Watersheds
CANADA

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White Lake – 2017 Water Quality Report

Introduction

Watersheds Canada believes that every person has the right to access clean and healthy lakes and rivers in Canada. We work to keep these precious places naturally clean and healthy for people and wildlife to continue using for years to come.

As waterfront development continues to increase, regular water quality monitoring becomes more important. Recognizing the trends and changes in the lake's trophic status (a useful means of classifying lakes and describing lake processes in terms of the productivity of the system), can be used to identify issues and influence future decision making on White Lake.

A variety of factors impact the trophic status of the lake including the lake shape and depth, the surficial geology of the surrounding area and the amount of shoreline development. Since the shape, depth and geology of a lake do not change quickly over time, it is expected, that under natural conditions, it will have a relatively stable trophic status. Development, however, can greatly influence the trophic state of the lake through the introduction of nutrients into the system.

Oligotrophic lakes have the lowest concentration of nutrients and are often characterized by low plant and algal growth. Whereas, Eutrophic lakes have the highest concentration of nutrients and typically have dense populations of aquatic plants and algae. Falling between these categories are Mesotrophic lakes which contain a moderate level of nutrient enrichment. While all three of these types occur naturally, a quick shift from one to another can indicate human influence. By monitoring regularly, we can identify these shifts and work alongside stakeholders to protect the functions of the lake.

Photo: Dave Overholt (WLPP) & Melissa Dakers (Watersheds Canada) recording data using YSI Probe

The White Lake Preservation Project (WLPP) has been collecting data on White Lake since 2014. In 2015 and 2016 Mississippi Valley Conservation Authority partnered with the WLPP to help facilitate additional lake monitoring which focused on four key parameters: water clarity, total phosphorous, chlorophyll a, and dissolved oxygen concentrations. In 2017, WLPP partnered with Watersheds Canada to continue the additional monitoring program using the MVCA protocols. The sampling was conducted on nine sites over three sampling dates: mid-May, late-July, and mid-September. The sites were chosen to represent as much of the lake as possible (see attached map) and were sampled for the key parameters discussed above except total phosphorus, which was sampled using the Lake Partner Program. In July, Water Rangers participated in the sampling, in order to compare sampling protocols between the two programs.

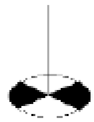
Map of White Lake Sampling Locations (Credit: MVCA)

Lake Trophic Status Table

Lake Trophic Status	Description	Total Phosphorus (µg/L)	Chlorophyll *a* (µg/L)	Secchi Disc Depth (metres)
Oligotrophic	Lakes with low nutrient levels, limiting biological productivity. Water is often clear and cold with sufficient oxygen levels in the entire water column throughout the year; often supporting cool to cold water fisheries.	< 10	< 2 low algal density	> 5
Mesotrophic	Lakes with moderate nutrient levels, resulting in greater biological productivity. Water is often less clear with greater probability of lower oxygen levels in the lower water column; often supporting a cold to warm water fisheries due to a variable range of nutrients	11 to 20	2 to 4 moderate algal density	3.0 to 4.9
Eutrophic	Enriched lakes with nutrients in higher concentrations. Water has poor clarity, especially in summer months when algal blooms and aquatic plant growth peaks. Oxygen levels are greatly reduced in lower water columns throughout the year due to excessive decompositions of aquatic vegetation; often supports a warm water fishies	≥ 21	> 4 high algal density	> 5

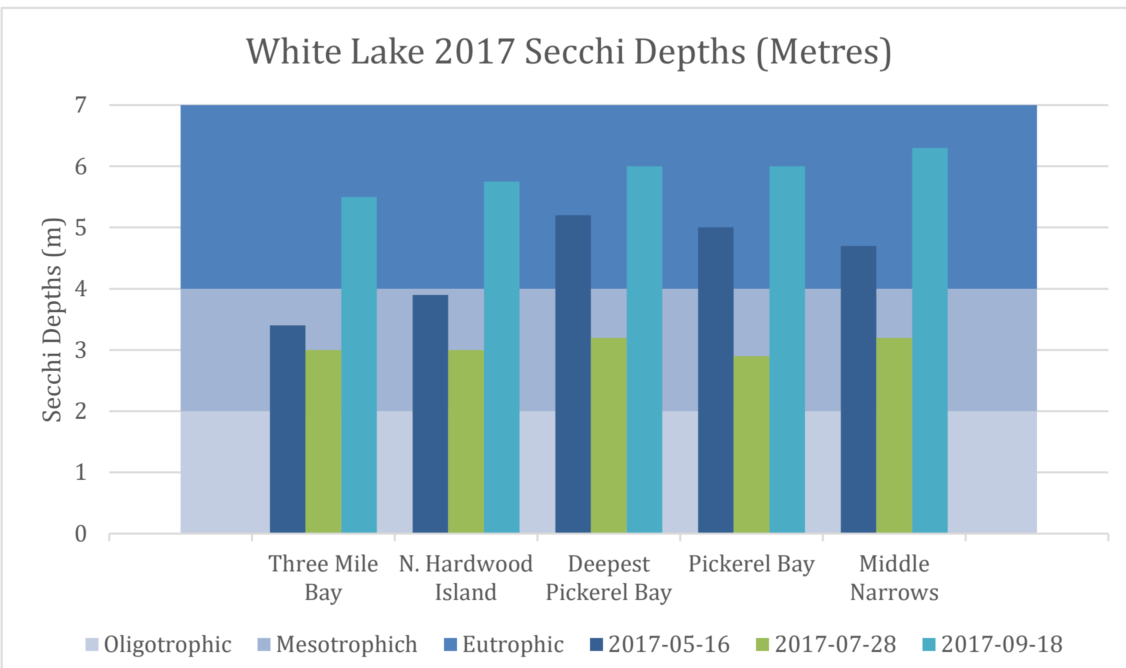
Results

Water Clarity



Water clarity is measured using a Secchi Disc, a black and white coloured disc that is lowered into the water on the shady side of the boat. As the disc is lowered, the point when it is no longer visible is noted as well as the point at which it reappears when you bring it back up. The average of these two depths is the Secchi depth. The greater the Secchi Disc measurement, the clearer your lake. Secchi depth is influenced by the concentration of algae in the water column; great concentrations of algae in the water results in a smaller Secchi depth measurement.

Interpreting SECCHI DISC Results	
Secchi Depth	**Lake Nutrient Status**
Over 5 metres	Oligotrophic – unenriched, few nutrients
3.0 - 4.9 metres	Mesotrophic – moderately enriched, some nutrients
Less than 2.9 metres	Eutrophic – enriched, higher levels of nutrients



The clarity of White Lake in 2017 was considered fair, with most of the results falling within the mesotrophic (3-5 meter) range. July results were quite low (with an average of 3.06 m) but then

September readings were quite high (5.77 meter average). The annual mean for water clarity was 4.42 meters, which is an increase from 2016 at 3.53 meters. These increases could relate directly to the increasing zebra mussel population in the lake, which filter the algae out of the water.

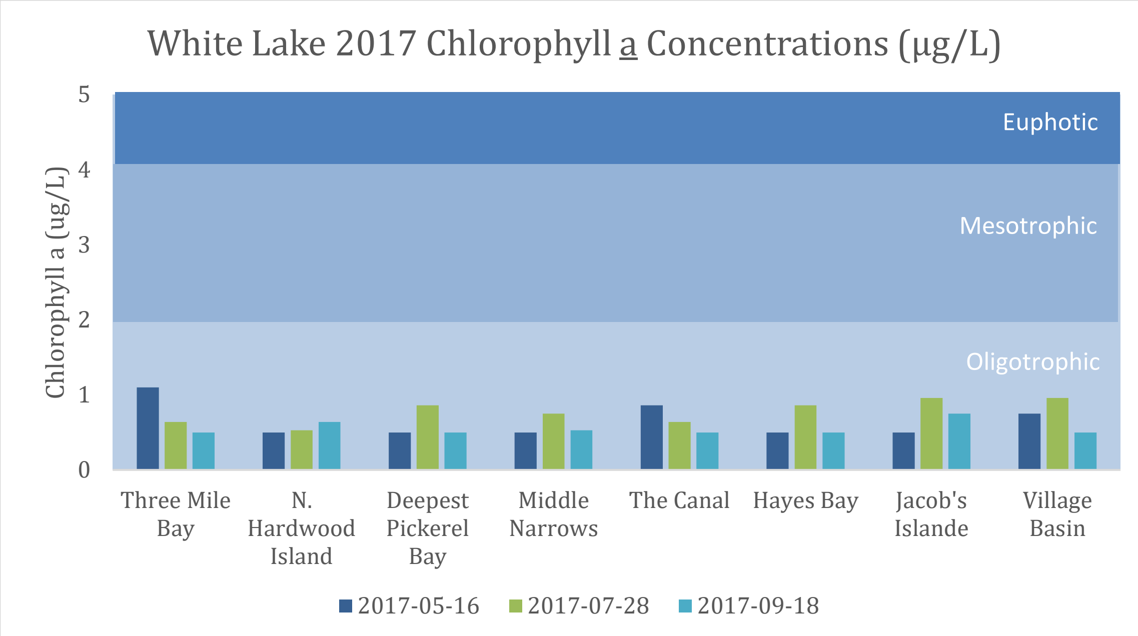
Chlorophyll a

Water clarity is influenced by the amount of phytoplankton or microscopic algae present in the water. Chlorophyll a is the green pigment in phytoplankton. The lower the chlorophyll a density in your lake, the lower the phytoplankton concentration and the clearer your lake is. Both chlorophyll a and phytoplankton concentrations are affected by the amount of phosphorus in the lake. The more phosphorus there is in the water, the greater the potential for algal blooms to occur.

Photo right: Equipment used to filter chlorophyll a samples.

Interpreting CHLOROPHYLL a Results	
Chlorophyll a Reading	**Lake Nutrient Status**
Up to 2 µg/L – low algal density	Oligotrophic – unenriched, few nutrients
2 - 4 µg/L – moderate algal density	Mesotrophic – moderately enriched, some nutrients
More than 4 µg/L – high algal density	Eutrophic – enriched, higher levels of nutrients

The results for the eight sampling sites all fell in the Oligotrophic status (low nutrients), with an average of 0.66 µg/L. This low level could relate to the increased population of zebra mussels in the lake, who filter feed, removing phytoplankton from the lake.



Dissolved Oxygen (DO)

Most aquatic life require adequate levels of dissolved oxygen, therefore it is typically measured to access the "health" of lakes and streams. Many factors influence dissolved oxygen concentrations in the lake such as the season, location and water depth, but the two key factors are lake stratification and the amount of phytoplankton (microscopic algae) biomass produced in the lake.

Phytoplankton production plays an important role in the concentration levels of dissolved oxygen because when it dies, it settles to the bottom of the lake, where it is decomposed by bacteria. During the process, the bacteria also consumes large amounts of oxygen, reducing the concentration that is available for fish and other aquatic organisms.

Thermal Stratification is the separation of the lake into three layers:

- **Epilimnion** – top layer of the lake
- **Metalimnion** (or Thermocline) – middle layer, may change depth throughout the day
- **Hypolimnion** – the bottom layer of the lake

Photo: Kat Kavanagh & Kathleen Murr (Water Rangers) join Melissa comparing sampling methods.

Thermal stratification refers to the change in the temperature at the different depths in the lake and is due to the change in the water's density with temperature. It generally occurs in the late spring to early fall and is characterized by a warm epilimnion separated from the cold hypolimnion by a layer of water where the temperature rapidly declines with depth, often referred to as the thermocline. DO is often at its lowest during the late summer and early fall as water in the bottom layer cannot recharge its oxygen since it is isolated from the atmosphere by the thermocline and the top layer. The result is lower oxygen levels in the hypolimnion which can be detrimental to aquatic species.

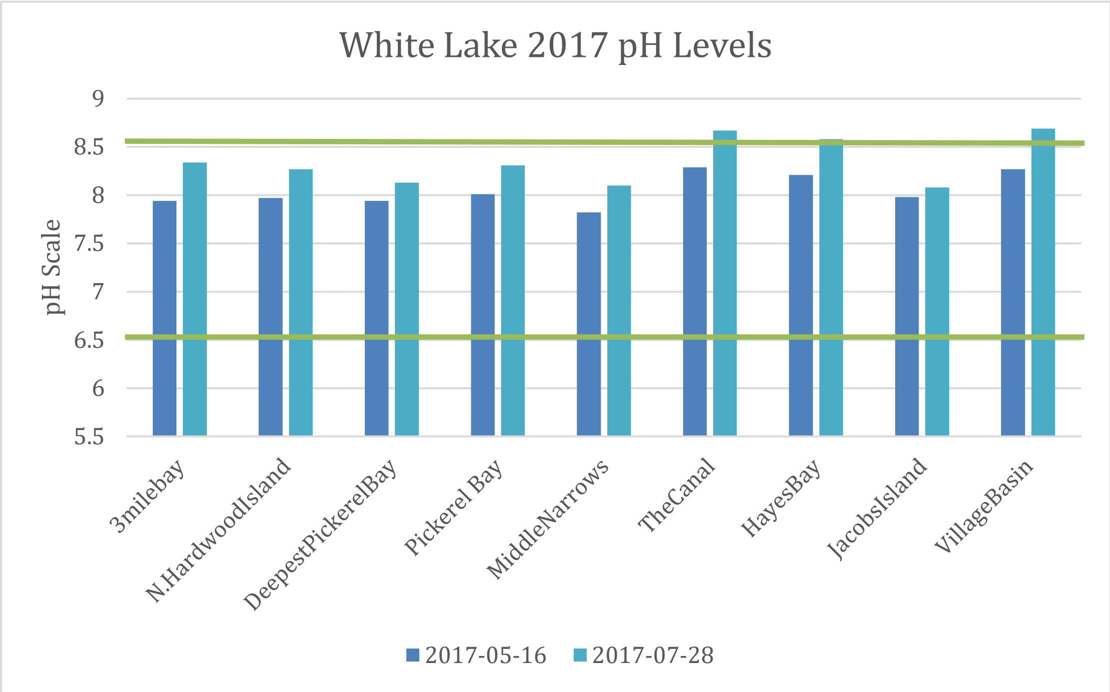
Thermal Stratification is uncommon on White Lake due to its shallow profile and constant mixing that occurs from wind and wave action. As expected, stratification did not occur during the 2017 sampling events, and the data revealed relatively constant temperature and dissolved oxygen readings throughout the depth of the lake. This indicates that White Lake is the optimal habitat for the warm water fish community. The sites that were sampled in 2017 did not show any thermal stratification over the sampling days, although the Deepest Pickerel Bay site did show a slight stratification approximately 2 meters from the bottom, during the September sampling event. North Hardwood Island and Middle Narrows displayed a lower oxygen reading one meter off bottom. The results indicate that most of the lake mixes with the atmosphere which maintains excellent dissolved oxygen concentrations for the warm water fish community present in White Lake. However, it is possible for some of the deeper sites surveyed to stratify if the right conditions occur (low winds and high temperature) thus causing an oxygen depletion.

Acidity

The acidity of the lake is measured on the pH scale. The pH scale is a logarithmic measure of the concentration of hydrogen ions in solution. This means that a change in pH 7 to pH 8 is a ten-fold change in the concentration of hydrogen ions in solution.

Monitoring the pH of our lakes allows us to identify when changes are occurring. In order to protect aquatic life, the Provincial Water Quality Objective for pH is between 6.5 and 8.5. Acidity of a water body can also change the availability of metals such as Calcium and Aluminum. This has been shown to change zooplankton (small plankton invertebrates) communities which are an important food source for many baitfish species.

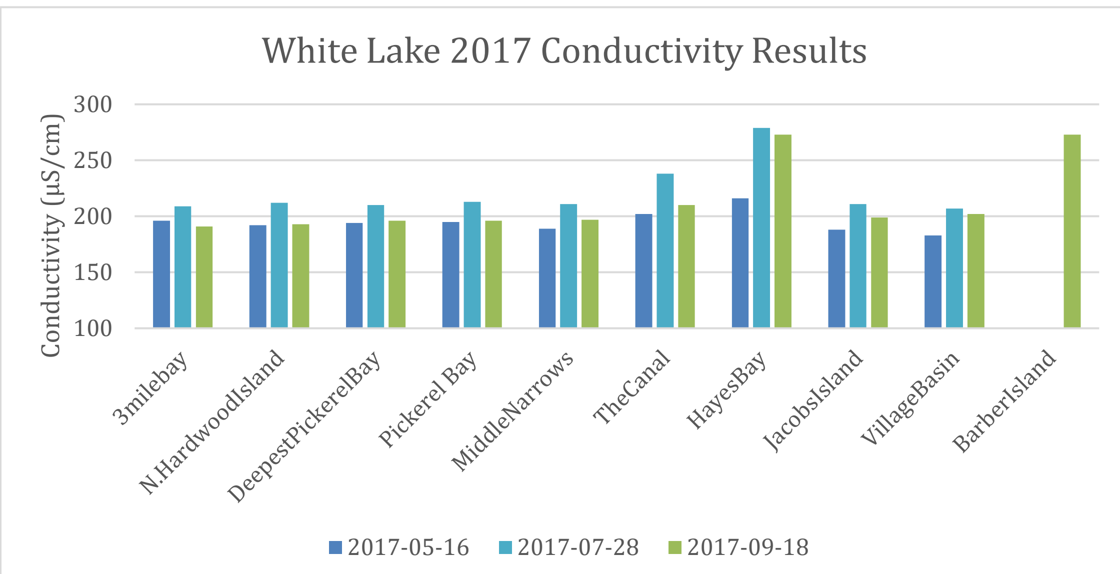
Using the YSI probe, pH levels were consistently recorded within the Provincial Water Quality Objective, with the exception of the very shallow locations of Hayes Bay, Village Basin and The Canal, which fell just above the healthy range of 8.5, at a pH of 8.7 during late July.



Conductivity

Just like metal, water can conduct (transport) electricity. This is because there are salts dissolved in the water. If you have pure water with absolutely no salts, electricity will not be conducted and conductivity will be 0. When we measure conductivity, we are measuring how easily electricity is flowing through the water and we get an indirect estimate of how many salts are in the water. The salts come from rocks that have been broken down by water flowing over them, and the types of rock and soil around waterbodies control conductivity. Rocks that do not get broken down easily cover most of the Canadian Shield and there is very little soil in this region. As a result, lakes on the Canadian Shield do not have high conductivity. Conductivity also depends on the temperature of the water. As water temperatures increase, conductivity increases. Also, if lakes do not receive enough rain or stream water, conductivity increases. This is because evaporation takes water away but does not take salts away. As lakes dry up, the saltiness (conductivity) of the remaining water increases.

In order to support diverse aquatic life in freshwater streams and lakes, conductivity levels need to be between 150 to 500 µS/cm. In 2017, the conductivity varied from 187 to 280 µS/cm amongst the sample sites, with the annual average for White Lake being 209.96 µS/cm, well within the guidelines. The highest readings were found in Hayes Bay, Barber Island and The Canal.



Dissolved Oxygen & Temperature Profiles

Attached are the temperature, DO, pH, and conductivity profiles for the nine sampling locations for the 2017 season. Please note that probes were borrowed from Rideau Valley Conservation Authority and Mississippi Valley Conservation Authority, and that during the third round of sampling in September, pH levels were not available to record. Also that a tenth site was recorded in September – Barber Island, by request of the WLPP for interest sake.

WLPP1 – Three Mile Bay – 2017-05-16

Depth (m)	Temp ° C	D.O. (mg/L)	D.O. % Saturation	pH	Conductivity (µS/cm)
0.1	12.38	11.10	104.10	7.94	196
1.0	12.33	11.10	103.80	7.98	196
2.0	12.13	11.14	103.70	8.01	195
3.0	11.98	11.13	103.30	8.00	195
4.0	11.94	11.09	102.70	8.00	195
5.0	11.92	11.05	102.30	8.00	195
6.0	Bottom	Bottom	Bottom	Bottom	Bottom

WLPP1 – Three Mile Bay – 2017-07-28

Depth (m)	Temp ° C	D.O. (mg/L)	D.O. % Saturation	pH	Conductivity (µS/cm)
0.1	23.00	8.75	101.90	8.34	209
1.0	23.00	8.72	101.60	8.36	209
2.0	22.90	8.70	101.20	8.36	209
3.0	22.60	8.51	98.20	8.32	209
4.0	22.30	8.33	95.80	8.28	210
5.0	22.30	8.04	92.40	8.25	210
6.0	22.20	0.30	3.60	7.78	210
7.0	Bottom	Bottom	Bottom	Bottom	Bottom

WLPP1 – Three Mile Bay – 2017-09-18

Depth (m)	Temp ° C	D.O. (mg/L)	D.O. % Saturation	pH*	Conductivity (µS/cm)
0.1	21.74	10.09	114.80	n/a	191
1.0	21.62	10.17	115.50	n/a	191
2.0	20.64	10.64	118.60	n/a	187
3.0	19.54	10.01	108.70	n/a	196
4.0	19.13	9.12	98.60	n/a	196
5.0	Bottom	Bottom	Bottom	Bottom	Bottom

*pH not available on the RVCA probe used

WLPP2 - North Hardwood Island – 2017-05-16

Depth (m)	Temp ° C	D.O. (mg/L)	D.O. % Saturation	pH	Conductivity (µS/cm)
0.1	12.21	11.31	105.4	7.90	192
1.0	12.12	11.26	104.7	7.97	192
2.0	11.75	11.19	103.3	7.97	195
3.0	11.68	11.12	102.5	7.97	195
4.0	11.43	11.03	101.1	7.93	194
5.0	Bottom	Bottom	Bottom	Bottom	Bottom

WLPP2 - North Hardwood Island – 2017-07-28

Depth (m)	Temp ° C	D.O. (mg/L)	D.O. % Saturation	pH	Conductivity (µS/cm)
0.1	22.60	8.55	98.90	8.27	212
1.0	22.70	8.51	98.50	8.30	210
2.0	22.60	8.38	96.80	8.29	210
3.0	22.50	8.12	93.50	8.24	210
4.0	22.40	8.09	93.20	8.24	210
5.0	22.10	5.45	62.40	7.86	211
6.0	Bottom	Bottom	Bottom	Bottom	Bottom

WLPP2 - North Hardwood Island – 2017-09-18

Depth (m)	Temp ° C	D.O. (mg/L)	D.O. % Saturation	pH*	Conductivity (µS/cm)
0.1	21.25	11.16	125.5	n/a	193
1.0	20.94	10.89	122.1	n/a	194
2.0	20.78	10.68	119.1	n/a	194
3.0	20.14	10.70	118.1	n/a	196
4.0	19.51	10.11	110.0	n/a	196
5.0	19.11	8.94	96.4	n/a	196
6.0	Bottom	Bottom	Bottom	Bottom	Bottom

*pH not available on the RVCA probe used

WLPP3 – Deepest Pickerel Bay – 2017-05-16

Depth (m)	Temp ° C	D.O. (mg/L)	D.O. % Saturation	pH	Conductivity (µS/cm)
0.1	11.80	11.12	102.8	7.94	194
1.0	11.68	11.11	102.4	7.98	194
2.0	11.28	11.15	101.8	7.98	194
3.0	11.08	11.09	100.8	7.97	195
4.0	11.01	11.05	100.3	7.97	195
5.0	10.98	11.03	100.1	7.96	194
6.0	10.97	11.02	100.0	7.96	194
7.0	10.96	11.00	99.7	7.96	194
8.0	10.80	10.84	97.7	7.91	194
9.0	Bottom	Bottom	Bottom	Bottom	Bottom

WLPP3 – Deepest Pickerel Bay – 2017-07-28

Depth (m)	Temp ° C	D.O. (mg/L)	D.O. % Saturation	pH	Conductivity (µS/cm)
0.1	22.30	8.13	93.6	8.13	210
1.0	22.30	8.12	93.4	8.19	210
2.0	22.30	8.04	92.5	8.20	210
3.0	22.20	7.95	91.4	8.20	210
4.0	22.20	7.88	90.5	8.20	210
5.0	22.20	7.76	89.2	8.17	210
6.0	22.20	7.65	87.9	8.17	210
7.0	22.20	7.57	96.7	8.16	210
8.0	21.50	4.22	48.4	8.17	210
9.0	Bottom	Bottom	Bottom	Bottom	Bottom

WLPP3 – Deepest Pickerel Bay – 2017-09-18

Depth (m)	Temp ° C	D.O. (mg/L)	D.O. % Saturation	pH*	Conductivity (µS/cm)
0.1	22.12	10.67	122.6	n/a	196
1.0	21.86	10.36	118.2	n/a	196
2.0	21.25	10.49	118.3	n/a	196
3.0	19.97	10.50	115.3	n/a	197
4.0	19.37	10.21	110.9	n/a	197
5.0	19.09	9.73	105.1	n/a	196
6.0	18.89	9.21	99.1	n/a	197
7.0	18.65	7.79	83.9	n/a	199
8.0	18.50	6.36	67.2	n/a	201
9.0	Bottom	Bottom	Bottom	Bottom	Bottom

*pH not available on the RVCA probe used

WLPP4 – Pickerel Bay – 2017-05-16

Depth (m)	Temp ° C	D.O. (mg/L)	D.O. % Saturation	pH	Conductivity (µS/cm)
0.1	12.16	11.13	103.8	8.01	195
1.0	11.62	11.07	101.9	8.05	195
2.0	11.12	11.05	101.2	8.02	195
3.0	11.27	11.03	100.7	8.01	195
4.0	11.18	10.99	100.1	8.00	196
5.0	11.12	10.90	99.3	7.99	195
6.0	11.04	10.98	99.6	7.97	195
7.0	10.84	10.85	97.0	7.92	195
8.0	Bottom	Bottom	Bottom	Bottom	Bottom

WLPP4 – Pickerel Bay – 2017-07-28

Depth (m)	Temp ° C	D.O. (mg/L)	D.O. % Saturation	pH	Conductivity (µS/cm)
0.1	22.50	8.60	99.4	8.31	213
1.0	22.50	8.58	99.1	8.31	210
2.0	22.50	8.54	98.5	8.31	210
3.0	22.40	8.44	97.2	8.30	210
4.0	22.40	8.33	96.0	8.29	210
5.0	22.40	8.20	94.5	8.26	210
6.0	22.30	8.04	92.5	8.23	210
7.0	22.30	7.94	91.3	8.21	210
8.0	Bottom	Bottom	Bottom	Bottom	Bottom

WLPP4 – Pickerel Bay – 2017-09-18

Depth (m)	Temp ° C	D.O. (mg/L)	D.O. % Saturation	pH*	Conductivity (µS/cm)
0.1	22.53	10.75	124.2	n/a	196
1.0	22.32	9.95	114.6	n/a	196
2.0	20.70	10.17	113.5	n/a	196
3.0	19.74	10.21	111.8	n/a	196
4.0	19.19	9.86	106.3	n/a	196
5.0	18.91	9.42	101.4	n/a	197
6.0	18.80	8.75	94.0	n/a	197
7.0	18.63	8.46	96.0	n/a	197
8.0	18.54	8.06	84.9	n/a	197
9.0	Bottom	Bottom	Bottom	Bottom	Bottom

*pH not available on the RVCA probe used

WLPP5 – Middle Narrows – 2017-05-16

Depth (m)	Temp ° C	D.O. (mg/L)	D.O. % Saturation	pH	Conductivity (µS/cm)
0.1	12.22	11.43	106.3	7.82	189
1.0	11.90	11.24	104.1	7.94	189
2.0	11.49	11.20	102.7	7.95	191
3.0	11.32	11.14	101.7	7.94	191
4.0	11.17	10.99	100.1	7.92	191
5.0	11.13	10.94	99.6	7.91	192
6.0	10.32	10.88	96.5	7.86	195
7.0	Bottom	Bottom	Bottom	Bottom	Bottom

WLPP5 – Middle Narrows – 2017-07-28

Depth (m)	Temp ° C	D.O. (mg/L)	D.O. % Saturation	pH	Conductivity (µS/cm)
0.1	22.10	7.78	89.1	8.10	211
1.0	22.10	7.76	88.9	8.10	210
2.0	22.10	7.69	88.1	8.10	210
3.0	22.10	7.65	87.6	8.09	210
4.0	22.00	7.47	85.4	8.08	210
5.0	22.00	7.23	82.6	8.05	210
6.0	21.80	5.60	63.9	7.84	210
7.0	Bottom	Bottom	Bottom	Bottom	Bottom

WLPP5 – Middle Narrows – 2017-09-18

Depth (m)	Temp ° C	D.O. (mg/L)	D.O. % Saturation	pH*	Conductivity (µS/cm)
0.1	22.21	9.97	114.6	n/a	197
1.0	22.13	9.97	114.4	n/a	197
2.0	21.80	9.99	113.8	n/a	197
3.0	21.50	9.79	110.9	n/a	197
4.0	19.77	10.02	109.6	n/a	199
5.0	19.13	7.22	78.2	n/a	200
5.95	Bottom	Bottom	Bottom	Bottom	Bottom

*pH not available on the RVCA probe used

WLPP6 – The Canal – 2017-05-16

Depth (m)	Temp ° C	D.O. (mg/L)	D.O. % Saturation	pH	Conductivity (µS/cm)
0.1	14.26	11.42	112.4	8.29	202
0.5	14.06	14.45	111.2	8.32	201
1.0	13.46	11.53	110.5	8.35	203
1.5	13.26	11.66	111.0	8.41	200
2.0	13.20	11.79	112.5	8.41	199
2.5	Bottom	Bottom	Bottom	Bottom	Bottom

WLPP6 – The Canal – 2017-07-28

Depth (m)	Temp ° C	D.O. (mg/L)	D.O. % Saturation	pH	Conductivity (µS/cm)
0.1	22.10	9.96	114.1	8.66	238
0.5	22.10	9.97	114.2	8.67	238
1.0	22.10	9.95	114.0	8.67	237
1.5	22.00	10.03	114.8	8.70	235
2.0	22.00	10.13	115.8	8.70	234
2.4	Bottom	Bottom	Bottom	Bottom	Bottom

WLPP6 – The Canal – 2017-09-18

Depth (m)	Temp ° C	D.O. (mg/L)	D.O. % Saturation	pH*	Conductivity (µS/cm)
0.1	23.31	10.88	126.9	n/a	210
0.5	23.31	10.88	126.9	n/a	210
1.0	23.26	10.85	127.1	n/a	212
1.5	23.21	11.01	128.9	n/a	213
1.9	Bottom	Bottom	Bottom	Bottom	Bottom

*pH not available on the RVCA probe used

WLPP7 – Hayes Bay – 2017-05-16

Depth (m)	Temp ° C	D.O. (mg/L)	D.O. % Saturation	pH	Conductivity (µS/cm)
0.1	14.92	11.58	114.7	8.21	216
0.5	14.44	11.34	111.8	8.22	216
1.0	13.85	11.57	112.0	8.24	215
1.5	13.82	11.63	112.6	8.26	214
2.0	Bottom	Bottom	Bottom	Bottom	Bottom

WLPP7 – Hayes Bay – 2017-07-28

Depth (m)	Temp ° C	D.O. (mg/L)	D.O. % Saturation	pH	Conductivity (µS/cm)
0.1	21.80	9.83	112.0	8.58	279
0.5	21.80	9.82	111.9	8.58	279
1.0	21.80	9.81	111.7	8.58	280
1.2	Bottom	Bottom	Bottom	Bottom	Bottom

WLPP7 – Hayes Bay – 2017-09-18

Depth (m)	Temp ° C	D.O. (mg/L)	D.O. % Saturation	pH*	Conductivity (µS/cm)
0.1	23.94	10.60	125.7	n/a	273
0.5	23.94	10.55	125.2	n/a	273
1.0	23.92	10.55	125.2	n/a	273
1.9	Bottom	Bottom	Bottom	Bottom	Bottom

*pH not available on the RVCA probe used

WLPP8 – Jacob's Island – 2017-05-16

Depth (m)	Temp ° C	D.O. (mg/L)	D.O. % Saturation	pH	Conductivity (µS/cm)
0.1	12.81	11.18	105.7	7.98	188
1.0	12.73	11.17	105.4	8.00	188
2.0	12.00	11.20	104.0	8.00	188
3.0	11.69	10.99	101.1	7.93	189
4.0	11.17	10.48	95.1	7.86	189
5.0	Bottom	Bottom	Bottom	Bottom	Bottom

WLPP8 – Jacob's Island – 2017-07-28

Depth (m)	Temp ° C	D.O. (mg/L)	D.O. % Saturation	pH	Conductivity (µS/cm)
0.1	22.0	7.77	88.9	8.08	211
1.0	22.0	7.74	88.5	8.08	211
2.0	21.90	7.80	89.0	8.08	211
3.0	21.80	8.03	91.6	8.13	211
4.0	21.70	7.90	89.6	8.10	211
5.0	Bottom	Bottom	Bottom	Bottom	Bottom

WLPP8 – Jacob's Island – 2017-09-18

Depth (m)	Temp ° C	D.O. (mg/L)	D.O. % Saturation	pH*	Conductivity (µS/cm)
0.1	23.12	10.45	121.9	n/a	199
1.0	22.94	10.41	121.2	n/a	198
2.0	22.58	10.49	121.4	n/a	199
3.0	21.74	10.36	117.9	n/a	201
3.7	Bottom	Bottom	Bottom	Bottom	Bottom

*pH not available on the RVCA probe used

WLPP9 – Village Basin – 2017-05-16

Depth (m)	Temp ° C	D.O. (mg/L)	D.O. % Saturation	pH	Conductivity (µS/cm)
0.1	13.57	11.74	112.4	8.27	183
0.5	13.51	11.54	110.7	8.27	183
1.0	13.25	11.60	110.7	8.27	183
1.5	13.05	11.69	111.1	8.27	183
2.0	Bottom	Bottom	Bottom	Bottom	Bottom

WLPP9 – Village Basin – 2017-07-28

Depth (m)	Temp ° C	D.O. (mg/L)	D.O. % Saturation	pH	Conductivity (µS/cm)
0.1	21.90	9.85	112.5	8.69	207
0.5	21.90	9.85	112.4	8.70	207
1.0	21.90	9.84	112.3	8.70	207
1.5	21.90	9.81	112.2	8.70	207
2.0	Bottom	Bottom	Bottom	Bottom	Bottom

WLPP9 – Village Basin – 2017-09-18

Depth (m)	Temp ° C	D.O. (mg/L)	D.O. % Saturation	pH*	Conductivity (µS/cm)
0.1	23.43	10.84	127.4	n/a	202
0.5	23.42	10.80	127.0	n/a	202
1.0	23.42	10.80	127.0	n/a	202
1.45	Bottom	Bottom	Bottom	Bottom	Bottom

*pH not available on the RVCA probe used

WLPP10 – Barber Island – 2017-09-18

Depth (m)	Temp ° C	D.O. (mg/L)	D.O. % Saturation	pH*	Conductivity (µS/cm)
0.1	24.15	10.66	126.9	n/a	273
0.5	24.14	10.64	126.7	n/a	274
1.0	24.09	10.56	125.7	n/a	274
1.4	Bottom	Bottom	Bottom	Bottom	Bottom

*pH not available on the RVCA probe used

Overview

In 2017, White Lake was classified as a mesotrophic lake according to Secchi disc depth and oligotrophic according to chlorophyll a results. Although the trophic status of lake classification is a useful tool to get an idea of the condition of the lake, we should be cautious of relying too heavily upon it. Although water clarity is increasing and algal density has decreased, it may appear as White Lake is improving its overall health. Unfortunately, we do have to look at the newly introduced zebra mussels and the effects they are causing on White Lake. Zebra Mussels filter large amounts of phytoplankton each season and multiply at a prolific rate. So it is safe to say that White Lake is currently in a transition phase as it reaches a state of equilibrium with this invasive species. It is important to continue monitoring data during this transition but it is also imperative to look at the long term trends in the data. And although it appears that water quality is improving, White Lake residents must adopt a stewardship approach in order to maintain and improve the overall health of White Lake for future generations.

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