

Supplementary Materials

Table S1. Data Recovery and Completeness in Owasco & Seneca Lakes (% Deployment)

Owasco	Weather Station	Water Temperature	Camera	Sondes	Buoy - Met	Buoy - WQ
2019 - Martin N (E1)	2.0	0.0	0.0	n.a.	0.0	0.9
2019 - Burtis Pt (D)	0.1	0.0	0.0	n.a.		
2020 - Martin N (E1)	0.1	0.0	0.0	0.0	0.0	0.9
2020 - Burtis Pt (D)	0.1	0.0	0.0	0.0		
2020 - Martin N (E1)	45.5	0.0	0.0	0.1		
2020 - FL-20 (A)	23.5	23.4	25.0	64.4		
2021 - Martin N (E1)	0.5	0.0	0.0	0.0	0.0	1.9
2021 - Burtis Pt (D)	0.1	0.0	19.0	0.0		
2021 - Martin S (E2)	21.6	0.0	0.0	0.0		
2021 - FL-20 (A)	24.7	24.5	26.0	0.0		
2022 - Martin N (E1)	2.0	0.0	0.0	0.0	1.0	0.9
2022 - Burtis Pt (D)	0.0	0.0	21.3	0.0		
2022 - Martin S (E2)	86.2	3.3	0.0	3.8		
2022 - FL-20 (A)	37.9	0.0	0.0	0.0		
Owasco Combined	17.5	3.7	6.5	5.7	0.3	1.2
Seneca						
2019 - I	0.1	0.0	0.0	n.a.	0.0	4.3
2019 - H*	0.0	0.0	0.0	n.a.		
2019 - G	0.2	0.0	1.0	n.a.		
2019 - F*	0.2	0.0	0.0	n.a.		
2019 - B	0.4	0.0	17.0	n.a.		
2019 - C	2.3	0.0	74.0	n.a.		
2019 - D	1.4	0.0	0.0	n.a.		
2019 - E	2.0	0.0	0.0	n.a.		
2020 - I	0.2	0.0	32.6	n.a.	0.0	0.5
2020 - H	0.1	0.0	74.4	n.a.		
2020 - G	0.4	0.0	0.0	n.a.		
2020 - A	14.0	12.7	8.1	n.a.		
2020 - B	0.2	0.0	1.2	n.a.		
2020 - C	0.5	0.0	30.2	n.a.		
2020 - D	1.6	0.0	0.0	n.a.		
2020 - E	0.2	0.0	47.7	n.a.		
2021 - I	1.7	0.0	0.0	n.a.		
2021 - H	0.0	0.0	0.0	n.a.		
2021 - G	0.7	0.0	29.3	n.a.		

2021 - A	0.1	0.0	0.0	n.a.	0.0	2.8
2021 - B	0.2	0.0	0.0	n.a.		
2021 - C	0.0	0.0	13.8	n.a.		
2021 - D	0.1	0.0	17.4	n.a.		
2021 - E	0.0	0.0	32.1	n.a.		
Seneca Combined	1.1	0.5	15.8	n.a.	0.0	2.5

*Site Moved

Table S2. Deployment Dates and Blooms Detected by Cameras & Volunteers

Year	Lake	Site	Deployment Dates	Dock Cameras	Volunteers w/in 1 Mile
2019	Seneca	FLI Buoy	Spr - Fall		
		I	6/23 - 10/7	3	1
		H*	6/21 - 10/8	2	0
		G	6/21 - 10/7	0	1
		F*	6/21 - 10/8	1	0
		B	6/22 - 10/8	1	2
		C	6/21 - 10/4	2	2
		D	6/24 - 10/6	2	1
		E	6/24 - 10/11	1	3
		Blooms All Sites		12	10
2020	Seneca	USGS Buoy	Spr - Fall		
		I	7/8 - 10/10	5	2
		H	7/8 - 10/10	0	0
		G	7/9 - 10/10	0	0
		A	7/8 - 10/9	0	0
		B	7/8 - 10/10	1	0
		C	7/8 - 10/10	1	0
		D	7/22 - 10/10	0	0
		E	7/9 - 10/9	0	1
		Blooms All Sites		7	3
2021	Seneca	FLI Buoy	Spr - Fall		
		I	7/26 - 10/27	9	1
		H	7/24 - 10/27	4	0
		G	7/12 - 10/27	3	2
		A	7/12 - 10/27	7	5
		B	7/12 - 10/27	5	9
		C	7/12 - 10/27	1	8
		D	7/12 - 10/27	4	4
		E	7/12 - 10/27	8	7
		Blooms All Sites		41	36
2019	Owasco	FLI Buoy	Spr - Fall		
		Martin N (E1)	6/26 - 10/3	10	3
		Burtis (D)	6/26 - 10/9	14	1
		Blooms All Sites		24	4
2020	Owasco	FLI Buoy	Spr - Fall		

		Martin N (E1)	7/7 - 10/14	9	1
		Martin S (E2)	7/9 - 8/31	17	2
		Burtis (D)	7/7 - 10/14	12	0
		FL-20 (A)	7/7 - 9/18	0	0
		Blooms All Sites		38	3
2021	Owasco	FLI Buoy	Spr - Fall		
		Martin N (E1)	7/7 - 10/12	10	2
		Martin S (E2)	7/28 - 10/13	7	2
		Burtis (D)	7/7 - 10/13	10	1
		FL-20 (A)	7/7 - 9/17	3	0
		Blooms All Sites		30	5
2022	Owasco	FLI Buoy	Spr - Fall		
		Martin N (E1)	7/20 - 10/5	3	2
		Martin S (E2)	9/24 - 10/5	1	1
		Burtis (D)	7/20 - 10/5	3	0
		FL-20 (A)	7/20 - 10/5	2	0
		Blooms All Sites		9	3

*Site Moved

Table S3. Data Means, Standard Deviations, and Maximum Values

Year	Lake	Site	Water Temperature, °C	Wind Speed, kph	Air Temperature, °C	Light Intensity, W/m ²
			mean ± sd, max	mean ± sd, max	mean ± sd, max	mean ± sd, max
2019	Seneca	FLI Buoy	20.2 ± 5.3, 26.2	14.3 ± 8.1, 42.9	21.6 ± 4.9, 43.7	225.6 ± 311.1, 1260.6
		I	21.4 ± 3.1, 33.2	4.2 ± 5.8, 33.5	19.3 ± 4.8, 32.6	82.3 ± 121.4, 703.9
		H*	21.4 ± 2.8, 27.5	9.2 ± 9.6, 41.0	19.4 ± 4.7, 32.8	128.5 ± 190.6, 748.4
		G	21.3 ± 2.3, 26.7	3.4 ± 5.4, 47.5	19.3 ± 4.8, 33.4	309.8 ± 501.4, 2761
		F*	21.8 ± 3.0, 27.2	3.2 ± 5.2, 42.2	19.0 ± 5.1, 33.4	120.7 ± 187.3, 880.5
		B	21.7 ± 2.7, 28.7	5.3 ± 8.2, 68.7	19.5 ± 5.0, 33.5	116.9 ± 173.0, 1027.6
		C	21.6 ± 2.6, 28.1	1.2 ± 1.9, 17.2	19.4 ± 5.0, 33.1	114.0 ± 189.5, 944.7
		D	21.4 ± 2.5, 28.3	2.2 ± 3.8, 32.0	19.1 ± 4.7, 32.2	90.5 ± 140.0, 786.8
		E	20.8 ± 2.3, 27	3.5 ± 5.6, 34.6	19.3 ± 4.8, 33.1	396.3 ± 619.1, 3328
	Blooms All Sites	21.2 ± 2.6, 26.7	0.8 ± 1.4, 21.6	21.0 ± 2.9, 28.4	252.7 ± 185.4, 751.1	
2020	Seneca	USGS Buoy	23.0 ± 3.3, 26.7	15.4 ± 8.8, 55.8	20.6 ± 5.0, 33.3	228.1 ± 312.9, 1254.5
		I	22.4 ± 4.0, 26.5	4.7 ± 6.3, 39.9	20.3 ± 5.5, 33.8	97.7 ± 142.1, 805
		H	22.2 ± 3.7, 28.8	9.0 ± 9.4, 56.2	20.4 ± 5.4, 33.7	168.1 ± 234.1, 938.3
		G	22.1 ± 3.4, 29.0	4.2 ± 5.8, 39.6	20.3 ± 5.5, 32.7	156.1 ± 221.1, 933.1
		A	22.7 ± 4.5, 30.6	3.3 ± 4.9, 35.6	19.3 ± 5.8, 33.9	153.2 ± 221.1, 941.0
		B	22.9 ± 3.6, 29.8	5.4 ± 9.3, 76.3	20.3 ± 5.7, 34.4	150.4 ± 205.1, 857.6
		C	22.8 ± 3.7, 28.9	0.5 ± 1.6, 19.5	20.2 ± 5.9, 34.6	143.3 ± 197.7, 961.7
		D	22.4 ± 3.6, 29.2	3.0 ± 4.4, 28.0	20.1 ± 5.5, 34.1	125.6 ± 186.9, 797.5
		E	21.6 ± 3.5, 28.7	3.9 ± 5.6, 36.0	20.2 ± 5.7, 35.6	157.4 ± 212.8, 1000.0
			Blooms All Sites	24.9 ± 1.7, 27.4	6.4 ± 5.4, 21.6	22.4 ± 2.8, 36.5
2021	Seneca	FLI Buoy	21.4 ± 3.1, 26.7	14.3 ± 8.1, 42.9	21.6 ± 4.9, 43.7	225.6 ± 311.1, 1260.6
		I	21.9 ± 3.1, 28.8	4.2 ± 5.8, 33.5	19.3 ± 4.8, 32.6	82.3 ± 121.4, 703.9
		H	21.6 ± 2.9, 33.3	9.2 ± 9.6, 41.0	19.4 ± 4.7, 32.8	128.5 ± 190.6, 748.4
		G	21.2 ± 2.8, 26.9	3.4 ± 5.4, 47.5	19.3 ± 4.8, 33.4	309.8 ± 501.4, 2761
		A	20.8 ± 2.8, 27.5	3.2 ± 5.2, 42.2	19.0 ± 5.1, 33.4	120.7 ± 187.3, 880.5

	B	22.3 ± 2.8, 27.4	5.3 ± 8.2, 68.7	19.5 ± 5.0, 33.5	116.9 ± 173.0, 1027.6
	C	22.1 ± 2.9, 27.0	1.2 ± 1.9, 17.2	19.4 ± 5.0, 33.1	114.0 ± 189.5, 944.7
	D	21.6 ± 2.9, 27.6	2.2 ± 3.8, 32.0	19.1 ± 4.7, 32.2	90.5 ± 140.0, 786.8
	E	20.8 ± 2.9, 27.6	3.5 ± 5.6, 34.6	19.3 ± 4.8, 33.1	396.3 ± 619.1, 3328
	Blooms All Sites	21.3 ± 2.4, 26.4	3.8 ± 4.8, 5.3	20.7 ± 4.4, 28.4	345.4 ± 238.1, 658.0

2019	Owasco	FLI Buoy	21.7 ± 3.1, 25.9	14.0 ± 8.2, 54.4	20.1 ± 4.3, 31.6	195.8 ± 267.9, 1129.0
		Martin N (E1)	22.1 ± 3.0, 28.7	3.4 ± 4.8, 48.6	20.1 ± 4.5, 35.0	153.4 ± 231.6, 898
		Burtis (D)	22.0 ± 3.0, 29.0	6.0 ± 6.5, 39.6	19.3 ± 5.0, 34.8	190.6 ± 277.1, 1025
		Blooms All Sites	23.7 ± 2.8, 27.6	4.3 ± 4.8, 24.5	22.0 ± 4.2, 28.8	480.6 ± 261.7, 909.8
2020	Owasco	FLI Buoy	20.8 ± 4.3, 26.6	15.0 ± 8.4, 48.7	20.2 ± 5.2, 33.1	194.7 ± 262.3, 1014.0
		Martin N (E1)	22.6 ± 3.8, 28.7	4.9 ± 6.2, 38.5	19.7 ± 5.8, 35.0	144.0 ± 215.6, 898
		Martin S (E2)	22.7 ± 3.7, 28.6	4.8 ± 5.2, 29.4	22.5 ± 3.6, 31.7	175.5 ± 261.0, 914.8
		Burtis (D)	22.3 ± 4.0, 39.0	6.9 ± 7.5, 50.0	19.4 ± 5.9, 34.8	164.8 ± 240.6, 1025
		FL-20 (A)	24.3 ± 2.0, 28.2	3.0 ± 4.0, 39.4	21.1 ± 4.3, 33.1	201.0 ± 299.7, 1179.4
		Blooms All Sites	20.5 ± 2.0, 28.2	2.4 ± 3.9, 23.3	19.9 ± 4.4, 31.4	346.2 ± 210.4, 736.2
2021	Owasco	FLI Buoy	22.1 ± 2.0, 25.6	14.2 ± 7.8, 43.6	20.5 ± 3.7, 30.5	168.7 ± 239.0, 1031.0
		Martin N (E1)	22.4 ± 2.2, 28.2	3.9 ± 5.2, 32.0	20.0 ± 4.3, 35.0	116.3 ± 177.4, 884
		Martin S (E2)	22.4 ± 2.2, 28.9	4.9 ± 5.0, 29.1	19.7 ± 4.2, 31.9	127.5 ± 207.5, 911.7
		Burtis (D)	22.3 ± 2.5, 28.1	5.9 ± 6.7, 37.5	19.8 ± 4.3, 33.9	127.8 ± 180.4, 897.1
		FL-20 (A)	23.0 ± 1.2, 27.5	2.7 ± 3.7, 39.4	20.4 ± 3.8, 30.8	158.3 ± 238.7, 1041.9
		Blooms All Sites	22.4 ± 2.6, 26.3	2.2 ± 3.4, 18.3	21.5 ± 4.0, 27.8	213.3 ± 161.8, 631.3
2022	Owasco	FLI Buoy	22.5 ± 2.7, 25.6	13.4 ± 6.8, 37.0	20.0 ± 5.0, 32.6	176.6 ± 246.7, 1044.0
		Martin N (E1)	23.2 ± 2.8, 29.0	4.1 ± 5.2, 29.9	19.5 ± 5.5, 32.1	124.5 ± 189.7, 814.6
		Martin S (E2)	23.4 ± 2.5, 29.3	3.7 ± 5.7, 22.4	11.8 ± 3.8, 19.2	67.9 ± 135.6, 783.4
		Burtis (D)	22.7 ± 3.1, 28.1	6.3 ± 6.9, 43.1	19.4 ± 5.6, 32.9	119.4 ± 167.3, 804.9
		FL-20 (A)	22.9 ± 2.3, 27.4	3.1 ± 4.1, 22.4	19.5 ± 5.7, 32.9	142.9 ± 226.3, 950.9
		Blooms All Sites	20.1 ± 2.7, 25.7	3.6 ± 4.9, 19.5	16.0 ± 4.4, 25.8	327.4 ± 172.1, 635.5

*Site Moved