Water monitoring in the WMO

2020 activities

LMR WMO
LOWER MISSISSIPPI RIVER
WATERSHED MANAGEMENT ORGANIZATION

DAKOTA COUNTY SOIL & WATER CONSERVATION DISTRICT

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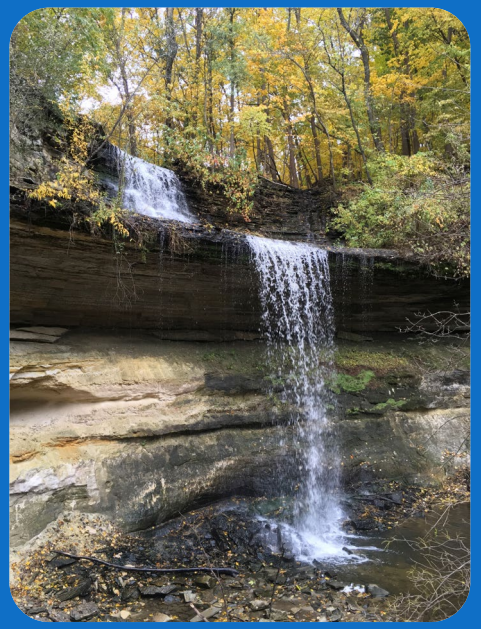
LMRWMO purpose

The WMO developed the following vision statement on December 23, 2009:

> *Water resources and related ecosystems are managed to sustain their long-term health and integrity through member city collaboration and partnerships with other water management organizations with member city citizen support and participation.*

3rd Generation Plan General Purposes

- Protect, preserve, and use natural surface and groundwater storage and retention systems.
- Identify and plan for means to effectively protect and improve surface and groundwater quality.
- Prevent erosion of soil into surface water systems.
- Promote groundwater recharge.
- Protect and enhance fish and wildlife habitat and water recreational facilities.



- LMRWMO goals

  Assist member cities in achieving current and future *water quality* and *water quantity* regulations collaboratively, equitably, and cost-effectively for all members within the watershed.

Why monitor water quality?

- Health and safety considerations for the public
- Robust dataset to understand long-term water quality trends
- Impairments process – data helps to determine if lakes meet the standards for aquatic recreation and aquatic life (listing and delisting)
- Development and implementation of TMDLs
- Inform decisions about projects and programs needed to protect or restore local water bodies

Achieving goals through monitoring

Monitoring activities around the Metro:

- Capitol Region WD - monitors storm sewer outlets for pollutants
- Minnehaha Creek WD - monitors lakes and streams with an intensive program run in-house
- Vermillion River WJPO - contracts with SWCDs to monitor the Vermillion River, as well as tributaries, as part of their intensive stream monitoring program
- Minnesota River WD – contracts with SWCDs to monitor water temperature of trout streams
- Black Dog WMO and City of Apple Valley – participate in CAMP to sponsor monitoring on local lakes

What is CAMP?

Citizen Assisted Monitoring Program

Partnership to *collect and analyze scientifically valid water-quality data from lakes* in the seven-county Twin Cities area

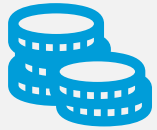
Helps address local priorities while engaging citizen scientists who advocate for water quality

Sponsor organizations recruit *volunteers* to track water quality in local lakes

Each volunteer monitors a specific site on a lake on a regular basis from *mid-April through mid-October* (every two weeks is most common)

Volunteers collect a *surface water sample*, measure *water temperature* and *clarity*, and report *weather* and *lake conditions*.

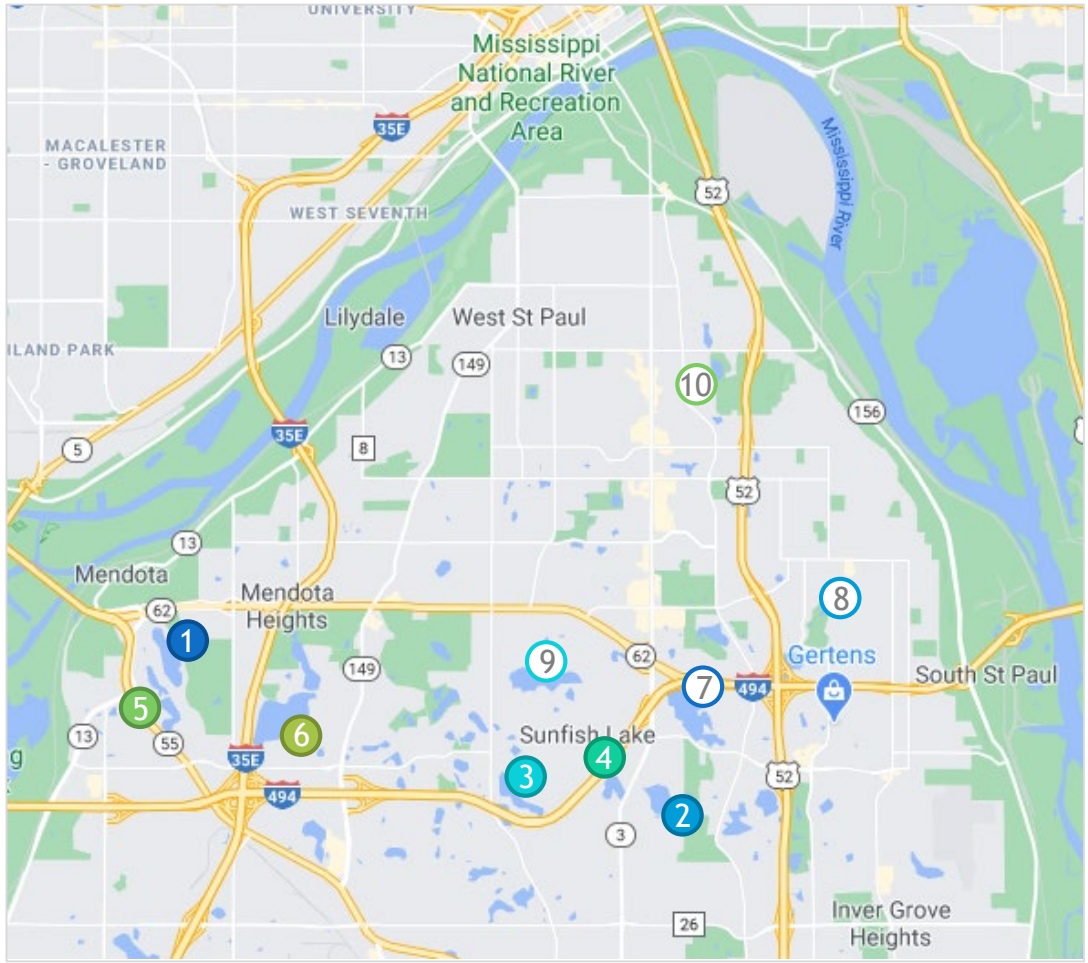
Benefits to volunteer monitoring



Cost effective

Useful dataset

Excellent outreach tool

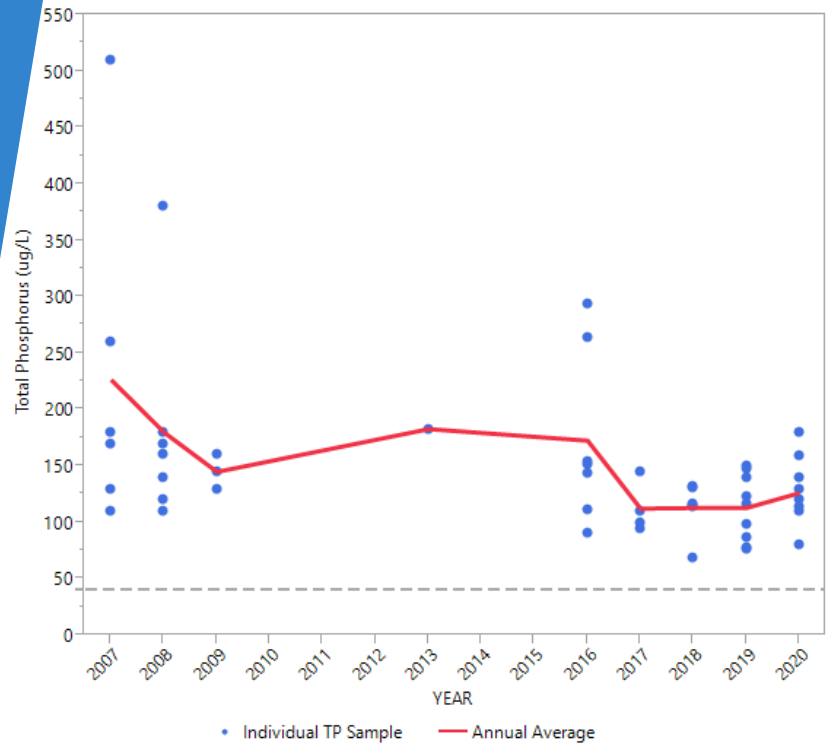


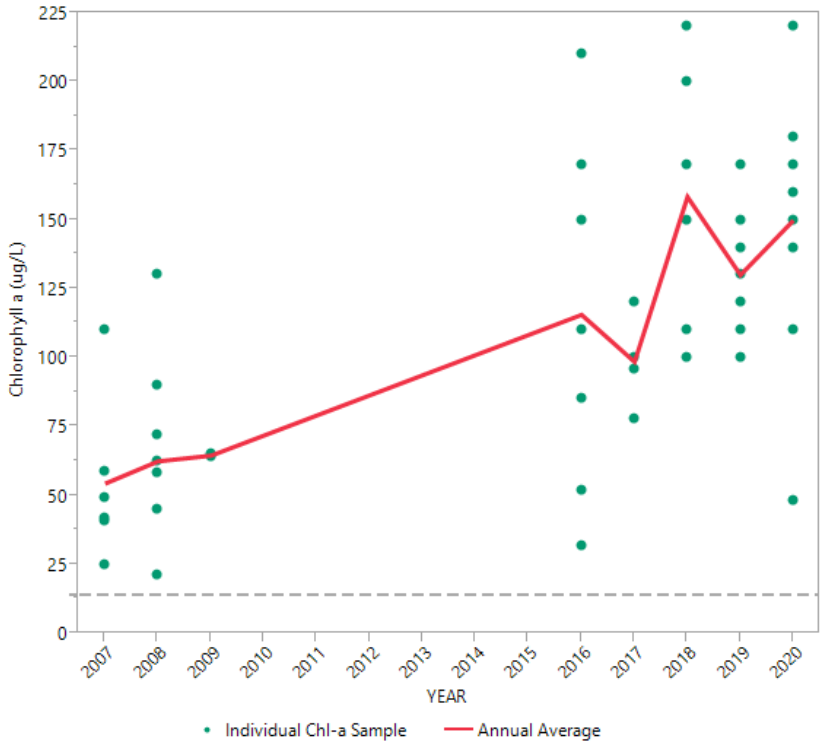
2020 LMRWMO and partner lakes

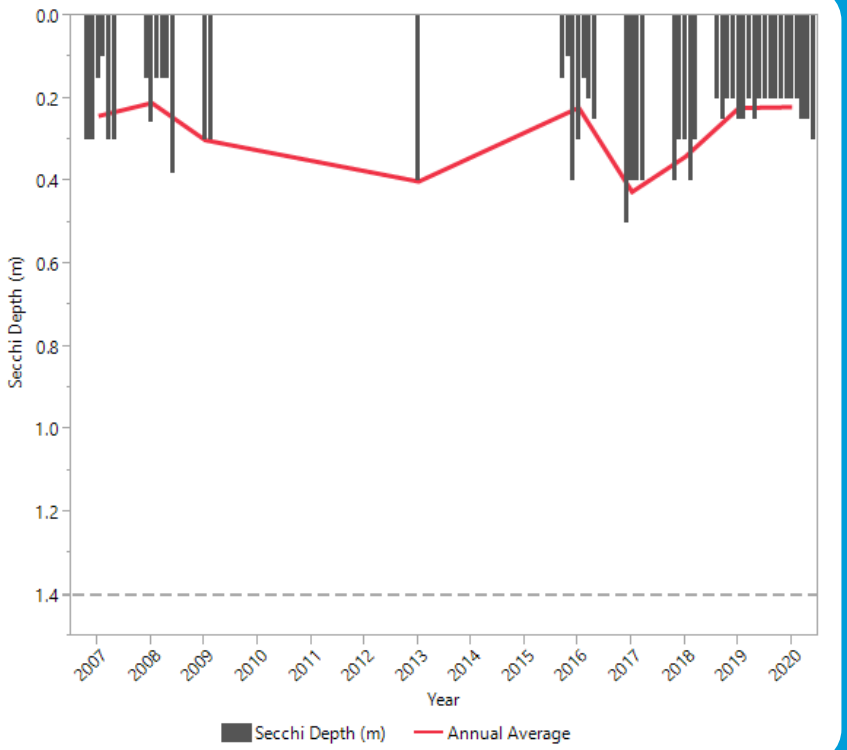
1. Lake Augusta (i)
2. Dickman Lake
3. Hornbean Lake
4. Horseshoe Lake
5. Lemay Lake (i)
6. Rogers Lake
7. Schmidt Lake
8. Seidl Lake
9. Sunfish Lake (i)
10. Thompson Lake (i)

How is water quality assessed?

- *Eutrophication* standards have been developed for deep and shallow lakes, based on their ecoregion
  - Caused by excess nutrients in the waterbody
- The monitoring parameters of interest include:
  - Total Phosphorus (TP): a nutrient that helps plants grow
  - Chlorophyll *a:* a pigment found in green plants, used as a proxy for algal abundance
  - Secchi depth: a measure of water clarity
- If TP, and one *or both*, of the other parameters is not meeting the standard, the lake may be 'impaired'
- Monitoring data is submitted to MPCA for storage in their EQuIS database by the Met Council







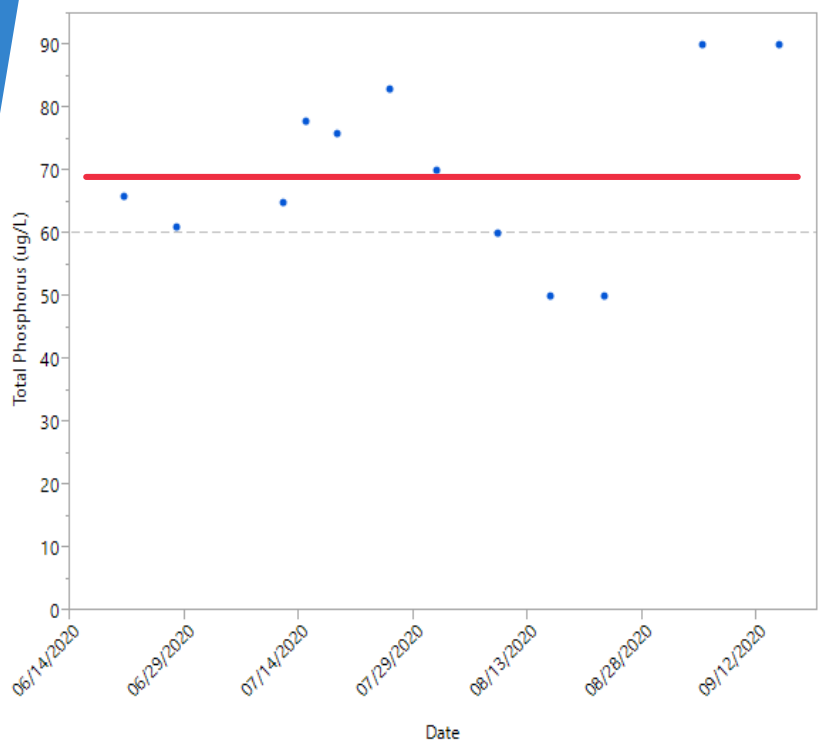
Lake Augusta

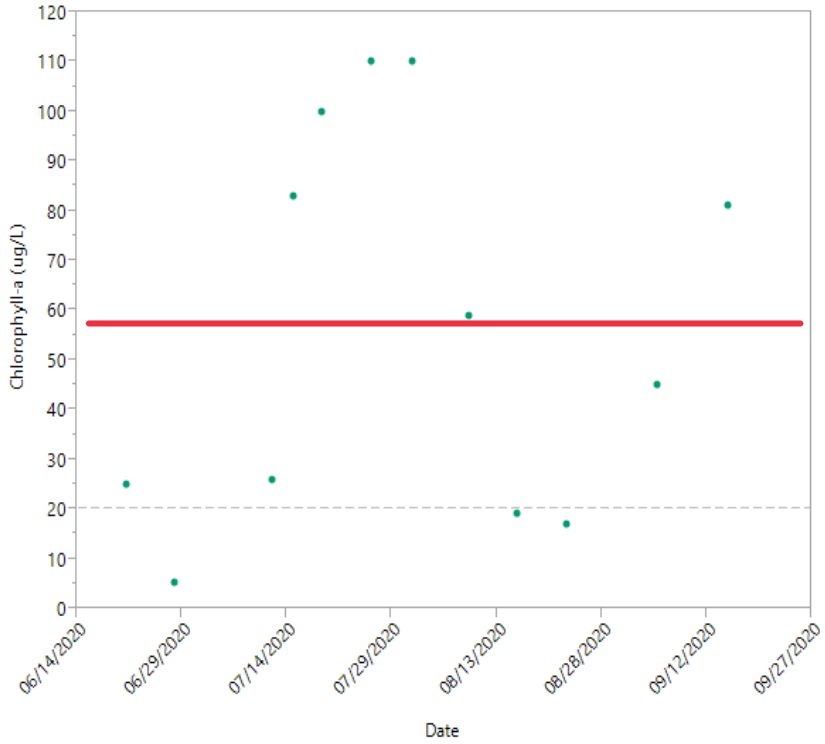
DNR ID 19-0081-00

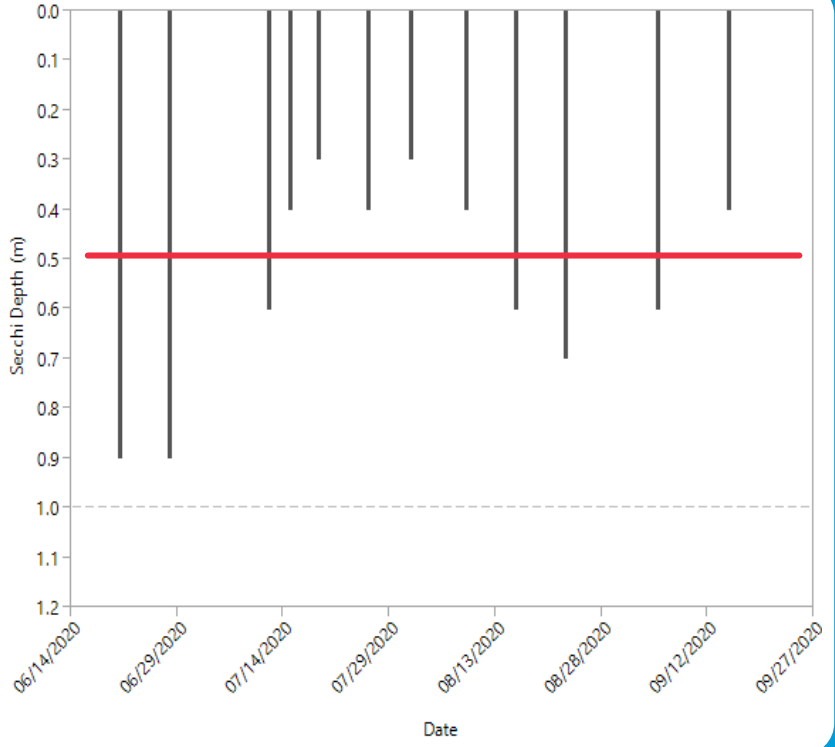
City – Mendota Heights
Max Depth – 33 ft
Surface Area – 33 acres

Nutrients
Impaired
2010

Deep Lake - 40 ug/l TP - 14 ug/L chl-a - 1.4 m Secchi depth





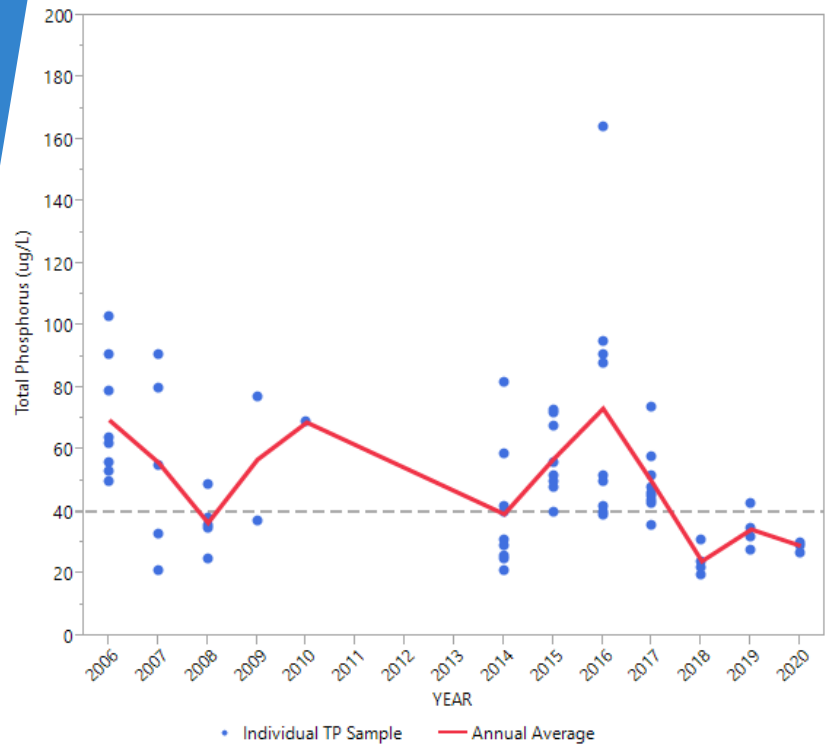


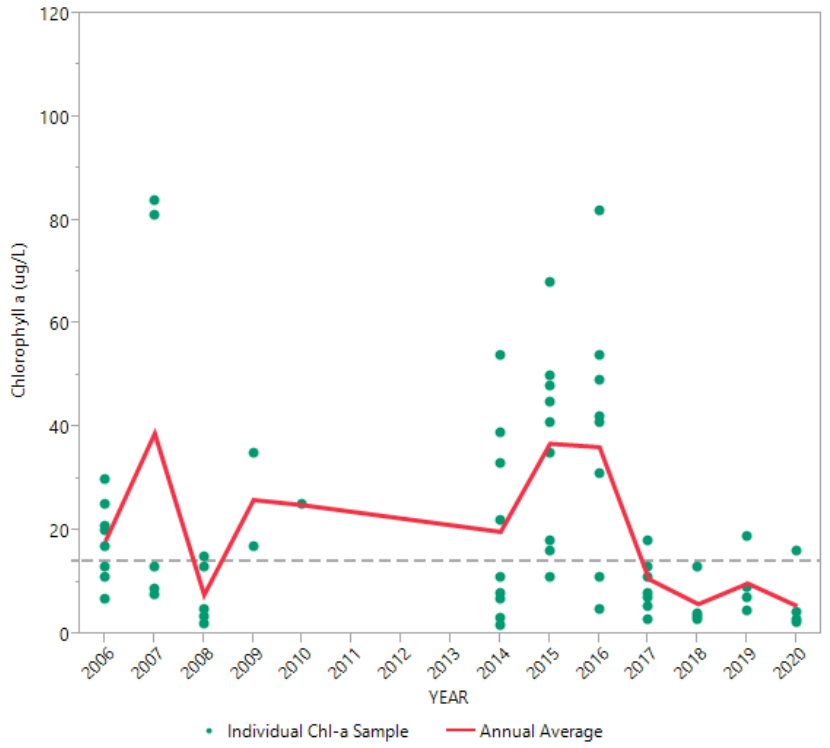
Dickman Lake

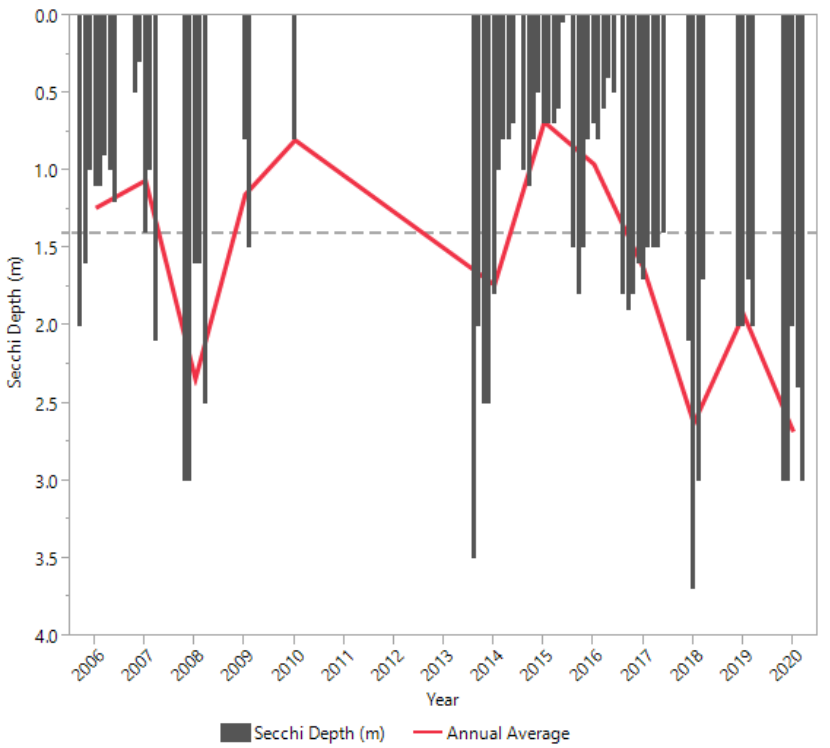
DNR ID 19-0046-00

City – Inver Grove Heights
Max Depth – *Unknown*
Surface Area – 23 acres

Shallow Lake - 60 ug/l TP - 20 ug/L chl-a - 1m Secchi depth





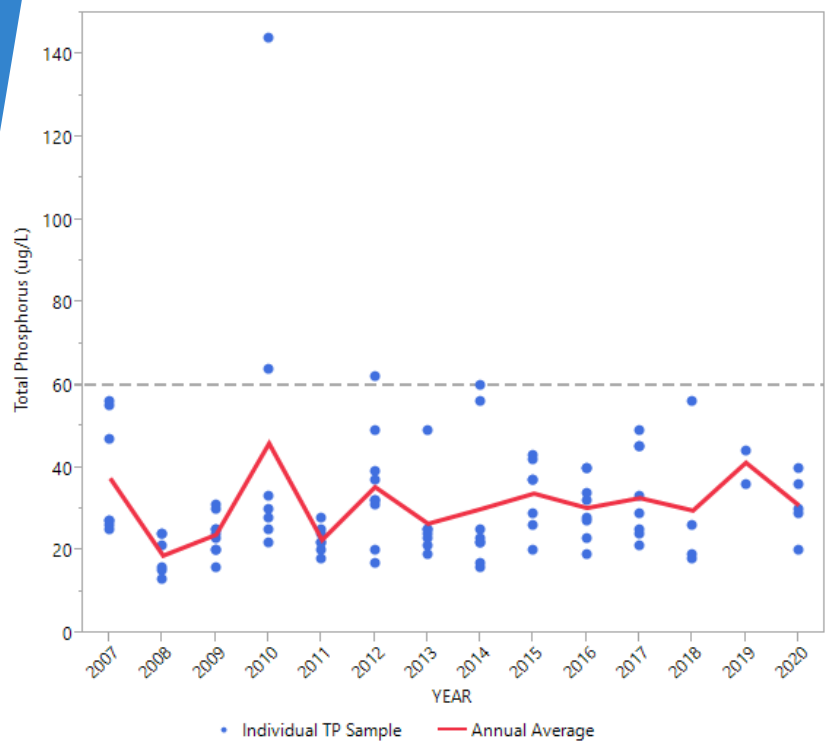


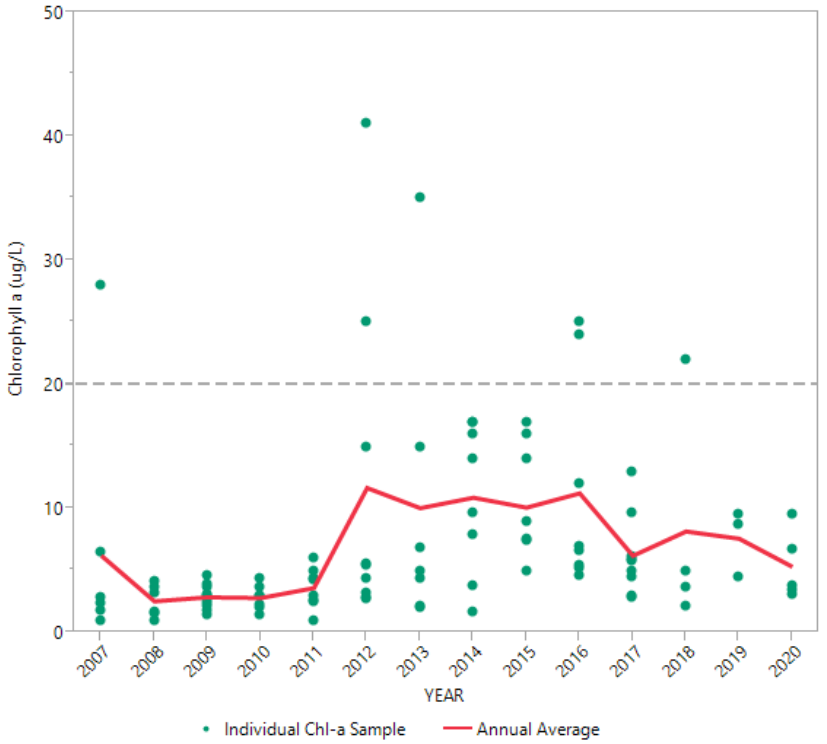
Hornbean Lake

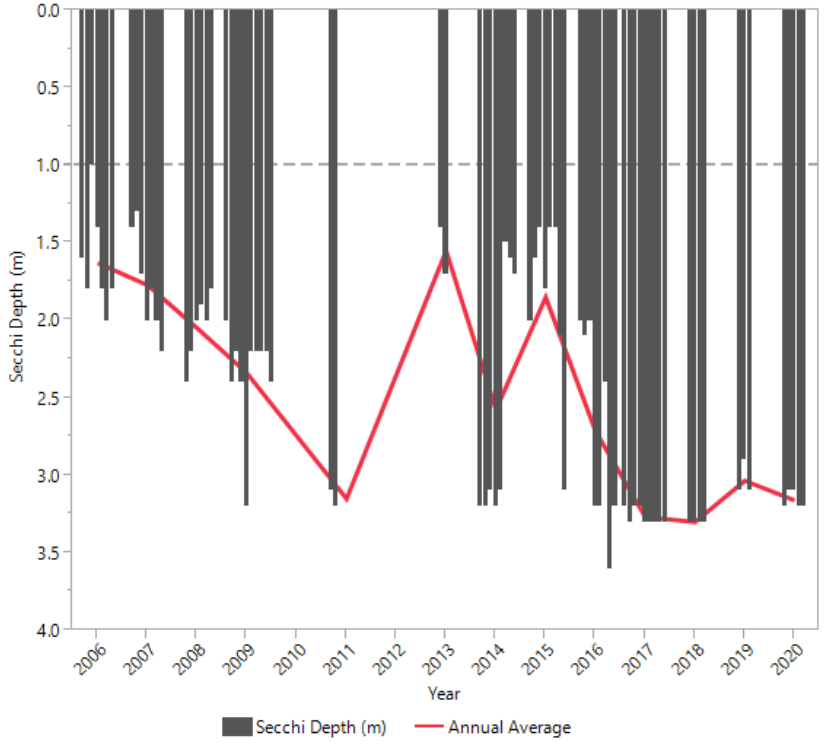
DNR ID 19-0047-00

City – Inver Grove Heights
Max Depth – *Unknown*
Surface Area – 22 acres

Shallow Lake - 60 ug/l TP - 20 ug/L chl-a - 1m Secchi depth





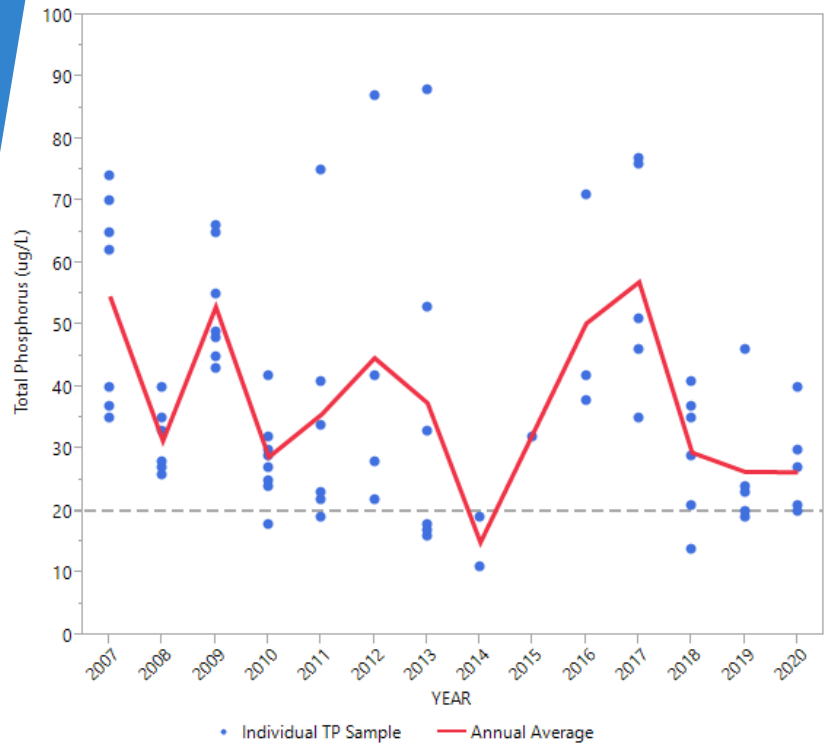


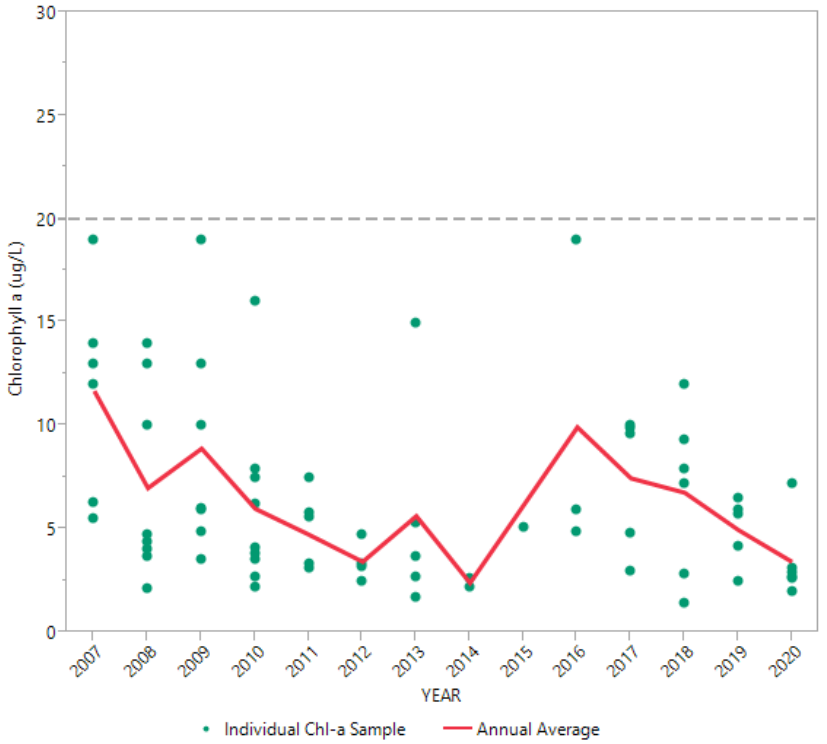
Horseshoe Lake

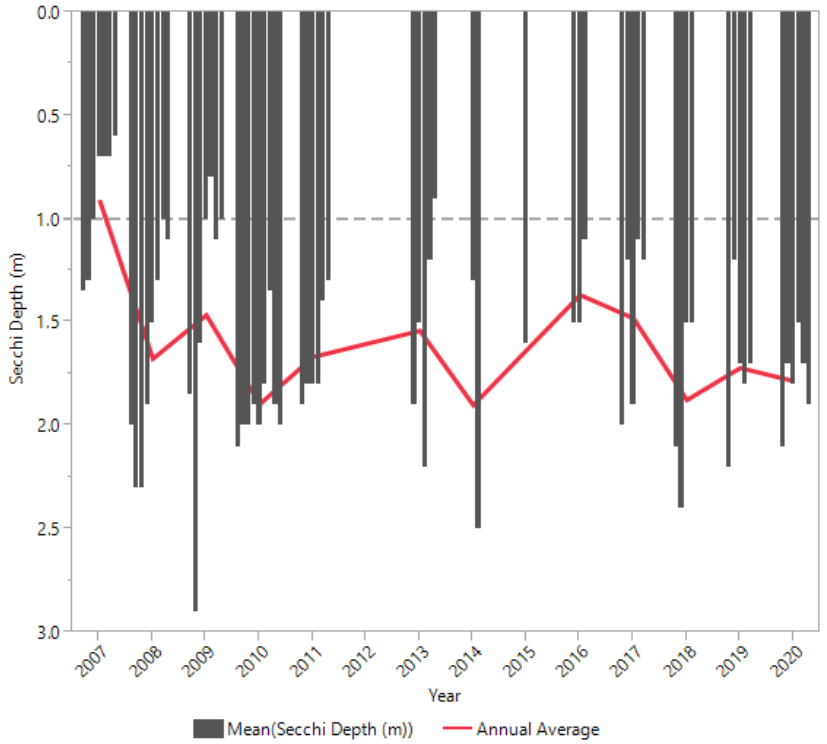
DNR ID 19-0081-00

City – Sunfish Lake
Max Depth – *Unknown*
Surface Area – 15 acres

Shallow Lake - 60 ug/l TP - 20 ug/L chl-a - 1m Secchi depth







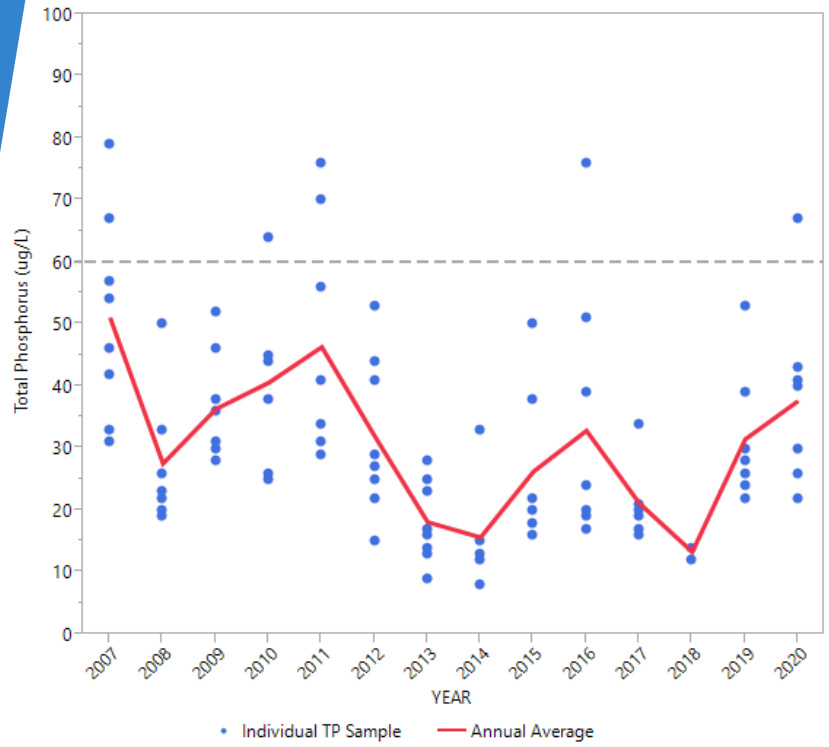
Lemay Lake

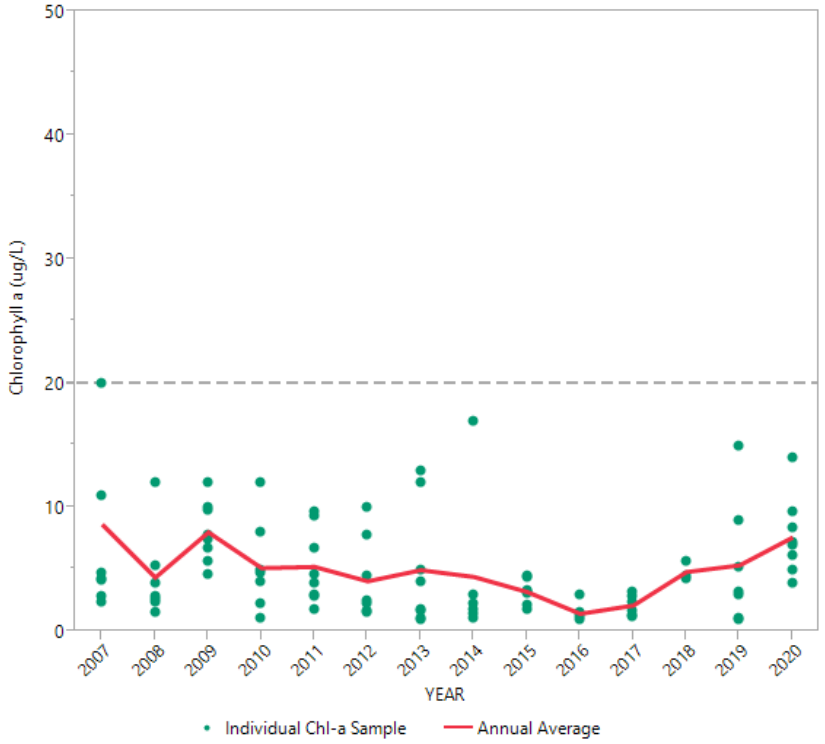
DNR ID 19-0082-00

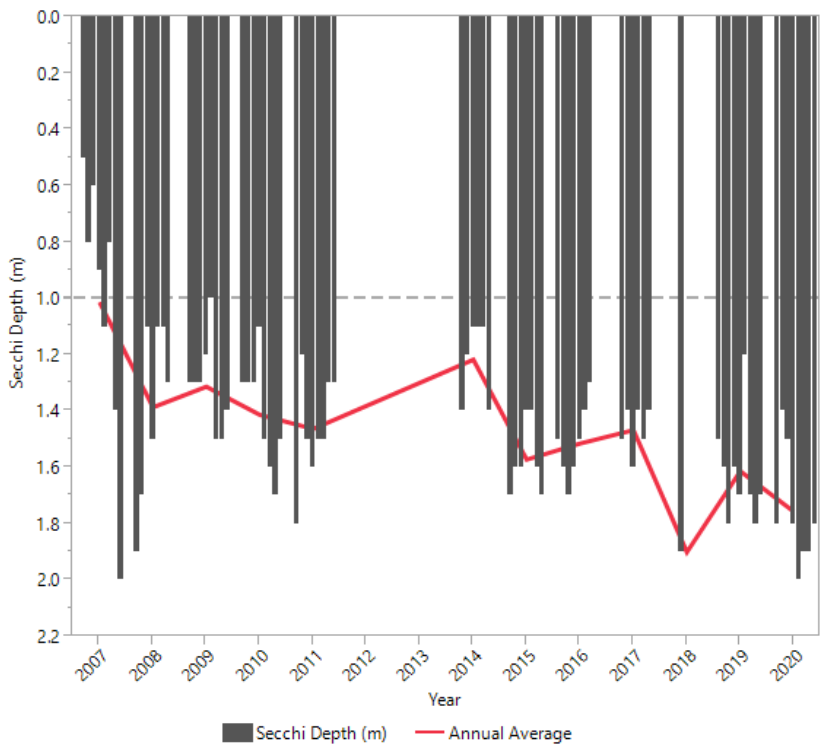
City – Mendota Heights
Max Depth – *Unknown*
Surface Area – 25 acres

Nutrients
Impaired
2014

Shallow Lake - 60 ug/l TP - 20 ug/L chl-a - 1m Secchi depth





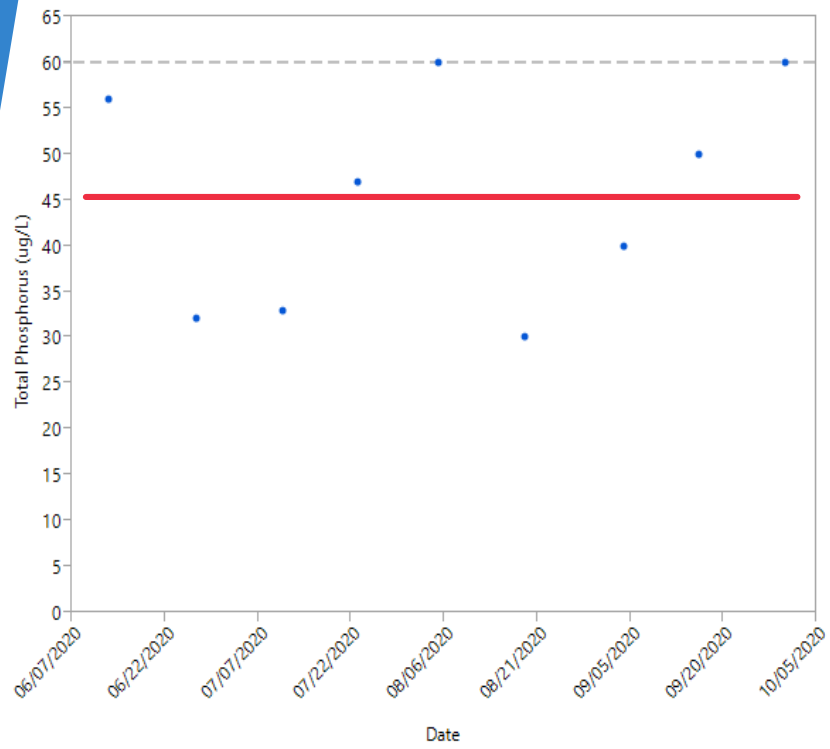


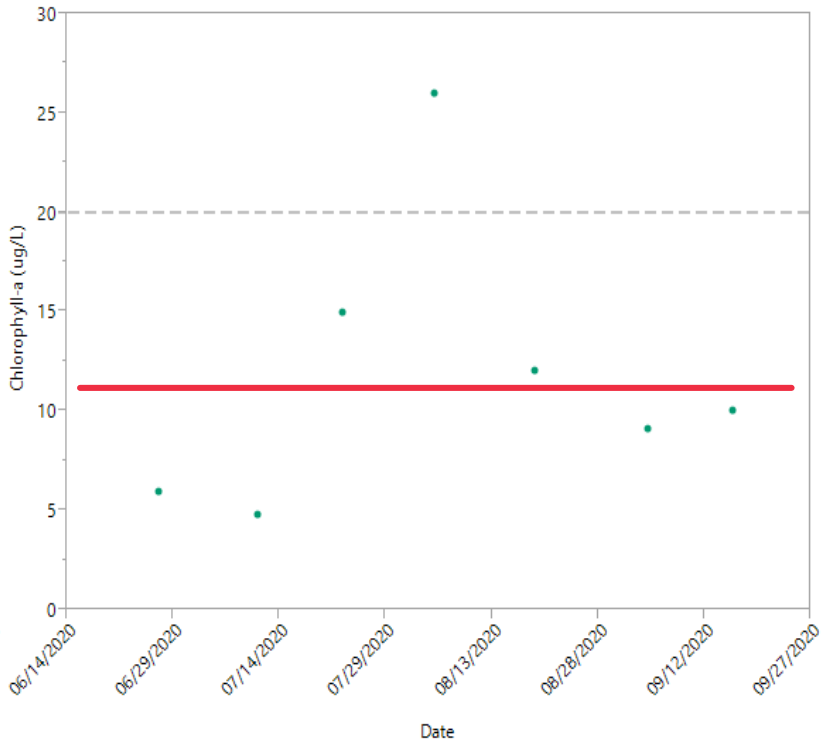
Rogers Lake

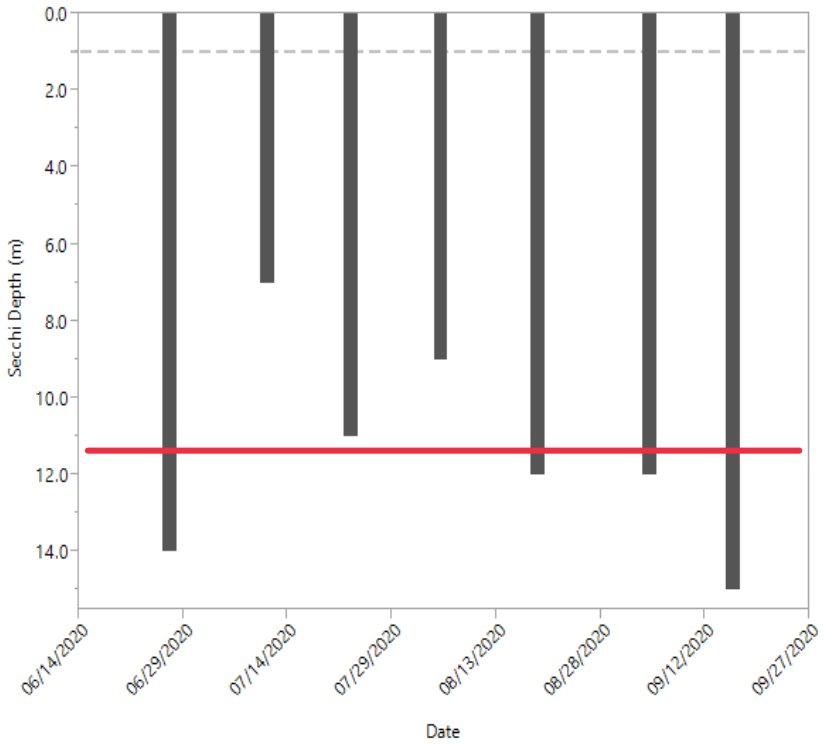
DNR ID 19-0080-00

City – Mendota Heights
Max Depth – 8 ft
Surface Area – 107 acres

Shallow Lake - 60 ug/l TP - 20 ug/L chl-a - 1m Secchi depth





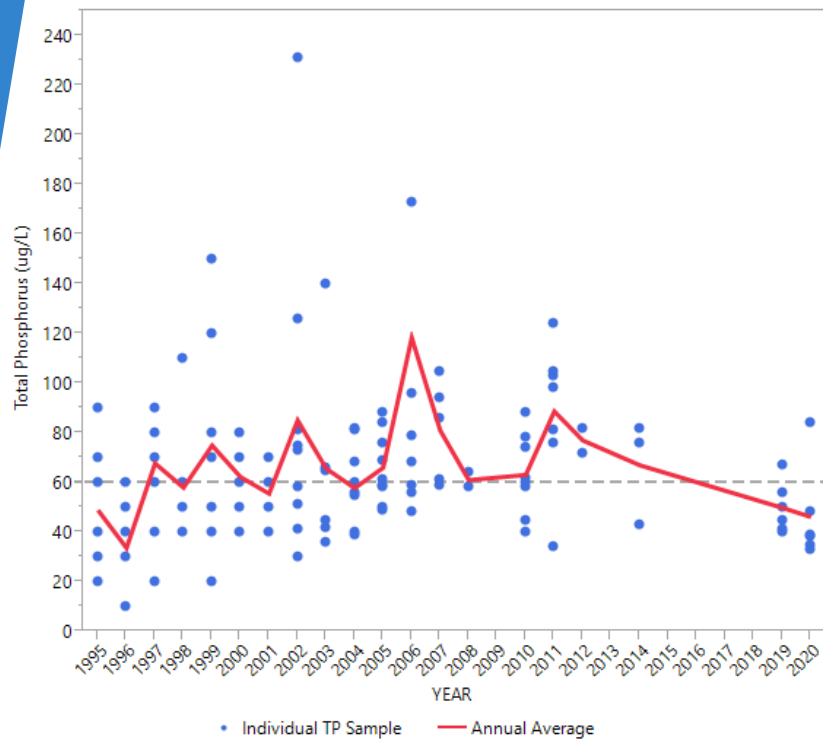


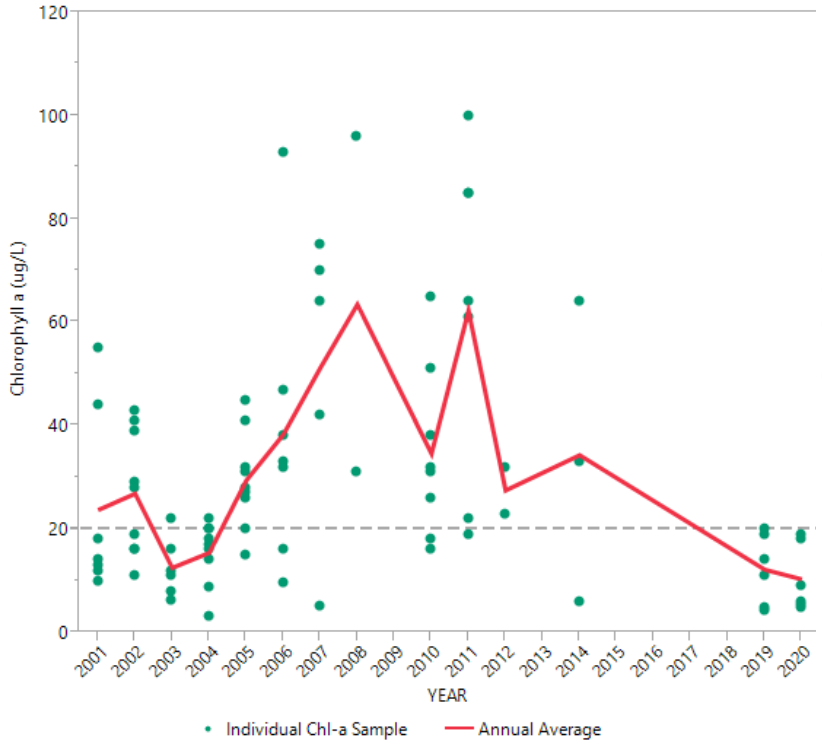
Schmitt Lake

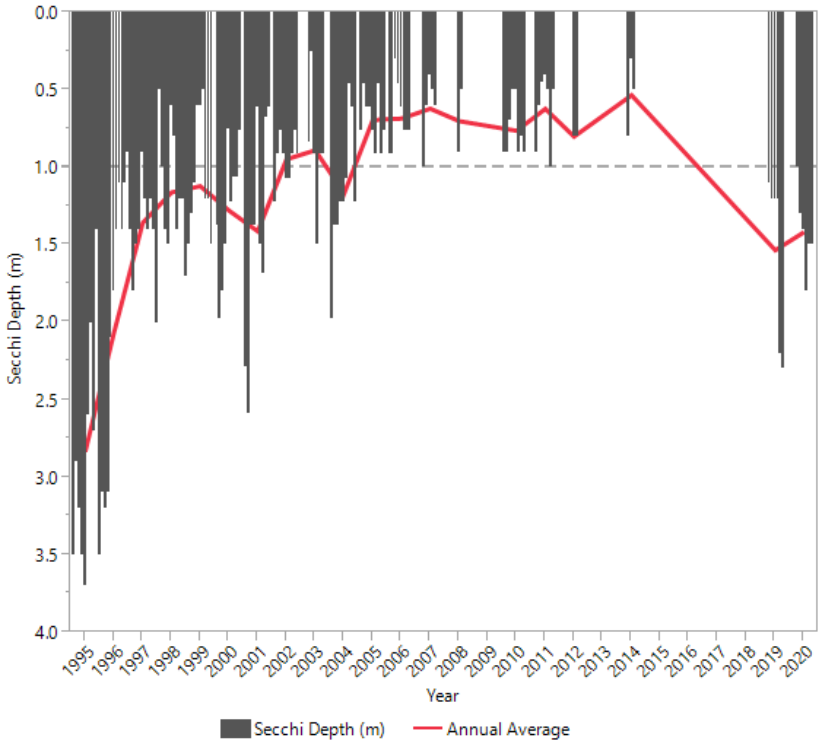
DNR ID 19-0052-00

City – Inver Grove Heights
Max Depth – Unknown
Surface Area – 61 acres

Shallow Lake - 60 ug/l TP - 20 ug/L chl-a - 1m Secchi depth





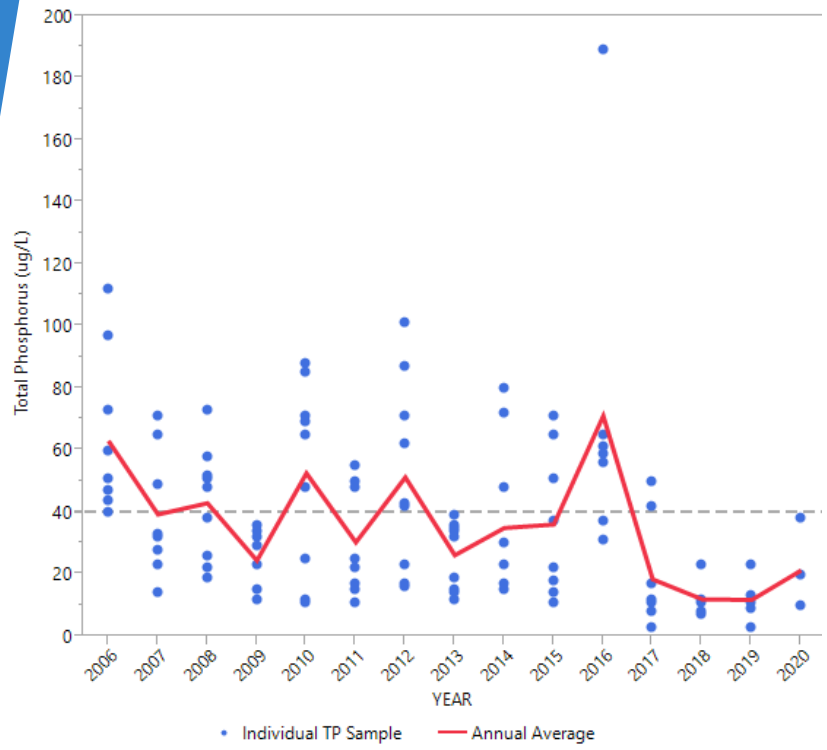


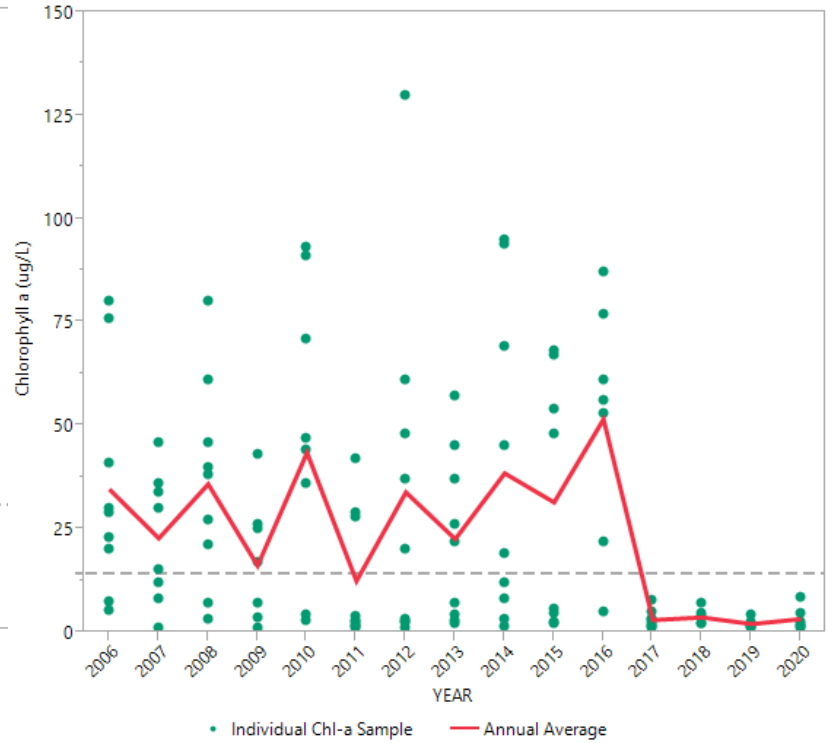
Seidl Lake

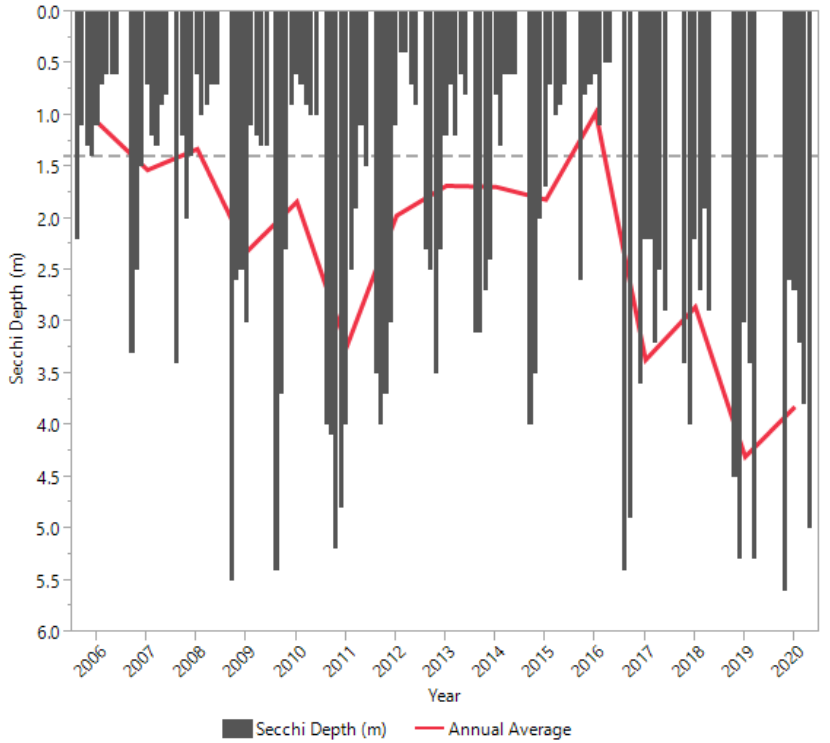
DNR ID 19-0095-00

City – South St. Paul
Max Depth – *Unknown*
Surface Area – 4 acres

Shallow Lake - 60 ug/l TP - 20 ug/L chl-a - 1m Secchi depth







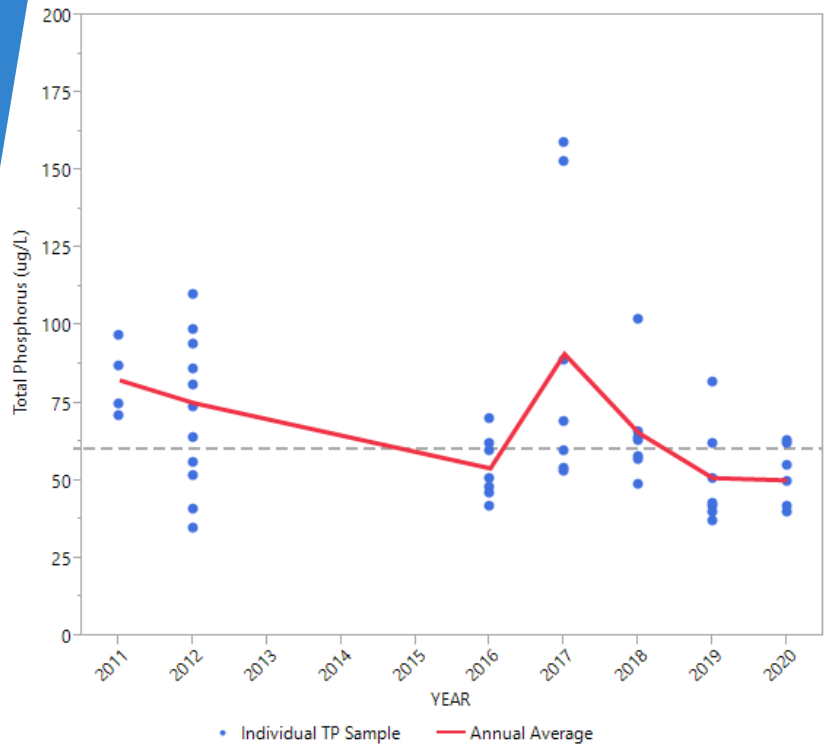
Sunfish Lake

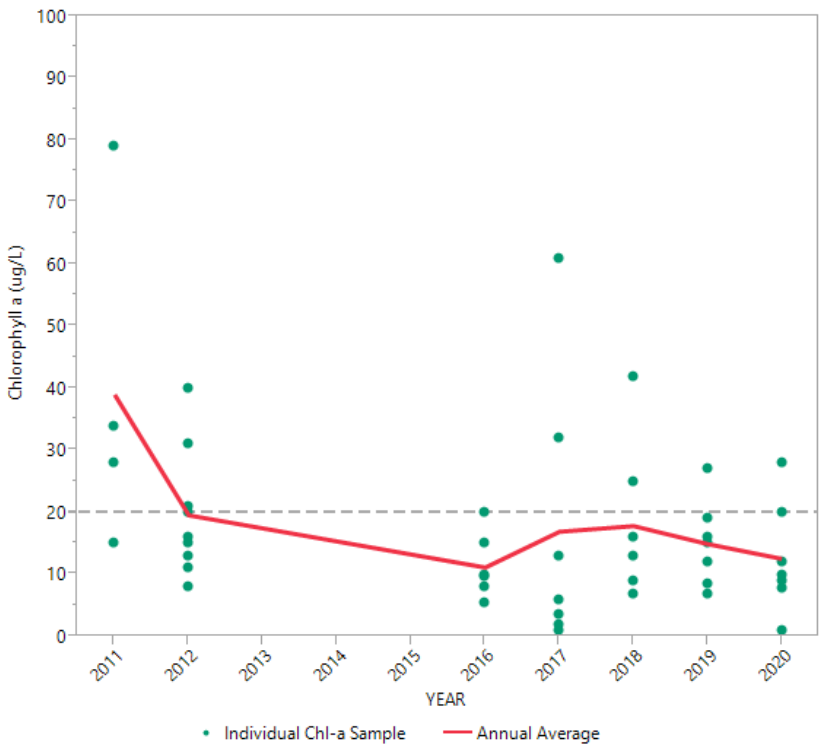
DNR ID 19-0050-00

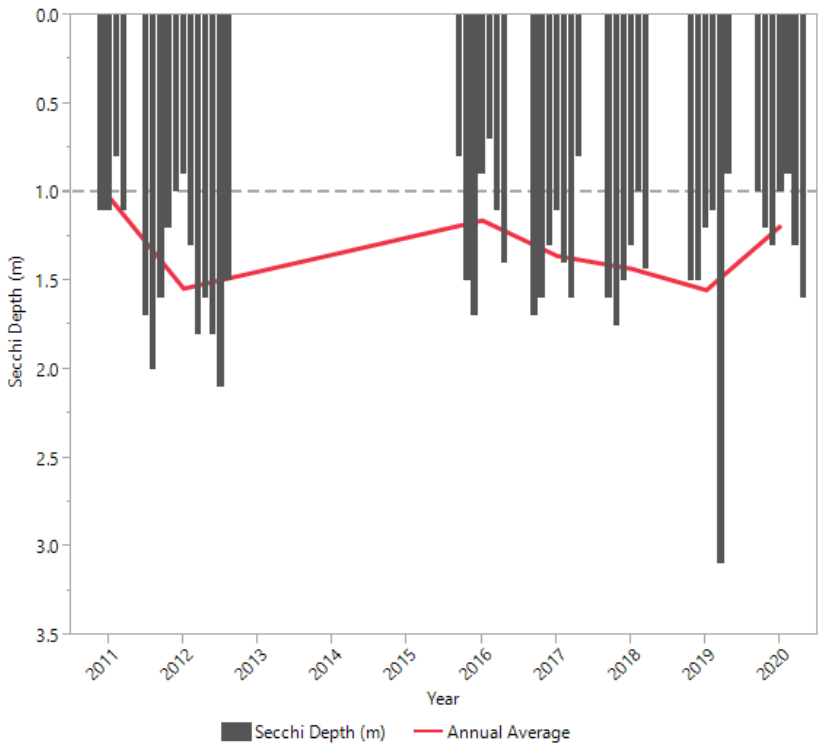
City – Sunfish Lake
Max Depth – 32 ft
Surface Area – 45 acres

Nutrients
Impaired
2010

Deep Lake - 40 ug/l TP - 14 ug/L chl-a - 1.4 m Secchi depth







Thompson Lake

DNR ID 19-0048-00

City – West St. Paul
Max Depth – 8 ft
Surface Area – 7 acres

Chloride, Nutrients
Impaired
2014

Shallow Lake - 60 ug/l TP - 20 ug/L chl-a - 1m Secchi depth

Additional Monitoring

- Stream monitoring
  - Interstate Valley Creek and Ivy Falls Creek
  - Total Phosphorus, Total Suspended Solids, Chlorophyll-a
  - Monthly basis, April through October
    - Runoff needs additional support
- Chloride monitoring at Thompson Lake
  - Lake sample after ice out and in summer/fall
    - Surface and depth samples
    - Conductivity profile for each season
      - Temperature and Dissolved Oxygen
  - Inlet monitoring entire winter

Future Action

- Continued monitoring of same lakes as in 2020 as part of CAMP; WMO and City sponsored
  - Renew monitoring of Pickerel
  - Dickman and Schmitt – second of two years to establish a new baseline
- Stream monitoring
- Robust dataset supports prioritization of projects around watershed as part of planning process for new management plan
- Outreach tool for lakeshore residents and wider community

Thank you

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DAKOTA COUNTY
SOIL & WATER
CONSERVATION DISTRICT