

Ames

Ames Overview

Volunteer monitoring began at Ames Lake in 2000 and continued through 2004. The data indicate the lake is low to moderate in primary productivity (oligotrophic to mesotrophic) with very good water quality.

Ames Lake does not have a public access boat ramp. However, residents should monitor aquatic plants growing nearshore to catch early infestations of Eurasian milfoil, Brazilian elodea or other noxious aquatic weeds.

Lake Temp, Secchi Depth, Lake Level and Precip

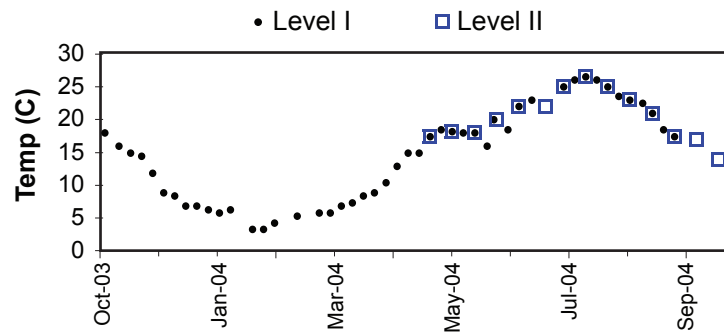
Secchi transparency ranged from 3.0 to 5.0m through the year, with the clearest period in mid-winter. The summer Secchi average was 4.0 m, which placed it in the upper range for monitored lakes in 2004. Surface water temperatures ranged from 3.5 to 26.5 degrees Celsius, with the reported maximum placing it in the higher range for the small lakes.

Lake level rose sharply in fall, was relatively stable through the winter and declined slowly in summer to the low stand at the end of the water year.

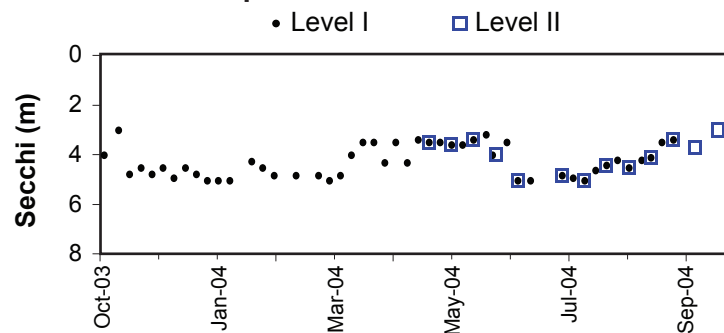
Nutrient Analysis and TSI Ratings

Total phosphorus and total nitrogen remained stable and in fairly constant proportion to each other over the season. The N:P ratio ranged from 22 to 63, averaging 41, which indicated inhospitable conditions for bluegreens through most of the season.

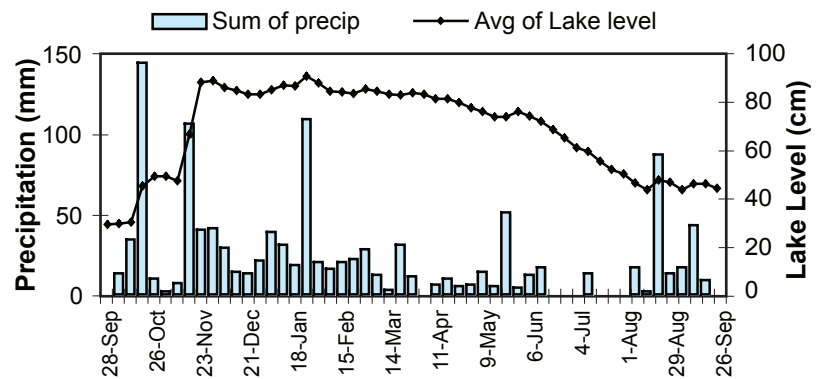
Lake Temperature



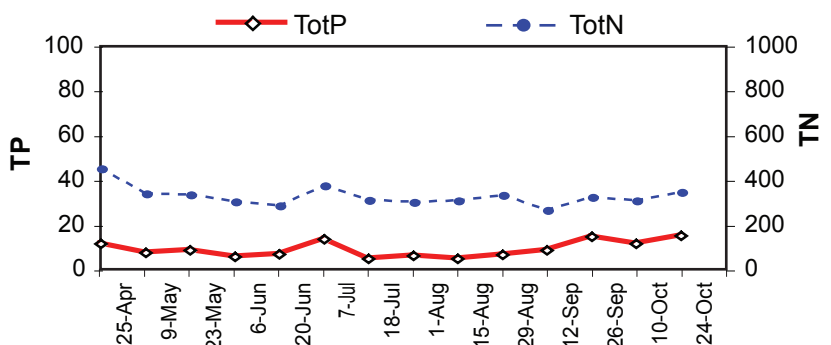
Secchi Depth



Lake Level and Precipitation



Nutrient Analysis



Profile data indicated that thermal stratification was sustained through the summer, although phosphorus did not build up greatly in deep water. Profile chlorophyll data suggested that the higher concentrations of algae occurred well below the surface.

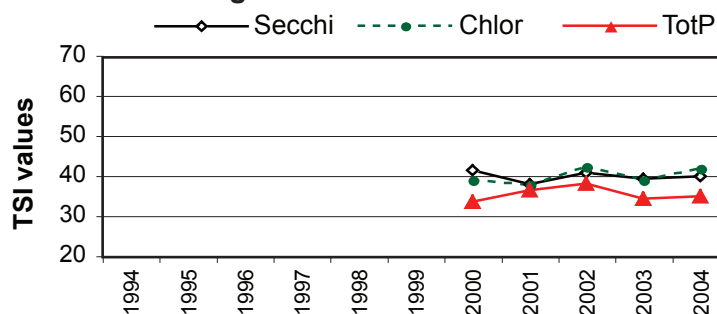
The TSI values for Secchi and chlorophyll were in good agreement with each other, close to the threshold of mesotrophic productivity, while TSI-TP was lower.

Phytoplankton and Chlorophyll Concentrations

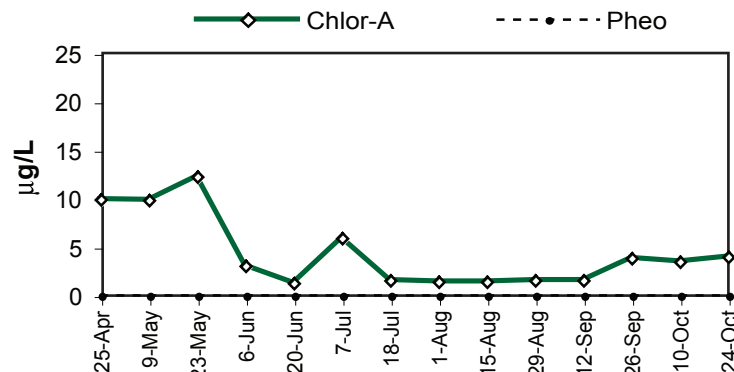
Chlorophyll concentrations at 1m were highest in spring and dropped to low levels through the rest of the sampling season. Algae populations in the lake also reached their maximum in spring, dominated by an unidentified chrysophyte species and the diatom *Cyclotella bodanica*. Other common algae included the colonial bluegreens *Aphanocapsa* and *Anacystis*, but no bluegreen species known to make toxins.

Date	Secchi	depth-m	degC	Chlor-A	TP µg/L	TN µg/L
5/23/04	3.4	1	18.0	12.30	8.8	337
		4	12.0	63.00	21.6	430
		7	8.0	9.61	21.4	433
8/29/04	4.5	1	23.0	1.60	6.6	336
		4	21.5	2.10	6.3	318
		7	13.5	36.2	36.0	657

TSI Ratings



Chlorophyll a Concentrations (µg/L)



Common Algae

	Group
unidentified cells	Chrysophyta
<i>Aphanocapsa</i> / <i>Anacystis</i> spp.	Cyanobacteria
<i>Cyclotella</i> sp.	Bacillariophyta

Ames

2004 Level I Data

Daily Data Summary

Week of	Sum of precip. (mm)	# of days	Avg of lake level (cm)	# of days
28-Sep-03	0	5	29.0	5
5-Oct-03	18	7	29.4	7
12-Oct-03	32	6	30.0	7
19-Oct-03	141	7	47.7	7
26-Oct-03	12	7	49.0	7
2-Nov-03	0	7	48.6	7
9-Nov-03	17	6	47.3	7
16-Nov-03	103	7	71.7	7
23-Nov-03	34	6	88.3	7
30-Nov-03	42	7	88.0	7
7-Dec-03	31	7	85.6	7
14-Dec-03	11	7	84.3	7
21-Dec-03	19	6	83.0	7
28-Dec-03	14	7	83.0	7
4-Jan-04	39	5	85.6	5
11-Jan-04	37	7	86.4	7
18-Jan-04	38	6	86.6	7
25-Jan-04	86	6	90.5	6
1-Feb-04	17	4	87.3	4
8-Feb-04	20	2	84.0	2
15-Feb-04	16	7	83.7	7
22-Feb-04	23	7	83.6	7
29-Feb-04	32	7	85.0	7
7-Mar-04	7	5	83.7	7
14-Mar-04	3	5	82.6	7
21-Mar-04	31	6	83.0	6
28-Mar-04	11	7	83.4	7
4-Apr-04	0	7	82.4	7
11-Apr-04	6	7	81.0	7
18-Apr-04	10	7	80.9	7
25-Apr-04	5	7	79.0	7
2-May-04	6	7	76.9	7
9-May-04	16	7	75.4	7
16-May-04	3	7	73.1	7
23-May-04	52	7	74.0	7
30-May-04	8	7	75.4	7
6-Jun-04	11	7	73.6	7
13-Jun-04	13	7	71.1	7
20-Jun-04	0	7	67.7	7
27-Jun-04	0	7	64.1	7
4-Jul-04	13	7	60.4	7
11-Jul-04	0	7	58.9	7
18-Jul-04	0	7	54.7	7
25-Jul-04	0	7	51.3	7
1-Aug-04	17	5	49.4	5
8-Aug-04	0	7	45.6	7
15-Aug-04	40	7	43.6	7
22-Aug-04	49	7	47.9	7
29-Aug-04	13	7	45.7	7
5-Sep-04	23	7	43.6	7
12-Sep-04	38	7	45.9	7
19-Sep-04	8	7	45.7	7
26-Sep-04	0	4	43.8	4
Min	0.0		29.0	
Max	141.0		90.5	
Total	1165.0			

Weekly Data Summary

Sample date	Sample time	Secchi (m)	Temp (°C)	Algae* (Shore)	Algae* (at site)	Goose Count*
3-Oct-03	14:00	4	18	P1	P1	0
12-Oct-03	17:00	3	16	P1	P1	17
19-Oct-03	15:30	4.8	15	P1	NA	0
26-Oct-03	11:45	4.5	15	P1	P1	0
2-Nov-03	11:30	4.8	12	P1	NA	0
9-Nov-03	14:00	4.5	9	P2	P2	0
16-Nov-03	11:00	4.9	9	P1	P1	0
23-Nov-03	14:00	4.5	7	NA	NA	0
30-Nov-03	15:00	4.8	7	NA	P1	0
7-Dec-03	11:00	5.0	7	NA	NA	0
14-Dec-03	12:10	5.0	6	NA	NA	0
21-Dec-03	16:00	5.0	7	P1	P1	0
4-Jan-04	13:00	4.3	3.5	NA	NA	17
11-Jan-04	14:50	4.5	4	NA	P1	0
18-Jan-04	14:15	4.8	5	NA	P1	0
1-Feb-04	16:00	4.8	6	P1	P1	0
15-Feb-04	16:30	4.8	6	NA	P1	0
22-Feb-04	9:30	5.0	6	NA	P1	0
29-Feb-04	9:30	4.8	7	NA	P1	0
7-Mar-04	9:00	4.0	8	NA	P2	0
14-Mar-04	10:30	3.5	9	NA	P2	0
21-Mar-04	8:30	3.5	9	P2	P2	0
28-Mar-04	10:00	4.3	11	P3	P3	0
4-Apr-04	16:51	3.5	13.0	P2	P2	0
11-Apr-04	14:00	4.3	15.0	P3	P3	0
18-Apr-04	16:30	3.4	15.0	P2	P3	0
25-Apr-04	17:00	3.5	17.5	P3	P3	0
2-May-04	17:30	3.5	18.5	P3	P3	0
9-May-04	14:30	3.6	18.2	P3	P3	0
16-May-04	16:30	3.6	18.0	P3	P3	0
23-May-04	16:15	3.4	18.0	P3	P3	0
31-May-04	10:00	3.2	16.0	P3	P3	5
4-Jun-04	13:50	4.0	20.0	P1	P1	0
13-Jun-04	13:20	3.5	18.5	P1	P1	0
20-Jun-04	11:30	5.0	22.0	P1	P1	9
28-Jun-04	18:00	5.0	23.0	P1	P1	20
18-Jul-04	12:50	4.8	25.0	No algae (NA)	P1	0
25-Jul-04	13:00	4.9	26.0	No algae (NA)	P1	0
1-Aug-04	14:00	5.0	26.5	P1	P1	10
8-Aug-04	14:00	4.6	26.0	P1	P1	5
15-Aug-04	14:45	4.4	25.0	P2	P2	0
22-Aug-04	15:20	4.2	23.5	P1	P1	0
29-Aug-04	19:20	4.5	23.0	No algae (NA)	P2	0
6-Sep-04	17:00	4.2	22.5	P1	P2	0
12-Sep-04	16:00	4.1	21.0	P1	P2	0
19-Sep-04	16:00	3.5	18.5	No algae (NA)	P1	0
26-Sep-04	15:15	3.4	17.5	No algae (NA)	P1	0
Min		3.2	3.5			0
Max		5.0	26.5			20

* See introduction to appendix for discussion of algae assessment and goose count methods.

2004 Level II Data

Date (2004)	Temp (°C)	Secchi (m)	Chl-a (µg/l)	TP (µg/l)	TN (µg/l)	Algae Obsv.	N:P	Calculated TSI		
								Secc	chl-a	TP
25-Apr	17.5	3.5	9.93	11.6	455	3	39	41.9	53.1	39.5
9-May	18.2	3.6	9.85	7.55	343	3	45	41.5	53.0	33.3
23-May	18.0	3.4	12.30	8.8	337	3	38	42.3	55.2	35.5
6-Jun	20.0	4.0	3.04	5.9	306	1	52	40.0	41.5	29.8
20-Jun	22.0	5.0	1.30	7	288	1	41	36.8	33.1	32.2
7-Jul	22.0	NR	5.93	13.7	377	2	28		48.0	41.9
18-Jul	25.0	4.8	1.60	5	313	1	63	37.4	35.2	27.4
1-Aug	26.5	5.0	1.40	6.3	305	1	48	36.8	33.9	30.7
15-Aug	25.0	4.4	1.40	5	310	2	62	38.6	33.9	27.4
29-Aug	23.0	4.5	1.60	6.6	336	2	51	38.3	35.2	31.4
12-Sep	21.0	4.1	1.60	8.8	269	2	31	39.6	35.2	35.5
26-Sep	17.5	3.4	3.84	14.8	326	1	22	42.3	43.8	43.0
10-Oct	17.0	3.7	3.52	11.6	310	0	27	41.1	42.9	39.5
24-Oct	14.0	3.0	4.01	15.3	348	0	23	44.1	44.2	43.5
	Temp (°C)	Secchi (m)	Chl-a (µg/l)	TP (µg/l)	TN (µg/l)	Algae	N:P	Calculated TSI		
								Secc	chl-a	TP
Mean	20.5	4.0	4.4	9.1	330.2	1.6	41	40.1	42.0	35.0
Median	20.5	4.0	3.3	8.2	319.5	2	40	40.0	42.2	34.4
Min	14.0	3.0	1.3	5.0	269.0	0	22	36.8	33.1	27.4
Max	26.5	5.0	12.3	15.3	455.0	3	63	44.1	55.2	43.5
Count	14	13	14	14	14	14	14	13	14	14

TSI Average = 39.0