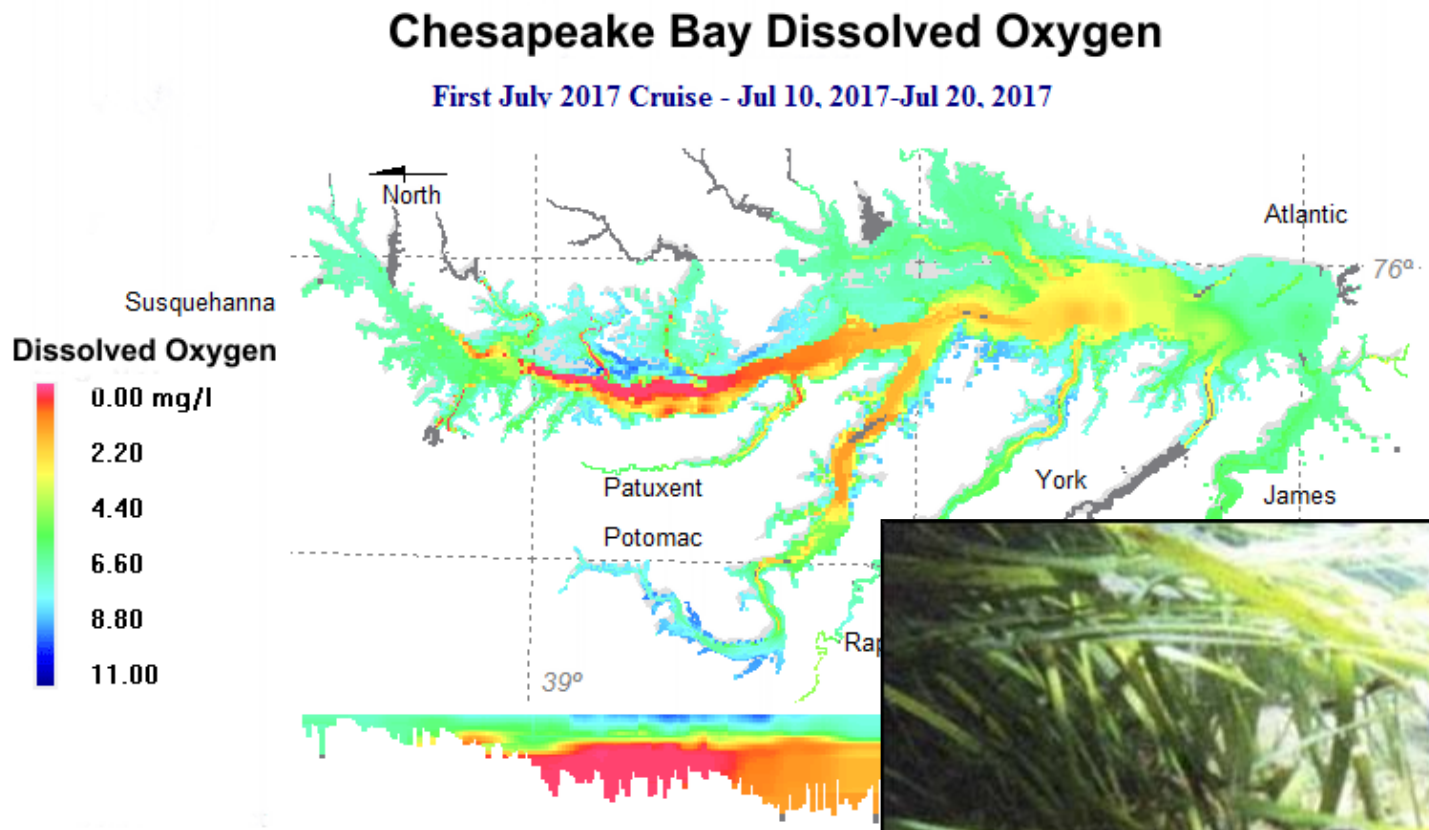
Maryland's Stream Ecology

Context for the Restoration Research Grant Program

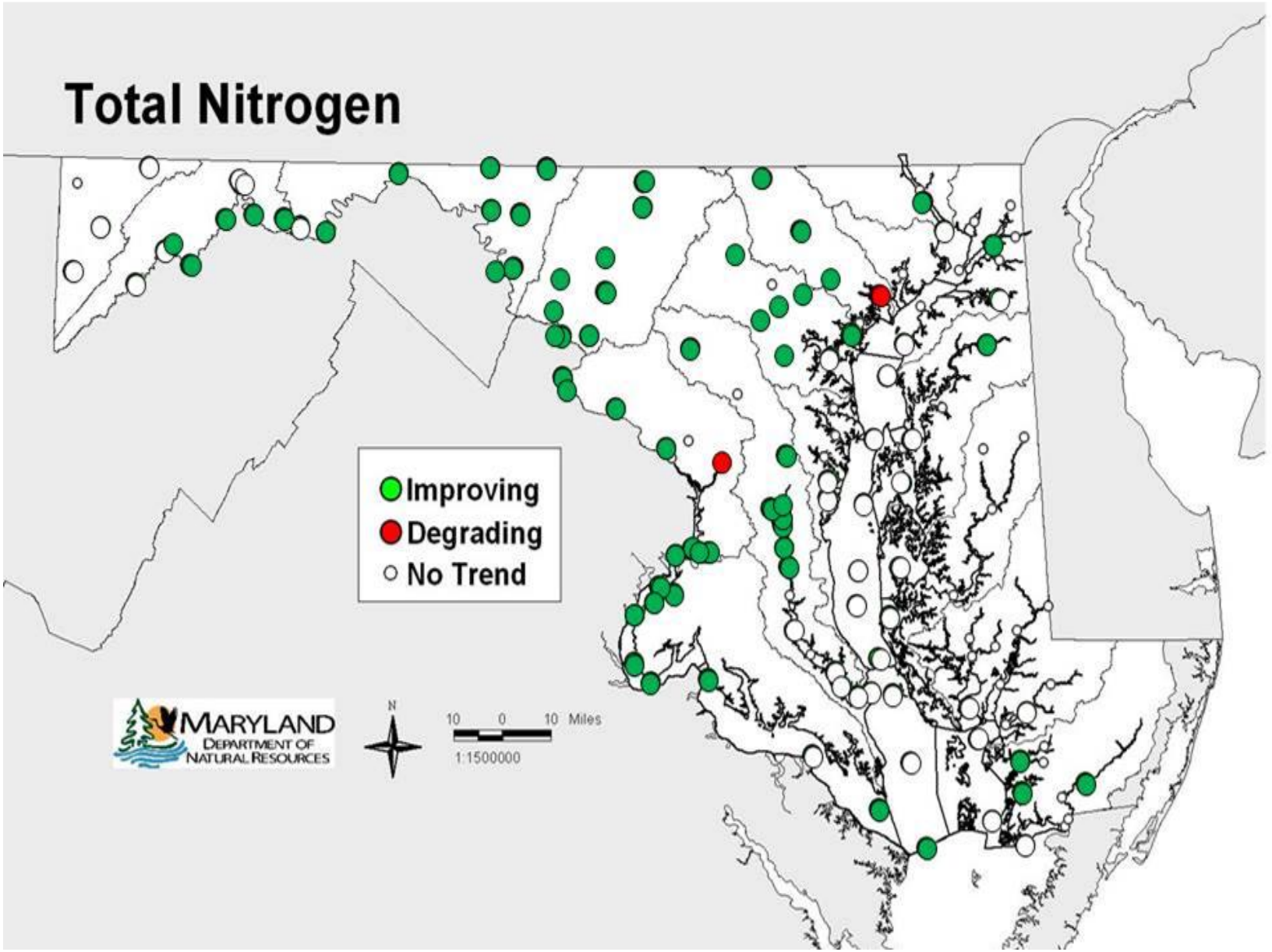
MARYLAND
DEPARTMENT OF
NATURAL RESOURCES

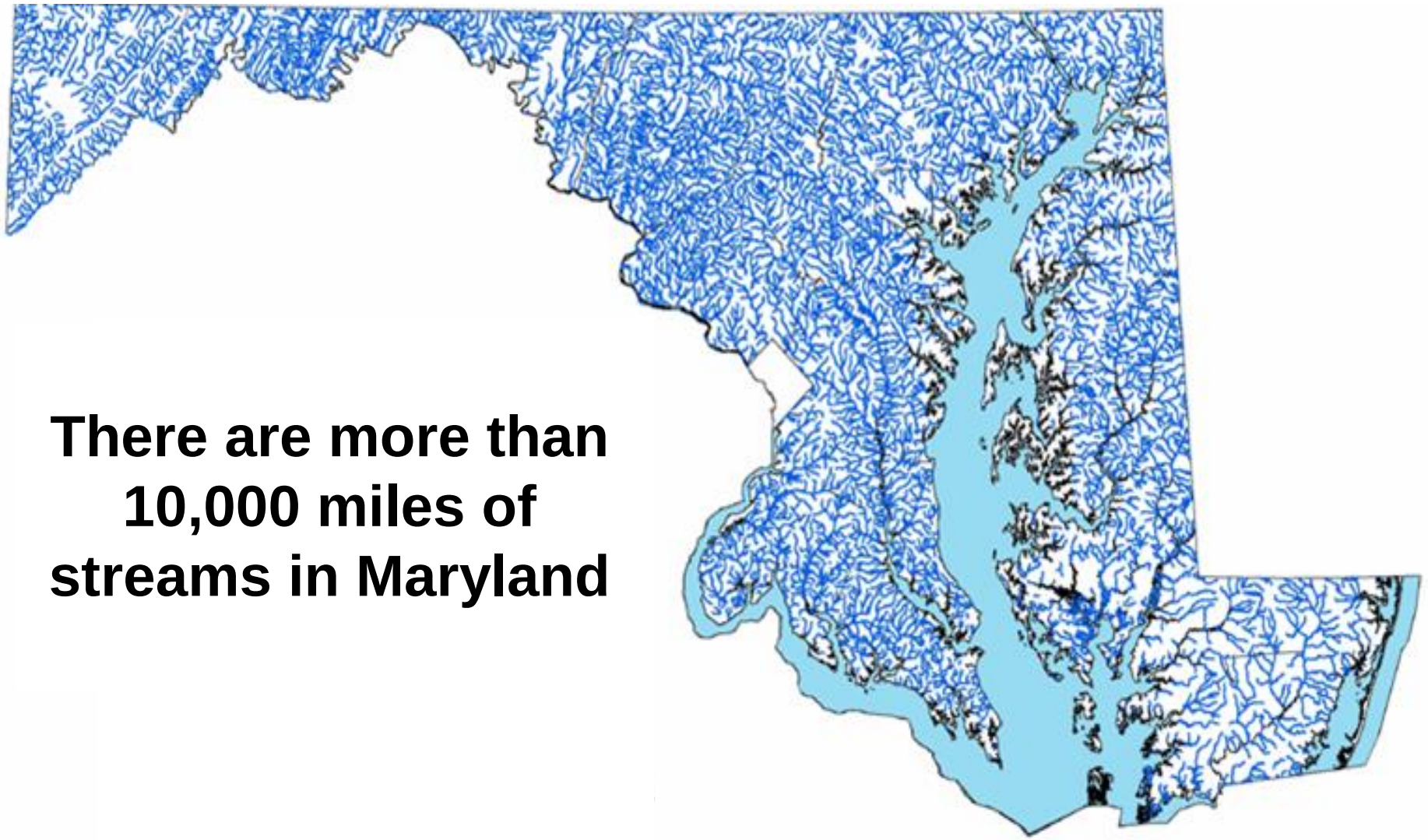
Monitoring and Non-Tidal
Assessment Division

Signs of Improvement in Chesapeake Bay

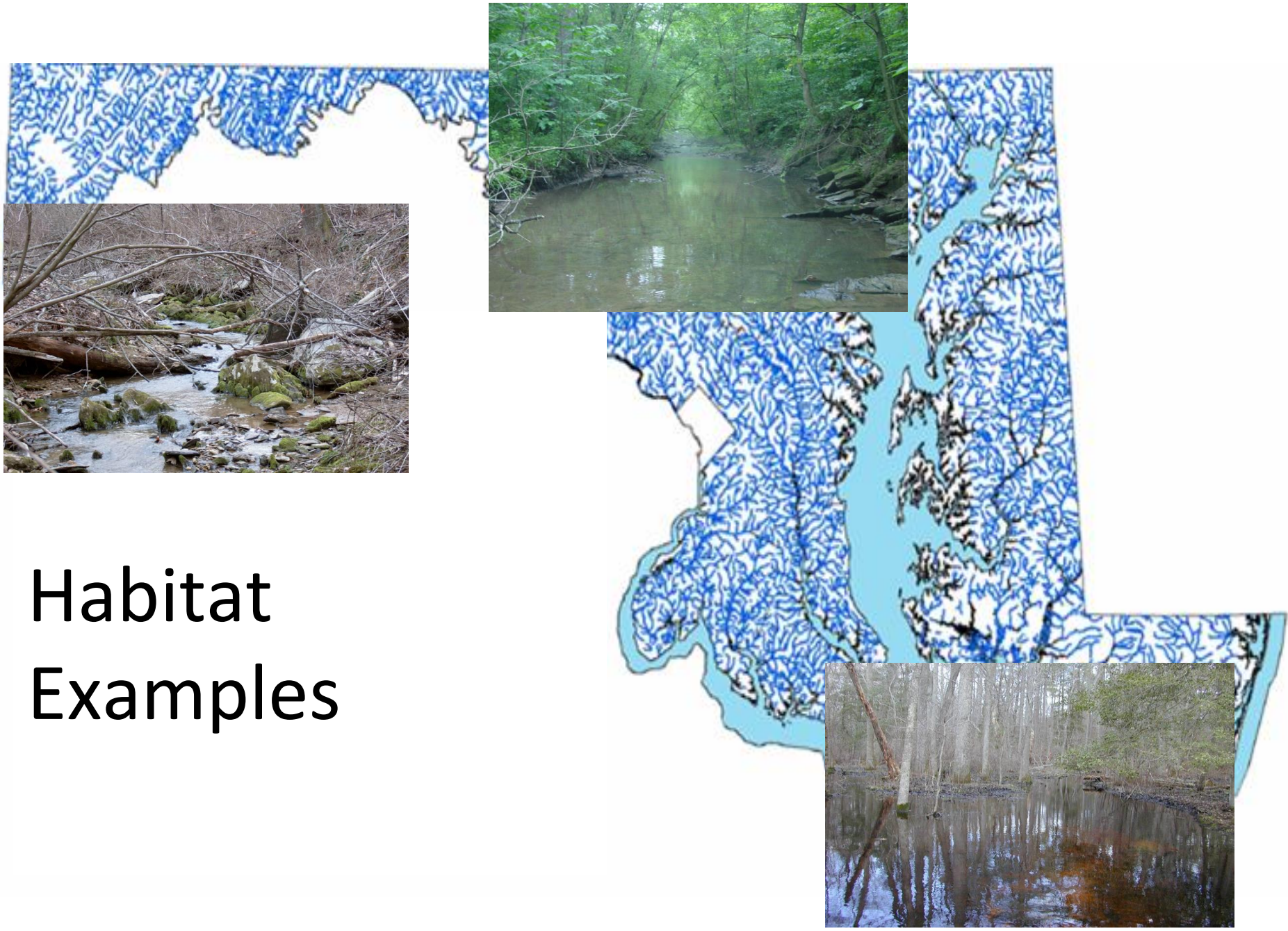


Improving Nitrogen Trends in Maryland Rivers



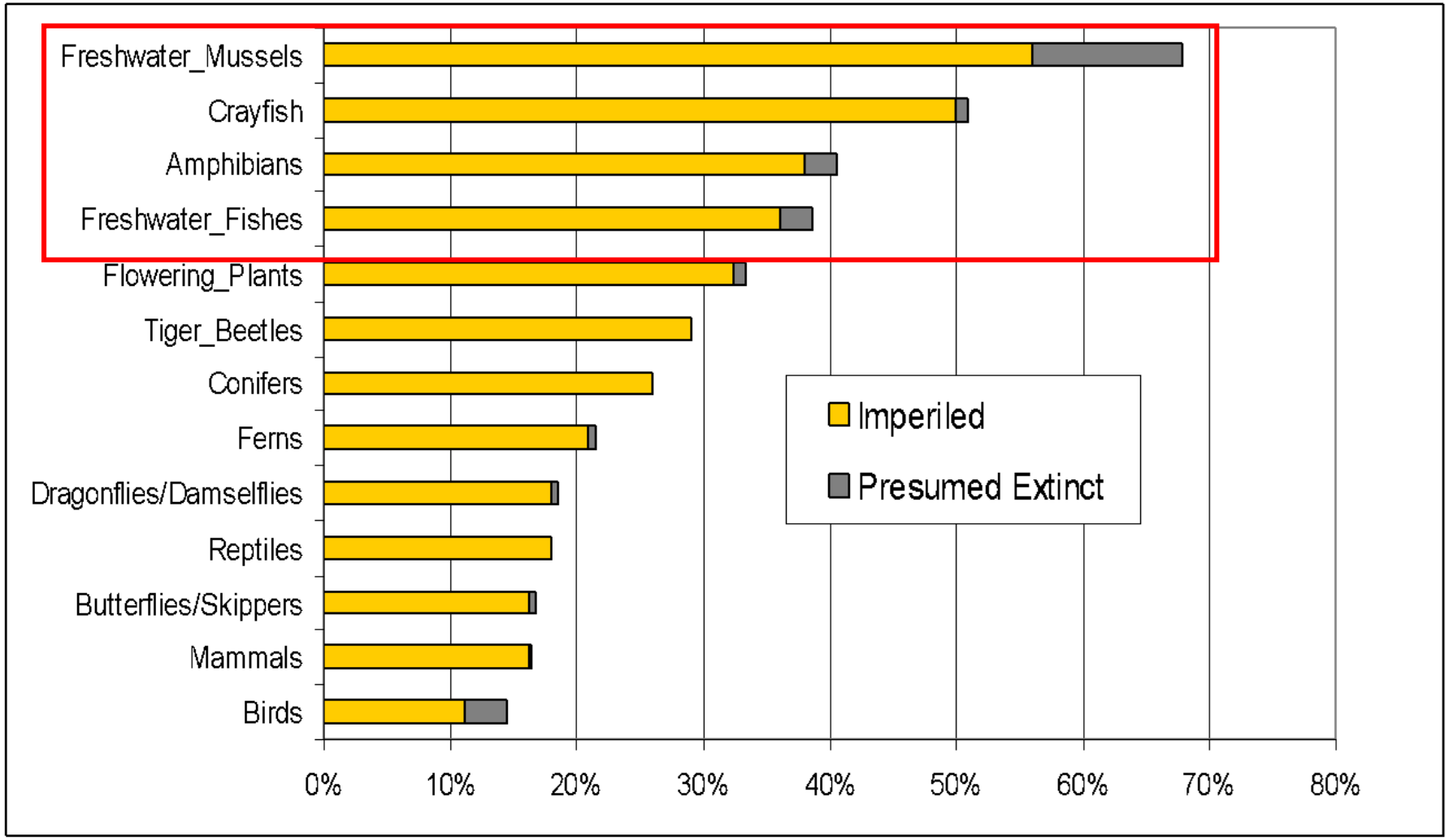


There are more than 10,000 miles of streams in Maryland

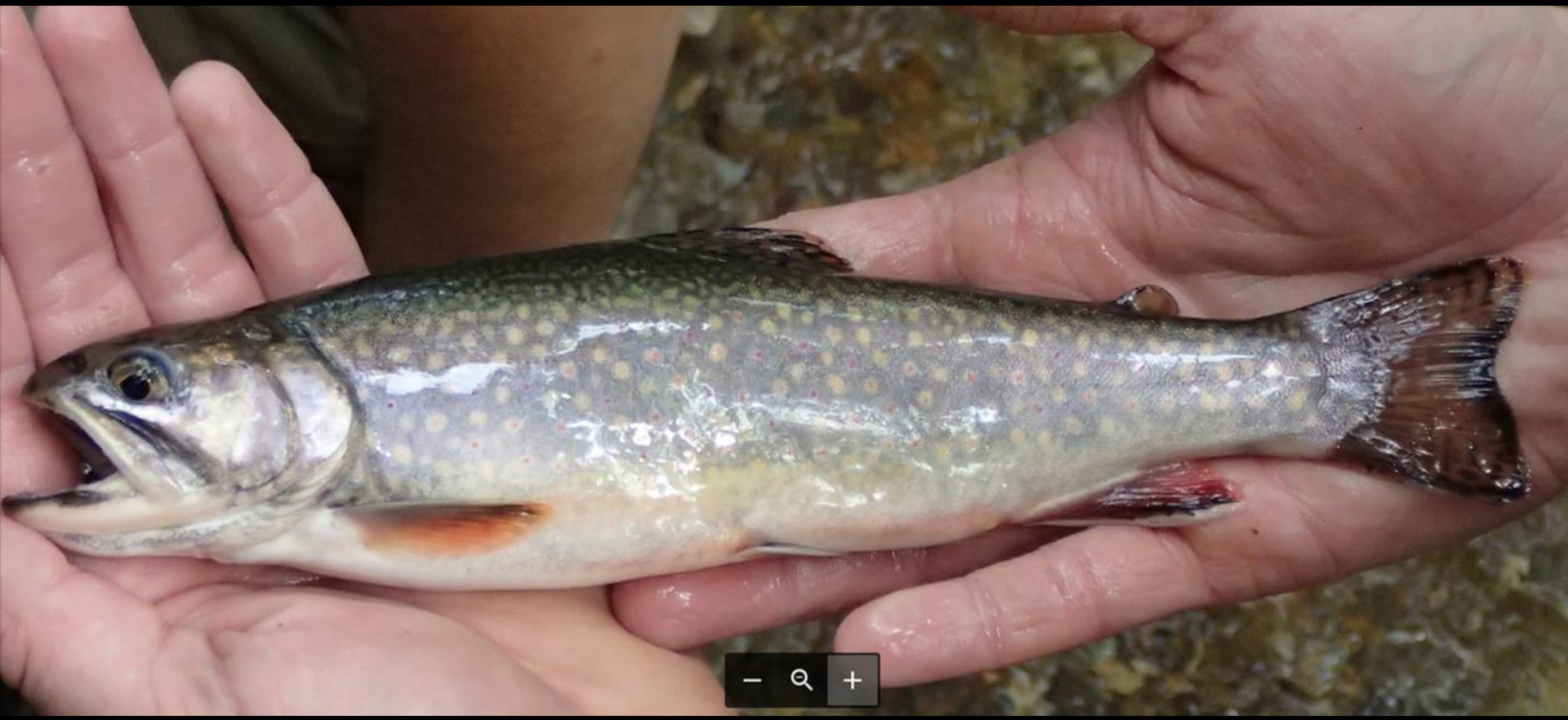


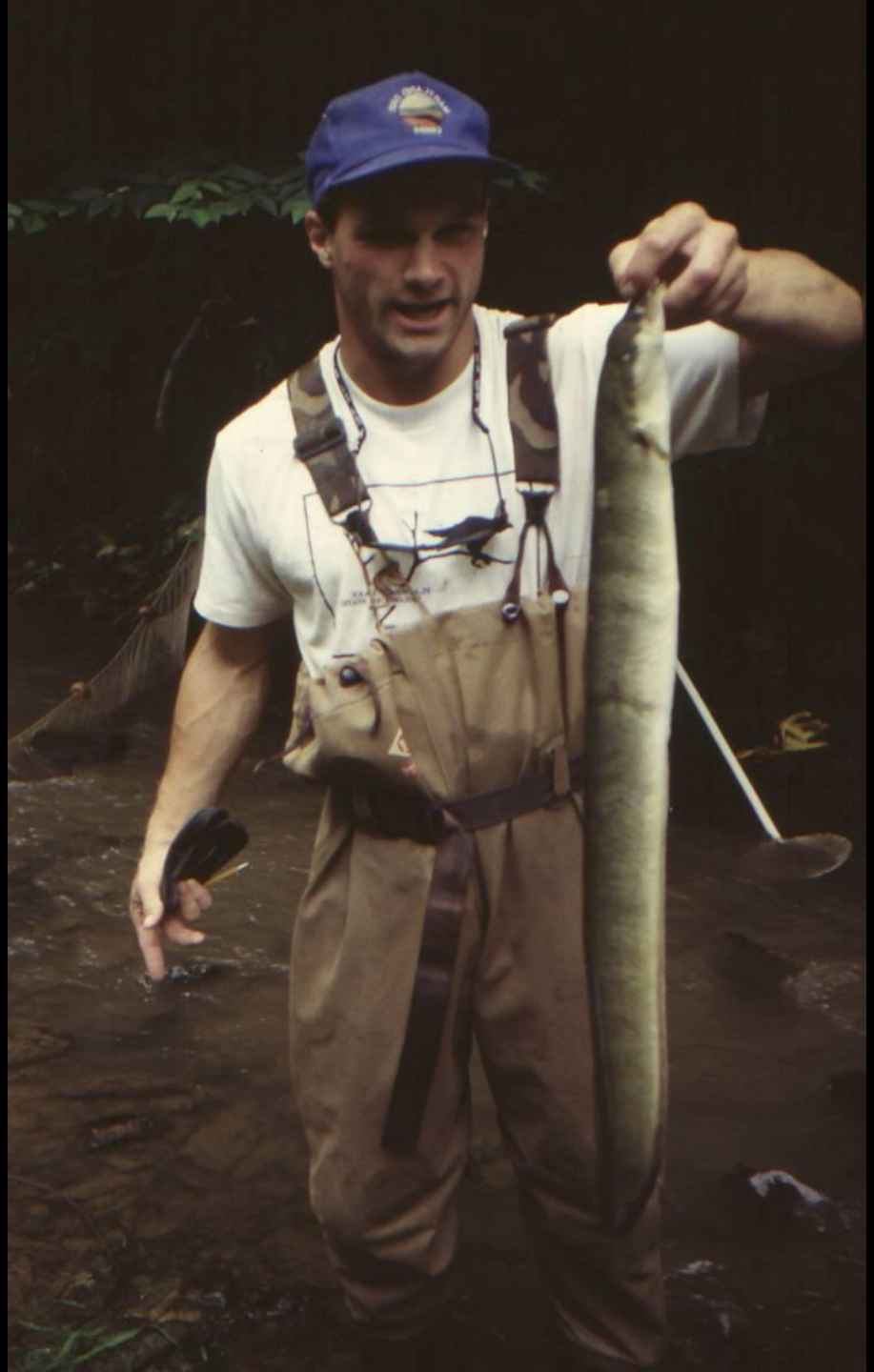
Habitat Examples

Relatively large % of species that live in freshwater streams are imperiled



Imperiled Taxa - United States

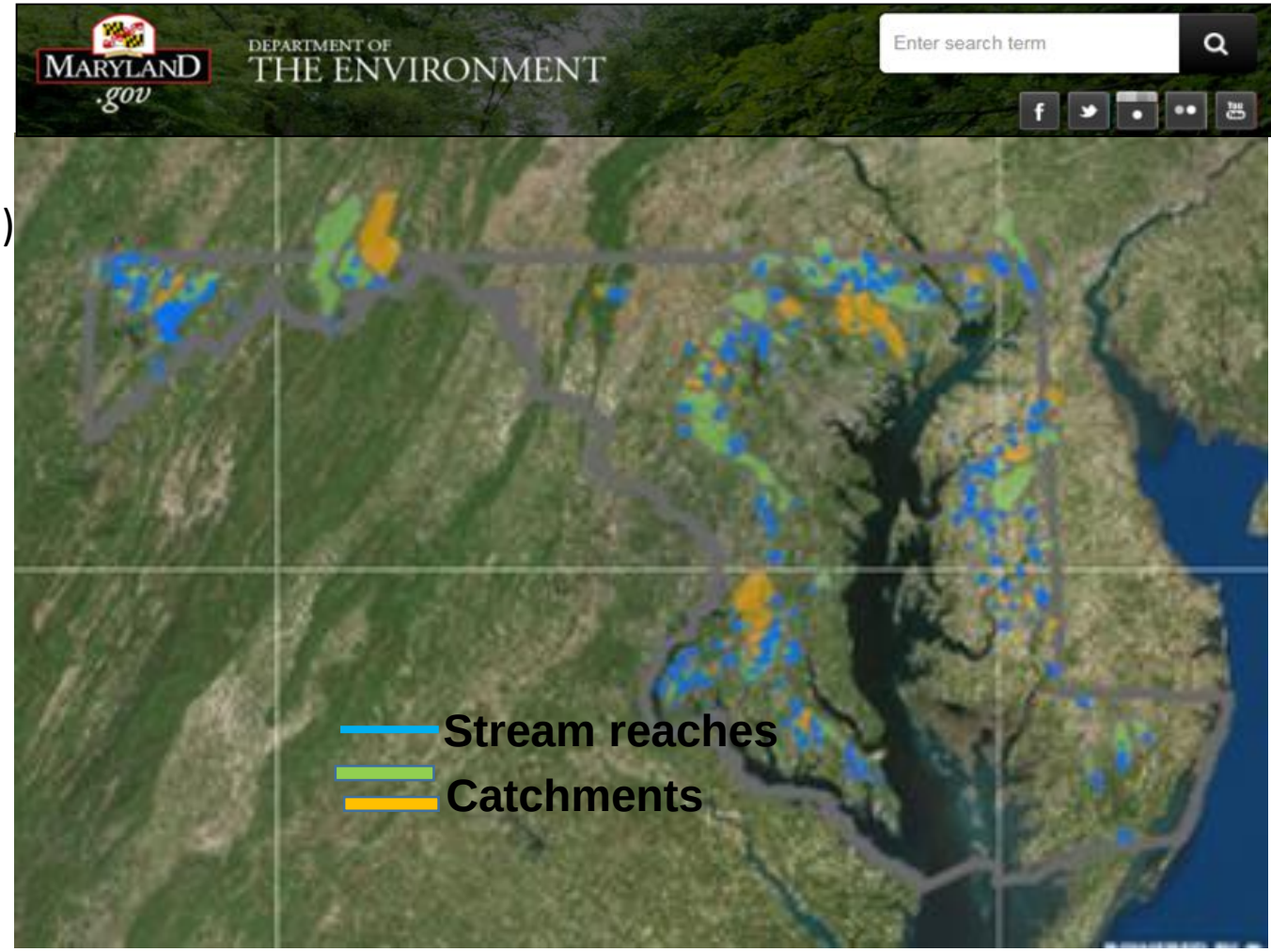




Stream Ecology in Policy and Regulations

Examples:

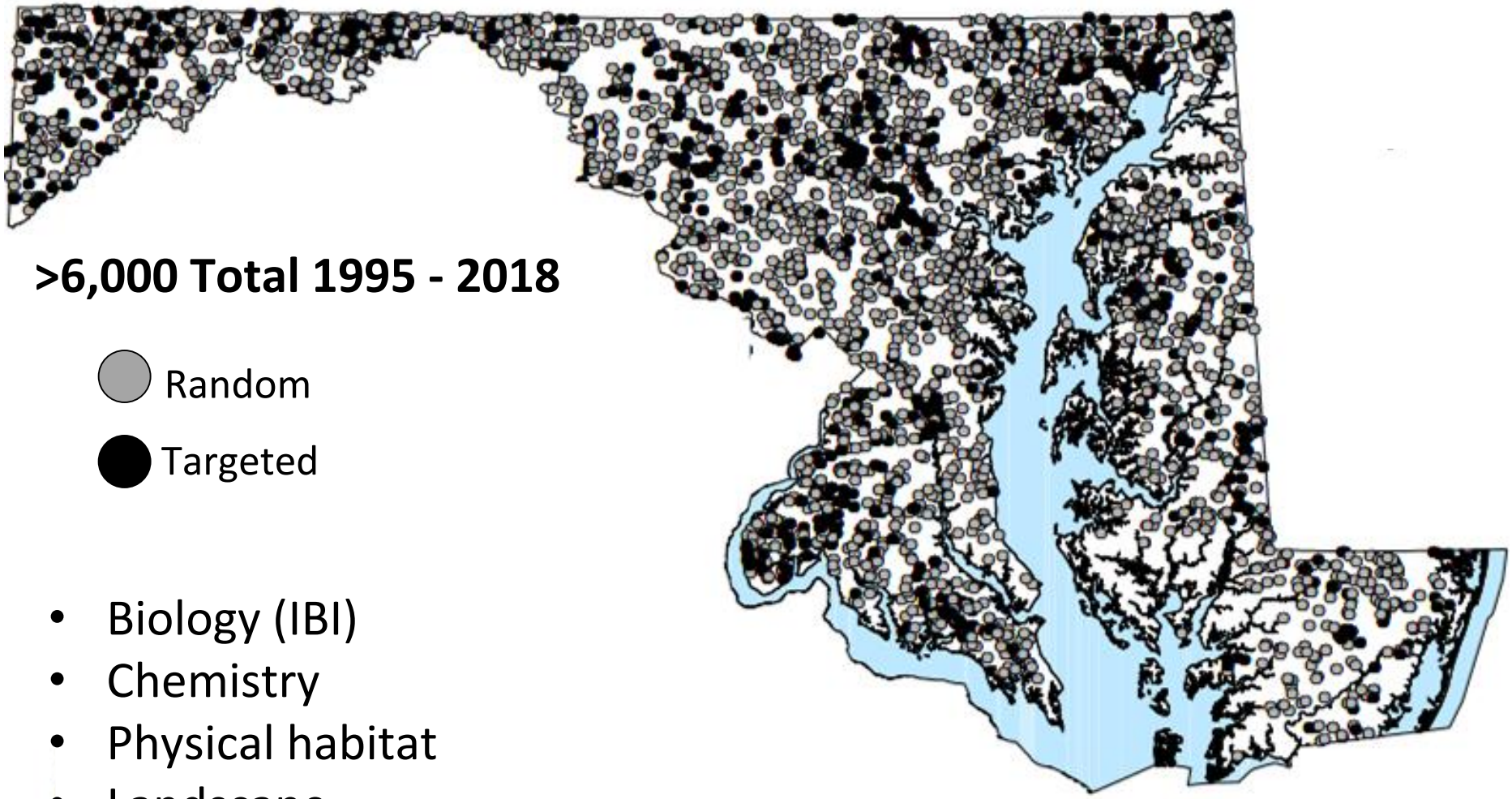
- Anti-Degradation (Tier II)
- Impaired Waters
- Biological Stressor ID
- Endangered Species
- Water Quality Criteria
- Designated Uses



Chesapeake Bay Program
Science. Restoration. Partnership.

Stream Health
Management Strategy
2015–2025, v.2

Maryland Biological Stream Survey Sites



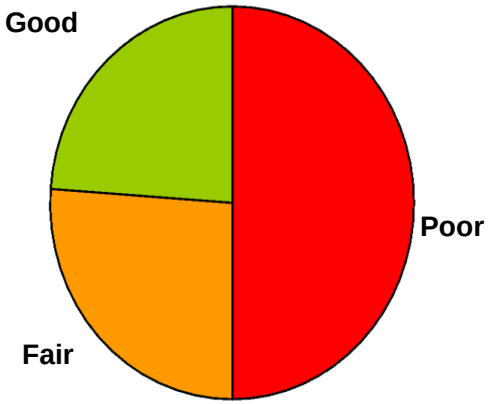
>6,000 Total 1995 - 2018

Random

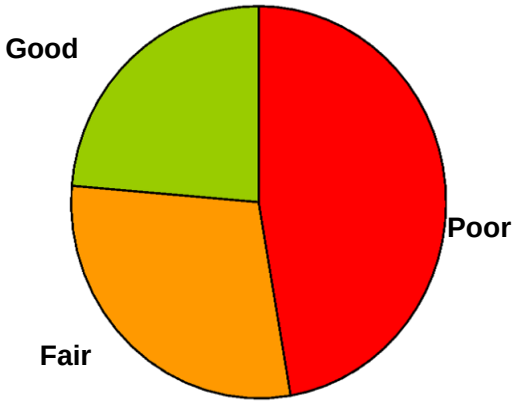
Targeted

- Biology (IBI)
- Chemistry
- Physical habitat
- Landscape

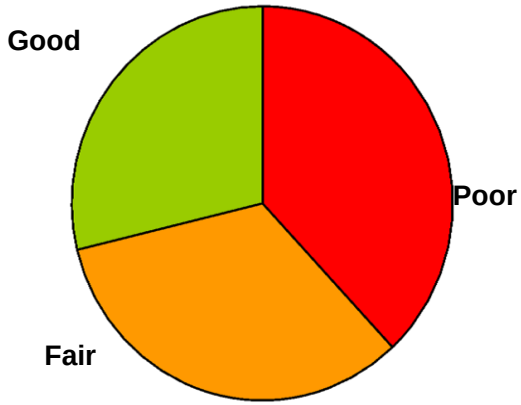
Are Stream Conditions Improving?



Round 1
1995 - 1997



Round 2
2000-2004



Round 3
2007 - 2009

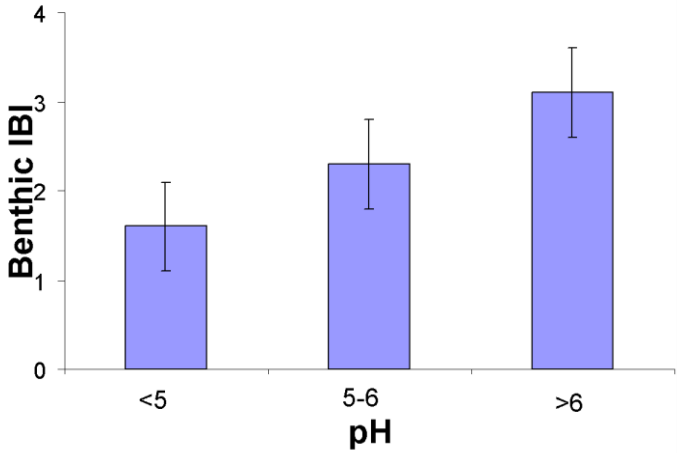
Reasons we might expect stream biological condition to have <u>improved over time</u>

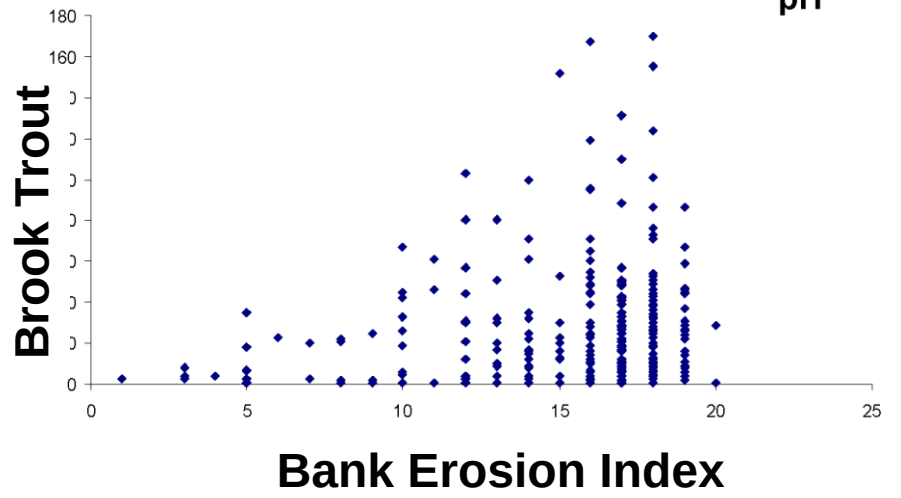
- Restoration
- Nutrient reduction
- Less acidic deposition
- Stream buffer plantings
- Increased land purchases and easements
- Improved farming practices
- Improved connectivity
- Anti-degradation (and other) regulation
- Clean air efforts
- Improvements in stormwater management

Reasons we might expect stream biological condition to have <u>worsened over time</u>

- Increased human population and urban development
- Global climate change
- Emerging contaminants
- Invasive species

Biology associated with physical and chemical variables





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