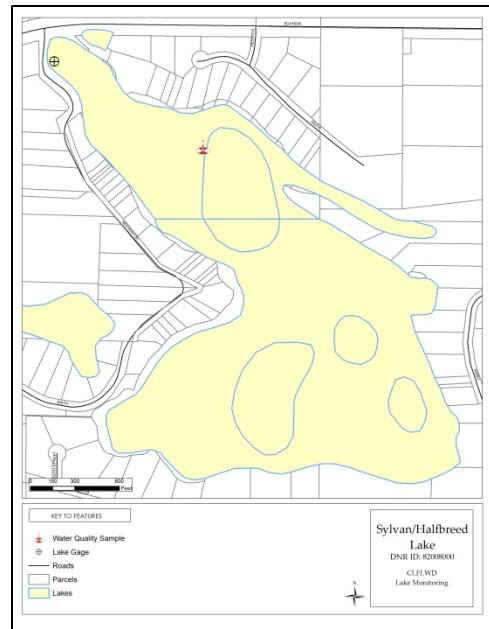


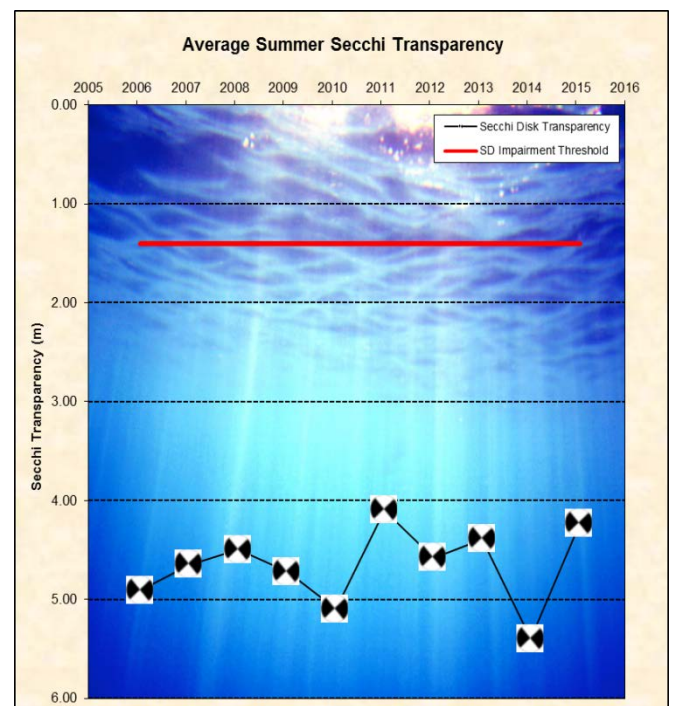
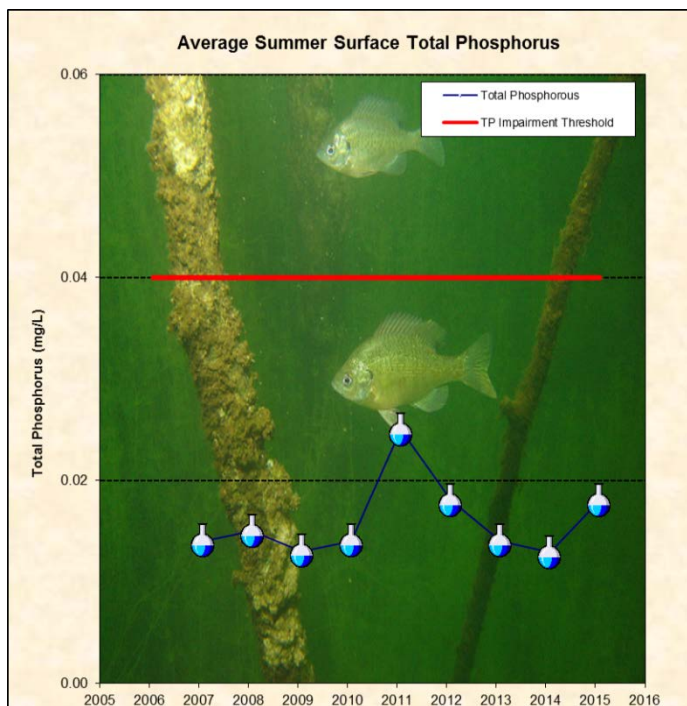
Sylvan/Halfbreed Lake 2015 Lake Grade: A

- DNR ID #: 82008000
- Municipality: City of Forest Lake
- Location: Section 24 T32N-R21W
- Lake Size: 74.50 acres
- Maximum Depth (2015): 42 ft.
- Ordinary High Water Mark: 937.1 ft.
- 90% Littoral
Note: Littoral area is the portion of the lake <15 ft. and dominated by aquatic vegetation.



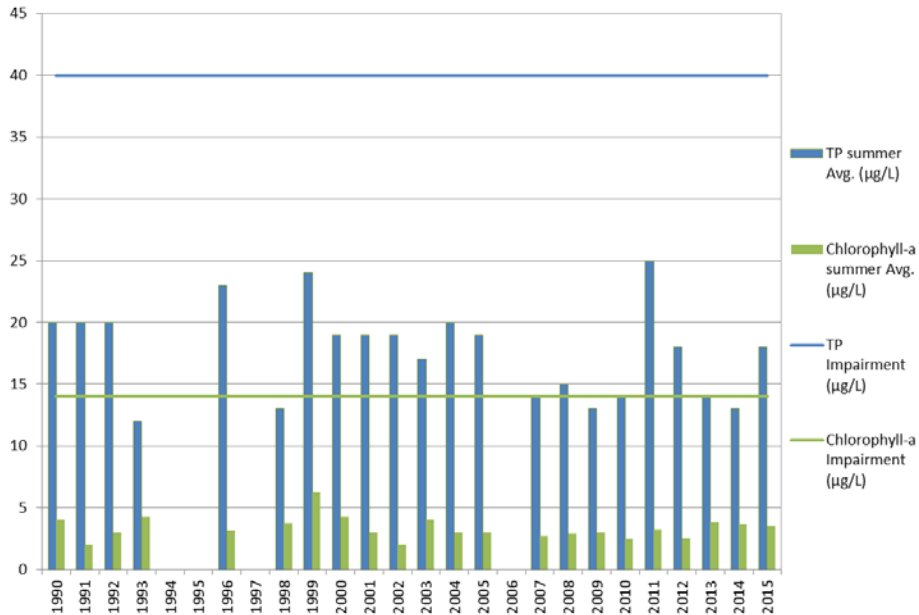
Summary Points

- Based on the chlorophyll-*a* results Sylvan/Halfbreed Lake was considered mesotrophic 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 **improving** trend for the average Secchi transparency.
- The major land use is semi-urban and rural/agricultural.
- The lake stratified in 2015 with the thermocline varying between 6 and 8 meters.
- Purple Loosestrife (an invasive aquatic plant) is 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)
4/21/2015 13:03	0.018	5.8	0.60	3.05	10.7	9.66
5/5/2015 12:35	0.014	3.2	0.64	4.27	17.3	10.00
5/20/2015 12:43	0.012	2.8	0.63	3.81	15.4	9.07
6/2/2015 10:26	0.012	2.8	0.58	3.96	18.6	9.08
6/16/2015 11:55	0.056	2.5	0.89	4.72	23.8	7.65
6/29/2015 12:10	0.016	4.8	1.12	3.81	26.0	7.74
7/16/2015 10:18	0.006	3.7	0.55	3.51	24.1	8.52
7/30/2015 11:01	0.022	4.0	0.64	3.51	25.9	6.42
8/10/2015 14:24	0.012	3.1	0.57	4.11	24.9	7.35
8/26/2015 12:37	0.009	4.3	0.56	4.57	20.9	7.85
9/11/2015 9:30	0.008	2.7	0.56	4.72	21.6	6.14
9/22/2015 13:48	0.017	3.8	0.68	5.18	20.1	7.98
10/6/2015 12:02	0.015	3.6	0.55	4.57	16.2	8.08
10/21/2015 11:27	0.005	3.9	0.65	3.51	12.0	9.93
2015 Average	0.016	3.6	0.66	4.09	19.8	8.25
2015 Summer Average	0.018	3.5	0.68	4.23	22.9	7.64
Volunteer Data						
05/19/2015 16:30	0.012	2.3	0.50	5.30	15.9	NA
06/01/2015 15:50	0.014	1.7	0.50	5.60	18.8	NA
06/12/2015 11:00	0.013	1.7	0.50	6.20	22.4	NA
06/21/2015 13:15	0.011	2.6	0.50	5.40	24.2	NA
07/08/2015 14:45	0.009	2.1	0.50	4.10	23.9	NA
07/20/2015 11:45	0.010	2.0	0.50	5.20	25.3	NA
08/10/2015 09:00	0.008	2.8	0.52	5.00	23.5	NA
08/25/2015 11:20	0.020	6.2	1.04	6.30	19.1	NA
09/13/2015 16:15	0.012	3.3	0.66	5.10	20.8	NA
2015 Average	0.012	2.7	0.58	5.36	21.5	NA
2015 Summer Average	0.012	2.8	0.59	5.36	22.3	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*						
2015 Elevation (ft)	High	High Date	Low	Low Date	Average	
	937.39	7/18/2015	936.69	5/5/2015	936.96	
*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."						

Sylvan/Halfbreed Lake Summer Averages for Total Phosphorus & Chlorophyll-a



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

Sylvan/Halfbreed Lake Water Surface Elevation Statistics

Outlet Elevation: N/A (landlocked)

Ordinary High Water Level (OHW) Elevation: 937.1 ft.

Highest Recorded Elevation: 938.00 ft. (07/03/2003)

Lowest Recorded Elevation: 934.52 ft. (11/22/1990)

Datum: NGVD 29 (ft.)

