

CHESAPEAKE WATERSHEDS ASSESSMENT

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

CHESAPEAKE BAY WATERSHED HEALTH INDEX



Landscape Condition



Hydrology



Geomorphology



Habitat



Biological Condition



Water Quality

Chesapeake Bay Watershed Health Index **DRAFT**

Landscape Condition

% Natural Land Cover (Ws) *

% Forest in Riparian Zone (Ws) *

Population Density (Ws)

Housing Unit Density (Ws)

Mining Density (Ws)

% Managed Turf Grass in Hydrologically Connected Zone (Ws) *

Historic Forest Loss (Ws)

Hydrology

% Ag. On Hydric Soils (Ws)

% Forest (Ws) *

% Forest Remaining (Ws)

% Wetland Remaining (Ws)

% Impervious Cover (Ws) *

Road Stream Crossing Density (Ws)

% Wetlands (Ws) *

Geomorphology

Dam Density (Ws)

% Vulnerable Geology (Ws)

Road Density in Riparian Zone (Ws)

% Impervious in Riparian Zone (Ws) *

Habitat

NFHP Habitat Condition Index (Catchment)

Chesapeake Bay Conservation Habitats (Catchment)

Biological Condition

Outlet Aquatic Condition Score, 2016 (Catchment)

Water Quality

% of Stream Length Impaired (Catchment)

Estimated Nitrogen Loads from SPARROW Model (Ws)

N, P, and Sediment Loads from Chesapeake Bay Model, by Sector (Ws)

Original PHWA Metrics

New Metrics

Customized using Chesapeake Bay high-resolution land use/cover data

Note: All metrics calculated at NHDPlus catchment scale

Ws = Metric value calculated for entire upstream watershed

CHESAPEAKE BAY WATERSHED VULNERABILITY INDEX



Land Use Change



Water Use

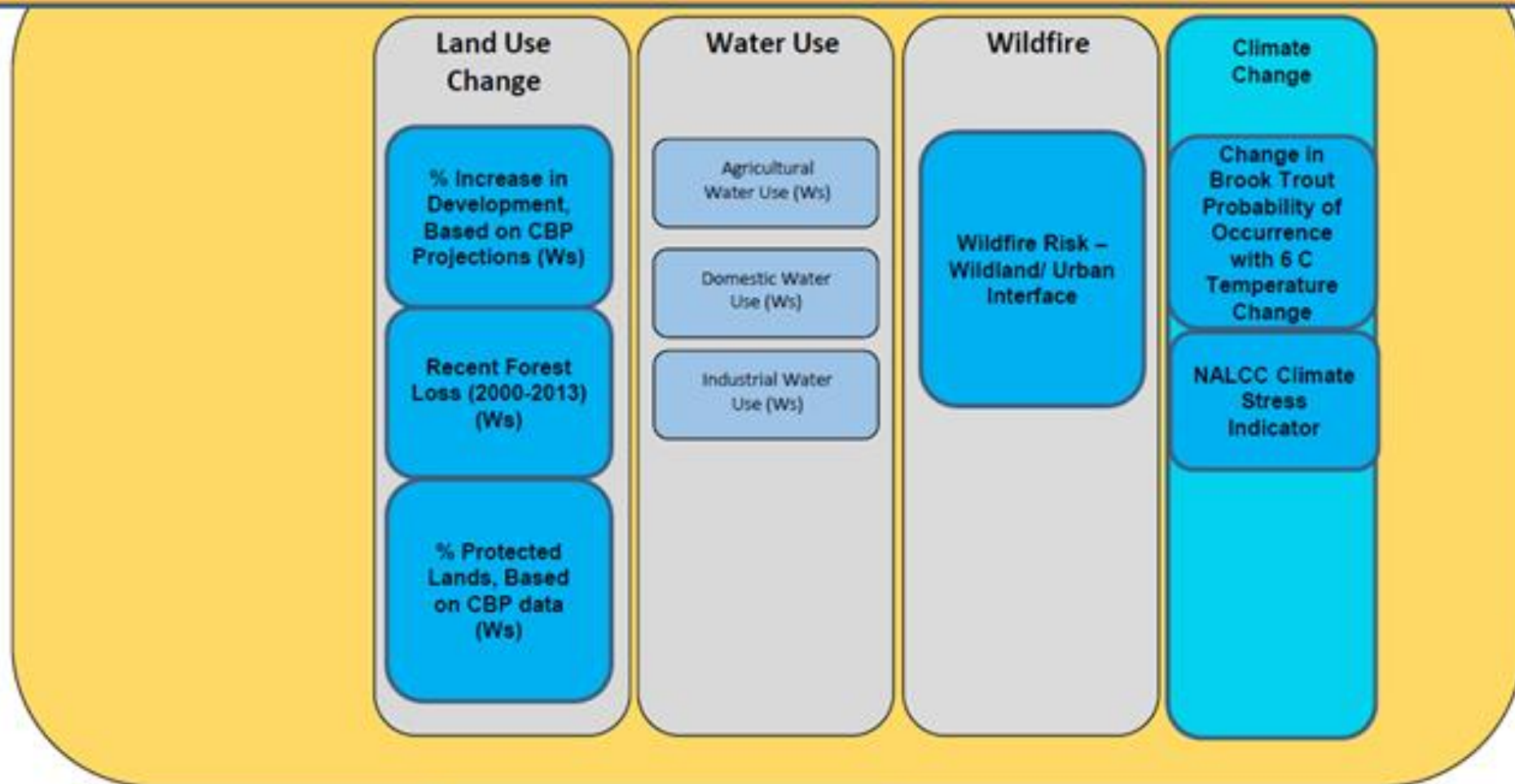


Wildfire



Climate Change

Chesapeake Bay Watershed Vulnerability Indicators ****DRAFT****



Original PHWA Metrics

New Metrics

Note: All metrics calculated at NHDPlus catchment scale

Ws = Metric value calculated for entire upstream watershed

CHWA CLIMATE METRICS

Metric

- Change in Probability of Brook Trout Occurrence, Current Conditions v. Future Conditions

(Future increase of stream temperature of 6 degrees C)

- Climate Stress indicator

(estimated magnitude of climate stress that may be exerted on habitats (ecosystem types) in 2080, where 2080 climate conditions depart substantially from conditions where the underlying ecosystem type currently occurs are considered to be stressed).

Data Source

- North Atlantic Landscape Conservation Cooperative (NALCC), Nature's Network, USGS Conte Lab, 2017

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WHAT ELSE SHOULD BE INCLUDED?

Sea level rise
impact on forests
and tidal marches

Ej screen

Recent
grassland/wetland
loss

Percent working
forests

Human health
index

Shoreline
hardening

Change in
precipitation

Endangered fish
species

Recreational
impairments

CLIMATE INDICATOR FRAMEWORK

Physical Indicators
(Signals of Change)



Impact Indicators
(Ecological and Community
Threats)



Resilience Indicators
(Readiness)

Example

Change in stream
Temperature
(Signals of Change)

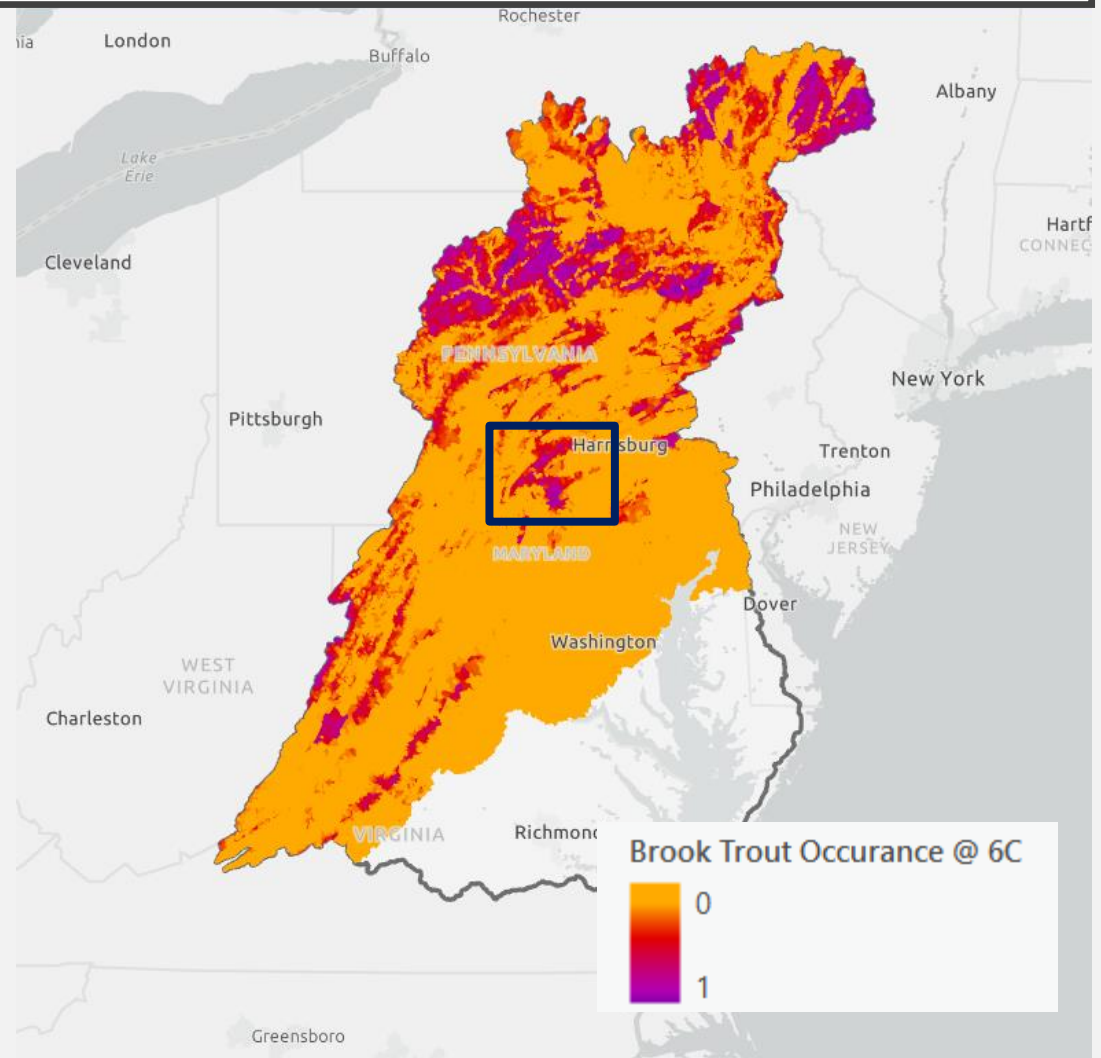
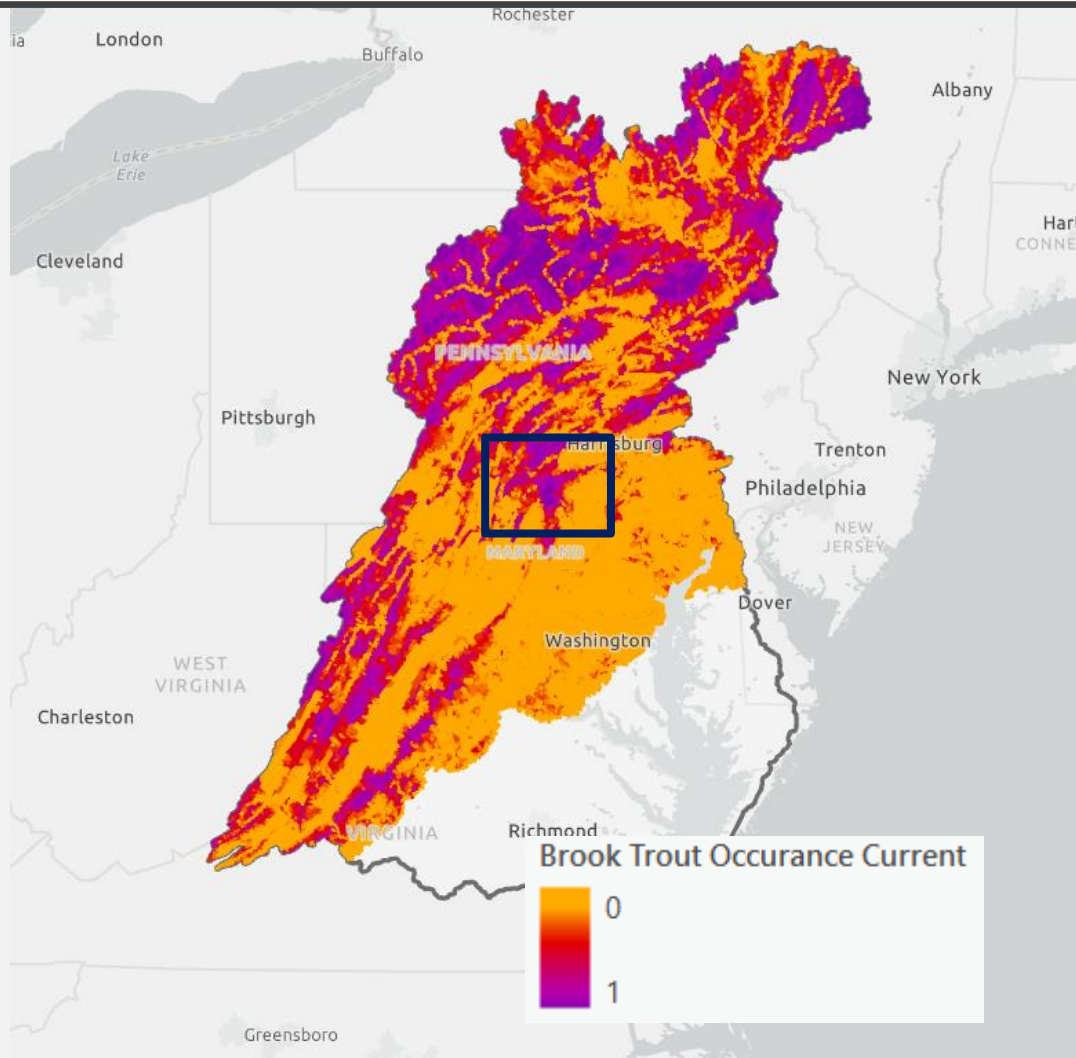


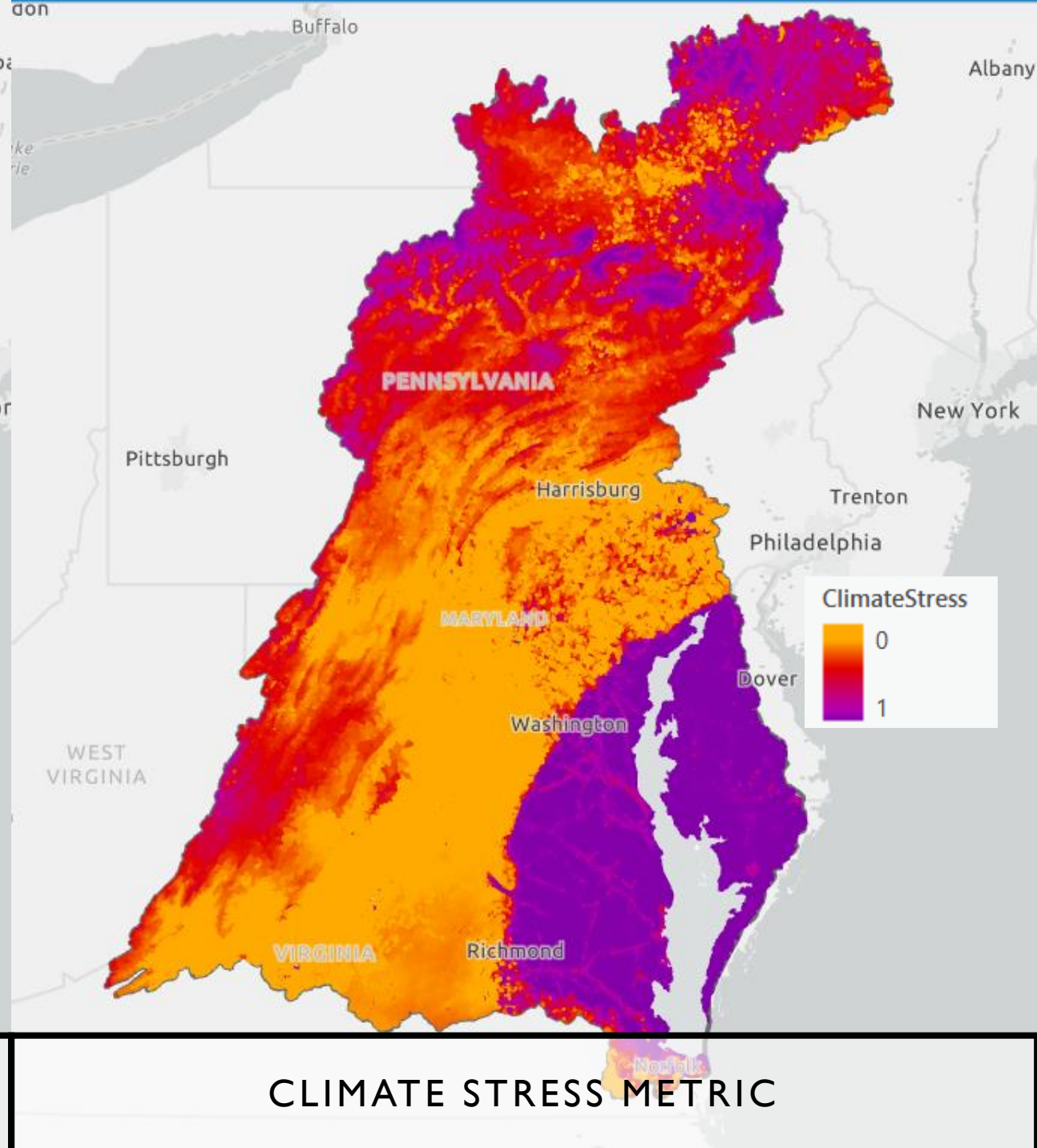
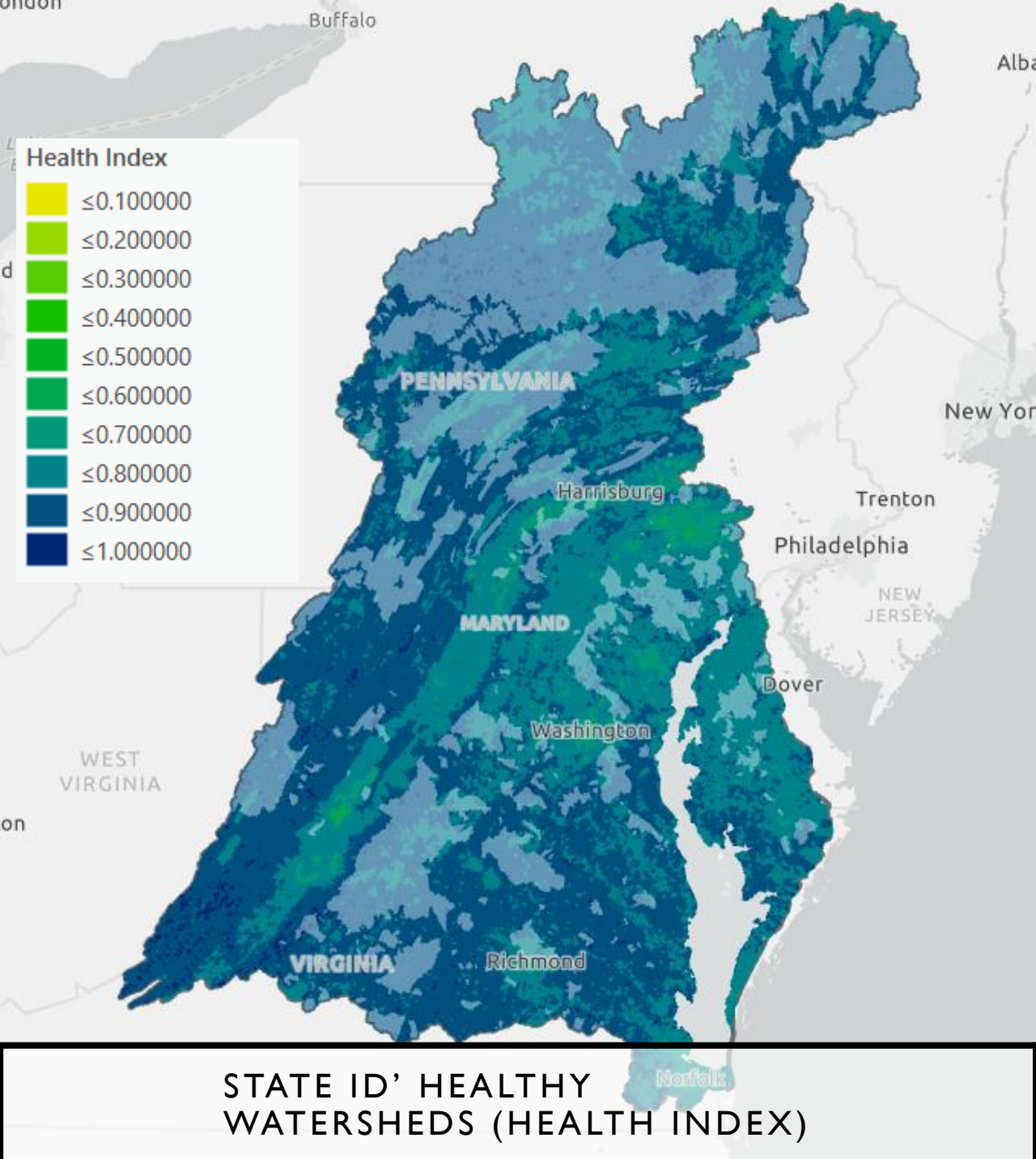
Change in Brook Trout Habitat
(Ecological and Community
Threats)




Where to
restore/protect brook
trout habitat to
increase climate
resilient occupied
habitat?
(Readiness)

CURRENT BROOK TROUT VS. BROOK TROUT 6 DEG C. INCREASE










science for a changing world

⌵ Minimize Header/Footer ⌶


Chesapeake Bay Phase 6 Land Use Viewer ↩ back to main Chesbay P6 page







Search...



Map Layers

Overlays


Phase 6 Land Use Datasets

Click on the layer name to get information about t


Check All

UnCheck All


☒

 [Impervious Roads](#)


☒

 [Impervious Non-Roads](#)


☐

 [Tree Canopy Over Impervious](#)

☐

 [Tree Canopy Over Turf Grass](#)

☐

 [Turf Grass](#)

CHESAPEAKE BAY

PHASE 6 LAND USE VIEWER

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Chesapeake Bay Open Data Portal

Science, Restoration, Partnership

🔍 Search for Data, Maps, Stories & Apps...

The Chesapeake Bay Program Open Data Portal is designed for exploring and downloading the Open Data catalog of the Chesapeake Bay Program GIS Team.

<http://data-chesbay.opendata.arcgis.com/>

Watershed Implementation Plan Data Dashboard

Watershed Implementation Plan Data Dashboard

Chesapeake Bay Program



[Start Here!](#) [Water Quality of Streams](#) [Tidal Water Quality](#) [Targeting Restoration Efforts](#) [Management Practice Implementation](#) [Planning for Change](#) [Build A Storyline](#)

Get started here...

Understanding Sources

Use the Dashboard at the right to explore land use and the estimated sources of nitrogen, phosphorus, and sediment across the Chesapeake Bay watershed.

Follow the instructions on the page to explore the data and populate graphs and tables with your selections. You may need to scroll the page horizontally and vertically to view all content.

What can you do in this module?

Identify important local sources of nutrients and sediment by sector and land use (load source) that reach local streams or the Bay.

Understand important drivers of water quality such as land cover/land use and sector.

Learn the status of nutrient and sediment loads entering local streams and the Bay.

Target or prioritize watersheds for restoration efforts.



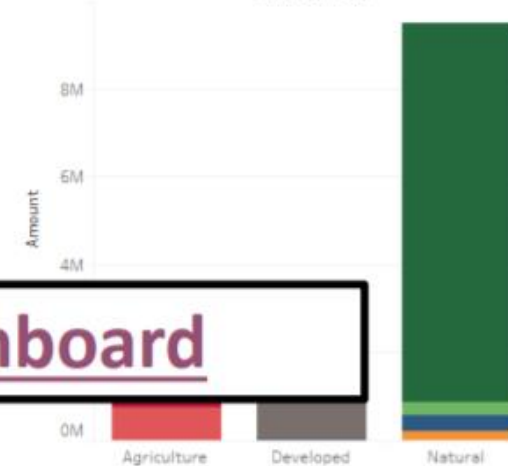
Watersheds with more developed, agricultural, and urban land tend to have higher nutrients and sediment levels in streams than more natural or forested watersheds.



Breakdown of Land Use



Land Use Acres



Tidal Segment

(All)

River

(All)

Major River Basin

(All)

County Name

(All)

State

VA

Load Source Minor

(All)

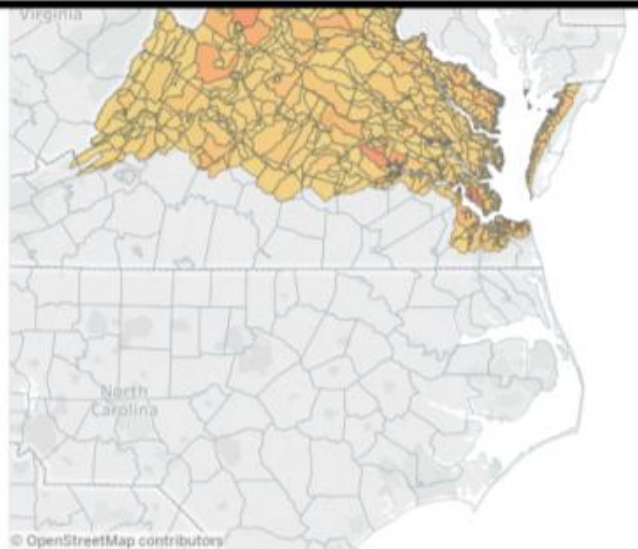
NPS

☒ Nitrogen
☐ Phosphorus
☐ Sediment

EOTS

Delivered to the Bay

<http://gis.chesapeakebay.net/wip/dashboard>



Breakdown of Loads

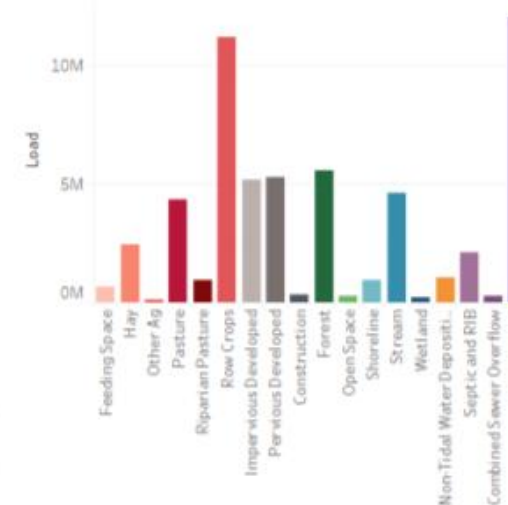


Total Load: 57,720,421

Load Source Minor

Feeding Space
Hay
Other Ag
Pasture
Riparian Pasture
Row Crops
Impervious Devel...
Pervious Devel...
Construction
Forest
Open Space
Shoreline
Stream
Wetland
Non-Tidal Wate...
Septic and RIB
Combined Sew...
Wastewater

Load Source Minor



THANK YOU!!

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