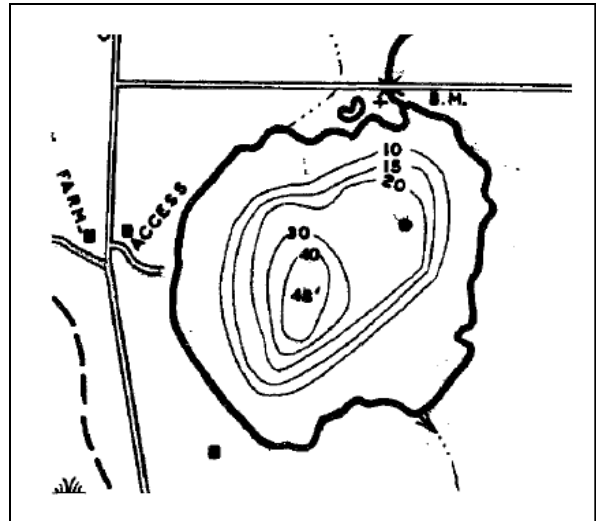


## Moody Lake

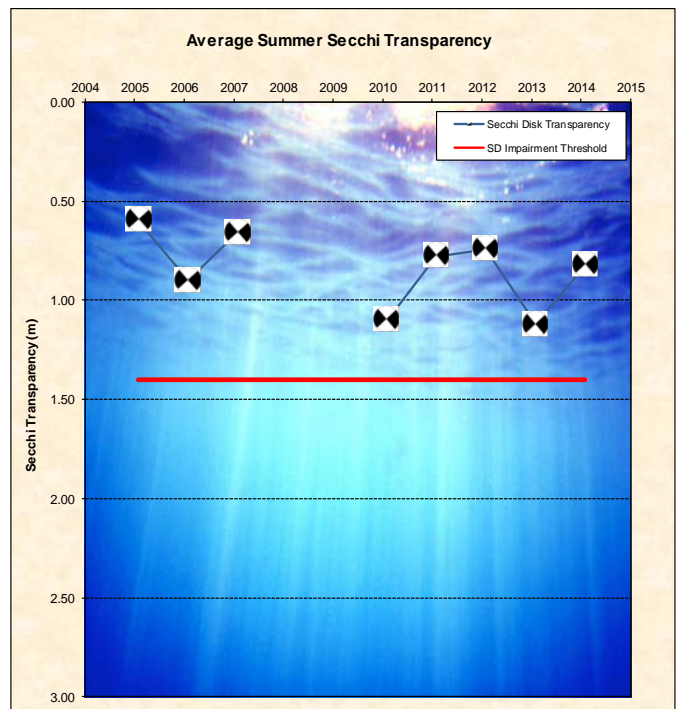
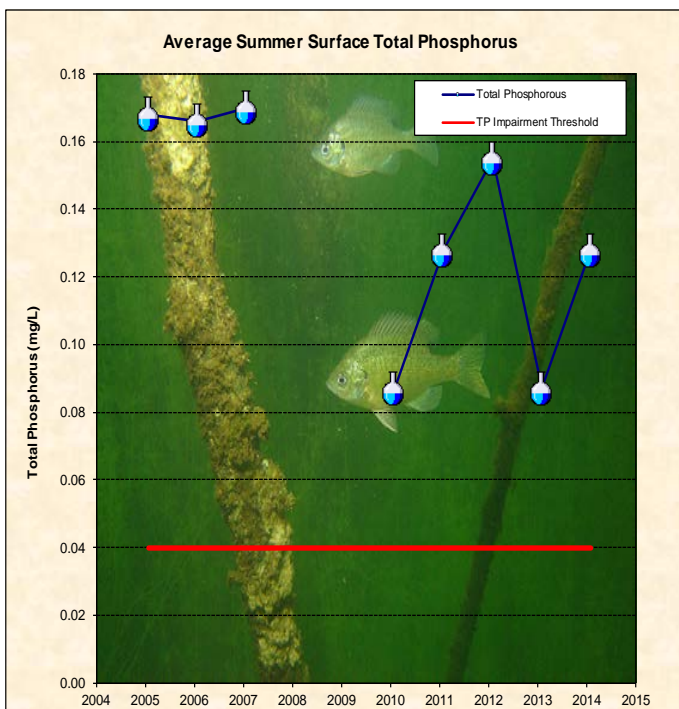
### 2014 Lake Grade: D+

- DNR ID #: 13002300
  - Municipality: Chisago Lakes Township
  - Location: SW<sup>1/4</sup> Section 32 T33N-R20W
  - Lake Size: 45.33 acres
  - Maximum Depth (2014): 47 ft.
  - Ordinary High Water Mark: N/A
  - 49% Littoral
- Note: Littoral area is the portion of the lake <15 ft. and dominated by aquatic vegetation.



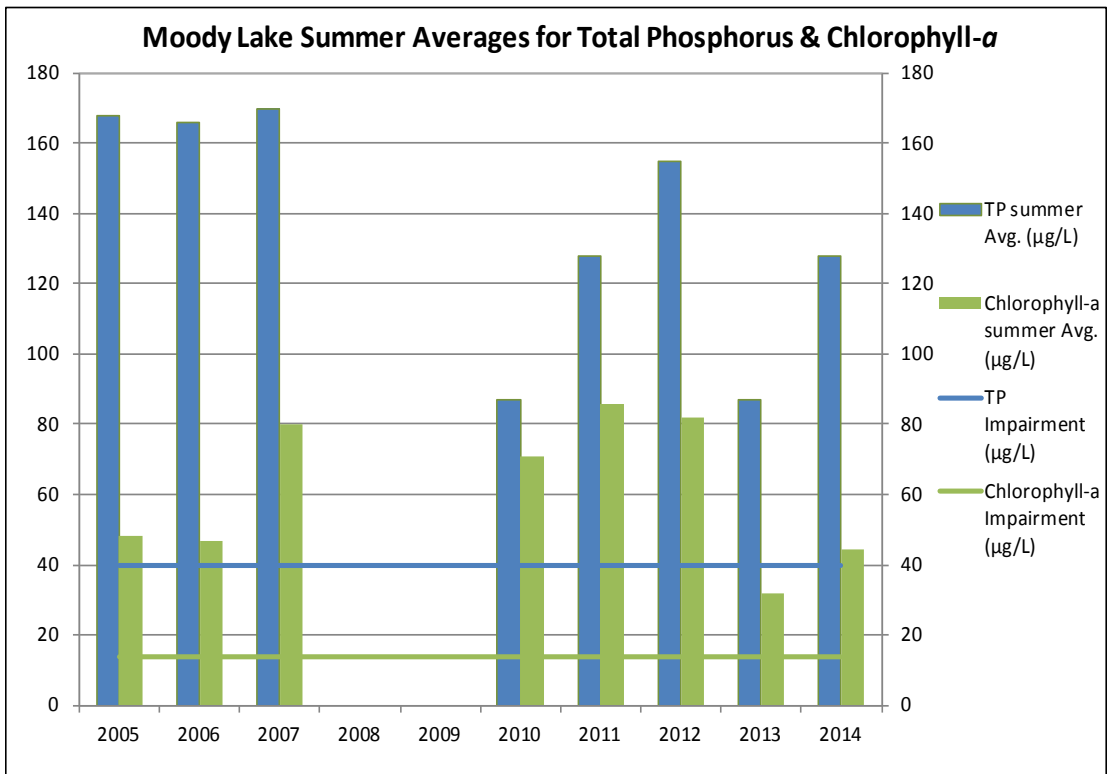
### Summary Points

- Based on the chlorophyll-*a* results Moody Lake was considered eutrophic in 2014, according to the Carlson Trophic State Index.
- Using the Kendall Tau correlation test ( $p < 0.01$ ) there is a statistically significant **improving** trend for the average total phosphorus and no trend for the average Secchi transparency at this time.
- The major land use is rural/agricultural.
- The lake stratified in 2014 with the thermocline varying between 2 and 4 meters.
- Moody Lake is listed as impaired for nutrients on the Minnesota Pollution Control Agency's Impaired Waters List.
- Curly-leaf pondweed (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)
5/12/14	0.133	35.0	1.80	1.52	14.5	10.23
5/29/14	0.107	17.0	1.20	1.52	24.7	9.41
6/13/14	0.173	1.0	1.80	1.37	22.0	6.09
6/26/14	0.185	36.0	1.70	0.91	22.0	5.29
6/26/14	NA	NA	NA	0.91	23.4	6.19
7/10/14	0.220	110.0	2.00	0.46	23.3	9.68
7/22/14	0.102	61.0	1.80	0.76	25.9	7.58
7/22/14	NA	NA	NA	0.61	26.9	9.17
8/5/14	0.095	41.0	1.90	0.61	25.6	7.87
8/21/14	0.078	51.0	2.00	0.61	24.0	7.05
8/21/14	NA	NA	NA	0.76	24.3	8.61
9/5/14	0.062	45.0	2.00	0.91	21.2	6.42
9/18/14	0.054	33.0	1.90	0.91	16.4	9.66
9/30/14	0.044	23.0	1.70	1.07	17.4	7.64
10/16/14	0.118	21.0	1.90	1.68	11.9	7.32
<b>2014 Average</b>	0.114	39.5	1.81	0.98	21.6	7.88
<b>2014 Summer Average</b>	0.113	44.6	1.87	0.83	22.7	7.60
<b>Volunteer Data</b>						
5/25/14	0.057	14.0	1.20	1.50	21.8	NA
6/8/14	0.128	23.0	1.60	NA	NA	NA
6/22/14	0.164	32.0	1.50	0.90	24.5	NA
7/6/14	0.139	84.0	1.90	0.50	25.3	NA
7/20/14	0.079	65.0	1.70	0.70	24.5	NA
8/3/14	0.055	28.0	1.80	0.70	27.6	NA
8/17/14	0.065	58.0	1.80	0.70	24.7	NA
8/31/14	0.049	44.0	1.50	NA	NA	NA
9/14/14	0.042	27.0	1.50	NA	NA	NA
10/11/14	0.083	15.0	1.80	NA	NA	NA
10/26/14	0.076	19.0	1.70	NA	NA	NA
<b>2014 Average</b>	0.085	37.2	1.64	0.83	24.7	NA
<b>2014 Summer Average</b>	0.090	45.1	1.66	0.70	25.3	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*						
<b>2014 Elevation (ft)</b>	<b>High</b>	<b>High Date</b>	<b>Low</b>	<b>Low Date</b>	<b>Average</b>	
	912.99	9/5/2014	912.51	8/5/14 & 8/21/14	912.76	

\*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									
	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
Total Phosphorus (mg/L)	D	D	F	D	D	NA	NA	F	F	F
Chlorophyll-a (µg/L)	C	C	F	F	D	NA	NA	F	D	D
Secchi depth (ft)	D	D	D	D	D	NA	NA	F	D	F
<b>Overall</b>	<b>D+</b>	<b>D+</b>	<b>F+</b>	<b>D-</b>	<b>D</b>	<b>NA</b>	<b>NA</b>	<b>F</b>	<b>D-</b>	<b>F</b>

## Moody Lake Water Surface Elevation Statistics

Ordinary High Water Level (OHW) Elevation: N/A

100 Year Flood Elevation (CLFLWD): 892.1 ft.

Highest Recorded Elevation: 912.99 ft. (09/05/2014)

Lowest Recorded Elevation: 911.78 ft. (10/10/2013)

Datum: NGVD 29 (ft.)

