2009 Annual Report

Upper Rum River

Watershed Management Organization

Bethel - East Bethel – Ham Lake
Nowthen - Oak Grove – St. Francis

April 21, 2010

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I. Introduction

This report has been prepared to meet the annual watershed management organization reporting requirements of Minnesota Rules 8410.0150. The report is intended to fulfill 2009 reporting requirements.

The Upper Rum River Watershed Management Organization (URRWMO) is a joint powers organization under Minnesota Statutes, Section 471.59. It is comprised of the cities of Bethel, Oak Grove, Nowthen, and St. Francis, and portions of the cities of East Bethel and Ham Lake. Board members are appointed by the member cities. The organization's direction is laid out in its watershed management plan and the member municipalities' local water plans. In 2009 URRWMO met quarterly on the first Tuesday of the month at 7pm at the Oak Grove City Hall. In 2010 the organization will meet every other month on the first Tuesday.

II. Activity Report

a. Current Board Members

CITY OF BETHEL
Todd Miller (Chair)
PO Box 15
Bethel, MN 55005
763.434.8331
tmiller@popp.net

Vacant

CITY OF EAST BETHEL
Greg Hunter
3719 Viking Blvd NE
East Bethel, MN 55092
763.434.1534
eastbethelmayor@att.net

Jared Trost
23016 Sunset Rd NE
East Bethel, MN 55005
763.477.8309
trost010@umn.edu

CITY OF HAM LAKE
Mary Ann Empson
700 173rd Ave NE
Ham Lake, MN 55303
763.434.6034
maempson1@msn.com

Vacant

CITY OF NOWTHEN
Orval Leistico
21413 Nowthen Blvd
Elk River, MN 55330
763.441.1959
ojnowthen@q.com

Melanie Kern (Vice-Chair)
5300 Verde Valley Rd.
Anoka, MN 55303
763-753-9609
furbootfarm@yahoo.com

CITY OF OAK GROVE
Ed Faherty
2847 Greenwald Island
Cedar, MN 55011
763.753.3452
fahertyme@msn.com

Vacant
position filled by Will Ridge in 2009

CITY OF OAK GROVE
Steve Kane
23104 Guarani St NW
St. Francis, MN 55070
763.753.3320
steve@steve-kane.com

Vacant
position filled by Terry Sworsky in 2009

b. Employees and Consultants

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

Consultant/Partner	Contact	Work Description
Anoka Conservation District	Jamie Schurbon, Water Resource Specialist 16015 Central Ave NW, suite 103 Ham Lake, MN 55304 763-434-2030 ext. 12 jamie.schurbon@anokaswcd.org	• Watershed plan amendments, and related planning tasks. • Water monitoring and improvement projects. • Website maintenance. • Administer the WMO's cost share grants for water quality improvement projects. • Assistance preparing annual newsletter article. • Assistance preparing annual reports to BWSR. • Assistance reviewing local water plans.
Gail Gessner	Gail Gessner 4621 203rd Lane NW Oak Grove, MN 55303 763-753-2368 bethelgail@hotmail.com	• Recording secretary for meetings

c. Solicitations for Services

The URRWMO did not solicit bids for professional services in 2009. We plan to do so in 2010 for our 2011 work tasks.

d. Implementation of Watershed Management Plan

The URRWMO Watershed Management Plan was last updated and approved by the Minnesota Board of Water and Soil Resources (BWSR) in 2007. Implementation of the updated plan also began in 2007. The new plan contains a detailed schedule of tasks that the URRWMO should accomplish each year in order to realize its goals. The table on the following two pages compares our planned work to our accomplished work.

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Comparison of work planned in the URRWMO Watershed Management Plan (including amendments) and work accomplished. The work plan for 2010 is also shown.

	2007		2008		2009		2010	
Task	**Planned**	**Accomplished**	**Planned**	**Accomplished**	**Planned**	**Accomplished**	**Planned**	**In Work Plan**
Monitoring								
Lake Levels		George, East Twin Lakes		George, East Twin Lakes	George, East Twin Lakes	George, East Twin Lakes	George, East Twin Lakes	George, East Twin Lakes
Lake Water Quality			George, East Twin Lakes	George, East Twin Lakes				
Stream Water Quality			Cedar, Ford, and Seelye Brooks to be monitored 1 year during 2008-2012		Rum River, 2 sites Cedar, Ford, and Seelye Brooks to be monitored 1 year during 2008-2012	Rum River, 2 sites	Rum River, 2 sites Cedar, Ford, and Seelye Brooks to be monitored 1 year during 2008-2012	Rum River, 2 sites. Done in coordination with Lower Rum R and Met Council monitoring
Groundwater Levels							Develop groundwater level monitoring plan in 2010-11	
Water Quality Improvement								
Water Quality Improvement Cost Share Fund		$1,000	$1,000	$1,990 carry over	$1,000	$1,990 carry over	$1,000	$500 plus $1,990 carry over
Public Education								
Website or Newsletter	Annual newsletter	Maintained and updated URRWMO Website	Annual newsletter, Maintain and update website	Maintain and update URRWMO Website	Annual newsletter, Maintain and update website	Annual newsletter, Maintain and update website	Annual newsletter, Maintain and update website	Annual newsletter, Maintain and update website
Other Education		150 lakescaping brochures to Lake George Cons. Club						
Inventories and Studies								
Lakeshore Erosion Mapping		Mapped George and East Twin Lakes, sent tech. assistance & grant info to properties with problems					Field study of Rum R. erosion and initiate corrective actions	Field study of Rum R. erosion and offer technical and corrective assistance to owners where problems exist
Study groundwater levels, trends, water quality and capacity.					Groundwater study, including aquifer capacity-2010-2017.	Contributing $5,000 to initiate Co. Geologic Atlas.	Groundwater study, including aquifer capacity-2010-2017.	Contributing $2,830 to County Geologic Atlas.
Planning and Reporting								
Annual Report to BWSR	Write and submit	2006 Annual Report submitted March 27, 2007	Write and submit	2007 Annual Report submitted March 27, 2008	Write and submit	2008 Annual Report submitted April 9, 2009	Write and submit	Contracted with Anoka Cons. District to assist with reporting
Draft and adopt Plan Amendments: Water quality, stormwater infiltration, and wetland standards. Water monitoring plan	Convene Technical Advisory Committee (TAC)	TAC was convened and recommended standards	Formal process to amend new standards to URRWMO Plan	Completed. Approved by BWSR 1-8-09. Adopted by the URRWMO 2-3-09.				
Develop template for cities to annually report to URRWMO	Create reporting template		Create reporting template	Completed				
Review member cities' annual reports to the URRWMO			Review cities' reports	Done by URRWMO Bd	Review cities' reports	Done by URRWMO Bd	Review cities' reports	URRWMO Bd will do
Review member city Local Water Plans, once revised			Review draft Local Water Plans for compliance with URRWMO Plan	Bethel and Nowthen draft Plans reviewed, revised, and approved	Complete review of draft Local Water Plans for compliance with URRWMO Plan	East Bethel, St. Francis, Oak Grove, and Ham Lake draft Plans reviewed, revised, and approved. All are now done.		
Review WMO Plan, including past work and upcoming budget	Review WMO Plan, work and budget	Done by WMO Board during annual reporting	Review WMO Plan, work and budget	Done by WMO Board during annual reporting	Review WMO Plan, work and budget	Done by WMO Board during annual reporting	Review WMO Plan, work and budget	WMO Board will do during annual reporting
Update Joint Powers Agreement		Minor updates in progress		Minor updates in progress		Minor updates in progress	WMO Board continues work on JPA updates	
Set aside matching funds for future grants	$1,000	Unable–WMO plan completed after budgeting	$1,000	Unable with current finance administration	$1,000	Unable with current finance administration	$1,000	Unable with current finance administration
Other		CCWD initiated WMO boundary adjustment, URRWMO concurred, BWSR accepted	Review and adjust, if necessary, URRWMO Boundary with CCWD	Boundary adjustment completed in 2007	Review East Bethel's wetland management plan along TH65	Not needed - development has not proceeded		

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e. Status of Local Plan Adoption and Implementation

All URRWMO member cities have local water plans which are consistent with the URRWMO Watershed Management Plan and have been approved by the URRWMO. All were updated in 2008 or 2009 for consistency with the URRWMO Plan, which was approved in 2007. In order to facilitate the process, the URRWMO sent reminder e-mails to city staff and provided them with the needed materials (WMO Plan, WMO Plan amendments, and state statute 103B.235 and rule 8410.0160 which specify local plan content). The Anoka Conservation District's (ACD) technical staff were contracted to perform a review of each draft local water plan, comparing each to the content and work tasks required in the URRWMO Plan. Minor revisions were required for each local water plan. All have now been approved by the Upper Rum River WMO Board.

To track member cities' progress on local plan adoption and implementation, the URRWMO requires a brief annual report from each city and provides a template for this report. In addition to serving as a reporting tool, we hope that the template serves as a "to do" list for our cities. These reports are available upon request, and are summarized in the table below.

Status of city local water plans and some recent accomplishments toward plan implementation.

City of Bethel	
Local Water Plan Status	Bethel's new local water plan has been approved by the URRWMO and favorably reviewed by the Metropolitan Council. The URRWMO approved the plan in February 2009. The City has indicated that several ordinance revisions are also planned to achieve consistency with URRWMO standards. The City of Bethel needs several ordinance updates for compliance with URRWMO standards, including erosion and sediment control, stormwater, and floodplain. In their 2008 report to the URRWMO they anticipated these ordinance updates by the end of 2010, but did not provide a target completion date in their 2009 report.
Submitted 2009 annual report to URRWMO?	Yes
Some Recent Implementation Accomplishments	• Educational efforts that reached 171 households on the topics of hazardous waste disposal and yard waste management. • Street sweeping. • Completed a wetland ordinance. • Development of a map in 2008 that includes ponds, lakes, streams, wetlands, and major storm sewer crossings. • Development in 2008 of an engineering manual with stormwater construction requirements.

City of East Bethel

Local Water Plan Status

East Bethel's local water plan is under revision, as well as several related ordinances. The most recent version has been reviewed favorably by the Metropolitan Council and URRWMO. The URRWMO approved the plan in May 2009, contingent upon several revisions. East Bethel is continuing revisions, and expects a final draft in May 2010.

Submitted 2009 annual report to URRWMO?

Yes

Some Recent Implementation Accomplishments

- City is currently updating its subdivision ordinance, which will address several areas where the city's current ordinances do not meet URRWMO standards. These include erosion and sediment control, stormwater, and wetlands.
- NPDES Phase II stormwater regulation implementation, including educational efforts and developed an illicit discharge detection program.
- Street sweeping.
- Inventoried existing water quality and rate control ponds.
- Developed stormwater treatment basin and sump inspection program, which will begin in 2010.
- Educational efforts that reached 11,000 residents on the topics of wetland buffers, water conservation, hazardous waste disposal, yard waste management, and pet waste disposal.
- Inspecting land disturbance activities weekly or after rain events.

City of Ham Lake

Local Water Plan Status

Ham Lake's new local water plan has been favorably reviewed by the Metropolitan Council and URRWMO. The URRWMO approved the plan in May 2009, with contingencies. At their December 7, 2009 meeting, the Ham Lake City Council approved the local water plan with revisions that met the URRWMO's contingencies.

Submitted 2009 annual report to URRWMO?

Yes

Some Recent Implementation Accomplishments

- Stormwater system illicit discharge detection and elimination through City ordinance 08-03.
- Annual inspection of all structural pollution control devices, and maintenance based upon inspection reports. This includes 165 outlet baffles acting as pollution control devices for the stormwater collection and sedimentation ponds in the City.
- Routine inspection of land disturbance activities.
- Street sweeping by May 1 in the spring, once during summer, and other times as needed.
- Inspection of 20% of MS4 outfalls, sedimentation basins, and ponds each year on a rotating basis. Any cleaning or maintenance is based on the inspection reports.
- Educational efforts through the City's newsletter, which reaches the entire population of 14,000+. Educational article topics in 2009 included wetland buffers, water quality monitoring, groundwater protection, water conservation, hazardous waste disposal, yard waste management, and pet waste disposal. Additional education is accomplished through the city's website.
- Created guidelines for development and made them available to developers, community staff, and the city council.

City of St. Francis

Local Water Plan Status

St. Francis' local water plan has been approved by the URRWMO. The city first submitted a revised local water plan that was favorably reviewed by the Metropolitan Council on May 5, 2009 and approved contingent upon several minor revisions by the URRWMO on the same day. Revisions were made by the city to address the contingencies and the URRWMO approved the St. Francis local water plan on September 1, 2009.

The City has indicated that several ordinance reviews and possibly revisions are also planned to achieve consistency with the URRWMO standards. Ordinances needing review and possible update or creation include shoreland, stormwater, floodplain, and wetlands.

Submitted 2009 annual report to URRWMO?

Yes

Some Recent Implementation Accomplishments

- Inspecting construction projects weekly or after rain events.
- Street sweeping in both spring and fall.
- Development of an inspection plan for stormwater treatment basins and water control structures is underway. For water control structures, inspections will begin in fall 2010.
- Educational efforts that reached 3,000 residents on the topics of water conservation, yard waste management, and pet waste disposal.

City of Nowthen

Local Water Plan Status

Nowthen's local water plan ahs been approved by the URRWMO. The URRMO Board first reviewed the plan in February 2009, where some deficiencies were found. The City revised the plan based upon URRWMO comments. The revised plan was approved by the URRWMO Board in May 2009. The Metropolitan Council has also indicated that they find the draft plan satisfactory in their January 2009 letter.

The City is nearing completion of several ordinance revisions needed to be consistent with URRWMO standards. On March 23, 2010 they completed public hearings for revisions of their erosion control, stormwater, and wetland ordinances. All of the city's other ordinances are consistent with the requirements of the URRWMO Plan and standards.

Submitted 2009 annual report to URRWMO?

Yes

Some Recent Implementation Accomplishments

- Updates to erosion control, stormwater, and wetland ordinances for consistency with the URRWMO Plan and standards.
- City's Storm Water Pollution Prevention Plan (SWPPP) was adopted April 14, 2009. Several deadlines for accomplishments under the SWPPP are in 2010.
- Inspected 16 stormwater ponds and structures.
- Inspected construction projects weekly.
- Continued to make available guidelines for development, with target audiences of developers, community staff, and city councils.
- Educational efforts to approximately 3,700 residents on topics of hazardous waste disposal and yard waste management.

City of Oak Grove

Local Water Plan Status	Oak Grove's local water plan ahs been approved by the URRWMO. The City first submitted it's local water plan to the URRWMO in early 2009. The URRWMO noted several deficiencies in a comment letter dated February 3, 2009. Revisions were made and the URRWMO approve the plan in May 2009. The Metropolitan Council favorably reviewed the plan (letter dated Sept. 9, 2009) . The City already has all of the ordinances required by the URRWMO Plan.
Submitted 2009 annual report to URRWMO?	Yes
Some Recent Implementation Accomplishments	• Began revising the city's wetland ordinance, which will include buffer widths required by the URRWMO. Completion is anticipated in June 2010. • Beginning inspections of water quality and rate control ponds in 2010. • Street sweeping in spring. • Ongoing work to complete BMP's in the city's Storm Water Pollution Prevention Plan. • Inspecting construction projects, including enforcement action on failure to implement erosion and sediment control on a lakeshore lot. • Developed guidelines for development targeted toward developers, city staff, and city councils. • Educational efforts that reached 80% residents on the topics of wetland buffers, groundwater protection, hazardous waste disposal, and yard waste management.

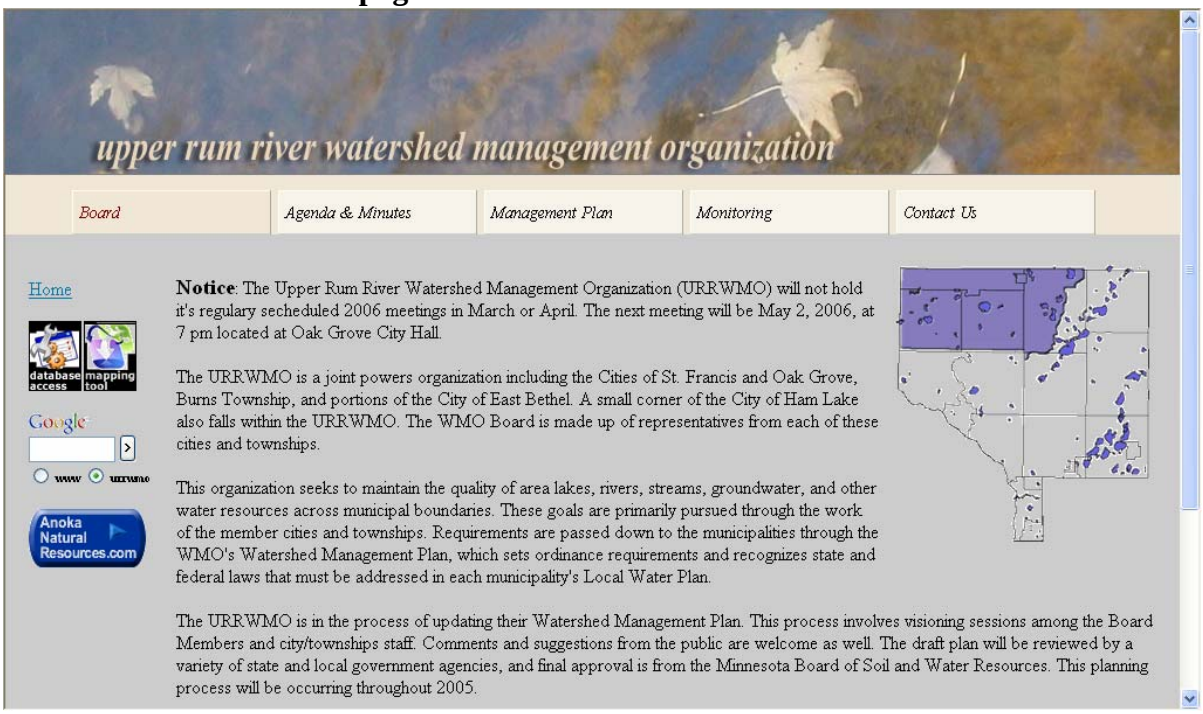
f. Public Outreach

The URRWMO and its member cities do occasional public outreach and education projects (see tables above), but the URRWMO's website serves as the primary, continuous public outreach tool. The website was designed in 2003 and has been in continuous operation since. Website contents include general information about the organization, the watershed management plan, meeting agendas and minutes, water monitoring results, profiles of WMO projects, access to mapping and data access tools, and others.

The website serves as an alternative to the state-mandated annual newsletter. The URRWMO ensures visibility of its website by asking member cities and townships to post the URRWMO website address in their newsletters. Links to the URRWMO website are also provided through other websites including the Anoka Natural Resources, Anoka Conservation District, and member municipality websites.

The website address is http://www.anokanaturalresources.com/urrwmo

URRWMO Website homepage



g. Permits, Variances, and Enforcement Actions

The URRWMO does not issue permits, variances, or take enforcement actions. These responsibilities are held by the member municipalities.

h. Status of Locally Adopted Wetland Banking Program

The URRWMO does not have a locally adopted wetland banking program.

i. 2010 Work Plan

Task	Purpose	Description	Locations or Action	Cost
Lake Level Monitoring	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.	Weekly water level monitoring in lakes by volunteers. All are available on the Minnesota DNR website using the "LakeFinder" feature (www.dnr.mn.us.state \lakefind\index.html).	East Twin Lake Lake George	$300
Stream Water Quality Monitoring	To detect water quality trends and diagnose the cause of changes. To measure upstream to downstream changes in water quality within the URRWMO area.	Grab sample water quality monitoring, including: total phosphorus, total suspended solids, chlorides, dissolved oxygen, turbidity, temperature, conductivity, pH, and salinity. Water level will be recorded during each sampling.	Rum River at Hwy 24 (top of URRWMO area) Rum River at Hwy 7 (bottom of URRWMO area).	$1,845
URRWMO Website	To increase awareness of the URRWMO 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 URRWMO's alternative to a state-mandated newsletter.	Maintain and update the URRWMO website with current information about the organization, and meeting minutes and agendas.	http://www.anokanaturalresources.com/urrwmo/	$270
URRWMO Annual Newsletter	To increase awareness of the URRWMO and its programs, as well as educate the public on water quality issues. A featured topic in the 2009 article will be cost share grants available to residents for water quality improvement projects.	In order to achieve the greatest distribution at the lowest cost the URRWMO will draft an newsletter article and ask that member cities include it in their newsletters.	Watershed-wide	$275
Prepare 2009 Annual Report to BWSR	To provide transparency and accountability of organization operations.	Produce an annual report of URRWMO activities and finances that satisfies Minnesota Rules 8410.0150.	Secured Anoka Conservation District staff to assist with this task.	$500
Cost Share Grants for Water Quality Improve-ment	To improve water quality in lakes, rivers, and streams.	These grants offer up to 70% cost sharing of the materials needed for a water quality improvement project. The landowner is responsible for remaining materials costs, all labor, and any aesthetic components of the project. Typical projects include erosion correction, lakeshore restoration, and rain gardens. The Anoka Conservation District provides administration of grants and technical assistance to landowners.	Offer grants	$500 plus $1,990 carry over from previous years

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Task	Purpose	Description	Locations or Action	Cost
Anoka County Geologic Atlas	To understand groundwater sensitivity, flow, sustainability, locations of aquifers, connections to surface water, and recharge.	A County Geologic Atlas is a map-based, systematic, detailed study of a county's geologic and ground-water resources. It includes study of both near-surface deposits and bedrock. Ground-water studies include direction and rate of flow, aquifer capacity, ground-water chemistry, and sensitivity to pollution. The atlas is created using drilling logs from thousands of wells around the county. The information is organized, analyzed, and displayed using GIS technology. The target audience is government agencies, particularly local government. Local committees help define the scope and products of each atlas project. The State of Minnesota is the primary funding source for this project, but watershed organizations are collectively providing a required local contribution of 6% of costs.	Financial contribution.	$2,830
Field study of Rum river for erosion and other problems	To identify areas of erosion or other water quality impacts along the Rum River's banks. To initiate corrective action through cooperative effort with landowners.	The river will be reviewed by boat with a GPS, also using municipal datasets where available. Features identified will include erosion, obstructions, possible violations of scenic and recreational river laws or other water laws, outfall pipes, and other direct discharges. Work products will included printed maps and digital files. Thereafter, we will contact property owners at problem locations to offer technical and financial assistance. A mailing will go to all affected landowners. On-site consultations with technical staff will be offered.	Entire length of Rum River in the URRWMO.	$6,940
Review member cities' annual reports to the URRWMO	To track member cities' progress on local plan adoption and implementation. In addition, we hope that the reporting template will serve as a "to do" list for our cities.	The URRWMO will review annual reports from member cities. Completed reports are due to the URRWMO by February 15 so the information can be included in the URRWMO's annual report to BWSR (this report).	Review of six cities' reports by URRWMO Board.	$0

III. Financial and Audit Report

a. 2009 Financial Summary

Expenditures and revenues for the year are detailed in the table below. Each municipality's contribution (WMO revenue) follows the WMO's joint powers agreement.

Expenditures	**Amount**
Administrative	
Insurance – League of MN Cities Insurance Trust	$2,280.00
Insurance late pymt penalty - League MN Cities Ins Trust	$228.00
Insurance dividend – League of MN Cities Insurance Trust (2009 portion of dividend only)	- $135.00
Secretarial services - Gail Gessner	$525.00
Postage	$43.92
Copies	$39.25
City of Oak Grove administration fees	$300.00
SUBTOTAL	$3,281.17
Non-Administrative	
Water Monitoring (lake levels, lake water quality) - Anoka Conservation District (ACD)	$2,130.00
Website – ACD	$260.00
2008 annual report to BWSR – ACD	$400.00
URRWMO annual newsletter article – ACD	$250.00
Anoka County Geologic Atlas - ACD	$5,000.00
Credit for overpayment - ACD	-$1,793.00
SUBTOTAL	$6,247.00
GRAND TOTAL	$9,528.17
Revenues (% cost distribution specified in JPA)	**Amount**
Administrative	
City of Bethel (16.67% of expenses)	$ 546.87 (16.67%)
Burns Township (16.67% of expenses)	$ 546.87 (16.67%)
City of East Bethel (16.67% of expenses)	$ 546.87 (16.67%)
City of Ham Lake (16.67% of expenses)	$ 546.87 (16.67%)
City of Oak Grove (16.67% of expenses)	$ 546.87 (16.67%)
City of St. Francis (16.67% of expenses)	$ 546.87 (16.67%)
SUBTOTAL	$3,281.17
Non-Administrative	
City of Bethel (1.08% of expenses)	$ 67.47 (1.08%)
City of Nowthen (23.66% of expenses)	$1,478.04 (23.66%)
City of East Bethel (24.21% of expenses)	$1,512.40 (24.21%)
City of Ham Lake (0.99% of expenses)	$ 61.84 (0.99%)
City of Oak Grove (29.69% of expenses)	$1,854.75 (29.69%)
City of St. Francis (20.37% of expenses)	$1,272.51 (20.37%)
SUBTOTAL	$6,247.01
GRAND TOTAL	$9,528.18

b. Fund Balances

The URRWMO's general fund balance at the end of 2009 was $0. Revenues matched expenditures.

The URRWMO contributes to a fund for cost share grants for water quality improvement projects. This is part of a larger county-wide fund administered by the Anoka Conservation District. URRWMO dollars can only be awarded to projects in the URRWMO area. The fund balance history is:

2006 URRWMO Contribution	+	$ 990.00
2006 Expenditures		$ 0
2007 URRWMO Contribution	+	$1,000.00
2007 Expenses		$ 0
2008 URRWMO Contribution	+	$ 0
2008 Expenses	-	$ 0
2009 URRWMO Contribution	+	$ 0
2009 Expenses	-	$ 0
Fund Balance		**$1,990.00**

a. 2009 Financial Audit Documentation

All revenues and expenditures are administered through the City of Oak Grove, 19900 Nightingale St. NW Cedar, MN 55011. The City of Oak Grove has undergone a complete financial audit yearly by a certified accounting firm, but the 2009 audit, which includes an audit of the URRWMO will not be completed until June 2009. When completed the audit will be available for review at the City of Oak Grove. The audits are conducted by:

Melissa A Schlingman, Senior Staff Accountant
DeWenter, Viere, Ltd.
320.650.0223 Direct
Mschlingman@kdv.com
http://www.kdv.com

b. 2010 Budget

The URRWMO has approved the following budget for 2010:

Copies	$ 75.00
Postage	$ 75.00
Recording secretary	$ 1,200.00
Insurance	$ 2,500.00
Administrative fee (to Oak Grove)	$ 300.00
Public outreach	$ 500.00
2010 Work Plan (detailed earlier in this report)	$13,535.00
	$18,185.00

Since this budget was created the URRWMO secured a contract for services with the ACD for the work plan, with actual expenses totaling $13,460.

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Appendix A:

2009 Water Monitoring and Management Work Results

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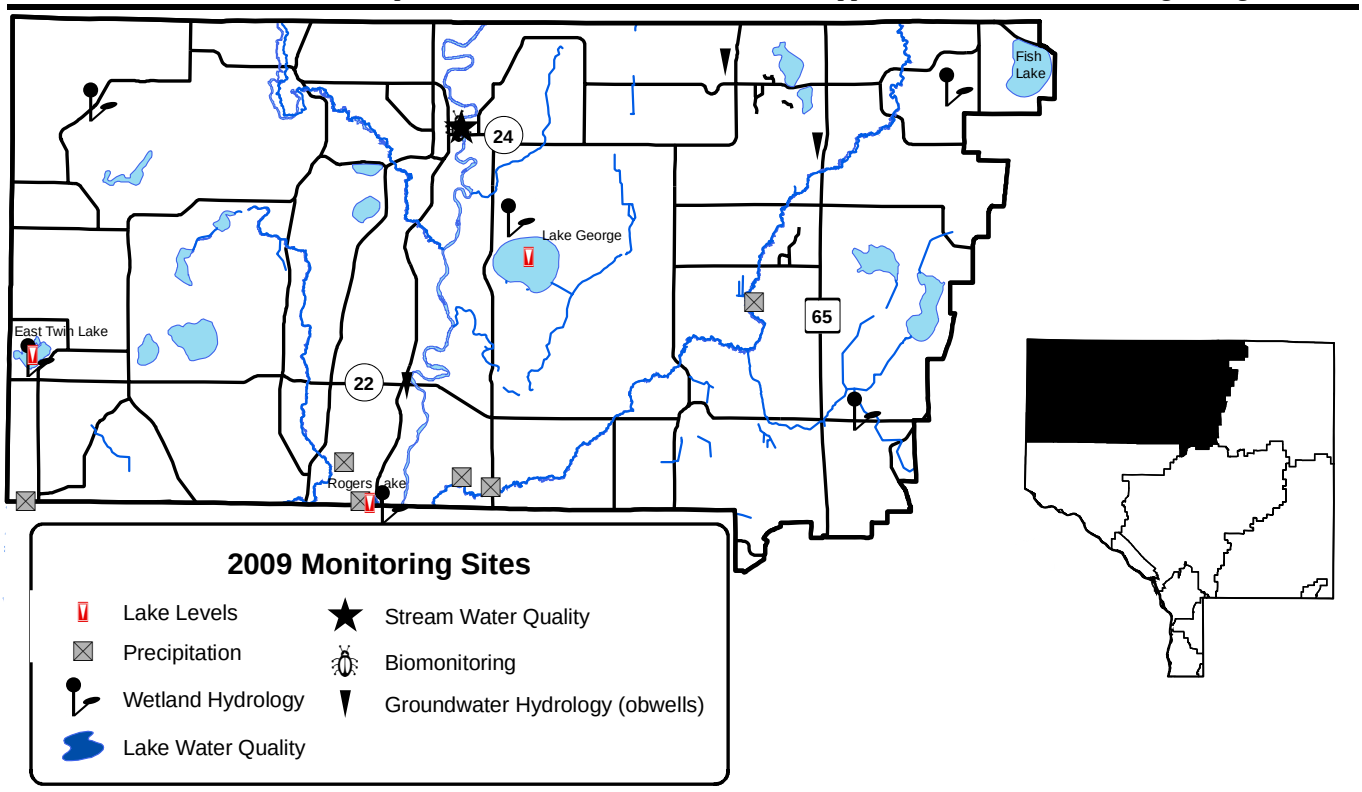
2009 WATER MONITORING AND MANAGEMENT WORK RESULTS

(*Excerpted from the 2009 Anoka Water Almanac*)

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



Lake Levels

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).

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: East Twin Lake, Lake George, Rogers Lake

Results: Water levels on Lake George, Rogers, and East Twin Lakes were measured 19, 26, and 27 times, respectively, by volunteers. All three lakes were affected by drought conditions in 2009 and all lakes are likely linked to the shallow water table.

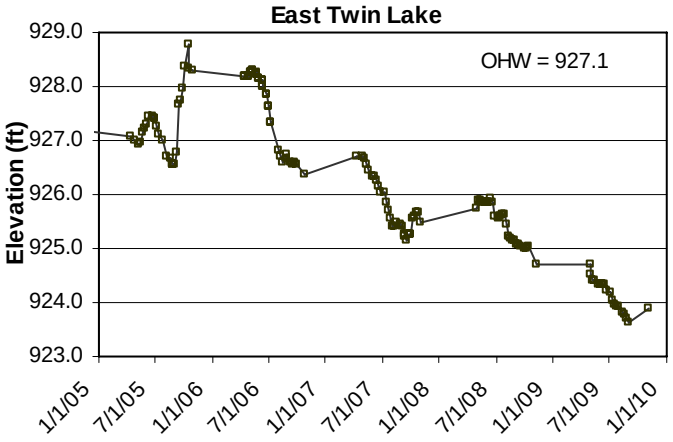
East Twin Lake has declined nearly continuously since late 2006. In 2006 water was abnormally high due to a beaver dam that was removed in 2006. Water declines in the following years were initially due to this dam removal, but more recently reflect drought. Water levels are now more than 4 feet lower than in 2006.

Lake George water levels have been relatively constant, but low, in recent years. Little water has been flowing into or out of the lake. Management of the lake's only inlet, County Ditch #19, is of interest - residents have complained it is clogged and needs maintenance.

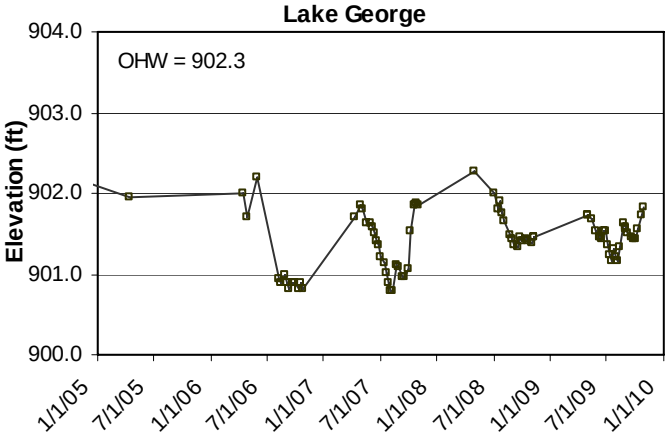
Rogers Lake has declined nearly continuously since the beginning of 2006, with a total drop of over two feet. It did increase 0.4 feet due to surplus rain in August and October.

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 below.

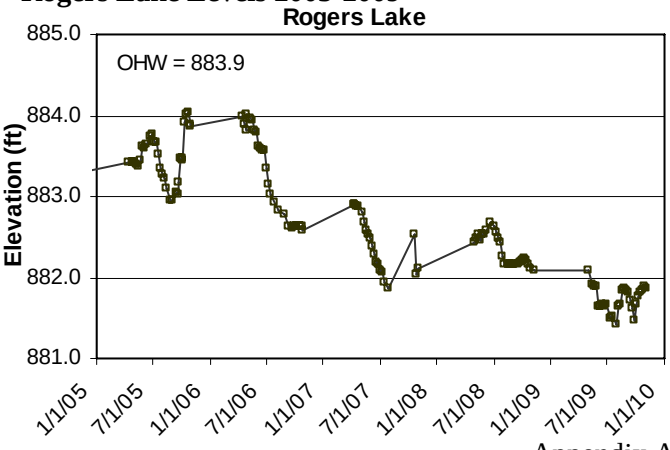
East Twin Lake Levels 2005-2009



Lake George Levels 2005-2009



Rogers Lake Levels 2005-2009



Upper Rum River Watershed Lake Levels Summary

Lake	Year	Average	Min	Max
East Twin	2005	926.67	926.05	927.33
	2006	927.61	926.37	928.29
	2007	925.79	925.15	926.71
	2008	925.45	924.70	925.94
	2009	924.13	923.62	924.72
George	2005	not available		
	2006	901.13	900.82	902.20
	2007	901.36	900.78	901.88
	2008	901.59	901.33	902.27
	2009	901.48	901.16	901.82
Rogers	2005	883.48	882.95	884.04
	2006	883.28	882.59	884.02
	2007	882.19	881.79	882.91
	2008	882.33	882.09	882.69
	2009	881.73	881.43	882.08

Lake Water Quality

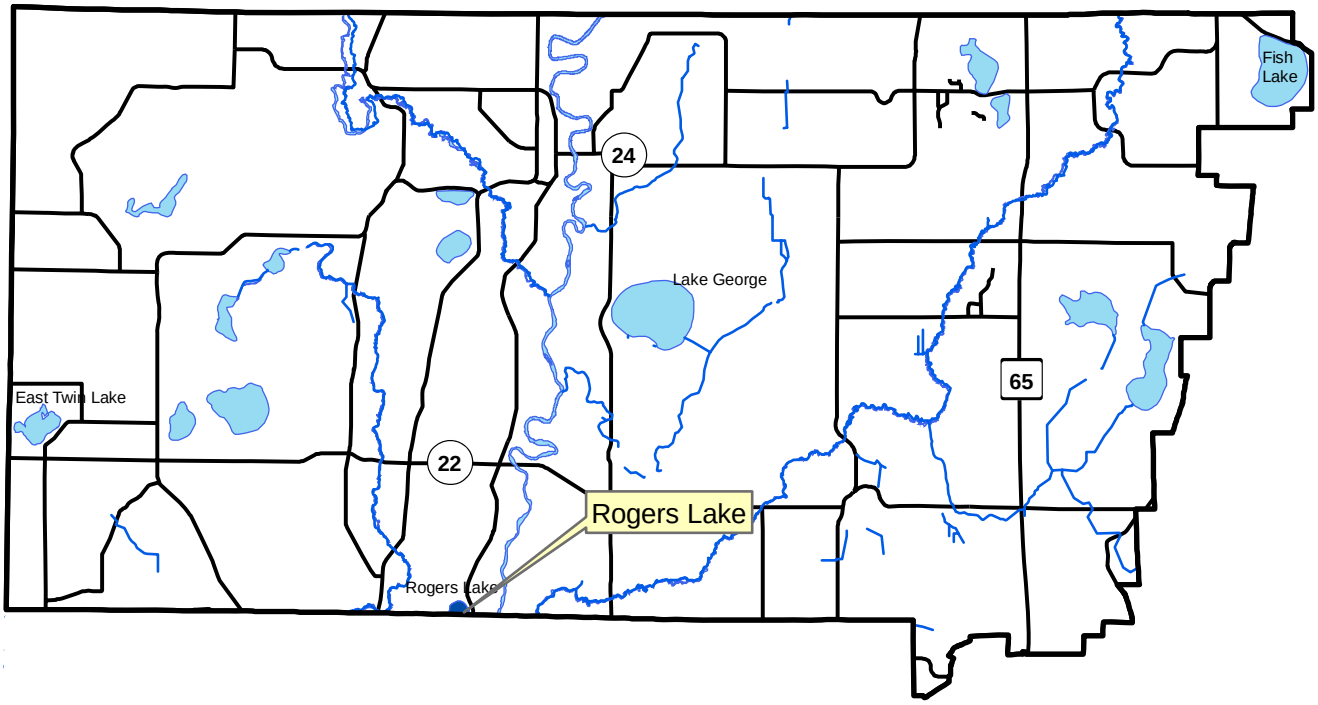
Description: May through September twice-monthly monitoring of the following parameters: total phosphorus, chlorophyll-a, Secchi transparency, dissolved oxygen, turbidity, temperature, conductivity, pH, and salinity.

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.

Upper 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.

Water Quality Results

In 2009 Rogers Lake received an overall B letter grade for water quality. The lake's condition has changed significantly within the last 2-4 years. The water became clearer and plant growth exploded between 2006 and 2008. This condition continued in 2009.

In 2006 total phosphorus was high (averaged 110 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 40% of the lake had plants growing to the surface. Floating-leaved plant species were most abundant, probably because light levels were low below the surface. Other monitored years before 2006 had better water quality, but similar aquatic plant growth.

In 2008 and 2009 water quality was notably better and plant growth dramatically increased. In 2008 average phosphorus was 32 ug/L, better than the state water quality standard of 40 ug/L. In 2009 average phosphorus was 50 ug/L, but this was driven by a single high reading of 170 ug/L (contaminated sample?). Excluding that high reading the average phosphorus in 2009 was 37 ug/L. Chlorophyll-a was low in 2008 (12.3 ug/L) and even lower in 2009 (7.1 ug/L). The water was clear in both years (average turbidity 3 FNRU both years). Plants grew densely and to the surface across 95% of the lake. The entire water column was filled with plants. Species included curly-leaf pondweed, large-leaf pondweed, floating-leaf pondweed, water shield, and lilies. Large-leaf pondweed was most abundant. Curly-leaf pondweed was least abundant.

The plant abundance is benefiting some aspects of water quality but negatively affecting recreation and the fishery. Abundant plants are consuming phosphorus, out-competing algae, and minimizing sediment disturbance so the water is clearer. However the abundance of plants eliminates almost all boating, swimming and fishing. Decomposition of the abundant plants consumes oxygen, depleting it below levels needed by most fish. The layer of plants at the surface reduces wind mixing that would oxygenate water. By early June dissolved oxygen levels dropped below 4 mg/L. Dissolved oxygen levels decreased further later in summer, remaining below 2 mg/L for over three months. No dead fish were seen, but a resident said similar conditions occurred in 2007, likely killing most fish at that time. Schools of 1" bullheads and tadpoles were the only aquatic animals seen in 2009.

The water quality in 2008-09 was not unusual for this lake but the abundance of plants was unusual. Water quality records from 1998, 2000, and 2003 are similar to 2008 and 2009. But a review of aerial photos shows that before 2007 there was much less plant growth on the lake (see photos below). In 2000, 2003, and 2006 aerial photos plants grew to the surface on <40% of the lake. Similar or less plant growth is seen in 1938, 1953, 1964, and 1970 aerial photos. In 2008-09 plants covered 95% of the lake almost the entire open water season.

Trend Analysis

Six 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

In recent years Rogers Lake has changed dramatically. In 2006 and earlier the lake had high phosphorus, algae, and turbity. In more recent years water has been clear, but aquatic plants have increased many-fold. This has created recreational and low dissolved oxygen problems. Generally, a rich aquatic plant community is desirable and healthy in a shallow lake, but here it has arguably become excessive and problematic.

The reason for the explosion in aquatic plant growth is not clear. While plant growth is expected to increase with clearer water, there were no changes in the watershed or lake management that would have created clearer water. The abundant plant species in Rogers Lake are not generally aggressive or problematic in other lakes. Low water levels, cooler than usual spring weather in consecutive years, and past illegal herbicide treatments are possible reasons for vegetation changes in the lake.

While some plant management may be beneficial for this lake, little is legally allowed. A purpose of plant management would be to reduce spring plant growth as a way of reducing the amount of decaying plant material later in summer. This should result in higher summer dissolved oxygen. It will also increase open water areas for recreation, such as canoeing. It should not be designed to eliminate plants; plants are essential to the health of shallow lakes. Generally less no more than 15% of the lake should be treated and treatment should be targeted toward critical species and areas.

Little vegetation management is legal on Rogers Lake for the following reasons:

- Rogers Lake is classified as a natural environment lake, and no herbicide use is allowed under state rules. Mechanical clearing of an area up to 2500 square feet per property is allowed without a permit.
- Where floating leaf vegetation (lilies, water shield) is present, only mechanical clearing of a 15 foot wide channel to open water is allowed without a permit. There is no open water to try to reach. Lilies and water shield are almost everywhere on Rogers Lake, eliminating almost all allowable vegetation clearing. Obtaining a permit for greater areas is possible.
- State rules discourage vegetation control on shallow lakes, which are healthiest when plant-dominated.
- Invasive species are not a problem. Vegetation control is generally not allowed or discouraged for native species that are most abunant on Rogers Lake.
- Overriding the noted problems about low dissolved oxygen and open water for recreation are the fact that there should be little expectation for a fishery or open water recreation on such a shallow lake.

In summary, the only allowable vegetation clearing on Rogers Lake is (a) mechanical clearing of an area 2500 square feet in the rare instances where no floating leaf vegetation would be impacted and (b) a 15 foot channel where floating leaf plants are present. Residents may apply for a permit for greater areas. See the DNR website or publications for more detailed information on state aquatic vegetation rules before proceeding with any work.

In the end, the current plant-dominated condition of Rogers Lake should be adopted as the best condition for this lake. Ecologically, a shallow lake of this type is healthiest when it is plant dominated. State water quality standards and state plant management rules are designed to promote this condition. Admittedly, for Rogers Lake there is a negative side – reduced recreational suitability and reduced dissolved oxygen. These conditions are common for this type of lake in a healthy condition.

Aerial photos showing increase in aquatic plants, particularly between 2006 and 2008. Light green areas are aquatic plants. Black areas are open water.

2000 2003 2006 2008

Photos of aquatic plant growth in Rogers Lake.

May 27, 2009

June 10, 2009

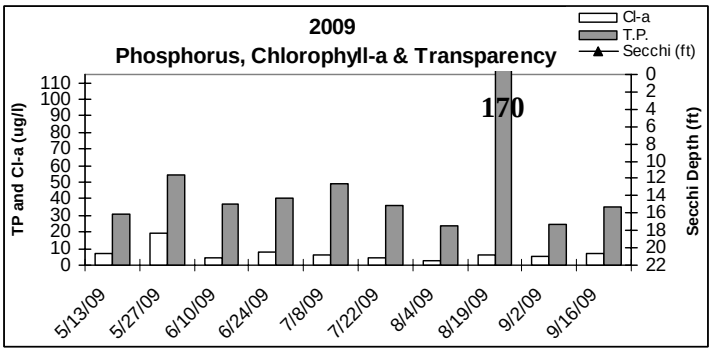
August 4, 2009

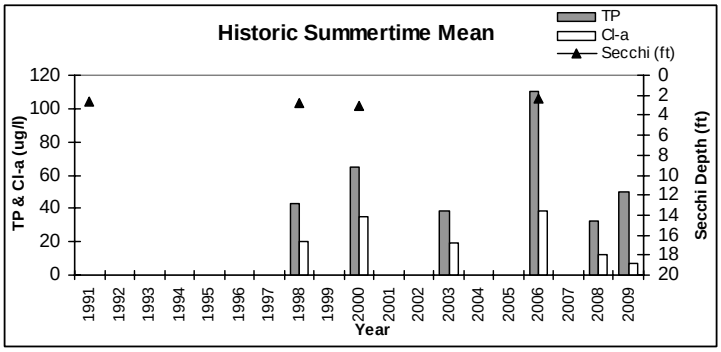
Decomposing large-leaf pondweed.

Rogers Lake Water Quality Results

Rogers Lake 2009	Units	R.L.*	5/13/2009 10:50 Results	5/27/2009 10:30 Results	6/10/2009 10:10 Results	6/24/2009 10:15 Results	7/8/2009 10:15 Results	7/22/2009 10:40 Results	8/4/2009 10:25 Results	8/19/2009 9:45 Results	9/2/2009 10:15 Results	9/16/2009 9:20 Results	Average	Min	Max
pH		0.1	7.17	6.47	6.93	5.81	5.73	5.76	5.60	5.64	5.30	5.52	5.99	5.30	7.17
Conductivity	mS/cm	0.010	0.780	0.083	0.075	0.074	0.069	0.061	0.059	0.062	0.061	0.063	0.139	0.059	0.780
Turbidity	FNRU	1	4	3	0	3	7	2	3	2	4	3	3	0	7
D.O.	mg/L	0.01	7.78	4.03	2.81	1.39	1.16	1.13	0.21	1.63	1.25	2.22	2.36	0.21	7.78
D.O.	%	1	78%	42%	26%	16%	13%	10%	2%	18%	12%	20%	24%	2%	78%
Temp.	°C	0.1	16.0	17.6	14.9	24.5	21.6	19.9	21.0	20.2	18.0	19.4	19.3	14.9	24.5
Temp.	°F	0.1	60.8	63.7	58.8	76.1	70.9	67.8	69.8	68.4	64.4	66.9	66.8	58.8	76.1
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	ug/L	1	7.4	19.4	4.7	7.5	5.8	4.8	2.3	6.2	5.0	7.4	7.1	2.3	19.4
T.P.	mg/L	0.005	0.031	0.054	0.037	0.040	0.049	0.036	0.024	0.170	0.025	0.035	0.050	0.024	0.170
T.P.	ug/L	5	31	54	37	40	49	36	24	170	25	35	50	24	170
Secchi	ft	0.1	>max depth	>4.8	>4.7	>4	>4	>4	>4	>4	>4	>4	>4		
Secchi	m	0.1	>max depth	>1.5	>1.4	>1.2	>1.2	>1.2	>1.2	>1.2	>1.2	>1.2			
Field Observations															
Physical			1.0	1.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.0	2.0
Recreational			1.0	1.5	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	1.0	5.0

*reporting limit





Rogers Lake Historical Means

Agency	CAMP	ACD	ACD	ACD	ACD	ACD	ACD
Year	91	98	2000	2003	2006	2008	2009
TP (ug/L)		42.70	64.70	38.4	110.0	32	50
Cl-a (ug/L)		20.30	35.10	19.4	38.5	12.3	7.1
Secchi (m)	0.81	0.85	0.91	n/a	0.7	n/a	n/a
Secchi (ft)	2.7	2.8	3.00	n/a	2.3	n/a	n/a

Carlson's Trophic State Index

TSIP		58	62	57	72	54	61
TSIC		60	62	60	67	55	50
TSIS	63	62	63	n/a	65	n/a	n/a
TSI		59*	62*	58*	68	55*	55*

Rogers Lake Water Quality Report Card

Year	91	98	2000	2003	2006	2008	2009
TP		C	C	C	D	B-	C
Cl-a		C	C	B	C	B	A
Secchi	D	n/a*	n/a*	n/a*	D-	n/a*	n/a*
Overall		**C**	**C**	**B**	**D**	**B**	**B**

*Secchi transparency not included because as secchi depth exceeded lake depth

Stream Water Quality - Chemical Monitoring

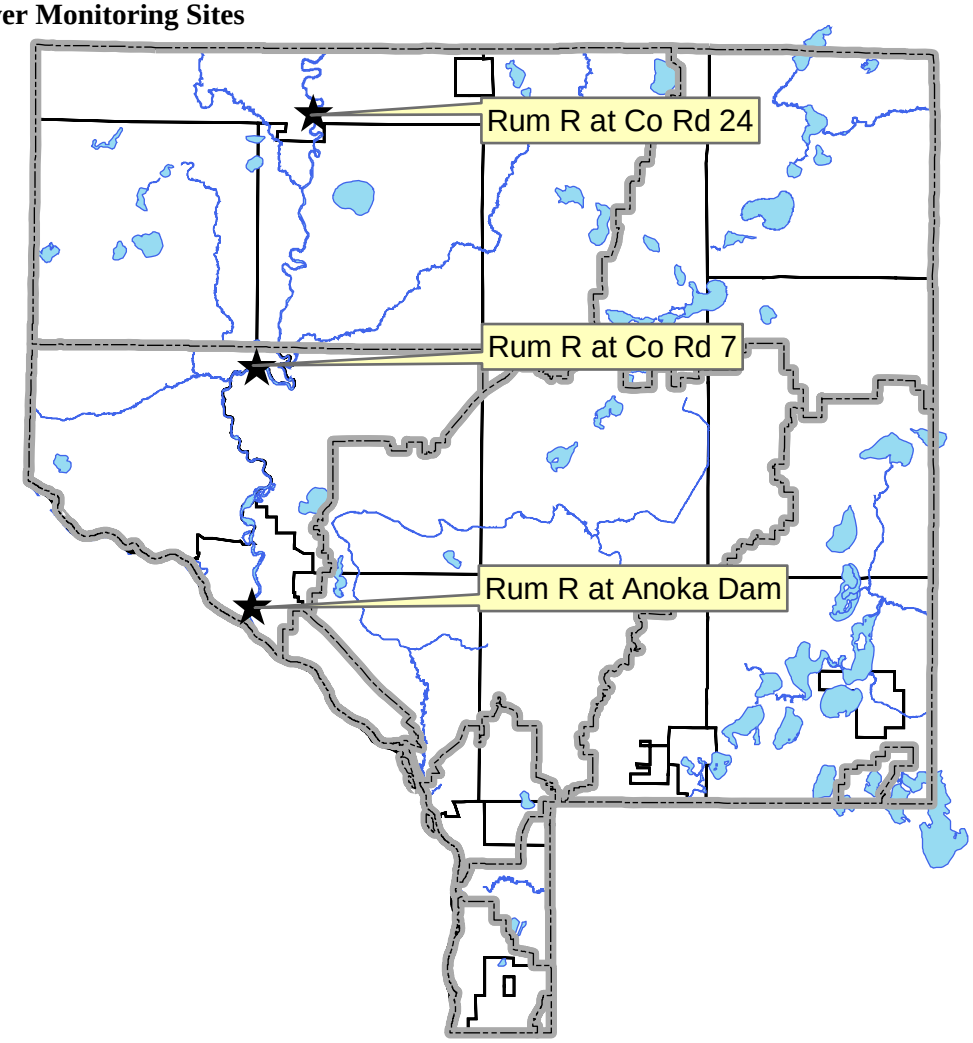
Description: In the Upper Rum River Watershed in 2009 stream monitoring was accomplished through two complimentary programs. First, the Upper Rum River Watershed Management Organization (URRWMO) monitored the Rum River near its entry into their jurisdictional area and at its exit (boundary between the URRWMO and LRRWMO). Secondly, the Metropolitan Council monitored the Rum River near its outlet to the Mississippi through their Watershed Outlet Monitoring Program (WOMP). The Anoka Conservation District did the field work for both projects, ensured monitoring for both programs was conducted simultaneously so the data could be compared, and reports the data together for a more comprehensive analysis of the river from upstream to downstream.

Purpose: To understand water quality and hydrology throughout the twin cities metropolitan area.
To detect water quality trends and problems, and diagnose the source of problems.

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

Results: Results are presented on the following page, with a focus on comparing river conditions from upstream to downstream. More detailed reporting for the WOMP monitoring station, including additional parameters and analysis are presented elsewhere by the Metropolitan Council (see http://www.metrocouncil.org/Environment/RiversLakes/).

2009 Rum River Monitoring Sites



Stream Water Quality Monitoring

RUM RIVER

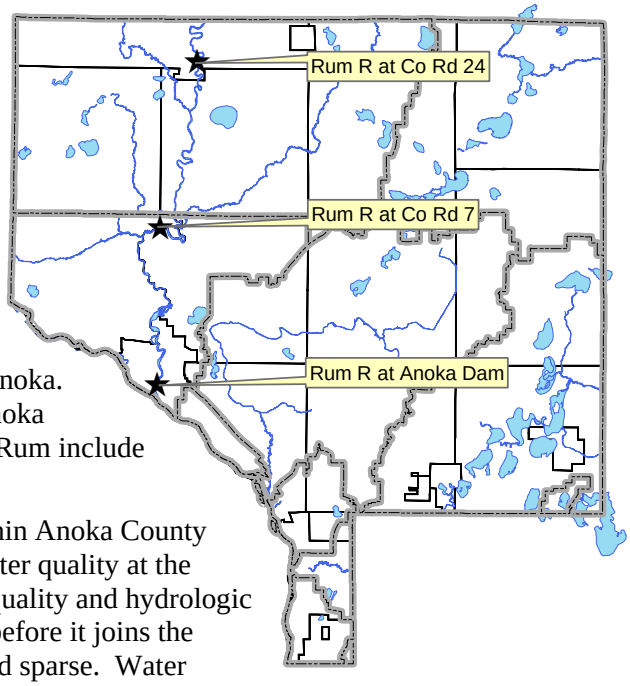
Rum River at Co. Rd. 24 (Bridge St), St. Francis	STORET SiteID =	S000-066
Rum River at Co. Rd. 7 (Roanoke St), Ramsey	STORET SiteID =	S004-026
Rum River at Anoka Dam, Anoka	STORET SiteID =	S003-183

Years Monitored

At Co. Rd. 24 – 2004, 2009

At Co. Rd. 7 – 2004, 2009

At Anoka Dam – 1996-2009 by the Met Council WOMP program



Background

The Rum River is regarded as one of Anoka County's highest quality and most valuable water resources. It is designated as a state scenic and recreational river throughout Anoka County, except for south of the county fairgrounds in Anoka. It is used for boating, tubing, and fishing. Much of western Anoka County drains to the Rum River. Watersheds that drain to the Rum include Seelye, Trott, and Ford Brooks, and Cedar Creek.

The extent to which water quality improves or is degraded within Anoka County has been unclear. The Metropolitan Council has monitored water quality at the Rum's outlet to the Mississippi River since 1996. This water quality and hydrologic data is well suited for evaluating the river's water quality just before it joins the Mississippi River. Monitoring elsewhere has been sporadic and sparse. Water quality changes might be expected from upstream to downstream because land use changes dramatically from rural residential in the upstream areas to suburban in the downstream areas.

Methods

In 2004 and 2009, monitoring was conducted at three locations simultaneously to determine if Rum River water quality changes in Anoka County, and if so, generally where changes occur. The URRWMO funded monitoring near where the river enters Anoka County (Co. Rd 24) and midway through the county near the lower boundary of their jurisdictional area (Co. Rd. 7). The Metropolitan Council monitored at the Anoka Dam, where there has been ongoing monitoring since 1996. The Anoka Conservation District did the field work for both projects, ensured monitoring for both programs was conducted simultaneously so the data could be compared, and reports the data together for a more comprehensive analysis of the river from upstream to downstream.

The river was monitored during both storm and baseflow conditions by grab samples. Eight water quality samples were taken each year; half during baseflow and half following storms. Storms were generally defined as one-inch or more of rainfall in 24 hours or a significant snowmelt event combined with rainfall. In some years, particularly the drought year of 2009, smaller storms were sampled because of a lack of larger storms. All storms sampled were significant runoff events. Parameters tested with portable meters included pH, conductivity, turbidity, temperature, salinity, and dissolved oxygen. Parameters tested by water samples sent to a state-certified lab included total phosphorus, total suspended solids, and chlorides. Ten additional parameters were tested by the Metropolitan Council at their laboratory for the Anoka Dam site only and are not reported here. During every sampling the water level (stage) was recorded. The monitoring station at the Anoka Dam includes automated equipment that continuously tracks water levels and calculates flows. Water level and flow data for other sites was obtained from the US Geological Survey, who maintains a hydrological monitoring site at Viking Boulevard.

The purpose of this report is to make an upstream to downstream comparison of Rum River water quality. It includes only parameters and dates that were simultaneously tested at all three sites. It does not include additional parameters tested at the Anoka Dam or additional monitoring events at that site. For that information, see Metropolitan Council reports at http://www.metrocouncil.org/Environment/RiversLakes.

Results and Discussion

Overall, Rum River water quality is good throughout Anoka County, however it does decline below the County Road 7 bridge (i.e. in the Cities of Andover, Anoka, and Ramsey). The declines in water quality below that point are modest, as are declines in water quality during storms. Dissolved pollutants (as measured by conductivity and chlorides), total phosphorus, turbidity, and total suspended solids were all generally near or below the median of all 40+ Anoka County streams that have been monitored.

Although water quality is good, several areas of concern were noted. First, dissolved pollutants increased at each monitoring site downstream. Dissolved pollutants were highest during baseflow, indicating pollutants have infiltrated into the groundwater which feeds the river and tributaries during baseflow. Road deicing salts are likely the most significant dissolved pollutant. Secondly, total suspended solids increased notably below County Road 7. This was most pronounced during storms.

It is important to recognize the limitations of this report. The data is only from 2004 and 2009 when all three sites were monitored simultaneously to allow comparisons. The dataset is relatively small. 2009 was a drought year and the flows and storms sampled were lower than normal. We did not sample any flood-like conditions when river water quality is likely worst. If a more detailed analysis of river water quality is desired, data from many years and a variety of conditions is available for the Anoka Dam site through the Metropolitan Council.

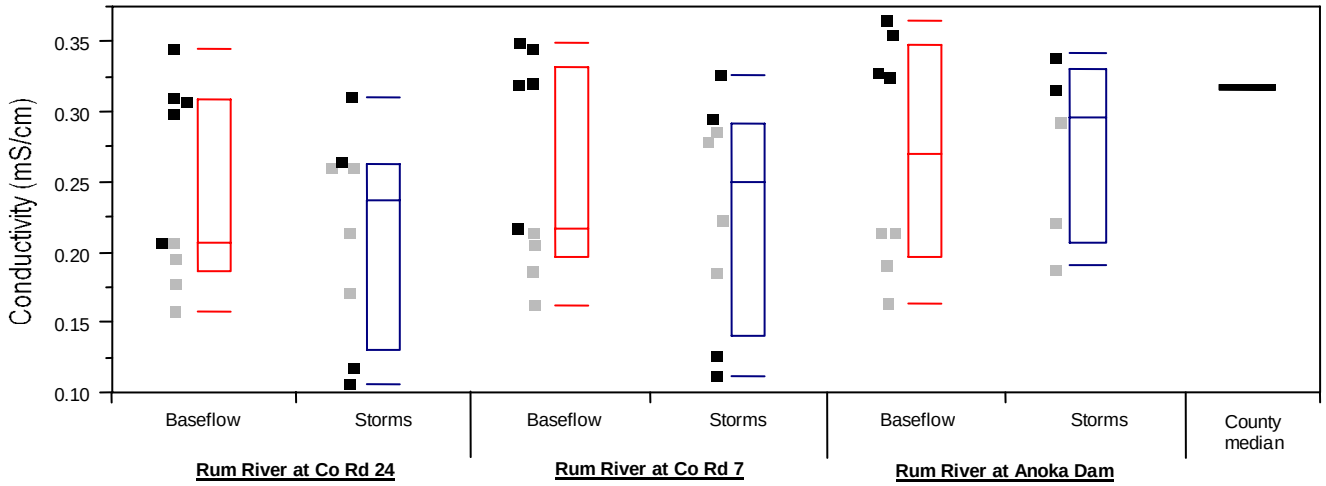
On the following pages data are presented and discussed for each parameter. The last section outlines management recommendations. The Rum River is an exceptional waterbody, and its protection and improvement should be a high priority.

Conductivity and chlorides

Conductivity and chlorides are measures of dissolved pollutants. Dissolved pollutant sources include urban road runoff, industrial sources, and others. Metals, hydrocarbons, road salts, and others are often of concern in a suburban environment. Conductivity is the broadest measure of dissolved pollutants we used. It measures electrical conductivity of the water; pure water with no dissolved constituents has zero conductivity. Chlorides tests for chloride salts, the most common of which are road de-icing chemicals. Chlorides can also be present in other pollutant types, such as wastewater. These pollutants are of greatest concern because of the effect they can have on the stream's biological community. They can also be of concern because the Rum River is upstream from the Twin Cities drinking water intakes on the Mississippi River.

Conductivity is acceptably low in the Rum River, but increases downstream (see figure below) and during baseflow. Across all three sites conductivity averaged 0.247 mS/cm, which is lower than the median for 40+ Anoka County streams of 0.318 mS/cm. The maximum observed conductivity was 0.363 mS/cm. Conductivity was lowest at all sites during storms, suggesting that stormwater runoff contains fewer dissolved pollutants than the surficial water table that feeds the river during baseflow. High baseflow conductivity has been observed in most other nearby streams too, studied extensively, and the largest cause has been found to be road salts that have infiltrated into the shallow aquifer. Geologic materials also contribute, but to a lesser degree. Baseflow conductivity increases from upstream to downstream, reflecting greater road densities and deicing salt application. Storm conductivity, while lower than baseflow, did also increase from upstream to downstream. This is reflective of greater stormwater runoff and pollutants associated with the more densely developed lower watershed.

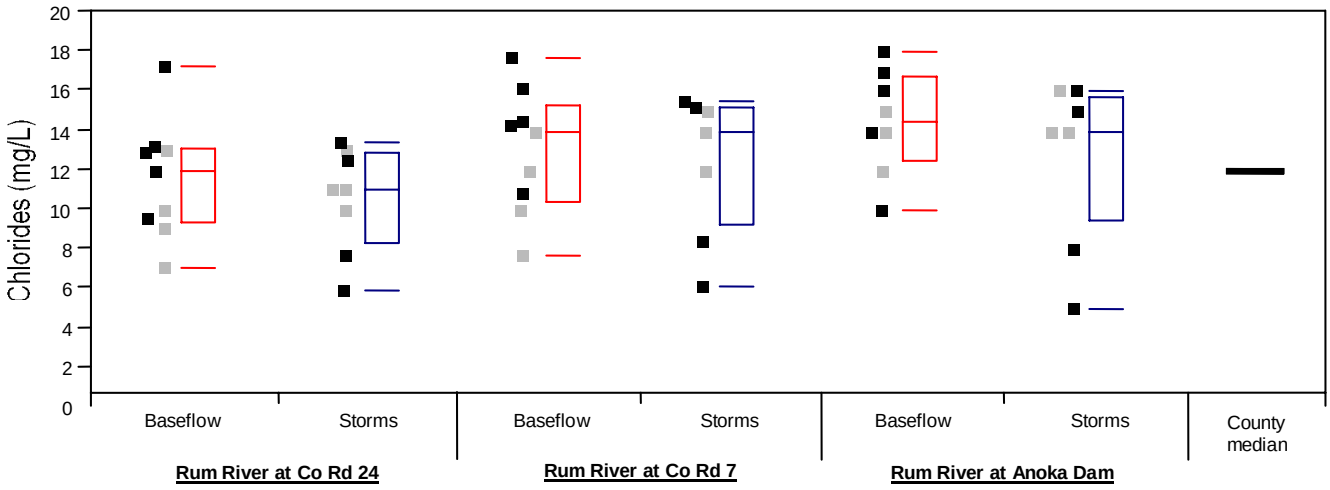
Conductivity results during baseflow and storm conditions Grey dots are individual readings from 2004; black dots are 2009 readings. Box plots show the median (middle line), 25th and 75th percentile (ends of box), and 10th and 90th percentiles (floating outer lines).



Upstream → Downstream

Chloride results parallel those found for conductivity (see figure below), supporting the hypothesis that chloride is an important cause of the conductivity. Chloride levels in the Rum River (median 11, 14, and 14 mg/L from upstream to downstream) are similar to the median for Anoka County streams of 12 mg/L. The highest observed value was 18 mg/L, though higher levels may have occurred during snowmelts which were not monitored. The levels observed are much lower than the Minnesota Pollution Control Agency's (MPCA) chronic standard for aquatic life of 230 mg/L. Like conductivity, chlorides were slightly higher during baseflow than storms at each site and increased from upstream to downstream. Road deicing salt infiltration into the shallow groundwater is likely the primary contributor, as described above.

Chloride results during baseflow and storm conditions Grey dots are individual readings from 2004; black dots are 2009 readings. Box plots show the median (middle line), 25th and 75th percentile (ends of box), and 10th and 90th percentiles (floating outer lines).

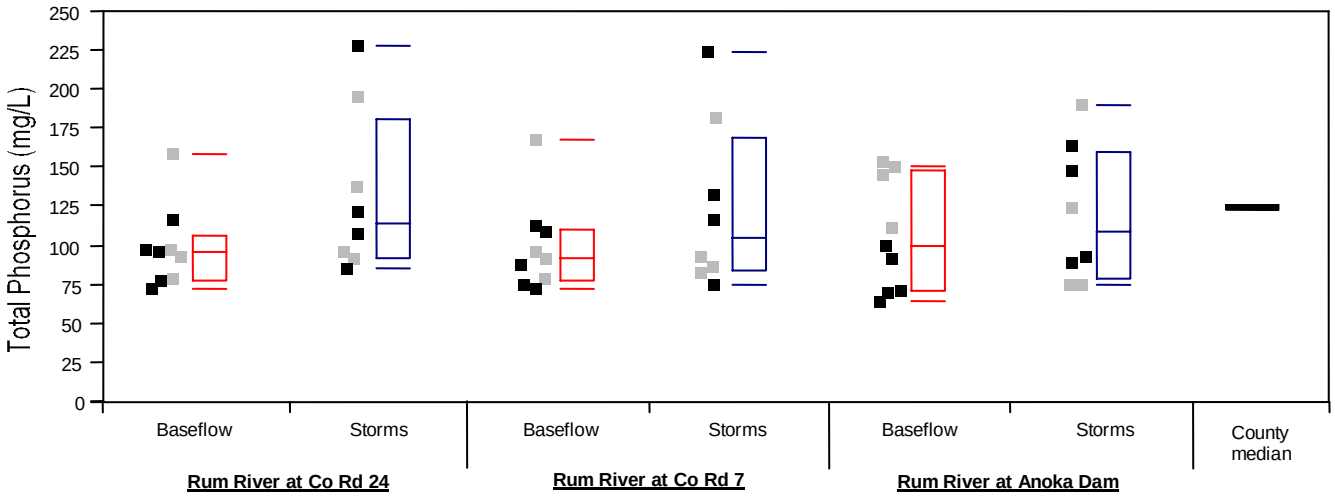


Upstream → Downstream

Total Phosphorus

Total phosphorus in the Rum River is acceptably low and is similar to the median for all other monitored 40+ Anoka County streams (see figure below). This nutrient is one of the most common pollutants in our region, and can be associated with urban runoff, agricultural runoff, wastewater, and many other sources. The median phosphorus concentration at each of the three monitored sites was 99, 95, and 101 ug/L; there is no trend of increasing phosphorus downstream. All sites occasionally experience phosphorus concentrations higher than the median for Anoka County streams of 126 ug/L. All of the highest observed total phosphorus readings were during storms, including the maximums at each site of 230, 226, and 192 ug/L (upstream to downstream). In all, phosphorus in the Rum River is at acceptable levels but should continue to be an area of pollution control effort as the area urbanizes.

Total phosphorus results during baseflow and storm conditions Grey dots are individual readings from 2004; black dots are 2009 readings. Box plots show the median (middle line), 25th and 75th percentile (ends of box), and 10th and 90th percentiles (floating outer lines).



Upstream → Downstream

Turbidity and Total Suspended Solids (TSS)

Turbidity and total suspended solids (TSS) are two different measurements of solid material suspended in the water. Turbidity is measured by refraction of a light beam passed through a water sample. It is most sensitive to large particles. Total suspended solids is measured by filtering solids from a water sample and weighing the filtered material. The amount of suspended material is important because it affects transparency and aquatic life, and because many other pollutants are attached to particles. Many stormwater treatment practices such as street sweeping, sumps, and stormwater settling ponds target sediment and attached pollutants. Suspended solids in the Rum River are moderately high, but only at the Anoka Dam and during storms. The results for turbidity and TSS differ, lending insight into the types of particles that are problematic.

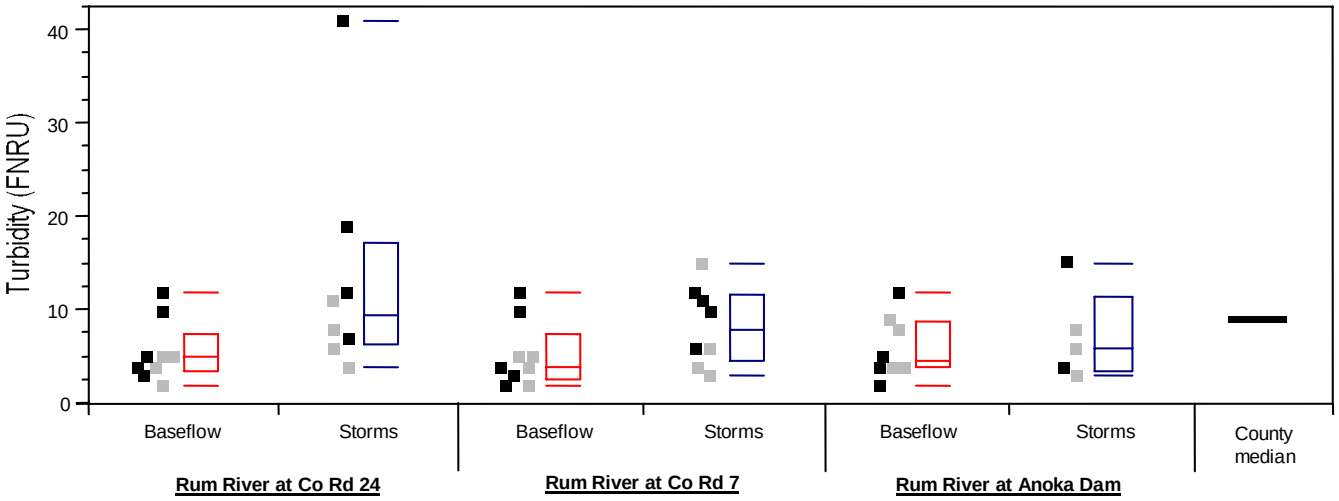
Turbidity was low, with only slight increases during storms and no apparent increase at downstream monitoring sites (see figure below). The median turbidity at each site was 6, 5, and 5 FNRU (upstream to downstream), which is lower than the median for Anoka County streams of 9 FNRU. The maximum observed was 41 FNRU, but this seemed to be an isolated event given that the next highest was 19. The Rum River's turbidity did not regularly exceed the Minnesota Pollution Control Agency's water quality standard of 25 NTU.

TSS was low at the upper two monitoring sites, with slight increases during storms (see figure below). The countywide TSS median for streams is 14 mg/L. Overall median TSS in the Rum River was 8 and 9 mg/L at County Roads 24 and 7, respectively. During storms median TSS was 2 and 4 mg/L higher than during baseflow for the two sites. Maximum TSS observed at these two sites were 28 and 23 mg/L. The maximum readings and slight increases during storms are not unexpectedly high for a large river, and are within the range that should be considered healthy.

TSS increased noticeably between County Road 7 and the Anoka Dam (see figure below). At the Anoka Dam median TSS was similar to the other sites during baseflow (8 mg/L), but the three highest baseflow readings (25, 37, and 42 mg/L) were much higher than experienced at upstream sites. During storms TSS was only once below 15 mg/L and the maximum was 34 mg/L. While this does not exceed the Minnesota Pollution Control Agency's surrogate turbidity standard of 100 mg/L TSS, it is undesirable to have such notable water quality deterioration in such a short stretch of the river.

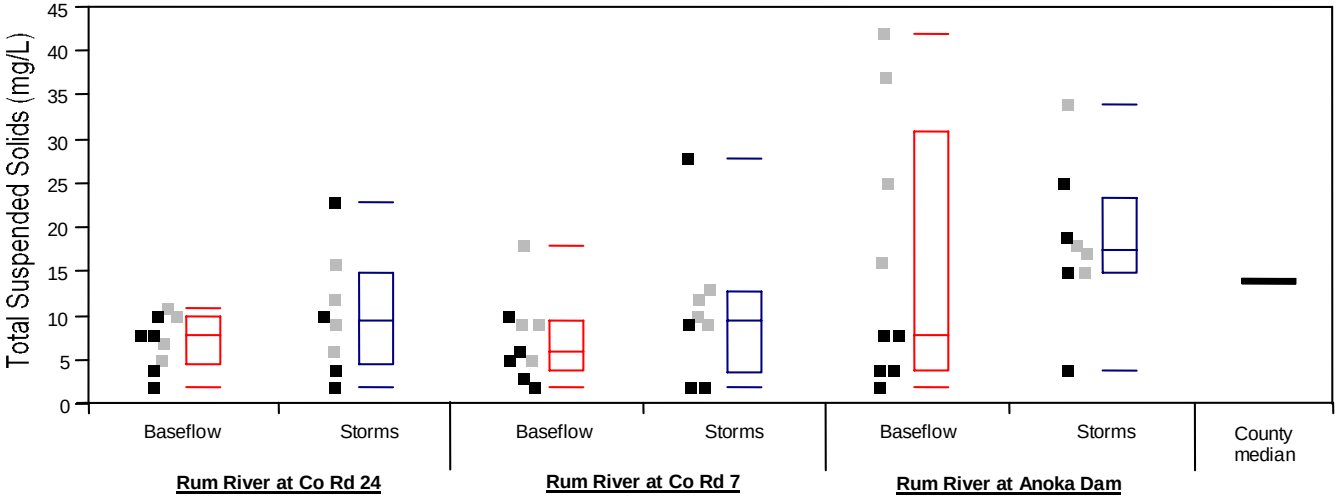
It should be noted that the data presented here do not include monitoring of any large flood events. The water is known to become muddier during such floods. In fact, the data presented in this report is skewed toward lower flow conditions that are likely to carry lower suspended solids because 2009 was a drought year. Notice in the figure below that 2009 generally had lower TSS than 2004.

Turbidity results during baseflow and storm conditions Grey dots are individual readings from 2004; black dots are 2009 readings. Box plots show the median (middle line), 25th and 75th percentile (ends of box), and 10th and 90th percentiles (floating outer lines).



Upstream → Downstream

Total suspended solids results during baseflow and storm conditions Grey dots are individual readings from 2004; black dots are 2009 readings. Box plots show the median (middle line), 25th and 75th percentile (ends of box), and 10th and 90th percentiles (floating outer lines).

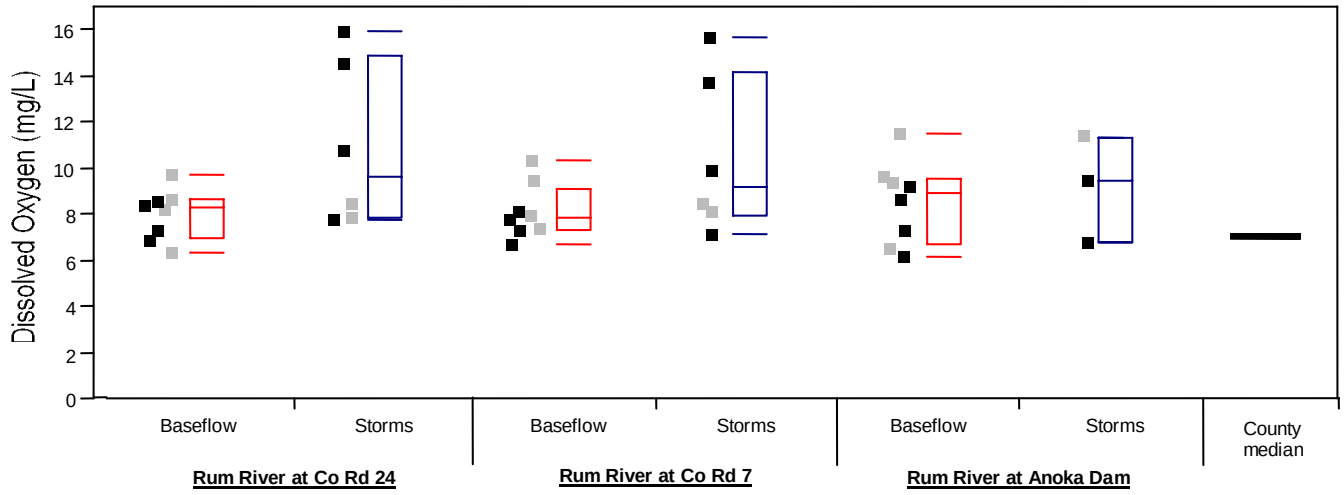


Upstream → Downstream

Dissolved Oxygen

Dissolved oxygen is necessary for aquatic life, including fish. Organic pollution consumes oxygen when it decomposes. If oxygen levels fall below 4 mg/L aquatic life begins to suffer. In the Rum River dissolved oxygen was always above 6 mg/L at all monitoring sites.

Dissolved oxygen results during baseflow and storm conditions Grey dots are individual readings from 2004; black dots are 2009 readings. Box plots show the median (middle line), 25th and 75th percentile (ends of box), and 10th and 90th percentiles (floating outer lines).



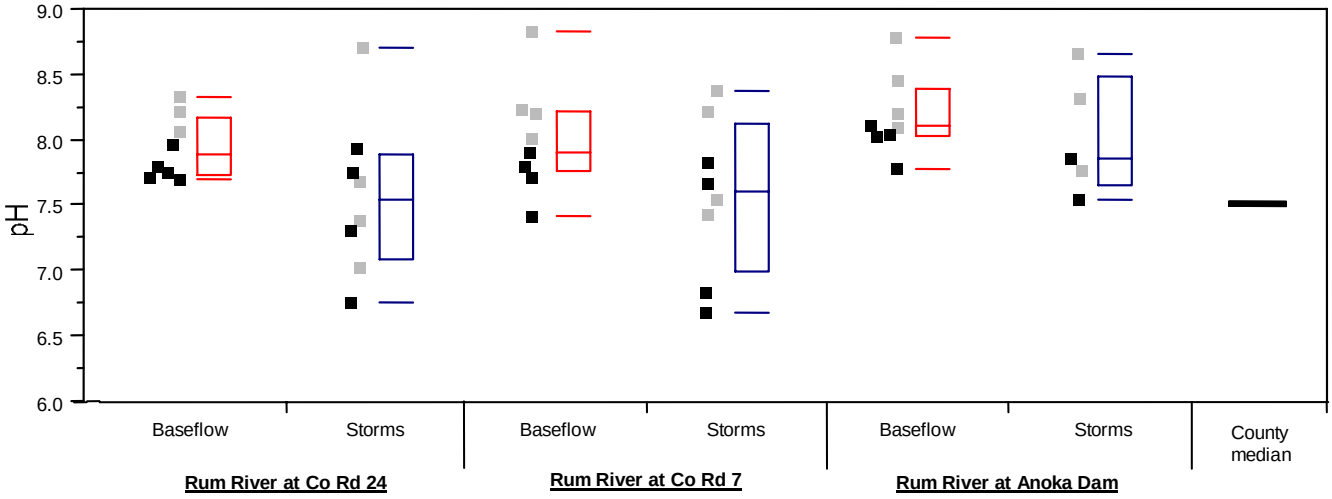
Upstream → Downstream

pH

pH refers to the acidity of the water. The Minnesota Pollution Control Agency's water quality standard is for pH to be between 6.5 and 8.5. The Rum River is regularly within this range (see figure below). Each of the three sites exceeded 8.5 on one occasion, but the highest was only 8.85. This rare and modest exceedance of the state water quality standard is not concerning.

It is interesting to note that pH is lower during storms than during baseflow. This is because the pH of rain is typically lower (more acidic). While acid rain is a longstanding problem, it's affect on this aquatic system is small.

pH results during baseflow and storm conditions Grey dots are individual readings from 2004; black dots are 2009 readings. Box plots show the median (middle line), 25th and 75th percentile (ends of box), and 10th and 90th percentiles (floating outer lines).



Upstream → Downstream

Recommendations

While the Rum River's water quality is generally good, it does show some deterioration in the downstream areas that are most developed. Protection of the Rum River should be a high priority for local officials. Large population increases are expected for the Rum River's watershed within Anoka County and have the potential to degrade water quality unless carefully sited and managed. Development pressure is likely to be especially high near the river because of its scenic and natural qualities. Measures to maintain the Rum River's good water quality should include:

- Enforce the building and clear-cutting setbacks from the river required by state scenic rivers laws to avoid bank erosion problems and protect the river's scenic nature.
- Use the best available technologies to reduce pollutants delivered to the river and its tributaries through the storm sewer system. Any new development should consider low impact development strategies that minimize stormwater runoff production. Aggressive stormwater treatment should be pursued in all areas of the watershed, not just those adjacent to the river.
- Seek improvements to the existing stormwater conveyance system below County Road 7. Total suspended solids in the river increase significantly in this portion of the watershed, reaching their highest concentrations during storms.
- Utilize all practical means to reduce road deicing salt applications. These may include more efficient application methods, application only in priority areas, alternate chemicals, or others. Road salt infiltration into the shallow groundwater has become a regional problem.

- Survey the river by boat for bank erosion problems and initiate projects to correct them.
- Continue education programs to inform residents of the direct impact their actions have on the river's health.
- Continue regular water quality monitoring. In addition to continuous monitoring of the Rum River by Metropolitan Council's Watershed Outlet Monitoring Program (WOMP), additional upstream monitoring should be conducted every 2-3 years. Monitoring should be coordinated to occur on the same days as the Met Council testing so direct comparisons are possible. Additionally, periodic monitoring of the primary tributary streams should also occur every 2-3 year. The Upper and Lower Rum River Watershed Management Organizations are best suited to do this watershed-level monitoring and should coordinate.

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 at Hwy 24, Rum River North County Park, St. Francis

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, as 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

at Hwy 24, Rum River North County Park, St. Francis

Last Monitored

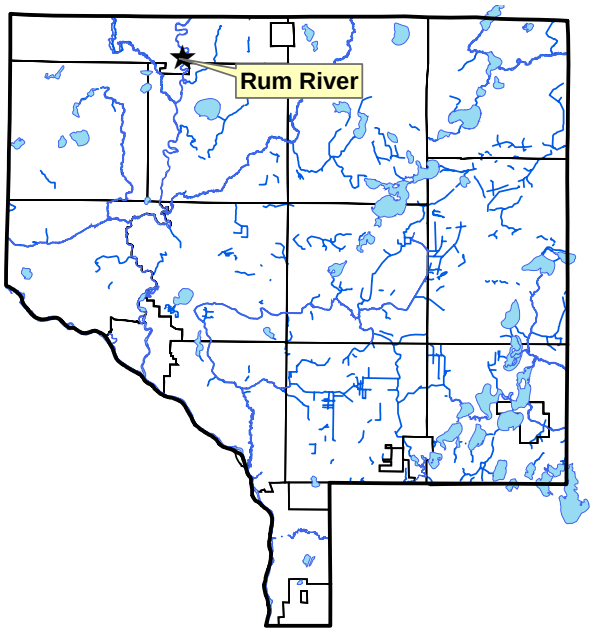
By St. Francis High School in 2009

Monitored Since

2000

Student Involvement

112 students in 2009, approx 980 since 2000



Background

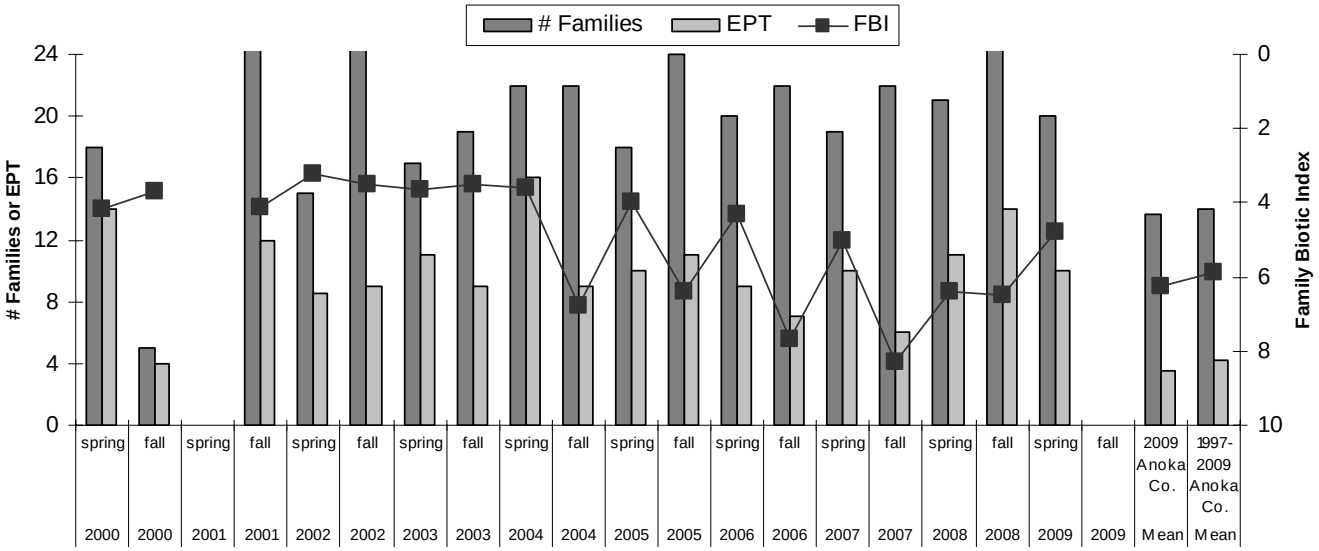
The Rum River originates from Lake Mille Lacs, and flows south through western Anoka County where it joins the Mississippi River in the City of Anoka. Other than the Mississippi, this is the largest river in the county. In Anoka County the river has both rocky ripples as well as pools and runs with sandy bottoms. The river's condition is generally regarded as excellent. Portions of the Rum in Anoka County have a state "scenic and recreational" designation.

The sampling site is in Rum River North County Park. This site is typical of the Rum in northern Anoka County, having a rocky bottom with numerous pool and ripple areas.

Results

St. Francis High School classes monitored the Rum River in both spring and fall 2009, with Anoka Conservation District oversight. The fall data was not usable because a portion of the sample was lost. Biological data for 2009, and historically, indicate the Rum River in northern Anoka County has the best conditions of all streams and rivers monitored throughout Anoka County. In 2009 the number of families, number of EPT families, and Family Biotic Index (FBI) were substantially above the county averages. Twenty families were found in spring 2009 and 35 in fall 2008; the next highest number of families ever found at 25 other Anoka County monitored streams is 24.

Summarized Biomonitoring Results for Rum River at Hwy 24, St. Francis (samplings by St. Francis High School and Crossroads Schools in 2002-2003 are averaged)



Biomonitoring Data for Rum River at Rum River North County Park, St. Francis

Year	2000	2000	2001	2001	2002	2002	2002	2003	2003	2003	2003	2004	2004
Season	spring	fall	spring	fall	spring	spring	fall	spring	spring	fall	fall	spring	fall
FBI	4.16	3.70	not sampled	6.30	3.80	2.90	4.80	4.10	3.20	3.70	3.60	3.60	6.80
# Families	18	5		29	10	20	25	18	16	12	26	22	22
EPT	14	4		12	7	10	9	11	10	6	11	16	9
Date	5/24	?		23-Oct	3-Jun	29-May	8-Oct	30-May	29-May	10-Oct	1-Oct	19-May	29-Sep
sampling by	ACD	Xroads		SFHS	Xroads	SFHS	SFHS	Xroads	SFHS	Xroads	SFHS	SFHS	SFHS
sampling method	MH	MH		MH	MH	MH	MH	MH	MH	MH	MH	MH	MH
# individuals	125	233		152.5	164	112	133	132	104	278	102	151	468
# replicates	1	1		2	1	2	2	1	2	1	2	3	2
Dominant Family	heptageniidae	hydropyschidae		corixidae	hydropyschidae	perlodidae	hydropsychidae	hydropyschidae	hydropsychidae	baetidae	oligoneuridae	hydropsychidae	corixidae
% Dominant Family	22	81.5		21	64	36.6	19.9	41.6	48.3	61.2	30.9	40.5	38.2
% Ephemeroptera	46.4	1.7		18	6.1	11.2	20.3	11.4	11	78.1	51	31.7	15.4
% Trichoptera	20.8	87.6		9.2	70.1	29	20.3	42.4	54.1	13.3	13.7	48.9	1.5
% Plecoptera	7.2	9.4		3.9	15.2	45.1	13.2	12.9	31.1	0.4	9.8	13.9	2.6

Year	2005	2005	2006	2006	2007	2007	2008	2008	2009	2009	Mean	Mean
Season	spring	fall	spring	fall	spring	fall	spring	fall	spring	fall	2009 Anoka Co.	1997-2009 Anoka Co.
FBI	4.00	6.40	4.30	7.70	5.00	8.30	6.40	6.50	4.80	Unusable	6.3	5.9
# Families	18	24	20	22	19	22	21	35	20	sample	13.6	13.9
EPT	10	11	9	7	10	6	11	14	10		3.6	4.2
Date	25-May	29-Sep	25-May	2-Oct	16-May	11-Oct	27-May	30-Sep	29-Apr	13-Oct		
sampling by	SFHS	SFHS	SFHS	SFHS	SFHS	SFHS	SFHS	SFHS	SFHS	SFHS		
sampling method	MH	MH	MH	MH	MH	MH	MH	MH	MH	MH		
# individuals	138	272	152	187	262	502	348	156	267			
# replicates	1	2	2	2	2	2	2	4	2			
Dominant Family	perlodidae	gyrinidae	hydropsychidae	corixidae	hydropsychidae	corixidae	corixidae	corixidae	corixidae			
% Dominant Family	29.7	22.4	35.3	66.3	42.7	58.8	57.5	61.4	24.3			
% Ephemeroptera	50	25	20.8	9.9	17.2	2	11.9	17.9	18.7			
% Trichoptera	11.6	5.9	35.3	4.8	44.3	1	5.9	6.9	20.2			
% Plecoptera	31.2	8.1	22.4	1.6	8	0.2	17.1	2.1	27.7			

Supplemental Stream Chemistry Readings

Parameter	5-29-03	5-19-03	9-29-04	9-29-05	5-25-06	10-2-06	5-16-07	10-11-07	5-27-08	9-30-08	4-29-09	10-13-09
pH	7.86	8.26	9.05	8.05	7.70	7.94	8.53	7.76	7.73	7.70	7.62	7.87
Conductivity (mS/cm)	0.274	0.163	0.168	0.194	0.265	0.351	0.278	0.242	0.284	0.341	0.266	0.291
Turbidity (NTU)	4	5	8	10	14	6	11	17	7	4	6	na
Dissolved Oxygen (mg/L)	na	na	9.13	8.86 (87%)	8.00 (86%)	10.87 (106%)	10.34 (106%)	9.66 (89%)	10.18 (101%)	7.83 (76%)	10.53 (97%)	12.22 (93%)
Salinity (%)	0.01	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01
Temperature (C)	17.8	16.0	14.4	14.0	18.3	14.7	16.8	12.3	15.3	13.4	12.2	5.2

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.

Water resource management should be focused upon protecting the Rum's quality. Some steps to protect the Rum River could include:

- Enforce the building and clear cutting setbacks from the river required by state scenic river laws.
- Use the best available technologies to reduce pollutants delivered to the river and its tributaries through the storm sewer system. This should include all of the watershed, not just those adjacent to the river.
- Survey the river by boat for bank erosion problems and initiate projects to correct them.
- Education programs to encourage actions by residents that will benefit the river's health.
- Continue water quality monitoring programs.

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 18 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: Alliant Tech Reference Wetland, Alliant Tech Systems property, St. Francis

Cedar Creek, Cedar Creek Natural History Area, East Bethel

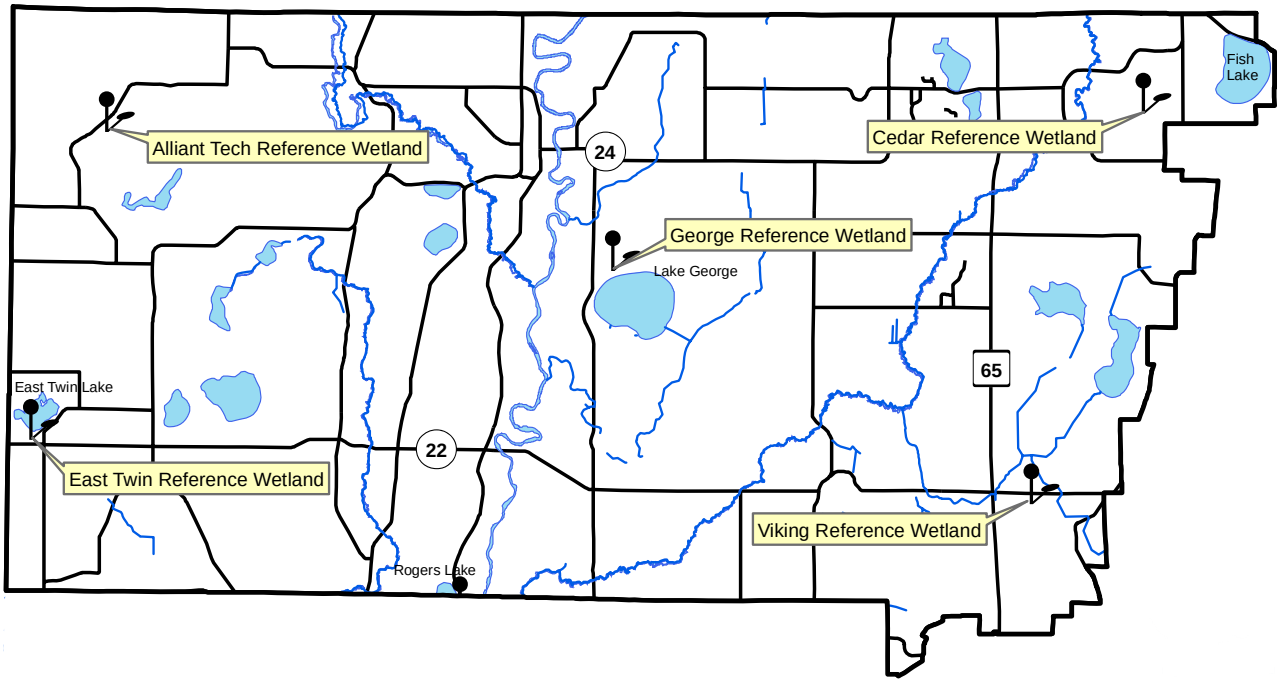
East Twin Reference Wetland, East Twin Township Park, Nowthen

Lake George Reference Wetland, Lake George County Park, Oak Grove

Viking Meadows Reference Wetland, Viking Meadows Golf Course, East Bethel

Results: See the following pages. Raw data and updated graphs can be downloaded from www.AnokaNaturalResources.com using the Data Access Tool.

Upper Rum River Watershed Wetland Hydrology Monitoring Sites

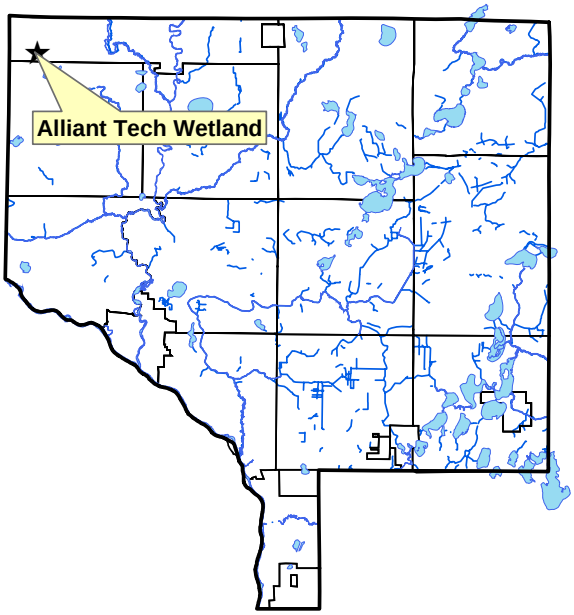


Wetland Hydrology Monitoring

ALLIANT TECH REFERENCE WETLAND

Alliant Techsystems Property, St. Francis

Site Information



Monitored Since: 2001

Wetland Type: 5

Wetland Size: ~12 acres

Isolated Basin? Yes

Connected to a Ditch? No

Soils at Well Location:

Horizon	Depth	Color	Texture	Redox
A	0-8	N2/0	Mucky loam	-
Bg	8-35	5y5/1	Sandy loam	-

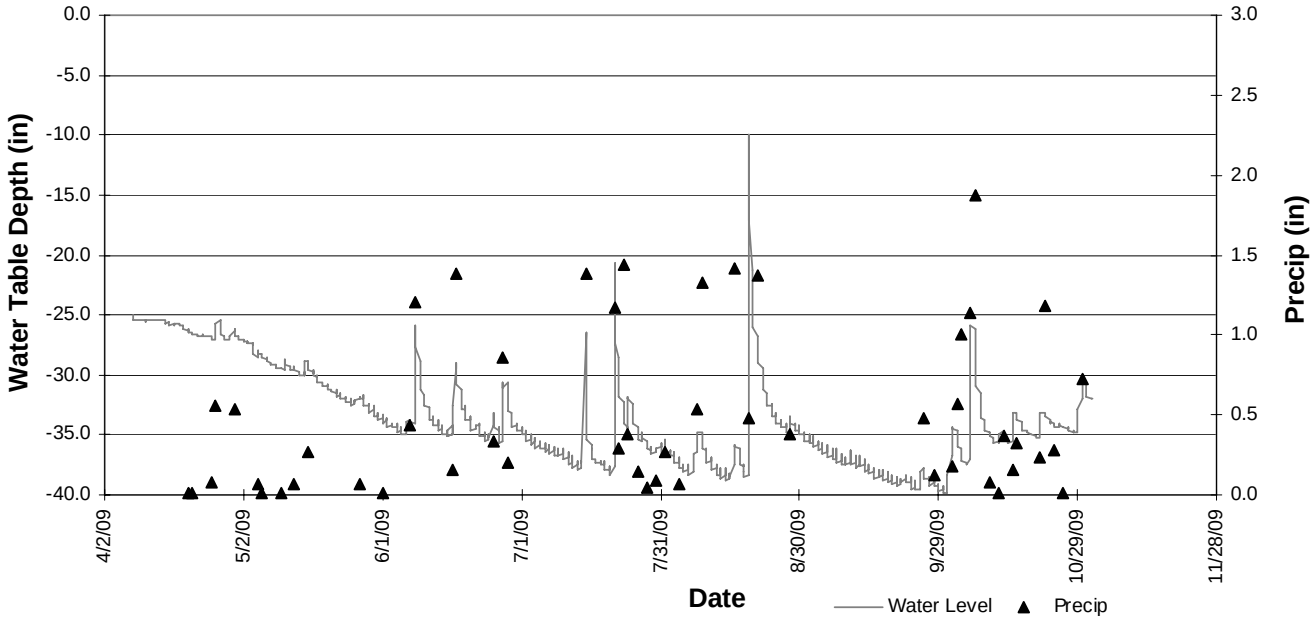
Surrounding Soils: Emmert

Vegetation at Well Location:

Scientific	Common	% Coverage
Carex Spp	Sedge undiff.	90
Lycopus americanus	American Bungleweed	20
Phalaris arundinacea	Reed Canary Grass	5

Other Notes: This wetland lies next to the highway, in a low area surrounded by hilly terrain. It holds water throughout the year, and has a beaver den.

2009 Hydrograph



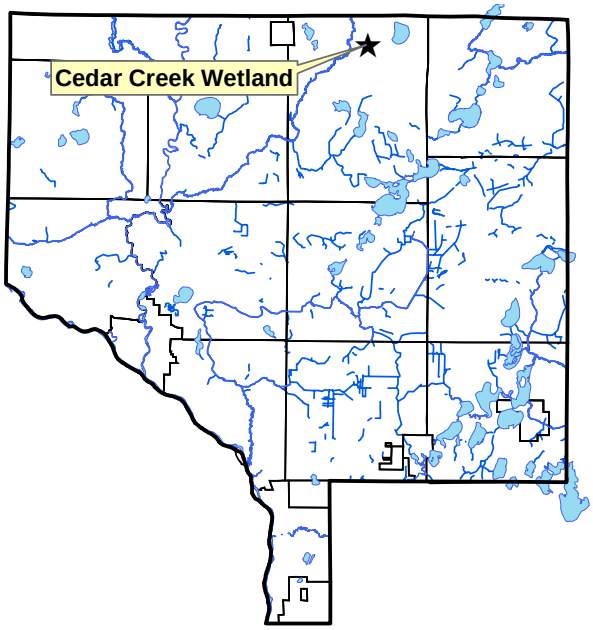
Well depth was 40 inches, so a reading of–40 indicates water levels were at an unknown depth greater than or equal to 40 inches.

Wetland Hydrology Monitoring

CEDAR CREEK REFERENCE WETLAND

Univ. of Minnesota Cedar Creek Natural History Area, East Bethel

Site Information



Monitored Since: 1996

Wetland Type: 6

Wetland Size: unknown, likely >150 acres

Isolated Basin? No

Connected to a Ditch? No

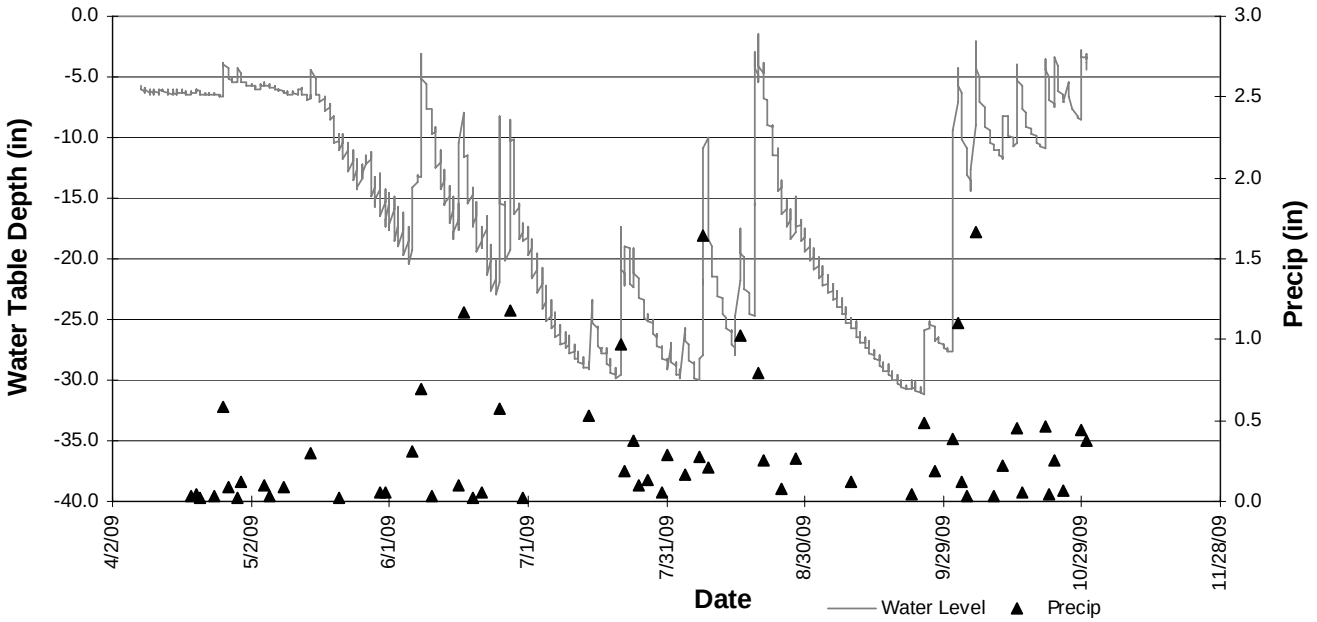
Soils at Well Location: not yet available

Surrounding Soils: Zimmerman

Vegetation at Well Location: not yet available

Other Notes: The Cedar Creek Ecosystem Science Reserve, where this wetland is located, is a University of Minnesota research area. Much of this area, including the area surrounding the monitoring site, is in a natural state. This wetland probably has some hydrologic connection to the floodplain of Cedar Creek, which is 0.7 miles from the monitoring site.

2009 Hydrograph

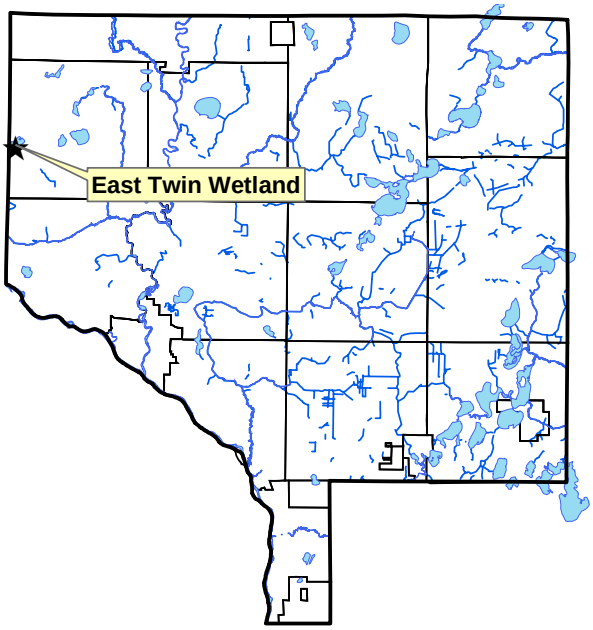


Well depth was 37 inches, so a reading of–37 indicates water levels were at an unknown depth greater than or equal to 37 inches.

Wetland Hydrology Monitoring

EAST TWIN REFERENCE WETLAND

East Twin Lake Township Park, Nowthen



Site Information

Monitored Since: 2001

Wetland Type: 5

Wetland Size: ~5.9 acres

Isolated Basin? Yes

Connected to a Ditch? No

Soils at Well Location:

Horizon	Depth	Color	Texture	Redox
A	0-8	10yr 2/1	Mucky Loam	-
Oa	Aug-40	N2/0	Organic	-

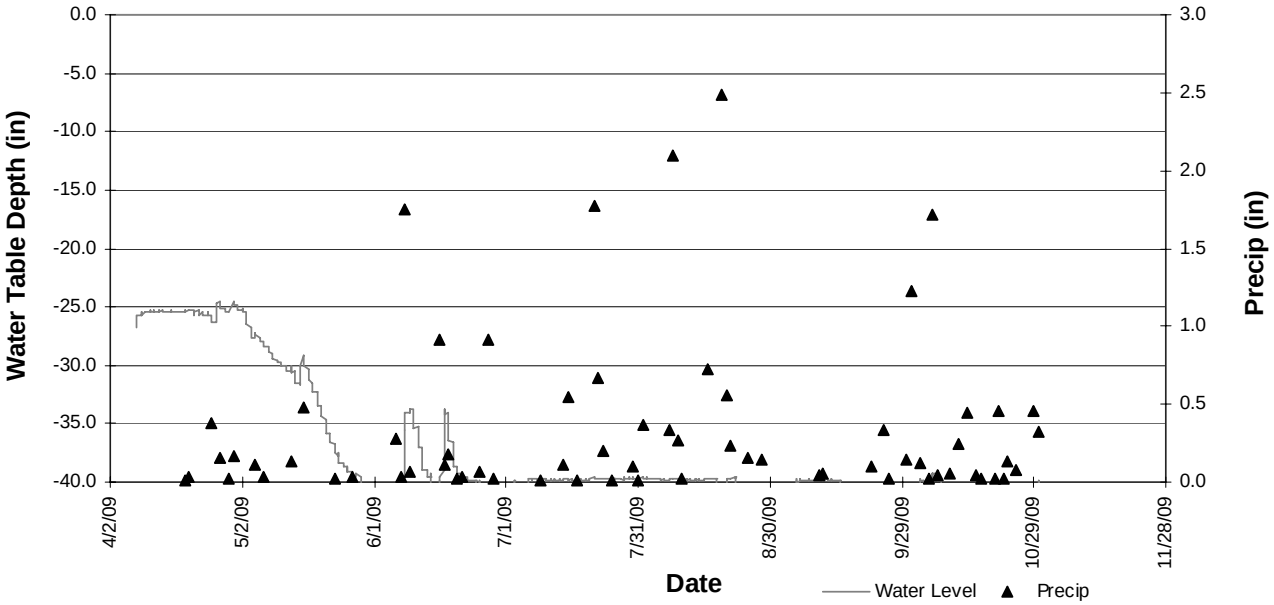
Surrounding Soils: Lake Beach, Growton and Heyder fine sandy loams

Vegetation at Well Location:

Scientific	Common	% Coverage
Phalaris arundinacea	Reed Canary Grass	100
Cornus amomum	Silky Dogwood	30
Fraxinus pennsylvanica	Green Ash	30

Other Notes: This wetland is located within East Twin Lake County Park, and is only 180 feet from the lake itself. Water levels in the wetland are influenced by lake levels.

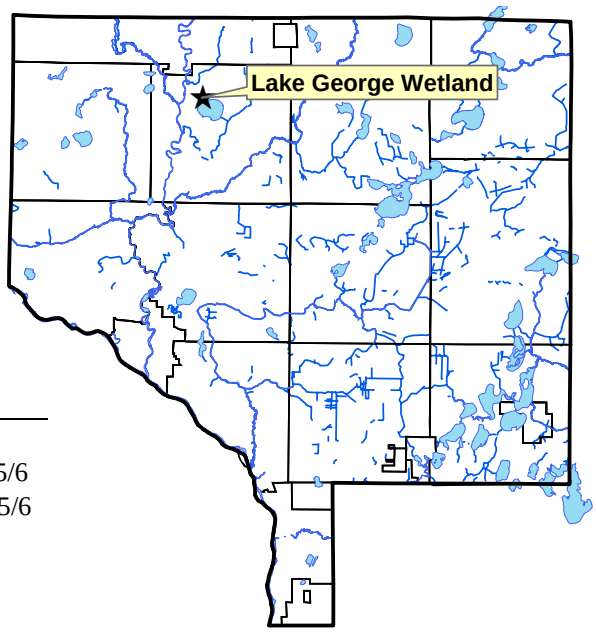
2009 Hydrograph



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.

LAKE GEORGE REFERENCE WETLAND

Lake George County Park, Oak Grove



Site Information

Monitored Since: 1997

Wetland Type: 3/4

Wetland Size: ~9 acres

Isolated Basin? Yes, but only separated from wetland complexes by roadway.

Connected to a Ditch? No

Soils at Well Location:

Horizon	Depth	Color	Texture	Redox
A	0-8	10yr2/1	Sandy Loam	-
Bg	8-24	2.5y5/2	Sandy Loam	20% 10yr5/6
2Bg	24-35	10gy 6/1	Silty Clay Loam	10% 10yr 5/6

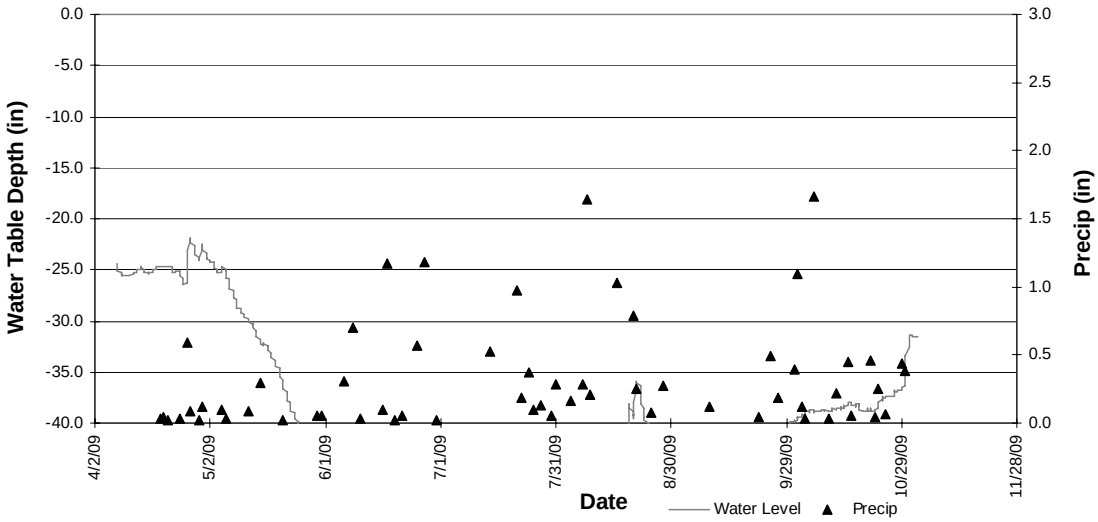
Surrounding Soils: Lino loamy fine sand and Zimmerman fine sand

Vegetation at Well Location:

Scientific	Common	% Coverage
Cornus stolonifera	Red-osier Dogwood	90
Populus tremuloides	Quaking Aspen	40
Quercus rubra	Red Oak	30
Onoclea sensibilis	Sensitive Fern	20
Phalaris arundinacea	Reed Canary Grass	10

Other Notes: This wetland is located within Lake George County Park, and is only about 600 feet from the lake itself. Much of the vegetation within the wetland is cattails.

2009 Hydrograph



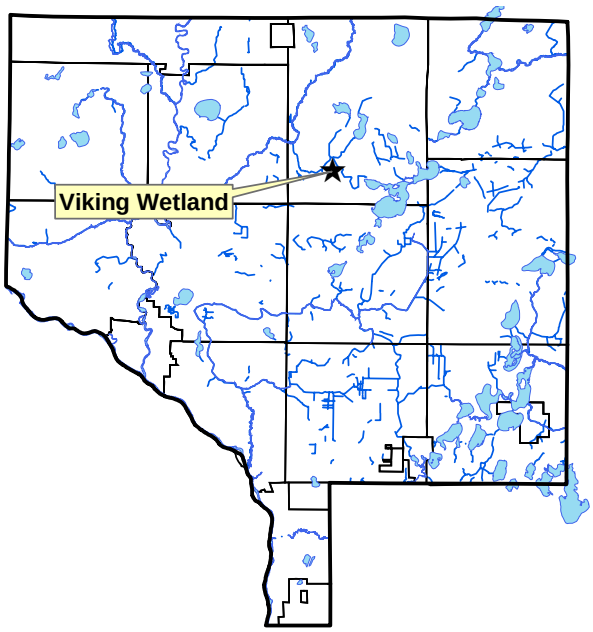
Well depth was 40 inches, so a reading of–40 indicates water levels were at an unknown depth greater than or equal to 40 inches.

Wetland Hydrology Monitoring

VIKING MEADOWS REFERENCE WETLAND

Viking Meadows Golf Course, East Bethel

Site Information



Monitored Since: 1999

Wetland Type: 2

Wetland Size: ~0.7 acres

Isolated Basin? No

Connected to a Ditch? Yes, highway ditch is tangent to wetland

Soils at Well Location:

Horizon	Depth	Color	Texture	Redox
A	0-12	10yr2/1	Sandy Loam	-
Ab	12-16	N2/0	Sandy Loam	-
Bg1	16-25	10yr4/1	Sandy Loam	-
Bg2	25-40	10yr4/2	Sandy Loam	5% 10yr5/6

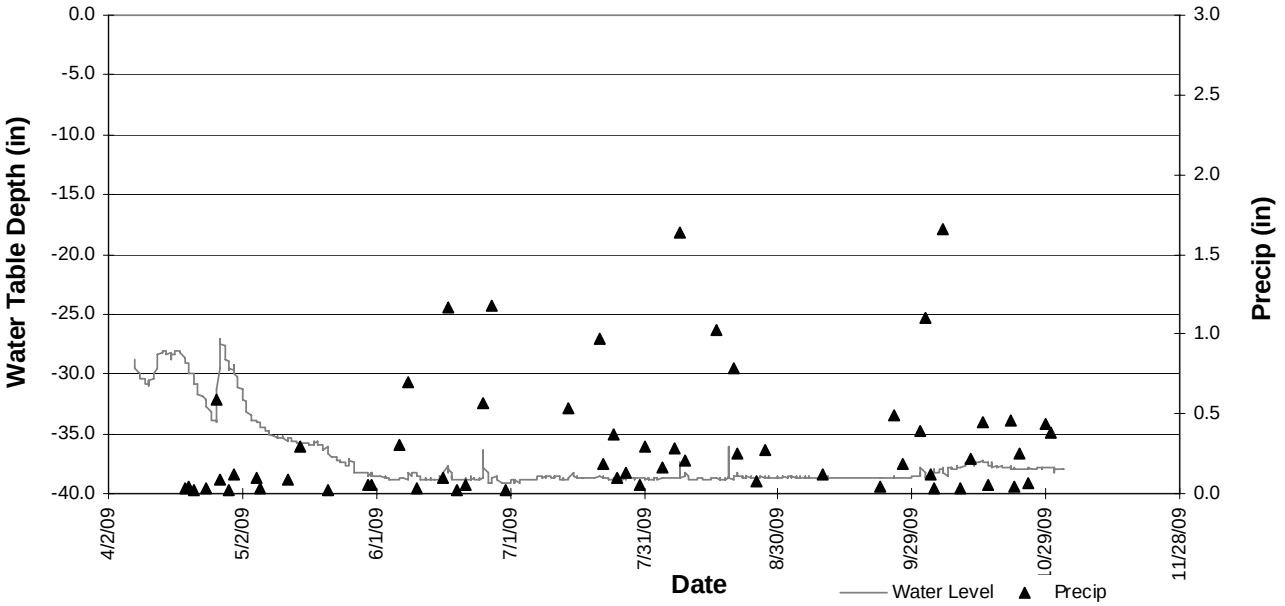
Surrounding Soils: Zimmerman fine sand

Vegetation at Well Location:

Scientific	Common	% Coverage
Phalaris arundinacea	Reed Canary Grass	100
Acer rubrum (T)	Red Maple	75
Acer negundo (T)	Boxelder	20

Other Notes: This wetland is located at the entrance to Viking Meadows Golf Course, and is adjacent to Viking Boulevard (Hwy 22).

2009 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 Improvement Projects

Description: In 2006 the Upper River Watershed Management Organization (URRWMO) partnered with the Anoka Conservation District's Water Quality Cost Share Program. The URRWMO contributed $990 to be used as cost share grants for projects that improve water quality in lakes, streams, or rivers with the URRWMO area. Eligible projects included those that correct erosion, filter runoff to waterbodies, or restore native shoreline vegetation adjacent to a lake or stream. The funds may be used for up to 75% of the costs of materials and designing the project. Labor, aesthetic components of the project, and other costs, along with 25% of materials are the grant applicant's responsibility. The ACD's cost share grant policies apply and ACD administers the grant program.

The Anoka Conservation District (ACD) and Upper Rum River WMO have both undertaken some efforts to promote these types of projects and the availability of cost share, but to date no projects have used this funding. Most recently, in 2007 the URRWMO did a customized mailing to 20 homeowners on East Twin and George Lakes who had been identified as having erosion problems or likely to develop problems. The ACD periodically does presentations to lake associations and other community groups, community newsletters, and website postings. In order to promote these types of projects the ACD also assists landowners throughout projects, including design, materials acquisition, installation, and maintenance.

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

Locations: Throughout the watershed.

Results: No projects have utilized the cost share funds, so they will remain available in subsequent years. The availability of these funds is an important component of recent and upcoming efforts to promote water quality improvement practices.

Cost Share Fund Balance:		
2006 URRWMO Contribution	+	$ 990
2006 Expenditures		$ 0
2007 URRWMO Contribution	+	$ 1,000
2007 Expenditures		$ 0
2008 Expenditures		$ 0
2009 Expenditures		$ 0
Fund Balance		**$ 1,990**

Anoka County Geologic Atlas

Description: A map-based report of groundwater and geology to be used for community planning and groundwater management. The Atlas provides detailed information about groundwater:

- Aquifers, including identifying future water sources,
- Aquifer sustainability,
- Recharge areas,
- Sensitivity to pollution,
- Flow directions,
- Connections to lakes, streams, and wetlands,
- Chemistry,
- Wellhead protection, and others...

Results are provided as GIS files and paper maps, and are especially useful to community planners.

Geologic Atlases are a partnership of the MN Geological Survey, MN DNR, and local governments. 94% of funding was secured by the MN Geological Survey (MGS) and MN Department of Natural Resources (DNR) from the Legislative-Citizen Commission for Minnesota Resources (LCCMR). A required local contribution totaling 6% of project expenses was provided by the seven Anoka County watershed organizations and the Anoka Conservation District. Completion of the project requires 4-5 years.

Purpose: To gain knowledge about groundwater and geology that enables improved management of groundwater, including availability, pollution prevention, and pollution management.

Locations: Throughout Anoka County

Results: An Anoka County Geologic Atlas began in 2009 with financial support from all seven Anoka County Watershed Management Organizations and the Anoka Conservation District. These funds were used to locate approximately 9,500 groundwater wells, with approximately an additional 500 to be located in early 2010. Boring logs from these wells and others already in the County Well Index will be used to create the geologic atlas. The MGS has already begun the process of using these wells to create the geologic atlas. Thereafter the DNR will perform a groundwater analysis for the atlas. In total, the geologic atlas is expected to be completed around 2014.

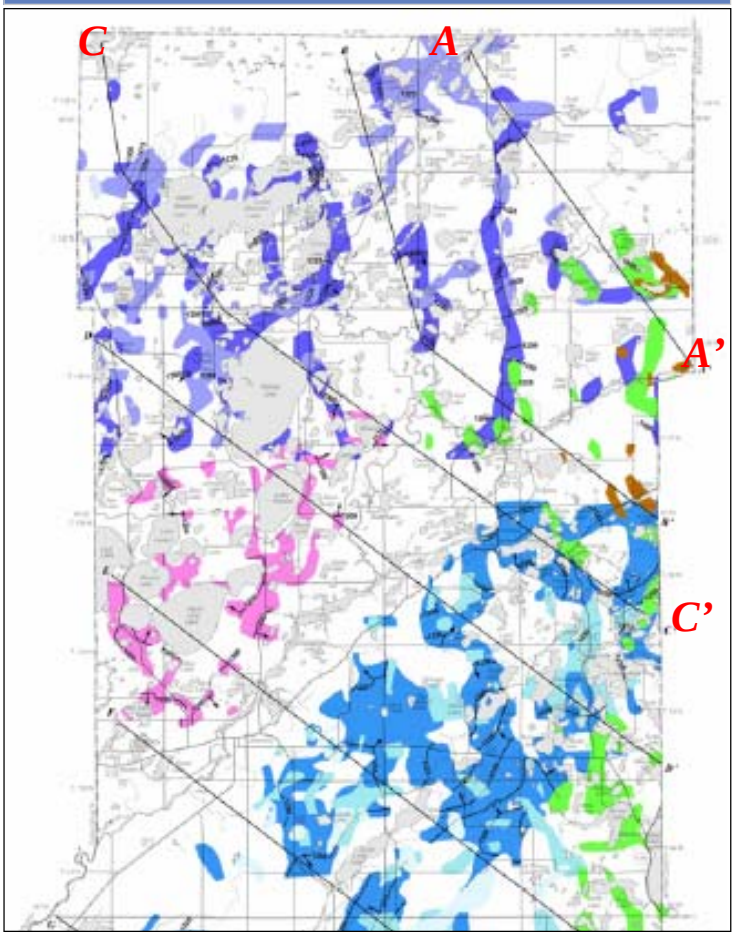
An example of portions of a geologic atlas from Crow Wing County are on the following page.

Example Geologic Atlas Work Products

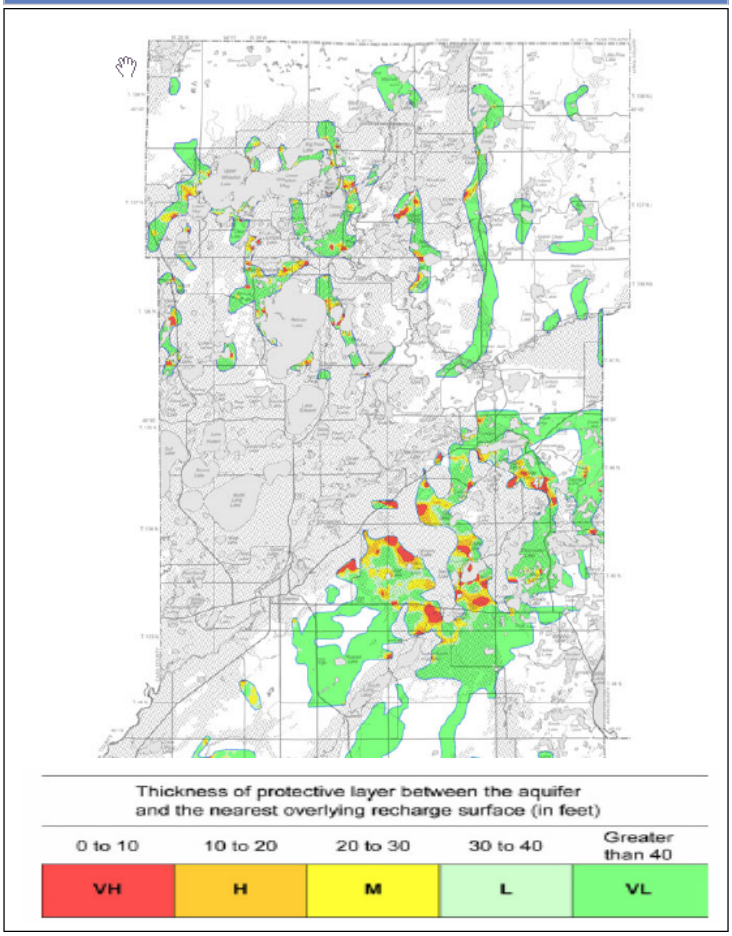
Crow Wing County Geologic Atlas

Excerpted from: Peterson, T. 2008. Hydrogeology, Pollution Sensitivity, and Lake and -Groundwater Interaction. MN Ground Water Association Newsletter 27-3.

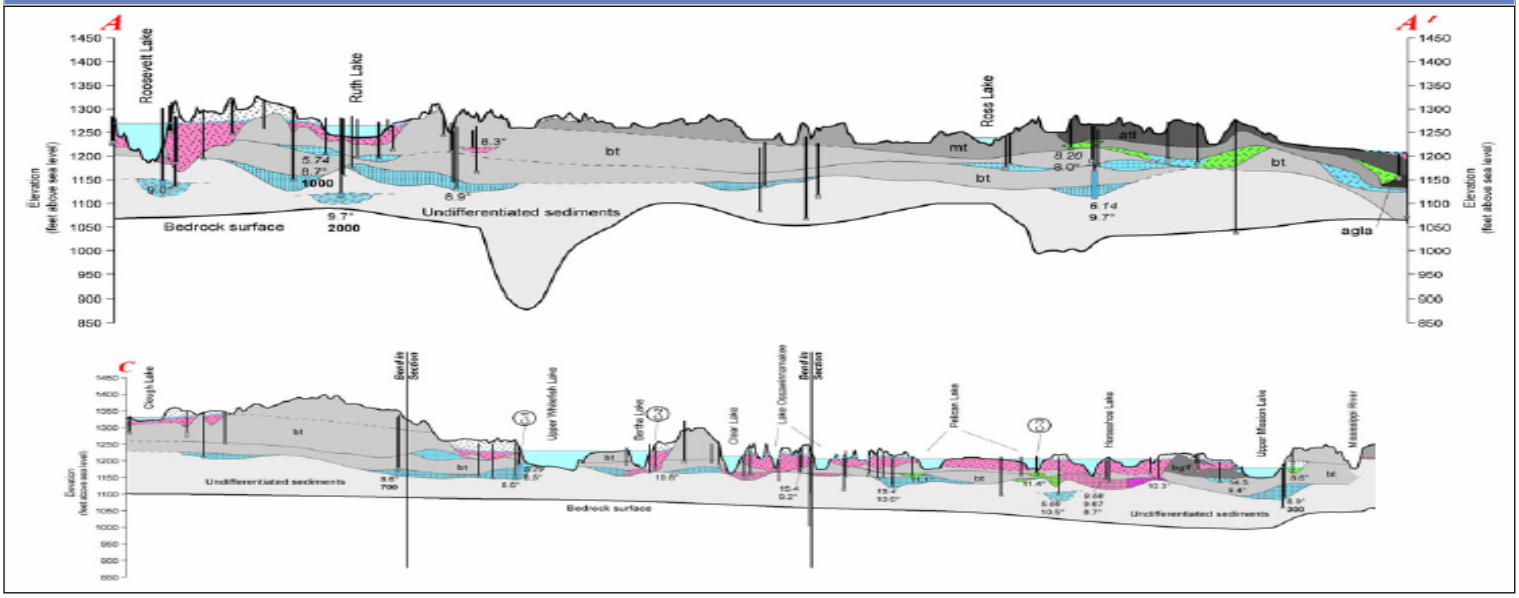
Extent and Distribution of Buried Aquifers Including Direction of Flow



Pollution Sensitivity of Buried Aquifers



Selected hydro-geologic cross sections showing groundwater residence time. Cross sections A-A' and the Northwest 2/3 of C-C' are shown. See above figure for cross section location.



URRWMO Website

Description: The Upper Rum River Watershed Management Organization (URRWMO) contracted the Anoka Conservation District (ACD) to design and maintain a website about the URRWMO and the Upper Rum River watershed. The website has been in operation since 2003.

Purpose: To increase awareness of the URRWMO 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 URRWMO's alternative to a state-mandated newsletter.

Location: www.AnokaNaturalResources.com/URRWMO

Results: The URRWMO website contains information about both the URRWMO and about natural resources in the area.

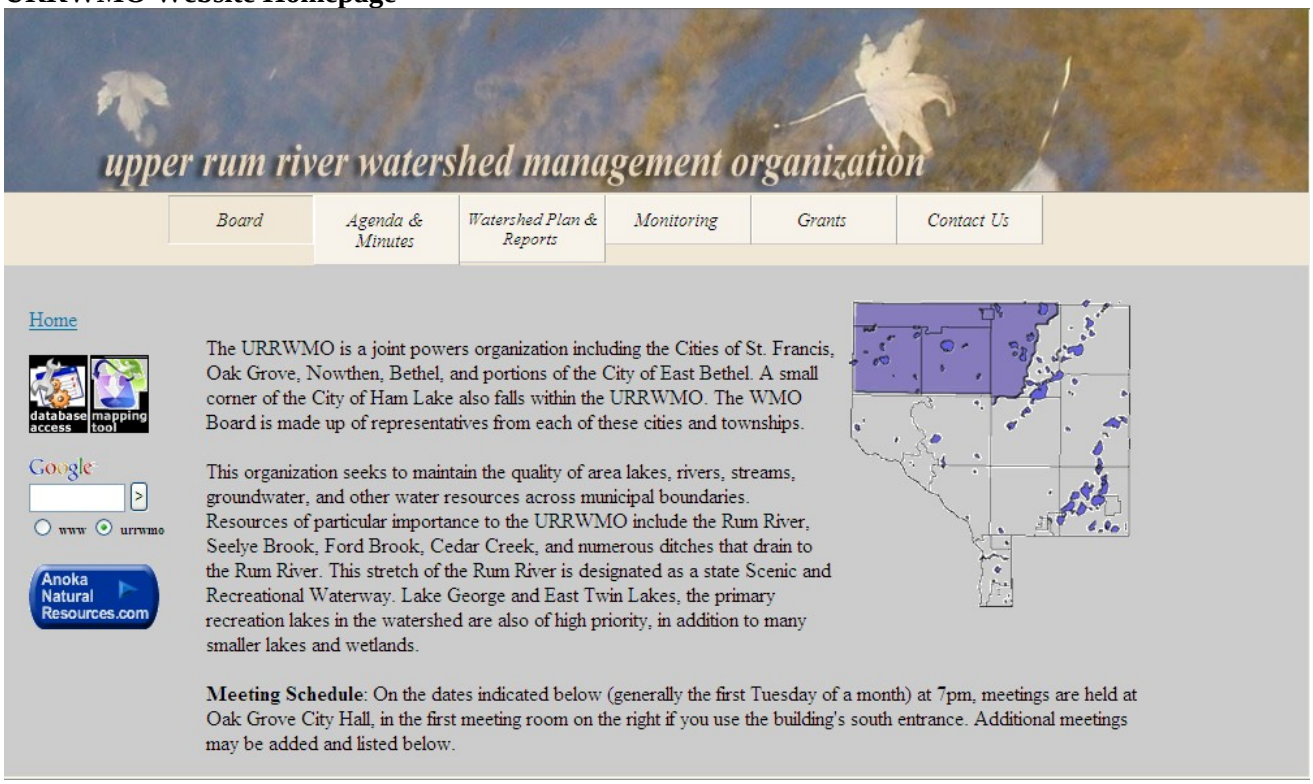
Information about the URRWMO includes:

- 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.

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

URRWMO Website Homepage



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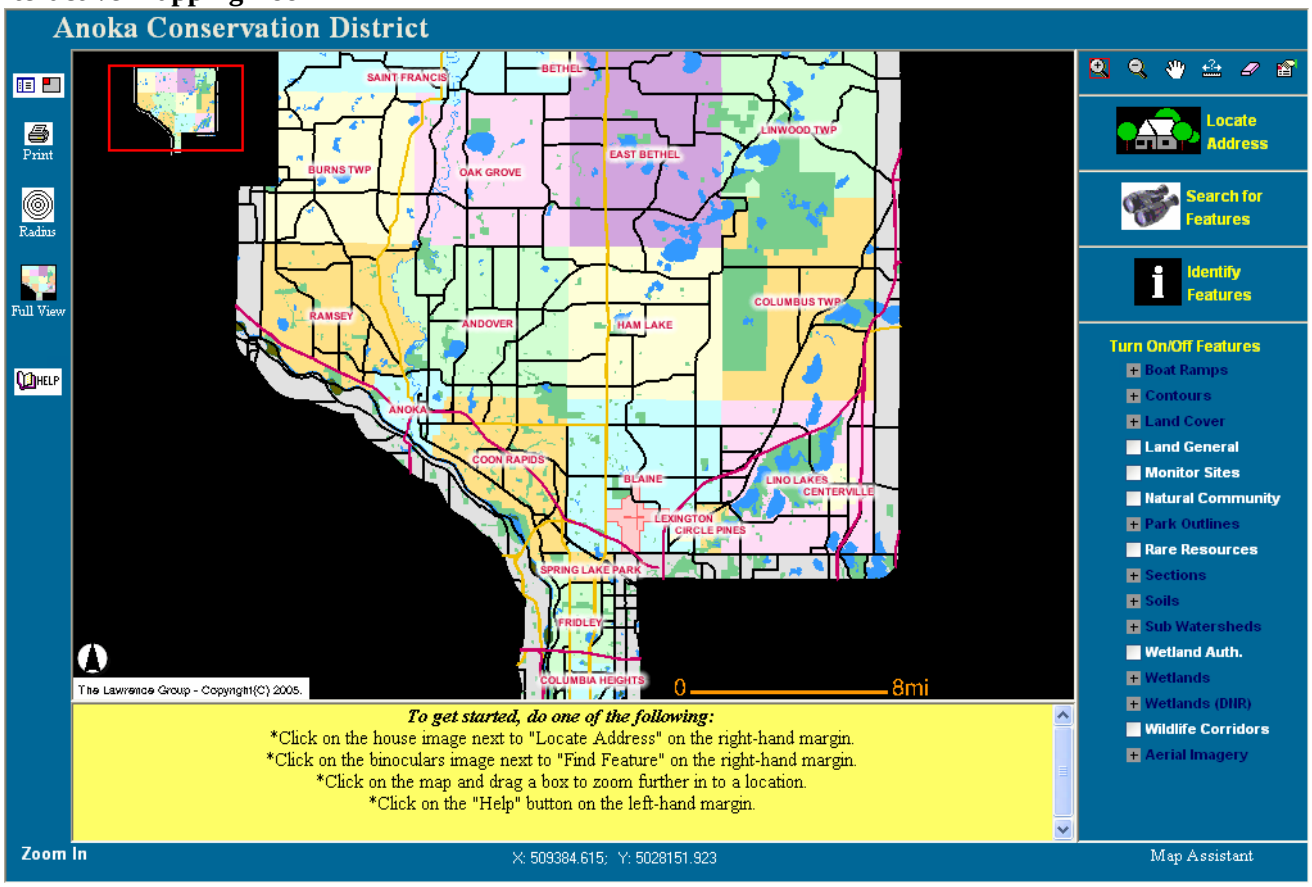
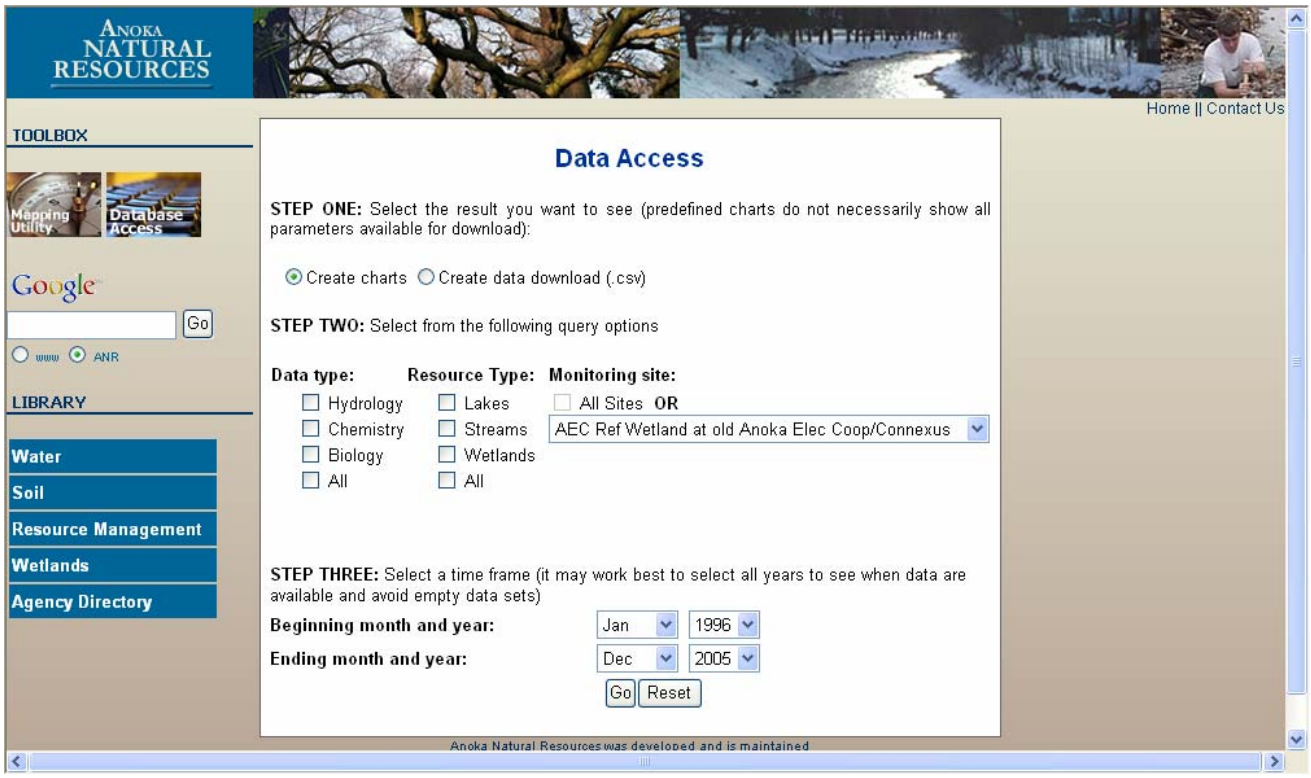
Interactive Mapping Tool



Interactive Data Access Tool



URRWMO Annual Newsletter

Description: The URRWMO Watershed Management Plan calls for an annual URRWMO newsletter in addition to the website. The URRWMO will produce a newsletter article about the URRWMO, its programs, related educational information, and the URRWMO website address for further information. In 2009 a featured topic was cost share grants available to residents for water quality improvement projects. The article is sent to each member city with a request that they include it in their city newsletters. This article was provided to each member city, and they will be asked to include it in their city newsletters.

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

Locations: Watershed-wide.

Results: The Anoka Conservation District drafted the annual newsletter article, allowed review by the URRWMO Board. The finalized article was sent to each member community on May 6, 2009 with a request that they include it in their city newsletter. Contents of the article included:

- a map of the URRWMO area,
- description of the URRWMO role,
- 2009 monitoring plans,
- cost share grant information for residential water quality improvement projects,
- URRWMO meeting schedule,
- URRWMO website address, and
- phone number for more information.

2009 URRWMO Newsletter Article

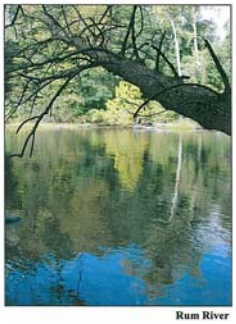
UPPER RUM RIVER WATERSHED MANAGEMENT ORGANIZATION monitors rivers, lakes, and offers grants to residents

The Upper Rum River Watershed Management Organization (URRWMO) was formed through a joint powers agreement of cities in northern Anoka County that drain to the Rum River, including Bethel, East Bethel, Ham Lake, Nowthen, Oak Grove, and St. Francis. The URRWMO is a special purpose unit of government aimed at managing water – lakes, rivers, streams, wetlands, and groundwater. State law requires local watershed organizations throughout the seven-county metro. The need for these organizations comes from the nature of watersheds. Water does not stop at city boundaries, and no one city can effectively manage it alone. Representatives from each member city are on the URRWMO Board.

Upper Rum River Watershed Management Organization

The URRWMO area is blessed with high quality water bodies. This stretch of the Rum River is designated as a state Scenic and Recreational Waterway. Lake George and East Twin Lakes have some of the clearest water in Anoka County. Smaller waterways like Cedar Creek, Ford Brook, Seelye Brook, and numerous wetlands are important too.

The URRWMO monitors lakes and streams on a rotating basis in order to identify trends and problems, and to guide future projects. In 2008 Lake George and East Twin Lake were monitored. This year, the Rum River will be the focus. The river will be monitored at the top (northern St. Francis) and bottom (southern Oak Grove) of the watershed to see how the river's water quality changes within our cities. Other agencies will be doing monitoring of the Rum River upstream and downstream too.



Rum River

Ultimately, we are all responsible for caring for lakes and rivers. Understanding that we all benefit when water quality is improved or protected, the URRWMO offers grants to encourage water quality projects on private property. Cost share grants are available to landowners for projects that will improve water quality, such as by correcting erosion, filtering stormwater runoff, and/or restoring native vegetation adjacent to a lakes and streams. The grants are competitive, and the highest ranking projects will be those that will most directly benefit a public waterbody. Applications are accepted at any time on a first-come, first-serve basis.

Grants cover 50-70% of project materials. Remaining costs and labor are the responsibility of the landowner. The Anoka Conservation District (ACD) offers free on-site consultations to landowners about water quality projects and can assist with project design. The grants are also administered through the Anoka Conservation District. Contact Jamie Schurbon at the Anoka Conservation District at 763-434-2030 extension 12.

More information about the URRWMO can be found on their website at www.AnokaNaturalResources.com/urrwmo. Citizens are welcome to attend URRWMO meetings. Remaining 2009 meetings will be May 5, August 4, and November 10 at 7:00 p.m. at the Oak Grove City Hall.

A lakeshore restoration with native plants that filters runoff, provides fish and wild habitat, and looks beautiful.

URRWMO 2008 Annual Report to BWSR

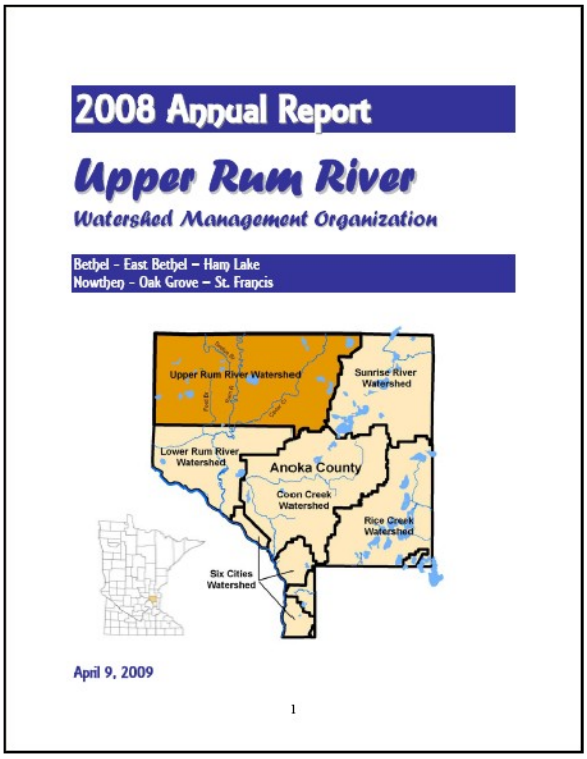
Description: The Upper Rum River Watershed Management Organization (URRWMO) is required by law to submit an annual report to the Minnesota Board of Water and Soil Resources (BWSR), the state agency with oversight authorities. This report consists of an up-to-date listing of URRWMO Board members, activities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

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

Locations: Watershed-wide

Results: The Anoka Conservation District assisted the URRWMO with preparation of a 2008 Upper Rum River WMO Annual Report. ACD provided copies of this report and a cover letter to the entire URRWMO Board on March 25, 2009 for review. On April 9, 2009 the final draft was sent to the URRWMO Chair, Ed Faherty. The Chair submitted the report to BWSR.

Cover



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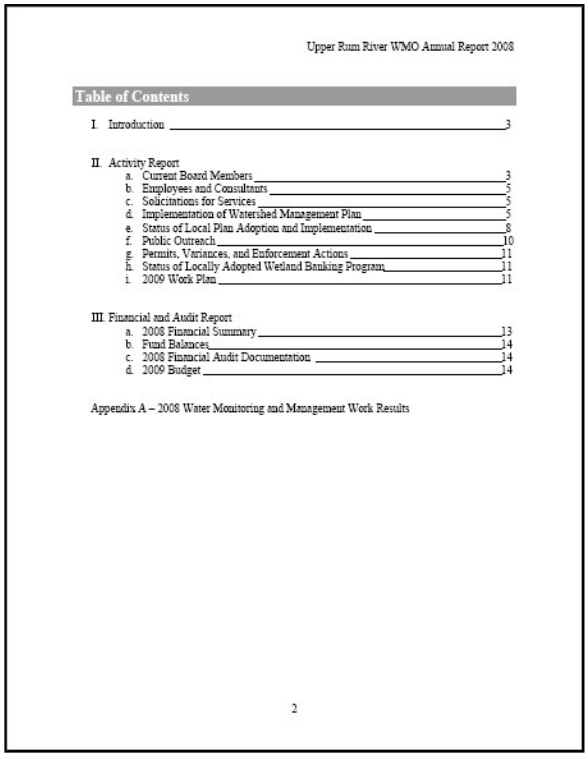

Review of Municipal Local Water Plans

Description: The URRWMO Watershed Management Plan specifies:

"The URRWMO shall review local water management plans and evaluate their consistency with the Watershed Plan. All local water management plans shall be consistent with the URRWMO Watershed Management Plan. Member communities shall have two years from the date of the Board of Water and Soil Resource's approval of this Plan to adopt their local water management plans."

The URRWMO's Watershed Management Plan was completed in 2007, so all member community local water plans should be completed in 2009. The URRWMO is the approval authority for these local water plans.

Purpose: To provide consistency water management across the watershed and ensure the URRWMO's goals for water resources are met.

Locations: Watershed-wide

Results: The URRWMO contracted the Anoka Conservation District to perform a technical review of municipal local water plans to ensure they were consistent with the URRWMO Watershed Management Plan. ACD staff reviewed local water management plans as they are completed, provided a summary of their consistency with the URRWMO Plan, and presented findings to the URRWMO Board. This work occurred in both 2008 and 2009.

All six URRWMO municipalities have updated their local water plans. In all cases the URRWMO required some changes for consistency with the URRWMO's plan. Changes have been made to all. The URRWMO approved all of these municipal local water plans in 2009.

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.

Upper Rum River Watershed Financial Summary

Upper Rum River Watershed	Website	Ref Wet	Lake Lvl	Ob Well	Stream WQ	Student Biom	UR city water plan reviews	WMO annnual rpt to BWSR	Geologic Atlas	Annual Newsletter Prep	Total
Revenues											
URRWMO	260	0	240	0	1890	0	0	400	5000	250	8040
State	0	0	0	360	0	0	0	0	0	0	360
Anoka Conservation District	1633	0	314	380	0	746	3040	284	4916	172	11485
County Ag Preserves	0	1657	0	0	0	540	0	0	0	0	2196
Other Service Fees	0	0	0	0	0	0	0	0	57	0	57
Local Water Planning	0	0	0	0	0	0	0	0	0	0	0
TOTAL	1893	1657	554	740	1890	1285	3040	684	9973	422	22139
Expenses-											
Capital Outlay/Equip	4	6	1	2	2	3	0	0	97	0	116
Personnel Salaries/Benefits	1061	1409	481	640	1027	1100	2368	488	8899	382	17855
Overhead	71	105	33	46	67	54	337	101	434	17	1265
Employee Training	12	16	8	9	18	12	70	22	72	2	241
Vehicle/Mileage	15	20	7	9	16	16	34	8	155	4	284
Rent	52	80	22	33	43	39	232	65	273	17	857
Program Participants	0	0	0	0	0	0	0	0	0	0	0
Program Supplies	676	21	1	1	335	62	0	0	43	0	1139
Equipment Maintenance	0	0	0	0	0	0	0	0	0	0	0
TOTAL	1893	1657	554	740	1509	1285	3040	684	9973	422	21758
NET	0	0	0	0	381	0	0	0	0	0	381

Recommendations

- **Investigate the condition of Ditch 19, the only inlet to Lake George**. Residents have complained that condition of the ditch and water control structures are contributing to low lake water levels in recent years. Anoka County is the legal ditch authority.
- **Facilitate resident efforts to control aquatic plant growth on Rogers Lake** as a means to improving low dissolved oxygen problems. Treatments should occur in early spring, occur on no more than 15% of the lake, be coordinated, and proceed under DNR permits.
- **Encourage public works departments to implement measures to minimize road deicing salt applications**. These salts are the most noticeable form of Rum River deterioration in the URRWMO. MN DOT, University of Minnesota Extension, and others offer training on this topic.
- **Promote groundwater conservation.** Metropolitan Council models predict 3+ft drawdown of surface waters in parts of the URRWMO by 2030, and 5+ft by 2050.

Continued on next page

- **Coordinate monitoring of the Rum River** with the neighboring Lower Rum River WMO and the Metropolitan Council, who runs a monitoring site at the Anoka Dam.
- **Promote water quality improvement projects** for lakes, streams, and rivers. Cost share grants are available through the URRWMO and ACD to encourage landowners to do projects that will have public benefits to water quality. Technical assistance for landowners is available through the Anoka Conservation District.
- **Monitor water quality of Lake George and East Twin Lake every three years** to track any trends or changes. Next monitoring should be in 2011.