

The Commission monitored Henry Lake in Hassan Township in cooperation with the Metropolitan Council. Henry Lake is a small, shallow lake in Hassan Township. Prior to 1995, it had never been monitored. A volunteer who was trained by Metropolitan Council staff and then conducted the monitoring 10 times from April to the end of September. The watershed of the lake is primarily under agricultural land uses with parts being slowly converted to rural residential. These land uses contribute significant nutrients including phosphorus to the lake. Therefore, as expected, the water quality of the lake is poor, with an average transparency of 3 feet. A summary prepared by Metropolitan Council staff is included in Appendix 2.

Henry Lake (27-0175) *Elm Creek Watershed Management Commission*

Henry Lake, located in southeastern Hassan Township in Hennepin County, was monitored 10 times between mid-April and late-September 1995, including nine volunteer events and one Council monitored 'quality check'. The 77-acre lake is managed as a natural environment lake, and because the maximum depth is only 1.5 m (five feet), the entire lake is considered littoral zone, that is, an area of aquatic plant dominance.

On each sampling date, the lake was monitored for TP, CLA, TKN, Secchi transparency, as well as perceived physical condition and recreational suitability. The mean summertime (May through September) surface TP concentration for the lake was 75.6 µg/l (minimum of 30.0 µg/l, maximum of 140.0 µg/l). The mean CLA and Secchi transparency readings were 28.3 µg/l (minimum of 17.0 µg/l, maximum of 45.0 µg/l), and 0.9 m (minimum of 0.6 m, maximum of 1.1 m), respectively. The lake's mean surface TKN concentration was 1.56 mg/l.

The summertime means resulted in a TP grade of D, CLA grade of C, and Secchi transparency grade of D. The overall grade calculated from all three parameters was D.

The physical and recreational conditions of Henry Lake as perceived by the volunteer(s) were ranked on a 1-to-5 scale. These rankings are shown on the lake's information sheet on the next page. The summertime mean physical condition was 3.7 (between 3- "definite algal presence" and 4- "high algal color"). The mean suitability for recreation ranking, was 3.6 (between 3- "swimming impaired" and 4- "no swimming - boating ok").

The water quality graphs on the information sheet show exactly how TP and CLA responded to each other. Generally, an in-lake increase in TP means more phosphorus is available for algal growth, which is recorded as an increase in CLA. The higher the concentration of CLA, the lower the clarity of the water, and vice versa.

In the case of Henry Lake, both TP and CLA concentrations started out at moderate levels, began to increase to maximum conditions in early-July, and then declined and fluctuated slightly throughout September. As would be expected, Secchi transparencies over this same period also started out at a moderate level, decreased when TP and CLA were at their maximum and then increased throughout early September before slightly decreasing at the end of September when CLA concentrations rose slightly.

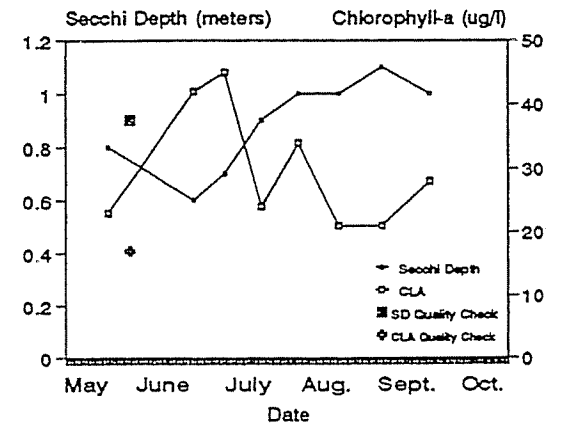
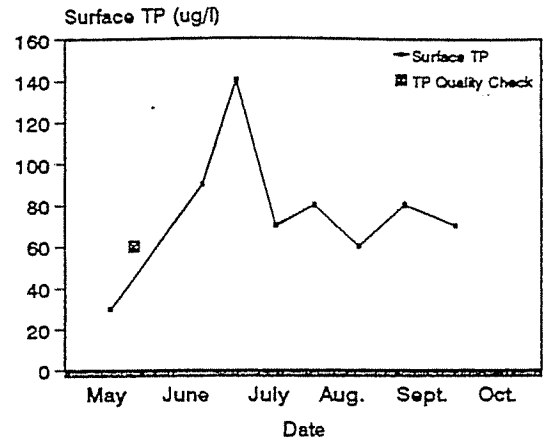
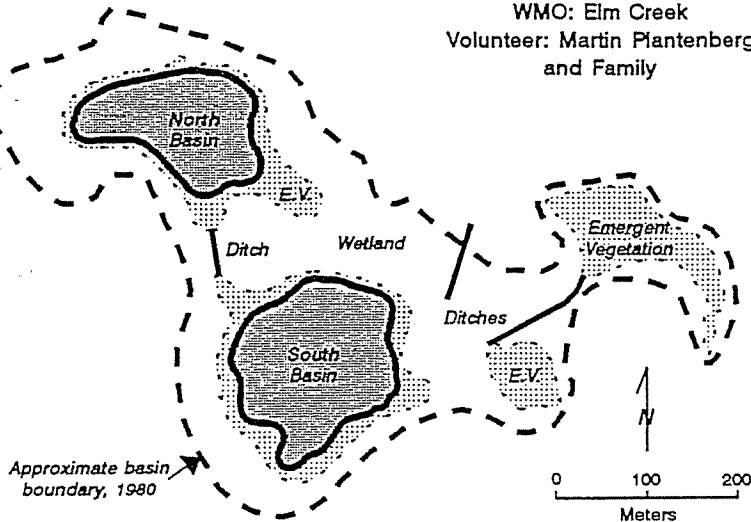
Because 1995 was the first year of available data, no long- or short-term trends can be determined. In order to better understand the quality of the lake and what direction it may be heading, more years of data collection are needed.

If you recognize any errors in the lake data or physical information, or are aware of any additional or missing information, please contact Randy Anhorn of the Metropolitan Council at (612) 291-6449.

Henry Lake

Hennepin County

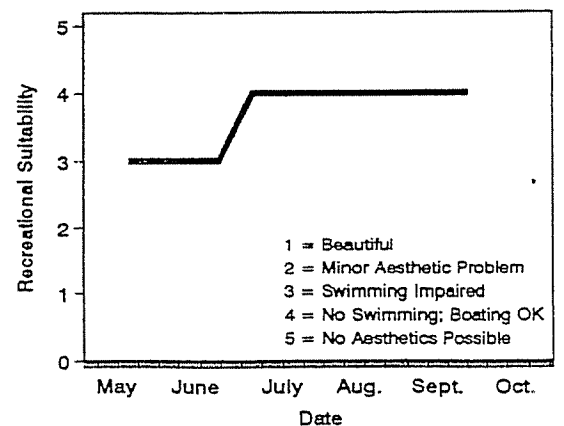
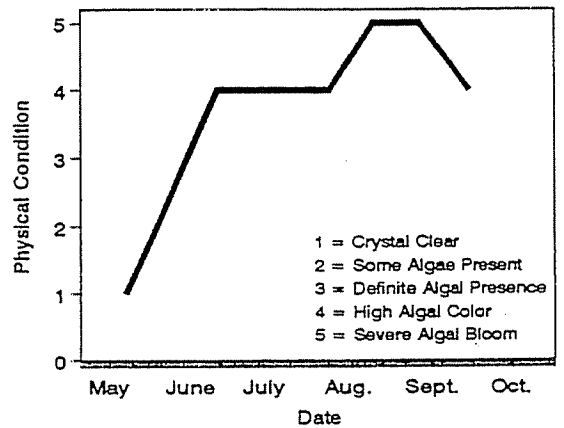
Lake ID: 270175
 WMO: Elm Creek
 Volunteer: Martin Plantenberg
 and Family



Data Table

(* = Metro Council quality check)

Date	Time of Day	Surface Temp. (C)	TP (ug/l)	CLA (ug/l)	Secchi (meters)	Phys. Cond.	Rec. Suit.
4/16	1530	6.5	100	47.0	0.8	2	4
5/19	1900	21.0	30	23.0	0.8	1	3
* 5/28	-	23.0	60	17.0	0.9	2	2
6/24	-	22.0	90	42.0	0.6	4	3
7/7	930	21.0	120	45.0	0.7	4	4
7/22	24.0	70	70	24.0	0.9	4	4
8/6	1325	26.0	80	34.0	1.0	4	4
8/23	1900	24.0	60	21.0	1.0	5	4
9/10	1200	21.0	80	21.0	1.1	5	4
9/30	-	17.0	70	28.0	1.0	4	4



Lake Water Quality Grades Based on Summertime Averages

Year	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	
Total Phosphorus																	D
Chlorophyll-a																	C
Secchi Depth																	D
Overall																	D

(Sources: Metropolitan Council and STORET data)