

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
WATER RESOURCES DIVISION
NOVEMBER 2019

STAFF REPORT

NUTRIENT CHEMISTRY SURVEY OF FORD AND BELLEVILLE LAKES
WASHTENAW AND WAYNE COUNTIES
APRIL-SEPTEMBER 2014, 2016, AND 2018

INTRODUCTION

In 1995, staff from the Michigan Department of Environment, Great Lakes, and Energy (EGLE) formerly the Michigan Department of Environmental Quality (MDEQ), Water Resources Division (WRD), completed a phosphorus loading analysis (Kosek, 1996a) and subsequent phosphorus Total Maximum Daily Load (TMDL) (Kosek, 1996b) for Ford and Belleville Lakes. Ford and Belleville Lakes are highly eutrophic lakes within the Huron River watershed in Washtenaw and Wayne Counties, respectively. The objective of the loading analysis was to determine the appropriate phosphorus loading needed to meet the goal of 30 micrograms per liter ($\mu\text{g}/\text{L}$) for total phosphorus (TP) in Belleville Lake, which was established in 1987 by the Michigan Water Resources Commission as part of an effort to restore designated uses to Belleville Lake.

To meet the goal of 30 $\mu\text{g}/\text{L}$ for TP in Belleville Lake, it was determined that TP concentrations could not exceed 50 $\mu\text{g}/\text{L}$ in the Huron River, just upstream of Ford Lake. Therefore, the Ford and Belleville Lakes Phosphorus TMDL (Kosek, 1996b; MDEQ, 2004) established the goals of 50 $\mu\text{g}/\text{L}$ upstream of Ford Lake (Huron River at Michigan Avenue) and 30 $\mu\text{g}/\text{L}$ as a lake-wide average in Belleville Lake during the months of April-September of each year.

Water quality monitoring of Ford and Belleville Lakes is currently conducted biennially during the growing season months (April-September) to determine the progress toward meeting the phosphorus goal established as part of the TMDL. This report presents the results of sampling efforts from 2014, 2016, and 2018 and then compares them to earlier monitoring results from 1994-2012 (Kosek, 1997; Alexander, 1997 and 2002; Roush, 2004; 2005; 2006; and 2007; and Varricchione, 2015).

METHODS AND MONITORING LOCATIONS

Water chemistry sampling was conducted monthly from April-September in 2014, 2016, and 2018 at 4 sites in both Ford and Belleville Lakes (Figure 1). At a minimum, grab samples were collected near the surface at all lake sites for the following parameters: TP, ortho phosphate, ammonia, nitrate + nitrite, nitrite, Kjeldahl nitrogen, and total suspended solids. Depending on the depth at each location, mid-depth and near-bottom (approximately 3 feet off the bottom), water chemistry samples were also collected using a Van Dorn sampler. Additionally, depth-integrated water samples for chlorophyll *a* analysis were collected by lowering and raising a bottle sampler through the photic zone (considered twice the depth of the Secchi disk measurement for this study). Water clarity was determined using a secchi disk at each site.

Temperature, dissolved oxygen (D.O.), specific conductance, and pH profiles were measured at each site using a Yellow Springs Instrument (YSI) "6-Series" (600) multiparameter sonde.

Grab samples were also collected concurrently with lake data at 2 stations on the Huron River. The most upstream river station was at Bandemer Park, just downstream from Barton Pond and approximately 10 miles upstream of the second river station located at Michigan Avenue, which is just upstream of Ford Lake (Figure 1). Samples were analyzed for the following parameters: TP, ortho phosphate, ammonia, nitrate + nitrite, nitrite, Kjeldahl nitrogen, and total suspended solids. Temperature, D.O., specific conductance, and pH were occasionally measured at these sites using a YSI "6-Series" (600) multiparameter sonde.

All lake and river samples were collected and preserved according to EGLE protocol (Michigan Department of Natural Resources [MDNR], 1994) and EGLE Environmental Laboratory guidance (*The link provided was broken and has been removed*).

To statistically evaluate patterns in either site average (Huron River) or lake-wide average (Ford and Belleville Lakes) TP concentrations over time, a Seasonal Mann-Kendall test was used to test for a significant monotonic (overall positive or negative) trend in data collected from 1994-2018. The Seasonal Mann-Kendall test is a nonparametric equivalent to a monotonic trend regression analysis. The test yields a p-value and test statistic (S). The test statistic conveys the strength and direction of the trend. When S is a large, positive value it indicates that more recently collected data are consistently and substantially larger than data that were collected at earlier sampling dates (i.e., an upward trend). Conversely, a large, negative S value indicates that more recently collected data are consistently and substantially smaller (i.e., a downward trend). When the absolute value of S is small, there is no evidence of a trend.

RESULTS AND DISCUSSION

Huron River

Water chemistry results from 2014, 2016, and 2018 for the Huron River sites are listed in Tables 1 and 2. Monthly and yearly average TP concentrations from 1994-2018 at the Huron River's Bandemer Park are shown in Figures 2 and 3, and TP concentrations for the Michigan Avenue site are shown in Figures 4 and 5.

Huron River at Bandemer Park

From 2014 to 2018, the highest TP concentrations measured at the Bandemer Park site in each year were 27 µg/L (July 2014), 43 µg/L (July 2016), and 26 µg/L (August 2018; Figure 2). A comparison of TP data from 1994 to 2018 indicated a statistically significant negative trend ($S = -131$, $p = 0.007$; Figure 3).

Huron River at Michigan Avenue

From 2014 to 2018, TP concentrations were below the target goal of 50 µg/L for 10 of the 17 months sampled (note: water chemistry data were not collected in April 2018). The highest concentrations during these years were 53 µg/L (June 2014), 86 µg/L (September 2016), and 70 µg/L (August 2018; Figure 4). The Seasonal Mann-Kendall test indicated that TP concentrations have significantly declined from 1994 to 2018 ($S = -306$, $p < 0.001$; Figure 5). Similar to past reports, the Michigan Avenue site continues to have higher TP concentrations than the Bandemer Park site.

Ford and Belleville Lakes

Water chemistry results from 2014, 2016, and 2018 for Ford and Belleville Lakes are presented in Tables 3-19. A comparison of average monthly and yearly TP concentrations from 1994-2018 is shown in Figures 6 and 7 (Ford Lake), and in Figures 8 and 9 (Belleville Lake). Monthly and yearly average secchi depths from 1994-2018 are shown in Figures 10 and 11 (Ford Lake), and Figures 12 and 13 (Belleville Lake). A comparison of average annual TP concentrations in the surface versus near-bottom depths of Ford and Belleville Lakes is presented in Figure 14. Additionally, a comparison of spring versus summer TP concentrations is shown in Figure 15.

Ford Lake

From 2014-2018, lake-wide average TP concentrations ranged widely among years. In 2014, the minimum TP concentration was 36 µg/L (May) and the maximum concentration was 43 µg/L (September). In 2016, TP concentrations ranged from 30 µg/L (June) to 111 µg/L (August). In 2018, TP concentrations ranged from 39 µg/L (May) to 87 µg/L (August). As in past years, TP concentrations in Ford Lake continue to exhibit a great deal of inter-annual variability, and there is no evidence that TP concentrations have significantly increased or decreased since 1994 ($S = -72$, $p = 0.186$).

Similar to TP concentrations, lake-wide average secchi depths do not appear to be exhibiting any noticeable trends. In 2014 and 2016, the greatest average depths were observed in July (6.3 feet and 8.3 feet, respectively). In 2018, the greatest average secchi depth was recorded in June (6.3 feet). Lake-wide average chlorophyll concentrations varied between 2.7 and 24 µg/L in 2014, 2.9 and 45 µg/L in 2016, and 4.1 and 79 µg/L in 2018.

In September 2014, surveyors noticed a mild to moderate lake-wide algal bloom. Additionally, in July 2018, surveyors observed frequent floating clumps that were thought to be *Oscillatoria* algae. More intensive sampling to detect concentrations of algal toxins (microcystin), indicative of a harmful algal bloom, were carried out during separate sampling events by EGLE staff in 2016 and 2018. The results of these sampling efforts are summarized in other reports (Parker, 2016; and Stieber, 2019).

Overall Carlson's Trophic Status Index (TSI) values (the mean of individual TSI values for chlorophyll a, secchi depth, and TP [Carlson, 1977 and Goodwin et al., 2014]) were computed for site F-4; the deeper, downstream site of the Ford Lake impoundment. These results indicated that site F-4 continues to be eutrophic (Table 20).

Belleville Lake

Similar to Ford Lake, lake-wide average TP concentrations in Belleville Lake have not significantly declined since 1994 (Seasonal Mann-Kendall: $S = -65$, $p = 0.22$). The average TP concentration in the lake exceeded the target goal of 30 µg/L 15 out of the 17 times the lake was sampled between 2014 and 2018. The TP concentration was at or below the target goal in May 2014 and 2016 (30 µg/L and 29 µg/L, respectively). The highest TP concentrations recorded in each year were 46 µg/L (September 2014), 86 µg/L (September 2016), and 122 µg/L (June 2018).

Like Ford Lake, no trends in secchi depths were observed in Belleville Lake. The greatest average depths were observed in June for 2014, 2016, and 2018 and were 6.0, 5.6, and

4.7 feet, respectively. Lake-wide average chlorophyll concentrations in Belleville Lake varied between 4.7 and 36 µg/L in 2014, 3.5 and 42 µg/L in 2016, and 5.9 and 44 µg/L in 2018.

Blue-green algal blooms were noted by surveyors during the August and September 2014 sampling efforts. More intensive sampling to detect concentrations of algal toxins (microcystin), indicative of a harmful algal bloom, were carried out during separate sampling events by EGLE staff in 2016 and 2018. The results of these sampling efforts are summarized in other reports (Parker, 2016; and Stieber, 2019).

Overall TSI was calculated for site B-4, the deeper, downstream site of the Belleville Lake impoundment. Results indicated that this site also continues to be eutrophic (Table 20).

Influence of Lake Sediments and Low D.O. Conditions

Ford and Belleville Lakes have been classified as polymictic lakes (i.e., shallow lakes that mix more than twice in a year). Although the lakes are generally mixed, deeper portions (depths of approximately 20 feet or greater) can thermally stratify (e.g., sites B-3, B-4, F-3, and F-4). Since 2009, EGLE has examined data collected from Ford and Belleville Lakes for signs of anoxia in the hypolimnion. A lake is considered to be anoxic if the D.O. concentration is below 0.5 milligrams per liter (mg/L) in the hypolimnion for at least 2 weeks, but for no longer than 7 months. Anoxia in the hypolimnion can trigger the release of phosphorus from lake sediments and contribute to internal loading (Wetzel, 2001). Past research conducted on Ford Lake has indicated that the lake sometimes exports more phosphorus than what enters the lake meaning that sources of phosphorus exist either at or within the lake itself, not just upstream of the lake (Lehman, 2011). Given that EGLE has not conducted continuous D.O. monitoring at these locations, the temporal and spatial extent of potential hypolimnetic anoxia is unknown.

Therefore, an instantaneous value of <1.5 mg/L was used to indicate when the lakes might be “approaching anoxic” conditions, and a value of <0.5 mg/L was used to signal when the lakes might be anoxic.

There were several occasions during the 2014-2018 sampling period when D.O. concentrations fell below 1.5 mg/L. In Bellville Lake, site B-3 exhibited concentrations indicative of possible anoxia in July 2016 (0.26 mg/L). Site B-4 was approaching anoxic conditions in June (1.2 mg/L) and had possible anoxic conditions in July 2016 (0.12 mg/L). Subsequently, in 2018, site B-4 exhibited possible anoxic conditions during the June (0.11 mg/L), July (0.27 mg/L), and August (0.15 mg/L) sampling events. In Ford Lake, site F-2 showed signs that the lake was approaching anoxic conditions in August 2018 (1.16 mg/L). Site F-3 had possible anoxic conditions during the July (0.58 mg/L) and August (0.24 mg/L) sampling events in 2018. Furthermore, site F-4 showed signs of anoxia in July (0.14 mg/L) and August (0.01 mg/L) 2016, and again in July (0.15 mg/L) and August (0.13 mg/L) 2018. Corresponding to the prevalence of conditions indicative of anoxia in Ford and Belleville Lakes in 2016 and 2018, both lakes had average bottom TP concentrations that were greater than concentrations observed at the surface during those years (Figure 14).

Comparison of Spring vs. Summer Phosphorus Concentrations

Spring (April-June) and summer (July-September) average TP concentrations were examined separately to further identify possible sources of phosphorus in Ford and Belleville Lakes. In general, summer concentrations were higher than spring concentrations. In some cases, concentrations in summer were more than 2 times greater than spring concentrations

(Figure 15). One notable exception was in 2018 when the spring average total phosphorus concentration in Belleville Lake was 24 µg/L greater than the summer concentration. The higher spring concentration occurred after an abnormal permanent short-term discharge from the YUCA Wastewater Treatment Plant through their emergency outfall which discharged over 8,000 pounds of TP to the lake from September 2017 through January 2018. The discrepancy between spring and summer concentrations suggests the common occurrence of anoxia at the bottom of the lakes producing some internal loading. While sources discharging directly to the lake could contribute to these higher concentrations, the timing coincides with the time of year when the lakes may be thermally stratified.

CONCLUSION

Current water quality data indicate that Ford and Belleville Lakes are still considered eutrophic impoundments. Although there is evidence to suggest that TP concentrations are declining in the Huron, there was no clear trend in TP concentrations for Ford and Belleville Lakes.

Furthermore, the fact that total phosphorus concentrations are declining upstream in the Huron River while the lakes do not show a statistically significant downward trend in phosphorus concentrations indicates that reducing inputs from upstream sources will not lead to immediate changes in lake phosphorus levels. Intermittent anoxia with higher hypolimnetic TP concentrations, combined with observed higher late summer TP levels, indicate there is ongoing internal loading of phosphorus in both lakes. However, reducing the external loads of phosphorus will lead to internal load reductions over the long term.

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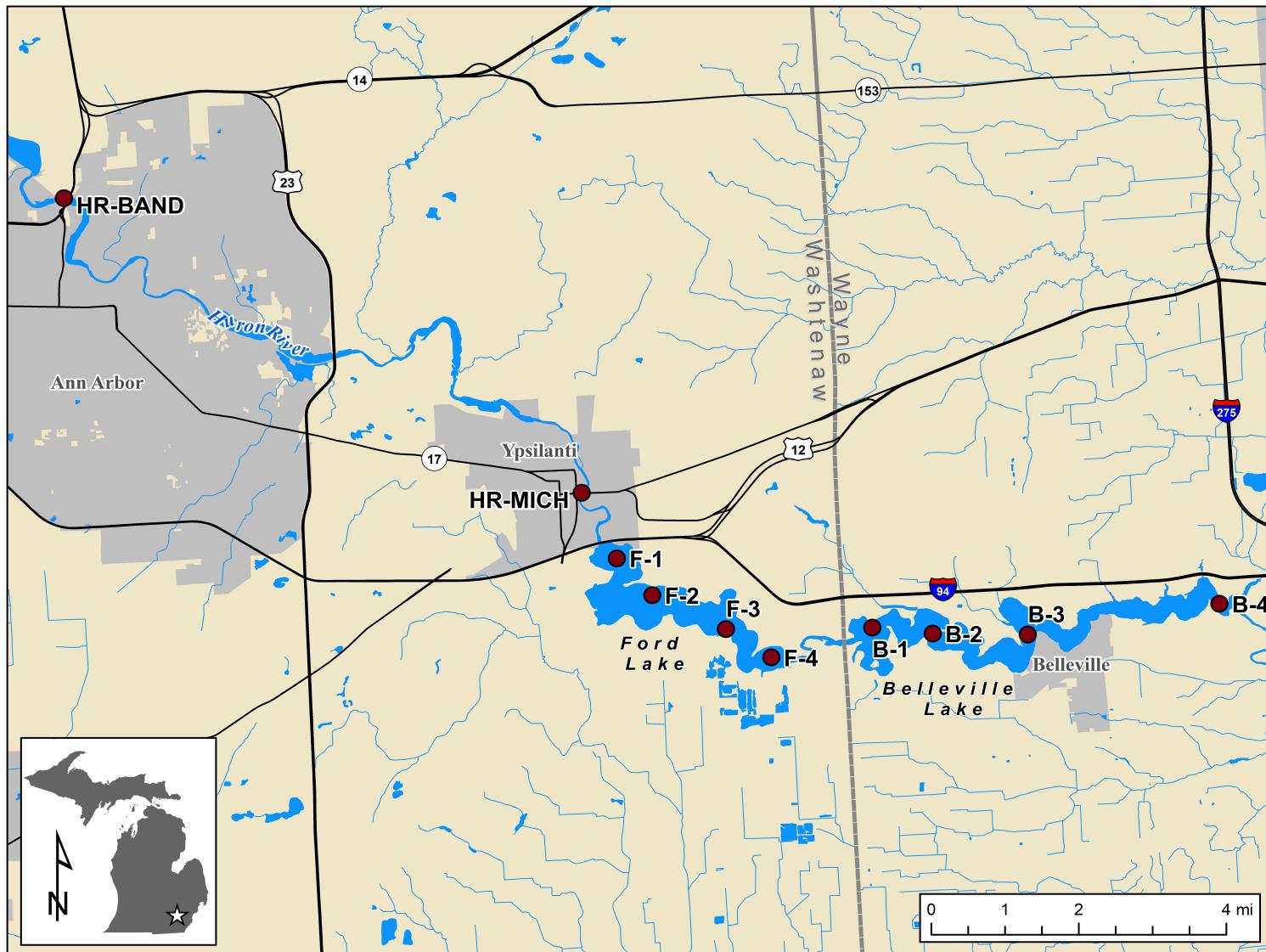


Figure 1. Sampling locations in the Huron River and in Ford and Belleville Lakes, Washtenaw and Wayne Counties, Michigan.

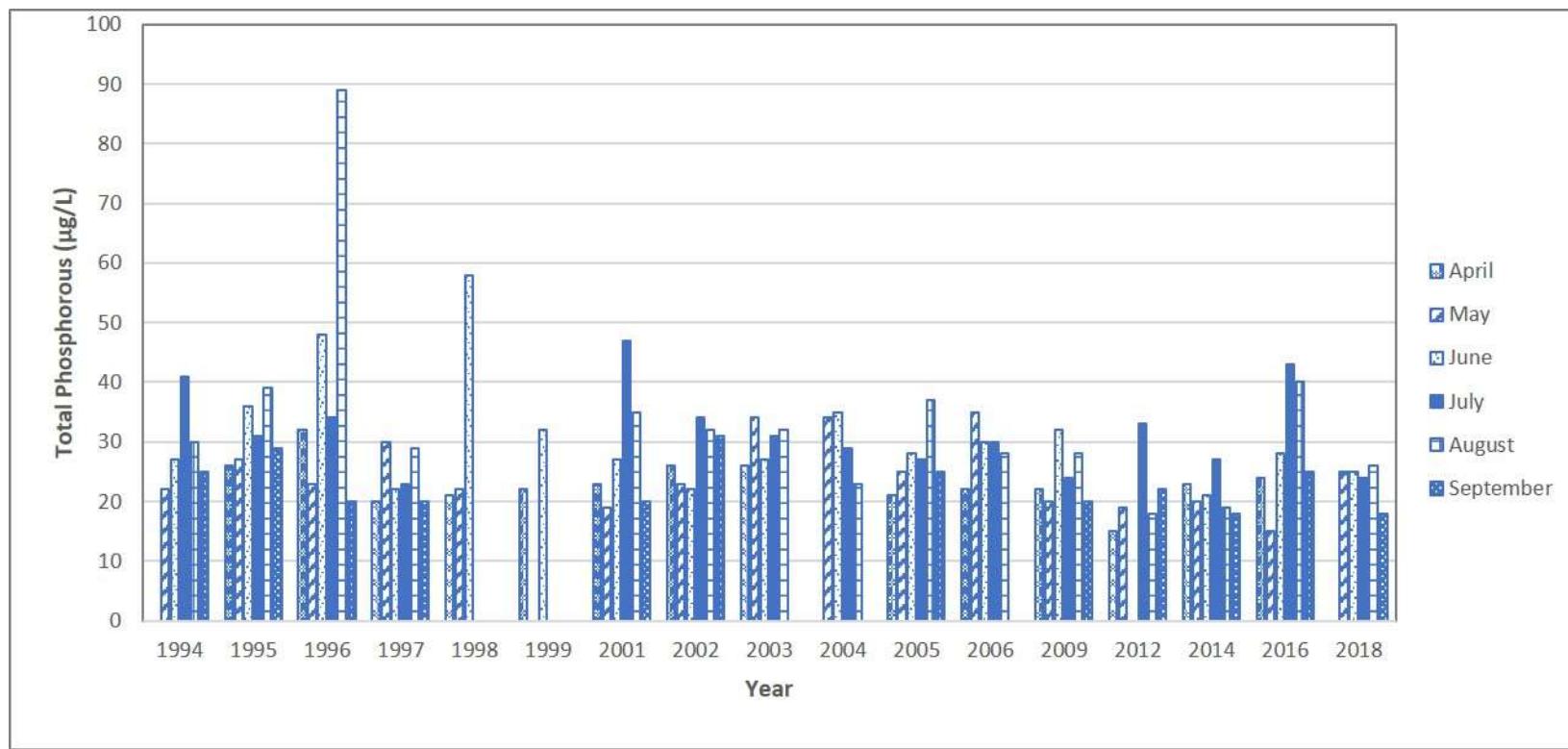


Figure 2. Total phosphorous ($\mu\text{g/L}$) concentrations in the Huron River at the Bandemer Park Station, 1994-1999, 2001-2006, 2009, 2012, 2014, 2016, and 2018.

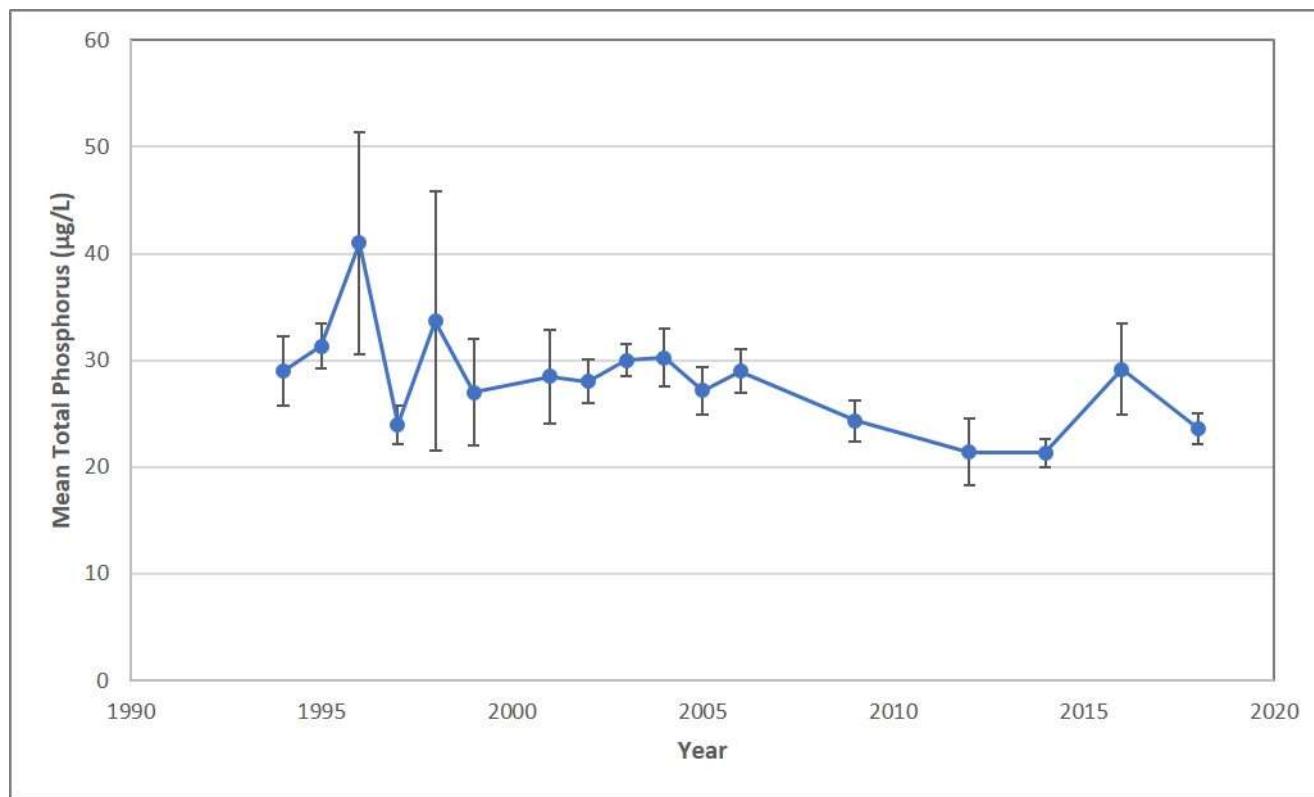


Figure 3. Mean total phosphorous ($\mu\text{g/L}$) concentrations in the Huron River at the Bandemer Park Station, 1994-1999, 2001-2006, 2009, 2012, 2014, 2016, and 2018. Error bars represent standard error of the mean.

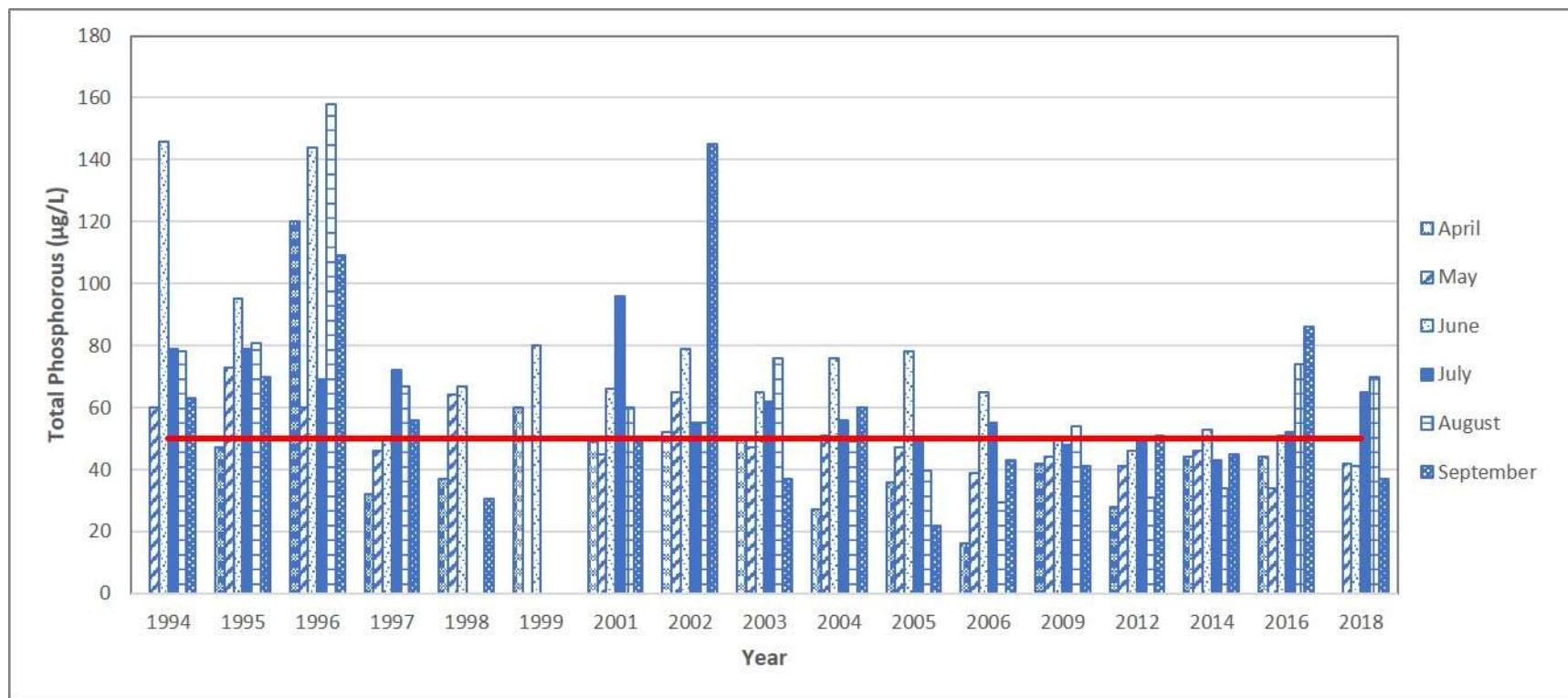


Figure 4. Total phosphorous ($\mu\text{g}/\text{L}$) concentrations in the Huron River at the Michigan Avenue Station, 1994-1999, 2001-2006, 2009, 2012, 2014, 2016, and 2018. Horizontal red line indicates the 50 $\mu\text{g}/\text{L}$ total phosphorous goal established for this site in the 1996 phosphorous TMDL for Ford and Belleville Lakes.

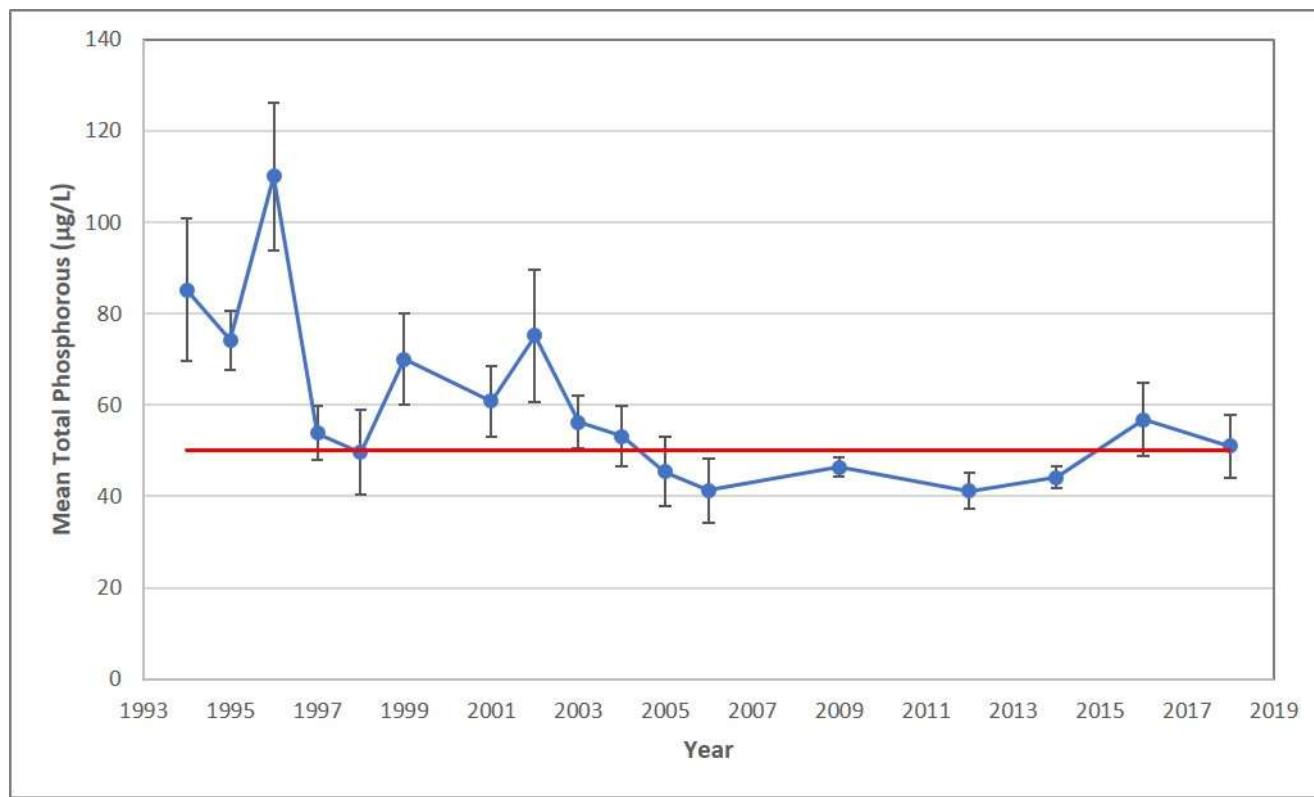


Figure 5. Mean total phosphorous ($\mu\text{g}/\text{L}$) concentrations in the Huron River at the Michigan Avenue Station, 1994-1999, 2001-2006, 2009, 2012, 2014, 2016, and 2018. Horizontal red line indicates the 50 $\mu\text{g}/\text{L}$ total phosphorous goal established for this site in the 1996 phosphorous TMDL for Ford and Belleville Lakes. Error bars represent standard error of the mean.

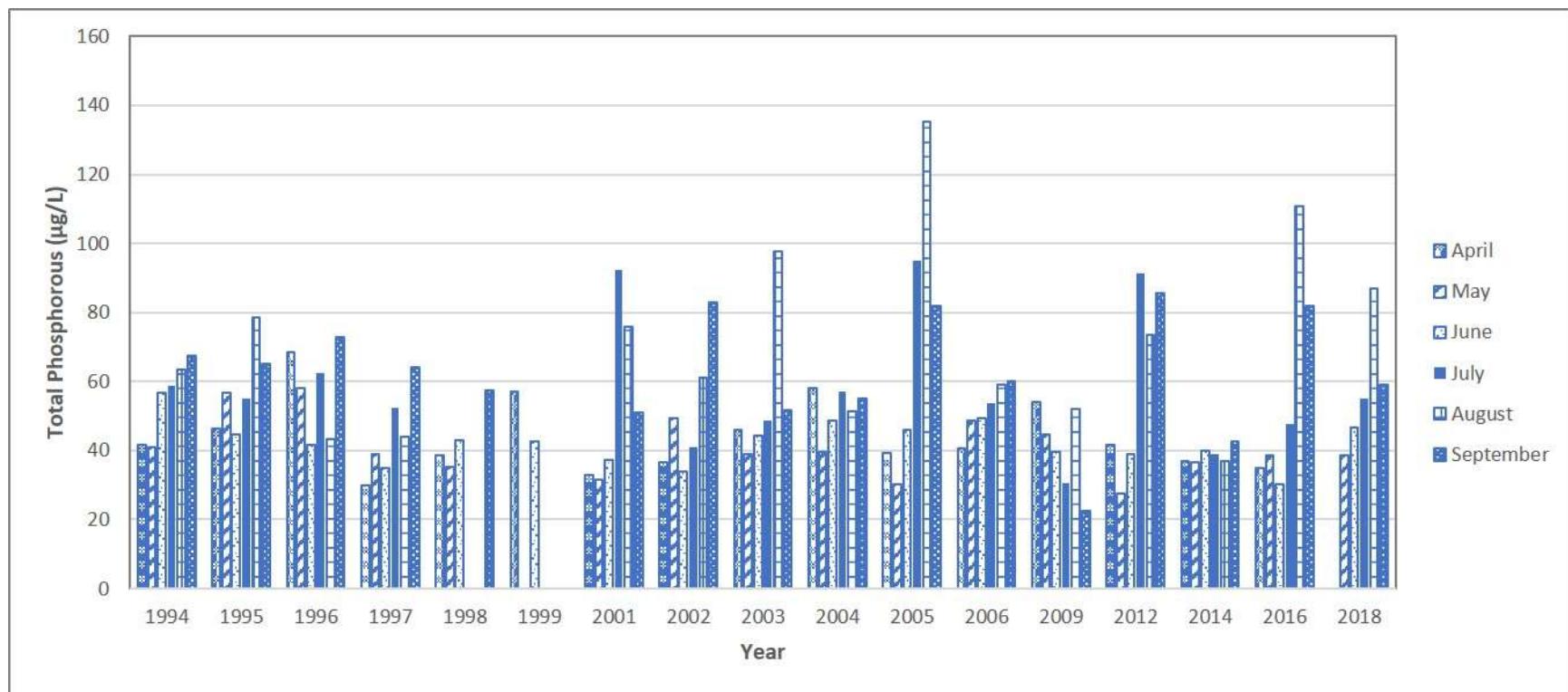


Figure 6. Total phosphorous ($\mu\text{g/L}$) concentrations in Ford Lake, 1994-1999, 2001-2006, 2009, 2012, 2014, 2016, and 2018.

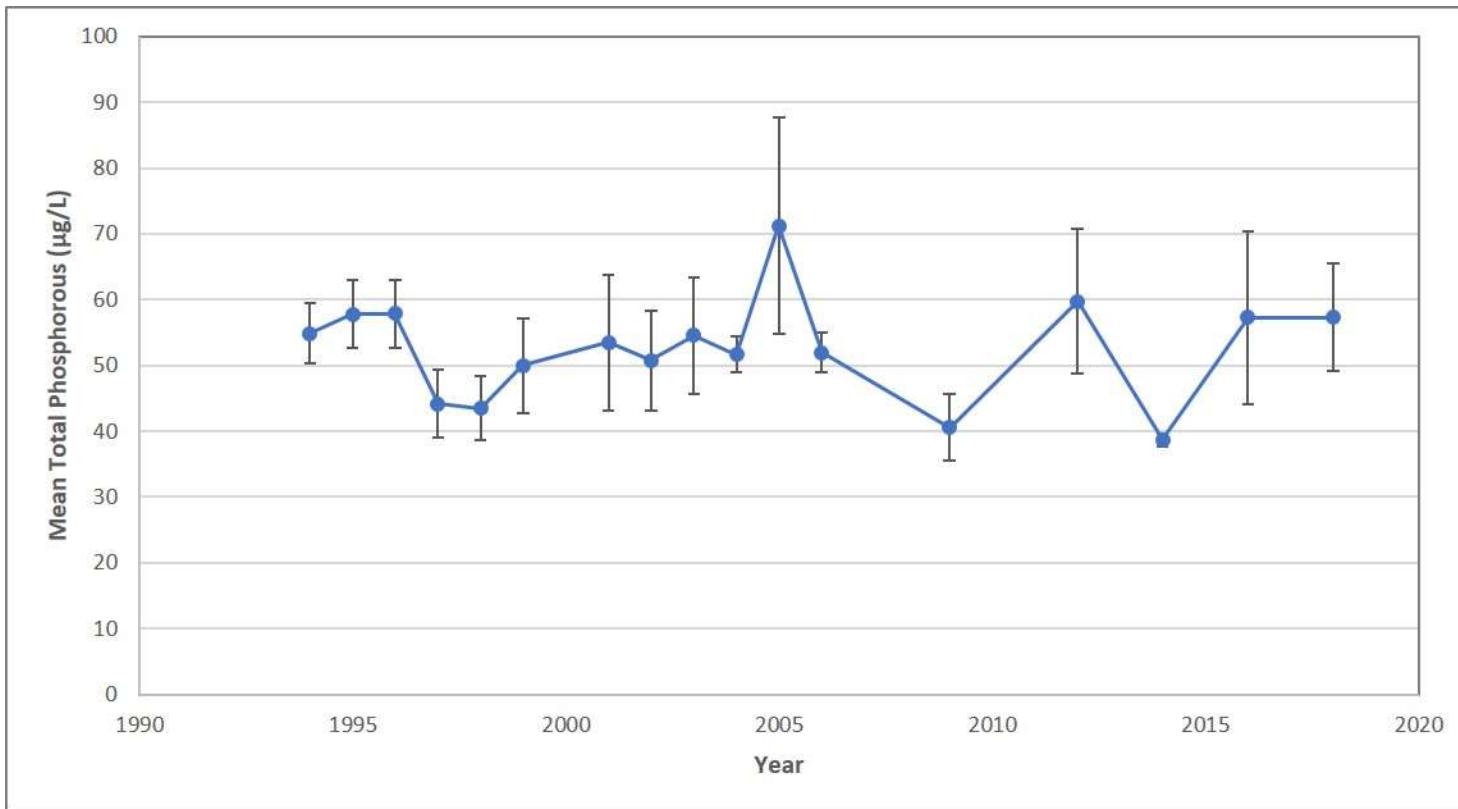


Figure 7. Mean total phosphorous ($\mu\text{g/L}$) concentrations in Ford Lake, 1994-1999, 2001-2006, 2009, 2012, 2014, 2016, and 2018. Error bars represent standard error of the mean.

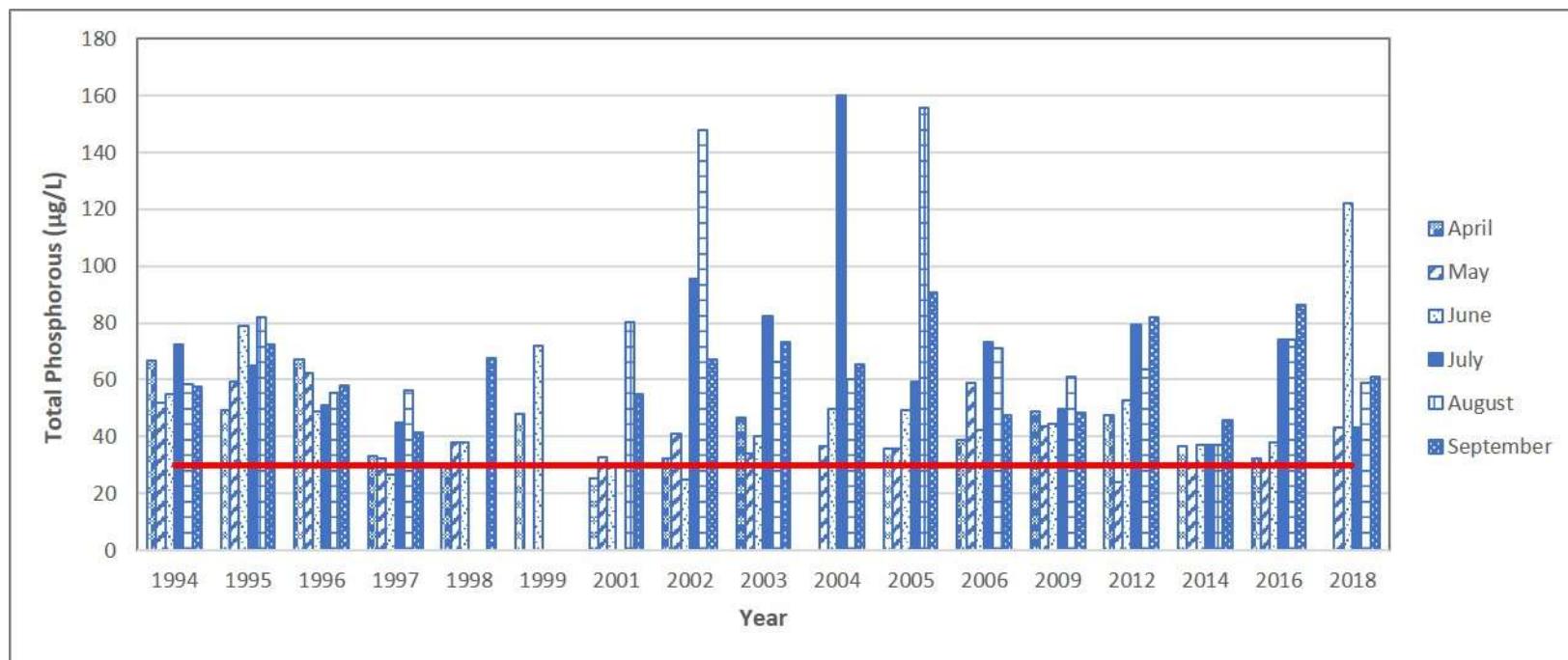


Figure 8. Total phosphorous ($\mu\text{g}/\text{L}$) concentrations in Belleville Lake, 1994-1999, 2001-2006, 2009, 2012, 2014, 2016, and 2018. Horizontal red line indicates the 30 $\mu\text{g}/\text{L}$ total phosphorous goal established for this site in the 1996 phosphorous TMDL for Ford and Belleville Lakes.

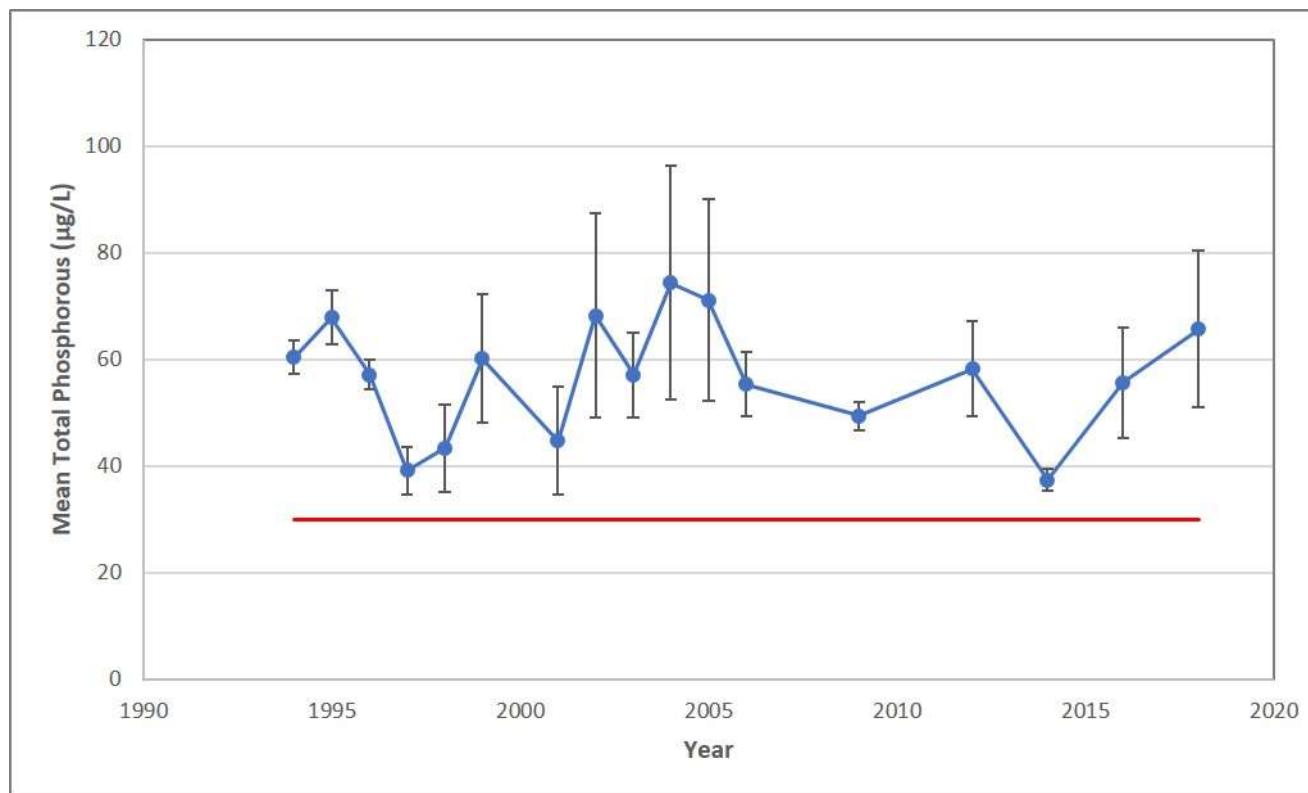


Figure 9. Mean total phosphorous ($\mu\text{g}/\text{L}$) concentrations in Belleville Lake, 1994-1999, 2001-2006, 2009, 2012, 2014, 2016, and 2018. Horizontal red line indicates the 30 $\mu\text{g}/\text{L}$ total phosphorous goal established for this site in the 1996 phosphorous TMDL for Ford and Belleville Lakes. Error bars represent standard error of the mean.

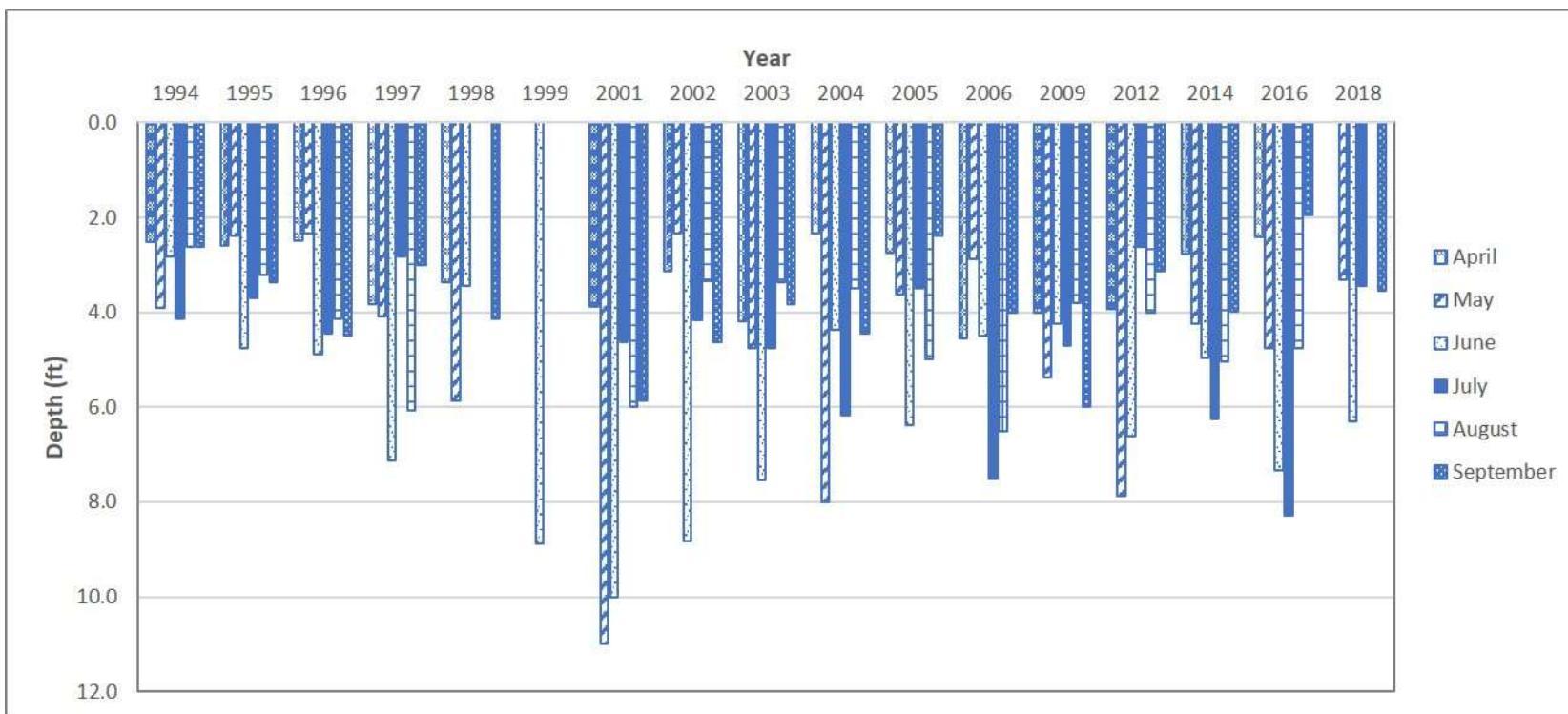


Figure 10. Mean secchi depths (feet) in Ford Lake, 1994-1999, 2001-2006, 2009, 2012, 2014, 2016, and 2018.

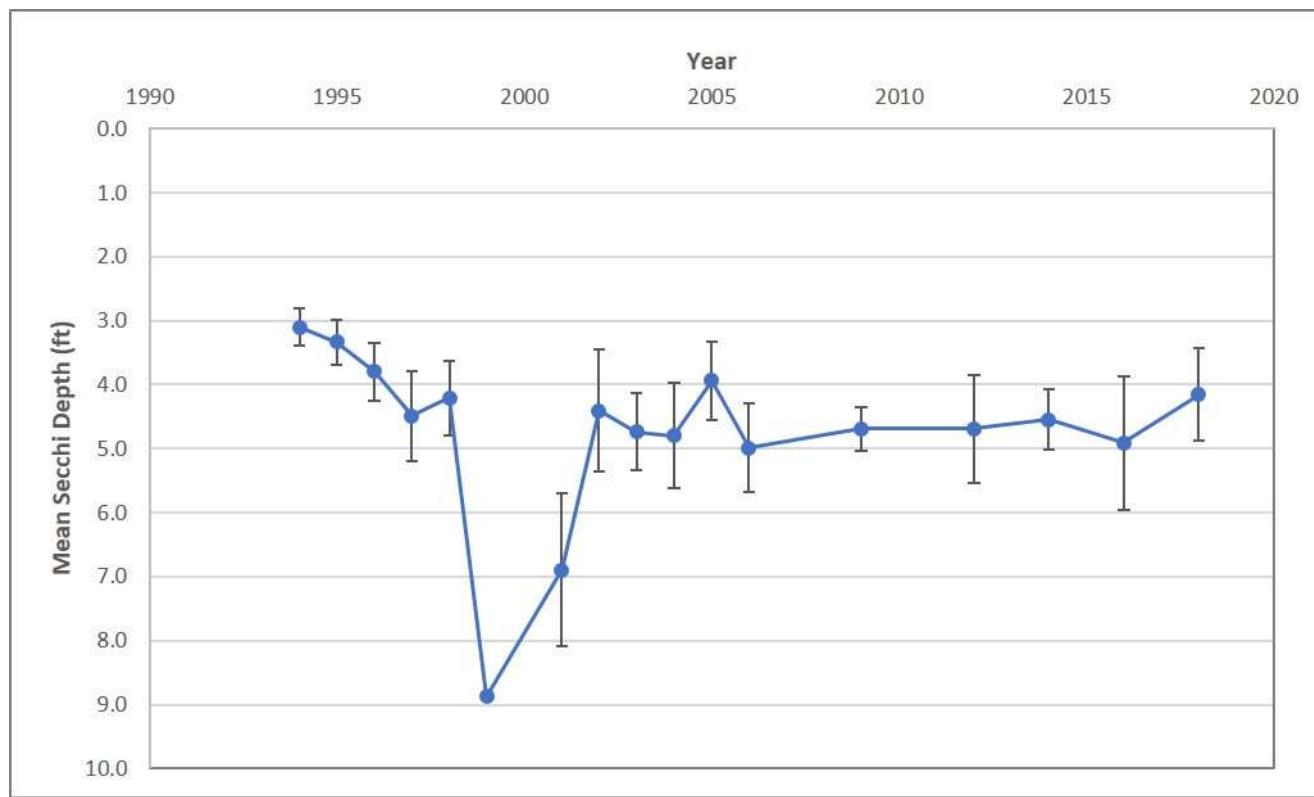


Figure 11. Mean secchi depths (feet) in Ford Lake, 1994-1999, 2001-2006, 2009, 2012, 2014, 2016, and 2018. Error bars represent standard error of the mean.

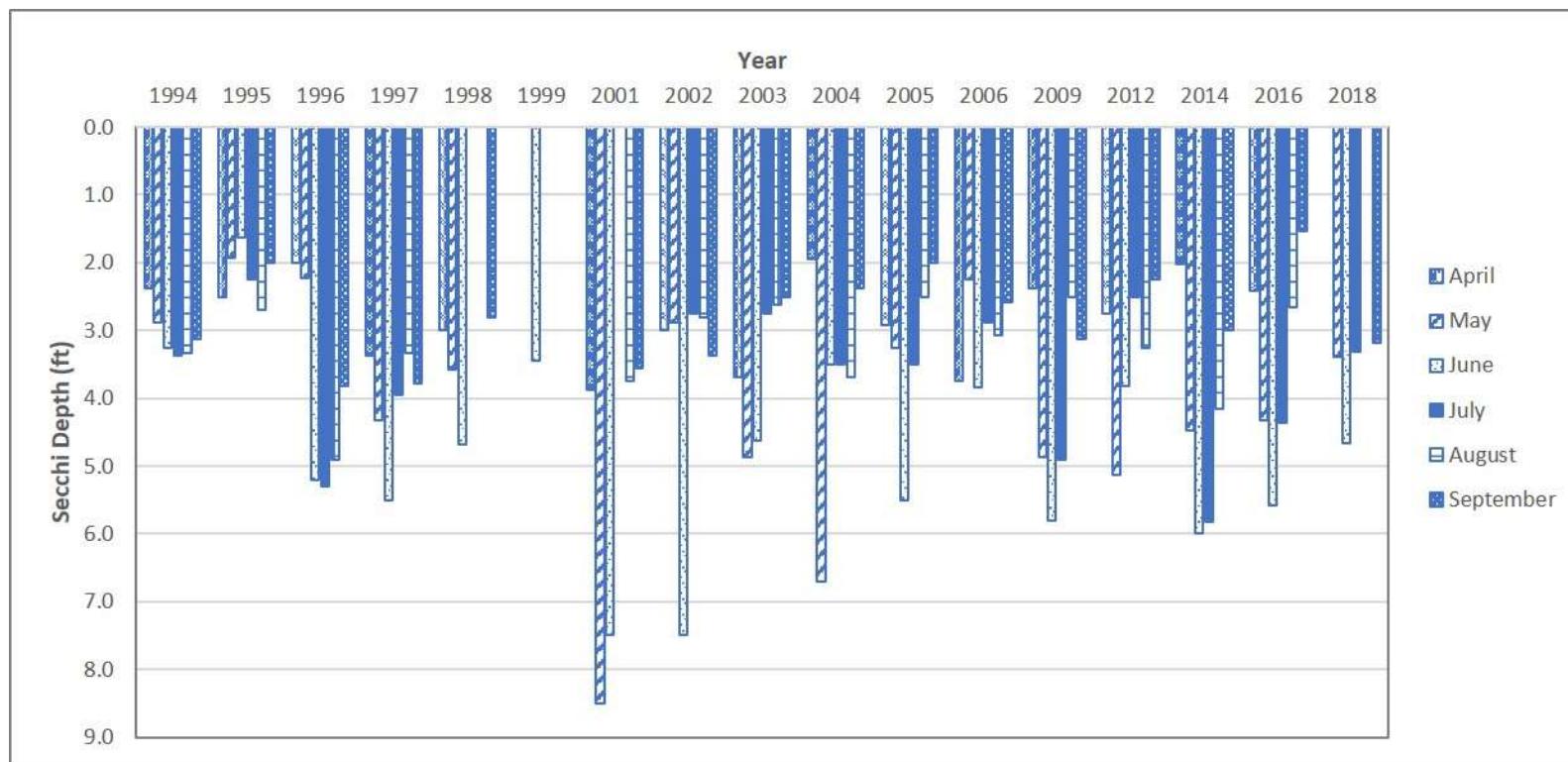


Figure 12. Mean secchi depths (feet) in Belleville Lake, 1994-1999, 2001-2006, 2009, 2012, 2014, 2016, and 2018.

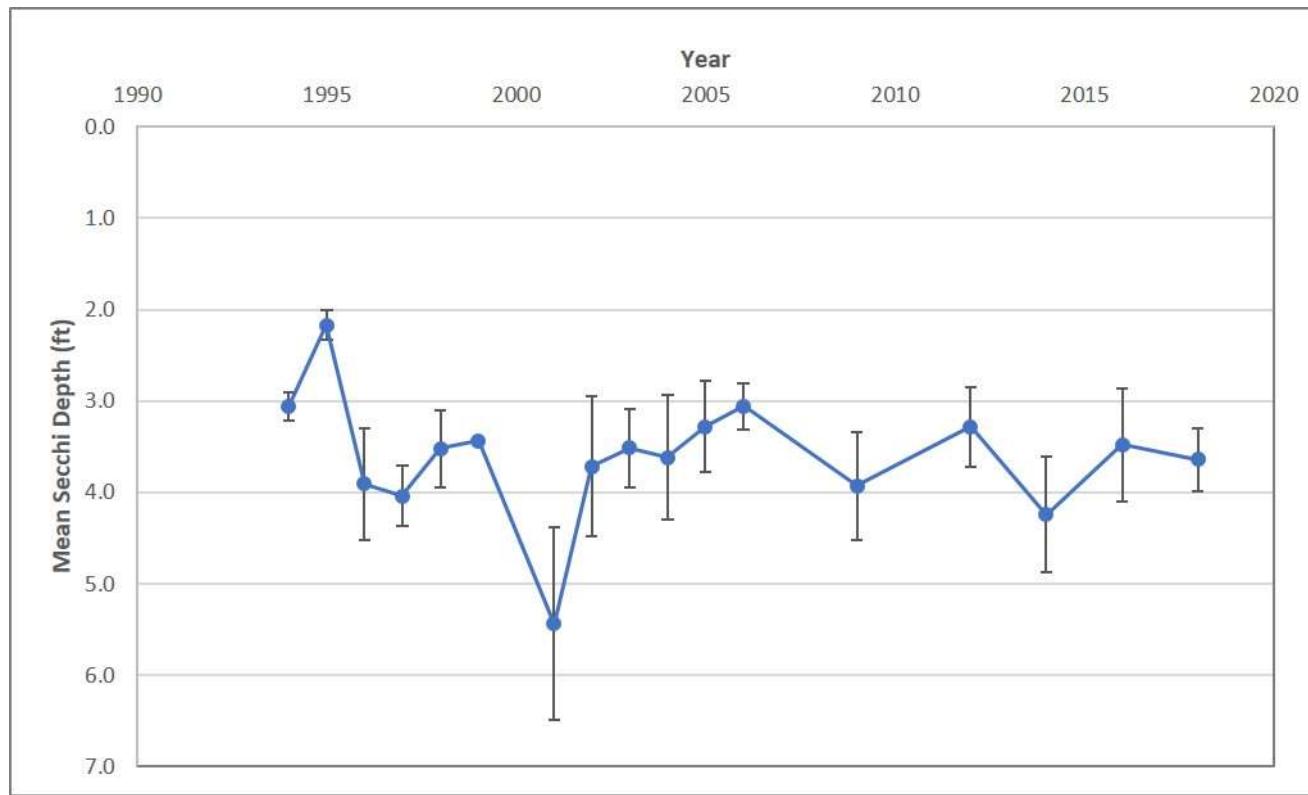
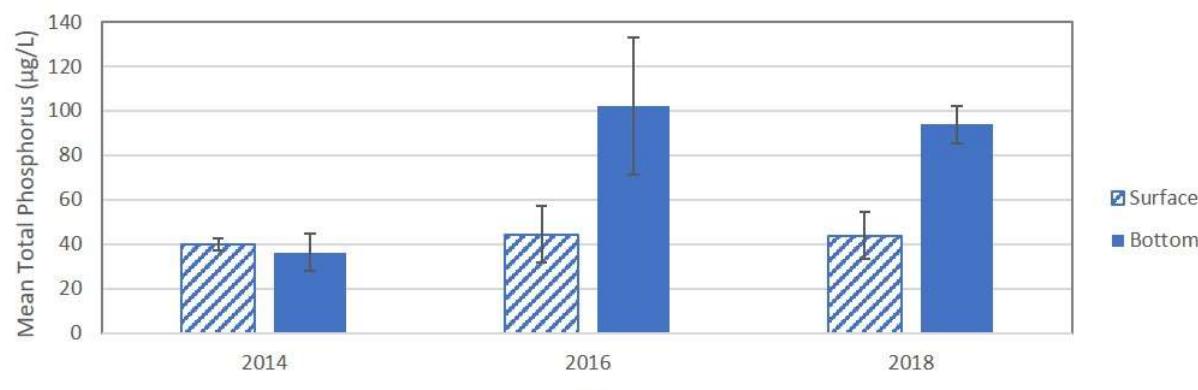


Figure 13. Mean secchi depths (feet) in Belleville Lake, 1994-1999, 2001-2006, 2009, 2012, 2014, 2016, and 2018. Error bars represent standard error of the mean.

Ford Lake - all sites



Belleville Lake - all sites

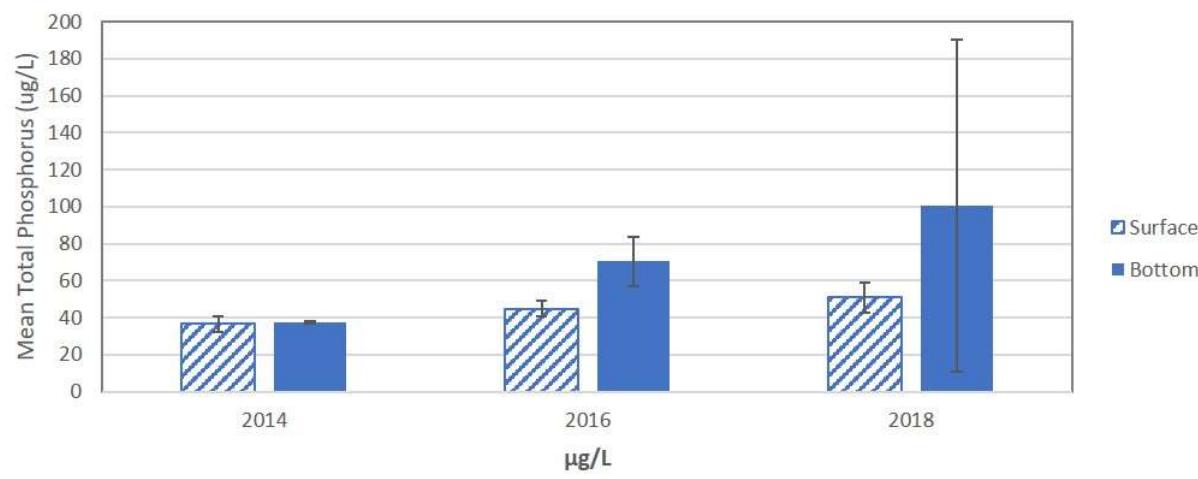


Figure 14. Mean total phosphorus ($\mu\text{g}/\text{L}$) concentrations in the surface versus near-bottom depths of Ford and Belleville Lakes, 2014, 2016, and 2018. Values were calculated by averaging monthly surface and bottom data (for all sites within a lake) collected between April and September of a given year. Error bars represent 1 standard deviation.

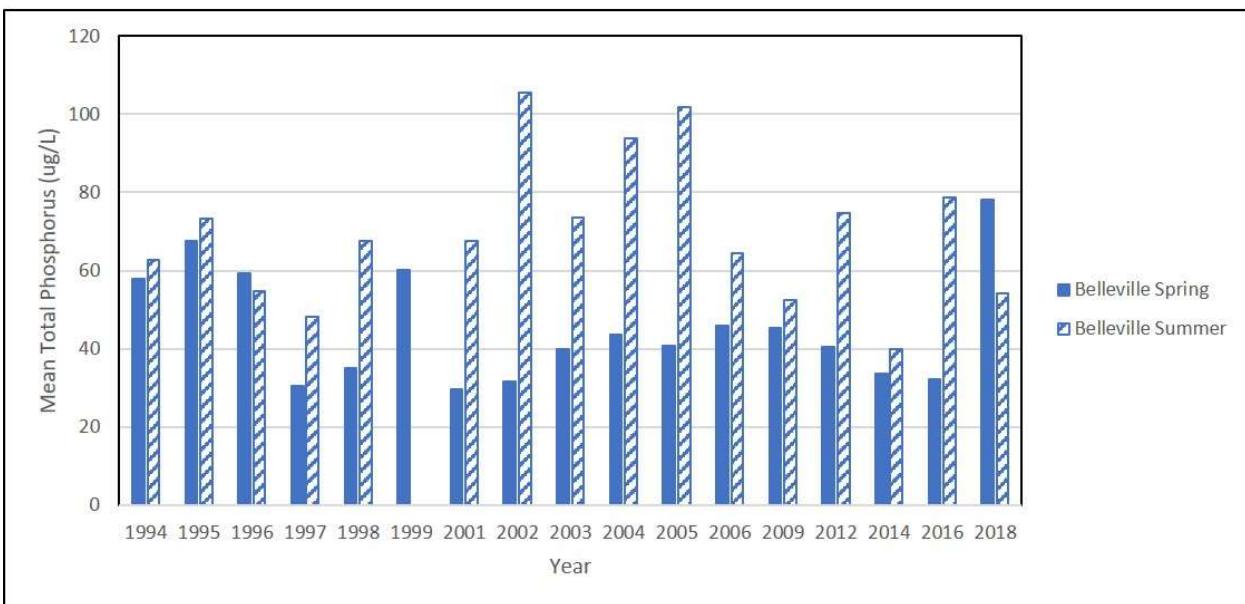
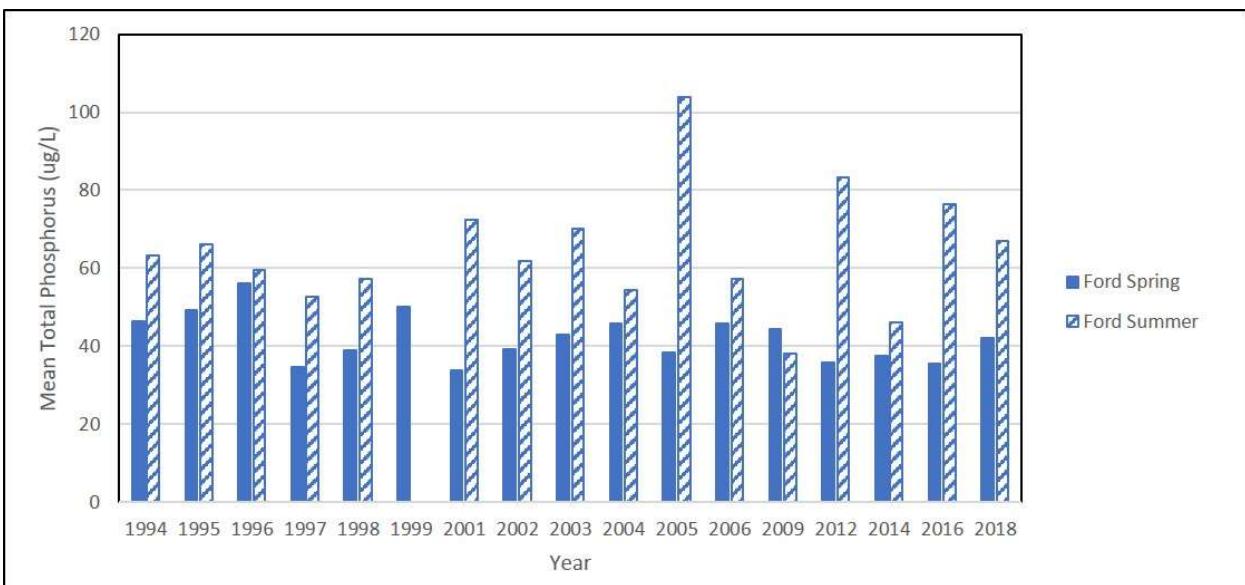


Figure 15. Comparison of spring (April-June) versus summer (July-September) mean total phosphorus ($\mu\text{g}/\text{L}$) concentrations in Ford and Belleville Lakes, 1994-1999, 2001-2006, 2009, 2012, 2014, 2016, and 2018.

Table 1. Water Chemistry data for the Huron River at the Bandemer Park Station, Washtenaw County. All values were reported as mg/L unless specified. Parameters include temperature (°C), pH (SU), dissolved oxygen (DO), conductivity (uS/cm), total phosphorous (TP), total nitrogen (TN), ortho phosphate (OP), nitrate plus nitrite ($\text{NO}_3 + \text{NO}_2$), nitrate (NO_3), nitrite (NO_2), ammonia (NH_3), kjeldahl nitrogen (KN), and total suspended solids (TSS).

Date	Duplicate	Lab Codes/ Comments	Temp	DO	Spec. Cond.	pH	TP	TN	OP	$\text{NO}_3 + \text{NO}_2$	NO_3 (calc.)	NO_2	NH_3	KN	TSS
4/23/2014	ORIG				741		0.023	0.845	0.005	0.3	0.29	0.005	0.01	0.55	3
5/22/2014	ORIG	NO2: T; TSS: T			644		0.02	0.943	0.007	0.26	0.25	0.003	0.03	0.69	3
6/17/2014	ORIG	TSS: T			709		0.021	0.831	0.006	0.21	0.2	0.011	0.03	0.62	2
7/16/2014	ORIG						0.027	0.802	0.009	0.15	0.13	0.012	0.04	0.66	4
8/20/2014	ORIG	NO2: T; TSS: T			696		0.019	0.592	0.005	0.052	0.05	0.002	0.04	0.54	1
9/23/2014	ORIG	Ortho-P: T; TSS: T			742		0.018	0.645	0.003	0.15	0.14	0.005	0.02	0.5	1
4/20/2016	ORIG	Ortho-P: T; TSS: T; DO probe malfunction all day and pH wouldn't calibrate	13.24	13.53	755	7.90	0.024	0.849	0.002	0.3	0.29	0.009	0.01	0.55	3
5/17/2016	ORIG	Ortho-P: T; NH3: T	14.16	9.54	862	8.18	0.015	0.867	0.002	0.33	0.33	0.007	0.007	0.53	6
6/14/2016	ORIG		22.33	7.09	710	7.74	0.028	0.759	0.008	0.16	0.15	0.009	0.09	0.6	4
7/12/2016	ORIG		24.90	4.46	732	7.50	0.043	0.778	0.012	0.098	0.087	0.011	0.11	0.68	5
8/17/2016	ORIG	Ortho-P: A09	25.22	6.38	716	7.84	0.04	0.707	0.012	0.14	0.13	0.007	0.05	0.57	4
8/17/2016	FB	TP: W; Ortho-P: A09, T; NO3 + NO2: W; NO2: W; NH3: W; KN: W; TSS: W					<0.003		0.003	<0.001	<0.010	<0.002	<0.001	<0.04	<1
9/29/2016	ORIG	NO2: A08, T	18.41	7.15	766	7.90	0.025	0.62	0.005	0.08	0.078	0.002	0.03	0.54	4
9/29/2016	FB	TP: W; Ortho-P: T; NO3 + NO2: W; NO2: A08, W; NH3: W; KN: W; TSS: T					<0.003		0.002	<0.001	<0.010	<0.002	<0.001	<0.04	1
9/29/2016	REP	NO2: A08, W					0.023		0.005	0.069	0.069	<0.002	0.03	0.53	6
5/23/2018	ORIG						0.025	0.999	0.009	0.32	0.31	0.009	0.05	0.68	6
6/25/2018	ORIG	Ortho-P: H; TSS: T	22.27	7.78	740	7.89	0.025	0.942	0.008	0.32	0.31	0.012	0.07	0.62	2

Table 1 (cont.).

Date	Duplicate	Lab Codes/ Comments	Temp	D.O.	Spec. Cond.	pH	TP	TN	Ortho-P	NO3 + NO2	NO3 (calc.)	NO2	NH3	KN	TSS
7/19/2018	ORIG	Ortho-P: W; TSS: T; Couldn't locate sonde data for this site on this date					0.024	0.751		0.1	0.095	0.006	0.06	0.65	3
8/14/2018	ORIG	NO2: W	25.14	6.74	779	8.17	0.026	0.611	0.006	0.041	0.041		0.03	0.57	4
9/12/2018	ORIG	Ortho-P: A03; NO2: W; Couldn't locate sonde data for this site on this date					0.018	0.62	0.007	0.1	0.1		0.02	0.52	4

Laboratory codes:

W = Reported value is less than the method detection limit (MDL).

T = Reported value is less than the reporting limit (RL). Result is estimated.

A = Result is estimated due to high matrix spike recovery.

Table 2. Water Chemistry data for the Huron River at the Michigan Avenue Station, Washtenaw County. All values were reported as mg/L unless specified. Parameters include temperature (°C), pH (SU), dissolved oxygen (DO), conductivity (uS/cm), total phosphorous (TP), total nitrogen (TN), ortho phosphate (OP), nitrate plus nitrite ($\text{NO}_3 + \text{NO}_2$), nitrate (NO_3), nitrite (NO_2), ammonia (NH_3), kjeldahl nitrogen (KN), and total suspended solids (TSS).

Date	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	TP	TN	Ortho-P	$\text{NO}_3 + \text{NO}_2$	NO_3 (calc.)	NO_2	NH_3	KN	TSS
4/23/2014	ORIG				805		0.044	1.529	0.009	0.85	0.84	0.009	0.02	0.68	6
5/22/2014	ORIG				681		0.046	1.238	0.01	0.46	0.45	0.008	0.02	0.78	7
6/17/2014	ORIG				750		0.053	1.483	0.015	0.76	0.75	0.013	0.02	0.72	11
7/16/2014	ORIG						0.043	1.385	0.017	0.71	0.69	0.015	0.03	0.68	6
8/20/2014	ORIG				717		0.034	1.297	0.014	0.72	0.71	0.007	0.04	0.58	4
8/20/2014	REP						0.035	1.286	0.014	0.71	0.7	0.006	0.03	0.58	6
9/23/2014	ORIG				790		0.045	1.265	0.015	0.74	0.74	0.005	0.02	0.52	5
9/23/2014	REP						0.045	1.278	0.016	0.73	0.73	0.008	0.02	0.54	6
9/23/2014	FB	TP: T; Ortho-P: W; $\text{NO}_3 + \text{NO}_2$: W; NO_2 : W; NH_3 : W; KN: W; TSS: W					0.002		<0.003	<0.002	<0.010	<0.002	<0.003	<0.02	<1
4/20/2016	ORIG	DO probe malfunction all day and pH wouldn't calibrate	13.96	16.80	803	8.12	0.044	1.409	0.003	0.73	0.72	0.009	0.007	0.68	7
4/20/2016	REP						0.063	1.719	0.003	0.72	0.71	0.009	0.004	1	8
5/17/2016	ORIG		14.98	9.01	874	8.28	0.034	1.348	0.005	0.7	0.69	0.008	0.004	0.65	9
6/14/2016	ORIG		21.89	8.80	761	7.94	0.051	1.764	0.015	1.1	1.1	0.014	0.04	0.65	7
6/14/2016	FB	TP: W; Ortho-P: W; $\text{NO}_3 + \text{NO}_2$: W; NO_2 : W; NH_3 : W; KN: W; TSS: T					<0.003		<0.002	<0.001	<0.010	<0.002	<0.001	<0.04	1
6/14/2016	REP						0.05	1.794	0.015	1.1	1.1	0.014	0.04	0.68	7
7/12/2016	ORIG	PC data were recorded, but units were not specified (PC 0.03)	25.40	7.46	868	8.07	0.052	1.845	0.018	1.2	1.2	0.015	0.07	0.63	5
8/17/2016	ORIG		24.78	8.06	666	7.82	0.074	1.295	0.03	0.64	0.63	0.015	0.09	0.65	19
9/29/2016	ORIG		17.92	9.3	815	7.92	0.086	3.258	0.029	2.5	2.5	0.008	0.02	0.75	21

Laboratory codes:

W = Reported value is less than the method detection limit (MDL).

T = Reported value is less than the reporting limit (RL). Result is estimated.

A = Result is estimated due to high matrix spike recovery.

Table 2 (cont.).

Date	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	TP	TN	Ortho-P	NO ₃ + NO ₂	NO ₃ (calc.)	NO ₂	NH ₃	KN	TSS
9/29/2016	REP						0.09	3.299	0.029	2.5	2.5	0.009	0.04	0.79	22
5/23/2018	ORIG						0.042	1.23	0.014	0.46	0.45	0.01	0.05	0.77	14
5/23/2018	REP						0.043	1.31	0.013	0.48	0.47	0.01	0.05	0.83	15
5/23/2018	FB	TP: W; Ortho-P: W; NO ₃ + NO ₂ : T; NO ₂ : W; NH ₃ : W; KN: W; TSS: T						0		0.007					3
6/25/2018	ORIG		22.472	8.86	810	7.97	0.041	1.56	0.013	0.87	0.86	0.01	0.03	0.69	7
7/19/2018	ORIG	Couldn't locate sonde data for this site on this date					0.065	2.363	0.028	1.6	1.6	0.013	0.03	0.75	6
7/19/2018	REP						0.06	2.383	0.028	1.6	1.6	0.013	0.04	0.77	5
7/19/2018	BLANK	Ortho-P: W; NO ₃ + NO ₂ : T; NO ₂ : W; NH ₃ : W; KN: A04; TSS: W						0		0.007					
8/14/2018	ORIG		25.606	8.58	881	8.23	0.07	1.67	0.034	1	1	0.01	0.03	0.66	4
8/14/2018	REP						0.075	1.7105	0.034	1	1	0.0105	0.034	0.7	5
9/12/2018	ORIG	Couldn't locate sonde data for this site on this date					0.037	2.26	0.015	1.6	1.6	0.01	0.02	0.65	3
9/12/2018	REP						0.038	2.23	0.014	1.6	1.6	0.01	0.02	0.62	6
9/12/2018	FB	TP: W; Ortho-P: W; NO ₃ + NO ₂ : T; NO ₂ : W; NH ₃ : W; KN: W; TSS: T						0							1

Laboratory codes:

W = Reported value is less than the method detection limit (MDL).

T = Reported value is less than the reporting limit (RL). Result is estimated.

A = Result is estimated due to high matrix spike recovery.

Table 3. Water Chemistry data for Ford and Belleville Lake, Washtenaw County, April 2014. All values were reported as mg/L unless specified. Parameters include temperature (°C), pH (SU), dissolved oxygen (DO), conductivity (uS/cm), total phosphorous (TP), total nitrogen (TN), ortho phosphate (OP), nitrate plus nitrite ($\text{NO}_3 + \text{NO}_2$), nitrate (NO_3), nitrite (NO_2), ammonia (NH_3), kjeldahl nitrogen (KN), and total suspended solids (TSS).

Table 3 (cont.).

Table 3 (cont.).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	NO ₃ + NO ₂	NO ₃ (calc.)	NO ₂	NH ₃	KN	TSS
F-2	2	0	Orig		12.74	11.23	767	8.25	16	0.038	1.429	0.011	0.71	0.7	0.009	0.01	0.72	12
F-2		2			12.67	11.31	766	8.25										
F-2		4			12.59	11.25	766	8.25										
F-2		6			12.53	11.19	765	8.25										
F-2		8			12.23	11.08	764	8.23										
F-2		10			12.05	10.92	764	8.22										
F-2		12			11.74	10.72	764	8.19										
F-2		14			11.65	10.45	764	8.18										
F-2		16			11.62	10.28	764	8.16										
F-2	2	18	Orig		11.47	9.42	766	7.88		0.035	1.338	0.01	0.71	0.7	0.008	0.01	0.63	13
F-3	2.5	0	Orig	NH3: T	12.68	11.42	762	8.31	17	0.038	1.388	0.011	0.7	0.7	0.008	0.007	0.68	13
F-3		2			12.66	11.42	763	8.30										
F-3		4			12.62	11.40	759	8.30										
F-3		6			12.62	11.38	761	8.30										
F-3		8			12.61	11.35	761	8.29										
F-3		10			12.60	11.34	760	8.29										
F-3	2.5	12	Orig	NH3: T	12.50	11.00	754	8.29		0.04	1.408	0.01	0.7	0.69	0.008	0.007	0.71	14
F-3		14			12.51	11.24	755	8.28										
F-3		16			12.51	11.25	755	8.28										
F-3		18			12.44	11.22	756	8.27										
F-3		20			12.43	11.17	756	8.27										
F-3		22			12.42	11.17	756	8.27										
F-3	2.5	24	Orig	NH3: T	12.17	8.31	757	8.12		0.042	1.448	0.009	0.72	0.71	0.008	0.006	0.73	15

Table 3 (cont.).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	NO ₃ + NO ₂	NO ₃ (calc.)	NO ₂	NH ₃	KN	TSS
F-4	3.5	0	Orig	NH3: T	12.67	12.66	757	8.41	18	0.033	1.399	0.007	0.65	0.64	0.009	0.009	0.75	10
F-4		2			12.66	12.70	756	8.41										
F-4		4			12.51	12.74	756	8.41										
F-4		6			12.51	12.46	749	8.42										
F-4		8			12.47	12.48	752	8.42										
F-4		10			12.45	12.45	753	8.41										
F-4		12			12.34	12.32	753	8.40										
F-4	3.5	14	Orig	NH3: T	12.29	12.24	753	8.39		0.033	1.368	0.009	0.65	0.64	0.008	0.009	0.72	9
F-4		16			12.23	12.05	753	8.38										
F-4		18			12.21	12.02	753	8.38										
F-4		20			12.17	11.99	753	8.37										
F-4		22			12.13	11.94	750	8.37										
F-4		24			12.11	11.92	750	8.37										
F-4	3.5	26	Orig		12.03	11.81	750	8.35		0.031	1.368	0.008	0.65	0.64	0.008	0.01	0.72	10

Laboratory codes:

W = Reported value is less than the method detection limit (MDL).

T = Reported value is less than the reporting limit (RL). Result is estimated.

A = Result is estimated due to high matrix spike recovery.

Table 4. Water Chemistry data for Ford and Belleville Lake, Washtenaw County, May 2014. All values were reported as mg/L unless specified. Parameters include temperature (°C), pH (SU), dissolved oxygen (DO), conductivity (uS/cm), total phosphorous (TP), total nitrogen (TN), ortho phosphate (OP), nitrate plus nitrite ($\text{NO}_3 + \text{NO}_2$), nitrate (NO_3), nitrite (NO_2), ammonia (NH_3), kjeldahl nitrogen (KN), and total suspended solids (TSS).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	$\text{NO}_3 + \text{NO}_2$	NO_3 (calc.)	NO_2	NH_3	KN	TSS
B-1	2.75	0	Orig	TSS: T	19.02	10.53	662	8.32	11	0.037	1.219	0.01	0.41	0.4	0.009	0.01	0.81	3
B-1		2			18.60	11.39	662	8.26										
B-1		4			18.47	11.47	662	8.26										
B-1		5			18.31	11.56	661	8.26										
B-2																		
B-2		0	Orig		18.12	9.91	662	8.18	12	0.033	1.32	0.01	0.48	0.47	0.01	0.01	0.84	6
B-2		2			18.09	10.49	662	8.18										
B-2		4			17.99	10.67	662	8.17										
B-2		6			17.97	10.73	662	8.17										
B-2		8			17.77	10.65	662	8.17										
B-2		9	Orig		17.76	10.64	661	8.16		0.034	1.261	0.01	0.49	0.47	0.011	0.01	0.78	6
B-3	3.7	0	Orig	NH3: T	17.88	10.10	660	8.13	12	0.037	1.276	0.01	0.5	0.48	0.016	0.008	0.78	4
B-3		2			17.84	9.41	660	8.13										
B-3		4			17.82	9.61	659	8.13										
B-3		6			17.77	9.96	659	8.13										
B-3		8			17.69	10.14	662	8.12										
B-3		10	Orig		17.62	10.11	663	8.11		0.034	1.284	0.01	0.5	0.49	0.014	0.01	0.78	9
B-3		12			17.59	10.09	663	8.11										
B-3		14			17.58	10.08	661	8.11										
B-3		16			17.58	9.97	662	8.09										
B-3		18			17.58	9.87	662	8.08										
B-3		19	Orig		17.58	9.82	662	8.07		0.033	1.286	0.01	0.51	0.49	0.016	0.01	0.78	11

Table 4 (cont.).

Table 4 (cont.).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	NO ₃ + NO ₂	NO ₃ (calc.)	NO ₂	NH ₃	KN	TSS
F-2	5	0	Orig		18.77	9.35	677	8.11	5	0.029	1.224	0.01	0.48	0.47	0.014	0.03	0.74	4
F-2		2			18.76	9.66	676	8.11										
F-2		4			18.75	9.72	676	8.10										
F-2		6			18.68	9.72	676	8.10										
F-2		8			17.56	9.19	676	8.01										
F-2		10			17.39	8.97	676	8.00										
F-2		12			16.68	8.62	675	7.94										
F-2		14			15.56	8.22	667	7.87										
F-2		16	Orig		15.52	8.09	667	7.87		0.034	1.242	0.01	0.49	0.48	0.012	0.05	0.75	7
F-2			REP	NO ₂ : T; TSS: T						0.026	1.195	0.01	0.48	0.48	0.005	0.03	0.71	3
F-2	5		FB	TP: W; Ortho-P: W; NO ₃ + NO ₂ : W; NO ₂ : W; NH ₃ : T; KN: W						<0.002		<0.003	<0.002	<0.010	<0.002	0.004	<0.02	<1
F-3	4	0	Orig		19.39	9.91	672	8.24	11	0.029	1.239	0.01	0.46	0.46	0.009	0.01	0.77	5
F-3		2			19.37	10.30	671	8.23										
F-3		4			19.36	10.69	670	8.23										
F-3		6			19.34	10.74	670	8.22										
F-3		8			19.33	10.74	671	8.22										
F-3		10			19.32	10.73	671	8.21										
F-3		12	Orig		19.21	10.64	671	8.19		0.031	1.24	0.01	0.47	0.46	0.01	0.01	0.77	3
F-3		14			18.81	10.19	674	8.14										
F-3		16			18.76	9.99	674	8.13										
F-3		18			18.72	9.97	674	8.13										
F-3		20			18.71	9.98	674	8.12										
F-3		22			14.97	7.26	666	7.78										
F-3		23	Orig		14.88	7.01	665	7.76		0.06	1.239	0.01	0.48	0.47	0.009	0.02	0.76	4

Table 4 (cont.).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	NO ₃ + NO ₂	NO ₃ (calc.)	NO ₂	NH ₃	KN	TSS
F-4	3.5	0	Orig	NH3:T	19.73	12.52	654	8.38	21	0.048	1.383	0.01	0.42	0.41	0.013	0.009	0.96	5
F-4		2			19.72	12.72	655	8.37										
F-4		4			19.71	12.74	655	8.37										
F-4		6			19.68	12.71	658	8.37										
F-4		8			19.54	12.63	659	8.35										
F-4		10			19.26	12.24	661	8.31										
F-4		12			19.04	11.82	664	8.24										
F-4		14	Orig	NH3:T	18.52	10.98	665	8.18		0.035	1.3	0.01	0.46	0.45	0.01	0.009	0.84	3
F-4		16			18.16	10.71	663	8.14										
F-4		18			17.71	10.71	657	8.13										
F-4		20			16.78	10.02	659	8.03										
F-4		22			16.20	9.69	657	7.98										
F-4		24			15.87	9.34	659	7.94										
F-4		26			15.79	8.99	659	7.91										
F-4		28			14.94	8.22	661	7.78										
F-4		30	Orig		14.65	7.11	660	7.71		0.023	1.228	0.01	0.53	0.52	0.008	0.05	0.7	5

Laboratory codes:

W = Reported value is less than the method detection limit (MDL).

T = Reported value is less than the reporting limit (RL). Result is estimated.

A = Result is estimated due to high matrix spike recovery.

Table 5. Water Chemistry data for Ford and Belleville Lake, Washtenaw County, June 2014. All values were reported as mg/L unless specified. Parameters include temperature (°C), pH (SU), dissolved oxygen (DO), conductivity (uS/cm), total phosphorous (TP), total nitrogen (TN), ortho phosphate (OP), nitrate plus nitrite ($\text{NO}_3 + \text{NO}_2$), nitrate (NO_3), nitrite (NO_2), ammonia (NH_3), kjeldahl nitrogen (KN), and total suspended solids (TSS).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	$\text{NO}_3 + \text{NO}_2$	NO_3 (calc.)	NO_2	NH_3	KN	TSS
B-1	2.6	0	Orig		23.61	7.11	741	7.98	9.5	0.046	1.36	0.013	0.52	0.5	0.02	0.09	0.84	15
B-1		2			23.61	7.04	739	8.00										
B-1		4			23.57	7.22	738	8.01										
B-1		5			23.56	7.27	738	8.02										
				TP: P; Ortho-P: P; $\text{NO}_3 + \text{NO}_2$: P; NO_3 : P; NO_2 : P; NH_3 : P; KN: P; TSS: P														
B-2	9	0	Orig		24.88	7.91	735	8.14	12	0.039	1.31	0.015	0.41	0.4	0.01	0.05	0.9	6
B-2		2			24.87	7.90	734	8.15										
B-2		4			24.87	7.91	734	8.15										
B-2		6			24.82	7.86	733	8.15										
				TP: P; Ortho-P: P; $\text{NO}_3 + \text{NO}_2$: P; NO_3 : P; NO_2 : P; NH_3 : P; KN: P; TSS: P														
B-2		8	Orig		24.58	7.78	732	8.13		0.043	1.309	0.015	0.42	0.41	0.009	0.06	0.89	6
B-3	4.9	0	Orig		25.04	7.60	726	8.13	11	0.033	1.249	0.008	0.42	0.4	0.019	0.05	0.83	4
B-3		2			24.99	7.58	726	8.14										
B-3		4			24.99	7.53	726	8.13										
B-3		6			24.98	7.52	726	8.13										
B-3		8	Orig		24.98	7.46	721	8.13		0.03	1.239	0.008	0.42	0.4	0.019	0.06	0.82	6
B-3		10			24.98	7.48	721	8.14										
B-3		12			24.97	7.58	722	8.16										
B-3		14			24.95	7.56	721	8.16										
B-3		16			24.95	7.53	719	8.16										
B-3		18	Orig		24.62	6.94	721	8.12		0.034	1.185	0.009	0.42	0.4	0.015	0.05	0.77	5

Table 5 (cont.).

Table 5 (cont.).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	NO ₃ + NO ₂	NO ₃ (calc.)	NO ₂	NH ₃	KN	TSS
F-2	5.2	0	Orig		24.59	7.90	747	8.28	8.4	0.037	1.317	0.01	0.6	0.58	0.017	0.03	0.72	4
F-2		2			24.57	7.81	744	8.27										
F-2		4			24.46	7.74	743	8.25										
F-2		6			24.45	7.69	746	8.24										
F-2		8			24.36	7.58	746	8.23										
F-2		10			24.21	7.46	746	8.21										
F-2		12			23.75	6.96	746	8.14										
F-2		14			23.36	6.29	746	8.03										
F-2		15	Orig		23.09	5.56	744	7.97		0.043	1.339	0.017	0.57	0.55	0.019	0.11	0.77	5
F-3	5.2	0	Orig		25.14	9.37	733	8.43	20	0.041	1.361	0.011	0.5	0.48	0.021	0.02	0.86	4
F-3		2			25.12	9.34	732	8.43										
F-3		4			25.13	9.35	732	8.43										
F-3		6			25.06	9.29	732	8.42										
F-3		8			24.92	9.17	732	8.41										
F-3		10			24.87	8.97	732	8.38										
F-3		12	Orig		24.77	8.81	732	8.37		0.037	1.289	0.01	0.52	0.5	0.019	0.02	0.77	4
F-3		14			24.31	8.36	732	8.28										
F-3		16			23.42	7.01	735	8.05										
F-3		18			22.98	6.06	737	7.97										
F-3		20			22.61	5.74	744	7.89										
F-3		22			22.33	4.82	748	7.78										
F-3		24	Orig		22.13	4.20	748	7.70		0.033	1.299	0.008	0.56	0.54	0.019	0.06	0.74	6

Table 5 (cont.).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	NO ₃ + NO ₂	NO ₃ (calc.)	NO ₂	NH ₃	KN	TSS
F-4	4.9	0	Orig		25.28	10.01	721	8.42	24	0.046	1.379	0.012	0.49	0.47	0.019	0.01	0.89	5
F-4		2			25.27	9.93	721	8.42										
F-4		4			25.22	9.87	721	8.42										
F-4		6			25.09	9.76	721	8.41										
F-4		8			24.96	9.48	722	8.38										
F-4		10			24.04	8.42	723	8.26										
F-4		12			23.67	7.82	724	8.18										
F-4		14	Orig		23.38	7.46	725	8.15		0.027	1.218	0.007	0.55	0.53	0.018	0.04	0.67	5
F-4		16			22.81	5.79	730	7.94										
F-4		18			22.76	5.67	732	7.92										
F-4		20			22.71	5.57	734	7.91										
F-4		22			22.42	5.28	737	7.86										
F-4		24			22.14	4.73	742	7.80										
F-4		26			22.09	4.48	742	7.78										
F-4		28			22.01	4.27	743	7.76										
F-4		29	Orig		21.93	3.89	744	7.73		0.047	1.413	0.026	0.54	0.51	0.023	0.24	0.88	6

Laboratory codes:

W = Reported value is less than the method detection limit (MDL).

T = Reported value is less than the reporting limit (RL). Result is estimated.

A = Result is estimated due to high matrix spike recovery.

Table 6. Water Chemistry data for Ford and Belleville Lake, Washtenaw County, July 2014. All values were reported as mg/L unless specified. Parameters include temperature (°C), pH (SU), dissolved oxygen (DO), conductivity (uS/cm), total phosphorous (TP), total nitrogen (TN), ortho phosphate (OP), nitrate plus nitrite ($\text{NO}_3 + \text{NO}_2$), nitrate (NO_3), nitrite (NO_2), ammonia (NH_3), kjeldahl nitrogen (KN), and total suspended solids (TSS).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	$\text{NO}_3 + \text{NO}_2$	NO_3 (calc.)	NO_2	NH_3	KN	TSS
B-1	6.7		Orig	TSS: T; Sonde problems					4.7	0.037	1.146	0.009	0.33	0.32	0.016	0.12	0.81	2
B-2	4.4		Orig	Sonde problems					10	0.041	1.147	0.01	0.3	0.29	0.017	0.09	0.84	6
B-3	4.8		Orig	Sonde problems					19	0.039	1.137	0.007	0.27	0.25	0.017	0.07	0.87	11
B-3	4.8		Orig						0.036	1.117	0.007	0.27	0.25	0.017	0.07	0.85	9	
B-3	4.8		Orig						0.037	1.117	0.007	0.28	0.26	0.017	0.07	0.84	6	
B-4	7.5		Orig	Sonde problems					8.9	0.036	1.129	0.008	0.27	0.25	0.019	0.11	0.86	4
B-4	7.5		Orig						0.031	1.05	0.008	0.27	0.25	0.02	0.11	0.78	4	
B-4	7.5		Orig						0.034	1.08	0.008	0.27	0.25	0.02	0.11	0.81	7	
F-1	5.1			Sonde problems					5.1	0.048	1.38	0.018	0.69	0.68	0.01	0.03	0.69	7
F-2	4.3			Sonde problems					4.3	0.047	1.241	0.01	0.44	0.42	0.021	0.05	0.8	8
F-2	4.3								4.3	0.055	1.29	0.01	0.45	0.43	0.02	0.06	0.84	7
F-3	5.2								5.2	0.039	1.181	0.009	0.38	0.36	0.021	0.07	0.8	6
F-3	5.2								5.2	0.048	1.19	0.008	0.38	0.36	0.02	0.06	0.81	7
F-3	5.2								5.2	0.039	1.141	0.008	0.38	0.36	0.021	0.06	0.76	7

Table 6 (cont.).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	NO ₃ + NO ₂	NO ₃ (calc.)	NO ₂	NH ₃	KN	TSS
F-4	7.9			Sonde problems					7.9	0.027	1.07	0.005	0.34	0.32	0.02	0.05	0.73	7
F-4	7.9		ORIG						7.9	0.025	1.038	0.005	0.34	0.32	0.018	0.06	0.7	9
F-4	7.9		REP						7.9	0.024	1.062	0.005	0.34	0.32	0.022	0.06	0.72	5
				TSS: T; Contaminated DI blank water was used in July & Aug 2014. The source was bad.														
F-4	7.9		FB						7.9	0.14	0.96	0.12	0.3	0.15	0.15	0.54	0.66	1
F-4	7.9								7.9	0.023	1.03	0.005	0.33	0.31	0.02	0.06	0.7	6

Laboratory codes:

W = Reported value is less than the method detection limit (MDL).

T = Reported value is less than the reporting limit (RL). Result is estimated.

A = Result is estimated due to high matrix spike recovery.

Table 7. Water Chemistry data for Ford and Belleville Lake, Washtenaw County, August 2014. All values were reported as mg/L unless specified. Parameters include temperature (°C), pH (SU), dissolved oxygen (DO), conductivity (uS/cm), total phosphorous (TP), total nitrogen (TN), ortho phosphate (OP), nitrate plus nitrite ($\text{NO}_3 + \text{NO}_2$), nitrate (NO_3), nitrite (NO_2), ammonia (NH_3), kjeldahl nitrogen (KN), and total suspended solids (TSS).

Table 7 (cont.).

Table 7 (cont.).

Table 7 (cont.).

Table 7 (cont.).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	NO ₃ + NO ₂	NO ₃ (calc.)	NO ₂	NH ₃	KN	TSS
F-4		28	Orig		22.23	5.58	732	7.71		0.036	1.217	0.01	0.39	0.37	0.017	0.25	0.83	4
F-4			REP	Ortho-P: T						0.024	0.974	0.004	0.27	0.26	0.014	0.01	0.7	4
F-4			FB	TSS: T						0.19	0.911	0.15	0.35	0.011	0.34	0.49	0.56	1

Laboratory codes:

W = Reported value is less than the method detection limit (MDL).

T = Reported value is less than the reporting limit (RL). Result is estimated.

A = Result is estimated due to high matrix spike recovery.

Table 8. Water Chemistry data for Ford and Belleville Lake, Washtenaw County, September 2014. All values were reported as mg/L unless specified. Parameters include temperature (°C), pH (SU), dissolved oxygen (DO), conductivity (uS/cm), total phosphorous (TP), total nitrogen (TN), ortho phosphate (OP), nitrate plus nitrite ($\text{NO}_3 + \text{NO}_2$), nitrate (NO_3), nitrite (NO_2), ammonia (NH_3), kjeldahl nitrogen (KN), and total suspended solids (TSS).

Table 8 (cont.).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	NO ₃ + NO ₂	NO ₃ (calc.)	NO ₂	NH ₃	KN	TSS
B-3		10	Orig		18.41	10.16	755	8.30		0.049	1.038	0.007	0.38	0.36	0.018	0.02	0.66	21
B-3		12			18.36	10.19	754	8.31										
B-3		14			18.32	10.26	754	8.31										
B-3		16			18.32	10.08	755	8.30										
B-3		18			18.32	10.08	755	8.30										
B-3		20	Orig	Ortho-P: T	18.32	10.07	755	8.30		0.045	1.127	<0.003	0.44	0.42	0.017	0.01	0.69	17
B-4	2.5	0	Orig	Mild/moderate lakewide bloom	19.47	6.80	749	8.00	8.3	0.055	0.963	0.01	0.13	0.12	0.013	0.19	0.83	9
B-4		2			19.41	6.82	749	8.01										
B-4		4			19.34	6.82	749	8.02										
B-4		6			19.28	6.84	749	8.03										
B-4		8			19.24	6.84	749	8.03										
B-4		10			19.23	6.84	749	8.03										
B-4		12	Orig		19.22	6.82	749	8.03		0.058	1.025	0.01	0.16	0.14	0.015	0.18	0.87	10
B-4		14			19.22	6.82	749	8.03										
B-4		16			19.21	6.82	749	8.03										
B-4		18			19.20	6.77	749	8.04										
B-4		20			19.19	6.72	749	8.03										
B-4		22			19.19	6.76	749	8.03										
B-4		24	Orig		19.19	6.72	749	8.02		0.057	0.975	0.009	0.16	0.14	0.015	0.18	0.82	15

Table 8 (cont.).

Table 8 (cont.).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	NO ₃ + NO ₂	NO ₃ (calc.)	NO ₂	NH ₃	KN	TSS
F-3		12	Orig	Ortho-P: T	18.27	10.40	766	8.29		0.047	1.203	<0.003	0.51	0.49	0.023	0.04	0.69	12
F-3		14			18.26	10.31	766	8.29										
F-3		16			18.24	10.36	766	8.30										
F-3		18			18.23	10.23	767	8.27										
F-3		20			18.23	10.13	767	8.28										
F-3		22			18.23	10.05	767	8.27										
F-3		24			18.23	9.95	767	8.27										
F-3		26	Orig	mild/moderate bloom lakewide	18.24	9.92	767	8.27		0.056	1.162	0.005	0.5	0.48	0.022	0.06	0.66	20
F-4	4.25	0	Orig	Ortho-P: W; Mild/moderate lakewide bloom	19.71	11.95	758	8.37	18	0.038	1.16	<0.003	0.44	0.42	0.02	0.03	0.72	9
F-4		2			19.70	11.94	758	8.36										
F-4		4			19.45	11.97	757	8.35										
F-4		6			19.22	11.72	757	8.35										
F-4		8			18.96	11.56	757	8.35										
F-4		10			18.92	11.61	757	8.35										
F-4		12			18.88	11.45	757	8.36										
F-4		14	Orig	Ortho-P: W	18.79	11.51	758	8.36		0.031	1.12	<0.003	0.44	0.42	0.02	0.03	0.68	10

Table 8 (cont.).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	NO ₃ + NO ₂	NO ₃ (calc.)	NO ₂	NH ₃	KN	TSS
F-4		16			18.77	11.55	758	8.36										
F-4		18			18.71	11.21	757	8.37										
F-4		20			18.65	10.90	757	8.37										
F-4		22			18.62	10.76	759	8.35										
F-4		24			18.59	10.64	759	8.34										
F-4		26			18.58	10.54	759	8.33										
F-4		28			18.56	10.30	759	8.30										
F-4		30	Orig	Ortho-P: T	18.56	10.10	760	8.30		0.029	1.095	<0.003	0.46	0.43	0.025	0.05	0.64	10
F-4			REP	Ortho-P: T						0.035	1.13	0.004	0.46	0.44	0.02	0.03	0.67	8
F-4			FB	TP: W; Ortho-P: W; NO ₃ + NO ₂ : W; NO ₂ : W; NH ₃ : W; KN: T; TSS: W						<0.002	0.08	<0.003	<0.002	<0.010	<0.002	<0.003	0.08	<1

Laboratory codes:

W = Reported value is less than the method detection limit (MDL).

T = Reported value is less than the reporting limit (RL). Result is estimated.

A = Result is estimated due to high matrix spike recovery.

Table 9. Water Chemistry data for Ford and Belleville Lake, Washtenaw County, April 2016. All values were reported as mg/L unless specified. Parameters include temperature (°C), pH (SU), dissolved oxygen (DO), conductivity (uS/cm), total phosphorous (TP), total nitrogen (TN), ortho phosphate (OP), nitrate plus nitrite ($\text{NO}_3 + \text{NO}_2$), nitrate (NO_3), nitrite (NO_2), ammonia (NH_3), kjeldahl nitrogen (KN), and total suspended solids (TSS).

Table 9 (cont.).

Table 9 (cont.).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	NO ₃ + NO ₂	NO ₃ (calc.)	NO ₂	NH ₃	KN	TSS
B-3		8		D.O. probe malfunction all day and pH wouldn't calibrate	12.32	18.55	815	8.31										
B-3		10	Orig	Ortho-P: T; NH3: T; D.O. probe malfunction all day and pH wouldn't calibrate	12.20	17.86	815	8.30		0.028	1.261	0.004	0.64	0.63	0.011	0.002	0.62	7
B-3		12		D.O. probe malfunction all day and pH wouldn't calibrate	11.76	17.12	815	8.21										
B-3		14		D.O. probe malfunction all day and pH wouldn't calibrate	11.67	16.94	815	8.21										
B-3		16		D.O. probe malfunction all day and pH wouldn't calibrate	11.62	16.25	815	8.22										
B-3		18		D.O. probe malfunction all day and pH wouldn't calibrate	11.48	15.92	816	8.21										
B-3		20	Orig	Ortho-P: T; D.O. probe malfunction all day and pH wouldn't calibrate	11.51	15.66	816	8.21		0.039	1.32	0.003	0.63	0.62	0.01	0.01	0.69	13

Table 9 (cont.).

Table 9 (cont.).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	NO ₃ + NO ₂	NO ₃ (calc.)	NO ₂	NH ₃	KN	TSS
B-4		14		D.O. probe malfunction all day and pH wouldn't calibrate	9.33	13.88	817	8.09										
B-4		16		D.O. probe malfunction all day and pH wouldn't calibrate	9.25	13.59	817	8.09										
B-4		18		D.O. probe malfunction all day and pH wouldn't calibrate	9.04	12.96	818	8.03										
B-4		20		D.O. probe malfunction all day and pH wouldn't calibrate	9.01	12.68	818	8.03										
B-4		22	Orig	Ortho-P: T; D.O. probe malfunction all day and pH wouldn't calibrate	8.93	12.45	818	8.02		0.032	1.381	0.003	0.67	0.66	0.011	0.05	0.71	7
F-1	2.4	0	Orig	Ortho-P: T; NH3: T; DO probe malfunction all day and pH wouldn't calibrate	14.13	15.24	807	8.15	12	0.045	1.469	0.003	0.75	0.74	0.009	0.007	0.72	9
F-2	1.7	0	Orig	NH3: T; DO probe malfunction all day and pH wouldn't calibrate	14.59	16.02	793	8.37	16	0.042	1.4	0.005	0.67	0.66	0.01	0.002	0.73	9

Table 9 (cont.).

Table 9 (cont.).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	NO ₃ + NO ₂	NO ₃ (calc.)	NO ₂	NH ₃	KN	TSS
F-3		4		DO probe malfunction all day and pH wouldn't calibrate	14.32	6.74	740	8.07										
F-3		6		DO probe malfunction all day and pH wouldn't calibrate	13.62	6.73	740	8.07										
F-3		8		DO probe malfunction all day and pH wouldn't calibrate	12.51	6.58	740	8.05										
F-3		10	Orig	Ortho-P: T; NH3: T; DO probe malfunction all day and pH wouldn't calibrate	11.67	14.05	801	8.23		0.035	1.451	0.003	0.77	0.76	0.011	0.003	0.68	6
F-3		12		DO probe malfunction all day and pH wouldn't calibrate	11.43	19.98	803	8.23										
F-3		14		DO probe malfunction all day and pH wouldn't calibrate	11.21	14.15	806	8.27										
F-3		16		DO probe malfunction all day and pH wouldn't calibrate	10.41	13.72	810	8.17										
F-3		18		DO probe malfunction all day and pH wouldn't calibrate	10.07	12.99	810	8.10										
F-3		20		DO probe malfunction all day and pH wouldn't calibrate	9.79	12.49	812	8.08										
F-3		22	Orig	Ortho-P: T; NH3: T; DO probe malfunction all day and pH wouldn't calibrate	9.32	11.82	817	8.01		0.031	1.372	0.002	0.72	0.71	0.012	0.002	0.65	9

Table 9 (cont.).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	NO ₃ + NO ₂	NO ₃ (calc.)	NO ₂	NH ₃	KN	TSS
F-4	2.4	0	Orig	Ortho-P; T; NH3: T; DO probe malfunction all day and pH wouldn't calibrate	14.84	16.52	792	8.48	9.4	0.026	1.353	0.004	0.71	0.7	0.013	0.002	0.64	6
F-4		2		DO probe malfunction all day and pH wouldn't calibrate	14.82	15.89	792	8.48										
F-4		4		DO probe malfunction all day and pH wouldn't calibrate	14.64	15.79	792	8.48										
F-4		6		DO probe malfunction all day and pH wouldn't calibrate	11.86	15.50	805	8.35										
F-4		8		DO probe malfunction all day and pH wouldn't calibrate	11.40	14.96	805	8.32										
F-4		10		DO probe malfunction all day and pH wouldn't calibrate	10.86	14.53	810	8.29										
F-4		12		DO probe malfunction all day and pH wouldn't calibrate	10.39	14.30	812	8.28										
F-4		14	Orig	Ortho-P; T; NH3: T; DO probe malfunction all day and pH wouldn't calibrate	9.90	14.00	816	8.23		0.03	1.371	0.002	0.76	0.74	0.011	0.005	0.62	5
F-4		16		DO probe malfunction all day and pH wouldn't calibrate	9.36	13.52	818	8.21										

Laboratory codes:

W = Reported value is less than the method detection limit (MDL).

T = Reported value is less than the reporting limit (RL). Result is estimated.

A = Result is estimated due to high matrix spike recovery.

Table 10. Water Chemistry data for Ford and Belleville Lake, Washtenaw County, May 2016. All values were reported as mg/L unless specified. Parameters include temperature (°C), pH (SU), dissolved oxygen (DO), conductivity (uS/cm), total phosphorous (TP), total nitrogen (TN), ortho phosphate (OP), nitrate plus nitrite ($\text{NO}_3 + \text{NO}_2$), nitrate (NO_3), nitrite (NO_2), ammonia (NH_3), kjeldahl nitrogen (KN), and total suspended solids (TSS).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	$\text{NO}_3 + \text{NO}_2$	NO_3 (calc.)	NO_2	NH_3	KN	TSS
B-1	3.25	0	Orig		15.44	17.35	912	8.24	3.5	0.035	1.251	0.014	0.64	0.63	0.011	0.07	0.61	10
B-1			FB	TP: W; Ortho-P: W; $\text{NO}_3 + \text{NO}_2$: W; NO_2 : T; NH_3 : W; KN: W; TSS: W						<0.003	0.002	<0.002	<0.001	<0.010	0.002	<0.001	<0.04	<1
B-1			REP							0.035	1.23	0.014	0.65	0.64	0.01	0.07	0.58	13
B-2	4.3	0	Orig	TSS: T	16.11	8.92	915	8.33	5.1	0.026	1.261	0.005	0.61	0.6	0.011	0.04	0.65	3
B-2		2			16.01	8.79	914	8.34										
B-2		4			15.90	8.60	915	8.31										
B-2		6			15.89	8.19	913	8.26										
B-2		8			15.45	8.02	912	8.26										
B-2		10	Orig		15.29	7.96	912	8.25		0.033	1.281	0.009	0.64	0.63	0.011	0.05	0.64	6
B-3	5.2	0	Orig	Ortho-P: T	15.82	9.02	910	8.40	15	0.028	1.211	0.003	0.59	0.58	0.011	0.01	0.62	4
B-3		2			15.62	8.91	910	8.40										
B-3		4			15.47	8.80	910	8.41										
B-3		6			15.06	8.66	910	8.38										
B-3		8			14.86	8.38	911	8.36										
B-3		10	Orig	Ortho-P: T	14.80	8.15	911	8.35		0.028	1.221	0.003	0.59	0.58	0.011	0.02	0.63	6
B-3		12			14.78	8.00	912	8.34										
B-3		14			14.76	7.88	913	8.34										
B-3		16			14.76	7.81	912	8.34										
B-3		18			14.74	7.77	913	8.34										
B-3		20	Orig	Ortho-P: T	14.73	7.75	912	8.34		0.025	1.181	0.004	0.6	0.59	0.011	0.02	0.58	6

Table 10 (cont.).

Table 10 (cont.).

Table 10 (cont.).

Table 10 (cont.).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	NO ₃ + NO ₂	NO ₃ (calc.)	NO ₂	NH ₃	KN	TSS
F-4		14	Orig		15.16	6.60	909	8.26		0.037	1.23	0.016	0.63	0.62	0.01	0.06	0.6	7
F-4		16			15.12	6.53	910	8.26										
F-4		18			14.97	6.46	909	8.24										
F-4		20			14.93	6.38	909	8.24										
F-4		22			14.89	6.34	908	8.23										
F-4		24			14.85	6.31	907	8.23										
F-4		26			14.68	6.32	904	8.22										
F-4		28	Orig		14.60	6.31	902	8.22		0.049	1.24	0.02	0.62	0.61	0.01	0.07	0.62	18

Laboratory codes:

W = Reported value is less than the method detection limit (MDL).

T = Reported value is less than the reporting limit (RL). Result is estimated.

A = Result is estimated due to high matrix spike recovery.

Table 11. Water Chemistry data for Ford and Belleville Lake, Washtenaw County, June 2016. All values were reported as mg/L unless specified. Parameters include temperature (°C), pH (SU), dissolved oxygen (DO), conductivity (uS/cm), total phosphorous (TP), total nitrogen (TN), ortho phosphate (OP), nitrate plus nitrite ($\text{NO}_3 + \text{NO}_2$), nitrate (NO_3), nitrite (NO_2), ammonia (NH_3), kjeldahl nitrogen (KN), and total suspended solids (TSS).

Table 11 (cont.).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	NO ₃ + NO ₂	NO ₃ (calc.)	NO ₂	NH ₃	KN	TSS
B-4		4			23.04	7.02	698	8.41										
B-4		6			22.99	7.07	698	8.41										
B-4		8			22.87	7.04	697	8.40										
B-4		10			22.44	5.92	701	8.26										
B-4		12	Orig	Ortho-P: W	22.31	5.27	702	8.16		0.022	0.961	<0.002	0.28	0.27	0.011	0.09	0.68	6
B-4		14			22.19	4.74	702	8.11										
B-4		16			21.91	4.10	704	8.01										
B-4		18			21.64	3.62	705	7.96										
B-4		20			21.42	3.20	705	7.91										
B-4		22			21.03	2.77	707	7.85										
B-4		24			16.93	1.34	729	7.63										
B-4		26	Orig		15.42	1.20	739	7.60		0.057	1.155	0.012	0.055	0.045	0.01	0.51	1.1	8
F-1	4.2	0	Orig		21.50	8.36	759	7.89	6.7	0.042	1.685	0.014	1.1	1	0.015	0.04	0.67	6
F-1			REP						6.6									
F-2	7.7	0	Orig		22.78	8.49	734	8.06	7.9	0.027	1.439	0.005	0.73	0.72	0.019	0.14	0.7	5
F-2		2			22.78	8.35	726	8.09										
F-2		4			22.72	8.27	724	8.10										
F-2		6			22.72	8.19	723	8.11										
F-2		8			22.72	8.12	721	8.13										
F-2		10			22.72	8.11	721	8.13										
F-2		12	Orig		22.72	7.96	723	8.13		0.047	1.609	0.005	0.73	0.72	0.019	0.15	0.87	4
F-3	10	0	Orig	Ortho-P: W; TSS: T	22.83	8.23	713	8.28	4.8	0.019	1.317	<0.002	0.67	0.65	0.017	0.1	0.65	3

Table 11 (cont.).

Table 11 (cont.).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	NO ₃ + NO ₂	NO ₃ (calc.)	NO ₂	NH ₃	KN	TSS
F-4		22			22.11	5.70	709	7.97										
F-4		24			21.72	5.00	709	7.84										
F-4		26	Orig	Ortho-P: W	21.00	3.50	710	7.64		0.019	1.258	<0.002	0.6	0.58	0.018	0.11	0.66	5

Laboratory codes:

W = Reported value is less than the method detection limit (MDL).

T = Reported value is less than the reporting limit (RL). Result is estimated.

A = Result is estimated due to high matrix spike recovery.

Table 12. Water Chemistry data for Ford and Belleville Lake, Washtenaw County, July 2016. All values were reported as mg/L unless specified. Parameters include temperature (°C), pH (SU), dissolved oxygen (DO), conductivity (uS/cm), total phosphorous (TP), total nitrogen (TN), ortho phosphate (OP), nitrate plus nitrite ($\text{NO}_3 + \text{NO}_2$), nitrate (NO_3), nitrite (NO_2), ammonia (NH_3), kjeldahl nitrogen (KN), and total suspended solids (TSS).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	$\text{NO}_3 + \text{NO}_2$	NO_3 (calc.)	NO_2	NH ₃	KN	TSS
B-1	4	0	Orig	PC and Chl data were recorded, but units were not specified (PC 0.10), (Chl 2.98)	27.20	8.64	828	8.30	9.6	0.036	1.239	0.006	0.48	0.44	0.039	0.12	0.76	8
B-2	3	0	Orig	PC and Chl data were recorded, but units were not specified (PC 0.90), (Chl 10.10)	27.80	10.81	817	8.52	32	0.046	1.168	0.008	0.31	0.28	0.028	0.02	0.86	9
B-2		2		PC and Chl data were recorded, but units were not specified (PC 0.93), (Chl 15.52)	27.80	10.82	817	8.53										
B-2		4		PC and Chl data were recorded, but units were not specified (PC 0.97), (Chl 16.26)	27.80	10.96	816	8.53										
B-2		6		PC and Chl data were recorded, but units were not specified (PC 0.97), (Chl 17.81)	27.70	10.98	816	8.53										
B-2		8	Orig	PC and Chl data were recorded, but units were not specified (PC 0.97), (Chl 16.12)	27.30	10.15	818	8.47		0.049	1.229	0.009	0.3	0.27	0.029	0.02	0.93	9

Table 12 (cont.).

Table 12 (cont.).

Table 12 (cont.).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	NO ₃ + NO ₂	NO ₃ (calc.)	NO ₂	NH ₃	KN	TSS
B-4		16		PC and Chl data were recorded, but units were not specified (PC 0.36), (Chl 4.66)	25.80	5.50	810	8.11										
B-4		18		PC and Chl data were recorded, but units were not specified (PC 0.33), (Chl 5.27)	24.80	0.85	815	7.73										
B-4		20		PC and Chl data were recorded, but units were not specified (PC 0.06), (Chl 2.32)	24.00	0.34	816	7.70										
B-4		22		PC and Chl data were recorded, but units were not specified (PC 0.10), (Chl 1.78)	21.30	0.16	823	7.60										
B-4		24	Orig	TSS: T; PC and Chl data were recorded, but units were not specified (PC 0.18), (Chl 2.11)	20.10	0.12	827	7.55		0.23	1.535	0.2	0.035	0.024	0.011	0.79	1.5	3
F-1	2.25	0	Orig	PC data were recorded, but units were not specified (PC 0.81); data value 6.03 recorded under "RFU," but no parameter was specified	26.40	9.13	881	8.19	45	0.096	1.982	0.017	0.88	0.85	0.032	0.04	1.1	16

Table 12 (cont.).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	NO ₃ + NO ₂	NO ₃ (calc.)	NO ₂	NH ₃	KN	TSS
F-4		24		PC data were recorded, but units were not specified (PC 0.12); Chl not recorded in RFU	24.20	0.46	837	7.74										
F-4		26	Orig	PC data were recorded, but units were not specified (PC 0.14); Chl not recorded in RFU	23.90	0.14	839	7.74		0.039	1.49	0.013	0.39	0.32	0.07	0.42	1.1	4
F-4			REP	Ortho-P: T; TSS: T						0.022	1.226	0.003	0.58	0.56	0.026	0.03	0.64	3

Laboratory codes:

W = Reported value is less than the method detection limit (MDL).

T = Reported value is less than the reporting limit (RL). Result is estimated.

A = Result is estimated due to high matrix spike recovery.

Table 13. Water Chemistry data for Ford and Belleville Lake, Washtenaw County, August 2016. All values were reported as mg/L unless specified. Parameters include temperature (°C), pH (SU), dissolved oxygen (DO), conductivity (uS/cm), total phosphorous (TP), total nitrogen (TN), ortho phosphate (OP), nitrate plus nitrite ($\text{NO}_3 + \text{NO}_2$), nitrate (NO_3), nitrite (NO_2), ammonia (NH_3), kjeldahl nitrogen (KN), and total suspended solids (TSS).

Table 13 (cont.).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	NO ₃ + NO ₂	NO ₃ (calc.)	NO ₂	NH ₃	KN	TSS
F-1	1.75	0	Orig	Ortho-P: A09	24.72	7.72	652	7.77	6.5	0.075	1.286	0.035	0.63	0.61	0.016	0.11	0.66	20
F-2		0	Orig	Ortho-P: A09	26.39	9.28	769	8.28	29	0.079	1.828	0.007	0.72	0.7	0.028	0.11	1.1	13
F-2		2			26.17	8.59	771	8.22										
F-2		4			25.78	7.70	777	8.05										
F-2		6			25.72	7.27	764	8.00										
F-2		8			25.72	7.13	764	7.99										
F-2		10			25.50	6.88	752	7.92										
F-2		12			25.11	6.31	704	7.76										
F-2		14	Orig	Ortho-P: A09	24.94	5.94	654	7.63		0.065	1.616	0.019	0.72	0.7	0.026	0.14	0.89	7
F-2			REP	Ortho-P: A09						0.061	1.575	0.021	0.72	0.7	0.025	0.15	0.85	6
F-3		0	Orig	Ortho-P: A09	27.06	6.66	776	8.07	12	0.051	1.136	0.018	0.22	0.21	0.016	0.23	0.91	4
F-3		2			26.67	6.69	775	8.09										
F-3		4			26.56	6.62	775	8.08										
F-3		6			26.44	6.02	777	7.98										
F-3		8			26.39	6.45	776	8.04										
F-3		10	Orig	Ortho-P: A09	26.39	6.47	776	8.04		0.053	1.32	0.018	0.42	0.4	0.02	0.22	0.9	5
F-3		12			26.33	6.45	776	8.04										
F-3		14			26.28	6.23	776	7.99										
F-3		16			26.22	5.77	776	7.93										
F-3		18			26.22	5.26	778	7.86										
F-3		20			26.17	5.84	776	7.92										
F-3		22	Orig	Ortho-P: A09	26.11	5.48	776	7.87		0.078	1.606	0.032	0.6	0.58	0.026	0.28	1	14

Table 13 (cont.).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	NO ₃ + NO ₂	NO ₃ (calc.)	NO ₂	NH ₃	KN	TSS
F-3			FB	TP: 100 [Result confirmed by re-digestion and analysis.]; Ortho-P: A09, T; NO ₃ + NO ₂ : W; NO ₃ : W; NH ₃ : W; KN: W; TSS: T						0.086	0.04	0.003	<0.001	<0.010	<0.002	<0.001	0.04	1
F-4	5.5	0	Orig	Ortho-P: A09	27.50	7.01	777	8.11	15	0.044	0.945	0.008	0.055	0.036	0.019	0.19	0.89	4
F-4		2			27.39	6.98	777	8.11										
F-4		4			27.28	6.92	777	8.10										
F-4		6			27.06	6.84	777	8.09										
F-4		8			26.89	7.03	775	8.13										
F-4		10			26.83	6.95	775	8.12										
F-4		12			26.78	6.21	779	8.00										
F-4		14	Orig	Ortho-P: A09; TSS: T	26.72	6.09	778	7.99		0.042	0.909	0.01	0.049	0.025	0.024	0.2	0.86	3
F-4		16			26.67	5.86	778	7.95										
F-4		18			26.67	5.36	778	7.89										
F-4		20			26.50	3.25	791	7.63										
F-4		22			26.33	1.37	806	7.45										
F-4		24			26.11	0.07	818	7.30										
F-4		26			25.78	0.02	830	7.31										
F-4		28	Orig	Ortho-P: A09; NO ₃ + NO ₂ : W; NO ₂ : T	25.50	0.01	834	7.23		0.51	3.004	0.45	<0.001	<0.010	0.004	2.3	3	20
F-4			REP	Ortho-P: A09						0.038	0.875	0.011	0.055	0.036	0.019	0.18	0.82	4

Laboratory codes:

W = Reported value is less than the method detection limit (MDL).

T = Reported value is less than the reporting limit (RL). Result is estimated.

A = Result is estimated due to high matrix spike recovery.

Table 14. Water Chemistry data for Ford and Belleville Lake, Washtenaw County, September 2016. All values were reported as mg/L unless specified. Parameters include temperature (°C), pH (SU), dissolved oxygen (DO), conductivity (uS/cm), total phosphorous (TP), total nitrogen (TN), ortho phosphate (OP), nitrate plus nitrite ($\text{NO}_3 + \text{NO}_2$), nitrate (NO_3), nitrite (NO_2), ammonia (NH_3), kieldahl nitrogen (KN), and total suspended solids (TSS).

Table 14 (cont.).

Table 14 (cont.).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	NO ₃ + NO ₂	NO ₃ (calc.)	NO ₂	NH ₃	KN	TSS
F-3		10	Orig	NO2: A08	20.70	7.88	779	8.25		0.086	1.573	0.005	0.37	0.35	0.023	0.13	1.2	15
F-3		12			20.67	7.83	779	8.24										
F-3		14			20.67	7.76	779	8.23										
F-3		16			20.63	7.94	784	8.26										
F-3		18			20.51	7.87	791	8.26										
F-3		20			20.47	7.69	796	8.25										
F-3		22	Orig	NO2: A08	20.48	7.62	796	8.24		0.091	1.675	0.005	0.47	0.45	0.025	0.11	1.2	20
F-4	2.1	0	Orig	NO2: A08	21.25	6.64	779	8.01	15	0.069	1.513	0.015	0.32	0.26	0.053	0.3	1.2	11
F-4		2			21.25	6.57	779	8										
F-4		4			21.24	6.48	779	7.99										
F-4		6			21.24	6.42	779	7.99										
F-4		8			21.24	6.52	779	8										
F-4		10			21.24	6.5	779	7.99										
F-4		12	Orig	NO2: A08	21.24	6.46	779	7.99		0.072	1.521	0.015	0.32	0.27	0.051	0.28	1.2	11
F-4		14			21.23	6.41	779	7.99										
F-4		16			21.22	6.41	779	7.99										
F-4		18			21.22	6.41	779	7.99										
F-4		20			21.21	6.42	779	7.99										
F-4		22			21.21	6.42	779	7.99										
F-4		24			21.21	6.32	778	7.98										
F-4		26	Orig	NO2: A08	21.21	6.28	778	7.97		0.077	1.422	0.016	0.32	0.27	0.052	0.28	1.1	12

Laboratory codes:

W = Reported value is less than the method detection limit (MDL).

T = Reported value is less than the reporting limit (RL). Result is estimated.

A = Result is estimated due to high matrix spike recovery.

Table 15. Water Chemistry data for Ford and Belleville Lake, Washtenaw County, May 2018. All values were reported as mg/L unless specified. Parameters include temperature (°C), pH (SU), dissolved oxygen (DO), conductivity (uS/cm), total phosphorous (TP), total nitrogen (TN), ortho phosphate (OP), nitrate plus nitrite ($\text{NO}_3 + \text{NO}_2$), nitrate (NO_3), nitrite (NO_2), ammonia (NH_3), kjeldahl nitrogen (KN), and total suspended solids (TSS).

Table 15 (cont.).

Table 15 (cont.).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	NO ₃ + NO ₂	NO ₃ (calc.)	NO ₂	NH ₃	KN	TSS
F-2	3.6	0.33	Orig		21.65	9.62	681	7.99	8.5	0.038	1.231	0.013	0.44	0.43	0.011	0.04	0.79	6
F-2		2.16			19.74	9.57	672	7.92										
F-2																		
F-2		4.03			19.27	9.09	672	7.86										
F-2		6.03			18.93	8.78	672	7.82										
F-2		8.16			18.56	8.51	672	7.78										
F-2		10.24			18.33	8.45	672	7.77										
F-2		12.21			18.14	8.33	672	7.76										
F-2		14.05	Orig		17.69	7.72	673	7.71		0.037	1.101	0.016	0.43	0.42	0.011	0.07	0.67	8
F-2																		
F-3	3.28	0.35	Orig		20.37	9.48	683	7.98	10	0.037	1.091	0.011	0.41	0.4	0.011	0.03	0.68	6
F-3		2.06			19.94	9.58	673	7.96										
F-3		4.08			19.59	9.14	674	7.9										
F-3		6.01			19.42	9.08	673	7.88										
F-3		8.1			19.38	9.02	673	7.88										
F-3		10.11			19.22	9.01	672	7.85										
F-3		12.25	Orig		18.15	8.23	675	7.76		0.033	1.101	0.016	0.42	0.41	0.011	0.06	0.68	6
F-3		14.07			17.86	8.01	672	7.74										
F-3		16.1			17.71	7.91	672	7.73										
F-3		18.04			17.71	7.9	672	7.73										
F-3		20.39			17.67	7.8	673	7.72										
F-3		22.17			17.57	7.39	673	7.68										
F-3		23.84	Orig		17.48	6.31	677	7.58		0.044	1.131	0.019	0.43	0.42	0.011	0.08	0.7	9

Table 15 (cont.).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	NO ₃ + NO ₂	NO ₃ (calc.)	NO ₂	NH ₃	KN	TSS
F-4	3.28	0.34	Orig		21.22	10.65	677	8.07	18	0.044	1.192	0.012	0.38	0.37	0.012	0.01	0.81	7
F-4		2.06			20.66	10.44	675	8.04										
F-4		4.03			20.69	10.37	675	8.03										
F-4		6.07			20.30	9.51	678	7.93										
F-4		8			19.50	9.63	672	7.91										
F-4		10.01			18.62	8.81	673	7.82										
F-4		11.99			18.27	8.18	674	7.77										
F-4		14.21	Orig		18.13	7.95	673	7.75		0.037	1.1	0.015	0.41	0.4	0.01	0.02	0.69	8
F-4		16.03			18.12	7.91	673	7.75										
F-4		18.06			18.11	7.89	673	7.74										
F-4		20.12			18.09	7.87	674	7.73										
F-4		22.04			18.08	7.84	674	7.73										
F-4		24.04			18.07	7.91	673	7.73										
F-4		26.02			17.98	7.77	673	7.71										
F-4		28.06	Orig		17.92	7.5	674	7.69		0.038	1.08	0.016	0.41	0.4	0.01	0.06	0.67	7

Laboratory codes:

W = Reported value is less than the method detection limit (MDL).

T = Reported value is less than the reporting limit (RL). Result is estimated.

A = Result is estimated due to high matrix spike recovery.

Table 16. Water Chemistry data for Ford and Belleville Lake, Washtenaw County, June 2018. All values were reported as mg/L unless specified. Parameters include temperature (°C), pH (SU), dissolved oxygen (DO), conductivity (uS/cm), total phosphorous (TP), total nitrogen (TN), ortho phosphate (OP), nitrate plus nitrite ($\text{NO}_3 + \text{NO}_2$), nitrate (NO_3), nitrite (NO_2), ammonia (NH_3), kjeldahl nitrogen (KN), and total suspended solids (TSS).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	$\text{NO}_3 + \text{NO}_2$	NO_3 (calc.)	NO_2	NH ₃	KN	TSS
B-1	4.7	0.53	Orig		24.46	7.42	770	8.09	5.9	0.038	1.349	0.013	0.54	0.52	0.019	0.12	0.81	5
B-2	2.9	0.44	Orig		24.28	9.36	763	8.2	25	0.042	1.339	0.006	0.48	0.47	0.019	0.06	0.85	10
B-2		3.08			24.198	9.25	764	8.22										
B-2		6.05			23.428	7.7	767	8.07										
B-2		9.03			23.218	8.51	767	8.11										
B-2		10.34	Orig		23.15	8.37	766	8.09		0.048	1.271	0.007	0.45	0.43	0.021	0.06	0.82	15
B-3	3.8	0.43	Orig	Ortho-P: W	23.843	9.72	755	8.29		0.033	1.199		0.42	0.4	0.019	0.04	0.78	7
B-3		3.13			23.674	9.7	754	8.26										
B-3		6.05			23.54	9.33	756	8.24										
B-3		9.11	Orig	Ortho-P: W	23.196	8.19	757	8.12		0.038	1.219		0.42	0.4	0.019	0.06	0.8	10
B-3		12.11			23.106	7.61	758	8.05										
B-3		15.05			23.079	7.55	757	8.04										
B-3		18.02			23.063	7.37	758	8.03										
B-3		19.01	Orig	Ortho-P: W	23.057	7.28	758	8.03		0.037	1.219		0.41	0.39	0.019	0.08	0.81	10
B-3			REP	Ortho-P: W						0.035	1.239		0.41	0.39	0.019	0.06	0.83	8
B-4	6.4	0.39	Orig	TSS: T	24.793	7.26	739	8.09	6.2	0.029	1.228	0.008	0.36	0.35	0.018	0.17	0.86	2
B-4		3.07			24.623	7.06	740	8.07										
B-4		6.01			24.207	6.28	740	7.99										
B-4		9.1			24.118	6.06	742	7.98										
B-4		12.05	Orig	TSS: T	24.05	5.88	742	7.95		0.034	1.208	0.014	0.36	0.34	0.018	0.2	0.85	2

Table 16 (cont.).

Table 16 (cont.).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	NO ₃ + NO ₂	NO ₃ (calc.)	NO ₂	NH ₃	KN	TSS
F-3		23.97	Orig		22.91	3.12	804	7.62		0.065	1.49	0.032	0.64	0.62	0.02	0.2	0.85	9
F-3			REP	TSS: T						0.03	1.336	0.008	0.62	0.61	0.016	0.1	0.71	3
F-4	7.6	0.39	Orig	Ortho-P: W; TSS: T	24.471	7.85	765	8.24	6.5	0.021	1.266		0.54	0.52	0.016	0.08	0.73	3
F-4		3.11			24.342	7.78	765	8.22										
F-4		6.03			24.16	7.6	765	8.2										
F-4		9.05			24.136	7.55	765	8.19										
F-4		12.04			24.127	7.51	766	8.17										
F-4		15.02	Orig		24.098	7.51	767	8.16		0.024	1.256	0.005	0.57	0.56	0.016	0.09	0.68	4
F-4		18.03			23.874	6.63	772	8.06										
F-4		21.04			23.806	6.26	775	8.01										
F-4		24.05			23.461	4.9	784	7.84										
F-4		27.1			23.008	3.53	795	7.68										
F-4		28.88	Orig		22.814	2.44	793	7.6		0.11	1.49	0.071	0.51	0.49	0.02	0.37	0.98	9

Laboratory codes:

W = Reported value is less than the method detection limit (MDL).

T = Reported value is less than the reporting limit (RL). Result is estimated.

A = Result is estimated due to high matrix spike recovery.

Table 17. Water Chemistry data for Ford and Belleville Lake, Washtenaw County, July 2018. All values were reported as mg/L unless specified. Parameters include temperature (°C), pH (SU), dissolved oxygen (DO), conductivity (uS/cm), total phosphorous (TP), total nitrogen (TN), ortho phosphate (OP), nitrate plus nitrite ($\text{NO}_3 + \text{NO}_2$), nitrate (NO_3), nitrite (NO_2), ammonia (NH_3), kjeldahl nitrogen (KN), and total suspended solids (TSS).

Table 17 (cont.).

Table 17 (cont.).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	NO ₃ + NO ₂	NO ₃ (calc.)	NO ₂	NH ₃	KN	TSS
F-1		4		Floating clumps frequent... might be Oscillatoria algae	25.80	10.02		8.21										
F-2	3	0.61	Orig		28.43	14.67		8.61	35	0.056	1.268	0.011	0.17	0.15	0.018	0.02	1.1	11
F-2		2.04			28.18	14.93		8.59										
F-2		4			27.97	14.51		8.56										
F-2		6.04			27.84	13.68		8.52										
F-2		8.02			27.69	13.36		8.49										
F-2		10.03			27.57	12.88		8.47										
F-2		12.02			27.48	12.67		8.46										
F-2		14.08	Orig		27.34	11.87		8.4		0.042	1.106	0.006	0.2	0.19	0.016	0.01	0.9	6
F-3	3.92	0.38	Orig	KN: A04	28.04	12.54		8.43	18	0.036	0.965	0.007	0.15	0.13	0.015	0.02	0.82	5
F-3		2.07			27.44	11.89		8.4										
F-3		4.04			27.33	11.47		8.37										
F-3		6.03			27.26	11.65		8.35										
F-3		8.06			27.22	11.22		8.33										
F-3		10.05			27.18	10.83		8.31										
F-3		12.05	Orig		27.03	9.41		8.26		0.035	1.025	0.005	0.19	0.17	0.015	0.03	0.84	5
F-3		14.04			26.87	7.47		8.05										
F-3		16.04			26.80	7.07		8.01										
F-3		20.02			26.65	5.64		7.92										
F-3		22.16			26.54	4.95		7.85										
F-3		24.01	Orig		25.60	0.58		7.49		0.067	1.366	0.02	0.37	0.35	0.016	0.25	1	7

Table 17 (cont.).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	NO ₃ + NO ₂	NO ₃ (calc.)	NO ₂	NH ₃	KN	TSS
F-4	3	0.34	Orig	TSS: T	28.20	12.48		8.42	22	0.029	0.992	0.005	0.082	0.069	0.013	0.01	0.91	3
F-4		2.06			27.83	13.07		8.41										
F-4		4.04			27.73	12.8		8.4										
F-4		5.95			27.60	12.48		8.34										
F-4		8.01			27.40	11.11		8.27										
F-4		9.94			27.32	8.09		8.05										
F-4		12.03			27.04	4.76		7.82										
F-4		14.06	Orig	Ortho-P: W; TSS: T	26.75	2.1		7.61		0.052	1.228		0.27	0.25	0.018	0.24	0.96	2
F-4		16.01			26.70	1.94		7.61										
F-4		17.88			26.61	1.07		7.59										
F-4		20.03			26.06	0.31		7.52										
F-4		22.03			25.42	0.21		7.52										
F-4		23.94			24.68	0.16		7.48										
F-4		24.05			24.64	0.18		7.51										
F-4		25.94			24.70	0.16		7.5										
F-4		29.4	Orig		24.34	0.15		7.49		0.12	1.26	0.08	0.06	0.022	0.038	0.55	1.2	5

Laboratory codes:

W = Reported value is less than the method detection limit (MDL).

T = Reported value is less than the reporting limit (RL). Result is estimated.

A = Result is estimated due to high matrix spike recovery.

Table 18. Water Chemistry data for Ford and Belleville Lake, Washtenaw County, August 2018. All values were reported as mg/L unless specified. Parameters include temperature (°C), pH (SU), dissolved oxygen (DO), conductivity (uS/cm), total phosphorous (TP), total nitrogen (TN), ortho phosphate (OP), nitrate plus nitrite ($\text{NO}_3 + \text{NO}_2$), nitrate (NO_3), nitrite (NO_2), ammonia (NH_3), kjeldahl nitrogen (KN), and total suspended solids (TSS).

Table 18 (cont.).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	NO ₃ + NO ₂	NO ₃ (calc.)	NO ₂	NH ₃	KN	TSS
B-4		11.99	Orig	NO ₂ : W; NH ₃ : W	27.143	12.35	744	8.55		0.033	0.76	0.005	0.007				0.76	8
B-4		15			26.803	9.64	747	8.35										
B-4		18			25.738	1.07	770	7.6										
B-4		21			24.241	0.28	785	7.45										
B-4		21.38	Orig	NO ₃ + NO ₂ : T; NO ₂ : W	24.178	0.15	785	7.41		0.081	0.932	0.04	0.006			0.26	0.932	6
F-1		0.38	Orig	NH ₃ : W	26.642	9.29	865	8.27	15	0.063	1.583	0.02	0.88	0.87	0.013		0.7	5
F-1			REP	NH ₃ : T					16	0.064	1.593	0.021	0.89	0.87	0.013	0.007	0.71	4
F-2		0.29	Orig	NH ₃ : T	27.981	18.86	756	8.74	52	0.06	1.119	0.007	0.019	0.014	0.005	0.007	1.1	11
F-2		3			27.45	17.78	759	8.67										
F-2		6.01			26.594	10.31	790	8.25										
F-2		9			26.242	5.97	812	7.97										
F-2		12			26.003	4.16	824	7.86										
F-2		15.04	Orig	NO ₂ : W	25.571	1.16	835	7.71		0.077	1.418	0.042	0.42	0.4	0.018	0.34	1	4
F-3		0.36	Orig	NO ₃ + NO ₂ : T; NO ₂ : W; NH ₃ : T	27.924	17.96	756	8.77	52	0.054	1.1	0.007	0.008			0.007	1.1	11
F-3		3			27.798	17.98	756	8.75										
F-3		6.02			27.738	17.76	757	8.74										
F-3		9	Orig	NO ₂ : W; NH ₃ : T	26.863	15.51	762	8.6		0.051	1.118	0.007	0.018	0.018		0.007	1.1	10
F-3		12			26.563	14.77	760	8.61										
F-3		15.02			25.574	2.75	810	7.74										
F-3		18.05			24.273	0.37	824	7.63										
F-3		21	Orig		24.019	0.24	826	7.54		0.3	1.44	0.24	0.04	0.029	0.011	0.75	1.4	6

Table 18 (cont.).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	NO ₃ + NO ₂	NO ₃ (calc.)	NO ₂	NH ₃	KN	TSS
F-4		0.56	Orig	NO3 + NO2: T; NO2: W; NH3: W	27.527	15.15	751	8.68	29	0.039	0.89	0.006	0.008				0.89	8
F-4		3			27.478	15.23	751	8.69										
F-4		6			27.333	15.2	751	8.68										
F-4		8.99			26.501	13.4	751	8.56										
F-4		11.99	Orig	Ortho-P: W	26.22	5.77	792	7.91		0.027	0.969		0.17	0.16	0.009	0.12	0.8	6
F-4		14.99			25.976	3.23	798	7.68										
F-4		18.01			24.964	0.45	811	7.56										
F-4		21			24.354	0.21	818	7.55										
F-4		24.01			24.046	0.17	823	7.54										
F-4		26.99	Orig		23.695	0.13	829	7.47		0.111	1.455	0.063	0.055	0.037	0.018	0.65	1.4	4

Laboratory codes:

W = Reported value is less than the method detection limit (MDL).

T = Reported value is less than the reporting limit (RL). Result is estimated.

A = Result is estimated due to high matrix spike recovery.

Table 19. Water Chemistry data for Ford and Belleville Lake, Washtenaw County, September 2018. All values were reported as mg/L unless specified. Parameters include temperature (°C), pH (SU), dissolved oxygen (DO), conductivity (uS/cm), total phosphorous (TP), total nitrogen (TN), ortho phosphate (OP), nitrate plus nitrite ($\text{NO}_3 + \text{NO}_2$), nitrate (NO_3), nitrite (NO_2), ammonia (NH_3), kjeldahl nitrogen (KN), and total suspended solids (TSS).

Table 19 (cont.).

Table 19 (cont.).

Site Name	Secchi (ft)	Depth (ft)	Duplicate	Lab Codes/Comments	Temp	DO	Spec. Cond.	pH	Chl a	TP	TN	Ortho-P	NO ₃ + NO ₂	NO ₃ (calc.)	NO ₂	NH ₃	KN	TSS
F-3		6.04			22.028	7.64	810	8.06										
F-3		9.06			21.945	7.35	811	8.02										
F-3		12.22	Orig		21.813	6.95	813	8		0.039	1.362	0.023	0.58	0.57	0.012	0.16	0.78	4
F-3		15.1			20.389	6.93	827	7.96										
F-3		18.14			20.196	7.15	830	7.96										
F-3		21.79			20.106	7.04	831	7.94										
F-3		24.02	Orig		19.944	6.49	837	7.86		0.041	1.307	0.016	0.51	0.49	0.017	0.16	0.8	5
F-4	5	0.44	Orig		23.094	7.13	815	7.93	7.2	0.044	1.182	0.019	0.27	0.25	0.012	0.25	0.92	4
F-4		3.08			22.377	6.79	811	7.97										
F-4		6.05			21.952	6.1	816	7.86										
F-4		9.19			21.664	5.98	818	7.85										
F-4		12.09	Orig		21.077	5.65	821	7.83		0.044	1.318	0.021	0.54	0.52	0.018	0.21	0.78	7
F-4		15.02			20.791	5.59	822	7.83										
F-4		18.02			20.605	5.5	824	7.82										
F-4		21.01			20.494	5.56	824	7.83										
F-4		24.62			20.464	5.59	824	7.83										
F-4		27.28	Orig		20.384	5.23	826	7.77		0.066	1.443	0.031	0.59	0.56	0.023	0.23	0.86	17

Laboratory codes:

W = Reported value is less than the method detection limit (MDL).

T = Reported value is less than the reporting limit (RL). Result is estimated.

A = Result is estimated due to high matrix spike recovery.

Table 20. Computation of Carlson's trophic status index (TSI) for the deeper, downstream sites in Ford Lake and Belleville Lake: F-4 and B-4. Computations, equations and criteria, as described in Goodwin et al. (2014; see section 4.6.1), were used to compute TSIs using data from the months May through September. These computations were made back as far as 2001; earlier datasets were not as complete. Total phosphorous samples were collected near the surface, while chlorophyll a samples were collected using a depth-integrated technique in the photic zone. SD = secchi disk transparency; TP = total phosphorous; and CHL = chlorophyll. The range for eutrophic lakes in overall Carlson TSI scores is 48-61.

Lake Site	Year	SD Average May - Sep (feet)	TP Average Jul - Sep (µg/L)	CHL Median May - Sep (µg/L)	Carlson TSI (SD) (transparency)	Carlson TSI (TP) (phosphorous)	Carlson TSI (CHL) (chlorophyll)	Overall Carlson TSI	Lake Trophic Status
F-4	2018	4.9	59	18	54	63	59	59	Eutrophic
B-4	2018	4.2	48	17	56	60	58	58	Eutrophic
F-4	2016	5.7	100	15	52	71	57	60	Eutrophic
B-4	2016	5.3	91	15	53	69	57	60	Eutrophic
F-4	2014	5.3	30	19.5	53	53	60	55	Eutrophic
B-4	2014	5.5	43	8.9	53	58	52	54	Eutrophic
F-4	2012	5.8	52.7	19	52	61	59	58	Eutrophic
B-4	2012	3.9	43.3	21	58	59	60	59	Eutrophic
F-4	2009	5.5	21	14	53	48	56	52	Eutrophic
B-4	2009	4.8	41.7	22	55	58	61	58	Eutrophic
F-4	2006	7.3	35	9.6	49	55	53	52	Eutrophic
B-4	2006	3.4	50.7	24	59	61	62	61	Eutrophic
F-4	2005	6.4	42.3	18	50	58	59	56	Eutrophic
B-4	2005	4.8	50	16	55	61	58	58	Eutrophic
F-4	2004	6.5	31.7	13.5	50	54	56	53	Eutrophic
B-4	2004	5.6	61.3	25	52	64	62	59	Eutrophic
F-4	2003	5.7	41	22.4	52	58	61	57	Eutrophic
B-4	2003	6	48	11.5	51	60	55	55	Eutrophic
F-4	2002	5.4	49.3	16	53	60	58	57	Eutrophic
B-4	2002	4.6	48.3	17	55	60	58	58	Eutrophic
F-4	2001	8.9	45.3	7	46	59	50	51	Eutrophic
B-4	2001	9.1	69	6.5	45	65	49	53	Eutrophic