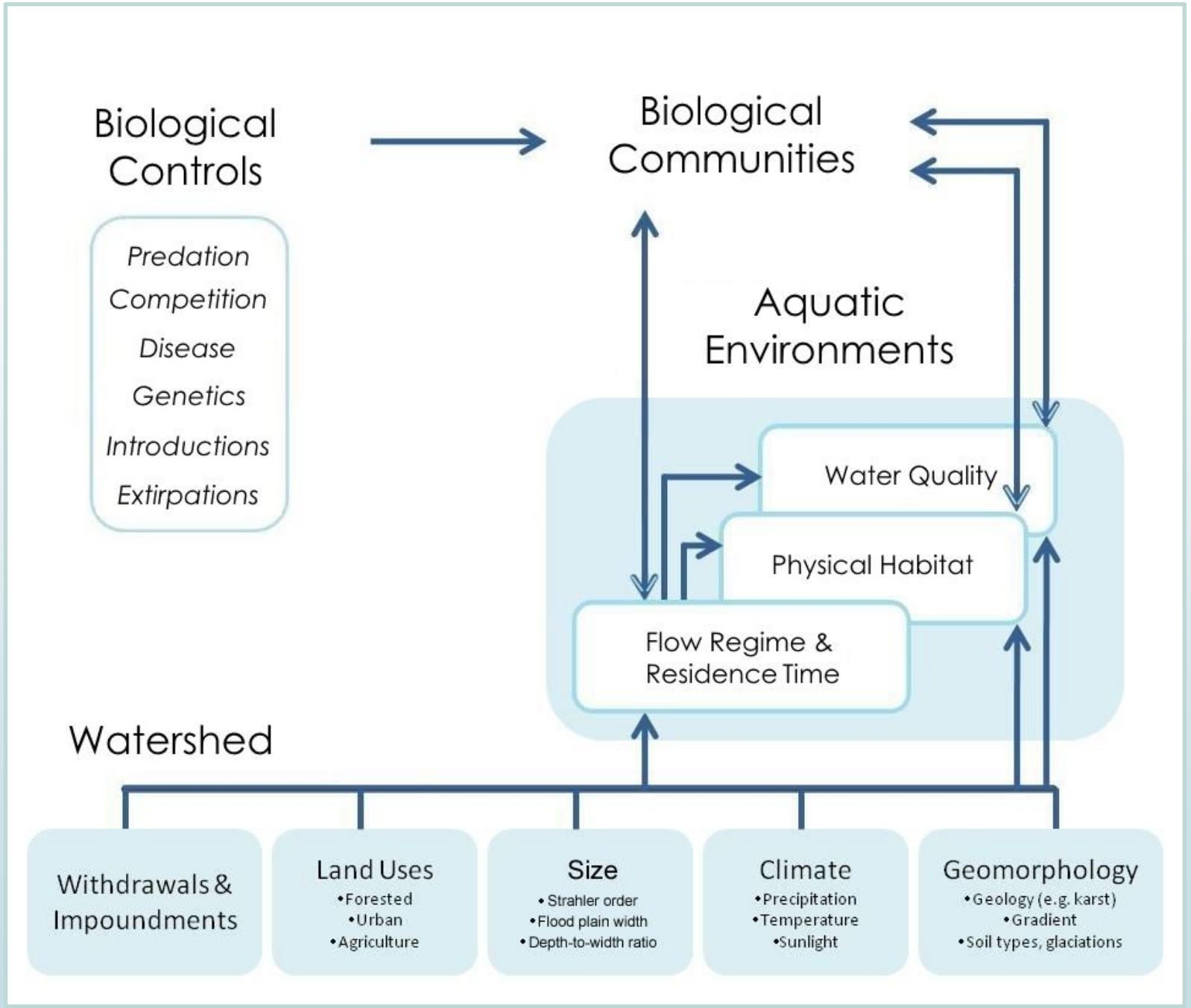
Challenge Area: Ecological Health

.. to ensure the propagation and growth of balanced, desirable populations of aquatic life

Potomac Comprehensive Plan Advisory Committee Meeting

September 8, 2017

ECOLOGICAL HEALTH



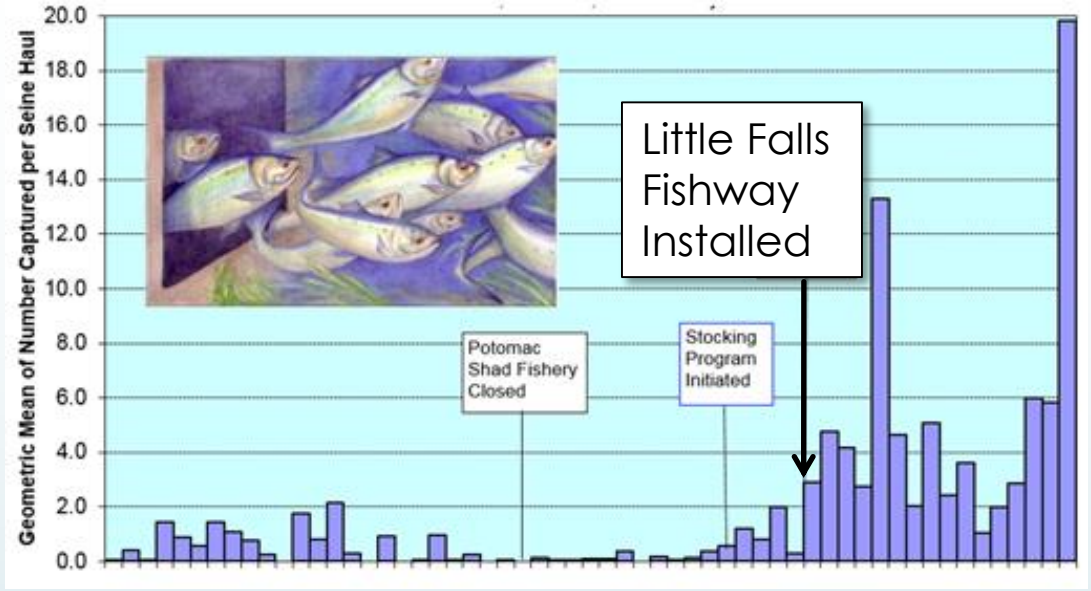
MAJOR THREATS

- Eutrophication
- Contaminants
- Overexploitation
- Non-Native Species
- Disease & Parasitism
- Habitat Fragmentation
- Climate Change & Sea Level Rise

TOOLS

- Indicators

American Shad Young-of-Year

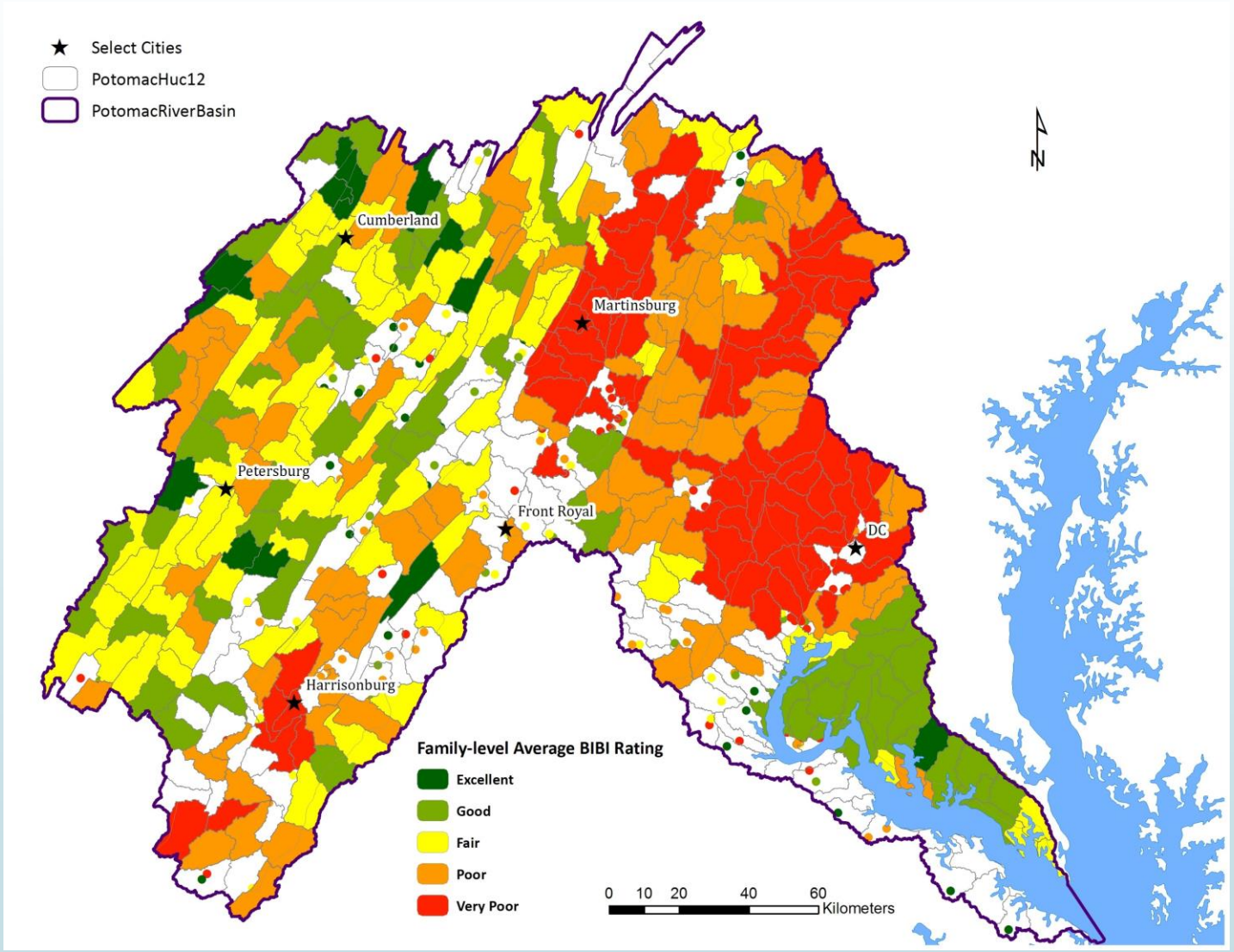


1959– 2015 (MDDNR Juv. Striped Bass Survey)

TOOLS

- Indicators
- Indices

Chesapeake Basin-Wide Index of Biotic Integrity, or "Chessie BIBI" 1985 – 2015



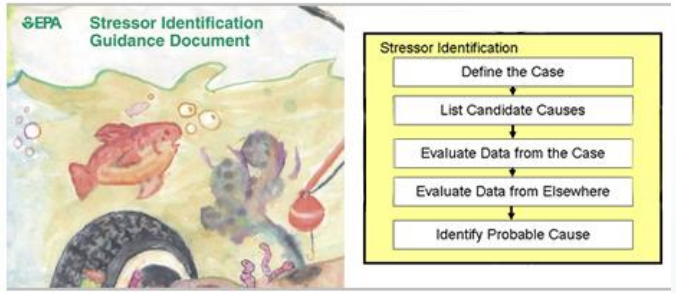
TOOLS

- Indicators
- Indices
- Models

The Bay Ecosystem, by Greg Harlin

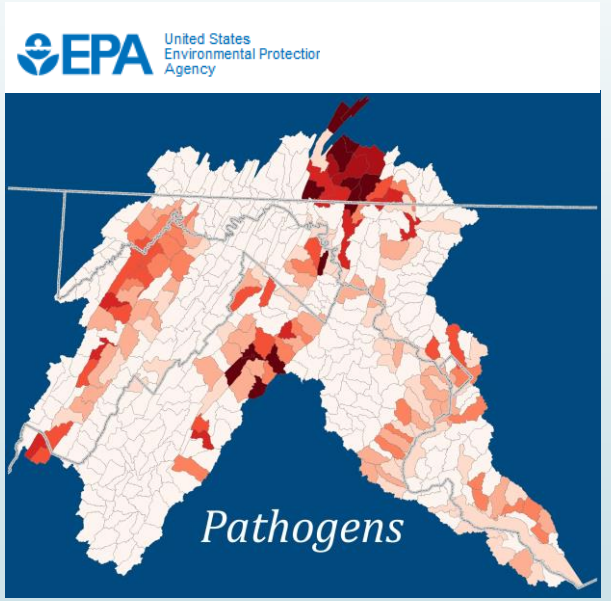
TOOLS

- Indicators
- Indices
- Models
- Diagnostic/Decision



CADDIS: The Causal Analysis/Diagnosis Decision Information System

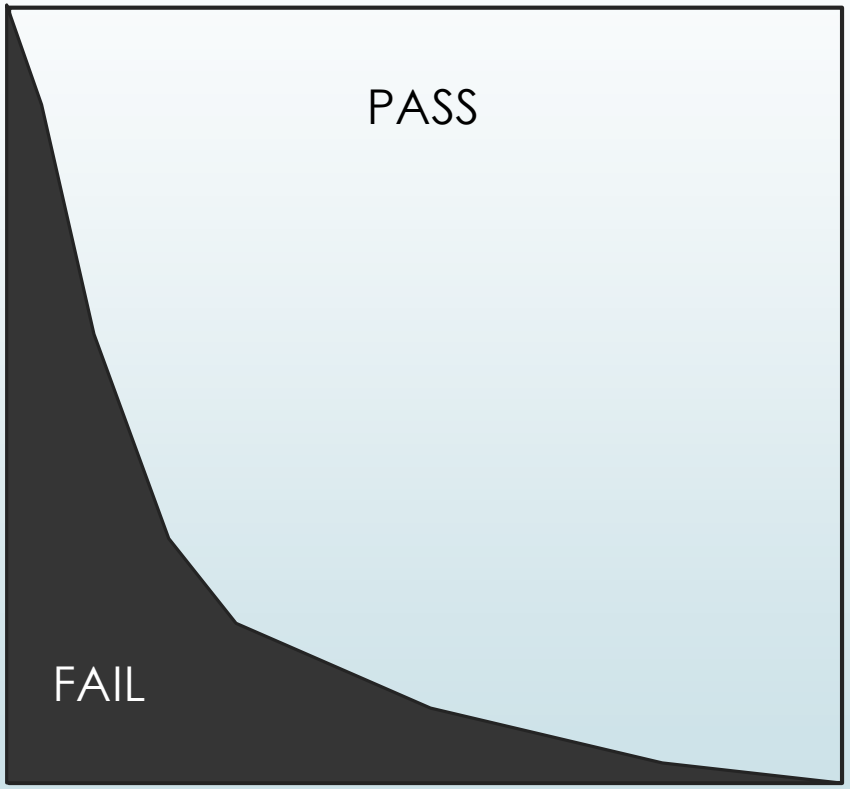
Chesapeake Bay Oyster Decision Support Tool



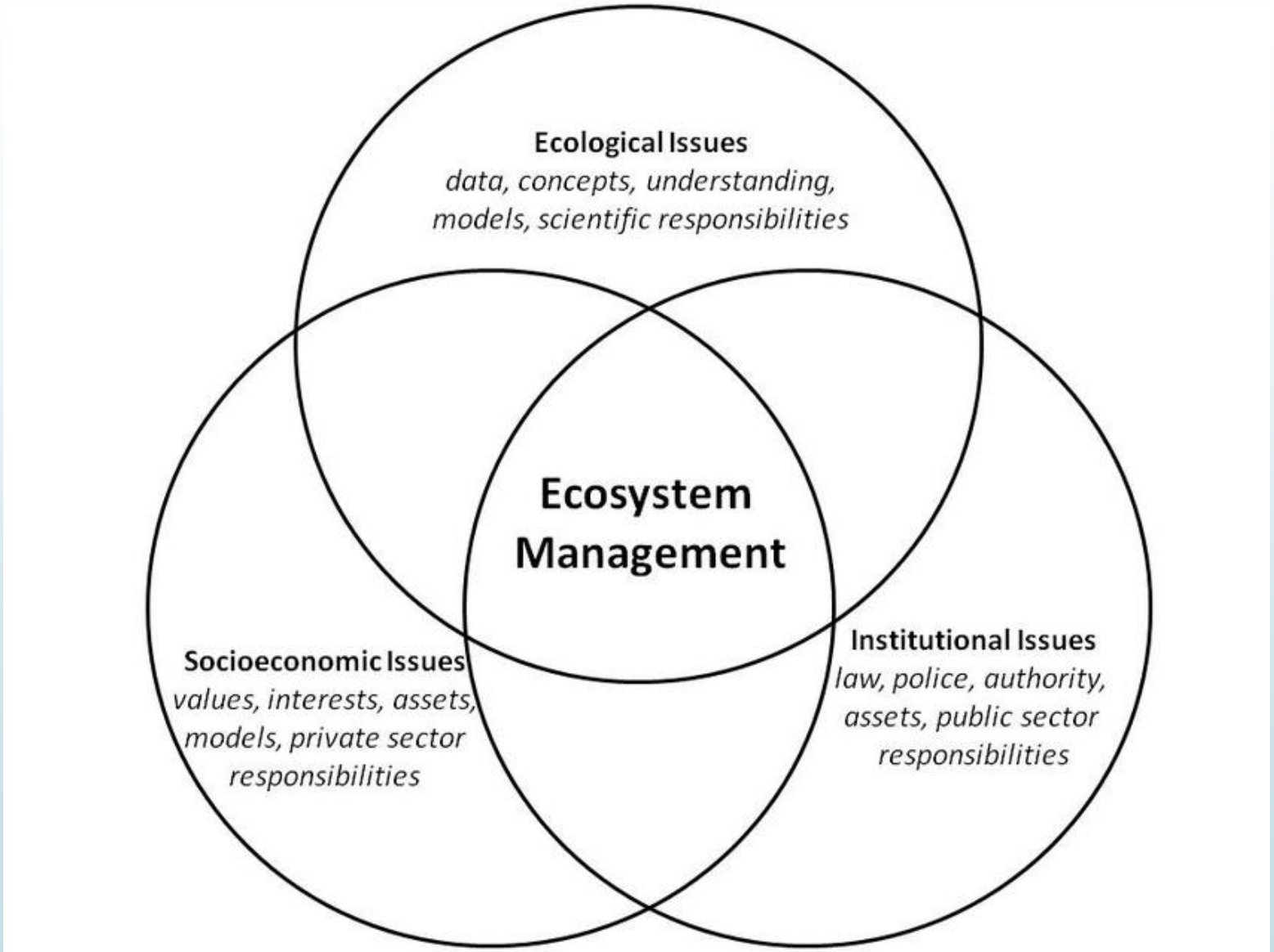
Recovery Potential Screening: Impaired Waters Restorability

TOOLS

- Indicators
- Indices
- Models
- Diagnostic/Decision
- Biocriteria



MANAGEMENT



Three major contexts of ecosystem management. Adapted from Meffe et al. (2002).

CHALLENGES – December 1, 2016

Initial Advisory Committee (AC) Suggestions

- Protecting water quality and flow regimes that sustain biological diversity and health (**ecosystem resiliency**)
- Restoring and protecting wetlands and large continuous tracts of forest (**ecosystem resiliency**)
- Promoting native species & reduce invasive species (**ecosystem resiliency**)
- Conserving and protecting high quality aquatic habitats (**refugia protection**)

MAJOR CHALLENGES AND DRAFT RECOMMENDATIONS – September 8, 2017

1. Data/information exchange

a. Share across jurisdictions data, analysis results, and information on successful restoration approaches
b. Encourage use of comparable sampling and analysis methods
c. Compile biological monitoring data in basinwide databases / maps

2. Stressor identification

a. Identify causes of intersex fish
b. Identify causes of fish kills
c. Identify causes of excess filamentous algae

3. Ecological value

a. Build consensus on what is high ecological value
b. Define water quality and quantity protections that improve ecological value
c. Coordinate across jurisdictions plans and programs that protect ecological value
d. Consider narrative criteria when numeric criteria are not available
e. Designate Potomac estuary as critical fish habitat (e.g., Atlantic Sturgeon)

MAJOR CHALLENGES AND DRAFT RECOMMENDATIONS – September 8, 2017

4. Refugia protection

a. Develop tools to identify habitats & waters with high ecological value
b. Prioritize for preservation habitats & waters with high ecological value
c. Conserve/protect habitats & waters with high ecological value

5. Ecosystem resiliency

a. Update master plans & government regulations to ensure ecological protections
b. Maintain recreational fisheries resources
c. Support and coordinate programs that promote native aquatic species
d. Restore and protect functioning wetlands to improve ecological health
e. Protect water quality and flow regimes that sustain biological diversity and health
f. Identify actions that reduce the impact of non-native aquatic species
g. Anticipate and prepare for impacts of climate change and sea level rise
h. Improve coordination between multiple, diverse restoration efforts (e.g., TMDLs; stormwater retention; invasive species management; forest, wetlands, and stream buffer protections; sustainable water allocation) to maximize recovery potential of aquatic habitats and biological communities