Chesapeake Healthy Watersheds Assessment

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Today's Presentation

- Purpose and overview of Chesapeake Healthy Watersheds Assessment (CHWA)
- Current project: developing the Maryland Healthy Watersheds Assessment (MD HWA)
  - Example data sources and candidate metrics
  - Management applications: How can this help you?

Healthy Watersheds, Healthy Streams

- EPA defines a healthy watershed as one in which natural land cover supports:
- Dynamic hydrologic and geomorphic processes within their natural range of variation,
- Habitat of sufficient size and connectivity to support native aquatic and riparian species, and
- Physical and chemical water quality conditions able to support healthy biological communities.

Source: EPA, Healthy Watersheds Protection

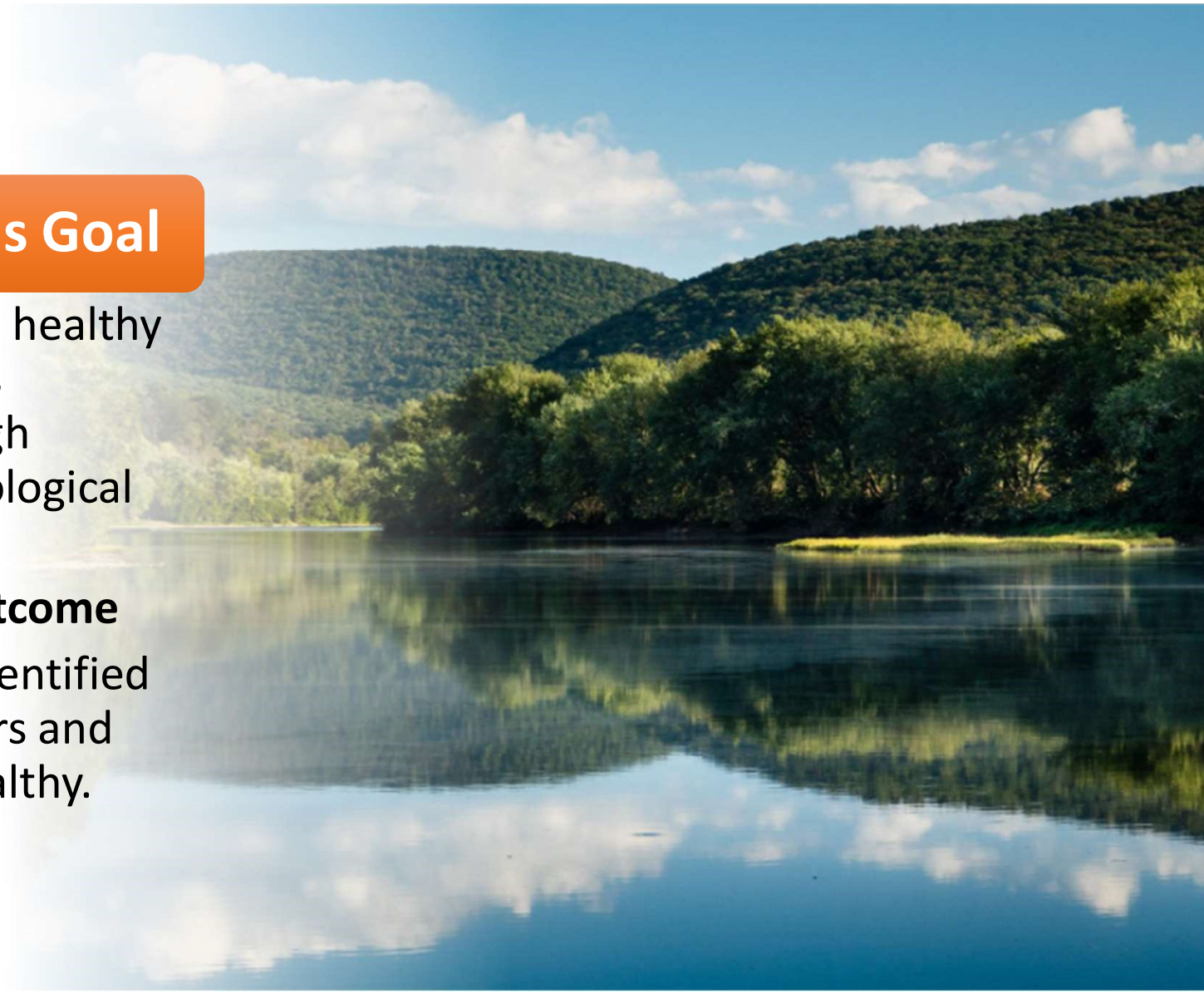
Rocky Gap State Park is seen at sunset in Allegany County, Md., on July 21, 2008. (Photo by Alicia Pimental/Chesapeake Bay Program)

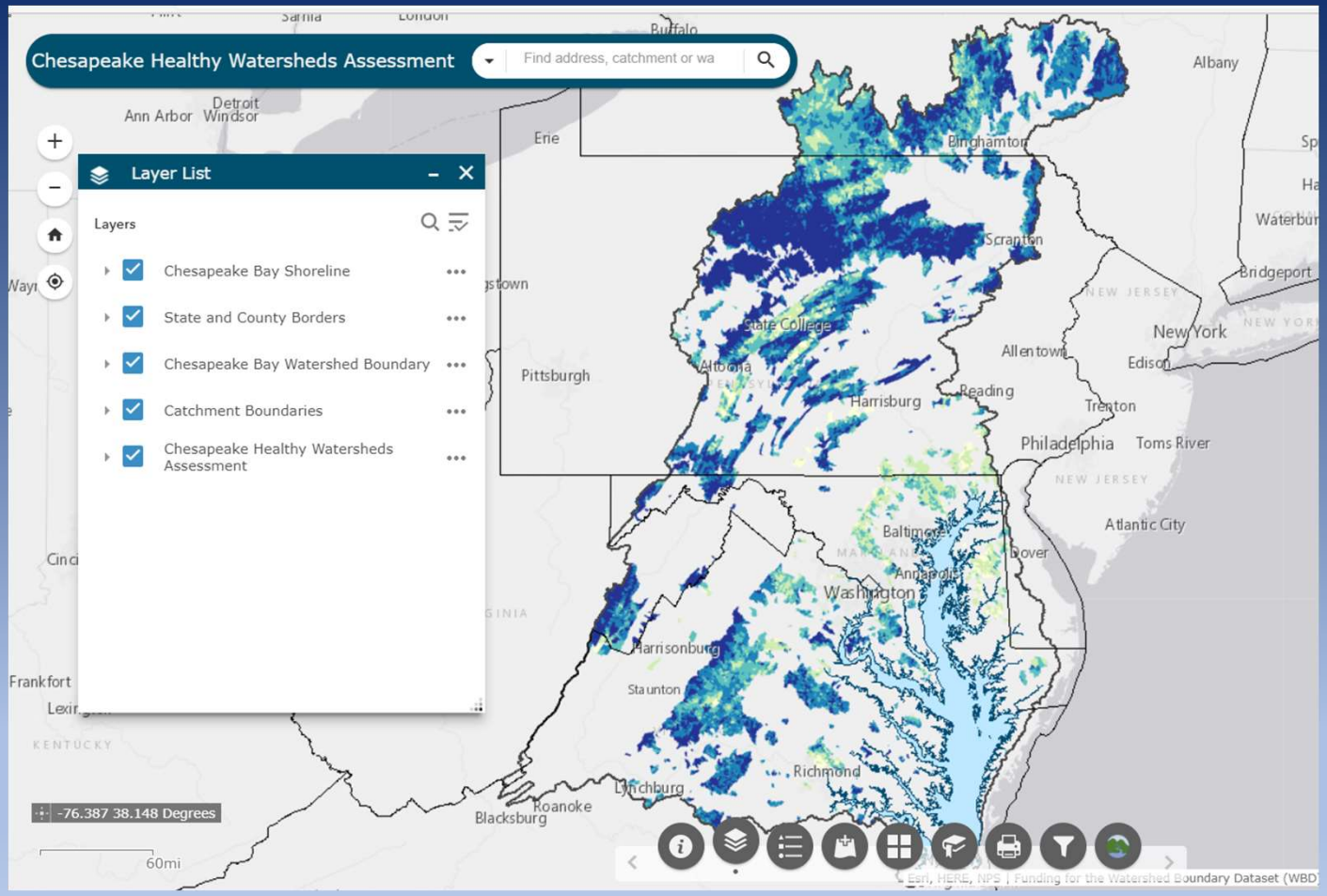
Healthy Watersheds Goal

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

Healthy Watersheds Outcome

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





Chesapeake Healthy Watersheds Assessment

The purpose of the Chesapeake Bay Healthy Watershed Assessment is to:

-  Support the Chesapeake Bay Program and its jurisdiction partners
-  Detect “signals of change” in the state-identified healthy watersheds
-  Provide information useful to support strategies to protect and maintain watershed health
-  Provide an “early warning” to identify factors that could cause future degradation
-  Allow for communication and management action

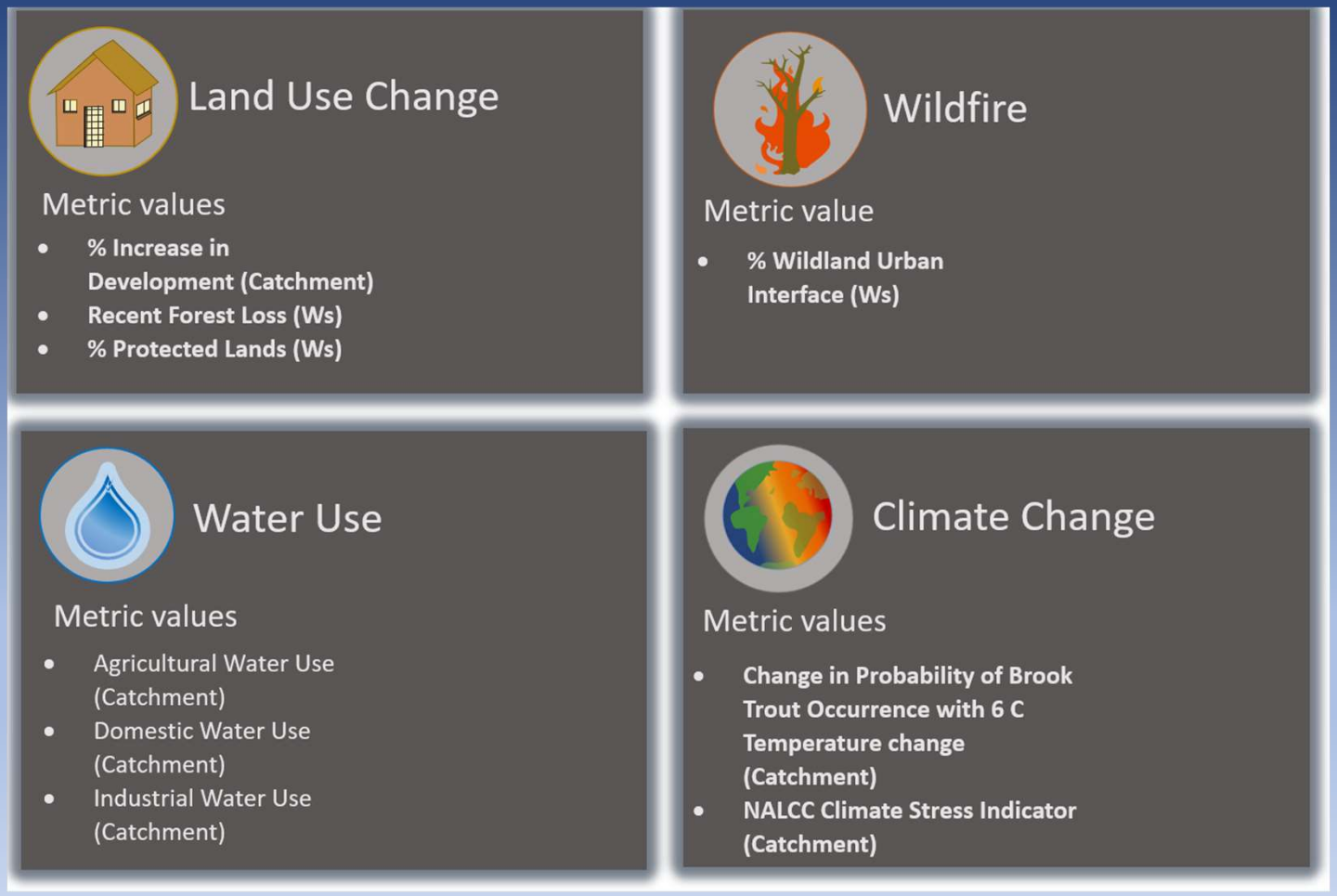
Chesapeake Healthy Watersheds Assessment: Watershed Health Metrics

Bold: New metrics developed for the CHWA

Asterisk*: Customized using Chesapeake Bay high-resolution land use/cover data 2013/14

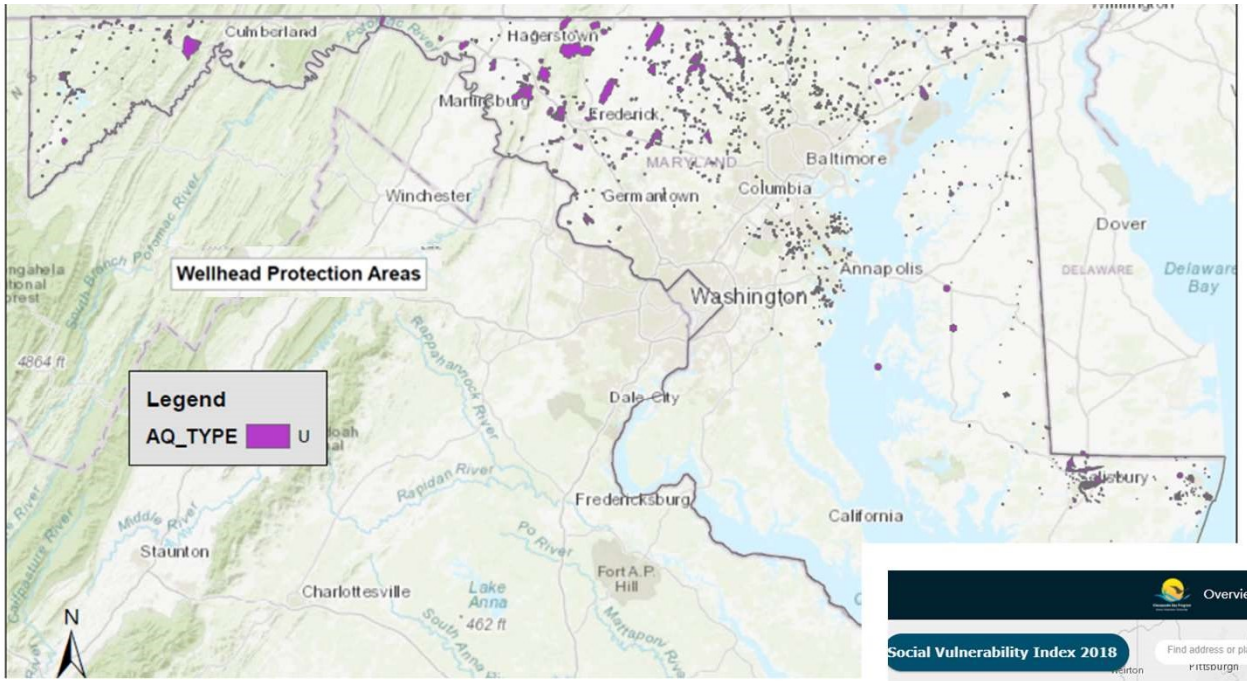
Regular: Original EPA Preliminary Healthy Watersheds Assessment Metrics

Chesapeake Healthy Watersheds Assessment: Watershed Vulnerability Metrics

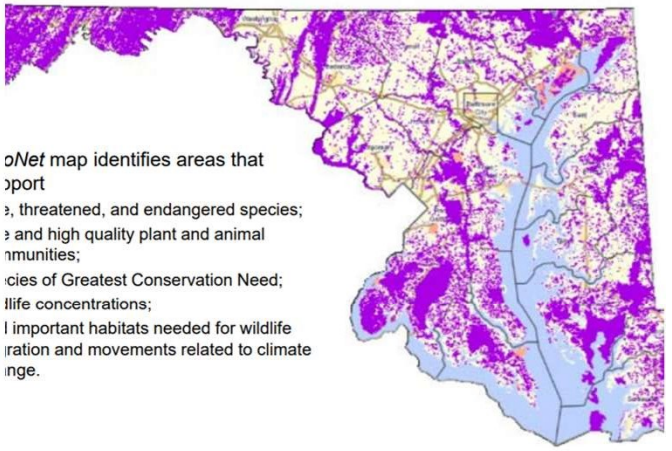


MD HWA: Examples of New or Maryland-Specific Candidate Metrics

- Habitat: Maryland's Biodiversity Conservation Network (Maryland DNR)
- Habitat: Maryland's Stronghold Watersheds – supporting aquatic biodiversity (Maryland DNR)
- Water Quality: Conductivity in freshwater streams of the Chesapeake Bay Watershed (USGS, Rosemary Fanelli)
- Candidate metric examples include land use change, protected lands, wildfire risk, climate change/resiliency
- Floodplain and Channel Evaluation Tool
  FACET – GIS tool for measuring fine scale geomorphmetry



Wildlife and Rare Species Habitat



oNet map identifies areas that
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, threatened, and endangered species;
and high quality plant and animal
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life concentrations;
important habitats needed for wildlife
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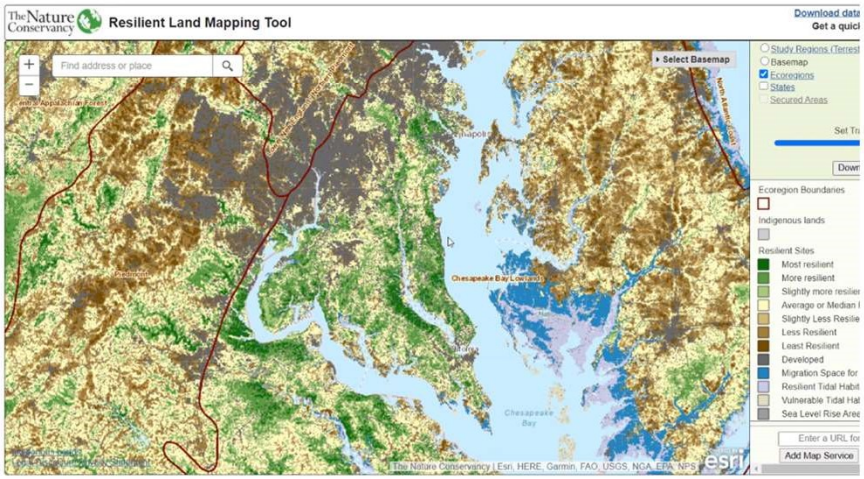
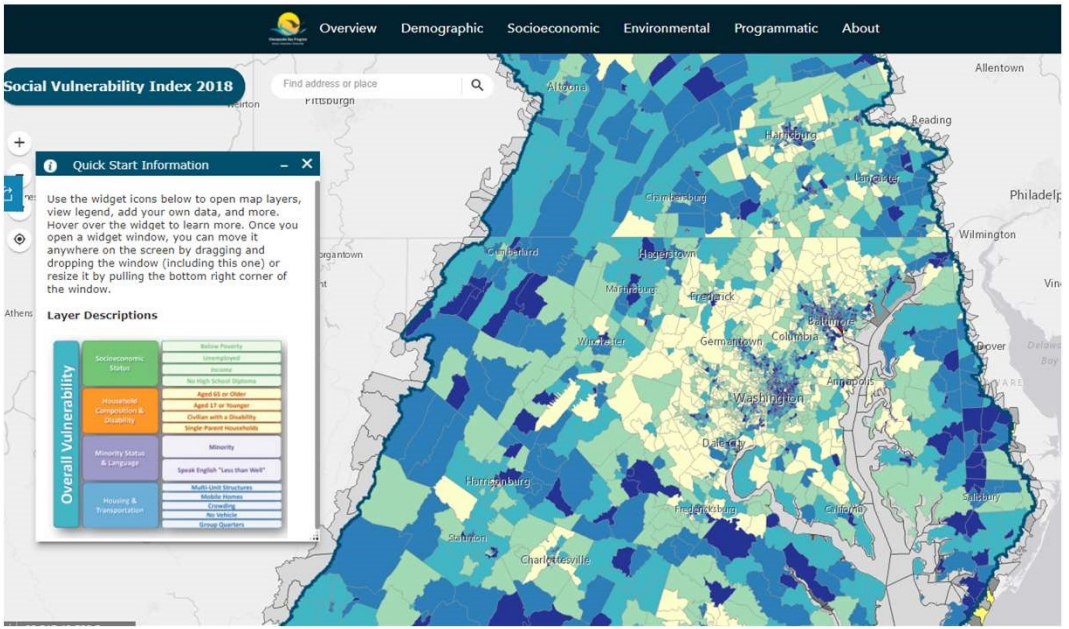
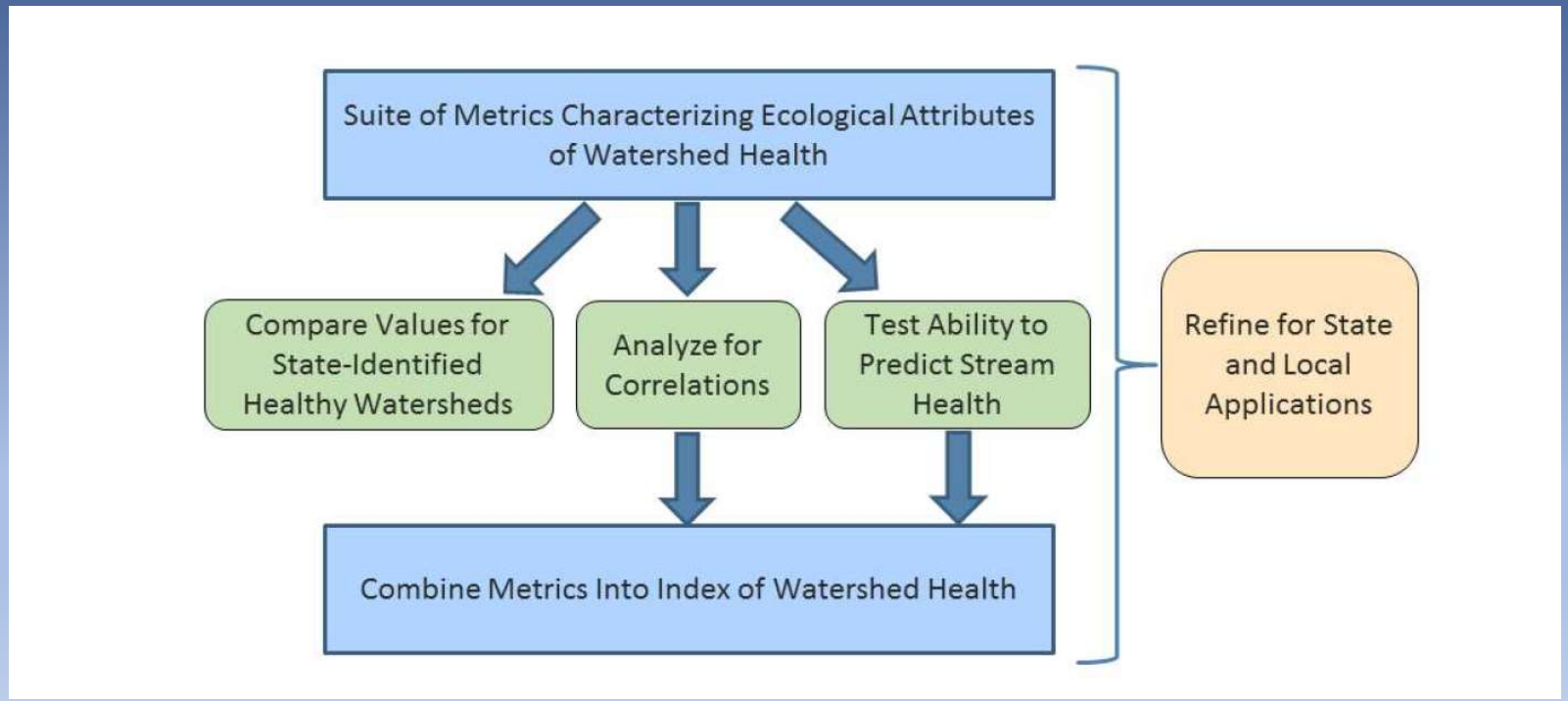




Examining Statistical Relationships to Refine Watershed Health Index



Examining Statistical Relationships to Refine Watershed Health Index

Watershed Characteristics (Predictors)

- % Forest
- % Impervious Cover
- Population Density
- Flow Alteration
- Conductivity
- …and other watershed health metrics

Stream Condition (Response)

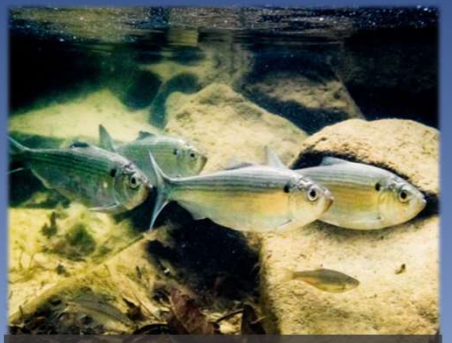
- Biological condition, as measured by fish and benthic Indices of Biotic Integrity (Maryland Biological Stream Survey)

Potential Applications of the watershed health assessment:

Identifying areas of brook trout populations susceptible to climate shifts

Source water protection (drinking water)

Engagement with local governments to inform land use decisions



Coordination with CBP's Fish Habitat Assessments

Examining/quantifying stressors affecting stream health (not just in healthy watersheds)

Supporting land trusts and other organizations managing protected lands

Assessing landscape factors affecting fish habitat in non-tidal and tidal watersheds

CBP Decision Support Resources

- Chesapeake Healthy Watersheds Assessment:

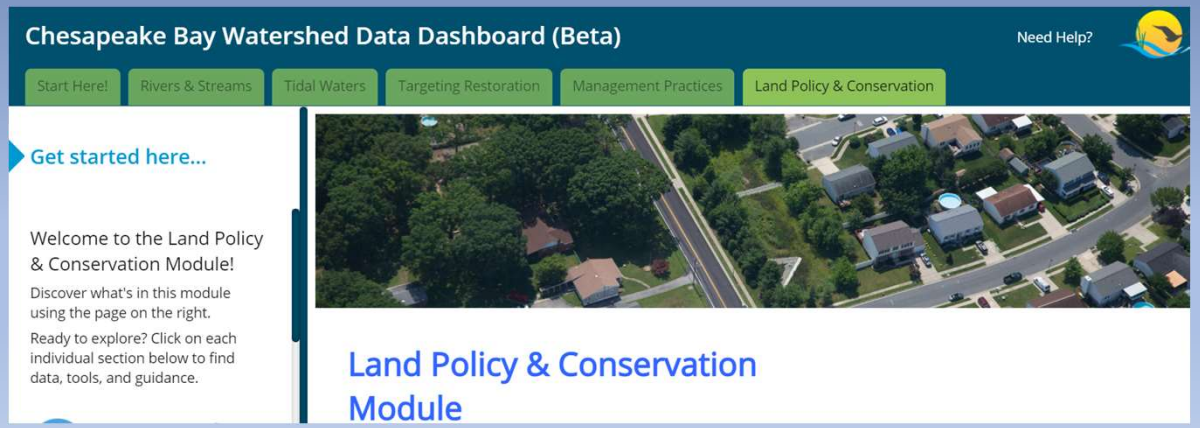
Chesapeake Healthy Watersheds Assessment (chesapeakebay.net)

- **Chesapeake Bay Environmental Justice and Equity Dashboard**

Diversity Dashboard 2021 (chesapeakebay.net)\

- Chesapeake Bay Watershed Data Dashboard

Chesapeake Bay Watershed Data Dashboard (Beta) (arcgis.com)



Water is our most precious and interconnected natural resource. It sustains all ecosystems, communities, and economies from local watersheds to the seas. It's vital to sustaining our health, safety, and the environments in which we live and work. Simply put, water is life.

- Alexandra Cousteau

Acknowledgements:

State and federal data contacts

Chesapeake Bay Program
Science. Restoration. Partnership.

CBTRUST
Chesapeake Bay Trust

TETRA TECH

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