

Valentine Lake (62-0071) Rice Creek Watershed District

Valentine Lake is located within the City of Arden Hills in Ramsey County. The lake has a surface area of 60 acres, and a maximum and mean depth of 4.0 m (13.1 feet) and 1.5 m (4.9 feet), respectively. Because of the shallowness of the lake, its entire surface area is considered littoral, the shallow (0-15 foot depth) area dominated by aquatic vegetation, and it does not maintain a thermocline (a density gradient owed to changing water temperatures throughout the lake's water column). The mean depth and surface area of the lake translates to an approximate volume of 300 ac-ft.

This was the first year that Valentine Lake has been involved in CAMP. A search through the STORET nationwide water quality database for data on the lake came up empty. Therefore 2001 represents the only water quality data readily available for the lake.

The lake was monitored 14 times between mid-April and late-October, 2001. On each sampling day the lake was monitored for TP, CLA, TKN, and Secchi transparency, as well as the lake's perceived physical condition and recreational suitability. The mean summertime (May through September) surface TP concentration was 47.3 µg/l (minimum of 20.0 µg/l, maximum of 70.0 µg/l). The mean CLA and Secchi transparency readings were 19.0 µg/l (minimum of 3.9 µg/l, maximum of 61.0 µg/l) and 1.8 m (minimum of 0.7 m, maximum of 3.7 m), respectively. The lake's mean surface TKN concentration was 1.03 mg/l (minimum of 0.66 mg/l, maximum of 1.70 mg/l).

The lake's 2001 quality grades determined from each parameter's summertime mean are TP= C, CLA= B, and Secchi transparency= C. The resulting overall grade for 2001 is C. The lake's 2001 nutrient concentrations and Secchi transparencies are graphed on the following page.

Because of the limitedness of the lake's water quality database, the determination of any only long- or short-term trends are not possible to determine. To better understand the lake's water quality and what direction it may be heading, more years of data collection are needed.

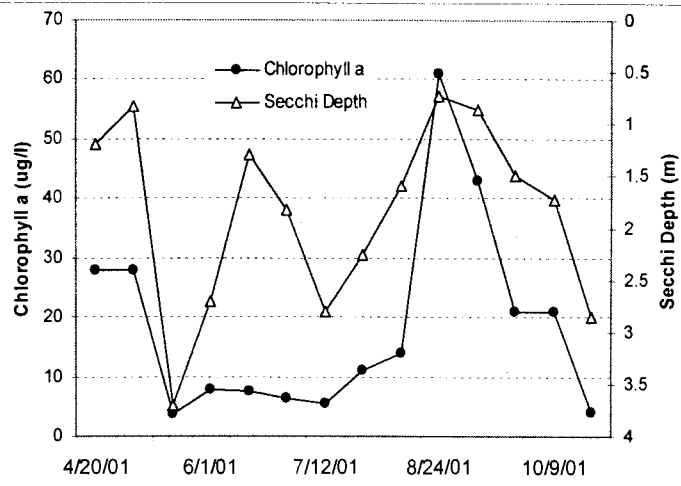
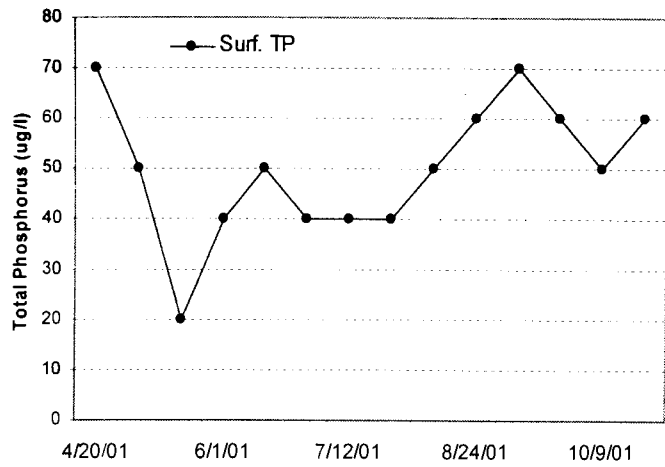
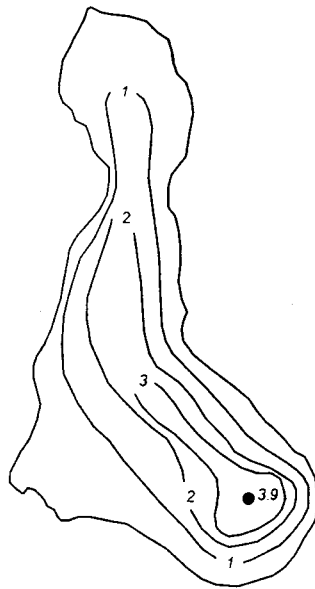
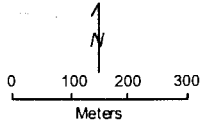
The perceived physical and recreational conditions of the lake, recorded by the volunteers, were ranked on a 1-to-5 scale. The rankings are shown in both tabular and graphical form on the lake's associated information sheet. The mean physical condition ranking was 3.6 (between 3- "definite algae present" and 4- "high algal color"), while the mean recreational suitability ranking was 3.5 (between 3- "swimming slightly impaired" and 4- "no swimming - boating ok").

If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Randy Anhorn of the Metropolitan Council at (651) 602-8743 or randy.anhorn@metc.state.mn.us.

Valentine Lake
Arden Hills, Ramsey Co.

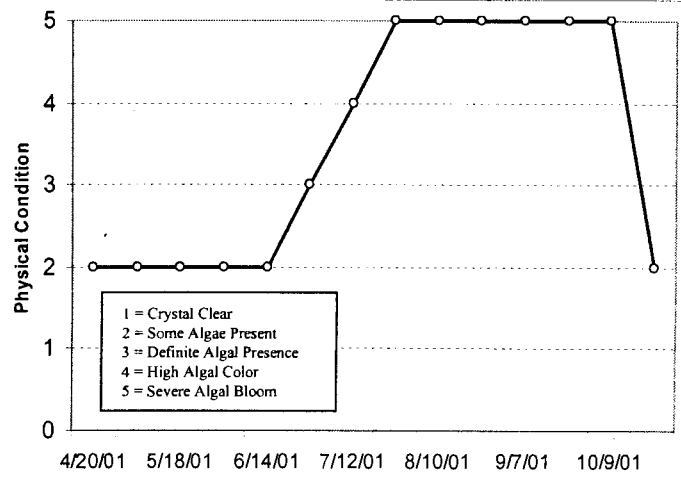
Lake ID: 620071
WD: Rice Creek
Volunteers: Bob Kistler/Nathan Bro

● Sampling site
Contours in meters



2001 Data

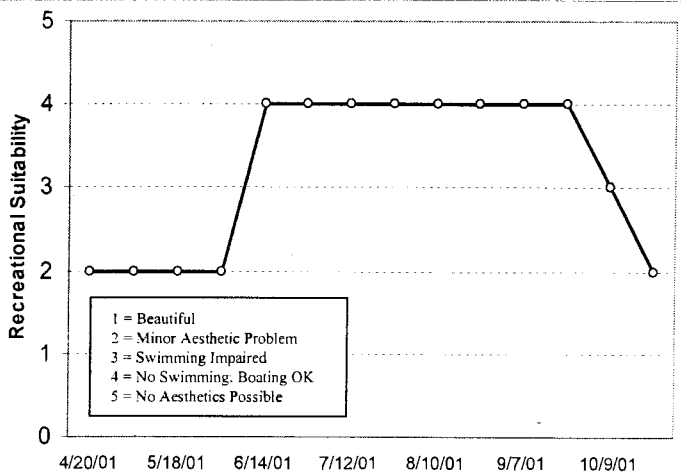
Date	Surf. Temp C	Bot. Temp C	Surf. DO mg/l	Bot. DO mg/l	CLA ug/l	Surf. TP ug/l	Bot. TP ug/l	Secchi M	PC 1 thru 5	RC 1 thru 5
4/20	11.8		12.4		28	70		1.2	2	2
5/3	15.7		11.3		28	50		0.8	2	2
5/18	23.3		8.8		3.9	20		3.7	2	2
6/1	18.2		9		7.9	40		2.7	2	2
6/14	22.9		6.4		7.5	50		1.3	2	4
6/28	28.3		6.3		6.3	40		1.8	3	4
7/12	28.2		5.3		5.6	40		2.8	4	4
7/28	30.2		4.6		11	40		2.3	5	4
8/10	27.1		4		14	50		1.6	5	4
8/24	25.8		4.7		61	60		0.7	5	4
9/7	22.4		3.4		43	70		0.9	5	4
9/26	15.7		8.2		21	60		1.5	5	4
10/9	12		9		21	50		1.7	5	3
10/27	6.2		10.9		4.2	60		2.9	2	2



Lake Water Quality Grades Based on Summertime Averages

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Total Phosphorus											
Chlorophyll a											
Secchi Depth											
Overall											

Year	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Total Phosphorus											C
Chlorophyll a											B
Secchi Depth											C
Overall											C



Source: Metropolitan Council and STORET data