Wisconsin River Basin Water Quality Improvement Project

4th Annual Wisconsin River Symposium
February 14, 2014

Ann Hirekatur, TMDL Project Manager

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Photo by Jean Unmuth

Wisconsin River Basin Water Quality Improvement Project

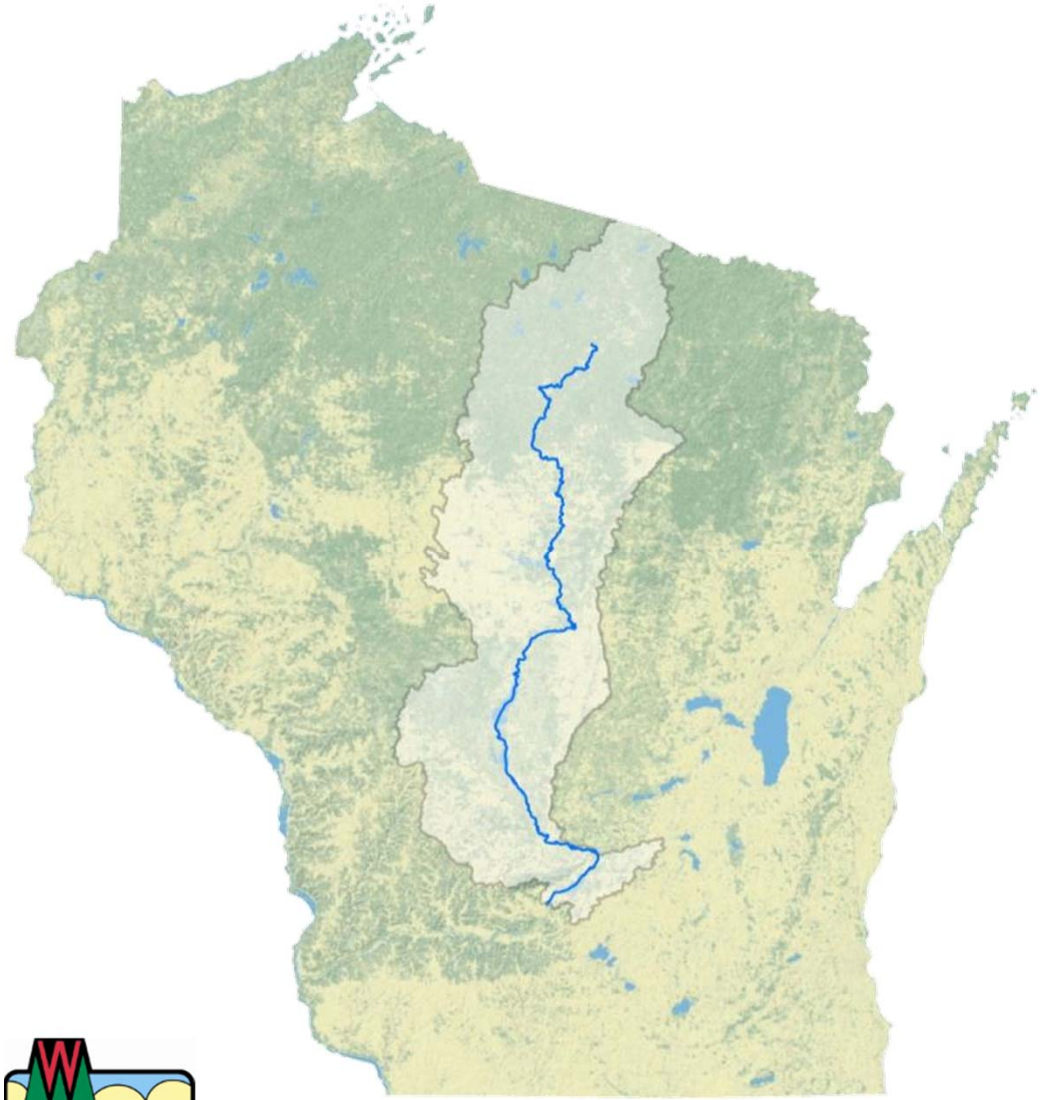
- Part I. Project Overview
- Part II. TMDL Development Process
- Part III. What's New Since Last Year?
- Part IV. What's On the Horizon?

Wisconsin River Basin Water Quality Improvement Project

Part I

PROJECT OVERVIEW

The Wisconsin River Basin (WRB) Water Quality Improvement Project



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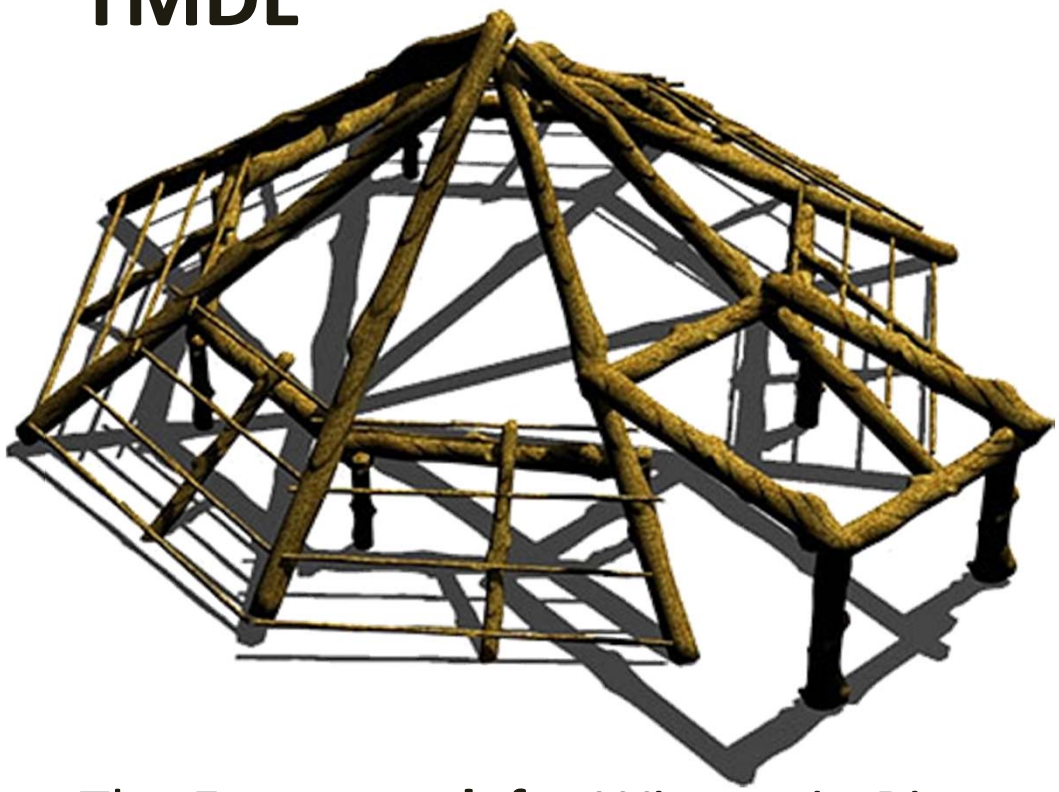
Project Framework = Total Maximum Daily Load

TMDL



The **Framework** for Wisconsin River Basin Water Quality Improvement Project

A TMDL answers the following questions:

- How much is the existing pollutant load? What is the contribution from each source?
- How much does pollution need to be reduced in order for waterways to achieve water quality standards?
- How will the pollutant load reductions be achieved?

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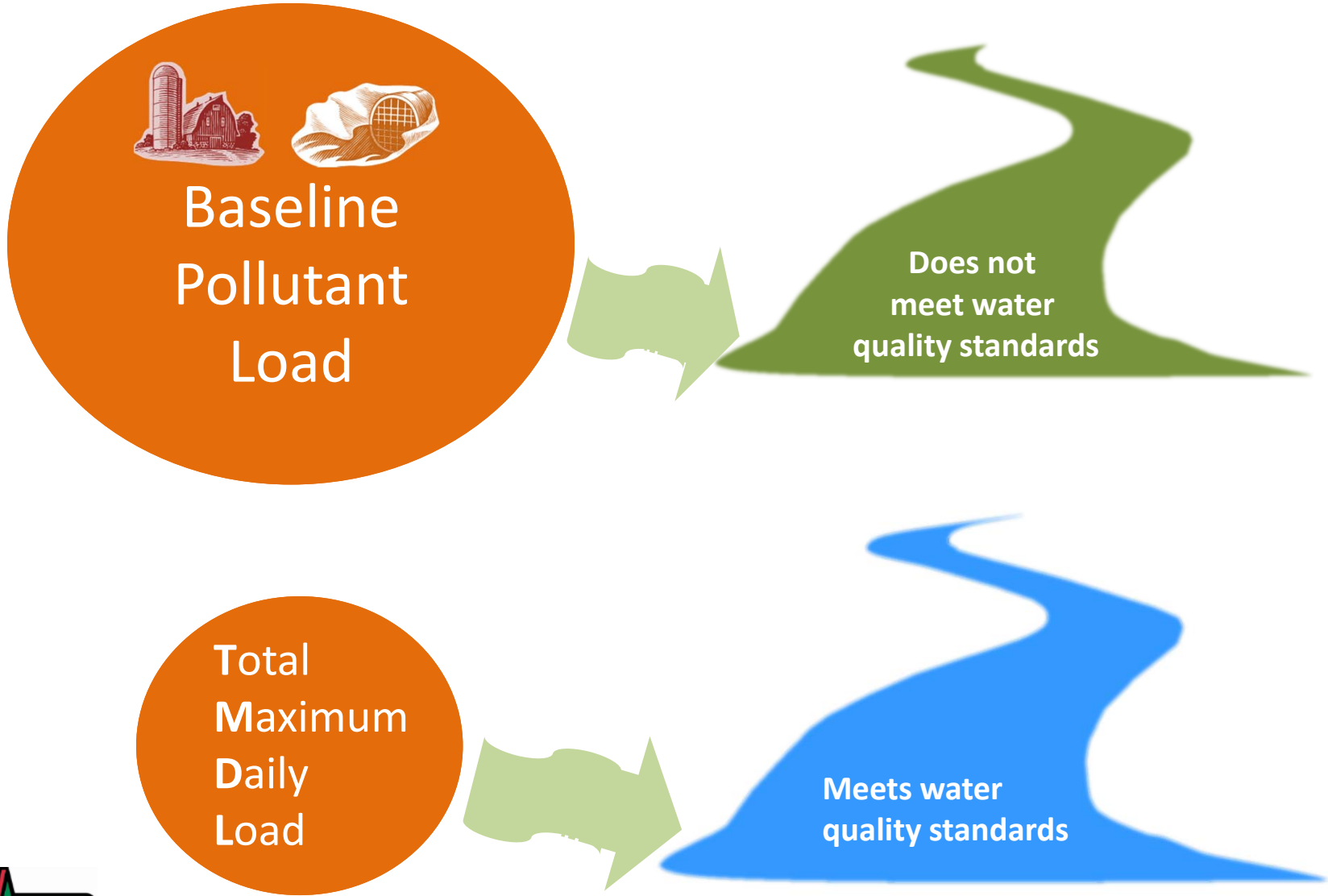
Why develop a TMDL?



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Statewide Phosphorus Criteria

Rivers

100 µg/L

Streams [1]

75 µg/L

Reservoirs

- Not Stratified = 40 µg/L
- Stratified = 30 µg/L

Inland Lakes[2]

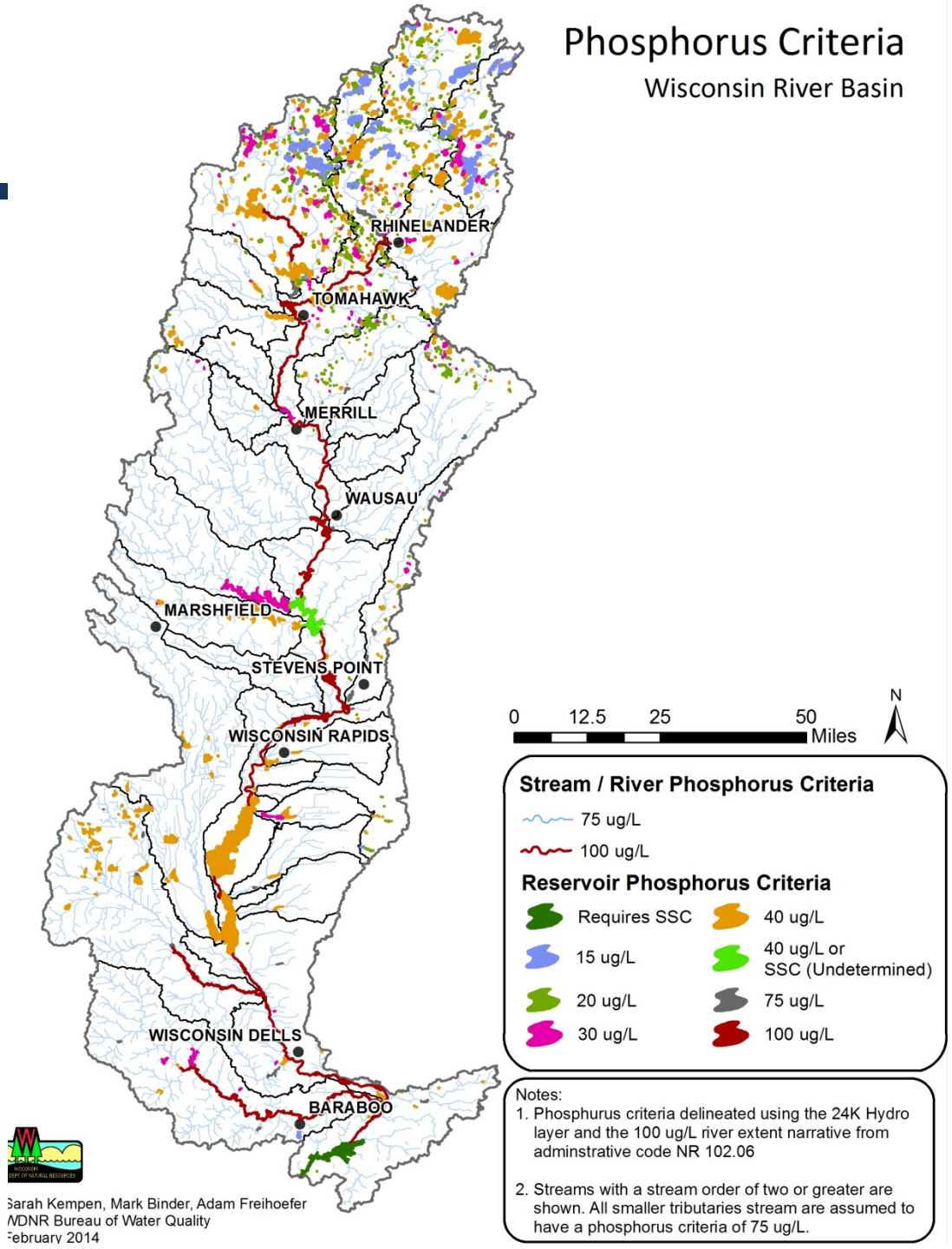
Ranges from 15-30 µg/L

Great Lakes

- Lake Michigan = 7 µg/L
- Lake Superior = 5 µg/L

[1]All unidirectional flowing waters not in NR 102.06(3)(a). Excludes Ephemeral Streams.
[2]Excludes wetlands and lakes less than 5 acres

Wisconsin River Basin Phosphorus Criteria



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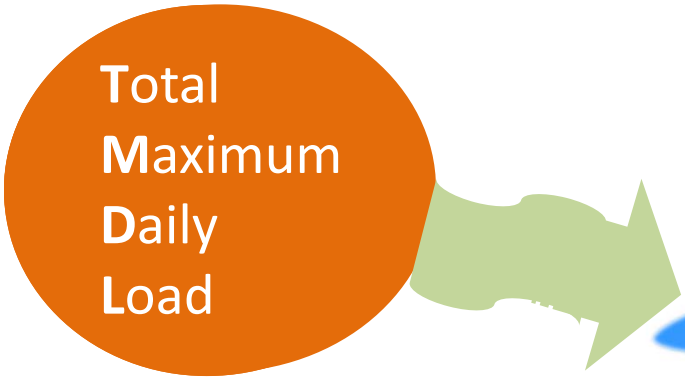
Why develop a TMDL?



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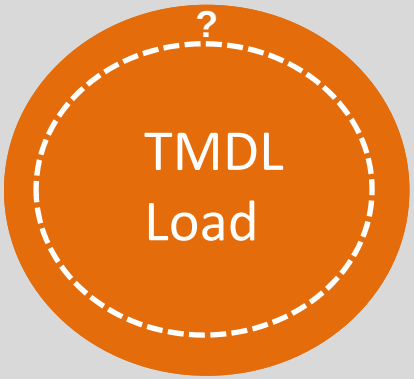
Developing a TMDL



What is the magnitude of the **T**otal **M**aximum **D**aily **L**oad ?

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Developing a TMDL

Baseline Pollutant Load

How will the load be apportioned among sources?

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WRB Total Maximum Daily Load (TMDL)

Each subwatershed is assessed for:

Load Allocation

- Runoff from the landscape

Background Load

- Naturally occurring from wetlands, forests

Waste Load Allocation

- Municipal Wastewater
- Industrial Wastewater
- Permitted Municipal Storm Sewer Systems
- CAFO Production Areas

TMDL

Load Allocation + Waste Load Allocation + Margin of Safety

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How did we get a Water Quality Project in the WRB?

2001
WDNR/USACE develop joint TMDL monitoring proposal for $1.5 million.
Proposal not funded

2010
WNDR receives Section 22 Planning Assistance from USACE

2009 – 2013
Wisconsin River TMDL Monitoring

2008
First Pontoons and Politics at Petenwell Castle Rock

1995 2000 2005 2010 2015

1996
Petenwell Castle Rock Comprehensive Management Plan

2009
State legislature appropriates $750,000 ($150,000/yr. for 5 years) for monitoring upstream of Castle Rock

2004
WDNR proposal to USEPA for river water quality monitoring.
Proposal not funded

Wisconsin River TMDL

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Wisconsin River Basin Water Quality Improvement Project

Part II

TMDL DEVELOPMENT

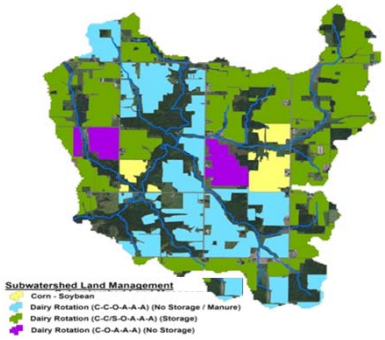
TMDL Development Overview

Monitoring
Conceptualization

Modeling

Allocations

Implementation



Baseline

TMDL

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TMDL Process Overview: Monitoring

Monitoring
Conceptualization | Modeling | Allocations | Implementation

What are the measured flows, and pollutant concentration/loads:

- Entering from tributaries?
- On the main stem of the river?

What are the measured reservoir conditions in response to loads/flows?

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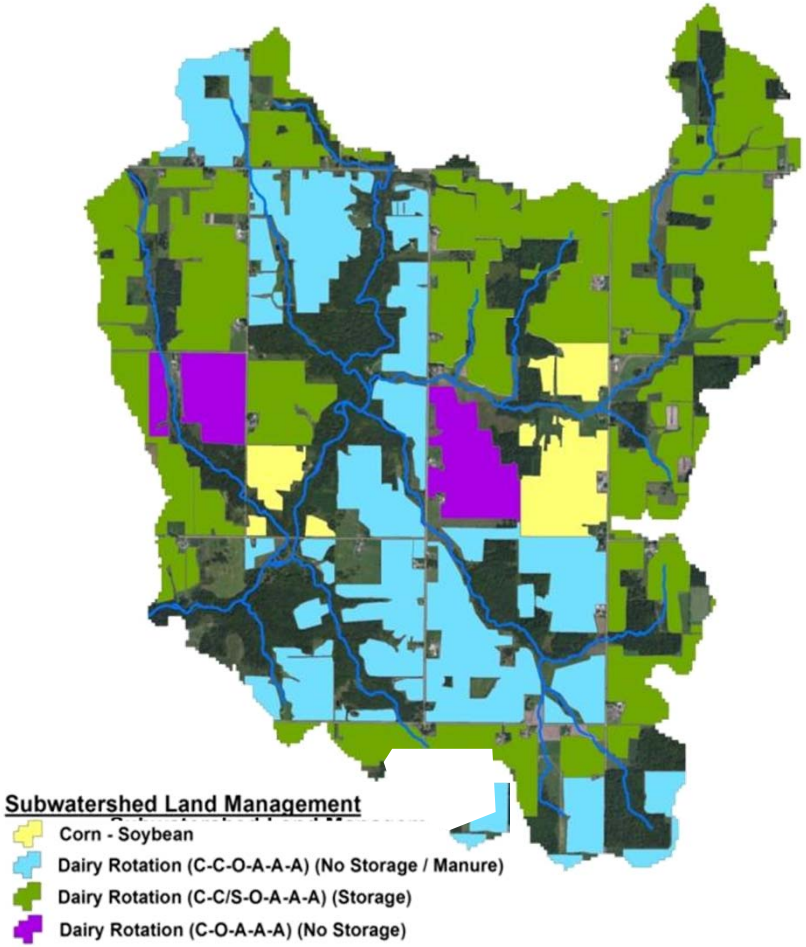
TMDL Process Overview: Conceptualization

Monitoring | **Conceptualization** | Modeling | Allocations | Implementation



What's going on in the watershed?

- Land use/management
- Climate
- Soils, topography, slope
- Hydrography

What's going on in the reservoir system?

- Size, shape, depth, volume
- Hydrologic budget (rain, evaporation, inflow, outflow)
- Pollutant concentration
- Chemical conditions

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TMDL Process Overview: Modeling

Watershed Modeling

- What is the existing/baseline load?
- How much of the load is coming from each source?

Reservoir Modeling

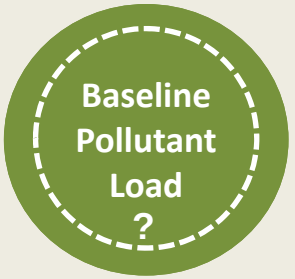
- How does system respond to current conditions?
- What load reduction is needed to meet water quality standards?

TMDL Development – Modeling

Monitoring / Conceptualization → **Modeling** → Allocations → Implementation

Watershed Modeling

- **What is the existing/baseline load?**
- How much of the load is coming from each source?



Reservoir Modeling

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TMDL Process Overview: Modeling

Monitoring / Conceptualization → **Modeling** → Allocations → Implementation

Watershed Modeling

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Reservoir Modeling

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TMDL Process Overview: Modeling

Monitoring / Conceptualization → **Modeling** → Allocations → Implementation

Watershed Modeling

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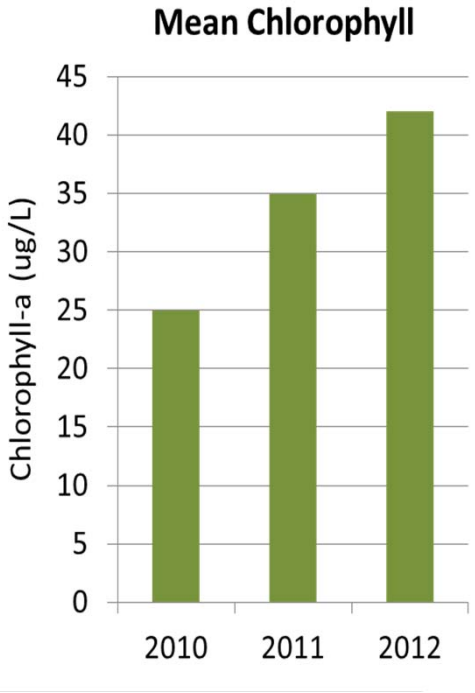

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TMDL Process Overview: Modeling

Monitoring / Conceptualization → **Modeling** → Allocations → Implementation

Watershed Modeling

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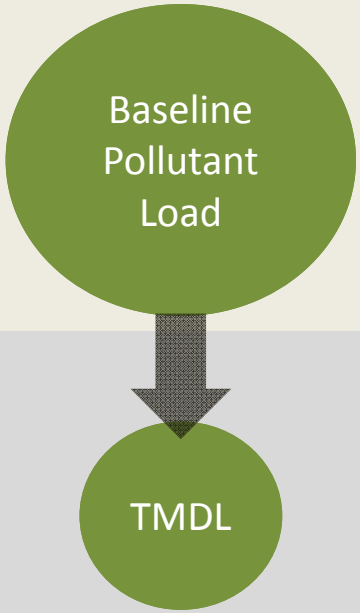

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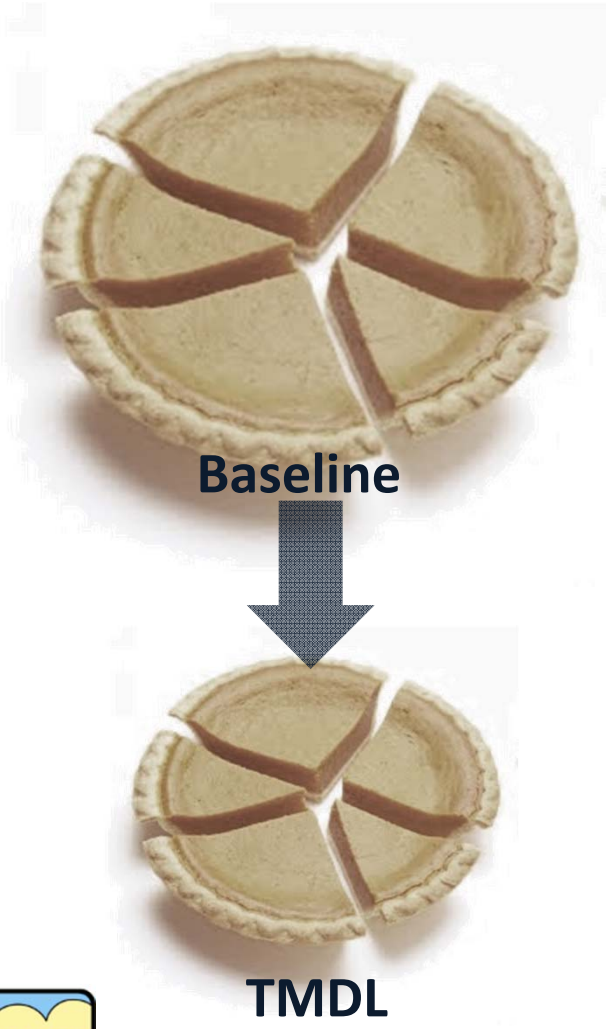
TMDL Development: Allocations

Monitoring / Conceptualization → Modeling → **Allocations** → Implementation



Proportional Allocation Method

- Proportional allocation method is developed from **baseline conditions**
- **Baseline Conditions** reflect current regulatory requirements
- The TMDL load for each reach is divided proportionally according to each source's baseline load contribution

Baseline conditions are <u>not</u> based on a facilities current level of performance

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TMDL Process Overview: Implementation

Monitoring / Conceptualization → Modeling → Allocations → **Implementation**

TMDL waste load allocations are incorporated into permit limits

- Municipal and Industrial Wastewater
- Permitted Municipal Storm Sewer Systems
- CAFO Production Areas (zero allowable discharge)

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TMDL Process Overview: Implementation

Monitoring / Conceptualization → Modeling → Allocations → **Implementation**

Work with county staff and other partners to implement agricultural land management practices to achieve nonpoint TMDL load reductions

- **Fair Share**- Everyone needs to do what they reasonably can
- **Targeting** – Use available resources to put extra effort towards high loading watersheds/areas

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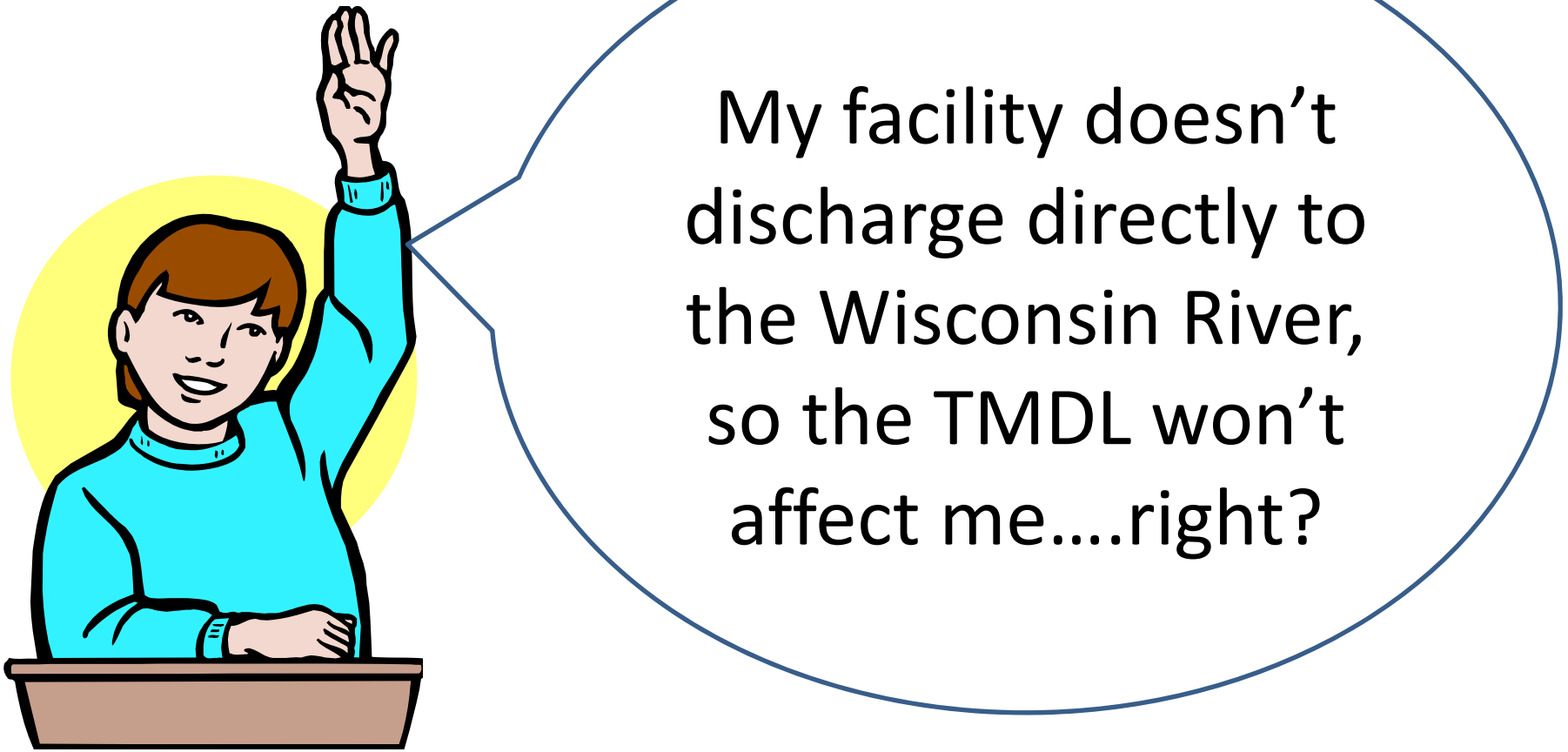
A Common Misconception about Implementation…



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WRONG.

Wisconsin has statewide nutrient criteria, therefore

- Every point source with a surface water discharge will get an allocation
  - *Regardless of whether the receiving water is impaired*
  - *Regardless of whether the discharge is to the main stem or a tributary of the Wisconsin River*
- Allocation will be protective of nutrient criteria for both ***immediate and downstream*** receiving waterway

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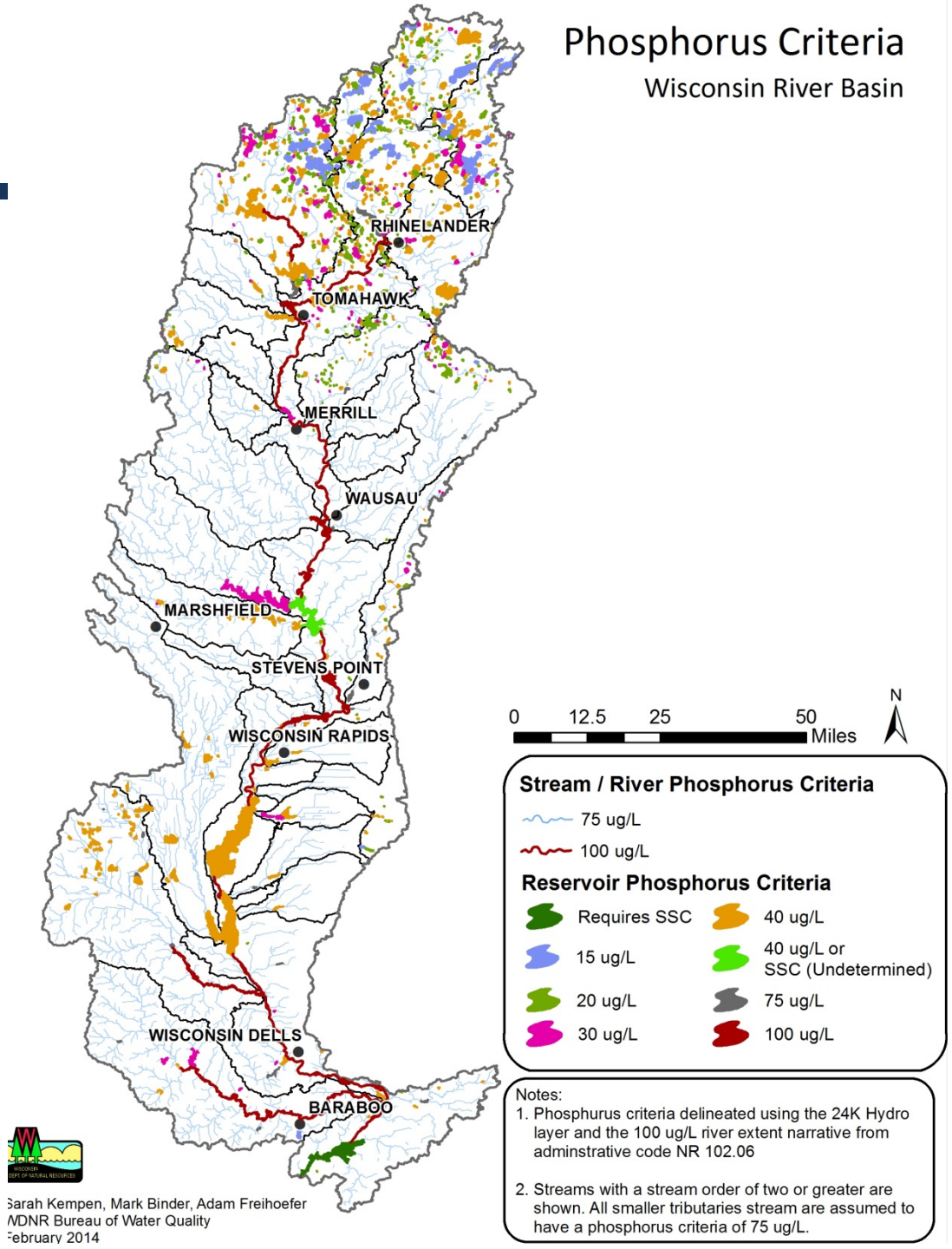
Wisconsin River Basin Phosphorus Criteria



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Another Common Misconception…

Nothing has or will be done to reduce nonpoint source pollution in the watershed

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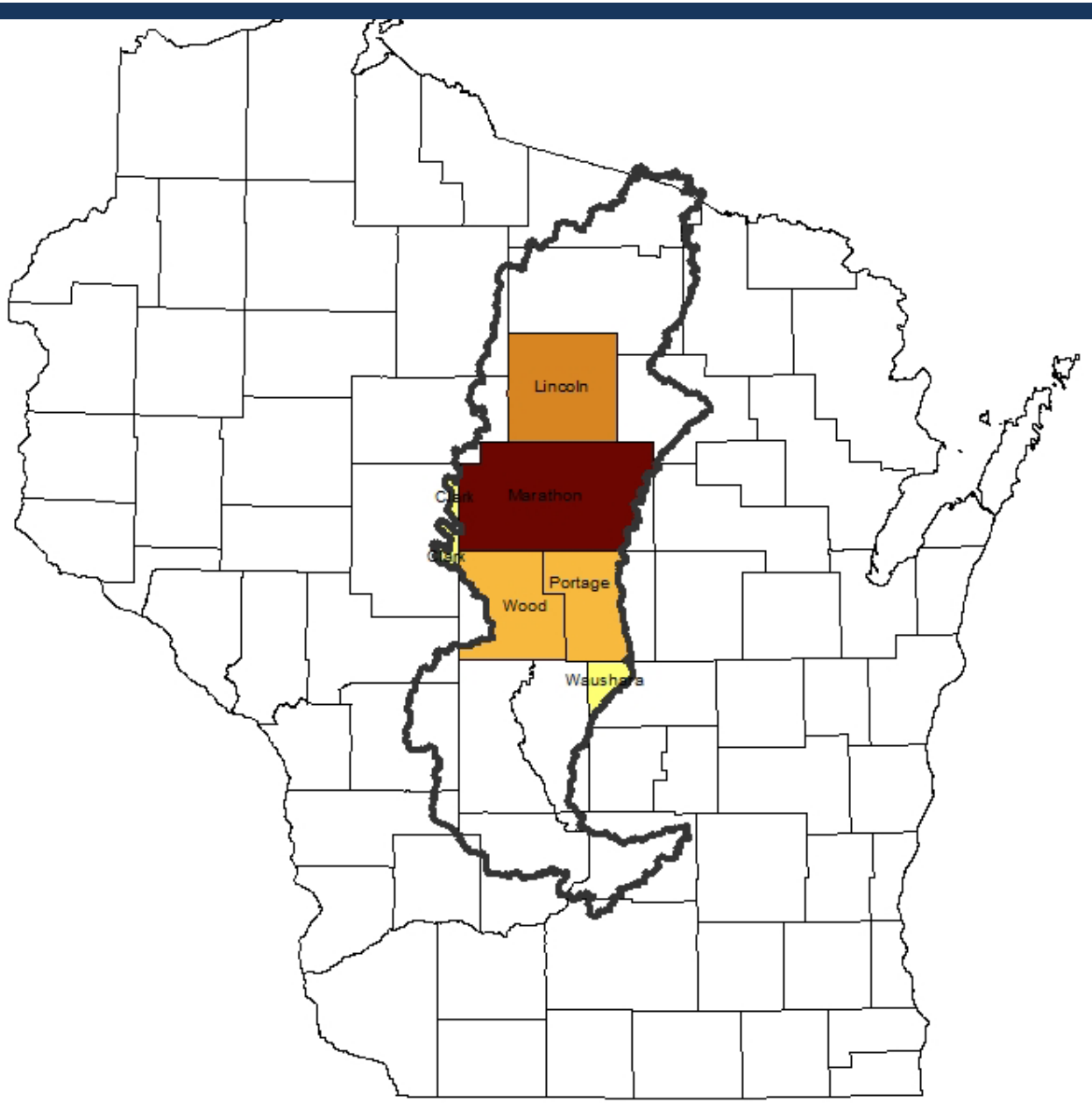
What is already being done?

Targeted Runoff Management and NOD Grant Awards

Total Awards in Wisconsin River TMDL Basin (2004-2013)

$5.7 million



TRM Grant Awards 2004-2013

- Up to $100,000
- $100,001 - $999,999
- $1 million - $2 million
- $2 million - $3 million
- > $3 million

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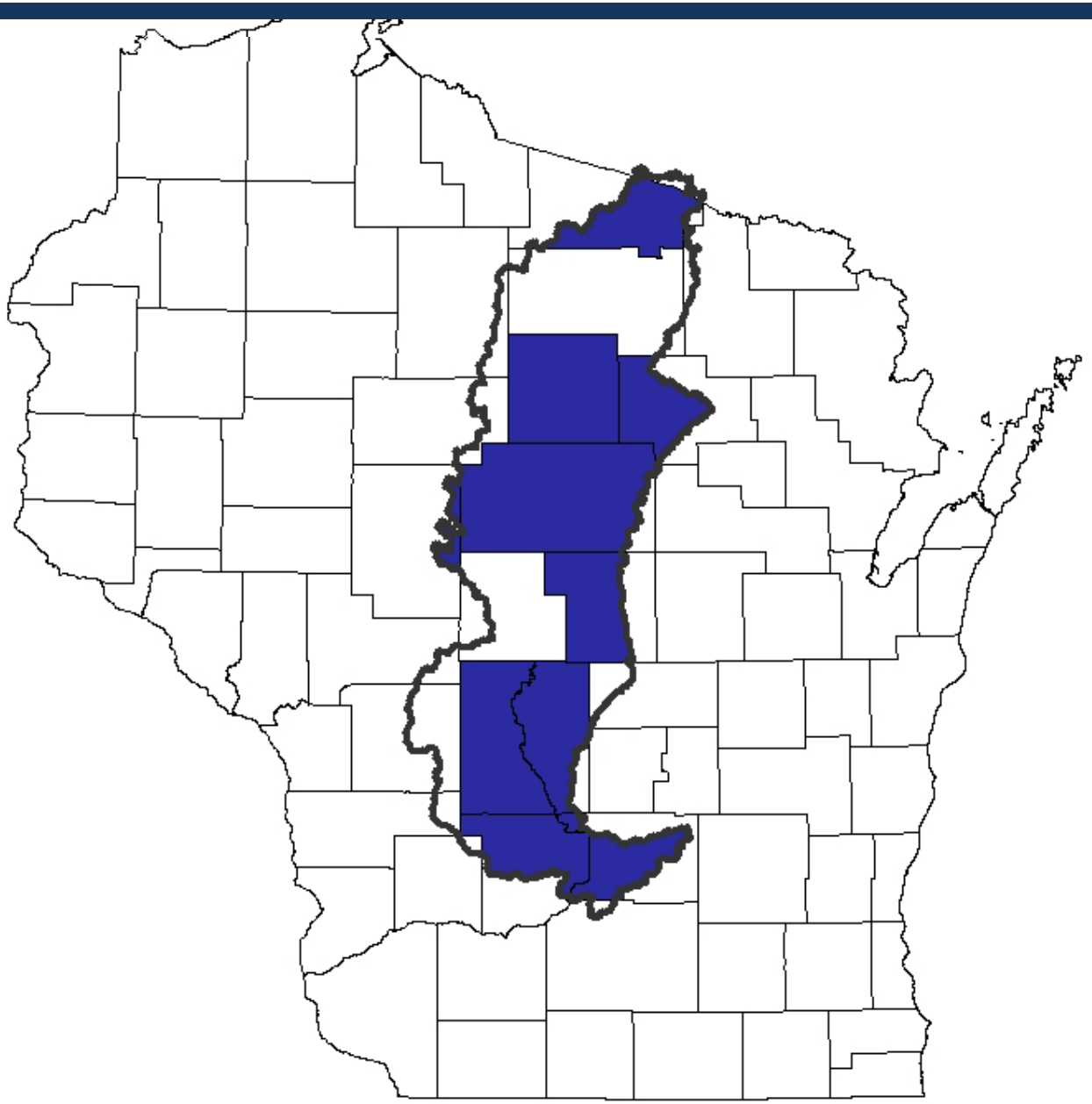
What is already being done?

Active Lake Protection Grants

Total Value of Active Lake Protection Grants
$900,000



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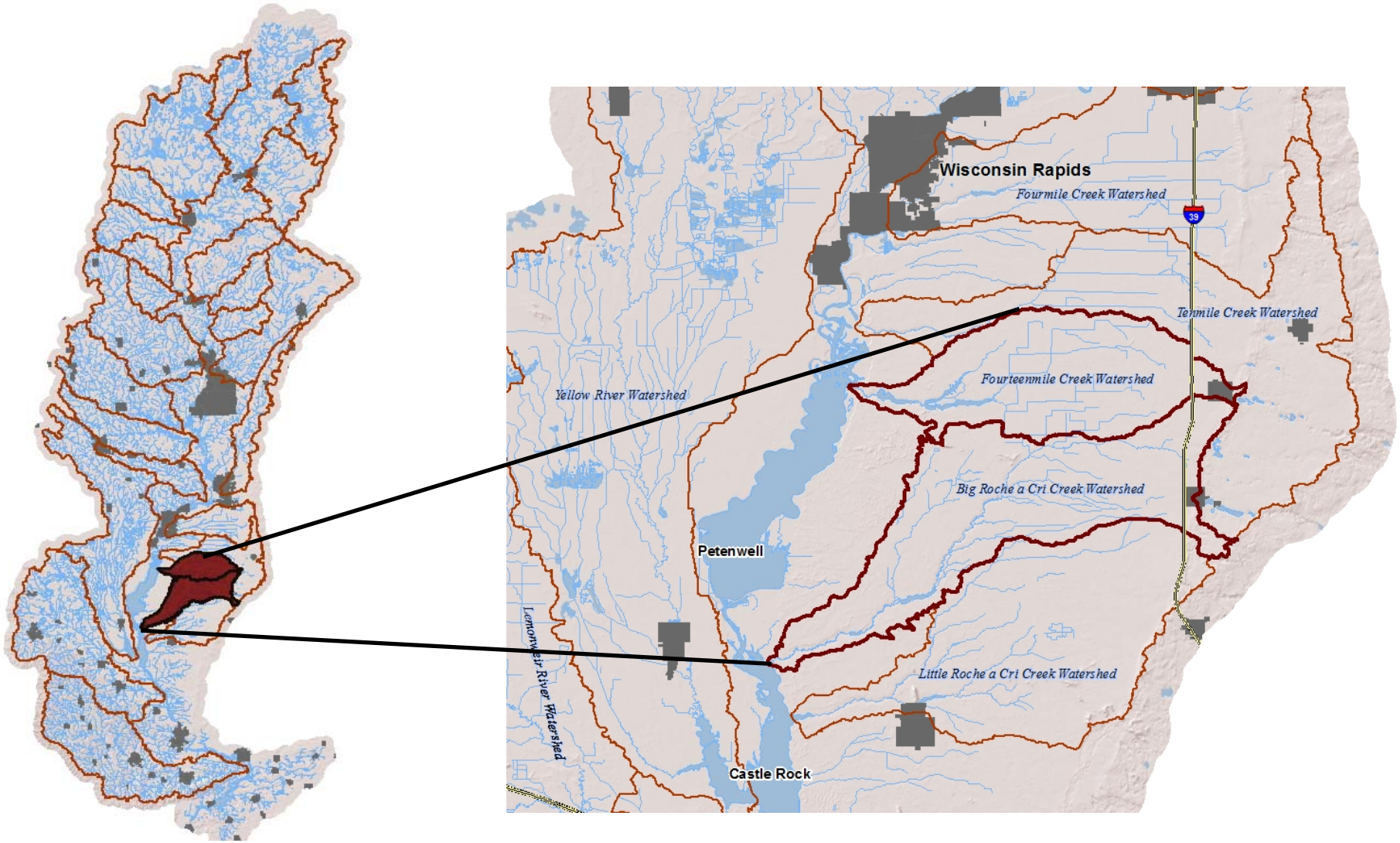
Lake Protection Grants: Adams County



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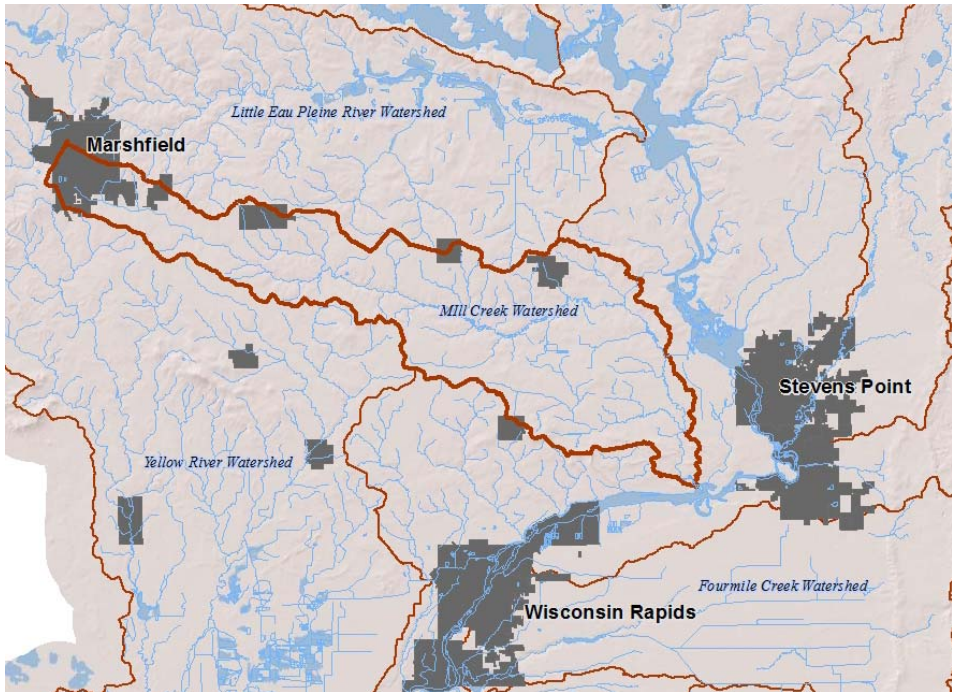
Lake Protection Grants: Golden Sands RC&D
Mill Creek Watershed Managed Grazing



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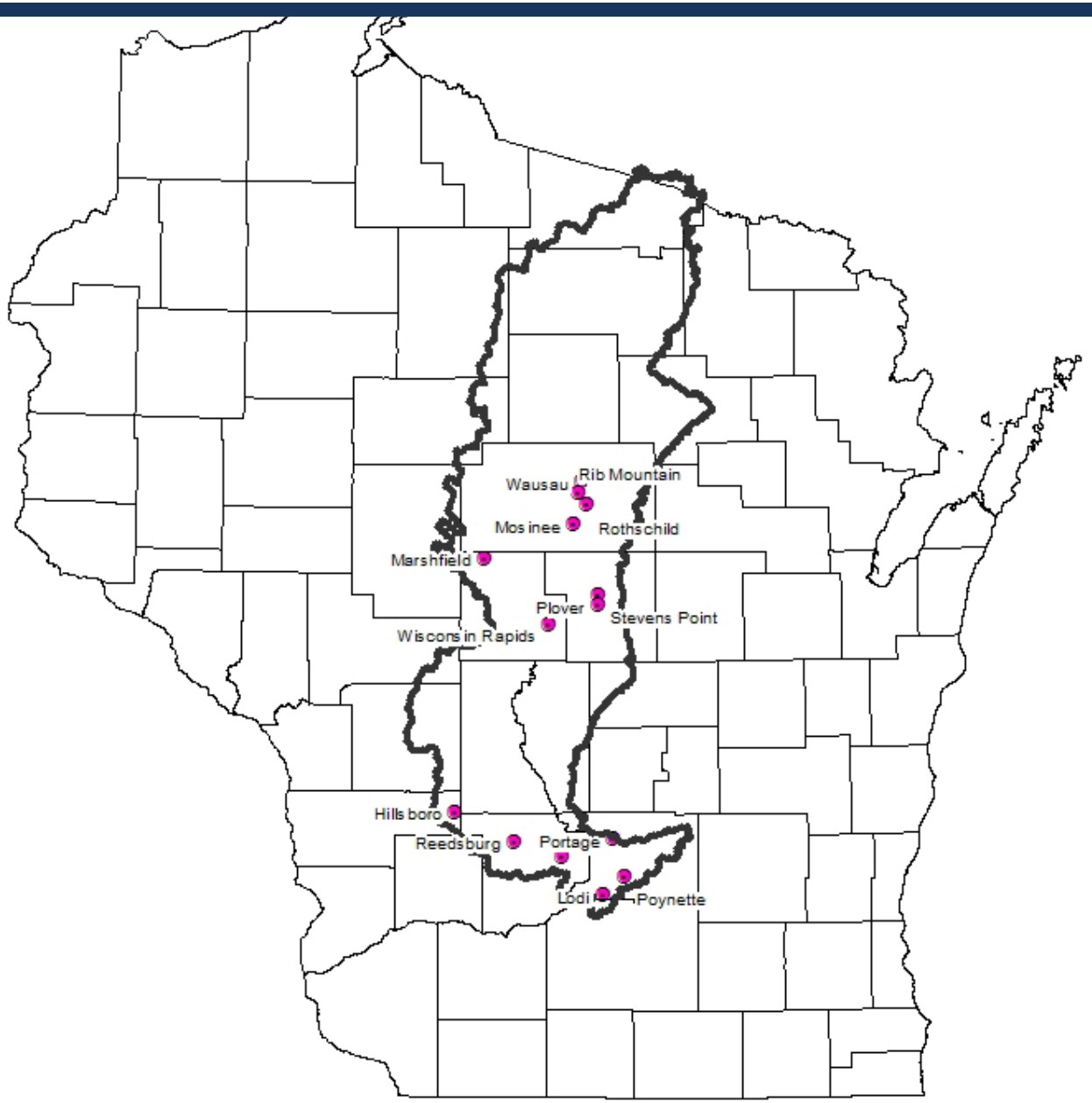
What is already being done?

Urban Stormwater Grants

Total Awards in Wisconsin River TMDL Basin (2004-2013)

$1.2 Million



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Fenwood Creek Watershed Implementation Targeting

Wisconsin River Basin Water Quality Improvement Project

Part III

WHAT'S NEW

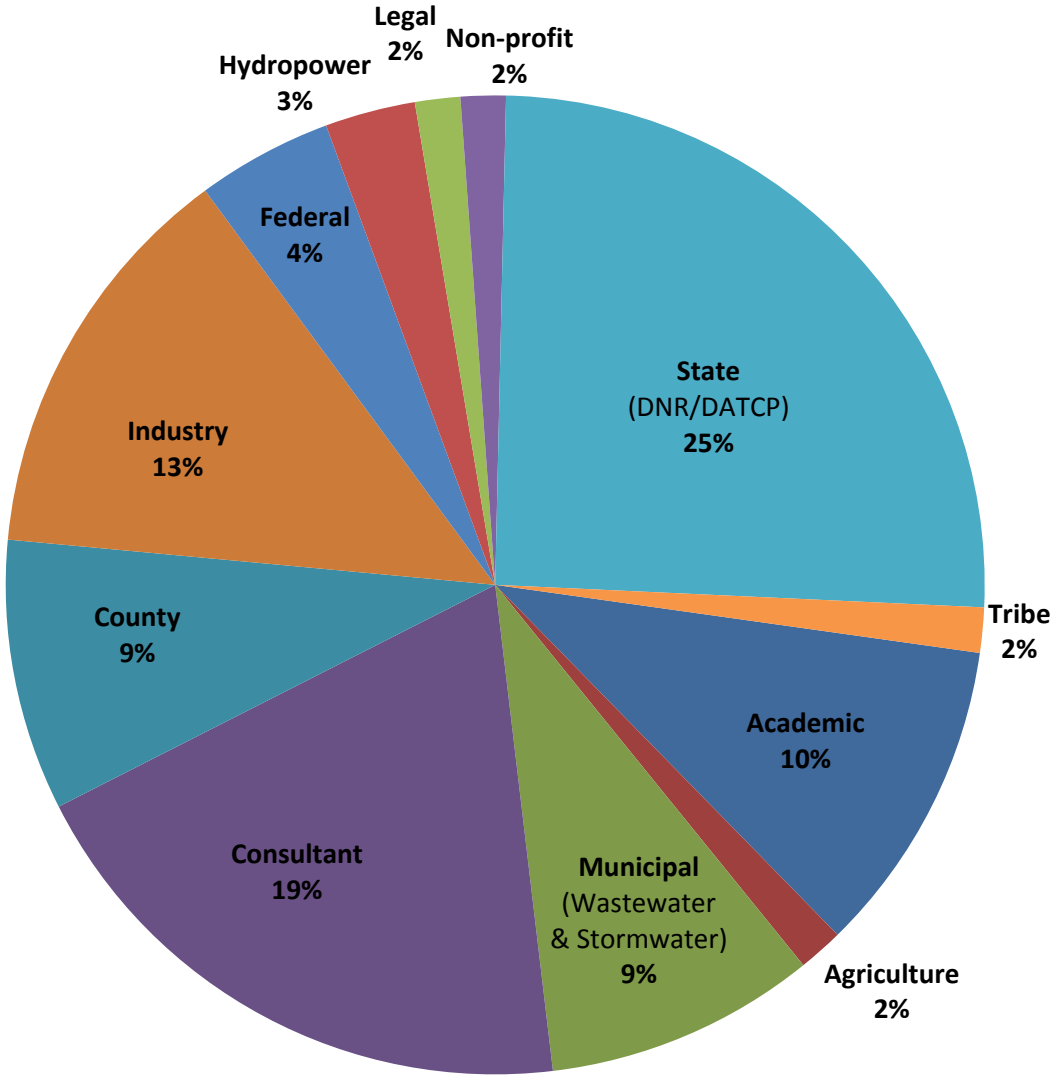
Technical Stakeholder Meetings

- November 6th and 13th at Central Wisconsin Environmental Station
- WDNR and US Army Corps presented approach outlined in Wisconsin River TMDL Technical Scope of Work

Technical Scope of Work and Meeting Presentations available here
http://dnr.wi.gov/water/tmdls/wisconsin/technical/documents.asp

Technical Stakeholder Meetings

- 67 Attendees
- Small and large group discussion to listen to concerns / questions / ideas



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Wisconsin River TMDL Website

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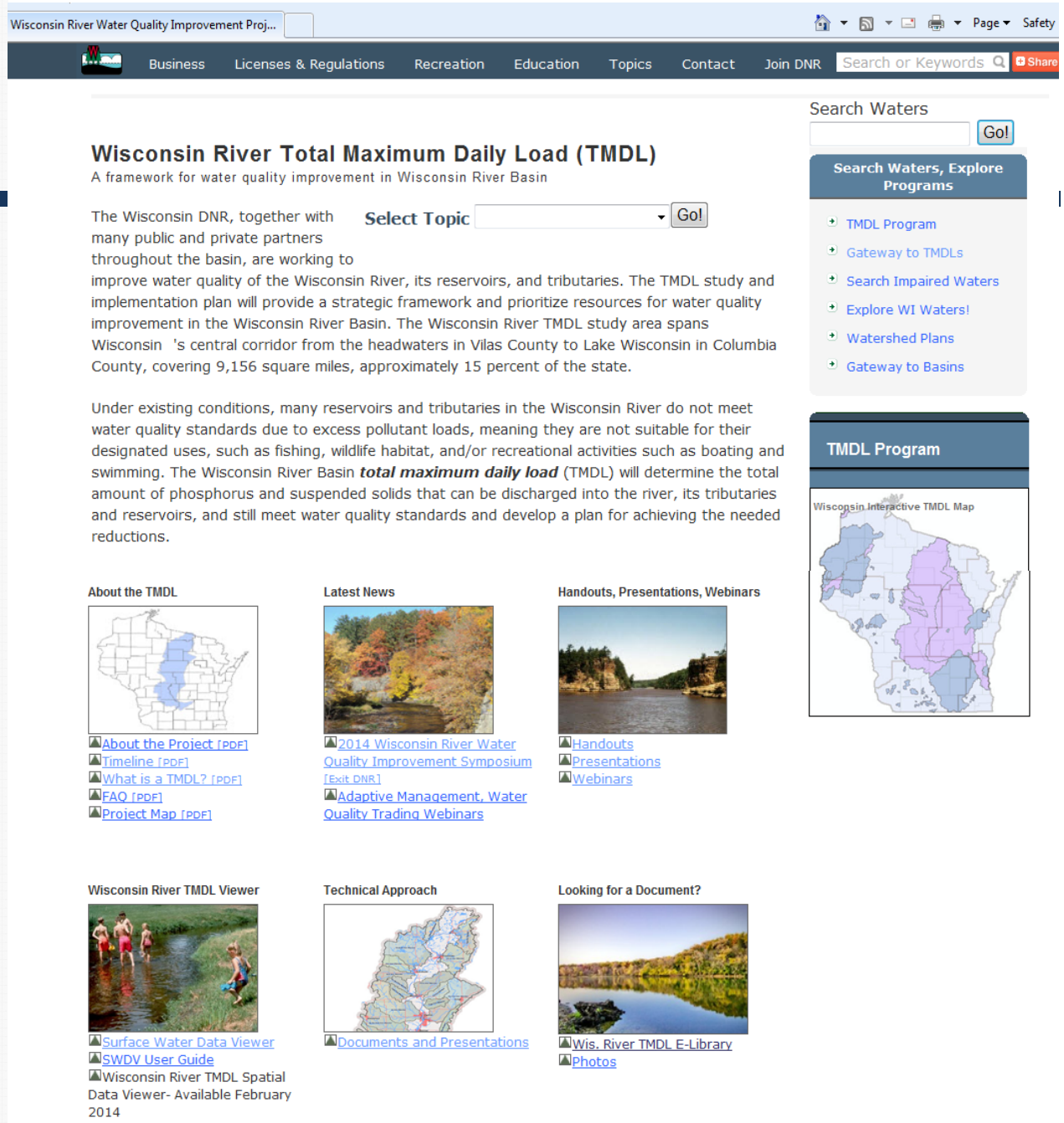

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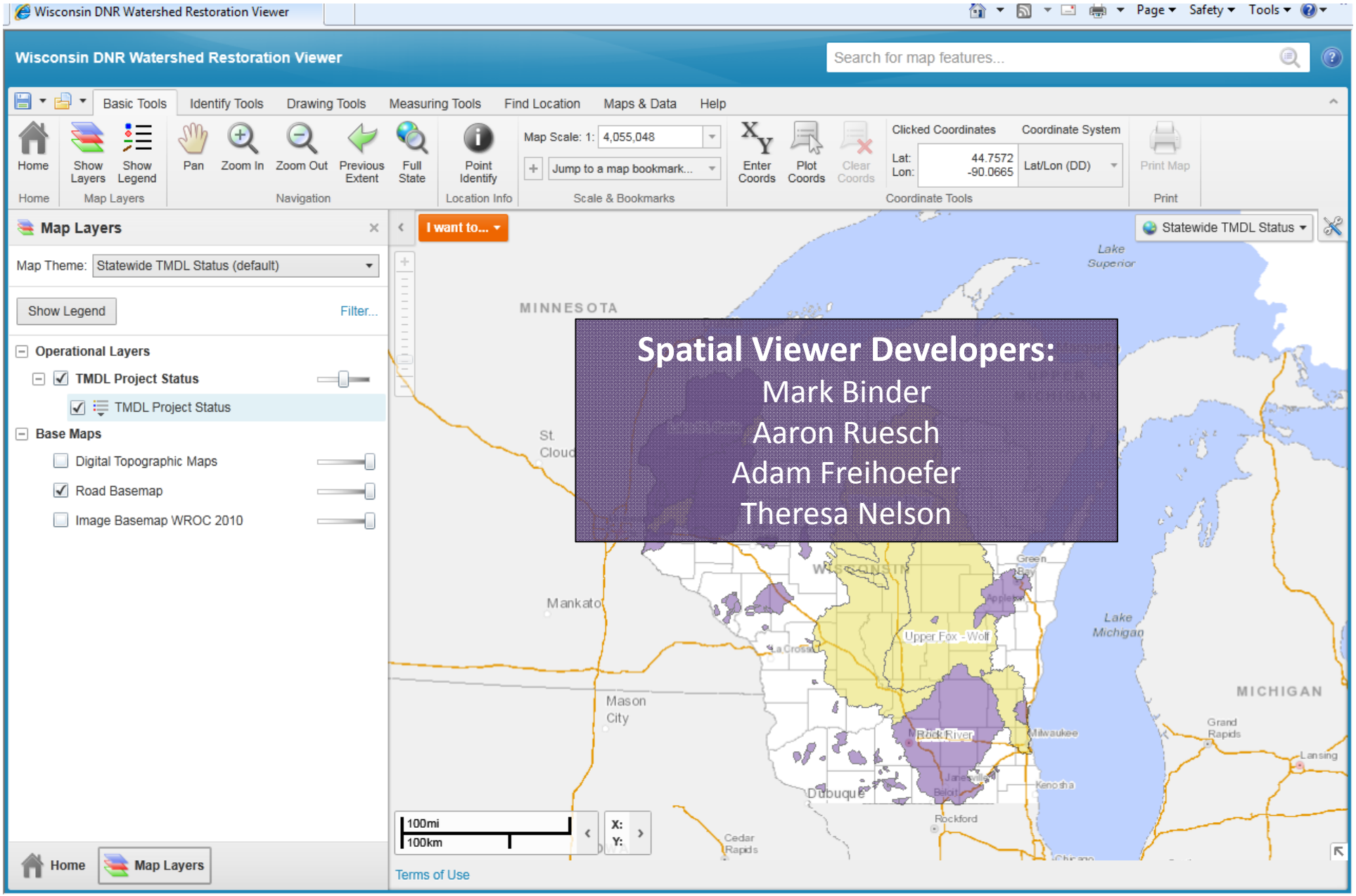
Wisconsin River TMDL Spatial Data Viewer



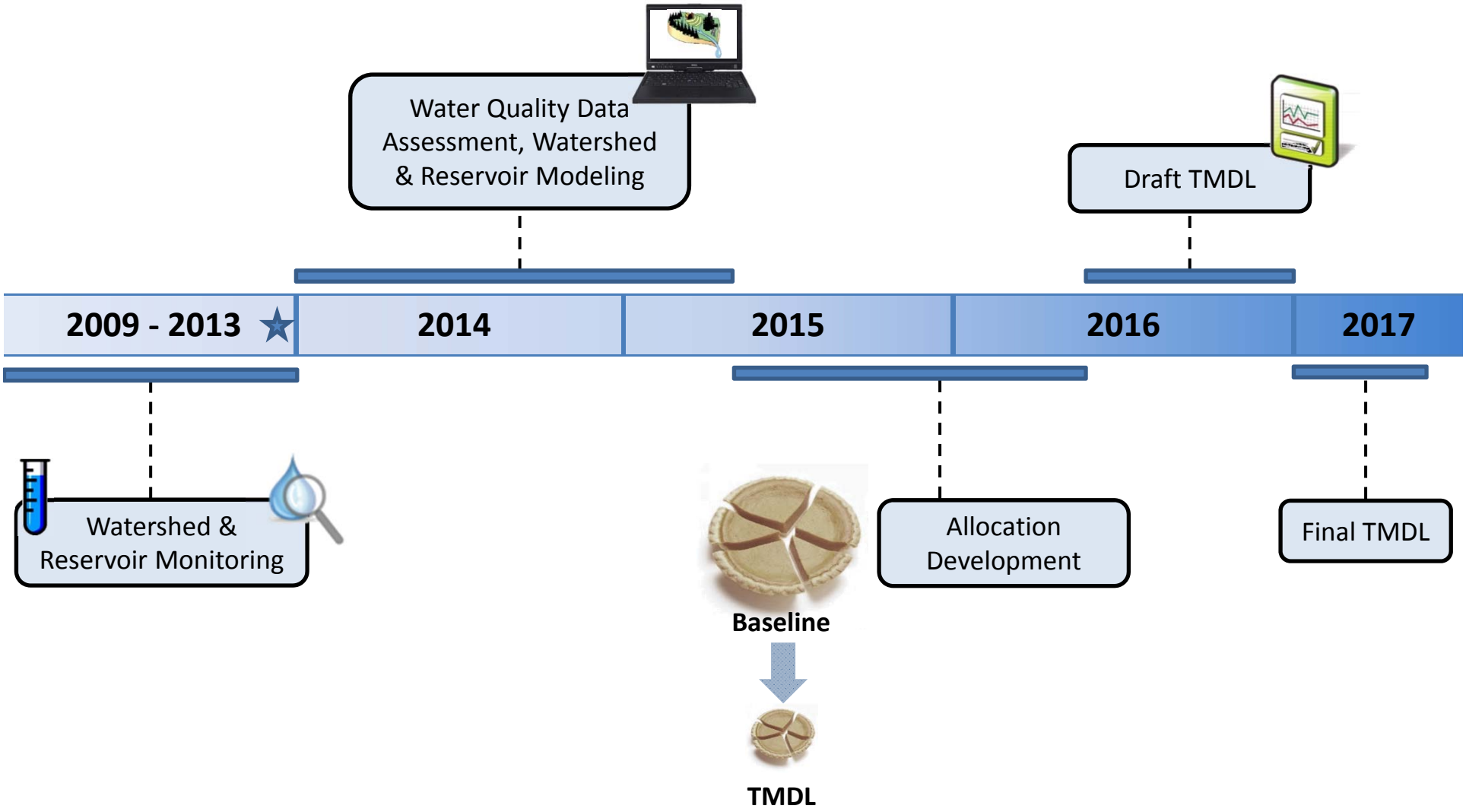
Wisconsin River Basin Water Quality Improvement Project

Part IV

WHAT'S NEXT?

What is the Project Timeline?

Estimated TMDL Development Timeline (as of February 2014)



Anticipated WRB TMDL Activities in 2014

Watershed and Reservoir Modeling (ongoing)

WR TMDL Spatial Viewer - New Data Layers

- Landcover
- Urban areas
- Citizen Groups
- Model sub-basins
- Impaired Waters
- P - Criteria

Agricultural Stakeholder Meetings

Communication with Technical stakeholders (ongoing)

- Website
- Email Distribution List

Upcoming Presentations

- **Government Affairs Seminar**
  February, 27, Madison, WI
- **WWOA North Central Region Meeting**
  March 5, Rhinelander, WI

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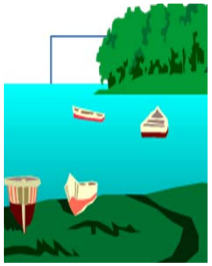
What Can Citizens Do?

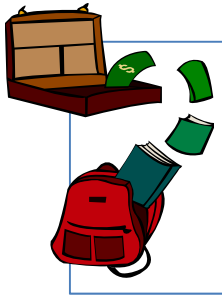
Get involved locally!

Get Involved in Land and Water Resource Planning

- Get a copy of your county plan and see what it says about issues important to you!
- Become a planning committee member



Get involved in local lake planning and management



Encourage your county to apply for grants

- TRM
- Lake Protection
- River Protection

Join your local Lake or Watershed group

Get involved in volunteer citizen monitoring

Ask yourself, what is my fair share? What can I do personally?

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Wisconsin River Basin Water Quality Improvement Project

Who Can I Contact?

Ann Hirekatur
Project Manager
Ann.Hirekatur@wisconsin.gov
608-266-0156

Adam Freihoefer
Modeling/Technical Lead
Adam.Freihoefer@wisconsin.gov
608-264-6021

Pat Oldenburg
Monitoring Coordinator
Patrick.Oldenburg@wisconsin.gov
715-831-3262

Terry Kafka
Nonpoint Source Sector Lead
terence.kafka@wisconsin.gov
715-355-1363

Brad Johnson
Stormwater Sector Lead
BradleyA.Johnson@wisconsin.gov
715-359-2872

Doug Casina
CAFO Sector Lead
Douglas.Casina@wisconsin.gov
715-359-2874

VACANT
Wastewater Sector Lead

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