WHITE LAKE PROPERTY OWNERS ASSOCIATION ENVIRONMENT VOLUNTEERS

White Lake Checkups

2025

Conrad Grégoire, PhD and David Overholt, BA

David Overholt taking a plankton sample

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Every two weeks from mid-May to mid-October we sample White Lake. Nine sites are monitored covering all parts of the lake. After each of these 'sampling runs' a White Lake Checkup is issued. Checkups are short and concise summaries of the condition of White Lake on the sampling date. Information is usually also provided for similar readings done a year earlier for comparison purposes. White Lake Checkups are generally published on the White Lake Property Owners Association Facebook page, as well as other local Facebook pages covering all four municipalities sharing parts of White Lake. Checkup compilations for this and other years can be downloaded from the Special Report Page on the White Lake Science website.

Below is a compilation of the White Lake Checkups issued during 2025.

White Lake Checkup: May 19, 2025

May 9th marked the beginning of our 12th season sampling White Lake and reporting to the community on its condition. It was a cool and partly overcast morning as we (Conrad Grégoire and David Overholt) completed our first sampling excursion of the year. During our time on the lake, we did not see any other watercraft so we had the lake to ourselves. We collected three samples at each of our monitoring sites. Two were duplicate samples for total phosphorus and the third sample was collected for the measurement of calcium and chloride levels. All of the samples are analyzed by the Ministry of the Environment's laboratories in Dorset Ontario under the auspices of the Lake Partner Program. In addition to these samples, we also make temperature and water clarity measurements and collect plankton samples using a specialized net. These samples are analyzed later using an optical microscope.

Ice Cover: White Lake was deemed to be ice-free on April 19th. The lake was covered with ice during the 2024/5 season for 121 days. This was in keeping with the average value calculated for the 5 previous years.

Kudos: Ice in and ice out dates are monitored by Karen and Brian Cairns, White Lake residents. We are grateful for their work doing this for many years now. Thank you!

Water Temperature: The water temperature in the deeper parts of the lake was 13.6°C. The temperature last year at this time was 14.5°C. The hot spot on the lake was Hayes Bay and the village Basin with a water temperature of 14.4 °C down from last year's reading of 16.0°C.

Water Clarity: Water clarity as expressed as a Secchi depth was 6.0 metres; 0.4 metres more clear than last year. A Secchi depth of 6 metres means that sunlight can penetrate lake waters 12 metres deep. Since the maximum depth of White Lake is 9.1 metres, this means that the entire bed of the lake is illuminated with sunlight leading to increased aquatic plant growth.

Water Depth: The depth of the lake as measured at the gauge at the dam was 156 cm as compared to the target depth of 155 cm. Right on target!

Cormorants: No cormorants were observed during our sampling run on the lake today. Cormorants, an aquatic bird native to White Lake, do not have the capability to waterproof their plumage as do other aquatic species. At the moment, it is simply too cold to be here since they would have to dry their feathers in the open-air loosing body heat.

The air temperature this time last year was several degrees higher than today. At that time 2 cormorants we spotted on the lake.

White Lake Checkup: May 26, 2025

The lake was calm when we (Conrad Grégoire and David Overholt) set out for our second water sampling run of the year. The air temperature was about 13°C when we started. We collected plankton samples at each of our 9 sampling sites as well as measured water clarity (Secchi Depth) and temperature. The plankton samples were analyzed later using an optical microscope.

Water Temperature: The water temperature in the deeper parts of the lake was 14.7°C. The temperature last year at this time was a much warmer 18.7°C. We can all acknowledge that we have had a cool spring. Clearly, lake water temperatures are linked to atmospheric temperatures and do vary from year to year.

Water Clarity: Water clarity as expressed as the Secchi Depth was 6.1 metres. Last year at this time, water clarity was an average of 5.0 metres. There may be a trend towards higher water clarity from year to year. This is not necessarily good news because it could possibly indicate that zebra mussels are increasing in numbers or that quagga mussels have entered the lake. We have not identified quagga mussels to be present, but this species of mussel has replaced most of the zebra mussels in the Great Lakes. Unlike their cousins, the zebra mussels, quagga mussels can live on surfaces, like bottom mud, where zebra mussels cannot survive. We will keep you posted.

Water Depth: The depth of the lake as measured at the gauge at the dam was 156 cm (154 cm last year) as compared to the target depth of 152 cm. This is 4 centimetres higher than called for in the water depth plan for the lake. The abundant rain we have received recently is likely responsible for the higher lake level.

Cormorants: We did not observe any cormorants on White Lake during our sampling run. Last year 12 cormorants were counted. The absence of these native birds could be due to the colder weather we have been experiencing this spring.

Bass Fishing: Although the bass fishing season will not be open for several more weeks, we did see 4 fishing parties casting their lines along the shoreline. At a shallow spot on the lake, we saw two very large bass circling and guarding their nests from predators. Everyone should know that if an adult bass is distracted from its nest for even a few minutes, all of its eggs or small fry can be eaten by waiting predators within a minute or two.

White Lake Checkup: June 14, 2025

June 14 was our third sampling outing of 2025. It was a cool at about 17°C with winds of from 5 to 10 km/h. We visited nine sampling sites (using GPS) and measured water temperatures, water clarity and water depth at the Waba Creek dam. Water samples were also taken for analysis for phosphorus, calcium, and chloride concentrations. These samples were mailed to the Ministry of the Environment Labs for processing. Also collected were plankton samples using a specialized net. These samples were analyzed later using an optical microscope.

Water Temperature: The water temperature in the deeper parts of the lake was 19.6°C; exactly the same it was at this time last year (19.5°C). In the shallower parts, the temperature was marginally higher at 20.1°C. Water temperatures did not vary by more than about 0.5°C across the lake, except at the very shallow areas, particularly Hayes Bay which had the lake temperature hotspot at 20.5°C.

Water Clarity: Water clarity as expressed as a Secchi depth was 5.8 metres which was 1.6 meters more (clear) than last year. Secchi depth ranged from 5.7 metres in Three Mile Bay to 6.3 metres in the deepest parts of the lake near Pickerel Bay. The increased clarity may be due to the cooler weather we have been experiencing this spring.

Water Depth: The depth of the lake as measured at the gauge at the dam was 152.0 cm, (151.8 cm in 2024) as compared to the target depth of 146.3 cm.

Cormorant Count: Seven cormorants were observed on the lake. Eight cormorants were counted on this date last year. Two weeks ago, there were no cormorants. These numbers are in keeping with observations during previous years. The number of cormorants can change from week to week depending on the number of cormorants using the lake and who may be nesting kilometres away. We have not as yet found any nesting sites on White Lake.

Algal Bloom: This past week marked the beginning of the now annual filamentous green algal bloom. This alga has always been in White Lake and was a times visible in small isolated patches. Since the arrival of Zebra mussels in 2015, these blooms have become more intense and widespread. This type of algae is not harmful but is unsightly. If you

would like to learn more about algal blooms in White Lake, please download our updated report on algal blooms in White Lake at:

https://wlpp.ca/linked/white_lake_algal_blooms_1860_to_2024.pdf.

Pollen Storm: The annual pollen storm is over, but during the past week we experienced one of the more intense storms in recent years. The roof of my (Conrad) cottage was yellow and not green! Our 2021 Environment Bullen on pollen storms can be downloaded at: https://wlpp.ca/linked/pollen_storm.pdf.

White Lake Checkup: June 29, 2025

The morning of June 29th on White Lake was mostly overcast but pleasantly warm. We visited our nine sampling sites (using GPS). We measured water temperatures, water clarity and water depth at the Waba Creek dam. We also collected plankton samples for later analysis using an optical microscope.

Water Temperature: The water temperature in the deeper parts of the lake was 22.9°C which was one degree warmer than it was at this time last year. In the shallower parts, the temperature was slightly lower at 21.0°C.

Please note that we measure water temperatures away from shorelines and at a depth corresponding to the Secchi depth which is about 4 metres. Water temperatures at the shoreline can be many degrees higher especially if there is no wind to help mix lake waters.

Water Clarity: Water clarity as expressed as a Secchi depth was 4.1 metres, exactly the same as it was this time last year.

Water Depth: The depth of the lake measured at the gauge at the dam was 151 cm as compared to the target depth of 144 cm. This means that the lake was 7 cm higher than planned. Last year, the lake was 2 cm deeper.

The significant rainfall we received several days before our sampling run was partly responsible for the higher-than-normal water levels.

Cormorant Count: Ten cormorants were observed on the lake. At this time last year there were 8. These numbers are low and are in keeping with observations recorded during previous years. The number of cormorants can change from week to week depending on the number of cormorants using the lake and who may be nesting kilometres away. We have not as yet found any nesting sites on White Lake.

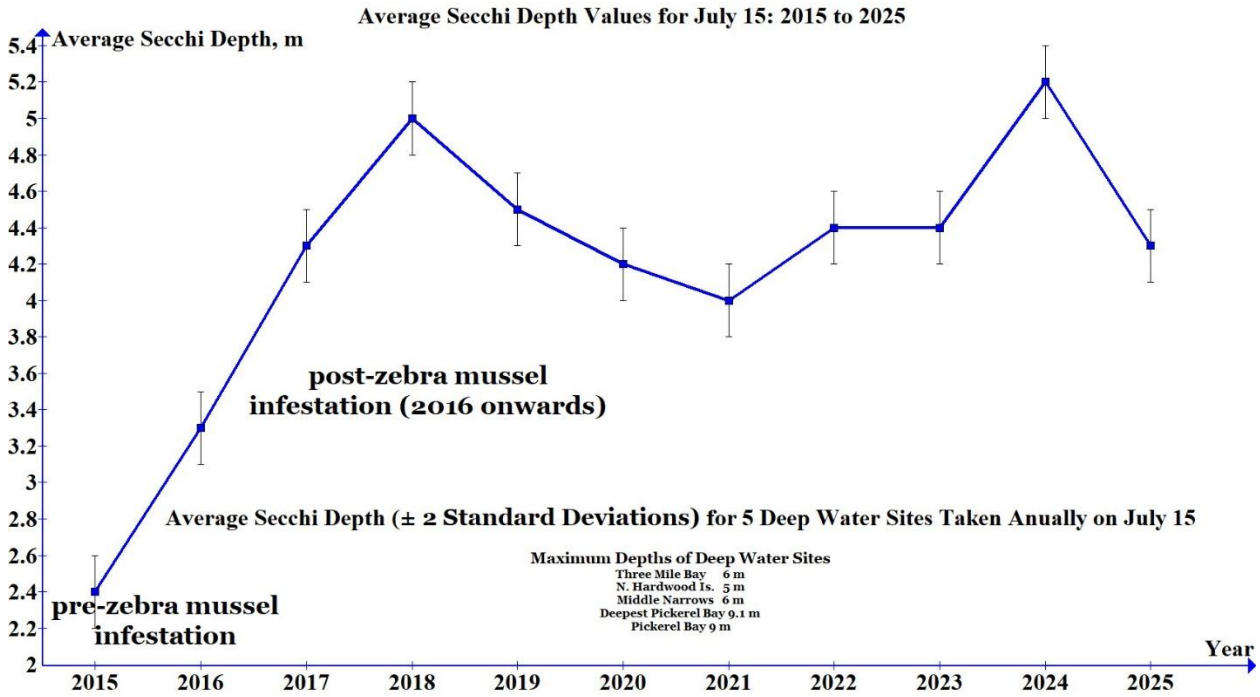
White Lake Checkup: July 15, 2025

The morning of July 15th this year was hot with full sun and no wind. There were very few boats on the lake. One thing: forest fire smoke blanketed the lake. (See: smoke.pdf). That did not deter us from visiting our nine sampling sites (using GPS). We measured water temperatures, water clarity and water depth at the Waba Creek dam. Water samples were also taken for analysis of phosphorus, calcium and chloride. These samples were mailed to the Ministry of the Environment Labs for processing. Also collected were plankton samples using a specialized net. These samples were analyzed later using an optical microscope.

Water Temperature: The water temperature in the deeper parts of the lake was 25.6°C, about 0.5 degrees warmer than last year. In the shallower parts, the temperature was about one degree higher at 26.4°C. The highest temperature was recorded in Hayes Bay at 26.9°C.

Water Clarity: Water clarity as expressed as the Secchi depth was 4.3 metres which was 0.9 metres less (clear) than last year. Water clarity ranged from 4.0 to 4.5 in the deeper sampling sites.

For those interested in graphs, the figure below shows the average Secchi depth reading starting in 2015 to the present. Once zebra mussels took hold in White Lake, the water clarity increased by nearly a factor of two. Since that time to the present, water clarity has changed, but only moderately.



The increased water clarity is a result of the feeding habits of the hundreds of millions of zebra mussels in White Lake; each capable of filtering 1 litre of lake water per day. We calculate that the volume of the entire lake can be filtered in about 2 months' time.

Increased water clarity means more light to encourage the growth of aquatic plants, aka weeds. Zebra mussels excrete (poop!) nutrients, such as phosphorus, in a form that encourages not only weed growth, but also algal blooms, which we have seen annually for the last 12 years. Sadly, increased water clarity in White Lake is not overall a good thing.

Rain: According to Environment Canada, the amount of rain we received in June of this year was 65.5 mm, which is much less than the 149 mm received last year.

Water Depth: The depth of the lake as measured at the gauge at the dam was 147 cm as compared to the target depth of 141 cm; six cm higher than planned by the Ministry of the Environment.

Cormorant Count: Eight cormorants were observed on the lake. Six were counted on this date in 2024. These numbers are in keeping with observations during previous years. The number of cormorants can change from week to week depending on the number of cormorants using the lake and who may be nesting kilometres away. As with any such survey, the numbers we record are a minimum and it is likely that there are more we did not encounter, although we believe these numbers would be small.

White Lake Checkup: August 2, 2025

The morning of August 2 would have been sunny had it not been for the blanket of forest fire smoke (see: https://wlpp.ca/linked/smoke.pdf) hovering over the lake. Undeterred, we visited nine sampling sites on White Lake (using GPS) and measured water temperatures, water clarity, and water depth at the Waba Creek dam. We also collected plankton using a specialized net. These samples are to be analyzed using a microscope in order to identify the algae and plankton in lake water.

We now post all of this season's White Lake Checkups on our website. These can be downloaded from the homepage at https://wlpp.ca/. Compilations of precious years Checkups can be downloaded from the Special Reports section of the website.

Water Temperature: The average water temperature in the deeper parts of the lake was 25.0°C. Last year on this date, the water temperature was essentially the same at 24.8°C. In the shallow parts of the lake, the water temperature was 23.3°C reflecting the cooler air temperatures we experienced for several days prior to our sampling run.

Water Clarity: Water clarity as expressed as a Secchi depth was 3.8 metres. In 2024 on this date, the water clarity was 0.5 metres higher (clearer water). The difference between this and last year's readings may be due to the weather. We have until recently been going through a heat wave and long sunny days. This may have encouraged the growth of plankton resulting in a loss in water clarity.

Water Depth: The depth of the lake as measured at the gauge at the dam was 135.5 cm as compared to the target depth of 137 cm. Up to now, we have been experiencing higher than normal water levels for most of this year. Clearly, the hot dry spell would increase loss of water through evaporation.

(see: https://wlpp.ca/linked/evaporation_environment_bulletin.pdf)

Cormorants: Five cormorants were spotted on the lake. Since the beginning of June, we have counted between 6 and 9 cormorants during each sampling run (every two weeks). These are very low numbers, even though our count is likely low because some birds may have been fishing or perched on trees at new locations.

Water Devil: An interesting atmospheric phenomenon occurred on White Lake on the afternoon of August 1. A cottager heard a great roar of wind from within her cottage, looked out and saw her dock furniture lifted and blown into the lake. A steel-framed sun umbrella weighted down by a large rock, was uplifted, broken, and returned to the dock. The whirlwind then left the dock and became a small waterspout dissipating 50 metres offshore. The whole event was witnessed by a neighbour.

August 1 was a windy day on White Lake and somehow conditions were right to create this interesting and somewhat frightening phenomenon.

White Lake Checkup: August 16, 2025

August 16 marked the 7th water sampling session of the year. It was a beautiful day on the lake. It was sunny but hazy probably from forest fire smoke. There was no wind. We visited nine sampling sites (using GPS) and measured water temperatures, water clarity and water depth at the Waba Creek dam. Water samples were also taken for analysis of phosphorus, calcium and chloride. These samples were mailed to the Ministry of the Environment Labs for processing. Also collected were plankton samples using a specialized net. These samples were analyzed later using an optical microscope.

Water Temperature: The water temperature in the deeper parts of the lake was 25.2°C, about 1.6 degrees warmer than last year at this time. In the shallower parts, the temperature was about the same at 25.0°C.

Please note that we measure water temperatures away from shorelines and at a depth corresponding to the Secchi depth which is about 4 metres. Water temperatures at the shoreline can be several degrees higher especially if there is no wind to help mix lake waters. For example, the temperature along the shoreline at 9 am this morning was 27°C.

Water Clarity: Water clarity as expressed as the Secchi depth was 4.5 metres which was 0.5 metres more (clear) than last year. Water clarity ranged from 4.1 to 5.1 at the deeper sampling sites. This indicates that biological activity varied considerably in different parts of the lake.

Water Depth: The depth of the lake as measured at the gauge at the dam was 130.0 cm as compared to the target depth of 131.1 cm. For the last two years, lake levels have been relatively high. The current drought has influenced lake levels, but at the moment, levels are high enough to support the lake and a required minimum outflow to support ecosystems in Waba Creek.

Cormorant Count: Nine cormorants were observed on the lake. There were twelve last year at this time. White Lake continues to support a stable very small number of cormorants.

Tape Grass: During this time of year, large mats of tape grass, also known as eel grass, can be found floating on the lake. This occurs every year and is most noticeable when lake levels begin to drop. To find out more about tape grass and how it forms floating mats, please read the Environment Bulletin entitled 'Tape Grass":

https://wlpp.ca/linked/tape_grass_env._bulletin.pdf

Note that all of this year's White Lake Checkups are available for download from the homepage of the White Lake Science website: https://wlpp.ca

White Lake Checkup: August 31, 2025

The morning of August 31th was beautiful on White Lake. The lake was calm when we set out for our 8th water sampling run of the year (three more to go!). We collected plankton samples at five of our 9 sampling sites as well as measured water clarity (Secchi Depth) and temperature at all sites. Plankton samples were analyzed later using an optical microscope.

Water Temperature: The water temperature in the deeper parts of the lake was 20.2°C. The temperature last year at this time was about the same at 20.7°C. The water temperature in the shallower parts of the lake was 17.6°C indicating a cooling trend…..Fall is coming!

Water Clarity: Water clarity as expressed as the Secchi Depth ranged from 4.6 to 5.4 metres in different parts of the lake and averaged 5.0 metres. Last year at this time, water clarity was an average of 5.3 metres or about the same.

Water Depth: The depth of the lake as measured at the gauge at the dam was 124 cm as compared to the target depth of 128 cm. This is 4 centimetres lower than called for in the water depth plan for the lake. The hot dry weather we experienced this summer is partly responsible for the low water levels. At this time last year, the lake was 13 cm higher than normal.

Cormorants: We observed 5 cormorants on our 50 km run on White Lake. It is common for us to find all of the cormorants concentrated at one or two places. Today, they were dispersed over 4 locations in the northern part of the lake. Last year on this date there were only 4 cormorants observed. It is important to emphasize that our count represents the lower limit of the population on the lake. However, it is clear that there are relatively few of this native species making White Lake their home.

Zebra Mussels: One of us (David Overholt) spends 6 hours over an optical microscope analyzing plankton samples obtained during each of our sampling sessions. Among the many species of alga and plankton he counts, zebra mussel larvae (veligers) are especially important. The results from these observations allows us to know the timing and number of spawning events which have occurred over the summer.

For example, from samples collected on July 1st of this year, we calculated that there were on that day about 275 billion zebra mussel larvae in the lake. Most of these perish when they develop shells and need to attach to a rock or sunken log. Zebra mussel larvae cannot survive on the surface of the sediments which makes up most of the lake bottom. It is no surprise then that the population of zebra mussels in White Lake is healthy and here to stay.

White Lake Checkup: September 17, 2025

Like so many mornings on White Lake this year, the weather was sunny and the lake was calm. Today we completed our 9th (of 11) water sampling run of the year. We collected water samples for phosphorus measurements as well as calcium, chloride and sulphate. We collected plankton samples at each of our 9 sampling sites as well and measured water clarity (Secchi Depth) and temperature. Plankton samples were analyzed later using an optical microscope.

Water Temperature: The water temperature in the deeper parts of the lake was 20.0°C. The temperature last year at this time was about the same 20.7°C. The water temperature in the shallower parts of the lake was also about the same at 20.4°C

Water Clarity: Water clarity as expressed as the Secchi Depth ranged from 5.0 to 6.2 m in different parts of the lake and averaged 5.4 metres. Last year at this time, water clarity was an average of 5.3 metres, or about the same.

Water Depth: One parameter that is very different this year when compared to last year is the depth of the lake. The depth of the lake as measured at the gauge at the dam was 118 cm as compared to the target depth of 122 cm. This is 4 centimetres lower than called for in the water depth plan for the lake.

Last year at this time the depth of the lake was 141 cm; 23 cm higher. Why? During August and September of 2024, 255 cm of rain fell on the lake. This year, only 96 cm fell during these two months. That's a difference of 62%. Lack of rain, outflow at the dam and evaporation account for the lower water levels this year.

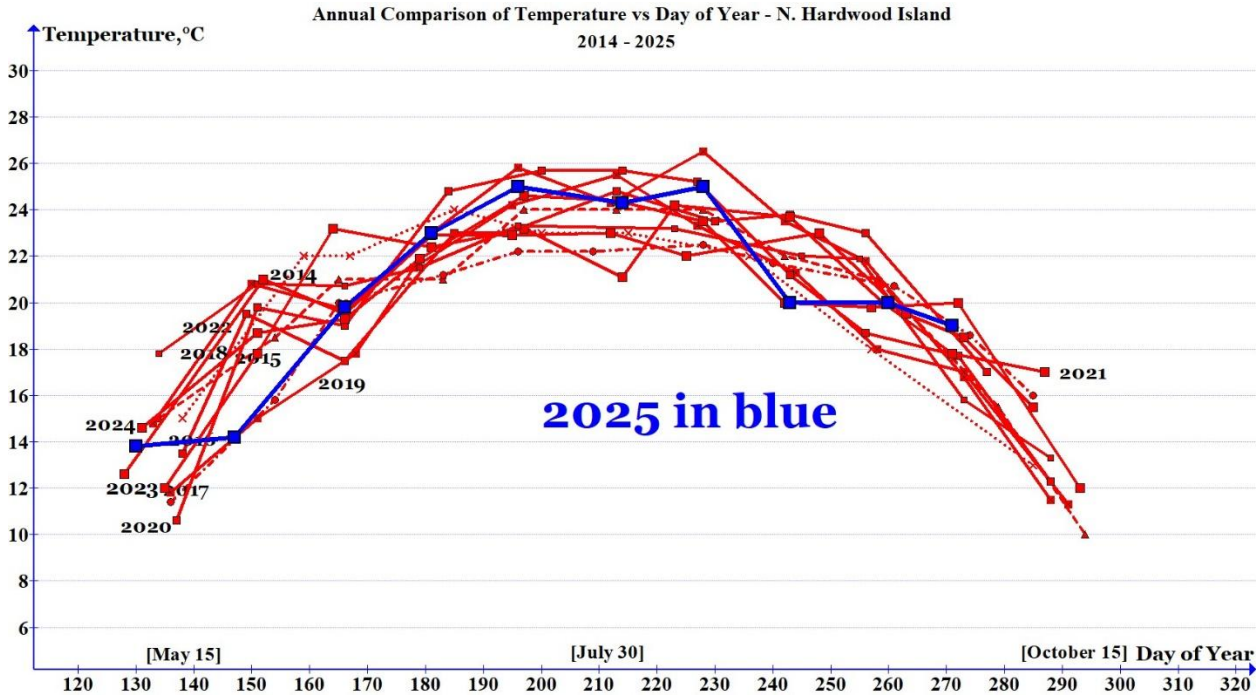
Cormorants: We counted 9 cormorants on our 50 km run on White Lake. This is the migration period for cormorants so we can expect to see more come through from other places on the way down to their wintering areas.

White Lake Checkup: September 28, 2025

For our 10th sampling run of the year, we were favoured with a beautiful sunny morning. The fall colours were spectacular all around the lake. One more sampling expedition to go in mid-October! This time we collected plankton samples and took temperature and water clarity measurements.

Water Temperature: The average water temperature in the deeper parts of the lake was 19.2°C as compared to a temperature of 19.9 °C recorded on the same date in 2024. The temperature taken in the shallow parts of the lake was 18.9 °C, the same temperature recorded in 2024. Water temperatures are highly dependent on local weather. The slightly lower water temperature in the shallow parts of the lake indicates a cooling trend since shallow areas react more quickly to changes in atmospheric temperatures.

For those of you who appreciate graphs, we have one for you. The attached graph shows water temperatures measured at one deep water site over the past 12 years. The bold blue line is data for 2025. For most of the summer, water temperatures were middle-of-the-road as compared to historical data. During the last month, temperatures have been tracking higher than normal. So far this year, we have not experienced a blue-green algal bloom as we have almost every year for the past eleven years. The warmer water temperatures may have an impact on these algal blooms.



White Lake Checkup: October 15, 2025

October 15 marked our last and 11th water sampling outing for 2025. It was cold and windy and it was great to sit down to a bowl of hot soup after spending 2 hours on the lake.

In total, during 2025, we collected 221 water samples to be analyzed by the Ministry of the Environment's Lake Partner Program, collected 44 plankton samples, and took two hundred temperature and water clarity measurements. We also kept track and documented water levels and counted both loon and cormorant populations.

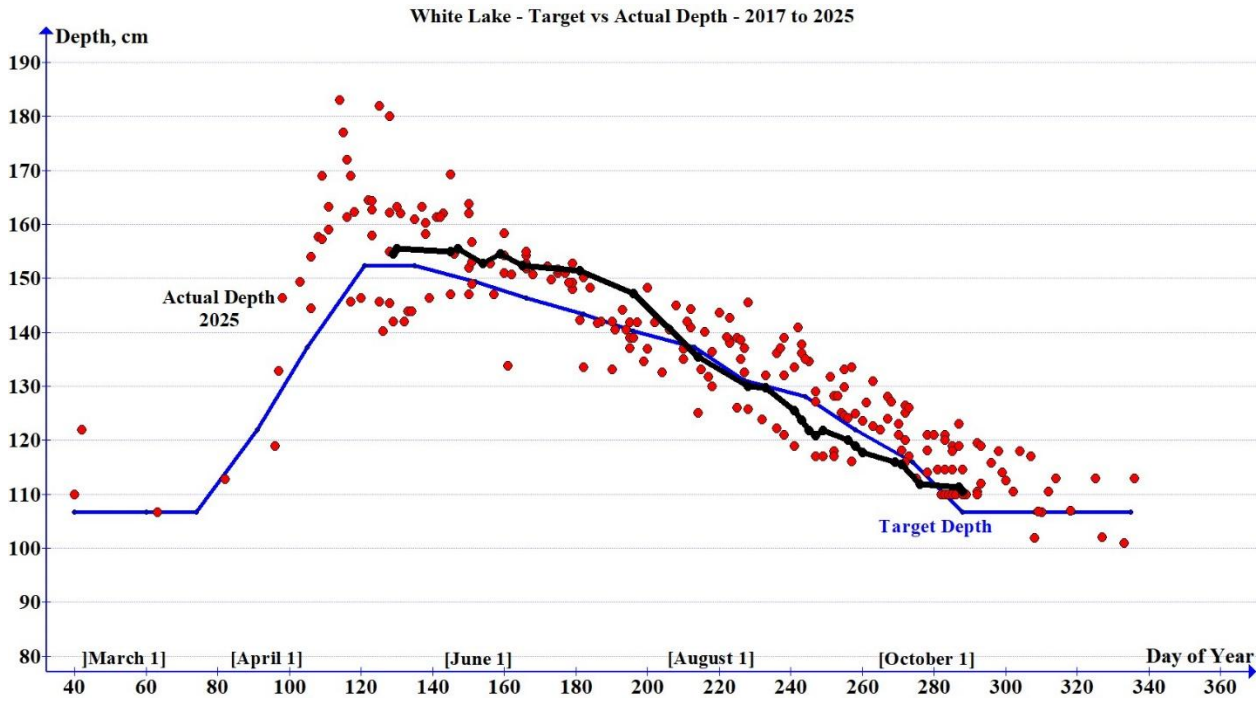
Water Temperature: The average water temperature in the deeper parts of the lake was 15.8°C as compared to a temperature of 12.6 °C recorded on the same date in 2024. The temperature was 15.6°C in 2023. The average temperature of the shallower parts of the lake was 14.0°C indicating a cooling trend. Water temperatures in a shallow lake like White Lake are very weather dependent.

Water Clarity: Water clarity as expressed as the Secchi depth was 7.3 metres, up from 6.3 metres in 2023. Note that a Secchi depth could only be read at two sites in the deepest part of the lake. The rest of the sites were clear to the bottom of the lake.

Water Depth: The depth of the lake as measured at the gauge on the Waba Creek dam was 110.5 cm as compared to the target depth of 107 cm. The lake depth will continue to be lowered until 106.7 cm is reached, where it will stay throughout the winter months. The depths cited in these Checkups are in centimetres and correspond to the water level above the sill of the dam structure at White Lake Village.

Attached is a graph showing water depth measurements taken from 2017 to 2025. The blue line shows the target depths that the Ministry of the Environment, Forestry try to achieve. The black like indicates depths measured in 2025. The red dots are measurements made from 2017 to 2023.

The graph shows that historically for the most part, water levels were higher in the spring and were close to the planned depth during the summer months and in the fall. The 2025 data shows that for this year, water depths were within 10 cm of the planned depth. Water depths were either higher than planned in the early part of the summer and close to the mark during the remainder of the summer.



Cormorants: Four cormorants were spotted on the lake. These cormorants are likely transients on the way to warmer climes. Genuine snowbirds!

Blue-Green Algal Bloom: On October 14, a blue-green algal bloom was observed on White Lake. The extent of the bloom covered Three Mile Bay to the main water body and

north to the edge of Pickerel Bay. The bloom was confined to the water column and only showed surface accumulation for about one kilometre along the western shore of White Lake.

We do not know how long the bloom was active, but with increased winds on the lake, the bloom was dissipated by the afternoon of October 15th.

Addendum: The blue-green algal bloom described above returned on October 16 once winds were calmed. We also know that on October 2nd, a significant blue-green algal bloom occurred in most of Pickerel Bay and into the main body of the lake north of the bay.

Algal blooms occur where and when conditions are right and so it is clear that these blooms can be observed at different parts of the lake at different times.