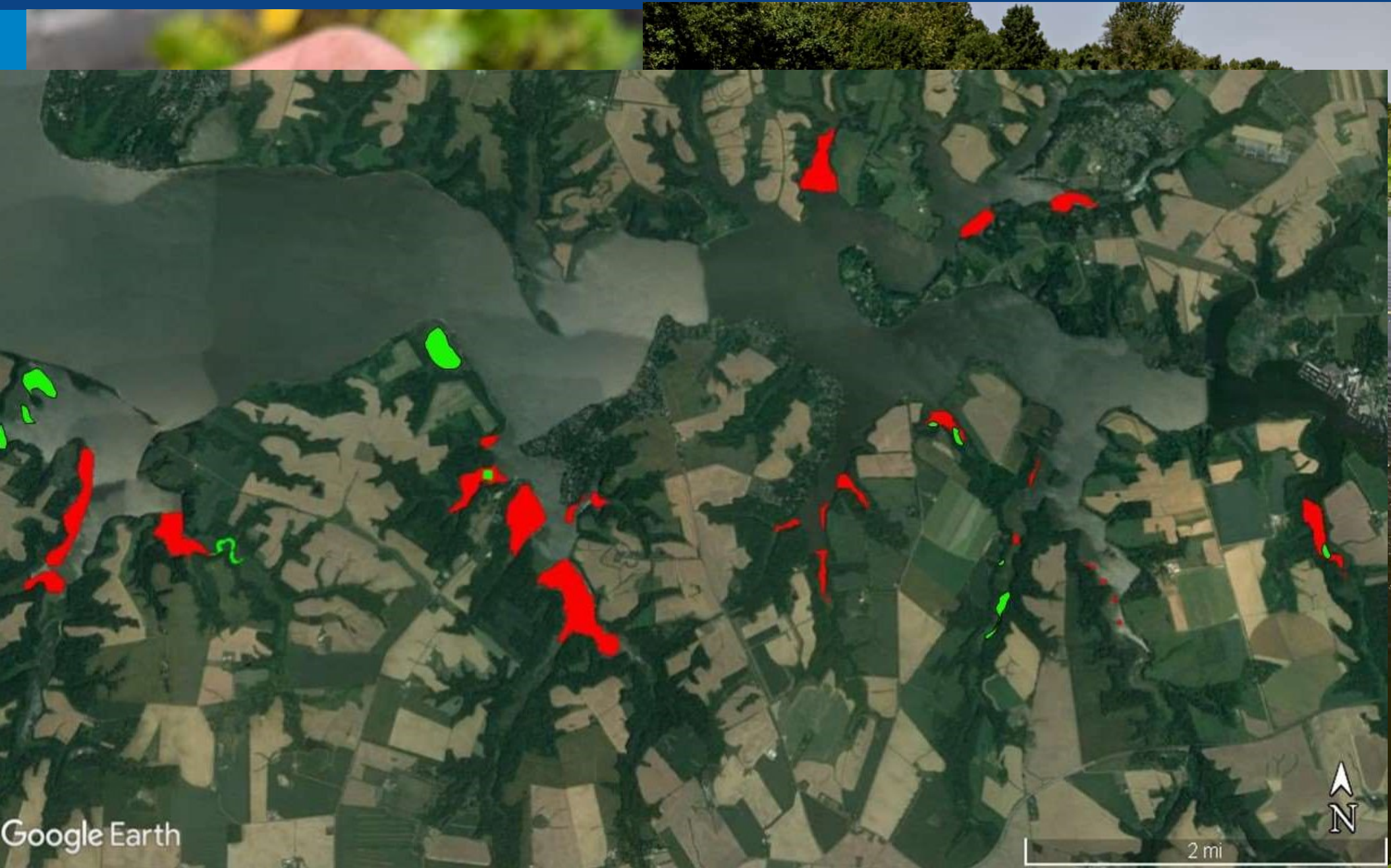


Water Chestnut Removal Efforts





Water Chestnut Removal Efforts





Enforcement





Get Involved



**State of the Rivers:
Sassafras & Bayside
Creeks
-Betterson Fire Hall
April 17, 5:30-7pm**



Get Involved



Add your voice to ours!

- Visit www.shorerivers.org/join
- Follow ShoreRivers and the Sassafra Riverkeeper on Facebook and Instagram
- Monthly Newsletters



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Thank you!
I'll see you on the river!