

Lake LeAnn Water Quality Summary

A Plain-English Report for Residents & Board Members | May 2026

Executive Summary

The May 2026 water quality monitoring kickoff shows that Lake LeAnn is in a transitional phase as spring shifts into summer. Overall, the lake exhibits fair to good water quality, but there is a stark, tale-of-two-lakes contrast between the North Basin and the South Basin. Data collection completed between May 13 and May 14 establishes a strong baseline for the year's nutrient budget and modeling work.

The North Basin is currently enjoying excellent clarity and low biological activity. Water in this basin appears visually clear, with only minor algae noted in shallow, near-shore areas. Nutrient levels are low, and oxygen is abundant throughout the water column, providing an excellent environment for fish and recreational activities.

In contrast, the South Basin is showing early signs of nutrient enrichment and stress. Water clarity is notably poorer here, driven by higher concentrations of microscopic, free-floating algae. While the South Basin is not in a state of crisis, its elevated nutrient numbers—particularly at South Site 2—mean it requires close monitoring as the summer heat sets in.

Key Findings

- **A Clear Basin Divide:** The North Basin boasts great water clarity with a Secchi depth reading of nearly 10 feet, while the South Basin's clarity is heavily reduced to just over 3 feet.
- **Phosphorus Spike at South Site 2:** Surface total phosphorus at the far end of the South Basin reached 20 µg/L. This places it right on the edge of the 'eutrophic' (highly productive/nutrient-rich) category.
- **Healthy Oxygen Levels (For Now):** Because the lake has not yet heavily 'stratified' (separated into warm surface and cold bottom layers), oxygen levels remain healthy and supportive of fish from top to bottom in both basins.
- **Algae Pigments Mirror Clarity:** Chlorophyll-a and phycocyanin levels (indicators of green algae and blue-green algae) are three to five times higher in the South Basin than the North Basin, explaining the difference in water clarity.
- **Low Bottom-Water Nutrients:** Early testing shows that nutrients have not yet begun escaping from the bottom lake sediments, which is excellent news for the start of the season.

Water Quality Scorecard

Parameter	May 2026 Result	Target / Typical Range	Status	What It Means
Total Phosphorus (Surface)	North: 9–11 µg/L South: 12–20 µg/L	< 12 µg/L (Oligotrophic) 12–24 µg/L (Mesotrophic)	North: Good South: Fair	Measures total food available for algae. North is beautifully low; South has moderate fuel for algae growth.
Soluble Reactive Phosphorus (SRP)	All sites below reporting limit (< 10 µg/L)	Very low fluctuations	Good	This is 'ready-to-eat' phosphorus. Because it is low, there is no immediate risk of an explosive, sudden algae bloom.
Chlorophyll-a (Algae Conc.)	North: < 8 µg/L South: < 8 µg/L (higher tracks)	0–3 µg/L (Clear) 3–7 µg/L (Moderate)	North: Good South: Fair	Measures the green pigment in the water. Confirms higher free-floating algae densities in the South Basin.
Secchi Depth (Water Clarity)	North Site 1: 9'10" South Site 1: 3'3"	> 6–7 feet preferred for recreation	North: Good South: Concern	The depth a black-and-white disc can be seen. North is highly clear; South is noticeably murky.
Dissolved Oxygen	8.60–10.07 mg/L across all depths	> 5.0 mg/L for healthy fish	Good	Oxygen gas mixed into the water. All depths have healthy, breathable water for fish and aquatic life.
Temperature	14.0°C–15.1°C (57°F–59°F)	Seasonal variable	Good	Cool spring water temperatures. The temperature is nearly uniform from top to bottom, meaning the lake hasn't fully layered yet.
Total Nitrogen (TN)	1.04–1.25 mg/L	1.0–2.0 mg/L (Eutrophic risk)	Warrants Monitoring	An essential plant nutrient. Levels are slightly elevated, indicating watershed runoff (fertilizers, lawn debris).
pH	8.21–8.52 S.U.	6.5–9.0 S.U.	Good	Measures how acidic or basic the water is. Perfectly within the healthy, normal freshwater range.

Conductivity	388.8–426.0 µS/cm	100–1,000 µS/cm	Good	Measures dissolved salts/ions in water. Well within normal freshwater limits.
Phycocyanin (Blue-Green)	North: 0.12–0.24 RFU South: 0.18–0.32 RFU	< 1.0 RFU baseline	Good	A pigment specific to cyanobacteria (blue-green algae). Background levels are very low, showing no immediate toxic bloom risks.

Phosphorus Assessment

Phosphorus acts like fertilizer for the lake. Right now, our total phosphorus levels show a clear tale of two basins: the North Basin is very clean (9–11 µg/L), while the South Basin is under higher nutrient pressure (12–20 µg/L).

The good news is that internal loading is not yet occurring. When a lake gets hot, it separates into distinct layers, and the bottom layer often runs out of oxygen. This lack of oxygen triggers chemical reactions that pull historical phosphorus out of the bottom mud and dump it into the water column. Currently, bottom phosphorus levels remain virtually identical to surface levels, meaning the lakebed is successfully keeping its nutrients locked away for now.

What Residents Must Understand: The elevated phosphorus in the South Basin's surface water is almost certainly coming from external runoff—such as spring rains washing lawn fertilizers, septic tank seepage, pet waste, and decaying leaves into the lake. This active surface nutrient supply is what is fueling the lower water clarity and higher algae readings in the South Basin.

Algae Bloom Risk Assessment

Risk Level: Moderate Risk (Basin Dependent)

- **North Basin (Low Risk):** Low nutrients and high clarity mean severe blooms are highly unlikely here in the immediate future.
- **South Basin (Moderate Risk):** The combination of 20 µg/L of total phosphorus at South Site 2 and lower water clarity creates a prime environment for rapid algae growth as water temperatures rise.

Reasoning: While free-floating algae numbers are visibly higher in the South Basin, our screening for blue-green algae (phycocyanin) remains remarkably low across the entire lake. We are seeing standard spring green algae, not the dangerous, toxin-producing blue-green scum. However, because the nutrient 'fuel' is present in the South Basin, a warm, calm week could trigger localized nuisance green blooms.

Oxygen Conditions

The fish habitat is currently excellent and healthy. Dissolved oxygen levels are above 8.6 mg/L from the very top of the lake down to the bottom sediment line. Fish require at least 5.0 mg/L to thrive, so they currently have full use of the entire lake column to hunt, swim, and stay cool.

There are no low-oxygen (hypoxic) conditions present anywhere right now. Because oxygen is abundant at the bottom of the lake, it is actively preventing phosphorus from releasing out of the lakebed sediments into our swimming areas.

Trend Analysis

Because this is the first formal report of the 2026 season (May kickoff), we do not have immediate month-over-month data to establish active trends for this year. However, comparing the May baseline data across sites highlights what we must watch closely:

- **Stable / Baseline Indicators:** pH, conductivity, and bottom-water nutrients are uniform and healthy lake-wide.
- **Areas Requiring Additional Monitoring:** The South Basin—specifically South Site 2—is our primary area of concern. Its elevated total phosphorus (20 µg/L) and higher chlorophyll-a tracks tell us that nutrient loading from the surrounding neighborhood or incoming streams is actively impacting this portion of the lake. We need to watch how quickly these oxygen levels deplete as the water warms up in June and July.

Resident-Friendly Takeaways

- **Two Basins, Two Stories:** The North Basin has beautiful, crystal-clear water, while the South Basin is currently experiencing much lower clarity.
- **Clarity Check:** You can see down nearly 10 feet into the North Basin, but only about 3 feet into the South Basin.
- **Fish Are Happy:** Oxygen levels are excellent throughout the entire lake, meaning fish have plenty of healthy water to breathe from top to bottom.
- **No Harmful Algae Scums Yet:** While the South Basin looks a bit green, scientific testing shows it is normal spring algae, not dangerous blue-green cyanobacteria.
- **Watch the Fertilizer:** Elevated phosphorus and nitrogen in the water mean neighborhood runoff is feeding the lake. Residents should completely avoid using phosphorus-heavy fertilizers on lawns.
- **The Lake Bottom Looks Good:** Currently, the mud at the bottom of the lake is successfully holding onto its nutrients and not releasing them into our swimming water.