

MERRYMEETING LAKE

2025 SAMPLING HIGHLIGHTS

Station 1 Broad Cove

New Durham, NH



Extension

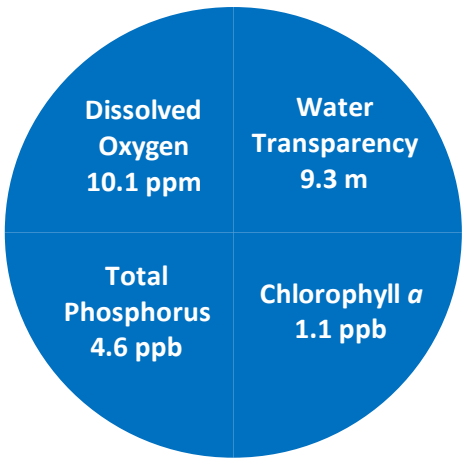


Figure 1. Merrymeeting Lake Water Quality (2025)

Table 1. 2025 Merrymeeting Lake Seasonal Averages and NH DES Aquatic Life Nutrient Criteria¹

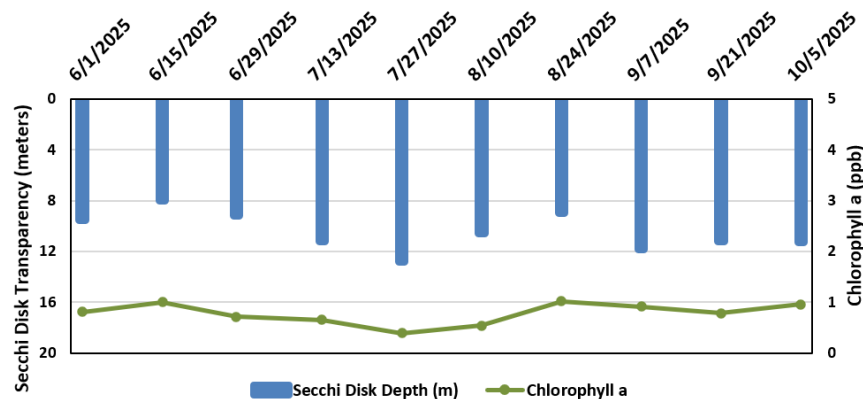
Parameter	Oligotrophic	Mesotrophic	Eutrophic	Merrymeeting Lake Site 1 Broad Cove Average (range)	Merrymeeting Lake Site 1 Broad Cove Classification
Water Clarity (meters)	> 4.0 – 7.0	2.5 - 4.0	< 2.5	9.3 meters (7.0 – 10.5)	Oligotrophic
Chlorophyll <i>a</i> ¹ (ppb)	< 3.3	> 3.3 – 5.0	> 5.0 – 11.0	1.1 ppb (0.4 – 1.7)	Oligotrophic
Total Phosphorus ¹ (ppb)	< 8.0	> 8.0 – 12.0	> 12.0 – 28.0	4.6 ppb (3.1 – 8.6)	Oligotrophic
Dissolved Oxygen (ppm)	> 5.0 – 7.0	2.0 – 5.0	<2.0	10.1 ppm (4.8 – 11.9) *	Oligotrophic

* Dissolved oxygen concentrations were measured on July 29, 2025, between 15.0 and 33.0 meters, in the cold bottom water layer.

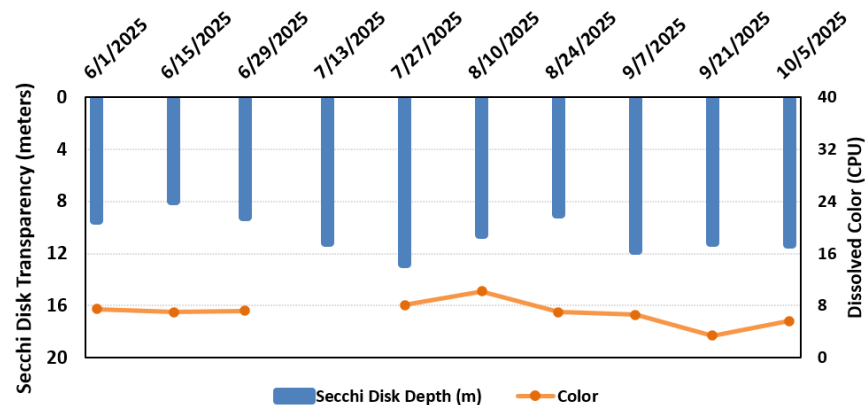
Table 2. 2025 Merrymeeting Lake Seasonal Average Accessory Water Quality Measurements

Parameter	Assessment Criteria					Merrymeeting Lake Site 1 Broad Cove Average (range)	Merrymeeting Lake Site 1 Broad Cove Classification
Color (color units)	< 10 uncolored	10 – 20 slightly colored	20 – 40 lightly tea colored	40 – 80 tea colored	> 80 highly colored	7.0 color units (range: 3.4 – 10.2)	Uncolored
Alkalinity (ppm)	< 0.0 acidified	0.1 – 2.0 extremely vulnerable	2.1 – 10 moderately vulnerable	10.1 – 25.0 low vulnerability	> 25.0 not vulnerable	8.5 ppm (range: 8.1 – 9.0)	Moderately vulnerable
pH (std units)	< 5.5 suboptimal for successful growth and reproduction		6.5 – 9.0 optimal range for fish growth and reproduction			7.2 standard units (single value)	Optimal range for fish growth and reproduction
Specific Conductivity (uS/cm)	< 50 uS/cm Characteristic of minimally impacted NH lakes		50-100 uS/cm Lakes with some human influence	> 100 uS/cm Characteristic of lakes experiencing human disturbances		55.6 uS/cm (single value)	Characteristic of lakes with some human influence

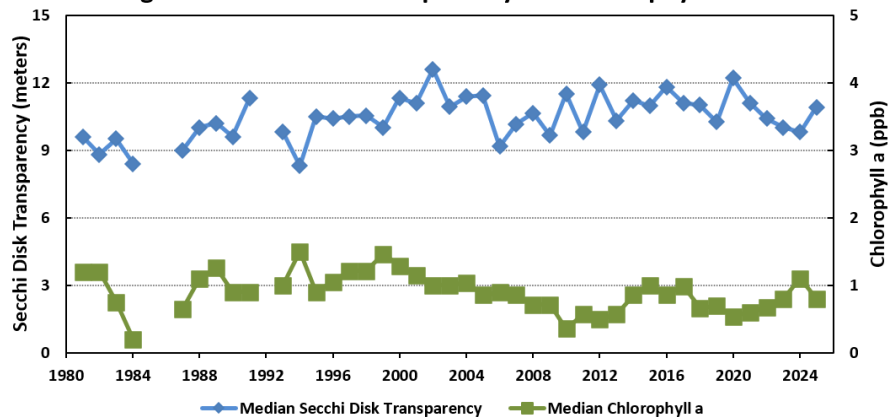
**Figure 2. Merrymeeting Lake (2025 Seasonal Data)
Secchi Disk Transparency and Chlorophyll *a* Data**



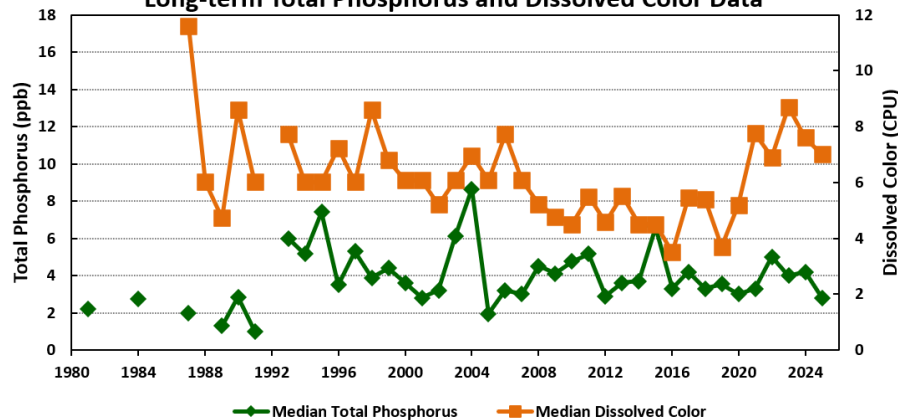
**Figure 3. Merrymeeting Lake (2025 Seasonal Data)
Secchi Disk Transparency and Dissolved Color Data**



**Figure 4. Merrymeeting Lake - Site 1 Broad Cove (1981-2025)
Long-term Secchi Disk Transparency and Chlorophyll *a* Data**



**Figure 5. Merrymeeting Lake - Site 1 Broad Cove (1981-2025)
Long-term Total Phosphorus and Dissolved Color Data**



Figures 2 and 3. Seasonal comparison of Merrymeeting Lake – Site 1 Broad Cove, water transparency (Secchi Disk depth), chlorophyll *a*, and dissolved color for 2025. Shallower water transparency measurements oftentimes correspond to increases in chlorophyll *a* and/or color concentrations.

Figures 4 and 5. Annual median Merrymeeting Lake – Site 1 Broad Cove, water transparency, chlorophyll *a*, dissolved color, and total phosphorus concentrations measured between 1981 and 2025, through the New Hampshire Lakes Lay Monitoring Program. The long-term data provide insight into the water quality fluctuations, among years, that have been documented in Merrymeeting Lake.

Figure 6. Merrymeeting Lake - Site 1 Broad Cove
Temperature Profiles (July 29, 2025)

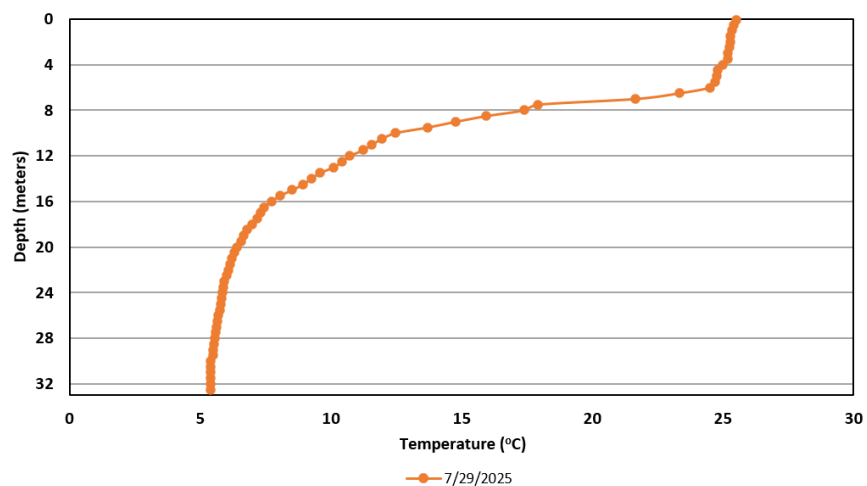


Figure 7. Merrymeeting Lake - Site 1 Broad Cove
Dissolved Oxygen Profiles (July 29, 2025)

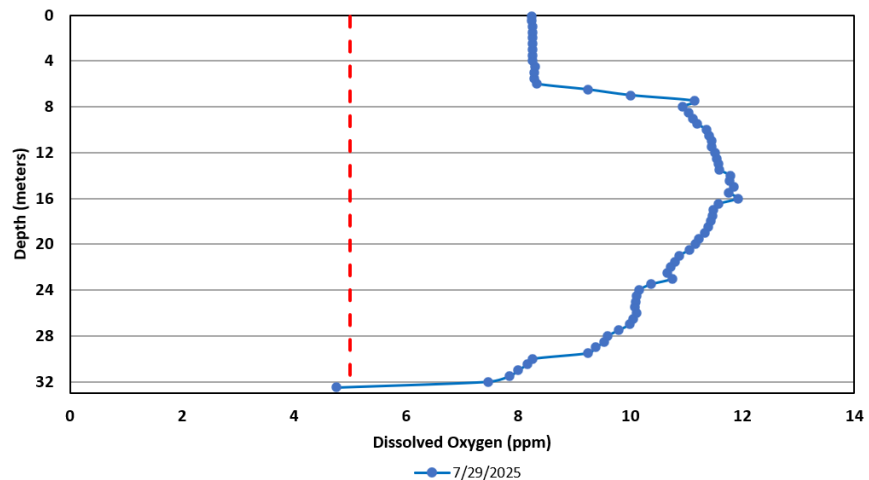


Figure 8. Merrymeeting Lake - Site 1 Broad Cove Specific
conductivity inter-comparison (July 29, 2025)

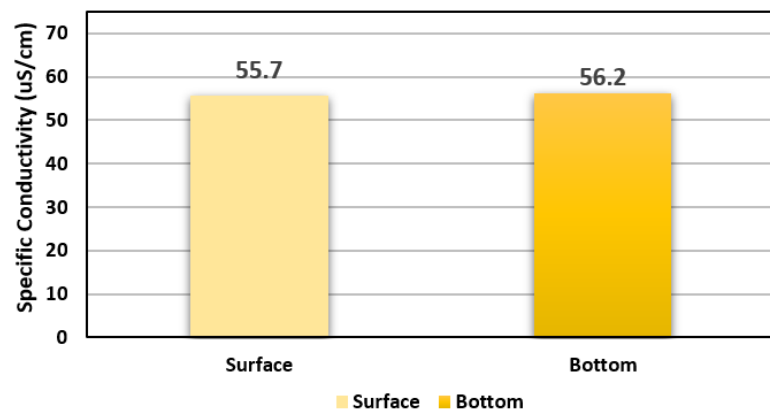
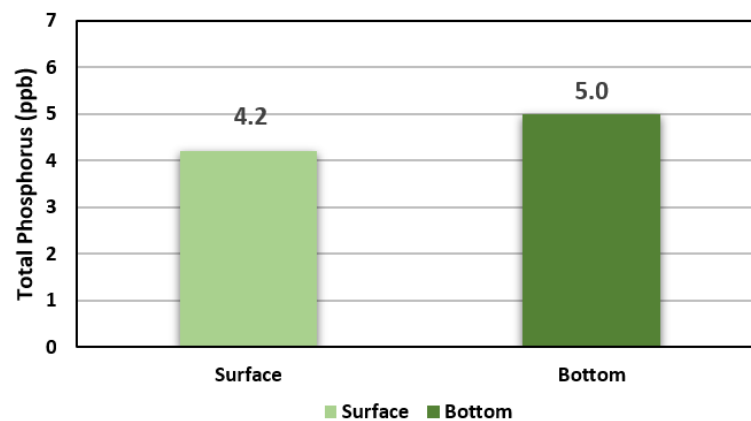


Figure 9. Merrymeeting Lake - Site 1 Broad Cove Total
Phosphorus inter-comparison (July 29, 2025)



Figures 6 and 7. Temperature and dissolved oxygen display the water quality differences in 0.5-meter increments. The dashed vertical red line in Figure 7 displays the dissolved oxygen threshold for the successful growth and reproduction of cold-water fish such as trout and salmon.

Figures 8 and 9. Specific conductivity and total phosphorus comparison between the surface (epilimnion) and bottom (hypolimnion) water zones.

Data Interpretation: Overview of factors to consider when reviewing the Merrymeeting Lake data

This highlight report provides a general overview of the current and historical conditions of Merrymeeting Lake. The report is intended to provide a simple assessment of the water quality trends. Should you have additional questions about interpreting your water quality results, we would be happy to discuss the data with you and/or any concerns you may have. In general, some factors that influence the current and long-term water quality results/trends for our New Hampshire lakes and ponds include:

- **Land-use Patterns** within the watershed (drainage basin) – Research indicates land use patterns have an impact on how much phosphorus (nutrient) is washing into our lakes. In general, more urbanized watersheds have a greater degree of phosphorus runoff than highly forested/vegetated drainage areas.
- **Weather Patterns** – Rainfall and temperature can influence water quality. Wet periods, and overland runoff, tend to be a time when elevated nutrients and other pollutants are transported into our lakes. Temperature can also influence water quality conditions since many aquatic plants and algae tend to respond to changing seasonal conditions. Unusually warm periods are sometimes tied to short-term algal and cyanobacteria blooms.
- **Best Management Practices (BMPs)** – The presence/absence of best management practices can have an interplay on water quality. BMPs are measures that are used to manage nutrients and other pollutants that could otherwise make their way into our lakes. Properties that employ BMPs, designed specifically to remove pollutants of concern (e.g. sediments and phosphorus), are less likely to contribute nutrients and other pollutants into our lakes.
- **Temperature (Thermal) Stratification** – Many lakes become thermally stratified during the summer months and may form three distinct thermal layers: upper water layer (epilimnion), middle lake layer (metalimnion) and bottom cold-water layer (hypolimnion). These thermal zones form a barrier to lake mixing, during the summer months, and can coincide with differences in dissolved oxygen and specific conductivity through the water column (Figures 6, 7 and 9).
- **Internal Nutrient Loading** (nutrients that are introduced from the sediments along the lake bottom) – Some of our lakes experience significant internal nutrient loading. Such lakes generally tend to be well stratified and exhibit increasing deep water phosphorus concentrations, relative to surface levels, during the summer months.

For more information about your lake, [please visit the UNH LLMP data viewer and lake water quality reporting site](#).

Other relevant resources from the [New Hampshire Department of Environmental Services](#), such as the “[Lake Info Mapper](#)” and the “[Surface Water Quality Assessment Viewer](#)”, provide additional information on NH lakes, streams and watersheds.

Strategies to stabilize and improve water quality

Review the “[Merrymeeting Lake & River Watershed Management Plan](#)” that provides background information and offers potential solutions to existing water quality problems. Homeowners within the Merrymeeting River watershed may want to consider implementing measures that minimize the adverse impacts of polluted runoff and erosion into Jones Pond. Refer to “[Landscaping at the Water’s Edge: An Ecological Approach](#)” and “[New Hampshire Homeowner’s Guide to Stormwater Management: Do-It-Yourself Stormwater Solutions for Your Home](#)” for more information on how to reduce nutrient loading caused by overland runoff. NH Lakes also provides a series of resources aimed at educating residents and protecting our lakes and ponds through the [LakeSmart](#) program.

**Table 3. Merrymeeting Lake Inter-site Comparison
(2025 water quality data collected between June 3 and October 7)**

Site	Average (range) Secchi Disk Transparency (meters)	Average (range) Chlorophyll- <i>a</i> (ppb)	Average (range) Total Phosphorus (ppb)	Average (range) Dissolved Oxygen (ppm)
1 Broad Cove	10.5 meters	0.8 ppb	3.4 ppb	10.1 ppm
	(range: 8.0 – 12.8)	(range: 0.4 – 1.0)	(range: 2.3 – 7.0)	(range: 4.8 – 11.9)
2 Owls Head	9.8 meters	0.9 ppb	3.6 ppb	10.0 ppm
	(range: 8.0 – 11.6)	(range: 0.6 – 1.6)	(range: 2.4 – 6.4)	(range: 6.7 – 11.7)
3 East End	9.4 meters	0.9 ppb	3.7 ppb	11.0 ppm
	(range: 8.0 – 10.9)	(range: 0.6 – 1.1)	(range: 2.8 – 6.1)	(range: 10.6 – 11.3)

- Dissolved oxygen measurements were collected on July 29, 2025 in the cold bottom water layer

