

Isanti SWCD alum treatment caps yearslong Blue Lake protection work



“
Clean
Water
Funds make
this kind of
a project
possible. ...
(It) would
be cost-
prohibitive
for a lake
association
to fund on
its own.

— Bill Fredell,
Blue LID VP

ZIMMERMAN — With an aluminum sulfate treatment targeting in-lake phosphorus, the Isanti Soil & Water Conservation District (SWCD) last fall embarked upon the final phase of Clean Water Fund-supported efforts to protect Blue Lake’s water quality.



Fredell

“Blue Lake was teetering on becoming an imperiled, endangered lake because of too much phosphorus,” said Bill Fredell, vice president of the 147-member Blue Lake Improvement District (LID), which prompted protection efforts and provided matching funds. “This is the most cost-effective way to preserve the lake for the future.”

Phosphorus feeds the algae that can turn lakes green. While not yet impaired, Blue Lake was starting to produce more algae blooms. Monitoring in 2016 revealed slightly elevated phosphorus and chlorophyll-a levels.

“This is Phase 2 of a larger goal to protect Blue Lake. Phase 1 was dealing with the external sources of phosphorus,” said Lydia Godfrey, Isanti SWCD outreach assistant. A [2018 Clean Water Fund grant](#) from the Minnesota Board of Water and Soil Resources (BWSR) supported



Godfrey

the initial work within the watershed, which reduced upland phosphorus-loading by more than 40%.

“We did the most cost-effective projects there,” Godfrey said.

A diagnostic study determined that an aluminate sulfate treatment — also known as an alum treatment — was the best next step to protect the lake. A \$384,630 Clean Water Fund grant BWSR awarded to the SWCD in 2022 supports that work.

A crew from SOLitude Lake Management completed the first of two planned alum applications on Sept. 15, 2022. A second alum treatment planned for 2024 will cap the SWCD’s Clean Water Fund-supported work centered on the popular recreational lake.

“You look in the lake and you can see fish and (plants) on the bottom, which you couldn’t see yesterday,” Godfrey said while September’s 73-acre treatment was underway.

Together, the two treatments will reduce phosphorus by an estimated 590 pounds a year — exceeding the SWCD’s 360-pound annual reduction goal by more than 150%.

SOLitude Lake Management operator Justin Broch, on shore, **left**, and project manager Joel Barrow, on barge and at **right**, monitored the tanks of aluminum sulfate and sodium aluminate as they refilled on Sept. 14, 2022, at the Blue Lake access in Stanford Township before making another GPS-guided application, **center**. A second alum treatment is set for 2024.

Photo Credits: Ann Wessel, BWSR

VIDEO:
[“Isanti SWCD: Blue Lake Alum Treatment”](#)

Tadd Barrow, a Fairmont, Nebraska-based water quality specialist with SOLitude, described the treatment as he and the rest of the crew waited for a truck to arrive with more aluminum sulfate.

“We essentially ‘mow the lawn’ going back and forth across the lake,

applying aluminum sulfate. The aluminum sulfate will form a flock that settles —

it almost looks like snow falling through the water,” Barrow said. “It resides on the bottom of the lake. It’s a very, very thin layer that is porous. Water can move through that layer. As that water comes through, that aluminum sulfate is grabbing onto the phosphorus, which is trying to leach into the water column that stimulates that algae growth.”

The crew uses GPS to guide application. Automated valves and flow meters ensure accurate distribution and coverage.

A treatment can be effective from five to 20-plus years, depending upon conditions including the dose rate, amount of phosphorus-loading from the watershed and number of sites to which the alum can bind.



Barrow



The Isanti SWCD's first BWSR Clean Water Fund grant-supported Blue Lake alum treatment was completed in September 2022; the second is planned for 2024.

BWSR Clean Water Fund grant details

\$251,000 AWARDED IN 2018: The Isanti SWCD worked with private landowners and two townships to reduce runoff and phosphorus-loading within the watershed. Projects included six shoreline restorations; one rain garden; shoreline erosion control, hill and gully stabilization and a second rain garden at the Stanford Township boat access; a stormwater management site incorporating an iron-enhanced sand filter, a rain garden and lakeshore buffers; and two settling ponds on a ditch identified as the highest contributor of phosphorus to the lake.

Annual phosphorus reduction estimate: 40.68 pounds

\$384,630 AWARDED IN 2022: In September, SOLitude Lake Management completed the first of two planned Blue Lake alum treatments, which targeted in-lake phosphorus. The second treatment is planned for 2024.

Annual phosphorus reduction estimate: 590 pounds

“We’re hoping that the result of this alum treatment will be quite dramatic, and it will prove to people that we can do even more, so that we get

to a point where there’s absolutely no phosphorus runoff into the lake — or as little as possible. That way we’ll be able to preserve the lake for a long time into the

future,” Fredell said.

Fredell, who lives in Edina, has been visiting the lake since he was a child. Over the years, he’s seen the shift from summer homes like his to year-round lake residences.

“This is a lake that people love. This is their home. This is their summer home. And they have friends here. It’s a community asset that is very worthy of our protecting,” Fredell said.

“Blue Lake is an enormous resource for Isanti County. It’s one of the few deep lakes in the county, and it has traditionally been a very healthy lake.”

Thirty-one feet at its deepest point, 263-acre Blue Lake supports game fish and panfish including walleye, largemouth bass, Northern pike, bluegills, sunfish, perch and crappies. It draws anglers, recreational boaters and swimmers.

“This is a very popular recreational lake. It’s very cherished by those in the county. It’s also very cherished by the people that live on the lake. This project would not be possible if it wasn’t for the efforts of the residents on Blue Lake, especially the Blue Lake Improvement District as well as both of the townships,” Godfrey said.