Information Item:
2018 Water Resources Lake Monitoring Report

Brian Johnson, Senior Environmental Scientist

Environment Committee: September 10, 2019

METROPOLITAN COUNCIL

Metropolitan Council's Lake Monitoring Program

Provides water quality data and information

Used to determine regional lake water quality conditions and water quality trends

Helps local governments target lake management efforts

Helps local governments assess lake management effectiveness

Lake Monitoring Program Components

Three components to the program:

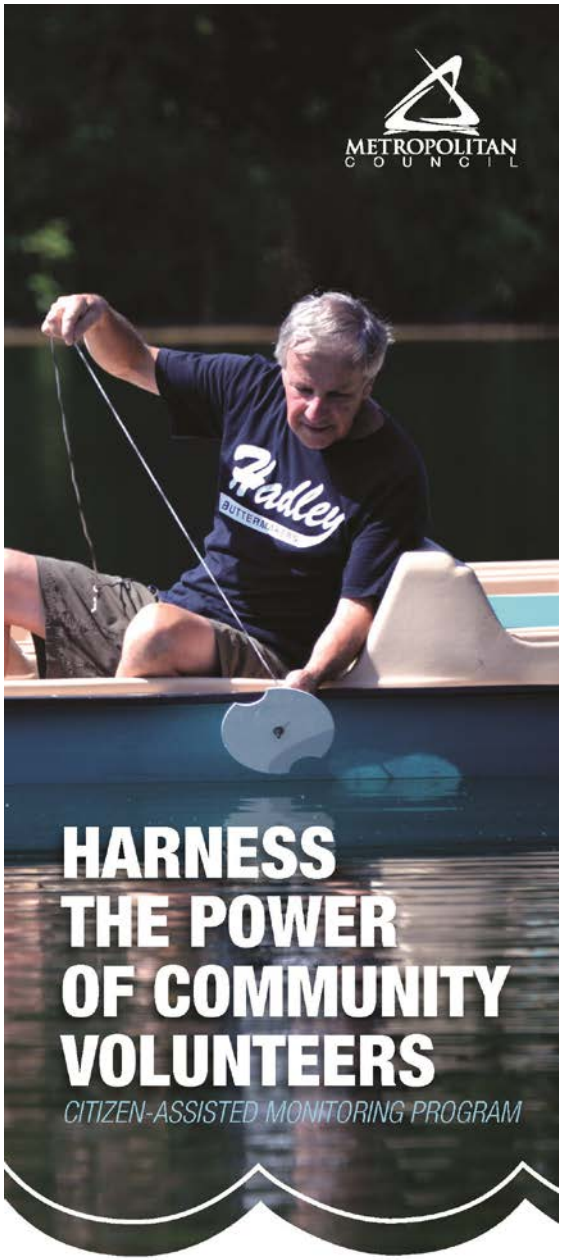
- Metropolitan Council Environmental Services (MCES) staff monitoring
- Citizens-Assisted Monitoring Program (CAMP)
- Professional Citizen-Assisted Monitoring Program (ProCAMP)

CAMP and ProCAMP

CAMP - Citizen Scientists (Volunteers)

- Provide scientifically valid data.
- Develop awareness of water resources issues.
- Advocates for lake quality

ProCAMP – professional organization partners



MCES Staff Lake Monitoring

Monitor lakes for:

- Excessive nutrient enrichment
- Chloride pollution (road salts)
- Water clarity
- Temperature
- Acid or alkaline level (pH)
- Dissolved Oxygen
- Saltiness (Conductivity)
- Cloudiness (Turbidity)

Lake Monitoring Program Enrollment

Program	2017 Lakes	2017 Lake Sites	2018 Lakes	2018 Lake Sites
MCES	4	6	4	6
CAMP/ProCAMP	177	190	180	194
MCES + CAMP/ProCAMP	181	196	184	200

Nutrient Enrichment Variables

5/3/11: Secchi disk @ 20 cm depth

8/11/11: Secchi disk @ 20 cm depth

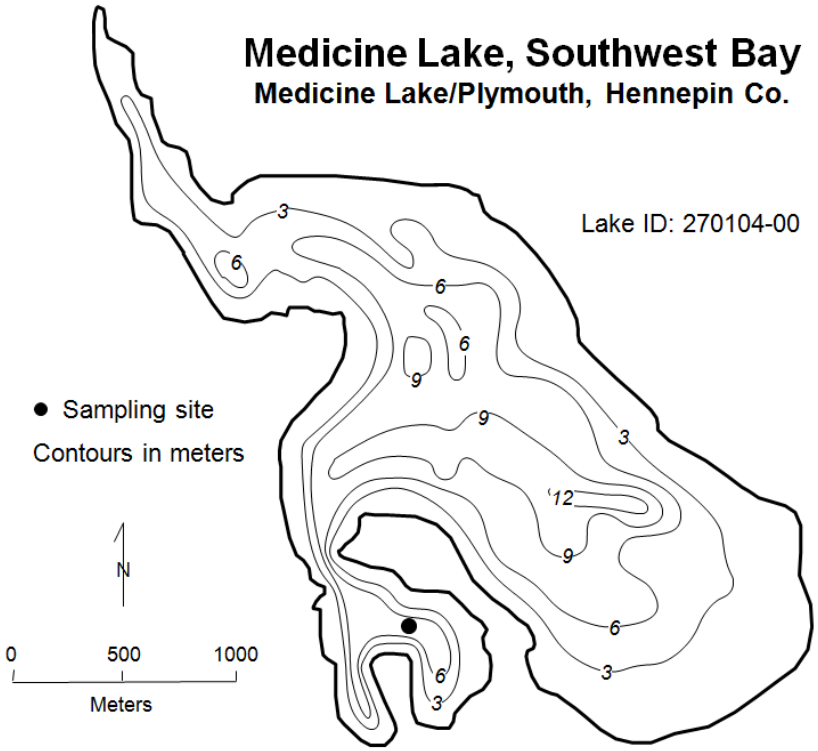
Chub Lake, site 1

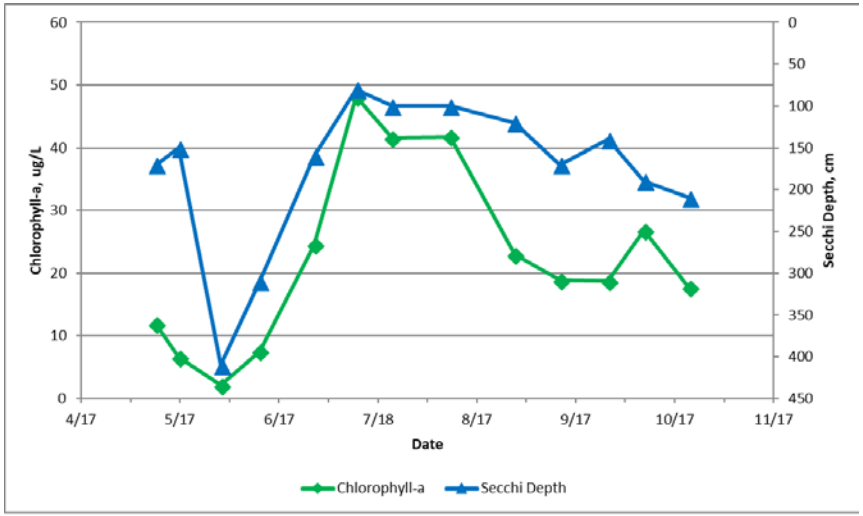
Phosphorus ↑

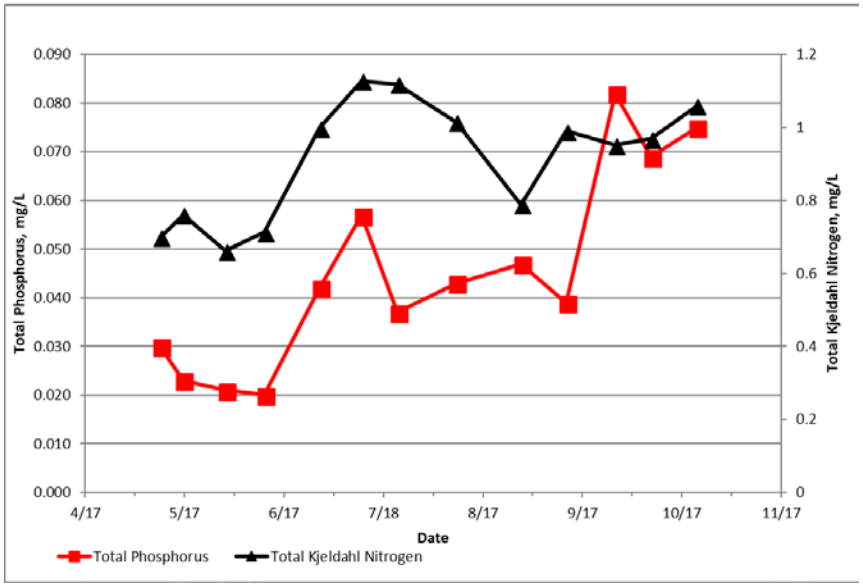
Algal Chlorophyll ↑

Secchi Transparency ↓

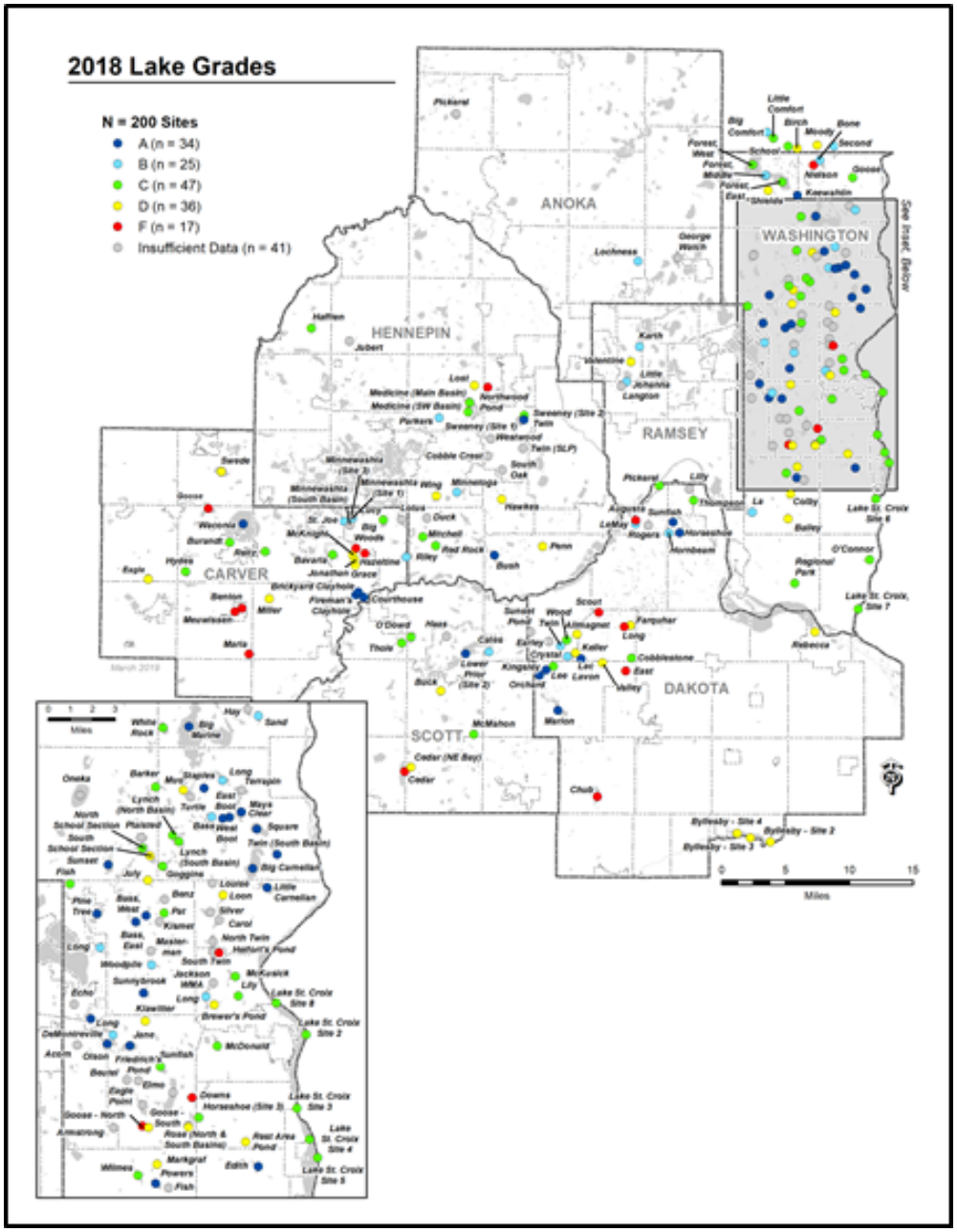
Example Data







Lake Grades


2018 Lake Grades
N = 200 Sites
A (n = 34)
B (n = 25)
C (n = 47)
D (n = 36)
F (n = 17)
Insufficient Data (n = 41)
ANOKA
WASHINGTON
HENNEPIN
RAMSEY
CARVER
DAKOTA
SCOTT
See Inset Below
Miles

Lake Grade Trends

Medicine Lake [Site 1, Southwest Bay] (27–0104) *Bassett Creek Watershed Management Commission*

Lake Water Quality Grades Based on Summertime Averages

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
TP												
CLA				C								
Secchi				C								
Lake Grade												

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
TP			C					C				
CLA												
Secchi			C					C				
Lake Grade												

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
TP			C		C		C	C	C	C	C	C
CLA							C	C	C	C	C	C
Secchi			C		C		C	C	C	C	C	B
Lake Grade							**C**	**C**	**C**	**C**	**C**	**C**

Year	2016	2017
TP	C	C
CLA	C	C
Secchi	C	C
Lake Grade	**C**	**C**

Source: Metropolitan Council, EPA STORET, and/or MPCA EQuIS database(s)

Lake Grade Trends (continued)

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

Lake Water Quality Grades Based on Summertime Averages

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
TP	C				C							B
CLA	C				C							C
Secchi	C				C	C	C		C	D		C
Lake Grade	**C**				**C**							**C**

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
TP		B		C					A			A
CLA		A		B					A			B
Secchi		B		B					A			A
Lake Grade		**B**		**B**					**A**			**A**

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
TP	A	B	C	B	A	B	C	A	B	A	A	A
CLA	A	B	B	C	A	A	B	A	A	A	A	A
Secchi	B	A	B	C	A	B	A	A	A	A	B	A
Lake Grade	**A**	**B**	**B**	**C**	**A**	**B**	**B**	**A**	**A**	**A**	**A**	**A**

Year	2016	2017
TP	A	A
CLA	A	A
Secchi	A	A
Lake Grade	**A**	**A**

Source: Metropolitan Council, EPA STORET, and/or MPCA EQuIS database(s)

Reporting

2018

Lake Water *Quality*

Summary

Lakes add to the quality of life and economic stability of the region

INTRODUCTION

The Twin Cities metropolitan area is fortunate to have a large number of lakes. These lakes are important recreational, aesthetic, and ecological resources that add considerably to the quality of life and economic stability of the region. Protecting the water quality of our lakes is a significant citizen concern.

Many state and local agencies have a role in managing and monitoring lake water quality. The Metropolitan Council operates the most extensive lake monitoring program in the region, and has been monitoring metro area lakes since 1980. During the 1980s, the Council typically monitored about 10 to 30 lakes per year.

In 1993, the Council initiated the Citizen-Assisted Monitoring Program (CAMP) to help expand coverage of lake monitoring in the metro area and to provide information to support local water management efforts. This highly successful program collects data on the lakes each year through the efforts of trained, dedicated volunteers and their local sponsors. 2018 was the 26th year of the Council's volunteer program, with 123 citizen volunteers participating in the CAMP. The volunteers were sponsored by local partners, including 11 cities, 11 watershed management organizations and watershed districts, 2 counties, 1 basin planning team, and 1 conservation district.

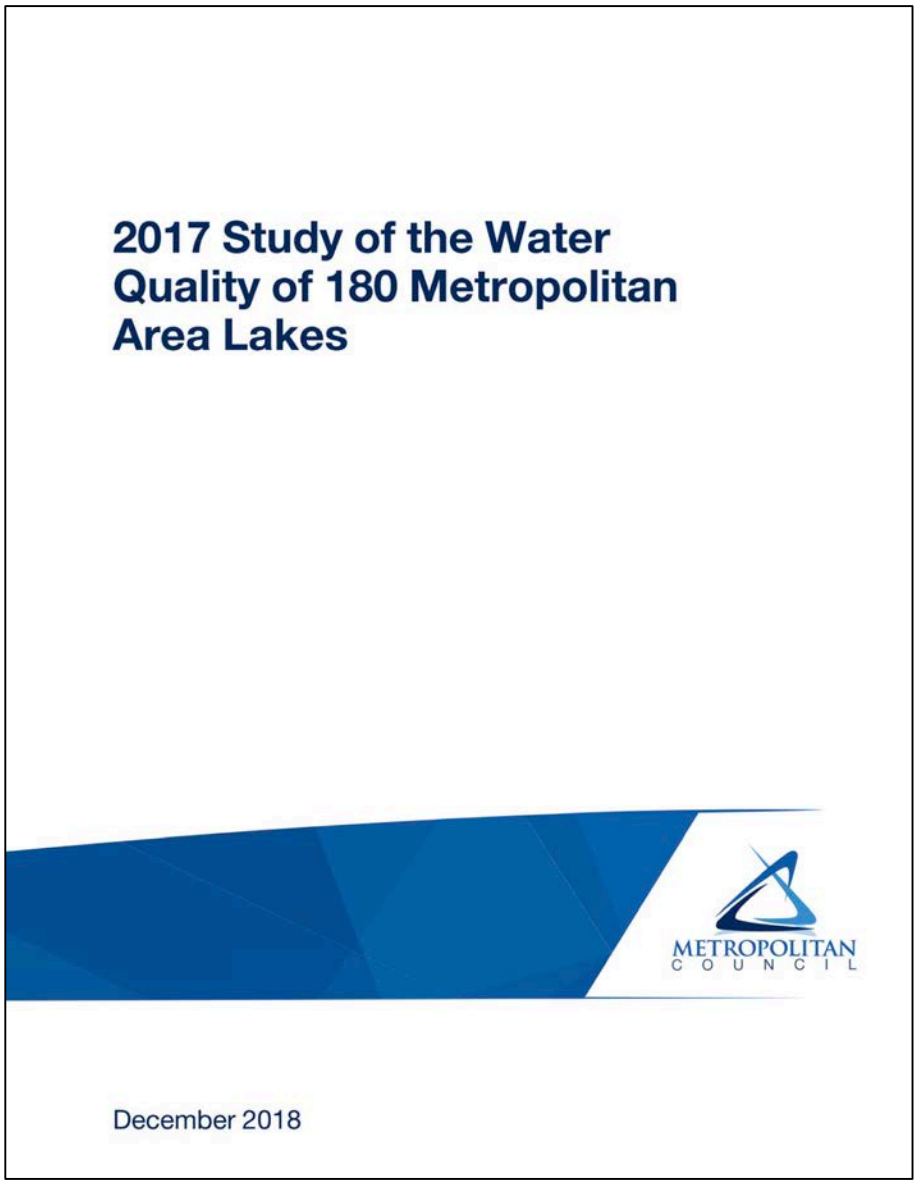
Through the dedicated efforts of the volunteers and local partners, a total of 194 lake-sites on 180 lakes were monitored in 2018 through the CAMP. Metropolitan Council staff monitored an additional 6 lake-sites on 4 lakes. In total, Council staff and CAMP volunteers and sponsors monitored 200 lake sites on 184 lakes in 2018, including 3 lake-sites and 2 lakes that were newly added to the Council's lake monitoring program. Since 1980, the Council's lake monitoring program has monitored 440 lake-sites on 398 lakes.

WHY WE MONITOR

The Metropolitan Council is charged with creating a comprehensive regional development guide that minimizes the adverse impacts of growth, including adverse impacts on the environment. The monitoring data collected by the Council, its partners, and citizen volunteers are used to identify pollution problems, support regional planning efforts, and meet federal and state regulations. This Lake Water Quality Summary provides an annual synoptic assessment of the water quality of many of the metro area's lakes. Also, the Council monitors several rivers and streams in the metropolitan area and prepares reports on data collected by those programs.

METROPOLITAN COUNCIL

390 Robert Street North
Saint Paul, MN 55101
Main: 651.602.1000
TTY: 651.291.0904
Public Information: 651.602.1500
public.info@metc.state.mn.us
metrocouncil.org

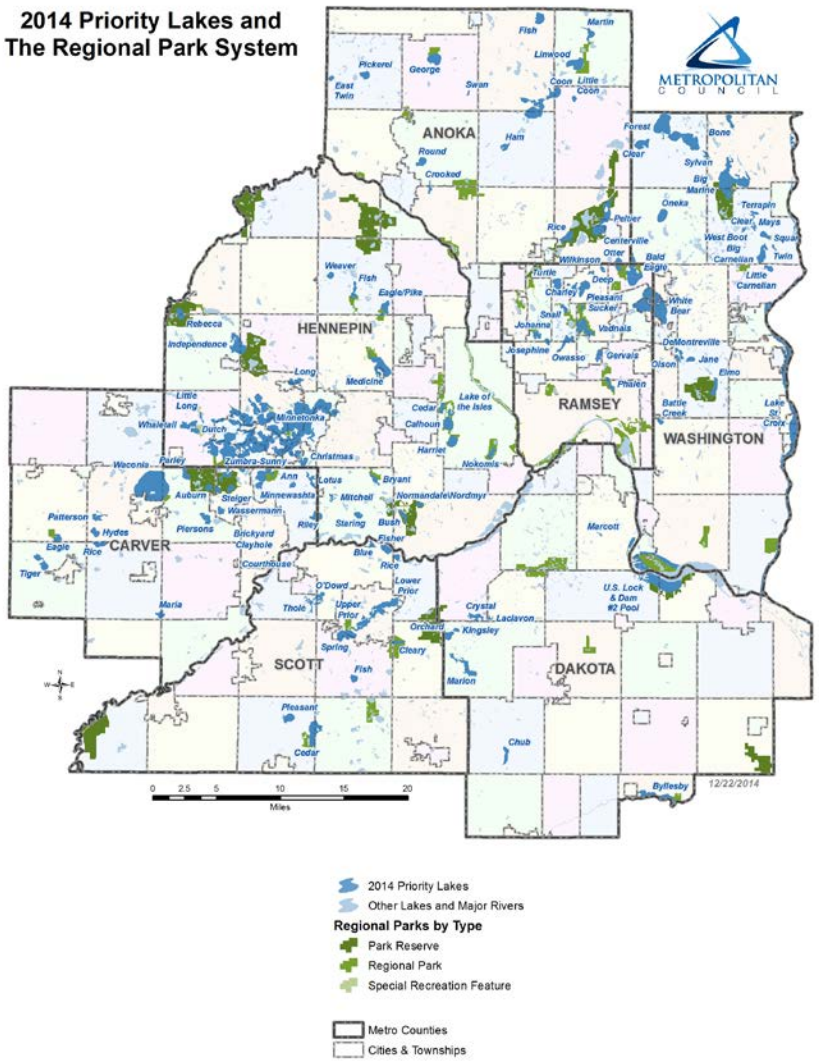


2017 Study of the Water Quality of 180 Metropolitan Area Lakes

METROPOLITAN COUNCIL

December 2018

Council Priority Lakes



Regional Recreational Value

Good Water Quality

Drinking Water Source

Wildlife Significance

Questions

Brian Johnson
Senior Environmental Scientist
brian.johnson@metc.state.mn.us
651-602-8743

Webpage:

https://metrocouncil.org/Wastewater-Water/Services/Water-Quality-Management/Lake-Monitoring-Analysis.aspx