

Margaret

Lake Overview

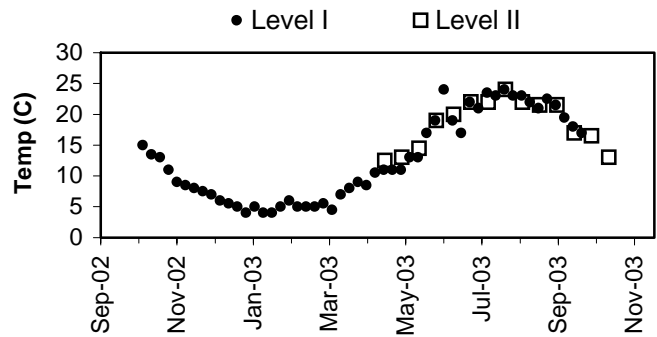
Volunteer monitoring began at Lake Margaret in 2000 and continued through 2003. The data indicate that this lake is relatively low in primary productivity (oligotrophic) with excellent water quality. Since the lake surface makes up only 3% of the drainage area, direct precipitation is not as important as watershed inputs, much of which is in Snohomish County. Land use analysis of 2002 aerial photographs showed less than 6% of the surrounding watershed has been developed for use. Lake Margaret is a source of domestic water for homes nearby, making water quality a paramount concern.

Lake Margaret has a public access boat launch, and residents should keep a watch on aquatic plants growing nearshore to catch early infestations of Eurasian milfoil, Brazilian elodea, or other noxious weeds.

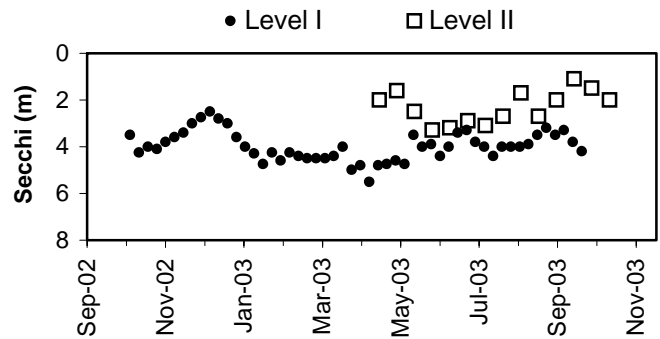
Physical Parameters

Secchi transparency ranged from 2.5 to 5.5m through the year. Annual water temperatures ranged from 4.0 to 24.0 degrees Celsius. Excellent records were kept of precipitation and of water levels, which illustrate control by the water district at the outlet to minimize storm impacts and maximize water availability.

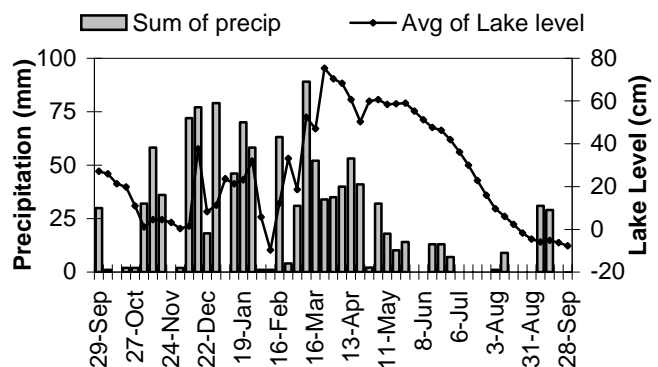
Lake Temperature



Secchi Depth

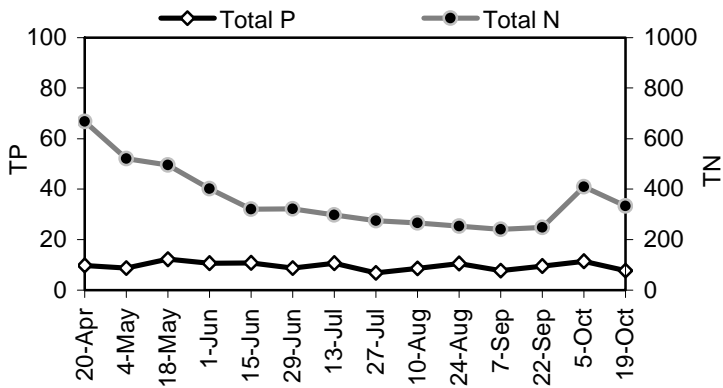


Lake Level and Precipitation

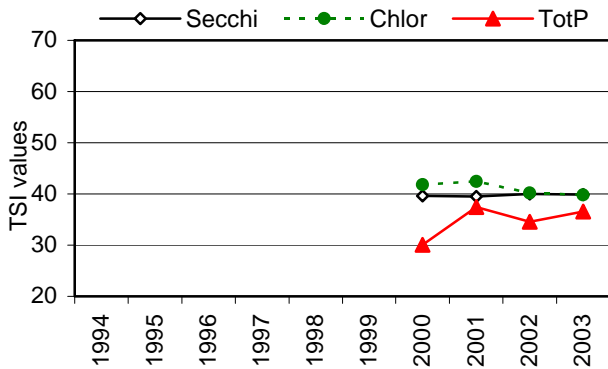


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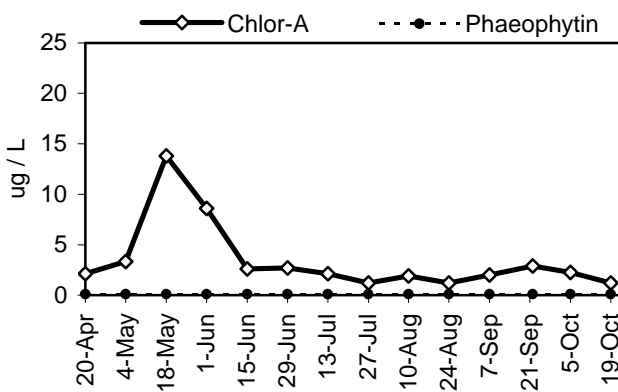
Nutrient Analysis



TSI Ratings



Chlorophyll a Concentrations (ug/L)



Nutrient Analysis and TSI Ratings

Total nitrogen decreased slowly from an initial high in the sample period, with one high value in October, while total phosphorus remained steady throughout. The N:P ratio ranged from 24 to 68. The 2003 TSI values were in close agreement with each other in the upper range of oligotrophy.

Chlorophyll and Algae

Chlorophyll made a peak in mid-May and then remained at low levels throughout the rest of the sample period. The phytoplankton during May were dominated by an unidentified chrysophyte species, with dinoflagellate species also common. Algae found at other times included the diatoms *Asterionella* and *Cyclotella*, as well as several species of *Cryptomonas*. The bluegreens *Anacystis* and *Anabaena* were present, but rare.

Common algae

Group

unidentified chrysophyte	chrysophyte
<i>Anacystis</i> sp.	bluegreen
<i>Asterionella formosa</i>	diatom-chrysophyte

Daily Data Summary

Week of	Sum of precip. (mm)	# of days	Avg of lake level (cm)	# of days
29-Sep-02	30.0	5	27.1	5
6-Oct-02	1.1	7	25.9	7
13-Oct-02	0.1	7	21.4	7
20-Oct-02	2.0	7	19.9	7
27-Oct-02	2.0	7	11.0	7
3-Nov-02	32.1	7	1.1	7
10-Nov-02	58.1	7	4.6	7
17-Nov-02	36.1	7	4.6	7
24-Nov-02	0.0	7	3.3	7
1-Dec-02	2.0	7	0.4	7
8-Dec-02	72.0	7	1.6	7
15-Dec-02	77.0	7	37.6	7
22-Dec-02	18.1	7	8.3	7
29-Dec-02	79.0	7	11.3	7
5-Jan-03	0.1	7	23.6	7
12-Jan-03	46.1	7	21.4	7
19-Jan-03	70.1	7	23.1	7
26-Jan-03	58.1	7	31.9	7
2-Feb-03	1.1	7	5.9	7
9-Feb-03	1.0	7	-9.7	7
16-Feb-03	63.1	7	12.3	7
23-Feb-03	4.0	7	33.0	7
2-Mar-03	31.1	7	18.7	7
9-Mar-03	89.0	7	52.4	7
16-Mar-03	52.1	7	47.0	7
23-Mar-03	34.1	6	75.3	7
30-Mar-03	35.1	7	70.4	7
6-Apr-03	40.1	7	68.3	7
13-Apr-03	53.1	7	60.7	7
20-Apr-03	41.1	7	50.3	7
27-Apr-03	2.1	7	59.9	7
4-May-03	32.1	7	60.7	7
11-May-03	18.1	7	58.4	7
18-May-03	10.2	7	58.6	7
25-May-03	14.1	7	59.0	7
1-Jun-03	0.0	7	55.3	7
8-Jun-03	0.1	7	51.3	7
15-Jun-03	13.1	7	47.6	7
22-Jun-03	13.1	7	46.3	7
29-Jun-03	7.1	7	41.9	7
6-Jul-03	0.0	7	36.0	7
13-Jul-03	0.1	7	30.0	7
20-Jul-03	0.0	7	22.9	7
27-Jul-03	0.0	7	16.0	7
3-Aug-03	1.0	7	9.7	7
10-Aug-03	9.0	7	6.1	7
17-Aug-03	0.0	7	2.3	7
24-Aug-03	0.0	7	-1.7	7
31-Aug-03	0.0	7	-4.6	7
7-Sep-03	31.1	7	-5.9	7
14-Sep-03	29.1	7	-5.1	7
21-Sep-03	0.0	7	-6.1	7
28-Sep-03	0.0	3	-7.7	3
Min	0.0		-9.7	
Max	89.0		75.3	
Total	1208.1	364.0		

Weekly Data Summary

Sample date	Sample time	Secchi (m)	Temp (°C)	Algae* (Shore)	Algae* (at site)	Goose Count*
5-Oct-02	11:00	3.5	15.0	C1/P1	C1/P1	0
12-Oct-02	13:00	4.3	13.5	C1/P1	C1/P1	0
19-Oct-02	11:00	4.0	13.0	C1/P1	C1/P1	0
26-Oct-02	12:00	4.1	11.0	C1/P1	C1/P1	0
2-Nov-02	13:30	3.8	9.0	C1/P1	C1/P1	0
9-Nov-02	13:00	3.6	8.5	C1/P2	C1/P2	0
16-Nov-02	14:00	3.4	8.0	C1/P1	C1/P1	0
23-Nov-02	12:00	3.0	7.5	C1/P1	C1/P1	0
30-Nov-02	15:00	2.8	7.0			0
7-Dec-02	14:00	2.5	6.0	C2/P1	C2/P1	0
14-Dec-02	13:30	2.8	5.5	C2/P1	C2/P1	0
21-Dec-02	14:00	3.0	5.0	C1	C1	0
28-Dec-02	15:30	3.6	4.0	C1	C1	0
4-Jan-03	14:00	4.0	5.0	C1	C1	0
11-Jan-03	13:00	4.3	4.0	C1	C1	0
18-Jan-03	12:00	4.8	4.0	C1	C1	0
25-Jan-03	14:30	4.3	5.0	C1	C1	0
1-Feb-03	13:00	4.6	6.0	C1	C1	0
8-Feb-03	14:00	4.3	5.0	C1	C1	28
15-Feb-03	14:30	4.4	5.0	C1	C1	0
22-Feb-03	14:00	4.5	5.0	C1	C1	0
1-Mar-03	15:30	4.5	5.5	C1	C1	4
8-Mar-03	12:00	4.5	4.5	C1	C1	0
15-Mar-03	13:30	4.4	7.0	C1	C1	0
22-Mar-03	16:00	4.0	8.0	C1	C1	0
29-Mar-03	10:30	5.0	9.0	C1	C1	2
5-Apr-03	15:30	4.8	8.5	C1	C1	1
12-Apr-03	16:00	5.5	10.5	NA	NA	2
19-Apr-03	14:00	4.8	11.0	NA	NA	0
26-Apr-03	15:00	4.8	11.0	P1	P1	0
3-May-03	14:00	4.6	11.0	P1	P1	2
10-May-03	14:30	4.8	13.0	P2	P2	0
17-May-03	17:05	3.5	13.0	P2	P2	4
24-May-03	16:00	4.0	17.0	P3	P3	0
31-May-03	13:00	3.9	19.0	P3	P3	0
7-Jun-03	17:00	4.4	24.0	P2	P2	0
14-Jun-03	19:00	4.0	19.0	P2	P2	0
21-Jun-03	19:00	3.4	17.0	P2	P2	0
28-Jun-03	14:00	3.3	22.0	P1	P1	16
5-Jul-03	13:00	3.8	21.0	P2	P2	0
12-Jul-03	16:00	4.0	23.5	P1	P1	16
19-Jul-03	12:30	4.4	23.0	P1	P1	14
26-Jul-03	16:30	4.0	24.0	P1	P1	0
2-Aug-03	12:00	4.0	23.0	P1	P1	0
9-Aug-03	14:00	4.0	23.0	P1	P1	0
16-Aug-03	14:30	3.9	22.0	P1	P1	0
23-Aug-03	13:00	3.5	21.0	P1	P1	0
30-Aug-03	19:00	3.2	22.5	P2	P2	0
6-Sep-03	14:00	3.5	21.5	P1	P1	0
13-Sep-03	16:30	3.3	19.5	P1	P1	0
20-Sep-03	14:30	3.8	18.0	P1	P1	0
27-Sep-03	13:00	4.2	17.0	P1	P1	0
Min		2.5	4.0			0
Max		5.5	24.0			16
		52.0				

