Supplementary Materials: Roles of nutrient limitation on Western Lake Erie CyanoHAB toxin production

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Table S1. Chlorophyll a data from the experiment.

Sampling Period	Bay	Treatment	T0 (μg L^{-1} chl)			T1 (μg L^{-1} chl)			T2 (μg L^{-1} chl)			T3 (μg L^{-1} chl)		
June 2019	Maumee Bay	No Dilution Control	12.48	±	2.91	31.78	±	2.92	83.56	±	7.93	49.58	±	9.11
			n	=	3	n	=	3	n	=	3	n	=	3
June 2019	Maumee Bay	No Dilution NO_3	12.16	±	0.85	34.58	±	2.66	81.48	±	8.15	47.78	±	7.98
			n	=	3	n	=	3	n	=	3	n	=	3
June 2019	Maumee Bay	No Dilution NH_4	11.54	±	0.45	30.92	±	3.17	80.46	±	9.88	58.34	±	7.85
			n	=	3	n	=	3	n	=	3	n	=	3
June 2019	Maumee Bay	No Dilution PO_4	12.35	±	0.64	30.39	±	2.46	105.97	±	2.33	155.07	±	8.64
			n	=	3	n	=	3	n	=	3	n	=	3
June 2019	Maumee Bay	No Dilution N+P	12.33	±	1.49	36.36	±	1.82	105.78	±	12.88	169.75	±	3.47
			n	=	3	n	=	3	n	=	3	n	=	3
June 2019	Maumee Bay	40% Dilution Control	7.70	±	0.56	21.63	±	1.80	59.68	±	16.04	40.52	±	2.10
			n	=	3	n	=	3	n	=	3	n	=	3
June 2019	Maumee Bay	40% Dilution NO_3	7.41	±	0.37	20.77	±	3.27	33.97	±	4.43	27.89	±	3.83
			n	=	3	n	=	3	n	=	3	n	=	3
June 2019	Maumee Bay	40% Dilution NH_4	7.60	±	0.23	21.09	±	0.59	51.94	±	1.58	37.55	±	1.87
			n	=	3	n	=	3	n	=	3	n	=	3
June 2019	Maumee Bay	40% Dilution PO_4	7.69	±	0.20	19.46	±	0.98	67.41	±	7.41	75.74	±	3.37
			n	=	3	n	=	3	n	=	3	n	=	3
June 2019	Maumee Bay	40% Dilution N+P	7.00	±	0.80	20.18	±	2.44	76.12	±	4.40	91.89	±	4.96
			n	=	3	n	=	3	n	=	3	n	=	3
June 2019	Sandusky Bay	No Dilution Control	31.75	±	0.56	30.29	±	2.04	44.02	±	3.55	66.68	±	3.36
			n	=	3	n	=	3	n	=	3	n	=	3
June 2019	Sandusky Bay	No Dilution NO_3	31.40	±	0.94	29.73	±	0.92	40.76	±	4.74	63.18	±	3.40
			n	=	3	n	=	3	n	=	3	n	=	3
June 2019	Sandusky Bay	No Dilution NH_4	31.26	±	1.40	31.60	±	1.55	40.61	±	2.63	64.25	±	3.96
			n	=	3	n	=	3	n	=	3	n	=	3
June 2019	Sandusky Bay	No Dilution PO_4	31.26	±	0.39	30.89	±	1.30	43.62	±	5.14	68.87	±	8.57
			n	=	3	n	=	3	n	=	3	n	=	3
June 2019	Sandusky Bay	No Dilution N+P	21.79	±	1.24	19.69	±	4.04	41.07	±	2.22	74.52	±	2.16
			n	=	3	n	=	3	n	=	3	n	=	3

Sampling Period	Bay	Treatment	T0 (μg L^{-1} chl)			T1 (μg L^{-1} chl)			T2 (μg L^{-1} chl)			T3 (μg L^{-1} chl)		
June 2019	Sandusky Bay	40% Dilution Control	18.04	±	0.65	17.75	±	0.89	22.25	±	1.75	33.18	±	2.63
			n	=	3	n	=	3	n	=	3	n	=	3
June 2019	Sandusky Bay	40% Dilution NO_3	19.12	±	0.40	18.39	±	0.51	23.78	±	0.36	45.75	±	18.66
			n	=	3	n	=	3	n	=	3	n	=	3
June 2019	Sandusky Bay	40% Dilution NH_4	17.31	±	1.12	17.32	±	1.01	23.41	±	2.85	33.64	±	3.36
			n	=	3	n	=	3	n	=	3	n	=	3
June 2019	Sandusky Bay	40% Dilution PO_4	18.25	±	0.84	17.14	±	1.13	23.12	±	2.88	36.12	±	2.44
			n	=	3	n	=	3	n	=	3	n	=	3
June 2019	Sandusky Bay	40% Dilution N+P	19.11	±	0.35	18.59	±	1.00	22.77	±	1.10	35.23	±	2.92
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Maumee Bay	No Dilution Control	428.40	±	35.47	331.03	±	18.83	215.08	±	31.47	97.00	±	14.83
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Maumee Bay	No Dilution NO_3	408.92	±	28.16	281.70	±	17.90	196.15	±	25.11	77.13	±	9.90
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Maumee Bay	No Dilution NH_4	390.22	±	41.66	345.26	±	36.80	200.58	±	44.67	85.50	±	17.12
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Maumee Bay	No Dilution Urea	378.22	±	12.08	318.07	±	14.73	162.84	±	30.16	70.23	±	11.51
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Maumee Bay	No Dilution PO_4	391.93	±	9.16	331.18	±	1.21	184.85	±	12.19	95.40	±	16.05
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Maumee Bay	No Dilution N+P	390.88	±	11.18	354.75	±	15.11	217.65	±	11.40	107.31	±	9.99
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Maumee Bay	40% Dilution Control	228.64	±	8.69	250.21	±	27.78	166.43	±	16.72	107.50	±	7.89
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Maumee Bay	40% Dilution NO_3	218.77	±	2.69	244.57	±	14.99	151.19	±	5.70	70.00	±	22.02
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Maumee Bay	40% Dilution NH_4	233.67	±	2.71	224.01	±	20.44	168.98	±	6.94	87.46	±	5.52
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Maumee Bay	40% Dilution Urea	241.33	±	0.89	215.56	±	3.39	137.88	±	24.86	50.51	±	7.45
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Maumee Bay	40% Dilution PO_4	216.82	±	3.80	214.56	±	6.75	160.87	±	7.27	102.51	±	14.06
			n	=	3	n	=	3	n	=	3	n	=	3

Sampling Period	Bay	Treatment	T0 (μg L^{-1} chl)			T1 (μg L^{-1} chl)			T2 (μg L^{-1} chl)			T3 (μg L^{-1} chl)		
August 2019	Maumee Bay	40% Dilution N+P	235.67	±	6.27	213.25	±	9.67	143.30	±	1.21	66.89	±	17.30
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Sandusky Bay	No Dilution Control	63.81	±	1.00	44.99	±	1.32	32.69	±	3.55	29.96	±	3.20
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Sandusky Bay	No Dilution NO_3	92.11	±	2.29	113.46	±	1.76	124.01	±	7.72	137.10	±	10.64
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Sandusky Bay	No Dilution NH_4	85.46	±	9.44	108.16	±	3.09	117.84	±	1.84	127.44	±	4.86
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Sandusky Bay	No Dilution Urea	75.52	±	2.85	108.91	±	4.33	116.21	±	3.21	126.68	±	5.27
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Sandusky Bay	No Dilution PO_4	61.46	±	1.27	43.44	±	2.76	36.26	±	3.06	36.59	±	0.70
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Sandusky Bay	No Dilution N+P	77.78	±	3.70	127.40	±	5.05	155.39	±	3.33	196.34	±	3.19
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Sandusky Bay	40% Dilution Control	46.10	±	3.08	33.40	±	1.32	63.16	±	22.36	23.97	±	4.53
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Sandusky Bay	40% Dilution NO_3	45.99	±	1.89	72.12	±	4.59	62.34	±	30.16	87.07	±	1.46
			n	=	2	n	=	3	n	=	3	n	=	3
August 2019	Sandusky Bay	40% Dilution NH_4	46.07	±	0.91	64.20	±	11.87	68.68	±	6.61	79.78	±	4.33
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Sandusky Bay	40% Dilution Urea	49.65	±	2.78	70.26	±	0.94	66.61	±	9.37	86.86	±	2.27
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Sandusky Bay	40% Dilution PO_4	46.13	±	3.11	30.82	±	1.57	23.21	±	1.86	25.62	±	1.50
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Sandusky Bay	40% Dilution N+P	46.84	±	1.93	80.57	±	6.88	160.05	±	9.22	169.26	±	2.78
			n	=	3	n	=	3	n	=	3	n	=	3

Table S2. Chlorophyll a production rates.

Sampling Period	Bay	Treatment	Production (d^{-1})		
June 2019	Maumee Bay	No Dilution Control	0.46	±	0.34
June 2019	Maumee Bay	No Dilution NO_3	0.46	±	0.19
June 2019	Maumee Bay	No Dilution NH_4	0.54	±	0.14
June 2019	Maumee Bay	No Dilution PO_4	0.84	±	0.08
June 2019	Maumee Bay	No Dilution N+P	0.87	±	0.15
June 2019	Maumee Bay	40% Dilution Control	0.55	±	0.10
June 2019	Maumee Bay	40% Dilution NO_3	0.44	±	0.15
June 2019	Maumee Bay	40% Dilution NH_4	0.53	±	0.06
June 2019	Maumee Bay	40% Dilution PO_4	0.76	±	0.05
June 2019	Maumee Bay	40% Dilution N+P	0.86	±	0.15
June 2019	Sandusky Bay	No Dilution Control	0.25	±	0.05
June 2019	Sandusky Bay	No Dilution NO_3	0.23	±	0.07
June 2019	Sandusky Bay	No Dilution NH_4	0.25	±	0.08
June 2019	Sandusky Bay	No Dilution PO_4	0.25	±	0.13
June 2019	Sandusky Bay	No Dilution N+P	0.30	±	0.06
June 2019	Sandusky Bay	40% Dilution Control	0.21	±	0.09
June 2019	Sandusky Bay	40% Dilution NO_3	0.30	±	0.41
June 2019	Sandusky Bay	40% Dilution NH_4	0.20	±	0.12
June 2019	Sandusky Bay	40% Dilution PO_4	0.24	±	0.09
June 2019	Sandusky Bay	40% Dilution N+P	0.21	±	0.09
August 2019	Maumee Bay	No Dilution Control	-0.50	±	0.18
August 2019	Maumee Bay	No Dilution NO_3	-0.56	±	0.15
August 2019	Maumee Bay	No Dilution NH_4	-0.51	±	0.24
August 2019	Maumee Bay	No Dilution Urea	-0.56	±	0.17

Sampling Period	Bay	Treatment	Production (d^{-1})		
August 2019	Maumee Bay	No Dilution PO_4	-0.47	±	0.17
August 2019	Maumee Bay	No Dilution N+P	-0.43	±	0.10
August 2019	Maumee Bay	40% Dilution Control	-0.25	±	0.09
August 2019	Maumee Bay	40% Dilution NO_3	-0.38	±	0.31
August 2019	Maumee Bay	40% Dilution NH_4	-0.33	±	0.06
August 2019	Maumee Bay	40% Dilution Urea	-0.52	±	0.15
August 2019	Maumee Bay	40% Dilution PO_4	-0.25	±	0.14
August 2019	Maumee Bay	40% Dilution N+P	-0.42	±	0.26
August 2019	Sandusky Bay	No Dilution Control	-0.25	±	0.11
August 2019	Sandusky Bay	No Dilution NO_3	0.13	±	0.08
August 2019	Sandusky Bay	No Dilution NH_4	0.13	±	0.14
August 2019	Sandusky Bay	No Dilution Urea	0.17	±	0.06
August 2019	Sandusky Bay	No Dilution PO_4	-0.17	±	0.03
August 2019	Sandusky Bay	No Dilution N+P	0.31	±	0.06
August 2019	Sandusky Bay	40% Dilution Control	-0.22	±	0.21
August 2019	Sandusky Bay	40% Dilution NO_3	0.21	±	0.05
August 2019	Sandusky Bay	40% Dilution NH_4	0.18	±	0.06
August 2019	Sandusky Bay	40% Dilution Urea	0.19	±	0.07
August 2019	Sandusky Bay	40% Dilution PO_4	-0.20	±	0.10
August 2019	Sandusky Bay	40% Dilution N+P	0.43	±	0.05

Table S3. Microcystin data from the experiment.

Sampling Period	Bay	Treatment	T0 (μg L^{-1})			T1 (μg L^{-1})			T2 (μg L^{-1})			T3 (μg L^{-1})		
June 2019	Sandusky Bay	No Dilution Control	0.14	±	0.03	0.17	±	0.02	0.20	±	0.05	0.29	±	0.05
			n	=	3	n	=	3	n	=	3	n	=	3
June 2019	Sandusky Bay	No Dilution NO_3	0.17	±	0.01	0.18	±	0.04	0.25	±	0.04	0.29	±	0.07
			n	=	2	n	=	3	n	=	3	n	=	3
June 2019	Sandusky Bay	No Dilution NH_4	0.18	±	0.01	0.19	±	0.03	0.23	±	0.02	0.29	±	0.03
			n	=	3	n	=	3	n	=	3	n	=	3
June 2019	Sandusky Bay	No Dilution PO_4	0.23	±	0.02	0.25	±	0.05	0.20	±	0.02	0.36	±	0.01
			n	=	3	n	=	3	n	=	3	n	=	3
June 2019	Sandusky Bay	No Dilution N+P	0.20	±	0.04	0.19	±	0.03	0.23	±	0.02	0.35	±	0.04
			n	=	2	n	=	3	n	=	3	n	=	3
June 2019	Sandusky Bay	40% Dilution Control	0.14	±	0.02	0.13	±	0.06	0.12	±	0.01	0.15	±	0.06
			n	=	2	n	=	2	n	=	2	n	=	2
June 2019	Sandusky Bay	40% Dilution NO_3	0.18	±	0.06	0.11	±	0.01	0.13	±	0.04	0.14	±	0.01
			n	=	2	n	=	3	n	=	3	n	=	2
June 2019	Sandusky Bay	40% Dilution NH_4	0.14	±	0.00	0.12	±	0.03	0.15	±	0.03	0.12	±	0.05
			n	=	1	n	=	3	n	=	3	n	=	3
June 2019	Sandusky Bay	40% Dilution PO_4	0.23	±	0.00	0.11	±	0.03	0.13	±	0.01	0.15	±	0.04
			n	=	1	n	=	3	n	=	2	n	=	2
June 2019	Sandusky Bay	40% Dilution N+P	0.16	±	0.00	0.14	±	0.02	0.14	±	0.03	0.13	±	0.01
			n	=	1	n	=	3	n	=	3	n	=	3
August 2019	Maumee Bay	No Dilution Control	18.06	±	1.10	14.91	±	1.28	9.39	±	3.27	2.79	±	1.13
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Maumee Bay	No Dilution NO_3	16.25	±	1.01	14.90	±	2.04	7.36	±	2.22	1.42	±	0.74
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Maumee Bay	No Dilution NH_4	16.33	±	0.89	14.15	±	1.65	8.11	±	3.70	2.38	±	1.11
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Maumee Bay	No Dilution Urea	17.49	±	1.52	16.21	±	2.84	5.66	±	1.05	2.61	±	1.11
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Maumee Bay	No Dilution PO_4	17.38	±	0.42	12.22	±	0.87	6.44	±	1.48	2.82	±	1.74
			n	=	3	n	=	3	n	=	3	n	=	3

Sampling Period	Bay	Treatment	T0 (μg L^{-1})			T1 (μg L^{-1})			T2 (μg L^{-1})			T3 (μg L^{-1})		
August 2019	Maumee Bay	No Dilution N+P	16.75	±	1.16	11.44	±	0.33	5.09	±	0.42	3.32	±	1.19
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Maumee Bay	40% Dilution Control	11.47	±	2.46	10.65	±	1.89	10.29	±	1.61	3.34	±	1.16
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Maumee Bay	40% Dilution NO_3	12.40	±	0.99	8.66	±	0.63	8.83	±	1.57	3.37	±	1.01
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Maumee Bay	40% Dilution NH_4	11.71	±	1.85	11.16	±	1.91	8.79	±	1.80	2.75	±	0.56
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Maumee Bay	40% Dilution Urea	8.76	±	1.54	10.06	±	1.37	8.47	±	1.26	1.48	±	0.61
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Maumee Bay	40% Dilution PO_4	8.41	±	0.87	12.12	±	1.26	8.65	±	0.64	4.57	±	1.66
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Maumee Bay	40% Dilution N+P	7.76	±	1.02	11.83	±	0.23	8.20	±	0.88	3.28	±	0.66
			n	=	3	n	=	3	n	=	3	n	=	3

Table S4. Biomass-normalized microcystin data from the experiment.

Sampling Period	Bay	Treatment	T0 (µg microcystin µg chlorophyll a $^{-1}$)			T1 (µg microcystin µg chlorophyll a $^{-1}$)			T2 (µg microcystin µg chlorophyll a $^{-1}$)			T3 (µg microcystin µg chlorophyll a $^{-1}$)		
June 2019	Sandusky Bay	No Dilution Control	0.004	±	0.040	0.006	±	0.009	0.005	±	0.014	0.004	±	0.015
			n	=	3	n	=	3	n	=	3	n	=	3
June 2019	Sandusky Bay	No Dilution NO_3	0.006	±	0.009	0.006	±	0.036	0.006	±	0.009	0.005	±	0.020
			n	=	2	n	=	3	n	=	3	n	=	3
June 2019	Sandusky Bay	No Dilution NH_4	0.006	a	0.005	0.006	±	0.015	0.006	±	0.006	0.005	±	0.008
			n		3	n	=	3	n	=	3	n	=	3
June 2019	Sandusky Bay	No Dilution PO_4	0.007	±	0.047	0.008	±	0.034	0.005	±	0.003	0.005	±	0.001
			n	=	3	n	=	3	n	=	3	n	=	3
June 2019	Sandusky Bay	No Dilution N+P	0.007	±	0.032	0.007	±	0.014	0.006	±	0.025	0.005	±	0.002
			n	=	2	n	=	3	n	=	3	n	=	3
June 2019	Sandusky Bay	40% Dilution Control	0.009	±	0.142	0.006	±	0.069	0.005	±	0.004	0.003	±	0.028
			n	=	2	n	=	2	n	=	2	n	=	3
June 2019	Sandusky Bay	40% Dilution NO_3	0.008	±	0.034	0.007	±	0.019	0.005	±	0.110	0.005	±	0.001
			n	=	2	n	=	3	n	=	3	n	=	2
June 2019	Sandusky Bay	40% Dilution NH_4	0.007	±	0.00	0.007	±	0.022	0.007	±	0.009	0.004	±	0.015
			n	=	1	n	=	3	n	=	3	n	=	3
June 2019	Sandusky Bay	40% Dilution PO_4	0.013	±	0.00	0.007	±	0.022	0.006	±	0.004	0.004	±	0.021
			n	=	1	n	=	3	n	=	2	n	=	2
June 2019	Sandusky Bay	40% Dilution N+P	0.009	±	0.00	0.008	±	0.007	0.006	±	0.011	0.004	±	0.018
			n	=	1	n	=	3	n	=	3	n	=	3
August 2019	Maumee Bay	No Dilution Control	0.042	±	0.025	0.045	±	0.055	0.044	±	0.104	0.029	±	0.076
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Maumee Bay	No Dilution NO_3	0.040	±	0.029	0.053	±	0.093	0.038	±	0.088	0.018	±	0.075
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Maumee Bay	No Dilution NH_4	0.042	±	0.017	0.041	±	0.037	0.040	±	0.083	0.028	±	0.065
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Maumee Bay	No Dilution Urea	0.046	±	0.103	0.051	±	0.157	0.035	±	0.035	0.037	±	0.097
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Maumee Bay	No Dilution PO_4	0.044	±	0.037	0.037	±	0.588	0.035	±	0.122	0.030	±	0.108
			n	=	3	n	=	3	n	=	3	n	=	3

Sampling Period	Bay	Treatment	T0 (µg microcystin µg chlorophyll a $^{-1}$)			T1 (µg microcystin µg chlorophyll a $^{-1}$)			T2 (µg microcystin µg chlorophyll a $^{-1}$)			T3 (µg microcystin µg chlorophyll a $^{-1}$)		
August 2019	Maumee Bay	No Dilution N+P	0.043	±	0.085	0.032	±	0.018	0.023	±	0.036	0.031	±	0.119
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Maumee Bay	40% Dilution Control	0.050	±	0.231	0.043	±	0.055	0.062	±	0.096	0.031	±	0.147
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Maumee Bay	40% Dilution NO_3	0.057	±	0.300	0.035	±	0.034	0.058	±	0.276	0.048	±	0.046
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Maumee Bay	40% Dilution NH_4	0.050	±	0.556	0.050	±	0.076	0.052	±	0.260	0.031	±	0.101
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Maumee Bay	40% Dilution Urea	0.036	±	1.415	0.047	±	0.330	0.061	±	0.051	0.029	±	0.082
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Maumee Bay	40% Dilution PO_4	0.039	±	0.186	0.057	±	0.153	0.054	±	0.088	0.045	±	0.118
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Maumee Bay	40% Dilution N+P	0.033	±	0.132	0.055	±	0.019	0.057	±	0.724	0.049	±	0.038
			n	=	3	n	=	3	n	=	3	n	=	3

Table S5. Microcystin production rates.

Sampling Period	Bay	Treatment	Production (d^{-1})		
June 2019	Sandusky Bay	No Dilution Control	0.252	±	0.263
June 2019	Sandusky Bay	No Dilution NO_3	0.166	±	0.240
June 2019	Sandusky Bay	No Dilution NH_4	0.170	±	0.118
June 2019	Sandusky Bay	No Dilution PO_4	0.150	±	0.102
June 2019	Sandusky Bay	No Dilution N+P	0.190	±	0.235
June 2019	Sandusky Bay	40% Dilution Control	0.024	±	0.427
June 2019	Sandusky Bay	40% Dilution NO_3	-0.075	±	0.326
June 2019	Sandusky Bay	40% Dilution NH_4	-0.050	±	0.422
June 2019	Sandusky Bay	40% Dilution PO_4	-0.140	±	0.279
June 2019	Sandusky Bay	40% Dilution N+P	-0.079	±	0.037
August 2019	Maumee Bay	No Dilution Control	-0.623	±	0.411
August 2019	Maumee Bay	No Dilution NO_3	-0.812	±	0.526
August 2019	Maumee Bay	No Dilution NH_4	-0.642	±	0.468
August 2019	Maumee Bay	No Dilution Urea	-0.634	±	0.435
August 2019	Maumee Bay	No Dilution PO_4	-0.606	±	0.618
August 2019	Maumee Bay	No Dilution N+P	-0.539	±	0.365
August 2019	Maumee Bay	40% Dilution Control	-0.411	±	0.407
August 2019	Maumee Bay	40% Dilution NO_3	-0.434	±	0.309
August 2019	Maumee Bay	40% Dilution NH_4	-0.483	±	0.256
August 2019	Maumee Bay	40% Dilution Urea	-0.592	±	0.448
August 2019	Maumee Bay	40% Dilution PO_4	-0.203	±	0.378
August 2019	Maumee Bay	40% Dilution N+P	-0.287	±	0.242

Table S6. Biomass-normalized microcystin production rates.

Sampling Period	Bay	Treatment	Production (d^{-1})		
June 2019	Sandusky Bay	No Dilution Control	0.005	±	0.043
June 2019	Sandusky Bay	No Dilution NO_3	-0.067	±	0.022
June 2019	Sandusky Bay	No Dilution NH_4	-0.084	±	0.009
June 2019	Sandusky Bay	No Dilution PO_4	-0.100	±	0.047
June 2019	Sandusky Bay	No Dilution N+P	-0.113	±	0.002
June 2019	Sandusky Bay	40% Dilution Control	-0.200	±	0.009
June 2019	Sandusky Bay	40% Dilution NO_3	-0.186	±	0.042
June 2019	Sandusky Bay	40% Dilution NH_4	-0.373	±	0.142
June 2019	Sandusky Bay	40% Dilution PO_4	-0.249	±	0.015
June 2019	Sandusky Bay	40% Dilution N+P	-0.382	±	0.021
August 2019	Maumee Bay	No Dilution Control	-0.128	±	0.081
August 2019	Maumee Bay	No Dilution NO_3	-0.256	±	0.080
August 2019	Maumee Bay	No Dilution NH_4	-0.136	±	0.067
August 2019	Maumee Bay	No Dilution Urea	-0.072	±	0.141
August 2019	Maumee Bay	No Dilution PO_4	-0.135	±	0.115
August 2019	Maumee Bay	No Dilution N+P	-0.108	±	0.146
August 2019	Maumee Bay	40% Dilution Control	-0.159	±	0.274
August 2019	Maumee Bay	40% Dilution NO_3	-0.054	±	0.303
August 2019	Maumee Bay	40% Dilution NH_4	-0.155	±	0.565
August 2019	Maumee Bay	40% Dilution Urea	-0.071	±	1.418
August 2019	Maumee Bay	40% Dilution PO_4	0.046	±	0.220
August 2019	Maumee Bay	40% Dilution N+P	0.133	±	0.138

Table S7. Anatoxin data from the experiment.

Sampling Period	Bay	Treatment	T0 (μg L^{-1})			T1 (μg L^{-1})			T2 (μg L^{-1})			T3 (μg L^{-1})		
June 2019	Sandusky Bay	No Dilution Control	0.05	±	0.04	0.04	±	0.01	0.08	±	0.05	0.25	±	0.06
			n	=	3	n	=	3	n	=	3	n	=	3
June 2019	Sandusky Bay	No Dilution NO_3	0.02	±	0.02	0.02	±	0.01	0.11	±	0.07	0.42	±	0.12
			n	=	3	n	=	3	n	=	3	n	=	3
June 2019	Sandusky Bay	No Dilution NH_4	0.02	±	0.03	0.03	±	0.01	0.07	±	0.04	0.29	±	0.08
			n	=	2	n	=	3	n	=	3	n	=	3
June 2019	Sandusky Bay	No Dilution PO_4	0.02	±	0.03	0.03	±	0.01	0.18	±	0.04	0.39	±	0.06
			n	=	3	n	=	3	n	=	3	n	=	3
June 2019	Sandusky Bay	No Dilution N+P	0.03	±	0.04	0.04	±	0.03	0.13	±	0.09	0.46	±	0.17
			n	=	2	n	=	2	n	=	3	n	=	3
June 2019	Sandusky Bay	40% Dilution Control	0.03	±	0.03	0.01	±	0.01	0.09	±	0.06	0.22	±	0.12
			n	=	2	n	=	3	n	=	2	n	=	3
June 2019	Sandusky Bay	40% Dilution NO_3	0.02	±	0.03	0.02	±	0.02	0.05	±	0.04	0.24	±	0.02
			n	=	2	n	=	2	n	=	3	n	=	2
June 2019	Sandusky Bay	40% Dilution NH_4	0.02	±	0.00	0.02	±	0.01	0.06	±	0.03	0.17	±	0.01
			n	=	1	n	=	3	n	=	3	n	=	3
June 2019	Sandusky Bay	40% Dilution PO_4	0.02	±	0.02	0.02	±	0.00	0.04	±	0.03	0.16	±	0.04
			n	=	3	n	=	2	n	=	3	n	=	3
June 2019	Sandusky Bay	40% Dilution N+P	NaN[1]			0.03	±	0.03	0.14	±	0.10	0.19	±	0.09
						n	=	3	n	=	3	n	=	3
August 2019	Sandusky Bay	No Dilution Control	18.06	±	1.10	14.91	±	1.28	0.70	±	0.11	1.00	±	0.13
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Sandusky Bay	No Dilution NO_3	16.25	±	1.01	14.90	±	2.04	4.43	±	0.07	7.99	±	0.51
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Sandusky Bay	No Dilution NH_4	16.33	±	0.89	14.15	±	1.65	2.91	±	0.35	5.10	±	0.25
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Sandusky Bay	No Dilution Urea	17.49	±	1.52	16.21	±	2.84	3.78	±	0.24	5.19	±	0.21
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Sandusky Bay	No Dilution PO_4	17.38	±	0.42	12.22	±	0.87	0.76	±	0.08	1.01	±	0.06
			n	=	3	n	=	3	n	=	3	n	=	3

Sampling Period	Bay	Treatment	T0 (μg L^{-1})			T1 (μg L^{-1})			T2 (μg L^{-1})			T3 (μg L^{-1})		
August 2019	Sandusky Bay	No Dilution N+P	16.75	± =	1.16 3	11.44	± =	0.33 3	2.19	± =	0.42 3	2.81	± =	0.29 3
August 2019	Sandusky Bay	40% Dilution Control	11.47	± =	2.46 3	10.65	± =	1.89 3	0.52	± =	0.18 3	0.43	± =	0.24 3
August 2019	Sandusky Bay	40% Dilution NO_3	12.40	± =	0.99 3	8.66	± =	0.63 3	2.82	± =	0.15 3	4.54	± =	0.34 3
August 2019	Sandusky Bay	40% Dilution NH_4	11.71	± =	1.85 3	11.16	± =	1.91 3	1.49	± =	0.30 3	2.71	± =	0.49 3
August 2019	Sandusky Bay	40% Dilution Urea	8.76	± =	1.54 3	10.06	± =	1.37 3	1.94	± =	0.08 3	2.95	± =	0.05 3
August 2019	Sandusky Bay	40% Dilution PO_4	8.41	± =	0.87 3	12.12	± =	1.26 3	0.59	± =	0.08 3	0.45	± =	0.19 3
August 2019	Sandusky Bay	40% Dilution N+P	7.76	± =	1.02 3	11.83	± =	0.23 3	1.44	± =	0.25 3	2.54	± =	0.90 3

[1] NaN is No data available

Table S8. Biomass-normalized anatoxin data from the experiment.

Sampling Period	Bay	Treatment	T0 (µg anatoxin µg chlorophyll a $^{-1}$)			T1 (µg anatoxin µg chlorophyll a $^{-1}$)			T2 (µg anatoxin µg chlorophyll a $^{-1}$)			T3 (µg anatoxin µg chlorophyll a $^{-1}$)		
June 2019	Sandusky Bay	No Dilution Control	0.002	±	0.031	0.001	±	0.005	0.002	±	0.013	0.004	±	0.019
			n	=	3	n	=	3	n	=	3	n	=	3
June 2019	Sandusky Bay	No Dilution NO_3	0.001	±	0.014	0.001	±	0.009	0.003	±	0.014	0.007	±	0.035
			n	=	3	n	=	3	n	=	3	n	=	3
June 2019	Sandusky Bay	No Dilution NH_4	0.001	±	0.016	0.001	±	0.004	0.002	±	0.014	0.005	±	0.021
			n	=	2	n	=	3	n	=	3	n	=	3
June 2019	Sandusky Bay	No Dilution PO_4	0.001	±	0.056	0.001	±	0.006	0.004	±	0.008	0.006	±	0.007
			n	=	3	n	=	3	n	=	3	n	=	3
June 2019	Sandusky Bay	No Dilution N+P	0.001	±	0.029	0.001	±	0.008	0.003	±	0.039	0.006	±	0.077
			n	=	2	n	=	2	n	=	3	n	=	3
June 2019	Sandusky Bay	40% Dilution Control	0.002	±	0.046	0.001	±	0.012	0.004	±	0.042	0.007	±	0.045
			n	=	2	n	=	3	n	=	2	n	=	3
June 2019	Sandusky Bay	40% Dilution NO_3	0.001	±	0.080	0.001	±	0.038	0.002	±	0.100	0.005	±	0.001
			n	=	2	n	=	2	n	=	3	n	=	2
June 2019	Sandusky Bay	40% Dilution NH_4	0.001	±	0.00	0.001	±	0.005	0.002	±	0.011	0.005	±	0.004
			n	=	1	n	=	3	n	=	3	n	=	3
June 2019	Sandusky Bay	40% Dilution PO_4	0.001	±	0.023	0.001	±	0.003	0.002	±	0.009	0.004	±	0.018
			n	=	3	n	=	2	n	=	3	n	=	3
June 2019	Sandusky Bay	40% Dilution N+P	NaN[1]			0.002	±	0.024	0.006	±	0.089	0.005	±	0.030
						n	=	3	n	=	3	n	=	3
August 2019	Sandusky Bay	No Dilution Control	0.009	±	0.168	0.011	±	0.026	0.022	±	0.032	0.033	±	0.040
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Sandusky Bay	No Dilution NO_3	0.005	±	0.046	0.018	±	0.111	0.036	±	0.009	0.058	±	0.048
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Sandusky Bay	No Dilution NH_4	0.005	±	0.006	0.017	±	0.024	0.025	±	0.191	0.040	±	0.052
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Sandusky Bay	No Dilution Urea	0.006	±	0.014	0.017	±	0.028	0.033	±	0.074	0.041	±	0.041
			n	=	3	n	=	3	n	=	3	n	=	3
August 2019	Sandusky Bay	No Dilution PO_4	0.007	±	0.011	0.016	±	0.019	0.021	±	0.027	0.028	±	0.080
			n	=	3	n	=	3	n	=	3	n	=	3

Sampling Period	Bay	Treatment	T0 (µg anatoxin µg chlorophyll a $^{-1}$)			T1 (µg anatoxin µg chlorophyll a $^{-1}$)			T2 (µg anatoxin µg chlorophyll a $^{-1}$)			T3 (µg anatoxin µg chlorophyll a $^{-1}$)		
August 2019	Sandusky Bay	No Dilution N+P	0.004 n	± =	0.002 3	0.008 n	± =	0.012 3	0.014 n	± =	0.127 3	0.014 n	± =	0.091 3
August 2019	Sandusky Bay	40% Dilution Control	0.005 n	± =	0.026 3	0.009 n	± =	0.025 3	0.008 n	± =	0.008 3	0.018 n	± =	0.052 3
August 2019	Sandusky Bay	40% Dilution NO_3	0.006 n	± =	0.012 3	0.011 n	± =	0.036 3	0.045 n	± =	0.005 3	0.052 n	± =	0.234 3
August 2019	Sandusky Bay	40% Dilution NH_4	0.004 n	± =	0.025 3	0.010 n	± =	0.004 3	0.022 n	± =	0.046 3	0.034 n	± =	0.114 3
August 2019	Sandusky Bay	40% Dilution Urea	0.004 n	± =	0.045 3	0.012 n	± =	0.263 3	0.029 n	± =	0.009 3	0.034 n	± =	0.023 3
August 2019	Sandusky Bay	40% Dilution PO_4	0.006 n	± =	0.023 3	0.010 n	± =	0.096 3	0.025 n	± =	0.043 3	0.017 n	± =	0.129 3
August 2019	Sandusky Bay	40% Dilution N+P	0.005 n	± =	0.032 3	0.005 n	± =	0.006 3	0.009 n	± =	0.027 3	0.015 n	± =	0.325 3

[1] NaN is No data available

Table S9. Anatoxin production rates.

Sampling Period	Bay	Treatment	Production (d^{-1})		
June 2019	Sandusky Bay	No Dilution Control	0.516	±	0.473
June 2019	Sandusky Bay	No Dilution NO_3	0.985	±	0.767
June 2019	Sandusky Bay	No Dilution NH_4	0.898	±	1.175
June 2019	Sandusky Bay	No Dilution PO_4	0.970	±	1.303
June 2019	Sandusky Bay	No Dilution N+P	0.965	±	1.459
June 2019	Sandusky Bay	40% Dilution Control	0.663	±	1.107
June 2019	Sandusky Bay	40% Dilution NO_3	0.783	±	1.416
June 2019	Sandusky Bay	40% Dilution NH_4	0.800	±	0.084
June 2019	Sandusky Bay	40% Dilution PO_4	0.627	±	1.023
June 2019	Sandusky Bay	40% Dilution N+P		NaN[1]	
August 2019	Sandusky Bay	No Dilution Control	0.171	±	0.369
August 2019	Sandusky Bay	No Dilution NO_3	1.084	±	0.284
August 2019	Sandusky Bay	No Dilution NH_4	0.795	±	0.192
August 2019	Sandusky Bay	No Dilution Urea	0.800	±	0.110
August 2019	Sandusky Bay	No Dilution PO_4	0.297	±	0.070
August 2019	Sandusky Bay	No Dilution N+P	0.717	±	0.107
August 2019	Sandusky Bay	40% Dilution Control	0.204	±	0.690
August 2019	Sandusky Bay	40% Dilution NO_3	1.020	±	0.151
August 2019	Sandusky Bay	40% Dilution NH_4	0.780	±	0.255
August 2019	Sandusky Bay	40% Dilution Urea	0.683	±	0.751
August 2019	Sandusky Bay	40% Dilution PO_4	0.158	±	0.535
August 2019	Sandusky Bay	40% Dilution N+P	0.589	±	0.489

[1] NaN is No data available

Table S10. Biomass-normalized anatoxin production rates.

Sampling Period	Bay	Treatment	Production (d^{-1})		
June 2019	Sandusky Bay	No Dilution Control	0.269	±	0.036
June 2019	Sandusky Bay	No Dilution NO_3	0.752	±	0.038
June 2019	Sandusky Bay	No Dilution NH_4	0.645	±	0.027
June 2019	Sandusky Bay	No Dilution PO_4	0.721	±	0.057
June 2019	Sandusky Bay	No Dilution N+P	0.663	±	0.082
June 2019	Sandusky Bay	40% Dilution Control	0.453	±	0.064
June 2019	Sandusky Bay	40% Dilution NO_3	0.485	±	0.080
June 2019	Sandusky Bay	40% Dilution NH_4	0.601	±	0.004
June 2019	Sandusky Bay	40% Dilution PO_4	0.385	±	0.029
June 2019	Sandusky Bay	40% Dilution N+P		NaN[1]	
August 2019	Sandusky Bay	No Dilution Control	0.423	±	0.172
August 2019	Sandusky Bay	No Dilution NO_3	0.812	±	0.067
August 2019	Sandusky Bay	No Dilution NH_4	0.723	±	0.053
August 2019	Sandusky Bay	No Dilution Urea	0.628	±	0.043
August 2019	Sandusky Bay	No Dilution PO_4	0.470	±	0.081
August 2019	Sandusky Bay	No Dilution N+P	0.441	±	0.091
August 2019	Sandusky Bay	40% Dilution Control	0.422	±	0.058
August 2019	Sandusky Bay	40% Dilution NO_3	0.749	±	0.234
August 2019	Sandusky Bay	40% Dilution NH_4	0.714	±	0.117
August 2019	Sandusky Bay	40% Dilution Urea	0.703	±	0.051
August 2019	Sandusky Bay	40% Dilution PO_4	0.354	±	0.131

August 2019	Sandusky Bay	40% Dilution N+P	0.375	±	0.327

[1] NaN is No data available

Table S11. GPS coordinates of the sampling locations and incubation.

Site	Location	GPS Coordinates
Maumee Bay Sampling	Bulkhead across from University of Toledo's Lake Erie Center, Oregon, OH, USA	41°41'26.25"N, 83°23'52.77"W
Sandusky Bay Sampling	Paper District Marina, Sandusky, OH, USA	41°27'28.00"N, 82°49'36.62"W
Sample Incubation	The Ohio State University Stone Laboratory, Put-In-Bay, OH, USA	41°39'28.58"N, 82°49'36.62"W

Table S12. Compounds compromising the major ion solution used in this experiment.

Compound	mM	mg/L
$CaCO_3$	0.35	35.00
$NaHCO_3$	0.2	16.80
$MgCl_2$	0.21	42.63
KCl	0.04	3.00
$CaSO_4$	0.45	77.40
$MgCO_3$	0.16	13.44