

State of the York Watershed System

An informative snapshot



York River and Small Coastal Basin Roundtable



YORK RIVER &
SMALL COASTAL BASIN
ROUNDTABLE



The York River and Small Coastal Basin Roundtable (YRSCBR) is a forum for information sharing and collaboration among water quality and conservation-minded stakeholders within the York River, Mobjack Bay and Piankatank River watershed areas.

YRSCBR Steering Committee members asked for an update, as the last such report was published in 2000.

The data assessed in this report represents the most current and readily available at the time of writing.

OVERVIEW

WHAT?

To provide an informative snapshot for residents of the York Watershed System on the status, trends, and opportunities in their sub-watersheds.

FOR?

Watershed residents and beyond.

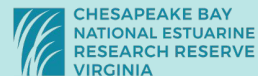
BY?

Funder



National Estuarine
Research Reserve System
Science Collaborative

Grant Team



CHESAPEAKE BAY
NATIONAL ESTUARINE
RESEARCH RESERVE
VIRGINIA



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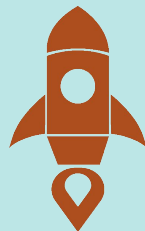
How To Use This Report

Three Sections

1 **Our
Changing
Landscape**

2 **Our
Water
Quality**

3 **The
Resources
We Steward**



Launchpad: resources and tools are linked throughout the report.

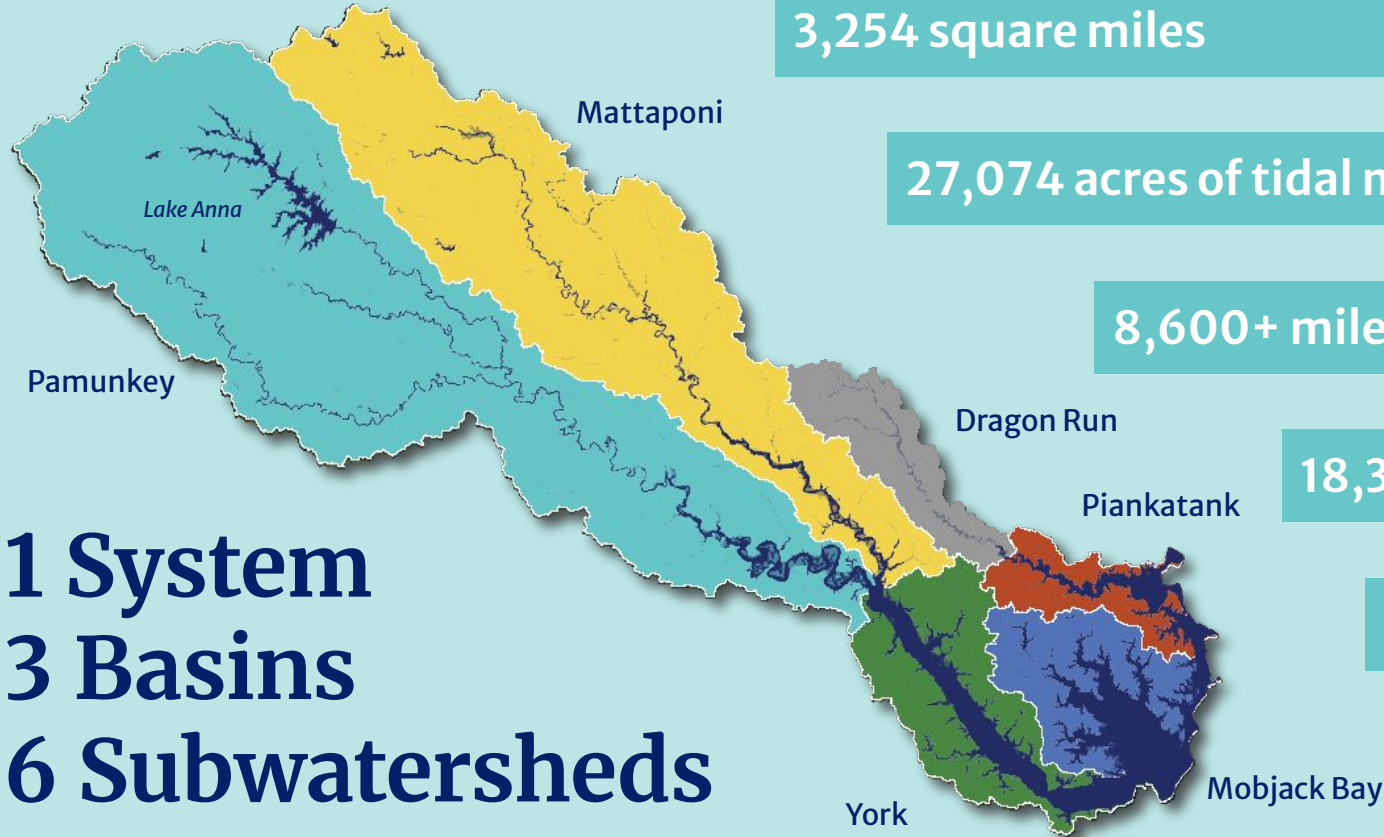


Access:
Use QR or go to yorkriverroundtable.org/soty



Suggested Citation:
State of the York Watershed System. 2024. Virginia Institute of Marine Science. DOI.

Our System Overview



3,254 square miles

27,074 acres of tidal marsh

8,600+ miles of river

18,300 acres of lakes

630,000+ people

\$34 Billion GDP

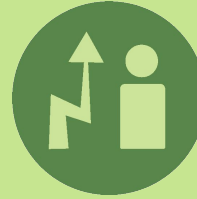
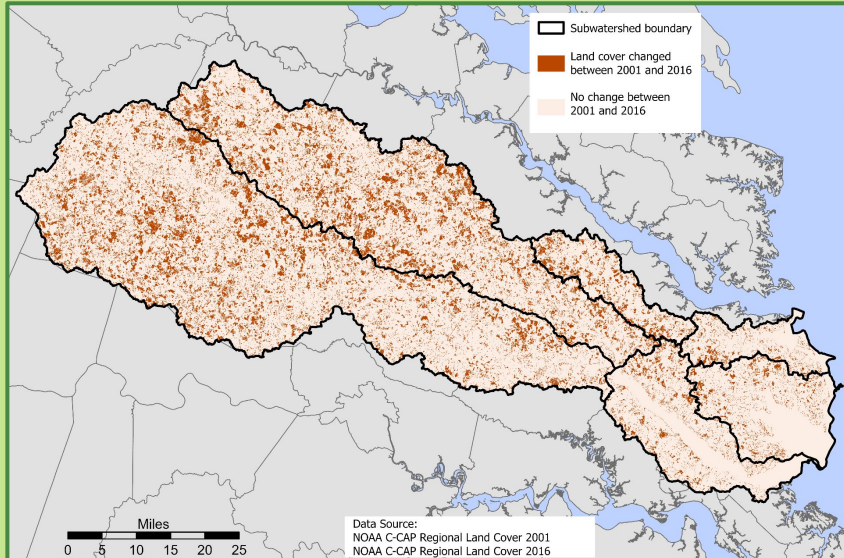
1 System
3 Basins
6 Subwatersheds

OUR CHANGING LANDSCAPE



Land Cover Change

While the System remains mostly natural, developed and bare lands are on the rise, along with increasing population



Population Increase

Over 170,000 new residents between 2000 and 2020



Housing Development

More than 76,000 new housing units between 2000 and 2020



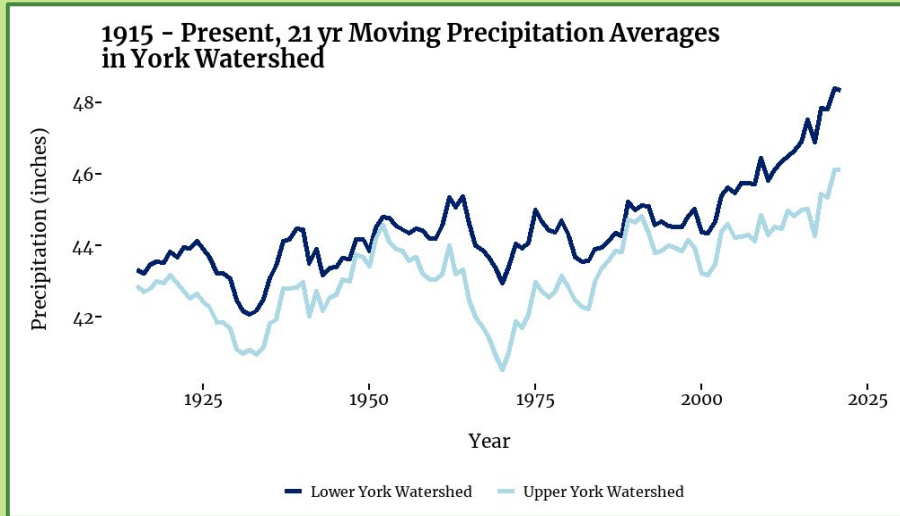
Sea Level Rise

Between 1970s–2009, sea levels rose approximately 8 inches in the York Watershed System

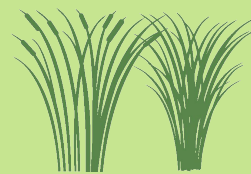
Tidewater residents are experiencing the highest relative sea level rise rates on the East Coast



Increased Precipitation and Sea Level Rise



Threats to Natural Environments



540 acres of tidal marsh were lost between 1970s and 2009

Projected increase of 37,800 to 40,900 flooded acres between 2020 and 2050

Threats to Human Infrastructure



267 identified septic hot spots in the York Watershed System (repeated occurrences of septic malfunction)

Estimated 480 miles of road in the Middle Peninsula will be inaccessible by 2100



Nature-Based Solutions

Living shorelines – 1,414 miles suitable
Riparian buffers – prevent streambank erosion

VA Department of Forestry [Riparian Forests for Landowners program](#)

Stormwater Best Management Practices (BMPs)



Conservation Easements

Property owners can secure conservation values for future generations while retaining their private property rights



Flood Resources

[FEMA](#) and [DCR Flood Maps](#) – know which areas have the highest risk of flooding

[Fight the Flood](#) – connect property owners with funding to implement flood solutions



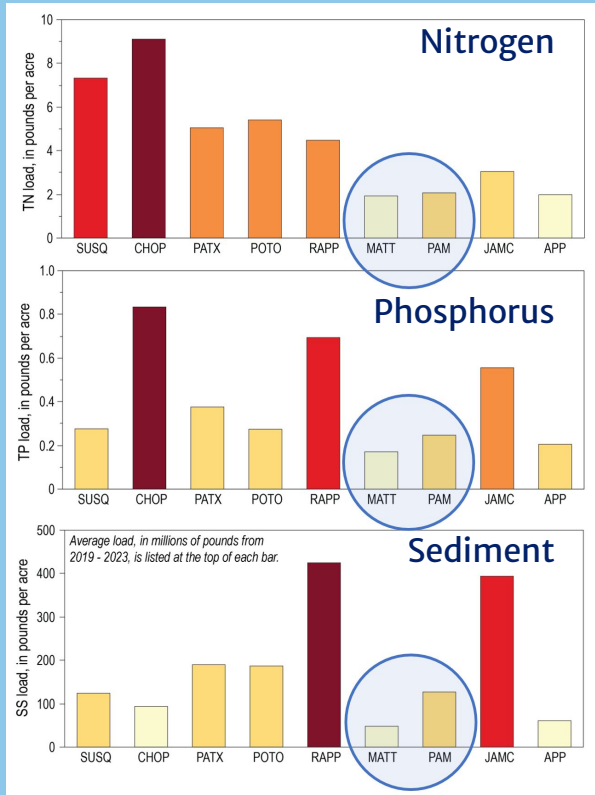
Further Study

- Impact of development to water quality and quantity
- Septic tank failure impacts
- Efficacy of “no net loss” wetland policy

OUR WATER QUALITY



Loads for major river basins



Despite the System’s relatively low inputs, the System has not met the nutrient reduction goals established by the Commonwealth.

Reductions from the agricultural and wastewater sectors have been partially offset by increasing development and septic.

Reducing Our Impact

Many practices are known to reduce nutrient and sediment runoff from agricultural and developed lands.

Examples:



Forest buffers



Stormwater management



Rain garden

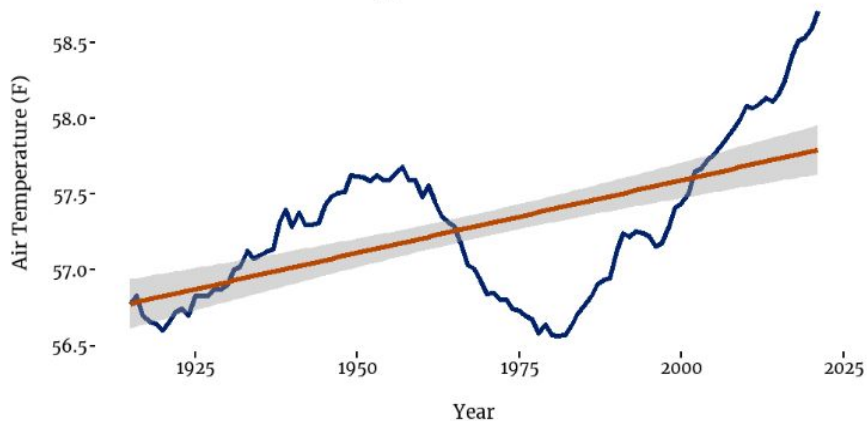
Continued implementation of these practices will help offset continued land use change in the System.



Increased Air and Water Temperatures

1915 - Present, 21 yr Moving Air Temperature Averages with linear trend line

For Upper and Lower York Watershed



Harmful Algal Blooms (HABs)

HABs have been increasing in frequency due to imbalances in the ecosystem, like irregular water temperatures and/or nutrient concentrations

HABs threaten:



Human health



Natural resources



Recreation & tourism

Emerging Threats

Forever chemicals: Per- and polyfluoroalkyl substances (PFAS) have been detected in multiple locations, including our drinking water

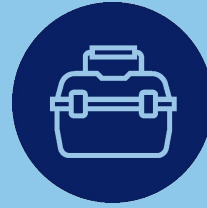
Microplastics: Small pieces of plastic difficult to remove once in the environment and our drinking water



Monitoring

Virginia is one of the only states that has codified using community-collected data in their state reporting

Chesapeake Monitoring Cooperative— nine community groups monitor 134 stations in the York Watershed System



Resources to Keep You Safe

VA Department of Environmental Quality – [Water Quality Programs](#)

VA Department of Health – [Office of Environmental Health Services](#)

[How's My Waterway?](#) – for swimming and fishing info



Actions

Best Management Practices (BMPs) for nonpoint source pollution

Pump out and repair— maintain your septic system

Scoop the poop— pick up pet waste

Virginia Tech soil testing— avoid excess nutrients from fertilizer by testing your yard



Further Study

- PFAS
- Microplastics
- HAB origins and economic impact
- Vessel discharge

THE RESOURCE S WE STEWARD



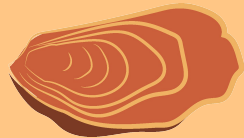
System resources have immense ecological, economic, and cultural value

Status

Oysters

Oysters support marine habitats, improve water quality, and offer tasty local fare.

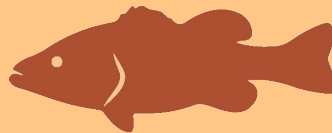
As of June 2022, 486 acres of oyster restoration have been completed within the York Watershed System.



Fisheries

Healthy fisheries support commercial economies and recreational fishing opportunities.

In 2023, fishing permits allowed 43,000+ people to fish in the York Watershed System.



Habitat

Diverse habitats like marshes and living shorelines provide food and protection to other species.

The System hosts 54 rare habitats, of which 15 are aquatic.



Rising Temperatures

High water temperatures have caused periodic sharp declines in underwater grass coverage in the Lower York River. This means less habitat for fish and other river-based wildlife.



CBNERR-VA

Human Interactions

Plant and animal populations are threatened by:



Barriers
(dams, culverts)



Land
development



Habitat loss &
degradation



Pollution



Disease



Illegal harvest

Invasive Species



Phragmites cordgrass



Nutria



Two-horned trapa



Northern
Snakehead



Blue catfish

Protected areas, both public and private, help ensure natural and cultural resources are conserved and can continue to be enjoyed

Opportunities



Protections and Investment

NOAA Habitat Focus Area – target places with high priority habitat for NOAA programs and investment

Sentinel Landscapes Partnership – areas where conservation, working lands, and national defense interests converge

350 Protected areas

434 Conservation easements



Dam Removal

Barriers to fish passage like dams and culverts limit access to habitat and make fish vulnerable to predators

350 Estimated fish passage barriers



Actions

Know the regulations–

- Freshwater fishing
- Saltwater fishing
- Saltwater crabbing

RecFish– share your fish photos to help other recreational anglers

Virginia Invasive Species Mapper– report presence of invasive species

Support your local land conservancy



Further Research

Invasive species presence and impacts–
Northern Snakehead

Recreational fishing landings data

Road stream crossing assessment

Heat tolerant underwater grasses

Creating a positive ripple effect in the York Watershed System requires just a DROP:

D Deepen your understanding of the issues



- Explore the information and tools in the SOTY report
- Ask meaningful questions
- Exchange information with friends and neighbors

R Recreate responsibly in, and on, our shared waters



- Leave no trace, take only pictures
- Follow any posted guidelines on environmental protection
- Adhere to catch and size limits

O Opt-in to conscious consumption



- Reduce energy and water use
- Buy local, sustainable seafood
- Dispose of waste and chemicals properly

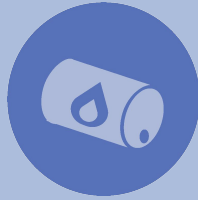
P Participate in community efforts



- Connect with the York River and Small Coastal Basin Roundtable
- Join a community monitoring program for water quality, species counts, or trash clean up

Stewardship Guide

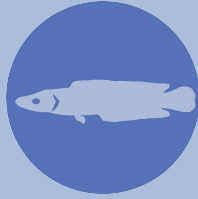
Each of us plays a role. Our system is shared, among us, and with nature – and because the changes to it and within it, impact us all, we all have a responsibility to steward it.



Resources for environmental hazards:

Pollution

- Report algal blooms or obtain information on the human health effects from VDH
- Report abandoned and derelict vessels
- Other pollution can be reported to DEQ



Invasive species – map and track

- Report sightings of nutria and two-horned trapa
- Kill Northern Snakeheads (confirmed presence in Pamunkey River) and report to DWR



Consider best practices for land use

Implement natural solutions to manage erosion and flooding (and, therefore, safeguard water quality!)

- Ex. rain gardens, bioswales, permeable pavers
- Avoid disturbing or clearing land, test your soils, and pump-out your septic systems



Have waterfront?

Consider implementing conservation easements, living shorelines, or riparian buffers on your property

APPENDIX

Summary materials
developed by



- **How to use these slides:**
 - Use the entire slide deck or pull ones you want into your own presentation
 - Please remember to point to source documents on YRSCBR website (see Slide 4)
- **When communicating the material, remember:**
 - State of the York Watershed System or “SOTY” represents the most up to date snapshot of local data available at the time of report development.
 - SOTY is meant to empower residents to understand that the actions we all take– in consumer choices, development, recreation, and more– impact the health of our shared System.
 - This brief SOTY overview should be a jumping off point to further learning and access to resources.
 - The Roundtable convenes to share information and others are encouraged to connect with the Roundtable to stay up to date.