

2007 Annual Report

Upper Rum River Watershed Management Organization

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



March 27, 2008

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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 2007 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 and St. Francis; portions of the cities of East Bethel and Ham Lake; and Burns Township (currently incorporating as the City of Nowthen). 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. The URRWMO meets quarterly on the first Tuesday of the month at 7pm at the Oak Grove City Hall, though sometimes meets monthly if needed.

II. Activity Report

a. Board Members

<u>City/Township Represented</u>	<u>Member</u>	<u>Position</u>
Bethel	Ed Johnson PO Box 64 Bethel, MN 55005 info@bethelmn.govoffice2.com 763-434-3572	Member
Burns Twp (incorporating as City of Nowthen)	Randy Bettinger 5550 210th Ave NW Anoka, MN 55303 randy.bettinger@co.anoka.mn.us 763-753-4962	Chair
	Melanie Kern 5300 Verde Valley Rd. Anoka, MN 55303 furbootfarm@yahoo.com 763-753-9609	Member
East Bethel	Kathy Paavola 213 NE Hawthorn Rd East Bethel, MN 55092 651-982-4628 Kjsaari@yahoo.com	Member

Board Members (continued)

	Jared Trost 23016 Sunset Road NE East Bethel, MN 55005 763-477-8309 trost010@umn.edu	Member
Ham Lake	Bill Larson 643 175th Avenue NE Ham Lake, MN 55304 763-434-9435 larsonw767@cs.com	Member
Oak Grove	Ed Faherty 2847 Greenwald Island Cedar, MN 55011 763-753-3452 fahertyme@msn.com	Vice Chair
	Will Ridge 21123 Lake George Blvd Cedar, MN 55011 763-753-1116	Member
St. Francis	Terry Sworsky 23355 Redwood Court NW St. Francis, MN 55070 763-753-2680	Member
	Ray Jones 23725 Nacre Street NW Elk River, MN 55330 763-441-2437	Member

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	<ul style="list-style-type: none"> • Facilitate a Technical Advisory Committee (TAC) that is a recommending body to the URRWMO. • Water monitoring and improvement cooperative agreements. • Website maintenance. • Administer the WMO's cost share grants for water quality improvement projects.
WSB & Associates, Inc.	Todd Hubmer, Associate 701 Xenia Ave South, suite 300 Minneapolis, MN 55416 763-541-4800 thubmer@wsbeng.com	<ul style="list-style-type: none"> • 2nd Gen. Watershed Mgmt Plan preparation
Gail Gessner	Gail Gessner 4621 203rd Lane NW Oak Grove, MN 55303 763-753-2368 bethelgail@hotmail.com	<ul style="list-style-type: none"> • Recording secretary for meetings

c. Solicitations for Services

The WMO sought bids in 2005 for preparation of the 2nd Generation Watershed Management Plan. Bids were received from Anoka Conservation District, Hakanson Anderson Associates, Schilling Consultants, and WSB & Associates. Three were selected for interviews. WSB was selected for the task and completed work in early 2007.

The WMO has not solicited proposals biennially for water monitoring services or for a recording secretary. The WMO has enters into annual cooperative agreements for water monitoring services with the Anoka Conservation District (ACD). Through these cooperative agreements costs are shared among the URRWMO, ACD, and various grants secured by the ACD, and duplication of services among agencies is avoided.

d. Implementation of Watershed Management Plan

Updates to the URRWMO Watershed Management Plan were completed 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 WMO 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.

Comparison of work called for in the Watershed Management Plan and work accomplished by the URRWMO.

Task	Work Planned and Accomplished Each Year			
	2007		2008	
	Planned	Accomplished	Planned	In 2008 Budget and Work Plan
Monitoring				
Lake Levels		Lake George East Twin Lake		Lake George East Twin Lake
Lake Water Quality			Lake George East Twin Lake	Lake George East Twin Lake
Stream Water Quality				
Other Monitoring	Volunteer needed for East Twin Lake level monitoring	Volunteer secured		
Water Quality Improvement				
Water Quality Improvement Cost Share Fund		\$1,000		Carry over \$1,990 from previous years
Public Education				
Website or Newsletter	Annual newsletter	Maintained and updated URRWMO Website	Annual newsletter, Maintain and update website	Maintain and update URRWMO Website
Other Education		Provided 150 copies of a lakeshore landscaping brochure to Lake George Conservation Club, which included our shoreline mapping results.		
Inventories and Studies				
Lakeshore Erosion Mapping		Mapped George and East Twin Lakes, sent technical assistance and cost share info to properties with shoreline erosion or practices likely to lead to erosion problems.		
Planning and Reporting				
Annual Report to BWSR	Submit	2006 Annual Report submitted March 27, 2007	Submit	2007 Annual Report submitted March 27, 2008 (this report)

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Task	2007		2008	
	Planned	Accomplished	Planned	In 2008 Budget and Work Plan
Planning and Reporting				
Draft and adopt: <ul style="list-style-type: none"> • Water quality standards • Stormwater infiltration standards • Wetland standards 	Convene Technical Advisory Committee (TAC)	TAC was convened with participation from member cities, state review agencies, and Builder's Assoc. of the Twin Cities. Recommended standards were drafted by the TAC and accepted by the URRWMO Board.	Formal process to amend new standards to URRWMO Plan	Formal process to amend new standards to URRWMO Plan
Develop at water monitoring plan thru 2012	Develop monitoring plan			Develop monitoring plan. Anticipated completion 4-2008
Develop template for member cities to annually report to URRWMO	Create reporting template			Create reporting template Anticipated completion 4-2008
Review member cities' annual reports to the URRWMO			Review cities' reports	URRWMO Board will do
Review member city Local Water Plans, once revised, for compliance with URRWMO Plan			Review Local Water Plans for compliance with URRWMO Plan	Contracted with Anoka Cons. Dist. to provide technical review, report to URRWMO.
Review CCWD-URRWMO Boundary		CCWD initiated a boundary adjustment, URRWMO concurred, change has been accepted by BWSR	Review and adjust, if necessary, URRWMO Boundary with Coon Cr Watershed District	Completed in 2007
Update Joint Powers Agreement		Minor updates		
Set aside matching funds for future grant opportunities	\$1,000	Unable to complete – WMO plan completed after budgeting was done	\$1,000	\$1,000

e. Status of Local Plan Adoption and Implementation

In this reporting year (2007) the URRWMO completed updating its Watershed Management Plan and prepared several proposed amendments to the newly-adopted Plan. We anticipate all of our member cities' local water plans need updates for compliance, but the cities have not yet had a reasonable amount of time to complete that work. We have informed all member cities that this work must be completed by August 7, 2009 (2-years after WMO Plan was adopted by the URRWMO Board), and provided them with the needed materials (WMO Plan, proposed WMO Plan amendments, and state statute 103B.235 and rule 8410.0160 which specify local plan content). We anticipate timely completion.

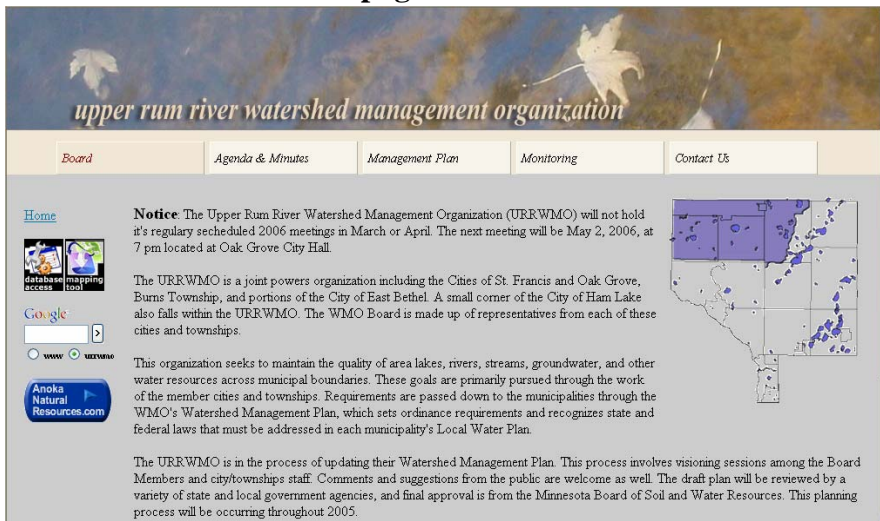
We are currently developing a process for more efficiently monitoring implementation of member cities' Local Water Plans, once they are updated. Each member city will be required to submit a report to the URRWMO annually. In order to facilitate this process we are creating a report template which summarizes the URRWMO Plan's requirements for cities. In addition to serving as a reporting tool, we hope that the template will serve as a "to do" list for our cities. A draft reporting template will be considered for adoption at the April 2008 URRWMO meeting.

f. Public Outreach

The URRWMO's website serves its primary public outreach tool. It also serves as an alternative to the state-mandated annual newsletter. The website was designed in 2003 and has been in continuous operation since. Website contents include general information about the organization, meeting agendas and minutes, water monitoring results, profiles of WMO projects, access to mapping and data access tools, and others. Timely items, such as information relating to current work drafting a 2nd Generation Watershed Management Plan are also posted in the website.

The website address is <http://www.anokanaturalresources.com/urrwmo/index.htm>

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. 2008 Work Plan

TASK	Cost to URRWMO
Monitoring	
Lake level monitoring	
Lake George (volunteer)	\$ 220
East Twin Lake (volunteer)	
Lake water quality monitoring	
Lake George	\$1,840
East Twin Lake	
Water Quality Improvement	
Water quality improvement cost share fund	\$1,990 carryover from previous years
Public Education	
URRWMO website	\$320
Planning and Reporting	
Formal Watershed Management Plan amendment process to add:	
• Water quality standards*	
• Stormwater infiltration standards*	
• Wetland standards*	
• Water monitoring plan through 2012	Up to \$15,000
(*prepared in 2007 by a technical advisory committee. The 2008 expense shown to the right includes all of the work done in 2007 to draft these standards and the 2008 work to amend them to the watershed management plan.)	
Develop member community annual report template	\$700
Prepare 2007 annual report to BWSR	\$400
Develop a water monitoring plan for lakes, streams, and rivers through 2012	\$500
Review member cities' Local Water Plans, as completed	\$2,400
Review member cities' annual reports to the URRWMO	\$0
Other	
Set aside "matching funds" for future grant opportunities	\$ 1,000

III. Financial Report

a. 2007 Financial Summary

Expenditures and revenues for the year are detailed in the table below. Each municipality's contribution (WMO revenue) was based on property tax base.

Expenditures	Amount
Administrative	
Postage	\$49.84
Copies	\$72.50
Insurance	\$2,288.00
LMC credit	(\$340.00)
Secretarial services	\$825.00
City of Oak Grove administration fee	\$300.00
SUBTOTAL	\$3,195.34
Non-Administrative	
Anoka Conservation District lake level monitoring, lakeshore mapping and education, water quality improvement cost share, URRWMO website, assistance preparing 2006 annual report to BWSR	\$4,175.00
Anoka Conservation District credit	(\$95.00)
WSB and Associates 2 nd Generation Planning	\$1,600.00
SUBTOTAL	\$5,680.00
GRAND TOTAL	\$8,875.34
Revenues (% cost distribution specified in JPA)	
Administrative	
City of Bethel (16.67% of expenses)	\$532.56 (16.67%)
Burns Township (16.67% of expenses)	\$532.56 (16.67%)
City of East Bethel (16.67% of expenses)	\$532.56 (16.67%)
City of Ham Lake (16.67% of expenses)	\$532.56 (16.67%)
City of Oak Grove (16.67% of expenses)	\$532.55 (16.67%)
City of St. Francis (16.67% of expenses)	\$532.55 (16.67%)
SUBTOTAL	\$3,195.34
Non-Administrative	
City of Bethel (1.08% of expenses)	\$61.34 (1.08%)
Burns Township (23.66% of expenses)	\$1,343.89 (23.66%)
City of East Bethel (24.21% of expenses)	\$1,375.13 (24.21%)
City of Ham Lake (0.99% of expenses)	\$56.23 (0.99%)
City of Oak Grove (29.69% of expenses)	\$1,686.39 (29.69%)
City of St. Francis (20.37% of expenses)	\$1,157.02 (20.37%)
SUBTOTAL	\$5,680.00
GRAND TOTAL	\$8875.34

b. 2007 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 2007 audit, which includes an audit of the URRWMO is not yet complete. When completed the audit will be available for review at the City of Oak Grove. The audits are conducted by HLB Tautges Redpath LTD, 4810 White Bear Parkway, White Bear Lake, MN 55110.

c. 2008 Budget

The URRWMO has approved a budget of \$26,205 for 2008. \$6,380 of these funds are for water monitoring, water quality improvement projects, education, and certain reporting and planning tasks under contract to the Anoka Conservation District (ACD). \$1,000 is being set aside so we can accumulate the matching needed to take advantage of grant opportunities. Up to \$15,000 is for ACD's assistance facilitating a technical advisory committee to draft several needed Plan amendments (also under contract, work done in 2007 and 2008 but only invoiced in 2008). The remainder of the budget is for administrative costs and insurance.

IV. Water Monitoring Results 2007

Results of water monitoring and improvement projects are presented on the following pages. This includes work done both with and without WMO funding. Previous years' data can be retrieved through the Data Access tool on the URRWMO website.

Lake Levels

Description: Weekly water level monitoring in lakes. These data, as well as all additional historic data are available on the Minnesota DNR website using the “LakeFinder” feature (www.dnr.mn.us.state/lakefind/index.html).

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

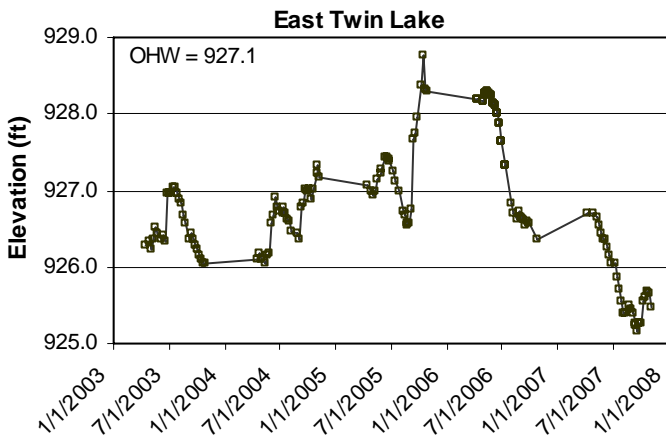
Locations: East Twin Lake, Lake George, Rogers Lake

Results: East Twin Lake water levels returned to lower levels in 2007, after high levels in 2005 and 2006. Residents near the lake indicated that a beaver dam was the reason for the high water in 2005, but the beavers were removed in 2006. By mid-2007 the lake was the lowest it has been since 2002, following a trend similar to other lakes in response to drought this year.

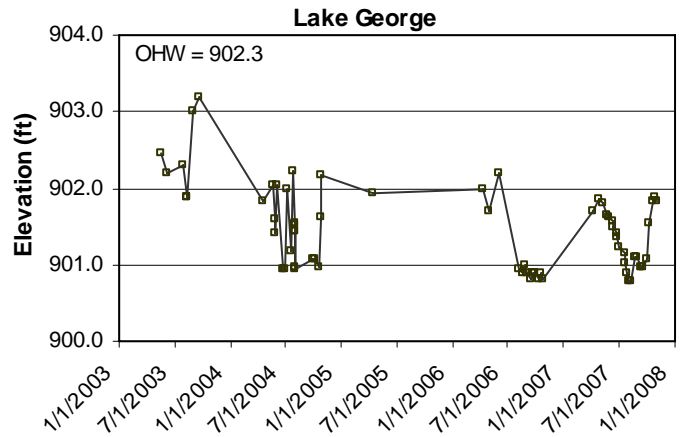
Lake George is experiencing low water levels, and in mid-summer 2007 was the lowest it has been since the severe droughts of the late 1980’s. Drought in 2007 contributed to low levels this year. The lake’s only inlet, County Ditch #19, may also be responsible for low water - residents have complained it is clogged and needs maintenance. Interestingly, the long term record shows that Lake George water levels fluctuate much more dramatically within each year than they did in the past, perhaps reflecting low summer inflows.

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.

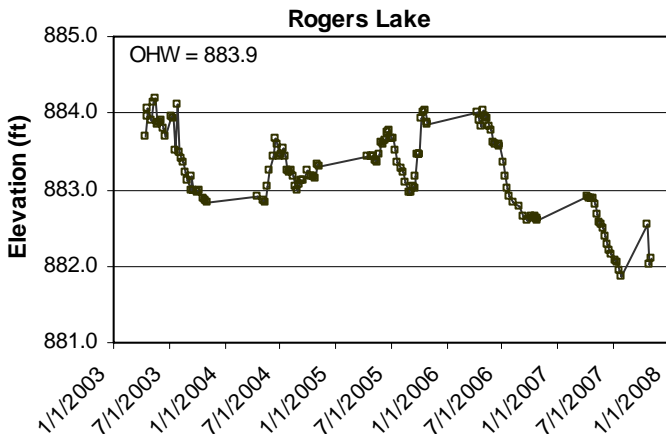
East Twin Lake Levels 2003-2007



Lake George Levels 2003-2007



Rogers Lake Levels 2003-2007



Upper Rum River Watershed Lake Levels Summary

Lake	Year	Average	Min	Max
East Twin	2003	926.50	926.05	927.03
	2004	926.67	926.05	927.33
	2005	926.67	926.05	927.33
	2006	927.61	926.37	928.29
	2007	925.79	925.15	926.71
George	2003	902.42	901.88	903.18
	2004	901.48	900.95	902.22
	2005	not available		
	2006	901.13	900.82	902.20
	2007	901.36	900.78	901.88
Rogers	2003	883.53	882.84	884.18
	2004	883.22	882.82	883.66
	2005	883.48	882.95	884.04
	2006	883.28	882.59	884.02
	2007	882.19	881.79	882.91

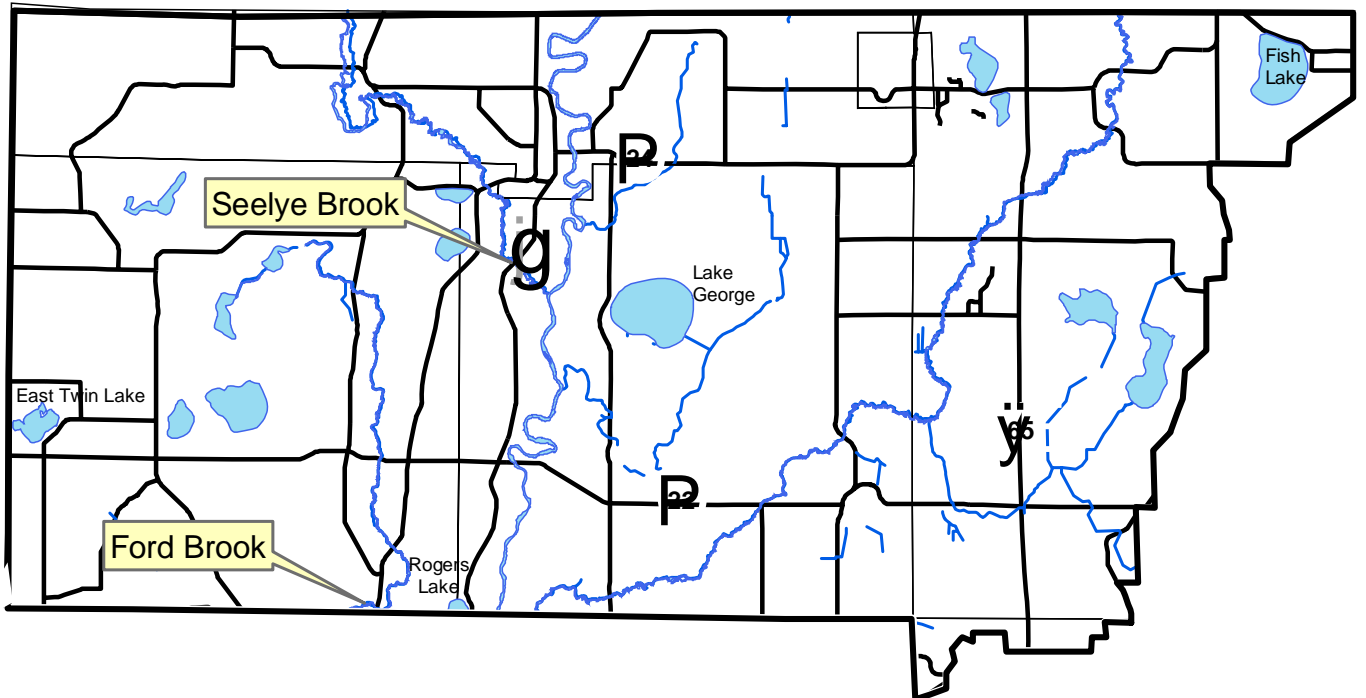
Stream Hydrology

Description: Continuous water level monitoring in streams.

Purpose: To provide understanding of stream hydrology, including the impact of climate, land use or discharge changes. These data also facilitate calculation of pollutant loads and use of computer models for developing management strategies.

Locations: Ford Brook at Highway 63, Ramsey
Seelye Brook at Highway 7, Oak Grove

Upper Rum River Watershed Stream Hydrology Monitoring Sites



Stream Hydrology Monitoring

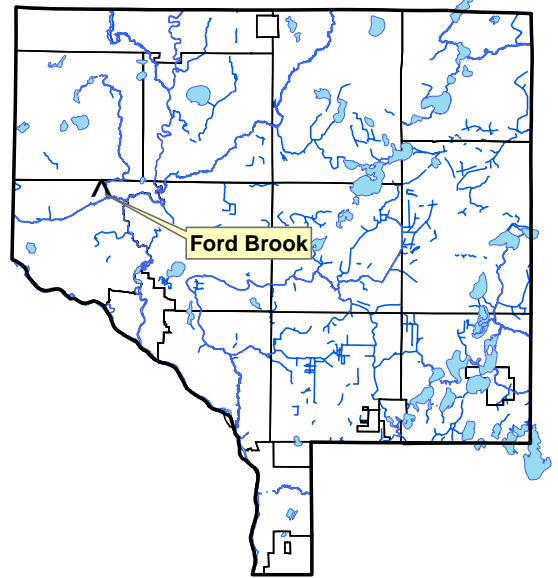
FORD BROOK

at Highway 63 (Green Valley Rd NW), Ramsey

Notes

This is a medium-large creek that originates from Ekstrom Lake in north-central Burns Township, flows through Burns Township, and outlets to the Rum River in northeast Ramsey. It does not inlet or outlet to any lakes. Overall, the watershed is rural residential with 5 acre lots. The creek is about 25 feet wide and 2.5 feet deep at the monitoring site during baseflow.

Due to equipment malfunctions, Ford Brook was only monitored in mid-summer 2007. This was a drought period, and as a result the stream fluctuated very little, even when it did rain because the dry soils absorbed the moisture.

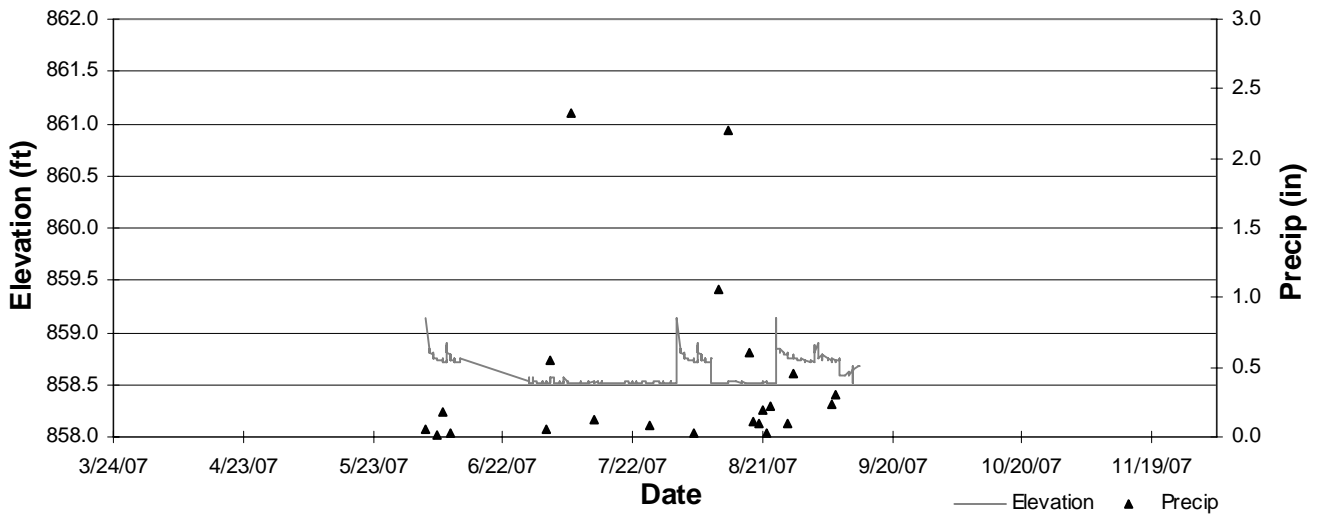


Summary of All Monitored Years

Percentiles	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	All Years
Min	859.22	859.21	859.15	859.06	859.13	858.86	858.89	858.71	858.74	858.74	858.63	858.51	858.51
2.5%	859.28	859.40	859.18	859.09	859.15	858.86	858.95	858.74	858.77	858.76	858.66	858.51	858.71
10.0%	859.40	859.58	859.18	859.12	859.15	858.86	859.15	858.77	858.91	858.82	858.80	858.51	858.89
25.0%	859.51	859.69	859.26	859.20	859.15	858.86	859.46	858.94	859.11	859.08	858.86	858.51	859.20
Median (50%)	859.67	859.85	859.30	859.32	859.18	858.89	859.74	859.20	859.40	859.51	858.97	858.53	859.48
75.0%	859.84	860.39	859.32	859.38	859.18	859.21	860.00	859.59	89.65	859.76	859.28	858.73	859.48
90.0%	860.04	861.09	859.38	859.53	859.24	859.97	860.39	860.07	860.05	860.12	859.73	858.79	860.19
97.5%	860.60	861.45	859.55	859.87	859.35	860.56	860.79	860.45	860.53	860.78	860.11	858.85	861.09
Max	861.44	861.65	859.61	860.10	859.50	861.05	861.13	861.24	860.90	861.43	860.59	859.13	861.65

"All Years" is not an average of each year's summary statistic. Rather, it is calculated from the continuous, multi-year record.

2007 Hydrograph



Stream Hydrology Monitoring

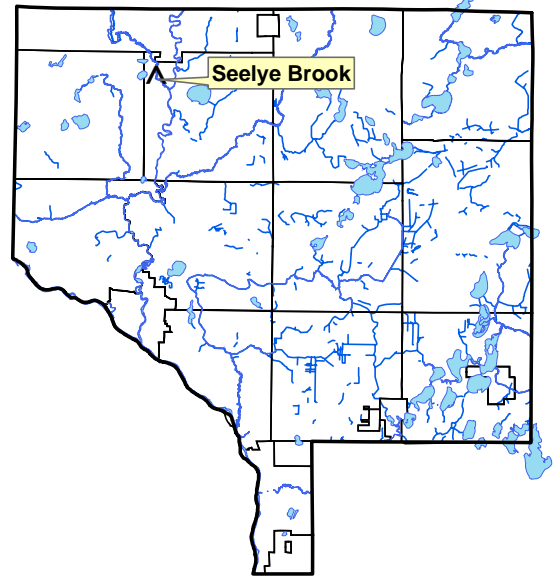
SEELYE BROOK

at Highway 7, Oak Grove

Notes

This is a large creek that originates in southwest Isanti County, flows through St. Francis, and outlets to the Rum River in northwest Oak Grove. It does not inlet or outlet to any lakes. Overall, the watershed is rural residential, wetland, and agricultural. The creek is about 25 feet wide and 2.5 feet deep at the monitoring site during baseflow. This stream receives special protections as a tributary to the Rum River under state scenic and recreational rivers laws.

Seelye Brook responds more extremely to rainfall than the other large streams in the area, such as Ford Brook and Cedar Creek, despite being of similar size and having similar watershed land uses. From 1996 to 2007 Seelye Brook water levels ranged 6.7 feet, compared to 3.14 and 5.09 feet for Ford Brook and Cedar Creek, respectively. A rudimentary analysis on five isolated rain events greater than one inch in 2004 found that Seelye Brook rose an average of 8.3 inches per inch of rainfall received. 2007 was atypical because of summertime drought.

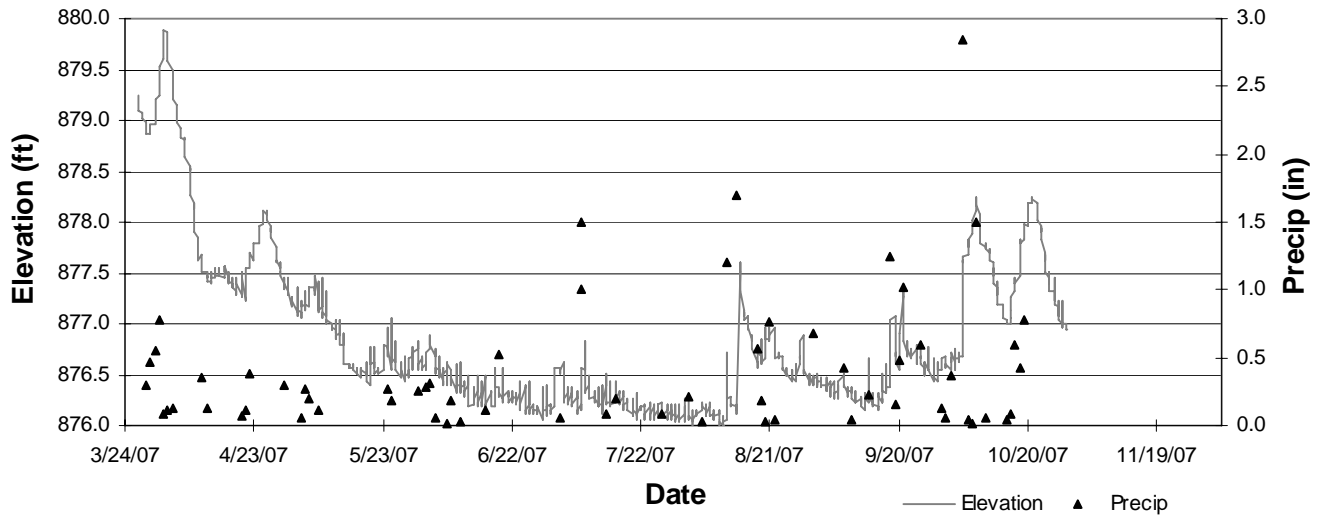


Summary of All Monitored Years

Percentiles	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	All Years
Min	876.38	875.93	876.05	875.95	na	876.02	876.24	876.13	876.12	876.09	876.06	875.98	875.93
2.5%	876.50	876.66	876.19	876.12		876.13	876.41	876.17	876.23	876.21	876.15	876.09	876.17
10.0%	876.55	876.74	876.28	876.15		876.25	876.73	876.31	876.34	876.32	876.23	876.18	876.29
25.0%	876.64	877.03	876.39	876.17		876.39	877.35	876.66	876.63	876.69	876.43	876.29	876.5
Median (50%)	876.87	877.58	876.53	876.32		876.59	877.86	877.16	877.03	877.42	876.72	876.61	876.84
75.0%	877.66	879.09	876.78	876.68		877.44	878.71	877.75	877.82	878.19	877.31	877.31	876.84
90.0%	877.89	880.72	877.21	877.45		879.40	879.82	879.03	878.95	878.84	878.29	877.94	878.83
97.5%	878.00	882.13	879.17	880.03		881.95	880.73	879.79	879.60	880.55	879.13	879.07	880.5218
Max	878.21	882.60	879.85	880.57		882.63	881.03	880.28	880.03	881.16	879.75	879.89	882.63

"All Years" is not an average of each year's summary statistic. Rather, it is calculated from the continuous, multi-year record.

2007 Hydrograph



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 2007

Monitored Since

2000

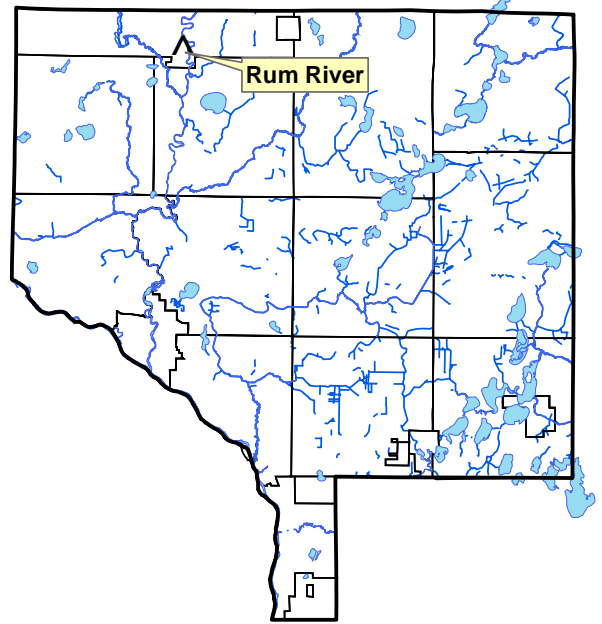
Student Involvement

105 students in 2007, approx 700 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.

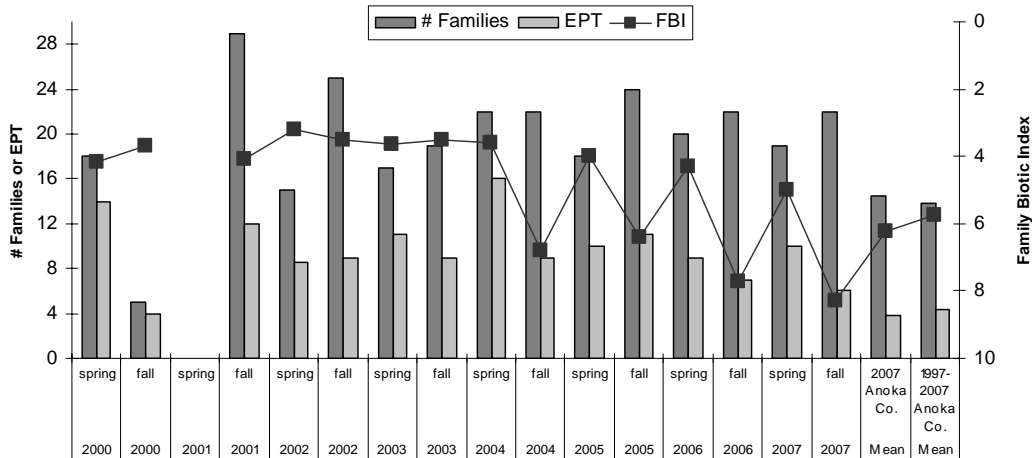
The sampling site is in Rum River North County Park. This site is typical of the Rum in northern Anoka County, having a rocky bottom with numerous pool and ripple areas.



Results

St. Francis High School classes monitored the Rum River in both spring and fall 2007, facilitated by the Anoka Conservation District. Biological data for 2007, and historically, indicate the Rum River in northern Anoka County has the best conditions of all streams and rivers monitored throughout Anoka County. Biological indices were above the county averages. One exception is that the Family Biotic Index (FBI) in fall 2007 was much lower than previously observed and much lower than the average for Anoka County; the same was true in fall 2006. This poor FBI was primarily driven by a high abundance of a few pollution-tolerant families. Specifically, the family hydropsychidae (netspinner caddisflies) was 43% of all captures in fall 2007 and 35% in fall 2006, while family corixidae (water boatmen) was 59% of all captures in fall 2007 and 66% in fall 2006. While high diversity partially makes up for this dominance by pollution-tolerant families, student groups have observed lower captures of sensitive families, such as stoneflies, in recent years, and this is concerning.

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	2005	2005	2006	2006	2007	2007	Mean	Mean
Season	spring	fall	spring	fall	spring	spring	fall	spring	spring	fall	fall	spring	fall	spring	fall	spring	fall	spring	fall	2007 Anoka Co.	1997-2007 Anoka Co.
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	4.00	6.40	4.30	7.70	5.00	6.30	6.2	5.7
# Families	18	5		29	10	20	25	18	16	12	22	22	18	24	18	24	22	19	22	14.4	13.9
EPT	14	4		12	7	10	9	11	10	6	11	16	0	10	11	5	7	10	6	3.8	4.4
Date	5/24	9/1		2/3-Oct	3-Jun	29-May	8-Oct	30-May	29-May	10-Oct	1-Oct	19-May	29-Sep	25-May	29-Sep	25-May	2-Oct	16-May	11-Oct		
sampling by	ACD	Xroads		SFHS	Xroads	SFHS	SFHS	Xroads	SFHS	Xroads	SFHS	SFHS	SFHS	SFHS	SFHS	SFHS	SFHS	SFHS	SFHS		
sampling method	MH	MH		MH	MH	MH	MH	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	138	272	152	187	282	502		
# Families	1	1		1	2	2	2	1	2	1	2	3	1	2	2	2	2	2	2		
Dominant Family	heptageniidae	hydroptilidae		coenidae	hydroptilidae	perlidae	hydroptilidae	hydroptilidae	hydroptilidae	baetidae	oligoneuridae	hydroptilidae	coenidae	perlidae	gerridae	hydroptilidae	coenidae	hydroptilidae	coenidae		
% Dominant Family	22	81.5		21	64	36.6	19.9	41.6	48.3	61.2	30.9	40.5	38.2	29.7	22.4	35.3	66.3	42.7	58.8		
% Ephemeroptera	46.4	1.7		18	6.1	11.2	20.3	11.4	11	78.1	51	31.7	15.4	50	25	20.6	9.9	17.2	2		
% Trichoptera	20.8	87.6		9.2	70.1	29	20.3	45.4	54.1	13.2	13.7	48.9	1.3	11.8	6.9	35.3	4.8	44.3	1		
% Plecoptera	7.2	9.4		3.9	15.2	45.1	13.2	12.9	31.1	0.4	9.8	13.9	2.9	31.2	6.1	22.4	1.6	9	0.2		

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. Habitat deteriorates somewhat downstream near Anoka where the river is slower and the bottom is heavily sediment laden. Water chemistry monitoring done at various locations on the Rum River throughout Anoka County found that water quality also declines in the downstream reaches, though was still good. One cause of downstream deterioration is probably higher-density development and more intense land use. Overall, the condition of the river is regarded as very good throughout Anoka County.

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 to avoid bank erosion problems.
- Use the best available technologies to reduce pollutants delivered to the river and its tributaries through the storm sewer system. This should include all areas within 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 should be continued to inform residents of the direct impact their actions have on the river’s health.
- Continue water quality monitoring programs. 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 at the sites utilized in 2004. 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 coordinate this watershed-level monitoring.

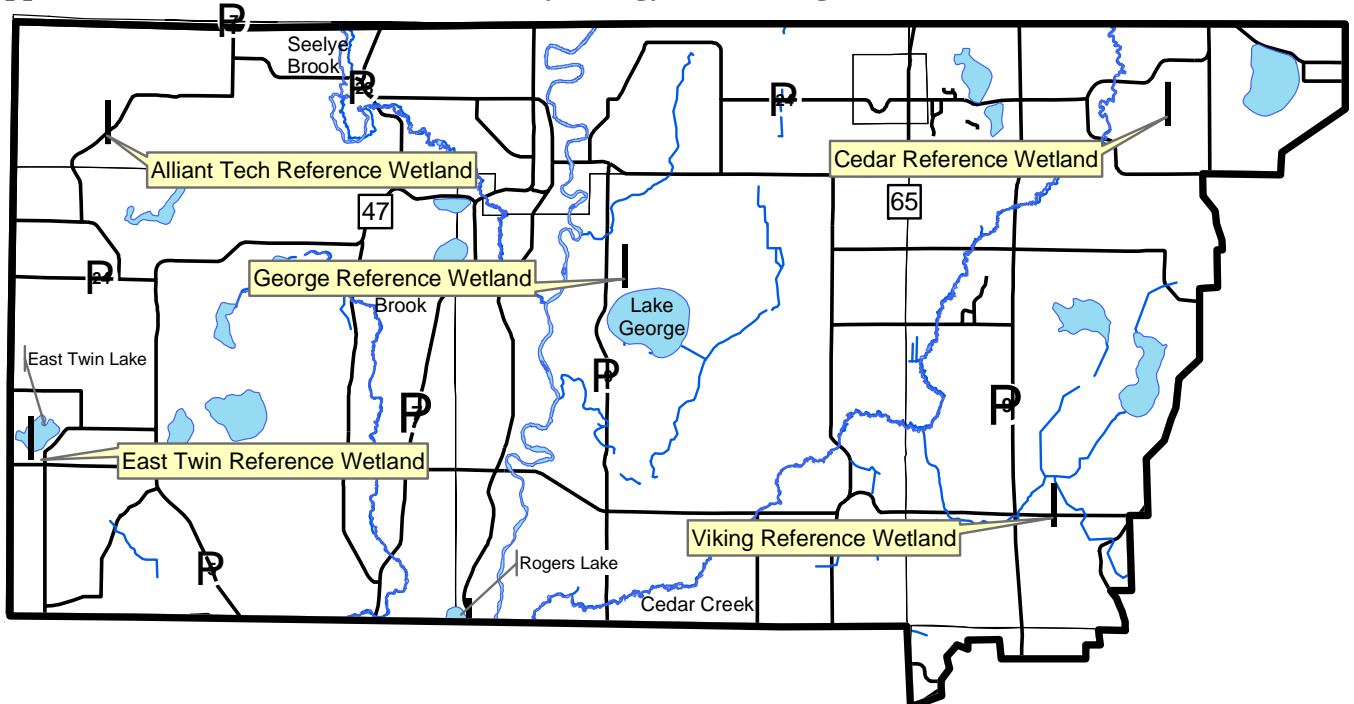


St. Francis High School classes biomonitoring the Rum River in 2007.

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 TechSystems property, St. Francis
 Cedar Creek, Cedar Creek Natural History Area, East Bethel
 East Twin Reference Wetland, East Twin Township Park, Burns
 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

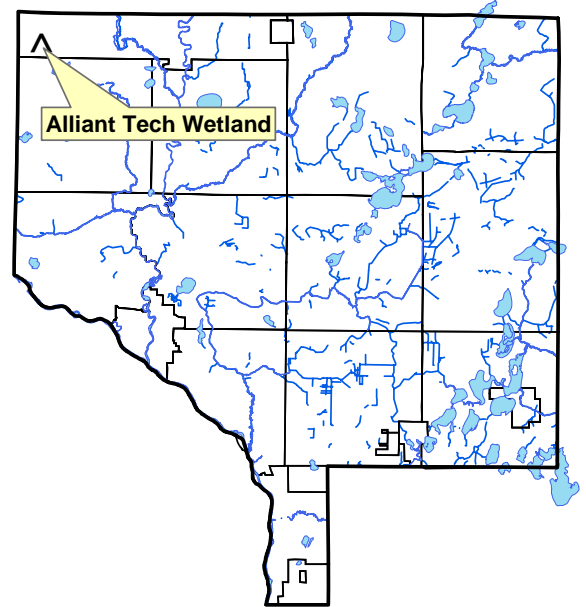
Soils at Well Location:

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

Surrounding Soils: Emmert

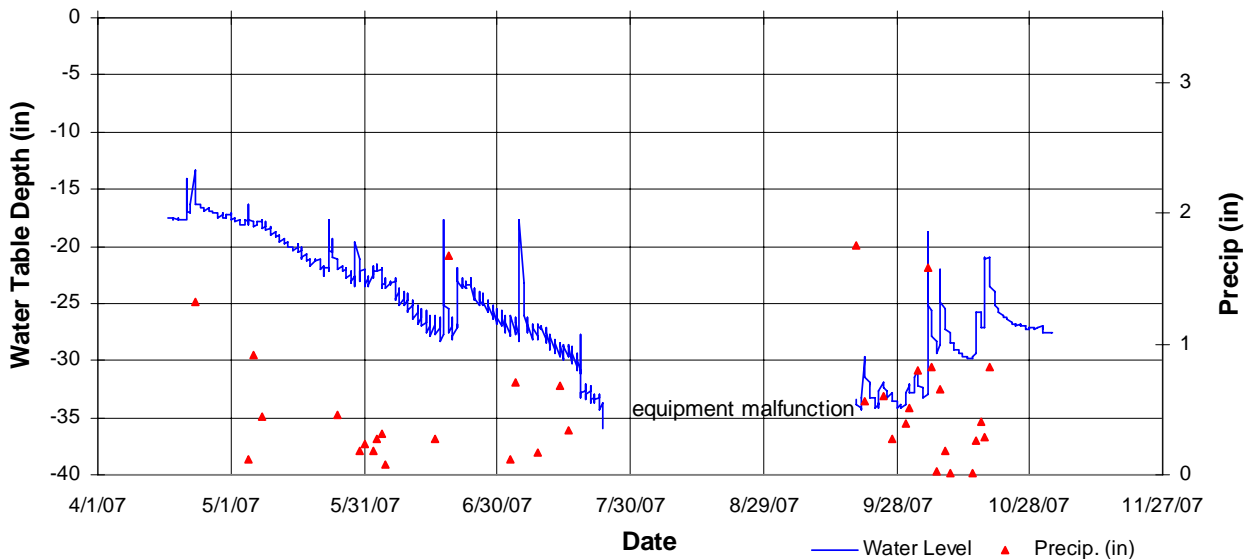
Vegetation at Well Location:

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

2007 Hydrograph



Well depths were 39 inches, so a reading of -39 indicates water levels were at an unknown depth greater than or equal to 39 inches.

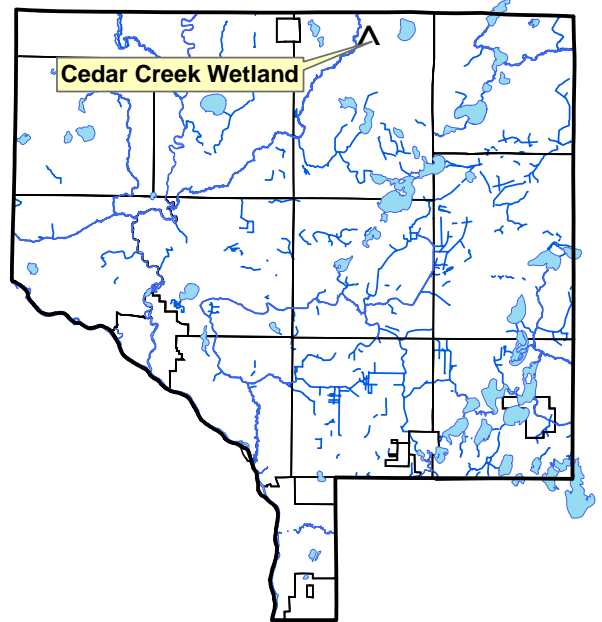
Wetland Hydrology Monitoring

CEDAR CREEK REFERENCE WETLAND

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

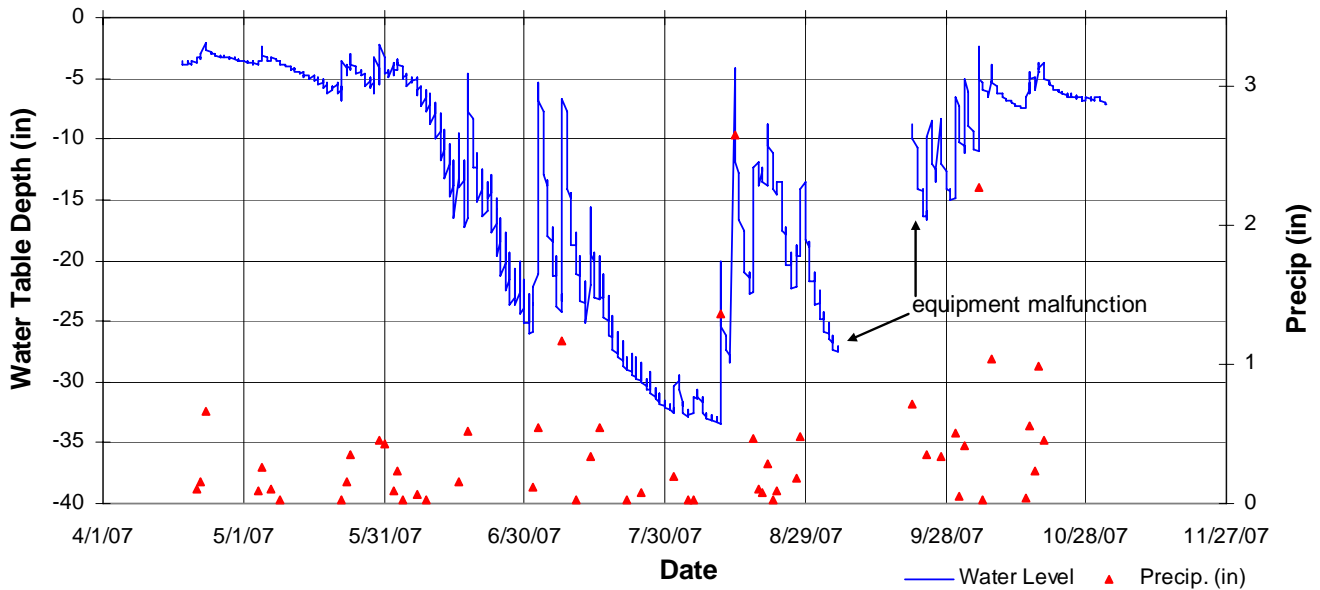
Site Information

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 Natural History Area, 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.

2007 Hydrograph



Well depths were 39 inches, so a reading of -39 indicates water levels were at an unknown depth greater than or equal to 39 inches.

Wetland Hydrology Monitoring

EAST TWIN REFERENCE WETLAND

East Twin Lake Township Park, Burns Township

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:

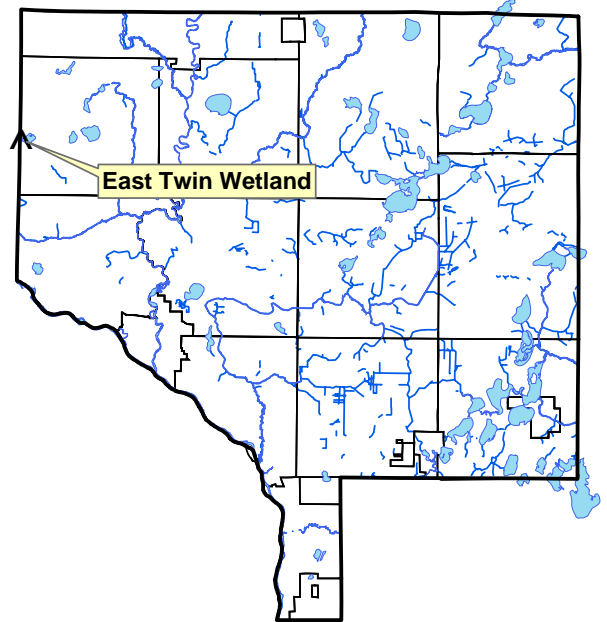
Horizon	Depth	Color	Texture	Redox
A	0-8	10yr 2/1	Mucky Loam	-
Oa	Aug-40	N2/0	Organic	-

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

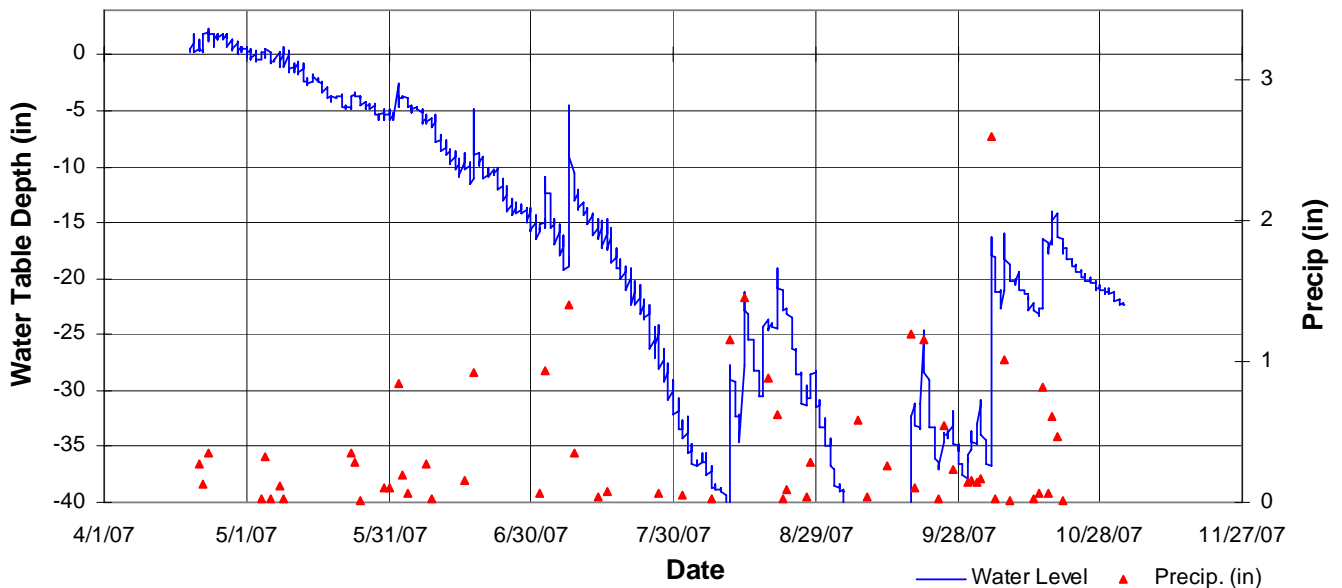
Vegetation at Well Location:

Scientific	Common	% Coverage
Phalaris arundinacea	Reed Canary	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.



2007 Hydrograph



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

Wetland Hydrology Monitoring

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:

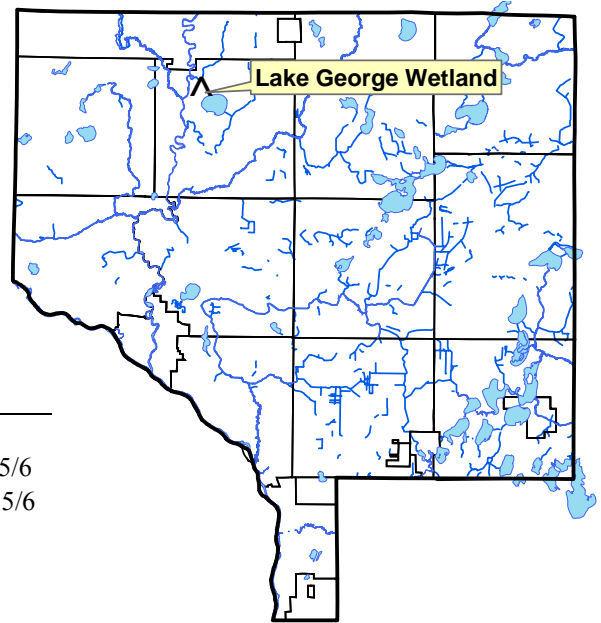
Horizon	Depth	Color	Texture	Redox
A	0-8	10yr2/1	Sandy Loam	-
Bg	8-24	2.5y5/2	Sandy Loam	20% 10yr5/6
2Bg	24-35	10gy 6/1	Silty Clay Loam	10% 10yr 5/6

Surrounding Soils: Lino loamy fine sand and Zimmerman fine sand

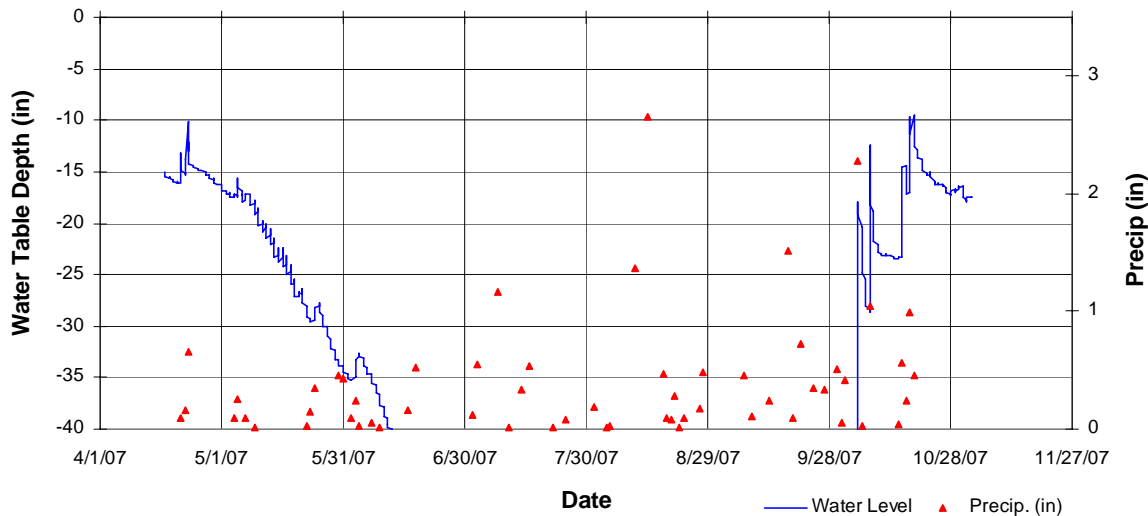
Vegetation at Well Location:

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



2007 Hydrograph



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

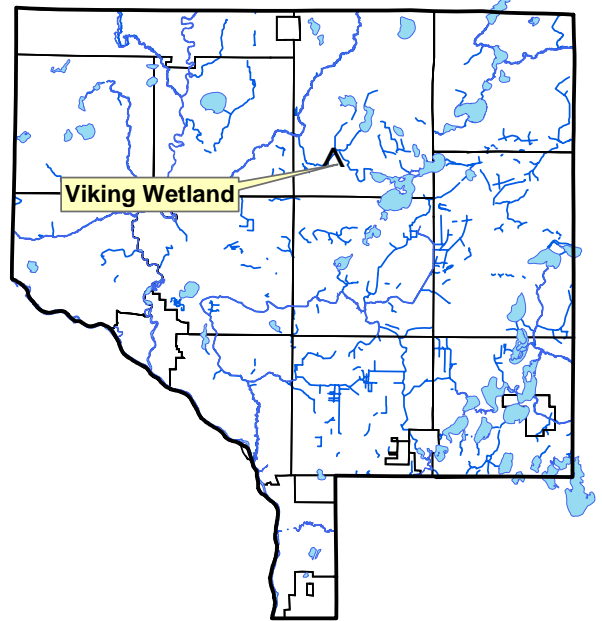
Wetland Hydrology Monitoring

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

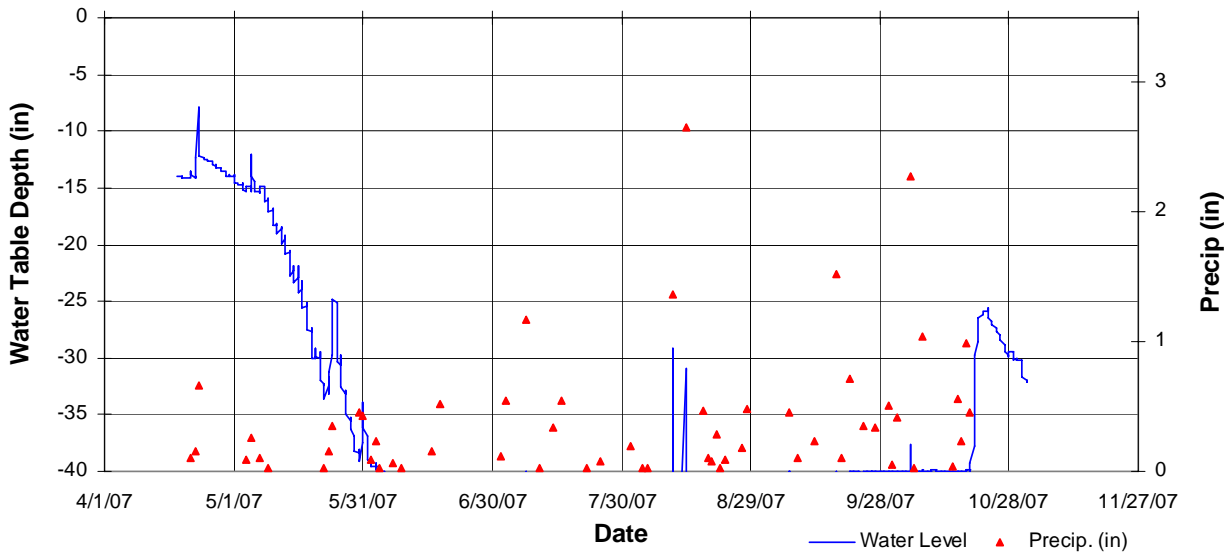
Surrounding Soils: Zimmerman fine sand

Vegetation at Well Location:

Scientific	Common	% Coverage
Phalaris arundinacea	Reed Canary	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).

2007 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.

Lakeshore Mapping and Education

Description: Shoreland areas of two lakes were mapped. The result was a Geographic Information System (GIS) containing the type of shoreline (mowed, unmowed, rock, etc), the severity of erosion, and other features that could impact lake quality. This information was used to determine which properties have lakeshore erosion problems or practices that are likely to lead to problems, and send them a mailing including information about lake-friendly landscaping and services offered by the Anoka Conservation District, such as help correcting problems and cost share grants. The maps are also being used as part of an educational brochure to all homeowners on each lake.

Purpose: To identify areas of poor shoreland management and areas in need of erosion control, and work with those landowners to correct the problems.

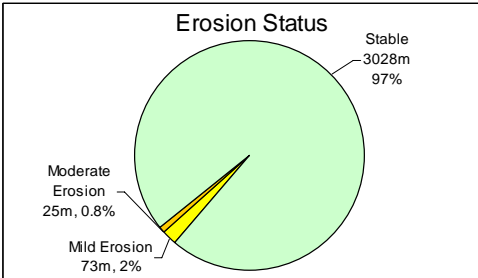
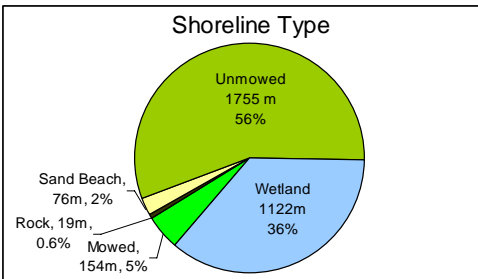
Locations: East Twin Lake
Lake George

Results: The final lakeshore maps on the following pages. Raw GIS data layers are available from the Anoka Conservation District.

Through this project, 20 properties with moderate or severe erosion were identified and targeted for assistance (19 on Lake George, 1 on East Twin Lake). All of these property owners received a customized letter, copy of the lakeshore map, and brochure about lake-friendly landscaping. In the letter, Anoka Conservation District staff offered free technical advice, including visiting the property and designing corrective action, if requested. Cost share grants were also promoted to help willing landowners fix lakeshore erosion problems. If little response is received from the initial mailing to these problems, a follow-up mailing in spring 2008 is planned.

The Anoka Conservation District is working with the Lake George Conservation Club to further use the lakeshore maps as an educational tool. 150 lakeshore maps will be printed for distribution at meetings and/or newsletters. The maps will be integrated into a brochure about lakeshore landscaping.

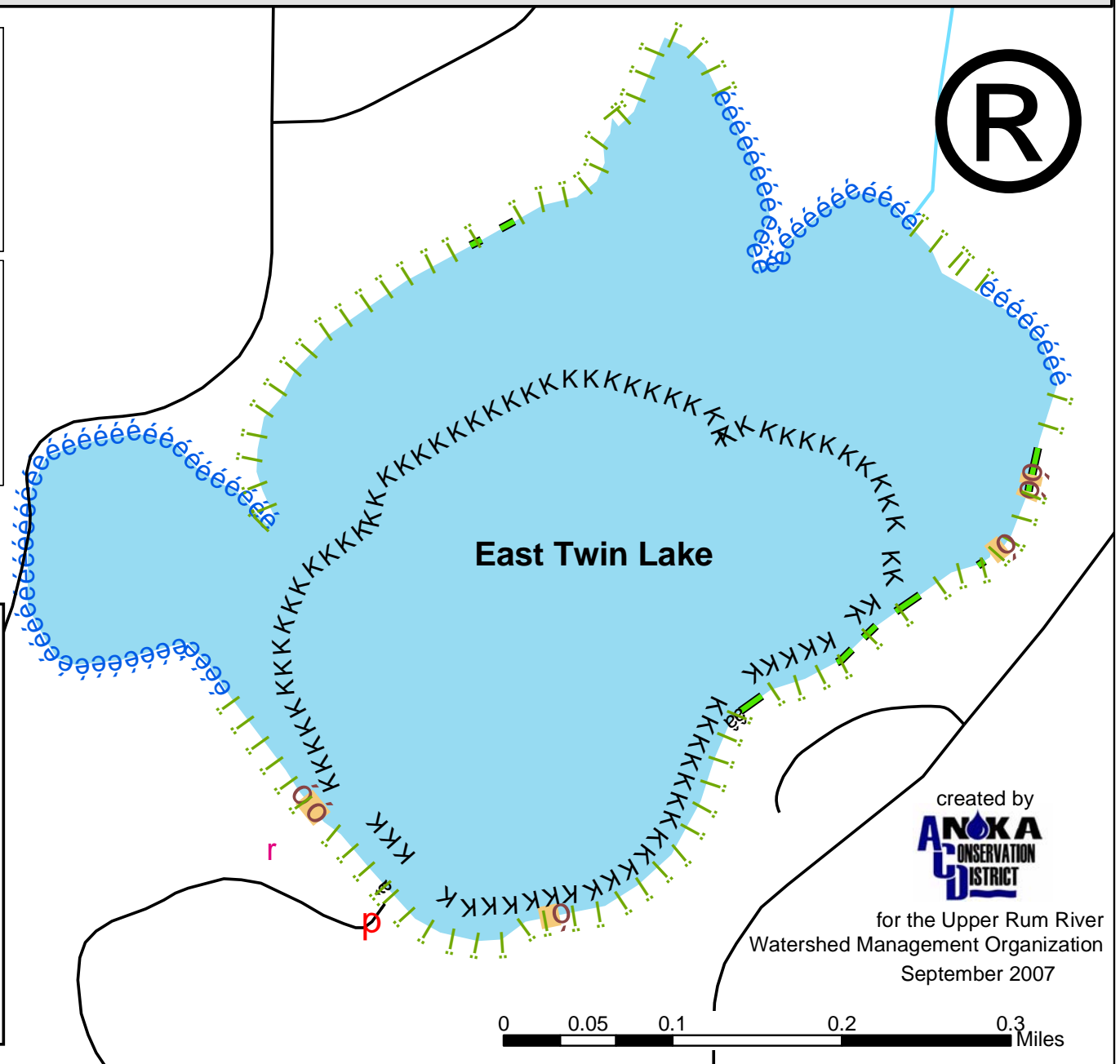
East Twin Lake Shoreline



— Roads
 — Streams/Ditches
 p Public Boat Landing
 r Public Beach
 KKK Floating/Emergent Vegetation

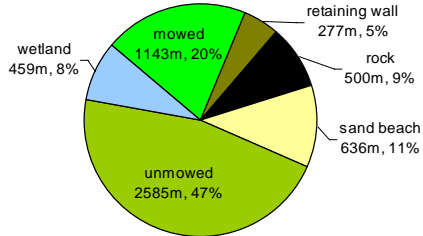
Shoreline Type

— mowed
 âââââ rock
 óóó sand beach
 ïïï unmowed
 ééé wetland

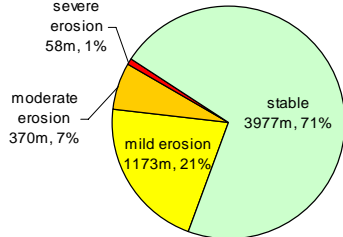


Lake George Shoreline

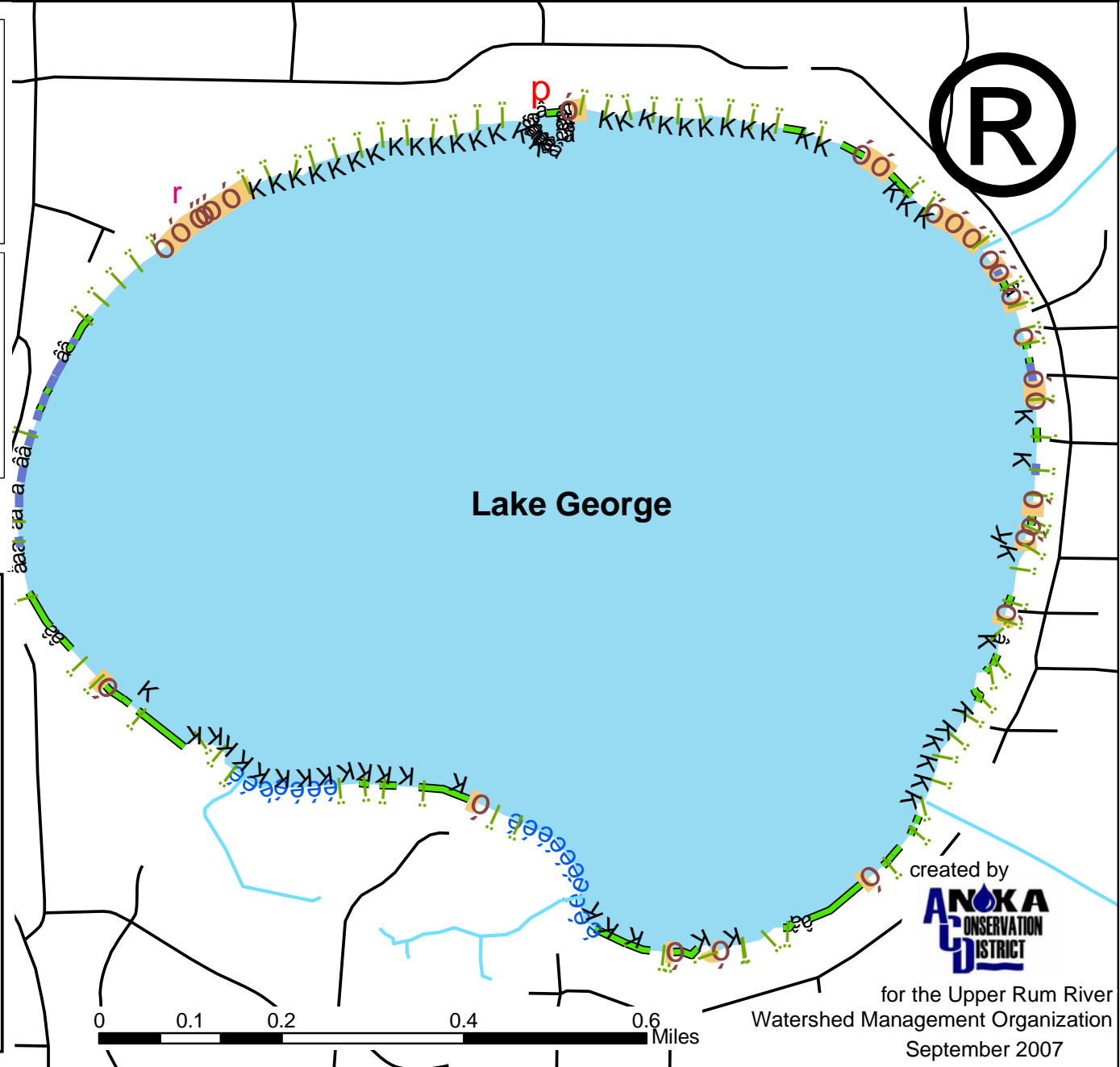
Shoreline Type



Erosion Status



- Roads
- Streams/Ditches
- p** Public Boat Landing
- r** Public Beach
- KKK** Floating/Emergent Vegetation
- Shoreline Type**
- mowed
- retaining wall
- âââââ** rock
- óóó** sand beach
- ïïï** unmowed
- éééé** wetland



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 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.

The Anoka Conservation District (ACD) continuously promotes these types of projects and the availability of cost share. Promotion occurs by approaching landowners with known problems, presentations to lake associations and other community groups, community newsletters, and website postings. The ACD assists to landowners throughout a project, 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 on private property (such as the lakeshore mapping described earlier in this report).

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

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.

Locations: www.AnokaNaturalResources.com/URRWMO

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

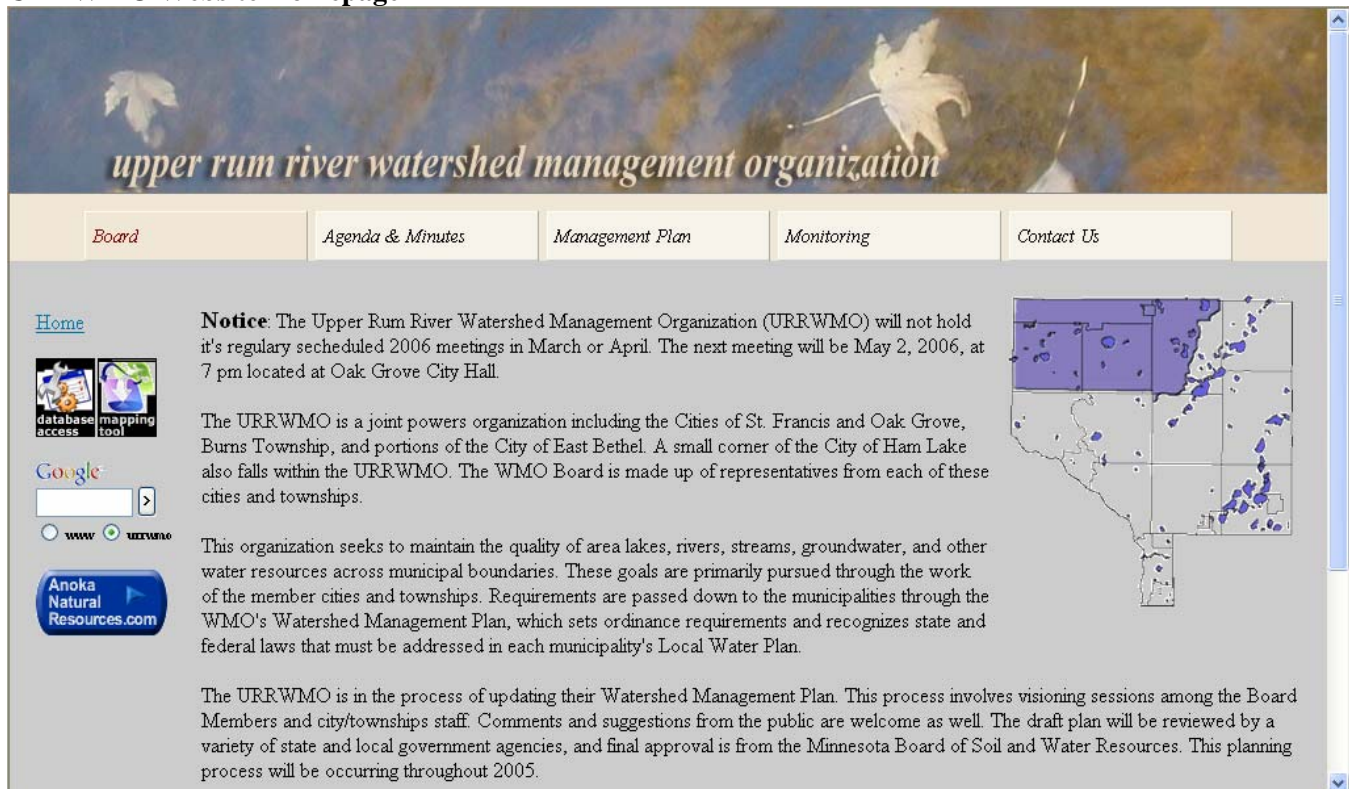
Information about the URRWMO includes:

- a directory of board members,
- meeting minutes and agendas,
- descriptions of work that the organization is directing,
- highlighted projects,
- permit applications.

Other tools on the website include:

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

URRWMO Website Homepage



more on next page

Interactive Mapping Tool

Interactive Data Access Tool

Recommendations

- **The Upper Rum River WMO should assist member cities with drafting and adopting local water plans** that are consistent with the newly-updated URRWMO Watershed Management Plan.
- **Encourage Anoka County to investigate the need for cleaning Ditch 19, the only inlet to Lake George.** Anoka County is the legal ditch authority. Residents have complained the ditch is clogged and contributing to low water levels in recent years.
- **Promote water quality improvement projects** for lakes, streams, and rivers. Utilize existing cost share grant programs and technical assistance through the Anoka Conservation District.
- **Diagnose and correct low dissolved oxygen problems in Crooked Brook.** This stream is on the state list of impaired waters.
- **Diagnose and improve Rogers Lake** water quality problems through a joint effort of the LRRWMO and URRWMO. Actions might include fish surveys, septic surveys, and landowner best-practices education. This lake is on the state list of impaired waters.
- **Monitor water quality of Lake George and East Twin Lake every three years** to track any trends or changes. Next monitoring should be in 2008.