

# Marcel

## Lake Overview

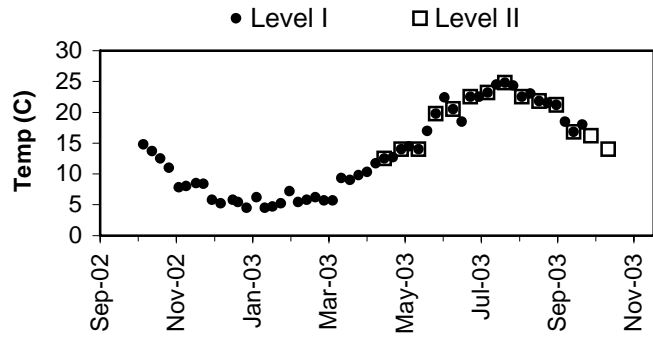
Volunteer monitoring began at Lake Marcel in 2000 and continued through 2003. The data indicate that this rural lake is relatively high in primary productivity (eutrophic) with fair water quality. Since the lake surface makes up only 3% of the drainage area, direct precipitation is not as important as watershed inputs. Land use analysis of 2002 aerial photographs showed almost 45% of the surrounding watershed has been developed for uses other than agriculture.

Lake Marcel has no public access boat launch, but has a history of aquatic weed management, including stocking with grass carp. Residents should keep an eye on aquatic plants growing nearshore to catch early infestations of noxious weeds.

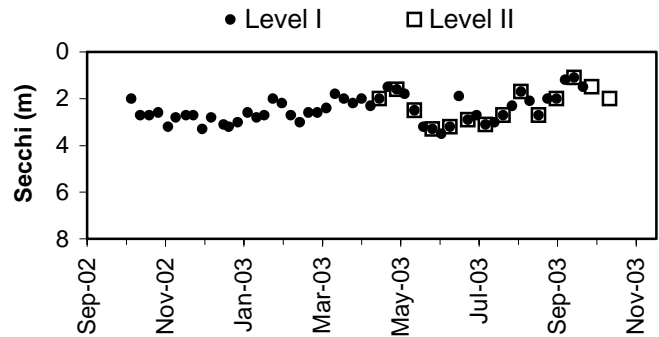
## Physical Parameters

Secchi transparency ranged from 1.1 to 3.5m through the year. Annual water temperatures ranged from 4.5 to 24.8 degrees Celsius. Excellent precipitation and water level records were kept over the year, showing that water levels remained steady through the year without major seasonal fluctuations or rapid responses to storms.

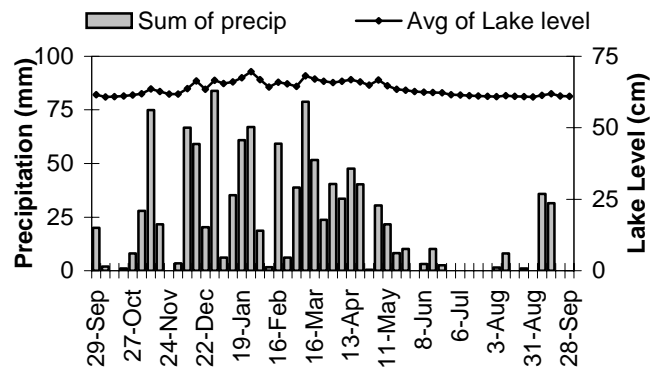
Lake Temperature



Secchi Depth

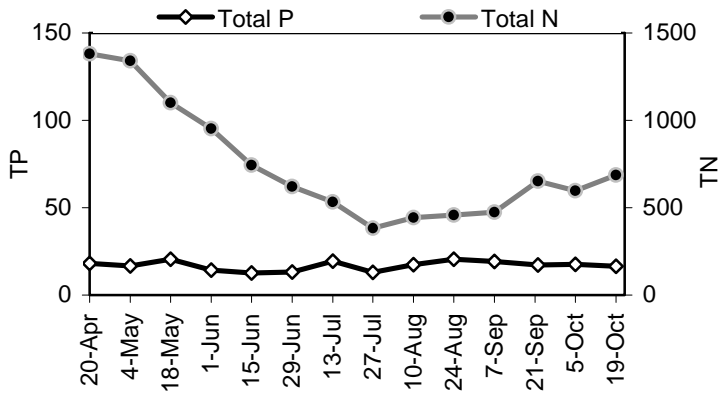


Lake Level and Precipitation

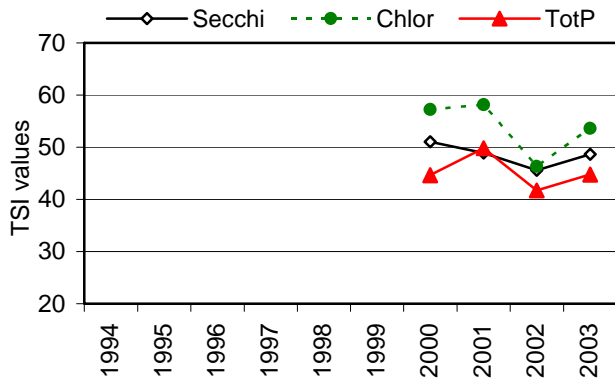


## Marcel

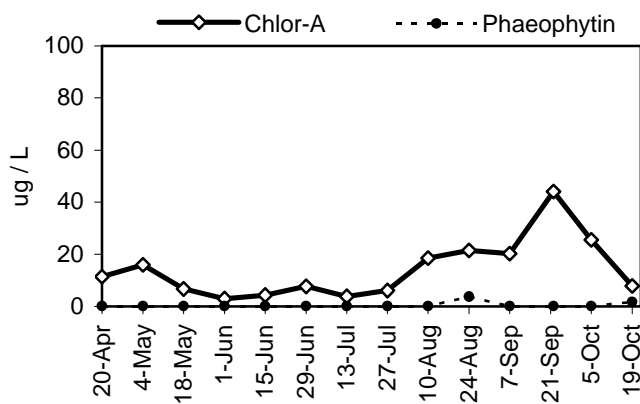
### Nutrient Analysis



### TSI Ratings



### Chlorophyll a Concentrations (ug/L)



## Nutrient Analysis and TSI Ratings

Total phosphorus and total nitrogen changed proportion to each other slowly as Total N decreased through spring and then rose slowly through October. The N:P ratio ranged from 22 to 80. The 2003 TSI indicators spanned the mesotrophic – eutrophic threshold, with chlorophyll higher than the other two indicators, higher than in 2002.

## Chlorophyll and Algae

Chlorophyll remained relatively low until early August, when it began climbing to a peak in late September. The autumn bloom was dominated by the chrysophyte *Dinobryon sociale*, which made up 95% of the algae biovolume at its peak. Other common algae included the euglenophyte *Trachelomonas* and several species of cryptophytes. Bluegreens were noted, but never became common.

Common algae	Group
<i>Dinobryon sociale</i>	chrysophyte
unidentified species	chrysophyte
<i>Trachelomonas volvocina</i>	euglenophyte

**Marcel**

**2003 Level I Data**

**Daily Data Summary**

**Weekly Data Summary**

Week of	Sum of precip. (mm)	# of days	Avg of lake level (cm)	# of days	Sample date	Sample time	Secchi (m)	Temp (°C)	Algae* (Shore)	Algae* (at site)	Goose Count*
29-Sep-02	20.0	5	61.6	5							
6-Oct-02	2.0	7	60.8	7	6-Oct-02	14:55	2.0	14.8	C1	C1	10
13-Oct-02	0.0	7	60.9	7	13-Oct-02	14:30	2.7	13.7	C1	C1	40
20-Oct-02	1.0	7	61.1	7	20-Oct-02	13:30	2.7	12.5	C2	C2	0
27-Oct-02	8.1	7	61.4	7	27-Oct-02	13:15	2.6	11.0	C2	C2	16
3-Nov-02	28.0	7	61.9	7	4-Nov-02	14:20	3.2	7.8	P1	C1	0
10-Nov-02	74.9	7	63.5	7	10-Nov-02	14:30	2.8	8.0	C1	C1	0
17-Nov-02	21.6	7	62.6	7	18-Nov-02	15:05	2.7	8.5	C1	C1	0
24-Nov-02	0.0	7	61.8	7	24-Nov-02	16:10	2.7	8.4	C1	C1	0
1-Dec-02	3.5	7	61.8	7	1-Dec-02	15:15	3.3	5.8	C1	C1	0
8-Dec-02	66.6	7	63.7	7	8-Dec-02	13:55	2.8	5.2	C1	C1	0
15-Dec-02	59.0	7	66.3	7	18-Dec-02	15:07	3.1	5.8	C1	C1	0
22-Dec-02	20.3	7	63.5	7	22-Dec-02	15:25	3.2	5.4	C1	C1	0
29-Dec-02	83.8	7	66.6	7	29-Dec-02	15:10	3.0	4.5	C1	C1	0
5-Jan-03	6.1	7	65.5	7	6-Jan-03	15:25	2.6	6.2	C1	C1	0
12-Jan-03	35.3	7	66.0	7	13-Jan-03	13:05	2.8	4.5	C1	C1	0
19-Jan-03	60.9	7	67.5	7	19-Jan-03	15:05	2.7	4.7	NA	NA	30
26-Jan-03	67.0	7	69.6	7	26-Jan-03	15:50	2.0	5.2	NA	NA	0
2-Feb-03	18.7	7	66.9	7	2-Feb-03	14:55	2.2	7.2	C2	C2	0
9-Feb-03	1.6	7	64.2	7	9-Feb-03	15:20	2.7	5.4	C1	C1	0
16-Feb-03	59.2	7	65.9	7	16-Feb-03	15:00	3.0	5.8	C1	C1	0
23-Feb-03	6.1	7	65.4	7	23-Feb-03	15:10	2.6	6.2	C1	C1	0
2-Mar-03	38.8	7	64.5	7	2-Mar-03	14:15	2.6	5.7	C1	C1	0
9-Mar-03	78.7	7	68.1	7	9-Mar-03	14:30	2.4	5.7	C1	C1	0
16-Mar-03	51.5	7	67.0	7	16-Mar-03	14:00	1.8	9.3	C2	C2	0
23-Mar-03	23.7	7	66.2	7	23-Mar-03	15:35	2.0	9.0	C2	C2	0
30-Mar-03	40.5	7	65.9	7	30-Mar-03	14:45	2.2	9.8	C2	C2	0
6-Apr-03	33.7	7	66.2	7	6-Apr-03	14:40	2.0	10.3	C2	C3	0
13-Apr-03	47.5	7	66.8	7	13-Apr-03	15:25	2.3	11.7	NA	NA	0
20-Apr-03	40.3	7	66.1	7	20-Apr-03	15:45	2.0	12.5	P1	P1	0
27-Apr-03	0.5	7	64.9	7	27-Apr-03	14:40	1.5	12.7	P1	P1	0
4-May-03	30.5	7	66.7	7	4-May-03	14:00	1.6	14.0	C1	C2	0
11-May-03	21.6	7	64.7	7	10-May-03	15:50	1.8	14.5	P2	P2	0
18-May-03	8.2	7	63.5	7	18-May-03	14:45	2.5	14.0	P1	P1	0
25-May-03	10.1	7	63.1	7	25-May-03	15:20	3.2	17.0	P1	P1	30
1-Jun-03	0.0	7	62.7	7	1-Jun-03	15:07	3.3	19.8	P1	NA	30
8-Jun-03	3.2	7	62.4	7	8-Jun-03	14:25	3.5	22.4	NA	NA	25
15-Jun-03	10.1	7	62.4	7	15-Jun-03	14:30	3.2	20.5	NA	NA	25
22-Jun-03	2.6	7	62.2	7	22-Jun-03	14:20	1.9	18.5	P2	P2	3
29-Jun-03	0.0	7	61.6	7	29-Jun-03	14:35	2.9	22.5	P1	P1	1
6-Jul-03	0.0	7	61.5	7	6-Jul-03	16:45	2.7	22.5	P1	P1	1
13-Jul-03	0.0	7	61.2	7	13-Jul-03	15:55	3.1	23.2	NA	NA	0
20-Jul-03	0.0	7	61.1	7	20-Jul-03	15:40	3.0	24.5	NA	NA	0
27-Jul-03	0.0	7	61.0	7	27-Jul-03	17:00	2.7	24.8	P1	P1	0
3-Aug-03	1.6	7	60.9	7	3-Aug-03	15:30	2.3	24.3	P1	P1	0
10-Aug-03	8.1	7	61.2	7	10-Aug-03	16:40	1.7	22.5	P1	P1	0
17-Aug-03	0.0	7	61.0	7	17-Aug-03	16:40	2.1	23.0	P2	P2	0
24-Aug-03	1.0	7	60.8	7	24-Aug-03	15:00	2.7	21.8	P2	P2	0
31-Aug-03	0.0	6	60.7	7	31-Aug-03	14:50	2.0	21.5	P2	P2	0
7-Sep-03	35.9	7	61.3	7	7-Sep-03	15:10	2.0	21.2	P2	P2	0
14-Sep-03	31.5	7	61.8	7	14-Sep-03	13:15	1.2	18.5	C3	C3	0
21-Sep-03	0.0	7	61.1	7	21-Sep-03	15:00	1.1	16.8	C3	P1	2
28-Sep-03	0.0	3	61.0	3	28-Sep-03	13:15	1.5	18.0	C3	P1	0
<b>Min</b>	0.0		60.7		<b>Min</b>		1.1	4.5			0
<b>Max</b>	83.8		69.6		<b>Max</b>		3.5	24.8			30
<b>Total</b>	1163.2	364.0					52.0				

