

MEMO

Date: June 26, 2018

To: Mr. Peter Neely and Mr. Carey Fiertz, Twin Lakes Association

From: Aquatic Ecosystem Research - 1204 Main St. #161; Branford, CT 06405

RE: Algal analysis summary for May and June

Dear Carey and Peter:

We have completed the analyses of samples you collected on May 14th and June 18th at East Twin Lake. Total algal cell concentrations were generally low on both dates with 1,032 and 791 cell/mL observed in the May and June sample, respectively. These dilute concentrations were substantiated by the excellent Secchi transparencies of 4.50 and 4.90m encountered during those sampling events.

The May sample was dominated by the filamentous cyanobacteria *Aphanizomenon* spp. (52% of the community), followed by the diatoms (Bacillariophyceae; 30%). Diatom genera counted in the May sample included *Asterionella* spp, *Cyclotella* spp., and *Fragilaria* spp. Finally, the golden algae (Chrysophyceae) comprised 10% of the community.

Analysis of the June sample indicated that the community shifted where cyanobacteria density was reduced with a concordant increase in the density of diatoms (70%), green (Chlorophyceae; 9%) and the Phaeothamniophyceae (16%) algae groups. The diatoms *Cyclotella* spp. and *Fragilaria* spp. continued to be important in June (Fig. 1). Important green algal genera included *Dictyosphaerium* spp. *Stichogloea* spp., which until recently was grouped with the golden algae, represented the Phaeothamniophyceae in the sample.

Samples were not collected for algal analyses in May and June of 2017. Last year the July algal community was dominated by cyanobacteria, including species from the genera of *Chroococcus* spp., *Microcystis* spp. and *Woronichinia* spp. The latter two genera can form blooms.

We anticipate the cyanobacteria to continue to increase in relative abundance and numbers as the season progresses. Should a bloom be reported or you observe one, collect a sample, preserve it with Lugols solution and contact Aquatic Ecosystem Research.

Kind regards,

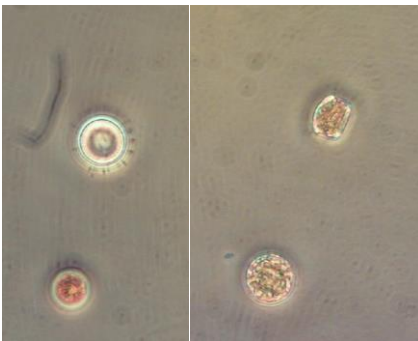
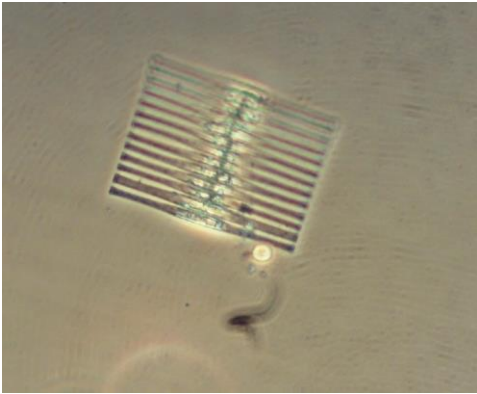
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Larry Marsicano
NALMS Certified Lake Manager

Table 1. Identifications, enumerations and relative abundances of important genera observed in Twin Lake in May and June of 2018.

Taxa	Genus / species	May 14, 2018			June 18, 2018		
		Cells / mL	%	Taxa %	Cells / mL	%	Taxa %
Cyanophyta	<i>Aphanizomenon flos-aquae</i>	537.4	52.1	52	0.0	0.0	0
	<i>Aphanothece</i> sp.	0.0	0.0		0.0	0.0	
	<i>Dolichospermum</i> sp.	0.0	0.0		0.0	0.0	
	<i>Gomphosphaeria</i>	0.0	0.0		0.0	0.0	
	<i>Microcystis</i> sp.	3.6	0.3		0.0	0.0	
	<i>Woronichinia</i> sp.	0.0	0.0		0.0	0.0	
Chlorophyta	<i>Anikistrodesmus</i> sp.	0.0	0.0	4	0.0	0.0	9
	<i>Cosmaria</i>	39.1	3.8		0.0	0.0	
	<i>Dictyosphaerium</i> sp.	0.0	0.0		71.3	9.0	
	<i>Elakatothrix gelatinosa</i>	0.0	0.0		0.0	0.0	
	<i>Eudorina elegans</i>	0.0	0.0		0.0	0.0	
	<i>Gloeocystis</i> sp.	0.0	0.0		0.0	0.0	
	<i>Golenkinia radiata</i>	0.0	0.0		0.0	0.0	
	<i>Mougeotia</i> sp.	0.0	0.0		0.0	0.0	
	<i>Pediastrum</i> sp.	0.0	0.0		0.0	0.0	
	<i>Quadrigula</i> sp.	0.0	0.0		0.0	0.0	
	<i>Scenedesmus</i> sp.	0.0	0.0		0.0	0.0	
	<i>Schroederia</i> sp.	0.0	0.0		0.0	0.0	
	<i>Selenastrum minutum</i>	0.0	0.0		0.0	0.0	
	<i>Sphaerocystis</i> sp.	0.0	0.0		2.2	0.3	
	<i>Staurastrum</i> sp.	3.6	0.3		0.0	0.0	
<i>Tetraedron minimum</i>	3.6	0.3		0.0	0.0		
Chrysophyta	<i>Mallomonas</i> sp.	10.7	1.0	10	0.0	0.0	0
	<i>Dinobryon</i> sp.	10.7	1.0		0.0	0.0	
	<i>Synura</i> sp.	7.1	0.7		0.0	0.0	
	<i>Uroglenopsis americana</i>	78.3	7.6		0.0	0.0	
Phaeothamiophyceae	<i>Stichogloea</i> sp.	0.0	0.0		127.0	16.0	16
Bacillariophyta	<i>Asterionella formosa</i>	53.4	5.2	30	0.0	0.0	70
	<i>Aulocoseria</i> sp.	0.0	0.0		0.0	0.0	
	<i>Cyclotella</i> sp.	85.4	8.3		115.9	14.6	
	<i>Tabellaria flocculosa</i>	0.0	0.0		0.0	0.0	
	<i>Fragilaria crotonensis</i>	160.2	15.5		434.7	54.9	
	<i>Rhizosolenia longiseta</i>	0.0	0.0		0.0	0.0	
	<i>Stephanodiscus niagarae</i>	0.0	0.0		0.0	0.0	
	<i>Synedra</i> sp.	7.1	0.7		0.0	0.0	
	<i>Pennate Diatom</i>	7.1	0.7		0.0	0.0	
Dinophyceae	<i>Ceratium hirundinella</i>	0.0	0.0	0	2.2	0.3	1
	<i>Glenodinium</i> sp.	0.0	0.0		0.0	0.0	
	<i>Gynmodinium</i> sp.	3.6	0.3		2.2	0.3	
	<i>Peridinium</i> sp.	0.0	0.0		0.0	0.0	
Cryptophyceae	<i>Cryptomonas ovata</i>	0.0	0.0	0	0.0	0.0	5
	<i>Rhodomonas</i> sp.	0.0	0.0		35.7	4.5	
Euglenophyceae	<i>Euglena</i> sp.	0.0	0.0	0	0.0	0.0	0
	<i>Phacus</i> sp.	0.0	0.0		0.0	0.0	
	<i>Trachelomonas</i> sp.	3.6	0.3		0.0	0.0	
	Unknown	17.8	1.7	2	0.0	0.0	0
	Totals	1032	100	100	791	100	100





Important diatom species observed in the sample collected from East Twin Lake on June 18, 2018. Top figure is *Fragilaria crotonensis*. Images below are of *Cyclotella spp.* with the exception of that observed at bottom left, which is a Euglenophyte, *Trachelomonas spp.*

