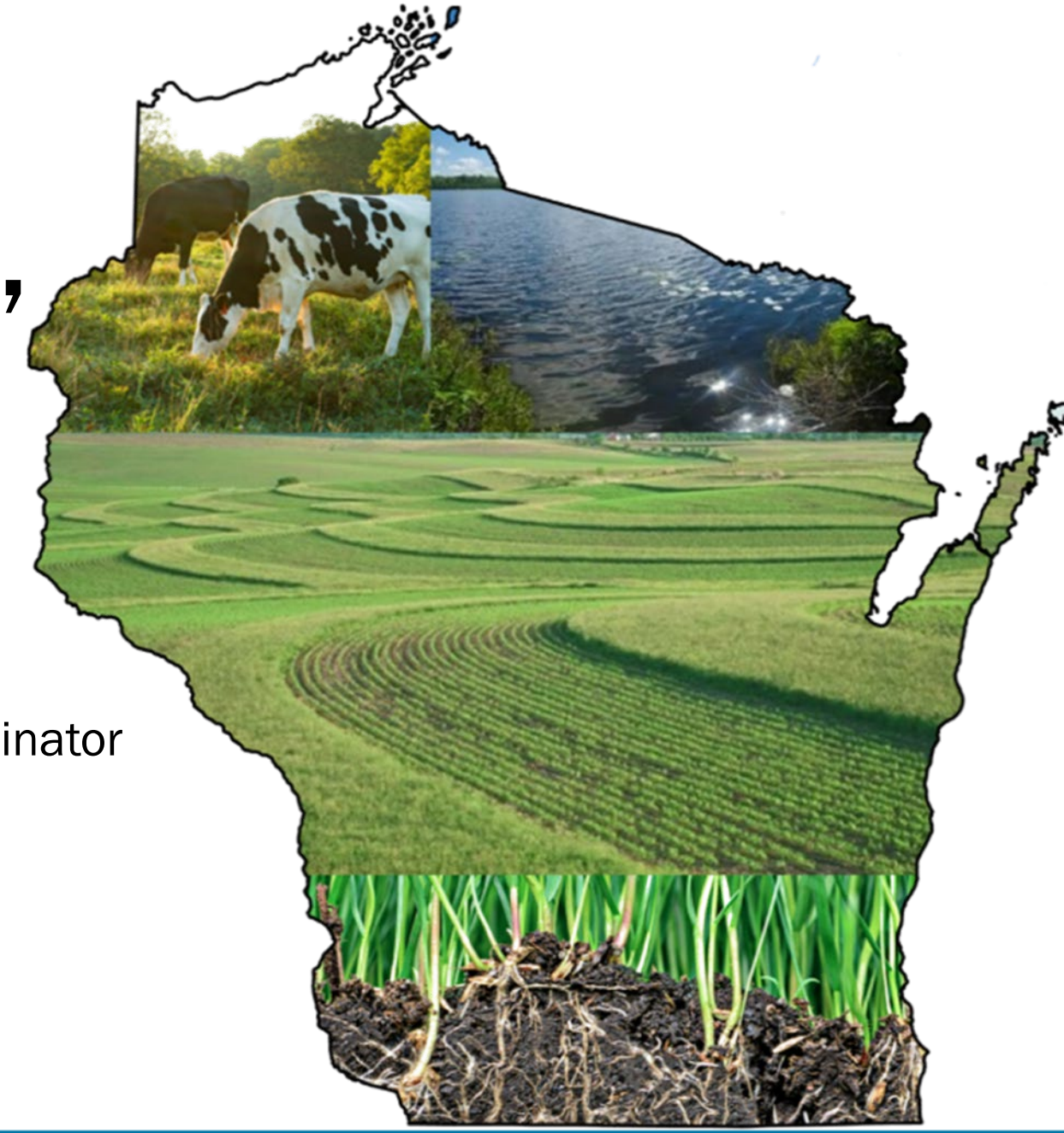
TMDL Tracking – Watcha been up to, and how's the water?



Pat Oldenburg – Wisconsin River Basin TMDL Coordinator

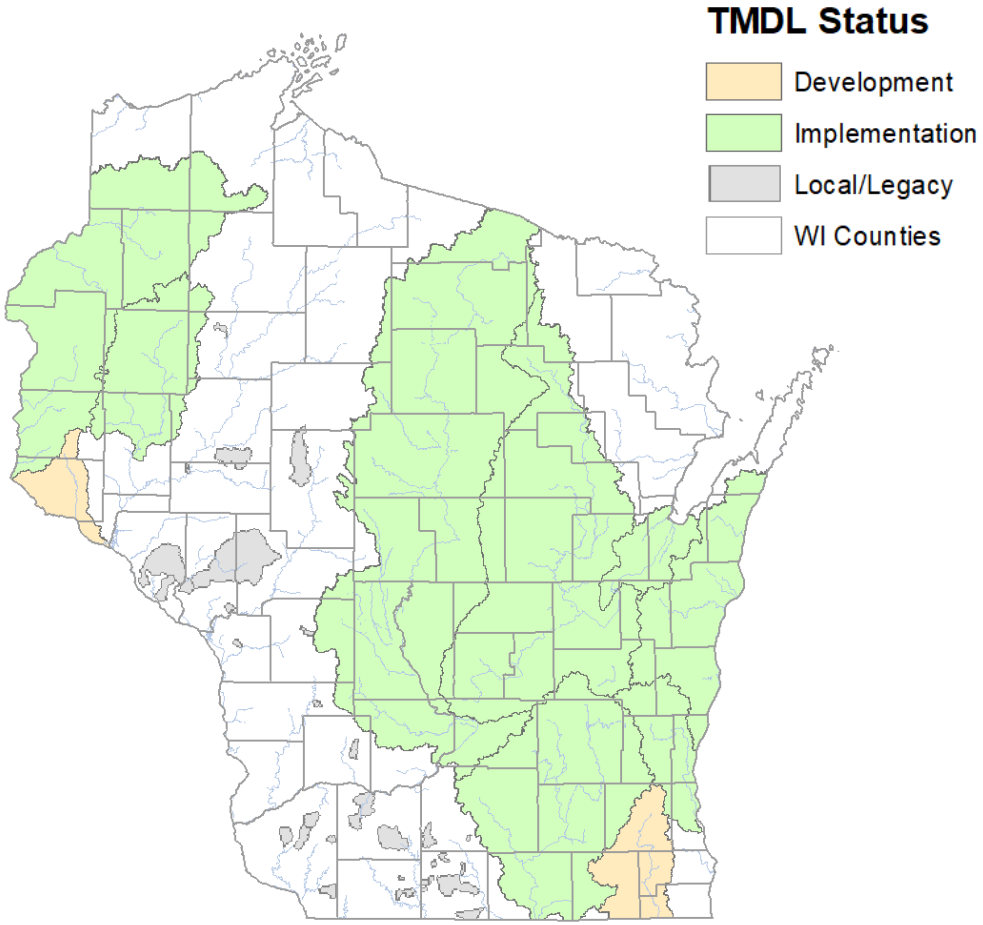
2025 National Training Workshop on

Water Quality Data, Assessment, and Plans

5 June 2025

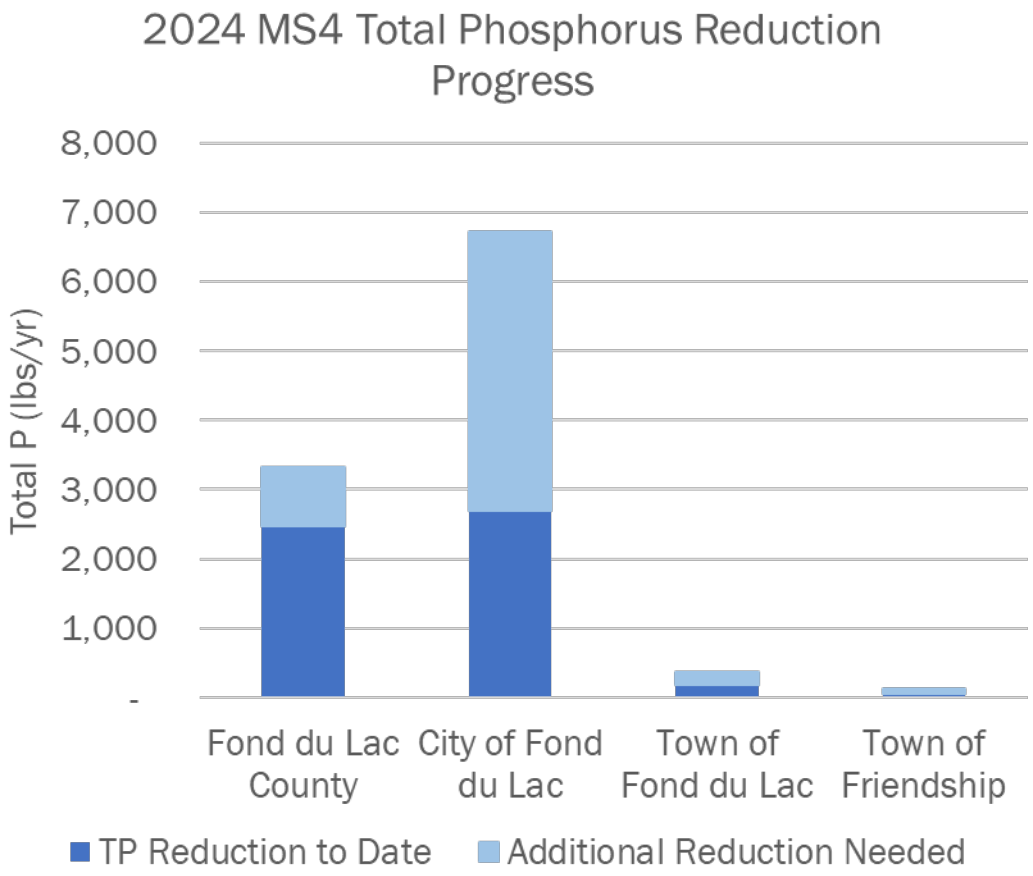
About Wisconsin TMDLs

- 35 EPA Approved TMDLs for TP and/or TSS
- 2010: Promulgation of Statewide phosphorus criteria
- Since 2012, TMDLs developed at the HUC8 scale or larger
  - Now cover over 50% of the state
- TMDL Structure
  - Wasteload allocations
    - Individual WLAs for MS4s & individually permitted WWTFs; lumped WLA for other general permits by TMDL subbasin
  - Load allocations
    - Broken into background, non-permitted urban and agriculture sources by TMDL subbasin



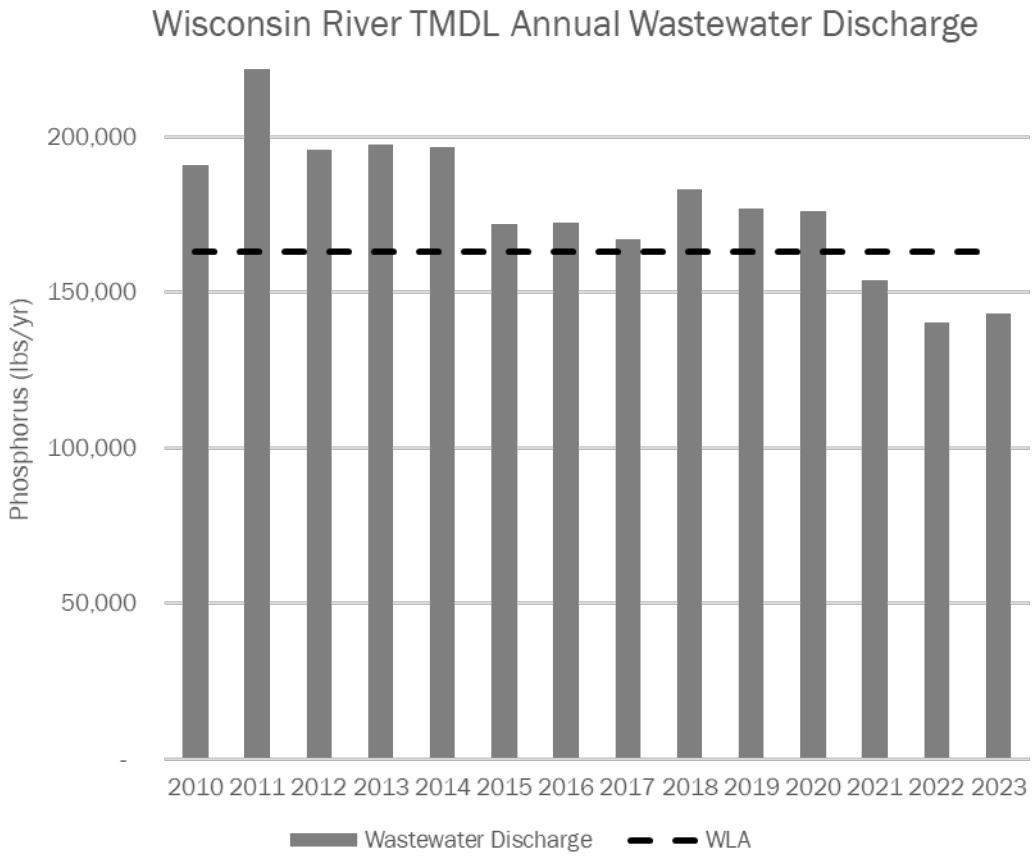
WLA Tracking - Permitted Municipal Stormwater

- ~160 MS4 permittees under TMDLs
- 1st permit term after TMDL:
  - Assessment of existing controls vs TMDL requirements (modeled)
  - Plan on how to achieve reductions
- Additional permit terms:
  - Permit defined implementation goals (i.e., additional reductions) to be achieved over permit term with assessment (modeled)
- Tracking based on permit compliance schedule reporting



WLA Tracking - Wastewater Treatment Facilities

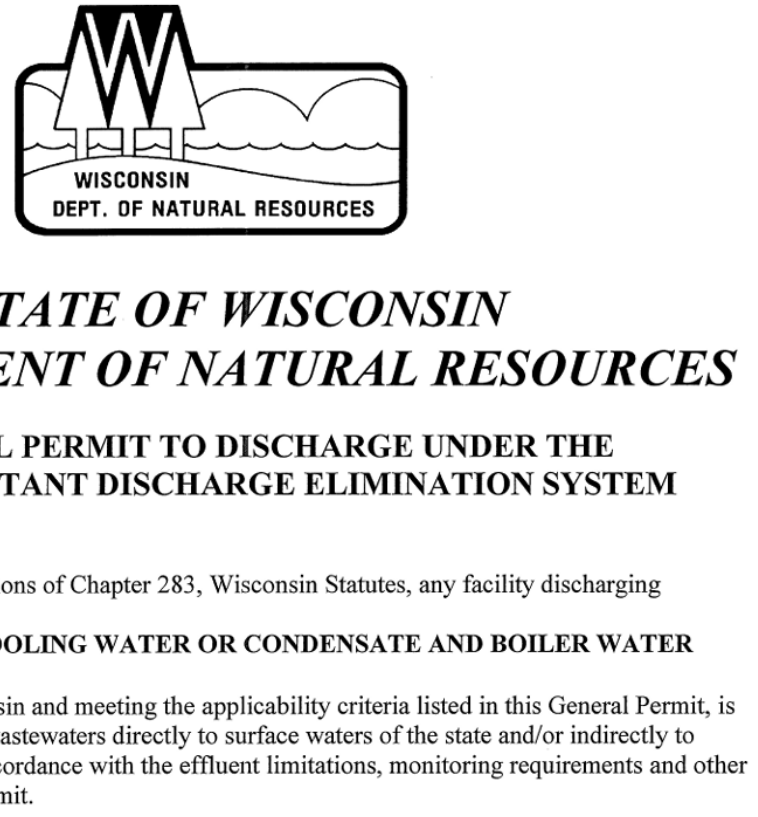
- ~440 Individual permittees under TMDLs
- Tracking
  - # Permits issued under TMDL
  - # Facilities meeting WLAs
  - # Utilizing WQT, AM, IPVs, or MDV
- TP & TSS loading reported through discharge monitoring reports



WQT: water quality trading, AM: adaptive management,
IPVs: individual phosphorus variances, MDV: multi-discharger variance

WLA Tracking - General Permits

- Over 25 different general permits
  - Industrial and stormwater sources
  - Some very transient (e.g., stormwater construction), some less so (e.g., noncontact cooling water)
- Phasing in electronic reporting for some GPs which will facilitate tracking



WISCONSIN
DEPT. OF NATURAL RESOURCES

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

GENERAL PERMIT TO DISCHARGE UNDER THE WISCONSIN POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of Chapter 283, Wisconsin Statutes, any facility discharging

NONCONTACT COOLING WATER OR CONDENSATE AND BOILER WATER

located in the State of Wisconsin and meeting the applicability criteria listed in this General Permit, is permitted to discharge these wastewaters directly to surface waters of the state and/or indirectly to groundwater of the state in accordance with the effluent limitations, monitoring requirements and other conditions set forth in this permit.

LA Tracking - Now the Hard Part

- In the Dairy State, tracking load allocations = tracking agricultural nonpoint activities
- Two areas of nonpoint tracking
  - Where taxpayer money involved
  - Everything else
- Even where taxpayer money is involved, tracking has been challenging in WI
  - Historically no statewide data system

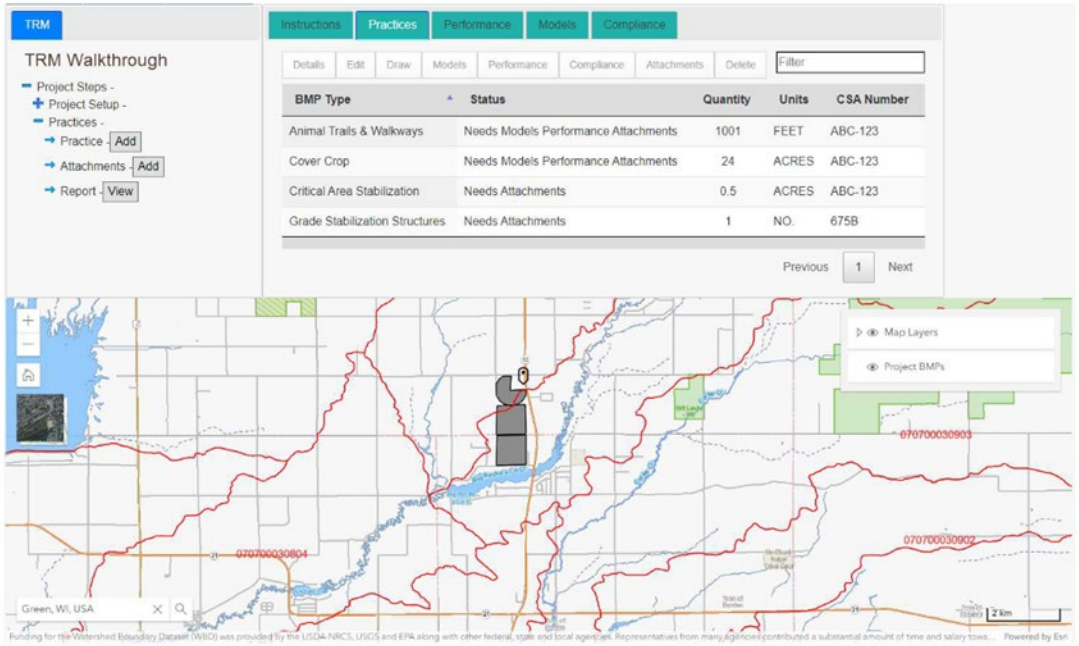
LA Tracking – BITS Backstory

- Multi-Discharger Variance
  - Permittees need to implement watershed project(s) to offset discharge or
  - Permittees make payments to counties based on TP discharge (~$50/lb) and participating counties implement NPS projects
- Necessitated reporting of NPS implementation to permittees, DNR, DATCP* and eventually USEPA

*Wisconsin Department of Agriculture, Trade and Consumer Protection

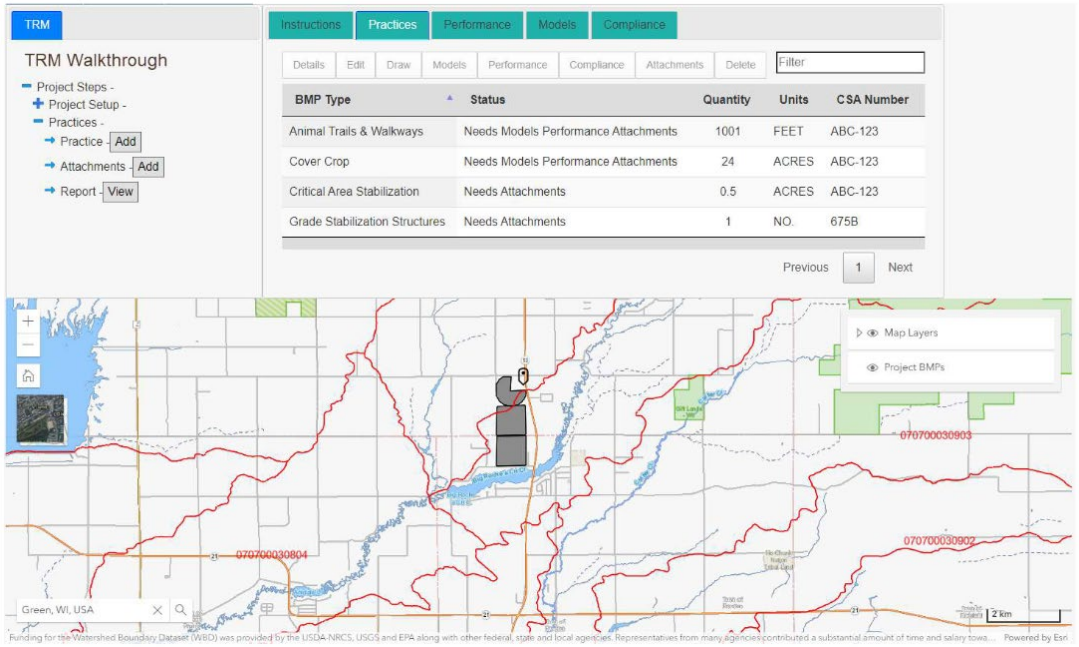
LA Tracking – BITS

- Web & GIS-based portal for external users to submit information required under the DNR's various NPS pollution control programs
- Improves transparency by illustrating where and how many public dollars are being used for NPS implementation
- Allows tracking of progress toward reaching state water quality goals



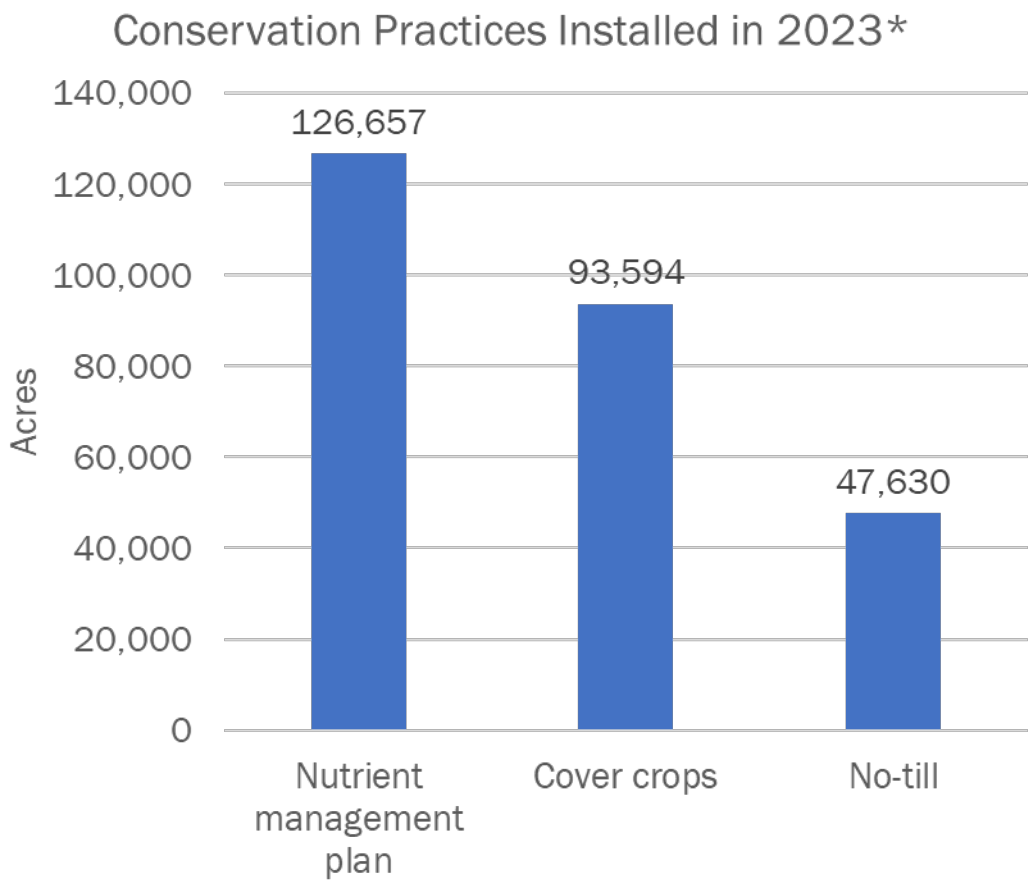
LA Tracking – BITS

- Current Modules
  - Multi-Discharger Variance Program
  - Agricultural and Urban Targeted Runoff Management Grants
  - Notice of Discharge Grants
  - Urban Nonpoint Source Construction Grants
- Future Module
  - Agricultural performance standard compliance tracking (ch. NR 151 Wis Admin. Code)
- Functionality planned for future inclusion
  - Streamlined reporting tools
  - Public-facing spatial data viewer



LA Tracking - Other

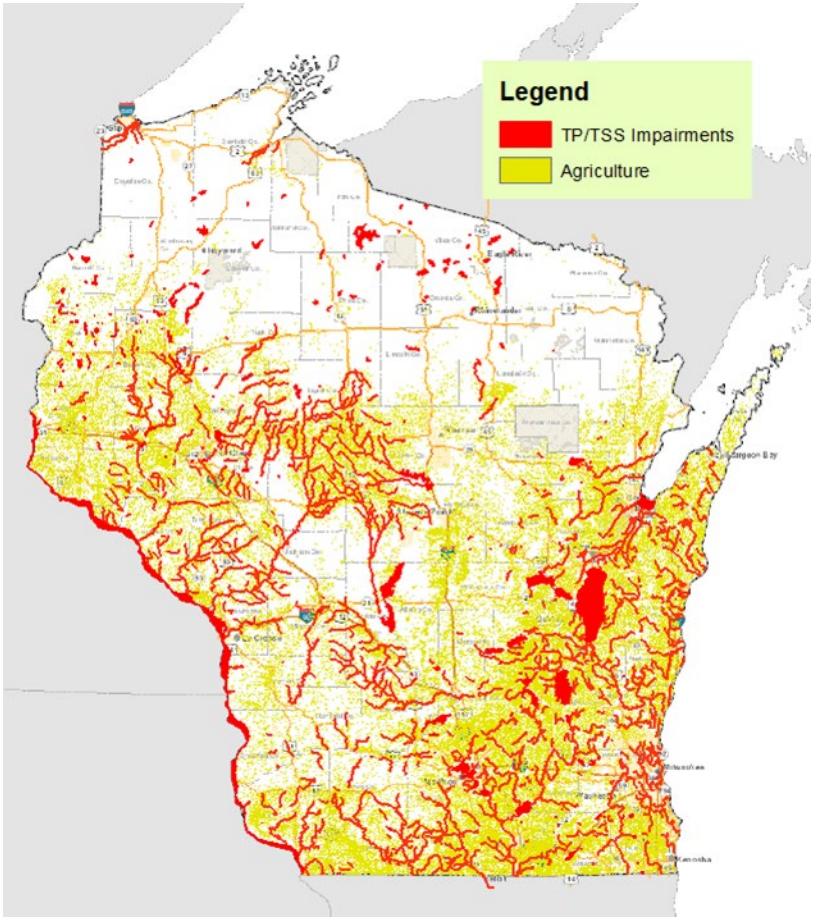
- DNR has provided funding to DATCP to update their tracking system for their Grant Programs
- Additional data voluntarily reported to DNR by some counties
- Data sharing with NRCS
  - HUC12 practice summaries statewide
  - More precise information available when warranted
  - NRCS data sharing restrictions and reporting methods still present tracking challenges



* 2023 Wisconsin Report on Soil and Water Conservation

LA Tracking - Other

- ~ 1.3 Million acres statewide covered under concentrated animal feeding operations (CAFO) permits
  - No systematic tracking of CAFO lands currently
- ~10.7 Million acres of additional cropland statewide
- Without wide scale adoption of soil health supporting practices, Wisconsin will not achieve water quality goals



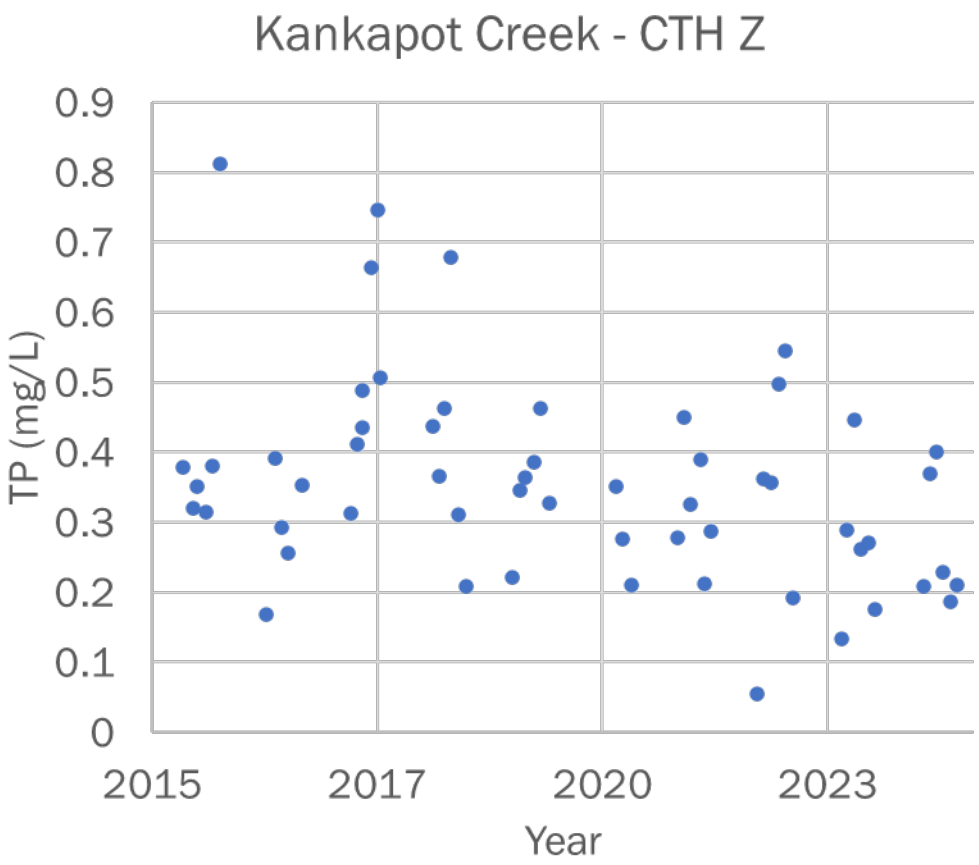
LA Tracking – Everything Else

- Government funded conservation only represents a small fraction (<3%) of cropland practices
- Need to understand the broader picture
  - USDA National Agricultural Statistics Survey tracks what crops are grown annually
  - DNR and partners exploring use of satellite imagery to track trends in how crops are grown (tillage + cover crops)

Normalized Differential Tillage Index (NDTI)

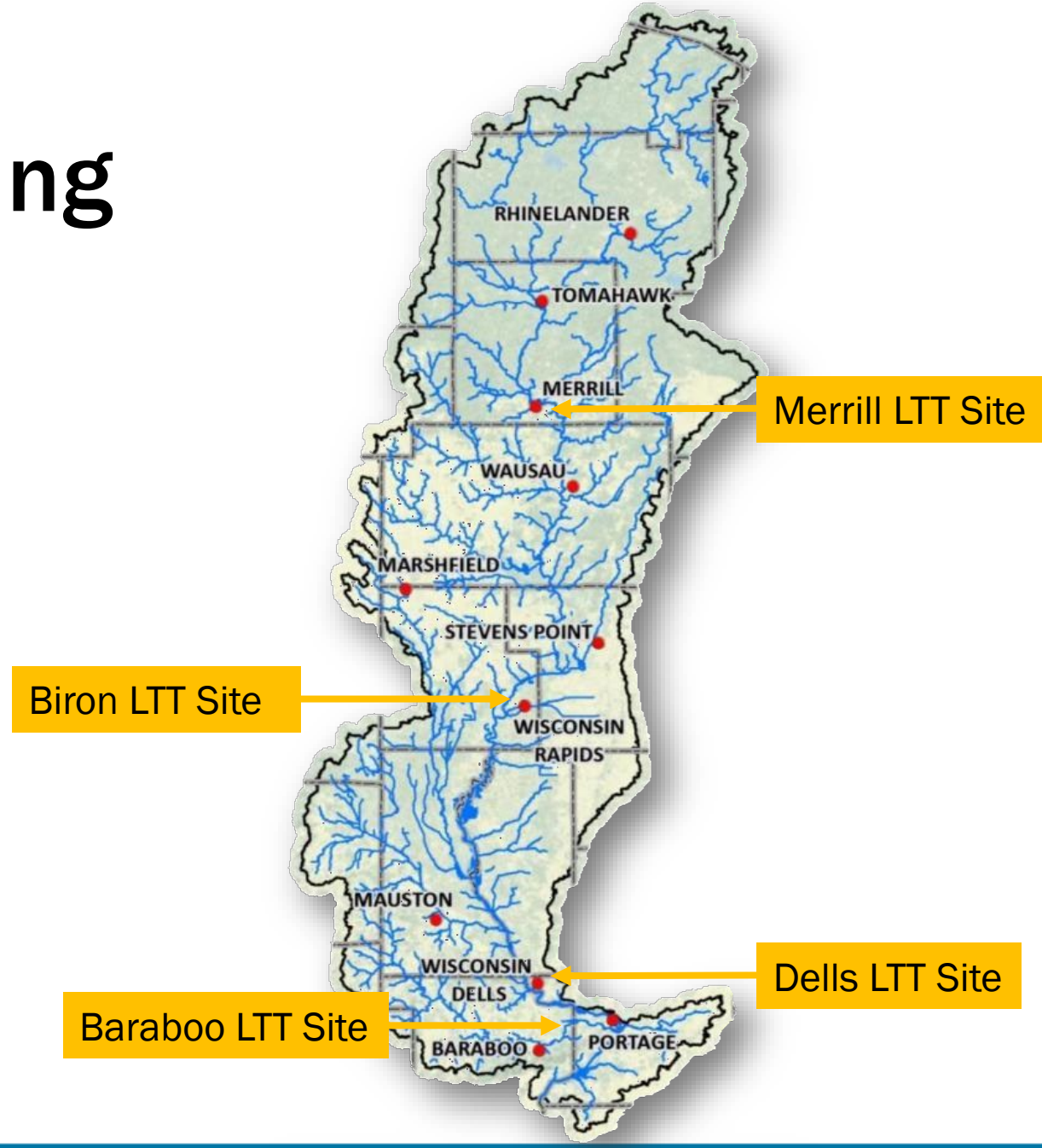
Water Quality Monitoring

- “Local Needs”
  - Driven at the local level
  - Active implementation (e.g., 9 Key Element Plans)
  - Typically volunteer collected seasonal water chemistry data



Water Quality Monitoring

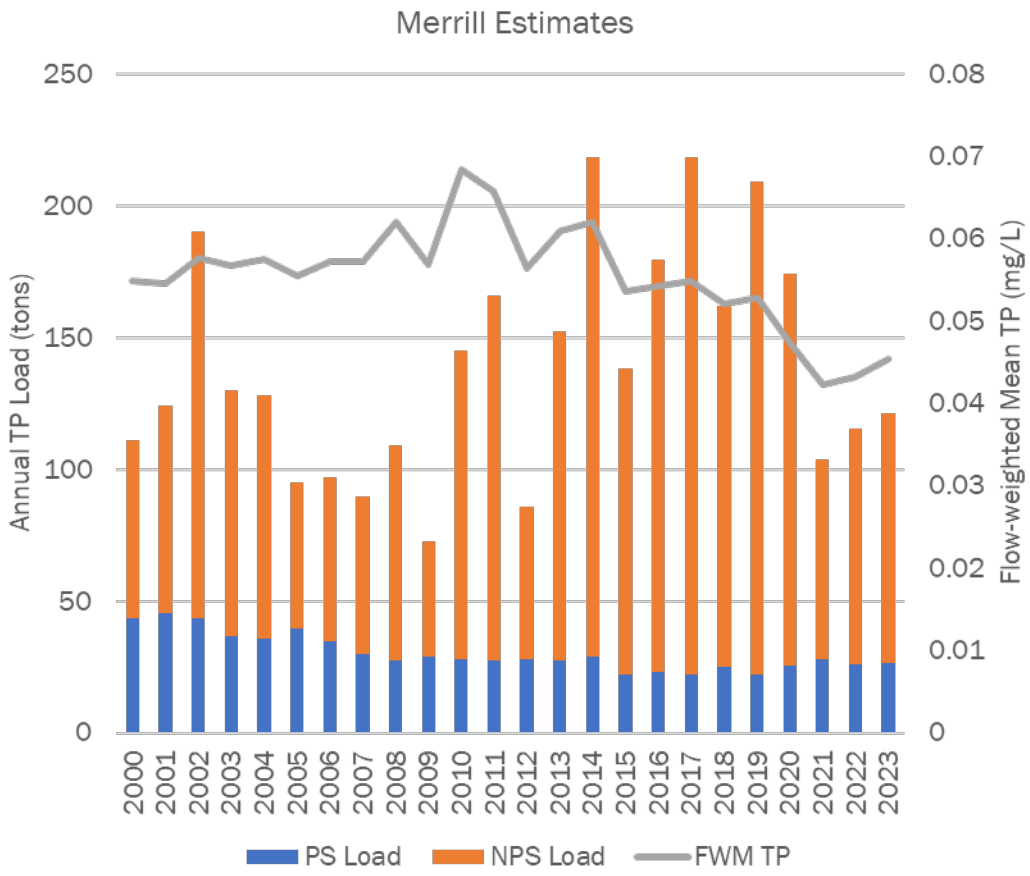
- “Long Term Trends”
- Statewide network of 43 large river monitoring sites
  - USGS flow gage
  - DNR collected water chemistry data (monthly)
  - Loads estimated with WRTDS*



* Weighted Regressions on Time, Discharge, and Season

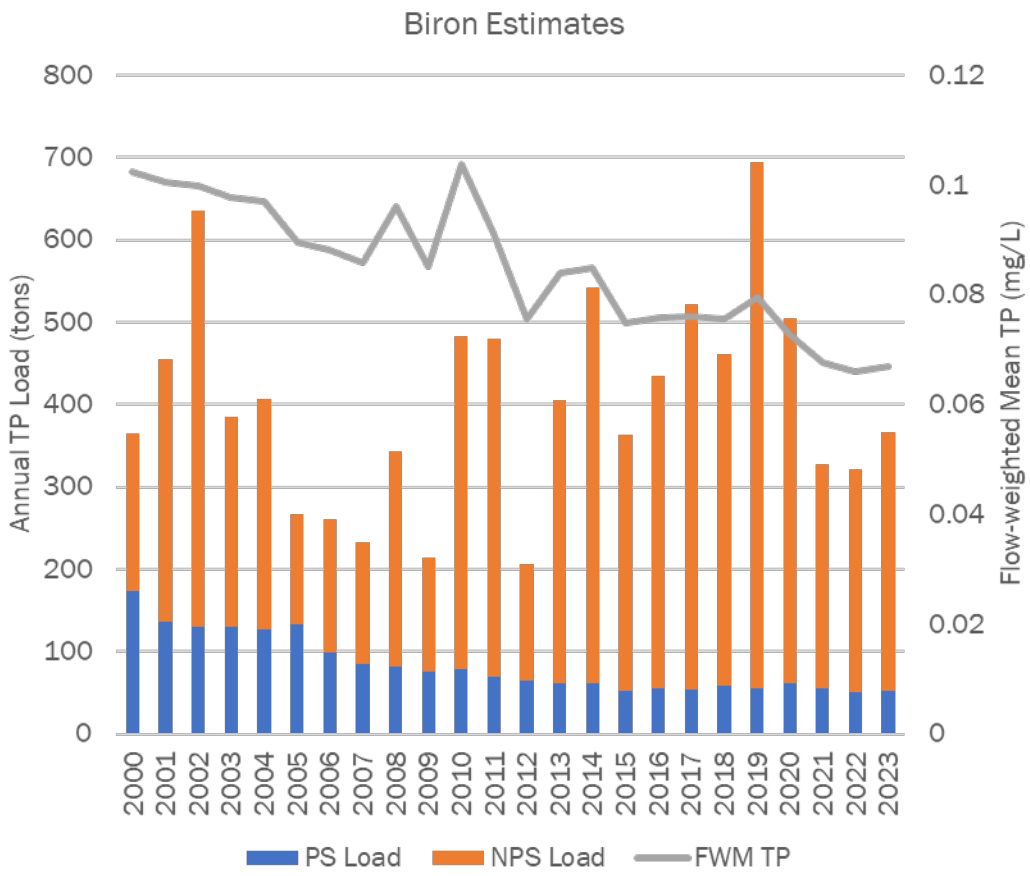
Merrill LTT Site

- Slight decline in flow weighted mean phosphorus concentration
- Site heavily influenced by to weather
  - <5% of watershed urban or agriculture
  - Some point source impacts (~15% of TP load)



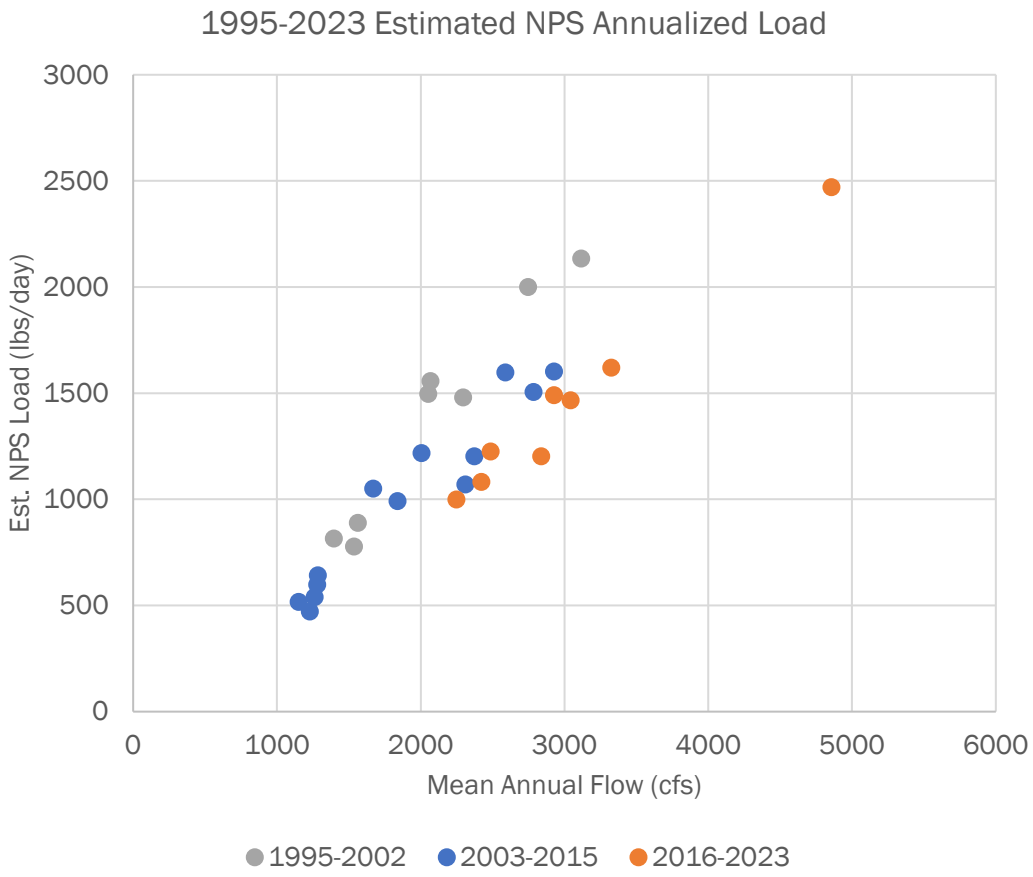
Biron LTT Site

- Significant decline in flow weighted mean phosphorus concentration
- ~70% reduction in point source phosphorus loads since 2000
  - Largely the result of incremental treatment improvements since original 1992 phosphorus rule (1 mg/L limit for larger facilities)
  - Paper mill closures (Whiting & Brokaw) and 2010 TP rule also play a role
- Annual changes in nonpoint loading primarily due to weather
- Additional confounding factors -
  - Less hay, more row crops → more erosion, more TP loss
  - Less intense tillage on row crops → less erosion, less TP loss



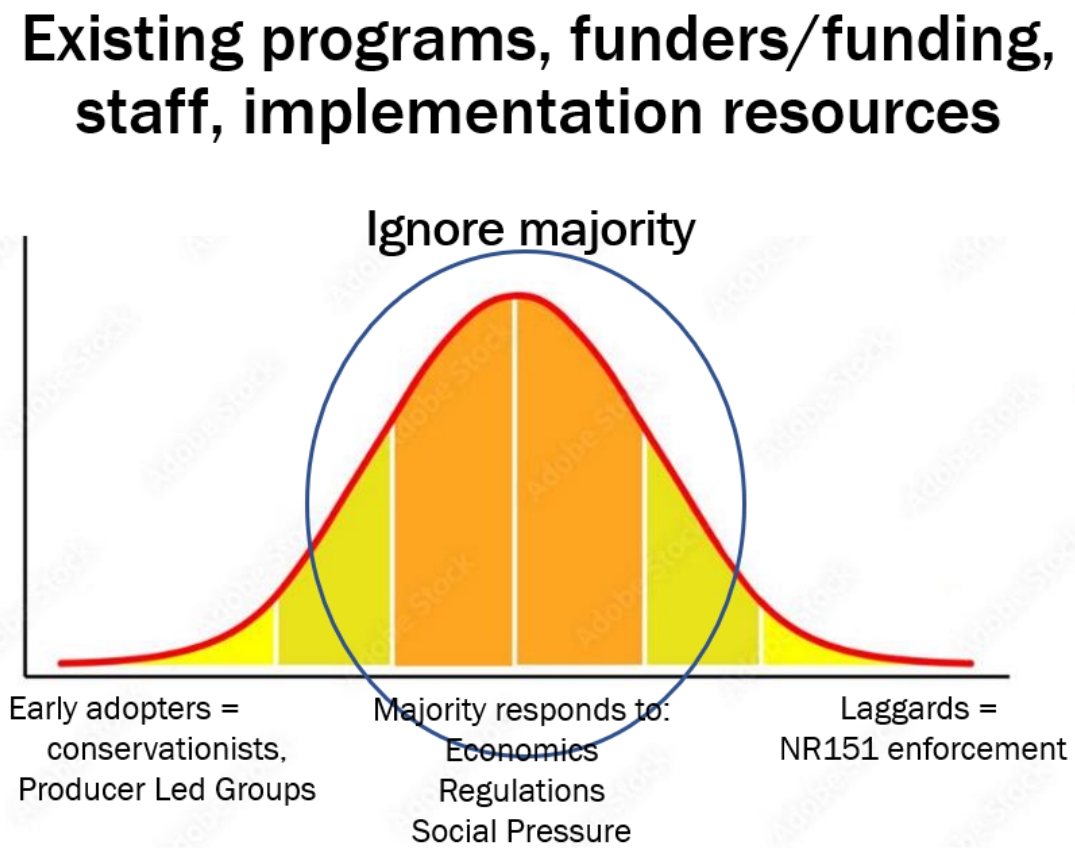
Evidence of NPS Improvement?

- Estimated NPS load for this graph
  - Biron load minus Merrill load and intervening point source load
- Recent data may indicate a reduction in TP loading during higher flow years
  - Unconfirmed at this point, but may point towards NPS gains
  - Need more data (i.e., typical modeler response)



Final Thoughts on TMDL Implementation

- Even where there's a permit, implementation takes time
- No quick fixes when you're dealing with millions of acres and thousands of producers
  - Need widescale adoption of soil health practices to meet water quality goals (and additional BMPs where appropriate)
  - Need new ways of thinking and acting to get there



CONNECT WITH US

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"WILD WISCONSIN:
OFF THE RECORD"