

## French Lake

The Commission first sampled French Lake in 2001. French Lake had a mean TP concentration of 262  $\mu\text{g/L}$  in 2002 (compared to 265  $\mu\text{g/L}$  in 2001). The 2002 mean TP concentration of 262-265  $\mu\text{g/L}$  is significantly higher than the goal of 100  $\mu\text{g/L}$ , indicating very poor water quality. French Lake exhibited a mean chlorophyll a concentration of 97.0  $\mu\text{g/L}$  in 2002 (almost triple the 36.3  $\mu\text{g/L}$  reported in 2001). This mean chlorophyll a concentration was influenced heavily by algal blooms in mid-June and August through early September. For the majority of the summer, concentrations, were below 50  $\mu\text{g/L}$ .

Transparency in French Lake was very limited, due to both algal and non-algal turbidity. The mean for 2002 was 0.3 meters (half the 0.6 meters reported in 2001). The MPCA database includes transparency data for French Lake from 1985, but no phosphorus data. In 1985 the mean transparency was 0.6 meters, the same as it was in 2001. The mean

Total Kjeldahl nitrogen (TKN) for French Lake was 3.4  $\text{mg/L}$ . The TKN value differs from total nitrogen in that it does not include the nitrate and nitrite concentrations, which are generally low in lakes.

The lake's 2002 water quality was worse than that recorded in 2001. A reason for this may be increased runoff and associated phosphorus as a result of the well above normal precipitation recorded throughout the summer of 2002.

French Lake is a very shallow basin surrounded by crop land with no or very little permanent vegetated buffers around the lake. The land use characteristic of the watershed is agricultural, rural residential and light commercial/ industrial. Pollutant loading from its watershed is likely very high with the lack of vegetated buffers around the lake and historic agricultural uses. The shallow basin can be easily mixed with wind, churning up bottom sediments. Despite its high TP concentrations, French Lake is a valuable resource for a wide variety of waterfowl species. The DNR worked with the Commission's volunteers to conduct a waterfowl survey on the lake in 2001. The following species were identified:

Common Loon	Forster's Tern	Red-breasted Merganser	Canvasback
Coot	Mallard	Hooded Merganser	Sandpiper species
Great Blue Heron	Ruddy Duck	Swallow species	Common Tern
Great Egret	Bufflehead	Ringed-billed Gull	Canada Goose
Cowbirds	Blue-winged Teal	Lesser Scaup	Western Grebe
Green Heron	Little Blue Heron	Hen'ing Gull	

## **French Lake (27-0127) *Elm Creek Watershed Management Commission***

This was the second year that the French Lake, located within the boundaries of Dayton (Hennepin County), has been involved in CAMP. The 352-acre lake has a maximum depth of 1.0 m (roughly 3 feet). A search through the STORET nationwide water quality database for data on the lake provided limited data (just Secchi data in 1985). Therefore, the 2001 and 2002 CAMP data are the only known available nutrient water quality data for the lake.

The lake was monitored 10 times from early-May to mid-September, 2002. Results are presented in both graphs and data tables on the lake's information sheet on the following page.

The summertime (May through September) means for the monitored variables were: surface TP= 262.3  $\mu\text{g/l}$  (minimum concentration of 86.0  $\mu\text{g/l}$  and a maximum value of 724.0  $\mu\text{g/l}$ ); surface chlorophyll-a= 97.0  $\mu\text{g/l}$  (minimum of 15.0  $\mu\text{g/l}$  and maximum of 290.0  $\mu\text{g/l}$ ); Secchi transparency= 0.3 m (minimum of 0.13 m and a maximum of 0.55 m); and TKN= 3.44 mg/l (minimum of 1.60 mg/l and maximum of 6.80 mg/l). The lake's summer means translate to water quality grades of F for TP, F, for CLA, and F for Secchi transparency. These grades result in an overall water quality grade of F for French Lake in 2002 (worse than the overall grade of D the lake received in 2001). While the lake's 2002 TP mean is very similar to that recorded in 2001, the 2002 mean chlorophyll and Secchi transparency was much worse.

As mentioned earlier, there was little water quality data found for French Lake prior to the 2001 CAMP data. Therefore it is not possible to determine any long-term or short-term trends. To better understand the lake's water quality and where it may be heading, more data are needed.

The last two graphs show seasonal variation in the lake's perceived physical condition and recreational suitability. The average user perception rankings, on a 1-to-5 scale, were 3.4 for physical condition (between 3- "definite algae present" and 4- "high algal color"), and 4.0 for recreational suitability (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@d.metc.state.mn.us](mailto:randy.anhorn@d.metc.state.mn.us).

# French Lake

Dayton, Hennepin Co.

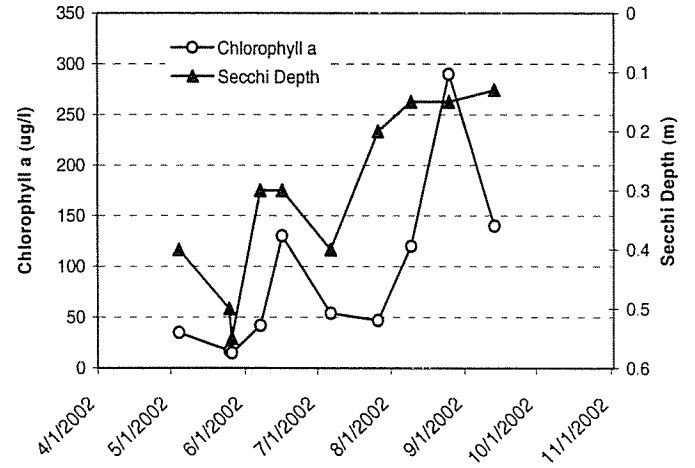
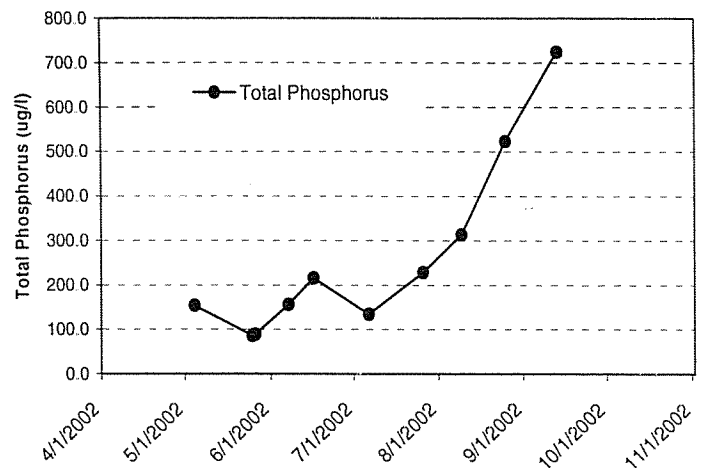
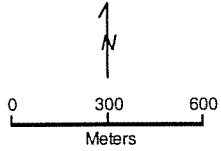
LAKE ID: 210127

WMO: Elm Creek

Volunteers: Dick and Jean  
Reiersen

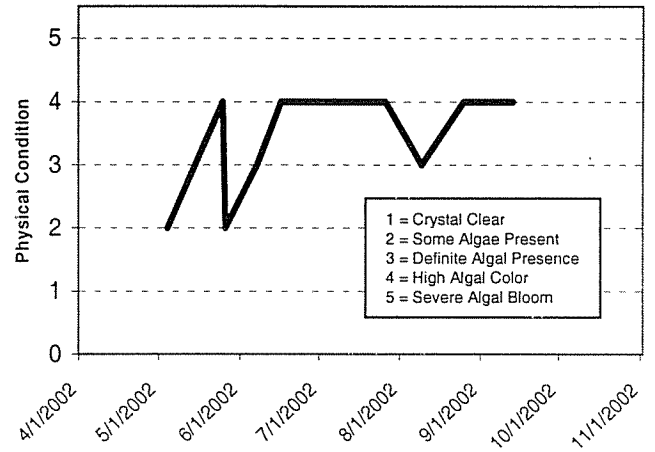
● Sampling site

Contours in meters



## 2002 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	RS 1 thru 5
5/4	14				35	154.0		0.4	2	4
5/25	17.5				17	86.0		0.5	4	4
5/26	18				15	89.0		0.55	2	4
6/7	22				42	156.0		0.3	3	4
6/16	21				130	216.0		0.3	4	4
7/6	30				54	134.0		0.4	4	4
7/26	29				47	228.0		0.2	4	4
8/9	26				120	313.0		0.15	3	4
8/25	26				290	523.0		0.15	4	4
9/13	23				140	724.0		0.13	4	4



## Lake Water Quality Grades Based on Summertime Averages

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total Phosphorus												
Chlorophyll a												
Secchi Depth						F						
Overall												

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Total Phosphorus									F	F	
Chlorophyll a									C	F	
Secchi Depth									F	F	
Overall									D	F	

Source: Metropolitan Council and STORET data

