

PINE SHADOW LAKE ASSOCIATION · INCLUDED IN ASSOCIATION OFFICE AND UP

2026 Annual Lake Report

Pine Shadow Lake, Brainerd lakes area · Prepared January 2027 for the June 19, 2027 annual meeting

Every figure is labeled by source: **PUBLIC DATA** from state agencies, or **YOUR BOARD'S DATA** from the association's volunteers, surveys and programs. The free Snapshot uses public data only.

The short version: Pine Shadow is a healthy, clear lake, but the slow slide in water clarity continued in 2026, phosphorus has crept up since 2015, and curly-leaf pondweed grew for the fourth year in a row. No new invasive species were found. The board's 2027 priorities: test nutrients every year, get ahead of curly-leaf, and keep the greeters on the busiest weekends.

2026 AT A GLANCE

11.2 ft
Summer clarity
▼ 0.6 ft from 2025

18 µg/L
Phosphorus (2025)
▲ from 15 in 2015

45
Trophic state
Mesotrophic, no change

4.6 ac
Curly-leaf pondweed
▲ 0.8 ac from 2025

1,140
Boats inspected
▲ 160 from 2025

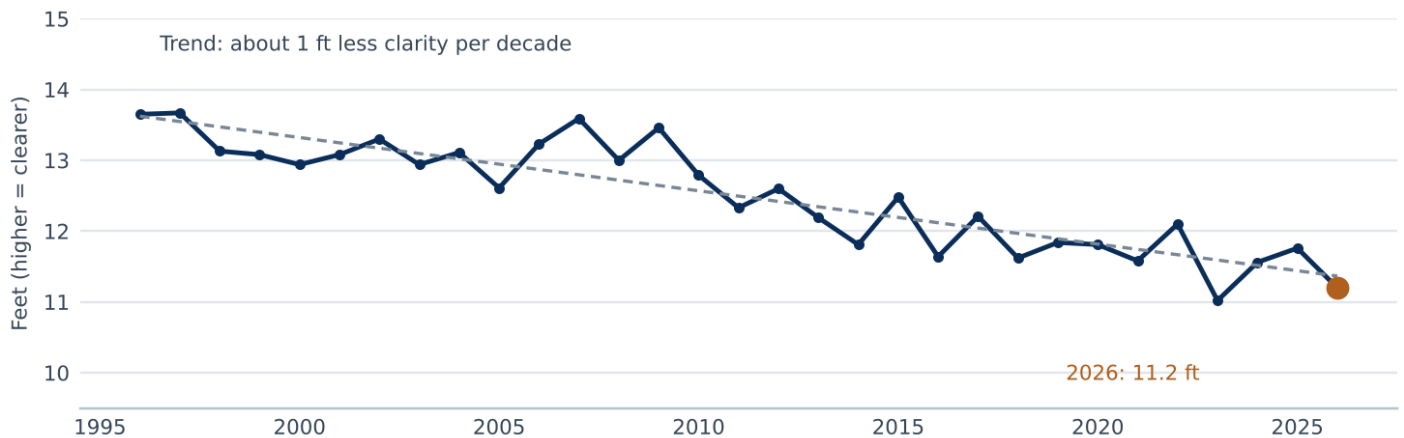
WHAT'S IN THIS REPORT

Page	Section	What it adds beyond the free Snapshot
2	Water clarity	Your volunteers' 2026 readings, date by date, compared with a typical year
3	Nutrients, algae and trophic state	What the numbers mean together, and where the record has gaps
3	Invasive species and plants	Your June plant survey, greeter program results and nearby lake listings
4	Your lake in context	Watershed and shoreline land use, phosphorus sensitivity, fish health, satellite cross-check, ice-out and invasion risk
4	Funding calendar	Grants and cost-share programs that fit this lake's priorities
5	What changed since last year	A year-over-year table of every measure the board tracks
5	Recommendations for 2027	Prioritized next steps with rough costs and possible funding
6	Member summary	A plain-language version, ready for the newsletter
7	Annual meeting slides	Six slides from the same facts, ready to present

Sources: MPCA monitoring data via the Water Quality Portal, the DNR Infested Waters List, DNR LakeFinder, DNR watershed and fish assessments, DNR ice-out records, U of M LakeBrowser and AIS Explorer (public), plus volunteer clarity readings, the June 2026 plant survey and greeter logs supplied by the board. Prepared by Lake Association Office from data the board approved; we don't collect field data or attend meetings.

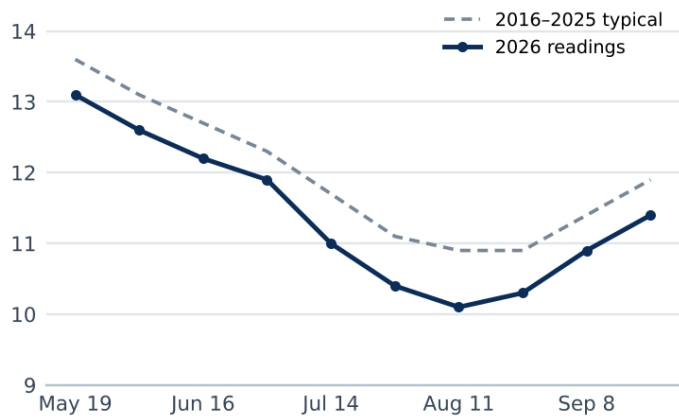
Water clarity

Thirty years of summer clarity PUBLIC DATA YOUR BOARD'S DATA



Summer (June-September) average Secchi depth by year. The dashed line is the long-term trend. Volunteer readings are submitted to the MPCA, so they appear in both sources.

2026, reading by reading YOUR BOARD'S DATA



Ten readings by two volunteers, May 19-September 22. The typical line is the 2016-2025 average for each date.

WHAT IT MEANS

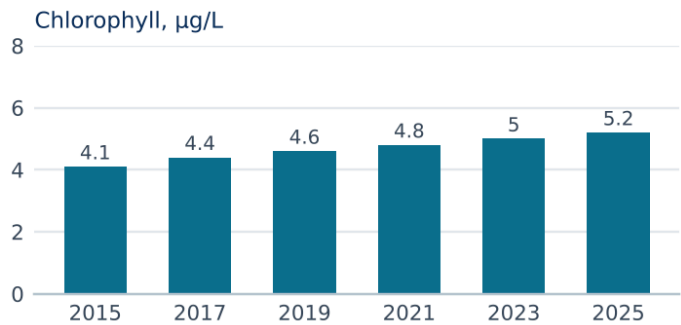
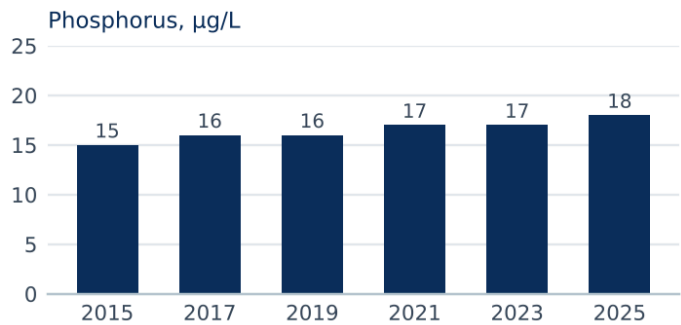
- **2026 averaged 11.2 feet**, about half a foot below the ten-year average of 11.7.
- **The long-term slide continues:** about 1 foot less clarity per decade since 1996. That's a statistically significant trend, not a one-year blip.
- **The late-July to August dip was deeper than usual**, matching the warm, calm stretch when algae typically peak.
- **The lake recovered in September**, back to 11.4 feet by September 22.

CLARITY, LAST FIVE SUMMERS

Year	Summer average	Readings	Compared with 10-year average (11.7 ft)
2022	12.1 ft	11	0.4 ft clearer
2023	11.0 ft	10	0.7 ft less clear
2024	11.6 ft	12	About average
2025	11.8 ft	10	About average
2026	11.2 ft	9	0.5 ft less clear

2026 ANNUAL LAKE REPORT • PINE SHADOW LAKE

Nutrients, algae and trophic state



Summer medians, 3 samples per year, tested every other year. **PUBLIC DATA**

Phosphorus feeds algae, and chlorophyll measures the algae. Both have edged up together since 2015: phosphorus from 15 to 18 µg/L and chlorophyll from 4.1 to 5.2 µg/L. Neither is high, but they are moving in the same direction as the clarity decline, which points to more nutrients reaching the lake rather than a measurement fluke.

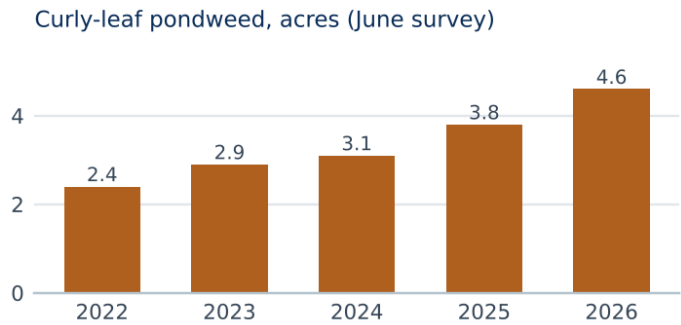
Trophic state (Carlson index)	Value	Score
Clarity, 2026	11.2 ft	42
Phosphorus, 2025	18 µg/L	46
Chlorophyll, 2025	5.2 µg/L	47
Average		45, mesotrophic

Gap: nutrients are tested only in odd years, so there's no 2026 phosphorus or chlorophyll. With values creeping up, yearly testing would show a trend two years sooner (see Recommendation 1).

Invasive species and plants

Species	Status	Source
Zebra mussel	Not found	DNR LIST GREETERS
Eurasian watermilfoil	Not found	DNR LIST
Starry stonewort	Not found	DNR LIST SURVEY
Curly-leaf pondweed	Present, north bay; 4.6 acres	JUNE SURVEY
Chinese mystery snail	Present, scattered	VOLUNTEERS

DNR Infested Waters List checked January 2027. Nearby: Birch Lake, 2 miles east, was listed for zebra mussels in 2026 (example).



Area mapped in the June plant survey. **YOUR BOARD'S DATA**

Access greeters **YOUR BOARD'S DATA** : 22 weekends, 352 volunteer hours, 1,140 boats inspected (up from 980). Two boats arrived with plant fragments and were cleaned before launch.

Your lake in context

Public statewide datasets most associations never see, pulled together for Pine Shadow. All values are example data.

LAND AROUND THE LAKE

PUBLIC DATA

Within 1,000 ft of shore	Share
Forest	58%
Developed (homes, lawns, roads)	21%
Wetland	13%
Agriculture	5%
Other	3%

Whole watershed: about 14% disturbed (developed or farmed). Lakes tend to stay clear when that number stays under roughly 25%, so **Pine Shadow is a protection lake, not a restoration lake.** Keeping it that way is far cheaper than fixing it later.

Phosphorus sensitivity: Pine Shadow is on the DNR's list of lakes highly sensitive to added phosphorus. A small increase in runoff shows up as lost clarity faster here than on most lakes.

CROSS-CHECKS AND CONTEXT

PUBLIC DATA

Measure	Result
Satellite clarity, summer 2025	11.4 ft (U of M LakeBrowser), close to the volunteers' 11.8 ft. The two methods agree.
Fish-based lake health	Meets the standard for a healthy fish community (DNR survey, 2019)
State impaired waters list	Not listed for nutrients. Statewide fish-eating guidance for mercury applies.
Ice-out	April 6, 2026, about 16 days earlier than typical (April 22, 47 years of records)
Risk of a new invader	High: top 15% of county lakes for zebra mussel introduction, driven by boats arriving from Birch Lake (U of M AIS Explorer)

Funding calendar for 2027

Programs that fit Pine Shadow's priorities. They're real programs; timing and amounts change every year, so we confirm each one before the board applies.

Program	Fits	Typical timing	Notes
County AIS prevention grants to lake associations	Curly-leaf survey; zebra mussel veliger testing; greeter hours	Annual county plan; ask county AIS staff in winter	Small grants (hundreds to a few thousand dollars). Often go unclaimed.
DNR Invasive Aquatic Plant Management grants	Permitted curly-leaf treatment, if the board pursues it	Application window in late fall	Reimburses permitted treatment work. One application per lake per grant type.
Soil and water conservation district cost-share	Shoreline buffers and rain gardens for members	Rolling; ask the SWCD in spring	Pays part of members' shoreland projects. Promote it at the workshop.
Clean Water Fund projects through the watershed plan	Protection projects on high-priority lakes	Through the county or SWCD's yearly work plan	Pine Shadow's sensitivity and protection status help it qualify.
Conservation Partners Legacy grants (DNR)	Habitat projects, such as shoreland restoration	Check the DNR program page for the current cycle	Competitive habitat grants; a match is required. Check eligibility for lake associations.

What changed since last year

Measure	2025	2026	Change	Read it as
Summer clarity	11.8 ft	11.2 ft	▼ 0.6 ft	Within normal swings, but on trend
Clarity readings taken	10	9	▼ 1	One volunteer missed August; recruit a backup
Phosphorus (latest)	17 (2023)	18 (2025)	▲ 1	Small rise; fourth straight increase
Chlorophyll (latest)	5.0 (2023)	5.2 (2025)	▲ 0.2	Slightly more algae
Curly-leaf pondweed	3.8 ac	4.6 ac	▲ 0.8 ac	Growing about 0.5 ac a year since 2022
New invasive species	None	None	No change	Good news; Birch Lake listing raises the risk
Boats inspected	980	1,140	▲ 160	More hours on peak weekends paid off
Member households paid	179	186	▲ 7	76% of 244 lake households; see the membership gap report

Recommendations for 2027

- 1

Test nutrients every summer, not every other year

Phosphorus and chlorophyll are both rising. Yearly testing (3 samples, June–August) would confirm the trend two years sooner and strengthen any future grant application.

About \$420 a year (example) · Water quality chair · Book the lab by April
- 2

Get ahead of curly-leaf pondweed in the north bay

Repeat the June survey and ask the DNR invasive species specialist whether the bed is big enough to justify permitted treatment. Associations treating curly-leaf may qualify for a DNR invasive plant management grant, and county AIS grants can cover the survey (see the funding calendar).

Survey cost similar to 2026 · AIS chair · Call the DNR by March
- 3

Host a shoreland and septic workshop

The slow clarity decline and rising phosphorus point to runoff. One evening on native buffers, rain gardens and septic care is the cheapest prevention there is.

About \$150 for room and handouts (example) · Education committee · Late spring
- 4

Add greeter hours on the busiest weekends

With zebra mussels confirmed in Birch Lake two miles away, and Pine Shadow in the top 15% of county lakes for invasion risk, the July 4 and Labor Day weekends matter most.

Volunteer time · Greeter coordinator · Schedule in May
- 5

Recruit a second clarity volunteer

The 30-year record is the association's most valuable dataset. A backup reader keeps it unbroken.

No cost · Board · Ask at the annual meeting

Costs are rough examples to help the board budget. Recommendations are based on the data in this report; the board decides what to pursue.

Member summary

Ready to drop into the spring newsletter or the annual meeting program. About 230 words.

PINE SHADOW LAKE IN 2026: THE SHORT VERSION

Good news first: Pine Shadow is still a clear, healthy lake, and no new invasive species turned up this year. Our greeters inspected 1,140 boats on 22 summer weekends, more than ever, and kept zebra mussels out even as they were found in Birch Lake, just two miles east.

There are also a few things to watch. Our volunteers' readings show the water averaged 11.2 feet of clarity this summer. That's within the normal range, but part of a slow slide of about a foot every ten years since 1996. The nutrient that feeds algae, phosphorus, has crept up too, and curly-leaf pondweed in the north bay grew to about 4.6 acres.

None of this is an emergency, and all of it is easier to fix early. This year the board plans to:

- test the water for nutrients every summer instead of every other year,
- work with the DNR on the curly-leaf bed in the north bay,
- host an evening workshop on shoreland plantings and septic care, and
- add greeter hours on the busiest weekends.

You can help: keep runoff off the lake, pump your septic on schedule, clean, drain and dry your boat, and consider volunteering for a greeter shift. Thank you for looking after Pine Shadow with us.

The Pine Shadow Lake Association board

Annual meeting slides

Six slides built from the same facts, delivered as an editable file. Your board presents them; we don't attend meetings.

Pine Shadow Lake in 2026

Annual Lake Report
Annual meeting, June 19, 2027

1

Clarity: a slow slide

11.2 ft in 2026 · about 1 ft less per decade

2

Nutrients creeping up

18 phosphorus, µg/L (15 in 2015)	5.2 chlorophyll, µg/L (4.1 in 2015)	45 trophic state mesotrophic
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3

Keeping invaders out

1,140 boats inspected	0 new invasive species	4.6 acres of curly-leaf
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4

What changed since 2025

- ▼ Clarity 11.8 → 11.2 ft
- ▲ Phosphorus 17 → 18 µg/L
- ▲ Curly-leaf 3.8 → 4.6 acres
- ▲ Boats inspected 980 → 1,140
- ▲ Members 179 → 186

5

Our 2027 plan

1. Test nutrients every summer
2. Work with the DNR on curly-leaf
3. Shoreland and septic workshop
4. More greeter hours on peak weekends
5. Recruit a second clarity volunteer

6

Free Snapshot vs. this report: the free Snapshot shows what the public record says, on one page. The Annual Lake Report adds your board's own monitoring and surveys, what changed since last year, prioritized recommendations, a member summary and meeting slides. It's included in Association Office and up.