

## **Sand Lake (82-0067) Marine on St. Croix Watershed Management Organization**

Sand Lake is a 46-acre lake located within City of Scandia (Washington County). The lake has a surface area of 46 acres (1.8 miles in circumference) and a mean and maximum depth of 2.4 m (8 feet) and 5.5 m (18 feet), respectively. The lake, which has two inlets has an approximate volume of 368 ac-ft. Approximately 46 percent of the lake's surface area is considered littoral, the shallow (0-15 foot) area dominated by aquatic vegetation.

In 2007, the lake was monitored 14 times. On each sampling day the lake was monitored for total phosphorus (TP), chlorophyll-a (CLA), total Kjeldahl nitrogen (TKN), and Secchi transparency, as well as the lake's perceived physical condition and recreational suitability. Depth profiles for temperature and dissolved oxygen were also measured. The resulting data are summarized in tables and figures on the following page.

### **2008 summer (May-September) data summary**

<i>Parameter</i>	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Grade</i>
<b>TP</b> (µg/l)	41.5	30.0	52.0	C
<b>CLA</b> (µg/l)	31.8	7.2	100.0	C
<b>Secchi</b> (m)	1.8	0.8	2.6	C
<b>TKN</b> (mg/l)	1.35	0.96	2.10	
			<i>Lake Grade</i>	C

The lake received a lake grade of C for 2008, which is similar to most lake grades received in previous years of monitoring since 1993. The lake appears to be characterized as a C lake, though it occasionally has received B lake grades. A recent trend analysis by the MPCA on the lake's Secchi depth data showed no statistically significant trend in water clarity.

The volunteer's perceptions of the physical and recreational conditions of the lake are shown on the next page. Each of the conditions was ranked on a scale of 1 to 5. The average physical condition ranking was 2.4 (between 2- "some algae present" and 3- "definite algae present"). The average recreational suitability ranking was 2.6 (between 2- "minor aesthetic problem" and 3- "swimming slightly impaired").

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](mailto:brian.johnson@metc.state.mn.us).



## Scout Lake (19-0198) City of Apple Valley

Scout Lake is a small lake located in Apple Valley. Little information is available on the morphology of the lake. The maximum depth of the lake is 2.9 m (9.5 feet). 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 was the second year that Scout Lake has been involved in the CAMP. A search through the STORET database revealed no historical water quality data other than the CAMP data.

The lake was monitored 14 times in 2008. 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.

### 2008 summer (May-September) data summary

<i>Parameter</i>	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Grade</i>
<b>TP</b> ( $\mu\text{g/l}$ )	61.2	24.0	94.0	C
<b>CLA</b> ( $\mu\text{g/l}$ )	41.9	6.8	85.0	C
<b>Secchi</b> (m)	1.3	0.5	2.8	C
<b>TKN</b> (mg/l)	2.11	0.81	3.20	
			<b>Lake Grade</b>	C

The lake received a lake grade of C for 2008, which is an improvement from last year's D lake grade. Additional years of monitoring will be needed to build the water quality database to determine trends in water quality.

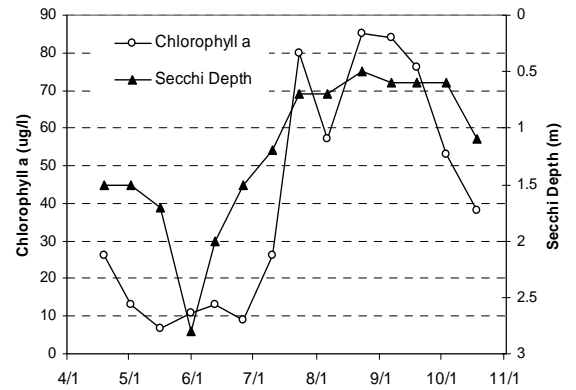
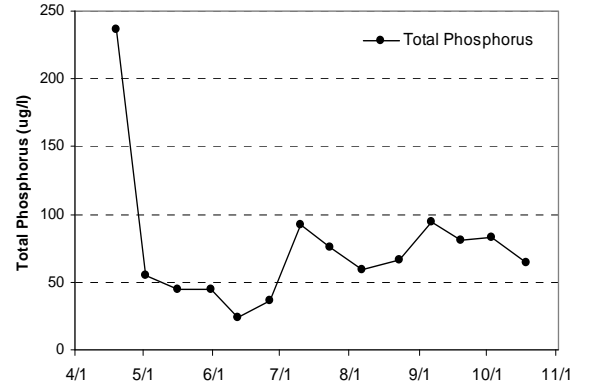
The volunteer's perceptions of the physical and recreational conditions of the lake are shown on the next page. Each of the conditions was ranked on a scale of 1 to 5. The average physical condition ranking was 1.7 (between 1- "crystal clear" and 2- "some algae present"). The average recreational suitability ranking was 1.5 (between 1- "beautiful" and 2- "minor aesthetic problem").

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](mailto:brian.johnson@metc.state.mn.us).

**Scout Lake**  
Apple Valley, Dakota Co.

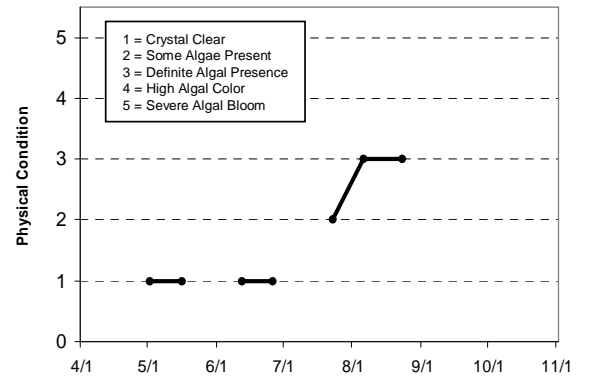
Lake ID: 190198  
WMO: Dakota County  
Volunteer: Dan Stanek

● Sampling site  
Contours in meters



**2008 Data**

DATE	Surf Tmp (°C)	Bot Tmp (°C)	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	6.6				26	236		1.5		
5/2	12.1				13	55		1.5	1	
5/16	20.6				6.8	45		1.7	1	1
5/31	22.2				11	45		2.8	1	1
6/12	24.4				13	24		2	1	1
6/26	26.9				9	36		1.5	1	3
7/10	26.5				26	92		1.2		
7/23	28.9				80	76		0.7	2	
8/6	27.8				57	59		0.7	3	
8/23	25.9				85	66		0.5	3	
9/6	22.3				84	94		0.6		
9/19	22.4				76	81		0.6		
10/3	16.9				53	83		0.6		
10/18	14.1				38	64		1.1		



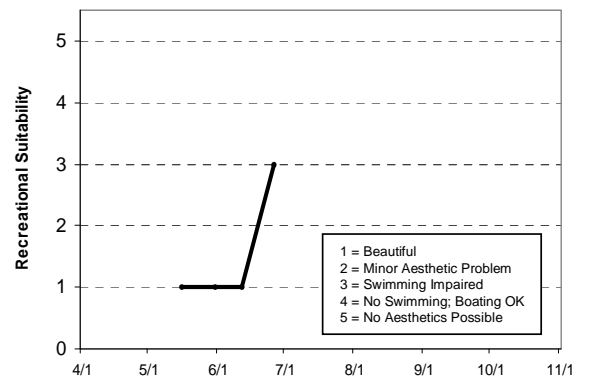
**Lake Water Quality Grades Based on Summertime Averages**

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
Total Phosphorus			D	C	
Chlorophyll a			C	C	
Secchi Depth			F	C	
Lake Grade			D	C	

Source: Metropolitan Council and STORET data



### **Sea Lake (82-0053) Forest Lake – Comfort Lake Watershed District**

Scout Lake is a small lake located in Scandia (Washington County). Little information is available on the morphology of the lake. This was the first year that the lake has been involved in the CAMP. A search through the STORET database revealed no historical water quality data for the lake.

The lake was monitored 12 times in 2008. 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.

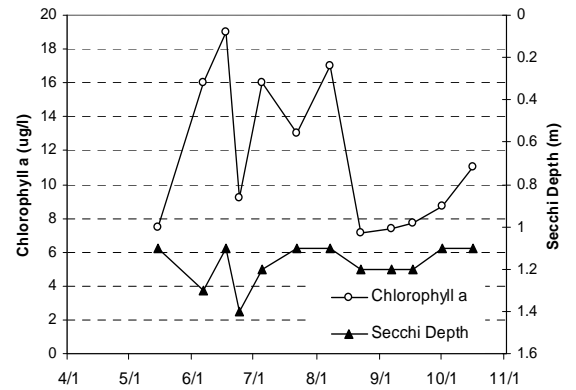
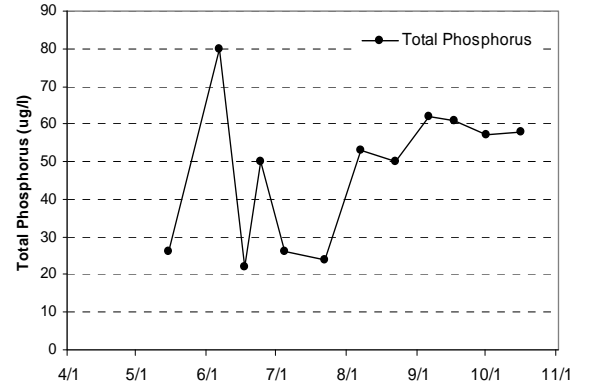
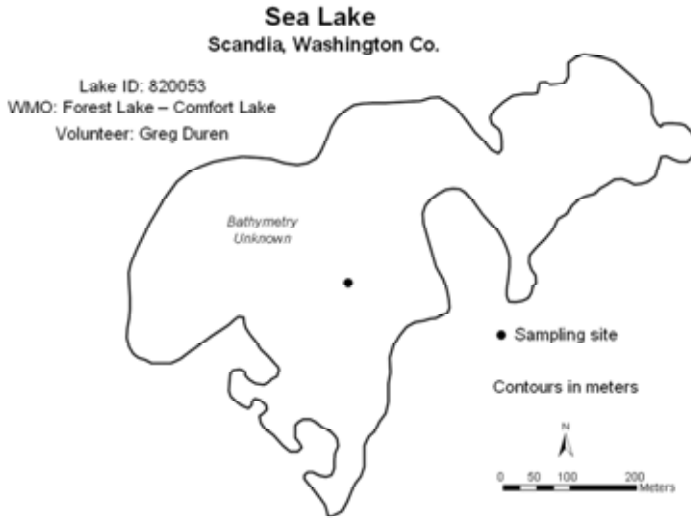
#### **2008 summer (May-September) data summary**

<i>Parameter</i>	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Grade</i>
<b>TP</b> (µg/l)	45.4	22.0	80.0	C
<b>CLA</b> (µg/l)	12.0	7.1	19.0	B
<b>Secchi</b> (m)	1.2	1.1	1.4	D
<b>TKN</b> (mg/l)	1.61	0.78	3.00	
			<b>Lake Grade</b>	C

The lake received a lake grade of C for 2008. Additional years of monitoring will be needed to build the water quality database to determine trends in water quality. The water clarity grade of D does not correlate well with the chlorophyll-a grade of B. A possible explanation may be that the water clarity may be affected by higher levels of total suspended solids from surface runoff. It is possible for higher suspended solids loadings to decrease water clarity which would decrease light penetration thereby inhibiting algal growth.

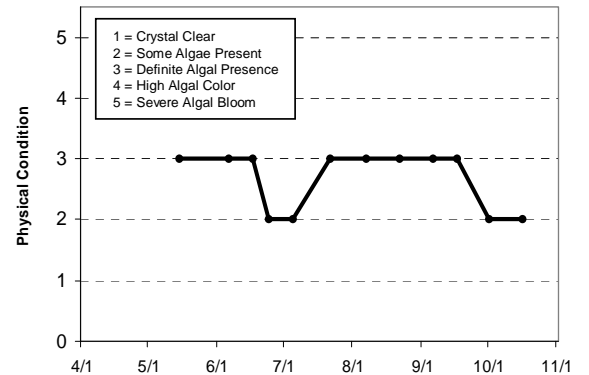
The volunteer’s perceptions of the physical conditions of the lake are shown on the next page. The condition was ranked on a scale of 1 to 5. The average physical condition ranking was 2.8 (between 2- “some algae present” and 3- “definite algae present”). The recreational suitability rankings were not recorded by the volunteer.

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](mailto:brian.johnson@metc.state.mn.us).



**2008 Data**

DATE	Surf Temp (°C)	Bot Temp (°C)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
5/15	13.3				7.5	26		1.1	3	
6/6	20				16	80		1.3	3	
6/17	22.5				19	22		1.1	3	
6/24	21.1				9.2	50		1.4	2	
7/5	23.7				16	26		1.2	2	
7/22	25.4				13	24		1.1	3	
8/7	25.2				17	53		1.1	3	
8/22	25.6				7.1	50		1.2	3	
9/6	25.7				7.4	62		1.2	3	
9/17	24.9				7.7	61		1.2	3	
10/1	17.2				8.7	57		1.1	2	
10/16	11.1				11	58		1.1	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												
<b>Lake Grade</b>												

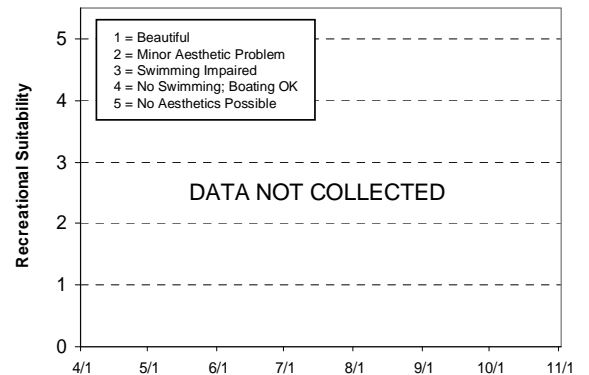
  

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total Phosphorus												
Chlorophyll a												
Secchi Depth												
<b>Lake Grade</b>												

Year	2004	2005	2006	2007	2008
Total Phosphorus					C
Chlorophyll a					B
Secchi Depth					D
<b>Lake Grade</b>					C

Source: Metropolitan Council and STORET data



**Seidl’s Lake (19-0095) Cities of *Inver Grove Heights and South St. Paul***

Seidl’s Lake is a 14-acre lake located in the City of Inver Grove Heights (Dakota County) which receives inflow from five inlets. Other than that the maximum depth of the lake is approximately 5.0 m (17 feet), there is very little known morphological data available. The lake has been enrolled in CAMP since 1995.

The lake was monitored 4 times in 2008. 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.

**2008 summer (May-September) data summary**

<i>Parameter</i>	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Grade</i>
<b>TP</b> (µg/l)	56.5	41.0	64.0	
<b>CLA</b> (µg/l)	38.3	8.1	99.0	
<b>Secchi</b> (m)	0.9	0.5	1.2	
<b>TKN</b> (mg/l)	2.05	1.40	2.60	
			<b>Lake Grade</b>	

No lake grade or parameter grades were issued this year because of too few monitoring events. At least 5 monitoring events during the summer-time period are required to determine grades. However, a trend analysis conducted by the MPCA on the lake’s Secchi transparency data revealed a statistically significant declining trend in water clarity (MPCA 2008).

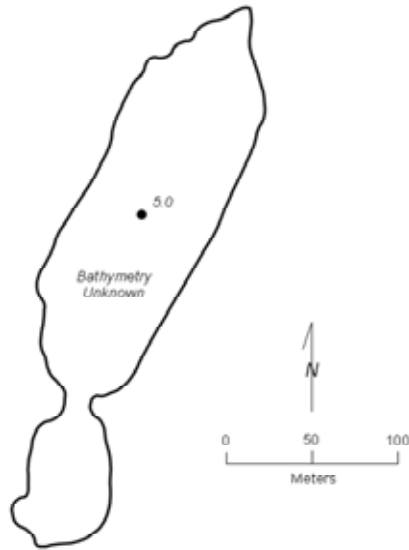
The volunteer’s perceptions of the physical and recreational conditions of the lake are shown on the next page. Each of the conditions was ranked on a scale of 1 to 5. The average physical condition ranking was 2.3 (between 2- “some algae present” and 3- “definite algae present”). The average recreational suitability ranking was 3.8 (between 3- “swimming slightly impaired” and 4- “no swimming/boating ok”).

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](mailto:brian.johnson@metc.state.mn.us).

**Seidl Lake**  
Inver Grove Heights,  
Dakota Co.

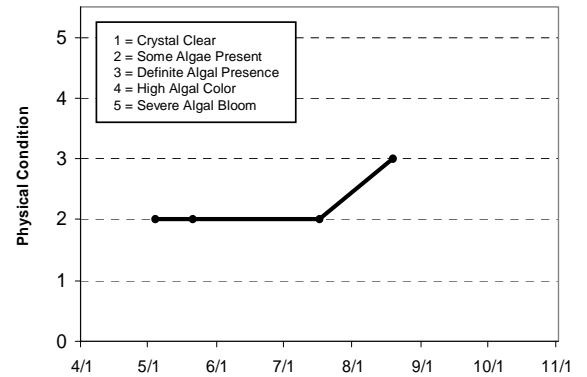
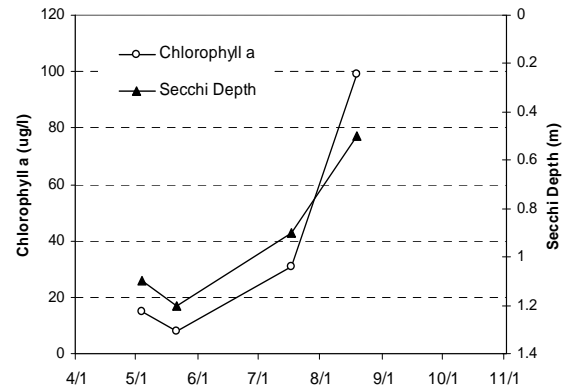
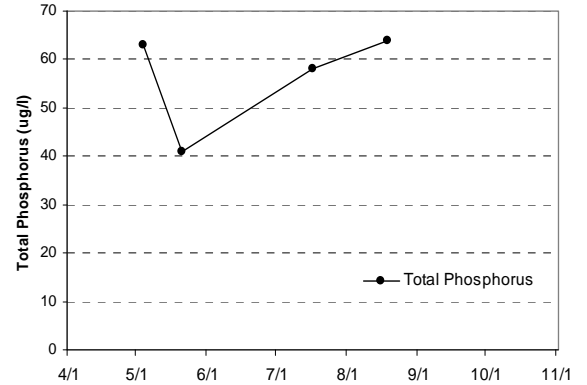
Lake ID: 190095  
WMO: Lower Mississippi River  
Volunteer: Randy Bjorklund

● Sampling site  
Contours in meters



**2008 Data**

DATE	Surf Tmp (°C)	Bot Tmp (°C)	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	14.3				15	63		1.1	2	4
5/21	18.4				8.1	41		1.2	2	4
7/17	28.9				31	58		0.9	2	3
8/19	29.4				99	64		0.5	3	4



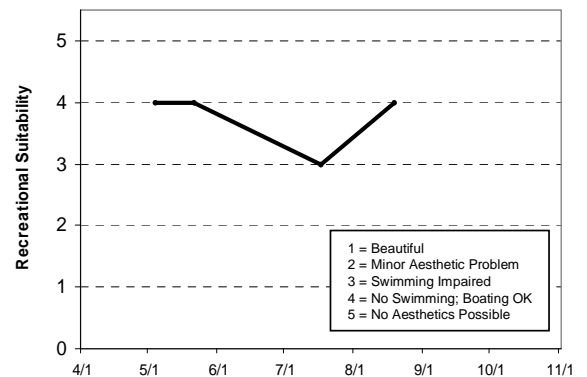
**Lake Water Quality Grades Based on Summertime Averages**

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total Phosphorus												C
Chlorophyll a												C
Secchi Depth												D
<b>Lake Grade</b>												<b>C</b>

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

Year	2004	2005	2006	2007	2008
Total Phosphorus	D	C	D	D	
Chlorophyll a	B	C	C	C	
Secchi Depth	C	D	F	F	
<b>Lake Grade</b>	<b>C</b>	<b>C</b>	<b>D</b>	<b>D</b>	

Source: Metropolitan Council and STORET data



**Silver Lake [Washington County] (82-0016) Carnelian - Marine Watershed District**

Silver Lake is a 98-acre lake located within Stillwater Township (Washington County). The maximum and mean depths of the lake are 3.4 m (roughly 11 feet) and 1.7 m (five-and-a-half feet), respectively. The mean depth of the lake and its surface area translate to an approximate lake volume of 549 ac-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.

The lake’s 455-acre watershed and surface area translates to a watershed-to-lake size ratio of 4.6:1 (the greater the ratio, the greater the potential stress on the lake from surface runoff).

The lake was monitored 7 times in 2008. 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.

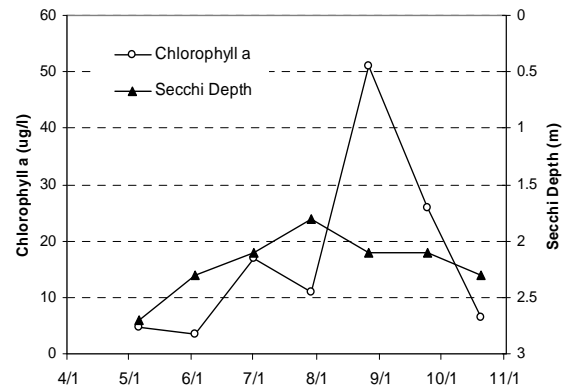
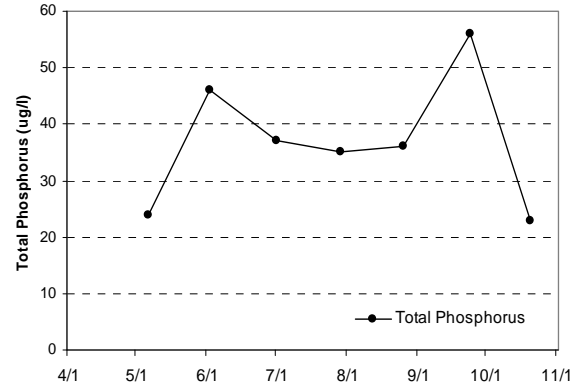
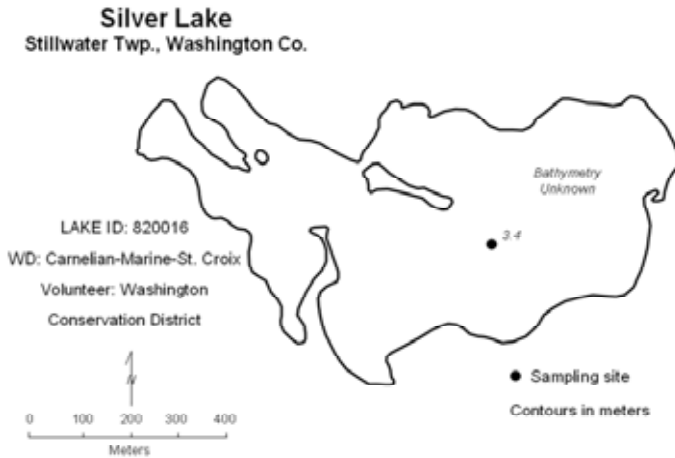
**2008 summer (May-September) data summary**

<i>Parameter</i>	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Grade</i>
<b>TP</b> (µg/l)	39.0	24.0	56.0	C
<b>CLA</b> (µg/l)	18.9	3.4	51.0	B
<b>Secchi</b> (m)	2.2	1.8	2.7	C
<b>TKN</b> (mg/l)	0.96	0.75	1.50	
<b>Lake Grade</b>				C

The lake’s 2007 Lake Grade is similar to that recorded in 1996-1998 and 2000-2001 and 2006, better than the Lake Grade of D in 1999 and worse than the Lake Grades of B in 2004-2005. When looking at the grades and individual parameter means, it is apparent that 2004 was the lakes best-recorded water quality year. The water quality database shows that the lake has varied from C to D to B to C grades since 1996. A trend analysis conducted by the MPCA on the lake’s Secchi transparency data revealed a statistically significant improving trend in water clarity (MPCA 2008).

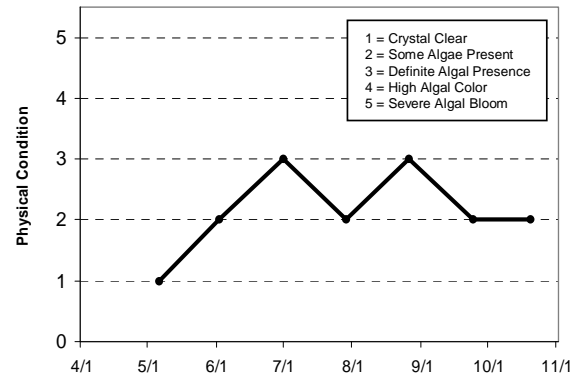
The volunteer’s perceptions of the physical and recreational conditions of the lake are shown on the next page. Each of the conditions was ranked on a scale of 1 to 5. The average physical condition ranking was 2.2 (between 2- “some algae present” and 3- “definite algae present”). The average recreational suitability ranking was 2.5 (between 2- “minor aesthetic problem” and 3- “swimming slightly impaired”).

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](mailto:brian.johnson@metc.state.mn.us).



**2008 Data**

DATE	Surf Tmp (°C)	Bot Tmp (°C)	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	13.6	12.6	10.99	8.47	4.7	24		2.7	1	1
6/2	20.5	18.6	8.48	2.7	3.4	46	22	2.3	2	2
7/1	24.6	20.3	9.57	0.35	17	37	120	2.1	3	4
7/29	26.9	21.2	8.08	0.23	11	35	154	1.8	2	3
8/26	22.3	21.5	6.26	0.3	51	36	459	2.1	3	2
9/24	19.7	18.9	6.6	0.32	26	56	39	2.1	2	3
10/20	12	11.9	9.25	6.18	6.4	23	27	2.3	2	2



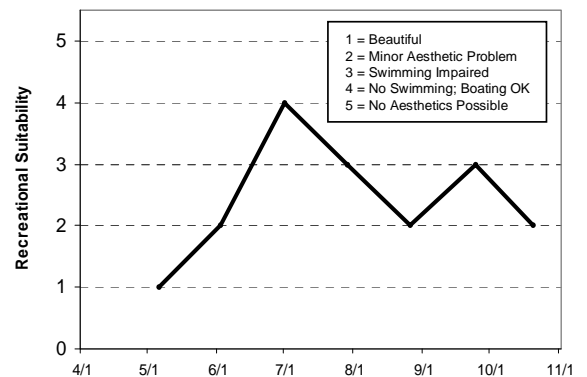
**Lake Water Quality Grades Based on Summertime Averages**

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

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

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

Source: Metropolitan Council and STORET data



## South Oak Lake (27-0661) City of St. Louis Park

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

The lake was monitored 5 times in 2008. 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.

### 2008 summer (May-September) data summary

<i>Parameter</i>	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Grade</i>
<b>TP</b> (µg/l)	250.2	142.0	387.0	F
<b>CLA</b> (µg/l)	151.8	30.0	310.0	F
<b>Secchi</b> (m)	0.5	0.3	0.7	F
<b>TKN</b> (mg/l)	2.24	1.30	3.20	
<b>Lake Grade</b>				F

The lake received a lake grade of F for 2008, which is similar to last year's lake grade of F. With two consecutive years of the lake receiving F lake grades, the water quality of the lake may be degrading. Continued monitoring of this lake is suggested to determine if this downward trend continues.

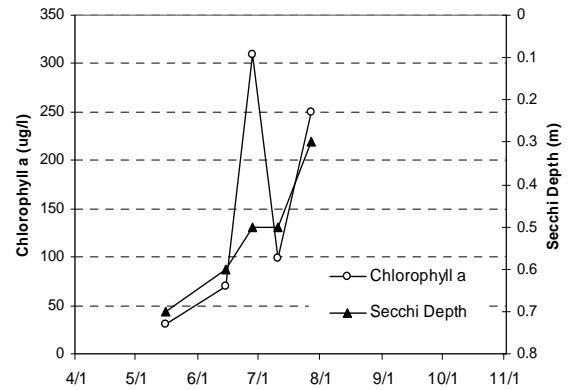
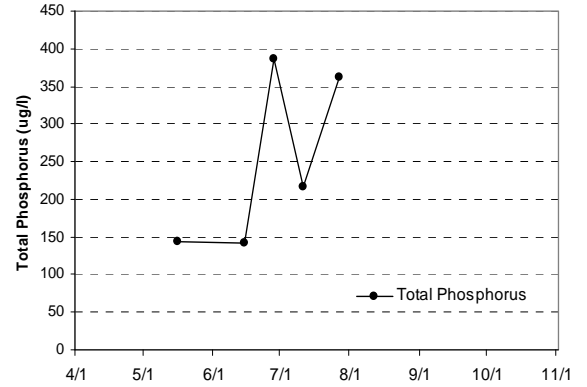
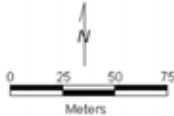
The volunteer's perceptions of the physical and recreational conditions of the lake are shown on the next page. Each of the conditions was ranked on a scale of 1 to 5. The average physical condition ranking was 1.6 (between 1- "crystal clear" and 2- "some algae present"). The average recreational suitability ranking was 2.4 (between 2- "minor aesthetic problem" and 3- "swimming slightly impaired").

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](mailto:brian.johnson@metc.state.mn.us).

**South Oak Lake**  
St. Louis Park, Hennepin Co.

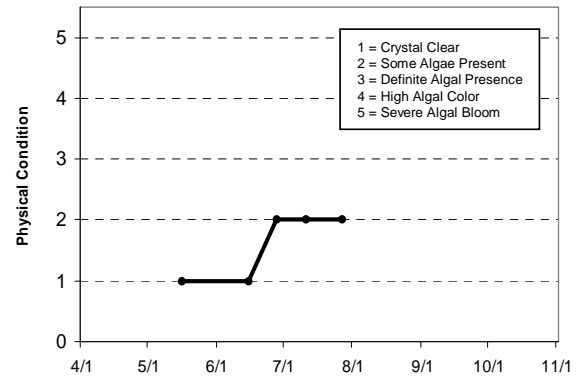
Lake ID: 270661  
WD: Minnehaha Creek  
Volunteer: Aaron Patterson

• Sampling site  
Contours in meters



**2008 Data**

DATE	Surf Temp (°C)	Bot Temp (°C)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
5/16	15.7				30	143		0.7	1	4
6/15	22.1				70	142		0.6	1	2
6/28	24.9				310	387		0.5	2	2
7/11	22.8				99	216		0.5	2	2
7/27	26.1				250	363		0.3	2	2



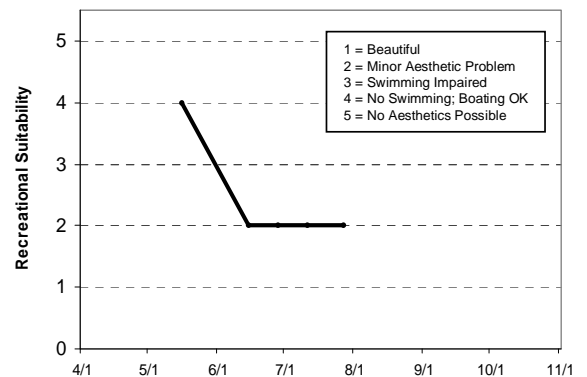
**Lake Water Quality Grades Based on Summertime Averages**

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

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

Source: Metropolitan Council and STORET data



## South Rice Lake (27-0645) Bassett Creek Watershed Management Organization

South Rice Lake is a 3.2-acre lake located within the City of Golden Valley (Hennepin County). The maximum and mean depths of the lake are 2.5 m (roughly 8 feet) and 0.5 m (one-and-a-half feet), respectively. The mean depth of the lake and its surface area translate to an approximate lake volume of 5.4 ac-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.

The lake's 63-acre immediate watershed and surface area translates to a watershed-to-lake area ratio of 20:1 (the greater the ratio, the greater the potential stress on the lake from surface runoff). When including the lake's whole contributing watershed (including flow from Grimes Pond and North Rice Lake), however, the size increases to 514 acres (160:1) (Barr 1997).

The lake was monitored 6 times in 2008. 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.

### 2008 summer (May-September) data summary

<i>Parameter</i>	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Grade</i>
<b>TP</b> ( $\mu\text{g/l}$ )	137.7	88.0	232.0	D
<b>CLA</b> ( $\mu\text{g/l}$ )	38.0	3.6	85.0	C
<b>Secchi</b> (m)	0.6	0.3	0.9	F
<b>TKN</b> (mg/l)	2.07	1.20	2.70	
			<b>Lake Grade</b>	D

The lake received a lake grade of D for 2008, which is similar to most lake grades received in the previous years since 2000.

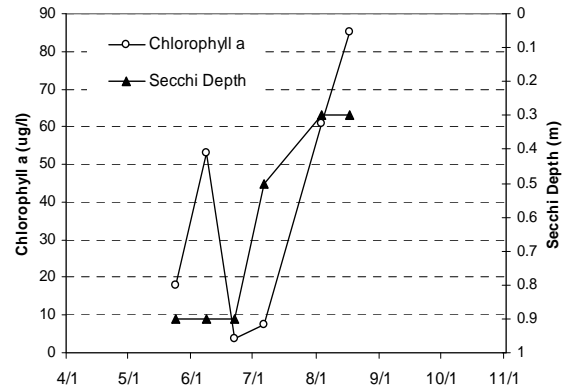
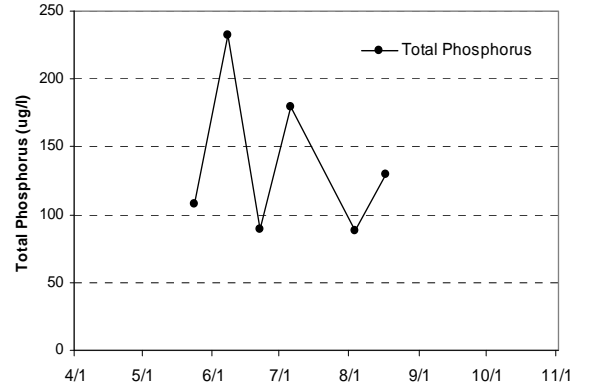
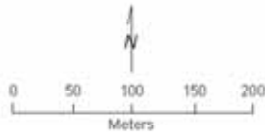
The volunteer's perceptions of the physical and recreational conditions of the lake are shown on the next page. Each of the conditions was ranked on a scale of 1 to 5. The average physical condition ranking was 3.8 (between 3- "definite algae present" and 4- "high algal color"). The average recreational suitability ranking was 4.3 (between 4- "no swimming/boating ok" and 5- "no aesthetics possible").

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](mailto:brian.johnson@metc.state.mn.us).

**South Rice Pond**  
Golden Valley, Robbinsdale,  
Hennepin Co.

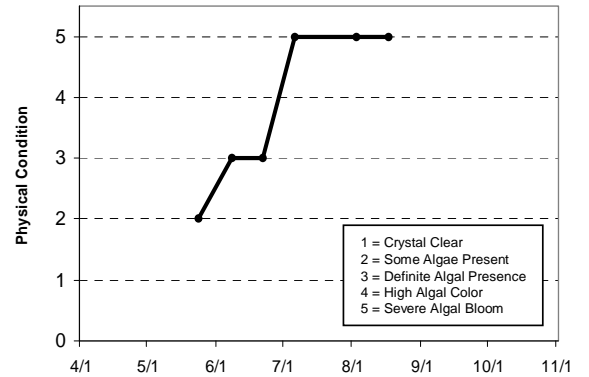
Lake ID: 270645  
WMO: Bassett Creek  
Volunteer: Steve Streff

● Sampling site  
Contours in meters



**2008 Data**

DATE	Surf Tmp (°C)	Bot Tmp (°C)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
5/24	20				18	108		0.9	2	3
6/8	23				53	232		0.9	3	4
6/22	24				3.6	89		0.9	3	4
7/6	27				7.3	179		0.5	5	5
8/3	22				61	88		0.3	5	5
8/17	22				85	130		0.3	5	5



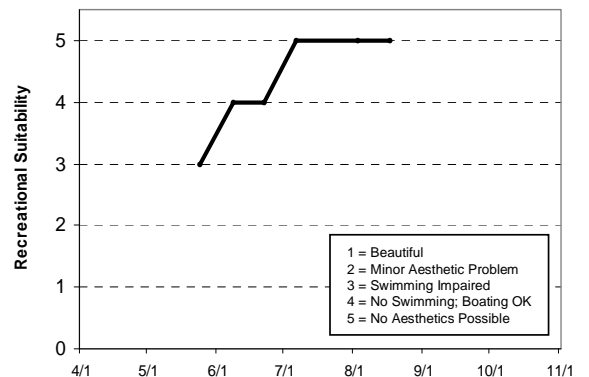
**Lake Water Quality Grades Based on Summertime Averages**

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

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

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

Source: Metropolitan Council and STORET data



## South School Section Lake (82-0151) Browns Creek Watershed District

South School Section Lake is located in southeastern Hugo Township in Washington County. The 125-acre lake has a maximum depth of 8.0 m (26 feet). About 41 percent of the lake's area is considered littoral, the shallow (0-15 feet) area dominated by aquatic vegetation.

The lake was monitored 14 times in 2008. On each sampling day the lake was monitored for total phosphorus (TP), chlorophyll-a (CLA), total Kjeldahl nitrogen (TKN), and Secchi transparency, as well as the lake's perceived physical condition and recreational suitability. Depth profiles for temperature and dissolved oxygen were also measured. The resulting data are summarized in tables and figures on the following page.

### 2008 summer (May-September) data summary

<i>Parameter</i>	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Grade</i>
<b>TP</b> ( $\mu\text{g/l}$ )	58.9	27.0	165.0	C
<b>CLA</b> ( $\mu\text{g/l}$ )	19.9	4.5	43.0	B
<b>Secchi</b> (m)	2.1	1.2	4.3	C
<b>TKN</b> (mg/l)	1.37	0.84	3.00	
			<i>Lake Grade</i>	C

The lake received a lake grade of C for 2008. The lake has consistently received C lake grades during monitoring years since 1995.

The volunteer's perceptions of the physical and recreational conditions of the lake are shown on the next page. Each of the conditions was ranked on a scale of 1 to 5. The average physical condition ranking was 2.9 (between 2- "some algae present" and 3- "definite algae present"). The average recreational suitability ranking was 3.3 (between 3- "swimming slightly impaired" and 4- "no swimming/boating ok").

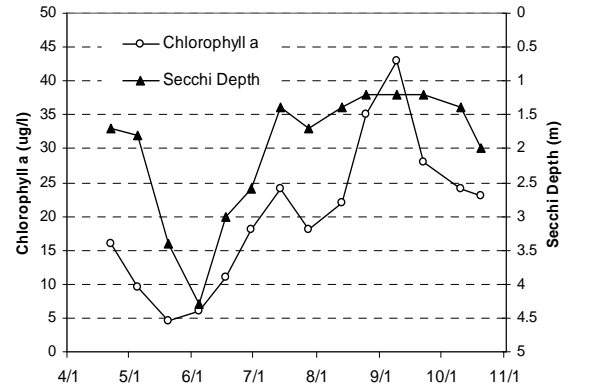
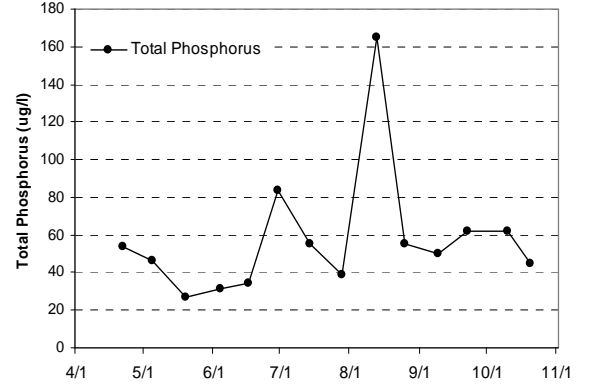
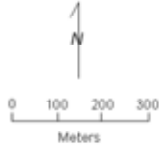
The Fisheries Section of the Minnesota Department of Natural Resources (MDNR) has conducted a fisheries survey on the lake. Information on the survey can be obtained through the MDNR Fisheries Section by calling (651) 259-5831 or by downloading the information off the Internet at <http://www.dnr.state.mn.us/lakefind/>.

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](mailto:brian.johnson@metc.state.mn.us).

**South School Section  
Lake,  
Hugo, Washington Co.**

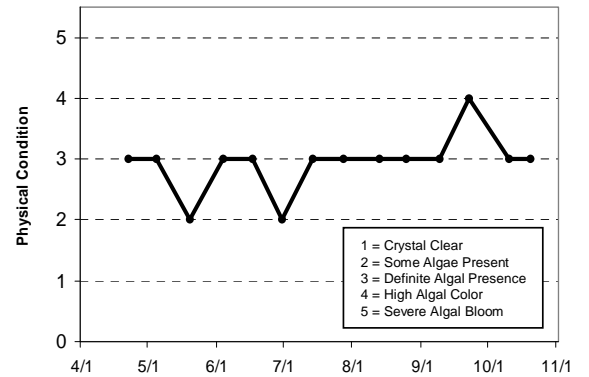
Lake ID: 820151  
WD: Browns Creek  
Volunteer: Washington  
Conservation District

● Sampling site  
Contours in meters



**2008 Data**

DATE	Surf Tmp (°C)	Bot Tmp (°C)	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	5.9	5.2	15.99	5.23	16	54		1.7	3	4
5/5	9.9	9.2	11.36	0.59	9.6	46		1.8	3	4
5/20	14.2	14.1	9.27	0.71	4.5	27	24	3.4	2	2
6/4	17.7	16.3	8.36	0.15	6	31	20	4.3	3	3
6/17	19.7	19.3	7.67	0.17	11	34	28	3	3	2
6/30	22.7	19.2	7.18	0.45	18	84	81	2.6	2	3
7/14	22.7	22.4	6.05	0.31	24	55	49	1.4	3	4
7/28	25.2	21.4	8.26	26	18	39	63	1.7	3	3
8/13	24.1	22.1	5.68	0.27	22	165	45	1.4	3	3
8/25	24	23	6.97	3.77	35	55	48	1.2	3	4
9/9	19.2	19.4	8.11	0.23	43	50	50	1.2	3	4
9/22	20.1	18.5	10	0.28	28	62	69	1.2	4	4
10/10	14.2	14.1	7.01	0.66	24	62	44	1.4	3	4
10/20	12.3	12.3	8.07	0.35	23	45	39	2	3	4



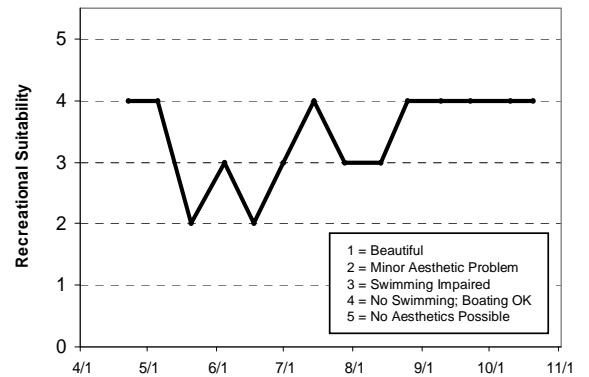
**Lake Water Quality Grades Based on Summertime Averages**

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

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

Year	2004	2005	2006	2007	2008
Total Phosphorus	C	C	C	C	C
Chlorophyll a	C	C	C	B	B
Secchi Depth	B	C	C	C	C
<b>Lake Grade</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>

Source: Metropolitan Council and STORET data



## South Twin Lake (82-0019) Carnelian - Marine Watershed District

South Twin Lake is a 54-acre lake located within Stillwater Township (Washington County). The maximum and mean depths of the lake are 4.0 m (13 ft) and 2.0 m (6.5 ft), respectively. The mean depth of the lake and its surface area translate to an approximate lake volume of 356 ac-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.

The lake's 63-acre immediate watershed and surface area translates to a watershed-to-lake area ratio of 1.2:1 (the greater the ratio, the greater the potential stress on the lake from surface runoff).

The lake was monitored 8 times in 2008. 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.

### 2008 summer (May-September) data summary

<i>Parameter</i>	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Grade</i>
<b>TP</b> (µg/l)	74.0	45.0	109.0	D
<b>CLA</b> (µg/l)	35.5	13.0	69.0	C
<b>Secchi</b> (m)	1.1	0.6	1.7	D
<b>TKN</b> (mg/l)	2.13	1.70	3.00	
			<i>Lake Grade</i>	D

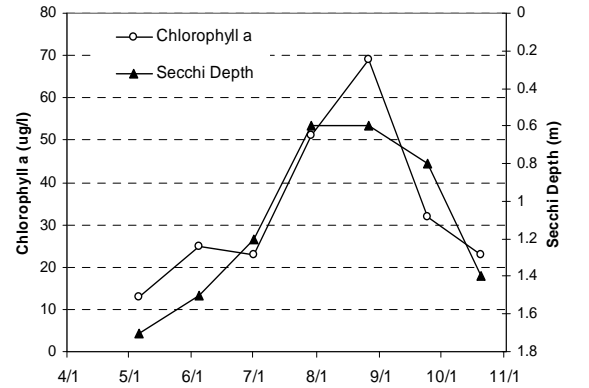
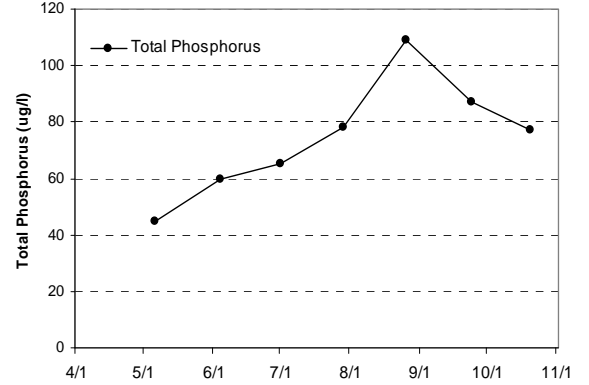
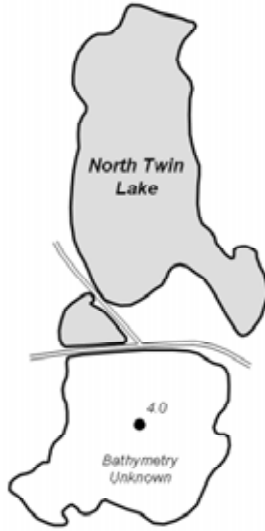
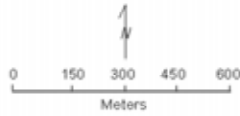
The lake received a lake grade of D for 2008. The lake has received various lake grades since 1996. They varied from D to F to C to D. To better understand the lake's overall water quality and where it may be heading, continued monitoring is suggested.

The volunteer's perceptions of the physical and recreational conditions of the lake are shown on the next page. Each of the conditions was ranked on a scale of 1 to 5. The average physical condition ranking was 3.3 (between 3- "definite algae present" and 4- "high algal color"). The average recreational suitability ranking was 4.0 ("no swimming/boating ok").

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](mailto:brian.johnson@metc.state.mn.us).

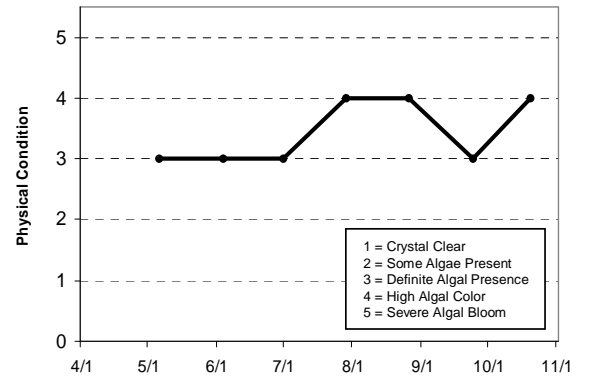
**South Twin Lake**  
Stillwater Twp., Washington Co.

LAKE ID: 820019  
WD: Carnelian-Marine-St. Croix  
Volunteer: Washington  
Conservation District  
● Sampling site  
Contours in meters



**2008 Data**

DATE	Surf Tmp (°C)	Bot Tmp (°C)	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										
5/6	13.2	11.4	10.93	0.69	13	45		1.7	3	4
6/4	18.6	17.7	8.27	0.28	25	60	52	1.5	3	4
7/1	24.5	22.1	10.33	0.33	23	65	101	1.2	3	4
7/29	26.9	22.7	10.96	0.17	51	78	210	0.6	4	4
8/26	22.8	22.2	7.5	0.17	69	109	100	0.6	4	4
9/24	19.8	19.6	5.23	0.22	32	87	93	0.8	3	4
10/20	12.2	12.2	8.17	0.34	23	77	76	1.4	4	4



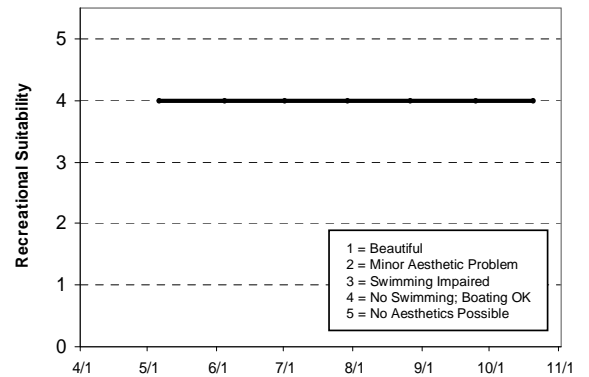
**Lake Water Quality Grades Based on Summertime Averages**

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

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

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

Source: Metropolitan Council and STORET data



## Spring Lake (70-0054) Prior Lake - Spring Lake Watershed District

Spring Lake is located in Spring Lake Township (Scott County). It is considered a Priority Lake by the Metropolitan Council for its high regional recreation value. The lake has a surface area of 630 acres. The maximum and mean depths of the lake are 11.3 and 5.6 m (37 and 18 feet), respectively. About 50 percent of the lake's area is considered littoral, which is the 0-15 feet depth area dominated by aquatic vegetation. The approximate volume of the lake is approximately 11,500 acre-feet (ac-ft). The lake has a 13,500-acre watershed. The lake and watershed areas translate to a watershed-to-lake area ratio of 21:1. The larger the ratio, the greater the potential stress on the lake's quality from surface runoff.

In an attempt to improve the lake's water quality, a ferric chloride (FeCl<sub>3</sub>) addition system was constructed at the outlet of the Highway 13 wetland in 1998. Continuous operation started in 1999. The system was designed to enhance phosphorus (P) removal from the discharge of the wetland prior to entering the lake. The system consists of a dosing station at the outlet of the wetland, followed by a settling basin. The dosing station meters FeCl<sub>3</sub> into the wetland outlet. The FeCl<sub>3</sub> disassociates into free iron (Fe) where it combines with P to form an insoluble Fe-P complex called floc. The desiltation basin then provides an area where the floc can settle out and be removed. The watershed district continues to monitor the effectiveness of the system.

The lake has been monitored in the past by Metropolitan Council staff and via the CAMP. The lake was monitored 5 times in 2008 via the CAMP. 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.

### 2008 summer (May-September) data summary

<i>Parameter</i>	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Grade</i>
<b>TP</b> (µg/l)	58.6	48.0	65.0	C
<b>CLA</b> (µg/l)	59.6	55.0	63.0	D
<b>Secchi</b> (m)	0.9	0.6	1.4	D
<b>TKN</b> (mg/l)	1.92	1.70	2.20	
			<b>Lake Grade</b>	D

The lake received a lake grade of D in 2008. The lake grades have varied from Cs to Ds since 1980. A trend analysis conducted by the MPCA on the lake's Secchi transparency data revealed no statistically significant trend in water clarity (MPCA 2008). Continued monitoring is suggested to provide water quality data for supporting the PLSLWD's efforts in managing Spring Lake.

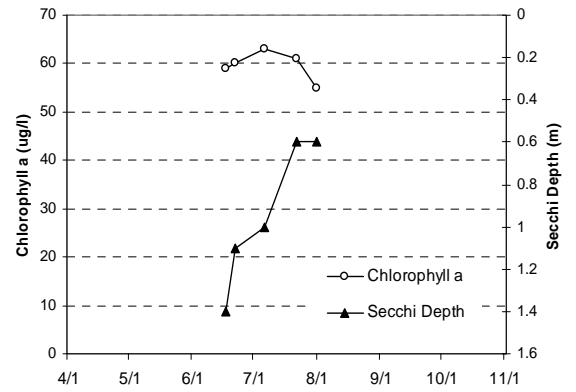
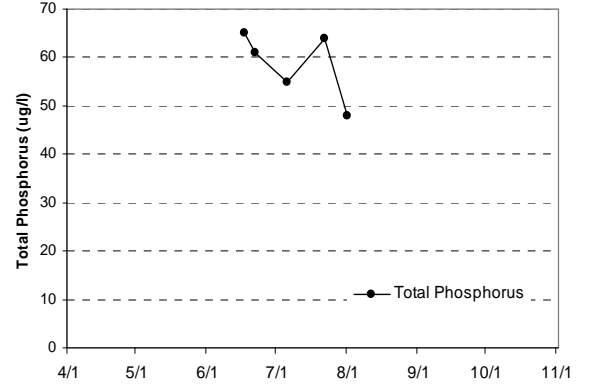
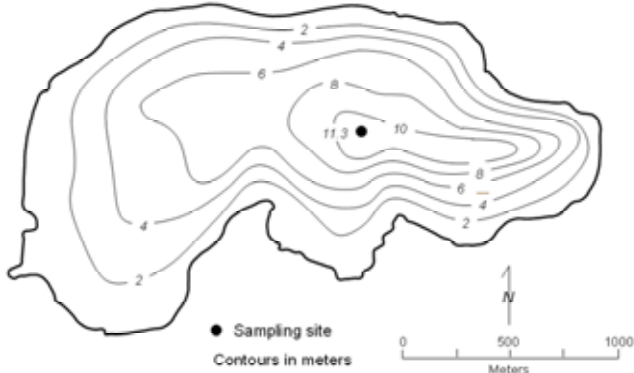
The volunteer's perceptions of the physical and recreational conditions of the lake are shown on the next page. Each of the conditions was ranked on a scale of 1 to 5. The average physical condition ranking was 2.0 ("some algae present"). The average recreational suitability ranking was 1.5 (between 1- "beautiful" and 2- "minor aesthetic problem").

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](mailto:brian.johnson@metc.state.mn.us).

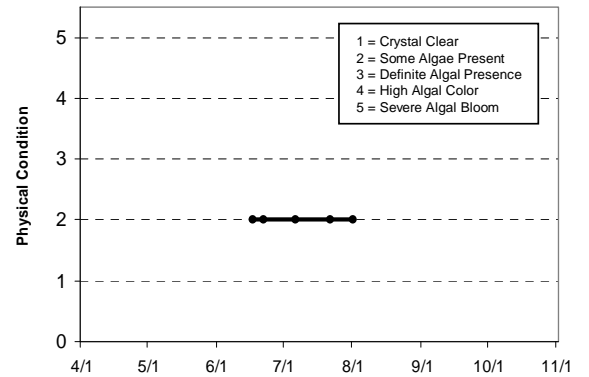
**Spring Lake**  
Prior Lake/Spring Lake Twp., Scott Co.

Lake ID: 700054  
WD: Prior Lake-Spring Lake  
Volunteer: Lisa Kalberg



**2008 Data**

DATE	Surf Tmp (°C)	Bot Tmp (°C)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
6/17	20.4				59	65		1.4	2	2
6/22					60	61		1.1	2	2
7/6	25.1				63	55		1	2	2
7/22	27.6				61	64		0.6	2	1
8/1	25				55	48		0.6	2	1



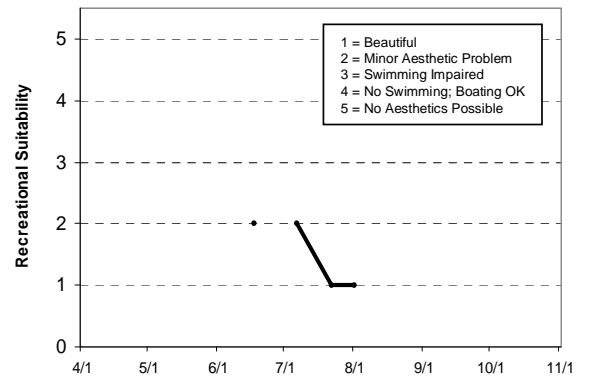
**Lake Water Quality Grades Based on Summertime Averages**

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

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

Year	2004	2005	2006	2007	2008
Total Phosphorus	D	D	D	C	C
Chlorophyll a	D	C	C	D	D
Secchi Depth	D	C	C	D	D
<b>Lake Grade</b>	<b>D</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>D</b>

Source: Metropolitan Council and STORET data



## Square Lake (82-0046) Marine on St. Croix Watershed Management Organization

Square Lake is located in May Township (Washington County). The lake has a surface area of 193 acres, and a maximum and mean depth of 20.7 and 9.0 m, respectively. It has an approximate volume of 5,694 ac-ft. Approximately 65 percent of the lake's surface area is considered littoral zone, which is the 0-15 feet depth zone of aquatic plant dominance.

It is considered a Priority Lake by the Metropolitan Council for its high regional recreation value and exceptional water clarity. The lake is stocked with rainbow trout by the MN DNR. The lake's level is maintained by a combination of groundwater and runoff from the lake's watershed (MDNR 1996). The lake's watershed area is about 782 acres. The watershed is rural and largely undeveloped. The watershed and lake area translate to a watershed-to-lake area ratio of 4:1. The smaller the ratio, the less stress is put on the lake from surface runoff.

The lake has been monitored via the CAMP in 1993-1997 and 1999-2008. The lake also has been monitored in the past by Metropolitan Council staff. The lake was monitored 7 times in 2008. On each sampling day the lake was monitored for Secchi transparency, perceived physical condition, and recreational suitability. Depth profiles for temperature and dissolved oxygen were also measured. The resulting data are summarized in tables and figures on the following page.

### 2008 summer (May-September) data summary

<i>Parameter</i>	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Grade</i>
<b>Secchi (m)</b>	5.0	4.4	5.2	A

The lake continues to receive A grades for water clarity. However, A trend analysis conducted by the MPCA on the lake's Secchi transparency data revealed a statistically significant declining trend in water clarity (MPCA 2008).

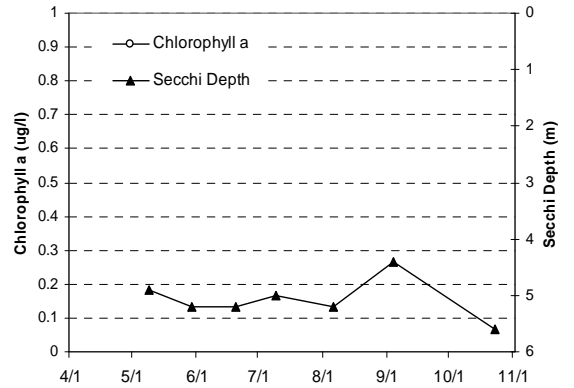
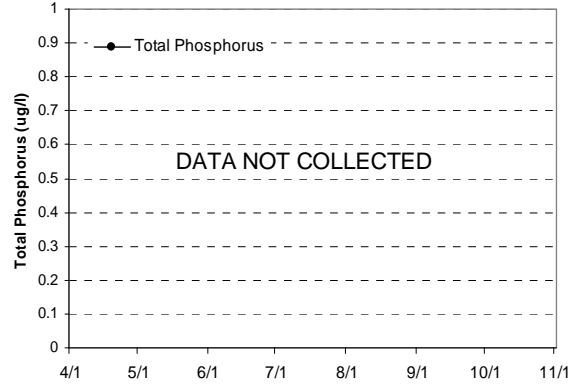
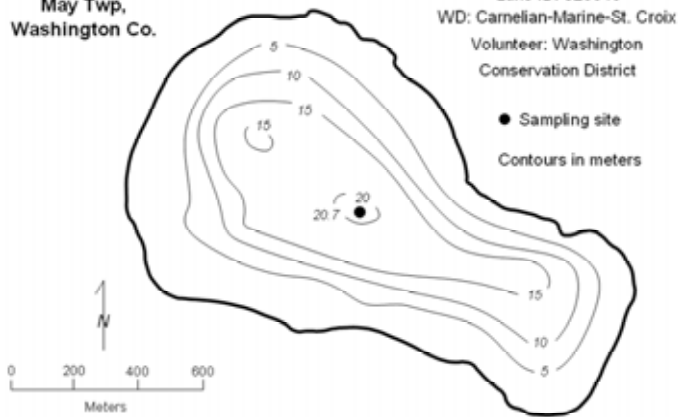
More detailed discussions on the lake, its water chemistry, biological make-up, and hydrology and their influence on the lake can be found in the recent diagnostic-feasibility study completed on the lake as part of a Clean Water Partnership (Square Lake 2001). The complete report highlights the concern of a degrading water clarity trend, the importance of the lake's biological make-up on its overall water quality, and the influence the lake's surface and groundwater watersheds have on the lake's phosphorous load. The Clean Water Partnership report also includes proposed watershed, shoreland, and in-lake projects designed to address issues affecting the lake's quality. An additional resource is an October 2002 report summarizing the lakes recent zooplankton population from monitoring conducted from August 2001-July 2002 (Washington Conservation District 2002)

The volunteer's perceptions of the physical and recreational conditions of the lake are shown on the next page. Each of the conditions was ranked on a scale of 1 to 5. The average physical condition ranking was 1.2 (between 1- "crystal clear" and 2- "some algae present"). The average recreational suitability ranking was 1.0 ("beautiful").

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/>.

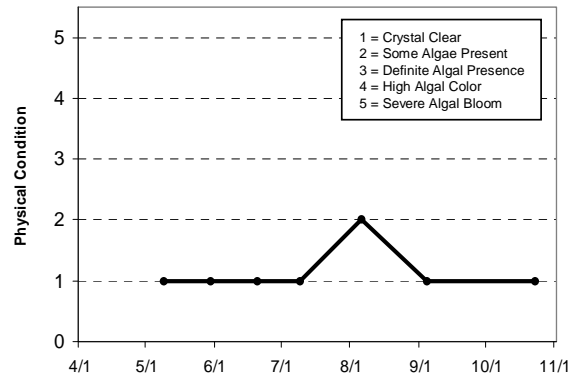
If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or [brian.johnson@metc.state.mn.us](mailto:brian.johnson@metc.state.mn.us).

**Square Lake**  
May Twp,  
Washington Co.



**2008 Data**

DATE	Surf Tmp (°C)	Bot Tmp (°C)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
5/9	11.4	6.1	11.24	0.5				4.9	1	1
5/30	16.1	0.13	10.41	6.6				5.2	1	1
6/20	22.3	6.7	9.38	0.18				5.2	1	1
7/9	24.7	6.8	8.58	0.37				5	1	1
8/6	25.8	6.9	7.42	0.28				5.2	2	1
9/4	22.4	7	7.04	0.23				4.4	1	1
10/23	12.2	7.3	8.76	0.29				5.6	1	1



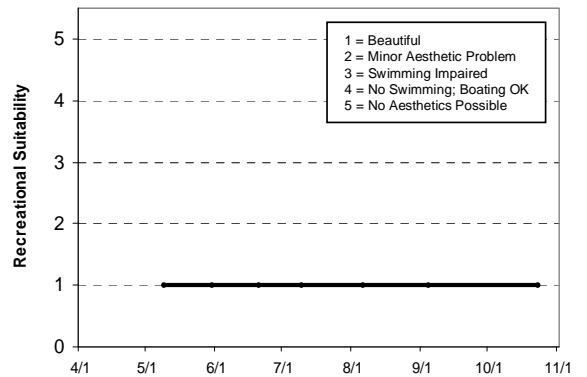
**Lake Water Quality Grades Based on Summertime Averages**

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

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

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

Source: Metropolitan Council and STORET data



**St. Croix Lake [Whole Lake] (82-0001) St. Croix Basin Planning Team**

Lake St. Croix is divided into four distinct pools: Bayport Pool, Troy Beach Pool, Black Bass Pool, and Kinnickinnic Pool. There were five monitoring sites amongst the four pools in 2008. The results will be discussed for the entire lake, as well as individually for each of the five sites.

Lake St. Croix (approximately 8,600 acres) is considered by the MNDNR to extend from Stillwater, Minnesota to Prescott, Wisconsin, a distance of approximately 23 miles. The morphometry of each of the pools is shown in the table below.

**Lake St. Croix Morphometry**

<i>Pool Name</i>	<i>Length (miles)</i>	<i>Area (ac)</i>	<i>Volume (ac-ft)</i>	<i>Mean depth range (dry vs. wet years) (meters)</i>
<b>Bayport Pool</b>	6.0	2,800	62,500	6.2-7.3
<b>Troy Beach Pool</b>	6.0	3,100	107,800	9.9-11.0
<b>Black Bass Pool</b>	7.0	1,300	59,600	12.9-14.0
<b>Kinnickinnic Pool</b>	5.0	1,400	46,274	9.2-10.3

(USGS 2002)

The MN DNR has designated the lake as being infested with Eurasian water milfoil (*Myriophyllum spicatum*) and Zebra mussels (*Dreissena spp.*).

This marks the fourth year in which any of the Lake St. Croix sites have been formally involved in CAMP. A citizen-monitoring program conducted by the St. Croix Basin Team produced water quality data for four sites (Bayport Pool- Site 2; Troy Beach Pool-Site 3; Troy Beach Pool-Site 5; and Black Bass Pool-Site 6) during the 1999-2002 and 2005-2008 periods, and for one site (Kinnickinnic Pool-Site 7) during the 2000-2001 and 2005-2008 periods. All data are available in STORET.

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.

**2008 summer (May-September) data summary**

<i>Parameter</i>	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Grade</i>
<b>TP</b> (µg/l)	41	25	72	C
<b>CLA</b> (µg/l)	16	4.8	33	B
<b>Secchi</b> (m)	1.6	1.0	3.2	C
<b>TKN</b> (mg/l)	0.75	0.44	1.30	
			<b>Lake Grade</b>	C

The whole lake received a lake grade of C for 2008, which is similar to those recorded in 1999-2002 and 2005-2007. That said, the individual parameter means indicate that 2006 was the lake’s best water quality year since the inception of the volunteer monitoring program. A trend analysis conducted by the MPCA on the lake’s Secchi transparency data revealed no statistically significant trend in water clarity (MPCA 2008). To better understand the lake’s water quality and where it may be heading, additional years of data collection are needed.

**Lake water quality grades based on the whole lakes summer means**

<i>Year</i>	<i>1999</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>2008</i>
<b>Total Phosphorus</b>	D	D	C	C			C	C	C	C
<b>Chlorophyll a</b>	B	C	C	C			B	B	C	B
<b>Secchi Depth</b>	C	C	C	C			C	C	C	C
<b>Overall</b>	C	C	C	C			C	C	C	C

Source: Metropolitan Council and STORET data

The volunteer’s perceptions of the physical and recreational conditions of the lake were averaged to determine the perceptions for the whole lake. Each of the conditions was ranked on a scale of 1 to 5. The average physical condition ranking was 2.3 (between 2- “some algae present” and 3- “definite algae present”). The average recreational suitability ranking was 2.0 (“minor aesthetic problem”).

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](mailto:brian.johnson@metc.state.mn.us).

## St. Croix Lake [Bayport Pool-Site 2] (82-0001) *St. Croix Basin Planning Team*

Lake St. Croix [Bayport Pool-Site 2] was monitored 9 times in 2008. 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.

### 2008 summer (May-September) data summary

<i>Parameter</i>	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Grade</i>
<b>TP</b> ( $\mu\text{g/l}$ )	42.0	34.0	56.0	C
<b>CLA</b> ( $\mu\text{g/l}$ )	19	8.2	33	B
<b>Secchi</b> (m)	1.4	1.2	1.6	C
<b>TKN</b> (mg/l)	0.74	0.56	1.00	
			<i>Lake Grade</i>	C

The pool received a lake grade of C for 2008, which is similar to lake grades received in the past. To better understand the lake's water quality and where it may be heading, additional years of data collection are needed.

The volunteer's perceptions of the physical and recreational conditions of the lake are shown on the next page. Each of the conditions was ranked on a scale of 1 to 5. The average physical condition ranking was 2.0 ("some algae present"). The average recreational suitability ranking was 1.6 (between 1- "beautiful" and 2- "minor aesthetic problem").

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](mailto:brian.johnson@metc.state.mn.us).

**Lake St. Croix,  
Bayport Pool, Site 2  
Minnesota/Wisconsin**

Lake ID: 820001-02  
Volunteers: Jim and Roberta Harper

● Sampling site  
Contours in meters



**2008 Data**

Date	Surf Temp C	CLA ug/L	Surf TP ug/L	Secchi (m)	PC	RS
5/20	17.4	14	56	1.4	1	1
6/1	21.2	23	46	1.2	2	1
6/17	21.1	11	34	1.2	2	2
6/30	24.2	8.2	56	1.4	2	1
7/14	27.4	12	41	1.4	2	2
7/28	28.0	26	37	1.6	2	1
8/8	27.2	33	37	1.2	2	2
9/9	24.4	23	37	1.6	3	2
9/22	20.7	21	35	1.6	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>Lake Grade</b>												

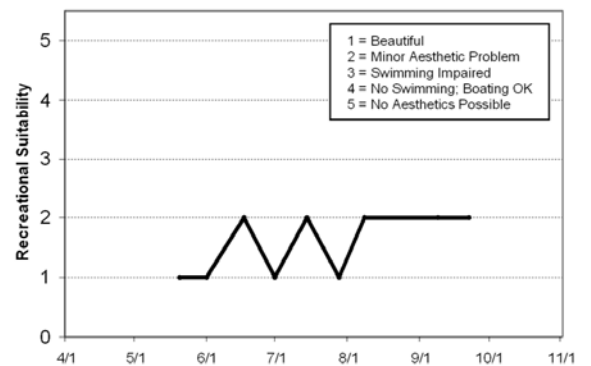
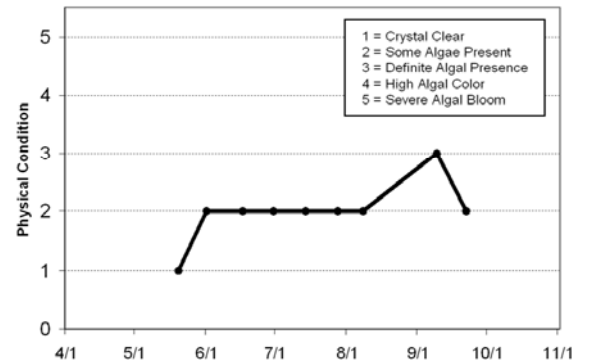
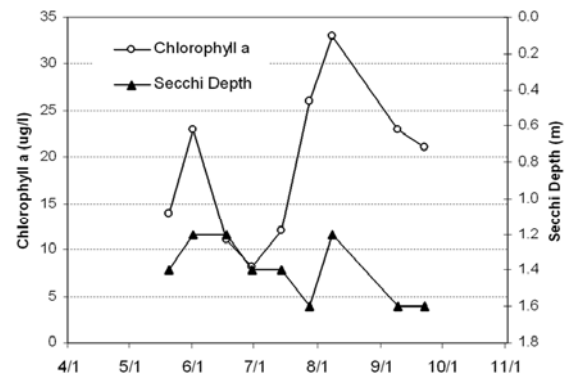
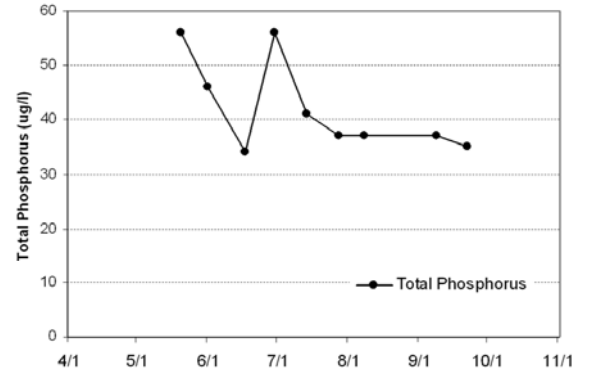
  

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total Phosphorus								C	D	D	D	
Chlorophyll a								B	C	C	C	
Secchi Depth								C	C	C	D	
<b>Lake Grade</b>								<b>C</b>	<b>C</b>	<b>C</b>	<b>D</b>	

Year	2004	2005	2006	2007	2008
Total Phosphorus	C	C	C	C	C
Chlorophyll a	C	C	C	C	B
Secchi Depth	C	C	C	C	C
<b>Lake Grade</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>

Source: Metropolitan Council and STORET data



**St. Croix Lake [Troy Beach Pool-Site 3] (82-0001) St. Croix Basin Planning Team**

Lake St. Croix [Troy Beach Pool-Site 3] was monitored 10 times in 2008. 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.

**2008 summer (May-September) data summary**

<i>Parameter</i>	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Grade</i>
<b>TP</b> (µg/l)	42.0	26.0	66.0	C
<b>CLA</b> (µg/l)	15	4.9	24	B
<b>Secchi</b> (m)	1.6	1.0	2.0	C
<b>TKN</b> (mg/l)	0.65	0.44	0.90	
<b>Lake Grade</b>				C

The site received a lake grade of C for 2008, which is similar to those recorded in 1999-2001 and 2005-2007, and better than the D recorded in 2002. To better understand the lake’s water quality and where it may be heading, additional years of data collection are needed.

The volunteer’s perceptions of the physical and recreational conditions of the lake are shown on the next page. Each of the conditions was ranked on a scale of 1 to 5. The average physical condition ranking was 2.1 (between 2- “some algae present” and 3- “definite algae present”). The average recreational suitability ranking was 2.1 (between 2- “minor aesthetic problem” and 3- “swimming slightly impaired”).

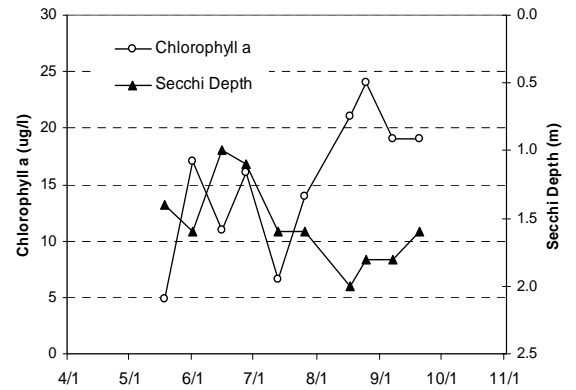
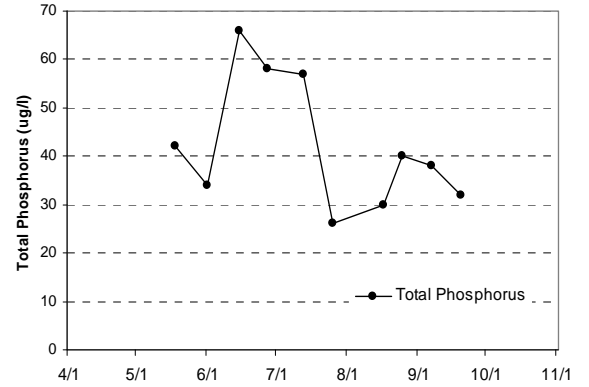
If you notice any errors in the lake’s data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or [brian.johnson@metc.state.mn.us](mailto:brian.johnson@metc.state.mn.us).

**Lake St. Croix,  
Troy Beach Pool, Site 3  
Minnesota/Wisconsin**

Lake ID: 820001-03

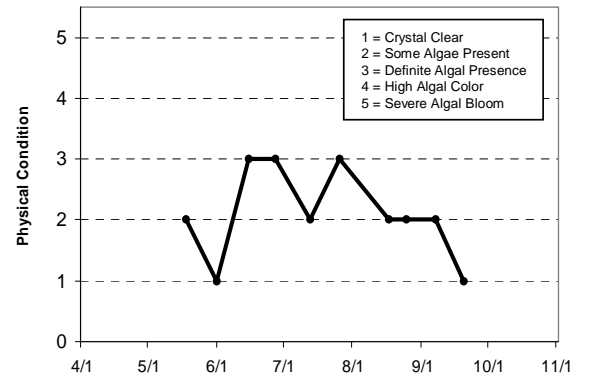
Volunteers: Cecilia and Harry Martin

● Sampling site  
Contours in meters



**2008 Data**

Date	Surf Tmp C	CLA ug/L	Surf TP ug/L	Secchi (m)	PC	RS
5/18	15.1	4.9	42	1.4	2	2
6/1	20.8	17	34	1.6	1	1
6/15	21.1	11	66	1.0	3	3
6/27	25.0	16	58	1.1	3	3
7/13	23.8	6.6	57	1.6	2	2
7/26	26.4	14	26	1.6	3	3
8/17	24.6	21	30	2.0	2	2
8/25	25.5	24	40	1.8	2	2
9/7	20.3	19	38	1.8	2	2
9/20	20.5	19	32	1.6	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												
Chlorophyll a												
Secchi Depth												
<b>Lake Grade</b>												

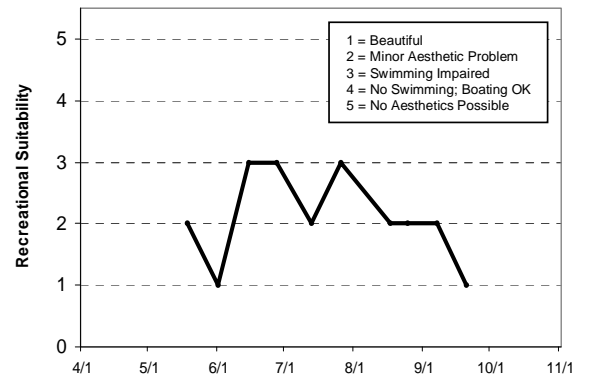
  

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total Phosphorus								D	D	D	D	
Chlorophyll a								B	C	C	C	
Secchi Depth								D	C	C	D	
<b>Lake Grade</b>								<b>C</b>	<b>C</b>	<b>C</b>	<b>D</b>	

Year	2004	2005	2006	2007	2008
Total Phosphorus	C	C	C	C	C
Chlorophyll a	B	B	C	B	
Secchi Depth	C	C	C	C	
<b>Lake Grade</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	

Source: Metropolitan Council and STORET data



**St. Croix Lake [Troy Beach Pool-Site 5] (82-0001) St. Croix Basin Planning Team**

Lake St. Croix [Troy Beach Pool-Site 5] was monitored 8 times in 2008. 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.

**2008 summer (May-September) data summary**

<i>Parameter</i>	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Grade</i>
<b>TP</b> (µg/l)	38.0	25.0	50.0	C
<b>CLA</b> (µg/l)	16	7.0	22	B
<b>Secchi</b> (m)	1.7	1.0	2.0	C
<b>TKN</b> (mg/l)	0.72	0.54	0.92	
<b>Lake Grade</b>				C

The site received a lake grade of C, which is similar to those recorded in 1999-2002 and 2005-2007. To better understand the lake’s water quality and where it may be heading, additional years of data collection are needed.

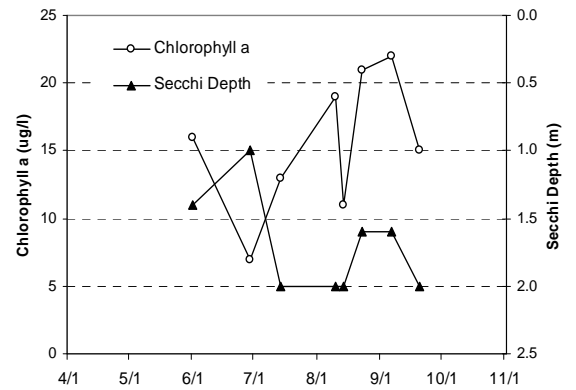
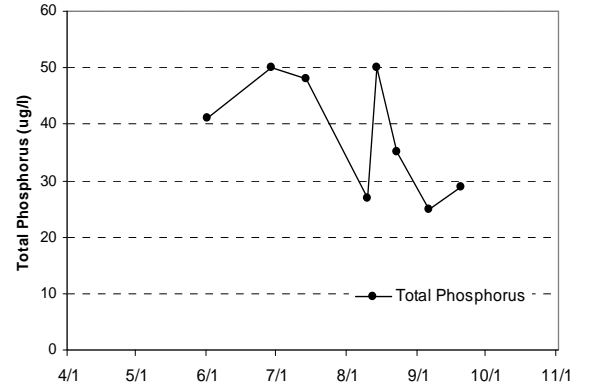
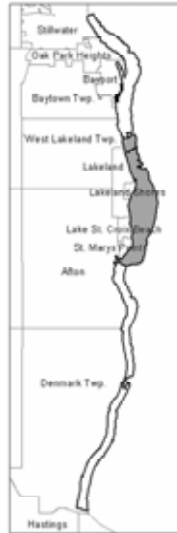
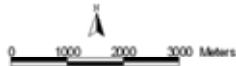
The volunteer’s perceptions of the physical and recreational conditions of the lake are shown on the next page. Each of the conditions was ranked on a scale of 1 to 5. The average physical condition ranking was 2.1 (between 2- “some algae present” and 3- “definite algae present”). The average recreational suitability ranking was 1.4 (between 1- “beautiful” and 2- “minor aesthetic problem”).

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](mailto:brian.johnson@metc.state.mn.us).

**Lake St. Croix,  
Troy Beach Pool, Site 5  
Minnesota/Wisconsin**

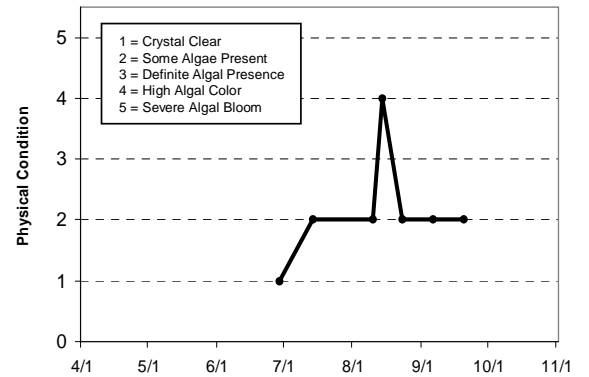
Lake ID: 820001-05  
Volunteers: Richard and Sheryl Lindholm

● Sampling site  
Contours in meters



**2008 Data**

Date	Surf Tmp C	CLA ug/L	Surf TP ug/L	Secchi (m)	PC	RS
6/1	19.2	16	41	1.4		1
6/29	23.0	7.0	50	1.0	1	1
7/14	26.1	13	48	2.0	2	2
8/10	26.1	19	27	2.0	2	1
8/14	26.2	11	50	2.0	4	3
8/23	24.9	21	35	1.6	2	1
9/6	22.3	22	25	1.6	2	1
9/20	21.7	15	29	2.0	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												
Chlorophyll a												
Secchi Depth												
<b>Lake Grade</b>												

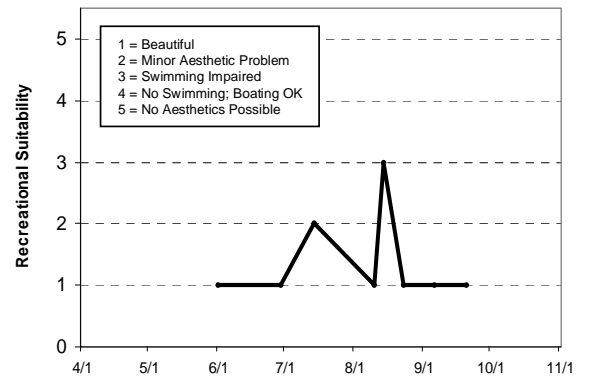
  

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total Phosphorus								D	D	C	C	
Chlorophyll a								B	C	C	C	
Secchi Depth								C	C	C	C	
<b>Lake Grade</b>								<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	

Year	2004	2005	2006	2007	2008
Total Phosphorus	C	C	C	C	C
Chlorophyll a	C	B	C	C	B
Secchi Depth	C	C	C	C	C
<b>Lake Grade</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>

Source: Metropolitan Council and STORET data



**St. Croix Lake [Black Bass Pool-Site 6] (82-0001) St. Croix Basin Planning Team**

Lake St. Croix [Black Bass Pool-Site 6] was monitored 10 times between mid-May and late-September, 2007. On each sampling day the lake was monitored for TP, CLA, TKN, and Secchi transparency, as well as the lake’s perceived physical condition and recreational suitability. The resulting data and graphs appear on the next page.

**2008 summer (May-September) data summary**

<i>Parameter</i>	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Grade</i>
<b>TP</b> (µg/l)	41.0	27.0	54.0	C
<b>CLA</b> (µg/l)	15.0	4.8	23.0	B
<b>Secchi</b> (m)	1.7	1.4	2.0	C
<b>TKN</b> (mg/l)	0.81	0.64	1.00	
<b>Lake Grade</b>				C

The site received a lake grade of C for 2008, which is similar to those recorded in 1999-2002 and 2005-2006. To better understand the lake’s water quality and where it may be heading, additional years of data collection are needed.

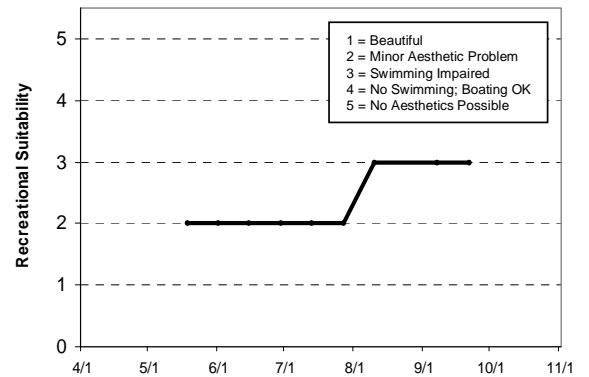
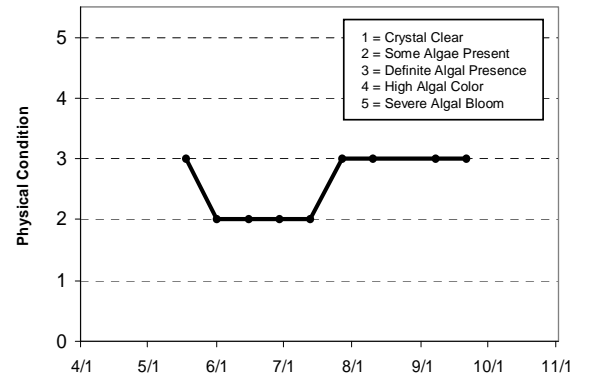
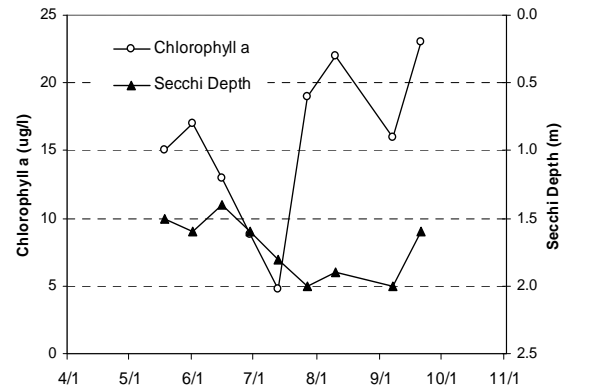
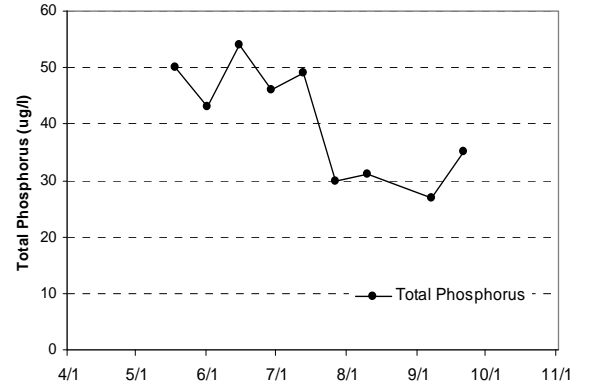
The volunteer’s perceptions of the physical and recreational conditions of the lake are shown on the next page. Each of the conditions was ranked on a scale of 1 to 5. The average physical condition ranking was 2.6 (between 2- “some algae present” and 3- “definite algae present”). The average recreational suitability ranking was 2.3 (between 2- “minor aesthetic problem” and 3- “swimming slightly impaired”).

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](mailto:brian.johnson@metc.state.mn.us).

**Lake St. Croix,  
Black Bass Pool, Site 6  
Minnesota/Wisconsin**

Lake ID: 820001-08  
Volunteer: Rick Meierotto

● Sampling site  
Contours in meters



**2008 Data**

Date	Surf Tmp C	CLA ug/L	Surf TP ug/L	Secchi (m)	PC	RS
5/18	15.9	15	50	1.5	3	2
6/1	20.5	17	43	1.6	2	2
6/15	22.4	13	54	1.4	2	2
6/29	23.9	8.8	46	1.6	2	2
7/13	24.1	4.8	49	1.8	2	2
7/27	26.8	19	30	2.0	3	2
8/10	26.4	22	31	1.9	3	3
9/7	22.9	16	27	2.0	3	3
9/21	22.8	23	35	1.6	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												
<b>Lake Grade</b>												

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

Year	2004	2005	2006	2007	2008
Total Phosphorus	C	C	C	C	C
Chlorophyll a	B	B	C	B	
Secchi Depth	C	C	C	C	
<b>Lake Grade</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>

Source: Metropolitan Council and STORET data

**St. Croix Lake [Kinnickinnic Pool-Site 7] (82-0001) St. Croix Basin Planning Team**

Lake St. Croix [Kinnickinnic Pool-Site 7] was monitored 5 times in 2008. 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.

**2008 summer (May-September) data summary**

<i>Parameter</i>	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Grade</i>
<b>TP</b> (µg/l)	43.0	25.0	72.0	C
<b>CLA</b> (µg/l)	20	9.4	33	B
<b>Secchi</b> (m)	2.0	1.0	3.2	C
<b>TKN</b> (mg/l)	0.91	0.43	2.10	
<b>Lake Grade</b>				C

The site received a lake grade of C for 2008, which is similar to the C recorded in 2000 and but worse than the B lake grades received in 2005 – 2007. To better understand the lake’s water quality and where it may be heading, additional years of data collection are needed.

The volunteer’s perceptions of the physical and recreational conditions of the lake are shown on the next page. Each of the conditions was ranked on a scale of 1 to 5. The average physical condition ranking was 3.0 (“definite algae present”). The average recreational suitability ranking was 3.2 (between 3- “swimming slightly impaired” and 4- “no swimming/boating ok”).

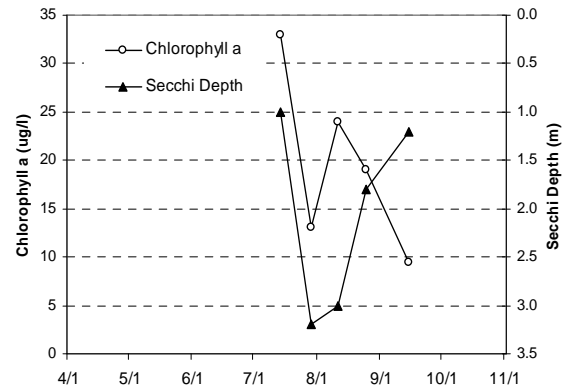
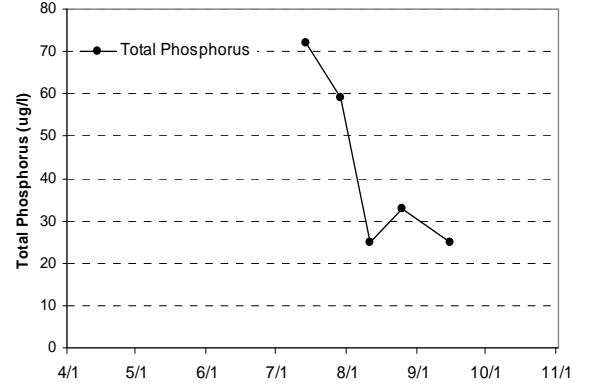
If you notice any errors in the lake’s data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or [brian.johnson@metc.state.mn.us](mailto:brian.johnson@metc.state.mn.us).

**Lake St. Croix,  
Kinnickinnic Pool, Site 7  
Minnesota/Wisconsin**

Lake ID: 820001-07

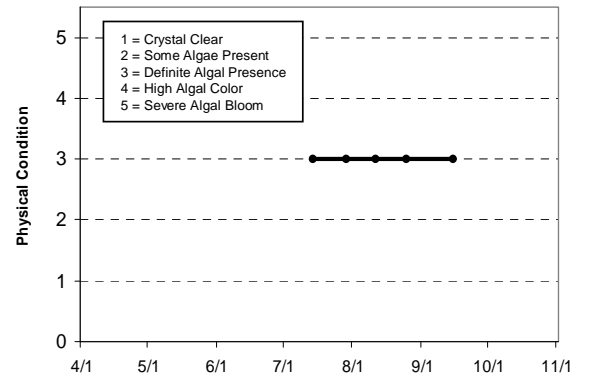
Volunteer: Carpenter Nature Center

● Sampling site  
Contours in meters



**2008 Data**

Date	Surf Tmp C	CLA ug/L	Surf TP ug/L	Secchi (m)	PC	RS
7/14	28.7	33	72	1.0	3	3
7/29	27.5	13	59	3.2	3	3
8/11	25.4	24	25	3.0	3	3
8/25	24.9	19	33	1.8	3	4
9/15	22.0	9.4	25	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												
Chlorophyll a												
Secchi Depth												
Lake Grade												

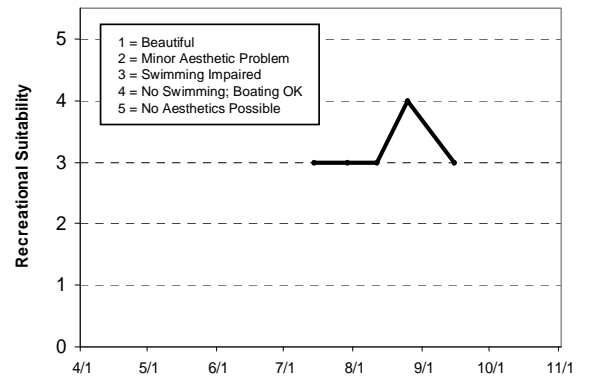
  

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total Phosphorus									C	D		
Chlorophyll a									B	B		
Secchi Depth									C	NA		
Lake Grade									C			

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

Source: Metropolitan Council and STORET data



## St. Joe Lake (10-0011) City of Chanhassen

St. Joe Lake is a 14-acre lake located within the City of Chanhassen (Carver County). It has a maximum depth of 15.9 m (52 ft). Approximately 46 percent of the lake's surface area is considered littoral zone, which is the 0-15 feet depth zone of aquatic plant dominance.

The lake was monitored 9 times in 2008. 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.

### 2008 summer (May-September) data summary

<i>Parameter</i>	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Grade</i>
<b>TP</b> (µg/l)	19.1	16.0	23.0	A
<b>CLA</b> (µg/l)	7.1	1.5	19.0	A
<b>Secchi</b> (m)	2.9	1.7	4.4	B
<b>TKN</b> (mg/l)	0.95	0.75	1.10	
<b>Lake Grade</b>				A

The lake received a lake grade of A for 2008, which is similar to lake grades received in the past. Continued monitoring is suggested to continue to build the water quality database for improving confidence in detecting potential trends in water quality.

The volunteer's perceptions of the physical and recreational conditions of the lake are shown on the next page. Each of the conditions was ranked on a scale of 1 to 5. The average physical condition ranking was 3.1 (between 3- "definite algae present" and 4- "high algal color"). The average recreational suitability ranking was 1.9 (between 1- "beautiful" and 2- "minor aesthetic problem").

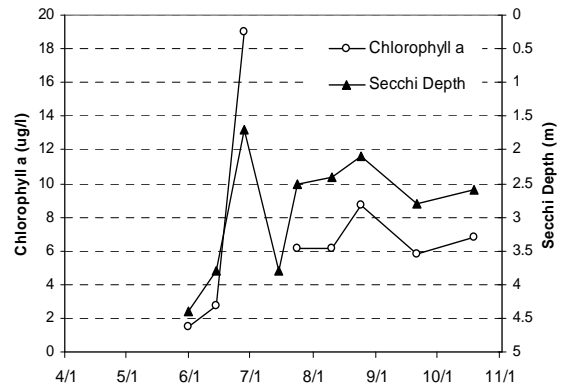
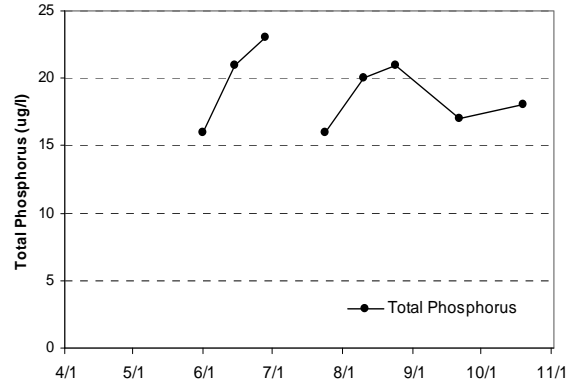
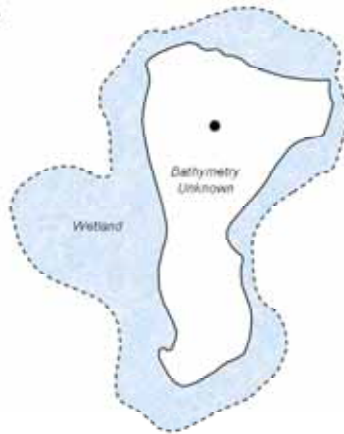
The Fisheries Section of the Minnesota Department of Natural Resources (MDNR) has conducted a fisheries survey on the lake. Information on the survey can be obtained through the MDNR Fisheries Section by calling (651) 259-5831 or by downloading the information off the Internet at <http://www.dnr.state.mn.us/lakefind/>.

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](mailto:brian.johnson@metc.state.mn.us).

**St. Joe's Lake**  
Chanhassen, Carver Co.

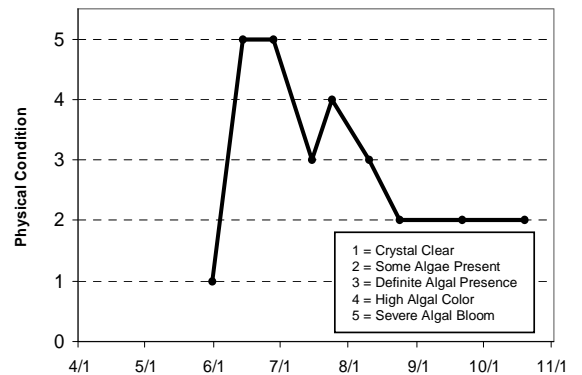
LAKE ID: 100011  
WD: Minnehaha Creek  
Volunteers: Sue Morgan and  
Linda Scott

● Sampling site  
Contours in meters



**2008 Data**

DATE	Surf Temp (°C)	Bot Temp (°C)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
5/31	18.5				1.5	16		4.4	1	1
6/14	20.5				2.7	21		3.8	5	2
6/28	23.7				19	23		1.7	5	4
7/15	24.9							3.8	3	2
7/24	26				6.1	16		2.5	4	2
8/10	26.6				6.1	20		2.4	3	2
8/24	25				8.7	21		2.1	2	1
9/21	21.2				5.8	17		2.8	2	1
10/19	13.2				6.8	18		2.6	2	1



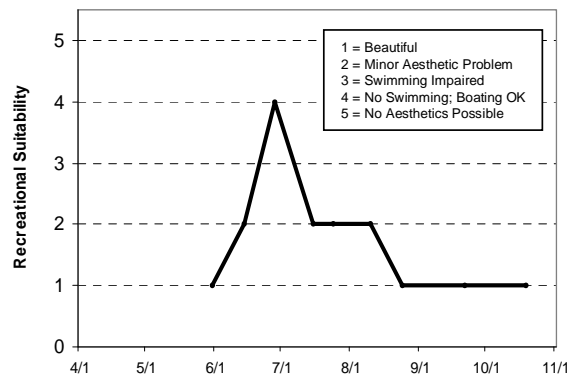
**Lake Water Quality Grades Based on Summertime Averages**

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												
Chlorophyll a												
Secchi Depth				C		B						
Lake Grade												

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

Source: Metropolitan Council and STORET data



**Staples Lake (82-0028) Carnelian - Marine Watershed District**

Staples Lake is a 24-acre lake located within May Township (Washington County). The maximum and mean depths of the lake are 4.3 m (14 feet) and 2.1 m (6.9 ft), respectively. The mean depth of the lake and its surface area translate to an approximate lake volume of 165 ac-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.

The lake’s 127-acre watershed and surface area translates to a watershed-to-lake size ratio of 5.3:1 (the greater the ratio, the greater the potential stress on the lake from surface runoff).

The lake was monitored 7 times in 2008. On each sampling day the lake was monitored for Secchi transparency, as well as the lake’s perceived physical condition and recreational suitability. Depth profiles for temperature and dissolved oxygen were also measured. The resulting data are summarized in tables and figures on the following page.

**2008 summer (May-September) data summary**

<i>Parameter</i>	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Grade</i>
<b>Secchi (m)</b>	2.6	1.8	3.4	B

The lake received a water clarity grade of B for 2008, which is consistent with the historical database.

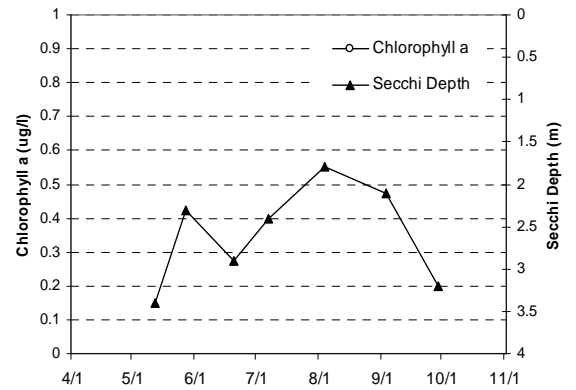
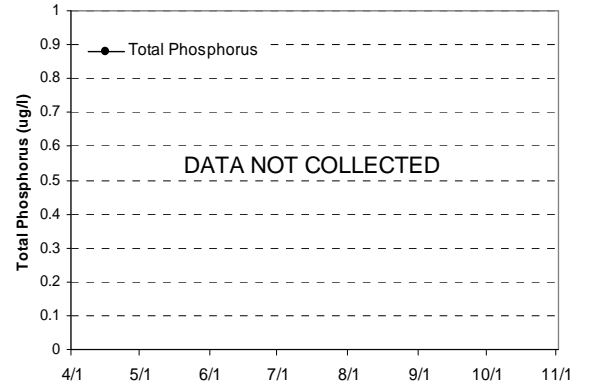
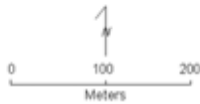
The volunteer’s perceptions of the physical and recreational conditions of the lake are shown on the next page. Each of the conditions was ranked on a scale of 1 to 5. The average physical condition ranking was 2.4 (between 2- “some algae present” and 3- “definite algae present”). The average recreational suitability ranking was 2.6 (between 2- “minor aesthetic problem” and 3- “swimming slightly impaired”).

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](mailto:brian.johnson@metc.state.mn.us).

**Staples Lake**  
May Twp., Washington Co.

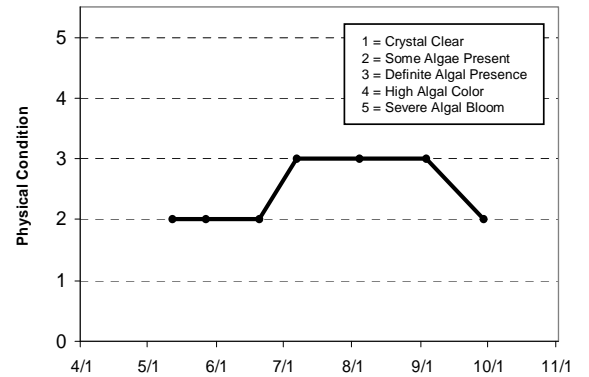
LAKE ID: 820028  
WD: Carnelian-Marine-St. Croix  
Volunteer: Washington  
Conservation District

● Sampling site  
Contours in meters



**2008 Data**

DATE	Surf Temp (°C)	Bot Temp (°C)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
5/12	14.1	12.4	9.67	3.51				3.4	2	3
5/27	17	15.7	8.32	0.19				2.3	2	3
6/20	23.7	18.3	8.74	0.19				2.9	2	2
7/7	26.3	22.7	7.4	0.32				2.4	3	2
8/4	25.2	21.6	4.99	0.23				1.8	3	3
9/3	22	19.9	4.35	0.12				2.1	3	3
9/29	18.1	17.6	4.63	0.18				3.2	2	2



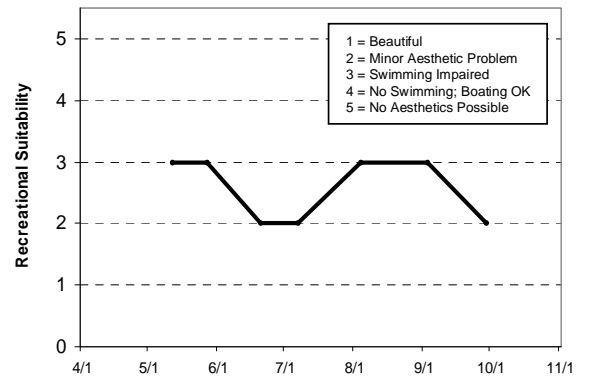
**Lake Water Quality Grades Based on Summertime Averages**

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						B	A	A	C	B		
Chlorophyll a						C	B	B	B	B		
Secchi Depth						B	B	B	B	B	B	C
Lake Grade						B	B	B	B	B		

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

Source: Metropolitan Council and STORET data



## Success Lake (27-0634) Shingle Creek Watershed Management Commission

Success Lake is located in the City of Brooklyn Park (Hennepin County). Bathymetric information is unavailable for this lake.

The lake was monitored 10 times in 2008. 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.

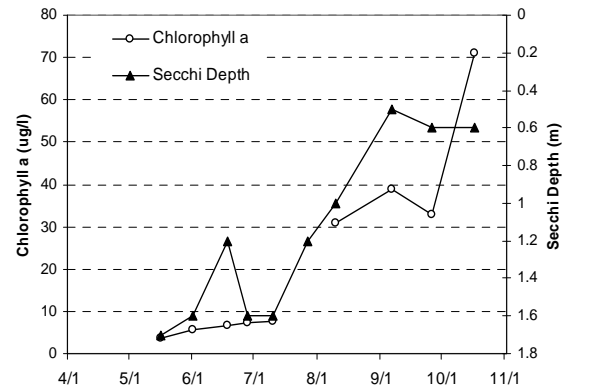
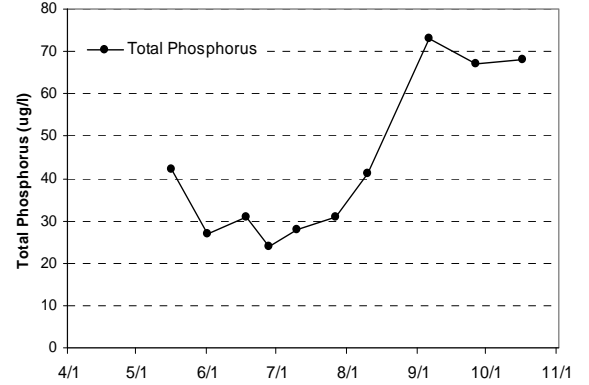
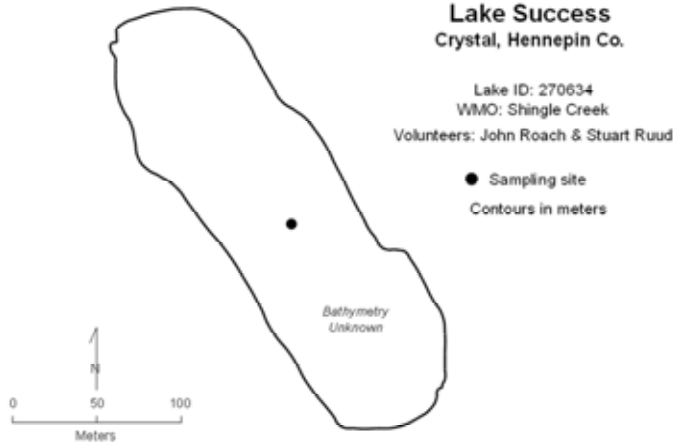
### 2008 summer (May-September) data summary

<i>Parameter</i>	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Grade</i>
<b>TP</b> (µg/l)	40.4	24.0	73.0	C
<b>CLA</b> (µg/l)	16.7	3.6	39.0	B
<b>Secchi</b> (m)	1.2	0.5	1.7	C
<b>TKN</b> (mg/l)	1.20	0.34	2.00	
<b>Lake Grade</b>				C

The lake received a lake grade of C for 2008, which is consistent with the lake grades received in 2003 and 2006. However, the lake received a better lake grade of B in 1996. Continued monitoring is suggested to continue to build the historical water quality database for determining potential trends in water quality.

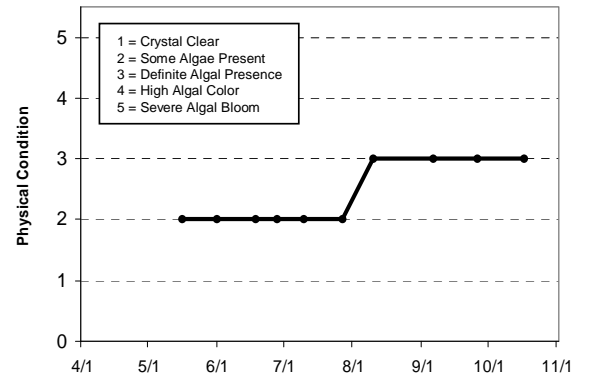
The volunteer's perceptions of the physical and recreational conditions of the lake are shown on the next page. Each of the conditions was ranked on a scale of 1 to 5. The average physical condition ranking was 2.3 (between 2- "some algae present" and 3- "definite algae present"). The average recreational suitability ranking was 2.7 (between 2- "minor aesthetic problem" and 3- "swimming slightly impaired").

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](mailto:brian.johnson@metc.state.mn.us).



**2008 Data**

DATE	Surf Tmp (°C)	Bot Tmp (°C)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
5/16	20.1				3.6	42		1.7	2	2
6/1	21.9				5.8	27		1.6	2	2
6/18	24.2				6.5	31		1.2	2	3
6/28	24.5				7.4	24		1.6	2	2
7/10	25.3				7.6	28		1.6	2	2
7/27	27.1				31	31		1.2	2	2
8/10	26.2				31	41		1	3	3
9/6	21.7				39	73		0.5	3	4
9/26	21.2				33	67		0.6	3	4
10/17	12.5				71	68		0.6	3	3



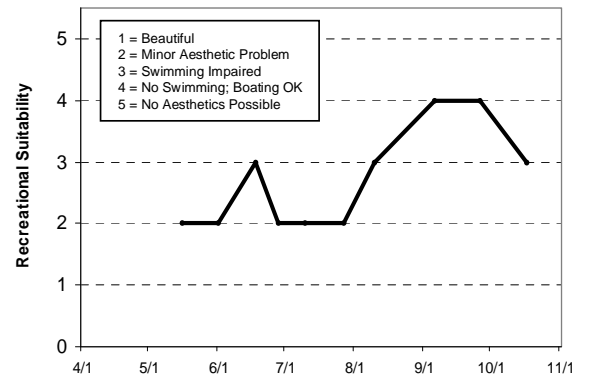
**Lake Water Quality Grades Based on Summertime Averages**

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

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

Year	2004	2005	2006	2007	2008
Total Phosphorus		D			C
Chlorophyll a		B			B
Secchi Depth		D			C
<b>Lake Grade</b>		<b>C</b>			<b>C</b>

Source: Metropolitan Council and STORET data



## Sunfish Lake [Sunfish Lake] (19-0050) City of Sunfish Lake

Sunfish Lake is a small 49-acre lake located in the City of Sunfish Lake (Dakota County). This was the third year that Sunfish Lake has been involved in the CAMP. A search through the STORET nationwide water quality database for data on the lake provided no data other than Secchi depth information for 1984-1986 and 1991. Therefore 2006 through 2008 are the only years of available water quality data.

The lake was monitored 13 times between early May and mid-October 2008. During each sampling event the lake was monitored for total phosphorus (TP), chlorophyll-a (CLA), and total Kjeldahl nitrogen (TKN), and Secchi transparency, as well as the lake's perceived physical condition and recreational suitability.

### 2008 summer (May-September) data summary

<i>Parameter</i>	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Grade</i>
<b>TP</b> (µg/l)	39	13	73	C
<b>CLA</b> (µg/l)	32	1.7	82	C
<b>Secchi</b> (m)	1.6	0.6	4.1	C
<b>TKN</b> (mg/l)	1.1	0.62	1.9	
			<i>Lake Grade</i>	C

The lake water quality grade for 2008 was a C, which is similar to the lake grades received in 2006 and 2007. The average TP concentration was similar in magnitude as observed in 2007. The minimum and maximum TP concentrations were similar between 2008 and 2007 as well. The average CLA concentration in 2008 was higher in comparison to 2007, with the same pattern observed in the minimum and maximum CLA values. The average water clarity was lower in 2008 than in 2007 but the minimum and maximum water clarity measurements were similar in 2008 and 2007. It appears that the lake water quality in 2008 was similar to 2007 with respect to TP, but algal abundance was higher and water clarity was lower in 2008 compared to 2007, on average, as indicated by the CLA and Secchi measurements. However, the average TP, Secchi depth, and TKN measurements in 2008 were indicative of better water quality in comparison to those measurements in 2006. CLA concentrations (average, minimum, maximum) in 2008 were similar to those observed in 2006.

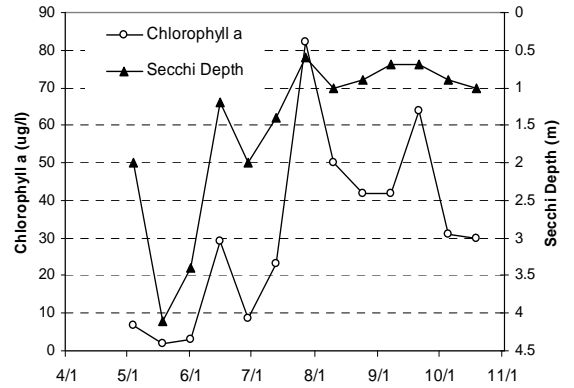
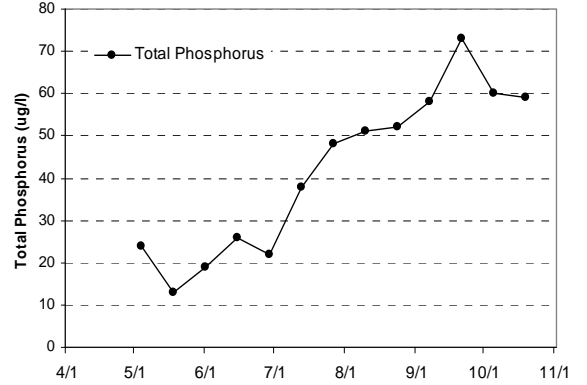
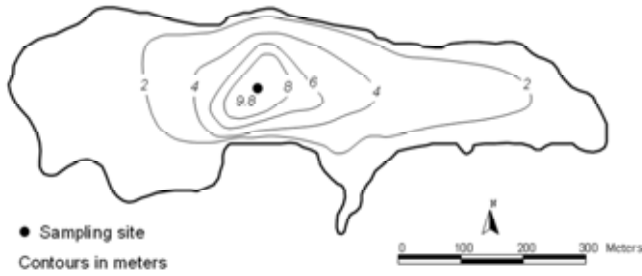
As mentioned earlier, there are no nutrient data available for Sunfish Lake other than the 2006 through 2008 CAMP data. Therefore there are insufficient data at this time to determine long-term trends with sufficient statistical confidence. Given the past 3 years of water quality data, the lake appears to be characterized by a lake water quality grade of C with some variation in water quality conditions from year to year. Furthermore, Secchi measurements indicate that the water clarity from the mid-1980s was represented by a grade of C as well. To better understand the lake's water quality and where it may be heading, additional years of data collection are needed.

The perceived physical and recreational conditions (ranked on a 1-to-5 scale) are shown on the lake's information sheet on the next page. The average user perception rankings were 3.0 for physical condition ("definite algae present"), and 1.9 for recreational suitability (between 1- "Beautiful" and 2- "minor aesthetic problem").

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](mailto:brian.johnson@metc.state.mn.us).

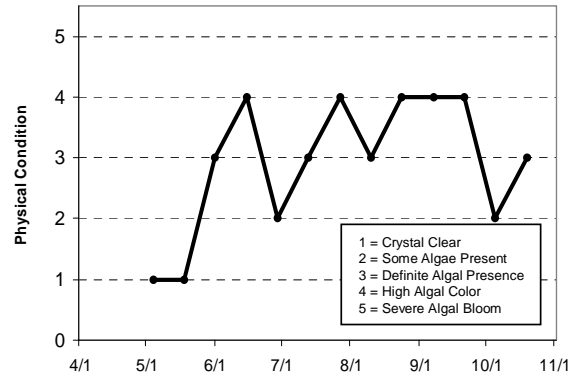
**Sunfish Lake**  
Sunfish Lake, Dakota Co.

Lake ID: 190050  
WMO: Lower Mississippi River  
Volunteer: Dick Bancroft



**2008 Data**

DATE	Surf Temp (°C)	Bot Temp (°C)	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	13.1				6.9	24		2	1	1
5/18	16.4				1.7	13		4.1	1	1
6/1	19.2				3.1	19		3.4	3	1
6/15	21.3				29	26		1.2	4	2
6/29	23.9				8.5	22		2	2	1
7/13	23.9				23	38		1.4	3	1
7/27	26.5				82	48		0.6	4	3
8/10	24.7				50	51		1	3	3
8/24	23.6				42	52		0.9	4	3
9/7	19.9				42	58		0.7	4	3
9/21	20.7				64	73		0.7	4	3
10/5	15.3				31	60		0.9	2	2
10/19	13.4				30	59		1	3	2



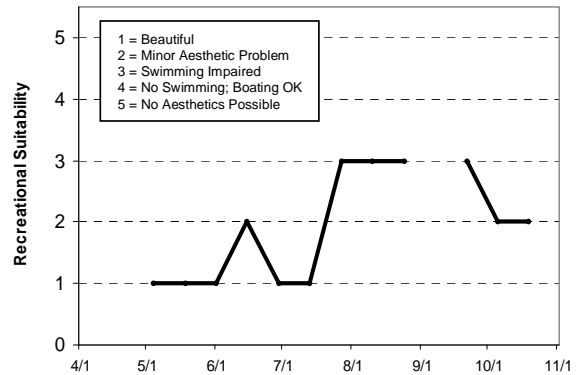
**Lake Water Quality Grades Based on Summertime Averages**

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

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

Year	2004	2005	2006	2007	2008
Total Phosphorus		C	C	C	
Chlorophyll a		C	C	C	
Secchi Depth		D	C	C	
<b>Lake Grade</b>		C	C	C	

Source: Metropolitan Council and STORET data



## Sunfish Lake [Lake Elmo] (82-0107) Valley Branch Watershed District

Sunfish Lake is a 50-acre lake located in the City of Lake Elmo (Washington County). The lake has a maximum depth of approximately 3.4 m (11 ft). The lake has a 526-acre immediate drainage area, which results in a watershed-to-lake area ratio of approximately 11:1. The greater the ratio, the greater the potential stress on the lake from surface runoff.

The lake was monitored 7 times in 2008. 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.

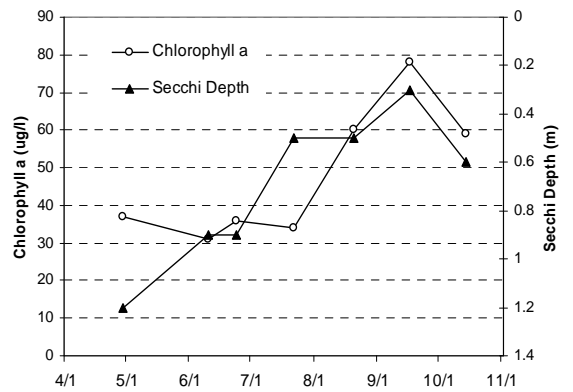
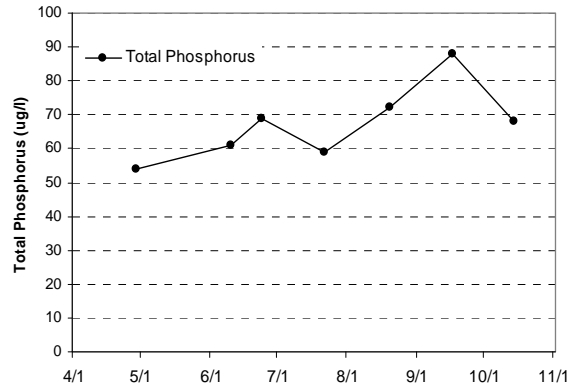
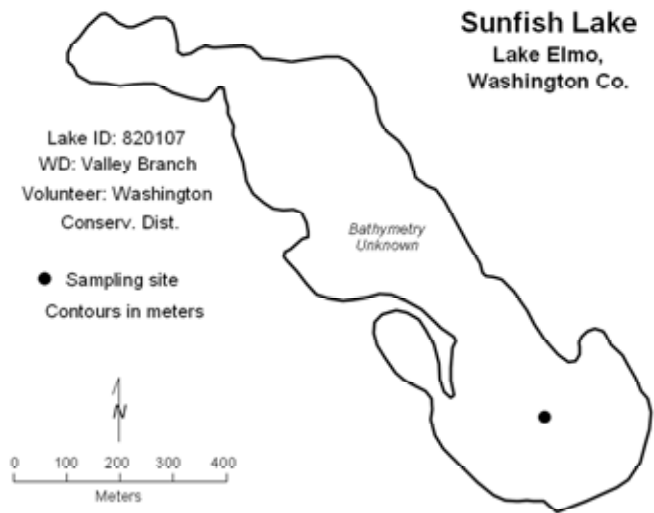
### 2008 summer (May-September) data summary

<i>Parameter</i>	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Grade</i>
<b>TP</b> (µg/l)	69.8	59.0	88.0	D
<b>CLA</b> (µg/l)	47.8	31.0	78.0	C
<b>Secchi</b> (m)	0.6	0.3	0.9	F
<b>TKN</b> (mg/l)	1.92	1.50	2.30	
			<i>Lake Grade</i>	D

The lake received a lake grade of D for 2008, which is similar to lake grades received in the past. Continued monitoring is suggested to continue to build the water quality database for this lake.

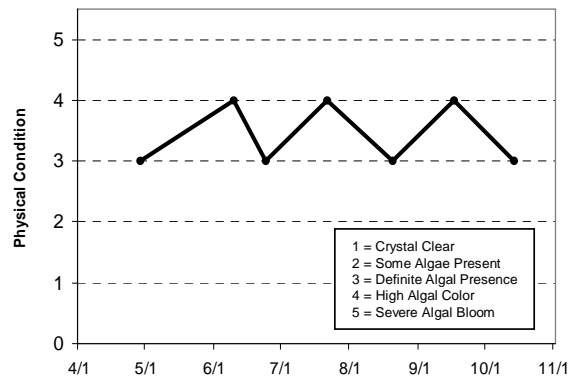
The volunteer's perceptions of the physical and recreational conditions of the lake are shown on the next page. Each of the conditions was ranked on a scale of 1 to 5. The average physical condition ranking was 3.6 (between 3- "definite algae present" and 4- "high algal color"). The average recreational suitability ranking was 4.0 ("no swimming/boating ok").

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](mailto:brian.johnson@metc.state.mn.us).



**2008 Data**

DATE	Surf Tmp (°C)	Bot Tmp (°C)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
4/29	8	7.4	11.77	1.11	37	54		1.2	3	4
6/10	21.4	18.5	9.4	0.05	31	61		0.9	4	4
6/24	25	20.1	8.84	0.5	36	69		0.9	3	4
7/22	26.2	22.4	8.32	19	34	59		0.5	4	4
8/20	25.6	22.8	9.18	0.17	60	72		0.5	3	4
9/17	20.1	17.5	12.18	0.3	78	88		0.3	4	4
10/14	14.3	14.3	9.93	0.45	59	68		0.6	3	4



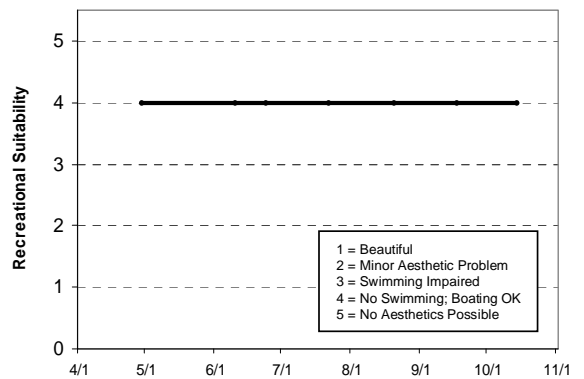
**Lake Water Quality Grades Based on Summertime Averages**

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

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

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

Source: Metropolitan Council and STORET data



## Sunnybrook Lake (82-0133) Valley Branch Watershed District

Sunnybrook Lake is a 16-acre lake located within Grant Township (Washington County). The maximum and mean depths of the lake are 6.1 and 2.0 m (20.0 and 6.5 feet), respectively. The approximate volume of the lake is 104 ac-ft. The majority of the lake's area is considered littoral zone (the area of aquatic vegetation dominance). The lake has a 630-acre immediate watershed, which translates to a watershed-to-lake area ratio of 39:1. The larger the ratio the greater the potential stress put on the lake from surface runoff.

The lake was monitored 14 times in 2008. 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.

### 2008 summer (May-September) data summary

<i>Parameter</i>	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Grade</i>
<b>TP</b> (µg/l)	22.5	16.0	32.0	A
<b>CLA</b> (µg/l)	5.5	2.4	10.0	A
<b>Secchi</b> (m)	2.5	1.5	4.2	B
<b>TKN</b> (mg/l)	0.91	0.77	1.10	
			<b>Lake Grade</b>	A

The lake received a lake grade of A for 2008, which is the first time it received such a lake grade. The total phosphorus concentrations were generally lower in 2008 than in previous years. The lake generally maintains an overall letter grade of B with some variation in the individual parameter letter grades. Additional monitoring is suggested to provide data for evaluating potential trends in water quality, such as the TP parameter.

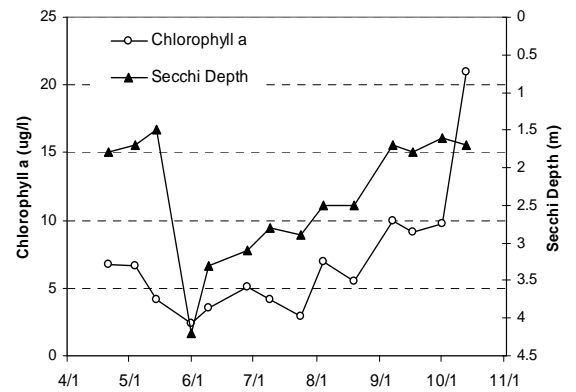
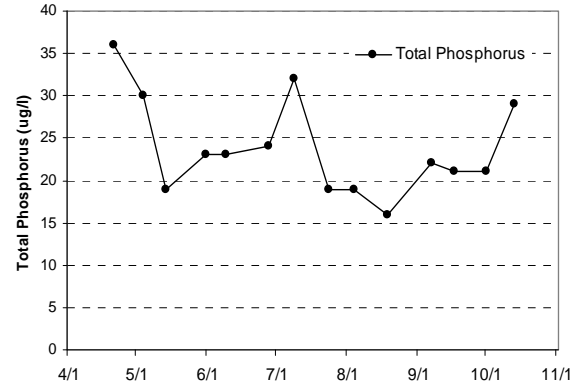
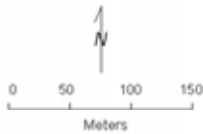
The volunteer's perceptions of the physical and recreational conditions of the lake are shown on the next page. Each of the conditions was ranked on a scale of 1 to 5. The average physical condition ranking was 1.5 (between 1- "crystal clear" and 2- "some algae present"). The average recreational suitability ranking was 1.5 (between 1- "beautiful" and 2- "minor aesthetic problem").

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](mailto:brian.johnson@metc.state.mn.us).

**Sunnybrook Lake**  
Grant, Washington Co.

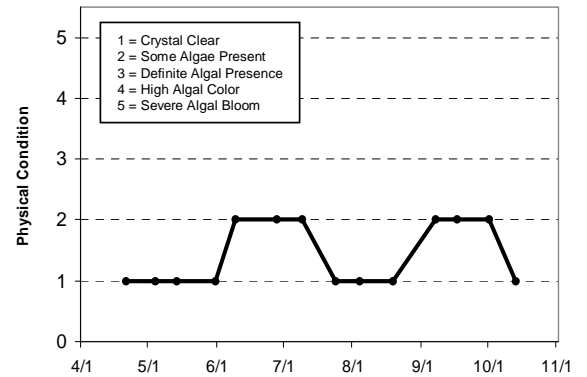
Lake ID: 820133  
WD: Valley Branch  
Volunteer: Arnie Johnson

● Sampling site  
Contours in meters



**2008 Data**

DATE	Surf Tmp (°C)	Bot Tmp (°C)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
4/21	7.2				6.7	36		1.8	1	1
5/4	13.6				6.6	30		1.7	1	1
5/14	17.8				4.2	19		1.5	1	1
5/31	18.4				2.4	23		4.2	1	1
6/9	21.3				3.5	23		3.3	2	2
6/28	25.1				5.1	24		3.1	2	2
7/9	25.9				4.1	32		2.8	2	2
7/24	26.8				2.9	19		2.9	1	2
8/4	26.2				6.9	19		2.5	1	1
8/19	27.7				5.5	16		2.5	1	1
9/7	20.7				10	22		1.7	2	1
9/17	19.4				9.1	21		1.8	2	2
10/1	17.2				9.8	21		1.6	2	1
10/13	16.2				21	29		1.7	1	1



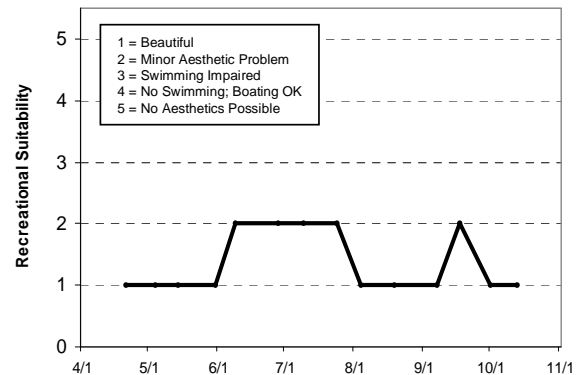
**Lake Water Quality Grades Based on Summertime Averages**

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	B	B	C	A
Chlorophyll a								B	A	A	A	A
Secchi Depth								C	B	B	B	C
Lake Grade								C	B	B	B	B

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

Source: Metropolitan Council and STORET data



## Sunset Lake (82-0153) Rice Creek Watershed District

Sunset Lake, with a surface area of about 124 acres (2.3 miles in circumference), is located in the southern portion of the City of Hugo (Washington County). It has a maximum depth of 5.2 m (17 ft). The lake is considered a “Priority Lake” by the Metropolitan Council due to its multi-recreational uses. The MN DNR has designated the lake as being infested with Eurasian water milfoil (*Myriophyllum spicatum*).

Sunset Lake has been involved in CAMP since 1993. The lake was monitored 9 times from in 2008. 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.

### 2008 summer (May-September) data summary

<i>Parameter</i>	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Grade</i>
<b>TP</b> (µg/l)	22.0	13.0	44.0	A
<b>CLA</b> (µg/l)	4.2	1.9	6.6	A
<b>Secchi</b> (m)	3.3	2.5	4.2	A
<b>TKN</b> (mg/l)	0.64	0.34	0.76	
			<b>Lake Grade</b>	A

The lake received a lake grade of A for 2008. The lake has received A lake grades since 2001. According to the historical water quality database, the lake’s 2001-2008 lake grades of A have been an improvement over the B lake grades received in 1994 and 2000 and the C lake grades received in 1993 and 1995-1999.

Besides the lake’s CAMP data, Secchi transparencies were measured throughout the mid- and late-1980’s as part of the MPCA’s volunteer program. The lake appears to have changed from a C grade lake to an A grade lake over the past 25 years. A trend analysis conducted by the MPCA on the lake’s Secchi transparency data revealed a statistically significant improving trend in water clarity (MPCA 2008).

The volunteer’s perceptions of the physical and recreational conditions of the lake are shown on the next page. Each of the conditions was ranked on a scale of 1 to 5. The average physical condition ranking was 1.9 (between 1- “crystal clear” and 2- “some algae present”). The average recreational suitability ranking was 2.3 (between 2- “minor aesthetic problem” and 3- “swimming slightly impaired”).

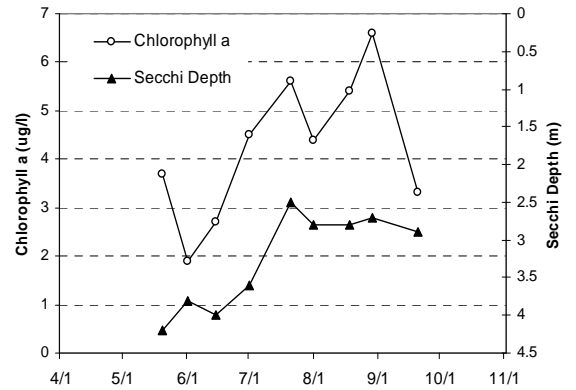
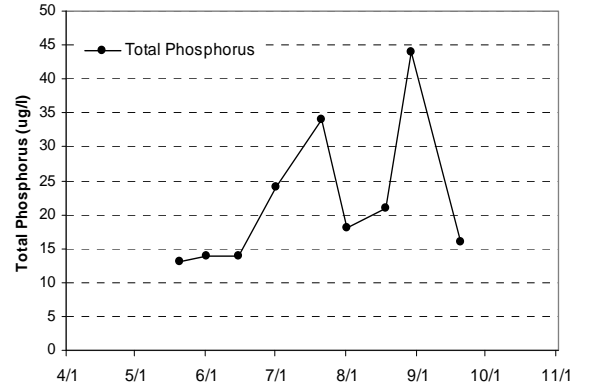
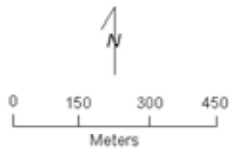
The Fisheries Section of the Minnesota Department of Natural Resources (MDNR) has conducted a fisheries survey on the lake. Information on the survey can be obtained through the MDNR Fisheries Section by calling (651) 259-5831 or by downloading the information off the Internet at <http://www.dnr.state.mn.us/lakefind/>.

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](mailto:brian.johnson@metc.state.mn.us).

**Sunset Lake**  
Hugo, Washington Co.

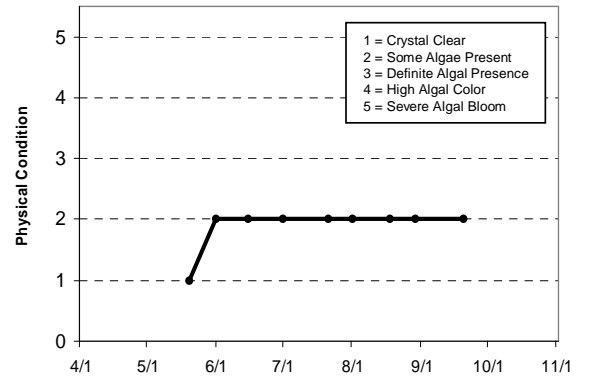
Lake ID: 820153  
WD: Rice Creek  
Volunteer:  
Diane Coderre

● Sampling site  
Contours in meters



**2008 Data**

DATE	Surf Tmp (°C)	Bot Tmp (°C)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
5/20	16.6				3.7	13		4.2	1	1
6/1	21.2				1.9	14		3.8	2	3
6/15	22.5				2.7	14		4	2	3
7/1	25.8				4.5	24		3.6	2	
7/21	27.5				5.6	34		2.5	2	
8/1	28				4.4	18		2.8	2	
8/18	27.7				5.4	21		2.8	2	
8/29	24.1				6.6	44		2.7	2	
9/20	21.9				3.3	16		2.9	2	



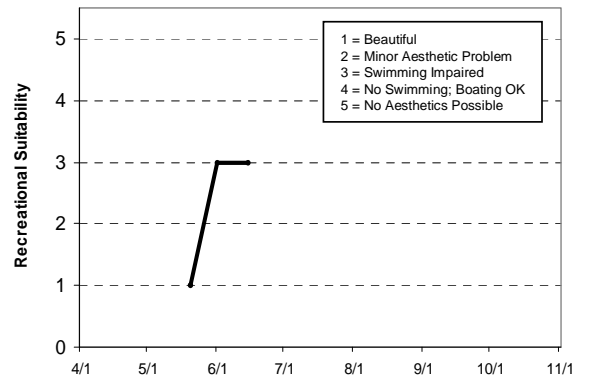
**Lake Water Quality Grades Based on Summertime Averages**

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total Phosphorus						D						
Chlorophyll a						C						
Secchi Depth						C	D	C	D	D	C	C
<b>Lake Grade</b>						<b>C</b>						

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

Year	2004	2005	2006	2007	2008
Total Phosphorus	A	A	A	A	A
Chlorophyll a	A	A	A	A	A
Secchi Depth	A	A	A	B	A
<b>Lake Grade</b>	<b>A</b>	<b>A</b>	<b>A</b>	<b>A</b>	<b>A</b>

Source: Metropolitan Council and STORET data



## Sunset Pond (19-0451) Black Dog Watershed Management Commission

Sunset Pond, a 60-acre man-made lake, is located in the City of Burnsville (Dakota County). It has been involved in CAMP since 1994 (with an omission in 1999). The pond has a normal maximum depth of 3.7 m (12 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. The pond collects drainage from a portion of the city of Burnsville's and Savage's stormwater conveyance systems, including outflow from Crystal and Earley lakes. Because the lake was created to detain stormwater, the pond can experience extreme bounce in its water level during runoff conditions.

The pond has been designated by the MN DNR as being infested with Eurasian water milfoil (*Myriophyllum spicatum*).

The pond was sampled 14 times in 2008. 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.

### 2008 summer (May-September) data summary

<i>Parameter</i>	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Grade</i>
<b>TP</b> (µg/l)	50.2	33.0	70.0	C
<b>CLA</b> (µg/l)	7.1	2.2	12.0	A
<b>Secchi</b> (m)	1.8	1.4	2.1	C
<b>TKN</b> (mg/l)	1.67	1.10	2.00	
<b>Lake Grade</b>				B

The pond received a lake grade of B for 2008. The pond experiences variability in its water quality as demonstrated by the variation in the historical lake grades. The lake typically receives a B or C lake grade. The water clarity grade of C does not correlate well with the chlorophyll-a grade of A. A possible explanation may be that the water clarity may be affected by higher levels of total suspended solids from surface runoff from storm sewers and the surrounding urbanized watershed. It is possible for higher suspended solids loadings to decrease water clarity which would decrease light penetration thereby inhibiting algal growth. In other words, the algal population may be light-limited rather than nutrient-limited.

The volunteer's perceptions of the physical and recreational conditions of the lake are shown on the next page. Each of the conditions was ranked on a scale of 1 to 5. The average physical condition ranking was 3.8 (between 3- "definite algae present" and 4- "high algal color"). The average recreational suitability ranking was 3.9 (between 3- "swimming slightly impaired" and 4- "no swimming/boating ok").

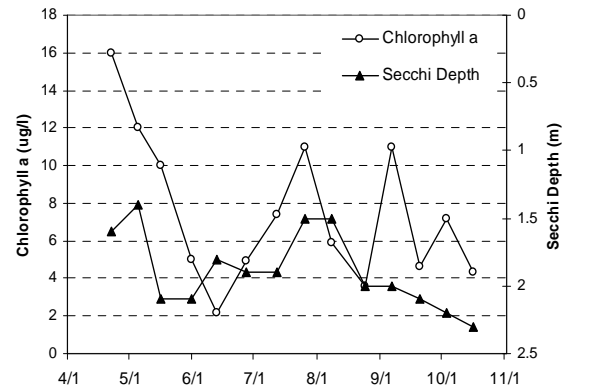
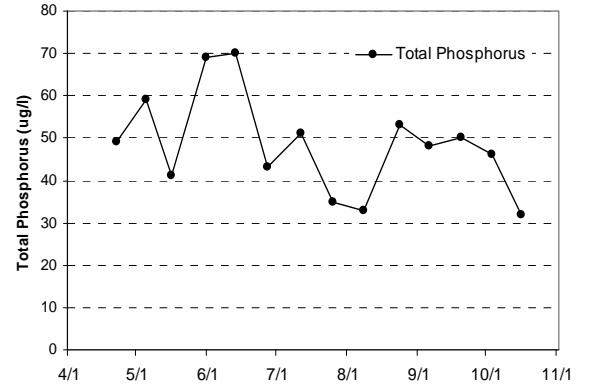
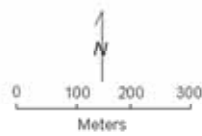
The Fisheries Section of the Minnesota Department of Natural Resources (MDNR) has conducted a fisheries survey on the lake. Information on the survey can be obtained through the MDNR Fisheries Section by calling (651) 259-5831 or by downloading the information off the Internet at <http://www.dnr.state.mn.us/lakefind/>.

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](mailto:brian.johnson@metc.state.mn.us).

**Sunset Pond**  
Burnsville, Dakota Co.

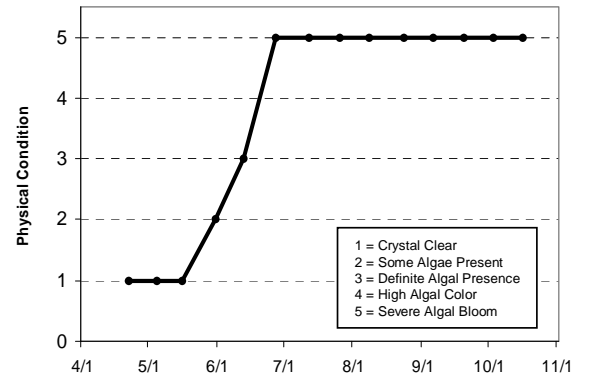
Lake ID: 190451  
WMO: Black Dog  
Volunteer: Dan Wallace

● Sampling site  
Contours in meters



**2008 Data**

DATE	Surf Tmp (°C)	Bot Tmp (°C)	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	15.5				16	49		1.6	1	1
5/5	16.6				12	59		1.4	1	1
5/16	17.8				10	41		2.1	1	1
5/31	17.2				5	69		2.1	2	3
6/13	20.6				2.2	70		1.8	3	4
6/27	24.1				4.9	43		1.9	5	5
7/12	24.7				7.4	51		1.9	5	5
7/26	24.2				11	35		1.5	5	5
8/8	23.7				5.9	33		1.5	5	5
8/24	21.4				3.6	53		2	5	5
9/6	18.2				11	48		2	5	5
9/20	19.9				4.6	50		2.1	5	4
10/3	16.4				7.2	46		2.2	5	4
10/16	12.7				4.3	32		2.3	5	2



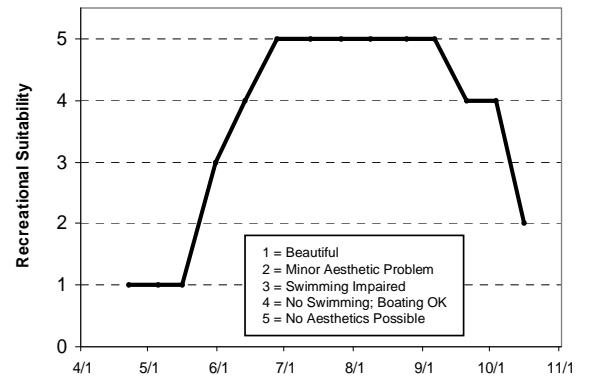
**Lake Water Quality Grades Based on Summertime Averages**

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
Total Phosphorus					
Chlorophyll a					
Secchi Depth					
Lake Grade					

Source: Metropolitan Council and STORET data



## Susan Lake (10-0013) City of Chanhassen

Susan Lake, located in the City of Chanhassen (Carver County), covers an area of 93 acres and has a maximum depth of 5.2 m (17 feet). Approximately 81 percent of the lake's surface area is considered littoral zone, which is the 0-15 feet depth zone of aquatic plant dominance. Because of its multi-recreational uses, the lake is considered a "Priority Lake" in the Metropolitan Area. The MN DNR has designated the lake as being infested with Eurasian water milfoil (*Myriophyllum spicatum*).

This was the third year that Susan Lake has been involved in CAMP. A search through the STORET nationwide water quality database for data on the lake provided only the historical CAMP data.

The lake was monitored 13 times in 2009. 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.

### 2008 summer (May-September) data summary

<i>Parameter</i>	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Grade</i>
<b>TP</b> ( $\mu\text{g/l}$ )	425.2	30.0	3790.0	F
<b>CLA</b> ( $\mu\text{g/l}$ )	61.4	10.0	120.0	D
<b>Secchi</b> (m)	0.9	0.0	2.1	D
<b>TKN</b> (mg/l)	6.68	1.70	49.00	
			<b>Lake Grade</b>	D

The lake received a lake grade of D for 2008, which is worse than the C lake grades received in the previous two year. Continued monitoring is recommended to build the water quality base for this lake, and to aid in evaluating potential trends in water quality.

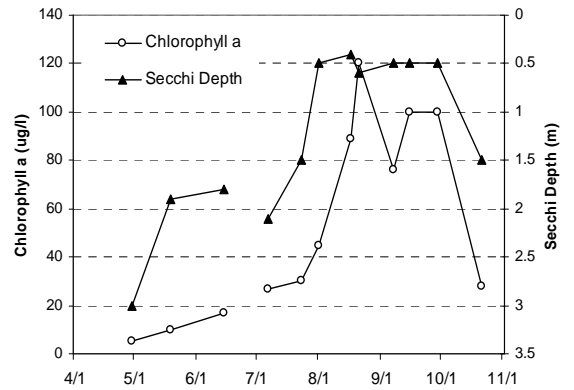
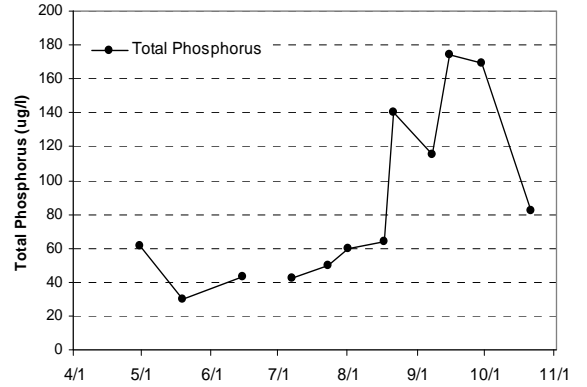
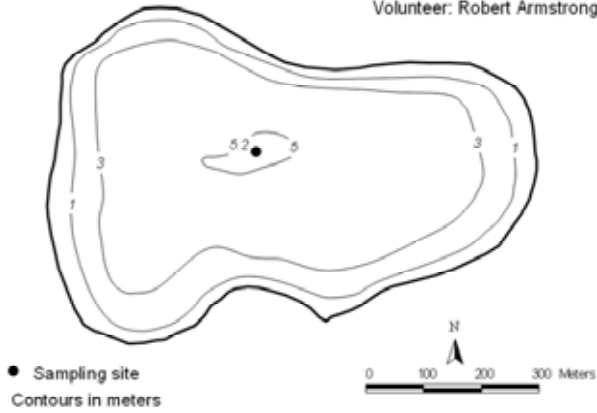
The volunteer's perceptions of the physical and recreational conditions of the lake are shown on the next page. Each of the conditions was ranked on a scale of 1 to 5. The average physical condition ranking was 3.3 (between 3- "definite algae present" and 4- "high algal color"). The average recreational suitability ranking was 2.6 (between 2- "minor aesthetic problem" and 3- "swimming slightly impaired").

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](mailto:brian.johnson@metc.state.mn.us).

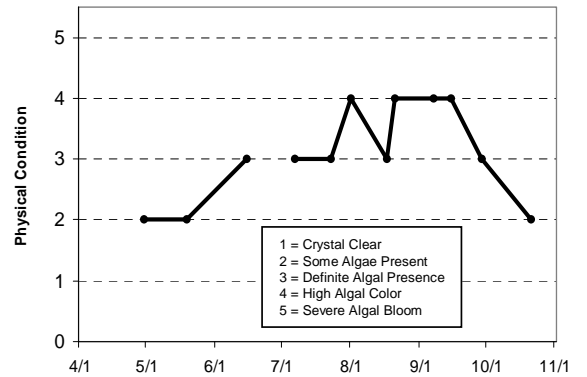
**Lake Susan**  
Chanhasen, Carver Co.

Lake ID: 100013  
WD: Riley-Purgatory-Bluff Creek  
Volunteer: Robert Armstrong



**2008 Data**

DATE	Surf Tmp (°C)	Bot Tmp (°C)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
4/30	9.1				5.2	61		3	2	1
5/19	16.1				10	30		1.9	2	1
6/15	22.4				17	43		1.8	3	2
6/17										
7/7	19.5				27	42		2.1	3	3
7/23	25.5				30	50		1.5	3	3
8/1	27.7				45	60		0.5	4	3
8/17	25.7				89	64		0.4	3	2
8/21	23.7				120	140		0.6	4	3
9/7	22.9				76	115		0.5	4	3
9/15	17.2				100	174		0.5	4	3
9/29	18.4				100	169		0.5	3	3
10/21	11.4				28	82		1.5	2	3



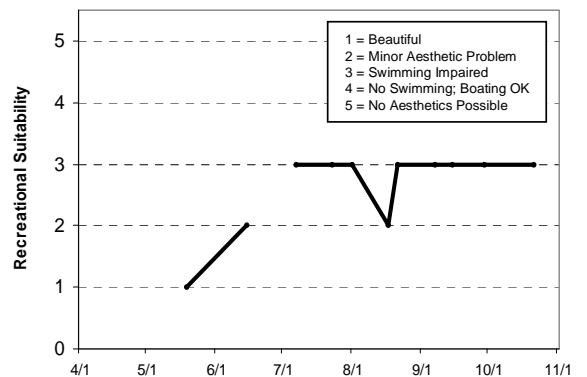
**Lake Water Quality Grades Based on Summertime Averages**

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

Source: Metropolitan Council and STORET data



## Swede Lake (10-0095) Carver County Environmental Services

Swede Lake is a 376-acre lake located in Watertown Township (Carver County) with a maximum depth of approximately 4.0 m (13.1 feet). Because of the shallowness of the lake, its entire surface area is considered littoral (the shallow [0-15 foot depth] area dominated by aquatic vegetation). The MN DNR has designated the lake as being infested with Eurasian Water Milfoil (*Myriophyllum spicatum*).

The year 2008 was the seventh year that Swede Lake has been involved in the CAMP (2002 being the first). Additionally, Metropolitan Council staff monitored the lake in 1996 and 2001. The 1996 and 2001-2008 data are the only water quality data found for the lake.

The lake was monitored 14 times between mid April and mid October. 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.

### 2008 summer (May-September) data summary

<i>Parameter</i>	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Grade</i>
<b>TP</b> (µg/l)	318.8	127.0	753.0	F
<b>CLA</b> (µg/l)	199.1	31.0	650.0	F
<b>Secchi</b> (m)	0.4	0.2	0.7	F
<b>TKN</b> (mg/l)	5.07	2.70	8.60	
			<b>Lake Grade</b>	F

The lake received a lake grade of F for 2008. The lake has received F lake grades for two thirds of the years the lake has been monitored. The remaining years the lake received lake grades of D. The lake's water quality seems well represented by a lake grade of F with occasional variation.

Throughout the monitoring period, the volunteer(s) ranked their opinions of the lake's physical and recreational conditions on a 1-to-5 scale. The average user perception rankings were 3.2 for physical condition (between 3- "definite algae present" and 4- "high algal color"), and 4.0 for recreational suitability (4- "no swimming - boating ok").

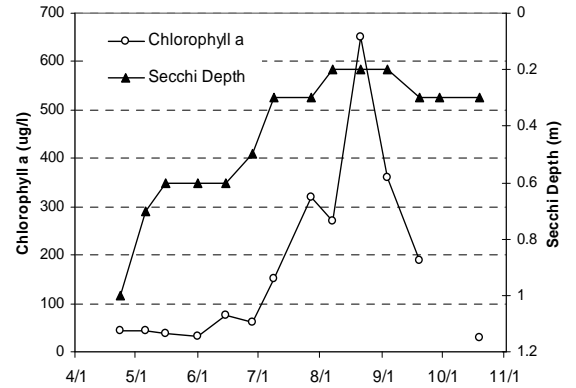
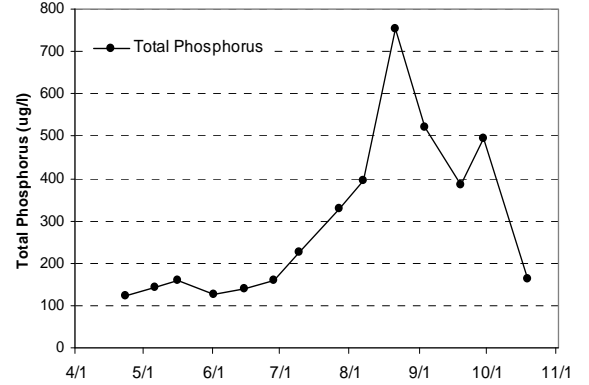
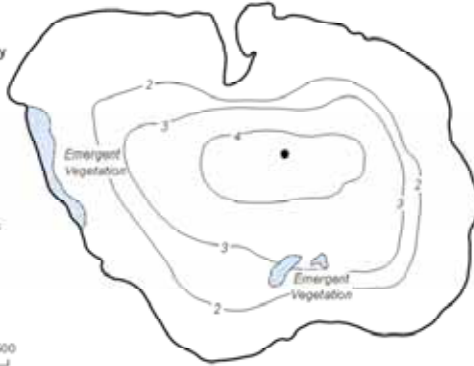
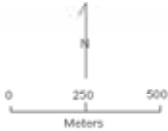
The Fisheries Section of the Minnesota Department of Natural Resources (MDNR) has conducted a fisheries survey on the lake. Information on the survey can be obtained through the MDNR Fisheries Section by calling (651) 259-5831 or by downloading the information off the Internet at <http://www.dnr.state.mn.us/lakefind/>.

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](mailto:brian.johnson@metc.state.mn.us).

**Swede Lake**  
Watertown Twp., Carver Co.

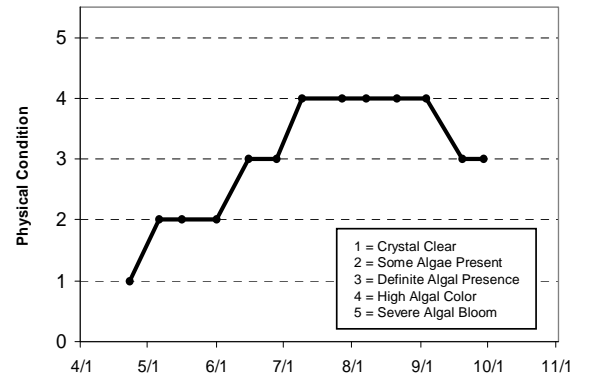
Lake ID: 100095  
WMO: Carver County  
Volunteer:  
Wayne Hubin

● Sampling site  
Contours in meters



**2008 Data**

DATE	Surf Tmp (°C)	Bot Tmp (°C)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
4/23	14				45	122		1	1	
5/6	16				45	142		0.7	2	4
5/16	17				39	158		0.6	2	4
6/1	19				31	127		0.6	2	4
6/15	23				75	138		0.6	3	4
6/28	23				60	158		0.5	3	4
7/9	26				150	226		0.3	4	4
7/27	27.5				320	328		0.3	4	4
8/7	27				270	396		0.2	4	4
8/21	27				650	753		0.2	4	4
9/3	23				360	521		0.2	4	4
9/19	21				190	385		0.3	3	4
9/29	21				494	494		0.3	3	4
10/19	17				29	161		0.3		



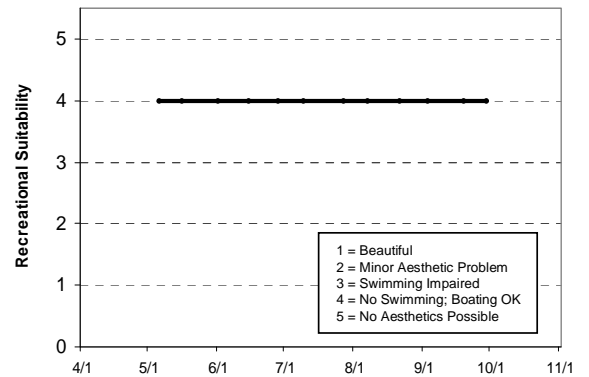
**Lake Water Quality Grades Based on Summertime Averages**

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

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

Source: Metropolitan Council and STORET data



## Sweeney Lake (27-0035) Bassett Creek Watershed Management Organization

Sweeney Lake is located in the City of Golden Valley (Hennepin County). The 66-acre lake has a mean and maximum depth of 3.6 m (11.8 feet) and 8.0 m (26.0 feet), respectively. It has an approximate lake volume of 790 ac-ft. Approximately 52 percent of the lake's surface area is considered littoral zone, which is the 0-15 feet depth zone of aquatic plant dominance. Additionally, the lake's surface area and 2,400-acre watershed translates to a 36:1 watershed-to-lake area ratio. The greater the ratio, the greater the potential stress on the lake from surface runoff.

The Sweeney Lake branch of Bassett Creek flows into the lake on the south end and discharges at the north end over a dam. Sweeney Lake is connected to Twin Lake during periods of high water levels by a channel. The surface elevations of the two lakes are about the same. The west and south shorelines of Sweeney Lake consist of single family homes. The east shore is bordered by the Glenwood Hills Hospital and park consisting of a lawn, a golf course, and a wooded area (Barr, 1994).

The lake has a hypolimnetic aeration system which generally operates year round. The lake aerators were turned off during the monitoring seasons of 2007 and 2008 as part of a total maximum daily load (TMDL) study. The TMDL study was initiated in response to the lake being listed as an impaired water in 2004 by the Minnesota Pollution Control Agency. The impaired listing is due to excessive nutrients.

Site 1 of the lake (the southern site) was monitored 12 times in 2008 via the CAMP. On each sampling day the lake was monitored for total phosphorus (TP), chlorophyll-a (CLA), total Kjeldahl nitrogen (TKN), and Secchi transparency, as well as the lake's perceived physical condition and recreational suitability. Depth profiles for temperature and dissolved oxygen were also measured. The resulting data are summarized in tables and figures on the following page.

### 2008 summer (May-September) data summary

<i>Parameter</i>	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Grade</i>
<b>TP</b> ( $\mu\text{g/l}$ )	39.3	18.0	104.0	C
<b>CLA</b> ( $\mu\text{g/l}$ )	17.0	6.6	46.0	B
<b>Secchi</b> (m)	1.5	0.8	2.1	C
<b>TKN</b> (mg/l)	1.55	1.00	2.40	
			<b>Lake Grade</b>	C

The 2008 water quality lake grade of C is similar to the lake grades received in 2000-2005 and 2007, and an improvement over the grade of D received in 2006. Water clarity was noticeably less clear in the years 2006 and 2007, but improved during the 2008 monitoring season. Over the long term however, the water quality of the lake seems well represented by a lake grade of C. To better understand the quality of the lake and what direction it may be heading, continued monitoring is suggested.

Throughout the monitoring period, the physical and recreational conditions of the lake were ranked on a 1-to-5 scale according to the volunteer's perceptions. The 2008 average perceived physical condition of the lake was 1.3 (between 1- "crystal clear" and 2- "some algae present"), while the mean recreational suitability was 1.1 (between 1- "beautiful" and 2- "minor aesthetic problem").

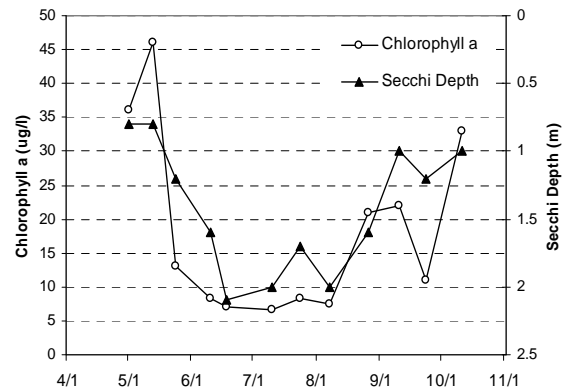
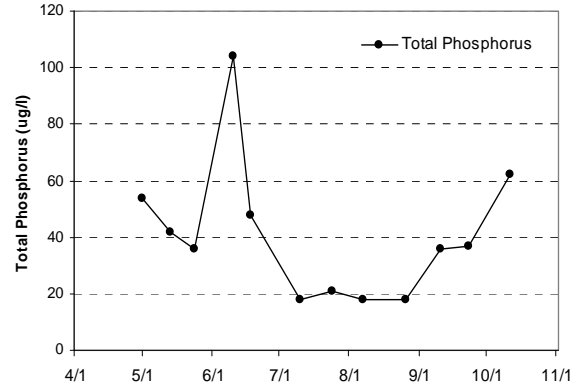
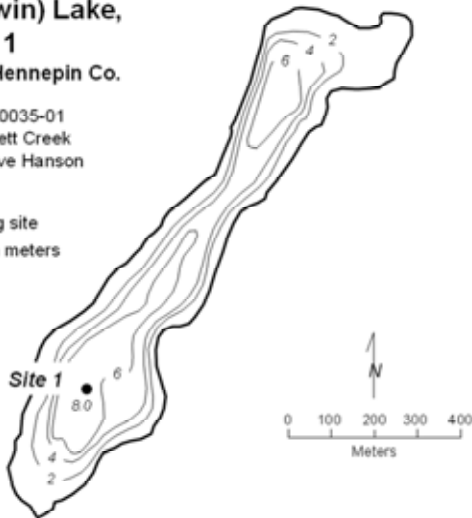
The Fisheries Section of the Minnesota Department of Natural Resources (MDNR) has conducted a fisheries survey on the lake. Information on the survey can be obtained through the MDNR Fisheries Section by calling (651) 259-5831 or by downloading the information off the Internet at <http://www.dnr.state.mn.us/lakefind/>.

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](mailto:brian.johnson@metc.state.mn.us).

**Sweeney (Twin) Lake,  
Site 1**  
Golden Valley, Hennepin Co.

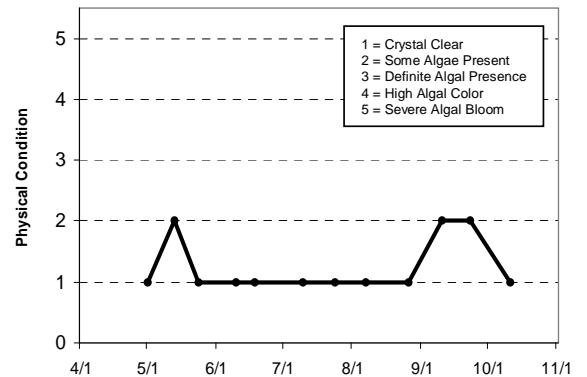
Lake ID: 270035-01  
WMO: Bassett Creek  
Volunteer: Dave Hanson

● Sampling site  
Contours in meters



**2008 Data**

DATE	Surf Temp (°C)	Bot Temp (°C)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
5/1	16.5	5.3	16	2.7	36	54		0.8	1	1
5/13	14.8	6.2	16.1	0.48	46	42		0.8	2	1
5/24	18.9	7.2	11.9	0.23	13	36		1.2	1	1
6/10	20.2	7.7	8.18	0.16	8.3	104		1.6	1	1
6/18	21.5	8.3	8.9	0.15	7	48		2.1	1	1
7/10	25.9	11.2	8.7	0.17	6.6	18		2	1	1
7/24	26.6	13.5	8.57	0.17	8.3	21		1.7	1	1
8/7	27.1	14.1	9.5	0.11	7.4	18		2	1	1
8/26	24.2	12.4	8.7	0.16	21	18		1.6	1	1
9/10	19.5	12.8	7.6	0.17	22	36		1	2	1
9/23	20.7	13.8	9.91	0.21	11	37		1.2	2	2
10/11	15.2	14.8	6.6	4.32	33	62		1	1	1



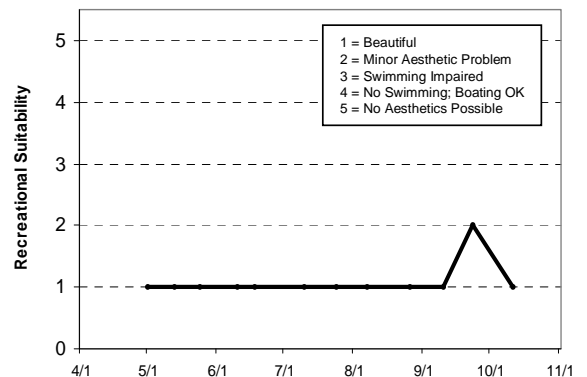
**Lake Water Quality Grades Based on Summertime Averages**

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Total Phosphorus													
Chlorophyll a													
Secchi Depth													
Lake Grade													

Year	1993	1994	1995	1996	1997	1998	1999	2000 Site 1	2000 Site 2	2001 Site 1	2001 Site 2	2002 Site 1	2002 Site 2
Total Phosphorus								C	C	C	C	C	NA
Chlorophyll a								D	C	B	C	B	NA
Secchi Depth								D	D	C	C	C	NA
Lake Grade								C	C	C	C	C	NA

Year	2003 Site 1	2004 Site 1	2005 Site 1	2006 Site 1	2007 Site 1	2008 Site 1
Total Phosphorus	C	C	C	D	C	C
Chlorophyll a	B	B	C	C	B	B
Secchi Depth	C	C	C	D	D	C
Lake Grade	C	C	C	D	C	C

Source: Metropolitan Council and STORET data



## Sylvan Lake (27-0171) Elm Creek Watershed Management Commission

Sylvan Lake is located in Hassan Township (Hennepin County). The lake has a surface area of approximately 114 acres. It has a maximum depth of approximately 4 m (13 feet). Because of the shallowness of the lake, its entire surface area is considered littoral zone. The littoral zone is the shallow 0-15 feet depth zone dominated by aquatic vegetation).

The year 2008 was the first year that the lake has been monitored via the CAMP. A search through the EPA's STORET database provided Secchi water clarity data for the year 1997. Therefore, the 2008 CAMP data are the only nutrient data available for the lake.

The lake was monitored 10 times between mid May and mid October 2008. 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.

### 2008 summer (May-September) data summary

<i>Parameter</i>	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Grade</i>
<b>TP</b> (µg/l)	425.3	274.0	514.0	F
<b>CLA</b> (µg/l)	26.7	1.7	66.0	C
<b>Secchi</b> (m)	2.0	1.0	4.0	C
<b>TKN</b> (mg/l)	1.46	0.78	2.40	
			<b>Lake Grade</b>	D

The lake received a lake grade of D for 2008. The TP concentrations were very high as indicated by the summer-time mean of 425 µg/L which yields a parameter grade of F. The CLA concentrations and water clarity both received C parameter grades. The CLA and water clarity grades are consistent with respect to each other not only in magnitude of the mean, but also consistent with respect to patterns in peaks and lows of the seasonal data. Therefore the water quality with respect to water clarity and algal abundance was not affected as greatly by TP as would be suggested by the higher TP concentrations. Further monitoring is suggested to determine if this interesting pattern is a characteristic of this lake.

Throughout the monitoring period, the volunteer(s) ranked their opinions of the lake's physical and recreational conditions on a 1-to-5 scale. The average user perception rankings were 2.8 for physical condition (between 2- "some algae present" and 3- "definite algae present"), and 3.1 for recreational suitability (between 3- "swimming slightly impaired" and 4- "no swimming - boating ok").

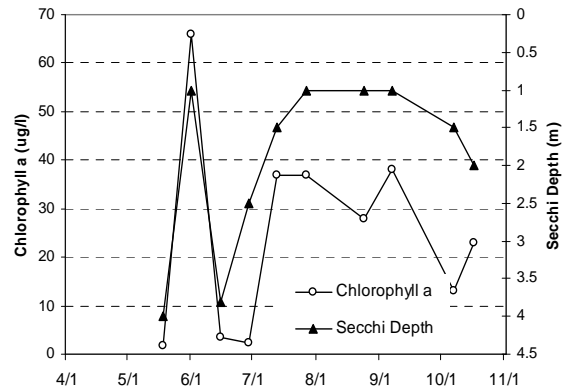
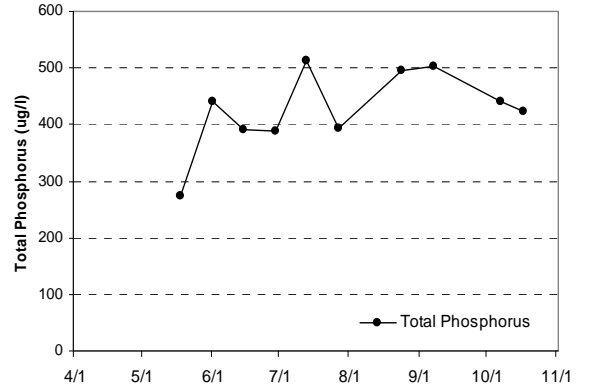
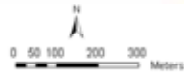
If you notice any errors in the lake's data or physical information, or are aware of any additional or missing information, please contact Brian Johnson of the Metropolitan Council at (651) 602-8743 or [brian.johnson@metc.state.mn.us](mailto:brian.johnson@metc.state.mn.us).

**Sylvan Lake**  
Hassan Twp., Hennepin Co.

LAKE ID: 270171  
WMO: Elm Creek  
Volunteer: Dirk Colby

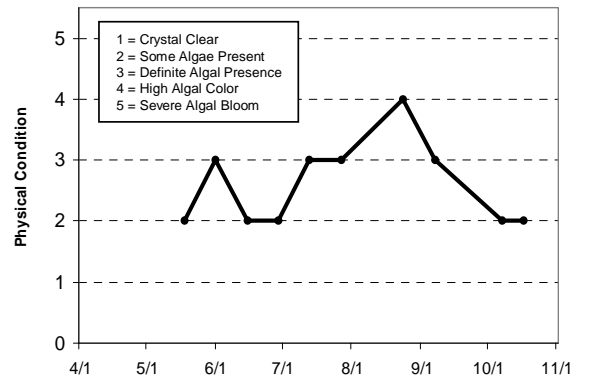
● Sampling station

Contours in meters



**2008 Data**

DATE	Surf Temp (°C)	Bot Temp (°C)	Surf DO (mg/L)	Bot DO (mg/L)	CLA (µg/L)	Surf TP (µg/L)	Bot TP (µg/L)	Secchi (m)	PC	RS
5/18	16				1.7	274		4	2	1
6/1	19				66	441		1	3	4
6/15	19.5				3.5	391		3.8	2	3
6/29	21.5				2.2	389		2.5	2	3
7/13					37	514		1.5	3	
7/27	25.2				37	394		1	3	4
8/24	22.8				28	496		1	4	4
9/7	19				38	503		1	3	3
10/7	15				13	441		1.5	2	4
10/17	11.9				23	422		2	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												
<b>Lake Grade</b>												

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

Year	2004	2005	2006	2007	2008
Total Phosphorus					F
Chlorophyll a					C
Secchi Depth					C
<b>Lake Grade</b>					D

Source: Metropolitan Council and STORET data



## Sylvan Lake [Half Breed Lake] (82-0080) Comfort Lake-Forest Lake Watershed District

Sylvan Lake (also known as Half Breed Lake) is a 75-acre lake located in Forest Lake Township (Washington County). It is considered a Priority Lake by the Metropolitan Council for its exceptional water clarity. The lake's mean and maximum depth of 1.7 m (5.6 feet) and 10.3 m (34 feet) translates to an approximate volume of 420 ac-ft. Approximately 67 percent of the lake's surface area is considered littoral zone, which is the 0-15 feet depth zone of aquatic plant dominance. The lake has a 303-acre watershed which results in a watershed-to-lake area ratio of 4:1. The larger the ratio the greater the potential stress on the lake from surface runoff. The lake has no inlets and no public access to the lake.

The lake was monitored 9 times in 2008. 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.

### 2008 summer (May-September) data summary

<i>Parameter</i>	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Grade</i>
<b>TP</b> (µg/l)	12.9	8.0	35.0	A
<b>CLA</b> (µg/l)	2.6	1.3	4.7	A
<b>Secchi</b> (m)	4.7	4.0	5.5	A
<b>TKN</b> (mg/l)	0.83	0.38	2.60	
			<b>Lake Grade</b>	A

The lake received a lake grade of A for 2008, which is consistent with the lake grades received over the past two decades. The historic water quality database indicates that the lake has maintained its high quality over the past 20+ years. A trend analysis conducted by the MPCA on the lake's Secchi transparency data revealed a statistically significant improving trend in water clarity (MPCA 2008).

The volunteer's perceptions of the physical and recreational conditions of the lake are shown on the next page. Each of the conditions was ranked on a scale of 1 to 5. The average physical condition ranking was 1.1 (between 1- "crystal clear" and 2- "some algae present"). The average recreational suitability ranking was 1.0 ("beautiful").

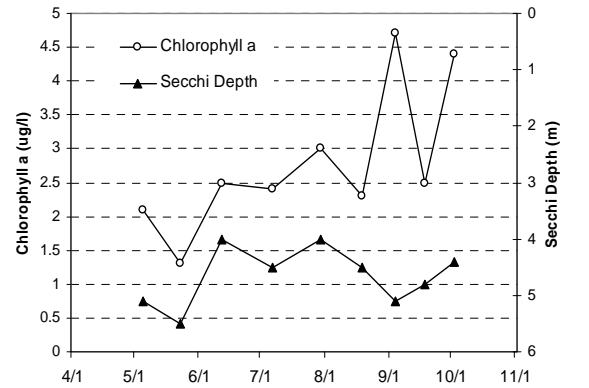
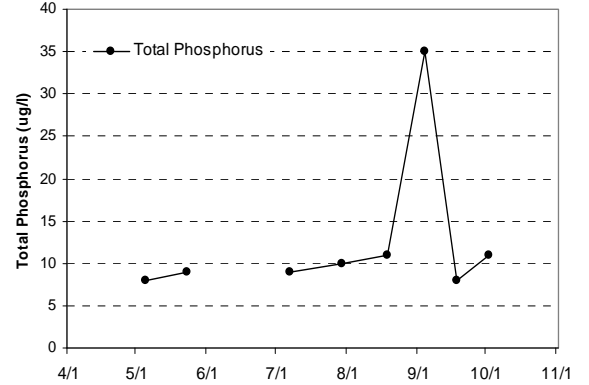
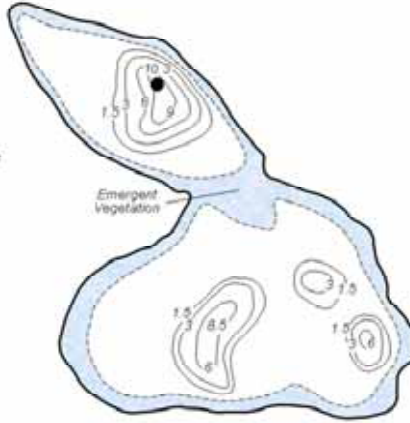
The Fisheries Section of the Minnesota Department of Natural Resources (MDNR) has conducted a fisheries survey on the lake. Information on the survey can be obtained through the MDNR Fisheries Section by calling (651) 259-5831 or by downloading the information off the Internet at <http://www.dnr.state.mn.us/lakefind/>.

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](mailto:brian.johnson@metc.state.mn.us).

**Sylvan Lake**  
(Halfbreed Lake)  
Forest Lake/Scandia,  
Washington Co.

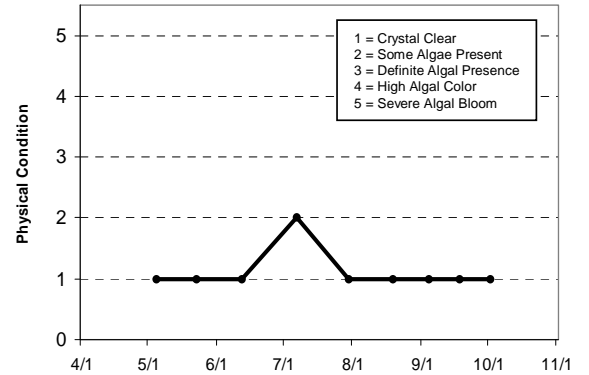
LAKE ID: 820080  
WD: Comfort Lake - Forest Lake  
Volunteer: Curt Sparks

● Sampling station  
Contours in meters



**2008 Data**

DATE	Surf Temp (°C)	Bot Temp (°C)	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	12.1				2.1	8		5.1	1	1
5/23	17.8				1.3	9		5.5	1	1
6/12	22.3				2.5			4	1	1
7/7	25.2				2.4	9		4.5	2	1
7/30	26.8				3	10		4	1	1
8/19	26.4				2.3	11		4.5	1	1
9/4	22.1				4.7	35		5.1	1	1
9/18	18.6				2.5	8		4.8	1	1
10/2	16.1				4.4	11		4.4	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	B	A					C	B	A	A		A
Chlorophyll a							B	A	A	A		A
Secchi Depth	A	A	A	A	A	A	A	A	A	A		A
<b>Lake Grade</b>							<b>B</b>	<b>A</b>	<b>A</b>	<b>A</b>		<b>A</b>

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

Year	2004	2005	2006	2007	2008
Total Phosphorus	A	A		A	A
Chlorophyll a	A	A		A	A
Secchi Depth	A	A		A	A
<b>Lake Grade</b>	<b>A</b>	<b>A</b>		<b>A</b>	<b>A</b>

Source: Metropolitan Council and STORET data

