

Wisconsin's Approach to Prioritizing Waters for Restoration Planning

Ashley Beranek, *Integrated Report Coordinator*

Kevin Kirsch, *TMDL Development Coordinator*

Wisconsin DNR - Water Quality Bureau

Wisconsin's Water Quality Restoration and Protection
Prioritization Framework

Final Draft

Clean Water Act Section 303(d) Long-Term Vision
Implementation of the Priority Goal for Total Maximum Daily
Load or Alternative Plan Development



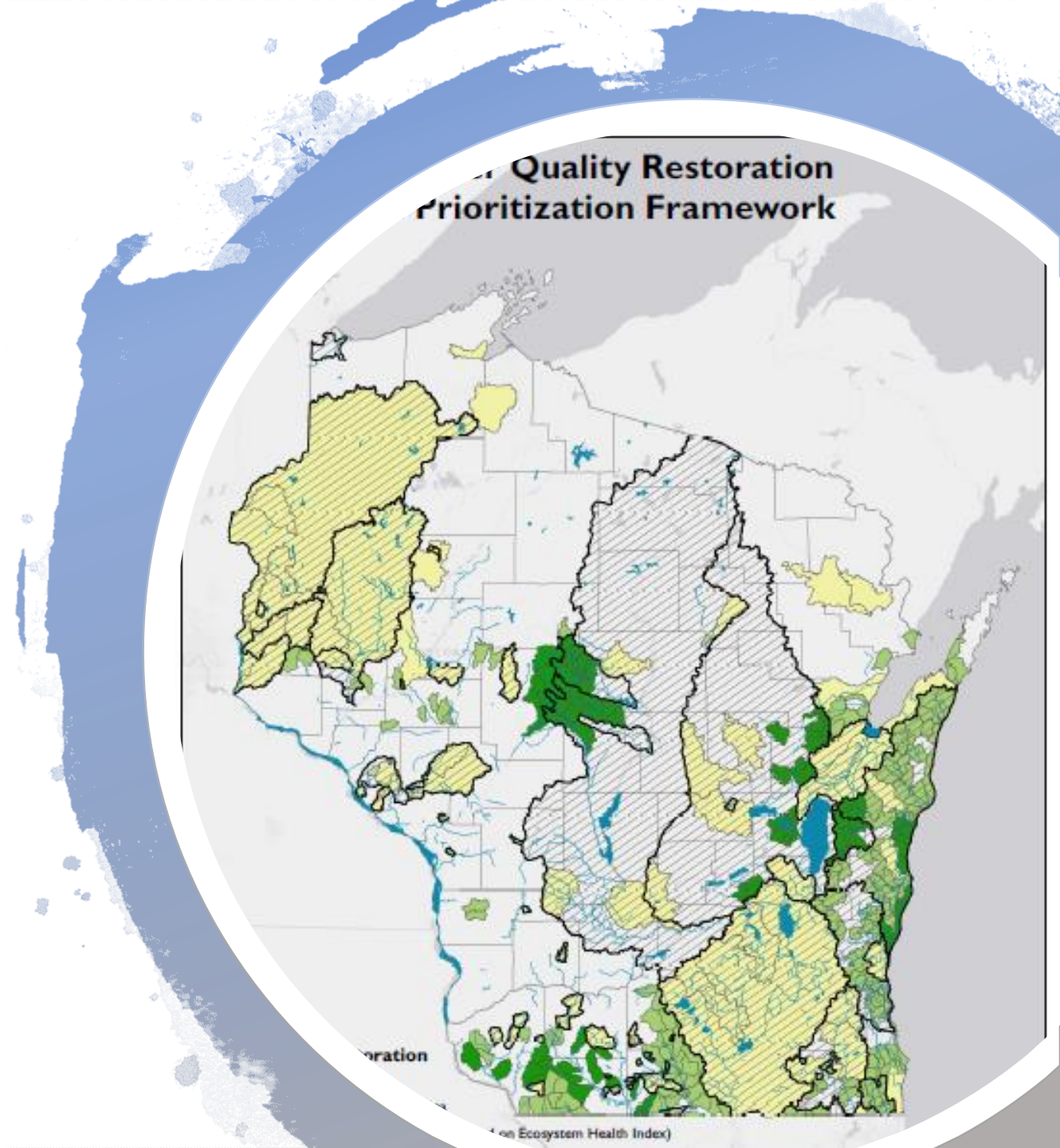
Wisconsin Department of Natural Resources
Water Quality and Watershed Management Bureau

July 27, 2015



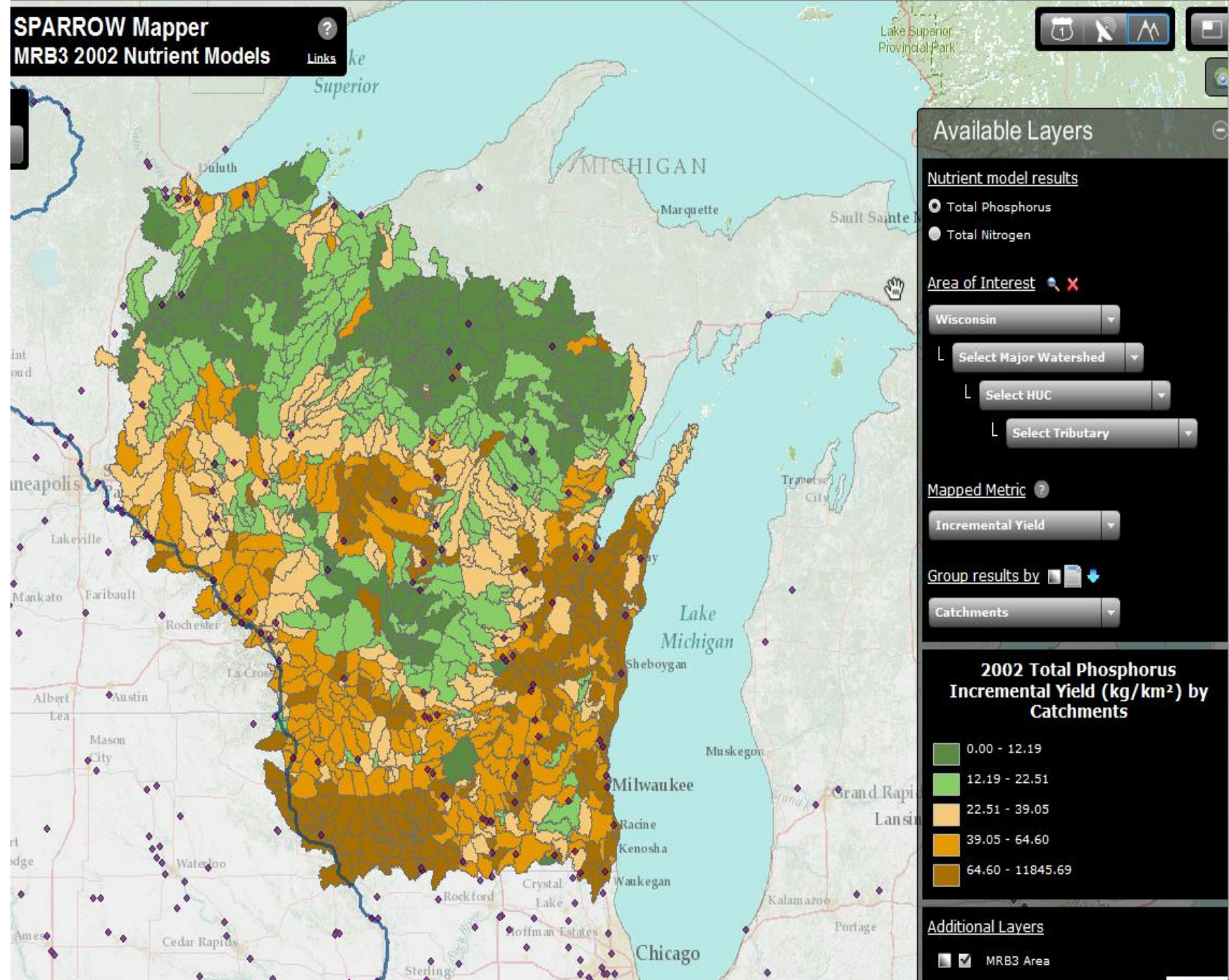
Prioritization Under Vision 1.0

- Prioritization based on pollutant loadings and water quality data.
- Prioritization based on aquatic health and vulnerability.
- Both were combined to produce a prioritization map to help inform TMDL development activities.



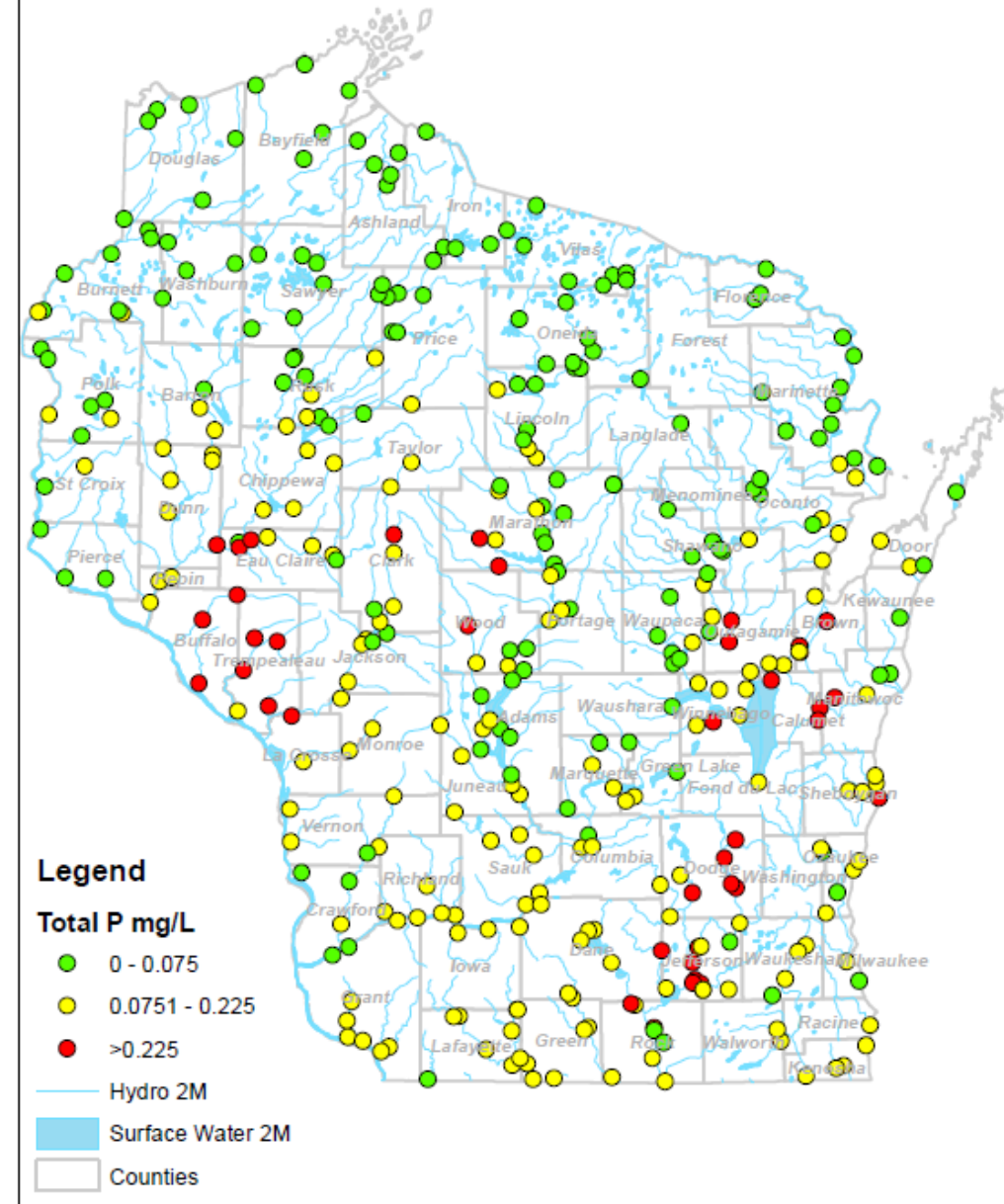
Phosphorus Incremental Yield

- Wisconsin's Nutrient Reduction Strategy used SPARROW.
- SPARROW (**S**PATIally **R**eferenced **R**egression **O**n **W**atershed attributes).
- TP, TN, and TSS

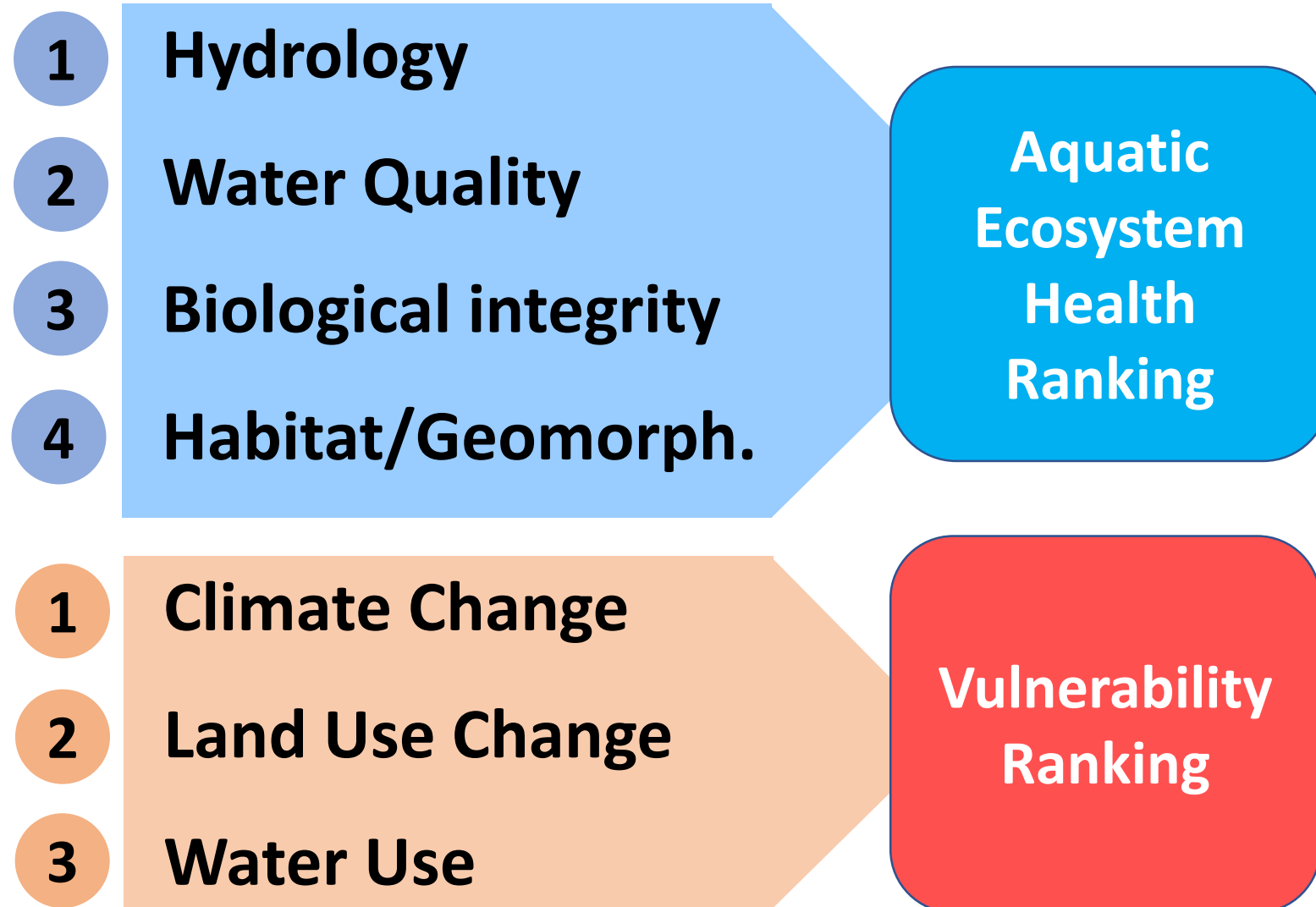


Supplemented with Water Quality Monitoring

- Wisconsin's Nutrient Strategy was used to help priority areas for development of TMDLs and phosphorus reduction plans.
- Watersheds were ranked based on SPARROW model incremental phosphorus yields and median stream concentrations of phosphorus monitored during the growing season.



EPA's Healthy Watersheds Framework



Aquatic Ecosystem Health

Hydrologic Condition

Change in
flow
regime

Habitat Condition/ Geomorphology

Dams

Road crossings

Stream Habitat
Rating*

% Reed canary
grass

Canals/ditches

Water Quality

Nitrogen*

TP*

TSS*

Lake
Clarity

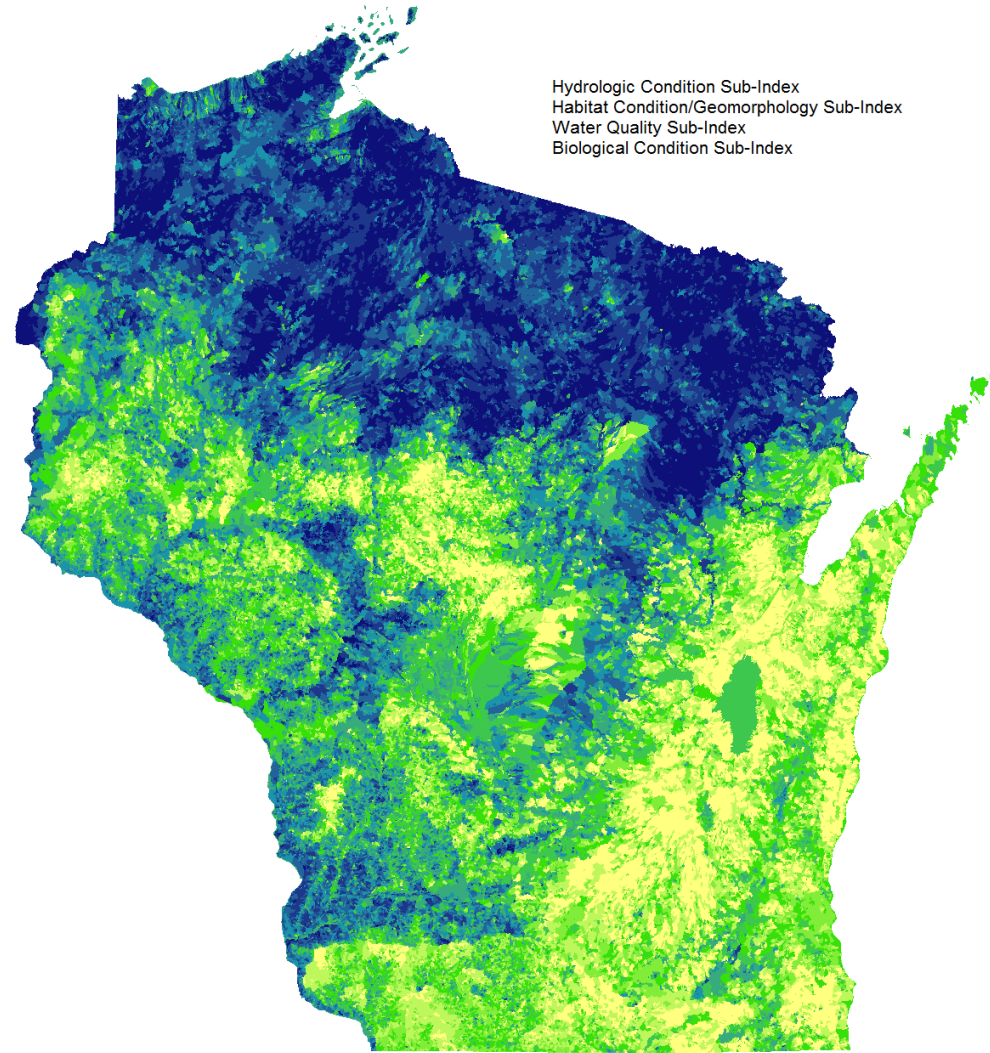
Biological Condition

Aquatic
Insects *

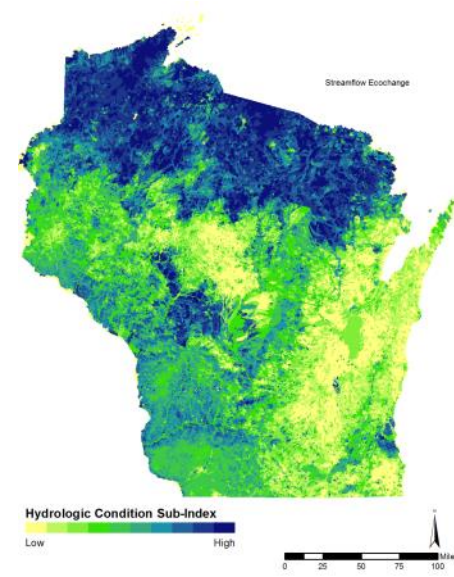
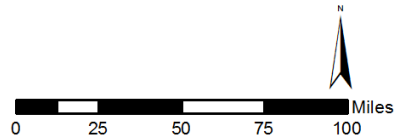


Aquatic Ecosystem Health

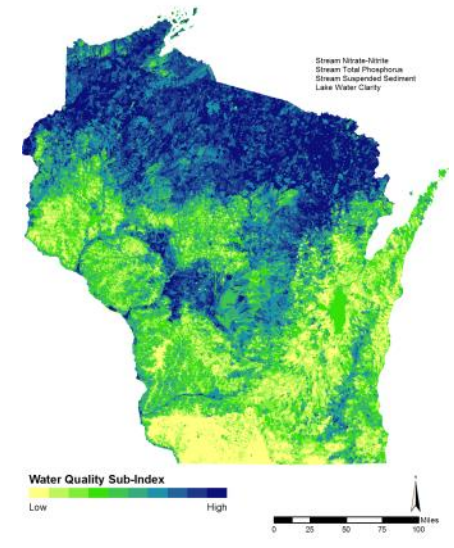
SUBINDICES



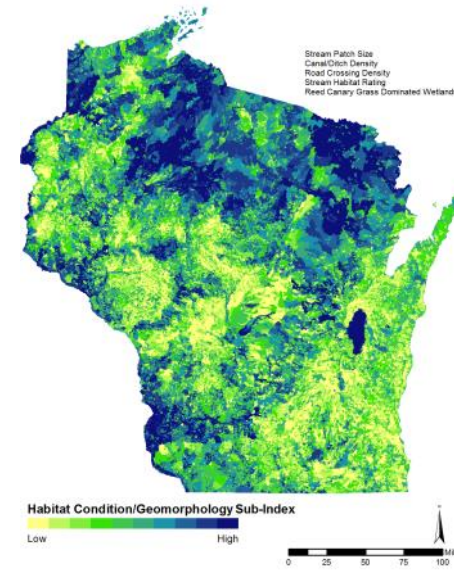
Aquatic Ecosystem Health Index
Low High



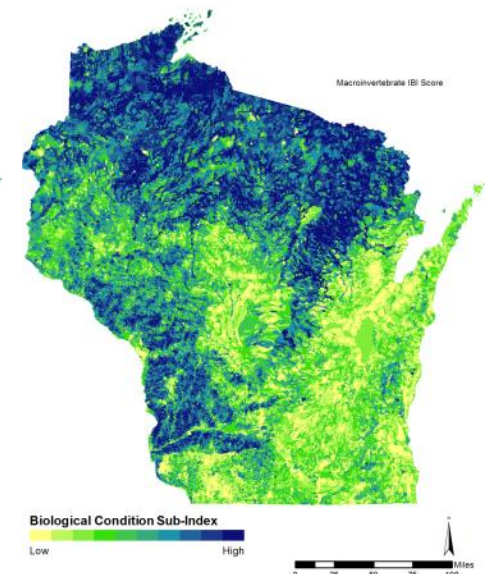
Hydrology



Water Quality



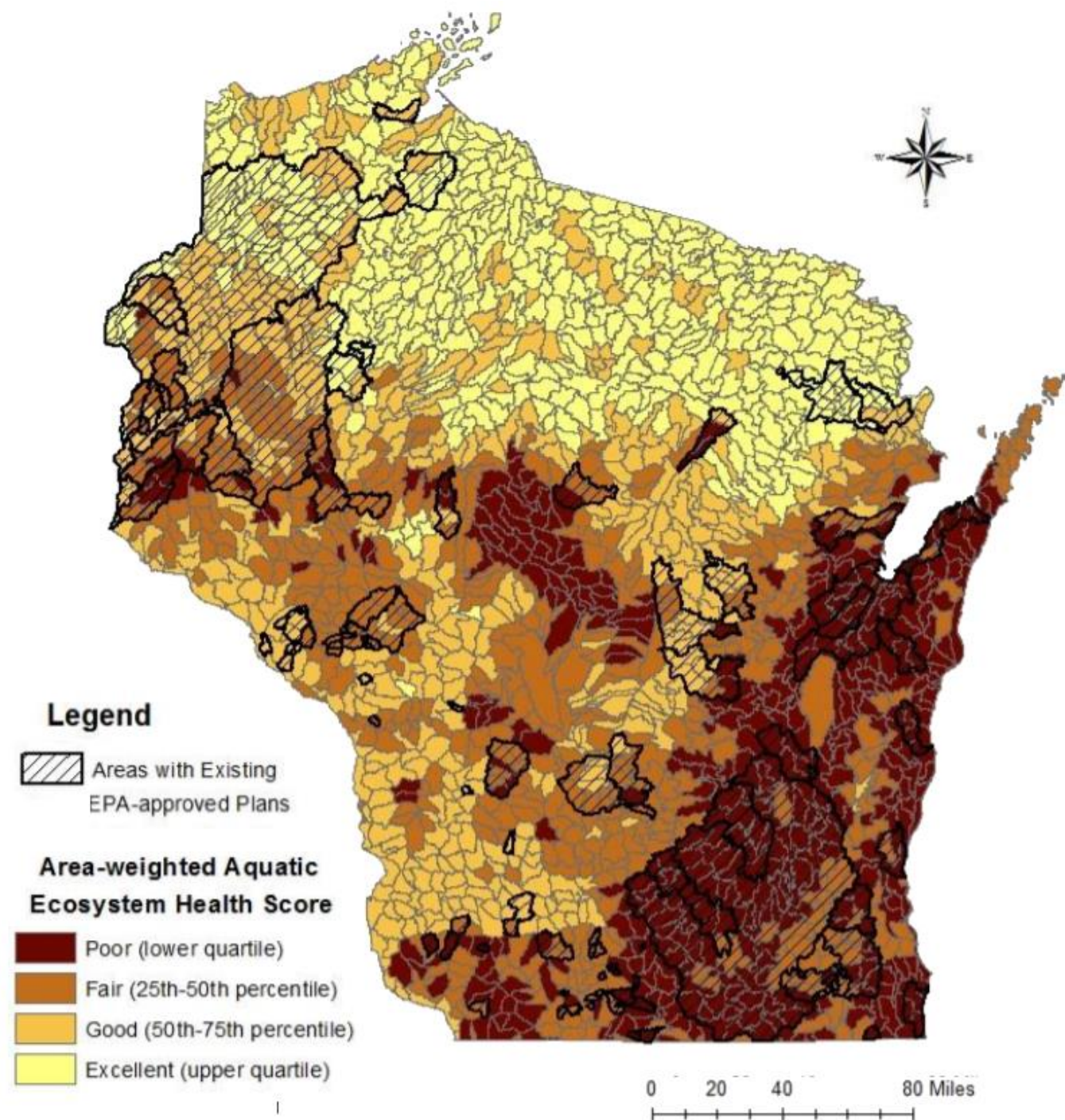
Habitat/Geomorphology



Biology

Restoration Prioritization Framework

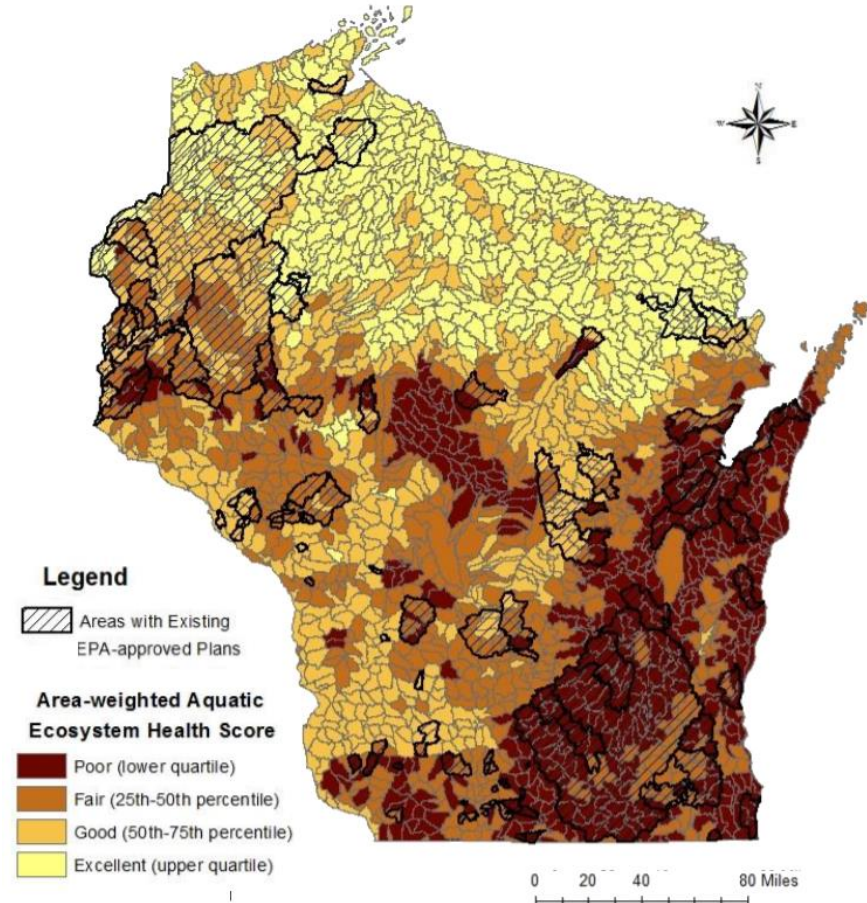
- HUC-12 watersheds ranking in the lower quartile (25% of watersheds with lowest Ecosystem Health scores) were considered restoration plan priority areas for impairments caused by TP and TSS.
- This provided a long-term prioritization that could be coupled with biennial water quality assessments.



How the Prioritization Framework is Applied

Every two years, waterbody / pollutant combinations are placed in one of three TMDL prioritization categories:

- High
 - TMDLs under development
- Medium
 - TMDLs slated for development and waters identified under the prioritization plan (Lowest ecosystem health)
 - Prioritized pollutants (has been TP and TSS)
- Low
 - Impaired Waters in an approved TMDL basin but not explicitly covered by the approved TMDL.
 - Any pollutant not prioritized for TMDL development at the time (chlorides, fish tissue contaminants, e-coli, etc.)

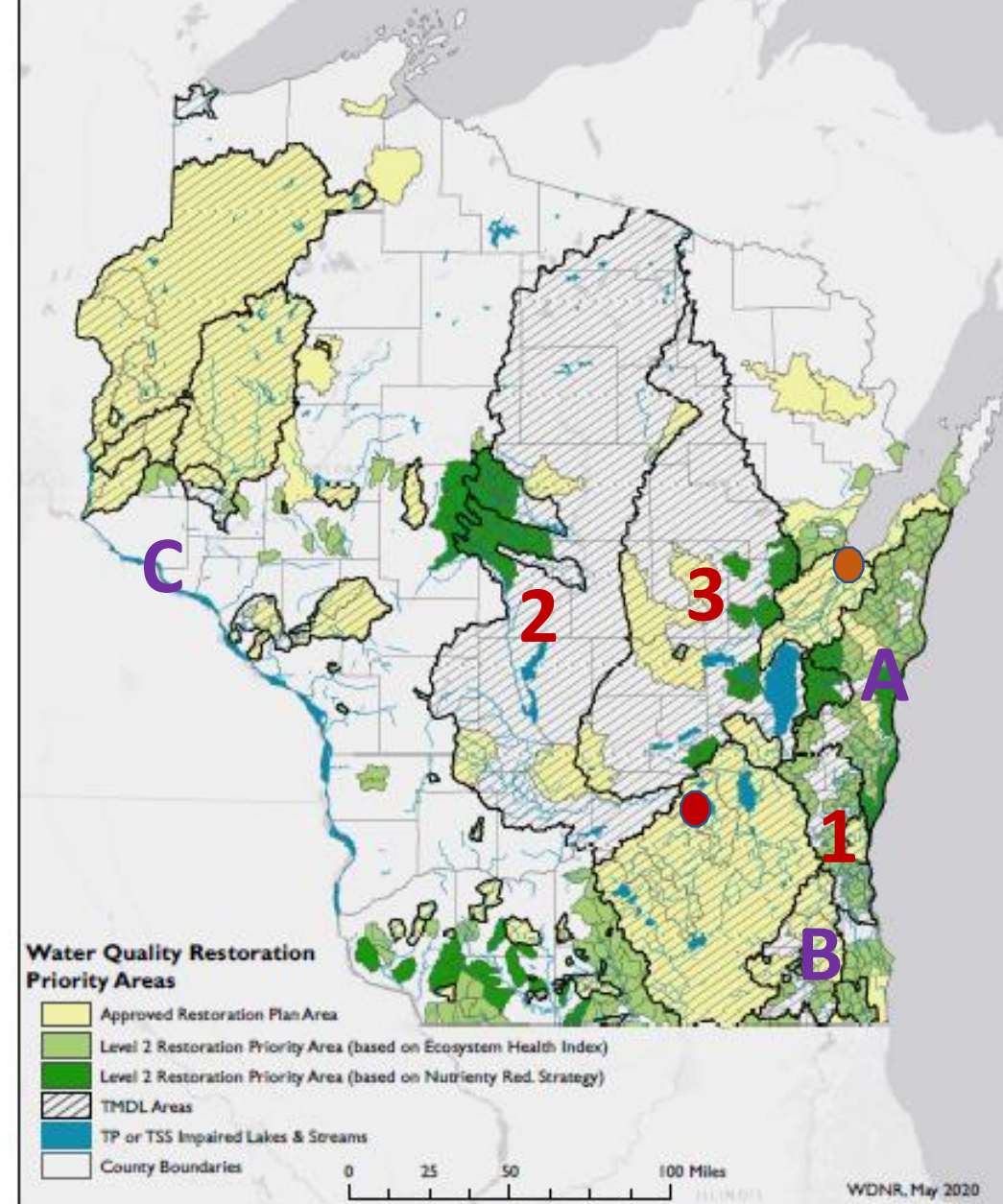


Prioritization under Vision 1.0

- Focused on nutrients (TP) and TSS
- TMDL Commitments: TMDLS Under Development (High)
 1. **Milwaukee River Basin** (TSS, TP, and Bacteria) Approved 2018
 2. **Wisconsin River Basin** (TP) Approved 2019
 3. **Upper Fox-Wolf Basin** (TSS and TP) Approved 2020
- TMDL Priorities (started work on) (Medium to High)
 - A. **NE Lakeshore TMDL** (TP, TSS, and evaluate N)
Likely completed 2022
 - B. **Fox – Des Plaines TMDL** (TP and TSS)
Likely Completed 2024
 - C. **Lake Pepin** (TP and TSS)
Likely Completed in 2023
- TMDL Updates
 - **Beaver Dam Lake TMDL** (TP and TSS) (Result of contested permit)
 - **Lower Fox River Basin TMDL** (TP and TSS) (WLA Re-assignment)

Note: Over 10-year Vision period, for many years WI reported zero TMDLs until completion of the basin scale TMDLs.

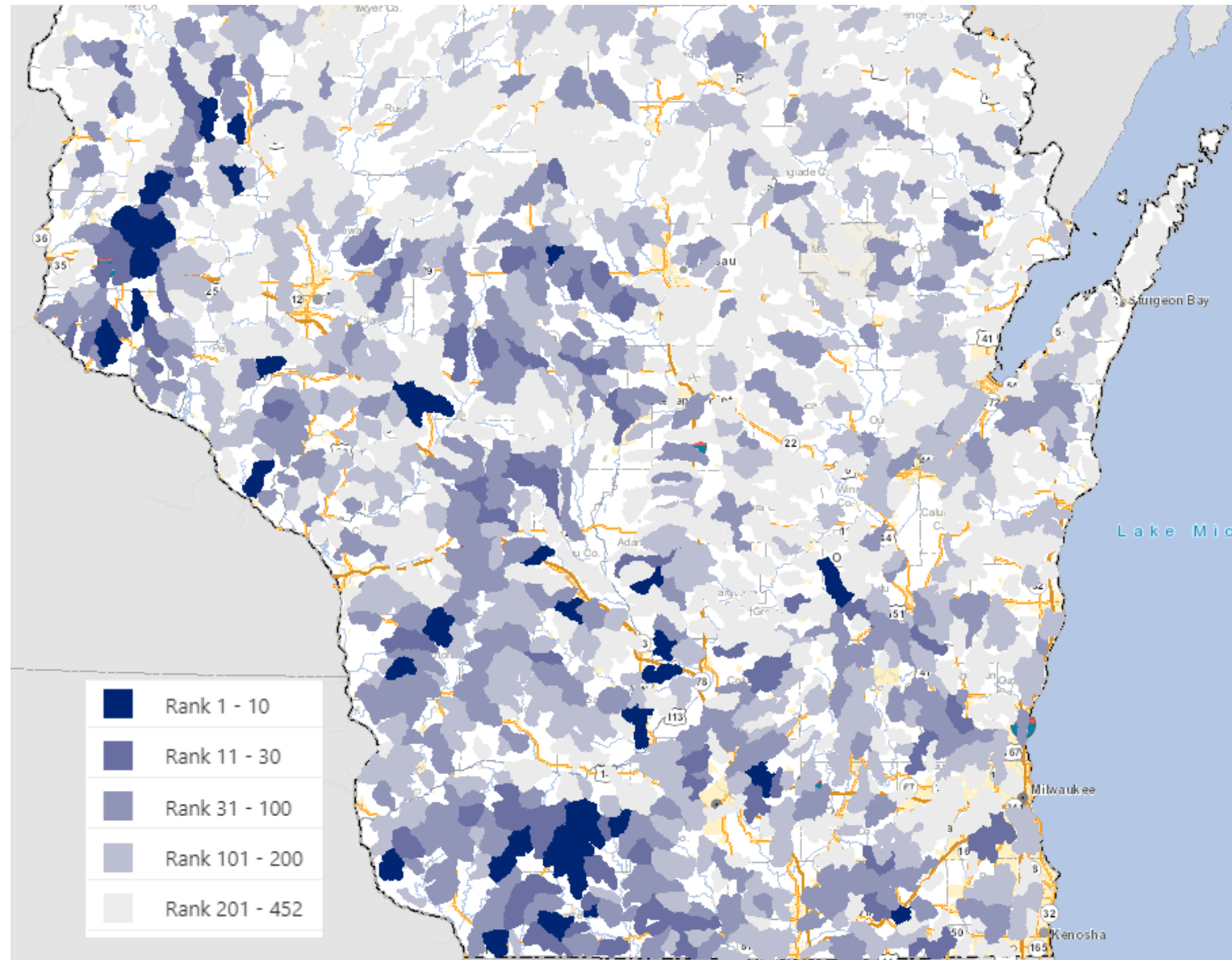
Wisconsin's Water Quality Restoration & Protection Prioritization Framework



Prioritization Version 2.0

- Convened a Workgroup (ongoing)
- Updated Screening Data (ongoing)
- Evaluate Priorities (ongoing)
 - Pollutants
 - Impaired Waters
 - Restoration potential
 - Point Source
 - Legislative Priorities
 - Implementation Resources
- Stakeholder Input
- Public Notice

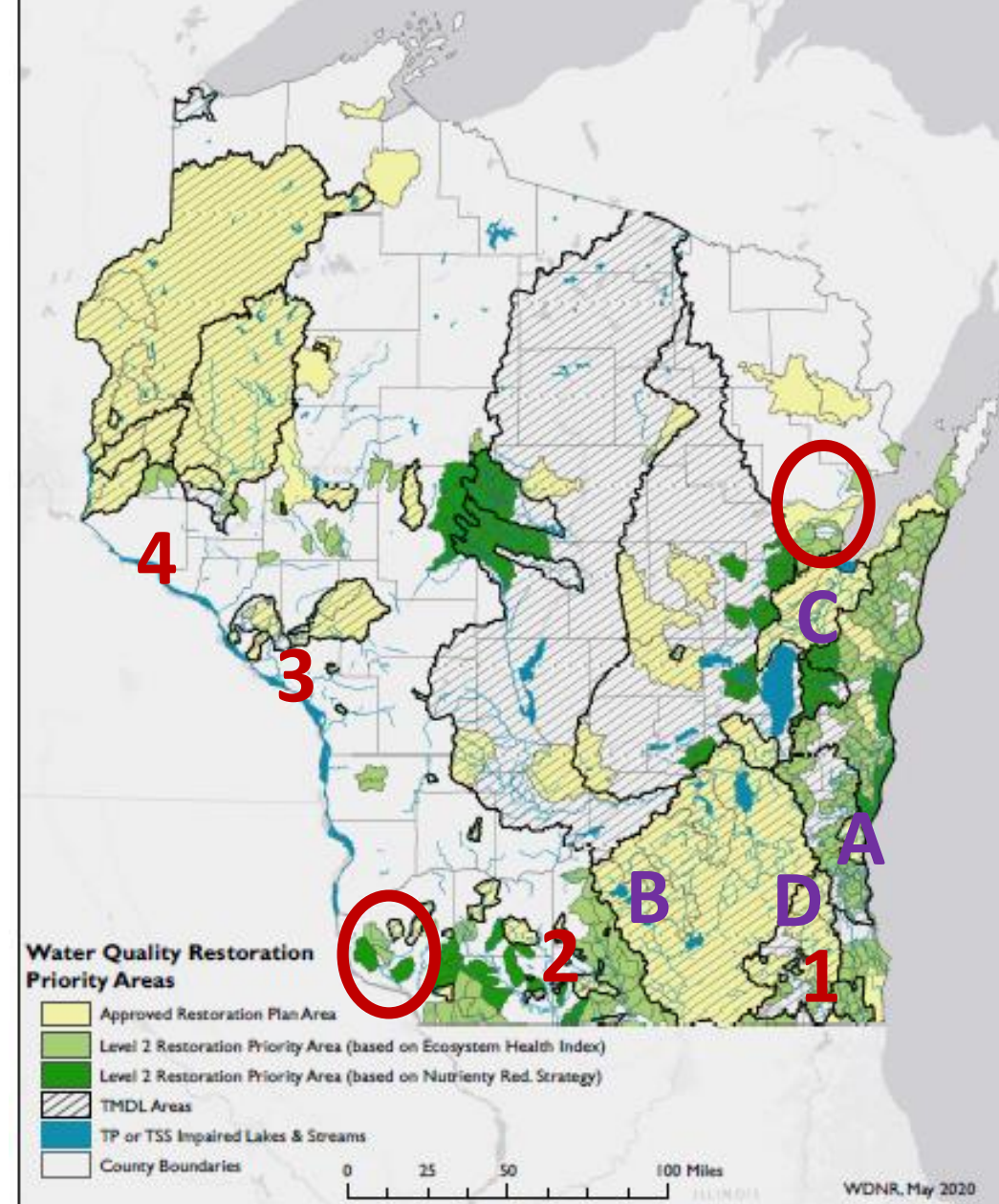
*Wisconsin Buffer Initiative, Restoration Potential for TP and TSS
(Based on watershed loading response and biological response)*



Draft Prioritization Considerations under Vision 2.0

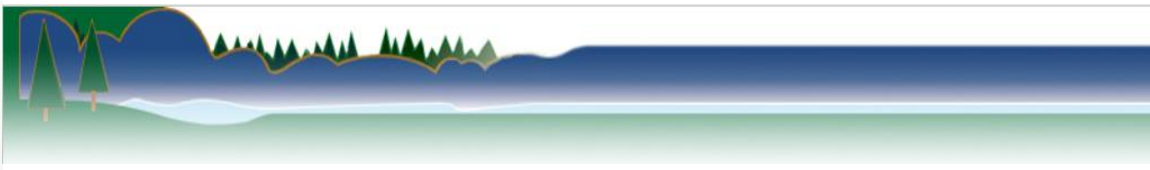
- Likely TMDL Development Commitments (High)
 1. Fox – Des Plaines TMDL (TP and TSS)
 2. Sugar – Pecatonica Basin TMDL (TP and TSS)
 3. Trempealeau River Basin (TP and TSS)
 4. Lake Pepin (TP and TSS)
- Evaluating Chloride TMDLs (Medium or High)
 - A. Milwaukee
 - B. Madison
 - C. Green Bay / Fox Valley
 - D. Fox River
- Alternative restoration approaches such as 9-Element Plans and Adaptive Management Plans (NR 217, Wis. Admin. Code)
- TMDL Updates to address newly listed waters
 - Occurs every two years with new waters either covered by an existing TMDL or likely listed as low priority.

Wisconsin's Water Quality Restoration & Protection Prioritization Framework



Putting it all Together: Prioritization and Measures

- Long-term priority areas and pollutants identified. Created under Vision 1.0 and updating with Vision 2.0.
- Identify core commitments under Vision 1.0 and with 2.0.
- biennial water quality assessments for TP and TSS addressed by “updating” existing TMDLs otherwise assigned a priority of low.
- EPA Region 5 afforded enough flexibility in Vision 1.0 to address unexpected issues and changes. All signs point toward this also being the case with Vision 2.0.



Wisconsin's Water Quality Restoration & Protection Prioritization Framework

