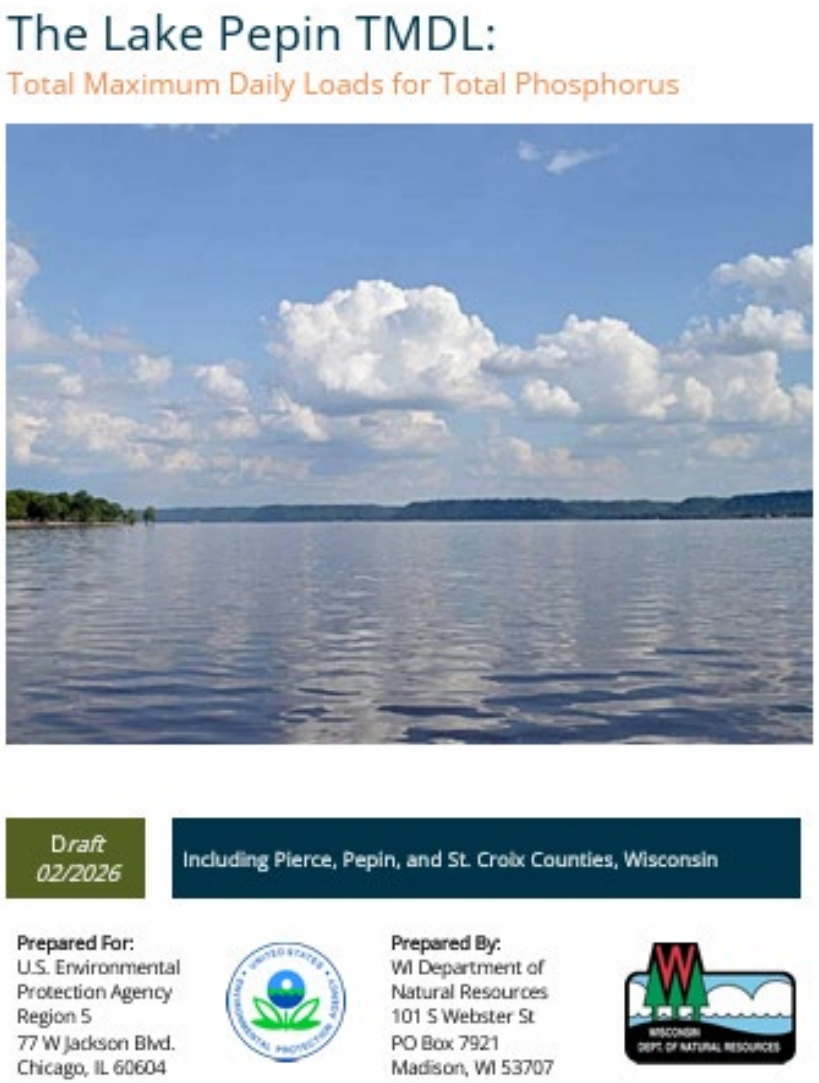
Public Informational Hearing:

“The Lake Pepin TMDL”

Kevin Kirsch

WI Dept. of Natural Resources

April 27, 2026



Agenda

- Introductory Remarks
- Presentation covering the Lake Pepin TMDL report and implementation analysis
- Commencement of on the record verbal comments
  (Note: written comments carry the same weight)
- Closing Remarks

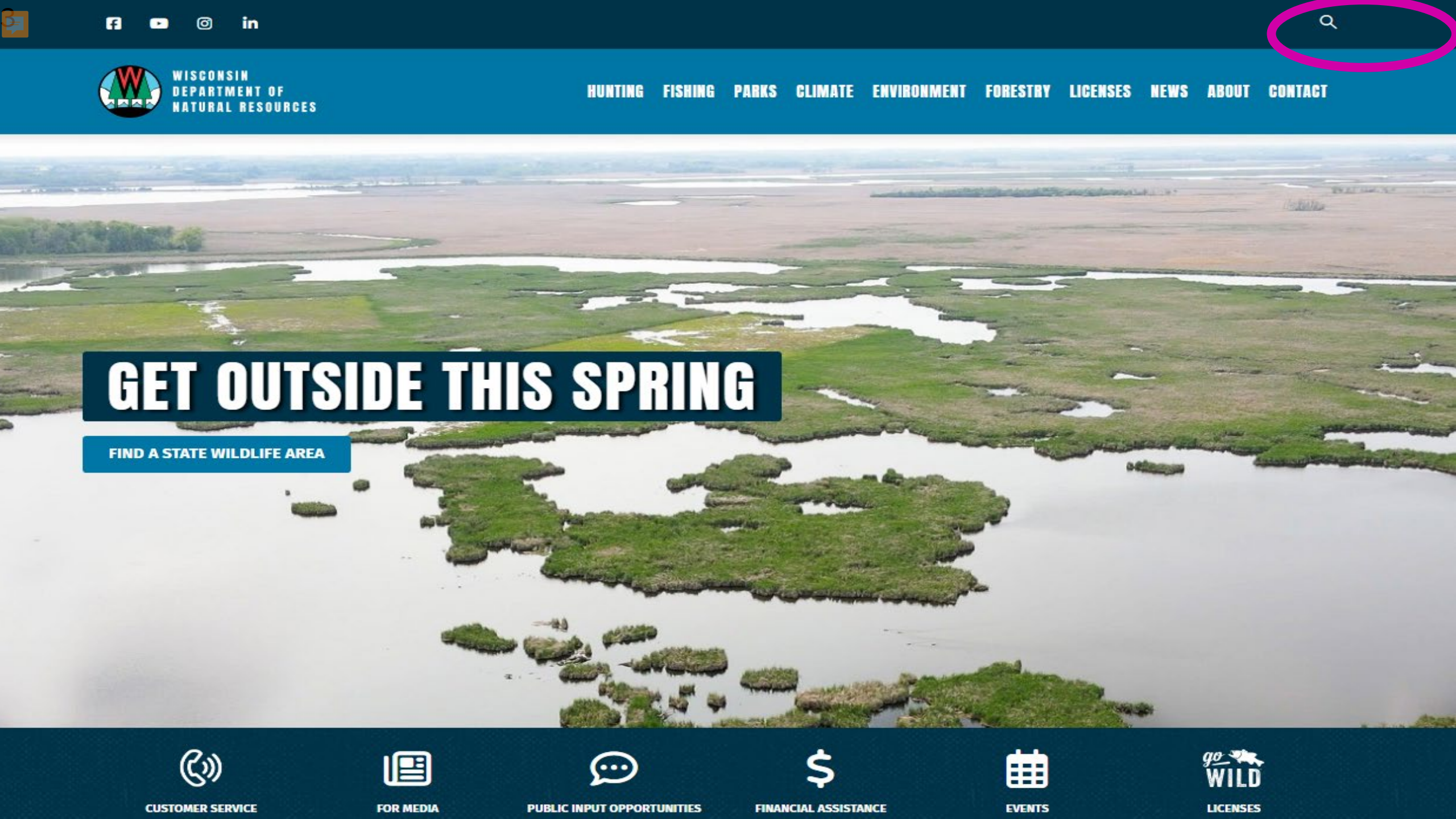
Both the recorded presentation and slides will be available on the DNR website.

https://dnr.wisconsin.gov/topic/TMDLs/TMDLDevelopment.html

or just search “Lake Pepin TMDL”

SUBSCRIBE

Subscribe to receive email updates about the Northeast Lakeshore TMDL.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EVENTS
LICENSES

Public Informational Hearing Introduction

The Department has set at this time, Monday, April 27, 2026, at 1:00 pm for a public informational hearing and to receive verbal comments regarding the “The Lake Pepin TMDL: Total Maximum Daily Loads for Total Phosphorus”– the report version dated February 2026.

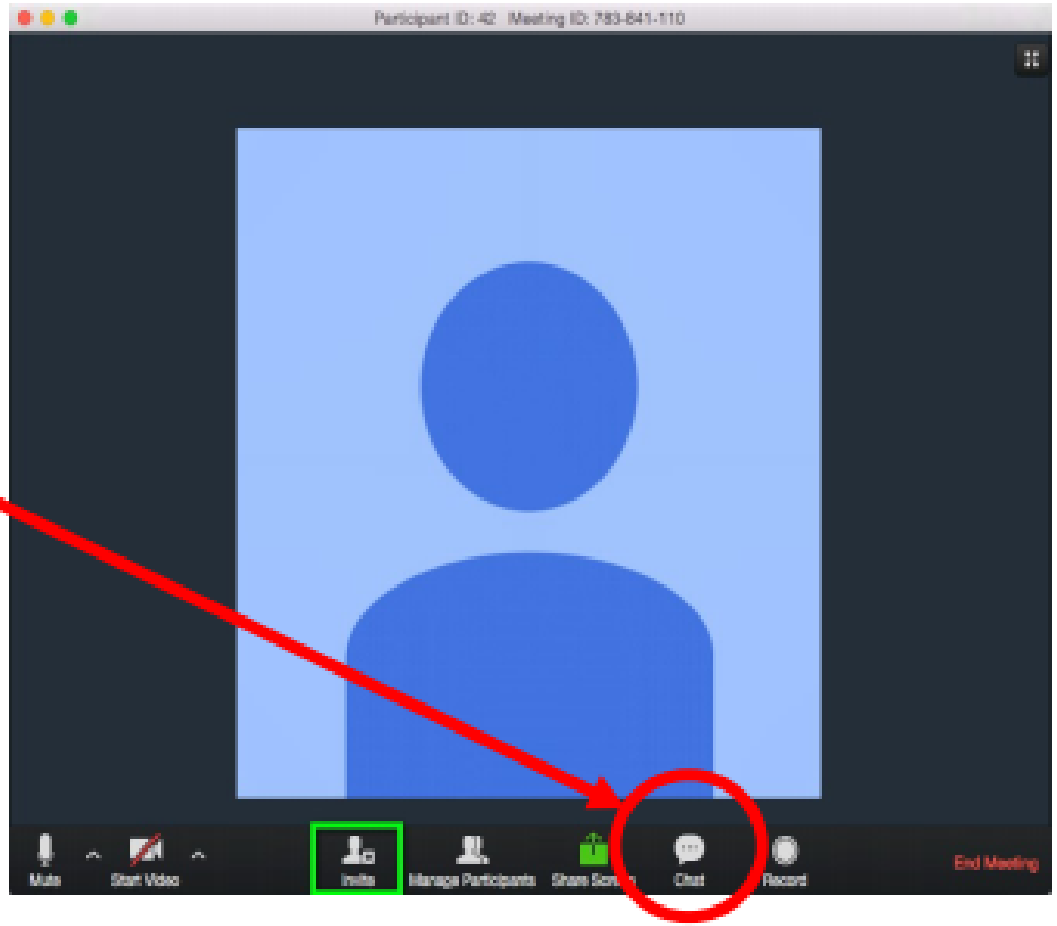
This hearing is being held pursuant to section 283.83 of the Wisconsin Statutes and chapter NR 121 of the Wisconsin Administrative Code. Notice of this hearing was provided through GovDelivery, DNR distribution lists, the DNR website, and posted on DNR’s meeting calendar. This is a non-contested case hearing and as such, persons entering an appearance may make verbal statements, offer evidence, or ask questions concerning the matter being heard. However, cross-examination of anyone making a statement is not allowed, although questions of a clarifying nature will be allowed.

In lieu of or in addition to verbal statements at today's hearing, written comments will be accepted by the Department until close of business (COB) **May 15, 2026**.

Zoom

Click **Chat** in the meeting controls.

NOTE: If don't see controls, tap screen and they will pop up.



Public Informational Hearing Comment Period

Written comments will be accepted through close of business on May 15, 2026.

Verbal comments, received during the public hearing, and written comments received prior to the close of the comment period will be considered prior to making a final approval and submittal of the TMDL Study to U.S. EPA. Written and verbal comments carry the same weight. A summary with response to comments shall be included in the final TMDL Study report.

Comments can be emailed to Kevin.Kirsch@Wisconsin.gov

Please use the subject line: "Lake Pepin TMDL Comments"

Or submitted by mail:

Wisconsin Department of Natural Resources

Attn: Kevin Kirsch

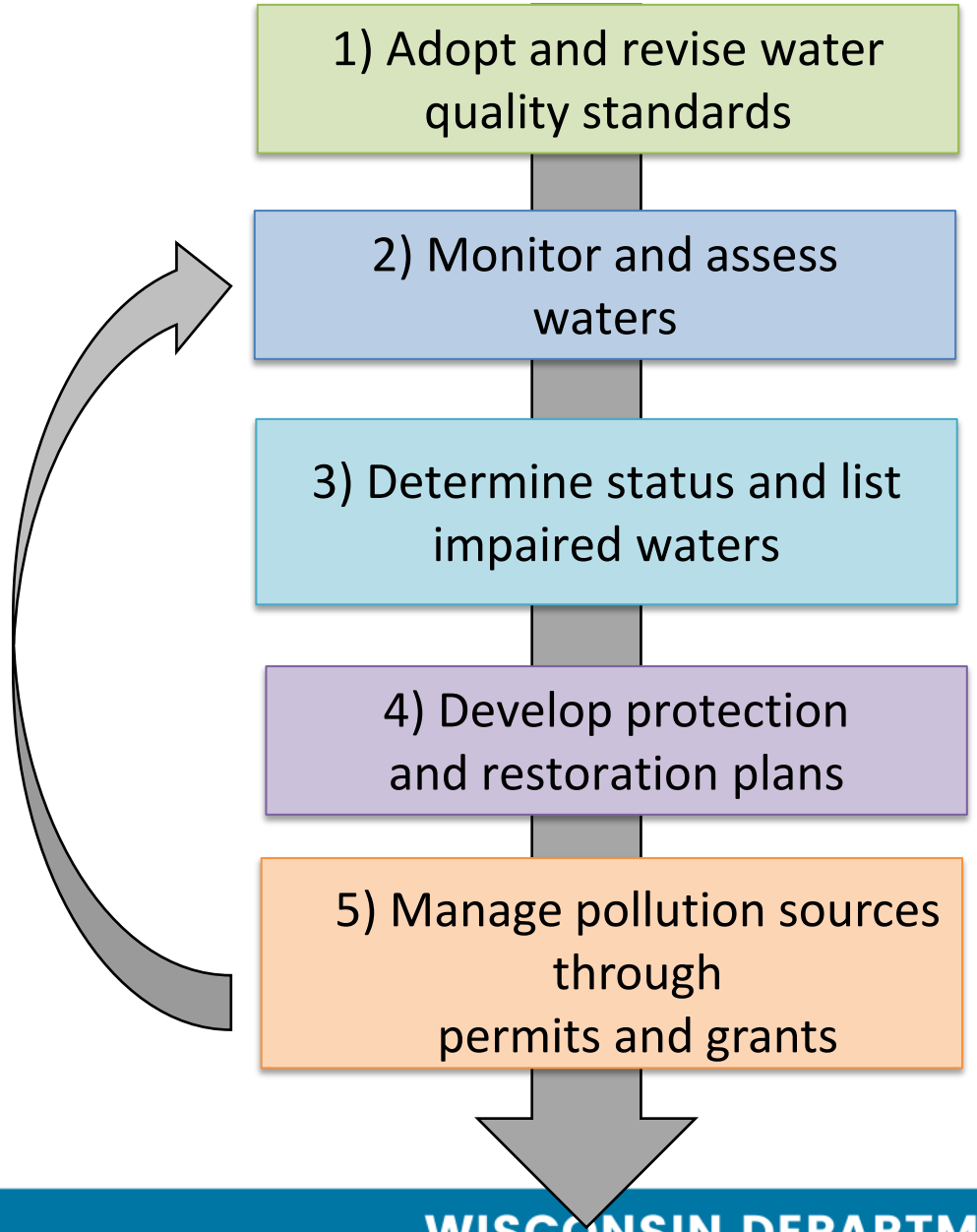
PO Box 7921

Madison, WI 53707-7921

Why? Clean Water Act

- Total Maximum Daily Load (TMDL) development and implementation is required under the Clean Water Act
  - Federal Law
    - Established in 1972
    - Amended in 1977
- Goal of “fishable, swimmable waters”

Clean Water Act



→ TMDL Development

→ Ongoing TMDL Implementation

Designated Uses

Fish and Aquatic Life

Recreation

Public Health & Safety

Water Quality Criteria

Numeric: Dissolved oxygen, pH, bacteria, toxic substances, total phosphorus, etc.

Narrative: “no objectionable deposits,” “substances…shall not be harmful to humans, fish, plants, or other aquatic life.”

Statewide Phosphorus Criteria (2010)

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

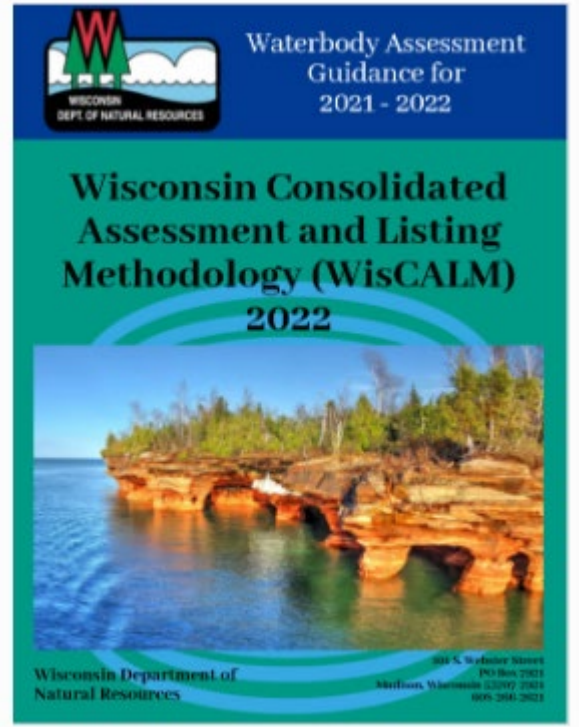
Great Lakes

- 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'S CONSOLIDATED ASSESSMENT AND LISTING METHODOLOGY (WISCALM)

Every two years, Sections 303(d) and 305(b) of the Clean Water Act require states to publish a list of all waters not meeting water quality standards.



The Process is laid out in WISCALM:

https://dnr.wisconsin.gov/topic/SurfaceWater/WisCALM.html

Or search "WISCALM"

What are Total Maximum Daily Loads?

- The amount of pollutant a waterbody can receive and still meet water quality standards

Total Maximum Daily Load =

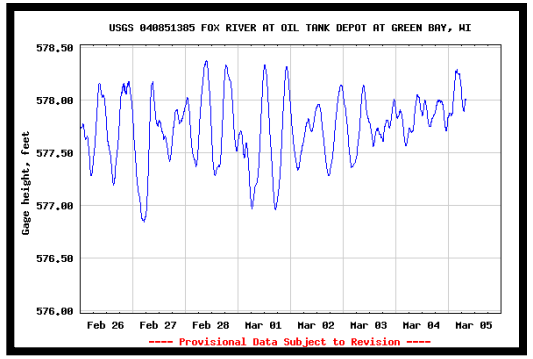
Load Allocation

+

Waste Load Allocation

+

Margin of Safety



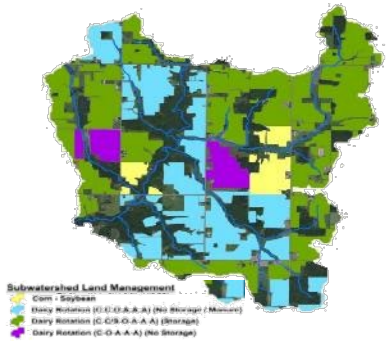
TMDL Development Overview

Monitoring
Conceptualization

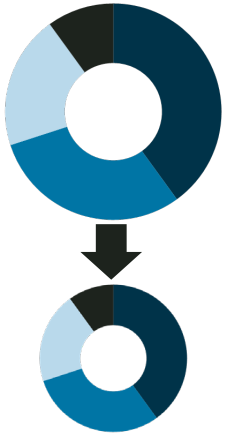
Modeling

Allocations

Implementation



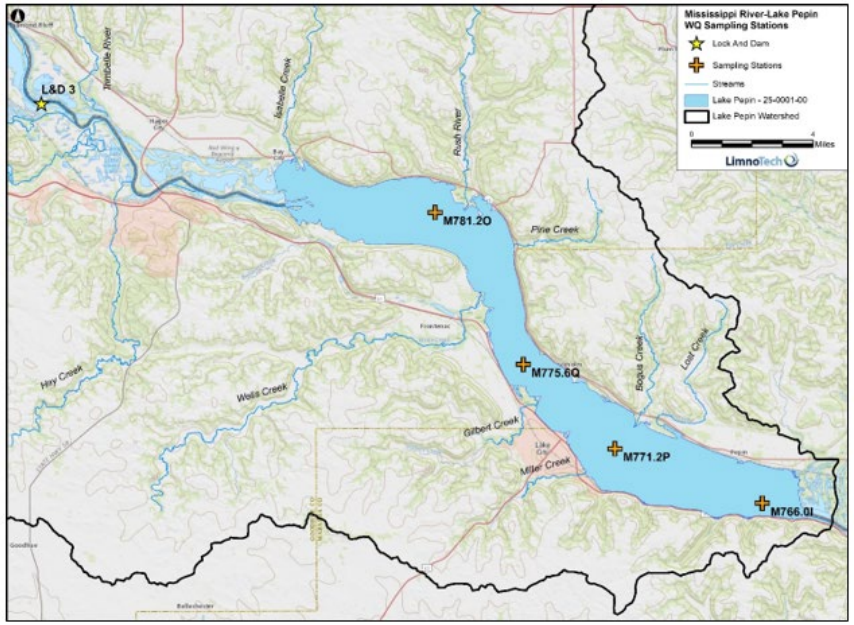
Baseline



TMDL

Lake Pepin

- Surface area (sq mi) 39.7
- Mean depth (ft) 17.7
- Max Depth (ft) 56
- Length (mi) 20.8



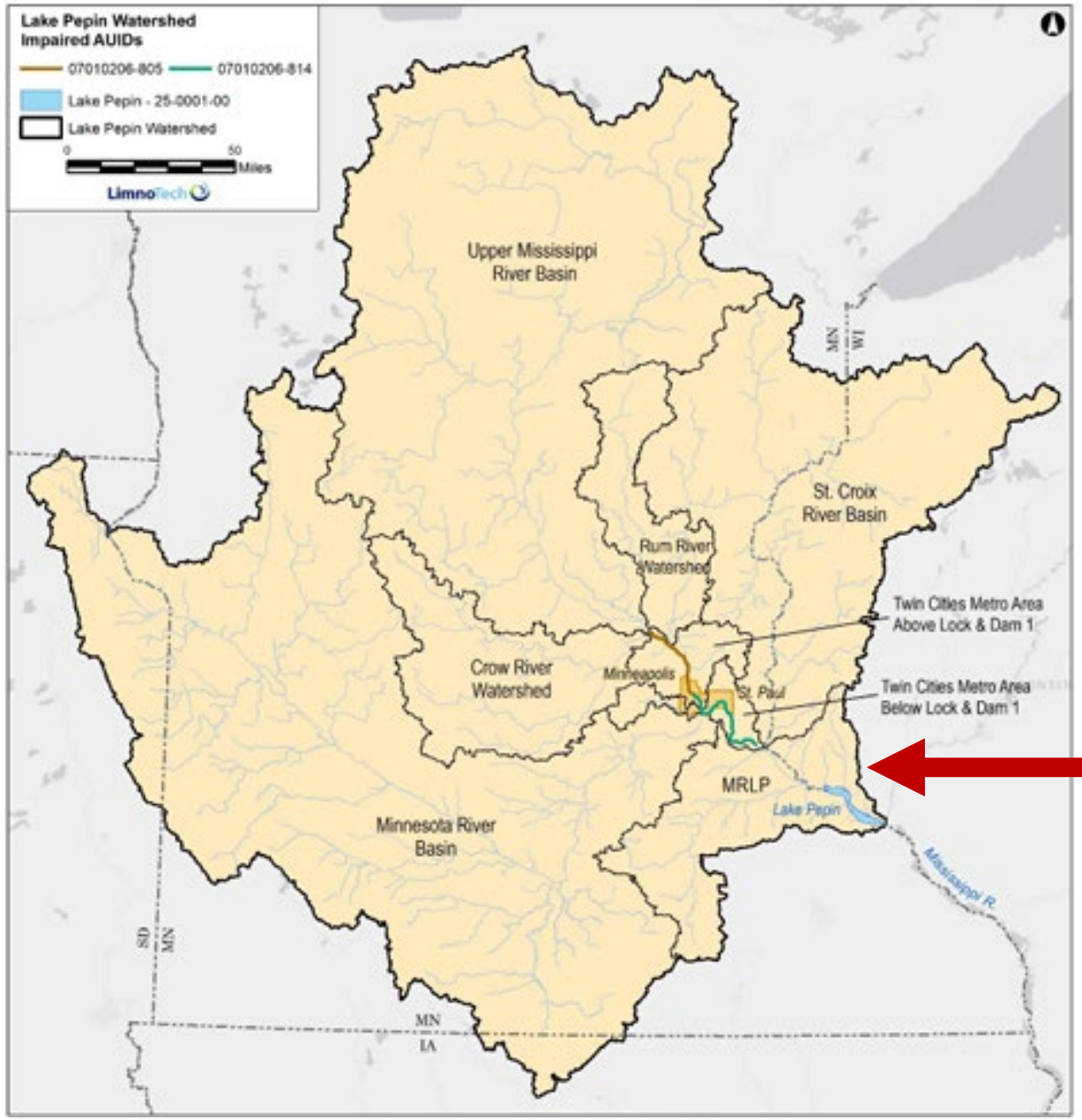
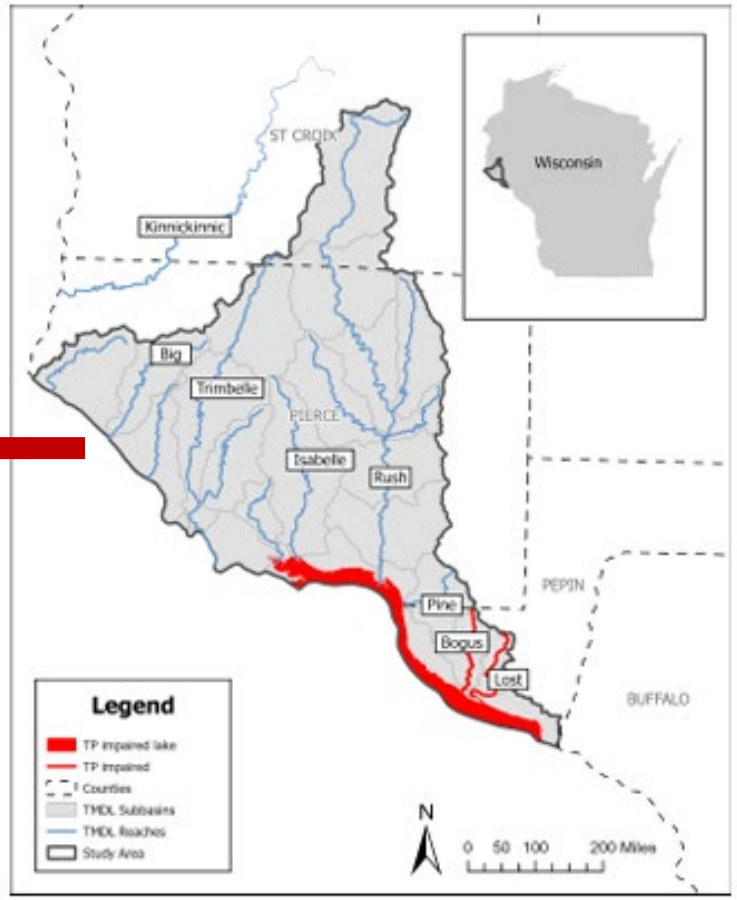


Figure 1. MPCA TMDL Report, 2021

Lake Pepin's watershed is 48,634 square miles in size.

The study area covered by this TMDL study is 514 square miles.

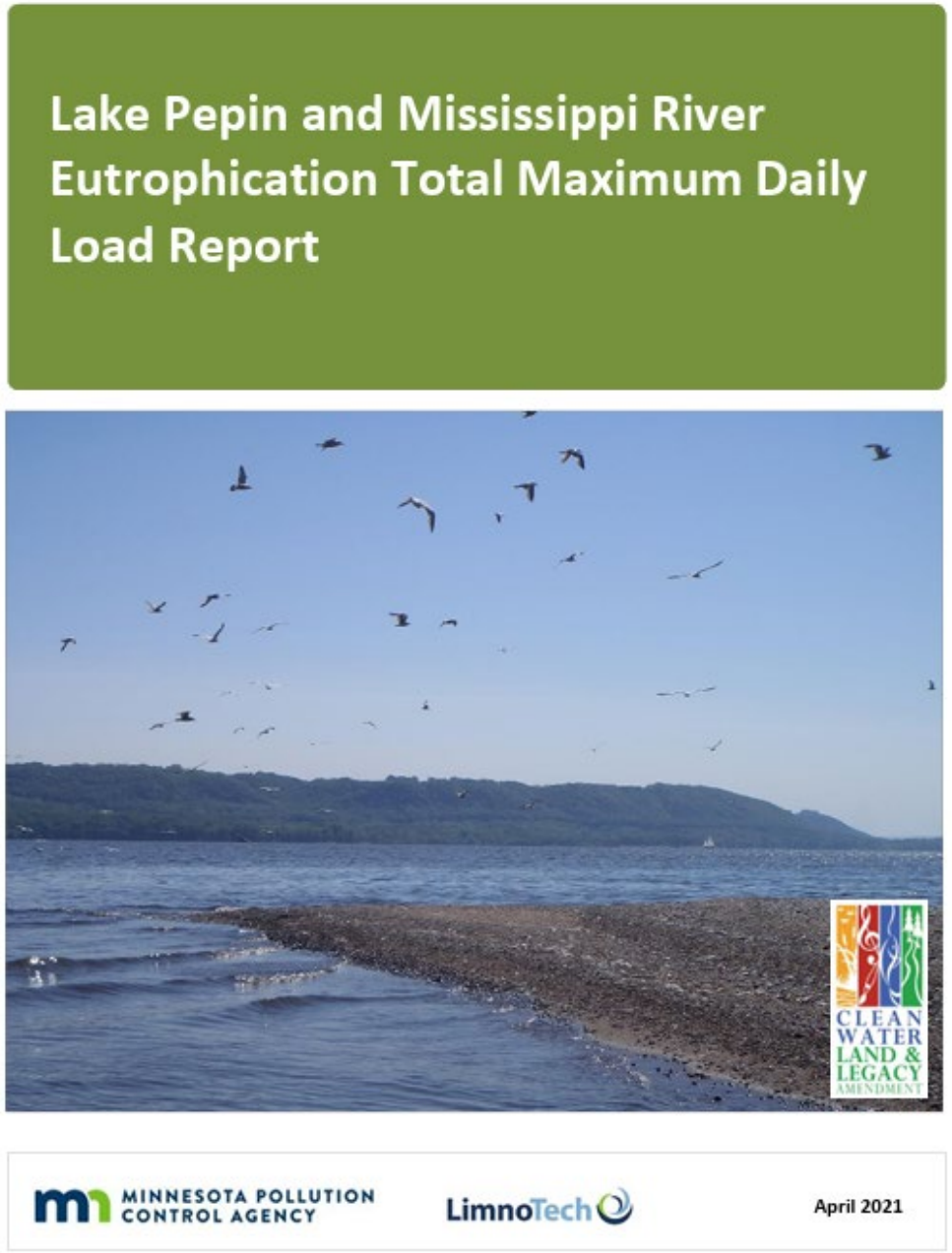


MPCA's TMDL Study

Minnesota Pollution Control Agency (MPCA), in coordination with DNR, initiated restoration efforts for Lake Pepin after it was found to be violating water quality standards in 2002.

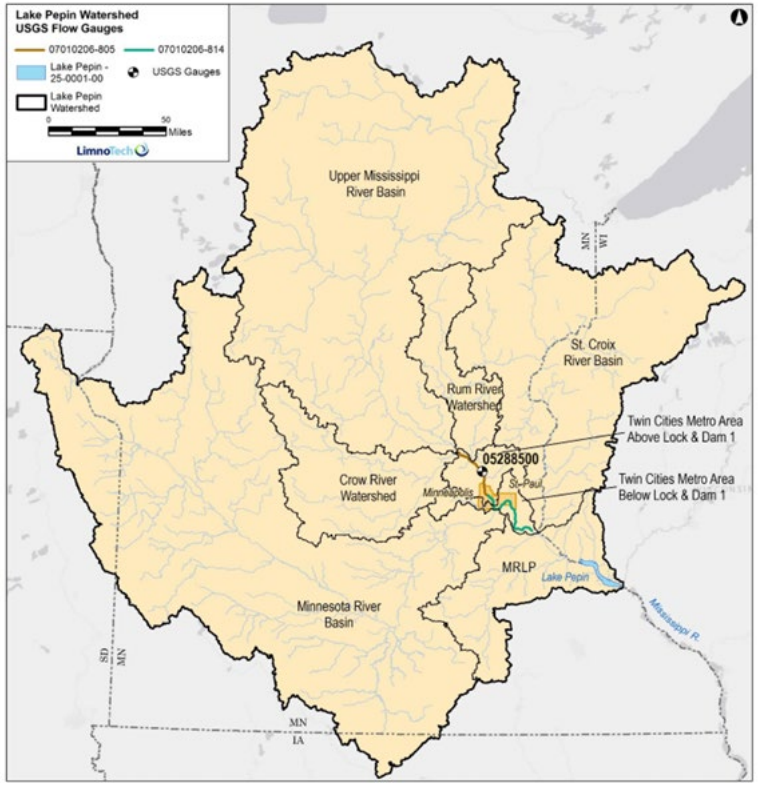
MPCA's TMDL report, "Lake Pepin and Mississippi River Eutrophication Total Maximum Daily Load Report" was approved by U.S. EPA on May 19, 2021, and can be found on MPCA's website:

https://www.pca.state.mn.us/business-with-us/lake-pepin-watershed-excess-nutrients-tmdl



MPCA's Lake Pepin TMDL

- 20% reduction in the Mississippi River at Ford Dam (Lock and Dam 1, Minneapolis)
- 50% reduction in the Minnesota River
- 20% reduction in the St. Croix River
- 50% reduction in the Cannon River
- 20% reduction in other tributaries



- Calculated overall reductions needed to meet water quality criteria and standards for Lake Pepin (100 ug/L).

- Wisconsin's pollutant load contribution is included under the area 20% reduction.

MPCA's Lake Pepin TMDL: Appendix E

- MPCA's TMDL accounted for Wisconsin's pollutant load in the overall TMDL analysis.
- MPCA's TMDL does not assign load or wasteload allocations to Wisconsin.
- Set to meet water quality criteria for Lake Pepin, DNR utilized MPCA's analysis as a starting point and further refined these numbers to ensure attainment of water quality criteria for Wisconsin's tributary watersheds.

Appendix E – Wisconsin Loads accounted for in Lake Pepin TMDL

The table below represents the Wisconsin phosphorus loads below the St Croix River confluence with the Mississippi River that are accounted for in the Lake Pepin (AUID 25-0001-00) TMDL but are not included in the TMDL table.

Lake Pepin TMDL Component		TP Loads Accounted for in the Lake Pepin TMDL	
		kg/year	kg/day
Total Wisconsin Loads Accounted for in Lake Pepin Load Capacity (LC)		14,833	40.6
Wisconsin Point Source Loads	Total Point Source Loads	4,295	11.8
	Wisconsin WWTPs	*3,925*	*10.8*
	Construction and Industrial Stormwater	*15*	*0.04*
	Wisconsin General Permits	*355*	*0.97*
Wisconsin Nonpoint Source Loads	Total Nonpoint Source Loads	9,600	26.3
	Natural Background	*8,160*	*22*
Margin of Safety (MOS): Explicit 5% of LC		742	2.0
Reserve Capacity (RC)		196	0.5

MPCA's Lake Pepin TMDL: Individual Permits

Accounted for point source discharges from WI.

Does not assign wasteload allocations to WI dischargers.

Wisconsin WWTP loads accounted for in Lake Pepin TMDL

Facility Name	Permit Number	Lake Pepin Loading (kg/yr)
Mississippi River/Lake Pepin Direct Tributaries		
City of Prescott	WI0022403	703
Ellsworth Co-op Creamery (Process)	WI0022942	419
Village of Baldwin	WI0026891	1,167
Village of Bay City	WI0061255	202
Village of Ellsworth	WI0021253	794
Village of Maiden Rock	WI0032361	64
Village of Pepin	WI0022811	576
	Total	**3,925**

Lake Pepin TMDL Nonpoint Source Analysis

- DNR updated nonpoint loads based on more detailed land use analysis.
- Subdivided the load allocation into different source areas.
- MPCAs loadings based on 1985 through 2006 while DNR's analysis based on more current conditions.
- DNR's analysis also increased the drainage area from 465 square miles to 514 square miles.

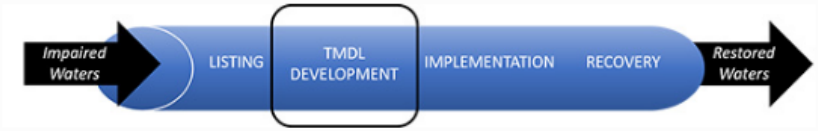
Table 4 Summary of MPCA Estimated Nonpoint Loads and WDNR Nonpoint Source Baseline Loads

	MPCA Loads		WDNR Loads	
	lbs./yr	lbs./day	lbs./yr	lbs./day
Total Nonpoint Source Loads	21,164	58.0	100,212	274.3
Natural Background	17,990	48.5	19,661	53.8
Agricultural	Not Available		74,937	205.1
Non-permitted Urban	Not Available		5,614	15.4

ADDITIONAL TMDLS IN DEVELOPMENT

DNR webpage

The Wisconsin Department of Natural Resources (DNR) [illegible] restore and protect the state's water quality by developing Total Maximum Daily Loads (TMDLs). These multi-year studies involve collecting detailed water quality data, quantifying pollutant sources and creating strategic frameworks to implement necessary reductions.



The following are major TMDL projects in development in Wisconsin. Additional information can be obtained on these and other projects by using the impaired waters search tool or the TMDL project search.

THE LAKE PEPIN TMDL

TOTAL MAXIMUM DAILY LOADS FOR TOTAL PHOSPHORUS

For more information, contact:

Kevin Kirsch
TMDL coordinator
Water Quality Program

DRAFT TMDL DOCUMENTS:

- Draft TMDL Report [PDF]

APPENDICES:

- Appendix A: Impairments Addressed [PDF]
- Appendix B: Allocation Tables [PDF]
- Appendix C: Agricultural Edge-of-Field Targets [PDF]
- Appendix D: Edge-of-Field and EVAAL Analysis [PDF]

TMDL Report Contents

Report:

1. Introduction
2. Applicable Water Quality Standards and Numeric Targets
3. Watershed Characteristics
4. Determination of Assimilative Capacity
5. Pollutant Load Allocations
6. Implementation and Reasonable Assurance

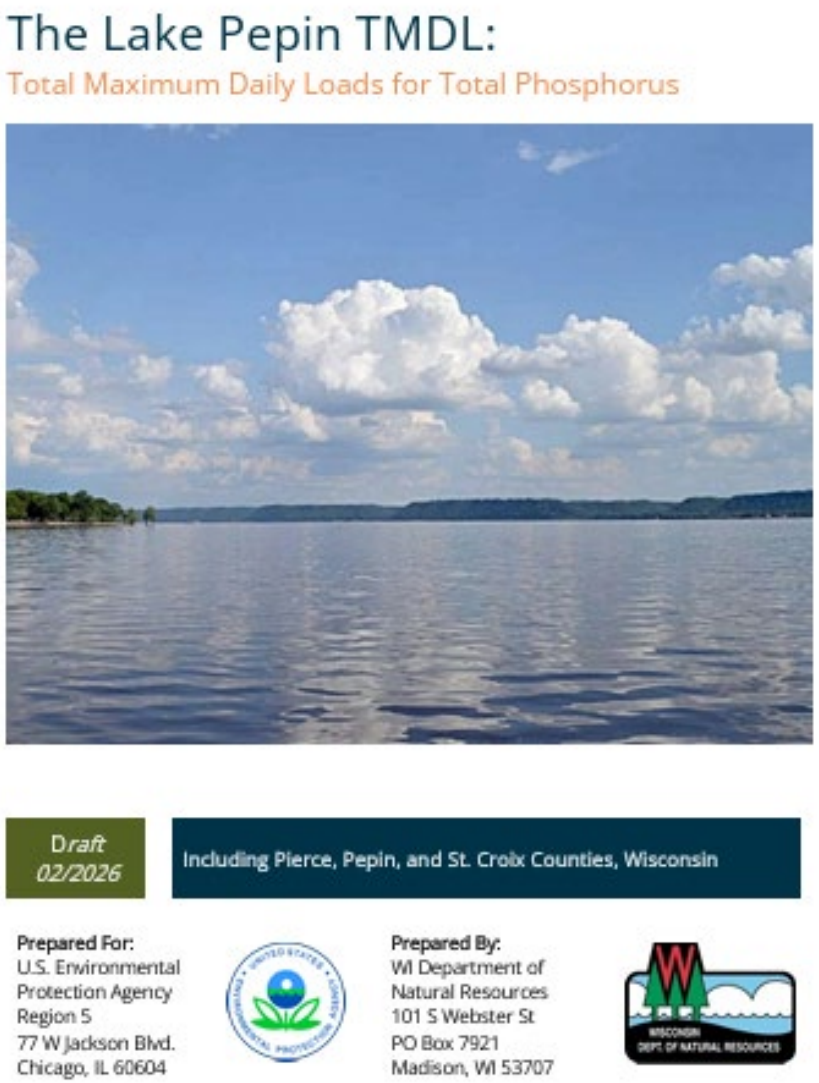
Appendices:

A: Impairments Addressed

B: Allocation Tables

C: Agricultural Edge-of-field Targets

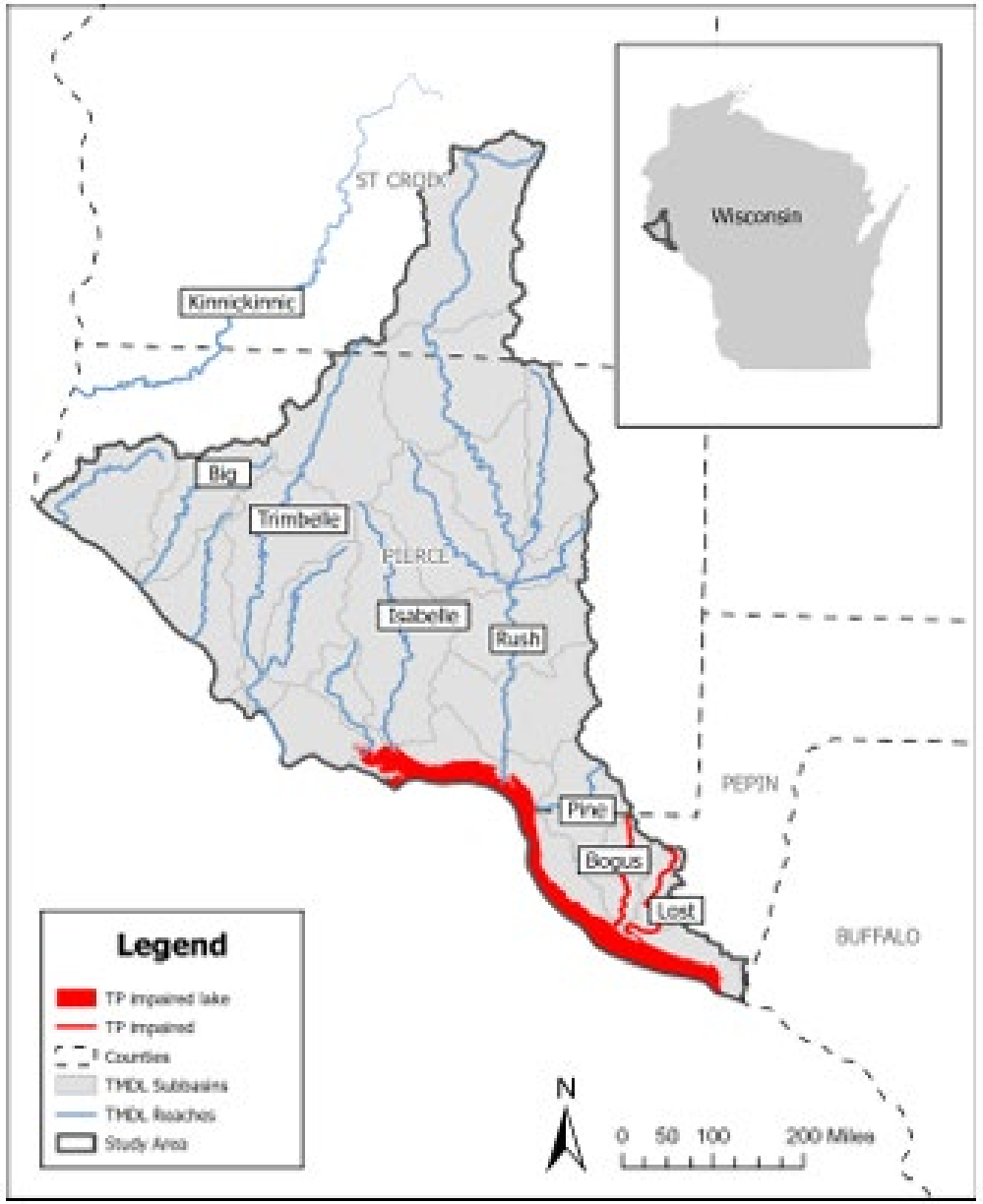
D. Edge-of-field and EVAAL Analysis



Applicable Water Quality Standards and Numeric Targets

- **Lake Pepin**: is considered an impounded flowing water under s. NR 102.06(3)(c), Wis. Adm. Code, meaning that Lake Pepin shall meet the river criterion that applies to the primary stream or river entering Lake Pepin. The water quality criterion for the Mississippi River under s. NR 102.06(3)(a)27, Wis. Adm. Code, is a total phosphorus criterion of 100 micrograms per liter (µg/L).

- **Lost Creek, Bogus Creek, and other contributary streams**: Per NR 102.06(3)(b), all streams shall meet a total phosphorus criterion of 75 µg/L.

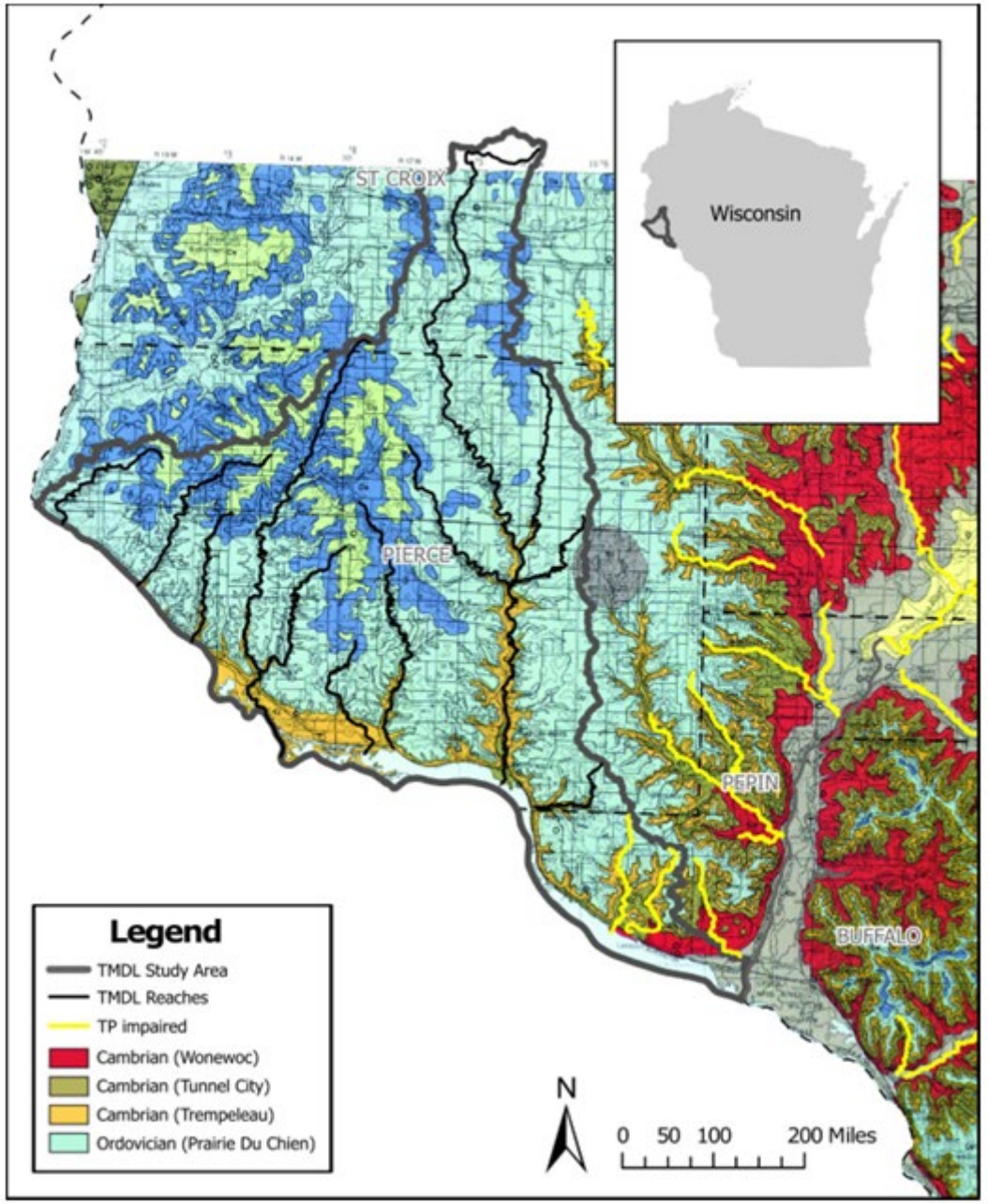


Watershed Characteristics

- Bisected by two ecological landscapes, the “western prairie” and “western coulees and ridges”, the Wisconsin portion of the Lake Pepin watershed is approximately 514 square miles.

- Just under 50% of the land use is comprised of agricultural with crop rotations consistent with dairy and cash grain.

- A small potion of the watershed has urbanized land uses with notable municipalities including Baldwin, Ellsworth, Prescott, Bay City, and Maiden Rock.



Determination of Assimilative Capacity

$$\boldsymbol{Loading\ Capacity\ (TMDL) = Q_{mean} * TP_{crit} * (FWM/GSM)}$$

Where:

Qmean: is the mean annual flow in the subbasin (extracted from the WHDPlus model).

TPcrit: is the total phosphorus criterion (75 µg/L)for all streams in the TMDL study area.

FWM/GSM: is the conversion factor to translate model output (flow weighted mean) to values consistent with the criterion that is expressed as a growing season median.

Pollutant Load Allocations

$$TMDL = \sum WLA + \sum LA + MOS + RC$$

Load allocations:

- Natural background sources (e.g., forests and wetlands)
- Agricultural sources
- Non-permitted urban areas (NPUs)

Wasteload allocations:

- Individual WPDES permittees (WW, CAFO)
- General WPDES permittees (WW, stormwater, CAFO)

Pollutant Load Allocations Equation

$$TMDL = \sum WLA + \sum LA + MOS + RC$$

- MOS: Margin of safety, MPCA established an explicit MOS of 5% for loadings to Lake Pepin. An implicit MOS is used for Wisconsin's tributaries based on the confidence intervals used in the modeling analysis. For Lake Pepin, Wisconsin's analysis set to meet local criterion of 75 ug/L which is more stringent that the 100 ug/L for Lake Pepin.

- RC: Reserve capacity is a portion of the TMDL set aside to allow for future growth for permitted dischargers.

Summary of Assimilative Capacities

TMDL Subbasin	TMDL Subbasin Name	Total (LA+WLA+RC) (lbs./day)	LA (BG+Ag+NPU) (lbs./day)	BG (lbs./day)	Agric. (lbs./day)	NPU (lbs./day)	WLA (GP+MS4+IP) (lbs./day)	GP (lbs./day)	MS4 (lbs./day	IP (lbs./day)	RC (lbs./day)
1	Trimbelle River—mile 19.0 to headwaters	**11.51**	**11.30**	3.29	7.79	0.22	**0.14**	0.14	0.00	0.00	**0.07**
2	Rush River—mile 34.3 to headwaters	**30.17**	**23.16**	2.74	17.62	2.80	**6.91**	0.19	0.00	6.72	**0.10**
3	Rush River—mile 25.9 to mile 34.3	**14.13**	**13.88**	3.51	10.13	0.24	**0.16**	0.16	0.00	0.00	**0.09**
4	Cave Creek	**9.93**	**9.79**	1.70	7.88	0.20	**0.10**	0.10	0.00	0.00	**0.05**
5	Lost Creek (tributary to Rush River)	**12.32**	**12.15**	1.86	10.10	0.19	**0.11**	0.11	0.00	0.00	**0.06**
6	Rush River—mile 13.4 to mile 25.9	**12.23**	**12.03**	2.46	9.39	0.18	**0.13**	0.13	0.00	0.00	**0.07**
7	Rush River—mouth to mile 13.4	**11.50**	**11.33**	1.87	9.20	0.27	**0.11**	0.11	0.00	0.00	**0.06**
8	Pine Creek	**7.53**	**7.42**	1.05	6.33	0.05	**0.07**	0.07	0.00	0.00	**0.04**
9	Mississippi River	**7.54**	**6.23**	2.41	2.28	1.53	**1.28**	0.06	0.00	1.22	**0.03**
10	Lake Pepin	**27.26**	**23.41**	13.30	8.42	1.69	**3.72**	0.24	0.00	3.48	**0.13**
11	Mississippi River	**26.59**	**22.03**	4.03	16.12	1.88	**4.45**	0.20	0.00	4.24	**0.11**
12	Trimbelle River—mouth to mile 19.0	**14.84**	**14.61**	3.07	10.52	1.01	**0.15**	0.15	0.00	0.00	**0.08**
13	Big River	**8.27**	**8.13**	1.92	5.99	0.23	**0.09**	0.09	0.00	0.00	**0.05**
14	Little Trimbelle River	**9.28**	**9.15**	1.44	7.40	0.31	**0.09**	0.09	0.00	0.00	**0.05**
15	Rush River—mouth to mile 7.4	**13.28**	**12.70**	2.42	10.18	0.10	**0.52**	0.13	0.00	0.39	**0.07**
16	Isabelle Creek	**24.85**	**17.69**	2.88	13.81	1.00	**7.07**	0.17	0.00	6.90	**0.09**
17	Bogus Creek	**6.19**	**6.12**	1.44	4.60	0.08	**0.05**	0.05	0.00	0.00	**0.03**
18	Lost Creek (tributary to Lake Pepin)	**4.12**	**4.07**	2.44	1.59	0.04	**0.03**	0.03	0.00	0.00	**0.02**

Pollutant Load Allocations: WLA

Table B3: Total Phosphorus Wasteload Allocations for Individual Permitted Point Sources

TMDL Subbasin	Permit no.	Outfall no.	Facility Name	Allocation (lbs./year)	Allocation (lbs./day)
2	26891	1	BALDWIN WASTEWATER TREATMENT FACILITY	2,452	6.71
9	61255	1	BAY CITY VILLAGE	445	1.22
16	22942	1	ELLSWORTH COOP CREAMERY	870	2.38
16	21253	1	ELLSWORTH WASTEWATER TREATMENT FACILITY	1,649	4.52
15	32361	1	MAIDEN ROCK WASTEWATER TREATMENT FACILITY	141	0.39
10	22811	1	PEPIN WASTEWATER TREATMENT FACILITY	1,269	3.48
11	22403	1	PRESCOTT WASTEWATER TREATMENT FACILITY	1,549	4.24

Pollutant Load Allocations: Load Allocation

Based on MPCA's recommended percent reductions to meet water quality criteria for Lake Pepin, reductions were increased where needed to attain local water quality criteria.

Table B4: Percent Reduction for Total Phosphorus for Agricultural Nonpoint and Non-permitted Urban *Agric. = agriculture, NPU = non-permitted urban*

TMDL Subbasin	DNR Modeled Agric. and NPU Load	MPCA Recommended Reduction for Lake Pepin		Additional Reduction for Local Water Quality		Total Reduction from DNR Modeled Load		Allocation for Agric. and NPU
	(lbs./yr)	%	(lbs./yr)	%	(lbs./yr)	%	(lbs./yr)	(lbs./yr)
1	3,658	20%	732	0.0%	-	20.0%	732	2,926
2	9,782	20%	1,956	4.7%	366	23.7%	2,322	7,460
3	4,734	20%	947	0.0%	-	20.0%	947	3,787
4	3,690	20%	738	0.0%	-	20.0%	738	2,952
5	4,700	20%	940	0.0%	-	20.0%	940	3,760
6	4,368	20%	874	0.0%	-	20.0%	874	3,494
7	4,321	20%	864	0.0%	-	20.0%	864	3,457
8	2,911	20%	582	0.0%	-	20.0%	582	2,329
9	1,741	20%	348	0.0%	-	20.0%	348	1,393
10	4,613	20%	923	0.0%	-	20.0%	923	3,690
11	8,217	20%	1,643	0.0%	-	20.0%	1,643	6,574
12	5,265	20%	1,053	0.0%	-	20.0%	1,053	4,212
13	2,837	20%	567	0.0%	-	20.0%	567	2,270
14	3,521	20%	704	0.0%	-	20.0%	704	2,817
15	4,694	20%	939	0.0%	-	20.0%	939	3,755
16	7,174	20%	1,435	5.7%	327	24.6%	1,762	5,412
17	2,136	20%	427	0.0%	-	20.0%	427	1,709
18	2,189	20%	438	66.0%	1,156	72.8%	1,594	595

Implementation and Reasonable Assurance

- Implementation of point source reductions through NR 217 and WPDES permits.

- Implementation of nonpoint reductions through NR 151.

  - Development of edge-of-field targets

  - Implementation of Nine Key Element Plans

Table 11 Nine-key Element Plans in development as of July 2025.

Name	HUC 12	TMDL Reach
Goose Creek	070400010301	1
Little Trimbelle River	070400010302	14
Spring Creek	070400010303	12

Appendix C: Edge-of-field Targets

- Translates the nonpoint load allocation for agricultural sources into an edge-of-field target consistent with Wisconsin's nutrient management planning software, SnapPlus.

- Not equivalent to the P-index, uses average slopes and predominate soils of the field. Results can be obtained from the P-trade report within SnapPlus.

Appendix C: Edge-of-field Targets Summary

TMDL Subbasin	TMDL Subbasin Name	HUC12	HUC12 Name	County Name(s)	TP Baseline (lbs./ac/yr)	TMDL % Reduction	TP Target (lbs./ac/yr)
1	Trimbelle River-mile 19.0 to headwaters	70400010301	Goose Creek-Trimbelle River	Pierce, St. Croix	4.4	20.0	3.52
2	Rush River —mile 34.3 to headwaters	70400010501	Village of Baldwin-Rush River	St. Croix	4.7	23.7	3.54
3	Rush River —mile 25.9 to mile 34.3	70400010502	Town of Martell-Rush River	Pierce, St. Croix	3.5	20.0	2.80
4	Cave Creek	70400010503	Cave Creek	Pierce	5.0	20.0	4.00
	Lost Creek						

- Baseline is the starting point assumed in the TMDL analysis and is based on the data summarized in Appendix D.
- TMDL % reductions is the overall reduction, from baseline, needed to meet water quality criteria for local water quality and Lake Pepin.
- TP Target is the edge-of-field TP loading that meets water quality criteria and is calculated using SnapPlus P-trade report.

Appendix D: Edge-of-field and EVAAL Analysis

- Prepared by Tetra Tech, in collaboration with DNR, under a U.S. EPA Grant.

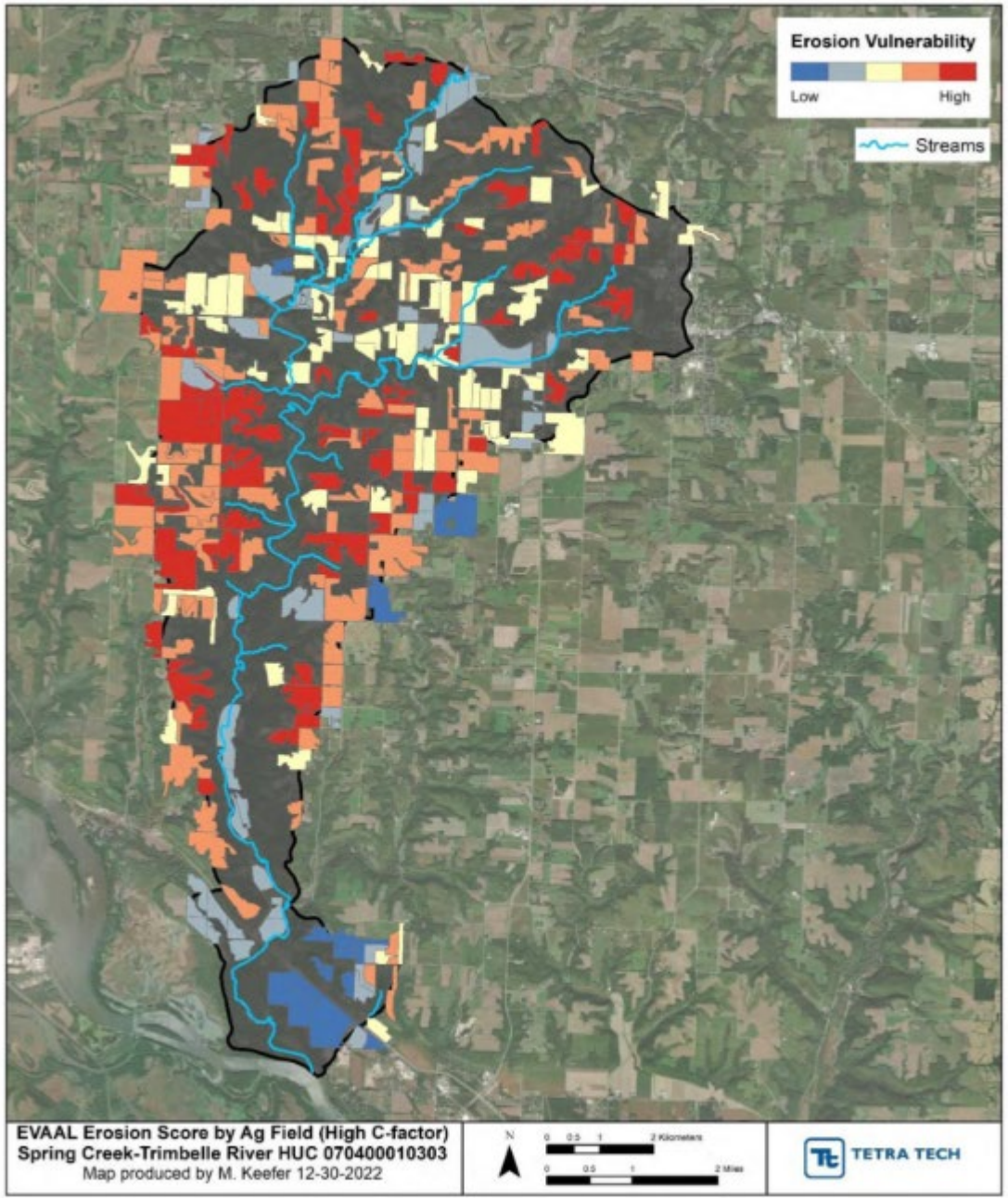
- Detailed accounting and summary of agricultural management practices in the TMDL study area which serves as the baseline for edge of field targets and nonpoint source loadings.

Rotation Name	Fall Tillage	Spring Tillage	Till Frequency
Dairy Sequence 1 - Till 1	Chisel Plow	Cultivator, x2	2 out of 6 years
Dairy Sequence 1 - Till 2	None	Vertical Till	
Dairy Sequence 1 - Till 3	Cultivator	None	
Dairy Sequence 1 - Till 4	None	None	
Dairy Sequence 2 - Till 1	Chisel Plow	Cultivator, x2	
Dairy Sequence 2 - Till 2	None	Vertical Till	
Dairy Sequence 2 - Till 3	Cultivator	None	
Dairy Sequence 2 - Till 4	None	None	
Dairy Sequence 3 - Till 1	Chisel Plow	Cultivator, x2	
Dairy Sequence 3 - Till 2	None	Vertical Till	
Dairy Sequence 3 - Till 3	Cultivator	None	
Dairy Sequence 3 - Till 4	None	None	
Dairy Sequence 4 - Till 1	Chisel Plow	Cultivator, x2	Tilled every year
Dairy Sequence 4 - Till 2	Vertical Till	Cultivator	
Dairy Sequence 4 - Till 3	None	Vertical Till	
Dairy Sequence 4 - Till 4	None	None	
Cash Grain Sequence - Till 1	Chisel Plow	Cultivator, x2	Tilled every other year
Cash Grain Sequence - Till 2	Vertical Till	Cultivator	
Cash Grain Sequence - Till 3	None	Vertical Till	

Appendix D: Edge-of-field and EVAAL Analysis Results

- Includes a prioritization analysis for six watersheds that identifies fields that have a high vulnerability for erosion and delivery of sediment and nutrients to a receiving water.

EVAAL
Erosion Vulnerability Assessment for Agricultural Lands

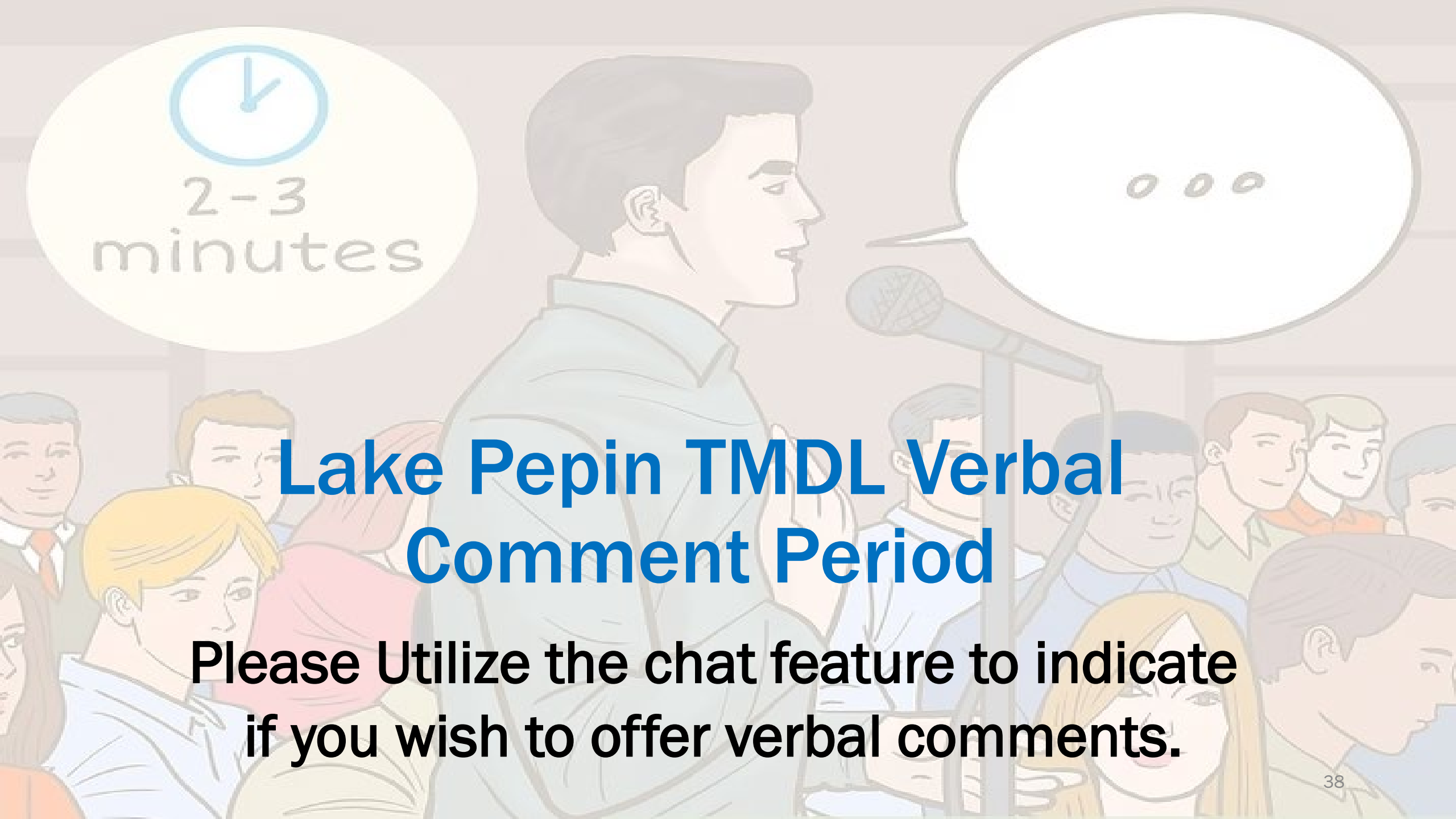


Verbal Statements:

- If you intend to make a verbal statement, please indicate in the chat feature.

- I will call on those who have indicated that they would like to make a verbal statement for the record. Please limit your remarks to issues regarding the TMDL.

- I reserve the right to limit the time of statements to give everyone an opportunity to speak. After I have called on those who have indicated on their intention to make a verbal statement, I will ask if there is anyone else who would like to make a statement.



Lake Pepin TMDL Verbal Comment Period

Please Utilize the chat feature to indicate if you wish to offer verbal comments.

Conclusion of Verbal Statements:

- Is there anyone else who would like to make a verbal statement? Please indicate by using the chat feature and you will be unmuted and called on.

- At this time, if there is nothing further, I would like to thank you for your attendance. This hearing is now closed, but the record will remain open until close of business **May 15, 2026**, for receipt of written comments.

Public Informational Hearing Comment Period

Written comments will be accepted through close of business on May 15, 2026.

Verbal comments, received during the public hearing, and written comments received prior to the close of the comment period will be considered prior to making a final approval and submittal of the TMDL Study to U.S. EPA. Written and verbal comments carry the same weight. A summary with response to comments shall be included in the final TMDL Study report.

Comments can be emailed to Kevin.Kirsch@Wisconsin.gov

Please use the subject line: "Lake Pepin TMDL Comments"

Or submitted by mail:

Wisconsin Department of Natural Resources

Attn: Kevin Kirsch

PO Box 7921

Madison, WI 53707-7921

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