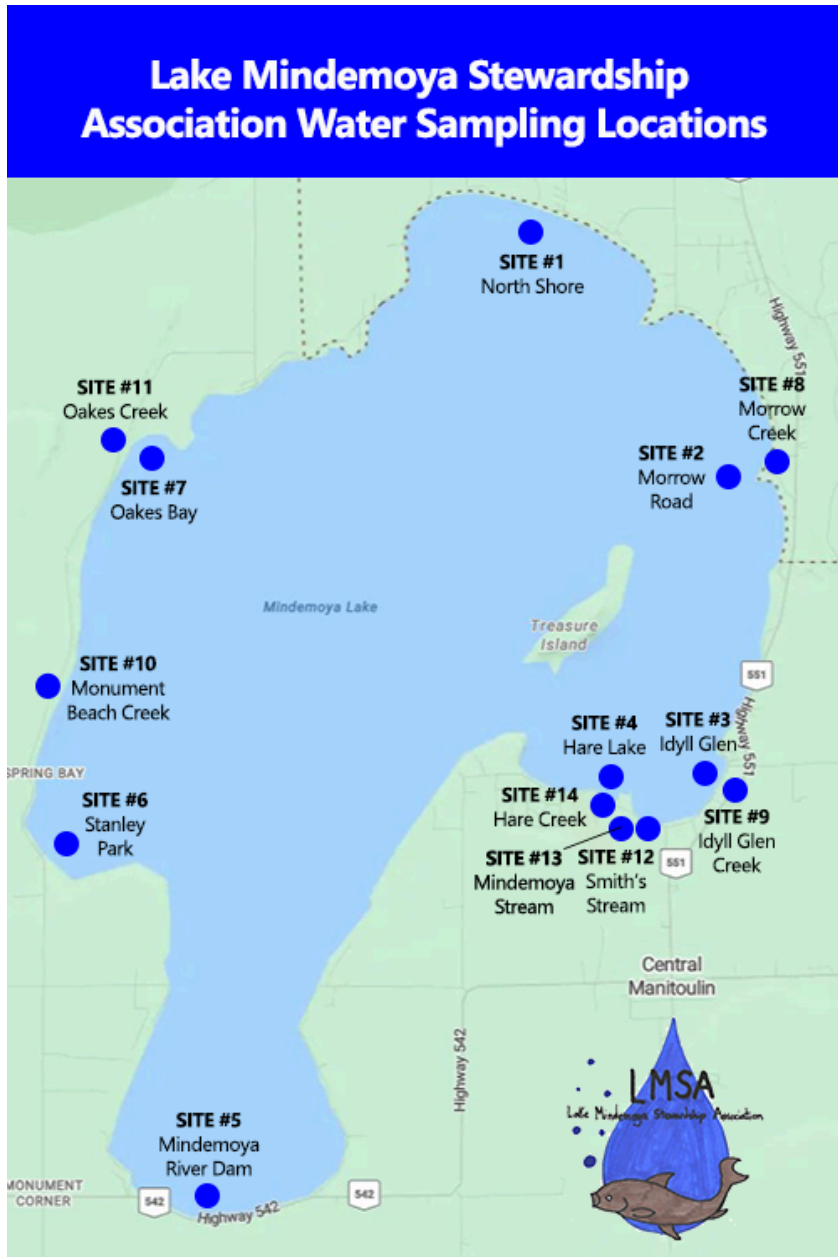


2023 Lake Mindemoya Water Testing Full Summary Report



Lake Mindemoya Water Testing by the LMSA (Lake Mindemoya Stewardship Association) consisted of water sampling conducted at fourteen specific locations in all areas of the lake.

All water sampling bottles and instructions were provided by Wahl Water in Mindemoya.

Using GPS technology, LMSA volunteers Stan Drystek, Bill Blackwood and Jeff MacKenzie used their boats and /or snowmobiles to collect the necessary samples.

Water samples were then sent off to Testmark Laboratories in Garson via Wahl Water transport directly for analysis. All sample sites, sample collection and processes followed the same protocols for proper collection of water samples as provided by the Laboratory.

Water samples were collected and tested 5 times (May 31st, June 27th, July 18th, August 30th and October 4th). See the specific test results for each location and at each testing date in the "Water Sampling Results Summarized" which is attached. Also attached is a brief summary of the 6 variables that were tested and overall resulting trends over the testing year.

Summary of Observed Trends over the 2023 Lake Mindemoya Testing Period:

Nitrate/Nitrite :

Can be present in water from natural processes, like plant decay. Also present in many fertilizers used on yards, golf courses and crops. Other sources include discharge from sewage systems and animal wastes. High levels in water can be from runoff in the spring or after periods of heavy rainfall and the absence of a “soft shoreline” (a shoreline where there is an absence of natural vegetation to intercept and absorb the runoff water before it flows directly into a water body).

Our test results for Nitrate and Nitrite levels in Lake Mindemoya were consistently low (<0.05) over the 5 testing periods except for the slightly higher Nitrate and Nitrite results at Site's 12, 13 & 14.. This is good news for Lake Mindemoya and a very important “benchmark” to keep track of for the future.

Phosphorus:

Phosphorus is an important nutrient for plant growth. In lakes and streams, phosphorus can be dissolved in the water, attached to particles floating in the water and found in the bodies of all living organisms. Things like sewage, agricultural runoff and fertilizers can contribute to higher levels of phosphorus in water bodies.

Our test results for Phosphorus in Lake Mindemoya were mostly low (between 0.002 and 0.003) over the testing periods except for five locations which registered values in exceedance of the guideline of <0.01 mg/L. This is a change from the 2022 testing values reported. It is an indication that phosphorus is entering the lake through the streams tested or other springs which feed directly into lake Mindemoya.

Total Dissolved Solids (TDS):

There are four categories of TDS: minerals, salts, dissolved metals and organic matter. Materials may leach into water from sewage, water treatment chemicals, agricultural runoff or industrial wastewater. Natural sources, like soils and rocks may also contain TDS. Runoff or the flow of rainwater directly into a waterbody can carry TDS, and even the pipes and plumbing materials used to carry water to a home from a lake may be a TDS source.

TDS readings are reported in parts per million (ppm) values. The Canadian Drinking Water Quality Guidelines (CDWQG) acceptable values range from about 200 to 300 ppm levels with an acceptable recommended maximum value of 500 ppm. Once TDS values reach or exceed 1,000 ppm the water is not recommended for human consumption. As indicated below, our testing results indicate a wide range of TDS levels at different times and locations on the lake, with some getting very close to exceeding “acceptable values” according to the CDWQG.

Our test results for (TDS) in Lake Mindemoya had a Wide Range of Results*

(* at various sites and testing dates. See the test results in the Water Sampling Results Summarized chart).

Site 1 had a low reading of 110 in May and a high of 200 in June. The values remained fairly consistent with the testing over the five samples taken.

Site 2 had a low reading of 140 in August and a high of 240 in June & October. The values remained fairly consistent with the testing over the five samples taken.

Site 3 had a low reading of 130 in May and a high of 230 in June. The values remained fairly consistent with the testing over the five samples taken.

Site 4 had a low reading of 160 in August and a high of 220 in June. The values remained fairly consistent with the testing over the five samples taken.

Site 5 had a low reading of less than 90 in May and a high of 190 in June. The values remained very consistent with the testing over the five samples taken.

Site 6 had a low reading of 190 in May and a high of 260 in October. The values remained very consistent with the testing over the five samples taken.

Site 7 had a low reading of 100 in May and a high of 220 in June. The values remained very consistent with the testing over the five samples taken.

Site 8 had just one reading of 230 in May which was the only sample taken.

Site 9 had just one reading of 210 in May which was the only sample taken.

Site 10 had just one reading of 220 in May which was the only sample taken.

Site 11 had a low reading of 100 in May and a high of 240 in June. The values remained fairly consistent with the testing over the three samples taken.

Site 12 had a low reading of 130 in July and a high of 310 in June. The values changed significantly over the testing for the two samples taken.

Site 13 had a low reading of 300 in July and a high of 340 in June. The values remained very consistent with the testing over the five samples taken. These were the highest levels tested for TDS of all sites.

Site 14 had a low reading of 180 in June and a high of 250 in July. The values remained fairly consistent with the testing over the two samples taken.

Test Results over this One Year Period Seem to Indicate the Following:

There is a wide range of TDS readings at different sites and at different times of the testing period. The values had more consistency as compared to the 2022 results. They did fluctuate significantly with a high of 340 ppm recorded at Site #13 and the lowest value of 90 ppm recorded at Site #5.

The overall results would suggest that TDS elements do not come from the lake, but come into the lake from the surrounding environment. The highest values were recorded in June (a high runoff month) at Sites 1, 2, 3, 4, 5, 7, 11 and 13. The stream testing had higher TDS levels than the lake sites.

The general lower readings this summer due to very dry summer conditions and run off unlike 2022 once again suggest that total dissolved solids inflow into Lake Mindemoya is related to surface runoff during the Spring and high rain events and some parts of the Lake are more vulnerable to these occurrences than others. Once again, perhaps the importance of a “soft shoreline” around the lake.

pH:

pH is a measure of how acidic/basic water is. The range goes from 0 to 14, with 7 being neutral. pH readings of less than 7 indicate acidity, whereas a pH of greater than 7 indicates a base (non- acidic water condition).

Our test results for Lake Mindemoya were consistently between 7.54 and 8.33 at all test sites over the 5 rounds of testing. These results reflect the fact that Lake Mindemoya has a limestone (which is basic) geology and there is no acidic leaching into the lake. Once again good news.

Note for Bacterial Testing:

NDOGT (No Data: Overgrown with Target)

This is a classification where water with a NDOGT test result is unsafe to drink. When there is a NDOGT result, the test has a large number of bacteria present and Total Coliforms and/or E.coli are visible to the analyst, but it is difficult to determine exactly how much.

Coliform Bacteria:

Coliform bacteria are organisms that are present in the environment and in the feces of all warm-blooded animals and humans. Coliform bacteria will not likely cause illness. However, their presence in drinking water indicates that disease-causing organisms (pathogens) could be in the water system.

Our test results for Lake Mindemoya Coliform results have come up with results over our 14 testing periods that suggest some concerns. All 7 lake test site results are higher than the acceptable parameter levels of the Canadian Drinking Water Quality levels. Furthermore, lake testing sites recorded a NDOGT result in June for Site #2 & #7, May for Site #4, August for Site #6 & #7 as well as October for Site #7.

All Seven stream/creek locations tested for NDOGT for all samples taken in this round of testing. This is significant as it means Coliform and e.Coli bacteria are entering the lake via the streams and creeks tested.

Escherichia coli (E. Coli):

Bacteria found in the environment, foods, and intestines of people and animals. E. coli are a large and diverse group of bacteria. Although most strains of E. coli are harmless, others can make you sick or be fatal. Some kinds of E. coli can cause diarrhea, with others causing urinary tract infections, respiratory illness, pneumonia and other illnesses.

Our test results for Lake Mindemoya E.Coli have come up with results over our 14 testing periods that suggest some concerns. 5 of the 7 Lake Sites and all 7 stream/creek test site results are higher than the acceptable parameter levels of the Canadian Drinking Water Quality levels.

The CDWQG parameter for E. coli is 0 per 100 CFU's.

None of the 14 tested locations met the 0 / 0 guideline specified in the Canadian Drinking Water Quality Guidelines. All of the stream/creek locations had an overgrown bacterial status for the entire May to October testing season.