LOWER RUM RIVER WATERSHED MANAGEMENT ORGANIZATION

ANDOVER - ANOKA - COON RAPIDS - RAMSEY

2015 First Avenue • Anoka, MN 55303

TO: The Minnesota Board of Water and Soil Resources
FROM: Lower Rum River Watershed Management Organization
Steve Jankowski, Chairperson
DATE: May, 2009
SUBJECT: Annual Activity Report for Fiscal Year 2008
Begin Date: 2-1-08 End Date: 1-31-09

In response to Minnesota Board of Water and Soil Resources (BWSR) annual requirements, the Lower Rum River Watershed Management Organization (LRRWMO), created by a joint powers agreement, submits the following:

I. LIST BOARD MEMBERS, ADVISORS, EMPLOYEES AND CONSULTANTS

- *See Appendix A*

II. REPORTING YEAR'S WORK PLAN

A. LIST GOALS/OBJECTIVES IDENTIFIED IN THE REPORTING YEAR'S WORK PLAN:
B. LIST ACHIEVEMENTS FROM REPORTING YEAR'S WORK PLAN:
C. LIST THOSE ITEMS IDENTIFIED IN REPORTING YEAR'S WORK PLAN NOT ACCOMPLISHED, AND GIVE AN EXPLANATION OF WHY THEY COULDN'T BE ACCOMPLISHED:

GOAL: Complete update of Third Generation Water Management Plan.

ACHIEVEMENT: *The LRRWMO has retained the services of Barr Engineering for the update of the Water Management Plan, which is currently under review by agencies. It is anticipated the Third Generation Water Management Plan will be completed during fiscal 2009.* ***Objective pending.***

GOAL: Raise public awareness of LRRWMO by: Posting meeting agenda and inviting public to participate.

ACHIEVEMENT: ***Objective reached.***

- *The LRRWMO maintains a website where meeting announcements, agendas, and minutes are posted. Meeting agendas are also posted in a public place and indicate "PUBLIC WELCOME TO ATTEND."*
- *The LRRWMO hosted an evening meeting on April 10, 2008 with invitations to member city elected officials, administrators, and the public. The following presentations were made: Bob Obermeyer of Barr Engineering on the Third Generation Plan Update; and, Jamie Schurbon of the Anoka Conservation District (ACD) on the role of the ACD, Wetland*

Conservation Act Update, Non-Degradation Standards, and assistance opportunities to the public on water quality issues. An opportunity was also provided to answer questions of the audience

- *The City of Ramsey held an Environmental Expo and Tree Sale on April 18, 2008 that included a number of exhibitors, each representing a 'green' industry. Information provided included the topics of recycling, conservation, energy conservation, renewable/alternative energy, 'green' cleaning products, and runoff models. The Expo was educational in format, including presentations on energy conservation tips and energy efficient landscaping.*
- *As part of the Third Generation Plan Update, a citizen survey was conducted.*

GOAL: Maintain web site created by the Anoka Conservation District that details the WMO's contact information, boundaries, wetlands regulatory information, meeting agendas and minutes, permit process, and testing and biomonitoring data.

ACHIEVEMENT: ***Objective reached.***
Website is: www.AnokaNaturalResources.com/LRRWMO

GOAL: Contract with the Anoka Conservation District (ACD) to conduct lake level monitoring (Itasca, Round, and Rogers Lakes), lake water quality monitoring (Round Lake), stream biomonitoring with students from Anoka High School (Rum River), and monitoring of hydrology in one reference wetland.

ACHIEVEMENT: *This data has been entered into the ACD data base and is included in the ACD annual report, which is attached as Appendix B.* ***Objective reached.***

GOAL: Encourage water quality improvement projects by continuing to offer water quality improvement cost share grants to residents.

ACHIEVEMENT: *In 2006, The LRRWMO contributed $1,000 to a cost share grant fund administered by the Anoka Conservation District (ACD). Funds were not expended until 2008 when $376.37 was expended for two projects, both involving cedar tree riverbank stabilizations on the Rum River. See pages 13-14 of Appendix B for additional detail.* ***Objective reached.***

GOAL: Increase public involvement with LRRWMO by: Continue to identify residents to assist with lake monitoring in conjunction with the Anoka Conservation District.

ACHIEVEMENT: *The LRRWMO has worked in conjunction with the ACD to identify residents who monitor water levels on Round, Rogers, and Itasca Lakes.* ***Objective reached.***

GOAL: Continue effort in the enforcement of the 1991 Wetland Conservation Act as the Local Governmental Unit (LGU) for the cities of Andover, Anoka, and Ramsey within the LRRWMO jurisdiction; Coon Rapids has assumed its own LGU authority.

ACHIEVEMENT: ***Objective reached.***

- *On June 13, 2008, the LRRWMO conducted a canoe trip of the Rum River to inspect for areas of erosion and Code violations. The violations observed were reported to the pertinent member city for compliance action.*

- *On June 19, 2008, LRRWMO Chair Steve Jankowski was appointed as the LRRWMO representative to the Upper Mississippi River Bacteria Total Maximum Daily Load (TMDL) Project Stakeholder Advisory Team. Board Member Carl Anderson was appointed as the alternate.*
- *The LRRWMO continues to monitor enforcement of the 1991 Wetland Conservation Act as the LGU for the cities of Andover, Anoka, and Ramsey.*

III. PROJECTED WORK PLAN FOR UP-COMING FISCAL YEAR

A. LIST MAIN GOALS AND OBJECTIVES OF YOUR WORK PLAN FOR THE NEXT FISCAL YEAR:

1. *Adoption of Third Generation Water Management Plan.*
2. *Raise public awareness of LRRWMO by: Posting meeting agenda and inviting public to participate.*
3. *Conduct a Rum River canoe trip in June of 2009 with Board Members and DNR.*
3. *Maintain web site created by the Anoka Conservation District that details the WMO's contact information, boundaries, wetlands regulatory information, meeting agendas and minutes, permit process, and testing and biomonitoring data.*
4. *Contract with the Anoka Conservation District in 2009 for lake level monitoring (Itasca, Round, and Rogers Lakes), lake water quality monitoring (Rogers Lake), biomonitoring with Anoka High School students (Rum River), and hydrology monitoring in one reference wetland.*
5. *Encourage water quality improvement projects by continuing to offer water quality improvement cost share grants to residents.*
6. *Increase public involvement with LRRWMO by: Continuing to identify residents to assist with lake monitoring in conjunction with the Anoka Conservation District.*
7. *Continue effort in the enforcement of the 1991 Wetland Conservation Act as the Local Governmental Unit (LGU) for the cities of Andover, Anoka, and Ramsey within the LRRWMO jurisdiction; Coon Rapids has assumed its own LGU authority.*

IV. SUMMARY OF PERMITS, PROJECT REVIEWS, VARIANCES, AND ENFORCEMENT ACTIONS

A. TOTAL NUMBER AND SUMMARY OF THE TYPES OF PERMITS ISSUED AND DENIED BY THE WMO:

- *See Appendix C.*

B. TOTAL NUMBER AND SUMMARY OF THE TYPES OF PROJECTS REVIEWED BY THE WMO:

- *See Appendix C.*

C. SUMMARY OF VARIANCES TO PLAN OR LOCAL PLAN (LIST TYPES AND GRANTOR):

- *No variances were issued. Plans/proposals were required to meet the requirements of the LRRWMO and/or other state agencies.*

D. SUMMARY OF ENFORCEMENT ACTIONS TAKEN RELATIVE TO PLAN OR LOCAL PLAN (LIST TYPES AND LGU):

- *No enforcement actions were taken by the LRRWMO. The Minnesota Department of Natural Resources (DNR) issued no Cease and Desist Orders within the LRRWMO jurisdiction.*

V. SUMMARY OF WATER QUALITY MONITORING DATA

ATTACH YOUR MET COUNCIL SUMMARY REPORT OR BRIEFLY SUMMARIZE, WHICH BODIES OF WATER WERE MONITORED, WHAT PARAMETERS WERE MEASURED, THE FREQUENCY OF MONITORING AND WHO COLLECTED THE DATA. INDICATE ANY TRENDS NOTED IF AN ANALYSIS OF THE DATA WAS CONDUCTED:

Water quality monitoring data is administered by the Anoka Conservation District (ACD). Appendix B is a report of water monitoring work completed in 2008.

VI. STATUS OF LOCAL PLANS ADOPTION

A. LIST OF LOCAL PLANS APPROVED BY WMO AND DATE OF APPROVAL:

Andover:	*Approved as of 2005*
Anoka:	*Approved as of 2001*
Coon Rapids:	*Approved as of 2004*
Ramsey:	*Approved as of 2008* ***(added after submittal to BWSR)***

B. DATE DUE OF LOCAL PLANS:

Andover:	*As determined by BWSR*
Anoka:	*As determined by BWSR*
Coon Rapids:	*As determined by BWSR*
Ramsey:	*As determined by BWSR*

VII. SUMMARY OF WRITTEN CORRESPONDENCE

ATTACH A COPY OF THE WRITTEN COMMUNICATION FOR GENERAL CIRCULATION THE WMO USED TO ACHIEVE COMPLIANCE WITH MS 103B.227, SUBD. 4

- *Yes. See Appendix D.*

VIII. BIENNIAL SOLICITATION FOR PROFESSIONAL SERVICES

WAS THE ORGANIZATION REQUIRED TO SOLICIT PROPOSALS FOR PROFESSIONAL, ENGINEERING AND LEGAL SERVICES THIS YEAR?

- *No.*

IX. STATUS OF LOCALLY ADOPTED WETLAND BANKING PROGRAM

SUMMARIZE ANY WETLAND REPLACEMENT IN WMO DONE THROUGH THE USE OF WETLAND BANKING CREDITS, BANKING CREDITS ESTABLISHED, CREDIT BALANCES, AND WHAT LGUs APPROVED SUCH REPLACEMENTS:

- *The LRRWMO, in July of 1992, approved a mitigation policy whereby Anoka County will be allowed to accrue up to one acre of wetland losses; at which time that entity would be required to replace the total accrued lost wetland acreage. However, a ranking system for providing wetland area greater than required is pending.*
- *Only one developer, Russell Johanson, has qualified and banked approximately 0.6864 acres of excess wetland. A certain amount of those banked credits have been purchased by an adjacent property owner.*
- *The LRRWMO, in June of 2008, accepted the recommendation of TEP on certification of the Alpine Park wetland bank for the maximum amount allowable by BWSR (0.38 acres of new wetland credit and 0.38 acres of upland buffer) and ACOE (0.38 acres of wetland credit and 0.50 acres of upland buffer).*

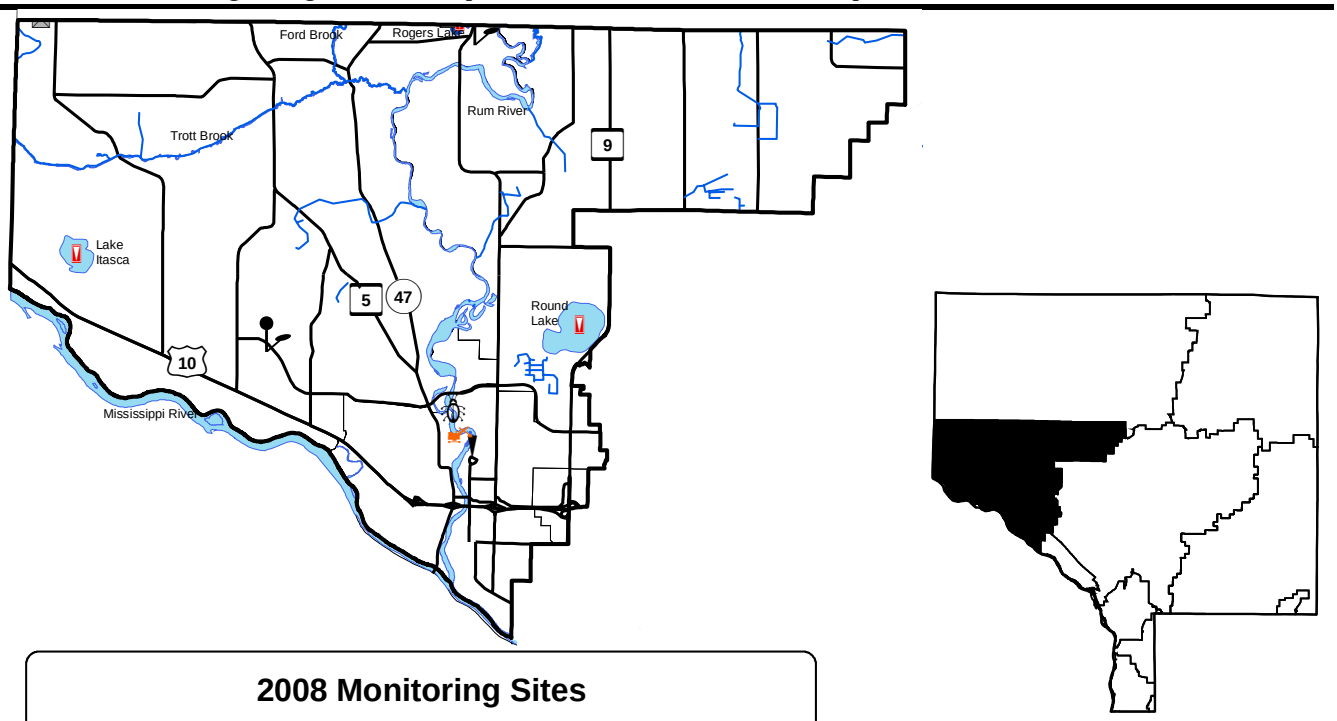
X. ANNUAL BUDGET SUMMARY FOR CURRENT REPORTING YEAR

- *See Appendix E.*

2008 RESULTS
LOWER RUM RIVER WATERSHED

Task	Partners	Page
Lake Levels	LRRWMO, ACD, volunteers, MNDNR	2
Lake Water Quality	LRRWMO, ACD, ACAP	3
Stream Water Quality – Biological	LRRWMO, ACD, ACAP, Anoka High School	6
Stream Water Quality – WOMP Program	MC, ACD	9
Wetland Hydrology	LRRWMO, ACD, ACAP	10
Water Quality Improvement Projects	LRRWMO, ACD, landowners	13
Homeowner's Guide	ACD, MNDNR, ACAP	15
LRRWMO Website	LRRWMO, ACD	16
Financial Summary		18
Recommendations		18
Groundwater Hydrology (obwells)	ACD, MNDNR	see Anoka Water Almanac
Precipitation	ACD, volunteers	see Anoka Water Almanac

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. These data, as well as all additional historic data are available on the Minnesota DNR website using the "LakeFinder" feature (www.dnr.mn.us.state\lakefind\index.html).

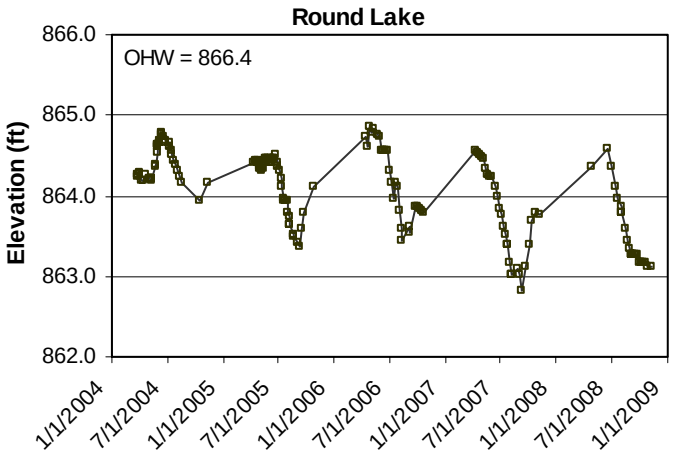
Purpose: To understand lake hydrology, including the impact of climate or other water budget changes. These data are useful for regulatory, building/development, and lake management decisions.

Locations: Lake Itasca, Round Lake, Rogers Lake

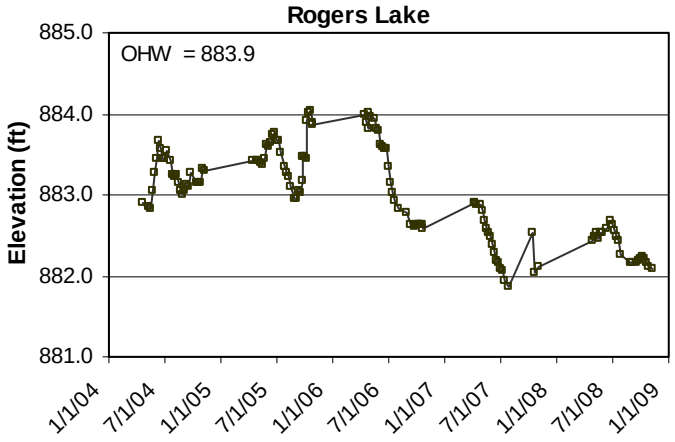
Results: Water levels were measured 22 to 53 times. At Lake Itasca volunteers stopped monitoring because emergent vegetation made it impossible for them to read the lake gauge from shore; an electronic gauge substitution was provided by the Anoka Conservation District. Water levels on all three lakes dropped the entire open water season. The total drop in water levels during the drought of summer 2007 was 1.05 feet at Rogers Lake, 1.74 feet at Round Lake, and >2.02 feet at Lake Itasca. By comparison, 2008 water level drops were 0.6, 1.45, and 1.55 feet, respectively.

Ordinary High Water Levels (OHW), the elevation below which a DNR permit is needed to perform work, are listed for each lake on the graph.

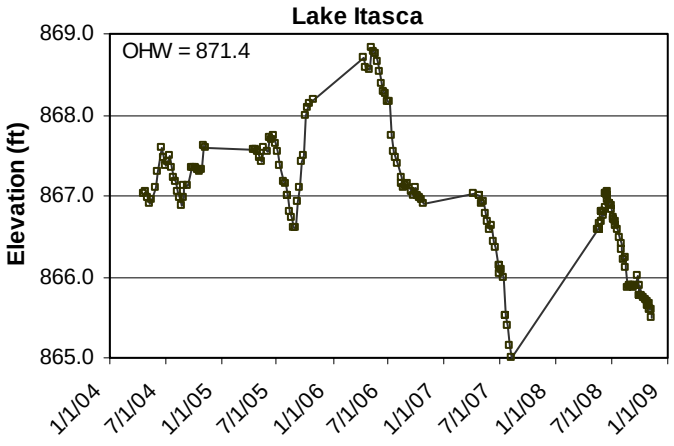
Round Lake Levels 2004-2008



Rogers Lake Levels 2004-2008



Lake Itasca Levels 2004-2008



Lower Rum River Watershed Lake Levels Summary

Lake	Year	Average	Min	Max
Itasca	2004	867.23	866.88	867.61
	2005	867.39	866.61	868.19
	2006	867.81	866.90	869.77
	2007	866.25	865.01	867.03
	2008	866.36	865.50	867.05
Rogers	2004	883.22	882.82	883.66
	2005	883.48	882.95	884.04
	2006	883.28	882.59	884.02
	2007	882.19	881.79	882.91
	2008	882.36	882.09	882.69
Round	2004	864.42	863.95	864.78
	2005	864.14	863.37	864.51
	2006	864.21	863.44	864.85
	2007	864.21	863.44	864.85
	2008	863.56	863.13	864.58

Lake Water Quality

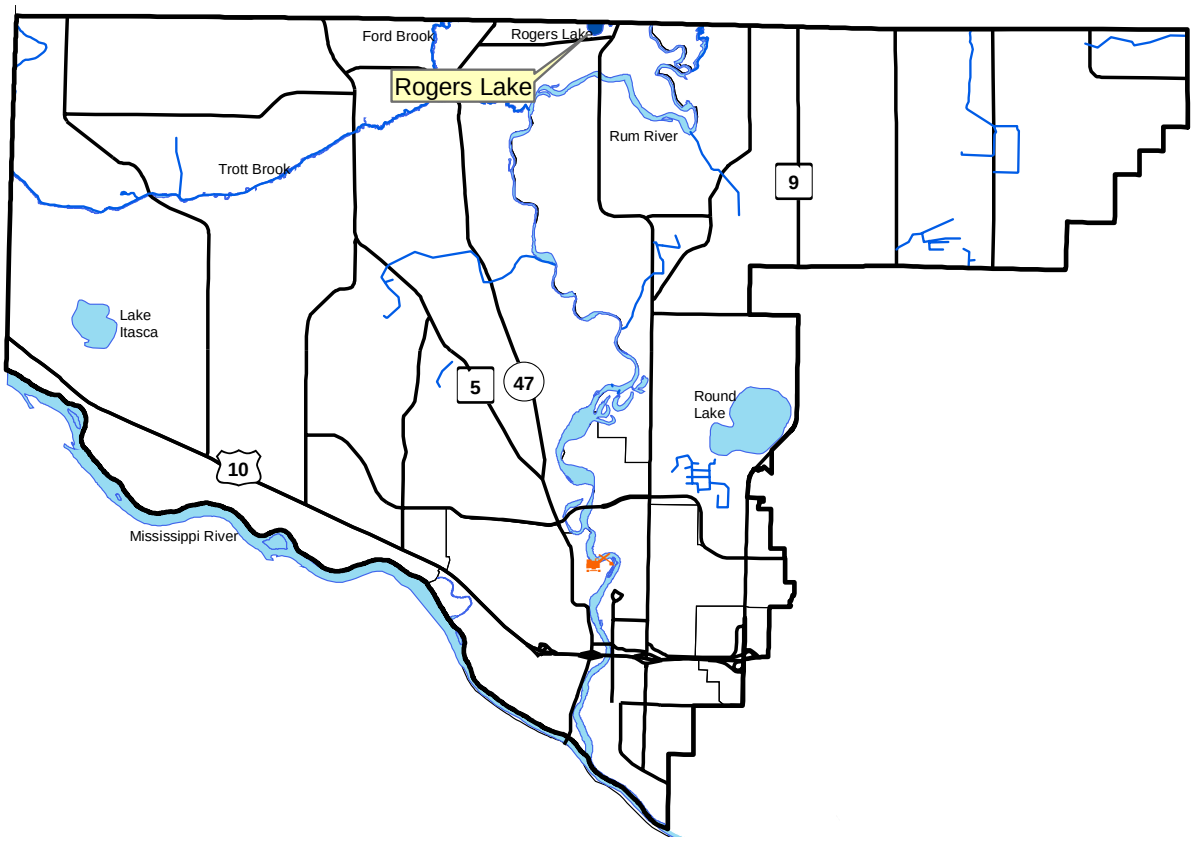
Description: May through September twice-monthly monitoring of the following parameters: total phosphorus, chlorophyll-a, Secchi transparency, dissolved oxygen, turbidity, temperature, conductivity, pH, and salinity.

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

Locations: Rogers Lake

Results: Detailed data for each lake are provided on the following pages, including summaries of historical conditions and trend analysis. Previous years' data are available from the ACD. Refer to Chapter 1 for additional information on interpreting the data and on lake dynamics.

Lower Rum River Watershed Lake Water Quality Monitoring Sites



Rogers Lake

Cities of Oak Grove, Ramsey, and Nowthen, LAKE ID # 03-0104

Background

Rogers Lake is in west-central Anoka County, and lies partially within the jurisdictional areas of both the Lower and Upper Rum River Watershed Management Organizations. It has a surface area of 40 acres and a maximum depth of 6 feet. The shoreline is about 1/3 developed, primarily on the western shore. There are no streams of any consequence entering or leaving this lake; it is an isolated basin with a small watershed. There is no public access. Rogers Lake is designated as "impaired" for excess nutrients by the MPCA.

2008 Results

In 2008 Rogers Lake received an overall B letter grade for water quality, but this does not appropriately categorize the ecological health of the lake, which was much poorer. The lake's condition has changed significantly within recent 1-2 year periods (see graph on next page). In 2006 total phosphorus was high (averaged 110 ug/L, state impaired standard is 40 ug/L), the water was brown and turbid (average 12 FNRU), and algae levels were relatively high (average chlorophyll-a 38.5 mg/L). Plants were limited by the turbid water, and ACD staff estimated 20-40% of the lake had plants growing to the surface. In 2008 phosphorus was lower (average 32 ug/L), the water was clear (average 3 FNRU), and algae levels were low (average chlorophyll-a 12.3 mg/L), but plant growth had exploded. Plants grew densely and to the surface across 95% of the lake. Increased plant growth was consuming the phosphorus, out-competing algae, and minimizing sediment disturbance. Species included curly-leaf pondweed, large-leaf pondweed, floating-leaf pondweed, water shield, and lilies. In late June and July dissolved oxygen began to drop because of plant decomposition (presumably culy-leaf pondweed at this time). In August and September other pondweeds began to die, and dissolved oxygen dropped lower than fish can tolerate and stayed that low for about eight weeks. No dead fish were seen, but residents said similar conditions occurred in 2007, likely killing most fish at that time. In summary, water is clear, but excessive plant growth has eliminated the fishery and recreation.

Trend Analysis

Five years of water quality monitoring have been conducted by the Anoka Conservation District and Secchi depths were taken by citizens one other year. This is not enough data to perform a trend analysis.

Discussion

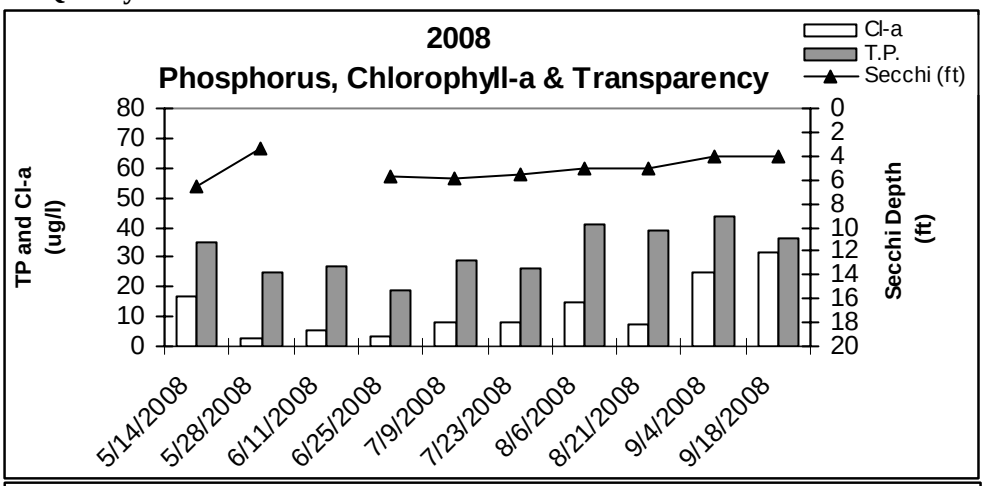
Rogers is a troubled and unstable lake. The high nutrient levels that fueled brown algae in 2006 and large plants in 2008 are surprising given that the lakeshore is only partially developed and there are no streams flowing into the lake (i.e. small watershed). Pollutant sources are likely from within or adjacent to the lake. The organic lake sediments are one possible nutrient source, though the lake is too small and vegetated for much wind mixing. It's also possible that rough fish have, at times, contribute to poor water quality, but no rough fish activity was seen by ACD staff and recently low dissolved oxygen has likely killed most fish. The water's sewage odor on May 23, 2006 may be a clue that septic system failure(s) on lakeshore homes are occuring and impacting the lake, but this is uncertain. Unlawful herbicide treatments to the lake by residents have been documented, and probably contribute to the lake's unstable nature. It is desirable for this lake to have a healthy aquatic plant community for wildlife and water quality, yet to control the harmfully excessive growth seen in 2008.

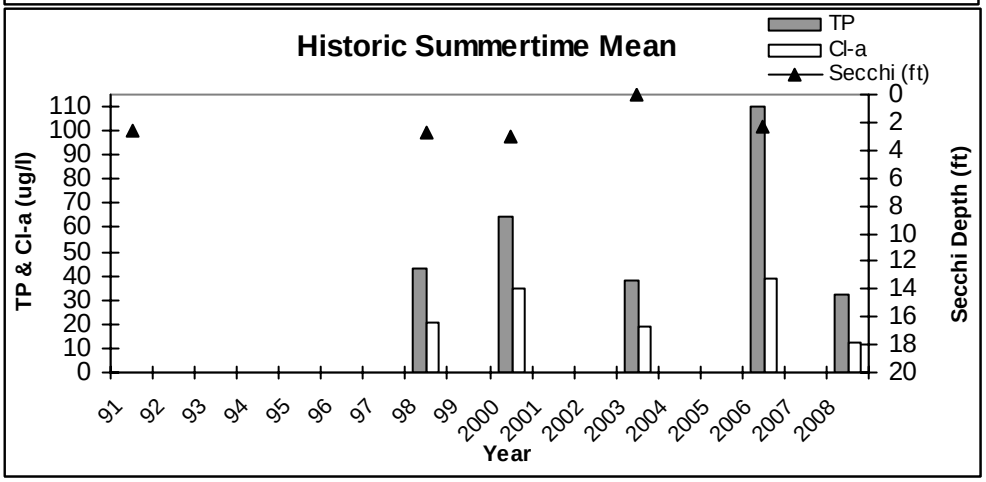
2008 Rogers Lake Water Quality Data

Fawn Lake 2008			5/14/2008	5/28/2008	6/11/2008	6/25/2008	7/9/2008	7/23/2008	8/6/2008	8/21/2008	9/4/2008	9/18/2008			
	Units	R.L.*	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Average	Min	Max
pH		0.10	7.27	7.62	7.34	7.16	6.47	6.67	5.50	6.44	5.62	6.16	6.63	5.50	7.62
Conductivity	mS/cm	0.010	0.078	0.077	0.071	0.064	0.065	0.065	0.064	0.069	0.070	0.067	0.069	0.064	0.078
Turbidity	FNRU	1	3	2	1	1	5	2	2	2	3	5	3	1	5
D.O.	mg/L	0.01	8.39	8.98	7.35	6.22	4.46	4.40	1.67	2.60	2.36	3.07	4.95	1.67	8.98
D.O.	%	1	82%	95%	80%	73%	52%	50%	19%	30%	25%	30%	54%	19%	95%
Temp.	°C	0.1	15.2	17.8	19.4	24.6	23.7	22.7	22.5	22.4	17.8	16.5	20.3	15.2	24.6
Temp.	°F	0.1	59.4	64.0	66.9	76.3	74.7	72.9	72.5	72.3	64.0	61.7	68.5	59.4	76.3
Salinity	%	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cl-a	mg/L	0.5	16.5	2.5	5.3	3.5	8.3	7.9	14.9	7.4	24.6	31.6	12.3	2.5	31.6
T.P.	mg/L	0.010	0.035	0.025	0.027	0.019	0.029	0.026	0.041	0.039	0.044	0.036	0.032	0.019	0.044
T.P.	ug/L	10	35	25	27	19	29	26	41	39	44	36	32	19	44
Secchi	ft	0.1	> 6.5	> 3.4		> 5.7	> 5.8	> 5.5	> 5.0	> 5.1	> 4.1	> 4.1	5.0	3.4	6.5
Secchi	m	0.1	> 2.0	> 1.0		> 1.7	> 1.8	> 1.7	> 1.5	> 1.6	> 1.2	> 1.2	1.4	0.0	2.0
Field Observations															
Physical			1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.5	2.0
Recreational			1.5	1.5	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.3	1.5	5.0

*reporting limit

Rogers Lake Water Quality Results





Rogers Lake Historical Means

Agency	CAMP	ACD	ACD	ACD	ACD	ACD
Year	91	98	2000	2003	2006	2008
TP		42.70	64.70	38.4	110.0	32
Cl-a		20.30	35.10	19.4	38.5	12.3
Secchi (m)	0.81	0.85	0.91	n/a	0.7	1.4
Secchi (ft)	2.7	2.8	3.00	n/a	2.3	5.0

Carlson's Trophic State Index

TSIP		58	62	57	72	54
TSIC		60	62	60	67	55
TSIS	63	62	63	n/a	65	55
TSI		59*	62*	58*	68	55*

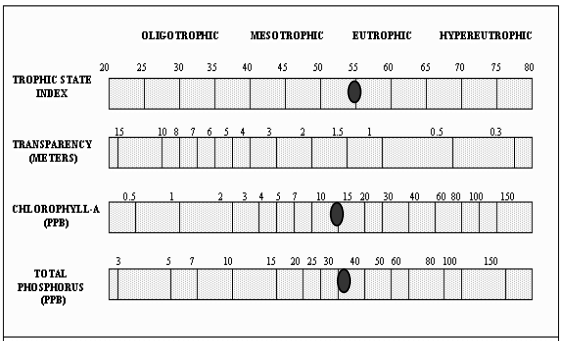
*TSIS was not included in mean TSI

Rogers Lake Water Quality Report Card

Year	91	98	2000	2003	2006	2008
TP		C	C	C	D	B-
Cl-a		C	C	B	C	B
Secchi	D	n/a**	n/a**	n/a**	D-	n/a**
Overall		**C**	**C**	**B**	**D**	**B**

**Secchi transparency not graded as secchi depth exceeded lake depth

Carlson's Trophic State Index



Rogers Lake, June 10, 2008

July 7, 2008

September 4, 2008

September 18, 2008. Decomposing large-leaf pondweed.

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 Industry Ave, 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.

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

% 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

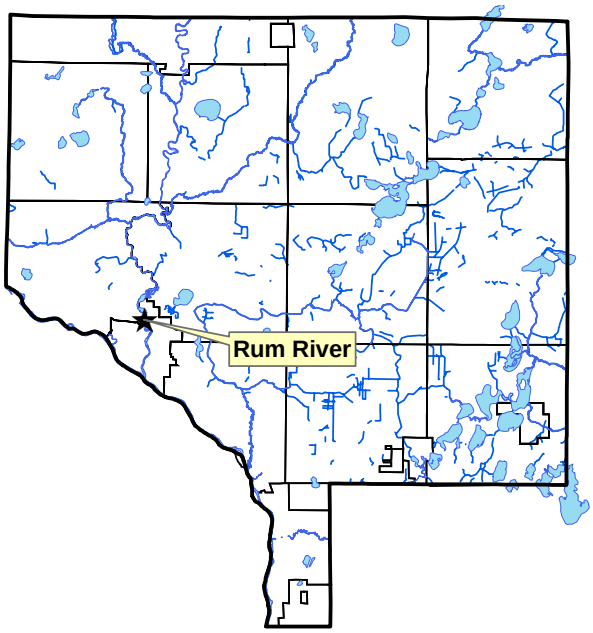
By Anoka High School in 2008

Monitored Since

2001

Student Involvement

30 students in 2008, approx 260 since 2001



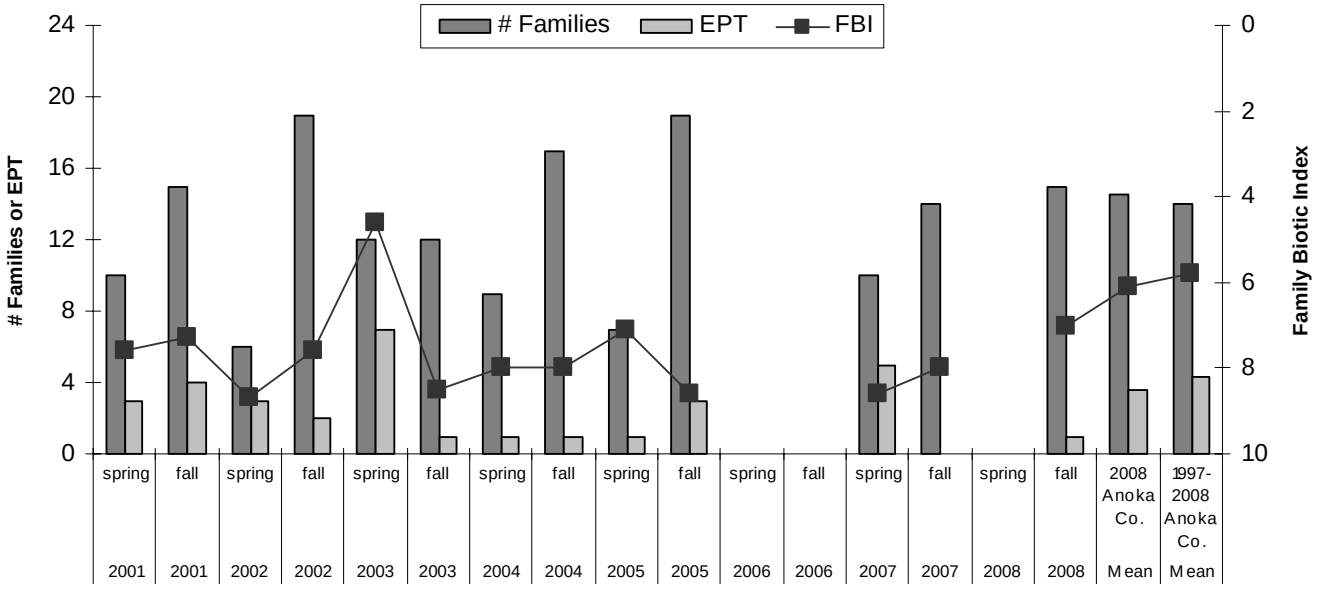
Background

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. Other than the Mississippi, this is the largest river in the county. In Anoka County the river has both rocky ripples (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. Sampling is not conducted in the main channel. Rather, it occurs in a backwater area. Water is not flowing in this location and the bottom is mucky. This site is not particularly representative of this reach of the river.

Results

Anoka High School monitored this site in fall 2008; spring monitoring does not occur because aquatic ecology class is not offered in spring. The results for this site in 2008 were similar to previous years. The various indices, taken together and across years, indicate a below average macroinvertebrate community. In 2008, and historically, the family biotic index was below the county mean, and few of the pollution-sensitive EPT families are found. The number of families found has fluctuated widely, sometimes above and sometimes below the county mean. However, most of the families are pollution-tolerant generalists.

Summarized Biomonitoring Results for Rum River behind Anoka High School



Biomonitoring Data for Rum River at Anoka High School

Year	2001	2001	2002	2002	2003	2003	2004	2004	2005	2005	2007	2007	2008	2008	Mean	Mean
Season	spring	fall	spring	fall	spring	fall	spring	fall	spring	fall	spring	fall	spring	fall	2008 Anoka Co.	1997-2008 Anoka Co.
FBI	7.60	7.30	5.90	7.60	4.60	8.50	8.00	8.00	7.10	8.60	8.6	8		7	6.1	5.8
# Families	10	15	6	19	12	12	9	17	7	19	10	14		15	14.6	14.0
EPT	3	4	3	2	7	1	1	1	1	3	5	0		1	3.6	4.4
Date	5/24	10/17	5/28	10/9	6/2	10/10	6/9	10/4	17-May	24-Oct	5/7	10/22		10/13		
sampling by	AHS	AHS	ACD	AHS	ACD	AHS	ACD	Anoka HS	AHS	AHS	AHS	AHS		AHS		
sampling method	MH	MH	MH	MH	MH	MH	MH	MH	MH	MH	MH	MH		MH		
# individuals	100	178	179	144	126	569	192	572	124	360	208	244		626		
# replicates	1	1	1	2	1	1	1	1	1	1	1	1		1		
Dominant Family	corixidae	hemiptera	corixidae	taltridae	baetidae	corixidae	corixidae	corixidae	siphlonuridae	corixidae	corixidae	coenagrionidae		baetidae		
% Dominant Family	66	30.9	91.1	20.1	51.6	43.9	33.9	57.3	82.3	69.7	91.8	37.3		26.5		
% Ephemeroptera	7	16.9	4.5	1.4	73	0.5	24.5	0.2	82.3	1.7	5.3	0		26.5		
% Trichoptera	0	0	0	0	2.4	0	0	0	0	0	0	0		0		
% Plecoptera	4	0	0.6	0	7.1	0	0	0	0	0	0.5	0		0		

Supplemental Stream Chemistry Readings

Parameter	6-2-03	10-10-03	6-9-04	10-4-04	5-17-05	10-24-05	5-7-07	10-22-07	10-10-08
pH	7.66	8.63	8.27	9.12	8.45	8.04	8.50	7.42	7.75
Conductivity (mS/cm)	0.305	0.343	0.140	0.203	0.193	0.171	0.283	0.243	0.348
Turbidity (NTU)	3	1	3	2	5	5	17	13	3
Dissolved Oxygen (mg/L)	8.50	8.24	6.2	9.30	11.81	11.23 (95%)	11.41	9.72 (87%)	8.99 (85%)
Salinity (%)	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.01
Temperature (C)	17.7	15.9	20.2	11.6	13.1	9.0	15.3	10.6	12.3

Discussion

Biomonitoring results for this site are much different from the monitoring farther upstream in St. Francis. In St. Francis the Rum River harbors the most diverse and pollution-sensitive macroinvertebrate community of all sites monitored in Anoka County. At the Anoka location the biotic indices indicate a poorer than average river health. The reason for this dramatic difference is probably habitat differences, and to a lesser extent, water quality.

The habitat and overall nature of the river is different in St. Francis and Anoka. In the upstream areas around St. Francis the river has a steeper gradient, moves faster, and has a variety of pools, riffles, and runs. Downstream, near Anoka, the river is much slower moving, lacking pools, riffles and runs. The bottom is heavily silt laden. The area is more developed, so there are more direct and indirect human impacts to the river.

Water quality declines downstream, though it is still quite good at all locations. Chemical monitoring in 2004 revealed that total suspended solids, total phosphorus, and chlorides were all higher near Anoka than upstream. This is probably due more urbanized development and the accompanying storm water inputs, as well as land uses that are more likely to generate pollutants. Given that water quality is still quite good even in these downstream areas, it is unlikely that water quality is the primary factor limiting macroinvertebrates at Anoka.

One additional factor to consider when comparing the up and downstream monitoring results is the type of sampling location. Sampling 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 because those families generally favor rocky habitats and require high dissolved oxygen not found in stagnant areas.

Stream Water Quality – WOMP Program

Description: The Watershed Outlet Monitoring Program (WOMP) is a Metropolitan Council stream and river monitoring program. In Anoka County, the program has an established monitoring station for the Rum River in Anoka, near its outlet to the Mississippi River. Water levels, flows, and 20+ water quality parameters are measured. Loading rates for important pollutants are estimated continuously and the Metropolitan Council provides in-depth analysis and reporting (not provided here). The Anoka Conservation District provides staffing for operations of the monitoring station.

Purpose: To understand water quality and hydrology throughout the twin cities metropolitan area.

Locations: Rum River at the Anoka Dam, City of Anoka

Results: Presented elsewhere by the Metropolitan Council. See http://www.metrocouncil.org/Environment/RiversLakes/

Rum River WOMP Monitoring Station

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 21 wetland hydrology monitoring stations.

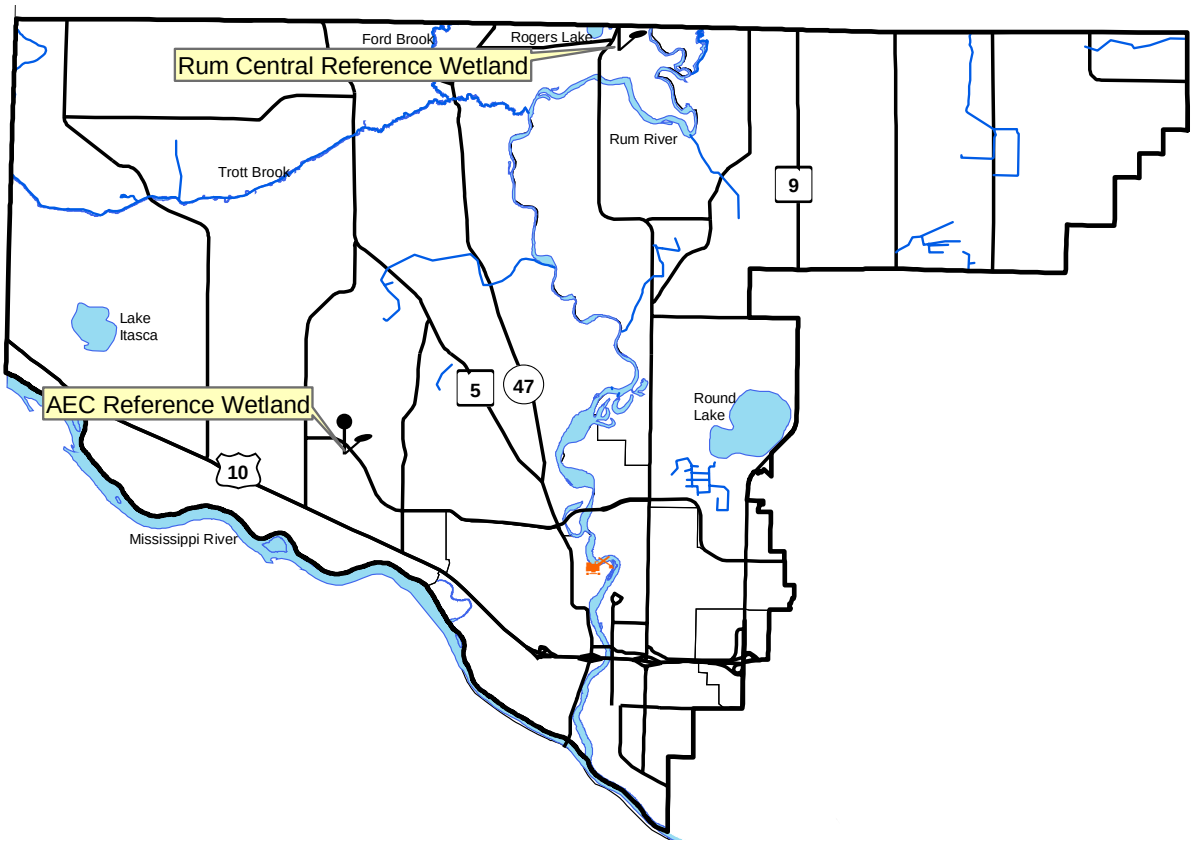
Purpose: To provide understanding of wetland hydrology, including the impact of climate and land use. These data aid in delineation of nearby wetlands by documenting hydrologic trends including the timing, frequency, and duration of saturation.

Locations: AEC Reference Wetland, Connexus Energy Property on Industry Ave, Ramsey

Rum River Central Reference Wetland, Rum River Central Park, Ramsey

Results: See the following pages. Raw data and updated graphs can be downloaded from 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

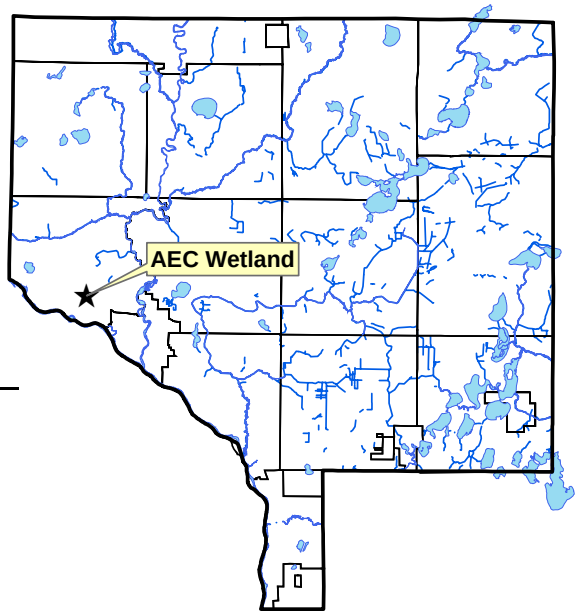
Monitored Since: 1999

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	-

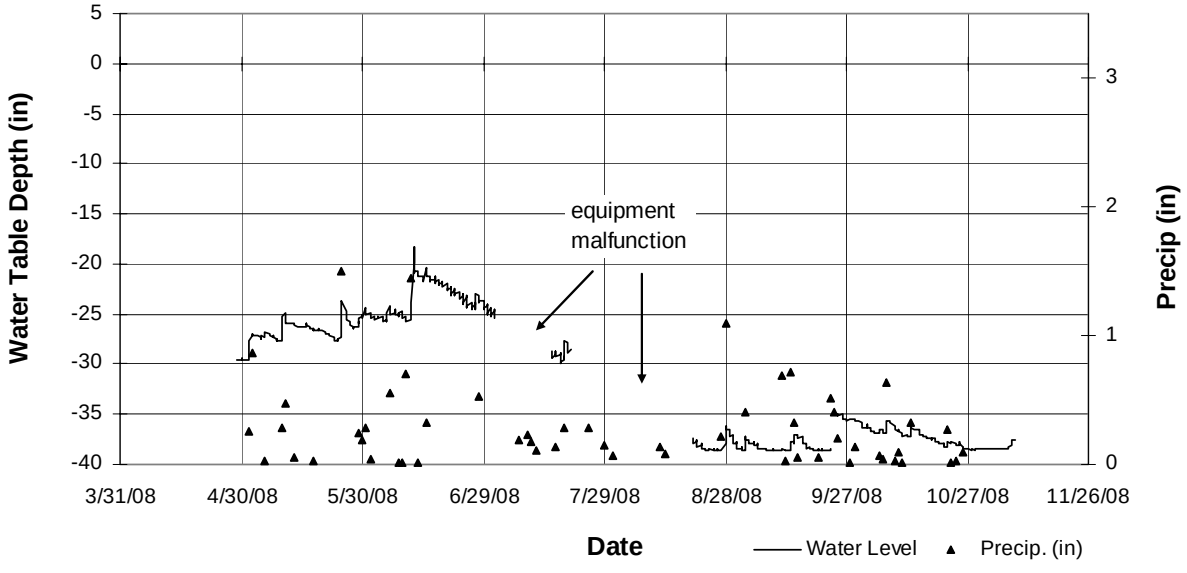
Surrounding Soils: Hubbard coarse sand

Vegetation at Well Location:

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

Other Notes: Well is located at the wetland boundary.

2008 Hydrograph



Well depths were 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

RUM RIVER CENTRAL REFERENCE WETLAND

Rum River Central Regional Park, Ramsey

Site Information

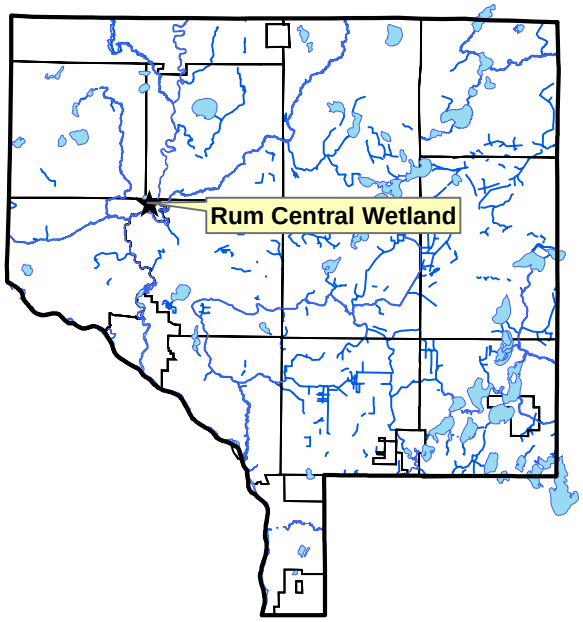
Monitored Since: 1997

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	-

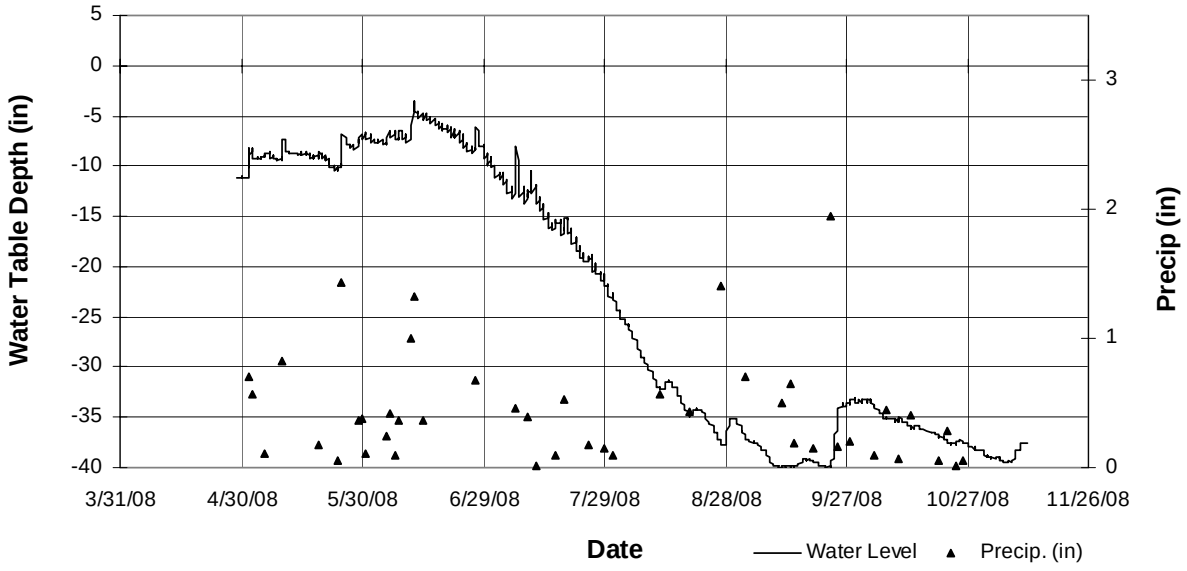
Surrounding Soils: Zimmerman fine sand

Vegetation at Well Location:

Scientific	Common	% Coverage
Phalaris arundinacea	Reed Canary	40
Corylus americanum	American Hazelnut	40
Onoclea senibilis	Sensitive Fern	30
Rubus stigosus	Raseberry	30
Quercus rubra	Red Oak	20

Other Notes: Well is located at the wetland boundary.

2008 Hydrograph



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

Water Quality Improvement Projects

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 described individually below.

2008 Rusin and Herrala Riverbank Stabilizations

In 2008 two water quality improvement projects utilized LRRWMO cost share funds. The projects were on adjacent properties, resulting in 158 continuous feet Rum Riverbank erosion correction. One of the property owners also will do additional work in 2009 to repair minor erosion higher on the bluff. Both property owners received 50% cost share grants for materials and received a no-cost work crew through Minnesota Conservation Corps with State of Minnesota funds.

At both the Herrala and Rusin properties cedar tree revetments were used to correct streambank erosion and prevent future erosion. This technique involves anchoring cut cedar trees tightly along the bank. The dense branches simultaneously protect the bank from high flows and allow sediment to settle behind the trees during lower flows. Cedar trees are chosen because they are resistant to decay and have dense branches. Trees for these projects were harvested at no cost from a county park and a private property. Installation of this project was coordinated with the lowering of the Anoka dam for maintenance, making installation easier.

Rum Riverbank Stabilization – Herrala and Rusin Properties – Cedar tree revetments were installed during river drawn down for Anoka Dam maintenance. Duckbill anchors and galvanized cable secure the cut trees to the bank.

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
Deffered Expense – anticipated 2009 Rusin bluff stabilization	-	$ 342.87
Fund Balance		**$ 280.76**

Rum Central Regional Park Cedar Tree Revetment

This project did not use LRRWMO cost share, but did occur in the Lower Rum River Watershed. The project was a continuation of an earlier, and much larger, stabilization of riverbank within the county park. This follow-up work included the installation of cedar tree revetments to further provide stabilization from bank failures, erosion, and to provide near-shore fish and wildlife habitat. This project was led by the Anoka Conservation District and Anoka County Parks.

Homeowner Guide

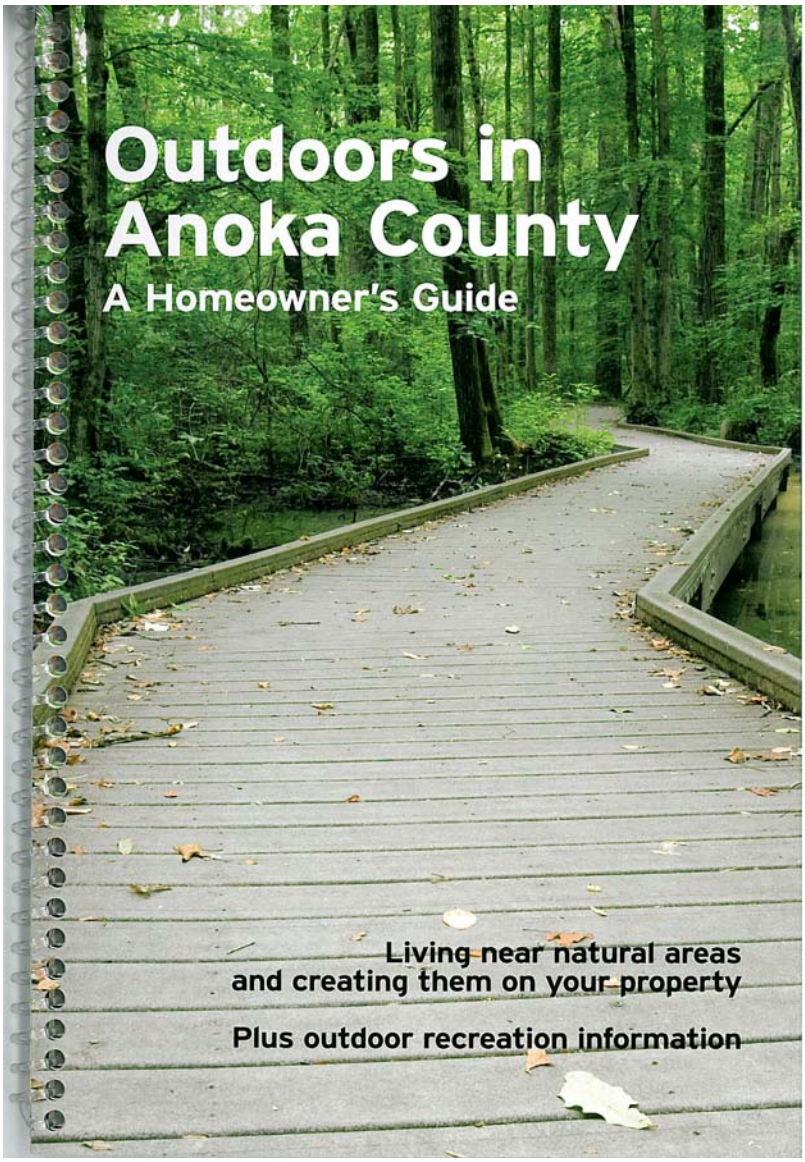
Description: The Anoka Conservation District (ACD) wrote, designed, and printed an educational booklet for homeowners. The booklet included information on topics of interest to the SRWMO, including landscaping for water quality, wetlands, well water, septic systems, and hazardous household wastes.

Purpose: To educate homeowners about topics that will impact local natural resources.

Locations: Throughout the watershed.

Results: "Outdoors in Anoka County – a homeowner's guide" was written, laid out by a graphic designer, and printed in 2007. The ACD distributed 556 booklets to homes near other important natural areas in the Lower Rum River watershed.

Homeowner's Guide Cover



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. The LRRWMO pays the ACD annual fees for maintenance and update of the website.

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. The website serves as the LRRWMO's alternative to a state-mandated newsletter.

Location: www.AnokaNaturalResources.com/LRRWMO

Results: 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,
- descriptions of work that the organization is directing,
- highlighted projects,
- permit applications.

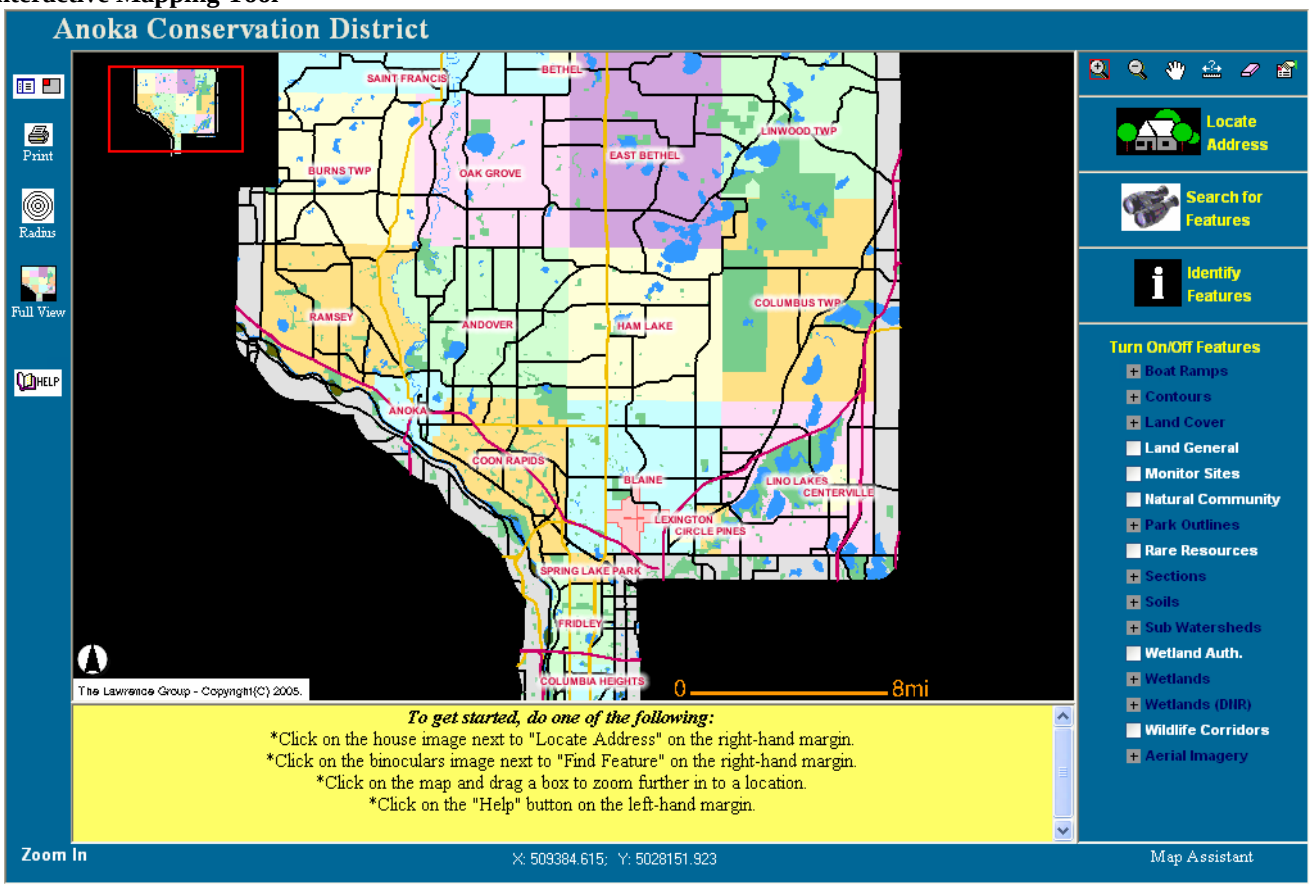
Other tools on the website include:

- an interactive mapping tool that shows natural features and aerial photos
- an interactive data download tool that allows users to access all water monitoring data that has been collected
- narrative discussions of what the monitoring data mean

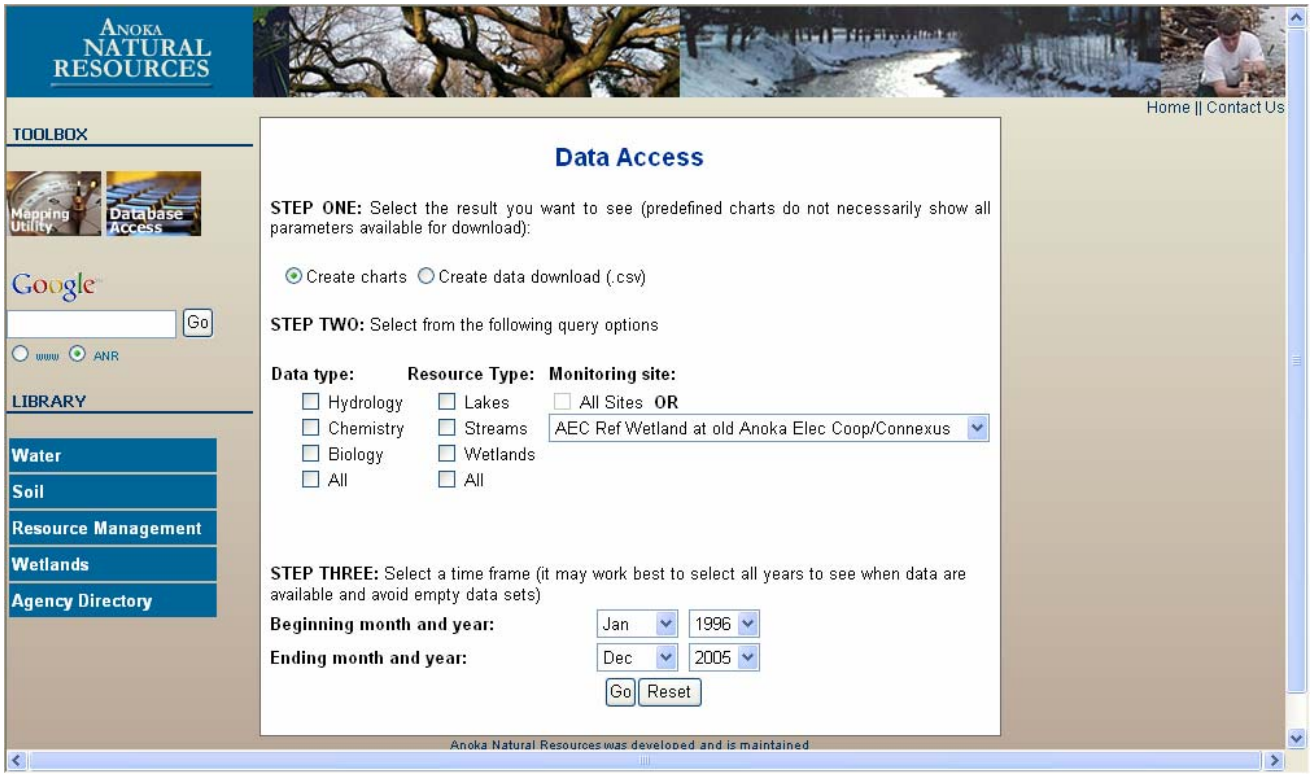
LRRWMO Website Homepage

more on next page

Interactive Mapping Tool



Interactive Data Access Tool



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, such as our lake water quality monitoring program. We do not, however, know specifically which expenses are attributed to monitoring which lakes. 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. The process also takes into account equipment that is purchased for monitoring in a specific area.

Lower Rum River Watershed Financial Summary

Lower Rum River Watershed	Web site	Precipitation Monitoring	Wetland Hydrology	Lake Levels	Groundwater Observation Wells	Lake Water Quality	Rum River WOMP	Student Biomonitoring	Outdoor Guide	Rusin Cedar Tree Revetment	Herrala Cedar Tree Revetment	Rum River Central Regional Park Cedar Tree Revetment	Total
Revenues													
LRRWMO	340	0	525	480	0	920	0	375	0	225	151	0	3016
State	0	0	0	0	120	0	0	0	0	0	0	0	120
Anoka Conservation District	2454	77	0	526	180	0	560	214	665	0	0	0	4676
County Ag Preserves	0	0	242	0	0	697	0	887	0	225	152	0	2203
Other Service Fees	342	57	0	66	0	0	800	0	5	0	0	5439	6708
Local Water Planning	0	0	379	0	0	247	0	0	0	0	0	0	626
TOTAL	3136	134	1145	1071	300	1864	1360	1476	670	451	303	5439	17349
Expenses-													
Capital Outlay/Equip	37	2	188	17	4	14	12	24	1	0	0	0	299
Personnel Salaries/Benefits	2036	110	755	907	248	1197	1082	1147	475	0	0	4876	12832
Overhead	152	11	76	72	23	103	89	87	99	0	0	0	711
Employee Training	40	2	13	15	4	19	17	18	19	0	0	0	147
Vehicle/Mileage	50	4	34	27	10	55	51	30	18	0	0	0	280
Rent	82	5	42	31	11	65	62	33	49	0	0	0	381
Program Participants	0	0	0	0	0	0	0	0	0	0	0	0	0
Program Supplies	738	1	38	3	0	411	46	137	8	451	303	563	2699
Equipment Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	3136	134	1145	1071	300	1864	1360	1476	670	451	303	5439	17349
NET	0	0	0	0	0	0	0	0	0	0	0	0	0

Recommendations

- **Continue monitoring Round Lake** water quality at least every other year to determine if poorer water quality recently is within this lake's natural variation or is a sign of developing problems.
- **Diagnose and improve Rogers Lake water quality problems** through a joint effort of the LRRWMO and URRWMO. First, monitoring in 2009 is recommended to better understand this unstable lake. In following years diagnostic work or active management of the lake may be needed.
- **Diagnose the cause of periodically low dissolved oxygen in Trott Brook.**
- **Continue lake level monitoring, especially on Round Lake** where residents have expressed concerns with levels. Other nearby lakes should be monitored for comparison and in case problems develop.
- **Maintain a cost share program for water quality improvement projects** on private properties. This program should be actively promoted by identifying problems and contacting landowners.
- **Encourage public works departments to implement measures to minimize road deicing salt applications**. Monitoring and special investigations in the LRRWMO have shown that road salts are one of the largest and most widespread sources of stream degradation in this watershed.
- **Incorporate the above recommendations into the LRRWMO Watershed Plan**. The Plan provides an organized and prioritized way to address these issues. Several state grants are only open to projects listed in watershed plans.

Barr Engineering Company
4700 West 77th Street • Minneapolis, MN 55435-4803
Phone: 952-832-2600 • Fax: 952-832-2601 • www.barr.com *An EEO Employer*

Minneapolis, MN • Hibbing, MN • Duluth, MN • Ann Arbor, MI • Jefferson City, MO • Bismarck, ND

February 20, 2009

Ms. Carla Wirth
Time Savers
28601 Hub Drive
Madison Lake, MN 56063

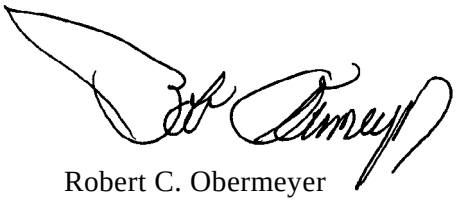
Re: 2008 LRRWMO Permit/Activity Summary

Dear Carla,

Enclosed is the 2008 Permit Summary to be included in the Annual Report for the Lower Rum River Water management Organization.

If you have any questions, please give me a call at 952.832.2857.

Sincerely,



Robert C. Obermeyer

BCO/ymh
Enclosure

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2008 Lower Rum River Water Management Organization (LRRWMO) Permit Summary

Permit Name	Permit #	City	Summary
Kuiken Property/Accent Homes Development	2007-15	Andover	Approval of Wetland Delineation Report to include revised wetland boundary as requested by TEP.
King's Lane Outfall	2007-16	Anoka	Reconstruction of street and utilities along Oakwood Drive, Birch Street, River Lane, and King's Lane. Project was approved.
Asset Resources	2008-01	Ramsey	14,143 square-foot office/warehouse building on 1.8-acre site. Low floor elevation 3.3 feet above flood elevation of basin. Project was approved.
Ramsey Commons	2008-02	Ramsey	7,800 square-foot building on 1.1-acre site. Finished floor 3.5 feet above surface overflow from basin. Project was approved.
St. Katherine Drexel	2008-03	Ramsey	7,700 square-foot building on 3.6 acres. Total site 32.3 acres. Infiltration to be provided. Project was approved.
CVS Pharmacy	2008-04	Anoka	12,900 square-foot building on 1.5-acre site. Stormwater runoff provided within underground system. Project was approved.
Anderson Dahlen Addition	2008-05	Ramsey	18.2-acre, 6 single-family residential development. Two on-site stormwater basins. Low floor elevations a minimum of 2 feet above flood elevations. Project was approved.
CSAH 57 Reconstruction from CSAU 116 to Riverdale Drive N.W.	2008-06	Ramsey	Roadway reconstruction. Project was approved.
Ermine Boulevard Culvert Replacement	2008-07	Ramsey	Existing 72-inch RCP replaced with 14- x 6-foot box culvert. MDNR approval of the FEMA CLOMR. Project was approved.
Panther Machine	2008-08	Ramsey	24,750 square-foot building on 5-acre site. Finished floor elevation 7.6 feet above flood elevation of regional basin. Project was approved.
Egge Pond	2008-09	Andover	Construction of 2.4-foot deep pond on a Type 2 wetland. WCA does not regulate excavation of ponds les than 6.6 feet in Type 2 wetland.

Permit Name	Permit #	City	Summary
144th Avenue N.W. Street Extension	2008-10	Ramsey	850 L.F. roadway extension. Stormwater directed to a regional stormwater management basin.
Alpine Park Watermain Loop	2008-11	Ramsey	Construction of 2837.L.F. of 12-inch watermain. 10-foot wide bituminous trail to be constructed over the top of the pipe. Project was approved.
Union Square	2008-12	Anoka	12,200 square-foot building on 1-acre site. Percentage of imperviousness reduced. Project was approved
Tag Machine	2008-13	Ramsey	12,400 square-foot building on 2.2-acre site. Finished floor elevation 4.2 feet above flood elevation of basin. Project was approved.
Babineau Retaining Wall	2008-04	Andover	Filling of 461 square feet of wetland for a retaining wall for the creation of a vegetable garden. Fill meets de minimus exemption. TEP recommend approval of the Wetland Permit Application.
Ramsey Town Center Storm Sewer Outfall	2005-15	Ramsey	Construction of the storm sewer outlet from Ramsey Town Center to the Mississippi River. Pipe outlet is 42-inch. Project was approved.

The 2008 Audit is currently being conducted and,
once completed, will be mailed under separate cover.