Pollution Sources and Remedies for Northwood and Lost Lakes

MINNESOTA POLLUTION CONTROL AGENCY

Bassett Creek Watershed Management Commission

Agenda

- Introductions
- What is a TMDL and who is involved?
- Overview of watersheds and water quality (BCWMC)
- TMDL development tasks and timelines
- Your observations and information
- Questions and discussion

What is a TMDL?

Total Maximum Daily Load Study

Study of a waterbody that does not meet water quality standards (i.e., waters included on the State's impaired waters list)

Study of all pollution sources and determination of pollution reduction needed to meet State standards

Allocation of pollution reduction needed from each entity with stormwater permit (cities, county, MnDOT)

TMDL reports are required by the Clean Water Act and submitted to U.S. EPA for approval after technical review and public comment period

BCWMC Planning Priority

Draft 2026 Watershed Management Plan:

Impaired Waters = high priority issue

10-year goal:

- Make significant progress toward meeting nutrient water quality standards in Lost and Northwood Lakes

WHO'S INVOLVED?

MPCA

- Manage project
- Analyze data & sources
- Assign pollutant allocations
- Draft TMDL report
- Coordinate partners
- Facilitate TMDL approval process

BCWMC

- Provide existing data
- Collect additional data (sediment cores)
- Model pollutant loading (P8)
- Develop sub-watershed assessments (plan for implementation activities)
- Implement water quality projects to improve water quality

CITIES/AGENCIES

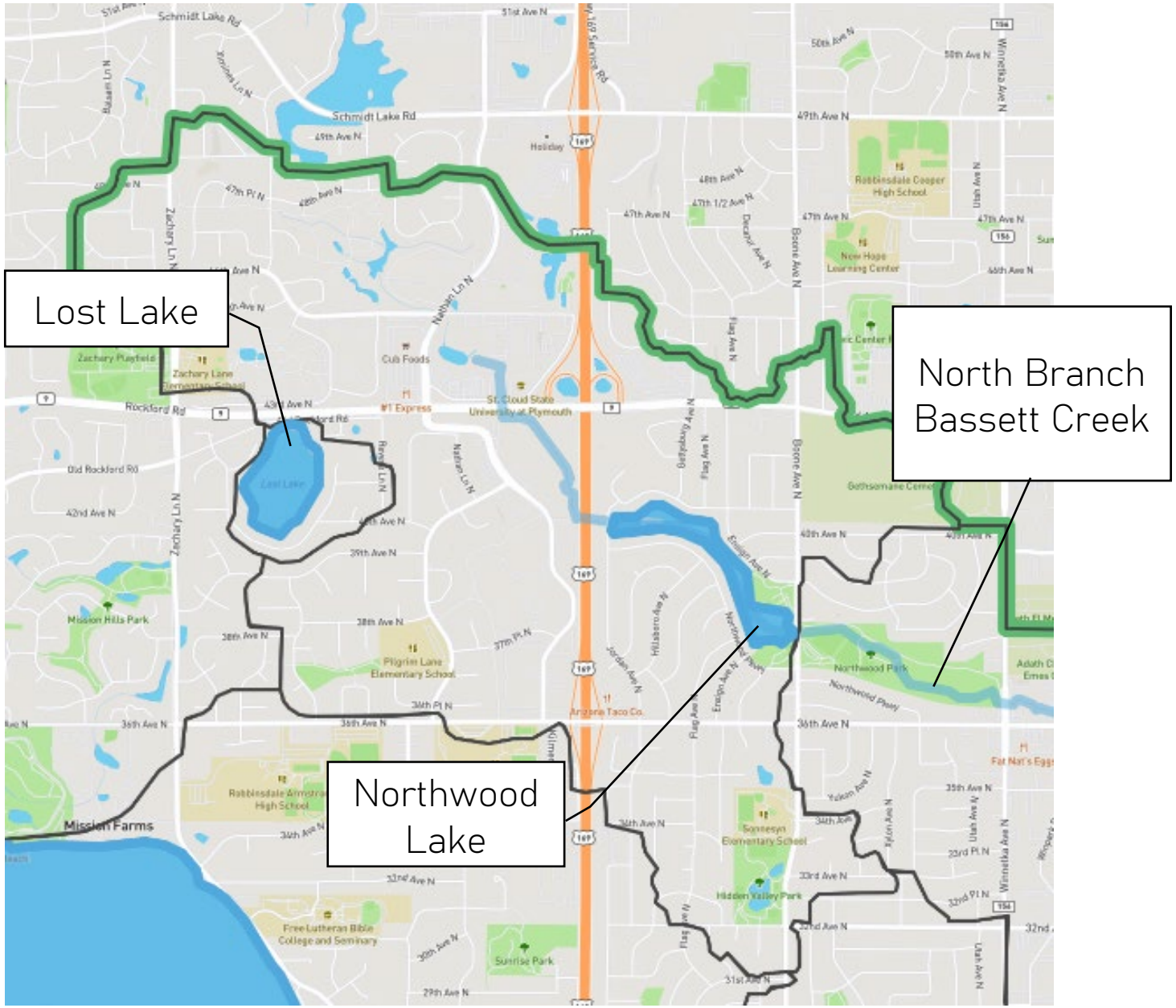
- Provide input, review, comments
- Provide relevant data
- Implement water quality projects to improve water quality

RESIDENTS

- Provide input, review, comments on draft TMDL report
- Relay observations, historical context
- Cooperate on projects or programs to improve water quality

Watersheds and Water Quality

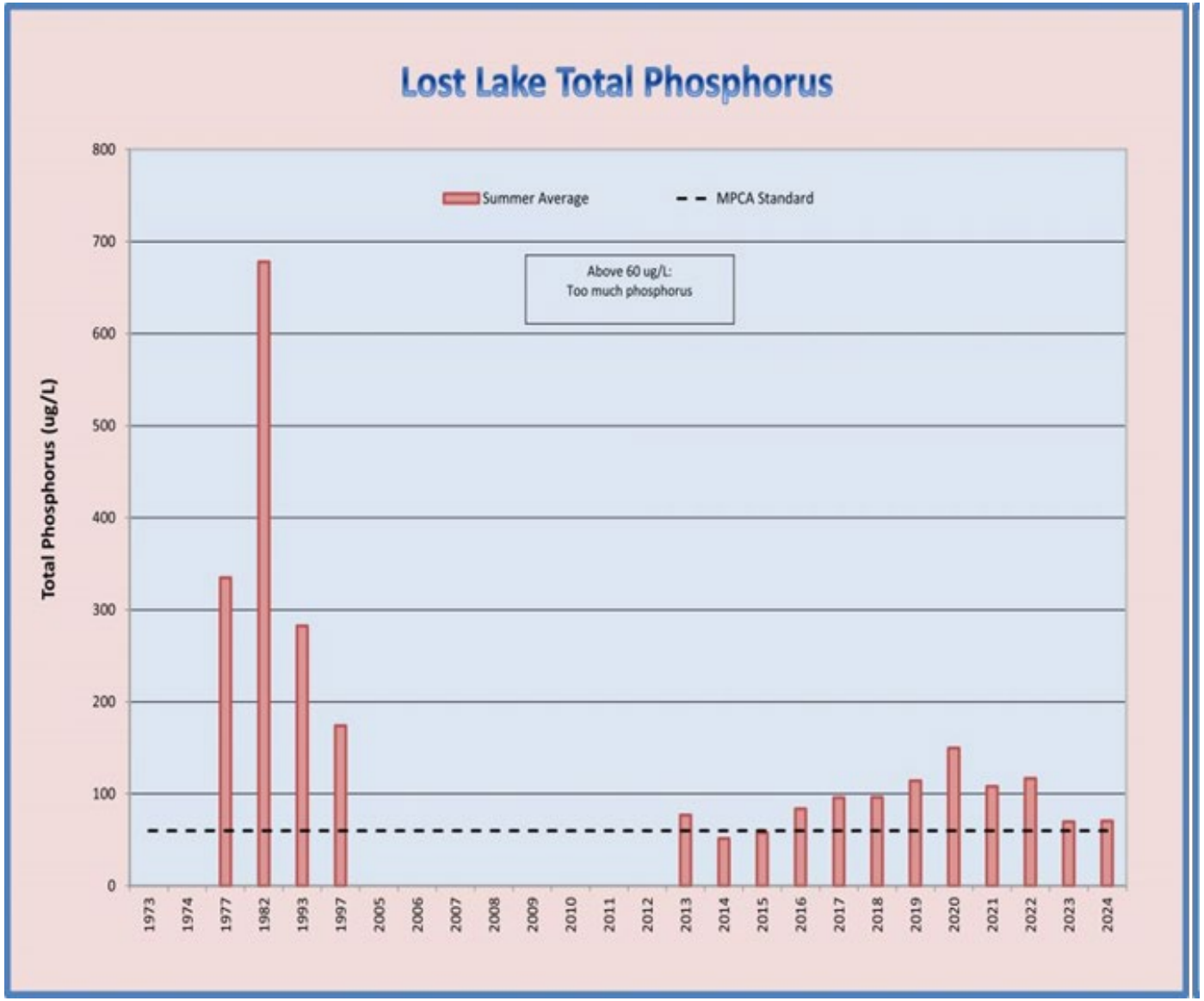
Subwatersheds



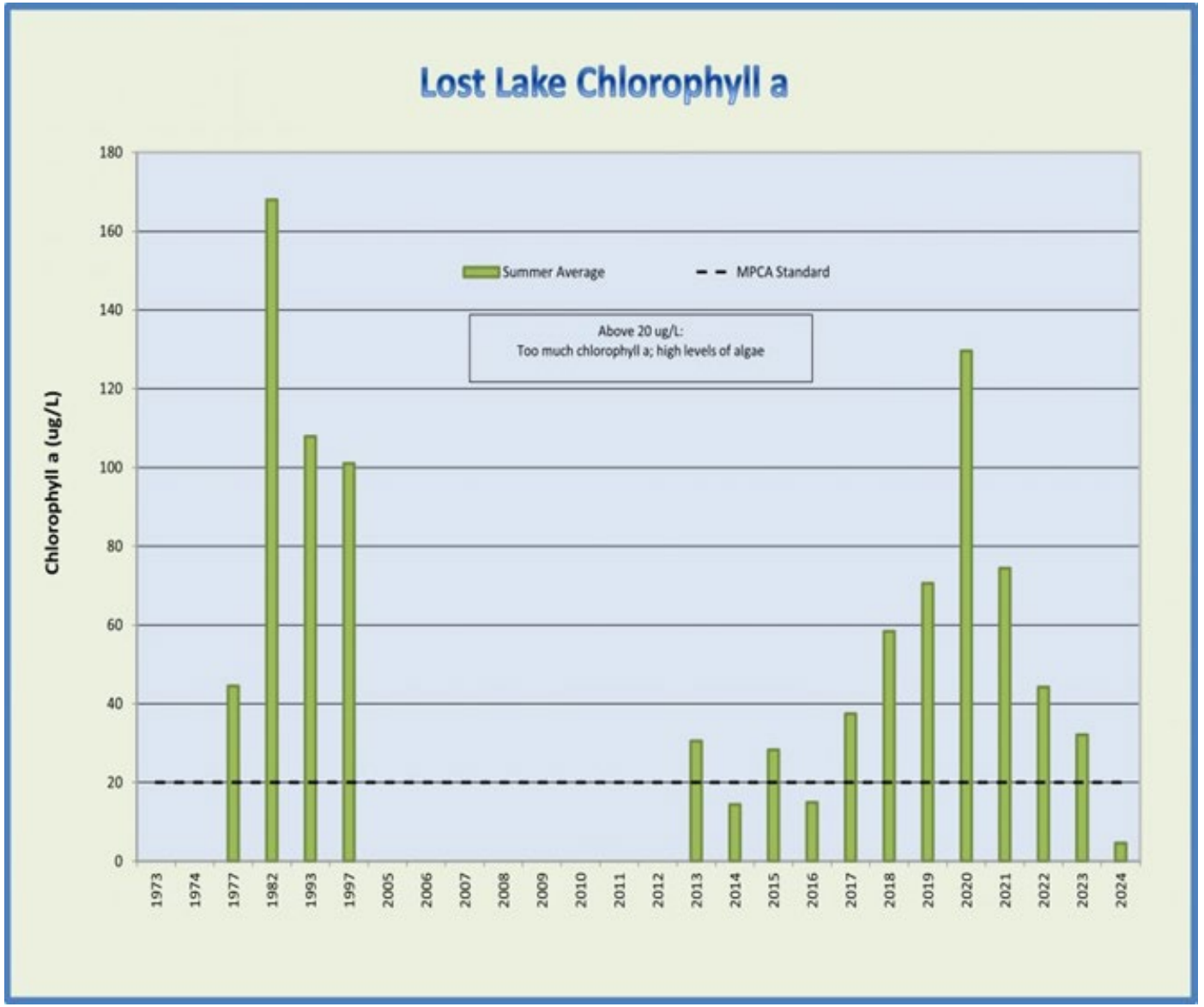
Lost Lake conditions

- Priority 2 shallow lake
- On impaired waters list since 2024
- Lake to Watershed Ratio: 22 to 61 acres
- Landlocked (except in extreme events)
- Max depth 6.5 feet (average 3.5 feet)
- AIS = curly-leaf pondweed
- No public access
- Water Quality 2012 – 2022:
  - Significant increase in chlorophyll a
  - Significant increase in total phosphorus
  - Significant decline in Secchi disc depth (water clarity)
- Next monitoring year: 2027

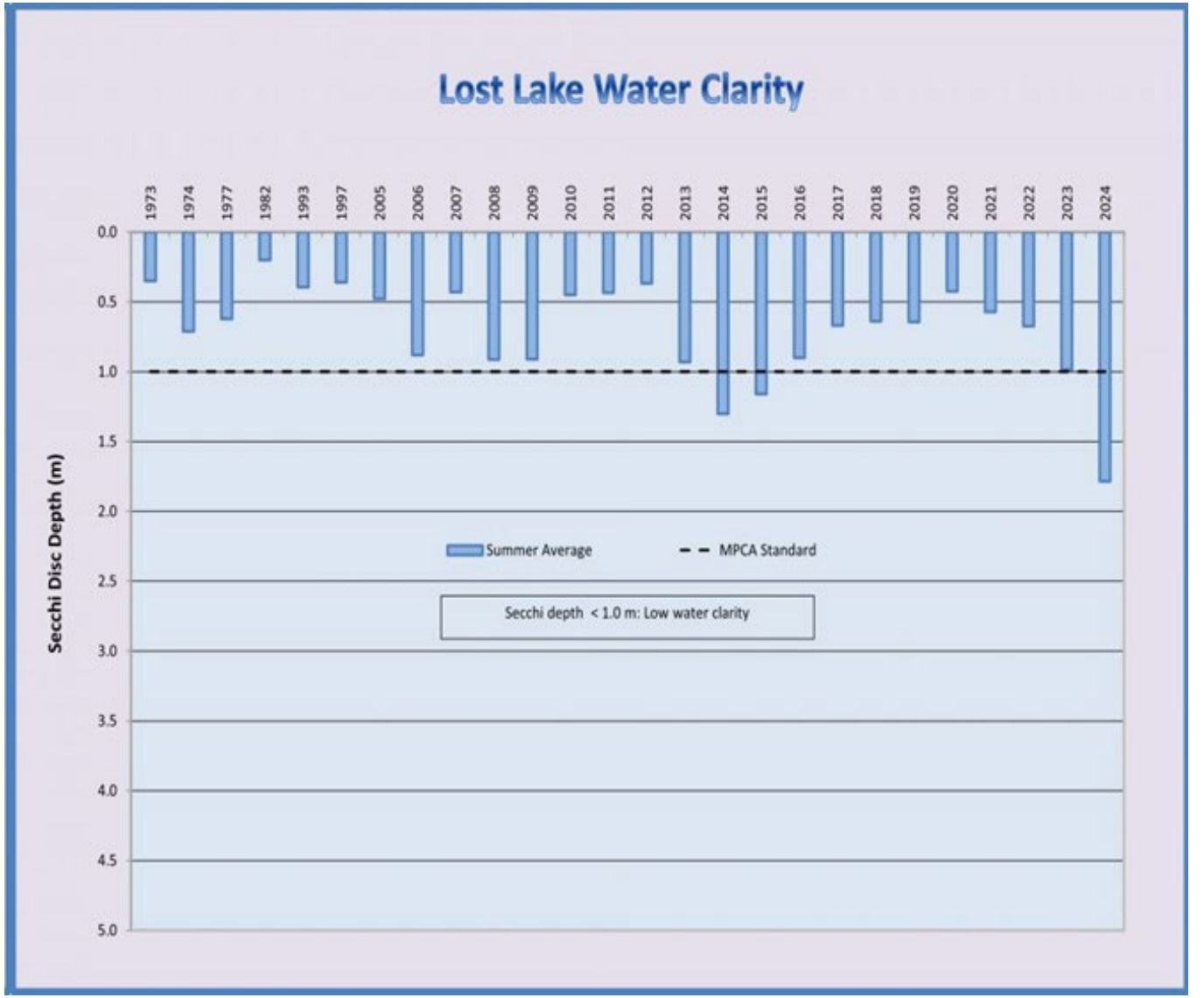
Lost Lake – Total phosphorus



Lost Lake – Chlorophyll-a



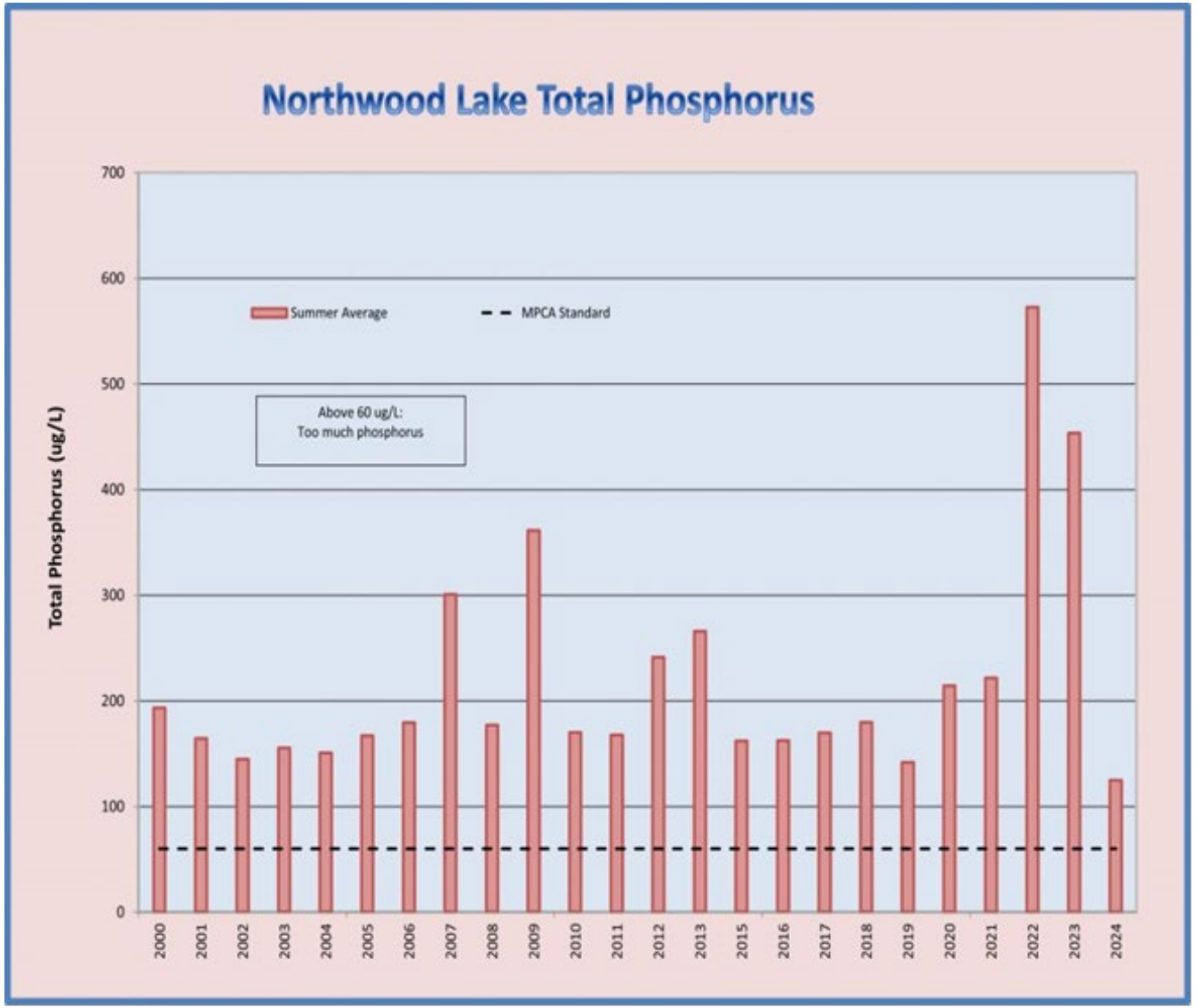
Lost Lake – Water clarity



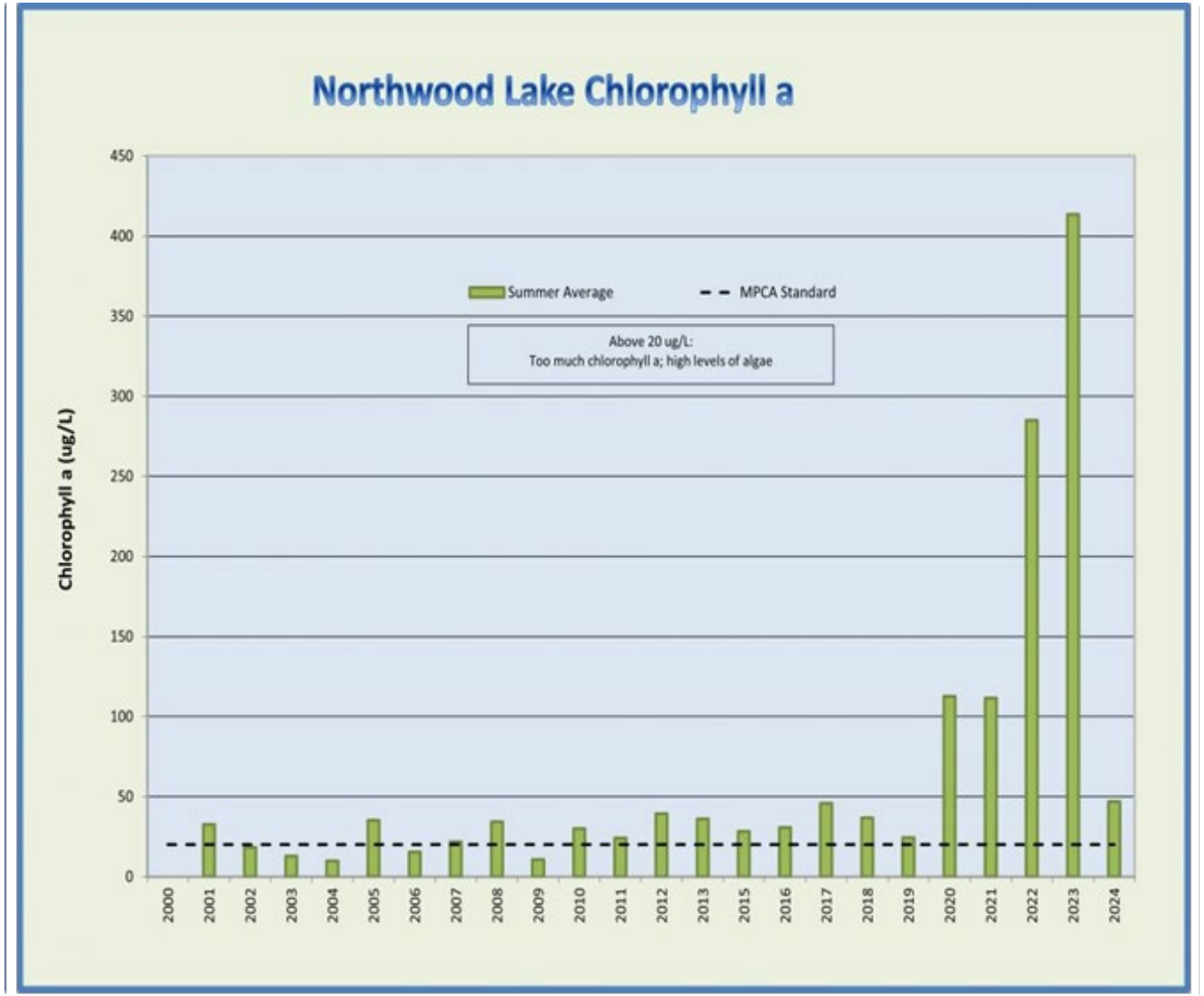
Northwood Lake conditions

- Priority 1 shallow lake
- On impaired waters list since 2004
- Lake to Watershed Ratio: 15 to 1,294 acres
- “Wide spot” in North Branch Bassett Creek (inflow and outflow)
- Max depth 5 feet (average 2.7 feet)
- AIS = curly-leaf pondweed
- Adjacent to Northwood Park
- Water Quality 2012 - 2022:
  - Significant increase in chlorophyll-a
  - Significant decrease in clarity
  - No significant change in phosphorus
  - High chlorides
- Monitored this year; next monitoring 2028

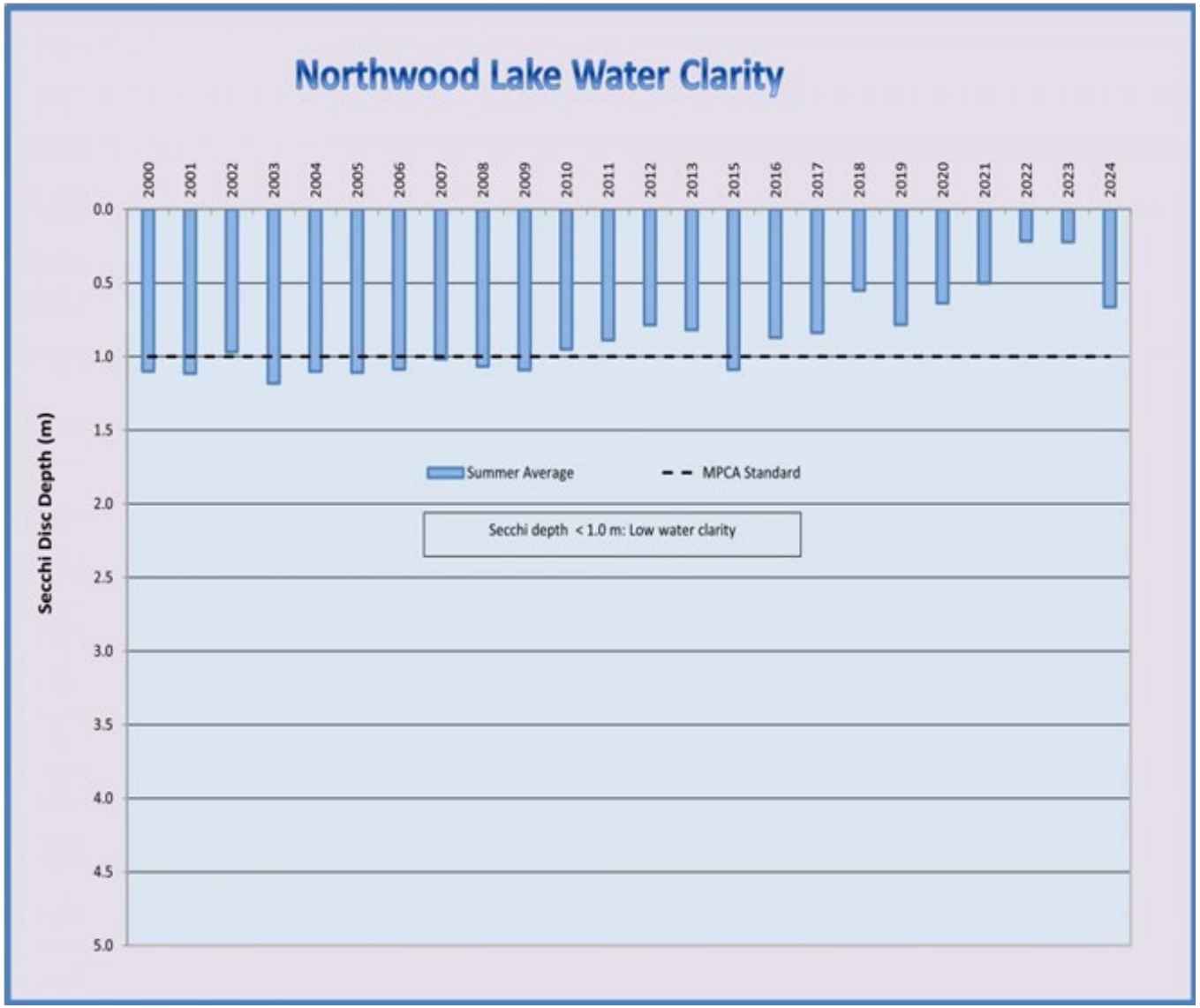
Northwood Lake – Total phosphorus



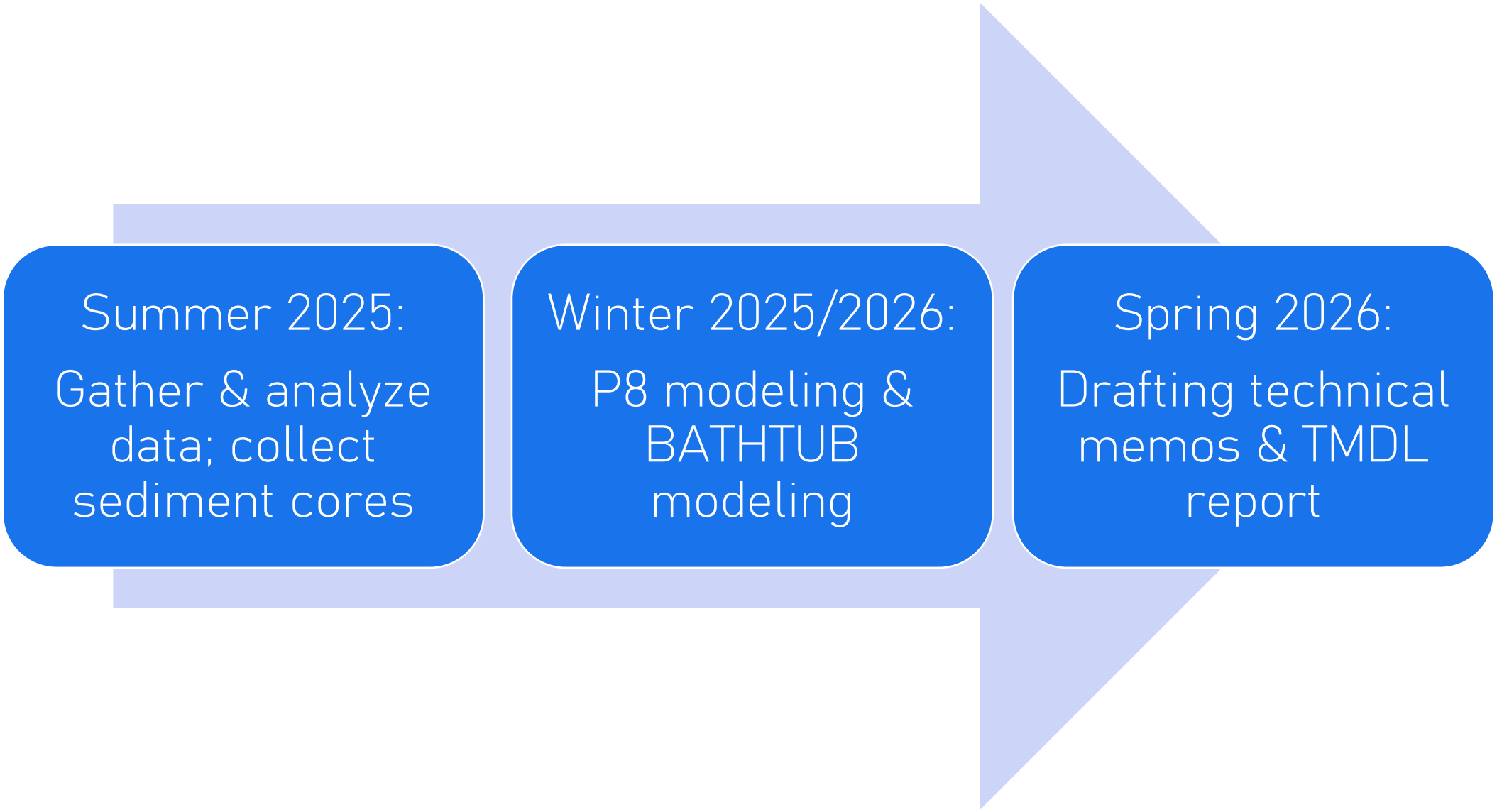
Northwood Lake – Chlorophyll-a



Northwood Lake – Water clarity



TMDL Phases


Summer 2025:
Gather & analyze data; collect sediment cores
Winter 2025/2026:
P8 modeling & BATHTUB modeling
Spring 2026:
Drafting technical memos & TMDL report

Sediment Core Sampling/Analysis

P8 Watershed Loading Model – Barr

Model Inputs

- **Rainfall/Temp:** MSP airport climate data
- **Period:** 2005 thru 2025 water years

Watershed Modeling

- **Landuse:** Met Council landuse - most recent layer
- **Stormsewer Network:** Plymouth, New Hope, Crystal, MNDOT, Hennepin County GIS data

Calibration Validation

- **Flow/Volume:** 2013-2016 monitoring @ NB-07 subwatershed
- **TP Concentrations:** 2013-2016 monitoring @ NB-07 subwatershed
- Last updated 6 years ago

Model Output

- **Runoff volume and TP loading used for BATHTUB model**

BATHTUB Model – MPCA

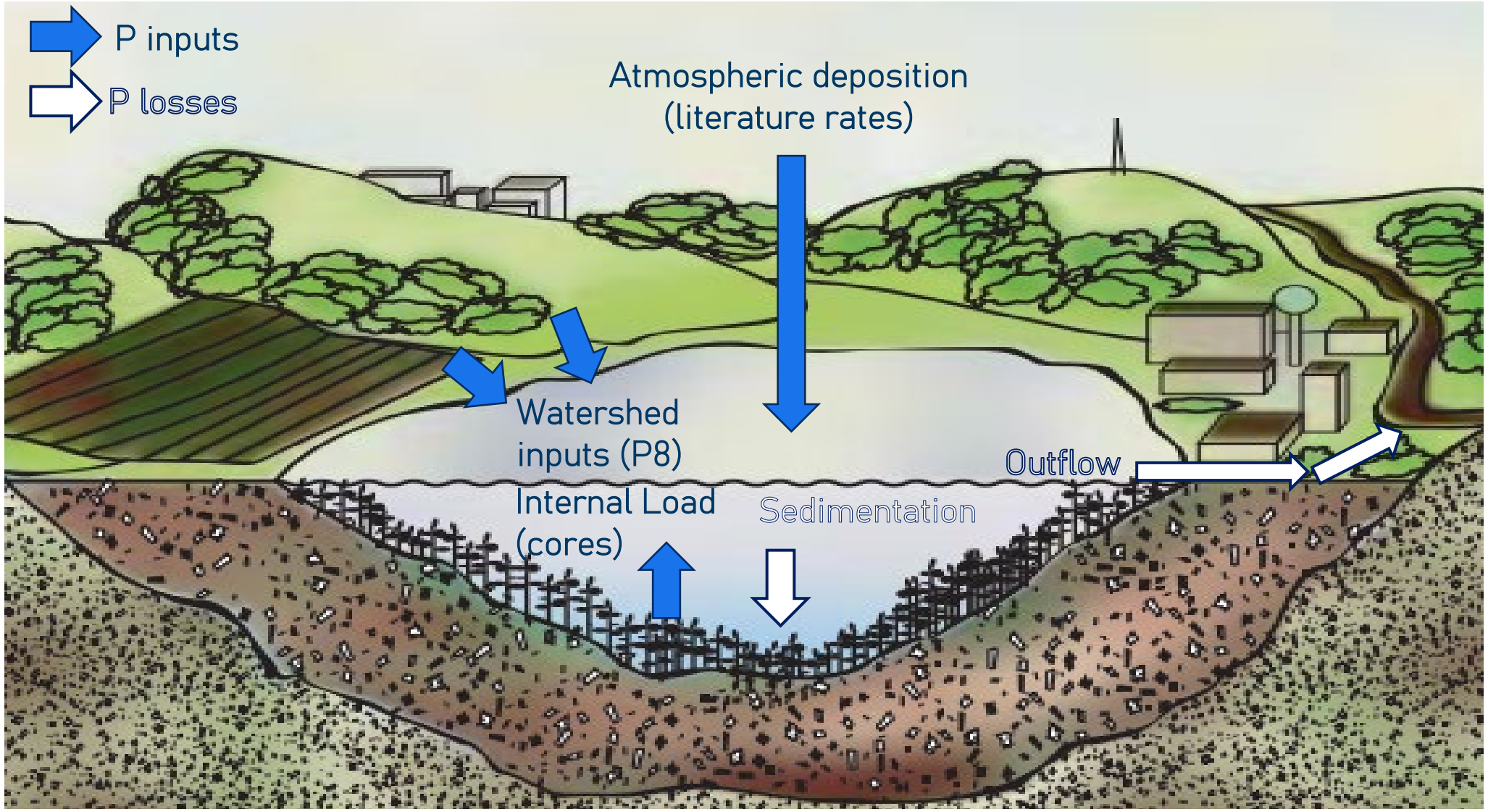


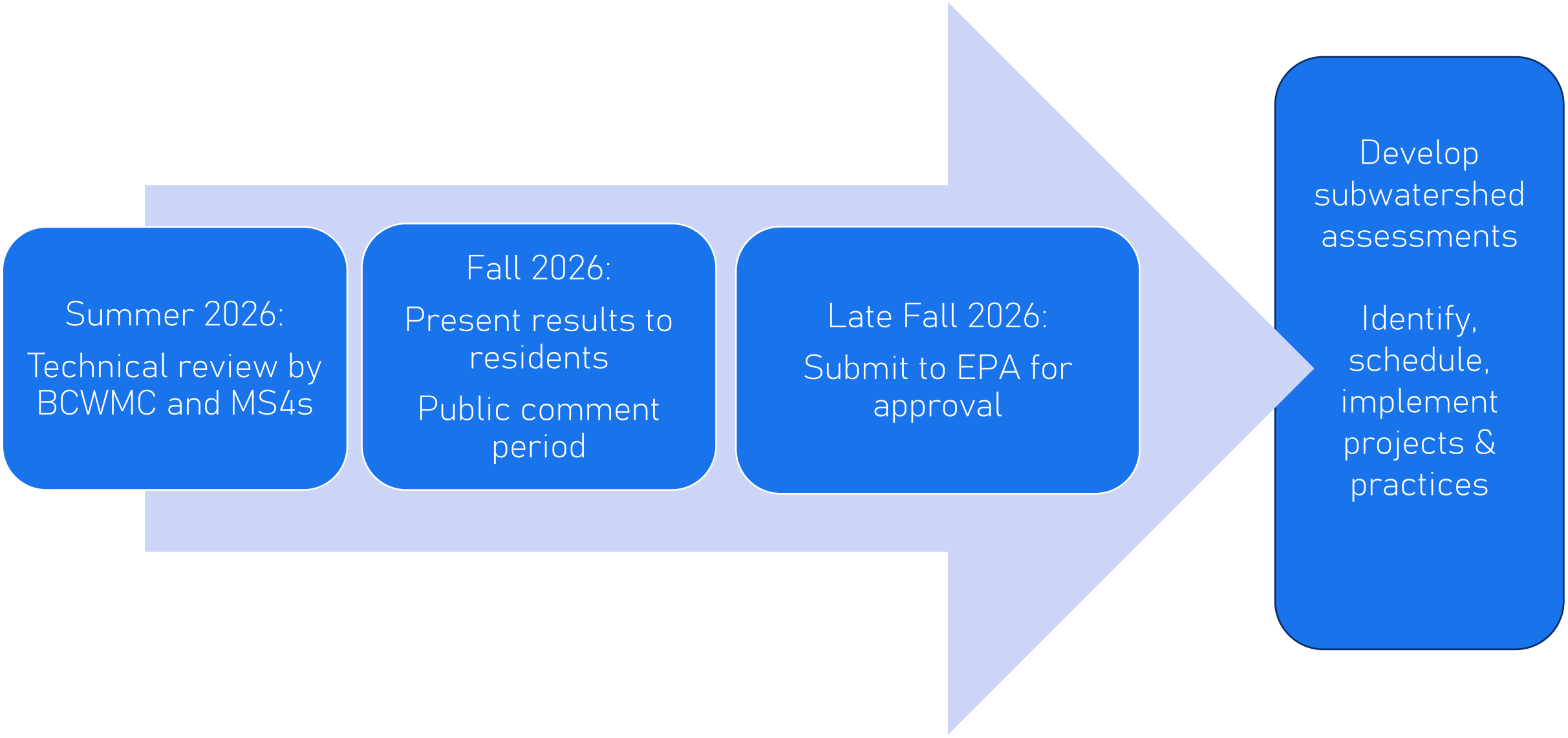
Image source: Freshwater Society and MPCA 2004

Drainage Area in Each MS4

	Acres	% of watershed
Lost	55.4	100%
Plymouth	55.2	99.8%
Henn Co	0.1	0.2%

Northwood	1,328.0	100.0%
Plymouth	712.9	53.7%
New Hope	512.4	38.6%
MNDOT - 20m Buffer	61.8	4.7%
Henn Co - 15m Buffer	31.4	2.4%
Crystal	9.4	0.7%

Review Process & Next Steps



Questions & Discussion

- What changes have you observed on the lake over time?
- What activities, if any, have lake residents taken to improve conditions?
  - Vegetation management
  - Aeration
- What questions do you have about the TMDL development process?
- Do you have recommendations for further resident engagement about the TMDL?