

Pine Mountain 11-0411-00

MN Lake ID: 11-0411-00
 County: Cass
 Ecoregion: Northern Lakes and Forests
 Major Drainage Basin: Upper Mississippi River
 Latitude/Longitude: 46.83333333 / -94.54194444
 Water Body Type: Public Waters
 Monitored Sites (Primary): 202
 Monitored Sites (Secondary): N/A

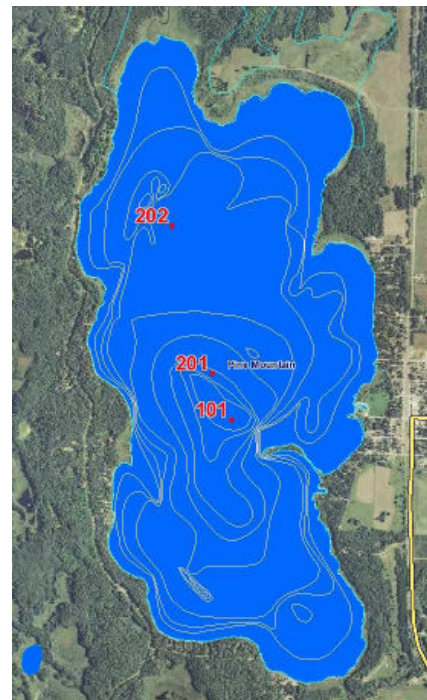
Physical Characteristics

Surface area (acres): 1567
 Littoral area (acres): 737
 % Littoral area: 47%
 Max depth (ft): 80 (m): 24.4
 Mean depth (ft): N/A (m): N/A
 Watershed size (acres): N/A

Water Quality Characteristics - Historical Means

Years monitored: 2007-2009

Parameters	Primary Site 202
Total Phosphorus Mean:	16
Total Phosphorus Min:	7
Total Phosphorus Max:	30
Number of Observations:	14
Chlorophyll-a Mean:	7.1
Chlorophyll-a Min:	2
Chlorophyll-a Max:	16
Number of Observations:	14
Secchi Depth Mean:	10.6
Secchi Depth Min:	4.5
Secchi Depth Max:	16.5
Number of Observations:	14
Trophic State Index Mean:	45.1
Trophic State:	Mesotrophic



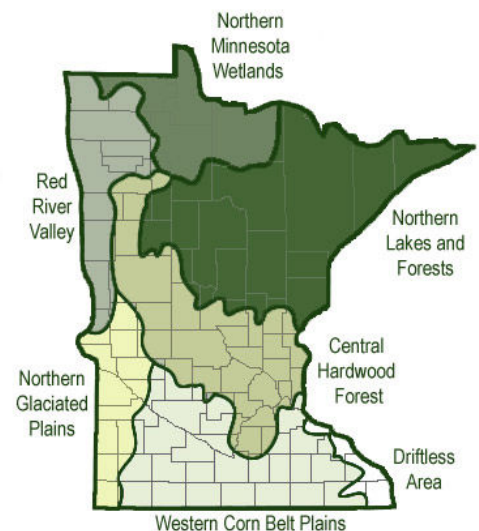
Ecoregion Comparisons

Minnesota is divided into 7 ecoregions based on land use, vegetation, precipitation and geology. The MPCA has developed a way to determine the "average range" of water quality expected for lakes in each ecoregion.

From 1985-1988, the MPCA evaluated the lake water quality for chosen reference lakes. These reference lakes are not considered pristine, but are considered to have little human impact and therefore are representative of the typical lakes within the ecoregion. The "average range" refers to the 25th - 75th percentile range for data within each ecoregion.

Cass County is in the Northern Lakes and Forests Ecoregion. **Pine Mountain Lake** compares to the ecoregion average ranges as indicated below:

Total Phosphorus:	Within expected range, which indicates expected water quality for the area
Chlorophyll-a:	Within expected range, which indicates expected water quality for the area
Secchi Depth:	Within expected range, which indicates expected water quality for the area



Individual Lake Data Summary

County	MN Lake ID	Lake	Site	Date Range	Data Source
Cass	11-0411-00	Pine Mountain	202 (Primary)	06-01-2007 - 09-30-2009	RMB Lab

Historical Mean	16	7.1	10.6	43	47	44	45
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Date	Time	Site	Sampler	Lab Code	Data Source	TP ug/L	ChIA ug/L	Secchi Ft.	TSI Phos.	TSI ChIAL	TSI Secchi Ft.	TSI Avg.
6/17/2007	12:30 PM	202	Kenneth Bartes	63204	RMB Lab	18	7	16.5	46	50	37	44
7/15/2007	12:15 PM	202	Kenneth Bartes	65129	RMB Lab	19	4	7.5	47	44	48	46
8/19/2007	11:30 AM	202	Kenneth Bartes	67022	RMB Lab	24	12	8	50	55	47	51
9/16/2007	10:15 AM	202	Kenneth Bartes	68576	RMB Lab	30	14	4.5	53	56	55	55

Annual Mean	22.8	9.2	9.1	49	51	46	49
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Date	Time	Site	Sampler	Lab Code	Data Source	TP ug/L	ChIA ug/L	Secchi Ft.	TSI Phos.	TSI ChIAL	TSI Secchi Ft.	TSI Avg.
6/9/2008	7:00 AM	202	Phil Casperson	78418	RMB Lab	11	3	14.5	39	41	39	40
6/30/2008	8:00 AM	202	Phil Casperson	80909	RMB Lab	9	3	14.5	36	41	39	39
7/27/2008	1:25 PM	202	Phil Casperson	83567	RMB Lab	12	4	6	40	44	51	45
8/17/2008	6:45 PM	202	Phil Casperson	85382	RMB Lab	17	12	6	45	55	51	50
9/8/2008	9:15 AM	202	Casperson/Bartes	86948	RMB Lab	18	10	9	46	53	45	48

Annual Mean	13.4	6.4	10	41	46	45	44
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Date	Time	Site	Sampler	Lab Code	Data Source	TP ug/L	ChIA ug/L	Secchi Ft.	TSI Phos.	TSI ChIAL	TSI Secchi Ft.	TSI Avg.
5/31/2009	1:30 PM	202	Phil Casperson and Dale Thiesfeld	98218	RMB Lab	15	2	16	43	37	37	39
6/21/2009	12:30 PM	202	Phil Casperson and Dale Thiesfeld	101439	RMB Lab	11	4	11	39	44	43	42
7/12/2009	10:45 AM	202	Phil Casperson and Dale Thiesfeld	103455	RMB Lab	7	3	13	32	41	40	38
8/9/2009	6:15 PM	202	Phil Casperson and Dale Thiesfeld	107128	RMB Lab	14	6	15	42	48	38	43
9/13/2009	10:45 AM	202	Phil Casperson and Dale Thiesfeld	110811	RMB Lab	19	16	6.5	47	58	50	52

Annual Mean	13.2	6.2	12.3	40	45	41	42
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Trend Analysis Report

For detecting trends, a minimum of 8-10 years of data with 4 or more readings per season are recommended. Minimum confidence accepted by the MPCA is 90%. This means that there is a 90% chance that the data are showing a true trend and a 10% chance that the trend is a random result of the data. Only short-term trends can be determined with just a few years of data, because there can be different wet years and dry years, water levels, weather, etc., that affect the water quality naturally.

There is not enough historical data to perform trend analysis for total phosphorus, chlorophyll *a*, or Secchi depth on Pine Mountain Lake.