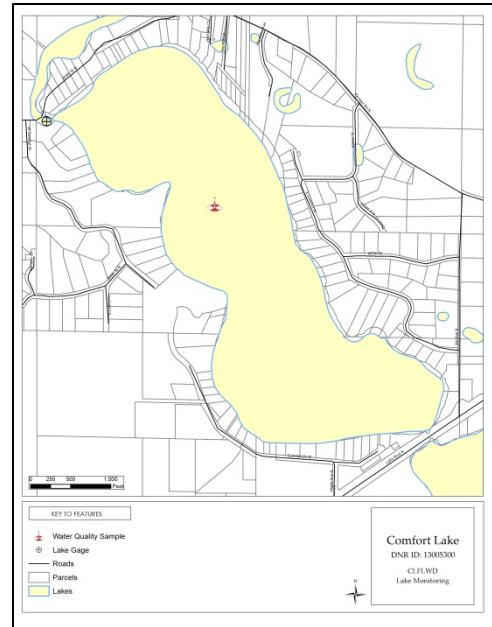


## Comfort Lake

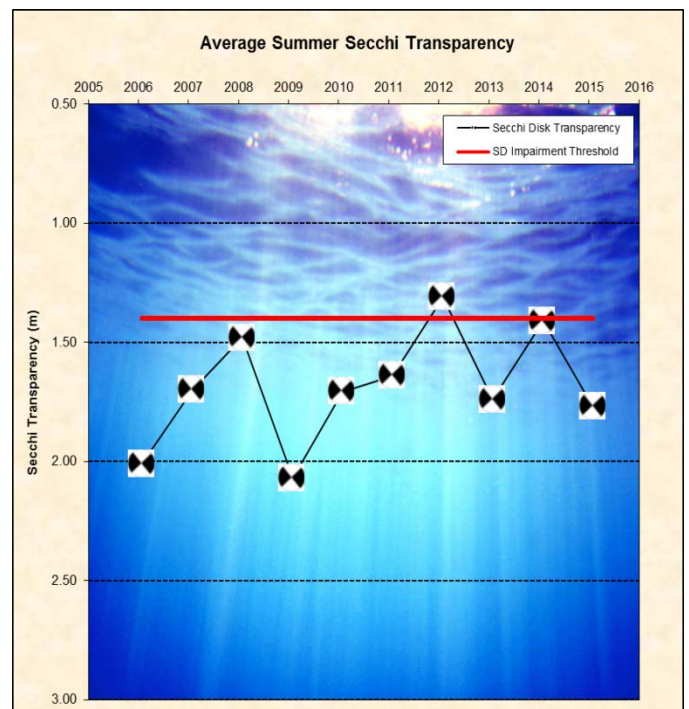
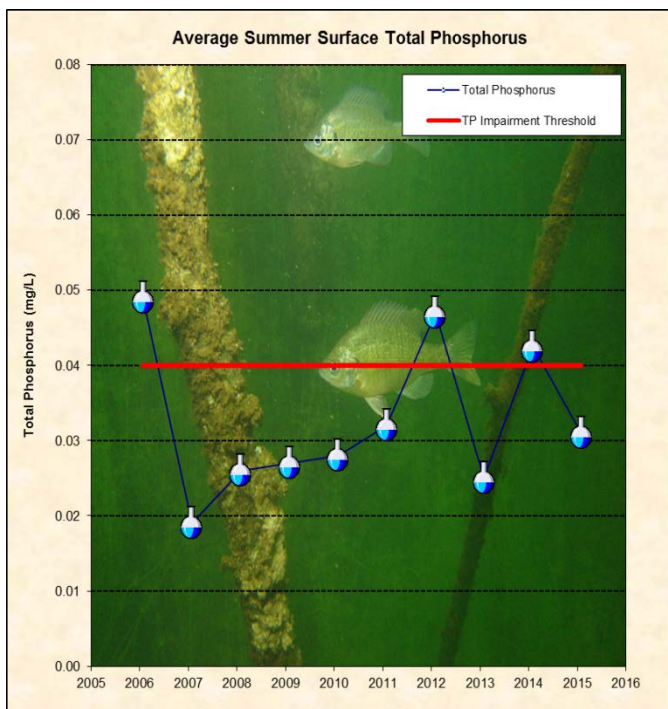
### 2015 Lake Grade: C+

- DNR ID #: 13005300
- Municipality: City of Wyoming
- Location: Section 27 T33N-R21W
- Lake Size: 217.82 acres
- Maximum Depth (2015): 46 ft.
- Ordinary High Water Mark: 887.2 ft.
- 41% Littoral  
Note: Littoral area is the portion of the lake <15 ft. and dominated by aquatic vegetation.



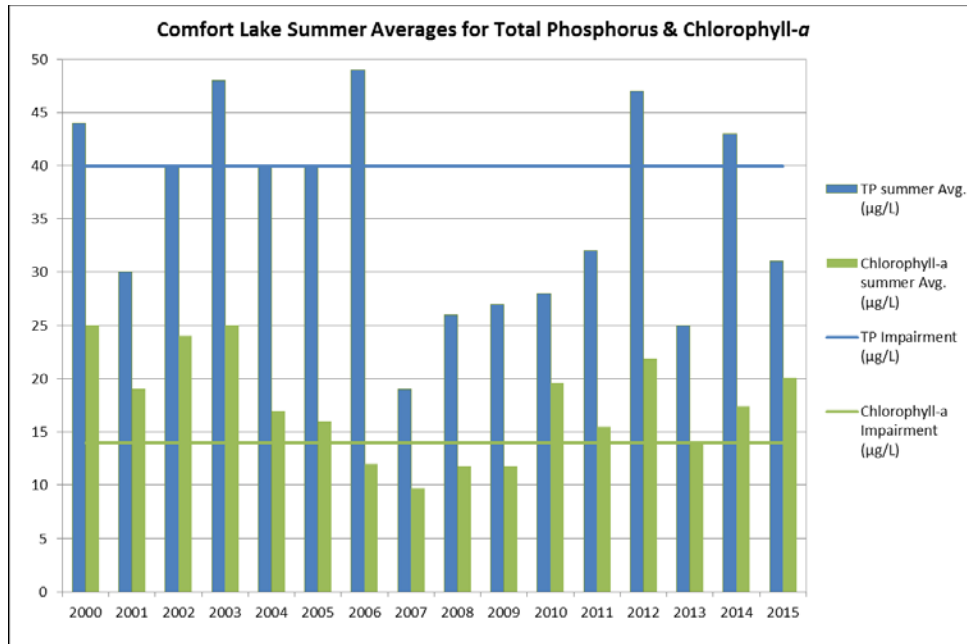
### Summary Points

- Based on the chlorophyll-*a* results 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 a statistically significant **improving** trend for the average total phosphorus and a statistically significant **declining** trend for the average Secchi transparency.
- The major land use is a mix of semi-urban, rural, and agricultural.
- The lake stratified in 2015 with the thermocline varying between 5 and 7 meters.
- Comfort Lake is listed as impaired for nutrients on the Minnesota Pollution Control Agency's Impaired Waters List.
- Eurasian Watermilfoil and Curly-leaf Pondweed (invasive aquatic plants) are present in this lake.



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 11:16	0.024	14.0	1.30	2.13	9.2	10.97
5/4/2015 13:30	0.032	12.0	1.20	2.44	15.8	13.22
5/21/2015 10:38	0.029	9.6	1.50	2.44	14.9	11.26
6/1/2015 14:53	0.024	5.2	1.10	2.90	18.3	9.65
6/15/2015 13:49	0.023	9.8	1.10	2.29	23.3	9.19
6/29/2015 14:06	0.014	9.9	1.10	1.98	25.8	8.53
7/15/2015 9:48	0.028	26.0	1.30	1.37	24.9	7.76
7/28/2015 13:02	0.050	27.0	1.40	0.91	26.4	5.99
8/12/2015 10:49	0.038	28.0	1.30	1.37	24.9	9.03
8/26/2015 13:36	0.036	25.0	1.40	1.37	21.3	7.57
9/9/2015 13:15	0.038	26.0	1.40	1.37	23.2	8.03
9/23/2015 8:22	0.028	24.0	1.40	1.52	19.5	7.38
10/6/2015 13:23	0.020	23.0	1.40	1.37	17.8	7.08
10/20/2015 10:50	0.043	17.0	1.70	1.37	12.3	5.54
<b>2015 Average</b>	0.031	18.3	1.33	1.77	19.8	8.66
<b>2015 Summer Average</b>	0.031	20.1	1.28	1.68	23.1	8.13
<b>Volunteer Data</b>						
05/01/2015 13:30	0.025	9.9	1.40	2.10	14.2	NA
05/15/2015 12:30	0.016	7.3	0.82	2.20	15.6	NA
06/10/2015 13:15	0.016	6.1	0.95	2.10	24.2	NA
06/26/2015 10:30	0.016	9.6	1.00	1.90	25.1	NA
07/11/2015 11:00	0.030	19.0	1.20	1.70	25.9	NA
07/21/2015 14:15	0.038	25.0	1.20	1.05	26.7	NA
08/07/2015 13:45	0.030	36.0	1.20	1.40	24.2	NA
08/21/2015 12:30	0.027	18.0	1.10	1.30	21.8	NA
09/04/2015 12:30	0.025	26.0	1.10	1.10	25.1	NA
09/19/2015 14:00	0.048	54.0	2.20	1.30	20.5	NA
10/03/2015 14:45	0.025	19.0	1.10	1.20	17.7	NA
10/18/2015 13:00	0.084	26.0	2.80	1.10	12.7	NA
<b>2015 Average</b>	0.032	21.3	1.34	1.54	21.1	NA
<b>2015 Summer Average</b>	0.029	24.2	1.24	1.48	24.2	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>	887.54	7/28/2015	885.76	5/4/2015	886.27	

\*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."



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

## Comfort Lake Water Surface Elevation Statistics

Outlet Elevation (rock weir): 885.4 ft.

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

100 Year Flood Elevation (CLFLWD): 889.5 ft.

Highest Recorded Elevation: 888.32 ft. (07/02/1975)

Lowest Recorded Elevation: 884.8 ft. (10/08/1969)

Datum: NGVD 29 (ft.)

