Winter Monitoring Report

Lakes Environmental Association

2026

LEA's Winter Lake Monitoring

Introduction

For decades, Lakes Environmental Association (LEA) has watched over the water quality of lakes in the greater Bridgton area by measuring conditions and collecting water samples from late spring through early fall. Wintertime was mostly ignored due to challenging work conditions and the long-held perception that lakes are dormant during the cold, ice-covered period. More recently, the scientific community has challenged that perception through a growing number of studies that highlight the importance of evaluating winter-time lake conditions and linking those to overall lake health.

Climate change plays a large role in the increased interest in winter lake conditions. Long-term records of lake freeze and break-up dates show that ice cover periods have decreased significantly for many places. Less time with ice cover has and will lead to a reduction or loss of cultural and recreational activities. The impact on water quality throughout the year from a reduction or loss of ice cover is not as well known. So, to fill that void, researchers have increased efforts to study lakes during the winter and improve basic understanding of winter conditions and how those might link to open water periods.

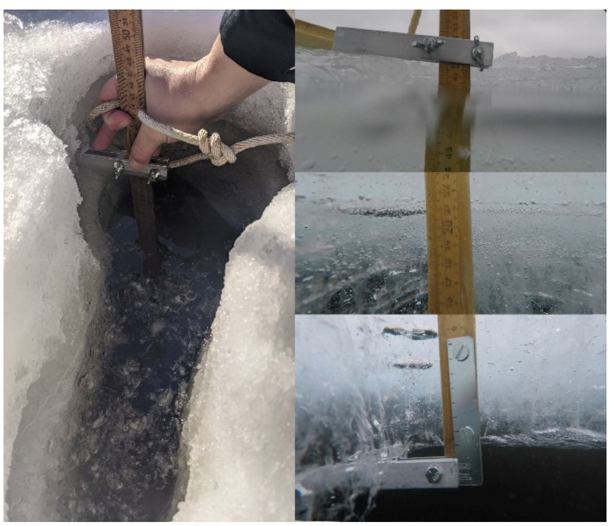
LEA has joined in that effort to make wintertime field work a more regular part of lake monitoring. Our staff began detailed winter field work in 2018 with nine trips to a total of four of our service-area lakes. The total trip number doubled in the next year with six lakes visited. We made 13 trips with 7 different lakes in 2020, 29 trips/11 lakes in 2021, 32 trips/13 lakes in 2022, 26 trips/13 lakes in 2023, 26 trips/15 lakes in 2024, and 26 trips/13 lakes in 2025. In 2026, we made 31 trips with 16 different lakes, the most lakes visited in one season so far.

This report summarizes data gathered during the winter 2026 field season. Partial support for this work was provided by the Five Kezars Watershed Association, Hancock & Sand Ponds Association, the Keoka Lake Association, the Keyes Pond Environmental Protection Association, the McWain Pond Association, the Moose Pond Association, the Peabody Pond Association, the Trickey Pond Environmental Protection Association, and the Woods Pond Association. Thanks also go to Rebecca Gould and Bill Buckley, Ann and Dan Lasman, Lakeside Pines, Bob Mercier, Marilyn Smith, Camp Tapawingo, and Chip Wendler for providing lake access.

Methods

Tim with ice auger (left) and Maggie expanding ice hole with saw, while Sam looks on (right).

We made two visits each to Back Pond, Bear Pond, Hancock Pond, Highland Lake, Holt Pond, Keoka Lake, Keyes Pond, Long Lake (north basin), McWain Pond, Middle Pond, Moose Pond (main basin), Peabody Pond, Sand Pond, Trickey Pond, and Woods Pond. We visited Stearns Pond once as part of an international collaborative project. For each lake visit, we traveled by foot over the ice to the deep site and used an ice auger to drill holes. Holes were widened and connected using an ice saw in order to accommodate larger gear. We used a homemade gauge to measure ice thickness, snow depth, and water level in the hole. We also captured video footage of the ice and under-ice conditions for each lake using a GoPro camera. Staff involved in these trips included Tim Blair, Morgan Cross, Sam Lisowski, Ben Peierls, Lauren VanBibber, and Maggie Welch.



Ice gauge in use (left) and as seen under water (right).

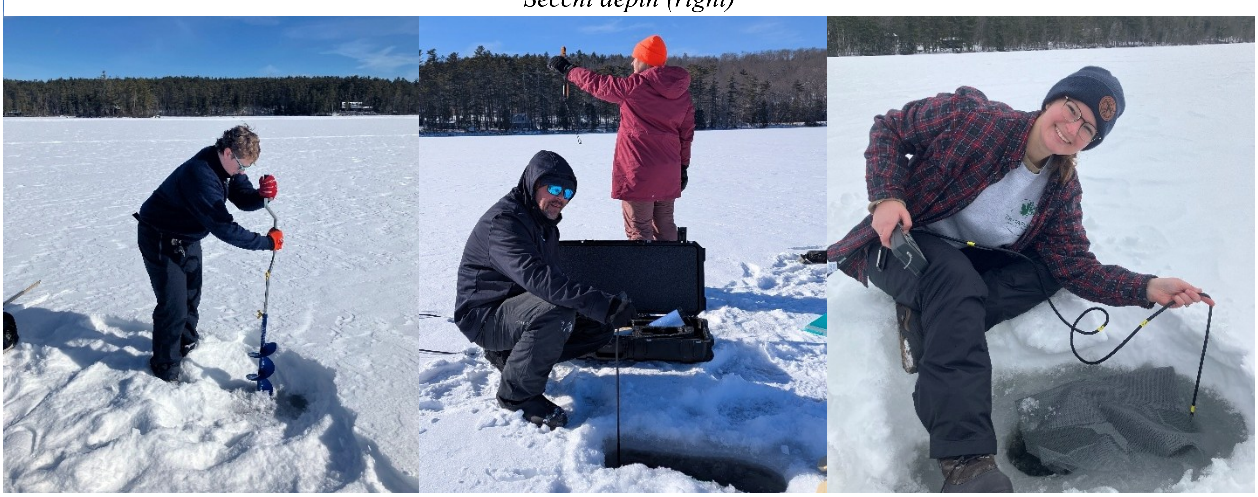
Sam measuring light under the snow and ice.

We measured light levels above and at several depths below the ice using a LI-COR LI-192 underwater quantum sensor. During these measurements, we covered the hole with three to four layers of window screening to keep sunlight from passing straight through and affecting the under-ice readings. The attenuation of light due to ice was calculated as the percent of surface light that reaches the water just under the ice layer. Water clarity below ice was measured during each visit using a Secchi disk lowered through the hole and viewed with our standard slanted-glass viewing scope.

We used a calibrated YSI EXO2 multiparameter sonde connected to a handheld data logger to measure depth profiles of temperature, dissolved oxygen, and chlorophyll fluorescence; the sonde also measures conductivity, pH, and turbidity, but these data are not included in this report. Sonde depth was converted to and reported as depth below ice. Measurements were recorded every 0.5 or 1 meter (m) to the bottom (determined by feel or when turbidity levels rose an order of magnitude).

Water samples were collected using flexible tubing (known as a core tube), which integrates water from the ice to 10 m depth (or to 1 m above the bottom in shallow lakes). On Holt Pond we used a Kemmerer water sampler to collect water from the top 0.5 m. These samples were analyzed for total phosphorus (TP) using a SEAL segmented flow analyzer, for chlorophyll-a by chemical extraction and fluorescence, and for algae using a Yokogawa Fluid Imaging Technologies FlowCam, a flow imaging microscope that captures images of algae for counting and identification.

Sam and Morgan collecting water sample with core tube (left), Ben using the sonde (middle), and Tim measuring Secchi depth (right)



Sam drilling hole with auger (left), Tim using the sonde and Maggie measuring wind (middle), and Lauren measuring light

Overall Results

Ice cover is the dominant feature of LEA service area lakes during winter. Variation in ice cover timing, duration, and quality (known as ice phenology) is driven by local weather conditions and lake morphology. Observers recorded ice-in for several study lakes in early December, but a warm spell in mid- to late December 2025 kept Peabody Pond, Trickey Pond, and portions of Moose Pond open until early January 2026. The early ice-in enabled us to begin field trips in the middle of January. Measured **ice thickness** ranged from 31 to 50 cm (12.2–19.7 in; Fig. 1), with the minimum recorded on Trickey Pond and the maximum recorded on Keyes Pond. This year's maximum ice thickness was in the middle of the range of past maxima (35–75 cm during 2018–2025). Ice thickness increased between visits by 2.7 to 11.3 cm (1.1–4.4 in). We observed that the ice layers were often dominated by clear (or black) ice, and had less white ice or slush layers than previous years. Most lakes were ice free by early April.

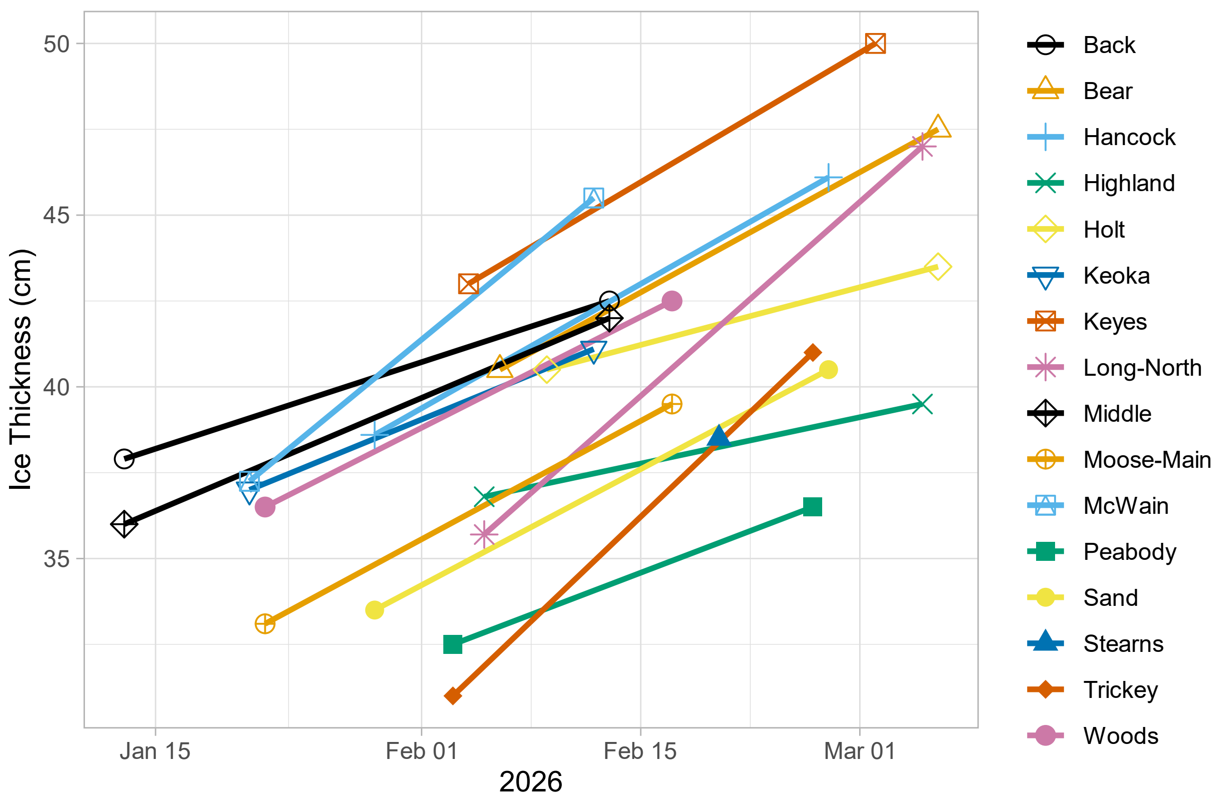


Figure 1. Ice thickness in cm versus date for lakes visited in winter 2026; lines to aid visualization only.

A common method for assessing lake condition is to collect depth-specific physical, chemical, and biological measurements, which we do with our sonde. The resulting measurements (or **profiles**) give us a snapshot of lake stability and mixing, oxygenation, and algal biomass throughout the whole water column at specific points in time. Here is a summary of the three sonde parameters that we include in this report:

Temperature: The most significant feature captured in these profiles is the inverse temperature stratification typical of ice-covered lakes. Water is most dense at 4 °C (39.2 °F), so in winter the warmest water is at the bottom and the coldest water is at the surface (ice-water interface), opposite of the summer pattern. As in previous years, temperature readings increased rapidly with depth within the first meter or so (a **stratified layer**), and then increased more slowly to the bottom (**stable** conditions). Sometimes there was little or no change in temperature with depth (a **mixed layer**). Convective mixing happens when water heated by the sun through the ice sinks and is replaced by less dense, deeper water. Heat stored in the sediments over the summer can also increase water temperature, especially near the bottom.

Dissolved Oxygen (DO): Microbial respiration and other oxygen-consuming processes do occur despite the cold temperatures. As a result, DO typically decreased with increasing depth and time, much like in summer. Surface (at the ice-water interface) DO concentrations were mostly near saturation, driven by oxygen produced from algal photosynthesis. Five lakes had **hypoxic** (DO of 2 mg/L or less) deep waters on at least one visit, including Bear Pond, Highland Lake, Holt Pond, Keoka Lake, and Middle Pond. Hypoxic bottom waters are stressful or lethal habitat for fish and other animals and can promote phosphorus release from the sediment.

Chlorophyll: Chlorophyll fluorescence profiles represent the vertical distribution of algae, an important part of lake food webs and an indicator of lake trophic status (i.e., how green a lake is). Chlorophyll fluorescence is a relative measure of chlorophyll pigment concentration, which is itself a proxy for algal biomass. The chlorophyll profiles varied in shape and magnitude, but often showed a peak in fluorescence within a few meters of the ice-water interface and sometimes directly under the ice, especially when snow cover reduced light availability. Chlorophyll fluorescence tended to decrease as the winter progressed. Occasional peaks near the bottom were probably sediment-associated dead or dying cells. Variation of chlorophyll with depth can be explained by light and nutrient availability, differences in algal species present, and grazing on algae by zooplankton (tiny animals), which we often observed in abundance in the under-ice videos. Regardless of the controlling factors, the chlorophyll profiles confirmed the presence of an active algal community in winter.

Another key feature of winter-time lake conditions is low **light**. Sunlight controls water temperature and provides energy for photosynthesis by algae. When lakes are covered by ice or ice and snow, light is blocked from reaching the water below. Light levels just beneath the ice layer varied from about 1 to 12% of surface irradiance throughout the season. Snow depth impacts the amount of light reaching the water below (Fig. 2). This relationship was not as clear as in other years, probably because snow was present on almost every visit. Considering that lake photic zones (where algae have enough light to grow) are usually defined as the layer extending down to where light is 1% of surface irradiance, it is easy to understand how algal growth could be limited to very shallow layers in winter.

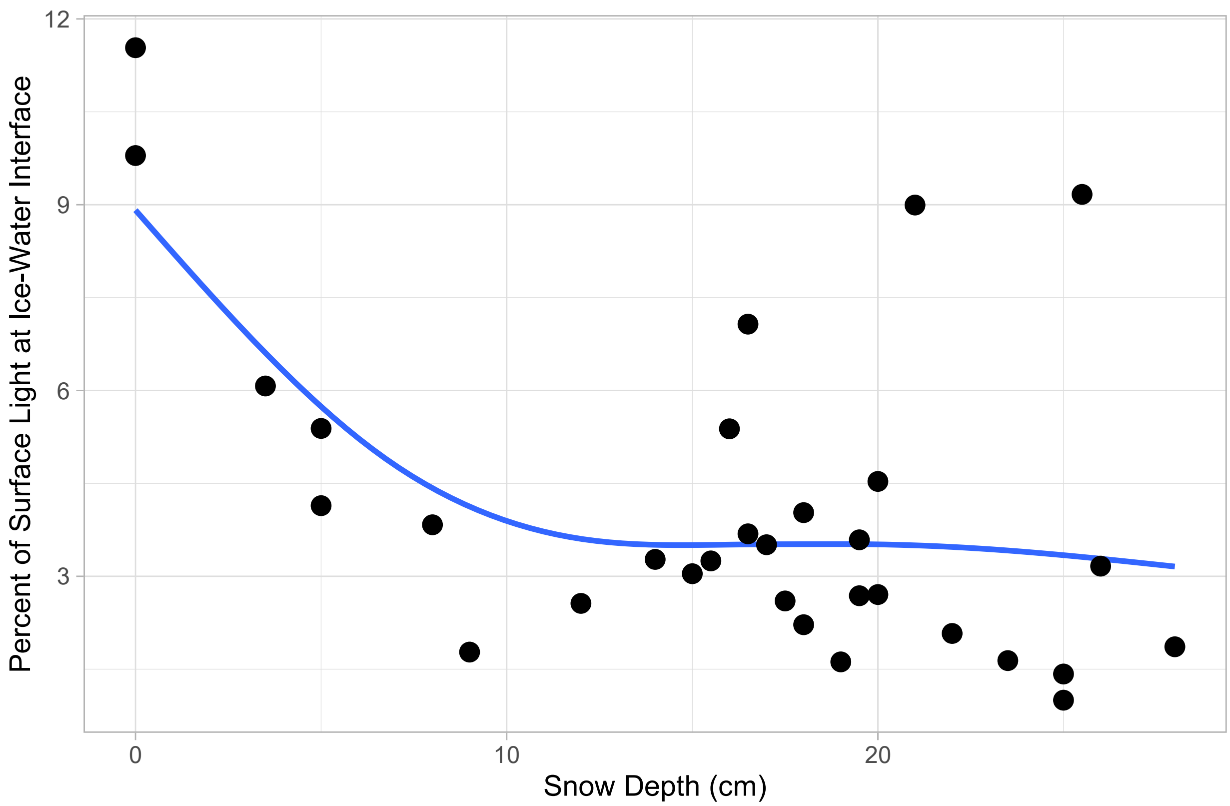


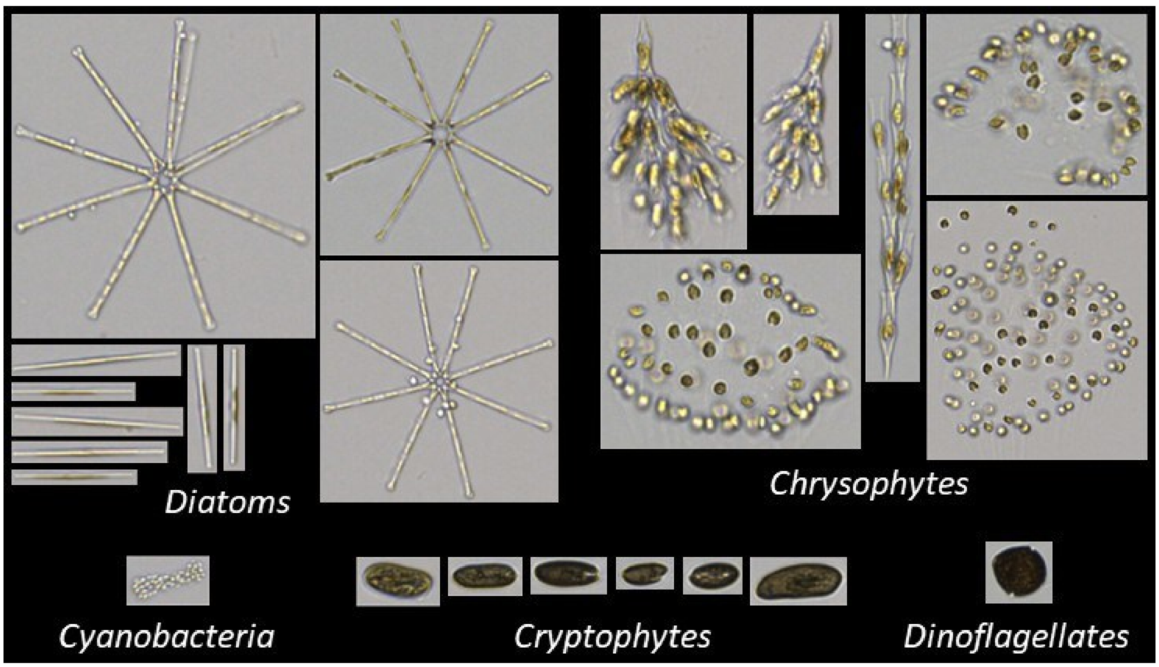
Figure 2. Percent of surface sunlight reaching lake water below the ice as a function snow depth. Blue line is a smoothed fit through the data.

In addition to ice and snow, **water clarity** plays a role in controlling light availability in winter and is an important water quality indicator. This was our fifth year measuring water clarity using a Secchi disk through lake ice. The winter 2026 Secchi depth readings generally were within the summer long-term range for each lake. No value was below the long-term minimum or above the long-term maximum. Winter water clarity ranged from 3.0 to 9.3 m, which is mostly within the moderate (3.1–7.0 m) and high (7.1–10 m) categories. Clarity improved (increased) between visits for 12 of the sampled lakes.

Total **phosphorus** (TP) is another important indicator of water quality, where values greater than 12 parts per billion (ppb) indicates an excess of nutrients that may fuel algae growth. Winter 2026 TP concentrations fell well within the summer long-term range for each lake and ranged from 4.1 to 13.9 ppb, all within the low (< 5.1 ppb) and moderate (5.1–12 ppb) categories except for the high reading from Holt Pond. Other than for Holt Pond, all measurements were made on integrated water samples from the upper 10 m (or less) of each lake. Nutrients can build up in bottom waters if conditions permit, but we did not collect samples to check. In winter 2021 we did measure TP concentrations >20 ppb in deep, anoxic lake samples.

Chlorophyll-a is another key water quality indicator that we measured on winter lake samples. More accurate than the sonde chlorophyll fluorescence (labeled as "chlorophyll" in the following figures), chlorophyll-a concentrations are the most direct measure of how productive, or "green", a lake is. Winter 2026 lake chlorophyll-a measurements ranged from 0.4 to 7.2 ppb, which is within the low (< 2.1 ppb) and moderate (2.1–7.0 ppb) categories, and just barely in the high (7.1–12 ppb) category. Most samples were close to or below the summer long-term average concentration for each lake. However, samples from Back Pond, McWain Pond, Moose Pond, Trickey Pond, and Woods Pond were above the long-term average. Chlorophyll-a decreased by the second visit in all cases except for Middle Pond, which had virtually no change.

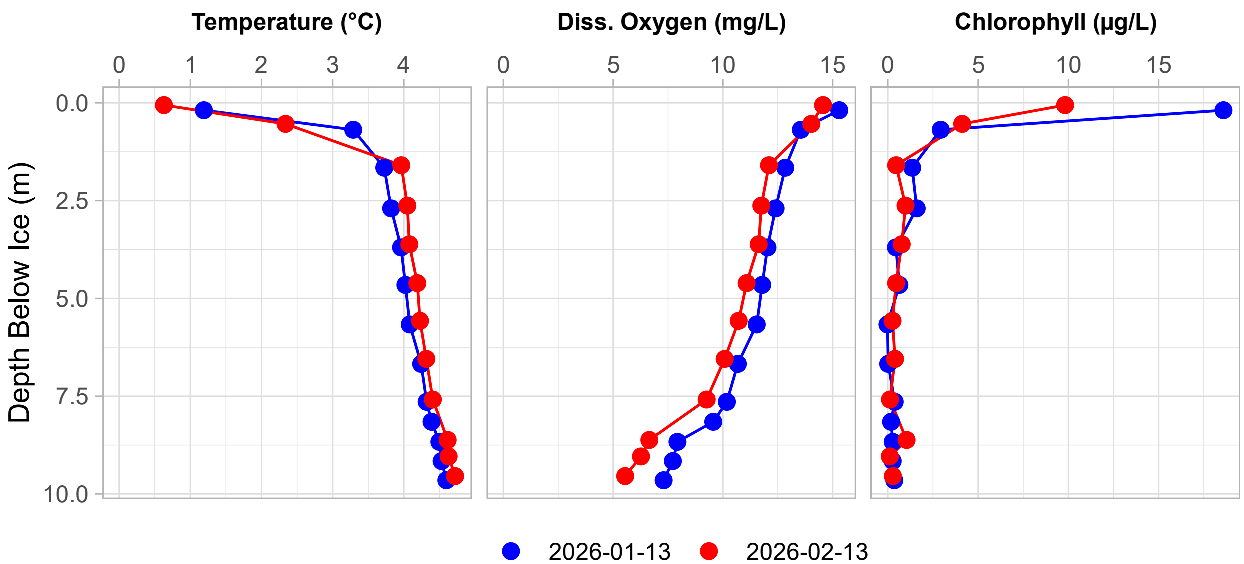
We used our FlowCam analyzer to identify the dominant taxa (e.g., class or genus) and the overall density of the lake **algae** community in winter. Example images of the typical taxa captured by the analyzer are shown below and include members of several classes, including chrysophytes (e.g., golden browns), cryptomonads, cyanobacteria, diatoms, and dinoflagellates. Several of these taxa are capable of deriving nutrition from organic matter and microbial prey in addition to photosynthesis, which makes sense in the light-limited conditions of winter. In general, all the samples showed the presence of a typical mixed algae community at low densities. When we analyzed samples from the same lake on two dates, density often decreased by the second visit in parallel with chlorophyll-a concentrations. Overall, winter algal densities were generally the same or lower than in summer, though there were a few exceptions. Still, there were no identified taxa or particle densities that caused us any concern.



Specific lake profiles and water quality indicator results start on the following pages. The winter sampling trips allowed us to capture typical under-ice conditions and some of the changes that happened during the season when we visited more than once. We will continue to examine the data for changes over time and connections between ice-covered and open-water lake conditions. Eventually, we hope to be able to forecast lake water quality changes, if any, as ice cover continues to decrease or disappear altogether due to climate change.

Back Pond

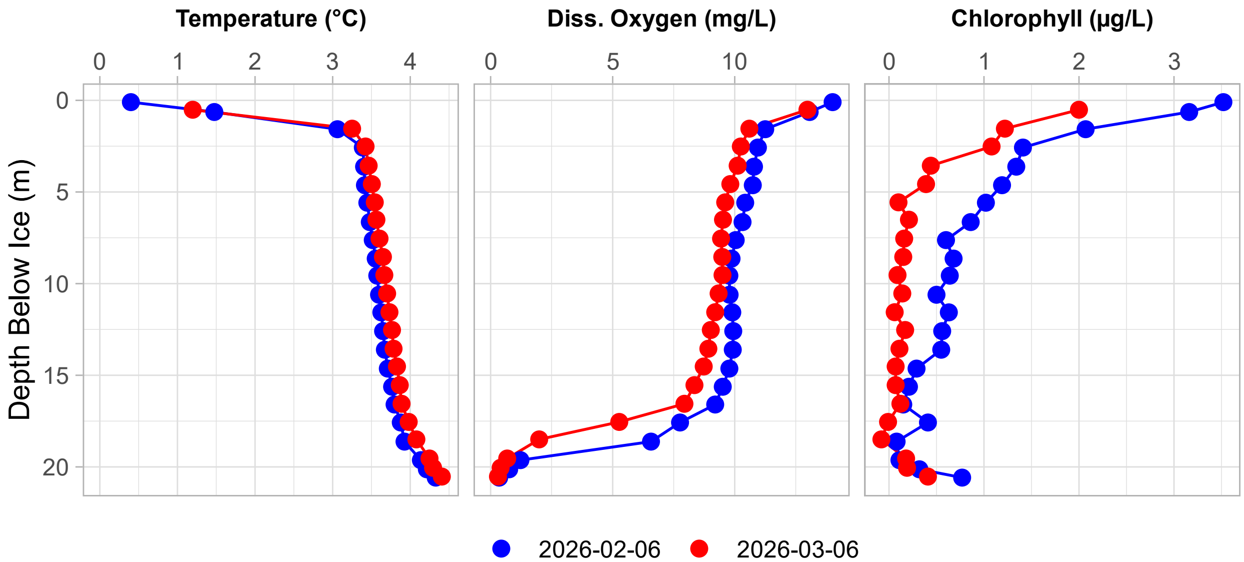
- Sixth year of winter monitoring.
- Water temperature profiles indicate stratified and mostly stable conditions, with a slight temperature increase in middle and deeper water between visits.
- Dissolved oxygen decreased with depth and time, but never reached hypoxic levels as in previous years.
- Chlorophyll fluorescence was high in the upper 1 m, low elsewhere in the water column, and showed minimal difference between trips.
- Secchi, TP, and chlorophyll-a were all within summer long-term ranges. Algal density in January was higher than typical summer values due to an aggregation of mostly chrysophytes just under the ice.



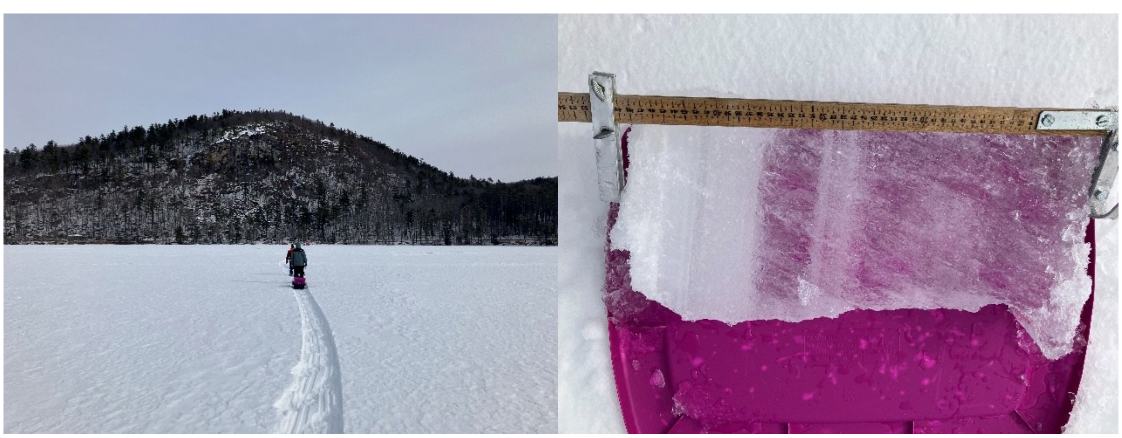
Collection Date	Secchi Depth (m)	Total Phosphorus (ppb)	Chlorophyll-a (ppb)	Algal Density (particles per mL)
2026-01-13	5.74	4.1	4.2	381
2026-02-13	6.31	7.6	2.5	
Summer 1996–2025 Average (Min–Max)	6.51 (4.35–8.74)	6.0 (3.0–16)	2.1 (0.80–5.2)	

Bear Pond

- Fourth year of winter monitoring, previous visits in 2018, 2020, and 2024.
- Water temperature profiles indicate stratified and mostly stable conditions, with a minor temperature increase between visits.
- Dissolved oxygen decreased with depth and time, especially in deeper waters, which were hypoxic on both visits.
- Chlorophyll fluorescence ranged from low to moderate, and decreased with depth and time.
- Secchi, TP, and chlorophyll-a were all within summer long-term ranges and were lower or spanned long-term averages. Algal density was lower than typical summer values.

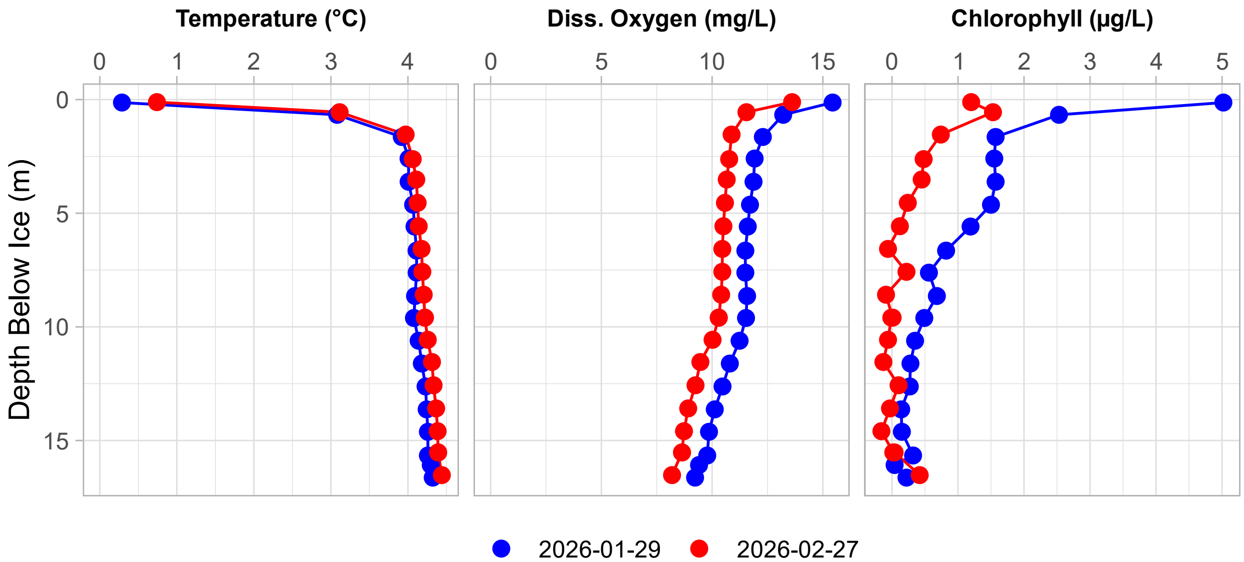


Collection Date	Secchi Depth (m)	Total Phosphorus (ppb)	Chlorophyll-a (ppb)	Algal Density (particles per mL)
2026-02-06	5.42	6.7	1.7	43.7
2026-03-06	6.22	6.4	1.0	
Summer 1996–2025 Average (Min–Max)	5.65 (2.59–7.60)	9.0 (2.0–24)	3.5 (1.0–11)	

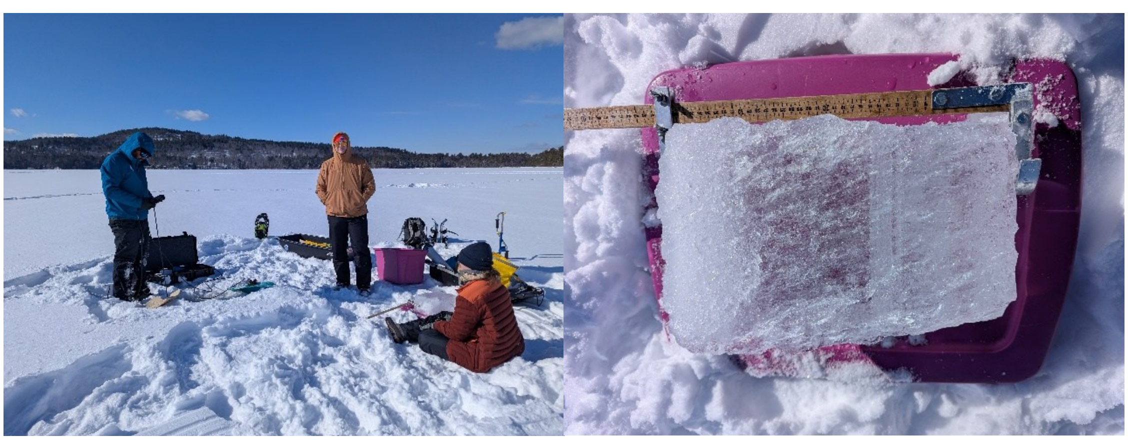


Hancock Pond

- Sixth year of winter monitoring.
- Water temperature profiles indicate stratified shallow and deep waters, with a mixed layer (no change with depth) in the middle and a slight temperature increase between visits.
- Dissolved oxygen decreased with depth and time, but did not reach hypoxic levels.
- Chlorophyll fluorescence ranged from low to moderate, decreased with depth and time, and had peak values near the ice-water interface.
- Secchi, TP, and chlorophyll-a values were all within summer long-term ranges. Algal densities were lower than typical summer values.

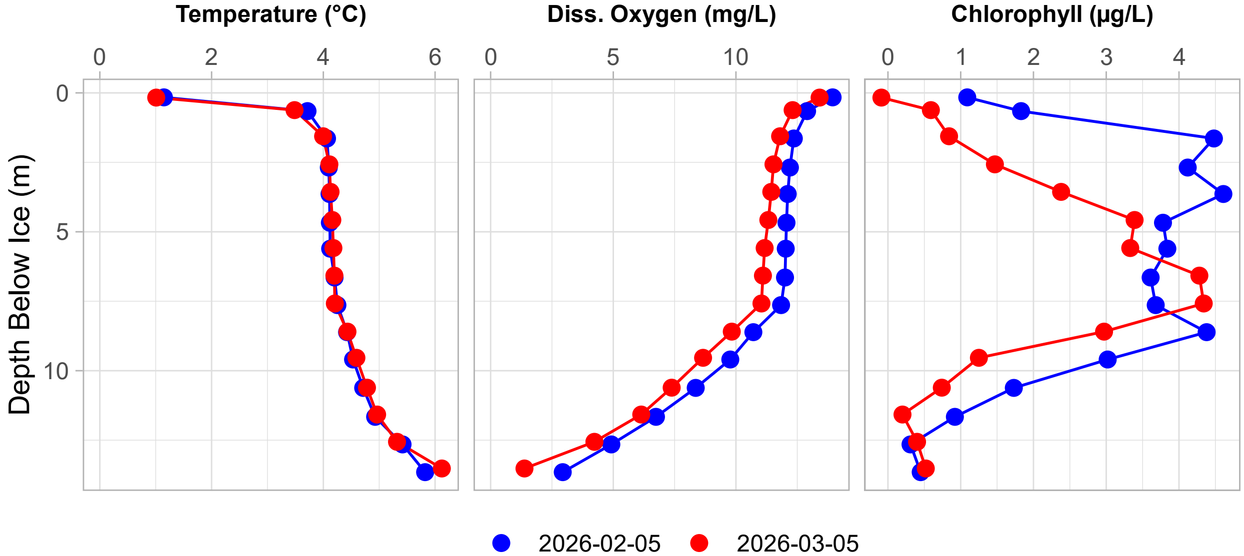


Collection Date	Secchi Depth (m)	Total Phosphorus (ppb)	Chlorophyll-a (ppb)	Algal Density (particles per mL)
2026-01-29	5.57	6.3	2.5	32.2
2026-02-27	8.85	6.7	1.0	14.2
Summer 1996–2025 Average (Min–Max)	7.09 (4.60–8.95)	5.8 (3.0–14)	2.8 (1.0–6.0)	



Highland Lake

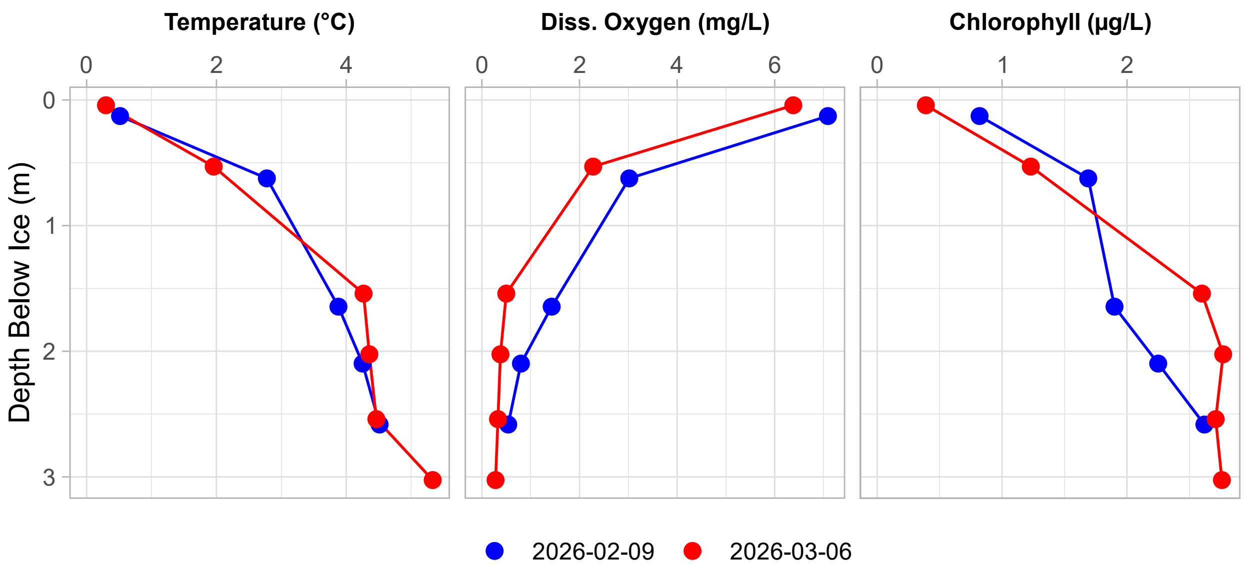
- Eighth year of winter monitoring, with no visit in 2021.
- Water temperature profiles indicate stratified conditions in shallow and deep waters, with a mixed layer (no change with depth) in the middle and almost no temperature change between visits. The bottom water was unusually warm for both visits, which could have been caused by sediment heat flux, ground water intrusion, or a combination of both.
- Dissolved oxygen decreased with depth and time, and reached hypoxic levels at the bottom in March.
- Chlorophyll fluorescence ranged from low to moderate with broad, mid-water peaks and generally lower values in March.
- Secchi, TP, and chlorophyll-a values were within summer long-term ranges. Algal density was higher than typical summer values, and the community was dominated by diatoms.



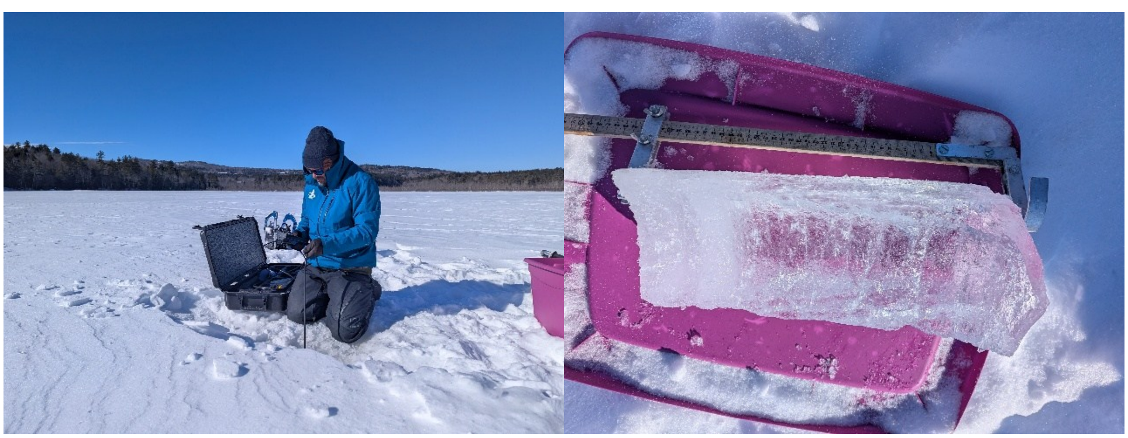
Collection Date	Secchi Depth (m)	Total Phosphorus (ppb)	Chlorophyll-a (ppb)	Algal Density (particles per mL)
2026-02-05	6.24	4.2	2.7	154
2026-03-05	8.62	4.3	2.3	
Summer 1996–2025 Average (Min–Max)	6.84 (4.80–9.40)	6.5 (3.0–20)	2.8 (1.0–10)	

Holt Pond

- Second year of winter monitoring after a single visit in 2024.
- Water temperature profiles indicate mostly stable and stratified conditions except for the possibility of some mixing in the 1.5 to 2.5-m layer in March.
- Dissolved oxygen decreased with depth and with time and reached hypoxic values below 1 m depth.
- Chlorophyll fluorescence ranged from low to moderate and increased with with depth.
- Chlorophyll-a and February TP concentrations were lower than summer long-term minima, while Secchi values were deeper than average. The elevated TP concentration in March may have been caused by resuspended bottom sediments. Algal density was low and similar to summer values.

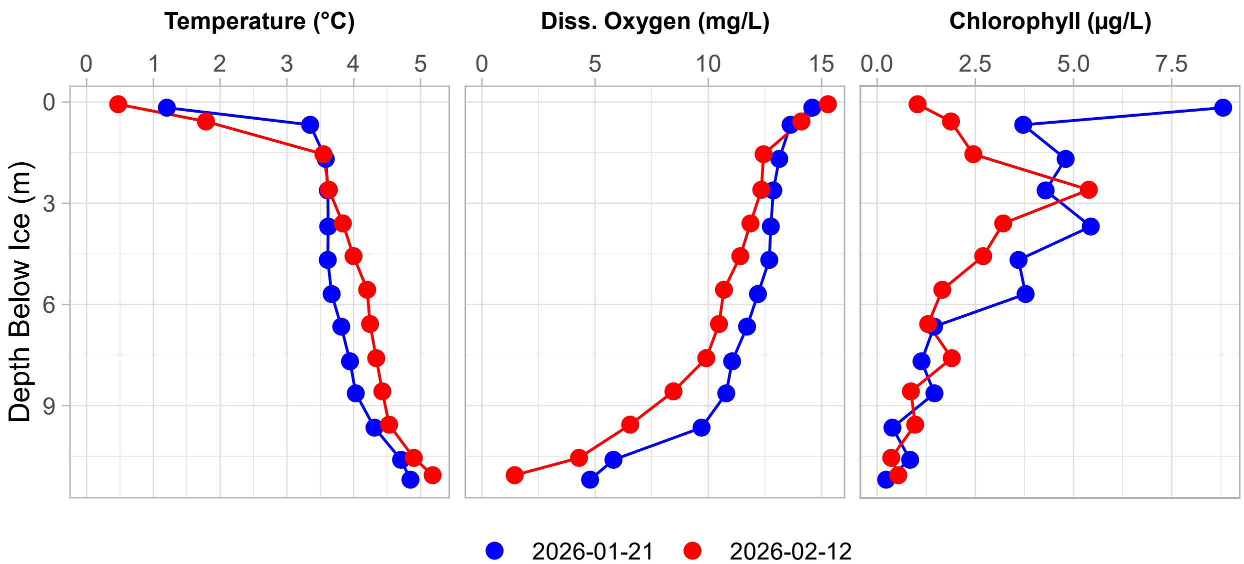


Collection Date	Secchi Depth (m)	Total Phosphorus (ppb)	Chlorophyll-a (ppb)	Algal Density (particles per mL)
2026-02-09	3.02	7.5	0.6	25.4
2026-03-06	3.41	13.9	0.4	
Summer 1996–2025 Average (Min–Max)	2.82 (2.27–3.40)	13.5 (9.0–18)	3.9 (1.3–8.7)	



Keoka Lake

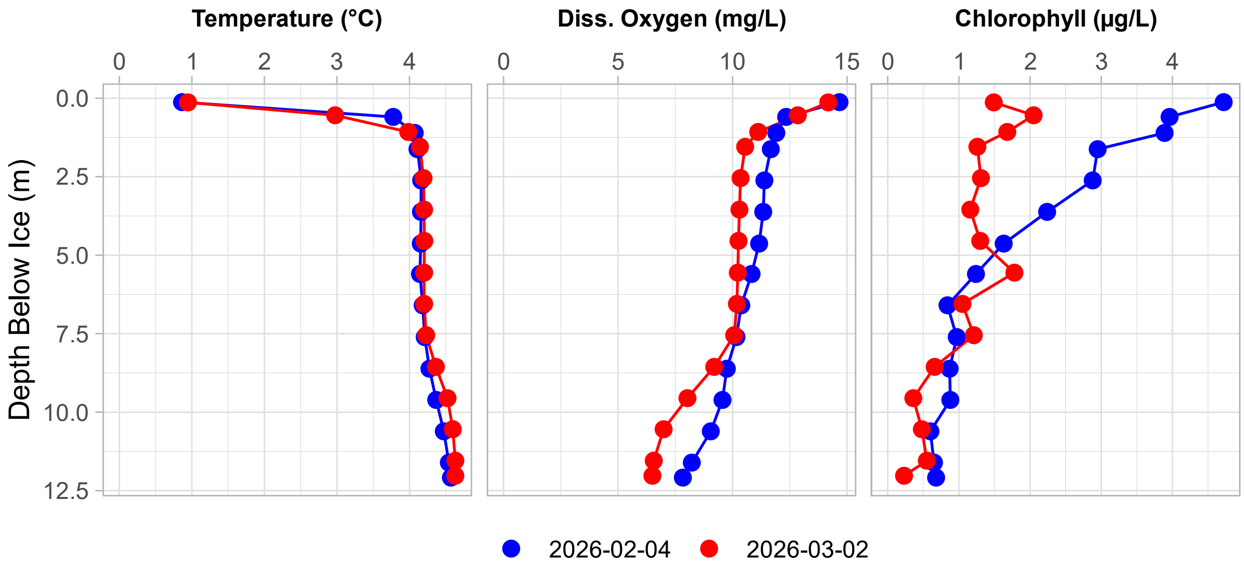
- Eighth year of winter monitoring.
- Water temperature profiles indicate stratified, stable conditions except for a region of mixing (no change with depth) from 1.5 m to almost 6 m in January. Mid-depth and deeper waters warmed between visits.
- Dissolved oxygen decreased with time and depth, and reached hypoxic levels in February.
- Chlorophyll fluorescence decreased from high to low values with depth in January, while February's profile showed a mid-water peak at 2 to 3 m.
- Secchi, TP, and chlorophyll-a values were within summer long-term ranges and comparable to the long-term averages. Algal densities were lower than typical summer values.



Collection Date	Secchi Depth (m)	Total Phosphorus (ppb)	Chlorophyll-a (ppb)	Algal Density (particles per mL)
2026-01-21	5.31	5.7	3.6	100
2026-02-12	6.54	6.3	2.7	49.6
Summer 1996–2025 Average (Min–Max)	6.00 (3.50–8.20)	7.5 (3.0–16)	3.6 (0.90–13)	

Keyes Pond

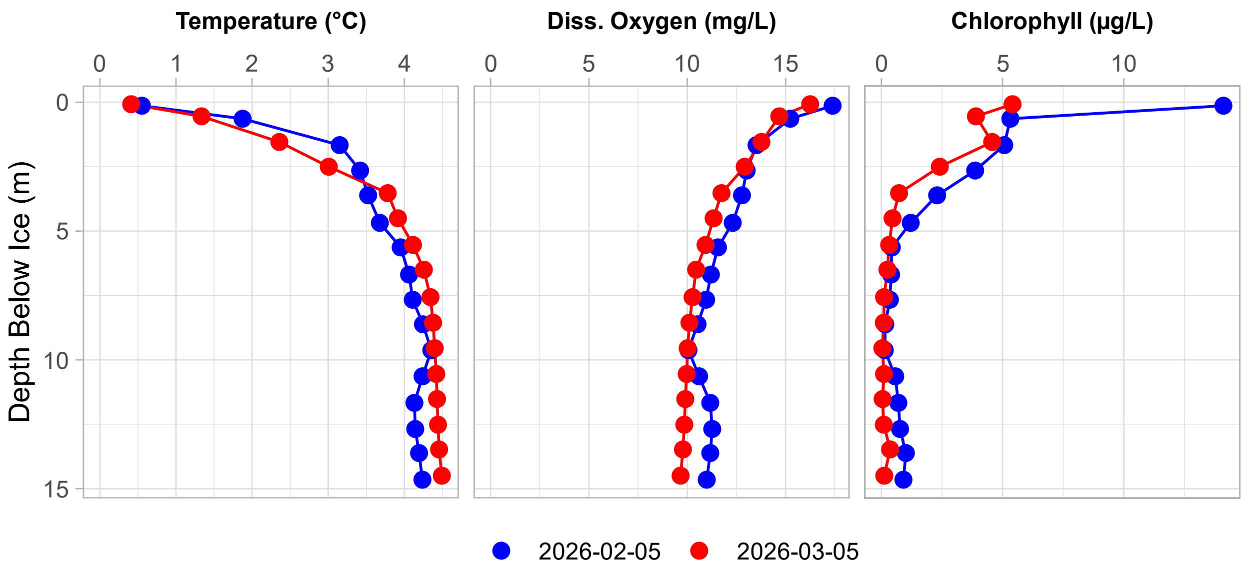
- Sixth year of winter monitoring.
- Water temperature profiles indicate stratified and mixed (no change with depth) layers and only minor warming at depth between visits.
- Dissolved oxygen decreased with time and depth, but remained above hypoxic levels.
- Chlorophyll fluorescence ranged from low to moderate and decreased with depth and with time in the upper 5-m layer.
- Secchi, TP, and chlorophyll-a values were within summer long-term ranges and comparable to the long-term averages. Algal densities were lower than typical summer values.



Collection Date	Secchi Depth (m)	Total Phosphorus (ppb)	Chlorophyll-a (ppb)	Algal Density (particles per mL)
2026-02-04	5.44	6.7	3.2	61.4
2026-03-02	7.94	6.1	2	35.1
Summer 1996–2025 Average (Min–Max)	6.13(3.20–8.11)	7.4 (3.0–14)	3.3 (1.0–11)	

Long Lake-North Basin

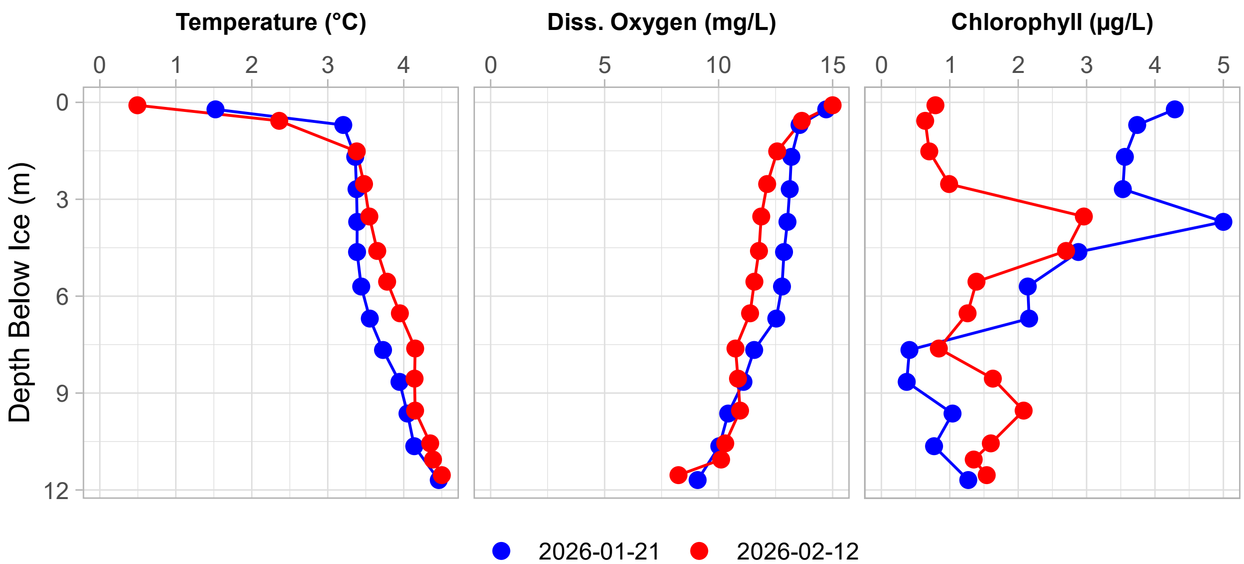
- Fifth year of winter monitoring.
- Water temperature profiles indicate stratified and stable conditions, with some mixing (no change with depth) possible at depth in March. The drop in temperature below 10 m in February was unusual and could indicate the transport of cooler water from other areas.
- Dissolved oxygen decreased with time and depth, but the water column remained well oxygenated.
- Chlorophyll fluorescence ranged from moderate to high in the upper layer, low in deeper waters, and decreased over time.
- Secchi, TP, and chlorophyll-a values were all within summer long-term ranges, above average for Secchi, and below average for TP and chlorophyll-a. Algal densities were lower than typical summer values.



Collection Date	Secchi Depth (m)	Total Phosphorus (ppb)	Chlorophyll-a (ppb)	Algal Density (particles per mL)
2026-02-05	6.22	5.5	2.2	36.7
2026-03-05	7.89	5.8	1.3	36.4
Summer 1996–2025 Average (Min–Max)	6.11 (4.00–8.62)	7.3 (3.0–19)	3.0 (1.0–8.7)	

McWain Pond

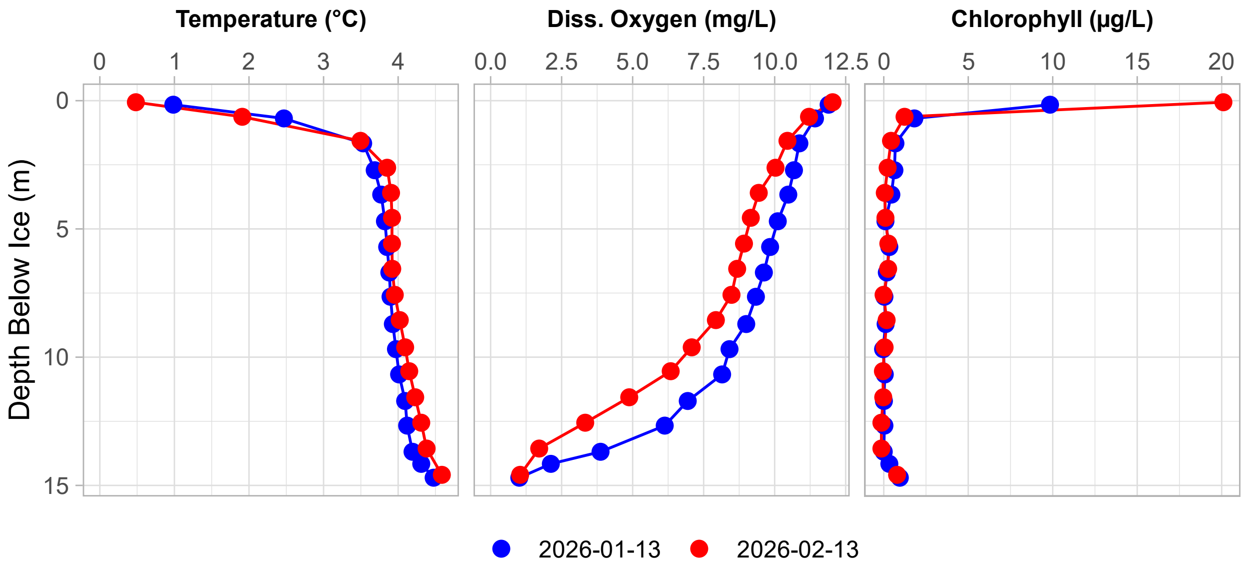
- Sixth year of winter monitoring.
- Water temperature profiles indicate stratified and mixed (no change with depth) conditions in January, shifting to more stable and slightly warmer conditions by February.
- Dissolved oxygen decreased with time and depth, but remained above hypoxic levels.
- Chlorophyll fluorescence ranged from low to moderate with a peak just below 3 m. Upper and mid-water values decreased between visits.
- Secchi, TP, and chlorophyll-a values were all within summer long-term ranges and comparable to the long-term averages. Algal densities were lower than typical summer values.



Collection Date	Secchi Depth (m)	Total Phosphorus (ppb)	Chlorophyll-a (ppb)	Algal Density (particles per mL)
2026-01-21	5.79	8.9	3.3	83.4
2026-02-12	6.34	6.7	1.9	50.4
Summer 1996–2025 Average (Min–Max)	5.96 (3.40–7.90)	7.2 (1.0–19)	2.8 (1.0–6.0)	

Middle Pond

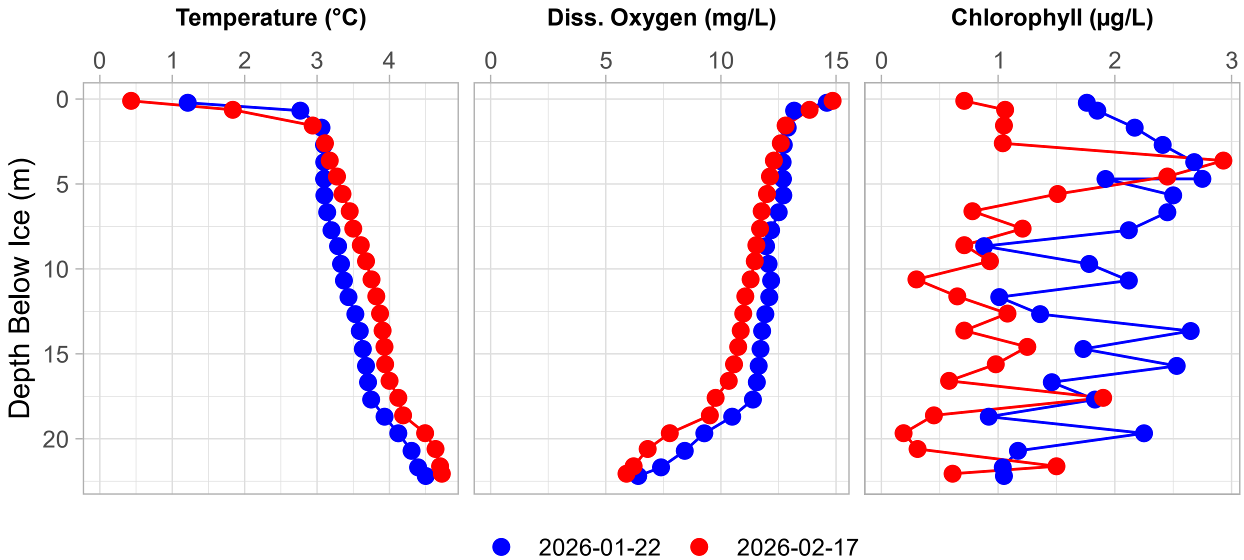
- Sixth year of winter monitoring.
- Water temperature profiles indicate both stratified and mixed (no change with depth) layers, with only slightly warmer conditions by the second visit.
- Dissolved oxygen decreased with time and depth, and near-bottom water was hypoxic during both visits.
- Chlorophyll fluorescence was mostly low except for quite high values near the ice-water interface.
- Secchi, TP, and chlorophyll-a values were all within summer long-term ranges. Secchi depth and chlorophyll-a values were below long-term averages, while TP values spanned the long-term average. Algal density in January was higher than typical summer values due to an aggregation of mostly chrysophytes just under the ice.



Collection Date	Secchi Depth (m)	Total Phosphorus (ppb)	Chlorophyll-a (ppb)	Algal Density (particles per mL)
2026-01-13	5.24	6.3	1.4	211
2026-02-13	4.74	9.9	1.5	
Summer 1996–2025 Average (Min–Max)	5.40 (2.00–7.79)	7.5 (3.0–19)	3.4 (1.0–15)	

Moose Pond-Main Basin

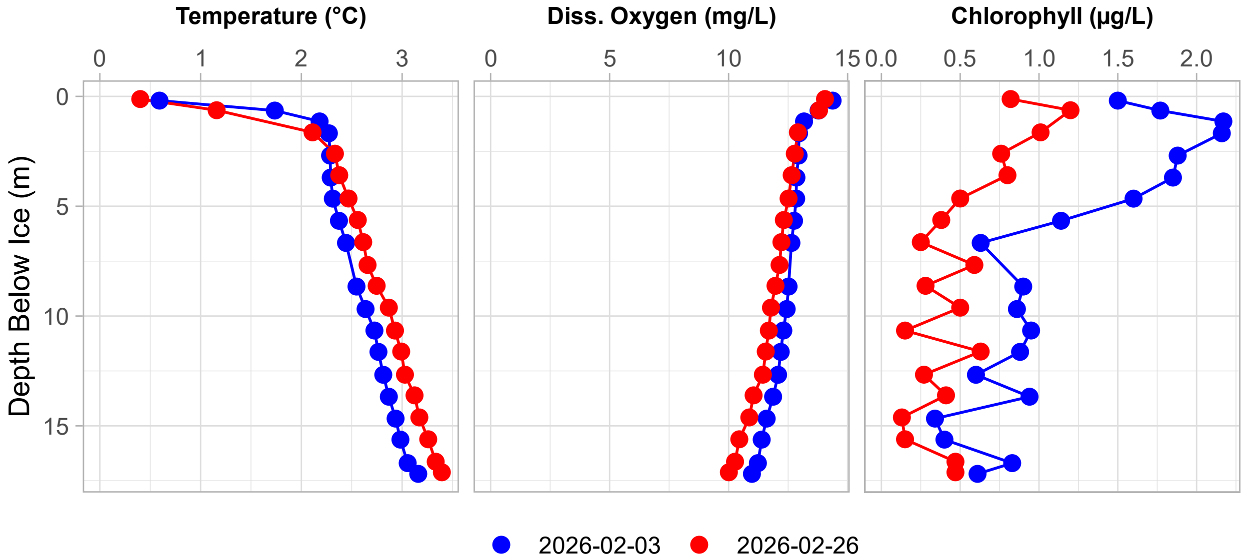
- Sixth year of winter monitoring.
- Water temperature profiles indicate stratified and stable conditions except for a mixed layer (no change with depth) between about 1.5 and 6 m in January and warmer conditions by February.
- Dissolved oxygen decreased with time and depth, and remained above hypoxic levels.
- Chlorophyll fluorescence ranged from low to moderate, and was highly variable throughout the water column. On the February visit, a peak was evident at about 4 m.
- Secchi, TP, and chlorophyll-a values were all within summer long-term ranges and comparable to long-term averages. Algal densities were lower than typical summer values.



Collection Date	Secchi Depth (m)	Total Phosphorus (ppb)	Chlorophyll-a (ppb)	Algal Density (particles per mL)
2026-01-22	7.99	4.6	3.1	60.8
2026-02-17	7.64	4.4	1.8	39.0
Summer 1996–2025 Average (Min–Max)	7.40 (4.52–10.20)	5.7 (3.0–13)	2.8 (1.0–10)	

Peabody Pond

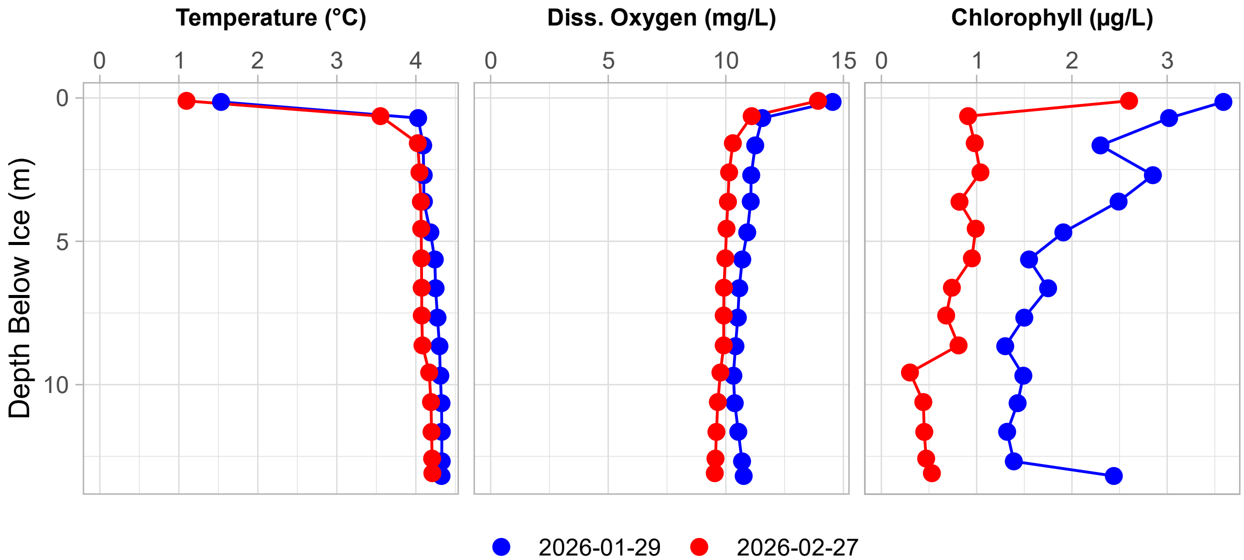
- Sixth year of winter monitoring.
- Water temperature profiles indicate stratified and mixed (no change with depth) conditions in early February, becoming stable and slightly warmer below 2 m by the second visit.
- Dissolved oxygen decreased with time and depth, and bottom waters remained above hypoxic levels.
- Chlorophyll fluorescence was mostly low and decreased with time and depth except for slight peaks between 0.5 and 2 m depth.
- Secchi, TP, and chlorophyll-a values were all within summer long-term ranges and were below the long-term averages for TP and chlorophyll-a. Algal densities were similar to and lower than typical summer values.



Collection Date	Secchi Depth (m)	Total Phosphorus (ppb)	Chlorophyll-a (ppb)	Algal Density (particles per mL)
2026-02-03	7.44	5.1	1.7	40.0
2026-02-26	9.22	5.3	1.1	18.9
Summer 1996–2025 Average (Min–Max)	7.45 (4.60–10.37)	5.7 (2.0–13)	2.6 (0.80–10)	

Sand Pond

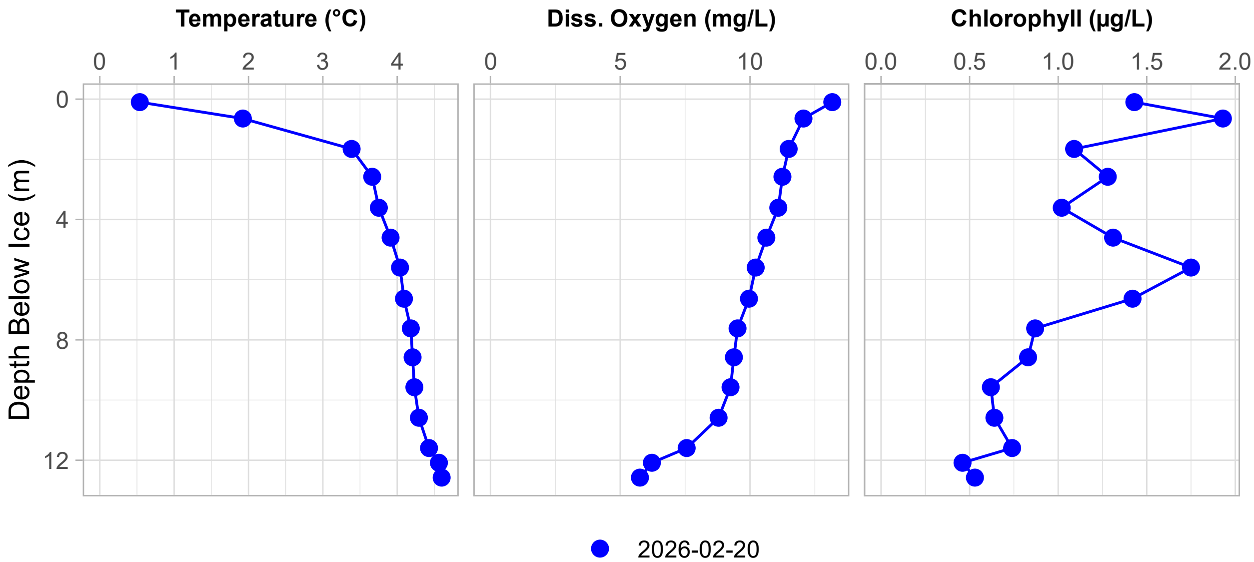
- Ninth year of winter monitoring.
- Water temperature profiles indicate mostly mixed (no change with depth) conditions beneath a thin stratified layer and a slight cooling over time.
- Dissolved oxygen was well above hypoxic levels and decreased with time and only slightly with depth.
- Chlorophyll fluorescence ranged from low to moderate and decreased with depth and time.
- Secchi, TP, and chlorophyll-a values were all within summer long-term ranges, and either spanned (Secchi) or were below (TP and chlorophyll-a) the long-term averages. Algal densities were lower than typical summer values.



Collection Date	Secchi Depth (m)	Total Phosphorus (ppb)	Chlorophyll-a (ppb)	Algal Density (particles per mL)
2026-01-29	5.94	6.3	2.9	43.0
2026-02-27	6.66	6.7	1.6	28.4
Summer 1996–2025 Average (Min–Max)	6.12 (4.00–8.70)	8.3 (5.0–26)	3.5 (1.2–9.0)	

Stearns Pond

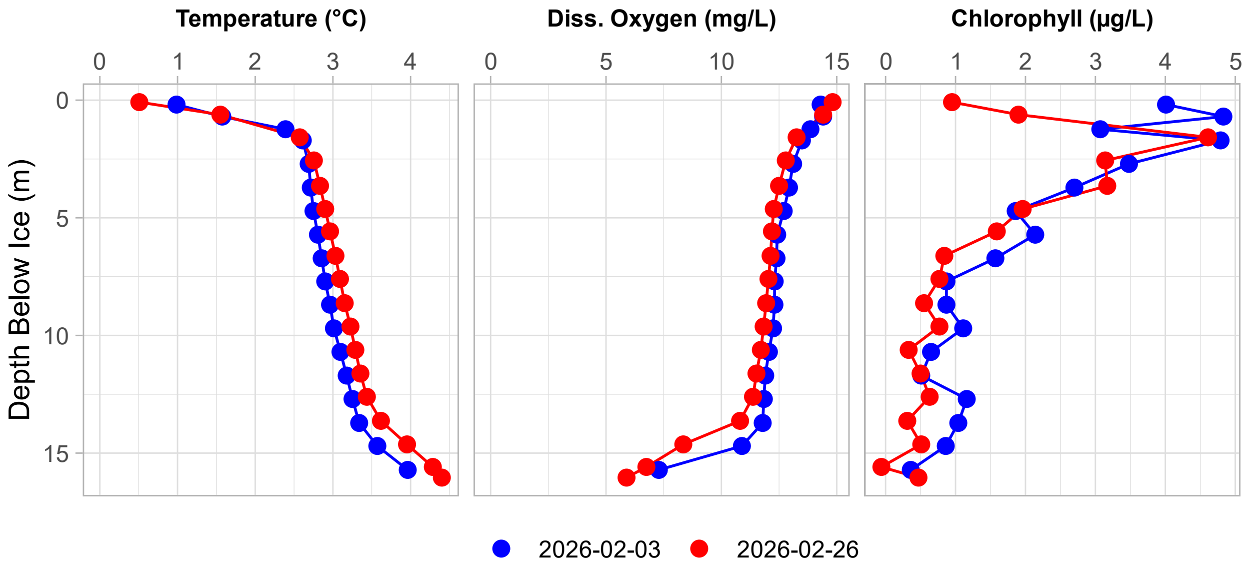
- Third year of winter monitoring with previous visits in 2019 and 2020. This trip was part of a multi-investigator, collaborative project comparing summer and winter conditions across a range of lakes in Canada and the US.
- Water temperature profiles indicate mostly stable, stratified conditions.
- Dissolved oxygen decreased with depth and was above hypoxic levels.
- Chlorophyll fluorescence was mostly low and decreased with depth.
- Secchi, TP, and chlorophyll-a values were almost all within summer long-term ranges and were either above (Secchi) or below (TP and chlorophyll-a) the long-term averages. Algal density was low, but we have no summer data to compare.



Collection Date	Secchi Depth (m)	Total Phosphorus (ppb)	Chlorophyll-a (ppb)	Algal Density (particles per mL)
2026-02-20	5.32	6.4	0.9	44.2
Summer 1996–2025 Average (Min–Max)	5.18 (2.90–6.94)	8.4 (4.0–19)	3.4 (1.0–16.0)	

Trickey Pond

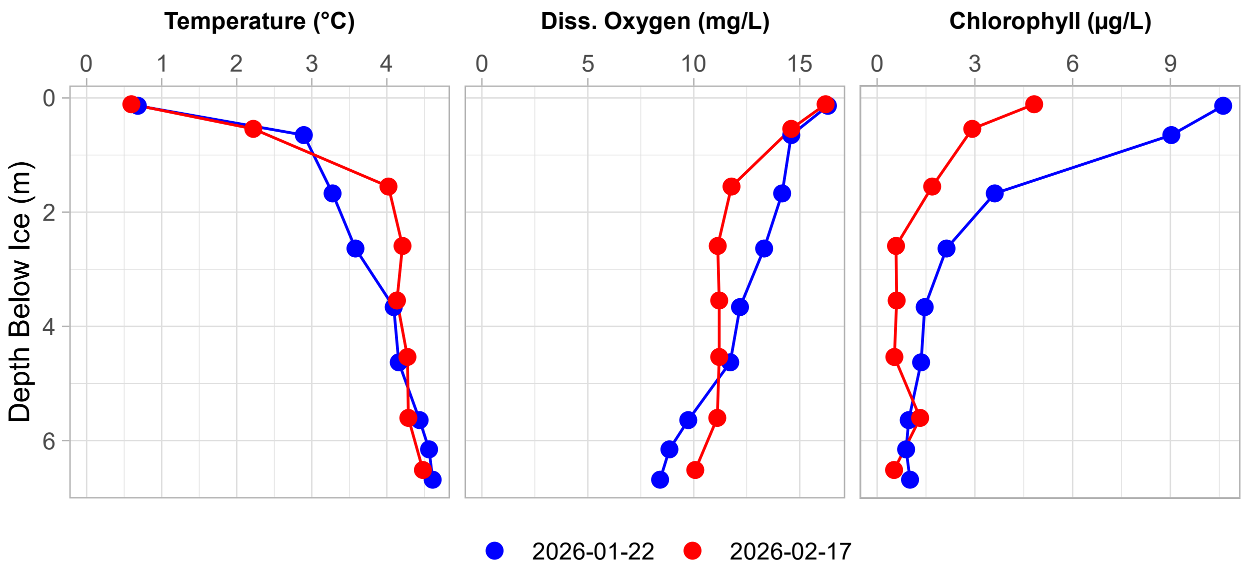
- Eighth year of winter monitoring.
- Water temperature profiles indicate mostly stable, stratified conditions, with a slight increase in temperature over time.
- Dissolved oxygen decreased with time and depth, and remained above hypoxic levels.
- Chlorophyll fluorescence ranged from low to moderate and decreased with depth except for shallow waters less than 1.5 m below the ice.
- Secchi, TP, and chlorophyll-a values were all within summer long-term ranges, but were below the long-term average for Secchi depth and above the long-term average for TP and chlorophyll-a. Algal densities were slightly higher than typical summer values.



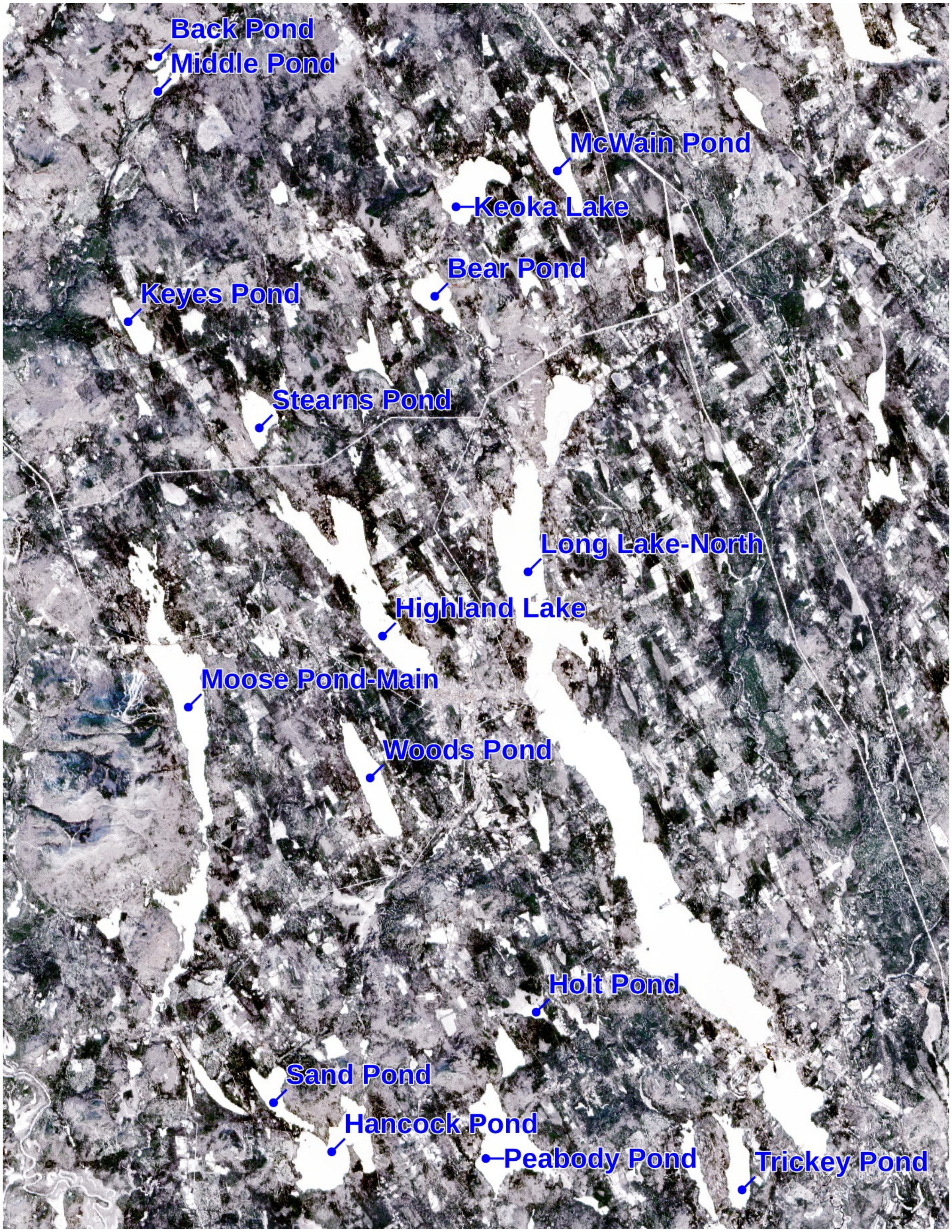
Collection Date	Secchi Depth (m)	Total Phosphorus (ppb)	Chlorophyll-a (ppb)	Algal Density (particles per mL)
2026-02-03	7.29	7.3	4.4	95.4
2026-02-26	9.31	5.9	3.6	80.7
Summer 1996–2025 Average (Min–Max)	9.92 (6.15–14.70)	5.2 (2.0–11)	1.8 (0.47–6.7)	

Woods Pond

- Seventh year of winter monitoring, with no visits in 2019 or 2020.
- Water temperature profiles indicate stable, stratified conditions in January, but in February, water below 1 m warmed and became mixed (no change with depth).
- Dissolved oxygen decreased with depth, but stayed above hypoxic levels. By February, oxygen had decreased in middle layers and increased at the deepest depths compared to January due to the mixed conditions.
- Chlorophyll fluorescence ranged from low to high and decreased with depth and time.
- Secchi, TP, and chlorophyll-a values were all within summer long-term ranges, and all were below the long-term averages except for the January chlorophyll-a. Compared to typical summer values, algal density was higher in January and lower in February, with chrysophytes the dominant taxa.



Collection Date	Secchi Depth (m)	Total Phosphorus (ppb)	Chlorophyll-a (ppb)	Algal Density (particles per mL)
2026-01-22	4.74	6.0	7.2	183
2026-02-17	4.52	5.0	3.2	46.2
Summer 1996–2025 Average (Min–Max)	4.99 (3.00–7.50)	8.1 (4.0–17)	3.1 (1.0–11)	



Winter monitoring locations shown on top of Sentinel-2 satellite imagery from 2026-02-10

Thank you for supporting our work. If you have any questions about this report or its content, or would like to share your thoughts, please contact Ben Peierls: ben@mainelakes.org