Capaul's Pond [east basin] (82-0365) *Valley Branch Watershed District*

Capaul's Pond is located in Grant Township (Washington County). There is no bathymetric information available for the east basin. The basin is to the east of the Gateway State Trail.

On each sampling day the lake was monitored for total phosphorus (TP), chlorophyll-a (CLA), total kjeldahl nitrogen (TKN), and secchi transparency, as well as the lake's perceived physical condition and recreational suitability. A depth profile of dissolved oxygen and temperature was also measured. The resulting data are summarized in tables and figures on the following page.

2009 summer (May-September) data summary

Parameter	*Mean*	*Minimum*	*Maximum*	*Grade*
TP (µg/l)	191.0	99.0	364.0	NA
CLA (µg/l)	82.7	29.0	170.0	NA
Secchi (m)	0.8	0.5	1.1	NA
TKN (mg/l)	2.23	1.70	3.30	
			Lake Grade	NA

There were insuffcient data to calculate the water quality grades and the lake grade (at least 5 data points for the summer-time period are required). Additional years of monitoring are suggested to build an historical water quality database for this lake.

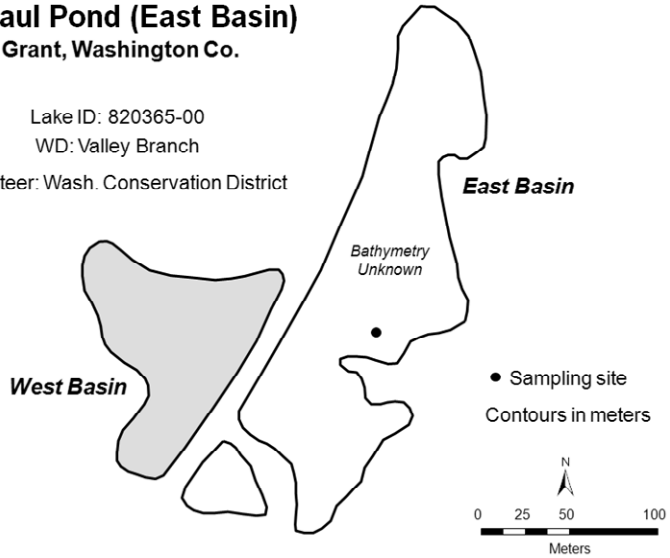
Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

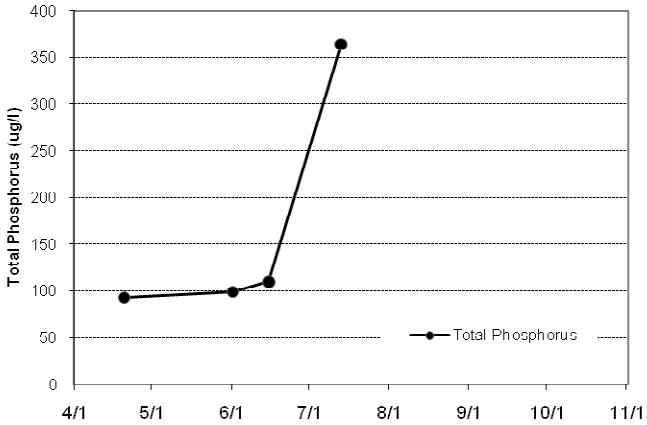
If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.

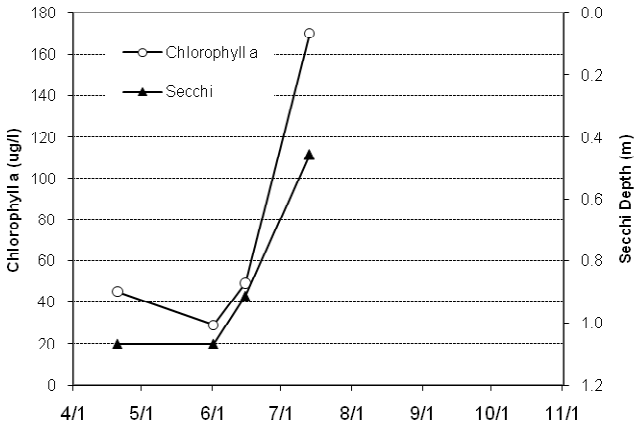
Capaul Pond (East Basin)

Grant, Washington Co.

Lake ID: 820365-00
WD: Valley Branch
Volunteer: Wash. Conservation District

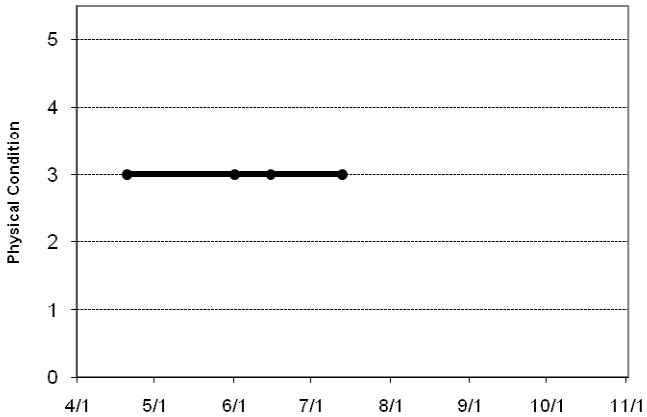






2009 Data

DATE	Surf Tmp (ºC)	Bot Tmp (ºC)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
4/20	13	13.2	8.19	0.11	45	93		1.1	3	4
6/1	20.2	19.8	7.14	6.85	29	99		1.1	3	4
6/15	24.3	4.88	10.09	0	49	110		0.9	3	4
7/13	23.6	23	6.86	0.09	170	364		0.5	3	4



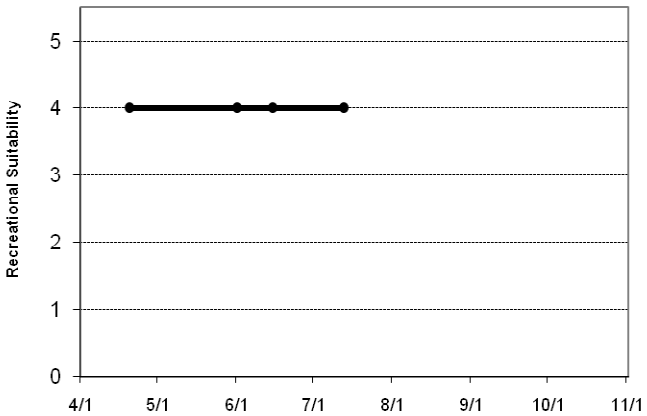
Lake Water Quality Grades Based on Summertime Averages

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total Phosphorus												
Chlorophyll a												
Secchi Depth												
Lake Grade												

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total Phosphorus												
Chlorophyll a												
Secchi Depth												
Lake Grade												

Year	2004	2005	2006	2007	2008	2009
Total Phosphorus					D	
Chlorophyll a					C	
Secchi Depth					D	
Lake Grade					**D**	**NA**

Source: Metropolitan Council and STORET data



Carol Lake (82-0017) *Carnelian - Marine - St. Croix Watershed District*

Carol Lake is located within Stillwater Township (Washington County). The lake has a maximum and mean depth of 1.8 m (5.9 feet) and 0.9 m (3 feet). The entire lake is considered littoral zone, which is the shallow 0 – 15 feet depth zone that is typically dominated by aquatic plants. Since the lake is relatively shallow, it does not maintain a thermocline, which is a density gradient caused by changing water temperatures throughout the water column.

On each sampling day the lake was monitored for secchi transparency, as well as the lake's perceived physical condition and recreational suitability. A depth profile of dissolved oxygen and temperature was also measured. The resulting data are summarized in tables and figures on the following page.

2009 summer (May-September) data summary

Parameter	*Mean*	*Minimum*	*Maximum*	*Grade*
TP (µg/l)				
CLA (µg/l)				
Secchi (m)	1.3	0.9	1.5	C
TKN (mg/l)				
			Lake Grade	

The secchi depth grade for 2009 was a C, which is an increase in comparision to the past few years. Water clarity has been decreasing since the late 1990s, so continued monitoring is suggested to determine if this year's water clarity improvement is the beginning of a trend or an anomaly.

Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.

Carol Lake

Stillwater Twp., Washington Co.

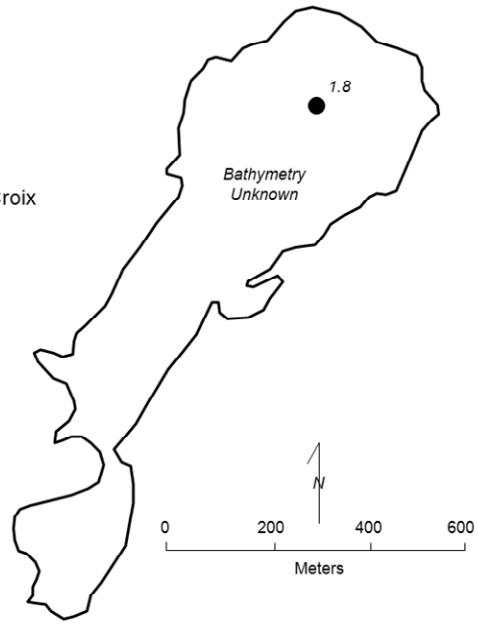
LAKE ID: 820017-00

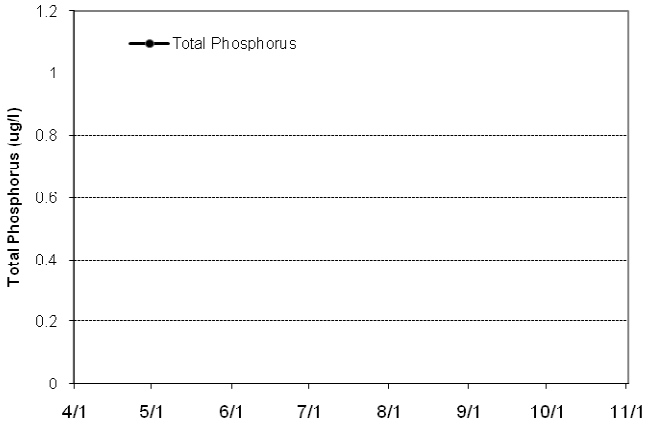
WD: Carnelian-Marine-St. Croix

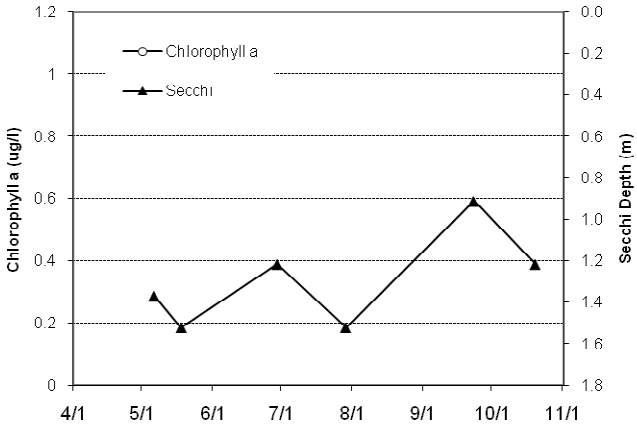
Volunteer: Washington Conservation District

● Sampling site

Contours in meters

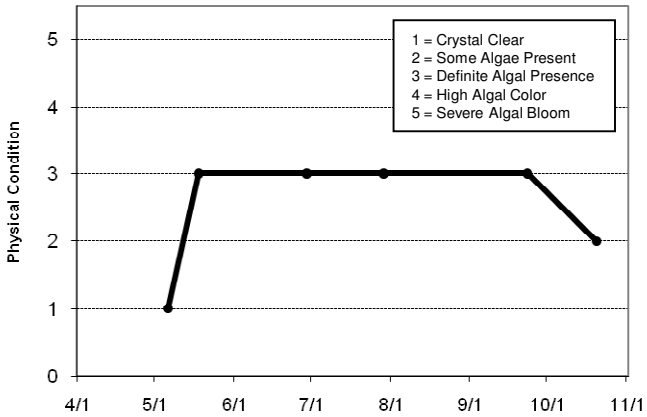






2009 Data

DATE	Surf Tmp (ºC)	Bot Tmp (ºC)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
5/6	16.3	16.1	7.49	5.32				1.4	1	2
5/18	16	15.2	11.66	2.86				1.5	3	4
6/29	21.7	21.6	5.52	4.99				1.2	3	4
7/29	21.7	20.8	4.59	0.11				1.5	3	4
9/23	20.4	20.3	1.85	0.41				0.9	3	3
10/20	9	8.9	11.75	0.11				1.2	2	4



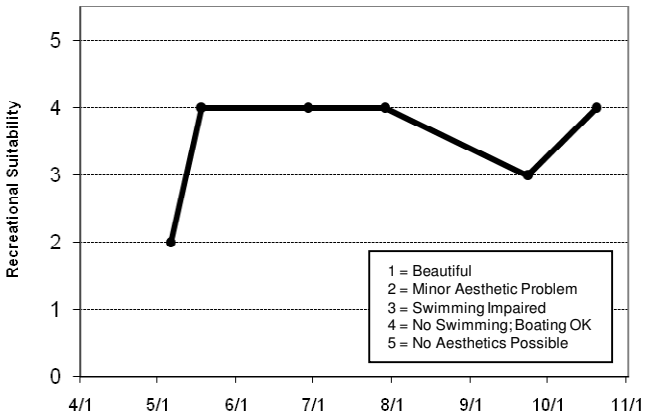
Lake Water Quality Grades Based on Summertime Averages

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total Phosphorus												
Chlorophyll a												
Secchi Depth												
Lake Grade												

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total Phosphorus					B	A	A	A	A	B		C
Chlorophyll a					B	C	C	C	A	A		B
Secchi Depth					B	B	B	B	C	C	D	D
Lake Grade					**B**	**B**	**B**	**B**	**B**	**B**		**C**

Year	2004	2005	2006	2007	2008	2009
Total Phosphorus	C	C	C	B		
Chlorophyll a	B	B	A	A		
Secchi Depth	D	D	D	D	D	C
Lake Grade	**C**	**C**	**C**	**B**		

Source: Metropolitan Council and STORET data



Cates Lake (70-0018) *Prior Lake – Spring Lake Watershed District*

Cates Lake is a 27-acre lake located in the City of Savage (Scott County). The maximum depth of the lake is 4.0 m (13 feet). The entire lake is considered littoral zone, which is the shallow 0 – 15 feet depth zone that is typically dominated by aquatic plants. Since the lake is relatively shallow, it does not maintain a thermocline, which is a density gradient caused by changing water temperatures throughout the water column. The MN DNR has designated the lake as being infested with Eurasion water milfoil (*Myriophyllum spicatum*).

On each sampling day the lake was monitored for total phosphorus (TP), chlorophyll-a (CLA), total kjeldahl nitrogen (TKN), and secchi transparency, as well as the lake's perceived physical condition and recreational suitability. The resulting data are summarized in tables and figures on the following page.

2009 summer (May-September) data summary

Parameter	*Mean*	*Minimum*	*Maximum*	*Grade*
TP (µg/l)	19.5	8.0	36.0	A
CLA (µg/l)	4.9	2.9	8.5	A
Secchi (m)	2.0	1.6	2.4	C
TKN (mg/l)	0.90	0.66	1.20	
			Lake Grade	B

The lake received a lake grade of B for 2009, which is the same grade it has received for the previous 6 years. Given the available historical water quality data, the water quality of the lake is well represented by a lake grade of B. The individual parameter grades were similar for 2009 as for 2002, 2005, 2007, and 2008. The water quality of the lake appears to be relatively stable since 2002.

Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.

Cates Lake
Prior Lake, Scott Co.

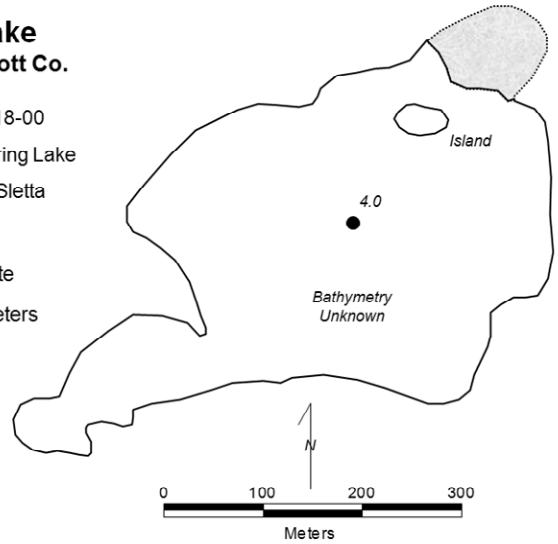
LAKE ID: 700018-00

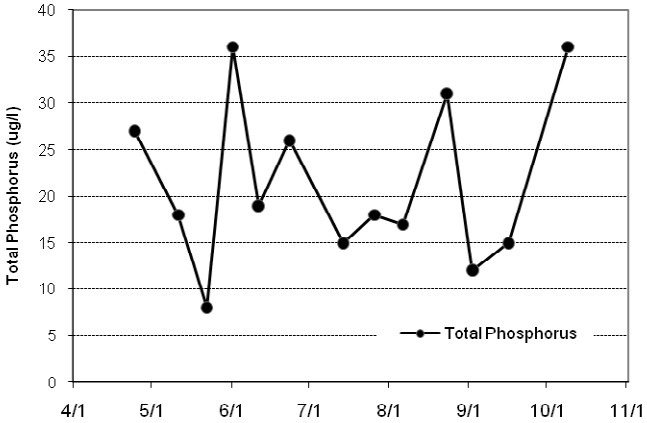
WD: Prior Lake-Spring Lake

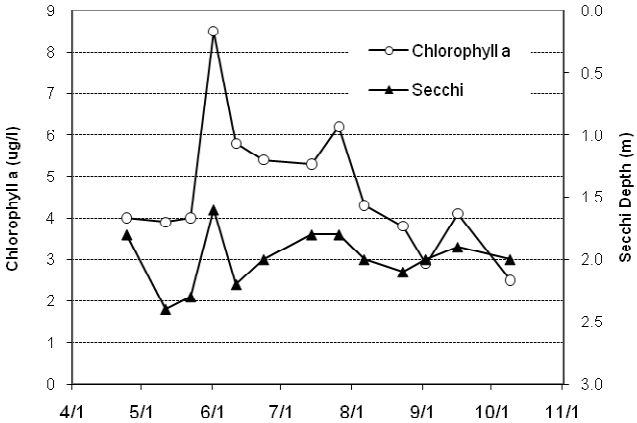
Volunteer: Tom Sletta

● Sampling site

Contours in meters

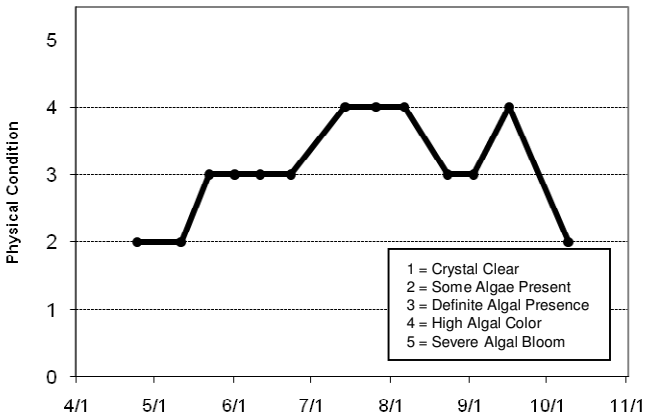






2009 Data

DATE	Surf Tmp (ºC)	Bot Tmp (ºC)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
4/24	15.4				4	27		1.8	2	4
5/11	16.3				3.9	18		2.4	2	4
5/22	18.7				4	8		2.3	3	4
6/1	21.1				8.5	36		1.6	3	4
6/11	17.8				5.8	19		2.2	3	4
6/23	27.2				5.4	26		2.0	3	4
7/14	24.3				5.3	15		1.8	4	4
7/26	25.9				6.2	18		1.8	4	4
8/6	23.3				4.3	17		2.0	4	4
8/23	23.4				3.8	31		2.1	3	4
9/2	21				2.9	12		2.0	3	4
9/16	23.4				4.1	15		1.9	4	4
10/9	10.6				2.5	36		2.0	2	4



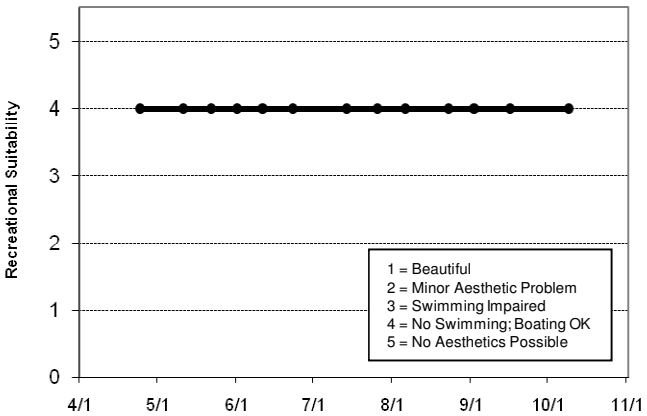
Lake Water Quality Grades Based on Summertime Averages

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total Phosphorus												
Chlorophyll a												
Secchi Depth												
Lake Grade												

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total Phosphorus											A	B
Chlorophyll a											A	A
Secchi Depth											C	C
Lake Grade											**B**	**B**

Year	2004	2005	2006	2007	2008	2009
Total Phosphorus	B	A	B	A	A	A
Chlorophyll a	A	A	A	A	A	A
Secchi Depth	C	C	C	C	C	C
Lake Grade	**B**	**B**	**B**	**B**	**B**	**B**

Source: Metropolitan Council and STORET data



Cedar Island Lake (27-0119) *Shingle Creek Watershed Management Commission*

Cedar Island Lake is located within the City of Maple Grove (Hennepin County). The maximum depth of the lake is 2.1 m (6.9 ft), and the mean depth is 1.4 m (4.6 ft). The entire lake is considered littoral zone, which is the shallow 0 – 15 feet depth zone that is typically dominated by aquatic plants. Since the lake is relatively shallow, it does not maintain a thermocline, which is a density gradient caused by changing water temperatures throughout the water column. The lake has a surface area of 80 acres and a watershed area of 800 acres, giving a watershed to lake area ratio of 10:1. The larger the ratio the greater the potential effects of runoff on the water quality of the lake.

On each sampling day the lake was monitored for total phosphorus (TP), chlorophyll-a (CLA), total kjeldahl nitrogen (TKN), and secchi transparency, as well as the lake's perceived physical condition and recreational suitability. The resulting data are summarized in tables and figures on the following page.

2009 summer (May-September) data summary

Parameter	*Mean*	*Minimum*	*Maximum*	*Grade*
TP (µg/l)	343.3	250.0	464.0	F
CLA (µg/l)	129.7	81.0	170.0	F
Secchi (m)	0.3	0.3	0.4	F
TKN (mg/l)	5.25	4.00	6.00	
			Lake Grade	F

The lake received a lake grade of F for 2009, which is consistent with the lake's historical database. Continued monitoring is recommended to build the water quality database of this lake.

Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.

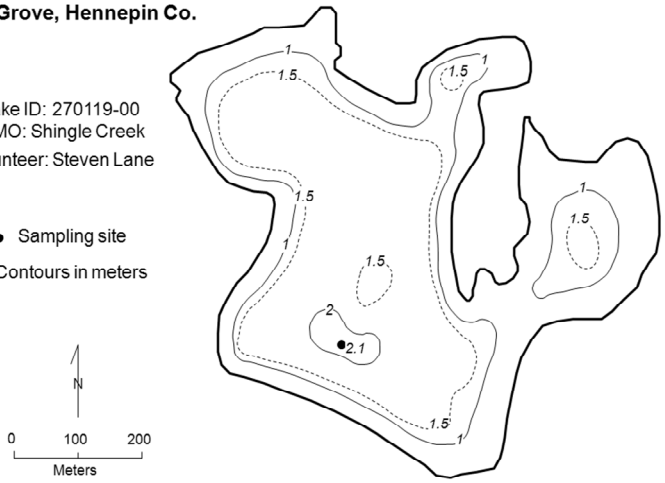
Cedar Island Lake

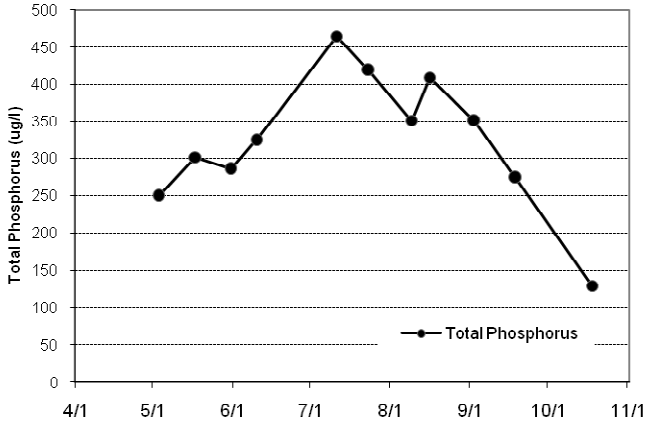
Maple Grove, Hennepin Co.

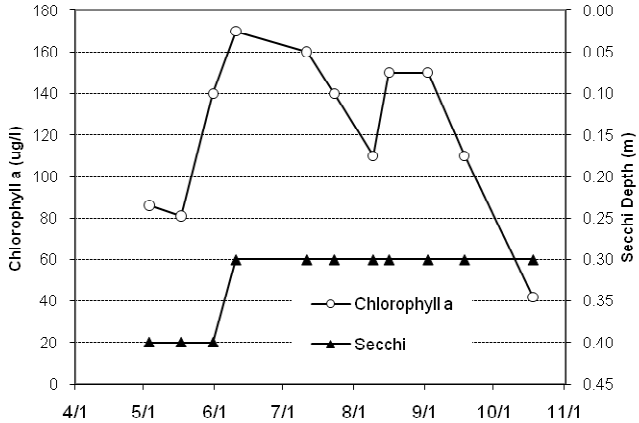
Lake ID: 270119-00
WMO: Shingle Creek
Volunteer: Steven Lane

● Sampling site

Contours in meters

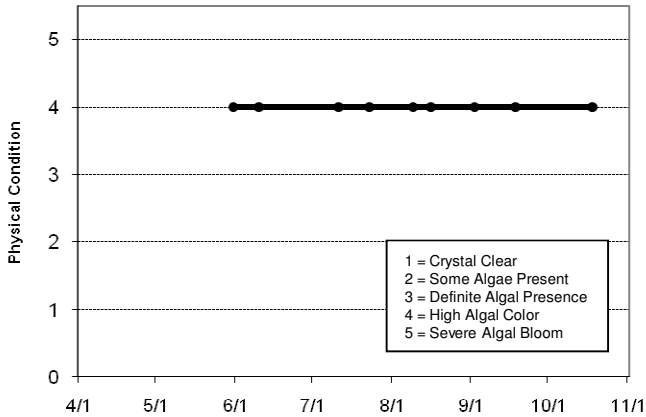






2009 Data

DATE	Surf Tmp (ºC)	Bot Tmp (ºC)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
5/3	16.6				86	250		0.4		3
5/17	18.7				81	301		0.4		3
5/31	20.3				140	286		0.4	4	4
6/10	18.8				170	325		0.3	4	4
7/11	24.3				160	464		0.3	4	4
7/23	23.5				140	420		0.3	4	4
8/9	26.1				110	351		0.3	4	4
8/16	25.1				150	409		0.3	4	4
9/2	21.6				150	352		0.3	4	4
9/18	23.4				110	275		0.3	4	4
10/18	7.8				42	129		0.3	4	4



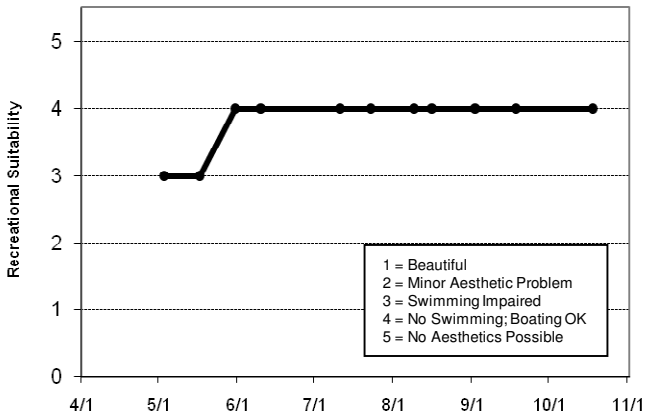
Lake Water Quality Grades Based on Summertime Averages

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total Phosphorus					D							
Chlorophyll a					B							
Secchi Depth					D						F	
Lake Grade					**C**							

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total Phosphorus				D						D		F
Chlorophyll a				F						D		F
Secchi Depth	F	F	F	F	F	F	F	F	F	D	F	F
Lake Grade				**F**						**D**		**F**

Year	2004	2005	2006	2007	2008	2009
Total Phosphorus			F			F
Chlorophyll a			F			F
Secchi Depth			F			F
Lake Grade			**F**			**F**

Source: Metropolitan Council and STORET data



Cedar Lake (70-0091) *Scott County Watershed Management Organization*

Cedar Lake is located in Cedar Lake Township (Scott County). It is considered a Priority Lake by the Metropolitan Council for its high regional recreation value (METC 2007). The lake has a maximum depth of 4.7 m (15 ft) and a mean depth of 2.1 m (6.9 feet). The entire lake is considered littoral zone, which is the shallow 0 – 15 feet depth zone that is typically dominated by aquatic plants. Since the lake is relatively shallow, it does not maintain a thermocline, which is a density gradient caused by changing water temperatures throughout the water column. The lake has a surface an area of 742 acres and watershed area of 11,104 acres, giving a watershed to lake area ratio of 15:1. The larger the ratio the greater the potential effects of runoff on the water quality of the lake.

On each sampling day the lake was monitored for total phosphorus (TP), chlorophyll-a (CLA), total kjeldahl nitrogen (TKN), and secchi transparency, as well as the lake's perceived physical condition and recreational suitability. The resulting data are summarized in tables and figures on the following page.

2009 summer (May-September) data summary

Parameter	*Mean*	*Minimum*	*Maximum*	*Grade*
TP (µg/l)	156.0	35.0	296.0	F
CLA (µg/l)	50.2	3.3	150.0	D
Secchi (m)	1.3	0.5	3.7	C
TKN (mg/l)	1.91	0.86	3.00	
			Lake Grade	D

The lake received a lake grade of D for 2009, which is consistent with the lake's historic database. The lake's water quality seems to be best represented by a lake grade of D.

Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

The Fisheries Section of the Minnesota Department of Natural Resources (MDNR) has conducted a fisheries survey on the lake. Information on the survey can be obtained through the MDNR Fisheries Section by calling (651) 259-5831 or by downloading the information off the Internet at http://www.dnr.state.mn.us/lakefind/.

If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.

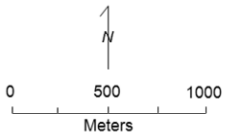
Cedar Lake

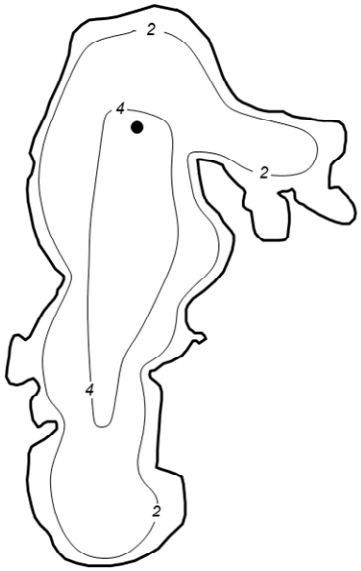
Cedar Lake Twp./Helena Twp., Scott Co.

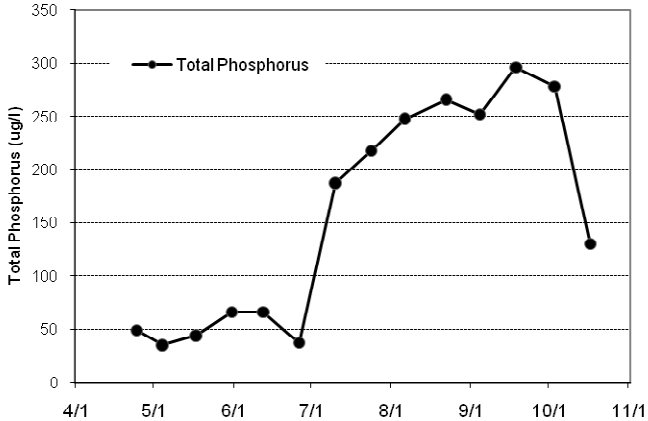
LAKE ID: 700091-00
WMO: Sand Creek
Volunteer: Jerry Edberg

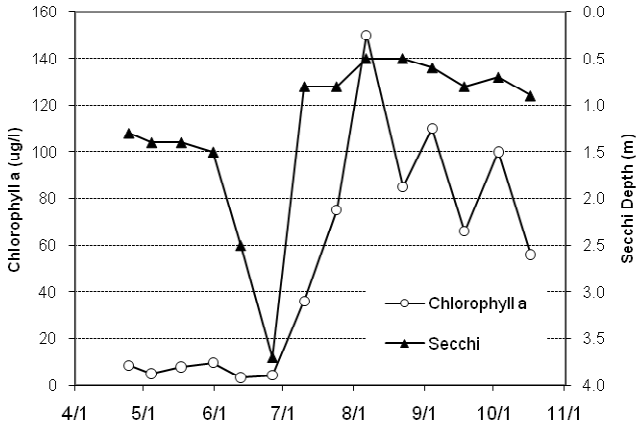
● Sampling site

Contours in meters



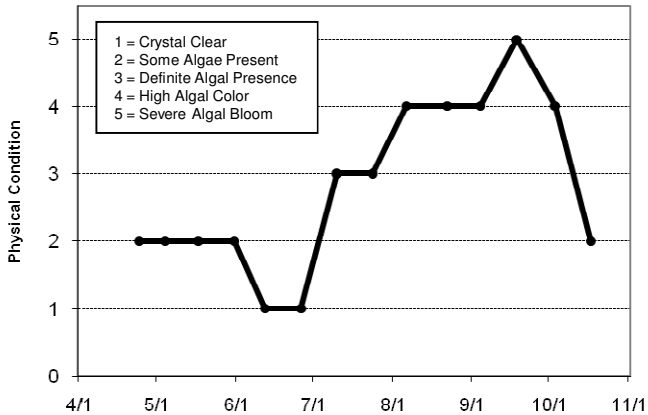






2009 Data

DATE	Surf Tmp (ºC)	Bot Tmp (ºC)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
4/24	13				8.5	49		1.3	2	2
5/4	13.7				5	35		1.4	2	2
5/17	14.4				7.8	44		1.4	2	1
5/31	18.2				9.6	66		1.5	2	3
6/12	18.4				3.3	66		2.5	1	2
6/26	26.1				4.2	37		3.7	1	2
7/10	23.4				36	188		0.8	3	2
7/24	23.2				75	218		0.8	3	3
8/6	24.4				150	248		0.5	4	3
8/22	21.7				85	266		0.5	4	3
9/4	24.3				110	252		0.6	4	3
9/18	23.2				66	296		0.8	5	4
10/3	13.2				100	278		0.7	4	3
10/17	8.3				56	130		0.9	2	2



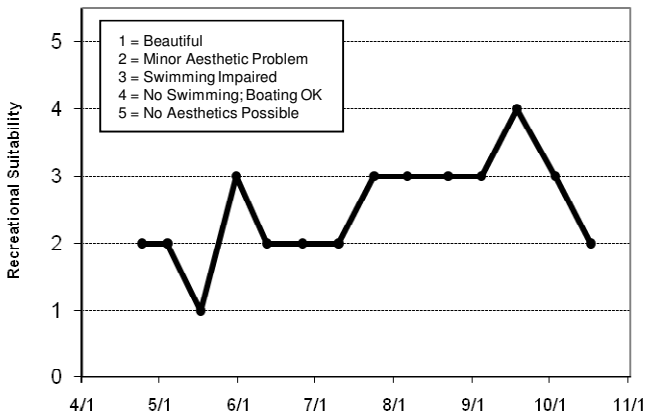
Lake Water Quality Grades Based on Summertime Averages

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total Phosphorus	F	F			F							
Chlorophyll a	F	D			D						D	
Secchi Depth	C	C	C	C	C	C				F	D	D
Lake Grade	**F**	**D**			**D**							

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total Phosphorus		F					F			F		
Chlorophyll a		C					D			F		
Secchi Depth	D	C					D			D		
Lake Grade		**D**					**D**			**F**		

Year	2004	2005	2006	2007	2008	2009
Total Phosphorus		D	F	F	F	F
Chlorophyll a		C	D	D	D	D
Secchi Depth		C	D	D	D	C
Lake Grade		**C**	**D**	**D**	**D**	**D**

Source: Metropolitan Council and STORET data



Cenaiko Lake (2-0654) *Anoka County Parks*

Cenaiko Lake is located within Coon Rapids Dam Regional Park in the City of Coon Rapids in Anoka County. The lake is maintained by groundwater and has a very small watershed that is completely publicly owned (MDNR 1996). The lake is stocked with trout (brook and rainbow). The MN DNR has designated the lake as being infested with Eurasion water milfoil (*Myriophyllum spicatum*).

On each sampling day the lake was monitored for total phosphorus (TP), chlorophyll-a (CLA), total kjeldahl nitrogen (TKN), and secchi transparency, as well as the lake's perceived physical condition and recreational suitability. The resulting data are summarized in tables and figures on the following page.

2009 summer (May-September) data summary

Parameter	*Mean*	*Minimum*	*Maximum*	*Grade*
TP (µg/l)	17.3	5.0	60.0	A
CLA (µg/l)	3.0	1.8	5.1	A
Secchi (m)	2.0	1.3	3.2	C
TKN (mg/l)	0.60	0.42	0.93	
			Lake Grade	B

The lake received a water quality lake grade of B for 2009. The lake has received A grades for TP and CLA since 1997. The water clarity shows variation however. The annual mean summer-time water clarity grade has varied in the range of A to C.

Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

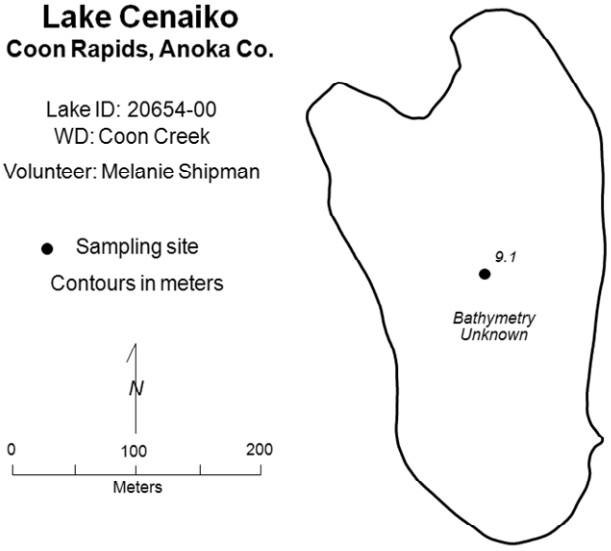
The Fisheries Section of the Minnesota Department of Natural Resources (MDNR) has conducted a fisheries survey on the lake. Information on the survey can be obtained through the MDNR Fisheries Section by calling (651) 259-5831 or by downloading the information off the Internet at http://www.dnr.state.mn.us/lakefind/.

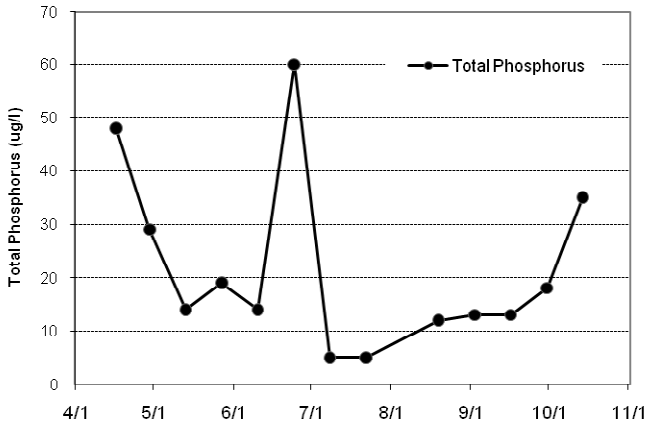
If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.

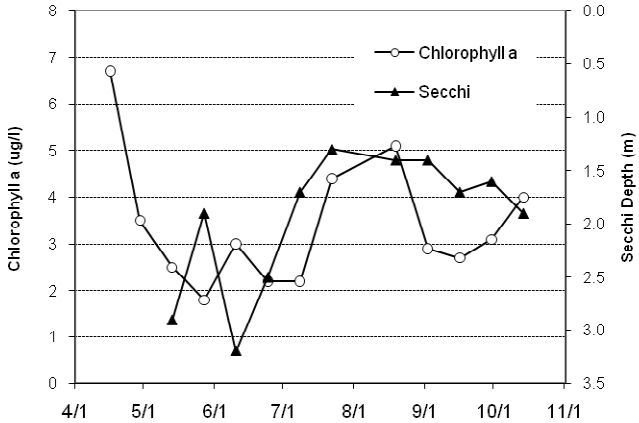
Lake Cenaiko
Coon Rapids, Anoka Co.

Lake ID: 20654-00
WD: Coon Creek
Volunteer: Melanie Shipman

● Sampling site
Contours in meters

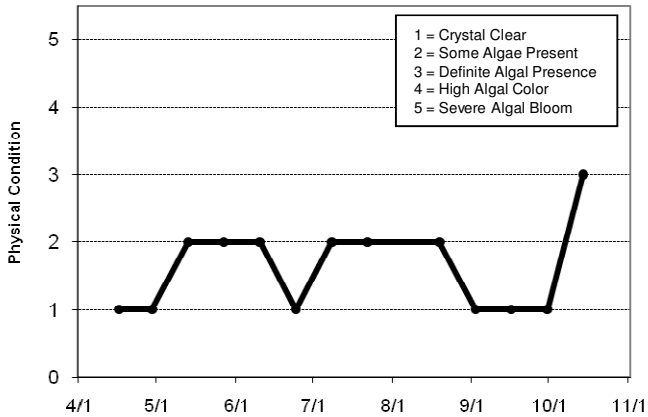






2009 Data

DATE	Surf Tmp (ºC)	Bot Tmp (ºC)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
4/16	13.3				6.7	48			1	1
4/29	13.2				3.5	29			1	1
5/13	16.8				2.5	14		2.9	2	1
5/27	18.7				1.8	19		1.9	2	1
6/10	17.7				3	14		3.2	2	1
6/24	27.4				2.2	60		2.5	1	1
7/8	25.6				2.2	5		1.7	2	1
7/22	25				4.4	5		1.3	2	1
8/19	23				5.1	12		1.4	2	1
9/2	21.8				2.9	13		1.4	1	1
9/16	23.2				2.7	13		1.7	1	1
9/30	17.1				3.1	18		1.6	1	1
10/14	9.4				4	35		1.9	3	1

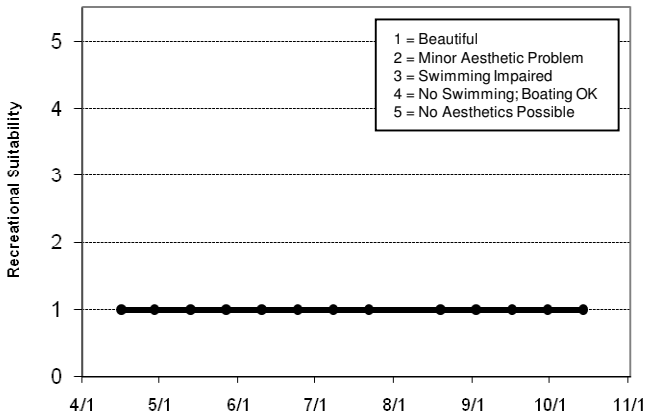


Lake Water Quality Grades Based on Summertime Averages

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total Phosphorus												
Chlorophyll a												
Secchi Depth												
Lake Grade												

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total Phosphorus						A	A	A	A	A	A	A
Chlorophyll a						A	A	A	A	A	A	A
Secchi Depth						C	A	A	B	C	A	A
Lake Grade						**B**	**A**	**A**	**A**	**B**	**A**	**A**

Year	2004	2005	2006	2007	2008	2009
Total Phosphorus	A	A	A	A	A	A
Chlorophyll a	A	A	A	A	A	A
Secchi Depth	B	B	A	B	C	C
Lake Grade	**A**	**A**	**A**	**A**	**B**	**B**



Source: Metropolitan Council and STORET data

Clear Lake (82-0045) *Carnelian-Marine Watershed District*

Clear Lake is located in May Township (Washington County). The maximum depth of the lake is 8.2 m (27 ft). Approximately 94 percent of the lake's surface area is considered littoral (the 0-15 feet depth zone of aquatic vegetation dominance).

On each sampling day the lake was monitored for total phosphorus (TP), chlorophyll-a (CLA), total kjeldahl nitrogen (TKN), and secchi transparency, as well as the lake's perceived physical condition and recreational suitability. The resulting data are summarized in tables and figures on the following page.

2009 summer (May-September) data summary

Parameter	*Mean*	*Minimum*	*Maximum*	*Grade*
TP (µg/l)	16.4	3.0	34.0	A
CLA (µg/l)	3.2	2.0	4.6	A
Secchi (m)	6.1	5.2	7.2	A
TKN (mg/l)	0.70	0.37	1.00	
			Lake Grade	A

The lake received a lake grade of A for 2009. The lake was rated as having the highest water quality of the lakes monitored by the METC lake monitoring program during 2009 (Table 4). To better understand the lake's water quality and where it may be heading, additional years of data collection are needed.

Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

The Fisheries Section of the Minnesota Department of Natural Resources (MDNR) has conducted a fisheries survey on the lake. Information on the survey can be obtained through the MDNR Fisheries Section by calling (651) 259-5831 or by downloading the information off the Internet at http://www.dnr.state.mn.us/lakefind/.

If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.

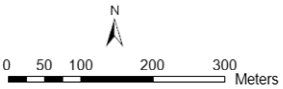
Clear Lake

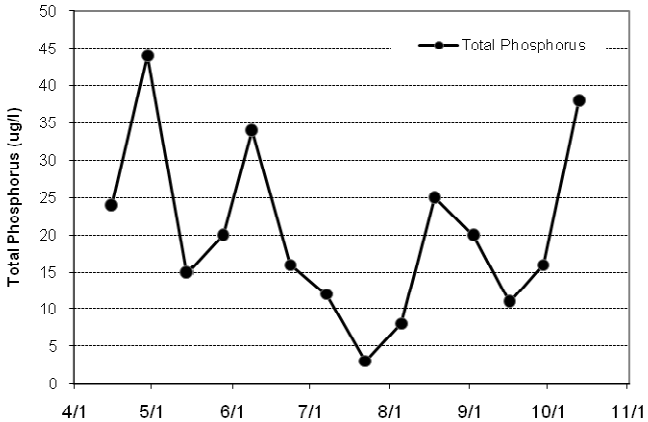
May Twp., Washington Co.

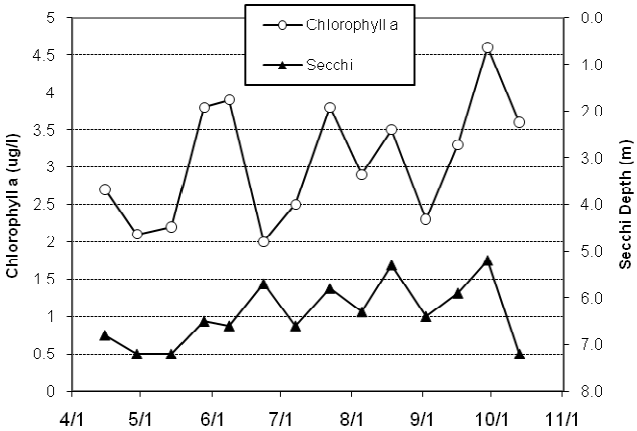
Lake ID: 820045-00
WD: Carnelian-Marine-St. Croix
Volunteer: Warner Nature Center

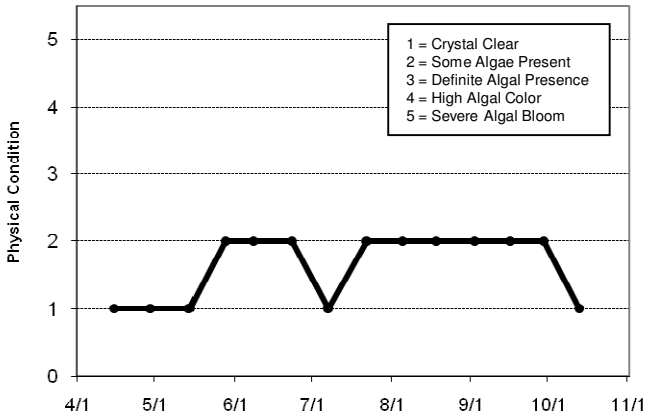
● Sampling site

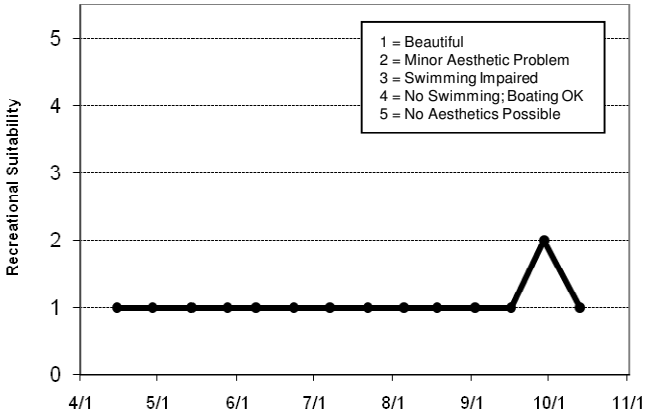
Contours in meters











2009 Data

DATE	Surf Tmp (ºC)	Bot Tmp (ºC)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
4/15	12.3				2.7	24		6.8	1	1
4/29	13.3				2.1	44		7.2	1	1
5/14	15.2				2.2	15		7.2	1	1
5/28	19.9				3.8	20		6.5	2	1
6/8	17.7				3.9	34		6.6	2	1
6/23	28.8				2	16		5.7	2	1
7/7	26.5				2.5	12		6.6	1	1
7/22	24.5				3.8	3		5.8	2	1
8/5	24				2.9	8		6.3	2	1
8/18	25.2				3.5	25		5.3	2	1
9/2	22.9				2.3	20		6.4	2	1
9/16	24.6				3.3	11		5.9	2	1
9/29	17.4				4.6	16		5.2	2	2
10/13	9.1				3.6	38		7.2	1	1

Lake Water Quality Grades Based on Summertime Averages

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total Phosphorus												
Chlorophyll a												
Secchi Depth												
Lake Grade												

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total Phosphorus												
Chlorophyll a												
Secchi Depth												
Lake Grade												

Year	2004	2005	2006	2007	2008	2009
Total Phosphorus					A	A
Chlorophyll a					A	A
Secchi Depth					A	A
Lake Grade					**A**	**A**

Source: Metropolitan Council and STORET data

Clear Lake, site 1 (82-0099*) Washington Conservation District*

Clear Lake is located within the City of Lake Elmo (Washington County). Little bathymetric information is available for the lake. A search through the MPCAs Environmental Data Access System showed no historical water quality data for this lake.

On each sampling day the lake was monitored for total phosphorus (TP), chlorophyll-a (CLA), total kjeldahl nitrogen (TKN), and secchi transparency, as well as the lake's perceived physical condition and recreational suitability. A depth profile of dissolved oxygen and temperature was also measured. The resulting data are summarized in tables and figures on the following page.

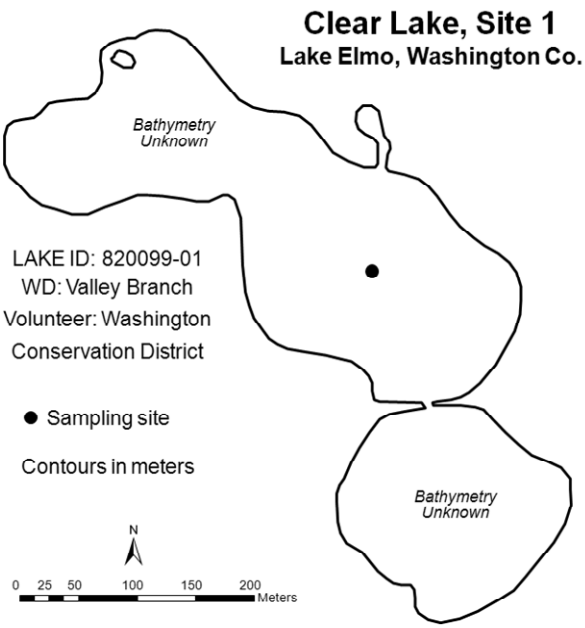
2009 summer (May-September) data summary

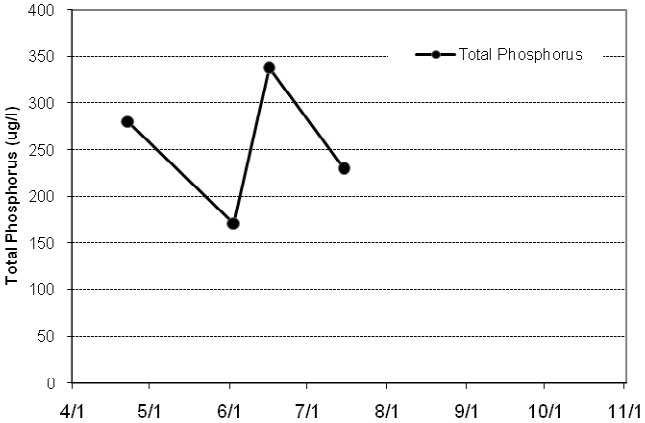
Parameter	*Mean*	*Minimum*	*Maximum*	*Grade*
TP (µg/l)	246.3	171.0	338.0	NA
CLA (µg/l)	8.0	7.2	8.4	NA
Secchi (m)	0.7	0.3	0.9	NA
TKN (mg/l)	2.50	1.80	3.40	
			Lake Grade	NA

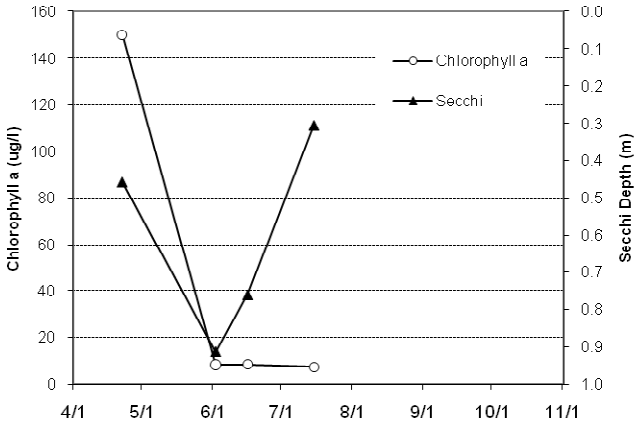
There was an insufficient quantity of data to calculate a lake grade for site 1. At least 5 monitoring events are needed during the summer-time period (May – September) to calculate a grade.

Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.

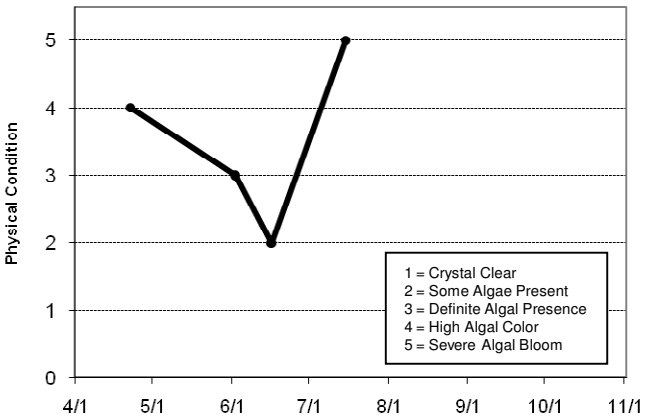






2009 Data

DATE	Surf Tmp (ºC)	Bot Tmp (ºC)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
4/22	13.7	12.3	15.99	0.11	150	280		0.5	4	4
6/2	19.9	19.9	4.38	0.11	8.3	171		0.9	3	4
6/16	23.1		7.17		8.4	338		0.8	2	2
7/15	20.7		6.28		7.2	230		0.3	5	5



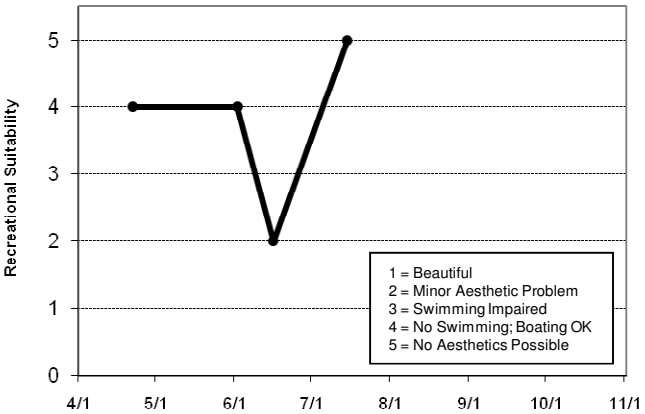
Lake Water Quality Grades Based on Summertime Averages

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total Phosphorus												
Chlorophyll a												
Secchi Depth												
Lake Grade												

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total Phosphorus												
Chlorophyll a												
Secchi Depth												
Lake Grade												

Year	2004	2005	2006	2007	2008	2009
Total Phosphorus						
Chlorophyll a						
Secchi Depth						
Lake Grade						**NA**

Source: Metropolitan Council and STORET data



Clear Lake, site 2 (82-0099*) Washington Conservation District*

Clear Lake is located within the City of Lake Elmo (Washington County). Little bathymetric information is available for the lake. A search through the MPCAs Environmental Data Access System showed no historical water quality data for this lake.

On each sampling day the lake was monitored for total phosphorus (TP), chlorophyll-a (CLA), total kjeldahl nitrogen (TKN), and secchi transparency, as well as the lake's perceived physical condition and recreational suitability. A depth profile of dissolved oxygen and temperature was also measured. The resulting data are summarized in tables and figures on the following page.

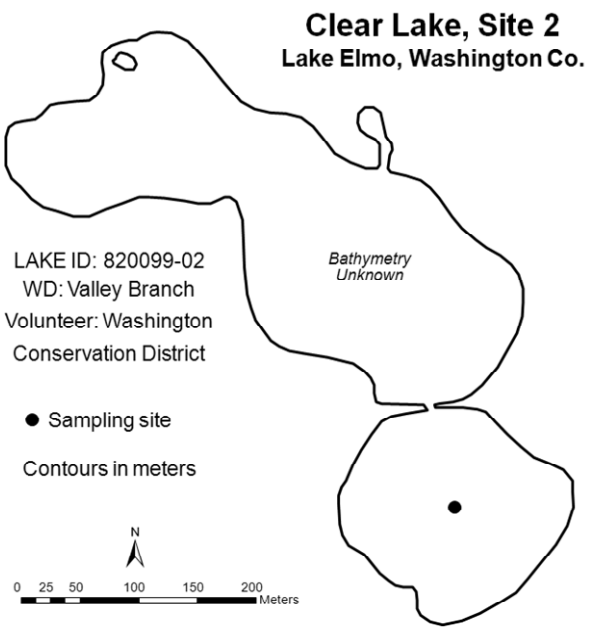
2009 summer (May-September) data summary

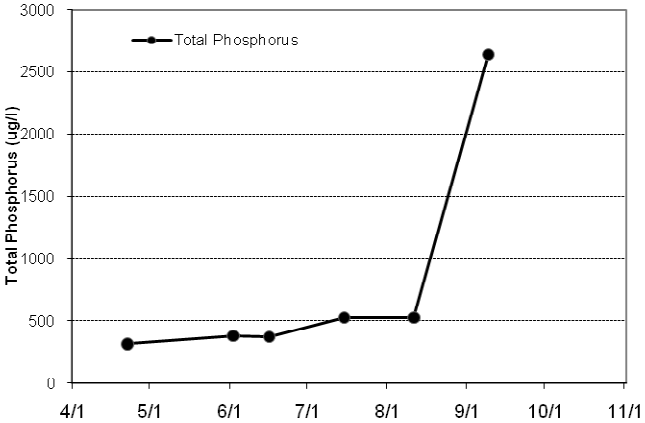
Parameter	*Mean*	*Minimum*	*Maximum*	*Grade*
TP (µg/l)	888.2	372.0	2640.0	F
CLA (µg/l)	60.3	2.7	190.0	D
Secchi (m)	0.7	0.3	0.9	F
TKN (mg/l)	5.38	1.80	19.00	
			Lake Grade	F

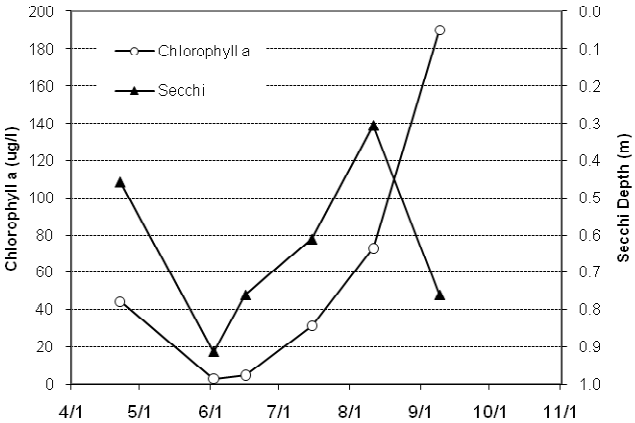
The lake received a lake grade of F for 2009. Additional monitoring is needed to build the water quality database for this lake.

Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.

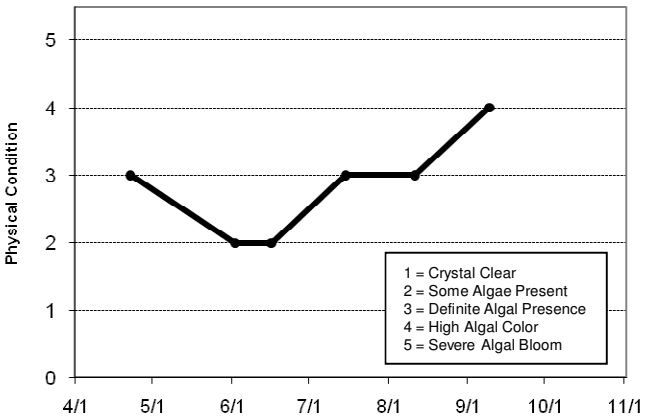






2009 Data

DATE	Surf Tmp (ºC)	Bot Tmp (ºC)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
4/22	13	11.9	15.43	14.31	44	316		0.5	3	4
6/2	20.4	20.4	4.7	0.09	2.7	378		0.9	2	4
6/16	23.6		5.12		4.6	372		0.8	2	1
7/15	21.3		5.8		31	525		0.6	3	4
8/11	25.1		10.54		73	526		0.3	3	4
9/9	23.8		10.99		190	2640		0.8	4	4



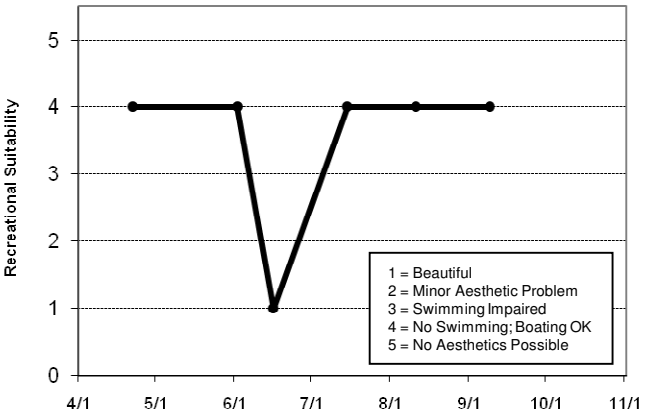
Lake Water Quality Grades Based on Summertime Averages

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total Phosphorus												
Chlorophyll a												
Secchi Depth												
Lake Grade												

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total Phosphorus												
Chlorophyll a												
Secchi Depth												
Lake Grade												

Year	2004	2005	2006	2007	2008	2009
Total Phosphorus						F
Chlorophyll a						D
Secchi Depth						F
Lake Grade						**F**

Source: Metropolitan Council and STORET data



Cloverdale Lake (82-0009) *Valley Branch Watershed District*

Cloverdale Lake is located in Baytown Township (Washington County). The mean and maximum depth of the lake is 3.0 m (10 ft) and 8.5 m (28 ft), respectively. The lake has a surface area of 45 acres, and a watershed area of 819 acreas, giving a large watershed to lake area ratio of 18:1. Generally the larger the ratio, the greater the potential stress on the lake from surface runoff.

On each sampling day the lake was monitored for total phosphorus (TP), chlorophyll-a (CLA), total kjeldahl nitrogen (TKN), and secchi transparency, as well as the lake's perceived physical condition and recreational suitability. The resulting data are summarized in tables and figures on the following page.

2009 summer (May-September) data summary

Parameter	*Mean*	*Minimum*	*Maximum*	*Grade*
TP (µg/l)	41.3	19.0	82.0	C
CLA (µg/l)	7.2	1.0	28.0	A
Secchi (m)	2.6	1.8	4.1	B
TKN (mg/l)	1.02	0.63	1.70	
			Lake Grade	B

The lake received a lake grade of B for 2009. For 7 of the past 9 years, the lake has received a lake grade of B with a C and an A received in the other two years. The historical database suggests that the lake is best represented by a lake grade of B.

Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

The Fisheries Section of the Minnesota Department of Natural Resources (MDNR) has conducted a fisheries survey on the lake. Information on the survey can be obtained through the MDNR Fisheries Section by calling (651) 259-5831 or by downloading the information off the Internet at http://www.dnr.state.mn.us/lakefind/.

If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.

Cloverdale Lake

Lake Elmo, Washington Co.

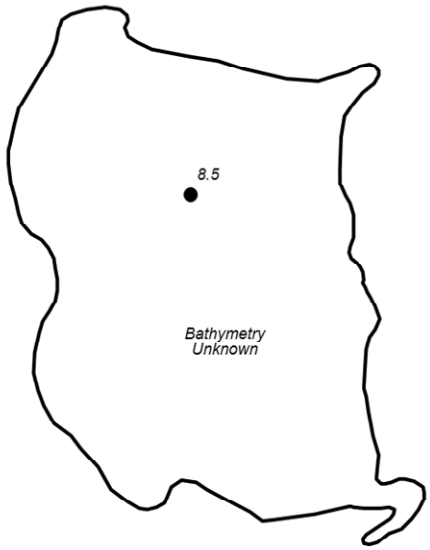
● Sampling site

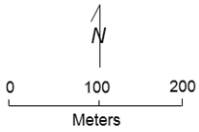
Contours in meters

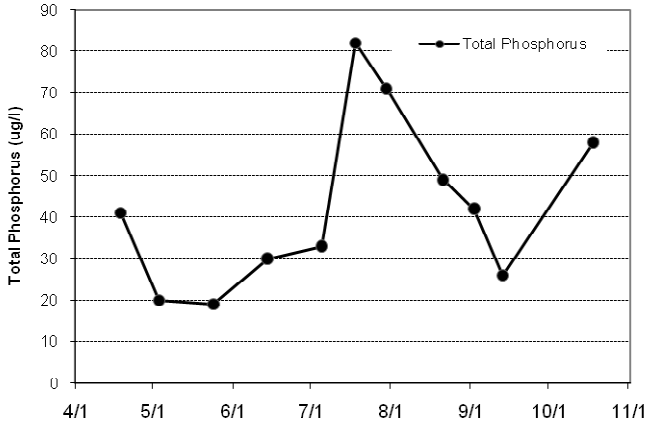
Lake ID: 820009-00

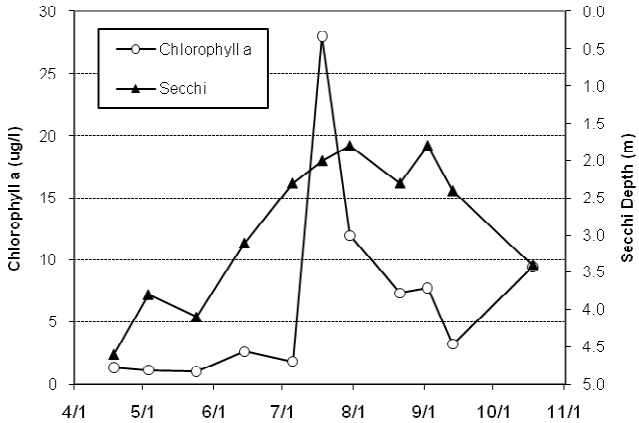
WD: Valley Branch

Volunteer: Dr. Kevin Bjork



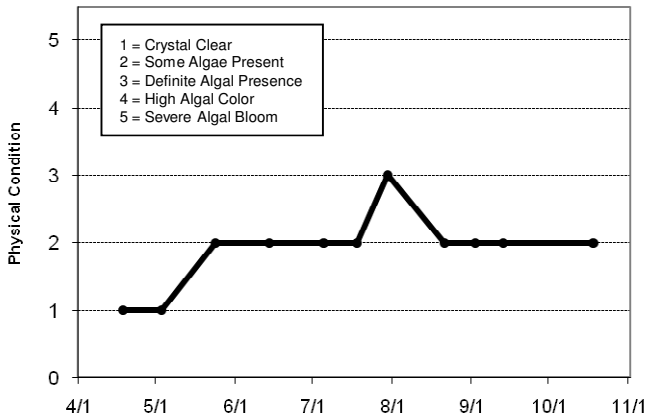






2009 Data

DATE	Surf Tmp (ºC)	Bot Tmp (ºC)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
4/18	10.4				1.3	41		4.6	1	1
5/3	13				1.1	20		3.8	1	1
5/24	20.6				1	19		4.1	2	1
6/14	23.6				2.6	30		3.1	2	2
7/5	23.8				1.8	33		2.3	2	3
7/18	24.2				28	82		2.0	2	2
7/30	24.5				12	71		1.8	3	3
8/21	23.9				7.3	49		2.3	2	2
9/2	22.4				7.7	42		1.8	2	2
9/13	26.1				3.2	26		2.4	2	2
10/18	9.5				9.4	58		3.4	2	2



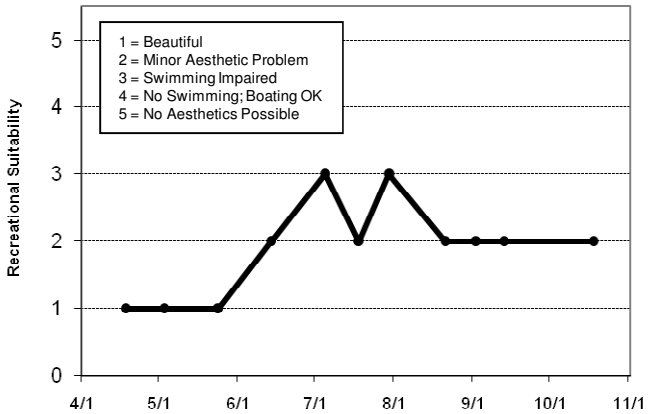
Lake Water Quality Grades Based on Summertime Averages

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total Phosphorus												
Chlorophyll a												
Secchi Depth												
Lake Grade												

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total Phosphorus										C	C	C
Chlorophyll a										B	B	B
Secchi Depth										C	B	B
Lake Grade										**C**	**B**	**B**

Year	2004	2005	2006	2007	2008	2009
Total Phosphorus	C	B	B	B	B	C
Chlorophyll a	B	A	B	A	B	A
Secchi Depth	A	A	A	B	B	B
Lake Grade	**B**	**A**	**B**	**B**	**B**	**B**

Source: Metropolitan Council and STORET data



Cobblecrest (27-0053) *City of St. Louis Park*

Cobblecrest Lake is a small shallow lake located within City of St. Louis Park (Hennepin County). There is very little known morphological data available for the lake.

On each sampling day the lake was monitored for total phosphorus (TP), chlorophyll-a (CLA), total kjeldahl nitrogen (TKN), and secchi transparency, as well as the lake's perceived physical condition and recreational suitability. The resulting data are summarized in tables and figures on the following page.

2009 summer (May-September) data summary

Parameter	*Mean*	*Minimum*	*Maximum*	*Grade*
TP (µg/l)	186.6	90.0	265.0	F
CLA (µg/l)	133.8	60.0	200.0	F
Secchi (m)	0.3	0.2	0.4	F
TKN (mg/l)	3.06	1.70	4.00	
			Lake Grade	F

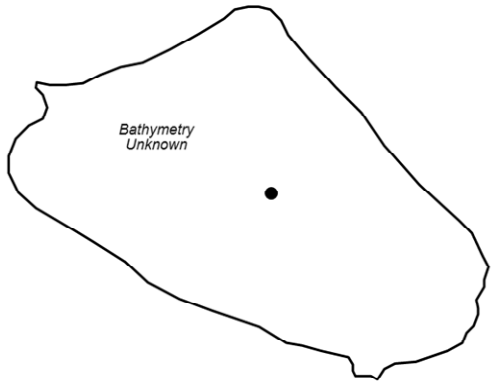
The lake's 2009 lake grade of F is consistent with the lake grades received since 2004. For the past 6 years, the lake appears to be represented well by a lake grade of F.

Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

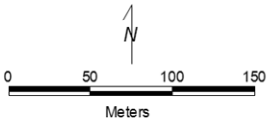
If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.

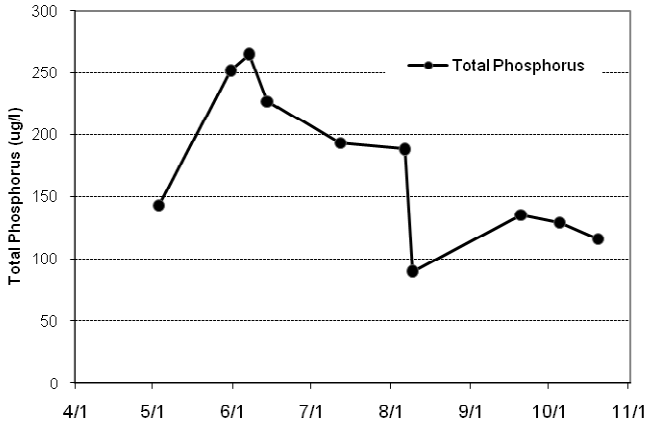
Cobblecrest Lake
St. Louis Park, Hennepin Co.

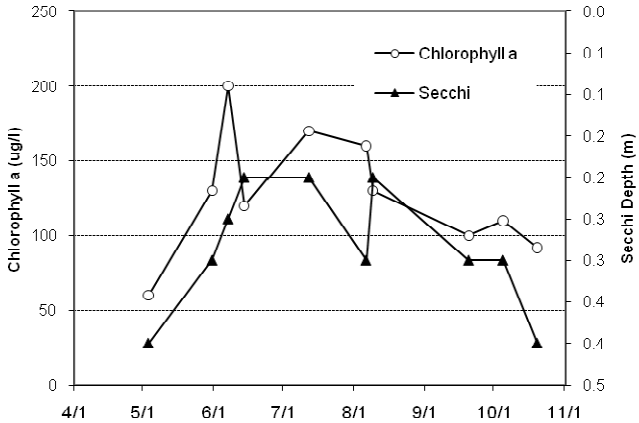
Lake ID: 270053-00
WD: Minnehaha Creek
Volunteer: Jim Kellogg



● Sampling site
Contours in meters

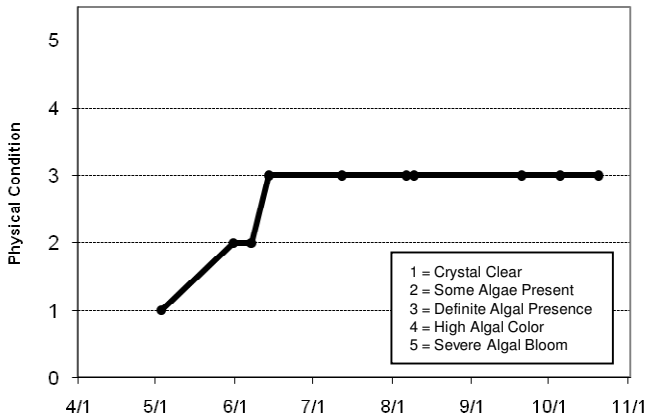






2009 Data

DATE	Surf Tmp (ºC)	Bot Tmp (ºC)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
5/3	18				60	143		0.4	1	4
5/31	23.6				130	252		0.3	2	4
6/7	15.5				200	265		0.3	2	4
6/14	24.5				120	227		0.2	3	4
7/12	23.6				170	193		0.2	3	4
8/6	21.8				160	188		0.3	3	4
8/9	26.4				130	90		0.2	3	4
9/20	22.7				100	135		0.3	3	4
10/5	12.1				110	129		0.3	3	4
10/20	10.6				92	116		0.4	3	4



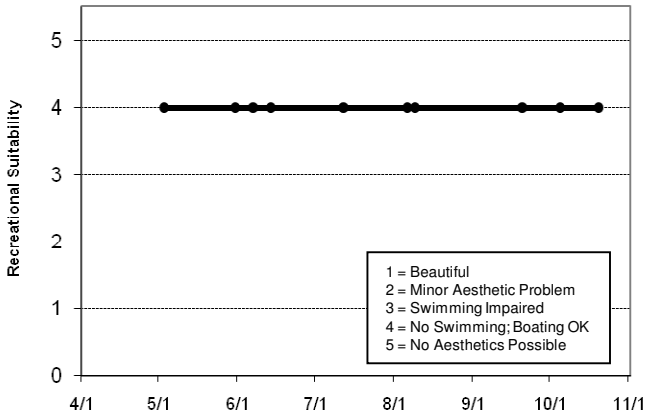
Lake Water Quality Grades Based on Summertime Averages

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total Phosphorus												
Chlorophyll a												
Secchi Depth												
Lake Grade												

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total Phosphorus											C	
Chlorophyll a											C	
Secchi Depth											C	
Lake Grade											**C**	

Year	2004	2005	2006	2007	2008	2009
Total Phosphorus	D	F	D	F	F	F
Chlorophyll a	F	F	F	F	F	F
Secchi Depth	F	F	F	F	F	F
Lake Grade	**F**	**F**	**F**	**F**	**F**	**F**

Source: Metropolitan Council and STORET data



Cobblestone Lake (19-0456) *City of Apple Valley*

Cobblestone Lake is located in the City of Apple Valley (Dakota County). The lake has a surface area of 37 acres, and a maximum depth of 6 meters.

On each sampling day the lake was monitored for total phosphorus (TP), chlorophyll-a (CLA), total kjeldahl nitrogen (TKN), and secchi transparency, as well as the lake's perceived physical condition and recreational suitability. The resulting data are summarized in tables and figures on the following page.

2009 summer (May-September) data summary

Parameter	*Mean*	*Minimum*	*Maximum*	*Grade*
TP (µg/l)	35.4	25.0	59.0	C
CLA (µg/l)	15.9	4.8	29.0	B
Secchi (m)	1.0	0.7	1.8	D
TKN (mg/l)	1.01	0.67	1.40	
			Lake Grade	C

The lake received a lake grade of C for 2009 which is similar to the lake grades received for the previous three years. The lake received a B grade for CLA, which is the highest grade it has received for this parameter since CAMP monitoring began in 2005. To better understand the lake's water quality and where it may be heading, additional years of data collection are needed.

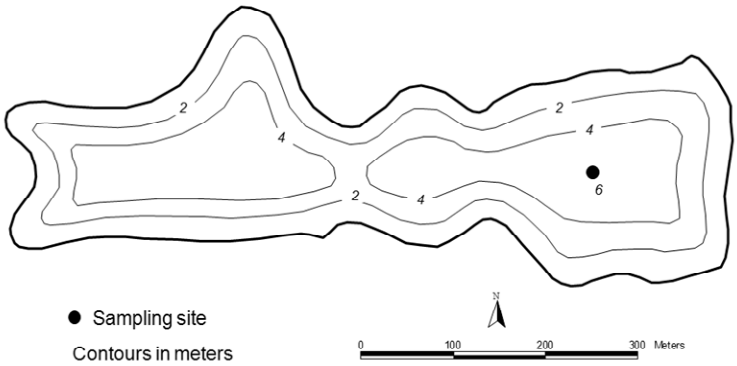
Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

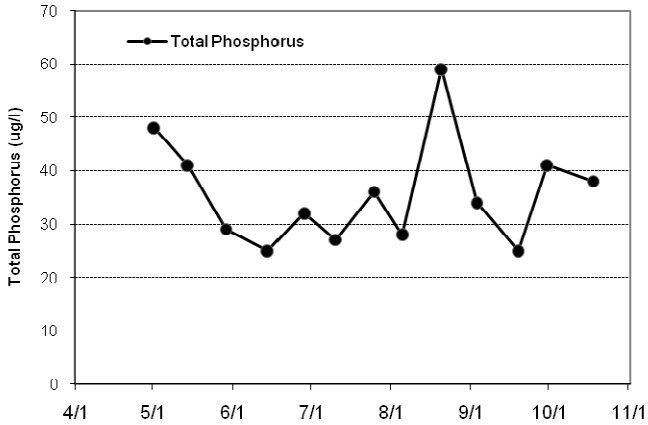
The Fisheries Section of the Minnesota Department of Natural Resources (MDNR) has conducted a fisheries survey on the lake. Information on the survey can be obtained through the MDNR Fisheries Section by calling (651) 259-5831 or by downloading the information off the Internet at http://www.dnr.state.mn.us/lakefind/.

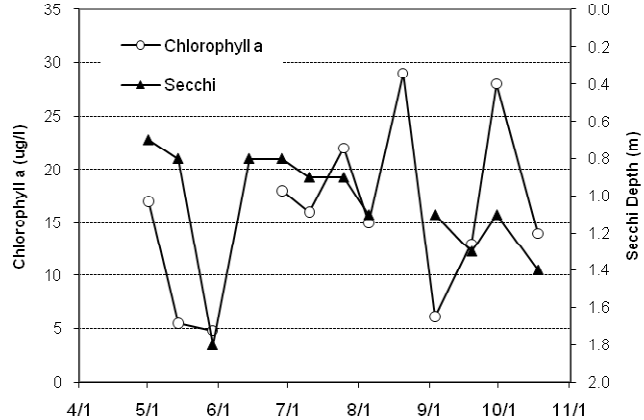
If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.

Cobblestone Lake
Apple Valley, Dakota Co.

Lake ID: 190456-00
WMO: Vermillion River
Volunteer: Jeff Sluiter

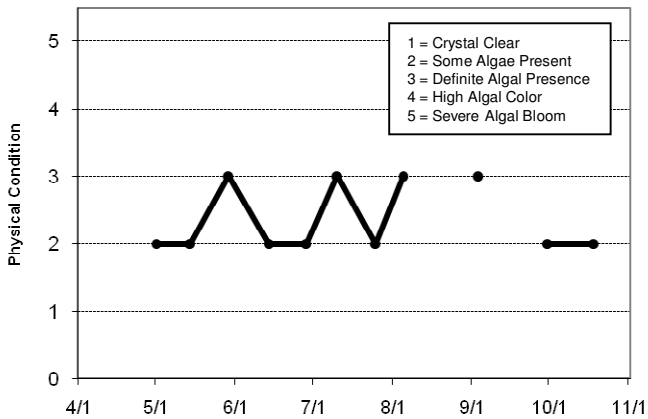






2009 Data

DATE	Surf Tmp (ºC)	Bot Tmp (ºC)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
5/1	13.2				17	48		0.7	2	2
5/14	27.3				5.5	41		0.8	2	2
5/29	20.8				4.8	29		1.8	3	4
6/14	18.8					25		0.8	2	3
6/28	19.6				18	32		0.8	2	
7/10	23				16	27		0.9	3	3
7/25	13.8				22	36		0.9	2	2
8/5	23.8				15	28		1.1	3	3
8/20					29	59				
9/3	16.3				6.1	34		1.1	3	3
9/19	21.3				13	25		1.3		
9/30	14.5				28	41		1.1	2	2
10/18	7.9				14	38		1.4	2	2



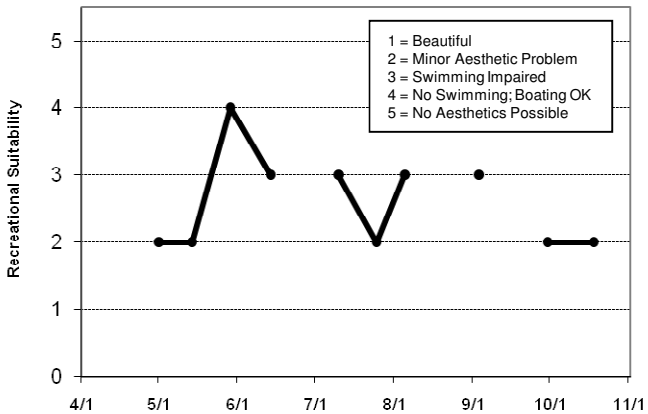
Lake Water Quality Grades Based on Summertime Averages

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total Phosphorus												
Chlorophyll a												
Secchi Depth												
Lake Grade												

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total Phosphorus												
Chlorophyll a												
Secchi Depth												
Lake Grade												

Year	2004	2005	2006	2007	2008	2009
Total Phosphorus		D	C	C	C	C
Chlorophyll a		D	C	C	C	B
Secchi Depth		F	D	D	D	D
Lake Grade		**D**	**C**	**C**	**C**	**C**

Source: Metropolitan Council and STORET data



Colby Lake (82-0094) *City of Woodbury*

Colby Lake is located in the City of Woodbury in Washington County. The lake has a surface area of 71 acres and a maximum depth of 3.4 m (11 ft). The entire lake is considered littoral zone, which is the shallow 0 – 15 feet depth zone that is typically dominated by aquatic plants. Since the lake is relatively shallow, it does not maintain a thermocline, which is a density gradient caused by changing water temperatures throughout the water column. The lake has a watershed area of 8,088 acres which gives a large watershed to lake area ratio of 114:1. Generally the larger the ratio, the greater the potential stress on the lake from surface runoff.

On each sampling day the lake was monitored for total phosphorus (TP), chlorophyll-a (CLA), total kjeldahl nitrogen (TKN), and secchi transparency, as well as the lake's perceived physical condition and recreational suitability. The resulting data are summarized in tables and figures on the following page.

2009 summer (May-September) data summary

Parameter	*Mean*	*Minimum*	*Maximum*	*Grade*
TP (µg/l)	125.3	92.0	145.0	
CLA (µg/l)	35.0	26.0	50.0	
Secchi (m)	0.5	0.5	0.6	
TKN (mg/l)	2.57	2.00	3.10	
			Lake Grade	

There was an insufficient quantity of data to calculate grades for the lake in 2009. At least 5 monitoring events during the summer-time period (May – September) are needed.

Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

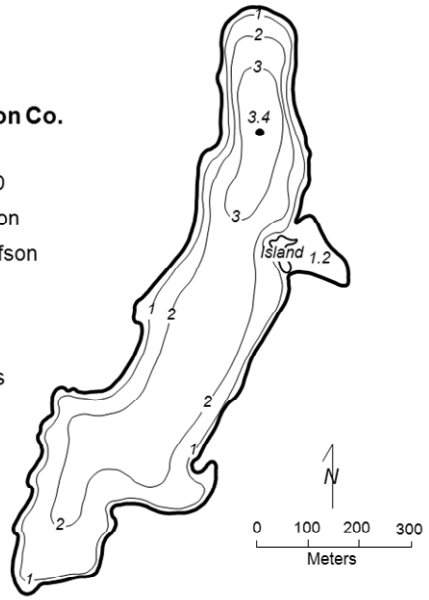
The Fisheries Section of the Minnesota Department of Natural Resources (MDNR) has conducted a fisheries survey on the lake. Information on the survey can be obtained through the MDNR Fisheries Section by calling (651) 259-5831 or by downloading the information off the Internet at http://www.dnr.state.mn.us/lakefind/.

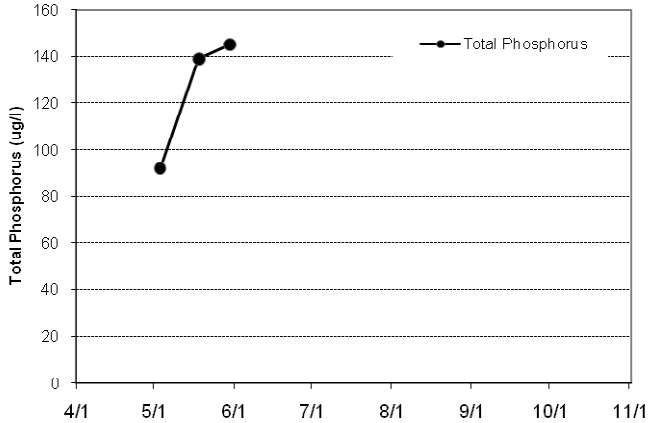
If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.

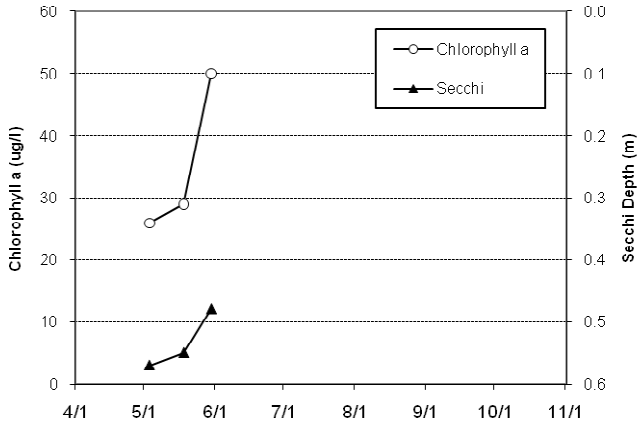
Colby Lake
Woodbury, Washington Co.

Lake ID: 820094-00
WD: South Washington
Volunteer: Annie Gustafson

• Sampling site
Contours in meters

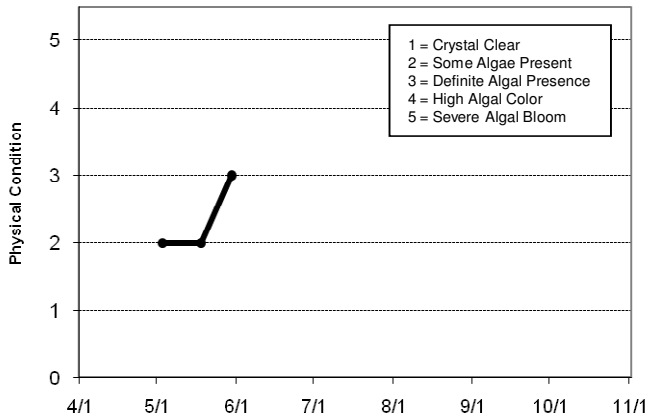






2009 Data

DATE	Surf Tmp (ºC)	Bot Tmp (ºC)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
5/3	15.7				26	92		0.6	2	4
5/18	16.2				29	139		0.6	2	4
5/30	19.3				50	145		0.5	3	4



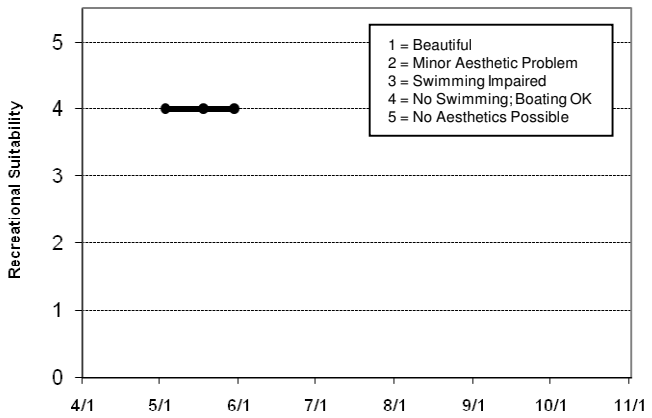
Lake Water Quality Grades Based on Summertime Averages

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total Phosphorus												
Chlorophyll a												
Secchi Depth												
Lake Grade												

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total Phosphorus			D	D	F	F	F	D	D	F	F	F
Chlorophyll a			D	F	F	C	F	F	D	F	C	D
Secchi Depth			F	F	F	F	F	D	D	D	F	F
Lake Grade			**D**	**F**	**F**	**D**	**F**	**D**	**D**	**F**	**D**	**F**

Year	2004	2005	2006	2007	2008	2009
Total Phosphorus	D	D	F	D	F	
Chlorophyll a	C	F	F	D	D	
Secchi Depth	F	D	F	F	F	
Lake Grade	**D**	**D**	**F**	**D**	**F**	**NA**

Source: Metropolitan Council and STORET data



Cornelia Lake (27-0028-01) *Nine Mile Creek Watershed District*

Lake Cornelia is located in the City of Edina (Hennepin County). The lake has a surface area of approximately 52 acres, and has a maximum depth of 2.0 meters. The entire lake is considered littoral zone, which is the shallow 0 – 15 feet depth zone that is typically dominated by aquatic plants. Since the lake is relatively shallow, it does not maintain a thermocline, which is a density gradient caused by changing water temperatures throughout the water column.

On each sampling day the lake was monitored for total phosphorus (TP), chlorophyll-a (CLA), total kjeldahl nitrogen (TKN), and secchi transparency, as well as the lake's perceived physical condition and recreational suitability. The resulting data are summarized in tables and figures on the following page.

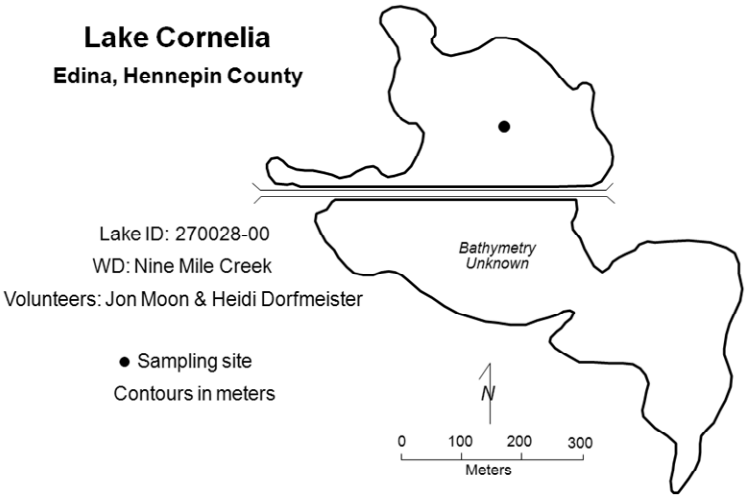
2009 summer (May-September) data summary

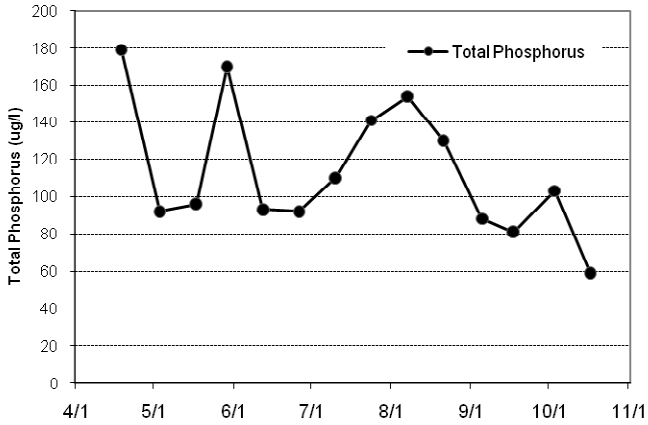
Parameter	*Mean*	*Minimum*	*Maximum*	*Grade*
TP (µg/l)	113.4	81.0	170.0	D
CLA (µg/l)	39.9	19.0	69.0	C
Secchi (m)	0.5	0.4	0.7	F
TKN (mg/l)	1.56	1.00	2.70	
			Lake Grade	D

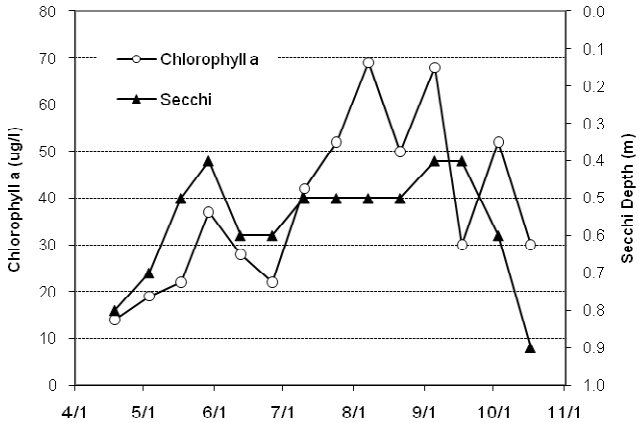
The lake received a water quality lake grade of D for 2009. This is the second year in a row that the lake obtained a D lake grade. To better understand the lake's water quality and where it may be heading, additional years of data collection are needed.

Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.

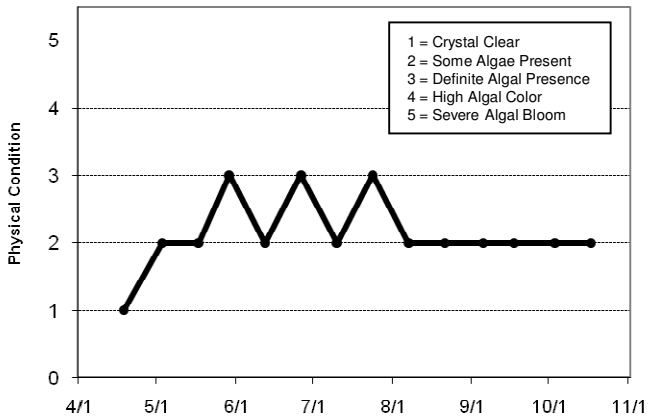






2009 Data

DATE	Surf Tmp (ºC)	Bot Tmp (ºC)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
4/18	16				14	179		0.8	1	4
5/3	15				19	92		0.7	2	4
5/17	18				22	96		0.5	2	4
5/29	22				37	170		0.4	3	4
6/12	20				28	93		0.6	2	4
6/26	31				22	92		0.6	3	4
7/10	28				42	110		0.5	2	4
7/24	26				52	141		0.5	3	4
8/7	21				69	154		0.5	2	4
8/21	20				50	130		0.5	2	4
9/5	21				68	88		0.4	2	4
9/17	26				30	81		0.4	2	4
10/3	11				52	103		0.6	2	4
10/17	8				30	59		0.9	2	4



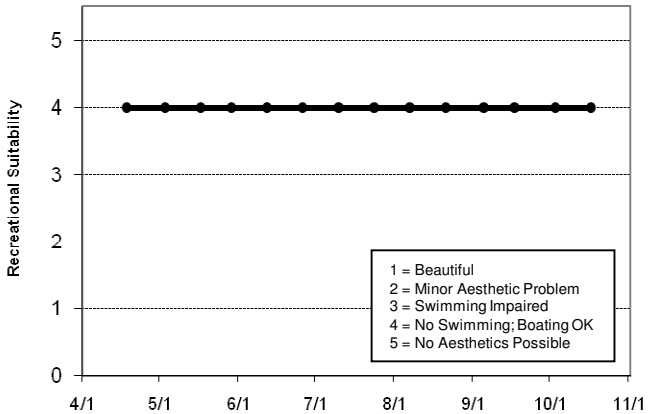
Lake Water Quality Grades Based on Summertime Averages

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total Phosphorus												
Chlorophyll a												
Secchi Depth												
Lake Grade												

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total Phosphorus												F
Chlorophyll a												F
Secchi Depth												F
Lake Grade												**F**

Year	2004	2005	2006	2007	2008	2009
Total Phosphorus		F	F	F	D	D
Chlorophyll a		D	D	F	D	C
Secchi Depth		F	F	F	F	F
Lake Grade		**F**	**F**	**F**	**D**	**D**

Source: Metropolitan Council and STORET data



Courthouse Lake (10-0005) *Carver County Environmental Services*

Courthouse Lake, located in the City of Chaska (Carver County) is a trout lake that is stocked with rainbow trout. The 10-acre lake has a maximum depth of 17.4 m (57 feet). The lake's level is maintained by groundwater. It has a very small watershed that is completely publicly owned (MDNR 1996).

On each sampling day the lake was monitored for total phosphorus (TP), chlorophyll-a (CLA), total kjeldahl nitrogen (TKN), and secchi transparency, as well as the lake's perceived physical condition and recreational suitability. The resulting data are summarized in tables and figures on the following page.

2009 summer (May-September) data summary

Parameter	*Mean*	*Minimum*	*Maximum*	*Grade*
TP (µg/l)	18.4	11.0	29.0	A
CLA (µg/l)	4.1	1.9	13.0	A
Secchi (m)	4.5	3.2	6.0	A
TKN (mg/l)	0.66	0.50	0.77	
			Lake Grade	A

The lake received a lake grade of A for 2009, which is consistent with the historical water quality database. The lake's water quality seems well represented by a lake grade of A.

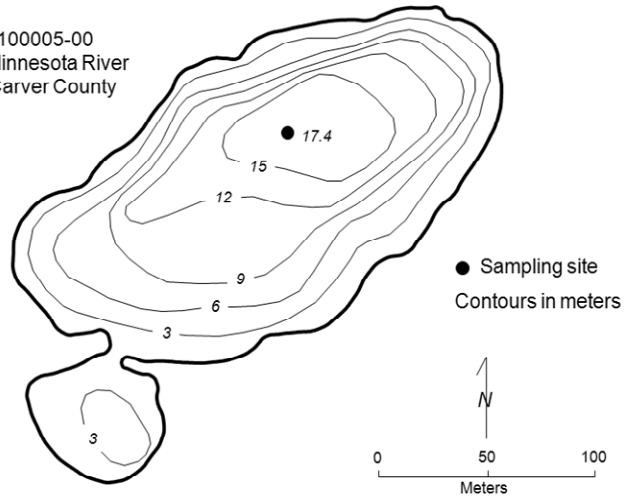
Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

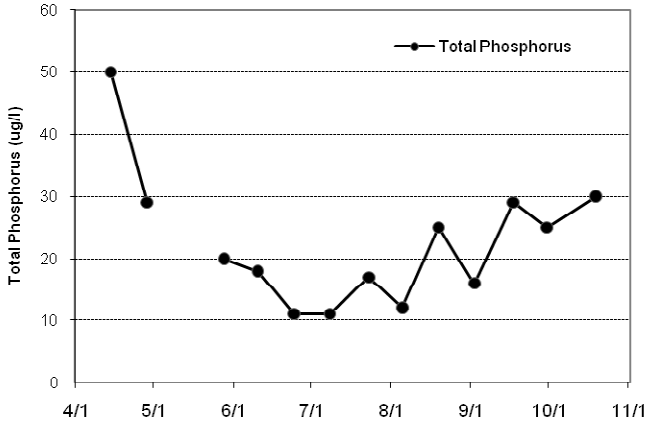
The Fisheries Section of the Minnesota Department of Natural Resources (MDNR) has conducted a fisheries survey on the lake. Information on the survey can be obtained through the MDNR Fisheries Section by calling (651) 259-5831 or by downloading the information off the Internet at http://www.dnr.state.mn.us/lakefind/.

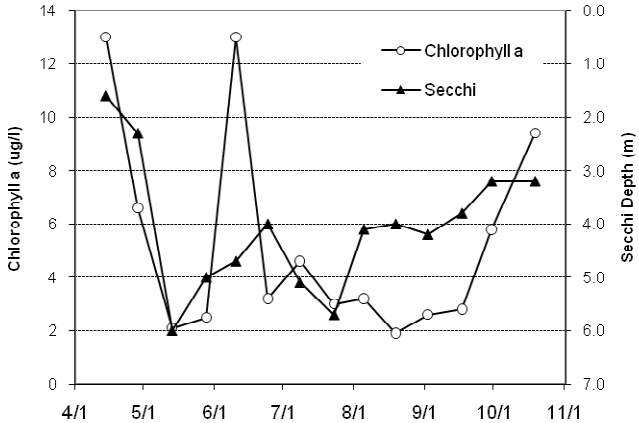
If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.

Courthouse Lake
Chaska, Carver Co.

Lake ID: 100005-00
WD: Lower Minnesota River
Volunteer: Carver County

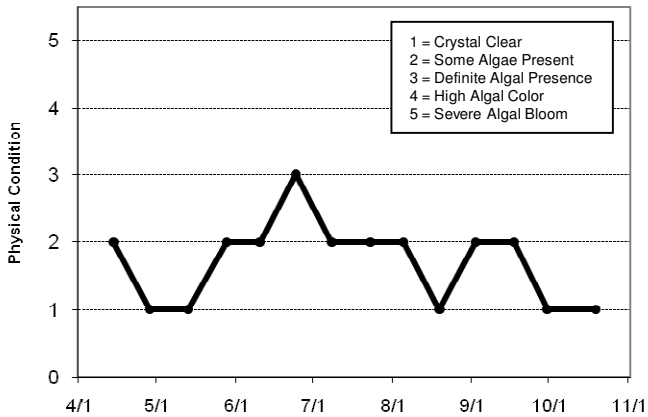






2009 Data

DATE	Surf Tmp (ºC)	Bot Tmp (ºC)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
4/14	10.31		9.53		13	50		1.6	2	2
4/28	12.77		14.08		6.6	29		2.3	1	1
5/13	16.33		9.85		2.1			6.0	1	1
5/28	18.95		10.52		2.5	20		5.0	2	1
6/10	18.19		10.54		13	18		4.7	2	3
6/24	25.99		9.91		3.2	11		4.0	3	2
7/8	24.87		11.26		4.6	11		5.1	2	3
7/23	23.12		10.55		3	17		5.7	2	1
8/5	23.82		9.02		3.2	12		4.1	2	2
8/19	24.73		8.48		1.9	25		4.0	1	1
9/2	22.33		9		2.6	16		4.2	2	2
9/17	23.85		9.81		2.8	29		3.8	2	1
9/30	19.12		9.33		5.8	25		3.2	1	1
10/19	11.3		9.62		9.4	30		3.2	1	2

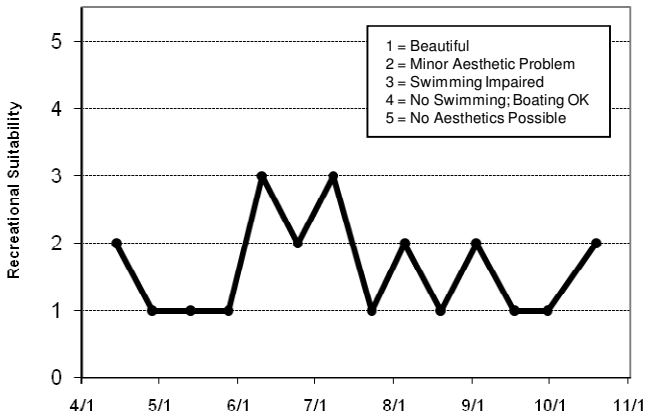


Lake Water Quality Grades Based on Summertime Averages

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total Phosphorus												
Chlorophyll a												
Secchi Depth												
Lake Grade												

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total Phosphorus					A	A	A	A	A	A	B	A
Chlorophyll a					A	A	A	A	A	A	A	A
Secchi Depth					A	C	A	B	A	A	B	A
Lake Grade					**A**	**B**	**A**	**A**	**A**	**A**	**B**	**A**

Year	2004	2005	2006	2007	2008	2009
Total Phosphorus	A	A	A	A	A	A
Chlorophyll a	A	A	A	A	A	A
Secchi Depth	B	A	A	A	A	A
Lake Grade	**A**	**A**	**A**	**A**	**A**	**A**



Source: Metropolitan Council and STORET data

Cowley Lake (27-0169) *Elm Creek Watershed Management Commission*

Cowley Lake is located within Hassan Township (Hennepin County). Little morphological data are available for the lake.

On each sampling day the lake was monitored for total phosphorus (TP), chlorophyll-a (CLA), total kjeldahl nitrogen (TKN), and secchi transparency, as well as the lake's perceived physical condition and recreational suitability. The resulting data are summarized in tables and figures on the following page.

2009 summer (May-September) data summary

Parameter	*Mean*	*Minimum*	*Maximum*	*Grade*
TP (µg/l)	1095.0	798.0	1860.0	
CLA (µg/l)	35.9	3.5	62.0	
Secchi (m)	0.4	0.4	0.4	
TKN (mg/l)	8.50	5.40	14.00	
			Lake Grade	

There was an insufficient quantity of data to calculate grades for the lake in 2009. At least 5 monitoring events during the summer-time period (May – September) are needed.

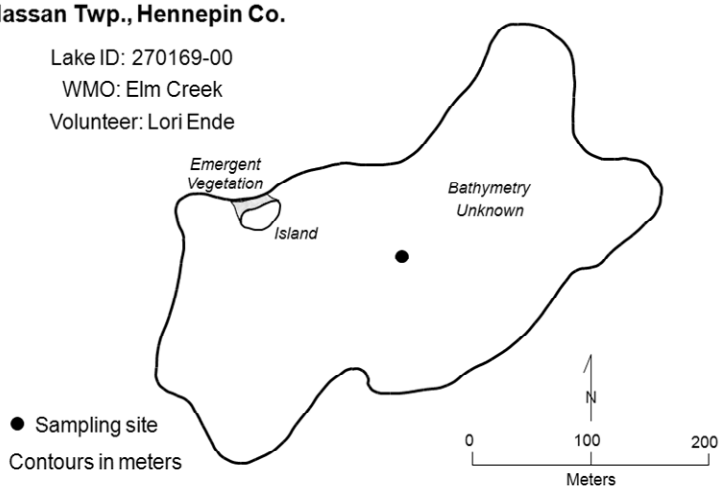
Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

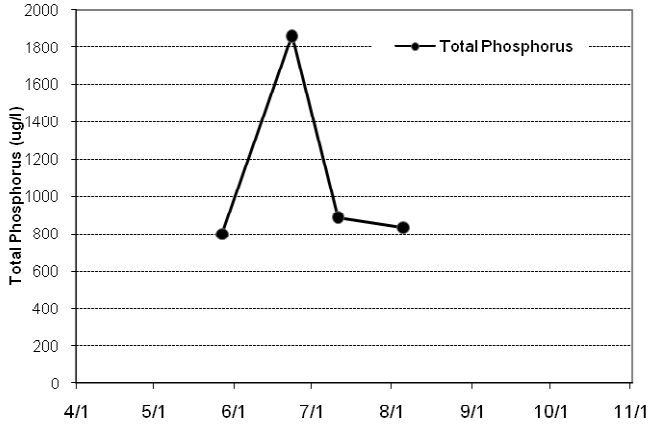
If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.

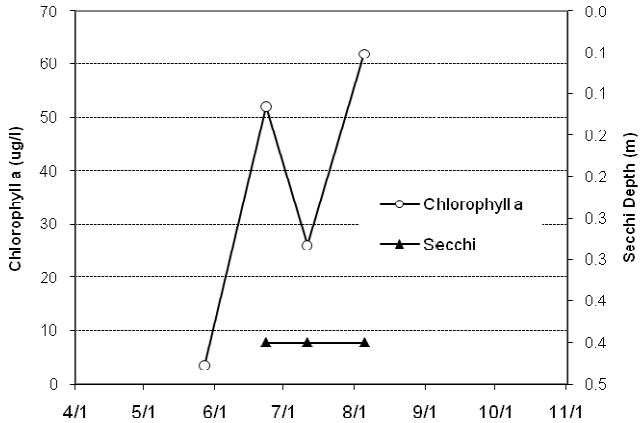
Cowley Lake

Hassan Twp., Hennepin Co.

Lake ID: 270169-00
WMO: Elm Creek
Volunteer: Lori Ende

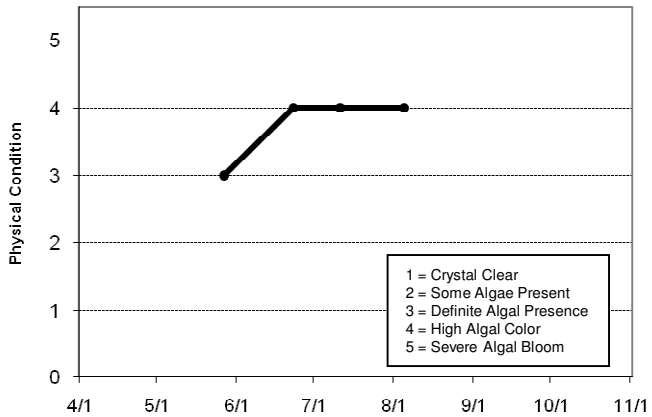






2009 Data

DATE	Surf Tmp (ºC)	Bot Tmp (ºC)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
5/27	19.3				3.5	798			3	4
6/23	20.1				52	1860		0.4	4	4
7/11	20.6				26	887		0.4	4	4
8/5	20.7				62	835		0.4	4	4



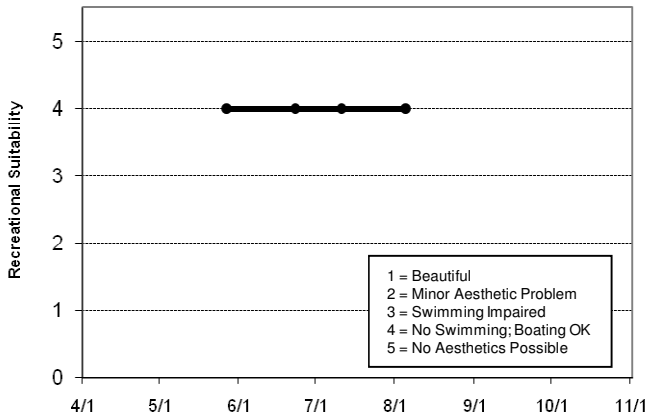
Lake Water Quality Grades Based on Summertime Averages

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total Phosphorus												
Chlorophyll a												
Secchi Depth												
Lake Grade												

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total Phosphorus					F							
Chlorophyll a												
Secchi Depth					D							
Lake Grade												

Year	2004	2005	2006	2007	2008	2009
Total Phosphorus			F	F		
Chlorophyll a			F	F		
Secchi Depth			D	C		
Lake Grade			**F**	**D**		**NA**

Source: Metropolitan Council and STORET data



Crystal Lake [Burnsville] (19-0027) *Black Dog Watershed Management Commission*

Crystal Lake located mainly in the City of Burnsville (Dakota County). It is considered a Priority Lake by the Metropolitan Council for its high regional recreation value (METC 2007). The lake has a surface area of 292 acres. The MN DNR has designated the lake as being infested with Eurasion water milfoil (*Myriophyllum spicatum*). The MPCA has listed the lake as impaired for mercury content in fish.

On each sampling day the lake was monitored for total phosphorus (TP), chlorophyll-a (CLA), total kjeldahl nitrogen (TKN), and secchi transparency, as well as the lake's perceived physical condition and recreational suitability. The resulting data are summarized in tables and figures on the following page.

2009 summer (May-September) data summary

Parameter	*Mean*	*Minimum*	*Maximum*	*Grade*
TP (µg/l)	30.8	17.0	49.0	B
CLA (µg/l)	13.7	4.6	24.0	B
Secchi (m)	2.1	1.3	3.8	C
TKN (mg/l)	0.92	0.71	1.20	
			Lake Grade	B

The lake received a lake grade of B for 2009. This lake grade is the only second B for this lake since 1994. The lake typically receives a C lake grade.

Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

The Fisheries Section of the Minnesota Department of Natural Resources (MDNR) has conducted a fisheries survey on the lake. Information on the survey can be obtained through the MDNR Fisheries Section by calling (651) 259-5831 or by downloading the information off the Internet at http://www.dnr.state.mn.us/lakefind/.

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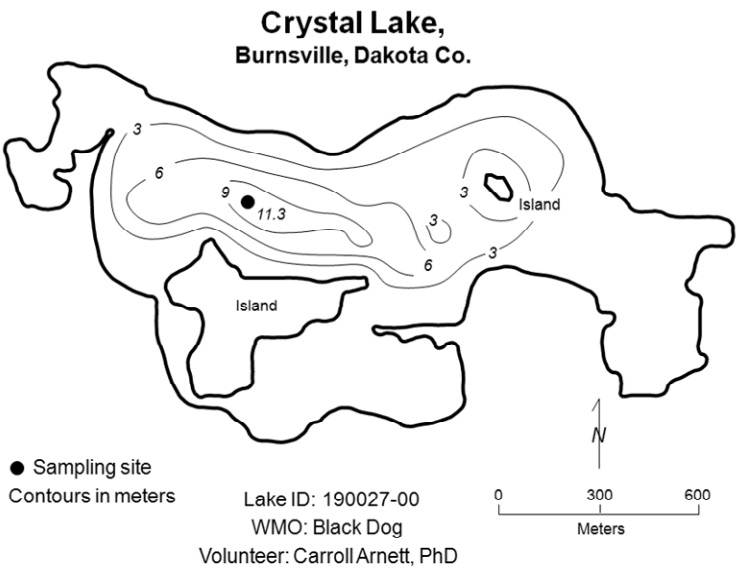
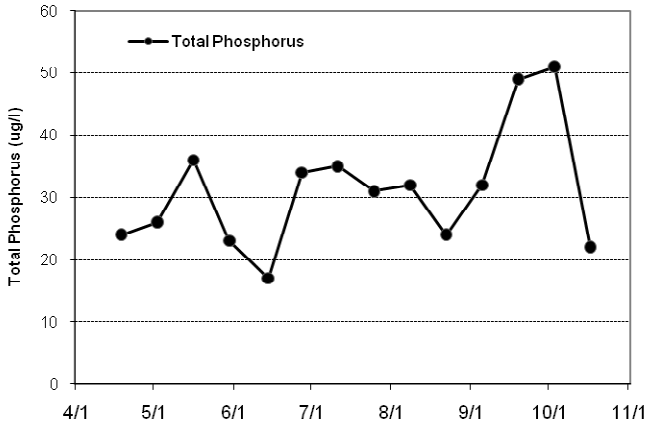
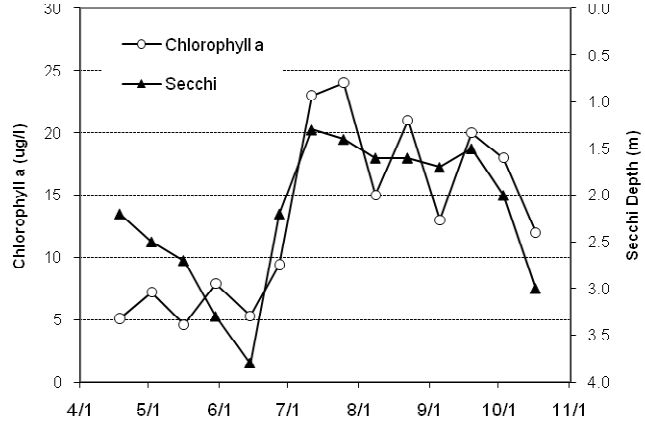
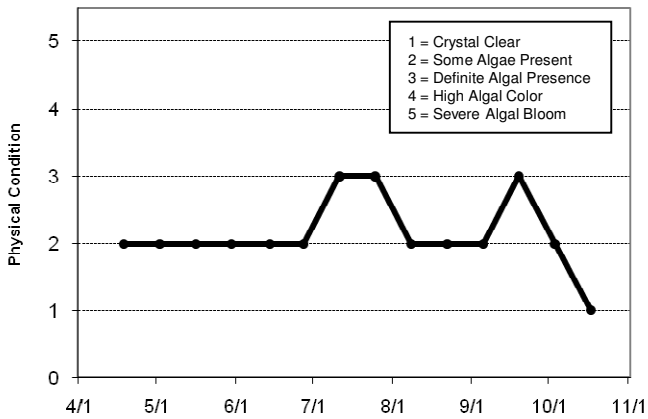






2009 Data

DATE	Surf Tmp (ºC)	Bot Tmp (ºC)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
4/18	13.6				5.1	24		2.2	2	2
5/2	12.8				7.2	26		2.5	2	1
5/16	14.8				4.6	36		2.7	2	1
5/30	19.8				7.9	23		3.3	2	2
6/14	20.5				5.3	17		3.8	2	2
6/27	26.3				9.4	34		2.2	2	2
7/11	23.8				23	35		1.3	3	2
7/25	22.4				24	31		1.4	3	2
8/8	22.7				15	32		1.6	2	2
8/22	22.3				21	24		1.6	2	1
9/5	22.6				13	32		1.7	2	1
9/19	24				20	49		1.5	3	2
10/3	15.2				18	51		2.0	2	1
10/17	9.4				12	22		3.0	1	1



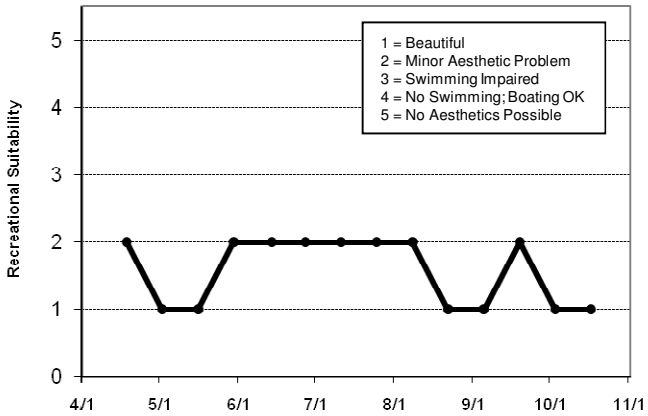
Lake Water Quality Grades Based on Summertime Averages

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total Phosphorus	C	C		C						B		
Chlorophyll a	C			B				C		B		
Secchi Depth	C	C	C	B	C	B	B	C	C	B	C	B
Lake Grade	**C**			**B**						**B**		

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total Phosphorus			C	C	C	C	C	C	C	B	C	C
Chlorophyll a			B	C	C	C	C	B	C	B	B	C
Secchi Depth	B		C	C	C	C	C	C	C	C	C	C
Lake Grade			**C**	**C**	**C**	**C**	**C**	**C**	**C**	**B**	**C**	**C**

Year	2004	2005	2006	2007	2008	2009
Total Phosphorus	C	C	C	C	C	B
Chlorophyll a	B	C	C	C	C	B
Secchi Depth	C	C	C	C	C	C
Lake Grade	**C**	**C**	**C**	**C**	**C**	**B**

Source: Metropolitan Council and STORET data



Dean Lake (70-0074) *City of Shakopee*

Dean Lake is a small shallow lake located within City of Shakopee (Scott County). There is little morphological data available for the lake. Because of the shallowness of the lake, its entire area is considered littoral zone (the 0-15 foot depth area dominated by aquatic vegetation). Since the lake is relatively shallow, it does not maintain a thermocline, which is a density gradient caused by changing water temperatures throughout the water column.

On each sampling day the lake was monitored for total phosphorus (TP), chlorophyll-a (CLA), total kjeldahl nitrogen (TKN), and secchi transparency, as well as the lake's perceived physical condition and recreational suitability. The resulting data are summarized in tables and figures on the following page.

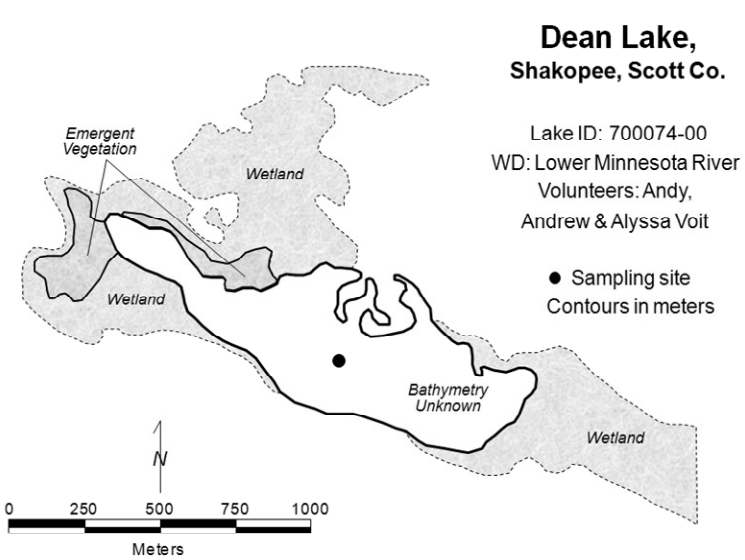
2009 summer (May-September) data summary

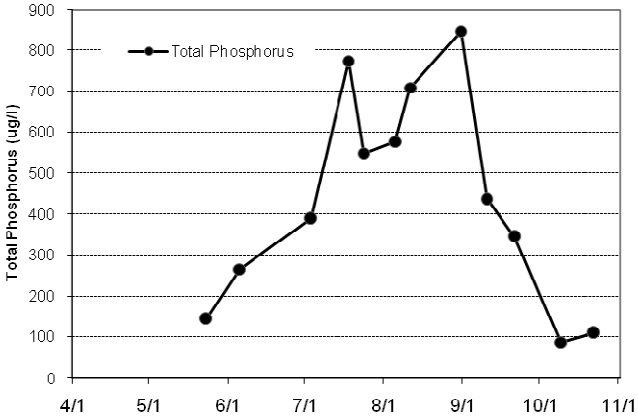
Parameter	*Mean*	*Minimum*	*Maximum*	*Grade*
TP (µg/l)	503.4	145.0	845.0	F
CLA (µg/l)	68.5	8.0	210.0	D
Secchi (m)				N/A
TKN (mg/l)	4.84	1.30	7.90	
			Lake Grade	N/A

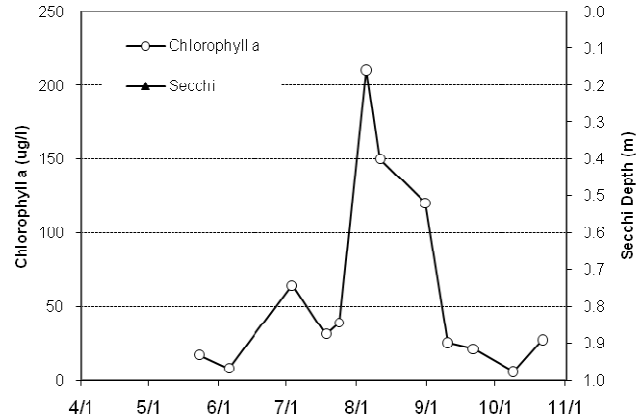
Water levels were too low at the sampling site to measure Secchi depths during the 2009 monitoring season. A new monitoring site will be determined to improve sampling conditions in the future.

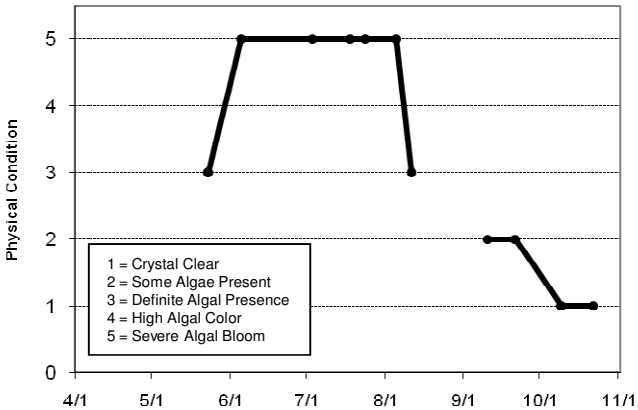
Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

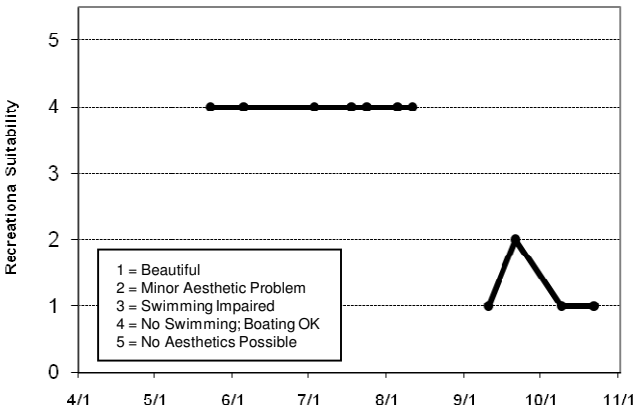
If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.











2009 Data

DATE	Surf Tmp (ºC)	Bot Tmp (ºC)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
5/23	26.4				17	145			3	4
6/5	25.6				8	264			5	4
7/3	25.7				64	390			5	4
7/18	33				31	773			5	4
7/24	29.7				39	549			5	4
8/5	31.7				210	577			5	4
8/11	31.2				150	708			3	4
8/31	23				120	845				
9/10	29.1				25	437			2	1
9/21	26.1				21	346			2	2
10/9	12				5.8	86			1	1
10/22	7				27	110			1	1

Lake Water Quality Grades Based on Summertime Averages

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total Phosphorus												
Chlorophyll a												
Secchi Depth												
Lake Grade												

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total Phosphorus											F	F
Chlorophyll a											D	C
Secchi Depth											F	F
Lake Grade											**F**	**D**

Year	2004	2005	2006	2007	2008	2009
Total Phosphorus	D	F	F	F	F	F
Chlorophyll a	B	C	D	D	C	D
Secchi Depth	F	F	F	F	C	
Lake Grade	**D**	**D**	**F**	**F**	**D**	

Source: Metropolitan Council and STORET data

DeMontreville Lake (82-0101) *Valley Branch Watershed District*

Lake DeMontreville is located in Lake Elmo (Washington County). It is considered a Priority Lake by the Metropolitan Council for its high regional recreation value and exceptional water clarity (METC 2007). The 160-acre lake has a mean and maximum depth of 2.4 m (~8 feet) and 7.3 m (24 feet). The MN DNR has designated the lake as being infested with Eurasion water milfoil (*Myriophyllum spicatum*).

On each sampling day the lake was monitored for total phosphorus (TP), chlorophyll-a (CLA), total kjeldahl nitrogen (TKN), and secchi transparency, as well as the lake's perceived physical condition and recreational suitability. The resulting data are summarized in tables and figures on the following page.

2009 summer (May-September) data summary

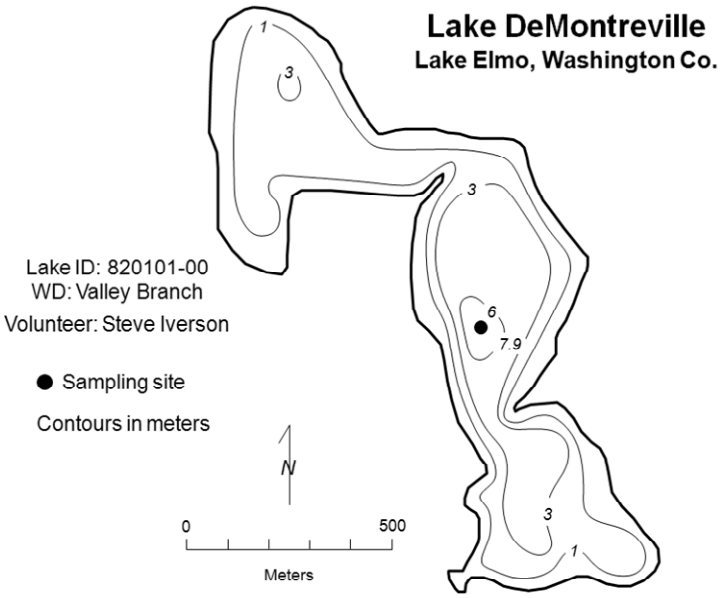
Parameter	*Mean*	*Minimum*	*Maximum*	*Grade*
TP (µg/l)	23.0	13.0	30.0	B
CLA (µg/l)	9.3	2.1	25.0	A
Secchi (m)	2.8	1.2	4.0	B
TKN (mg/l)	0.75	0.46	1.20	
			Lake Grade	B

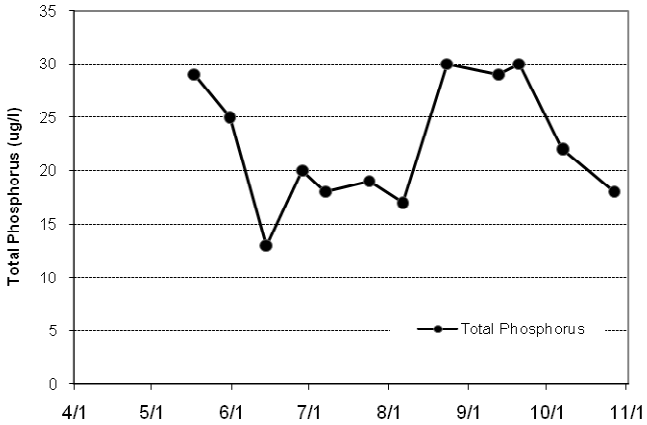
The lake received a lake grade of B for 2009. Historically, the lake grades for the years 1980 through 2008 show that the quality of the lake has improved over the past 25 years (see lake information sheet on the following page). The lake has been fluctuating between an A and B grades since the early 1990s, except for 2007.

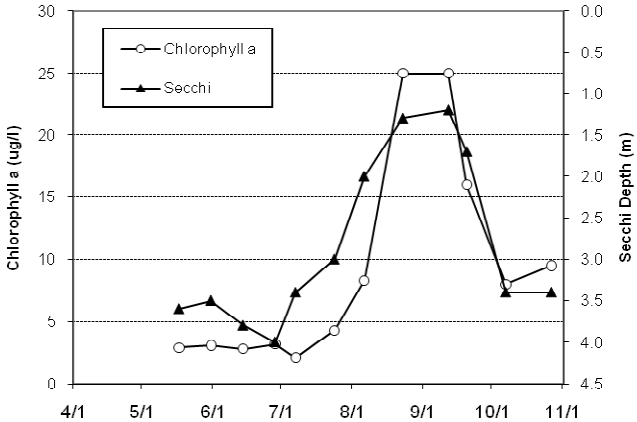
Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

The Fisheries Section of the Minnesota Department of Natural Resources (MNDNR) has conducted a fisheries survey on the lake. Information on the survey can be obtained through the MNDNR Fisheries Section by calling (651) 259-5831 or by downloading the information off the internet at http://www.dnr.state.mn.us/lakefind/.

If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.

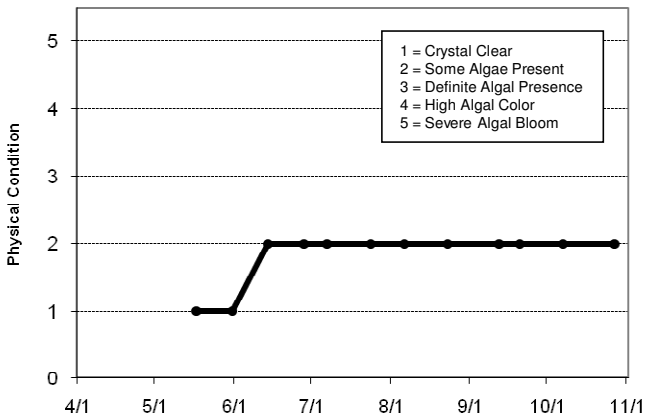






2009 Data

DATE	Surf Tmp (ºC)	Bot Tmp (ºC)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
5/17	16.4				2.9	29		3.6	1	1
5/31	19.7				3.1	25		3.5	1	1
6/14	22.2				2.8	13		3.8	2	1
6/28	24.6				3.2	20		4.0	2	1
7/7	25.1				2.1	18		3.4	2	1
7/24	23.5				4.3	19		3.0	2	1
8/6	24.4				8.3	17		2.0	2	1
8/23	23.2				25	30		1.3	2	1
9/12	24				25	29		1.2	2	2
9/20	23.7				16	30		1.7	2	1
10/7	12.7				8	22		3.4	2	1
10/27	7.7				9.5	18		3.4	2	1



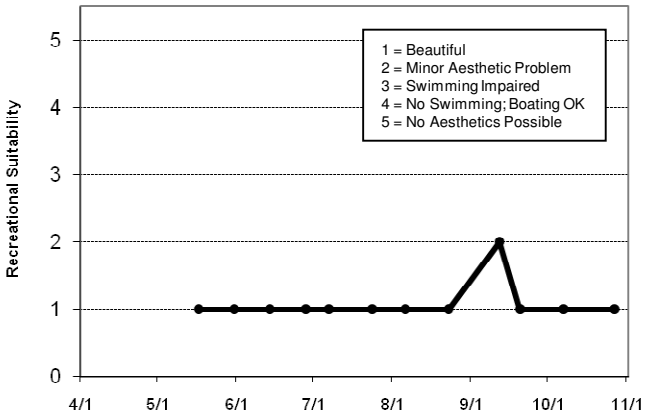
Lake Water Quality Grades Based on Summertime Averages

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total Phosphorus	C				C							B
Chlorophyll a	C				C							C
Secchi Depth	C				C	C	C		C	D		C
Lake Grade	**C**				**C**							**C**

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total Phosphorus		B		C					A			A
Chlorophyll a		A		B					A			B
Secchi Depth		B		B					A			A
Lake Grade		**B**		**B**					**A**			**A**

Year	2004	2005	2006	2007	2008	2009
Total Phosphorus	A	B	C	B	A	B
Chlorophyll a	A	B	B	C	A	A
Secchi Depth	B	A	B	C	A	B
Lake Grade	**A**	**B**	**B**	**C**	**A**	**B**

Source: Metropolitan Council and STORET data



Downs Lake (82-0110) *Valley Branch Watershed District*

Downs Lake is located in Lake Elmo (Washington County). The lake has mean and maximum depths of 1.5 m (5 feet) and 2.1 m (7 feet), respectively. The entire lake is considered littoral zone, which is the shallow 0 – 15 feet depth zone that is typically dominated by aquatic plants. Since the lake is relatively shallow, it does not maintain a thermocline, which is a density gradient caused by changing water temperatures throughout the water column. The lake has a surface area of 35 acres and a watershed area of 2,400 acres, giving a large watershed-to-lake size ratio of 69:1. The greater the ratio, the greater the potential stress on the lake from surface runoff.

On each sampling day the lake was monitored for total phosphorus (TP), chlorophyll-a (CLA), total kjeldahl nitrogen (TKN), and secchi transparency, as well as the lake's perceived physical condition and recreational suitability. The resulting data are summarized in tables and figures on the following page.

2009 summer (May-September) data summary

Parameter	*Mean*	*Minimum*	*Maximum*	*Grade*
TP (µg/l)	205.8	115.0	339.0	F
CLA (µg/l)	74.6	28.0	140.0	D
Secchi (m)	0.3	0.2	0.6	F
TKN (mg/l)	2.86	1.90	4.00	
			Lake Grade	F

The lake received a lake grade of F for 2009, which is consistent with its historical database.

TThroughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

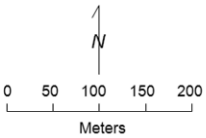
If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.

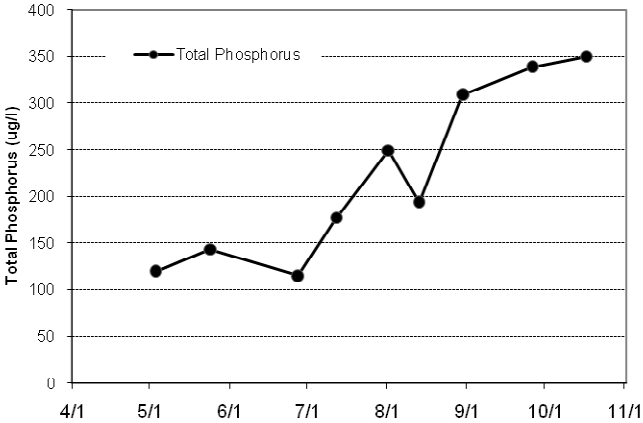
Downs Lake

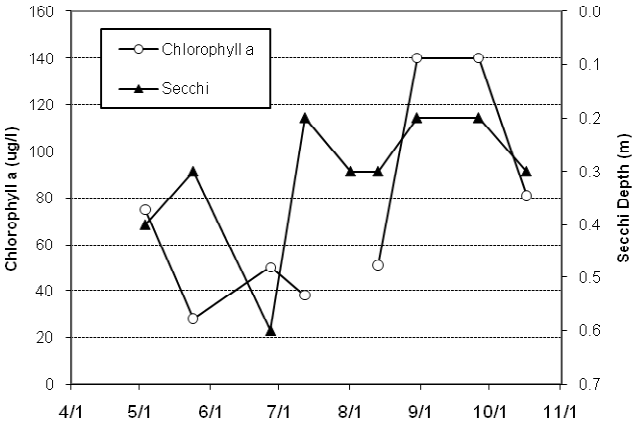
Lake Elmo, Washington Co.

Lake ID: 820110-00
WD: Valley Branch
Volunteers: Wesley Sly Family

● Sampling site
Contours in meters

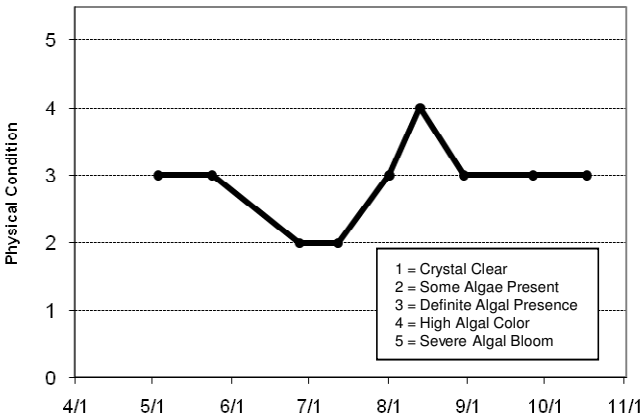






2009 Data

DATE	Surf Tmp (ºC)	Bot Tmp (ºC)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
5/3	16.9				75	120		0.4	3	4
5/24	24.2				28	143		0.3	3	4
6/27	26.7				50	115		0.6	2	4
7/12	27.1				38	177		0.2	2	4
8/1	28.1					249		0.3	3	4
8/13	29.8				51	194		0.3	4	4
8/30	22.4				140	309		0.2	3	4
9/26	22.7				140	339		0.2	3	4
10/17	8.9				81	350		0.3	3	4



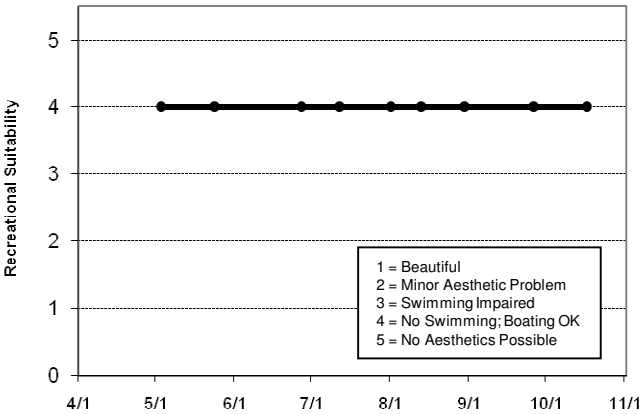
Lake Water Quality Grades Based on Summertime Averages

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total Phosphorus												
Chlorophyll a												
Secchi Depth												
Lake Grade												

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total Phosphorus								D		D	F	D
Chlorophyll a								D		F	F	C
Secchi Depth								D		F	F	F
Lake Grade								**D**		**F**	**F**	**D**

Year	2004	2005	2006	2007	2008	2009
Total Phosphorus	F	D	F	F		F
Chlorophyll a	D	D	F	F		D
Secchi Depth	F	F	F	F		F
Lake Grade	**F**	**D**	**F**	**F**		**F**

Source: Metropolitan Council and STORET data



Eagle Lake [Carver County] (10-0121) *Carver County Environmental Services*

Eagle Lake is located in Young America Township in Carver County. The lake is considered a Priority Lake by the Metropolitan Council for its high regional recreation value (METC 2007). The lake has a surface area of 186 acres and a maximum 4.0 m (14 feet). The entire lake is considered littoral zone, which is the shallow 0 – 15 feet depth zone that is typically dominated by aquatic plants. Since the lake is relatively shallow, it does not maintain a thermocline, which is a density gradient caused by changing water temperatures throughout the water column. The DNR has designated the lake as being infested with Eurasian Water Milfoil (*Myriophyllum spicatum*).

On each sampling day the lake was monitored for total phosphorus (TP), chlorophyll-a (CLA), total kjeldahl nitrogen (TKN), and secchi transparency, as well as the lake's perceived physical condition and recreational suitability. The resulting data are summarized in tables and figures on the following page.

2009 summer (May-September) data summary

Parameter	*Mean*	*Minimum*	*Maximum*	*Grade*
TP (µg/l)	193.7	69.0	299.0	F
CLA (µg/l)	79.5	32.0	140.0	F
Secchi (m)	0.4	0.3	0.7	F
TKN (mg/l)	2.38	1.20	3.40	
			Lake Grade	F

The lake received a lake grade of F for 2009. The lake appears to fluctuate between a lake grade of D and F, but with F being dominant for the past 4 years.

Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

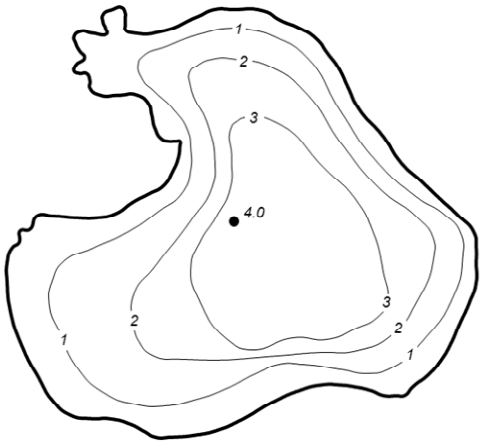
The Fisheries Section of the Minnesota Department of Natural Resources (MDNR) has conducted a fisheries survey on the lake. Information on the survey can be obtained through the MDNR Fisheries Section by calling (651) 259-5831 or by downloading the information off the Internet at http://www.dnr.state.mn.us/lakefind/.

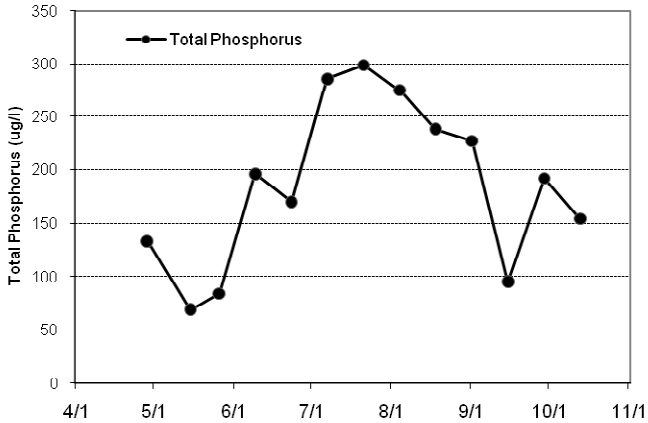
If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.

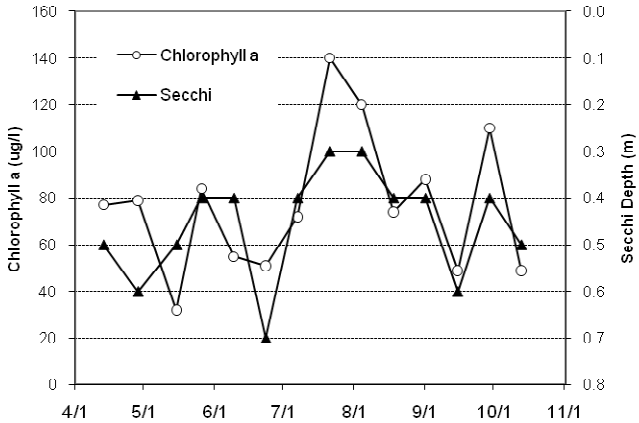
Eagle Lake,
Camden Twp. Carver Co.

Lake ID: 100121-00
WMO: Crow River
Volunteer: Carver County

● Sampling site
Contours in meters

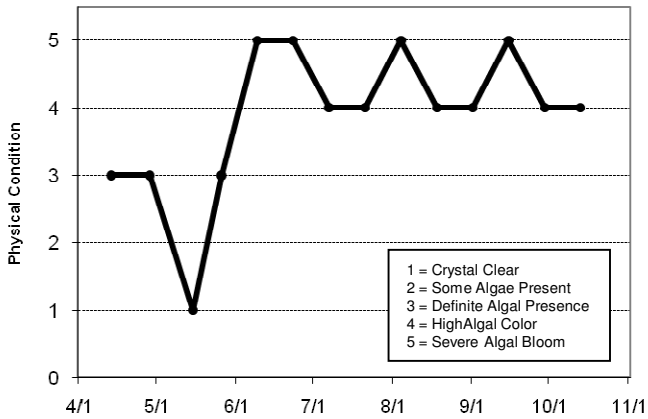






2009 Data

DATE	Surf Tmp (ºC)	Bot Tmp (ºC)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
4/13	8.24		8.14		77			0.5	3	3
4/28	11.95		12.7		79	133		0.6	3	3
5/15	15.29		8.29		32	69		0.5	1	1
5/26	18.67		9.7		84	84		0.4	3	3
6/9	15.93		5.7		55	196		0.4	5	4
6/23	26.35		17.8		51	170		0.7	5	5
7/7	24.43		18.78		72	286		0.4	4	4
7/21	22.06		12.56		140	299		0.3	4	4
8/4	23.13		10.65		120	275		0.3	5	5
8/18	23.04		6.64		74	238		0.4	4	4
9/1	20.51		9.24		88	227		0.4	4	4
9/15	22.51		13.05		49	95		0.6	5	5
9/29	16.11		9.46		110	192		0.4	4	4
10/13	7.57		12.54		49	154		0.5	4	4



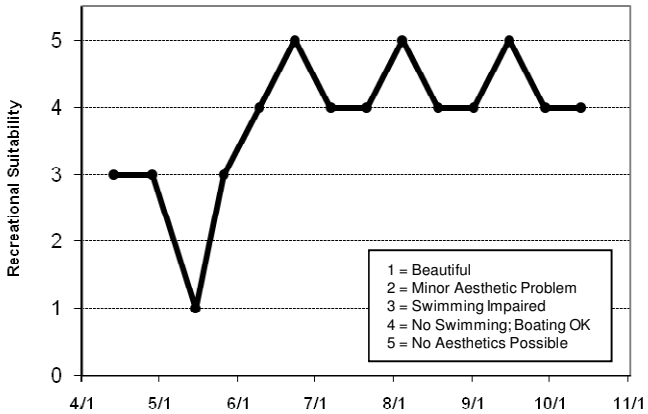
Lake Water Quality Grades Based on Summertime Averages

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total Phosphorus	F	F				F						
Chlorophyll a	D	C				F						
Secchi Depth	C	C				F						
Lake Grade	**D**	**D**				**F**						

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total Phosphorus					F		F	F	F	F	F	F
Chlorophyll a					C		C	C	C	D	D	C
Secchi Depth					B		C	B	C	D	F	D
Lake Grade					**D**		**D**	**D**	**D**	**D**	**F**	**D**

Year	2004	2005	2006	2007	2008	2009
Total Phosphorus	F	D	F	F	F	F
Chlorophyll a	C	C	F	F	F	F
Secchi Depth	D	C	D	F	F	F
Lake Grade	**D**	**C**	**F**	**F**	**F**	**F**

Source: Metropolitan Council and STORET data



Eagle Lake (27-0111-01) *Shingle Creek Watershed Management Commission*

Eagle Lake is located within the City of Maple Grove (Hennepin County). The maximum depth of the lake is 10.4 m (34 ft). It is considered a Priority Lake by the Metropolitan Council for its high regional recreation value (METC 2007).

On each sampling day the lake was monitored for total phosphorus (TP), chlorophyll-a (CLA), total kjeldahl nitrogen (TKN), and secchi transparency, as well as the lake's perceived physical condition and recreational suitability. The resulting data are summarized in tables and figures on the following page.

2009 summer (May-September) data summary

Parameter	*Mean*	*Minimum*	*Maximum*	*Grade*
TP (µg/l)	28.7	18.0	49.0	B
CLA (µg/l)	13.4	7.2	31.0	B
Secchi (m)	3.3	1.0	8.0	A
TKN (mg/l)	1.04	0.80	1.30	
			Lake Grade	B

The lake received a lake grade of B for 2009, which is consistent with its historical database. The mean Secchi depth was heavily influenced by a very clear reading of 8.0 m on June 14, 2010, which is quite uncommon for this lake. Continued monitoring is suggested to determine water quality trends.

Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

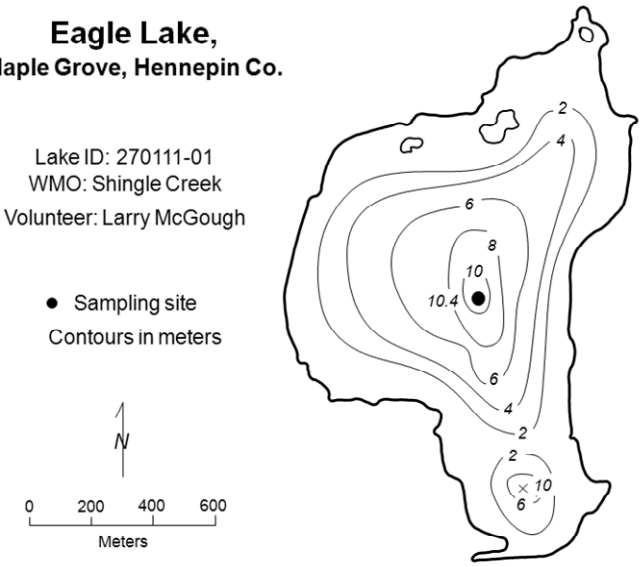
The Fisheries Section of the Minnesota Department of Natural Resources (MDNR) has conducted a fisheries survey on the lake. Information on the survey can be obtained through the MDNR Fisheries Section by calling (651) 259-5831 or by downloading the information off the Internet at http://www.dnr.state.mn.us/lakefind/.

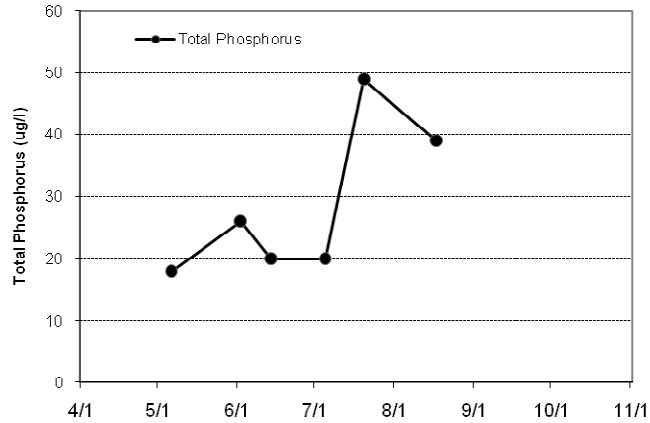
If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.

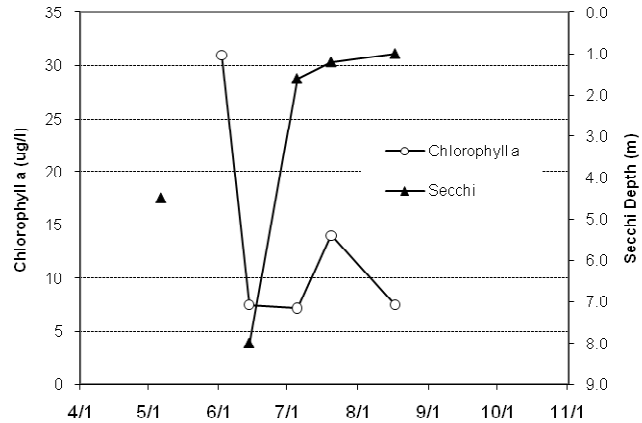
Eagle Lake,
Maple Grove, Hennepin Co.

Lake ID: 270111-01
WMO: Shingle Creek
Volunteer: Larry McGough

● Sampling site
Contours in meters

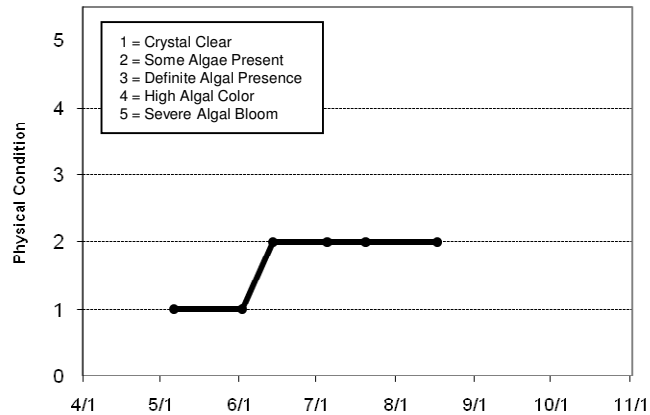






2009 Data

DATE	Surf Tmp (ºC)	Bot Tmp (ºC)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
5/6	15.1					18		4.5	1	1
6/2	20				31	26			1	
6/14	20.7				7.5	20		8.0	2	1
7/5	23.5				7.2	20		1.6	2	1
7/20	23.8				14	49		1.2	2	1
8/17	23				7.5	39		1.0	2	2

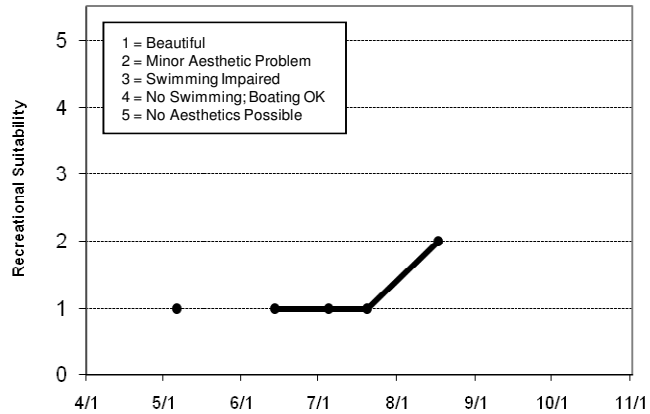


Lake Water Quality Grades Based on Summertime Averages

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total Phosphorus	C			C			C	C				C
Chlorophyll a	D			C			B	C				C
Secchi Depth	D			C			C	C				C
Lake Grade	**D**			**C**			**C**	**C**				**C**

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total Phosphorus		B			B	B	B		C		C	
Chlorophyll a		B			B	A	B		A		A	
Secchi Depth		B			C	C	C		B		D	
Lake Grade		**B**			**B**	**B**	**B**		**B**		**C**	

Year	2004	2005	2006	2007	2008	2009
Total Phosphorus		C				B
Chlorophyll a		B				B
Secchi Depth		B				A
Lake Grade		**B**				**B**



Source: Metropolitan Council and STORET data

Eagle Point Lake (82-0109) *Valley Branch Watershed District*

Eagle Point Lake is located within the City of Lake Elmo (Washington County). It has a surface area of approximately 120-acres. The mean and maximum depths of the lake are 0.9 m (3 feet) and 1.8 m (roughly 6 feet), respectively. The entire lake is considered littoral zone, which is the shallow 0 – 15 feet depth zone that is typically dominated by aquatic plants. Since the lake is relatively shallow, it does not maintain a thermocline, which is a density gradient caused by changing water temperatures throughout the water column. The lake's 11,502-acre watershed translates to a large watershed-to-lake size ratio of 96:1, which is a large ratio. The greater the ratio, the greater the potential stress on the lake from surface runoff.

On each sampling day the lake was monitored for total phosphorus (TP), chlorophyll-a (CLA), total kjeldahl nitrogen (TKN), and secchi transparency, as well as the lake's perceived physical condition and recreational suitability. The resulting data are summarized in tables and figures on the following page.

2009 summer (May-September) data summary

Parameter	*Mean*	*Minimum*	*Maximum*	*Grade*
TP (µg/l)	138.5	138.0	139.0	NA
CLA (µg/l)	17.0	12.0	22.0	NA
Secchi (m)	0.6	0.5	0.8	NA
TKN (mg/l)	2.20	1.90	2.50	
			Lake Grade	NA

The lake was monitored 2 times in 2009. Low lake water levels prevented access to open water for most of the year because of drought conditions. There were fewer than 5 monitoring events during the summer period, so there were insufficient data to calculate letter grades. Furthermore, there were insufficient data to make comparisons of 2009 data to previous monitoring years. There are insufficient data to determine trends in the lake's water quality. To better understand the lake's water quality and where it may be heading, additional years of data collection are needed.

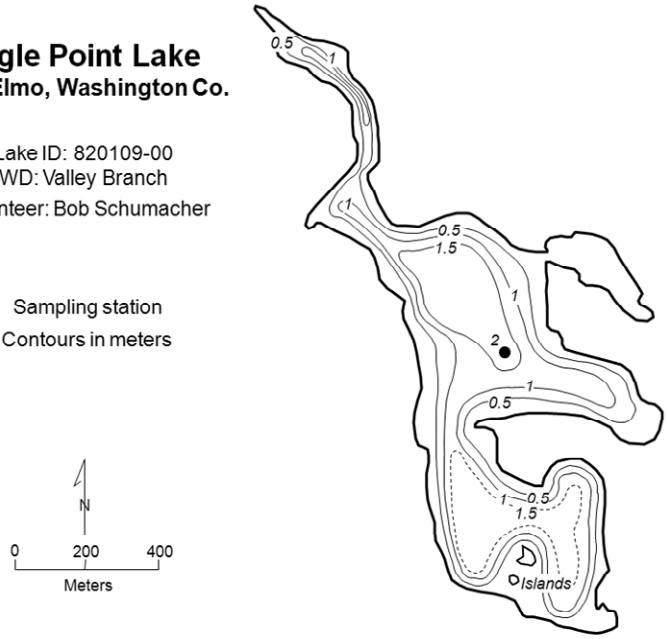
Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

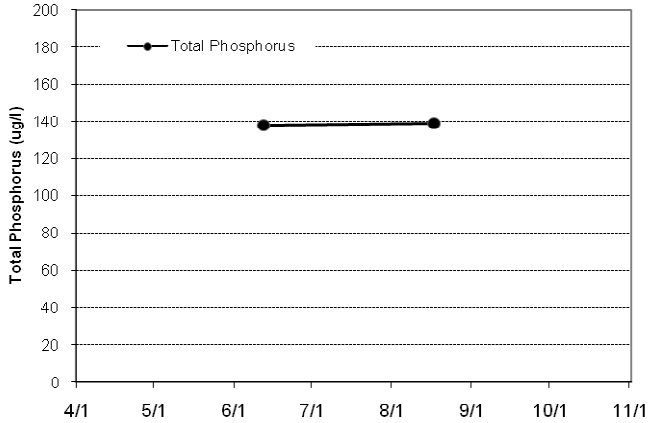
If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.

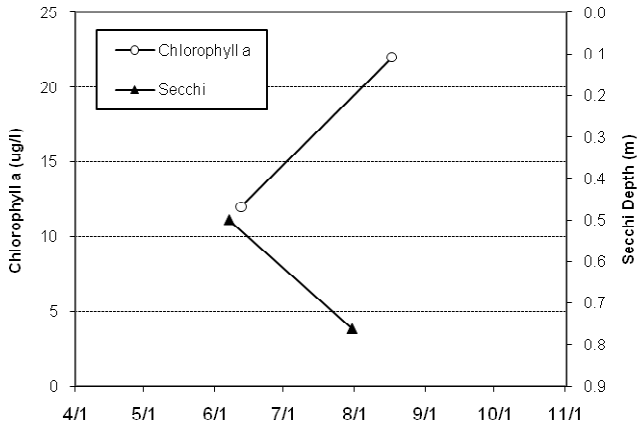
Eagle Point Lake
Lake Elmo, Washington Co.

Lake ID: 820109-00
WD: Valley Branch
Volunteer: Bob Schumacher

● Sampling station
Contours in meters

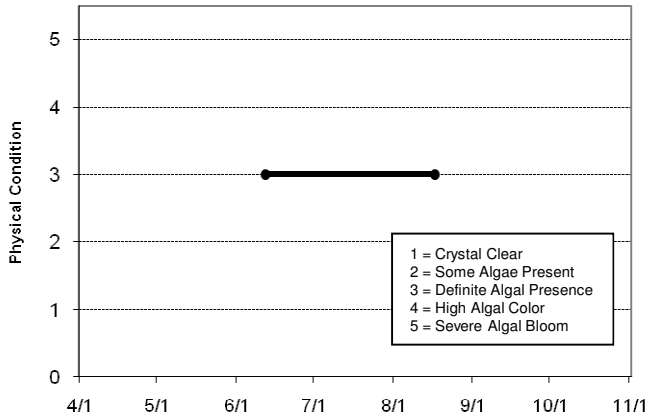






2009 Data

DATE	Surf Tmp (ºC)	Bot Tmp (ºC)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
6/12	21				12	138		0.5	3	4
8/17	23.7	23.7	5.38	0.11	22	139		0.8	3	4



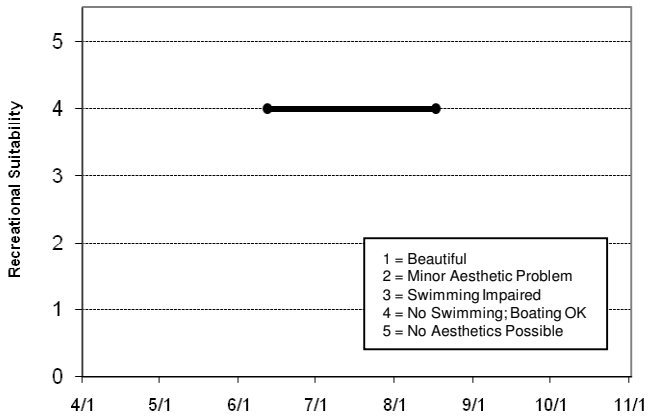
Lake Water Quality Grades Based on Summertime Averages

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total Phosphorus												
Chlorophyll a												
Secchi Depth												
Lake Grade												

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total Phosphorus		F										
Chlorophyll a												
Secchi Depth		F										
Lake Grade												

Year	2004	2005	2006	2007	2008	2009
Total Phosphorus			F	F		
Chlorophyll a			F	A		
Secchi Depth			F	D		
Lake Grade			**F**	**C**		**NA**

Source: Metropolitan Council and STORET data



Earley Lake (19-0033) *Black Dog Watershed Management Commission*

Earley Lake is located within the City of Burnsville in Dakota County. The 29-acre lake receives flow from Crystal Lake (Burnsville) and the Earley Lake watershed. Most of its 1,629-acre watershed is either parkland or open space. The watershed-to-lake size ratio is a rather large 56:1. Generally, the larger the ratio the greater the potential stress on the lake from surface runoff. Earley Lake outlets at its west end to Sunset Pond. The MN DNR has designated the lake as being infested with Eurasion water milfoil (*Myriophyllum spicatum*).

On each sampling day the lake was monitored for total phosphorus (TP), chlorophyll-a (CLA), total kjeldahl nitrogen (TKN), and secchi transparency, as well as the lake's perceived physical condition and recreational suitability. The resulting data are summarized in tables and figures on the following page.

2009 summer (May-September) data summary

Parameter	*Mean*	*Minimum*	*Maximum*	*Grade*
TP (µg/l)	42.0	22.0	68.0	C
CLA (µg/l)	6.5	1.6	12.0	A
Secchi (m)	2.1	1.8	2.5	C
TKN (mg/l)	0.78	0.46	1.30	
			Lake Grade	B

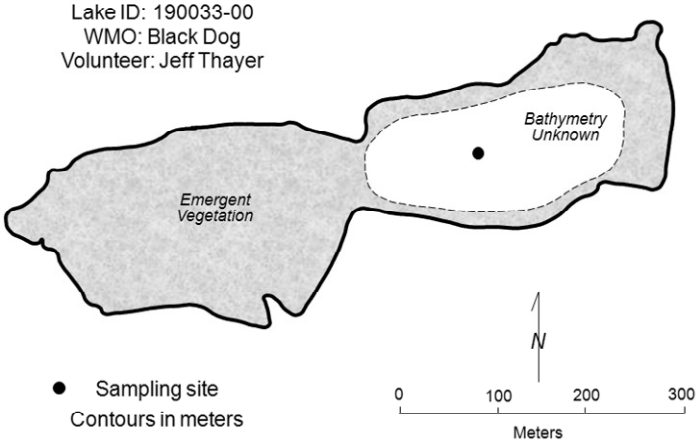
The lake received a lake grade of B for 2009, which is similar to water quality observed in 2006 and 2008. The summer-time mean CLA concentration continues to be low with respect to the lakes historic database. Additional monitoring is suggested to determine if recent lower mean CLA concentrations are indication of improving water quality.

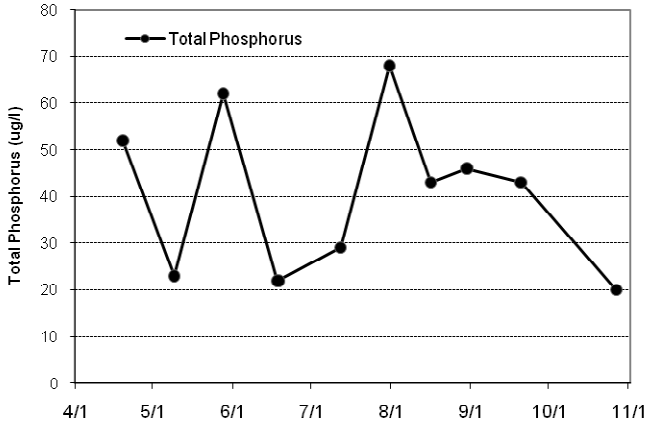
Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

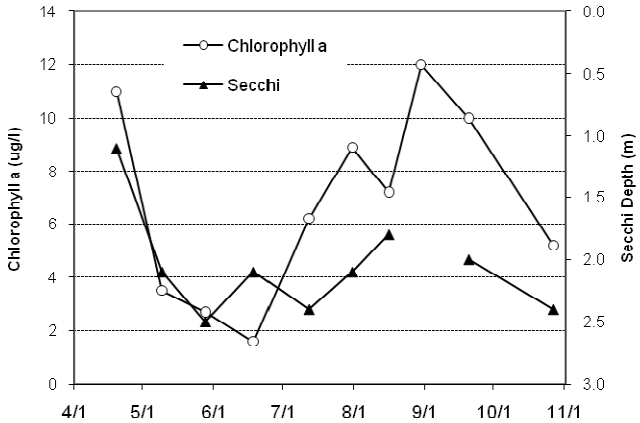
If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.

Earley Lake
Burnsville, Dakota Co.

Lake ID: 190033-00
WMO: Black Dog
Volunteer: Jeff Thayer

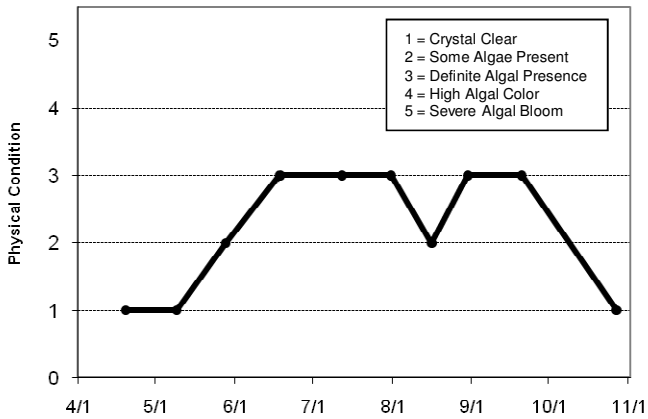






2009 Data

DATE	Surf Tmp (ºC)	Bot Tmp (ºC)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
4/19	15.5				11	52		1.1	1	1
5/9	17.7				3.5	23		2.1	1	1
5/28	19.9				2.7	62		2.5	2	2
6/18	24.3				1.6	22		2.1	3	
7/12	28.7				6.2	29		2.4	3	4
7/31	24.8				8.9	68		2.1	3	4
8/16	25.5				7.2	43		1.8	2	4
8/30					12	46			3	4
9/20					10	43		2.0	3	
10/27					5.2	20		2.4	1	4



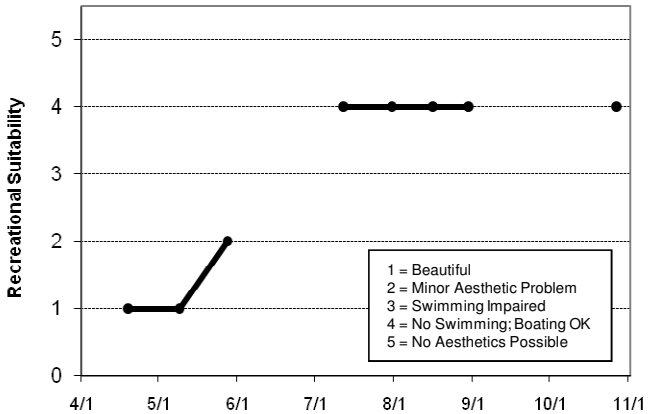
Lake Water Quality Grades Based on Summertime Averages

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total Phosphorus												
Chlorophyll a												
Secchi Depth												
Lake Grade												

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total Phosphorus			C	C	C	C	C	C	C	C	C	C
Chlorophyll a			B	B	B	B	B	B	B	B	B	B
Secchi Depth			C	C	C	C	C	C	C	C	C	C
Lake Grade			**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**

Year	2004	2005	2006	2007	2008	2009
Total Phosphorus	C	C	C	C	C	C
Chlorophyll a	B	B	A	B	A	A
Secchi Depth	C	C	C	C	C	C
Lake Grade	**C**	**C**	**B**	**C**	**B**	**B**

Source: Metropolitan Council and STORET data



East Boot Lake (82-0034) *Carnelian - Marine - St. Croix Watershed District*

East Boot Lake is located in May Township (Washington County). The mean and maximum depths of the 47-acre lake are 8.2 m (27 feet) and 0.9 m (3 feet), respectively. The lake's small 93-acre immediate watershed translates to a small watershed-to-lake size ratio of 2:1. The greater the ratio, the greater the potential stress on the lake from surface runoff.

On each sampling day the lake was monitored for total phosphorus (TP), chlorophyll-a (CLA), total kjeldahl nitrogen (TKN), and secchi transparency, as well as the lake's perceived physical condition and recreational suitability. The resulting data are summarized in tables and figures on the following page.

2009 summer (May-September) data summary

Parameter	*Mean*	*Minimum*	*Maximum*	*Grade*
TP (µg/l)	23.8	20.0	28.0	B
CLA (µg/l)	6.9	2.2	11.0	A
Secchi (m)	3.4	1.8	6.1	A
TKN (mg/l)	0.92	0.78	1.10	
			Lake Grade	A

The lake received a lake grade of A for 2009, which is the best lake grade this lake has received since 1996. This was the first year the lake received an A grade for CLA. The lake continues to acheive better water quality than it used to receive in the period from the mid 1990s and early 2000s. Additional monitoring is suggested to help determine if the lake continues to improve.

Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

The Fisheries Section of the Minnesota Department of Natural Resources (MDNR) has conducted a fisheries survey on the lake. Information on the survey can be obtained through the MDNR Fisheries Section by calling (651) 259-5831 or by downloading the information off the Internet at http://www.dnr.state.mn.us/lakefind/.

If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.

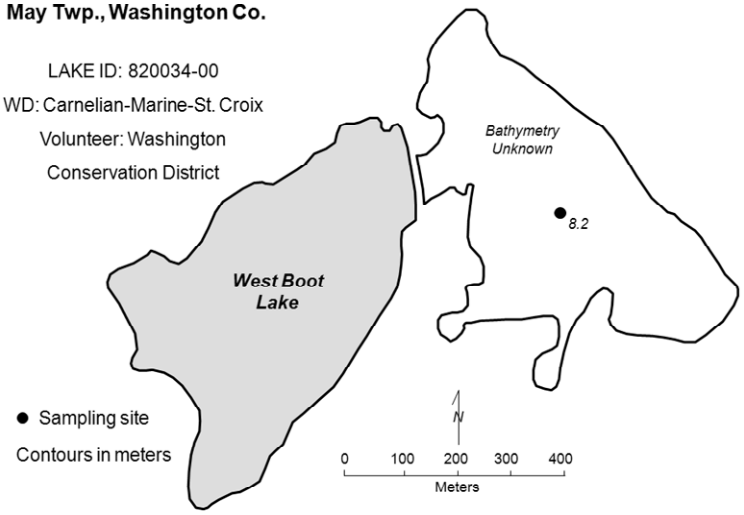
East Boot Lake

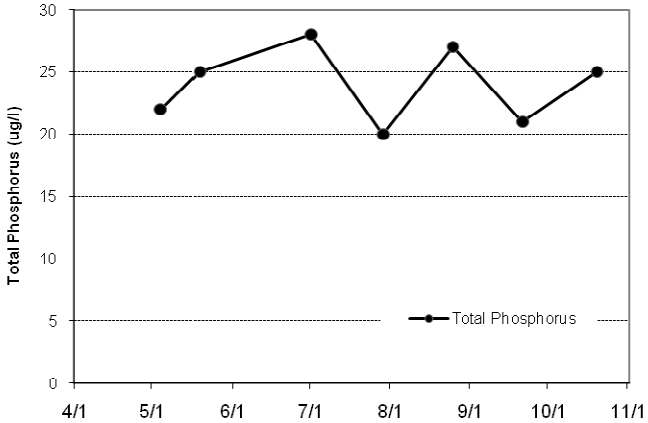
May Twp., Washington Co.

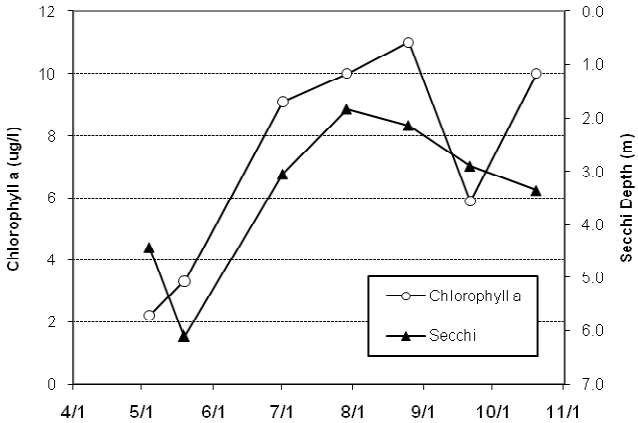
LAKE ID: 820034-00

WD: Carnelian-Marine-St. Croix

Volunteer: Washington Conservation District

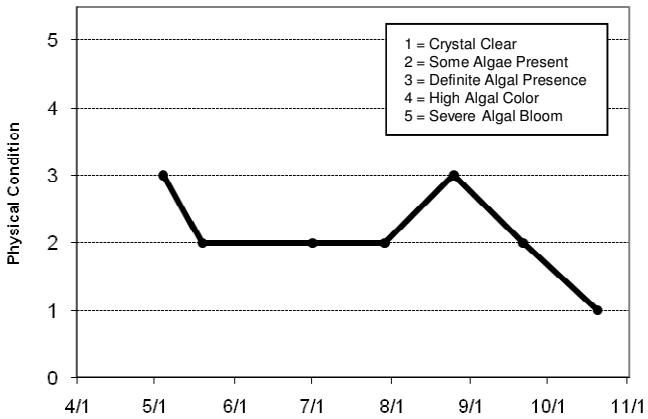






2009 Data

DATE	Surf Tmp (ºC)	Bot Tmp (ºC)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
5/4	15	11.2	11.25	0.04	2.2	22		4.4	3	4
5/19	18	6.9	11.02	0.08	3.3	25		6.1	2	3
7/1	21.1	7.9	7.49	0.05	9.1	28		3.0	2	3
7/29	23.4	8.3	9.63	0.04	10	20		1.8	2	2
8/25	22.8	8.7	8.78	0.05	11	27		2.1	3	3
9/21	22.8	9.1	10.04	0.04	5.9	21		2.9	2	2
10/20	9	8.3	11.86	0.44	10	25		3.4	1	1



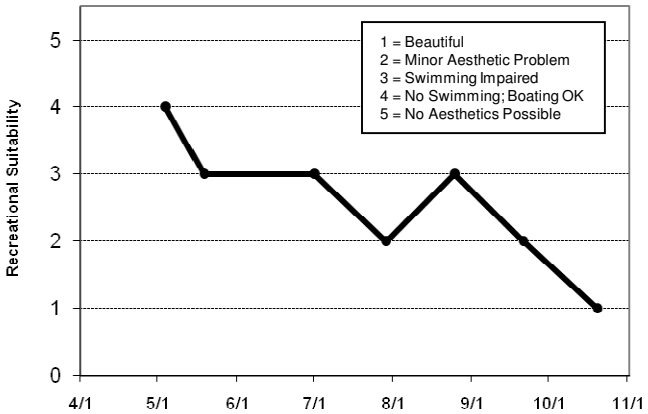
Lake Water Quality Grades Based on Summertime Averages

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total Phosphorus												
Chlorophyll a												
Secchi Depth												
Lake Grade												

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total Phosphorus					B	B	B	C	C	C	C	C
Chlorophyll a					B	C	C	C	C	C	C	C
Secchi Depth					B	A	B	C	C	C	B	B
Lake Grade					**B**	**B**	**B**	**C**	**C**	**C**	**C**	**C**

Year	2004	2005	2006	2007	2008	2009
Total Phosphorus	C	C	C	C	C	B
Chlorophyll a	B	B	C	B	B	A
Secchi Depth	A	A	A	A	A	A
Lake Grade	**B**	**B**	**B**	**B**	**B**	**A**

Source: Metropolitan Council and STORET data



Edith Lake (82-0004) *Valley Branch Watershed District*

Primary Report

Edith Lake is a 81-acre lake located within Afton (Washington County). The lake has a maximum depth of approximately 13.0 m (43 feet). Roughly 42 percent of the lake's surface area is considered littoral zone (the 0-15 foot depth area of aquatic plant dominance). The lake has a watershed of 1,576 acres, which gives a watershed-to-lake area ratio of 19:1. The greater the ratio, the greater the potential stress on the lake from surface runoff.

On each sampling day the lake was monitored for total phosphorus (TP), chlorophyll-a (CLA), total kjeldahl nitrogen (TKN), and secchi transparency, as well as the lake's perceived physical condition and recreational suitability. The resulting data are summarized in tables and figures on the following page.

2009 summer (May-September) data summary

Parameter	*Mean*	*Minimum*	*Maximum*	*Grade*
TP (µg/l)	25.6	17.0	44.0	B
CLA (µg/l)	8.0	3.1	22.0	A
Secchi (m)	2.1	1.4	3.0	C
TKN (mg/l)	0.71	0.49	0.85	
			Lake Grade	B

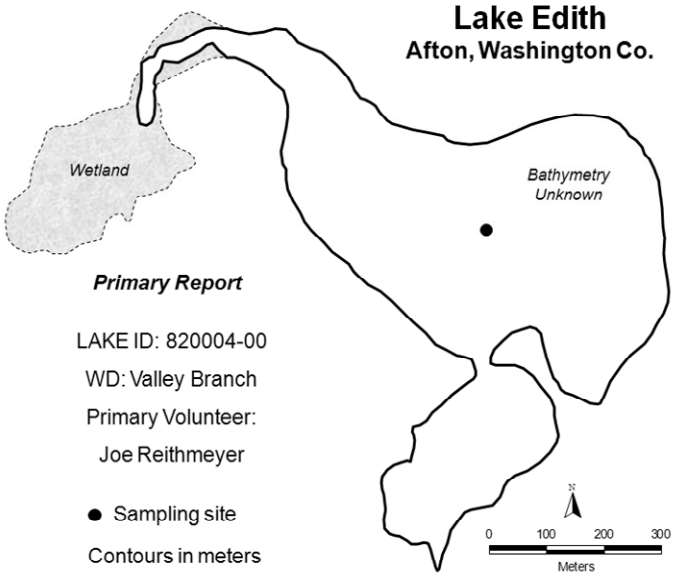
The lake received a lake grade of B for 2009, which is similar to the grade it received in 2006 and 2008. For the 5 years that the lake has been monitored via the CAMP, the lake has fluctuated between a lake grade of A and B. Continued monitoring is suggested to help determine the long term nature of the water quality for this lake.

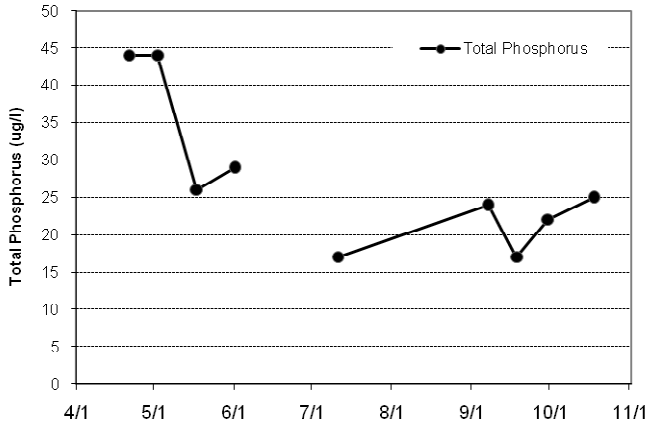
The lake experienced a relatively low CLA summer-time mean concentration compared to the secchi depth mean summer-time value (which yielded a CLA grade of A versus the C grade for water clarity). The relatively low CLA concentrations indicate that something other than algae was causing the diminished water clarity. Suspended particulates may be a possible cause of the low water clarity. Likely causes may be either that lake sediment was resuspended in the water column because of frequent mixing events, or the lake received significant quantities of suspended solids from the watershed via runoff events, or both. In either case, the increase turbidity would decrease available light via reduced water clarity, and thereby suppress algal growth.

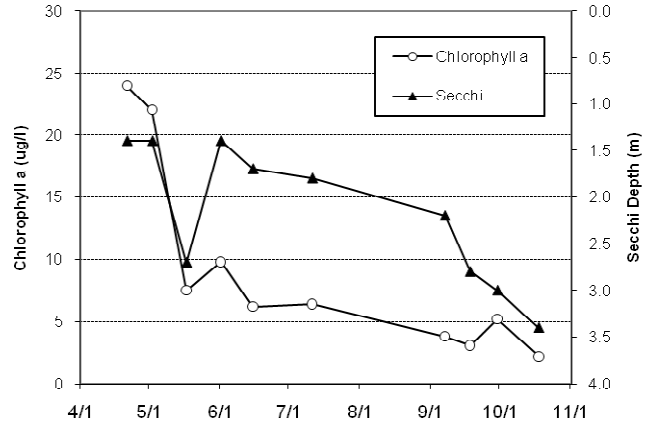
TThroughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

The Fisheries Section of the Minnesota Department of Natural Resources (MNDNR) has conducted a fisheries survey on the lake. Information on the survey can be obtained through the MNDNR Fisheries Section by calling (651) 259-5831 or by downloading the information off the internet at http://www.dnr.state.mn.us/lakefind/.

If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.

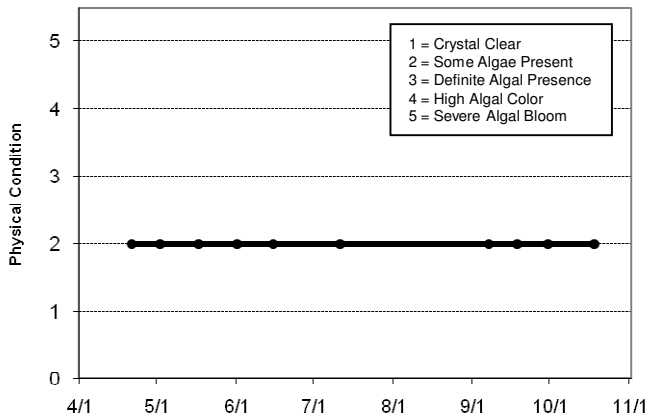






2009 Data

DATE	Surf Tmp (ºC)	Bot Tmp (ºC)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
4/21	10.9				24	44		1.4	2	2
5/2	12.6				22	44		1.4	2	2
5/17	17.5				7.5	26		2.7	2	2
6/1	21.6				9.8	29		1.4	2	2
6/15	22				6.2			1.7	2	2
7/11	25.3				6.4	17		1.8	2	2
9/7	23.5				3.8	24		2.2	2	2
9/18	24.4				3.1	17		2.8	2	2
9/30	17				5.2	22		3.0	2	2
10/18	9.5				2.2	25		3.4	2	2



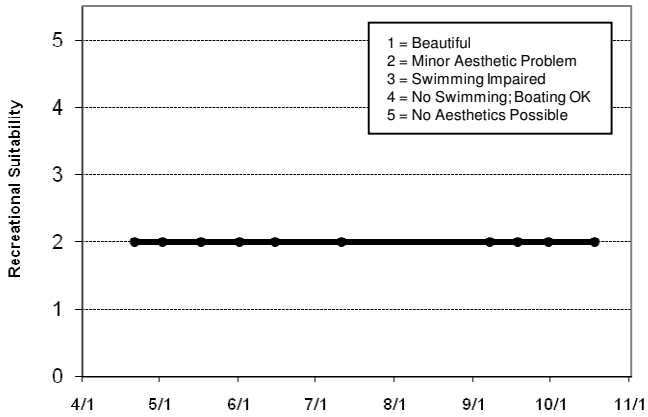
Lake Water Quality Grades Based on Summertime Averages

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total Phosphorus												
Chlorophyll a												
Secchi Depth												
Lake Grade												

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total Phosphorus												
Chlorophyll a												
Secchi Depth												
Lake Grade												

Year	2004	2005	2006	2007	2008	2009
Total Phosphorus		A	B	A	B	B
Chlorophyll a		A	A	A	A	A
Secchi Depth		B	C	B	C	C
Lake Grade		**A**	**B**	**A**	**B**	**B**

Source: Metropolitan Council and STORET data



Edith Lake (82-0004) *Washington Conservation District*

Secondary Report

Edith Lake was also monitored by the Washington Conservation District (WCD) in 2009. The monitoring by the WCD provided duplicate monitoring for the lake. For more detailed information on the lake, refer to its primary report.

On each sampling day the lake was monitored for total phosphorus (TP), chlorophyll-a (CLA), total kjeldahl nitrogen (TKN), and secchi transparency, as well as the lake's perceived physical condition and recreational suitability. Depth profiles of temperature and dissolved oxygen were also collected. The resulting data are summarized in tables and figures on the following page.

2009 summer (May-September) data summary

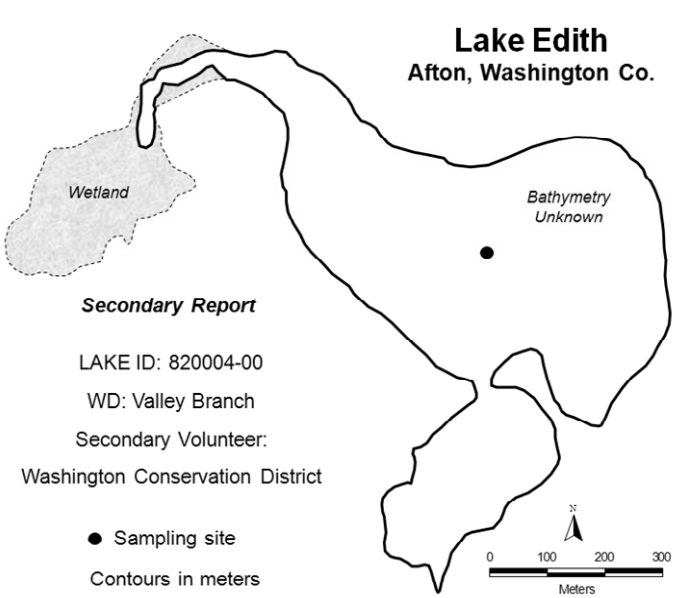
Parameter	*Mean*	*Minimum*	*Maximum*	*Grade*
TP (µg/l)	23.8	17.0	36.0	B
CLA (µg/l)	8.7	6.3	17.0	A
Secchi (m)	1.7	1.1	2.1	C
TKN (mg/l)	0.82	0.60	0.92	
			Lake Grade	B

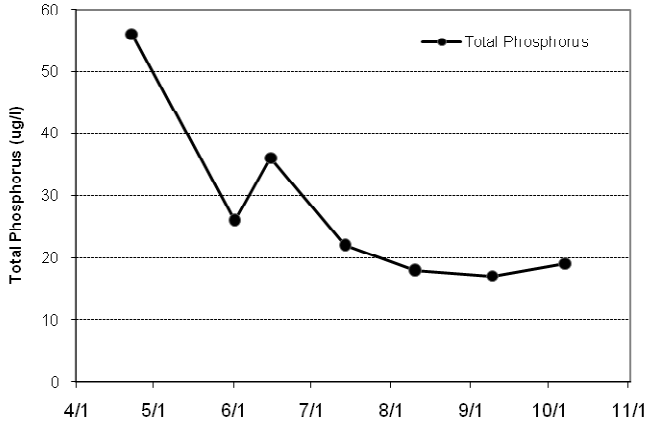
The lake received a lake grade of B for 2009, similar to the lake grade given in the primary report. TP concentrations were of similar magnitude and temporal pattern over the summer-time period as compared to those given in the primary report. CLA concentrations were in general agreement with respect to magnitude and temporal pattern with respect to those given in the primary report. Overall, the data collected by the primary and secondary volunteers concur with each other.

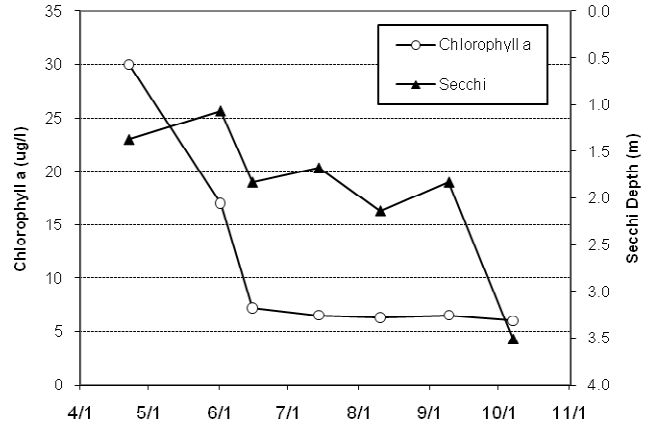
Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

The Fisheries Section of the Minnesota Department of Natural Resources (MNDNR) has conducted a fisheries survey on the lake. Information on the survey can be obtained through the MNDNR Fisheries Section by calling (651) 259-5831 or by downloading the information off the internet at http://www.dnr.state.mn.us/lakefind/.

If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.

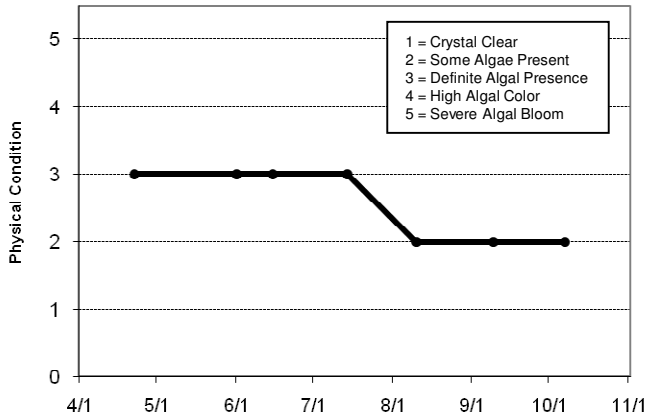






2009 Data

DATE	Surf Tmp (ºC)	Bot Tmp (ºC)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
4/22	10.2	4.3	13.5	0.04	30	56	170	1.4	3	4
6/1	20	5	10.71	0.02	17	26	208	1.1	3	4
6/15	22.6	4.9	10.21	0	7.2	36	165	1.8	3	2
7/14	24.3	5.2	10.27	0.03	6.5	22	277	1.7	3	3
8/10	24.6	5.9	8.32	0.02	6.3	18	110	2.1	2	3
9/9	24.4	5.8	10.02	0	6.5	17	382	1.8	2	2
10/7	12.5	5.9	8.22	0	6	19	397	3.5	2	2



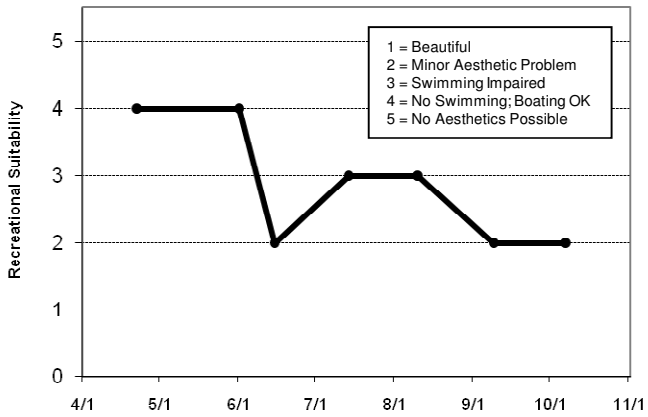
Lake Water Quality Grades Based on Summertime Averages

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total Phosphorus												
Chlorophyll a												
Secchi Depth												
Lake Grade												

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total Phosphorus												
Chlorophyll a												
Secchi Depth												
Lake Grade												

Year	2004	2005	2006	2007	2008	2009
Total Phosphorus		A	B	A	B	B
Chlorophyll a		A	A	A	A	A
Secchi Depth		B	C	B	C	C
Lake Grade		**A**	**B**	**A**	**B**	**B**

Source: Metropolitan Council and STORET data



Lake Elmo (82-0106) *Valley Branch Watershed District*

Lake Elmo is located in Lake Elmo (Washington County). It is considered a Priority Lake by the Metropolitan Council for its high regional recreation value and exceptional water clarity (METC 2007). The 284-acre lake has a maximum depth of 41.7 m (137 ft) which is the deepest lake in the TCMA. The MN DNR has designated the lake as being infested with Eurasion water milfoil (Myriophyllum spicatum). The MPCA has listed the lake as impaired for perfluorooctane (PFO) content in fish.

On each sampling day the lake was monitored for total phosphorus (TP), chlorophyll-a (CLA), total kjeldahl nitrogen (TKN), and secchi transparency, as well as the lake's perceived physical condition and recreational suitability. The resulting data are summarized in tables and figures on the following page.

2009 summer (May-September) data summary

Parameter	*Mean*	*Minimum*	*Maximum*	*Grade*
TP (µg/l)	17.0	10.0	24.0	A
CLA (µg/l)	2.8	1.2	4.1	A
Secchi (m)	4.0	2.5	6.0	A
TKN (mg/l)	0.43	0.29	0.50	
			Lake Grade	A

The lake received a lake grade of A for 2009, which is similar to the lake grades it has received for the past 20 years. The lake's database indicates that the lake's recent water quality is well represented by a lake grade of A.

Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

The Fisheries Section of the Minnesota Department of Natural Resources (MNDNR) has conducted a fisheries survey on the lake. Information on the survey can be obtained through the MNDNR Fisheries Section by calling (651) 259-5831 or by downloading the information off the internet at http://www.dnr.state.mn.us/lakefind/.

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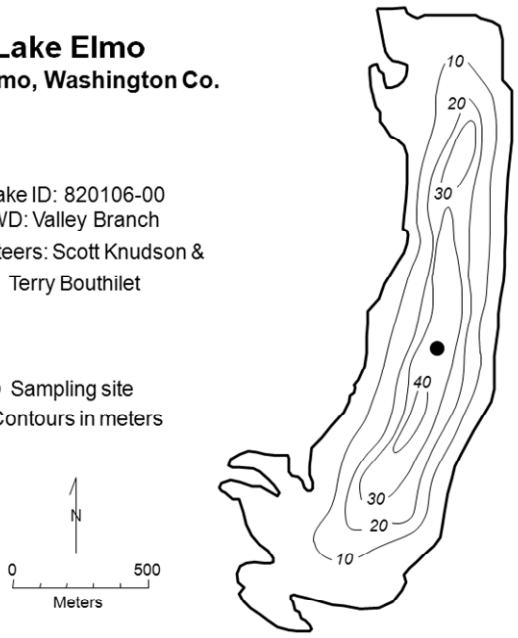
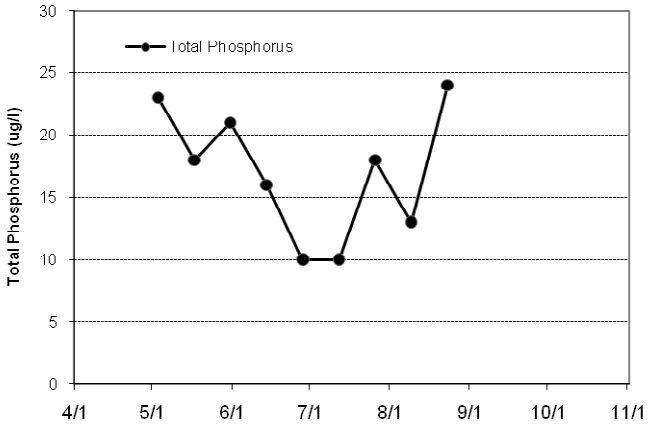
Lake Elmo

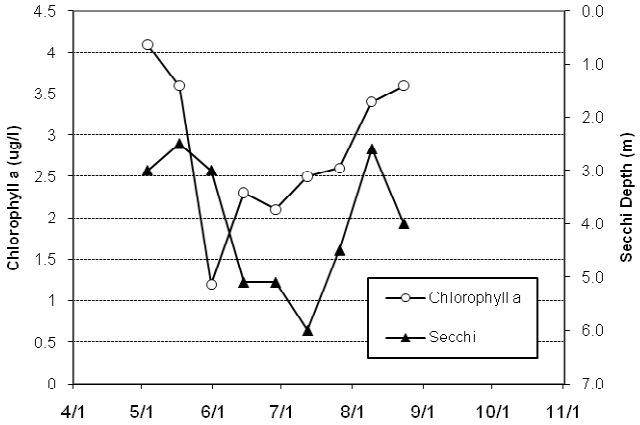
Lake Elmo, Washington Co.

Lake ID: 820106-00
WD: Valley Branch
Volunteers: Scott Knudson & Terry Bouthilet

● Sampling site
Contours in meters

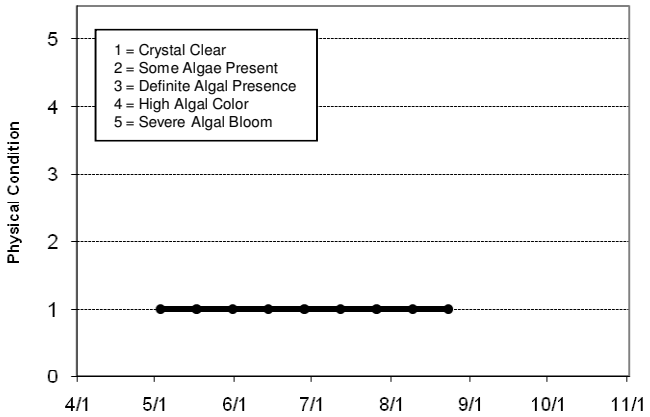






2009 Data

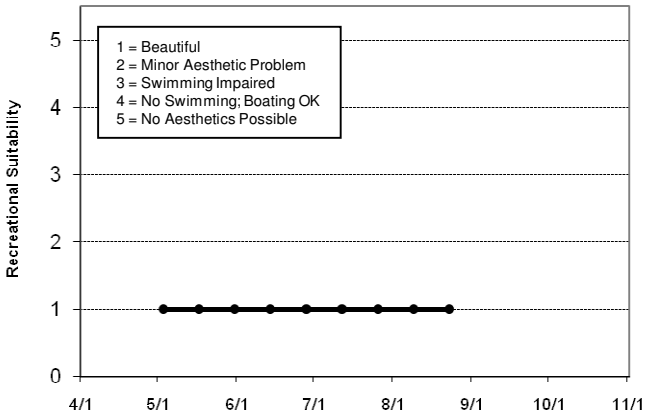
DATE	Surf Tmp (ºC)	Bot Tmp (ºC)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
5/3	13.2				4.1	23		3.0	1	1
5/17	16.1				3.6	18		2.5	1	1
5/31	18.8				1.2	21		3.0	1	1
6/14	21.3				2.3	16		5.1	1	1
6/28	25.5				2.1	10		5.1	1	1
7/12	24.7				2.5	10		6.0	1	1
7/26	23.5				2.6	18		4.5	1	1
8/9	24.8				3.4	13		2.6	1	1
8/23	23.6				3.6	24		4.0	1	1



Lake Water Quality Grades Based on Summertime Averages

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total Phosphorus	B	A	B		B				B			A
Chlorophyll a	B	A	B		A				A			A
Secchi Depth	C	B	C		B	A	B	B	A	A	A	A
Lake Grade	**B**	**A**	**B**		**B**				**A**			**A**

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total Phosphorus			A									
Chlorophyll a			A									
Secchi Depth	A	A	A									
Lake Grade			**A**									

Year	2004	2005	2006	2007	2008	2009
Total Phosphorus		A	A	A	A	A
Chlorophyll a		A	A	A	A	A
Secchi Depth		A	A	A	A	A
Lake Grade		**A**	**A**	**A**	**A**	**A**

Source: Metropolitan Council and STORET data