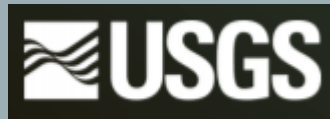




WATERSHED HEALTH, STRESSORS, LAND USE CHANGE AND RESOURCES

AN OVERVIEW AND DEMONSTRATION OF THE “CHESAPEAKE HEALTHY
WATERSHEDS ASSESSMENT” AND OTHER RESOURCES TO INFORM LOCAL
DECISION MAKING

LGAC March 18, 2021



*Renee Thompson, Geographer
USGS, Chesapeake Bay Program
Maintain Healthy Watersheds GIT,
Coordinator*



Chesapeake Bay Program

Science. Restoration. Partnership.

**The Chesapeake
Bay Agreement of
1983**

**The 1987
Chesapeake Bay
Agreement**

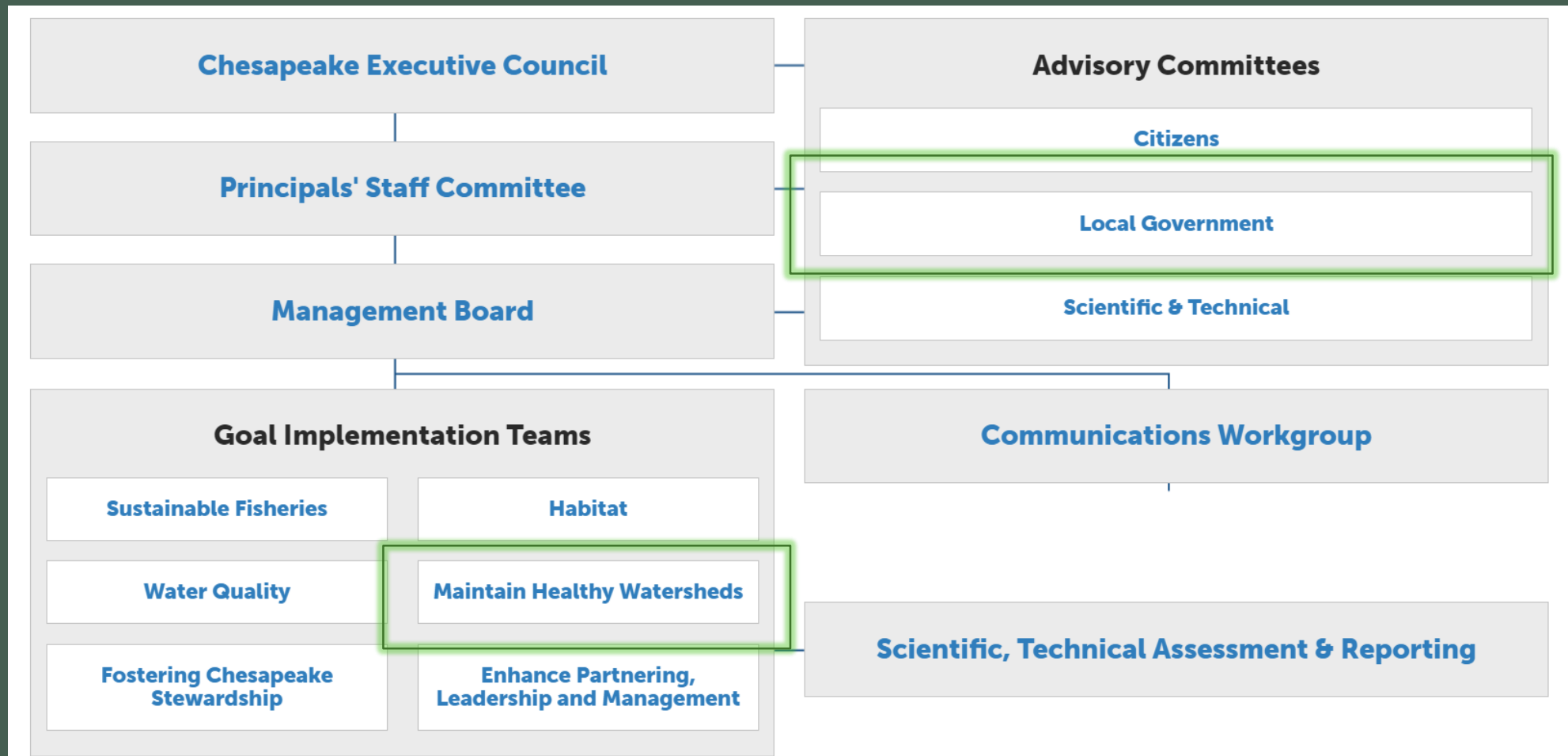
Chesapeake 2000

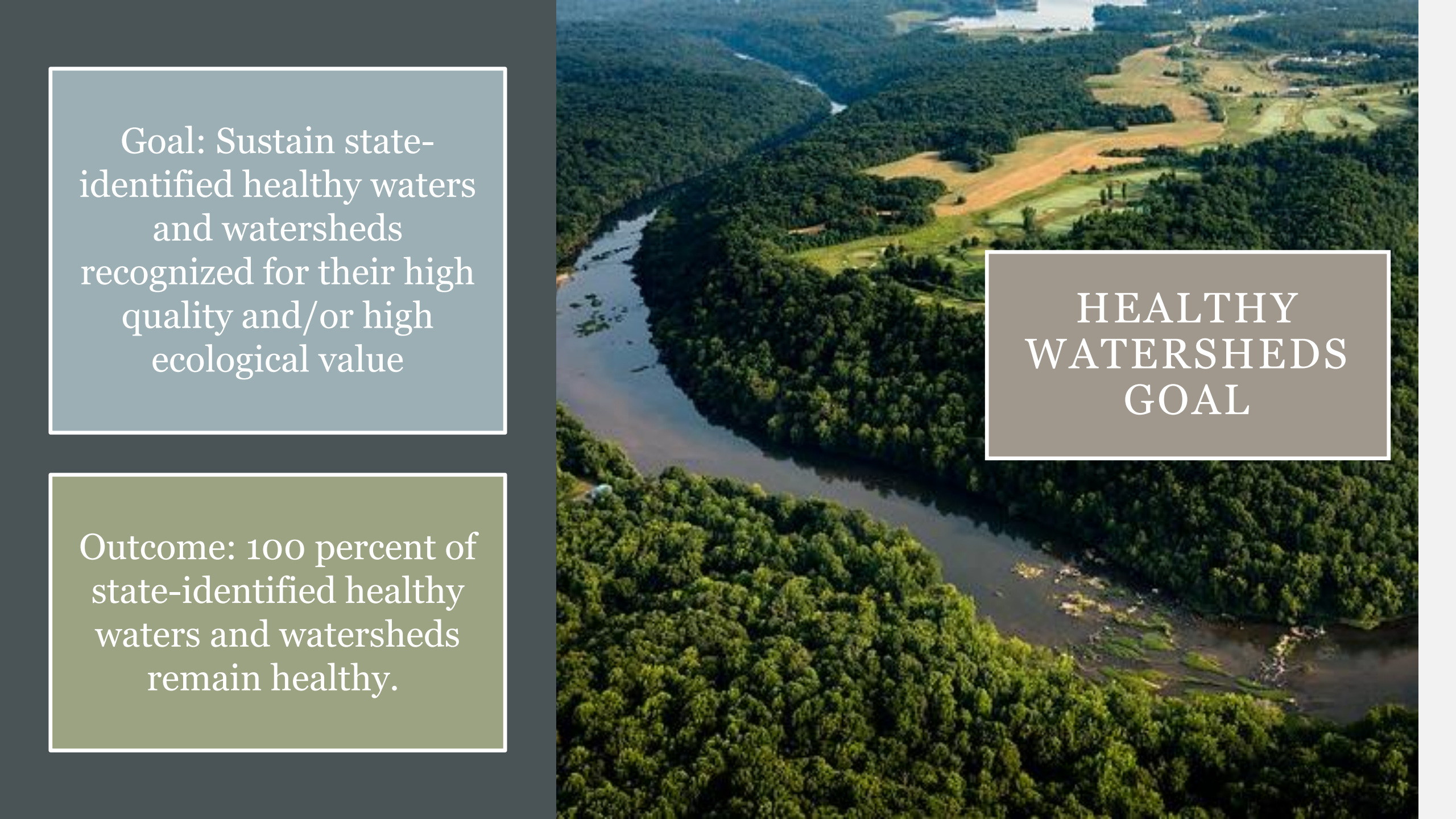
**Chesapeake Bay
Executive Order
and Two-year
Milestones**

**Chesapeake Bay
TMDL and
Watershed
Implementation
Plans**

**The Chesapeake
Bay Watershed
Agreement**

Chesapeake Bay Program Organization





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

Sustain watershed health where it is *high, exceptional and/or outstanding...*

to *increase the number of healthy watersheds* in the future...

Provide the forum for mutual shared learning...

Develop information resources...

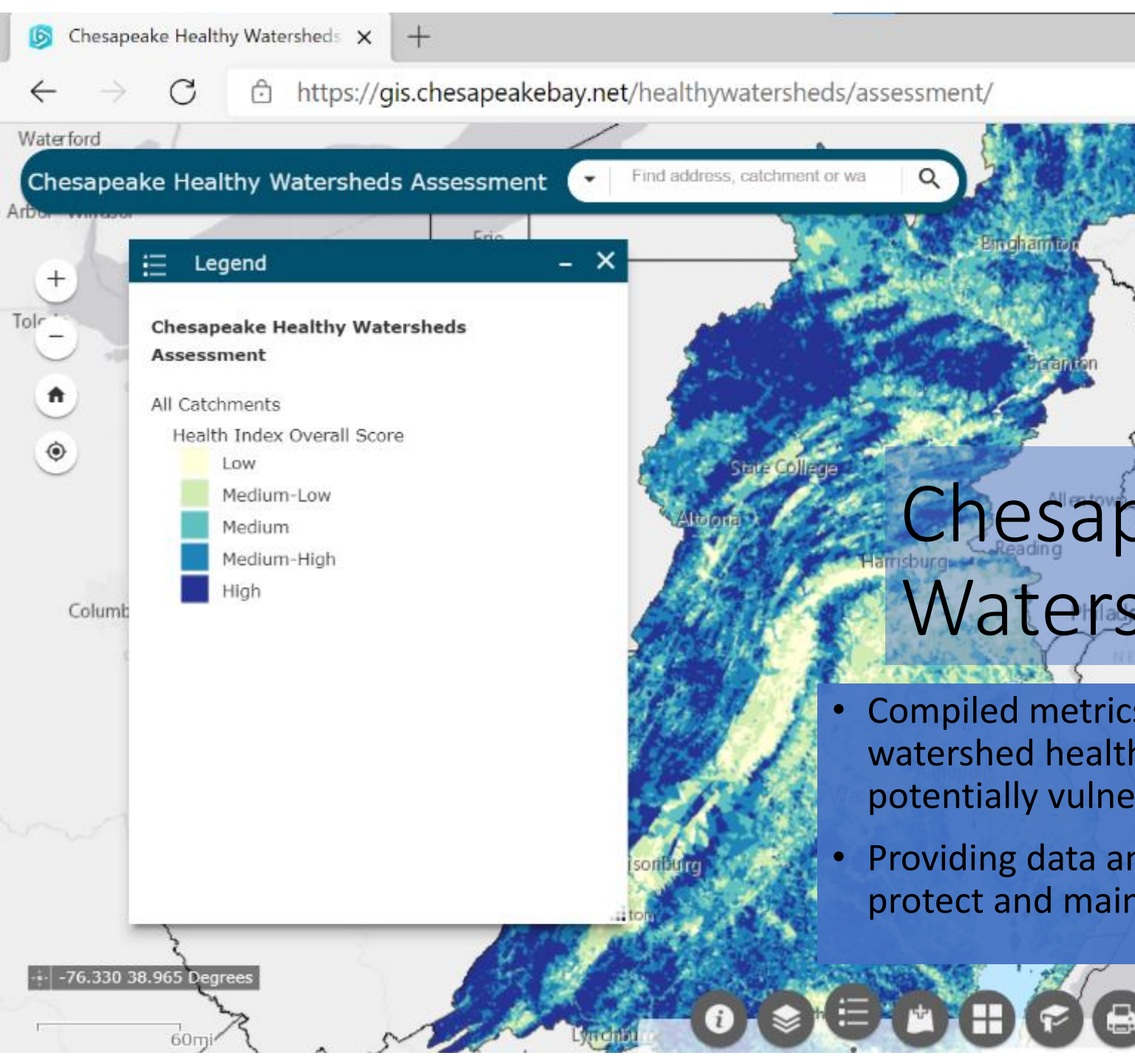
Promote the science...

And

*Coordination, Integration and
Collaboration.*



HEALTHY
WATERSHEDS
VISION



Chesapeake Healthy Watersheds Assessment

- Compiled metrics characterizing multiple aspects of watershed health and landscape stressors to inform potentially vulnerable and/or resilient catchments.
- Providing data and information to support strategies to protect and maintain healthy watersheds.

Land Use Options Evaluation

Outcome:

- *policy options, incentives and planning tools* for local governments reduce the rate of conversion of agricultural lands, forests and wetlands
- Development of *strategies* to support local government efforts in *reducing land conversion*

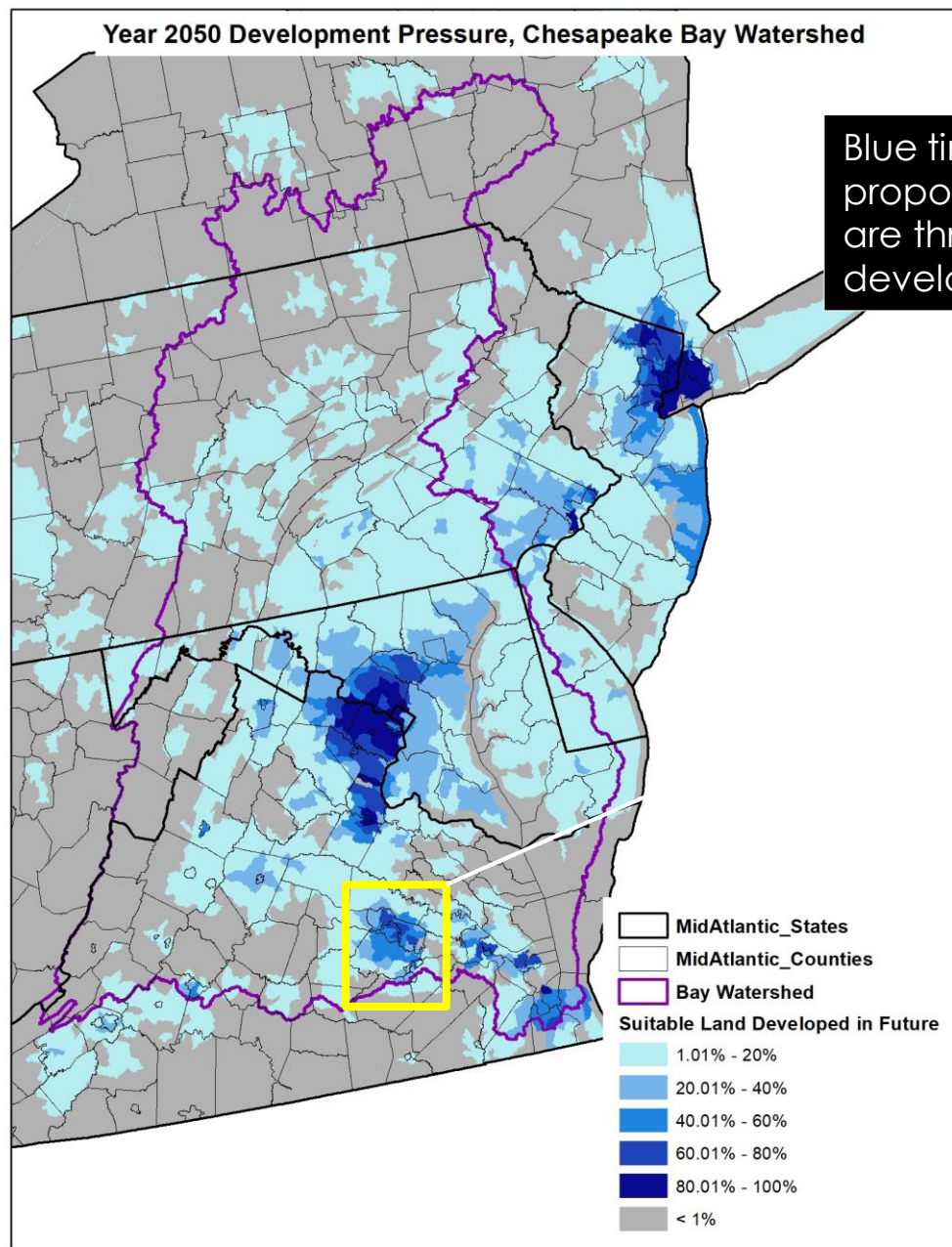
Land Use Methods and Metrics Outcome:

- *improve the knowledge of land conversion and impacts* throughout the watershed.
- *methodology and local level metrics* for rate of farmland, forest and wetland conversion,*impervious surface*
- *public awareness* campaign to citizens, local governments, elected officials and stakeholders.

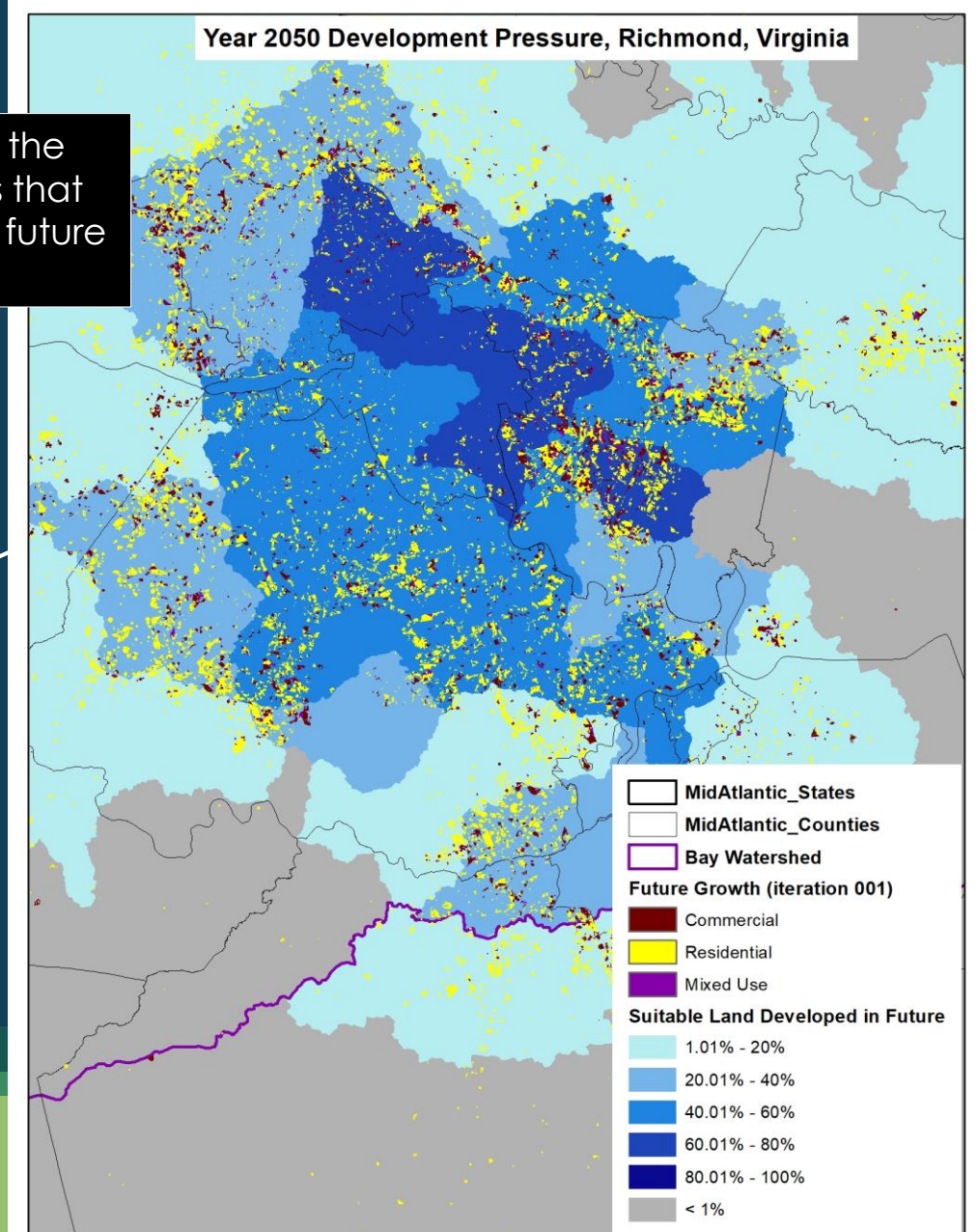
What's in the "Toolboxes"?



Vulnerability to Land Conversion



Blue tints represent the proportion of lands that are threatened by future development



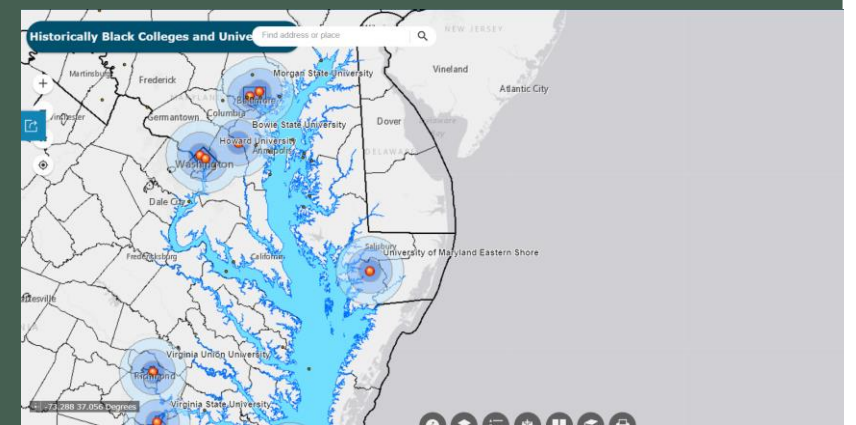
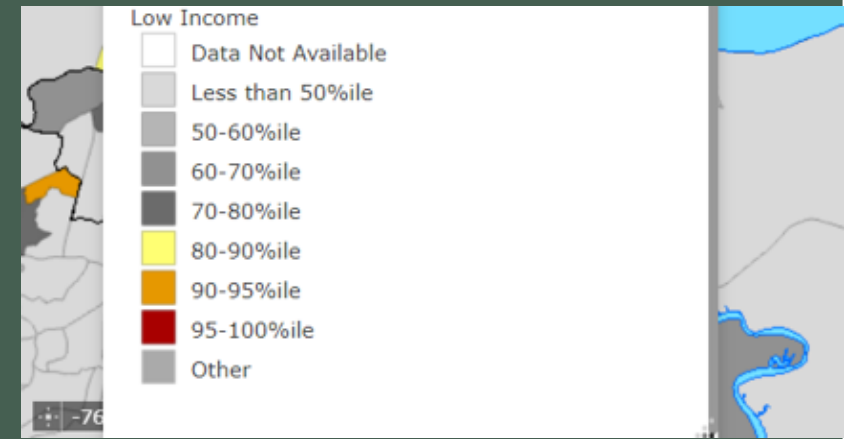
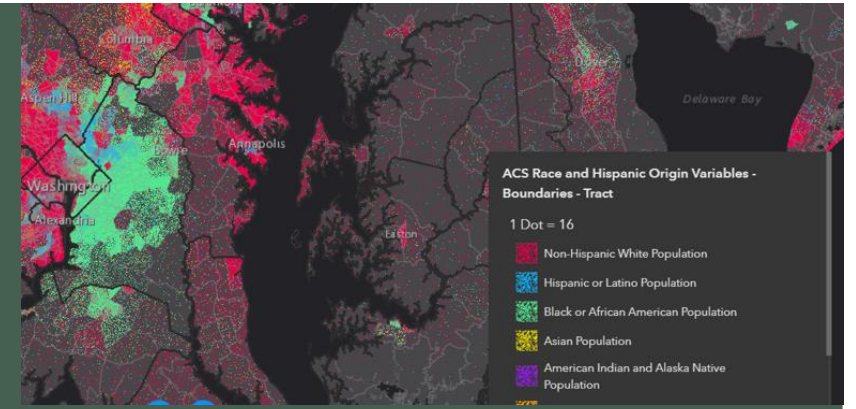
Chesapeake Bay Environmental Justice and Equity Dashboard

What can you do with the information?

Contains Demographic, Environmental Programmatic content

Examples of application include:

- Locate Historically Black Colleges and Understand where and what types of conservation and restoration projects have been funded in underrepresented communities.
- Understand the geographic distribution of underrepresented populations within the Chesapeake Bay Watershed
- Identify locations where environmental justice issues may be of particular concern



Local Priorities

*Workforce Development
Local Green Economy
BMP Maintenance*

Infrastructure
Maintenance
and Financing

Economic
Development

Provide policies, incentives,
plans and tools to empower
locals to reduce natural land
conversion

Public Health
and Safety

Inform watershed
health and
vulnerability

Education

Trusted Sources



State level associations

Maryland Association of Counties
Virginia Municipal League
Pennsylvania Association of Township Supervisors



Council of Governments

Metropolitan Washington Council of Governments



State Universities

Maryland Sea Grant
Virginia Water Resources Center
Penn State Extension Service



Conservation Districts and Planning Districts



River Basin Commissions

Chesapeake Healthy Watersheds Assessment Demo!

Beyond Watershed Health....

- cross-connections
- stream health
- fish habitat assessment
- water quality
- climate change
- land use change
- local engagement.

Support of interrelated programs for protection and restoration.





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 own data. 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.

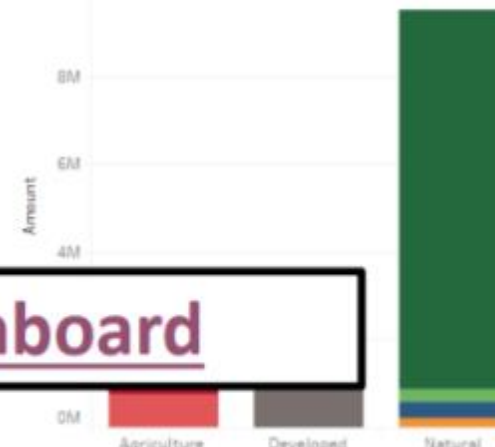
 Watersheds with more developed, agricultural, and urban land tend to have higher nutrients and sediment levels in streams than more natural or forested watersheds.



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)

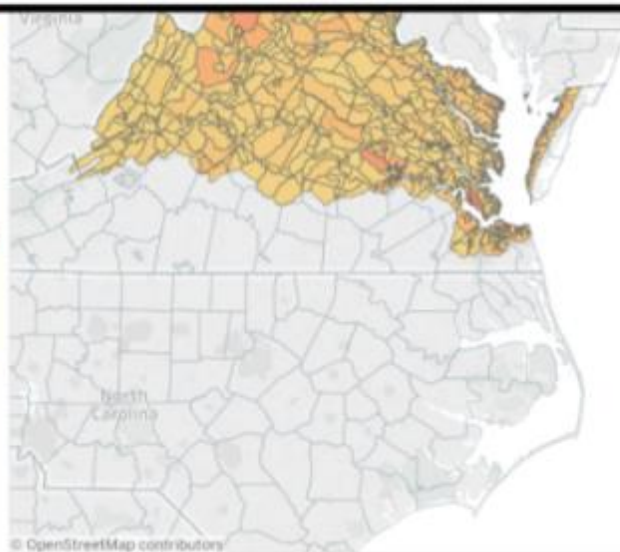
NPS

- Nitrogen
- Phosphorous
- Sediment

EOTS

Delivered to the Bay

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



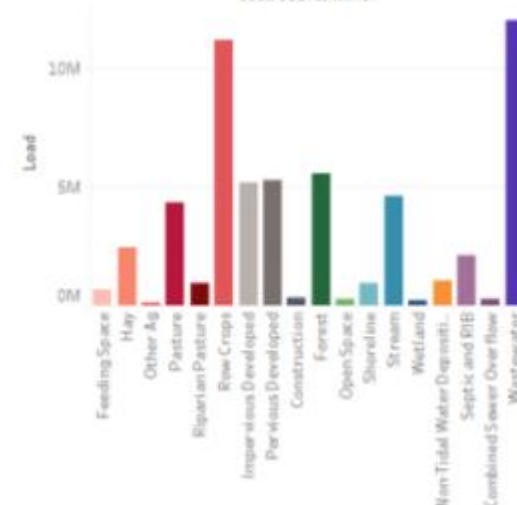
Breakdown of Loads



Total Load: 67,720,421

- 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 Wete...
 - Septic and RiB
 - Combined Sew...
 - Wastewater

Load Source Minor



Thank you!



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