

# Joy

## Lake Overview

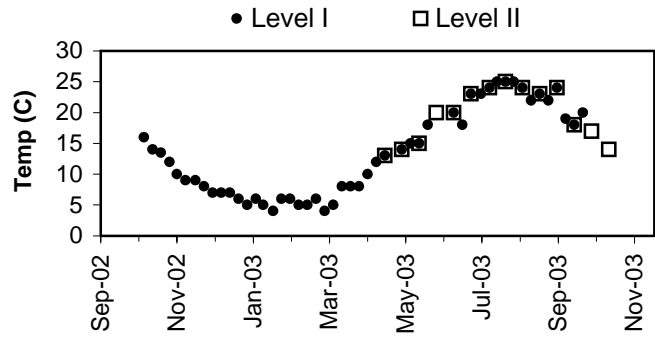
Volunteer monitoring began at Lake Joy in 2000 and continued through 2003. The data indicate that this lake is low to moderate in primary productivity (oligotrophic - mesotrophic), with excellent to good water quality. Since the lake surface makes up 22% of the drainage area, direct precipitation is important, in addition to watershed inputs. There are no wetlands designated by King County in the basin. Land use analysis of 2002 aerial photographs showed that 41% of the surrounding watershed has been developed for uses other than agriculture or forestry.

Lake Joy has only a walk-in public access point, but residents should keep an eye on aquatic plants growing nearshore to catch early infestations of Eurasian milfoil, Brazilian elodea or other noxious weeds.

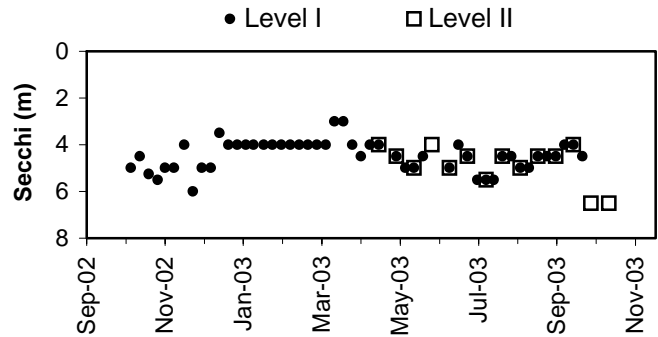
## Physical Parameters

Secchi transparency ranged between 3.0 and 6.5m through the year. Annual surface water temperatures ranged between 4.0 and 25.0 degrees Celsius. Excellent records of water level and precipitation were kept, showing that water levels followed the regional pattern of winter high – autumn low stands. Levels responded sensitively to large rain events.

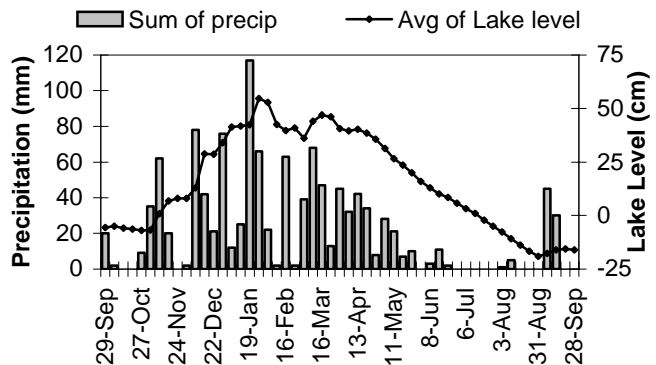
Lake Temperature



Secchi Depth

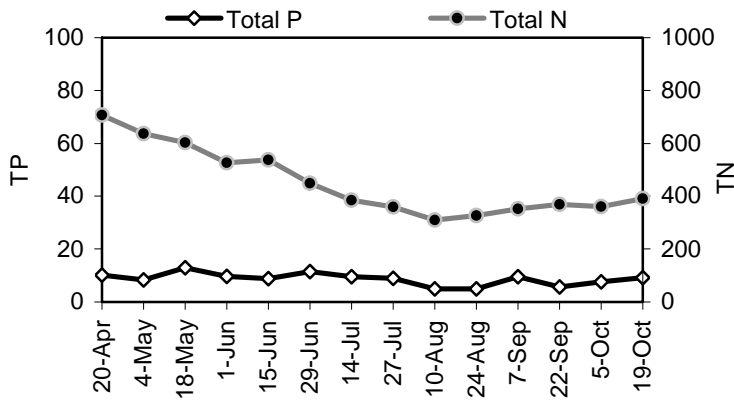


Lake Level and Precipitation

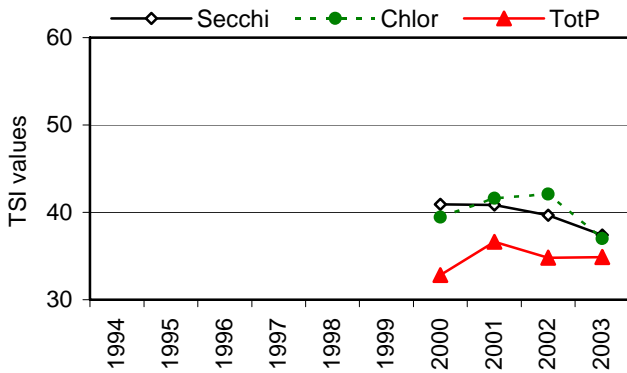


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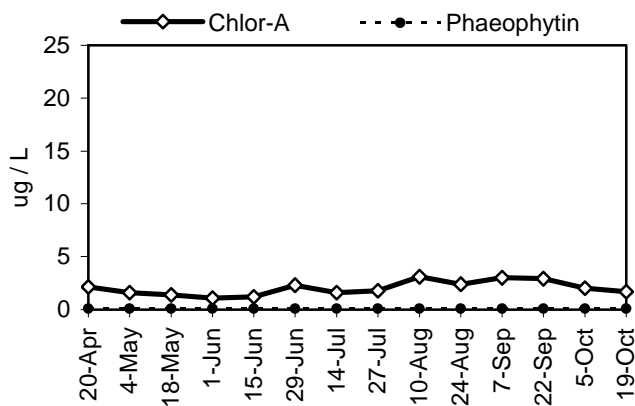
## Nutrient Analysis



## TSI Ratings



## Chlorophyll a Concentrations (ug/L)



## Nutrient Analysis and TSI Ratings

Total nitrogen decreased from an initial high to a consistent proportion relative to total phosphorus from mid-summer to the end of the sample period. The N:P ratio ranged from 37 to 76. The 2003 TSI values were close to each other, with TSI-TotP slightly lower than the other two indicators. However, all were below the oligotrophic - mesotrophic threshold.

## Chlorophyll and Algae

Chlorophyll remained at uniformly low values through the sample season. The planktonic algae were characterized by the cryptophyte *Cryptomonas* and unidentified species of chrysophytes, with the small colonial chlorophyte *Crucigenia* also found commonly. Bluegreen algae were extremely rare.

Common algae	Group
<i>Cryptomonas</i> spp.	cryptophyte
unidentified species	chrysophyte
<i>Crucigenia</i> spp.	chlorophyte

## Daily Data Summary

Week of	Sum of precip. (mm)	# of days	Avg of lake level (cm)	# of days
29-Sep-02	20.0	5	-5.6	5
6-Oct-02	2.0	7	-5.0	7
13-Oct-02	0.0	7	-6.0	7
20-Oct-02	0.0	7	-6.4	7
27-Oct-02	9.1	7	-7.1	7
3-Nov-02	35.0	7	-6.9	7
10-Nov-02	62.0	7	0.7	7
17-Nov-02	20.1	7	6.7	7
24-Nov-02	0.0	7	8.0	7
1-Dec-02	2.0	7	8.0	7
8-Dec-02	78.0	7	12.9	7
15-Dec-02	42.0	7	28.9	7
22-Dec-02	21.0	7	28.7	7
29-Dec-02	76.0	7	34.1	7
5-Jan-03	12.0	7	41.4	7
12-Jan-03	25.0	7	41.9	7
19-Jan-03	117.0	7	42.4	7
26-Jan-03	66.0	7	54.6	7
2-Feb-03	22.0	7	52.9	7
9-Feb-03	2.1	7	42.6	7
16-Feb-03	63.0	7	39.7	7
23-Feb-03	2.0	7	41.0	7
2-Mar-03	39.0	7	36.1	7
9-Mar-03	68.0	7	44.1	7
16-Mar-03	47.0	7	47.0	7
23-Mar-03	13.0	7	46.1	7
30-Mar-03	45.0	7	40.7	7
6-Apr-03	32.0	7	39.6	7
13-Apr-03	42.1	7	40.4	7
20-Apr-03	34.1	7	38.6	7
27-Apr-03	8.0	7	35.7	7
4-May-03	28.0	7	31.4	7
11-May-03	21.0	7	26.6	7
18-May-03	7.0	7	23.6	7
25-May-03	10.0	7	20.0	7
1-Jun-03	0.0	7	16.0	7
8-Jun-03	3.0	7	12.9	7
15-Jun-03	11.1	7	10.1	7
22-Jun-03	2.0	7	8.5	7
29-Jun-03	0.0	7	5.7	7
6-Jul-03	0.0	7	3.1	7
13-Jul-03	0.0	7	1.0	7
20-Jul-03	0.0	7	-2.1	7
27-Jul-03	0.0	7	-5.0	7
3-Aug-03	1.1	7	-7.7	7
10-Aug-03	5.0	7	-10.9	7
17-Aug-03	0.0	7	-13.7	7
24-Aug-03	0.0	7	-16.6	7
31-Aug-03	0.1	7	-19.0	7
7-Sep-03	45.0	7	-17.7	7
14-Sep-03	30.0	7	-16.0	7
21-Sep-03	0.0	7	-15.6	7
28-Sep-03	0.0	3	-16.0	3
<b>Min</b>	0.0		-19.0	
<b>Max</b>	117.0		54.6	
<b>Total</b>	1167.5			

## Weekly Data Summary

Sample date	Sample time	Secchi (m)	Temp (°C)	Algae* (Shore)	Algae* (at site)	Goose Count*
6-Oct-02	18:30	5.0	16.0	C1/P1	C1/P1	0
13-Oct-02	11:00	4.5	14.0	C1/P1	C1/P1	0
20-Oct-02	17:45	5.3	13.5	C1/P1	C1/P1	0
27-Oct-02	12:00	5.5	12.0	C1/P1	C1/P1	0
2-Nov-02	12:00	5.0	10.0	C1/P1	C1/P1	0
9-Nov-02	16:30	5.0	9.0	C1/P1	C1/P1	0
17-Nov-02	16:30	4.0	9.0	C1/P1	C1/P1	0
24-Nov-02	12:30	6.0	8.0	C1/P1	NA	7
1-Dec-02	16:00	5.0	7.0	NA	NA	0
8-Dec-02	10:00	5.0	7.0	NA	NA	0
15-Dec-02	11:00	3.5	7.0	NA	NA	0
22-Dec-02	13:00	4.0	6.0	NA	NA	0
29-Dec-02	12:00	4.0	5.0	NA	NA	0
5-Jan-03	15:00	4.0	6.0	NA	NA	0
11-Jan-03	12:00	4.0	5.0	NA	NA	0
19-Jan-03	10:00	4.0	4.0	NA	NA	14
26-Jan-03	15:00	4.0	6.0	NA	NA	0
2-Feb-03	15:00	4.0	6.0	NA	NA	1
9-Feb-03	16:00	4.0	5.0	NA	NA	0
16-Feb-03	14:00	4.0	5.0	NA	NA	2
23-Feb-03	11:00	4.0	6.0	NA	NA	2
2-Mar-03	15:00	4.0	4.0	NA	NA	2
9-Mar-03	9:00	4.0	5.0	NA	NA	0
16-Mar-03	12:00	3.0	8.0	NA	NA	0
23-Mar-03	15:00	3.0	8.0	NA	NA	0
30-Mar-03	10:00	4.0	8.0	P1	P1	0
6-Apr-03	12:00	4.5	10.0	P1	P1	0
13-Apr-03	16:30	4.0	12.0	NA	NA	0
20-Apr-03	14:45	4.0	13.0	P1	P1	0
27-Apr-03						
4-May-03	17:30	4.5	14.0	NA	P1	0
11-May-03	17:30	5.0	15.0		NA	0
18-May-03	18:15	5.0	15.0	P1	P2	0
25-May-03	20:00	4.5	18.0	P1	P1	1
1-Jun-03						
8-Jun-03						
15-Jun-03	13:30	5.0	20.0	P1	P1	0
22-Jun-03	19:00	4.0	18.0	P1	P1	
29-Jun-03	17:30	4.5	23.0	P1	P1	2
7-Jul-03	20:30	5.5	23.0	NA	P1	0
14-Jul-03	20:30	5.5	24.0	NA	P1	0
20-Jul-03	21:00	5.5	25.0	NA	P1	0
27-Jul-03	20:45	4.5	25.0	NA	P2	0
3-Aug-03	18:00	4.5	25.0	P1	P1	0
10-Aug-03	18:30	5.0	24.0	P1	P2	0
17-Aug-03	9:00	5.0	22.0	P1	P1	0
24-Aug-03	19:00	4.5	23.0	P1	P1	0
31-Aug-03	17:00	4.5	22.0	P1	P1	0
7-Sep-03	2:45	4.5	24.0	P1	P1	0
14-Sep-03	3:00	4.0	19.0	P1	P1	0
21-Sep-03	12:30	4.0	18.0	P1	P1	0
28-Sep-03	18:00	4.5	20.0	P1	P1	0
<b>Min</b>		3.0	4.0			0
<b>Max</b>		5.5	25.0			14

