Chesapeake Bay Program
Science. Restoration. Partnership.

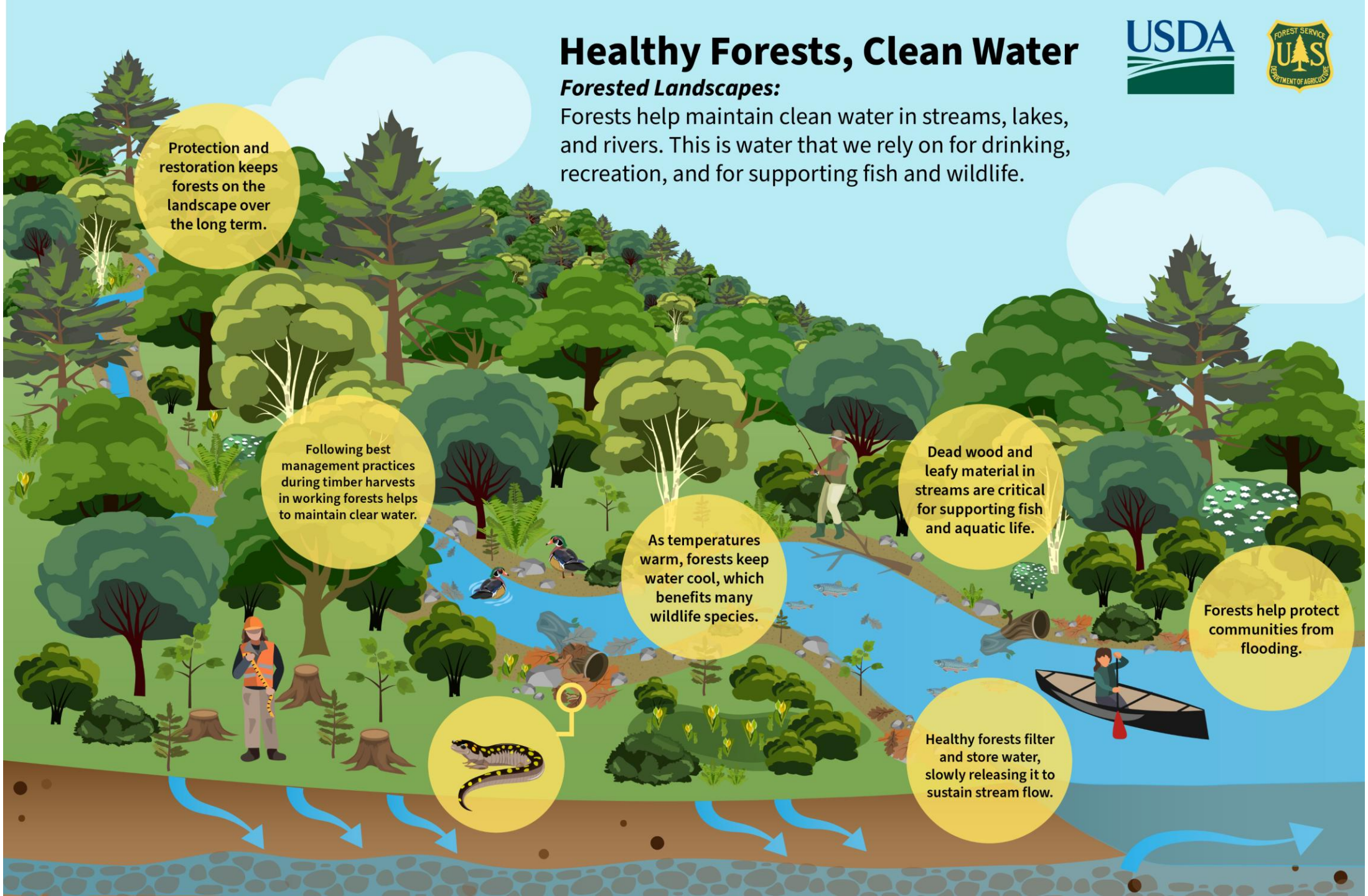
Healthy Forests and Trees

Katie Brownson
USFS Forest Service

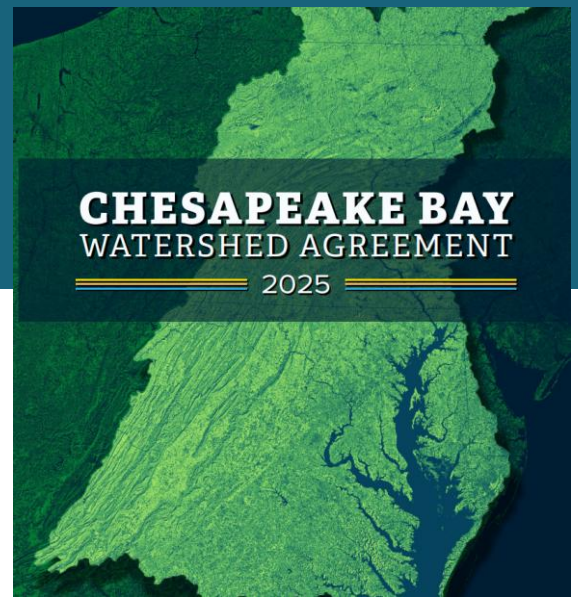
Healthy Forests, Clean Water

Forested Landscapes:

Forests help maintain clean water in streams, lakes, and rivers. This is water that we rely on for drinking, recreation, and for supporting fish and wildlife.



New Healthy Forests and Trees Outcome



Conserve, manage and restore forests and tree cover to maximize benefits for water quality, habitat and people throughout the watershed, with a particular focus on riparian areas and communities.

TARGETS

Tree Canopy: Conserve tree canopy within communities by reducing the rate of loss of existing canopy and planting and maintaining 45,000 acres of community trees by 2040 to achieve a net gain in canopy over the long term.

Forest Buffers: Conserve riparian forest by reducing the rate of loss of existing buffers and planting and maintaining 7,500 acres of forest buffers annually to achieve no less than 71.5% riparian forest cover by 2040 and 75% riparian forest cover over the long term.

Forest Conservation: Achieve a net gain in forests over the long-term by reducing the rate of forest conversion to other land uses by 33%, permanently protecting a total of 9 million acres of forested land, and planting, maintaining and managing 202,000 acres of new forests by 2040.

Forestry Workgroup Priorities

Riparian Forest Buffers

Accelerating riparian forest buffer planting and maintenance

Developing and expanding flexible and effective buffer programs

Increasing capacity for restoration

Community Tree Canopy

Supporting local governments to understand and conserve existing canopy

Accelerating community tree planting and maintenance

Forest Conservation

Increasing the permanent protection of forested lands

Accelerating upland reforestation

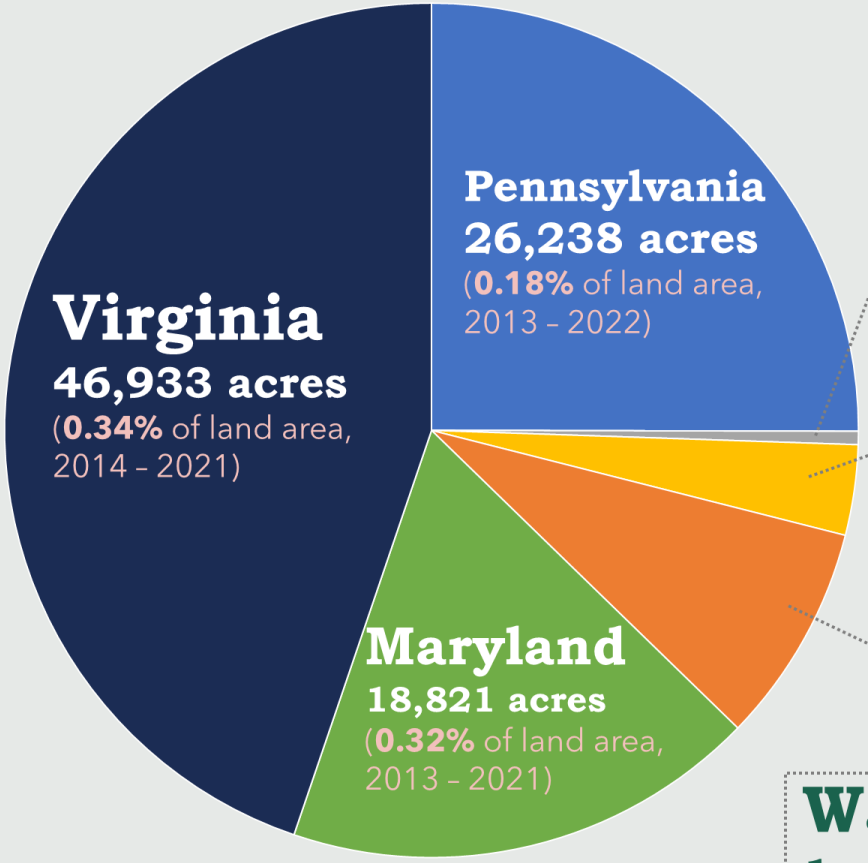
Supporting additional forest management needed to ensure resilience

Benefits of elevating forest conservation

- Healthy forests= clean water. We need to make this connection stronger within the partnership and the agreement
- Need more explicit consideration of upland forests
- Forest conservation needs to include being good stewards of the forest
- Opportunities to better engage with forest management community, build awareness of forest management practices
- Benefits of regional coordination around forest management to maximize restoration impact

How has tree cover changed with development in the Chesapeake Bay watershed?

104,817 ACRES NET LOSS (0.26% OF LAND AREA)



Delaware
527 acres
(**0.12%** of land area, 2013 - 2021)

West Virginia
3,581 acres
(**0.16%** of land area, 2014 - 2022)

New York
8,716 acres
(**0.22%** of land area, 2013 - 2022)

Washington, D.C.
1 acre
(**0.00%** of land area, 2013- 2021)

This tree cover loss has resulted in the loss of $331 million in benefits annually!

State of Chesapeake Forests Storymap

Tree Canopy Status and Change Factsheets

Conserving Chesapeake forests will require a holistic approach

- Strategic land protection – acquisitions and easements
- Land use decision support – empowering local decision-makers to conserve trees and forests
- Active forest management, stewardship and restoration to support functional and resilient forest ecosystems

Healthy Forests for Clean Water: A Theory of Change

Influencing Factors*

Action Arena: Opportunities to advance forest conservation

Enabling Conditions

- Land use
- Forest markets
- Forestry policies and incentives
- Land protection
- Technical assistance
- Resources and capacity
- Knowledge, awareness, public perception
- Social networks

Land Management Actions

- Harvesting
- Prescribed fire
- Invasives control
- Pest/pathogen control
- Deer control/exclusion
- Reforestation/revegetation

*Not within our sphere of control

Forest Ecosystem Function and Services

Increased resilience

Reduced Stressors

Sustained/ Improved Forest Health

Benefits to Ecosystems

Sustained/ Improved Water Quality

Benefits to People

Big Picture Challenges

- Figuring out how to effectively position the Forestry Workgroup to implement an outcome with a much larger scope
- Growing our network to better integrate the forest management, forest markets, and stewardship communities
- Determining how the Bay Program and Forestry Workgroup can provide added value to state and local forest conservation efforts
- Effectively communicating about forest and tree canopy change with a variety of audiences across the watershed, including local governments

Current efforts

- Continue supporting efforts to advance riparian forest buffer and community tree plantings
- Finalizing and disseminating recommendations from the STAC workshop- “Healthy Forests: Proactive Strategies for Managing Threats and Promoting Conservation in the Chesapeake Bay Watershed”
- Updating the State of Chesapeake Forests Storymap to include new analyses on plantable space, forest fragmentation, and riparian forest status and change

Thank you!

Katherine.brownson@usda.gov

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FOREST SERVICE
US
DEPARTMENT OF AGRICULTURE

Chesapeake Bay Program
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Adapting to Changing Environmental Conditions (ACEC) Outcome

Adaptation Workgroup

Julie Reichert-Nguyen, NOAA/Adaptation Coordinator
5/11/2026

Adaptation Workgroup

Leadership:

- Co-Chairs: Natalie Snider (Maryland DNR) and Ben McFarlane (Hampton Roads Planning District Commission)
- Coordinators:
  - Julie Reichert-Nguyen (NOAA, ACEC Outcome)
  - Peter Claggett (USGS, Healthy Landscapes)
- Staffer: Julia Fucci (CRC, Healthy Landscapes)
- Members: Soon—call for nominations

ACEC Outcome

Increase the capacity for pursuing solutions, including those that are nature-based, to improve planning and responses to changing conditions while balancing long-term resiliency of watershed communities, economies, and ecosystems.

Focuses on place-based, capacity-building of nature-based solutions for additive resilience benefit

TARGETS

- By 2040, support at least seven sub-watershed areas with knowledge-sharing and technical assistance to identify adaptation options with a preference for nature-based solutions. These solutions include restoration and protection projects that will help address risks to people, infrastructure and habitats from changes in temperature, precipitation and landscapes.

- By 2040, inform and lead to an increase in the implementation of the identified adaptation options that prioritize and integrate nature-based solutions in the above sub-watershed areas.

Natural and Nature-Based Solutions/ Green Infrastructure

Changing Conditions

MORE PRECIPITATION

WARMING TEMPERATURES

RISING SEA LEVELS

Landward Zone

Forest Buffers

No Till Farming/ Cover Crops

Stream Restoration/ Restore Flood Plain Connectivity

Bioretention Basin

Transition Zone

Living Shoreline

Tidal Marsh Migration & Restoration

Waterward Zone

Oyster Reef Restoration

Island Ecosystem Restoration

Submerged Aquatic Vegetation Restoration

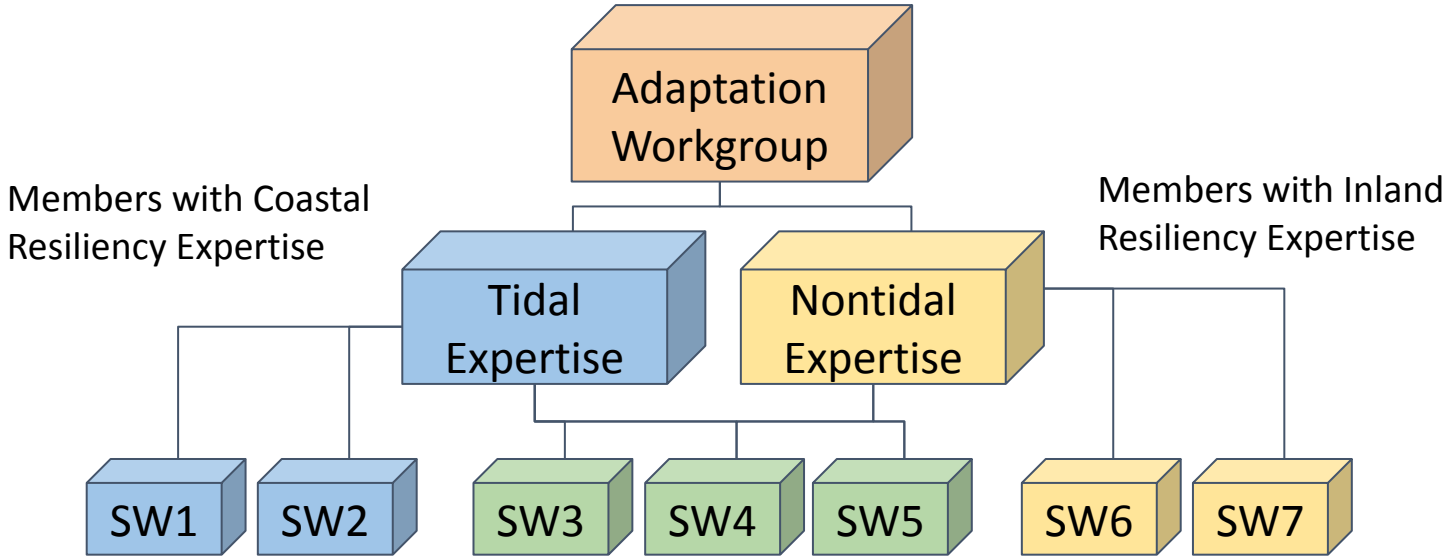
Adaptation Workgroup– Guiding Principles

- Serve as a connector and translator
- Build strategic capacity for adaptation
- Use a place-based and needs approach
- Prioritize implementation with science and planning
- Foster an action-oriented partner network

AI-Generated

ACEC Thought Partners: Ben McFarlane (HRPDC), Cassie Davis (NY), Jackie Specht and Kristin Saunders (MD)

Adaptation Workgroup–Structure Ideas

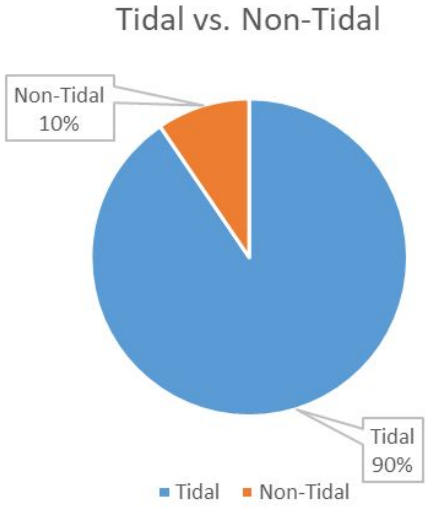


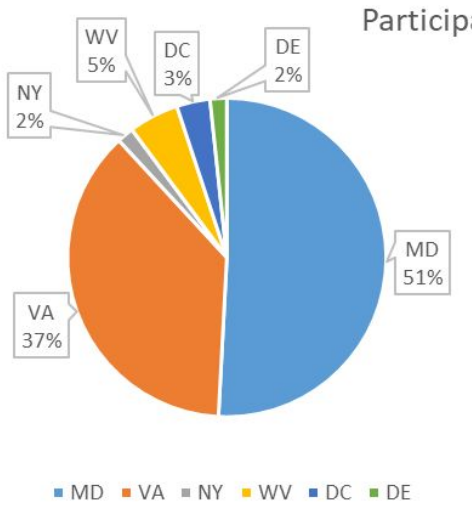
Strategic Networking
For selected subwatersheds (SW), partner with Local/Regional Networks

Network Gaps

Percent of organization types that attended more than one meeting:

- Private: 10.3%
- State: 23.1%
- Universities: 20.5%
- Non-profits: 17.9%
- Federal: 15.4%
- Local: 12.8%





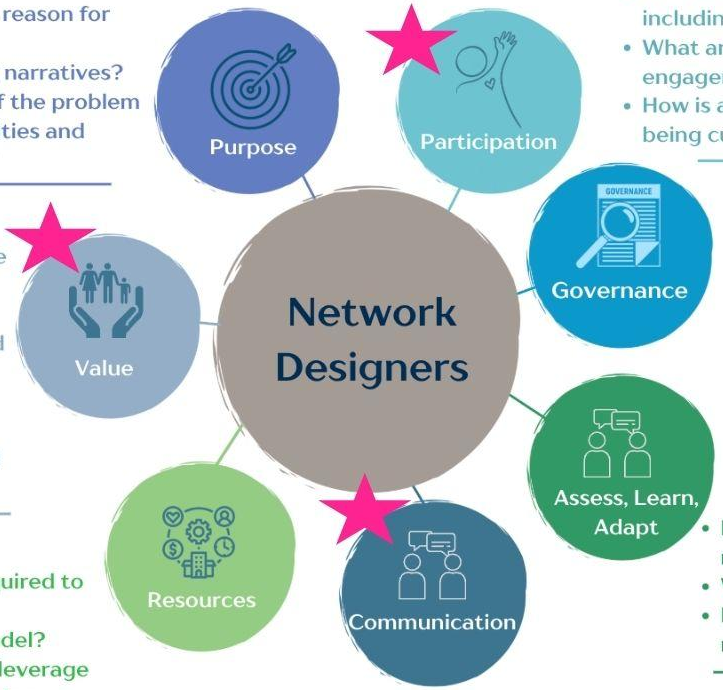
**Out of 80 participants in 2025 and 58 unique organizations

Plans to Close the Gap

Working with **Local Concepts** alongside other Healthy Landscapes leaders to better understand our networks, identify areas we can align, and fill our network gaps

Network Architecture

Key Considerations for Network Designers



- What is the network's reason for being?
- What are our unifying narratives?
- What is our analysis of the problem and how will our priorities and strategies address it?

- Who are the key players? Are we including those most impacted?
- What are the strategies for facilitating engagement and collaboration?
- How is a culture of belonging and trust being cultivated?

- How are we structured to support the work?
- What are the norms, values, and roles that guide our work?
- How are leadership & power distributed? Who decides?
- How are decisions made?

- How do we know we are making progress?
- Where are the feedback loops?
- How do we make time for reflection and change?

- How does the network share information, resources, and impacts?
- How are we leveraging communication pathways?
- How does the network support coordination?

- What resources are required to support the network?
- What is the funding model?
- How does the network leverage resources (time, technology, expertise, etc.)?

- What value do we provide collectively and as individuals?
- What services are needed to advance our shared purpose?
- How is the network improving conditions and increasing resiliency?

LOCAL CONCEPTS

Adaptation Initiatives

Marsh Adaptation

- Collaborative identification of marsh restoration and protection opportunities
- Consideration of sea level rise and social vulnerability

Nature-based Solutions (NbS)

- Support partner NbS project proposals for resilience funding
- Support NbS performance research for changing environmental conditions

Community Resilience

- Support partner projects that identify best practices for community engaged adaptation
- Integrate social vulnerability metrics

ONGOING: Marsh Adaptation Efforts–Example of Successful Collaboration

2014-19: Adaptation Outcome had no clear objective

2020: STRATEGIC PLANNING

CRWG narrowed focus on topic everyone could rally behind – Marsh Adaptation

2021-22: NETWORK CHAMPIONS

CRWG (MDNR, MD Sea Grant, TNC, VIMS, NOAA), Wetland WG, GSAT championed proposals for research funding

2022-23: RESEARCH (GIT-FUNDING)

Created marsh migration corridor method and GIS data layers. Developed collaborative framework to identify adaptation needs and implementation projects

2023-24: REGIONAL APPLICATION

Supported customized mapper and marsh adaptation workshops to support partners' project proposals (Middle Peninsula,VA & Wicomico/Deal Island, MD)

2025-26–ONGOING COLLABORATION

CRWG, Wetland WG, and Choptank partners working with UMICH M.S. students to support analyses to inform Choptank marsh adaptation efforts

Leveraged our network to: Promote collaboration • Bring in needed expertise

ONGOING: NbS Performance Metrics and Indicators

- Old Dominion University awarded STAC Synthesis Funding to develop a guidebook for measuring the effectiveness of coastal nature-based solutions (Lead: Laura Costadone)
- Targeted literature review, documentation of practitioner monitoring practices, and integration of science and practice

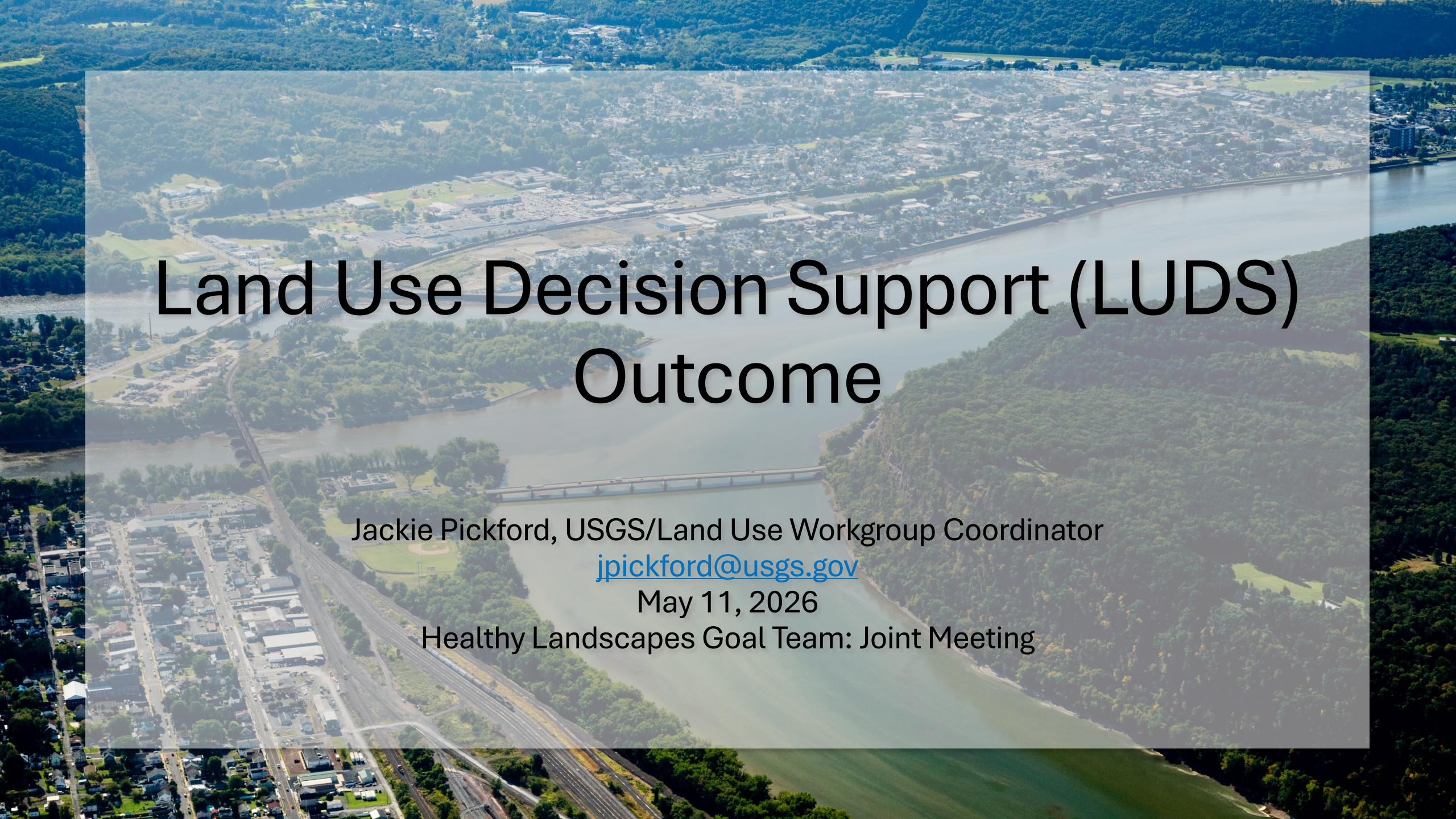
Next Steps

Strategic Planning

- Recruit membership (~May-Dec 2026)
- Complete strategic networking technical assistance and identify collaborative opportunities with Healthy Landscapes and other workgroups (~May-Jun 2026)
- Outreach to jurisdictions to collect information on adaptation priorities (~Jun-Dec 2026)
- Work on ACEC components of Healthy Landscapes Management Strategy and workplan (due Spring 2027)

Keeping the Momentum on the Work

- NbS STAC Synthesis Project 2nd monitoring indicator and metrics charrette (Jun 2026)
- Disseminate Choptank marsh adaptation report & develop communication materials (~Jun-Sep 2026)
- Work with Envision the Choptank partners to evaluate a workgroup framework for supporting tidal and nontidal subwatershed activities (~Oct-Dec 2026)

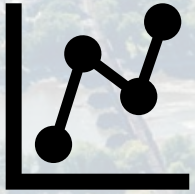


Land Use Decision Support (LUDS) Outcome

Jackie Pickford, USGS/Land Use Workgroup Coordinator
jpickford@usgs.gov
May 11, 2026
Healthy Landscapes Goal Team: Joint Meeting

What is the Land Use Decision Support (LUDS) Outcome?

Developing and delivering relevant land use information to support local planning and decision-making.



Develop the data

Actionable land use information

Deliver the data

Support planning & decision-making

Document the impact

Collect and communicate use cases

Land Use Workgroup: Projects and Priorities

Slide credit: Sarah McDonald, USGS

Mapping Land Use/Land Cover (LULC)

2013/14
- 16-classes
- First 1-meter LULC product

2017/18
- 54-classes
- First 1-meter LULC Change product (2013/14 – 2017/18)

2021/22
- 56-classes
- Three dates of 1-meter LULC and three LULC Change products

2025/26
- 56-classes?
- First time mapping land cover and change with AI

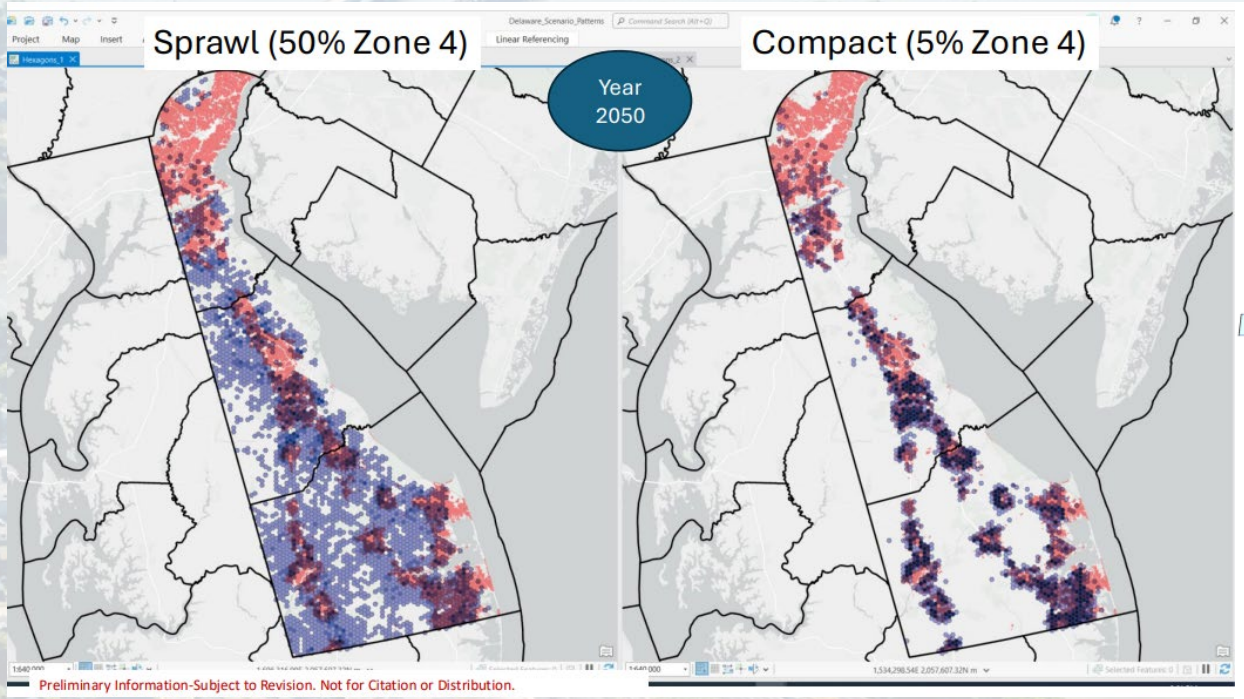
2017 — 2022 — 2024 — 2028

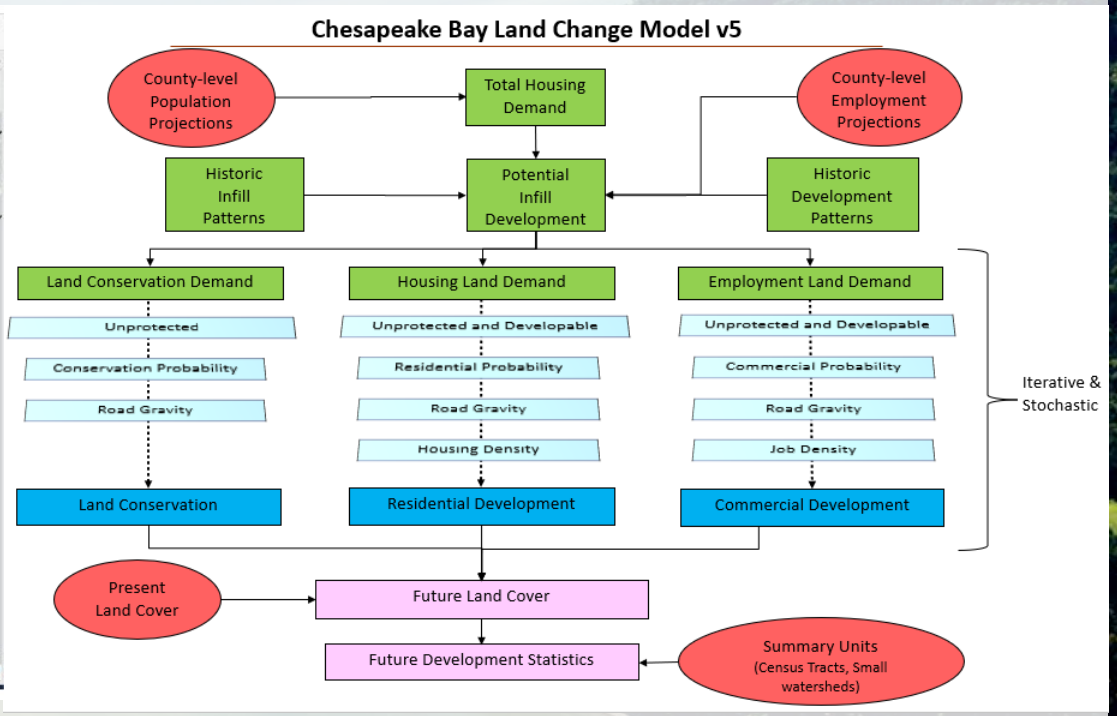
Land Use/Land Cover Monitoring

With each newly mapped year, the previous year(s) are remapped using the same methods for consistent change detection

Modeling future land use and development

Slide credit: Peter Claggett, USGS





Other relevant data & projects

Hyper-resolution hydrography (2025)

Chesapeake Bay Hyper-Resolution Hydrography Database

View

Dates

Start Date : 2008
End Date : 2021
Publication Date : 2025-05-23

Citation

Baker, M., Saavedra, D., Cang, X., and Ahmed, L., 2025, Chesapeake Bay Hyper-resolution Hydrography Database: U.S. Geological Survey data release, https://doi.org/10.5066/P1GRAPEX.

Summary

The Chesapeake Bay Hyper-Resolution Hydrography Database is intended to facilitate analysis of the landscape in the Chesapeake Bay watershed through identification of headwater and other low-order streams or drainage features (e.g. ditches) that, to date, may be absent from existing hydrography data products. A full description of the methodology and accuracy assessment is provided in the accompanying report titled: *Hydrography Mapping Supporting Modeling and Targeted Conservation: Project Overview and Lessons Learned* (Project Overview and

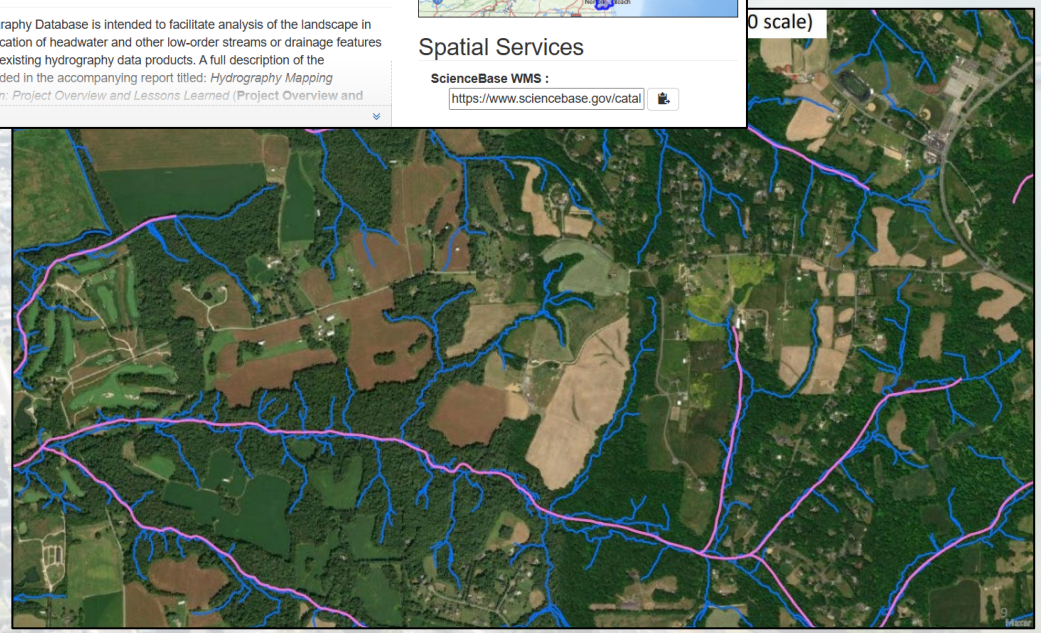
... show more ...

Map »

Spatial Services

ScienceBase WMS :

https://www.sciencebase.gov/catal



Use case survey (ongoing)

Chesapeake Bay 1-meter Land Use/Land Cover Dataset: Use Cases

We are looking to capture information about how these data layers are being used. This information is helpful for:

1. advocating for continued funding of the data production
2. reflections on which classes bear more or less importance for stakeholders
3. communicating about future releases and changes to the data layers

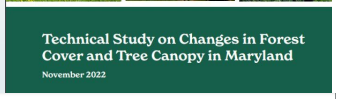
What is your name?

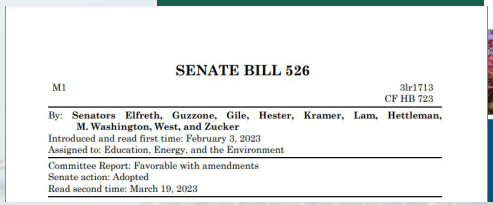
Your answer

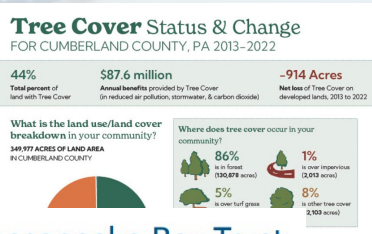
What is your contact e-mail?

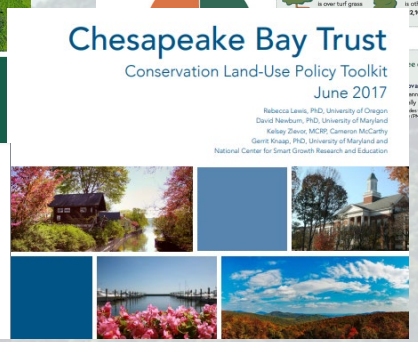
Your answer

Shifting priorities of the Land Use Workgroup









Mapping/Modeling-Focused

Emphasis on providing technical expertise on the development of the high-resolution land use/land cover data and other land use related products.

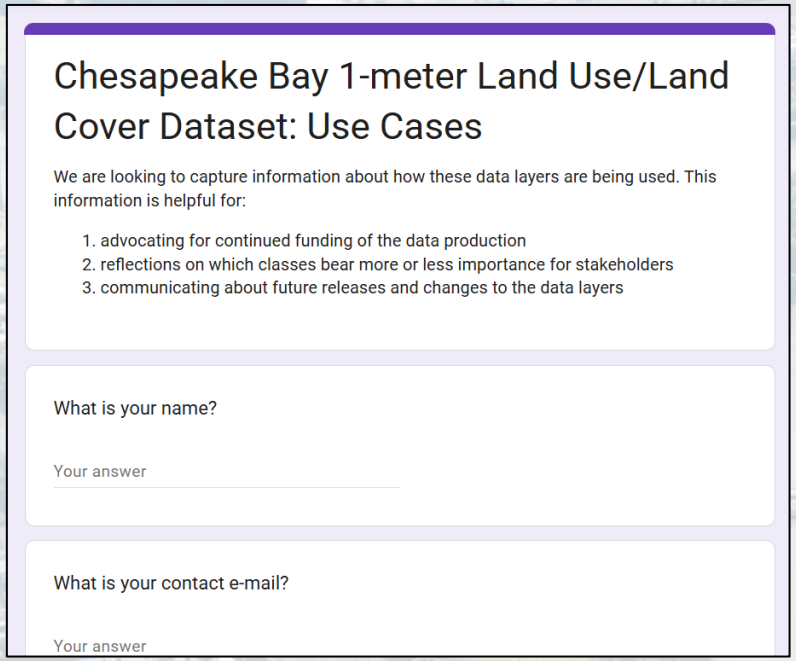
shifting towards

Communication/ Applications-Focused

Emphasis on applications & communication of the high-resolution land use/land cover data and other land use related products.

Challenges

Challenges we can address more readily



Chesapeake Bay 1-meter Land Use/Land Cover Dataset: Use Cases

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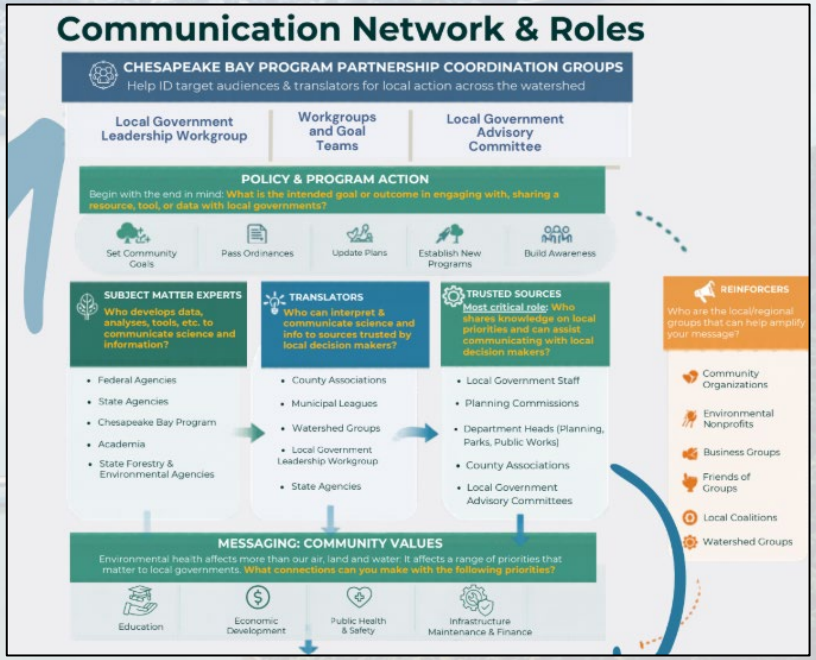
Your answer

What is your contact e-mail?

Your answer

Strengthening our approach to collecting and communicating use cases



Improving communication and coordination with Local Gov Leadership Workgroup and other CBP groups

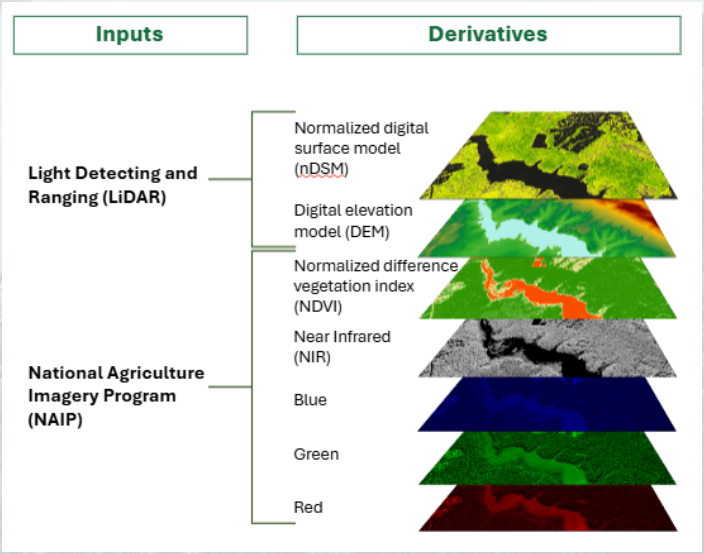
More complex, longer-term challenges

Photo by Matt Rath/CBP. https://flic.kr/p/2ajWgNf.

Identifying and addressing local priorities effectively while meeting CBWA goals

Photo by Charlie Nick/CBP. https://flic.kr/p/2rZdgHQ.

Ensuring the LUWG has established trust and recognition among the decision-makers' "trusted sources"



Adapting to rapidly evolving technologies used to monitor the landscape

Healthy Landscapes Goal Team (HLGT) Support

How the HLGT can support the LUDS outcome

- Promote land use data and related CBP products when engaging with communities on restoration projects, adaptation work, etc.
- Strengthen our ability to communicate locally relevant and actionable information.
- Leverage partnership networks to improve engagement with local governments and trusted sources.
- Encourage consistent documentation and sharing of land use and CBP data use cases.
- Foster cross-workgroup awareness and advocacy for shared tools, data, and resources.

Acronyms

- ACEC: Adapting to Changing Environmental Conditions
- CBP: Chesapeake Bay Program
- CBLCM: Chesapeake Bay Land Change Model
- CBWA: Chesapeake Bay Watershed Agreement
- FWG: Forestry Workgroup
- HLGT: Healthy Landscapes Goal Team
- LGLWG: Local Government Leadership Workgroup
- LUDS: Land Use Decision Support
- LULC: Land Use/Land Cover
- LUWG: Land Use Workgroup
- PLWG: Protected Lands Workgroup

Protected Lands Overview

Sophie Waterman, USGS, PLWG Coordinator

What is the Protected Lands Outcome?

Protect water quality, enhance biodiversity, support sustainable livelihoods, bolster local economies, honor cultural heritage, and protect the mission and resilience of military installations.

By 2040, permanently protect at least an **additional 2 million acres** of land above the 2025 baseline of 9.3 million acres. The 2 million acres will include the below targets

- Riparian Forests
- Wetlands (including migration corridors)
- Natural areas supporting healthy streams
- Agricultural Lands
- Tribal Homelands
- Urban and Community Greenspace

Protected Lands Workgroup: Membership

CURRENT MEMBERSHIP

Leadership Team

Position	Organization
Chair	EPA*
Coordinator	USGS
Staffer	CRC

*needs to be confirmed by PLWG and HLGT

Member	Organization
Maryland (2)	Department of Natural Resources
Pennsylvania	Department of Conservation and Natural Resources
Delaware	Delaware State Parks
District of Columbia	Department of Energy and Environment
Virginia (2)	Department of Wildlife Resources/ Department of Conservation and Recreation
West Virginia	Division of Natural Resources/Division of Forestry
New York	Department of Environmental Conservation
Feds	USGS/USFS/USFWS/BLM/NPS/ EPA
Other	CBC

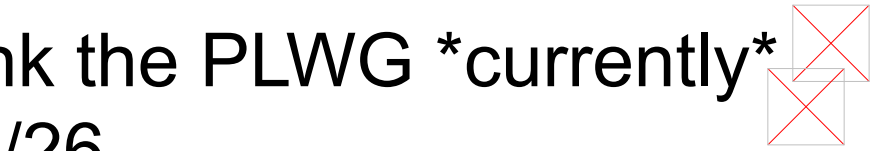
INTERESTED PARTIES

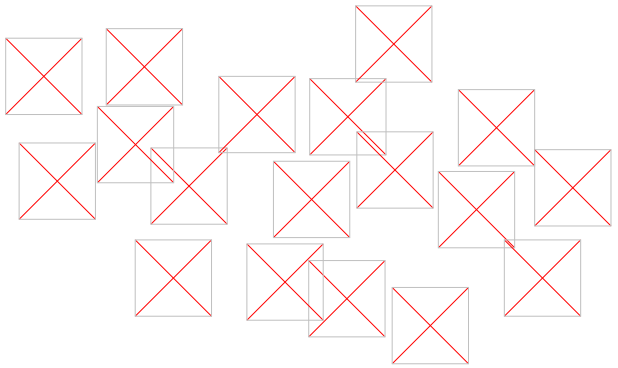
- Chesapeake Conservation Partnership
- Indigenous Conservation Council
- VA United Land Trusts
- Northern VA Conservation Trust
- Groundwork RVA
- Capital Region Land Conservancy
- The Conservation Fund
- Stakeholders Advisory Committee
- Chesapeake Research Consortium

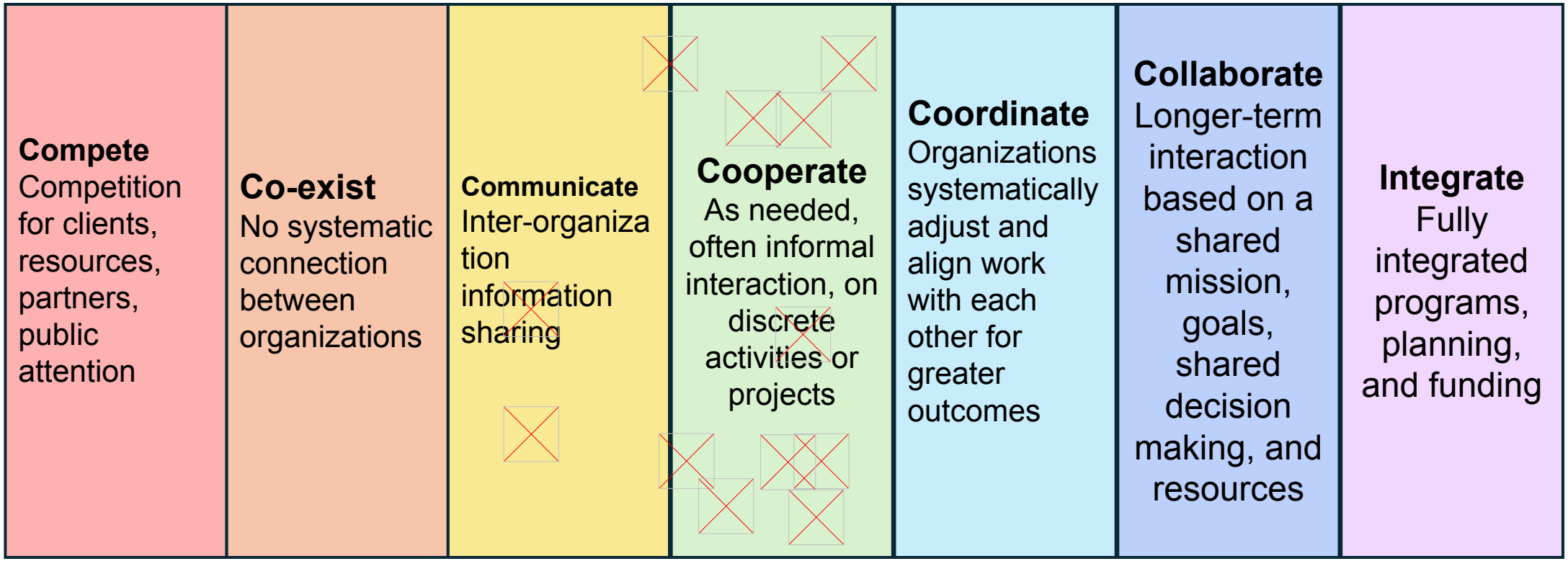
Connection to other workgroups: Public Access

- Public Access Target: Increase access to existing urban and community greenspaces identified in the **protected lands dataset.**

How you think the PLWG *currently* operates 4/7/26







How you *would like* the PLWG to operate 4/7/26

Compete Competition for clients, resources, partners, public attention	**Co-exist** No systematic connection between organizations	**Communicate** Inter-organization information sharing	**Cooperate** As needed, often informal interaction, on discrete activities or projects	**Coordinate** Organizations systematically adjust and align work with each other for greater outcomes	**Collaborate** Longer-term interaction based on a shared mission, goals, shared decision making, and resources	**Integrate** Fully integrated programs, planning, and funding

Trust

Protected Lands Workgroup: Projects and Priorities

Upcoming/Ongoing Projects

Attributing Date of Establishment within the Protected Lands Indicator	Clarify and standardize how establishment dates are assigned across jurisdictions. Improve consistency to strengthen data quality and comparability. Support more accurate tracking of long-term conservation progress
Defining & Identifying Targets for the Protected Lands Outcome	Riparian forests Wetlands, including migration corridors Natural areas that support healthy stream systems Agricultural lands Tribal homelands Urban and community greenspace
Understanding Jurisdictional Priorities	Reviewing Jurisdictional plans (SCORPs, Forest Action Plans, Wildlife Action Plans, etc.) Examining state priority areas (GIS exercise) Understanding funding options Understanding jurisdictional goals within the context of the 2025 Bay Agreement

Components of Data Standardization and Data Cleanup

Attribution of DoE

- NFWF-funded project to fill DoE gaps

Standard PLI Schema

- Consensus on the PLI schema
- What fields should be required?

Improve Overall Attribution

- Attribution completion goals
- Attribution of Public Access and GAP Status

Priorities

Set **clear conservation targets** (forests, wetlands, streams, ag lands, tribal homelands, greenspace)

Provide **high-quality watershed-wide conservation data** and analysis.

Identify funding mechanisms that can help support conservation efforts and capacity in the Chesapeake Bay Watershed

Ensure conservation strategies are **locally relevant** by aligning actions with community needs, priorities, and on-the-ground conditions (e.g., Source Water Protection)

Protected Lands Workgroup: Challenges

PLI Data Quality Issues

- Inconsistent schema usage (74% Non-Compliant w/PADUS 3.1 Schema)
- Duplicate and overlapping polygons (76% of records overlap by ≤25%)
- Omission of required attribute data
  - Date of Establishment (Missing in 38% of records)
  - GAP Status (Missing in 45% of records)
  - Public Access (Missing in 36% of records)
- Unique masking requirements by jurisdiction
- Inconsistent with PAD-US dataset
  - Not the same data sources
    - PAD-US uses The Nature Conservancy, The Conservation Fund, and The Trust for Public Lands

Taken from the USGS CESU
PLI Strategy- based on 2022 numbers

Other Challenges

- Clarifying expectations regarding the relationship between the Protected Lands Workgroup and the Chesapeake Conservation Partnership
- Increasing participation in PLWG
- Improving meetings to be more beneficial to members
- Better collaboration with the Local Government Leadership Workgroup and other relevant workgroups
- Effectively communicating the benefits of conservation to CBP leadership and other decision makers.