



Annual Report

2008



Red Lake Watershed District

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Letter from the President

Greetings to all the citizens of the Red Lake Watershed District and other interested parties.

As all of you realize, the weather conditions each year dictate how frantic or relaxing it can be in the Watershed District business. The winter of 2008 was very uneventful with a less than average snow fall. The spring however, started to change the landscape of the farming communities as far as moisture needs, with above average rainfalls and very cool temperatures. The first three weeks of May was fairly dry but the cool temperatures compounded with some untimely rains in the last week, lead to a less than ideal spring planting conditions. The summer was what you would call pretty average in that rainfall appeared to be normal in most parts of the District. Fall harvest started very innocent and appeared to be going along well when in the third week of August and the first week of September, we witnessed some very large and untimely rainfalls that virtually put harvest to complete standstill. The rest of the harvest season would not be the same with some soybeans and a large amount of corn not getting harvested. Let's hope 2009 works out a little better for the farming communities.

In the year 2008, two of your Watershed District Board members were re-appointed by their respective counties. Lee Coe, Tenstrike, was reappointed by Beltrami County to serve his second three year term representing the citizens of Beltrami County, Arnold Stanley, Grygla, was appointed to serve his second three year term from Marshall County. I must state that the next part of my update is written with a very heavy heart. In December of 2008, Arnold Stanley became gravely ill and passed away on January 29, 2009. The Red Lake Watershed District and all those who came to know Arnold accepted and understood his passion for farming and watershed interests. Arnold was a very active Board member for the citizens of Marshall County and our hearts go out to all Arnold's family in their time of need. The Red Lake Watershed District has been informed by the Marshall County Commissioner's that they will appoint Arnold's replacement in March of 2009.

I would like to remind the citizens that the goals as a watershed district are to manage water in the areas of flood control, drainage, and water quality. We continue to hold our meetings on the second and fourth Thursdays of each month and welcome public interests and/or attendance at these meetings.

This year was a very busy year for our staff as we completed various on-going projects as well as starting many new. All projects are listed in detail in this report and I urge you to review them.

The Watershed District and staff have now completed one full year in our new office located at 1000 Pennington Avenue South, Thief River Falls, MN. Feel free to stop in and have a cup of coffee and if you do not have time, you can go to our website <http://www.redlakewatershed.org> and take a virtual tour of the new facility.

Our 2008 Annual Audit is included in this report in an abbreviated form. A complete copy of the 2008 Annual Audit may be obtained at the District office at 1000 Pennington Avenue South, Thief River Falls.

Once again, it was a pleasure to serve as President of the Board in 2008.

Sincerely,



Dale M. Nelson, President
Red Lake Watershed District

Board of Managers – 2008



Front Row (left to right): Gene Tiedemann, Dale M. Nelson, Jim Votva

Second Row (left to right): Lee Coe, Arnold Stanley, Vernon Johnson, and Orville Knott

Lee Coe



Lee Coe was re-appointed to the RLWD Board of Managers for a 3-year term. Lee will represent Beltrami County for the years 2008-2011.

Arnold Stanley



Arnold Stanley was re-appointed to the RLWD Board of Managers for a 3-year term. Arnold represented Marshall County and his term would have run from 2008-2011. A replacement for Arnold will be appointed in March of 2009.

Staff – 2008



Front row: Jim Blix-Water Quality/Natural Resources Technician; Tammy Audette-Accounting Assistant/Secretary; Arlene Novak-Accounting/Secretary; **Back Row:** (left to right) Loren Sanderson-Engineering Assistant; Gary Lane-Engineering Technician II; Myron Jesme-Administrator; Corey Hanson-Water Quality Coordinator.

Office

The Red Lake Watershed District Office is located at:
1000 Pennington Avenue South
Thief River Falls, MN 56701
Office Hours:
Monday – Friday, 8:00 a.m. – 4:30 p.m.
Phone: 218-681-5800
Fax: 218-681-5839
Website: redlakewatershed.org
E-Mail: rlwaters@wiktel.com



Meetings

The Board of Managers held twenty-four regularly scheduled board meetings in 2008. These regular meetings are held the 2nd and 4th Thursday of each month at the District office at 9:00 a.m. Notice of these meetings are mailed or e-mailed to the Advisory Committees, county auditors, county commissioners, and SWCD/NRCS offices and by subscription. Minutes from boards meetings are available by visiting our website at www.redlakewatershed.org/minutes. The 2008 General Fund Budget hearing was held on September 13, 2007. Notice for the General Fund Budget hearing was published in at least one newspaper in each of the 10 counties within the watershed district.

2008 Overall Advisory Committee

John A. Nelson, Walker Brook Area
Lloyd Wiseth, Marshall/Beltrami SWCD, Grygla
Steve Holte, Farmer/Landowner
Emmitt Weidenborner, Upper Red Lake Area
John Ungerecht, Upper Red Lake Area
Dan Schmitz, Black River Area
Gilbert Weber, Burnham Creek Area
John Gunvalson, Clearwater River Area
Roger Love, Grand Marais Area
Dave Rodahl, Thief River Area
Joel Rohde, Red Lake Band of Chippewa Indians

2008 Subwatershed Advisory Committee Members

Black River Area

*Dan Schmitz, RLF
Curt Beyer, RLF

Moose River Area

Wayne Larson, Middle River
Gordon Foss, Grygla
Elroy Aune, Gatzke

Burnham Creek

*Gilbert Weber, Crookston
Dan Geist, Crookston

Clearwater River Area

Steve Linder, Oklee
*John Gunvalson, Gonvick
Arthur Wagner, Gonvick

Hill River Area

Jake Martell, Oklee

Lost River Area

Gary Mathis, Gonvick

Grand Marais/Red Area

Jeep Mattson, EGF
Allen Love, Euclid
Conrad Zak, EGF

Poplar River Area

Upper Red Lake Area

*Emmitt Weidenborner, Kelliher
*John Ungerecht, Northome

Thief River Area

Richard Engelstad, Gatzke
*Dave Rodahl, TRF
Larry Hagen, Gatzke

Walker Brook Area

*John A. Nelson, Clearbrook

Pine Lake Area

Red Lake River Area

Don Barron, TRF
Keith Driscoll, EGF

Clearwater Lake Area

John Cucci, Clearbrook

*Overall Advisory Committee Member

In 2008, the members of the Overall Advisory and the Subwatershed Advisory Committees met on April 22. Sixteen advisory members, three District Board members, and five District staff members were in attendance. Staff members from the Red Lake Watershed District gave presentations on projects within the District and answered questions from the Advisory Committee members.

History of the Red Lake Watershed District

The Red Lake Watershed District covers an area of approximately 5,990 square miles in northwestern Minnesota and includes all of Red Lake County, most of Pennington County, and parts of Mahnomen, Polk, Itasca, Marshall, Clearwater, Beltrami, Roseau, and Koochiching Counties.

A governmental unit known as the Red Lake Drainage and Conservancy District preceded the Red Lake Watershed District, whose territory included approximately the same land. Under the Conservancy District, three major improvement projects were completed: dredging of the Clearwater, Red Lake, and Lost Rivers.

The Board of Directors of the Red Lake Drainage and Conservancy District felt the District could better function under the Minnesota Watershed Act. The Board petitioned the District Court for the right to operate under Chapter 112, the Minnesota Watershed Act. A hearing was held in Thief River Falls on January 25, 1969, and the Conservancy District was authorized to operate under and exercise all the rights and authorities contained in the Minnesota Watershed Act.

The Board petitioned the Minnesota Water Resources Board (now the Board of Water and Soil Resources) on July 24, 1969, amended January 20, 1970, for a change of name, review of boundary, and distribution of managers of the Watershed District. A hearing on the matter was held at Thief River Falls on March 31, 1970, and at Kelliher on April 2, 1970. In their Order, the Water Resources Board stated that the principle place of business shall be at Thief River Falls; that a description of the land within the District be written; specified that the Board of Managers be seven members, the procedure by which county boards shall appoint managers and terms of office for the Managers.

On March 25, 1975, the Red Lake Watershed District adopted the Rules and Regulations pursuant to Minnesota Statutes. They were amended on May 12, 1978; December 14, 1978; August 10, 1989; and reviewed and updated on June 24, 1993, to be entitled "Permit and Drainage Rules of the Red Lake Watershed District."

In 1977, the Red Lake Watershed District signed a Joint Powers Agreement with other watershed districts in the Red River Basin to form the Lower Red River Watershed Management Board. In 1991, the name was changed to the Red River Watershed Management Board. This organization currently consists of eight watershed districts in the Red River Basin and provides funding to member districts, primarily for floodwater detention structures, which benefit more than one member district. The levy collected is used for funding the development, construction, and maintenance of projects of common benefit to the Red River Basin.

The Red Lake Watershed District currently is governed by Minnesota Statutes 103D, which provides a broader scope for a local unit of government to manage quantity and quality of water within the hydrological boundaries.

2008 District Projects

Grand Marais Sub Watershed Project (RLWD Project #60B)

In 1999, a Project Work Team was organized consisting of Local, State, Federal Agencies and local landowners; this project team was identified as Project 60 Work Team. Through a series of meetings and consensus based agreements, priorities were identified for the Project Work Team to focus on for the foreseeable future.

In 2003, the Project Work Team held 9 meetings in our District office. From these meetings, the Project Work Team identified a series of potential projects to an area east of East Grand Forks, MN that would help alleviate flooding problems to an area consisting of approximately 50 square miles. This area would be later identified as the “Grand Marais Creek Subwatershed Project”.

In May of 2003, the Board voted to proceed with the Step 1 submittal for funding to the Flood Damage Reduction Work Group in the event that the Board would decide to proceed with this project. This submittal was accepted by the Work Group and at their June meeting they appropriated \$20,000 toward the preliminary engineering of this project.

In the summer of 2003, Governor Pawlenty announced his vision for a Clean Water Initiative. Part of this Initiative was the selection of demonstration projects from four general areas that represent some of the state’s most unique and important water challenges. Projects were selected using criteria based on value, measurable results within three years, local support, and alignment of local and state priorities, transferability, and scale. As part of the Initiative, the “Grand Marais Subwatershed Project” was selected by the Governors Clean Water Cabinet as a pilot project for the Red River Basin. Selection of this project acknowledges that the Pawlenty administration has placed a priority on flood damage reduction efforts as well as water quality and Natural Resource Enhancement.

At their meeting in August of 2003, the Board voted to proceed with the preliminary engineers report to better identify the potential costs of this project.

In January of 2004, the Board instructed the District Administrator to proceed with the negotiations for the land required for this project. Discussion with the landowners progressed throughout the year and options were signed for acquisitions of property.

In May of 2004, the preliminary engineers report for both the Euclid East and the Brandt Impoundments was presented to the Board of Managers. Due to the Minnesota Legislator’s lack of progress on a 2004 bonding bill, the board moved and passed a motion to table the two reports until state funding could be secured.

In April of 2005, the State of Minnesota passed a bonding bill which appropriated \$2,000,000 to assist in the land acquisition and construction of Euclid East and Brandt Impoundments. Although the District received less than the requested \$2,600,000, the Board of Managers instructed the Project Engineer to proceed with the development of the project and start preparations for the hearing at their regularly scheduled meeting held April 14, 2005.

On June 23, 2005, a public hearing was called to order at the Youngquist Auditorium in Crookston Minnesota, for the Grand Marais Creek Subwatershed Project, RLWD Project No. 60B.

On July 14, 2005 the Board of Managers accepted the Findings of Facts as written and approved the Chairman’s signature.

On August 25, 2005, the Board adopted a resolution for the Flood Hazard Mitigation Grant Agreement with the Department of Natural Resources for the Grand Marais Creek Subwatershed Project for the Euclid East Impoundment, RLWD Project #60C, and the Brandt Impoundment, RLWD Project #60D. This project will be funded by the following entities; State of Minnesota 50%, Red River Watershed Management Board 37.5%, and the Red Lake Watershed District 12.5%.

At their regularly scheduled Board meeting on April 27, 2006, the Engineer presented the Final Engineer's Report for both the Euclid East (Project 60C) and Brandt (Project 60D) Impoundments. After considerable discussion, the Board approved the Final Reports and instructed the Administrator to proceed with the advertisement for bids with each Impoundment being bid separately.

Bids were opened on May 25, 2006 for the construction of Euclid East Impoundment. Six bids were received with the low bid being awarded to R.J. Zavoral & Sons Inc., East Grand Forks, MN, in the amount of \$1,574,672.13. Following the bid opening for the Euclid East Impoundment, the bid opening for Brandt Impoundment was held. Five bids were received with the low bid being awarded to R.J. Zavoral & Sons Inc., East Grand Forks, MN, in the amount of \$1,980,388.01.

On September 27, 2007 the Board of Managers held a final payment hearing for R.J. Zavoral & Sons Inc. for the construction of Euclid East Impoundment (RLWD Project 60C) and Brandt Impoundment (Project 60D). Construction cost for Euclid East Impoundment was \$1,625,090.36 and total construction costs for Brandt Impoundment to each project was \$2,043,389.26. A description of these two projects is provided later in this report.

Brandt Channel Outlet Restoration (RLWD Project #60E)

In October of 2005, the District entered into a grant agreement with Board of Water and Soil Resources that was to be used for the construction and water quality monitoring of the restoration of a natural coulee referred to as Brandt Channel. The project purpose is to restore the natural coulee to its original course, construct set back levees, and field inlet culverts for the protection to adjacent agricultural lands during draw down of flood waters from the Brandt Impoundment. The water quality monitoring initiative of the grant was to measure reduction in turbidity, improvement in water quality and enhancement of wildlife habitat. The project is located in Section 11 and Section 12, Euclid Township, Polk County, approximately 12 miles north of Crookston.

Bids were opened on May 24, 2007 for the construction of the Brandt Channel Outlet Restoration. Fourteen bids were received with the low bid being awarded to TS Holte Construction, Oslo, MN, in the amount of \$57,197.81. Construction on this project started in July 2007 and was substantially completed in the fall of 2007.

In 2008, the Board decided to extend this project downstream and refer to the project as Phase II of the Brandt Channel Outlet Restoration. This project continues the restoration through an additional 6,000 feet of a natural coulee starting $\frac{1}{2}$ mile west of the portion substantially completed in the fall of 2007. The estimated cost of this portion of restoration is \$200,000 which is to be paid from a 50/50 cost share agreement with the Minnesota Department of Natural Resources and a non-matching grant from Working Lands Initiative. This project was substantially completed in 2008 and will be completed in the summer of 2009 with a final hearing following.



Channel Excavation



Set back levee and culvert for field drainage



Restored channel alignment

Grand Marais Outlet Restoration (Project 60F)

Project 60F is a single component of the “Grand Marais Creek Subwatershed Flood Damage Reduction Project – Project 60B” which was described above. This project addresses the Natural Resource Enhancement goals of the 1998 Flood Damage Reduction Mediation Agreement and restoring an adequate and stable outlet to the Grand Marais Creek subwatershed and its several tributaries. The project objective focuses on restoring riparian and aquatic characteristics along the lower six miles of the Grand Marais Creek to its confluence with the Red River. This lower reach was abandoned in the early 1900’s as a result of drainage improvements.

The project objectives for the 6 mile Grand Marais Creek Outlet Restoration Project are as follows:

- Restore the original Grand Marais Creek (channel and riparian area) aquatic features and wildlife habitat
- Protect the restored corridor along the entire 6 mile outlet of the Grand Marais Creek through establishment of a perpetual RIM easement
- Restore entire corridor with native vegetation
- Restore fish passage ability along the original Grand Marais Creek
- Enhance water quality in the Red River by significantly reducing existing outlet channel erosion

The project features proposed to achieve the intended project goals are as follows:

- Construction of a diversion structure (“Weir”) capable of diverting all low flows from the existing outlet channel (Legal Drainage Ditch) to the restored Grand Marais Creek outlet
- Reconstruct original Grand Marais channel to restore, enhance and protect the original Natural Resource Benefits (riparian corridor, aquatic/wildlife habitat, fish passage, etc.)
- Construct setback levees to contain the diverted high flows and create a riparian buffer between the restored channel and agricultural land
- Construct grade stabilization structures on the existing outlet channel (Legal Drainage Ditch) to reduce erosion and improve water quality on the Red River
- Provide project partner information on site (signage, etc.)

This project is located within the boundaries of the Red Lake Watershed District and the Middle Snake Tamarac Rivers Watershed District and because of this, on December 15, 2008, the Red Lake Watershed District and the Middle Snake Tamarac Rivers Watershed District entered into a “Joint Powers Agreement” to follow this project through the necessary procedures. Part of this agreement was to establish a “Joint Board” comprised of three members of the RLWD and two members of the MSTRWD. This Board shall have all powers to exercise any power common to either watershed district Board of Managers. It is assumed that this project will continue into the development stages through 2009 and if funding becomes available, construction could start in 2010.

Improvement of Polk County Ditch 40, (RLWD Ditch 11, Project #166)

On February 10, 2005, the Red Lake Watershed District Board of Managers accepted a petition for the improvement of approximately 4.25 miles of open channel on Polk County Ditch #40. The existing ditch system is a 10.5 mile ditch which was established in 1903 and is located in Sullivan and Keystone Townships in Polk County, Minnesota. At this same meeting, the Board of Managers appointed Jerry Pribula, Pribula Engineering, as the engineer for the project and instructed him to develop a Preliminary Engineers Report.

On August 11, 2005, Pribula Engineering presented his Preliminary Engineer’s Report. Upon completion of his report, discussion followed between the Board of Managers, landowners, and the petitioners at which time the petitioners requested that an additional two miles be added to the improvement. The Board agreed and instructed the Engineer to revise his report and present it to the Board at a later date.

On October 27, 2005, the RLWD Board of Managers approved the revised Preliminary Engineer’s Report presented to them by Pribula Engineering.

The preliminary hearing for this project was held on December 8, 2005, at the RLWD Board room. The Engineer presented to the public, the Preliminary Engineers Report in accordance to the petition. (A video copy of the hearing is on file at the Red Lake Watershed District office and available for public viewing). Following the closing of the hearing, the Board approved the Preliminary Engineer’s report which they deemed practical and feasible, appointed three viewers, and directed the Engineer to prepare a detailed

study and final report. This procedure was approved at the regularly scheduled Board meeting held December 29, 2005.

A public hearing was held on July 20, 2006, at the Northland Community and Technical College located in East Grand Forks, Minnesota, concerning the Final Engineers Report and Viewers Report. After lengthy testimony and questions, the hearing was adjourned.

On August 24 at their regularly scheduled Board meeting, Legal Counsel presented the Findings of Fact and Order to the Board. Upon completion of the presentation, the Board, by unanimous decision, approved the Details of the Findings of Fact and Order.

Bids for construction were taken on October 12, 2006. The low bid was awarded to R.J. Zavoral & Sons, Inc. in the amount of \$499,802.26 for the improvement of the lower 6.4 miles of ditch.

After completion of the application for General Storm Water Permit, the District was informed by the Minnesota Pollution Control Agency that there would be a 30 day public review of the Storm Water Pollution Prevention Plan. After the 30 day public review was completed, a permit was received.

Construction started on this project November 21, 2006 and because of mild temperatures and very little snow, four miles of the project was substantially completed along with dormant seeding. In 2007, construction continued on the remaining two phases of the project which are described in detail in MPCA Storm Water Pollution Prevention Plan on file in the District office. Construction was completed in the fall of 2007 with final payment hearing for R.J. Zavoral & Sons, Inc. held on October 11, 2007 at the Red Lake Watershed District office. Construction cost for this project totaled \$534,150.38.



Installation of field drainage culvert



Recent excavation near outlet of ditch



Seeding and mulching



Completed ditch section

Imp. to and Establishment of a Lateral to Polk Co. Ditch #53 (RLWD Ditch 12) Project #169

On March 22, 2007, the Red Lake Watershed District Board of Managers was presented and accepted a petition for the improvement of approximately 3.5 miles of open channel on Polk County Ditch #53. The existing ditch system, including all laterals, consists of approximately 10.3 miles of open channel and is located in Tynsid Township in Polk County, Minnesota. At this same meeting, the Board of Managers appointed HDR Engineering Inc., as the engineer for the project and instructed him to develop a preliminary engineers report. It was also mentioned by the petitioner's legal counsel, Mr. Kurt Deter that an additional petition will be forthcoming for construction of a lateral to Polk County Ditch No. 53, which will be submitted on a portion of a tributary listed as a Protected Waters within the MnDNR.

On August 9, 2007, the Red Lake Board of Managers was presented and accepted a petition for a Lateral to Polk County Ditch #53. The Petition for a Lateral to Polk County Ditch No. 53 calls for cleaning and design of 2 ½ to 3 miles of a drainage course located in Bygland and Tynsid Townships in Polk County, Minnesota, listed as a protected waters under the jurisdiction of the MnDNR and would serve as an alternate route to the Huntsville Coulee. At the same meeting, the Board of Managers appointed HDR Engineering Inc. as the engineer for the project and requested the development of a preliminary engineers report.

On December 27, 2007, the RLWD Board of Managers approved the revised Preliminary Engineer's Report presented to them by HDR Engineering Inc.

On February 12, 2008, a preliminary hearing for this project was held at the Youngquist Auditorium, University of Minnesota-Crookston, Crookston, MN. The engineer presented the preliminary engineers report to the public in accordance to the petition. (A video copy of the hearing is on file at the Red Lake Watershed District office and available for public viewing). Following the closing of the hearing, the Board approved the preliminary engineers report which they deemed practical and feasible, appointed three viewers, and directed the engineer to prepare a detailed study and final report.

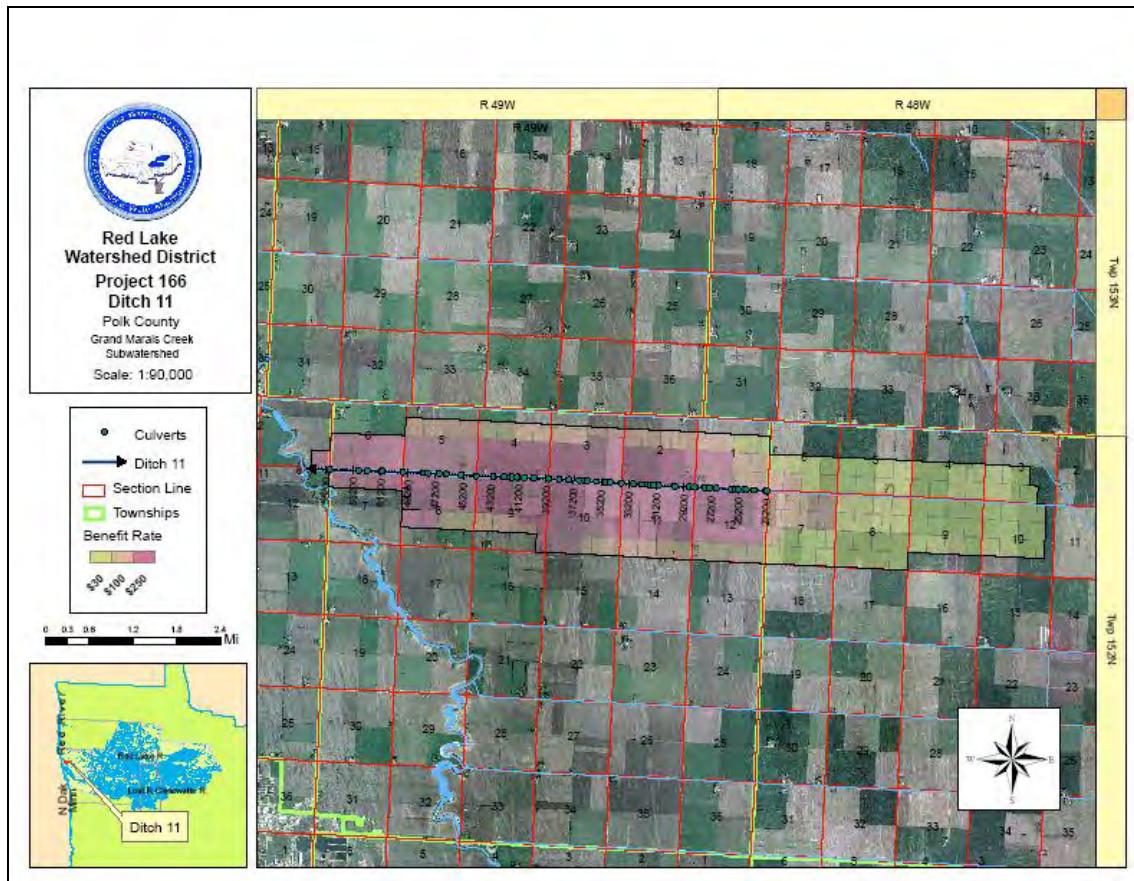
On August 25, 2008, a final hearing for this project was held at the Youngquist Auditorium, University of Minnesota-Crookston, Crookston, MN, concerning the final engineers report and viewers report. After lengthy testimony and questions, the hearing was adjourned.

On September 4, 2008, by two separate motions, the Red Lake Watershed District Board of Managers approved the Viewers Report as amended and to establish the lateral to Polk County Ditch 53, RLWD Ditch 12 and to approve the Viewers Report as amended and to establish the Improvement to Polk County Ditch 53, RLWD Ditch 12, Project No. 169, pursuant to the Detailed Findings and Order presented by Legal Counsel.

Bids for construction were taken on September 25, 2008. A special meeting was held on September 29, 2009 at which the low bid was awarded to R.J. Zavoral & Sons, Inc. in the amount \$488,491.76. Due to wet conditions in the fall of 2008, construction will start on this project in late spring of 2009.

Watershed Ditch System Inventory and Mapping (RLWD Project #167)

The Project 167 matching grant was finished by its target date of July 1st and fulfilled the scope of work specified in the grant agreement. Twenty-eight map documents were posted on the District web site as PDF files and are available to the general public in this non-editable form. The maps include benefited areas, linear waterway distance, and inset maps to show where each project is located in relation to the larger watershed. The body of data that was used to produce each map is generally more extensive than what is possible to display in a flat electronic document, such as the PDF files in current use.



Normal map size is 8½x11

Maps can be downloaded from http://www.redlakewatershed.org/ditch_maps.html. Even though the matching grant project is finished, staff is working toward the development of interactive internet documents, where the user can view each map on a broad scale, similar to what is shown above, or on a smaller scale with greater detail.

River Watch 2008

The Red Lake Watershed District has continued its support of the River Watch Citizen Monitoring Program throughout 2008. This support includes eight school groups located within the Red Lake Watershed District that monitor 54 stream sites an average of five times during the ice-off season. In 2008, all schools except Grygla sent active volunteers with the District River Watch Resources Coordinator, Jim Blix.

School Group	Approx. No. of Students	Sites	2008 Trips
Bagley	8	9	8
Clearbrook	10*	6	2
Crookston	25*	5	4
Fosston	8	9	5
Grygla	NA	4	4
RLCC (Oklee)	5	6	3
Red Lake Falls	4	5	6
Win-E-Mac	8	10	7
<hr/>			
No. of Sampling Sites:			54
No. of Sampling Trips:			39
Est. number of new data points per parameter in 2008:			283

Potentially impaired stream segments based on River Watch data for dissolved oxygen and turbidity are summarized in the following tables. If 10% or more of at least 20 measurements do not meet the benchmarks, the monitoring site is considered potentially impaired. The MPCA will make a final determination by weighing all available information, including data from other monitoring programs.

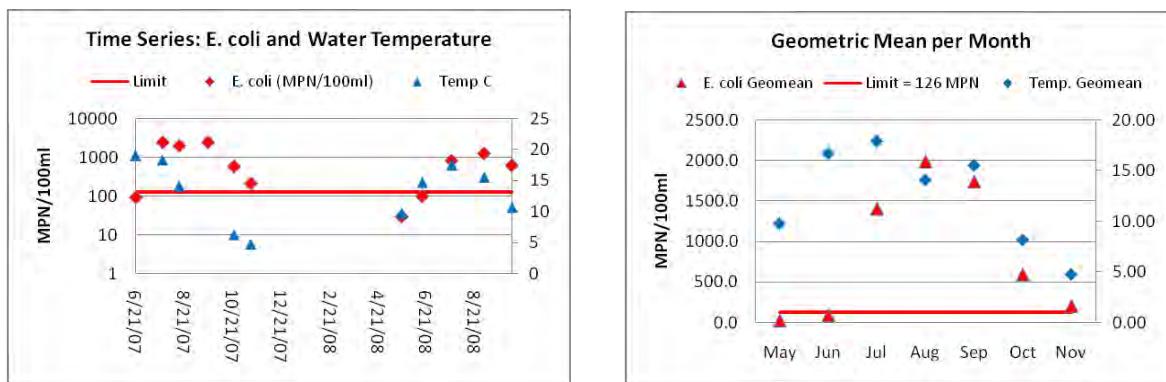
Potential Impairments for Dissolved Oxygen - Based on River Watch Data						
Site	Group	Watershed	Stream	# of Exceedances /Observations	% Exceedances per 20 Observations	Benchmark
BG4	Bagley	Red Lake River	Clearwater R.	5/20	25.0%	<=5mg/L
BG5	Bagley	Red Lake River	Clearwater R.	9/17	53.0%	<=5mg/L
CG10	Bagley	Red Lake River	Clearwater R.	3/20	15.0%	<=5mg/L
BG8	Bagley	Red Lake River	Clearwater R.	4/20	20.0%	<=5mg/L
BG10	Bagley	Red Lake River	Clearwater R.	4/20	20.0%	<=5mg/L
WBOut	Bagley	Red Lake River	Walker Brook	7/20	35.0%	<=5mg/L
LR15	Bagley	Red Lake River	Nassett Brook	2/20	10.0%	<=7mg/L
LR20	Bagley	Red Lake River	Lost R.	3/19	15.8%	<=7mg/L
CrossIn	Fosston	Red Lake River	Hill R.	6/12	50.0%	<=5mg/L
CrossOut	Fosston	Red Lake River	Hill R.	2/13	15.4%	<=5mg/L
HillOut	Fosston	Red Lake River	Hill R.	2/16	12.5%	<=5mg/L
Fos5	Fosston	Sand Hill River	Sand Hill R.	7/20	35.0%	<=5mg/L
Fos20	Fosston	Sand Hill River	Sand Hill R.	4/20	20.0%	<=5mg/L
WEM10	Fosston	Sand Hill River	Sand Hill R.	2/20	10.0%	<=5mg/L
WEM15	Win-E-Mac	Sand Hill River	Sand Hill R.	4/20	20.0%	<=5mg/L
WEM20	Win-E-Mac	Sand Hill River	Sand Hill R.	5/20	25.0%	<=5mg/L
WEM30	Win-E-Mac	Sand Hill River	Sand Hill R.	6/20	30.0%	<=5mg/L
Bad8	Win-E-Mac	Red Lake River	Badger Creek	4/20	25.0%	<=5mg/L
JD73	Win-E-Mac	Red Lake River	JD73	4/20	25.0%	<=5mg/L
BeeOut	Win-E-Mac	Red Lake River	Unnamed	3/20	15.0%	<=5mg/L
BL10	Red Lake Falls	Red Lake River	Black R.	2/20	10.0%	<=5mg/L

Potential Impairments for Turbidity - Based on River Watch Data						
Site	Group	Watershed	Stream	# of Exceedances /Observations	% Exceedances per 20 Observations	Benchmark
HillOut	Fosston	Red Lake River	Hill R.	2/15	13.3%	>=25NTU
OK10	Oklee	Red Lake River	Clearwater R.	3/20	15.0%	>=25NTU
WEM15	Win-E-Mac	Sand Hill River	Sand Hill R.	9/20	45.0%	>=25NTU
WEM20	Win-E-Mac	Sand Hill River	Sand Hill R.	12/20	60.0%	>=25NTU
WEM30	Win-E-Mac	Sand Hill River	Sand Hill R.	6/20	30.0%	>=25NTU

The River Watch Forum, sponsored by the International Water Institute, was held in March of 2008. Participating students built board displays, composed written presentations, and in one instance produced a podcast to summarize monitoring results. Competition judges awarded a silver plaque to the Bagley and Red Lake Falls groups and a bronze plaque to the Win-E-Mac group.

Most of the 2008 monitoring data was entered into the River Watch database by the end of November. From there, it will be transferred to the EPA STORET database managed by the Minnesota Pollution Control Agency, where it will be used for water quality assessments and public access.

The Bagley monitoring group continued its practice of sampling for E. coli analysis at the Nassett Brook site in the headwater area of the Lost River. The results, highly suggestive of E. coli impairment, are the basis for further monitoring for impairment assessment.



Jim Blix submitted an application based on this preliminary data for a Surface Water Assessment Grant (SWAG) through the MPCA requesting \$13,000 to develop a data set for four sites in this immediate area to assess E. coli bacteria, dissolved oxygen, temperature, and turbidity. This grant application proposes to involve student and teacher volunteers from the Bagley school district in the measurement and distribution of the water quality data and the handling of water samples for E. coli analysis. In January of 2009, the MPCA approved the grant application with no changes.

Efforts were made in 2008 by Jim Blix, the IWI, and RLWD Board Managers to expand the base of volunteer groups for River Watch in the Thief River Falls and Blackduck school districts. Teachers and administrators have expressed interest, and efforts to establish River Watch groups in those schools are ongoing.

Increased interest has been expressed among International Water Institute staff and resource providers in expanding River Watch monitoring to include macroinvertebrate surveys. Since many students look for any reason to wade in the water, macroinvertebrate surveys could inspire greater enthusiasm and participation.



Web Site Development

The new Red Lake Watershed District web site design (<http://www.redlakewatershed.org>) was completed and placed into service in June, 2008. The new design provides easier navigation, improved legibility, and expanded content for engineering projects, River Watch, and map documents. Legacy features such as the permits database and the water quality "report card" were carried over intact until they can be re-styled and improved.

Features can be added and edited on demand by RLWD staff using open source (free) software. A role for contract professionals remains for developing and expanding web-based data tools (online data searches and data entry), but actual implementation and maintenance has shifted to local staff.

This web page design reflects a concern for WC3 web standards, cross-browser compatibility, and overall stability.



Tabbed document browser



Slideshow feature

A screenshot of the Red Lake Watershed District website. The top navigation bar includes "Home Page", "RLWD INFO", "PERMITS", "Engineering", "Water Quality", and "River Watch".

- WELCOME:** A brief introduction to the Red Lake Watershed District, mentioning its responsibility for managing and protecting the water resources of the Red Lake River watershed. It notes that the District covers approximately 5,090 square miles and was established in 1970 under the Minnesota Watershed District Act, Chapter 103D.
 - RLWD EVENTS:** A section listing "03.12.2009 Board Meeting Set for 9 AM Thursday, March 12th". It includes a link to the "Event Calendar".
- RLWD MAPS:** A section with two buttons: "Interactive" and "PDF Maps".
- DOCUMENTS:** A list of documents available for download, including "Glenwood Urban Plan/Plan Study", "RLWD 10-Year Plan", "SOE Revision 7", "2007 Annual Report", "Chippewa River TMDL update", "RLWD Site Evaluation Study", "Thief River Subwatershed Water Plan", "Monthly Water Quality Report", "Ditch Inventory Maps", and "Benton Channel Rainfall Station".

NEW RLWD HEADQUARTERS: A photograph of the RLWD office building, described as a modern, single-story structure. A "Click for a tour..." button is present.

RLWD ENGINEERING PROJECTS: A photograph of a landscape with a bridge, described as a project designed to address flooding issues. A "Click to review projects..." button is present.

RLWD WATER QUALITY: A photograph of a hand holding a water sample in a test tube. Text describes the RLWD's monitoring activities since 1984, mentioning over 30 sites monitored quarterly. It also highlights the Water Quality Program's role as a regional leader in establishing quality control standards and participating in investigative studies.

Red Lake Watershed District

LOST RIVER IMPOUNDMENT - PROJECT 17

Project Location
The Lost River Impoundment, Red Lake Watershed District Project 17, is located in Grand Plain Township of Marshall County, approximately 20 miles northeast of Thief River Falls. The 63.3 square mile drainage area above the impoundment structure consists primarily of flat agricultural terrain. The runoff from this area flows into Branch 200 of Ditch 11, and, depending on conditions, either flows into the Lost River Impoundment or continues downstream toward the Thief River.

Design Considerations
The Lost River Impoundment is a multi-purpose facility designed to increase wildlife values and reduce peak flows downstream by storing excess runoff. This "off-channel" design consists of approximately 10 miles of earthen embankment, an outlet control structure, an emergency spillway into Branch 200, and four 48-inch gated inlet culverts.

Project Operation
When the water flowing in Branch 200 reaches a critical elevation, excess flow is diverted into the impoundment through the inlet culverts and spillway. The minimum critical elevation, normally 1146.2 ft. msl, is controlled at the principle spillway. The normal reservoir level (1146.2 ft. msl) is established with inflow through the gated inlet pipes. During periods of heavy runoff, when the water elevation in Branch 200 exceeds the highest spillway level (1148.2 ft. msl), it will flow over the inlet spillway into the inlet ditch. This flow will continue until the impoundment level reaches the same flow elevation as that in the Branch 200 channel.

Functional Design Data

Feature	Measurement	Storage
Top of Dike	1150.2 (ft. msl)	14,000 (acre-ft.)
Emergency Spillway	1148.2 (ft. msl)	10,000 (acre-ft.)
Normal Reservoir Level	1146.2 (ft. msl)	5,000 (acre-ft.)
Normal Inlet Level	1145.2 (ft. msl)	3,200 (acre-ft.)
Drainage Area	53.35 (mi ²)	-

The Lost River Impoundment was originally funded and built in the mid 1970's by the Minnesota Department of Natural Resources. In 1978, the Red Lake Watershed District and the Department of Natural Resources agreed to modify the impoundment by raising the dike and spillway elevations, and extend the inlet channel. These modifications were designed to raise the normal pond elevation to provide more suitable habitat for waterfowl and to further lessen peak flooding in downstream areas. The cost of modification, in 1979 dollars, was approximately \$109,000.

2007 Operations
A scheduled "drawdown" on the Lost River Impoundment began on November 7th of 2007 by removing the stop-logs and opening the screwgate on the outlet structure. The outflow from the Lost River Impoundment was transferred to the Elm Lake-Farmes Pool Impoundment, directly downstream, to restore the Elm Lake-Farmes Pool levels from an earlier drawdown on that facility.

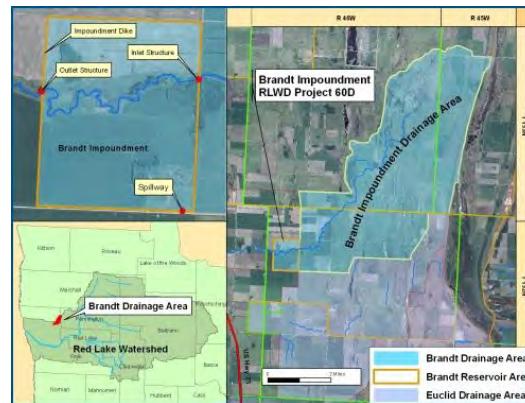
Pool Area in Drawdown
The Lost River pool area had become congested with cattail vegetation over many years. By drawing down the pond in the fall and re-flooding it in the Spring of 2008, more open water areas were created for the benefit of wildlife. The Minnesota Department of Natural Resources, in cooperation with the Red Lake Watershed District, performed the operation.

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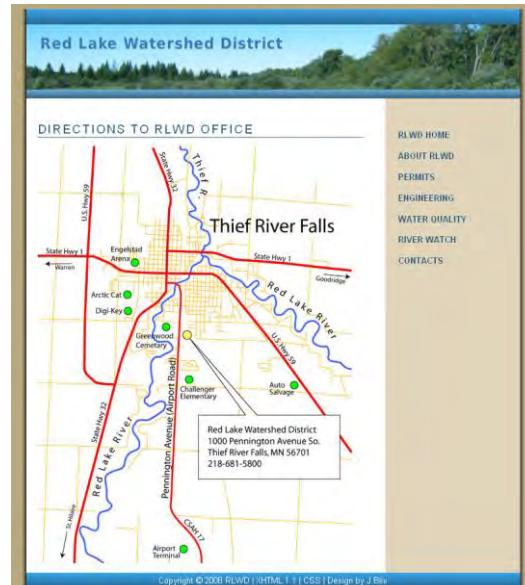
Example of Engineering Project



Static map showing watershed structure



Example of Printable High-res Impoundment Map



Directions map to RLWD office

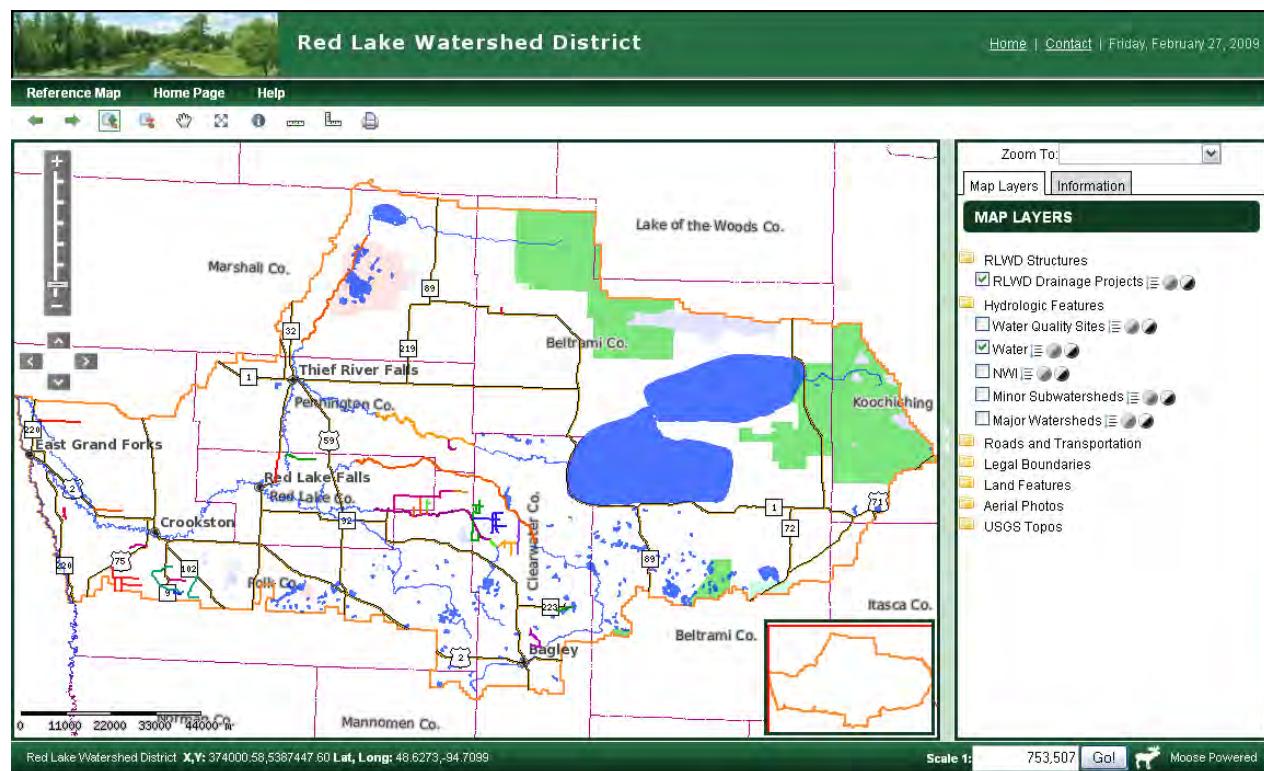
Interactive Web-Base Mapping

An interactive web-based map browser was carried over from the original web page, but was substantially modified for these reasons:

- The map image needed to be larger and scalable to accommodate the larger flat-screen monitors that have become commonplace.
- Expanded functionality would allow non-specialists to perform many useful GIS tasks.
- The availability of open source software would allow RLWD staff to configure the map browser (adding and changing map layers, adjusting map extent) without the need for costly software licensing.

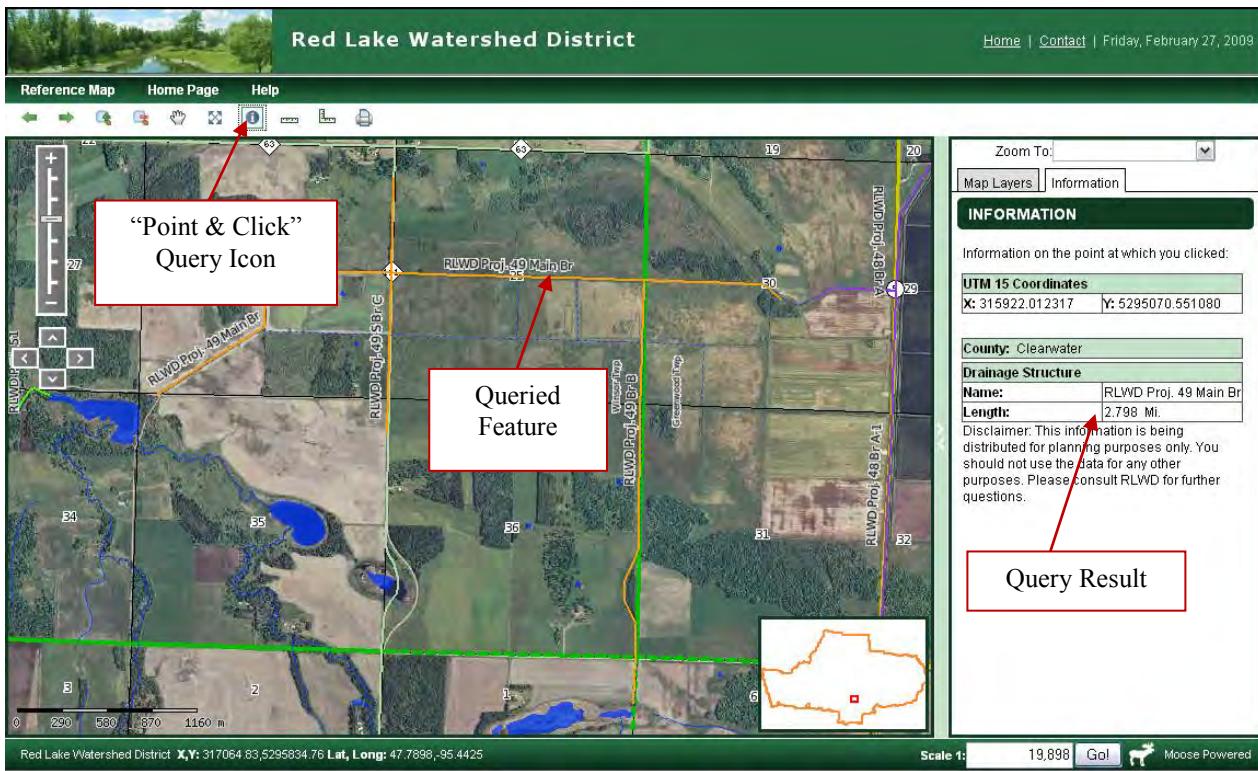
An open-source software solution called GeoMoose has been adopted by many public agencies and non-profit organizations to build interactive web-based map displays. GeoMoose is a combination of standard and customized software components distributed under a common open source license that form a web client framework for the display of cartographic data. This software was chosen at the recommendation of Houston Engineering as the foundation of the mapping browser in the RLWD website. The GeoMoose installation makes it possible to activate/deactivate map layers, conduct “point & click” feature queries, adjust layer transparency, print hardcopy to 11”x17”, calculate area and distance, and produce printable graphic annotations on a map image.

After the new web page was deployed online, RLWD staffer Jim Blix worked with Brian Fischer of Houston Engineering to implement the new interactive map using GeoMoose software. By December of 2008, the basic design was deployed online and included a layer of “zoomable” RLWD ditch projects.



Default Interface for Web-based Interactive RLWD Map

Work remains to enhance the layers, deploy variations of this map browser for water quality and permit projects, and to develop a comprehensive query capability friendly to non-specialist users. It is also essential to produce metadata to establish the origin and lineage of all map layers.



"Point & Click" query shows project name and length of channel.

Farmstead Ring Dikes (RLWD Project #129)

Since the historic flood of 1997, the District has received grants to assist landowners with the construction of farmstead ring dikes. With the funds, the District has established a cost share program for new construction and for upgrading of existing ring dikes.

Design Criteria

- Elevation of the dike will be two feet above previous high-water elevation or 1 foot above the administrative 100-year flood, whichever is higher.
- Sideslopes of three feet horizontal to one foot vertical.
- Top width of six feet (minimum).

Construction includes all material for constructing embankment, culvert flapgates, any clearing/grubbing, seed, fertilizer and mulch, gravel, etc.

The funding breakdown for the ring dike program will be shared by the following parties, in the following percentages:

- State of Minnesota 50%
- Red River Watershed Management Board 25%
- Red Lake Watershed District 12.5%
- Applicant 12.5%

To date 98 requests have been received for the program. Of these, 61 have been completed, one is pending, and 36 have declined to participate. Two ring dikes were constructed in 2008. One is located in Polk County east of Crookston and the other in Red Lake County northwest of Red Lake Falls. The funding and ring dike program will continue into 2009.

Wayne Swanson ring dike near Crookston



Ron Black ring dike northwest of Red Lake Falls



Permits (RLWD Project #90)

The District received 94 permit applications in 2008. Of the permits received one was tabled until spring 2009, two were withdrawn, and two denied. The numbers listed below indicate the permits approved and how they are categorized within our rules for permitting:

- 2 utilities
- 6 re-grade
- 70 culvert/bridge
- 7 drainage
- 4 wetlands

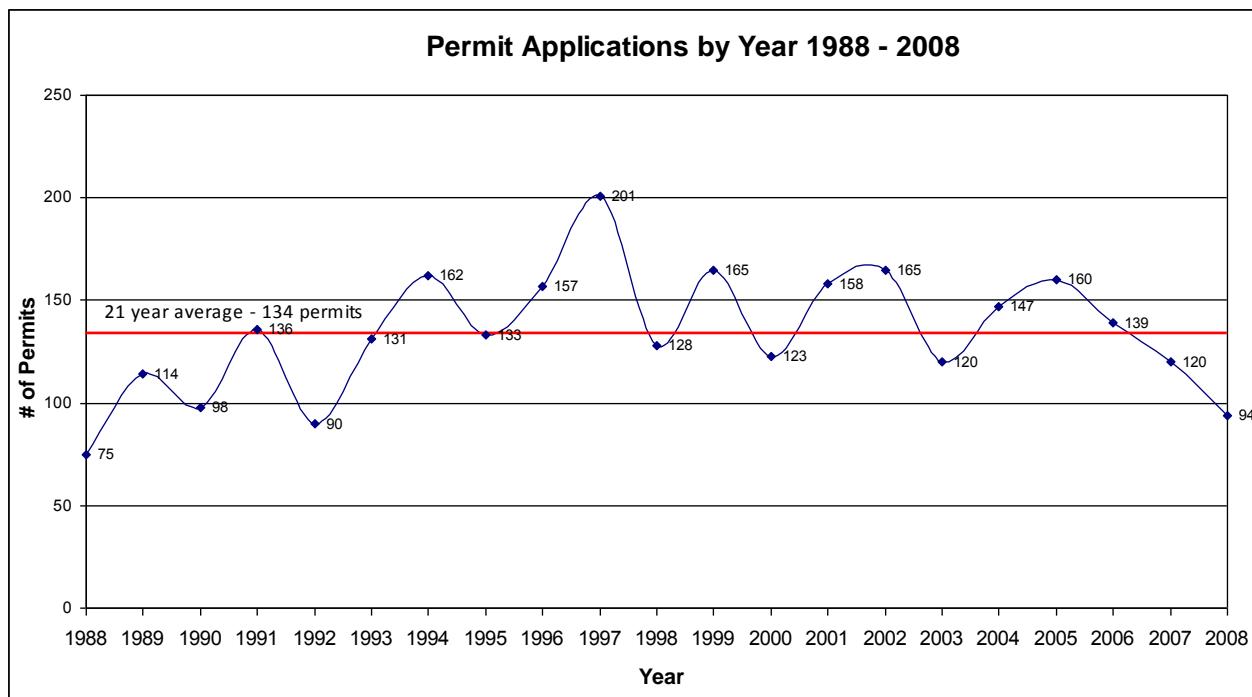
Some of the applicants were State and County Highway Departments, The Nature Conservancy, townships, cities, utility companies, State & Federal agencies, Landowners, and private individuals. Examples of the work consisted of road and bridge projects, wetland restoration, culvert installations, and ditch cleaning.

Examples of work associated with permit review consists of, watershed delineations, detail surveys, drainage area and culvert sizing recommendations, and meetings. Other than the wet all season, relatively dry conditions during 2008 were beneficial for completing permitted projects.

The following graph is a record of the number of yearly permit applications received from 1988 through 2008 and the 21 year average.



Ditch cleaning



Flood Control Impoundments

Impoundments operated by the Red Lake Watershed District are quite diverse. Actual project operations are based on available flood storage, outlet structure facilities, and outlet channel capacity. Each impoundment is designed based on upstream drainage area, topography, and runoff conditions. Some of the flood storage facilities are operated with adjustable stoplogs, adjustable flood gates, or fixed crest weir structures.

Projects with adjustable flood gates and/or stoplogs have more flexibility for storing and also for controlling outflows from flood events. Fixed crest structures store water to the specific elevation of a weir, at which time outflows occur automatically. The pictures are examples of fixed crest outlet structures.

Baird Beyer Dam, Red Lake County Tributary to the Black River



Control Structure



Outlet Plunge Pool

Miller Dam, Red Lake County Tributary to the Clearwater River

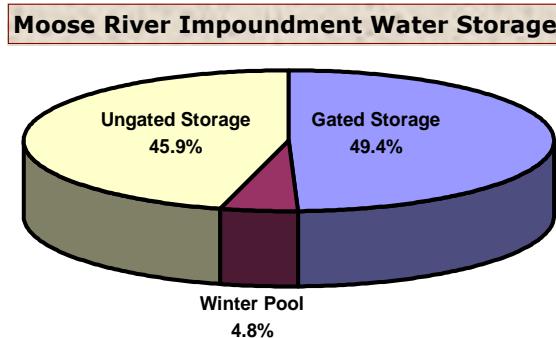


Control Structure



Outlet Plunge Pool

During flood and large runoff events, flood waters are stored for a long duration within the impoundments and, as downstream conditions allow the stored water is released in a controlled manner. Storage is calculated in acre feet which is a volume measurement that is one acre in area by one foot deep. Storage capacity in impoundments varies depending on acreage and depth of the storage area. One foot of water depth in an impoundment can be many thousand acre feet of storage. Some of the impoundments are “dry pools” which means that the pool is basically drained dry after stored flood waters are released. Other impoundments are operated with a small permanent pool throughout the year. The largest impoundment the Red Lake Watershed District operates is the Moose River Impoundment located northeast of Grygla. This impoundment does have a small permanent winter pool to allow for maximum storage capacity as indicated on the graph shown below.



Routine inspections are performed during which the condition of the embankment and control structures is evaluated. Maintenance performed in 2008 included debris removal, removal of beaver debris, nuisance beaver, graveling, and vegetation control (brushing woody vegetation & mowing the grassed embankment area).

Conditions leading up to the spring melt of 2008 were considered nearly ideal, with thawing days and cool freezing nights. Snow pack was basically gone by April 11th and the 2008 spring runoff event was not a major problem in the Watershed District.

With the exception of June and October, 2008 was the third consecutive year with mainly dry conditions and no major runoff events that caused flooding problems.

June precipitation created runoff in parts of the watershed and during this time, some of the impoundments reached their maximum crest elevations for the year. Due to the runoff, some of the impoundments were operated to temporarily store the excess runoff. This was done by operating flood gates or by adjusting stop-logs, depending on the respective flood storage facility.

The remainder of the year, until October, was drier than average with no additional runoff events of concern. The fall, however, was one of the wettest on record in the area. October rains in the watershed caused impoundment pool levels to rise significantly. Gate operation on some impoundments was again necessary to drawdown the excess floodwaters and stabilize the pools at their typical winter elevations. Winter elevations were not obtained until late November.

In December, record snowfall occurred and substantial runoff in the spring of 2009 is possible.

The District’s operation of our flood control facilities both gated and non-gated, consisted of flood gate operation during the June and October runoff, monitoring of pool elevations and routine maintenance work. Some of the impoundments are operated solely by the District, others are operated cooperatively with the Red Lake Band of Chippewa Indians, Minnesota Department of Natural Resources, U.S. Fish and Wildlife Service, Natural Resource Conservation Service, and local Soil and Water Conservation Districts.

The following pages include descriptions and information on some of the larger impoundment facilities which have gated and/or stop-log control flexibility.

Euclid East Impoundment (RLWD Project #60C)

GENERAL: Construction of the Euclid East Impoundment began on June 15, 2006. Due to excellent working conditions, it was substantially completed by the middle of November. The project will be functional for operation in the Spring of 2007. The Red Lake Watershed District and HDR Engineering of Thief River Falls performed construction surveying and inspection duties. The project is funded jointly with the State of Minnesota, Red River Watershed Management Board and the Red Lake Watershed District.

LOCATION: The project is located in Section 24, Euclid Township, and Section 19, Belgium Township, Polk County, approximately 12 miles north of Crookston.

PURPOSE: The project will store runoff and reduce flooding on downstream agricultural lands and urban areas by retaining up to approximately 2,443 acre-feet of floodwater. The storage of water in the reservoir will also reduce peak discharges on legal ditch systems, Branch C of County Ditch #66, County Ditch #66 (Main), and County Ditch #2.

PROJECT COMPONENTS: The embankment and reservoir is constructed of approximately 3.6 miles of earthen clay embankment (332,681 cubic yards, & approx. 12 feet at highest point), a grass lined emergency spillway, 2.4 miles of inlet channels and culvert works, 0.8 mile of outlet channel and a gated concrete outlet structure. The operable components are the gated structure which releases water from the impoundment into an outlet channel. This water then flows northwesterly through legal ditch systems and eventually to the Red River of the North.

FUNCTIONAL DESIGN DATA

	Elev. (ft. – msl)	Storage (ac. – ft.)
Top of Dam (Total Storage)	908.0	2,443 (2.68 in. runoff)
Secondary Spillway	905.0	
Ungated Storage to Emergency Spillway	906.0	565 (0.62 in. runoff)
Gated Storage		1,878 (2.06 in. runoff)
Drainage Area – 17.1 sq. mi.		

OPERATIONAL: Summer 2007



Principal Outlet Structure



Principal Outlet structure looking west

In 2008, only minor operation and monitoring were performed during the June and October runoff events. No other major flood storage was necessary due to relatively dry conditions.

Brandt Impoundment (RLWD Project #60D)

GENERAL: Construction of the Euclid East Impoundment began on July 31, 2006 and was substantially completed by the middle of November. After some minor work items are completed and the vegetation is well established the project should be operational in 2007. The Red Lake Watershed District and HDR Engineering of Thief River Falls jointly performed construction surveying and inspection duties. The project is funded by the State of Minnesota, Red River Watershed Management Board, and the Red Lake Watershed District.

LOCATION: Section 7, Belgium Township, Polk County, approximately 14 miles north of Crookston.

PURPOSE: The project will store runoff and reduce flooding on downstream agricultural lands and urban areas by retaining up to approximately 3,912 acre-feet of floodwater. The storage of water in the reservoir will also reduce peak discharges on the downstream “Brandt Channel” and legal County Ditch #2 system.

PROJECT COMPONENTS: The embankment and reservoir is constructed of approximately 3.5 miles of earthen clay embankment (492,579 cubic yards, & approx. 19 feet at highest point), a grass lined emergency spillway, 2 – lines of 6 x 8 concrete box culverts and a gated concrete outlet structure.

Operable components are the gated structure which releases water from the impoundment into an outlet channel. This water then flows west - northwest through the “Brandt Channel” legal County Ditch #2 system and eventually to the Red River of the North.

FUNCTIONAL DESIGN DATA

	Elev. (ft. – msl)	Storage (ac. – ft.)
Top of Dam (Total Storage)	918.0	3,912 (3.1 in. runoff)
Secondary Spillway	914.5	
Ungated Storage to Emergency Spillway	916.0	786 (0.62 in. runoff)
Gated Storage		3,126 (2.48 in. runoff)
Drainage Area – 23.6 sq. mi.		

OPERATIONAL: Spring 2008



Borrow areas partially filled with runoff water



Principal Outlet Structure

In 2008, only minor operation and monitoring were performed during the June and October runoff events. No other major flood storage was necessary due to relatively dry conditions.

Parnell Impoundment (RLWD Project #81)

GENERAL: Construction of the Parnell Impoundment began in 1997 and was completed in 1999. In 2003 modifications were made to the original design by lowering the emergency spillway 1.5 feet, expanding the interpool connecting channel, and installing an operable screwgate on the weir structure in the JD #60 outlet. The impoundment is now better utilized to store floodwaters by operating control gates.

LOCATION: Sections 3 and 4, Parnell Township, Polk County, approximately 12 miles northeast of Crookston. The drainage area above the dam is approximately 23 square miles.

PURPOSE: The project will reduce flooding on downstream agricultural lands and urban areas by retaining up to approximately 4,000 acre-feet of floodwater. The storage of water in the reservoir will also reduce peak discharges on four legal ditch systems, County Ditch #126, Judicial Ditch #60, County Ditch #66, and County Ditch #2.

PROJECT COMPONENTS: The impoundment incorporates a 2 – pool design (no permanent pool), with two separate outlets, and an interpool connecting channel. The embankment and reservoir is constructed of approximately 5 miles of earthen embankment (approx. 18 feet at highest point), a concrete emergency spillway and two gated concrete outlet structures. Operable components are the two gated structures which release water from the impoundment into two separate outlet channels. One of these channels is JD #60, which flows south to the Red Lake River and the other is CD #126, which flows west and eventually to the Red River of the North.

FUNCTIONAL DESIGN DATA:

	Elev. (ft. – msl)	Storage (ac. – ft.)
Top of Dam	943.0	4,000
Emergency Spillway	939.5	3,000
Drainage Area – 23 sq. mi.		

OPERATIONAL: 1999 – Original Design 2004 – Modified Plan

COST: Approximately - \$3,200,000
Funded by: Red Lake Watershed District
Red River Watershed Management Board



Aerial view of Parnell Impoundment



Principal control structure inlet end (poolside)



Principal outlet structure (outlet end)



Emergency spillway

In 2008, only minor operation and monitoring were performed during the June and October runoff events. No other major flood storage was necessary due to relatively dry conditions.

Pine Lake (RLWD Project #35)

GENERAL: In 1980, the Clearwater County Board of Commissioners petitioned the Red Lake Watershed District for an improvement of the Pine Lake outlet. Constructed in 1981, a sheet pile dam with two adjustable stop log bays was built about 800 feet north of the lake on the Lost River.

LOCATION: The site is near the south center of section 21, Pine Lake Township, Clearwater County. The drainage area above the dam is 45 square miles.

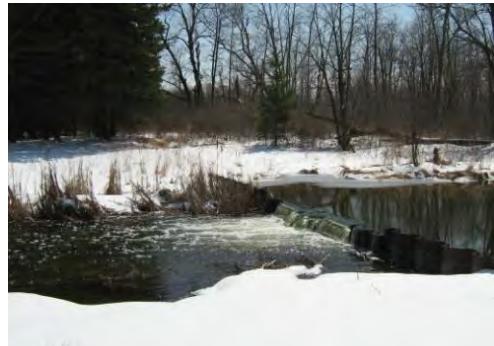
PURPOSE: This multi-purpose project designed to provide the public with flood control and wildlife benefits. The Gonvick Lions Club has donated hundreds of man-hours and when necessary, operates the aeration system, installs and maintains signage.

FUNCTIONAL DESIGN DATA:

	Elev. (ft.=msl)
2 nd Stage – Top of Dam	1284.5
1 st Stage – Top of Dam	1284.0
Typical Summer – top of stop logs	1283.5
Typical Winter	1282.5

The Pine Lake control structure is a sheet pile dam with 2 – four foot wide adjustable stop-log bays. The stoplogs can be adjusted between elevations 1281.5 to 1283.5. There is also 26 feet of fixed crest weir at elevation 1284.0, and 65 feet of fixed crest weir at elevation 1284.5.

The dam is also designed with a small fixed crest weir at elevation 1282.5, which is one foot lower than the normal summer stop-log elevation. This was an innovative design in the early 1980's, and allows for minor outflows that provides streamflow maintenance. This is very important for keeping some flow in the Lost River especially during periods of low flow.



Stoplog sheet pile dam

In 2008, operation of the Pine Lake Dam occurred at different periods throughout the year due to runoff events in April, June and September. Based on the lake elevation, stop-logs are removed from the dam to allow additional outflow until the lake recedes, and replaced to the typical summer or winter elevation.

Lake Crest elevations for 2008:

- ❖ April 28 1284.10
- ❖ June 10 1284.11
- ❖ Sept. 11 1283.6

The normal Fall drawdown was over a prolonged period this year due to the wet weather and runoff conditions. Stop-logs were removed from September 19th to December 1st. A local trapper removed beaver that were causing problems at the site. The staff at the Sportsman's Lodge are very helpful to read the lake elevation gauge located inside the business and a local resident records rainfall data at the lake.

Elm Lake-Farmes Pool (RLWD Project #52)

GENERAL: Elm Lake was drained in about 1920 by the construction of Branch #200 of Judicial Ditch #11. The Elm Lake project is a cooperative effort of the U.S. Fish and Wildlife Service, MN Department of Natural Resources, Red Lake Watershed District, and Ducks Unlimited. The majority of funding for the project was provided by Ducks Unlimited and at the time Elm Lake was created, it was the largest Ducks Unlimited project in the lower 48 states.

LOCATION: Marshall County, approximately 17 miles northeast of Thief River Falls. The drainage area of Ditch 200 above Elm Lake is 63 square miles.

PURPOSE: Multi-purpose – designed to meet three major objectives: Flood control, increase wildlife values, and upstream drainage improvement.

PROJECT COMPONENTS: Approximately 9 miles of earthen embankment, an outlet control structure, rock lined emergency spillway, and an enlargement of a portion of Ditch 200.

FUNCTIONAL DESIGN DATA:

	Elev. (ft. – msl)	Storage (ac. – ft.)
Top of Dam	1145.0	19,700
Emergency Spillway	1142.0	11,000
Max Summer	1141.0	7,500
Typical Summer	1140.0	5,500
Typical Winter	1139.0	3,500
Drainage Area – 63.0 sq. mi.		

COST: Approximately - \$2 million

OPERATIONAL: 1991



Stoplog Outlet Structure

Agassiz National Wildlife Refuge staff performs the actual operation of the outlet structure (stop-logs and screwgate) with cooperation from the Red Lake Watershed District. In 2008, only minor operation and monitoring were performed during the June and October runoff events. No other major flood storage was necessary due to relatively dry conditions. June rains/runoff caused an increase in pool elevation. The screwgate was opened to release excess water. In mid November, stop-logs were placed at the winter of elevation 1138.5. Repair/maintenance to the structure is scheduled for 2009.

Pool Crest elevations for 2008:

- ❖ April 24 1138.1
- ❖ June 10 1138.1
- ❖ Nov. 19 1138.5

Lost River Impoundment (RLWD Project #17)

GENERAL: Approximately the mid-1970's, the project was constructed by the Minnesota Department of Natural Resources to improve waterfowl habitat. On December 14, 1978 the Red Lake Watershed District entered into a formal agreement with the Minnesota Department of Natural Resources to modify the original impoundment by raising the elevation of the dike and emergency spillway. Four (4) 48 in. diameter gated pipes and a spillway from Ditch 200 of JD #11 supply water to the impoundment which is an "off channel" reservoir.

LOCATION: Marshall County, Grand Plain Township, approximately 20 miles northeast of Thief River Falls. The drainage area above the impoundment is 53 square miles.

PURPOSE: Multi-purpose – designed to increase wildlife values, and provide flood control.

PROJECT COMPONENTS: Approximately 10 miles of earthen embankment, an outlet control structure, and an emergency spillway into Ditch 200.

FUNCTIONAL DESIGN DATA:

	Elev. (ft. – msl)	Storage (ac. – ft.)
Top of Dam	1150.2	14,600
Emergency Spillway	1148.2	10,000
Typical Summer	1146.2	5,500
Typical Winter	1145.2	3,700
Drainage Area – 53.0 sq. mi.		

COST: To modify approximately - \$109,000

OPERATIONAL: 1978

Over the years, the Lost River pool area has become congested with cattail vegetation. By "drawing down" the pool in the Fall of 2007 and re-flooding in the Spring of 2008, more "open water" areas were created to benefit wildlife. Due to very little snowpack and lack of spring rains, the pool did not fill completely in 2008. After the spring runoff, some of the stop-logs were removed and the screwgate opened to drain the pool. The pool was in a drawdown condition throughout the remainder of the year. The MnDNR staff performs the actual operation of the outlet structure with cooperation from the Red Lake Watershed District.



Outlet Structure



Pool Area during drawdown

Good Lake Impoundment (RLWD Project #67)

GENERAL: The Good Lake Project is a cooperative effort of the Red Lake Band of Chippewa Indians and the Red Lake Watershed District.

LOCATION: The project area lies entirely within the Red Lake Indian Reservation. The site is approximately 30 miles east of Thief River Falls, in Clearwater and Beltrami Counties, within the Red Lake Indian Reservation. The drainage area above the dam is 82 square miles.



Gated Principal Outlet Structure

PURPOSE: Multi purpose project to provide wetland habitat, flood water retention, and potential irrigation water supply.

Fish and Wildlife: Enhanced wetland habitat for waterfowl, furbearers, and other wetland species. The reservoir also has the potential for seasonal rearing of northern pike.

Flood Control: The project will reduce flood peaks on both the Red Lake River and the Red River of the North. The dam will store runoff from the 73 square mile drainage area. Spring storage capacity is 11,300 acre-feet and is equal to 2.6 inches of runoff from the drainage area. The project will also reduce flooding on approximately 4,000 acres of private land immediately west of the project, by intercepting overland flows.

Water Supply: The reservoir may be used as a water source for irrigation of wildrice paddies. Paddies have not been built, but there is potential for paddy development in adjacent areas.

PROJECT COMPONENTS: Approximately 9 miles of earthen embankment, 7.5 miles of inlet channels, a reinforced concrete outlet structure, and 2 miles of outlet channel.

FUNCTIONAL DESIGN DATA:

	Elev. (ft. – msl)	Storage (ac. – ft.)
Top of Dam	1178.5	27,500
Flood Pool (Emer. Splwy.)	1176.1	13,100
Norm. Summer Pool	1173.0	3,250
Norm. Winter Pool	1172.0	1,800
Drainage Area – 73 sq. mi.		

COST: Approximately - \$2,129,000

Funding or in-kind contributions were provided by:

Red Lake Band of Chippewa Indians
Red Lake Watershed District
Red River Watershed Management Board
State of Minnesota

OPERATIONAL: 1996

Maintenance items for this year included aerial spraying and mechanical brush control. Aerial spraying was completed along the dike alignment and inlet channel. In December, mechanical brushing was performed for 2.25 miles along the dike alignment.



Mechanical brushing along alignment

Pool Crest Elevation for 2008

❖ June 10 1173.4

Due to extremely wet conditions, the normal fall pool drawdown to reach winter elevation, was done by partially opening the 30 inch screwgate along with removing stop-logs. On November 5th the gate was opened 18 inches and closed on November 18th when the winter pool elevation was obtained.

Moose River Impoundment (RLWD Project #13)

GENERAL: The project, which is a two pool design, is the largest impoundment operated by the District. It was a cooperative effort of the Red Lake Watershed District, Red River Watershed Management Board, and the Minnesota Department of Natural Resources for flood control and wildlife management. Flood damages will be reduced by impounding floodwaters in the upper reaches of the watershed. Wildlife and associated recreational benefits will be enhanced by water retained in the two pools. The project is constructed on lands managed by the Minnesota Department of Natural Resources.

LOCATION: The project is located at the headwaters of the Moose and Mud Rivers in northwestern Beltrami County, approximately 15 miles northeast of Grygla, MN. The drainage area above the project is 125 square miles.

PURPOSE: Multi-purpose – designed to provide flood control, streamflow maintenance, increase wildlife values, and benefit fire control.

COST: The total project cost was approximately \$3.4 million. Funding was provided by the following:

State of Minnesota	\$1,690,000
Red Lake Watershed District	\$ 612,000
Red R. Watershed Management Board	\$ 1,126,000

OPERATIONAL: 1988

FUNCTIONAL DESIGN DATA:

	North Pool	South Pool	Total
Top of Dam Elev. (ft.-msl)	1218.0	1220.0	
Freeboard Flood Elev. (ft.-msl)	1217.2	1219.3	
Freeboard Flood Storage (ac.ft.)	16,250	38,250	54,500
Emer. Spillway Elev. (ft.-msl)	1216.0	1218.0	
Emer. Spillway Storage (ac.ft.)	12,000	24,250	36,250
Gated Pool Elev. (ft.-msl)	1215.3	1217.4	
Gated Pool Storage (ac.ft.)	9,750	19,750	29,500
Typical Summer Elev. (ft.-msl)	1211.7	1213.6	
Typical Summer Storage (ac.ft.)	2,000	4,000	6,000
Typical Winter Elev. (ft.-msl)	1210.5	1212.4	
Typical Winter Storage (ac.ft.)	800	1,800	2,600
Max No-Flood Elev. (ft.-msl)	1212.5	1214.5	
Max No-Flood Storage (ac.ft.)	3,000	6,000	9,000
Project Drainage Area (sq. mi.)	41.7	83.3	125.0

The primary maintenance work for the year consisted of placing fill material in specified locations of the embankment on both the north and south pools. Some minor settlement had occurred over the years since first constructed. In September, Holthusen Construction of Grygla hauled and placed approximately 2412 cubic yards of material at the sites to bring the elevation to design grade. Planned maintenance in 2009 includes work on the outlet structures and adding rock riprap to the emergency spillways. Routine maintenance also included mowing, gate operation and monitoring pool levels throughout the year during runoff events.

Moose River Impoundment – North Pool

The North Pool outlets into the Moose River (JD #21). The major components of the north pool are: 5 miles of diversion ditch, 4 miles of earthen dike with a top elevation of 1218.0, one gated outlet structure, one rock lined emergency spillway at an elevation of 1216.0. Approximately 1/3 (41.7 sq. mi.) of the total project drainage area (125.0 sq. mi.) drains to the Moose River.



North Pool - Gated Principal Outlet Structure

With very little spring runoff, flood gate operation was not necessary. The North Pool did not reach the summer target elevation until mid May. Rainfall in June and a very wet October required flood gate operation, this occurring mostly in October and November. Flood gates were closed and the winter target elevation was obtained on November 21st. The maximum North Pool elevation for 2008 was 1213.55 which occurred on June 16th.

Moose River Impoundment – South Pool

The South Pool outlets into the Mud River (JD #11). The major components of the south pool are: 3 miles of diversion ditch, 9 miles of earthen dike with a top elevation of 1220.0, 4 miles of earthen dike between the north and south pools, one gated outlet structure, two rock lined emergency spillways at an elevation of 1218.0. Included between the pools is an interpool structure which may be used to pass water between the pools. Approximately 2/3 (83.3 sq. mi.) of the total project drainage area (125.0 sq. mi.) drains to the Mud River.



South Pool - Gated Principal Outlet Structure

With very little spring runoff flood gate operation was not necessary. The South Pool did not reach the summer target elevation until early May. Rainfall in June and a very wet October required flood gate operation, this occurring mostly in October and November. Flood gates were closed and the winter target elevation was obtained also on November 21st. The Maximum South Pool elevation for 2008 was 1215.25 which occurred on June 16th.

Schirrick Dam (RLWD Project #25)

GENERAL: The Schirrick Dam was constructed on the Black River in 1984. The project is constructed on property owned by Don Schirrick.

LOCATION: Section 35, Wylie Township, Red Lake County, approximately 20 miles northeast of Crookston. The drainage area above the dam is 107.7 square miles.

PURPOSE: The primary purpose is to provide flood relief on the Red Lake River and the Red River of the North by controlling the flow contribution from the Black River. A small permanent pool is also provided.

PROJECT COMPONENTS: An earthen embankment (38 feet at highest point) and a gated concrete outlet structure. The reservoir has the capacity to detain up to 4,800 acre-feet of water. Operable components are stop-log bays to control the elevation of the permanent pool and hydraulic flood gates to control the flow contribution of the Black River during floods. The gates will normally be open and will only close in the event of severe mainstem flooding.



Principal outlet structure
hydraulic gate operation



Looking downstream from outlet structure

FUNCTIONAL DESIGN DATA:

	Elev. (ft. – msl)	Storage (ac. – ft.)
Top of Dam	992.5	6,100
Gated Storage	987.0	4,000
Emergency Spillway	989.3	4,800
Permanent Pool	962.0	70

Drainage Area – 107.7 sq. mi.

Highest recorded pool elevation is 988.75 during historic flood of 1997.

COST: Approximately - \$1,019,000

OPERATIONAL: 1985



Aerial view of Schirrick Dam looking south

On November 4th, a test operation of the hydraulic gates was performed. Both gates operated as designed.

Water Quality Report

Red Lake Watershed District Water Quality Program

2008 was a very busy year for the RLWD water quality program. Much of the focus this year went to two grant projects, the Clearwater River Dissolved Oxygen and Fecal Coliform TMDL Study and the Thief River Watershed Sediment Investigation. The RLWD's long-term monitoring program was expanded to include some previously non-monitored tributaries of the Clearwater River and the Red Lake River. Tile drainage flow monitoring continued this year as did continuous monitoring for Project 60.

Long-Term Monitoring

The RLWD has an ongoing monitoring program for sites throughout the watershed that began in the early 1980's and continues today. Field measurements of dissolved oxygen, temperature, turbidity, specific conductivity, pH, stage, and transparency are collected during sites visits. Samples are also collected and analyzed for total phosphorus, orthophosphorus, total suspended solids, total dissolved solides, total Kjeldahl nitrogen, ammonia nitrogen, nitrates + nitrites, and E. coli. This year, the RLWD's long-term monitoring network was expanded to include a total of 40 sites throughout the watershed. The monitoring at these new sites is, for now, being paid for by Surface Water Assessment Grant funds allocated from a grant received by the Red River Watershed Management Board. Four new (in 2007) sites in Beltrami County (lower Red Lake watershed) will be monitored using grant money along with several new (in 2008) sites in the Red Lake River and Clearwater River watersheds. The funding will carry over into the next couple of years. The streams being monitored using funding from this grant are:

- Blackduck River
- Cormorant River
- Darrigan's Creek
- O'Briens Creek
- Lower Badger Creek
- Cyr Creek
- Kipple Creek

Samples were collected in April/May, June, August, and October in 2008. Due to the low temperatures and lack of runoff, water quality was quite good at most sites in the spring of 2008. Flow was very low or nonexistent at many monitoring sites in August. High flows persisted in October.

High E. coli levels were found in samples from Ruffy Brook, Darrigan's Creek, Silver Creek, Hill River, Mud River, Red Lake River in Thief River Falls (not normal), Black River, Burnham Creek, Lost River near Brooks, and the Clearwater River in Red Lake Falls.

High Turbidity levels were found in the Red Lake River at East Grand Forks and Crookston, Black River, Gentilly Creek, Clearwater River at Red Lake Falls, and Burnham Creek.

August Low flow in the Thief River



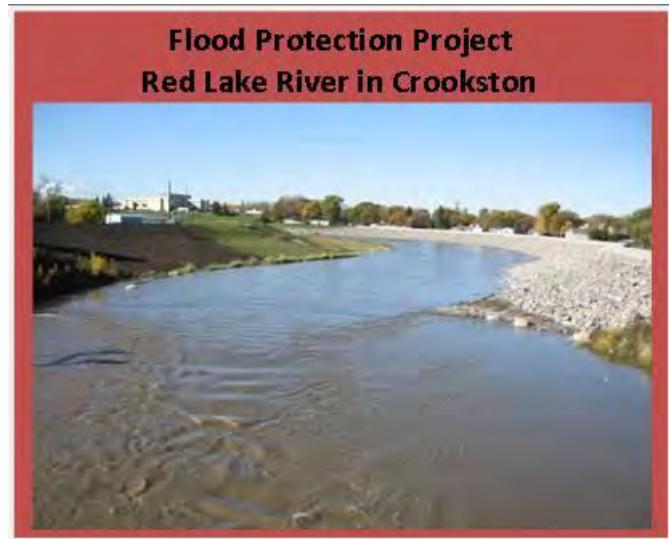
October High flow in the Thief River



The high rates of flow from October runoff likely had an influence upon the high turbidity levels.

Low Dissolved Oxygen levels were once again found in the headwaters of the Clearwater River near Bagley.

Algae bloom occurring under the ice? In early 2008, a landowner and a RLWD Board Manager noticed that there has been an abnormally high amount of algae under the ice in Clearwater Lake. A relative of the landowner identified the algae as blue-green algae. The landowner volunteered to collect samples for nutrient analysis at several locations along the lake (NW end, by the dam, and near the SE end). The sites by outlet and inlet of the lake had low nutrient concentrations (TSI of near 43 – very good). The site near the northern end of the lake – in the deepest part of the lake and near John's fish house – had a much higher concentration of total phosphorus (126 µg/L). The Carlson's Trophic State Index score for this nutrient concentration would be approximately 74, which is classified as hypereutrophic (possibility of heavy algae blooms). The next question would be why is the high nutrient concentration localized in the NE bay? If the nutrients aren't coming from the Clearwater River, there must be a more localized source of pollution on that end of the lake.



Cattle along the Blackduck River



Heavy Pasturing and Fencing on the Lost River near Gonvick and Pine Lake



Clearwater River Dissolved Oxygen and Fecal Coliform TMDL Study

The Clearwater River Dissolved Oxygen and Fecal Coliform TMDLs Study is a multi-reach water quality impairment study in the Red River Basin in Minnesota. Seven impairments listed for 6 stream reaches are addressed. The purpose of the study is to assess the impairment and define sources of pollution. Where a impairment is verified, the project will define current loads of pollutants, estimate total daily maximum load of pollutants, and propose strategies to achieve the desired load.

Clearwater River Dissolved Oxygen and Fecal Coliform TMDL Study Reaches

River	Reach	Impairment	Yr. Listed
Clearwater River	Ruffy Brk to Lost R.	Low Oxygen	2002
Clearwater River	Ruffy Brk to Lost R.	Fecal Coliform	2002
Lost River	Anderson Lake to Hill R.	Fecal Coliform	2002
CD #57	Unnamed Ditch to Clearwater River	Low Oxygen	2002
Poplar River	Spring Lake to Hwy 59	Low Oxygen	2002
Silver Creek	Headwaters to Anderson Lk.	Fecal Coliform	2006
Walker Brook	Walker Bk. Lk. To Clearwater R.	Low Oxygen	2002

The RLWD will be conducting this TMDL study under a contract with the MPCA. The main objectives of the project work plan are to:

1. Verify whether or not reaches are impaired through monitoring.
2. Define sources and amounts of pollutant entering the impaired reaches using the assistance of a SWAT model.
3. Estimate loads and define desired loads
4. Recommend strategies to achieve desired loads

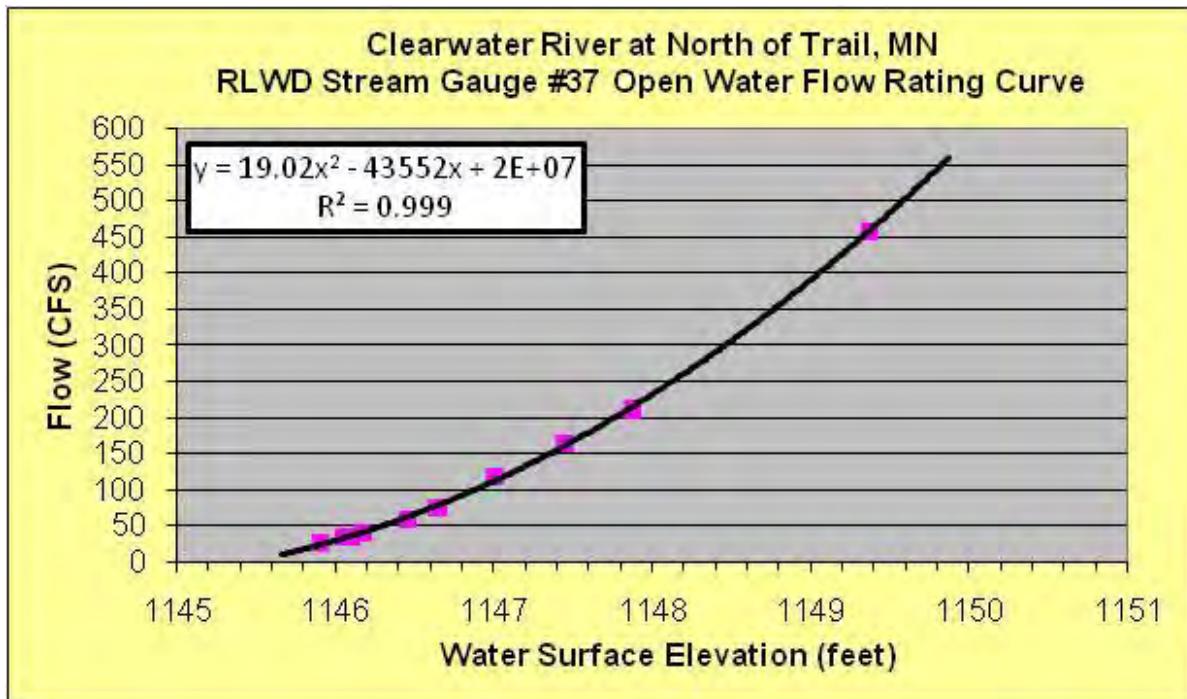
2008 Accomplishments:

- Finished sampling and monitoring for the verification of impairment
 - The E. coli sampling continued in 2008 for the months of April and May.
 - Continuous dissolved oxygen and stage monitoring continued into June of 2008.
- Held stakeholders' meetings
- Began writing draft TMDL reports
- Entered data
- Submitted data to STORET
- Analyzed data
- Identified locations of feedlots and heavily pastured areas
- Measured flow
- Created flow rating curves
- Provided the EERC with data for incorporation into the SWAT model
- Managed MPCA reimbursement process

All of the data collected in 2007-08 for this project was analyzed to accomplish the first goal of the project – verification of impairment. The continuous dissolved oxygen data processing was time consuming, but the end product is a very reliable set of data that captured true daily minimum DO concentrations. A

waterway's ability to support aquatic life is considered to be impaired by low dissolved oxygen if the daily minimum concentration of dissolved oxygen drops below 5 mg/L in more than 10% of the days that dissolved oxygen is monitored. E. coli will replace fecal coliform as the MPCA's standard used to indicate the risk to human health and impairment of aquatic recreation. Aquatic recreation based water quality assessment involves a two-step analysis of bacteria data first looks at the percentage of samples that exceed the standard and then looks at composite geometric means for the calendar months of April through October.

Stakeholders' Advisory Group meetings were held on April 3rd, July 30th, and September 12th in 2008. These meetings were held to inform local stakeholders and, more importantly, gain knowledge from their comments. A Technical Advisory Committee teleconference was held on September 3, 2008 to discuss details of the SWAT model calibration process.



Flow rating curves were completed using additional flow measurements recorded in the early summer of 2008. The curves are used to convert the stage records at TMDL monitoring sites to flow records. The flow records can then be used to aid in creation of load duration curves for non-USGS-gauge sites and in calibrating the SWAT model.

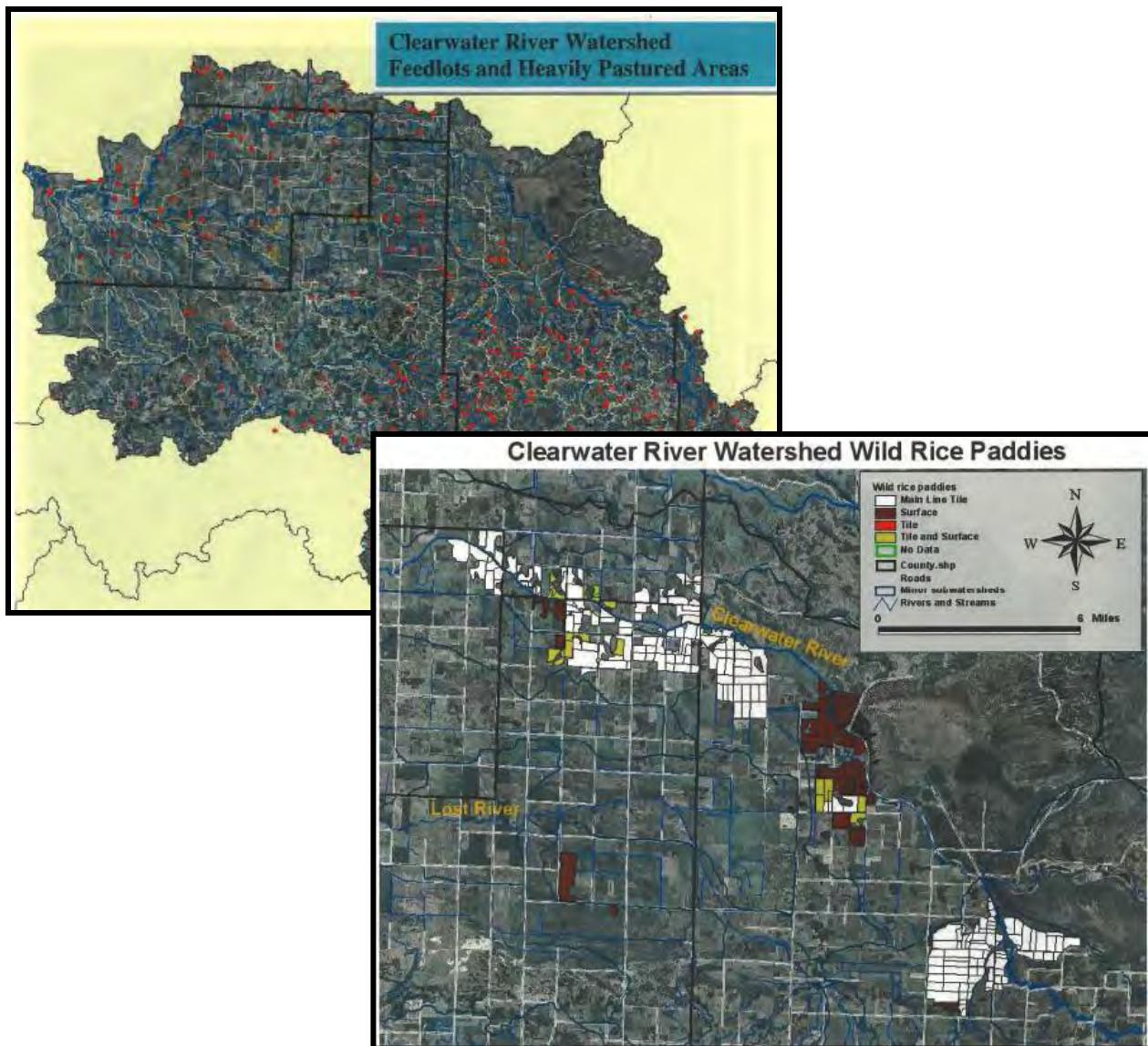
Load duration curves were developed for the E. coli/fecal coliform monitoring sites. These graphs display a curve that shows the allowable load at all measured flow levels at a monitoring site. The layout of the acceptable load line is based upon the percentage of time that flow levels are met or exceeded. Sampled instantaneous loads are also plotted. The plotted points can be examined to learn if the allowable load is exceeded during high flows (attributed to nonpoint pollution) or low flows (attributed to point sources) to aid in identification of the sources of the impairment.

The project was on hiatus while the SWAT modeler was on maternity leave at the end of 2008. A six-month extension was requested and granted for the RLWD's contract with the MPCA. The RLWD's contract with the EERC for the SWAT modeling was also extended. The next steps in the TMDL process will be resuming and completing the SWAT model by the end of April 2009, finalizing the allocations/reductions of loads, and completing the draft TMDL reports by the end of June, 2009.

Swat Modeling by the EERC:

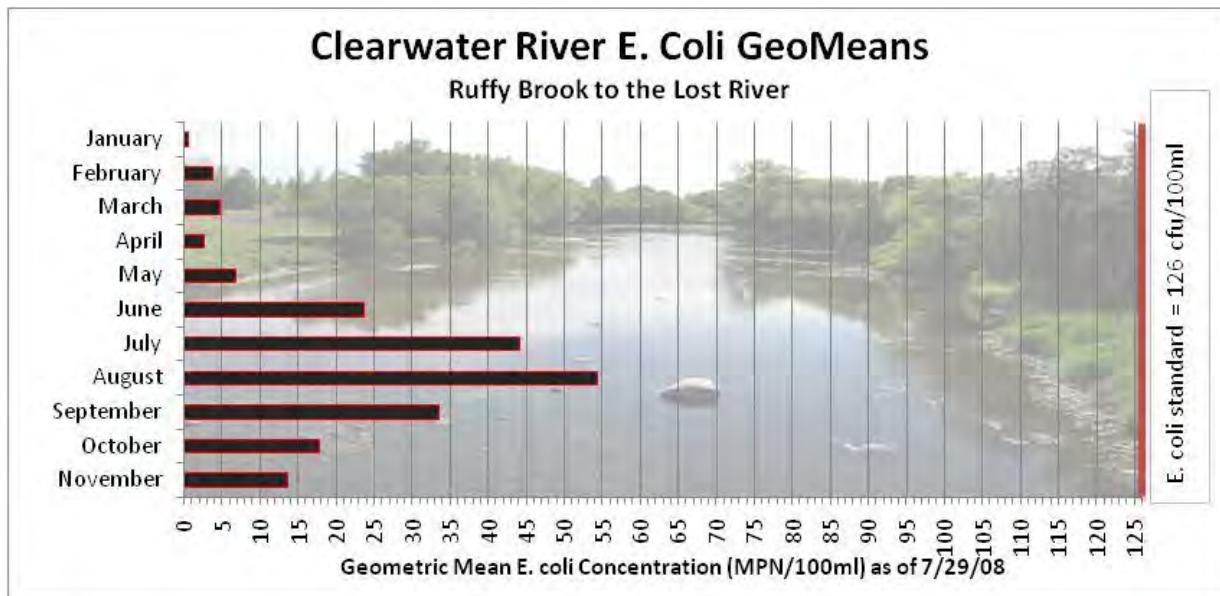
The EERC is working on a Soil and Water Assessment Tool model of the Clearwater River watershed as part of the Clearwater River Dissolved Oxygen and Fecal Coliform TMDL Study. The model breaks the watershed into many small hydrologic units that have similar land use, soil, and topographic characteristics. The model will be calibrated for flow, sediment, nutrients, dissolved oxygen, and bacteria. A lot of data has been incorporated into the model so far. For example, they will be using 30 x 30 square meter elevation data (USGS Natural Elevation Dataset), NASS state cropland data (2006), conservation practice locations (FSA only – FOIA request), flow data, feedlot locations, water quality data, reservoir (wild rice paddies, dams) locations, and SSURGO soils data. Flow and dissolved oxygen data collected by the RLWD were processed and sent to Beth Kurz (EERC) to aid in calibration of the model.

To aid in calibrating the SWAT model, GIS shapefiles were compiled to map feedlot locations and wild rice paddy locations. The feedlots were mapped using information provided by SWCDs and the MPCA. The wild rice paddies were mapped using aerial photos and farm maps, and then verified by the wild rice farmers. The wild rice paddy map not only shows the locations of the paddies, but also designates the type of drainage system used in each paddy (tile, surface, tile + surface).

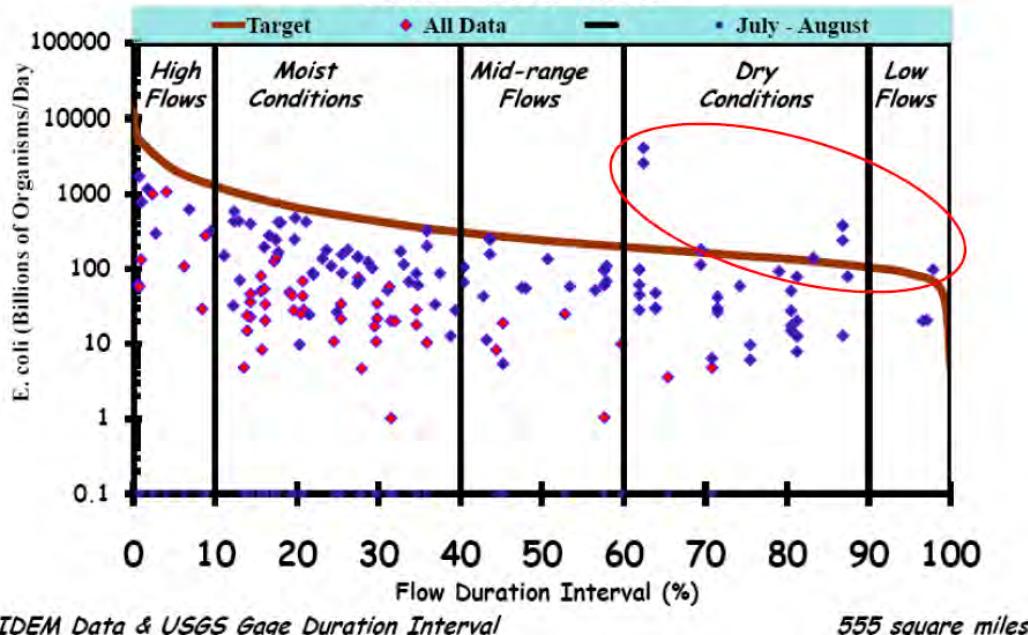


Clearwater River (Ruffy Brook to Lost River) Fecal Coliform Impairment

The pollutant of concern has officially been changed from fecal coliform to E. coli. Monitoring has verified that this reach of the Clearwater River officially meets standards. Exceedance of the E. coli standard still occurs periodically, especially within the channelized reach. The MPCA, Stakeholders' group, and RLWD staff have agreed that we will continue with the creation of a TMDL report for this reach. There will be less load reduction needed than if the reach had still been impaired. The load reduction will be used to incorporate a margin of safety. The TMDL study report will also be used to document the success of water quality improvement and land stewardship efforts throughout the watershed.



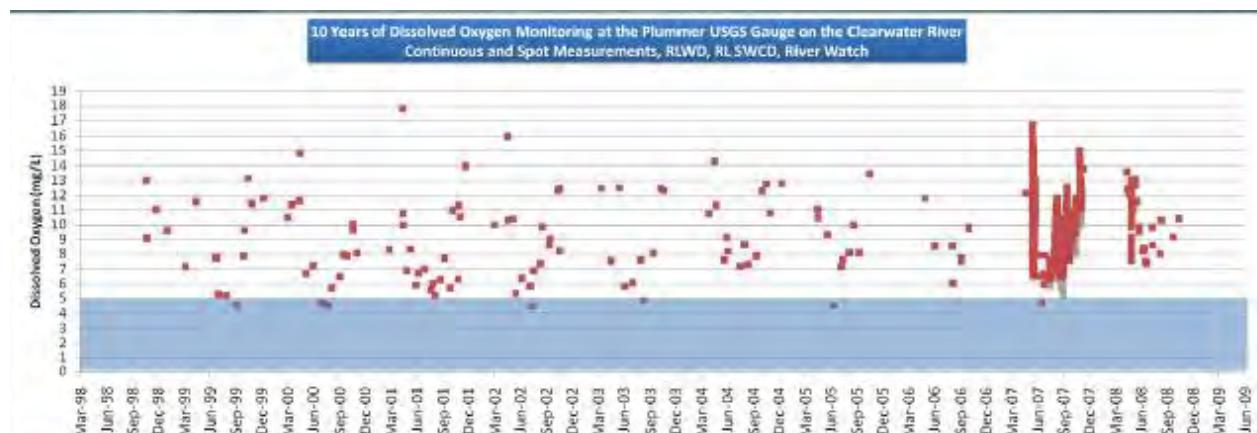
Clearwater River at Plummer
Load Duration Curve (1998 - 2008 Monitoring Data)
Site: 05078000



Clearwater River (Ruffy Brook to Lost River) Low Dissolved Oxygen Impairment

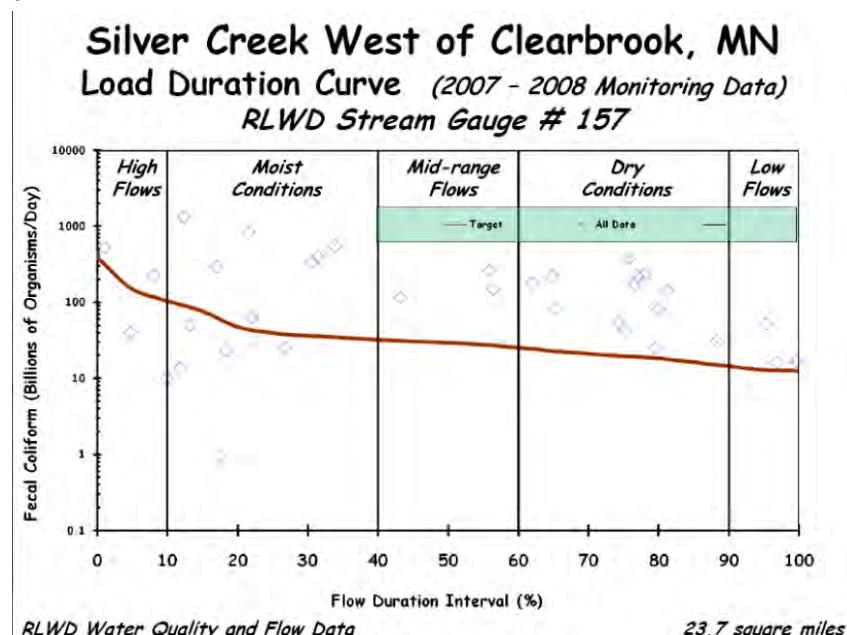
Overall, the Clearwater River appears to be fully supportive of aquatic life based on dissolved oxygen concentrations and State water quality assessment methods. Continuous and spot measurements of dissolved oxygen along this reach of the Clearwater River throughout and prior to this study have verified that this reach, as a whole, currently meets the state water quality standard for dissolved oxygen. This reach will likely be delisted during the 2009 State water quality assessment and won't be included in the 2010 303(d) List of Impaired Waters.

Even though the reach technically meets water quality standards, portions of the river still experience low levels of dissolved oxygen (<5 mg/L). Therefore, the MPCA, stakeholders, and RLWD staff have agreed that proceeding with the TMDL Report will be wise. Since the stream currently meets water quality standards, any pollutant reductions will most likely be needed to incorporate a margin of safety into the TMDL to account for uncertainty in TMDL calculations.

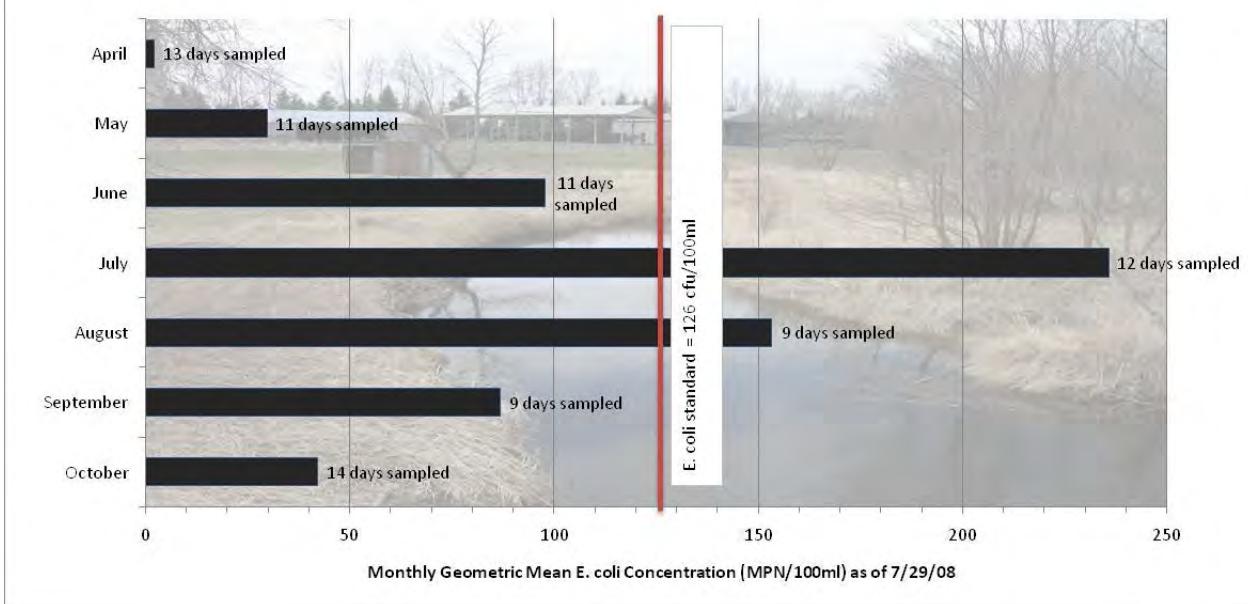


Silver Creek E. coli Impairment

The E. coli data collected in 2007-2008 undoubtedly verifies the aquatic recreation impairment on this stream. The monitoring site located just downstream of Silver Creek's confluence with Clear Brook exceeded the E. coli standard in nearly every sample that was collected. Exceedances of the E. coli standard are occurring across the spectrum of flows at the site located 1 mile West of Clearbrook. This means that the sources are likely both point and nonpoint in nature. Potential sources include feedlots, stormwater, pastures, septic systems, illegal dumping, and natural background.



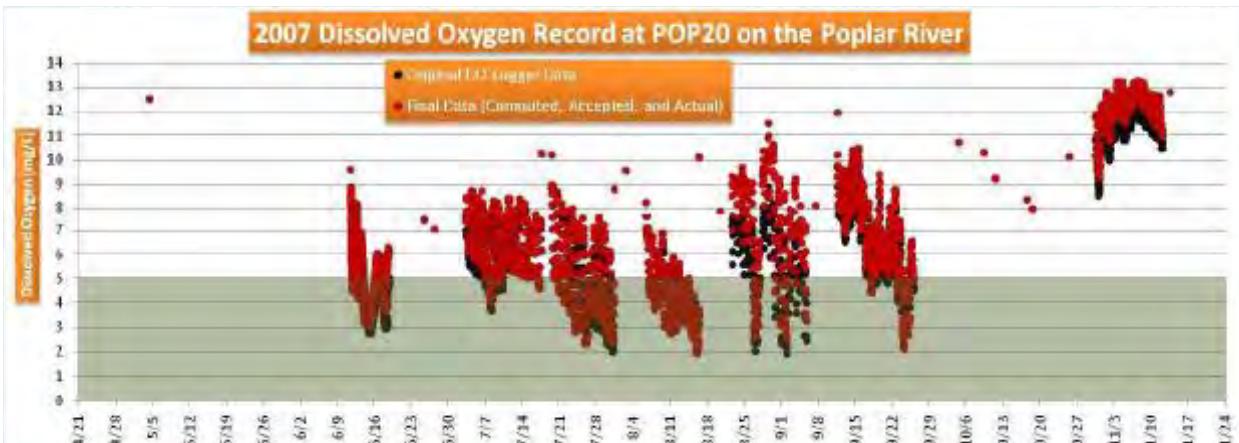
Silver Creek - Combined Monthly Geometric Mean E. Coli Concentrations



Poplar River Low Dissolved Oxygen

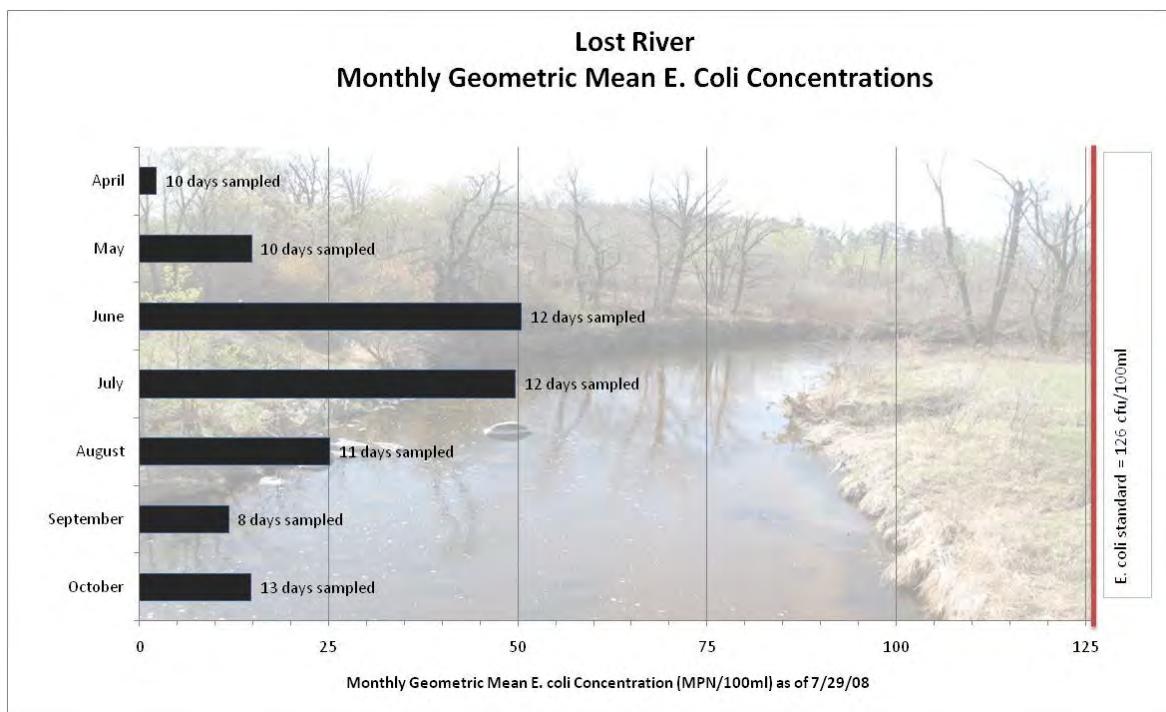
An extensive dataset of continuous monitoring data was collected at four sites along the Poplar River in 2007 and 2008. This data has verified the dissolved oxygen impairment throughout the listed reach of the river. Even the outlet of Spring Lake had some daily minimum dissolved oxygen levels that dropped below the 5 mg/L standard – usually at night. The impairment is more severe on the downstream end of the reach than it is on the upstream end.

- 11% at Spring Lake
- 40% downstream of Fosston
- 47% downstream of McIntosh
- 53% near Highway 59



Potential sources identified at stakeholders' meetings include the Fosston WWTP, organic soils in wetlands and fens along the stream, areas of low gradient, mats of blue green algae or milfoil, beaver dams, eutrophication in Poplar Lake, agriculture, and hydrology.

Lost River E. coli



The Lost River aquatic recreation impairment was not verified in the 2007-2008 E. coli monitoring. The percentage of samples that exceeded the standard was high enough to be a cause for concern, but there were no monthly geometric mean E. coli bacteria

concentrations that were high enough to qualify the reach as impaired. In other words, there are enough low readings to offset the high readings. The exceedance rate for the E. coli standard has decreased after this last year of monitoring. So, the recent data for this reach indicates that the aquatic recreation impairment on the Lost River should be delisted.

E. coli concentrations in the Lost River occasionally exceed the State water quality standard, so there is room for improvement. The MPCA, stakeholders, and

RLWD staff have agreed that it is still wise to proceed with the TMDL study and report. Because the stream is not currently officially impaired, the pollutant load reduction recommended by the study will come from the incorporation of a margin of safety into the TMDL.

Where is this impairment coming from? The load duration curve shows that the exceedances of the standard mainly occur during high flows, indicating that nonpoint sources are causing the impairment. Also, bacteria levels in the Lost River are relatively low in the upper part of the reach and increase in the lower reaches of the river.

Walker Brook Low Dissolved Oxygen

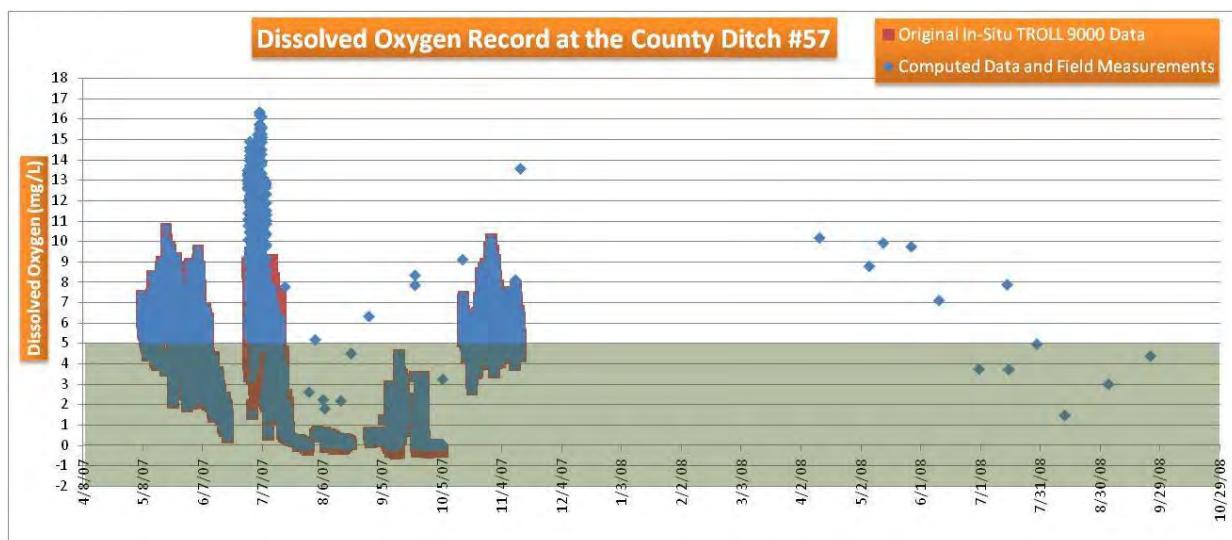
- Walker Brook is not meeting standards due to natural conditions in the watershed. If it cannot be removed for being impaired by natural causes, it should be reclassified when the Tiered Aquatic Life Use standards are in place (2010 at the earliest).
- 34% of RLWD DO measurements from 2002 through June 2008 fail to meet the 5 mg/L standard.
- The TMDL study for this reach will be postponed until the MPCA has completed development of tiered aquatic life use standards (TALU).



Red Lake County Ditch 57 Low Dissolved Oxygen

In this TMDL Report, the case should be made that CD 57 was listed in error. As a man-made road ditch, it does not have the designated use of being a warm-water fishery. This was the consensus of the stakeholders' group. Because of this fact, the TMDL for this reach will be included in the Clearwater River Dissolved Oxygen TMDL Report as an Appendix, rather than having its own TMDL Report. CD57 and others like it will need to be addressed as potential sources of sediment, nutrients, etc. for the Clearwater River. The water quality data from this ditch can be used do help predict the water quality in other ditches entering the Clearwater River.

Continuous dissolved oxygen monitoring and spot measurements verified that this waterway undoubtedly fails to meet the state water quality standard for dissolved oxygen. 80.81% of 172 daily minimum measurements fail to meet the 5 mg/L standard, especially once flow stops in mid-June. Stagnant water and warm summer temperatures cause dissolved oxygen levels in CD 57 to plummet.



Thief River Watershed Sediment Investigation

The 2007-2010 Thief River Watershed Sediment Investigation was initiated to identify the true sources of water quality problems that have been identified within the Thief River watershed. Regular monitoring conducted by the RLWD, Marshall County Water Plan, and Grygla River Watch program have identified high turbidity, low dissolved oxygen, high fecal coliform, and high un-ionized ammonia nitrogen problems within the watershed. The complexity of the hydrologic modification and diversity of opinions about sources of water quality problems necessitated a study that would involve intensive sampling, continuous water quality monitoring, and water quality modeling. The project focuses on collection of a quality data set through the first three years. Final data analysis, modeling, and report writing will be completed during the third and last year of the project. A detailed work plan (with budget, Quality Assurance Project Plan, etc.) for the project can be accessed on the RLWD website projects page (www.redlakewatershed.org/projects).

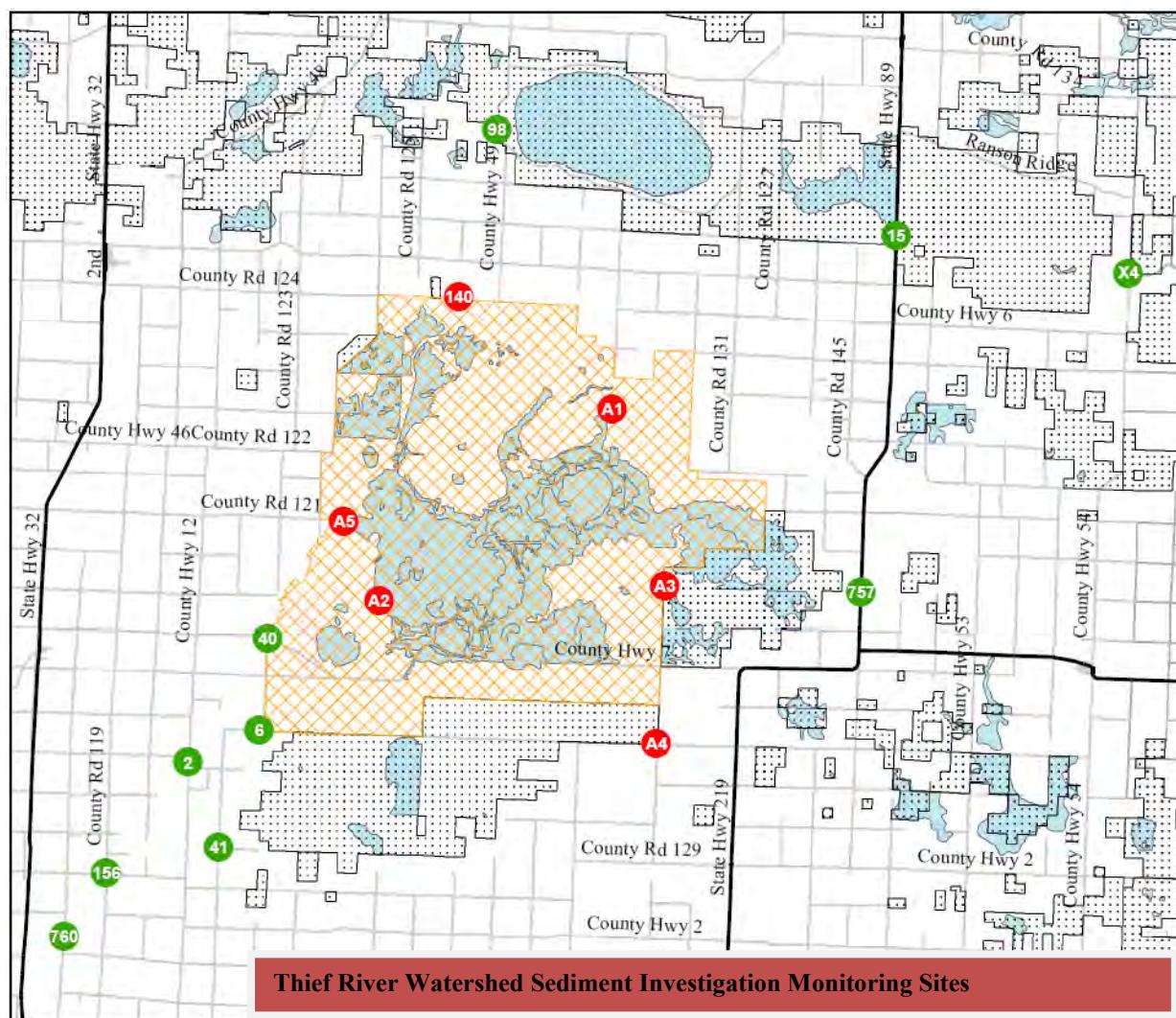
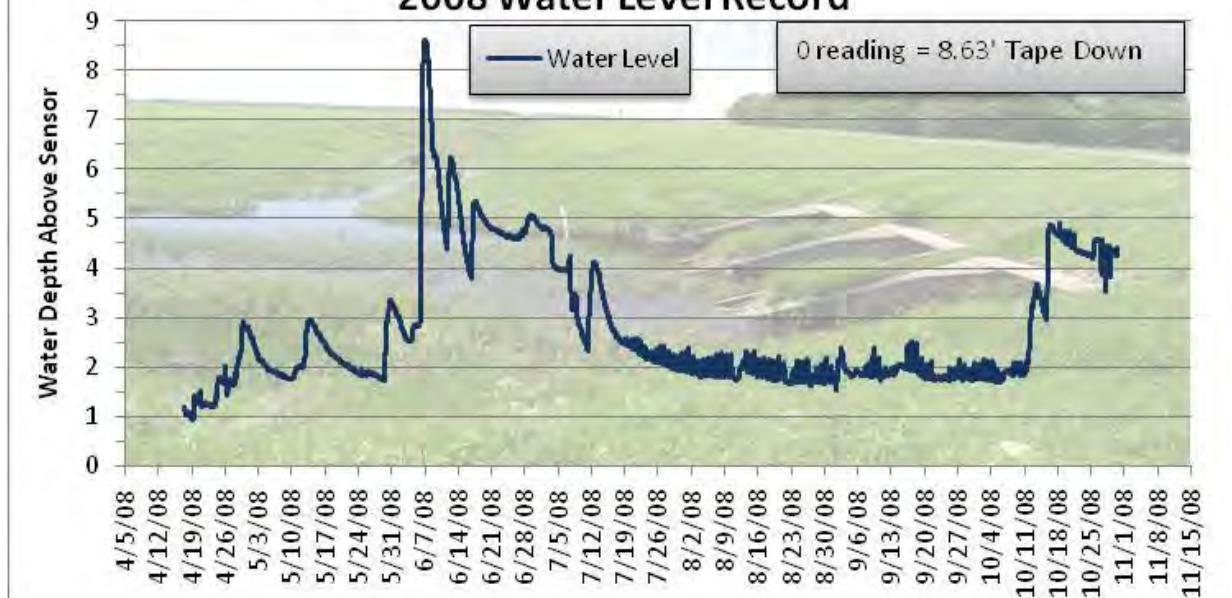
- Monthly sampling
- Continuous water quality monitoring
- Continuous stage measurement
 - Example graph of stage record
- Flow measurements
 - Eventually able to convert stage to flow.
- Streambank inspection
- USFWS and USGS monitoring
 - Agassiz National Wildlife Refuge hired a full-time employee for the 2008 monitoring season and a summer intern to conduct the monitoring in and around the refuge. The USFWS also purchased an additional deployable sonde and a portable system for adding another continuous monitoring site and collecting spot measurements.
 - The USGS will be collecting data from the sites around Agassiz NWR and analyzing the continuous monitoring data using their ADAPS software.
- Marshall County Water Plan monitoring assistance
 - The Marshall County Water Planner was able to purchase a YSI sonde for use for this study.
 - The MCWP has been monitoring site X4, 15, 757, 98, 140, 40, and 6 monthly.



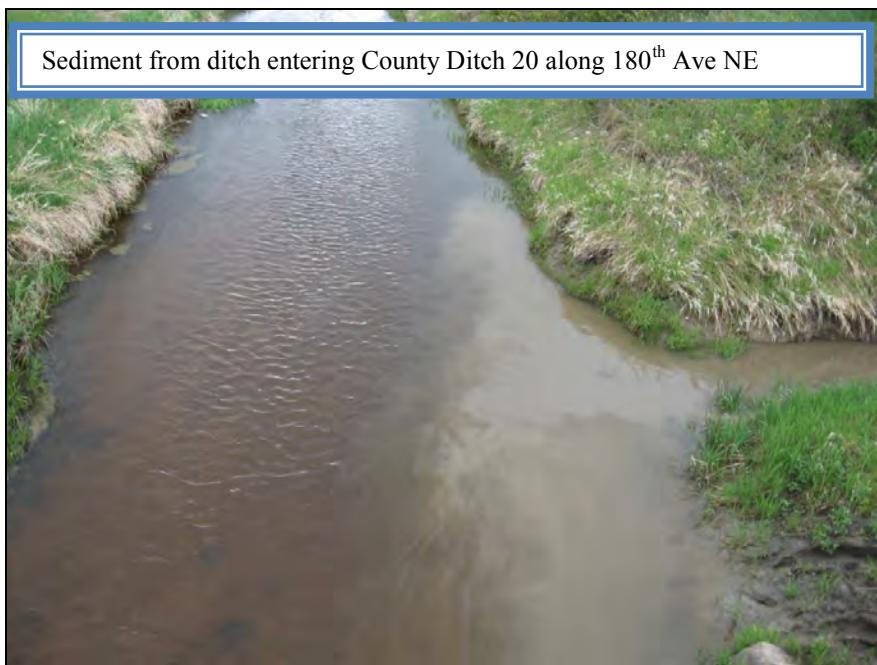
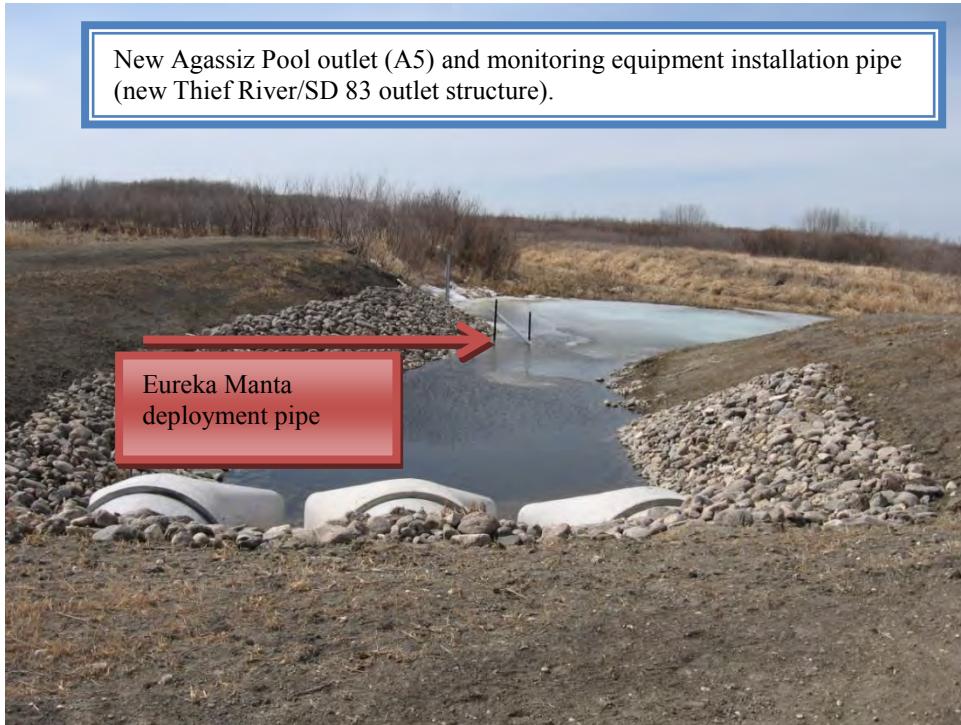
Some of the continuous monitoring equipment was damaged in the return shipment after it was sent in for minor repairs this last winter. Most of these instruments were owned and/or used by the Agassiz NWR monitoring effort, so there will be some gaps in that record.

X4 (SG #43), Moose River @ Hwy 54

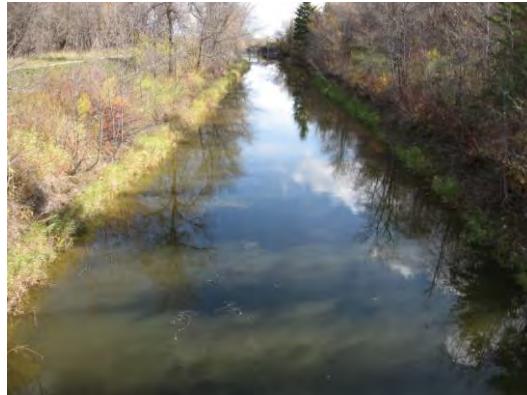
2008 Water Level Record



- HOBO water level loggers were installed at sites 98, X4 (SG 43), 6, 2, and 156.
- The USGS began collecting flow and water quality data from sites A1 through A5 and stream gauge #140.
- The five RLWD-owned and the six USFWS-owned Eureka Manta continuous water quality monitoring sondes were maintained on a bi-weekly schedule.

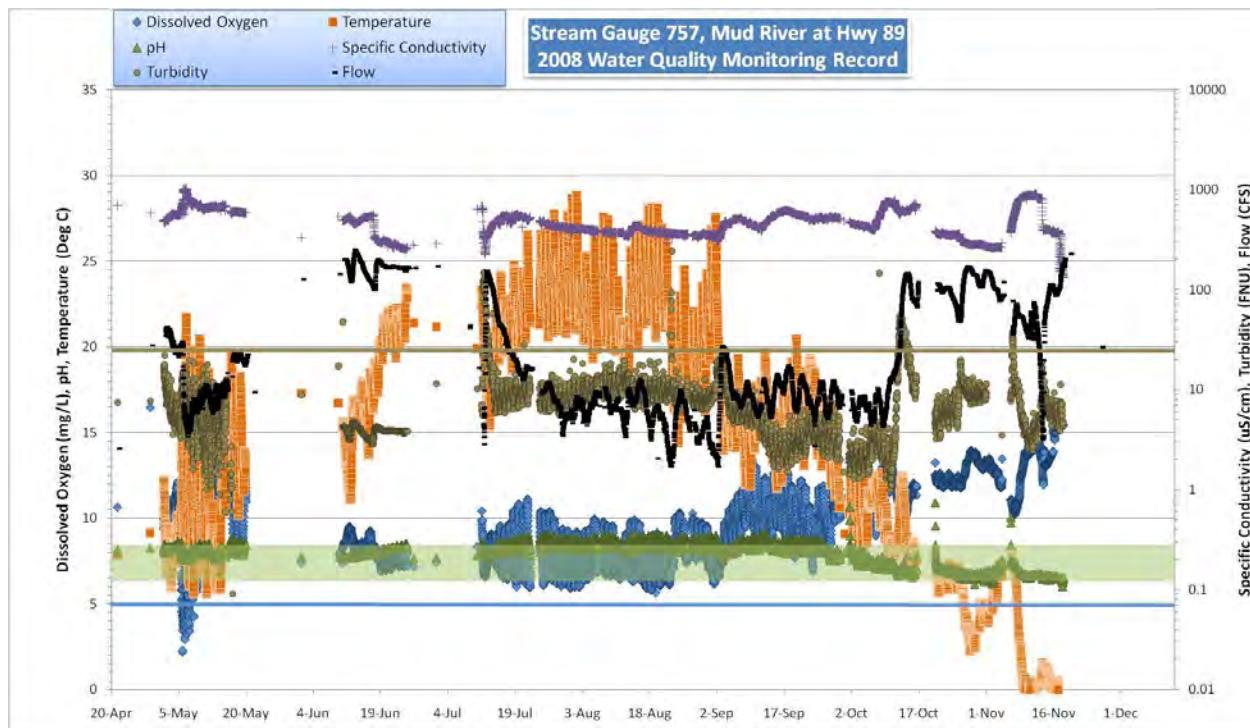
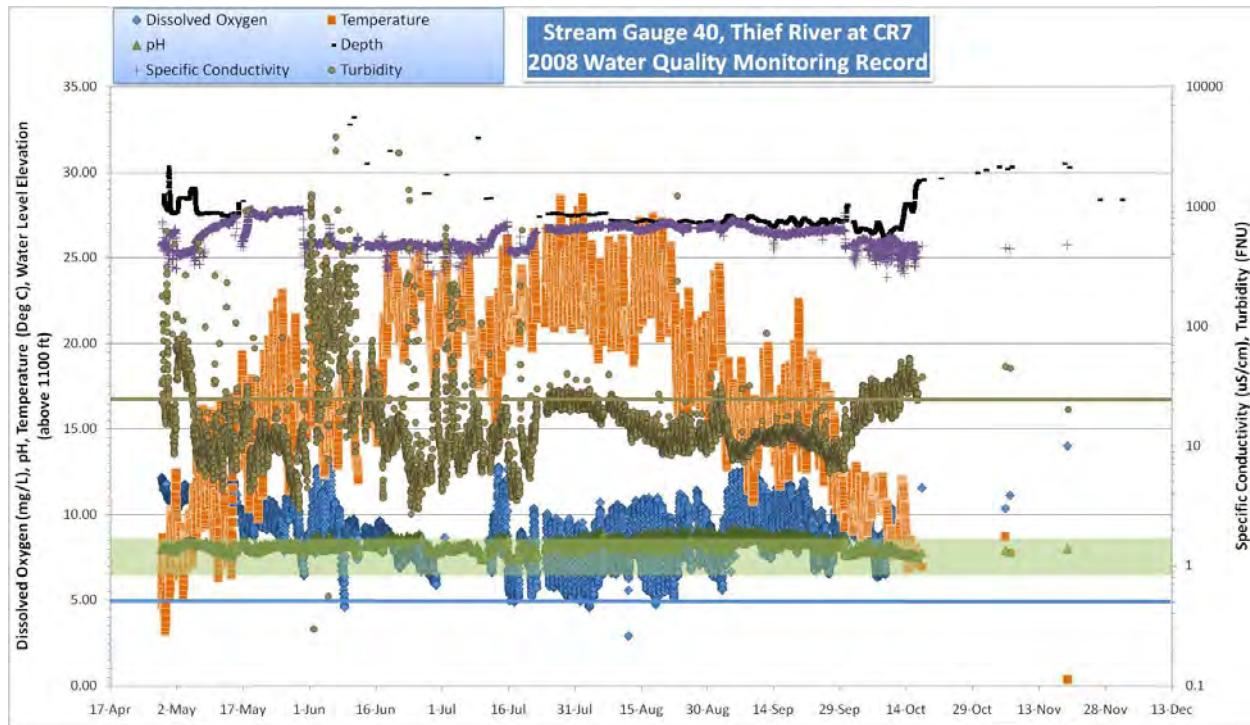


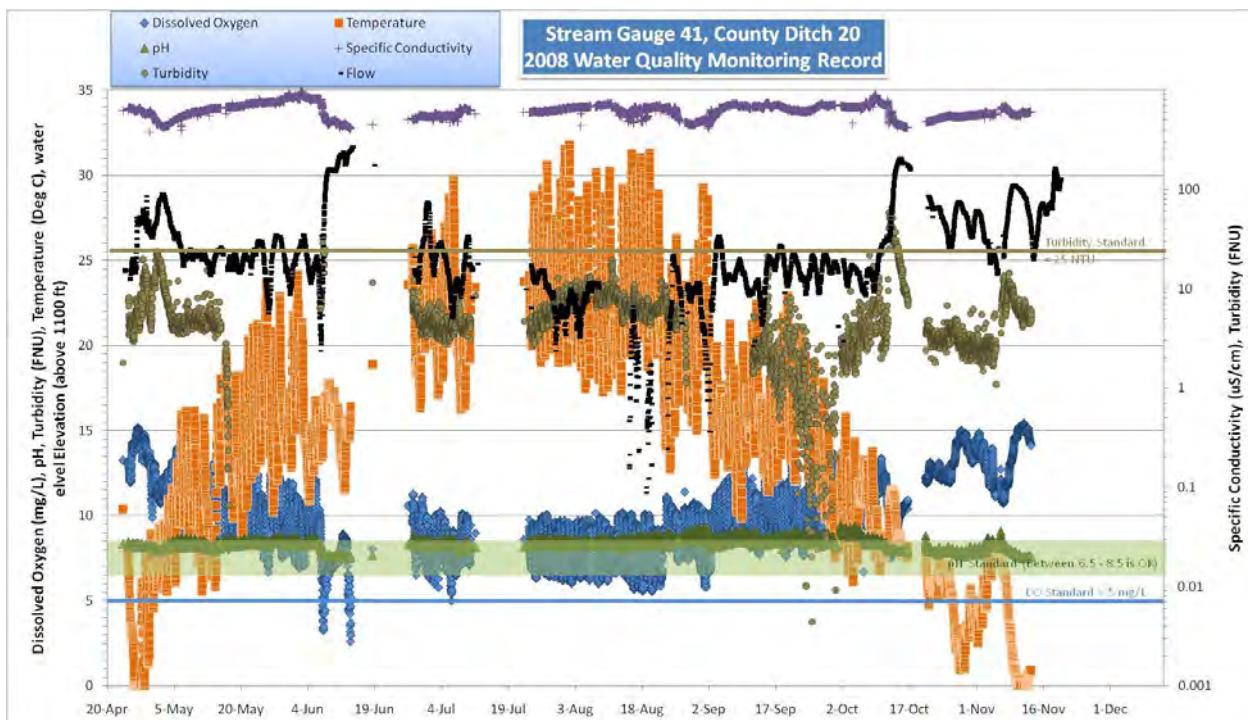
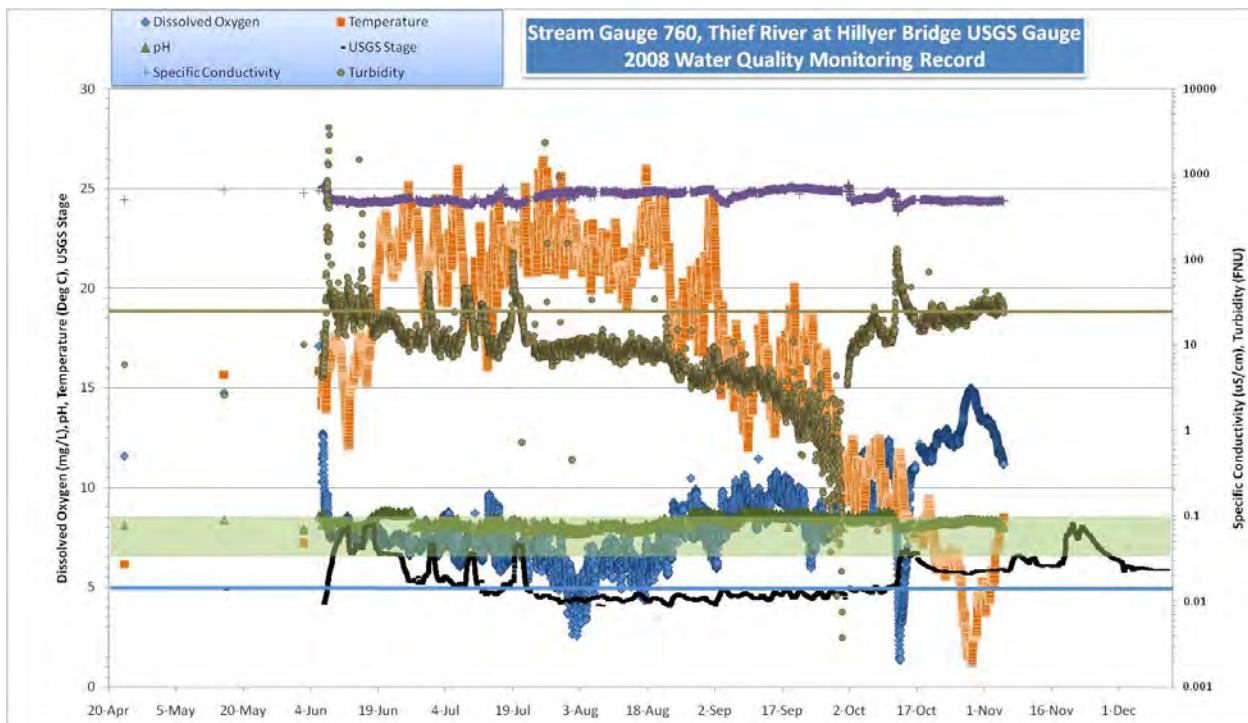
- With the sustained October 2008 high flows in the Thief River/SD83, there also was a sustained period of high turbidity readings in the river.
- RLWD staff paddled a reach of the Thief River/SD 83 (CR7 to CSAH 12) to inspect the channel for sediment bars and erosion problems. Other reaches will be traversed in 2009.



- The MPCA has officially approved a six-month extension for the Thief River Watershed Sediment Investigation. The objectives of this project will be completed by June 2010.
- The main task during December for this study was data analysis. This included compilation of continuous stage and water quality data (see graphs).

Assessment of Combined Records of Spot Measurement and Continuous Monitoring Data for the Thief River watershed Sediment Investigation					
Site	River	2007		2008	
		Dissolved Oxygen	Turbidity	Dissolved Oxygen	Turbidity
757	Mud River	26.15%	1.85%	3.59%	2.47%
41	CD20	9.76%	12.20%	1.07%	1.40%
40	Thief River	9.00%	0.00%	4.32%	24.00%
760	Thief River	1.72%	21.15%	10.19%	15.92%
		Percentage of time that standards are not met.			





Tile Drainage Study

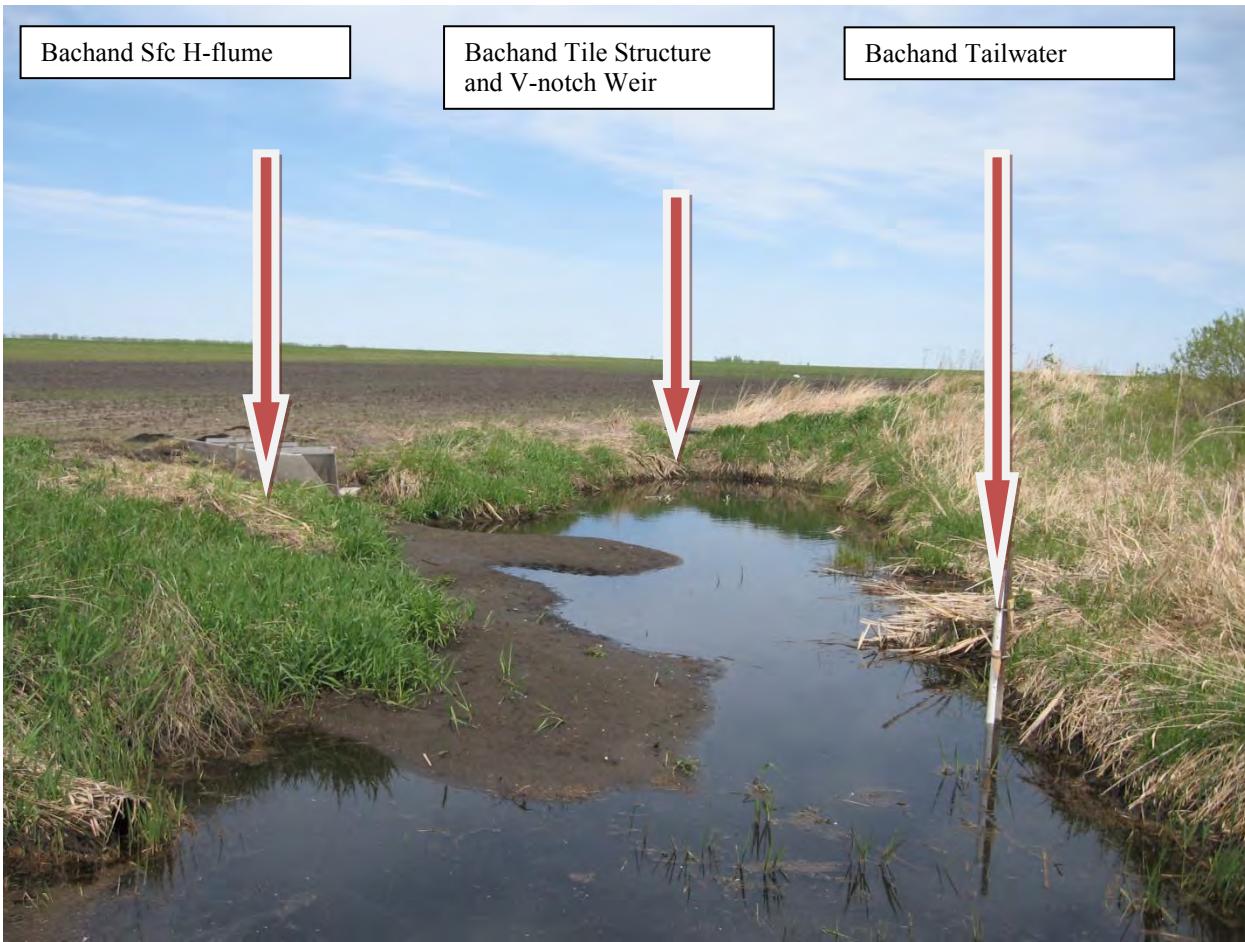
A final report was completed for the water quality aspect of the Red Lake Watershed Farm to Stream Tile Drainage Water Quality Study in early 2008. The report is also available on the RLWD Projects webpage (<http://www.redlakewatershed.org/projects.html#RLWFTSTile>). The Red River Watershed Management Board has decided to fund an extension of the flow monitoring through 2008. This will provide time to capture additional storm events that can be analyzed and used to build upon the information need to arrive at conclusions. The RLWD will partner with HDR Engineering to complete the analysis. The final report will be revised with the results of the flow monitoring in early 2009. A complete record of flows was collected all sites in 2008.



HOBO water level loggers were installed at all the Red Lake County stage monitoring sites. The rain, barometric pressure, and air temperature logging equipment was also installed. HDR Engineering and RLWD staff fixed the Bachand flume by raising it high enough so that it will be affected less by backwater and will contribute less to “headcutting” erosion within the field.

Late fall rains generated surface runoff and will provide us with some excellent storm event data. When the weather got cold enough, surface flow eventually subsided at the surface drainage monitoring sites so the water level loggers could be retrieved. The tile drainage in the Bachand field continued to flow until December 3rd. When flow stopped, HOBO Water Level Loggers were retrieved. Data was then downloaded and sent to HDR Engineering.





Erosion Assessment on the Red Lake River

<http://www.redlakewatershed.org/waterquality/RLR%20Erosion%20Site%20Inventory.pdf>

Some progress was made in 2008 in the way of documenting erosion problems along the Lower Red Lake River. Photographs and their corresponding GPS locations collected during the 2007 Red Lake River Rendezvous canoe trip were compiled and assessed in a document that prioritizes them by severity. Also, University of North Dakota staff used the RLWD boat to collect a GPS-linked video of streambank erosion along the lower Red Lake River near East Grand Forks. While going through the sites, it became evident that there is significant erosion occurring around every bend in the lower Red Lake River between Crookston and Grand Forks. While scouring has occurred along nearly all the outside banks of bends in the lower reaches of the river, the most severe sloughing generally occurs along bends on which the riparian forest has been cleared. The most recent draft of the RLWD's Red Lake River Erosion Inventory Document can be downloaded at the website shown above. The severe erosion site pictured here, as an example, has all the ingredients of streambank stability problems. Not only is it located on the cut-bank of a deforested bend in the river, but it also is subjected to added weight and moisture from the Fisher lagoons.

Streambank Erosion Severity Index		Sites 58-69
Site description		Badly eroding bend in the river south of Fisher
Site visits on		6/6/2007 11:10 - 11:24
Lat/long:		N47°47'17"E96°46'20"
Observation		Score
Condition of bank		5
Bank undercutting		4
Tops stable, Upper bank undercutting		3
Problem Trend		5
Increasing		
Decreasing or stable		
Side-slope of bank		5
Vertical: 2.2		5
1.5: 1		2
0.5: 1.0		2
Length of eroded bank		5
More than 50%		5
20 to 50%		2
10 to 20%		2
Depth of erode		2
More than 1%		2
Less than 1%		2
Soil type or texture		1
Silt		1
Gravel		2
Sand		2
Clay loam		2
Vegetative Cover on Bank slopes		15
0-10%		1
11-40%		1
41-100%		2
Apparent cause of erosion		2
Light access traffic		1
Dams		2
Bank scourage		2
Banking to side channels		2
Bank cutting (in-poolments)		2
Flood/stream crossing		2
Machinery access		2
Human access (Boat, canoe, etc.)		2
Mean height of eroded bank		1
More than 20%		2
10 to 20%		4
5 to 10%		2
Less than 5%		2
Current		2
Fast		2
Slow		2
Total Points for site		37
Severity		Severe
Notes: (1) Long reach (1 km) downstream of the cutbank south of Fisher Cross. These areas are newly constructed lagoons near the ends of this bend. They could add weight and moisture to the already unstable banks.		

2008 List of Impaired Waters

Each even-numbered year now brings a new list of impaired waters that is the result of a statewide water quality assessment conducted the previous, odd-numbered year. Minnesota's 2008 303(d) List of Impaired waters includes a number of reaches and a lake within the Red lake Watershed District that are newly listed as impaired. The following table list newly identified impairments within the RLWD.

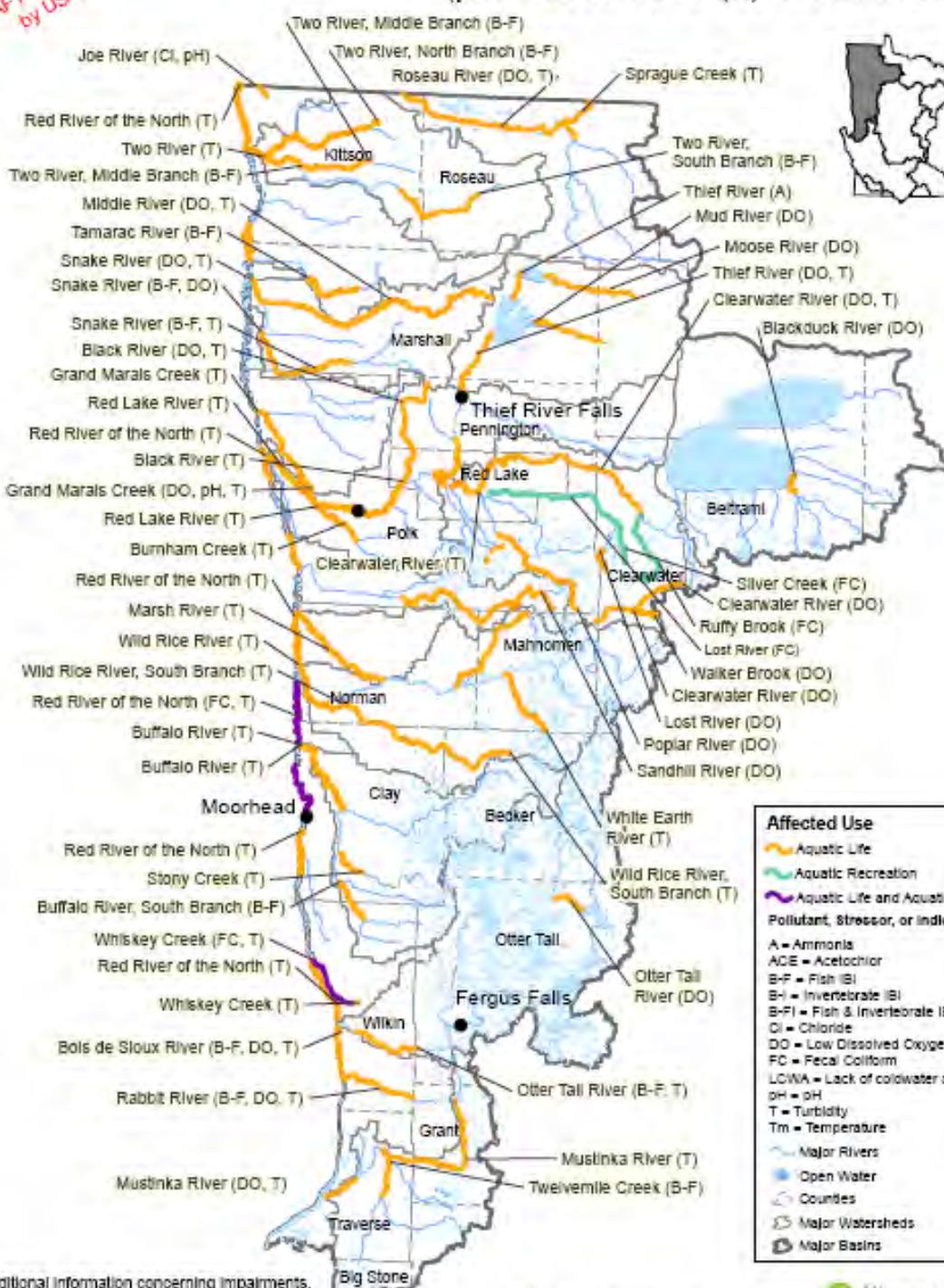
Impairment	Waterbody	Reach
Low Dissolved Oxygen	Blackduck River	S. Cormorant R. to N. Cormorant R.
Low Dissolved Oxygen	Mud River	Headwaters to Agassiz Pool
Fecal Coliform	Ruffy Brook	Headwaters to Clearwater R
Turbidity	Clearwater River	Ruffy Brook to the Lost River
Turbidity	Clearwater River	Lost R to Beau Gerlot Cr
Turbidity	Black River	Little Black R to Red Lake R
Turbidity	Black River	Headwaters to Little Black R
Low Dissolved Oxygen	Black River	Headwaters to Little Black R
Turbidity	Burnham Creek	Unnamed cr to Red Lake R
Turbidity	Red Lake River	Black R to Gentilly R
Turbidity	Red Lake River	Unnamed cr to Clearwater R
Turbidity	Red Lake River	Crookston Dam to Burnham Cr
Turbidity	Red Lake River	Gentilly R to Crookston Dam
Total Phosphorus	Cameron Lake	Lake ID #60-0189-00

So, when will these TMDL studies be completed? That largely depends upon available funding. The MPCA is working on turbidity TMDL reports for the Lower Red Lake River and Grand Marais Creek. The RLWD is working on TMDL reports for several reaches in the Clearwater River watershed through the Clearwater River Dissolved Oxygen and Fecal Coliform TMDL Study. The work being done for the Thief River Watershed Sediment Investigation will make that watershed a high priority candidate for the completion of a TMDL study in the near future.

Red River Basin: Conventional Parameters

2008 Impaired Waters Requiring a TMDL
(per Section 303 (d) Clean Water Act)

DRAFT until approved
by US EPA



For additional information concerning impairments,
such as station information and monitoring data,
see the MPCA Environmental Data Access System.
<http://www.pca.state.mn.us/data/edaWater>

0 5 10 20 30 40 Miles

Minnesota Pollution
Control Agency
September, 2007

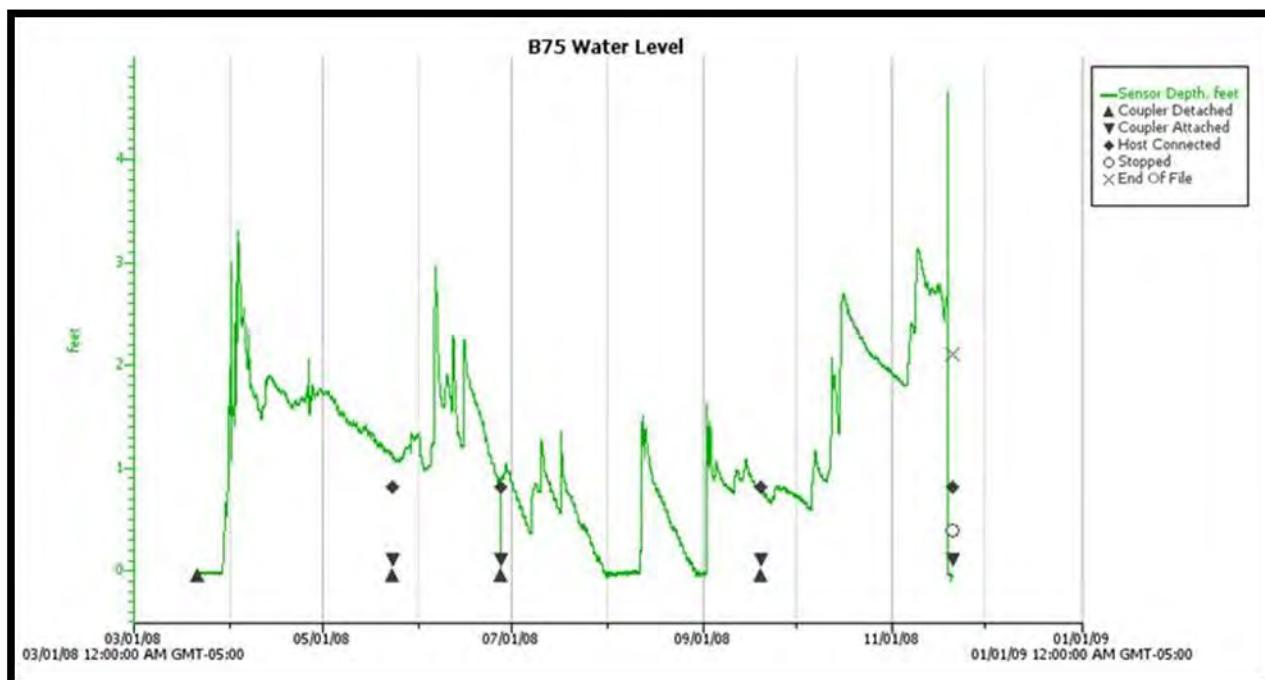
Grand Marais Project Water Quality Monitoring

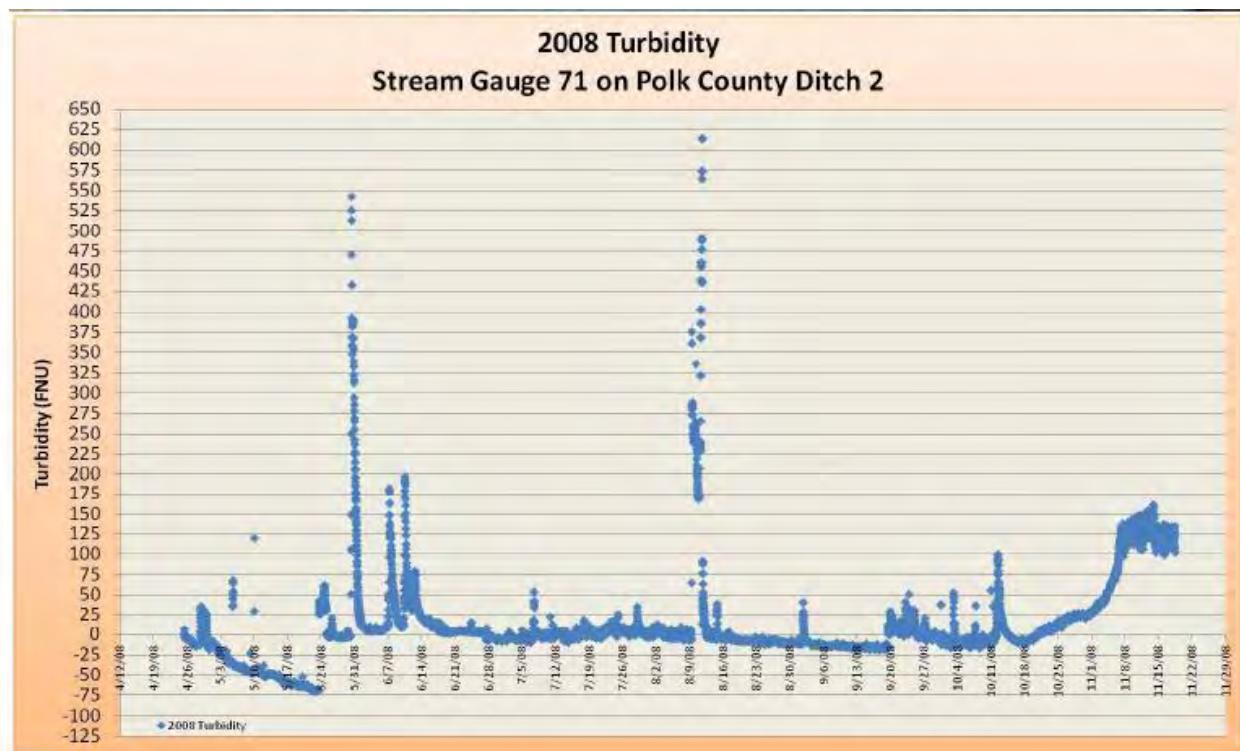
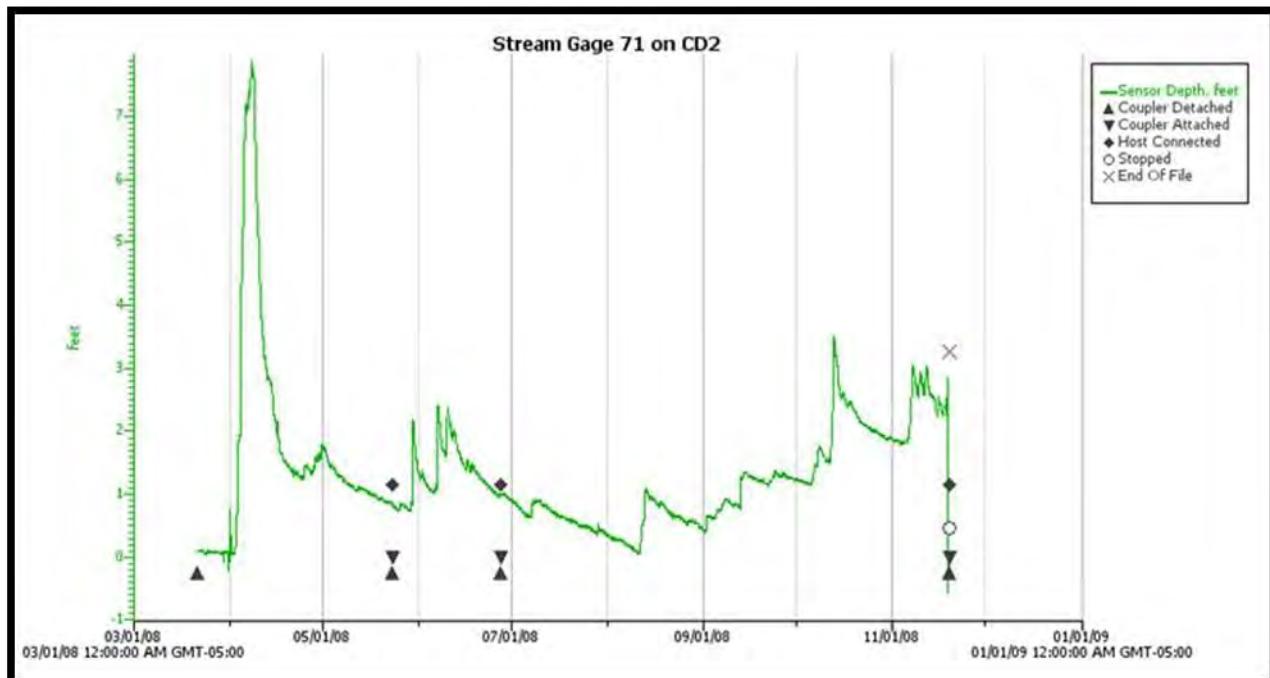
The Project 60E portion of the Grand Marais Creek flood control project was funded by a Challenge Grant from the Minnesota Board of Water and Soil Resources. In addition to restoration of the outlet channel downstream of the Brandt impoundment, it also funded the initiation of water quality monitoring. This monitoring is designed to evaluate the effectiveness of the Brandt and Euclid East impoundments for reducing sediment in the Polk County Ditch 2 system.

Continuous turbidity and water level monitoring equipment is installed yearly on the Brandt Channel (at Highway 75) and Polk County Ditch 2 (stream gauge #71 at CR 62) in the spring. A routine of monthly cleaning, maintenance, and field measurements is then conducted through the summer. Red River Watershed Management Board staff collect total suspended solids samples and conduct field measurements. The long-term collection of data at these sites will allow us to compare “before” and “after” data relative to the impoundment construction and channel restoration.

Turbidity logging probes have been installed. This year, they were calibrated with the same standards used for the portable Eureka Manta probe, so the numbers should be more comparable. (The Stevens TS300 turbidity probes have read higher than other units in past years).

Some of the highest flows of the year occurred in October and November at these sites. These high flows provided an opportunity to record some flow measurements at both monitoring sites. Because of this late runoff, equipment remained installed until November 18 this year. Manual water level measurements were collected until the channels were ice-covered. CD2 remained flowing throughout the whole month of November.





Education

The RLWD Water Quality Coordinator helped teach school students at the Pennington County Outdoor Education Day and the Northwest Water Festival and was also a judge at the Franklin Middle School 7th and 8th grade science fair in Thief River Falls.

The Water Quality Coordinator also gave several presentations, including the 2008 Subsurface Drainage Forum, Red River Basin Water quality Team, Clearwater River TMDL Stakeholder Advisory Meetings, Red River Basin Water Quality Monitoring Training Session, Glacial Ridge Conference, and the RLWD Board of Managers. Monthly water quality reports continue to be available on the RLWD website.



Other Notes from 2008

- ✓ Two In-Situ TROLL 9000 continuous water quality monitoring probes were damaged in high flows on the Clearwater River in June of 2007. These probes were repaired/upgraded to In-Situ TROLL 9500s and will be used for monitoring dissolved oxygen and other basic field parameters on the Moose River in 2009 and in future TMDL studies.
- ✓ Revision 7 of the Standard Operating Procedures for Water Quality Monitoring in the Red River Watershed was completed. Many improvements were made to include improvements in methods/technology from the last five years, to make the document more useful, and to improve the readability of the document (lots more pictures and diagrams).
- ✓ Ice-out didn't begin until after the second week of April. This delayed a lot of the monitoring and equipment installation work that needed to be done in April.
- ✓ Wrote a letter of support for the Clearwater County SWCD's grant application for Agricultural Watershed Restoration money for the Silver Creek watershed.
- ✓ The RLWD's flow measuring equipment was upgraded to an optical system with an AquaCalc 5000 logging handpad. An 8-foot rod was also purchased for measuring high flows through box culverts.
- ✓ All water quality data collected and available through October was entered and submitted to STORET prior to the November 1st, deadline. Data submitted by the deadline will be used in the 2009 statewide water quality assessment, which will begin soon.
- ✓ Area SWCDs were successful in receiving Surface Water Assessment Grants to conduct additional water quality monitoring.



Plans for 2009

- Continue flow monitoring for the tile drainage study and revise the final report to include results of flow data analysis.
- 2009 will be the final year of data collection for the Thief River Watershed Sediment Investigation.
 - Coordinate the collection of weekly stage readings at Thief River watershed sites to improve the accuracy of water level logger reading-to-actual stage conversions.
 - Add a continuous monitoring site on the Moose River using the RLWD's In-Situ TROLL 9500 multiparameter sondes.
 - Double the sampling rate at TRWSI sites to bi-monthly.
 - Collect 8 sets of extra E. coli samples at certain sites to meet assessment data requirements and verify potential impairments.
 - Collect 2 longitudinal (every road crossing) sets of E. coli samples on the Mud River to help determine the extent and source of the potential impairment.
- Start the SWAT modeling process for the Thief River Watershed
- The Clearwater River Dissolved Oxygen and Fecal Coliform TMDL SWAT Modeling will be completed by April 30, 2009 and the TMDL reports will be completed by the end of June, 2009.
- Write a comprehensive water quality report that analyses RLWD long-term monitoring data – similar to the 2004 report.
- Provide any assistance that may be needed in planning and implementing the objectives of the Clearwater County SWCD's Silver Creek Agricultural Watershed Restoration Grant project.
- Help the Maple Lake Improvement District establish a volunteer-based water quality monitoring program. There also is a need to initiate some projects in the Maple Lake watershed to address shoreline restoration opportunities, agricultural runoff, and other potential sources of excess nutrients in the lake.
- Collect a minimum of 4 sets of samples and measurements at the RLWD long-term monitoring sites during spring runoff and the months of May, July, and September.
- Collect monthly samples at SWAG sites.
- Enter and submit all data collected throughout the year to the MPCA for inclusion in the EPA STORET database (or the State's version that will soon be taking its place).
- Measure flow to establish rating curves at future TMDL monitoring sites. As water level loggers become available, start monitoring stage continuously at certain sites where a flow record will be needed for modeling and load allocation for upcoming TMDL Studies (e.g. Black River, Ruffy Brook, Burnham Creek).
- Plan/outline projects that will be eligible for grant funding when it becomes available (e.g. Clean Water, Land, and Legacy Amendment funds). Continue to look for funding opportunities for planned implementation projects.
- Participate in the 2009 State Water Quality Assessment.
- Complete the report for the Clearwater River Habitat and Bioassessment Project.

Other Watershed Activities

Other on-going activities include water appropriation for wild rice growers, stream flow monitoring, benchmark surveys, hydrologic analysis, flood studies and inspection, operation and maintenance of watershed district projects and facilities.

Wild Rice Water Allocation (RLWD Project #45)

Wild rice production along the Clearwater River began in 1968. The water allocation project was petitioned by the growers in 1984, and involves the appropriation of water for the production of wild rice on approximately 12,000 acres of paddies along the Clearwater River.

The District allocates water to the growers during periods of low flow. The allocation program ensures that each grower receives their appropriate share of available flow, and that the protected flow of 36 cubic feet per second (cfs) is maintained in the Clearwater River.



Typical pumping station

Wild rice, as a domesticated agricultural grain crop, is grown in paddies flooded with water to an average depth of about 1 foot. Most of the water is appropriated during the spring runoff and continues to June. Spring flood storage capacity is about 23,000 acre feet, which is equivalent to 1.1 inches of runoff. The paddies are drained during July and August to facilitate harvest.

When there is adequate flow, some growers partially flood paddies in the fall or late winter. By doing this, it helps to reduce the need of pumping activity in the spring, at which time, water supplies may not be sufficient to meet all of their needs. In 2008, there was ample spring runoff in the Clearwater River watershed. Timely summer rains provided the growers adequate water. Due to sufficient flows, water allocation activities performed by the District were minor. Normal duties include correspondence with growers, record river levels at various sites and flow measurements. The growers also provide valuable river level gage data.



Surveying water lift from river to pump



Measuring flow using manual method



Harvesting wildrice



Measuring flow with doppler meter

Stream Flow Monitoring (RLWD Project #21)

Our stream flow monitoring is a vital on-going activity. The district has an active stream gaging program and local volunteers assist us in recording gage readings and monitoring river conditions for each runoff event. Approximately 150 gages of various types (staff, wire weight, automated) are located throughout the District. District staff performs flow measurements and continues to develop stage (gage height) and discharges (flow in cubic feet per second) curves at many locations. This data, in conjunction with records and cooperative efforts from other agencies such as the U. S. Geological Survey (USGS), and the MnDNR will help us better understand drainage and runoff characteristics within the District. With several years of recorded data, it will become increasingly valuable for the Board of Managers and staff for the operation of existing projects and development of potential projects.



Measuring flow beneath ice





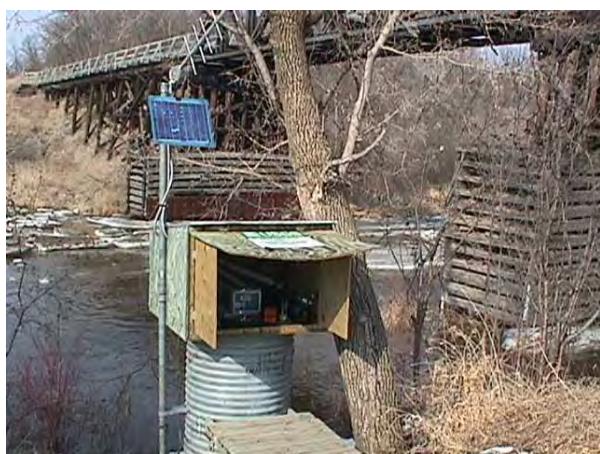
Typical staff gage at structure



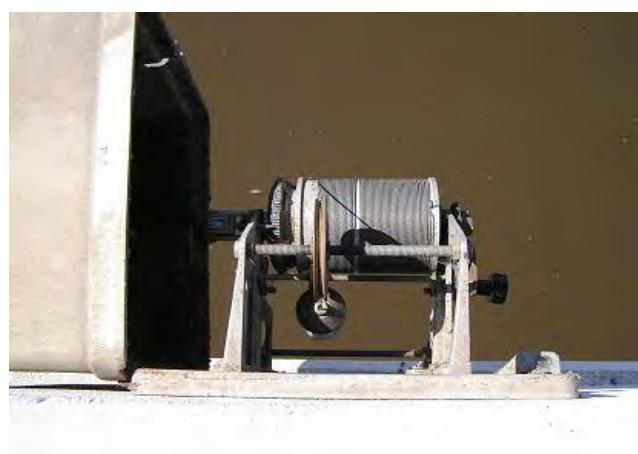
Measuring flow with bridge crane



Automated river gage located on Clearwater River at Plummer



Automated river gage Clearwater River, Red Lake Falls



Wire weight gage

Snow Surveys

The Red Lake Watershed District performs weekly snow surveys each year, beginning in about the middle of February. Seven sampling sites are monitored throughout the watershed district. The locations of these sites are near impoundment facilities which are designed and operated for floodwater retention.

The depth of the snowpack is measured and a „core sample“ is obtained. The tube and snow core are weighed, and the “water content” of the snow is calculated. Five samples are taken at each site and averaged for the weekly data.

This information is forwarded to the National Weather Service and the North Central River Forecast Center. Obtaining snowpack information helps estimate the amount of runoff and make flood forecasting predictions.

The relationship between snowpack and the amount of snowmelt runoff is complex, and depends on many factors.

Some of the criteria used to determine flood potential of spring snowmelt are:

- Depth of existing snow cover and snow moisture content
- Existing soil moisture (was it wet or dry the previous fall?)
- Depth of frost - or is there frost ?
- River ice and ice jams

Fast and Slow thaws:

- Gradual or intermittent thawing may reduce the potential for serious flooding, especially in areas with minimal frost depths
- Flood potential usually increases with late season melting, when a rapid melt is more likely; and if additional precipitation occurs during the runoff event.

The maximum snow depths at our survey sites ranged from 13 to 16 inches and moisture contents of 2.1 to 2.55 inches of water; this was in early March. Conditions leading up to the Spring melt of 2008 were considered nearly ideal, with thawing days and cool freezing nights. Snowpack was basically gone and the 2008 Spring runoff event over by April 11th. There was no flooding problem in the Watershed District or Red River Valley.

The Fall, however, was one of the wettest on record in the area, and record snowfall occurred in December. Substantial runoff in the spring of 2009 is possible.



Establish base weight of empty sampling tube



Obtaining snow depth and core sample



Establishing weight of snow sample to obtain water content

Maintenance of Drainage Systems



This year's inspection of the Red Lake Watershed District's many miles of drainage ditches and numerous other projects was again a very busy function for the staff of the Red Lake Watershed District. Annual inspections were done to determine the type of maintenance work that needs to be performed (if any) to keep these ditch systems in good working order.

Again a helicopter was utilized for the spraying of most of our ditches and other projects because of accessibility and cost.

Cattails did not need to be sprayed this year as they seem to be under control in all of the ditches and may only need to be sprayed on a every other year rotation.

This summer the RLWD re-established the ditch right-of-way on the ditches where the District has had a permanent right-of-way established by law. This involved measuring in the distance and putting up a right-of-way stake every quarter of a mile; a total of 579 stakes have been used to date. Reseeding of 89.56 acres to reclaim the mandatory buffer strip and the mowing of approximately 117 miles of ditch right-of-ways was a large undertaking for the District this year.

Following is a listing by county, and by project name and number, of the work that was done to each of these ditches or projects in part or in whole in 2008.

Clearwater County

- Winsor / Hangaard (RLWD Project #113)
Spot spraying for brush was completed on 5 acres of the Winsor/Hangaard Ditch, project 113.
- Judicial Ditch 72 (RLWD Project #41)
Spot spraying of brush was completed on 1.3 acres of J.D. 72 project 41.
- Judicial Ditch 2 B (RLWD Project #49)
Spot spraying for brush was completed on 2.6 acres of J.D. 2 Project 49. This ditch will have to be monitored and possibly be hand sprayed for thistles.

The right of way was staked in cropland areas only. The buffer strip was then reseeded and some of the ditch was mowed where we have right of way.

- Judicial Ditch 2 A (RLWD Project #48)
Spot spraying for brush was completed on this project.
- Good Lake Impoundment (RLWD Project #67)
Brush spraying was completed on approximately 34.3 miles (114 acres) of this project.

Red Lake County

- RLWD Ditch 7 (RLWD Project #20)
Spot spraying for brush was completed on this project totaling .84 acres.
The right of way was staked, the buffer strip was then reseeded, and the ditch right of way was then mowed.
- RLWD Ditch 1 Lat A & B (RLWD Project #5)
The right of ways on these two laterals where staked in crop land areas only, the buffer strips was then reseeded, and the ditch right of way was mowed.
- RLWD Ditch 1 Lateral A (RLWD Project #115)
The right of way was staked, the buffer strip was reseeded, and the ditch was mowed.
- RLWD Ditch 3 (RLWD Project #7)
The right of way was staked, the buffer strip was reseeded, and the ditch was mowed. Some old spoil bank was leveled and seeded.
- Project 161, RLWD Ditch 10 (RWLD Project #161)
A local landowner mowed this ditch and buffer strip, baled it and used it for hay.

Pennington County

- Arveson Ditch (RLWD Project #109)
Spot spraying for brush was completed to this project totaling .5 acres. The right of way was staked, the buffer strip was seeded, and the ditch was mowed.
- Challenger Ditch (RLWD Project #122)
The right of way was staked and the ditch was mowed for weeds and brush.

Beltrami County

- Project 13, Moose River Impoundment (RLWD Project #13)
Approximately 26.6 miles (70 acres) of the Moose River Impoundment was sprayed for the control of brush and trees. This included the north inlet ditch, north pool dike, south pool dike, middle dike, and one mile of the south outlet ditch.
- RLWD Ditch 9 (RLWD Project 39)
This ditch was mowed for both brush and weeds.

Polk County



- Polk County Ditch 33 (RLWD Project 135)

The right of way was staked, the buffer strip was seeded, and the ditch was mowed.



Looking west



Looking east

- Polk County Ditch 63 (RLWD Project #134)

The right of way was staked, the buffer strip was seeded, and the ditch was mowed.

- Project 53, Krostue Petition (RLWD Project #53)

The right of way was staked, the buffer strip was seeded, and the ditch was mowed.

- Polk County Ditch Improvement (RLWD Project #119)

The right of way was staked, the buffer strip was seeded, and the ditch was mowed.



No-till drill seeding into wheat crop



Newly seeded buffer strip

- **Burnham Creek (RLWD Project #43B)**
The right of way was staked, the buffer strip was seeded, and the ditch was mowed. Spot spraying for brush was done on 2.8 miles (10 acres).
- **Scott Baatz Petition (RLWD Project #123)**
The right of way was staked, the buffer strip was seeded, and the ditch was mowed.
- **Kenny Johnson Petition (RLWD Project #117)**
The right of way was staked, the buffer strip was seeded, and the ditch was mowed.
- **RLWD Ditch 11 (RLWD Project #169)**
This ditch was mowed by the local landowners.



Marshall County

- **State Ditch 83 (RLWD Project #14)**



The Red Lake Watershed District Staff inspected Ditch 83 and removed all trees that were leaning into or had fallen into the ditch and any other snags or log jams that may have occurred over the past year and might be restricting the flow of water. With the nice weather and having very little snow and low water made for very good ice conditions and travel in the month of March. The cutting was started at the confluence of State Ditch 83 and the Thief River in Section 34 of Excel Township and continued upstream and ended at County Road 7 (Agassiz Bridge) located in section 32 of East Valley Township. Also the area from the north boundary of Agassiz Refuge to Marshall county road 6 was inspected and cleared of all fallen trees.



Clear and unrestricted channel

State Ditch 83 maintenance work was again a top priority for the District this year. Inspection of State Ditch 83 was conducted by a boat again this year because of the lack of adequate access by roads or trails. Areas that needed work and a way to access them with as little destruction as possible were then located. Lady luck was again on our side this year, with most of the summer being dry and water levels staying very low in the ditch it made for excellent working conditions again this year. Working with the landowners the District was able to spot clean 11 different sites for approximately 4000 ft of State Ditch 83, removing large sediment deposits, slumps, and debris from the ditch channel.



Ready to start cleaning



Sediment removed

One of the areas that were to be worked on again this year was an area that was heavily wooded with a lot of nice oak and ash trees. Most of these trees were salvaged by the landowners or others for firewood. An access trail was first made on the top of the old spoil bank. This access road will now be maintained yearly and will be used for future ditch inspections and any work that needs to be done in the future. These areas that were to be worked on were first cleared of most of the trees and brush (which was then buried). A bench was then cut for the backhoe to sit on in order to reach the middle of the channel.



To date there has been 50 sites cleaned for a total construction cost of \$169,563.00.

2003 - 5 sites = \$ 17,924
2004 - No work, water to high
2005 - 7 sites = \$ 39,033
2006 - 11 sites = \$ 36,004
2007 - 16 sites = \$ 42,144
2008 - 11 sites = \$ 34,458

Total 50 sites = \$ 169,563



Sites to be cleaned in 2009

One of the Districts priorities for the up and coming year will be working with Marshall County on fixing a sediment problem that appears to be coming out of Marshall County Ditch 20. Sand is being deposited in State Ditch 83 and causing a severe sediment block, which in turn is causing severe bank erosion just downstream of the outlet of Marshall County Ditch 20.



Standing at the end of Ditch 20-looking downstream at State Ditch 83



Large sediment deposit 250 feet downstream of Marshall County Ditch 20

Cooperation of landowners has played an important role in this project. We hope to continue with this spot cleaning project contingent upon the cooperation of landowners.

Legal Drainage Systems under jurisdiction of Red Lake Watershed District

The Red Lake Watershed District at present has jurisdiction of approximately 290 miles of legal drainage systems throughout the Watershed. The list of all the systems is shown below.

Ditch #	County	Length (mi.)
Red Lake River	Clearwater, Pennington	27.0
Clearwater River	Clearwater, Polk, Pennington, Red Lake	48.0
Lost River	Clearwater, Polk, Red Lake	43.3
RLWD Ditch #9	Beltrami	1.0
State Ditch #83	Marshall	22.0
Clifford Arveson Ditch	Pennington	2.2
Challenger Ditch	Pennington	0.32
RLWD Ditch #10	Red Lake	4.76
Equality/RLWD Ditch #1	Red Lake	2.25
RLWD Ditch #3	Red Lake	5.0
RLWD Ditch #1 lat A, B,	Red Lake, Polk	6.5
RLWD Ditch #7	Red Lake, Polk	12.6
Main Judicial Ditch #2	Clearwater	2.25 (e)
Judicial Ditch #2A	Clearwater	5.25
Judicial Ditch #2B	Clearwater	5.6
Judicial Ditch #4	Clearwater	3.6
Judicial Ditch #5	Clearwater	2.75
County Ditch #1	Clearwater	5.5
Winsor-Hangaard	Clearwater, Polk	13.9
Judicial Ditch #72	Clearwater, Polk	16.0
RLWD Ditch #8	Polk	2.0
RLWD Ditch #11	Polk	6.5
*RLWD Ditch #12	Polk	10.5
Polk County Ditch #63	Polk	3.0
Polk County Ditch #33	Polk	4.5
Polk County Ditch Improv.	Polk	12.7
Burnham Creek	Polk	14.0
Kramer Petition	Polk	1.1
Krostue Petition	Polk	1.6
Kenneth Johnson Petition	Polk	2.75
Scott Baatz Petition	Polk	<u>1.5</u>
Total Miles of Ditches		289.93

* In 2009 Polk County is going to have a transfer hearing and if approved, will add approximately 7 miles of branch ditches to this system.

Projections for 2009

The basic activities of the District are expected to continue in 2009 much as they did in 2008. It is expected that the District will proceed with development and construction of the Clearbrook Stormwater Retention Project, continue to take requests and secure funding for farmstead ring dikes, make recommended repairs to the Moose River Impoundment structure, complete the construction to the Improvement of Polk County Ditch #53 (RLWD Ditch #12) and transfer of three branches, continue with Grand Marais Outlet Restoration Project, complete the wetland banking site within the Louisville Parnell Impoundment, continue to investigate the Improvement of Pennington County Ditch #75, complete construction and final hearing for Brandt Channel Restoration Project, complete repair construction of structure for Farms Pool/Elm Lake Impoundment, continue with the Thief River Watershed Sediment Investigation, Clearwater River Dissolved Oxygen and Fecal Coliform TMDL study , start first year monitoring and sampling for the Surface Water Assessment Grant (SWAG) for upper Lost River/Nassett Creek and various other water quality projects.

In September of 2008, a public hearing was held concerning the proposed 2009 General Fund budget. Notice of the hearing and the proposed budget was published as required by state statutes. The General Fund budget was adopted and the levies were set for 2009. The General Fund levy was set at \$177,300.

Financial Report

Red Lake Watershed District
Management Discussion and Analysis

MANAGEMENT'S DISCUSSION AND ANALYSIS

As management of the Red Lake Watershed District, we offer readers of the Red Lake Watershed District's financial statements this narrative overview and analysis of the financial activities of the District for the fiscal year ended December 31, 2008. We encourage readers to consider the information presented here in conjunction with the District's basic financial statements following this section.

Financial Highlights

- The assets of Red Lake Watershed District exceeded its liabilities at the close of the recent fiscal year by \$9,211,559 (Net assets). Of this amount, \$2,105,733 (unrestricted net assets) may be used to meet the government's ongoing designations and fiscal policies.
- The District's total net assets increased by \$441,853.
- As of the close of the current fiscal year, Red Lake Watershed District's governmental funds reported combined ending fund balance was \$2,105,733. This total amount is designated or reserved through legal restrictions and board member authorization.
- At the end of the current fiscal year the general fund balance of \$203,424 of which all was unrestricted.
- The District had debt outstanding of \$46,351 at the end of the current fiscal year.

Overview of the Financial Statements

The discussion and analysis are intended to serve as an introduction to the Red Lake Watershed District's basic financial statements. The District's basic financial statements comprise three components: 1) government-wide financial statements, 2) fund financial statements, and 3) notes to the financial statements. This report also contains other supplementary information in addition to the basic financial statements themselves.

Basis of Accounting. The District has elected to present its financial statements on a modified cash basis of accounting. The modified cash basis of accounting is a basis of accounting other than generally accepted accounting principles. Basis of accounting is a reference to when financial events are recorded, such as the timing for recognizing revenues, expenses, and their related assets and liabilities. Under the District's modified cash basis of accounting, revenues, and expenses and related assets and liabilities are recorded when they result from cash transactions, except for the recording of depreciation expense on the capital assets in the government-wide financial statements.

As a result of the use of the modified cash basis of accounting, certain assets and their related revenues (such as accounts and taxes receivable and related revenue not collected yet) and certain liabilities and their related expenses (such as accounts payable and expenses for goods or services received but not paid yet) are not recorded in these financial statements. Therefore when reviewing the financial information and discussion within this annual report, the reader should keep in mind the limitations resulting from the use of the modified cash basis of accounting.

**Red Lake Watershed District
Management Discussion and Analysis**

Government-Wide Financial Statements. The government-wide financial statements are designed to display information about the Red Lake Watershed District taken as a whole.

Over time, increased or decreased in net assets – modified cash basis may serve as a useful indicator of whether the financial position of the Red Lake Watershed District is improving or deteriorating.

The government-wide financial statements can be found on pages 9 and 10 of this report.

Fund Financial Statements. The fund financial statements focus on the individual parts of the District. A fund is a grouping of related accounts that is used to maintain control over resources that have been segregated for specific activities or objectives. Red Lake Watershed District, like other state and local governments, uses fund accounting to ensure and demonstrate compliance with finance-related legal requirements. All the funds of Red Lake Watershed District are governmental funds.

All governmental funds utilize a "current financial resources" measurement focus. Only current financial assets and liabilities are generally included on their balance sheets. Their operating statements present sources and uses of available spendable financial resources during a given period. These funds use fund balance as their measure of available spendable financial resources at the end of the period.

Red Lake Watershed District maintains three individual major governmental funds. Information is presented separately in the governmental fund balance sheet and in the governmental fund statement of revenues, expenditures, and changes in fund balances for the General Fund, Special Revenue Fund, and the Administrative Construction/Capital Projects Fund, which are considered to be major funds.

Red Lake Watershed District adopts an annual appropriated budget for its General Fund for Statutory/Management purposes. A budgetary comparison statement has been provided for this fund.

The basic government fund financial statements can be found on pages 9 through 13 of this report.

Notes to the financial statements. The notes provided additional information that is essential to a full understanding of the data provided in the government-wide and fund financial statements. The notes to the financial statements can be found on pages 14 through 23 of this report.

Financial Analysis of the Watershed District

As noted earlier, net assets – modified cash basis may serve over time as a useful indicator of a government's financial position. In the case of the Red Lake Watershed District, assets exceeded liabilities by \$9,211,559 by the close of the most recent fiscal year, which is an increase of \$441,853 over the prior year; more than a 5% increase over the prior year.

A portion of Red Lake Watershed District's net assets (\$7,152,177 or 77%) reflects its investment in capital assets less any related debt to acquire those assets that are still outstanding. Red Lake Watershed District uses these capital assets to provide services to citizens; consequently, these are not available for future spending. Although Red Lake Watershed District's investment in its capital assets is reported net of related debt, it should be noted that the resources needed to repay this debt must be provided from other sources, since the capital assets themselves cannot be used to liquidate these liabilities.

Red Lake Watershed District
Management Discussion and Analysis

RED LAKE WATERSHED DISTRICT'S NET ASSETS – MODIFIED CASH BASIS

	2008	2007
ASSETS		
Total current assets	\$ 2,105,733	\$ 2,006,674
Net capital assets	<u>7,152,177</u>	<u>6,840,284</u>
TOTAL ASSETS	\$ 9,257,910	\$ 8,846,958
LIABILITIES		
Note payable	\$ 46,351	\$ 77,252
NET ASSETS	\$ 9,211,559	\$ 8,769,706

At the end of 2008 and 2007, the Red Lake Watershed District is able to report positive balances in net assets.

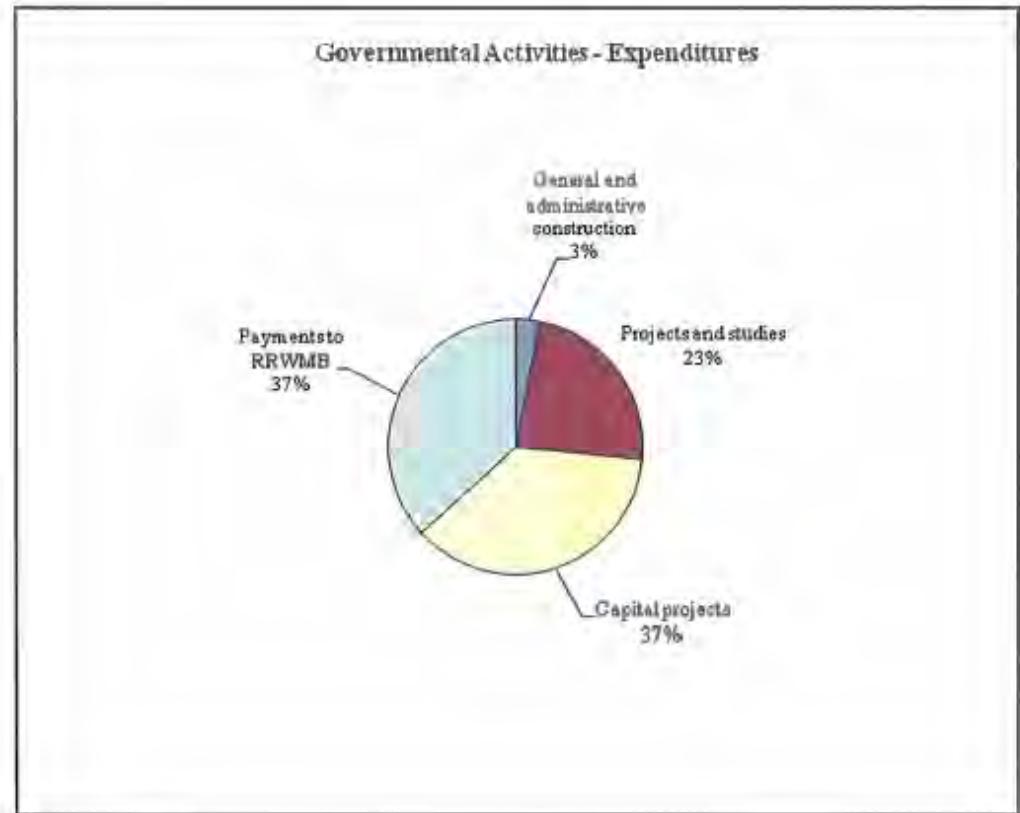
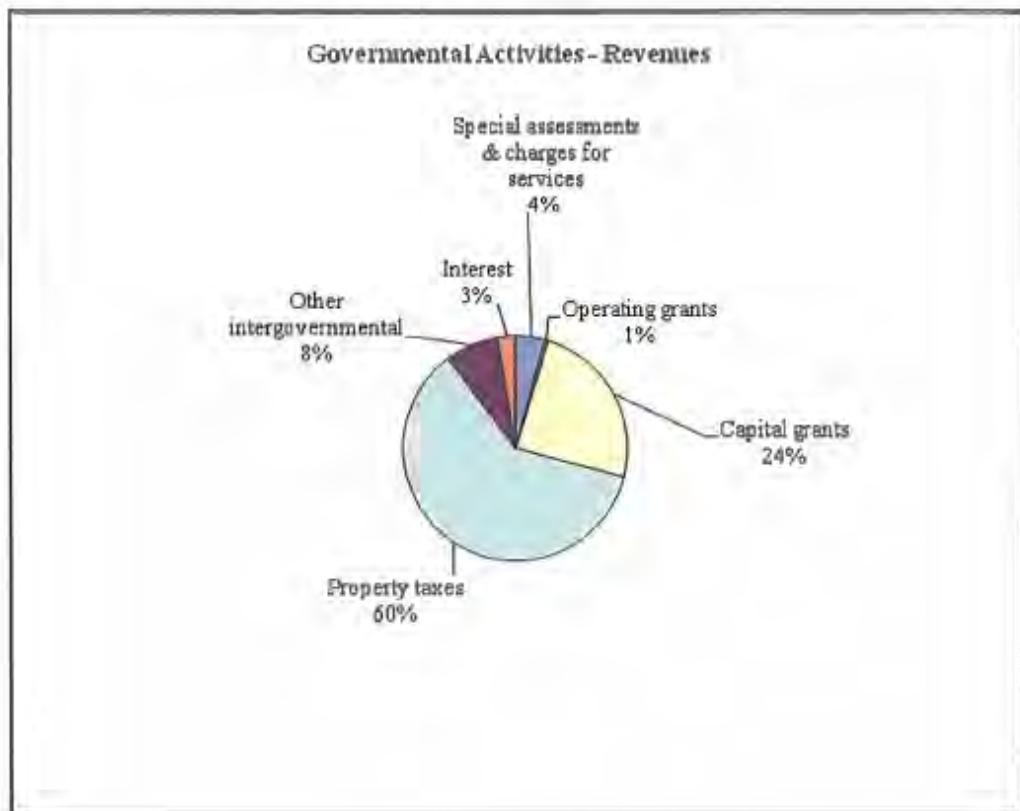
**RED LAKE WATERSHED DISTRICT'S CHANGE IN NET ASSETS
– MODIFIED CASH BASIS**

Governmental activities resulted in an increase of Red Lake Watershed District's net assets from the fiscal year 2007 to the fiscal year 2008 in the amount of \$441,853. The details of the increase are as follows:

	2008	2007
REVENUES		
Special assessments and charges for services	\$ 117,090	\$ 94,373
Operating grants	16,000	393,959
Capital grants	677,921	872,946
General revenues:		
Property taxes	1,687,667	1,495,772
Other intergovernmental	216,035	213,250
Interest	71,700	109,508
TOTAL REVENUES	2,786,413	3,179,808
EXPENSES		
General and administration		
construction	71,833	102,681
Ongoing projects and studies	551,051	561,614
Capital projects	860,760	356,159
Payments to RRWMB	860,916	765,212
TOTAL EXPENSES	2,344,560	1,785,666
CHANGE IN NET ASSETS	\$ 441,853	\$ 1,394,142

Red Lake Watershed District
Management Discussion and Analysis

Below are specific graphs which provide comparisons of the governmental activities revenues and expenditures for the year ended December 31, 2008:



RED LAKE WATERSHED DISTRICT
THIEF RIVER FALLS, MINNESOTA
STATEMENT OF NET ASSETS - MODIFIED CASH BASIS
DECEMBER 31, 2008

ASSETS

Current Assets:

Petty cash	\$ 100
Pooled cash and investments	<u>2,105,633</u>
Total Current Assets	<u>2,105,733</u>

Capital Assets:

Property and equipment	7,685,770
Less: accumulated depreciation	<u>(533,593)</u>
Net Capital Assets	<u>7,152,177</u>

TOTAL ASSETS 9,257,910

LIABILITIES

Current portion of loan payable	<u>30,901</u>
State loan payable, net of current portion	<u>15,450</u>
TOTAL LIABILITIES	<u>46,351</u>

NET ASSETS

Investment in capital assets, net of related debt	7,105,826
Unrestricted	<u>2,105,733</u>
TOTAL NET ASSETS	<u>\$ 9,211,559</u>

See accompanying notes to the basic financial statements.

**RED LAKE WATERSHED DISTRICT
THIEF RIVER FALLS, MINNESOTA
STATEMENT OF ACTIVITIES - MODIFIED CASH BASIS
FOR THE YEAR ENDED DECEMBER 31, 2008**

FUNCTION/PROGRAMS	Expenses			Program Revenues			Net (Expenses) Revenues and Changes in Net Assets
	Allocated Salaries & Overhead		Total	Special Assessments and Charges for Services		Operating Grants and Contributions	
	Direct						
General and administrative construction	\$ (524,056)	\$ 452,223	\$ (71,833)	\$ 7,424	\$ 16,000	\$ -	\$ (64,409)
Ongoing projects and studies	(452,513)	(98,538)	(551,051)	96,306	-	-	(438,745)
Capital projects	(507,075)	(353,685)	(860,760)	13,360	-	-	(169,479)
Payments to RRWMB	(860,916)	-	(860,916)	-	-	-	(860,916)
Allocated interest	(38,818)	-	(38,818)	-	-	-	(38,818)
Total Governmental Activities	\$ (2,383,378)	\$ -	\$ (2,383,378)	\$ 117,090	\$ 16,000	\$ 677,921	(1,572,367)
General Revenues:							
Tax levies							1,687,667
Intergovernmental, (not restricted to specific programs)							
State MV and disparity reduction credits							216,035
Allocated interest							110,518
Total General Revenue							2,014,220
Changes in Net Assets							
Net Assets - Beginning							8,769,706
Net Assets - Ending							\$ 9,211,559

See accompanying notes to the basic financial statements.

RED LAKE WATERSHED DISTRICT
THIEF RIVER FALLS, MINNESOTA
BALANCE SHEET - MODIFIED CASH BASIS
GOVERNMENTAL FUNDS
DECEMBER 31, 2008

	General	Special Revenue Fund	Capital Project Fund	Total
ASSETS				
Petty cash	\$ 100	\$ -	\$ -	\$ 100
Pooled cash and investments	360,517	(309,811)	2,054,927	2,105,633
Due from other funds	-	-	157,193	157,193
TOTAL ASSETS	\$ 360,617	\$ (309,811)	\$ 2,212,120	\$ 2,262,926
LIABILITIES				
Due to other funds	\$ 157,193	\$ -	\$ -	\$ 157,193
TOTAL LIABILITIES	157,193	-	-	157,193
FUND BALANCE				
Unrestricted	203,424	(309,811)	2,212,120	2,105,733
TOTAL LIABILITIES AND FUND BALANCE	\$ 360,617	\$ (309,811)	\$ 2,212,120	\$ 2,262,926

Amounts reported from governmental activities in the Statement of Net Assets are different because:

Total fund balance per Balance Sheet, from above \$ 2,105,733

When capital assets (land, building, equipment and infrastructure) that are to be used in governmental activities are purchased or constructed, the costs of those assets are reported as expenditures in governmental funds. However, the statements of net assets includes those capital assets among the assets of the District as a whole.

Cost of capital assets	7,685,770
Accumulated depreciation	(533,593)

Some liabilities, including long-term notes payable, are not due and payable in the current period and therefore are not reported in the funds. (46,351)

Total Net Assets \$ 9,211,559

See accompanying notes to the basic financial statements.

RED LAKE WATERSHED DISTRICT
THIEF RIVER FALLS, MINNESOTA
STATEMENT OF REVENUES, EXPENDITURES AND CHANGES IN FUND BALANCES
MODIFIED CASH BASIS - GOVERNMENTAL FUNDS
FOR THE YEAR ENDED DECEMBER 31, 2008

	General	Special Revenue Fund	Capital Project Fund	Total
REVENUES				
Tax levies	\$ 181,868	\$ -	\$ 1,505,799	\$ 1,687,667
Intergovernmental				
Federal	-	-	91,669	91,669
State	-	16,000	518,701	534,701
Local	-	-	283,588	283,588
Special assessments	-	95,656	-	95,656
Miscellaneous	7,424	650	13,358	21,432
Allocated interest	20,387	8,385	81,746	110,518
Total Revenues	<u>209,679</u>	<u>120,691</u>	<u>2,494,861</u>	<u>2,825,231</u>
EXPENDITURES				
General and administrative construction	102,734	-	-	102,734
Ongoing projects and studies	-	551,051	-	551,051
Capital projects	-	-	1,141,752	1,141,752
Payments to RRWMB	-	-	860,916	860,916
Loan principal payments	-	-	30,901	30,901
Allocated interest	14,997	10,214	13,607	38,818
Total Expenditures	<u>117,731</u>	<u>561,265</u>	<u>2,047,176</u>	<u>2,726,172</u>
Revenues Over (Under) Expenditures	91,948	(440,574)	447,685	99,059
OTHER FINANCING SOURCES (USES)				
Transfers in	467,154	17,551	487,334	972,039
Transfers out	<u>(467,154)</u>	<u>-</u>	<u>(504,885)</u>	<u>(972,039)</u>
Net Other Sources (Uses)	<u>-</u>	<u>17,551</u>	<u>(17,551)</u>	<u>-</u>
Revenues & Other Sources Over (Under) Expenditures & Other Uses	91,948	(423,023)	430,134	99,059
Fund Balance (Deficit), January 1	<u>111,476</u>	<u>113,212</u>	<u>1,781,986</u>	<u>2,006,674</u>
Fund Balance (Deficit), December 31	<u>\$ 203,424</u>	<u>\$ (309,811)</u>	<u>\$ 2,212,120</u>	<u>\$ 2,105,733</u>

See accompanying notes to the basic financial statements.

RED LAKE WATERSHED DISTRICT
THIEF RIVER FALLS, MINNESOTA
RECONCILIATION OF CHANGE IN FUND BALANCES OF GOVERNMENTAL FUNDS
TO THE STATEMENT OF ACTIVITIES
FOR THE YEAR ENDED DECEMBER 31, 2008

Net Change in Fund Balances - Total Governmental Funds	\$ 99,059
Governmental funds report capital outlay as expenditures, while governmental activities report depreciation expense allocating those expenditures over the life of the asset:	
Capital additions	582,530
Depreciation expense	(270,637)
Repayment of debt principal is an expenditure in the governmental funds, but the repayment reduces the long-term note payable in the Statement of Activities	
	<u>30,901</u>
Change in Net Assets - Governmental Activities	<u>\$ 441,853</u>

See accompanying notes to the basic financial statements.

RED LAKE WATERSHED DISTRICT
THIEF RIVER FALLS, MINNESOTA
NOTES TO BASIC FINANCIAL STATEMENTS

Interest Rate Risk

The District does not have a formal investment policy that limits investment maturities as a means of managing its exposure to fair value losses arising from increasing interest rates.

Credit Risk

The District may invest idle funds as authorized by Minnesota statutes, as follows: direct obligations or obligations guaranteed by the United States or its agencies; shares of investment companies registered under the Federal Investment Company Act of 1940 and receives the highest credit rating, is rated in one of the two highest rating categories by a statistical rating agency, and all of the investments have a final maturity of thirteen months or less; general obligations rated "A" or better; revenue obligations rated "AA" or better, general obligations of the Minnesota Housing Finance Agency rated "A" or better; bankers' acceptances of United States' banks eligible for purchase by the Federal Reserve System; commercial paper issued by United States' corporations or their Canadian subsidiaries, of the highest quality category by at least two nationally recognized rating agencies, and maturing in 270 days or less; Guaranteed Investment Contracts guaranteed by a United States commercial bank, domestic branch of a foreign bank, or a United States insurance company, and with a credit quality in one of the top two highest categories; repurchase or reverse purchase agreements and securities lending agreements with financial institutions qualified as a "depository" by the government entity, with banks that are members of the Federal Reserve System with capitalization exceeding \$10,000,000, a primary reporting dealer in U.S. government securities to the Federal Reserve Bank of New York, or certain Minnesota securities broker-dealers. The District has no investment policy that would further limit its investment choices.

NOTE 3. INTERFUND BALANCES

The following reconciles interfund receivables and payables as of December 31, 2008:

<u>Advances from/Advances to</u>	<u>Receivables</u>	<u>Payables</u>
Capital Projects Fund	\$ 157,193	\$ -
General Fund	-	157,193
	<u>\$ 157,193</u>	<u>\$ 157,193</u>

The interfund receivable and payable was created to show the amount due to the Capital Projects Fund for the new RLWD building. The construction costs of the new office building for the Red Lake Watershed District were \$646,761 of which \$240,193 was borrowed from the Capital Projects Fund. This amount will be allocated annually from the General Fund until monies borrowed from the Capital Projects Fund are paid.

RED LAKE WATERSHED DISTRICT
THIEF RIVER FALLS, MINNESOTA
NOTES TO BASIC FINANCIAL STATEMENTS

NOTE 4. CAPITAL ASSET

Capital assets activity resulting from modified cash basis transactions for the year ended December 31, 2008, was as follows:

	<u>Beginning Balance</u>	<u>Additions</u>	<u>Deletions</u>	<u>Ending Balance</u>
<u>Capital Assets</u>				
Building and Improvements	\$ 705,377	\$ 6,763	\$ -	\$ 712,140
Infrastructure Improvements	-	4,995,797	-	4,995,497
Engineering equipment	349,931	22,405	7,154	365,182
Office equipment	77,541	3,427	-	80,968
Land & Permanent Easements	1,189,017	106,100	-	1,295,117
Construction in progress	4,781,374	450,989	4,995,497	236,866
Total	\$ 7,103,240	\$ 5,585,481	\$ 5,002,651	\$ 7,685,770
	<u>Beginning Balance</u>	<u>Additions</u>	<u>Deletions</u>	<u>Ending Balance</u>
<u>Accumulated Depreciation</u>				
Building and Improvements	\$ 16,352	\$ 30,353	\$ -	\$ 46,705
Infrastructure Improvements	-	194,506	-	194,506
Engineering equipment	214,569	39,649	2,200	252,018
Office equipment	32,035	8,329	-	40,364
Total	262,956	272,837	2,200	533,593
Net Capital Assets	\$ 6,840,284	\$ 5,312,644	\$ 5,000,451	\$ 7,152,177

Depreciation expense of \$272,837 for the year ended December 31, 2008 is included in general and administrative program costs.

NOTE 5. LONG-TERM DEBT

The District's long-term debt arising from cash transactions is comprised of the following issue:

	<u>Original Issue</u>	<u>Security Interest</u>	<u>Interest Rate</u>	<u>Interest Maturity</u>	<u>Amount Outstanding</u>	<u>Current Portion</u>
MN Clean Water						
Partnership Project		General				
Implementation Loan	\$ 309,009	Obligation	0.0%	6/15/2010	\$ 46,351	\$ 30,901

RED LAKE WATERSHED DISTRICT
THIEF RIVER FALLS, MINNESOTA
NOTES TO BASIC FINANCIAL STATEMENTS

The following is a summary of the long-term debt transactions during the year:

	<u>Beginning of Year Balance</u>	<u>New Issues</u>	<u>Debt Retired</u>	<u>End of Year Balance</u>
MN Clean Water Partnership Project Implementation Loan	\$ 77,252	\$ -	\$ 30,901	\$ 46,351

The annual debt service requirements to maturity for the State loan payable are as follows:

<u>Year</u>	<u>Principal</u>
2009	30,901
2010	<u>15,450</u>
Total	<u>\$ 46,351</u>

NOTE 6. OVERHEAD COST ALLOCATION

Overhead costs are allocated to all projects at 150% of direct salaries charged to projects. Overhead costs represent those costs incurred by the District for administration, employee benefits, engineering, and related operating expenditures, which are not charged directly to the project. The total overhead costs charged to projects in 2008 were \$452,223.

NOTE 7. DEFINED BENEFIT PENSION PLANS - STATEWIDE

A. Plan Description

All full-time and certain part-time employees of the Red Lake Watershed District are covered by a defined benefit pension plan administered by the Public Employees Retirement Association of Minnesota (PERA). PERA administers the Public Employees Retirement Fund (PERF) which is a cost-sharing multiple-employer retirement plan. This plan is established and administered in accordance with Minnesota Statutes, Chapter 353 and 356.

PERF members belong to either the Coordinated Plan or the Basic Plan. Coordinated members are covered by Social Security and Basic members are not. All new members must participate in the Coordinated Plan.

PERA provides retirement benefits as well as disability benefits to members, and benefits to survivors upon death of eligible members. Benefits are established by state statute, and vest after

RED LAKE WATERSHED DISTRICT
THIEF RIVER FALLS, MINNESOTA
NOTES TO BASIC FINANCIAL STATEMENTS

three years of credited service. The defined retirement benefits are based on a member's highest average salary for any five successive years of allowable service, age, and years of credit at termination of service.

Two methods are used to compute benefits for PERA's Coordinated and Basic Plan members. The retiring member receives the higher of step-rate benefit accrual formula (Method 1) or a level accrual formula (Method 2). Under Method 1, the annuity accrual rate for a Basic Plan member is 2.2 percent of average salary for each of the first 10 years of service and 2.7 percent for each remaining year. The annuity accrual rate for a Coordinated Plan member is 1.2 percent of average salary for each of the first 10 years and 1.7 percent for each remaining year. Under Method 2, the annuity accrual rate is 2.7 percent of average salary for Basic Plan members and 1.7 percent for Coordinated Plan members for each year of service. For all PERF members hired prior to July 1, 1989 whose annuity is calculated using Method 1, a full annuity is available when age plus years of service equal 90. Normal retirement age is 65 for Basic and Coordinated members hired prior to July 1, 1989. Normal retirement age is the age for unreduced Social Security benefits capped at 66 for Coordinated members hired on or after July 1, 1989. A reduced retirement annuity is also available to eligible members seeking early retirement.

There are different types of annuities available to members upon retirement. A single-life annuity is a lifetime annuity that ceases upon the death of the retiree. No survivor annuity is payable. There are also various types of joint and survivor annuity options available which will reduce the monthly normal annuity amount, because the annuity is payable over joint lives. Members may also leave their contributions in the fund upon termination of public service, in order to qualify for a deferred annuity at retirement age. Refunds of contributions are available at any time to members who leave public service, but before retirement benefits begin.

The benefit provisions stated in the previous paragraphs of this section are current provisions and apply to active plan participants. Vested, terminated employees who are entitled to benefits but are not receiving them yet, are bound by the provisions in effect at the time they last terminated their public service.

PERA issues a publicly available financial report that includes financial statements and required supplementary information for PERF. That report may be obtained on the web at mnpera.com or by writing to PERA, 60 Empire Drive #200, St. Paul, Minnesota, 55103-2088 or by calling (651) 296-7460 or 1-800-652-9026.

B. Funding Policy

Minnesota Statutes Chapter 353 sets the rates for employer and employee contributions. These statutes are established and amended by the state legislature. The District makes annual contributions to the pension plans equal to the amount required by state statutes. PERF Basic Plan members and Coordinated Plan members were required to contribute 9.10% and 6.0%, respectively, of their annual covered salary in 2008. Contribution rates in the Coordinated Plan will increase in 2009 to 6.75%. The District is required to contribute the following percentages of annual covered payroll: 11.78% for Basic Plan PERF members and 6.5% for Coordinated Plan PERF members. Employer contribution rates for the Coordinated Plan will increase to 6.75% effective January 1, 2009. The District's contributions to the Public Employees Retirement Fund for the years ending December 31, 2008, 2007 and 2006 were \$19,434, \$18,092, and \$15,616 respectively. The District's contributions were equal to the contractually required contributions for each year as set by state statute.

RED LAKE WATERSHED DISTRICT
THIEF RIVER FALLS, MINNESOTA
NOTES TO BASIC FINANCIAL STATEMENTS

NOTE 8. RISK MANAGEMENT

The District is exposed to various risks of loss related to torts; theft of, damage to, and destruction of assets; errors and omissions; and natural disasters. The District carries commercial insurance coverages on its commercial property and for liability, personal and advertising injury, non-owned auto and a miscellaneous floater. Insurance coverage has not been reduced from the prior year, and settlements have not exceeded insurance coverage in any of the past three years.

NOTE 9. CONTINGENCIES

Grants

The District participates in state and federal grant programs, which are governed by various rules and regulations of the grantor agencies. Costs charged to the respective grant programs are subject to audit and adjustment by the grantor agencies; therefore, to the extent that the District has not complied with the rules and regulations governing the grants, refunds of money received may be required and the collectibility of any related receivable at December 31, 2008, may be impaired. The District is not aware of any significant contingent liabilities relating to compliance with the rules and regulations governing the respective grants.

Claims and Litigation

The District is involved in some legal actions relating to projects undertaken or attempted to be undertaken. Although the outcomes cannot be determined, the District believes any potential liability would not have a material impact on the financial condition of the District.

**RED LAKE WATERSHED DISTRICT
THREE RIVER FALLS, MINNESOTA**
SCHEDULE OF CHANGES IN FUND BALANCES - MODIFIED CASH BASIS
FOR THE YEAR ENDED DECEMBER 31, 2008

Fund	Revenues			Expenditures			Transfers		Fund Balance (Deficit)
	Assessments and Other Charges for Services	Operating / Capital Grants and Contributions	Allocated Interest Earned	Taxes	Direct	Allocated Interest Charged	Salary & Overhead Allocation	In (Out)	December 31
GENERAL FUND	\$ 111,476	7,424	-	20,387	181,868	\$54,957	14,997	(45,223)	\$ 203,424
SPECIAL REVENUE FUND JOBS:									
Branch A & I.J.D. #2	7,117	-	243	-	-	-	-	182	-
Burnham Creek channel	6,867	9,709	73	-	12,486	-	-	9,567	-
Clearwater County ditch #1	1,009	-	35	-	-	-	-	-	1,044
Clearwater County joint ditch #1	(218)	-	-	-	-	-	-	-	(226)
Clearwater County joint ditch #4	1,151	-	-	40	-	-	-	-	1,191
Clearwater County joint ditch #5	1,504	-	-	52	-	-	-	-	1,556
Clearwater River project	25,888	-	895	-	-	-	-	157	26,626
Clearwater/Wild Rice River	(7,946)	9,868	-	-	-	-	-	-	(795)
Clyfford Areson ditch	3,632	-	119	-	-	-	-	174	3,227
Equality RLWD ditch #1, Int C	1,733	-	21	-	-	-	-	-	(912)
J.D. ditch #72	1,131	206	-	-	-	-	-	-	(3,111)
K. Johnson petition	3,052	-	49	-	-	-	-	-	(876)
Krothe petition	1,675	988	5	-	-	-	-	-	(2,126)
Lost River project	22,703	-	145	-	-	-	-	-	21,649
Main J.D. #2 and Branch B & C	(21,404)	4,574	-	-	-	-	-	-	(20,925)
Main J.D. 2C, ECK	818	61	-	25	-	-	-	-	688
Pine Lake maintenance	(2,155)	2,838	-	-	-	-	-	-	(4,664)
Polk City ditch #3 improvement	9,286	-	250	-	-	-	-	-	-
Polk City ditch #63 improvement	(29,053)	10,377	-	-	-	-	-	-	-
Polk City ditch #104, 61, 47, 94	1,200	4,892	-	-	-	-	-	-	-
Red Lake River project	64,240	-	-	2,116	-	-	-	-	-
RLWD ditch #1	18,668	-	390	-	-	-	-	-	-
RLWD ditch #3	15,207	-	456	-	-	-	-	-	-
RLWD ditch #7	12,447	-	-	228	-	-	-	-	-
RLWD Ditch #8	(949)	-	-	-	-	-	-	-	(2,808)
RLWD Ditch #9	3,659	8	-	-	-	-	-	-	(4,646)
RLWD Ditch #10	(31,702)	6,611	-	-	-	-	-	-	(8,850)
RLWD Ditch #11	44,993	-	1,518	-	-	-	-	-	3,253
RLWD Ditch #12	(46,801)	650	-	-	-	-	-	-	(27,674)
RLWD Ditch #13	-	-	-	-	-	-	-	-	-
Scott Baetz petition	501	-	-	-	-	-	-	-	-
State ditch #83	16,769	40,572	16,000	619	-	37,097	-	17,114	19,699
Thief River Falls drainage ditch	2,276	2	-	76	-	-	-	-	2,099
Tynsidi Township erosion	-	-	-	-	-	-	-	-	-
Winsor/Hangard/Clearwater County petition	-	-	-	-	-	-	-	-	-
Total Special Revenue									
	(14,086)	5,000	-	-	-	-	1,095	532	3,037
	113,212	96,306	16,000	8,385	-	-	422,513	10,214	98,538
								17,551	(13,750)
									(30,811)

RED LAKE WATERSHED DISTRICT
THIEF RIVER FALLS, MINNESOTA
SCHEDULE OF CHANGES IN FUND BALANCES - MODIFIED CASH BASIS

	Fund Balance (Deficit) January 1	Assessments and Other Charges for Services	Operating / Capital Grants and Contributions	Revenues			Expenditures			Transfers		Fund Balance (Deficit) December 31
				Taxes	Allocated Interest Earned	Direct	Allocated Interest Charged	Allocated Salary & Overhead	In (Out)			
CAPITAL PROJECT FUND JOBS:												
Administrative construction	1,876,944	-	216,034	78,136	1,505,799	860,916	5,466	581	(513,386)	2,297,145		
Bedger Creek / Poplar River	7,038	-	217	-	9	39	2,879	2,927	-	6,302		
Bench Marks	-	-	-	-	2,323	57	292	2,672	-	-		
Black River project	-	-	-	-	2,230	24	1,422	3,676	-	-		
Burnham Creek	-	-	-	-	420	5	-	425	-	-		
BWSR flood storage pilot project	-	-	-	-	2,869	104	168	3,141	-	-		
Clawwater conservation	-	-	-	-	1,494	46	525	2,065	-	-		
Cleawater FDR P/T	-	-	-	-	30,901	402	-	31,303	-	-		
Cleawater nonpoint	-	-	-	-	5,204	597	27,293	33,094	-	-		
Cleawater public education	-	-	-	-	-	34	1,961	1,995	-	-		
Cleawater River - habitat	-	-	-	-	34,556	459	17,267	-	(15,973)	-		
Cleawater River DISOXY TMDL	(7,003)	-	44,212	-	-	14	2,266	-	(2,270)	-		
Cleawater stream water	-	-	-	-	-	92	6,049	6,141	-	-		
Culvert Sizing	-	-	-	-	95,822	173	918	1,752	-	-		
Ditch 66 WQ Study	(638)	95,799	-	-	363	47	2,305	2,715	-	-		
Elm Lake	-	-	-	-	-	-	-	-	-	-		
Emergency maintenance	97,663	-	3,388	-	-	-	-	-	-	101,051		
Erosion control P/T/S	-	-	-	-	33,800	148	4,224	38,172	-	-		
Farm to stream water quality	-	-	-	-	508	153	5,785	-	(6,446)	-		
Flood control studies	-	-	-	-	-	2	151	153	-	-		
G.I.S.	-	-	-	-	349	155	8,977	9,481	-	-		
Glacial ridge	-	-	-	-	88,100	-	223	(143)	-	-		
Greenwood Township 27	-	-	-	-	471	2	21	494	-	-		
Gully 6 / Equality	-	-	-	-	-	1	64	65	-	-		
Euclid East Impoundment	(52,272)	1,723	102,530	-	52,825	-	9,112	9,956	-	-		
Branch Channel Retention	(20,843)	-	99,127	-	156,235	-	14,393	-	(92,344)	-		
Grand Marais - Restoration	(14,818)	-	15,051	-	14,521	-	7,440	-	(21,728)	-		
Branch Impoundment	(103,549)	-	173,234	-	78,914	-	6,827	16,054	(2)	-		
Grand Marais Creek Subwatershed	(1,514)	-	7,207	-	2,433	-	4,344	1,084	-	-		
Hydrologic analysis	-	-	-	-	-	-	10,025	10,189	-	-		
Last River impoundment	-	-	-	-	-	-	23	924	947	-		
Louisville/Panell project	-	-	-	-	-	-	-	-	(2,132)	-		
Maintenance dams	-	-	-	-	-	-	46	4,046	4,092	-		
Moose River project	-	-	-	-	42,513	769	11,264	54,546	-	-		
North Panell storage site	-	-	-	-	280	3	-	283	-	-		
Panell impoundment	900	-	4,614	123	-	-	4,403	8,240	-	-		

**RED LAKE WATERSHED DISTRICT
THIEF RIVER FALLS, MINNESOTA
SCHEDULE OF CHANGES IN FUND BALANCES - MODIFIED CASH BASIS**

	Fund Balance (Deficit) January 1	Revenues			Expenditures			Transfers		Fund Balance (Deficit) December 31
		Assessments and Other Changes for Services	Operating / Capital Grants and Contributions	Allocated Interest Earned	Taxes	Direct	Allocated Interest Charged	Allocated Salary & Overhead	In (Out)	
CAPITAL PROJECT FUND JOBS (continued)										
Permits	-	-	-	-	-	3,160	960	52,260	56,380	-
Project Development	-	-	-	-	-	115	133	10,452	10,700	-
Red Lake Res./Good Lake	-	-	-	-	-	3,536	83	7,157	10,776	-
Red River Corridor	-	-	-	-	-	-	8	241	249	-
Ring dike program -										
General	(563)	-	1,478	-	-	-	-	1,676	719	(42)
Amundson	(434)	-	12	-	-	-	-	-	422	-
Lichenberg	(550)	-	325	-	-	-	-	-	47	272
R. Stengl	(288)	-	-	-	-	144	-	-	108	(36)
Schauer	(113)	-	12	-	-	-	-	-	-	(1)
Swanson	(1,449)	3,450	43,524	-	-	53,169	-	3,846	7,223	(3,967)
Black	-	3,594	8,942	-	-	25,492	-	3,497	3,669	(12,784)
RRWMB protocol grant	-	-	-	-	-	-	173	7,279	7,452	-
Sentence to serve	-	-	-	-	-	-	-	75	75	-
Stream gauging	-	-	-	-	-	20,753	844	25,952	47,279	-
TR WS Sediment Inves	(4,224)	-	11,491	-	-	21,379	563	21,428	-	(36,103)
WS Ditch System Inventory & Mapping	1	-	-	-	-	-	72	8,374	8,395	-
Water Quality	-	-	-	-	-	15,811	694	26,166	42,671	-
Web Page Development	(5,863)	-	878	-	-	3,583	759	23,845	33,172	-
Wetland Banking	-	-	-	-	-	19,459	144	2,683	22,286	-
Total Capital Projects	1,781,986	13,360	893,956	81,746	1,505,799	1,679,884	13,607	353,685	(17,551)	2,212,120
Total - All Funds	\$ 2,006,674	117,090	909,956	110,518	1,687,667	2,687,354	38,818	-	-	\$ 2,105,753

RED LAKE WATERSHED DISTRICT
THIEF RIVER FALLS, MINNESOTA
SCHEDULE OF DIRECT EXPENDITURES BY CLASSIFICATION - MODIFIED CASH BASIS
GOVERNMENTAL FUNDS
FOR THE YEARS ENDED DECEMBER 31, 2008 AND 2007

	<u>2008</u>	<u>2007</u>
DIRECT EXPENDITURES:		
Salaries -		
Inspection	\$ 9,592	\$ 10,789
Survey - preliminary	5,518	6,009
Survey - construction	496	1,659
Reducing field notes	17	516
Drafting	12,117	7,929
Engineering	61,260	48,026
Project administration	165,633	169,730
Field work -water programs	26,318	20,057
Other	66,187	34,662
Compensated absences	26,345	28,288
Payroll taxes and benefits	94,687	88,143
Manager's expenses	15,996	15,379
Travel, mileage, meetings and per diems	4,399	4,413
Audit	6,095	5,985
Legal	20,893	20,480
Appraisal and viewers	9,900	300
Other professional fees	29,760	30,145
Office supplies	13,968	15,062
Office equipment	3,427	41,632
Dues & subscriptions	2,328	2,253
Insurance and bonds	23,757	22,316
Rent	1,430	1,705
Repairs and maintenance	15,298	14,784
Utilities	4,545	8,103
Telephone	8,339	10,061
Advertising and publications	6,229	7,140
Truck expense	15,543	15,080
Red River Watershed Management Board	860,916	765,212
Cost share assistance	2,869	4,612
Land acquisition and easements	106,100	25,563
Construction	514,670	1,495,310
Engineering costs & fees	19,650	14,935
Engineering fees	305,858	199,326
Engineering equipment	18,099	48,610
Glacial Ridge	178,214	7,153
Abandonment of Project 106	-	1,151
Loan payments	30,901	30,901
Total Expenditures	<u>\$ 2,687,354</u>	<u>\$ 3,223,419</u>