

## French Lake

The Commission first sampled French Lake in 2001. French Lake had a mean phosphorus concentration of 265 µg/L in 2001. The 2001 mean phosphorus concentration of 265 µg/L is significantly higher than the goal of 100 µg/L, indicating very poor water quality. French Lake exhibited the highest mean Chlorophyll a concentration of 36.3 µg/L for 2001. This mean concentration was influenced heavily by a late algal bloom in September. For the majority of the summer, concentrations were below 25 µg/L. Transparency in French Lake was very limited, due to both algal and non-algal turbidity. The mean for 2001 was 0.6 meters or two feet. The MPCA database includes transparency data for French Lake from 1985, but no phosphorus data. In 1985 the mean transparency was 0.6 meters (2 feet) the same as it was in 2001. The mean Total Kjeldahl nitrogen for French Lake was 2.4 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.

French Lake is a very shallow basin surrounded by cropland with no or very little permanent vegetated buffers around the lake. The land use characteristic of the watershed is agriculture, 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. Sampling data for French Lake can be found in Appendix 5.

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

### FRENCH LAKE

DATE	SAMPLE DEPTH	AQUATIC PLANTS	CLOUD COVER %	LAKE LEVEL	SECCHI DISK meter	PHYS COND	REC SUIT	WIND	WATER COLOR	WATER ODOR	WATER SURFACE	AIR TEMP F	WATER TEMP C	CLA µg/l	CLA Viable %	TKN mg/l	TP µg/l
4/20/01	0	Minimal	100	Above Normal	0.6	2	4	Breezy South	Brown	None	Small Waves	41-60	10	42		1.8	110
5/4/01	0	Minimal	25	Normal	0.87	2	4	Breezy North	Brown	None	Ripple	61-80	16	10		1.4	50
5/18/01	0		25	Normal	0.8	2	4	Breezy South	Brown	None	Ripple	61-80	21	12		2	110
5/27/01	0	Minimal	0	Above Normal	0.78	2	4	Calm	Brown	None	Ripple	61-80	17	4.4		1.8	120
6/10/01	0	Slight	25	Above Normal	0.77	2	4	Breezy South	Brown	None	Ripple	61-80	25	5.4		2	200
6/22/01	0	Moderate	0	Normal	0.72	3	4	Calm	Green	None	Calm	61-80	23	23	92	2.45	220
7/4/01	0	Moderate	0	Normal	0.7	3	4	Breezy North	Green	None	Small Waves	61-80	24	15	83	1.8	270
7/21/01	0	Substantial	0	Normal	0.5	3	4	Calm	Green	None	Calm	81-90	31	18	93	2.1	220
8/5/01	0	Substantial	0		0.4	4	4	Breezy South	Green		Small Waves	81-90	28	62	92	2.6	440
9/2/01	0	Substantial	0		0.25	4	5	Breezy South	Blue-Green	None	Ripple	61-80	21	120	92	4.3	650
9/23/01	0	Substantial	100	Below Normal	0.4	4	4	Breezy North	Yellow		Ripple	41-60	15.6	87	89	3.6	530
Mean					0.62	2.8	4.1						21.1	36.3	90.2	2.4	265
Std. Dev.					0.2	0.9	0.3						6.1	38.1	3.8	0.9	193

PHYS CON - physical condition  
 REC SUIT- recreational suitability  
 CLA - Chlorophyll a  
 TKN - Total Kjeldahl Nitrogen  
 TP - Total Phosphorus

1- clear, 2 - some algae present, 3- definite algae color, 4-high algal color, 5-severe bloom, odor, scum  
 1-beautiful, 2-minor aesthetic problem, 3-swimming slightly impaired, 4-no swim, boating okay, 5- no aesthetics

## French Lake (27-0127) *Pioneer-Sarah Watershed Management Organization*

This was the first year that French Lake (a 352-acre lake located within the boundaries of Dayton [Hennepin County]), has been involved in CAMP. A search through the STORET nationwide water quality database for data on the lake provided limited data (just Secchi data in 1985). Therefore, 2001 is the only year of available nutrient water quality data for the lake.

The lake was monitored 11 times from late-April to mid-September, 2001. 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= 275.5  $\mu\text{g/l}$  (minimum concentration of 50.0  $\mu\text{g/l}$  and a maximum value of 6500  $\mu\text{g/l}$ ); surface chlorophyll- $a$  = 34.5  $\mu\text{g/l}$  (minimum of 4.4  $\mu\text{g/l}$  and maximum of 12.0  $\mu\text{g/l}$ ); Secchi transparency = 0.6 m (minimum of 0.3 m and a maximum of 0.9 m); and TKN= 2.41  $\text{mg/l}$  (minimum of 1.40  $\text{mg/l}$  and maximum of 4.30  $\text{mg/l}$ ). The lake's summer means translate to water quality grades of F for TP, C for CLA, and F for Secchi transparency. These grades result in an overall water quality grade of D for French Lake in 2001.

As mentioned earlier, there was little water quality data found for French Lake prior to the 2001 CAMP data. Therefore it is impossible 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.

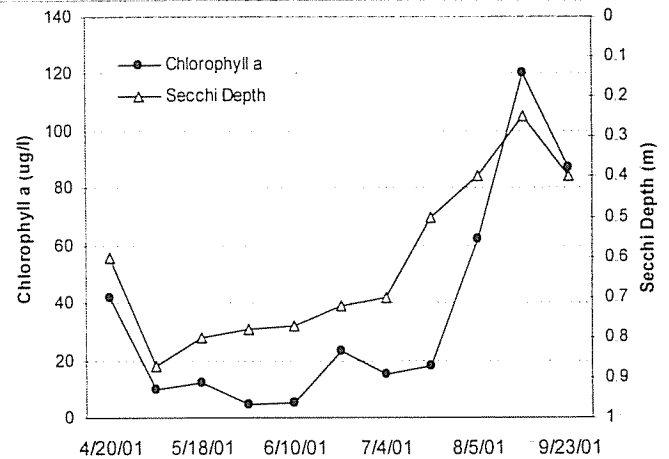
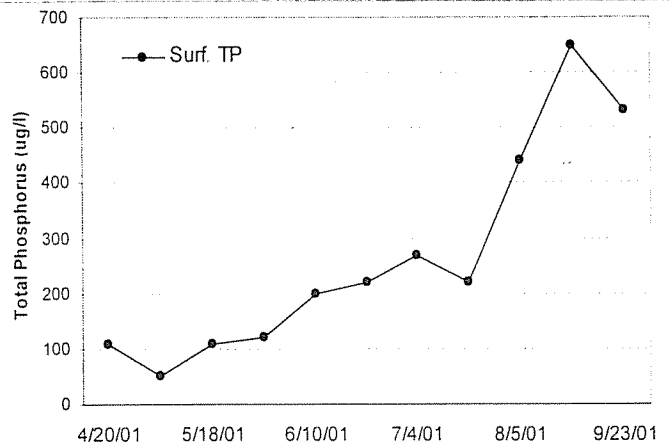
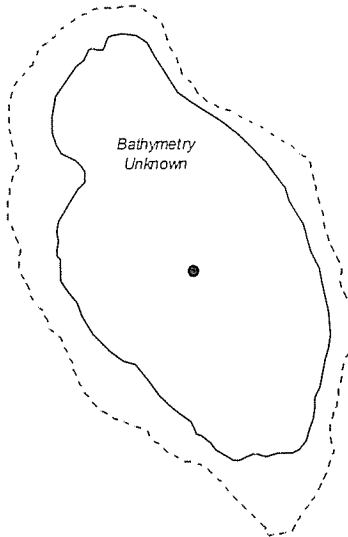
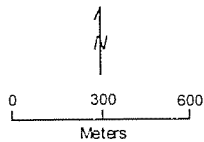
The last two graphs show seasonal variation in the lake's perceived physical condition and recreational suitability. The average user perception rankings, on a 1-to-5 scale, were 2.9 for physical condition (roughly equal to 3- "definite algal presence"), and 4.1 for recreational suitability (between 4- "no swimming - boating ok" and 5- "no aesthetics possible").

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 [randv.anhorn@ct.metc.state.nn.us](mailto:randv.anhorn@ct.metc.state.nn.us).

**French Lake**  
Dayton, Hennepin Co.

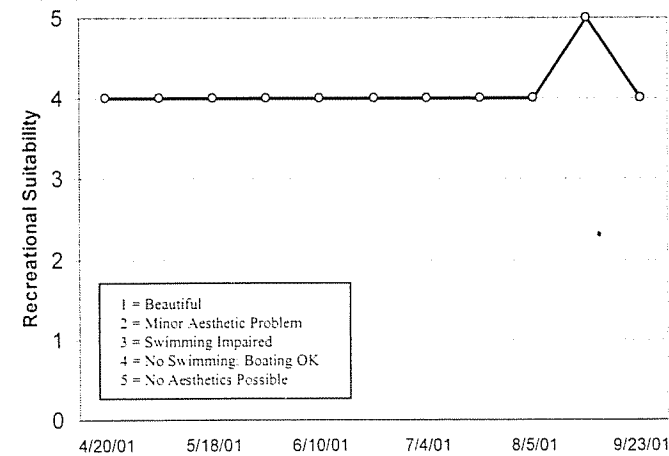
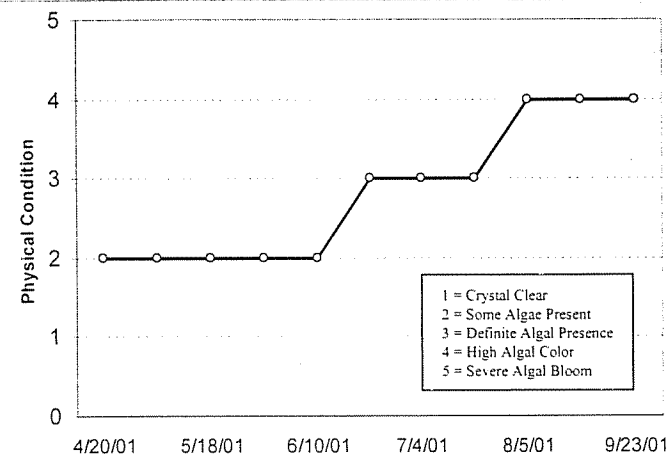
LAKE ID: 210127  
WMO: Pioneer-Sarah Creek  
Volunteer: Dick and Jean Reiersen

● 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	10				42	110		0.6	2	4
5/4	16				10	50		0.9	2	4
5/18	21				12	110		0.8	2	4
5/27	17				4.4	120		0.8	2	4
6/10	25				5.4	200		0.8	2	4
6/22	23				23	220		0.7	3	4
7/4	24				15	270		0.7	3	4
7/21	31				18	220		0.5	3	4
8/5	28				62	440		0.4	4	4
9/2	21				120	650		0.3	4	5
9/23	15.6				87	530		0.4	4	4



**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						F					
Overall											

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

Source: Metropolitan Council and STORET data