

Forest Lake Water Quality Report

Sampling Date: June 23, 2026



Prepared by the Forest Lake Improvement Association (FLIA) Water Quality Volunteers

A Message to Our Community

On the morning of June 23, 2026, FLIA volunteers Doug, Rex, Leigh and Xander headed out on Forest Lake with Volunteer Lake Assessment Program Coordinator Alyssa to collect our seasonal water quality samples as part of the New Hampshire Department of Environmental Services Volunteer Lake Assessment Program (NHDES VLAP) — a statewide effort that depends entirely on dedicated community members like ours. Special thanks go to Rex for piloting the boat, to Doug for orienting new volunteers, and to Xander, Arrow of Light Cub Scout from VT Pack 448. Thank you to everyone on the monitoring team who gave their time to make this work possible. The results below are compared to our June 2024 data, giving us a meaningful two-year window to track how our lake is trending.

Volunteers' Summary

Bottom line: Forest Lake remains generally healthy at the surface, but elevated deep-water phosphorus and the sharp NE Branch increase should be treated as the priority risks for follow-up.

What improved: Chlorophyll-a declined from 2024, the Outlet phosphorus reading improved substantially, and surface phosphorus stayed near the state median.

What needs attention: Deep-water phosphorus rose to 36.0 µg/L, water clarity decreased, and NE Branch phosphorus increased from 14.0 to 39.8 µg/L.

Recommended next step: Prioritize phosphorus prevention across shoreline properties and conduct targeted NE Branch resampling or source investigation before the next reporting cycle.



Lake-at-a-Glance Deep Spot (Main Lake)

Measurement	What It Means	June 2026 Result	June 2024 Result	Trend
Water Clarity (Secchi Depth)	How deep you can see into the lake	2.28 m (standard) 2.5 m (with viewscope)	3.40 m (standard) 4.20 m (with viewscope)	⚠️ Decreased — cloudier than 2024
Algae Level (Chlorophyll-a)	Amount of algae growing in the water	5.35 µg/L	6.63 µg/L	✅ Improved — slight decrease in algae
Phosphorus — Upper Lake	Main algae nutrient in surface waters	10.9 µg/L	11.0 µg/L	✅ Stable — near state median of 11 µg/L
Phosphorus — Deep Water	Phosphorus in the bottom, oxygen-poor layer	36.0 µg/L	28.0 µg/L	⚠️ Elevated — suggests internal loading
pH (Upper Lake)	Water acidity/alkalinity (6.5–8.0 is ideal)	7.07	7.20	✅ Healthy — within normal range
Conductivity (Upper Lake)	Dissolved salts in the water	53.03 µS/cm	51.9 µS/cm	✅ Stable
Turbidity (Upper Lake)	Cloudiness / particle suspension	1.23 NTU	0.85 NTU	✅ Still very low and clear
Water Color	Natural tea-color from organic matter	52 PCU (moderately tea-colored)	48 PCU	✅ Stable — typical for this lake

State median reference values: Phosphorus 11 µg/L | Chlorophyll-a 4.39 µg/L | Transparency 3.3 m | pH 6.6 | Conductivity 42.3 µS/cm.

Inlets & Tributaries — June 23, 2026

Water flowing into Forest Lake from surrounding streams and inlets carries nutrients from the watershed. Here's how our monitoring stations measured up:

Station	pH	Phosphorus (µg/L)	Conductivity (µS/cm)	Turbidity (NTU)	Notable Change vs. 2024
Campground Inlet (Sampled in center steam of culvert)	6.23	40.5	63.3	3.59	 Phosphorus up slightly from 36 µg/L in 2024
Dump Branch (Sampled from Lake Shore Dr. tributary stream)	6.37	24.0	117.1	2.11	 Conductivity elevated (up from 101.3 in 2024)
NE Branch (Sampled from Forest Lake Rd tributary stream)	6.67	39.8	44.74	1.9	 Phosphorus significantly up from 14 µg/L in 2024
Outlet (Sampled below new dam spillway)	6.95	11.2	35.37	0.7	 Phosphorus dramatically improved from 36 µg/L in 2024
Sandy Point Inlet (Test downstream of bridge)	6.54	18.3	22.89	1.24	 Stable; consistent with 2024

 Bright Spot: The Outlet

The Outlet showed dramatic phosphorus improvement; dropping from 36 µg/L (a historic high in 2024) down to just 11.2 µg/L. This is a very encouraging sign and a bright spot in this year's data.

 Watch Point: NE Branch

The NE Branch phosphorus nearly tripled compared to 2024 (14.0 → 39.8 µg/L), making it the clearest candidate for targeted resampling and watershed source investigation before the next annual cycle.

Below the Surface: Understanding the Deep Water

Forest Lake develops three distinct water layers each summer. The warm upper layer, called the **epilimnion** (roughly 0–2 meters deep), is where most swimming and boating activity happens. Below that is a transition zone called the **metalimnion** (around 6 meters), where temperature drops sharply. At the bottom sits the cold, oxygen-poor **hypolimnion** (around 8.5 meters), which is largely cut off from the surface during warm months. Nutrients like phosphorus can become "trapped" in this deep layer all summer long.

In June 2026, deep-water (hypolimnetic) phosphorus measured 36.0 µg/L, up from 28.0 µg/L in 2024. This elevated reading is a sign of **internal loading**, a process where phosphorus that has accumulated in lake sediment over many years is released back into the water column when oxygen levels in the deep-water drop. Internal loading is a known concern for Forest Lake and is one of the key dynamics our monitoring program is designed to track. Deep-water turbidity (cloudiness) also remained elevated at approximately 10 NTU, consistent with what we observed in 2024.

The good news is that the upper lake tells a more encouraging story. Surface phosphorus remains stable and near the NH state median, and chlorophyll-a (our algae indicator) has actually improved slightly year over year. The lake is not in crisis, but the deep-water readings are a clear reminder that **keeping phosphorus out of the lake in the first place** remains our most powerful tool. Every pound of phosphorus we prevent from entering the watershed is one less pound that can fuel algae growth in the years ahead.

Keep Watch: Cyanobacteria (Blue-Green Algae)

Cyanobacteria Awareness Notice

A brief **Cyanobacteria Watch** was issued for Forest Lake in July 2024. Internal phosphorus loading, like what we're seeing in the deep water this year, can fuel future blooms when conditions are right. Blue-green algae blooms can be **harmful to people, pets, and wildlife**, even in small amounts.

If you see thick, paint-like scums, unusual blue-green or greenish-brown coloring on the water, or a strong musty smell near shore: **do not swim, do not let pets or livestock drink the water, and do not water-ski through it.**

Report observations immediately to the **NHDES Harmful Algal Bloom (HAB) Program** at nhdes.nh.gov or contact VLAP coordinator. Early reporting helps protect our entire community.



What Homeowners Can Do

Every property owner can help reduce phosphorus loading; the actions below are ordered by likely impact.

- **1. Build or restore shoreline buffers** — Native vegetation is the highest-impact property-level step for filtering runoff before it reaches the lake.
- **2. Eliminate phosphorus fertilizer near the lake** — Use phosphorus-free products only when fertilizing is necessary and keep all applications away from shorelines and drainage paths.
- **3. Slow and spread stormwater runoff** — Redirect downspouts, driveway flow, and bare-soil runoff into grass, rain gardens, or vegetated areas.
- **4. Reduce near-shore disturbance** — Slow boat speeds near shore to limit wake erosion, turbidity, and sediment resuspension.
- **5. Remove pet waste promptly** — Animal waste adds nutrients and bacteria, especially when left near the water or drainage routes.
- **6. Watch and report unusual algae conditions** — Report suspected cyanobacteria blooms early so NHDES and local volunteers can respond quickly.



Two-Year Trend Summary

Parameter	2024	2026	Direction
Chlorophyll-a (algae level)	6.63 µg/L	5.35 µg/L	☑ Improving
Water Clarity with Secchi (no viewscope)	3.40 m	2.28 m	⚠ Decreased
Epilimnetic Phosphorus (surface)	11.0 µg/L	10.9 µg/L	☑ Stable
Hypolimnetic Phosphorus (deep water)	28.0 µg/L	36.0 µg/L	⚠ Elevated
Epilimnetic pH	7.20	7.07	☑ Healthy

Parameter	2024	2026	Direction
Epilimnetic Conductivity	51.9 µS/cm	53.03 µS/cm	☑ Stable
Outlet Phosphorus	36.0 µg/L	11.2 µg/L	☑ Greatly Improved
NE Branch Phosphorus	14.0 µg/L	39.8 µg/L	⦿ Significant Increase

Overall Assessment

Forest Lake remains generally healthy, with stable surface phosphorus, improved algae levels, and a strong outlet improvement. The priorities for the next cycle are clear: reduce new phosphorus inputs, continue tracking deep-water internal loading, and investigate the NE Branch phosphorus spike. Continued FLIA monitoring gives the community an early-warning system and a practical way to protect lake health before problems become harder to reverse.

Data Source: NH Department of Environmental Services Volunteer Lake Assessment Program (NHDES VLAP). Current Year Chemical and Biological Data, Forest Lake in Winchester, NH. Sampled June 23, 2026.

Report prepared by: Forest Lake Improvement Association (FLIA) | nhdes.nh.gov/water/wetlands/vlap

Questions? Contact NHDES VLAP Coordinator or your local FLIA volunteer committee.