

Appendix 3 – Summarized data from completion report of Culver et al. 2015 for plankton (phyto- and zoo-) and chlorophyll *a* samples obtained for this GLRI project. Results from chl *a* and pheo *a* tests for 2011-2013 are presented below. Complete data for plankton counts by date, species types, numbers observed per species and location are presented in the project’s shareable data set package in excel spreadsheet format.

Table A3-1. Cuyahoga chlorophyll *a* for 2011 and 2012

This is using the Lorenzen method and calculations have subtracted out the blank.

When there are two blanks, the value used for the blank is an average of two, except where noted (in green).

Sampling Date	Station	Chl <i>a</i> (ug/l)	Pheo <i>a</i> (ug/l)
4-May-11	H1	2.691	0.658
4-May-11	H2	1.321	0.132
4-May-11	Blank1		
4-May-11	Blank2	0.000	0.000
10-May-11	LR1	8.034	0.174
10-May-11	LR2	5.875	0.447
10-May-11	OC1	10.496	0.120
10-May-11	OC2	5.761	0.758
10-May-11	H1	2.932	0.000
10-May-11	H2	0.876	0.159
10-May-11	OB1	1.327	0.156
10-May-11	OB2	0.280	0.162
10-May-11	Blank1		
10-May-11	Blank2	0.339	0.000
19-May-11	LR1	5.492	1.954
19-May-11	LR2	2.631	0.449
19-May-11	OC2	2.288	0.472
19-May-11	H1	2.555	1.059
19-May-11	H2	2.053	0.208
19-May-11	OB1	1.843	0.401
19-May-11	OB2	2.064	0.291
19-May-11	Blank1		
19-May-11	Blank2	0.115	0.009
2-Jun-11	LR1	2.846	5.592
2-Jun-11	LR2	1.837	10.885
2-Jun-11	OC2	4.478	8.486
2-Jun-11	H1	1.602	13.576
2-Jun-11	H2	2.181	4.112
2-Jun-11	OB1	8.117	17.827
2-Jun-11	Blank1		
2-Jun-11	Blank2	0.000	0.297
15-Jun-11	LR1	3.359	3.153

15-Jun-11	LR2	6.029	3.569
15-Jun-11	OC1	6.712	1.076
15-Jun-11	OC2	3.305	1.086
15-Jun-11	H1	2.141	0.612
15-Jun-11	H2	2.189	0.968
15-Jun-11	OB1	1.517	0.581
15-Jun-11	OB2	0.716	0.000
15-Jun-11	Blank1		
15-Jun-11	Blank2	0.166	0.209
30-Jun-11	LR2	4.913	6.708
30-Jun-11	OC2	3.386	3.877
30-Jun-11	H1	11.075	3.230
30-Jun-11	H2	3.855	2.805
30-Jun-11	OB1	7.701	0.000
30-Jun-11	OB2	6.648	3.874
30-Jun-11	Blank 1		
30-Jun-11	Blank 2	0.139	0.000
18-Jul-11	LR1	10.317	6.104
18-Jul-11	LR2	7.497	6.430
18-Jul-11	OC1	22.463	23.040
18-Jul-11	OC2	24.698	10.720
18-Jul-11	H1	8.747	5.734
18-Jul-11	H2	3.674	6.935
18-Jul-11	OB1	2.585	1.774
18-Jul-11	OB2	2.232	3.360
11-Aug-11	LR1	5.036	1.177
11-Aug-11	LR2	2.286	3.135
11-Aug-11	OC1	0.908	9.437
11-Aug-11	OC2	7.284	2.233
11-Aug-11	H1	6.899	0.000
11-Aug-11	H2	7.204	0.000
11-Aug-11	OB1	4.486	0.000
11-Aug-11	OB2	9.996	0.000
11-Aug-11	Blank 1	0.000	1.009
19-Aug-11	LR1	9.313	4.846
19-Aug-11	LR2	2.601	9.547
19-Aug-11	H1	29.138	0.000
19-Aug-11	H2	4.347	4.635
19-Aug-11	OB1	0.646	6.594
19-Aug-11	OB2	3.615	2.885
19-Aug-11	Blank 1		
19-Aug-11	Blank 2	0.139	0.000
29-Aug-11	LR1	5.447	7.493
29-Aug-11	LR2	3.631	8.736

29-Aug-11	OC2	2.996	2.064
29-Aug-11	H2	3.588	2.776
29-Aug-11	OB2	2.029	2.862
29-Aug-11	Blank 1		
29-Aug-11	Blank 2	0.000	0.151
1-Sep-11	Blank 1		
1-Sep-11	Blank 2	0.101	0.000
12-Sep-11	LR1	5.281	2.451
12-Sep-11	OC1	9.815	8.367
12-Sep-11	H1	2.633	2.956
12-Sep-11	OB1	3.578	0.000
12-Sep-11	OB2	1.442	0.000
12-Sep-11	Blank 1	0.182	0.835
12-Sep-11	LR2	9.270	5.173
12-Sep-11	OC2	4.774	0.515
12-Sep-11	H2	5.628	0.623
12-Sep-11	Blank 2	0.352	0.264
29-Sep-11	LR1	1.933	2.651
29-Sep-11	LR2	1.928	1.378
29-Sep-11	OC1	0.192	0.983
29-Sep-11	OC2	0.000	0.886
29-Sep-11	H1	1.527	0.649
29-Sep-11	H2	0.411	3.825
29-Sep-11	OB1	0.000	7.392
29-Sep-11	OB2	3.642	0.807
29-Sep-11	Blank 1		
29-Sep-11	Blank 2	1.517	0.000
28-Oct-11	LR1	0.793	0.794
28-Oct-11	LR2	0.686	0.452
28-Oct-11	OC2	0.355	1.146
28-Oct-11	H1	0.900	0.025
28-Oct-11	H2	0.366	0.343
28-Oct-11	OB1	0.846	0.266
28-Oct-11	OB2	0.462	0.650
28-Oct-11	Blank 2		
28-Oct-11	Blank 1	0.115	0.523

<u>Sampling Date</u>	<u>Station</u>	<u>Chl a (ug/l)</u>	<u>Pheo a (ug/l)</u>
19-Apr-12	LR2	6.066	0.972
19-Apr-12	OC2	5.233	1.290
19-Apr-12	H1	4.048	1.884
19-Apr-12	H2	5.351	0.668
19-Apr-12	OB1	7.989	1.330

19-Apr-12	OB2	6.440	2.404
19-Apr-12	Blank1		
19-Apr-12	Blank2	0.288	0.392
2-May-12	LR1	13.318	7.289
2-May-12	LR2	5.922	1.624
2-May-12	OC1	4.972	0.684
2-May-12	H2	1.298	0.152
2-May-12	OB2	1.202	0.319
2-May-12	Blank1		
2-May-12	Blank 2	0.326	0.000
15-May-12	LR1R	4.737	2.586
15-May-12	LR1H	3.813	1.465
15-May-12	LR2I	1.362	0.507
15-May-12	LR2S	4.411	0.478
15-May-12	OC1	11.214	1.234
15-May-12	H1	13.588	0.000
15-May-12	H2	5.906	0.000
15-May-12	OB1	5.046	0.650
15-May-12	OB2	3.268	0.182
15-May-12	Blank1		
15-May-12	Blank2	0.374	0.000
30-May-12	LR1	12.367	3.685
30-May-12	LR2	6.670	9.850
30-May-12	OC1	2.024	3.614
30-May-12	H1	1.714	1.128
30-May-12	H2	4.923	1.055
30-May-12	OB1	1.586	0.374
30-May-12	OB2	1.212	0.523
30-May-12	Blank1		
30-May-12	Blank2	0.283	0.000
15-Jun-12	LR1	16.105	10.033
15-Jun-12	LR2	0.000	41.320
15-Jun-12	OC1	23.827	5.731
15-Jun-12	H1	31.565	0.000
15-Jun-12	H2	3.172	0.359
15-Jun-12	OB1	4.406	0.445
15-Jun-12	OB2	2.051	0.000
15-Jun-12	Blank1		
15-Jun-12	Blank2	0.000	0.103
28-Jun-12	LR1	25.290	22.316
28-Jun-12	LR2s	11.882	11.525
28-Jun-12	OC1	7.460	5.674
28-Jun-12	H1	8.095	0.602
28-Jun-12	H2	8.192	0.000

28-Jun-12	OB1	3.054	0.167
28-Jun-12	OB2	3.311	0.493
28-Jun-12	Blank1		
28-Jun-12	Blank2	0.278	0.000
10-Jul-12	LR1	42.378	62.012
10-Jul-12	LR2	77.734	0.000
10-Jul-12	OC1	73.243	19.900
10-Jul-12	H1	6.568	12.375
10-Jul-12	Blank1		
10-Jul-12	Blank2	1.709	0.000
12-Jul-12	H2	4.523	5.760
12-Jul-12	OB1	4.662	1.214
12-Jul-12	OB2	6.515	0.000
12-Jul-12	Blank1		
12-Jul-12	Blank2	0.144	0.147
25-Jul-12	LR1	11.134	19.747
25-Jul-12	LR2s	53.221	0.000
25-Jul-12	OC1	49.368	67.722
25-Jul-12	H1	5.260	4.539
25-Jul-12	H2	10.584	7.020
25-Jul-12	OB1	2.163	1.132
25-Jul-12	OB2	2.846	3.140
25-Jul-12	Blank1		
25-Jul-12	Blank2	0.294	0.000
7-Aug-12	LR1	57.864	0.000
7-Aug-12	LR2	10.157	20.048
7-Aug-12	OC1	45.540	35.645
7-Aug-12	H1	3.759	7.143
7-Aug-12	H2	4.368	1.402
7-Aug-12	OB1	6.611	2.168
7-Aug-12	OB2	5.009	2.649
7-Aug-12	Blank1		
7-Aug-12	Blank2	0.117	0.000
22-Aug-12	LR1	11.860	24.664
22-Aug-12	LR2	18.941	25.941
22-Aug-12	OC1	5.516	22.093
22-Aug-12	H1	2.278	7.722
22-Aug-12	H2	4.208	12.477
22-Aug-12	OB1	3.669	10.697
22-Aug-12	OB2	2.697	5.643
22-Aug-12	Blank1		
22-Aug-12	Blank2	0.358	0.536
7-Sep-12	LR1	7.198	3.990
7-Sep-12	LR2 m	2.841	2.863

7-Sep-12	OC1	14.867	24.809
7-Sep-12	H1	7.278	2.373
7-Sep-12	H2	2.622	19.806
7-Sep-12	OB1	0.000	13.648
7-Sep-12	OB2	8.176	3.076
7-Sep-12	Blank1		
7-Sep-12	Blank2	0.155	0.062
20-Sep-12	LR1	4.707	2.315
20-Sep-12	LR2 m	2.542	4.480
20-Sep-12	OC1	2.662	10.703
20-Sep-12	H1	3.698	9.264
20-Sep-12	H2	4.211	12.511
20-Sep-12	OB1	4.841	12.139
20-Sep-12	OB2	8.493	12.068
20-Sep-12	Blank1		
20-Sep-12	Blank2	0.328	0.044
9-Oct-12	LR1	3.001	0.288
9-Oct-12	LR2	2.865	3.234
9-Oct-12	OC1	4.907	1.926
9-Oct-12	H1	2.558	2.111
9-Oct-12	H2	3.615	3.756
9-Oct-12	OB1	2.646	4.352
9-Oct-12	OB2	3.727	3.158
9-Oct-12	Blank1		
9-Oct-12	Blank2	0.144	0.260

Table A3-2.

Cuyahoga chlorophyll *a* for 2013

Grand River chlorophyll *a* for 2013

This is using the Lorenzen method and calculations have subtracted out the blank.

When there are two blanks, the value used for the blank is an average of two, except where noted (in green).

Sampling Date	Station	Chl <i>a</i> (ug/l)	Pheo <i>a</i> (ug/l)
18-Apr-13	LR0	9.810	5.494
18-Apr-13	LR2	5.105	3.388
18-Apr-13	LR2 Itb	2.723	5.171
18-Apr-13	OC2	3.054	4.511
18-Apr-13	H1	1.132	2.098
18-Apr-13	Blank 1		
18-Apr-13	Blank 2	0.470	0.188
9-May-13	LR1	6.061	4.805
9-May-13	LR2	6.008	2.571
9-May-13	OC1	10.285	34.780
9-May-13	OC2	11.294	28.908

Sampling Date	Station	Chl <i>a</i> (ug/l)	Pheo <i>a</i> (ug/l)
17-Apr-13	GR1	0.635	2.407
17-Apr-13	GR2	1.266	1.986
17-Apr-13	Blank 1		
17-Apr-13	Blank 2	0.224	0.000
8-May-13	GR1	2.932	8.436
8-May-13	GR2	4.448	6.624
8-May-13	Blank 1		
8-May-13	Blank 2	0.166	0.066
17-May-13	GR1	2.502	6.069
17-May-13	GR2	3.666	6.522
17-May-13	Blank 1		

9-May-13	H1	2.937	2.072	17-May-13	Blank 2	0.147	0.436
9-May-13	H2	2.924	3.132	31-May-13	GR1	4.299	2.908
9-May-13	OB1	2.670	5.479	31-May-13	GR2	4.614	6.899
9-May-13	OB2	1.970	2.706	31-May-13	Blank 1		
9-May-13	Blank 1			31-May-13	Blank 2	0.246	0.016
9-May-13	Blank 2	0.481	0.192	25-Jun-13	GR1	11.126	4.058
16-May-13	LR1	0.601	2.584	25-Jun-13	GR2	11.873	3.998
16-May-13	LR2	0.534	2.219	24-Jun-13	Blank 1		
16-May-13	OC1	4.576	12.056	24-Jun-13	Blank 2	0.676	0.274
16-May-13	H1	2.176	4.395	8-Jul-13	GR1	4.614	5.928
16-May-13	H2	1.402	3.002	8-Jul-13	GR2	2.098	6.179
16-May-13	OB1	1.589	6.986	8-Jul-13	Blank 1		
16-May-13	OB2	5.161	3.677	8-Jul-13	Blank 2	0.246	0.000
17-May-13	Blank 1			25-Jul-13	GR1	1.218	0.977
17-May-13	Blank 2	0.147	0.436	25-Jul-13	GR2	3.888	2.083
30-May-13	LR1	4.389	3.199	26-Jul-13	Blank 1		
30-May-13	LR2	4.197	2.598	26-Jul-13	Blank 2	0.384	0.000
30-May-13	OC1	4.945	6.299	9-Aug-13	GR1	4.504	6.908
30-May-13	H1	1.549	0.702	9-Aug-13	GR2	3.564	4.717
30-May-13	H2	1.089	0.518	9-Aug-13	Blank 1		
30-May-13	OB1	0.635	2.906	9-Aug-13	Blank 2	0.307	0.663
30-May-13	OB2	2.024	0.892	23-Aug-13	GR1	6.280	9.823
31-May-13	Blank 1			23-Aug-13	GR2	5.479	5.720
31-May-13	Blank 2	0.246	0.016	23-Aug-13	Blank 1		
24-Jun-13	LR1	22.564	5.082	23-Aug-13	Blank 2	0.000	2.527
24-Jun-13	LR2	30.029	15.746	6-Sep-13	GR1	2.221	2.040
24-Jun-13	OC1	18.116	7.147	6-Sep-13	GR2	5.741	4.703
24-Jun-13	H1	2.315	0.773	6-Sep-13	Blank 1		
24-Jun-13	H2	10.538	3.931	6-Sep-13	Blank 2	0.000	0.209
24-Jun-13	OB1	0.659	0.073	23-Sep-13	GR1	1.842	4.434
24-Jun-13	OB2	1.204	0.000	23-Sep-13	GR2	2.067	3.398
24-Jun-13	Blank 1			23-Sep-13	Blank 1		
24-Jun-13	Blank 2	0.676	0.274	23-Sep-13	Blank 2	0.000	0.000
9-Jul-13	LR1	0.902	2.392				
9-Jul-13	LR2	2.096	2.660				
9-Jul-13	OC1	13.387	54.687				
9-Jul-13	H1	3.952	3.107				
9-Jul-13	H2	11.764	3.193				
9-Jul-13	OB1	4.678	2.893				
9-Jul-13	OB2	2.451	1.573				
9-Jul-13	Blank 1						
9-Jul-13	Blank 2	0.593	0.000				
26-Jul-13	LR0	7.989	5.383				
26-Jul-13	LR1 H	10.643	2.972				

26-Jul-13	LR2	12.063	6.224
26-Jul-13	OC1	14.066	7.507
26-Jul-13	H1	9.484	3.577
26-Jul-13	H2	3.989	1.828
26-Jul-13	OB1	3.765	1.817
26-Jul-13	OB2	2.232	1.047
26-Jul-13	Blank 1		
26-Jul-13	Blank 2	0.384	0.000

Sampling Date	Station	Chl a (ug/l)	Pheo a (ug/l)
7-Aug-13	LR1	4.149	14.676
7-Aug-13	LR2	4.261	4.172
7-Aug-13	OC1	25.365	51.197
7-Aug-13	H1	0.977	23.281
7-Aug-13	H2	3.087	5.333
7-Aug-13	OB1	8.710	6.119
7-Aug-13	OB2	1.431	2.546
7-Aug-13	Blank 1		
7-Aug-13	Blank 2	0.598	0.396
22-Aug-13	LR1	12.944	6.956
22-Aug-13	LR2	6.429	17.209
22-Aug-13	OC1	38.982	28.952
22-Aug-13	H1	13.190	3.033
22-Aug-13	H2	5.607	0.556
22-Aug-13	OB1	8.192	2.013
22-Aug-13	OB2	4.902	0.000
23-Aug-13	Blank 1		
23-Aug-13	Blank 2	0.000	2.527
5-Sep-13	LR0	6.077	5.260
5-Sep-13	LR1	7.775	4.448
5-Sep-13	LR2	22.492	10.843
5-Sep-13	OC1	17.355	11.607
5-Sep-13	Blank 1		
5-Sep-13	Blank 2	0.555	0.319
10-Sep-13	H1	5.802	4.251
10-Sep-13	H2	6.266	1.183
10-Sep-13	OB1	4.435	4.768
10-Sep-13	OB2	8.085	0.000
10-Sep-13	Blank 1		
10-Sep-13	Blank 2	0.134	0.147
16-Sep-13	LR0	5.207	6.546
16-Sep-13	LR1	5.121	5.727
16-Sep-13	LR2	5.132	6.262

16-Sep-13	OC1	4.972	7.132
16-Sep-13	Blank 1		
16-Sep-13	Blank 2	0.561	0.000
2-Oct-13	LR0	11.396	5.814
2-Oct-13	LR1	3.658	3.426
2-Oct-13	LR2	10.664	6.931
2-Oct-13	OC1	5.356	28.080
2-Oct-13	H1	8.208	5.346
2-Oct-13	H2	8.544	2.203
2-Oct-13	OB1	5.372	5.917
2-Oct-13	OB2	3.866	7.253
2-Oct-13	Blank 1		
2-Oct-13	Blank 2	0.267	0.107

Table A3-3.

Cuyahoga chlorophyll *a* for 2014

Grand River chlorophyll *a* for 2014

This is using the Lorenzen method and calculations have subtracted out the blank.

When there are two blanks, the value used for the blank is an average of two (* = no blanks).

Sampling Date	Station	Chl <i>a</i> (ug/l)	Pheo <i>a</i> (ug/l)	Sampling Date	Station	Chl <i>a</i> (ug/l)	Pheo <i>a</i> (ug/l)	
20-May-14	H1	1.82	0.87	24-Apr-14	GR1	1.47	0.76	*
20-May-14	LR0	0.62	1.57	24-Apr-14	GR2	3.52	0.89	*
20-May-14	LR1	0.52	1.60	19-May-14	GR1	0.30	5.55	
20-May-14	LR2	1.12	1.25	19-May-14	GR2	1.75	1.50	
20-May-14	OC1	0.74	0.86	20-May-14	Blank 1			
20-May-14	Blank 1			20-May-14	Blank 2	0.12	0.00	
20-May-14	Blank 2	0.12	0.00	4-Jun-14	GR1	6.30	7.66	
30-May-14	H1	2.00	3.33	4-Jun-14	GR2	7.76	9.84	
30-May-14	LR1	0.80	1.45	4-Jun-14	Blank	0.25	0.00	
30-May-14	LR2	0.80	1.45	18-Jun-14	GR1	5.77	3.88	
30-May-14	OC2	1.01	0.73	18-Jun-14	GR2	2.81	2.39	
30-May-14	Blank 1			18-Jun-14	Blank 1			
30-May-14	Blank 2	0.00	0.18	18-Jun-14	Blank 2	0.13	0.00	
19-Jun-14	H1	0.00	9.05	2-Jul-14	GR1	13.05	4.43	
19-Jun-14	LR1	1.57	1.38	2-Jul-14	GR2	8.80	5.35	
19-Jun-14	LR2	3.28	3.10	2-Jul-14	Blank 1			
19-Jun-14	OC1	1.87	1.52	2-Jul-14	Blank 2	0.17	0.11	
19-Jun-14	Blank 1			24-Jul-14	GR1	2.60	1.88	
19-Jun-14	Blank 2	0.17	0.44	24-Jul-14	GR2	5.99	6.22	
1-Jul-14	H1	2.44	6.51	24-Jul-14	Blank 1			
1-Jul-14	LR1	10.51	4.38	24-Jul-14	Blank 2	0.13	0.05	
1-Jul-14	LR2	3.80	5.20	5-Aug-14	GR1	2.33	1.59	
1-Jul-14	OC1	4.08	6.27	5-Aug-14	GR2	2.44	1.72	
1-Jul-14	Blank 1			5-Aug-14	Blank 1			

1-Jul-14	Blank 2	0.23	0.05	5-Aug-14	Blank 2	0.23	0.00
22-Jul-14	H1	9.35	6.46	19-Aug-14	GR1	1.92	0.97
22-Jul-14	LR0	4.46	4.83	19-Aug-14	GR2	5.49	2.63
22-Jul-14	LR1	3.81	11.15	19-Aug-14	Blank 1		
22-Jul-14	LR2	15.49	11.75	19-Aug-14	Blank 2	0.00	0.20
22-Jul-14	OC2	16.06	12.97	2-Sep-14	GR1	3.42	1.97
22-Jul-14	Blank 1			2-Sep-14	GR2	4.67	0.84
22-Jul-14	Blank 2	0.52	0.00	2-Sep-14	Blank 1		
8-Aug-14	H1	9.56	7.82	2-Sep-14	Blank 2	0.00	0.00
8-Aug-14	LR0	9.67	3.01	17-Sep-14	GR1	0.66	1.63
8-Aug-14	LR1	9.80	7.33	17-Sep-14	GR2	1.23	2.82
8-Aug-14	LR2	10.25	10.61	17-Sep-14	Blank 1		
8-Aug-14	OC2	8.52	3.46	17-Sep-14	Blank 2	0.14	0.00
8-Aug-14	Blank 1			30-Sep-14	GR1	2.31	1.22
8-Aug-14	Blank 2	0.13	0.00	30-Sep-14	GR2	0.74	2.14
21-Aug-14	H1	4.64	4.08	30-Sep-14	Blank 1		
21-Aug-14	LR0	7.77	0.00	30-Sep-14	Blank 2	0.16	0.00
21-Aug-14	LR1	2.68	2.59	17-Oct-14	GR1	2.94	1.91
21-Aug-14	LR2	1.13	2.29	17-Oct-14	GR2	2.29	1.06
21-Aug-14	OC1	4.86	5.37	17-Oct-14	Blank 1		
21-Aug-14	Blank 1			17-Oct-14	Blank 2	0.00	0.10
21-Aug-14	Blank 2	0.27	0.00	4-Nov-14	GR1	0.56	0.61
5-Sep-14	H1	3.20	3.96	4-Nov-14	GR2	0.93	0.50
5-Sep-14	LR1	3.84	2.15	4-Nov-14	Blank 1		
5-Sep-14	LR2	4.01	2.44	4-Nov-14	Blank 2	0.00	0.00
5-Sep-14	OC1	3.60	2.93				
5-Sep-14	Blank 1						
5-Sep-14	Blank 2	0.00	0.10				
18-Sep-14	H1	2.44	0.97				
18-Sep-14	LR0	1.83	1.26				
18-Sep-14	LR1	1.57	1.18				
18-Sep-14	LR2	2.08	1.80				
18-Sep-14	OC1	2.56	1.50				
18-Sep-14	Blank 1						
18-Sep-14	Blank 2	0.00	0.00				
9-Oct-14	H1	2.32	2.62				
9-Oct-14	LR0	1.21	2.17				
9-Oct-14	LR1	1.53	1.64				
9-Oct-14	LR2	0.61	1.45				
9-Oct-14	OC2	0.84	0.68				
9-Oct-14	Blank 1						
9-Oct-14	Blank 2	0.14	0.00				
22-Oct-14	H1	2.50	1.88				
22-Oct-14	LR1	5.57	1.46				
22-Oct-14	LR2	3.63	1.36				
22-Oct-14	OC1	1.94	0.37				

22-Oct-14	Blank 1		
22-Oct-14	Blank 2	0.00	0.09

Phytoplankton

Plankton data are presented by taxonomic group in the shared dataset. Data in numbers, density (for volume of water sampled) and biomass are recorded for each sample location and date, 2011-2014. The spreadsheets for phyto- and zoo-plankton are too large for inclusion in the printed report.

There were fewer rare taxon identified that were not in our phytoplankton macro, because we have more generalized categories, but a few that were found were entered based on their family or a generalized category based on its shape (for example: solitary green, spiny green, colonial green). These taxon are:

- *Phacotus* spp. was entered as a solitary green
- *Quadrigula* spp. was entered as *Schroederia* (same family)
- *Tetrastrum* (Family Scenedesmaceae) was entered as a Colonial green w/o sheath, because of the measurements provided
- *Westella* was entered as a Colonial green w/o sheath.

Phytoplankton data presented in the dataset include:

Sample Info	Date Sampled
	Sample Location
Chlorophyta Densities (#/ml)	<i>Actinastrum</i>
	<i>Ankistrodesmus</i>
	<i>Carteria</i>
	<i>Characium</i>
	<i>Chlamydomonas</i>
	Chlorophyte Filament
	<i>Closteriopsis</i>
	<i>Closterium</i>
	<i>Coelastrum</i>
	Colonial Chlorophyte w/ sheath
	Colonial Chlorophyte w/o sheath
	<i>Cosmarium</i>
	<i>Crucigenia</i>
	<i>Dictyosphaerium</i>
	<i>Dimorphococcus</i>
	<i>Eudorina</i>
	<i>Eutetramorus</i>
	<i>Franceia</i>
	<i>Golenkinia</i>

	<i>Gonium</i>
	<i>Kirchneriella</i>
	<i>Lagerheimia</i>
	<i>Micractinium</i>
	<i>Oocystis</i>
	<i>Pandorina</i>
	<i>Pediastrum</i>
	<i>Scenedesmus</i>
	<i>Schroederia</i>
	Solitary Green
	<i>Sphaerocystis</i>
	Spiny Green
	<i>Spirogyra</i>
	<i>Staurastrum</i>
	<i>Synura</i>
	<i>Tetraedron</i>
	<i>Treubaria</i>
Chrysophyta (Chrysophyceae)	<i>Dinobryon</i>
	<i>Mallomonas</i>
Chrysophyta--diatoms Densities (#/ml)	<i>Asterionella</i>
	Centric Diatom
	<i>Cocconeis</i>
	<i>Coscinodiscus</i>
	<i>Cyclotella</i>
	<i>Cymbella</i>
	<i>Fragilaria</i>
	<i>Gomphonema</i>
	<i>Gyrosigma</i>
	<i>Melosira</i>
	<i>Navicula</i>
	<i>Nitzschia</i>
	<i>Opephora</i>
	Pennate Diatom
	<i>Rhizosolenia</i>
	<i>Rhoicosphenia</i>
	<i>Stephanodiscus</i>
	<i>Surirella</i>
	<i>Synedra</i>
	<i>Tabellaria</i>
Cryptophyta	<i>Chilomonas</i>
	<i>Chroomonas</i>

Cyanophyta Densities (#/ml)	<i>Cryptomonas</i>
	<i>Rhodomonas</i>
	<i>Anabaena</i>
	<i>Aphanizomenon</i>
	<i>Aphanocapsa</i>
	<i>Aphanothece</i>
	Cyanophyte coccoid
	<i>Chroococcus</i>
	<i>Cylindrospermopsis</i> Filament
	<i>Lyngbya</i>
	<i>Merismopedia</i>
	<i>Microcystis</i>
	Narrow Filament
	<i>Oscillatoria</i>
	<i>Spirulina</i>
	Pyrrophyta Densities (#/ml)
<i>Gymnodinium</i>	
<i>Peridinium</i>	

Table A3-4a. Temporal and spatial variation in the taxonomic composition of phytoplankton biomass (mg wet weight/L) in samples collected in 2011 from the Cuyahoga River and adjacent areas of Lake Erie. Stations are in the lower river (LR1 and LR2), the Old Channel (OC) of the river, in the Harbor inside the breakwall (H), and in Lake Erie outside the breakwall (OB).

Date Sampled	Sample Location	Chloro-phyta	Chryso-phyta	Crypto-phyta	Cyano-phyta	Pyrrho-phyta	Total Pp
4-May-11	H1	3.17	2.22	0.59	11.80	0.03	17.80
4-May-11	H2	0.37	0.38	0.21	14.09	0.00	15.04
10-May-11	H1	1.18	2.72	0.51	5.73	0.00	10.14
10-May-11	H2	0.06	0.25	0.15	2.93	0.00	3.39
10-May-11	LR1	1.00	1.41	0.77	9.80	0.00	12.98
10-May-11	LR2	0.70	1.26	0.58	23.84	0.05	26.43
10-May-11	OB1	0.14	0.27	0.37	4.44	0.00	5.23
10-May-11	OB2	0.07	0.60	0.10	3.84	0.00	4.60
10-May-11	OC1	4.07	2.13	4.37	23.73	0.59	34.89
10-May-11	OC2	2.56	2.31	1.59	3.99	0.00	10.45
19-May-11	H1	2.57	2.61	0.28	66.76	0.00	72.22
19-May-11	H2	0.50	0.36	0.60	13.73	0.00	15.19
19-May-11	LR1	0.26	1.36	0.24	16.98	0.00	18.84
19-May-11	LR2	1.52	2.00	0.77	17.32	0.09	21.69
19-May-11	OB1	0.19	1.11	0.88	12.93	0.00	15.12

19-May-11	OB2	0.25	0.43	0.46	9.82	0.00	10.96
19-May-11	OC2	1.38	2.05	1.53	21.45	0.00	26.41
2-Jun-11	H1	10.85	0.63	4.34	7.66	0.03	23.51
2-Jun-11	H2	0.57	0.09	0.44	8.49	0.00	9.60
2-Jun-11	LR1	0.75	0.73	0.30	10.05	0.00	11.83
2-Jun-11	LR2	0.51	1.33	0.20	12.36	0.00	14.39
2-Jun-11	OB1	3.89	0.25	2.55	12.26	0.00	18.95
2-Jun-11	OC2	1.61	0.62	1.11	16.43	0.27	20.04
15-Jun-11	H1	3.26	1.15	2.63	1.39	0.42	8.85
15-Jun-11	H2	0.19	0.04	0.95	3.42	0.00	4.61
15-Jun-11	LR1	2.17	0.72	1.60	8.96	0.34	13.78
15-Jun-11	LR2	0.58	2.08	1.29	9.39	0.13	13.47
15-Jun-11	OB1	0.07	0.05	0.45	5.72	0.00	6.29
15-Jun-11	OB2	0.25	0.18	0.97	2.11	0.00	3.50
15-Jun-11	OC1	0.70	0.67	0.64	15.33	0.00	17.34
15-Jun-11	OC2	0.41	0.34	0.23	9.60	0.00	10.58
30-Jun-11	H2	0.39	0.35	0.59	2.95	0.00	4.27
30-Jun-11	H2	1.20	0.58	7.49	12.29	0.00	21.57
30-Jun-11	LR1	1.25	0.95	0.85	11.78	0.23	15.06
30-Jun-11	LR2	1.37	0.29	1.09	24.25	0.00	27.00
30-Jun-11	OB1	0.99	25.75	5.88	1.31	0.00	33.93
30-Jun-11	OB2	0.91	3.82	5.23	2.41	0.00	12.37
30-Jun-11	OC2	0.88	0.49	1.66	12.02	0.29	15.34
18-Jul-11	H1	5.44	1.60	3.51	1.98	1.95	14.48
18-Jul-11	H2	0.85	1.92	0.20	4.32	0.00	7.29
18-Jul-11	LR1	3.08	2.34	0.70	25.61	0.24	31.96
18-Jul-11	LR2	3.22	2.15	0.84	37.04	0.27	43.53
18-Jul-11	OB1	0.28	0.16	0.23	1.69	0.90	3.25
18-Jul-11	OB2	0.42	0.09	0.57	0.98	0.00	2.06
18-Jul-11	OC1	1.97	2.59	1.95	10.37	11.48	28.36
18-Jul-11	OC2	3.86	1.19	2.01	8.01	10.56	25.62
11-Aug-11	H1	2.26	0.48	1.48	0.43	0.29	4.95
11-Aug-11	H2	0.78	0.35	1.45	9.14	0.85	12.57
11-Aug-11	LR1	0.66	1.10	0.89	41.41	0.13	44.19
11-Aug-11	LR2	2.75	2.04	0.55	175.83	1.56	182.73
11-Aug-11	OB1	0.51	0.09	0.92	3.35	0.99	5.86
11-Aug-11	OB2	1.23	1.61	2.88	42.37	1.14	49.24
11-Aug-11	OC1	1.01	0.40	0.90	47.34	0.41	50.05
11-Aug-11	OC2	1.77	1.47	0.78	29.43	2.25	35.71
19-Aug-11	H1	8.34	5.00	2.05	3.73	18.24	37.36
19-Aug-11	H2	2.27	0.65	0.29	3.25	0.00	6.46

19-Aug-11	LR1	2.90	1.99	3.06	18.88	0.25	27.08
19-Aug-11	LR2	1.21	2.34	3.06	22.71	0.00	29.33
19-Aug-11	OB1	0.79	0.21	0.63	2.70	0.28	4.61
19-Aug-11	OB2	0.64	38.97	0.73	3.33	0.12	43.79
29-Aug-11	H1	4.43	0.79	1.50	53.58	1.50	61.79
29-Aug-11	H2	0.96	0.17	2.56	11.46	0.73	15.87
29-Aug-11	LR1	1.75	0.20	1.09	20.00	0.00	23.04
29-Aug-11	LR2	1.09	1.59	0.59	22.26	0.19	25.73
29-Aug-11	OB1	1.28	1.16	2.33	20.78	0.48	26.04
29-Aug-11	OB2	1.29	4.84	1.02	7.19	10.06	24.41
29-Aug-11	OC1	2.25	0.53	7.71	16.18	0.64	27.32
29-Aug-11	OC2	0.71	0.93	1.15	16.64	0.25	19.67
12-Sep-11	H1	1.70	0.61	1.89	73.49	0.00	77.70
12-Sep-11	H2	0.93	0.41	1.71	4.08	0.00	7.13
12-Sep-11	LR1	0.62	0.97	0.94	29.13	0.00	31.66
12-Sep-11	LR2	1.46	0.93	1.71	29.06	0.98	34.14
12-Sep-11	OB1	0.47	0.35	1.26	8.89	0.00	10.98
12-Sep-11	OB2	0.29	0.16	0.24	6.08	0.00	6.77
12-Sep-11	OC1	3.42	1.47	8.68	6.94	0.14	20.64
12-Sep-11	OC2	1.04	0.75	0.97	51.24	0.00	54.00
29-Sep-11	H1	1.67	1.88	0.33	68.41	0.00	72.30
29-Sep-11	H2	1.72	10.60	0.73	11.79	0.00	24.85
29-Sep-11	LR1	0.71	0.61	1.11	18.40	0.00	20.83
29-Sep-11	LR2	0.75	0.89	0.56	15.25	0.00	17.45
29-Sep-11	OB1	0.75	2.19	0.31	4.89	0.53	8.67
29-Sep-11	OB2	0.14	1.58	0.18	3.16	0.00	5.06
29-Sep-11	OC1	0.34	0.34	0.51	12.29	0.00	13.47
29-Sep-11	OC2	0.54	0.40	1.01	29.01	0.00	30.96
28-Oct-11	H1	1.12	2.64	0.98	9.89	0.12	14.76
28-Oct-11	H2	0.39	0.07	0.79	13.86	0.00	15.11
28-Oct-11	LR1	0.84	0.45	0.36	24.73	0.00	26.38
28-Oct-11	LR2	0.38	0.13	0.50	23.98	0.00	25.00
28-Oct-11	OB1	0.19	0.47	0.27	8.67	0.00	9.59
28-Oct-11	OB2	0.33	0.56	0.27	13.66	0.00	14.82
28-Oct-11	OC2	0.74	0.13	0.45	28.32	0.00	29.65

Table A3-4b. Temporal and spatial variation in the taxonomic composition of phytoplankton biomass (mg wet weight/L) in samples collected in 2012 from the Cuyahoga River and adjacent areas of Lake Erie. Stations are in the lower river (LR1 and LR2), the Old Channel (OC) of the river, in the Harbor inside the breakwall (H), and in Lake Erie outside the breakwall (OB).

Date Sampled	Sample Location	Chloro-phyta	Chryso-phyta	Crypto-phyta	Cyano-phyta	Pyrrho-phyta	Total Pp
19-Apr-12	H1	0.33	1.04	0.50	16.50	0.00	18.37
19-Apr-12	H2	0.45	0.39	0.75	11.34	0.00	12.92
19-Apr-12	LR2	0.95	3.33	1.07	29.25	0.00	34.60
19-Apr-12	OB1	0.61	1.35	0.65	14.38	0.00	17.00
19-Apr-12	OB2	0.48	1.04	0.68	7.66	0.00	9.86
19-Apr-12	OC2	0.97	0.40	1.00	25.30	0.02	27.69
02-May-12	H2	0.30	0.22	0.40	5.92	0.00	6.84
02-May-12	LR1	0.37	4.34	0.64	17.20	0.00	22.54
02-May-12	LR2itb	1.17	2.11	0.56	25.90	0.00	29.74
02-May-12	OB2	0.19	0.65	0.86	9.47	0.00	11.17
02-May-12	OC1	1.07	1.06	0.93	14.96	0.00	18.02
15-May-12	H1	1.10	0.61	11.10	12.14	0.00	24.95
15-May-12	H2	0.54	0.36	3.37	3.99	0.00	8.26
15-May-12	LR1H	0.64	2.40	1.17	21.46	0.00	25.66
15-May-12	LR1R	0.57	1.25	1.17	10.51	0.00	13.50
15-May-12	LR2	0.56	0.54	0.80	16.65	0.00	18.56
15-May-12	LR2itb	0.38	0.92	0.78	27.98	0.00	30.06
15-May-12	OB1	0.71	0.07	2.92	4.73	0.00	8.44
15-May-12	OB2	0.65	0.55	2.65	4.03	0.00	7.88
15-May-12	OC1	2.01	0.07	3.87	10.83	0.00	16.77
30-May-12	H1	0.27	0.06	1.41	5.07	0.00	6.82
30-May-12	H2	0.31	0.03	1.35	1.12	0.00	2.81
30-May-12	LR1	1.75	4.29	0.20	1.39	0.88	8.51
30-May-12	LR2	1.33	4.17	0.35	35.92	0.00	41.78
30-May-12	OB1	0.50	0.05	1.05	1.84	0.00	3.44
30-May-12	OB2	0.60	0.16	0.85	1.18	0.00	2.80
30-May-12	OC1	1.00	0.09	1.95	12.44	0.10	15.59
15-Jun-12	H1	0.85	0.34	2.49	4.45	0.00	8.12
15-Jun-12	H2	0.33	0.13	1.59	7.37	0.00	9.42
15-Jun-12	LR2	2.57	1.64	1.09	10.18	0.25	15.74
15-Jun-12	OB1	0.26	0.14	1.00	2.20	0.00	3.60
15-Jun-12	OB2	0.37	8.46	0.49	1.29	0.00	10.61
15-Jun-12	OC1	4.59	2.39	6.05	7.64	0.60	21.27

28-Jun-12	H1	0.78	0.24	2.72	2.01	3.10	8.86
28-Jun-12	H2	0.34	0.00	0.96	3.57	0.44	5.31
28-Jun-12	LR1	1.70	13.77	0.31	2.05	3.34	21.17
28-Jun-12	LR2	1.94	6.69	0.62	7.31	0.67	17.23
28-Jun-12	OB1	0.12	0.44	0.27	1.84	0.00	2.66
28-Jun-12	OB2	0.48	1.20	0.25	4.34	0.00	6.27
28-Jun-12	OC1	1.64	0.37	2.55	5.07	0.92	10.54
10-Jul-12	H1	0.84	1.40	1.00	0.75	0.48	4.48
10-Jul-12	LR1	2.15	71.10	1.03	1.72	0.25	76.26
10-Jul-12	LR2	1.79	24.74	1.18	3.03	2.51	33.25
10-Jul-12	OC1	1.28	1.16	2.63	3.44	18.84	27.35
12-Jul-12	H2	0.55	0.27	1.21	1.61	2.51	6.14
12-Jul-12	OB1	0.60	6.80	0.34	1.14	1.39	10.28
12-Jul-12	OB2	0.22	1.90	0.74	1.05	0.00	3.91
25-Jul-12	H1	1.00	0.98	1.56	3.12	1.45	8.11
25-Jul-12	H2	0.89	2.41	0.83	0.95	0.28	5.36
25-Jul-12	LR1	1.59	9.96	0.25	0.84	0.00	12.64
25-Jul-12	LR2	1.64	7.93	0.93	1.24	1.90	13.65
25-Jul-12	OB1	0.45	1.19	0.27	1.05	0.88	3.84
25-Jul-12	OB2	0.22	0.61	0.15	0.48	0.30	1.76
25-Jul-12	OC1	1.60	1.94	1.97	2.20	44.21	51.93
07-Aug-12	H1	0.62	1.60	1.11	3.27	0.06	6.64
07-Aug-12	H2	0.41	0.71	0.65	2.00	0.00	3.77
07-Aug-12	LR1	1.51	7.26	0.19	1.76	0.00	10.72
07-Aug-12	LR2	1.70	5.13	0.40	11.12	0.00	18.35
07-Aug-12	OB1	0.37	1.16	0.64	1.03	0.00	3.20
07-Aug-12	OB2	0.23	0.22	0.48	0.95	0.00	1.88
07-Aug-12	OC1	3.57	1.08	4.42	2.04	23.54	34.66
22-Aug-12	H1	0.75	2.16	1.06	3.38	1.75	9.10
22-Aug-12	H2	0.73	0.38	0.78	1.30	1.10	4.28
22-Aug-12	LR1	1.03	5.62	0.41	1.46	0.18	8.70
22-Aug-12	LR2	1.24	5.17	1.88	1.88	1.84	12.00
22-Aug-12	OB1	0.84	0.77	0.53	1.37	0.77	4.28
22-Aug-12	OB2	0.28	1.60	0.33	0.46	1.38	4.04
22-Aug-12	OC1	2.18	1.22	4.26	2.78	0.91	11.36
07-Sep-12	H1	0.46	0.44	1.00	3.76	0.00	5.65
07-Sep-12	H2	2.14	3.24	3.79	1.61	0.90	11.67
07-Sep-12	LR1	0.40	1.99	0.42	4.43	0.00	7.24
07-Sep-12	LR2	0.52	2.77	0.74	6.55	0.25	10.83
07-Sep-12	OB2	0.14	0.31	0.58	0.73	0.20	1.96
07-Sep-12	OC1	2.52	0.84	5.78	3.58	0.07	12.79

07-Sep-12	OB1	0.61	0.53	1.00	1.82	0.10	4.06
20-Sep-12	H1	0.36	3.07	0.45	1.84	1.06	6.78
20-Sep-12	H2	0.99	4.92	0.30	3.56	2.03	11.80
20-Sep-12	LR1	0.63	0.74	0.19	1.10	0.00	2.67
20-Sep-12	LR2	0.83	1.17	0.24	2.51	0.00	4.75
20-Sep-12	OB1	0.35	3.04	0.33	3.28	1.14	8.14
20-Sep-12	OB2	0.36	1.95	0.26	0.62	0.32	3.51
20-Sep-12	OC1	0.36	0.70	1.08	6.23	0.93	9.30
09-Oct-12	H2	0.14	1.27	0.24	2.68	2.12	6.45
09-Oct-12	LR1	0.38	0.39	0.28	2.49	0.00	3.55
09-Oct-12	LR2	0.50	1.04	0.45	22.57	0.00	24.56
09-Oct-12	OB1	0.21	0.58	0.21	2.54	0.00	3.55
09-Oct-12	OB2	0.14	1.08	0.10	1.21	0.00	2.53
15-Jun-12	LR1	2.54	1.71	0.17	4.27	0.35	9.04
09-Oct-12	H1	0.13	0.47	0.20	2.13	0.18	3.11
09-Oct-12	OC1	1.33	0.85	0.96	18.93	1.32	23.38

Table A3-4c. Temporal and spatial variation in the taxonomic composition of phytoplankton biomass (mg wet weight/L) in samples collected in 2013 from the Cuyahoga River and adjacent areas of Lake Erie. Stations are in the lower river (LRO, LR1, and LR2), the Old Channel (OC) of the river, in the Harbor inside the breakwall (H), and in Lake Erie outside the breakwall (OB).

Date Sampled	Site	Chloro-phyta	Chryso-phyta	Crypto-phyta	Cyano-phyta	Pyrro-phyta	Total Pp
18-Apr-13	H1	0.22	0.41	0.17	0.18	0.00	0.99
18-Apr-13	LR0	0.13	1.90	0.44	0.07	0.02	2.56
18-Apr-13	LR2	0.19	1.37	0.38	0.23	0.00	2.16
18-Apr-13	LR2itb	0.23	0.93	0.94	0.15	0.00	2.25
18-Apr-13	OC2	0.24	0.32	1.00	0.56	0.00	2.13
9-May-13	H1	0.17	0.74	0.31	0.02	0.00	1.24
9-May-13	H2	0.11	0.83	0.19	0.02	0.00	1.16
9-May-13	LR1	0.17	1.69	0.06	0.13	0.00	2.06
9-May-13	LR2	0.67	1.08	0.32	0.17	0.00	2.25
9-May-13	OB1	0.08	0.32	0.17	0.03	0.00	0.60
9-May-13	OB2	0.08	0.61	0.07	0.00	0.00	0.77
9-May-13	OC1	1.67	1.73	20.80	0.11	0.11	24.41
9-May-13	OC2	2.41	5.30	8.71	0.07	0.03	16.52
16-May-13	H1	0.10	1.68	1.64	0.00	0.00	3.42
16-May-13	H2	0.46	0.46	0.43	0.00	0.00	1.35
16-May-13	LR1	0.13	0.81	0.05	0.02	0.00	1.01
16-May-13	LR2	0.15	0.31	0.28	0.01	0.00	0.75
16-May-13	OB1	0.13	1.05	0.66	0.09	0.00	1.92
16-May-13	OB2	0.08	2.00	0.75	0.03	0.00	2.85
16-May-13	OC1	0.64	0.61	2.54	0.05	0.00	3.84
30-May-13	H1	0.06	0.08	0.36	0.03	0.00	0.54
30-May-13	H2	0.04	0.02	0.32	0.00	0.00	0.38
30-May-13	LR1	0.23	0.89	0.18	0.13	0.00	1.43
30-May-13	LR2	0.44	1.77	0.10	0.11	0.17	2.60
30-May-13	OB1	0.10	0.10	0.50	0.01	0.00	0.72
30-May-13	OB2	0.13	0.42	1.01	0.01	0.00	1.57

30-May-13	OC1	0.37	0.29	1.20	0.02	0.00	1.87
24-Jun-13	H1	0.12	0.67	0.57	0.04	0.00	1.39
24-Jun-13	H2	0.33	0.36	1.67	0.03	0.10	2.49
24-Jun-13	LR1	1.21	1.37	0.53	0.66	0.16	3.92
24-Jun-13	LR2	1.53	1.03	0.65	0.64	0.26	4.12
24-Jun-13	OB1	0.18	0.22	0.17	0.01	0.00	0.58
24-Jun-13	OB2	0.07	0.40	0.37	0.01	0.00	0.84
24-Jun-13	OC1	0.99	0.72	4.28	0.45	0.36	6.79
9-Jul-13	H1	0.14	0.07	0.56	0.09	0.00	0.86
9-Jul-13	H2	0.41	1.79	1.07	0.69	0.17	4.13
9-Jul-13	LR1	0.27	0.63	0.39	0.02	0.30	1.61
9-Jul-13	LR2	0.44	1.27	0.41	0.18	0.58	2.88
9-Jul-13	OB1	0.05	0.04	0.12	0.33	0.18	0.71
9-Jul-13	OB2	0.13	0.30	0.24	0.18	0.26	1.12
9-Jul-13	OC1	1.69	0.62	9.62	0.10	0.00	12.03
26-Jul-13	H1	0.17	0.08	0.49	1.56	0.00	2.30
26-Jul-13	H2	0.16	0.36	0.16	0.77	0.00	1.45
26-Jul-13	LR0	0.58	0.89	0.37	0.85	0.09	2.78
26-Jul-13	LR1	0.64	0.40	0.75	0.41	0.26	2.45
26-Jul-13	LR2	0.53	0.79	1.24	0.20	0.57	3.33
26-Jul-13	OB1	0.16	0.09	0.15	0.69	0.00	1.09
26-Jul-13	OB2	0.06	0.62	0.08	0.44	0.25	1.45
26-Jul-13	OC1	0.70	0.36	2.67	0.36	1.37	5.46
7-Aug-13	H1	0.67	0.44	0.42	0.60	0.00	2.14
7-Aug-13	H2	0.29	1.46	0.67	1.78	0.12	4.31
7-Aug-13	LR1	0.43	1.25	0.27	1.00	0.04	2.99
7-Aug-13	LR2	0.26	0.98	0.08	0.10	0.40	1.81
7-Aug-13	OB1	0.52	1.06	0.47	0.44	0.78	3.27
7-Aug-13	OB2	0.17	0.08	0.18	4.45	0.00	4.87
7-Aug-13	OC1	1.49	0.76	4.91	0.90	0.59	8.65
22-Aug-13	H1	0.94	0.72	1.69	0.51	0.00	3.86
22-Aug-13	H2	0.18	0.62	0.29	0.26	0.53	1.89

22-Aug-13	LR1	0.72	2.39	0.26	1.65	0.58	5.59
22-Aug-13	LR2	0.62	1.16	0.13	0.67	0.09	2.66
22-Aug-13	OB1	0.39	1.20	0.33	2.34	0.00	4.26
22-Aug-13	OB2	0.18	0.94	0.21	0.87	0.00	2.19
22-Aug-13	OC1	6.40	0.74	9.48	0.05	6.79	23.46
5-Sep-13	LR0	0.35	0.73	0.20	0.77	0.22	2.26
5-Sep-13	LR1	0.53	0.70	0.25	1.09	0.31	2.89
5-Sep-13	LR2	0.84	1.12	0.26	1.69	0.06	3.98
5-Sep-13	OC1	0.68	0.97	3.72	0.21	0.03	5.60
10-Sep-13	H1	0.24	0.51	0.34	0.24	0.35	1.69
10-Sep-13	H2	0.21	0.21	0.30	0.41	0.32	1.44
10-Sep-13	OB1	0.16	0.17	0.22	0.83	0.00	1.37
10-Sep-13	OB2	0.08	0.03	0.08	0.52	0.00	0.71
16-Sep-13	LR0	0.20	0.44	0.15	1.76	0.03	2.58
16-Sep-13	LR1	0.25	0.42	0.15	0.50	0.05	1.36
16-Sep-13	LR2	0.24	0.54	0.18	1.67	0.00	2.63
16-Sep-13	OC1	0.25	0.57	0.66	0.34	0.00	1.83
2-Oct-13	H1	0.48	0.36	0.57	1.53	0.49	3.44
2-Oct-13	H2	0.12	0.94	0.22	0.21	0.14	1.64
2-Oct-13	LR0	0.49	1.63	0.20	0.52	0.07	2.92
2-Oct-13	LR1	0.45	1.54	0.47	0.79	0.00	3.25
2-Oct-13	LR2	1.81	2.04	2.01	0.55	0.57	6.98
2-Oct-13	OB1	0.31	0.37	0.30	0.32	0.00	1.30
2-Oct-13	OB2	0.54	0.34	0.38	1.16	0.45	2.88
2-Oct-13	OC1	1.44	0.48	2.07	0.17	0.06	4.22

Table A3-4d. Temporal and spatial variation in the taxonomic composition of phytoplankton biomass (mg wet weight/L) in samples collected in 2014 from the Cuyahoga River and adjacent areas of Lake Erie. Stations are in the lower river (LRO, LR1, and LR2), the Old Channel (OC) of the river, in the Harbor inside the breakwall (H), and in Lake Erie outside the breakwall (OB). The results from OC, H, and OB are not included in this table.

Date Sampled	Site	Chloro-phyta	Chryso-phyta	Crypto-phyta	Cyano-phyta	Pyrro-phyta	Total Pp
20-May-14	LR 0	0.05	0.48	0.08	0.02	0.00	0.63
20-May-14	LR 1	0.08	1.16	0.21	0.07	0.00	1.52
20-May-14	LR 2	0.13	0.64	0.23	0.04	0.00	1.04
30-May-14	LR 1	0.15	0.27	0.07	0.07	0.00	0.56
30-May-14	LR 2	0.17	0.41	0.20	0.14	0.00	0.93
19-Jun-14	LR 1	0.34	0.97	0.10	0.08	0.00	1.49
19-Jun-14	LR 2	0.32	0.95	0.09	0.07	0.00	1.43
1-Jul-14	LR 1	0.30	1.43	0.48	0.20	0.08	2.50
1-Jul-14	LR 2	0.47	1.77	0.54	0.21	0.00	3.00
22-Jul-14	LR 0	0.40	1.99	0.28	0.26	0.33	3.25
22-Jul-14	LR 1	0.45	0.54	0.10	0.91	0.00	2.01
22-Jul-14	LR 2	1.13	1.00	0.62	0.28	0.90	3.93
8-Aug-14	LR 0	0.34	0.60	0.31	0.49	0.00	1.73
8-Aug-14	LR 1	0.61	0.87	0.63	1.27	1.61	4.99
8-Aug-14	LR 2	1.39	1.39	0.40	0.47	3.29	6.95
21-Aug-14	LR 0	0.21	0.14	0.16	0.21	0.00	0.72
21-Aug-14	LR 1	0.29	0.16	0.13	0.18	0.50	1.27
21-Aug-14	LR 2	0.17	0.13	0.10	0.07	0.00	0.47
5-Sep-14	LR 1	0.91	3.22	0.24	0.63	0.07	5.06
5-Sep-14	LR 2	0.94	3.93	0.20	2.45	0.00	7.52
18-Sep-14	LR 0	0.34	1.26	0.21	1.12	0.18	3.11
18-Sep-14	LR 1	0.44	1.06	0.32	1.16	0.00	2.99
18-Sep-14	LR 2	0.53	1.01	0.64	1.31	1.70	5.20
9-Oct-14	LR 0	0.29	3.93	0.13	0.98	0.00	5.33
9-Oct-14	LR 1	0.13	3.33	0.19	0.86	0.01	4.52
9-Oct-14	LR 2	0.21	0.73	0.05	0.42	0.07	1.49
22-Oct-14	LR 1	1.38	6.21	0.24	4.01	0.00	11.83
22-Oct-14	LR 2	0.13	6.08	0.19	2.48	0.00	8.88

Table A3-4e. Temporal and spatial variation in the taxonomic composition of phytoplankton biomass (mg wet weight/L) in samples collected in 2013 from the Grand River. Stations are in two locations in the lower river (G1 and G2).

Date Sampled	Site	Chloro-phyta	Chryso-phyta	Crypto-phyta	Cyano-phyta	Pyrro-phyta	Total Pp
17-Apr-13	GR1	0.07	0.48	0.19	0.00	0.00	0.74
17-Apr-13	GR2	0.17	1.46	0.49	0.02	0.10	2.23
8-May-13	GR1	0.55	7.70	1.27	0.09	0.00	9.62
8-May-13	GR2	1.45	3.85	6.68	0.21	0.18	12.37
17-May-13	GR1	0.65	1.99	1.29	0.09	0.00	4.02
17-May-13	GR2	1.04	3.56	1.56	0.04	0.00	6.20
31-May-13	GR1	0.60	0.76	0.48	0.13	0.16	2.13
31-May-13	GR2	0.47	4.05	1.11	0.27	0.17	6.07
25-Jun-13	GR1	2.25	2.03	0.59	0.14	1.11	6.12
25-Jun-13	GR2	0.50	0.61	1.17	0.04	0.19	2.52
8-Jul-13	GR1	0.26	0.26	0.14	0.22	0.09	0.98
8-Jul-13	GR2	0.27	0.23	0.54	0.28	0.00	1.33
25-Jul-13	GR1	0.15	0.07	0.11	0.04	0.00	0.38
25-Jul-13	GR2	0.19	0.01	0.77	0.05	0.11	1.13
9-Aug-13	GR1	0.34	0.37	1.47	0.15	0.05	2.39
9-Aug-13	GR2	0.62	0.09	0.56	2.87	0.00	4.15
23-Aug-13	GR1	0.31	0.70	0.62	0.03	0.38	2.03
23-Aug-13	GR2	0.54	0.24	0.80	0.03	0.00	1.61
6-Sep-13	GR1	0.30	0.09	0.66	0.06	0.19	1.29
6-Sep-13	GR2	0.34	0.11	0.87	0.55	0.27	2.14
23-Sep-13	GR1	0.15	0.17	0.15	0.31	0.40	1.18
23-Sep-13	GR2	0.25	0.10	0.09	0.08	0.37	0.88

Table A3-4f. Temporal and spatial variation in the taxonomic composition of phytoplankton biomass (mg wet weight/L) in samples collected in 2014 from the Grand River. Stations are in two locations in the lower river (G1 and G2).

Date Sampled	Site	Chloro-phyta	Chryso-phyta	Crypto-phyta	Cyano-phyta	Pyrro-phyta	Total Pp
24-Apr-14	GR 1	0.33	1.50	1.10	0.01	0.00	2.95
24-Apr-14	GR 2	0.63	1.24	2.22	0.03	0.30	4.41
19-May-14	GR 1	0.38	2.49	0.98	0.03	0.23	4.11
19-May-14	GR 2	0.45	1.41	1.72	0.19	0.00	3.77
4-Jun-14	GR 1	1.49	2.02	3.70	0.16	0.00	7.37
4-Jun-14	GR 2	4.38	6.97	5.76	0.44	0.41	17.96
18-Jun-14	GR 1	1.17	2.84	2.80	0.49	2.14	9.44
18-Jun-14	GR 2	0.61	2.07	1.19	0.04	0.75	4.67
2-Jul-14	GR 1	1.33	1.62	0.39	4.70	0.35	8.38
2-Jul-14	GR 2	4.92	2.44	2.79	9.06	0.18	19.39
24-Jul-14	GR 1	0.41	0.80	0.50	0.04	0.35	2.10
24-Jul-14	GR 2	0.46	0.69	1.10	0.09	0.02	2.36
5-Aug-14	GR 1	0.98	1.26	0.98	0.32	0.27	3.81
5-Aug-14	GR 2	0.70	1.95	1.02	1.11	0.13	4.90
19-Aug-14	GR 1	0.27	1.71	0.45	0.11	0.23	2.77
19-Aug-14	GR 2	1.03	1.84	4.54	1.75	0.49	9.64
2-Sep-14	GR 1	0.41	1.08	0.27	0.07	0.33	2.16
2-Sep-14	GR 2	0.68	1.14	1.05	0.25	0.06	3.18
17-Sep-14	GR 1	0.24	1.48	0.34	0.14	0.02	2.21
17-Sep-14	GR 2	0.37	1.73	0.32	0.47	0.41	3.30
30-Sep-14	GR 1	1.06	1.17	1.00	0.04	0.07	3.34
30-Sep-14	GR 2	2.57	1.26	0.91	0.16	0.78	5.69
17-Oct-14	GR 1	0.28	8.08	0.45	2.54	0.00	11.35
17-Oct-14	GR 2	0.30	3.57	0.76	11.63	0.00	16.26
4-Nov-14	GR 1	0.06	0.60	0.17	0.04	0.00	0.87
4-Nov-14	GR 2	0.08	0.34	0.26	0.08	0.00	0.75

Zooplankton

The zooplankton macro does not account for every organism found, such that we had to enter some species in a category that was most similar to their size and taxa. This is the list of organisms that were placed in the most similar category:

- *Bosminopsis deitersi* was entered as *Bosmina* spp.
- *Ectocyclops phaleratus* was entered as *Paracyclops fimbriatus poppei*
- *Daphnia rosea* was entered as *Daphnia pulex*
- *Macrothrix* spp. was entered as *Ilyocryptus* spp.
- *Macrocyclops albidus* was entered as Unidentified cyclopoids
- *Microcyclops rubellus* was entered as *Tropocyclops prasinus mexicanus*
- *Sida crystallina* was entered as *Diaphanosoma* spp.
- *Skistodiaptomus pygmaeus* was entered as *S. oregonensis*
- *Camptocercus* spp., *Kurzia latissima*, *Leydigia* spp., and *Alonella* spp. were entered in the Chydoridae family category.

Zooplankton data presented in the dataset (complete data included in files transferred to USEPA and are available from the PI for reference) include:

SITE INFO

CLADOCERANS (# counted in subsample)

Sample Date

Sample Location

Alona w/ eggs

Alona w/o eggs

Bosmina w/ eggs

Bosmina w/o eggs

Bythotrephes w/ eggs

Bythotrephes w/o eggs

Cercopagis w/ eggs

Cercopagis w/o eggs

Ceriodaphnia w/ eggs

Ceriodaphnia w/o eggs

Chydorus w/ eggs

Chydorus w/o eggs

D. ambigua w/ eggs

D. ambigua w/o eggs

D. galeata mendota w/ eggs

D. galeata mendota w/o eggs

D. longiremis w/ eggs

D. longiremis w/o eggs

D. lumholtzi

w/ eggs

D. lumholtzi

w/o eggs

D. parvula w/ eggs

D. parvula w/o eggs

D. pulex w/ eggs
D. pulex w/o eggs
D. retrocurva w/ eggs
D. retrocurva w/o eggs
D. schodleri w/ eggs
D. schodleri w/o eggs
Diaphanosoma w/ eggs
Diaphanosoma w/o eggs
Eubosmina w/ eggs
Eubosmina w/o eggs
Ilyocryptus w/ eggs
Ilyocryptus w/o eggs
Leptodora w/ eggs
Leptodora w/o eggs
Moina w/ eggs
Moina w/o eggs
Scapholeberis
w/ eggs
Scapholeberis
w/o eggs
Simocephalus
w/ eggs
Simocephalus
w/o eggs
Unidentified *Daphnia*
Unidentified Cladocerans

CLADOCERAN EGGS (# counted in subsample)

Bosmina eggs
Ceriodaphnia eggs
D. galeata mendota eggs
D. retrocurva eggs
Diaphanosoma eggs
Eubosmina eggs
Leptodora eggs
Loose *Bosmina* eggs
Loose Cladoceran eggs
Loose *Daphnia* eggs
Rare Cladoceran eggs
A. vernalis w/ eggs
A. vernalis w/o eggs
Canthocamptus w/ eggs
Canthocamptus w/o eggs

COPEPODS (# counted in subsample)

C. scutifer w/ eggs
C. scutifer w/o eggs
D. thomasi w/ eggs
D. thomasi w/o eggs
Epischura
Ergasilus w/ eggs
Ergasilus w/o eggs
E. agilis w/ eggs
E. agilis w/o eggs
E. speratus w/ eggs
E. speratus w/o eggs
E. affinis w/ eggs
E. affinis w/o eggs
L. ashlandi w/ eggs
L. ashlandi w/o eggs
L. minutus w/ eggs
L. minutus w/o eggs
L. sicilis w/ eggs
L. sicilis w/o eggs
L. siciloides w/ eggs
L. siciloides w/o eggs
L. macrurus w/ eggs
L. macrurus w/o eggs
M. edax w/ eggs
M. edax w/o eggs
O. birgei
w/ eggs
O. birgei
w/o eggs
P.f. poppei w/ eggs
P.f. poppei w/o eggs
S. oregonensis w/ eggs
S. oregonensis w/o eggs
S. pallidus
w/ eggs
S. pallidus
w/o eggs
S. reighardi w/ eggs
S. reighardi w/o eggs
T.p. mexicanus w/ eggs
T.p. mexicanus w/o eggs
Unidentified Calanoids

COPEPOD EGGS (# counted in subsample)	Unidentified Cyclopoids <i>A. vernalis</i> eggs <i>D. thomasi</i> eggs <i>E. affinis</i> eggs <i>L. ashlandi</i> eggs <i>L. minutus</i> eggs <i>L. sicilis</i> eggs <i>L. siciloides</i> eggs <i>M. edax</i> eggs <i>S. oregonensis</i> eggs Loose Copepod eggs Rare Copepod eggs
COPEPOD NAUPLII	Calanoid Nauplii <i>Canthocamptus</i> Nauplii Cylcopoid Nauplii
MISC. ROTIFERS AND VELIGERS	<i>Asplanchna</i> <i>Brachionus</i> <i>Dreissena</i> Veligers <i>Kellicottia</i> <i>Keratella</i> <i>Ploesoma</i> <i>Polyarthra</i> Unidentified Rotifers
Additional eggs	<i>Chydoridae</i> w/ eggs <i>Chydoridae</i> w/o eggs <i>Chydorus</i> eggs <i>Canthocamptus</i> eggs
Density Totals (#/l)	Cyclopoid Density Calanoid Density Nauplii Density Copepod Density Cladoceran Density Copepod egg Density Cladoceran egg Density Crustacean Density Crustacean+Nauplii Density Rotifer Density Veliger Density Total ZP Density.

Table A3-5a. Temporal and spatial variation in the taxonomic composition of zooplankton biomass (μg dry weight/L) in samples collected in 2011 from the Cuyahoga River and adjacent areas of Lake Erie. Stations are in the lower river (LR1 and LR2), the Old Channel (OC) of the river, in the Harbor inside the breakwall (H), and in Lake Erie outside the breakwall (OB).

BIOMASS TOTALS (ug/L)

Date Sampled	Site	Cyclo- poid	Cala- noid	Naup- lii	Cope. Egg	Clado- cera	Clad. Egg	Crusta- cea	Roti- fer	Veli- ger	Total Zp
4-May-11	H1	0.48	2.96	1.99	0.11	0.44	0.04	6.03	17.12	8.45	31.60
4-May-11	H2	3.23	9.89	8.46	0.08	1.76	0.09	23.52	24.27	102.63	150.43
4-May-11	LR2	7.96	0.55	0.30	0.07	1.54	0.82	11.53	16.60	0.08	28.21
10-May-11	H1	2.62	7.21	3.52	0.02	0.73	0.09	14.18	23.71	11.93	49.83
10-May-11	H2	1.63	3.57	5.24	0.03	0.08	0.00	10.57	3.04	2.51	16.12
10-May-11	LR1	0.24	0.03	0.57	0.02	0.05	0.01	0.94	59.03	0.03	60.00
10-May-11	LR2	0.73	0.17	0.98	0.02	0.10	0.04	2.07	29.19	0.00	31.26
10-May-11	OB1	4.41	2.83	4.82	0.10	0.65	0.12	12.93	16.21	43.69	72.83
10-May-11	OB2	6.40	9.19	3.29	1.55	3.19	0.98	24.63	5.80	19.90	50.33
10-May-11	OC1	1.01	0.43	2.13	0.05	0.08	0.04	3.75	34.96	0.09	38.80
10-May-11	OC2	0.75	4.71	1.28	0.24	0.14	0.11	7.25	15.10	0.03	22.38
19-May-11	H1	4.61	14.56	2.63	2.40	13.35	2.44	39.99	74.11	356.48	470.58
19-May-11	H2	1.84	3.80	1.84	0.31	6.00	0.68	14.53	22.23	182.12	218.89
19-May-11	LR1	2.35	0.00	0.20	0.44	45.45	8.86	57.86	18.15	0.00	76.01
19-May-11	LR2	0.90	0.10	0.85	0.04	66.42	8.20	76.54	117.50	0.33	194.37
19-May-11	OB1	2.24	3.28	3.72	0.64	11.58	0.56	22.02	7.18	3612.56	3641.76
19-May-11	OB2	1.90	1.01	1.82	0.06	6.91	0.03	11.73	4.34	609.09	625.17
19-May-11	OC2	1.64	0.43	1.25	0.14	4.38	0.30	8.15	83.50	0.28	91.93
2-Jun-11	H1	14.95	45.64	4.43	1.77	22.51	6.68	95.99	76.40	84.26	256.65
2-Jun-11	H2	18.78	87.26	7.19	0.24	9.46	2.10	125.03	81.65	42.05	248.72
2-Jun-11	LR1	0.87	0.68	0.02	0.01	0.31	0.18	2.07	32.02	0.02	34.11
2-Jun-11	LR2	0.36	0.25	0.36	0.01	0.53	0.16	1.67	44.26	0.05	45.98
2-Jun-11	OB1	40.30	113.67	13.78	0.04	15.40	1.20	184.39	90.88	125.85	401.11
2-Jun-11	OC2	7.66	78.78	1.46	4.90	19.32	9.31	121.43	48.48	3.61	173.53
15-Jun-11	H1	12.72	8.10	7.06	0.03	119.93	2.23	150.07	15.18	23.38	188.63
15-Jun-11	H2	16.01	21.35	4.62	1.17	88.92	1.89	133.96	10.74	7.78	152.48
15-Jun-11	LR1	0.26	0.21	0.06	0.00	0.62	0.09	1.24	3.72	0.02	4.98
15-Jun-11	LR2	0.36	0.15	0.02	0.05	0.69	0.27	1.54	5.36	0.01	6.91
15-Jun-11	OB1	31.32	27.00	4.98	1.11	134.81	4.00	203.22	8.52	14.60	226.34
15-Jun-11	OB2	52.43	31.35	4.75	10.59	687.61	10.51	797.24	4.25	3.34	804.83
15-Jun-11	OC1	39.19	52.63	22.83	2.41	106.75	34.32	258.12	35.95	15.57	309.65
15-Jun-11	OC2	2.95	4.24	1.68	0.08	2.76	0.45	12.19	4.91	2.62	19.72
30-Jun-11	H1	92.60	30.63	11.60	6.82	130.39	29.11	301.15	26.90	735.42	1063.47
30-Jun-11	H2	47.74	47.62	10.89	7.26	96.26	16.08	225.84	20.84	429.02	675.71
30-Jun-11	LR1	0.05	0.01	0.00	0.00	0.31	0.02	0.40	8.19	0.00	8.59
30-Jun-11	LR1 B	0.03	0.02	0.00	0.00	0.14	0.02	0.21	5.29	0.01	5.51
30-Jun-11	LR2	0.29	0.01	0.18	0.13	0.36	0.06	1.03	2.62	0.18	3.83
30-Jun-11	LR2 B	0.25	0.02	0.76	0.02	0.38	0.18	1.61	4.09	0.00	5.71
30-Jun-11	OB1	386.59	326.41	56.08	29.03	662.39	159.77	1620.28	154.35	379.74	2154.36
30-Jun-11	OB2	340.85	106.81	50.89	12.59	546.78	122.46	1180.37	59.87	28.13	1268.36
30-Jun-11	OC2	1.45	0.26	1.80	0.01	8.59	1.00	13.11	6.69	9.09	28.90

18-Jul-11	H1	20.59	23.94	8.12	2.56	65.82	18.39	139.42	263.40	125.23	528.04
18-Jul-11	H2	10.11	39.55	7.94	0.69	142.94	29.10	230.33	163.87	129.18	523.38
18-Jul-11	LR1	0.72	1.39	0.02	0.01	7.38	0.38	9.91	19.74	0.04	29.69
18-Jul-11	LR2	20.82	1.49	6.43	5.84	25.51	3.71	63.80	85.25	0.00	149.05
18-Jul-11	OB1	69.58	146.18	13.71	16.25	289.83	63.30	598.86	341.74	39.30	979.90
18-Jul-11	OB2	38.43	89.21	29.23	5.82	232.19	32.86	427.73	204.48	5.20	637.40
18-Jul-11	OC1	380.76	24.61	38.74	12.51	529.35	72.30	1058.28	130.99	18.20	1207.46
18-Jul-11	OC2	22.60	12.55	7.16	9.95	204.16	29.26	285.67	388.13	34.57	708.37
11-Aug-11	H1	11.08	8.57	9.48	0.25	23.29	5.68	58.35	12.61	552.18	623.15
11-Aug-11	H2	5.75	3.14	5.90	0.39	10.62	1.82	27.62	92.72	177.88	298.21
11-Aug-11	LR1	0.10	0.62	0.07	0.02	0.26	0.02	1.09	12.33	0.01	13.43
11-Aug-11	LR2	0.99	0.62	0.30	0.14	5.23	1.09	8.42	11.90	0.00	20.32
11-Aug-11	OB1	38.09	30.04	20.30	1.31	67.06	7.29	164.29	20.23	146.45	330.97
11-Aug-11	OB2	12.85	4.74	15.57	0.28	16.53	1.98	51.96	26.43	46.73	125.12
11-Aug-11	OC1	289.60	3.75	30.42	1.69	288.38	63.28	677.12	5.63	19.46	702.21
11-Aug-11	OC2	12.84	1.89	8.64	0.05	31.80	4.30	59.51	11.75	9.82	81.08
19-Aug-11	H1	50.74	22.35	14.77	9.19	52.68	13.88	163.61	615.88	113.75	893.23
19-Aug-11	H2	4.79	11.23	2.79	0.29	18.90	4.99	42.99	473.43	249.87	766.29
19-Aug-11	LR1	0.20	0.08	0.55	0.02	0.56	0.09	1.51	20.98	0.04	22.53
19-Aug-11	LR2	0.42	0.21	0.40	0.01	0.45	0.11	1.62	19.36	0.22	21.20
19-Aug-11	OB1	5.48	6.29	4.66	0.75	18.76	5.85	41.79	403.55	608.28	1053.62
19-Aug-11	OB2	2.90	13.71	6.48	0.35	34.34	2.43	60.19	179.22	708.88	948.29
29-Aug-11	H1	9.60	3.57	11.08	1.16	45.72	4.79	75.92	3.82	7.87	87.61
29-Aug-11	H2	3.22	3.22	0.65	1.06	23.31	3.35	34.84	0.53	0.15	35.52
29-Aug-11	LR1	0.08	0.15	0.03	0.01	0.65	0.05	0.98	0.54	0.01	1.53
29-Aug-11	LR2	0.79	0.10	0.29	0.18	0.75	0.17	2.28	0.51	0.01	2.80
29-Aug-11	OB1	18.89	34.96	4.06	6.97	88.13	17.88	170.98	1.61	5.77	178.36
29-Aug-11	OB2	34.79	63.54	2.57	1.94	72.98	17.10	192.91	2.80	6.15	201.87
29-Aug-11	OC1	143.31	0.61	47.01	0.00	51.08	4.04	246.05	0.56	0.00	246.61
29-Aug-11	OC2	50.06	1.59	2.54	12.94	115.67	11.61	194.40	0.27	0.45	195.12
12-Sep-11	H1	16.63	112.12	11.78	6.75	39.85	12.47	199.59	1.85	3.91	205.35
12-Sep-11	H2	6.47	17.46	6.87	0.62	14.10	1.44	46.96	0.93	1.87	49.76
12-Sep-11	LR1	1.75	0.96	1.08	0.22	128.43	6.34	138.84	0.83	0.08	139.74
12-Sep-11	LR2	0.76	0.13	0.54	0.10	40.98	2.65	45.16	0.69	0.05	45.90
12-Sep-11	OB1	26.47	37.59	12.25	2.32	25.34	2.38	106.44	1.48	3.49	111.41
12-Sep-11	OB2	18.04	12.92	2.71	0.39	25.98	2.20	62.23	0.12	3.67	66.01
12-Sep-11	OC1	309.02	6.36	28.98	0.40	113.67	20.14	478.57	0.00	0.00	478.57
12-Sep-11	OC2	12.51	3.31	1.59	1.41	28.92	2.59	50.33	0.36	0.04	50.73
29-Sep-11	H1	1.78	58.50	3.39	6.06	71.62	30.59	171.93	56.42	263.55	491.90
29-Sep-11	H2	17.00	33.75	6.38	1.20	55.30	12.92	126.56	40.18	1009.40	1176.14
29-Sep-11	LR1	0.16	0.12	0.13	0.00	0.09	0.02	0.53	6.90	0.02	7.46
29-Sep-11	LR2	0.08	0.02	0.22	0.01	0.05	0.01	0.39	9.53	0.02	9.94
29-Sep-11	OB1	14.36	41.88	7.26	3.73	76.55	17.42	161.20	49.42	1080.15	1290.77
29-Sep-11	OB2	62.26	43.15	2.95	1.80	131.99	22.89	265.05	47.81	487.86	800.71
29-Sep-11	OC1	63.48	5.93	3.99	0.36	37.00	6.39	117.15	4.34	0.21	121.69
29-Sep-11	OC2	1.60	0.18	0.32	0.04	2.18	0.20	4.53	6.03	0.08	10.64
28-Oct-11	H1	1.28	3.64	0.27	0.00	6.93	0.36	12.48	0.29	0.25	13.03
28-Oct-11	H2	14.10	18.20	0.75	0.07	28.70	0.67	62.54	0.37	1.10	64.02
28-Oct-11	LR1	1.23	3.26	0.21	0.12	6.71	0.14	11.67	0.28	0.14	12.09
28-Oct-11	LR2	0.15	0.17	0.06	0.01	0.66	0.02	1.08	0.07	0.00	1.15
28-Oct-11	OB1	7.82	15.97	0.74	0.44	54.56	1.10	80.63	0.34	0.91	81.89
28-Oct-11	OB2	18.84	14.97	1.26	0.38	51.74	0.68	87.87	0.83	0.31	89.01
28-Oct-11	OC2	0.34	0.15	0.07	0.03	0.61	0.10	1.30	0.04	0.01	1.35

Table A3-5b. Temporal and spatial variation in the taxonomic composition of zooplankton biomass (μg dry weight/L) in samples collected in 2012 from the Cuyahoga River and adjacent areas of Lake Erie. Stations are in the lower river (LR1 and LR2), the Old Channel (OC) of the river, in the Harbor inside the breakwall (H), and in Lake Erie outside the breakwall (OB).

BIOMASS TOTALS ($\mu\text{g/L}$)											
Date Sampled	Site	Cyclo- poid	Calanoid	Nauplii	Cope. eggs	Cladoceran	Clad. egg	Crustacean	Rotifer	Veliger	Total Zp
19-Apr-12	H1	0.64	5.01	5.09	0.01	9.84	1.52	22.10	102.94	524.93	650
19-Apr-12	H2	2.97	6.33	5.00	0.04	3.53	1.16	19.08	48.76	187.52	255
19-Apr-12	LR2	0.05	0.02	0.01	0.01	0.03	0.01	0.12	4.27	0.57	5
19-Apr-12	OB1	40.79	86.78	1.99	5.56	46.73	20.40	202.25	55.41	59.40	317
19-Apr-12	OB2	6.82	14.58	6.61	0.39	14.20	6.64	49.24	110.84	107.77	268
19-Apr-12	OC2	0.21	0.13	0.35	0.02	0.10	0.03	0.85	10.65	2.43	14
2-May-12	H2	26.87	21.64	1.68	0.11	6.55	2.27	59.11	7.24	12.23	79
2-May-12	LR1	0.66	0.00	0.06	0.00	9.94	1.74	12.40	5.43	0.00	18
2-May-12	LR2	0.85	0.14	0.83	0.00	0.41	0.09	2.32	27.08	0.00	29
2-May-12	OB2	8.04	31.63	7.74	0.12	20.48	0.56	68.55	5.61	15.40	90
2-May-12	OC1	0.15	0.09	0.42	0.01	0.15	0.05	0.87	9.77	0.57	11
15-May-12	LR2S	0.85	0.02	0.26	0.05	1.74	0.72	3.66	6.01	7.81	17
15-May-12	H1	49.95	185.30	8.98	0.52	92.82	32.85	370.42	100.64	69.90	541
15-May-12	H2	12.30	26.29	4.45	0.04	28.76	6.60	78.45	57.43	75.68	212
15-May-12	LR1H	0.04	0.01	0.00	0.01	0.07	0.01	0.15	3.37	0.00	4
15-May-12	LR1R	0.03	0.03	0.00	0.01	0.04	0.00	0.11	2.71	0.00	3
15-May-12	LR2I	1.57	0.03	0.30	0.00	10.66	3.84	16.40	4.77	0.90	22
15-May-12	OB1	73.16	228.46	17.73	0.35	173.43	54.93	548.06	59.01	28.24	635
15-May-12	OB2	73.46	52.84	4.07	1.35	35.37	10.66	177.75	46.39	19.43	244
15-May-12	OC1	5.70	7.27	6.62	0.03	23.20	5.12	47.95	72.24	11.37	132
30-May-12	H1	4.54	21.16	6.52	0.05	86.09	9.81	128.18	90.03	26.37	245
30-May-12	H2	4.89	51.94	4.42	0.50	42.30	7.01	111.07	56.53	55.04	223
30-May-12	LR1	0.32	1.75	0.38	0.00	14.30	1.24	17.99	11.66	4.59	34
30-May-12	LR2	0.36	0.97	0.24	0.00	4.08	0.41	6.07	138.33	41.69	186
30-May-12	OB1	7.54	53.85	11.19	1.39	56.87	5.02	135.87	43.12	4.73	184
30-May-12	OB2	16.42	266.48	4.39	23.70	182.26	44.94	538.18	19.60	7.42	565
30-May-12	OC1	22.59	113.84	6.55	5.09	94.10	28.12	270.29	48.66	5.16	324
15-Jun-12	H1	29.04	38.63	6.85	0.96	122.17	11.86	210.97	122.90	314.06	648
15-Jun-12	H2	17.59	46.51	7.39	0.29	72.13	6.97	150.88	46.62	161.35	359
15-Jun-12	LR1	2.67	3.45	0.61	0.02	8.87	0.48	16.12	184.82	9.28	210
15-Jun-12	OB1	20.96	30.89	12.95	0.48	62.19	1.53	129.01	52.64	24.12	206
15-Jun-12	OB2	39.26	41.71	7.66	1.73	113.69	2.02	206.10	27.76	144.79	379
15-Jun-12	OC1	82.03	2.13	8.01	0.08	60.55	3.40	156.21	284.73	139.52	580
15-Jun-12	LR2	0.48	0.13	0.06	0.00	0.47	0.03	1.19	549.66	8.92	560
28-Jun-12	H1	100.37	129.66	36.99	9.62	225.63	62.79	565.18	273.32	662.00	1501
28-Jun-12	H2	16.68	18.68	14.28	1.38	53.54	11.60	116.23	153.53	130.96	401
28-Jun-12	LR1	0.08	0.08	0.03	0.01	0.08	0.07	0.38	41.10	0.12	42
28-Jun-12	LR2 s	11.28	0.00	2.86	0.00	27.53	6.11	47.78	36x10 ³	0.00	36160

28-Jun-12	OB1	34.42	74.48	35.95	4.61	205.50	33.32	388.29	28.76	118.95	536
28-Jun-12	OB2	21.28	151.81	9.23	6.68	78.40	11.78	279.18	14.60	60.29	354
28-Jun-12	OC1	452.15	293.25	55.82	142.80	613.28	190.25	1747.55	64.59	106.16	1918
10-Jul-12	H1	53.51	73.47	19.19	9.42	95.80	50.72	302.11	325.14	629.05	1256
10-Jul-12	LR1	2.34	0.36	1.07	0.02	4.57	0.20	8.57	159.96	0.42	169
10-Jul-12	LR2	2.18	0.01	0.50	0.00	1.40	0.39	4.48	447.28	0.00	452
10-Jul-12	OC1	61.58	10.60	53.46	4.39	211.66	32.57	374.25	105.54	58.27	538
12-Jul-12	H2	14.44	38.99	9.28	1.70	93.10	27.32	184.82	64.02	497.79	747
12-Jul-12	OB1	12.09	63.54	18.91	4.43	106.29	27.59	232.86	120.65	2415.25	2769
12-Jul-12	OB2	4.46	23.88	6.74	2.03	95.86	11.51	144.48	44.19	276.48	465
25-Jul-12	H1	21.30	36.44	30.16	1.61	25.62	4.32	119.46	47.96	117.43	285
25-Jul-12	H2	28.53	42.86	35.87	4.13	54.14	12.07	177.60	144.66	134.18	456
25-Jul-12	LR1	0.68	1.05	0.09	0.01	0.73	0.01	2.57	42.69	0.00	45
25-Jul-12	LR2s	3.26	0.09	0.38	0.00	0.79	0.16	4.69	449.58	0.06	454
25-Jul-12	OB1	30.89	81.18	13.39	3.73	76.33	7.93	213.45	35.97	104.45	354
25-Jul-12	OB2	18.63	109.81	13.93	1.66	37.23	6.24	187.50	77.05	37.08	302
25-Jul-12	OC1	38.82	5.68	22.46	3.63	82.63	12.76	165.98	14.10	32.54	213
7-Aug-12	H1	28.05	67.39	20.51	2.84	92.38	16.46	227.63	332.47	301.32	861
7-Aug-12	H2	40.08	124.84	11.13	8.27	48.83	16.56	249.70	67.32	97.87	415
7-Aug-12	LR1	0.08	0.68	0.01	0.00	0.16	0.01	0.94	23.02	0.01	24
7-Aug-12	LR2	1.16	0.12	1.59	0.00	1.00	0.10	3.96	334.83	0.00	339
7-Aug-12	OB1	31.08	130.07	12.28	3.78	61.05	20.92	259.18	93.17	150.35	503
7-Aug-12	OB2	55.28	209.32	9.08	11.54	67.69	19.70	372.61	30.74	402.62	806
7-Aug-12	OC1	112.27	11.52	60.40	1.45	122.88	29.66	338.17	218.98	75.81	633
22-Aug-12	H1	43.86	58.02	23.48	11.46	84.74	26.76	248.33	632.69	756.61	1638
22-Aug-12	H2	69.04	39.39	13.40	8.84	60.38	16.05	207.10	271.66	95.44	574
22-Aug-12	LR1	0.15	0.23	0.04	0.00	0.22	0.06	0.69	199.81	0.05	201
22-Aug-12	LR2	0.52	0.04	0.12	0.00	0.04	0.01	0.73	83.15	0.02	84
22-Aug-12	OB1	23.25	34.77	13.59	3.19	30.01	9.22	114.03	140.89	189.57	444
22-Aug-12	OB2	30.04	39.99	6.93	1.49	48.49	8.98	135.91	73.66	15.34	225
22-Aug-12	OC1	44.73	4.04	44.82	0.39	128.84	15.01	237.83	216.53	31.59	486
7-Sep-12	H1	242.94	50.93	20.60	68.92	2094.79	122.58	2600.76	89.30	246.20	2936
7-Sep-12	H2	52.94	22.87	11.39	1.82	365.74	153.67	608.44	83.90	106.92	799
7-Sep-12	LR1	0.31	0.24	0.05	0.02	3.07	0.81	4.50	1.57	0.05	6
7-Sep-12	LR2m	0.63	0.09	0.57	0.01	0.49	0.09	1.91	14.17	0.14	16
7-Sep-12	OB1	91.61	36.37	61.05	9.61	118.14	36.80	353.58	228.67	64.48	647
7-Sep-12	OB2	96.87	91.10	32.09	7.04	381.95	90.29	699.34	130.36	53.07	883
7-Sep-12	OC1	158.39	10.59	22.56	6.74	158.25	63.05	419.57	11.54	0.00	431
20-Sep-12	H1	14.05	51.10	3.88	0.66	82.36	34.60	186.66	359.75	932.80	1479
20-Sep-12	H2	3.02	7.92	3.52	0.50	20.63	6.59	42.18	477.97	236.90	757
20-Sep-12	LR1	1.15	0.26	0.27	0.01	1.17	0.13	2.98	9.19	0.01	12
20-Sep-12	LR2 m	0.23	0.29	0.17	0.00	0.18	0.06	0.93	21.41	0.34	23
20-Sep-12	OB1	3.55	20.66	2.96	0.97	26.97	8.56	63.68	138.09	199.69	401
20-Sep-12	OB2	4.78	34.16	4.57	1.25	72.33	21.00	138.09	420.26	544.19	1103
20-Sep-12	OC1	75.27	32.41	44.54	3.00	75.84	20.93	251.99	161.26	25.03	438
9-Oct-12	H2	7.89	74.66	8.97	0.94	41.48	7.22	141.16	285.21	25.56	452

9-Oct-12	LR1	0.02	0.12	0.02	0.00	0.07	0.02	0.24	14.69	0.01	15
9-Oct-12	LR2	0.18	0.04	0.04	0.00	0.18	0.03	0.48	1.02	0.00	1
9-Oct-12	OB1	11.10	25.23	7.02	0.13	123.36	15.81	182.66	173.17	107.50	463
9-Oct-12	OB2	20.16	151.80	5.46	4.54	105.59	34.45	322.01	363.36	284.46	970
9-Oct-12	OC1	154.28	19.18	4.45	0.00	46.34	15.56	239.81	9.40	0.47	250
9-Oct-12	H1	2.49	7.26	1.72	0.00	18.91	2.00	32.41	126.64	120.12	279

Table A3-5c. Temporal and spatial variation in the taxonomic composition of zooplankton biomass (μg dry weight/L) in samples collected in 2013 from the Cuyahoga River and adjacent areas of Lake Erie. Stations are in the lower river (LRO, LR1 and LR2), the Old Channel (OC) of the river, in the Harbor inside the breakwall (H), and in Lake Erie outside the breakwall (OB).

BIOMASS TOTALS ($\mu\text{g/L}$)											
Date Sampled	Site	Cyclo-poid	Cala-noid	Naup-lii	Cope. Egg	Clado-cera	Clad. Egg	Crusta-cea	Roti-fer	Veli-ger	Total Zp
18-Apr-13	H1	4.11	0.25	1.62	0.05	0.49	0.16	6.76	5.41	0.04	12.21
18-Apr-13	LR0	0.21	0.02	0.02	0.01	0.00	0.01	0.27	0.00	0.00	0.27
18-Apr-13	LR2	3.12	0.00	1.30	0.00	0.09	0.02	4.71	156.94	0.00	161.65
18-Apr-13	LR2 Itb	4.12	0.02	2.68	0.00	0.05	0.03	7.01	73.89	0.00	80.90
18-Apr-13	OC2	3.35	0.00	2.41	0.00	0.59	0.16	6.53	93.97	0.00	100.50
9-May-13	H1	10.74	57.32	4.83	0.82	13.44	3.34	90.48	241.29	67.01	398.78
9-May-13	H2	3.20	5.56	5.29	0.13	1.54	0.52	16.24	71.32	24.50	112.06
9-May-13	LR1	0.05	0.07	0.02	0.00	0.01	0.01	0.17	1.49	0.00	1.67
9-May-13	LR2	0.14	0.00	0.14	0.00	0.03	0.01	0.34	56.33	0.01	56.69
9-May-13	OB1	9.51	5.87	4.94	0.44	6.69	0.94	28.39	87.49	63.19	179.07
9-May-13	OB2	3.74	3.00	1.72	0.19	6.82	2.96	18.43	20.69	2.90	42.02
9-May-13	OC1	19.74	21.61	1.10	7.12	1.99	1.55	53.11	15.70	0.00	68.81
9-May-13	OC2	2.62	22.88	1.11	0.28	1.56	0.70	29.14	21.16	0.00	50.30
16-May-13	H1	5.75	19.36	7.83	0.19	8.63	1.83	43.59	179.01	122.15	344.75
16-May-13	H2	2.21	4.25	3.06	0.06	2.47	0.39	12.46	462.12	418.12	892.70
16-May-13	LR1	0.04	0.06	0.01	0.00	0.03	0.02	0.17	0.92	0.06	1.15
16-May-13	LR2	0.03	0.00	0.01	0.00	0.02	0.01	0.07	1.43	0.00	1.50
16-May-13	OB1	9.79	20.76	9.65	1.46	25.89	6.25	73.81	1416.29	356.93	1847.03
16-May-13	OB2	16.60	27.19	8.28	0.30	20.29	6.98	79.64	1326.57	241.13	1647.34
16-May-13	OC1	5.51	5.34	2.14	0.47	0.73	0.37	14.55	25.30	0.02	39.87
30-May-13	H1	46.72	275.24	7.30	3.88	32.64	9.22	375.00	23.70	74.95	473.65
30-May-13	H2	10.61	139.80	2.69	0.00	10.16	2.20	165.47	9.61	141.93	317.00
30-May-13	LR1	0.62	2.64	0.12	0.00	1.90	0.19	5.48	2.64	0.37	8.49
30-May-13	LR2	0.18	0.10	0.09	0.00	0.14	0.01	0.53	1.05	0.06	1.63
30-May-13	OB1	39.25	390.44	33.77	0.62	123.55	19.87	607.50	56.30	304.13	967.93
30-May-13	OB2	24.99	83.91	15.17	0.80	39.23	1.29	165.39	29.91	56.86	252.16
30-May-13	OC1	7.65	94.19	8.10	0.79	27.05	6.44	144.22	15.76	1.52	161.51

24-Jun-13	H1	31.54	79.53	15.06	0.67	109.35	15.98	252.12	63.84	64.86	380.82
24-Jun-13	H2	14.81	16.21	10.10	0.10	34.79	3.73	79.74	169.20	149.93	398.87
24-Jun-13	LR1	1.33	1.60	0.66	0.01	2.38	0.33	6.34	7.73	2.69	16.76
24-Jun-13	LR2	16.21	11.77	0.66	2.12	32.74	9.80	73.32	2.29	0.78	76.39
24-Jun-13	OB1	34.95	87.12	23.56	9.98	225.38	14.34	395.33	96.86	4.03	496.23
24-Jun-13	OB2	44.83	87.15	55.85	2.63	417.84	34.41	642.71	50.69	7.73	701.13
24-Jun-13	OC1	182.03	6.88	25.33	9.99	61.88	7.81	293.92	0.03	0.00	293.95
9-Jul-13	H1	52.29	175.70	28.37	10.10	218.86	23.84	509.15	18.45	16.52	544.12
9-Jul-13	H2	9.74	12.07	18.51	1.40	43.73	3.86	89.31	60.51	186.28	336.11
9-Jul-13	LR1	0.16	0.27	0.01	0.01	0.36	0.05	0.86	11.21	0.01	12.07
9-Jul-13	LR2	0.87	0.32	1.64	0.04	2.21	0.15	5.60	41.95	3.19	50.74
9-Jul-13	OB1	101.69	434.47	35.83	35.99	700.65	54.14	1362.77	53.71	10.74	1427.22
9-Jul-13	OB2	51.15	209.77	38.16	6.53	485.26	7.41	798.27	17.59	6.33	822.20
9-Jul-13	OC1	636.04	1.84	68.79	21.71	365.58	72.51	1166.48	153.96	9.48	1329.91
26-Jul-13	H1	21.24	79.85	15.40	3.82	42.90	6.53	169.76	46.01	70.52	286.28
26-Jul-13	H2	90.43	146.97	8.57	2.57	123.80	33.36	405.85	44.90	202.48	653.23
26-Jul-13	LR0	0.24	0.09	0.04	0.01	0.20	0.04	0.62	438.23	0.03	438.88
26-Jul-13	LR1h	0.30	0.04	0.09	0.00	0.27	0.09	0.79	720.69	0.01	721.49
26-Jul-13	LR2	0.10	0.08	0.10	0.00	0.05	0.01	0.36	41.26	0.33	41.96
26-Jul-13	OB1	31.30	169.40	16.12	4.52	117.79	21.93	361.05	35.01	44.81	440.88
26-Jul-13	OB2	96.15	151.53	11.61	9.01	177.72	33.18	479.20	60.83	497.30	1037.33
26-Jul-13	OC1	288.98	14.60	50.19	11.76	831.88	97.76	1295.17	66.30	1.34	1362.81
7-Aug-13	H1	6.34	4.32	6.32	0.16	12.27	2.32	31.74	628.86	392.18	1052.78
7-Aug-13	H2	6.07	41.47	14.08	2.13	100.27	8.55	172.57	139.50	177.86	489.93
7-Aug-13	LR1	0.22	0.01	0.02	0.01	0.04	0.03	0.33	20.75	0.00	21.08
7-Aug-13	LR2	1.27	0.01	0.78	0.05	2.47	0.40	5.01	10.47	0.07	15.55
7-Aug-13	OB1	12.96	42.89	19.52	4.49	41.65	5.89	127.40	227.40	382.61	737.40
7-Aug-13	OB2	10.15	98.21	7.21	7.18	211.91	9.96	344.64	83.36	98.69	526.69
7-Aug-13	OC1	54.37	4.10	25.56	0.44	86.95	15.00	186.42	32.88	7.96	227.26
22-Aug-13	H1	24.45	16.09	3.97	0.00	38.19	18.82	101.56	108.91	327.19	537.67
22-Aug-13	H2	3.89	4.79	7.86	0.43	5.33	0.75	23.11	59.35	90.43	172.89
22-Aug-13	LR1	0.14	0.00	0.02	0.04	0.07	0.06	0.34	25.11	0.04	25.50
22-Aug-13	LR2	1.37	0.00	0.68	0.08	0.38	0.06	2.59	15.63	0.26	18.47
22-Aug-13	OB1	5.56	8.47	7.40	1.02	15.22	1.93	39.59	38.15	63.51	141.25
22-Aug-13	OB2	5.73	2.74	10.56	0.68	1.63	0.13	21.49	14.89	34.40	70.78
22-Aug-13	OC1	28.98	0.27	53.66	0.00	64.48	6.48	153.87	41.63	10.80	206.30
5-Sep-13	LR0	0.04	0.00	0.00	0.00	0.04	0.01	0.09	14.08	0.00	14.17
5-Sep-13	LR1	0.18	0.01	0.02	0.01	0.02	0.02	0.27	13.62	0.00	13.89
5-Sep-13	LR2	0.34	0.00	0.84	0.00	0.21	0.04	1.43	4.01	0.00	5.44
5-Sep-13	OC1	11.83	0.00	28.52	0.00	28.19	1.40	69.94	49.86	2.87	122.66
10-Sep-13	H1	5.09	2.82	4.87	0.61	32.94	5.25	51.58	197.86	29.30	278.74
10-Sep-13	H2	3.89	7.48	1.99	0.54	45.41	12.09	71.40	169.85	41.63	282.88
10-Sep-13	OB1	14.01	8.81	3.85	1.49	30.19	9.30	67.66	163.23	88.65	319.53
10-Sep-13	OB2	5.66	3.90	1.39	1.31	10.75	3.89	26.92	26.54	19.04	72.50
16-Sep-13	LR0	0.06	0.00	0.00	0.00	0.17	0.04	0.27	4.50	0.01	4.79

16-Sep-13	LR1	0.47	0.00	0.17	0.01	0.15	0.05	0.86	4.43	0.01	5.30
16-Sep-13	LR2	0.26	0.02	0.30	0.02	0.22	0.02	0.84	3.30	0.01	4.16
16-Sep-13	OC1	10.78	0.18	13.06	0.34	28.45	5.04	57.86	4.79	0.10	62.74
2-Oct-13	H1	8.79	12.98	17.52	0.41	54.93	7.10	101.73	232.31	98.37	432.41
2-Oct-13	H2	7.59	12.08	6.66	0.90	23.59	5.86	56.66	98.12	140.42	295.20
2-Oct-13	LR0	0.05	0.09	0.01	0.00	0.26	0.05	0.46	16.22	0.10	16.78
2-Oct-13	LR1	0.16	0.03	0.00	0.04	0.03	0.01	0.28	12.08	0.04	12.40
2-Oct-13	LR2	0.32	0.00	0.18	0.01	0.03	0.01	0.55	14.16	0.00	14.71
2-Oct-13	OB1	19.28	10.27	17.83	1.81	47.20	7.15	103.54	141.60	27.64	272.77
2-Oct-13	OB2	14.13	21.57	12.05	0.76	64.51	15.63	128.65	109.17	29.16	266.98
2-Oct-13	OC1	115.65	5.44	21.64	0.08	158.81	30.44	332.06	34.80	24.00	390.87

Table A3-5d. Temporal and spatial variation in the taxonomic composition of zooplankton biomass (μg dry weight/L) in samples collected in 2014 from the Cuyahoga River. Stations are in the lower river (LRO, LR1 and LR2), the Old Channel (OC) of the river, and in the Harbor inside the breakwall (H). Results from OC and H are not included in this table.

BIOMASS TOTALS ($\mu\text{g/L}$)											
Date Sampled	Site	Cyclo-poid	Calanoid	Nauplii	Cope. Egg	Cladocera	Clad. Egg	Crustacea	Rotifer	Veliger	Total Zp
20-May-14	LR 0	0.17	0.00	0.02	0.00	0.53	0.00	0.72	0.21	0.00	0.9
20-May-14	LR 1	0.14	0.00	0.08	0.00	1.08	0.03	1.33	1.13	0.00	2.4
20-May-14	LR 2	0.64	0.00	1.08	0.00	3.87	0.09	5.69	41.57	0.00	47.2
30-May-14	LR 1	0.16	0.00	0.19	0.01	0.94	0.11	1.41	18.13	0.63	20.1
30-May-14	LR 2	0.13	0.00	0.24	0.01	0.48	0.11	0.98	8.55	0.06	9.5
19-Jun-14	LR 1	1.06	0.28	0.02	0.10	0.42	0.14	2.01	0.24	0.00	2.2
19-Jun-14	LR 2	0.45	0.06	0.09	0.07	0.14	0.05	0.89	3.22	0.00	4.1
1-Jul-14	LR 1	0.01	0.00	0.00	0.00	0.04	0.00	0.05	0.05	0.00	0.1
1-Jul-14	LR 2	0.06	0.01	0.05	0.01	0.05	0.06	0.24	5.60	0.01	5.8
22-Jul-14	LR 0	0.01	0.02	0.00	0.00	0.03	0.00	0.07	0.08	0.01	0.1
22-Jul-14	LR 1	0.05	0.01	0.02	0.00	0.07	0.01	0.16	6.78	0.00	6.9
22-Jul-14	LR 2	0.08	0.00	0.16	0.00	0.43	0.06	0.74	8.13	3.99	12.8
8-Aug-14	LR 0	0.00	0.02	0.00	0.00	0.22	0.01	0.26	14.45	0.74	15.4
8-Aug-14	LR 1	0.03	0.01	0.00	0.00	0.05	0.01	0.10	34.52	0.01	34.6
8-Aug-14	LR 2	0.14	0.01	0.05	0.04	0.05	0.01	0.29	39.64	0.14	40.0
21-Aug-14	LR 0	0.08	0.00	0.01	0.00	0.07	0.01	0.18	0.67	0.00	0.8
21-Aug-14	LR 1	0.04	0.00	0.01	0.00	0.06	0.00	0.11	0.74	0.00	0.8
21-Aug-14	LR 2	0.86	0.22	0.56	0.00	3.21	0.39	5.30	29.34	0.41	35.0
5-Sep-14	LR 1	0.04	0.00	0.00	0.00	0.01	0.01	0.08	0.66	0.00	0.7
5-Sep-14	LR 2	0.03	0.00	0.20	0.00	0.04	0.01	0.29	2.29	0.01	2.5
18-Sep-14	LR 0	0.03	0.04	0.01	0.00	0.01	0.01	0.10	0.76	0.00	0.8
18-Sep-14	LR 1	0.02	0.00	0.01	0.01	0.03	0.02	0.08	6.43	0.00	6.5
18-Sep-14	LR 2	0.09	0.00	0.10	0.01	0.03	0.01	0.23	2.57	0.00	2.8
9-Oct-14	LR 0	0.00	0.02	0.00	0.00	0.05	0.00	0.08	0.60	0.00	0.6
9-Oct-14	LR 1	0.03	0.00	0.00	0.00	0.07	0.01	0.12	0.47	0.00	0.5
9-Oct-14	LR 2	0.16	0.00	0.02	0.01	0.08	0.01	0.29	0.13	0.00	0.4
22-Oct-14	LR 1	0.14	0.03	0.01	0.01	0.42	0.06	0.67	2.15	0.00	2.8
22-Oct-14	LR 2	0.50	0.21	0.17	0.01	3.40	0.33	4.64	1.52	0.00	6.1

Table A3-5e. Temporal and spatial variation in the taxonomic composition of zooplankton biomass (μg dry weight/L) in samples collected in 2013 from two stations in the Grand River (GR1 and GR2).

BIOMASS TOTALS ($\mu\text{g/L}$)											
Date Sampled	Site	Cyclo-poid	Cala-noid	Naup- lii	Cope. Egg	Clado- cera	Clad. Egg	Crusta- cea	Roti- fer	Veli- ger	Total Zp
17-Apr-13	GR 1	3.20	0.24	0.54	0.26	0.91	0.15	5.32	15.08	0.00	20.41
17-Apr-13	GR 2	3.83	0.12	2.51	0.20	0.72	0.23	7.63	52.66	0.00	60.29
8-May-13	GR 1	0.05	0.00	0.10	0.00	0.14	0.04	0.32	7.60	0.00	7.93
8-May-13	GR 2	4.34	16.96	1.33	0.25	1.61	0.70	25.20	36.90	6.75	68.85
17-May-13	GR 1	0.09	0.09	0.21	0.02	0.13	0.04	0.59	50.07	0.14	50.80
17-May-13	GR 2	2.80	10.04	1.76	1.43	2.82	1.40	20.25	67.12	38.13	125.50
31-May-13	GR 1	0.47	0.47	0.06	0.02	0.33	0.23	1.61	89.59	0.02	91.21
31-May-13	GR 2	11.81	641.30	7.31	7.54	25.40	10.79	704.15	38.96	28.67	771.78
25-Jun-13	GR 1	0.28	0.19	0.06	0.03	1.12	0.21	1.88	1.71	0.82	4.41
8-Jul-13	GR 1	8.29	2.24	0.47	0.06	4.02	0.42	15.49	3.14	0.24	18.87
8-Jul-13	GR 2	133.75	18.13	19.25	3.67	86.41	10.45	271.91	36.28	87.59	395.77
25-Jul-13	GR 1	0.22	0.00	0.02	0.00	0.17	0.07	0.48	1.06	0.00	1.54
25-Jul-13	GR 2	0.97	0.84	3.18	0.02	6.38	0.12	11.55	24.20	58.75	94.50
9-Aug-13	GR 1	0.30	0.11	0.26	0.01	0.62	0.07	1.36	7.82	0.00	9.18
9-Aug-13	GR 2	0.14	0.45	1.17	0.00	35.36	0.11	37.30	321.40	106.22	464.92
23-Aug-13	GR 1	0.47	0.43	0.08	0.09	1.59	1.01	3.67	0.80	0.05	4.53
23-Aug-13	GR 2	26.38	28.77	5.86	1.25	8.02	5.93	76.22	74.46	93.12	243.79
6-Sep-13	GR 1	0.06	0.02	0.05	0.01	0.46	0.04	0.65	0.53	0.13	1.31
6-Sep-13	GR 2	5.20	5.75	1.66	0.37	8.41	4.04	25.43	99.58	33.25	158.26
23-Sep-13	GR 1	1.77	1.36	1.22	0.09	8.78	0.32	13.57	9.56	0.00	23.13
23-Sep-13	GR 2	2.28	1.93	2.47	1.35	6.13	0.35	14.55	39.90	0.00	54.45

Table A3-5f. Temporal and spatial variation in the taxonomic composition of zooplankton biomass (μg dry weight/L) in samples collected in 2014 from two stations in the Grand River (GR1 and GR2).

BIOMASS TOTALS											
($\mu\text{g/L}$)											
Date Sampled	Site	Cyclo-poid	Cala-noid	Naup-lii	Cope. Egg	Clado-cera	Clad. Egg	Crusta-cea	Roti-fer	Veli-ger	Total Zp
24-Apr-14	GR 1	0.01	0.00	0.02	0.01	0.04	0.04	0.12	0.45	0.00	0.57
24-Apr-14	GR 2	0.57	0.11	1.21	0.05	0.03	0.01	1.98	7.44	0.34	9.77
19-May-14	GR 1	0.54	0.00	0.06	0.00	0.21	0.04	0.86	1.49	0.00	2.35
19-May-14	GR 2	0.29	0.00	0.16	0.00	0.24	0.01	0.72	11.14	0.30	12.15
4-Jun-14	GR 1	0.77	0.19	0.10	0.00	0.30	0.11	1.47	9.41	0.00	10.88
4-Jun-14	GR 2	107.61	7.69	4.30	0.55	12.20	0.94	133.30	163.12	0.00	296.42
18-Jun-14	GR 1	0.08	0.20	0.30	0.00	0.99	0.09	1.66	17.38	1.69	20.73
18-Jun-14	GR 2	2.66	9.81	6.90	0.14	20.18	1.91	41.60	332.30	66.67	440.57
2-Jul-14	GR 1	0.07	0.22	0.04	0.00	0.22	0.02	0.57	1.00	1.16	2.73
2-Jul-14	GR 2	8.35	31.78	2.31	0.42	11.61	0.68	55.15	14.18	33.41	102.73
24-Jul-14	GR 1	0.06	0.02	0.05	0.00	0.56	0.25	0.94	7.10	0.86	8.90
24-Jul-14	GR 2	2.16	1.42	1.51	0.00	31.92	15.94	52.95	44.07	3.96	100.97
5-Aug-14	GR 1	0.09	0.01	0.04	0.01	0.10	0.01	0.26	0.55	0.01	0.82
5-Aug-14	GR 2	0.88	0.40	0.41	0.04	2.27	0.35	4.42	0.00	0.00	4.42
19-Aug-14	GR 1	0.11	0.04	0.03	0.00	0.24	0.05	0.47	2.29	0.27	3.03
19-Aug-14	GR 2	0.68	0.15	0.16	0.17	1.08	0.34	2.58	14.60	2.09	19.27
2-Sep-14	GR 1	0.63	0.66	0.08	0.00	0.33	0.07	1.77	3.84	8.57	14.17
2-Sep-14	GR 2	4.56	7.32	3.47	0.16	7.58	2.19	25.28	31.12	201.74	258.14
17-Sep-14	GR 1	0.12	0.19	0.05	0.00	1.60	0.05	2.00	7.76	2.99	12.75
17-Sep-14	GR 2	4.40	5.57	1.17	0.19	32.60	1.88	45.82	123.98	108.23	278.03
30-Sep-14	GR 1	0.17	0.17	0.04	0.01	0.50	0.07	0.97	4.57	0.50	6.03
30-Sep-14	GR 2	2.33	4.87	0.88	0.14	14.71	4.06	27.07	27.60	2.78	57.45
17-Oct-14	GR 1	0.29	0.04	0.04	0.00	0.26	0.17	0.81	2.52	0.01	3.34
17-Oct-14	GR 2	0.44	0.30	0.27	0.07	0.55	0.12	1.76	4.51	0.19	6.46
4-Nov-14	GR 1	0.00	0.00	0.00	0.00	0.06	0.00	0.07	0.46	0.01	0.54
4-Nov-14	GR 2	0.06	0.05	0.03	0.01	0.06	0.00	0.22	1.27	0.01	1.49