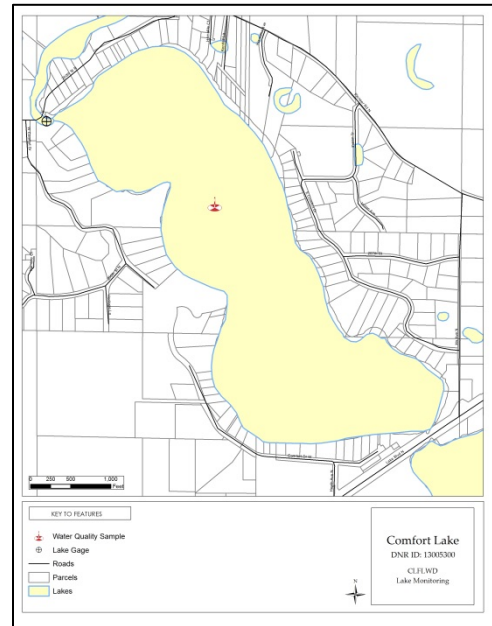


Comfort Lake

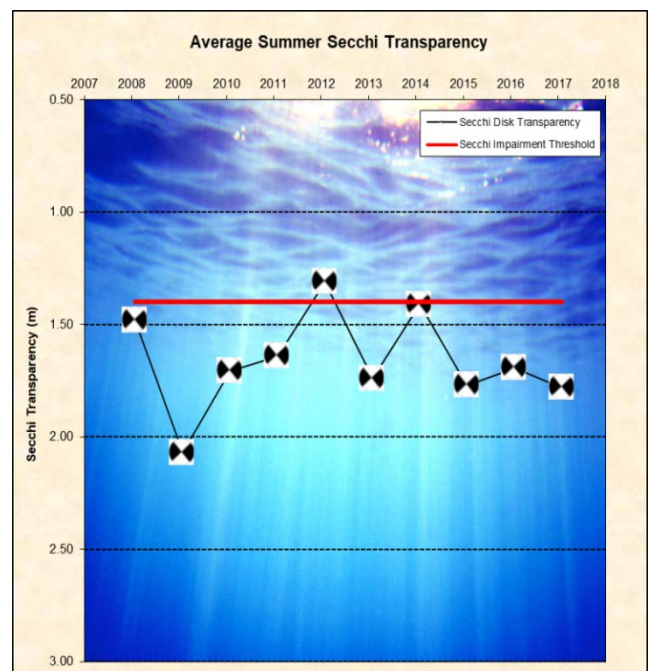
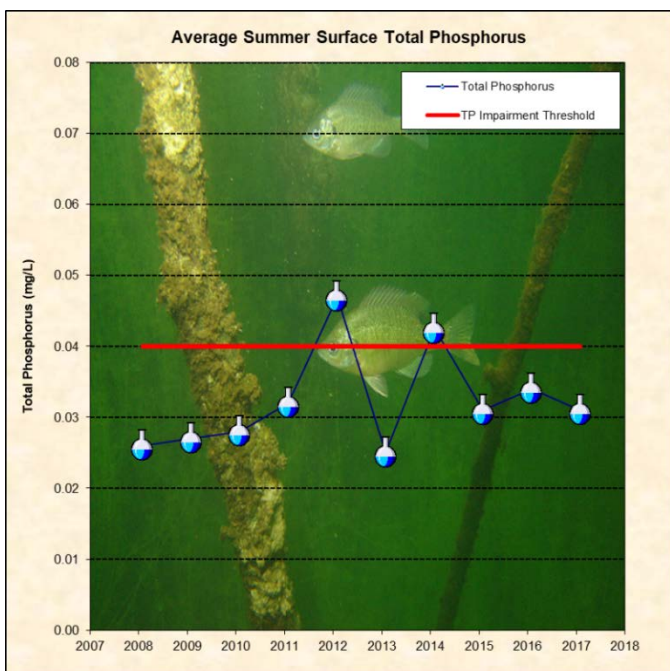
2017 Lake Grade: C+

- DNR ID #: 13005300
- Municipality: City of Wyoming
- Location: Section 27 T33N-R21W
- Lake Size: 217.82 acres
- Maximum Depth (2017): 45 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.



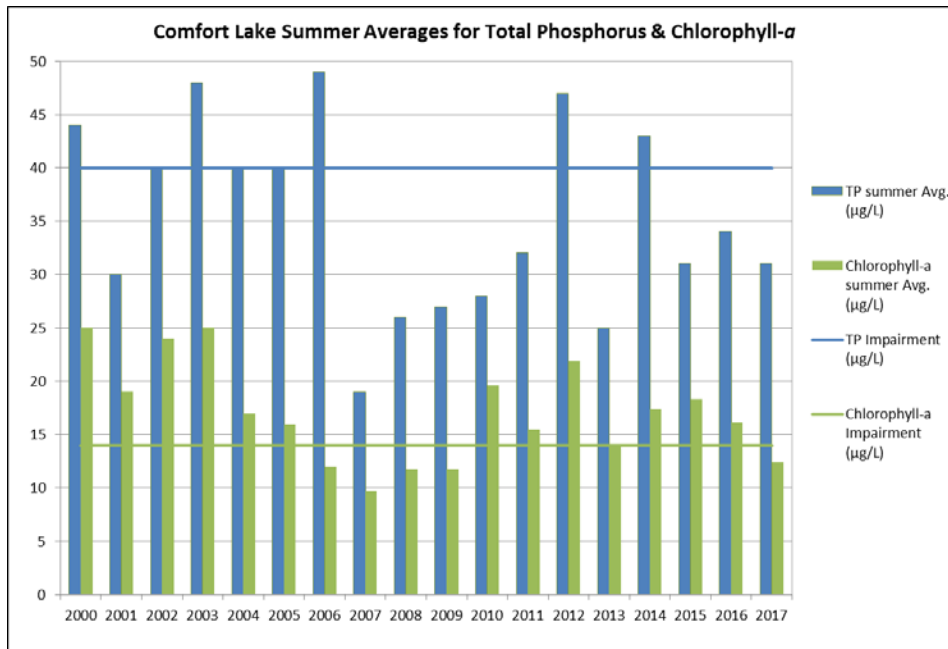
Summary Points

- Based on the chlorophyll-*a* results Comfort Lake was considered eutrophic in 2017, according to the Carlson Trophic State Index.
- Using the 2-tailed Kendall 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 and no trend for chlorophyll-*a*.
- The major land use is a mix of semi-urban, rural, and agricultural.
- The lake stratified in 2017 with the thermocline around 5 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. Zebra mussels were discovered in 2017.



Date/Time	Total Phosphorus (mg/L)	Uncorrected Trichromatic Chlorophyll-a (µg/L)	Pheophytin-Corrected Chlorophyll-a (µg/L)	Total Kjeldahl Nitrogen (mg/L)	Secchi Disk Depth (m)	Surface Temperature (Celsius)	Surface Dissolved Oxygen (mg/L)
4/17/2017 11:53	0.019	9.0	6.8	0.97	2.29	10.4	10.48
5/4/2017 10:41	0.083	10.0	9.3	1.50	3.35	11.0	10.64
5/15/2017 11:25	0.020	10.0	9.3	1.10	1.37	18.7	11.02
5/31/2017 11:11	0.030	12.0	11.0	1.10	1.83	16.4	8.59
6/13/2017 11:08	0.018	9.5	8.5	1.00	2.29	23.1	7.33
6/27/2017 11:49	0.067	2.6	1.0	1.20	1.98	20.6	8.62
7/13/2017 11:13	0.027	14.0	13.0	0.98	1.83	24.5	7.85
7/27/2017 11:13	0.055	18.0	17.0	1.30	1.37	25.6	8.03
8/8/2017 11:13	0.023	15.0	13.0	1.20	1.37	23.9	8.28
8/22/2017 11:18	0.023	15.0	13.0	0.99	1.83	22.4	7.71
9/7/2017 12:08	0.017	14.0	13.0	0.95	1.68	18.6	6.55
9/19/2017 10:50	0.018	21.0	21.0	1.20	1.83	19.3	8.67
10/5/2017 10:26	0.023	5.7	4.3	0.96	1.98	16.7	6.29
10/26/17 10:57	0.043	15.0	13.0	1.20	1.52	11.7	7.36
2017 Average	0.033	12.2	10.9	1.12	1.89	18.8	8.39
2017 Summer Average	0.031	13.6	12.4	1.10	1.78	21.6	7.96
Volunteer Data							
4/21/2017 10:20	0.022	9.0	5.2	0.89	1.80	10.3	NA
5/3/2017 11:45	0.027	12.0	11.0	1.20	2.10	10.5	NA
5/20/2017 13:30	0.030	13.0	12.0	0.99	2.40	15.7	NA
6/2/2017 12:30	0.029	4.2	3.9	1.00	1.60	21.5	NA
6/17/2017 13:00	0.022	16.0	14.0	0.99	1.50	25.5	NA
6/28/2017 13:39	0.026	18.0	16.0	1.00	1.40	21.2	NA
7/19/2017 13:30	0.075	15.0	13.0	0.97	1.60	25.9	NA
7/27/2017 13:40	0.042	15.0	15.0	1.00	1.30	28.3	NA
8/11/2017 14:10	0.020	14.0	13.0	0.98	1.35	24.1	NA
8/28/2017 14:15	0.023	16.0	14.0	0.96	1.40	21.2	NA
9/9/2017 13:00	0.028	15.0	14.0	1.10	1.50	19.1	NA
9/20/2017 14:45	0.190	23.0	21.0	0.88	1.50	21	NA
10/8/2017 15:15	0.027	12.0	11.0	0.94	1.75	18.5	NA
2017 Average	0.043	14.0	12.5	0.99	1.63	20.2	NA
2017 Summer Average	0.051	15.1	13.8	0.99	1.46	23.1	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*							
	High	High Date	Low	Low Date	Average		
2017 Elevation (ft)	887.40	5/25/2017	885.9	9/14/2017	886.34		

*Data requirements and determinations of use assessment according to the MPCA's Guidance Manual for Assessing the Quality of Minnesota Surface Waters: "Samples must be collected over a minimum of 2 years and data used for assessments must be collected from June to September. Typically, a minimum of 8 individual data points for TP, corrected chlorophyll-a (chl-corrected for pheophytin), and Secchi are required. Data used for phosphorus and chlorophyll-a calculations are limited to those collected from the upper most 3 meters of the water column (surface). If more than one sample is collected in a lake per day, these values are averaged to yield a daily average value. Following this step, all June to September data for the 10-year assessment window are averaged to determine summer-mean values for TP, corrected chl-a, and Secchi depth. These values are then compared to the standards and the assessment is made."



Lake Water Quality Summary										
	Lake Grades									
	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Total Phosphorus (mg/L)	C	B	B	C	B	C	B	B	B	B
Chlorophyll-a (µg/L)	B	B	C	B	B	C	B	B-	B	A
Secchi depth (ft)	C	C	C	C	C	C	C	C	C	C
Overall	C+	B-	C+	C+	B-	C	B-	B-	B	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.)

