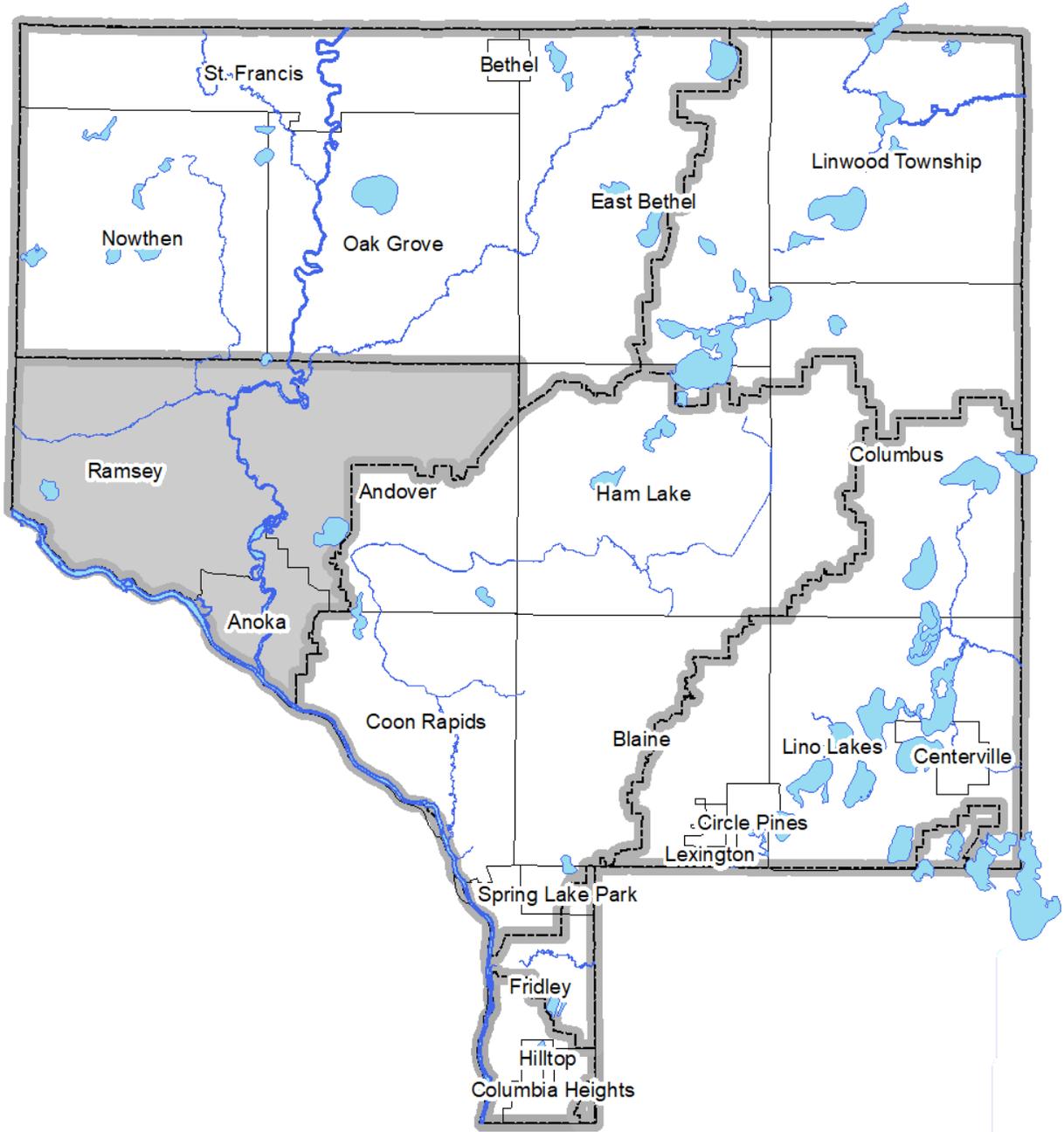


Excerpt from the 2022 Water Almanac

Chapter 4: Lower Rum River Watershed



Prepared by the Anoka Conservation District

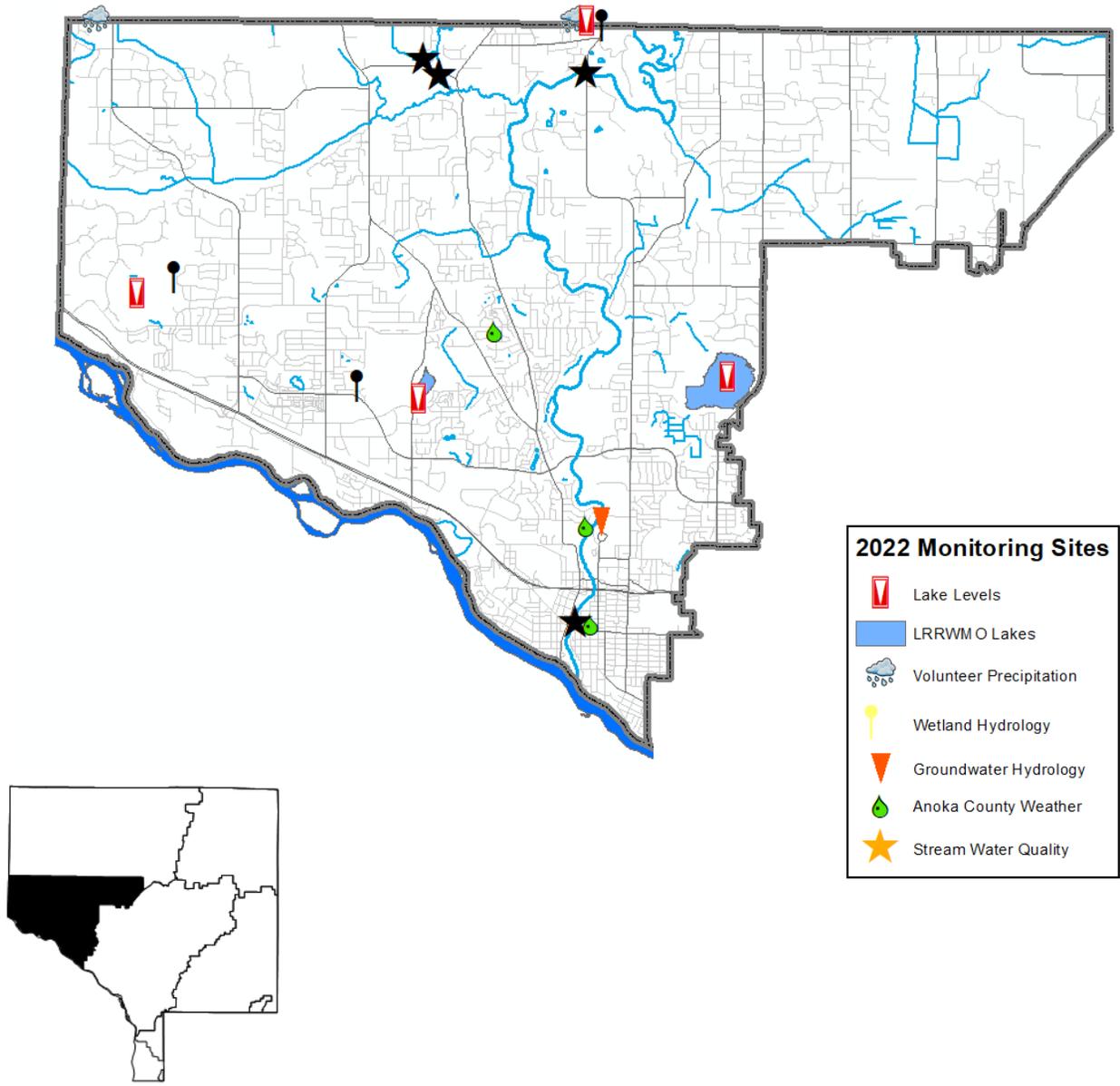
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Recommendations

- **Complete planned subwatershed analyses** in 2023 that will identify and rank water quality projects in certain areas draining to the Rum and Mississippi Rivers. Study funding is 2021 Rum Metro Watershed Based Implementation Funding (WBIF). Subsequently, install projects identified in these studies or earlier studies.
- **Continue to install projects identified in the stormwater retrofit studies.** Projects have been identified and ranked that would improve stormwater runoff before it is discharged to the Rum or Mississippi River.
- **Continue to collaborate with ACD on riverbank stabilizations.** ACD has secured large grants. Local matching funding is needed and the projects are a priority in the LRRWMO Plan.
- **Install additional stormwater treatment, when appropriate, during street projects.**
- **Track activities of the Rum River Watershed Partnership.** That group developed a comprehensive plan for the watershed through the One Watershed, One Plan (1W1P) process and receives >\$1M in state funds biennially to implement it. The LRRWMO is not a member, but may wish to track activities in the upper watershed or collaborate. Project types identified in the LRRWMO area include stormwater retrofits, riverbank stabilization, public outreach, and others.
- **Maintain or reduce Rum River phosphorus.** Phosphorus levels are close to state water quality standards. It may be appropriate to review development and stormwater discharge ordinances to ensure phosphorus does not increase in coming years.
- **Implement groundwater conservation measures** throughout the watershed and promote them metro-wide. Promote sealing of unused wells and regular well water testing. Depletion of shallow groundwater is a concern region-wide.
- **Promote Septic System Fix-up Grants to landowners,** particularly in shoreland areas. Grants are for low-income households
- **Continue to prioritize water quality monitoring** at a frequency sufficient to detect baseline conditions and to be able to be proactive detecting any changes and trends.
- **Continue chloride sampling at all sites on a rotating basis.** Chloride can have such a profound impact on aquatic life and drinking water, continuing to periodically include it in the monitoring regime is prudent.

2022 Water Monitoring Sites: Lower Rum River Watershed



Lake Level Monitoring

Partners: LRRWMO, ACD, MNDNR, Volunteers

Description: Weekly water level monitoring was conducted using staff gages installed in each lake. 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 sets are useful for regulatory, building/development, and lake management decisions.

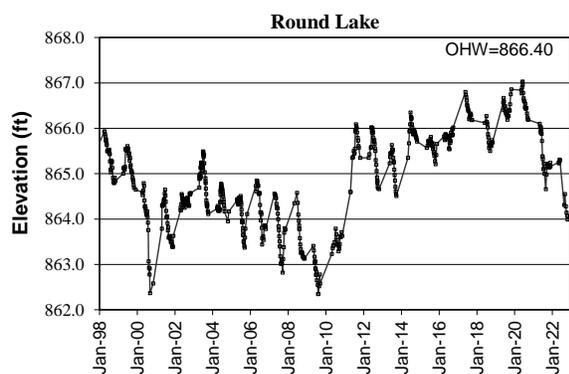
Locations: Round, Rogers, Itasca, and Sunfish/Grass Lakes

Results: Lake levels were measured by volunteers throughout the 2022 open water season. Staff gages were installed by the Anoka Conservation District and surveyed by the MN DNR. 2022 was well below average for precipitation and Anoka County was in a periodic state of drought, all lakes recorded lower water levels on average than in 2021.

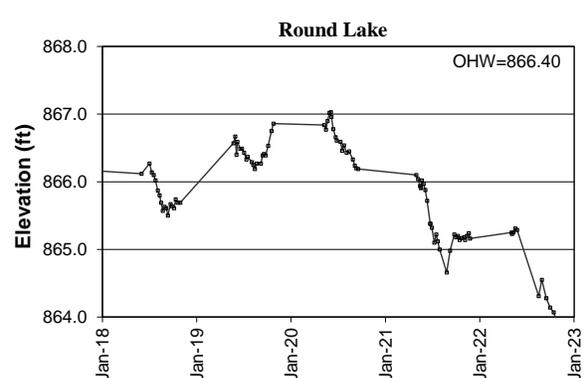
Water levels on all lakes were well below the lake levels that were recorded over the last five years. Round lake reached its lowest water level since 2010, including the lowest average and the lowest maximum water level. This year was similar to the extremely low water levels observed on Round Lake during years 2000-2010. Water levels on Sunfish/Grass and Lake Itasca also reached their lowest level since 2010. Water levels in Lake Itasca and Rogers Lake, receded to the point where excessive vegetation made it difficult to accurately take readings were no longer possible to obtain. Water levels on Rogers Lake were only recorded for the month of May and the last reading collected for the year on Lake Itasca was in July, 2022.

The Ordinary High Water Level (OHW) is listed for each lake on the corresponding graphs below and any work that is to occur below this elevation a DNR permit is required.

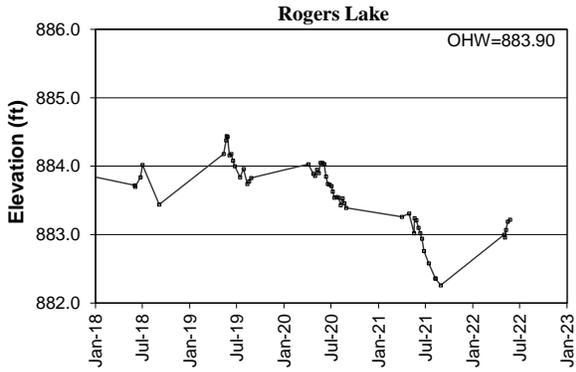
Round Lake Levels – last 25 years



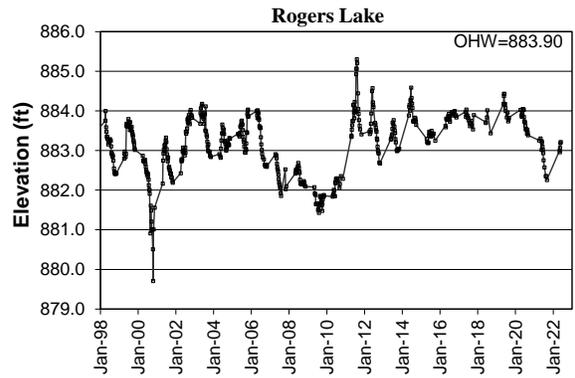
Round Lake Levels – last 5 years



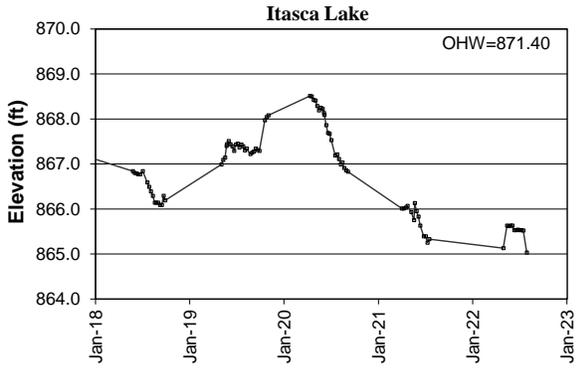
Rogers Lake Levels – last 5 years



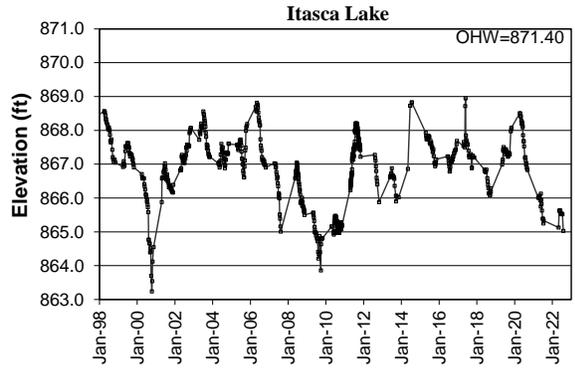
Rogers Lake Levels – last 25 years



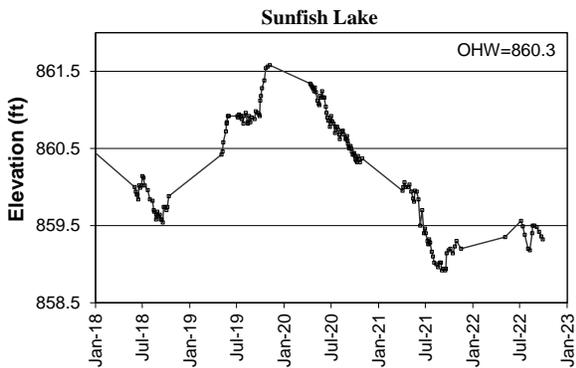
Itasca Lake Levels – last 5 years



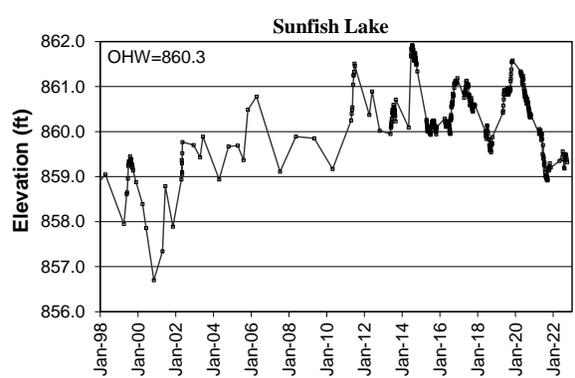
Lake Itasca Levels – last 25 years



Sunfish/Grass Levels – last 5 years



Sunfish/Grass Levels – last 25



Lake	Year	Average	Min	Max
Round	2018	865.80	865.50	866.27
	2019	866.45	866.19	866.86
	2020	866.61	866.19	867.03
	2021	865.41	864.66	866.10
	2022	864.70	863.99	865.31

Lake	Year	Average	Min	Max
Sunfish/ Grass	2018	859.81	860.14	860.14
	2019	860.94	860.42	861.58
	2020	860.80	860.32	861.34
	2021	859.42	858.92	860.06
	2022	859.40	859.18	859.56

Lake	Year	Average	Min	Max
Itasca	2018	866.45	866.09	866.84
	2019	867.41	866.99	868.08
	2020	867.72	866.83	868.51
	2021	865.76	865.25	866.13
	2022	865.49	865.03	865.63

Lake	Year	Average	Min	Max
Rogers	2018	883.74	883.44	884.02
	2019	884.08	883.74	884.44
	2020	883.76	883.39	884.05
	2021	882.88	882.26	883.31
	2022	883.09	882.96	883.22

Lake Water Quality

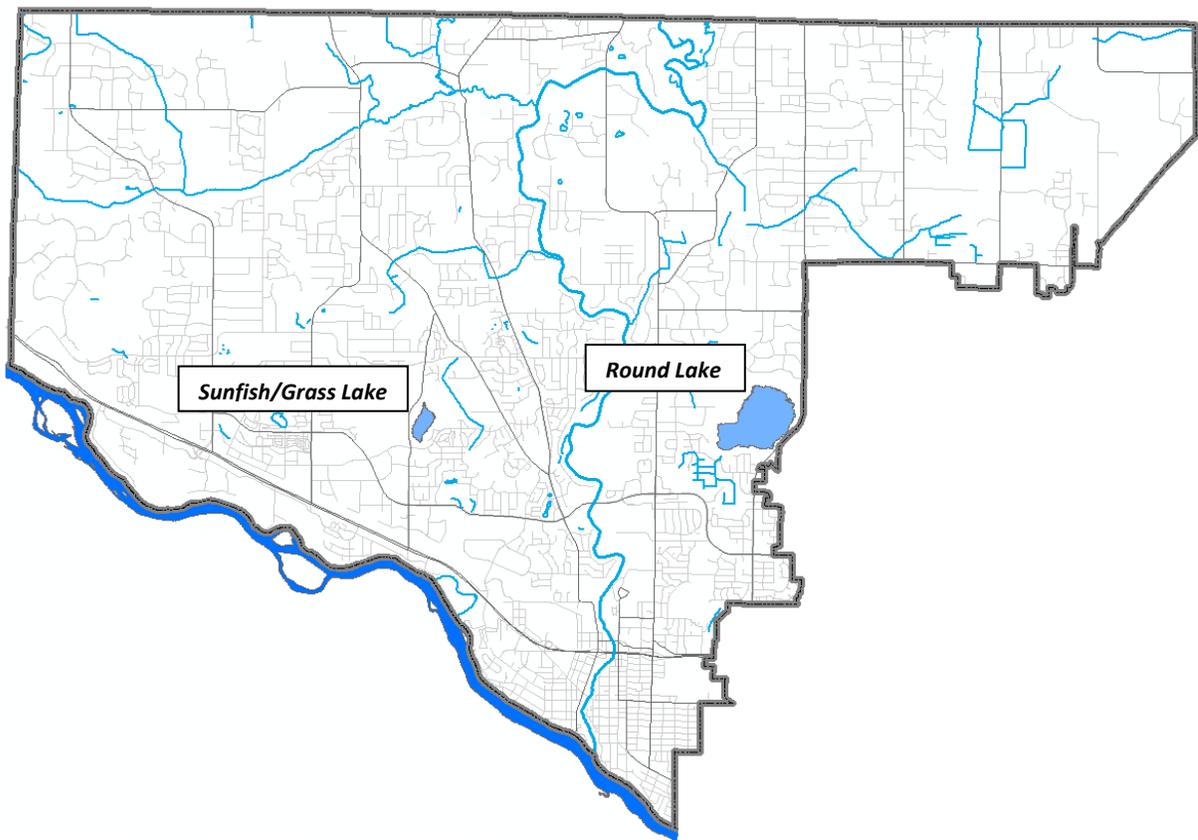
Partners: ACD and LRRWMO

Description: Lake water quality monitoring was conducted ten-times between May - September, approximately every two weeks. The monitoring parameters includes total phosphorus, chlorophyll-a, Secchi transparency, dissolved oxygen, turbidity, temperature, specific conductance, pH, and salinity.

Location: Sunfish/Grass Lake and Round Lake

Results: Detailed data for each lake are provided on the following pages, including a summary of historical conditions and trend analysis. Previous years' data are available from the Minnesota Pollution Control Agency's (MPCA) electronic data access (EDA) website or on ACD's online data base (<https://maps.barr.com/Anoka/Home/Chart/>). Refer to Chapter 1 for additional information on lake dynamics and interpreting the data.

2022 LRRWMO Lake Water Quality Monitoring Site



Round Lake

Lake ID # 02-0089

Background

Round Lake is located in southwest Anoka County. It has a surface area of 220 acres and maximum depth of 19 feet, though the majority of the lake is less than 4 feet deep. The lake is surrounded by cattails and has submerged vegetation interspersed throughout the lake basin. This lake has a small watershed and is not subject to many of the negative impacts that occur on more developed lakes. Public access is available on the lake's southeast side but the access is an unmaintained dirt ramp and is not heavily used.

Recreation is minimal primarily consisting of canoeing, kayaking, and wintertime fishing.

2022 Results

In 2022, Round Lake's water quality was below average compared with other lakes in this region (NCHF Ecoregion) receiving an overall C+ letter grade. This was a sharp decline from the A letter grade the lake received when last monitored in 2019, and other A-grade monitoring years (2012, 2016, 2019). The average concentrations for TP (33.7 µg/L) and Cl-a (14.4 µg/L) increased from 2019 levels but were both still below the state standards for shallow lakes (60 µg/L and 20µg/L respectively). Average Secchi transparency in 2022 was 6.6 feet which is less than the historical average for the lake (8.3 feet) and 3.0 feet less than the average transparency recorded in 2019. Phosphorus and algae concentrations were fairly consistent throughout the season but the worst results in 2022 were recorded at the end of September with daily readings being 82 µg/L for TP, 62.6 µg/L for Cl-a, and a Secchi reading of 4.6 feet. This individual day of sampling was the primary driver of elevated seasonal averages and the poorer score the lake received. When these results are excluded, water quality in Round Lake scores much better and is similar to previous years. Water levels on Round Lake were the lowest on record since 2012 and has likely influenced the subpar water quality results observed in 2022.

Trend Analysis

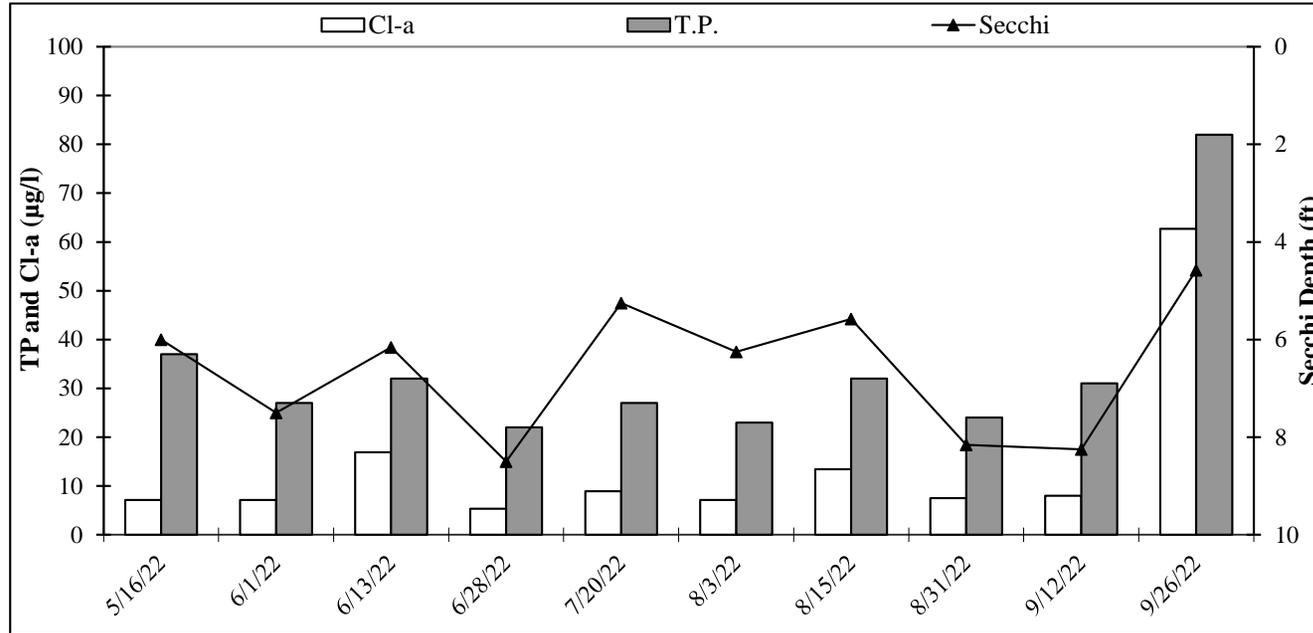
Thirteen years of water quality monitoring has been conducted by the Anoka Conservation District (1998-'00, '03, '05, '07, and '09-'10, '12, '14, '16, '19, '22). When MANOVA with response variables TP, Cl-a, and Secchi depth is run including all monitoring years through 2022, no significant water quality changes are apparent ($F_{3,11} = 0.42$, $p = 0.73$). We examined each of the response variables separately using a one-way ANOVA to gain insight into which parameters could be influencing current water quality conditions. TP, Cl-a, and Secchi show no significant improvement trends. Fluctuating water levels in the lake are likely main drivers of elevated TP and Cl-a concentrations due to dilution factors.

Discussion

Poorer water quality at Round Lake appears to be correlated with lower water levels. In the mid-1990's through 2010, water levels on Round Lake decreased by more than 4-feet and during that same time period there was statistically significant trend of declining water quality. As higher water returned from 2012 through 2021, water quality was better. In late 2022 lower water levels returned and with it, poorer water quality. Internal nutrient sources and wind-driven sediment mixing are likely contributors of elevated phosphorus levels during low water. Staff have also anecdotally noted a visible reduction of chara (a plant-like algae) during prolonged low water. Chara normally carpets the basin bottom and can minimize wind mixing of sediment. There have been concerns that surficial groundwater levels are being negatively impacted by a variety of causes including irrigation, residential groundwater use, and stormwater management. Conservation of groundwater is a regional and local priority.

ROUND LAKE

2022 Results



2022 Medians

pH		8.39
Specific Conductivity	mS/cm	0.34
Turbidity	NTU	3.30
D.O.	mg/l	8.50
D.O.	%	97.60
Temp.	°F	72.64
Salinity	%	0.16
Cl-a	µg/L	7.75
T.P.	µg/l	29.00
Secchi	ft	6.21

Round Lake

2022 Water Quality Data

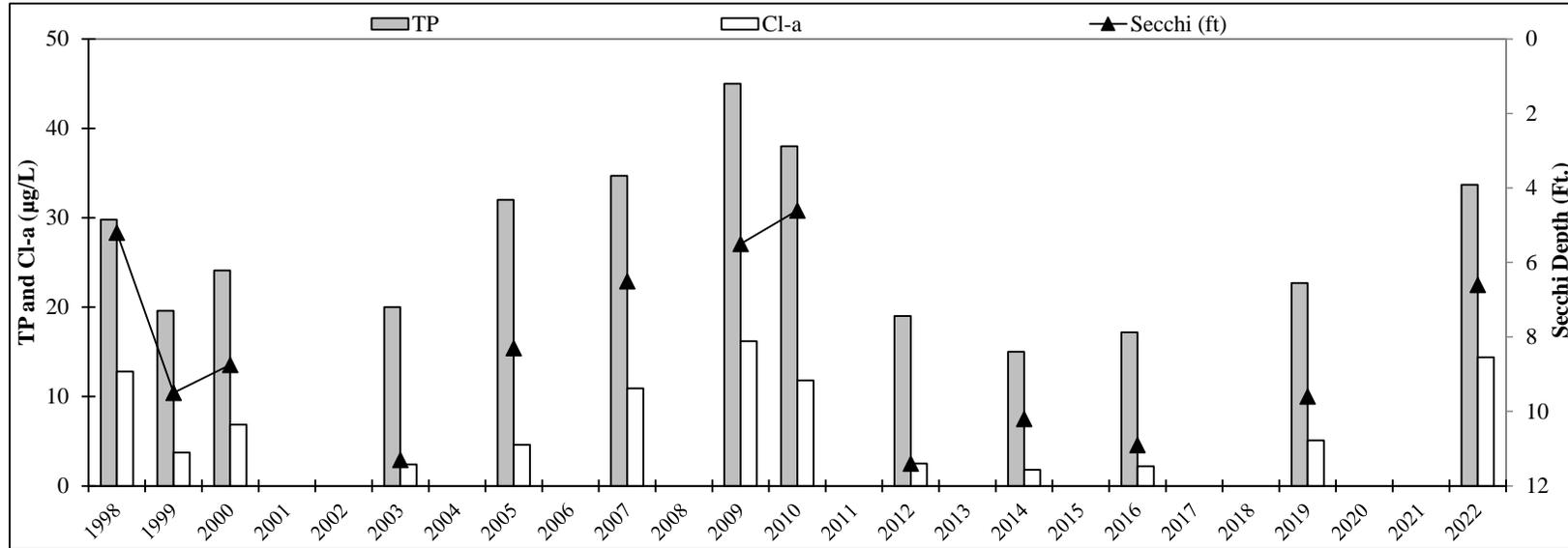
Date:	5/16/2022	6/1/2022	6/13/2022	6/28/2022	7/20/2022	8/3/2022	8/15/2022	8/31/2022	9/12/2022	9/26/2022
Time:	17:30	10:15	12:45	12:40	11:35	9:50	11:40	9:50	10:25	9:45

	Units	R.L.*	5/16/22	6/1/22	6/13/22	6/28/22	7/20/22	8/3/22	8/15/22	8/31/22	9/12/22	9/26/22	Average	Min	Max
pH		0.1	8.14	7.87	8.21	8.49	8.88	9.05	8.29	8.79	7.87	9.94	8.55	7.87	9.94
Specific Conductivity	mS/cm	0.01	0.395	0.398	0.340	0.304	0.314	0.314	0.351	0.321	0.335	0.349	0.342	0.304	0.398
Turbidity	FNRU	1	8.20	0.00	3.30	3.30	2.10	4.30	4.40	0.20	6.70	12.20	4	0	12
D.O.	mg/l	0.01	9.66	8.35	9.32	9.69	6.13	7.94	7.83	8.64	6.81	9.08	8.35	6.13	9.69
D.O.	%	1	111.4	93.4	115.9	117.4	78.6	101.4	92.1	103.6	78.5	93.8	98.6	78.5	117.4
Temp.	°C	0.1	20.91	18.63	23.04	23.23	25.63	25.71	22.33	22.83	21.11	15.57	21.9	15.6	25.7
Temp.	°F	0.1	69.6	65.5	73.5	73.8	78.1	78.3	72.2	73.1	70.0	60.0	71.4	60.0	78.3
Salinity	%	0.01	0.19	0.19	0.16	0.15	0.15	0.15	0.17	0.15	0.16	0.17	0.16	0.15	0.19
Cl-a	mg/m³	0.5	7.1	7.1	16.9	5.3	8.9	7.1	13.4	7.5	8.0	62.7	14.4	5.3	62.7
T.P.	mg/l	0.010	0.037	0.027	0.032	0.022	0.027	0.023	0.032	0.024	0.031	0.082	0.034	0.022	0.082
T.P.	ug/l	10	37	27	32	22	27	23	32	24	31	82	33.7	22	82
Secchi	ft	0.1	6.00	7.50	6.16	8.50	5.25	6.25	5.6	8.2	8.3	4.6	6.6	4.6	8.5
Physical			4	3.0	4.0	3.0	2.0	3.0	3.0	3.0	3.0	3.0	3.1	2.0	4.0
Recreational			4	3.0	4.0	4.0	4.0	2.0	2.0	2.0	2.0	3.0	2.8	2.0	4.0

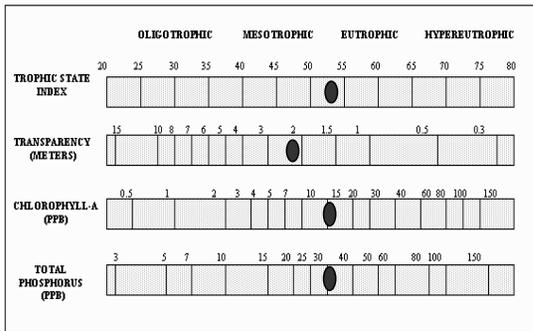
*reporting limit

ROUND LAKE

2022 Results



Carlson's Trophic State Index



Grade	Percentile	TP (µg/L)	Cl-a (µg/L)	Secchi Disk (m)
A	< 10	<23	<10	>3.0
B	10 - 30	23 - 32	10 - 20	2.2 - 3.0
C	30 - 70	32 - 68	20 - 48	1.2 - 2.2
D	70 - 90	68 - 152	48 - 77	0.7 - 1.2
F	> 90	> 152	> 77	< 0.7

Year	TP	Cl-a	Secchi	Overall
1998	B	B	C	B
1999	A	A	B	A
2000	B	A	B	B
2003	A	A	A	A
2005	B	A	B	B
2007	C	B+	C	C
2009	C	B	C	C
2010	C	B	C	C
2012	A	A	A-	A
2014	A	A	A	A
2016	A	A	A	A
2019	A	A	B	A
2022	C+	B	C	B+
State Standards	60 ug/L	20 ug/L	>3.3 ft	

Sunfish/Grass Lake

LAKE ID #02-0113

Background

Sunfish/Grass Lake is located in the City of Ramsey in southwestern Anoka County. It is a small, shallow lake with a surface area of 35 acres and a max depth of approximately 5-feet. The lake does not have a public boat landing, but there is a small lake access within Sunfish Park, located on the west side of the lake. This access is designed specifically for canoes and kayaks. Boat rentals are available to the public. Sunfish Park also has a large floating fishing pier. Due to the shallow lake depth and high water transparency, the native aquatic vegetation is abundant and diverse including a variety of floating leaf, emergent, and submergent aquatic vegetation. A small portion of the shoreline is developed with residential homes but the majority of the lake is surrounded by park or woodland.

2022 Results

In 2022, water quality in Sunfish/Grass Lake was good compared with other lakes in this region (NCHF Ecoregion), receiving an overall B+ letter grade. Total phosphorus (TP) and chlorophyll-a (Chl-a) levels in the lake increased slightly from 2021 but were well below the state standards for shallow lakes (60 µg/L, 20 µg/L). Secchi transparency readings were similar to past years but as in previous years Secchi readings were obscured by vegetation or limited by lake depth. This limits the usability of these transparency readings and all Secchi readings in the table below are denoted as “greater than”, meaning that the actual Secchi transparency was greater than the number recorded. Secchi readings fluctuated between >3.9 and >5 feet throughout 2022. In 2022, the average TP concentration was 26.4µg/L, increasing from 2021 (23.3µg/L). Average Chl-a levels also increased slightly in 2022 (8.7µg/L) from 2021 (6.8µg/L).

Trend Analysis

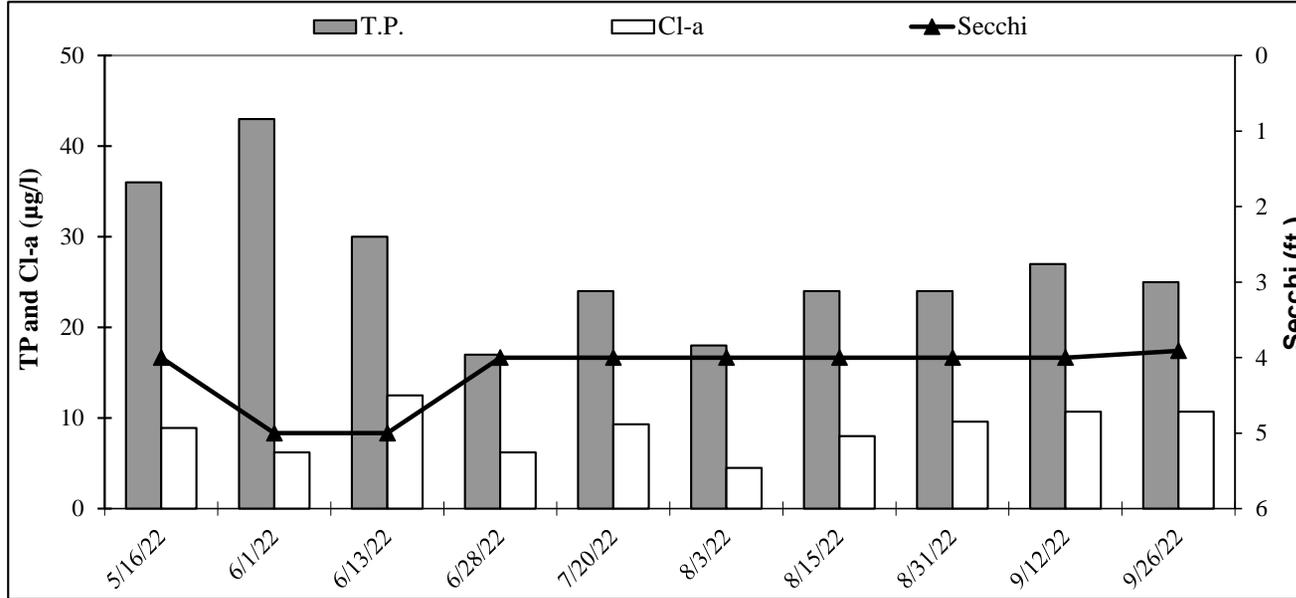
There is not yet enough data for a statistical trend analysis to be completed for any parameter. A minimum of 10 years of water quality data is ideal to be able to accurately perform a statistical trend analysis. The 2022 season was the fifth year ACD monitored the lake. Sunfish/Grass Lake was previously monitored in 2016-2018 and 2021 by ACD. Monitoring was completed 2012-2013 by local volunteers involved with the MPCA’s citizen monitoring program.

Discussion

Sunfish/Grass Lake looks to be in good health, receiving an overall B+ grade, with a slight decline from 2021 water quality results. Total phosphorus and chlorophyll-a concentrations remain well below state water quality standards for shallow lakes. There is consistently a healthy population of native aquatic vegetation observed in the lake as well as abundant aquatic wildlife and water fowl. The lake should continue to be managed proactively to protect this high quality resource. It’s increasingly rare to have a water body in a heavily urbanized area that contains such an active and healthy ecosystem.

SUNFISH/GRASS LAKE

2022 Results



2022 Medians

pH		7.77
Specific Conductivity	mS/cm	0.40
Turbidity	NTU	8.20
D.O.	mg/l	8.38
D.O.	%	99.05
Temp.	°F	73.55
Salinity	%	0.19
Cl-a	µg/L	9.10
T.P.	µg/l	24.50
Secchi	ft	4.00

*Secchi transparency is included in this graph for visualization purposes. Actual Secchi transparency was greater than the numbers displayed.

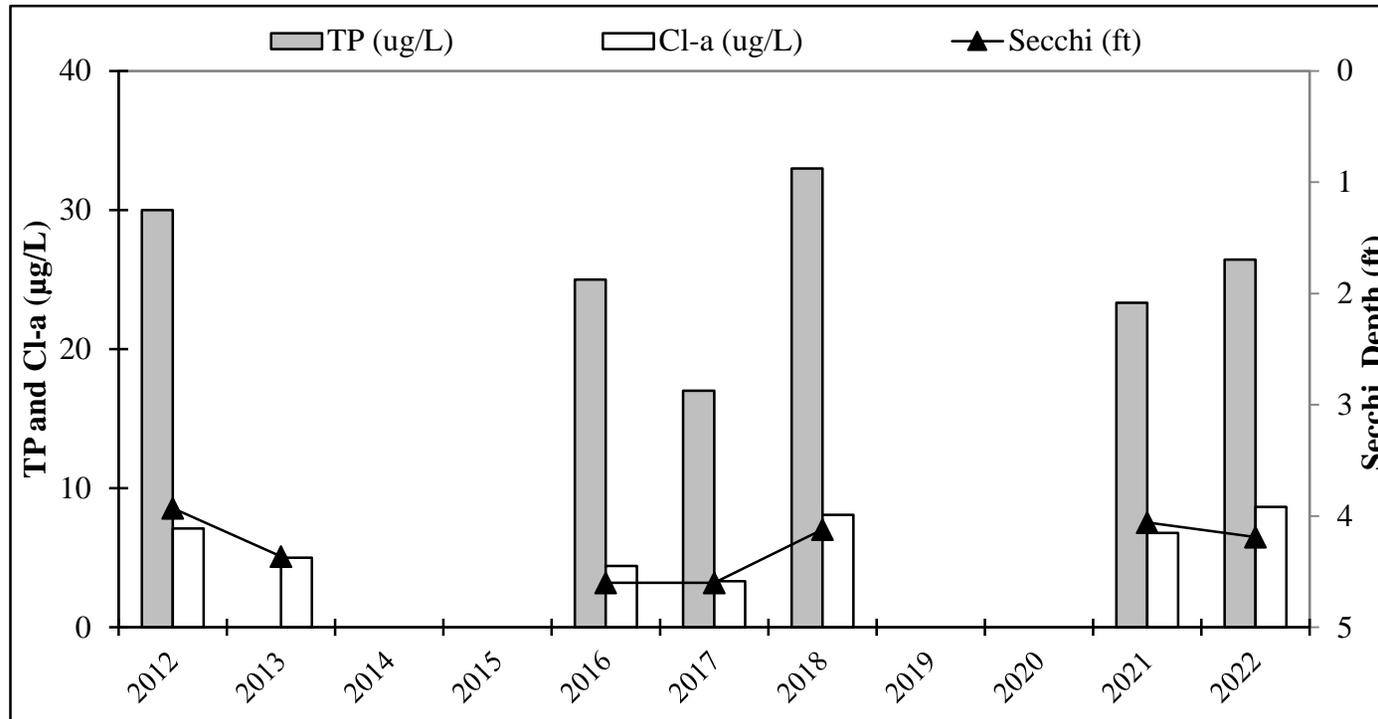
Sunfish Lake (aka Grass Lake)

2022 Water Quality Data

Date:	5/16/2022	6/1/2022	6/13/2022	6/28/2022	7/20/2022	8/3/2022	8/15/2022	8/31/2022	9/12/2022	9/26/2022
Time:	17:00	9:20	12:10	11:45	10:35	9:00	10:55	9:00	9:50	9:00

Units	R.L.*	5/16/2022	6/1/2022	6/13/2022	6/28/2022	7/20/2022	8/3/2022	8/15/2022	8/31/2022	9/12/2022	9/26/2022	Average	Min	Max	
pH		0.1	8.61	7.76	7.80	7.77	7.54	7.99	7.70	8.17	7.35	7.24	7.79	7.24	8.61
Specific Conductivity	mS/cm	0.01	0.384	0.397	0.300	0.367	0.407	0.398	0.441	0.392	0.396	0.420	0.390	0.300	0.441
Turbidity	FNRU	1	18.4	2.3	2.5	12.7	22.8	5.9	7.2	4.3	12.0	8.2	10	2	23
D.O.	mg/l	0.01	9.04	8.15	9.25	9.10	6.08	7.82	7.76	7.76	10.17	8.60	8.37	6.08	10.17
D.O.	%	1	109.4	91.1	113.5	112.6	79.5	104.9	91.5	93.2	113.6	88.9	10228%	7950%	11360%
Temp.	°C	0.1	22.52	19.41	23.75	24.40	25.70	26.67	22.90	23.27	20.21	15.24	22.4	15.2	26.7
Temp.	°F	0.1	72.5	66.9	74.8	75.9	78.3	80.0	73.2	73.9	68.4	59.4	72.3	59.4	80.0
Salinity	%	0.01	0.18	0.19	0.80	0.18	0.19	0.21	0.19	0.19	0.19	0.20	0.26	0.18	0.80
Cl-a	mg/m³	1	8.90	6.20	12.50	6.20	9.30	4.50	8.00	9.60	10.70	10.70	8.7	4.5	12.5
T.P.	mg/l	0.005	0.036	0.043	0.030	0.017	0.024	0.018	0.024	0.024	0.027	0.025	0.026	0.017	0.043
T.P.	ug/l	5	36	43	30	17	24	18	24	24	27	25	26	17	43
Secchi	ft		4.0	5.0	5.0	4	4.0	4.0	4.0	4.0	4.0	3.9	4.2	3.9	5.0
Secchi	m		1.2	1.5	1.5	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.2	1.5
Physical			2	4	4	3	3	3	3	3	2	3	3.0	2.0	4.0
Recreational			3	2	2	2	3	2	3	3	3	3	2.6	2.0	3.0

Historical Annual Averages



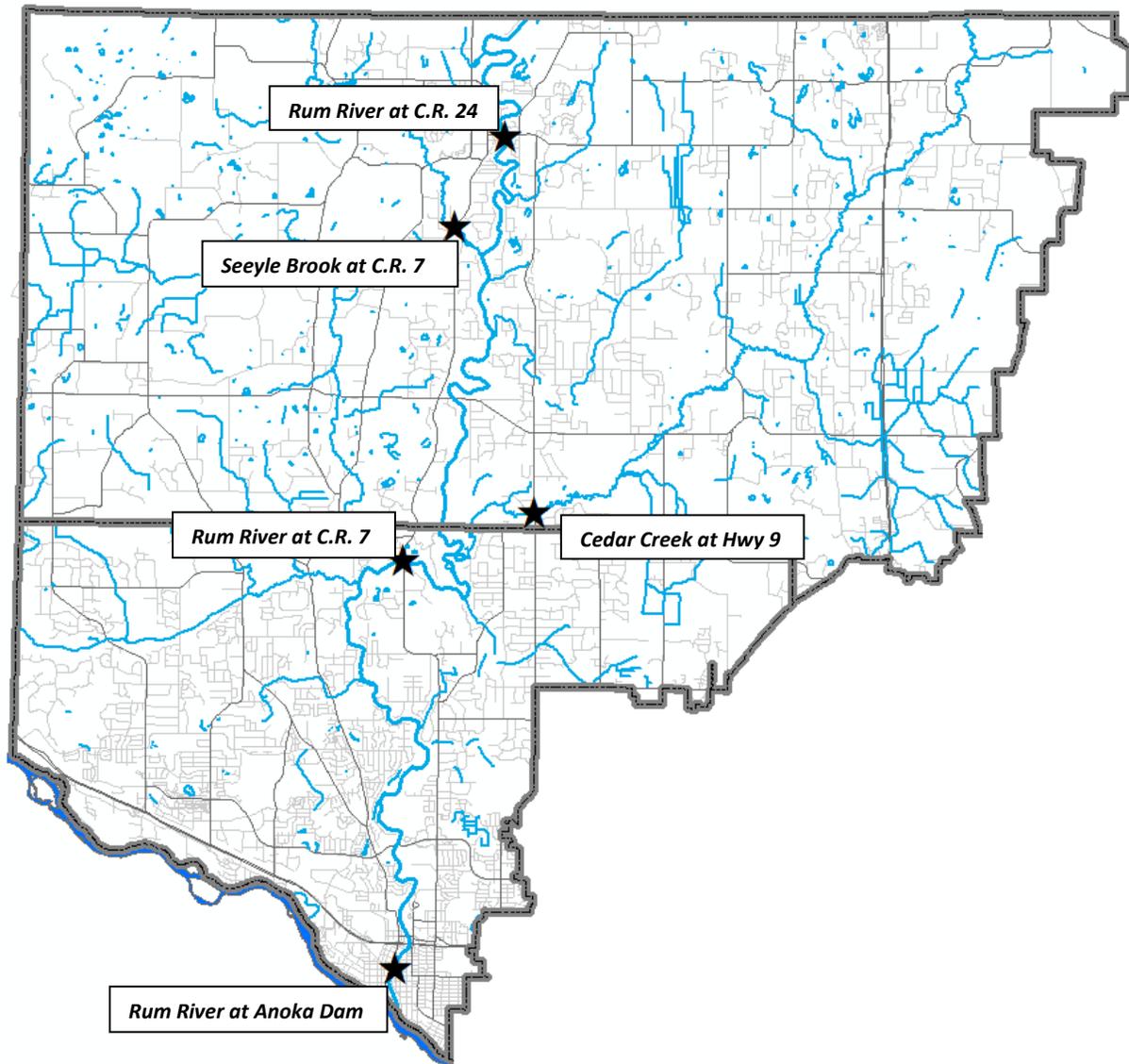
*Due to Secchi transparency exceeding lake depth or being obscured by vegetation in recent years, it was not included in the overall grade, but was included on the graphs

Stream Water Quality Monitoring

Partners: ACD, LRRWMO, and URRWMO

Description: River water quality monitoring was conducted eight-times between May – September, four time each during storm and base flows. The monitoring parameters includes total phosphorus, total suspended solids, dissolved oxygen, turbidity, temperature, specific conductance, pH, and salinity.

2022 Stream Quality Monitoring Sites



Rum River Stream Water Quality

Rum River at Co. Rd. 24 (Bridge St), St. Francis	STORET Site ID = S000-066
Seelye Brook at Co. Rd. 7, St. Francis	STORET Site ID = S003-203
Cedar Creek at Hwy 9, Oak Grove	STORET Site ID = S003-203
Rum River at Co. Rd. 7 (Roanoke St), Ramsey	STORET Site ID = S004-026
Rum River at Anoka Dam, Anoka	STORET Site ID = S003-183

¹monitored by the Metropolitan Council

Background

The Rum River is one of Anoka County's most valuable water resources. The river is designated as a state "scenic and recreational" river until it reaches southern Anoka County and is used extensively for all types of recreation. A large portion of western Anoka County drains to the Rum River including the subwatershed of Seelye Brook, Trott Brook, Ford Brook, and Cedar Creek. Additional sites monitored by the Anoka Conservation District (ACD) have been included in this report to provide further context to water quality conditions in the Rum River.

In 2004, 2009-2011 and 2014-2021, water quality monitoring was conducted at various sites along the Rum River and tributaries. In 2022, monitoring was completed at three Rum River sites and two tributary sites that input into the Rum River in northwestern Anoka County. The objective of this data is to help determine how water quality changes in the Rum River system as it moves through Anoka County and where these changes might be occurring. The data is reported for all sites, side-by-side, for a more comprehensive analysis of water quality in the Rum River, upstream to downstream. Land use surrounding the river changes dramatically from rural residential in the upstream portions of Anoka County to suburban and urbanized in the downstream areas. Sites included:

Rum River at C.R. 24 is located in northern Anoka County, the City of St. Francis with the Isanti County border just upstream. This location is the best available site to monitor the upstream extent of the Upper Rum River Watershed Management Organization and Anoka County.

Cedar Creek at C.R. 9 is a tributary originating in south central Isanti County, flowing southwest before entering the Rum River. Cedar Creek flows through north central Anoka County, progressing through lands with high-quality natural communities, including the Cedar Creek Ecosystem Science Reserve. Habitat in the lower stretches of the stream are of moderate quality but the stream is listed as an impaired water for excessive *E. coli* bacteria. Cedar Creek is one of the larger streams in Anoka County, reaching 25-feet wide and regularly having depths greater than 2-feet during baseflow conditions. The stream bottom is primarily silt. The watershed is moderately developed with scattered single-family homes but the area continues to develop rapidly.

Seelye Brook at Hwy 7 is a tributary stream originating in southwestern Isanti County, flowing south through northwestern Anoka County before entering the Rum River. This stream is low gradient, like most other local streams. Seelye Brook has a silty or sandy bottom and lacks riffle-pool sequences. It is a moderate to large stream for Anoka County, with a typical baseflow width of 20-25 feet.

Rum River at Hwy 7 is an approximate mid-way point for the Rum River's length in Anoka County. It is at the approximately dividing line between the Upper and Lower Watershed Management Organizations and the costs for monitoring this sites are shared by those organizations.

Rum River at Anoka Dam represents the downstream extent of the Rum River in Anoka County before it enters the Mississippi River. While the Rum River technically extends farther downstream, monitoring occurs at this location to avoid backwater influences of the Mississippi River. This site is monitored by the Metropolitan Council (Met Council), and annual monitoring has occurred back to 1996.

Methods

In 2022, grab samples were collected on eight sampling occasions half during baseflow conditions and half following storm events. All sites were monitored by ACD staff, except for Rum River at the Anoka Dam was monitored by the Metropolitan Council following a different schedule and sampling protocol. Metropolitan Council data is still included in this report for comparison purposes.

Storms were generally defined as one-inch or more of rainfall within a 24-hour period, or a significant snowmelt event combined with rainfall. In some years, smaller storms were sampled because of low precipitation totals. This was the case in 2022 but all storms sampled were significant runoff events. Key parameters tested with multi-parameter probes included pH, specific conductivity, turbidity, temperature, salinity, and dissolved oxygen. Parameters analyzed by a state-certified lab included total phosphorus, total suspended solids, and chlorides at Rum River C.R. 7 and Rum River at the Anoka Dam.

The intention of this report is to provide a comparison of water quality in the Rum River as it moves upstream to downstream. This report only includes parameters that were tested in 2022 and does not include any additional parameters tested by the Met Council or any of their additional sampling. For more detailed information, see Met Council reports at <https://eims.metc.state.mn.us/>. All raw data can be obtained from ACD's online database (<https://maps.barr.com/Anoka/Home/Chart/>), and is also available through the MPCA's EQUIS database, (<https://www.pca.state.mn.us/data/environmental-quality-information-system-equis>).

Results Summary

This report includes data from 2022 and an overview of historical data. The following is a summary of results.

- Dissolved constituents were measured by specific conductivity and chlorides. Specific conductivity in the Rum River is lower than other Anoka County streams and within the healthy range. Chlorides are a regional concern and proactive measures to ensure it does not become elevated in the Rum River watershed is recommended. Periodic monitoring every 2-5 yrs is recommended.
- pH was within a healthy range (6.5-8.5) at all monitoring sites in in 2022.
- Dissolved oxygen remained above the state standard of 5 mg/L in 2022 and throughout previous monitored years at all monitoring sites. No concerns.
- Phosphorus levels in the Rum River in recent years have regularly exceeded the state standard of 100 µg/L at all sampled sites, but on average been slightly lower than this threshold. 2022 total phosphorus in the Rum River in 2022 averaged 78.8, 83.3, and 86.0 µg/L at sampled sites from upstream to downstream. Reducing phosphorus levels in the Rum River is a regional priority.
- Suspended solids and turbidity remained at acceptable levels in the Rum River, Cedar Creek, and Seelye Brook. Robust stormwater treatment within new developments and continued surveillance monitoring is recommended.
- Overall – The priority for the Rum River is reducing phosphorus. A 5% reduction is a top goal identified in local and regional plans. Achieving it will require work throughout the watershed, including upstream of Anoka County.

Below the data is presented and discussed for each parameter in greater detail. Management recommendations for each parameter is included in individual sections.

Specific Conductivity and Chlorides

Conductivity and chlorides are measures of dissolved pollutants. Dissolved pollutant sources include urban road runoff and industrial chemicals, among many others. Conductivity is a broad measure of dissolved pollutants. It measures electrical conductivity of the water pure water with no dissolved constituents has zero conductivity. Significant changes in water conductivity may indicate new pollutant sources to a waterbody. Some common sources of this type of pollution are road salts, water softeners, septic leaks, and agricultural chemicals.

Specific conductivity was acceptably low in the Rum River including in 2022. Conductivity at Rum River sites was similar, and in nearly all years it increases slightly upstream to downstream. Average specific conductivity from upstream to downstream in 2022 (all conditions) was 0.299 mS/cm, 0.310 and 0.298 mS/cm, respectively. This consistent trend of increasing conductivity from upstream to downstream likely reflects higher road densities and greater deicing efforts with salt application as well as other pollutant sources associated with higher road density and development. All three sites had levels lower than the historical median for Anoka County streams of 0.561 mS/cm.

In past years' conductivity was usually higher during baseflow conditions but this was not the case in 2022. Lower conductivity following a storm event suggests that stormwater runoff contains fewer dissolved pollutants than the surficial water table that feeds the river during baseflow. High baseflow conductivity has been observed in many area streams with the largest source believed to be road salts that have infiltrated into the shallow aquifer. Water softening salts and geologic materials can also be contributors. Lower baseflow conductivity than storm conductivity in 2022 could be influenced by low water levels in the river, variabilities in precipitation and/or runoff, or the timing when the sampling occurred.

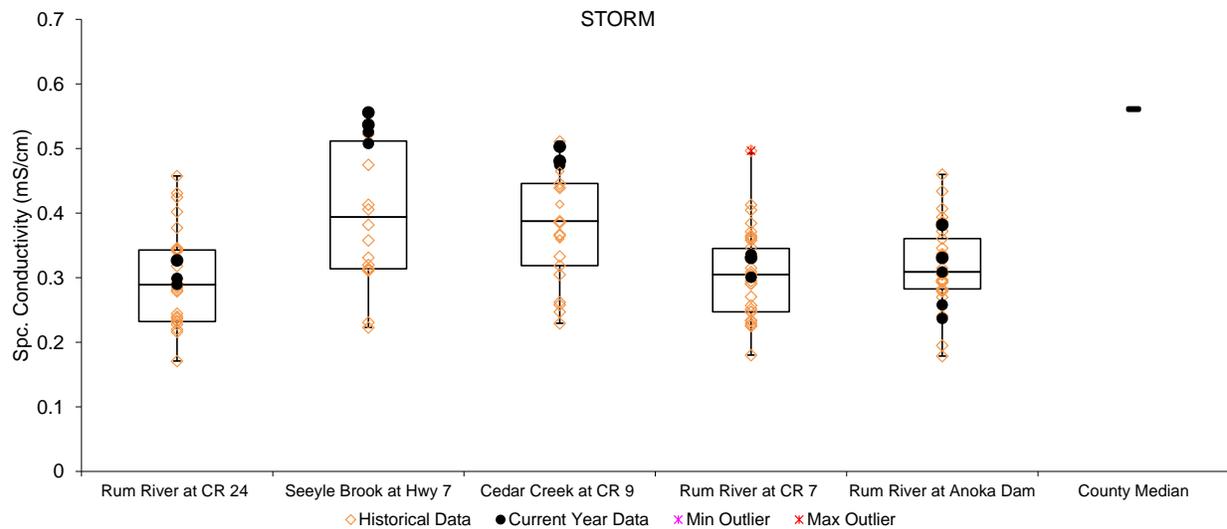
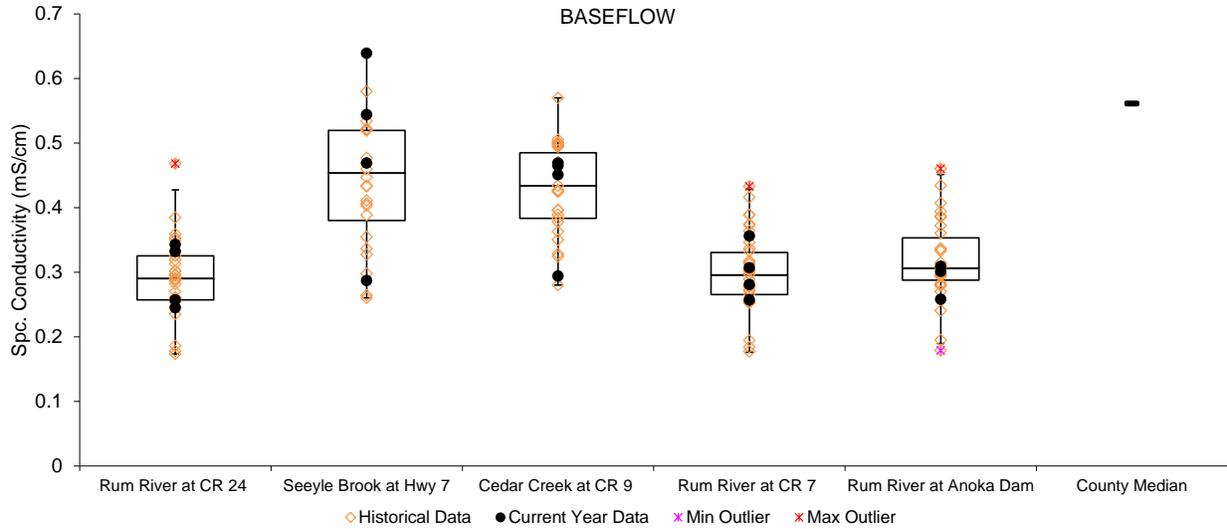
Specific conductivity is higher in Seeyle Brook and Cedar Creek compared to the Rum River but still remains lower than the median for Anoka County streams (0.561 mS/cm). Average conductivity (all years, all conditions) was 0.508 mS/cm at Seeyle Brook and 0.452 mS/cm at Cedar Creek.

Chlorides are the measure of chloride salts, the most common of which are road de-icing chemicals or water softener discharge. Chlorides can also be present in other types of wastewater. These pollutants are concerning because of the effect they can have on the stream's biological community. While chloride levels are currently low, they should continue to be monitored and proactive prevention practices should be implemented to limit them in the future.

In 2022, chlorides were monitored in the Rum River at C.R. 7 (on 4 of 8 sampling occasions) and the Anoka Dam only. These sites were last sampled in 2018. Chloride results in 2022 ranged between 12.75 mg/L and 14.85 mg/L, far below the state's chronic standard for aquatic life (230 mg/L). Sampling did not occur during snowmelt, when chloride is likely to be highest.

For water resource management, it is important to note that the sources of dissolved pollutants are generally the same for both stormwater and baseflow it is only the timing of delivery to the waterway that is different. Preventing the release of dissolved pollutants into the environment and treating them before infiltration occurs should be a high priority. Training and equipment that minimize road salting while still maintaining safe roads safe is being increasingly emphasized by watershed managers. The MPCA now provides a training program where organizations and employees to obtain a smart-salting certification, which then has to be renewed every few years.

Specific Conductivity during Baseflow and Storm Conditions. Orange diamonds are historical data from previous years and black circles are 2022 readings. Box plots show the median (middle line), 25th and 75th percentile (ends of box), and 10th and 90th percentiles (floating outer lines).

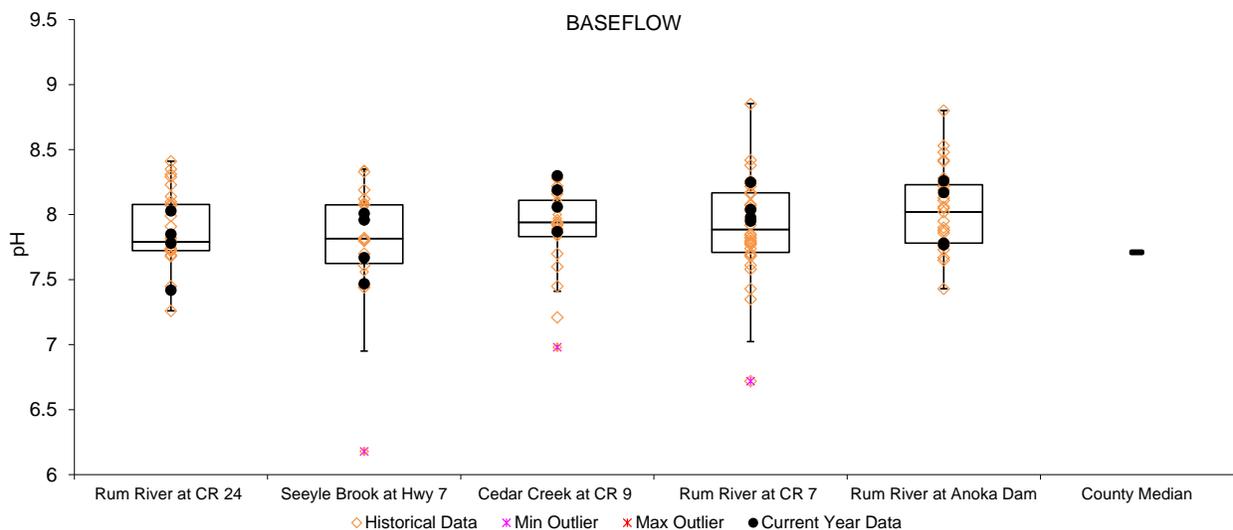
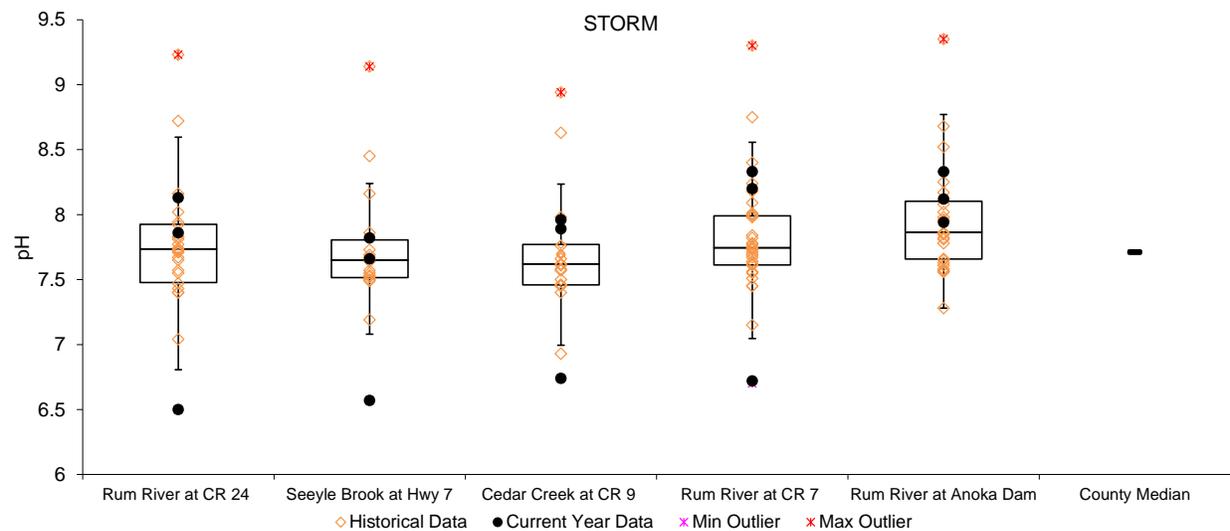


pH

pH refers to the acidity of the water. The state standard for pH is between 6.5 - 8.5 and pH is generally lower during storm events than during baseflow conditions because the pH of rain is typically lower (more acidic). While acid rain is a longstanding problem, its effect on this aquatic system is minimal. pH in the Rum River is generally within the healthy range and has only exceeded 8.5 on a few occasions in the past. The rare occasion when pH does exceed the state standard should not be concerning.

pH in Cedar Creek and Seeyle Brook were both within the normal healthy range in 2022. Cedar Creek has only exceeded 8.5 on two occasions historically. Seeyle Brook has only exceeded the state range (6.5-8.5) on one sampling occasion. Discharge of nutrient rich algae waters from lakes or wetlands into waterways is a factor that could influence spikes in pH. Spikes over 8.5 seem to be happening more frequently in recent years, although it is a positive development that they did not occur this year.

pH during Baseflow and Storm Conditions. Orange diamonds are historical data from previous years and black circles are 2022 readings. Box plots show the median (middle line), 25th and 75th percentile (ends of box), and 10th and 90th percentiles (floating outer lines).

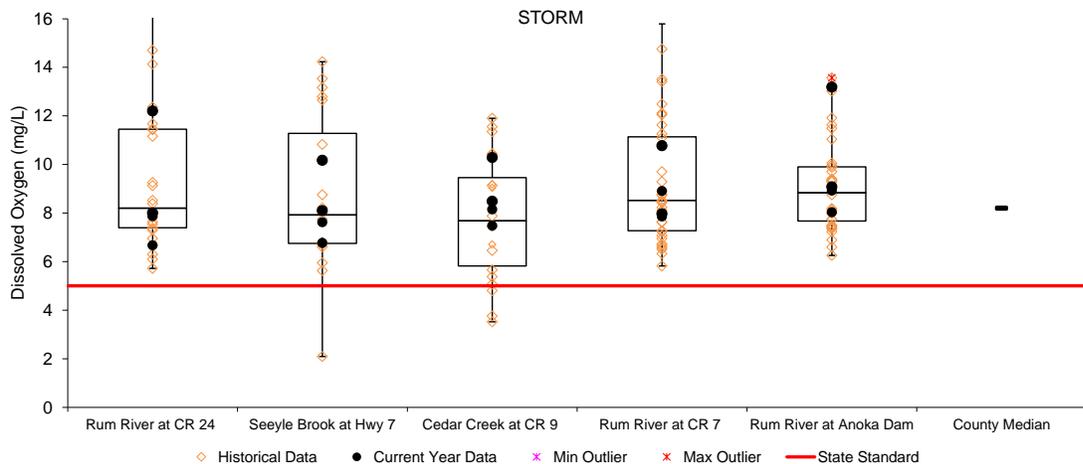
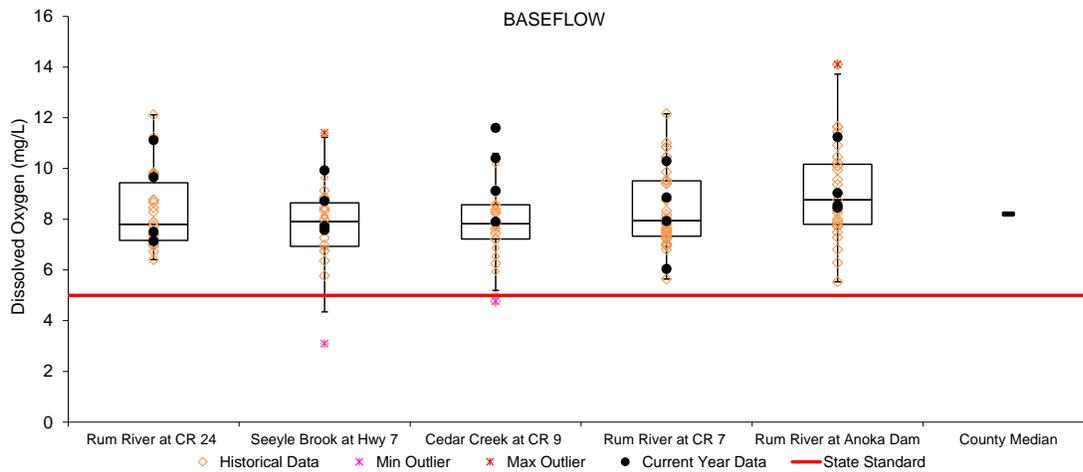


Dissolved Oxygen

Dissolved oxygen is necessary for aquatic life, including fish. Organic pollution causes oxygen to be consumed during decomposition. If oxygen levels in water fall below 5 mg/L, aquatic life begins to suffer. A stream is considered impaired if 10% of observations are below 5 mg/L in the last 10-years. Dissolved oxygen levels are typically lowest in the early morning because of decomposition consuming oxygen at night without the offsetting of oxygen production by photosynthesis. In 2022, all measurements of dissolved oxygen in the Rum River were above 5 mg/L. Dissolved oxygen has never been observed below the state standard (5 mg/L) at any of the Rum River sites. Only on a handful of occasions has dissolved oxygen been recorded below 6.0 mg/L and many of these results were recorded during the same storm event.

2022 dissolved oxygen measurements in Cedar Creek and Seeyle Brook were all above 5 mg/L. Median dissolved oxygen, for all years and all conditions, was 7.82 mg/L for Cedar Creek and 7.91 mg/L at Seeyle Brook. Only a few readings of dissolved oxygen below 5 mg/L have ever been recorded at either of these sites and there is no management concern at this time. Decreases in dissolved oxygen levels may be a result of increased nutrients in the system. Managing phosphorus and nitrogen loading to the streams will help ensure healthy dissolved oxygen levels.

Dissolved Oxygen during Baseflow and Storm Conditions. Orange diamonds are historical data from previous years and black circles are 2022 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

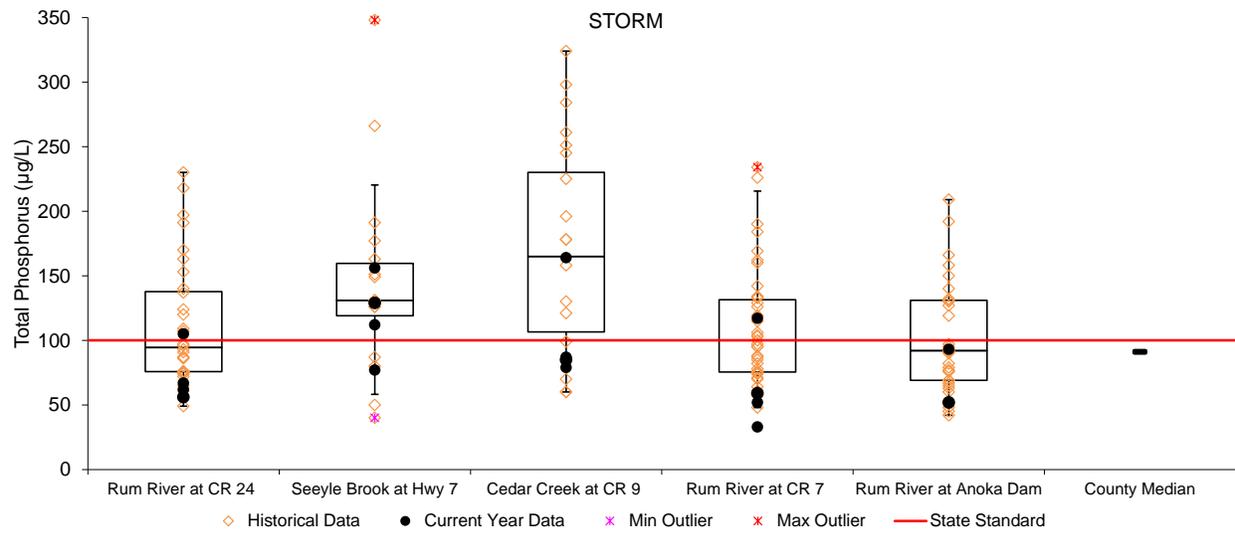
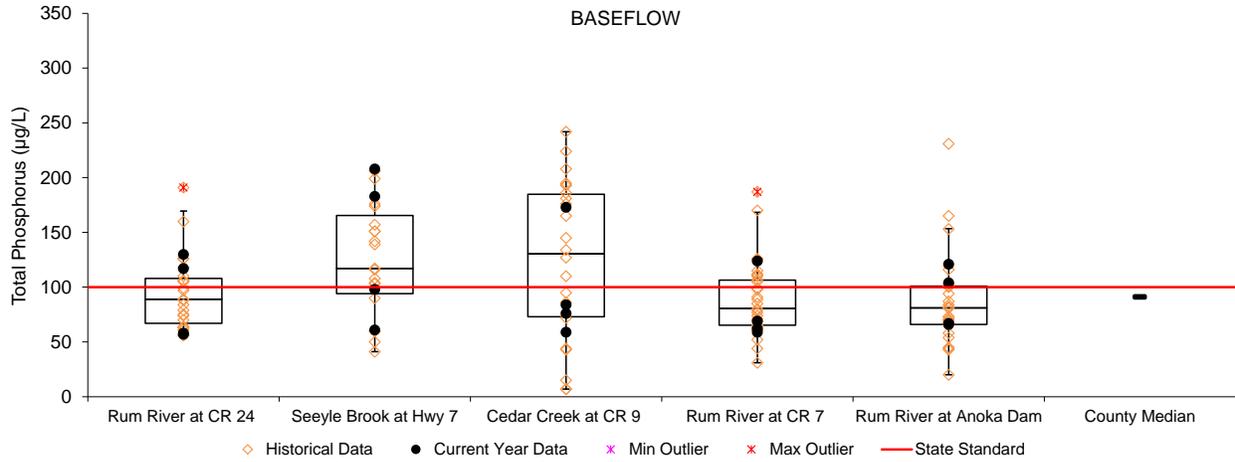
The nutrient phosphorus is one of the most common pollutants to local waterways, and can be associated with stormwater runoff, wastewater, fertilizers, soil loss, and many other sources. Since it is an essential nutrient in the natural ecosystem, even a slight increase of phosphorus levels in a waterway can result in harmful algae blooms, accelerated plant growth, low dissolved oxygen levels and other negative effects to fish, macroinvertebrates, and other aquatic animals. Phosphorus levels in the Rum River are nearing the state impairment thresholds. Average phosphorus concentrations at the three Rum River monitoring sites regularly exceeds the state standard for impairment (100 µg/L) but on average is slightly lower. In 2022, average phosphorus concentrations at the Rum River sites for all conditions, upstream to downstream, were 81.5, 71.87 and 84.75 µg/L, respectively. Phosphorus during storm flows is higher than base flows. For example, at County Road 7 the average TP across all years monitored is 87.5 µg/L during base flow and 108.1 µg/L during storms. Of the 86 samples taken across all years at that site there have been twelve exceedances of the state standard during baseflow and 21 during storm flows.

Cedar Creek had TP similar to the Rum River in 2022 but was higher in previous years. The 2022 total phosphorus levels in Cedar Creek averaged 104.0 µg/L during all conditions. The median phosphorus concentration in Cedar Creek at CR 9 (all years) is 124 µg/L during baseflow and 169 µg/L post-storm. The median for Anoka County streams is 91 µg/L and the state standard is 100 µg/L. Historically, 33 of the 50 measurements taken at the Cedar Creek site have been greater than 100 µg/L, with an average of 146 µg/L and median of 151 µg/L. Individual results over 200 µg/L have been a near-annual occurrence since 2015 but were not observed in 2022.

Seelye Brook TP is higher than the Rum River or Cedar Creek. In 2022, total phosphorus concentration in Seelye Brook was 135 µg/L across all conditions. It averaged 137.50 µg/L during baseflow and 118.5 µg/L post-storm. The median phosphorus concentration in Seelye Brook at Hwy 7 for all years is 126 µg/L during baseflow, 144 µg/L during storm events, and 134 µg/L across all events. 74% of samples taken since 1998 have had TP concentrations above the state standard.

Phosphorus in both Cedar Creek and Seelye Brook are at concerning levels. Because Cedar Creek's subwatershed has rural residential development, little stormwater infrastructure or agriculture, and abundant wetlands it is reasonable to think that natural sources and wetlands are a significant phosphorus source. Seelye Brook has more agriculture including at least one feedlot, a City of St. Francis wastewater treatment plant that was upgraded in 2017, and wetlands its phosphorus sources may be more mixed. Continued monitoring and efforts to reduce phosphorus are needed throughout the watershed. Areas to focus can include ensuring robust stormwater treatment in residential development and agricultural best management practices. Keeping the Rum River off of the state impaired water's list is a priority for the area.

Total Phosphorus during Baseflow and Storm Conditions. Orange diamonds are historical data from previous years and black circles are 2022 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 refraction of a light beam passed through a water sample and is sensitive to larger particles. TSS is measured by filtering solids from a water sample and weighing the filtered material. The amount of suspended material present in water is important because it affects water transparency, aquatic life, and because many other pollutants are attached to sediment particles.

Stormwater treatment practices such as street sweeping, sumps, and stormwater settling ponds target sediment and attached pollutants. Suspended solids in the waterway can come from both internal and external sources. External sources can include a variety of particles in stormwater runoff. Internally, bank erosion and movement of the bottom substrate contribute to suspended sediments. A moderate amount of this type of internal loading is natural. In 2022, turbidity and TSS levels in the Rum River were lower than the historical median for Anoka County streams.

Turbidity is generally low in the river but increases are observed after storm events. There is no clear trend of changing turbidity or suspended solids from upstream to downstream. In 2022 average turbidity (all conditions) for sites upstream to downstream were 7.2, 19.4, and 3.85 NTU. The historical median for Anoka County streams is 8.9 NTU. Turbidity was elevated on a few occasions, especially following storm events. In 2022 water levels were low most of the year, except in spring.

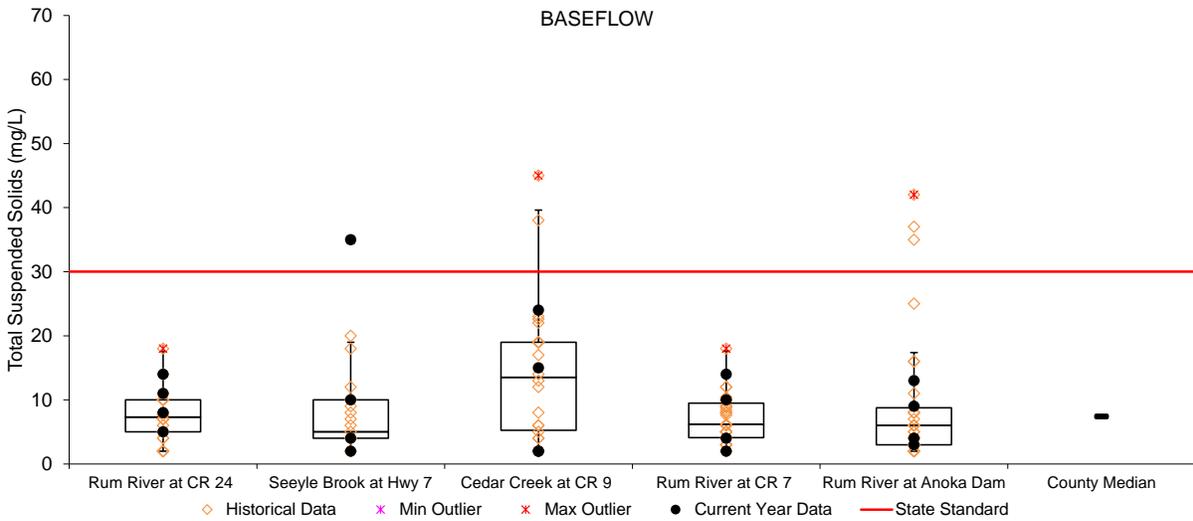
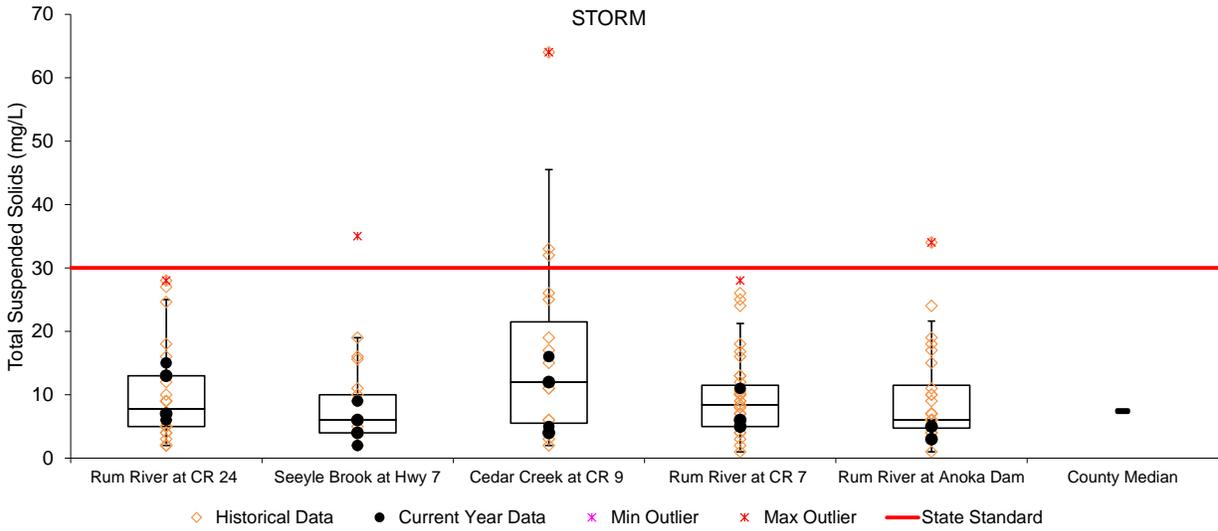
TSS results were similar to those for turbidity. In 2022, average TSS results (all conditions) upstream to downstream were 9.9, 7.1, and 5.6 mg/L. These results were generally lower than the Anoka County stream median for TSS of 7.4 mg/L and also better than the state standard of 30 mg/L. The highest TSS level recorded in 2022 was 24 mg/L. ACD has not collected a sample over 30 mg/L since 2010.

Turbidity and TSS were low in Cedar Creek in 2022 and in most other years. Turbidity in 2022 averaged 3.96 NTU during baseflow and 4.27 NTU post-storm. 2022 TSS levels were also low, averaging 10.75 mg/L during baseflow and 9.25 mg/L post-storm. Median TSS in Cedar Creek (all years) has been 13.5 mg/L during baseflow and 12.0 mg/L following storm events, higher than the median for all Anoka County streams (7.4 mg/L) but below the state standard (30 mg/L). Reasons for low suspended material likely include the relative lack of manmade stormwater outfalls and the fact that the creek slowly meanders through broad floodplain wetlands.

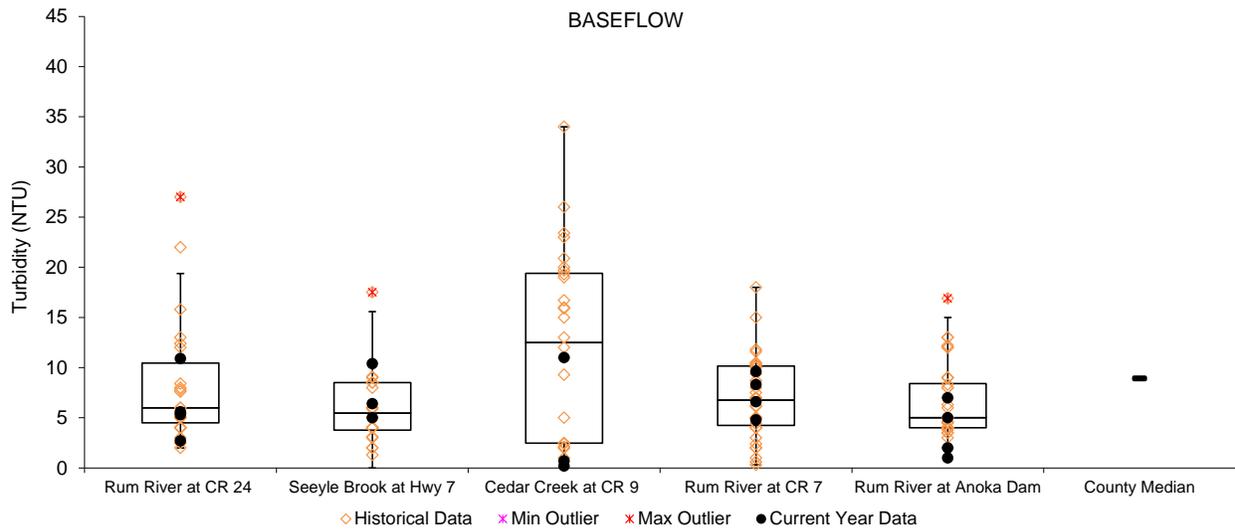
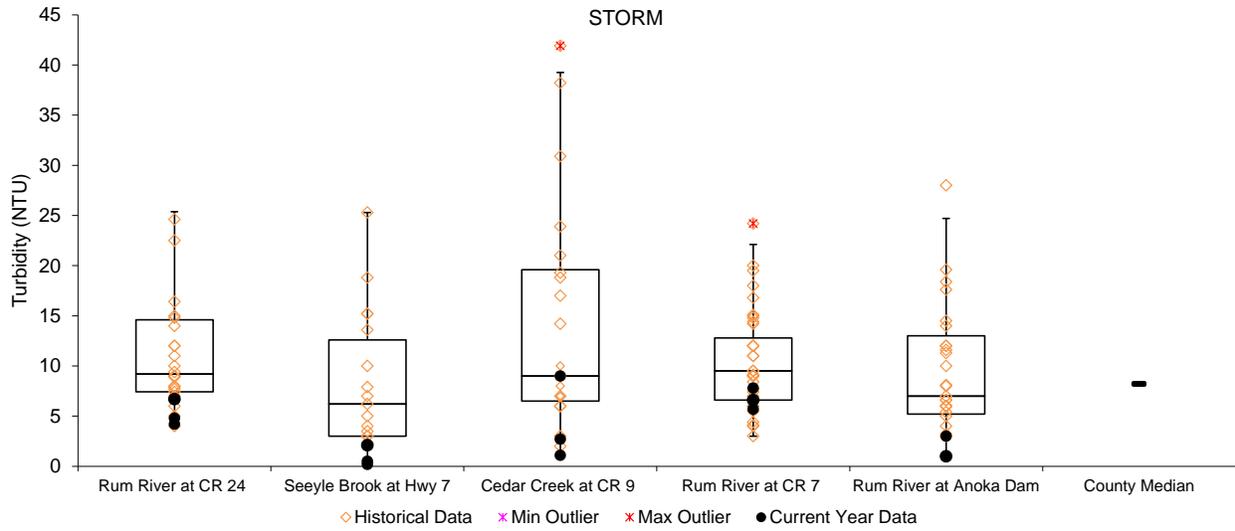
Turbidity and TSS have also been low in Seelye Brook. In 2022 turbidity in Seelye Brook averaged 4.1 NTU across all conditions. The median turbidity (all years) has been 5.45 NTU during baseflow and 6.2 NTU post-storm, much lower compared to other local streams. TSS in Seelye Brook was also observed at healthy levels with medians for all years being 5.00 mg/L during baseflow and 6.00 mg/L post-storm, well below the state standard of 30 mg/L.

While the Rum River and these tributaries remain well under the impairment threshold for TSS, rigorous stormwater treatment in new developments should be a priority in the coming years. There are also opportunities to better treat current runoff from developed and agricultural landscapes. The Anoka Conservation District and partners currently have a well-funded riverbank stabilizations program because it offers multiple benefits to water quality, habitat, and protecting property. Surveillance monitoring of turbidity and TSS in the Rum River watershed should continue. These are critical parameters to monitor in their own right, but also because many other pollutants can be associated with suspended solids.

Total Suspended Solids during Baseflow and Storm Conditions. Orange diamonds are historical data from previous years and black circles are 2022 readings. Box plots show the median (middle line), 25th and 75th percentile (ends of box), and 10th and 90th percentiles (floating outer lines).



Turbidity during Baseflow and Storm Conditions. Orange diamonds are historical data from previous years and black circles are 2022 readings. Box plots show the median (middle line), 25th and 75th percentile (ends of box), and 10th and 90th percentiles (floating outer lines).



Stream Water Quality – Biological Monitoring

Partners: LRRWMO, ACD, Anoka High School

Description: This long-standing district program combines environmental education and stream water quality monitoring. Under the supervision of ACD staff, high school science classes collect aquatic macroinvertebrates from stream sites, identify their catch to the family level, and then use the biotic index to score water and habitat quality. Different families of macroinvertebrates have different water and habitat quality requirements. The families collectively known as EPT (Ephemeroptera, or mayflies Plecoptera, or stoneflies and Trichoptera, or caddisflies) are generally pollution intolerant. Other families can thrive in low-quality water. Therefore, a census of stream macroinvertebrates yields important information on overall stream health.

Purpose: To assess stream quality through biological monitoring while providing an environmental education service to the community.

Location: Rum River behind Anoka High School

Results: Results for each site are detailed on the following pages.

Data Interpretation

Consider all biological indices of water quality together rather than look at each alone, since each gives only a partial picture of stream condition. Compare the final numbers to county-wide averages. This gives some sense of what might be expected for streams in a similar landscape, but does not necessarily reflect what might be expected of a minimally impacted stream. Some key numbers to look for include:

Families Number of Invertebrate families. Higher values indicate better quality.

EPT Number of families of the generally pollution-intolerant orders. Ephemeroptera, Plecopter, Trichoptera. Higher numbers indicate better stream quality.

Family Biotic Index (FBI) An Index that utilizes known pollution tolerances for each family. Lower numbers indicate better stream quality.

FBI	Stream Quality Evaluation
0.00-3.75	Excellent
3.76-4.25	Very Good
4.26-5.00	Good
5.01-5.75	Fair
5.76-6.50	Fairly Poor
6.51-7.25	Poor
7.26-10.00	Very Poor

Population Attributes Metrics **% EPT** compares the number of organisms in the EPT orders (Ephemeroptera, Plecoptera, Trichoptera) to the total number of organisms in the sample. A high percent of EPT is good.

% Dominant Family measures the percentage of individuals in the sample that are in the sample's most abundant family. A high percentage is usually bad because it indicates low evenness (one of a few families dominate, and all others are rare)

Rum River

Anoka High School, Anoka

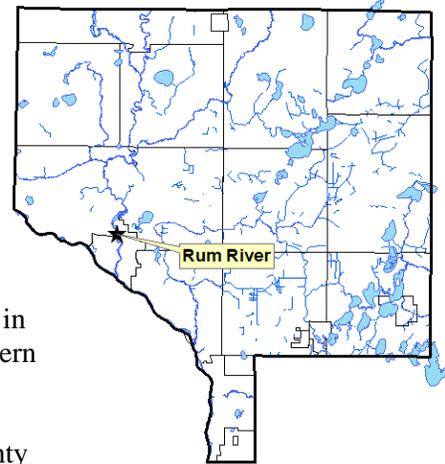
Monitored Since
2001

Student Involvement

Approximately 100 students in 2022, over 1,500 total since 2001

Background

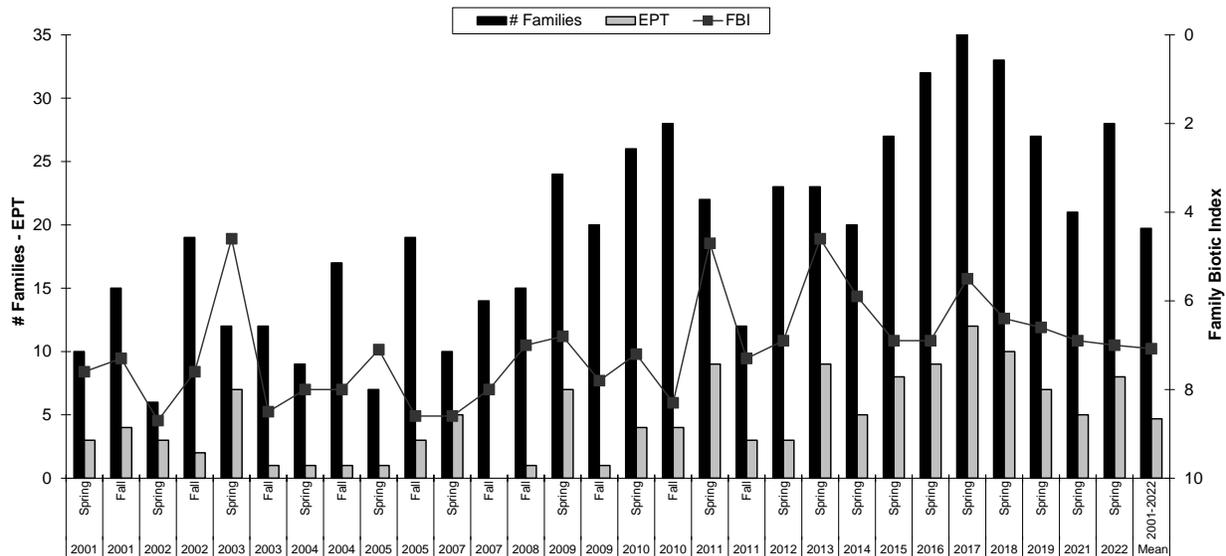
The Rum River originates from Lake Mille Lacs, and flows south through western Anoka County where it joins the Mississippi River in the City of Anoka. In Anoka County the Rum River is riffled (northern part of the county) as well as portions of the river containing pools with a sandy river bottom. The Rum River’s overall condition is generally regarded as excellent and most of the river in Anoka County is designated as a state “scenic and recreational” waterway. The sampling site is located behind the Anoka High School and most sampling has been conducted in a backwater section rather than the main channel.



Results

Anoka High school classes monitored the Rum River at this site in spring of 2022 with Anoka Conservation District (ACD) providing instruction and oversight. Findings have been in decline since 2017 but results in 2022 improved slightly from 2021, and were better than the overall historical average. In 2022, students collected 28 different families of invertebrates, while only 21 families were collected in 2021. Eight unique families of the most sensitive taxa (Ephemeroptera, Plecoptera, and Trichoptera, EPT), were collected in 2022.

Historical Biomonitoring Results for Rum River behind Anoka High School



Biomonitoring Data for the Rum River behind Anoka High School – Most Recent Five Years

Year	2017	2018	2019	2021	2022	Mean
Season	Spring	Spring	Spring	Spring	Spring	2001-2022
FBI	5.50	6.40	6.60	6.90	7.00	7.1
# Families	41	33	27	21	28	19.7
EPT	12	10	7	5	8	4.7
Date	15-May	14-May	10-May	11-May	10-May	
sampling by	AHS	AHS	AHS	AHS	AHS	
sampling method	MH	MH	MH	MH	MH	
# individuals	1439	1648	1341	687	860	
# replicates	2	3	1	1	1	
Dominant Family	Pelecypoda	Siphonuridae	Siphonuridae	Siphonuridae	Corixidae	
% Dominant Family	26.6	48.1	66.8	59.1	35.6	
% Ephemeroptera	14.9	65.1	74.4	64.2	18.8	
% Trichoptera	0.1	0.1	0.7	0	0	
% Plecoptera	26	1.9	0.8	0.4	0.7	
% EPT	41	67.1	75.9	64.6	19.5	

Discussion

Historically, both chemical and biological monitoring indicate above average water quality in the Rum River. Poorer results in 2021-2022 may reflect varying site and sampling conditions rather than a shift in the biological community. Habitat is ideal for a variety of stream life, and includes a variety of substrates, plenty of woody, snags, riffles, and pools.

Historically, biomonitoring near Anoka High School was conducted mostly in a backwater area with a murkey bottom that does not always have a strong current, especially during periods with low water levels. During those conditions, the area was unlikely to be occupied by families which are pollution intolerant. Water levels in the Rum River have been low the last several times this site was sampled and this may be contributing to the decline in sensitive families present.



Wetland Hydrology

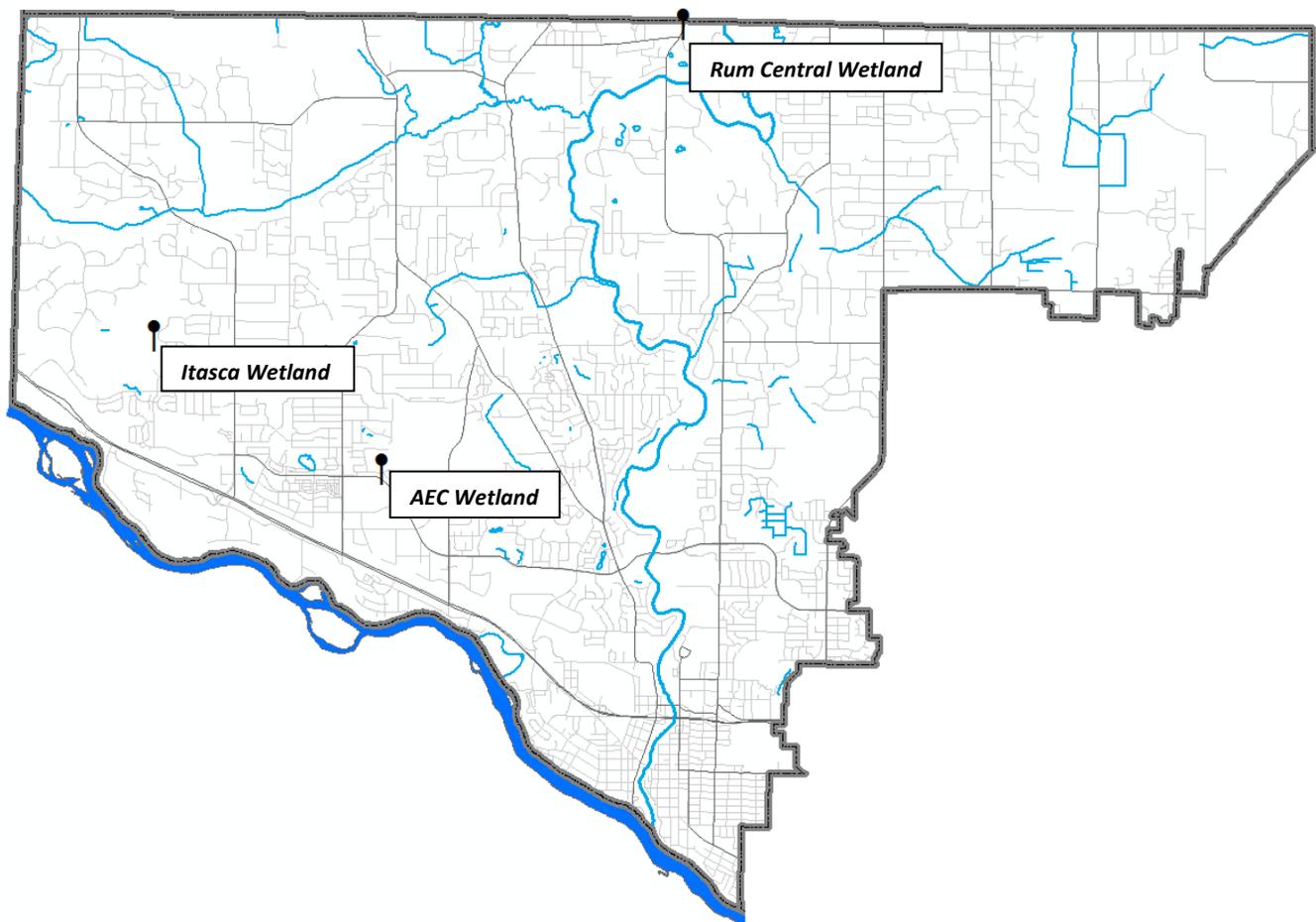
Partners: LLRWMO, ACD

Description: Continuous groundwater level monitoring within wetlands, 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 change. These data aid in delineation of nearby wetlands by documenting hydrologic trends including the timing, frequency, and duration of saturation.

Results: See the following pages

LRRWMO Wetland Hydrology Monitoring Sites



AEC REFERENCE WETLAND

Cottonwood Park, City of Ramsey

Site Information

Monitored Since: 1999

Wetland Type: 3

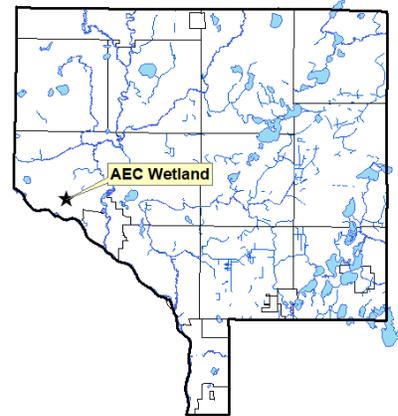
Wetland Size: ~18 acres

Isolated Basin: No, probably receives storm water

Connected to a Ditch: No

Surrounding Soils: Hubbard coarse sand

Soils at Well Location:



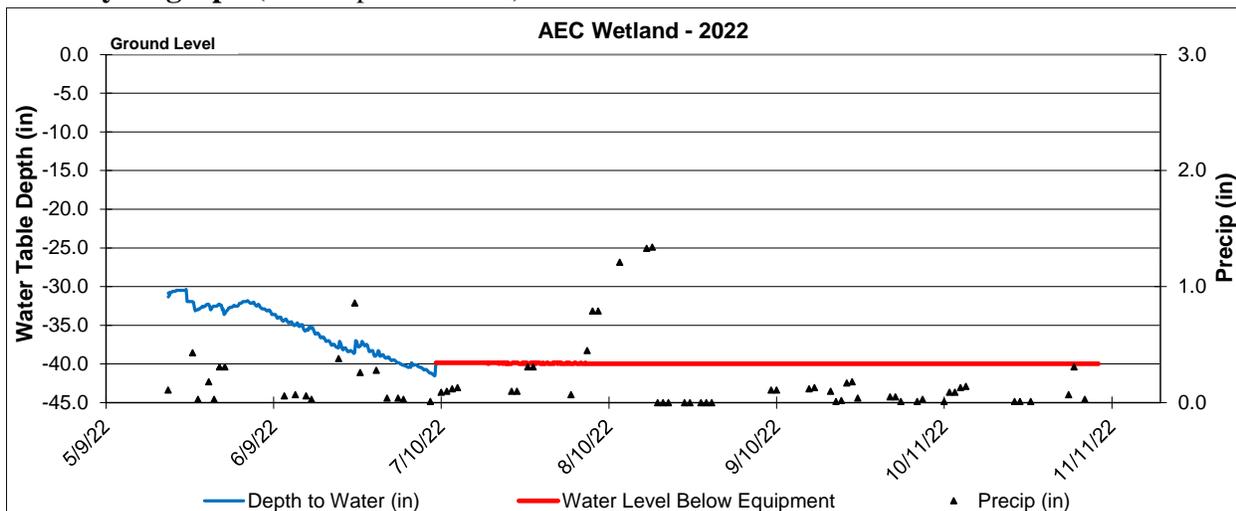
Horizon	Depth	Color	Texture	Redox
A	0-15	10yr2/1	Sandy Loam	-
Bw	15-40	10yr3/2	Gravelly Sandy loam	-

Vegetation at Well Location:

Scientific	Common	% Coverage
Populus tremuloides	Quaking Aspen	30
Salix bebbiana	Bebb Willow	30
Carex Spp	Sedge undiff.	30
Solidago canadensis	Canada Goldenrod	20

Other Notes: This boring is located at the wetland boundary. In 2022, Anoka County was abnormally dry or experiencing drought conditions. This boring was dry the majority of the year.

2022 Hydrograph (Well depth 35 inches)

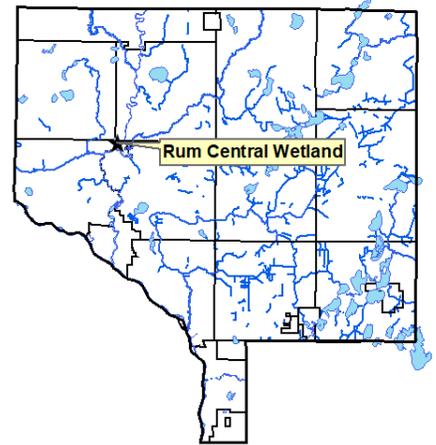


RUM CENTRAL REFERENCE WETLAND

Rum River Central Regional Park, Ramsey

Site Information

Monitored Since: 1997
Wetland Type: 6
Wetland Size: ~0.8 acres
Isolated Basin: Yes
Connected to a Ditch: No
Surrounding Soils: Zimmerman fine sand



Soils at Well Location:

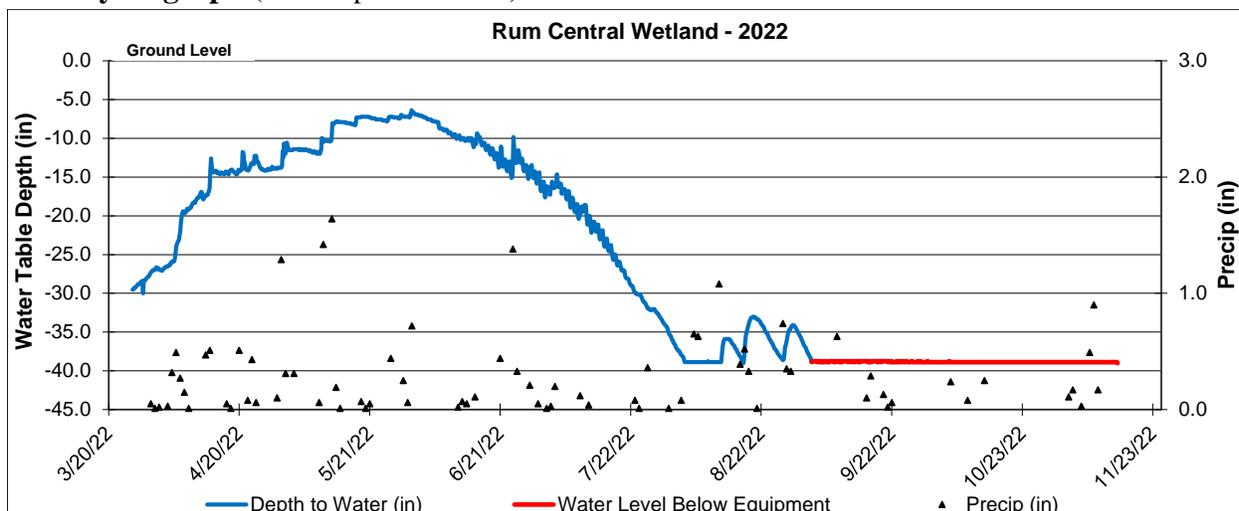
Horizon	Depth	Color	Texture	Redox
A	0-12	10yr2/1	Sandy Loam	-
Bg1	12-26	10ry5/6	Sandy Loam	-
Bg2	26-40	10yr5/2	Loamy Sand	-

Vegetation at Well Location:

Scientific	Common	% Coverage
Phalaris arundinacea	Reed Canary Grass	40
Corylus americanum	American Hazelnut	40
Onoclea sensibilis	Sensitive Fern	30
Rubus strigosus	Raspberry	30
Quercus rubra	Red Oak	20

Other Notes: This boring is located at the wetland boundary. Anoka County was abnormally dry or in a state of drought through most of 2022. The boring was dry during the fall season.

2022 Hydrograph (Well depth 39 inches)



LAKE ITASCA TRAILS REFERENCE WETLAND

Lake Itasca Trails Park, City of Ramsey

Site Information

Monitored Since: 2013
Wetland Type: 2/6
Wetland Size: ~10 acres
Isolated Basin: Yes
Connected to a Ditch: No
Surrounding Soils: Hubbard coarse sand
Soils at Well Location:



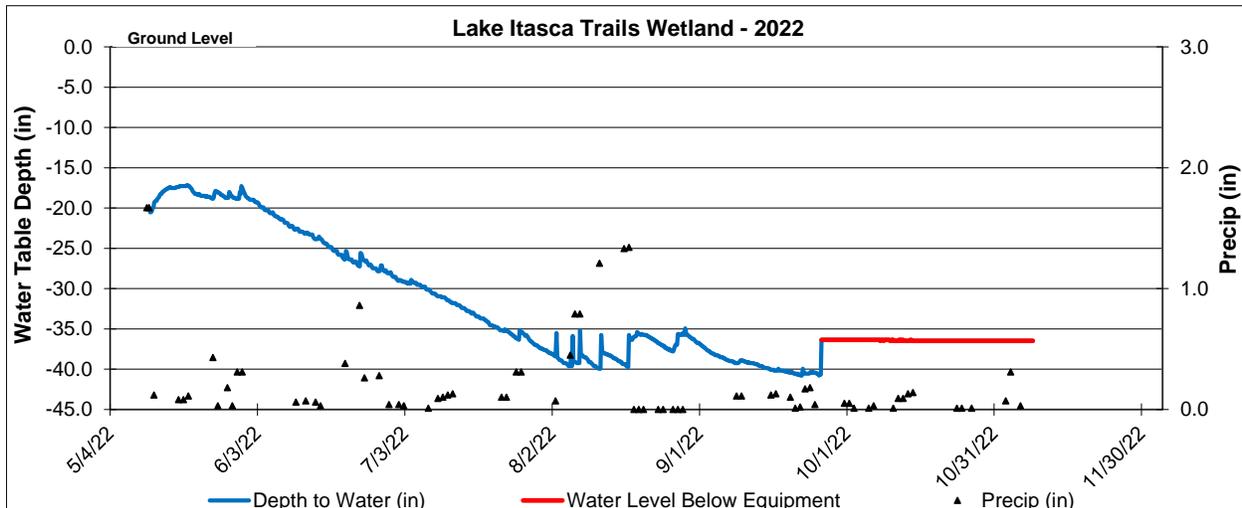
Horizon	Depth	Color	Texture	Redox
A1	0-12	10yr2/0	Mucky sand	-
A2	12-20	10ry2/1	Sand	-
B1	20-36	10yr4/1	Sand and fine gravel	-
B2	36-48	10yr6/1	Sand and fine gravel	-

Vegetation at Well Location:

Scientific	Common	% Coverage
Carex stricta	Hummock Sedge	80
Phalaris arundinacea	Reed Canary Grass	20
Salix sp.	Willow	20
Rubus sp.	Bristle-berry	5

Other Notes: The boring is located near the wetland boundary. Anoka County was abnormally dry or in a state of drought through most of 2022. The boring was dry during late fall.

2022 Hydrograph (Well depth 40 inches)



Water Quality Grant Fund

Partners: LRRWMO, ACD

Description: The LRRWMO provides cost share grants for projects on both public and private lands that will improve water quality, such as repairing streambank erosion, restoring native lakeshore vegetation, or installing rain gardens. The Anoka Conservation District administers this funding. Projects affecting the Rum River are given priority because it is viewed as an especially valuable resource.

Purpose: To improve water quality in lakes, streams, and rivers by correcting erosion problems and providing buffer or other structures that filter runoff before it reaches the water bodies.

Results: Projects reported in the year they are installed.

LRRWMO Cost Share Fund Summary

2006 LRRWMO Contribution	\$ 1,000.00
2008 Expense – Herrala Rum Riverbank Stabilization	\$ 150.91
2008 Expense – Rusin Rum Riverbank Stabilization	\$ 225.46
2009 LRRWMO Contribution	\$ 1,000.00
2009 Expense – Rusin Rum River Riverbank Bluff Stabilization	\$ 52.05
2010 LRRWMO Contribution	\$ 0.00
2010 LRRWMO Expenses	\$ 0.00
2011 LRRWMO Contribution	\$ 0.00
2011 Expense – Blackburn Rum Riverbank Stabilization	\$ 543.46
2012 LRRWMO Contribution	\$ 1,000.00
2013 LRRWMO Contribution	\$ 1,000.00
2013 Expense – Geldacker Mississippi Riverbank Stabilization	\$ 1,000.00
2014 LRRWMO Contribution	\$ 2,050.00
2006-2014 Expense – Smith Rum Riverbank Stabilization	\$ 2,561.77
2015 LRRWMO Contribution	\$ 1,000.00
2016 LRRWMO Contribution	\$ 1,000.00
2016 Expense – Brauer Rum Riverbank Stabilization	\$ 1,150.00
2018 LRRWMO Contribution	\$ 2,000.00
2014-2016 Expense – Anoka Rain Garden Plants	\$ 916.59
2019 LRRWMO Contribution	\$ 2,000.00
2020 LRRWMO Contribution	\$ 2,000.00
2022 LRRWMO Contribution	\$ 2,000.00
2022 Expense – 6 Rum & Mississippi Riverbank stabilizations	\$ 6,000.00
Fund Balance	\$ 3,449.76

Rum and Mississippi Riverbank Stabilizations



Partners: LRRWMO, ACD, private landowners

Description: A total of 727 linear feet of actively eroding riverbank was stabilized with riprap protection on the Rum and Mississippi Rivers in the City of Anoka. The six project properties are located in a highly recreated zone near two public boat launches. Along with the natural erosive forces of the rivers, these river properties get worked-down by waves and the wakes put out by large boats. Because of the variability and intensity of the erosive sources on these rivers, rock riprap was the practical solution to mitigate the active and accelerating erosion on these properties. Construction was completed in sequence on all six properties using a barge system that carried equipment and materials to each site. Establishment of additional vegetation is scheduled for upcoming years. These projects were paid with Clean Water Land and Legacy Amendment funds, Lower Rum River Watershed Management Organization cost share, and landowner contributions.

Purpose: Improve water quality and protect property values by stabilizing eroding riverbanks.

Locations: 1134 Benton St, 1707 Levee Ave, 1503 2nd Ave, 1433, 1335, & 1329 Oakwood Dr.

Results: Stabilized 449 linear ft. of Mississippi Riverbank and 278 on the Rum River.
Reduced Phosphorus loading by 30 lbs/year, and TSS (sediment) by 35 tons/year.

Map of Riverbank Stabilization Project Sites in Anoka



Photos of Riverbank Stabilization Project Sites Before (left) and After (right) Construction



Rum Central Boat Launch Riverbank Stabilization



Partners: Outdoor Heritage Fund, Anoka County, ACD

Description: A section of Rum Riverbank immediately upstream of the Rum Central Regional Park boat launch washed out in a 21-year high water event in occurring in May 2022. This 90-foot long, 12-foot tall section of riverbank was stabilized with Flexamat Plus material, regrading, and vegetation. This project was designed to match the riverbank practice immediately upstream that was stabilized with the same approach in 2015. A rock barb was also installed to help direct flow away from the boat ramp itself and to provide additional aquatic habitat. Stabilization of the shoreline will provide water quality improvements to the Rum River and enhance riparian habitat. Project design, administration, and construction oversight were provided by ACD with engineering assistance from the Washington Conservation District. Construction was completed the Anoka County Parks and Highway Department. The project was funded through a grant from the Outdoor Heritage Fund (OHF) and Anoka County.

Purpose: Improve water quality and prevent property loss by stabilizing eroding riverbank.

Location: Rum Central Regional Park Boat Launch, City of Ramsey

Results: Stabilized 90 linear-feet of riverbank on the Rum River. Reduced Phosphorus loading by 13.8 lbs/year, and TSS (sediment) by 16.2 tons/year.



Before



After

Rum South Regional Park Riverbank Revetments

Partners: Anoka County Parks, ACD, Conservation Corps MN

Description: Anoka Conservation District (ACD) staff in partnership with the Conservation Corps of Minnesota (CCM) installed a cedar tree revetment in Rum South Regional Park in the City of Anoka during summer of 2022. Erosion at the site, which was dominated by bank undercutting, was in the beginning stages of creating a more serious issue. Excessive erosion along riverbanks threatens property, contributes sediment and nutrients to the receiving water body, and reduces wildlife habitat. Installation of the revetment and bare-root plantings will slow or stop the erosion, reducing the likelihood of a much larger and more expensive project in the future. Excess cedar-brush was also installed to provide additional soft armoring. Funding for this project was provided from the Conservation Partners Legacy, and a CCM crew labor grant funded from the Clean Water, Land, and Legacy Amendment. ACD provided project management and construction oversight throughout the process.

Purpose: Improve water-quality, provide wildlife habitat, and prevent property loss by stabilizing eroding riverbanks.

Location: Rum River South Regional Park, City of Anoka

Results: Stabilized 550 linear feet of riverbank along the Rum River. Reduced phosphorus loading by 21.03 lbs/year, and TSS (sediment) by 24.75 tons/year.



City of Anoka Rain Gardens



Partners: City of Anoka, ACD, private landowners

Description: Four curb-cut rain gardens were constructed on private residences in fall 2022. The purpose was to capture and treat stormwater runoff that otherwise drains untreated to the Rum River. The installation of these rain gardens were incorporated into a street reconstruction project implemented by the City of Anoka. ACD identified the sites through an assessment of suitable rain garden locations throughout the Brom and Dunham Oaks neighborhoods. A promotional effort was then conducted to solicit interested homeowners, and the projects were installed while the road work was being completed. The private landowners will provide project maintenance throughout the project life. Funding was provided by the City of Anoka and Rum Metro Watershed- Based Implementation Funding.

Purpose: Treat stormwater runoff before it enters the Rum River & provide pollinator habitat.

Location: City of Anoka

Results: Reduce water volume of 2.36 ac-ft/year, reduced phosphorus loading by 3 lbs/year, and TSS (sediment) by 969 lbs/year.



Rum Metro WBIF Rain Gardens



Partners: Cities of Anoka & Ramsey, LRRWMO, ACD, private landowners

Description: Two curb-cut rain gardens were constructed on private residences in summer 2022. The purpose was to capture and treat stormwater runoff that otherwise drains untreated to the Rum River. Sites were previously identified in a subwatershed assessment study and cost-effectiveness ranked against other projects. Landowner willingness further shortened the list of candidate projects. The private landowners will provide project maintenance throughout the project life. Funding was provided by Rum metro Watershed Based Implementation Funding (WBIF) from the State of MN and the LRRWMO.

Purpose: Treat stormwater runoff before it enters the Rum River & provide pollinator habitat.

Location: Cities of Anoka and Ramsey

Results: Reduce water volume of 1.31 ac-ft/year, reduced phosphorus loading by 1.78 lbs/year, and TSS (sediment) by 445 lbs/year.



Annual Report to BWSR

Partners: LRRWMO, ACD

Description: The Lower Rum River Watershed Management Organization (LRRWMO) is required by law to submit an annual report to the Minnesota Board of Water and Soil Resources (BWSR), the state agency with oversight authority. This report consists of an up-to-date listing of LRRWMO Board members, activities related to implementing the LRRWMO Watershed Management Plan, the status of municipal water plans, financial summaries, and other work results. The report is due annually, 120 days after the end of the URRWMO’s fiscal year (April 30th).

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

Location: Watershed-wide

Results: Anoka Conservation District prepared the LRRWMO annual report to BWSR.

Website Maintenance

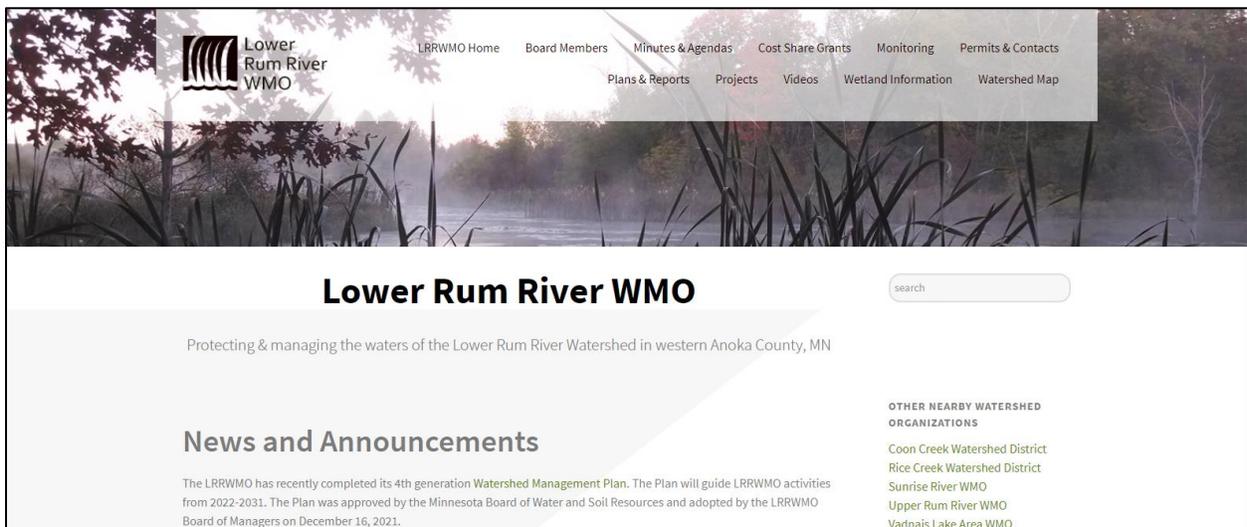
Partners: LRRWMO, ACD

Description: The Lower Rum River Watershed Management Organization contracted the Anoka Conservation District to maintain their official website.

Purpose: To increase awareness of the LRRWMO and its programs. The website also provides tools and information about the LRRWMO and results of WMO activities.

Location: <http://www.lrrwmo.org/>

Results: In 2022, ACD maintained the existing LRRWMO website, paid the domain registration and hosting fees, and posted meeting minutes and agendas.



Newsletters

Partners: ACD, LRRWMO

Description: ACD develops state-required LRRWMO outreach pieces such as newsletter articles or infographics to be printed in partnering city newsletters. Topics have included stormwater management, wetland regulation and protection, water quality best management practices, septic fix-up funding opportunities, groundwater, watershed planning, and others.

Purpose: To increase public awareness of the LRRWMO and its programs.

Location: Watershed-wide

Results: ACD prepared five articles for the LRRWMO in 2022. The topics included promotion of newly formed citizen advisory committee, Rum River stabilization projects, well-sealing grants, septic system fix-up grants, and smart salting training. Articles were printed in partnering city newsletters.

Septic System Fix-Up and Abandoned Well Sealing Grants Available!

Homeowners struggling with non-compliant septic systems, or needing to seal an old unused well can receive help. Grant funds are available to pay a large portion of these costs. Anyone interested should contact the Anoka Conservation District.



Septic systems are one of the most expensive and critical components of a home where city sewer and water is not present. Failure can be dramatic, such as sewage backing up onto the lawn. Or a septic system can be deemed non-compliant because it does not have enough vertical separation from saturated soils. A non-compliant septic system can be a problem for owners, or be an obstacle to selling the property. Grants are awarded because failing septic systems threaten groundwater and

Old, unused private wells are a less noticeable threat to groundwater, the aquifer. They can provide a direct route for pollutants to move from the surface to the aquifer. When selling a home, owners are required to disclose wells, and buyers often do not know what to look for. Grants can help protect groundwater and remediate old wells. Grants for well sealing are only available in designated Drinking Water Protection Areas (see the map).

Applications for both the Septic System Fix-Up Grants and the Well Sealing Grants are available from the Anoka Conservation District. Learn more about the available grants at www.AnokaSWCD.org/financial-support or by contacting Kris Larson (Kris.Larson@anokaswcd.org or 763-434-2030 ext. 11).

For more information on how groundwater becomes contaminated and what we can do to prevent contamination, search YouTube for "Septic System Fix-Up Grants". A video explains how to find a septic tank, how to travel and build a septic tank, and how to become contaminated. That "everyone" is talking about getting in from getting in to prevent pollution and for many years.

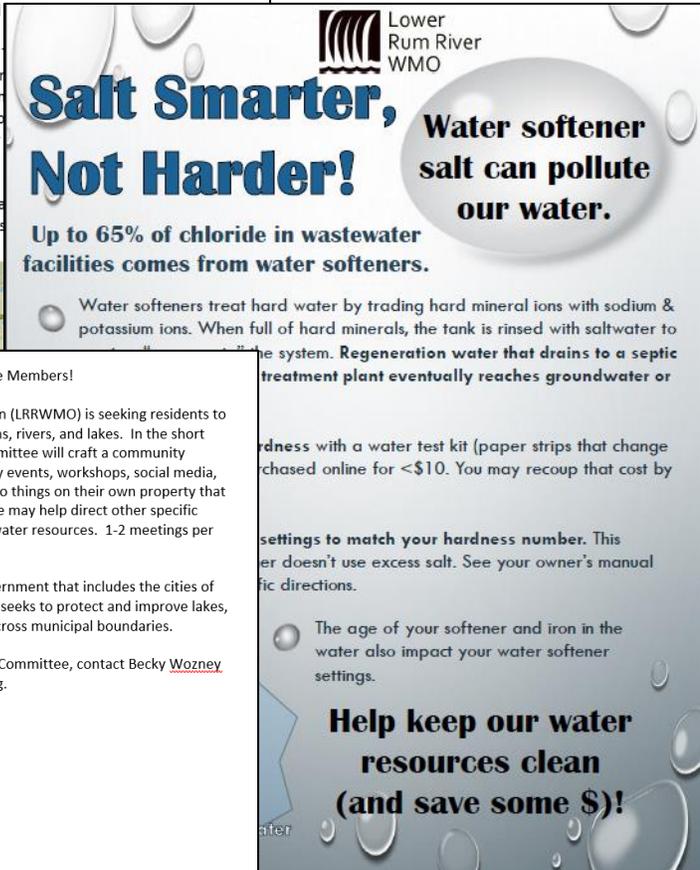
Title: Watershed Board Seeking Citizen Advisory Committee Members!

The Lower Rum River Watershed Management Organization (LRRWMO) is seeking residents to help guide their efforts to protect and improve local streams, rivers, and lakes. In the short term, residents participating in their citizen's advisory committee will craft a community outreach plan. That outreach effort will include community events, workshops, social media, and other communications that lead encourage others to do things on their own property that benefit water quality. Longer term, the advisory committee may help direct other specific projects. No qualifications are needed, just an interest in water resources. 1-2 meetings per year can be expected.

The LRRWMO is a joint powers special purpose unit of government that includes the cities of Ramsey, Anoka, and portions of Andover. The organization seeks to protect and improve lakes, rivers, streams, groundwater, and other water resources across municipal boundaries.

If you are interested in being a part of the Citizen Advisory Committee, contact Becky Wozney at 763-434-2030 ext. 140 or becky.wozney@anokaswcd.org.





Salt Smarter, Not Harder!

Water softener salt can pollute our water.

Up to 65% of chloride in wastewater facilities comes from water softeners.

Water softeners treat hard water by trading hard mineral ions with sodium & potassium ions. When full of hard minerals, the tank is rinsed with saltwater to regenerate the system. Regeneration water that drains to a septic treatment plant eventually reaches groundwater or

Hardness with a water test kit (paper strips that change color) can be purchased online for <\$10. You may recoup that cost by adjusting your settings to match your hardness number. This water softener doesn't use excess salt. See your owner's manual for specific directions.

The age of your softener and iron in the water also impact your water softener settings.

Help keep our water resources clean (and save some \$)!



Anoka County Water Resource Outreach Collaborative



- Partners:** ACD, Anoka County, WMO’s, watershed districts, cities and townships
- Description:** The Anoka County Water Resources Outreach Collaborative (AWROC) is a partnership formed in 2018 to implement a comprehensive water outreach and engagement program. Its purposes are to reduce duplication while improving the cost effectiveness of public outreach about water resources. There are multiple funding sources including cities, watershed organizations, Anoka Conservation District, and Watershed Based Implementation Funding from the State.
- Purpose:** To inform community residents, businesses, staff, and decision-makers about issues affecting local waterbodies and groundwater resources. To achieve behavioral changes that improve water quality and recruit people to install water quality projects.
- Location:** Countywide
- Results:** Lower Rum River WMO funds have used as match for a metro Watershed Based Implementation Funding grant. The LRRWMO participated in the process that developed the work plan for that funding. 2022 activities included three extra city newsletter articles (reported in previous section), river stewardship web video entitled “Our River Connection” and promotion of that video, securing interested landowners for rain gardens during 2022 City of Anoka street work (reported in an earlier section), and preparing a 10-year LRRWMO outreach plan in coordination with a citizen’s advisory committee.