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GEOTECHNICAL
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135 Sheldon Road
Box 1, Unit I
Manchester, CT 06042
T: 860.742.0744
ecosystemconsulting.com
gza.com

February 26, 2026
File No. 05.0047125.03

Duncan Kruse
West Hill Pond Association
PO Box 1057
New Hartford, CT

Re: Summary Report for 2025 Annual Limnological Study of West Hill Pond
West Hill Pond
New Hartford and Barkhamsted, CT

Dear Mr. Kruse,

This Summary Report provides diagnostic interpretation of the reservoir monitoring results from the West Hill Pond 2025 season. Field data and water samples were jointly collected by GZA personnel and West Hill Pond Association (WHPA) volunteers. Water samples collected for chemical analysis were sent to UCONN's CESE Lab in Storrs, CT. Additionally, GZA performed fluorometric analysis of organic parameters and phytoplankton pigments and sent subsamples to a professional taxonomist for phytoplankton identification and enumeration. Suggested ongoing monitoring and management actions follow the diagnostic interpretations. This report and our recommendations are subject to the Limitations attached in **Appendix A**.

BACKGROUND – WEST HILL POND

West Hill Pond (WHP) is a 261-acre waterbody located in New Hartford and Barkhamsted, CT with a maximum depth of approximately 63 ft (approximately 20 m). WHP's deepest location, where sampling is conducted, is near the southern end of the waterbody (**FIGURE 1**).

Over the past half century, many waterbodies in Connecticut have undergone eutrophication as a result of increased shoreline development, urbanization, and agricultural activity within their watersheds. Further, climate change trends have exacerbated New England lake eutrophication by increasing intensity and duration of thermal stratification, resulting in greater internal loading of nutrients. Despite these regional trends, WHP has not experienced significant degradation of water quality, and is in fact classified as one of the cleanest, least productive lakes in Connecticut.

It's GZA's pleasure to submit this report to the WHPA. GZA would like to reiterate our commendation of WHPA and its excellent work. We continue to witness a passionate and proactive management approach by WHPA's members, and it has been a pleasure to work with the association.

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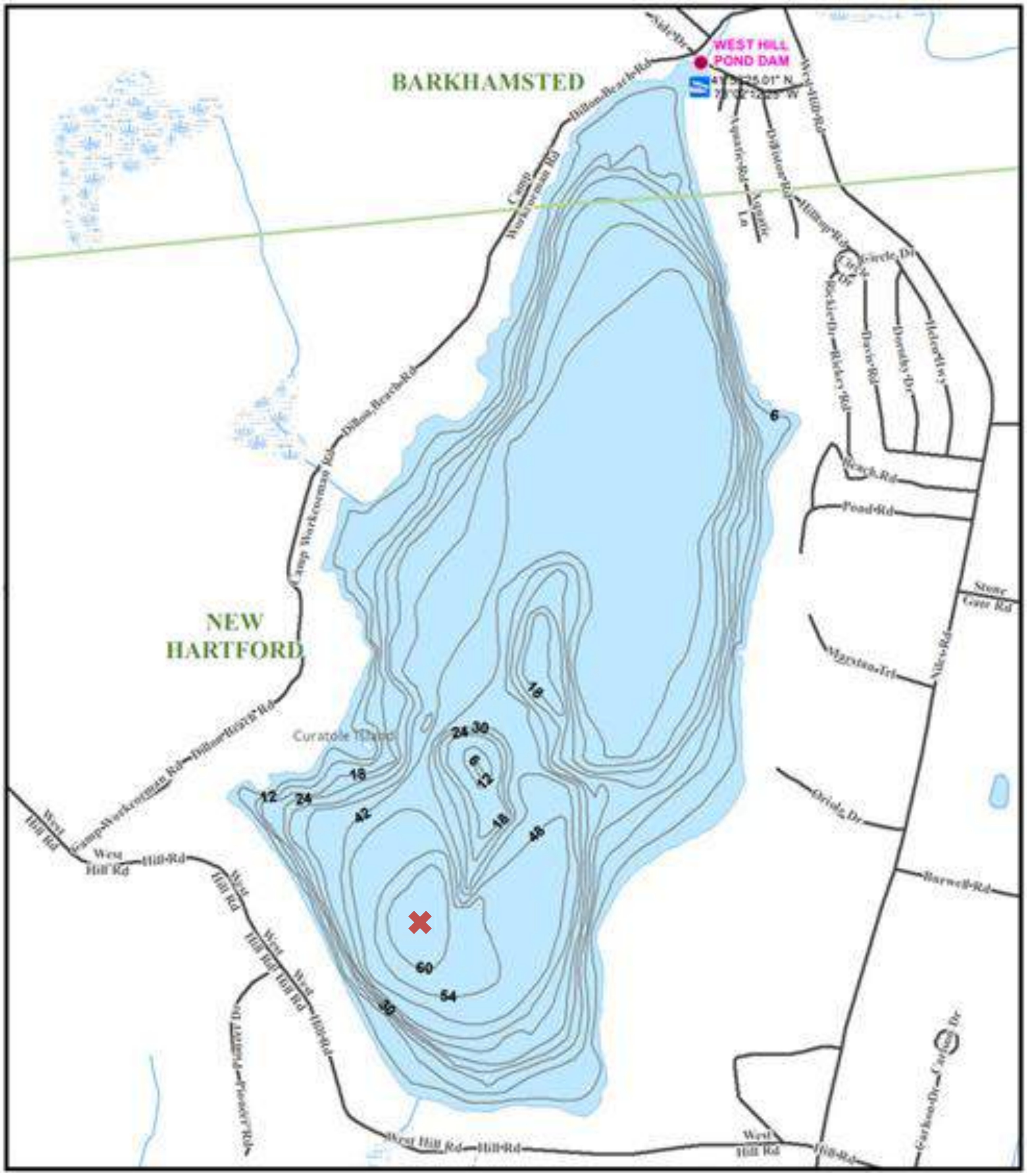


FIGURE 1: Bathymetric map of West Hill Pond (DEEP, 2011).
Red “X” demarcates maximum depth (Z_{max}) at 21 m.

FIGURE 2. Example of a datalogging buoy, though instrumentation and depths vary. In West Hill Pond, the buoy was anchored at 20 m depth, and had five miniDOTs at 2m, 7m, 10m, 14m, and 18m deep.

LAKE MONITORING

West Hill Pond's (WHP) 2025 monitoring involved a cooperative field effort between GZA staff and WHPA volunteers. In addition, West Hill Pond was sampled 7 times in 2025, with monitoring occurring from early April to mid-November. Field staff performed vertical water column tests in meter increments to assess the lake's physical and chemical composition. For more detailed chemical analyses, water samples were collected at 2m, 7m, 10m, 14m, and 18m below the surface of the lake using a van-Dorn water sampler. A 5-meter sampling straw was used to collect phytoplankton samples, which were preserved with Lugol's solution and shipped to a taxonomist for enumeration. A set of 5 miniDOTs were deployed during the first sampling event of the season (April 2025) at the deepest point of the lake and subsequently collected during the last sampling event (**FIGURE 2**). These miniDOTs recorded hourly snapshots of temperature and dissolved oxygen concentrations, and the data were used to calculate stratification intensity through the water column. An additional set of 5 miniDOTs was set in the same location during the last sampling event (November 2025) to capture over winter conditions and capture spring turnover in 2026.

RESULTS

Climatic variability in rainfall and air temperature influence lake ecosystems in a variety of ways. For instance, increased rainfall results in increased watershed connectivity, which could mean external inputs of nutrients or organic material. WHP experienced considerable early season rain, the largest rain event of the season occurring in May 2025 (approximately 2.5 inches). Precipitation tapered off in mid-summer, leading to a rather dry fall.

Ambient **temperature** determines water temperature and the duration and intensity of lake thermal stratification (where warm water is located at the surface, and colder, denser water is located deep on the bottom). We have developed a metric tailored to lake and reservoir ecology, DDD, defined as density degree days (**FIGURE 3**) with respect to the temperature at which water is densest (40 °F or 4 °C) and accounts for both positive and negative temperature fluctuations over a period (April through October). DDD is like the agricultural metric Growing Degree Days, which in New England is typically based on 50 °F (10 °C) and is accumulative. 2025 DDD showed very similar trends to the previous 4 years. Heavy precipitation events in late September and mid-October were captured by the MiniDOT loggers; this data is discussed below.

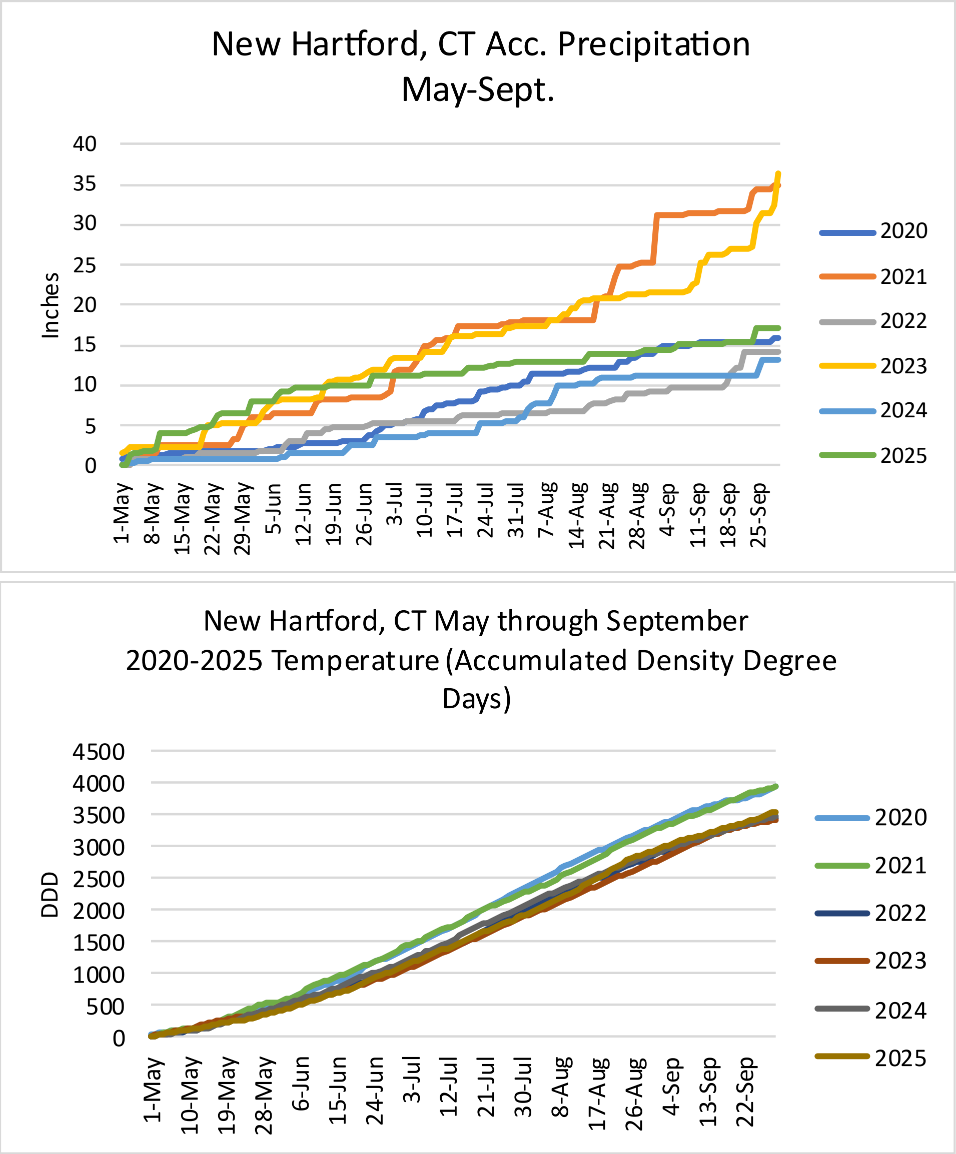


FIGURE 3. Accumulated precipitation (Top) and Density Degree Days (Bottom).

Thermal stratification describes the temperature-dependent density gradient between cold water that sinks to the bottom of the pond and warm water that floats at the top. Stratification had only just initiated, albeit weakly, at WHP Lake during the first field monitoring trip in April, with water temperatures ranging from 12.3 °C to 6.6 °C from the top to the bottom of the water column, respectively (**FIGURE 4**). Stratification is measured by RTRM (relative thermal resistance to mixing), a unitless ratio. RTRM below 30-50 across a 1 m increment, or below 100 when summed across the entire water column, is considered weak.

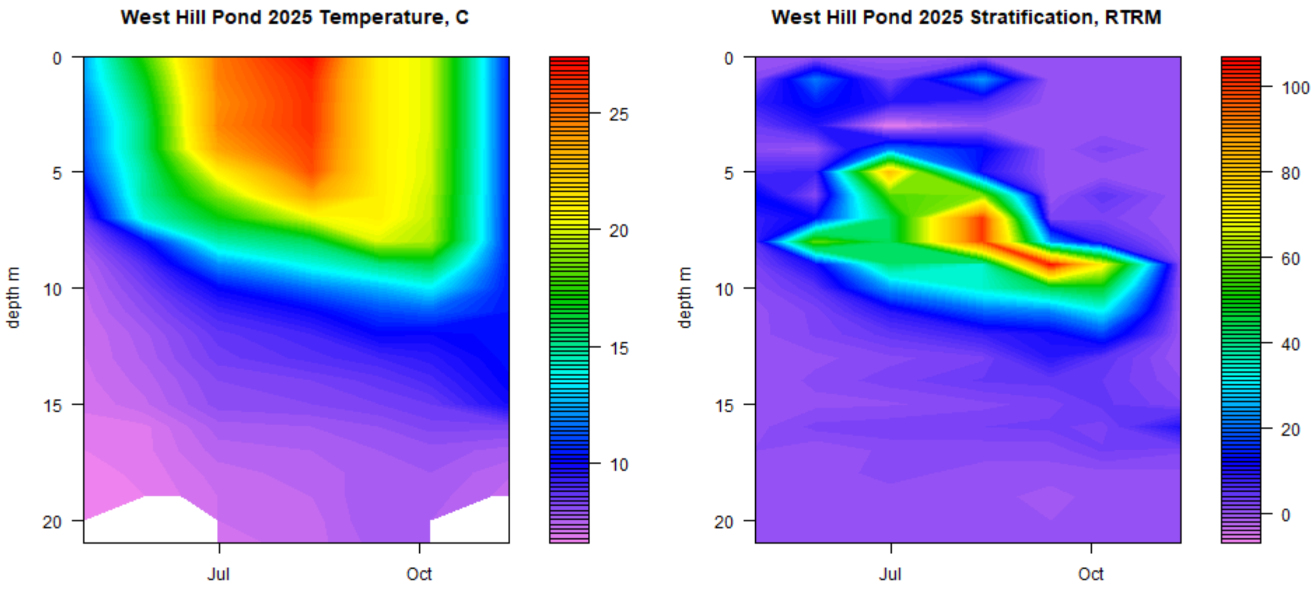


FIGURE 4. 2025 Temperature (Deg C) from monitoring probe (left) and stratification (relative thermal resistance to mixing, RTRM; right).

In May, a relatively weak thermocline was observed at 8 m below the surface with similarly weak stratification overall (152 RTRM total). By the end of June, this stratification doubled in intensity (total RTRM of 343), with a more robust thermocline which ascended to 5 m. Throughout peak summer, the thermocline gradually descended back down in the water column until it was 8 m deep in mid-August, which was also when the observed stratification was strongest (427 total RTRM). In September and October, stratification began to weaken and the thermocline gradually deepened its location in the water column to 9 m deep in October. By the end of November, WHP was nearly isothermal, with top to bottom temperatures of 10.4 °C and 7.3°C, respectively.

Because strong stratification stably compartmentalizes the top of the water column from the bottom of the water column (below the thermocline), stratification can exacerbate the depletion of oxygen at deep depths by preventing oxygen diffusion and replenishment from the surface. **Dissolved oxygen (DO)** is critical for lakes as it allows organisms to conduct aerobic respiration. DO is diffused across the lake surface from the atmosphere or produced by plants, algae, or phytoplankton within the lake. After lakes experience stratification, DO in the deepest hypolimnetic layer can become exhausted by biological processes (mainly, microbial respiration). This leads to anoxia (DO < 1.0 mg/L) and reduced conditions (low oxidation-reduction potential). Such conditions can promote the release and transport of problematic nutrients such as total phosphorus (TP), iron (Fe), and manganese (Mn) from the lake sediments into the water column. TP and Fe are key nutrients for cyanobacteria growth, while Mn is more of a concern to drinking water due to the treatment process required to remove it. Hence, the water at the bottom of the lake during the summer may not only be cold and dense, but if anoxic and reduced, it may also be very nutrient and metal rich.

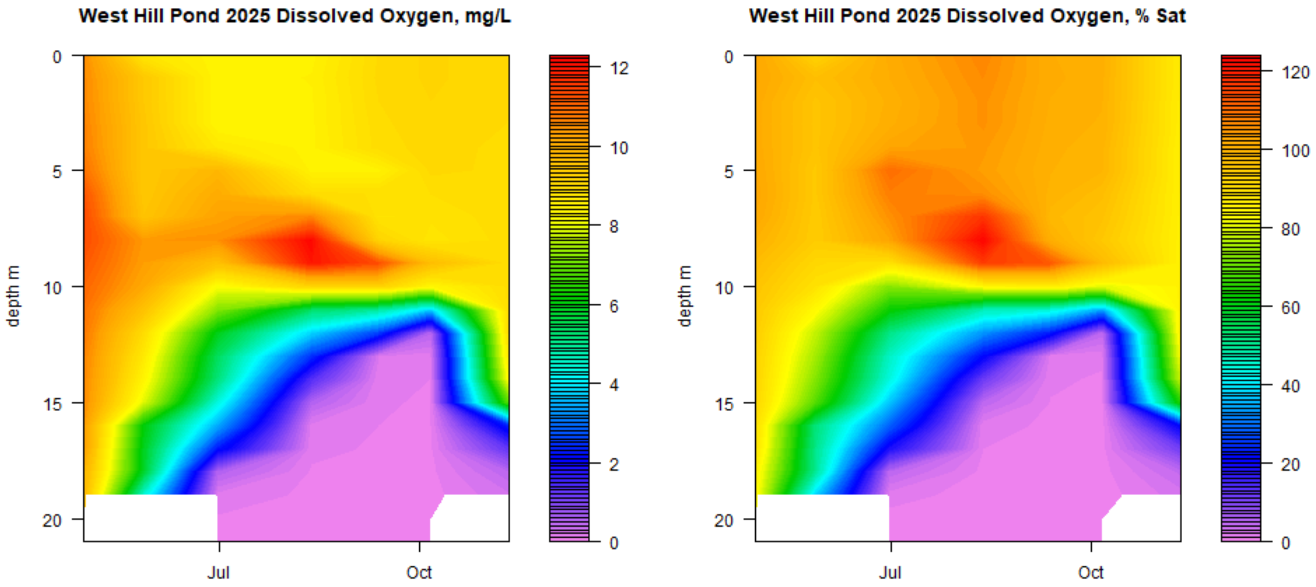
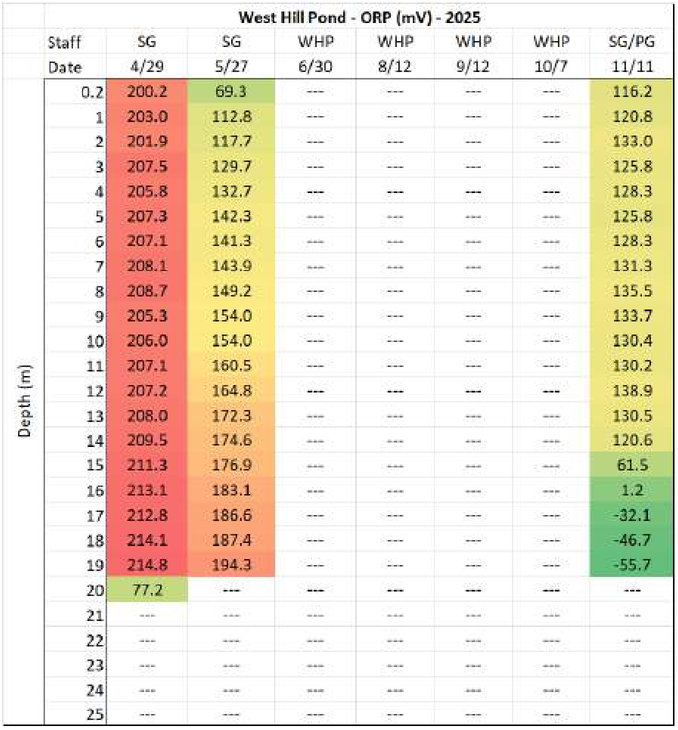


FIGURE 5. 2025 Dissolved Oxygen Concentration (mg/L; left) and saturation (%; right) from monitoring probe.

Throughout 2025, WHP's Epilimnion (upper layer) down through the metalimnion (middle layer that contains the thermocline) remained well oxygenated, with DO concentrations remaining above 8 mg/L (**FIGURE 5**). The hypolimnion (lower layer) remained aerobic (> 1 mg/L DO) until the end of June, with anoxia initiating directly in the over bottom water parcel (18 m). This anoxic boundary gradually increased over the summer, ascending to 12 m deep by early October, though it was isolated below the metalimnion. This was beneficial, as anoxic water—which is potentially nutrient-rich—was partitioned to the deepest part of the water column, separate from the productive areas of the lake. **Oxygen saturation** of the Epilimnion generally remained near 100% saturation, though supersaturation (> 100%) was observed in the metalimnion from the end of June through September, as has been recorded in previous years, and likely due to phytoplankton productivity.

Throughout 2025, observed **ORP** values remained relatively high, generally above the threshold for Fe and TP release (120 mV) at shallow depths (**FIGURE 6**). Low, even negative ORP was recorded at those depths in November that corresponded to anoxia, indicating deep conditions favorable to Fe and TP release from lake sediments, and even anaerobic respiration of organic material (methanogenesis) and sulfate reduction (-56 mV). There were no ORP recordings for the June through October samplings.



West Hill Pond - ORP (mV) - 2025

	Staff	SG	SG	WHP	WHP	WHP	WHP	SG/PG
	Date	4/29	5/27	6/30	8/12	9/12	10/7	11/11
Depth (m)	0.2	200.2	69.3	---	---	---	---	116.2
	1	203.0	112.8	---	---	---	---	120.8
	2	201.9	117.7	---	---	---	---	133.0
	3	207.5	129.7	---	---	---	---	125.8
	4	205.8	132.7	---	---	---	---	128.3
	5	207.3	142.3	---	---	---	---	125.8
	6	207.1	141.3	---	---	---	---	128.3
	7	208.1	143.9	---	---	---	---	131.3
	8	208.7	149.2	---	---	---	---	135.5
	9	205.3	154.0	---	---	---	---	133.7
	10	206.0	154.0	---	---	---	---	130.4
	11	207.1	160.5	---	---	---	---	130.2
	12	207.2	164.8	---	---	---	---	138.9
	13	208.0	172.3	---	---	---	---	130.5
	14	209.5	174.6	---	---	---	---	120.6
	15	211.3	176.9	---	---	---	---	61.5
	16	213.1	183.1	---	---	---	---	1.2
	17	212.8	186.6	---	---	---	---	-32.1
	18	214.1	187.4	---	---	---	---	-46.7
	19	214.8	194.3	---	---	---	---	-55.7
	20	77.2	---	---	---	---	---	---
	21	---	---	---	---	---	---	---
	22	---	---	---	---	---	---	---
	23	---	---	---	---	---	---	---
	24	---	---	---	---	---	---	---
	25	---	---	---	---	---	---	---

FIGURE 6. 2025 Oxidation reduction potential (ORP), measured in mV from GZA's monitoring probe.

A lake feature that likely maintained aerobic conditions through the metalimnion and contained anoxia to deep depths, is WHP's **water clarity**, measured by Secchi disk depth (**FIGURE 7**). Water clarity determines where in the water column photosynthesis may occur and WHP's euphotic zone (the depth to where photosynthesis can occur; calculated from the Secchi disk depth) spanned through most of the water column throughout the summer (13 m to 15 m). This means that photosynthesis and oxygen production could occur throughout WHP's water column down to those depths and likely contributed, at least in part, to the well-oxygenated conditions and even supersaturated conditions observed from 7 m – 9 m. Turbidity values were low except those recorded directly over bottom (**FIGURE 8)** and provide further demonstration of WHP's water clarity.

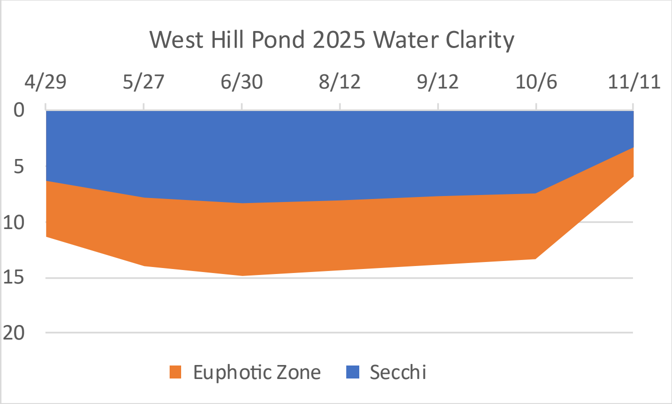
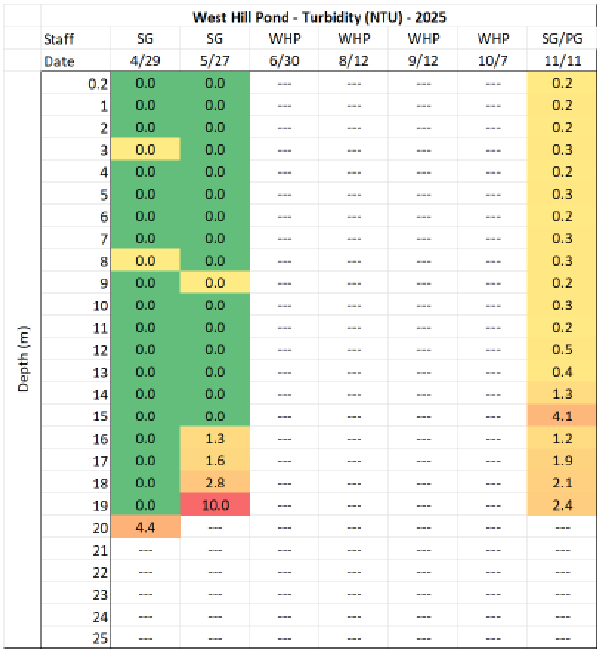


FIGURE 7. 2025 Water Clarity metrics.



West Hill Pond - Turbidity (NTU) - 2025

	Staff	SG	SG	WHP	WHP	WHP	WHP	SG/PG
	Date	4/29	5/27	6/30	8/12	9/12	10/7	11/11
Depth (m)	0.2	0.0	0.0	---	---	---	---	0.2
	1	0.0	0.0	---	---	---	---	0.2
	2	0.0	0.0	---	---	---	---	0.2
	3	0.0	0.0	---	---	---	---	0.3
	4	0.0	0.0	---	---	---	---	0.2
	5	0.0	0.0	---	---	---	---	0.3
	6	0.0	0.0	---	---	---	---	0.2
	7	0.0	0.0	---	---	---	---	0.3
	8	0.0	0.0	---	---	---	---	0.3
	9	0.0	0.0	---	---	---	---	0.2
	10	0.0	0.0	---	---	---	---	0.3
	11	0.0	0.0	---	---	---	---	0.2
	12	0.0	0.0	---	---	---	---	0.5
	13	0.0	0.0	---	---	---	---	0.4
	14	0.0	0.0	---	---	---	---	1.3
	15	0.0	0.0	---	---	---	---	4.1
	16	0.0	1.3	---	---	---	---	1.2
	17	0.0	1.6	---	---	---	---	1.9
	18	0.0	2.8	---	---	---	---	2.1
	19	0.0	10.0	---	---	---	---	2.4
	20	4.4	---	---	---	---	---	---
	21	---	---	---	---	---	---	---
	22	---	---	---	---	---	---	---
	23	---	---	---	---	---	---	---
	24	---	---	---	---	---	---	---
	25	---	---	---	---	---	---	---

FIGURE 8. 2025 Turbidity (NTU) from monitoring probe.

A string of five **MiniDOT** instruments were set in WHP in October of 2024 which was collected in April of 2025, during the first sampling event of the year. A new string of five MiniDOTs was installed in the same location during that sampling event and was collected during the November 2025 sampling event (an additional MiniDOT string was then set during the November sampling event to collect over winter conditions for 2025/2026; this string will be collected and data analyzed in the spring of 2026). For each monitoring period, measurements of hourly temperature and DO were recorded at five depths (2 m, 7 m, 10 m, 14 m, and 18 m; **FIGURES 9-12**).

West Hill Pond remained isothermal through December 2024, meaning water temperatures were uniform throughout the water column (**FIGURE 9**). From January through March, the phenomenon of **inverse stratification** could be observed from about 12 to 18 meters (m), likely corresponding to ice cover. For review, **summer thermal stratification** describes the temperature-dependent density gradient between cold water that sinks to the bottom of the pond and warm water that floats at the top. Because water is densest at 4 degrees C (about 40 F), inverse stratification describes how less dense water colder than 4 degrees C floats atop warmer and denser water, at or approaching 4 degrees C. Inverse stratification is usually substantially weaker than summer stratification, but can still exacerbate oxygen loss at deep depths, even resulting in under-ice anoxia (**FIGURE 10**). This is due to reduced oxygen input at the surface of the lake, as well as minimal water column disturbance by wind when the lake is capped by ice. Further, photosynthetic rates of oxygen production are greatly reduced in low-light (particularly under snow accumulation on top of ice) and low-temperature water columns.

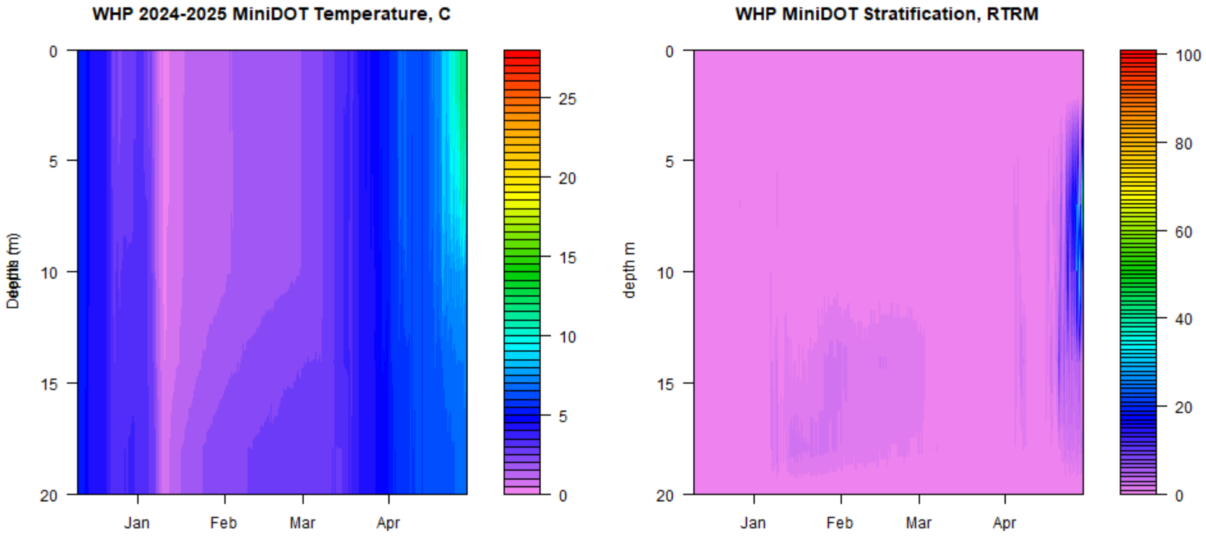


FIGURE 9. Winter 2024-2025 Temperature (Deg C) & Stratification (RTRM) from MiniDOT loggers.

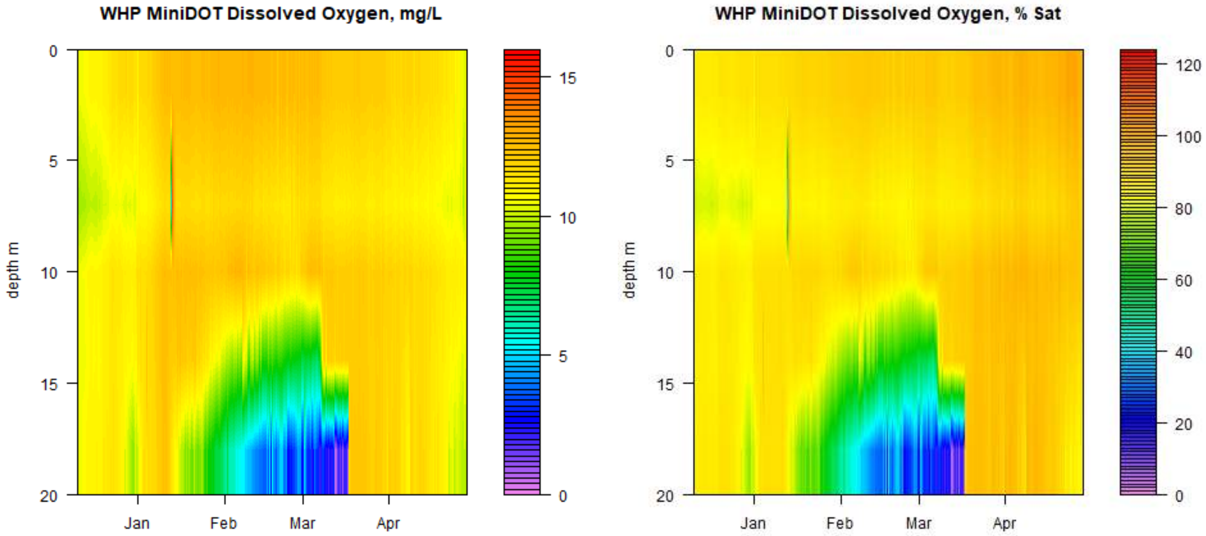


FIGURE 10. Winter 2024-2025 Dissolved Oxygen Concentration (mg/L) & Saturation (%) from MiniDOT loggers.

MiniDOT collected data from April to November 2025 showed agreement with probe generated profiles. Starting in April, the water column began to weakly stratify with peak stratification occurring by mid-July (**FIGURE 11**). A strong thermocline persisted from June to October. MiniDOT data show the thermocline descended slightly from about 7 m to around 10 m from June to September. MiniDOT data also showed the ascent of the anoxic boundary within the hypolimnion from August to the beginning of November and confirms the anoxic parcel remains below the thermocline (**FIGURE 12**). In late September and early October, a mixing event occurred, likely driven by two high precipitation events corresponding to that time. Notably, these data also captured fall turnover by mid-November.

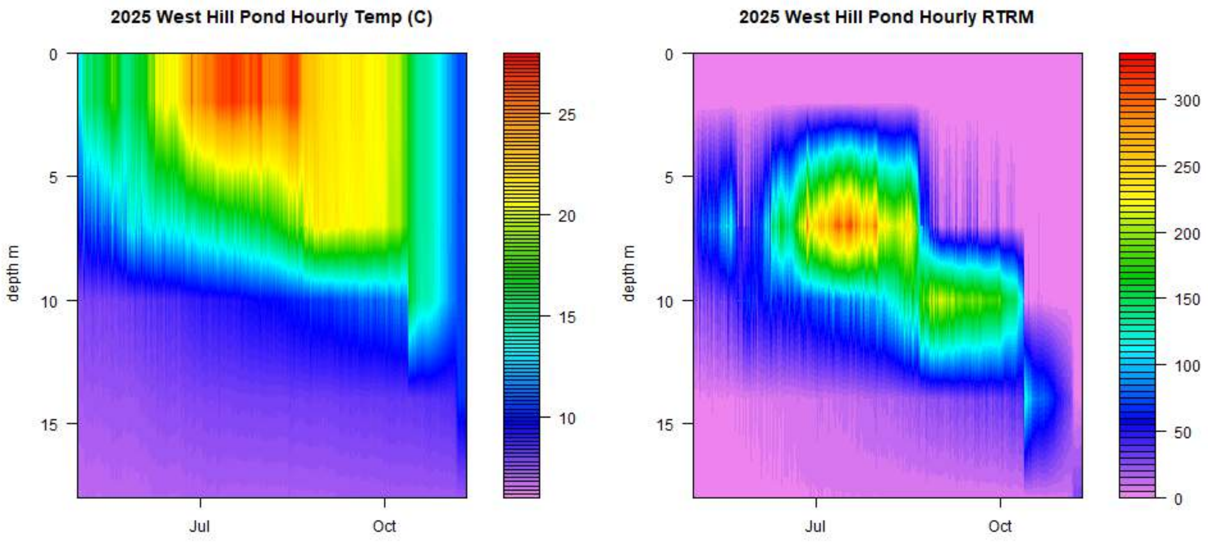


FIGURE 11: 2025 Temperature (Deg C) & Stratification (RTRM) from MiniDOT loggers.

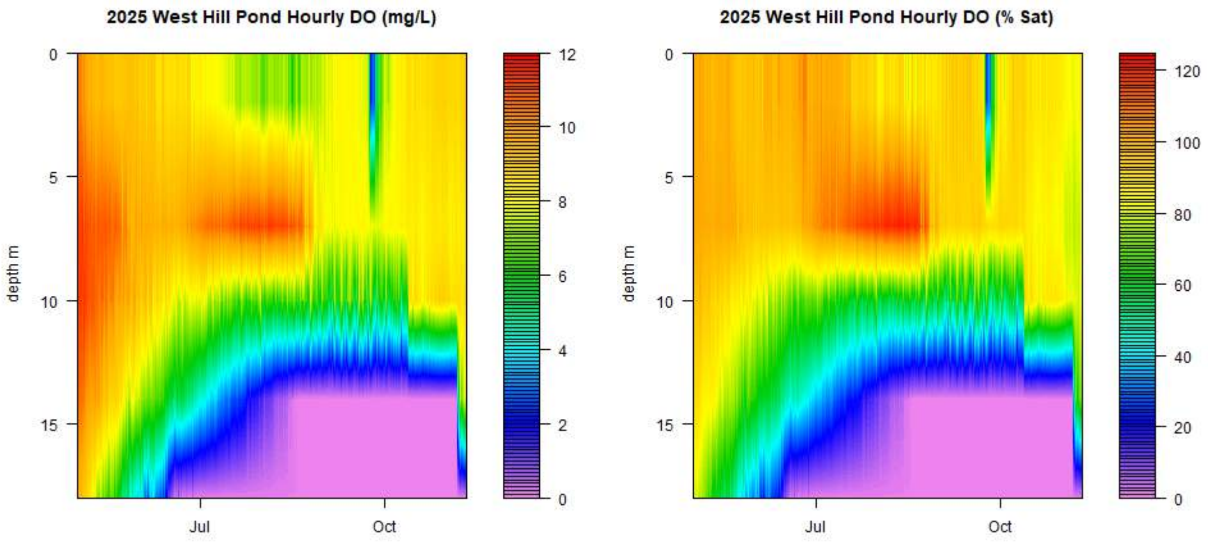


FIGURE 12: 2025 Dissolved Oxygen Concentration (mg/L) & Saturation (%) from MiniDOT loggers.

Based on these observations, West Hill Pond, like most New England waterbodies, is classified "dimictic". This means the lake mixes, or turns over, twice per year: once in spring following inverse stratification, and then again in the fall, following summer thermal stratification.

TP is a key nutrient for biological productivity in New England Lakes. A threshold of 0.020 mg/L (20 µg/L) TP indicates favorable nutrient conditions for cyanobacteria, at which blooms can initiate and be sustained in fresh waterbodies. TP concentrations in the epilimnion layer ranged from 2 µg/L to 11 µg/L, with a mean of 6 µg/L (**FIGURE 13**). Mid-depth (7 m to 14 m) TP was higher, ranging from 2 µg/L to 17 µg/L (the mean was 9 µg/L). These were favorable conditions, suggesting that WHP was not susceptible to cyanobacteria blooms. Over bottom TP concentrations were highest, continually increasing throughout the season (probably due to internal loading during anoxia) and peaking in November at 127 µg/L. In terms of total TP mass in WHP, calculations suggest that the total amount was rather consistent through the season: average TP mass was 94 kg, with highest mass in November (121 kg) and lowest in October (63 kg). Note that the 18 m depth may have highest TP concentration at times, but low mass due to the small volume of water at that depth. Therefore, TP variations at 18 m do not greatly impact overall WHP TP mass balance.

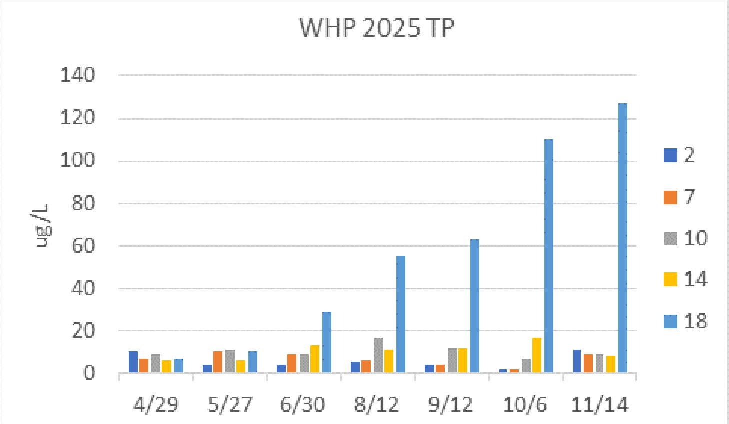


FIGURE 13: 2025 Total Phosphorus (TP).

Ammonia-N is an important source of inorganic nitrogen to cyanobacteria and can accumulate near the bottom of lakes and reservoirs resulting from organic decomposition and anoxia. Ammonia-N concentrations within the water column were minimal throughout the season (**FIGURE 14**) but did accumulate over bottom to 784 µg/L.

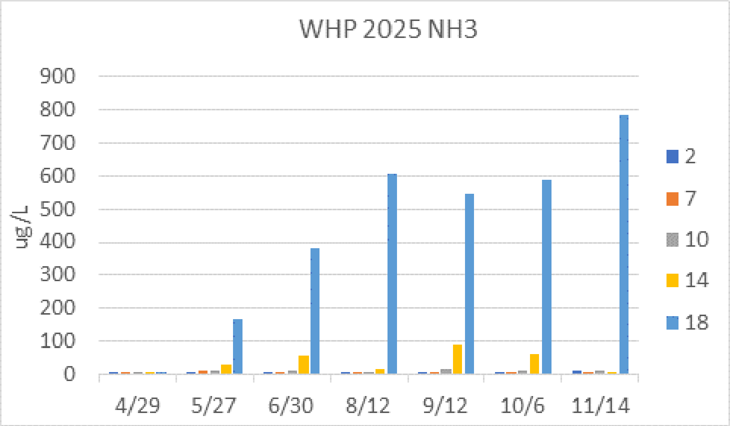


FIGURE 14: 2025 Ammonia (NH3).

Nitrate is an important nutrient for eukaryotic phytoplankton such as diatoms, chlorophytes (“greens”), and chrysophytes, which can readily compete with cyanobacteria when nitrate is available and other conditions are favorable. Typically, temperate waterbodies are enriched with nitrate in early spring following ice off, snow melt, and spring rains. Spring diatom blooms often track nitrate availability, and “bust” when nitrate is exhausted. Following nitrate exhaustion, lakes may experience a ‘clear-water phase,’ where diatoms senesce and settle to the bottom of the lake. When nitrate becomes unavailable in surface waters, N-fixing cyanobacteria can gain a competitive advantage over eukaryotic algae. Historically, nitrate trends are variable in WHP from year to year, though it has been measured at enriched concentrations through the spring and beginning of summer throughout the past decade. In 2025, the nitrate concentrations in WHP’s epilimnion were low throughout the season (**FIGURE 15**), resulting in low eukaryotic algae density, but low TP ensured cyanobacteria remained low density as well (as discussed below). Moderately enriched nitrate was observed in the hypolimnion (14 m) in late June and into August.

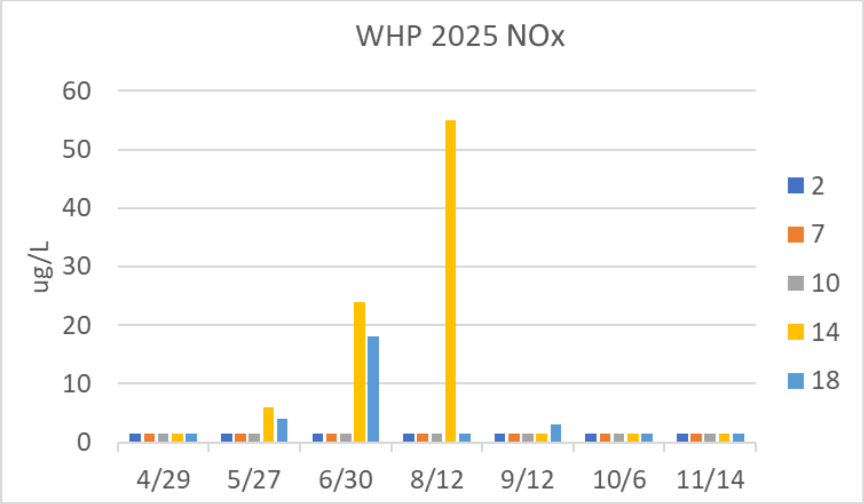


FIGURE 15: 2025 Nitrate (measured as NOx).

In the absence of oxygen, **Fe and Mn** can become reduced and mobilized from sediments into the water column by anaerobic microbial respiration. When anoxia occurs for a duration of time, Fe and Mn can accumulate to high concentrations in over-bottom water. WHP's total Fe was high from internal loading, reaching a maximum concentration of 8.2 mg/L in November, which is high (**FIGURE 16**). Fe is a very important nutrient for cyanobacteria, but it tends to stay close to the lake bottom, which is why we only measure it at that depth. WHP's total Mn was lower than total Fe, which is typical for most New England Lakes, but still accumulated to high concentrations over bottom (2.2 mg/L Mn in November).

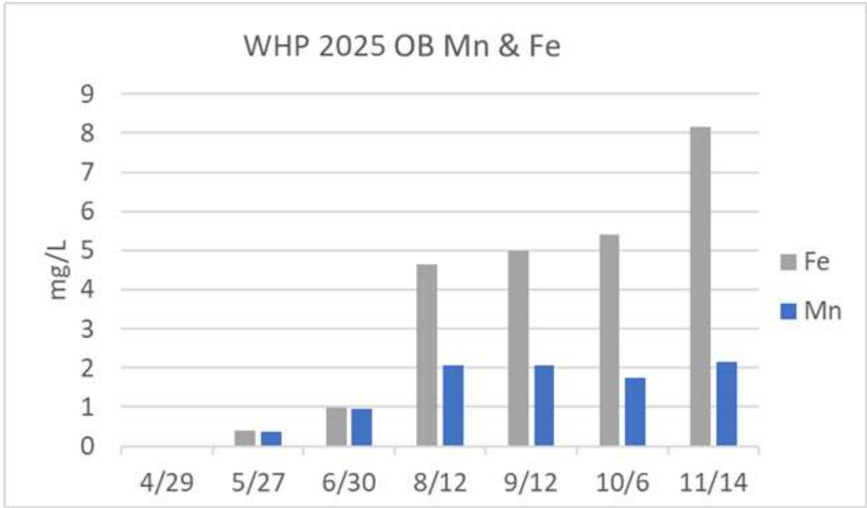


FIGURE 16: 2025 Iron (Fe) and Manganese (Mn).

Fluorometric analysis of pigments and organic matter (colored dissolved organic matter (cDOM), and UV254 absorbance) was performed on monthly water samples. Colored dissolved organic matter (cDOM) is the fraction of organic material that can give water a 'tea-stained' coloration. It consists of reactive organic molecules such as tannins and humic acids and is typically considered to represent allochthonous sources—that is, derived from outside the reservoir, i.e., terrestrial watershed habitat. As WHP has a relatively small watershed, cDOM was low at the beginning of the season but increased throughout the season in response to the frequent rain events flushing the watershed (**FIGURE 17**). cDOM was also highest over bottom, which is typical as it settles out and decomposes more slowly in an anoxic environment. UVA254 quantifies the aromatic (6-carbon ring) fraction of dissolved organic material which can be more refractory than cDOM. WHP's UVA254 was low down to 14 m, only exceeding 0.04 abs cm^{-1} in October and November (**FIGURE 18**). Like cDOM, highest UVA254 was recorded over bottom (0.369 abs cm^{-1}), but was still low. In sum, WHP generally appears to have low amounts of organic matter compared to many soft-water New England waterbodies, likely a result of its small watershed.

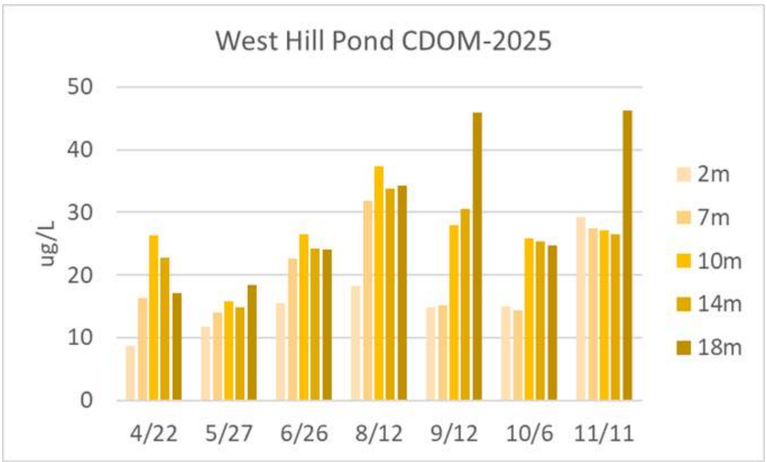


FIGURE 17: 2025 colored dissolved organic matter (cDOM).

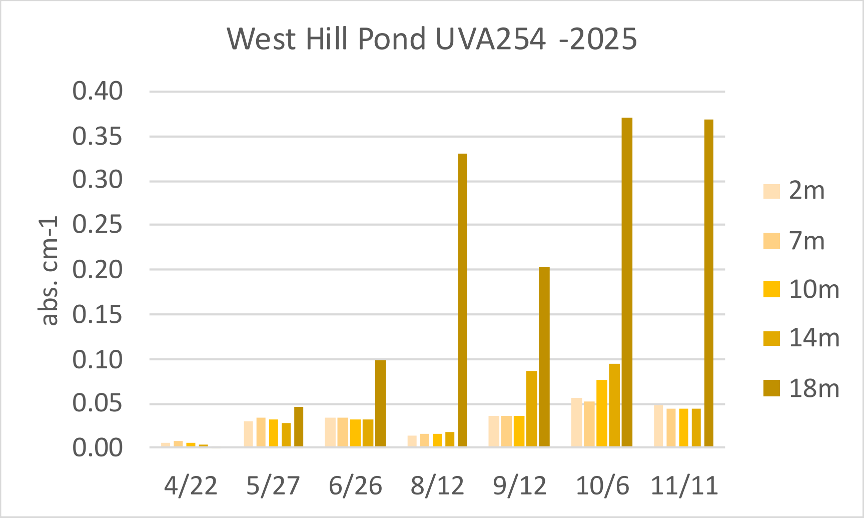


FIGURE 18: 2025 UV light absorbance at 254 nm wavelength (UVA254).

Chlorophyll-a is a photosynthetic pigment that indicates the standing biomass of phytoplankton in the water column. WHP’s chlorophyll-a concentrations within the epilimnion remained below 10 µg/L on most dates, except for April and November (**FIGURE 19**). These concentrations indicate low phytoplankton densities. In April, May, June, August, and November highest chlorophyll-a was recorded at 10 m, suggesting the presence of a deep-water phytoplankton layer (and roughly corresponding to the deep DO saturation hotspot). Phycocyanin concentrations (a cyanobacteria-specific pigment and indicator of cyanobacteria biomass) were minimal throughout all samples, but the highest readings were recorded from the bottom of the reservoir (68 µg/L in August; **FIGURE 20**). This could indicate increased cyanobacteria due to settling out of the water column. Alternatively, rather than indicating deep, over bottom accumulation of cyanobacteria biomass, this could be a confoundment due to high Fe or cDOM accumulation.

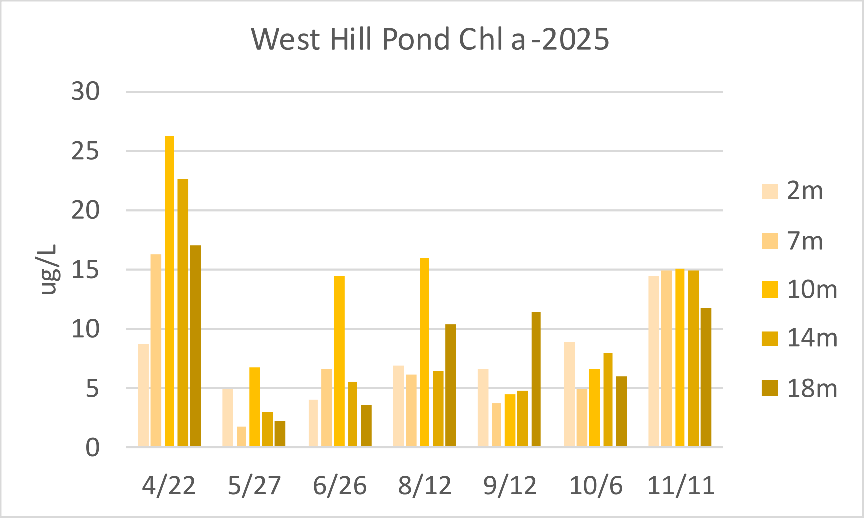


FIGURE 19: 2025 chlorophyll-a (Chl a).

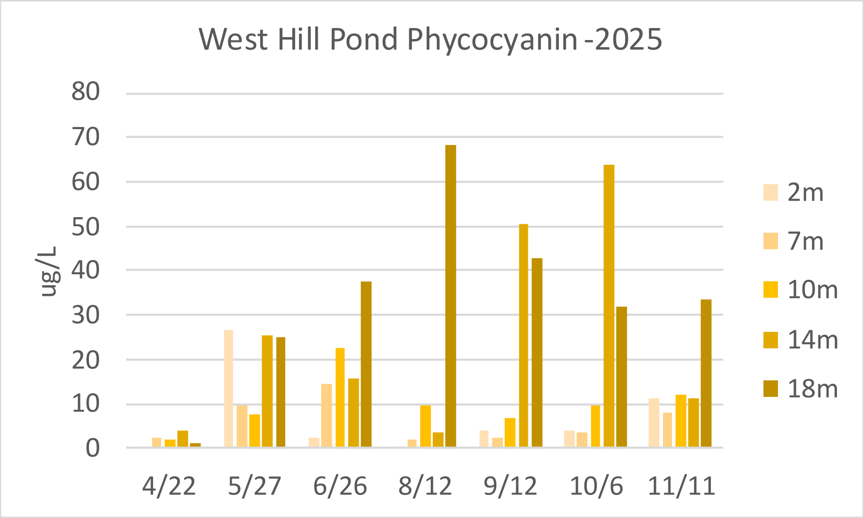


FIGURE 20: 2025 phycocyanin (PC).

Monthly **phytoplankton samples** collected from the top of the water column, 0-5 m, were enumerated to cells/mL by a taxonomist (**FIGURE 21**). WHP exhibited low densities of eukaryotic phytoplankton throughout the season (824 cells/mL in May to 7,237 cells/mL in November). As in other years, GZA did not observe any meaningful diatom bloom in April, perhaps due to the low nitrate concentration. Similarly, the assemblage was very diverse, with no one group exhibiting clear dominance, as recorded in previous years. Cyanobacteria in the epilimnion were minimal until November, peaking at 2,028 cell/mL in July (**FIGURE 22**). This increased cyanobacteria presence in the upper water column was likely driven by fall turnover, when the water column becomes mixed and TP-rich water was brought to the surface. Though cyanobacteria concentrations were highest in November, the density did not approach bloom levels ("mild" bloom conditions are typically cited at 20,000 cells/mL); thus cyanobacteria presence is currently not a concern but should continue to be monitored.

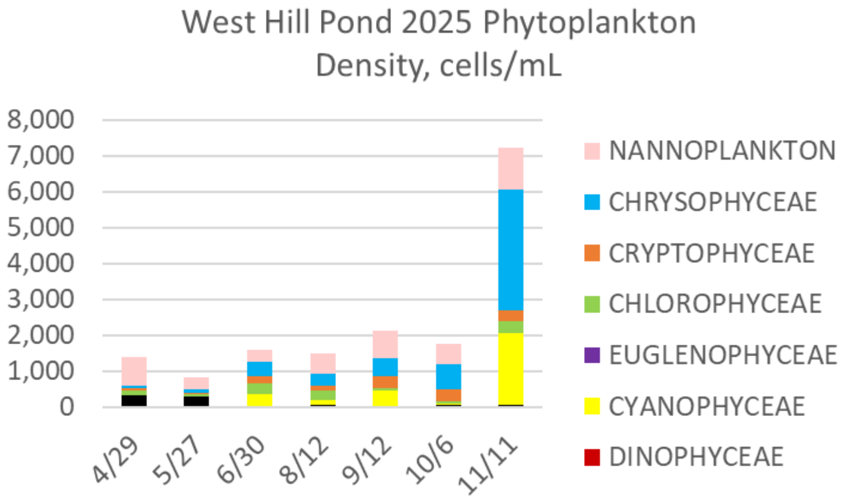


FIGURE 21: 2025 phytoplankton community enumeration.

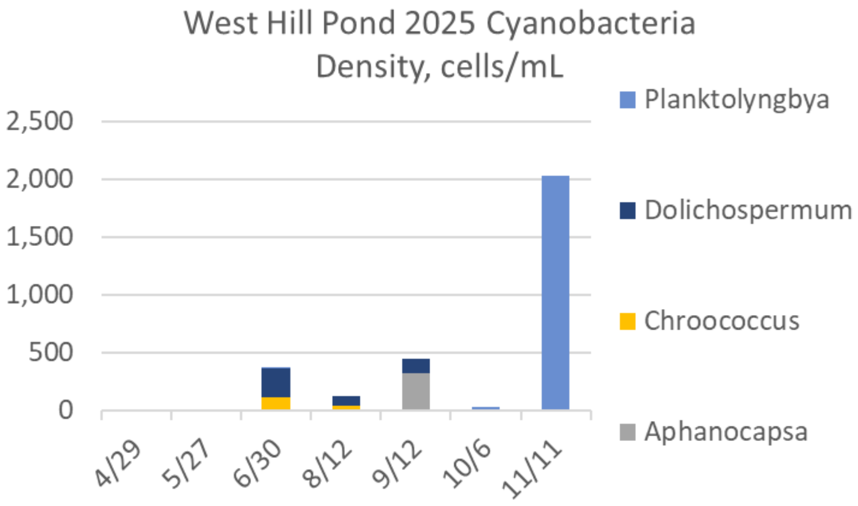


FIGURE 22: 2025 Cyanobacteria community enumeration.

DISCUSSION AND RECOMMENDATIONS

2025 marked the third year of GZA services for WHP and its association. Beyond our annual monitoring, the results of which are summarized above, GZA has also initiated a Watershed-Based Plan (WBP), the initial elements of which have been provided to the WHPA for review and subsequent follow-up. The WBP was created to identify potential risks to the lake and provide a framework to guide future management decisions. GZA suggests that WHP does not yet need any in-lake management intervention beyond regular annual in-lake monitoring and perhaps focused watershed monitoring. Continued lake monitoring would provide data that will indicate any future trends or deviations from historical baseline conditions—and data from this year do not indicate such deviations.

The review of data when writing the WBP indicated that much of the shoreline remains undeveloped, and though there were sites of potential erosion or unbuffered stormwater runoff, there are also active projects underway to improve watershed and drainage function. Analysis of both historic data and data collected this year indicate a clear message: WHP is a healthy ecological system, and management should be maintenance-focused to keep WHP among the least eutrophic waterbodies in CT. As GZA stated in the WBP: “The goal for the WHPA, New Hartford, and Barkhamsted is to maintain WHP in its current condition into the future. Proactive preservation is much easier, more effective, and more affordable compared to reactive rehabilitation/restoration efforts to a compromised system. This goal is given even more urgency, perhaps, considering future climate change with projected New England lake impacts, and current trends in invasive macrophyte colonization, including the spread of highly nuisance Hydrilla”.

Monitoring data from the 2025 summer show the continued trend of deep water DO production and supersaturation at 6 – 9 m that has been observed year-to-year. While this may seem like a trivial detail, the most common reason for this to occur in other CT waterbodies is the occurrence of a dense, cyanobacteria layer that concentrates at or below the thermocline. In WHP, we have monitored this layer of water to determine that it consists of a diverse assemblage of phytoplankton, not just cyanobacteria.

Winter 2024- 2025 miniDOT data were a nice addition to WHP’s monitoring and proved very valuable. They provide a detailed record of lake conditions and allow for evaluation of normal seasonal lake trends such as warming and cooling, stratification, and the development of anoxia. Perhaps most striking was the consistency of the overall seasonal progression of these trends in WHP, which has been noted in prior years.

In summary, GZA recommends continued monitoring in 2026. The cooperative sampling model between GZA and the WHPA continues to be successful. We recommend initiating the sampling season again in April and continuing the sampling program into November. Additionally, we recommend the continuation of the miniDOT remote monitoring in 2026. This continued data collection will allow us to track changes in physical conditions over time, such as the depth and persistence of WHP’s seasonal anoxic boundary, as well as timing of seasonal events. These data will be useful to compare the impact of climate and weather variability on WHP and can thus help inform management strategies.

It has been a pleasure working on WHP, and alongside the passionate individuals that constitute the WHPA and volunteer sampling team. The GZA team appreciates the opportunity to provide these services to the WHPA and we look forward to continuing to serve you in 2026 and the coming years. If you have any questions regarding the information presented, please feel free to contact Benjamin Burpee directly at 207-887-0358.

Very truly yours,
GZA, GeoEnvironmental, Inc.

Sarah Gerhardt

Sarah Gerhardt
Project Field Scientist

Benjamin Burpee

Benjamin Burpee, PhD, CLM
Project Limnologist

Robert W. Kortmann

Robert Kortmann, PhD
Senior Consultant

Dave Rusczyk, PE
Associate Principal

Attachments: APPENDIX A—LIMNOLOGY REPORT LIMITATIONS

USE OF REPORT

1. GZA GeoEnvironmental, Inc. (GZA) prepared this report on behalf of, and for the exclusive use of our Client for the stated purpose(s) and location(s) identified in the Proposal for Services and/or Report. Use of this report, in whole or in part, at other locations, or for other purposes, may lead to inappropriate conclusions; and we do not accept any responsibility for the consequences of such use(s). Further, reliance by any party not expressly identified in the agreement, for any use, without our prior written permission, shall be at that party's sole risk, and without any liability to GZA.

STANDARD OF CARE

2. GZA's findings and conclusions are based on the work conducted as part of the Scope of Services set forth in the Proposal for Services and/or Report and reflect our professional judgment. These findings and conclusions must be considered not as scientific or engineering certainties, but rather as our professional opinions concerning the limited data gathered during the course of our work. Conditions other than described in this report may be found at the subject location(s).

3. GZA's services were performed using the degree of skill and care ordinarily exercised by qualified professionals performing the same type of services, at the same time, under similar conditions, at the same or a similar property. No warranty, expressed or implied, is made. Additionally, GZA makes no warranty that any response action or recommended action will achieve all of its objectives or that the findings of this study will be upheld by a local, state or federal agency.

4. In conducting our work, GZA relied upon certain information made available by public agencies, Client and/or others. GZA did not attempt to independently verify the accuracy or completeness of that information. Inconsistencies in this information which we have noted, if any, are discussed in the Report.

COMPLIANCE WITH CODES AND REGULATIONS

5. We used reasonable care in identifying and interpreting applicable codes and regulations necessary to execute our scope of work. These codes and regulations are subject to various, and possibly contradictory, interpretations. Interpretations and compliance with codes and regulations by other parties is beyond our control.

6. The standard of care for projects like this is that the proposed apparatus/equipment is 'exempt by right' from permits and no permits were requested or obtained as part of this project. If a permit is ultimately required and if Client retains GZA to assist Client or any other party with applying for any license, permit, certificate or other authorization, Consultant does not guarantee that it will be able to obtain such license, permit, certificate or other authorization, only that it will assist Client in the application for such license, permit, certificate or other authorization in accordance with the standard of care.

SCREENING AND ANALYTICAL TESTING

7. GZA may have collected samples at the locations identified in the Report. These samples were analyzed for the specific parameters identified in the report. Additional constituents, for which analyses were not conducted, may be present in soil, groundwater, surface water, sediment and/or air. Future Site activities and uses may result in a requirement for additional testing.

8. Our interpretation of field screening and laboratory data is presented in the Report. Unless otherwise noted, we relied upon the laboratory's QA/QC program to validate these data.

9. Variations in the types and concentrations of constituents observed at a given location or time may occur due to release mechanisms, changes in flow paths, and/or the influence of various physical, chemical, biological or radiological processes. Subsequently observed concentrations may be other than indicated in the Report.

INTERPRETATION OF DATA

10. Our opinions are based on available information as described in the Report, and on our professional judgment. Additional observations made over time, and/or space, may not support the opinions provided in the Report.

ADDITIONAL SERVICES

11. GZA recommends that we be retained to provide services during any future investigations, design, and/or implementation activities at the Site. This will allow us the opportunity to: i) observe conditions and compliance with our design concepts and opinions; ii) allow for changes in the event that conditions are other than anticipated; iii) provide modifications to our design; and iv) assess the consequences of changes in technologies and/or regulations.

NUMERICAL MODELS

12. Actual conditions are likely more complex than indicated in this Report. If a mathematical model is refenced in this report, it is by its very nature, a simplification of actual conditions. Except as noted in the report, we did not validate the code used in the model. In constructing the model, point specific data was generalized and extrapolated across the study area. In addition, in areas where field data was not available, we used professional judgment, based on experience and regional information, to construct the model. Model assumptions are provided in this report**.** Actual flow patterns, etc. may be other than simulated. As additional field data becomes available our numerical model can be modified to better reflect conditions of possible interest.

COST ESTIMATES

13. Unless otherwise stated, our cost estimates are only for comparative and general planning purposes. These estimates may involve approximate quantity evaluations. Note that these quantity estimates are not intended to be sufficiently accurate to develop construction bids, or to predict the actual cost of work addressed in this Report. Further, since we may have no control over either when the work will take place or the labor and material costs required to plan and execute the anticipated work, our cost estimates were made by relying on our experience, the experience of others, and other sources of readily available information. Actual costs may vary over time and could be significantly more, or less, than stated in the Report.

APPARATUS/EQUIPMENT INSTALLATIONS

14. GZA will not be responsible for damage to installed equipment or apparatus as a result of Acts of God such as extreme weather events or events not within our reasonsible control.

15. GZA will not be responsible for damage to installed equipment or apparatus as a result of actions by others. Certain types of installed apparatus/equipment are designed to be fully submerged, while other apparatus/equipment may have portions of the units partially exposed above the water surface during normal operations.

16. GZA will not be responsible for damage to installed apparatus/equipment due to improper start up or operation by others. Any usage that is not consistent with GZA's recommendations would be considered improper operation and has the potential to damage the installed apparatus/equipment.

17. GZA will not be responsible for damage to installed apparatus/equipment if the installed apparatus/equipment is changed or altered by anyone other than GZA or our subcontractor(s).

18. GZA will not be responsible for damage to installed apparatus/equipment if the apparatus/equipment is moved or relocated by anyone other than GZA or our subcontractor(s).