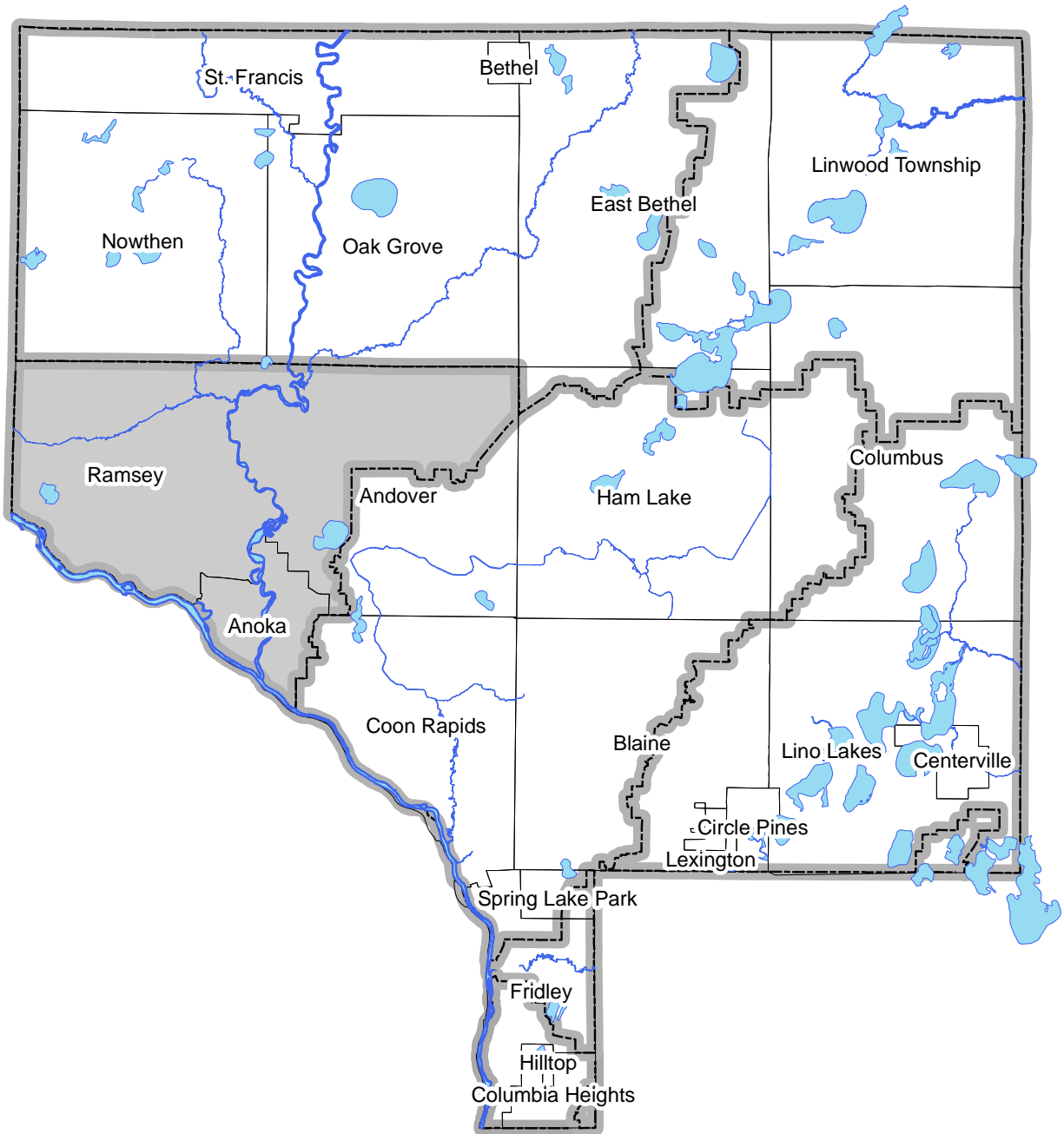


# Lower Rum River Watershed



Contact Info:

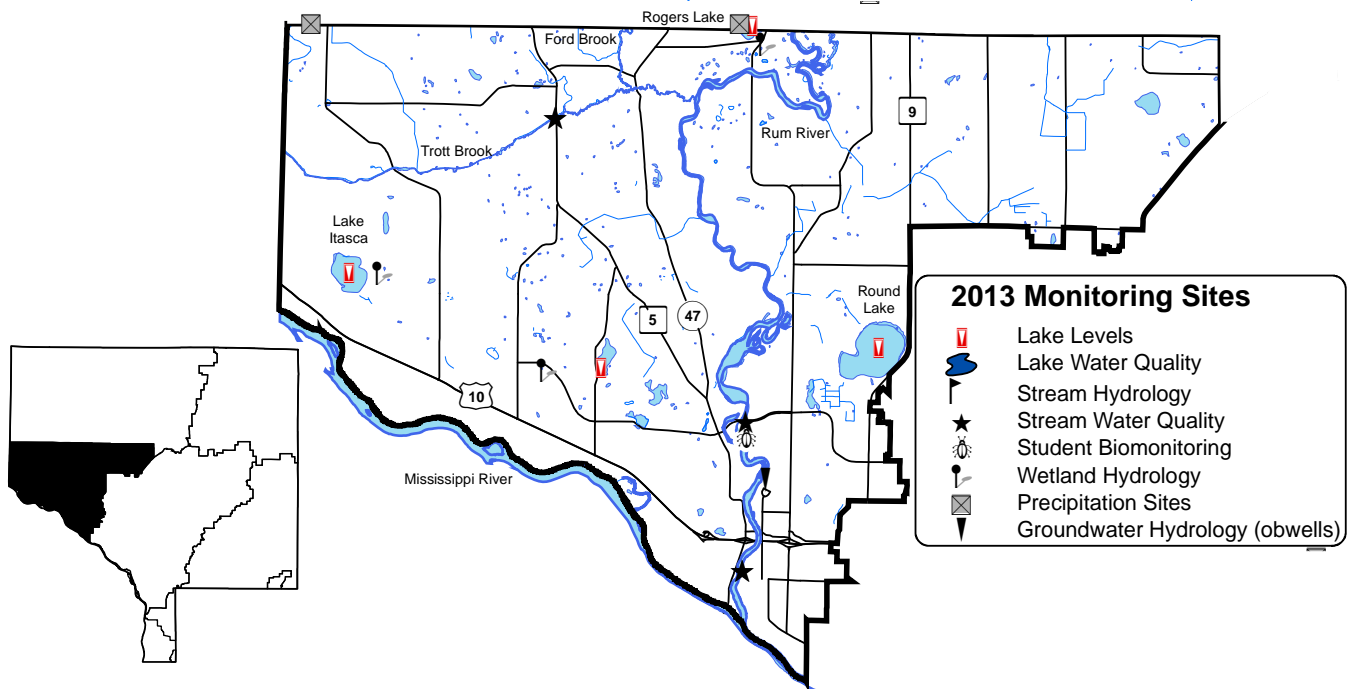
Lower Rum River Watershed Management Organization  
[www.lrrwmo.org](http://www.lrrwmo.org)  
763-421-8999

Anoka Conservation District  
[www.AnokaSWCD.org](http://www.AnokaSWCD.org)  
763-434-2030

# CHAPTER 4: LOWER RUM RIVER WATERSHED

Task	Partners	Page
Lake Levels	LRRWMO, ACD, volunteers, MN DNR	4-87
Stream Water Quality – Chemical	MPCA, ACD	4-89
Stream Water Quality – Biological	LRRWMO, ACD, ACAP, Anoka High School	4-94
Stream Hydrology	LRRWMO, ACD	4-97
Stream Rating Curves	LRRWMO, ACD	4-99
Wetland Hydrology	LRRWMO, ACD	4-100
Water Quality Grant Fund	LRRWMO, ACD, landowners	4-104
Public Education – Wetlands	LRRWMO, ACD	4-105
Review Member Community Local Water Plans	LRRWMO, ACD	4-109
LRRWMO Website	LRRWMO, ACD	4-110
Financial Summary		4-111
Recommendations		4-112
Groundwater Hydrology (obwells)	ACD, MNDNR	Chapter 1
Precipitation	ACD, volunteers	Chapter 1
		Chapter 1

ACAP = Anoka County Ag Preserves, ACD = Anoka Conservation District, LRRWMO = Lower Rum River Watershed Mgmt Org, MC = Metropolitan Council, MNDNR = MN Dept. of Natural Resources



# Lake Level Monitoring

**Description:** Weekly water level monitoring in lakes. The past five years are shown below, and all historic data are available on the Minnesota DNR website using the “LakeFinder” feature ([www.dnr.mn.us.state/lakefind/index.html](http://www.dnr.mn.us.state/lakefind/index.html)).

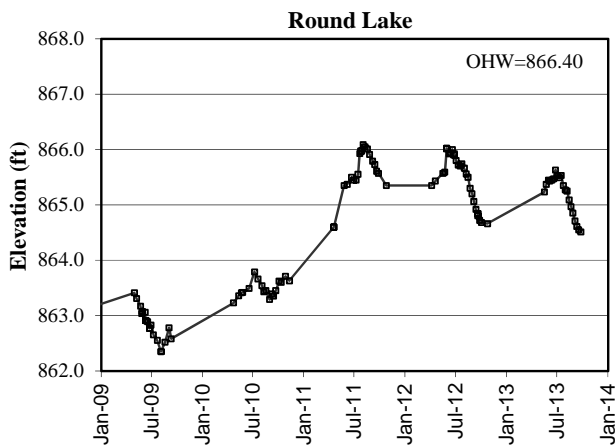
**Purpose:** To understand lake hydrology, including the impact of climate or other water budget changes. These data are useful for regulatory, building/development, and lake management decisions.

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

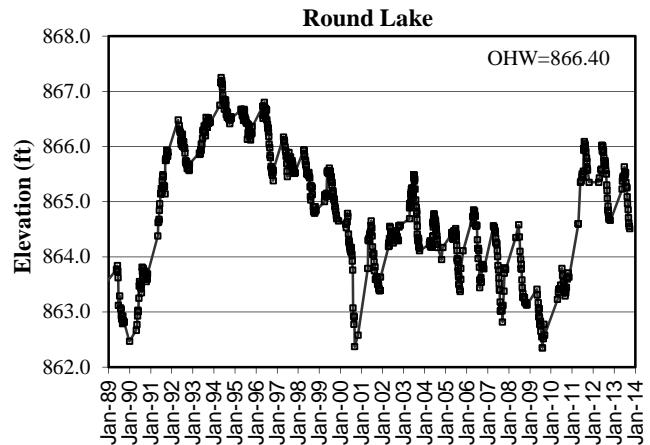
**Results:** Lake levels were measured by volunteers throughout the 2013 open water season. Lake gauges were installed and surveyed by the Anoka Conservation District and MN DNR. Lakes had sharply increasing water levels in spring and early summer 2013 when heavy rainfall totals occurred. Little rainfall fell later in the year and lake levels fell dramatically.

All lake level data can be downloaded from the MN DNR website’s Lakefinder feature. 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.

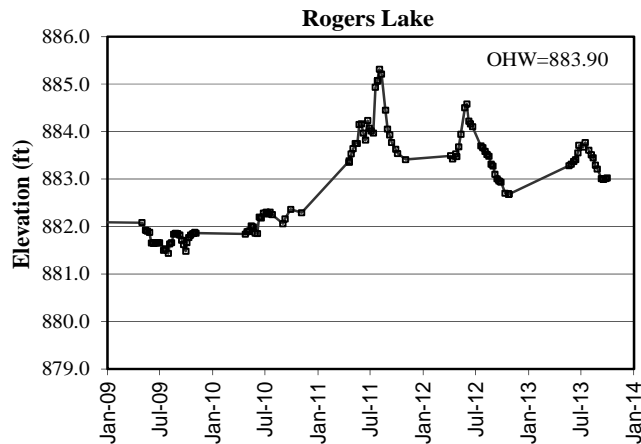
**Round Lake Levels – last 5 years**



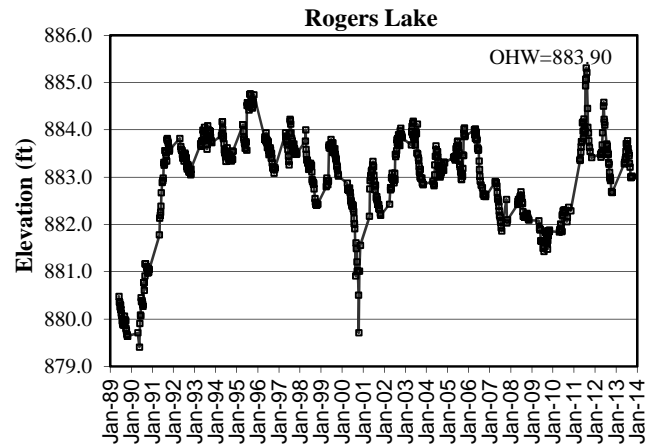
**Round Lake Levels – last 25 years**



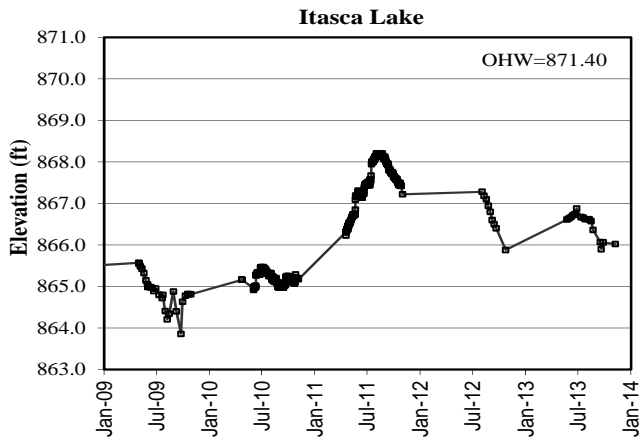
**Rogers Lake Levels – last 5 years**



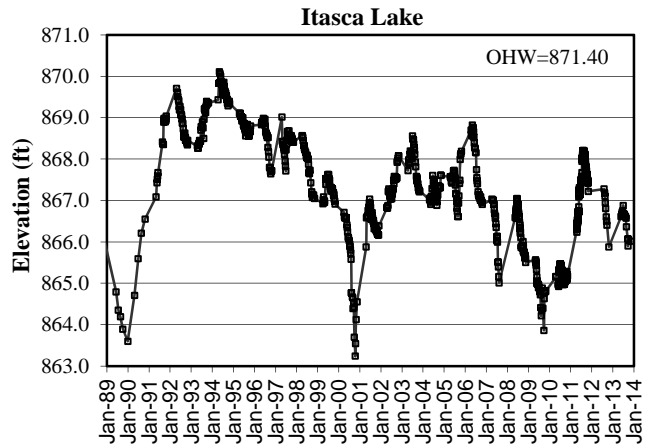
**Rogers Lake Levels – last 25 years**



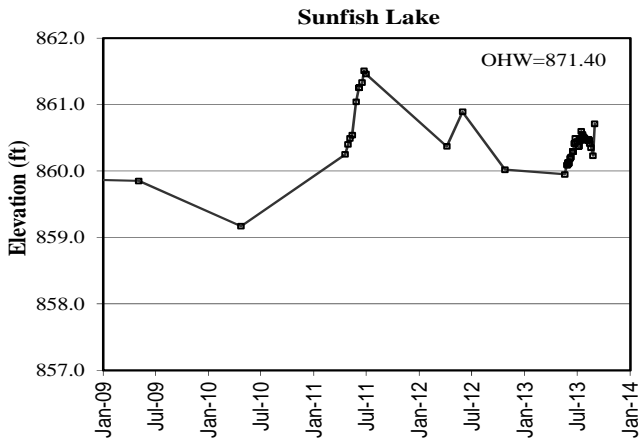
**Itasca Lake Levels – last 5 years**



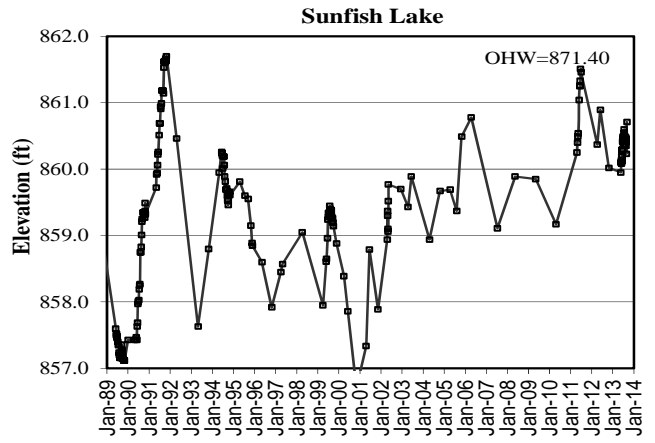
**Itasca Lake Levels – last 25 years**



**Sunfish/Grass Lake Levels – last 5 years**



**Sunfish/Grass Lake Levels – last 25 years**



## **Stream Water Quality - Chemical Monitoring**

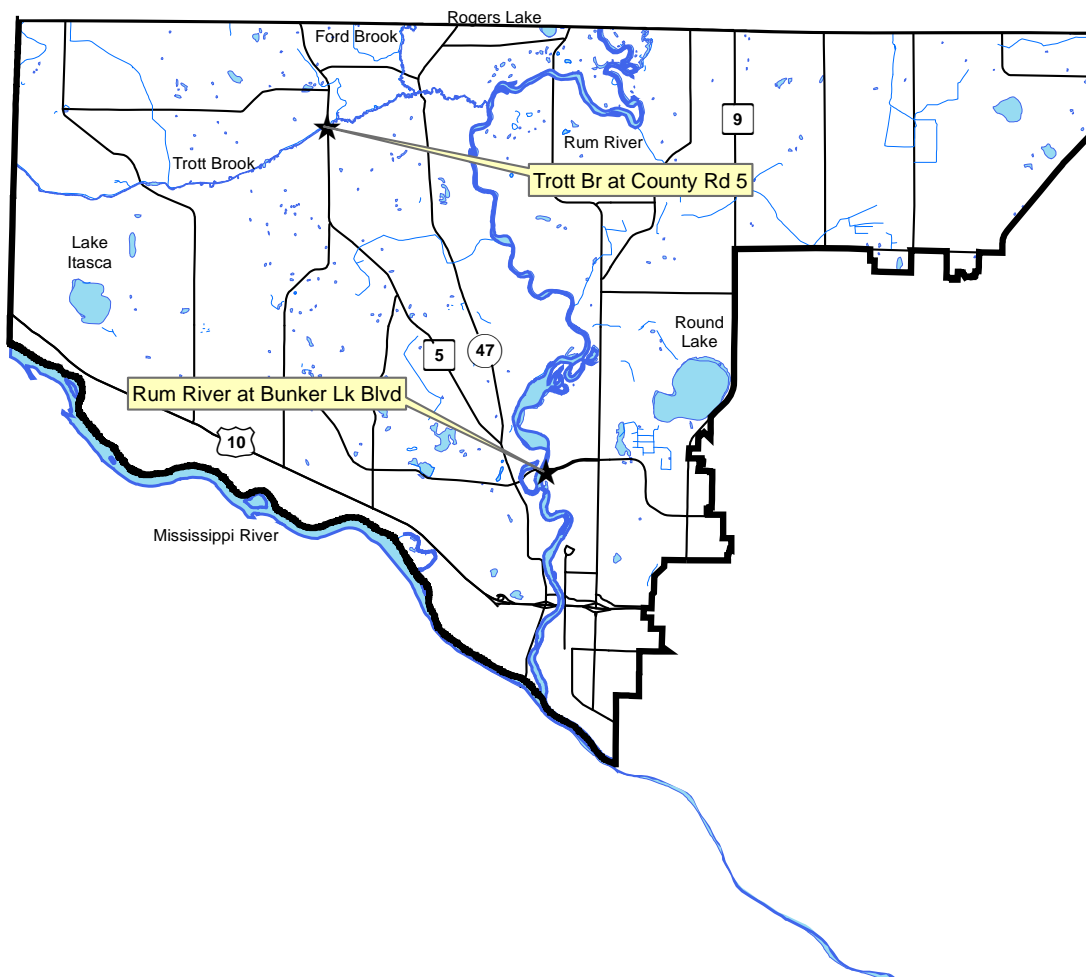
**Description:** The Anoka Conservation District (ACD) is conducting Surface Water Assessment Grant (SWAG) monitoring for the MPCA in 2013 and 2014. Monitoring events are scheduled May through September for of the following parameters: total suspended solids, chlorides, sulfate, hardness, calcium, magnesium, nitrogen-ammonia, total kjeldahl nitrogen, nitrate & nitrite, volatile suspended solids, e. coli, total phosphorus, Secchi tube transparency, dissolved oxygen, turbidity, temperature, conductivity, pH, and salinity.

**Purpose:** To provide an initial assessment of water quality to be used in the completion of the Rum River Watershed Restoration and Protection Plan (WRAPP).

**Locations:** Trott Brook at County Road 5  
Rum River at Bunker Lake Blvd

**Results:** Results are presented on the following pages.

### **2013 Lower Rum River Monitoring Sites**



## Stream Water Quality Monitoring

### TROTT BROOK

Trott Brook at Co. Rd. 5, Ramsey

STORET SiteID = S003-176

#### Years Monitored

Trott at Co. Rd. 5 1998, 2003, 2006, 2012, 2013

#### Background

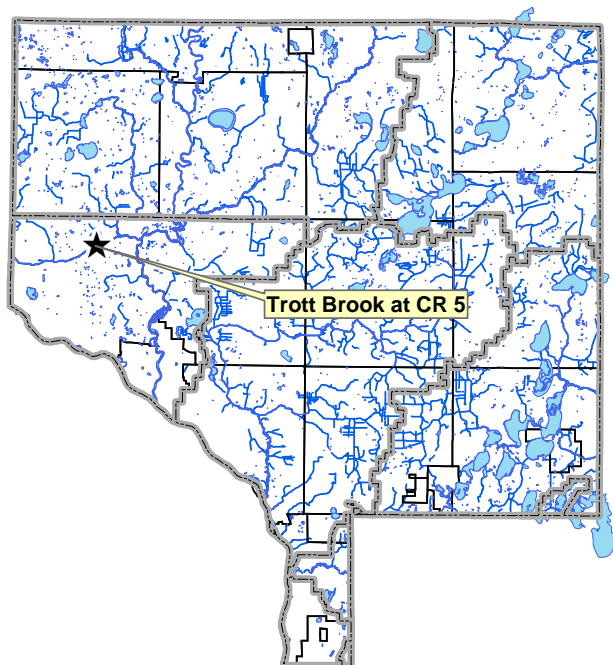
Trott Brook is a medium-sized creek that flows south through Sherburne County, paralleling the Anoka-Sherburne County boundary before turning east through the City of Ramsey where outlets to the Rum River. Overall, the watershed is rural or suburban residential, and areas within the watershed are undergoing rapid development. The creek is about 25 feet wide and 2.5 feet deep at the monitoring site during baseflow. The monitoring site is approximately one mile upstream of Trott Brook's confluence with Ford Brook.

#### Results and Discussion

This report includes data from 2013. A reason this monitoring is being performed is to gain additional historical data for the state to determine if the creek is meeting state water quality standards. That assessment process is part of the Rum River Watershed Restoration and Protection Project (WRAPP). The following is a summary of results.

- Dissolved constituents, as measured by conductivity and chlorides, in Trott Brook were similar to other Anoka County streams. Conductivity averaged 0.403 mS/cm (Maximum of 0.542 mS/cm and a minimum of 0.264 mS/cm). Chlorides averaged 25 mg/l (maximum of 32 mg/l and a minimum of 14 mg/l), and substantially better than state water quality standards.
- Phosphorous averaged higher the proposed MPCA water quality standard of 100 ug/l. If the proposed standard is approved Trott Brook often exceeds the limit, even during baseflow periods. Phosphorous in Trott Brook averaged 107 ug/l (maximum of 173 ug/l and a minimum of 55 ug/l).
- Suspended solids and turbidity both stayed below the state standards each sampling event. Total suspended solids averaged 7.5 mg/l (maximum of 24 mg/l and a minimum of 2 mg/l). Turbidity averaged 3.17 NTU (maximum of 11.00 NTU and a minimum of 0.00 NTU).
- pH was within the range considered normal and healthy for streams in this area. pH averaged 7.78 (maximum of 8.68 and a minimum of 7.18).
- Dissolved oxygen was periodically below the state water quality standard of 5 mg/L of dissolved oxygen (DO). Low DO in this creek was a known concern based on past monitoring. In Trott Brook five of 13 DO measurements were below 5 mg/L and all measurements averaged 5.35 mg/l (maximum of 8.23 mg/l and a minimum of 2.01 mg/l). Measurements were not taken in early morning when DO is typically lowest.

For a significant number of the results below there are no current state standards. However, this data will be used as a baseline for future assessments of the watershed.



## Trott Brook Water Quality Monitoring Results for 2013.

Grey columns indicate dates with E.coli samples only.

Trott Brook at CR 5			4/30/2013	5/21/2013	6/5/2013	6/17/2013	6/25/2013	7/2/2013	7/15/2013	7/23/2013
	Units	R.L.*	Results	Results	Results	Results	Results	Results	Results	Results
pH		0.1	7.76	7.62	7.90	8.68	7.39	7.73	7.18	7.33
Conductivity	mS/cm	0.01	0.288	0.264	0.433	0.444	0.303	0.418	0.292	0.412
Turbidity	NTU	1	3.0	11.0	5.1	4.5	8.3	1.4	0.6	1.1
D.O.	mg/L	0.01	8.02	6.59	8.23	7.35	2.01	5.42	3.35	2.29
D.O.	%	1	74.9	61.5	70.3	76.2	22.4	56.6	26.6	25.6
Temp.	°C	0.1	12.1	12.5	12.9	17.4	20.8	18.9	21.9	20.8
Salinity	%	0.01	0.01	0.01	0.21	0.21	0.14	0.20	0.14	0.20
T.P.	ug/L	10	72	132	107		173	150		138
TSS	mg/L	2	12	24	7		12	3		3
Cl	mg/L		21.2	25.3	25.6		14.2	20.1		18.7
Sulfate	mg/L		28.0	22.0	20.9		15.1	12.8		10.0
Hardness CaCO3	mg/L		197	176	228		155	238		237
Calcium	mg/L		52.00	46.90	60.10		40.70	62.30		60.00
Magnesium	mg/L		16.20	14.40	18.90		12.90	20.00		21.10
Secchi-tube	cm		>100	>100	>100	>100	>100	>100	>100	>100
Nitrogen, Ammonia	mg/L		0.29	0.65	0.37		<0.16	<0.16		0.23
TKN	mg/L		1.1	1.9	1.5		1.9	1.7		1.1
Nitrate plus Nitrite	mg/L		1.41	0.50	0.54		<0.2	0.29		<0.2
VSS	mg/L	2	7	16	6		12	3		3
E coli	MPN				225.0	178.9	44.1	28.1	98.7	13.5
Appearance			1B	1B	1B	1A	1B	1A	1A	1A
Recreational			2	2	2	1	1	1	1	1

			8/6/2013	8/19/2013	8/27/2013	9/4/2013	9/25/2013	Average	Min	Max
		Results	Results	Results	Results	Results	Results			
pH		0.1	7.75	7.90	7.95	8.00	8.01	7.78	7.18	8.68
Conductivity	mS/cm	0.01	0.428	0.426	0.462	0.527	0.542	0.403	0.264	0.542
Turbidity	NTU	1	1.7	0.2	0.0	1.1	3.2	3.17	0.00	11.00
D.O.	mg/L	0.01	5.27	4.35	3.36	6.54	6.83	5.35	2.01	8.23
D.O.	%	1	55.7	49.1	42.7	70	70.5	54.0	22.4	76.2
Temp.	°C	0.1	17.8	19.4	25.1	17.4	15.0	17.8	12.1	25.1
Salinity	%	0.01	0.21	0.20	0.22	0.25	0.26	0.17	0.01	0.26
T.P.	ug/L	10	55		93	72	74	107	55	173
TSS	mg/L	2	2		3	3	6	7.5	2.0	24.0
Cl	mg/L		27.3		30.2	30.8	32.4	25	14	32
Sulfate	mg/L		17.9		15.3	17.5	17.3	17.7	10.0	28.0
Hardness CaCO3	mg/L		249		250	241	199	217	155	250
Calcium	mg/L		60.10		58.20	57.90	49.10	54.73	40.70	62.30
Magnesium	mg/L		24.00		25.40	23.40	18.50	19.48	12.90	25.40
Secchi-tube	cm		>100	>100	>100	>100	>100	>100	0	>100
Nitrogen, Ammonia	mg/L		<0.16		<0.16	<0.16	<0.16	<0.25	<0.16	0.65
TKN	mg/L		0.7		0.7	0.4	0.7	1.17	0.40	1.90
Nitrate plus Nitrite	mg/L		<0.2		0.38	0.45	0.58	0.59	0.29	1.41
VSS	mg/L	2	2		3	3	5	6.0	2.00	16.00
E coli	MPN		21.8	8.4				77.3	8.4	225.0
Appearance			1A	1A	1A	1A	1A			
Recreational			2	1	1	1	1	1	1	2

## Stream Water Quality Monitoring

### RUM RIVER

Rum River at Bunker Lake Boulevard, Anoka

STORET SiteID = S007-555

#### Years Monitored

Rum River at Bunker L Blvd 2013

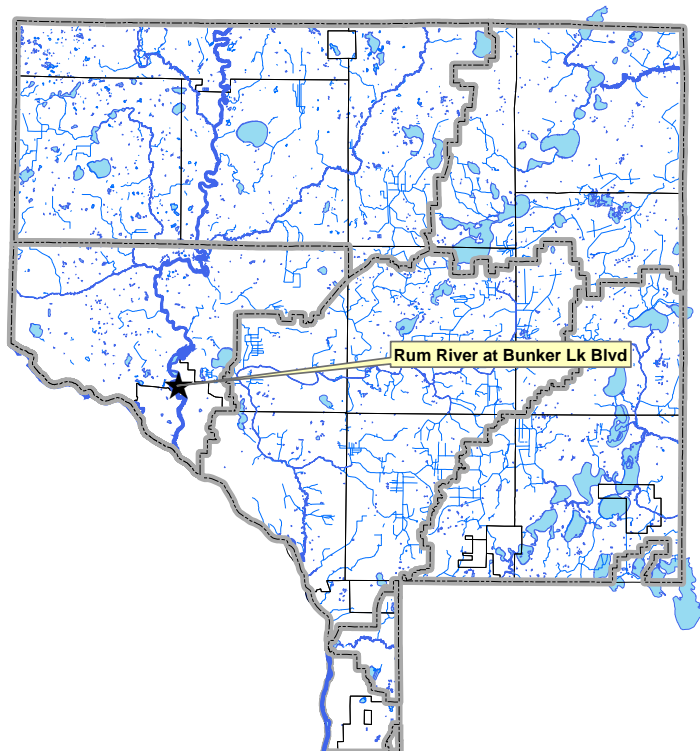
#### Background

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 river has both rocky riffles (northern part of county) as well as pools and runs with sandy bottoms. The river's condition is generally regarded as excellent. Most of the Rum River in Anoka County has a state "scenic and recreational" designation. The sampling site is at the pier located in River Bend Park, southwest of the Bunker Lake Boulevard bridge.

#### Results and Discussion

This report includes data from 2013. A reason this monitoring is being performed is to gain additional historical data for the state to determine if the river is meeting state water quality standards. That assessment process is part of the Rum River Watershed Restoration and Protection Project (WRAPP). The following is a summary of results.

- Dissolved constituents, as measured by conductivity and chlorides, in the Rum River were low when compared to Anoka County streams. Conductivity averaged 0.242 mS/cm Maximum of 0.336 mS/cm and a minimum of 0.150 mS/cm). Chlorides averaged 13 mg/l (maximum of 16 mg/l and a minimum of 6 mg/l), which is better than the state water quality standard.
- Phosphorous was typically higher than the proposed MPCA water quality standard of 100 ug/l, even during baseflow periods. Phosphorous results in the Rum River averaged 118 ug/l (maximum of 183 ug/l and a minimum of 71 ug/l).
- Suspended solids and turbidity both were below the state standards each sampling event and averaged well below the standards. Total suspended solids averaged 7.7 mg/l (maximum of 16 mg/l and a minimum of 2 mg/l). Turbidity averaged 75.76 NTU (maximum of 17.60 NTU and a minimum of 0.70 NTU).
- pH and dissolved oxygen were with the range considered normal and healthy for streams in this area. pH averaged 8.16 (maximum of 8.70 and a minimum of 7.57). DO averaged 7.76 mg/l (maximum of 10.15 mg/l and a minimum of 5.10 mg/l).



For a significant number of the results below there are no current state standards. However, this data will be used as a baseline for future assessments of the watershed.



## Rum River Water Quality Monitoring Results for 2013.

Grey columns indicate dates with E.coli samples only.

Rum River at Bunker Lk Boulevard			4/30/2013	5/21/2013	6/5/2013	6/17/2013	6/25/2013	7/2/2013	7/15/2013	7/23/2013
	Units	R.L.*	Results	Results	Results	Results	Results	Results	Results	Results
pH		0.1	7.91	7.7	7.82	8.61	7.71	7.57	7.73	8.14
Conductivity	mS/cm	0.01	0.150	0.193	0.220	0.214	0.192	0.173	0.250	0.272
Turbidity	NTU	1	8.0	9.0	9.2	6.3	17.6	2.8	6.3	4.5
D.O.	mg/L	0.01	9.96	7.98	7.10	7.06	6.19	5.10	6.76	7.31
D.O.	%	1	95.5	82.9	72.4	78.8	72.0	58.8	79.7	86.6
Temp.	°C	0.1	13.4	17.3	16.3	20.6	22.6	22.6	24.0	24.1
Salinity	%	0.01	0.00	0.00	0.10	0.10	0.09	0.08	0.12	0.13
T.P.	ug/L	10	109	128	128		173	183		127
TSS	mg/L	2	15	16	11		14	5		6
Cl	mg/L		12.0	16.0	11.5		9.2	6.2		12.5
Sulfate	mg/L		19.1	13.7	15		10.5	11.6		9
Hardness CaCO3	mg/L		93.3	119	93.1		96.2	92.2		142.0
Calcium	mg/L		24.60	31.80	24.80		25.20	24.30		35.90
Magnesium	mg/L		7.74	9.65	7.57		8.09	7.65		12.70
Secchi-tube	cm		79	>100	92	62	84.5	83	75	80
Nitrogen, Ammonia	mg/L		<0.16	0.37	<0.16		<0.16	0.23		0.51
TKN	mg/L		0.9	1.6	1.4		1.6	1.7		1.3
Nitrate plus Nitrite	mg/L		0.35	0.27	0.25		0.37	<0.2		0.31
VSS	mg/L	2	6	16	6		8	5		5
E coli	MPN				30.9	96.0	28.0	52.9	71.7	28.8
Chl a	ug/L				6.3		1.8	1.8		5.2
Pheophytin a	ug/L				5.25		3.19	1.38		1.68
Appearance			1B	1B	1B	1A	1B	1B	3	1B
Recreational			1	1	1	1	1	1	1	1

	Units	R.L.*	8/6/2013	8/19/2013	8/27/2013	9/4/2013	9/25/2013	Average	Min	Max
pH		0.1	8.52	8.66	8.56	8.44	8.7	8.16	7.57	8.70
Conductivity	mS/cm	0.01	0.263	0.265	0.287	0.336	0.326	0.242	0.150	0.336
Turbidity	NTU	1	3.4	1.5	0.7	2.3	3.3	5.76	0.70	17.60
D.O.	mg/L	0.01	8.24	8.26	7.77	8.95	10.15	7.76	5.10	10.15
D.O.	%	1	92.2	98.2	102.8	101.8	108.4	86.9	58.8	108.4
Temp.	°C	0.1	20.8	22.5	28.3	20.7	17.2	20.8	13.4	28.3
Salinity	%	0.01	0.13	0.13	0.14	0.16	0.16	0.10	0.00	0.16
T.P.	ug/L	10	71		100	91	73	118	71	183
TSS	mg/L	2	2		2	4	2	7.7	2.0	16.0
Cl	mg/L		13.5		15.1	15.8	16	13	6	16
Sulfate	mg/L		<12		10.6	11	11.5	12.4	9.3	19.1
Hardness CaCO3	mg/L		141.0		141.0	152.0	122	119	92	152
Calcium	mg/L		35.20		34.50	37.90	30.90	30.51	24.30	37.90
Magnesium	mg/L		13.00		13.30	14.00	10.90	10.46	7.57	14.00
Secchi-tube	cm		>100	>100	>100	>100	>100	>89	62	>100
Nitrogen, Ammonia	mg/L		<0.16		<.16	<0.16	<0.16	<0.22	<0.16	0.51
TKN	mg/L		0.7		1.3	0.7	0.7	1.19	0.70	1.70
Nitrate plus Nitrite	mg/L		<0.2		0.44	0.42	0.43	0.36	0.25	0.44
VSS	mg/L	2	2		2	4	2	5.6	2.00	16.00
E coli	MPN		42.0	32.3				47.8	28.0	96.0
Chl a	ug/L		4.2		3.6	2.7		3.7	1.8	6.3
Pheophytin a	ug/L		2.77		1.45	<1		<2.4	<1.0	5.3
Appearance			2	1A	1A	1A	1A			
Recreational			1	1	1	1	1	1	1	1

## **Stream Water Quality – Biological Monitoring**

---

- Description:** This program combines environmental education and stream monitoring. Under the supervision of ACD staff, high school science classes collect aquatic macroinvertebrates from a stream, identify their catch to the family level, and use the resulting numbers to gauge water and habitat quality. These methods are based upon the knowledge that 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 pollution intolerant. Other families can thrive in low quality water. Therefore, a census of stream macroinvertebrates yields information about stream health.
- Purpose:** To assess stream quality, both independently as well as by supplementing chemical data. To provide an environmental education service to the community.
- Locations:** Rum River behind Anoka High School, south side of Bunker Lake Blvd, Anoka
- Results:** Results for each site are detailed on the following pages.

---

### **Tips for Data Interpretation**

Consider all biological indices of water quality together rather than looking at each alone, because each gives only a partial picture of stream condition. Compare the 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 (mayflies), Plecoptera (stoneflies), Trichoptera (caddisflies). 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.

<b>FBI</b>	<b>Stream Quality Evaluation</b>
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

- % Dominant Family High numbers indicates an uneven community, and likely poorer stream health.
-

# Biomonitoring

## RUM RIVER

behind Anoka High School, Anoka  
STORET SiteID = S003-189

### Last Monitored

By Anoka High School in 2013

### Monitored Since

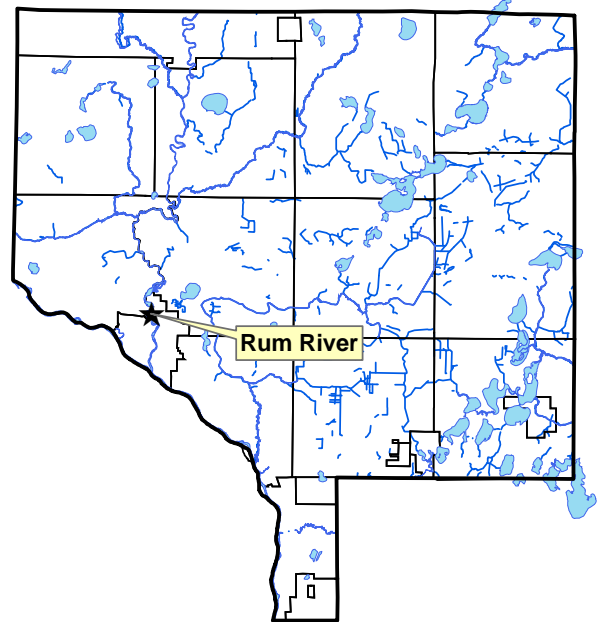
2001

### Student Involvement

130 students in 2013, approximately 610 since 2001

### Background

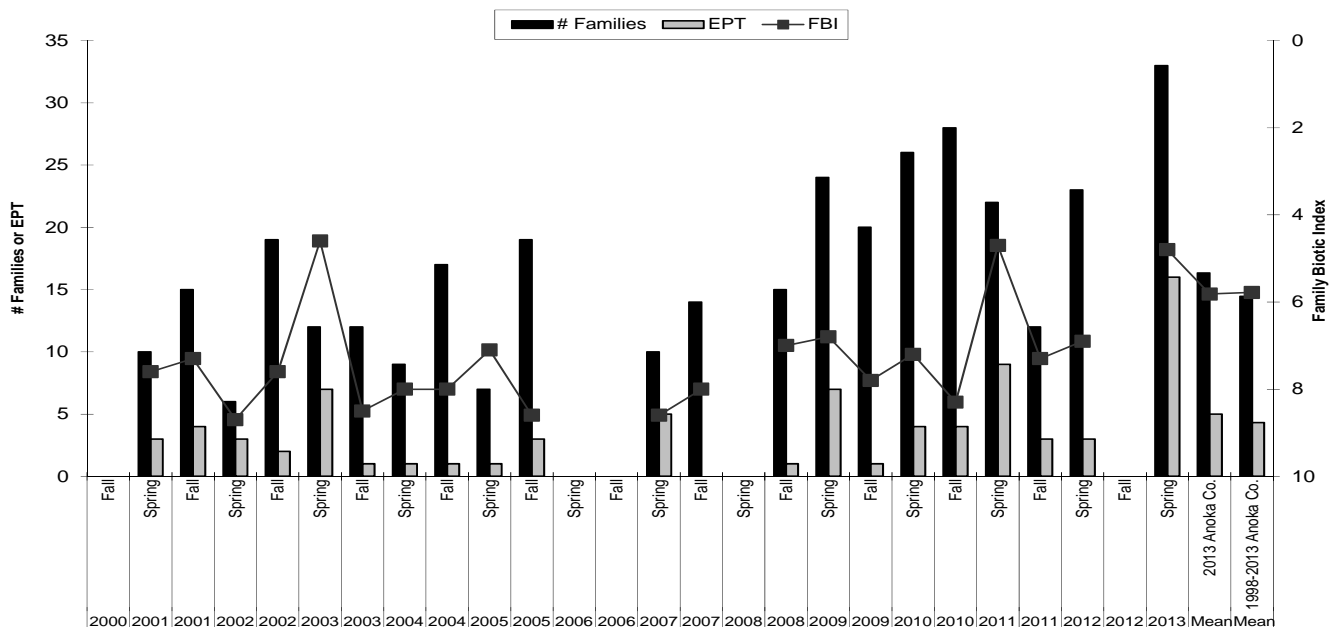
The Rum River originates from Lake Mille Lacs, and flows south through western Anoka County where it joins the Mississippi River in the City of Anoka. In Anoka County the river has both rocky riffles (northern part of county) as well as pools and runs with sandy bottoms. The river's condition is generally regarded as excellent. Most of the Rum River in Anoka County has a state "scenic and recreational" designation. The sampling site is near the Bunker Lake Boulevard bridge behind Anoka High School. Most sampling has been conducted in a backwater rather than the main channel.



### Results

Anoka High school classes monitored the Rum River in spring of 2013 with Anoka Conservation District (ACD) oversight. The results for spring 2013 were better than previous years. More families, 33 in total, were found here than in any other Anoka County stream. This should be expected as most other sites are small streams and this is a larger river. The number of sensitive EPT families (16) and the FBI score (4.8) were the best in Anoka County and substantially above the county averages.

### Summarized Biomonitoring Results for Rum River behind Anoka High School



## Biomonitoring Data for the Rum River behind Anoka High School

Data presented from the most recent five years. Contact the ACD to request archived data.

Year	2009	2009	2010	2010	2011	2011	2012	2013	Mean	Mean
Season	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Spring	2013 Anoka Co.	1998-2013 Anoka Co.
FBI	6.80	7.80	7.20	8.30	4.70	7.30	6.90	4.80	5.8	5.8
# Families	24	20	26	28	22	12	23	33	16.3	14.5
EPT	7	1	4	4	9	3	3	16	5.0	4.3
Date	8-May	28-Sep	18-May	7-Oct	10-Jun	5-Oct	8-May	14-May		
Sampled By	AHS	AHS	AHS	AHS	ACD	ACD	AHS	AHS		
Sampling Method	MH	MH	MH	MH	MH	MH	MH	MH		
Mean # Individuals/Rep.	880	585	443	816	604	188	502	449.3		
# Replicates	1	2	1	1	1	1	2	4		
Dominant Family	Siphonuridae	Hyalellidae	Gastropoda	Hyalellidae	baetidae	hyalellidae	silphonuridae	Perlodidae		
% Dominant Family	40.7	39.1	31.8	34.1	57.5	63.3	37.8	27.1		
% Ephemeroptera	48.2	0.9	8.1	0.9	59.3	11.2	44.9	31.8		
% Trichoptera	0.1	0	0	0.2	1	0	1.2	0.05		
% Plecoptera	2.6	0	0.5	0	3.8	0.5	0	36.6		

## Supplemental Stream Chemistry Readings

Data presented from the most recent five years. Contact the ACD to request archived data.

Parameter	5/8/2009	9/28/2009	5/18/2010	10/7/2010	6/10/2011	10/5/2011	5/8/2012	5/13/2013
pH	7.91	7.82	7.24	7.22	7.84	7.98	8.10	7.69
Conductivity (mS/cm)	0.276	0.421	0.207	0.399	0.296	0.296	0.205	0.181
Turbidity (NTU)	6	5	7	7	18	10	7	5
Dissolved Oxygen (mg/L)	10.82	8.76	6.93	na	6.85	7.91	7.87	10.00
Salinity (%)	0.01	0.01	0	0.01	0.01	0.01	0.00	0.00
Temperature (°C)	17.2	15.5	14.8	12.2	20.7	15.3	15.7	13.0

## Discussion

Both chemical and biological monitoring indicate the good quality of this river. Habitat is ideal for a variety of stream life, and includes a variety of substrates, plenty of woody snags, riffles, and pools. Water chemistry monitoring done at various locations on the Rum River throughout Anoka County found that water quality is also good. Both habitat and water quality decline, but are still good, in the downstream reaches of the Rum River where development is more intense and the Anoka Dam creates a slow moving pool.

Historically, biomonitoring near Anoka was conducted mostly in a backwater area that has a mucky bottom and does not receive good flow. This area is unlikely to be occupied by families which are pollution intolerant. In recent years more sampling occurred in the main channel which has more diverse habitat. This change in sampling explains the apparent improvement in the invertebrate community in recent years.



## Stream Hydrology

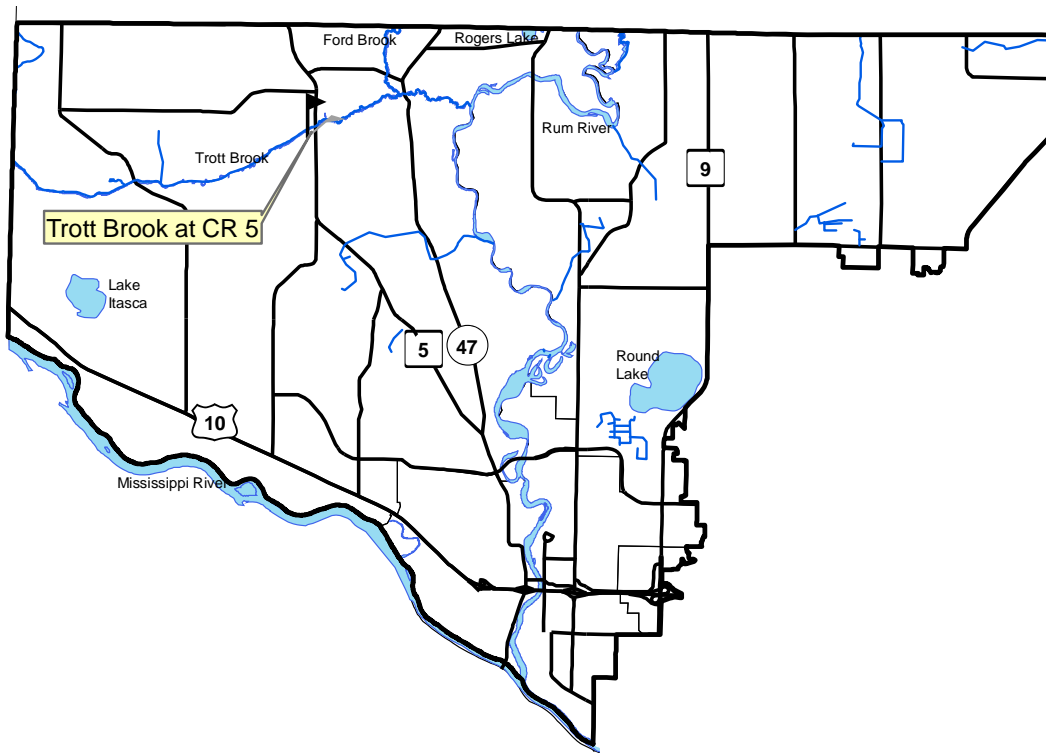
---

**Description:** Continuous water level monitoring in streams.

**Purpose:** To provide understanding of stream hydrology, including the impact of climate, land use or discharge changes. These data are also needed for calculation of pollutant loads and use of computer models for developing management strategies. In the Sunrise River Watershed, the monitoring sites are the outlets of the Sunrise River Watershed Management Organization's jurisdictional area, thereby allowing estimation of flows and pollutant loads leaving the jurisdiction.

**Locations:** Trott Brook at County Road 5

### Lower Rum River Watershed Stream Hydrology Monitoring Sites



# Stream Hydrology Monitoring

## TROTT BROOK

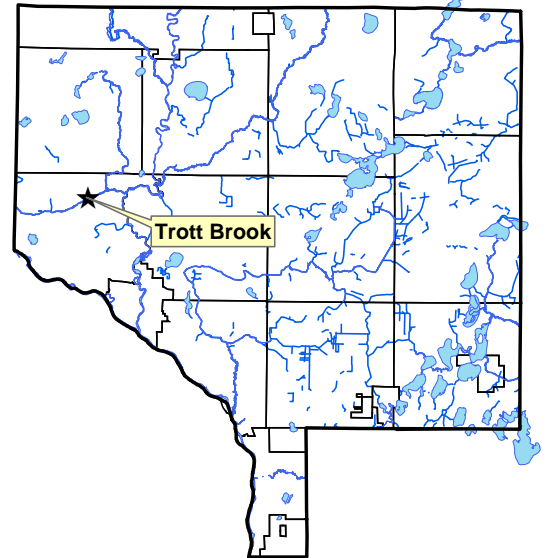
at County Road 5 (Nowthen Blvd NW), Ramsey  
 STORET SiteID = S003-176

### Notes

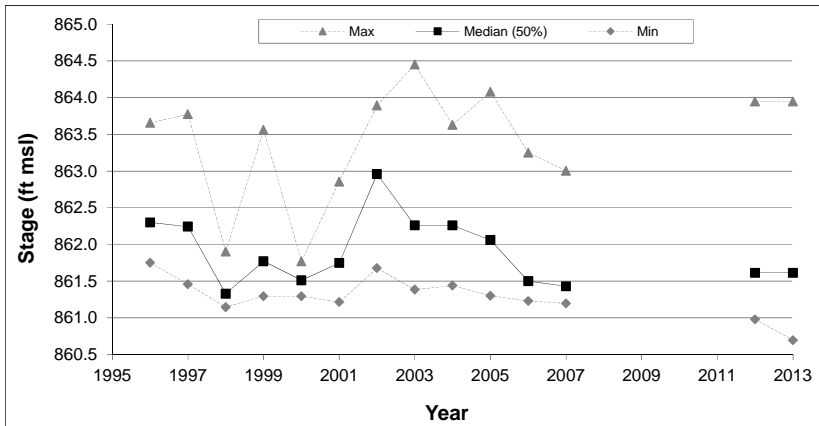
Trott Brook is a medium-sized creek that flows south through Sherburne County, paralleling the Anoka-Sherburne County boundary before turning east through the City of Ramsey where outlets to the Rum River. Overall, the watershed is rural or suburban residential, and areas within the watershed are undergoing rapid development. The creek is about 25 feet wide and 2.5 feet deep at the monitoring site during baseflow.

A rating curve for this site was developed in 2013:

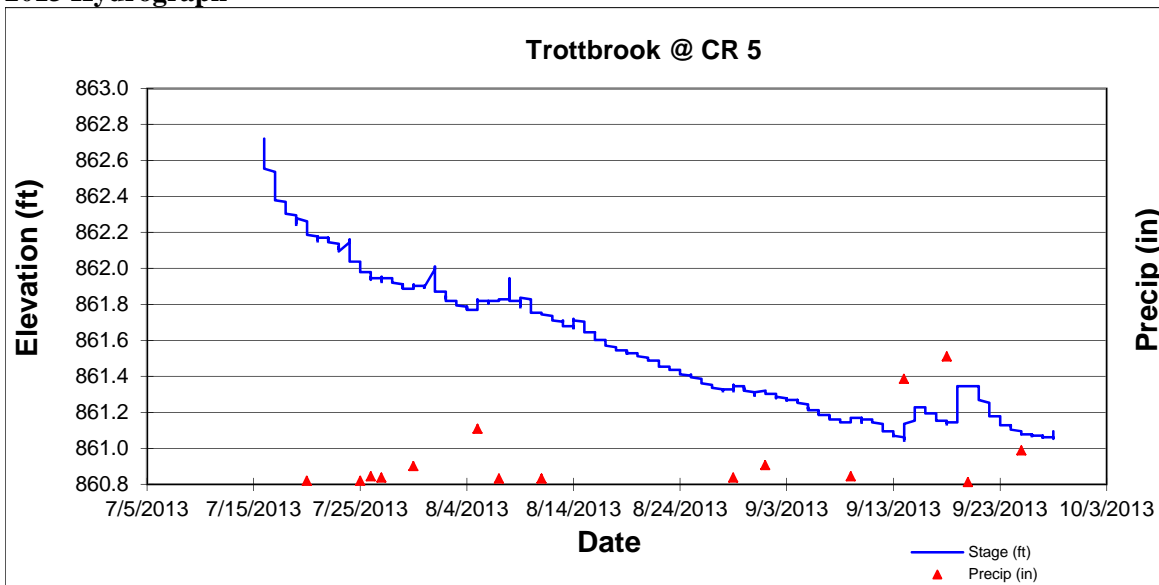
$$\text{Flow (cfs)} = 16.39(\text{stage}-859)^2 - 63.716(\text{stage}-859) + 65.908$$



### Summary of All Monitored Years



### 2013 Hydrograph



## Stream Rating Curves

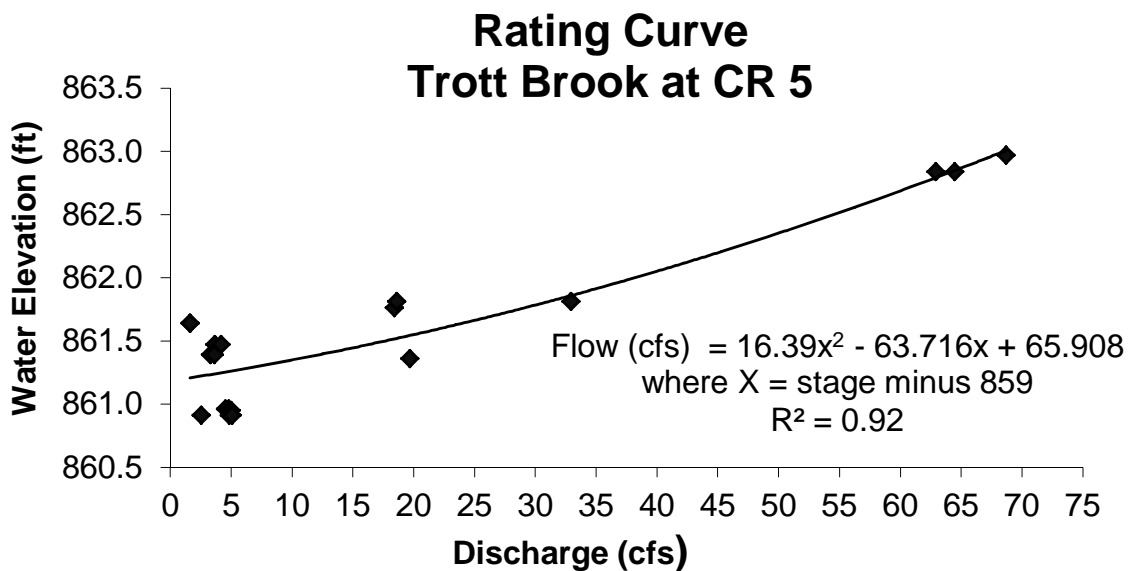
**Description:** Rating curves are the mathematical relationship between water level and flow volume. They are developed by manually measuring flow at a variety of water levels. These water level-flow measurements are plotted and the equation of a line best fitting these points is calculated. That equation allows flow to be calculated from water level measurements. Continuous water level monitoring in streams.

**Purpose:** To allow flow to be calculated from water level, which is easier to monitor.

**Locations:** Trott Brook at County Road 5

**Results:** In 2013 ACD staff manually measured flow in Trott Brook under a variety of water level conditions. 19 such measurements were used to develop the rating curve presented below. The equation was used to calculate flow from continuous stream water level monitoring measurements.

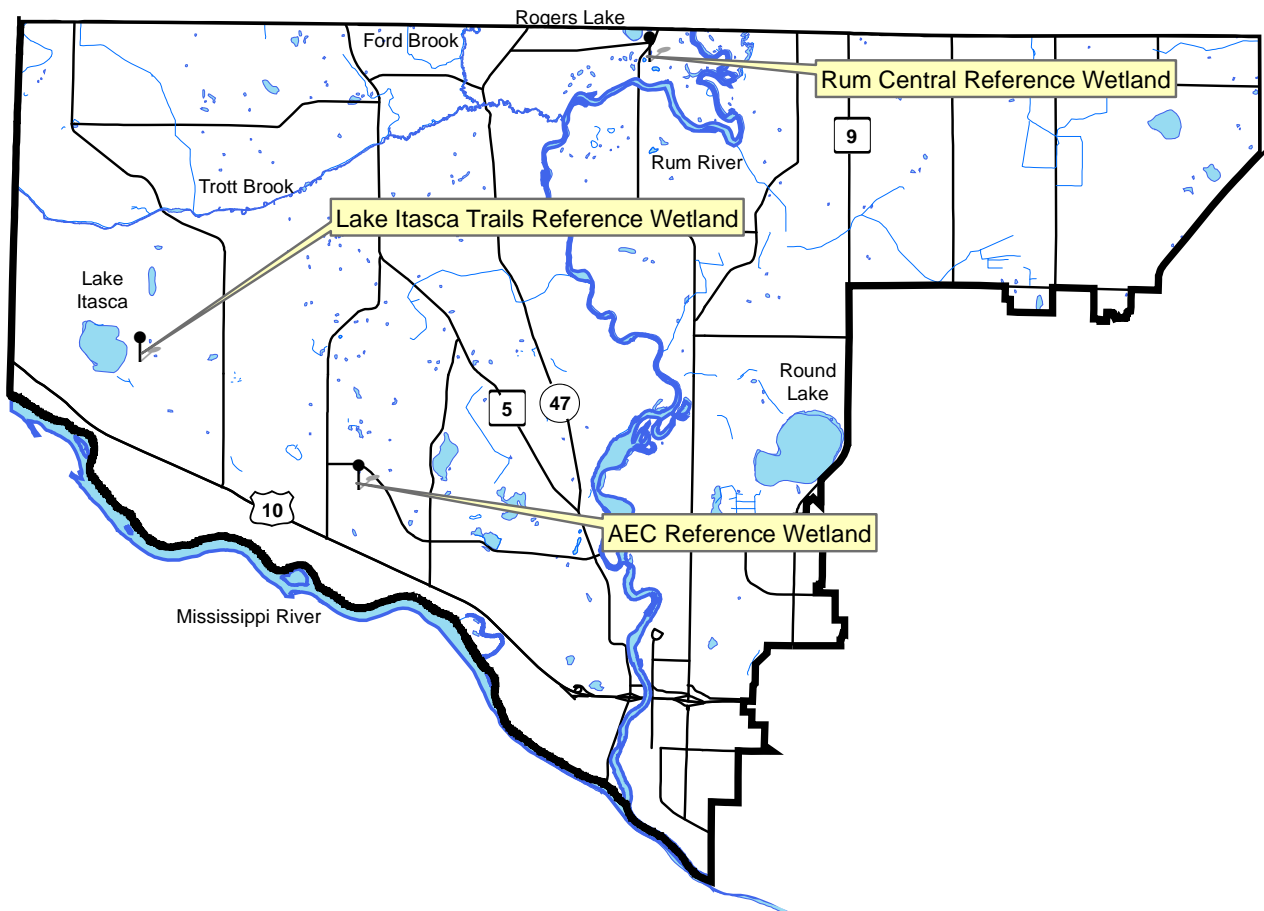
### Trott Brook at County Road 5 Rating Curve



# Wetland Hydrology

- Description:** Continuous groundwater level monitoring at a wetland boundary to a depth of 40 inches. County-wide, the ACD maintains a network of 23 wetland hydrology monitoring stations.
- Purpose:** To provide understanding of wetland hydrology, including the impact 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:** AEC Reference Wetland, Connexus Energy Property on Bunker Lake Blvd, Ramsey  
Rum River Central Reference Wetland, Rum River Central Park, Ramsey  
Lake Itasca Trail Reference Wetland, Lake Itasca Park, Ramsey
- Results:** See the following pages. Raw data and updated graphs can be downloaded from [www.AnokaNaturalResources.com](http://www.AnokaNaturalResources.com) using the Data Access Tool.

## Lower Rum River Watershed Wetland Hydrology Monitoring Sites





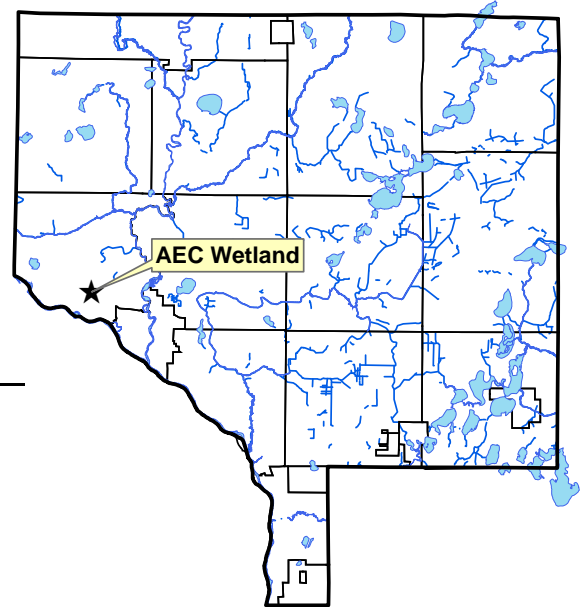
# Wetland Hydrology Monitoring

## AEC REFERENCE WETLAND

Cottonwood Park, adjacent to Connexus Energy Offices (formerly Anoka Electric Coop), 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



### Soils at Well Location:

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

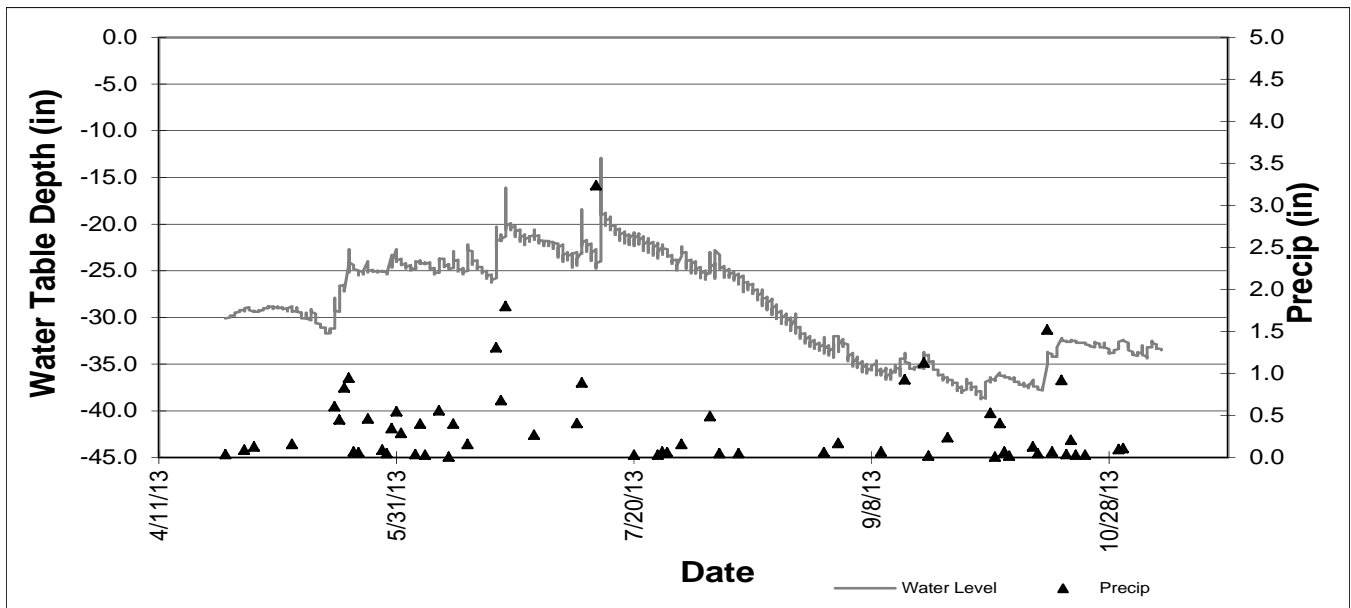
**Surrounding Soils:** Hubbard coarse sand

### 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:** Well is located at the wetland boundary.

### 2013 Hydrograph



Well depth was 42 inches, so a reading of -42 indicates water levels were at an unknown depth greater than or equal to 42 inches.

# Wetland Hydrology Monitoring

## RUM RIVER 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

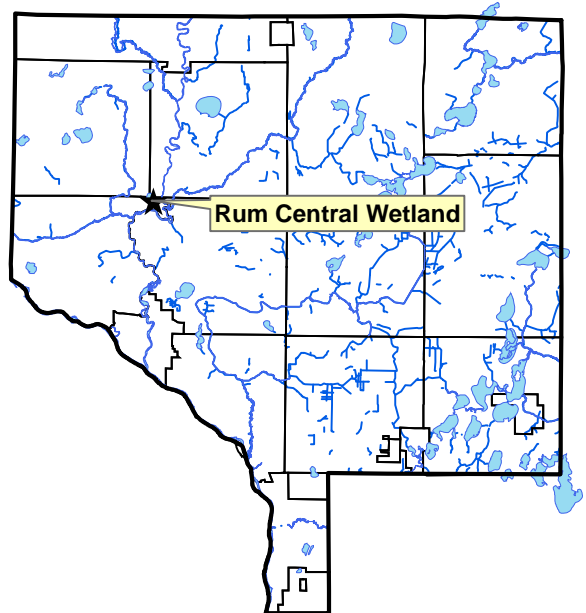
### Soils at Well Location:

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	-

**Surrounding Soils:** Zimmerman fine sand

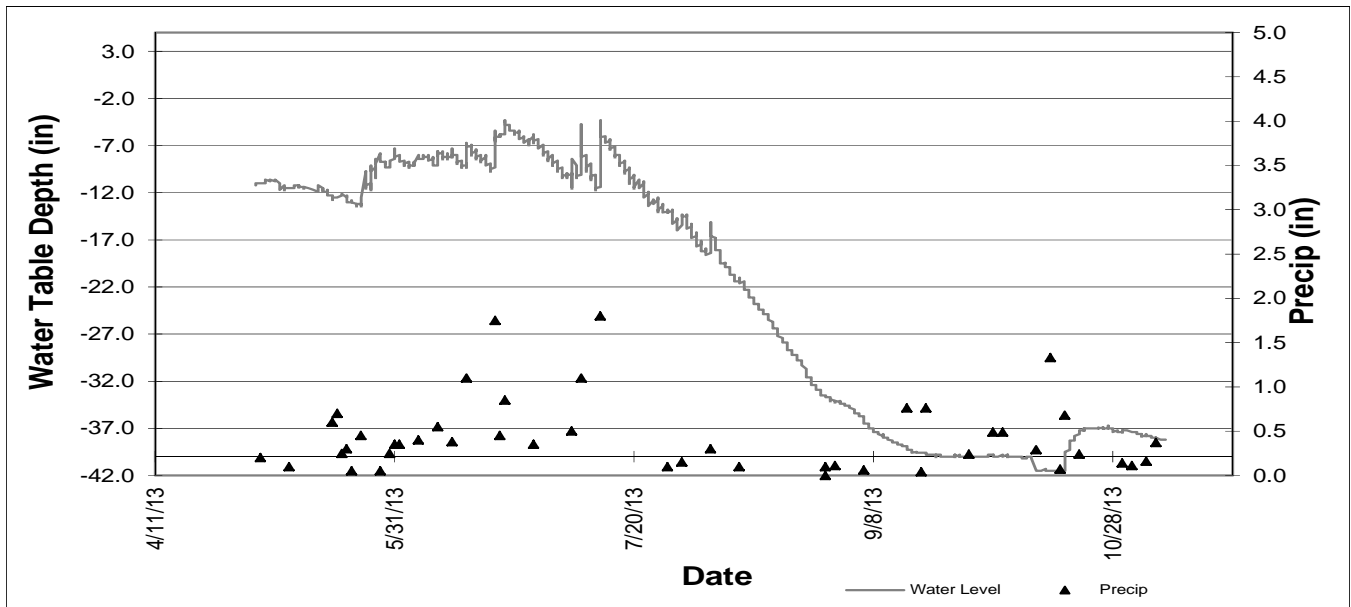
### Vegetation at Well Location:

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:** Well is located at the wetland boundary.

### 2013 Hydrograph



Well depth was 40 inches, so a reading of -40 indicates water levels were at an unknown depth greater than or equal to 40 inches.

# Wetland Hydrology Monitoring

## LAKE ITASCA TRAILS REFERENCE WETLAND

Lake Itasca Trails Park, Ramsey

### Site Information

**Monitored Since:** 2013  
**Wetland Type:** 2/6  
**Wetland Size:** ~10 acres  
**Isolated Basin?** Yes  
**Connected to a Ditch?** No

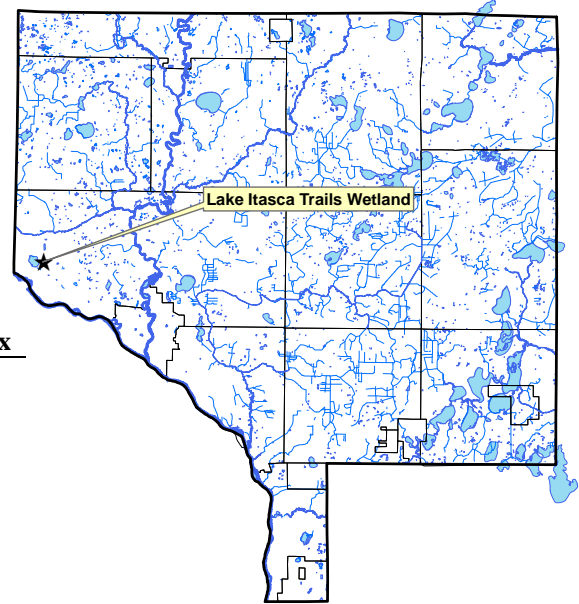
### Soils at Well Location:

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	-

**Surrounding Soils:** Hubbard coarse sand

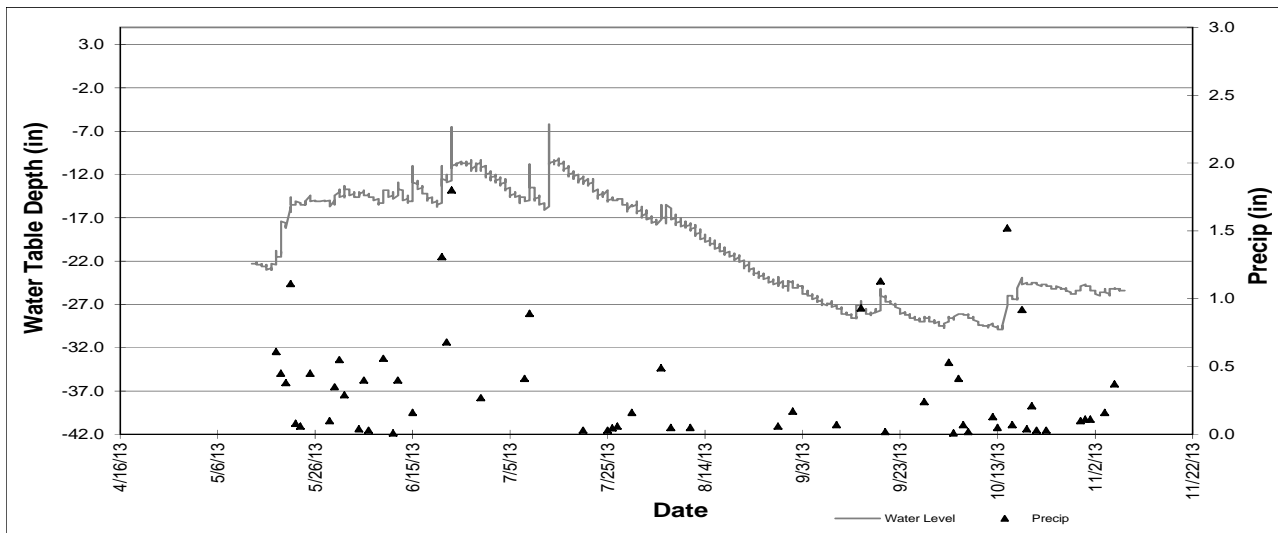
### Vegetation at Well Location:

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:** Well is located about 10 feet east and about 6 inches downslope of the wetland boundary. DNR Public Water Wetland 2-339.

### 2013 Hydrograph



Well depth was 40 inches, so a reading of -40 indicates water levels were at an unknown depth greater than or equal to 40 inches.

## Water Quality Grant Fund

**Description:** The LRRWMO provided cost share for projects on either public or private property that will improve water quality, such as repairing streambank erosion, restoring native shoreline vegetation, or rain gardens. This funding was administered by the Anoka Conservation District, which works with landowners on conservation projects. Projects affecting the Rum River were given the highest 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 buffers or other structures that filter runoff before it reaches the water bodies.

**Results:** Projects receiving grant funds are reported in the year they are installed. In 2013 the Geldacker Mississippi Riverbank Stabilization used \$1,431.20 of LRRWMO cost share dollars.

### 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 Riverbank bluff stabilization	-	\$ 52.05
2010 LRRWMO Contribution	+	\$ 0
2010 LRRWMO Expenses	-	\$ 0
2011 LRRWMO Contribution	+	\$ 0
2011 Expense - Blackburn Rum riverbank	-	\$ 543.46
2012 LRRWMO Contribution	+	\$1,000.00
2012 Expense – Smith Rum Riverbank	-	\$1,596.92
2013 LRRWMO Contribution	+	\$1,000.00
2013 Expense – Geldacker Mississippi Riverbank	-	\$1,431.20
<b>Fund Balance</b>		<b>\$ 0.00</b>

### Geldacker Mississippi River Stabilization

Funding for this project has been allocated, but not yet distributed. Work is currently underway but not yet completed. The project will stabilize approximately 100 linear feet of severely eroding riverbank on the Mississippi River. The landowner has been losing approximately 1 foot of shoreline per year. This project will reduce the sediment load directly discharged to the Mississippi by about 1,600 cubic feet/year. The use of native grasses will also provide some food/habitat along the river corridor.

Due to the project being located on a cut bank (outside bend) of the river, the project required engineering and funds were secured through NPEAP to complete the design. The design consists of hard-armoring (riprap) the toe of the slope up to the 10-year flood elevation. Above the riprap, the slope will be stabilized using a permanent turf reinforcement mat (Armormax) and a certified MNDOT native seed mix to provide long-term stabilization.

#### Project Funding

LRRWMO Water Quality Cost Share	\$1,431.20
Ag Preserves Conservation	\$1,711.31
Ag Preserves Water Quality Cost Share	\$35.37
Ag Preserves Natural Resource Conservation	\$4,000.00
Landowner	\$27,822.12
<b>TOTAL</b>	<b>\$35,000.00</b>



## **Wetland Public Education**

---

### **Website – Wetland Regulatory Information**

**Description:** The Lower Rum River Watershed Management Organization (LRRWMO) contracted the Anoka Conservation District (ACD) to create a one-stop-shop website with information for landowners about wetland regulation.

**Purpose:** To improve public understanding of wetland regulation with the aim of decreasing inadvertent violations.

**Location:** Watershed-wide

**Results:** The Anoka Conservation District (ACD) substantially increased information on the ACD's website about wetland regulation, adding pages about:

- The MN Wetland Conservation Act
- Agencies
- Request for assistance form
- Map and contact information for local governmental units (LGU's) with permitting authority
- Frequently asked questions

This website will be linked from LGU and WMO websites.

The LRRWMO discussed whether this information should be on the WMO website. It was determined it was better placed on ACD's website so that it showed and included portions of member cities that are outside of the LRRWMO.

# Newsletter

**Description:** The Lower Rum River Watershed Management Organization (LRRWMO) contracted the Anoka Conservation District (ACD) to create a series of public education newsletter articles.

**Purpose:** To improve public understanding of the LRRWMO, its functions, and accomplishments.

**Location:** Watershed-wide


**Results:** The Anoka Conservation District (ACD) drafted two newsletters and sent each to local community leaders as well as local newspapers. Each was printed in several city newspapers. Both newsletters focused on public education regarding wetlands. The articles included information on recognizing wetlands as well as their values and benefits. Brief explanations of wetland regulations and penalties for rule violations were included in both articles. Directives on how to acquire additional information regarding wetlands were also provided.

**STAY OUT OF HOT WATER AROUND WETLANDS**

As warm weather comes so do questions about wetlands. Outdoor projects in and around wetlands can get the owner into "hot water" if proper permits are not obtained. The laws are complex. And "I didn't know" is not an acceptable excuse. But help does exist...for free! Your local watershed organization and the Anoka Conservation District can be your guide.

Wetlands are areas in the landscape that naturally have saturated soils or standing water. Along with the presence of water, soils and vegetation are also used to define legal wetland boundaries. Professional wetland delineators determine the wetland boundary. The water edge is not necessarily the same as a wetland boundary.

*Some wetlands rarely have standing water. These seasonal wetlands have a high water table in the spring and then dry out later in the year.*



**Lower Rum River Watershed Management Organization**  
<http://www.anokanaturalresources.com/lrrwmo>  
 Phone: 763-767-5131

**Coon Creek Watershed District**  
[www.cooncreekwd.org](http://www.cooncreekwd.org)  
 Phone: 763-755-0975

**Anoka Conservation District**  
[www.anokawcd.org](http://www.anokawcd.org)  
 Phone: 763-434-2030

Filling, draining, excavating, or building within a wetland boundary are all regulated. Unauthorized work within wetlands may result in a Restoration Order, a legal order to put the wetland back the way it was, often at substantial expense to the landowner/violator.

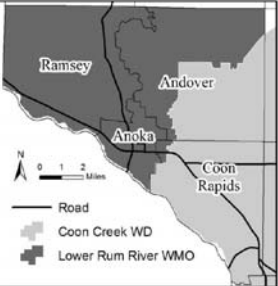
Recognizing the complexity of the wetland laws, local communities provide experts to guide landowners to help keep them out of "hot water." So, before starting any project around a wetland, contact your local watershed organization or the Anoka Conservation District, they will be happy to help you.

**FROGS MARK THE SPOT**

As projects get into full swing, listen for frogs to help direct your work. For the industrious human, frog calls mean "watch out, this is a wetland right here." And, knowing the location of wetlands is important because some activities within wetlands are regulated, even on private lands.

Not all wetlands are permanently flooded. Many may be wet only a few weeks per year, which is enough for the frogs... and the law. If you have a low spot on your property that harbors frogs, even if only briefly, this area may be a wetland. And the legal wetland boundary is probably higher on the landscape than you think- it's defined by soils, vegetation, and hydrology.

*Wetlands cover about 20% of Anoka County, nearly twice as much as any county in the 7-county metro area.*



**Lower Rum River Watershed Management Organization**  
<http://www.anokanaturalresources.com/lrrwmo>  
 Phone: 763-767-5131

**Coon Creek Watershed District**  
[www.cooncreekwd.org](http://www.cooncreekwd.org)  
 Phone: 763-755-0975

**Anoka Conservation District**  
[www.anokawcd.org](http://www.anokawcd.org)  
 Phone: 763-434-2030

Wetlands are so valuable to wildlife and water quality that federal, state, and local rules exist. So, before starting any project around a wetland, contact your local watershed organization or the Anoka Conservation District, they will be happy to help you.

## Presentation to local officials

**Description:** The Lower Rum River Watershed Management Organization (LRRWMO) contracted the Anoka Conservation District (ACD) to create a presentation and use it to educate local officials on wetlands as part of watershed management.

**Purpose:** To improve LRRWMO public officials understanding of watershed responsibilities, wetland regulation, and the Rum River WRAPP Project.

**Location:** Watershed-wide

**Results:** The Anoka Conservation District (ACD) delivered a presentation to local officials at a spring 2013 LRRWMO meeting. The presentation provided local officials with information of their land and water management responsibilities within a watershed. As part of the presentation wetland functions, regulations, and their benefit to watershed management were also covered. The presentation closed with information regarding the Rum River Watershed Restoration and Protection Plan (WRAPP).

**WMO vs City Responsibilities**

WMOs manage system is

Cities manage local issue

**2. Wetlands Affect Many Residents**

13% of LRRWMO is wetland

**Is this a wetland?**

■ Yes – Hardwood swamp

# Property owner wetland education packet

**Description:** The Lower Rum River Watershed Management Organization (LRRWMO) contracted the Anoka Conservation District (ACD) to create a wetland education packet to be sent out to LRRWMO residents.

**Purpose:** To improve LRRWMO public understanding of wetlands and wetland regulation.

**Location:** Watershed-wide

**Results:** The Anoka Conservation District (ACD) sent informational brochures to over 2,000 properties containing, or adjacent to, wetlands. Each brochure contained a neighborhood level map to illustrate the locations of wetlands near them. The packet also includes educational information, illustrates the varying types of wetlands, wetland values, and regulatory/permitting information.

### Anoka County Wetland Types

There are at least **eight types of wetlands** in Anoka County. Experts use our understanding of water, soils, and plants to identify wetland types and to delineate wetland boundaries.

 Type 1 Seasonal Wetland	 Type 5 Shallow Open Water
 Type 2 Wet Meadow	 Type 6 Strub Wetland
 Type 3 Shallow Marsh	 Type 7 Hardwood Swamp
 Type 4 Deep Marsh	 Type 8 Bog

**Wetlands Are Regulated**

<b>Lower Rum River WMO</b> Local/State Rules	Local, state, and federal rules regulate impacts to wetlands. Please contact the following agencies before impacting a wetland.
<b>MN DNR</b> State Public Water Rules	
<b>U.S. Army Corps of Engineers</b> Federal Rules	<b>Wetland impacts include draining, filling, and excavation.</b>

Prepared by the  
**ANOKA CONSERVATION DISTRICT**

Informational wetlands map inside.

Lower Rum River WMO  
2015 Freshwater  
Watershed  
www.lrrwmo.org

## I HAVE WETLANDS ON MY LAND?

### A HOMEOWNERS GUIDE TO WETLANDS

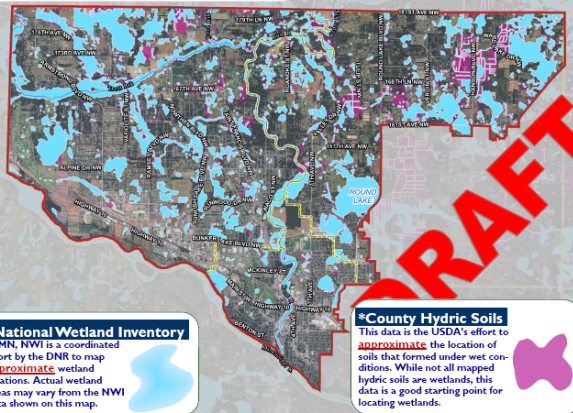


Published by:  
**Lower Rum River Watershed Management Organization**  
www.lrrwmo.org

A PARTNERSHIP OF THE CITIES OF ANDOVER, ANOKA, AND RAMSEY

### Informational Wetlands Map

This map shows publically available mapping data of approximate wetland locations. Since this data is approximate, actual wetland areas may vary



**\*National Wetland Inventory**  
In MN, NWI is a coordinated effort by the DNR to map approximate wetland locations. Actual wetland areas may vary from the NWI data shown on this map.

**\*County Hydric Soils**  
This data is the USDA's effort to approximate the location of soils that formed under wet conditions. While not all mapped hydric soils are wetlands, this data is a good starting point for locating wetlands.

\*These are NOT official wetland boundaries; data are for general reference only. Official wetland boundaries are delineated according to the 1987 USACE manual and must be approved by your WCA LGU and the USACE (www.bwsr.state.mn.us).

Map Created: 1/2013

### Greetings from the Lower Rum River WMO!

The purpose of this publication is to help LRRWMO residents better understand the wetlands resources that may be on their lands.


Check out the map to the left. Public mapping data indicates that there are many wetland areas within the Lower Rum River WMO. Most people have seen wetlands with cattails and lily pads, but not all wetlands look the same. Some wetlands are only wet part of the year and some are covered in trees and shrubs.

**Why are wetlands important?** Wetlands offer many public benefits, including plant and wildlife habitat, improved water quality, flood control, recreation, and educational opportunities. Anoka County has more wetlands than any other county in the 7-county metro area. Anoka County wetlands provide habitat for numerous rare plant species, including several that have been found nowhere else in the state.

**How do I know if I have a wetland on my land?**  
Wetland experts use soils, vegetation, and hydrology data to define legal wetland boundaries. Contact your city to determine if wetland boundaries have been noted on city documents such as Certificate of Surveys. If official wetland boundaries have not yet been identified on your land, visit the Anoka County website [gis.anokacounty.mn.gov/cswr/](http://gis.anokacounty.mn.gov/cswr/) for approximate NWI wetland areas, or hire a wetland expert to delineate the official wetland boundary.

**Wetlands in Anoka County are protected.** Regulated wetland activities include draining, filling, and excavation within certain wetlands. Please contact your LRRWMO representative before starting any activity that may impact a wetland.

Sincerely,  
**Lower Rum River Watershed Management Organization**  
www.lrrwmo.org





## Review Member Communities' Local Water Plans

---

- Description:** Member cities must have local water plans and ordinances consistent with the LRRWMO 3<sup>rd</sup> Generation Watershed Management Plan (MN Rules 8410.0130 and 84100160). The LRRWMO has approval authority over the Local Water Management Plans. Once a community submits their updated Local Water Management Plan to the WMO for review, the WMO has 60 days to provide comments. The Metropolitan Council has a simultaneous 45 day review period, and the WMO's review of the Plan must include a review of Metropolitan Council's comments. The LRRWMO has requested that the ACD assist with their review of local water plans as they are completed. It was anticipated that communities will submit plans for review in 2013.
- Purpose:** To ensure the policies and actions in the LRRWMO 3<sup>rd</sup> Generation Watershed Management Plan are implemented consistently across the watershed.
- Location:** Watershed-wide
- Results:** As of January 16, 2014 Anoka has submitted their local water plan updates, Ramsey will be submitting theirs in early 2014, and the submittal date for Andover has been extended.

## Web Video

---

- Description:** As part of the LRRWMO's public education plan web videos are being used to convey conservation messages. The ACD was asked to create a web video about water conservation and post it on the LRRWMO website.
- Purpose:** To education the public about aquifer sustainability and water use.
- Location:** Watershed-wide
- Results:** ACD The web video about water conservation will be completed by the deadline of March 31, 2014.

# LRRWMO Website

**Description:** The Lower Rum River Watershed Management Organization (LRRWMO) contracted the Anoka Conservation District (ACD) to design and maintain a website about the LRRWMO and the Lower Rum River watershed. The website has been in operation since 2003. A new website and domain for the LRRWMO was created by ACD in 2013.

**Purpose:** To increase awareness of the LRRWMO and its programs. The website also provides tools and information that helps users better understand water resources issues in the area.

**Location:** LRRWMO.org

**Results:** In 2013 the ACD upgraded, redesigned, and re-launched the LRRWMO website. These updates were necessary because the old website platform was incompatible with certain tablet computers and smartphones. Additionally, the old website was hosted with in the ACD website, while the new website is completely independent, offering the WMO future management choices.

The LRRWMO website contains information about both the LRRWMO and about natural resources in the area. Information about the LRRWMO includes:

- a directory of board members,
- meeting minutes and agendas,
- watershed management plan and annual reports,
- descriptions of work that the organization is directing,
- highlighted projects.

## 2013 New LRRWMO Website Homepage



## Financial Summary

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.

### Lower Rum River Watershed Financial Summary

Lower Rum River Watershed	Volunteer Precip	Ref Wet	Ob Well	Lake Lvl	Stream WQ - SWAG	SWAG Admin/Reporting	WOMP	Student Biomon	LRRWMO Admin	WMO Annual Rpts to State	LRRWMO Outreach/Promo	WMO Website Maint	WMO Website Migration	Rum River WRAPP	Projects	Total
<b>Revenues</b>																
LRRWMO	0	1680	0	800	0	0	0	825	0	850	8020	525	875	0	0	13575
State	0	0	131	0	11545	796	0	0	0	0	0	0	0	7459	0	19930
Anoka Conservation District	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Anoka Co. General Services	0	0	177	0	0	544	0	0	0	0	982	0	-24	0	0	1679
County Ag Preserves	0	0	0	0	0	0	0	349	0	0	0	0	0	0	48	397
Regional/Local	0	0	0	0	0	0	720	0	0	0	0	0	0	0	0	720
Other Service Fees	0	0	0	0	0	0	0	0	0	0	0	0	0	0	404	404
BWSR Cons Delivery	0	0	0	0	0	0	38	0	256	0	0	0	0	0	0	294
BWSR Cost Share TA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	441	441
Local Water Planning	59	0	33	5	0	0	0	0	0	0	0	0	0	0	0	97
<b>TOTAL</b>	<b>59</b>	<b>1680</b>	<b>340</b>	<b>805</b>	<b>11545</b>	<b>1340</b>	<b>758</b>	<b>1174</b>	<b>256</b>	<b>850</b>	<b>9002</b>	<b>525</b>	<b>851</b>	<b>7459</b>	<b>893</b>	<b>37537</b>
<b>Expenses-</b>																
Capital Outlay/Equip	0	16	4	10	4607	21	7	11	5	4	95	5	9	34	14	4842
Personnel Salaries/Benefits	49	1014	284	686	3273	1114	629	992	208	502	7658	316	451	2211	740	20128
Overhead	5	67	23	47	204	77	61	67	14	47	605	28	29	209	53	1536
Employee Training	0	4	1	4	16	5	1	8	1	0	34	1	1	6	3	86
Vehicle/Mileage	1	17	4	13	56	19	8	20	4	6	125	5	6	31	12	325
Rent	3	46	15	31	144	52	37	43	10	29	387	18	21	127	36	998
Program Participants	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Program Supplies	0	1	0	0	3114	0	0	32	0	0	0	0	312	4727	1	8187
McKay Expenses	0	19	8	15	131	52	14	0	15	0	100	13	22	112	36	536
<b>TOTAL</b>	<b>59</b>	<b>1183</b>	<b>340</b>	<b>805</b>	<b>11545</b>	<b>1340</b>	<b>758</b>	<b>1174</b>	<b>256</b>	<b>590</b>	<b>9002</b>	<b>385</b>	<b>851</b>	<b>7459</b>	<b>893</b>	<b>36639</b>
<b>NET</b>	<b>0</b>	<b>497</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>260</b>	<b>0</b>	<b>140</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>898</b>

## Recommendations

---

- **Actively participate in the MPCA Rum River WRAPP (Watershed Restoration and Protection Plan) which began in 2013.** This WRAPP is an assessment of the entire Rum River watershed. This is an opportunity for the LRRWMO to prioritize and coordinate efforts with upstream entities and state agencies. TMDL studies with regulatory implications will likely arise out of this project.
- **Diagnose low dissolved oxygen in Trott Brook.** A TMDL study through the Rum River WRAP project is likely.
- **Remind LRRWMO Cities that local water plans must be updated.**
- **Implement water conservation measures** throughout the watershed and promote it metro-wide. Depletion of surficial water tables are having observable, sometimes dramatic, impacts on some lake levels and wetlands. Metropolitan Council models predict 3+ft drawdown of surface waters in certain areas by 2030, and 5+ft by 2050.
- **Continue lake level monitoring, especially on Round Lake** where residents have expressed concerns with levels. Other nearby lakes should be monitored for comparison and problems.
- **Emphasize protection of Rum River water quality.** The river's water quality declines slightly in the LRRWMO and anticipated future development could cause further deterioration.
- **Complete a stormwater retrofitting assessment for the City of Anoka.** The project will identify and rank projects that improve stormwater runoff before it is discharged to the Rum River.
- **Continue the existing cost share grant program for water quality improvement projects** on private properties.