

# Red Lake Watershed District 2009 Annual Report



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## *Letter from the President*

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

One of the first things that seem to dictate how the year will go for the Red Lake Watershed District is the spring runoff event. The spring runoff event this year was very intense throughout our District and surrounding areas. Crookston witnessed some very high flood events which threatened their town along with the rural communities along the Red Lake River and Red River of the North, which in some areas remained flooded upwards of 5 weeks. The only place along the Red River Valley that appeared not to be affected by the flood was the City of East Grand Forks as their flood control project, by most account, was a huge success.

In the year 2009, one of your Watershed District Board members was re-appointed by his respective county and one of your members chose not to seek re-appointment. Gene Tiedemann, Euclid, was reappointed by Polk County to represent the Western portion of their county and Vernon Johnson, after serving Clearwater County for 21 years decided to start fishing on a full time basis. Clearwater County replaced Vernon with Kelly Nordlund, Clearbrook, who presently is serving his first year of a three year term.

I would like to remind the citizens that the goals of 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 Thursday 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 comfortably settled 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 2009 Annual Audit is included in this report in an abbreviated form. A complete copy of the 2009 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 2009.

Sincerely,



Dale M. Nelson, President  
Red Lake Watershed District

## Board of Managers – 2009



**Front Row** (left to right): Gene Tiedemann, Dale M. Nelson, LeRoy Ose  
**Second Row** (left to right): Lee Coe, Kelly Nordlund and Orville Knott. **Absent:** Jim Votava



After serving on the RLWD Board representing Clearwater County for 21 years, Vernon Johnson did not seek re-appointment.



Gene Tiedemann was re-appointed to the RLWD Board of Managers for a 3-year term. Gene will represent West Polk County for the years 2009-2012.



LeRoy Ose was appointed to fill the unexpired term of Arnold Stanley. LeRoy's term expires January 2011.



Kelly Nordlund replaced Vernon Johnson representing Clearwater. Kelly's term expires January 2012.

## Staff - 2009



**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](http://redlakewatershed.org)

E-Mail: [rlwaters@wiktel.com](mailto:rlwaters@wiktel.com)



### Meetings

The Board of Managers held twenty-four regularly scheduled board meetings in 2009. These regular meetings are held the 2<sup>nd</sup> and 4<sup>th</sup> 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 board meetings are available by visiting our website at [www.redlakewatershed.org/minutes](http://www.redlakewatershed.org/minutes). The 2009 General Fund Budget hearing was held on September 11, 2008. Notice for the General Fund Budget hearing was published in at least one newspaper in each of the 10 counties within the watershed district.

## 2009 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

## 2009 Subwatershed Advisory Committee Members

### Black River Area

\*Dan Schmitz, RLF  
Curt Beyer, RLF

### Lost River Area

Gary Mathis, Gonvick

### Walker Brook Area

\*John A. Nelson, Clearbrook

### Moose River Area

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

### Grand Marais/Red Area

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

### Pine Lake Area

### Burnham Creek

\*Gilbert Weber, Crookston  
Dan Geist, Crookston

### Poplar River Area

### Red Lake River Area

Don Barron, TRF  
Keith Driscoll, EGF

### Clearwater River Area

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

### Upper Red Lake Area

\*Emmitt Weidenborner, Kelliher  
\*John Ungerecht, Northome

### Clearwater Lake Area

John Cucci, Clearbrook

### Hill River Area

Jake Martell, Oklee

### Thief River Area

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

\*Overall Advisory Committee Member

The members of the Overall Advisory and the Subwatershed Advisory Committees met on April 7, 2009. Seventeen advisory members, five 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.

## **2009 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 Legislature’s inaction 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 ½ 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 of Minnesota Department of Natural Resources and a non-matching grant from Working Lands Initiative.



Channel Excavation

In the summer of 2009, the project was completed and on August 13, 2009, the Red Lake Board of Managers held a final payment hearing for TS Holte Construction, Oslo, MN. Total construction cost of this project was \$102,728.52.



Restored channel alignment

## Grand Marais Outlet Restoration (RLWD 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.

In 2009, the Joint Board instructed the engineer to proceed with the Environmental Assessment Worksheet for the project. On May 28, 2009, the Joint Board approved the EAW and authorized the Red Lake Watershed District staff proceed with the distribution and advertising of the document. On August 13, 2009, the engineer commented on the EAW submittal and the Joint Board adopted a Resolution approving the Negative EIS Declaration, Findings of Fact, Conclusion of Law, and Order.

The Joint Board also decided to move forward with land easement acquisition of approximately 470 acres of land which will be funded in part by a Reinvest in Minnesota (RIM) program. This program will ensure that land easements will be in place at such time funding for the project becomes available.

It is assumed that in 2010, the Joint Board will continue to investigate funding sources for this project.

## Improvement 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 them 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.

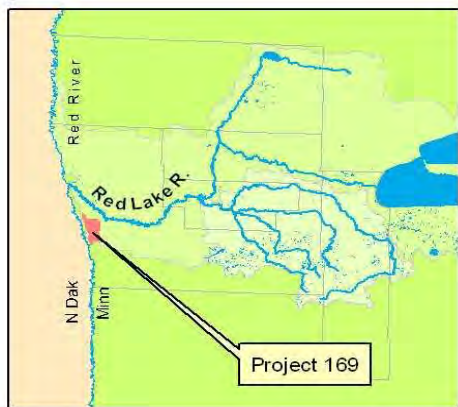
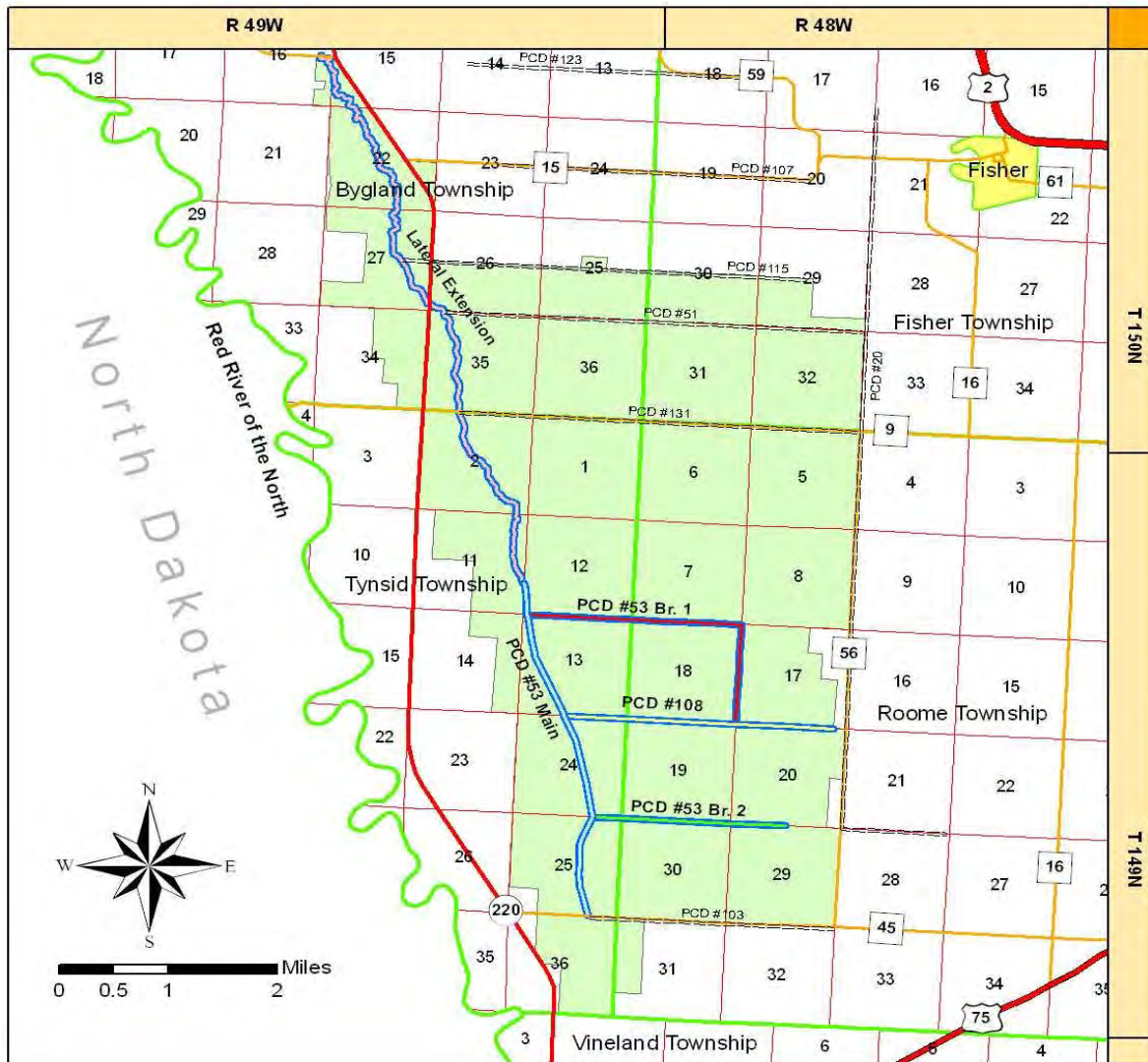
On August 9, 2007, the Red Lake Watershed District Board of Managers was presented and accepted a petition for a Lateral to Polk County Ditch #53. The Petition for a Lateral to Polk County Ditch No. 53 calls for cleaning and designing of 2 ½ to 3 miles of a drainage course located in Bygland and Tynsid Townships in Polk County, Minnesota, which is 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 Engineer's 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 Engineer's 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 Engineer's 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 started on this project in late spring of 2009.

Although wet conditions and flooding lasted well into the spring and early summer 2009, construction on this project was finally completed in the fall. On October 22, 2009, a final payment hearing was held for R.J. Zavoral & Sons. Hearing no objections from the public, the Board by motion agreed to make a final payment in the amount of \$87,106.38. Total construction costs on this project totaled \$564,484.32.

On April 2, 2009 Polk County Commissioners held a hearing at Younquist Auditorium, University of Minnesota Crookston, to transfer jurisdiction of the remaining laterals of Polk County Ditch #53 to the Red Lake Watershed. This transfer of Branches which included Polk County Ditch #53 Branch #1, Polk County Ditch #108 and Polk County Ditch #53 Branch #2. After considerable discussion from the audience, a motion was made and approved to transfer upwards of 7 miles of the remaining Branches of Polk County Ditch #53 to the Red Lake Watershed District and that they be combined with the existing Red Lake Watershed District Ditch #12.

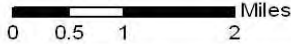



- Project 169 Channels**
-  Lateral Extension
  -  PCD #108
  -  PCD #53 Br. 1
  -  PCD #53 Br. 2
  -  PCD #53 Main
  -  Benefitted Areas

**Red Lake Watershed District**  
**Project 169**  
**RLWD Ditch 12**

Polk County  
 Red Lake River  
 Subwatershed

Scale: 1:88,900



Polk CSAH #58 box culvert



Typical Ditch Excavation



Finished Channel

## **Petition for a Lateral to Pennington Co. Ditch #75, (RLWD Ditch #13, Project #170)**

On January 24, 2008 the Red Lake Watershed District Board of Managers received and accepted, upon receipt of the \$40,000 bond, a petition for Lateral to Pennington County Ditch #75 located in Star Township, Pennington County. The petition calls for approximately two miles of an east/west ditch to be connected at the northern part of the existing Pennington County Ditch #75. On March 11, 2008, the Board made motioned and passed to retain Houston Engineering, Inc. as engineer for the project and instructed them to develop preliminary plans and specifications for this project.

On October 23, 2008, a preliminary hearing was held at the Red Lake Watershed District office. The engineer presented the Preliminary Engineer's 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 Engineer's Report which they deemed practical and feasible, appointed three viewers, and directed the engineer to prepare a detailed study and final report.

On May 14, 2009, the Red Lake Watershed District Board of Managers received a petition for the Improvement and extension of a lateral to Pennington County Ditch #75 including the lateral petition presented to the Board on January 24, 2008. Due to statutory reasons, the petition was sent back to the petitioner's attorney for clarification.

On October 22, 2009, a preliminary hearing was held at the Red Lake Watershed District office. The engineer presented the Preliminary Engineer's 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. This project is continuing to progress with the hopes of final hearing to be held sometime in 2010.

## **Petition for an Improvement to Pennington Co. Ditch #1 (RLWD Project #171)**

On September 24, 2009, the Red Lake Watershed District Board of Managers was presented and accepted, upon receipt of the \$40,000 bond, a petition for the Improvement to Pennington County Ditch #1 located in Rocksbury Township, Pennington County, and continues into the city limits of Thief River Falls. The petition calls for the improvement of approximately 4.7 miles of existing legal drainage system. At the same meeting, the Board of Managers appointed HDR Engineering, Inc. as the engineer for the project and instructed them to develop a Preliminary Engineer's Report. It is expected that due to the complexity of this project, engineering and design will proceed in 2010 with construction occurring sometime in 2011.

## Jerome Street/Thief River Bank Stabilization Project (RLWD Project #97B)

On June 11, 2009, the Board of Managers adopted this project as a request of a cost share agreement between Pennington County SWCD and the City of Thief River Falls. This project consists of bank and channel stabilization of five hundred feet along the Thief River Tributary downstream of the Dam located in the city of Thief River Falls. Estimated construction cost of the project was \$77,900. Bids were taken with low bid of the project awarded to Wright Construction Co., Inc. in the amount of \$73,250.00. Construction started and was substantially completed in late fall of 2009. It is anticipated that construction will be completed by early summer of 2010.





## 2009 Spring Flood

The 2008 Fall season was very wet going into freeze up. Precipitation totals for the autumn and December snowfall were far above the long-term averages for the Red River basin. As early as January 2009, the topic of spring flooding was discussed. The combination of saturated soils, high stream base flows, and heavy snow cover created the possibility of spring flooding.

The Red River Basin and regions beyond experienced record flooding during the 2009 spring runoff. This was due to the climatic conditions which occurred in the Fall / Winter of 2008 – 2009, along with the rapid melt and precipitation in March 2009. Record crest elevations were recorded at several locations, breaking the previous levels set during the recent 1997 historic flood.

Fargo recorded a record crest on March 28<sup>th</sup> at 40.7 ft. and remained above flood stage for 61 straight days! Previous record flood crests were 40.1 ft. in 1897 and 39.6 ft. in 1997.

Although not a record, the Red River spring crest at East Grand Forks was 49 ft. on April 2<sup>nd</sup> and stayed above flood stage for the next 53 days! The 2009 crest was 3<sup>rd</sup> highest based on 105 years of records. The previous flood of record was in 1997 at 54.35 ft.

The 2009 Red Lake River crest at Crookston was 25.66 ft. on March 25<sup>th</sup>. This is the 6<sup>th</sup> highest based on 107 years of records. The flood of record at Crookston was in 1997 at 28.40 ft.

For many years, the State of Minnesota has been a huge contributor in helping fund many flood damage reduction projects in the Red River Valley. Some of these within the RLWD include flood protection for the cities of Crookston, East Grand Forks, Fisher, and Grygla; many farmstead ring dikes; and several flood storage/retention facilities.

In early April, Mark Holsten, the Commissioner of the Minnesota Department of Natural Resources and other State personnel were in the Red River Valley viewing the flood event. They also toured the on-going flood works project in Crookston, viewed two RLWD flood storage impoundments retaining substantial runoff, farmstead ring dikes protecting property, and the East Grand Forks levees and floodwall protecting the city.

Massive efforts put forth by cities, communities, state and federal agencies, National Guard units, and volunteers throughout the valley, prevented a much larger disaster from occurring. No cities were inundated by floodwater because of the coordination and also due to a great extent, the flood protection projects already in-place. Many of these projects were designed and implemented after the 1997 historic flood.

As if the first nine months of 2009 weren't stressful enough, rainfall in October caused a runoff event to raise river levels above flood stage again. Flood warnings at many locations extended into November.

On November 4<sup>th</sup>, the Red River at Fargo also set a crest record for this late in the year, at 23.54 ft.

Permanent flood protection for cities and options to reduce Red River mainstem flood flows is a lengthy on-going process and a very difficult task.



Red River of the North at East Grand Forks



Ring dike protection, Esther Twp., Polk County



Culvert washout, Onstad Twp. Polk County



Polk County Road #64, Esther Twp.



Red River of the North, Thompson Bridge, Section 4, Tynsid, Twp. CSAH 9, Polk County

## FEMA 2009

Due to the 2009 flood, a Federal Disaster was declared and included the following counties that have lands located in the RLWD: Clearwater, Mahanomen, Marshall, Pennington, Polk, Red Lake, and Roseau. Damage occurred to two RLWD projects, the Brandt Channel Restoration Project, and the Parnell Flood Storage Impoundment, both located in Polk County. Damage assessments, inspections, and cost estimates were performed by representatives from FEMA and the RLWD. Repairs to both projects were completed in 2009 by local contractors.



Brandt channel dike erosion



Parnell Impoundment culvert & field entrance damage

## **Flood Control Impoundments**

Impoundments operated by the Red Lake Watershed District are quite diverse. Actual project operations are based upon 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. Maintenance repairs are scheduled for the Miller Dam and Latundresse outlet structures, and embankment repair at the BR-6 Impoundment.

### **Baird Beyer Dam Control Structure Red Lake County, Tributary to the Black River**



### **Knutson Dam Control Structure Red Lake County Tributary to the Clearwater River**



**Miller Dam, Red Lake County  
Tributary to the Clearwater River**



Control Structure



Control Structure needing repair

**BR - 6 Impoundment, Polk County**



North levee wall repair needed

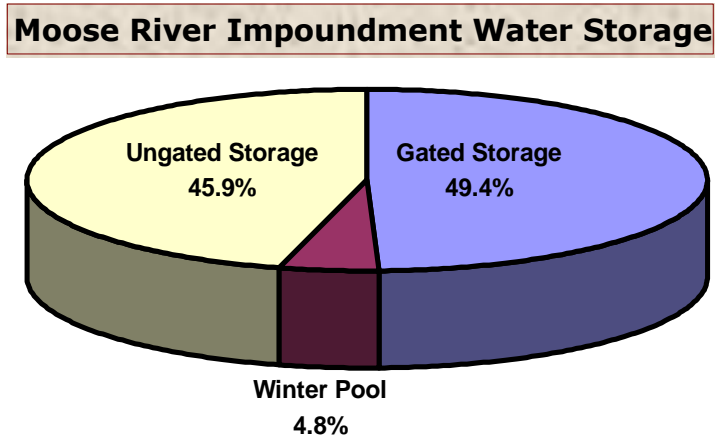
**Latundresse Dam, Red Lake County**



Install trash guard

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 vary depending upon 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 and the condition of the embankment and control structures is evaluated. Maintenance performed in 2009 included screwgate/stop-log repair, debris removal, removal of beaver dams/debris, nuisance beaver, and vegetation control (mowing the grassed embankment area).

Major flooding occurred in the Red River Basin during the 2009 spring runoff. Several District impoundments were operated to store extensive flood waters over an extended period of time. Record crest levels were observed at some of them in 2009. See “2009 Flood” section on page 17.

Rainfall events in June and October created runoff in parts of the watershed district. During this time, 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. During the remainder of the year, there were no additional runoff events of concern to warrant flood gate operation and storage.

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.		

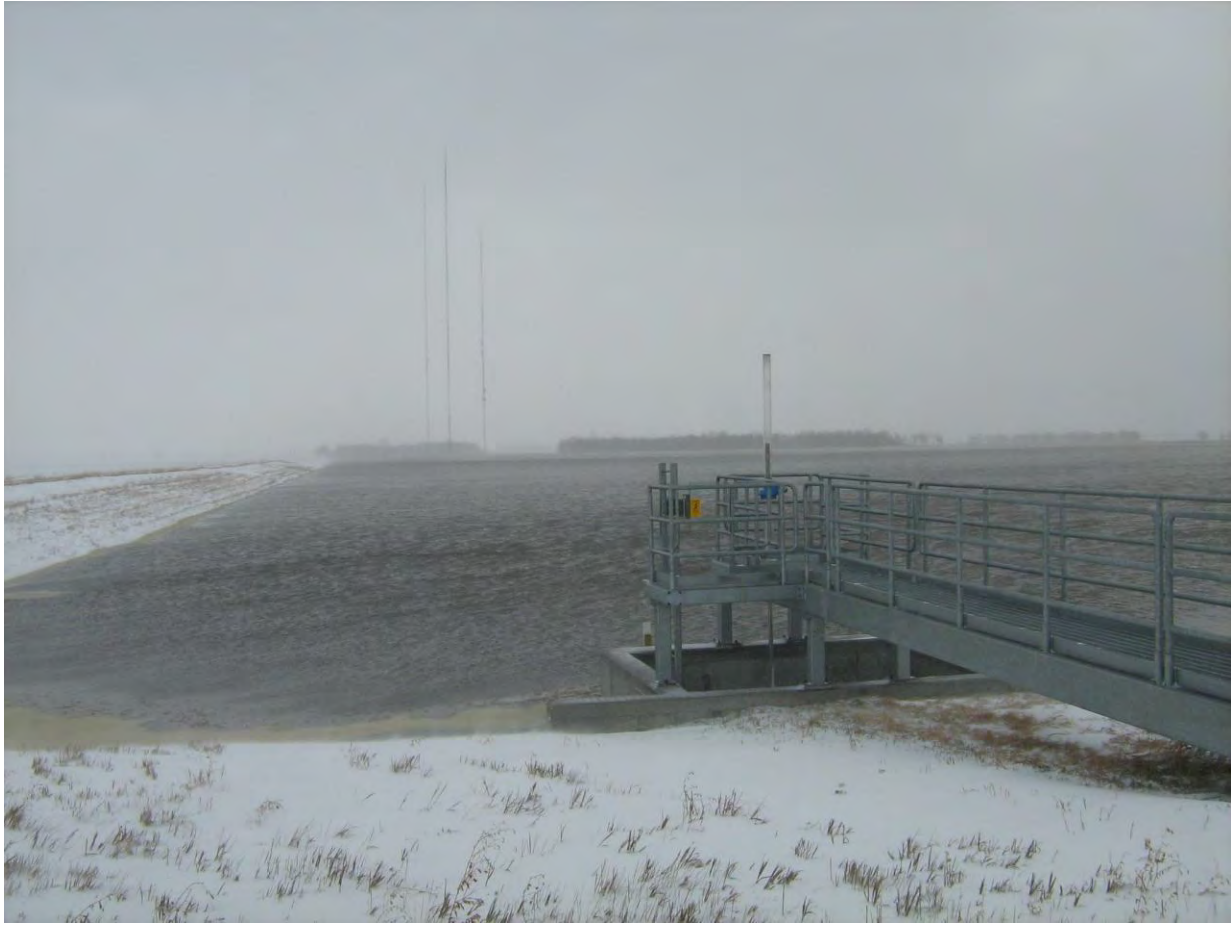
**OPERATIONAL:** Summer 2007



Principal Outlet Structure



Principal Outlet structure looking west



Spring flood storage

July flood event



Controlled outflow from the impoundment



Flooded field/township road-Euclid Twp., Polk County



## **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



Principal Outlet Structure

The 2009 pool crest occurred on March 31, 2009 at elevation 914.0. Due to the frozen structure caused by seepage throughout the winter, ice built up at the control structure gate and created a solid 6'x5' wall of ice within the structure that had to be steamed prior to operation.



Full pool - frozen structure



6'x5' frozen structure



Steamer used to open structure



Outflow after opening with steamer



Beaver dam inside of structure



Critter guard installed on inlet end of structure

## 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

During spring flood storage, a record crest for the pool was observed on March 25<sup>th</sup> at elevation 939.75. This was 0.75 ft. (9 in.) above the previous record set in 2006. Extensive gate operation and water level monitoring took place. The impoundment stored runoff, and when downstream conditions were acceptable, controlled releases were made by adjusting the outlet structure gate. The West pool was not emptied until the third week of May.

### **2009 Construction**

In August and September, excavation of an East Pool interior channel was completed along with leveling and seeding. This channel will enhance flow conveyance to the south outlet and Judicial Ditch #60.

On August 12, 2009, the Red Lake Watershed District Board of Managers held a hearing and approved modifications to the project. This includes: an Interpool structure - consisting of two, 48 inch diameter steel culverts with operable gates, along with interior channel excavation, and minor cleaning of JD #60. The purpose of this project, is to allow the transfer of water from the west pool to the east pool of the Parnell Impoundment.



Aerial view of Parnell Impoundment (looking east)

Historical ranking of five highest recorded pool elevations		
Ranking	Date	Elevation
1	March 25, 2009	939.75
2	April 13, 2006	939.0
3	June 12, 2002	937.1
4	June 17, 2005	937.0
5	March 31, 1999	935.9

### 2009 Spring Flood



Concrete spillway



Concrete spillway water elevation 939.75



East pool interior ditch to enhance flow conveyance



West pool interior channel



Installation of 2-48" gates culverts



Judicial Ditch 60 cleaning

Construction for the interpool structure consisted of two, 48 inch diameter steel culverts with operable gates, along with interior channel excavation and minor cleaning of JD #60.



East pool excavation



Looking NW at County Road #17

## [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 <sup>nd</sup> Stage – Top of Dam	1284.5
1 <sup>st</sup> 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



Stoplog sheet pile dam

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 19<sup>th</sup> to December 1<sup>st</sup>. A local trapper removed beaver that were causing problems at the site. The staff at the Sportsman’s Lodge are very helpful in reading the lake elevation gauge located inside the business and a local resident records rainfall data at the lake.

Due to the rapid and huge spring runoff event and the record lake elevation, the 2009 operations of the Pine Lake Dam were extensive. Monitoring “inflows” to the lake, the existing lake elevation, downstream conditions, and predicted runoff are some of the factors to consider when adjusting the stop-logs. During periods of high lake elevation, stop-logs may be removed from the dam to allow additional outflow until the lake level recedes and are then replaced to the typical summer or winter elevation.

A new record crest was recorded on March 28, 2009, at elevation 1286.0. All stop-logs were removed from the dam and on May 5 when the lake had receded enough, some stop-logs were then replaced to establish typical summer level.

The normal Fall drawdown began on September 24, 2009, and ended two months later on November 24, 2009.

Historical ranking of five highest recorded lake elevations		
Ranking	Date	Elevation
1	April 11, 2009	1286.0
t2	July 5, 1997	1285.7
t2	June 26, 2002	1285.7
3	April 27, 1996	1285.5
4	April 18, 2001	1285.4
5	April 8, 1999	1285.1

## 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

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. During the 2009 spring runoff, gate and stoplogs operations were necessary in order to store significant floodwater volume. The pool crested on April 3<sup>rd</sup> at elevation 1141.9, and declined slowly.

Inspection of this structure occurred in 2009 which led to considerable repairs to the principal outlet structure in 2009. Complete drawdown of the pool occurred later in the summer for the planned outlet structure repair which was completed in August and September. The work consisted of 1) concrete removal/repair of columns and sills, 2) removal of the corroded steel stop-log channels and sill plates and replaced with stainless steel, 3) removal of the corroded steel stop-logs and replaced with wood stop-logs, 4) removal of old handrail – relocate and replace with galvanized handrail and 5) install galvanized safety grates over stop-log bays. Funding and the preferred repair option was a cooperative effort between the US Fish and Wildlife Service, the Minnesota Department of Natural Resources (MnDNR), and the Red Lake Watershed District. Engineers for the MnDNR prepared the cost estimate and the plans and specifications. Davidson Construction of Holt, MN was the contractor. Total construction cost of this project was approximately \$160,000.



Stoplog Outlet Structure



In early October, the pool began to refill. This was accomplished by releasing water stored in the Lost River Pool, an impoundment located upstream approximately 3 miles.



Concrete column and stoplog channel repair



Column and stoplog repair completed



New safety grates and handrails installed

Historical ranking of five highest recorded pool elevations		
Ranking	Date	Elevation
1	May 23, 1997	1143.3
t2	April 28, 1996	1142.4
t2	April 4, 1999	1142.4
t2	June 14, 2002	1142.4
3	April 10, 2006	1142.0
4	April 3, 2009	1141.9
5	July 28, 1993	1141.3

Another concern that was brought to the District's attention was the wing walls of a box culvert structure located upstream (East) in Ditch #200 were in need of repair. This structure consists of a "poured in place" concrete structure. Although this was not considered an emergency, the District conducted a temporary repair to this project and will continue to monitor this structure.

## Lost River Impoundment (RLWD Project #17)

**GENERAL:** In the mid-1970's, Lost River Impoundment 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.



Outlet Structure/Pool Drawdown

**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

During the 2009 spring flood, runoff water was stored in the impoundment to help reduce downstream flood peaks. The pool crested on April 14<sup>th</sup> at elevation 1146.8. No major operation of the screwgate or stop-logs was necessary during the growing season. In early October, the screwgate was partially opened to transfer water to the Elm Lake Project and begin refilling the pool as the structure repair was nearly complete. The MnDNR staff performs the actual operation of the outlet structure with cooperation from the District.

Historical ranking of five highest recorded pool elevations		
Ranking	Date	Elevation
1	May 14, 1999	1147.8
t2	April 26, 1997	1147.6
t2	June 25, 2002	1147.6
3	April 1, 1985	1147.5
4	April 10, 2006	1147.45
5	August 20, 2001	1147.3

## 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.

**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.



Gated Principal Outlet Structure

**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. Water released from the impoundment enters the Red Lake River approximately 2.5 miles downstream (south easterly) from the outlet control structure.

### **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

The Good Lake Impoundment retained major floodwater during the 2009 spring runoff event. Flooding conditions began on March 24<sup>th</sup>, and about one month later, on April 21<sup>st</sup>, the control structure screwgate was partially opened to begin lowering the pool level towards the summer target elevation. The gate remained open for about 2 months, and the summer target level of 1173.0 was obtained on June 26<sup>th</sup>. The pool crested on April 21st at elevation 1175.9.

In 2009, the District had to complete various repairs to the principal outlet structure that were largely caused by vandalism. Stop-logs were removed or destroyed several times, the screwgate was opened and drained the wildlife pool, signage destroyed, etc. The Red Lake Watershed District hired Independent Locomotive Services of Thief River Falls to install metal locking devices to help deter the problem. Eventually, the screwgate device and locks were vandalized and removed again, and the floodgate opened about one foot. Also, the threaded stem was damaged so the gate cannot be closed. At the present time, the pool is basically drained dry. See pictures below of preventative measures which were completed in the hopes of reducing vandalism.



Stoplog locking mechanism



Screwgate locking device



Gate open, damaged stem and pool drained due to vandalism

Historical ranking of five highest recorded pool elevations		
Ranking	Date	Elevation
1	May 25, 1999	1176.8
2	May 6, 1997	1176.2
3	May 20, 1996	1176.0
4	April 21, 2009	1175.9
5	May 14, 1998	1175.8

## 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:

	<b>North Pool</b>	<b>South Pool</b>	<b>Total</b>
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 2009 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 included 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

Major runoff in the spring caused widespread flooding. The Moose River Impoundment stored significant floodwater and reduced the downstream flood peaks. Runoff was retained in the North Pool until April 20, 2009. The screwgates were then opened, and with the controlled outflows, began to lower pool level to the summer target elevation of 1211.75. On June 3<sup>rd</sup> the summer level was reached and the gates closed. The normal Fall drawdown began about mid-October which required flood gate operation. Flood gates were closed and the elevation reached the winter target on October 24th.

The 2009 North Pool elevation crested at 1214.8 on April 19, 2009.

Historical ranking of five highest recorded N. Pool elevations		
Ranking	Date	Elevation
1	May 16, 1999	1215.9
t2	April 22, 1997	1215.85
t2	June 15, 2002	1215.85
3	May 21, 1996	1215.8
t4	June 14, 1994	1214.8
t4	August 7, 2001	1214.8
t4	April 19, 2009	1214.8
5	April 13, 2006	1214.45

## 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

Major spring runoff caused widespread flooding. The Moose River Impoundment stored significant floodwater and reduced the downstream flood peaks. Runoff was retained in the South Pool until April 20th. The screwgates were then opened, and with the controlled outflows, began to lower pool level to the summer target elevation of 1213.65. On June 23, the summer level was reached and the gates were closed. The normal Fall drawdown on the South Pool began about mid October which required flood gate operation. Flood gates were closed and the winter target elevation was obtained on October 24th.

The maximum North Pool elevation for 2009 was 1216.75 which occurred on April 19, 2009.

Historical ranking of five highest recorded N. Pool elevations		
Ranking	Date	Elevation
1	May 16, 1999	1218.05
2	May 9, 1997	1217.9
3	June 7, 1996	1217.8
4	July 11, 2002	1217.65
5	April 19, 2009	1216.75

## 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

No floodgate operation was required during 2009 the Spring runoff event. Predicted crests downstream did not require gate closure or storage. Highest recorded pool elevation is 988.75 during historic flood of 1997.



# Water Quality Report

## Red Lake Watershed District Water Quality Program

The biggest water quality program accomplishment in 2009 was the completion of the Clearwater River Dissolved Oxygen and Fecal Coliform TMDL Study that addressed impairments on the Clearwater River, Lost River, Silver Creek, Poplar River, Pennington County Ditch 57, and Walker Brook. Other accomplishments included the completion of the monitoring for the Thief River Watershed Sediment Investigation, receiving Surface Water Assessment Grant funding, and a revision of the Farm to Stream Tile Drainage Study to include the flow results.

## 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, and stage are collected during site visits. Samples are also collected and analyzed for total phosphorus, orthophosphorus, total suspended solids, total dissolved solids, total Kjeldahl nitrogen, ammonia nitrogen, nitrates + nitrites, and E. coli. The Clearwater TMDL process revealed that we need to collect biochemical oxygen demand (BOD) samples on reaches impaired by low dissolved oxygen.

Monitoring at some of the newer monitoring sites is being paid for by Surface Water Assessment Grant (SWAT) funds allocated from a grant received by the Red River Watershed Management Board. Four newer (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 2010. The streams that are being monitored using funding from this grant are the Blackduck River, Cormorant River, Darrigan's Creek, O'Briens Creek, Lower Badger Creek, Cyr Creek, and Kripple Creek.

Samples were collected in April, May, July, and September in 2009. Spring monitoring found high flows and flooding at most sites. Some streams that can routinely go dry in the late summer continued to flow throughout the year. The Clearwater River Dissolved Oxygen and Fecal Coliform TMDL Study revealed that we really need to start collecting biochemical oxygen demand (BOD) samples in reaches that may be impaired by low dissolved oxygen. BOD is a common pollutant addressed in dissolved oxygen TMDLs. Because BOD is twice as expensive as other tests, it was cost-prohibitive when we didn't have a planned use for the data. Beginning in 2009, BOD analysis will be conducted on samples collected from reaches with existing or suspected low dissolved oxygen impairments. In 2009, measureable concentrations were found at sites that had low dissolved oxygen concentrations at the time of the site visit.



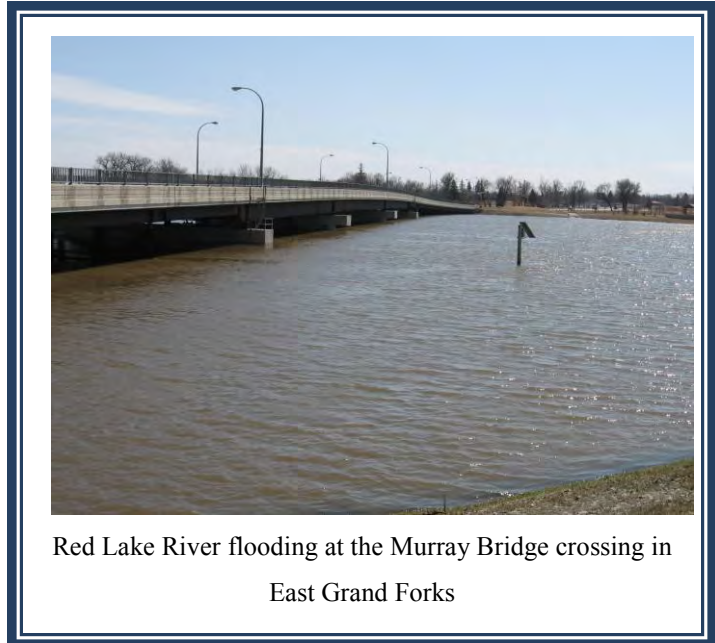
Cattle continue to abuse the streambanks of the Lost River north of Pine Lake

\* Indicates multiple "offenses"

High E. coli levels were found in samples from:

- Red Lake River at the Murray Bridge in East Grand Forks
- Gentilly Creek in Gentilly
- Kripple Creek north of Gentilly\*
- Black River at CSAH 18
- Cyr Creek\*
- Clearwater River in Red Lake Falls

- Lower Badger Creek\*
- Maple Lake inlet
- Maple Lake outlet
- Hill River north of Brooks
- Poplar River upstream of Highway 59\*
- Poplar River downstream of the Fosston lagoons, during discharge
- Lost River downstream of the Pine Lake outlet
- Silver Creek west of Clearbrook\*
- Clear Brook at Highway 92
- Ruffy Brook\*
- Clearwater River upstream of Clearwater Lake
- Red Lake River at the 1<sup>st</sup> Street crossing in Thief River Falls
- Thief River at Hillyer Bridge, north of Thief River Falls\*
- Thief River at County Road 44
- Thief River at CSAH 12\*
- Thief River at County Road 7 near Agassiz NWR \*
- Mud River at Hwy 89\*
- Mud River at all crossings from Grygla to Highway 89
- Thief River at the north boundary of Agassiz NWR\*
- Thief River near the Thief Lake outlet
- Moose River at CSAH 54
- Darrigan's Creek\*
- O' Briens Creek
- South Cormorant River\*
- Blackduck River\*



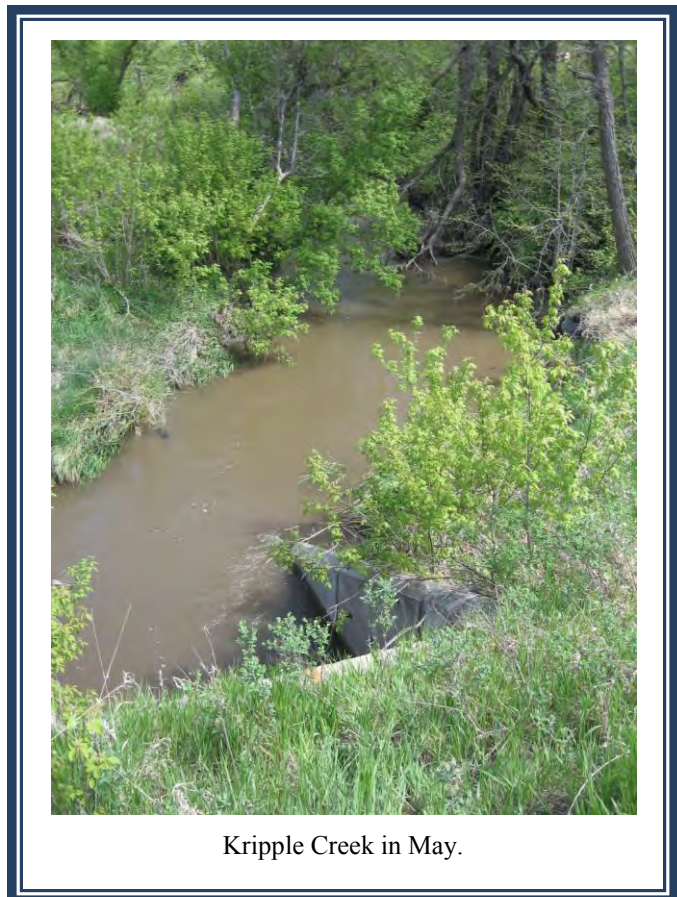
Red Lake River flooding at the Murray Bridge crossing in East Grand Forks

High Turbidity levels were found in:

- Grand Marais Creek north of East Grand Forks\*
- Red Lake River at the Murray Bridge in East Grand Forks\*
- Red Lake River in Crookston\*
- Kripple Creek north of Gentilly
- Black River at CSAH 18
- Cyr Creek
- Clearwater River in Red Lake Falls
- Thief River at County Road 7\*

Low Dissolved Oxygen levels occurred at:

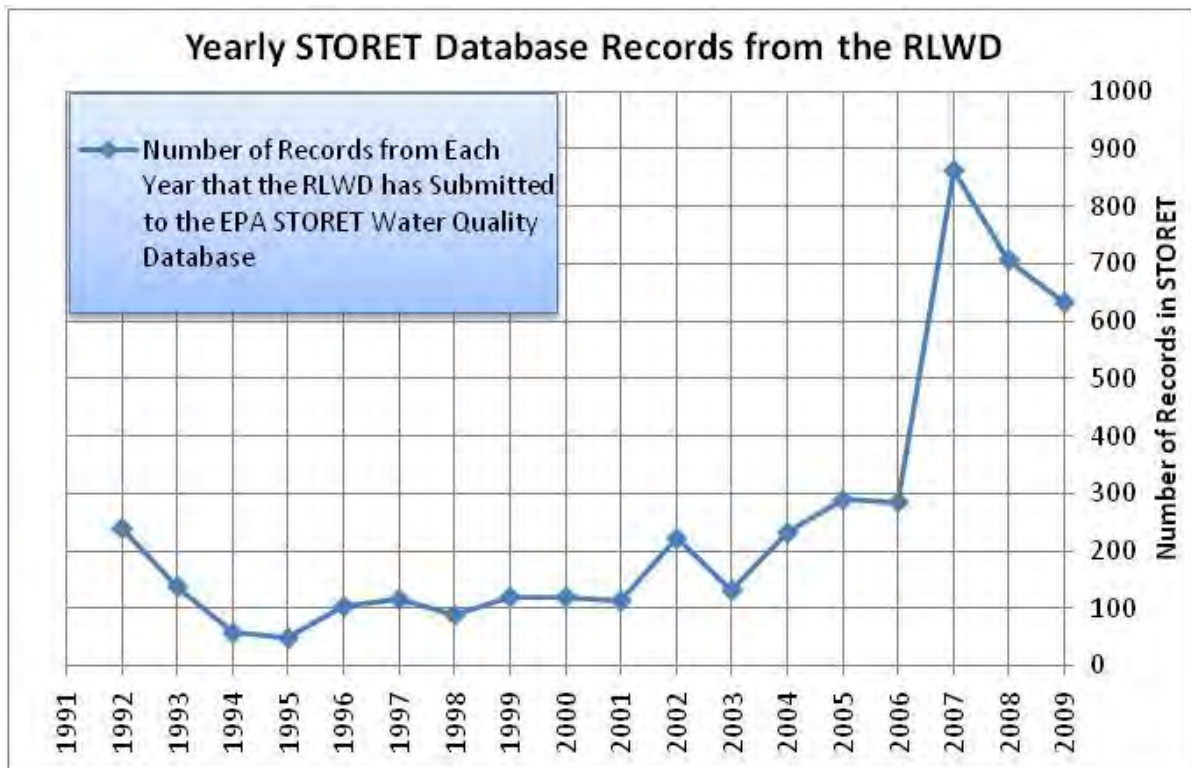
- Grand Marais Creek\*
- Polk County Ditch 2
- Brandt channel at Highway 75\*
- Burnham Creek
- Poplar River diversion at the Badger Lake inlet\*
- Clearwater River downstream of Bagley



Kripple Creek in May.

- Clearwater River upstream of Bagley
- Lost River at the Pine Lake inlet
- Clear Brook\*
- Walker Brook\*
- Branch 200 of JD11, downstream of Farmes Pool
- Thief River near Agassiz National Wildlife Refuge
- O' Briens Creek (tributary of the Blackduck River)\*

Continuous stage/flow records will be needed at an increasing number of sites throughout the RLWD to prepare for upcoming TMDL studies and to accomplish effectiveness monitoring for completed TMDLs. The installation of HOBO water level loggers as part of the RLWD stream-gauging program is a cost-effective way to accomplish this. In 2009, a HOBO water level logger was installed at site #81 (CR111) on Silver Creek. In coming years, we will need to begin collecting flow records from tributaries of the Lower Red Lake River (Black River, Burnham Creek, Gentilly Creek, Kripple Creek, Cyr Creek).



This spring, samples were collected to help the MPCA investigate the source of polluted water that was flowing into Grand Marais Creek. On May 11th, the District received a call from the West Polk SWCD regarding complaints about discharge near the American Crystal Sugar plant in East Grand Forks. They requested help with collecting some samples there to document pollutant levels in the discharge. The site was visited on the morning of May 12<sup>th</sup> and didn't appear to be a large quantity of flow on the east side of Hwy 2. There was excessive algae growth and turbidity in the standing water at the site, so it was evident that there has been some recent discharge with a high concentration of nutrients.



East Grand Forks Lift Station Outlet

East Grand Forks city staff operated the stormwater lift station pump and the flow had a strong hydrogen sulfide (sewage) odor and the color was very dark. Samples were collected from this discharge. The EGF city employees noted that the pump doesn't normally run at the current water level, so it was sucking up some material from the bottom of the lift station and that the water in the lift station does not normally have a wastewater smell.

A sample was also taken from the ditch that meets the Grand Marais Creek from the west. The water was an unnatural fluorescent green color (photo to the right).

Data, site descriptions, and other notes were provided to the MPCA.



Green water entering Grand Marais Creek

May 12, 2009 Investigative Sampling - Noxious Water Flowing to Grand Marais Creek												
Site	Turbidity (NTRU)	E. coli (MPN/100 ml)	Total Chloride (mg/L)	TDS (mg/L)	TSS (mg/L)	Sulfate (mg/L)	BOD (mg/L)	Ammonia N (mg/L)	NO2+ NO3 (mg/L)	TKN (mg/L)	OP (mg/L)	TP (mg/L)
East Grand Forks Lift Station Outlet	814	74.9	182	2592	720	526	587	0.32	<.02	7.27	1.01	2.17
American Crystal Sugar Ditch	163	4.1	221	4480	44	433	2458	0.159	<.02	15.8	4.06	4.42
160th St. Ditch near Grand Marais Ck.	215	3.1	145	1592	17	462	131	0.174	<.02	4.17	0.751	1.3

## Clearwater River Dissolved Oxygen and Fecal Coliform TMDL Study

The Clearwater River Dissolved Oxygen and Fecal Coliform TMDL Study is a multi-reach water quality impairment study in the Red River Basin in Minnesota. Seven impairments listed on 6 stream reaches are addressed. The purpose of the study is to assess the impairment and define sources of pollution. Where an 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 Hw y 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 conducted this TMDL study under a contract with the MPCA. The main objectives were 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

### **Swat Modeling by the EERC:**

The Energy and Environmental Research Center completed a Soil and Water Assessment Tool (SWAT) model of the Clearwater River watershed in April 2009 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 was calibrated for flow, sediment, nutrients, dissolved oxygen, and bacteria using a lot of data inputs. For example, they used 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. The stakeholder meetings helped guide the calibration process to make it more successful by more accurately modeling wild rice paddy pumping/discharge, waterfowl contributions, and feedlot contributions. BMP implementation scenarios were modeled based on a list of practices that have been successfully implemented by area Soils and Water Conservation Districts and the Natural Resources Conservation Service.

Aerial photography and ground-truthing were used to identify feedlots and heavily pastured areas next to rivers. These select livestock operations were treated as point sources within the SWAT model. This helped improve the accuracy of the fecal coliform calibration/simulation part of the model. Current loads were calculated for the E. coli TMDL reports using historical flow data and monthly geometric means.

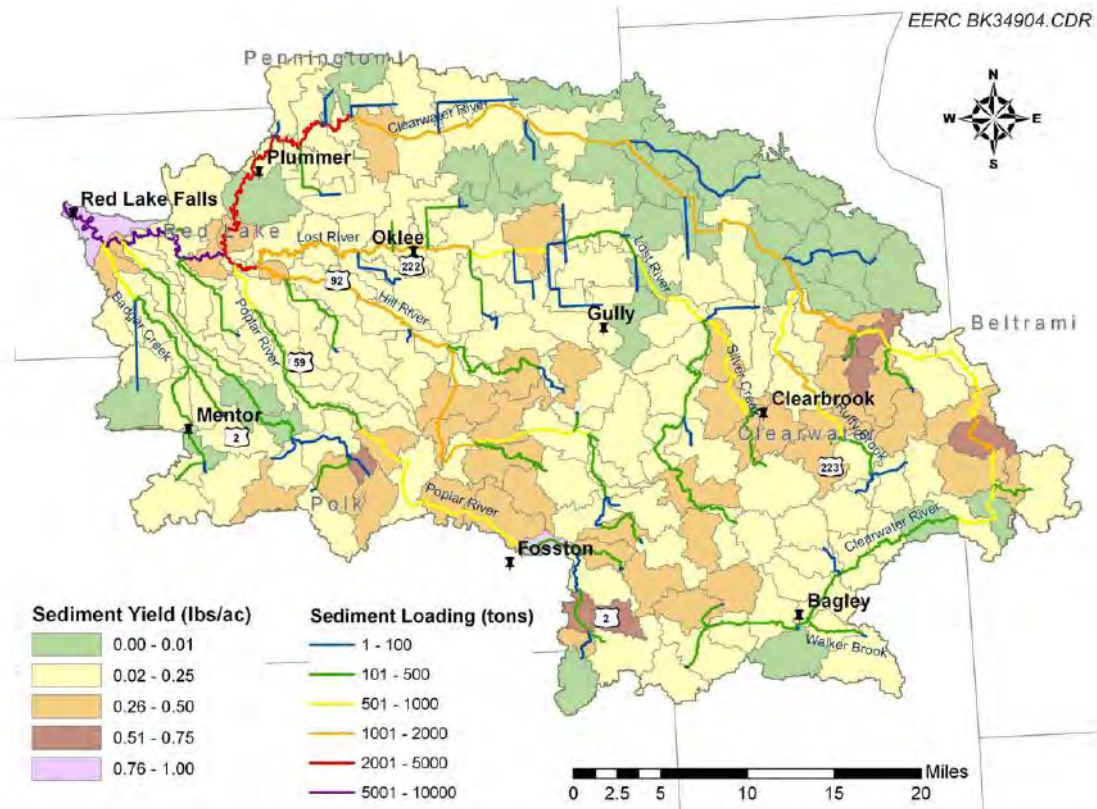


Figure 1. The estimated average annual sediment erosion from the landscape of each subbasin (sediment yield) and the estimated sediment loading within each reach of the Clearwater River Watershed.

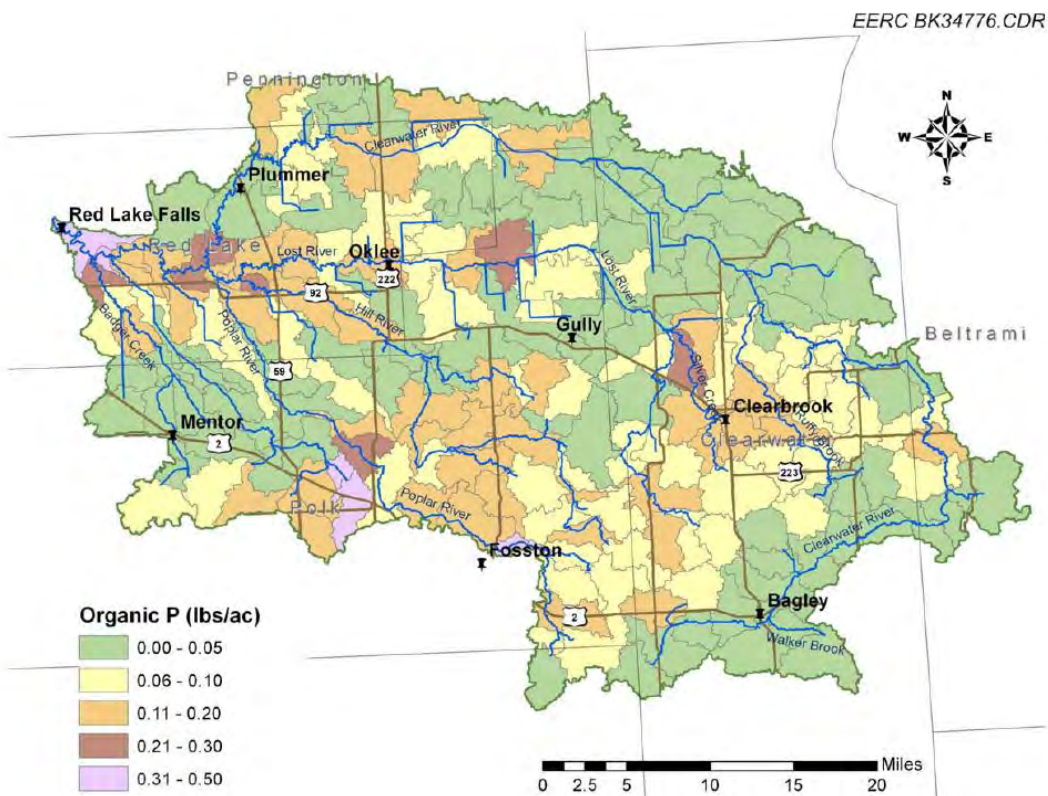


Figure 2. The predicted phosphorus yields within the Clearwater River Watershed

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

The pollutant of concern has officially been changed from fecal coliform (200 CFU/100ml) to E. coli (126 CFU/100ml). 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 consensus of the stakeholders and project partners was to complete a report and see what reductions in pollutants would be necessary to incorporate a margin of safety. This margin of safety would provide enough protection so that this reach of the river would not end up back on the Impaired Waters List in the future. Because the Environmental Protection Agency (EPA) does not approve TMDLs for reaches that are meeting standards (even if a margin of safety is needed to protect the stream), the report will be used to create a protection plan for this reach of the Clearwater River. The reach has been delisted from the State's List of Impaired Waters.

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

Analysis of discrete field measurements of dissolved oxygen and continuous records from deployed dissolved oxygen loggers shows that this reach of the Clearwater River currently meets State water quality standards. Dissolved oxygen concentrations occasionally fall below the threshold set by the State of five milligrams per liter. The frequency, however, is not great enough to warrant an impairment listing. The consensus of the stakeholders and project partners was to complete a report and see what reductions in pollutants would be necessary to incorporate a margin of safety. This margin of safety would provide enough protection so that this reach of the river wouldn't end up back on the Impaired Waters List in the future. The pollutant in this reach that correlated best with dissolved oxygen was chemical oxygen demand. The greatest reductions were needed in late summer months. These months had the highest COD concentrations and the lowest dissolved oxygen levels. Because the Environmental Protection Agency (EPA) does not approve TMDLs for reaches that are technically meeting standards (even if a margin of safety is needed to protect the stream), the report will be used to create a protection plan for this reach of the Clearwater River. The low dissolved oxygen impairment is being considered for delisting. An MPCA review of all the data, including continuous data, is underway.

## **Silver Creek E. coli Impairment**

The E. coli data collected in 2007-2008 undoubtedly verifies the aquatic recreation impairment on this stream. In fact, it was found that the problem is much worse than we thought. 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 sampling site located 1 mile West of Clearbrook. This means that the sources are likely both point and nonpoint in nature. Potential sources of E. coli generally include feedlots, stormwater, pastures, septic systems, illegal dumping, and natural background.

The Clearwater SWCD was able to hire the EERC to do more intensive modeling of the Silver Creek watershed with Agricultural Watershed Restoration grant funding. This model showed that livestock operations with direct cattle access to the river have a very significant impact on fecal coliform and E. coli concentrations in the stream. The model predicted that eliminating direct cattle access to the stream could nearly eliminate the fecal coliform/E. coli problem. While livestock operations are not the only source of E. coli bacteria in the watershed and it's impossible to reduce bacteria concentrations by 100%, the model's prediction shows the relative impact from that particular source. It also gives us hope that the stream can be restored. Other potential sources identified for the Silver Creek watershed include stormwater, natural background, and septic systems.

## **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. Potential sources identified at stakeholders' meetings and from investigation of the watershed include wastewater treatment facilities (WWTFs), 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. There are two WWTFs along this reach of the Poplar River. They serve the towns of McIntosh and Fosston. Fosston's WWTF discharged much more phosphorus than the one in McIntosh.

Orthophosphorus was identified as the pollutant that best correlated with dissolved oxygen in the Poplar River. The most significant reductions are needed during highest flows and also during the low periods when the river is most sensitive to pollution. The critical conditions in the Poplar River are essentially: any time that the WWTFs are discharging and conditions with high rates of flow/runoff. Sediment and nutrients are filtered from the stream by riparian wetlands and likely have the residual effect of continued depletion of dissolved oxygen when flows subside and decomposition continues.

### **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. E. coli concentrations in the Lost River occasionally exceed the State water quality standard, yet there is still room for improvement. The consensus of the stakeholders' and project partners was to complete a report and see what reductions in pollutants would be necessary to incorporate a margin of safety. This margin of safety would provide enough protection so that this reach of the river doesn't end up back on the Impaired Waters List in the future.

What causes the periodic high E. coli concentrations? 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.

Because the Environmental Protection Agency (EPA) does not approve TMDLs for reaches that are meeting standards (even if a margin of safety is needed to protect the stream), the report will be used to create a protection plan for this reach of the Clearwater River. The reach has been delisted from the State's List of Impaired Waters.

### **2009 Accomplishments:**

- SWAT Model was completed
- Draft TMDL reports were completed for the Clearwater River low dissolved oxygen impairment, Clearwater River E. coli impairment, Lost River E. coli impairment, Silver Creek E. coli impairment, Poplar River low dissolved oxygen impairment, and the County Ditch 57 low dissolved oxygen impairment (as an appendix to the draft Clearwater River DO report).
- Stakeholders' Advisory Group meetings were held on April 10 and June 19 in 2009. These meetings were held to inform local stakeholders and, more importantly, gain knowledge from their comments.
- Draft TMDL reports were reviewed by the MPCA and submitted to the EPA for preliminary comments. The Silver Creek and Poplar River reports (the two natural stream reaches that were found to be impaired) are being revised based on EPA comments. The revisions should be completed by April 1, 2010. The EPA comment period will be then be 30 days. When we get comments back from the EPA again, we should be able to have a draft ready for public comment on review sometime in June. The target approval date is September 30<sup>th</sup>, 2010. The MPCA will wait to address the CD57 and Walker Brook TMDLs until the tiered aquatic life use standards are developed. After the two TMDLs are approved, then we can work on protection plans for the reaches that are being delisted as a result of the Clearwater River Dissolved Oxygen and Fecal Coliform TMDL Study.



- The Lost River (Anderson Lake to Hill River) E. coli impairment and the Clearwater River (Ruffy Brook to Lost River) E. coli impairment were officially delisted (removed from the draft 2010 List of Impaired Waters) on December 28<sup>th</sup>. The Clearwater River (Ruffy Brook to Lost River) low dissolved oxygen impairment will likely be delisted after the continuous monitoring data is reviewed by the MPCA.

## **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's projects page ([www.redlakewatershed.org/projects](http://www.redlakewatershed.org/projects)).

### **2009 accomplishments**

- Compiled and assessed 2008 continuous monitoring data at RLWD monitoring sites.
  - “Worked the record” for each deployment period by adjusting data based on fouling and calibration drift.
- Deployed sondes and HOBO water level loggers as soon as deployment tubes became accessible. The Moose River was the first to allow access to the deployment tube. Water levels at the Thief River sites remained high for a long time. Water was too high at many sites to reach the top of the deployment tubes. Frequent field measurements were collected to compensate for this circumstance. The USGS was able to deploy equipment at most of the Agassiz NWR inflow sites in the spring, but not at their outlet sites.
- A total of twenty-one flow measurements were made for this study in 2009 to establish the upper end of the flow rating curves for the Thief River monitoring sites. A bridge crane was used to measure flow at some of the sites that had high water.
- Monthly samples were collected at all the sites. A second round of E. coli samples were collected at some of the sites so that data requirements for assessment can be met after this year's monitoring. An extra round of E. coli samples were collected at four sites on the Mud River, Thief River, and CD20.

**Stream Gauge 40 at the CR7 Thief R. crossing on 3/31/09**



**Branch 200 of Ditch 11 on 3/31/09**



**Mud River at Hwy 89 flooding on 3/24/09**



**Mud River at Hwy 89 after construction**



- A software package, Aquarius, was purchased that will allow for much more tidy and efficient handling of the thousands of data points that are collected at each site by the continuous water quality monitoring equipment. Aquarius software allows raw data to be pulled into the program, correct for fouling error, correct for calibration drift, examine time series graphs to check for outliers, export a corrected and compiled data file, and export a file listing all the changes that have been made to the data. A clean .csv file (along with the original files for archiving) will be sent to the State's HYDSTRA database to be used for the storage of continuous water quality and flow data.
- Requests for proposals for SWAT modeling of the Thief River watershed were sent to potential engineering firms that have expressed interest in the project. The deadline for submission was August 6<sup>th</sup> and Houston Engineering was chosen at the August 13<sup>th</sup> RLWD Board of Managers meeting.
- The bridges over the Mud River and Moose River along Hwy 89 were replaced with box culverts, so monitoring was interrupted for the months of June and July at those sites.
- Semi-annual reports were completed and sent to the MPCA.
- Collected a longitudinal survey of E. coli concentrations along the Mud River from Highway 89 to Grygla on August 4th. Concentrations were high at Highway 54 in Grygla, decreased for several miles, then were high at the crossings that are two and three miles east of Hwy 89.



- Deployed a Eureka Midge dissolved oxygen logger at the CSAH 54 crossing of the Moose River.
- Canoed the Thief River from the Rangeline Road into Thief River Falls with Jim Courneya (MPCA Project Manager). Erosion sites were GPS'd and photographed along the way.
- Deployed an In-Situ TROLL 9500 multi-parameter logging sonde in stream gauge 139 (State Forest Road crossing).
- Collected a longitudinal survey of E. coli concentrations along the Mud River from Highway 89 to Grygla on August 20th. Concentrations were high throughout the reach and peaked at 1732.9 CFU/100ml at a couple of sites near the middle of the reach.



- Worked on providing Houston Engineering, Inc. (HEI) with data to aid in the calibration and development of the SWAT model.
  - Clearwater River SWAT data
  - Flow records from 2007 and 2008 from monitoring sites in the Thief River watershed.
  - Reviewed the delineation of the Thief River subwatersheds and flow patterns that will be used for the SWAT model. There were a few improvements made to the existing data based on ground-truthing.
  - Impoundment operation information
  - Feedlot locations
    - Registered feedlots
    - Unregistered livestock operations that are having an identifiable impact on the land that is similar to the effect of the registered operations
    - Feedlots that are located next to rivers and streams
  - Found the correlation between turbidity and total suspended solids for this watershed. This correlation was used to convert the continuous monitoring turbidity records into TSS records for use in calibrating the SWAT model.
  - Compiled and sent 2007-08 flow records
  - In order to get an approximation of the amount of tile in the sub-basins of the Thief River watershed, a windshield survey of tiled fields (looked for pumped outlets) was conducted. Fields were GPS'd that had tile. Based on the percentage of acreage in tile versus the total acreage of fields that were driven by, percentages were provided to Houston Engineering, Inc. (HEI), by sub-basin, of farmed land that is in tile.
  - HEI was also provided with discharge data from the Moose River pools. Stephanie Johnson of HEI was also able to get discharge data from Thief Lake and Agassiz NWR.
- Monitoring on Branch 200 of JD11, downstream of Farmes Pool, recorded significant, but temporary, flushes of sediment that were created by the construction activity at the Farmes Pool outlet.
- Prolonged high turbidity levels were recorded in the Thief River downstream of Agassiz National Wildlife refuge during the drawdown of Agassiz Pool.
  - A turbidity level of 132.5 FNU was recorded on 10/16 at Co. Rd. 7 (the standard is 25).
  - Turbidity in the Mud River was also quite high during this time (103 FNU measured on 10/19 at Hwy. 89).
- Entered 2009 monitoring data into the RLWD water quality database and submitted data to the MPCA for STORET entry.
- Developed a work plan for the upcoming watershed-based TMDL Study.
  - The District learned that the MPCA has approved \$250,000 for the development of a watershed-based TMDL for the Thief River watershed. A work plan is required to receive



the funding. The Thief River Watershed Sediment Investigation CWP project has money budgeted for the development of a TMDL work plan. This funding will be used to develop the work plan for the watershed-based TMDL. On the 303(d) List of Impaired Waters, the earliest Thief River TMDL is scheduled for 2013. So, transitioning from the CWP project to the TMDL will get a TMDL completed for the watershed at least 3 years ahead of schedule.

- Attended watershed-based TMDL planning meeting in Detroit Lakes
- Identified stream/ditch reaches that will need to be monitored as part of the watershed-based TMDL and/or Surface Water Assessment Grant projects (like Branch A of JD21, see photo to the right).
- Met with MPCA staff in Detroit Lakes to go over the work plan.
- Talked to Dave Friedl about the stream channel stability work that will take place in summer 2009.
- Tasks planned for the Thief River Watershed Assessment Project:
  - Evaluation of existing data
  - Water quality sampling
  - Continuous monitoring
  - Biological data collection and analysis
  - Stage and flow monitoring
  - Stream channel stability assessment
  - Stressor identification
  - BASINS model development
  - Monitoring data entry
  - Monitoring data analysis
  - Civic engagement
  - Identification of sources and solutions
  - Final report and semi-annual reporting
- Updated the budget with expenditures through October and sent it to the MPCA. More than 50% of the grant funds have been expended, so the RLWD is eligible to receive the next payment from the MPCA of \$28,950. Through October, the RLWD had spent \$50,976.96 of the cash, \$50,904.72 of the grant, and \$34,666.04 of the in-kind budgeted for this project.
- Water quality logging equipment was removed in November.
- Water level loggers were removed in early December.
- A data review of the 2009 STORET submittal from this project was completed.
- Freshwater drums (sheepshead) were conspicuously abundant this year throughout the lower reach of the Thief River and some of the main ditch systems. Also, northern pike and walleye were often spotted in some of the ditches (particularly Ditch 200).

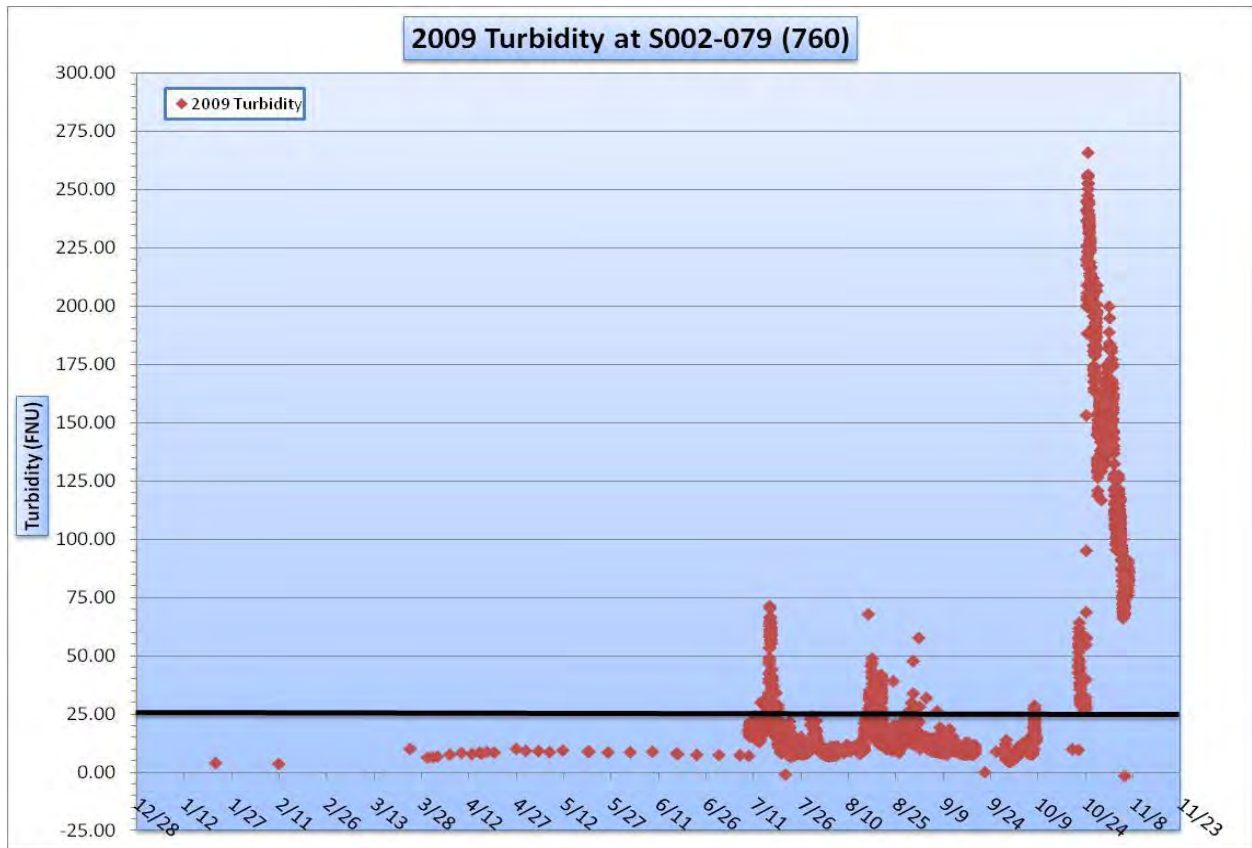
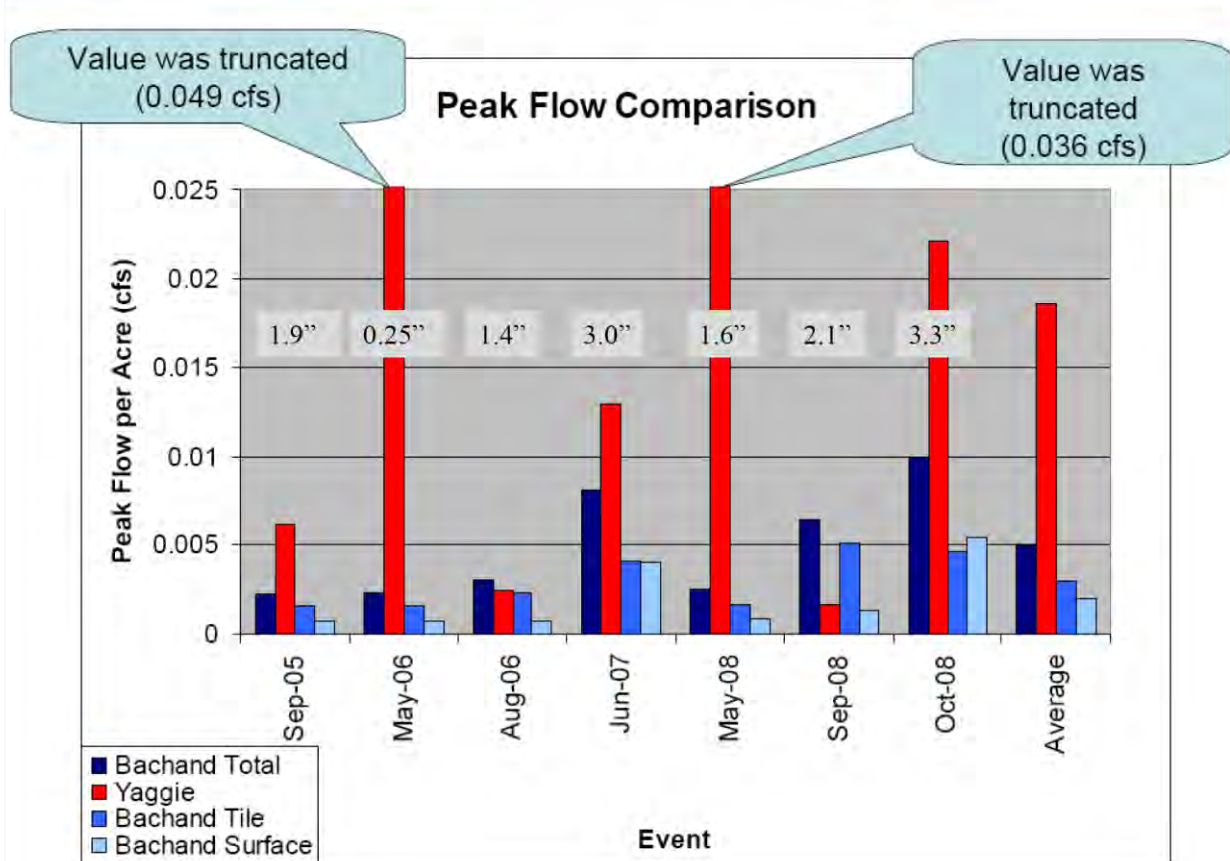


Figure 3. 2009 Turbidity record at the Hillyer Bridge monitoring site on the Thief River.

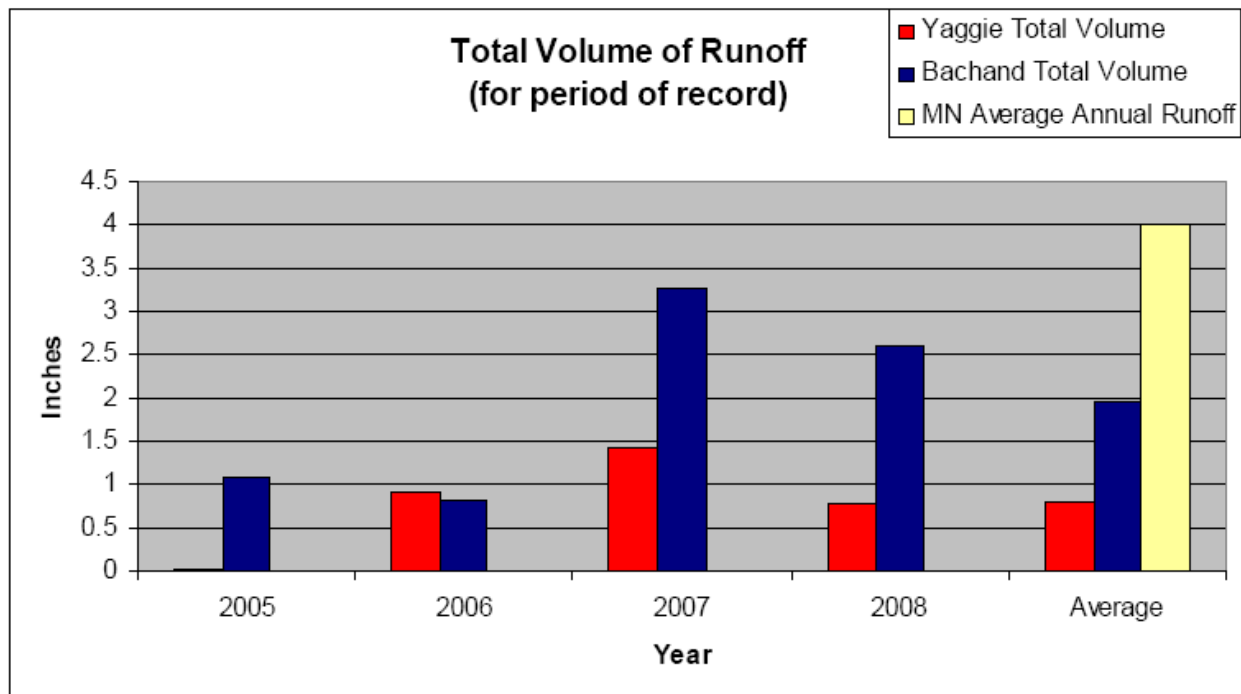
### Tile Drainage Study

The final report was revised to include the results of the flow monitoring. Flow monitoring continued in 2009. HDR Engineering analyzed flow records from runoff-generating storm events to compare peak flows from a surface drained field and a tile drained field. The peak flows from the surface drained field were almost always clearly higher than the peak flows from a tile drained field. Analysis of the flow data found that tile drainage does appear to reduce peak flows from a field and increase the total volume of flow from a field.

The report can be downloaded from the RLWD website by going to the following web address:  
[http://www.redlakewatershed.org/projects/Red Lake Watershed Farm to Stream Tile Drainage Study Final Report R3.pdf](http://www.redlakewatershed.org/projects/Red%20Lake%20Watershed%20Farm%20to%20Stream%20Tile%20Drainage%20Study%20Final%20Report%20R3.pdf)



The total flow volume records from each year's period of record from a tile drained field were also compared to flow record from a surface drained field. Perhaps because of the extended hydrograph of tile flow, the total volume of flow from a field was greater with tile drainage than it was for a field with only surface drainage over each year's period of record (post spring runoff to fall freeze-up).



## 2009 Statewide Water Quality Assessment

\*Impairments identified on channelized reaches will be listed, but action on the impairments will be deferred until the development of tiered aquatic life use (TALU) standards is complete.

- The Red Lake River, from the headwaters to Thief River, will have a new low dissolved oxygen impairment.
- The increased amount of data from the Mud River will likely result in a delisting of the low dissolved oxygen impairment.
- Pennington County Surface Water Assessment Grant monitoring on CD21 south of Thief River Falls has found extremely high concentrations of E. coli and ammonia. The high ammonia and E. coli concentrations occurred when there was low flow in the ditch and many cliff swallows living under the bridge. Swallows were suspected to be the cause of the high readings.\*
- A low dissolved oxygen impairment in the Black River watershed may be added to the List of Impaired Waters. This is based on data collected by the Pennington County SWCD at the Goose Lake outlet. Some disagreement with this assessment because much of the low dissolved oxygen readings came from measurements made within the Goose Lake wetland, not within the ditch that is being assessed.\*
- Glacial Ridge monitoring conducted by the USGS will result in several low dissolved oxygen impairment listings for ditches in the upper reaches of the Burnham Creek and Gentilly Creek watersheds (CD65, CD140, Burnham Creek).\*
- Ditch 200, from Farmes Pool to the Thief River, has a low dissolved oxygen impairment.\*
- CD 20 will be a new turbidity impairment listing.\*
- CD57 (near Plummer), will have a turbidity listing.\*
- The trout stream reach of the Clearwater River will be listed as impaired by un-ionized ammonia nitrogen. It should have been listed during the last assessment, but the MPCA applied the warm water fisheries standards instead of the cold water fisheries water quality standards.
- Terrebonne Creek has been found to be impaired by high E. coli.
- The dissolved oxygen impairment on Grand Marais Creek was extended downstream from CD2 to the Red River.\*
- Polk County Ditch 2 will be listed as impaired by turbidity.\*
- Continuous dissolved oxygen monitoring was recommended for several reaches, including the Upper Red Lake River and the Black River.

The Pennington County SWCD has collected samples at the CD21 ditch south of Thief River Falls. Several of these samples had very high E. coli and ammonia concentrations. The mutual opinion at the Professional Judgment Group meeting was that the ditch should be listed as impaired (deferred until development of tiered aquatic life use standards). The reach will likely not end up on the list in this round of assessment because the samples were collected during low flow and there were a lot of swallows living under the bridge. Their droppings are the likely source of both the high E. coli and ammonia readings. The possibility that this is a naturally caused impairment is made more likely as a windshield survey of the ditch's watershed didn't result in identification of any obvious man-made sources.

## 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.

HOBO water level loggers were installed at the CD2 (stream gauge #71) and Brandt channel (at Hwy 75) monitoring sites. The deployment pipe for the TS300 turbidity logger at the CD2 site was frozen in early April, so the instrument couldn't be deployed. The pipe was later bent by the high amount of runoff, so the bottom length of pipe needed to be replaced before a turbidity logger could be deployed at the site. A TS300 turbidity logger was installed at the Brandt Channel monitoring site in early April. Field measurements were conducted at the Project 60E (Brandt Channel and Polk CD 2) monitoring sites. Field measurements were made more often than usual to compensate for the lack of a turbidity logger at the CD2 monitoring site. During site visits, a clean calibrated turbidity logger would be swapped for the deployed logger at the Brandt channel monitoring site. The pipe at stream gage 71 on CD2 was fixed in August and turbidity logger was deployed there. Flow continued at both monitoring sites throughout the summer. Water level loggers were retrieved in November.



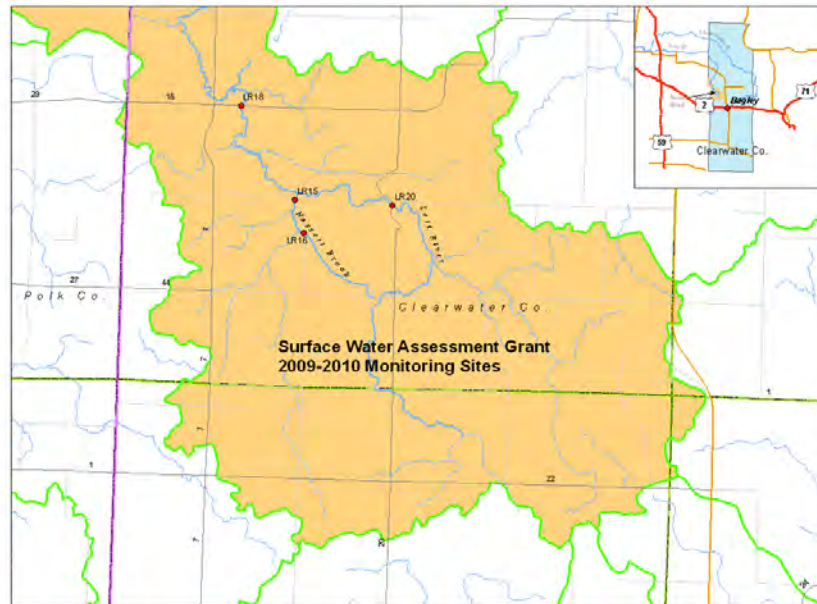


## Assessment Grant for the Lost River and Nasset Brook (Project 82FF)

The Red Lake Watershed District was awarded a \$13,000 Surface Water Assessment Grant in 2009 by the Minnesota Pollution Control Agency for a water quality assessment of the Nasset Brook and Lost River in Eddy Township, Clearwater County. This grant provides funding for labor, equipment, lab services, and administrative expenses to collect data on the Lost River upstream of Clearwater County Road 18, including the tributary of Nasset Brook. Each of these sites is located on a designated trout reach. The funding period is spread over two years and relies on the participation of volunteers from the Bagley High School River Watch team.

E. coli bacteria monitoring is an important component of this project because preliminary samples on the Nasset Brook showed extremely elevated counts in the 2007-2008 seasons. The LR15 site is heavily pastured and is lacking in tree canopy and bank vegetation. The three other sites are within a mile of LR15 but offer a variety of land uses, buffer, and canopy

In 2009, the District procured a YSI 600QS sonde, a Hach 2100P turbidimeter, a polycarbonate sampling bottle, calibration standards and miscellaneous office supplies, all for use by the project volunteers. This equipment will continue to be available to River Watch groups after this project is completed.



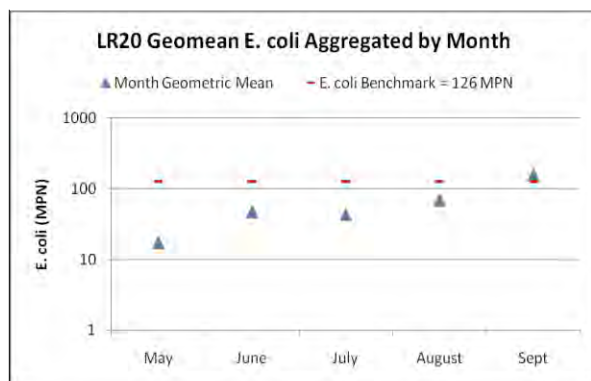
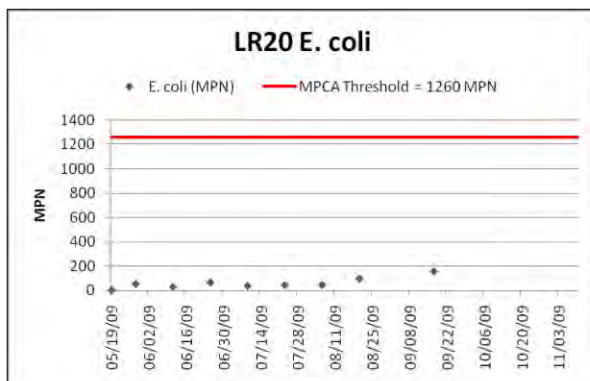
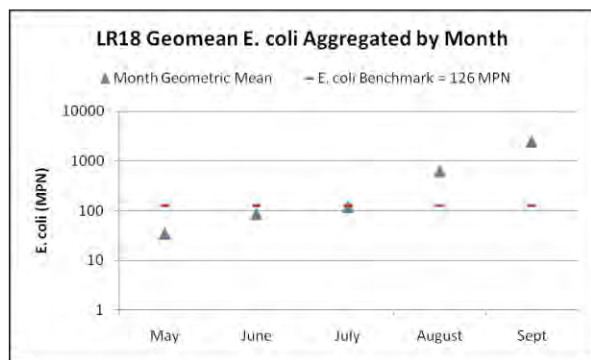
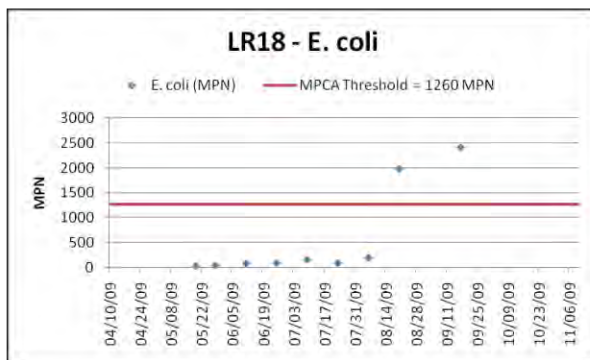
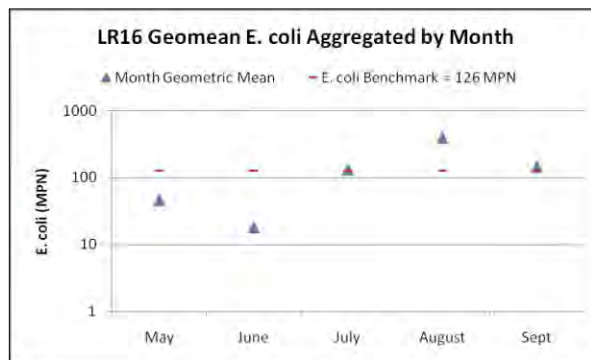
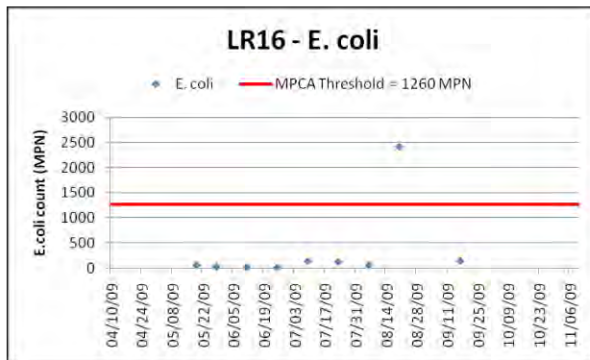
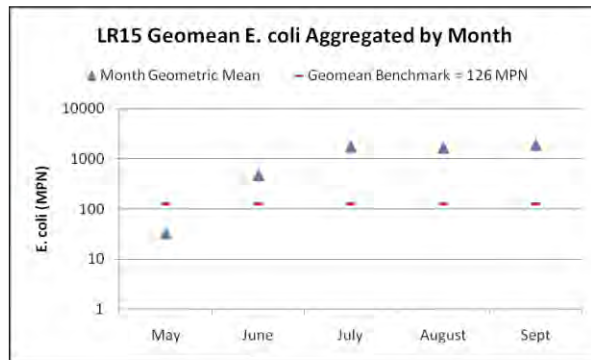
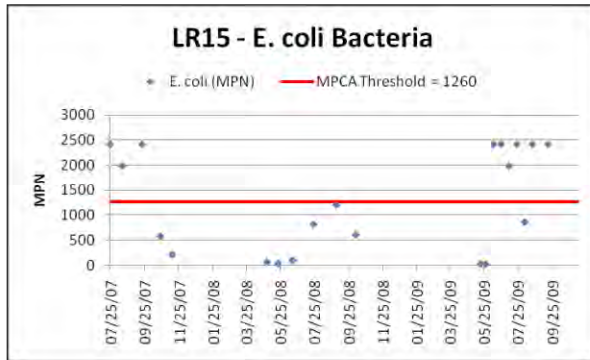
The MPCA is funding the monitoring of four sites on the Lost River and Nasset Brook. E. coli, dissolved oxygen, pH, and turbidity are being measured in 2009 and 2010 for impairment assessment.

The first year of monitoring was carried out according to the work plan with no significant cost overruns. The sites were monitored twice per month in 2009, and will be monitored three times per month in 2010 in order to meet the MPCA criteria for E. coli assessment. The volunteer supervisor, Bagley science teacher Jill Bakken, did an excellent job gathering samples and data according to schedule, and overseeing substantial student involvement throughout the summer months. Ms. Bakken was the key to a successful 2009 sampling season.

The only setback in E. coli monitoring was with the September 3<sup>rd</sup> data. Samples were gathered and shipped according to plan, but the results were suggestive of a sample mix up either at the lab or in the field. Rather than make assumptions, Jim Blix opted to reject the results from that sample set and instead take an additional sample in September of 2010.

Sampling results in 2009 indicate potential E. coli impairment at LR15, LR16, and LR18. There does not appear to be a trend to impairment at LR20, but more data is needed to make an

assessment. These sites will be subject to a formal assessment after the 2010 monitoring season. There is also a potential impairment for dissolved oxygen at LR16, LR18 and LR20, as shown in the impairment maps of the previous section of this report. There is a particularly high number of exceedances for E. coli at LR15. Of the 48 E. coli measurements taken, 12 (25%) exceeded the nominal threshold of 1260 MPN and 9 (18.75%) were equal to or greater than the reporting limit of 2419.6 MPN.



These graphs show the tendencies of the four SWAG sites to exceed the benchmarks for impairment 303(d) and non-support 305(b). The MPCA can make a formal assessment when five data points for each month for each site are accumulated at the end of the 2010 monitoring season.

Two aspects of E. coli assessment are

- the standard exceedance threshold applied to data taken from the most recent 10 years or
- the geometric mean of at least five data points per month, aggregated by month.

Impairment criteria for E.coli is specified in MPCA's Guidance Manual for Surface Water Assessment:

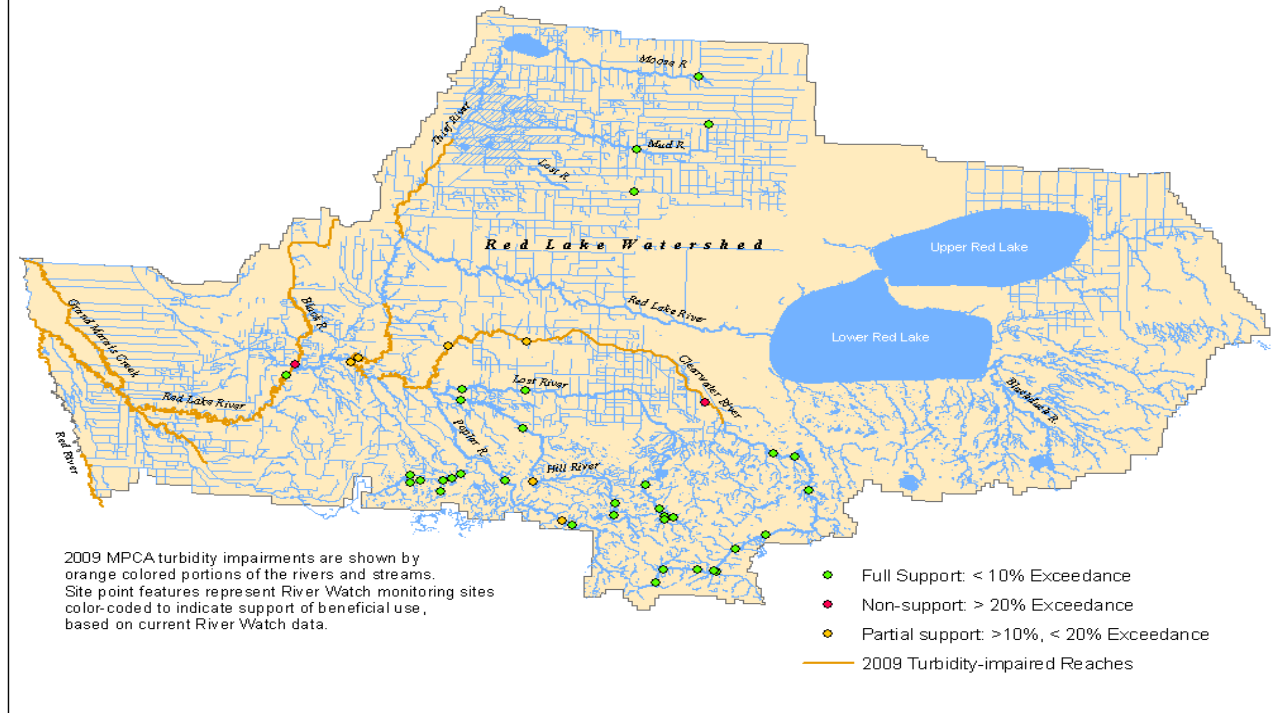
*If the geometric mean of the aggregated monthly values for one or more months exceed **126 organisms per 100 ml**, that reach is placed on the 305(b) and 303(d) lists. Also, a waterbody is considered impaired if more than 10 percent of individual values over a ten year period (independent of month) exceed **1260 organisms per 100 ml**.*

Note that the data set for LR15 is larger than for the other three sites. Bagley began taking E. coli samples in 2007 when students first observed the intensive livestock impact in the stream. Continued high levels of E. coli bacteria finally led to monitoring for a formal assessment though MPCA's SWAG program.

### River Watch (Project 82F)

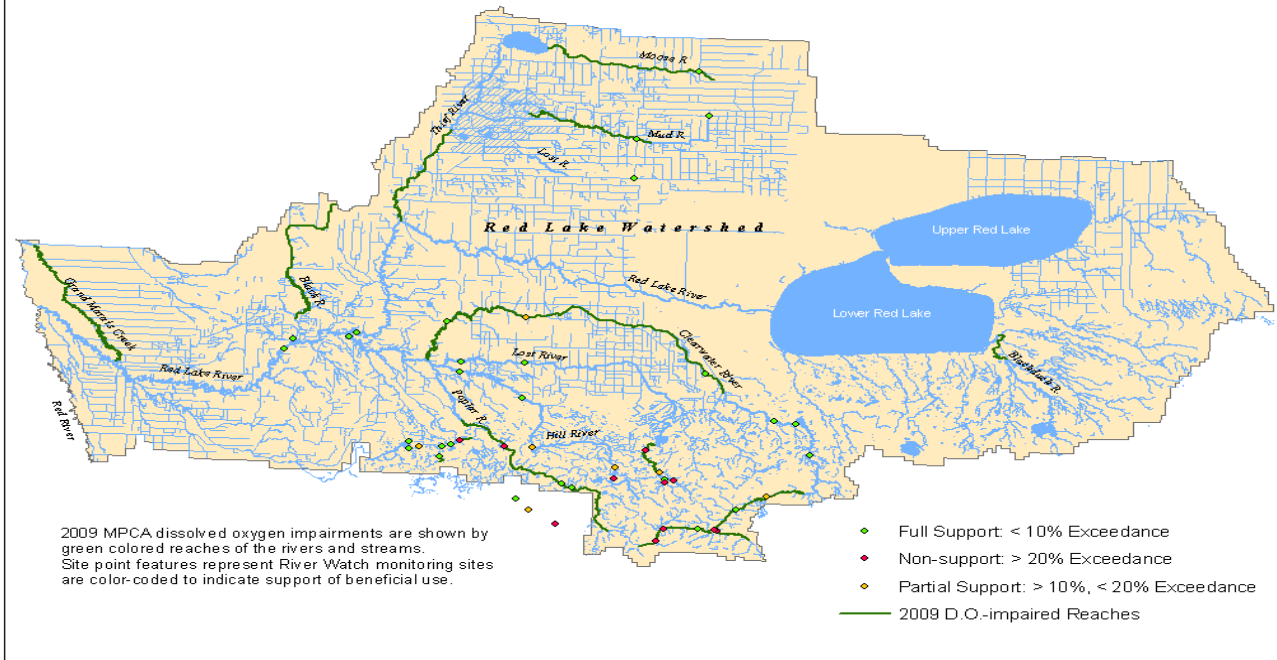
- Five of the most active schools, Bagley, Fosston, Red Lake Falls, RLCC, Win-E-Mac, contributed 297 site visits in the 2009 monitoring season. Jim Blix made an additional 20 site visits without student volunteers in order to maintain data continuity for Grygla and Clearbrook, who were not as active in 2009. The new science teacher at Grygla, who gained River Watch experience during his internship at Red Lake Falls last year, plans to organize his Grygla students for the 2010 monitoring season.
- The 2009 Forum was well attended by schools from as far away as West Fargo and the Red Lake Nation, each bringing a summary display of their 2008 monitoring season. These displays were competitively judged for overall clarity, knowledge of the empirical methods of science, and quality of presentation. Winners from the Red Lake Watershed District were Bagley, who received the Gold Award, and Fosston who earned the Bronze award.
- **2009 River Watch Data:** The map graphics presented below contrast and compare 2009 MPCA impairment listings with the most recent 20 River Watch data points for these monitoring sites.

# Turbidity

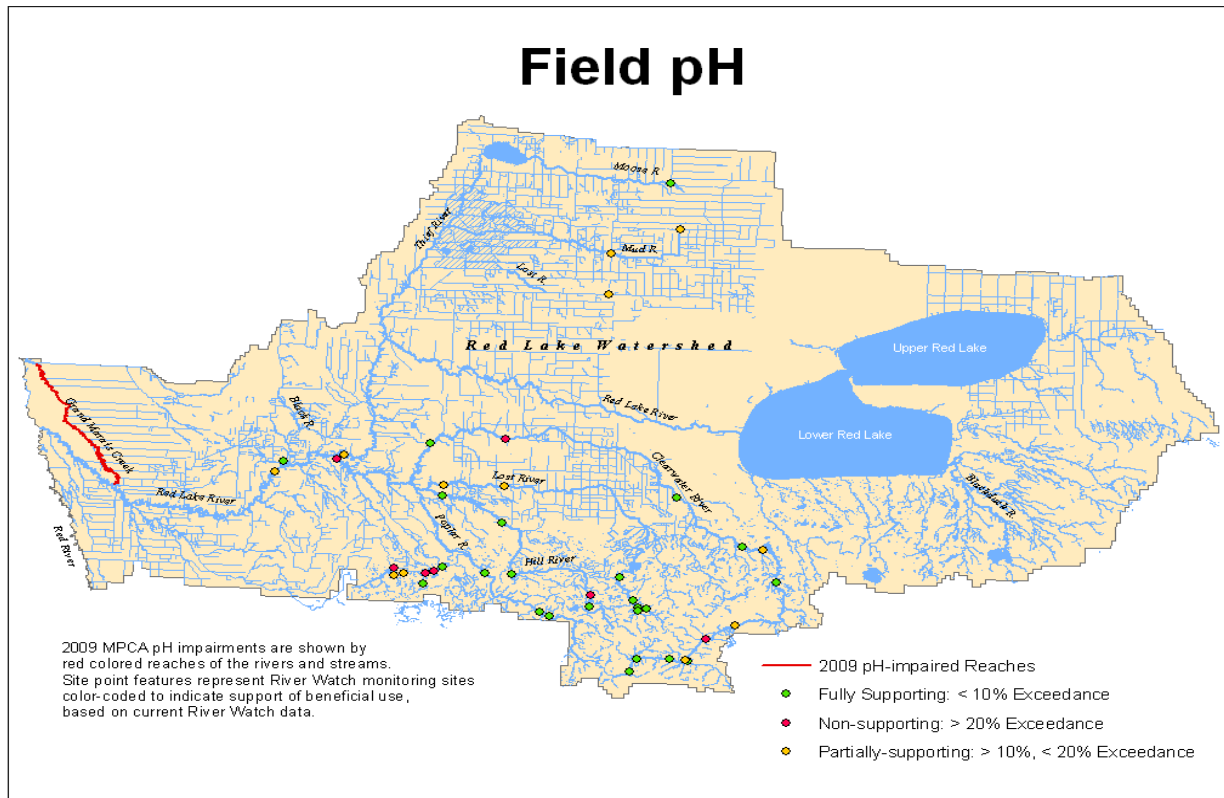


River Watch site point turbidity data is generally consistent with MPCA impairment listings. However, there are points of only partial support on the Hill and Poplar Rivers.

# Dissolved Oxygen



Dissolved oxygen readings at River Watch site points are not entirely consistent with MPCA impairment listings. MPCA assessments are often based on a larger data set.



The MPCA pH-impairment listing is based on data from other agencies. River Watch sites throughout the watershed exhibit consistently high pH values to suggest impairment conditions.

The MPCA does not specify benchmarks for other water quality indicators such as temperature and conductivity. The data for these parameters does not include any outlier values, and are not expected to result in impairment listings.

## Education

The RLWD Water Quality staff helped teach grade school students at the Pennington County Outdoor Education Day and the Northwest Water Festival. The water quality coordinator was a judge at the Franklin Middle School 7<sup>th</sup> and 8<sup>th</sup> grade science fair in Thief River Falls and also gave presentations at Clearwater River TMDL Stakeholder Advisory Meetings, the Red River Basin Water Quality Monitoring Training Session, Red River Basin Water Quality Team meetings, RLWD Board of Managers meetings, an RLWD Overall Advisory Committee meeting, a public meeting about the reclassification of the Thief River, and the Minnesota Drainage & Water Management MAWD Pre-Conference Session. Monthly water quality reports continue to be available on the RLWD website (<http://www.redlakewatershed.org/monthwq.html>).

## Other Notes from 2009

- ✓ All water quality data collected and available through October was entered and submitted to the MPCA for entry into the EPA STORET database (RLWD district monitoring program and the Thief River Watershed Sediment Investigation study).
- ✓ The Thief River is being reclassified by the MPCA due to its role as a drinking water source.
- ✓ Some potential sites were identified for the construction of rain gardens in Thief River Falls.
- ✓ The MPCA was provided with a list of sites in the Thief River watershed where the DNR may want to establish stream gauging stations.

- ✓ A shapefile was created of RLWD water quality monitoring sites that includes a link to the MPCA's Environmental Data Access web page for each site. The EDA site stores all the data collected by multiple agencies at each established monitoring site that has been submitted to STORET.
- ✓ Compiled flow records for tile monitoring sites from the data that was collected this year.

## Plans for 2010 and Beyond

- Analyze sampling data for the Thief River Watershed Sediment Investigation.
- Complete the compilation, correction, and assessment continuous data records from the TRWSI.
- Format continuous data records for HYDSTRA.
- Complete the revision of the Draft Silver Creek E. coli TMDL Report and the Draft Poplar River Dissolved Oxygen TMDL Report.
- Begin working on the Thief River Watershed Assessment Project
  - Review existing data and plan the additional monitoring necessary to fill in the data gaps
  - Water quality monitoring
  - Flow monitoring
  - Channel stability assessment – reconnaissance in May and surveying in August.
  - Data entry and analysis
  - Civic Engagement
  - Identification of sources and solutions
  - Reporting
- Manage flow data from 2009, including filing of flow measurements and stage records.
- Finish data reviews for 2009 STORET submittals.
- The Thief River SWAT model should be completed by the end of April 2010.
- The Thief River Watershed Sediment Investigation study will be completed in August of 2010.
- The RLWD's long-term monitoring program will continue.
- In 2011, the Thief River Watershed is targeted for the MPCA's 10X intensive watershed monitoring program. This monitoring will include the collection of data for most of the MPCA's assessment criteria, including biological data. The RLWD and area SWCDs will apply for Surface water Assessment Grants (SWAG) to assist with the water quality monitoring for the 10x program.
- The MPCA 10x monitoring program will target the Red Lake River and Grand Marais Creek watersheds in 2011.
- Develop a work plan for the Red Lake River Watershed Assessment Project. It will be a watershed-based TMDL, assessment, and civil engagement project similar to the one planned for the Thief River watershed. The MPCA hopes this project could begin in 2011.

## **Other Watershed Activities**

Other on-going activities include farmstead ring dikes, permits, 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.

### **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, 109 requests have been received for the program. Of these, 63 have been completed and 36 have declined to participate.

Four ring dikes in Polk County were surveyed in late summer and early fall. Yardage and cost estimates were completed with one ring dike being constructed in November near the Red River of the North, Section 4, Tynsid Township. This was a very large ring dike project compared to the ones the District has previously built. Length: 2647 feet; Maximum height: 12 feet; and estimated cubic yards: 21,000.

Polk County Highway Department approached the District concerning excess material excavated from the Thompson Bridge project which is very near to the ring dike location. Approximately 15,000 cubic yards was obtained from the bridge site, with the remaining 6,000 cubic yards from a borrow source on the landowners property. The contractor was R.J. Zavoral & Sons, Inc. of East Grand Forks, MN.

The funding and ring dike program will continue into 2010.

Mike & Georgia Egeland  
Located in Section 4, Tynsid Township, Polk County at the Red River of the North





## Permits (RLWD Project #90)

The District received 134 permit applications in 2009, which was an increase of 40 applications from 2008. Of the permits received two were tabled until spring 2010. The numbers listed below indicate the permits approved and how they are categorized within our rules for permitting:

- 2 utilities
- 6 re-grade
- 105 culvert/bridge
- 13 drainage
- 6 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.

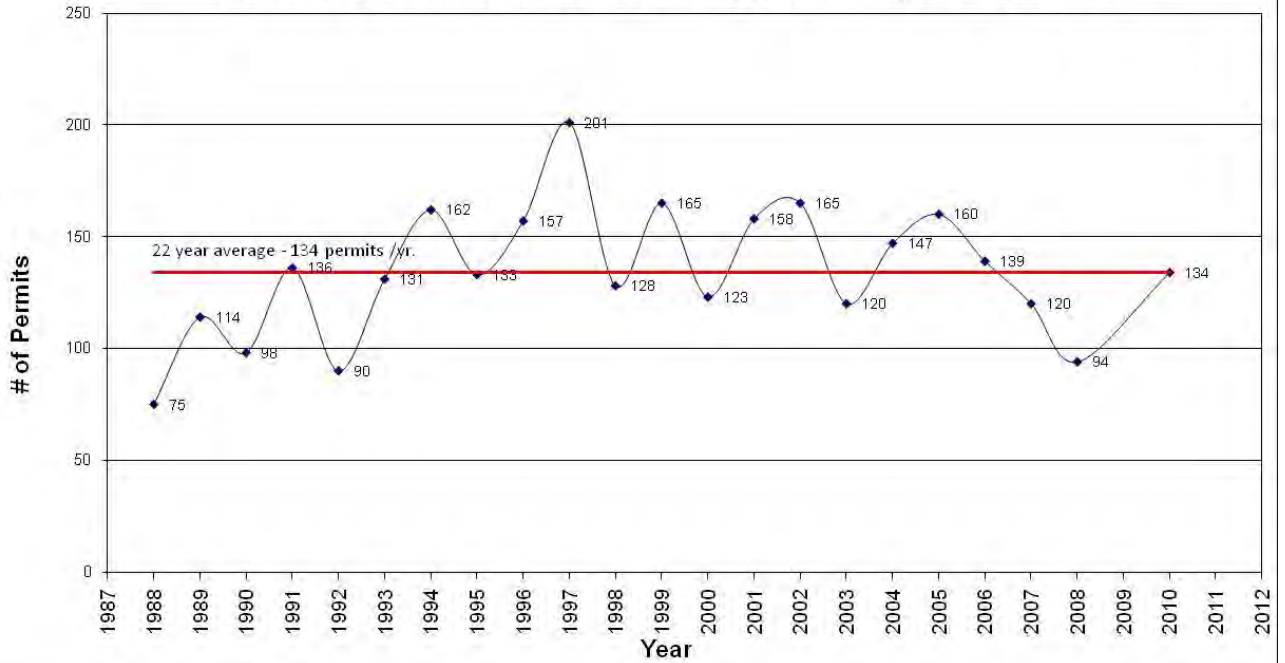
Examples of work associated with permit review consists of: watershed delineations, detailed surveys, drainage area and culvert sizing recommendations, and meetings. Other than the late June and October rain/runoff events, relatively dry conditions during 2009 were beneficial for completing permitted projects.



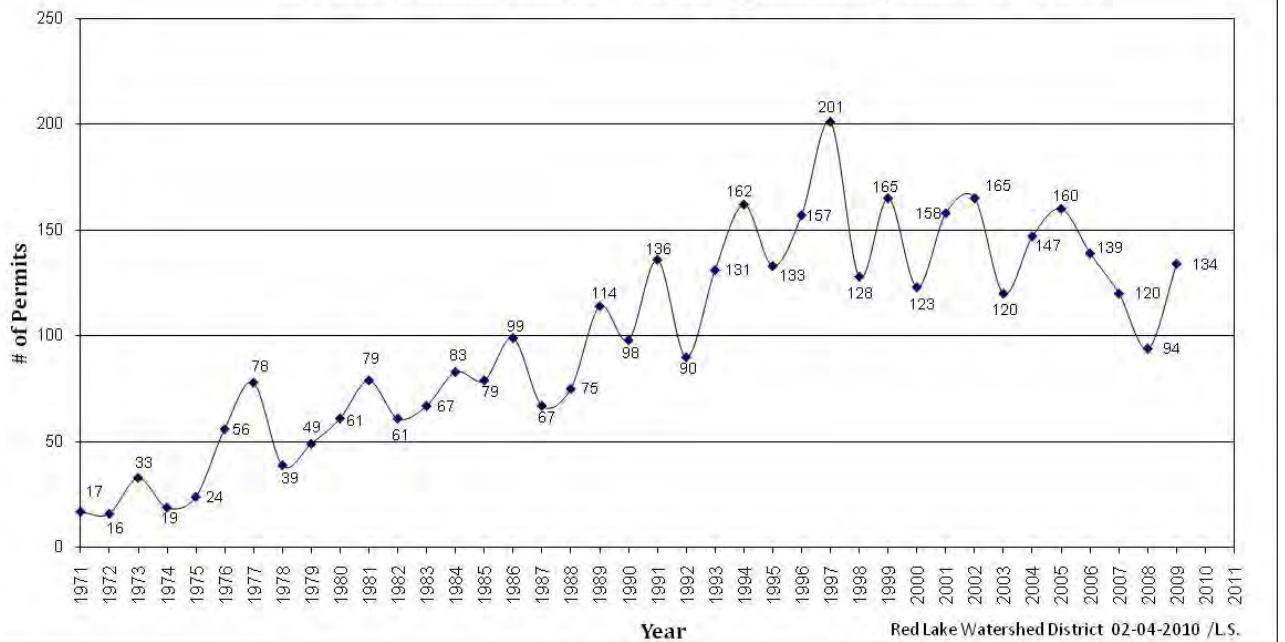
The Red Lake Watershed District began issuing permits in 1971. The following two graphs show a record of the number of permit applications received during each given year (1971 to 2009) and the number of yearly permit applications from 1988 through 2009 with the 22 year average.

Permit applications are available on the Red Lake Watershed District web site:  
[www.redlakewatershed.org](http://www.redlakewatershed.org)

**Red Lake Watershed District - Permit Applications by Year 1988 - 2009**



**Red Lake Watershed District - Permit Applications by Year 1971 - 2009**



Red Lake Watershed District 02-04-2010 /L.S.

## 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.

As mentioned above, rice paddy spring flood storage is quite substantial. Some of that storage was utilized during this year's event and helped to reduce downstream flood flows/peaks. For most of 2009 during the growing season, sufficient flows in the Clearwater River watershed provided the growers adequate water for flooding paddies. The only allocation performed was in September and October for fall flooding. 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



Harvesting wildrice

## 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



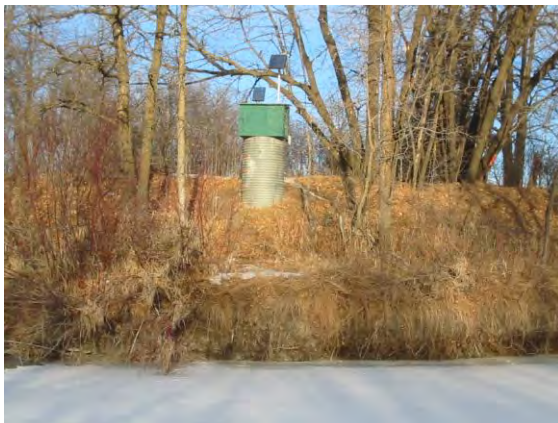
Typical staff gage at structure



Measuring flow with bridge crane



Wire weight gage



Automated river gage located



## 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.

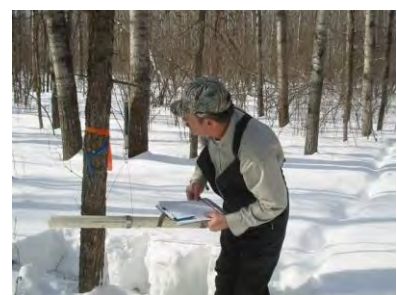
The 2008 Fall season was very wet going into freeze up. Precipitation totals for the autumn and December snowfall/precipitation were far above the long-term averages for the Red River basin. During the 3<sup>rd</sup> week of March (21<sup>st</sup>), and just prior to the rapid melt, the average depth of the snowpack was 8 inches and the water equivalent (moisture content) was 2.6 inches. Within 3 days, the daytime temperatures were 45 to 50 degrees and it stayed above freezing at night. The 2009 Spring flood had begun.



Establish base weight of empty sampling tube



Obtaining snow depth and core sample



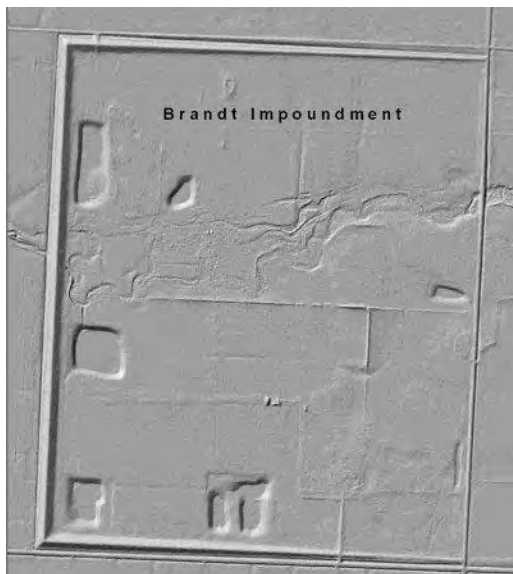
Establishing weight of snow sample to obtain water content

## High-Resolution Elevation Data (RLWD Project #145)

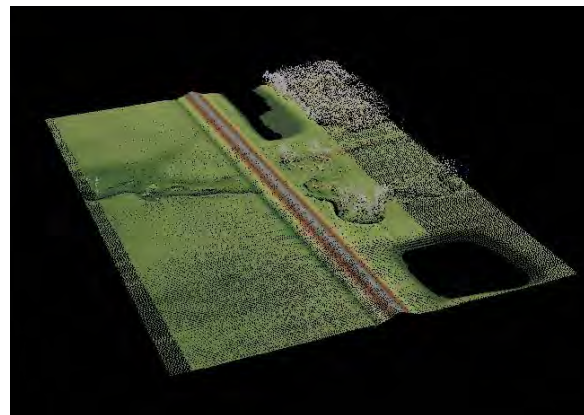
The demand throughout the Red River Basin for high resolution elevation data has increased in recent years, driven by the need for flood damage mitigation, better risk assessment, and faster engineering solutions. Recent advances in software development and computing efficiencies have brought high resolution LiDAR datasets and a growing number of analytical tools onto the desktops of local and regional governments. Typical LiDAR data sets exhibit an average elevation error of 10 cm and a spatial density of 1.3 square meters.

The International Water Institute (IWI) has partnered with 15 state, local, and federal partners over a two year period to develop the Red River Basin Mapping Initiative, a project that is providing high resolution elevation data for the entire U.S. portion of the Red River Basin. The fly-over acquisition for the majority of the Red Lake Watershed was completed in the Spring of 2009. The IWI will make LiDAR-based elevation data available to the general public as soon as possible. Roughly, data for the western ¼ of the Red Lake River Watershed has undergone preliminary processing and is now freely available for distribution. The remainder will arrive at regular intervals through July, 2010, and will also be freely available. The potential uses of LiDAR-based elevation data at the Red Lake Watershed District include:

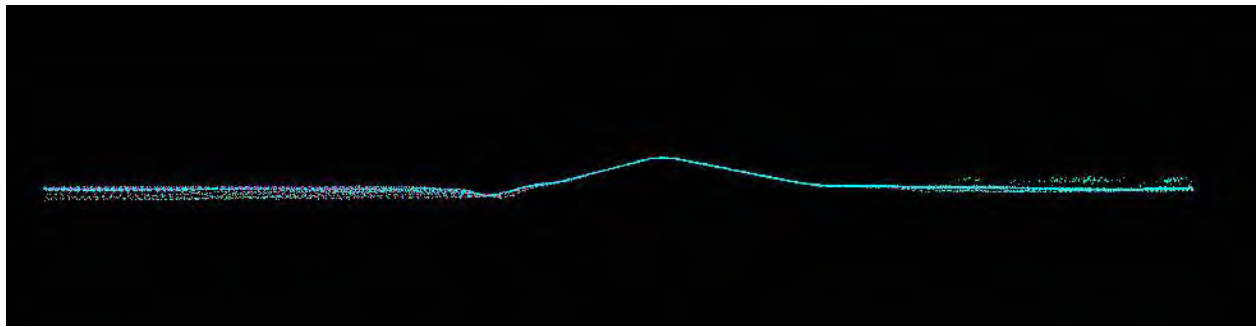
- Terrain analysis to more accurately identify erosion and flood risks
- Bare earth elevation data for preliminary surveys and permit inspections
- Integration of survey points into LiDAR data sets for use in computer models and CAD designs
- Visual inspection of trees, vegetation, buildings, and ditches with “first return” point-cloud data



Bare earth rendering of Brandt Impoundment.



LiDAR "first-return" point cloud display.



Profile of West Dike at Brandt Impoundment

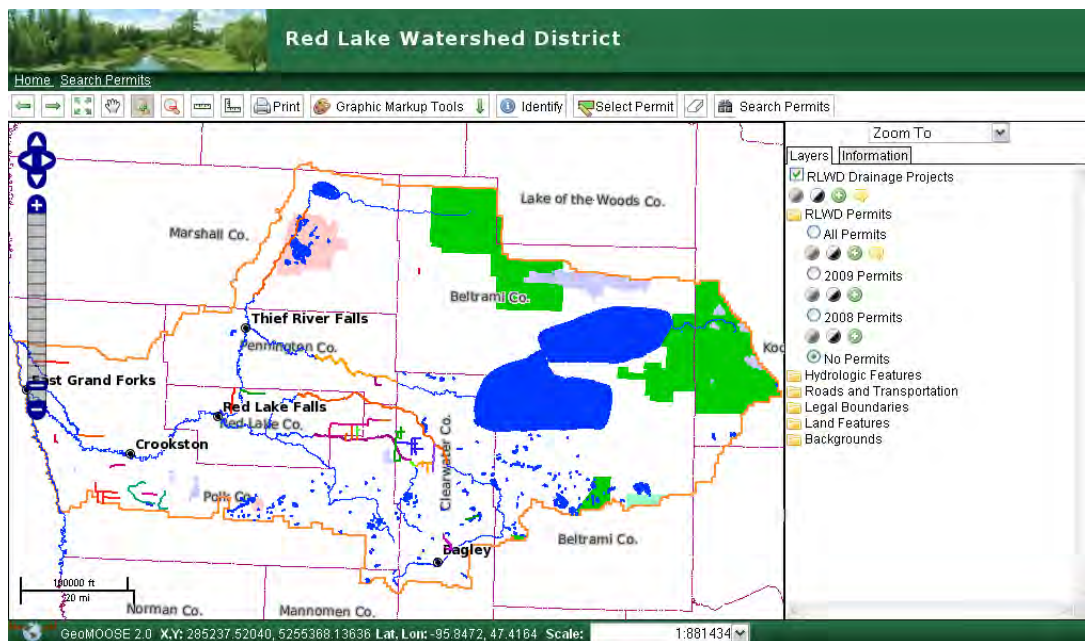
Interest in this technology appears significant throughout the Red River Basin, but a gap needs to be bridged between the potential benefits and the ability of agencies to use it in their day to day operations.

The Red Lake Watershed District made a commitment to this technology in 2009 with the purchase of the Spatial Analyst extension to ArcMap. But the full extent of RLWD involvement will ultimately turn on the cost of other commercial software, the quality and availability of open-source (free) alternatives, and the ability of staff to manage these tools. Early efforts to manipulate the elevation data include learning to display it as shown and establishing the procedures with which the raw data are converted to a ArcMap-compatible file. Further study is needed to learn how to correct the data for hydrological accuracy (i.e., compensating for bridges, culverts, and waterbody breaklines) so that it can be used for terrain analysis and hydrologic modeling.

### Web page and online mapping (RLWD Project #01E)

The Red Lake Watershed District web page (<http://www.redlakewatershed.org>) is currently stable and requires mostly maintenance and updating. The front page navigation menu was changed to allow more versatility, and the layout of the title page was updated and improved.

Houston Engineering installed a major upgrade to the interactive mapping software to improve speed and stability. The Houston staff also enabled online editing of the RLWD permits database and integrated the older “water quality report card” feature into the current web page design. An additional upgrade is pending that will improve the quality of hard copy maps and expand the ability of end users to display their annotations on the printed output.



## Maintenance of Drainage Systems

Inspection of the District's many miles of drainage ditches and numerous other projects was a very busy function for the staff. Annual inspections were conducted to determine what type of maintenance work was needed to keep them in good working order.

A helicopter was utilized for spraying of cattails in ditches and other projects because of accessibility and relatively low cost. With the recent re-establishment of a permanent 16 ½ foot grass buffer strip on the ditch right-of-ways, the District ditches required inspection for noxious weeds and mowing needs. Three contractors were hired to mow approximately 133 miles of ditch right-of-way, with mowing completed on one or both sides of the ditch.



Following is a listing by county, project name and number of the work that was completed to each of these ditches or projects in 2009.

### Clearwater County

- Judicial Ditch 72 (RLWD Project #41)  
2 1/2 miles of the main ditch was cleaned this fall. Seeding and leveling of spoil will be completed in the spring 2010. Spraying of 4.85 miles of cattails miles was completed on all branches of this system.



J D 72 before cleaning



J D 72 being cleaned



- Judicial Ditch 2A (RLWD Project #48)  
Spraying for cattails was completed on .25 miles of this project. A 36 inch culvert trap was installed on the inside of a concrete pipe to solve a flooding problem.
- Judicial Ditch 2B (RLWD Project #49)  
Mowing of the ditch right-of-way was completed and 3.65 miles of cattails was sprayed. Re-installation of two washed out side water inlet pipes was completed. This ditch still needs to be monitored and possibly be hand sprayed for thistles. A beaver dam was located within the ditch system and a local trapper was contracted to remove two beaver.



Bull thistles growing on the ditch right-of-way



Mowing thistle on the ditch right-of-way.

- Good Lake Impoundment (RLWD Project #67)  
Spraying for cattails was completed on 13.7 miles of this project. This project was plagued with vandalism to the structure all summer and fall.
- Winsor / Hangaard (RLWD Project #113)  
Mowing of the ditch right-of-way was completed and 8.8 miles of cattails were sprayed. An old abandoned fence was removed from the right of way of this system.

### **Red Lake County**

- RLWD Ditch 1, Lateral A & B (RLWD Project #5)  
Mowing of ditch right-of-way was completed and cattails were sprayed on 2.1 miles. A large number of rocks were removed along with other assorted junk.
- RLWD Ditch 3 (RLWD Project #7)  
Mowing of the ditch right-of-way was completed. Two right-of-way stakes were installed, along with spraying of 1.6 miles of cattails.
- RLWD Ditch 7 (RLWD Project #20)  
Mowing of the ditch right-of-way was completed along with spraying of cattails on 4.8 miles. A ½ mile of old broken down fence and posts were removed along with rocks that had been thrown into the ditch right-of-way. A small amount of brushing will be done on the back slope and the right-of-way of this ditch at a later date in two locations.
- RLWD Ditch 1 Lateral A (RLWD Project #115)  
This ditch was spot cleaned at all side water inlet pipes and other crossover pipes to remove silt bars and excess cattail growth. Mowing of the ditch right-of-way was completed with 2.4 miles being sprayed for cattails.

- RLWD Ditch 10 (RLWD Project #161)  
A local landowner mowed this ditch right-of-way and baled it. A complaint from a local landowner of the presence of a noxious weed, Yellow Nutsedge, was investigated and found to be false. The plant was investigated and the weed turned out to be Dark Green Bulrush and is actually a plant that is beneficial to the ditch system.



### **Pennington County**

- Arveson Ditch (RLWD Project #109)  
Mowing of the ditch right-of-way was completed along with removal of an old abandoned fence and post. Two miles of cattails were sprayed along this system.
- Challenger Ditch (RLWD Project #122)  
Mowing of the ditch right-of-way was completed along with the removal of trash and litter around the outlet structure.

### **Beltrami County**

- RLWD Ditch 9 (RLWD Project #39)  
This ditch was mowed for both brush and weeds; cattail spraying was not needed this year.

### **Polk County**

- RLWD Ditch 8 (RLWD Project #36)  
A re-determination of benefits was completed on this ditch system. The viewers determined benefits to this system totaling \$71,031.00. Mowing of the ditch right-of-way was finished where possible, along with .2 miles of cattails spraying. Approximately one mile was brushed on the ditch back slope and right-of-way in November, 2009.
- Burnham Creek (RLWD Project #43B)  
Mowing of the ditch right-of-way was completed, 1.7 miles of cattails sprayed, removal of logs and trash after a high water event, along with the removal of rocks that had been deposited along the ditch right-of-way.

- Krostue Petition (RLWD Project #53)  
Mowing of the ditch right-of-way was completed along with the spraying of 2.35 miles of cattails.
- Kenny Johnson Petition, RLWD Project #117)  
Ditch right-of-way was mowed, with 1.3 miles of cattails sprayed. A pipe extension was installed to gain better access to the ditch to minimize crop damage.
- Polk County Ditch Improvement (RLWD Project #119)  
Ditch right-of-way was mowed along with 9.34 miles of cattails sprayed. A side water inlet pipe was replaced in Section 6, Hammond Township. The pipe had rusted out with the top of the dike caving in, plugging the pipe, and causing a safety hazard.
- Louisville/Parnell Impoundment (RLWD Project #121)  
Mowing of all inlet and outlet ditches and right-of-way was completed by a local landowner. A helicopter was used to spray 4.7 miles of cattails.
- Scott Baatz Petition (RLWD Project #123)  
Mowing of the ditch right-of-way was completed and .40 miles was sprayed for cattails.
- Polk County Ditch 63 (RLWD Project #134)  
The ditch right-of-way was mowed with .40 miles sprayed for cattails.
- Polk County Ditch 33 (RLWD Project #135)  
Mowing of the ditch right-of-way was completed with 2.2 miles of cattails sprayed.
- RLWD Ditch 11(RLWD Project #166)  
Parts of this ditch were mowed by a local landowner and used for hay, with the remaining ditch being mowed by the district. No spraying was needed in this system.
- RLWD Ditch #12 (RLWD Project #169)  
This ditch system was under construction most of the summer. Establishment of a permanent buffer strip was created along the lateral ditches. Mowing of ditch laterals was completed where it was needed. No spraying was needed in this system this year.



Ditch right of way ready for seeding



Seeding the ditch right of way

## **Marshall County**

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

The District staff inspected State Ditch 83 and no removal of trees was required this year.

State Ditch 83 maintenance work was a top priority this year. Inspection of State Ditch 83 was conducted on the newly constructed access that the District had been working on over the past several years. Areas that required work were located and repaired with minimal destruction to existing landscape. These repairs were all completed with permission from the landowners as access was limited.

A relatively dry summer and low water levels provided for excellent working conditions. With cooperation of landowners, 7 sites were spot cleaned for approximately 3,677 feet. Work entailed the removal of sediment bars/slumps and other debris.



First pass on top of the old spoil bank.



Ditch slope cut with spoil to be leveled.

The area that was to be worked on again this year was an area that was heavily wooded. Most of the trees were oak, green ash, and box elder trees. Trees that had to be removed were salvaged by the landowners or others for firewood. This year over 18,799 feet of new access trail was cleared on the top of the old spoil bank in three different areas to access work areas and for inspection purposes. These access roads were seeded and mulched and will be maintained yearly for future ditch inspections or construction.

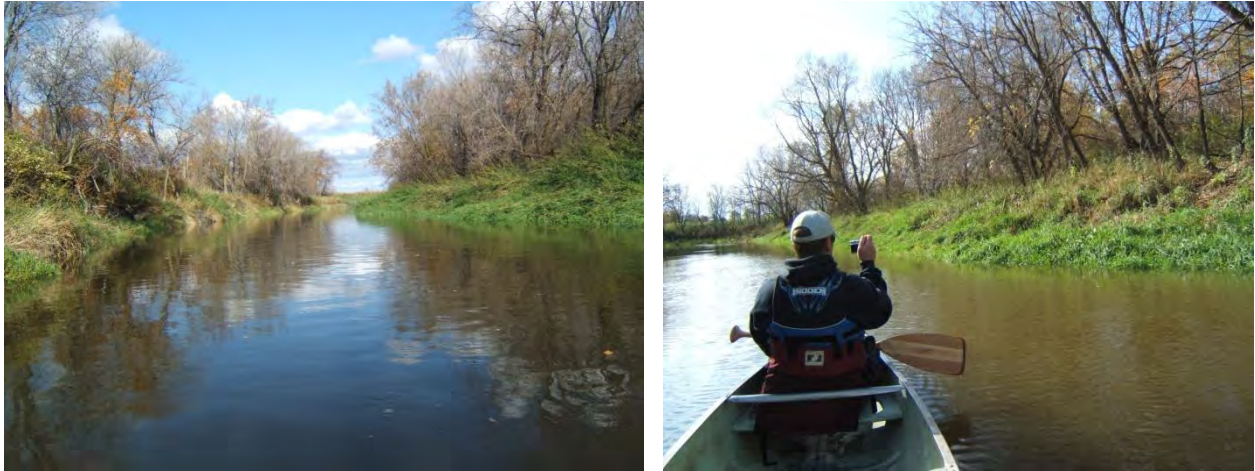


Removing a large silt bar from the channel.



Seeded and mulched, ready for winter.

One of the Districts top priorities for 2010 will be to continue discussions with Marshall County Ditch Authority to assist them in developing a plan which will reduce sediment deposits that appear to be coming from Marshall County Ditch 20. These deposits have been a maintenance problem in the past and continue to be a problem. The District will be looking for possible funding through grants and other sources.



Areas to be cleaned.

To date there have been 57 sites cleaned for a total construction cost of \$ 211,129.

<b>Year</b>	<b>Sites Completed</b>	<b>Construction Cost</b>
2003	5	\$ 17,924.00
2004	High water levels	\$ 0.00
2005	7	\$ 39,033.00
2006	11	\$ 36,004.00
2007	16	\$ 42,144.00
2008	11	\$ 34,450.00
2009	7	\$ 41,574.00
<b>Total</b>	<b>57</b>	<b>\$211,129.00</b>

## Legal Drainage Systems under jurisdiction of Red Lake Watershed District

The Red Lake Watershed District at present has jurisdiction of approximately 297 miles of legal drainage systems throughout the Watershed. The list of all the systems is shown below.

<b>Ditch #</b>	<b>County</b>	<b>Length (mi.)</b>
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, Beltrami	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 #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	17.5
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>
<b>Total Miles of Ditches</b>		<b>296.93</b>

## **Projections for 2010**

The basic activities of the District are expected to continue in 2010 much as they did in 2009. It is expected that the District will proceed with the development and construction of the Clearbrook Stormwater Retention Project, take requests and secure funding for farmstead ring dikes, continue with Grand Marais Outlet Restoration Project which includes completing the land easement acquisitions, complete the wetland banking site within the Louisville Parnell Impoundment, investigate the Improvement of Pennington County Ditch #75, Improvement of Pennington County Ditch #1, Thief River Watershed Sediment Investigation, Clearwater River Dissolved Oxygen and Fecal Coliform TMDL study, the second year of monitoring and sampling for the Surface Water Assessment Grant (SWAG) for upper Lost River/Nassett Creek, completion of the Jerome Street Project, and various other water quality projects.

In September of 2009, a public hearing was held concerning the proposed 2010 General Fund budget. Notice of the hearing and the proposed budget was published as required by Minnesota State Statutes. The General Fund budget was adopted and the levies were set for 2010. The General Fund levy was set at \$180,100.

# 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, 2009. 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 \$10,496,645 (Net assets). Of this amount, \$2,602,360 (unrestricted net assets) may be used to meet the government's ongoing designations and fiscal policies.
- The District's total net assets increased by \$1,285,086.
- As of the close of the current fiscal year, Red Lake Watershed District's governmental funds reported combined ending fund balance was \$2,602,360. 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 \$241,097 of which all was unrestricted.
- The District had debt outstanding of \$15,450 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.

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 \$10,496,645 by the close of the most recent fiscal year, which is an increase of \$1,285,086 over the prior year; more than a 12% increase over the prior year.

A portion of Red Lake Watershed District's net assets (\$7,894,285 or 75%) 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**

	2009	2008
<b>ASSETS</b>		
Total current assets	\$ 2,602,360	\$ 2,105,733
Net capital assets	7,909,735	7,152,177
<b>TOTAL ASSETS</b>	<b>\$ 10,512,095</b>	<b>\$ 9,257,910</b>
<b>LIABILITIES</b>		
Note payable	\$ 15,450	\$ 46,351
<b>NET ASSETS</b>	<b>\$ 10,496,645</b>	<b>\$ 9,211,559</b>

At the end of 2009 and 2008, the Red Lake Watershed District is able to report positive balances in net assets.

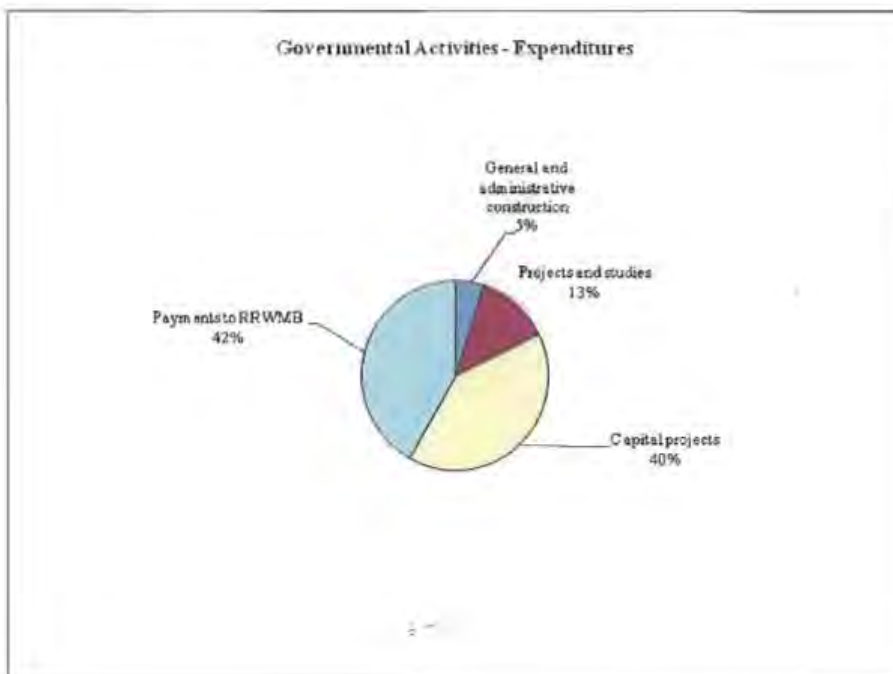
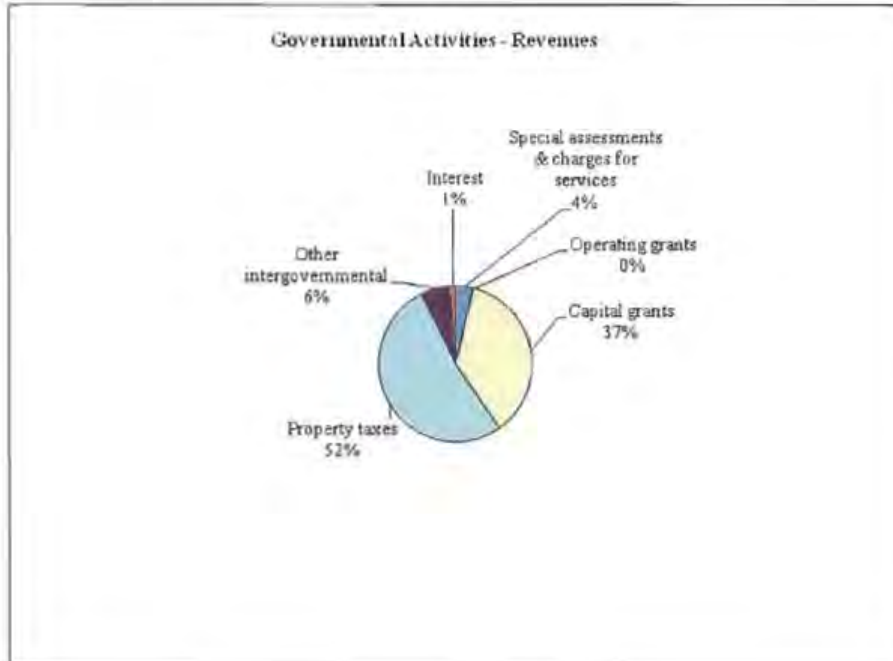
**RED LAKE WATERSHED DISTRICT'S CHANGE IN NET ASSETS  
– MODIFIED CASH BASIS**

Governmental activities resulted in an increase of Red Lake Watershed District's net assets from the fiscal year 2008 to the fiscal year 2009 in the amount of \$1,285,086. The details of the increase are as follows:

	2009	2008
<b>REVENUES</b>		
Special assessments and charges for services	\$ 135,399	\$ 117,090
Operating grants	-	16,000
Capital grants	1,328,735	677,921
General revenues:		
Property taxes	1,895,927	1,687,667
Other intergovernmental	216,035	216,035
Interest	51,145	71,700
<b>TOTAL REVENUES</b>	<b>3,627,241</b>	<b>2,786,413</b>
<b>EXPENSES</b>		
General and administration construction	114,652	71,833
Ongoing projects and studies	304,057	551,051
Capital projects	945,520	860,760
Payments to RRWMB	977,926	860,916
<b>TOTAL EXPENSES</b>	<b>2,342,155</b>	<b>2,344,560</b>
<b>CHANGE IN NET ASSETS</b>	<b>\$ 1,285,086</b>	<b>\$ 441,853</b>

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, 2009:



Red Lake Watershed District  
 Management Discussion and Analysis

**Financial Analysis of the Government's Funds**

At the end of the current fiscal year, Red Lake Watershed District's governmental funds reported combined ending fund balances of \$2,602,360. The total fund balance can be attributed to 1) General Fund, \$241,097; 2) Capital Projects Fund, \$2,380,077; as well as Special Revenue Fund with a deficit fund balance of (\$18,814).

The general fund increased by \$37,673 in 2009, which was due to a slightly higher net increases in general revenues over expenses than was originally expected in the budget. The general fund cash balance remained relatively unchanged, however. The board voted to annually allocate the remaining revenue over expenses in the general fund budget to the capital projects fund until all monies borrowed for the new building are paid. The remaining balance of the new watershed district building is reflected on page 19, interfund balances.

**Budgetary Highlights**

**General Fund.** The General Fund exceeded budgeted revenues and had expenditures below the budgeted amounts for the year ended December 31, 2009.

**Capital Asset and Debt Administration**

**Capital assets.** Red Lake Watershed District's investment in capital assets for its governmental activities as of December 31, 2009, amounts to \$7,909,735 (net of accumulated depreciation). This investment in capital assets consists of building, equipment, and infrastructure assets necessary for the District to carryout watershed and conservation management within its service area.

**Red Lake Watershed District's Capital Assets  
 (Net of Depreciation)**

	2009		2008	
	Cost	Accumulated Depreciation	Cost Less Accumulated Depreciation	Cost Less Accumulated Depreciation
Building and improvements	\$ 712,140	\$ 77,174	\$ 634,966	\$ 665,435
Infrastructure Improvements	5,993,666	419,029	5,574,637	4,800,991.00
Engineering equipment	398,315	253,315	145,000	113,164
Office equipment	85,161	47,019	38,142	40,604
Land & Permanent Easements	1,395,335	-	1,395,335	1,295,117
Construction in progress	121,655	-	121,655	236,866
<b>Total</b>	<b>\$ 8,706,272</b>	<b>\$ 796,537</b>	<b>\$ 7,909,735</b>	<b>\$ 7,152,177</b>

**Long-term debt.** In December 31, 2009 the District had \$15,450 in long-term debt arising from modified cash basis transactions compared to \$46,351 at December 31, 2008.

**Other Items of Interest.** Phase II of the Brandt Channel Restoration Project was completed at an estimated cost of \$267,000. This phase was funded in parts with a non-matching grant from Working Lands Initiative, a grant agreement with the Minnesota Department of Natural Resources with the remaining balance paid by the Red Lake Watershed District. Fund for this project was paid from Capital Projects Funds.

Red Lake Watershed District  
Management Discussion and Analysis

Construction was completed in the amount of \$539,463.32 for the improvement to and establishment of a lateral to Polk County Ditch No. 53 (RLWD Ditch #12), Red Lake Watershed District Project No. 169. Funding for this petitioned project was paid from Special Revenue Funds.

The Red Lake Watershed District will continue to cost share construction of ring dikes for landowners as funding is available. Funding for these ring dikes are from the Capital Projects Funds.

More details of the construction and maintenance of Red Lake Watershed District projects are included in the 2009 Annual Report or by contacting the Red Lake Watershed District.

**Requests for information.** This financial report is designed to provide a general overview of Red Lake Watershed District's finances for all those with an interest in the government's finances. Questions concerning any of the information provided in this report or requests for additional financial information should be addressed to the Red Lake Watershed District, 1000 Pennington Avenue South, Thief River Falls, Minnesota 56701.

RED LAKE WATERSHED DISTRICT  
THIEF RIVER FALLS, MINNESOTA  
STATEMENT OF NET ASSETS - MODIFIED CASH BASIS  
DECEMBER 31, 2009

ASSETS	
<u>Current Assets:</u>	
Petty cash	\$ 100
Pooled cash and investments	<u>2,602,260</u>
Total Current Assets	<u>2,602,360</u>
 <u>Capital Assets:</u>	
Property and equipment	8,706,272
Less: accumulated depreciation	<u>(796,537)</u>
Net Capital Assets	<u>7,909,735</u>
 TOTAL ASSETS	 <u>10,512,095</u>
 LIABILITIES	
Current portion of loan payable	<u>15,450</u>
State loan payable, net of current portion	<u>-</u>
 TOTAL LIABILITIES	 <u>15,450</u>
 NET ASSETS	
Investment in capital assets, net of related debt	7,894,285
Unrestricted	<u>2,602,360</u>
 TOTAL NET ASSETS	 <u>\$ 10,496,645</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, 2009

	Expenses			Program Revenues			Net (Expenses) Revenues and Changes in Net Assets
	Direct	Allocated Salaries & Overhead	Special Assessments and Charges for Services	Operating Grants and Contributions	Capital Grants and Contributions	Governmental Activities	
<b>FUNCTION/PROGRAMS</b>							
General and administrative construction	\$ (599,891)	\$ 485,239	\$ (114,652)	\$ 1,027	\$ -	\$ -	\$ (113,625)
Ongoing projects and studies	(224,116)	(79,941)	(304,057)	114,251	-	999,341	809,535
Capital projects	(540,222)	(405,298)	(945,520)	20,121	-	329,394	(596,005)
Payments to RR/WMB	(977,926)	-	(977,926)	-	-	-	(977,926)
Allocated interest	(27,424)	-	(27,424)	-	-	-	(27,424)
<b>Total Governmental Activities</b>	<b>\$ (2,369,579)</b>	<b>\$ -</b>	<b>\$ (2,369,579)</b>	<b>\$ 135,599</b>	<b>\$ -</b>	<b>\$ 1,328,735</b>	<b>(905,445)</b>
<b>General Revenues:</b>							
Tax levies							1,895,927
Intergovernmental, (not restricted to specific programs)							216,035
State MV and disparity reduction credits							78,569
Allocated interest							<u>2,190,531</u>
<b>Total General Revenue</b>							<u>1,285,086</u>
<b>Changes in Net Assets</b>							<u>9,211,559</u>
<b>Net Assets - Beginning</b>							<u>\$ 10,496,645</u>
<b>Net Assets - Ending</b>							

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, 2009

	<u>General</u>	<u>Special Revenue Fund</u>	<u>Capital Project Fund</u>	<u>Total</u>
<b>ASSETS</b>				
Petty cash	\$ 100	\$ -	\$ -	\$ 100
Pooled cash and investments	361,690	-	2,240,570	2,602,260
Due from other funds	-	-	139,507	139,507
<b>TOTAL ASSETS</b>	<u>\$ 361,790</u>	<u>\$ -</u>	<u>\$ 2,380,077</u>	<u>\$ 2,741,867</u>
<b>LIABILITIES</b>				
Due to other funds	<u>\$ 120,693</u>	<u>\$ 18,814</u>	<u>\$ -</u>	<u>\$ 139,507</u>
<b>TOTAL LIABILITIES</b>	<u>120,693</u>	<u>18,814</u>	<u>-</u>	<u>139,507</u>
<b>FUND BALANCE</b>				
Unrestricted	<u>241,097</u>	<u>(18,814)</u>	<u>2,380,077</u>	<u>2,602,360</u>
<b>TOTAL LIABILITIES AND FUND BALANCE</b>	<u>\$ 361,790</u>	<u>\$ -</u>	<u>\$ 2,380,077</u>	<u>\$ 2,741,867</u>

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

Total fund balance per Balance Sheet, from above \$ 2,602,360

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	8,706,272
Accumulated depreciation	(796,537)

Some liabilities, including long-term notes payable, are not due and payable in the current period and therefore are not reported in the funds. (15,450)

Total Net Assets \$ 10,496,645

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, 2009

	<u>General</u>	<u>Special Revenue Fund</u>	<u>Capital Project Fund</u>	<u>Total</u>
REVENUES				
Tax levies	\$ 177,299	\$ -	\$ 1,718,628	\$ 1,895,927
Intergovernmental				
Federal	-	-	139,023	139,023
State	-	-	320,805	320,805
Local	-	999,341	85,601	1,084,942
Special assessments	-	114,251	-	114,251
Miscellaneous	1,027	-	20,121	21,148
Allocated interest	13,048	4,734	60,787	78,569
Total Revenues	<u>191,374</u>	<u>1,118,326</u>	<u>2,344,965</u>	<u>3,654,665</u>
EXPENDITURES				
General and administrative construction	145,553	-	-	145,553
Ongoing projects and studies	-	820,612	-	820,612
Capital projects	-	-	1,155,622	1,155,622
Payments to RRWMB	-	-	977,926	977,926
Loan principal payments	-	-	30,901	30,901
Allocated interest	8,148	6,717	12,559	27,424
Total Expenditures	<u>153,701</u>	<u>827,329</u>	<u>2,177,008</u>	<u>3,158,038</u>
Revenues Over (Under) Expenditures	37,673	290,997	167,957	496,627
OTHER FINANCING SOURCES (USES)				
Transfers in	491,492	-	851,757	1,343,249
Transfers out	(491,492)	-	(851,757)	(1,343,249)
Net Other Sources (Uses)	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
Revenues & Other Sources Over (Under) Expenditures & Other Uses	37,673	290,997	167,957	496,627
Fund Balance (Deficit), January 1	<u>203,424</u>	<u>(309,811)</u>	<u>2,212,120</u>	<u>2,105,733</u>
Fund Balance (Deficit), December 31	<u>\$ 241,097</u>	<u>\$ (18,814)</u>	<u>\$ 2,380,077</u>	<u>\$ 2,602,360</u>

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, 2009

Net Change in Fund Balances - Total Governmental Funds	\$ 496,627
<p>Governmental funds report capital outlay as expenditures, while governmental activities report depreciation expense allocating those expenditures over the life of the asset:</p>	
Capital additions	1,020,503
Depreciation expense	(262,945)
<p>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</p>	
	30,901
Change in Net Assets - Governmental Activities	\$ 1,285,086

See accompanying notes to the basic financial statements.

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

Minnesota Statutes require that all deposits be protected by federal deposit insurance, corporate surety bond, or collateral. The market value of collateral pledged must equal 110% of the deposits not covered by federal deposit insurance or corporate surety bonds.

At December 31, 2009, all deposits were protected by federal deposit insurance, corporate surety bond, or collateral as required by Minnesota Statute.

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, 2009:

<u>Advances from/Advances to</u>	<u>Receivables</u>	<u>Payables</u>
Capital Projects Fund	\$ 120,693	\$ -
Special Revenue Fund	-	18,814
General Fund	-	120,693
	<u>\$ 120,693</u>	<u>\$ 139,507</u>

The \$120,693 interfund receivable and payable was created to show the amount due to the Capital Projects Fund for the new RLWD building. This amount will be allocated annually from the General Fund until monies borrowed from the Capital Projects Fund are paid. The \$18,814 interfund receivable and payable was created to cover cash shortage created from operations.

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, 2009, was as follows:

	<u>Beginning Balance</u>	<u>Additions</u>	<u>Deletions</u>	<u>Ending Balance</u>
<u>Capital Assets</u>				
Building and Improvements	\$ 712,140	\$ -	\$ -	\$ 712,140
Infrastructure Improvements	4,995,497	998,169	-	\$ 5,993,666
Engineering equipment	365,181	70,470	37,336	398,315
Office equipment	80,968	5,342	1,149	85,161
Land & Permanent Easements	1,295,117	100,218	-	1,395,335
Construction in progress	236,866	121,655	236,866	121,655
Total	<u>\$ 7,685,769</u>	<u>\$ 1,295,854</u>	<u>\$ 275,351</u>	<u>\$ 8,706,272</u>
	<u>Beginning Balance</u>	<u>Additions</u>	<u>Deletions</u>	<u>Ending Balance</u>
<u>Accumulated Depreciation</u>				
Building and Improvements	\$ 46,705	\$ 30,469	\$ -	\$ 77,174
Infrastructure Improvements	194,506	224,523	-	419,029
Engineering equipment	252,017	38,873	37,575	253,315
Office equipment	40,364	7,804	1,149	47,019
Total	<u>533,592</u>	<u>301,669</u>	<u>38,724</u>	<u>796,537</u>
Net Capital Assets	<u>\$ 7,152,177</u>	<u>\$ 994,185</u>	<u>\$ 236,627</u>	<u>\$ 7,909,735</u>

Depreciation expense of \$301,669 for the year ended December 31, 2009 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>Amount 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	<u>\$ 15,450</u>	<u>\$ 15,450</u>

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	\$ 46,351	\$ -	\$ 30,901	\$ 15,450

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

<u>Year</u>	<u>Principal</u>
2010	15,450
Total	<u>\$ 15,450</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 2009 were \$485,239.

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 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.

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 collectability of any related receivable at December 31, 2009, 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  
THIEF RIVER FALLS, MINNESOTA  
SCHEDULE OF CHANGES IN FUND BALANCES - MODIFIED CASH BASIS  
FOR THE YEAR ENDED DECEMBER 31, 2009**

	Fund Balance (Deficit) January 1	Revenues			Expenditures			Transfers		Fund Balance (Deficit) December 31
		Assessments and Other Charges for Services	Operating / Capital Grants and Contributions	Allocated Interest Earned	Taxes	Direct	Allocated Interest Charged	Salary & Overhead Allocation	In (Out)	
<b>GENERAL FUND</b>	\$ 203,424	1,027	-	13,048	177,299	630,792	8,148	(485,239)	-	\$ 241,097
<b>SPECIAL REVENUE FUND JOBS:</b>										
Branch A & 1, J.D. #2	7,178	-	-	147	-	371	-	1,054	-	5,900
Burnham Creek channel	(5,404)	13,077	-	-	-	6,867	42	3,688	-	(2,924)
Clearwater County ditch #1	1,044	-	14	-	-	-	-	653	-	405
Clearwater County joint ditch #1	(226)	-	-	-	-	-	4	-	-	(230)
Clearwater County joint ditch #4	1,191	-	26	-	-	-	-	24	-	1,193
Clearwater County joint ditch #5	1,556	-	33	-	-	-	-	-	-	1,589
Clearwater River project	26,626	-	571	-	-	-	-	-	-	27,197
Clearwater/Wild Rice River	(795)	8,071	42	-	-	360	-	1,335	-	5,623
Clifford Anneson ditch	3,227	937	59	-	-	1,676	-	170	-	2,377
Equality RLWD ditch #1, lan C	(912)	1,336	-	-	-	2,335	51	3,077	-	(5,039)
Improvement to Penn. Co. Ditch #1	-	-	-	-	-	384	3	584	-	(971)
J.D. ditch #72	(3,111)	3,057	-	-	-	11,650	173	10,589	-	(22,466)
K. Johnson petition	(876)	1,953	-	-	-	2,878	19	238	-	(2,058)
Kroostue petition	(2,126)	4,428	-	-	-	1,151	1	454	-	696
Lost River project	21,649	-	455	-	-	2,160	-	417	-	19,527
Main J.D. #2 and branch B & C	(20,925)	4,134	-	-	-	2,429	440	953	-	(20,613)
Main J.D. 2C. ECK	688	2	14	-	-	-	-	189	-	515
Pine Lake maintenance	(4,664)	3,984	-	-	-	156	119	4,431	-	(5,376)
Polk City ditch #33 improvement	4,973	2,072	117	-	-	1,521	-	662	-	4,979
Polk City ditch #63 improvement	(25,463)	6,424	-	-	-	1,642	486	292	-	(21,459)
Polk City ditch #s 104, 61, 47, 94	(8,830)	5,131	-	-	-	6,832	172	1,111	-	(11,814)
Red Lake River project	66,040	-	1,395	-	-	74	-	1,246	-	66,115
RLWD ditch #1	14,974	1,966	308	-	-	1,384	-	992	-	14,872
RLWD ditch #3	9,187	-	179	-	-	1,495	-	1,299	-	6,572
RLWD ditch #7	(2,808)	13,344	-	-	-	6,210	12	1,514	-	2,800
RLWD Ditch #8	(4,646)	-	-	-	-	4,365	185	2,727	-	(11,923)
RLWD Ditch #9	3,253	-	67	-	-	150	-	262	-	2,908
RLWD Ditch #10	(27,674)	6,077	-	-	-	225	560	682	-	(23,064)
RLWD Ditch #11	44,158	-	931	-	-	1,987	-	166	-	42,936
RLWD Ditch #12	(388,988)	-	999,341	-	-	590,809	3,341	24,736	-	(8,533)
RLWD Ditch #13	(25,039)	-	-	-	-	40,627	808	7,546	-	(74,020)
Scott Baatz pennon	(1,116)	1,000	-	-	-	180	16	210	-	(522)
State ditch #83	19,699	26,411	-	332	-	44,566	-	7,453	-	(5,377)
Thief River Falls drainage ditch Winsor/Hangard/Clearwater County petition	2,099	997	44	-	-	271	-	-	-	2,869
	(13,750)	9,840	-	-	-	5,916	285	1,187	-	(11,298)
<b>Total Special Revenue</b>	<b>(309,811)</b>	<b>114,251</b>	<b>999,341</b>	<b>4,734</b>	<b>740,671</b>	<b>6,717</b>	<b>79,941</b>	<b>(18,814)</b>	<b>-</b>	<b>(18,814)</b>

RED LAKE WATERSHED DISTRICT  
THREE 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 Charges for Services	Operating / Capital Grants and Contributions	Allocated Interest Earned	Taxes	Direct	Allocated Interest Charged	Allocated Salary & Overhead	In (Out)		
<b>CAPITAL PROJECT FUND JOBS:</b>											
Administrative construction	2,297,145	39	237,202	58,480	1,718,628	977,926	425	-	(851,490)	2,481,653	
Badger Creek / Poplar River	6,302	-	-	135	-	-	-	-	-	6,437	
Bench Marks	-	-	-	-	-	-	28	1,900	-	1,928	
Black River project	-	-	-	-	921	-	35	1,534	2,490	-	
Burnham Creek	-	-	-	-	200	-	4	514	718	-	
BWSR flood storage pilot project	-	-	-	-	305	-	2	109	416	-	
Clearwater conservation	-	-	-	-	569	-	12	-	581	-	
Clearwater nonpoint	-	-	-	-	30,901	-	277	-	31,178	-	
Clearwater public education	-	-	-	-	3,429	-	420	33,992	37,841	-	
Clearwater River - habitat	-	-	-	-	-	-	7	360	367	-	
Clearwater River - TMDLS	-	-	-	-	-	-	3	465	468	-	
Clearwater River DISOXY TMDL	(15,073)	-	29,880	-	18,484	-	355	12,349	16,381	-	
Clearwater stream water	(2,276)	-	-	-	1,643	-	109	3,160	7,182	-	
Culvert Sizing	-	-	-	-	-	-	38	3,769	3,807	-	
Ditch 66 WQ Study	-	-	99,023	-	97,670	-	4	994	-	355	
Elm Lake	-	-	40,000	-	92,654	-	411	8,534	61,599	-	
Emergency maintenance	101,051	-	-	2,172	-	-	-	-	-	103,223	
Erosion control PITS	-	-	-	-	8,165	-	83	1,614	9,862	-	
Farm to stream water quality	(6,446)	-	9,539	-	503	-	53	4,559	2,022	-	
Flood control studies	-	-	-	-	-	-	8	1,659	1,667	-	
G.I.S.	-	-	-	-	139	-	167	15,444	15,750	-	
Euclid East Impoundment	-	740	-	-	9,282	-	96	4,225	12,863	-	
Brandt Channel Restoration	(92,344)	-	11,505	-	94,489	-	3,631	6,363	185,322	-	
Grand Marais - Restoration	(21,728)	-	15,949	-	25,562	-	1,023	28,835	61,199	-	
Brandt Impoundment	(2)	1,187	-	-	17,824	-	187	7,868	24,694	-	
FEMA D-Firm Grant	-	-	-	-	-	-	3	1,163	-	(1,166)	
Grand Marais Creek Subwatershed	-	-	10,948	-	6,955	-	58	3,993	58	-	
Hydrologic analysis	-	-	-	-	-	-	70	5,972	6,042	-	
Jerome Street Bank Stabilization	-	-	-	-	22,182	-	107	3,220	-	(25,509)	
Lost River impoundment	-	-	-	-	-	-	7	423	430	-	
Louisville/Pamell project	-	1,703	-	-	2,295	-	4	224	820	-	
LRRWMB - Technical Com	(1,582)	-	13,570	-	6,401	-	64	5,900	377	-	
Maintenance dams	-	-	-	-	10,209	-	122	2,725	13,056	-	
Moose River project	-	-	-	-	11,877	-	205	5,089	17,171	-	
Pamell impoundment	-	2,400	5,390	-	92,254	-	633	15,694	100,791	-	



RED LAKE WATERSHED DISTRICT  
 THREE 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 Charges 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	-	-	-	-	-	8,794	662	58,400	67,856	-
Project Development	-	-	-	-	-	1,285	236	20,036	21,557	-
Red Lake Res / Good Lake	-	-	-	-	-	13,672	220	8,059	21,951	-
Red River Corridor	-	-	-	-	-	-	8	729	737	-
Ring dike program -	-	-	-	-	-	-	-	-	-	-
General	(42)	200	3,628	-	-	400	-	6,275	2,631	(258)
Litchenberg	-	267	-	-	-	-	-	-	(267)	-
R. Stengl	(36)	-	-	-	-	-	-	-	36	-
Schauer	(1)	-	-	-	-	-	-	-	1	-
Swanson	(3,967)	3,961	6	-	-	-	-	-	-	-
Black	(12,784)	-	12,754	-	-	-	-	-	30	-
Christenson - RLWD	-	-	471	-	-	-	-	-	87	(80)
Hipscher - RLWD	-	-	-	-	-	-	-	638	27	(186)
Philipp - RLWD	-	-	53	-	-	-	-	213	159	-
Egeland - RLWD	-	9,624	44,293	-	-	53,752	-	5,350	7,388	2,203
Srnsky - NRCS	-	-	-	-	-	58,405	-	1,847	-	(60,252)
Wagner - NRCS	-	-	-	-	-	8,824	-	565	-	(9,389)
G. Peterson - NRCS	-	-	-	-	-	5,971	-	232	-	(6,203)
Gld. Stengl - NRCS	-	-	-	-	-	5,210	-	-	15	(5,210)
Svenson - RLWD	-	-	87	-	-	3,049	-	61	-	(15)
L. Hanson - NRCS	-	-	-	-	-	7,645	-	1,535	-	(3,110)
Newton - NRCS	-	-	-	-	-	-	-	41	2,310	(9,180)
RRWMB protocol grant	-	-	8,131	-	-	-	-	26,364	27,175	-
Stream gauging	-	-	-	-	-	363	448	31,235	-	-
TR WS Sediment Inves	(36,103)	-	-	-	-	21,852	1,224	-	-	(90,414)
Upper Lost River/Nassett Brook	-	-	-	-	-	-	-	-	-	-
WQ Assessment Grant	-	-	8,131	-	-	6,490	100	4,363	-	(2,822)
WS Ditch System Inventory & Mapping	-	-	-	-	-	-	205	13,376	13,581	-
Water Quality	-	-	-	-	-	18,499	557	32,184	51,240	-
Web Page Development	-	-	3,000	-	-	2,405	36	6,788	6,229	-
Wetland Banking	-	-	-	-	-	9,696	171	1,759	11,626	-
Total Capital Projects	2,212,120	20,121	545,429	60,787	1,718,628	1,759,151	12,559	405,298	-	2,380,077
Total - All Funds	\$ 2,105,733	135,399	1,544,770	78,569	1,895,927	3,130,614	27,424	-	-	\$ 2,602,360

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, 2009 AND 2008

	2009	2008
<u>DIRECT EXPENDITURES:</u>		
Salaries -		
Inspection	\$ 11,830	\$ 9,592
Survey - preliminary	5,349	5,518
Survey - construction	522	496
Reducing field notes	-	17
Drafting	7,927	12,117
Engineering	62,935	61,260
Project administration	184,828	165,633
Field work -water programs	16,364	27,602
Other	29,640	64,903
Compensated absences	28,573	26,345
Payroll taxes and benefits	111,080	94,687
Manager's expenses	24,686	15,996
Travel, mileage, meetings and per diems	3,261	4,399
Audit	8,039	6,095
Legal	13,620	20,893
Appraisal and viewers	7,688	9,900
Other professional fees	52,767	29,760
Office supplies	12,660	13,968
Office equipment	5,342	3,427
Dues & subscriptions	2,253	2,328
Insurance and bonds	23,731	23,757
Rent	1,210	1,430
Repairs and maintenance	9,229	15,298
Utilities	5,697	4,545
Telephone	10,524	8,339
Advertising and publications	4,118	6,229
Truck expense	15,370	15,543
Red River Watershed Management Board	977,926	860,916
Cost share assistance	569	2,869
Land acquisition and easements	100,218	106,100
Construction	973,785	514,670
Engineering costs & fees	9,119	19,650
Engineering fees	222,101	305,858
Engineering equipment	62,654	18,099
Glacial Ridge	94,098	178,214
Loan payments	30,901	30,901
	\$ 3,130,614	\$ 2,687,354
Total Expenditures		