



**Chesapeake Bay Program**  
*Science. Restoration. Partnership.*

February 28, 2024

# **Beyond 2025 Symposium**

## Healthy Watersheds



**Hello!**

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# Agenda

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**1 Overview**

**4 Cross-Cutting**

**2 Approach**

**5 Thank you/Credits**

**3 Recommendations**

**6 Discussion**


# Overview

## Healthy Watersheds



# Vision

We envision a more comprehensive and holistic approach to a healthy Chesapeake Bay watershed where protection, improvement, restoration, and stewardship actions are deployed strategically, achieve ecological function, and align with state and/or local priorities to meet Bay program goals.





# Vanguard Idea

Integrate a more holistic and people-centric approach to improving and maintaining watershed health as a foundational goal of the partnership

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# Moving towards healthy watersheds

Data, Tools,  
Monitoring

Planning

Community  
Engagement

Watershed  
Actions

Accountability

Habitat  
Climate  
EJ

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# **What is a healthy watershed?**

A healthy watershed can be defined as an area draining to a stream, lake or wetland where natural land cover supports the dynamic processes, habitats, and water quality conditions able to support healthy and climate-resilient ecosystems and communities.

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# Data, Tools and Monitoring

## CHWA

- Stream Health
- Landscape Integrity

### Watershed Health Metrics

#### Landscape Condition

% Tree Cover in Riparian 2017/18 Catchment	99.96%
% Tree Cover in Riparian 2017/18 Watershed	99.96%
Housing Unit Density 2020 Catchment (units/mi <sup>2</sup> , km)	0
Housing Unit Density 2020 Watershed (units/mi <sup>2</sup> , km)	0
Population Density 2020 Catchment (people/mi <sup>2</sup> , km)	<0.01
Population Density 2020 Watershed (people/mi <sup>2</sup> , km)	0
% Extractive 2017/18 Catchment	0.00%
% Extractive 2017/18 Watershed	0.00%
% Forested Extent Loss to Development 2001-2013 Catchment	0.00%
% Forested Extent Loss to Development 2001-2013 Watershed	0.00%
% Impervious Cover 2017/18 Catchment	0.10%
% Impervious Cover 2017/18 Watershed	0.10%
% Natural Land in Riparian 2017/18 Catchment	100.00%
% Natural Land in Riparian 2017/18 Watershed	100.00%
% Protected Lands Catchment	100.00%
% Protected Lands Watershed	100.00%
% Agriculture 2017/18 Catchment	0.00%
% Agriculture 2017/18 Watershed	0.00%

#### Geomorphology

Streambed Fine Sediment and Sand Cover Catchment	3.19
Streambed Particle Size D50 Catchment	85
Streambank Sediment Flux Catchment (kg/sec m <sup>1</sup> y <sup>1</sup> )	<0.01
Streambank Lateral Erosion Catchment (kg/ft/sec m-1 y <sup>1</sup> )	<0.01
Streambank Fine Sediment Flux Catchment (kg/ft/sec m-1 y <sup>1</sup> )	<0.01
Streambank Erosion Change Catchment	<0.01
Road Density Riparian Catchment (miles, km)	<0.01
Road Density Riparian Watershed (miles, km)	<0.01
Road Density Watershed (miles, km)	<0.01
Road Density Riparian Watershed (miles, km)	<0.01

#### Habitat

Nature's Network Connectivity Catchment	99.00%
Fish Habitat Condition Index (Catchment)	5
Fish Habitat Condition Index Cumulative	4
Fish Habitat Condition Index Network (Watershed)	4
% Tree Cover with Unmanaged Understory 2017/18 Catchment	92.00%
% Tree Cover with Unmanaged Understory 2017/18 Watershed	92.00%

#### Hydrology

% Tree Canopy with Managed Understory 2017/18 Catchment	0.00%
% Tree Canopy with Managed Understory 2017/18 Watershed	0.00%
% Non-forested Wetlands 2017/18 Catchment (miles, km)	0
% Non-forested Wetlands 2017/18 Watershed (miles, km)	0
Road Stream Crossing Density Watershed (miles, km)	0
FlowAlteration	0

#### Water Quality

% Impaired Stream Catchment	0.00%
Incremental suspended-sediment load from streambank erosion (kilograms/y)	28.88
Incremental total nitrogen load from manure applications (kg/y)	0
Incremental total nitrogen load from fertilizer applications (kg/y)	0.54
Incremental total nitrogen load from septic system effluent (kg/y)	8.81
Incremental total nitrogen load from wastewater treatment facility point sources (kg/y)	0
Incremental total phosphorus load from manure applications (kg/y)	0

### Watershed Vulnerability Metrics

#### Land Use Change

Housing Unit Density Change Catchment	0
Housing Unit Density Change Watershed	0
% Non-forested Wetland Conversion to Development 2013-18 Catchment	0.00%
% Non-forested Wetland Conversion to Development 2013-18 Watershed	0.00%
% Forest Harvesting 2013-18 Catchment	0.00%
% Forest Harvesting 2013-18 Watershed	0.00%
% Change in Impervious Cover 2013-18 Catchment	0.00%
% Change in Impervious Cover 2013-18 Watershed	0.00%
% Change in Forested Extent 2013-18 Catchment	0.03%
% Change in Forested Extent 2013-18 Watershed	0.03%
% Impervious Projected to 2055 Catchment	0.00%

#### Wildfire

% Wetland Urban Interface Catchment	0.00%
% Wetland Urban Interface Watershed	0.00%

#### Climate Change

Probability of Brook Trout (current)	100
Probability of Brook Trout (2-degree Celsius increase)	100
Probability of Brook Trout (4-degree Celsius increase)	99
Probability of Brook Trout (6-degree Celsius increase)	97
Climate Stress Catchment	95
% Resilient Lands Catchment	91.00%

#### Water Use

Domestic Water Use	2.42
Industrial Water Use	1.68
Agriculture Water Use	0.05

<https://gis.chesapeakebay.net/chwa/?page=Overall>

# Planning

Many scales: Local, Regional, State, Basin-wide

Green Infrastructure Concepts

Integrate into existing plans

State Plans

- Wildlife (SWAPs)
- Forests (SFAPs)
- Recreation (SCORPs)
- Water (Nonpoint Source Plans)



# Community and Partner Engagement

**DE Grant Assistance Program**

**D.C. City Council, COG, DOEE**

**MD Sea Grant watershed restoration specialists**

**NY Regional Economic Development Organizations**

**PA Community Clean Water Action Plan Coordinators**

**VA Assoc. of Planning District Commissions**

**WV Regional Planning Councils**

## Circuit Riders/Coordinators

- **Facilitation**
- **Communication**
- **Planning**
- **Funding/Finance**
- **Project Management**
- **Watershed Action**
- **Tracking**

### Progress Through Partnerships

On October 11, 2023, DEP's Bureau of Watershed Restoration and Nonpoint Source Management (BWRNSM) hosted the first Clean Water Gathering of State Program Action Leaders and Countywide Action Planning (CAP) leaders. Over 80 partners, representing county, state and federal organizations, came together to celebrate successes and discuss high level needs, issues and challenges to continued progress. BWRNSM's Chesapeake Bay Watershed Restoration Division is using the recommendations from this meeting to build collaborative county/state partner Progress Teams that focus on "Strategies for Success" that address challenges and build on successes from Phase 3 WIP and CAP efforts.



# Watershed Actions

- Land Protection
- Stewardship
- Restoration



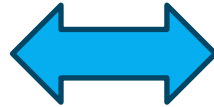


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# Accountability Framework

- Prevention of pollution
- Habitat for Living Resources
- Condition of Living Resources
- Thresholds for impervious surface or forest cover
- Stewardship of our investments



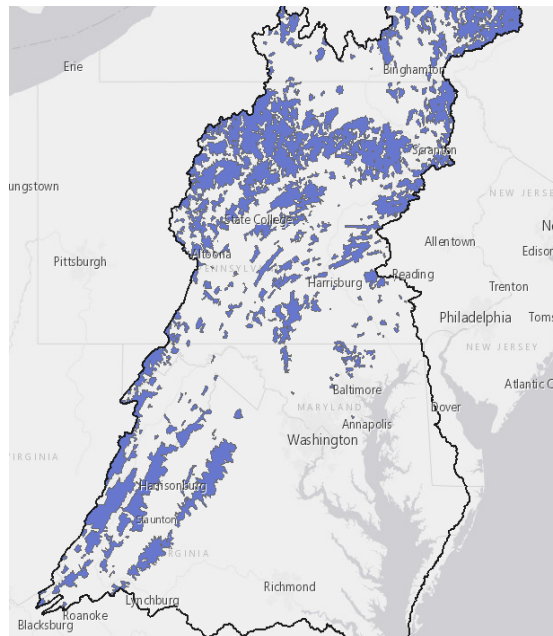
- Pollution reduction (N, P, S)
- Count Practices
- WIPs designed for TMDL

Shift toward counting outcomes rather than practices

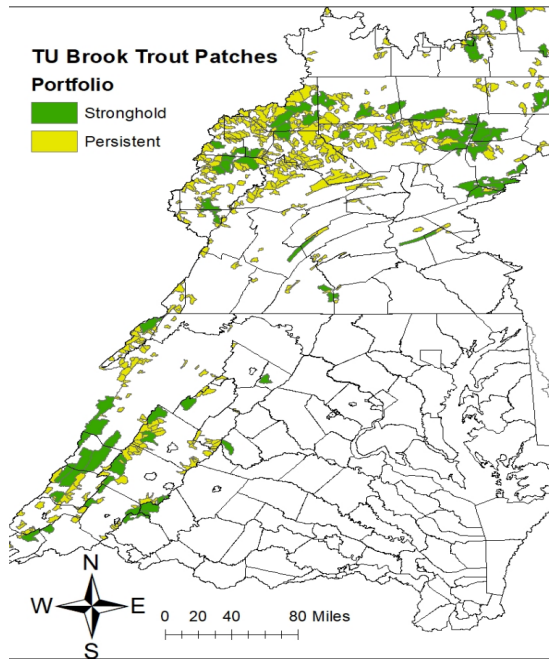
# Integration



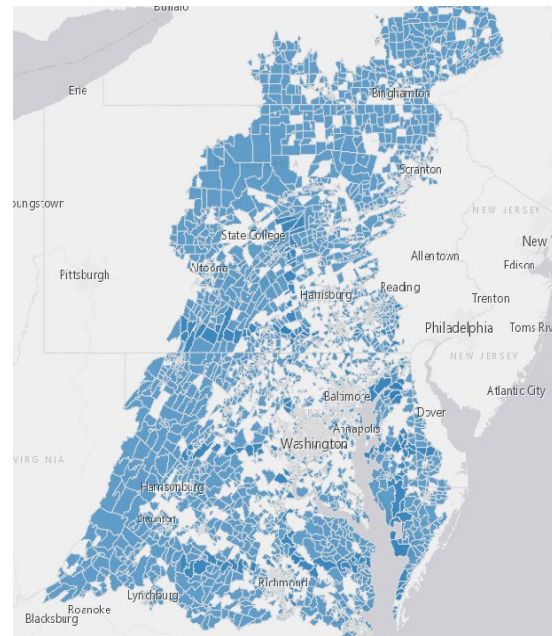
Brook Trout



Habitat



Climate



EJ

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# Recommendations

- 1. Data, Tools and Monitoring – Characterize Watershed Health**
- 2. Planning – Green Infrastructure at multiple scales**
- 3. Community Engagement – Capacity for coordinators**
- 4. Watershed Actions – Accelerate and elevate**
  - Land Conservation
  - Stewardship
  - Restoration
- 5. Accountability – Outcomes vs. Outputs**

Integrate Habitat, Climate and DEIJ into above recommendations.

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*“Chesapeake Bay Program partners envision an environmentally and economically sustainable Chesapeake Bay watershed with clean water, abundant life, conserved lands and access to the water, a vibrant cultural heritage, and a diversity of engaged stakeholders.”*



# Credits

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A special thanks to:

- Katie Brownson
- Sherri Degraphenreed
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- Bill Jenkins
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- Jenna Schueler
- Kevin Schabow
- Kristen Wolf
- Jill Whitcomb
- Jason Dubow
- Kristin Saunders
- Peter Claggett
- Sophie Waterman



# Thank you!

Any questions? Jeff Lerner, HWGIT chair  
You can contact me at [lerner.jeffrey@epa.gov](mailto:lerner.jeffrey@epa.gov)



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