# Manitouwabing Lake
# State of the Basin Review
# 2018

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Prepared for: Manitouwabing Lake Community Association

By: Clark, October 2018

# Contents

# Manitouwabing Lake – State of the Basin Review

## Overview

Manitouwabing Lake is a large important resource in McKellar Township north west of Parry Sound (Lat, 45.452 Long, 79.904). General Lake characteristics are shown in Table 1.

**Table 1 – General characteristics of Manitouwabing Lake. Data from OMNR and MOECP.**

| | |
|---|---|
| Area | 1178 ha |
| Volume | $6597 \times 10^4$ $m^3$ |
| Max Depth | 33 m |
| Mean depth | 5.6 m |
| Watershed Area | 400 $km^2$ |
| Clarity (Secchi depth) | 2.4 m |
| Runoff | 0.464 m |
| Trophic status | mesotrophic |

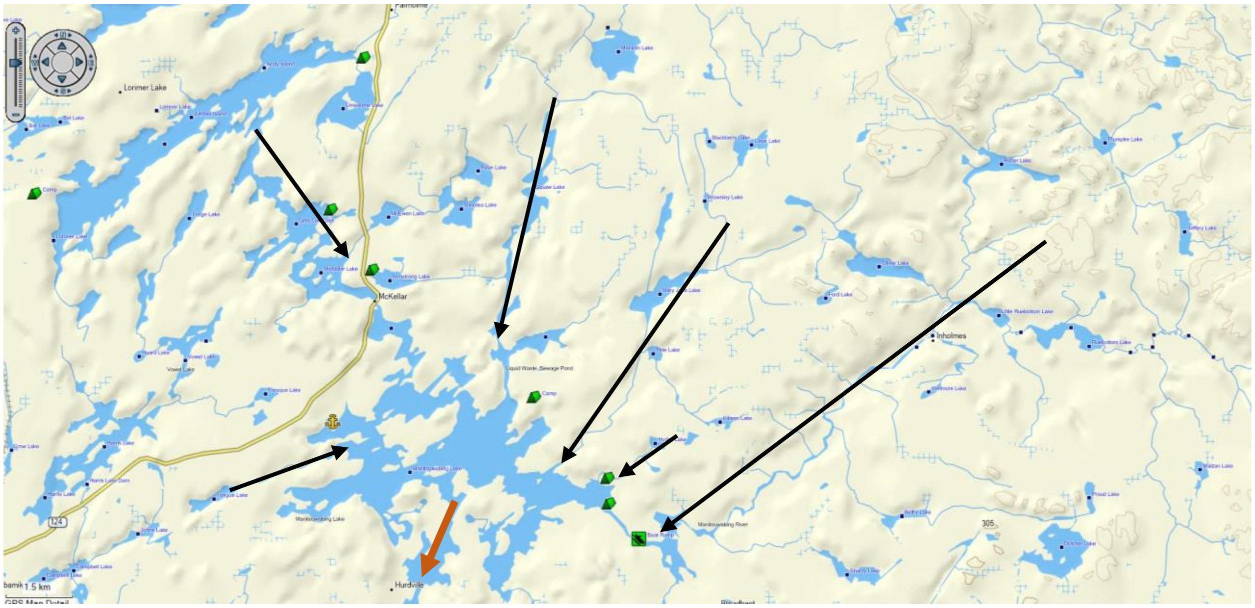
Despite its importance, Manitouwabing Lake and other lakes in the area have not been studied in detail or well characterized with respect to many aspects of water quality. Nevertheless, the data that have been collected to this date allow us to conduct a preliminary assessment of the lake and its watershed and then go forward to make recommendations regarding future steps.

## Watershed Influence

Manitouwabing Lake collects water from a large watershed through numerous inflows including the Manitouwabing River (Figure 1). These inflows mix within the lake and exit through the outflow at the south end of the lake. This outflow winds its way to Parry Sound through the Seguin River and ultimately into Georgian Bay.

A large watershed will increase the flushing rate for a lake and give the lake water quality characteristics that are driven by watershed processes more so than by local influences. Using the data in Table 1 we can calculate that the water in the lake is replaced 2.8 times per year or approximately every 4 months. This replacement rate will be, of course, higher during the spring and lower during drier months. Water quality measured in the lake near major inflows will have characteristics similar to those of the inflow and if the watershed characteristics are similar between inflows then this will lead to similar water quality throughout the lake. This is an important consideration because measured water quality is similar for several key parameters throughout Manitouwabing Lake which would indicate similar watershed characteristics for the major inflows to the lake.

**Figure 1 – The Manitouwabing watershed showing several major inflows (black arrows) and the outflow to Georgian Bay (brown arrow).**




# Water Quality

## Total Phosphorus

The most revealing characteristic of Manitouwabing Lake (total phosphorus) has been measured by volunteers through the Ministry of the Environment's Lake Partner Program (LPP). Phosphorus is the element that controls the production of algae and, in fact, most of the other organisms that reside in the lake. Lower phosphorus concentrations indicate lower productivity and are generally typical of dilute, gin clear, lake trout lakes. Higher concentrations are found in more productive lakes with more fish, more weeds and more algae. When concentrations of phosphorus are high enough to exacerbate nuisance algal blooms there can be concerns about water quality as a result of toxins that can be produced by bluegreen algae (cyanobacteria). Blooms of this nature are generally rare in Ontario.

Volunteers participating in the LPP have collected total phosphorus data at numerous locations throughout Manitouwabing Lake (Figure 2). The concentrations observed are very similar from place to place in the lake (Table 1 and Figure 3). This indicates that the watershed has a strong influence on the concentration of phosphorus in the lake (through a high flushing rate) which likely obscures any local influences that may occur within the lakes many embayments.

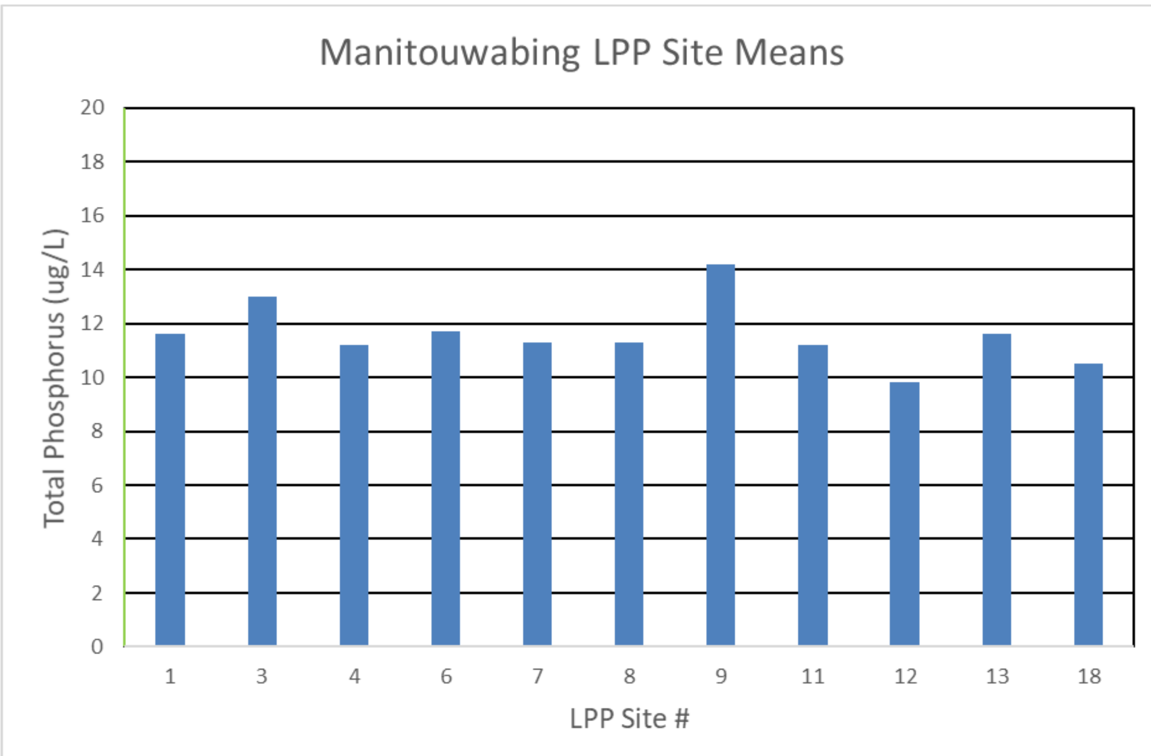
**Figure 2 – Lake Partner Program sample sites in Manitouwabing Lake.**


**Table 1 – Mean total phosphorus concentrations at Lake Partner Program sample sites throughout Manitouwabing Lake.**

| Site | Lat. | Long. | Mean TP | Status |
|---|---|---|---|---|
| 1 | 452845 | 795344 | 11.6 | |
| 3 | 452748 | 795302 | 13 | |
| 4 | 453020 | 795512 | 11.2 | |
| 6 | 452837 | 795413 | 11.7 | current |
| 7 | 452901 | 795538 | 11.3 | |
| 8 | 452810 | 795500 | 11.3 | current |
| 9 | 452822 | 795244 | 13.8 | current |
| 11 | 452917 | 795443 | 11.2 | |
| 12 | 452856 | 795253 | 9.8 | |
| 13 | 452713 | 795326 | 11.6 | current |
| 18 | 453008 | 795455 | 12.6 | current |
| 19 | 453019 | 795512 | 11.2 | current |
| 20 | 452901 | 795538 | 7.7 | current |
| 21 | 452932 | 795504 | 12.7 | current |
| 22 | 452959 | 795249 | 11.2 | current |
| | | **Mean** | **11.5** | |

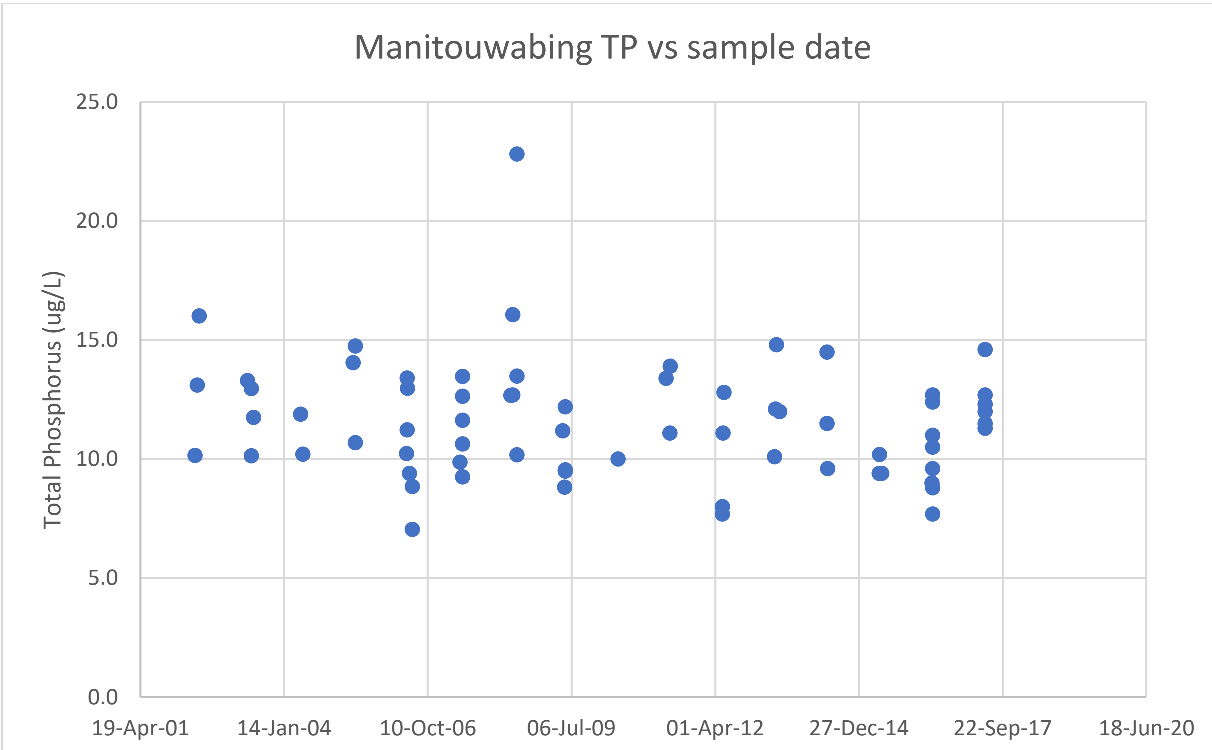
The lakewide mean total phosphorus concentration is 11.5 µg/L. This indicates that Manitouwabing Lake is at the lower end of the mesotrophic range. Lakes that are below 10 µg/L are considered to be oligotrophic (clear dilute and unproductive). Mesotrophic lakes (10-20 µg/L) are in the middle of this trophic classification and these lakes show considerable variation in productivity between the low end of the scale at 10 µg/L and the high end of the scale at 20 ug/L. Lakes over 20 µg/L are considered to be eutrophic with more chance of supporting nuisance algal blooms. Lakes at the lower end of the mesotrophic scale like Manitouwabing will share characteristics more like oligotrophic lakes while lakes at the high end of the scale (closer to 20) will begin to share characteristics of eutrophic lakes.

**Figure 3 – Mean total phosphorus concentrations in Manitouwabing Lake at the LPP sample sites**




The bottom line with respect to phosphorus is that concentrations are similar throughout the lake and consistent between years (Figure 4). Figure 4 shows that phosphorus concentrations have not increased since 2001 and are similar between sample stations (see Appendix). It is important to note that the range in observed values (approx 10-15 µg/L) is normal for multiple stations over time. These values indicate a lake that is highly influenced by its watershed with no sign of deterioration over the years in water quality with respect to phosphorus.

**Figure 4 – Total phosphorus measured by the Lake Partner Program at the locations and dates shown in Appendix 1. Two points considered to be outliers were eliminated. The one datapoint above 20 µg/L is also likely an outlier but duplicate samples were in agreement so the data were retained.**




It is important to recognise that human phosphorus inputs to the lake are possible through the operation of failing or inadequate septic systems. It is also possible to add nutrients through the unwise use of shoreline areas that border the lake (riparian areas). Harmful land use practices include the removal of natural shoreline vegetation, proliferation of lawns, use of fertilizers, etc. Education of property owners with respect to these issues can protect the ecosystem integrity of the lake.

Guidance for sustainably living by water is available from many sources.

http://naturecanada.ca/living-by-water/

## Dissolved Organic Carbon

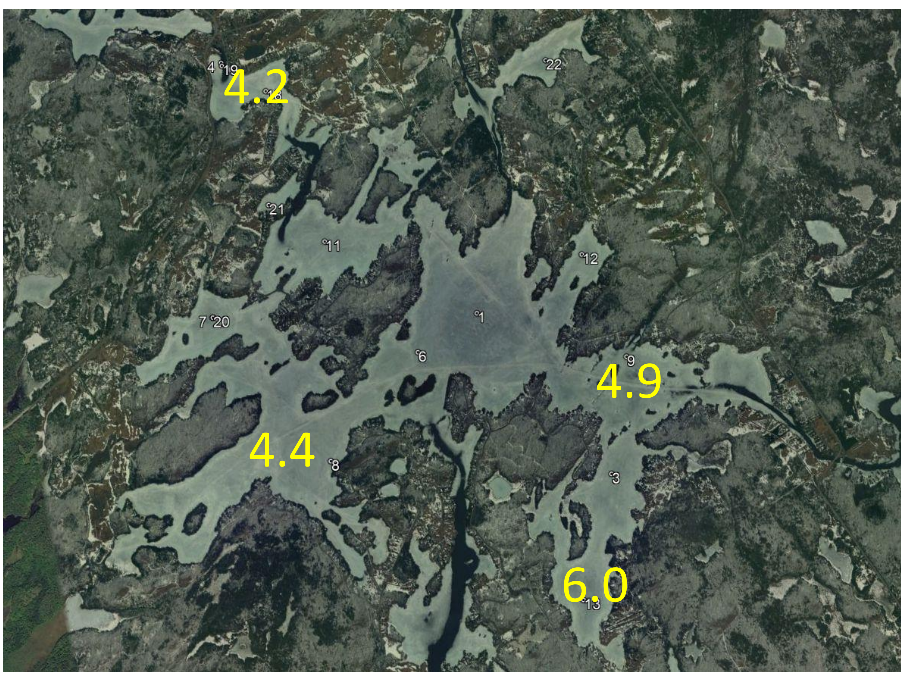
While Manitouwabing Lake is considered to be a mesotrophic lake we can see that much of this phosphorus has its origins in the watershed and is transported to the lake as Dissolved Organic Carbon (DOC) which originates in wetlands. This is the material that causes tea stained water in lakes. In other words it's mesotrophic status is not likely the result of human activity in the watershed but rather the result of export of DOC from wetlands.  Concentrations throughout the lake are relatively similar (4.2-6.0 mg/L) with slightly more tea stained water in the south east areas of the lake. This relatively narrow range in DOC values throughout the lake indicates similar wetland conditions throughout the different subwatersheds.

DOC concentrations measured by the LPP are shown in Table 2. Sample Locations are shown in Figure 5.

**Table 2 – Dissolved organic carbon concentrations measured by the LPP.**

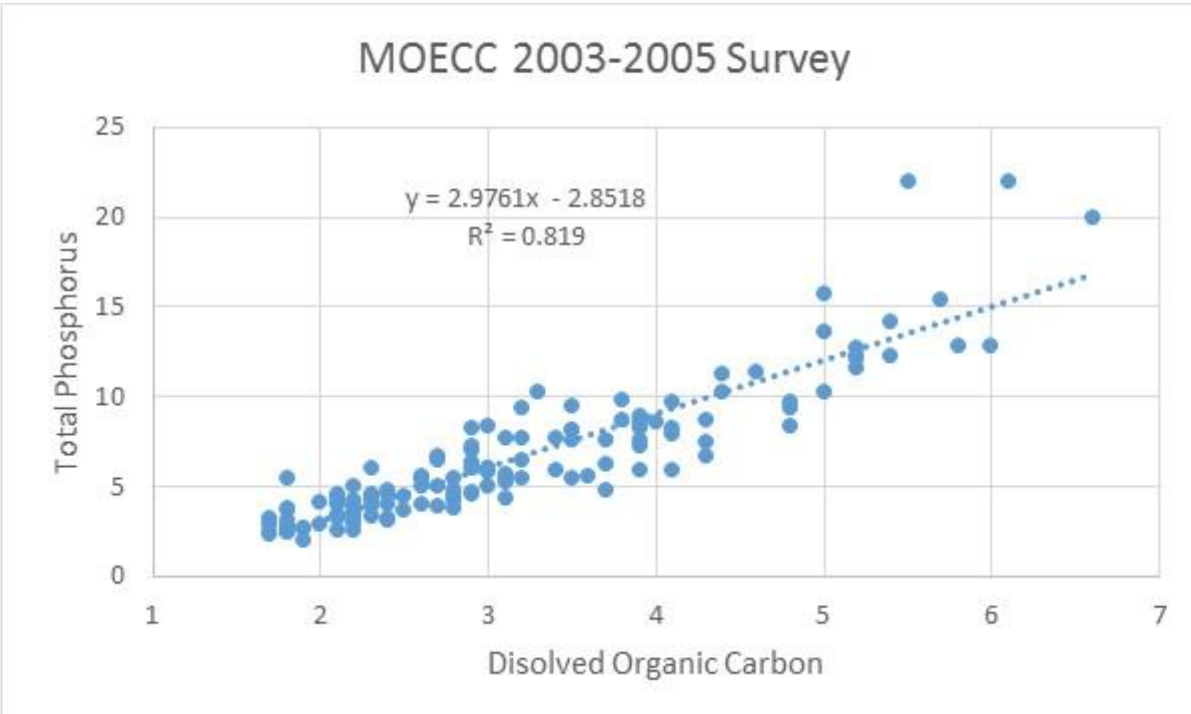
| LDESC | LP_STN | SITE | DATE | DOC (mg/L) |
|---|---|---|---|---|
| MANITOUWABING LAKE-18 | 2973 | 18 | 5/18/2018 | 4.2 |
| MANITOUWABING LAKE-19 | 2973 | 19 | 5/24/2018 | 4.1 |
| MANITOUWABING-9 | 2973 | 9 | 5/24/2018 | 4.9 |
| MANITOUWABING-13 | 2973 | 13 | 5/24/2018 | 6.0 |
| MANITOUWABING LAKE-8 | 2973 | 8 | 5/20/2018 | 4.4 |

**Figure 5. DOC concentrations (mg/L) throughout Manitouwabing Lake shown in yellow.**



In Figure 6 we can see the relationship between DOC and TP measured by The Ministry of the Environment Conservation and Parks (MOECP) at numerous locations in the nearshore areas of Georgian Bay. The close relationship shows that most of the phosphorus in these areas is associated with DOC. In other words, the phosphorus has its origins in wetlands throughout the watershed.

**Figure 6 – The relationship between DOC and phosphorus in nearshore areas of Georgian Bay.**




If we consider that Manitouwabing Lake's mean DOC concentration is 4.7 mg/L this corresponds to 11.1 µg/L total phosphorus on the graph in Figure 6. This indicates that most of the 11.5 µg/L TP in Manitouwabing Lake has is origins as DOC in watershed's wetland complexes.

## Algal Blooms

Algal blooms can occur for several reasons. Most often they are caused by elevated phosphorus concentrations. Blooms are rare below 10µg/L and become more likely as concentrations approach 20 µg/L. The Provincial Water Quality Objectives recommend maintaining concentrations below 20 µg/L to avoid nuisance algal blooms. Blooms can also be exacerbated by aspects of climate change such that they may now occur in areas where they have previously been absent. Finally, a species of algae called *Gloeotrichia* can bloom in low phosphorus lakes because it derives its nutrients from the sediments rather than from the water.

Manitouwabing Lake is not expected to support algal blooms. It is important to note that if you see a cloudy ball of filamentous algae near the bottom of the lake in a nearshore area – this is not an algal bloom. In addition, sometimes when algae die in the main lake they can be blown by the wind and concentrated into nearshore areas and these occurrences are usually not indicative of algal blooms. Algal blooms are usually indicated by large quantities of bright green cells in the water that cover extensive areas (see photo below).

If you think that an algal bloom is occurring the correct response is to call the MOECP Spills Action Centre.

**Spill Reporting 1-800-268-6060**

They will then investigate the bloom and call the Ministry of Health if a bloom is confirmed. They will also sample the bloom to confirm the species and will test for the presence of toxins. There is no reason to test for toxins without first following the steps indicated above.

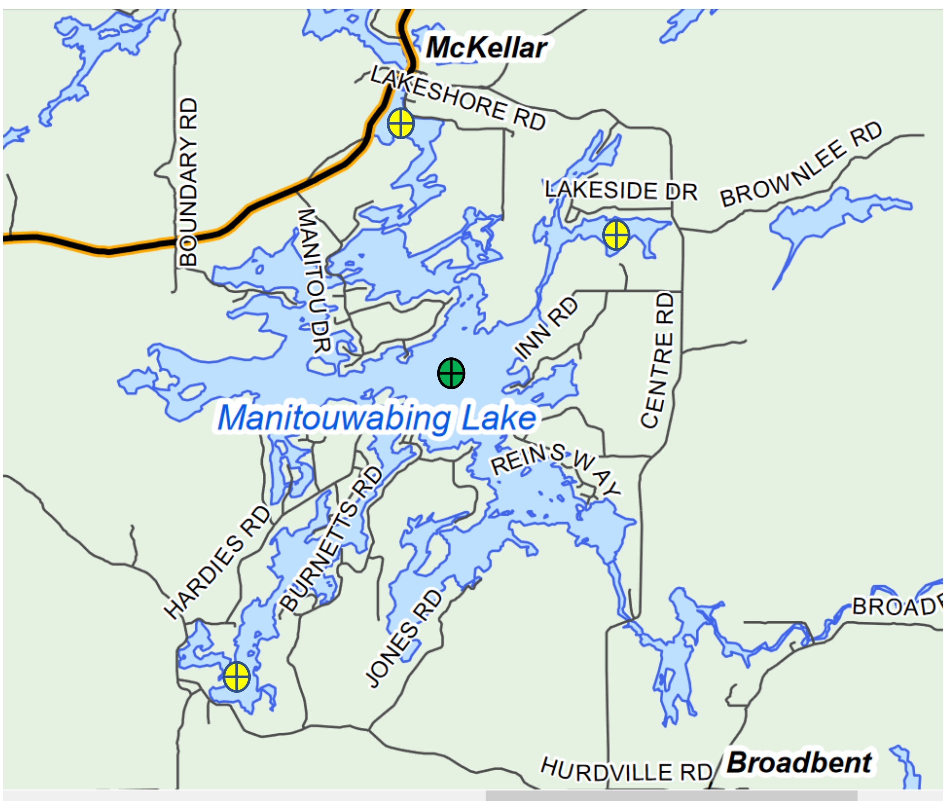
*A severe blue green algal bloom.*

## Dissolved Oxygen

In areas where the bottom waters have their oxygen concentrations reduced to below 1mg/L (this is called anoxia) in late summer there can be phosphorus released from the sediments into the bottom waters. In some cases, this phosphorus can be available to support algal blooms in the mixed, warmer surface water. For this reason, there is merit to measuring dissolved oxygen profiles in the lake for those areas that are deep enough to stratify (the process where warm surface water cannot mix with cold bottom water). In most cases the water needs to be about 7-8 m deep or deeper before this can occur. Shallower areas mix completely to the bottom. In stratified areas, the cold bottom water cannot have its oxygen replenished from the surface such that when oxygen is consumed by bacteria the loss of oxygen cannot be reversed until the lake turns over again in the fall. Under these circumstances there may be phosphorus that enters the cold bottom water from the sediments. If this phosphorus ends up being entrained into the warmer surface water in sufficient quantities, it can help to support algal blooms under the right conditions.

Areas in Manitouwabing where this may occur are shown in yellow on the map below and these areas could be assessed with oxygen/temperature profiles on or 14 days either side of Sept 01. Any additional areas that may stratify could be confirmed in the initial years of monitoring.

*Map showing the deepest location (green) and isolated bays that are likely to stratify in yellow (from MLCA).*



## Bacteria

Volunteers have been collecting bacteria data in many areas throughout Manitouwabing Lake for several years. The data available on the MLCA website has been summarized in Table 3.

Bacteria data are difficult to interpret.  There are conclusions that can be drawn by examination of the data in Table 3, but there are also many aspects of bacteria in lake water that cannot be deduced from these data.  Generally, these data show that about 5% of the samples are over 100 counts which is the guideline for recreational use.  This indicates that the water is swimmable in most areas 95 % of the time.  These results are normal for areas where there are no sewage treatment plants or large stormwater discharges.

What these data cannot tell us is:

1. how long the counts were over 100 in a given area,

2. the area or extent to which the >100 count result applies, and most importantly,

3. the source of the bacteria (human or otherwise).

**Table 3. Number of samples taken at each site with the number of samples over 100 counts.**

| | | | | | | | Site | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sector | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Sum | %>100 |
| McKellar/grey Owl | # samples | 11 | 8 | 15 | 11 | 9 | 11 | 8 | 8 | 11 | 10 | 1 | 1 | 104 | |
| | # 100 or > | 1 | 0 | 2 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 7 | 7 |
| McKellar | # samples | 36 | 43 | 30 | 42 | 30 | 4 | 2 | 3 | | 12 | 1 | 1 | 204 | |
| | # 100 or > | 2 | 1 | 0 | 4 | 0 | 4 | 0 | 0 | | 3 | 0 | 0 | 14 | 7 |
| Middle River | # samples | 20 | 35 | 31 | 32 | 33 | 20 | 7 | 4 | 4 | 4 | 0 | 0 | 190 | |
| | # 100 or > | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | | | 4 | 2 |
| Maplewood | # samples | 40 | 28 | 28 | 26 | 23 | 30 | 25 | 31 | 4 | 1 | 0 | 4 | 240 | |
| | # 100 or > | 5 | 1 | 1 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | | 1 | 11 | 5 |
| Tait's Is | # samples | 26 | 30 | 20 | 8 | 3 | 0 | 1 | 21 | 26 | 22 | 25 | 28 | 210 | |
| | # 100 or > | 2 | 2 | 0 | 1 | 0 | | 0 | 0 | 1 | 0 | 0 | 1 | 7 | 3 |
| Manitou Camp | # samples | 29 | 19 | 23 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 72 | |
| | # 100 or > | 3 | 0 | 0 | | | | | 0 | | | | | 3 | 4 |
| Lona | # samples | 28 | 31 | 22 | 26 | 24 | 30 | 42 | 1 | 3 | 0 | 1 | 2 | 210 | |
| | # 100 or > | 1 | 0 | 1 | 0 | 2 | 1 | 9 | 0 | 0 | | 0 | 0 | 14 | 7 |
| Smith Pine | # samples | 22 | 45 | 23 | 27 | 22 | 35 | 28 | 37 | 11 | 12 | 1 | 4 | 267 | |
| | # 100 or > | 1 | 5 | 0 | 0 | 0 | 4 | 0 | 3 | 1 | 2 | 0 | 0 | 16 | 6 |
| Bailey | # samples | 33 | 37 | 47 | 31 | 5 | 3 | 5 | 1 | 4 | 2 | 0 | 0 | 168 | |
| | # 100 or > | 0 | 2 | 4 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | | | 8 | 5 |
| | | | | | | | | | | | | | | | |
| | Average 5% are 100 or greater | | | | | | | | | | | | | | |

## Invasive Species

The presence of invasive species is not technically a water quality issue but certain invasive species can cause changes in water quality. Mussels, for example, can cause water clarity to increase. In almost every case the invading species will cause changes to the ecosystem's integrity. It is therefore important to avoid the spread of invasive species where possible.

A complete review of the invasive species present or the potential for invasion by numerous species is not possible within the scope of this review. There are, however, many useful resources that can be used to identify invasive species and cautions that can be applied to limit unwanted invasions.

It is important to remember that some invasions of terrestrial vegetation can also have impacts on aquatic ecosystems.

Further Information:

**https://foca.on.ca/aquatic-invasive-species-program/**

**http://www.invadingspecies.com/**

**https://www.ontarioinvasiveplants.ca/invasive-plants/species/**

**https://www.ontario.ca/page/stop-spread-invasive-species?_escaped_fragment_=/**

# Recommendations

**1. Several central locations (LPP Site #11, 1 and 3) and possibly one new location near the outflow be monitored by LPP volunteers with an effort to maintain a long-term monitoring record. Some of these sites may or may not be currently sampled (see Table 1). Long-term monitoring records are important to assess the effect of external drivers on the nutrient status of the lake.**

**2. The efforts used to collect bacteria data could be directed at other issues such as:**

- **education towards aspects of nearshore (shoreline) management**.
- **useful inventories such as areas where aquatic plants grow to assess whether the extent of plant beds are changing.**
- **long-term records of water levels and/or temperature.**

**3. Late summer monitoring of dissolved oxygen in the deepest location and in isolated bays where the depths are greater than 7-8m may provide additional information to address the potential for algal blooms. After areas are identified as having the oxygen depleted at the bottom (with measured oxygen profiles) in year 1, there can be samples taken 1 meter from the bottom in subsequent years to assess whether or not there are elevated phosphorus concentrations in the bottom water.**

**4. All efforts should be made to ensure that invasive species do not enter the watershed. There are may organizations that provide guidance on invading species, e.g. The Federation of Ontario Cottagers' Associations. https://foca.on.ca/aquatic-invasive-species-program/**

*Killian*

# Appendix

| Site | Description | Lat | Long | Date | TP1 | TP2 | Mean | | Site Mean |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | (ug/L) | | | |
| 1 | Great Bay | 452845 | 795344 | 20-May-02 | 12.7 | 13.5 | 13.1 | | 11.6 |
| 1 | Great Bay | 452845 | 795344 | 31-May-03 | 10.2 | 10.1 | 10.1 | | |
| 3 | Longhorn & James Bay | 452748 | 795302 | 20-May-02 | 24.3 | 36.6 | | | 13 |
| 3 | Longhorn & James Bay | 452748 | 795302 | 31-May-03 | 12.4 | 13.5 | 13.0 | | |
| 4 | McKellar, near dock | 453020 | 795512 | 20-May-02 | 51.1 | 44.8 | | | 11.2 |
| 4 | McKellar, near dock | 453020 | 795512 | 20-May-06 | 14.0 | 12.9 | 13.4 | | |
| 4 | McKellar, near dock | 453020 | 795512 | 08-Jun-07 | 11.5 | 11.7 | 11.6 | | |
| 4 | McKellar, near dock | 453020 | 795512 | 22-Jun-08 | 10.1 | 10.3 | 10.2 | | |
| 4 | McKellar, near dock | 453020 | 795512 | 24-May-09 | 9.5 | 9.6 | 9.6 | | |
| 6 | L Taits Is-Great Bay | 452837 | 795413 | 02-Jun-02 | 18.7 | 13.3 | 16.0 | | 11.7 |
| 6 | L Taits Is-Great Bay | 452837 | 795413 | 15-Jun-03 | 11.4 | 12.1 | 11.8 | | |
| 6 | L Taits Is-Great Bay | 452837 | 795413 | 23-May-04 | 9.2 | 11.2 | 10.2 | | |
| 6 | L Taits Is-Great Bay | 452837 | 795413 | 23-May-05 | 10.5 | 10.9 | 10.7 | | |
| 6 | L Taits Is-Great Bay | 452837 | 795413 | 24-Jun-06 | 7.1 | 7.0 | 7.1 | | |
| 6 | L Taits Is-Great Bay | 452837 | 795413 | 22-Jun-08 | 24.2 | 21.5 | 22.8 | | |
| 6 | L Taits Is-Great Bay | 452837 | 795413 | 18-May-09 | 9.4 | 8.3 | 8.8 | | |
| 6 | L Taits Is-Great Bay | 452837 | 795413 | 22-May-11 | 11.0 | 11.2 | 11.1 | | |
| 6 | L Taits Is-Great Bay | 452837 | 795413 | 20-May-12 | 7.8 | 8.2 | 8.0 | | |
| 6 | L Taits Is-Great Bay | 452837 | 795413 | 19-May-13 | 10.0 | 10.2 | 10.1 | | |
| 6 | L Taits Is-Great Bay | 452837 | 795413 | 19-May-14 | 13.8 | 15.2 | 14.5 | | |
| 6 | L Taits Is-Great Bay | 452837 | 795413 | 17-May-15 | 9.4 | 9.4 | 9.4 | | |
| 7 | N / W Tait's Island | 452901 | 795538 | 20-May-06 | 10.2 | 12.3 | 11.2 | | 11.3 |
| 7 | N / W Tait's Island | 452901 | 795538 | 08-Jun-07 | 9.2 | 9.3 | 9.3 | | |
| 7 | N / W Tait's Island | 452901 | 795538 | 22-Jun-08 | 12.6 | 14.3 | 13.5 | | |
| 8 | West of Maplewood | 452810 | 795500 | 05-May-02 | 9.7 | 10.6 | 10.2 | | 11.3 |
| 8 | West of Maplewood | 452810 | 795500 | 04-May-03 | 13.2 | 13.4 | 13.3 | | |
| 8 | West of Maplewood | 452810 | 795500 | 08-May-04 | 12.2 | 11.6 | 11.9 | | |
| 8 | West of Maplewood | 452810 | 795500 | 07-May-05 | 16.5 | 11.6 | 14.1 | | |
| 8 | West of Maplewood | 452810 | 795500 | 14-May-06 | 10.0 | 10.4 | 10.2 | | |
| 8 | West of Maplewood | 452810 | 795500 | 21-May-07 | 10.5 | 9.3 | 9.9 | | |
| 8 | West of Maplewood | 452810 | 795500 | 11-May-08 | 13.0 | 12.4 | 12.7 | | |
| 8 | West of Maplewood | 452810 | 795500 | 05-May-09 | 11.6 | 10.8 | 11.2 | | |
| 8 | West of Maplewood | 452810 | 795500 | 27-May-10 | 9.6 | 10.4 | 10.0 | | |
| 8 | West of Maplewood | 452810 | 795500 | 24-Apr-11 | 14.0 | 12.8 | 13.4 | | |
| 8 | West of Maplewood | 452810 | 795500 | 22-May-12 | 7.8 | 7.6 | 7.7 | | |
| 8 | West of Maplewood | 452810 | 795500 | 01-Jun-13 | 13.2 | 16.4 | 14.8 | | |
| 8 | West of Maplewood | 452810 | 795500 | 18-May-14 | 11.6 | 11.4 | 11.5 | | |
| 8 | West of Maplewood | 452810 | 795500 | 05-Jun-15 | 9.2 | 9.6 | 9.4 | | |
| 8 | West of Maplewood | 452810 | 795500 | 19-May-16 | 9.2 | 8.8 | 9.0 | | |
| 8 | West of Maplewood | 452810 | 795500 | 23-May-17 | 13.8 | 10.2 | 12.0 | | |
| 9 | E of Longhorn,Hardie's Cr | 452822 | 795244 | 24-May-05 | 15.0 | 14.5 | 14.7 | | 13.8 |
| 9 | E of Longhorn,Hardie's Cr | 452822 | 795244 | 08-Jun-07 | 14.2 | 12.8 | 13.5 | | |
| 9 | E of Longhorn,Hardie's Cr | 452822 | 795244 | 23-May-08 | 16.9 | 15.2 | 16.1 | | |
| 9 | E of Longhorn,Hardie's Cr | 452822 | 795244 | 23-May-16 | 12.6 | 12.2 | 12.4 | | |
| 9 | E of Longhorn,Hardie's Cr | 452822 | 795244 | 23-May-17 | 13.0 | 11.6 | 12.3 | | |
| 11 | N Tait's Is. | 452917 | 795443 | 24-Jun-06 | 9.2 | 8.5 | 8.8 | | 11.2 |
| 11 | N Tait's Is. | 452917 | 795443 | 31-May-12 | 13.4 | 12.2 | 12.8 | | |
| 11 | N Tait's Is. | 452917 | 795443 | 26-May-13 | 13.2 | 11.0 | 12.1 | | |
| 12 | Manitouwabing(golf cs.)Bay | 452856 | 795253 | 04-Jun-06 | 9.1 | 9.7 | 9.4 | | 9.8 |
| 12 | Manitouwabing(golf cs.)Bay | 452856 | 795253 | 08-Jun-07 | 11.0 | 10.3 | 10.6 | | |
| 12 | Manitouwabing(golf cs.)Bay | 452856 | 795253 | 23-May-09 | 9.2 | 9.8 | 9.5 | | |
| 13 | Jones Bay | 452713 | 795326 | 21-May-06 | 13.4 | 12.5 | 13.0 | | 11.6 |
| 13 | Jones Bay | 452713 | 795326 | 08-Jun-07 | 13.1 | 12.2 | 12.6 | | |
| 13 | Jones Bay | 452713 | 795326 | 23-May-08 | 13.3 | 12.1 | 12.7 | | |
| 13 | Jones Bay | 452713 | 795326 | 24-May-09 | 12.7 | 11.7 | 12.2 | | |
| 13 | Jones Bay | 452713 | 795326 | 24-May-11 | 13.0 | 14.8 | 13.9 | | |
| 13 | Jones Bay | 452713 | 795326 | 26-May-12 | 11.2 | 11.0 | 11.1 | | |
| 13 | Jones Bay | 452713 | 795326 | 23-Jun-13 | 12.0 | 12.0 | 12.0 | | |
| 13 | Jones Bay | 452713 | 795326 | 24-May-14 | 9.4 | 9.8 | 9.6 | | |
| 13 | Jones Bay | 452713 | 795326 | 19-May-15 | 11.0 | 9.4 | 10.2 | | |
| 13 | Jones Bay | 452713 | 795326 | 23-May-16 | 8.8 | 8.8 | 8.8 | | |
| 13 | Jones Bay | 452713 | 795326 | 23-May-17 | 11.8 | 11.2 | 11.5 | | |
| 18 | McKellar Bay | 453008 | 795455 | 24-May-16 | 10.4 | 10.6 | 10.5 | | 12.6 |
| 18 | McKellar Bay | 453008 | 795455 | 23-May-17 | 14.0 | 15.2 | 14.6 | | |
| 19 | McKellar, near dock | 453019 | 795512 | 24-May-16 | 11.2 | 10.8 | 11.0 | | 11.2 |
| 19 | McKellar, near dock | 453019 | 795512 | 23-May-17 | 11.4 | 11.2 | 11.3 | | |
| 20 | South of Fire RTE 150 Basin | 452901 | 795538 | 23-May-16 | 7.8 | 7.6 | 7.7 | | 7.7 |
| 21 | Moffat Basin, Deep spot | 452932 | 795504 | 23-May-16 | 12.6 | 12.8 | 12.7 | | 12.7 |
| 22 | Basin South of Lakeside Dr. | 452959 | 795249 | 24-May-16 | 9.2 | 10.0 | 9.6 | | 11.2 |
| 22 | Basin South of Lakeside Dr. | 452959 | 795249 | 23-May-17 | 12.6 | 12.8 | 12.7 | | |
| | | | | **Average** | | | | | **11.5** |