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Letter from the President

Greetings to all the citizens of the Red Lake Watershed District and other interested parties. This is my third round as President for the District and I am presently serving the first year of my fourth, three year term on the Board of Managers, representing Pennington County. The winter of 2007 produced some very sporadic snow falls which ultimately ended in a very uneventful spring runoff which in the Watershed business is not all that bad. We did however have some rainfalls in June that made our friends along the Red River of the North rather nervous but overall, 2007 was a very good year for the Red Lake Watershed District and the agricultural communities of the District.

In the year 2007, three of your Watershed District Board members were re-appointed by their respective counties. Dale Nelson, Thief River Falls, was appointed to serve for my fourth three year term representing Pennington County, Orville Knott, Red Lake Falls, was appointed to serve his third three year term from Red Lake County and Alan Carlson, Erskine, was appointed to serve his second three year term representing East Polk County. In early summer the Red Lake Watershed District received the news of the illness of Board member Alan Carlson. I am sad to say that in July of 2007 the Red Lake Watershed District was informed that Alan had lost his battle with cancer. Alan was a great Board member and a true friend that will be missed by all everyone in the Red Lake Watershed District. In September of 2007, Jim Votava, Erskine, MN was appointed by the Polk County Commissioners to serve out the remaining term of Alan Carlson which will run through January 10, 2010. I would like to welcome back Orville and a special welcome to Jim Votava and look forward to working with both of them.

Our goals as a watershed district are to manage water in the areas of flood control, drainage, and water quality. We continue to hold meetings on the second and fourth Thursdays of each month and welcome public interest 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.

One more item that I would like to remind our readers of is, that after long and laborious discussions concerning the present condition of the District office located 102 Main Avenue North, it was decided in 2006 that the District would proceed with the construction of a new office in Thief River Falls, MN. Construction of the new office started late in October of 2006 and was completed in June of 2007. Our new office is 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 2007 Annual Audit is included in this report in an abbreviated form. A complete copy of the 2007 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 2007.

Sincerely,

Dale M. Nelson, President
Red Lake Watershed District

Board of Managers – 2007



Front Row (left to right): Gene Tiedemann, Dale M. Nelson, Jim Votva
Second Row (left to right): Lee Coe, Arnold Stanley, Vernon Johnson, and Orville Knott

Dale M. Nelson



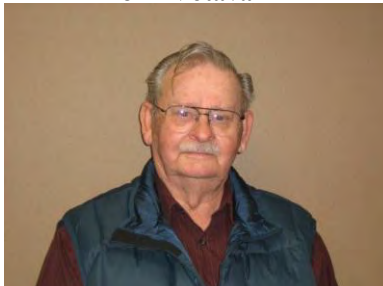
Dale Nelson was re-appointed to the RLWD Board of Managers for a 3-year term. Dale will represent Pennington County for the years 2007-2009.

Orville Knott



Orville Knott was re-appointed to the RLWD Board of Managers for a 3-year term. Orville will represent Red Lake County for the years 2007-2009.

Jim Votava



Jim Votava was appointed to the RLWD Board of Managers to complete the 3-year term of Allan Carlson. Jim will represent Polk County for the years 2007-2009.

Staff – 2007



Front row: Gary Lane-Engineering Technician II; Arlene Novak-Accounting/Secretary; Tammy Audette-Accounting Assistant/Secretary; **Back Row:** (left to right), Loren Sanderson-Engineering Assistant; Corey Hanson-Water Quality Coordinator; Myron Jesme-Administrator; Jim Blix, Water Quality/Natural Resources Technician. Summer staff (*not pictured*): John Carlson.

Office

The Red Lake Watershed District

Office is located at:

1000 Pennington Avenue South

Thief River Falls, MN 56701

Office Hours:

Monday – Friday, 8:00 a.m. – 4:30 p.m.

Phone: 218-681-5800

Fax: 218-681-5839

Website: redlakewatershed.org

E-Mail: rlwaters@wiktel.com



Meetings

The Board of Managers held twenty-four regularly scheduled board meetings in 2007. These regular meetings are held the 2nd and 4th Thursday of each month at the District office at 9:00 a.m. Notice of these meetings are mailed or e-mailed to the Advisory Committees, county auditors, county commissioners, and SWCD/NRCS offices and by subscription. Minutes from boards meetings are available by visiting our website at www.redlakewatershed.org/minutes. The 2007 General Fund Budget hearing was held on September 14, 2006. Notice for the General Fund Budget hearing was published in at least one newspaper in each of the 10 counties within the watershed district.

2007 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

2007 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

In 2007, the members of the Overall Advisory and the Subwatershed Advisory Committees met on April 24. Those present included ten Advisory members, three District Board members, and five District staff members in attendance. Staff members from the Red Lake Watershed District gave presentations on projects within the District, followed by 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.

2007 DISTRICT PROJECTS

Seeger Dam (RLWD Project #50)

Seeger Dam located approximately two miles west of the city of Red Lake Falls, in Section 29 of Red Lake Falls Township, Red Lake County, once again had a structural failure in 2007. It should be noted that the top of the Dam also acts as a township road used by various public entities such as agriculture, bus and mail routes. When failures occur to this structure, there is some real safety issues that had to be addressed. Included in this report is a history of the dam and the various repairs that have been completed over the years.

1973 – The Natural Resource Conservation Service (NRCS), formerly called the Soil Conservation Service (SCS), designed and contracted for the construction of Seeger Dam. The earthen dam was constructed using clay borrow material from the pool area of the site. The compacted embankment is approximately 800 feet in length, 46 feet in height, with a 3H: 1V upstream slope, 2H: 1V downstream slope and a top width of 14 feet. The control structure is a fixed crest concrete drop inlet structure with a 48 inch diameter concrete outlet pipe. The flood pool has the ability to store 450 acre feet of water from a 6.4 square mile drainage area.

1986 – The Red Lake Watershed District Board of Managers accepted responsibility of this structure.

2000 – The first slide occurred on the downstream embankment slope. The area of failure was relatively small and near the extreme south end of the embankment. The slide area was excavated and compacted to a slightly flatter slope than originally designed.

2002 – In June, a second failure occurred. This slide area was also on the downstream embankment slope, and immediately north of the first slide area. This larger slide occurred after approximately 7.4 inches of rainfall in a 6 day period, including a 6.3 inch total rainfall in one day. The consulting firm, HDR Engineering, Inc., assisted the District with geo-technical support and repair plan recommendations. The slide area was repaired by excavating the failed soils and reconstructing to a slightly flatter slope than originally designed.

2003 – Two slide areas occurred in July, both being on the downstream slope of the embankment. No large precipitation events were noted in conjunction with these failures. One of these slides occurred in the same general location as in 2002 and the other was directly above the outlet pipe. NRCS and MN Board of Soil and Water Resources Engineers, NRCS soil specialist, local NRCS, Red Lake County Soil and Water Conservation District, and Red Lake Watershed District personnel inspected the site, and in September, a report was submitted by the NRCS. HDR Engineering, Inc. also assisted with the repair, which consisted of extending the 48 in. outlet pipe, excavating the slide area, obtaining clay borrow material from an offsite borrow pit, constructing the entire downstream embankment slope to a 3H: 1V cross section, using self-propelled scrapers and compacting equipment. Compaction specifications required at least 95 percent of the maximum dry density as established by ASTM D698. An independent testing lab performed density tests during construction. Cost for the repair includes: inspections, engineering, surveying, administration, and construction totaling \$59,969.00.

2004 – In the fall of 2004, this dam encountered another failure at approximately the same location as the one in 2000. The Board of Managers determined that until a plan can be developed to accomplish a long term repair, the pool should be lowered from its normal level to help reduce the risk of damages should the dam fail completely.

In November, Davidson Construction of Holt, MN was hired to excavate, re-slope, and modify the existing outlet structure to draw-down the permanent pool. The original structure was constructed with a fixed crest weir with no screw gate for draw-down purposes. Two holes at different elevations were made in the structure for the draw-down and excavations were performed on the downstream embankment slope to inspect for seepage. No seepage/saturated soils were found during this inspection.

In 2005, there was considerable discussion between the Red Lake Watershed District Board of Managers and the Engineer of this project to design an alternative plan that would remedy the problem that is occurring on this project. In late fall of 2005 the Board of Managers approved an alternative presented by an HDR Engineer to lower the dam and install a gated culvert to permanently lower the existing pool and construct flatter side slopes. It is the hopes of the District that this will stabilize the bank. The District is presently pursuing a Dam Safety Permit from the Minnesota Department of Natural Resources.

On April 13, 2006 the Board declared the failure of Seeger Dam an emergency and instructed the administrator to seek quotes to immediately repair the dam. The project consisted of lowering the existing pool by installing a gated structure and catwalk, lowering the elevation of the dam and flattening of the slopes. Major work items consisted of: a new opening at the structure flowline installation of an 18 inch diameter culvert into pool area for drawdown purposes, backfill around structure, remove/lower approximately 3 feet from the top of the embankment (this is also a township roadway), shape/grade some of the sideslopes, emergency spillway area, install screw gate apparatus and walkway, seed, fertilize and mulch disturbed areas. This portion of the project will allow the District to keep the pool level to a manageable elevation therefore minimizing the risk of failure to the levee. During the inspection of the dam by the Minnesota Department of Natural Resources, it was brought to the attention of the District that there appeared to be some cracks in the joints of the outlet culvert. It was determined that the outlet pipe would have to be reinforced, thereby stabilizing the outlet of the concrete culvert. This project was completed in November of 2006.

In August of 2007, it was brought to the Districts attention that Seeger Dam had once again experienced a failure close to the location of the one in 2006. The Board again declared the failure of the Dam an emergency and instructed HDR Engineering, Inc. to bring back recommendations to the Board for considerations. In September of 2007, HDR Engineering, Inc. presented two proposals to the Board which included lowering the dam either ten vertical feet and maintain the integrity of the township roadway or lowering the dam twenty vertical feet and thus eliminating the existing roadway. The Board of Managers elected to use the option which called for lowering the dam ten feet, thus keeping the township road available for public use. On October 25th the Board of Managers accepted the low quote from Paul Zavoral, Inc., dba Higher Ground in the amount of \$34,106.42. In November of 2007 the repair of the dam was completed. The total cost of the project was \$37,065.44 which included an additional \$2,959.02 for tiling of the downstream slope which was requested by the Board.



Seeger Dam 2007 Construction Work

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

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

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

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

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

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

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

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

In April of 2005, the State of Minnesota passed a bonding bill which appropriated \$2,000,000 to assist in the land acquisition and construction of Euclid East and Brandt Impoundments. Although the District received less than the requested \$2,600,000, the Board of Managers instructed the Project Engineer to

proceed with the development of the project and start preparations for the hearing at their regularly scheduled meeting held April 14, 2005.

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

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

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

At their regularly scheduled Board meeting on April 27, 2006, the Engineer presented the Final Engineers 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 known as "2006 Local Water Resources Protection and Management Program Challenge Grant Agreement. This grant was a 50/50 cost share grant in the amount of \$25,000 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 was substantially completed in the fall of 2007. It is anticipated in 2008 this project will be completed and there will be a final payment hearing schedule for T.S. Holte.

Euclid East Impoundment (RLWD Project #60C)

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.

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.

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



Looking southeast from outlet structure



Principal Outlet Structure



Principal Outlet structure looking west



Interior ditches and borrow area

Brandt Impoundment (RLWD Project #60D)

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.

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.

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

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

FUNCTIONAL DESIGN DATA

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

OPERATIONAL: Spring 2008



Borrow areas partially filled with runoff water



Principal Outlet Structure

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

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

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

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

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

deemed practical and feasible, appointed three viewers, and directed the Engineer to prepare a detailed study and final report. This procedure was approved at the regularly scheduled Board meeting held December 29, 2005.

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

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

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

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

Construction started on this project November 21, 2006 and because of mild temperatures and very little snow, four miles of the project was substantially completed along with dormant seeding.

In 2007, construction continued on the remaining two phases of the project which are described in detail in MPCA Storm Water Pollution Prevention Plan on file in the District office. Construction was completed in the fall of 2007 with final payment hearing for R.J. Zavoral & Sons, Inc. held on October 11, 2007 at the Red Lake Watershed District office. Construction cost for this project totaled \$534,150.38.



Installation of field drainage culvert



Recent excavation near outlet of ditch



Seeding and mulching

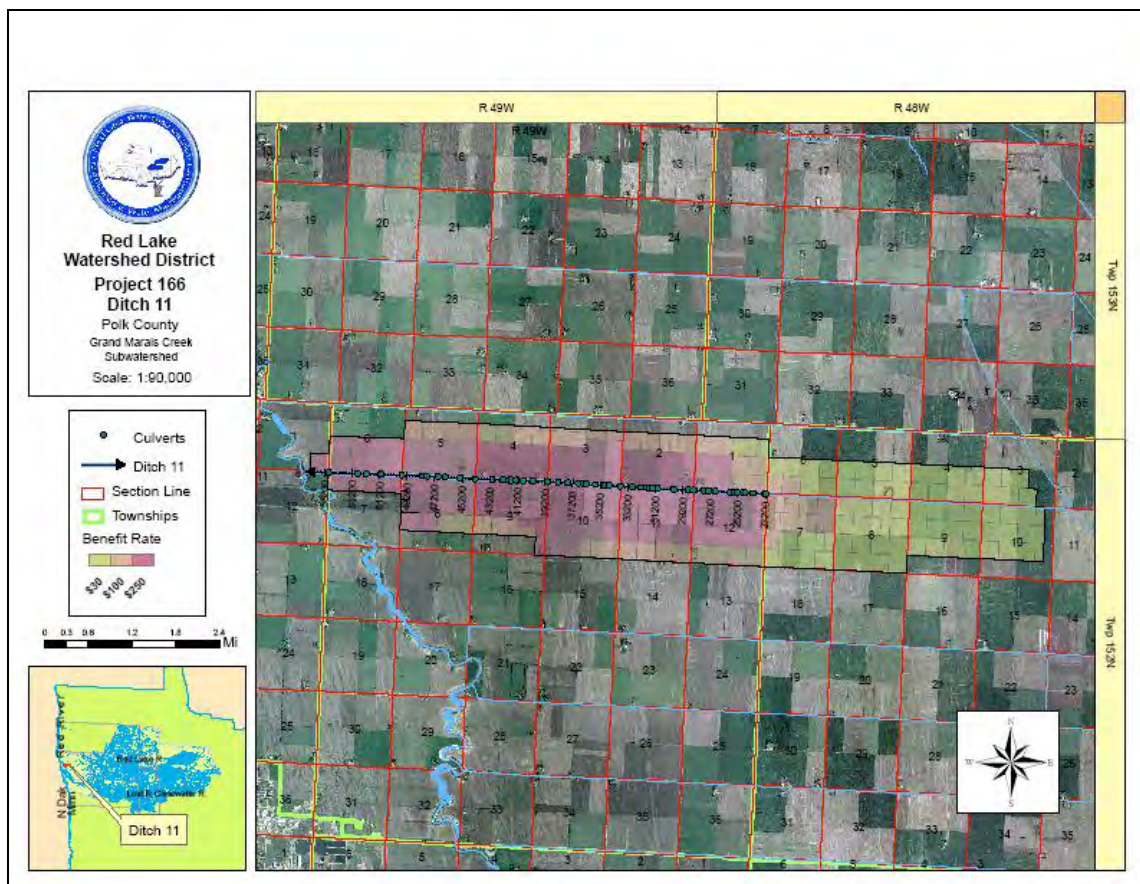


Completed ditch section

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

The Project 167 matching grant was finished by its target date of July 1st and fulfilled the scope of work specified in the grant agreement. Twenty-eight map documents were posted on the District web site as PDF files and are available to the general public in this non-editable form. The maps include benefitted areas, linear waterway distance, and inset maps to show where each project is located in relation to the larger watershed.

The body of data that was used to produced each map is generally more extensive than what is possible to display in a flat electronic document, such as the PDF files in current use. For instance, where data is available, the electronic map files include (but do not always display) design elevation profiles, culvert placement, culvert dimension, and even multiple benefit rates and rights-of-way boundaries.



Normal map size is 8½x11

Maps can be downloaded from http://www.redlakewatershed.org/ditch_maps.html.

Even though the matching grant project is finished, staff is working toward the development of interactive internet documents, where the user can view each map on a broad scale, similar to what is shown above, or on a smaller scale and greater detail.

River Watch

In 2007, the Red Lake Watershed District maintained 49 active testing sites among seven school groups. Data was collected for each site at least twice during the year, but most commonly between four and eight times between April and November. Two schools, Clearbrook-Gonvick and Red Lake County Central, also obtained datasets for ice-on condition. All data was submitted to the STORET water quality database.

Five of these seven schools completed a display and attended the 2007 River Watch Forum at the Grand Forks Alerus Center. Each of these schools made a significant and commendable contribution to the water quality data collection effort in the Red River Basin. One school, Bagley, received the “Gold Award” for their Forum display and for the quality of their data report.

The Red Lake Watershed District received a “Partner of the Year” plaque at the 2007 River Watch Forum, a recognition shared with the Buffalo River Watershed District.

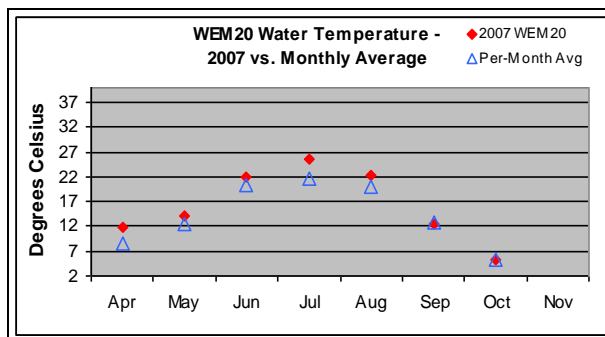
Analysis Tools

The River Watch program gathers and records water quality data for streams and rivers, many of which would not otherwise be monitored, and has evolved into a valuable monitoring partner in the Red River Basin. Student volunteers have built a substantial water quality database over the past decade that accounts for a significant portion of the EPA’s STORET data repository. As this collection of water quality samples grows, statistical summaries and other analysis become more robust and meaningful.

The River Watch program has initiated an internet-based data management system that allows schools to upload water quality data and perform basic analysis and graphing within a web browser. This internet-based program plots site data points, overall averages, and standard deviations. It can also cluster the data points into groupings by month to observe seasonal trends. However, it does not yet provide the capability to aggregate data for a given month across all years. An extensive Excel formula was developed and implemented by District staff to provide statistics for a given month across years and to permit the continuous re-calculation of statistical summaries as data is added to the set.

One objective in River Watch is to teach student volunteers to observe their site measurements in the context of past measurements, or more specifically, to develop some idea of what a particular value is supposed to be for that site, *based on measurements taken in the same time interval of previous years*. State benchmarks for fecal coliform and E. coli also require this type of analysis. (Refer to p.58, “Guidance Manual for Assessing the Quality of Minnesota Surface Waters.”)

2007 Water Temp. - WEM20 μ Siemens		
Date	2007 Temp	1995-2006 Avg
Apr	11.97	8.4
May	14.12	12.4
Jun	21.93	20.3
Jul	25.58	21.6
Aug	22.26	20.1
Sep	12.33	12.7
Oct	5.28	5.2
Nov	NA	1.0

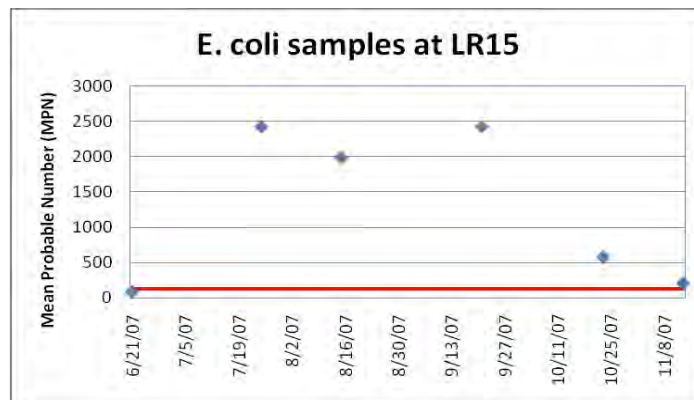


Until this analysis becomes available as a server-side database query, the array formulas developed for the Excel environment can fill the gap.

E. coli Monitoring Added to Bagley Group's Tasks

Nesset Creek is a tributary to the Lost River located 4½ miles south of Pine Lake, in Clearwater County. According to DNR map data and information from the Clearwater County Recorder's office, this stream is classified as trout habitat, although long time residents report that there have been no trout in that area for at least 40 years. A visual inspection of the area confirms that the stream lacks any significant canopy protection and is subject to the direct effects of livestock agriculture.

In 2006, a student from the Bagley High School, Stevie Camp, sampled the surface water from several sites in Clearwater County and did her own fecal coliform counts as a part of a science fair project. The results of that effort indicated that there were elevated fecal levels in the Nesset Creek. The Bagley River Watch group responded in 2007 by drawing monthly samples at that site for E. coli analysis through RMB Labs. (E. coli is replacing fecal coliform as the MPCA standard for the pathogen indicator.) The Red Lake Watershed District covered the lab costs and managed the actual transport of the sample. These samples confirmed the presence of highly elevated bacterial presence in the Nesset Creek at the culvert crossing called LR15.



Five out of six measurements exceeded the 126 Most Probable Number/100ml benchmark, four being extreme exceedances. In two cases, the measurement reached the maximum count possible. If this trend continues, Nesset Creek will likely be designated as fully non-supporting (305b), and listed as impaired (303d). The Bagley group plans to continue this monitoring and to draw samples at points up and downstream of LR15 to determine the extent of E. coli presence. This group also plans to monitor land use patterns in the upstream regions.



Nesset Creek at LR15 - Looking Upstream

Parcel Data

A project that began as an effort to generate a list of property owners with land adjacent to RLWD ditch rights-of-way eventually resulted in a set of map files that show each of these parcels in relation to a particular RLWD structure. These map files can be incorporated with other map data



into document layer, or the data can stand by itself as a mailing list of landowners.

Parcel data was obtained in a variety of ways, depending on the resources of each county. Polk, Marshall, Beltrami and Clearwater Counties provided electronic files. Beltrami and Clearwater Counties made theirs available via an interactive internet map system similar to what the District envisions for itself. Pennington and Red Lake Counties provided “hard-copy” information that was incorporated by District staff into an electronic map file.

The end result was a set of “geo-referenced” database files that were used to produce owner lists and hardcopy maps so that specific landowners could be contacted by mail and given a detailed view of their land parcels that are adjacent to the Watershed District’s rights-of-way.

Parcels of property adjacent to RLWD ROW

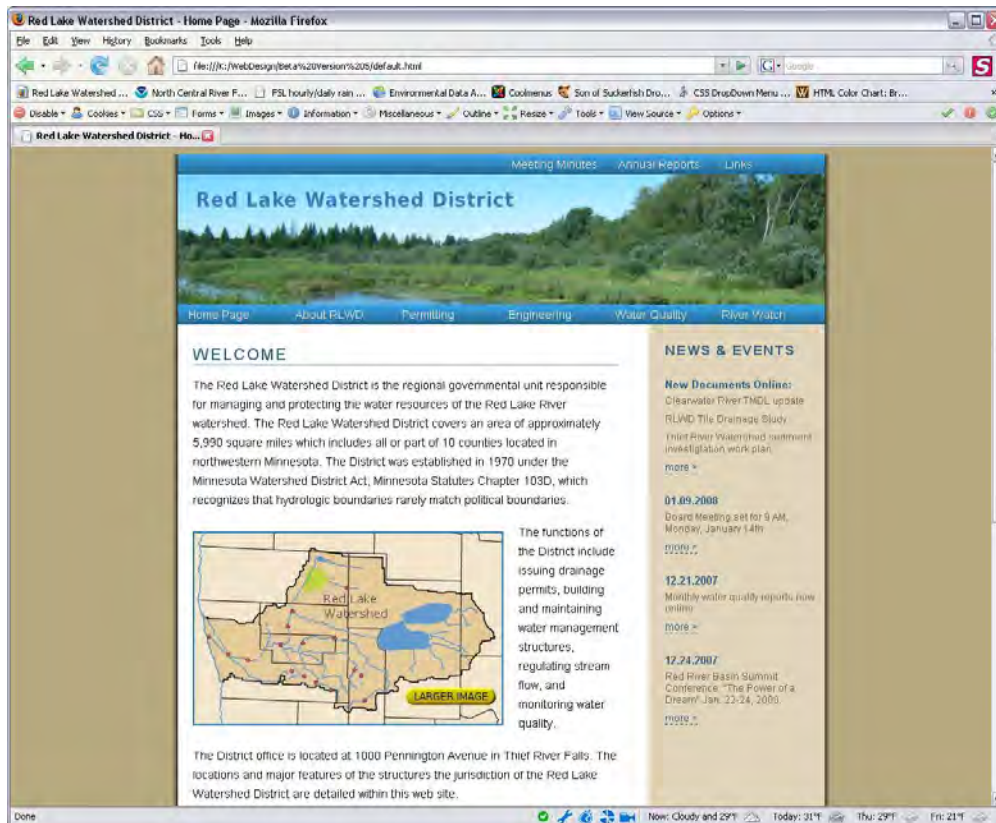
Owner_1	Owner_2	Address_1	Address_2	Address_3	Address_4
MICHAEL TERNES & KIM ZIETLOW		56482 169TH AVE	GONVICK	MN	56644
MICHAEL TERNES & KIM ZIETLOW		56482 169TH AVE	GONVICK	MN	56644
RED LAKE BAND OF CHIPPEWA		PO BOX 574	RED LAKE	MN	56671
DENNIS CLEMENSON		6528 BIRCHMONT DR	BEMIDJI	MN	56601
D & D PROPERTIES	C/O DENNIS CLEMENSON	6528 BIRCHMONT DR.	BEMIDJI	MN	56601
NORTH STAR ENTERPRISES INC.		53264 189TH AVE	CLEARBROOK	MN	56634
CLEARWATER RICE INC.		8500 NORMANDALE LAKE BLVD, SUITE 1818	BLOOMINGTO	MN	55437
CLEARWATER RICE INC.		8500 NORMANDALE LAKE BLVD, SUITE 1818	BLOOMINGTO	MN	55437
CLEARWATER RICE INC.		8500 NORMANDALE LAKE BLVD	BLOOMINGTO	MN	55437
BRADLEY J & SHANI L BIERKE		16697 COUNTY ROAD 7	GONVICK	MN	56644

Spatially-enabled data table stores parcel information

This database should be updated on an annual basis in order to stay current with frequent land transactions and changes in ownership.

[RLWD Web Site Re-Design](#)

The Red Lake Watershed District web site is increasing in importance as a means of distributing documents, data, and images to the public. Earlier efforts to deploy interactive maps and data have been successful to the extent that the District has made this information available to the public. But the increasing sophistication of internet technology and internet users has pushed information providers, such as the Watershed District, to update the appearance of their web pages and to incorporate more flexible navigation within their sites.



Prototype of new RLWD title page

The objectives for this new design include:

- Retain the current content as determined by each Watershed department.
- Add engineering information on selected projects.
- Update the graphics and layout of the site to reflect current standards.
- Incorporate a “liquid” design that permits simplified alterations and expansions.

The prototype shown above reflects some of these objectives. The title page has a cascading menu system, sections that self-adjust as content is added, and a consistent styling scheme. Other features have been incorporated, such as “image rollover” links and a slide show module that makes navigation easy and intuitive and allows a structured presentation of Watershed projects. The prototype uses the slide show module to present a virtual tour of the new Watershed District office. This re-design effort has been thus far accomplished by the District staff. Outside consultants may become necessary to refurbish and maintain the interactive mapping portions of the web site.

[Farmstead Ring Dikes \(RLWD Project #129\)](#)

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

Design Criteria

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

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

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

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

To date 98 requests have been received for the program. Of these, 59 have been completed 3 are pending, and 36 have declined to participate. Funding has been secured and we hope that when construction estimates are received, we will be able to construct two of the three ring dikes. The funding and ring dike program will continue into 2008.



Shannon Schauer ring dike construction located in Section 27, Esther Township, Polk County. Near the Red River of the North.

Permits (RLWD Project #90)

The District received 120 permit applications in 2007. Of the permits received three were not acted on, one denied and one was not required. The numbers listed below indicate the permits approved and how they are categorized within our rules for permitting:

- 4 utilities
- 9 re-grade
- 65 culvert/bridge
- 27 drainage
- 5 wetlands
- 5 dike



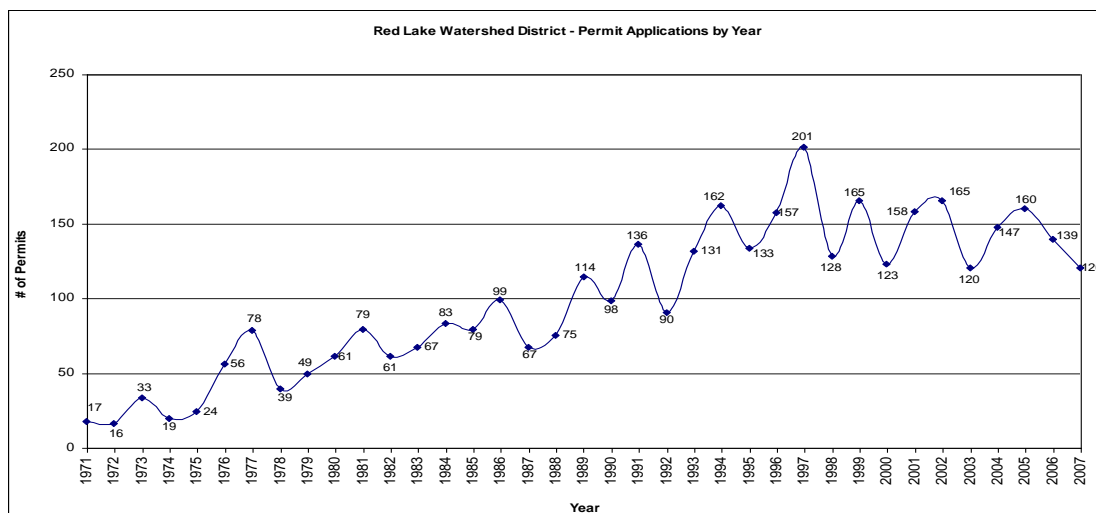
Some of the applicants were State and County Highway Departments, The Nature Conservancy, Townships, Cities, Utility Companies, State & Federal Agencies, Landowners, and private individuals. Examples of the work consisted of road and bridge projects, wetland restoration, culvert installations, and ditch cleaning.

Several of the permits this year required extensive work which consisted of watershed delineations, detail surveys, drainage area and culvert sizing recommendations, and meetings. Relatively dry conditions during 2007 were beneficial for completing permitted projects.

The following graph is a record of the number of yearly permit applications received from 1971 through 2007.



Permit for improving agricultural land drainage located in Rocksbury Township, Pennington County.



FLOOD CONTROL IMPOUNDMENTS

Impoundments operated by the Red Lake Watershed District vary based on available 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.



Knutson Dam, Red Lake County



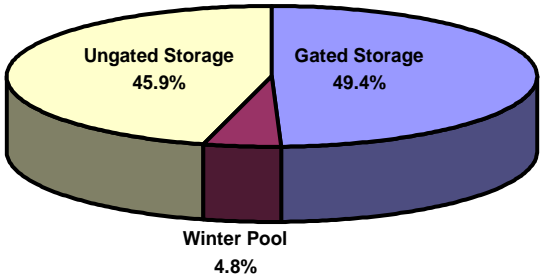
Odney Flaat Dam, Polk County



Thibert Dam, Red Lake County

During flood and large runoff events, flood waters are stored for a long duration within the impoundments and as downstream conditions allow and the stored water is released in a controlled manner. Storage is calculated in acre feet which is an area one acre in size by one foot depth. Storage capacity varies depending on area of water stored and depth of water. 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 after stored flood waters are released the pool is basically drained dry. 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. The impoundment does have a small permanent winter pool as indicated on the graph shown below.

Moose River Impoundment Water Storage



Routine inspections are performed and the condition of the embankment and control structures is evaluated. Maintenance performed in 2006 included debris removal, removal of beaver debris, nuisance beaver, graveling and vegetation control (brushing woody vegetation & mowing the grassed embankment area).

Conditions leading up to the Spring of 2007 were considered to be an “open winter” with little snowpack through February 23rd. Additional snows were received in early March, but this did not affect the 2007 Spring runoff event and was not a major problem in the Watershed District. By March 26th the snow was gone and the runoff, for the most part, was over.

June precipitation created runoff in parts of the watershed. Because of this, some of the impoundments were operated to temporarily store the excess runoff. This was done by operating flood gates or by adjusting stop-logs, depending on the respective flood storage facility. The remainder of the year was drier than average with no additional runoff events of concern.

Due to the relatively dry conditions, the District’s operation of our flood control facilities both gated and non-gated, was limited to minor flood gate operation, 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.

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



Emergency spillway



Principal outlet structure

2007 was the second consecutive year with mainly dry conditions and no major runoff events that caused flooding problems.

In mid June the area received enough precipitation events to generate minor runoff. Excess runoff was stored in the East and West Pools by closing both the JD #60 /Lateral #2 weir and the west pool control gates. The gates remained closed for approximately eight (8) days and were opened when downstream conditions receded, and the channels were capable of receiving outflows from the impoundment.

Streamgage maintenance was done late in the year. New staff gages were installed at various sites on both JD #60 and CD #126 outlets.

Parnell Impoundment – 2007 East Pool Elevations



[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, install and maintains signage.

FUNCTIONAL DESIGN DATA:

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

In mid June, the area received 2.75 inches of precipitation which created enough runoff to raise the elevation of the lake. Stop-logs were removed from the dam to allow additional outflow until the lake receded, at which time the stop-logs were installed to the typical summer elevation. Dry

conditions prevailed for the remainder of 2007. Due to very little precipitation and also evaporation, the lake level declined after the crest in mid June. Cabin owners were concerned that the Watershed District was discharging water during this time, this was not the case and operations were according to the plan. The dam is designed with a small fixed crest weir at an elevation one (1) ft. 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. As seen in the following pictures, someone had placed various pieces of debris to block this weir, and in the Fall, beaver activity became a problem and blocked the dam on more than one occasion.



Installing stoplogs at sheet pile dam



Beaver placed debris



Human placed debris

Pine Lake - 2007 Elevations



Elm Lake-Farmes Pool (RLWD Project #52)

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

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

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

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

FUNCTIONAL DESIGN DATA:

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

COST: Approximately - \$2 million

OPERATIONAL: 1991



Stoplog Outlet Structure

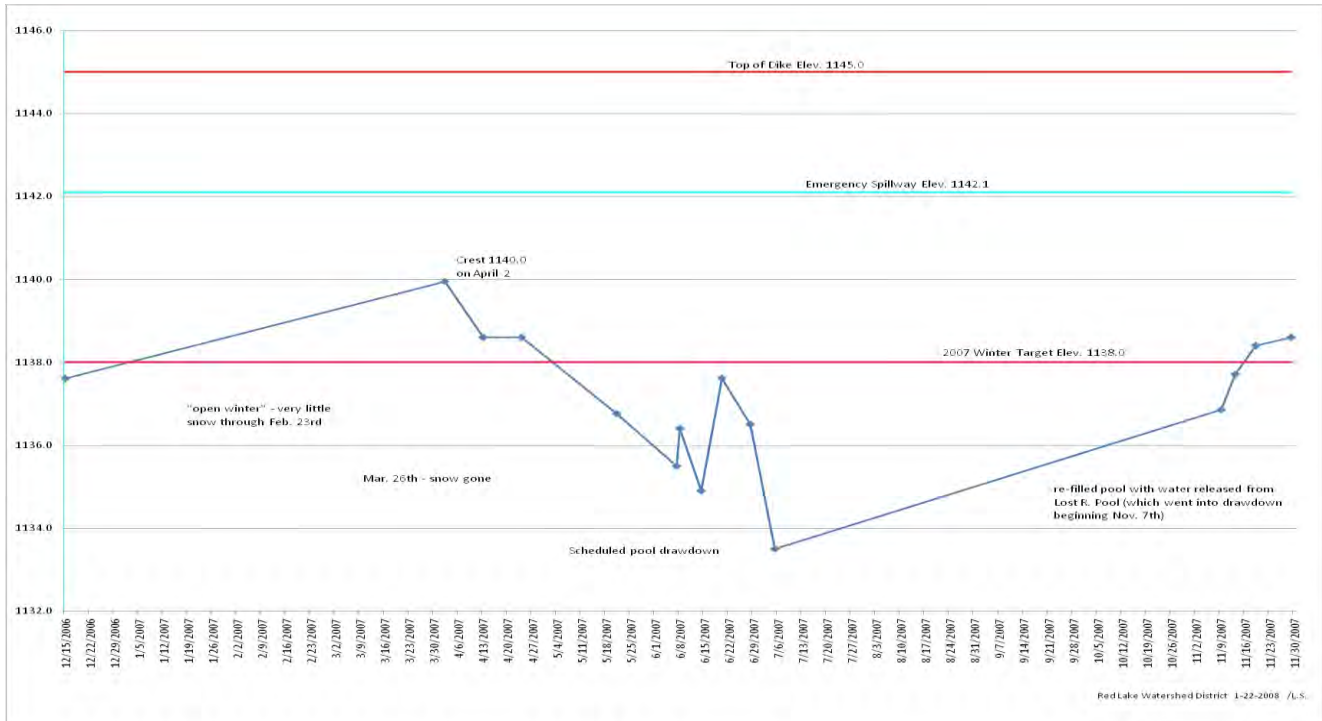
This year the pool was in a scheduled “drawdown” condition. After Spring runoff, the stop-logs were removed and the screwgate opened to drain the pool. Agassiz National wildlife Refuge staff performs the actual operation of the outlet structure with cooperation from the Red Lake Watershed District (RLWD). During the drawdown period, staff from the RLWD, Agassiz NWR, MnDNR along with a MnDNR Professional Engineer, performed an inspection of the outlet structure. The metal stop-logs and channel iron stop-log slides have deteriorated over the years and it was recommended for them to be repaired/replaced.



Pool Area during drawdown

This was not an emergency situation and the structure facility itself is “structurally sound” for use, until repairs are made in 2008. Also during the drawdown, there was a prescribed burn in the pool area. In early November, the screwgate was closed, the stop-logs installed and the pool was filled to the typical winter elevation. This was accomplished by storing the water being released from the Lost River Impoundment which is located East (upstream) of Elm Lake-Farms Pool.

Elm Lake - 2007 Pool Elevations



Lost River Impoundment (RLWD Project #17)

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



Outlet Structure

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

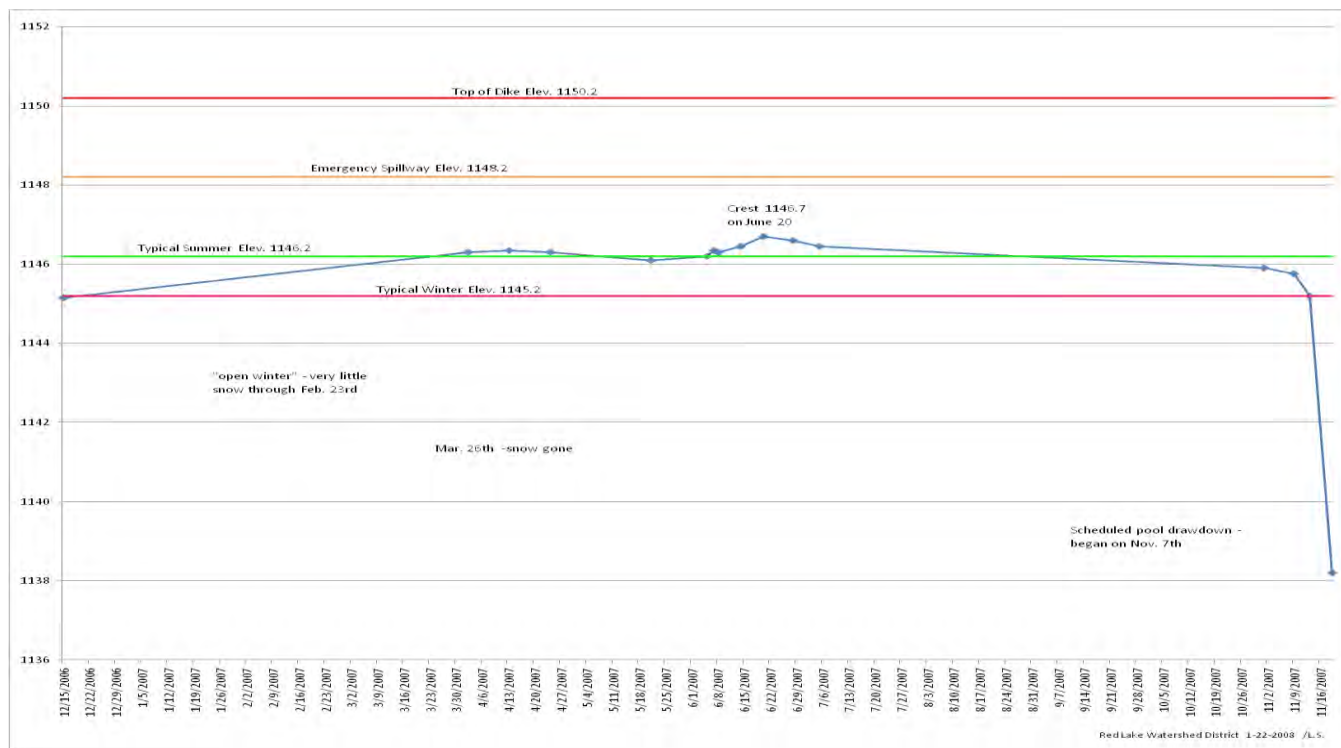
OPERATIONAL: 1978

This scheduled “drawdown” began on November 7th by removing stop-logs and opening the screwgate on the structure. Outflows were passed downstream and stored at the Elm Lake-Farmes Pool Impoundment to re-fill that pool from its drawdown condition as mentioned earlier in this report. The Lost River pool area has become congested with cattail vegetation over many years. By “drawing down” the pool in the Fall and re-flooding in the Spring of 2008, more “open water” areas will be created and benefit wildlife. MnDNR staff performs the actual operation of the outlet structure with cooperation from the Red Lake Watershed District (RLWD).



Pool Area during drawdown

Lost River Impoundment - 2007 Pool Elevations



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.

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

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

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

FUNCTIONAL DESIGN DATA:

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

COST: Approximately - \$2,129,000

Funding or in-kind contributions were provided by:
Red Lake Band of Chippewa Indians
Red Lake Watershed District
Red River Watershed Management Board
State of Minnesota

OPERATIONAL: 1996



Gated Principal Outlet Structure

Other than the normal operations, aerial spraying for brush control, mechanical brush control, and gate repair at the principal outlet structure were the main work items for 2007 (for the year). Aerial spraying was done along the dike alignment and the inlet channel, mechanical brushing was on the 2.3 mile reach of the outlet channel between the outlet structure and the „river road“.

In late July, the operable screw gate on the outlet structure malfunctioned and came off the guide mechanism. About one month later, the pool was drained enough to do the repair work required. New angle iron guides and bracing were installed and the screw gate was again closed. Independent Locomotive Services of Thief River Falls was hired to make the repairs and staff from the watershed district also assisted.



Mechanical brushing



Dry pool – gate malfunction

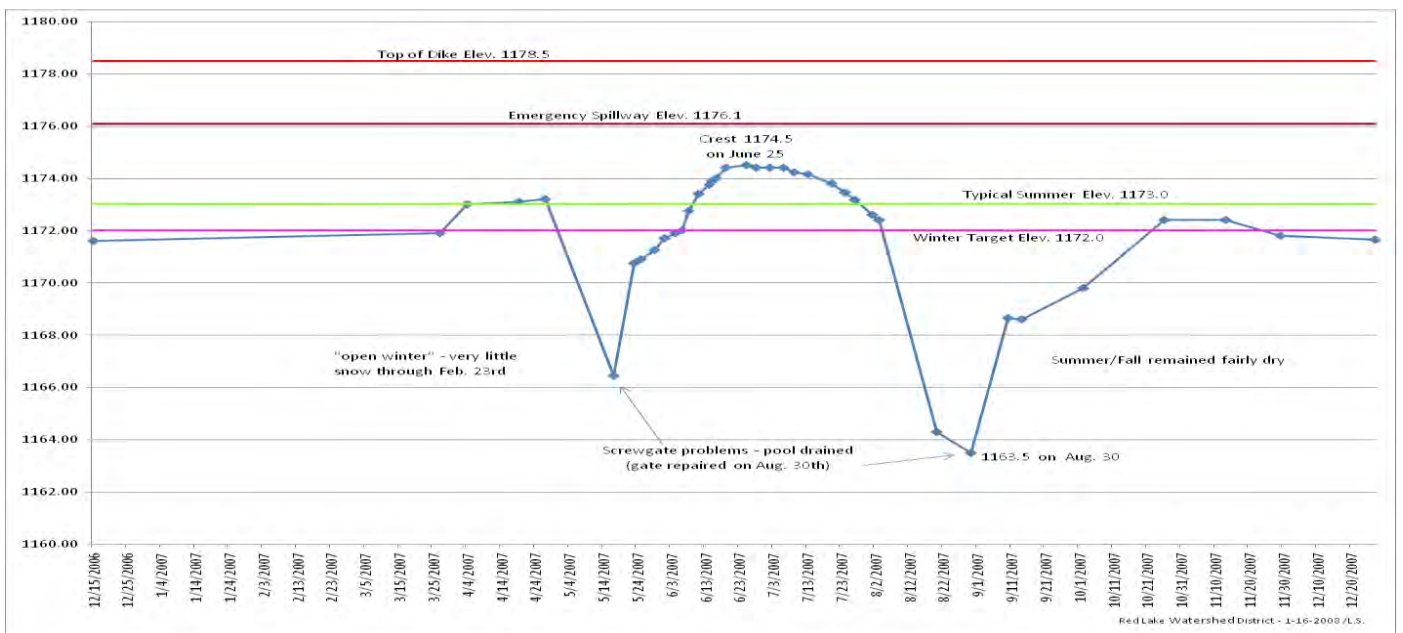


Gate Repair



Gate repair inside structure

Good Lake Impoundment - 2007 Pool Elevations



Moose River Impoundment (RLWD Project #13)

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

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

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

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

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

OPERATIONAL: 1988

FUNCTIONAL DESIGN DATA:

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

JOR Engineering of Crookston and Alexandria completed an Inspection Report for the project. The general inspection included both the North and South Pools, the earthen embankments, two concrete outlet structures, a concrete structure connecting the two pools, and three emergency spillways. Some minor settlement of the embankment has occurred in various areas and the two outlet structures have fractured concrete at the junction of the head wall and weir walls. We believe this movement may be due to freeze – thaw action. The report includes recommended repair/maintenance procedures and the work will be completed in 2008.

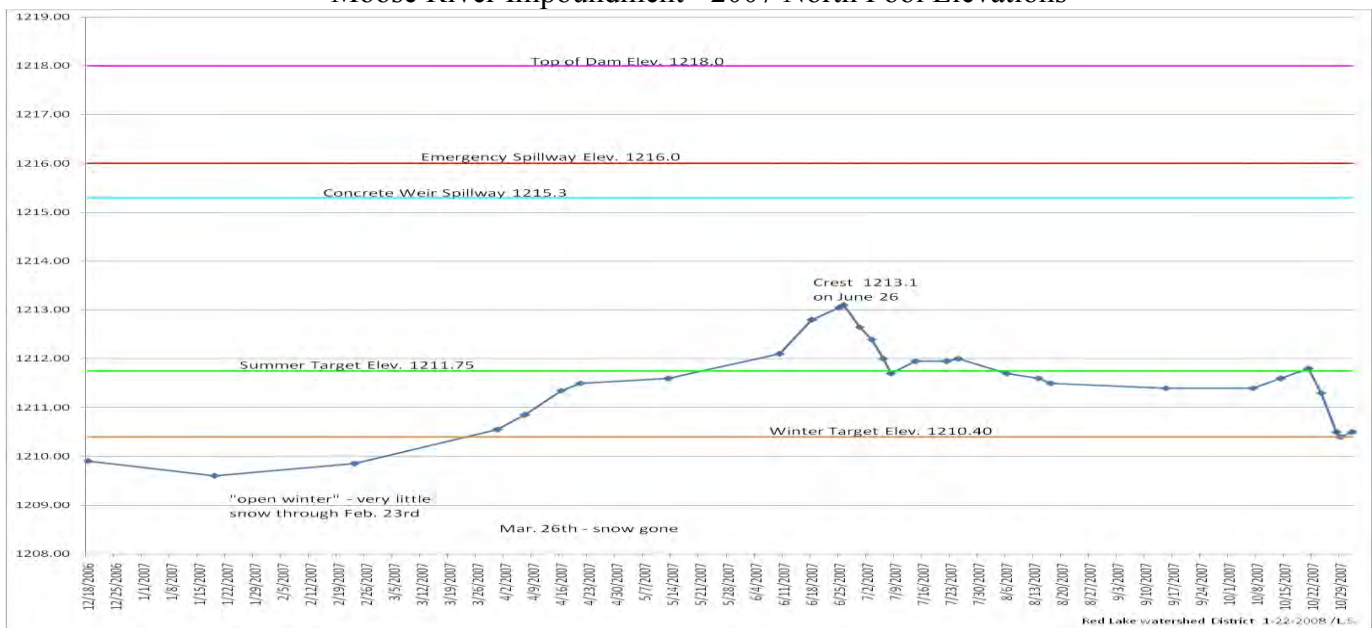
Moose River Impoundment – North Pool

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

Moose River Impoundment - 2007 North Pool Elevations



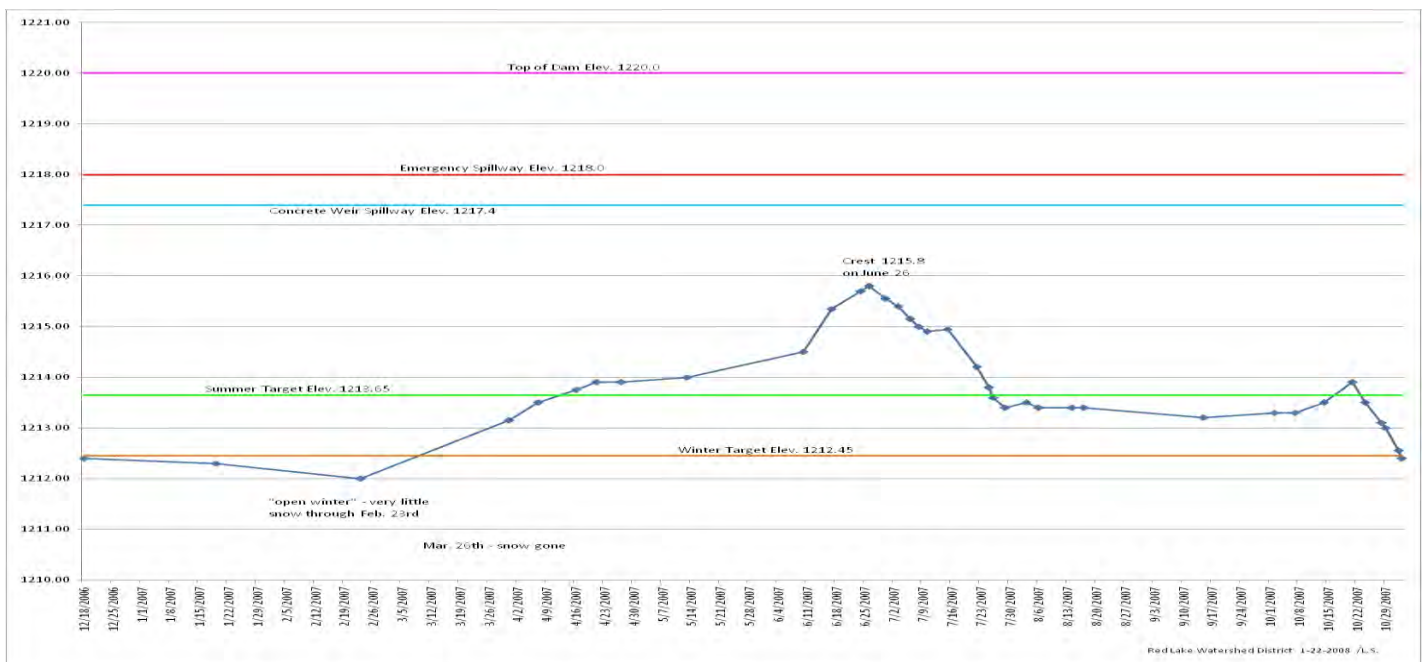
Moose River Impoundment – South Pool

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

Moose River Impoundment – 2007 South Pool Elevations



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.

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



Principal outlet structure
hydraulic gate operation



Looking downstream from outlet structure



Aerial view of Schirrick Dam looking south

Water Quality Report

Red Lake Watershed District Water Quality Program

2007 was a very busy year for the RLWD water quality monitoring program with the initiation of two major studies within the RLWD. The Clearwater River Dissolved Oxygen and Fecal Coliform TMDL Study and the Thief River Watershed Sediment Investigation required intensive sampling and continuous water quality monitoring that added to the usual summer long-term monitoring program. The focus this year may have been on monitoring instead of implementation, but these intensive studies will guide and improve the success of implementation efforts.

The primary purpose of our monitoring program is to locate water quality problems, learn more about them (what is causing them and what can be done about them), and do something to fix them. Current grant-funded studies are helping to increase cooperation and develop partnerships with other agencies. These partnerships will help the RLWD and partners accomplish their common goals more quickly. More effort can be directed to specific studies and implementation of projects to improve water quality. The RLWD and other agencies are able to use the water quality data collected within the RLWD to justify funding for water quality improvement projects. The outcomes of scientific water quality studies can also reduce conflicts that are based upon opinions instead of facts. They can be used to find the true sources of water quality problems. The recommendations of the current TMDL and Clean Water Partnership projects will also open doors to increased funding for water quality improvement projects.



All of the regular water quality monitoring, intensive studies and project implementation are conducted for the purpose of accomplishing the goals set forth within the RLWD 10-Year Plan. The Clean Water Act requires that a TMDL Study is conducted for each impaired reach. After approval of the 2008 303(d) List of Impaired Waters, there will be 32 reaches listed with aquatic life impairments and four with aquatic recreation impairments within the RLWD. These studies have to be done by somebody. Local interests are best served if a local entity is conducting the study. Time and resources can be directed toward the most effective strategies for improving water quality. The RLWD currently has the most expertise and is the best equipped entity within the district for conducting these studies. Other organizations within the RLWD are improving their water quality monitoring capabilities (e.g. Surface Water Assessment Grants). This should allow the RLWD to address other aspects of the water quality program (implementation) in the future.

Clearwater River Dissolved Oxygen and Fecal Coliform TMDL Study

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

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

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

1. Water quality data collection and analysis for each reach for verification of impairment.
2. Report of water quality conditions, land uses, sources of pollution and assessment of ability to reduce pollution from each source. Define sources and amounts of pollutant entering the impaired reaches using the SWAT model. The RLWD has subcontracted the services of the Energy & Environment Research Center at University of North Dakota to conduct the SWAT modeling. Products of this task will be:
 - a. Pollutant load estimates for each impaired reach.
 - b. Define total maximum daily load of each pollutants for each reach.
 - c. Best management practices scenarios for achieving water quality target.
3. Strategies to reduce pollution and restore water quality standard for each impaired reach. Products will be:
 - a. Definition of margin of safety and reasonable assurance for each impaired reach.
 - b. Report of strategies to restore water quality conditions, and assessment of likelihood to achieve goals.
4. Plan for implementation of the watershed-based pollutant reductions, the report will be a draft total maximum daily load study.

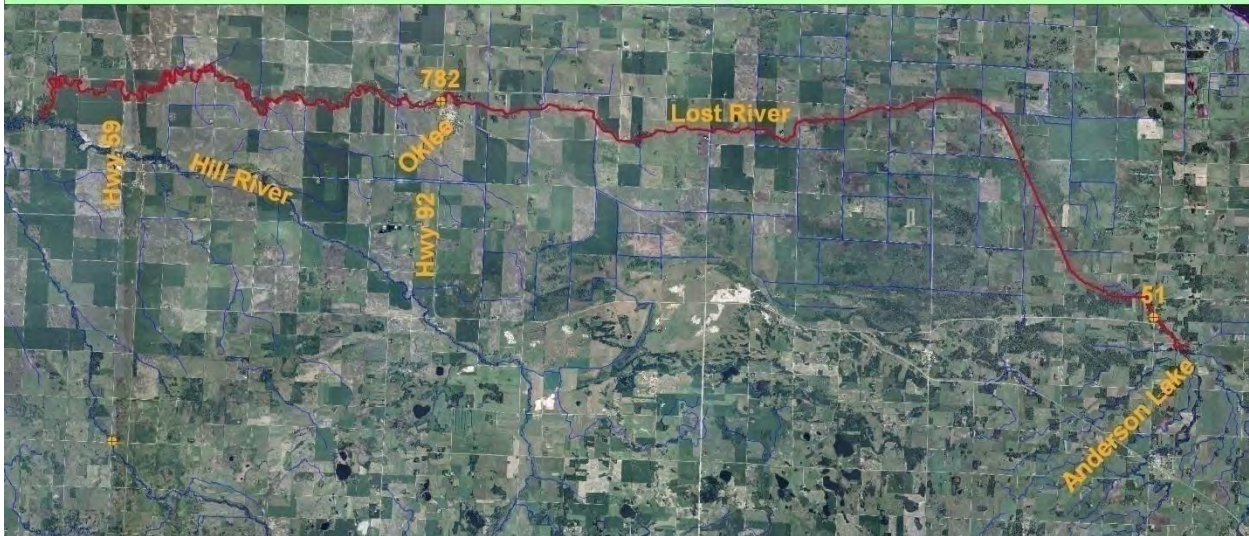
One of the first steps in the TMDL was to complete a review of all the existing data from the impaired reaches that are being studied. Data collected by the Red Lake County SWCD, River Watch, Pennington County SWCD, and the RLWD were used. It appears that water quality conditions change throughout the watersheds. For example, data at RLWD sites on the Clearwater River at Plummer don't show impairment, but SWCD sites further upstream within the channelized area do show impairment. The most recent 10 years of data (through 2006) from the Clearwater River showed that the fecal coliform impairment on the reach that extends from Ruffy Brook to the Lost River no longer exists. Based on existing data, dissolved oxygen problems on the Poplar River appear to begin downstream of the town of McIntosh and end prior to where the end of the listed reach (Headwaters to Hwy 59). The results of this preliminary data analysis were presented at the second Clearwater River TMDL stakeholders' meeting.

Assessment of data collected through 2007 clearly verifies the impairments of Silver Creek, CD57, and the Poplar River. The lower Lost River has bacteria concentrations that frequently exceed standards. Data shows no official impairment, however, because there have been enough lower values to offset the high concentrations when monthly geometric means are calculated. The impairments on the Clearwater River appear to no longer exist when data from the entire reach (Ruffy Brook to Lost River) is lumped together. E. coli data from the channelized reach of the river do, however, still show an impairment of aquatic recreation. Sampling will resume for April and May of 2008 to achieve a complete assessment.

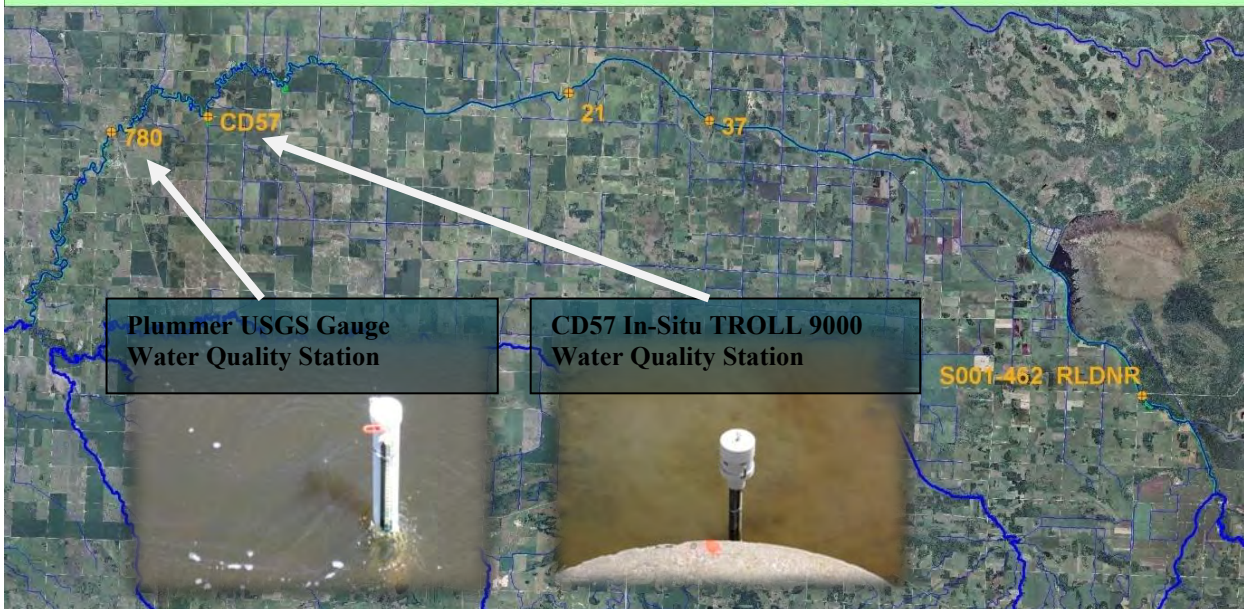
Monitoring began in the early summer. E. coli samples were collected on the Clearwater River, Silver Creek, and Lost River impaired reaches from June through October in 2007. Five samples were collected at a total of 6 sites in each month of the monitoring season. There were two E. coli monitoring sites on each impaired reach. Continuous monitoring equipment was used to capture daily minimum dissolved oxygen concentrations for verification of the dissolved oxygen impairments in the Clearwater and Poplar Rivers. Five Eureka Midge (dissolved oxygen and temperature logging probes) were purchased for the study using MPCA funding. Five Onset HOBO water level loggers were also purchased and used to get continuous water level records that can be used for calculating loads at key monitoring sites.

All of the Clearwater River monitoring equipment was installed by the end of May. An In-Situ TROLL 9000 water quality logging multi-probe sonde was installed in County Ditch #57 by Plummer that is collecting dissolved oxygen, pH, conductivity, temperature, and water level measurements once every hour. Two more of these TROLL 9000s were installed at stream gauging sites #21 and 37 on the Clearwater River. A Eureka Midge dissolved oxygen and temperature logger is installed at the Plummer USGS gauging site. Four more Eureka Midges and five Onset HOBO Water Level Loggers were installed in June in the Poplar River, Lost River, and Silver Creek.

Clearwater River Dissolved Oxygen and Fecal Coliform TMDL Lost River Fecal Coliform Impairment 2007 Sampling Sites

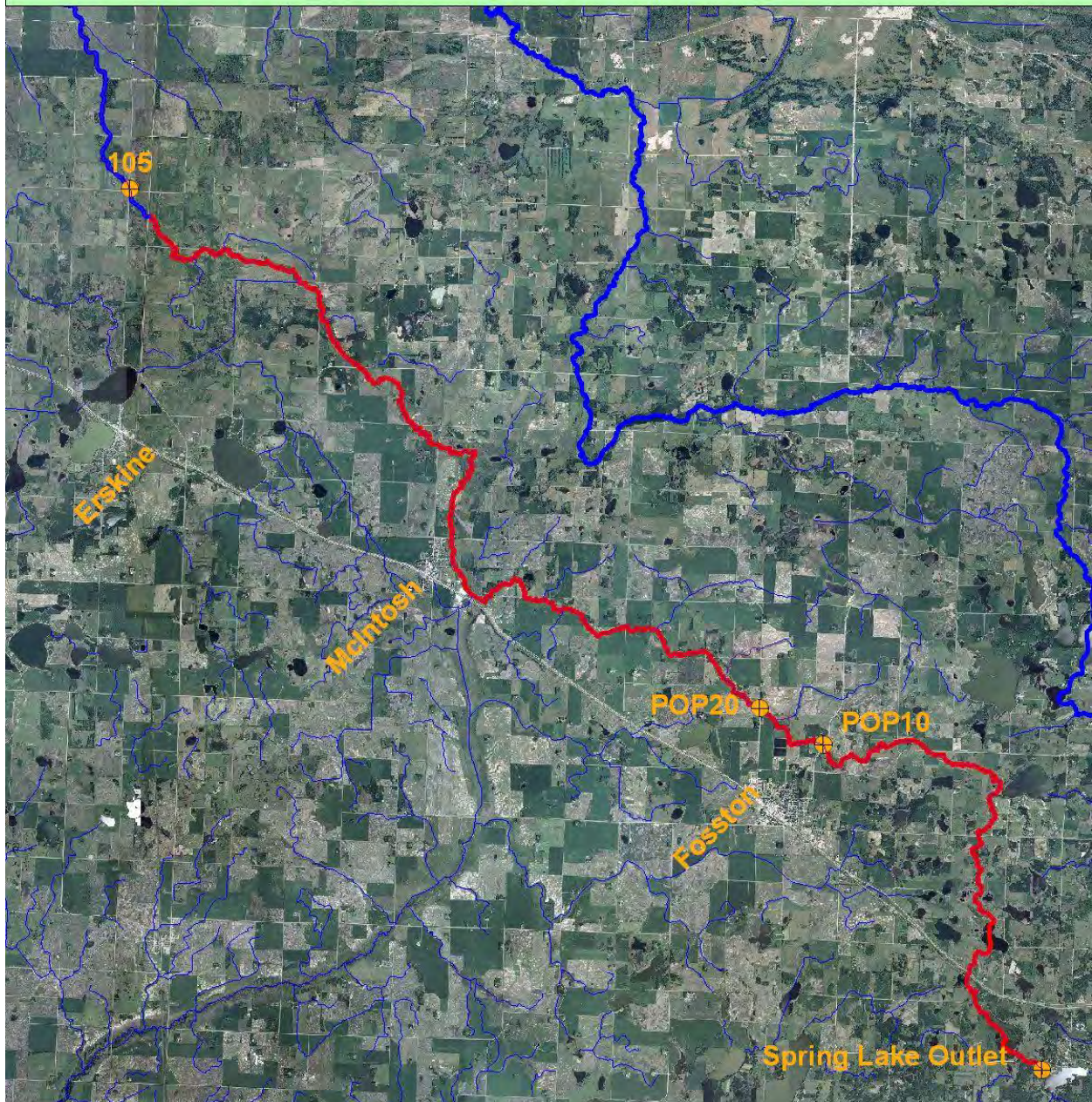


Clearwater River and County Ditch 57 Continuous Monitoring Sites 2007-2008 TMDL Study

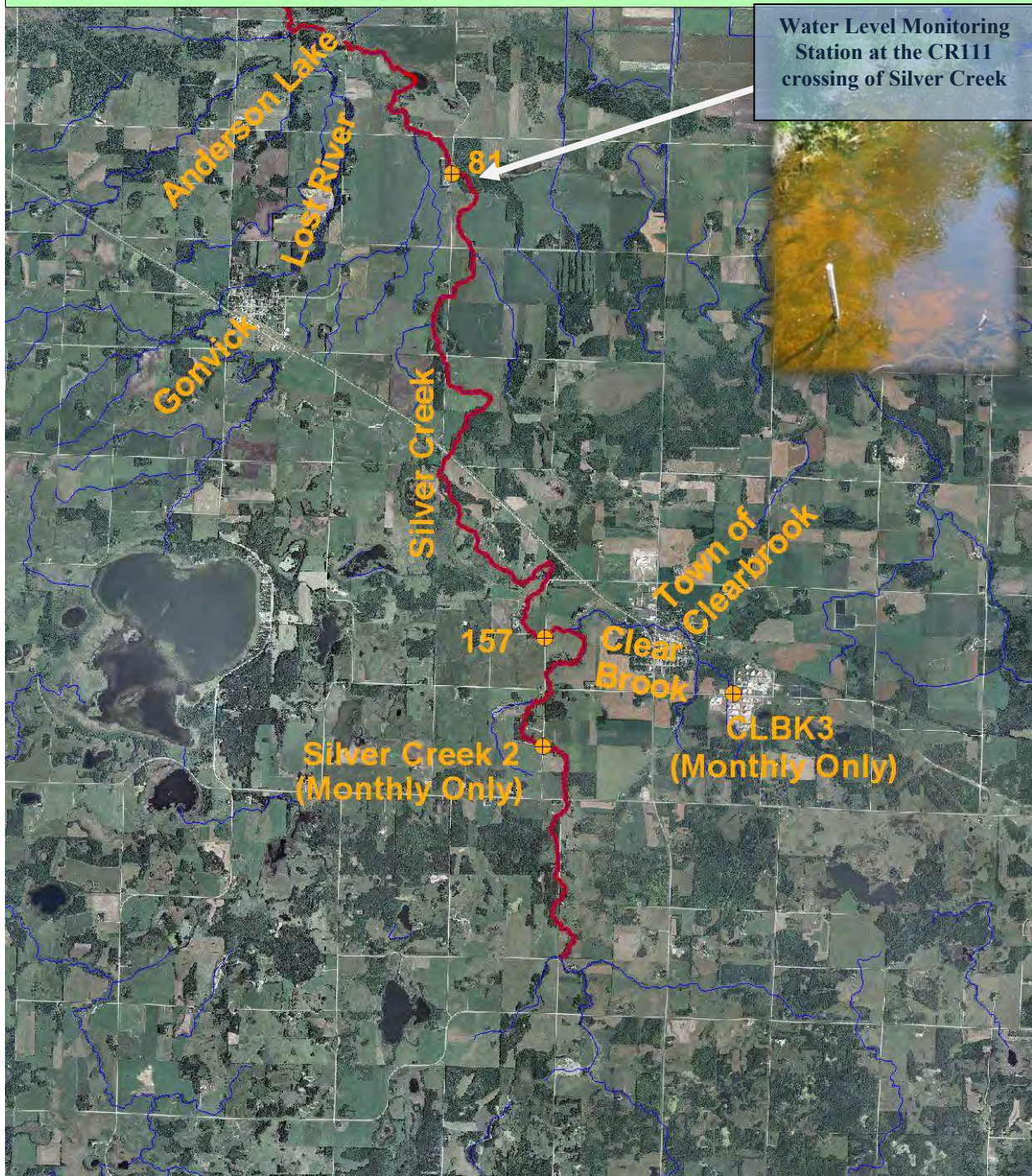


Clearwater River Dissolved Oxygen and Fecal Coliform TMDL Study

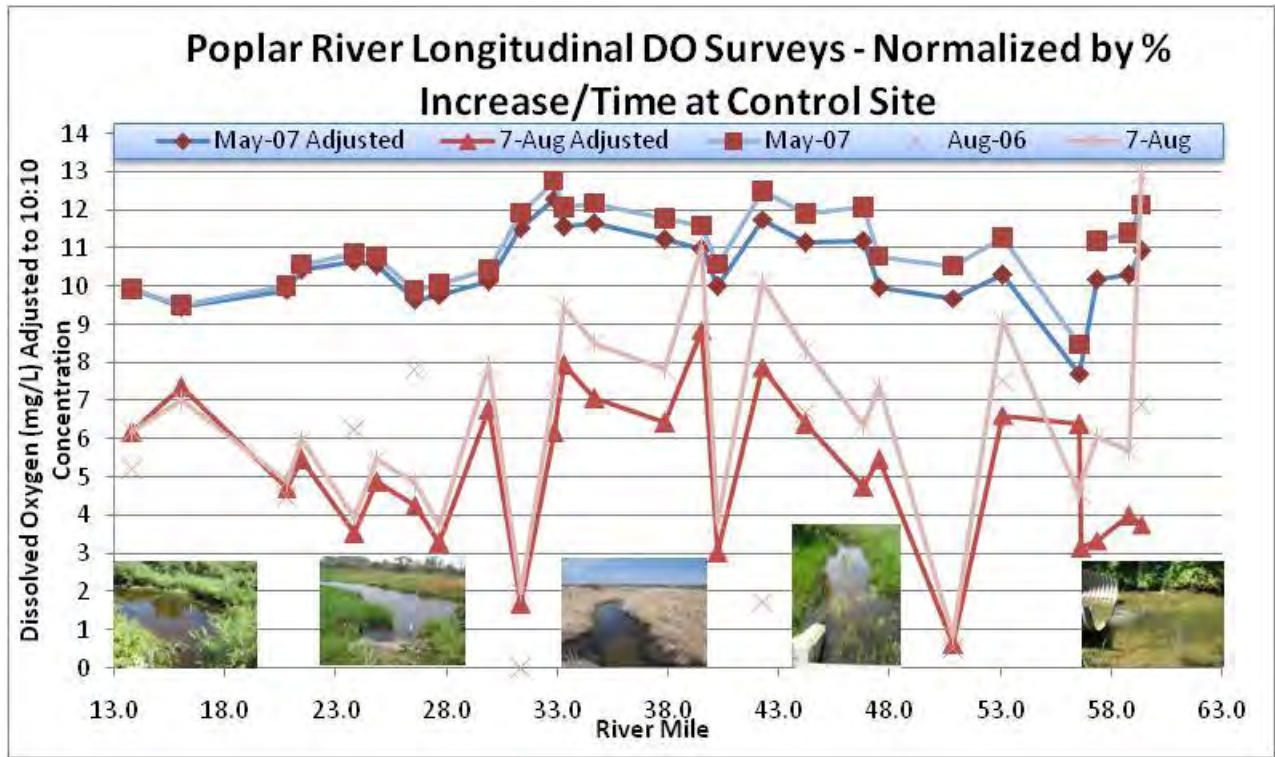
Poplar River Dissolved Oxygen Impairment 2007 Continuous Monitoring Sites



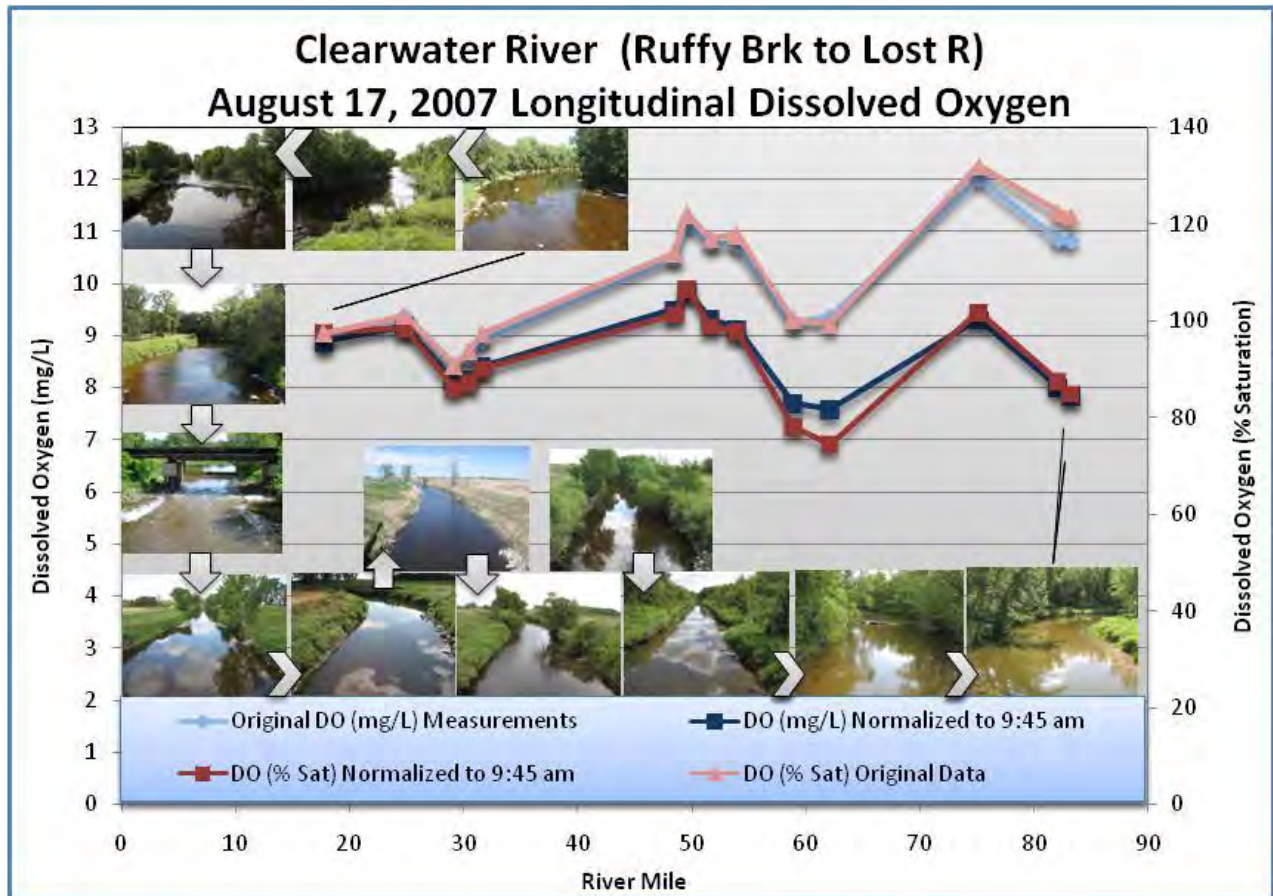
Clearwater River Dissolved Oxygen and Fecal Coliform TMDL 2007 Silver Creek Fecal Coliform Monitoring Sites



Longitudinal water quality surveys were completed for the Poplar and Clearwater Rivers. These longitudinal surveys provide a “snapshot” of water quality throughout each impaired reach that will help identify areas that need additional monitoring and stressor identification. They consisted of field measurements taken with a Eureka Manta multi-probe sonde (dissolved oxygen, temperature, pH, conductivity, and turbidity) at every stream crossing within the impaired reaches. August is a good time to look for low dissolved oxygen levels because of the high water temperatures and lower, often stagnant, flows. In the August survey, dissolved oxygen levels were satisfactory all along the Clearwater River. Dissolved oxygen levels dropped below the 5 mg/L standard at 9 of the 27 crossings tested along the Poplar River. Several others sites had levels that were above the standard at the time of measurement, but were low enough that they may not have met the standard earlier in the AM when daily minimums normally occur.



Longitudinal Dissolved Oxygen Survey (Downstream to Upstream = Left to Right) of the Poplar River showing problem areas

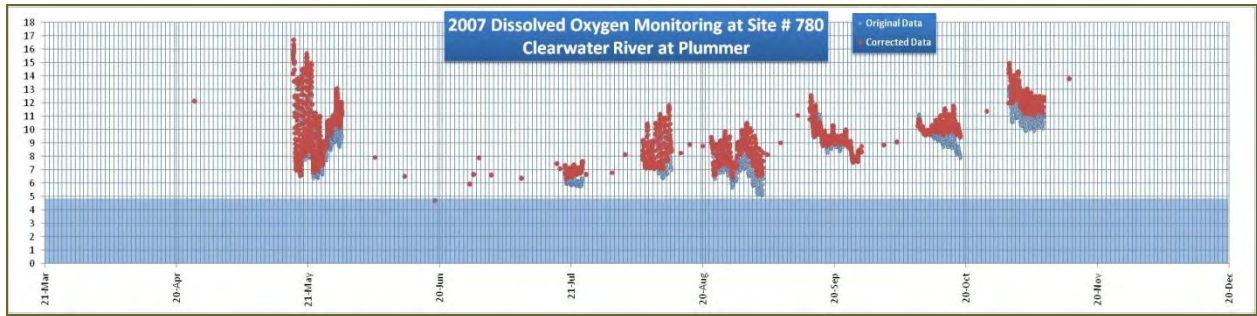


Longitudinal Dissolved Oxygen Survey (Downstream to Upstream = Left to Right) of the Clearwater River

Some flow measurements were collected in 2007 to get the lower end of a flow rating curve started. Flow measurements will need to be collected during high flows next spring to be able to translate the stage records collected at several sites into flow records through the creation of flow rating curves.

All of the data that was collected in 2007 for this project was entered into the RLWD Microsoft Access water quality database, queried into the MPCA’s STORET Microsoft Excel spreadsheet template, and submitted to the MPCA STORET entry staff. Data was extracted from continuous monitoring equipment. Continuous data from Eureka Midge Dissolved Oxygen Loggers had to be corrected for the fouling and calibration drift errors that accumulate over the time that the equipment is deployed in the river. The data was then analyzed to compile a record of daily minimum dissolved oxygen concentrations. This analysis shows that, although there are some occurrences of low dissolved oxygen concentrations, they are not frequent enough to deem the entire “Ruffy Brook to Lost River” reach of the Clearwater River impaired by low dissolved oxygen. There is one site, however, at the lower end of the channelized reach of the Clearwater River that indicates impairment by low dissolved oxygen.

The RLWD has contracted with the Energy and Environmental Research Center for Soil and Water Assessment Tool modeling of the Clearwater River watershed. The model will be calibrated with water quality monitoring data collected by the Red Lake Watershed District and flow records compiled by the United States Geologic Survey (USGS).



Example Dissolved Oxygen Record with a combination of Eureka Midge DO Logger Data and Manual Field Measurements

Clearwater River Dissolved Oxygen and Fecal Coliform TMDL Study dissolved oxygen data assessment

Site	All C.R. Sites				CD57	Spring Lake Outlet			
	780	21	37	3129		105	WINPOP	POP20/O-4	3820
# of Valid Data points collected in 2007	1949	472	454	3129	7287	2458	2196	3820	871
Number of days from start to finish of 2007 Monitoring at this site	180	148	158	204	190	193	193	193	193
Number of Days with Valid DO measurements in '07	95	31	47	115	160	101	92	105	54
Number of Daily Mins below 5 mg/L	1	1	1	2	134	54	47	49	6
% of Daily Minimums that are below 5 mg/L in '07	1.05%	3.23%	2.13%	1.74%	83.75%	53.47%	51.09%	46.67%	11.11%
% Completeness of 2007 monitoring effort	53%	21%	30%	56%	84%	52%	48%	54%	28%
# of Days in which DO was measured - last 10 yrs	208	76	105	283	174	101	113	124	54
# of Daily measured daily mins <5mg/L - last 10 yrs	7	10	9	15	137	54	53	49	6
% of Daily Mins <5 mg/L in last 10 years	3.37%	13.16%	8.57%	5.30%	78.74%	53.47%	46.90%	39.52%	11.11%
	Clearwater River				CD57	Poplar River			

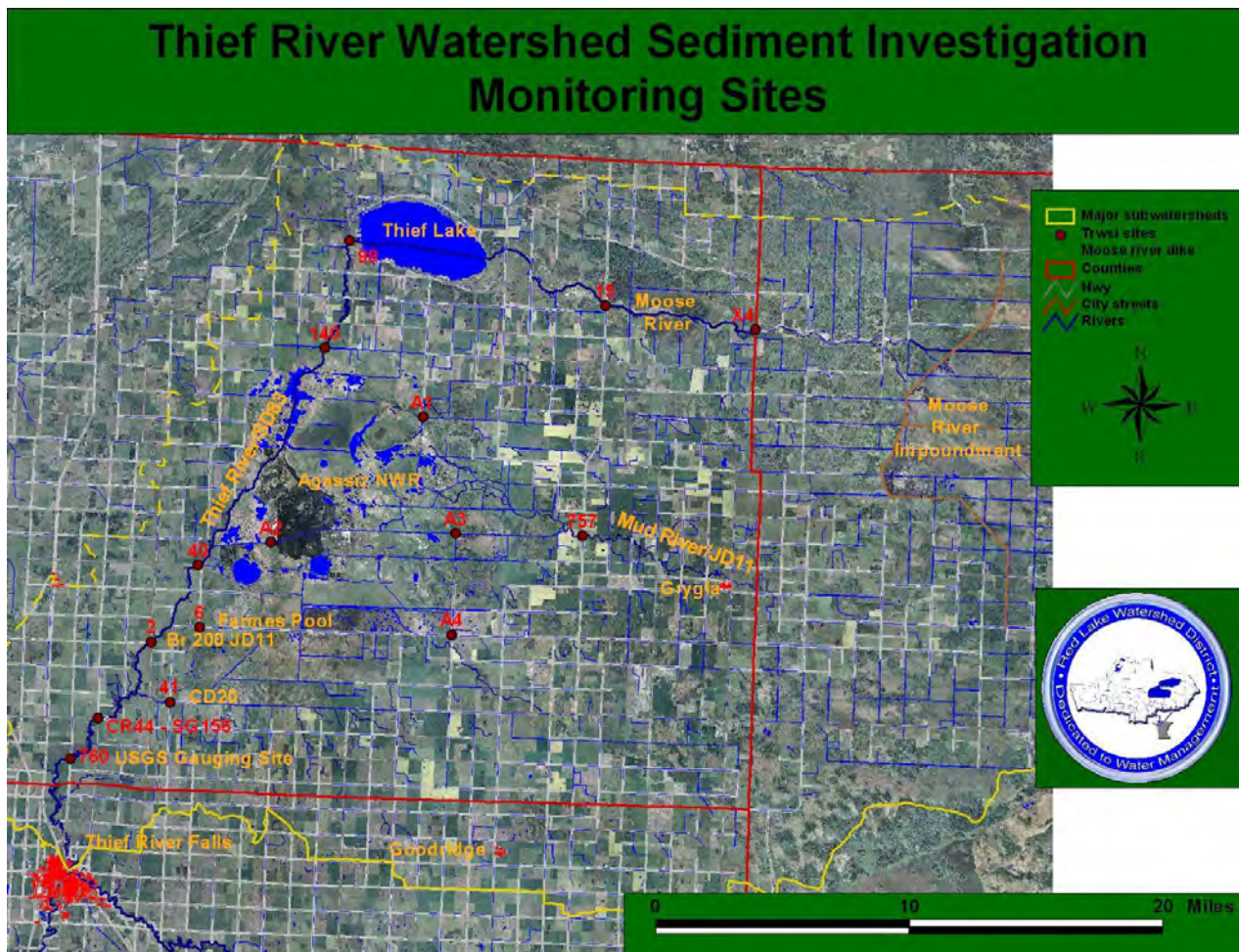
Clearwater River Dissolved Oxygen and Fecal Coliform TMDL Study Bacteria data assessment

Site	River	#Data Pts	E. coli			Fecal Coliform			>200 GeoMean CFU E.coli Std
			% data pts. >126 CFU/100ml	% of Values >1260 CFU/100ml	# Mos. >126 GeoMean CFU E.coli Std	% data pts. >200 CFU/100ml	% of Values >2000 CFU/100ml		
37	Clearwater	32	25.0%	0.0%	1	60	5.0%	0.0%	0
780	Clearwater	52	13.5%	2.0%	0	130	3.1%	0.0%	0
21	Clearwater	9	22.2%	0.0%	0	61	2.0%	0.0%	0
Clearwater River Ruffy Brk. to Lost R.		93	18.3%	1.1%	0	235	2.1%	0.0%	0
157	Silver Creek	25	96.0%	28.0%	5	0	0.0%	0.0%	n/a
81	Silver Creek	32	41.0%	3.0%	1	58	14.0%	2.0%	0
Silver Creek 2		5	80.0%	0.0%	n/a	10	10.0%	0.0%	n/a
Silver Creek		62	66.1%	12.9%	5	68	13.2%	1.5%	0
51	Lost	26	8.0%	0.0%	0	0	0.0%	0.0%	n/a
782	Lost	34	18.0%	0.0%	0	42	10.0%	0.0%	0
PL30	Lost	10	20.0%	0.0%	n/a	19	5.0%	0.0%	0
Lost River		70	16.0%	0.0%	0	61	8.0%	0.0%	0

Thief River Watershed Sediment Investigation

The 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 led to the planning of a study that would involve intensive sampling, continuous water quality monitoring, and water quality modeling. The project will focus on collection of a quality data set through the first three years. Final data analysis, modeling, and report writing will be completed during the fourth year. A detailed work plan (with budget, Quality Assurance Project Plan, etc.) for the project can be accessed on the RLWD website projects page (www.redlakewatershed.org/projects).

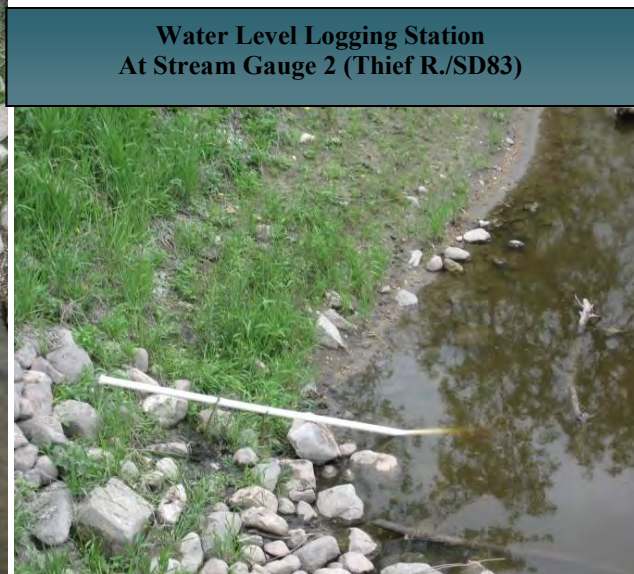
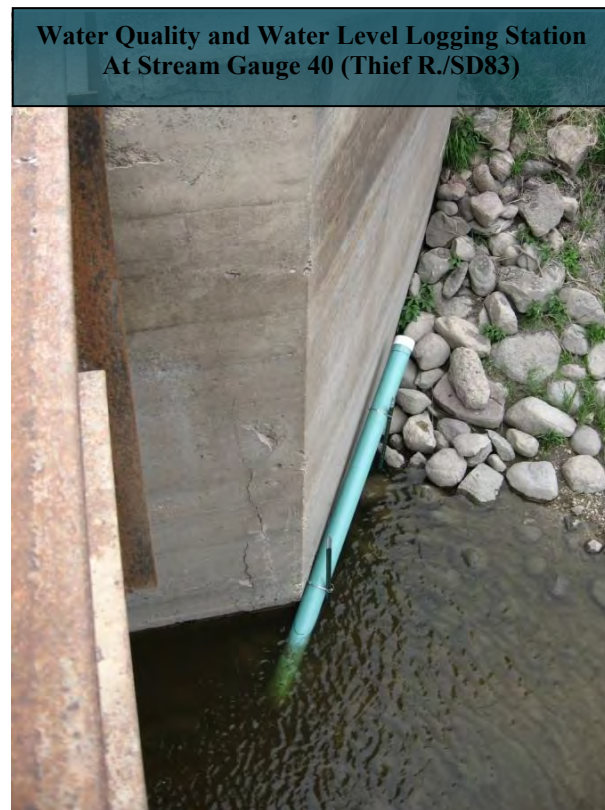
Monitoring sites for the project were placed at strategic locations to assess water quality at sites “bracketing” Thief Lake and Agassiz NWR, within ditches, upstream and downstream of a ditch confluence, and other locations. Agassiz National Wildlife Refuge monitoring sites were placed at the outlet of Agassiz Pool and on three ditches that enter the refuge from the east.



Continuous monitoring equipment was purchased in early 2007. Agassiz NWR also received money to purchase continuous monitoring equipment for the study and will be monitoring 4 sites within the Refuge. The USGS is assisting with project planning and collected 3 flow measurements at 5 monitoring sites in and around the refuge. Student workers and other employees of the Agassiz National Wildlife Refuge collected water quality measurements in and around the refuge and helped with the maintenance of deployed equipment.

Eureka Manta logging sondes will be collecting dissolved oxygen, pH, temperature, specific conductivity, turbidity, and water level measurements once every half hour at four sites on the Agassiz NWR and five sites at other locations within the watershed. Two additional continuous monitoring stations will be added by the USFWS for the 2008 and 2009 monitoring seasons. A continuous record of barometric pressure will be collected from a logger installed at the Agassiz NWR headquarters. This record will be used to improve the accuracy of continuous water level records that are being collected at each site. The deployed Eureka Manta multi-probes were retrieved and brought to the RLWD office for cleaning and calibration after each 2 week deployment period. Continuous monitoring data is validated based on how closely measurements on the deployed multiprobe match those from the portable multiprobe. This allows for calculations of the amount of error caused by fouling of the sensors, and the amount of error caused by calibration drift. A round of samples was collected at all 11 RLWD monitoring sites each month between April and October. The Marshall County Water Planner collected the samples at the 7 northern sites and the RLWD collected samples at the southern 4 sites.

Agassiz National Wildlife Refuge has received funding that will allow them to expand monitoring in and around the refuge through 2009. The USFWS, with the help of the USGS will be hiring a seasonal employee, purchasing monitoring equipment, collecting more discharge measurements, collecting more samples, and analyzing sediment cores from Agassiz Pool.



[Long Term Monitoring Program](#)

The RLWD's long-term monitoring program includes 37 sites on rivers and streams throughout the watershed. Field measurements of dissolved oxygen, temperature, specific conductivity, pH, turbidity (NTRU and FNU), transparency, and stage are collected at each site visit. Samples are collected at most of the sites when there is flow. The samples are analyzed for total phosphorus, orthophosphorus, total suspended solids, total dissolved solids, total Kjeldahl nitrogen, nitrates & nitrites, ammonia nitrogen, fecal coliform, and E. coli. The state has officially replaced fecal coliform with E. coli as the state bacteria standard for aquatic recreation. The RLWD began sampling for E. coli several years ago to get a "head start" on collecting data for this impending new standard. When the E. coli dataset is sufficient for assessment purposes, fecal coliform will likely be phased out of our sampling program.

Darrigan's Creek – High Turbidity and E. coli



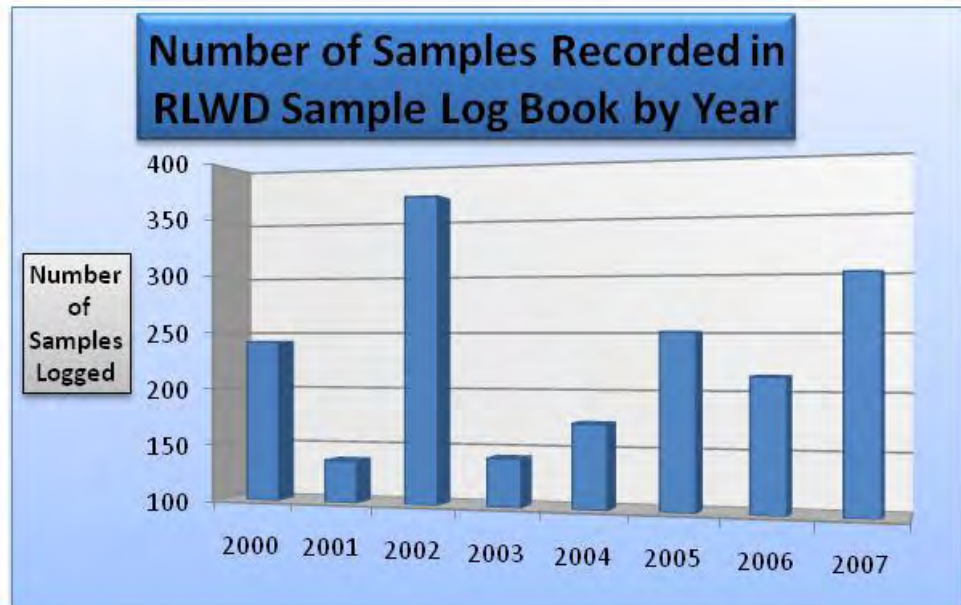
In 2007, 4 new sites in Beltrami County (Upper and Lower Red Lakes Watershed) were added to the RLWD long-term monitoring program. This is an area of the watershed that has not received much attention in the past, mostly due to its distance from the RLWD office. The new Beltrami County monitoring sites are located on the Blackduck River, Cormorant River, Darrigan's Creek, and O'Brien's Creek. All the sites had E. coli levels that exceeded the state standard of 126 CFU/100 ml in September. Darrigan's Creek (pictured) had some of the worst water quality found by the RLWD monitoring program in a stream or river. The turbidity was 683 NTRU; total suspended solids were 608 mg/L; and the E. coli concentration was 2419.6 MPN/100 ml (maximum measurable E. coli concentration).

Data from the 2007 sampling at the RLWD's long-term monitoring sites have been entered into the RWLD Microsoft Access water quality database, imported to the MPCA's STORET Microsoft Excel spreadsheet template, and submitted to the MPCA STORET entry staff. STORET is the EPA's water quality database. The MPCA uses data in STORET for their statewide water quality assessments.

Maple Lake Algae Bloom



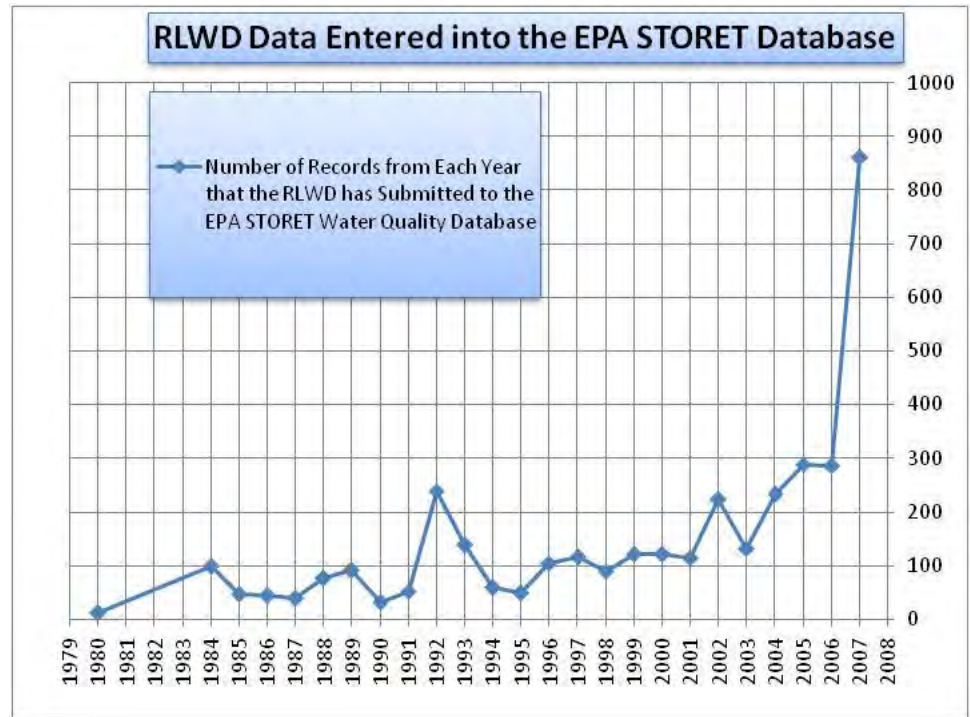
Each sample collected by the RLWD is recorded in a sample log book and is numbered. The purpose of this log is to keep track of the samples collected and to know when to collect duplicate and blank QA/QC samples (blanks and duplicates are collected for 10% of the samples the RLWD collects).



More samples were collected and recorded in the RLWD sample log book than in any of the previous 4 years. The Thief River Watershed Sediment Investigation, Clearwater River Dissolved Oxygen and Fecal Coliform TMDL Study, increased efficiency, and long days helped me achieve this increase. The other higher points in the graph can be attributed to the Clearwater Lake Water Quality Model Study (2002) and supplemental fecal coliform sampling (2005).

Many sets of field measurements were also collected at sites that did not require sample analysis. The RLWD and other agencies/groups have the ability to collect data for many of the parameters used in water quality assessments (dissolved oxygen, turbidity, temperature, and pH) while at the site and without needing to collect samples. The quantity of these field measurements that have been collected is evident in the number of records included in recent submittals of data for STORET entry. Of the 864 records submitted to STORET this year, 158 were from the RLWD long-term monitoring program, 372 were collected for the Thief River Watershed Sediment Investigation, and 334 were collected for the Clearwater River Dissolved Oxygen and Fecal Coliform TMDL Study.

Some great monitoring partnerships have developed with other agencies for collecting data and cooperating with projects. United States Fish and Wildlife Service staff and student-workers collected a lot of field measurement data from within and around Agassiz National Wildlife Refuge this year. Of the 864 records that were



submitted to STORET in 2007, 268 were collected by the USFWS. The other 596 records were collected by the RLWD Water Quality Coordinator. While the preceding graph shows the number of records submitted to STORET by the RLWD, there are other groups and agencies conducting monitoring within the RLWD. These include The Marshall County Water Planner, River Watch, Pennington County SCWD, Red Lake County SWCD, Clearwater County SWCD, and volunteers for the MPCA’s Citizen Stream Monitoring Program.

[Tile Drainage Study](#)

The amount of tile drainage in northwestern Minnesota has been increasing. There has been interest among natural resource and water management professionals about the effect this trend will have upon water quality within the Red River Basin. The tiling methods would be different from southern Minnesota – flatter terrain needs no surface inlets. Prior to this study, there were differing opinions about what water quality from tile drainage would be like, even though little data had been collected. The theories being tested with this study are:

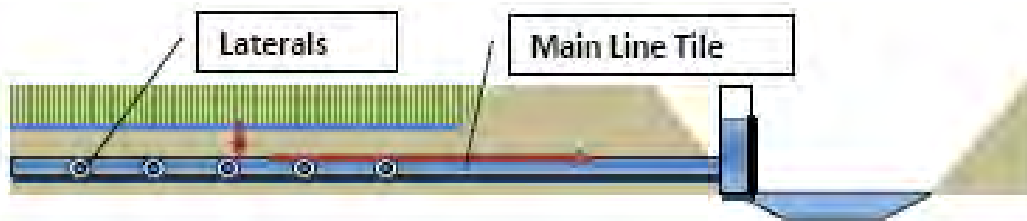


- Tile drainage should have lower suspended solids concentrations than surface drainage.
- Tile drainage should have lower total phosphorus concentrations than surface drainage
- Tile drainage will likely have higher nitrate concentrations than surface drainage
- Storm runoff from a tile drained field should have lower peak flows than a surface drained field*
- Storm runoff from a tile drained field will likely have a greater total volume of runoff over time than a surface drained field.*

*An add-on component of the project funded by the Red River Watershed Management Board. Work is being completed by HDR Engineering and the RLWD.

Data collected for this study up to this point support these theories. There have been some exceptions and other questions that have been answered through this monitoring. With conventional agriculture, there seems to be a water quality trade-off. We get lowered sediment and phosphorus concentrations, but nitrate concentrations are increased.

Monitoring of wild rice paddies during drawdown in late summer has shown that installation of main line tile and elimination of internal ditching can virtually eliminate the detrimental effects surface drainage of paddies has had upon water quality in the Clearwater River. The benefits of main line tile drainage in wild rice paddies were that drainage water was clean, clear, and had low nitrate levels. Plus, it had low nitrate levels. A major recommendation of this study would be the complete conversion of wild rice paddies to main line tile drainage.



As more is learned about tile drainage water quality, more questions also develop. For example, we have found that tile drainage has an extended period of flow. One concern from scientists is that this extended flow may prolong the period of time in which receiving waters are at or above their bank full (channel forming - erosive) depth. A continuous record of flow on the Hill River was compared with a continuous record of flow from tile to provide insight into the validity of this concern. Analysis of this data shows that the two are definitely related to each other, but at many different levels. A best guess at the meaning of this is that both flow from tile and water levels within the river are affected nearly equally by another variable like groundwater. This would make sense because the Hill River is able to maintain base flow while flow in nearby streams nears zero. There should be further research into the effect that higher levels of nitrates and specific conductivity in tile discharge may have upon our rivers. The net result of conversion to tile drainage from surface drainage appears to be less sediment and phosphorus loss due to water erosion, but increased total nitrogen loss due to excessive leaching of nitrates (even though surface drainage has higher concentrations of total Kjeldahl nitrogen - ammonia plus organic nitrogen).

The flow monitoring aspect of the study will be extended through 2008. A report is available for the water quality and flow monitoring completed through 2007 (<http://www.redlakewatershed.org/projects.html#RLWFTSTile>). This report will be revised after the conclusion of the 2008 monitoring. The results of this study have and will continue to be presented when requested.

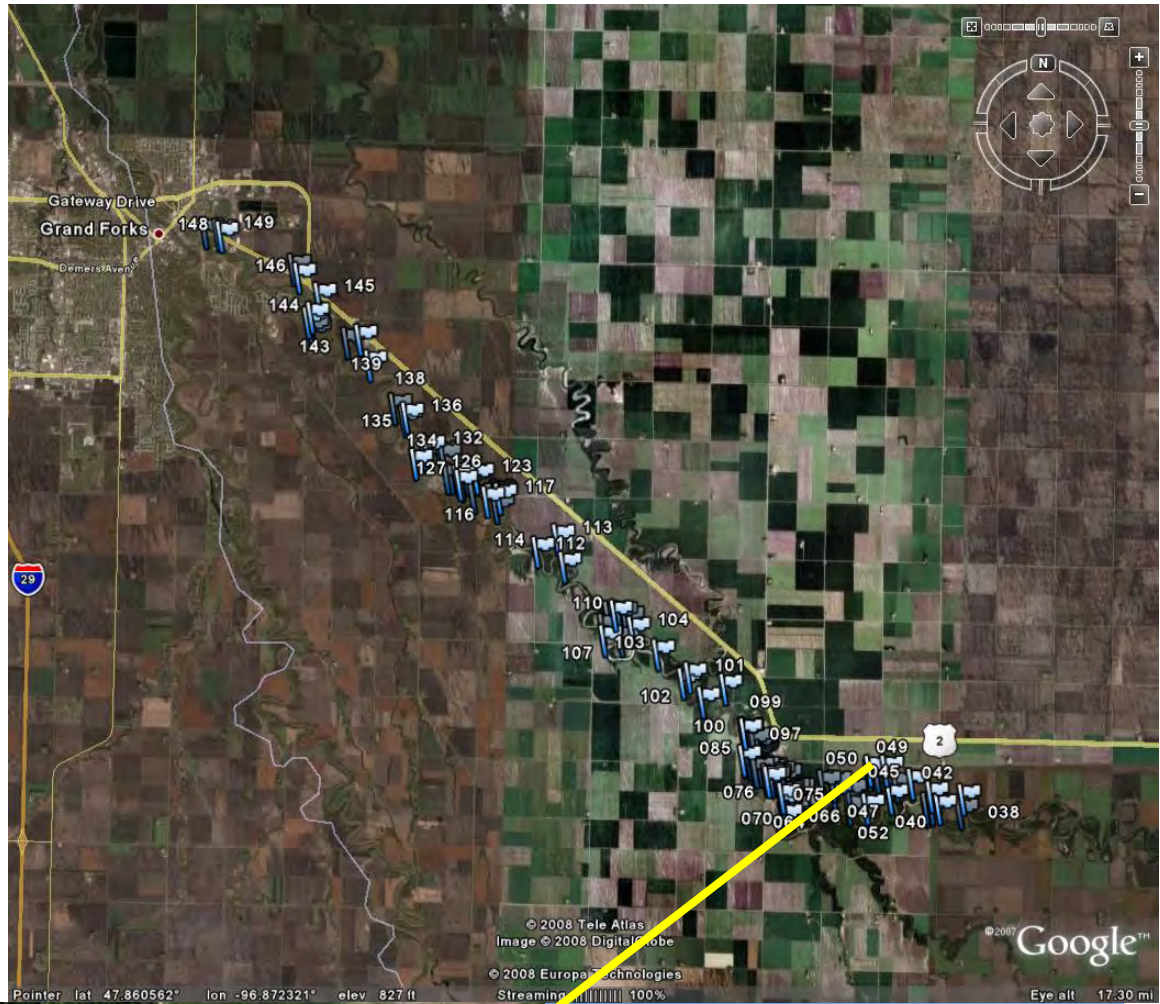
Erosion Assessment on the Red Lake River

One of the items on the to-do list in 2007 was an inventory of erosion sites along the Red Lake River. This project was planned as part of the Red Lake River Corridor Enhancement Project. The process of putting together a plan and budget for the erosion control portion of the Red Lake River Corridor Enhancement (RLRCE) Project revealed the lack of an inventory of erosion problems along the Red Lake River. If there is to be funding for the implementation of stream bank

stabilization projects, there will need to be a prioritization of the areas that need work. However, the Red Lake River Corridor Project has yet to be awarded any funding for the planned projects. So, it is up to the members of the RLRCE Joint Powers Group to accomplish what tasks they can. The RLWD has started working on the erosion assessment along the Red Lake River corridor. While participating in the Red Lake River Rendezvous Canoe trip, the RLWD Water Quality Coordinator photographed and collected GPS waypoints for erosion sites along four



of the 10 reaches that were paddled for the event. The data will be used to begin creating a catalog of the erosion sites along the Red Lake River Corridor and to assess each using a streambank erosion severity index. The assessment scores will be used for prioritizing sites. It is a first step, though, and we will have to further assess each site prior to planning a stabilization project (surveying, channel stability analysis, etc.).



Erosion Assessment Document contents:

- 1-2 pages per site
- Photo(s) of erosion site
- Aerial photo and map of the location of the site
- Visual assessment scoring and results
- Comments (Proximity to dwellings and infrastructure)

Example erosion site summary page.

Streambank Erosion Severity Index

Red Lake Falls Sportsman's Park Access Erosion Site

Site visits on 9-25-06, 1-24-07

OBSERVATION		SCORE
Condition of bank		5
Toe and upper bank eroding	5	x
Toe undercutting	3	
Toe stable, upper bank eroding	1	
Problem Trend		5
Increasing	5	x
Decreasing or stable	1	
Side-slope of bank		5
Vertical, 1:1	5	1:1
2:1, 3:1	2	
4:1 or flatter	1	
Length of eroded bank		3
More than 50 ft.	5	
20 to 50 ft.	3	x
Less than 20 ft.	1	
Depth of river		1
More than 3 ft.	2	
Less than 3 ft.	1	x
Soil type or texture		3
Sand	3	?
Gravel	2	
Stratified	2	
Clay, loam	1	
Vegetative Cover on bank slope		3
0-10%	5	
10-50%	3	x
50-100%	1	
Apparent cause of erosion		1.5
Light access traffic	1	x
Obstruction in river	1	
Bank seepage	1	
Gully by side channels	1	
Bend in river	2	x
Wave action (impoundments)	2	
Road-stream crossing;	3	
Moderate access traffic	3	
Heavy access (foot, horse, etc.)	5	
Mean height of eroded bank		3
More than 20 ft.	7	
10 to 20 ft.	5	
5 to 10 ft.	3	x
Less than 5 ft.	1	
Current		2
Fast	2	x
Slow	1	



Total Points for site	31.5	Moderate
0-30	Minor	30-36 Moderate
		>36 Severe

The site is of particular interest because of its visible location and it threatens the public access. Erosion begins at transition between tree-lined bank and mowed grass bank.

2007 Statewide Water Quality Assessment

In 2007, the Minnesota Pollution Control Agency has conducted another statewide assessment of Minnesota's surface waters. The results of this assessment will be used to create the 2008 303(d) List of Impaired Waters. The main parameters that are assessed in this process are factors that affect aquatic life (turbidity, dissolved oxygen, un-ionized ammonia, pH, and temperature) and aquatic recreation (fecal coliform and e-coli bacteria). Assessments of the conventional parameters of turbidity, dissolved oxygen, pH, and temperature are based on percentage, with minimum data requirements.

- If a monitoring site fails to meet standards for less than 10% of the time, it is considered to be fully supporting of aquatic life and not impaired.
- If the standard is not met for anywhere between 10% and 25% of the time, it is considered impaired and partially supporting of aquatic life.
- If the standard is not met for more than 25% of the time, the site is considered to be impaired and not supporting of aquatic life.

Other assessments are more complicated. Fecal coliform assessments involve calculating the geometric mean of aggregate data from the last ten years for each calendar month from April through October. Un-ionized ammonia assessment requires calculation of the percentage of total ammonia nitrogen data that is in the un-ionized form. The percentage is calculated using corresponding pH and temperature readings. All it takes to establish impairment by un-ionized ammonia is to find two or more exceedances of the .04 mg/L standard within a three year period. The methods used for these assessments are described in greater detail within the MPCA *Guidelines for Assessing Minnesota Waters* and the *Red River Watershed Water Quality Reporting Handbook*. This information is also available on the MPCA website.

The following tables list the existing impairments and whether or not they are supported by recent data. New impaired reaches have been highlighted. The RLWD Water Quality Coordinator participated in the data review and best professional judgment meetings during the assessment process. When the 2008 List of Impaired Waters is approved by the EPA, there will be 36 impairments on the list from within the RLWD. Fourteen of these impairments are new for the 2008 list. One lake, Cameron Lake, within the RLWD has been put on the List of Impaired waters as being impaired by excess concentrations of phosphorus.

Sites that appear to be fully supporting of aquatic life and recreation (good water quality):

- 50-O – Lost River – Outlet from Pine Lake
- 109 – Poplar River near the beginning of the Poplar River Diversion channel
- 780 – Clearwater River at the Plummer USGS gage
- 750 – Red Lake River at the Highlanding bridge (USGS gage site)
- 66 – Red Lake River at the 1st St. Bridge in Thief River Falls
- 86 – Gentilly Creek, at the CR11 crossing in Gentilly

Results of 2007 Assessment (Draft 2008 List of Impaired Waters)		
River	Reach	Impairment
Upper and Lower Red Lakes Watershed		
Blackduck River	South Cormorant R to North Cormorant R.	Low dissolved oxygen
New impairment on 2008 list. Based on River Watch Data		
Clearwater River Watershed		
Clearwater River	Headwaters to T148 R36W S36 East Line	Low dissolved oxygen
Current data supports this impairment and shows that the problem may be getting worse upstream of Bagley, but better at the RLWD monitoring site downstream of Bagley. High temperatures are frequent in this reach and may be having a negative impact on dissolved oxygen.		
Clearwater River	Ruffy Brook to Lost River	Fecal Coliform
The only exceedance of the fecal coliform standard since 1995 was in a sample collected by the Red Lake SWCD last year. So, current data does not show that this site for fecal coliform based on MPCA assessment methods. E. coli data, however, does show that the channelized portion of this reach is still impaired for aquatic recreation based on bacteria concentrations.		
Clearwater River	Ruffy Brook to Lost River	Low dissolved oxygen
RLWD monitoring has not found a problem since the year 2000 (prior to the Greenwood 27 project). The Red Lake SWCD has found some low dissolved oxygen readings during the warm summer months of July, August, and September, however.		
Clearwater River	Ruffy Brook to Lost River	Turbidity
New impairment on 2008 list. This impairment exists only within the channelized reach of the river.		
Clearwater River	Lost River to Beau Gerlot Creek	Turbidity
New impairment on 2008 list.		
Clearwater River	Lower Badger Creek to the Red Lake River	Turbidity
Current data supports this assessment, especially when data sets from other organizations are included in the assessment. RLWD data shows there has been an improvement since the last assessment, though. This may be because of lower flows in the past couple of years.		
County Ditch 57	Unnamed ditch to the Clearwater River	Low dissolved oxygen
This site will be part of the Clearwater River Dissolved Oxygen and Fecal Coliform TMDL Study. The impairment is based on Clearwater Nonpoint Study (1992-93) data.		
Lost River	T148 R38W S17 south line to Pine Lake	Low dissolved oxygen
The rate at which dissolved oxygen readings fail to meet the standard of 5 mg/L has decreased to less than 5%, an acceptable level according to MPCA standards. The frequency of low DO readings was much higher in the 1990's when a different method was used for this measurement.		
Lost River	Anderson Lake to Hill River	Fecal Coliform
Data from the monitoring site in Oklee caused the listing of this reach. It currently just barely qualifies as fully supporting of aquatic recreation. There are enough results with low readings to offset the frequent high concentration results at this site. Our relatively new monitoring site on the Lost River near Brooks and upstream of the confluence with the Hill River does not show impairment by high fecal coliform, even though there have been a few high readings since we began monitoring there. A site was monitored for the TMDL Study that was close to Anderson Lake at which there were no E. coli concentrations that exceeded the standard.		

Results of 2007 Assessment (Draft 2008 List of Impaired Waters)		
River	Reach	Impairment
Clearwater River Watershed (continued)		
Poplar River	Spring Lake to Hwy 59	Low dissolved oxygen
The last two years of data improved the assessment results for our monitoring site on this reach enough so that assessment of our data no longer shows impairment, even though we continue to get an occasional low DO reading during summer monitoring. 2007 monitoring for the TMDL Study has verified the impairment of this reach.		
Poplar River Diversion	Unnamed ditch to Badger Lake	Low dissolved oxygen
Current data continues to support this impairment, although there has been some improvement since the last assessment. There hasn't been a low reading during RLWD monitoring since early 2002. River Watch monitoring has found only one low reading since 2002.		
Poplar River Diversion	Badger Lake to Mitchell Lake	Low dissolved oxygen
Current RLWD and River Watch data shows that the rate at which this site fails to meet the dissolved oxygen standard is now <10%. Although some low readings have been found during summer monitoring by Win-E-Mac River Watch, the decrease in percentage is likely due to fewer winter samples being included in the assessment.		
Ruffy Brook	Headwaters to Clearwater R.	Fecal Coliform
New impairment on 2008 list. Site # 797 on Ruffy Brook shows an impairment. Supplemental fecal coliform monitoring by the RLWD in 2005 and 2006 built up a sufficient data set to complete an assessment. The monthly geomeans for May, June, July, and September exceeded the 200 col./100ml standard. Ruffy Brook is a former trout stream that has been harmed by removal of riparian vegetation for pasture lands and sedimentation from agricultural lands.		
Silver Creek	Headwaters to Anderson Lake	Fecal Coliform
Assessment of current <u>fecal coliform</u> data no longer shows an official impairment. 2007 <u>E. coli</u> sampling for the TMDL Study verified that the reach is impaired for aquatic recreation based on the E.coli standard.		
Unnamed Creek	Eighteen Lake to Bee Lake	Low dissolved oxygen
Win-E-Mac River Watch monitors this site for us now and continues to find low dissolved oxygen levels.		
Walker Brook	Walker Brook Lake to Clearwater River	Low dissolved oxygen
Current data support this impairment listing and the frequency of low dissolved oxygen readings has gotten worse since the 2005 assessment. The TMDLs on the Clearwater River study concluded that this impairment is naturally occurring because of the groundwater influence on the stream, low gradient, and the organic soils of the fens that line the stream corridor.		
Thief River Watershed		
Moose River	Headwaters to Thief Lake	Low dissolved oxygen
Current data still shows impairment, but also shows some improvement since the 2005 assessment.		
Mud River	Headwaters to Agassiz Pool	Low dissolved oxygen
New impairment on 2008 list that is based on Marshall County Water Plan data from the upper part of the reach (near Grygla). RLWD data from the Highway 89 site does not indicate impairment.		
Thief River	Agassiz Pool to Red Lake River	Low dissolved oxygen
Our data still supports this listing, but the percentage of low dissolved oxygen readings has decreased (improved) on both ends of the reach.		

Results of 2007 Assessment (Draft 2008 List of Impaired Waters)		
River	Reach	Impairment
Thief River Watershed (continued)		
Thief River	Agassiz Pool to Red Lake River	Turbidity
Although it is still high, the percentage of exceedances of the turbidity standard at this site has decreased since the 2005 assessment at the downstream end of the reach, but has increased (worsened) at the upstream end of the reach near the Agassiz NWR outlet.		
Thief River	Thief Lake to Agassiz Pool	Un-ionized Ammonia
This is only based on a couple of high readings that took place within a three year time period. The MPCA has decided to suspend assessment of this reach until it creates new tied aquatic use standards because much of the reach is channelized.		
Lower Red Lake River Watershed		
Black River	Headwaters to Little Black River	Turbidity
New impairment on 2008 list. Based on Pennington County SWCD Monitoring data.		
Black River	Headwaters to Little Black River	Low dissolved oxygen
New impairment on 2008 list. Based on Pennington County SWCD Monitoring data.		
Black River	Little Black River to Red Lake River	Turbidity
New impairment on 2008 list. RLWD turbidity and transparency readings, along with those from River Watch, should meet the data requirements for putting this site on the 303(d) List of Impaired Waters.		
Burnham Creek	Unnamed Creek to Red Lake River	Turbidity
New impairment on 2008 list. We did not have enough data points for a turbidity assessment in 2005, but we do now.		
Red Lake River	Black River to Gently River	Turbidity
New impairment on 2008 list.		
Red Lake River	Unnamed Creek to Red River	Turbidity
New impairment on 2008 list.		
Red Lake River	Gently River to Crookston Dam	Turbidity
New impairment on 2008 list.		
Red Lake River	Crookston Dam to Burnham Creek	Turbidity
New impairment on 2008 list. Nearly 1/2 of RLWD measurements of turbidity (NTRU) near the beginning of this reach exceed the 25 NTU standard.		
Red Lake River	Burnham Creek to Unnamed Creek (East Grand Forks)	Turbidity
Current data supports this impairment. RLWD data shows that the impairment should actually extend upstream to the Crookston USGS gage. River Watch and Red Lake County SWCD data shows that the impairment extends as far upstream as Red Lake Falls.		
Red Lake River	Unnamed Creek (East Grand Forks) to Red River	Turbidity
68% of RLWD turbidity readings at this site exceed the standard.		
Grand Marais Creek Watershed		
Grand Marais Creek	Headwaters to County Ditch 2	Low dissolved oxygen
RLWD data continues to support this listing and the results of 2007's assessment are worse than 2005's.		
Grand Marais Creek	Headwaters to County Ditch 2	Turbidity
More than half of our readings exceed the standard, but the percentage of high readings has decreased.		
Grand Marais Creek	Headwaters to County Ditch 2	pH
New impairment on 2008 list. This is a problem that has worsened since the 2005 assessment.		
Grand Marais Creek	County Ditch 2 to the Red River	Turbidity
This listing is based on Red River Basin Monitoring Network and River Watch data.		

The MPCA is changing the aquatic recreation (bacteria) standard from fecal coliform to E. coli. RLWD data shows a more frequent exceedance of the e-coli standard than we have had for fecal coliform at many sites. The E. coli standard is supposed to be based upon a correlation between e-coli and fecal coliform and is meant to offer protection equal to that of the fecal coliform standard. Based on RLWD data, the level of E. coli that correlates with the fecal coliform standard is much higher than the MPCA's new E. coli standard. So, the new E. coli standard will be more protective than the fecal coliform standard that it is replacing. There are a number of sites that are showing potential for future impairment based on the new E. coli standard, many of which are not impaired by fecal coliform. These include the Clearwater River (headwaters, trout stream reach, and channelized reach), Ruffy Brook, Lost River (above Pine Lake), Maple Lake outlet, Poplar River Diversion, Silver Creek, Poplar River, Hill River, Black River, Gentilly Creek, Red Lake River (in Crookston), Burnham Creek, Grand Marais Creek, Thief River, Mud River, and Moose River. We suspect that the E.coli levels are higher than expected because the E. coli test is a better test than the fecal coliform test. The laboratory method for E. coli testing counts organisms that may have been missed by the fecal coliform method.

Red River Basin Buffer Initiative

As an in-kind match contribution to the Red River Basin Buffer Initiative project, the Red Lake Watershed District (RLWD) has been monitoring water quality conditions in the Silver Creek watershed. Monthly samples have been collected since the fall of 2002. Monitoring will continue in upcoming years in order to reliably assess the impact of the buffer strip implementation project. Future trend analysis results will be included in a future semi-biennial RLWD Comprehensive Water Quality Report.

Field measurements for dissolved oxygen, temperature, specific conductivity, pH, and turbidity are collected during site visits. Samples are analyzed for total phosphorus, orthophosphorus, total suspended solids, fecal coliform, and E. coli (recently added to prepare for MPCA water quality standards rule change). Data collected for this project is submitted yearly along with other data collected by the RLWD to the MPCA for entry into the STORET database.

The water quality data collected for this project, combined with the RLWD long-term monitoring program data, have identified a fecal coliform impairment on Silver Creek. A TMDL Study is currently underway to verify this impairment and determine its source.

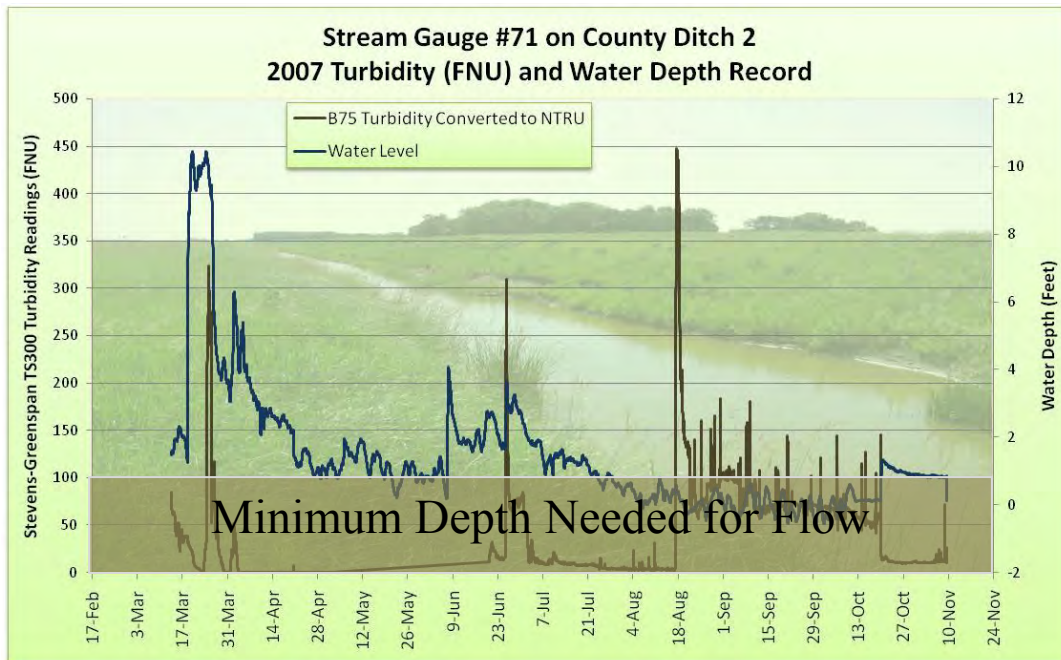
The RLWD has spent a total of \$5,901.47 on the project, which includes salaries, shipping, and analysis.

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. It involves 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.

The continuous turbidity and water level monitoring equipment has been installed on the Brandt Channel and County Ditch 2 this spring when runoff was just beginning. A routine of monthly cleaning and maintenance was conducted through the summer. The RLWD Water Quality Coordinator has been taking care of the continuous monitoring equipment and collecting field measurements of water quality. Danni Halvorson of the Red River Watershed Management Board

has been collecting total suspended solids data. As more data is collected, better correlations will be developed among the Stevens TS300 turbidity logger data, HACH 2100P portable turbidimeter readings, YSI turbidity probe readings, and total suspended solids concentrations. After transforming the TS300 turbidity logger data into different turbidity units, the data can be compared to the state water quality standard. When the turbidity logger data is transformed into a total suspended solids record and the stage data is transformed into a flow record (using rating curves that are still being developed), we will be able to calculate the mass of sediment carried by the ditch system past each site. When the impoundments go into operation, we will be able to compare “before” data with “after” data.



Education

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 has given presentations. The Water Quality Coordinator was also a judge at the Franklin Middle School 7th and 8th grade science fair in Thief River Falls. The Water Quality Coordinator also gave several presentations in 2007, including:

- January 10th – Thief River Watershed Sediment Investigation presentation at a Northwest Regional Sustainable Development Partnership meeting.
- February 14th – Thief River Water Quality presentation to the Marshall County Water Resources Advisory Committee
- February 15th – Tile Drainage Study presentation at the Moorhead Ag Drainage Workshop
- March 7th – “Using Standard Operating Procedures – in the Field” at the Red River Basin Water Quality Monitoring Training Session
- March 14th – Clearwater River Macroinvertebrate monitoring presentation at the International Water Conference
- March 21st – Clearwater River DO and Fecal Coliform TMDL Study Stakeholders” Meeting

- June 6th – Tile Drainage Study Presentation to Red River Basin Commission Tour participants
- April 24th – Water Quality Projects presentation to the RLWD Overall Advisory Committee

Other Notes and Plans for 2008

- ✓ The website continues to provide access to approved minutes and documents. Monthly water quality reports are now posted on the RLWD website.
- ✓ The Water Quality Coordinator has been writing monthly updates of RLWD water quality program progress for the RLWD Board of Managers. These reports are now available on the RLWD website.
- ✓ Continue flow monitoring for the tile drainage study.
- ✓ Continue water quality monitoring for the Thief River Watershed Sediment Investigation.
- ✓ Complete water quality monitoring, SWAT modeling, identification of BMPs, and report writing for the Clearwater River Dissolved Oxygen and Fecal Coliform TMDL Study.
- ✓ Complete a new revision of the Standard Operating Procedures for Water Quality Monitoring in the Red River Watershed.
- ✓ Complete the report for the Clearwater River Habitat and Bioassessment Project
- ✓ Complete a comprehensive water quality report for long-term monitoring data collected through 2007.
- ✓ Addition of long-term monitoring sites on Kripple Creek, Cyr Creek, and Lower Badger Creek through Surface Water Assessment Grant funding.

Other Watershed Activities

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

Wild Rice Water Allocation (RLWD Project #45)

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

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



Typical pumping station

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

Assisted by the 5 separate rice growing operators, District staff measured and calibrated approximately 35 pumps and estimated their pumping rates. Houston Engineering of Thief River Falls was hired to review the estimated flow rates and also help with estimating flows at a few pumps that have submerged outlets.



Measuring flow using Doppler method



Surveying water lift from river to pump



Measuring flow using manual method

[Stream Flow Monitoring \(RLWD Project #21\)](#)

Gary Lane, Loren Sanderson, James Blix, and Corey Hanson participated in a flow Measurement Training Seminar in Hawley that was conducted by Minnesota Pollution Control Agency staff. This was a refresher course on bridge board and wading techniques plus instruction on the use of AquaCalc computers. Also, we learned about new technology that makes readings more reliable (optical/magnetic and acoustic Doppler velocity meters).

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

[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.

During the winter of “06”– „07“ most of the watershed received only a small amount of snow through February 23rd. Additional snows were received in early March, but this did not affect the Spring runoff event and was not a major problem in the Watershed District. By March 26th the snow was gone and the runoff, for the most part, was over.



Establish base weight of empty sampling tube



Obtaining snow depth and core sample



Establishing weight of snow sample to obtain water content

Maintenance of Drainage Systems

This year’s ongoing inspection of the Red Lake Watershed Districts many miles of drainage ditches and numerous other projects was again a very busy function for the staff of the Red Lake Watershed District. Annual inspections were done to determine what type of maintenance work that needs to be performed, if any, to these ditch systems and projects to keep them in good working order. Again a helicopter was utilized for the spraying of most of our ditches and other projects because of accessibility and cost. Following is a listing by county, and project name and number, of the work that was done to these ditches and or projects in part or in whole in 2007.

Red Lake County

- **RLWD Ditch 3 (RLWD Project #7)**
Cattail spraying was done in all or parts of Sections 27, 28, 34, 35, and 36 in River Township, Red Lake County, for a total of 2.52 miles.



RLWD Ditch 7 (RLWD Project 20)

Cattail spraying was done in all or parts of Sections 19, 20, 21, 22, 23, 24, 26, 30, and 31 of Equality Township, Red Lake County. Spraying was also done in all or parts of Sections 19, 20, 21, and 22 of Johnson Township, Polk County for a total of 8.8 miles.

- **Equality/RLWD Ditch 1 Lateral C (RLWD Project #115)**
Spraying was done for cattails in all or parts of Section 1 of Chester Township, Polk County, and Sections 25 and 36 of Equality Township, Red Lake County, for a total of 2.66 miles.

Clearwater County

- **Winsor/Hangaard (RLWD Project 113)**
Cattail spraying was done in all or parts of Sections 3, 10, 14, and 15 of Winsor Township, for a total of 6.84 miles. The outlet of the Winsor Hangaard ditch (also known as Branch 11 of Judicial Ditch 72) had some unauthorized digging in it in the fall of 2006 that needed to be repaired, so 3 miles were surveyed (Br.11 JD 72) and it was found to have areas that had large amounts of sediment restricting the flow of water. Lunke Construction was hired to clean the bottom of the ditch back to the original grade. Spoil was then leveled, and the spoil, slopes, and all disturbed areas were then seeded back into grass.



- **Judicial Ditch 72 (RLWD Project #41)**
Spraying of cattails was done in all or parts of Sections 30, 31, and 32 of Hangaard Township, sections 6, 7, 18, 19, 20, 29, and 30 of Winsor Township, for a total of 7.28 miles.
- **Judicial Ditch 2A (RLWD Project 48)**
Cattail spraying was done in all or parts of Sections 29, 30, and 32 of Greenwood Township, for a total of 1 mile.
- **Judicial Ditch 2 B (RLWD Project #49)**
Cattail spraying was done in all or parts of Sections 25, and 36 of Winsor Township, and section 30 of Greenwood Township, for a total of 2.21 miles.

Polk County

- **Polk County Ditch Improvement (RLWD Project #119)**
Cattail spraying was done in all or parts of Section 25, Rome Township, Sections 30 and 31 Andover Township, Sections 1 and 12 Vineland Township, and Sections 4, 5, 6, 7, 8, and 9 of Hammond Township, for a total of 10.77 miles.
- **Polk County Ditch 107 (RLWD Project 53)**
Cattail spraying was done in all or parts of Sections 11 and 14 of Bygland Township, for a total of 1.19 miles.
- **Polk County Ditch 63 (RLWD Project #134)**
Cattail spraying was done in all or parts of Sections 9 and 10 of Andover Township, for a total of .76 mile.
- **Polk County Ditch 33 (RLWD Project #135)**
Cattail spraying was done in all or parts of Sections 13, 14, 15, and 16 of Fisher Township, and 17, and 18 of Lowell Township, for a total of 1.05 miles.
- **Jensen Petition (RLWD Project #106)**
This ditch was abandoned in May of 2007. The Red Lake Watershed received a petition for the abandonment of the Jensen Petition, RLWD Project #106, from The Nature Conservancy. A hearing was held on Wednesday, May 9, 2007 at 10:30 a.m. in the Youngquist Auditorium at the Ag Research Center on the University of Minnesota, Crookston Campus. The Red Lake Watershed District made their decision based on the facts presented at the hearing to abandon the aforementioned legal drainage system.
- **RLWD Ditch 8 (RLWD Project #36)**
Cattail spraying was done in all or part of Sections 22, 23 and 24 of Johnson Township, for a total of 2.86 miles.

Pennington County

- **Challenger Ditch (RLWD Project #122)**
Because of the location of this ditch Pennington County was hired to spray this ditch by ground. Approximately .32 miles of ditch was sprayed for cattails and small brush.
- **Clifford Arveson Ditch (RLWD Project #109)**
Cattail spraying was done in all or parts of sections 9 and 16 of Hickory Township, for a total of 1.98 miles.

Beltrami County

- **RLWD Ditch # 9 (RLWD Project #39)**
This ditch is only 1 mile long and is located in Section 35 of Benville Township. A local landowner was hired to mow the slopes for weed and brush control.
- **Moose River Impoundment (RLWD Project #13)**
Approximately 24.5 miles of the Moose River Impoundment was sprayed for the control of brush and trees, this included the north inlet ditch, north pool dike, south pool dike, middle dike, and one mile of the south outlet ditch.

Marshall County

- State Ditch #83 (RLWD Project #14)

With the nice weather and having very little snow and low water making for very good ice conditions and travel in the month of March, the Staff of the Red Lake Watershed District cut any trees that were leaning into or had fallen into the ditch and any snags or log jams that may have occurred within the channel over the past year. The cutting was started at the confluence of State Ditch 83 and the Thief River in Section 34 of Excel Township and continued upstream and ended at County Road 7 (Agassiz Bridge) located in Section 32 of East Valley Township.



Tree to be removed on State Ditch 83

Removing of sediment bars and slumped areas was again a top priority for The District in this ditch system this year. Inspection of State Ditch 83 was again conducted by a boat again this year because of lack of adequate access by roads or trails. We looked for areas that needed work and ways to access the area with as little destruction as possible. Lady luck was again on our side again this year, with most of the summer being dry and water levels being very low in the ditch it made for excellent working conditions again this year. Working with the landowners The District was able to spot clean 2.2 miles on the west side of State Ditch 83, removing sediment, slumps, and debris from up to 18 different sites.



Sediment Bars

The areas that were worked on this year was an area that was heavily wooded with a lot of nice oak and ash trees, these trees were salvaged by the landowners for firewood. An access trail was

first made on the top of the old spoil bank. This access road will now be maintained yearly and will be used for ditch inspections and any work that needs to be done. Areas to be worked on were then staked, cleared of trees and brush, and a bench was then cut for the backhoe to sit on.



Access Road



Downstream end of sediment bar



Upstream end of sediment bar

All of the access trails, slopes, bench, spoil, and other disturbed areas were seeded and then mulched to help prevent erosion and stabilize the banks.



Seeded and mulched



Seed is starting to grow

Legal Drainage Systems under jurisdiction of Red Lake Watershed District

The Red Lake Watershed District at present has jurisdiction of approximately 283 miles of legal drainage systems throughout the Watershed. The list of all the systems is shown below.

Ditch #	County	Length (mi.)
Red Lake River	Clearwater, Pennington	27.0
Clearwater River	Clearwater, Polk, Pennington, Red Lake	48.0
Lost River	Clearwater, Polk, Red Lake	43.3
RLWD Ditch #9	Beltrami	1.0
State Ditch #83	Pennington, 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 #2B	Clearwater	5.6
Judicial Ditch #4	Clearwater	3.6
Judicial Ditch #5	Clearwater	2.75
County Ditch #1	Clearwater	5.5
Winsor-Hangaard	Clearwater, Polk	13.9
Judicial Ditch #72	Clearwater, Polk	16.0
RLWD Ditch #8	Polk	2.0
RLWD Ditch #11	Polk	6.5
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
Jensen Petition	Polk	5.5
Kenneth Johnson Petition	Polk	2.75
Scott Baatz Petition	Polk	<u>1.5</u>
Total Miles of Ditches		282.63

Projections for 2008

The activities of the District are expected to continue in 2008 much as they did in 2007. It is expected that the wetland mitigation sites will be completed on Euclid East Impoundment and Brandt Impoundment in early summer of 2008. The District will also continue with the ring dike agreements, Moose River Impoundment Inspection, ditch maintenance and complete the petition process for the Improvement Polk County Ditch #53 (RLWD Ditch #12) with the hopes of fall construction.

In August of 2007, a public hearing was held concerning the proposed 2008 General Fund budget. Notice of the hearing and the proposed budget was published as required by state statutes. The General Fund budget was adopted and the levies were set for 2008. The General Fund levy was set at \$181,869.

Financial Report

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, 2007. 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 \$8,769,706 (Net assets). Of this amount, \$2,006,674 (unrestricted net assets) may be used to meet the government's ongoing designations and fiscal policies.
- The District's total net assets increased by \$1,394,172.
- As of the close of the current fiscal year, Red Lake Watershed District's governmental funds reported combined ending fund balance was \$2,006,674. 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 \$351,669 of which all was unrestricted.
- The District had debt outstanding of \$77,252 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.

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 11 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 \$8,769,706 by the close of the most recent fiscal year, which is an increase of \$1,394,172 over the prior year; more than a 19% increase over the prior year.

A portion of Red Lake Watershed District’s net assets (\$6,763,032 or 77%) reflects its investment in capital assets less any related debt to acquire those assets that are still outstanding. Red Lake Watershed District uses these capital assets to provide services to citizens; consequently, these are not available for future spending. Although Red Lake Watershed District’s investment in its capital assets is reported net of related debt, it should be noted that the resources needed to repay this debt must be provided from other sources, since the capital assets themselves cannot be used to liquidate these liabilities.

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

	<u>2007</u>	<u>2006</u>
ASSETS		
Total current assets	\$ 2,006,674	\$ 2,050,255
Net capital assets	<u>6,840,284</u>	<u>5,433,432</u>
TOTAL ASSETS	<u>\$ 8,846,958</u>	<u>\$ 7,483,687</u>
LIABILITIES		
Notes payable	<u>\$ 77,252</u>	<u>\$ 108,153</u>
NET ASSETS	<u>\$ 8,769,706</u>	<u>\$ 7,375,534</u>

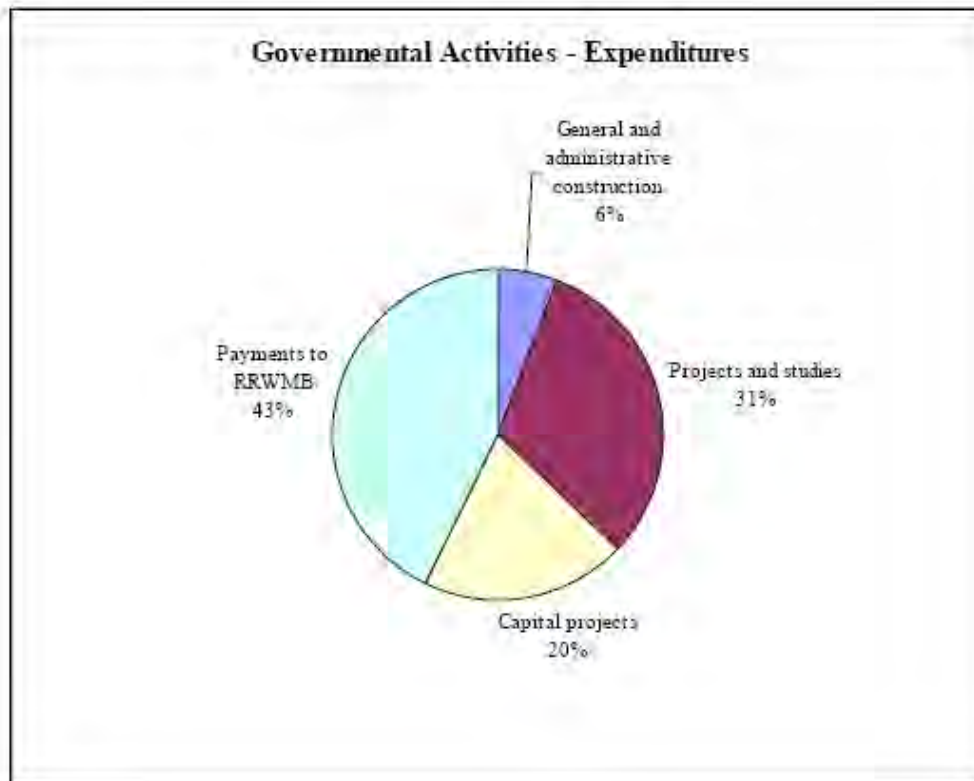
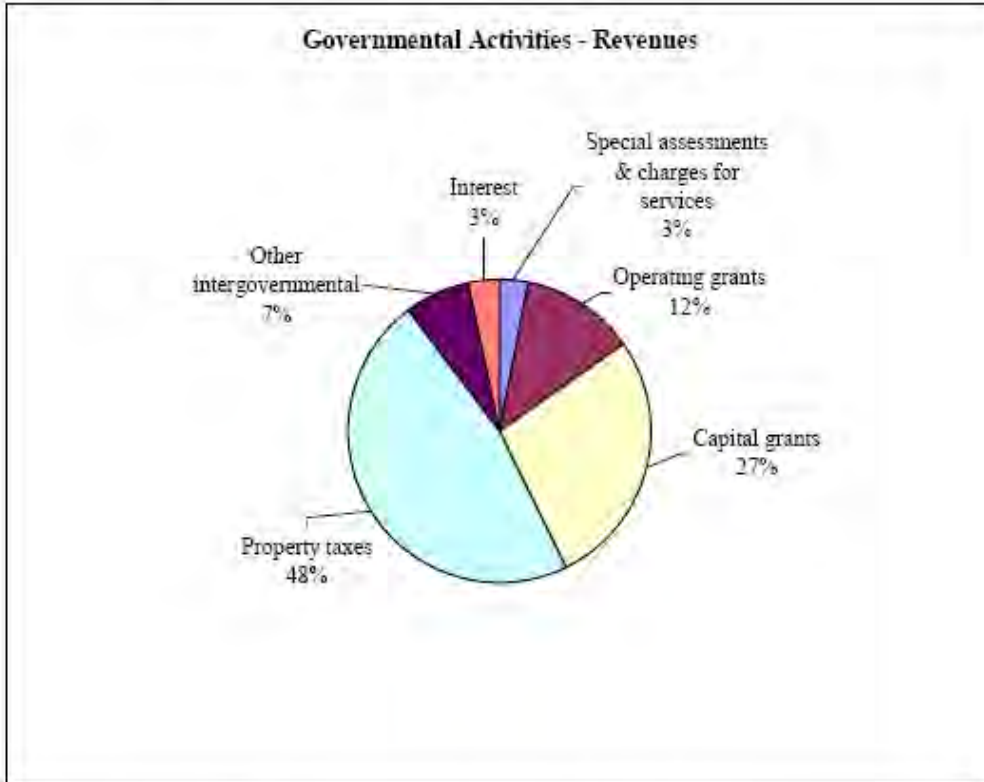
At the end of 2007 and 2006, the Red Lake Watershed District is able to report positive balances in net assets.

**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 2006 to the fiscal year 2007 in the amount of \$1,394,172. The details of the increase are as follows:

	<u>2007</u>	<u>2006</u>
REVENUES		
Special assessments and charges for services	\$ 94,373	\$ 507,217
Operating grants	393,959	4,651,768
Capital grants	872,976	6,011
General revenues:		
Property taxes	1,495,772	1,323,068
Other intergovernmental	213,250	180,370
Interest	109,508	106,150
TOTAL REVENUES	<u>3,179,838</u>	<u>6,774,584</u>
EXPENSES		
General and administration		
construction	102,681	184,303
Ongoing projects and studies	561,614	557,767
Capital projects	356,159	655,308
Payments to RRWMB	765,212	669,066
TOTAL EXPENSES	<u>1,785,666</u>	<u>2,066,444</u>
CHANGE IN NET ASSETS	<u>\$ 1,394,172</u>	<u>\$ 4,708,140</u>

Below are specific graphs which provide comparisons of the governmental activities revenues and expenditures for the year ended December 31, 2007:



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 \$2,006,674. The total fund balance can be attributed to 1) General Fund, \$351,669; 2) Capital Projects Fund, \$1,541,793; as well as the Special Revenue Fund with fund balance of \$113,212.

The general fund increased by \$32,818 in 2007, which was due to a slightly higher net increases in general revenues over expenses than was originally expected in the budget.

Budgetary Highlights

General Fund. The General Fund exceeded budgeted revenues and had expenditures below the budgeted amounts for the year ended December 31, 2007.

Capital Asset and Debt Administration

Capital assets. Red Lake Watershed District's investment in capital assets for its governmental activities as of December 31, 2007, amounts to \$6,840,284 (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)**

	<u>Cost</u>	<u>Depreciation</u>	<u>Depreciation</u>	<u>Depreciation</u>
Building and improvements	\$ 705,377	\$ 16,352	\$ 689,025	\$ 56,254
Engineering equipment	349,931	214,569	135,362	127,981
Office equipment	77,541	32,035	45,506	8,645
Land & Permanent Easements	1,189,017	-	1,189,017	-
Construction in progress	4,781,374	-	4,781,374	5,240,552
Total	\$ 7,103,240	\$ 262,956	\$ 6,840,284	\$ 5,433,432

Long-term debt. In December 31, 2007 the District had \$77,252 in long-term debt arising from modified cash basis transactions compared to \$108,153 at December 31, 2006.

Other Items of Interest. In the fiscal year 2007 the Red Lake Watershed District had considerable construction costs incurred for the construction of a Flood Damage Reduction Project commonly referred to as Brandt and Euclid East Impoundments. Although these projects were substantially completed in 2007, there will be some additional costs in 2008 on the Brandt Impoundment for the completion of the wetland mitigation site. This project is being funded by a cost share agreement between the State of Minnesota, Red River Watershed Management Board, and the Red Lake Watershed District. The estimated cost of this project is \$5.7 million with a cost share of 50% from the State of Minnesota, 37.5% cost share from the Red River Watershed Management Board and 12.5% from the Red Lake Watershed District.

In 2007 the District also completed the construction for the Improvements of Polk County Ditch #11 which totaled \$802,534.65 for construction and administration. This project was financed through Special Revenue Funding. The District has received two more ditch petition which calls for the improvement to and establishment of a lateral to Polk County Ditch #53. We will be developing this project in 2008 and 2009.

The Red Lake Watershed District's new office facility was completed in early summer of 2007. The total construction cost was \$646,761.29 with the costs to be allocated from the Red Lake Watershed District General Fund Budget over the next several years. The new mailing and physical address of the Red Lake Watershed District is 1000 Pennington Avenue South, Thief River Falls, MN 56701.

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, 2007

ASSETS

Current Assets:

Petty cash	\$ 100
Pooled cash and investments	<u>2,006,574</u>
Total Current Assets	<u>2,006,674</u>

Capital Assets:

Property and equipment	7,103,240
Less: accumulated depreciation	<u>(262,956)</u>
Net Capital Assets	<u>6,840,284</u>

TOTAL ASSETS	<u>8,846,958</u>
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LIABILITIES

Current portion of loan payable	<u>30,901</u>
State loan payable, net of current portion	<u>46,351</u>
TOTAL LIABILITIES	<u>77,252</u>

NET ASSETS

Investment in capital assets, net of related debt	6,763,032
Unrestricted	<u>2,006,674</u>
TOTAL NET ASSETS	<u>\$ 8,769,706</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, 2007

	Expenses			Program Revenues			Net (Expenses) Revenues and Changes in Net Assets
	Direct	Allocated Salaries & Overhead	Total	Special Assessments and Charges for Services	Operating Grants and Contributions	Capital Grants and Contributions	
FUNCTION/PROGRAMS							
General and administrative construction	\$ (566,636)	\$ 396,446	\$ (170,190)	\$ 987	\$ -	\$ -	\$ (169,203)
Ongoing projects and studies	(501,126)	(60,488)	(561,614)	79,431	35,744	864,750	418,311
Capital projects	47,308	(335,958)	(288,650)	13,955	358,215	8,226	91,746
Payments to RRWMB	(765,212)	-	(765,212)	-	-	-	(765,212)
Allocated interest	(37,504)	-	(37,504)	-	-	-	(37,504)
Total Governmental Activities	\$ (1,823,170)	\$ -	\$ (1,823,170)	\$ 94,373	\$ 393,959	\$ 872,976	(461,862)
General Revenues:							
Tax levies							1,495,772
Intergovernmental, (not restricted to specific programs)							213,250
State MV and disparity reduction credits							147,012
Allocated interest							1,856,034
Total General Revenue							1,394,172
Changes in Net Assets							7,375,534
Net Assets - Beginning							\$ 8,769,706
Net Assets - Ending							\$ 8,769,706

RED LAKE WATERSHED DISTRICT
THIEF RIVER FALLS, MINNESOTA
BALANCE SHEET - MODIFIED CASH BASIS
GOVERNMENTAL FUNDS
DECEMBER 31, 2007

11

	<u>General</u>	<u>Special Revenue Fund</u>	<u>Capital Project Fund</u>	<u>Total</u>
ASSETS				
Petty cash	\$ 100	\$ -	\$ -	\$ 100
Pooled cash and investments	351,569	113,212	1,541,793	2,006,574
Due from other funds	<u>-</u>	<u>-</u>	<u>240,193</u>	<u>240,193</u>
TOTAL ASSETS	<u>\$ 351,669</u>	<u>\$ 113,212</u>	<u>\$ 1,781,986</u>	<u>\$ 2,246,867</u>
LIABILITIES				
Due to other funds	<u>\$ 240,193</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ 240,193</u>
TOTAL LIABILITIES	<u>240,193</u>	<u>-</u>	<u>-</u>	<u>240,193</u>
FUND BALANCE				
Unrestricted	<u>111,476</u>	<u>113,212</u>	<u>1,781,986</u>	<u>2,006,674</u>
TOTAL LIABILITIES AND FUND BALANCE	<u>\$ 351,669</u>	<u>\$ 113,212</u>	<u>\$ 1,781,986</u>	<u>\$ 2,246,867</u>

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

Total fund balance per Balance Sheet, from above \$ 2,006,674

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

Cost of capital assets	7,103,240
Accumulated depreciation	(262,956)

Some liabilities, including long-term notes payable, are not due and payable in the current period and therefore are not reported in the funds. (77,252)

Total Net Assets \$ 8,769,706

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, 2007

	General	Special Revenue Fund	Capital Project Fund	Total
REVENUES				
Tax levies	\$ 178,598	\$ -	\$ 1,317,174	\$ 1,495,772
Intergovernmental				
State	-	34,746	523,530	558,276
Local	-	865,748	56,161	921,909
Special assessments	-	72,608	-	72,608
Miscellaneous	987	6,823	13,955	21,765
Allocated interest	29,228	12,646	105,138	147,012
Total Revenues	<u>208,813</u>	<u>992,571</u>	<u>2,015,958</u>	<u>3,217,342</u>
EXPENDITURES				
General and administrative construction	774,457	-	-	774,457
Ongoing projects and studies	-	561,614	-	561,614
Capital projects	-	-	1,091,235	1,091,235
Payments to RRWMB	-	-	765,212	765,212
Loan principal payments	-	-	30,901	30,901
Allocated interest	9,876	9,860	17,768	37,504
Total Expenditures	<u>784,333</u>	<u>571,474</u>	<u>1,905,116</u>	<u>3,260,923</u>
Revenues Over (Under) Expenditures	(575,520)	421,097	110,842	(43,581)
OTHER FINANCING SOURCES (USES)				
Transfers in	490,849	17,530	548,825	1,057,204
Transfers out	(490,849)	(16,742)	(549,613)	(1,057,204)
Net Other Sources (Uses)	<u>-</u>	<u>788</u>	<u>(788)</u>	<u>-</u>
Revenues & Other Sources Over (Under) Expenditures & Other Uses	(575,520)	421,885	110,054	(43,581)
Fund Balance (Deficit), January 1	<u>686,996</u>	<u>(308,673)</u>	<u>1,671,932</u>	<u>2,050,255</u>
Fund Balance (Deficit), December 31	<u>\$ 111,476</u>	<u>\$ 113,212</u>	<u>\$ 1,781,986</u>	<u>\$ 2,006,674</u>

See accompanying notes to the basic financial statements.

RED LAKE WATERSHED DISTRICT

13

THIEF RIVER FALLS, MINNESOTA

RECONCILIATION OF CHANGE IN FUND BALANCES OF GOVERNMENTAL FUNDS

TO THE STATEMENT OF ACTIVITIES

FOR THE YEAR ENDED DECEMBER 31, 2007

Net Change in Fund Balances - Total Governmental Funds	\$ (43,581)
Governmental funds report capital outlay as expenditures, while governmental activities report depreciation expense allocating those expenditures over the life of the asset:	
Capital additions	1,479,657
Depreciation expense	(62,023)
Loss on disposal of assets	(10,782)
Repayment of debt principal is an expenditure in the governmental funds, but the repayment reduces the long-term note payable in the Statement of Activities	<u>30,901</u>
Change in Net Assets - Governmental Activities	<u>\$ 1,394,172</u>

See accompanying notes to the basic financial statements.

NOTE 3. INTERFUND BALANCES

The following reconciles interfund receivables and payables as of December 31, 2007:

<u>Advances from/Advances to</u>	<u>Receivables</u>	<u>Payables</u>
Capital Projects Fund	\$ 240,193	\$ -
General Fund	<u>-</u>	<u>240,193</u>
	<u>\$ 240,193</u>	<u>\$ 240,193</u>

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

NOTE 4. CAPITAL ASSET

Capital assets activity resulting from modified cash basis transactions for the year ended December 31, 2007, was as follows:

	<u>Beginning Balance</u>	<u>Additions</u>	<u>Deletions</u>	<u>Ending Balance</u>
<u>Capital Assets</u>				
Building and Improvements	\$ 129,560	\$ 575,817	\$ -	\$ 705,377
Engineering equipment	319,885	48,610	18,564	349,931
Office equipment	45,371	43,022	10,852	77,541
Land & Permanent Easements	-	1,189,017	-	1,189,017
Construction in progress	<u>5,240,552</u>	<u>812,208</u>	<u>1,271,386</u>	<u>4,781,374</u>
Total	<u>\$ 5,735,368</u>	<u>\$ 2,668,674</u>	<u>\$ 1,300,802</u>	<u>\$ 7,103,240</u>
	<u>Beginning Balance</u>	<u>Additions</u>	<u>Deletions</u>	<u>Ending Balance</u>
<u>Accumulated Depreciation</u>				
Building and Improvements	\$ 73,306	\$ 15,176	\$ 72,130	\$ 16,352
Engineering equipment	191,904	41,229	18,564	214,569
Office equipment	<u>36,726</u>	<u>5,618</u>	<u>10,309</u>	<u>32,035</u>
Total	<u>301,936</u>	<u>62,023</u>	<u>101,003</u>	<u>262,956</u>
Net Capital Assets	<u>\$ 5,433,432</u>	<u>\$ 2,606,651</u>	<u>\$ 1,199,799</u>	<u>\$ 6,840,284</u>

Depreciation expense of \$62,023 for the year ended December 31, 2007 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>Maturity</u>	<u>Amount Outstanding</u>	<u>Current Portion</u>
MN Clean Water Partnership Project Implementation Loan	\$ 309,009	General Obligation	0.0%	6/15/2010	\$ 77,252	\$ 30,901

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	\$ 108,153	\$ -	\$ 30,901	\$ 77,252

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

<u>Year</u>	<u>Principal</u>
2008	30,901
2009	30,901
2010	15,450
Total	\$ 77,252

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 2007 were \$396,446.

**RED LAKE WATERSHED DISTRICT
THIEF RIVER FALLS, MINNESOTA
SCHEDULE OF CHANGES IN FUND BALANCES - MODIFIED CASH BASIS
FOR THE YEAR ENDED DECEMBER 31, 2007**

	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)	
GENERAL FUND	\$ 686,996	\$ 987	\$ -	\$ 29,228	\$ 178,598	\$ 1,170,903	\$ 9,876	\$ (396,446)	\$ -	\$ -	\$ 111,476
SPECIAL REVENUE FUND JOBS:											
Branch A & I, J.D.#2	6,898	57	-	367	-	49	-	156	-	-	7,117
Burlham Creek channel	16,310	1	-	750	-	8,490	-	1,704	-	-	6,867
Clearwater County ditch #1	958	-	-	51	-	-	-	-	-	-	1,009
Clearwater County joint ditch #1	(207)	-	-	-	-	-	-	-	-	-	(218)
Clearwater County joint ditch #4	1,093	-	-	58	-	-	-	11	-	-	1,151
Clearwater County joint ditch #5	1,413	14	-	77	-	-	-	-	-	-	1,504
Clearwater River project	24,962	-	-	1,315	-	-	-	389	-	-	25,888
Clearwater/Wild Rice River	6,242	-	-	1	-	2,133	-	11,974	-	-	(7,946)
Clifford Arverson ditch	4,065	-	-	206	-	524	-	115	-	-	3,632
Equality RLWD ditch #1, 1st C	3,271	-	-	156	-	704	-	990	-	-	1,733
J.D. ditch #72	(2,907)	12,173	-	104	-	1,685	-	3,863	-	(97)	1,131
Jensen petition	5,541	-	-	237	-	1,341	-	788	-	-	3,052
K. Johnsen petition	4,924	-	-	76	-	316	-	156	-	-	1,675
Krostue petition	1,058	1,013	-	1,152	-	-	-	-	-	-	1,675
Lost River project	21,525	26	-	-	-	-	-	-	-	-	22,703
Main J.D. #2 and branch B & C	(21,171)	3,423	-	9	-	1,790	-	741	-	-	(21,404)
Main J.D. X, ECK	(131)	940	-	-	-	-	-	-	-	-	818
Pine Lake maintenance	482	517	-	-	-	51	-	3,088	-	-	(2,155)
Polk City ditch #19 petition	(10,367)	-	-	-	-	68	-	245	885	-	-
Polk City ditch #33 improvement	7,508	3,000	-	10,000	-	373	-	1,267	-	-	9,286
Polk City ditch #63 improvement	(37,879)	11,878	-	419	-	203	-	1,080	-	-	(29,053)
Polk City ditch #'s 104, 61, 47, 94	5,403	-	-	213	-	2,855	-	1,561	-	-	1,200
Red Lake River project	60,981	-	-	3,259	-	-	-	-	-	-	64,240
RLWD ditch #1	19,477	-	-	1,029	-	692	-	1,146	-	-	18,668
RLWD ditch #3	15,301	-	-	803	-	669	-	228	-	-	15,207
RLWD ditch #7	14,780	84	-	744	-	2,333	-	828	-	-	12,447
RLWD Ditch #8	-	-	-	-	-	-	-	-	-	-	(949)
RLWD Ditch #9	3,855	-	-	200	-	150	-	246	-	-	3,659
RLWD Ditch #10	(14,486)	-	-	998	-	390	-	388	-	(16,645)	(31,702)
RLWD Ditch #11	(428,792)	(5,000)	-	854,750	-	364,961	-	7,573	-	-	44,993
RLWD Ditch #12	-	-	-	-	-	42,367	-	725	-	-	(46,801)
Scott Beatz petition	3,752	-	-	178	-	2,858	-	571	-	-	501
State ditch #83	8,864	33,984	-	1,148	-	47,896	-	11,331	-	-	16,769
Thief River Falls drainage ditch	1,717	498	-	94	-	-	-	33	-	-	2,276
Tynsid Township erosion Winsor/Hangard/Clearwater	(11,000)	11,823	-	-	-	396	-	217	-	-	-
County petition	(3,653)	5,000	-	-	-	12,419	-	2,545	-	-	(14,086)
2006 FEMA - RLWD DT. 10	(18,460)	-	-	2,746	-	-	-	23	-	16,645	-
Total Special Revenue	(308,673)	79,431	900,494	12,646	-	501,126	9,860	60,488	788	113,212	

RED LAKE WATERSHED DISTRICT
THIRF 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:										
Administrative construction	1,568,681	-	213,250	97,789	1,317,174	765,212	5,125	-	(549,613)	1,876,944
Badger Creek / Poplar River	6,681	-	-	357	-	-	-	-	-	7,038
Bench Marks	-	-	-	-	-	-	123	3,506	3,629	-
Black River project	-	-	-	-	-	-	1	172	173	-
Bumham Creek	-	-	-	-	-	-	2	148	150	-
BWSR flood storage pilot project	-	-	-	-	260	260	9	57	326	-
Clearwater conservation	-	-	-	-	4,612	4,612	248	-	4,860	-
Clearwater FDR PJT	-	-	-	-	-	-	-	-	-	-
Clearwater nonpoint	-	-	-	-	30,901	30,901	692	-	31,593	-
Clearwater public education	-	-	-	1	10,687	10,687	1,015	26,412	38,113	-
Clearwater River - habitat	-	-	-	-	1,200	1,200	84	1,383	2,867	-
Clearwater River TMDLS	-	-	-	-	-	-	-	-	-	-
Clearwater River DISOXY TMDL	(170)	-	20,820	-	-	10,410	326	16,917	-	(7,003)
Clearwater stream water	-	-	-	-	-	-	-	-	-	-
Culvert Sizing	-	-	-	-	-	-	-	3,910	4,039	-
Ditch 66 WQ Study	-	-	-	-	84	84	6	548	-	(638)
Elm Lake	-	-	-	-	-	-	56	2,035	2,091	-
Emergency maintenance	92,708	-	-	4,955	-	-	-	-	-	97,663
Erosion control PJTS	-	-	-	-	-	25,820	564	1,485	27,869	-
Farm to stream water quality	1,828	-	-	-	-	1,087	182	6,292	5,733	-
Flood control studies	-	-	-	-	-	139	383	9,354	9,876	-
G.I.S.	-	-	-	-	-	65	555	16,317	16,937	-
Glacial ridge	8,020	-	14,000	492	-	7,431	-	720	-	14,361
Grand Marais - Euclid East	(34,318)	1,823	87,221	1,544	-	103,395	-	16,076	12,473	(52,272)
Grand Marais - Challenge	22,749	600	-	-	-	86,935	-	8,801	50,000	(20,843)
Grand Marais - Restoration	-	-	15,000	-	-	24,278	-	5,540	-	(14,818)
Grand Marais - Basndt	(1,414)	473	113,111	-	-	233,318	-	16,615	34,214	(103,549)
Grand Marais Creek Subwatershed	(8,540)	-	12,715	-	-	1,650	78	3,961	-	(1,514)
Hydrologic analysis	-	-	-	-	1,587	1,587	474	10,694	12,755	-
Lost River impoundment	-	-	-	-	-	-	31	1,148	1,179	-
Louisville/Parnell project	-	-	-	-	-	1,690	43	396	2,129	-
Maintenance dams	-	1,307	-	-	-	49,748	471	3,590	52,502	-
Moose River project	-	-	-	-	-	9,093	194	4,822	14,109	-
North Parnell skrage site	-	-	-	-	-	130	3	-	133	-
Parnell impoundment	-	3,900	-	-	-	8,991	221	3,347	8,659	-

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

	Fund Balance (Deficit) January 1	Revenues			Expenditures			Transfers		Fund Balance (Deficit) December 31
		Assessments and Other 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	-	-	-	-	-	3,960	1,650	58,305	63,915	-
Red Lake Res. Good Lake	-	-	-	-	15,147	392	9,665	25,204	-	-
Red River buffer strip	-	-	-	-	172	7	195	374	-	-
Red River Corridor	-	-	-	-	21	59	1,281	1,661	-	-
Ring dike program - General	(197)	-	2,702	-	-	-	-	4,057	989	(563)
Amundson	(41)	-	2,465	-	-	2,870	-	396	408	(434)
Cwikla	(1,623)	-	1,623	-	-	-	-	-	-	-
Litchenberg	-	-	1,275	-	-	1,072	-	1,014	261	(550)
R. Stengl	(288)	-	108	-	-	-	-	144	36	(288)
Schauer	(232)	5,852	35,009	-	41,949	-	4,275	4,275	5,582	(13)
Swanson	(149)	-	541	-	802	-	1,074	1,074	35	(1,449)
RRWMB - 1 mil	-	-	-	-	-	-	-	-	-	-
RRWMB protocol grant	-	-	-	-	24	219	5,232	5,775	-	-
Stream gauging	-	-	-	-	12,029	1,086	19,331	32,446	-	-
TR WS Sediment Inves	(339)	-	57,900	-	44,351	1,001	16,433	-	-	(4,224)
WSDitch System Inventory & Mapping	(1,627)	-	-	-	2,811	648	12,773	17,860	1	1
Water Quality	-	-	-	-	24,389	1,563	30,824	56,776	-	(5,863)
Web Page Development	-	-	-	-	-	31	5,832	-	-	-
Wetland Banking	-	-	-	-	-	-	-	-	-	-
2006 FEMA - Shirrick	20,203	-	1,951	-	23,070	97	81	1,094	-	-
Total Capital Projects	1,671,932	13,955	579,691	105,138	1,317,174	1,551,390	17,768	335,958	(788)	1,781,986
Total - All Funds	\$ 2,050,255	\$ 94,373	\$ 1,480,185	\$ 147,012	\$ 1,496,772	\$ 3,223,419	\$ 37,504	\$ -	\$ -	\$ 2,006,674

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, 2007 AND 2006

	2007	2006
<u>DIRECT EXPENDITURES:</u>		
Salaries -		
Inspection	\$ 10,789	\$ 37,267
Survey - preliminary	6,009	6,302
Survey - construction	1,659	4,611
Reducing field notes	516	53
Drafting	7,929	2,552
Engineering	48,026	28,127
Project administration	169,730	163,427
Field work -water programs	20,057	14,886
Other	34,662	34,962
Compensated absences	28,288	24,400
Payroll taxes and benefits	88,143	80,708
Manager's expenses	15,379	17,291
Travel, mileage, meetings and per diems	4,413	2,891
Audit	5,985	5,980
Legal	20,480	32,160
Appraisal and viewers	300	6,186
Other professional fees	30,145	50,004
Office supplies	15,062	12,458
Office equipment	41,632	1,884
Dues & subscriptions	2,253	2,221
Insurance and bonds	22,316	24,020
Rent	1,705	1,210
Repairs and maintenance	14,784	4,690
Utilities	8,103	6,135
Telephone	10,061	9,878
Advertising and publications	7,140	25,011
Truck expense	15,080	14,433
Red River Watershed Management Board	765,212	669,066
Cost share assistance	4,612	4,612
Land acquisition and easements	25,563	709,379
Construction	1,495,310	4,116,221
Engineering costs & fees	14,935	4,492
Engineering fees	199,326	393,651
Engineering equipment	48,610	44,300
Glacial Ridge	7,153	109,672
Abandonment of Project 106	1,151	-
Loan payments	30,901	30,901
	\$ 3,223,419	\$ 6,696,041
Total Expenditures	\$ 3,223,419	\$ 6,696,041