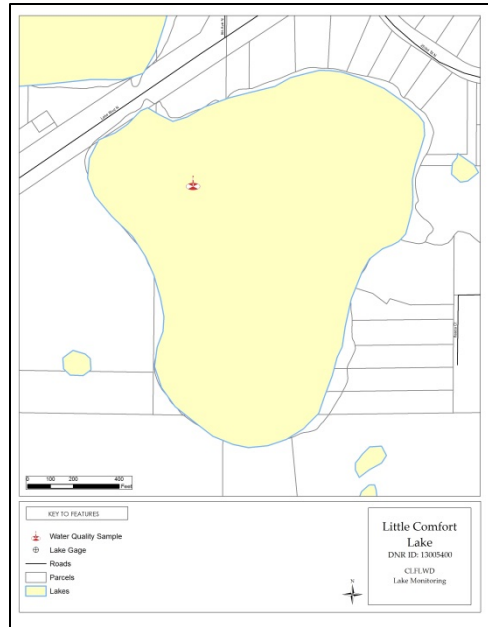


## Little Comfort Lake

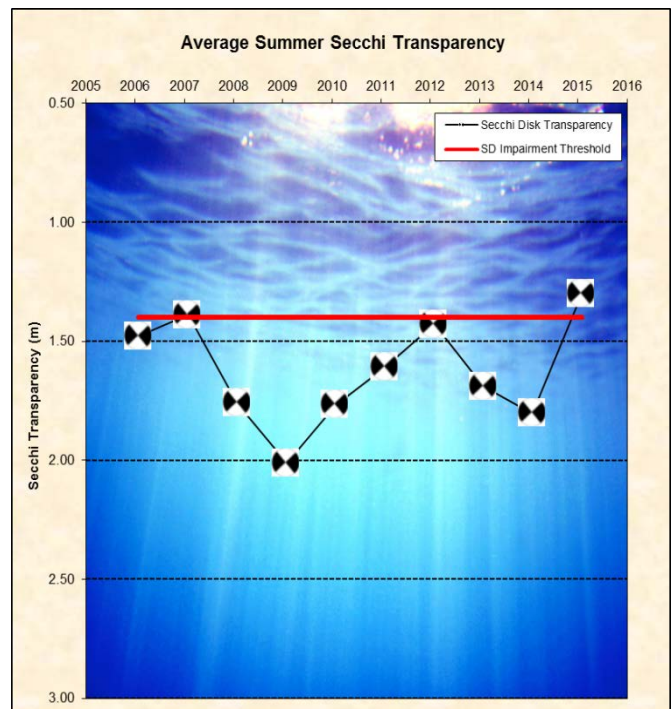
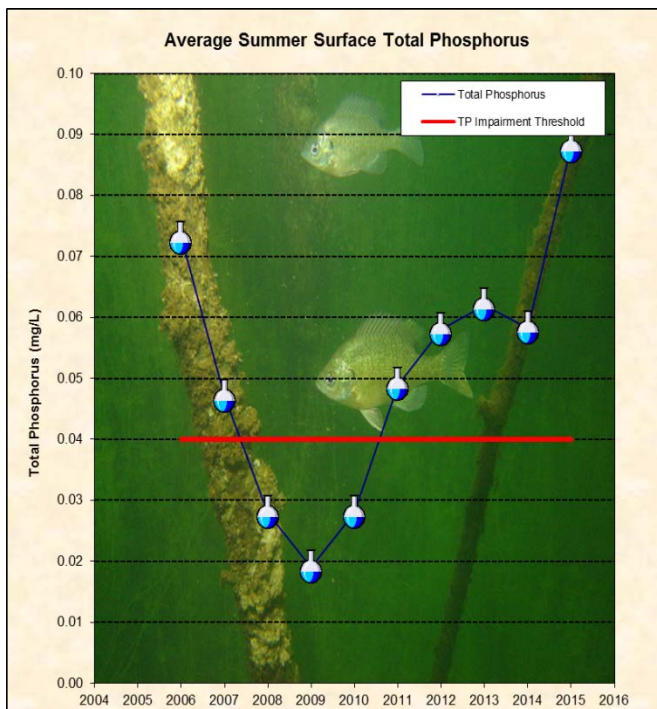
### 2015 Lake Grade: C-

- DNR ID #: 13005400
  - Municipality: Chisago City
  - Location: Section 27 T33N-R21W
  - Lake Size: 36 acres
  - Maximum Depth (2015): 52.5 ft.
  - Ordinary High Water Mark: 887.2 ft.
  - 44% Littoral
- Note: Littoral area is the portion of the lake <15 ft. and dominated by aquatic vegetation.



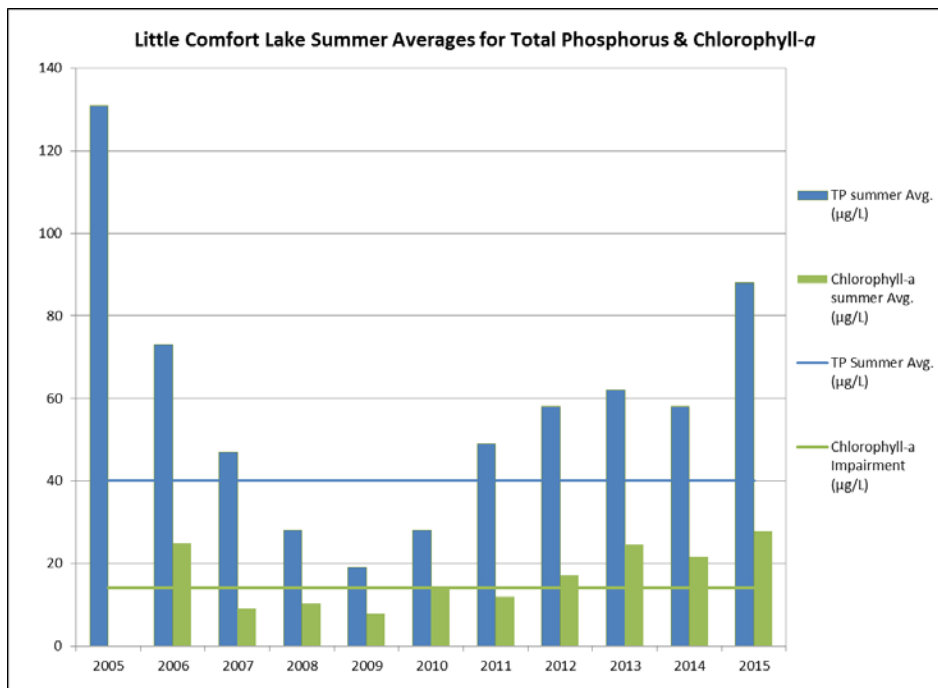
### Summary Points

- Based on the chlorophyll-*a* results Little Comfort Lake was considered eutrophic in 2015, according to the Carlson Trophic State Index.
- Using the Kendall's Tau correlation test ( $p < 0.05$ ) there is no trend for the average total phosphorus and for the average Secchi transparency at this time.
- The major land use is rural/agricultural.
- The lake stratified in 2015 with the thermocline varying between 3 and 5 meters.
- Little Comfort Lake is listed as impaired for nutrients on the Minnesota Pollution Control Agency's Impaired Waters List.
- Curly-leaf Pondweed (invasive aquatic plant) is extensive in this lake. A report has been made of the presence of Eurasian watermilfoil but that has yet to be verified.



Date	Total Phosphorus (mg/L)	Chlorophyll-a (µg/L)	Total Kjeldahl Nitrogen (mg/L)	Secchi Disk Depth (m)	Surface Temperature (Celsius)	Surface Dissolved Oxygen (mg/L)
4/22/2015 11:13	0.049	25.0	1.20	1.22	9.3	9.63
5/4/2015 14:12	0.043	18.0	1.10	1.07	18.1	11.97
5/21/2015 10:10	0.067	8.0	1.20	3.05	14.6	10.08
6/2/2015 8:18	0.027	6.0	1.10	1.68	18.1	8.74
6/16/2015 14:27	0.026	7.4	1.10	1.83	24.0	6.40
6/29/2015 14:40	0.067	37.0	1.30	1.07	26.1	7.07
7/15/2015 9:34	0.074	77.0	1.60	0.61	24.6	5.27
7/30/2015 13:05	0.366	24.0	1.40	1.07	24.5	3.93
8/12/2015 10:56	0.056	20.0	1.20	1.37	24.4	7.38
8/26/2015 14:33				1.37	20.8	8.60
9/11/2015 10:34	0.047	23.0	1.20	1.37	20.8	5.96
9/22/2015 15:22	0.043	28.0	1.20	1.37	20.3	8.63
10/6/2015 14:47	0.027	19.0	1.10	1.37	16.6	7.64
10/20/2015 15:47	0.035	12.0	1.30	1.22	11.7	6.71
<b>2015 Average</b>	0.071	23.4	1.23	1.40	19.6	7.72
<b>2015 Summer Average</b>	0.088	27.8	1.26	1.30	22.6	6.89
<b>Volunteer Data</b>						
7/5/2015 13:00	0.072	40.0	1.40	0.70	23.9	NA
7/16/2015 10:00	0.060	35.0	1.30	0.80	24.4	NA
8/14/2015 11:00	0.041	10.0	1.10	1.20	26.6	NA
8/20/2015 15:33	0.031	17.0	1.00			NA
9/20/2015 11:00	0.042	8.8	1.80	1.80	18.6	NA
10/7/2015 13:00	0.018	6.3	0.98	2.00	18.0	NA
<b>2015 Average</b>	0.044	19.5	1.26	1.30	22.3	NA
<b>2015 Summer Average</b>	0.049	22.2	1.32	1.13	23.4	NA
Water quality thresholds are 0.04 mg/L TP, 14 µg/L CL-a, 1.4 m Secchi depth*						
Shallow lake water quality thresholds are 0.06 mg/L TP, 20 µg/L CL-a, 1.0 m Secchi depth*						
	<b>High</b>	<b>High Date</b>	<b>Low</b>	<b>Low Date</b>	<b>Average</b>	
<b>2015 Elevation (ft)</b>	NA	NA	NA	NA	NA	

\*MPCA description of Impaired Lake's Listing criteria: "At a minimum, a decision that a given lake is impaired for the 303(d) list due to excessive nutrients will be supported by data for both causal and response factors. Data requirements for 303(d) listing consist of 12 or more TP measurements collected from June through September over the most recent 10-year period. Ideally this should represent 12 separate visits to the lake over the course of two summers; however it might also reflect four monthly samples over the course of three years (a typical sampling regimen for many lake monitoring programs). In addition to exceeding the TP guideline thresholds, lakes to be considered for 303(d) listing should have at least 12 Secchi measurements and 12 chlorophyll-a measurements. This amount of data will allow for at least one season (preferably more) for paired TP, chlorophyll-a, and Secchi disk data and provide a basis for evaluating their interrelationships and hence the trophic status of the lake."



<b>Lake Water Quality Summary</b>										
	<b>Lake Grades</b>									
	<b>2015</b>	2014	2013	2012	2011	2010	2009	2008	2007	2006
Total Phosphorus (mg/L)	D	C	C	C	C	B	A	B	C	D
Chlorophyll-a (µg/L)	C	C	C	B	B	B	A	C	A	C
Secchi depth (ft)	C	C	C	C	C	C	C	C	C	C
<b>Overall</b>	<b>C-</b>	<b>C</b>	<b>C</b>	<b>C+</b>	<b>C+</b>	<b>B-</b>	<b>B+</b>	<b>B-</b>	<b>B-</b>	<b>C-</b>

## **Little Comfort Lake Water Surface Elevation Statistics**

Outlet Elevation: 885.7 ft.

Ordinary High Water Level (OHW) Elevation: 887.2 ft.

100 Year Flood Elevation (CLFLWD): 892.1 ft.

Highest Recorded Elevation: 887.81 ft. (05/08/2001)

Lowest Recorded Elevation: 885.41 ft. (09/05/2003)

Datum: NGVD 29 (ft.)

\*Elevation data has not been recorded on this lake since 2004.