

CIRCLE LAKE ADVOCATE



A NOTE FROM THE CLID BOARD:

At the 08/11/25 CLID annual meeting, CLID parcel holders overwhelmingly approved an increase in the Lake Improvement District tax levy. As your neighbors, we understand that tax increases are a sensitive and impactful subject. We appreciate the candid, respectful debate at the meeting. Your Board remains committed to transparency and stakeholder engagement at every stage of our evolving, transformational lake management plan.

>>> CIRCLE LAKE AERATION PILOT PROJECT - UPDATE



Carl Bahnsen and Jeff Jirik retrieving the bottom surface aerator units at Benjamin Bay.

Continuing Objective: To develop, test, and implement an aeration system to raise dissolved oxygen (DO) levels sufficient to maintain a healthy game fish environment year-round.

The aerator and bottom bubbler from the summer 2025 pilot were removed in October. Data from the DO sensor is being downloaded. Once there is solid ice, three surface aerators (without bottomj bubblers) will be grouped and running at the Benjamin Bay location for the winter.

In spring 2026 three surface aerators, *each* surrounded by three bottom small bubble aerators, will be place strategically around the lake (map to left; red tick is the 2025 location, blue ticks indicate two additional locations). Plus more DO sensors.

These locations take advantage of the drainage flow from the inlet at the southwest corner to the outlet at northeast corner. Oxygen plume patterns can then inform on placement of additional units.

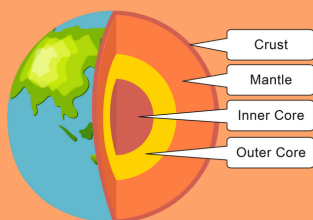


Carl Bahnsen (left) and Dean Sunderlin (right) with the recently removed surface aerator unit (paired small bubble bottom aerator not shown).

>>> WHY DO LAKES HAVE SHORT LIFESPANS? (IN GEOLOGIC TIME)

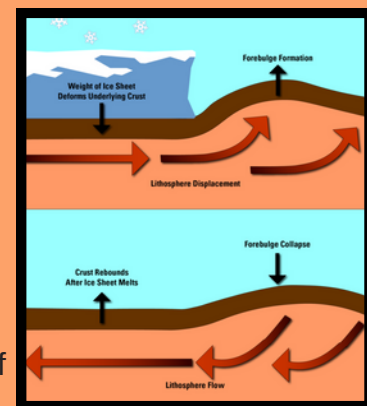
Lakes have short lifespans – typically hundreds to tens of thousands of years – because they are highly sensitive to natural and anthropogenic influences. Here is a list of general processes, with a few to be addressed in this and upcoming newsletters.

- **Sedimentation**
- **Biological Activity**
- **Drainage Changes** - Inland rivers and streams are constantly reconfigured due to erosion and deposition. Whole drainage systems can be diverted by flooding, landslides, and other geological events. Total flow into and drainage out of lakes influences how lake surface area and depth change over time.
- **Tectonic Instability** - The movement of continental plates causes subtle and extreme topographic changes. While the interior of the U.S. Continent may seem inactive, there is modern uplift in the northern Midwest due to *isostatic rebound*. This is uplift of continental crust that was depressed by the weight of the glaciers during the Last Glacial Period (or Wisconsin Glaciation) 115,000-11,700 years ago.
- **Natural Hazards**
- **Climate Change**
- **Glacial Influence**



Schematic diagram of *isostatic rebound*. Not only is the *crust* depressed, but there is also displacement of the “plastic” layer below it called the *mantle*. About 20,000 years ago the Laurentide Ice Sheet reached a maximum thickness of about 13,000 feet. One square mile of ice at that thickness weighs about 10 billion tons.

Source: <https://www.geographyrealm.com/isostatic-rebound-glaciers/>



>>> SOUTHERN MN LAKE ANALOGIES - KELLY DUDLEY LAKE, OCTOBER 11

The Houston Family (Bill, Chris & Megan) kayaked the lake to explore the ecosystems and lake conditions. The water is quite clear, with the bottom easily visible at 6-8 feet. There is a slight haze of suspended particles and filamentous algae*.

There is a healthy and diverse (native?) flora, including grasses and reeds that provide filtration and aqueous plants that photosynthesize and provide oxygen. No considerable invasive plant species were observed.

There are good plant buffers separating properties and between the lake and surrounding roads. Some homes have maintained emergent plant buffers between their lawns and the lake, which is certainly encouraged at Circle Lake.



Dense shoreline growth and in-lake plants provide filtration and slow floodwaters and currents that cause erosion. This also creates prime habitat for fish, amphibians, waterfowl, and small mammals.



Mats of algae, debris, and sediment that facilitate decomposition of organic matter (due to exposure to oxygen and sunlight) and provide shelter for fish and feeding areas for insects and birds.



Examples of a well buffered (right) and sparsely buffered property. Native trees and shrubs in the lawn also help filter household runoff. Paths can be cut through floating plants for easier watercraft navigation.

***filamentous algae:** Thread-like chains of algal cells that form long, visible strands in water. Often grow in mats on the surface or at the bottom of calm waters.

They photosynthesize and provide oxygen, but excessive amounts (algal blooms) can deplete oxygen when alive or decaying (consumed by aerobic bacteria), harming aquatic life.

>>> TRIVIA

Which species of fish is most tolerant of low dissolved oxygen (DO)?

- A. Northern Pike
- B. Bullhead
- C. Walleye
- D. Largemouth Bass

>>> TRIVIA ANSWER

Circle Lake lies in which original, native vegetation zone?

C. Maple-Basswood Forest

Examples of this exist at the southeast and southwest corners of the lake.

>>> YOUR BOARD



Dean Sunderlin, Chair
 Bill Houston, Vice Chair*
 Cheryl Bahnsen, Treasurer
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 Carl Bahnsen
 Jeff Jirik
 Stefanie Johnson
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The CLID Board expresses its gratitude to the [Circle Lake Association](#) for their successful fundraising and financial contributions to lake improvement projects.

Also, many thanks to the **August 2025 donors** who contributed a total of **\$22,000** to immediately expand the lake-wide aeration project!

>>> THE IMPACT OF DISSOLVED OXYGEN AND THERMOCLINES

For healthy freshwater fish populations in Minnesota, a good guideline for dissolved oxygen (DO) concentration is at least about 5.0 mg/L (milligrams per liter) in most cases (mrbdc.mnsu.edu). As has been demonstrated by the CLID's various data collecting methods, the DO at the bottom of the lake is generally <1.0 mg/L year round.

During summer deeper lakes will stratify into three layers (see diagram). In autumn and spring, when surface water cools or warms to match bottom temperatures, the entire lake mixes — this is called turnover. It replenishes oxygen throughout the lake until the next period of stratification. Being shallow, Circle Lake does not benefit from this turnover.



Thank you to members of the Rice County Sheriff's Department for seasonal deployment and removal of hazard buoys around Circle Lake!

Epilimnion — Warm, well-mixed upper layer.
Metalimnion (Thermocline) — Middle layer where temperature drops rapidly with depth.
Hypolimnion — the cold, deep bottom layer.

