Supplementary Materials: Cyanobacterial Toxins and Peptides in Lake Vegoritis, Greece

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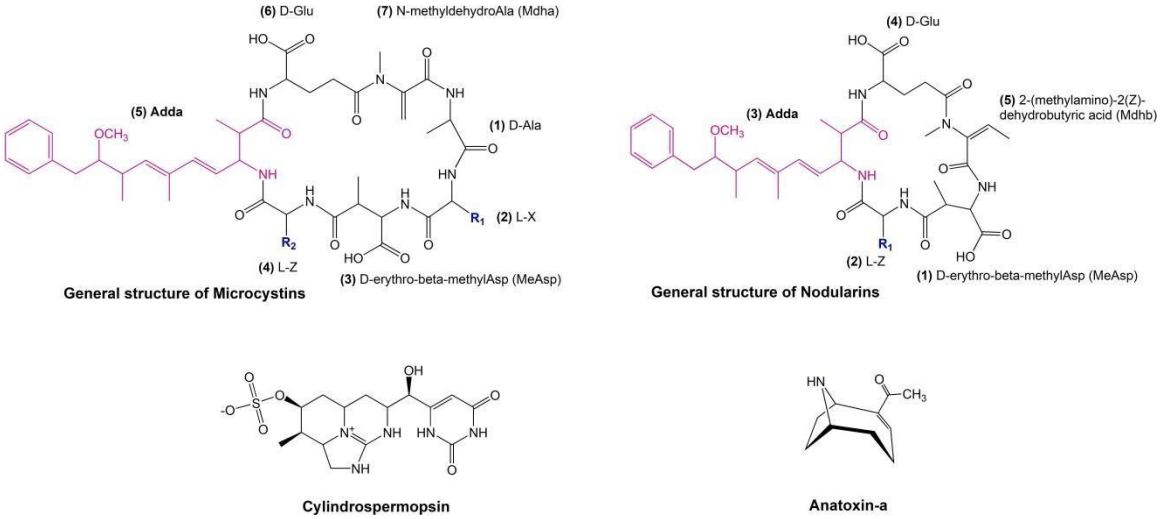

Figure S1. Structures of several classes of cyanotoxins. For the classes of Microcystins and Nodularins, R_x stands for variable L-amino acids.

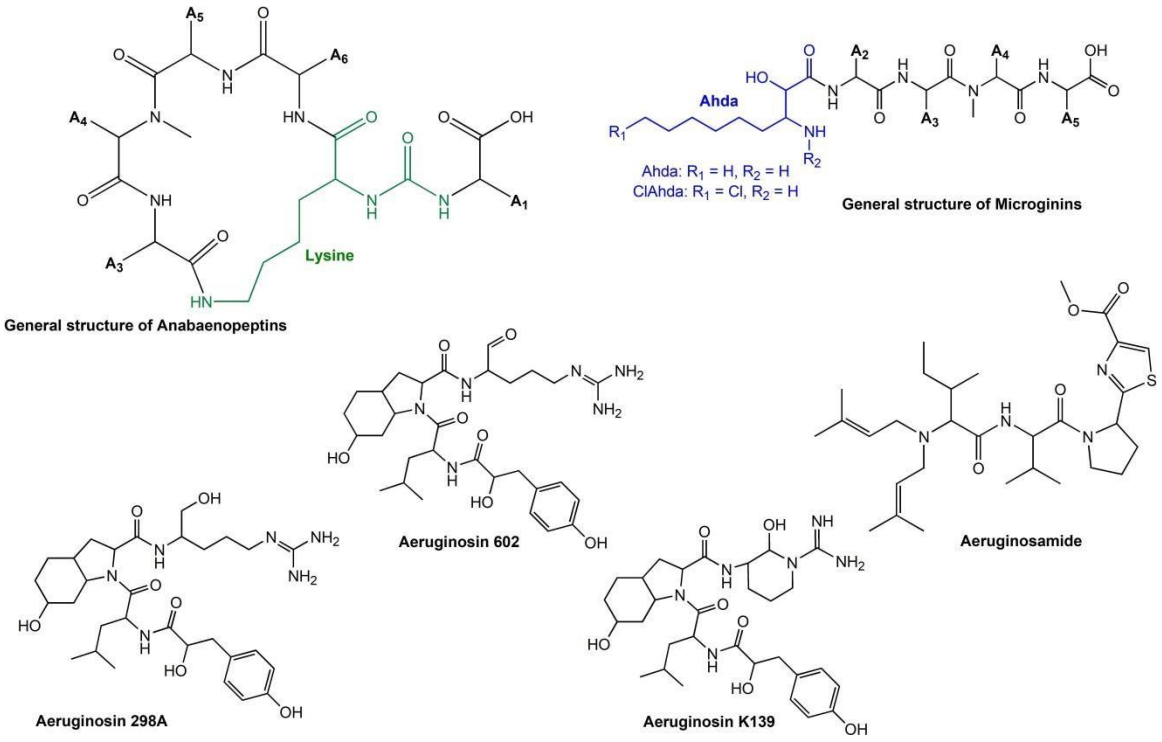

Figure S2. Structures of several classes of cyanopeptides. For the classes of Anabaenopeptins and Microginins, A_x stands for variable L-amino acids.

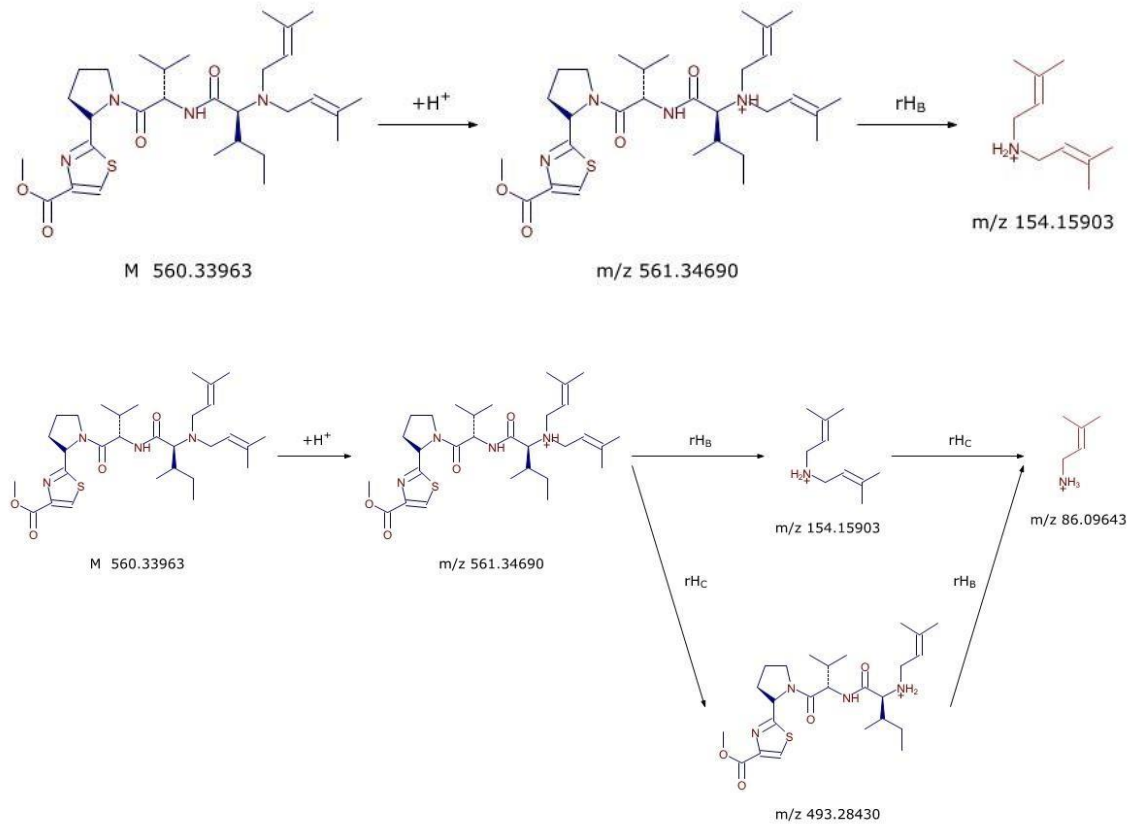

Figure S3. Fragmentation pathways of AEG A involving the *m*/*z* 154.2 and 86.0 fragment ions. Fragmentation pathways predicted by Mass Frontier 8.0 software.

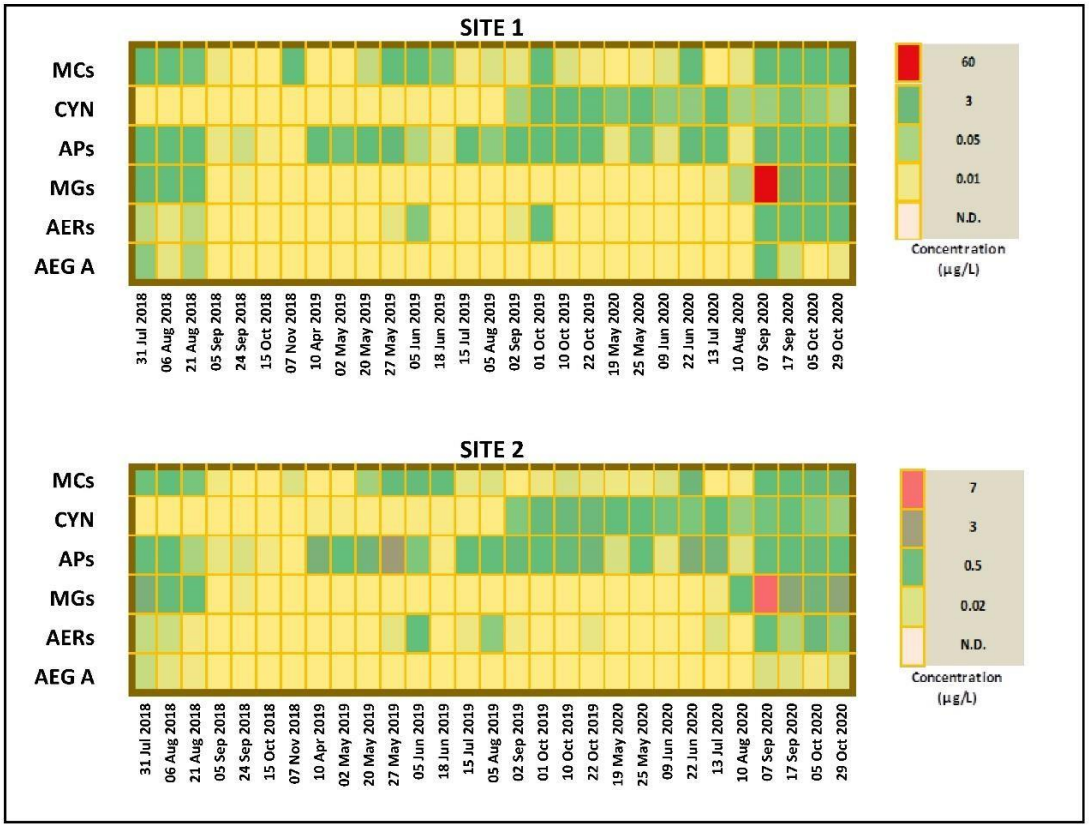

Figure S4. Heat maps showing all CP and CT concentrations detected in Lake Vegoritis throughout the two sampling points (Site 1 and Site 2).

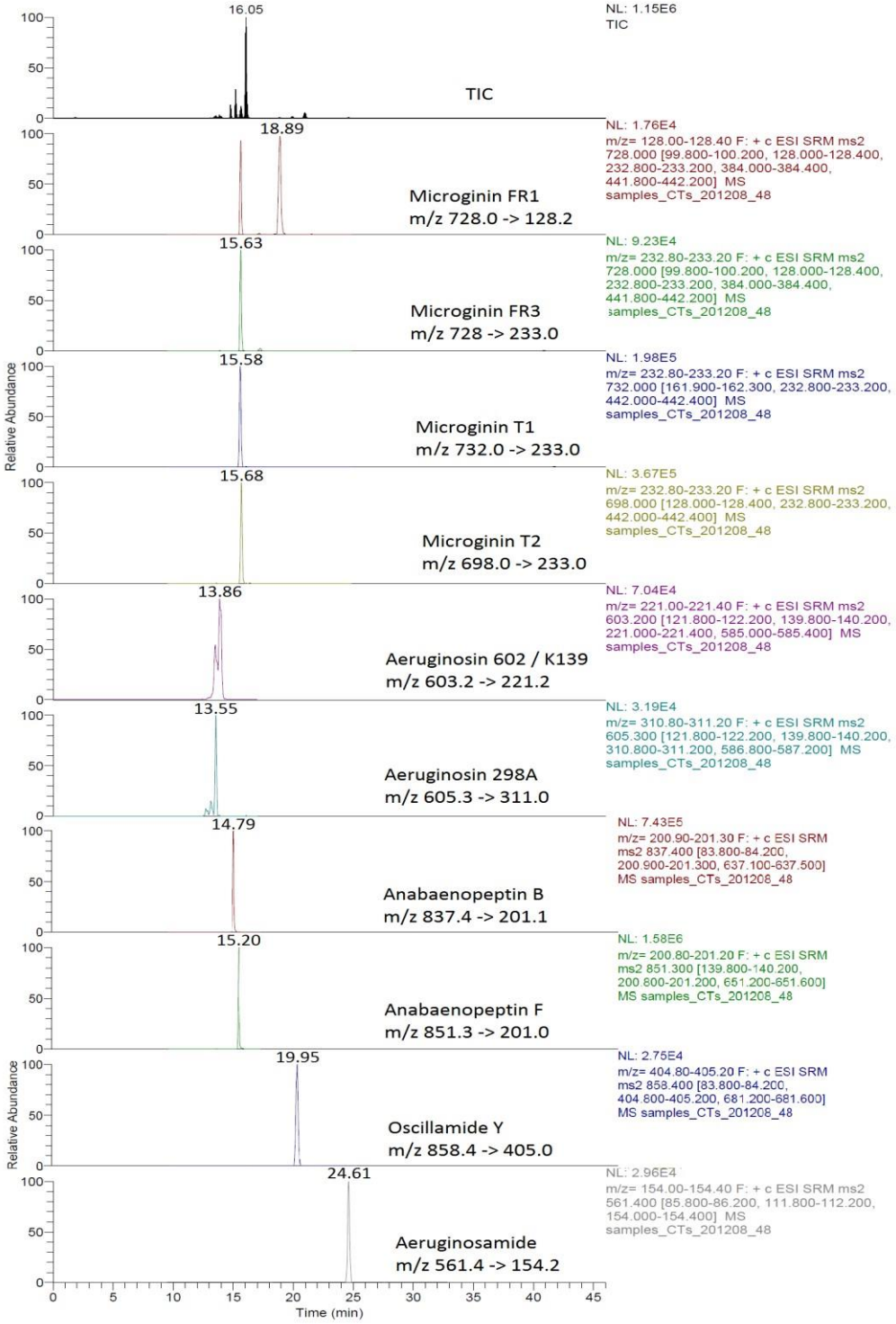

Figure S5. TIC and MRM chromatograms of quantifier ions for the cyanopeptides obtained from the biomass extract of Lake Kastoria (sampling September 2014).

Table S1. Physico-chemical parameters, total phytoplankton biomass and cyanobacteria biomass concentrations measured during the study period.

NMWN sampling point																		
Sampling Date	**Chl-α (µg/L)**	**Total Biomass (mg/L)**	**Cyanobacteria Biomass (mg/L)**	**TP (mg/L)**	**Alkalinity (meq/L)**	**TSS (mg/L)**	**Transparency (Secchi disc depth in cm)**	**F^- (mg/L)**	**Cl^- (mg/L)**	**NO2- (mg/L)**	**Br^- (mg/L)**	**NO3- (mg/L)**	**PO43- (mg/L)**	**SO42- (mg/L)**	**Na^+ (mg/L)**	**K^+ (mg/L)**	**Mg^{2+} (mg/L)**	**Ca^{2+} (mg/L)**
5-Feb-18				0.060	4.75	1.07	650.00	<LOQ	36	<LOQ	<LOQ	0.93	<LOQ	200	35	5.4	45	38
25-Apr-18				0.050	4.91	1.41	600.00	<LOQ	36	<LOQ	<LOQ	0.53	<LOQ	89	36	5.8	45	44
18-Jun-18	15.85	2.299	1.180	0.043	4.04	8.46	30.00	<LOQ	35	<LOQ	<LOQ	<LOQ	<LOQ	87	36	6.0	45	26
4-Jul-18	8.01			0.040	4.05	2.86	240.00	<LOQ	35	<LOQ	<LOQ	0.37	<LOQ	160	37	6.2	46	32
12-Jul-18	7.92			0.036	4.11	2.96	300.00	<LOQ	35	<LOQ	<LOQ	0.53	<LOQ	93	37	5.9	46	32
17-Jul-18	7.18	1.428	0.793	0.040	4.09	2.63	280.00	<LOQ	34	<LOQ	<LOQ	<LOQ	<LOQ	99	34	5.7	43	29
6-Aug-18	4.70	1.318	1.082	<LOQ	4.29	2.41	420.00	<LOQ	38	<LOQ	<LOQ	1.04	<LOQ	100	37	5.8	45	33
5-Sep-18	3.18			<LOQ	4.40		500.00											
24-Sep-18				<LOQ			720.00											
30-Oct-18				0.022	4.48	1.99	320.00											
23-Jan-19				0.050	4.62	0.62	480.00	<LOQ	33		<LOQ			92	36	6.3	46	39
4-Feb-19				0.037		2.54	160.00	<LOQ	34	<LOQ	<LOQ	<LOQ	<LOQ	144	37	6.1	46	40
20-May-19	4.64	0.643	0.219	0.044	4.68	1.99	200.00	<LOQ	32	<LOQ	<LOQ	<LOQ	<LOQ	89	36	6.1	46	40
19-Jun-19	6.32	1.433	0.405	0.031	4.83	3.75	240.00	<LOQ	33	<LOQ	<LOQ	<LOQ	<LOQ	96	36	5.9	46	38
17-Jul-19	7.69	2.496	1.033	0.028	4.32	2.44	350.00	<LOQ	35	<LOQ	<LOQ	<LOQ	<LOQ	99	37	6.1	46	33
10-Sep-19	19.38	6.633	5.430	0.034	4.18	2.16	200.00	<LOQ	36	<LOQ	<LOQ	<LOQ	<LOQ	99	38	6.2	47	29
21-Oct-19				<LOQ	4.50	2.03	260.00	<LOQ	34		<LOQ			93	37	6.0	47	35
29-Jan-20						1.00	480.00	<LOQ	34	<LOQ	<LOQ	0.71	<LOQ	97	37	6.1	47	37
21-May-20	4.24			0.025		2.31	340.00	<LOQ	40	<LOQ	<LOQ	<LOQ	<LOQ	94	35	5.9	44	36
9-Jun-20	5.31	1.272	0.131	0.038		1.43	280.00	<LOQ	34	<LOQ	<LOQ	<LOQ	<LOQ	142	37	6.0	47	38
7-Jul-20	5.35	1.908	1.494	0.016		1.45	440.00	<LOQ	58	<LOQ	<LOQ	<LOQ	<LOQ	100	37	6.1	47	37
24-Aug-20		3.401	1.773	0.018		1.48	300.00	<LOQ	35	<LOQ	<LOQ	<LOQ	<LOQ	97	37	6.0	47	31
22-Sep-20	31.77	2.698	1.420	0.029		5.67	220.00	<LOQ	36	<LOQ	<LOQ	0.38	<LOQ	108	36	5.9	45	25
19-Oct-20				0.021		2.10	300.00	<LOQ	37	<LOQ	<LOQ	<LOQ	<LOQ	103	39	6.0	48	29
Bathing area sampling point (Site 1)																		
Sampling Date	**Chl-α (µg/L)**	**Total Biomass (mg/L)**	**Cyanobacteria Biomass (mg/L)**	**TP (mg/L)**	**Alkalinity (meq/L)**	**TSS (mg/L)**	**Transparency (Secchi disc depth in cm)**	**F^- (mg/L)**	**Cl^- (mg/L)**	**NO_2- (mg/L)**	**Br- (mg/L)**	**NO3- (mg/L)**	**PO43- (mg/L)**	**SO42- (mg/L)**	**Na^+ (mg/L)**	**K^+ (mg/L)**	**Mg^{2+} (mg/L)**	**Ca^{2+} (mg/L)**
4-Jul-18	6.53		1.358	0.033	4.04	1.71	240.00	<LOQ	35	<LOQ	<LOQ	0.44	<LOQ	98	38	8.4	46	32
12-Jul-18	5.83		0.850	0.047	4.13	3.23	290.00	<LOQ	35	<LOQ	<LOQ	0.81	<LOQ	121	38	6.2	46	34
17-Jul-18	6.66		1.432	0.033	4.31	2.56	290.00	<LOQ	34	<LOQ	<LOQ	<LOQ	<LOQ	84	34	5.4	43	30
6-Aug-18	3.29		0.359	<LOQ	4.26			<LOQ	38	<LOQ	<LOQ	0.25	<LOQ	98	36	5.5	45	35
5-Sep-18	3.03		0.010	<LOQ	4.30	0.61	500.00											
24-Sep-18	4.73		0.030	<LOQ	4.41	0.65	580.00											
15-Oct-18	5.32			<LOQ	4.52	0.59	460.00											

Table S2. Concentrations of Extracellular CTs from Lake Vegoritis (μg/L).

ID	SAMPLE DETAILS	CYN	ATX	dmMC-RR	MC-RR	NOD	MC-YR	MC-HtyR	dmMC-LR	MC-LR	MC-HilR	MC-WR	MC-LA	MC-LY	MC-LW	MC-LF
1	31/7/2018 – Site 1	ND[1]	ND	ND	**<LOQ**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2	31/7/2018 – Site 2	ND	ND	ND	**<LOQ**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3	6/8/2018 – Site 1	ND	ND	ND	**0.023**	ND	ND	ND	ND	**0.021**	ND	ND	ND	ND	ND	ND
4	6/8/2018 – Site 2	ND	ND	ND	**0.017**	ND	**<LOQ**	ND	ND	**0.013**	ND	ND	ND	ND	ND	ND
5	21/8/2018 – Site 1	ND	ND	ND	**0.020**	ND	**0.014**	ND	ND	**0.028**	ND	ND	ND	ND	ND	ND
6	21/8/2018 – Site 2	ND	ND	ND	**0.023**	ND	**<LOQ**	ND	ND	**0.029**	ND	ND	ND	ND	ND	ND
7	5/9/2018 – Site 1	ND	ND	ND	**<LOQ**	ND	ND	ND	ND	**<LOQ**	ND	ND	ND	ND	ND	ND
8	5/9/2018 – Site 2	ND	ND	ND	**<LOQ**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9	24/9/2018 – Site 1	ND	ND	ND	**<LOQ**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
10	24/9/2018 – Site 2	ND	ND	ND	**<LOQ**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
11	15/10/2018 – Site 1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
12	15/10/2018 – Site 2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
13	7/11/2018 – Site 1	ND	ND	ND	**0.009**	ND	ND	ND	ND	**0.029**	ND	ND	ND	ND	ND	ND
14	7/11/2018 – Site 2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
15	10/4/2019 – Site 1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
16	10/4/2019 – Site 2	**0.004**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
17	2/5/2019 – Site 1	**<LOQ**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
18	2/5/2019 – Site 2	**<LOQ**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
19	20/5/2019 – Site 1	**<LOQ**	ND	ND	ND	ND	ND	ND	ND	**<LOQ**	ND	ND	ND	ND	ND	ND
20	20/5/2019 – Site 2	**<LOQ**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
21	27/5/2019 – Site 1	**<LOQ**	ND	ND	ND	ND	ND	ND	ND	**0.071**	ND	ND	ND	ND	ND	ND
22	27/5/2019 – Site 2	**<LOQ**	ND	ND	ND	ND	ND	ND	ND	**0.086**	ND	ND	ND	ND	ND	ND
23	5/6/2019 – Site 1	**<LOQ**	ND	ND	ND	ND	ND	ND	**0.073**	**0.188**	ND	ND	ND	ND	ND	ND
24	5/6/2019 – Site 2	**0.004**	ND	ND	ND	ND	ND	ND	**0.080**	**0.233**	ND	ND	ND	ND	ND	ND
25	18/6/2019 – Site 1	**<LOQ**	ND	ND	ND	ND	ND	ND	ND	**0.089**	ND	ND	ND	ND	ND	ND
26	18/6/2019 – Site 2	**<LOQ**	ND	ND	ND	ND	ND	ND	ND	**0.092**	ND	ND	ND	ND	ND	ND
27	15/7/2019 – Site 1	**<LOQ**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

28	15/7/2019 – Site 2	**<LOQ**	ND	ND	ND	ND	ND	ND	ND	**0.013**	ND	ND	ND	ND	ND	ND
29	5/8/2019 – Site 1	ND	ND	ND	ND	ND	ND	ND	ND	**0.015**	ND	ND	ND	ND	ND	ND
30	5/8/2019 – Site 2	ND	ND	ND	ND	ND	ND	ND	ND	**<LOQ**	ND	ND	ND	ND	ND	ND
31	2/9/2019 – Site 1	**0.032**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
32	2/9/2019 – Site 2	**0.026**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
33	1/10/2019 – Site 1	**0.042**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
34	1/10/2019 – Site 2	**0.089**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
35	10/10/2019 – Site 1	**0.014**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
36	10/10/2019 – Site 2	**0.019**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
37	22/10/2019 – Site 1	**0.114**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
38	22/10/2019 – Site 2	**0.027**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
39	19/5/2020 – Site 1	**0.095**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
40	19/5/2020 – Site 2	**0.104**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
41	25/5/2020 – Site 1	**0.112**	ND	ND	ND	ND	ND	ND	ND	**<LOQ**	ND	ND	ND	ND	ND	ND
42	25/5/2020 – Site 2	**0.107**	ND	ND	ND	ND	ND	ND	ND	**<LOQ**	ND	ND	ND	ND	ND	ND
43	9/6/2020 – Site 1	**0.081**	ND	ND	ND	ND	ND	ND	ND	**0.023**	ND	ND	ND	ND	ND	ND
44	9/6/2020 – Site 2	**0.081**	ND	ND	ND	ND	ND	ND	ND	**0.021**	ND	ND	ND	ND	ND	ND
45	22/6/2020 – Site 1	**0.080**	ND	ND	ND	ND	ND	**0.069**	**0.036**	**0.285**	**0.033**	ND	ND	ND	ND	ND
46	22/6/2020 – Site 2	**0.077**	ND	ND	ND	ND	**0.020**	**0.069**	**0.035**	**0.315**	**0.029**	ND	ND	ND	ND	ND
47	13/7/2020 – Site 1	**0.128**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
48	13/7/2020 – Site 2	**0.126**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
49	10/8/2020 – Site 1	**0.063**	ND	ND	ND	ND	ND	ND	ND	**0.014**	ND	ND	ND	ND	ND	ND
50	10/8/2020 – Site 2	**0.060**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
51	7/9/2020 – Site 1	**0.071**	ND	ND	**0.008**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
52	7/9/2020 – Site 2	**0.076**	ND	ND	**0.006**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
53	17/9/2020 – Site 1	**0.025**	ND	ND	**0.017**	ND	ND	ND	ND	**0.018**	ND	ND	ND	ND	ND	ND
54	17/9/2020 – Site 2	**0.022**	ND	ND	**0.020**	ND	ND	ND	ND	**0.042**	ND	ND	ND	ND	ND	ND

55	5/10/2020 – Site 1	**0.009**	ND	ND	**0.021**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
56	5/10/2020 – Site 2	**0.007**	ND	ND	**0.015**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
57	29/10/2020 – Site 1	**0.038**	ND	ND	**0.013**	ND	ND	ND	ND	**0.012**	ND	ND	ND	ND	ND	ND
58	29/10/2020 – Site 2	**0.030**	ND	ND	**0.010**	ND	**0.155**	ND	ND	**0.155**	ND	ND	ND	ND	ND	ND

[1] ND: Not Detected, [2] <LOQ: Values higher than limit of detection (LOD) and lower than limit of quantitation (LOQ).

	CYN	**ATX**	**dmMC-RR**	**MC-RR**	**NOD**	**MC-YR**	**MC-HtyR**	**dmMC-LR**	**MC-LR**	**MC-HilR**	**MC-WR**	**MC-LA**	**MC-LY**	**MC-LW**	**MC-LF**
LOD (μg/L)	0.001	0.001	0.002	0.001	0.002	0.004	0.007	0.004	0.004	0.006	0.006	0.003	0.006	0.004	0.005
LOQ (μg/L)	0.003	0.003	0.006	0.003	0.006	0.013	0.020	0.011	0.013	0.019	0.017	0.009	0.018	0.013	0.016

Table S3. Concentrations of Intracellular CTs from Lake Vegoritis (μg/L).

	SAMPLE DETAILS	**CYN**	**ATX**	**dmMC-RR**	**MC-RR**	**NOD**	**MC-YR**	**MC-HtyR**	**dmMC-LR**	**MC-LR**	**MC-HilR**	**MC-WR**	**MC-LA**	**MC-LY**	**MC-LW**	**MC-LF**
1	31/7/2018 – Site 1	ND[1]	ND	**0.003**	**0.074**	ND	**0.026**	ND	**<LOQ[2]**	**0.043**	ND	ND	ND	ND	ND	ND
2	31/7/2018 – Site 2	ND	ND	**<LOQ**	**0.047**	ND	**0.015**	ND	ND	**0.020**	ND	ND	ND	ND	ND	ND
3	6/8/2018 – Site 1	ND	ND	ND	**0.026**	ND	**0.020**	ND	**<LOQ**	**0.017**	ND	ND	ND	ND	ND	ND
4	6/8/2018 – Site 2	ND	ND	**<LOQ**	**0.033**	ND	**0.023**	ND	ND	**0.025**	ND	ND	ND	ND	ND	ND
5	21/8/2018 – Site 1	ND	ND	ND	**0.009**	ND	**<LOQ**	ND	**<LOQ**	**0.028**	ND	ND	ND	ND	ND	ND
6	21/8/2018 – Site 2	ND	ND	ND	**0.005**	ND	**0.007**	ND	ND	**0.006**	ND	ND	ND	ND	ND	ND
7	5/9/2018 – Site 1	ND	ND	ND	**<LOQ**	ND	ND	ND	ND	**0.005**	ND	ND	ND	ND	ND	ND
8	5/9/2018 – Site 2	ND	ND	ND	**<LOQ**	ND	ND	ND	ND	**0.003**	ND	ND	ND	ND	ND	ND
9	24/9/2018 – Site 1	ND	ND	ND	**<LOQ**	ND	ND	ND	ND	**<LOQ**	ND	ND	ND	ND	ND	ND
10	24/9/2018 – Site 2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
11	15/10/2018 – Site 1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

12	15/10/2018 – Site 2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
13	7/11/2018 – Site 1	ND	ND	ND	**0.027**	ND	ND	ND	ND	**0.055**	ND	ND	ND	ND	ND	ND
14	7/11/2018 – Site 2	ND	ND	ND	**0.011**	ND	ND	ND	ND	**0.009**	ND	ND	ND	ND	ND	ND
15	10/4/2019 – Site 1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
16	10/4/2019 – Site 2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
17	2/5/2019 – Site 1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
18	2/5/2019 – Site 2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
19	20/5/2019 – Site 1	ND	ND	ND	ND	ND	ND	ND	ND	**0.036**	ND	ND	ND	ND	ND	ND
20	20/5/2019 – Site 2	ND	ND	ND	ND	ND	ND	ND	**<LOQ**	**0.048**	ND	ND	ND	ND	ND	ND
21	27/5/2019 – Site 1	ND	ND	ND	ND	ND	ND	**<LOQ**	**0.055**	**0.241**	**0.027**	ND	ND	ND	ND	ND
22	27/5/2019 – Site 2	ND	ND	ND	ND	ND	ND	**<LOQ**	**0.046**	**0.148**	ND	ND	ND	ND	ND	ND
23	5/6/2019 – Site 1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
24	5/6/2019 – Site 2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
25	18/6/2019 – Site 1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
26	18/6/2019 – Site 2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
27	15/7/2019 – Site 1	ND	ND	ND	ND	ND	ND	ND	ND	**<LOQ**	ND	ND	ND	ND	ND	ND
28	15/7/2019 – Site 2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
29	5/8/2019 – Site 1	ND	ND	ND	ND	ND	ND	ND	ND	**<LOQ**	ND	ND	ND	ND	ND	ND
30	5/8/2019 – Site 2	ND	ND	ND	ND	ND	ND	ND	ND	**<LOQ**	ND	ND	ND	ND	ND	ND
31	2/9/2019 – Site 1	**0.032**	ND	ND	**<LOQ**	ND	ND	ND	ND	**<LOQ**	ND	ND	ND	ND	ND	ND

32	2/9/2019 – Site 2	**0.047**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
33	1/10/2019 – Site 1	**0.685**	ND	ND	**0.029**	ND	ND	ND	ND	**0.105**	ND	ND	ND	ND	ND	ND
34	1/10/2019 – Site 2	**0.332**	ND	ND	**<LOQ**	ND	ND	ND	ND	**<LOQ**	ND	ND	ND	ND	ND	ND
35	10/10/2019 – Site 1	**0.567**	ND	ND	**0.009**	ND	ND	ND	ND	**0.018**	ND	ND	ND	ND	ND	ND
36	10/10/2019 – Site 2	**0.523**	ND	ND	**0.007**	ND	ND	ND	ND	**0.018**	ND	ND	ND	ND	ND	ND
37	22/10/2019 – Site 1	**0.342**	ND	ND	**<LOQ**	ND	ND	ND	ND	**<LOQ**	ND	ND	ND	ND	ND	ND
38	22/10/2019 – Site 2	**0.486**	ND	ND	**<LOQ**	ND	ND	ND	ND	**<LOQ**	ND	ND	ND	ND	ND	ND
39	19/5/2020 – Site 1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
40	19/5/2020 – Site 2	ND	ND	ND	ND	ND	ND	ND	ND	**<LOQ**	ND	ND	ND	ND	ND	ND
41	25/5/2020 – Site 1	ND	ND	ND	ND	ND	ND	ND	ND	**0.020**	ND	ND	ND	ND	ND	ND
42	25/5/2020 – Site 2	ND	ND	ND	ND	ND	ND	ND	ND	**0.039**	ND	ND	ND	ND	ND	ND
43	9/6/2020 – Site 1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
44	9/6/2020 – Site 2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
45	22/6/2020 – Site 1	ND	ND	ND	ND	ND	ND	**<LOQ**	**<LOQ**	**0.141**	**<LOQ**	ND	ND	ND	ND	ND
46	22/6/2020 – Site 2	ND	ND	ND	ND	ND	ND	**<LOQ**	**0.020**	**0.146**	**<LOQ**	ND	ND	ND	ND	ND
47	13/7/2020 – Site 1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
48	13/7/2020 – Site 2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
49	10/8/2020 – Site 1	ND	ND	ND	**<LOQ**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

50	10/8/2020 – Site 2	ND	ND	ND	**0.005**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
51	7/9/2020 – Site 1	ND	ND	**0.010**	**0.674**	ND	**0.199**	ND	ND	**0.137**	ND	ND	ND	ND	ND	ND
52	7/9/2020 – Site 2	**0.005**	ND	ND	**0.084**	ND	ND	ND	ND	**0.013**	ND	ND	ND	ND	ND	ND
53	17/9/2020 – Site 1	**0.075**	ND	**<LOQ**	**0.151**	ND	**<LOQ**	ND	ND	**0.062**	ND	ND	ND	ND	ND	ND
54	17/9/2020 – Site 2	**0.066**	ND	**<LOQ**	**0.080**	ND	**<LOQ**	ND	ND	**0.059**	ND	ND	ND	ND	ND	ND
55	5/10/2020 – Site 1	**0.070**	ND	ND	**0.240**	ND	**0.041**	ND	ND	**0.088**	ND	ND	ND	ND	ND	ND
56	5/10/2020 – Site 2	**0.066**	ND	ND	**0.224**	ND	**0.078**	ND	ND	**0.090**	ND	ND	ND	ND	ND	ND
57	29/10/2020 – Site 1	**0.016**	ND	ND	**0.159**	ND	**0.086**	ND	ND	**0.093**	ND	ND	ND	ND	ND	ND
58	29/10/2020 – Site 2	**0.030**	ND	**<LOQ**	**0.064**	ND	**0.044**	ND	ND	**0.040**	ND	ND	ND	ND	ND	ND

[1] ND: Not Detected, [2] <LOQ: Values higher than limit of detection (LOD) and lower than limit of quantitation (LOQ). * Limits of detection (LODs) for intracellular toxins altered based on the sample volume that passed through the filter. Indicatively, LODs were 0.001 μg/L for CYN and ATX, 0.003 μg/L for NOD while ranged from 0.001 to 0.009 μg/L for MCs when 1000 ml of water sample passed through the filter. LOQs were 0.004 μg/L for CYN and ANA-a, 0.008 μg/L for NOD and varied from 0.003 to 0.029 μg/L for MCs when 1000 ml of water sample passed through the filter.

Table S4. Concentrations of Extracellular CPs from Lake Vegoritis (μg/L).

ID	SAMPLE DETAILS	MG FR1[A]	MG FR3 [A]	MG T1 [A]	MG T2 [A]	AER [A] 602/K139	AER [A] 298A	AEG A [A]	AP B	AP F[B]	OSC Y[B]
1	31/7/2018 – Site 1	ND[1]	ND	ND	ND	ND	ND	**0.015**	**0.003**	**<LOQ**	ND
2	31/7/2018 – Site 2	ND	ND	ND	ND	ND	ND	ND	**0.002**	**<LOQ**	ND
3	6/8/2018 – Site 1	ND	ND	ND	ND	ND	ND	**<LOQ[2]**	ND	ND	ND
4	6/8/2018 – Site 2	ND	ND	ND	ND	ND	ND	ND	ND	**<LOQ**	ND
5	21/8/2018 – Site 1	ND	ND	ND	ND	ND	ND	**0.022**	**0.008**	**0.003**	ND
6	21/8/2018 – Site 2	ND	ND	ND	ND	ND	ND	ND	**0.005**	**<LOQ**	ND
7	5/9/2018 – Site 1	ND	ND	ND	ND	ND	ND	ND	**<LOQ**	**<LOQ**	ND
8	5/9/2018 – Site 2	ND	ND	ND	ND	ND	ND	ND	**<LOQ**	**<LOQ**	ND
9	24/9/2018 – Site 1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
10	24/9/2018 – Site 2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
11	15/10/2018 – Site 1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
12	15/10/2018 – Site 2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
13	7/11/2018 – Site 1	na[3]	na	na	na	na	na	na	na	na	na
14	7/11/2018 – Site 2	na	na	na	na	na	na	na	na	na	na
15	10/4/2019 – Site 1	ND	ND	ND	ND	ND	ND	ND	**0.003**	**0.003**	ND
16	10/4/2019 – Site 2	ND	ND	ND	ND	ND	ND	ND	**0.008**	**0.008**	ND
17	2/5/2019 – Site 1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
18	2/5/2019 – Site 2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
19	20/5/2019 – Site 1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
20	20/5/2019 – Site 2	ND	ND	ND	ND	ND	ND	ND	**<LOQ**	**0.005**	ND
21	27/5/2019 – Site 1	ND	ND	ND	ND	ND	ND	ND	**0.007**	**0.012**	**<LOQ**
22	27/5/2019 – Site 2	ND	ND	ND	ND	ND	ND	ND	**0.011**	**0.024**	ND
23	5/6/2019 – Site 1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
24	5/6/2019 – Site 2	ND	ND	ND	ND	ND	ND	ND	**<LOQ**	**<LOQ**	ND
25	18/6/2019 – Site 1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
26	18/6/2019 – Site 2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
27	15/7/2019 – Site 1	ND	ND	ND	ND	ND	ND	ND	**0.004**	ND	ND
28	15/7/2019 – Site 2	ND	ND	ND	ND	ND	ND	ND	**0.003**	ND	ND

29	5/8/2019 – Site 1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
30	5/8/2019 – Site 2	ND	ND	ND	ND	ND	ND	ND	**<LOQ**	**<LOQ**	ND
31	2/9/2019 – Site 1	ND	ND	ND	ND	ND	ND	ND	**<LOQ**	**<LOQ**	ND
32	2/9/2019 – Site 2	ND	ND	ND	ND	ND	ND	ND	**<LOQ**	**<LOQ**	ND
33	1/10/2019 – Site 1	ND	ND	ND	ND	ND	ND	ND	**<LOQ**	**0.003**	ND
34	1/10/2019 – Site 2	ND	ND	ND	ND	ND	ND	ND	**0.020**	**0.023**	ND
35	10/10/2019 – Site 1	ND	ND	ND	ND	ND	ND	ND	**<LOQ**	ND	ND
36	10/10/2019 – Site 2	ND	ND	ND	ND	ND	ND	ND	**<LOQ**	**<LOQ**	ND
37	22/10/2019 – Site 1	ND	ND	ND	ND	ND	ND	ND	**0.004**	**0.005**	ND
38	22/10/2019 – Site 2	ND	ND	ND	ND	ND	ND	ND	**<LOQ**	**<LOQ**	ND
39	19/5/2020 – Site 1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
40	19/5/2020 – Site 2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
41	25/5/2020 – Site 1	ND	ND	ND	ND	ND	ND	ND	**<LOQ**	ND	ND
42	25/5/2020 – Site 2	ND	ND	ND	ND	ND	ND	ND	**<LOQ**	ND	ND
43	9/6/2020 – Site 1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
44	9/6/2020 – Site 2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
45	22/6/2020 – Site 1	ND	ND	ND	ND	ND	ND	ND	**0.011**	**0.009**	**<LOQ**
46	22/6/2020 – Site 2	ND	ND	ND	ND	ND	ND	ND	**0.007**	**0.008**	ND
47	13/7/2020 – Site 1	ND	ND	ND	ND	ND	ND	ND	**0.004**	ND	ND
48	13/7/2020 – Site 2	ND	ND	ND	ND	ND	ND	ND	**0.012**	**<LOQ**	ND
49	10/8/2020 – Site 1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
50	10/8/2020 – Site 2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
51	7/9/2020 – Site 1	ND	ND	ND	ND	ND	ND	ND	**0.003**	**0.005**	ND
52	7/9/2020 – Site 2	ND	ND	ND	ND	ND	ND	ND	**<LOQ**	**<LOQ**	ND
53	17/9/2020 – Site 1	ND	ND	ND	ND	**0.154**	ND	ND	**<LOQ**	**0.005**	ND
54	17/9/2020 – Site 2	ND	ND	ND	ND	ND	ND	ND	**<LOQ**	**0.005**	ND
55	5/10/2020 – Site 1	ND	ND	ND	ND	ND	ND	ND	**0.004**	**0.005**	ND
56	5/10/2020 – Site 2	ND	ND	ND	ND	ND	ND	ND	**0.006**	**0.007**	ND

57	29/10/2020 – Site 1	ND	ND	ND	ND	ND	ND	ND	**<LOQ**	**<LOQ**	ND
58	29/10/2020 – Site 2	ND	ND	ND	ND	**0.042**	ND	ND	ND	ND	ND

[1] ND: Not Detected, [2] <LOQ: Values higher than limit of detection (LOD) and lower than limit of quantitation (LOQ). na: Not available data**.** [A] Microginin FR1, FR3, T1 & T2, Aeruginosin 602/K139 & 298A and Aeruginosamide concentrations are expressed as Microcystin-LR equivalents. [B] Anabaenopeptin F and Oscillamide Y concentrations are expressed as Anabaenopeptin B equivalents. LOD for extracellular Anabaenopeptin B was 0.001 μg/L and LOQ was 0.003 μg/L.

Table S5. Concentrations of Intracellular CPs from Lake Vegoritis (μg/L).

ID	SAMPLE DETAILS	MG FR1[A]	MG FR3 [A]	MG T1 [A]	MG T2 [A]	AER [A] 602/K139	AER [A] 298A	AEG A [A]	AP B	AP F[B]	OSC Y[B]
1	31/7/2018 – Site 1	**0.064**	**0.153**	**1.16**	**0.315**	**0.048**	ND[1]	**0.068**	**0.302**	**0.117**	**0.003**
2	31/7/2018 – Site 2	**0.051**	**0.137**	**0.870**	**0.206**	**0.034**	ND	**0.033**	**0.160**	**0.066**	**<LOQ**
3	6/8/2018 – Site 1	**<LOQ**[2]	**0.028**	**0.474**	**0.105**	**0.017**	ND	**<LOQ**	**0.112**	**0.057**	**<LOQ**
4	6/8/2018 – Site 2	**0.026**	**0.021**	**0.218**	**0.044**	**0.030**	ND	**0.015**	**0.060**	**0.055**	**<LOQ**
5	21/8/2018 – Site 1	**0.031**	**0.049**	**0.336**	**0.072**	**0.047**	ND	**0.040**	**0.076**	**0.040**	**<LOQ**
6	21/8/2018 – Site 2	ND	**0.037**	**0.050**	**<LOQ**	**<LOQ**	ND	**<LOQ**	**0.021**	**0.022**	ND
7	5/9/2018 – Site 1	ND	ND	ND	ND	ND	ND	ND	**0.006**	**0.006**	ND
8	5/9/2018 – Site 2	ND	ND	ND	ND	ND	ND	ND	**0.005**	**0.008**	ND
9	24/9/2018 – Site 1	ND	ND	ND	ND	ND	ND	ND	**0.019**	**0.015**	ND
10	24/9/2018 – Site 2	ND	ND	ND	ND	ND	ND	ND	**0.012**	**0.010**	ND
11	15/10/2018 – Site 1	ND	ND	ND	ND	ND	ND	ND	**0.003**	**<LOQ**	**<LOQ**
12	15/10/2018 – Site 2	ND	ND	ND	ND	ND	ND	ND	**<LOQ**	ND	**0.006**
13	7/11/2018 – Site 1	na[3]	na	na	na	na	na	na	na	na	na
14	7/11/2018 – Site 2	na	na	na	na	na	na	na	na	na	na
15	10/4/2019 – Site 1	ND	ND	ND	ND	ND	ND	ND	**0.067**	**0.095**	**0.008**
16	10/4/2019 – Site 2	ND	ND	ND	ND	ND	ND	ND	**0.468**	**0.617**	**0.042**
17	2/5/2019 – Site 1	ND	ND	ND	ND	ND	ND	ND	**0.028**	**0.070**	**0.005**
18	2/5/2019 – Site 2	ND	ND	ND	ND	ND	ND	ND	**0.041**	**0.088**	**0.006**
19	20/5/2019 – Site 1	ND	ND	ND	ND	ND	ND	ND	**0.127**	**0.334**	**0.024**
20	20/5/2019 – Site 2	ND	ND	ND	ND	ND	ND	ND	**0.241**	**0.548**	**0.033**
21	27/5/2019 – Site 1	ND	ND	ND	ND	**<LOQ**	ND	ND	**0.574**	**1.219**	**0.078**
22	27/5/2019 – Site 2	ND	ND	ND	ND	**<LOQ**	ND	ND	**0.774**	**1.911**	**0.110**
23	5/6/2019 – Site 1	ND	ND	ND	ND	**0.049**	**0.039**	ND	**0.016**	**0.035**	**<LOQ**
24	5/6/2019 – Site 2	ND	ND	ND	ND	**0.128**	**<LOQ**	ND	**0.021**	**0.047**	**0.005**
25	18/6/2019 – Site 1	ND	ND	ND	ND	ND	ND	ND	**<LOQ**	**0.008**	ND
26	18/6/2019 – Site 2	ND	ND	ND	ND	ND	ND	ND	**<LOQ**	**<LOQ**	ND
27	15/7/2019 – Site 1	ND	ND	ND	ND	ND	ND	ND	**0.110**	**0.028**	**<LOQ**
28	15/7/2019 – Site 2	ND	ND	ND	ND	**<LOQ**	ND	ND	**0.098**	**0.019**	**<LOQ**

29	5/8/2019 – Site 1	ND	ND	ND	ND	ND	ND	ND	**0.036**	**0.043**	**<LOQ**
30	5/8/2019 – Site 2	ND	ND	ND	ND	**0.067**	ND	ND	**0.051**	**0.055**	**<LOQ**
31	2/9/2019 – Site 1	ND	ND	ND	ND	**<LOQ**	ND	ND	**0.089**	**0.139**	**<LOQ**
32	2/9/2019 – Site 2	ND	ND	ND	ND	**<LOQ**	ND	ND	**0.147**	**0.199**	ND
33	1/10/2019 – Site 1	ND	ND	ND	ND	**0.110**	ND	ND	**0.238**	**0.256**	**<LOQ**
34	1/10/2019 – Site 2	ND	ND	ND	ND	ND	ND	ND	**0.065**	**0.076**	ND
35	10/10/2019 – Site 1	ND	ND	ND	ND	ND	ND	ND	**0.209**	**0.276**	**<LOQ**
36	10/10/2019 – Site 2	ND	ND	ND	ND	ND	ND	ND	**0.200**	**0.238**	ND
37	22/10/2019 – Site 1	ND	ND	ND	ND	ND	ND	ND	**0.241**	**0.321**	ND
38	22/10/2019 – Site 2	ND	ND	ND	ND	**<LOQ**	ND	ND	**0.307**	**0.454**	ND
39	19/5/2020 – Site 1	ND	ND	ND	ND	ND	ND	ND	**0.007**	**0.010**	ND
40	19/5/2020 – Site 2	ND	ND	ND	ND	ND	ND	ND	**0.007**	**0.017**	ND
41	25/5/2020 – Site 1	ND	ND	ND	ND	ND	ND	ND	**0.031**	**0.067**	**0.004**
42	25/5/2020 – Site 2	ND	ND	ND	ND	ND	ND	ND	**0.041**	**0.091**	**0.007**
43	9/6/2020 – Site 1	ND	ND	ND	ND	ND	ND	ND	**0.009**	**0.012**	ND
44	9/6/2020 – Site 2	ND	ND	ND	ND	ND	ND	ND	**0.006**	**0.008**	ND
45	22/6/2020 – Site 1	ND	ND	ND	ND	ND	ND	ND	**0.668**	**0.497**	**0.033**
46	22/6/2020 – Site 2	ND	ND	ND	ND	ND	ND	ND	**0.790**	**0.583**	**0.039**
47	13/7/2020 – Site 1	**<LOQ**	ND	ND	ND	ND	ND	ND	**0.342**	**0.027**	**<LOQ**
48	13/7/2020 – Site 2	**<LOQ**	ND	ND	ND	**0.019**	ND	ND	**0.813**	**0.054**	**<LOQ**
49	10/8/2020 – Site 1	**<LOQ**	**<LOQ**	**0.026**	**<LOQ**	ND	ND	ND	**0.005**	**0.007**	ND
50	10/8/2020 – Site 2	**<LOQ**	ND	**0.078**	**<LOQ**	ND	ND	ND	**0.006**	**0.013**	ND
51	7/9/2020 – Site 1	**0.593**	**1.68**	**47.0**	**10.7**	**0.282**	**<LOQ**	**0.249**	**0.497**	**1.382**	**0.048**
52	7/9/2020 – Site 2	**0.118**	**0.197**	**5.43**	**1.122**	**0.089**	ND	**0.023**	**0.085**	**0.150**	**0.005**
53	17/9/2020 – Site 1	**<LOQ**	**0.107**	**2.78**	**0.298**	**0.054**	ND	**0.036**	**0.074**	**0.187**	**0.005**
54	17/9/2020 – Site 2	**<LOQ**	**0.051**	**1.72**	**0.167**	**0.047**	ND	**0.020**	**0.048**	**0.135**	**<LOQ**
55	5/10/2020 – Site 1	ND	**<LOQ**	**0.295**	**0.026**	**0.236**	**<LOQ**	ND	**0.137**	**0.180**	**<LOQ**
56	5/10/2020 – Site 2	ND	**0.046**	**0.756**	**0.045**	**0.514**	**0.025**	**<LOQ**	**0.215**	**0.214**	**0.005**
57	29/10/2020 – Site 1	**1.33**	**0.917**	**0.895**	**0.177**	**0.119**	ND	**<LOQ**	**0.117**	**0.117**	**0.006**

58	29/10/2020 – Site 2	**1.07**	**0.687**	**0.288**	**0.044**	**0.022**	ND	**0.019**	**0.072**	**0.069**	**<LOQ**

[1] ND: Not Detected, [2] <LOQ: Values higher than limit of detection (LOD) and lower than limit of quantitation (LOQ). na: Not available data. [A] Microginin FR1, FR3, T1 & T2, Aeruginosin 602/K139 & 219A and Aeruginosamide concentrations are expressed as Microcystin-LR equivalents. [B] Anabaenopeptin F and Oscillamide Y concentrations are expressed as Anabaenopeptin B equivalents. LOD for intracellular Anabaenopeptin B altered based on the sample volume that passed through the filter and was 0.001 μg/L and LOQ was 0.004 μg/L, when 1000 ml of water sample passed through the filter. Concentrations for Anabaenopeptin F and Oscillamide Y were reported based on the calibration curve of Anabaenopeptin B, while Microginin FR1, FR3, T1 & T2, Aeruginosin 602/K139 & 298A and Aeruginosamide were reported based on the calibration curve of MC-LR.