

Supplemental Data

Table S1: Descriptive statistics of measured phytoplankton and water quality data at ponds P1 and P2.

Variable	Units	P1				P2			
2019		Min	Max	Mean	Median	Min	Max	Mean	Median
Diatoms	Cells/L	ND*	1.85E+06	4.48E+05	3.59E+05	ND*	5.75E+06	1.99E+06	1.64E+06
Flagellates	Cells/L	3.82E+06	6.86E+06	4.98E+06	4.94E+06	5.79E+06	4.79E+07	1.75E+07	9.08E+06
Chlorophytes	Cells/L	3.07E+07	5.50E+07	4.00E+07	3.96E+07	2.90E+06	4.13E+07	2.00E+07	2.07E+07
Cyanobacteria	Cells/L	ND*	3.42E+07	6.29E+06	1.23E+06	ND*	3.70E+07	4.02E+06	2.39E+06
Total Phyto	Cells/L	3.68E+07	8.90E+07	5.17E+07	5.09E+07	2.23E+07	7.61E+07	4.36E+07	4.26E+07
TEMP	°C	25.01	26.15	25.22	25.13	21.26	28.34	23.32	23.49
DO	mg/L	7.87	11.57	10.06	10.06	0.17	23.42	8.20	6.41
SPC	µS/cm	158.90	161.10	159.53	159.40	153.30	162.30	157.48	157.95
pH		8.14	8.94	8.66	8.68	6.09	9.27	7.24	6.87
NTU		7.38	25.56	9.07	8.47	7.08	18.32	10.28	9.61
FDOM	µg/L	5.89	8.45	7.86	8.05	16.19	27.99	23.34	23.92
CDOM	µg/L	62.71	74.25	66.60	66.39	101.51	395.28	162.09	144.44
Chlorophyll-a	RFU	477.60	784.80	652.13	662.40	793.00	5614.00	1927.10	1637.00
Phycocyanin	µg/L	46.07	202.26	64.26	56.42	46.60	291.13	92.95	73.63
TC	mg/L	9.70	14.14	12.30	12.54	12.10	17.44	14.47	14.39
TOC	mg/L	4.93	6.28	5.50	5.52	6.43	10.76	8.02	8.02
TIC	mg/L	4.65	8.02	6.63	6.86	4.41	8.52	6.44	6.42
TNB	mg/L	1.21	3.55	2.56	2.58	0.96	3.19	2.08	2.22
2020									
Diatoms	Cells/L	2.71E+06	1.29E+07	6.05E+06	5.51E+06	1.32E+05	2.54E+07	3.72E+06	2.90E+06
Flagellates	Cells/L	2.70E+06	1.25E+07	6.05E+06	5.78E+06	4.59E+06	3.26E+07	1.66E+07	1.63E+07
Chlorophytes	Cells/L	3.13E+06	1.45E+07	7.01E+06	6.71E+06	5.37E+06	5.65E+09	8.49E+08	3.87E+07
Cyanobacteria	Cells/L	ND*	1.00E+07	1.10E+06	ND*	ND*	6.47E+07	3.87E+06	ND*
Total Phyto	Cells/L	8.54E+06	4.18E+07	2.02E+07	1.98E+07	1.56E+07	5.68E+09	8.73E+08	6.56E+07
TEMP	°C	28.69	32.35	29.49	29.08	25.28	34.65	28.49	28.19
DO	mg/L	3.17	11.08	7.75	7.66	2.06	19.80	11.97	12.17
SPC	µS/cm	175.50	179.20	178.28	178.30	49.00	146.10	94.66	82.15
pH		7.18	8.81	7.84	7.72	3.74	9.27	6.53	6.54
NTU		1.51	35.02	4.49	3.17	1.81	33.88	5.37	4.45
FDOM	µg/L	10.55	18.26	15.89	16.41	10.03	54.12	39.62	40.05
CDOM	µg/L	55.13	68.18	62.49	62.66	94.32	279.66	143.44	139.72
Chlorophyll-a	RFU	239.40	450.40	340.82	336.00	197.40	3613.00	829.02	651.20
Phycocyanin	µg/L	32.71	46.11	38.71	38.54	28.89	164.55	63.40	53.06
TC	mg/L	11.06	15.96	12.60	12.40	8.29	25.41	13.43	13.09
TOC	mg/L	4.36	6.36	4.93	4.79	4.93	15.75	8.15	7.96
TIC	mg/L	6.47	10.05	7.67	7.70	3.04	10.16	5.28	4.77
TNB	mg/L	2.96	3.87	3.47	3.49	0.43	3.78	2.68	2.83

*ND – Not detected

Figure S1: Normalized temperature measurements as functions to time of day and depth at Pond 1 and Pond 2 for each sampling date.

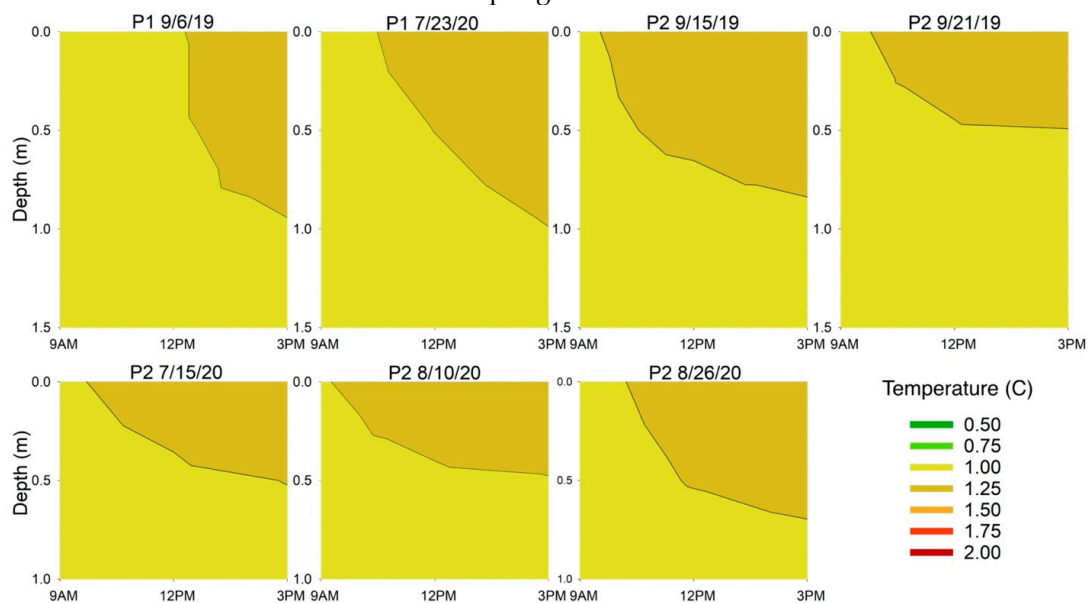


Table S2: Precipitation from one and two weeks prior to sample collection at ponds P1 and P2.

Dates	Total accumulation one week prior (mm)	Total accumulation two weeks prior (mm)
P1		
9/6/19	0.00	16.51
7/23/20	11.68	37.59
P2		
9/15/19	0.00	27.94
9/21/19	0.51	0.76
7/15/20	0.51	51.05
8/10/20	200.91	213.87
8/26/20	14.22	199.14

Table S3: Average solar irradiance (W/m²) during sampling at ponds P1 and P2.

Date	9 am	12 pm	3 pm
P1			
9/6/19	240.25	242.20	714.17
7/23/20	206.67	889.17	923.17
P2			
9/15/19	189.60	733.36	643.62
9/21/19	304.98	687.92	610.90
7/15/20	720.29	915.27	740.43
8/10/20	602.54	786.71	665.78
8/26/20	379.61	726.11	631.65

Table S4: Identified phytoplankton taxa for P1 and P2.

Table S4: Identified Taxa	
Pond 1	Pond 2
<i>Aulocoseira</i> spp.	<i>Aphanizomenon flos-aquae</i>
<i>Ceratium</i> spp.	<i>Aulocoseira</i> spp.
<i>Closterium</i> spp.	<i>Ceratium</i> spp.
<i>Coelastrum</i> spp.	<i>Closterium</i> spp.
<i>Cosmarium</i> spp.	<i>Cosmarium</i> spp.
<i>Cruciginella</i> spp.	<i>Cryptomonas</i> spp.
<i>Cryptomonas</i> spp.	<i>Cyclotella</i> spp.
<i>Euglena</i> spp.	<i>Dolichospermum circinale</i>
<i>Fragilaria</i> spp.	<i>Dolichospermum smithii</i>
<i>Microcystis wesenbergii</i>	<i>Euglena</i> spp.
<i>Monoraphidium</i> spp.	<i>Gonyostomum semen</i>
<i>Pandorina morum</i>	<i>Kirchneriella</i> spp.
<i>Pediatrum</i> spp.	<i>Merismopedia</i> spp.
<i>Scenedesmus</i> spp.	<i>Microcystis aeruginosa</i>
<i>Staurastrum</i> spp.	<i>Microcystis panniformis</i>
<i>Stephanodiscus</i> spp.	<i>Microcystis wesenbergii</i>
<i>Trachelomonas</i> spp.	<i>Monoraphidium</i> spp.
<i>Westella</i> spp.	<i>Pandorina morum</i>
	<i>Tetradriella</i> spp.
	<i>Tetraedron</i> spp.
	<i>Scenedesmus</i> spp.
	<i>Stephanodiscus</i> spp.
	<i>Synura</i> spp.
	<i>Trachelomonas</i> spp.

Tables S5 – S11. Correlations between measured water quality parameters, photosynthetic pigments, and phytoplankton cell abundance for each sampling date. Mild correlations are depicted green (correlation coefficient 0.300-0.499), moderate correlations are depicted in yellow (0.500-0.699), and strong correlations are depicted in red (0.700-0.999). Abbreviations in Tables S4-S10: °C – Temperature, Celsius, DO dissolved oxygen, mg L⁻¹, SPC – specific conductance, µS cm⁻¹, NTU – turbidity, NTU, fDOM – fluorescent dissolved organic matter, relative fluorescent units [RFU], CDOM - colored dissolved organic matter, µg L⁻¹, TC – total carbon, mg L⁻¹, TOC – total organic carbon, mg L⁻¹, TIC, total inorganic carbon, mg L⁻¹. TnB – total bound nitrogen, mg L⁻¹, DIA – diatom cell count, CHLOR – chlorophyte cell count, FLAG – flagellate cell count, CYA – cyanobacteria, cell count, TOT – total number of phytoplankton cells counted.

Legend for Tables S5-S11	
Color	Correlation Coefficient
	< 0.300
mild	0.300 – 0.499
moderate	0.500 – 0.699
strong	0.700 – 0.999

Table S5: Pond 1 – 9/6/19

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Table S6: Pond 1 – 7/23/20

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Table S7: Pond 2 – 9/15/19

	°C	DO	SPC	pH	NTU	FDOM	Phyco	CHL	CDOM	TC	TOC	TIC	TnB	DIA	CYA	FLAG	CHLOR	TOT
°C	Black	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray
DO	Red	Black	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray
SPC	Gray	Gray	Black	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray
pH	Red	Red	Gray	Black	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray
NTU	Gray	Gray	Gray	Gray	Black	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray
FDOM	Gray	Gray	Red	Gray	Gray	Black	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray
Phyco	Red	Red	Gray	Red	Green	Gray	Black	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray
CHL	Yellow	Yellow	Gray	Yellow	Gray	Gray	Red	Black	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray
CDOM	Red	Yellow	Gray	Red	Green	Gray	Red	Red	Black	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray
TC	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Green	Green	Black	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray
TOC	Yellow	Yellow	Gray	Yellow	Gray	Gray	Yellow	Yellow	Red	Yellow	Black	Gray	Gray	Gray	Gray	Gray	Gray	Gray
TIC	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Red	Gray	Black	Gray	Gray	Gray	Gray	Gray	Gray
TnB	Gray	Gray	Gray	Gray	Green	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Black	Gray	Gray	Gray	Gray	Gray
DIA	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Green	Black	Gray	Gray	Gray	Gray
CYA	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Black	Gray	Gray	Gray
FLAG	Green	Gray	Gray	Green	Green	Gray	Yellow	Green	Green	Gray	Green	Gray	Green	Gray	Gray	Black	Gray	Gray
CHLOR	Green	Gray	Gray	Green	Green	Gray	Yellow	Green	Green	Gray	Green	Gray	Green	Gray	Gray	White	Black	Gray
TOT	Gray	Gray	Gray	Green	Green	Gray	Green	Green	Green	Gray	Green	Gray	Yellow	Gray	Gray	Red	Red	Black

Table S8: Pond 2 – 9/21/19

	°C	DO	SPC	pH	NTU	FDOM	Phyco	CHL	CDOM	TC	TOC	TIC	TnB	DIA	CYA	FLAG	CHLOR	TOT
°C	Black	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
DO	Red	Black	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
SPC	White	White	Black	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
pH	Red	Red	White	Black	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
NTU	Green	Green	White	Green	Black	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
FDOM	White	White	Yellow	White	White	Black	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
Phyco	Green	Green	White	White	Yellow	White	Black	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
CHL	White	White	White	White	Green	White	Red	Black	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
CDOM	Green	Green	White	White	Red	White	Red	Red	Black	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
TC	White	White	White	White	Green	White	Green	White	Green	Black	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
TOC	White	White	White	White	Green	White	White	White	White	Red	Black	Grey	Grey	Grey	Grey	Grey	Grey	Grey
TIC	White	White	White	White	White	White	White	White	White	Red	Green	Black	Grey	Grey	Grey	Grey	Grey	Grey
TnB	White	Green	White	White	White	White	White	White	White	White	White	White	Black	Grey	Grey	Grey	Grey	Grey
DIA	White	White	White	White	White	White	White	White	White	White	White	White	White	Black	Grey	Grey	Grey	Grey
CYA	White	White	White	White	White	White	White	Green	White	White	White	White	White	White	Black	Grey	Grey	Grey
FLAG	White	White	White	White	White	White	White	Green	White	White	White	White	White	White	White	Black	Grey	Grey
CHLOR	White	White	White	White	White	White	White	Green	White	White	White	White	White	White	White	White	Black	Grey
TOT	White	White	Green	White	White	White	White	White	White	White	White	White	White	Green	Green	Yellow	Yellow	Black

Table S9: Pond 2 – 7/15/20

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Table S10: Pond 2 – 8/10/20

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Table S11: Pond 2 – 8/26/20

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