

# Snake River Watershed Needs You!



Mary Poelman  
Snake River Watershed Coordinator  
320-679-1391  
mary@kanabecswcd.org

May 17, 2025



## Purpose of Today's Presentation

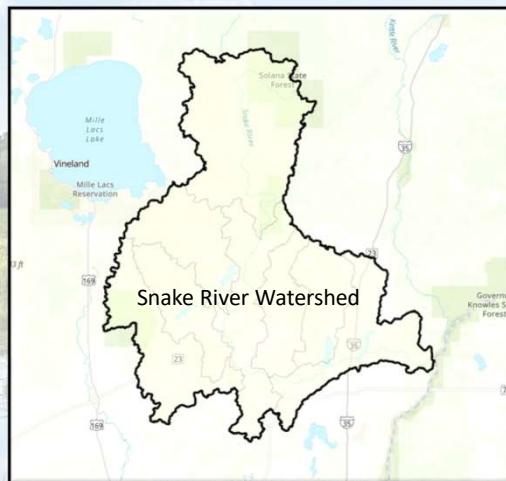
1. Highlight Cross Lake Feasibility Study
2. Introduce Snake River Watershed
3. Present Action Steps for Lake Enthusiasts

## Feasibility Study

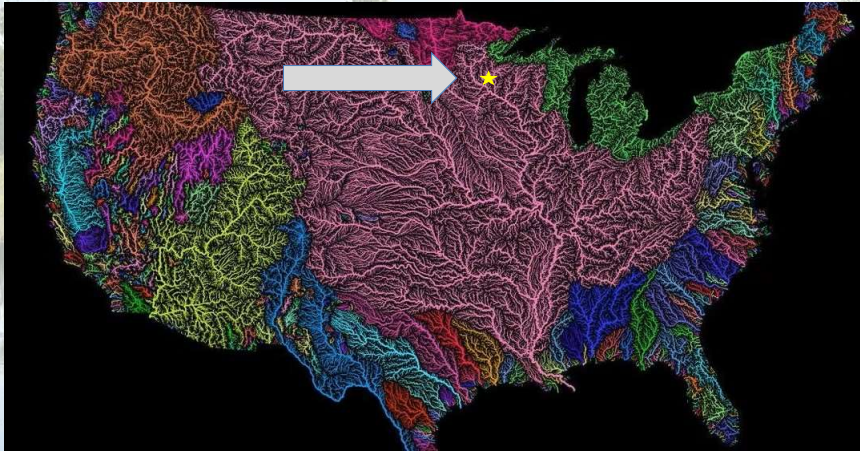
Through the partnership of the  
Snake River Watershed  
Cross Lake Association

We are providing \$40,000 in funding for a  
**Feasibility Study** to explore potential solutions for  
addressing **internal nutrient loading** in Cross Lake

## Background



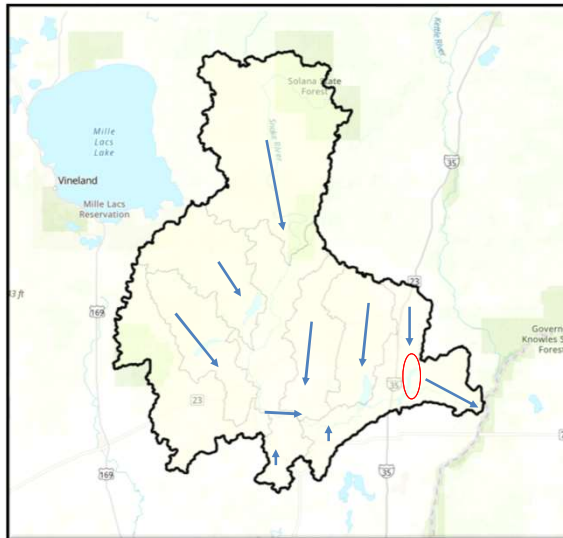
## Snake River Watershed is within Mississippi River Basin



### What is a Watershed?

An area or ridge of land that separates waters flowing to different rivers, basins, or seas.

It is not based on political boundaries or proximity to a certain point.



## Think of a Watershed this way:

Governmental Boundaries  
can be  
Subjective



Watershed Boundaries  
Go with the Flow



## Cross Lake

Last lake in the  
Snake River Watershed



Anything that impacts  
the Watershed  
Impacts Cross Lake

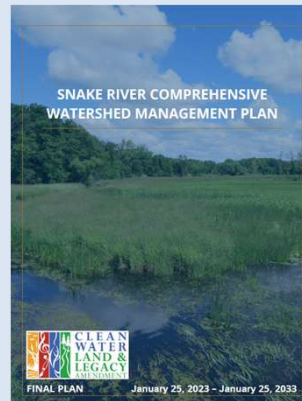
Anything that improves  
the Watershed  
Improves Cross Lake



## Snake River Watershed Plan Partnership

Joint Entity Between:

Pine County  
Aitkin County  
Kanabec County  
Pine SWCD  
Kanabec SWCD  
Aitkin SWCD  
Mille Lacs SWCD



## Watershed Implementation Funds



Current Grant 2024-2026  
\$1.04 million

“primary purpose of activities funded through this program is to implement projects and programs that **protect, enhance, and restore** surface **water quality** in lakes, rivers, and streams; protect groundwater from degradation; and protect drinking water sources. “

## Cross Lake

Listed on the Impaired Waters List

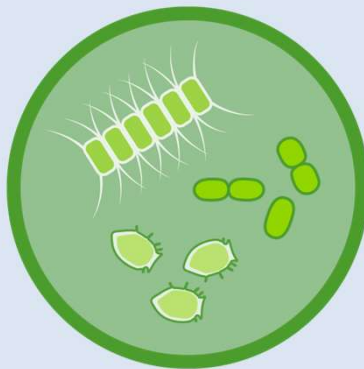
Designated Use:

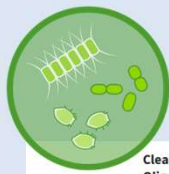
Aquatic Life and Recreation; warm-water  
fisheries (not protected for drinking water)

(Fun Fact!)

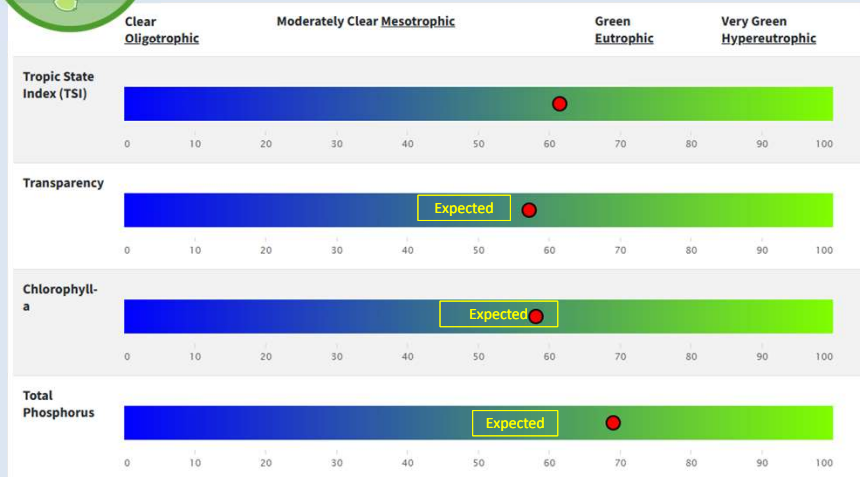
As required by the federal Clean Water Act, the MPCA assesses all waters of the state and creates a list of impaired waters every two years. This list includes waters that fail to meet water quality standards and uphold that water body's designated use.

What is causing all the green?





## Trophic State Index



## Cross Lake Impairments

### Overall Condition:

- Not always suitable for swimming and wading due to low clarity or excessive algae caused by the presence of nutrients such as **phosphorus** in the water.

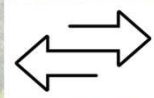


<https://webapp.pca.state.mn.us/surface-water/impairment/58-0119-00>



## So... What are we doing to improve Cross Lake?

Lake Treatment



Landowner Actions

Internal Loading

External Loading

### Feasibility Study

Through the partnership of the  
Snake River Watershed  
Cross Lake Association

We are providing \$40,000 to conduct a  
**Feasibility** Study on the **treatment** of  
Internal loading in Cross Lake



# Internal Load

the release of phosphorus from bottom sediments during periods of low oxygen

**Table 4-7. Internal load estimates.**

Lake	Oxic Release (mg/m <sup>2</sup> /day)	Anoxic Release (mg/m <sup>2</sup> /day)	Anoxic Factor (days)	Total Internal Load (lbs/year)
Knife	0.7	9.5	54	6,764
Quamba	0.4	11.1	56	1,347
Pokegama	0.5	16.3	56	13,203
Cross - North	0.5	17.8	50	3,212
Cross - Central	1.8	31.1	51	5,196
Cross - South	NA	18.8	56	3,612

# Internal Load

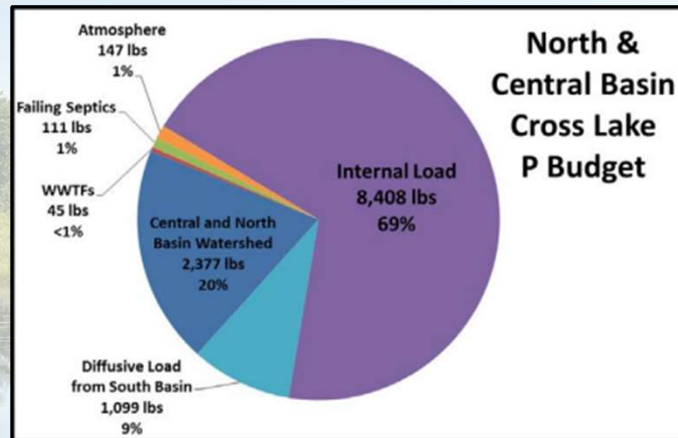
**Table 4-7.**

Lake
Knife
Quamba
Pokegama
Cross - North
Cross - Central
Cross - South



Total Internal Load (lbs/year)
6,764
1,347
13,203
3,212
5,196
3,612

## TP- Total Phosphorus



## Next Steps:

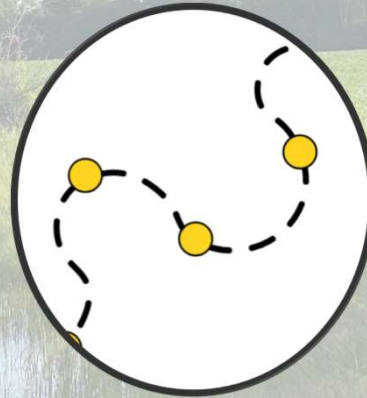
- Feasibility studies will tell us:
  - ☐ If and what kind of treatments would best address the internal loading issue
  - ☐ Pros and Cons of Treatment (e.g. Would it impact recreation?)
  - ☐ Proper dosage of treatments
  - ☐ Cost Estimates for treatment if appropriate

Example Feasibility study:  
Ann Lake- Snake River Watershed



## Proposed Study Timeline

- By August 2025  
Sediment Core Collection & Laboratory Analyses
- By October 2025  
Data Analysis
- By December 2025  
Reporting



But...What can you do Now?



## Actions for Lake Enthusiasts

### 1. Limit lawn fertilizers

(N-P-K)

- ☐ Look for **low or no P** fertilizers



(18-18-21)



## Actions for Lake Enthusiasts

### 2. Maintain septic systems

- ☐ Pump every 3 years



- ☐ Get an Inspection done  
(and make repairs)

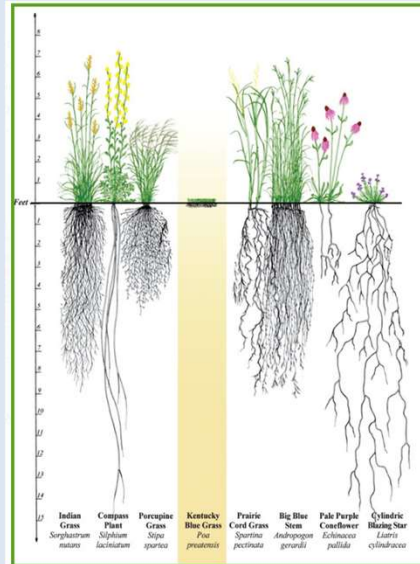


**Cost Assistance is available** for repairs and replacement of septic systems!

## Actions for Lake Enthusiasts

### 3. Vegetation Management

- ☐ Practice not mowing all the way down to the lake
  - Less geese lawn
  - More shoreline
- ☐ Plant Native Shoreline Plants
  - holds soil in place (and your investment)



<https://www.shorelinepartnership.org/find-native-plants.html>

## Snake River Watershed Needs You!



Mary Poelman  
Snake River Watershed Coordinator  
320-679-1391  
[mary@kanabecswcd.org](mailto:mary@kanabecswcd.org)

May 17, 2025



## Seeking Interested Landowners

1. Shoreland Projects – erosion control, native plantings
2. Agricultural Practices – fencing exclusion, livestock watering, manure management
3. Soil Health – cover crops, reduced tillage, nutrient management
4. Erosion Control – grassed waterways, sediment basins, wetland enhancement
5. Groundwater Protection – well sealing, septic replacement
6. Forestry Work – stewardship planning, tree planting, forest stand improvement



## Questions?



Mary Poelman  
Snake River Watershed  
Coordinator  
Mary@kanabecswcd.org  
320-679-1391

Krista Arne  
Shoreline Technician  
Pine SWCD  
Krista.Arne@pinecountymn.gov  
320-216-4242

Jaren Peplinski  
District Manager  
Kanabec SWCD  
Jaren@kanabecswcd.org  
320-679-1391



