

Grass

Lake Overview

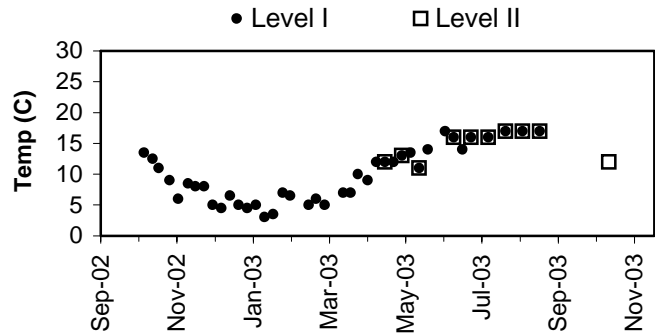
Volunteer monitoring began at Grass Lake in 2002 and continued through 2003. The data indicate that this lake is high in primary productivity (eutrophic) with fair water quality. Since the lake surface makes up 9% of the drainage area, direct precipitation is less important than watershed inputs. There are several wetlands in the basin, including much of the land adjacent to the lake. Land use analysis of 2002 aerial photographs showed over 43% of the surrounding watershed has been developed for uses other than agriculture.

Grass Lake has no public access boat ramp, but residents should monitor aquatic plants growing nearshore to catch early infestations of Eurasian watermilfoil, Brazilian elodea or other noxious aquatic weeds.

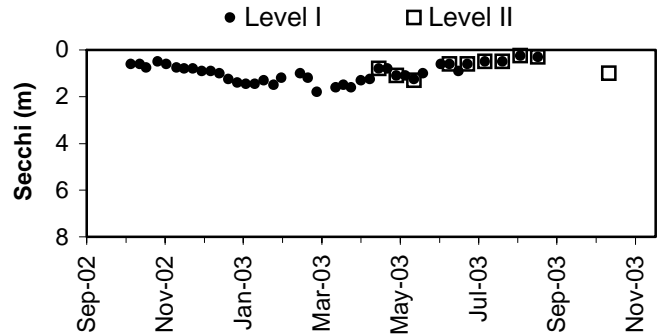
Physical Parameters

Secchi transparency ranged between 0.3 and 1.3m through the year. Surface water temperatures ranged between 3.0 and 17.0 degrees Celsius, somewhat lower than other monitored lakes in the region. Excellent precipitation and water level records were kept. The water levels were consistent with the regional pattern of winter high - autumn low stands.

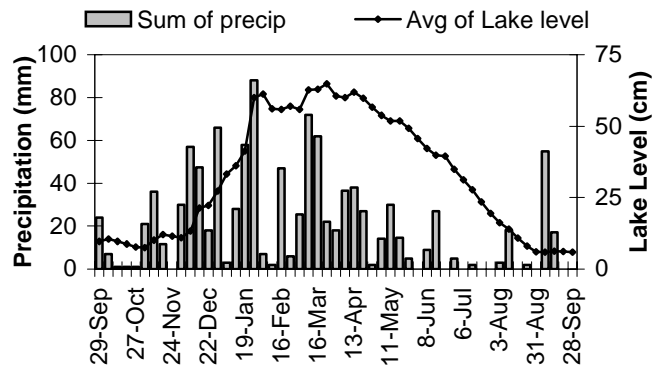
Lake Temperature



Secchi Depth

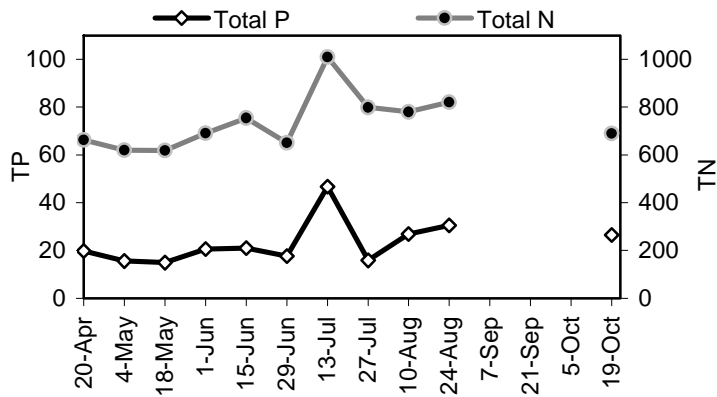


Lake Level and Precipitation

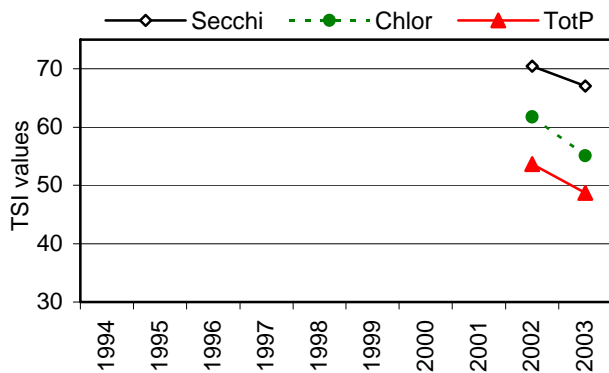


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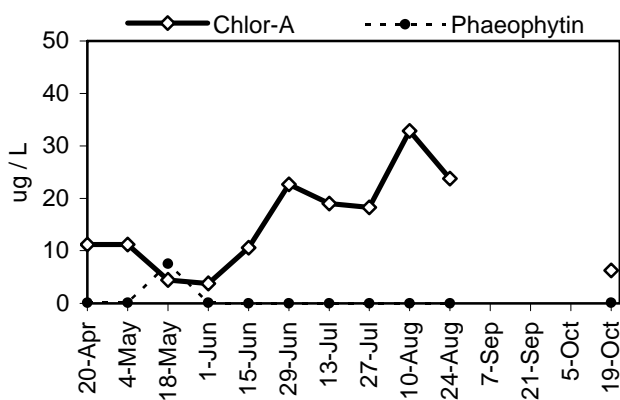
Nutrient Analysis



TSI Ratings



Chlorophyll a Concentrations (ug/L)



Nutrient Analysis and TSI Ratings

Total phosphorus and total nitrogen remained in reasonably constant proportion to each other through the sampling period. The N:P ratio ranged from 22 to 50. The 2003 TSI-chlor and TSI-Secchi indicators were above the threshold for eutrophy, but the TSI-TotP was slightly below. All three indicators were lower than in 2002.

Chlorophyll and Algae

Chlorophyll rose in steps through the season to a peak in mid-August. A gap in sampling occurred in September through early October, but the data from the last date in October indicated levels were near their lowest values for the year. Phytoplankton were dominated by a variety of chrysophyte algae, many of them not identified to species, the cryptophyte *Cryptomonas*, and diatoms such as *Tabellaria fenestrata*. Bluegreen algae were rare.

Common algae

Group

unidentified species	chrysophyte
<i>Cryptomonas</i> spp.	cryptophyte
<i>Tabellaria fenestrata</i>	diatom-chrysophyte

Grass

2003 Level II Data

Date (2003)	Temp (°C)	Secchi (m)	Chl-a (µg/l)	TP (µg/l)	TN (µg/l)	Algae Obsv.	N:P	Calculated TSI			Notes
								Secc	chl-a	TP	
20-Apr	12.0	0.8	11.2	19.8	664	3	34	63.2	54.3	47.2	
4-May	13.0	1.1	11.2	15.6	621	3	40	58.6	54.3	43.8	
18-May	11.0	1.3	4.5	14.9	619	3	42	56.2	45.3	43.1	Less clear spherical pinhead sized particles.
1-Jun			3.8	20.5	692	3	34		43.6	47.7	Large clumps of algae in water.
15-Jun	16.0	0.6	10.6	20.9	755	3	36	67.4	53.7	48.0	Large clumps of algae floating.
29-Jun	16.0	0.6	22.7	17.6	651	3	37	67.4	61.2	45.5	
13-Jul	16.0	0.5	19.0	46.7	1010	3	22	70.0	59.5	59.6	Large floating brownish-green clumps.
27-Jul	17.0	0.5	18.3	15.9	799	3	50	70.0	59.1	44.1	Large blue-green-brown clumps floating at surface.
10-Aug	17.0	0.3	32.9	26.9	781	3	29	80.0	64.8	51.6	Lots of blue-green clumps of "dirt" floating on surface.
24-Aug	17.0	0.3	23.8	30.5	820	3	27	77.4	61.7	53.5	Clumps floating.
7-Sep											No sample - water too low.
21-Sep											No sample - water too low.
5-Oct											No sample - water too low.
19-Oct	12.0	1.0	6.2	26.5	691	3	26	60.0	48.5	51.4	Algae noted as P3+.
	Temp (°C)	Secchi (m)	Chl-a (µg/l)	TP (µg/l)	TN (µg/l)	Algae Obsv.	N:P	Calculated TSI			
								Secc	chl-a	TP	
Mean	14.7	0.7	14.9	23.3	736.6	3.0	34	67.0	55.1	48.7	TSI Average = 56.9
Median	16.0	0.6	11.2	20.5	692.0	3	34	67.4	54.3	47.7	
Min	11.0	0.3	3.8	14.9	619.0	3	22	56.2	43.6	43.1	
Max	17.0	1.3	32.9	46.7	1010.0	3	50	80.0	64.8	59.6	
Count	10	10	11	11	11	11	11	10	11	11	