

Boy 11-0143-00

MN Lake ID: 11-0143-00
 County: Cass
 Ecoregion: Northern Lakes and Forests
 Major Drainage Basin: Minnesota River
 Latitude/Longitude: N/A
 Water Body Type: Public Waters
 Monitored Sites (Primary): 201
 Monitored Sites (Secondary): 202, 205

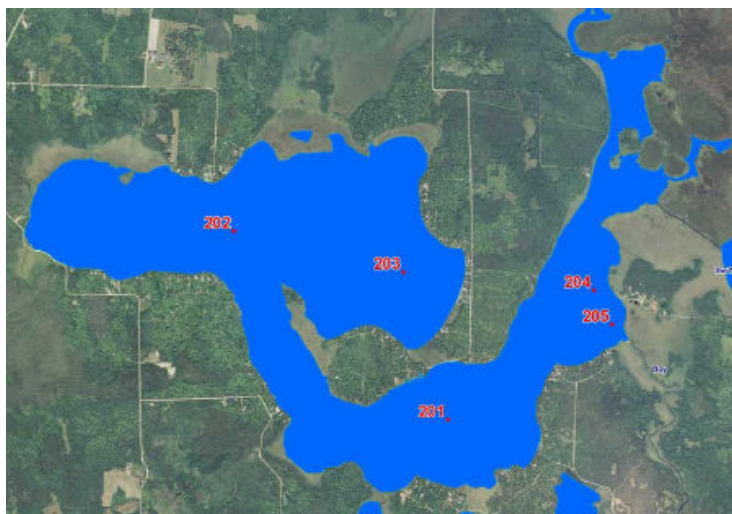
Physical Characteristics

Surface area (acres): 3186
 Littoral area (acres): 2007
 % Littoral area: 62%
 Max depth (ft): 45 (m): 13.7
 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 201	Site 202	Site 205
Total Phosphorus Mean:	25.6	24.5	22.5
Total Phosphorus Min:	15	16	13
Total Phosphorus Max:	40	38	37
Number of Observations:	14	10	8
Chlorophyll-a Mean:	8.8	6	5.4
Chlorophyll-a Min:	2	2	1
Chlorophyll-a Max:	28	13	18
Number of Observations:	14	10	8
Secchi Depth Mean:	8.2	7.8	
Secchi Depth Min:	4.5	4.6	
Secchi Depth Max:	14	11	
Number of Observations:	13	9	0
Trophic State Index Mean (Primary Site):	47.9		
Trophic State:	Mesotrophic		



Ecoregion Comparisons

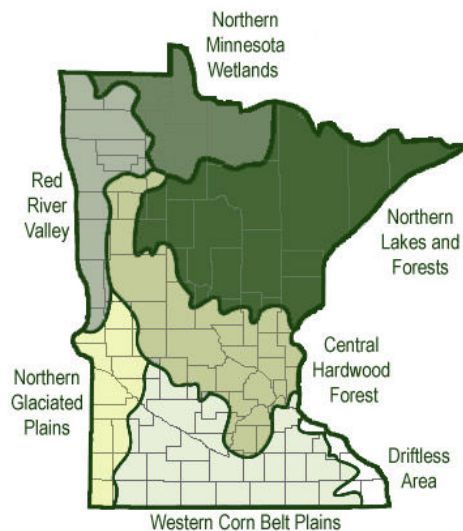
Minnesota is divided into 7 ecoregions based on land use, vegetation, precipitation and geology. The MPCA has developed a way to determine the "average range" of water quality expected for lakes in each ecoregion.

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.

Boy Lake (Site 201) 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	11-0143-00	Boy	201 (Primary)	06-01-2007 - 08-31-2009	RMB Lab

Historical Mean	25.6	8.8	8.2	50	49	47	49
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Date	Time	Site	Sampler	Lab Code	Data Source	TP ug/L	ChlA ug/L	Secchi Ft.	TSI Phos.	TSI ChlAL	TSI Secchi Ft.	TSI Avg.
6/4/2007	12:00 PM	201	David Moore	62152	RMB Lab	24	4	N/A	50	44	N/A	47
6/17/2007	3:30 PM	201	David Moore	63196	RMB Lab	20	6	10.9	47	48	43	46
7/15/2007	10:38 AM	201	David Moore	65189	RMB Lab	37	8	6	56	51	51	53
8/19/2007	2:10 PM	201	Moore/Downham	67001	RMB Lab	35	17	4.6	55	58	55	56
9/15/2007	11:25 AM	201	David Moore	68586	RMB Lab	39	28	4.5	57	63	55	58

Annual Mean	31	12.6	6.5	53	52	51	52
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Date	Time	Site	Sampler	Lab Code	Data Source	TP ug/L	ChlA ug/L	Secchi Ft.	TSI Phos.	TSI ChlAL	TSI Secchi Ft.	TSI Avg.
6/4/2008	9:00 AM	201	Moore & Duerkop	78424	RMB Lab	20	3	10	47	41	44	44
6/29/2008	1:00 PM	201	Dick Downham	80749	RMB Lab	15	9	9	43	52	45	47
7/27/2008	10:00 AM	201	Dick Downham	83775	RMB Lab	22	6	7	49	48	49	49
8/15/2008	10:08 AM	201	Moore/Downham	85415	RMB Lab	24	9	5.5	50	52	53	52
9/7/2008	11:00 AM	201	David Moore	86973	RMB Lab	30	17	5.5	53	58	53	55

Annual Mean	22.2	8.8	7.4	48	50	48	49
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Date	Time	Site	Sampler	Lab Code	Data Source	TP ug/L	ChlA ug/L	Secchi Ft.	TSI Phos.	TSI ChlAL	TSI Secchi Ft.	TSI Avg.
5/31/2009	4:30 PM	201	Chower/Downham	98204	RMB Lab	40	3	14	57	41	39	46
6/21/2009	10:45 AM	201	Hank and Kathy Duerkop	101095	RMB Lab	15	2	12	43	37	41	40
7/12/2009	11:20 AM	201	Hank and Kathy Duerkop	103446	RMB Lab	18	4	9.5	46	44	45	45
8/8/2009	9:27 AM	201	Moore & Duerkop	107092	RMB Lab	20	7	8	47	50	47	48

Annual Mean	23.2	4	10.9	48	43	43	44
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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 a long-term trend analysis for total phosphorus, chlorophyll *a*, or Secchi depth on Boy Lake.