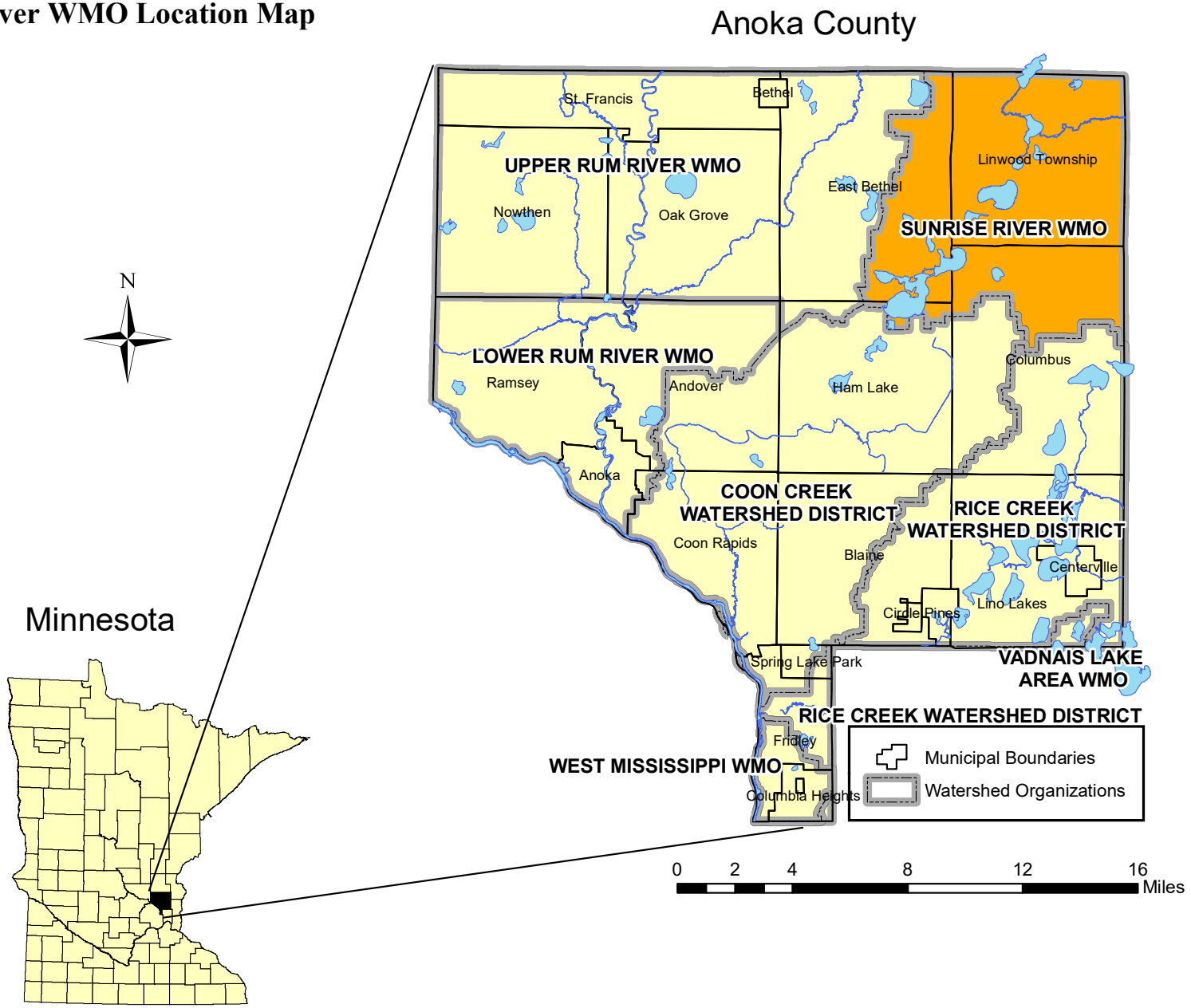
2019 Annual Report

Sunrise River Watershed Management Organization

East Bethel – Ham Lake – Linwood - Columbus

April 22, 2020

Sunrise River WMO Location Map



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I. Introduction to this Report

This report is intended for local and state oversight agencies, as well as interested citizens. At the local level, it is intended to provide member communities, their elected officials, and staff with an activity update. At the state level, this report meets the annual watershed management organization reporting requirements of Minnesota Rules 8410.0150. The report is intended to fulfill 2019 reporting requirements.

II. About the Sunrise River WMO

The Sunrise River Watershed Management Organization (SRWMO) is a special purpose unit of government that operates as a joint powers organization under Minnesota Statutes, Section 471.59. It is comprised of Linwood Township and portions of the Cities of Columbus, Ham Lake, and East Bethel. Board members are appointed by the member communities. Financing is from member communities. The SRWMO's direction is laid out in its watershed management plan and the member municipalities' local water plans.

The SRWMO area is rich in water and natural resources. Approximately 50% of the area is water and wetlands, including 19 lakes. Four are major recreational lakes (Coon, Linwood, Martin, and Typo). 19% of the SRWMO area is high quality natural communities that have undergone little human disturbance since pre-settlement times. Many of these areas have been designated by the State as sites of biodiversity significance or regionally significant ecological areas. 27 plant and animal species that are state endangered, threatened, special concern, or rare are known to occur in the SRWMO. These water and natural resources are at the heart of the character of these north Twin Cities metro communities.


Sunrise River

Despite the overwhelming good quality of the natural resources, there are some areas of concern. Martin, Typo, and Linwood Lakes have been designated as "impaired" by the Minnesota Pollution Control Agency for excess nutrients. Several segments of the Sunrise River in Linwood Township are impaired for pH, turbidity, and the fish community. Coon

and Linwood Lakes are infested with two aquatic invasive species: curly leaf pondweed and Eurasian Water Milfoil. Old, failing or improperly maintained septic systems likely have an impact on water quality. Many of these problems flow across community boundaries and cannot be effectively addressed by any one community alone. This is the reason for this joint powers watershed management organization.

SRWMO Watershed Management

The SRWMO is guided by its 10-year watershed management plan. The plan can be found on the SRWMO website (www.SRWMO.org).

The Sunrise River WMO Board of Managers considers its responsibilities to be overseeing the management of water resources in the watershed. The WMO serves the community by:

- Providing a forum to consider inter-community water problems.
- Collecting data and conducting resource monitoring to guide management.
- Facilitating water quality improvement projects, which often will be cooperative endeavors with others.
- Setting minimum standards for member community ordinances that consider local water resources issues. The SRWMO will not have its own permitting program.
- Providing a linkage between natural resources and land use planning decisions.
- Educating the public about water resources, and enabling or incentivizing individual action.
- Informing and engaging local elected officials about water problems, projects and the SRWMO.
- Ensuring expenditures result in corresponding benefits to the public.
- Avoiding duplication among government agencies and communities.

The SRWMO operates under the following philosophies:

- Water-related problems are community problems and not individual problems.
- Water resource management is a vital matter that cannot be effectively addressed by individual communities because watersheds cover multiple communities.
- Water resources should be managed on a watershed basis.
- Aquatic and terrestrial areas are integrally linked and cannot be effectively managed separately.

III. Activity Report

a. Current Board Members

CITY OF COLUMBUS

Shelly Logren
16319 Kettle River Blvd
Columbus, MN 55025
651.464.3120
councilslogren@ci.columbus.mn.us

Janet Hegland
16319 Kettle River Blvd
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651.464.3120
councilsjaneth@ci.columbus.mn.us

CITY OF HAM LAKE

Matt Downing (Treasurer)
16163 Lexington Ave NE
Ham Lake, MN 55304
651.428.6350
Matthewdowning108@gmail.com

Sandy Flaherty
834 181st Ave NE
Cedar, MN 55011
763.226.4127
stevensandy6@q.com

CITY OF EAST BETHEL

Tim Harrington
2241 221st Ave NE
East Bethel, MN 55011
763.413.7851
tim.harrington@ci.east-bethel.mn.us

Leon Mager (Vice Chair)
19511 East Tri Oak Circle NE
Wyoming, MN 55092-8420
763.434.9652
lam3@isd.net

LINWOOD TOWNSHIP

Dan Babineau (Chair)
22275 Martin Lake Road NE
Stacy, MN 55079
763.390.9985
danb@microconsulting.com

Paul Enestvedt
6220 213th Lane NE
Stacy, MN 55092
651.408.0046
paul.enestvedt71@gmail.com

Tim Peterson (Alternate)
23561 Fontana St NE
Stacy, MN 55079
651.233.4151
braveheart51@frontiernet.net

Current SRWMO Managers and contact information can be found at **www.SRWMO.org**

b. Day to Day Contact

The day to day contact person for the SRWMO who can answer questions about the organization is:

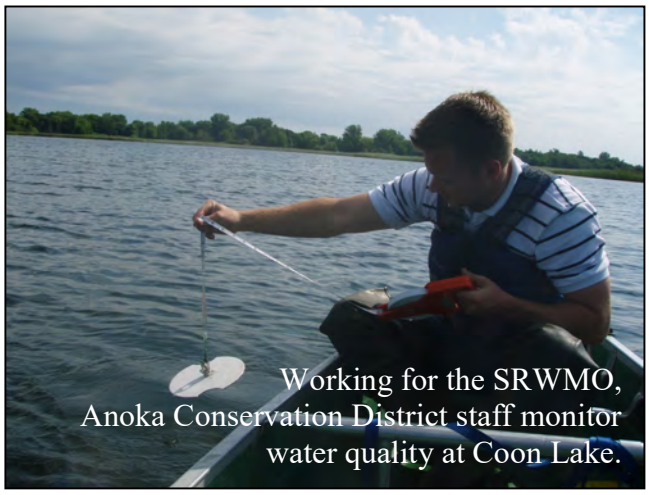
Jamie Schurbon, Watershed Projects Manager
Anoka Conservation District
1318 McKay Drive NE, suite 300
Ham Lake, MN 55304
763-434-2030 ext. 12

c. Employees and Consultants

The SRWMO does not employ staff, but does utilize consulting services and enters into cooperative agreements with other government agencies. A description of contracted services is listed below:

SRWMO consultants and partners during the reporting period:

Consultant/ Partner	Contact	Work Description
Anoka Conservation District	Jamie Schurbon Watershed Projects Manager 1318 McKay Drive NW, #300 Ham Lake, MN 55304 763-434-2030 ext. 12 jamie.schurbon@anokaswcd.org	1. **Water Monitoring** – Water quality and hydrology monitoring in lakes, streams and wetlands. 2. **Water Quality Improvement Projects** –Implementation of water quality improvement efforts, including administering the SRWMO water quality grant program. 3. **Education –** Promotion of SRWMO programs. 4. **Website -** Maintain SRWMO website. 5. **Reporting -** Assistance preparing this annual report and State Auditor reporting. 6. **Administration –** Serve as a limited, on-call administrator to address miscellaneous day-to-day operational issues. Reviews local water plans. 7. **Watershed planning –** Updates to the 10-year SRWMO watershed management plan.
Gail Gessner	Gail Gessner 4621 203rd Lane NW Oak Grove, MN 55303 (763) 753-2368 recordwmo@gmail.com	**Recording secretary** for meetings, plus miscellaneous administrative assistance.



Working for the SRWMO, Anoka Conservation District staff monitor water quality at Coon Lake.

d. Highlighted Recent Projects and Accomplishments

Listed below from most to least recent

Sunrise River Chain of Lakes Carp Project (2020-2022)

A State Clean Water Fund grant has been secured for carp management in the chain of lakes including Linwood, Martin and Typo. The project seeks to remove 11,000 carp resulting in water quality and habitat improvements. Work will include box netting and seining. Partners include the Anoka Conservation District, SRWMO, Martin Lakers Association and Linwood Lake Improvement Association.

CLEAN WATER LAND & LEGACY AMENDMENT

Ice Bocce (February 2020)

The Sunrise River WMO fielded a team at the annual Linwood Lake Improvement Association ice bocce tournament. The event is a fundraiser for lake water quality projects and AIS treatment. The SRWMO is proud to support our lake association partners.

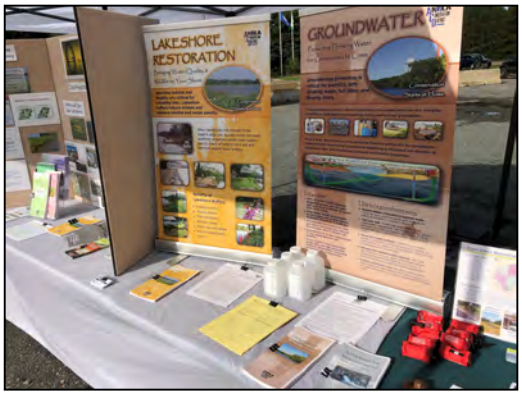
SRWMO Linwood Lake ice bocce team 2020: Matt Downing, Tim Harrington, Jamie Schurbon and Dan Babineau.

Workshops and Community Events (2015-2020)

The SRWMO, in collaboration with the Anoka County Water Resource Outreach Collaborative, annually hosts a display about water resources at community events. Periodically workshops are also completed.

2020 workshops and community events

	Interactions		
Event	Adult	Youth	Total
Conservation Planning Workshop by ACD, East Bethel	19	7	26
Well and septic maintenance training by ACD and U of M Extension, East Bethel	58	0	58
Smart Salting for Roads training for plow drivers by Fortin Consulting, Linwood	24	0	24
Columbus Fall Fest, SRWMO Display	146	56	202
East Bethel Booster Days (rained out)	0	0	0
Coon Lake Improvement Association member mtg, lakeshore stewardship presentation by Emily Johnson	85	2	87
Ham Lake SnowBowl, display about salting by ACD	53	0	53
Linwood Family Fun Days	66	38	104



SRWMO display at Columbus Fall Fest 2020.

Sunrise River WMO Watershed Management Plan Update (2018-2020)

The SRWMO is required to update its watershed management plan every 10 years. That plan serves to guide the activity of the organization. The current watershed plan expired December 2019. The new plan was approved and adopted shortly before that date. The update process included stakeholders such as lake groups, elected officials, cities and state agencies.

As part of its watershed plan update, the SRWMO hosted a public tour of recent projects and an indoor public input meeting.

Friend of Martin Lake Award (April 2019)

The Martin Lakers Association presented SRWMO Chairperson Dan Babineau with their Friend of Martin Lake award at their April 2019 annual meeting. Dan was recognized for his leadership leading to several successful projects including carp barriers, carp harvests and securing funding for upcoming stormwater retrofits. Dan also donated his time and equipment to carp removals in 2018.

SRWMO Chair Dan Babineau assisting with Martin Lake carp harvests (left) and receiving the annual Friend of Martin Lake award from Martin Lakers Association Vice-President Mike Smith.

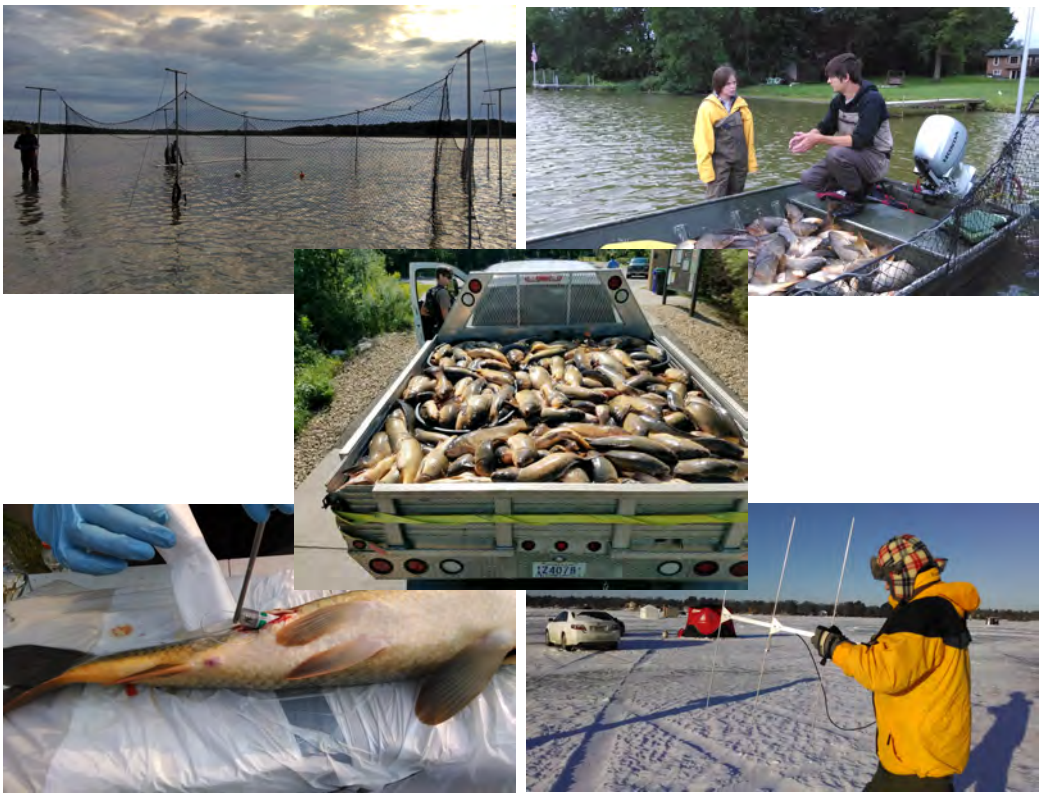
Martin and Typo Lakes Carp Removal (2017-2019)

This project is a follow-up to the carp barriers project (described below). The purpose is to improve water quality, habitat and the game fishery in Martin and Typo Lakes. To accomplish this Carp Solutions, Inc., a spin-off company from the University of Minnesota Aquatic Invasive Species Research Lab conducted carp surveys, radio tracking, and harvests. As of the end of 2019, 11,879 carp have been removed. Carp removed are 59% of the goal for Typo Lake and 52% of the goal for Martin Lake. The remainder of carp removals will be

CLEAN WATER LAND & LEGACY AMENDMENT

accomplished in 2020-2022 with a new grant.

This project through 2019 was funded by a MN DNR Conservation Partners Legacy grant ($99,000), the Sunrise River WMO ($5,000), Martin Lakers Association ($8,400) and Anoka Conservation District ($5,000). The project reduced carp populations by 11,000 and half way to the threshold for ecological damage of 89 lbs/ac.



Linwood Lake Carp Feasibility Study (2018-2019)

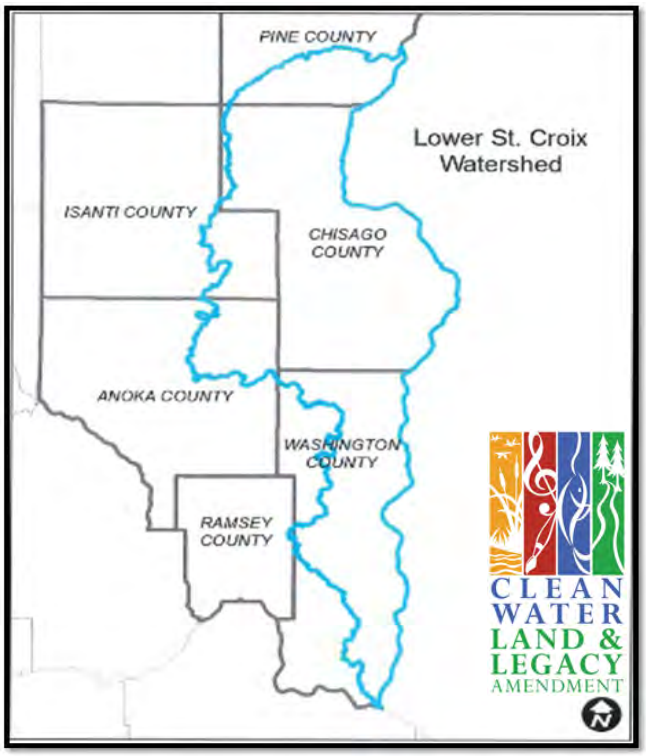
The SRWMO hired Carp Solutions LLC to determine if common carp management was warranted in Linwood Lake to improve water quality, habitat and the fishery. The study concluded carp biomass in Linwood Lake is 10% over the threshold at which carp are understood to negatively affect water quality and habitat. A follow-up grant to reduce carp populations was secured (described above), and carp removals will occur during 2020-2022..
This study was funded by the SRWMO and a Watershed Based Funding grant from the Clean Water Land and Legacy Amendment.

CLEAN WATER LAND & LEGACY AMENDMENT

Locations of Linwood Lake radio tagged carp, revealing the carp's preferred locations in the lake and seasonal spawning movements which can be used in management efforts.

Lower St. Croix One Watershed, One Plan (2018-2020)

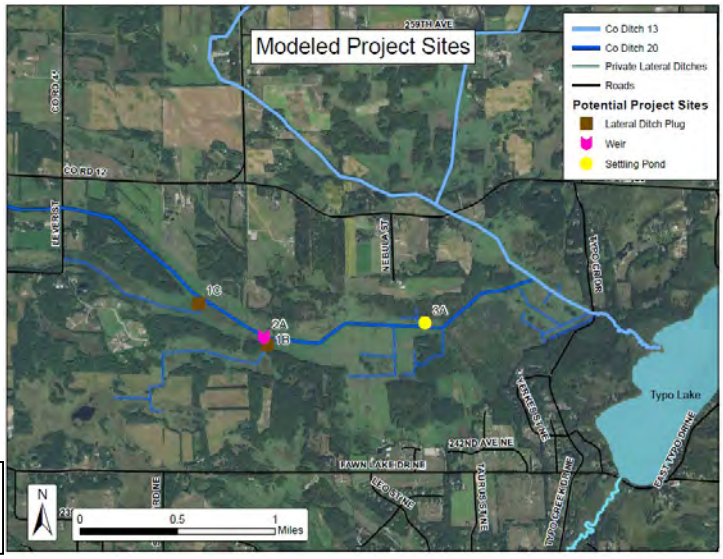
The Sunrise River WMO is participating in a regional watershed planning called One Watershed, One Plan (1W1P). The process is in collaboration with 16 other entities including counties, watershed organizations, and soil and water conservation districts. It aims to identify the highest priority regional water resources and ensure they are managed collaboratively. The process complements local water plans. It does makes the area eligible for a new State funding program called Watershed Based Implementation Funding (note: the 7-county metro is already eligible without 1W1P). The process is funded by a grant from the MN Board of Water and Soil Resources.



Ditch 20 Feasibility Study (completed 2018)

This study identified and calculated cost effectiveness of wetland restoration projects around Ditch 20 to improve water quality in Martin and Typo Lakes downstream. Ditch 20 nutrient export was noted as a problem in a Total Maximum Daily Load (TMDL) study for those lakes. Ditching through broad peat lowlands was a likely cause. This study identified three locations for wetland restoration and one settling pond project, all of which would be highly cost effective at phosphorus reduction, but do have some inherent challenges and uncertainty. Landowners at each site are interested in cooperating in these projects. These projects will be considered by the SRWMO, Anoka Conservation District and Isanti County for future implementation.

CLEAN WATER LAND & LEGACY AMENDMENT



Ditch 20 Area Modeled Water Quality Projects

Martin and Typo Lake Carp Barriers (completed 2016)

A series of four barriers has been installed to control carp in Martin and Typo Lakes in order to improve water quality and habitat. This project is funded by $435,753 in MN DNR Conservation Partners Legacy grants, the Sunrise River WMO, Martin Lakers Association and Anoka Conservation District. The same funding partners are teaming to follow this project with a carp removal program in 2017-2019.

Completed carp barriers

Martin Lake Outlet

South Inlet of Martin Lake

North Inlet of Martin Lake

Typo Lake Outlet

Coon Lake Stormwater Retrofits (completed 2016)

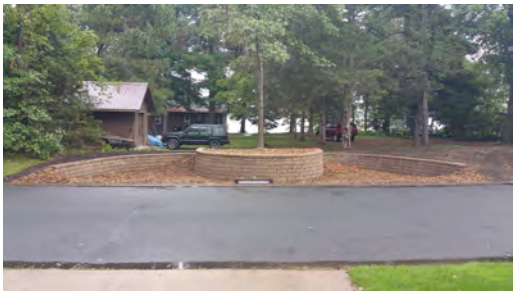
Three rain gardens, one stormwater stabilization and three lakeshore restorations were installed in neighborhoods draining to Coon Lake in 2015 and 2016. These were among the most highly cost effective projects at reducing nutrient delivery to the lake, as identified in the 2013 Coon Lake Subwatershed Assessment. These projects are funded by a $42,987 2014 BWSR Clean Water Fund Grant, the SRWMO, Coon Lake Improvement District, Coon Lake Improvement Association and Coon Lake Beach Community Center.

Completed Coon Lake Stormwater Retrofits

Lincoln Drive Stabilization

Mager Lakeshore

Community Center Rain Garden



19303 E Front Blvd Rain Garden

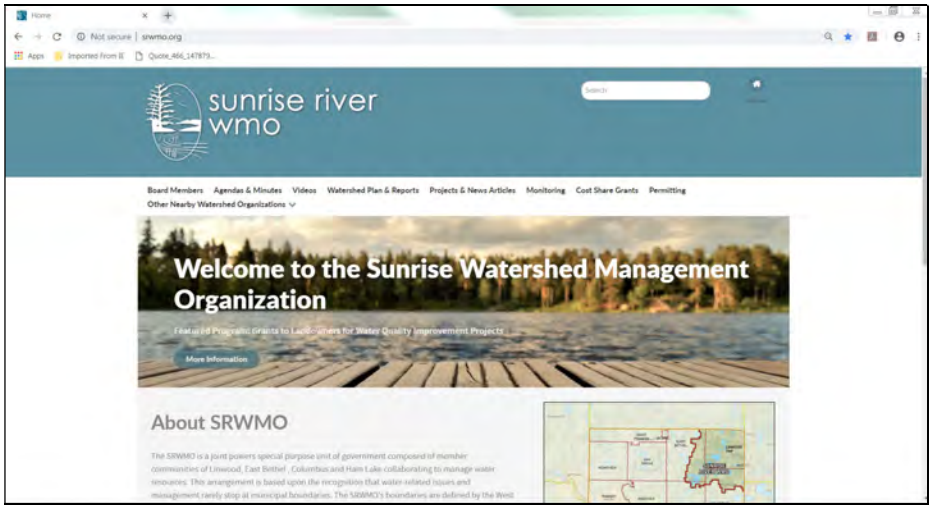
Karger Lakeshore Restoration

Sheffield Lakeshore Restoration

e. Public Outreach

The SRWMO does regular public outreach and education projects, but the SRWMO's website serves as the primary, continuous public outreach tool. Website contents include general information about the organization, meeting agendas and minutes, water monitoring results and profiles of WMO projects. The SRWMO ensures visibility of its website by asking member cities and townships to post the SRWMO website address in their newsletters. Links to the SRWMO website are also provided through each member community's website and the Anoka Conservation District website. The SRWMO website address is http://www.srwmo.org

Sunrise River WMO website homepage



Additional public outreach is accomplished through at least annual newsletter articles. The articles are distributed to member communities for distribution in their newsletters. Periodic larger articles are distributed as press releases to the local newspaper, the Forest Lake Times. In 2019 the SRWMO's newsletter article was aimed at informing the public of the SRWMO's Watershed Plan update.

The SRWMO also conducted the outreach efforts listed in the previous section of this report.

Sunrise River WMO

MEDIA RELEASE

Release date:	April 27, 2018
Information relevant through:	May 24, 2018
Contact:	Jamie Schurbon Jamie.schurbon@anokaswcd.org 763-434-2030 ext. 12
Additional info attached:	Map of SRWMO area
Note:	Full and short length versions are provided below

FULL LENGTH VERSION

Public Invited to Sunrise River Watershed Planning Meeting

The Sunrise River Watershed Management Organization (SRWMO) is beginning a once-every-10-years update of its Watershed Management Plan. To kick off this effort, it is hosting a facilitated meeting to get input from elected officials, lake groups, and the general public on Thursday, May 24 at the Coon Lake Beach Community Center.

The SRWMO is jointly formed by Linwood Township and the Cities of Columbus, Ham Lake and East Bethel. The organization is responsible for water management including lakes and streams, including issues that require management across municipal boundaries. The organization is governed by a board of two appointees from each community.

Recent SRWMO work has focused on improving water quality. Several area lakes do not meet State water quality standards due to excessive nutrients and algae, including Typo, Martin and Linwood Lakes. Coon Lake, the largest recreational lake in Anoka County, is also a high priority. Recent projects have included carp barriers and carp removal, rain gardens, public outreach and water monitoring.

The public meeting will include a brief presentation and facilitated discussion. The presentation will outline SRWMO duties, managed natural resources and recent work. The facilitated discussion will give the public an opportunity to help identify priorities, concerns and SRWMO work in next 10 yrs.

The meeting is Thursday, May 24 from 6:30 to 8:00pm at the Coon Lake Beach Community Center (182 Forest Road Wyoming, MN). More information is available from Jamie Schurbon at 763-434-2030 ext. 12 or at www.SRWMO.org.

SRWMO 2020 annual newsletter article.

f. Water Quality Trends

The SRWMO has a long term water quality monitoring program that includes most larger stream and recreational lakes in the watershed. From 2000-2009 the SRWMO had a robust water monitoring program to establish a baseline of data; little water monitoring had been done previously. From 2010 to the present the amount of monitoring has moderated to a level sufficient to detect trends. Many waterbodies are monitored every 2-3 years. An important part of evaluating implementation of the watershed management plan is looking at water quality trends.

The SRWMO lakes have a range from poor to good water quality (table below). Three of the lakes (Martin, Typo and Linwood) are impaired for excess nutrients. Two of those lakes, Martin and Typo, have been a focus of SRWMO management and are improving (see figures below).

Water quality summary for monitored SRWMO lakes as of 2019. *Data shown are for the most recent year. Trends are based on a MANOVA with response variables of TP, chlorophyll-a and Secchi transparency.*

Lake	Letter Grade	Total phosphorus summer average (µg/L)	Chlorophyll-a summer average (µg/L)	Secchi transparency summer average (ft)	Year of most recent data	# years of monitored	Trend
Coon – East Bay	A	19.4	6.7	8.0	2018	22	Improving
Coon – West Bay	A	21.8	6.9	7.3	2018	13 (5 with TP and chlorophyll)	Insufficient data. No evidence of decline.
Boot	B	43.3	6.6	5.5	2019	2	Insufficient data
Linwood	C	34.4	20.2	4.2	2018	18	Stable
Typo	F	175.0	74.4	1.5	2019	19	Improving
Martin	C	64.1	32.8	3.3	2019	19	Improving
Fawn	A	17.1	4.0	13.7	2018	14	No change
Island	C	33.9	10.6	4.6	2011	9	NA

More detailed water quality data and analysis can be found in **Appendix B** and online. Additionally, all water quality data collected by the SRWMO is on the MN Pollution Control Agency's EQuIS database, which is accessible through their website.

g. Evaluation of Watershed Management Plan Implementation

The SRWMO Watershed Management Plan contains a schedule of tasks that the WMO should accomplish in order to realize its goals (see table on following page). The tables on the following pages compare work planned and work actually accomplished. There is one table for 2010-2014 and another table for 2015-2019, thereby covering the entire 10 years of the current plan's life. A new plan is adopted for 2020-2029.

2010-2014 work planned in the SRWMO Watershed Plan and actually accomplished. Numbers are sites monitored or projects completed.

Task	2010		2011		2012		2013		2014	
	Planned	**Done**	**Planned**	**Done**	**Planned**	**Done**	**Planned**	**Done**	**Planned**	**Done**
Monitoring and Studies										
Lake Levels	5	5	5	5	5	5	5	5	5	5
Lake Water Quality	3	3	Find volunteers	Secured volunteers for 5 recreational lakes	6	6	0	0	2	2
Stream Water Quality	0	0	0	0	2	2	1	0	2	0
Stream Hydrology	2	2	2	2	2	2	2	0	2	0
ReferenceWetland	3	3	3	3	3	3	3	3	3	3
Studies and Investigations										
Typo/Martin Lake TMDL Study	none	MPCA finalizing study	none	none	none	TMDL approved by MPCA				
Fawn Lk curly leaf pondweed assmt			Yes	Prelim review in 2010, work unnecessary						
Linwood Lake TMDL									$20,000	Watershed WRAP/TMDL completed
Water Quality Improvement Projects										
Water Quality Cost Share Grant Fund	$1,840	$1,840 contributions, $0 awarded	$2,000	$2,000 contributions, $0 awarded	$2,000	$2,000, $29.43 awarded, $4,300 diverted to carp barriers	$2,000	$0	$2,000	$2,000
Martin - Typo Lakes Water Quality Projects		Rough fish barrier design.		Grant secured for carp barriers.	$20,000	$20,000 to carp barriers	$15,000	$15,000 to carp barriers		1 constructed, 3 underway
Martin Lake Area Stormwater Retrofit	$5,000	$5,000 Martin Lake area stormwater retrofits.	$10,000	3 rain gardens installed. $7,000 + grants						
Coon Lake Area Stormwater Retrofit						Work started, with no costs until 2013	Subwatershed retrofit study	Subwatershed retrofit study	$20,000	$25,000, projects started
St. Croix Basin Team	Yes	Joined								
Other Water Quality Improvement Projects		E Front Blvd retrofit planned.		E Front retrofit installed by city	$10,000	$10,000 to Martin/Typo Lakes carp barriers				

Continued on next page…

Task	2010		2011		2012		2013		2014	
	Planned	**Done**	**Planned**	**Done**	**Planned**	**Done**	**Planned**	**Done**	**Planned**	**Done**
Education and Public Outreach										
SRWMO Website	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Public Officials Tour										
Lakeshore Landscaping Ed			Yes	Web video. Mailing to 66 Fawn Lake homes. Joined Blue Thumb	Yes	Lake assoc presentation,demo project, SRWMO display banner, web promo	Yes	Created display, handouts and staffed it at 2 community events	Yes	News release about local residents' practices
Aquatic Plant Ed			New sign at Martin Lk access	New sign at Martin Lk access					Yes	Staffed event displays
Other Ed			Annual newsletter article	Annual newsletter article	Annual newsletter article	Annual newsletter article	Annual newsletter article	Annual newsletter article	Annual newsletter article	Annual newsletter article
Other										
Estimate SRWMO P export			Yes	Yes						
Co. Geologic Atlas						Part a done				
Non-Operating Administrative Expenses										
On call admin asst			No	Yes	No	Yes	Yes	Yes	Yes	Yes
Annual Report to BWSR	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Annual Report to State Auditor	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Review municipal local water plans	Yes	Reviewed 2 of 4	Yes	All completed						
Develop member community annual report template	Yes	Yes								
Grant Search/App	No	No	Yes	Matched DNR and BWSR Grants. DNR grant for carp barriers successful.	Yes	Matched for BWSR grants for Coon and Martin Lake stormwater retrofits. Denied.	Yes	Matched BWSR CWF grant for Coon Lake area stormwater retrofits		Matched BWSR CWF grant for Ditch 20 feasibility study
Seek bids for services			Yes	Yes			Yes	Yes		

2015-2019 work planned in the SRWMO Watershed Plan and actually accomplished. Numbers are sites monitored or projects completed.

Task	2015		2016		2017		2018		2019	
	Planned	**Done**	**Planned**	**Done**	**Planned**	**Done**	**Planned**	**Done**	**Planned**	**Done**
Monitoring and Studies										
Lake Levels	5	5	5	5	5	5	5	5	5	5
Lake Water Quality	4	4	2	2	0	0	5	6	0	1
Stream Water Quality	2	2	1	1	1	1	2	2 + chlorides	0	0
Stream Hydrology	2	2	1	0	2	2	2	2	1	0
ReferenceWetland	3	3	3	3	3	3	3	3	3	3
Water quality project effectiveness monitoring	1	2 lake water quality sites, 2 hydrology sites associated with carp barriers	1	2 lake water quality sites, 2 hydrology sites associated with carp barriers	1	2 lake water quality sites, 2 hydrology sites associated with carp barriers	1	0	1	2 lake water quality sites
Studies and Investigations										
Studies and Investigations	Fawn Lk curly leaf pondweed assmt	Fawn Lk curly leaf pondweed assmt, Dt 20 study		Ditch 20 Feasibility study		Ditch 20 Feasibility study completed		Linwood Lk Carp Management Feasibility Study		Linwood Lk Carp Management Feasibility Study
Water Quality Improvement Projects										
Water Quality Cost Share Grant Fund	$2,000	$0, fund has sufficient balance	$2,000	$0, fund has sufficient balance	$2,000	$1,000, fund has strong balance	$2,000	$0	$2,000	$0
Martin - Typo Lakes Water Quality Projects		3 carp barriers being constructed		3 carp barriers completed		Typo Lake carp harvests		Martin and Typo Lake carp harvests		Martin and Typo Lake carp harvests
Coon Lake Area Stormwater Retrofit	$20,000	$15,000, 4 projects constructed		2 lakeshore restorations, 1 rain garden						
Other Water Quality Projects	$10,000	$6,750 used toward Coon Lk retrofits or Ditch 20 study	$10,000	$5,000 Ditch 20 feasibility study	$10,000	$850 Linwood Lk Imp Assoc for veg mgmt plan. $5,000 Martin & Typo Lks carp harvests				Martin/Coon stormwater retrofits (primary funding is Watershed Based Funding)
Education and Public Outreach										
SRWMO Website	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Overhaul website		
Lakeshore Landscaping Ed	Yes	Booklet distribution to 670 homes	Yes	Combined with annual newsletter	Yes	No	Yes	No	Yes	Lakeshore outreach (primary funding is Watershed Based Funding)
Aquatic Plant Ed					Yes	No				
Public officials tour							Yes	Yes		

Continued on next page…

Task	2015		2016		2017		2018		2019	
	Planned	**Done**	**Planned**	**Done**	**Planned**	**Done**	**Planned**	**Done**	**Planned**	**Done**
Other Ed	Annual newsletter article	Annual newsletter article, Display at Linwood Family Fun Day	Annual newsletter article	Annual newsletter article, Display at Linwood Family Fun Day	Annual newsletter article	Annual newsletter article	Annual newsletter article	Annual newsletter article	Annual newsletter article	Annual newsletter article
Other										
Co. Geologic Atlas				Part b completed						
Update SRWMO Watershed Mgmt Plan							Yes	Yes	Yes	Yes
Non-Operating Administrative Expenses										
On call admin asst	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Annual Report to BWSR	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Annual Report to State Auditor	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Grant Search/App	Yes	Searched, but none applied for	Yes	Searched, but none applied for	Yes	Applied for and awarded DNR CPL grant for Martin and Typo Lake carp removal	Yes	Participating in Watershed Based Funding process. $156,750 allocation to SR watershed area.	Yes	Anticipated applications for Martin, Typo and perhaps Linwood Lake carp mgmt
Seek bids for services	Yes	Yes			Yes	Yes	No	Yes – for watershed plan update consultant	Yes	Yes

h. 2020 Work Plan

The table below compares tasks planned in the SRWMO 2020-2029 plan and ongoing 2020 work.

#	Plan Action	Funding*	2020 Planned	Underway
Operating Tasks (as defined by JPA)				
1	Recording Secretary services - contractual	SRWMO	Y	Y
2	Administrator services - contractual	SRWMO	Y	Y
3	Fiscal mgmt assistance - E Bethel Finance Director & Treasurer	SRWMO	Y	Y
4	Financial contributions calculation update	SRWMO	Y	Y
5	Financial audits	SRWMO	Y	Y
6	Liability Insurance	SRWMO	Y	Y
7	Reports to BWSR, State Auditor	SRWMO	Y	Y
8	Annual written communication to member communities	SRWMO	Y	Y
9	Community ordinance reviews	SRWMO	Y	Y
10	Review/approve community local water plans	SRWMO		
11	Seek bids for professional services	SRWMO		
Non-operating General				
12	Grant search and applications	SRWMO	Y	CWF grant for Sunrise chain carp mgmt, WBIF
13	Undesignated reserve	SRWMO	Y	began. Has sufficient funds
14	Update Watershed Plan	SRWMO		
Communications with Member Communities				
15	Project reporting to member communities	SRWMO	Y	Y
16	Annual board member reporting to member communities	SRWMO	Y	Y
17	Project tours	SRWMO	Y	Y
Public Outreach				
18	Lake association and community newsletter content	SRWMO	Y	Y
19	Newspaper press releases	SRWMO	As needed	
20	Lakeshore restoration guidance materials	SRWMO		
21	Shoreland stewardship display	SRWMO	Y	Y
22	Community event displays	SRWMO	Y	Provided by SRWMO board members
23	Stakeholder event attendance	SRWMO	Y	Provided by SRWMO board members
24	Workshops promotion	SRWMO		
25	Engage citizen leaders	SRWMO	Y	Included in administrator duties
26	Websites	SRWMO	Y	Y
27	Anoka Co Outreach Coordinator position	SRWMO		Video and staffing contribution
29	Advisory committees	SRWMO	As needed	
30	Promote Well Water Wise	SRWMO		
Water Condition Monitoring				
31	Water condition monitoring	SRWMO	Y	Y
Development Reviews				
32	Development reviews	MC**	As needed	
Multi-partner Coordination				
33	Participate in 1W1P	SRWMO	Y	Y

#	Plan Action	Funding*	2020 Planned	Underway
Water Improvement Projects				
34	Ag conservation planning outreach	SRWMO		Y
		Grants		
35	Cost share grant program- open to the public	SRWMO	$2,000	$2,000
		Grants		
36	Cost share grant program - through lake associations	SRWMO		
		Grants		
37	Carp removals	SRWMO	$10,000	$10,000
		Grants	$40,000	$148,000
38	Stormwater retrofits	SRWMO	***	Y
		Grants	$133,580	Y
39	Ditch 20 wetland restoration outreach	SRWMO		Y
		Grants		
40	Demonstration projects on public lands	SRWMO		
		Grants		
41	Support carp barrier annual maintenance	SRWMO	Y	Y
		Grants		
42	Model projects' pollutant reductions	SRWMO	As needed	Done for Martin and Coon stormwater retrofits
		Grants		
43	Linwood Lake weir repair request	SRWMO	Y	Y
		Grants		
44	Point of Sale SSTS inspections	SRWMO		Y, by ACD
		Communities		E Bethel & Linwood
		Grants		
45	Projects identified in adopted guidance documents	SRWMO	$3,800	$3,430 carp removals
		Grants	$15,200	$148,000
Studies and Inventories				
46	Carp management feasibility and effectiveness studies	SRWMO	***	Linwood Lake
		Grants	$21,420	$21,420
47	Lakeshore photo inventories	SRWMO	Y	Provided by ACD in 2020
		Grants		
48	Alum feasibility studies	SRWMO		
		Grants		
49	Linwood Lake subwatershed retrofitting study	SRWMO		
		Grants		

i. Status of Local Ordinances, Water Plan Adoption and Implementation

All SRWMO member communities are required to have a Local Water Plan that is consistent with the SRWMO Watershed Management Plan. The WMOs have approval authority over these Local Water Plans. Whenever a WMO plan is updated the member municipalities have two years to update their Local Water Plans, ordinances, and other control measures to be consistent with the WMO Plan.

All local water plans have been approved or contingently approved with final approval anticipated soon. The following is the status of each city or township's local water plan:

Linwood Township – Linwood Township has adopted the SRWMO Watershed Management Plan by reference, and also has supplemental material within the township's comprehensive plan. The SRWMO has approved.

Ham Lake – Contingently approved by the SRWMO in late 2019. Minor edits are needed before final approval.

East Bethel – Contingently approved by the SRWMO in late 2019. Minor edits are needed before final approval.

Columbus – Approved by the SRWMO in late 2019.

To track member cities' progress on local plan implementation, the SRWMO requires a brief annual report from each city and provides a template for this report. In addition to serving as a reporting tool, the template serves as a "to do" list for our cities. These reports are provided as Appendix C.

j. Solicitations for Services

State rules require watershed management organizations to solicit bids for professional services at least once every two years. Most recently the SRWMO solicited bids in early 2020 for water monitoring and management work to occur in the same year. Requests for proposals were provided to the Anoka Conservation District and member communities' consulting engineering firms. One entity, the Anoka Conservation District, provided a proposal, and was selected.

k. Permits, Variances, and Enforcement Actions

The SRWMO does not issue permits, variances, or take enforcement actions. These responsibilities are held by the member municipalities, as outlined in each municipality's local water plan, ordinances, and policies.

IV. Financial and Audit Report

a. 2019 Financial Report

See Appendix A – 2019 Financial Report.

b. Financial Audit

Per MN Statutes, section 6.756 and the MN State Auditor's minimum revenue thresholds, the SRWMO has not been required to do annual audits, but an audit once every five years is required. As of the end of 2019, it has been five years since the SRWMO last had a financial audit. A certified public accountant has begun an audit. That audit will be filed with the State upon completion.

c. 2020 Budget

In 2019 the SRWMO Board approved the following 2020 budget.

			Linwood	East Bethel	Columbus	Ham Lake
		Cost	46.40%	32.93%	16.72%	3.95%
	NON-OPERATING EXPENSES (split by percentages)					
	Non-operating Administrative Provided by ACD					
1	Grant Search and Applications	$1,000.00	$464.00	$329.30	$167.20	$39.50
2	Participate in 1W1P	$640.00	$296.96	$210.75	$107.01	$25.28
3	Review of New Development Sketch Plans	$0.00	$0.00	$0.00	$0.00	$0.00
4	**Water Monitoring to Determine Project Effectiveness**					
5	Lake Water Quality Monitoring	$3,700.00	$1,716.80	$1,218.41	$618.64	$146.15
6	**Water Monitoring for Surveillance and Trend Analysis**					
7	Lake Level Monitoring	$1,575.00	$730.80	$518.65	$263.34	$62.21
8	Secchi Transparency Lake Monitoring - volunteer coord.	$876.00	$406.46	$288.47	$146.47	$34.60
9	Reference Wetland Hydrology Monitoring	$1,950.00	$904.80	$642.14	$326.04	$77.03
10	Precipitation	$440.00	$204.16	$144.89	$73.57	$17.38
11	**Water Quality Improvement Projects**					
12	Water Quality Projects to be Specified in New Watershed	$13,430.00	$6,231.52	$4,422.50	$2,245.50	$530.49
13	SRWMO Cost Share Grant Fund	$2,000.00	$928.00	$658.60	$334.40	$79.00
14	**Education and Public Outreach**					
15	Website – Annual Operations	$700.00	$324.80	$230.51	$117.04	$27.65
16	Provide community event booth/display	$0.00	$0.00	$0.00	$0.00	$0.00
17	Make new SRWMO booth/display for community events	$2,520.00	$1,169.28	$829.84	$421.34	$99.54
18	Newsletter content for cities and lake associations and newspaper press releases	$920.00	$426.88	$302.96	$153.82	$36.34
19	Project Tours for elected officials and stakeholders	$1,660.00	$770.24	$546.64	$277.55	$65.57
20	County-wide Outreach Coordinator Position	$370.00	$171.68	$121.84	$61.86	$14.62
21	SUBTOTAL	$31,781.00	$14,746.38	$10,465.48	$5,313.78	$1,255.35
22	**UNDESIGNATED RESERVE**					
23	Undesignated reserve fund contribution	$2,029.00	$941.46	$668.15	$339.25	$80.15
			Linwood	**East Bethel**	**Columbus**	**Ham Lake**
		Cost	25.00%	25.00%	25.00%	25.00%
	OPERATING EXPENSES (split equally four ways)					
	Fee Services					
24	On-call Administrative Assistance - ACD	$6,000.00	$1,500.00	$1,500.00	$1,500.00	$1,500.00
25	SRWMO Annual Summary for Member Communities	$600.00	$150.00	$150.00	$150.00	$150.00
26	Annual Report to MN Board of Water & Soil Resources	$800.00	$200.00	$200.00	$200.00	$200.00
27	Annual Financial Report to State Auditor	$300.00	$75.00	$75.00	$75.00	$75.00
28	Recording Secretary	$1,400.00	$350.00	$350.00	$350.00	$350.00
29	Review member community local water plans for compliance with SRWMO Plan	$1,920.00	$480.00	$480.00	$480.00	$480.00
30	Financial contributions calculation update	$320.00	$80.00	$80.00	$80.00	$80.00
31	**Other Operating Expenses listed in JPA**					
32	Financial Audit	$3,000.00	$750.00	$750.00	$750.00	$750.00
33	Liability Insurance	$1,850.00	$462.50	$462.50	$462.50	$462.50
34	SUBTOTAL	$16,190.00	$4,047.50	$4,047.50	$4,047.50	$4,047.50
35						
36	GRAND TOTAL	$50,000.00	$19,735.34	$15,181.13	$9,700.53	$5,383.00

Appendix A:

2019 Financial Report

SUNRISE RIVER WATERSHED MANAGEMENT ORGANIZATION

FINANCIAL REPORT
FOR YEAR ENDED DECEMBER 31, 2019

To the Chairperson, Dan Babineau, of Sunrise River Water Management Organization

The enclosed statement has been prepared after review of the organization's financial records for 2019. I have not audited the organization's records and do not express an opinion. The enclosed information fairly reflects the Sunrise River WMO's financial position for the stated year.

April 20, 2020

Prepared by:
Jamie Schurbon, Anoka Conservation District
1318 McKay Drive NE, suite 300
Ham Lake, MN 55304
763-434-2030

SUNRISE RIVER WATERSHED MANAGEMENT ORGANIZATION
9900 Nightingale Street NW
Oak Grove, MN 55011-9204

STATEMENT OF REVENUES AND EXPENSES

For: year beginning January 1, 2019 and Ending December 31, 2019

Expenditures	**Amount**
Operating	
Insurance – MN Counties Intergovernmental Trust	$1,349.00
Secretarial services - Gail Gessner	$1,225.00
On-call admin assistance - Anoka Conservation District (ACD)	$4,645.00
Annual report to BWSR – ACD	$800.00
Annual financial report to State Auditor - ACD	$300.00
Martin and Typo Lakes carp mgmt - ACD	$3,000.00
Animated groundwater video - ACD	$250.00
SUBTOTAL	$11,569.00
Non-Operating	
Water monitoring and management - ACD	$2,906.60
Cost share grant fund for water quality projects	$0.00
SRWMO watershed plan update - ACD	$28,214.10
Other	$0.00
SUBTOTAL	$31,120.70
GRAND TOTAL	**$42,689.70**
Revenues	**Amount**
Linwood Twp	$21,660.72
City of Columbus	$9,238.16
City of Ham Lake	$6,584.78
City of East Bethel	$16,022.86
Insurance dividend	127.00
Other	0.00
Other	0.00
GRAND TOTAL	**$53,633.52**
Retained Cash Reserves	**$10,943.82**
Total Cash Reserves	**$44,068.66**

SUNRISE RIVER WATERSHED MANAGEMENT ORGANIZATION

BALANCE SHEET

For the year beginning January 1, 2019 and ending December 31, 2019

Assets	
Cash	$44,068.66
Accounts Receivable	$0.00
Water quality project grant fund held at the Anoka Conservation District	$3,816.53
Other	$0.00
Other	$0.00
Total Assets	$47,885.19
Liabilities	
Accounts Payable	
Anoka Conservation District - 2019 water monitoring and mgmt work contract	$8,938.34
Anoka Conservation District - 2019 watershed planning	$9,225.06
Other	$0.00
Other	$0.00
Total Liabilities	$18,163.40

Appendix B:

2019 Member Community Annual Reports to the SRWMO

Sunrise River Watershed Management Organization

Member Community Annual Report

City or township: Columbus
Completed by: Ben Gutknecht
For year: 2019

Member Community Responsibilities Summary

This checklist includes actions required of member community in the SRWMO 4th Generation Watershed Management Plan, excluding items that don't warrant regular reporting. It must be submitted to the SRWMO annually by each city/township. In turn, the SRWMO includes this information in its required reporting to the State.

Member Community Action	Not Completed	Partially Completed	Completed	Notes
	Check ✓ appropriate box			
Local water plan approved by the SRWMO. As of 1/17/20 SRWMO records indicate: Linwood: Tabled. Township considering resolution to adopt SRWMO plan and may revise draft comp plan. Columbus: Approved East Bethel, Ham Lake: Approved contingent upon receipt of revised plan addressing SRWMO comments.			✓	
Provide a link on the community's website to the SRWMO website.			✓	https://www.ci.columbus.mn.us/index.asp?SEC=EB2B4D4C-9B78-4875-811A-D88E737EDC49&Type=B_BASIC
Provide space in community newsletters for ¼ page minimum SRWMO articles.		✓		Columbus doesn't have a formal newsletter. However, we do post relevant SRWMO articles to the City Website's front page when asked.
Add the SRWMO onto distribution lists for development sketch plan reviews. Consider, but not be bound by, SRWMO comments on development proposals.		✓		The City requires that applicants submit their plans for review by Watershed Districts prior to considering application complete.

Member Community Action	Not Completed	Partially Completed	Completed	Notes
Serve as the Local Governmental Units (LGU) administering MN Wetland Conservation Act in SRWMO.			✓	
Fulfill the duties of MS4 permits with the State (for permitted communities only). Among these duties the SRWMO's priorities are: (1) inspection and maintenance of existing stormwater treatment, (2) map stormwater conveyance and treatment systems, and (3) ensure new development and redevelopment has the required stormwater treatment (4) sweep streets with curb and gutter once annually in all areas, and twice annually in priority areas. Priority areas shall be areas that drain directly to water bodies and/or natural wetlands without pretreatment of storm water runoff.				N/A
Operate permitting programs. Adopt, implement, and enforce ordinances that meet or exceed the standards in Appendix B of the SRWMO Plan. Required ordinances include: • Septic system ordinance • Stormwater ordinance • Wetland ordinance			✓	
If municipal stormwater standards or rules are spread amongst local water plans, storm water pollution prevention plans, ordinances or other documents, condensed them into a single location.			✓	
Provide household hazardous waste disposal information on community websites, ultimately directing residents to the Anoka County Household Hazardous Waste Facility.			✓	
Provide Anoka County Well Water Wise private well testing program on community websites.			✓	
Obtain level 1 MPCA Smart Salting Certification for all snow plow drivers within two years of adoption of this plan or their hire date.	✓			

Member Community Action	Not Completed	Partially Completed	Completed	Notes
Obtain level 2 MPCA Smart Salting Certification (one certification per municipality) within two years of adoption of this plan. **Maintain level 2 MPCA Smart Salting Certification** by annually submitting Best Management Practices and Salt Savings report through the MPCA Winter Maintenance Assessment tool.	✓			
Public education about the SRWMO and water resources. Please describe efforts of your community in the last year.	Topics covered: ☒Hazardous waste disposal ☐ Water conservation ☒ Shoreline management ☐ Aquatic invasive species ☒ Habitat ☒ Water quality improvement ☒ Activities of the SRWMO ☐ Other: _____ Media used for public education: ☒Website ☐ Newsletters (# articles: ____) ☐ Workshops (# ____) ☒ Community events or displays (describe: Annual City of Columbus Fall Fest) ☐ Presentations to elected officials ☐ Presentations to the public ☒ Other: Facebook/Social Media Audience reached: # of households/**Residents:** Fall Fest- 200 | Facebook- 200 | Nextdoor App- 836			
Please list any other water quality improvement efforts.				
Other feedback for the SRWMO.				

Sunrise River Watershed Management Organization

Member Community Annual Report

City or township: East Bethel
Completed by: Kaci Fisher
For year: 2019

Member Community Responsibilities Summary

This checklist includes actions required of member community in the SRWMO 4th Generation Watershed Management Plan, excluding items that don't warrant regular reporting. It must be submitted to the SRWMO annually by each city/township. In turn, the SRWMO includes this information in its required reporting to the State.

Member Community Action	Not Completed	Partially Completed	Completed	Notes
	Check ✓ appropriate box			
Local water plan approved by the SRWMO. As of 1/17/20 SRWMO records indicate: Linwood: Tabled. Township considering resolution to adopt SRWMO plan and may revise draft comp plan. Columbus: Approved East Bethel, Ham Lake: Approved contingent upon receipt of revised plan addressing SRWMO comments.		✓		Working on addressing SRWMO comments
Provide a link on the community's website to the SRWMO website.			✓	
Provide space in community newsletters for ¼ page minimum SRWMO articles.		✓		Not in every newsletter
Add the SRWMO onto distribution lists for development sketch plan reviews. Consider, but not be bound by, SRWMO comments on development proposals.	✓			
Serve as the Local Governmental Units (LGU) administering MN Wetland Conservation Act in SRWMO.			✓	

Member Community Action	Not Completed	Partially Completed	Completed	Notes
Fulfill the duties of MS4 permits with the State (for permitted communities only). Among these duties the SRWMO's priorities are: (1) inspection and maintenance of existing stormwater treatment, (2) map stormwater conveyance and treatment systems, and (3) ensure new development and redevelopment has the required stormwater treatment (4) sweep streets with curb and gutter once annually in all areas, and twice annually in priority areas. Priority areas shall be areas that drain directly to water bodies and/or natural wetlands without pretreatment of storm water runoff.			✓	
Operate permitting programs. Adopt, implement, and enforce ordinances that meet or exceed the standards in Appendix B of the SRWMO Plan. Required ordinances include: • Septic system ordinance • Stormwater ordinance • Wetland ordinance			✓	
If municipal stormwater standards or rules are spread amongst local water plans, storm water pollution prevention plans, ordinances or other documents, condensed them into a single location.	✓			
Provide household hazardous waste disposal information on community websites, ultimately directing residents to the Anoka County Household Hazardous Waste Facility.			✓	
Provide Anoka County Well Water Wise private well testing program on community websites.	✓			
Obtain level 1 MPCA Smart Salting Certification for all snow plow drivers within two years of adoption of this plan or their hire date.			✓	
Obtain level 2 MPCA Smart Salting Certification (one certification per municipality) within two years of adoption of this plan. **Maintain level 2 MPCA Smart Salting Certification** by annually submitting Best Management Practices and Salt Savings report through the MPCA Winter Maintenance Assessment tool.	✓			

Member Community Action	Not Completed	Partially Completed	Completed	Notes
Public education about the SRWMO and water resources. Please describe efforts of your community in the last year.	Topics covered: ☒Hazardous waste disposal ☐ Water conservation ☒ Shoreline management ☒ Aquatic invasive species ☐ Habitat ☐ Water quality improvement ☒ Activities of the SRWMO ☐ Other: _____ Media used for public education: ☒Website ☒ Newsletters (# articles: _5___) ☐ Workshops (# ____) ☐ Community events or displays (describe: _____) ☐ Presentations to elected officials ☐ Presentations to the public ☐ Other: _____ Audience reached: # of households/residents (circle one): _12,000_____			
Please list any other water quality improvement efforts.				
Other feedback for the SRWMO.				

Sunrise River Watershed Management Organization

~~Member Community~~ Annual Report

City or township: Ham Lake
Completed by: Tom Collins, City Engineer
For year: 2019

Member Community Responsibilities Summary

This checklist includes actions required of member community in the SRWMO 4th Generation Watershed Management Plan, excluding items that don't warrant regular reporting. It must be submitted to the SRWMO annually by each city/township. In turn, the SRWMO includes this information in its required reporting to the State.

Member Community Action	Not Completed	Partially Completed	Completed	Notes
	Check ✓ appropriate box			
Local water plan approved by the SRWMO. As of 1/17/20 SRWMO records indicate: Linwood: Tabled. Township considering resolution to adopt SRWMO plan and may revise draft comp plan. Columbus: Approved East Bethel, Ham Lake: Approved contingent upon receipt of revised plan addressing SRWMO comments.		X		Updated Plan that addresses contingent approval items will be submitted by the end of March.
Provide a link on the community's website to the SRWMO website.			X	
Provide space in community newsletters for ¼ page minimum SRWMO articles.			X	
Add the SRWMO onto distribution lists for development sketch plan reviews. Consider, but not be bound by, SRWMO comments on development proposals.			X	
Serve as the Local Governmental Units (LGU) administering MN Wetland Conservation Act in SRWMO.			X	

Member Community Action	Not Completed	Partially Completed	Completed	Notes
Fulfill the duties of MS4 permits with the State (for permitted communities only). Among these duties the SRWMO's priorities are: (1) inspection and maintenance of existing stormwater treatment, (2) map stormwater conveyance and treatment systems, and (3) ensure new development and redevelopment has the required stormwater treatment (4) sweep streets with curb and gutter once annually in all areas, and twice annually in priority areas. Priority areas shall be areas that drain directly to water bodies and/or natural wetlands without pretreatment of storm water runoff.			X	
Operate permitting programs. Adopt, implement, and enforce ordinances that meet or exceed the standards in Appendix B of the SRWMO Plan. Required ordinances include: • Septic system ordinance • Stormwater ordinance • Wetland ordinance			X	
If municipal stormwater standards or rules are spread amongst local water plans, storm water pollution prevention plans, ordinances or other documents, condensed them into a single location.	X			
Provide household hazardous waste disposal information on community websites, ultimately directing residents to the Anoka County Household Hazardous Waste Facility.			X	
Provide Anoka County Well Water Wise private well testing program on community websites.			X	
Obtain level 1 MPCA Smart Salting Certification for all snow plow drivers within two years of adoption of this plan or their hire date.			X	
Obtain level 2 MPCA Smart Salting Certification (one certification per municipality) within two years of adoption of this plan. **Maintain level 2 MPCA Smart Salting Certification** by annually submitting Best Management Practices and Salt Savings report through the MPCA Winter Maintenance Assessment tool.			X	

Member Community Action	Not Completed	Partially Completed	Completed	Notes
Public education about the SRWMO and water resources. Please describe efforts of your community in the last year.	Topics covered: ☒ Hazardous waste disposal ☒ Water conservation ☐ Shoreline management ☐ Aquatic invasive species ☐ Habitat ☐ Water quality improvement ☐ Activities of the SRWMO ☐ Other: _____ Media used for public education: ☒ Website ☒ Newsletters (# articles: 39) ☒ Workshops (# 1 – Annual SWPPP public hearing) ☐ Community events or displays (describe: _____) ☐ Presentations to elected officials ☐ Presentations to the public ☒ Other: Partnerships Audience reached: # of households/residents (circle one): 6,184			
Please list any other water quality improvement efforts.				
Other feedback for the SRWMO.				

Sunrise River Watershed Management Organization

Member Community Annual Report

City or township: Linwood Township
Completed by: Mike Jungbauer
For year: 2019

Member Community Responsibilities Summary

This checklist includes actions required of member community in the SRWMO 4th Generation Watershed Management Plan, excluding items that don't warrant regular reporting. It must be submitted to the SRWMO annually by each city/township. In turn, the SRWMO includes this information in its required reporting to the State.

Member Community Action	Not Completed	Partially Completed	Completed	Notes
	Check ✓ appropriate box			
Local water plan approved by the SRWMO. As of 1/17/20 SRWMO records indicate: Linwood: Tabled. Township considering resolution to adopt SRWMO plan and may revise draft comp plan. Columbus: Approved East Bethel, Ham Lake: Approved contingent upon receipt of revised plan addressing SRWMO comments.			Dec. 23rd, 2019	Correction: SRWMO tabled approval. Waiting for twp resolution and revised plan.
Provide a link on the community's website to the SRWMO website.			XXX	
Provide space in community newsletters for ¼ page minimum SRWMO articles.	XXX			
Add the SRWMO onto distribution lists for development sketch plan reviews. Consider, but not be bound by, SRWMO comments on development proposals.		XXX		
Serve as the Local Governmental Units (LGU) administering MN Wetland Conservation Act in SRWMO.	XXX			Correction: Linwood does fill this role of WCA LGU. Little activity recently.

Member Community Action	Not Completed	Partially Completed	Completed	Notes
Fulfill the duties of MS4 permits with the State (for permitted communities only). Among these duties the SRWMO's priorities are: (1) inspection and maintenance of existing stormwater treatment, (2) map stormwater conveyance and treatment systems, and (3) ensure new development and redevelopment has the required stormwater treatment (4) sweep streets with curb and gutter once annually in all areas, and twice annually in priority areas. Priority areas shall be areas that drain directly to water bodies and/or natural wetlands without pretreatment of storm water runoff.			XXX	
Operate permitting programs. Adopt, implement, and enforce ordinances that meet or exceed the standards in Appendix B of the SRWMO Plan. Required ordinances include: • Septic system ordinance • Stormwater ordinance • Wetland ordinance			XXX	
If municipal stormwater standards or rules are spread amongst local water plans, storm water pollution prevention plans, ordinances or other documents, condensed them into a single location.			XXX	
Provide household hazardous waste disposal information on community websites, ultimately directing residents to the Anoka County Household Hazardous Waste Facility.			XXX	
Provide Anoka County Well Water Wise private well testing program on community websites.			XXX	
Obtain level 1 MPCA Smart Salting Certification for all snow plow drivers within two years of adoption of this plan or their hire date.			XXX	
Obtain level 2 MPCA Smart Salting Certification (one certification per municipality) within two years of adoption of this plan. **Maintain level 2 MPCA Smart Salting Certification** by annually submitting Best Management Practices and Salt Savings report through the MPCA Winter Maintenance Assessment tool.		XXX		

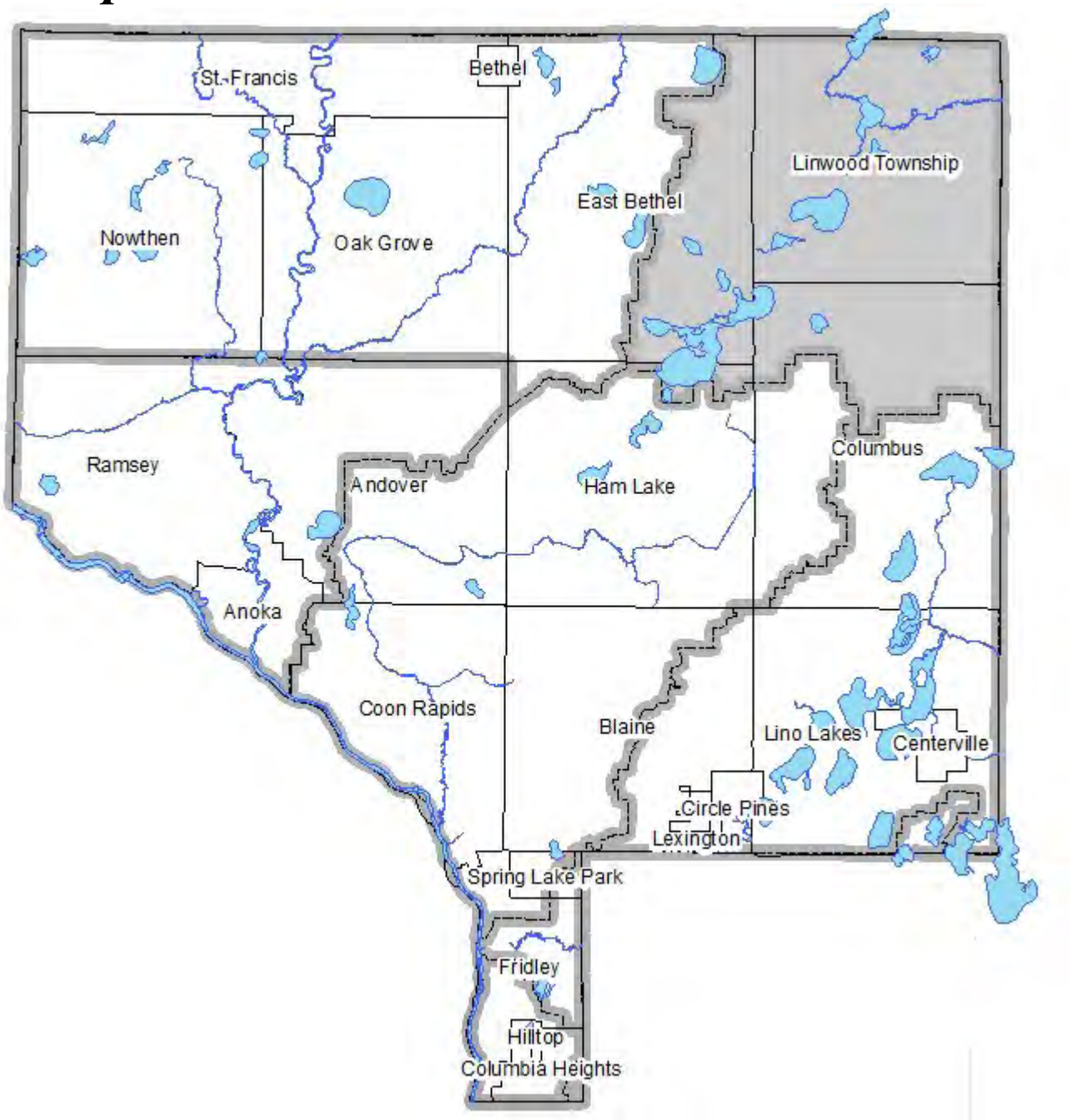
Member Community Action	Not Completed	Partially Completed	Completed	Notes
Public education about the SRWMO and water resources. Please describe efforts of your community in the last year.	Topics covered: ☒Hazardous waste disposal ☐ Water conservation ☐ Shoreline management ☐ Aquatic invasive species ☐ Habitat ☐ Water quality improvement ☐ Activities of the SRWMO ☐ Other: _____ Media used for public education: ☒Website ☒ Newsletters (# articles: ____) ☒ Workshops (# __Smartsalt1 @ Linwwod Township__) ☒ Community events or displays (describe: Family fun days displays_____) ☐ Presentations to elected officials ☐ Presentations to the public ☐ Other: _____ Audience reached: # of households/residents (circle one): _____			
Please list any other water quality improvement efforts.				
Other feedback for the SRWMO.				

Appendix C:

2018 Water Monitoring and Management Work Results

Excerpt from the 2019 Water Almanac

Chapter 2: Sunrise River Watershed



Prepared by the Anoka Conservation District

Chapter 2: Sunrise River Watershed

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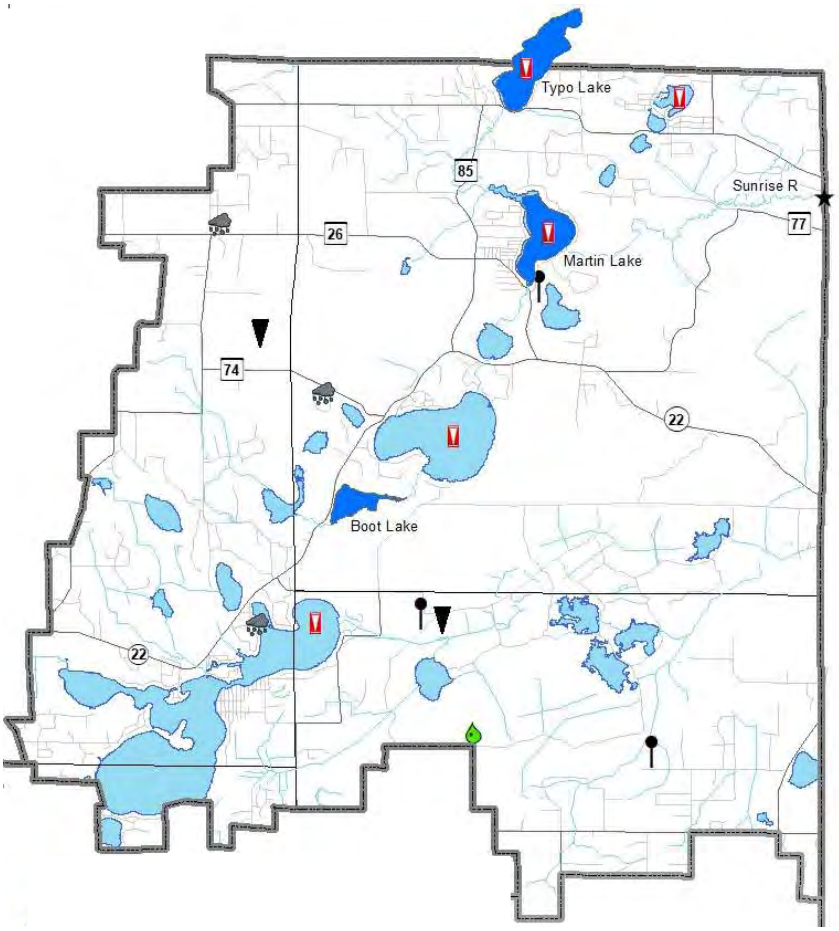


Lake Level Monitoring

Partners: SRWMO, ACD, MN DNR, local volunteers

Description: Weekly water level monitoring in lakes. The past five and twenty-five years of data for each lake are illustrated below, and all historical data are available on the Minnesota DNR website using the "LakeFinder" feature (www.dnr.mn.us.state\lakefind\index.html).

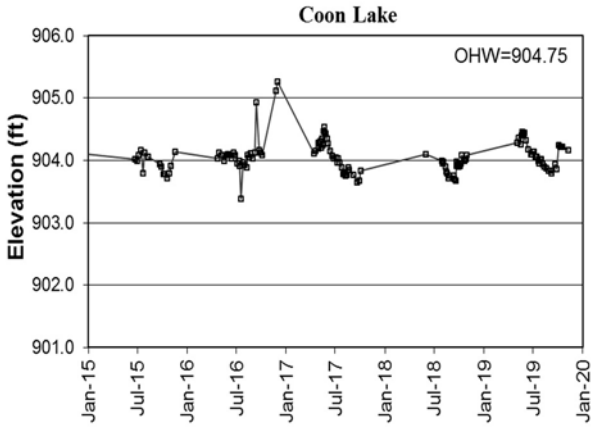
Purpose: To understand lake hydrology, including the impact of climate or other water budget changes. These data are useful for regulatory, building/development, and lake management decisions.

Locations: Coon, Fawn, Linwood, Martin, and Typo Lakes

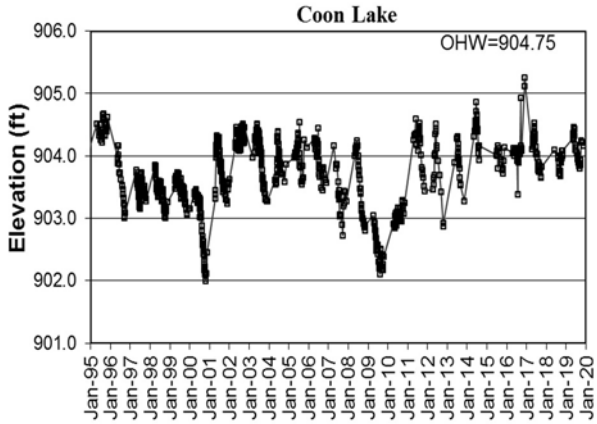
Results: Lake gauges were installed by the Anoka Conservation District and surveyed by the MN DNR. In 2019, lakes followed the expected pattern of high levels in the spring, declining levels through the summer and then water levels beginning to rebound in the fall. Coon Lake and Fawn Lake both had higher water levels than in 2018 but only fluctuated 0.5 ft. throughout the season. Typo Lake and Martin Lake had the highest recorded levels in the past five years. Water levels on both lakes fluctuated widely throughout the season (Typo: 1.96 ft., Martin: 1.5 ft.). It's notable that 2019 had the greatest precipitation total of any recorded year (data goes back to 1871) in the Twin Cities metro.

All lake level data can be downloaded from the MN DNR website's LakeFinder feature (https://www.dnr.state.mn.us/lakefind/index.html). Ordinary High Water Level (OHW), the elevation below which a DNR permit is needed to perform work, is listed for each lake on the corresponding graphs below.

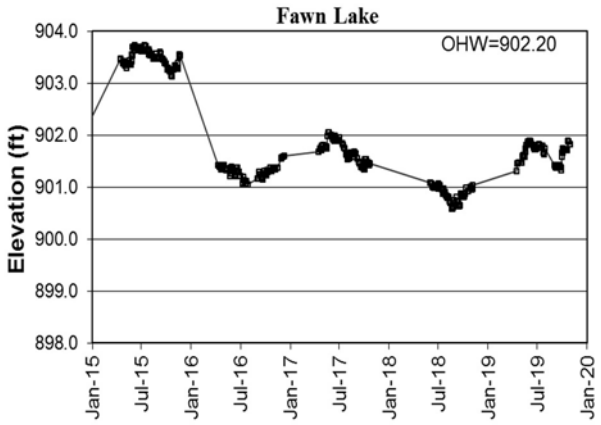
Coon Lake Levels – last 5 years



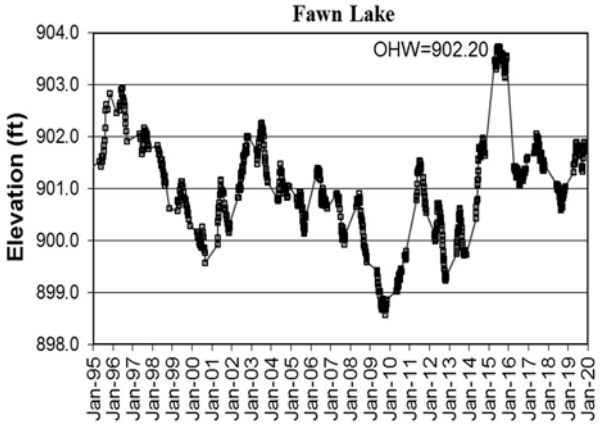
Coon Lake Levels – last 25 years



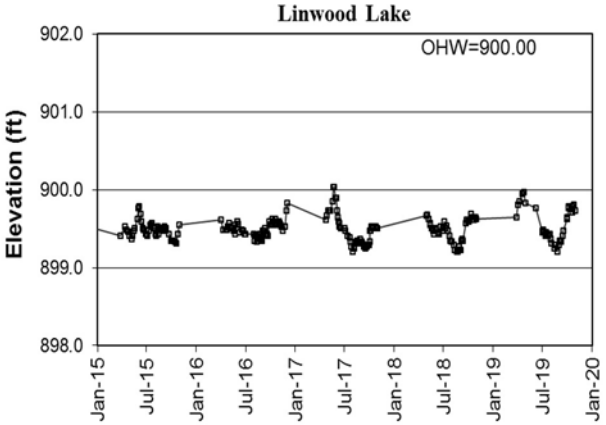
Fawn Lake Levels – last 5 years



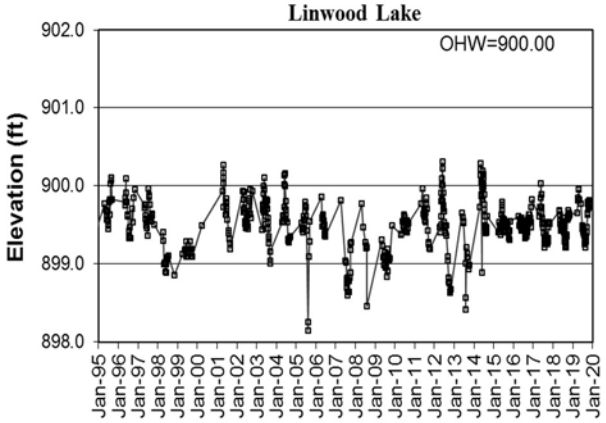
Fawn Lake Levels – last 25 years



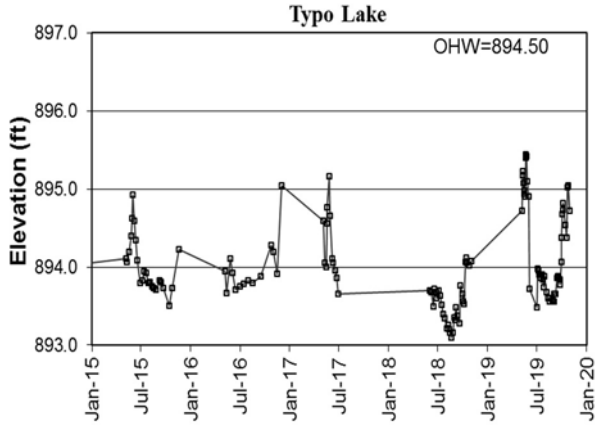
Linwood Lake Levels – last 5 years



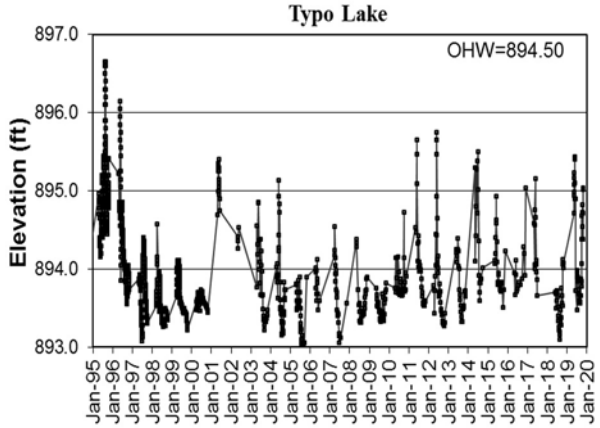
Linwood Lake Levels – last 25 years



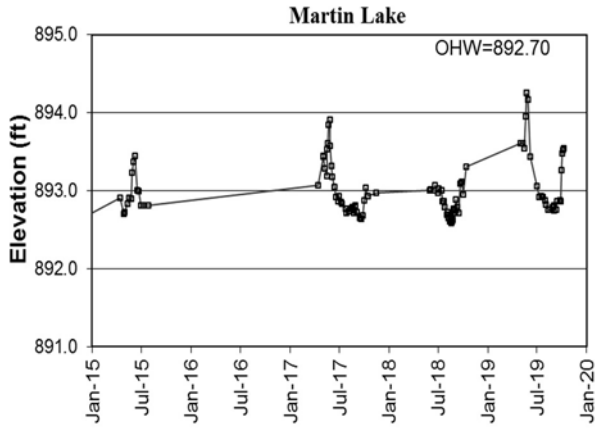
Typo Lake Levels – last 5 years



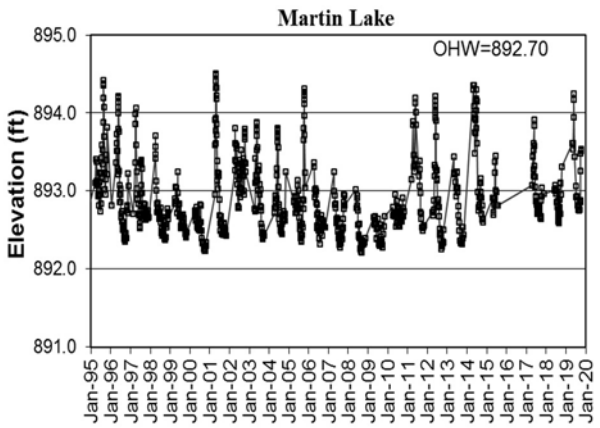
Typo Lake Levels – last 25 years



Martin Lake Levels – last 5 years



Martin Lake Levels – last 25 years



Lake Water Quality

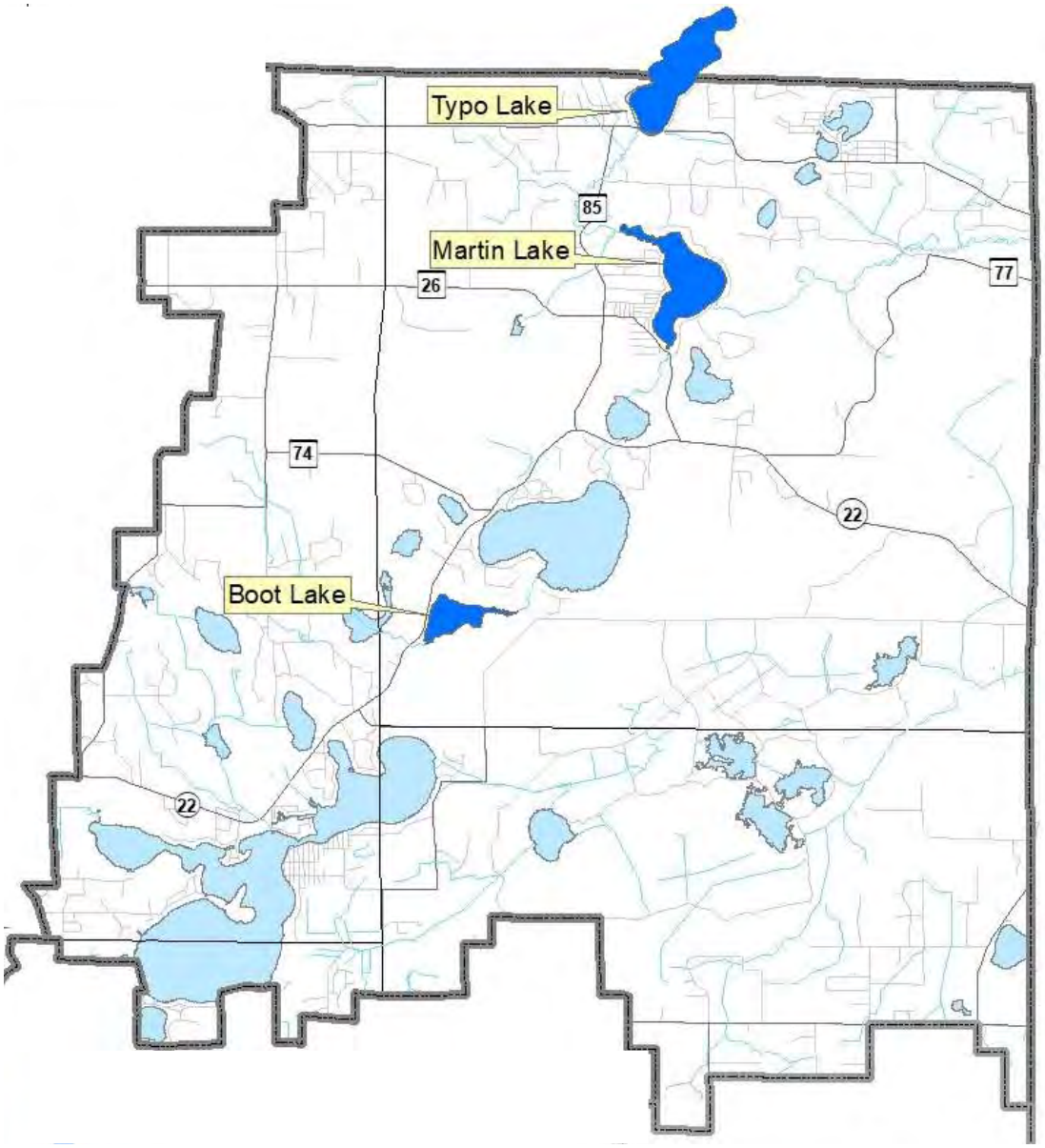
Description: May through September, every-other-week, monitoring is conducted for the following parameters: total phosphorus, chlorophyll-a, Secchi transparency, dissolved oxygen, turbidity, temperature, specific conductivity, pH, and salinity.

Purpose: To detect water quality trends and diagnose the cause of changes.

Locations: Boot, Typo, and Martin Lakes

Results: Detailed data for each lake are provided on the following pages, including summaries of historical conditions and trend analysis. Previous years' data are available from the Minnesota Pollution Control Agency (MPCA) (https://cf.pca.state.mn.us/water/watershedweb/wdip/search_more.cfm) or from ACD. Refer to Chapter 1 for additional information on lake dynamics and interpreting the data.

2019 Sunrise River Watershed Lake Water Quality Monitoring Sites



BOOT LAKE
LINWOOD TOWNSHIP LAKE ID # 02-0028

Background

Boot Lake is located in the northeast portion of Anoka County and has a surface area of 92 acres. While nearly all of the lake is shallow with aquatic vegetation growing to the surface, there is one area with a depth of 23 ft. (7 m) where water quality monitoring occurs.

Boot Lake is within a Scientific and Natural Area (SNA) owned and administered by the Minnesota Department of Natural Resources. The Boot Lake SNA is 660 acres and includes the entire lake as well as the undeveloped shoreline. Access, including for ACD to conduct water quality monitoring, requires a special permit from the MN DNR.

Boot Lake has one primary stream inlet and one outlet. The inlet drains upstream lands that include undeveloped, sod fields and large-lot residential usage. The outlet stream goes to Linwood Lake.

Boot Lake was selected as a new monitoring site in 2018 for two reasons. First, Boot Lake is a contributing water source to Linwood Lake which is impaired for excess nutrients. Monitoring Boot Lake's water quality allows us to determine whether Boot Lake is degrading Linwood Lake's water quality. Secondly, Boot Lake is relatively undisturbed, and it is desirable to see what types of water quality conditions are in a rare, undeveloped lake in Anoka County.

2019 Results

Boot Lake's nutrient levels are typical of shallow lakes in the area. Average phosphorus levels in 2019 were 43.3 µg/L, average chlorophyll-a was 6.6 µg/L, and average Secchi transparency was 5.5 ft. (1.7 m). These are better than the state water quality standard for shallow lakes (total phosphorus <60 µg/L, chlorophyll-a <20 µg/L, Secchi transparency >1m), and earns Boot Lake an overall B letter grade on Met Council's grading scale for metro area lakes. This is an improvement from the C letter grade Boot Lake received in 2018. Boot Lake supports a rich plant community, and the lake attracts abundant waterfowl.

Trend Analysis

2019 was only second year of water quality monitoring for Boot Lake. Trend analysis is not yet possible. The earliest data about the lake is from a 1979 a resource inventory was completed for assessment of the site as a potential Scientific and Natural Area. The inventory did not include water quality monitoring.

Discussion

While Boot Lake is not subject to many of the potential negative impacts that occur on unprotected and/or developed lakes, its water quality is far from the pristine condition one might expect. Viking Boulevard runs near the western shore of the lake and may directly contribute pollutants. The contributing subwatershed includes some agriculture and scattered residential housing, which may also affect water quality in Boot Lake. Finally, in-lake nutrients can contribute to algal growth.

ACD monitored the water quality of the inlet to Boot Lake at Viking Boulevard in 2001 and 2003. Average total phosphorus in the inlet across both years was 117 µg/L, which is typical for the area but does exceed the state water quality standard of 100 µg/L, and is likely contributing to the nutrient load into Boot Lake.

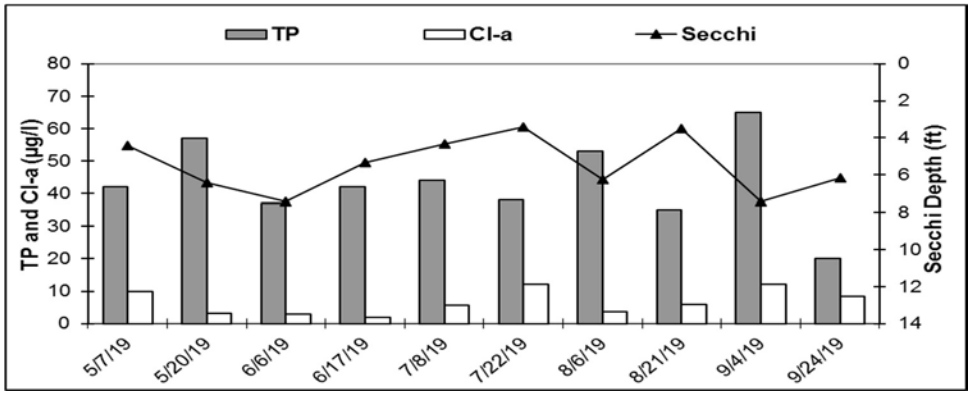
Carp can negatively impact lake water health, though their population appears low in Boot Lake. This is significant because carp reduction is a management goal for Linwood Lake. Boot Lake could be a source of carp, or spawning area for them. Dead common carp were observed in 2018 when ACD staff were monitoring water quality. Also in 2018 a trap netting survey for carp was done in Boot Lake but none were caught.

Boot Lake's impact on Linwood Lake downstream appears neutral, as its nutrient concentrations are similar. However, efforts to improve impaired Linwood Lake should be made with Boot Lake in mind. It often makes sense to manage the whole watershed, and especially upstream contributing waters.

Boot Lake

Linwood Township Lake ID # 02-0028

2019 Results



2019 Median

pH		7.73
Specific Conductivity	mS/cm	0.255
Turbidity	NTU	5.4
D.O.	mg/l	9.14
D.O.	%	107.8
Temp.	°F	71.1
Salinity	%	0.12
Cl-a	µg/L	5.7
T.P.	µg/l	42
Secchi	ft	4.76

Historical Report Card

Year	TP	Cl-a	Secchi	**Overall**
2018	C	B	C	**C**
2019	C	A	C	**B**
State Standards	60 ug/L	20 ug/L	>3.3 ft	

2019 Water Quality Data		Date:	5/7/2019	5/20/2019	6/6/2019	6/17/2019	7/8/2019	7/22/2019	8/6/2019	8/21/2019	9/4/2019	9/24/2019			
		Time:	9:40	10:00	9:15	9:15	9:00	9:00	9:25	9:15	9:15	9:30			
	Units	R.L.*											Average	Min	Max
pH		0.1	7.93	7.89	8.13	7.74	8.29	7.51	7.53	7.44	7.53	7.72	7.8	7.44	8.29
Specific Conductivity	mS/cm	0.01	0.218	0.239	0.215	0.234	0.250	0.272	0.286	0.261	0.275	0.260	0.3	0.22	0.29
Turbidity	NTU	1	N/A	0.02	0.20	2.60	5.40	4.300	0.00	3.60	2.10	2.20	2.3	0.00	5.40
D.O.	mg/l	0.01	10.32	9.29	9.00	8.83	11.28	8.01	8.76	8.84	10.36	14.10	9.9	8.01	14.10
D.O.	%	100	102.1	82.1	108.5	107.6	144.6	97.6	108.0	102.8	114.0	160.6	112.8	82.10	160.60
Temp.	°C	0.1	14.10	12.17	22.27	21.17	25.87	23.91	24.57	22.86	20.01	19.57	20.7	12.17	25.87
Temp.	°F	0.1	57.4	53.9	72.1	70.1	78.6	75.0	76.2	73.1	68.0	67.2	69.2	53.91	78.57
Salinity	%	0.01	0.10	0.11	0.10	0.11	0.12	0.13	0.14	0.13	0.13	0.12	0.1	0.10	0.14
Cl-a	µg/L	1	9.90	3.20	2.80	1.8	5.6	12.2	3.7	5.8	12.1	8.5000	6.6	1.80	12.20
T.P.	mg/l	0.005	0.042	0.057	0.037	0.042	0.044	0.038	0.053	0.035	0.065	0.020	0.0	0.02	0.07
T.P.	µg/l	5	42	57	37	42	44	38	53	35	65	20	43.3	20.00	65.00
Secchi	ft		4.41	6.41	7.41	5.33	4.33	3.41	6.3	3.5	7.4	6.2	5.5	3.41	7.41
Secchi	m		1.3	2.0	2.3	1.6	1.3	1.0	1.9	1.1	2.3	1.9	1.7	1.04	2.26
Physical			1.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0	2.0	2.0	1.5	1.00	2.00
Recreational			2.0	1.0	2.0	1.0	3.0	3.0	2.0	3.0	2.0	2.0	2.1	1.00	3.00

*reporting limit

TYPO LAKE

LINWOOD TOWNSHIP, LAKE ID # 30-0009

Background

Typo Lake is located in northeast Anoka County and southeast Isanti County. It has a surface area of 290 acres and maximum depth of 6 feet (1.82 m), though most of the lake is about 3 feet deep. The lake has a mucky, loose, and unconsolidated bottom in some areas, while other areas have a sandy bottom. The public access is located at the south end of the lake along Fawn Lake Drive. The lake is used little for fishing or recreational boating because of the shallow depth and extremely poor water quality. The lake's shoreline is mostly undeveloped, with only 21 homes within 300 feet of the lakeshore. The lake's watershed of 11,520 acres is 3% residential, 33% agricultural, and 28% wetlands, with the remainder being forested or grassland. Typo Lake is on the MPCA's list of impaired waters for excess nutrients.

2019 Results

In 2019 Typo Lake had poor water quality compared to other lakes in this region (NCHF Ecoregion), receiving an overall F letter grade. Average total phosphorus (TP) was 175.0 µg/L, which was an increase from the 2018 average of 160.3 µg/L. While total phosphorus levels continue to far exceed the 60 µg/L state standard, average concentrations appear to be staying well below averages from a decade ago (353.0 µg/L in 2009).

Chlorophyll-a (Cl-a) levels in 2019 averaged 74.4 µg/L. Though this is an increase from previous years, it is below the historical average for the lake of 110.3 µg/L. This is still many times higher than the state standard for Cl-a in shallow lakes of 20 µg/L.

Average Secchi transparency in 2019 was 1.5 feet, which is the second-highest average on record. In 2007 and 2009 a Secchi disk could be seen only 5-6 inches below the surface, on average. Transparency has improved throughout the last decade, but still remains poorer than the state standard for shallow lakes transparency of 1 meter (3.3 feet).

Trend Analysis

Nineteen years of water quality monitoring have been conducted by the MPCA (1993, '94, and '95) and the Anoka Conservation District (1997-2001, '03, '05, '07, '09, '12, 2014-2019). Overall, water quality has improved from 1993 to 2019 (excluding high nutrient outlier years 2007 and 2009) in a statistically significant way (repeated measures MANOVA with response variables TP, Cl-a, and Secchi depth; $F_{2, 14}=7.79$, $p=0.01$). When we tested these response variables individually with one-way ANOVAs, TP and Secchi depth still show no significant change across this time period. Cl-a, however, is showing a statistically significant decline ($p=0.001$). A superficial look at graphs of these parameters suggests that total phosphorus is generally stable between 150 µg/L and 250 µg/L without a long-term trend. Secchi transparency in recent years is similar to averages from the early 1990s, an improvement from the late 1990s-2010. The major driver of improved water quality is decreasing Cl-a concentrations.

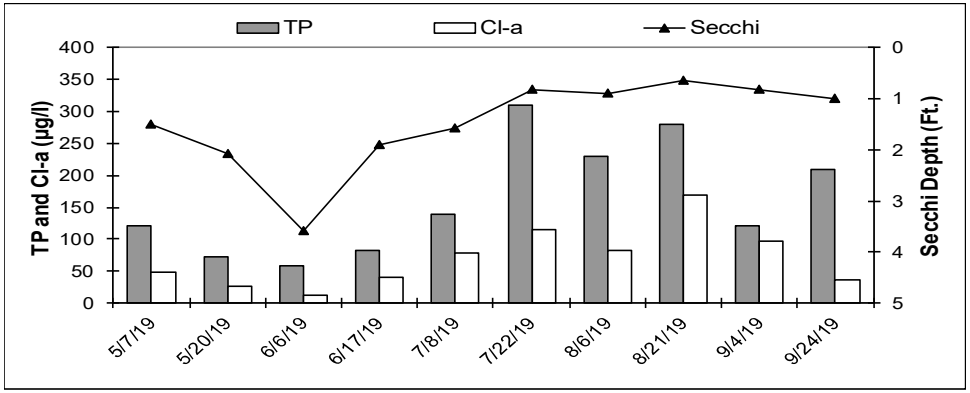
Discussion

Typo Lake, along with Martin Lake downstream was the subject of a Total Maximum Daily Load (TMDL) study by the Anoka Conservation District, which was approved by the State and EPA in 2012. This study documented the sources of nutrients to the lake, the degree to which each is impacting the lake, and put forth lake rehabilitation strategies. Some factors impacting water quality in Typo Lake include rough fish, ditched wetland west of the lake, and lake sediments. Recent work has included installation of carp barriers (completed in 2016), carp removals (2017-19, to be continued in 2020), and a feasibility study of ditched wetland restorations upstream of Typo Lake (2018). The feasibility study was completed in early 2018 and identified 4 potential projects along Ditch 20 upstream of Type Lake. It also recommends that dredging of Ditch 20 not occur. Current shoreline conditions on Typo Lake were inventoried during a 2019 shoreline survey. This inventory will assist in identifying future lakeshore projects. For more information on these projects, contact the Anoka Conservation District.

TYPO LAKE

LINWOOD TOWNSHIP, LAKE ID # 30-0009

2019 Results



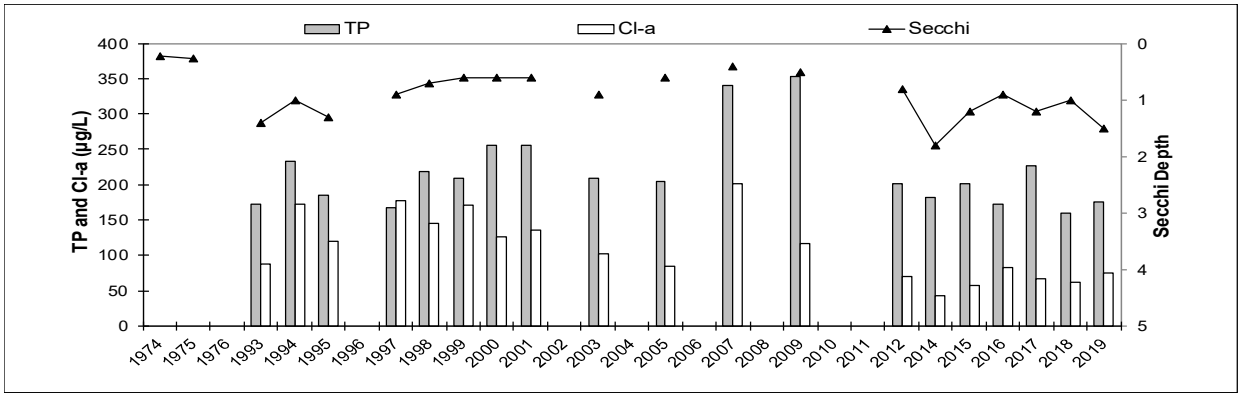
2019 Median Values

pH		8.46
Specific Conductivity	mS/cm	0.284
Turbidity	NTU	98.8
D.O.	mg/l	10.96
D.O.	%	114.95
Temp.	°F	71.6
Salinity	%	0.13
Cl-a	µg/L	63.55
T.P.	µg/l	130
Secchi	ft	1.25

Historical Report Card

Year	TP	Cl-a	Secchi	Overall
1974			F	F
1975			F	F
1993	F	F	F	F
1994	F	F	F	F
1995	F	F	F	F
1997	F	F	F	F
1998	F	F	F	F
1999	F	D	F	F
2000	F	F	F	F
2001	F	F	F	F
2003	F	F	F	F
2005	F	F	F	F
2007	F	F	F	F
2009	F	F	F	F
2012	F	D	F	F
2014	F	C	F	D-
2015	F	D	F	F
2016	F	F	F	F
2017	F	D	F	F
2018	F	D	F	F
2019	F	D	F	F
State Standards	60 ug/L	20 ug/L	>3.3 ft	

Historic Annual Averages



2019 Water Quality Data

	Date	2/1/2019	2/15/2019	5/7/2019	5/20/2019	6/6/2019	6/17/2019	7/8/2019	7/22/2019	8/6/2019	8/21/2019	9/4/2019	9/24/2019			
	Time	16:30	16:30	11:30	11:30	10:50	10:40	10:45	10:30	10:50	10:15	10:25	10:45			
	Units	R.L.*												Average	Min	Max
pH		0.1			8.71	8.12	8.43	8.50	8.58	8.51	7.73	8.39	8.30	8.61	8.39	7.73	8.71
Specific Conductivity	mS/cm	0.01			0.236	0.264	0.255	0.301	0.349	0.320	0.333	0.285	0.283	0.270	0.290	0.236	0.349
Turbidity	FNRU	1			N/A	20.20	10.10	30.50	45.7	98.50	99.10	109.00	105.00	101.00	65	10	109
D.O.	mg/l	0.01	16.91	12.57	12.01	10.36	9.22	8.94	16.68	13.75	5.24	11.56	10.30	15.03	11.59	5.24	16.91
D.O.	%	1	130.0	92.0	118.3	96.0	111.6	103.4	204.1	165.9	65.9	136.2	110.9	162.9	121.3	65.9	204.1
Temp.	°C	0.1			13.64	10.98	23.07	20.93	26.06	23.86	24.93	23.20	19.35	19.60	20.67	10.98	26.06
Temp.	°F	0.1			56.6	51.8	73.5	69.7	78.9	74.9	76.9	73.8	66.8	67.3	69.2	51.8	78.9
Salinity	%	0.01			0.11	0.12	0.12	0.14	0.17	0.16	0.11	0.14	0.13	0.13	0.1	0.1	0.2
Cl-a	µg/l	1			49.10	26.50	11.90	40.00	78.00	115.00	83.30	169.00	97.20	36.10	74.4	11.9	169.0
T.P.	mg/l	0.005			0.120	0.072	0.059	0.083	0.140	0.310	0.230	0.280	0.120	0.210	0.175	0.059	0.310
T.P.	µg/l	5			120	72	59	83	140	310	230	280	120	210	175	59	310
Secchi	ft	0.1			1.50	2.08	3.58	1.91	1.58	10.00	0.9	0.7	0.8	1.0	2.6	0.7	10.0
Secchi	m	0.1			0.5	0.6	1.1	0.6	0.5	3.0	0.3	0.2	0.3	0.3	0.8	0.2	3.0
Physical					3.0	3.0	3.0	3.00	3.00	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recreational					3.0	3.0	3.0	3.00	4.00	3.0	3.0	3.0	4.0	4.0	3.3	3.0	4.0

*reporting limit

Martin Lake

Linwood Township, Lake ID # 02-0034

Background

Martin Lake is located in northeast Anoka County. It has a surface area of 223 acres and maximum depth of 20 ft. The public access is located on the southern end of the lake. The lake is used moderately by recreational boaters and fishers, and would likely be used more if water quality improved. Martin Lake is almost entirely surrounded by private residences. The 5,402-acre watershed is 18% developed; the remaining 82% is vacant, agricultural, or wetlands. The non-native, invasive plant curly-leaf pondweed occurs in Martin Lake but not at nuisance levels. Martin is on the MPCA's list of impaired waters for excess nutrients.

2019 Results

In 2019 Martin Lake had a C letter grade. During 2016-2018 the lake had a pattern of declining phosphorus levels, including a record low of 53.1µg/L in 2018. In 2019 total phosphorus levels were higher, averaging 64.1 µg/L. Even though total phosphorus levels were higher in 2019, they are better than the average of 92.7 µg/L during 1997-2015 or even higher. 2019 was the wettest year on record for the area, and increased runoff from the watershed may have played a role in higher 2019 phosphorus.

In 2019, chlorophyll-a averaged 32.8 µg/L, an increase from the 2018 average of 27.6 µg/L. Cl-a levels have been on a fairly steady incline since 2014 which had the lowest recorded average of 15.5 µg/L. While the 5-year (2015-2019) average (26.5 µg/L) has been much lower than the 2005-2009 average (108.3 µg/L), it remains above the impairment standard of 14 µg/L.

Average Secchi transparency was 3.3 feet in 2019, an improvement from the historical average of 2.9 feet for the lake. Secchi transparency remains about 30% below the State impairment threshold of 4.6 feet. The ACD staff continues to note green water during late summer months.

Trend Analysis

Nineteen years of water quality data have been collected by the MPCA (1983), Metropolitan Council (1998, 2008), and the ACD (1997, 1999-2001, 2003, 2005, 2007, 2009, 2012-2019). Citizens monitored Secchi transparency 17 other years. Anecdotal notes from DNR fisheries data indicate poor water quality dating back to at least 1954. Although still poor, water quality in Martin Lake has shown an improvement from 1983 to 2019 that is statistically significant (repeated measures MANOVA with response variables TP, Cl-a, and Secchi depth; $F_{2, 15}=5.26$, $p < 0.02$). This is especially true for the last decade. Further examination of the data shows that while TP and Secchi transparency have not changed in the long-term since 1983, chlorophyll-a has shown a statistical decrease ($p < 0.01$) over this time. Water quality in Martin Lake declined through the late 1990s and reached its worst in 2007. In the nine years sampled since 2007, both TP and Secchi transparency have improved on a statistically significant basis (TP $p < 0.01$, Secchi $p < 0.01$).

Discussion

Martin Lake, along with Typo Lake upstream, was the subject of a TMDL study by the Anoka Conservation District that was approved by the State and EPA in 2012. This study documented the sources of nutrients to the lake, the degree to which each is impacting the lake, and put forward lake rehabilitation strategies. Water from Typo Lake and internal loading (carp, septic systems, sediments, etc.) are two of the largest negative impacts on Martin Lake water quality.

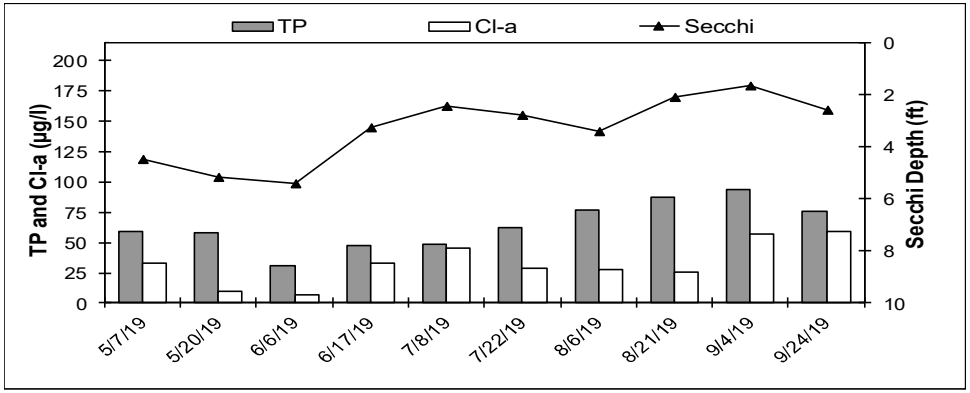
Upstream of Typo Lake, a feasibility study was completed in early 2018 regarding restoration of ditched wetlands (Ditch 20). This study identified 4 potential projects and also recommends that dredging of Ditch 20 not occur.

Carp removals and other management efforts are taking place in 2017-2020 and additional stormwater retrofits are planned in 2020-2021. Current shoreline conditions on Martin Lake were inventoried during a 2019 shoreline survey. This inventory will assist in identifying future lakeshore projects. Recent water quality monitoring results suggest these management approaches are improving conditions in these lakes, but reaching goals will require additional effort and time.

MARTIN LAKE

LINWOOD TOWNSHIP, LAKE ID # 30-0009

2019 Results



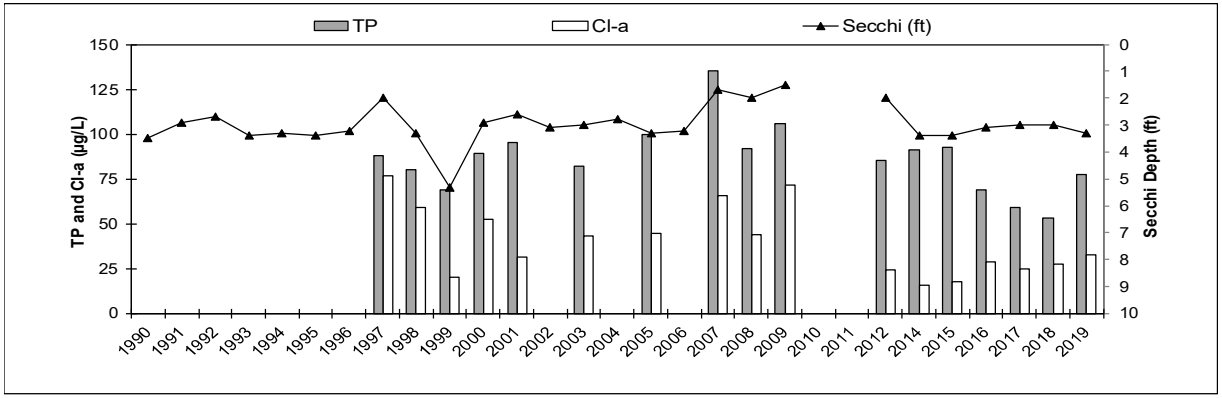
2019 Median Values

pH		8.04
Specific Conductivity	mS/cm	0.315
Turbidity	NTU	17
D.O.	mg/l	10.85
D.O.	%	125.55
Temp.	°F	70.5
Salinity	%	0.14
Cl-a	µg/L	31.1
T.P.	µg/l	60.5
Secchi	ft	3.3

Historical Report Card

Year	TP	Cl-a	S	
1996			D	
1997	D	D	F	
1998	D	D	D	
1999	C	B	C	
2000	D	C	D	
2001	D	C	D	
2002			D	
2003	D	C	D	
2004			D	
2005	D	C	D	
2006			D	
2007	D	D	F	
2008	D	C	F	
2009	D	D	F	
2012	D	C	F	
2014	D	B	D	
2015	D	B	D	
2016	C	C	D	
2017	C	C	D	
2018	C	C	D	
2019	C	C	D	
State Standards	40 ug/L	14 ug/L	>4.6 ft	

Historic Annual Averages



2019 Water Quality Data

		Date:	5/7/2019	5/20/2019	6/6/2019	6/17/2019	7/8/2019	7/22/2019	8/6/2019	8/21/2019	9/4/2019	9/24/2019			
		Time:	10:45	10:30	9:50	9:50	10:00	9:50	10:10	9:45	9:50	10:10			
	Units	R.L.*											Average	Min	Max
pH		0.1	8.20	7.80	7.95	8.07	8.38	8.02	8.39	7.97	7.79	8.25	8.08	7.79	8.39
Specific Conductivity	mS/cm	0.01	0.285	0.299	0.272	0.290	0.332	0.363	0.360	0.334	0.340	0.299	0.317	0.272	0.363
Turbidity	FNRU	1	N/A	4.40	2.10	17.00	21.40	13.50	12.30	22.60	27.00	35.60	16.11	2.10	35.60
D.O.	mg/l	0.01	13.33	8.56	8.95	9.72	12.18	10.21	14.08	10.46	11.24	16.14	11.49	8.56	16.14
D.O.	%	1	125.7	83.3	105.7	112.6	156.5	125.4	178.9	124.7	127.5	172.5	131.3	83.3	178.9
Temp.	°C	0.1	12.72	13.09	21.94	20.82	25.71	25.18	25.91	23.85	20.31	20.14	21.0	12.7	25.9
Temp.	°F	0.1	54.9	55.6	71.5	69.5	78.3	77.3	78.6	74.9	68.6	68.3	69.7	54.9	78.6
Salinity	%	0.01	0.13	0.14	0.13	0.14	0.16	0.17	0.10	0.16	0.16	0.14	0.14	0.10	0.17
Cl-a	ug/L	1	33.20	10.10	7.00	33.40	46.00	29.00	27.90	25.20	56.60	59.10	32.8	7.0	59.1
T.P.	mg/l	0.005	0.059	0.058	0.031	0.048	0.049	0.062	0.077	0.087	0.094	0.076	0.064	0.031	0.094
T.P.	ug/l	5	59	58	31	48	49	62	77	87	94	76	64.1	31	94
Secchi	ft	0.1	4.50	5.16	5.41	3.25	2.41	2.75	3.4	2.1	1.7	2.6	3.3	1.7	5.4
Secchi	m	0.1	1.4	1.6	1.6	1.0	0.7	0.8	1.0	0.6	0.5	0.8	1.0	0.5	1.6
Physical			1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.0	2.0
Recreational			1.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0	2.0	1.0	3.0

*reporting limit

Stream Water Quality

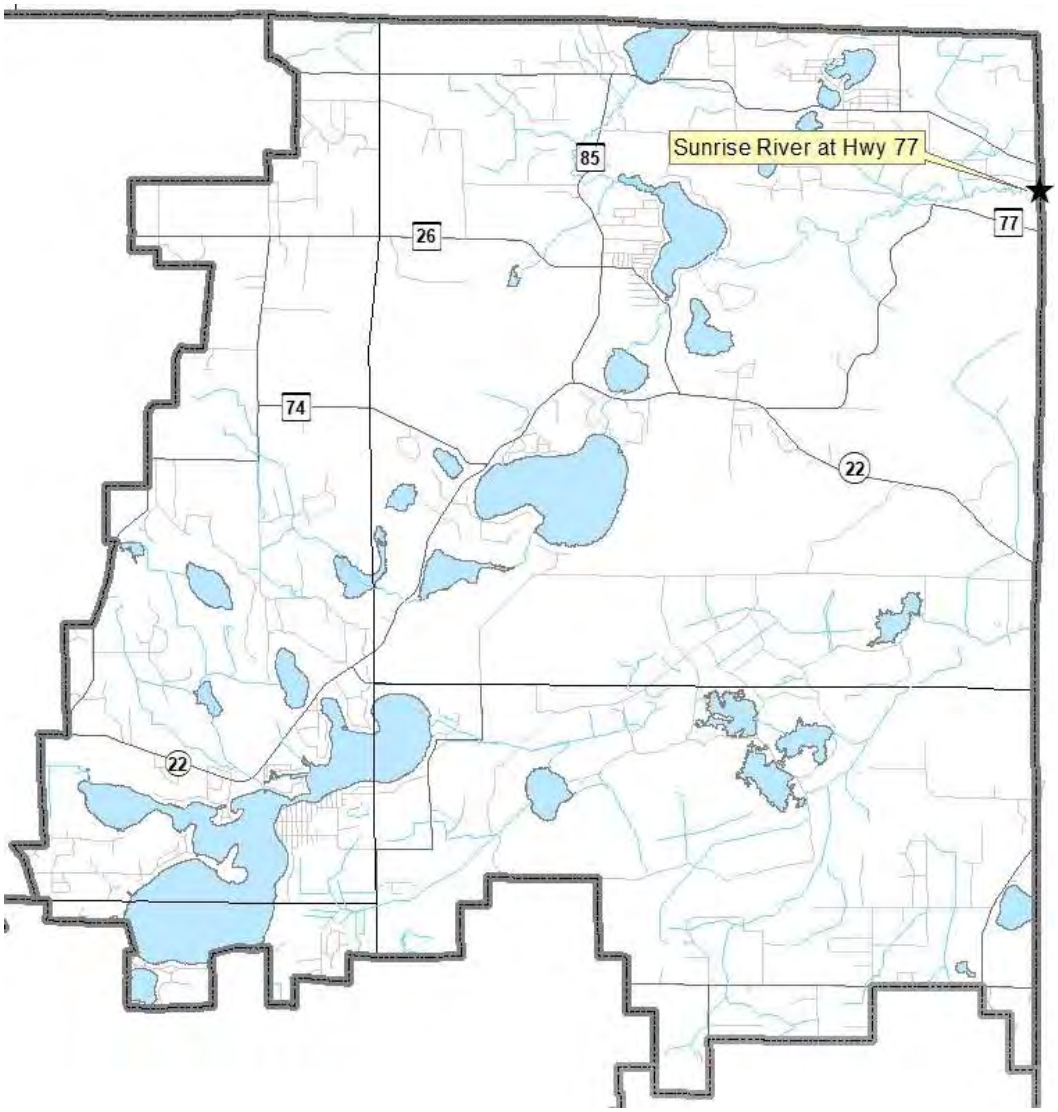
Description: In 2019 and 2020, the Sunrise River water quality monitoring site at Highway 77 is being monitored using funds from a MPCA Surface Water Assessment Grant (SWAG). Stream water quality was monitored on twelve occasions in 2019, including five grab samples. The selected site is at the furthest downstream limit of the Sunrise River Watershed Management Organization's jurisdictional area, and the Anoka County border. Parameters monitored include water level, pH, specific conductivity, turbidity, chlorides, transparency, dissolved oxygen, total phosphorus, and total suspended solids.

Purpose: To detect water quality trends and problems, and diagnose the source of problems.

Location: Sunrise River at Hwy 77

Results: Results are presented on the following pages.

2019 Sunrise River Watershed Stream Water Quality Monitoring Sites



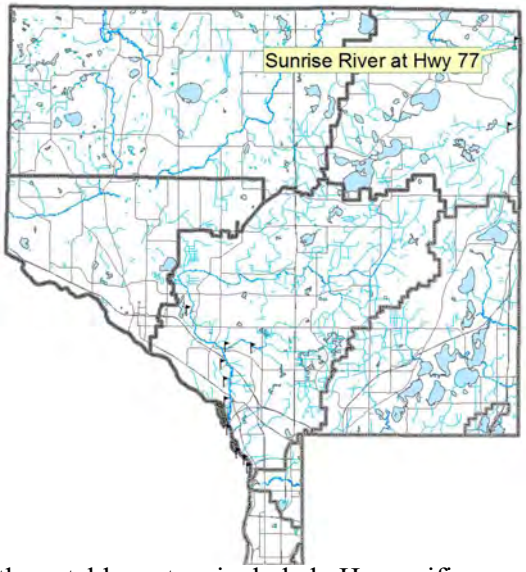
Stream Water Quality Monitoring

SUNRISE RIVER AT HWY 77

Near Fawn Lake Dr. NE, Linwood Township

STORET SiteID = S001-424

Years Monitored
2001, 2003, 2006, 2012, 2015, 2018, 2019



Background
This monitoring site is near the bottom of the Sunrise River Watershed in Anoka County, at the Chisago County border. Upstream, this river drains through Boot, Linwood, Island, Martin, and Typo Lakes. The Sunrise River Watershed Management Organization historically monitors this site because it is where the river leaves their jurisdiction. Additionally, monitoring is considered important because this portion of the river is impaired for aquatic life with turbidity identified as a stressor. This site is included in the MN Pollution Control Agency's Cycle II Monitoring for the Lower St. Croix Watershed which began in 2019 and will run through 2020. A TMDL study was completed in 2013.

Methods
The river was monitored on 12 occasions. All monitoring during 2019 was completed during baseflow conditions. Parameters tested with portable meters included pH, specific conductivity, turbidity, temperature, dissolved oxygen, and salinity. Parameters tested by water quality grab samples sent to a state-certified lab included total phosphorus, chlorides, and total suspended solids. Grab samples were taken and analyzed by a laboratory at the beginning of each month monitored.

Summarized Results
Summarized water quality monitoring findings and management implications include:

- Specific conductivity was below the county median of 0.420 mS/cm. The median specific conductivity was 0.362 mS/cm. The median specific conductivity for all years at this site is 0.306 mS/cm. For management considerations see chlorides.
- Chlorides were measured at this site in all years, except 2015. In 2019, the median chloride concentration was 17.2 mg/L. The median for all years at this site is 15.65 mg/L and the countywide median is 13.29 mg/L which are both well below the state standard of 230 mg/L
  Management discussion: Road deicing salts are a concern region-wide. Chlorides are measurable in area streams year-round, including in the Sunrise River. While chloride levels may be low compared to state standards, excessive salt use should be avoided.
- Suspended solids and turbidity levels were similar in 2019 compared to other years monitored. The 2019 median TSS concentration was 12.0 mg/L, a decrease from 20.1 mg/L in 2018. The median for all years at this site is 17 mg/L. These levels are higher than most other Anoka County streams, but still below the state standard of 30 mg/L TSS.
  Management discussion: Efforts to reduce suspended material in upstream lakes will help decrease turbidity and suspended solids throughout the Sunrise River.
- Phosphorus has fluctuated above and below the water quality standard for the Central River Nutrient Region of ≤100 µg/L. The 2019 median for TP was 72.0 ug/L, which was much lower than the 2018 median of 101.5 ug/L. The median TP for all years at this site is 87 µg/L.
  Management discussion: Management in upstream lakes will help reduce phosphorus in the river.
- pH was within the range considered normal and healthy for streams in this area. The median pH was 7.56.
- Dissolved oxygen (DO) was typically within the range considered normal and healthy at the time of sample collection.

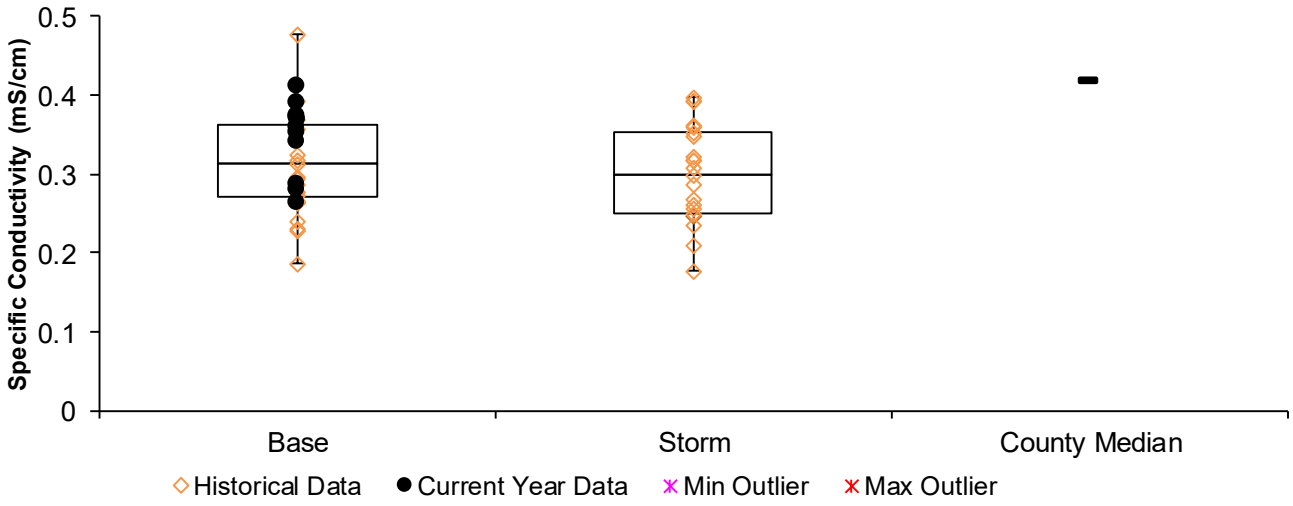
Below the data are presented and discussed for each parameter in greater detail. Management recommendations will be included at the conclusion of this report.

Specific conductivity

Specific conductivity and chlorides are measures of dissolved pollutants. Dissolved pollutant sources include urban road runoff, industrial chemicals, and others. Metals, hydrocarbons, and road salts are often of concern in a suburban environment. Specific conductivity is the broadest measure of dissolved pollutants we use. It measures electrical conductivity of water standardized for temperature; pure water with no dissolved constituents has zero specific conductivity.

Specific conductivity was acceptably low in the West Branch of the Sunrise River. Median specific conductivity for 2019 was 0.362 mS/cm. Some of the highest specific conductivity samples were observed in 2019 but the median for the site was lower than the median for Anoka County streams (0.420 mS/cm). Specific conductivity has historically been lower during storms, suggesting that stormwater runoff contains fewer dissolved pollutants than the surficial water table that feeds the river during baseflow. Increased specific conductivity levels during baseflow conditions has been observed in many Anoka County streams. This has been studied leading to the determination that the largest contributor to rising specific conductivity levels is road deicing salts that have infiltrated into the shallow aquifer.

Specific conductivity during baseflow and storm conditions. Orange diamonds are historical data from previous years and black circles are 2019 readings. Box plots show the median (middle line), 25th and 75th percentile (ends of box), and 10th and 90th percentiles (floating outer lines).

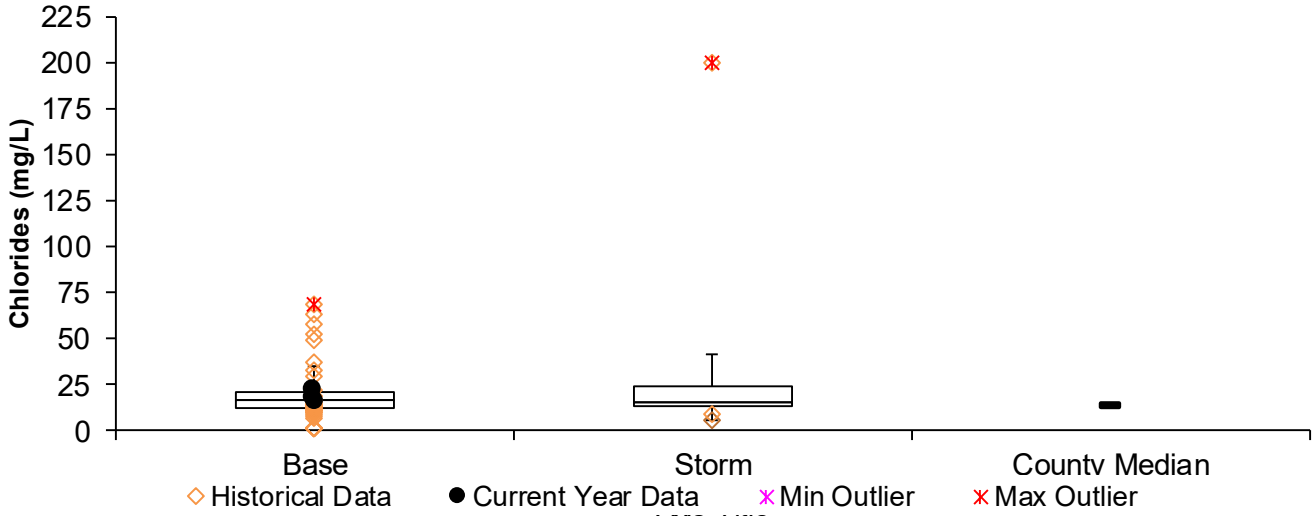


Chlorides

Chlorides are the measure of chloride salts, the most common of which are road de-icing chemicals and those used in water softening. Chlorides can also be present in other pollutant types, such as wastewater. These pollutants are of concern because of the effect they can have on the stream's biological community. Specific Conductivity data, reported above, is commonly used as an indicator for chlorides, with higher specific conductivity generally corresponding to higher chlorides.

Chlorides in the West Branch of the Sunrise River are higher than the median for Anoka County (13.29 mg/L). In 2019 the median chloride concentration was 17.2 mg/L, slightly less than in 2018 and well below the state standard of 230 mg/L. A waterbody is considered impaired if two or more samples exceed the state standard in a three-year period. This mirrors the pattern seen in specific conductivity with higher readings during baseflow conditions and further supports the finding that road deicing salts seeping into the shallow aquifer are a primary cause of higher baseflow chloride and specific conductivity readings.

Chlorides during baseflow and storm conditions. Orange diamonds are historical data from previous years and black circles are 2019 readings. Box plots show the median (middle line), 25th and 75th percentile (ends of box), and 10th and 90th percentiles (floating outer lines).



Turbidity and Total Suspended Solids (TSS)

Turbidity and total suspended solids (TSS) are two different measurements of solid material suspended in the water. Turbidity is measured by the refraction of a light beam passed through a water sample. It is most sensitive to large particles. Total suspended solids are measured by filtering solids from a water sample and weighing the filtered material. The amount of suspended material is important because it affects transparency and aquatic life, and because many other pollutants are attached to particles. Many stormwater treatment practices such as street sweeping, sumps, and stormwater settling ponds target sediment and attached pollutants.

It is important to note that suspended solids can come from sources within the river itself or outside of the river from the contributing watershed. Sources from the watershed include soil erosion, road sanding, and others. In-stream sources of TSS include riverbank erosion and movement of the river bottom. Finally, algae from the river and upstream lakes contribute to suspended solids.

Turbidity is no longer used to determine if a stream is impaired. Instead, total suspended solids is used. Turbidity is still a helpful and easy to measure parameter. Generally, turbidity below 25 NTU is acceptable; previously this was the State's standard. When that standard was in place a stream was impaired if it exceeded this value on three occasions and at least 10% of all sampling events. Including all years of data, the West Branch of the Sunrise River has exceeded 25 NTU on 14 of 60 sampling occasions (23%). Turbidity decreased in 2019, with only one of twelve samples surpassing the state standard (8.3%) at 49.7 NTU.

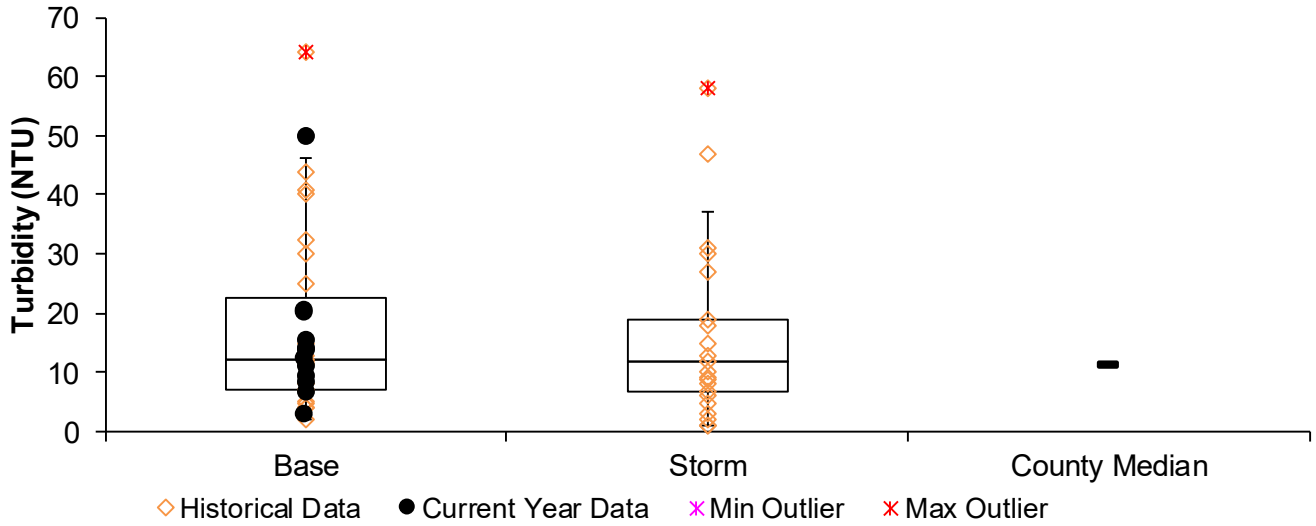
The most obvious source of turbidity is algae from upstream lakes. Three upstream lakes are impaired for excess nutrients and high algae. They include Linwood, Martin, and Typo Lakes. The river sampling site is 3 miles downstream from Martin Lake. The area between the lake and sampling site is wide floodplain fringe and forest with little human impact that would not be expected to add much sediment to the river. Therefore, efforts to reduce suspended material in the river should focus on the upstream lakes. It is also worth noting that this section of the river has unconsolidated bottom material which can re-suspend and contribute to turbidity.

Total suspended solids in the West Branch of the Sunrise River has exceeded the State standard for this region. The standard is no more than 10% of samples exceeding 30 mg/L during April 1-September 30. Over all years monitored the West Branch exceeded the standard on 17% of sampling occasions (9 of 53).

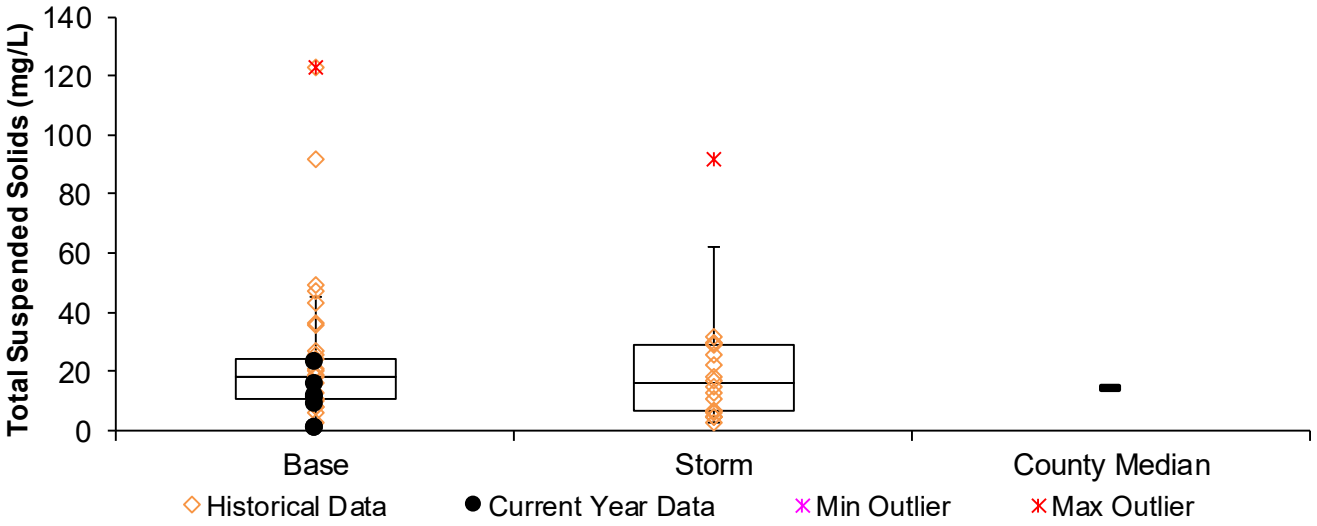
In 2019 total suspended solid levels decreased compared to 2018 and no samples exceeded the standard. In 2019, unlike previous years, all samples were taken during baseflow. Other years of sampling included storm events. This suggests that storm runoff may contribute suspended solids, in addition to the algae coming from upstream

lakes. It's also important to recognize that the unconsolidated river bottom sediments may contribute to high TSS, especially during times of higher flow. There it little land runoff to this river downstream of Martin Lake.

Turbidity during baseflow and storm conditions Orange diamonds are historical data from previous years and black circles are 2019 readings. Box plots show the median (middle line), 25th and 75th percentile (ends of box), and 10th and 90th percentiles (floating outer lines).



Total suspended solids during baseflow and storm conditions Orange diamonds are historical data from previous years and black circles are 2019 readings. Box plots show the median (middle line), 25th and 75th percentile (ends of box), and 10th and 90th percentiles (floating outer lines).

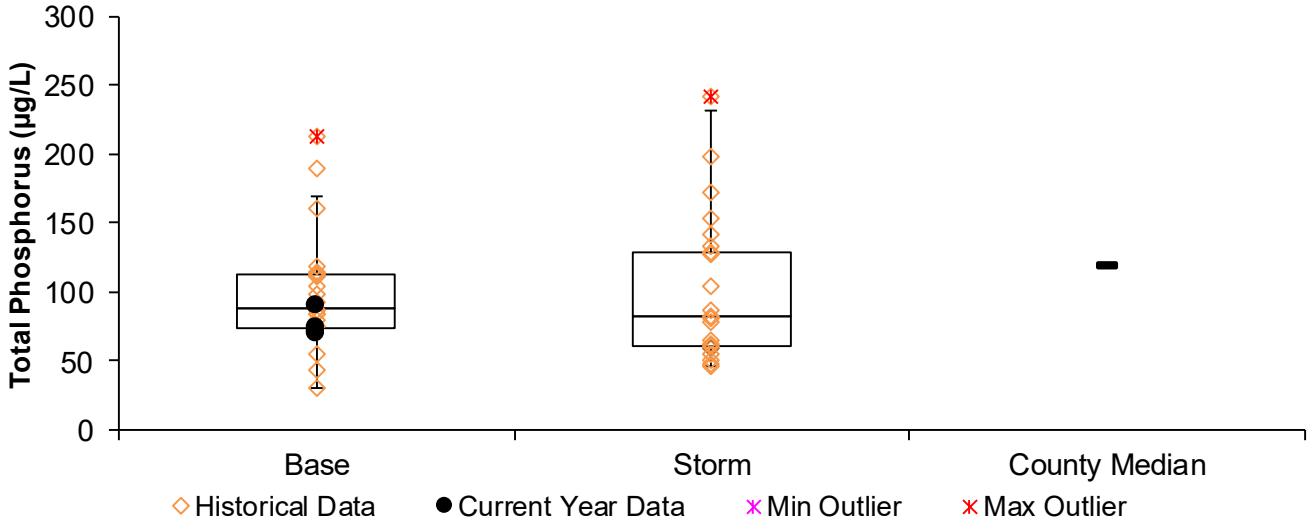


Total Phosphorus

The nutrient phosphorus is one of the most common pollutants in our region and can be associated with urban runoff, agricultural runoff, wastewater, and many other sources. Total phosphorus (TP) in the West Branch of the Sunrise River often exceeds the state standard of 100 µg/L. In 2019 the median phosphorus concentration was 72.0 ug/L and did not exceed the state standard in any of the five sampling events. This was a decrease from the 2018 median of 101.5 ug/L The median phosphorus concentration in the West Branch of the Sunrise River across all years monitored is 87.0 µg/L. Over all years sampled, 21 of 53 samples (39%) have exceeded the standard of 100 µg/L. There has generally not been a large difference between storm and baseflow TP concentrations, though all 2019 sampling occurred during baseflow conditions. This likely contributed to a lower median concentration.

These phosphorus levels are common for the area. In the case of the West Branch of the Sunrise River phosphorus levels are, at least in part, reflective of conditions of Martin Lake located 3 miles upstream from the sampling site. Martin Lake is impaired for excess phosphorus, with a summertime average of 79.2 µg/L over the last 10 years. Water quality improvements to Martin Lake will benefit the river downstream. Recent upstream projects including carp barriers, carp harvests, and stormwater retrofits, coincide with improved conditions in upstream lakes, but those benefits are not yet apparent in the West Branch of the Sunrise River.

Total phosphorus during baseflow and storm conditions. Orange diamonds are historical data from previous years and black circles are 2019 readings. Box plots show the median (middle line), 25th and 75th percentile (ends of box), and 10th and 90th percentiles (floating outer lines).



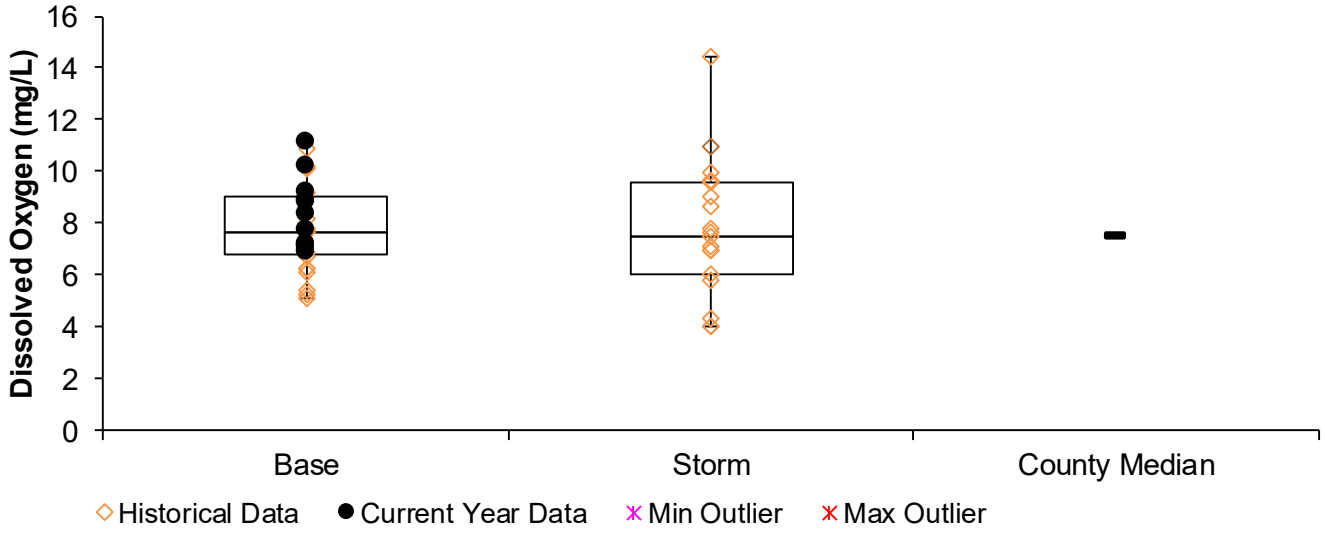
Dissolved Oxygen

Dissolved oxygen is necessary for aquatic life, including fish. Organic pollution causes oxygen consumption when it decomposes. If oxygen levels fall below 5 mg/L aquatic life begins to suffer, therefore the State water quality standard is a daily minimum of 5 mg/L. The stream is impaired if 10% of observations are below this level in the last 10 years. Dissolved oxygen levels are typically lowest in the early morning because of decomposition consuming oxygen at night without offsetting oxygen production by photosynthesis.

For the West Branch of the Sunrise River there are two datasets to consider. First, spot measurements were taken with the other water quality monitoring described in this report. Dissolved oxygen has been found at less than 5 mg/L on three out of 52 occasions. All were during storm events, occurring in 2003, 2012 and 2015. In 2019, there were no instances of DO dipping below 5 mg/L, but sampling did not occur in early morning, or during storms flows.

The second data set is around-the-clock DO measurements for eight days in 2012 by the MPCA. They found DO dipped below 5 mg/L every morning. The river has been designated as impaired for poor fish and invertebrate communities. Although it is not listed as impaired for DO specifically, low DO concentration occurring each morning in this stream is a likely stressor on these organisms.

Dissolved oxygen results during baseflow and storm conditions Orange diamonds are historical data from previous years and black circles are 2019 readings. Box plots show the median (middle line), 25th and 75th percentile (ends of box), and 10th and 90th percentiles (floating outer lines).

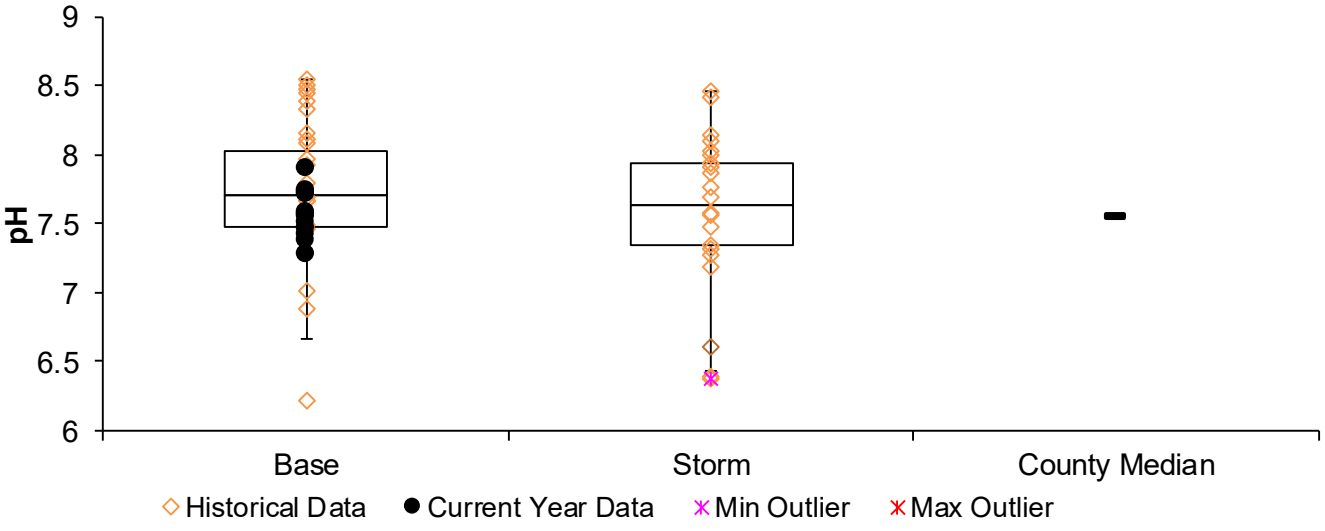


pH

pH refers to the acidity of the water. The MPCA's water quality standard is for pH to be between 6.5 and 8.5. The West Branch of the Sunrise River is regularly within this range (see figure below). It often has slightly higher pH than other streams because of the impact of algal production in upstream lakes.

It is interesting to note that pH is generally lower during storms than during baseflow. This is because the pH of rain is typically lower (more acidic). While acid rain is a longstanding problem, its effect on this aquatic system is small. In 2018, there was one occurrence of sub-standard pH in October when pH was 5.66. This is not overly concerning. pH was within the normal range (7.28 to 7.90) for all samples in 2019.

pH results during baseflow and storm conditions Orange diamonds are historical data from previous years and black circles are 2019 readings. Box plots show the median (middle line), 25th and 75th percentile (ends of box), and 10th and 90th percentiles (floating outer lines).



Recommendations

Water quality in the West Branch of the Sunrise River is lower than ideal. A Total Maximum Daily Load (TMDL) study was completed in 2013 to determine impairments of this river. The study found that aquatic life in this river was struggling with turbidity identified as the main stressor. Low dissolved oxygen may also be a stressor contributing to aquatic life impairment. At this time, it appears that many of the issues in the river would be best addressed with water quality improvement projects targeted at upstream lakes. These lakes are likely the main sources of nutrients and suspended solids in this river.

Dissolved oxygen is not low in the lakes, however, and low nighttime levels in the river may be related to decomposition occurring in the large wetland floodplain. With regards to water quality improvements in the lakes, there are a number of ongoing projects including carp removals in Typo and Linwood lakes. For more information, see the Martin and Typo Lake Carp Removal section of the 2019 Water Almanac.

Wetland Hydrology

Description: Continuous groundwater level monitoring at a wetland boundary. Countywide, the ACD maintains a network of 23 wetland hydrology monitoring stations.

Purpose: To provide understanding of wetland hydrology, including the impacts of climate and land use. These data aid in delineation of nearby wetlands by documenting hydrologic trends including the timing, frequency, and duration of saturation.

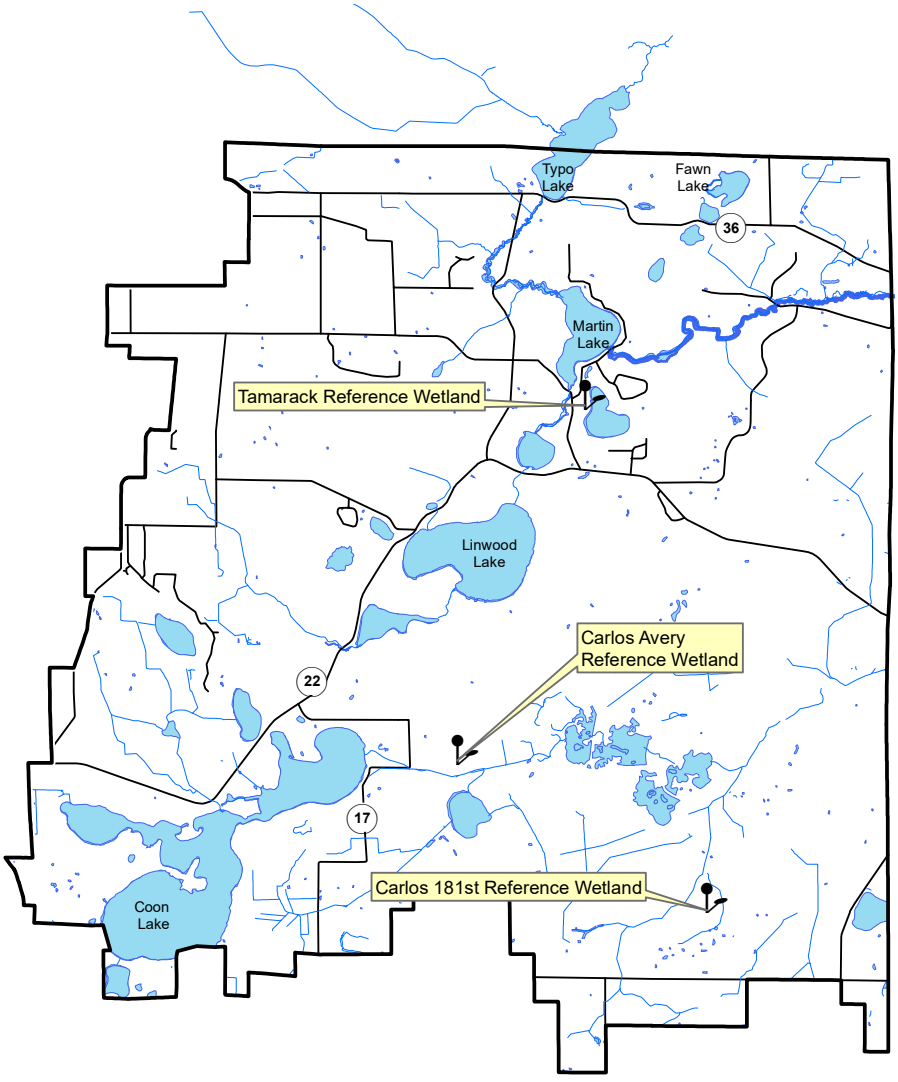
Locations: Carlos Avery Reference Wetland, Carlos Avery Wildlife Management Area, City of Columbus

Carlos 181st Reference Wetland, Carlos Avery Wildlife Management Area, City of Columbus

Tamarack Reference Wetland, Linwood Township

Results: See the following pages.

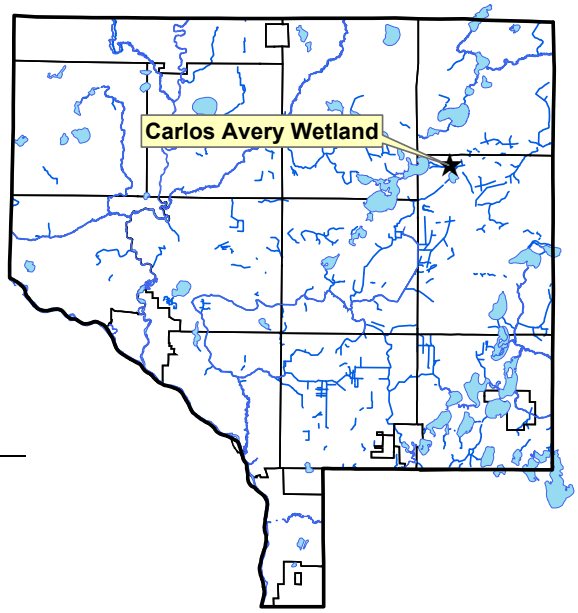
2019 Sunrise River Watershed Wetland Hydrology Monitoring Sites



Wetland Hydrology Monitoring

CARLOS AVERY REFERENCE WETLAND

Carlos Avery Wildlife Management Area, City of Columbus



Site Information

Monitored Since: 1997

Wetland Type: 3

Wetland Size: >300 acres

Isolated Basin? No

Connected to a Ditch? Yes

Soils at Well Location:

Horizon	Depth	Color	Texture	Redox
Oa	0-4	N2/0	Organic	-
Bg	4-25	10yr 5/2	Sandy Loam	25% 10yr 5/6 with organic streaking

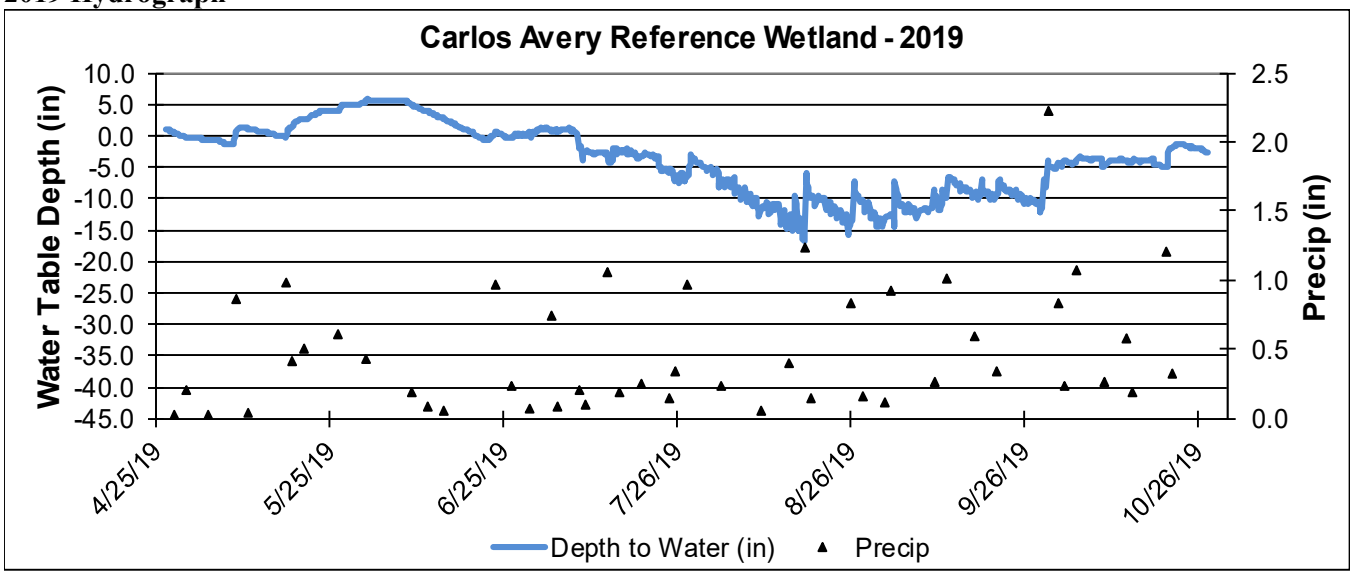
Surrounding Soils: Lino loamy fine sand

Vegetation at Well Location:

Scientific	Common	% Coverage
Phalaris arundinacea	Reed Canary Grass	80
Carex Spp	Sedge undiff.	40
Quercus macrocarpa	Bur Oak	40
Sagitaria latifolia	Broad-leaf Arrowhead	20
Cornus stolonifera	Red-osier Dogwood	20

Other Notes: This is a broad, expansive wetland within a state-owned wildlife management area. Cattails dominate within the wetland.

2019 Hydrograph



Wetland Hydrology Monitoring

CARLOS 181ST REFERENCE WETLAND

Carlos Avery Wildlife Management Area, City of Columbus

Site Information

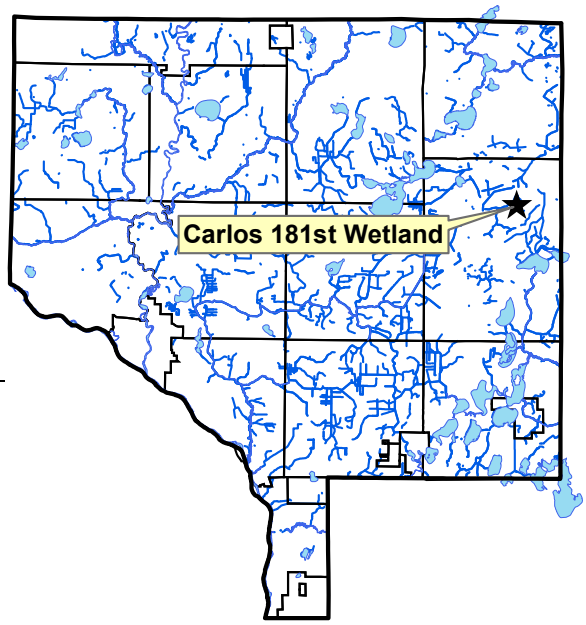
Monitored Since: 2006

Wetland Type: 2-3

Wetland Size: 3.9 acres (approx.)

Isolated Basin? Yes

Connected to a Ditch? Roadside swale only



Soils at Well Location:

Horizon	Depth	Color	Texture	Redox
Oa	0-3	N2/0	Sapric	-
A	3-10	N2/0	Mucky Fine Sandy Loam	-
Bg1	10-14	10yr 3/1	Fine Sandy Loam	-
Bg2	14-27	5Y 4/3	Fine Sandy Loam	-
Bg3	27-40	5y 4/2	Fine Sandy Loam	-

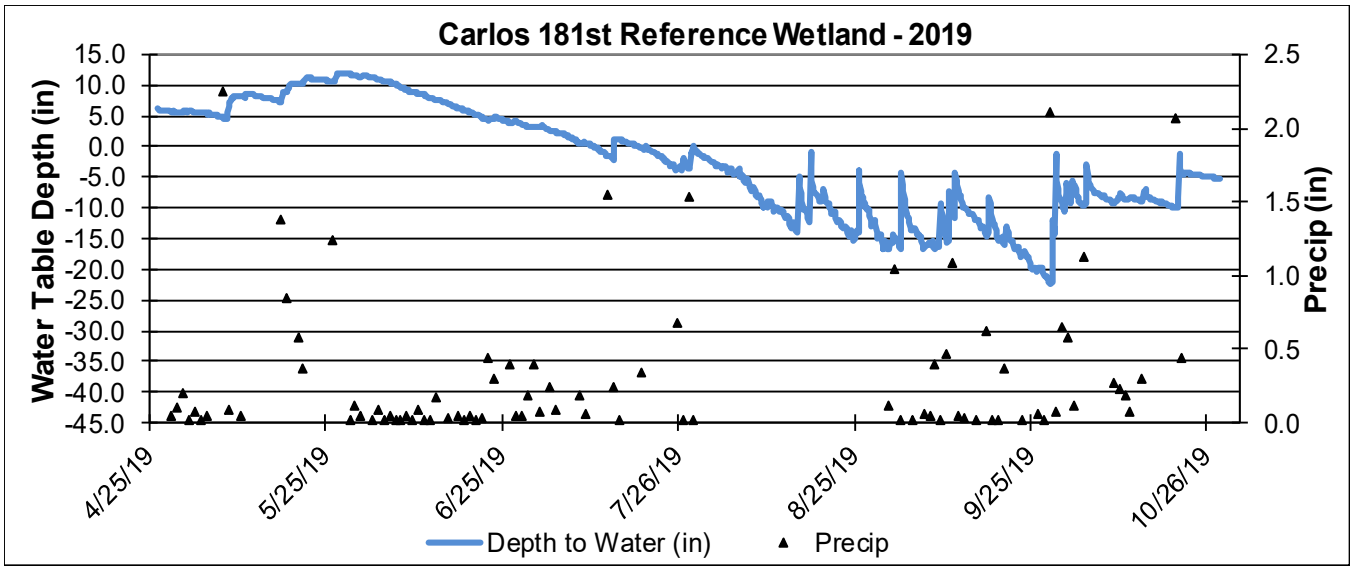
Surrounding Soils: Soderville fine sand

Vegetation at Well Location:

Scientific	Common	% Coverage
Phalaris arundinacea	Reed Canary Grass	100
Rhamnus frangula (S)	Glossy Buckthorn	40
Ulmus american (S)	American Elm	15
Populus tremulodies (T)	Quaking Aspen	10
Acer saccharum (T)	Silver Maple	10

Other Notes: The site is owned and managed by the MN DNR. Access is from 181st Avenue.

2019 Hydrograph



Wetland Hydrology Monitoring

TAMARACK REFERENCE WETLAND

Martin-Island-Linwood Regional Park, Linwood Township

Site Information

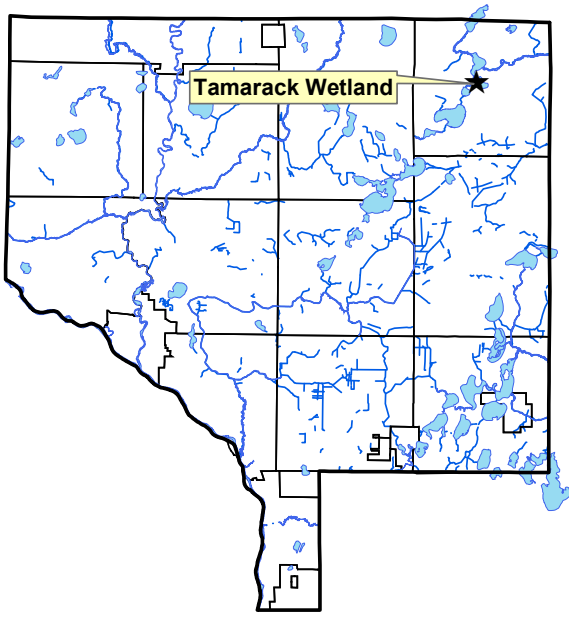
Monitored Since: 1999

Wetland Type: 6

Wetland Size: 1.9 acres (approx.)

Isolated Basin? Yes

Connected to a Ditch? No



Soils at Well Location:

Horizon	Depth	Color	Texture	Redox
A	0-6	N2/0	Mucky Sandy Loam	-
A2	6-21	10yr 2/1	Sandy Loam	-
AB	21-29	10yr3/2	Sandy Loam	-
Bg	29-40	2.5y5/3	Medium Sand	-

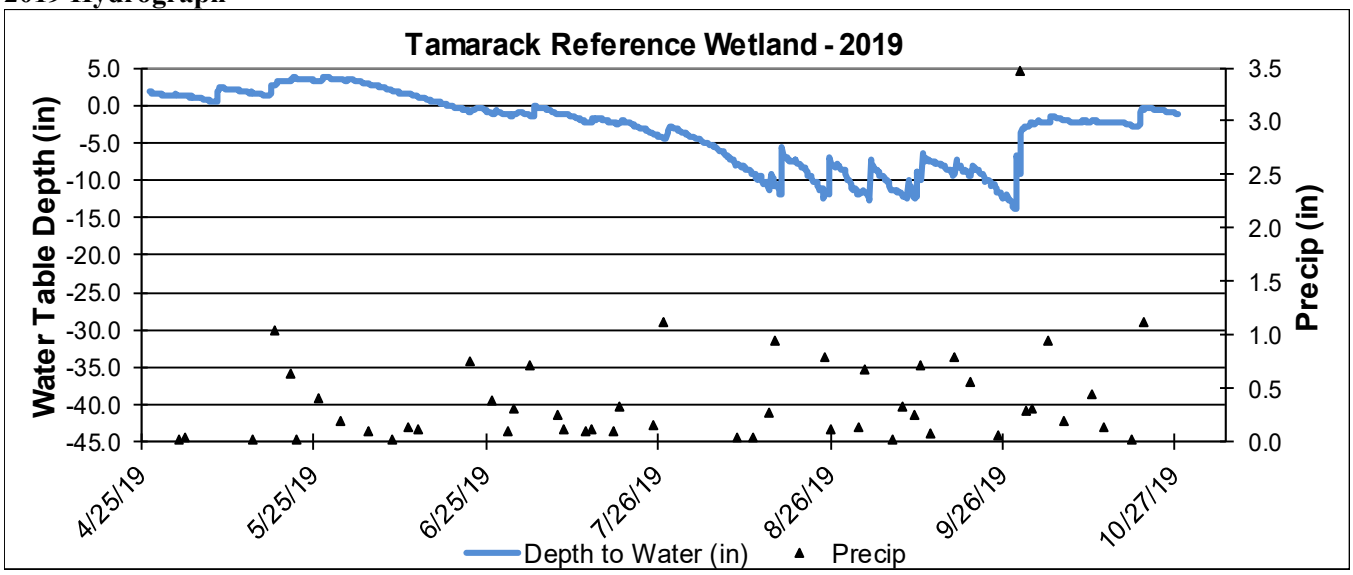
Surrounding Soils: Sartell fine sand

Vegetation at Well Location:

Scientific	Common	% Coverage
Rhamnus frangula	Common Buckthorn	70
Betula alleghaniensis	Yellow Birch	40
Impatiens capensis	Jewelweed	40
Phalaris arundinacea	Reed Canary Grass	40

Other Notes: The site is owned and managed by Anoka County Parks.

2019 Hydrograph



Water Quality Grant Fund

Description: The Sunrise River Watershed Management Organization (SRWMO) offers cost share grants to encourage projects that will benefit lake and stream water quality. These projects include lakeshore restorations, rain gardens, erosion correction, and others. These grants, administered by the ACD, offer cost sharing of the materials needed for a project. The landowner is responsible for some expenses. The ACD assists interested landowners with design, materials acquisition, installation, and maintenance.

Purpose: To improve water quality in area lakes, streams, and rivers.

Locations: Throughout the watershed.

Results: Projects reported in the year they are installed.

SRWMO Cost Share Fund Summary

2005 SRWMO Contribution	+	$1,000.00
2006 SRWMO Contribution	+	$1,000.00
2006 Expense - Coon Lake, Rogers Property Project	-	$ 570.57
2007 – no expenses or contributions		$ 0.00
2008 SRWMO Contribution	+	$2,000.00
2008 Expense - Martin Lake, Moos Property Project	-	$1,091.26
2009 SRWMO Contribution	+	$2,000.00
2010 SRWMO Contribution	+	$1,840.00
2011 SRWMO Contribution	+	$2,000.00
2012 SRWMO Contribution	+	$2,000.00
2012 Expense – Linwood Lake, Gustafson Property Project	-	$ 29.43
2012 Expense – Transfer to Martin-Typo Lakes Carp Barriers	-	$4,300.00
2013 – no expenses or contributions		$ 0.00
2014 SRWMO Contribution	+	$2,000.00
2015 SRWMO Contribution		$ 0.00
2016 SRWMO Contribution		$ 0.00
2016 Expense – Voss Rain Garden	-	$1,229.31
2017 Expense – Voss Rain Garden Plants	-	$ 654.50
2017 SRWMO Contribution	+	$1,000.00
2018 Surplus Funds Returned from ACD to SRWMO Gen Fund	-	$2,000.00
2018 Expense – Gunnink Coon Lakeshore	-	$1,148.40
2019 SRWMO Contribution		$ 0.00
Fund Balance		**$3,816.53**

Martin and Typo Lake Carp Removal Project

Description: Martin and Typo Lakes fail to meet state water quality standards due to excessive phosphorus, which fuels algae blooms. As a result, the lakes are often strongly green or brown, and the game fishery is depressed. Carp are a major cause of poor water quality in these lakes, diminishing their value for swimming, boating, and fishing. Efforts to manage and reduce carp are being undertaken to improve both water quality and the fishery.

In 2015-2016 carp barriers were installed at four strategic locations near the inlets and outlets of both lakes to prevent carp migration, overwintering, and spawning. In 2017-2019 carp were actively removed from the lakes. Additionally, a detailed assessment of the carp population, age structure, and spawning history is being completed. A long-term management plan for carp was prepared in 2019.

Purpose: To improve water quality in Typo and Martin Lakes, as well as downstream waterways.

Location: Typo and Martin Lakes

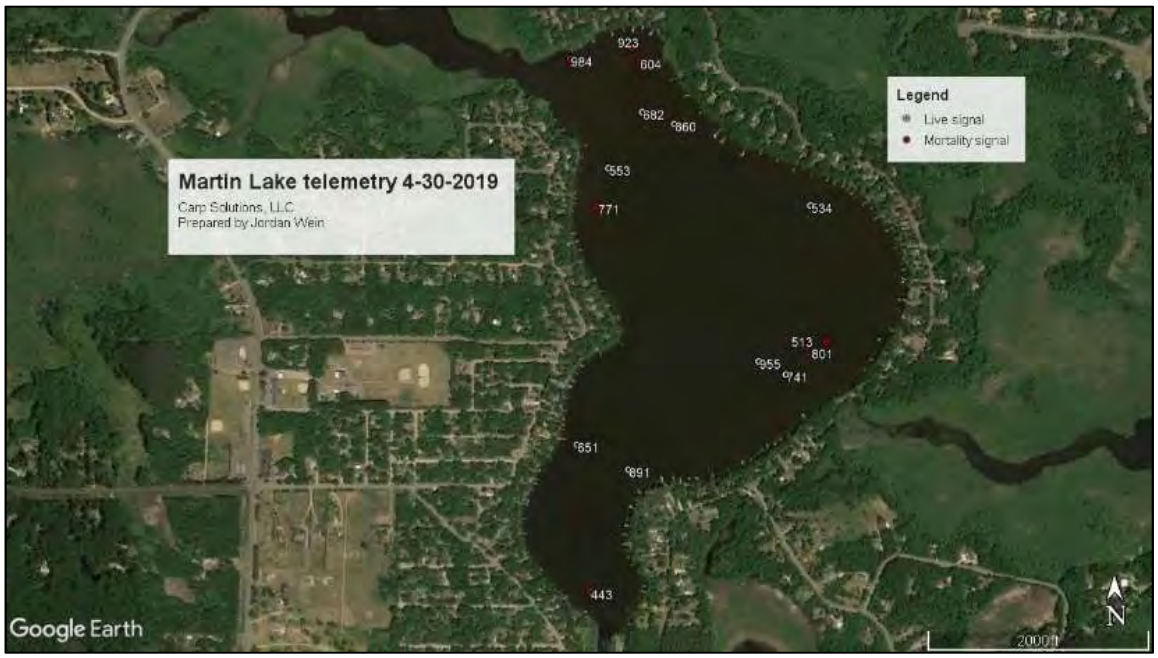
Results: In 2019 the following work was completed:

- Radio telemetry monitoring of carp in Typo and Martin Lakes.
- 1,863 carp were removed from Martin Lake and 999 carp were removed from Typo Lake. Total three-year total of carp removed from these lakes is now 11,879.
- Completed a long term carp management plan.
- Fully expended and closed the DNR Conservation Legacy Program grant for this project.
- Secured a new State Clean Water Fund grant to fund carp removals in 2020-2022, bringing these lakes, plus Linwood Lake, to carp density goals.
- Presented results at the annual Martin Lakers Association meeting.

Volunteers and Carp Solutions LLC staff with carp removed at Martin Lake. 40 carp were implanted with radio loggers, 20 each from Typo and Martin Lakes. Radio loggers will help track the schooling, feeding, and movement patterns of the carp to aide in future harvesting efforts.

A sprung box net in Typo Lake. Nets were set, baited, and sprung at multiple sites each in Typo and Martin Lake for a total of 24 nettings on 7 different days from June through October, 2019.

Martin and Typo Lake Carp Removal Project continued



Example Telemetry Map from April 30, 2019. Radio tagged carp are periodically located to help determine seasonal movements that can direct management, such as when and where to attempt carp harvests.

First place 2019 Martin Lakers Association boat parade float. The float celebrated carp removal to improve lake water quality.

Linwood Lake Carp Population Study

Description: Linwood Lake has relatively poor water quality, modestly worse than state water quality standards. The lake often has a green or brown tinge to it. Carp are a major cause of poor water quality in Typo and Martin Lake, and the goal of this study was to determine how much of a role carp play in causing poor water quality in Linwood Lake.

Purpose: Estimate carp abundance and population age structure; identify likely carp nursery sites; map carp movement using radio telemetry

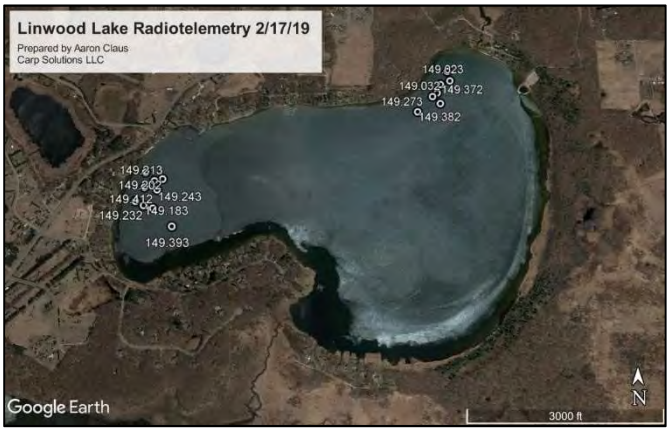
Location: Linwood Lake

Results: A "Linwood Lake Carp Management Feasibility Assessment" was completed by Carp Solutions LLC and the Anoka Conservation District. Work included electrofishing surveys to determine carp populations, box netting surveys for young carp in Linwood and Boot Lakes, determining the age structure and recruitment history of the carp population, radio tracking 20 tagged carp, and a cost-benefit comparison of options available to improve lake water quality. The resulting data was used to develop management recommendations.

In summary, the study found that Linwood Lake has a carp density of 98 lbs/ac, which is only modestly above the threshold of 89 lbs/ac, above which carp significantly affect lake health. The carp population is relatively young; 56% are age 7 or younger. Because the population is near goals but seems prime to increase substantially, preventive carp removals were recommended. This carp management feasibility study was used to successfully apply for a State Clean Water Fund to do the recommended management.

The full feasibility study report is available from the Anoka Conservation District.

Surgical implantation of a radio tracking device in a carp at Linwood Lake.



Map of carp radio tracking showing aggregations in Linwood Lake.

Annual Education Publication

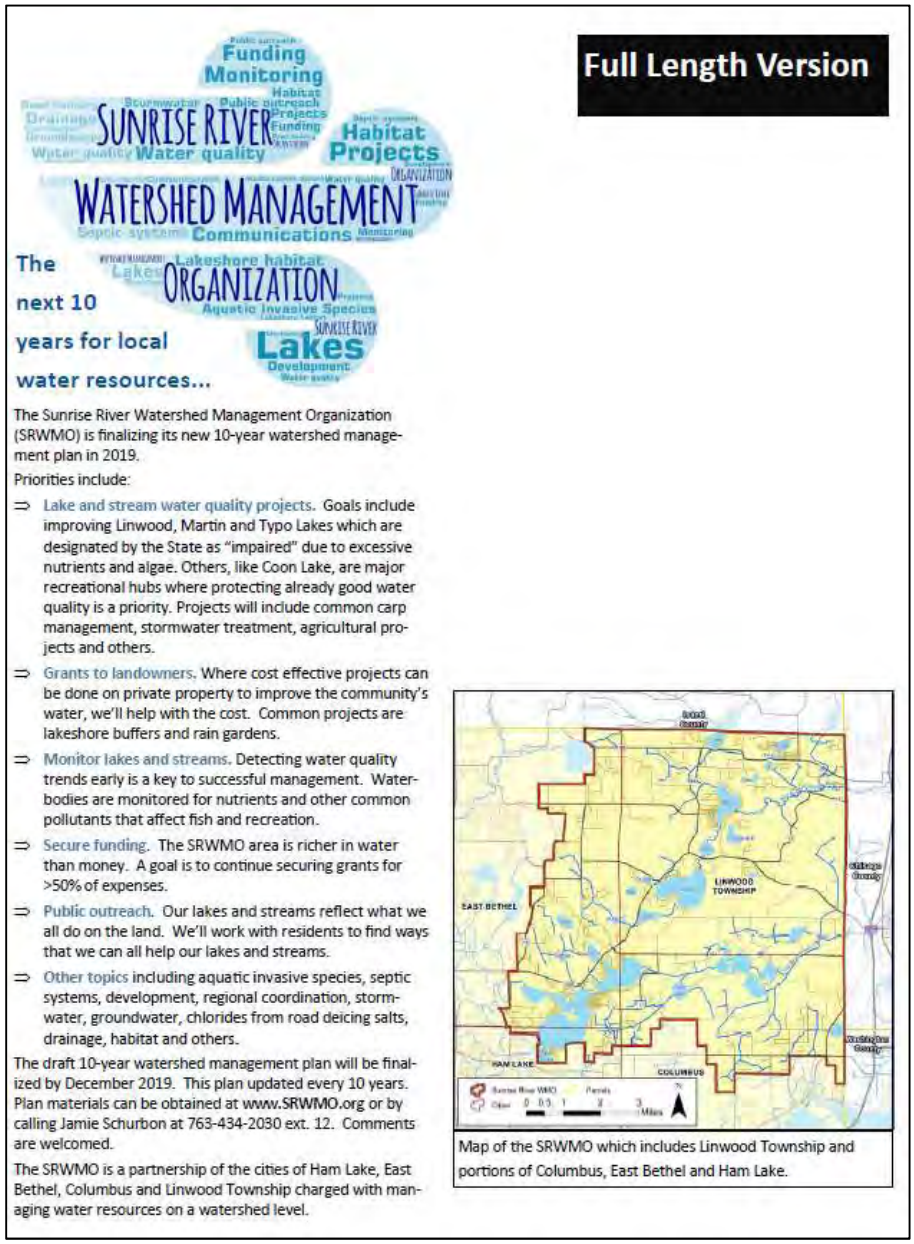
Description: An annual newsletter article about the SRWMO is required by MN Rules 8410.010 subpart 4, and included in the SRWMO Watershed Management Plan.

Purpose: To improve citizen awareness of the SRWMO, its programs, accomplishments and water quality issues.

Location: Watershed-wide

Results: In 2019 the SRWMO contracted with the ACD to prepare its annual education publication. This year's newsletter was used to update the public on the priorities in the then-draft SRWMO Watershed Management Plan. The article shown below or an abbreviated version was published in community newsletters.

Education Material Produced for 2019



Map of the SRWMO which includes Linwood Township and portions of Columbus, East Bethel and Ham Lake.

SRWMO Website

Description: The Sunrise River Watershed Management Organization (SRWMO) contracts the Anoka Conservation District (ACD) to maintain a website about the SRWMO and the Sunrise River watershed.

Purpose: To increase awareness of the SRWMO and its programs. The website also provides tools and information that helps users better understand water resources issues in the area. The website serves as the SRWMO's alternative to a state-mandated newsletter.

Location: www.SRWMO.org

Results: In 2019 routine SRWMO website updates were performed. The new website includes:

- Directory of board members,
- Meeting minutes and agendas,
- Watershed management plan and annual reports,
- Descriptions of work that the organization is directing,
- Highlighted projects,
- Informational videos,
- Maps of the URRWMO.

The website is regularly updated throughout the year.

SRMWO Website Homepage

Grant Searches and Applications

Description: The Anoka Conservation District (ACD) partners with the SRWMO for the preparation of grant applications. Several projects in the SRWMO Watershed Management Plan need outside funding in order to be accomplished.

Purpose: To provide funding for high priority local projects that benefit water resources.

Results: In 2019 the SRWMO pursued several grants and positioned itself for others. They included:

1. **A competitive State Clean Water Fund grant was secured for $148,000 for carp management in Linwood, Martin and Typo Lakes.** The Anoka Conservation District was the grant applicant and fiscal agent. The SRWMO is a critical partner and the largest source of grant matching funds.
2. **A MPCA grant for $40,000 was secured to fix up failing septic systems** for low-income homeowners. The Anoka Conservation District holds this grant, which must be used county-wide. At least one septic system in the SRWMO at Martin Lake is anticipated to be fixed using this grant.
3. **A MPCA grant for $5,102 to monitor water quality in the West Branch of the Sunrise River at County Road 77.** Monitoring this site is a priority for the SRWMO because it is one of two major discharge points from the SRWMO.
4. **The SRWMO positioned itself for 2020 Watershed Based Implementation Funds**. This non-competitive State grant funds projects in the SRWMO Watershed Management Plan, the Lower St. Croix One Watershed One Plan (1W1P) and a few other eligible plans. The SRWMO positioned itself for these funds by participating in the 1W1P process and updating the SRWMO Watershed Management Plan. Funding amounts will be decided in 2020 and every two years thereafter.

Since 2014, the following grants have been secured for SRWMO projects though the assistance of the Anoka Conservation District:

2014 Martin and Typo Lake Carp Barriers, site 2	MN DNR CLP	$ 35,770
2014 Martin and Typo Lake Carp Barriers, sites 1,3,4	MN DNR CLP	$399,983
2014 Coon Lake Area Stormwater Retrofits	BWSR CWF	$ 42,987
2015 Ditch 20 Wetland Restoration Feasibility Study	BWSR CWF	$ 72,400
2017 Martin and Typo Lake Carp Harvests	MN DNR CLP	$ 99,000
2017 Septic System Fix Up Fund*	MPCA	$ 23,040
2018 Watershed Based Funding	BWSR WBF	$156,750
2018 Septic System Fix Up Fund*	MPCA	$ 27,055
2019 Septic System Fix Up Fund*	MPCA	$ TBD
2019-20 Surface Water Monitoring Grant, Sunrise R	MPCA	$ 5,102
2019 Sunrise River Chain of Lakes Carp Mgmt	BWSR CWF	$148,000
	TOTAL	$1,010,087

*Septic system fix up funds are available county-wide. Only the amount used in the SRWMO is reported.

SRWMO Annual Report to BWSR and State Auditor

Description: The Sunrise River Watershed Management Organization (SRWMO) is required by law to submit an annual report to the Minnesota Board of Water and Soil Resources (BWSR), the state agency with oversight authorities. This report consists of an up-to-date listing of SRWMO Board members, activities related to implementing the SRWMO Watershed Management Plan, the status of municipal water plans, financial summaries, and other work results. The SRWMO bolsters the content of this report beyond the statutory requirements so that it also serves as a comprehensive annual report to SRWMO member communities. The report is due annually 120 days after the end of the SRWMO's fiscal year (April 30th).

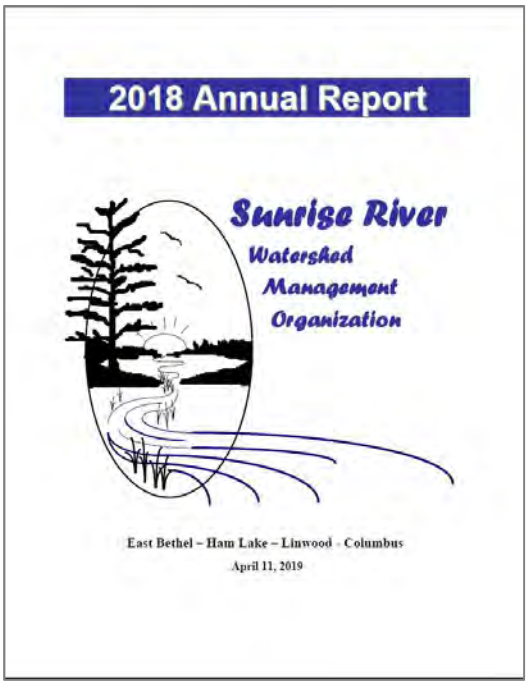
The SRWMO must also submit an annual financial report to the State Auditor. They accept unaudited financial reports for financial districts with annual revenues less than $185,000.

Purpose: To document progress toward implementing the SRWMO Watershed Management Plan and to provide transparency of government operations.

Locations: Watershed-wide

Results: Anoka Conservation District (ACD) assisted the SRWMO with preparation of an annual Sunrise River WMO Annual Report. The ACD drafted the report and cover letter. After SRWMO Board review the final draft was forwarded to BWSR. A sufficient number of copies of the report were sent to each member community to ensure that each city council person and town board member would receive a copy. The report is available to the public on the SRWMO website.

Cover



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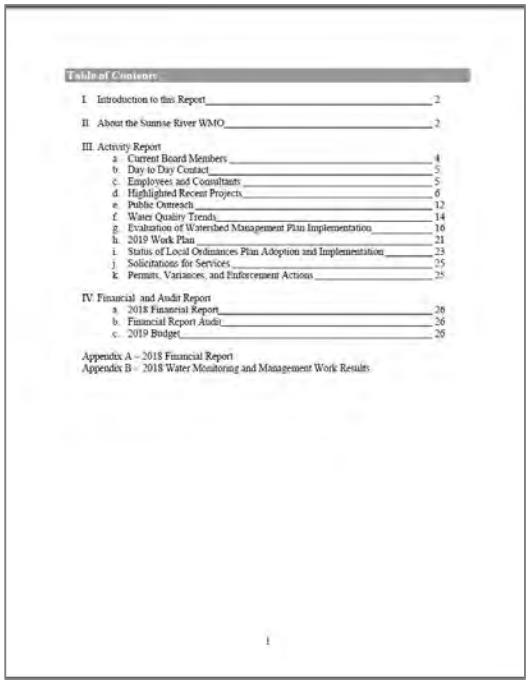

On-call Administrative Services

Description: The Anoka Conservation District Watershed Projects Manager provides limited, on-call administrative assistance to the SRWMO. Tasks are limited to those defined in a contractual agreement.

Purpose: To ensure day-to-day operations of the SRWMO are attended to between regular meetings.

Results: In 2019 administrative assistance provided to the SRWMO by the Anoka Conservation District included:

- Prepared board meeting packets. Facilitated meetings and meeting planning.
- Fielded questions from board members on a variety of issues affecting the SRWMO.
- Represented the SRWMO at staff level meetings of the Lower St. Croix One Watershed One Plan.
- Prepared a draft 2020 budget for the SRWMO and subsequent revisions.
- Addressed questions arising from the City of Ham Lake's desire to modify how costs of the SRWMO are split amongst member communities.
- Reviewed all four SRWMO member communities' local water plans and facilitated approvals by the SRWMO.
- Prepared requests for proposals for 2020 water monitoring and management.
- Fielded permitting questions from the county highway department and builders.
- Prepared a display for community events staffed by the SRWMO board.
- Reviewed and edited meeting minutes.
- Wrote meeting minutes when the Recording Secretary was absent.

Financial Summary

The ACD accounting is organized by program and not by customer. This allows us to track all of the labor, materials, and overhead expenses for a program. We do not, however, know specifically which expenses are attributed to monitoring which sites. To enable reporting of expenses for monitoring conducted in a specific watershed, we divide the total program cost by the number of sites monitored to determine an annual cost per site. We then multiply the cost per site by the number of sites monitored for a customer.

Sunrise River Watershed 2019 Financial Summary

To be added…

Recommendations

- **Implement the SRWMO Waterhed Management Plan that was approved in 2019.** The plan reflects the latest science and includes schedules for various projects.
- **Continue engaging in the Lower St. Croix One Watershed, One Plan process** to ensure SRMWO priorities are reflected. This is necessary to ensure access to future Watershed Based Funding grants.
- **Continue carp removals at Martin and Typo Lakes and begin carp management at Linwood Lake.** A State Clean Water Fund grant will support this work in 2020-2022.
- **Collaborate with the Anoka County Outreach Coordinator.** This new position in 2018 seeks efficiency and consistent messaging across many cities and natural resources agencies.
- **Continue installation of stormwater retrofits around Coon and Martin Lakes** where completed studies have identified and ranked projects.
- **Update the SRWMO joint powers agreement** to address out of date material and the lack of a dispute resolution mechanism.
- **Continue prioritizing strategic water quality monitoring** to assess baseline conditions, diagnose problems and determine the effectiveness of new water quality projects. The data help with strategically implementing grant funds and local funds to provide the largest water quality benefit possible at the lowest cost.
- **Create a new SRWMO display for use at community events.** This projects is planned and budgeted for in 2020.
- **Encourage development of septic system point of sale ordinances.** Columbus has such an ordinance. East Bethel and Linwood are developing it in 2020 with assistance from the Anoka Conservation District. Ham Lake is not interested at this time.
- **Promote Septic System Fix Up Grants to landowners,** particularly in shoreland areas.
- **Bolster lakeshore landscaping education efforts.** The SRWMO Watershed Management Plan sets a goal of three lakeshore restorations per year. Lakeshores were mapped in 2019 by the Anoka Conservation District so that future outreach can be targeted.