

Bitter

Lake Overview

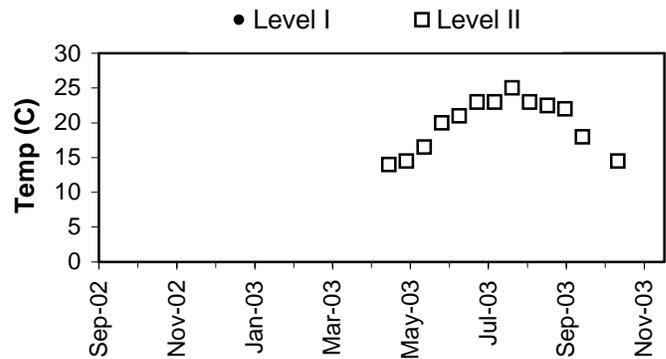
Volunteer monitoring began at Bitter Lake in the 1980s and continued, with a few exceptions, through 2003. The collected data classify this lake in the city of Seattle as moderate in primary productivity (mesotrophic), with good water quality, and remaining stable over time. The lake surface makes up 7% of the drainage area, suggesting that direct precipitation is less important than stormwater runoff and groundwater inputs. Land use analysis of 2002 aerial photographs showed close to 74% of the surrounding watershed has been developed for use. There are no significant wetlands in the basin, and the area is urban. Enhancement of productivity through human impacts is likely to be occurring.

Bitter Lake has no public access boat ramp, but car top boats can be launched through the city park. Residents should monitor aquatic plants growing nearshore to catch early infestations of Eurasian milfoil, Brazilian elodea, or other noxious aquatic weeds.

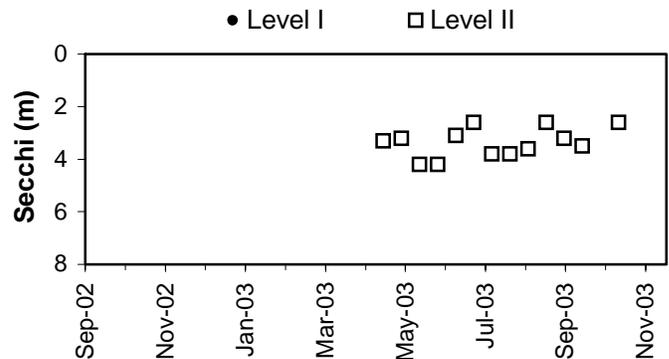
Physical Parameters

Secchi transparency ranged between 2.6 and 4.2m from May through October, similar to 2002. Surface water temperatures were similar to other small lakes in the region, reaching a maximum of 25.0 degrees Celsius. No water levels or precipitation were recorded for the year.

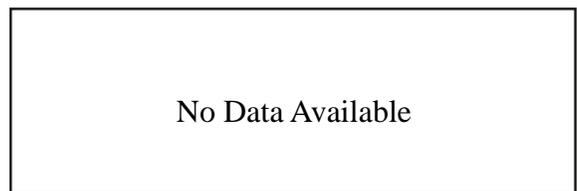
Lake Temperature



Secchi Depth

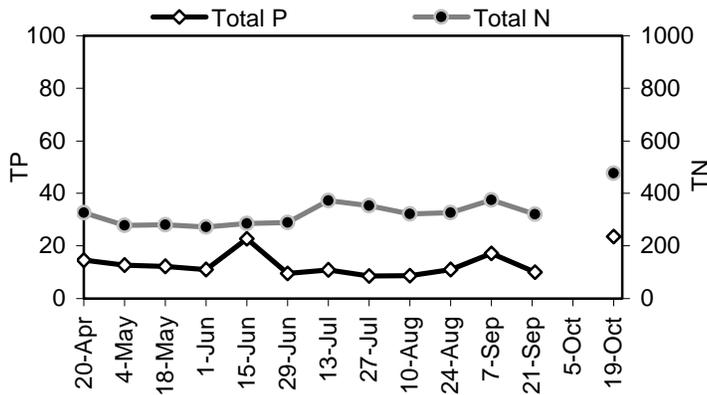


Lake Level and Precipitation

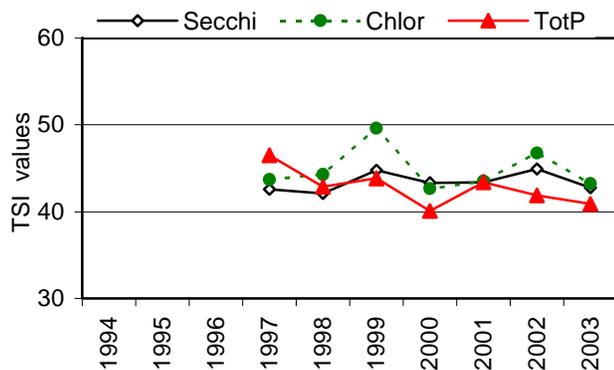


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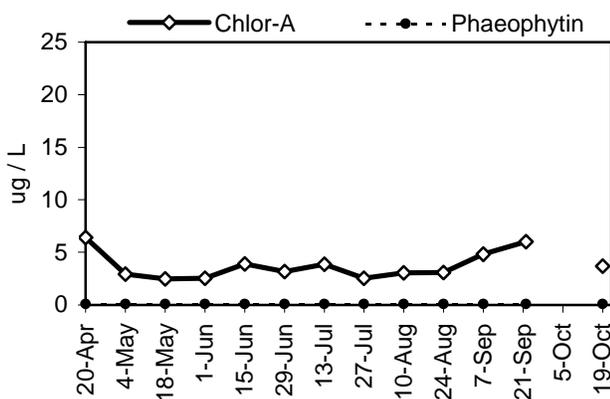
Nutrient Analysis



TSI Ratings



Chlorophyll a Concentrations (ug/L)



Nutrient Analysis and TSI Ratings

Total phosphorus and total nitrogen remained in fairly constant proportion to each other until late October when phosphorus increased more rapidly than nitrogen. Their ratio ranged from 13 to 41, but most values were well above 20, signifying poor conditions for bluegreen algae. TSI values for the three indicators were close to each other in 2003 and were well within the mesotrophic range, similar to previous years

Chlorophyll and Algae

Chlorophyll content decreased from a high value on the first sample date, remained steady through summer, and began climbing in September. The most common algae present included the chlorophyte *Cosmarium*, the dinoflagellate *Peridinium* and the chrysophyte *Dinobryon*. Bluegreen algae were found only rarely in the samples.

Common algae	Group
<i>Cosmarium</i> sp.	chlorophyte
<i>Peridinium</i> sp.	dinoflagellate
<i>Dinobryon</i> spp.	chrysophyte

No Level I Data
Available For This Lake

Bitter

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	14.0	3.3	6.4	14.6	326		22	42.8	48.8	42.8	
4-May	14.5	3.2	3.0	12.8	278		22	43.2	41.2	40.9	
18-May	16.5	4.2	2.5	12.2	280		23	39.3	39.5	40.2	
1-Jun	20.0	4.2	2.5	11.1	272		25	39.3	39.7	38.9	
15-Jun	21.0	3.1	3.9	22.7	285		13	43.7	43.9	49.2	
29-Jun	23.0	2.6	3.2	9.6	289		30	46.2	42.0	36.8	
13-Jul	23.0	3.8	3.9	10.9	372		34	40.7	43.8	38.6	
27-Jul	25.0	3.8	2.5	8.6	353		41	40.7	39.7	35.2	
10-Aug	23.0	3.6	3.1	8.7	321		37	41.5	41.5	35.4	
24-Aug	22.5	2.6	3.1	11.1	326		29	46.2	41.7	38.9	
7-Sep	22.0	3.2	4.8	17.1	375		22	43.2	46.0	45.1	
21-Sep	18.0	3.5	6.0	10.1	320		32	41.9	48.2	37.5	
5-Oct											No sample
19-Oct	14.5	2.6	3.7	23.5	477		20	46.2	43.4	49.7	
	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	19.8	3.4	3.7	13.3	328.8		27	42.7	43.0	40.7	TSI Average = 42.1
Median	21.0	3.3	3.2	11.1	321.0		25	42.8	42.0	38.9	
Min	14.0	2.6	2.5	8.6	272.0		13	39.3	39.5	35.2	
Max	25.0	4.2	6.4	23.5	477.0		41	46.2	48.8	49.7	
Count	13	13	13	13	13		13	13	13	13	