



Update on Chesapeake Healthy Watersheds  
Assessment 2.0  
Protected Lands Indicator Progress  
Protected Healthy Watersheds

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Lower-Mississippi Gulf Water Science Center  
Coordinator, Maintain Healthy Watersheds GIT  
June 12, 2023 Healthy Watersheds GIT meeting

# Outline

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General update on GIT funding 2022 progress

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Progress on Chesapeake Healthy Watersheds Assessment 2.0

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Progress on the Chesapeake Bay Protected Lands Indicator (2022)

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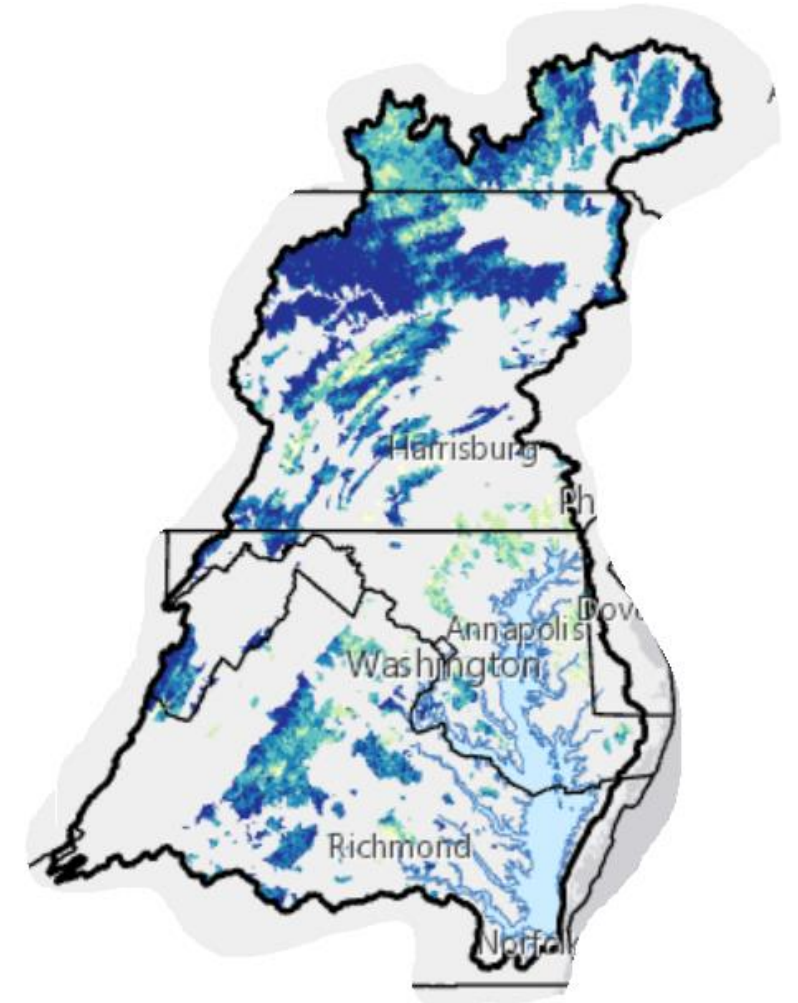
Update on Protection of Healthy Watersheds

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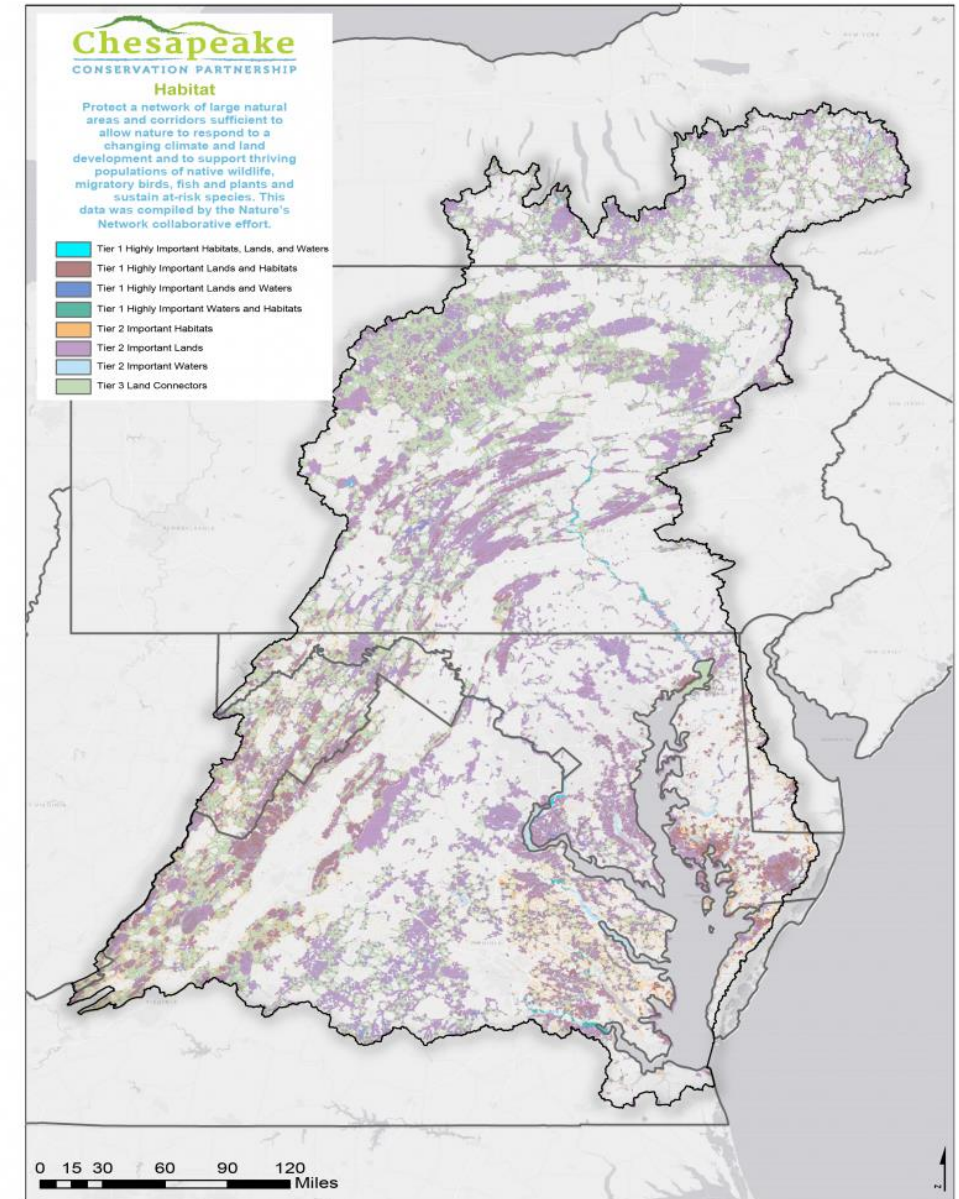
Discussion on next steps on applications reporting progress on Healthy Watersheds outcome

Project	Chesapeake Healthy Watersheds Assessment 2.0
Technical Project Lead	Renee Thompson
Outcomes	Further improve, refine, and finalize the Chesapeake Healthy Watersheds Assessment. The CHWA 2.0 outcomes include updated metrics for all Chesapeake Healthy Watersheds Assessment data layers, improved visualization, analysis, and filtering functionality to meet user needs, computed change statistics for appropriate metrics related to land use and vulnerability metrics and user customized fact sheets including interpretation of results.
Key Deliverables	<ul style="list-style-type: none"> <li>• Results of stakeholder resources user needs research</li> <li>• CHWA 2.0 geodatabase, associated code, toolboxes, readme files etc.</li> <li>• Relunched CHWA 2.0 website and all associated data download files Chesapeake Open Data</li> <li>• Overview Video tutorial for CHWA 2.0 Use Case video tutorials 3-5 total</li> </ul>

## Chesapeake Healthy Watersheds Assessment



Project	Updating the Chesapeake Conservation Partnership (CCP) Priority Habitat dataset of the Chesapeake Conservation Atlas: Scoping project
Technical Project Lead	Bill Jenkins, John Wolf, Renee Thompson
Outcomes	<ul style="list-style-type: none"> <li>• Provide a scope of work describing various approaches and resources required for an updated, watershed-wide dataset of important habitat to guide land conservation and terrestrial and aquatic habitat conservation, restoration and stewardship</li> <li>• Recommendations related to data, methodology, process and cost estimates for the creation of an updated habitat dataset for CCP.</li> <li>• The outcome will lay the foundation for ecological assessment, ecosystem service valuation and metric development.</li> </ul>



Goal: Sustain state-identified healthy waters and watersheds recognized for their high quality and/or high ecological value

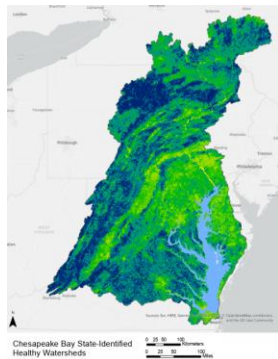
Outcome: 100 percent of state-identified healthy waters and watersheds remain healthy.

# Healthy Watersheds Goal

# Development of the CHWA

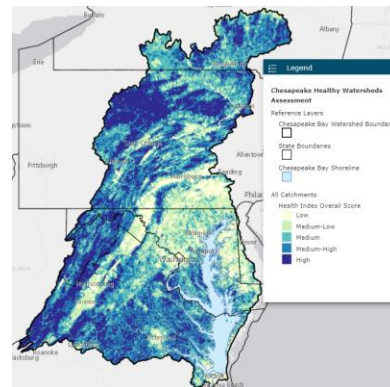
2018

Chesapeake  
Healthy Watershed  
Assessment 1.0-  
Database



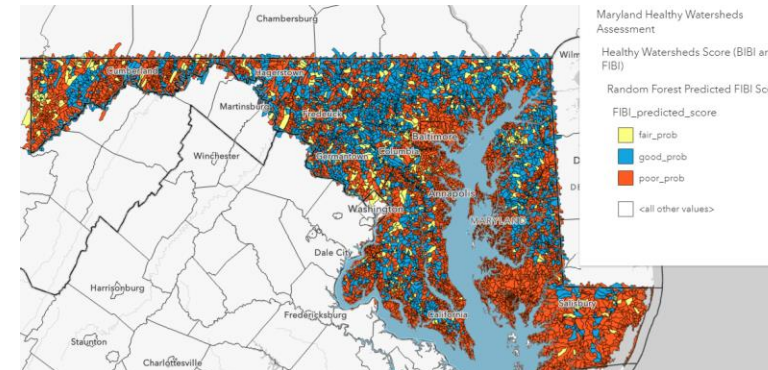
2020

Chesapeake  
Healthy Watershed  
Assessment 1.0-  
Visualization



2021

Maryland Healthy  
Watershed  
Assessment  
(MDHWA)



2023

Chesapeake  
Healthy  
Watersheds  
Assessment 2.0.

# CHWA Visualization download / analysis

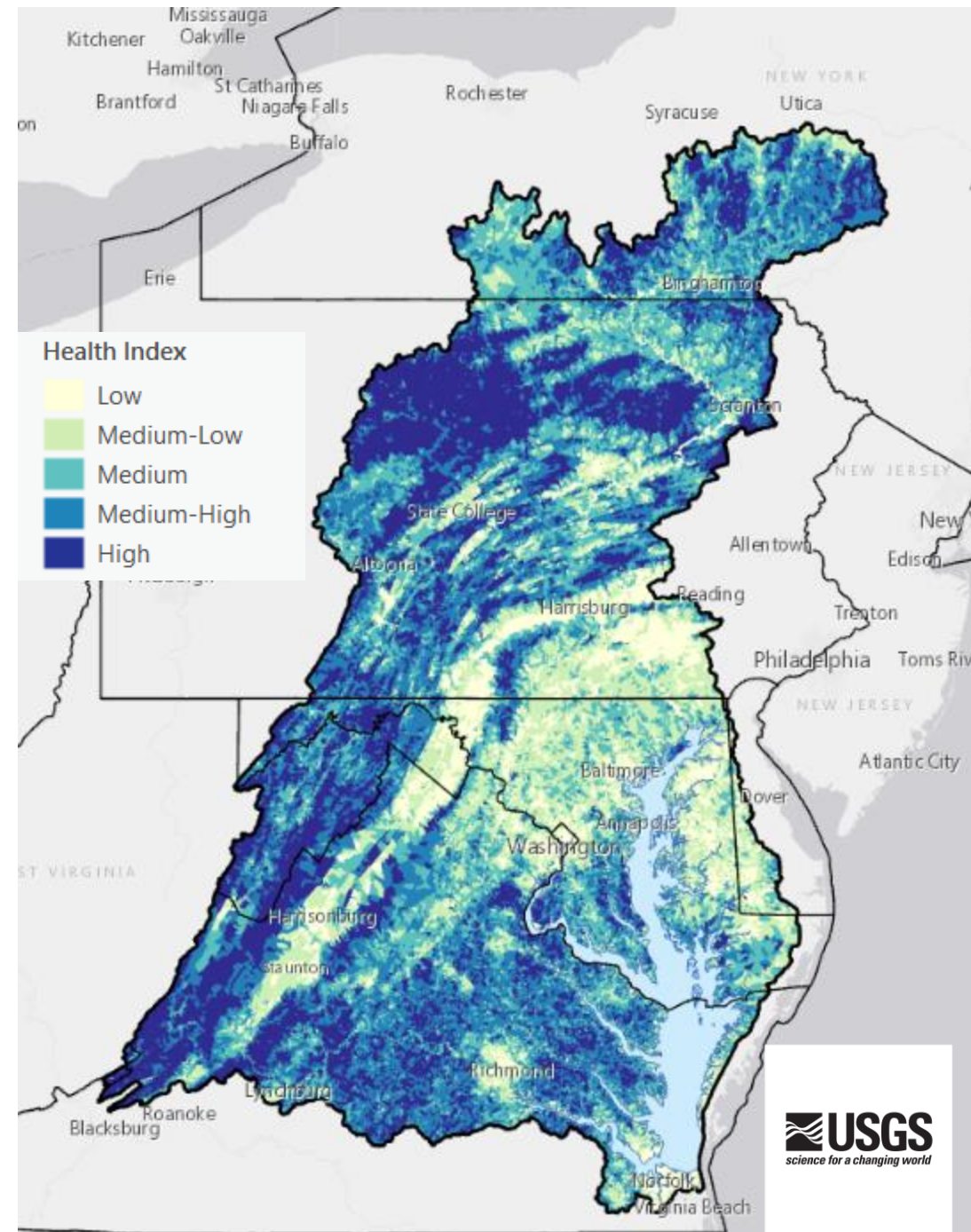
Data needs to be made available through

- Chesapeake Bay Open Data Portal <http://data-chesbay.opendata.arcgis.com/>
- Audience
  - State and Local governments
  - Watershed Groups
  - Land Trusts

Innovate, Inc. (FY 2020; 2022-23)

Analysis and Visualization

- User-friendly
- Facilitates exploration
- Easy access to data
- Variety of scales, from regional to statewide to local
- Statistics such as rankings and percentiles (either Baywide or by state) or comparisons of local catchment



# CHWA 2.0 Process



**Participated in  
Biweekly Project  
Team Meetings**



**Prepared Interview  
Questions**



**Interviewed  
Stakeholders**

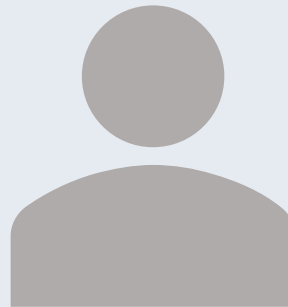


**Compiled  
Feedback**

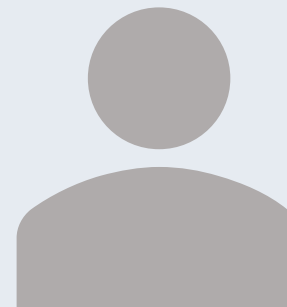


**Generated Insights  
and Next Steps**

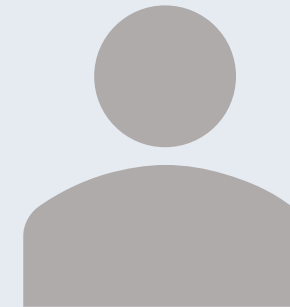
**STAKEHOLDERS  
INTERVIEWED**



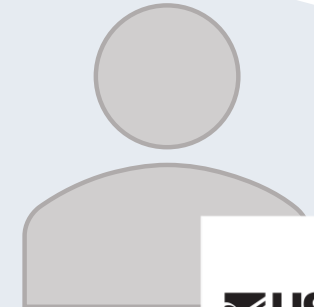
American Chestnut  
Land Trust



EPA



Maryland DNR





# STAKEHOLDER INSIGHTS

## Current Uses

- Boil down information for less-technical colleagues
- Evaluate/augment their own analyses
- Generally low usage overall (preference to refer to underlying data instead of interface)

## Suggestions for Improvement

- Provide more context with tooltips and threshold values
- Incorporate BMP layer and value calculation
- Incorporate state-specific metrics and indicators
- Incorporate pre-set filters and “stories” users can follow

## Suggestions for Marketing/Promotion

- Present the 2.0 platform at the Maryland Water Monitoring Council Meeting (and similar meetings in other states)
- Collect data on the users and how they use the application from within the application
- Adding BMP data would be a big selling point

# ADDITIONAL FEEDBACK

(Previously collected by CHWA team)

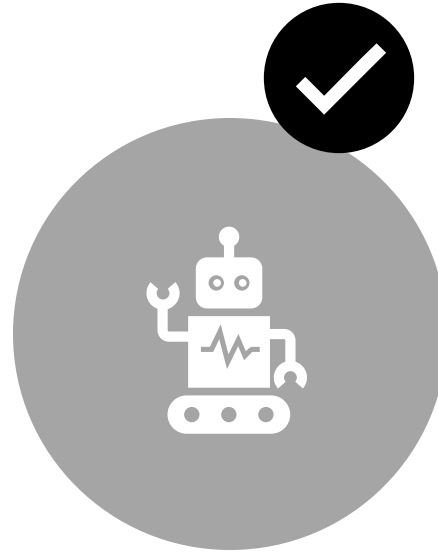


- Provide clarity on various aspects of the interface
- Provide context on the data and application (within the application)
- Allow for more customization to different user types (design preset filters and pathways through the app, allow users to save their own filters)
- Allow power users to download raw data at various scales
- Create both high level and detailed guidance and training materials, including possible workflows and use cases
- Scale down the application content for users wanting a quick glance/easier access to information
- Allow users to view tabular data

# Next Steps



NEW DATA TO EXPLORE AND  
INCORPORATE

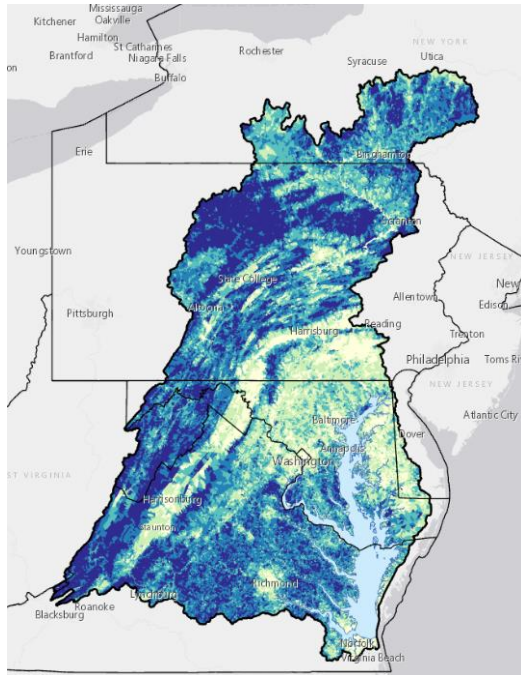


IMPROVEMENTS TO CHWA 2.0  
(HARNESSING CODE AND MODEL  
DEVELOPED FOR MDHWA)



CHART A COURSE FOR DEVELOPMENT  
OF AN INDICATOR TO INFORM  
PROGRESS TOWARD OUTCOME.

# CHWA 2.0 (new metrics)



## Landscape Condition

- % Extractive 2017/18 (C, Ws)
- Housing Unit Density (SILVIS)
- % Managed Turf Grass 2017/18 (C, Ws)
- % Agriculture 2017/18 (C, Ws)
- % Historic Forested Extent Loss to Development 2001-2013
- % Natural Land in Riparian Zone 2017/18 (C, Ws)

## Hydrology

- Flow Alteration Intensity score

## Geomorphology

- Streambank lateral erosion
- Streambank erosional change
- Streambank sediment flux
- Streambed D50
- Streambank fine sediment flux
- Streambed fine sediment + sand cover

## Habitat

- % Tree Cover with Unmanaged Understory 2017/18 (C, Ws)

## Water Quality

- USGS SPARROW sector specific loads for Total Phosphorus (TP), total Nitrogen (TN), and suspended sediment (SS) (incremental loads)

## Land Use Change

- % Forest Harvesting 2013/14-2017/18 (C, Ws)
- % Non-forested Wetland Conversion to Development 2013/14-2017/18 (C, Ws)

## Climate Change

- Resilient Lands

## Land Use Change

- % Change in Forested Extent 2013/14-2017/18 (C, WS)
- % Change in Impervious Cover 2013/14-2017/18 (C, Ws)
- Change in housing unit density.



(Photo by Will Parson/Chesapeake Bay Program)

# Applying the Healthy Watershed Assessments

Providing data to support management decision-making, particularly for maintaining the health of watersheds

- Assess current watershed condition
- Track condition over time
- Provide early warning signs – vulnerability to degradation
- Identify resiliency – ability to sustain good watershed health in spite of stressors

# Towards 2025 and beyond...

**If on course, what is needed to continue current trajectory? If off course, what is needed to accelerate progress? If uncertain, what would need to be done before 2025 to classify as on course/off course and can this be done in that timeframe?**

*No more than three-five, succinct bullet points.*

- Completion of the CHWA 2.0 (August 2023) and commit to updating the [CHWA](#) with the best available input data as available, and consider additional watersheds identified by the CHWA as healthy in addition to state-identified healthy watersheds to augment state efforts.
- Continued Development and application of the LUMM indicators and continued support high resolution LU/LC data
- Investigation and development of indicator(s) related to watershed health and vulnerability.
- Update the Watershed Protection Map
- Implementation of [STAC Rising Temp workshop report](#)
- Strengthen local commitment and capacity to utilize and understand the spectrum of watershed health and vulnerability and increase their capacity to protect healthy watersheds.

# Protected Lands Indicator

## Tracking and Reporting

### Chesapeake Progress

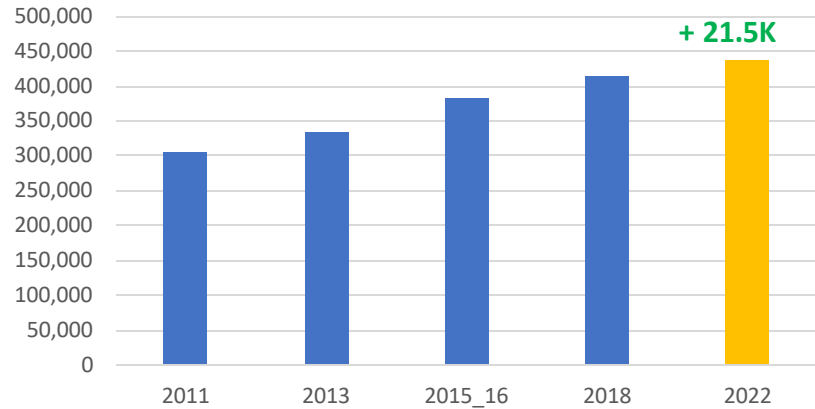
The Chesapeake Bay Program is committed to tracking our progress toward the goals and outcomes of the Chesapeake Bay Watershed Agreement. The accurate, up-to-date and accessible information found here helps oversight groups hold us accountable for our work.

### Protected Lands Indicator – Progress Update

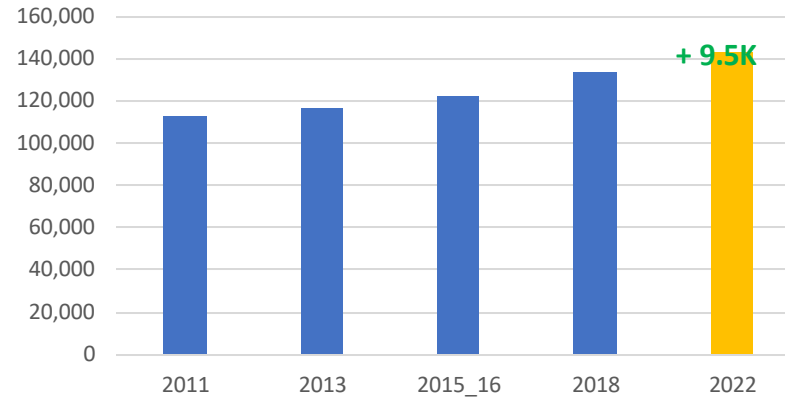
- Total goal of 2,000,000 additional acres with a total reporting number of 1,307,876 as of 2022 (about 65% toward the goal)
- Represents approximately 22% of the watershed

Preliminary (provisional) data, information, or software: the data have not received final approval by data providers and are provided on the condition that neither the USGS or CBP shall be held liable for unauthorized use of the data.

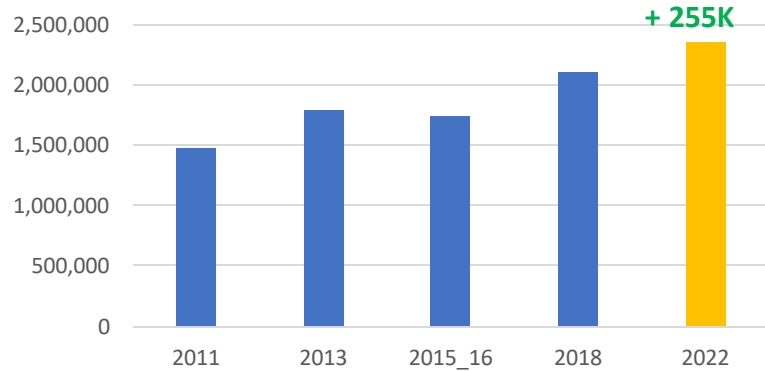
### Local Government Land



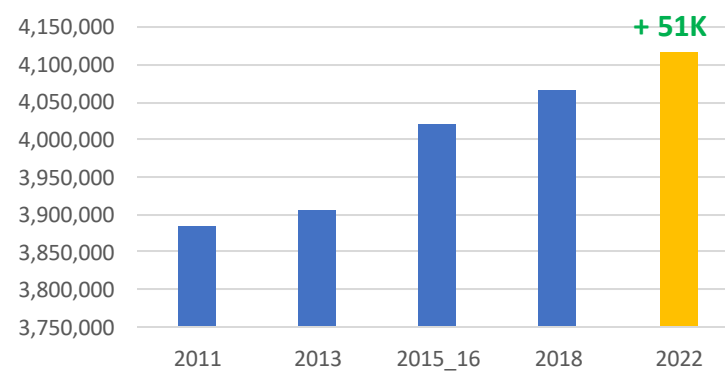
### Non-Governmental Organization Land



### Private Land



### State Land



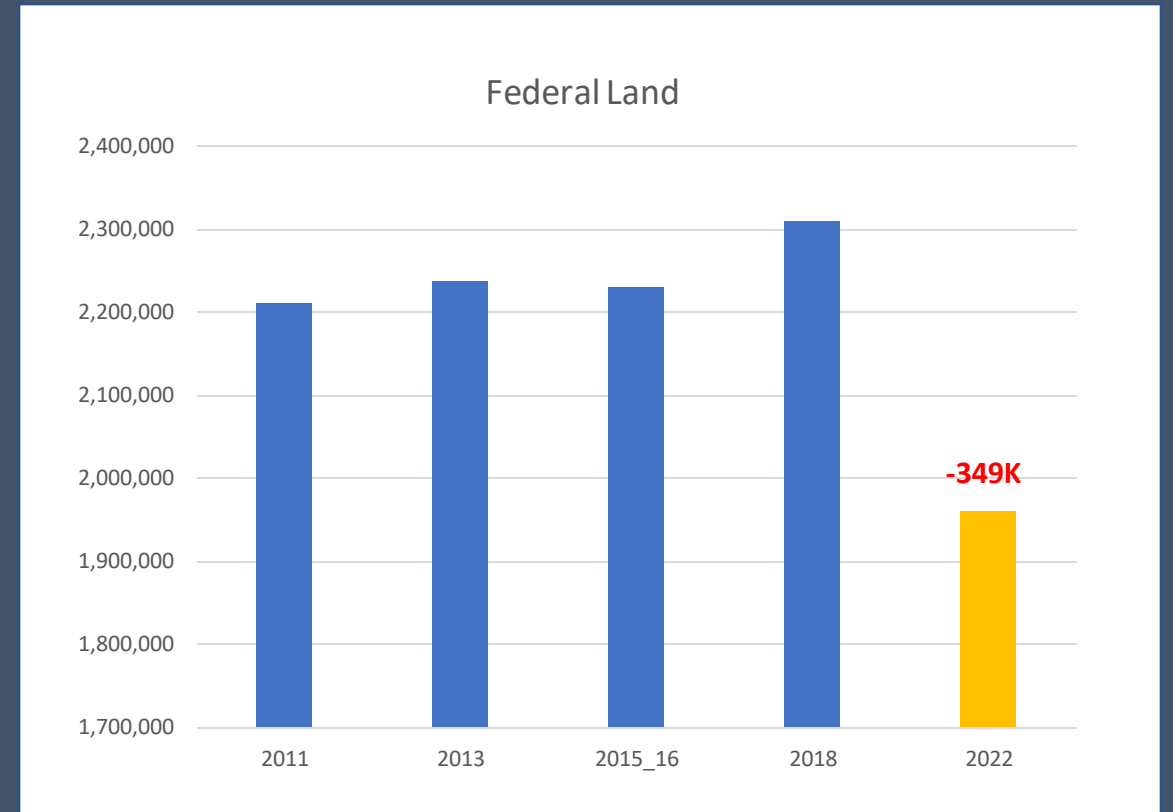
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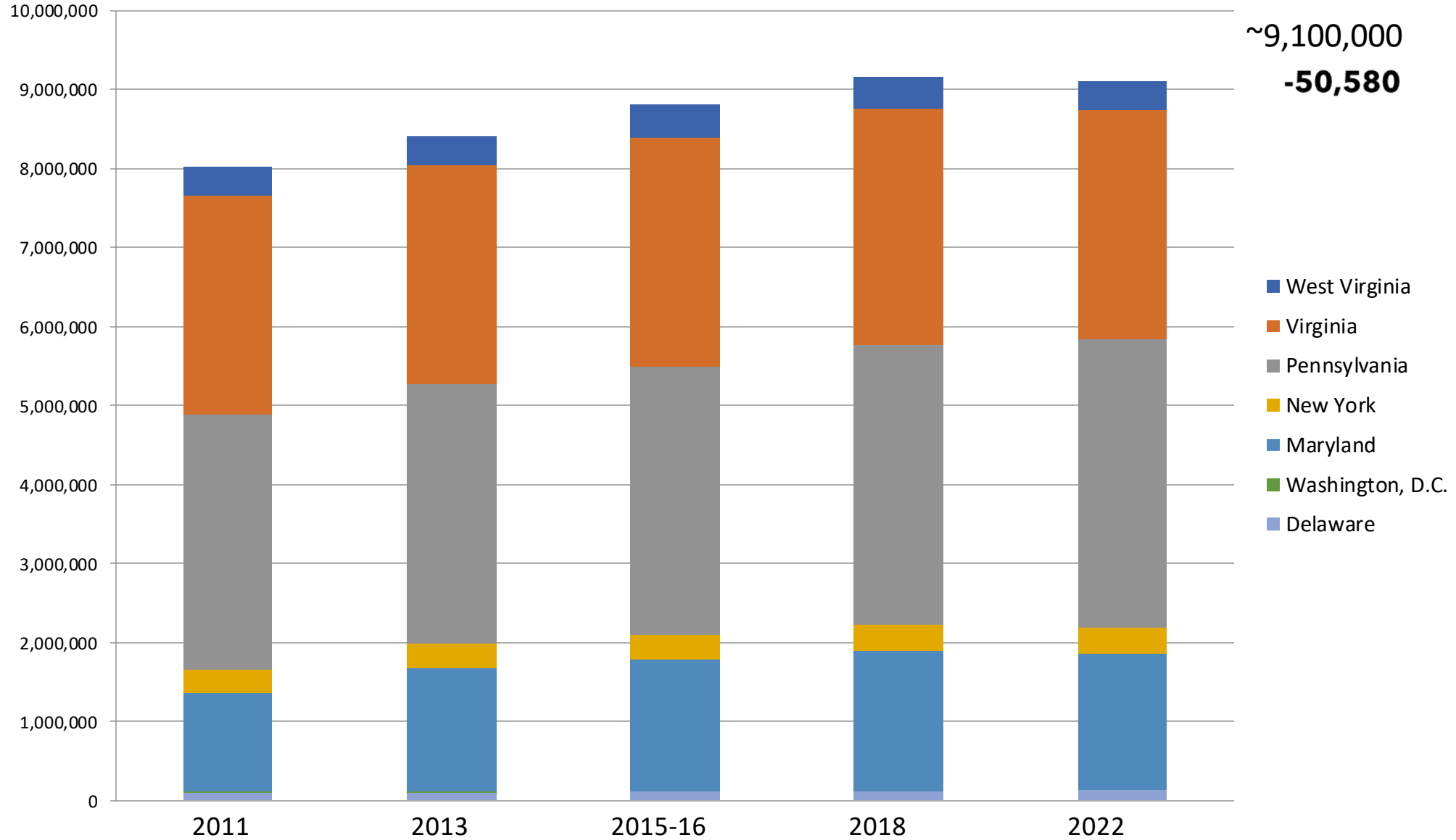
## Tracking and Reporting

### Why has the amount of “protected lands” decreased?

- Improvements to **Federal footprint** based on PAD-US
  - Clean up of DoD lands
  - Removal of inholdings
  - Removal of reservoirs
  - Federal lands not managed for conservation purposes



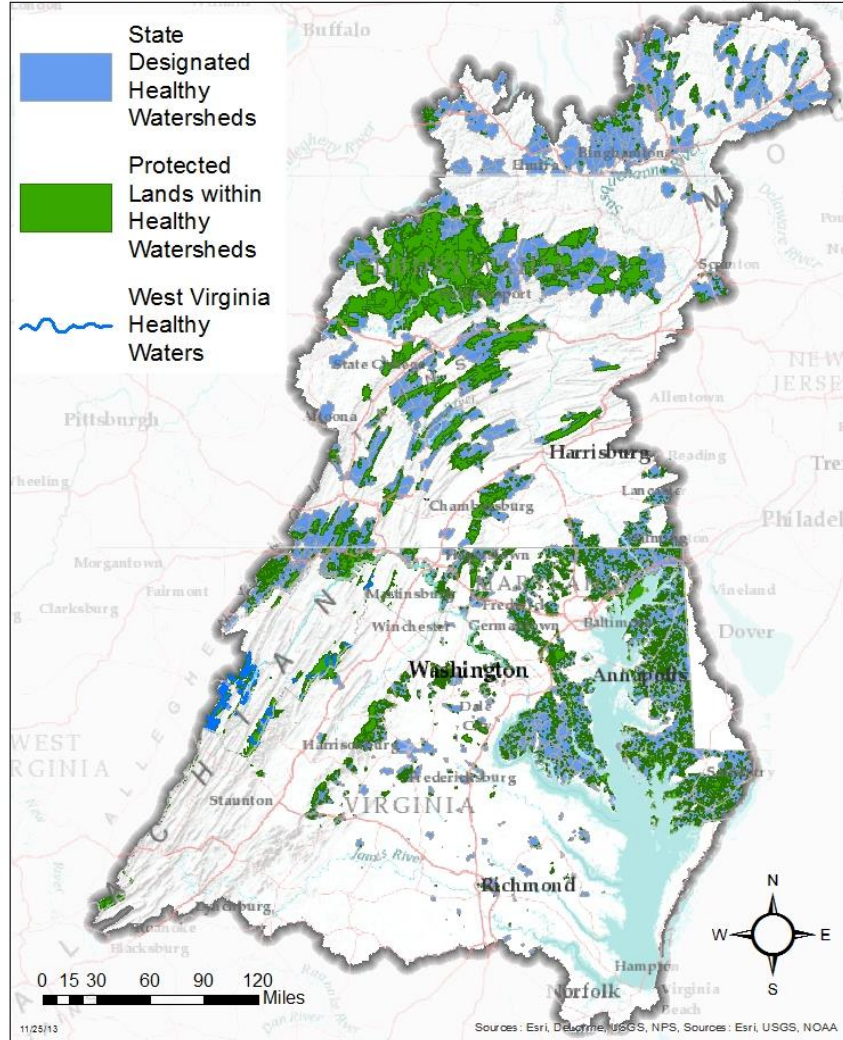
## Acres of Protected Land in the Chesapeake Bay Watershed - by Jurisdiction



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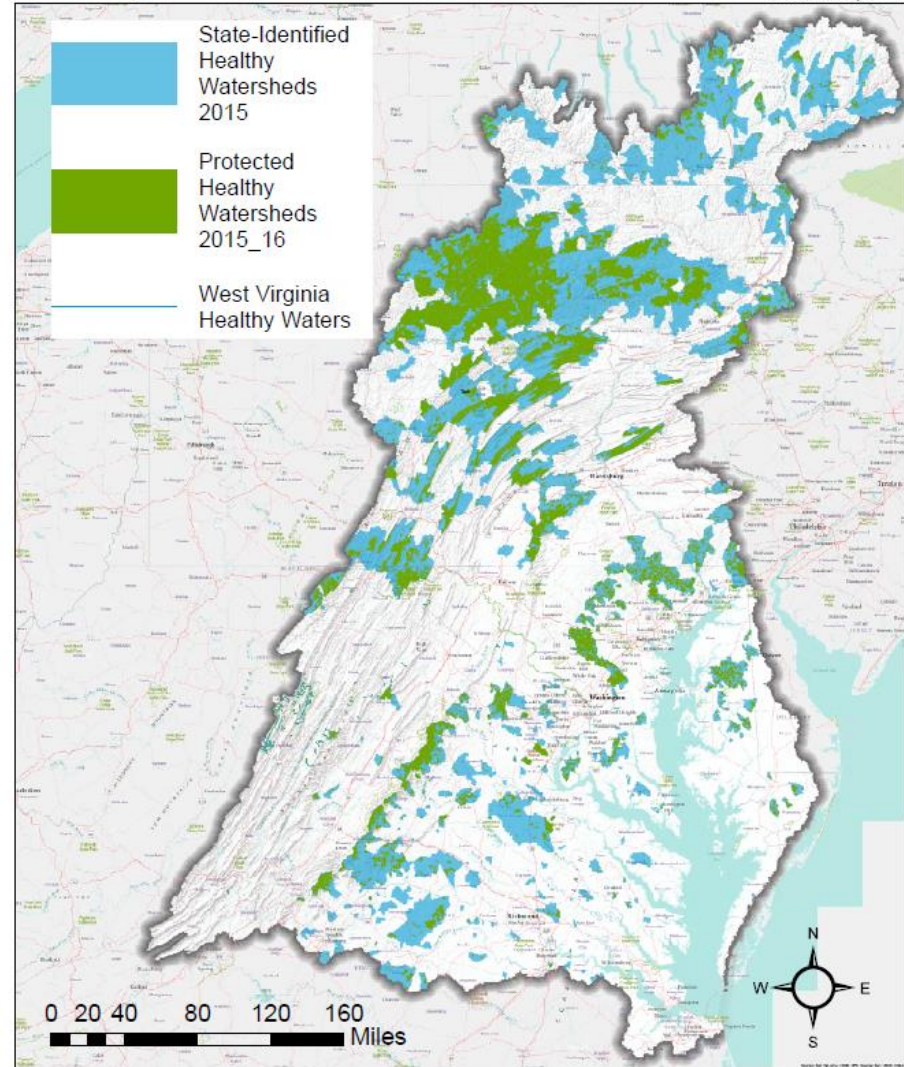
# State Identified Healthy Watersheds

With Protected Lands

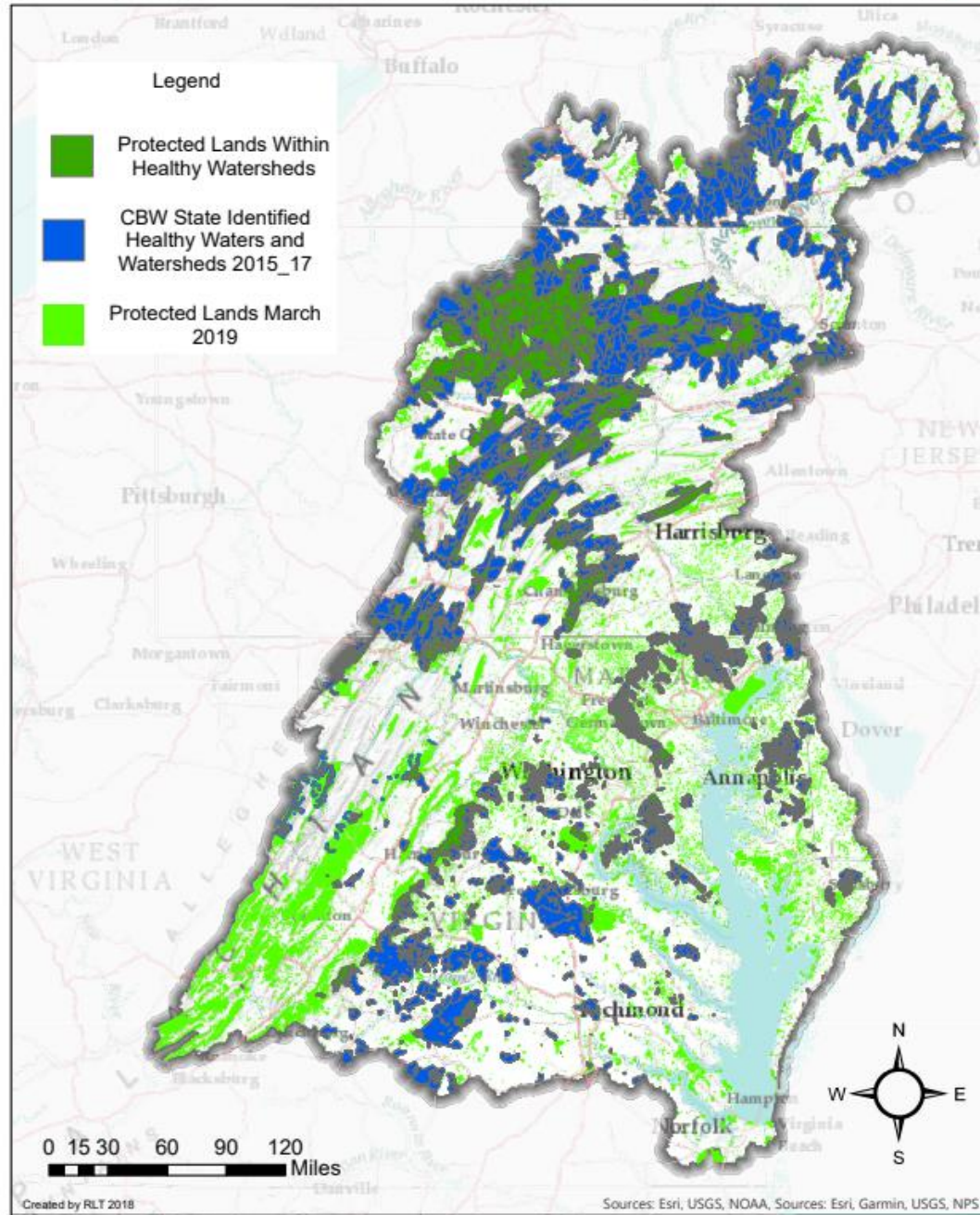


# State Identified Healthy Watersheds

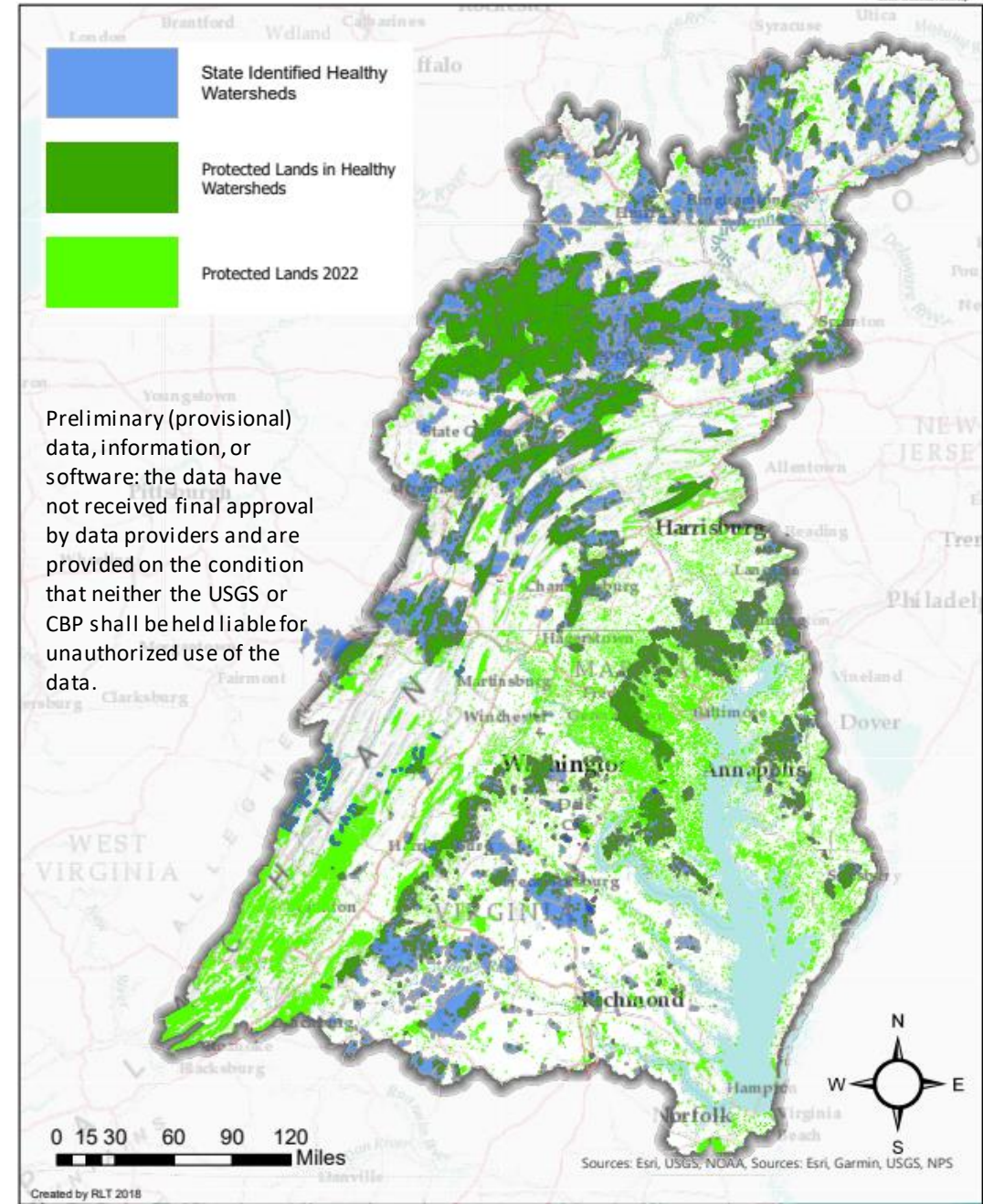
With 2015\_16 Protected Lands



# State Identified Healthy Waters and Watersheds (2017) and Protected Lands (2019)



# State Identified Healthy Waters and Watersheds and Protected Lands (2022)



# Discussion – proposed timeline

- Indicator development (form a smaller action team?)
  - Analyze CHWA 2.0 results Aug – Sept 2023
  - Work with CBP Indicators team to develop draft indicators Sept – Nov 2023
  - Share results with HWGIT and obtain feedback – Oct 2023
  - Develop indicator and Report progress toward outcome – Dec 2023 – Jan 2024





# Chesapeake Bay Program

*40 years of science, restoration and partnership*

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