Acorn Lake (82-0102) *Valley Branch Watershed District*

Acorn Lake is a 44-acre lake located within City of Oakdale (Washington County). This lake is also called Mud Lake. The mean and maximum depth of the lake is 0.7 m (roughly 2.4 feet) and 3.0 m (10 feet), respectively. The entire surface area is considered littoral zone, which is 0 – 15 feet depth zone that is typically dominated by aquatic vegetation. The lake does not maintain a thermocline, which is a density gradient caused changing water temperatures throughout the water column. There is no public access to 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 2009 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)	28.5	19.0	39.0	NA
CLA (µg/l)	4.7	3.6	6.3	NA
Secchi (m)	0.9	0.8	1.1	NA
TKN (mg/l)	1.38	1.10	1.60	
			Lake Grade	NA

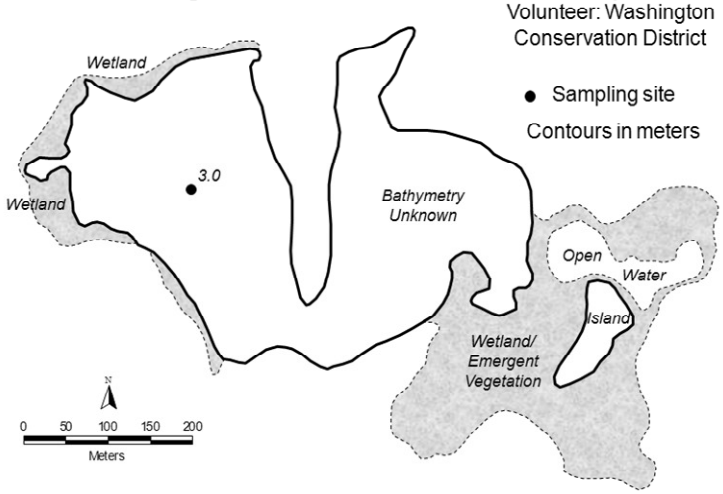
There was an insufficient quantity of data to calculate a lake grade for 2009. At least 5 dates spread throughout the summer monitoring season (May – September) are required to calculate a grade.

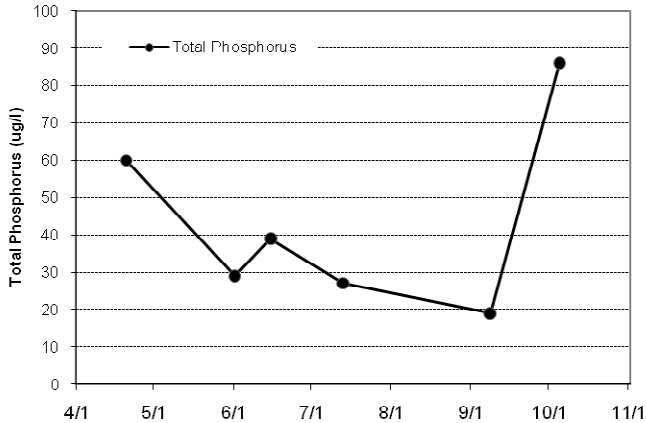
Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

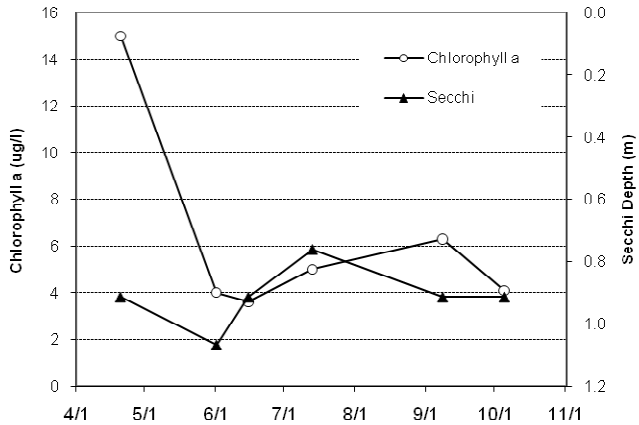
The Fisheries Section of the Minnesota Department of Natural Resources (MDNR) has conducted a fisheries survey on the lake. Information on the survey can be obtained through the MDNR Fisheries Section by calling (651) 259-5831 or by downloading the information off the Internet at http://www.dnr.state.mn.us/lakefind/.

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.

Acorn Lake
Oakdale, Washington Co.

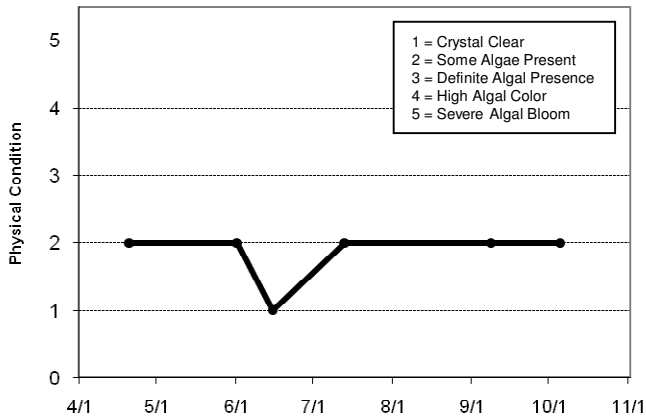






2009 Data

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	12.1	12.2	5.06	2.82	15	60		0.9	2	2
6/1	21	19.3	10.3	3.53	4	29		1.1	2	4
6/15	24.1	18.8	10.05	0.08	3.6	39		0.9	1	4
7/13	22.6	20.5	6.63	0.13	5	27		0.8	2	4
9/8	20.2	19.1	3.8	0.19	6.3	19		0.9	2	4
10/5	10.1	10.8	7.64	2.28	4.1	86		0.9	2	4



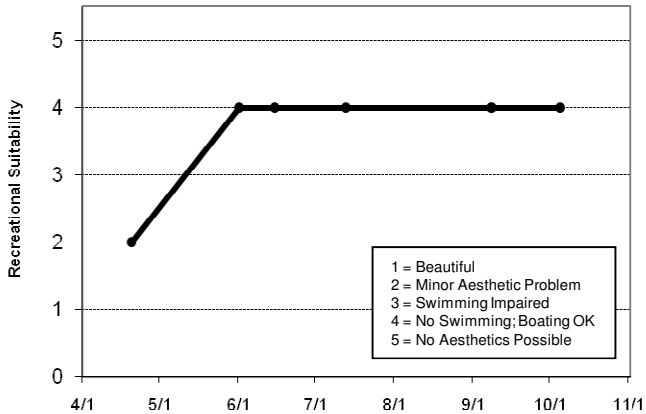
Lake Water Quality Grades Based on Summertime Averages

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												
Chlorophyll a												
Secchi Depth												
Lake Grade												

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

Source: Metropolitan Council and STORET data



Alimagnet Lake (19-0021) *City of Apple Valley*

Approximately half of Alimagnet Lake's 109-acre surface area is located within the City of Apple Valley, the other half in the City of Burnsville (Dakota County). The lake has maximum and mean depths of 3.0 and 1.5 m, 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 1,094-acre watershed and a watershed-to-lake area ratio of 10:1 (Blue Water Science 2005). 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 2009 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)	88.5	59.0	123.0	D
CLA (µg/l)	44.8	20.0	120.0	C
Secchi (m)	0.6	0.3	1.0	F
TKN (mg/l)	1.65	1.20	2.50	
			Lake Grade	D

The 2008 lake grade was a D. The lake's historic lake grades indicate that the lake fluctuates between a C and D. Most recently the lake's lake grade has consistently been a D (1999-2009 excluding 2006). The mean secchi depth continues to provide this lake with a water clarity 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.

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.

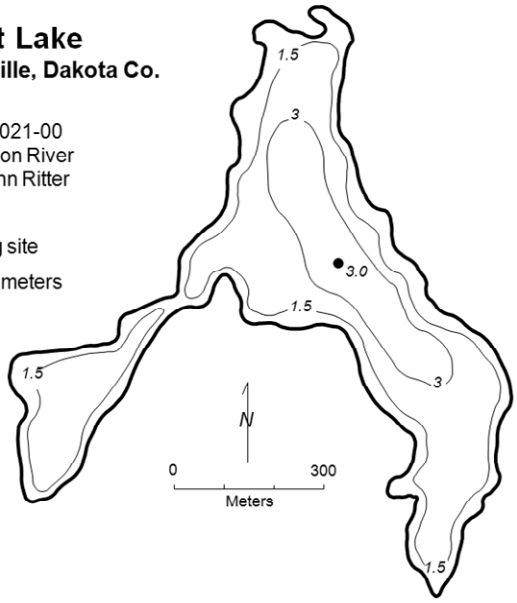
Alimagnet Lake

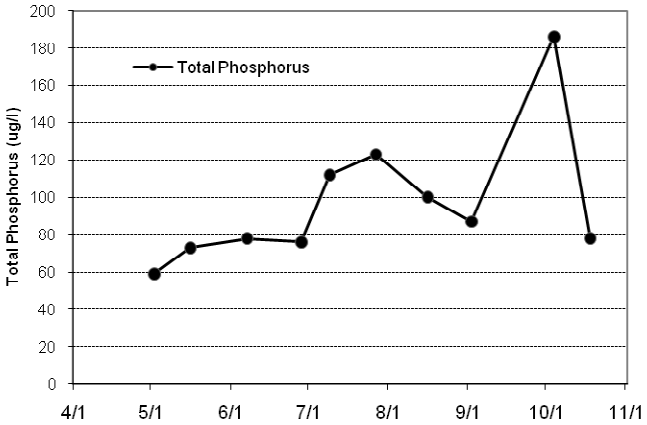
Apple Valley/Burnsville, Dakota Co.

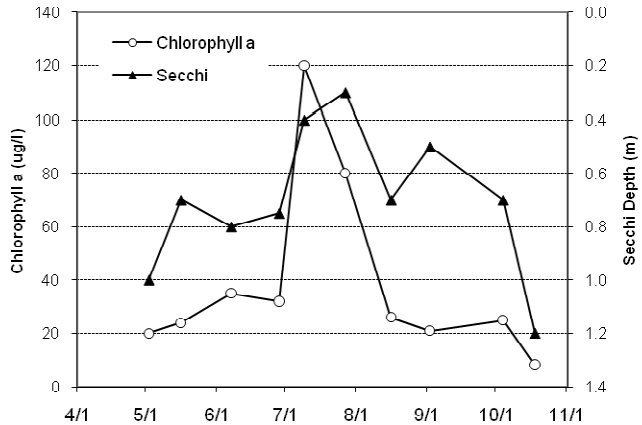
Lake ID: 190021-00
WMO: Vermillion River
Volunteer: John Ritter

● Sampling site

Contours in meters

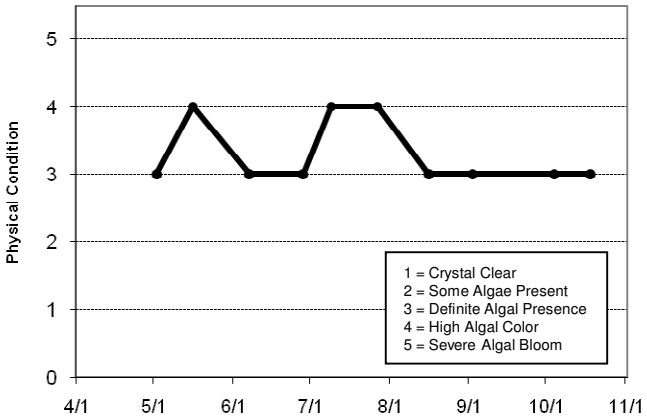






2009 Data

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
5/2	13				20	59		1.0	3	2
5/16	17				24	73		0.7	4	3
6/7	16				35	78		0.8	3	3
6/28	22				32	76		0.8	3	3
7/9	23				120	112		0.4	4	3
7/27	24				80	123		0.3	4	3
8/16	24.7				26	100		0.7	3	3
9/2	19				21	87		0.5	3	3
10/4	11.8				25	186		0.7	3	3
10/18	7.2				8.3	78		1.2	3	3



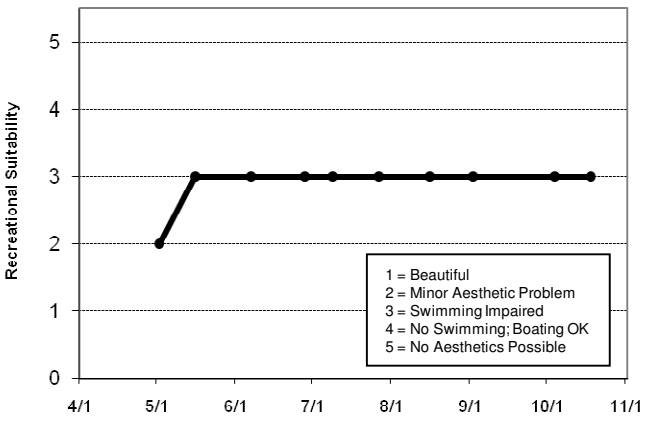
Lake Water Quality Grades Based on Summertime Averages

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

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

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

Source: Metropolitan Council and STORET data



Ardmore Lake (27-0153) *Pioneer-Sarah Watershed Management Commission*

Ardmore Lake is located in the City of Medina (Hennepin County). The lake has surface area of 10.1 acres and a maximum depth of 6.1 m (20 feet), and an average depth of 2.4 m (7.7 feet). Most of the lake is considered littoral zone (approximately 9 acres), which is the shallow 0 – 15 feet depth zone that is typically dominated by aquatic plants. A search via STORET revealed historical secchi depth data and CAMP data.

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 2009 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)	161.8	114.0	230.0	F
CLA (µg/l)	105.6	33.0	200.0	F
Secchi (m)	0.5	0.4	0.6	F
TKN (mg/l)	2.74	1.70	3.50	
			Lake Grade	F

The water quality lake grade was an F for 2009. The TP and chlorophyll summer-time means translate to grades of F. These are similar grades that the lake received in 2007 and 2008.

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/.

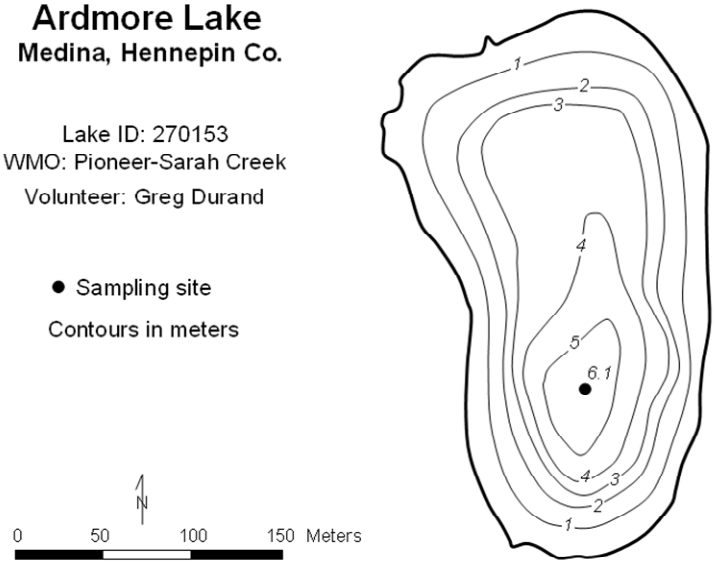
If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.

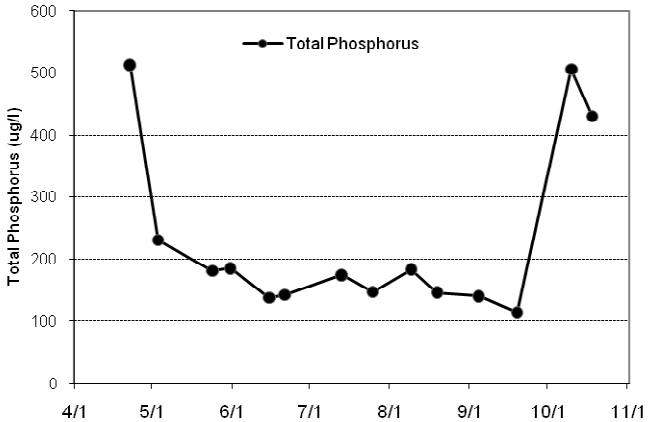
Ardmore Lake
Medina, Hennepin Co.

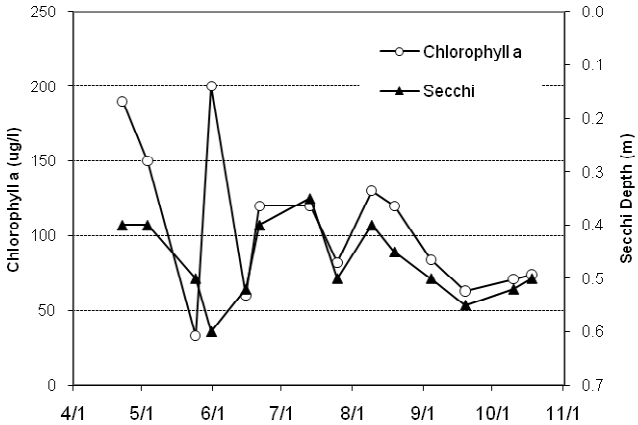
Lake ID: 270153
WMO: Pioneer-Sarah Creek
Volunteer: Greg Durand

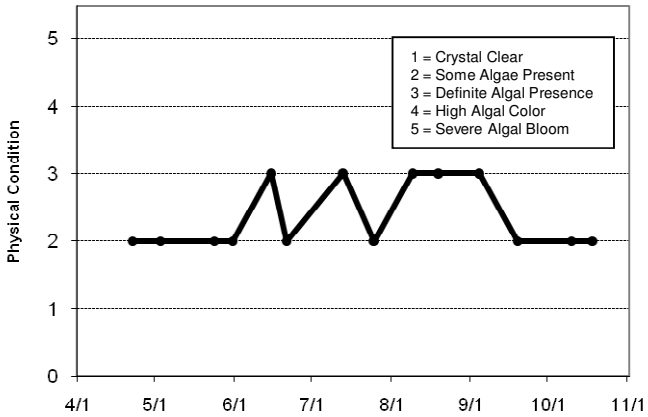
● Sampling site

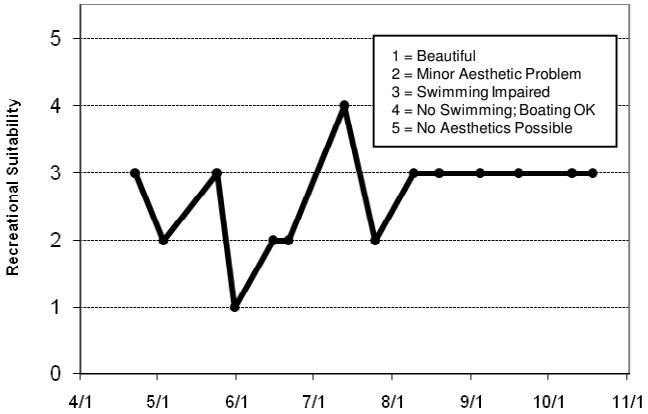
Contours in meters











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
4/22	14.4				190	513		0.4	2	3
5/3	17.4				150	230		0.4	2	2
5/24	24.1				33	181		0.5	2	3
5/31	21.7				200	185		0.6	2	1
6/15	24.3				60	138		0.5	3	2
6/21	25.6				120	142		0.4	2	2
7/13	26				120	174		0.4	3	4
7/25	23.8				82	147		0.5	2	2
8/9	28.3				130	183		0.4	3	3
8/19	23.5				120	146		0.5	3	3
9/4	20.5				84	140		0.5	3	3
9/19	24.4				63	114		0.6	2	3
10/10	10				71	506		0.5	2	3
10/18	8				74	431		0.5	2	3

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												F
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	F	F
Chlorophyll a				F	F	F
Secchi Depth					F	F
Lake Grade				**F**	**F**	**F**

Source: Metropolitan Council and STORET data

Armstrong Lake (82-0116) *South Washington Watershed District*

Armstrong Lake has been monitored through CAMP since 1998. The lake is located within the cities of Lake Elmo and Oakdale (Washington County). The lake has a surface area of 39 acres, and it has a mean and maximum depth of 1.0 m and 1.5 m, respectively. Because of the shallowness of the lake, its entire area is considered littoral, which is the shallow depth zone (0-15 feet) dominated by aquatic vegetation. It does not maintain a thermocline, which is a density gradient caused by changing water temperatures throughout the lake's 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. 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)	66.8	47.0	105.0	C
CLA (µg/l)	10.1	4.7	19.0	B
Secchi (m)	1.1	0.9	1.3	D
TKN (mg/l)	1.24	0.78	2.00	
			Lake Grade	C

The 2009 lake grade of C was a similar to the grade obtained last year. The water quality over the past decade has fluctuated between C and D, with a C being more frequent.

According to the lake's historic database of TP, CLA, and water clarity grades, it is apparent that the TP and Secchi grades are worse than the CLA grade. The better than expected CLA grade indicates that water clarity is not as affected by algal abundance, but may be affected by suspended matter such as from surface runoff or the resuspension of lake sediments from mixing events.

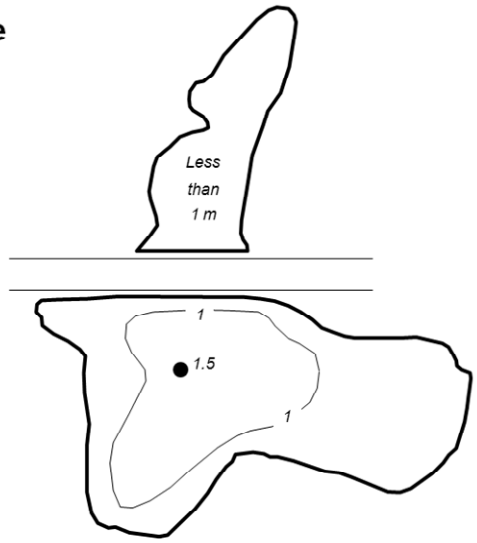
Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

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.

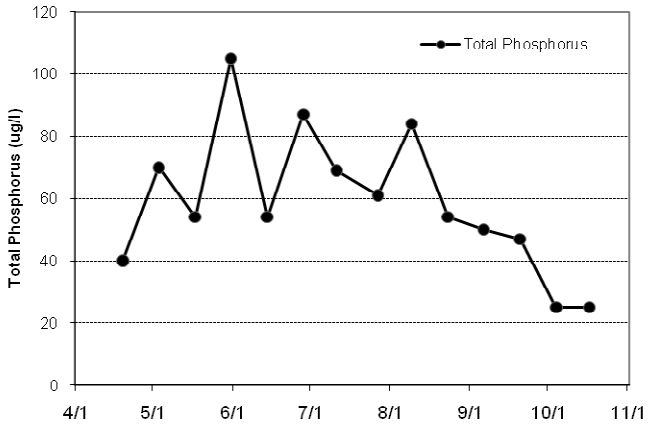
Armstrong Lake

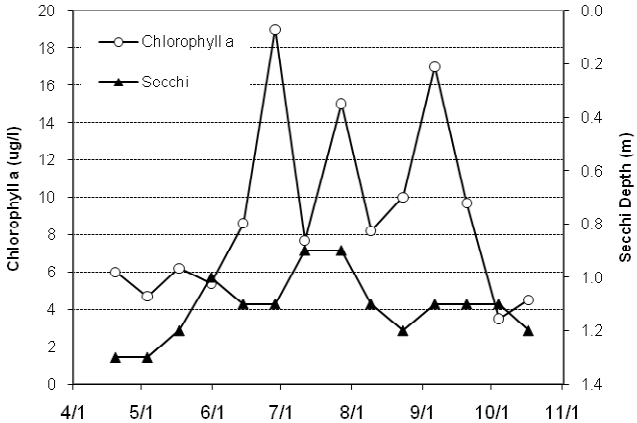
Lake Elmo/Oakdale, Washington Co.

LAKE ID: 820116-00
WD: South Washington
Volunteers: Todd and Brandon Heruth



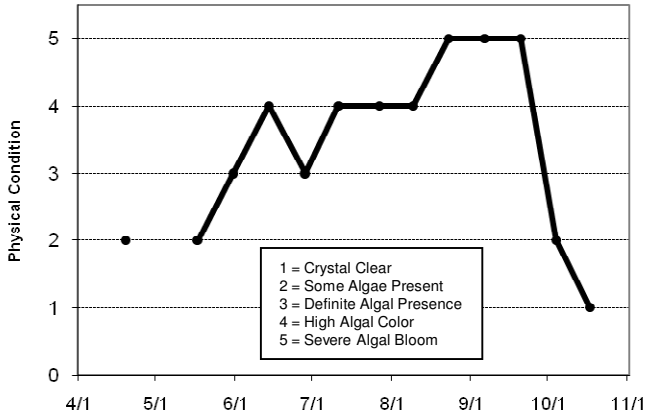
● Sampling site
Contours in meters





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
4/19	13.5				6	40		1.3	2	
5/3	15				4.7	70		1.3		
5/17	17				6.2	54		1.2	2	
5/31	23				5.4	105		1.0	3	
6/14	21.3				8.6	54		1.1	4	
6/28	21.7				19	87		1.1	3	
7/11	24.7				7.7	69		0.9	4	
7/27	24				15	61		0.9	4	
8/9	23.7				8.2	84		1.1	4	
8/23	23.6				10	54		1.2	5	
9/6	23.6				17	50		1.1	5	
9/20	21.7				9.7	47		1.1	5	
10/4	10				3.5	25		1.1	2	
10/17	5.4				4.5	25		1.2	1	

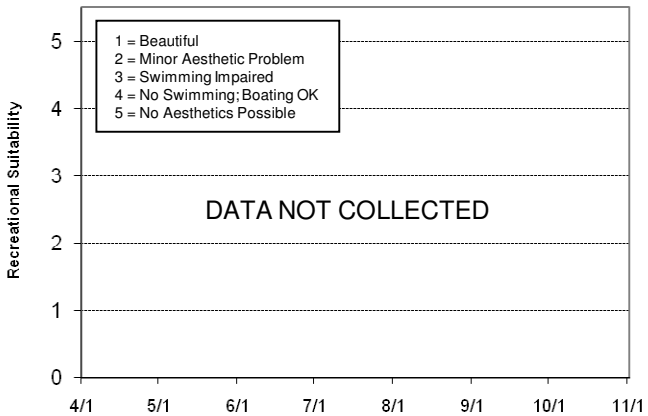


Lake Water Quality Grades Based on Summertime Averages

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

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

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



Source: Metropolitan Council and STORET data

Barker Lake (82-0076) *Carnelian - Marine - St. Croix Watershed District*

Barker Lake is a 45-acre lake located within May Township (Washington County). The lake has an 823-acre watershed and a large watershed-to-lake area ratio of about 18:1. The greater the ratio, the greater the potential stress on the lake from surface runoff.

On each sampling day the lake was monitored for Secchi transparency, a depth profice of oxygen and temperature, 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)				
CLA (µg/l)				
Secchi (m)	1.3	0.5	3.4	C
TKN (mg/l)				
			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.

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.

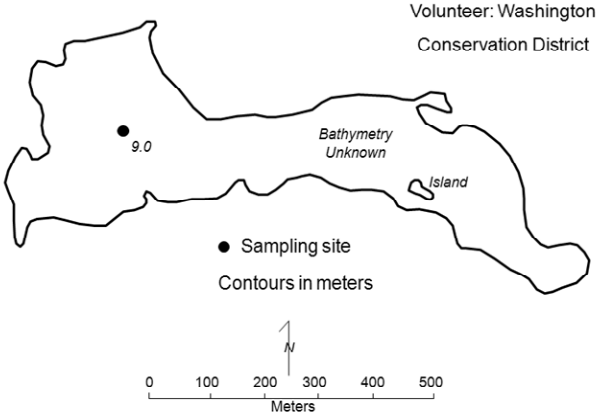
Barker Lake

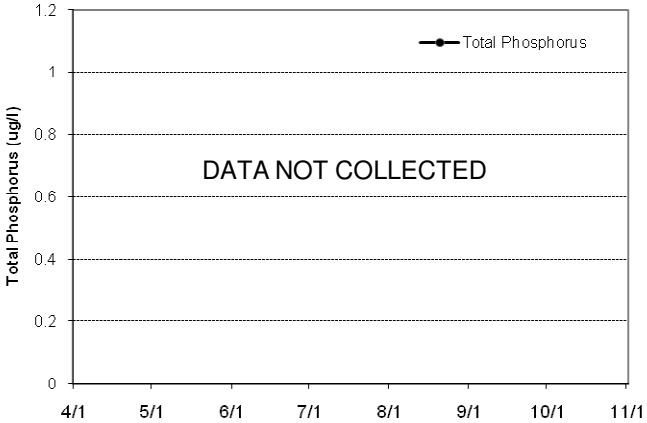
Hugo, May Twp., Washington Co.

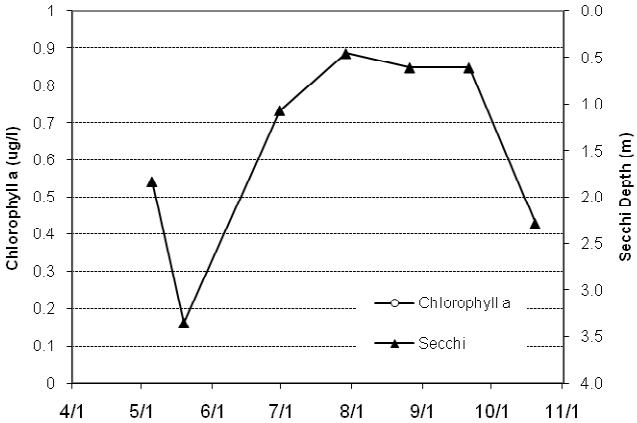
LAKE ID: 820076-00

WD: Carnelian-Marine-St. Croix

Volunteer: Washington Conservation District

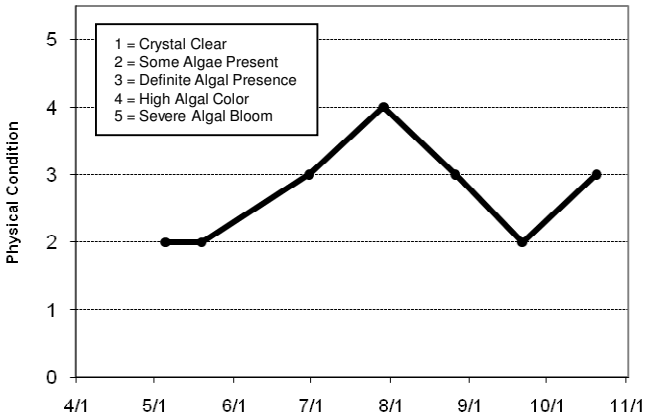






2009 Data

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
5/5	15.2	8	10.29	0.25				1.8	2	2
5/19	18.9	7.2	9.85	0.1				3.4	2	3
6/30	21.4	8.7	8.29	0.07				1.1	3	4
7/29	23.8	9.6	11.86	0.03				0.5	4	4
8/26	22.1	10.4	10.76	0.05				0.6	3	4
9/21	22.1	10.4	10.3	0.04				0.6	2	2
10/20	8.6	7.4	8.52	6.95				2.3	3	3



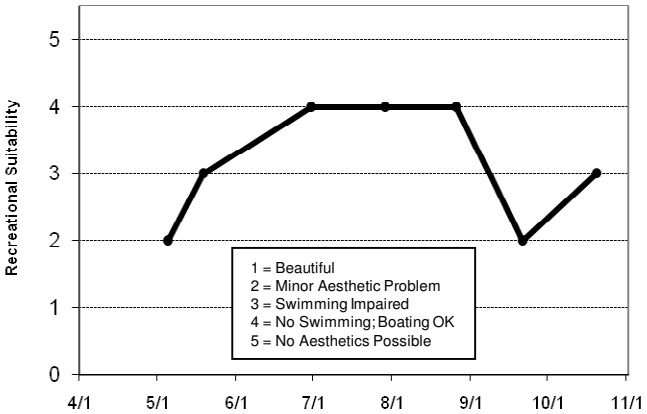
Lake Water Quality Grades Based on Summertime Averages

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	D	D	C	D		
Chlorophyll a						C	C	D	B	C		
Secchi Depth						D	C	C	C	C	C	C
Lake Grade						**C**	**C**	**D**	**C**	**C**		

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

Source: Metropolitan Council and STORET data



Bass Lake (27-0098) *Shingle Creek Watershed Management Commission*

Bass Lake is located in the City of Plymouth (Hennepin County). The lake has a surface area of 194 acres and a watershed area of 3,100 acres, giving a large watershed-to-lake area ratio of 16:1. 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)	63.4	23.0	113.0	C
CLA (µg/l)	28.2	3.8	61.0	C
Secchi (m)	1.3	0.6	2.4	C
TKN (mg/l)	1.42	0.81	1.90	
			Lake Grade	C

The 2009 lake grade was a C, and all three parameters were also a C, which is consistent with the historical database. Overall, the lake appears represented well by a lake grade of C since 1994.

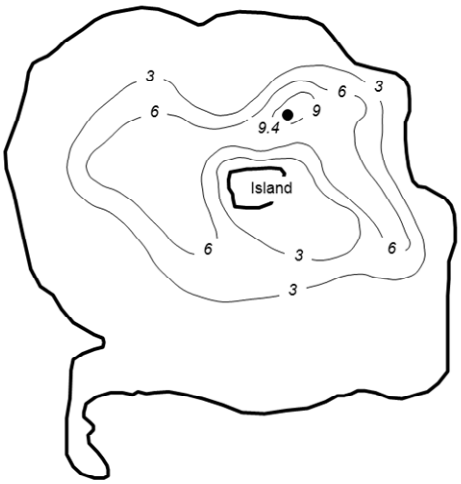
Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

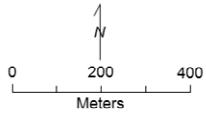
If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.

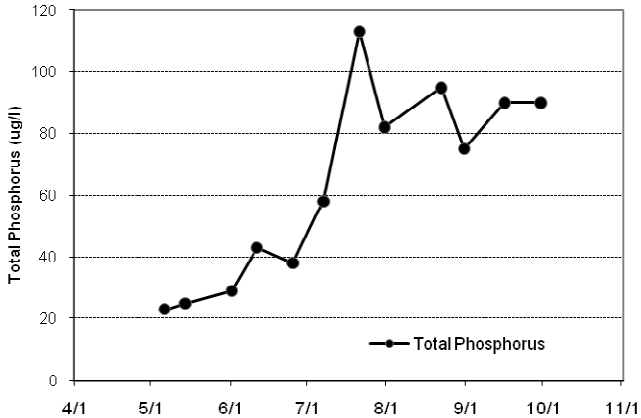
Bass Lake
Plymouth, Hennepin Co.

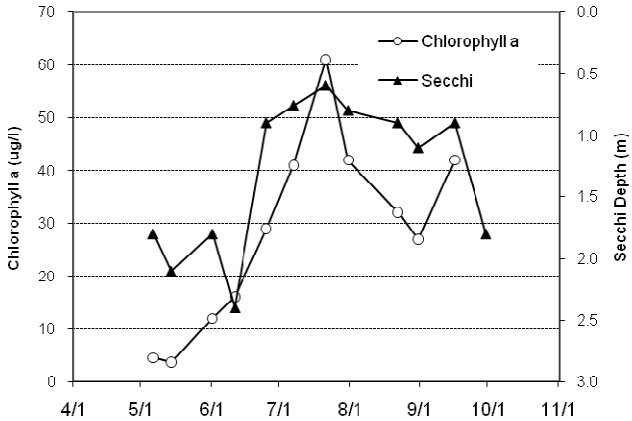
LAKE ID: 270098-00
WMO: Shingle Creek
Volunteer: Marvin Groth

● Sampling site
Contours in meters



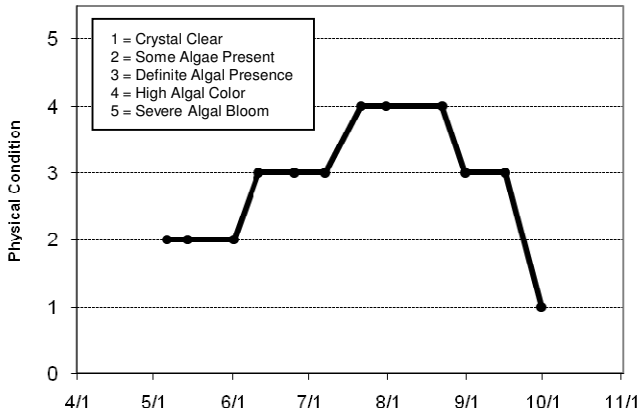






2009 Data

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				4.6	23		1.8	2	1
5/14	15.1				3.8	25		2.1	2	2
6/1	19.2				12	29		1.8	2	2
6/11	17.9				16	43		2.4	3	3
6/25	28.2				29	38		0.9	3	3
7/7	25.4				41	58		0.8	3	3
7/21	23.5				61	113		0.6	4	4
7/31	23.1				42	82		0.8	4	4
8/22	22.1				32	95		0.9	4	3
8/31	21.6				27	75		1.1	3	3
9/16	23.1				42	90		0.9	3	3
9/30	16.2					90		1.8	1	1



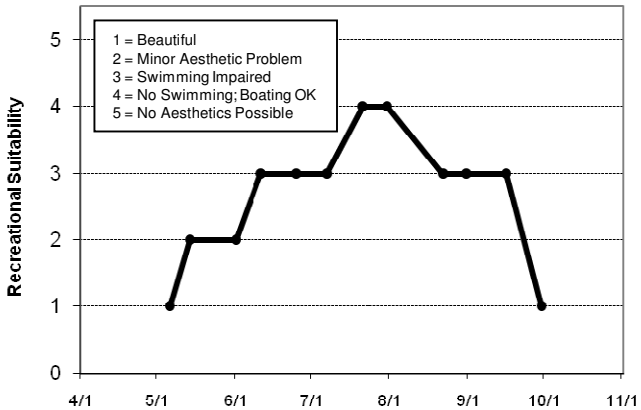
Lake Water Quality Grades Based on Summertime Averages

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			C			C		C		C		C
Chlorophyll a			C			C		C		C		C
Secchi Depth			C			C	D	C	C	C		C
Lake Grade			**C**			**C**		**C**		**C**		**C**

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

Source: Metropolitan Council and STORET data



Bass Lake (82-0035) *Carnelian - Marine - St. Croix Watershed District*

Bass Lake is an 81-acre lake located within May Township (Washington County). The maximum depth of the lake is 4.3 m (roughly 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.

On each sampling day the lake was monitored for secchi transparency, and 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*
Secchi (m)	2.5	1.7	4.0	B

The lake did not receive a lake grade for 2008 because only secchi depth (water clarity) data was collected. The lake's water clarity was similar in 2008 as it was in 2007. The water clarity of recent years appears to be better than it was in the 1990's. The water clarity since 2002 has been characterized by mostly B grades, whereas the water clarity of the 1990's was marked by C grades only.

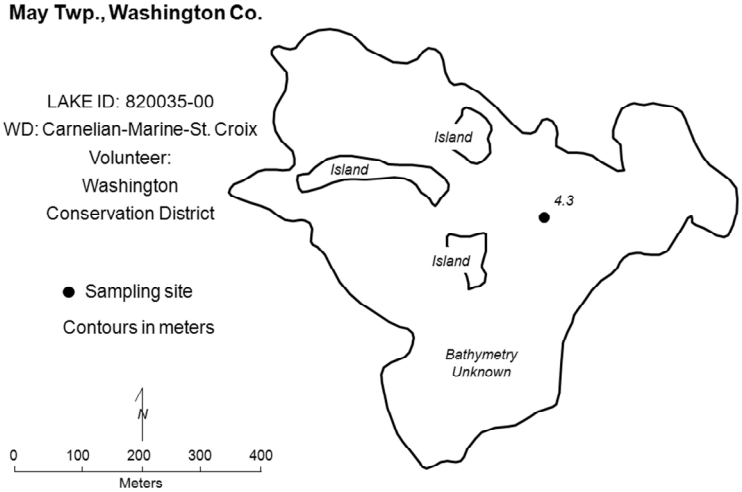
Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

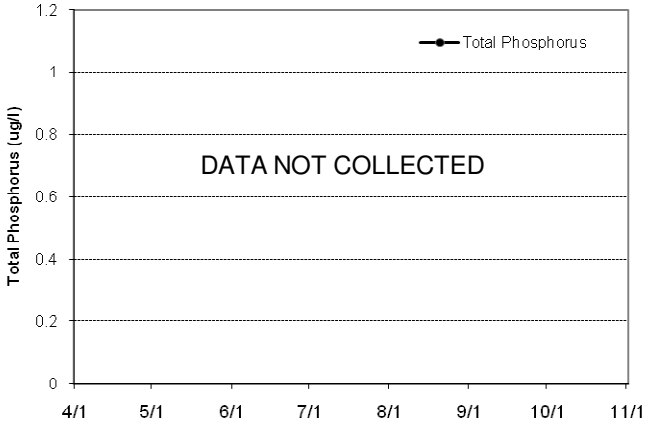
If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.

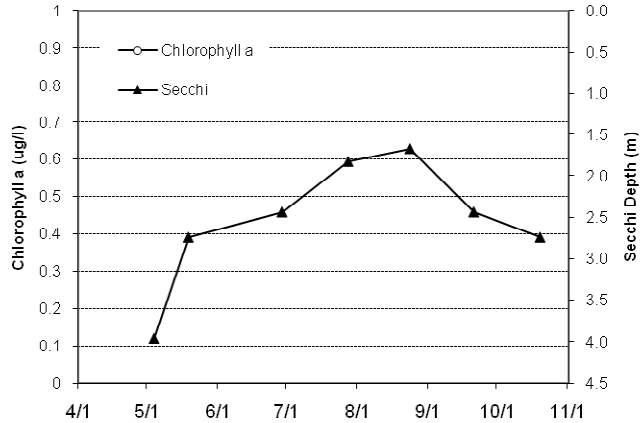
Bass Lake
May Twp., Washington Co.

LAKE ID: 820035-00
WD: Carnelian-Marine-St. Croix
Volunteer:
Washington
Conservation District

● Sampling site
Contours in meters

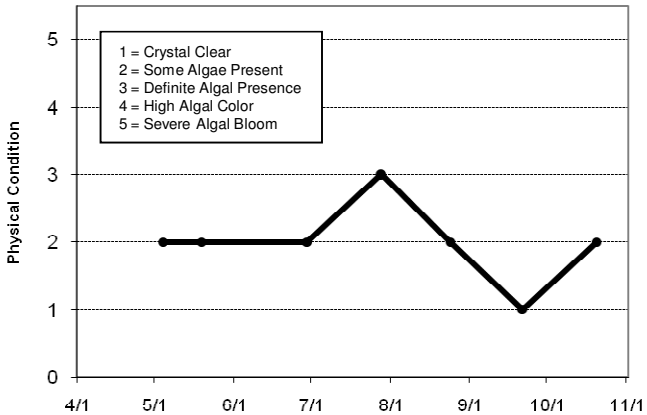






2009 Data

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
5/4	15.5	13.9	10.73	0.07				4.0	2	1
5/19	18.2	16.3	10.58	0.11				2.7	2	2
6/29	23.2	20.9	8.31	0.08				2.4	2	2
7/28	23.1	19.9	9.01	0.06				1.8	3	3
8/24	22.2	20.7	7.3	0.08				1.7	2	3
9/21	22.6	21.7	6.38	0.08				2.4	1	1
10/20	8.6	8.5	10	0.45				2.7	2	2

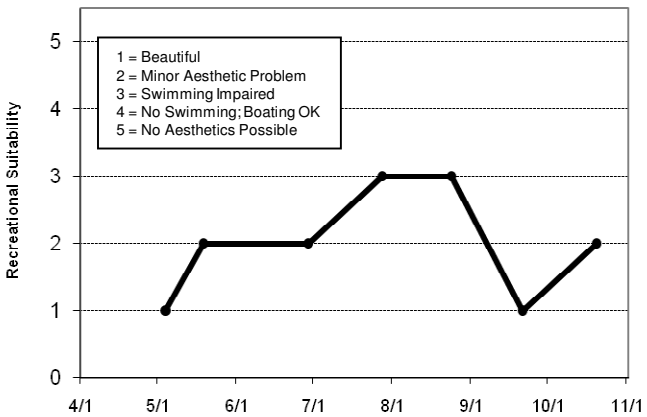


Lake Water Quality Grades Based on Summertime Averages

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

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

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



Source: Metropolitan Council and STORET data

Bass Lake [West] (82-0123) *Browns Creek Watershed District*

Bass Lake (west) is located west of Joliet Lane in Grant Township. There is 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.

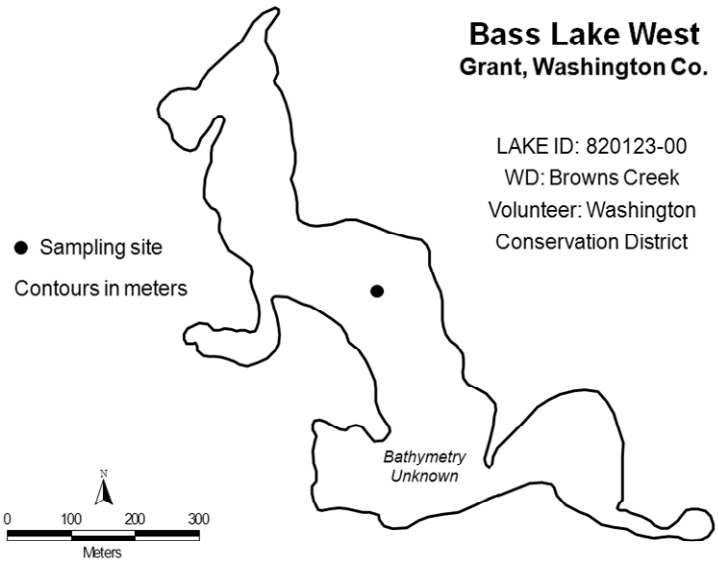
2009 summer (May-September) data summary

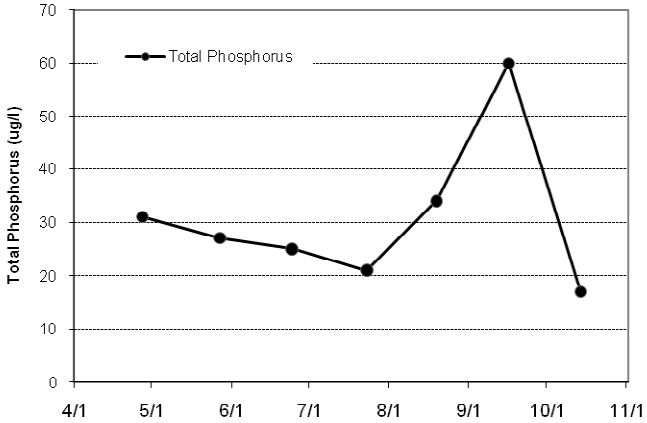
Parameter	*Mean*	*Minimum*	*Maximum*	*Grade*
TP (µg/l)	33.4	21.0	60.0	C
CLA (µg/l)	12.3	5.7	32.0	B
Secchi (m)	1.7	1.4	2.1	C
TKN (mg/l)	0.96	0.84	1.10	
			Lake Grade	C

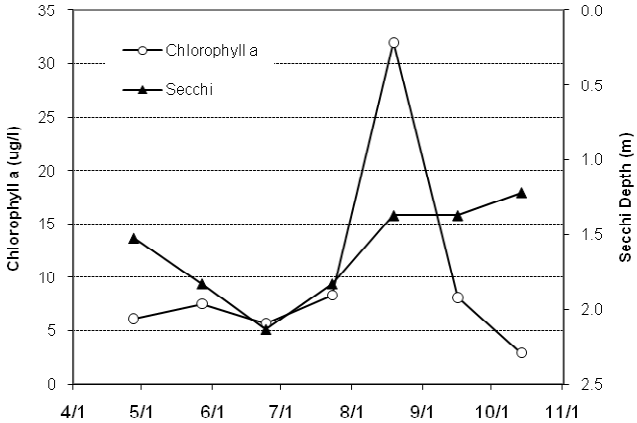
The lake received a lake grade of C for 2009 which is lower than the previous 3 years. Given that there are 4 years of water quality data available, additional monitoring is necessary to determine water quality trends.

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.

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.

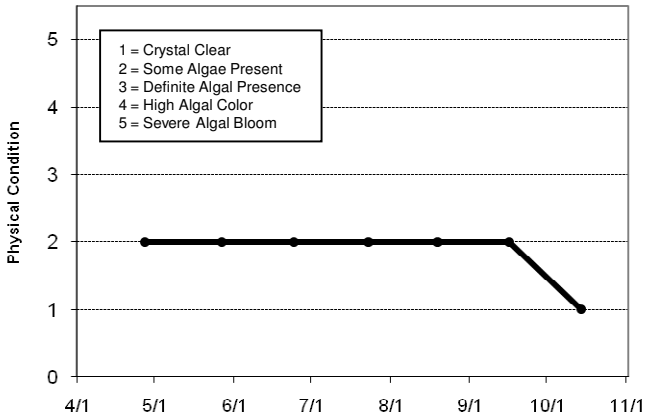






2009 Data

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
4/27	12	12.1	9.45	9.98	6.1	31		1.5	2	3
5/27	18.5	18.5	6.98	2.3	7.5	27		1.8	2	3
6/24	26.6	22.2	8.44	0.13	5.7	25		2.1	2	4
7/23	22.3	20.8	10.6	0.45	8.3	21		1.8	2	3
8/19	23.3	23	7.04	1.61	32	34		1.4	2	3
9/16	22.7	22.7	7.46	3.64	8.1	60		1.4	2	2
10/14	6	6.1	12.35	10.99	2.9	17		1.2	1	2



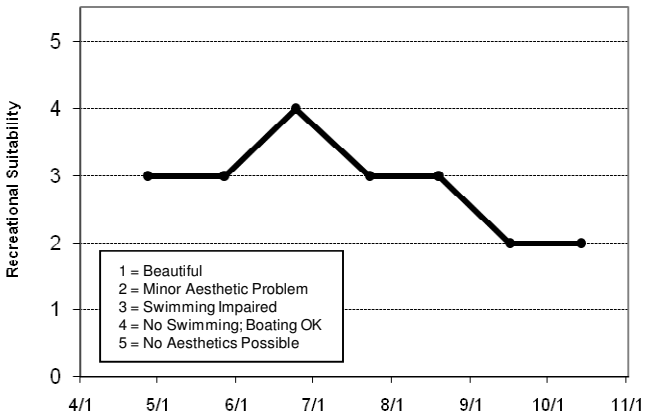
Lake Water Quality Grades Based on Summertime Averages

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												
Chlorophyll a												
Secchi Depth												
Lake Grade												

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

Source: Metropolitan Council and STORET data



Bass Lake [East] (82-0124) *Browns Creek Watershed District*

Bass Lake (east) is located east of Joliet Lane in Grant Township. There is 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)	51.8	39.0	71.0	C
CLA (µg/l)	9.6	6.6	18.0	A
Secchi (m)	2.5	1.8	3.2	B
TKN (mg/l)	1.09	0.95	1.20	
			Lake Grade	B

The lake received a lake grade of B for 2009. The lake received a CLA grade of A, which was the highest grade received for the past 4 years. But, given that there are 4 years of water quality data available, additional monitoring is necessary to determine water quality trends.

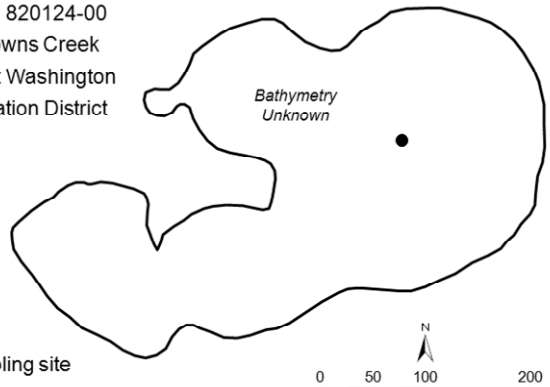
Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

The Fisheries Section of the Minnesota Department of Natural Resources (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.

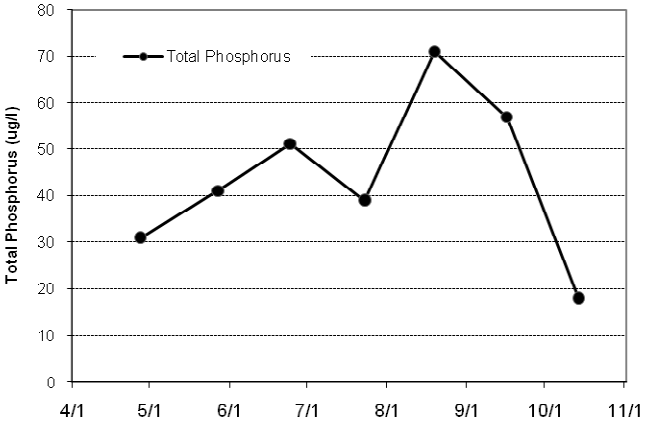
Bass Lake East
Grant, Washington Co.

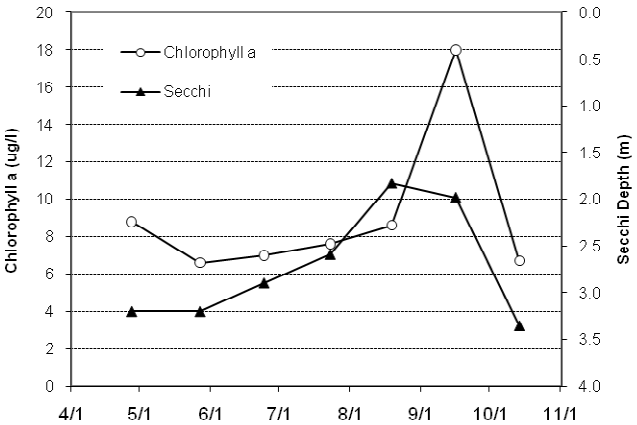
LAKE ID: 820124-00
WD: Browns Creek
Volunteer: Washington Conservation District



● Sampling site

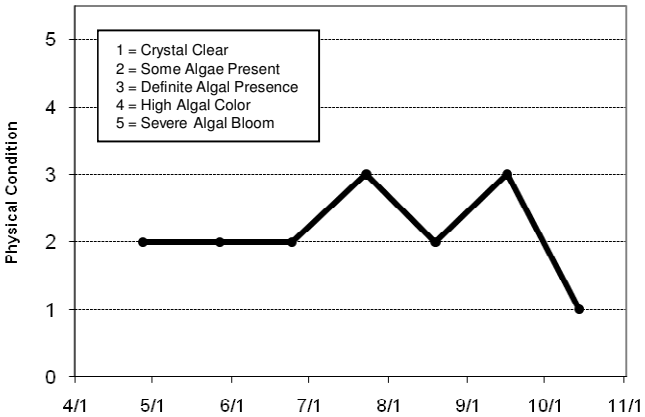
Contours in meters





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
4/27	13	12.7	9.95	0.11	8.8	31		3.2	2	2
5/27	19	16.6	8.58	0.09	6.6	41		3.2	2	4
6/24	26.6	17.1	9.14	0.06	7	51		2.9	2	3
7/23	22.5	19.3	10.53	0.08	7.6	39		2.6	3	3
8/19	23	19.2	6.42	0.06	8.6	71		1.8	2	2
9/16	22.6	19.7	7.5	0.05	18	57		2.0	3	4
10/14	6.4	6.8	12.47	0.15	6.7	18		3.4	1	1



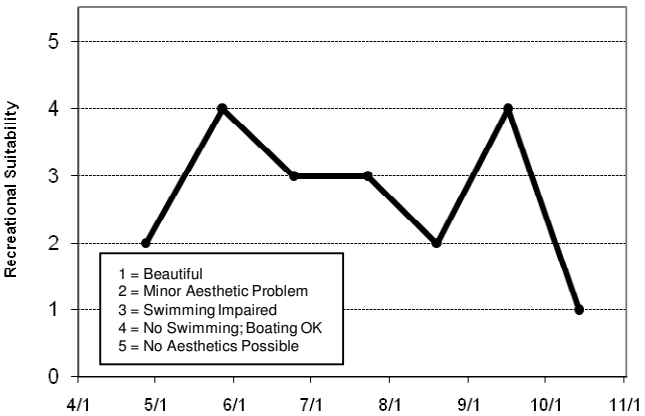
Lake Water Quality Grades Based on Summertime Averages

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												
Chlorophyll a												
Secchi Depth												
Lake Grade												

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

Source: Metropolitan Council and STORET data



Bavaria Lake (10-0019) *Carver County Environmental Services*

Lake Bavaria is located in the City of Chaska (Carver County). It is considered a Priority Lake by the Metropolitan Council for its high regional recreation value (METC 2007). The 200-acre lake has a mean and maximum depth of 5.6 m (18 ft) and 18.3 m (60 ft), respectively. The lake has a surface area of 200 acres and a watershed area of 711 acres, giving a watershed-to-lake area ratio of 3.6:1, which is relatively low. The larger the ratio the greater the potential stress put on the lake from surface runoff. The DNR has designated the lake as being infested with Eurasian water milfoil (*Myriophyllum spicatum*). The MPCA has listed the lake as impaired for mercury content in fish.

The lake has been enrolled in the CAMP for 14 years. The lake also has been monitored by Council staff in the past, and it has been involved in the MPCA's volunteer Secchi transparency program. Additionally, the lake was included within the MPCA's Lake Assessment Program (LAP) in 2001.

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)	39.1	19.0	79.0	C
CLA (µg/l)	9.7	2.0	19.0	A
Secchi (m)	2.2	1.0	4.0	B
TKN (mg/l)	1.36	0.87	1.80	
			Lake Grade	B

The lake received a lake grade of B for 2009 which is consistent with its historical database. The database shows that the historic lake grades have fluctuated in the A to C range, with B being the most common grade received.

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.

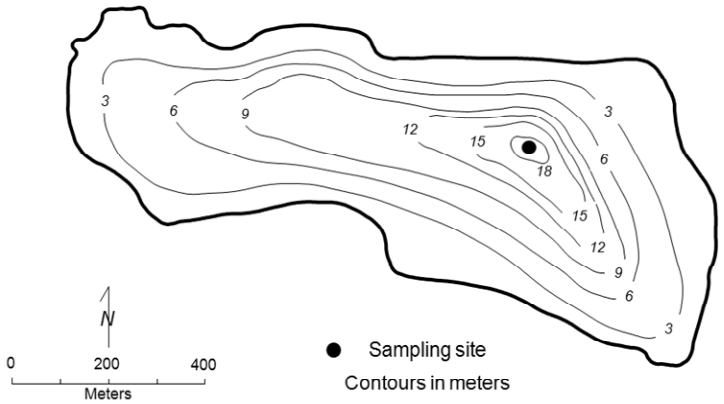
The Fisheries Section of the Minnesota Department of Natural Resources (MDNR) has conducted a fisheries survey on the lake. Information on the survey can be obtained through the MDNR Fisheries Section by calling (651) 259-5831 or by downloading the information off the Internet at http://www.dnr.state.mn.us/lakefind/.

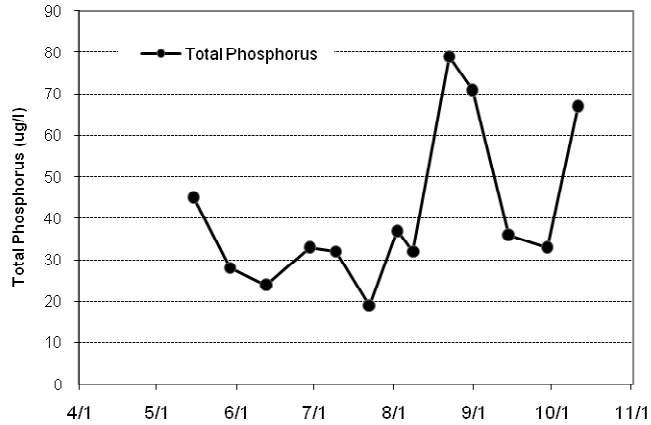
If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.

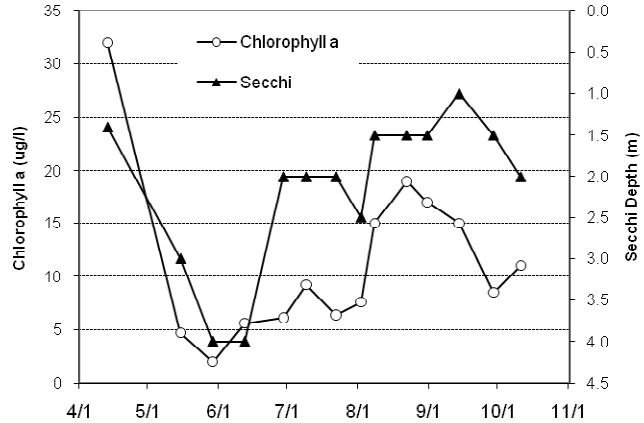
Lake Bavaria

Chaska/Laketown Twp., Carver Co.

LAKE ID: 100019-00
WMO: Hazeltine-Bavaria
Volunteer: John Ryski

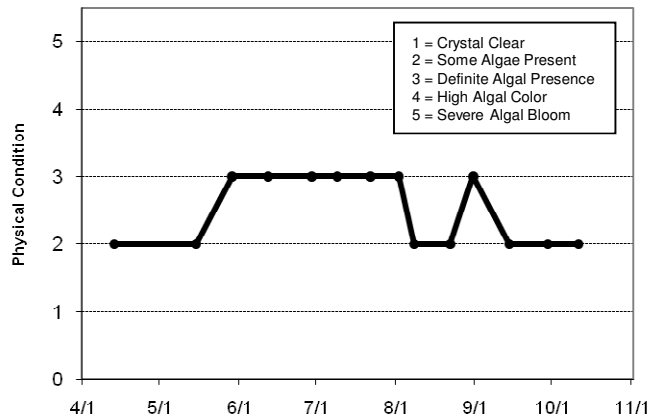






2009 Data

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	7.1		9.23		32			1.4	2	2
5/15	14				4.7	45		3.0	2	3
5/29	17				2	28		4.0	3	2
6/12	18				5.6	24		4.0	3	3
6/29	20				6.1	33		2.0	3	2
7/9	22				9.2	32		2.0	3	3
7/22	22				6.4	19		2.0	3	3
8/2	20				7.6	37		2.5	3	3
8/8	20				15	32		1.5	2	3
8/22	20				19	79		1.5	2	3
8/31	21				17	71		1.5	3	3
9/14	22				15	36		1.0	2	3
9/29	20				8.5	33		1.5	2	3
10/11	10				11	67		2.0	2	2



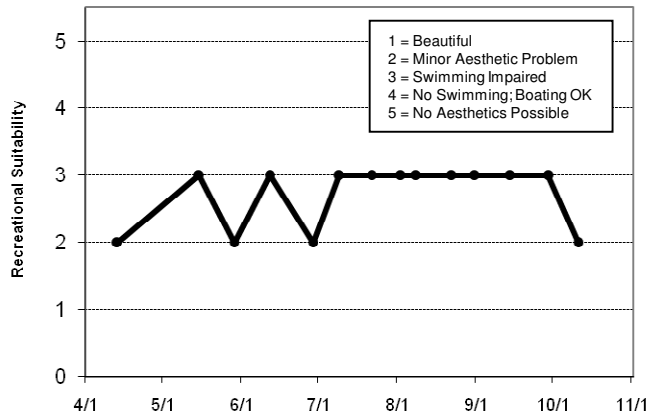
Lake Water Quality Grades Based on Summertime Averages

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

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

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

Source: Metropolitan Council and STORET data



Bay Pond (Bay Lake) (82-0011) *Valley Branch Watershed District*

Bay Pond Lake is a land-locked lake located within Baytown Township (Washington County). It has a surface area of 10.2 acres. The maximum depth of the lake is approximately 1.0 m (3.3 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. The lake's surface area and watershed area (849 acres) give a very large watershed-to-lake ratio of 83:1. 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)	347.0	160.0	622.0	F
CLA (µg/l)	288.8	48.0	590.0	F
Secchi (m)	0.3	0.1	0.6	F
TKN (mg/l)	4.68	2.00	7.60	
			Lake Grade	F

The lake received a lake grade of F for 2009 and in the previous two years. There are 4 years of data, which is an insufficient quantity to determine water quality trends. Additional monitoring is necessary 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.

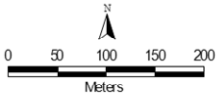
If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.

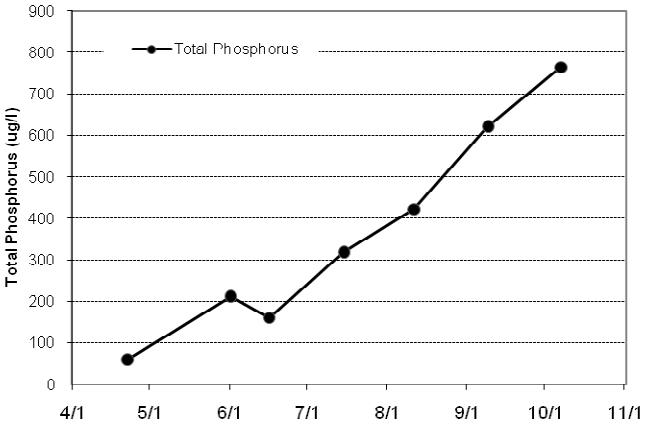
Bay Pond (Bay Lake)

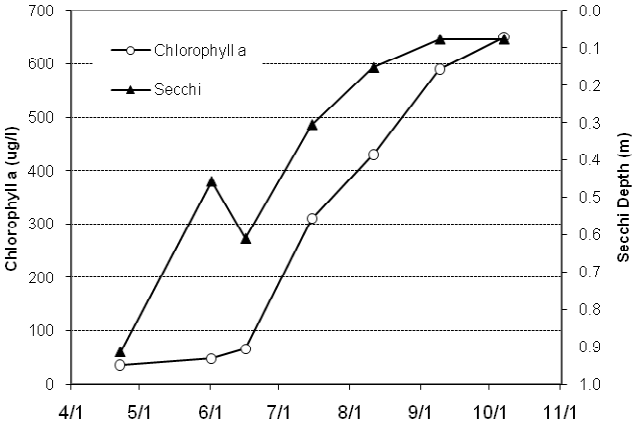
Baytown Twp., Washington Co.

LAKE ID: 820011-00
WD: Valley Branch
Volunteer: Washington Conservation District

● Sampling site
Contours in meters

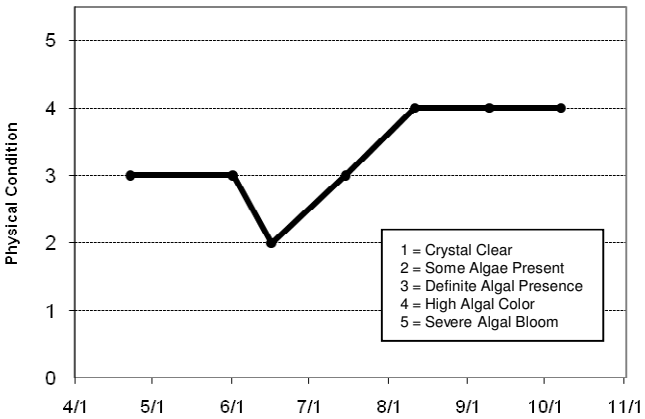






2009 Data

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
4/22	12.2	11.8	11.91	0.14	36	60		0.9	3	4
6/1	23.3	20	9.36	5.6	48	212		0.5	3	4
6/16	23.9	18.7	12.92	0.51	66	160		0.6	2	3
7/15	22.1	22	6.98	3.59	310	319		0.3	3	4
8/11	23.2	21.7	6.84	0.12	430	422		0.2	4	4
9/9	22.8	19.5	10.99	0.16	590	622		0.1	4	4
10/7	11.3	10.2	13.17	0.11	650	764		0.1	4	4



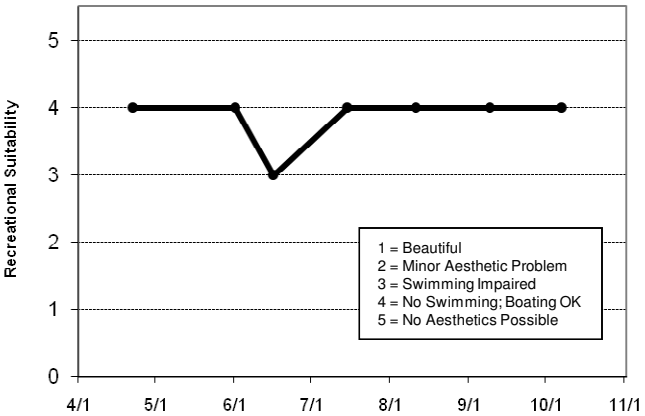
Lake Water Quality Grades Based on Summertime Averages

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	F	F	F
Chlorophyll a			F	F	F	F
Secchi Depth			F	D	F	F
Lake Grade			**F**	**F**	**F**	**F**

Source: Metropolitan Council and STORET data



Benton Lake (10-0069) *Carver County Environmental Services*

Benton Lake is located within Benton Township (Carver County). The maximum depth of the lake is 2.0 m (roughly 6.5 feet). Because of the shallowness of the lake, the entire area is considered littoral zone (area of aquatic plant dominance) and it does not maintain a thermocline (a density gradient owed to changing water temperatures throughout the lake's water column).

The lake has a surface area of 115 acres and a watershed of 322 acres, which gives a watershed-to-lake area ratio of 2.8:1. The larger the ratio the greater the potential stress put 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)	196.4	60.0	398.0	F
CLA (µg/l)	94.3	46.0	230.0	F
Secchi (m)	0.2	0.1	0.3	F
TKN (mg/l)	4.14	1.10	7.70	
			Lake Grade	F

The lake received a lake grade of F for 2009, which is similar to the lake grades received for the past decade. The lake's water quality appears to be best represented 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.

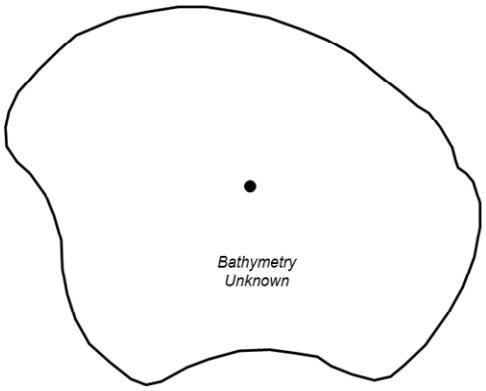
If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.

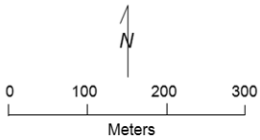
Lake Benton

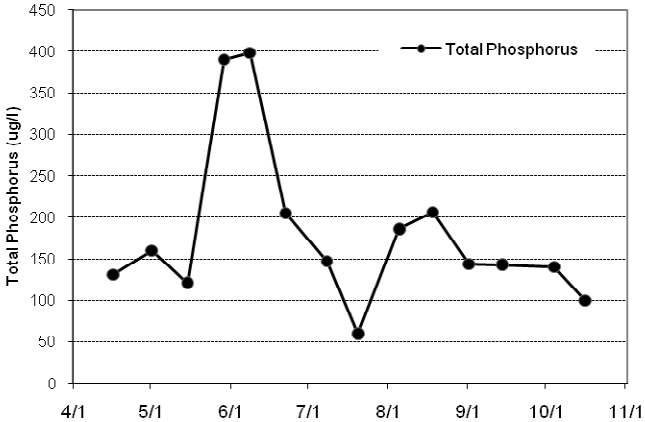
Cologne, Carver Co.

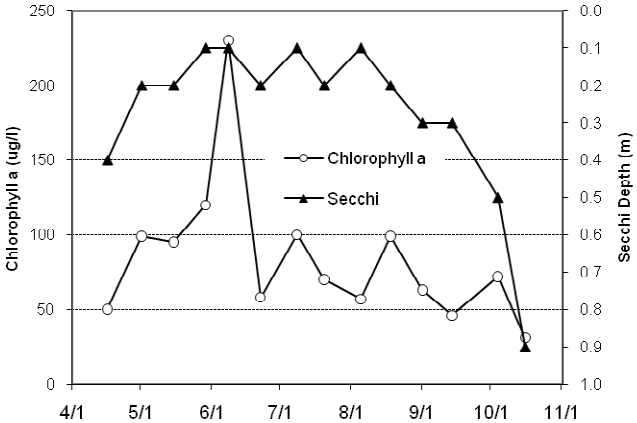
Lake ID: 100069-00
WMO: Carver Creek
Volunteers: Don Smith & Jacob Steinbauer

● Sampling site
Contours in meters



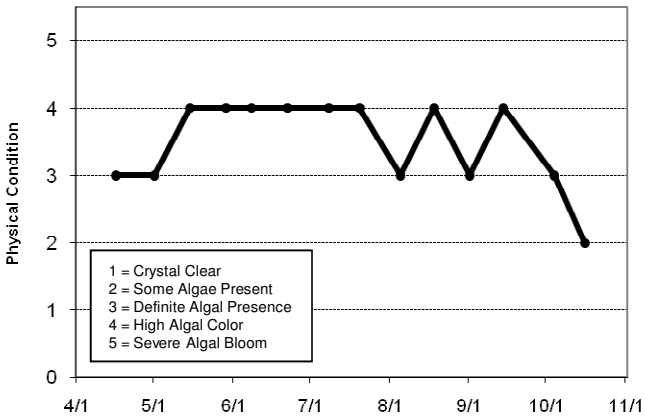






2009 Data

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	15				50	131		0.4	3	4
5/1	11				99	160		0.2	3	4
5/15	15				95	121		0.2	4	4
5/29	20				120	390		0.1	4	4
6/8	15				230	398		0.1	4	4
6/22	25				58	205		0.2	4	4
7/8	26				100	147		0.1	4	4
7/20	21				70	60		0.2	4	4
8/5	25				57	186		0.1	3	4
8/18	25				99	206		0.2	4	4
9/1	21				63	144		0.3	3	4
9/14	20				46	143		0.3	4	4
10/4	11				72	140		0.5	3	4
10/16	9				31	100		0.9	2	4

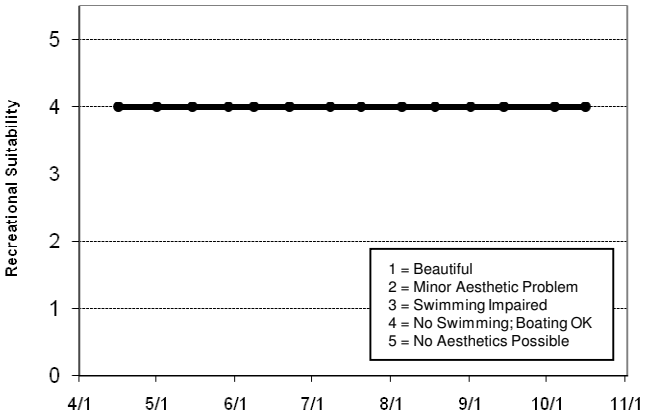


Lake Water Quality Grades Based on Summertime Averages

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	F	F		F
Chlorophyll a								F	F	F		F
Secchi Depth			C					F	F	F		F
Lake Grade								**F**	**F**	**F**		**F**

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



Source: Metropolitan Council and STORET data

Benz Lake (82-0120) *Browns Creek Watershed District*

Benz Lake is a 36-acre lake located in Grant Township (Washington County) with a maximum depth of approximately 2.7 m (about 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.

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)	91.6	65.0	130.0	D
CLA (µg/l)	24.7	2.2	60.0	C
Secchi (m)	1.2	0.6	1.7	D
TKN (mg/l)	1.79	1.50	2.10	
			Lake Grade	C

The lake received a lake grade of D in 2009 which was a similar to some grades received in the past. There are only 5 years of water quality data in the lake's database, so additional monitoring is needed to determine water quality trends.

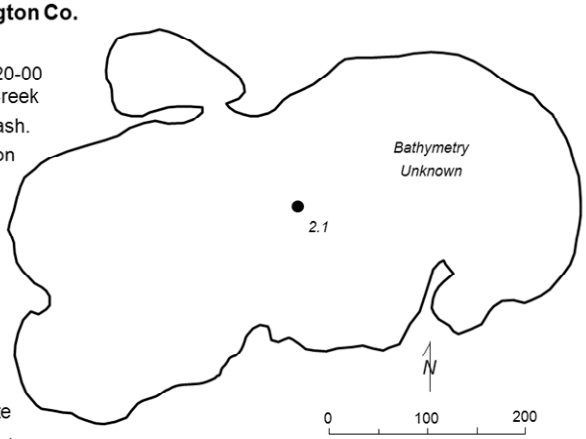
Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

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.

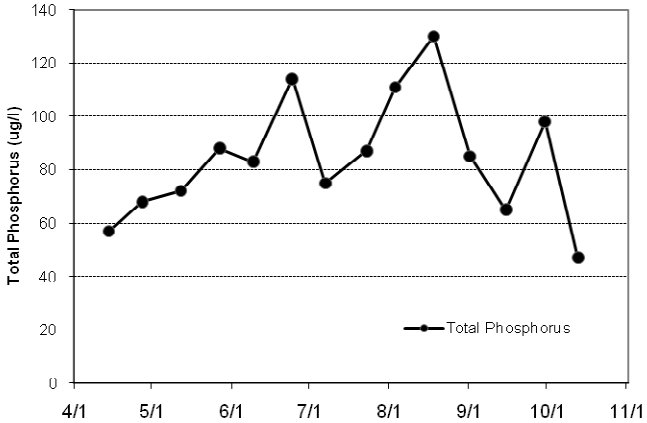
Benz Lake

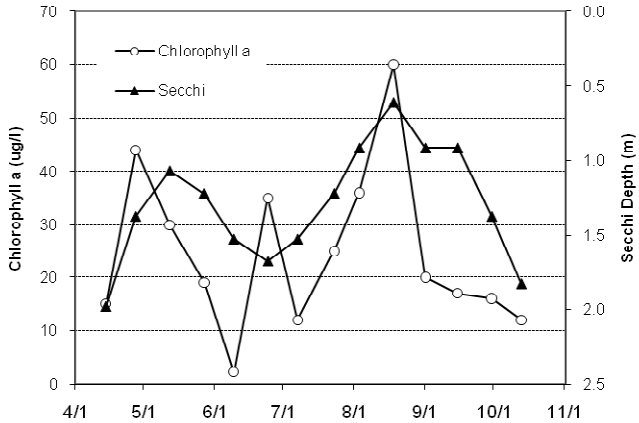
Grant, Washington Co.

Lake ID: 820120-00
WD: Browns Creek
Volunteer: Wash. Conservation District



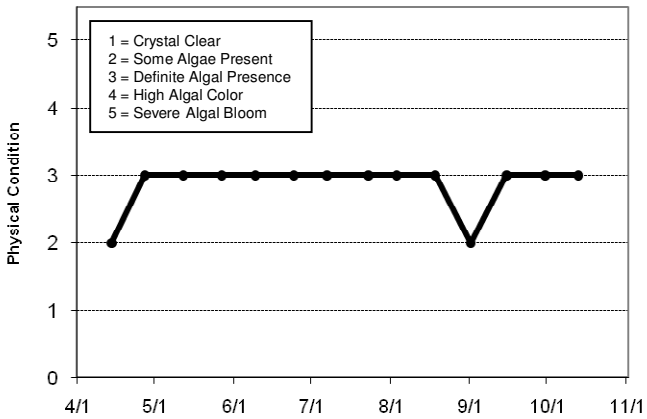
● Sampling site
Contours in meters





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
4/14	13.1	11.6	11.7	11.52	15	57		2.0	2	1
4/27	12.8	12.8	10.91	0.28	44	68		1.4	3	3
5/12	15.6	15.4	10.01	0.14	30	72		1.1	3	4
5/27	19.1	19.2	7.44	0.11	19	88		1.2	3	4
6/9	16.5	16.1	7.35	0.11	2.2	83		1.5	3	4
6/24	27.5	24.9	7.35	0.08	35	114		1.7	3	3
7/7	24.7	23.3	10.73	0.11	12	75		1.5	3	4
7/23	23.3	21.1	11.91	0.11	25	87		1.2	3	4
8/3	24.8	22.2	10.52	0.11	36	111		0.9	3	4
8/18	23.7	23.5	7.12	0.09	60	130		0.6	3	4
9/1	22.2	20.3	9.53	0.03	20	85		0.9	2	3
9/15	23.9	23.1	7.61	0.12	17	65		0.9	3	4
9/30	13.6	14	10.04	0.12	16	98		1.4	3	3
10/13	7	7.1	12.24	0.17	12	47		1.8	3	3



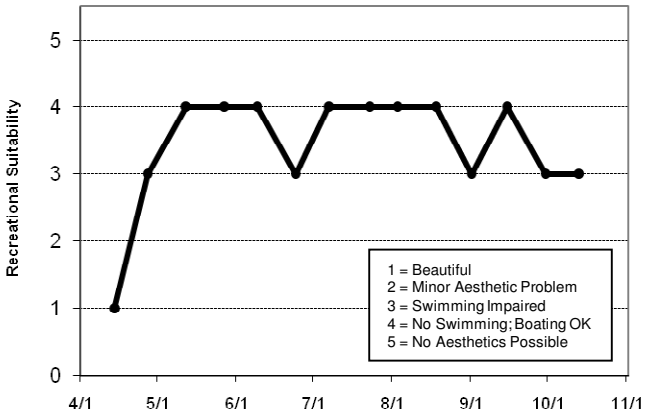
Lake Water Quality Grades Based on Summertime Averages

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							F					
Lake Grade												

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

Source: Metropolitan Council and STORET data



Beutel Pond (82-0399) *Valley Branch Watershed District*

Beutel Pond is located in the City of Lake Elmo. There are little bathymetric data available for the lake other than that the maximum depth is 1.1 m (3.5 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.A search through the STORET system provided no historical water quality data.

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)	69.7	55.0	96.0	NA
CLA (µg/l)	24.3	8.8	54.0	NA
Secchi (m)	0.7	0.6	0.9	NA
TKN (mg/l)	1.67	1.30	1.90	
			Lake Grade	NA

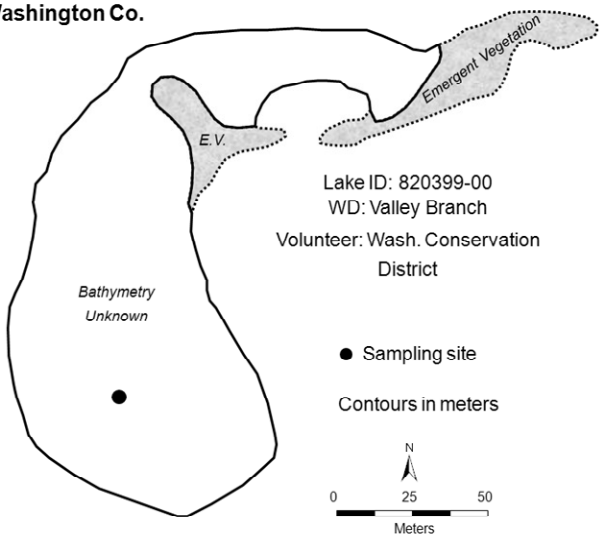
There were insuffcient data to calculate the water quality grades (at least 5 data points for the summer-time period are required). Therefore a lake grade was not determined either.

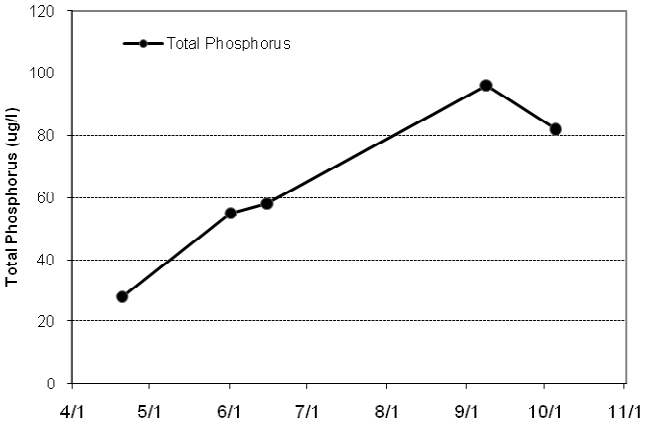
Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

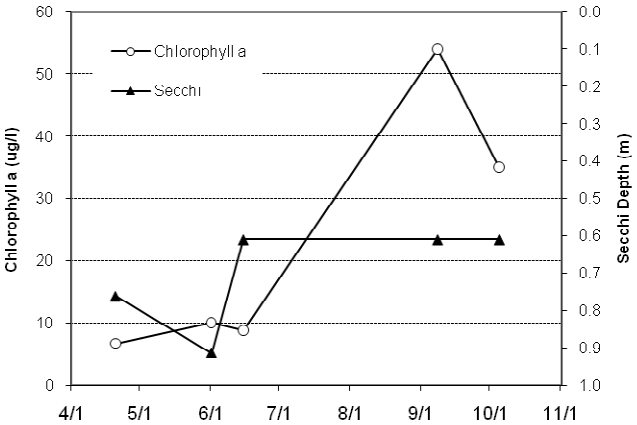
If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.

Beutel Pond

Lake Elmo, Washington Co.

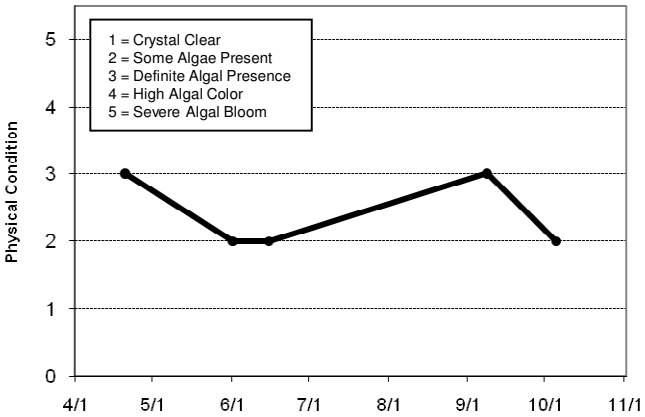






2009 Data

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	12.5	12.6	5.33	4.67	6.7	28		0.8	3	4
6/1	20.7	19.8	4.6	0.05	10	55		0.9	2	4
6/15	21.5	20.5	5.33	0.09	8.8	58		0.6	2	4
9/8	17.6		5.86		54	96		0.6	3	4
10/5	10.9		7.79		35	82		0.6	2	4



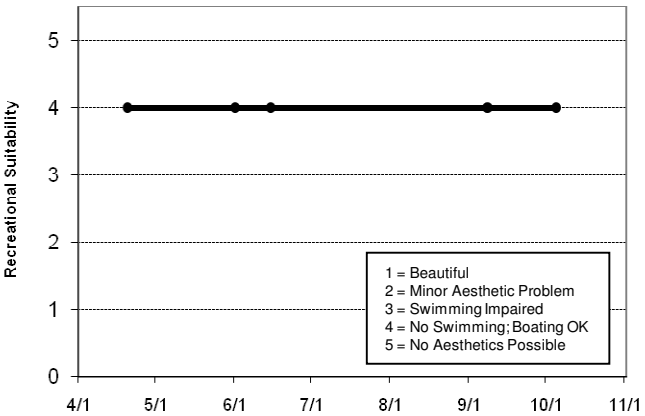
Lake Water Quality Grades Based on Summertime Averages

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												
Chlorophyll a												
Secchi Depth												
Lake Grade												

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

Source: Metropolitan Council and STORET data



Big Carnelian Lake (82-0049) *Carnelian - Marine - St. Croix Watershed District*

Big Carnelian Lake is located in May Township (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 lake has a maximum and mean depth of 20 m (66 feet) and 9.8 m (32 feet), respectively. The lake has a surface area of 455 acres and a watershed of 1,900 acres, giving a small watershed-to-lake area ratio of 4.2:1. The larger the ratio the greater the potential stress put on the lake from surface.

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

2009 summer (May-September) data summary

Parameter	*Mean*	*Minimum*	*Maximum*	*Grade*
Secchi (m)	6.2	5.2	7.9	A

The lake received a grade of A for water clarity for 2009, which is consistent with the historical database. A lake grade was not determined because total phosphorus and chlorophyll-a were not monitored in 2009.

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.

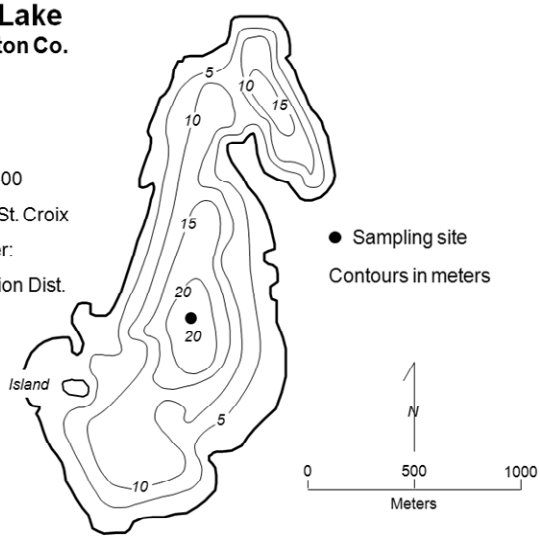
Big Carnelian Lake
May Twp., Washington Co.

LAKE ID: 820049-00

WD: Carnelian-Marine-St. Croix

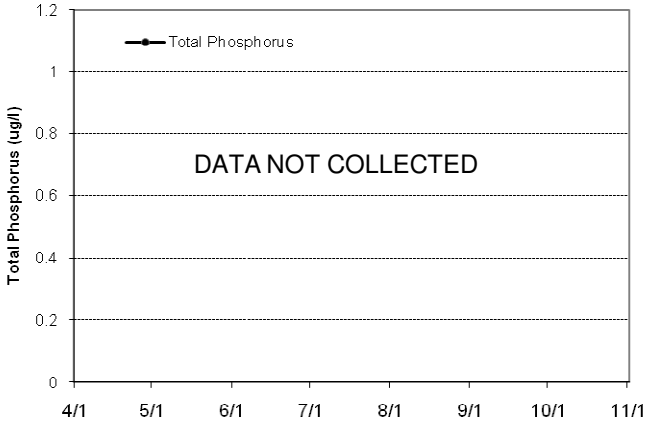
Primary Volunteer:

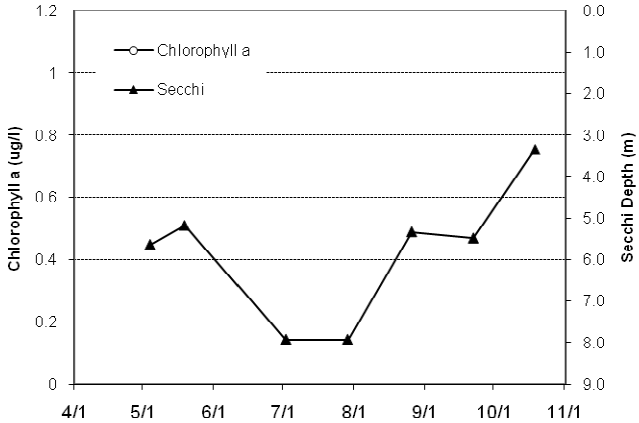
Washington Conservation Dist.



● Sampling site

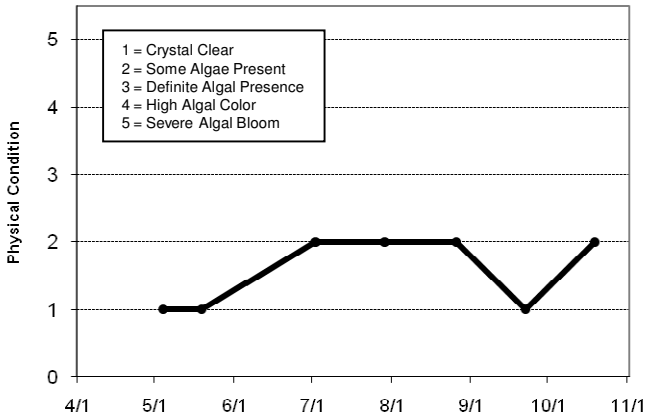
Contours in meters





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
5/4	12.5	5.5	11.77	0.02				5.6	1	1
5/19	14.7	7	11.09	0.08				5.2	1	1
7/2	21	7.6	8.28	0.05				7.9	2	1
7/29	22.5	8.3	8.84	0.03				7.9	2	1
8/26	23.3	8.6	8.93	0.04				5.3	2	1
9/22	22.6	8.7	8.63	0.02				5.5	1	1
10/19	11	8.1	10.05	0.05				3.4	2	1

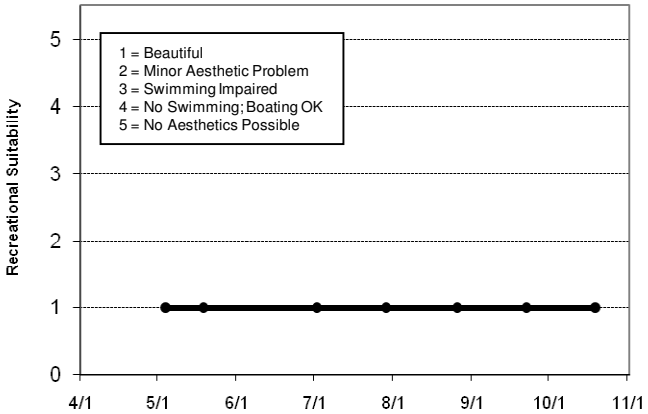


Lake Water Quality Grades Based on Summertime Averages

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

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

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



Source: Metropolitan Council and STORET data

Big Comfort Lake (13-0053) *Comfort Lake-Forest Lake Watershed District*

Big Comfort Lake is located northeast of the City of Forest Lake in Chisago County. The lake has a maximum depth of 14.3 m (47 feet). A lake assessment was performed on the lake by the MPCA in 1994, and a lake and watershed diagnostic/feasibility study was completed by BlueWater Science in the early-2000's.

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

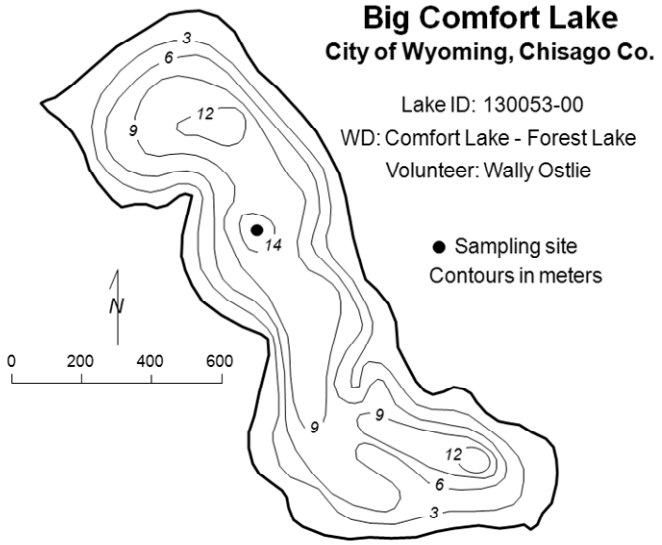
Parameter	*Mean*	*Minimum*	*Maximum*	*Grade*
TP (µg/l)	27.6	12.0	53.0	B
CLA (µg/l)	11.8	3.9	21.0	B
Secchi (m)	2.1	1.5	2.5	C
TKN (mg/l)	0.96	0.68	1.40	
			Lake Grade	B

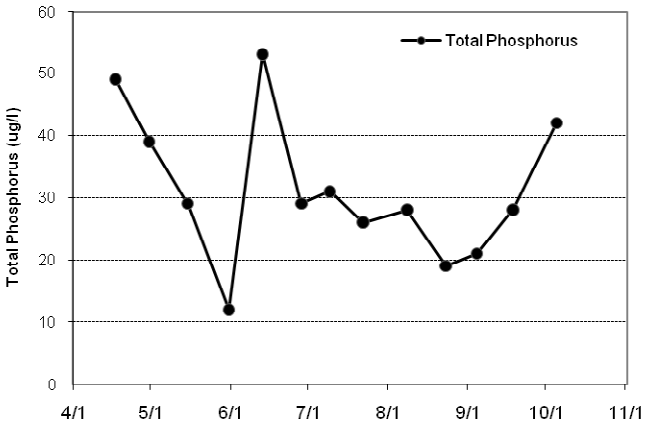
The lake received a lake grade of B for 2009, which is similar to grades received in some previous years. The lake typically receives a Secchi grade of C. Additional monitoring is recommended to determine the direction of potential trends in the water quality of the lake.

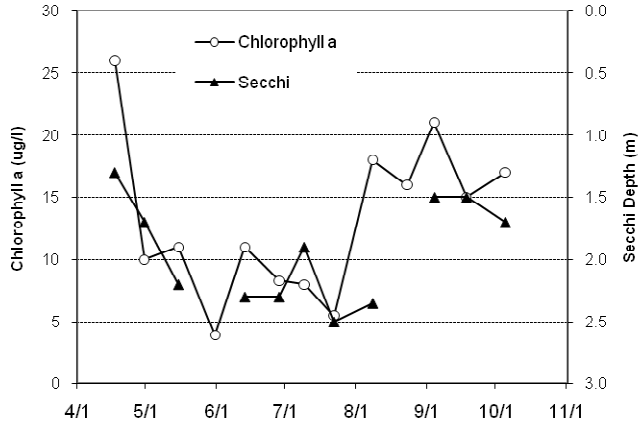
Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

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.

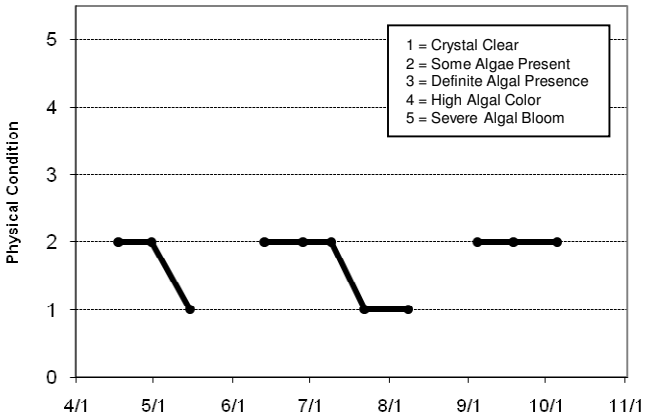






2009 Data

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
4/17	11				26	49		1.3	2	2
4/30					10	39		1.7	2	2
5/15	14.8				11	29		2.2	1	1
5/31	18.6				3.9	12				2
6/13	21.3				11	53		2.3	2	1
6/28	22.7				8.3	29		2.3	2	2
7/9	24				8	31		1.9	2	2
7/22	23.2				5.5	26		2.5	1	1
8/8	22.5				18	28		2.4	1	1
8/23					16	19				
9/4	23.4				21	21		1.5	2	2
9/18	25.5				15	28		1.5	2	2
10/5	14.6				17	42		1.7	2	2



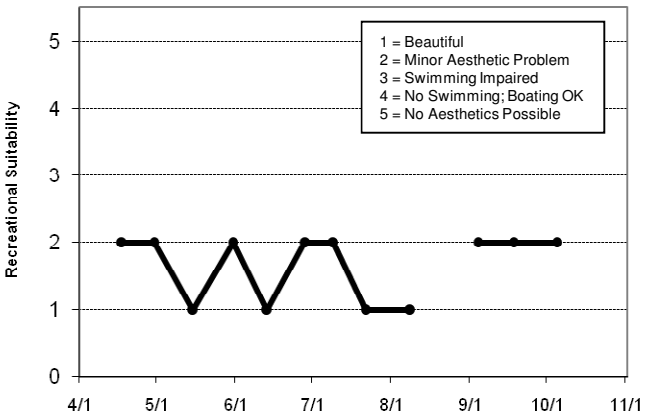
Lake Water Quality Grades Based on Summertime Averages

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

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

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

Source: Metropolitan Council and STORET data



Big Marine Lake (82-0052) *Carnelian - Marine - St. Croix Watershed District*

Big Marine Lake is located in City of Scandia (Washington County). It is considered a Priority Lake by the Metropolitan Council for its high regional recreation value (METC 2007). It has a maximum and mean depth of 15.2 m (50 ft) and 7.6 m (25 feet), respectively. The lake has a surface area of 1,706 acres and a watershed of 2,659 acres, giving a small watershed-to-lake area ratio of 1.6:1. The larger the ratio the greater the potential stress put on the lake from surface runoff. 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 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

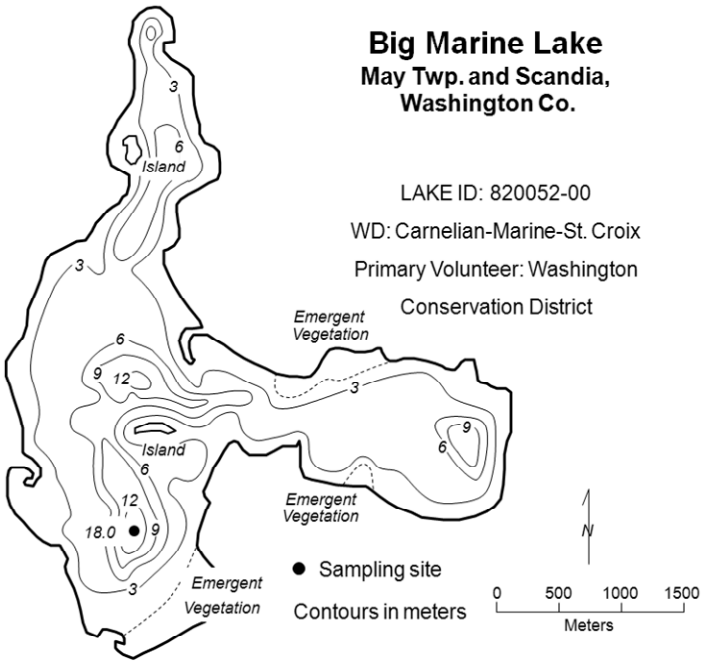
Parameter	*Mean*	*Minimum*	*Maximum*	*Grade*
Secchi (m)	4.2	2.7	6.2	A

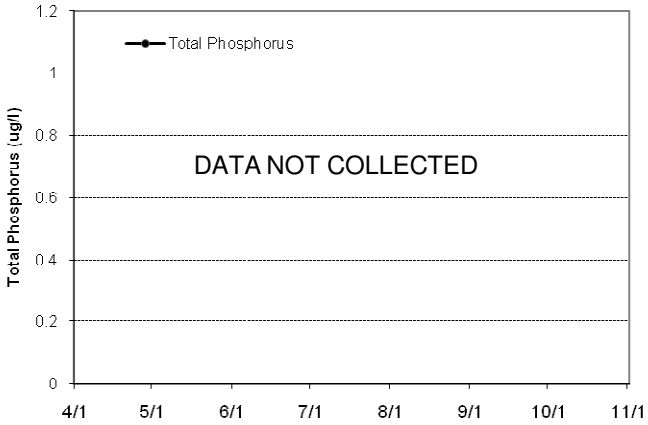
The lake received a Secchi grade of A which is consistent with the historical data.

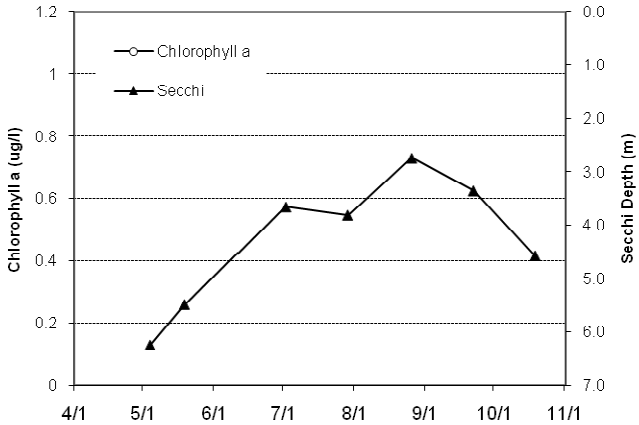
Throughout the monitoring period, the volunteer's opinions of the lake's physical condition and recreational suitability were ranked on a 1-to-5 scale. These user perception rankings are shown on the following page.

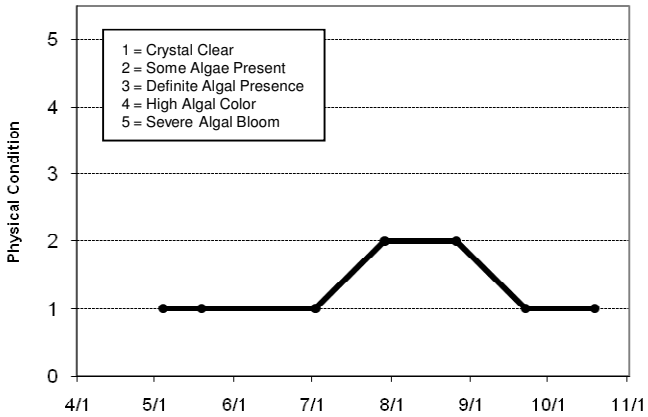
The Fisheries Section of the Minnesota Department of Natural Resources (MDNR) has conducted a fisheries survey on the lake. Information on the survey can be obtained through the MDNR Fisheries Section by calling (651) 259-5831 or by downloading the information off the Internet at http://www.dnr.state.mn.us/lakefind/.

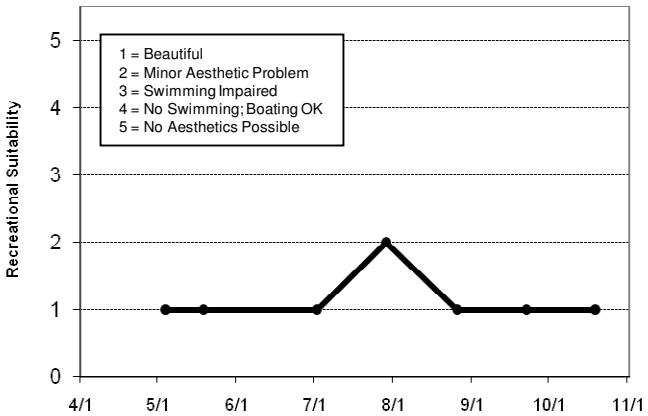
If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.











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	12.6	11.5	10.66	0.04				6.2	1	1
5/19	14.7	13.8	10.35	0.07				5.5	1	1
7/2	20.3	16.1	7.85	0.06				3.7	1	1
7/29	22.2	16.4	8.79	0.05				3.8	2	2
8/26	22.1	16.9	8.25	0.05				2.7	2	1
9/22	21.8	18.2	7.9	0.03				3.4	1	1
10/19	8.7	8.9	12.58	0.09				4.6	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	B			B					A		B
Chlorophyll a	B	B			B					A		A
Secchi Depth	B	B			B	B	B	B	C	A	C	B
Lake Grade	**B**	**B**			**B**					**A**		**B**

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

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

Source: Metropolitan Council and STORET data

Bone Lake (82-0054) *Comfort Lake-Forest Lake Watershed District*

Bone Lake is located in the City of Scandia (Washington County). It is considered a Priority Lake by the Metropolitan Council for its high regional recreation value (METC 2007). The lake has a maximum and mean depth of 9.8 m and 3.7 m (32 ft and 12 ft), respectively. The lake has a surface area of 212 acres and a watershed of 5,177 acres, giving a large watershed-to-lake area ratio of 24:1. The greater the ratio, the greater the potential stress on the lake from surface runoff. 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)	39.4	28.0	97.0	C
CLA (µg/l)	16.7	5.4	73.0	B
Secchi (m)	1.8	1.1	3.5	C
TKN (mg/l)	1.23	0.96	1.50	
			Lake Grade	C

The lake received a lake grade of C for 2009 which is consistent with the historical database. The lake appears to be represented best by a lake grade of 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.

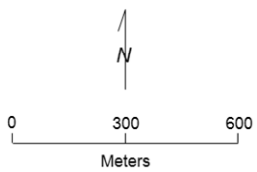
Bone Lake

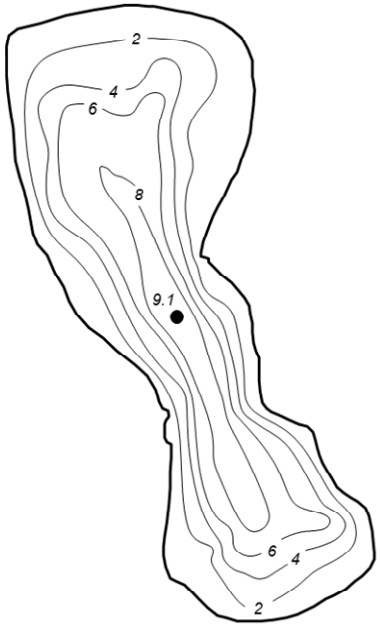
Scandia, Washington Co.

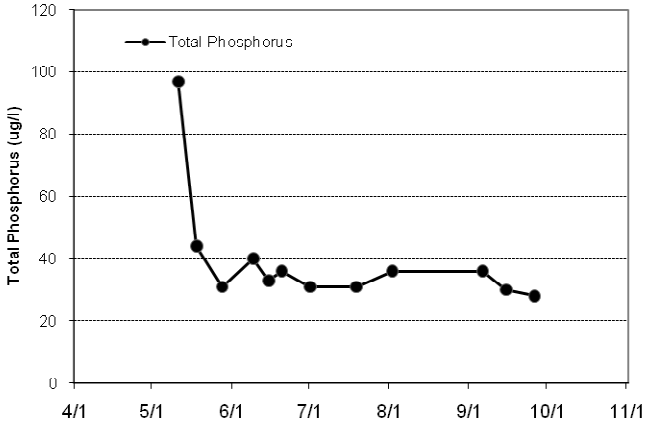
Lake ID: 820054-00
WD: Comfort Lake - Forest Lake
Volunteers: Jon Hafner & Don Jack

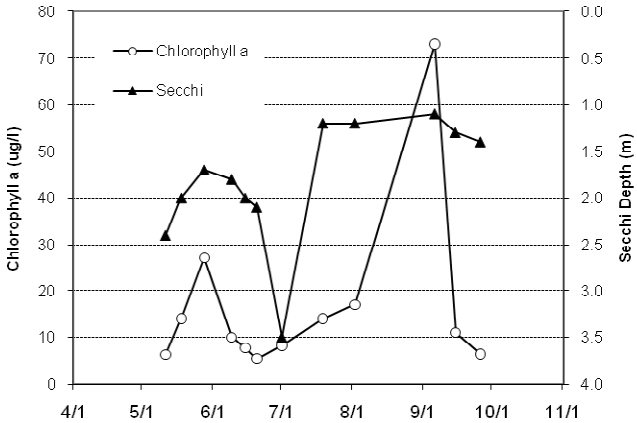
● Sampling site

Contours in meters



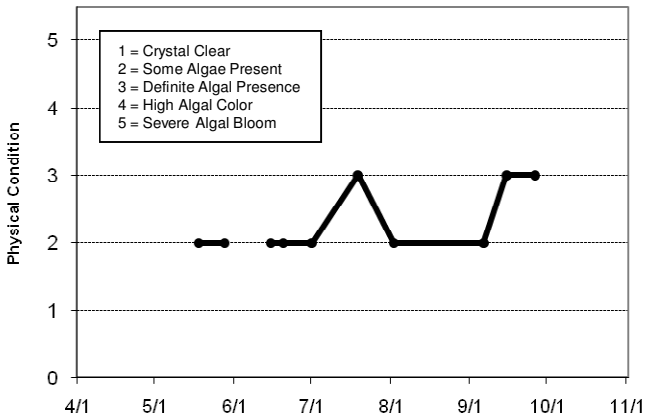






2009 Data

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
5/11	17				6.3	97		2.4		
5/18	16				14	44		2.0	2	2
5/28	20.5				27	31		1.7	2	2
6/9	18.3				10	40		1.8		
6/15	23				7.7	33		2.0	2	2
6/20	26				5.4	36		2.1	2	3
7/1	20				8.2	31		3.5	2	2
7/19	23				14	31		1.2	3	3
8/2	23.1				17	36		1.2	2	2
9/6	22.7				73	36		1.1	2	2
9/15	23				11	30		1.3	3	2
9/26	22				6.4	28		1.4	3	3



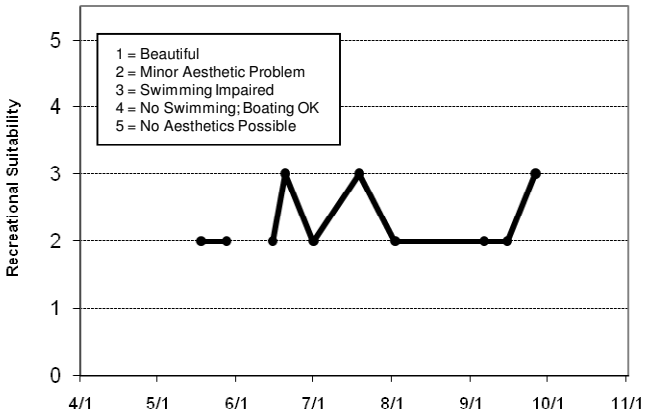
Lake Water Quality Grades Based on Summertime Averages

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

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

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

Source: Metropolitan Council and STORET data



Brick Pond (82-0308) *Middle St. Croix Watershed Management Organization*

Brick Pond is located in the City of Stillwater (Washington County). The maximum depth of the lake is 1.5 m (5.0 ft). The entire area of the lake is considered littoral zone which is the 0-15 feet depth zone of aquatic plant dominance. Furthermore, the lake does not maintain a thermocline, which is a density gradient caused by changing water temperatures throughout the water column. This year was the second year that Brick Pond has been involved in the CAMP. A search through the STORET system provided no historical water quality data.

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)	69.7	36.0	92.0	D
CLA (µg/l)	5.7	2.5	9.3	A
Secchi (m)	0.8	0.5	1.2	D
TKN (mg/l)	0.86	0.55	1.20	
			Lake Grade	C

The lake received a lake grade of C for year 2009. The lake grade and individual parameter grades were identical for 2009 compared to 2008. Usually the letter grades for each parameter are within a letter grade of each other. The relatively low CLA summer-time mean concentration, which yielded a CLA grade of A versus the D grades for the other parameters, indicate that suspended sediment may be a possible cause of the low water clarity during 2009. The relatively high TP concentrations indicate that either sediment was being resuspended in the water column or the lake received substantial amounts of particulate-laden runoff or both. In either case, the increase turbidity would decrease available light (i.e. reduced water clarity), and thereby suppress algal growth.

To the best of our knowledge, there are no water quality data available for Brick Pond other than the 2008 and 2009 CAMP data. Additional years of data collection are needed 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.

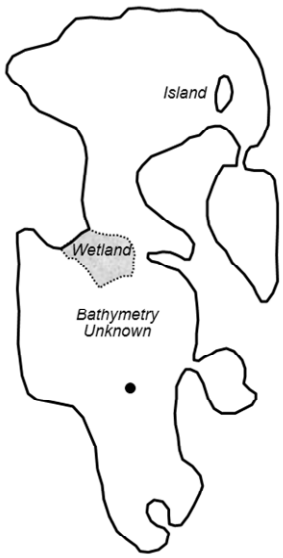
Brick Pond

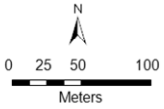
Stillwater, Washington Co.

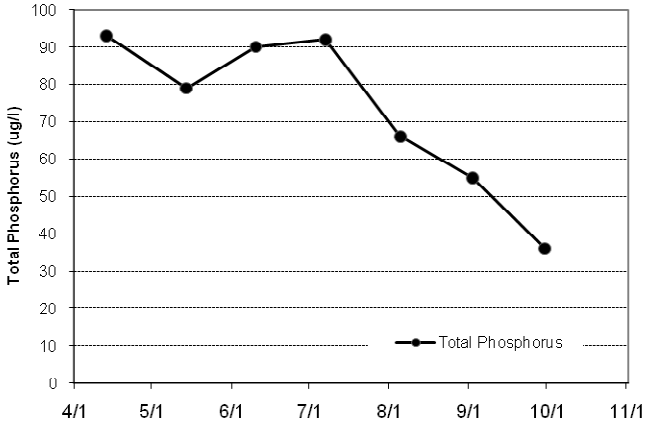
Lake ID: 820308-00
WMO: Middle St. Croix
Volunteer: Washington Conservation District

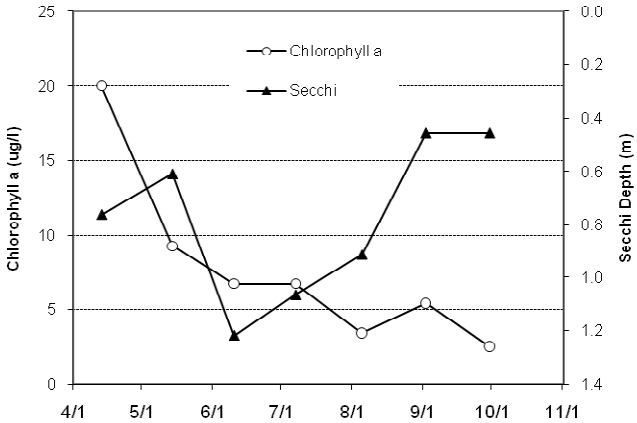
● Sampling site

Contours in meters



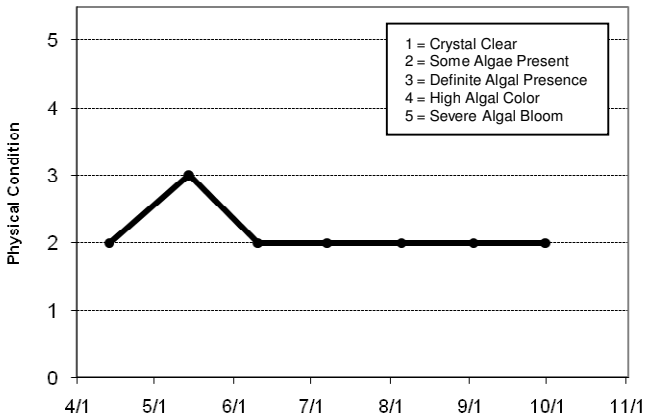






2009 Data

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
4/13	12.5	12.3	13.01	11.53	20	93		0.8	2	4
5/14	15	15	9.72	0.09	9.3	79		0.6	3	4
6/10	16.5	14.9	10.49	5.75	6.7	90		1.2	2	2
7/7	26.5	24.7	13.25	0.09	6.7	92		1.1	2	4
8/5	23.2	23.2	7.95	1.05	3.4	66		0.9	2	4
9/2	20.1		11.01		5.4	55		0.5	2	4
9/30	13.1		14.96		2.5	36		0.5	2	2



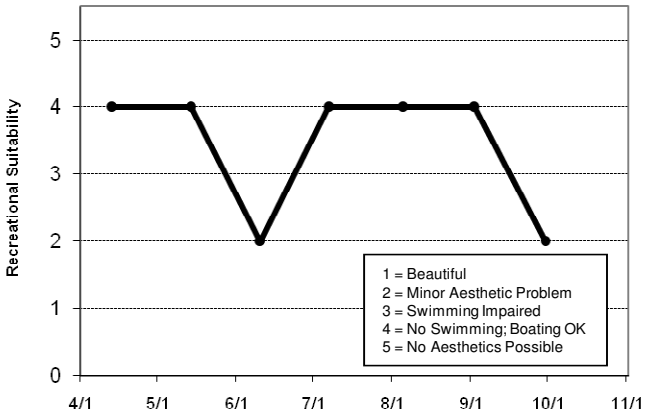
Lake Water Quality Grades Based on Summertime Averages

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					D	D
Chlorophyll a					A	A
Secchi Depth					D	D
Lake Grade					**C**	**C**

Source: Metropolitan Council and STORET data



Brickyard Lake (10-0225) *Carver County Environmental Services*

Brickyard Lake is a 17-acre lake located in the City of Chaska (Carver County). The maximum depth of the lake is 13.1 m (43 feet).

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)	22.1	9.0	69.0	A
CLA (µg/l)	4.2	1.5	13.0	A
Secchi (m)	4.4	2.7	5.8	A
TKN (mg/l)	0.58	0.30	1.20	
			Lake Grade	A

The lake received a lake grade of A for 2009. The lake's water quality is well represented by a lake grade of A according to its historical database.

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/.

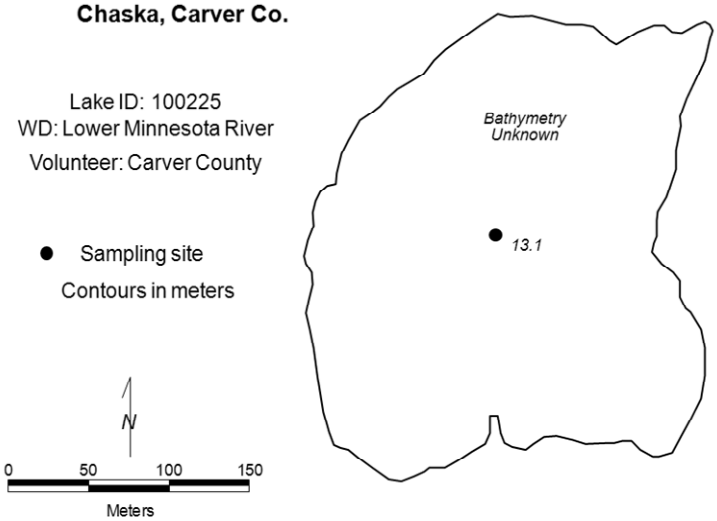
If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.

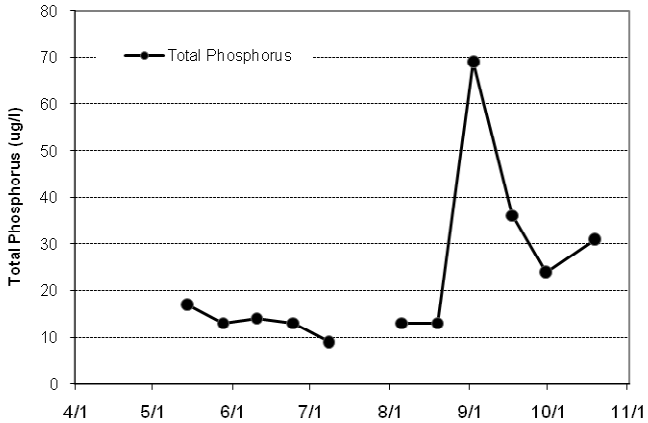
Brickyard Clayhole Lake

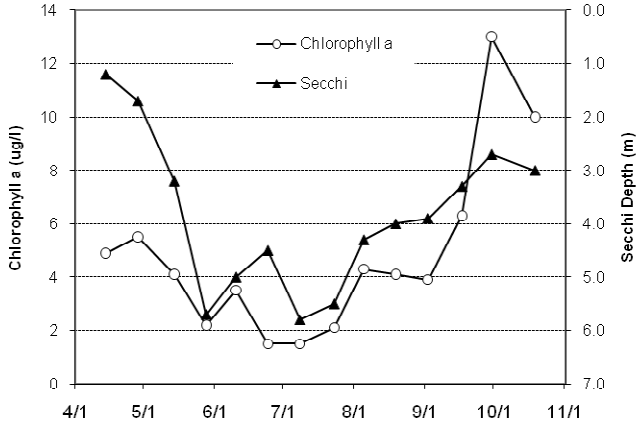
Chaska, Carver Co.

Lake ID: 100225
WD: Lower Minnesota River
Volunteer: Carver County

● Sampling site
Contours in meters

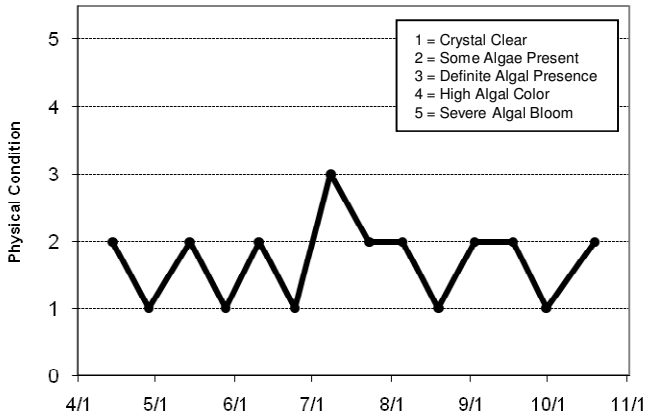






2009 Data

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
4/14	10.41		9.94		4.9			1.2	2	2
4/28	12.36		12.97		5.5			1.7	1	1
5/14	15.23		9.92		4.1	17		3.2	2	2
5/28	18.44		10.04		2.2	13		5.7	1	1
6/10	17.47		9.84		3.5	14		5.0	2	3
6/24	24.88		9.88		1.5	13		4.5	1	1
7/8	24.17		11.88		1.5	9		5.8	3	3
7/23	22.75		9.7		2.1			5.5	2	1
8/5	23.62		9.17		4.3	13		4.3	2	2
8/19	24.19		9.02		4.1	13		4.0	1	2
9/2	21.38		8.57		3.9	69		3.9	2	2
9/17	23.27		9.89		6.3	36		3.3	2	2
9/30	18.39		8.55		13	24		2.7	1	1
10/19	10.74		8.8		10	31		3.0	2	2



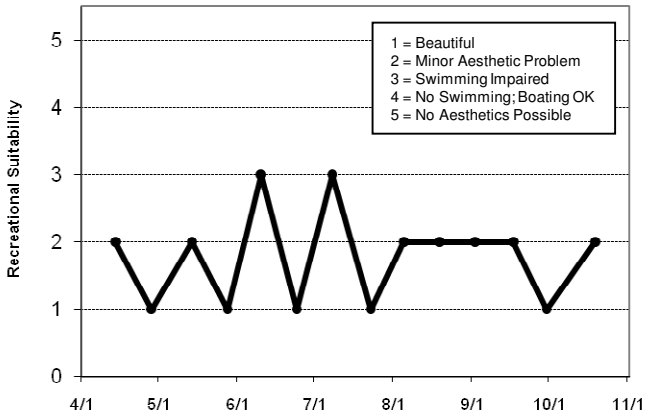
Lake Water Quality Grades Based on Summertime Averages

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

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

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

Source: Metropolitan Council and STORET data



Burandt Lake Lake (10-0084) *Carver County Environmental Services*

Burandt Lake is a 96-acre lake located in the City of Waconia (Carver County). The maximum depth of the lake is 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)	40.0	33.0	48.0	NA
CLA (µg/l)	17.6	2.7	38.0	NA
Secchi (m)	0.5	0.3	0.6	NA
TKN (mg/l)	1.14	0.73	1.60	
			Lake Grade	NA

The lake did not receive a lake grade in 2008 because there were too few monitoring events during the summer-time period (May – September). At least five monitoring events are needed in that time frame to calculate a 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.

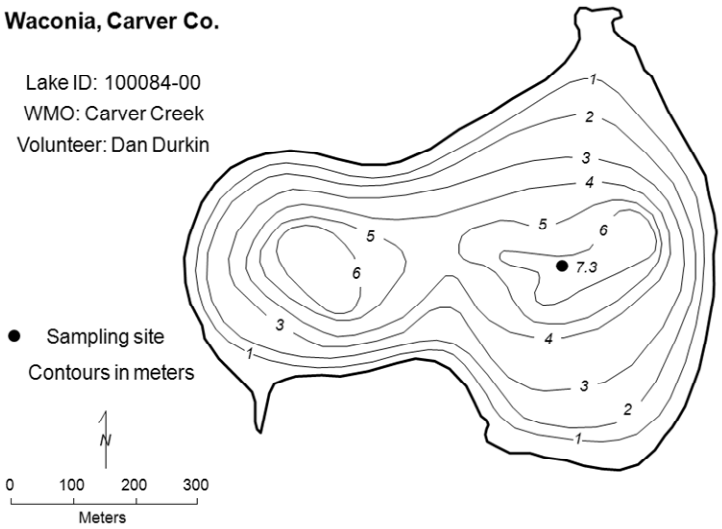
The Fisheries Section of the Minnesota Department of Natural Resources (MDNR) has conducted a fisheries survey on the lake. Information on the survey can be obtained through the MDNR Fisheries Section by calling (651) 259-5831 or by downloading the information off the Internet at http://www.dnr.state.mn.us/lakefind/.

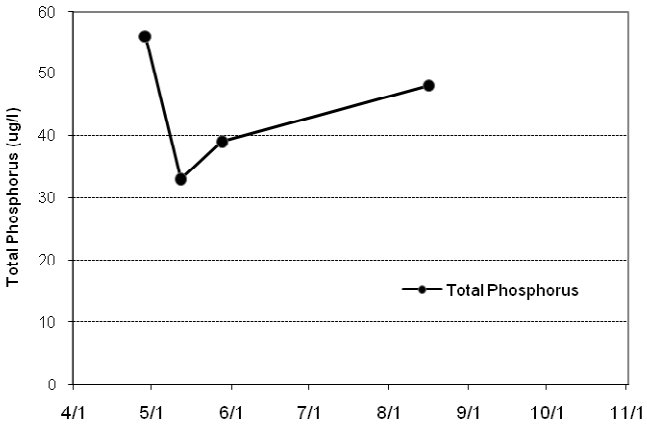
If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or brian.johnson@metc.state.mn.us.

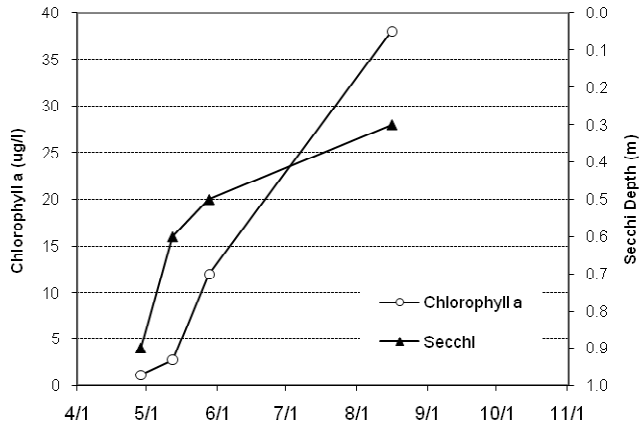
Burandt Lake

Waconia, Carver Co.

Lake ID: 100084-00
WMO: Carver Creek
Volunteer: Dan Durkin

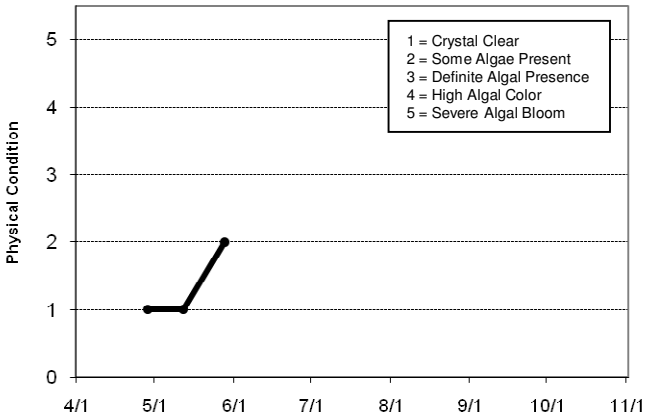






2009 Data

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
4/28	18				1.1	56		0.9	1	1
5/12	20				2.7	33		0.6	1	1
5/28	21				12	39		0.5	2	1
8/16	23				38	48		0.3		

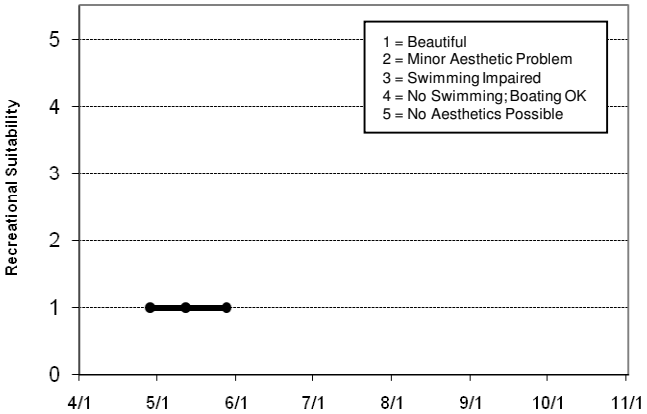


Lake Water Quality Grades Based on Summertime Averages

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	C	C		
Chlorophyll a								C	C	C		
Secchi Depth								D	D	D		
Lake Grade								**D**	**C**	**C**		

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



Source: Metropolitan Council and STORET data

Bush Lake (27-0047) *Nine Mile Creek Watershed District*

Bush Lake is located in the City of Bloomington (Hennepin County). It is considered a Priority Lake by the Metropolitan Council for its high regional recreation value and exceptional water clarity (METC 2007). The MN DNR has designated the lake as being infested with Eurasion water milfoil (*Myriophyllum spicatum*).

This is the fourth year that Bush Lake has been enrolled in the CAMP. Council staff has monitored the lake in the past. 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)	15.4	10.0	30.0	A
CLA (µg/l)	3.8	2.4	6.6	A
Secchi (m)	3.2	2.6	4.3	A
TKN (mg/l)	0.62	0.44	0.79	
			Lake Grade	A

For 2008, the lake received a lake grade of A in addition to receiving letter grades of A for TP, CLA, and secchi transparency. The lake received these same grades in 1984, 1993, and 2008. The lake grades appear to fluctuate between A and B on the basis of the historical database.

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.

Bush Lake

Bloomington, Hennepin Co.

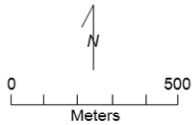
Lake ID: 270047-00

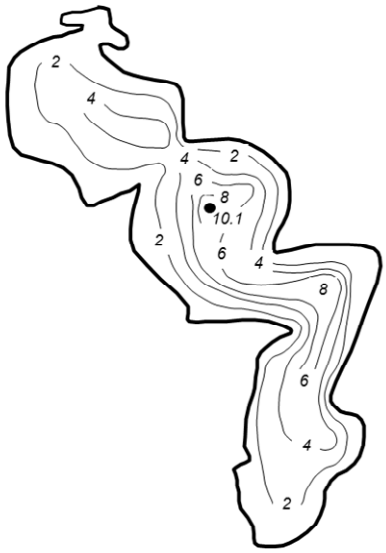
WD: Nine Mile Creek

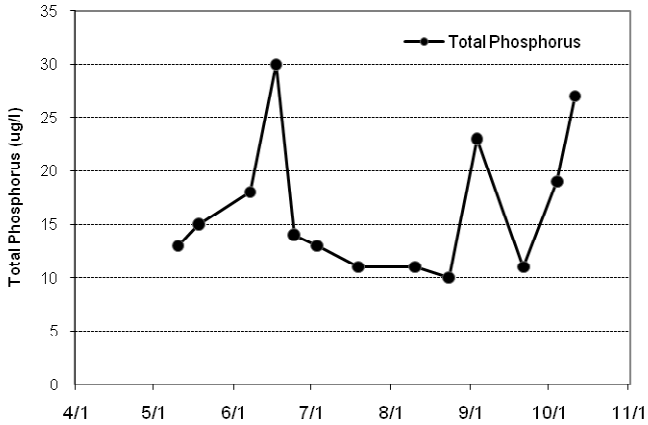
Volunteer: Gregg Thompson

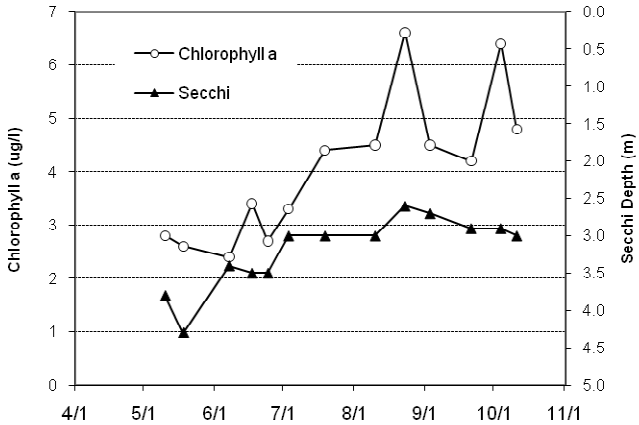
● Sampling site

Contours in meters



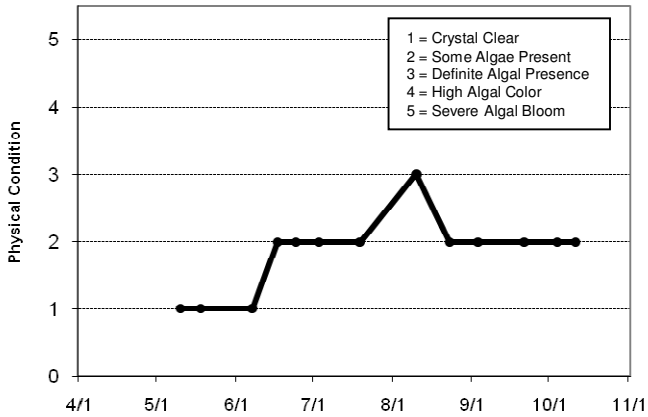






2009 Data

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
5/10	16.8				2.8	13		3.8	1	1
5/18	18				2.6	15		4.3	1	1
6/7	19.7				2.4	18		3.4	1	1
6/17	22.3				3.4	30		3.5	2	1
6/24	27.7				2.7	14		3.5	2	2
7/3	24.2				3.3	13		3.0	2	2
7/19	23.9				4.4	11		3.0	2	2
8/10	25.9				4.5	11		3.0	3	2
8/23	23.4				6.6	10		2.6	2	2
9/3	24.6				4.5	23		2.7	2	2
9/21	24.4				4.2	11		2.9	2	
10/4	15.3				6.4	19		2.9	2	2
10/11	11.9				4.8	27		3.0	2	1

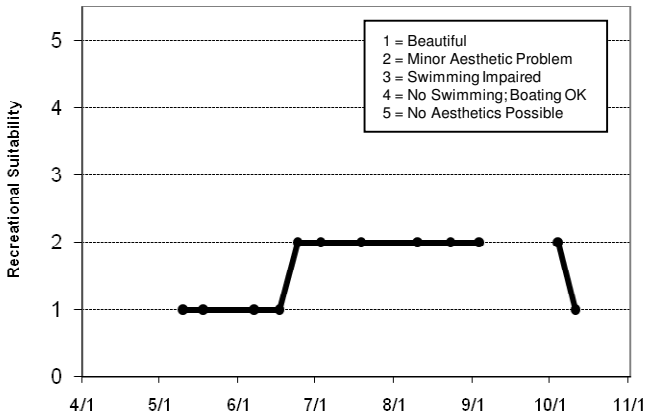


Lake Water Quality Grades Based on Summertime Averages

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

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

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



Source: Metropolitan Council and STORET data